

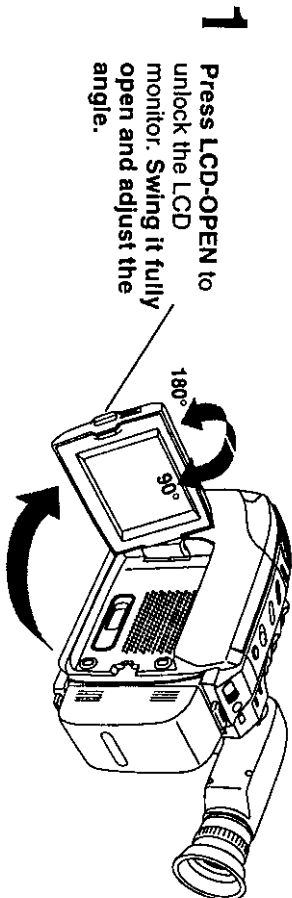
Spanish Quick Use Guide/Guía Para Uso Rápido

Before you begin...

- Connect Camcorder to power source (Battery Pack or AC Adaptor).
- Insert cassette with record tab.

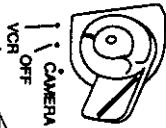
Playback using the LCD Monitor

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

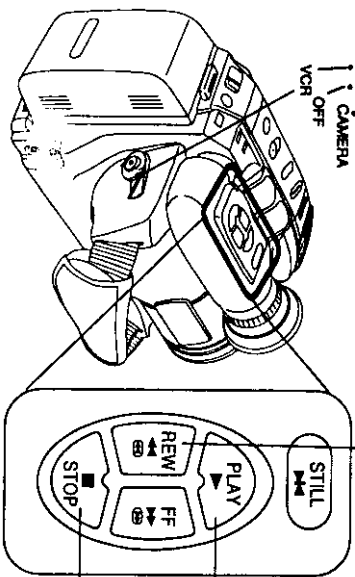


- 1 Press LCD-OPEN to unlock the LCD monitor. Swing it fully open and adjust the angle.

- 2 Set POWER to VCR.



- 3 Press REWIND/SEARCH to rewind tape.



- 4 Press PLAY to start playback.

- 5 Press STOP to stop playback.

Reproduccion con efectos especiales

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

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

Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc. ("PSC")
Ave. 65 de Infantería, Km. 9.5 San Gabriel Industrial Park Carolina, Puerto Rico 00985



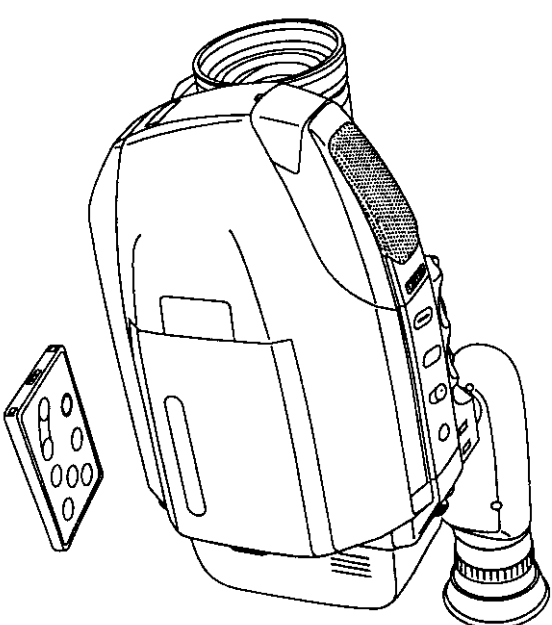
Panasonic®

Palmcorder® PalmSight™

Camcorder

Operating Instructions

EXHIBIT # 6
FIG. NO. 6
FCC ID: ACT540039
MODEL NO. PV-LS559D
OUR REF.: M538-1019



VHS®

PV-L559

For assistance, call 1-800-211-PANA(7262).
Please read these instructions carefully before attempting to operate this product.
Please save this manual.
Guía para rápida consulta en español está incluida.

Things You Should Know

Thank you for choosing Panasonic!

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

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

Unpack your Camcorder

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

- | | | | |
|--------------------------|------------------------------|---|---|
| 1 pc. AC Adaptor (PV-P1) | 1 pc. Battery Pack (PV-BP18) | 1 pc. Audio/Video Cable (VJAW0039) (pages 29, 31) | 1 pc. VHS PlayPak (PV-P1/VYMW0009) and one "AA" battery (page 30) |
|--------------------------|------------------------------|---|---|



- | | |
|--|--|
| 1 pc. Remote Control Holder (VGQ6893) (pages 14, 26) | 1 pc. 8-Function Remote (VSQW0038) with one CR2025 Battery |
|--|--|



Remote has been loaded with battery. (page 50)

- | |
|--|
| CR2025 Clock Battery (V0004) (included in Camcorder) (page 50) |
|--|



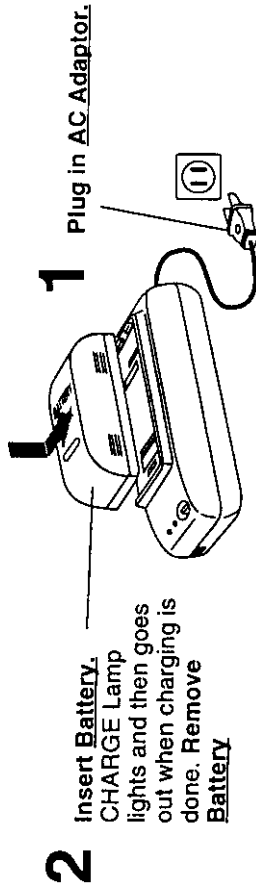
Spanish Quick Use Guide/Guía Para Uso Rápido

Before you begin...

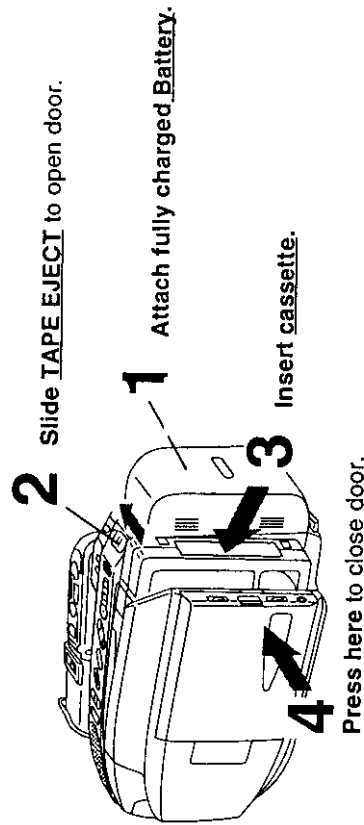
- Insert cassette with record tab.

Charge the Battery Pack

Charge Battery Pack fully before operation.

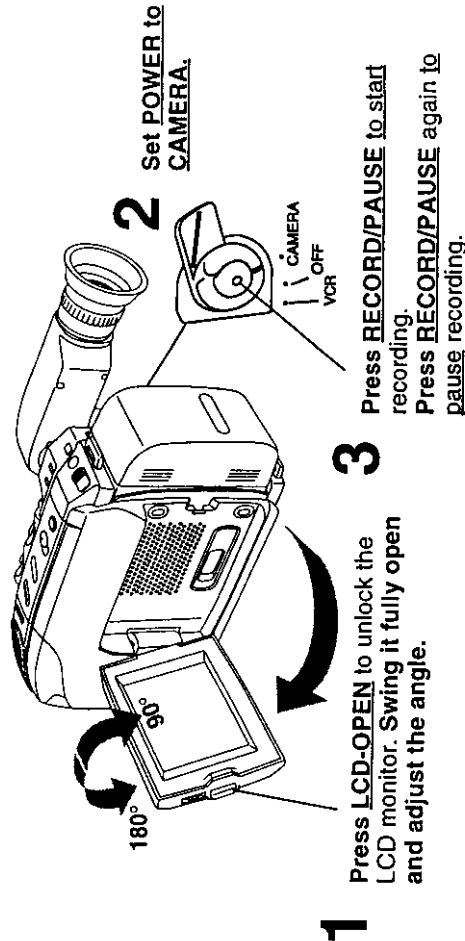


Insert Cassette



Camera Recording

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



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

Warranty

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service Inquiries please contact:

1-800-211-PANA(7262), Monday-Friday 9am-9pm Saturday-Sunday 9am-7am, EST.

Web Site: <http://www.panasonic.com>

You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

Accessory Purchases:

1-800-332-5368 (Customer Orders Only)
Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032
(6 am to 5 pm Monday - Friday; 6 am to 10:30 am Saturday; PST)
(Visa, 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	GEORGIA 8655 Roswell Road Suite 100 Atlanta, GA 30330	MICHIGAN 37048 Van Dyke Avenue Sterling Heights, MI 48312	TENNESSEE 3800 Ezell Road Suite 806 Nashville, TN 37211
ILLINOIS 20201 Sherman Way Suite 102 Caroga Park, CA 91306 3878 Ruffin Road Suite A San Diego, CA 92123	ILLINOIS 9060 Golf Road Niles, IL 60774 1703 North Randall Road Elgin, IL 60123 (Pick-up/drop-off only)	MINNESOTA 7850-12th Avenue South Airport Business Center Bloomington, MN 55425	TEXAS 7482 Hamlin Drive Houston, TX 77036 13615 Welch Road Suite 101 Farmers Branch, TX 75244
COLORADO 1640 South Ablene Street Suite D Aurora, CO 80012	MARYLAND 62 Mountain Road Glen Burnie, MD 21061	OHIO 2236 Waycross Road Civic Center Plaza Forest Park, OH 45240	WASHINGTON 20425-84th Avenue South Kent, WA 98032
FLORIDA 3700 North 29th Avenue Suite 102 Hollywood, FL 33020	MASSACHUSETTS 60 Glacier Drive Suite G Westwood, MA 02090	PENNSYLVANIA 2221 Cabot Blvd. West Suite B Langhorne, PA 19047	HAWAII 99-859 Iwaiwa Street Alala, Hawaii 96701 Phone (808) 488-1996 Fax (808) 486-4369

Service in Puerto Rico

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

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

Things You Should Know

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 **VHS** and/or **VHS** mark be used.



CAUTION
 RISK OF ELECTRIC SHOCK
 DO NOT OPEN



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.



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: Any unauthorized changes or modifications to this equipment would void the user's 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 Part 15 and part 18 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when operated in a residential environment.
 If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.
 If necessary, consult the dealer or an experienced radio/TV technician for help. You may find the booklet, "Something About Interference" available from FCC local regional offices helpful.

Instructions — All the safety and operating instructions should be read before the unit is used.

Warnings — The safety and operating instructions should be retained for future reference. All warnings on the unit and in the operating instructions should be adhered to.

Instructions — All operating and maintenance instructions should be followed. Unplug this video unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a dry cloth for cleaning.

Do not use attachments not recommended by the video product manufacturer as they may be hazardous.

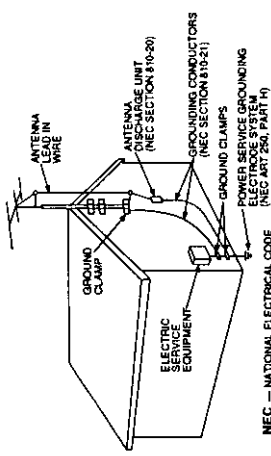
Do not use this video unit near a bath tub, wash kitchen sink, or laundry tub, in a wet area, or near a swimming pool, and the like. Do not place this video unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to a child or adult, and serious damage to the unit. Use only the cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the unit. Any mounting of the unit should follow the manufacturer's instructions and should use a locking accessory recommended by the manufacturer. An appliance and combination should be moved with care. Quick stops, excessive vibration, and uneven surfaces may damage the appliance and cart.

Do not attempt to open the cabinet or remove the back cover. 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, rug, or other similar surface, or near or over a lamp or heat register. This video unit should not be placed in a built-in installation such as a cabinet or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

Power Sources — This video unit should be connected 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 local power company. For units intended to be operated from battery power, or other sources, refer to the operating instructions.



11. Grounding or Polarization — This video unit may be equipped with either a polarized 2-wire AC (Alternating Current) line plug (a plug having one blade wider than the other) or 3-wire grounding type plug, a plug having a third (grounding) pin. The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.
12. Power-Cord Protection — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Paying particular attention to cords of plugs, convenience receptacles, and the point where they exit from the unit.
13. Outdoor Antenna Grounding — If an outside antenna or cable system is connected to the video unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Part 1 of the Canadian Electrical Code, in USA Section 810 of the National Electrical Code, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



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

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

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

PANASONIC/QUASAR Video Products Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the Warrantor") will repair 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
VCR	CCD IMAGE SENSOR - SIX (6) MONTHS	NINETY (90) DAYS
AV 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 PRODUCT, 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

Index

A		P	
AC Adaptor	12	PHONE (earphone) jack	22, 27, 49
Accessories (Optional)-	51	Playback	27, 28, 29, 30
Accessories (Supplied)	2	PlayPak	30
Audio/Video Cable	29, 31	Power Lamp	47
Auto Daylight Saving Time	18	Power Supply	10, 11, 12
B		Programmed Recording	25
Backlight	32	R	
Battery Pack	8, 10, 11, 59	Remote Control	26
C		Remote Holder	14, 26
Camcorder Controls	55	Replacing Battery	50
Camera Recording	21, 22, 23, 24, 25	Request for Service Notice	55
Car Battery Cord	12	RF Adaptor	29
Charging Battery	10	S	
Clock Battery	50	Safety Precautions	3
Clock Set	17, 18, 19	Security Mode	39
Connector		Self Demo Mode	7
Audio/Video Out	29, 31	Shoulder Strap	14
DC IN	12	Speaker	27
Copying your Tapes	31	Specifications	53
D		Still Picture	28
DC Power Cable	12	T	
Digital E.I.S.	38	Tab	13
DISPLAY	19	Tally Lamp	41
Display-off Mode	46	Time Lapse	40
E		Titler	43, 44, 45
Electronic Viewfinder	49	Tracking Control	28
F		V	
Fade	35, 36	VHF Connecting Cable	29, 31
Focus	33	Video Cassettes (tapes)	13
H		Video Head Cleaning	53
Hand Strap	14	Viewfinder/LCD Monitor	46, 47, 48
High Speed Shutter	34	Viewing	29
L		W	
LCD Monitor	22, 27	Warranty	57, 58
Lens Cover	21	Z	
Light	20	Zoom	32, 37
M			
MENU Mode	15, 16		
Message Mode	42		

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 EYE AIMED DIRECTLY AT THE SUN AS THIS MAY CAUSE DAMAGE TO THE INTERNAL PARTS OF THE EVF.**
- **DO NOT EXPOSE YOUR CAMCORDER TO EXTENDED HIGH TEMPERATURE** ... Such as, in direct sunlight inside a closed car, next to a heater, etc... This action could permanently damage the internal parts of your Camcorder.
- **AVOID SUDDEN CHANGES IN TEMPERATURE** ... If the unit is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the unit.
- **DO NOT LEAVE YOUR CAMCORDER OR THE POWER SUPPLY TURNED ON WHEN NOT IN USE.**
- **STORAGE OF YOUR CAMCORDER** ... Store and handle your Camcorder in a manner that will not subject it to unnecessary movement (avoid shaking and striking). Your Camcorder contains a sensitive pick-up device which could be damaged by improper handling or storage.

CARE

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

Table of Contents

ting Started

What You Should Know	2
Important Safeguards	4
Instructions	5
Remote Mode	7
Operation Guide	8
Supplying Power	10
Waste Information	13
Wearing Shoulder Strap/Remote Holder	14
J Mode	15
Setting the Clock	17
Auto Light	20

Basic Operation

.....era Recording	21
.....ction Remote Control	26
.....ing Back Recordings	27
.....ing your Tapes (dubbing)	31

Special Features

Speed Power Zoom	33
light	32
s	33
Speed Shutter	34
Fade (Black or White only)	35
r Digital Fade	36
al Zoom	37
al Electronic Image Stabilization (E.I.S.)	38
urity Mode	39
Lapse	40
Lamp	41
essage Mode	42
inent Title	43

Get Your Information

46	Finder/LCD Monitor Indications
49	ation Notes
50	lacing Clock/Remote Battery
51	ncorder Accessory System
52	ncorder Accessory Order Form
53	ifications
53	ore Requesting Service
55	uest for Service Notice
55	x of Controls
56	x
5	ranty
5	nish Quick Use Guide/Guía Para Uso Rápido

Request for Service Notice

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

Request for Service Notice:

In the unlikely event this product needs service.

- Please include your **proof of purchase**. (Failure to do 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

Index of Controls

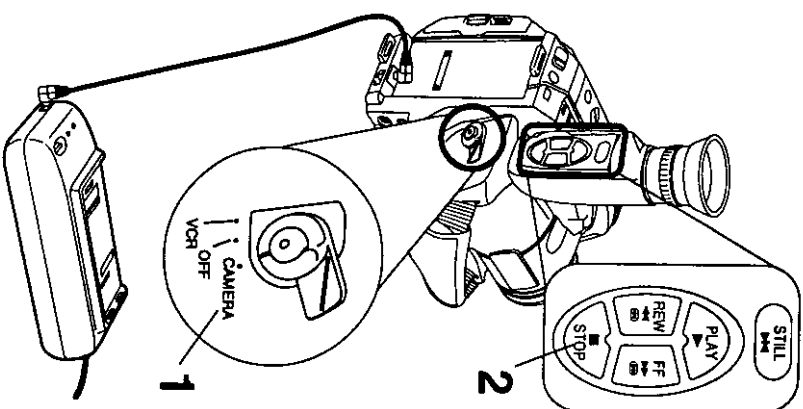
CAMERA Mode		VCR Mode	
BACKLIGHT Button	32	BRIGHT Control	27
BATTERY RELEASE Button	10	DISPLAY Button	28
BRIGHT Control	22	FAST FORWARD/SEARCH Button	28
DIGITAL ZOOM Button	37	LCD-OPEN Button	9, 27
DISPLAY Button	15, 17, 18, 19, 23, 25, 35, 36, 39, 40, 42, 43, 45	PLAY Button	9, 27
EIS Button	38	POWER Switch	9, 27
FADE Button	35, 36	REWIND/SEARCH Button	9, 27, 28
HIGH SPEED SHUTTER Button	34	STILL Button	28
LCD-OPEN Button	8, 22, 27	STOP Button	9
LIGHT Switch	20	UP ▲ / DOWN ▼ Button	28
MANUAL FOCUS Wheel	33	VOLUME Control	27
MENU Button	15, 17, 18, 19, 23, 25, 35, 36, 39, 40, 42, 43, 45		
POWER Switch	7, 8, 21		
POWER ZOOM Switch	32, 33		
RECORD/PAUSE Button	8, 21, 39		
STOP Button	7		
TAPE EJECT Switch	8, 13, 21		
TAPE SPEED Selector	13, 21		
TITLE Button	43, 44, 45		
UP ▲ / DOWN ▼ Button	15		
Vision Adjustment Control	21		

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 ...	• Connect Power Source. (pp. 10, 12) • Set POWER to VCR or CAMERA. (pp. 21, 27) • Check for Dew Indication. (p. 48) • Use fully charged Battery. (p. 10) • Firmly connect all needed cables. (p. 29)
Video cassette cannot be inserted ...	• Connect Power Source. (pp. 10, 12) • Insert cassette, window side facing out. (p. 13)
Video cassette cannot be removed ...	• Connect Power Source. (pp. 10, 12)
Operation buttons do not work ...	• Check for Dew Indication. (p. 48)
Recording cannot be done ...	• Make sure record tab is intact. (p. 13) • Check Battery Indicator. (p. 46) • Check for Dew Indication. (p. 48)
Auto Focus does not operate ...	• Set FOCUS to AUTO. (p. 33) • Set POWER to CAMERA. (p. 21)
The Message mode cannot be used ...	• Make sure cassette is loaded. • Set MESSAGE to ON in Menu mode. (p. 42)
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. 34)
No playback picture, or the playback picture is noisy or contains streaks ...	• Press UP ▲/DOWN ▼ button during playback (Tracking Control). (p.28)
Playback picture is fast, and there is no sound ...	• Set TIME LAPSE to OFF in Menu mode. (p. 40)
"Panasonic IT'S VHSI SO ITS TAPES PLAY ..." appears in EVF and LCD Monitor ...	• Set POWER to CAMERA, then hold down STOP over 5 seconds to exit Demo mode. (p. 7)
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.)

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



Self Demo Mode

Before you begin...

- Connect Camcorder to power source.

1 Set POWER to CAMERA.

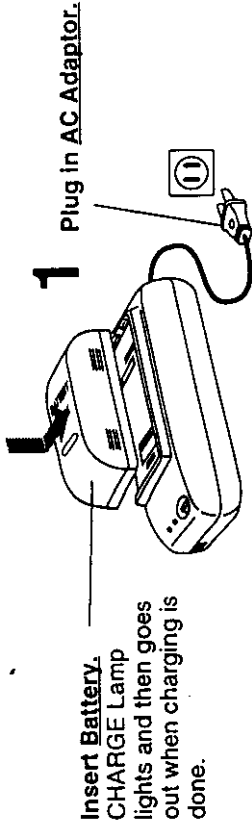
2 Hold down STOP over 5 seconds.

Note:

- Self Demo stops automatically if battery is attached (page 10) and cassette tape is inserted (page 13).
- 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 Power, Tape Speed Selector, and Light is pressed.
- To turn Self Demo back on.
- With DISPLAY held down, slide POWER to CAMERA and wait for Self Demo to begin.

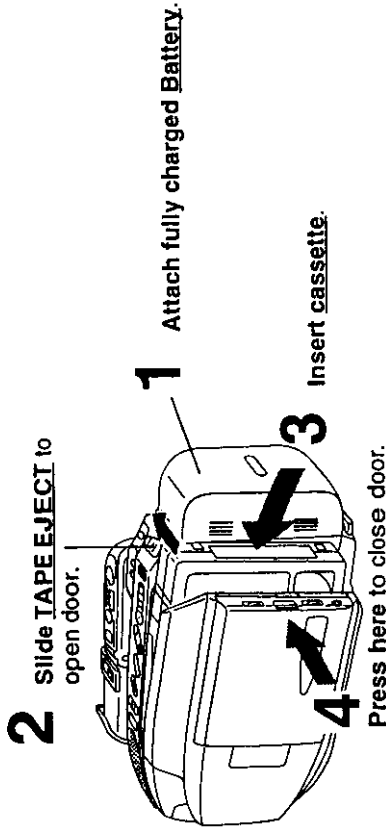
Charge the Battery Pack

1. Battery Pack fully before operation (page 10).



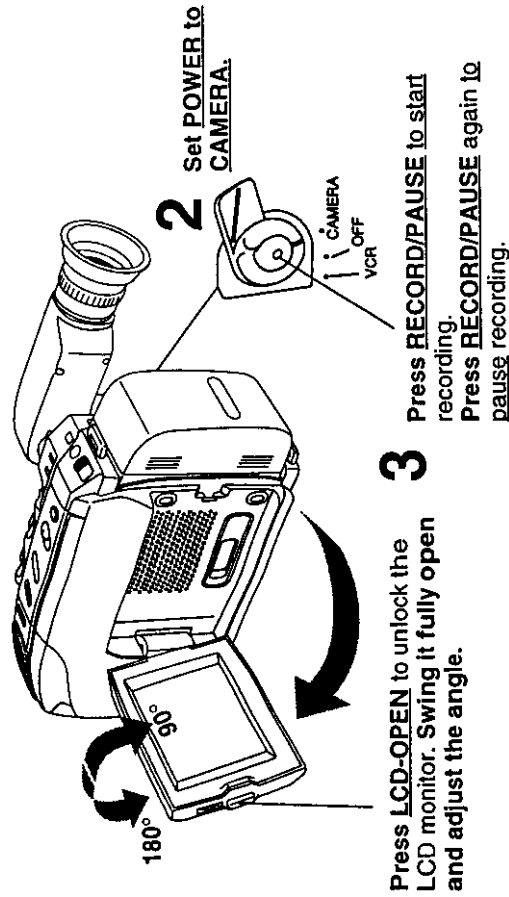
Insert Battery.
CHARGE Lamp
lights and then goes
out when charging is
done.

Insert Cassette



Camera Recording

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



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

Specifications

Power Source:	Compact VHS Camcorder: DC 6V AC Adaptor: 110/120/220/240V AC, 50/60 Hz Battery: Nickel-Cadmium Type DC 6V
Power Consumption:	Compact VHS Camcorder: 6V DC 0.0 W (Max. 00.0 W) AC Adaptor: 24W 1.2W (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: 3.8mm - 98.8mm
Viewfinder:	Power zoom function Lens filter diameter: 49mm
LCD Monitor:	0.5 inch (12.7mm) Electronic Viewfinder 3.0 inch (76.2mm) Liquid Crystal Display
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:	32°F~104°F (0°C~40°C)
Operating Humidity:	10%~75%
Weight:	Compact VHS Camcorder: 0.0 lbs. 0.00 kg 0.77 lbs. 0.35 kg
Dimensions:	AC Adaptor: 0.0 lbs. 0.00 kg 0.77 lbs. 0.35 kg
	Compact VHS Camcorder: 000 (W) x 000 (H) x 000 (D) inch 000 (W) x 000 (H) x 000 (D) mm AC Adaptor: 2-3/4 (W) x 1-5/8 (H) x 5-3/4 (D) inch 70 (W) x 41 (H) x 145 (D) mm

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

Before Requesting Service

Video Head Cleaning



Clogged Video Head

While head cleaning is normally not needed, playing old or damaged tapes may clog the heads. When playback picture resembles example 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 following cleaning cassette instructions exactly and only use when symptoms occur.

Quick Operation Guide

1. Palmcorder Model # _____

Playback using the LCD Monitor

Before you begin...
 • Charge Battery Pack fully before operation (page 10).

3. Method of payment (check one)

- Make Check or Money Order to: MATSUSHITA ACCESSORIES**

Ship To:

Mr.

Mrs.

MS.

First	Last
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

Phone #:

Table 1

Day ()

Street Address

Night ()

City

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

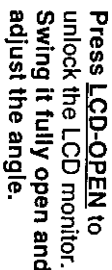
52 For assistance, call 1-800-211-PANA(7262).

10

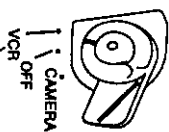
Quick Operation Guide

Playback using the LCD Monitor

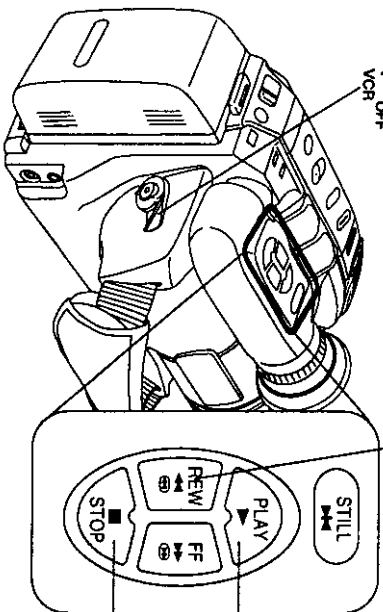
When the LCD monitor is fully open, the Viewfinder automatically turns OFF.



2 Set POWER to VCR.



3 Press **REWIND/SEARCH**

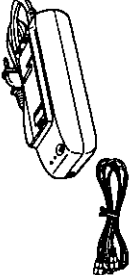
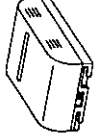
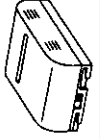
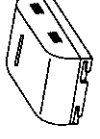
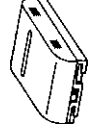
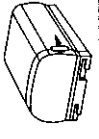
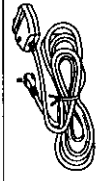
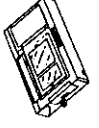


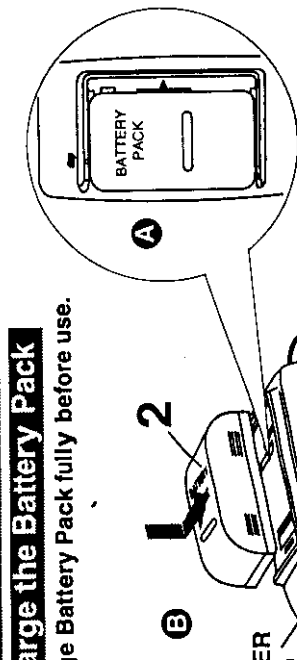
to rewind tape.

4 Press PLAY to start playback.

5 Press STOP to stop playback.

For ordering instructions, see the Accessory Order Form page.

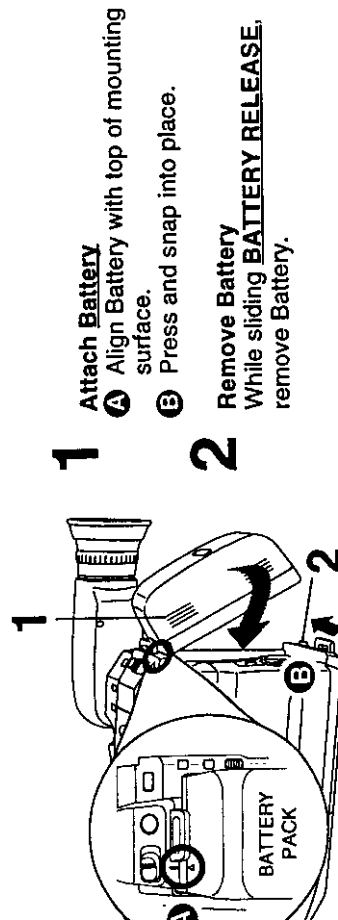
Accessory #	Figure	Description	Price
PV-A17		AC Adaptor with DC Power Cable	\$130.00
HHR-V214		6.0Ah Battery Pack with Universal Battery Charger	\$200.00
P-V215		3.0Ah Battery Pack	\$60.00
PV-BP17/ P-V214		2.4Ah Battery Pack	\$50.00
PV-BP18/ P-V611		1.8Ah Battery Pack	\$45.00
PV-BP15/ P-V213		1.2Ah Battery Pack	\$45.00
PV-AA6		"AA" Battery Case	\$20.00
PV-C16		Car Battery Cord	\$70.00
PV-RF16		RF Adaptor	\$40.00
PV-P1		VHS PlayPak	\$35.00
PV-H18		Soft Sided Carrying Case	\$49.00



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

• Battery life gradually decreases after repeated use and recharging. If operation time becomes very short even after a sufficient charge, discard Battery properly (page 11).

• Fully charged Battery provides a maximum of about 1.8 hours of continuous use (LCD monitor off) or about 1 hour (LCD monitor on). Actual time may vary due to operating conditions. Using the Built-in Light decreases operating time.



Replacing Clock/Remote Battery

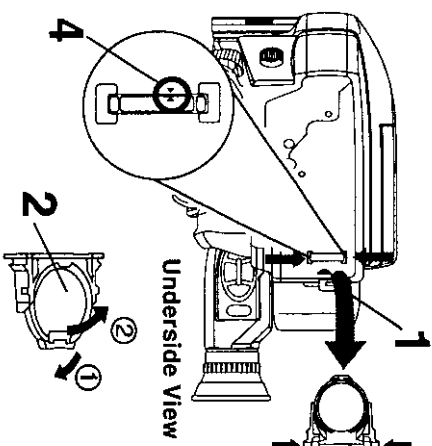
The clock and remote batteries are pre-installed. Follow the steps below if replacement becomes necessary.

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

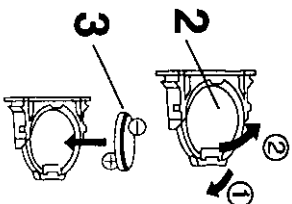


- 1 While pinching 2 tabs, pull Battery Tray out.
- 2 Bend 1 tab to remove Battery.
- 3 Snap new Battery (+ mark down) into Battery Tray.
• Do not reverse the polarity.
- 4 Insert Battery Tray so the triangle marks meet.

Note:

- Keep Battery out of children 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

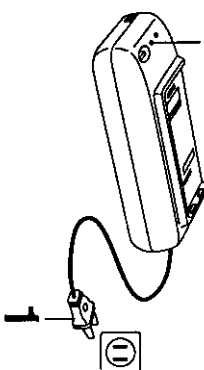


- 1 A While pressing stopper tab, B pull Battery Tray out.
- 2 Insert battery into tray + mark down.
Do not reverse polarity.
- 3 Replace Battery Tray.

Battery Refresh

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

CHARGE Lamp



- 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 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 50° F (10° C) and 95° F (35° C).
- 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 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:

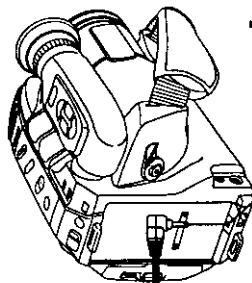
ATTENTION:



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.

Supplying Power

Adaptor



DC Power Cable

POWER Lamp

DC IN Connector

1

Connect AC Adaptor VCR DC OUT to Camcorder DC IN with supplied DC Power Cable.

2

Plug in AC Adaptor. POWER Lamp lights.



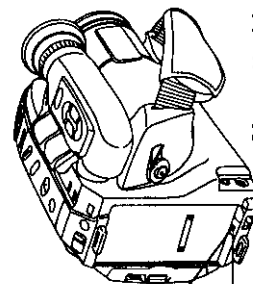
Notes:

- AC Adaptor cannot power Camcorder while charging Battery.
- When not in use, unplug AC Adaptor from AC outlet. (Turned off, Adaptor uses 1.2 W of electricity while plugged in.)

CAUTION:

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

Car Battery Cord (Optional)



DC IN Connector

1

Connect PV-C16 Car Battery Cord (optional) to Camcorder DC IN.

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 12V (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.

Cigarette Lighter Socket (12V)



Car Battery Cord (optional)

Cigarette Lighter Plug

Optical Filters and Lenses

Be careful not to touch Camcorder lens when attaching filters and lenses.

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.

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.

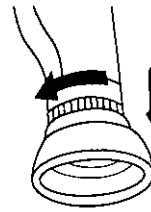
With two filters (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

Earphone Jack (Monaural)

Connect the earphone (M3 type, not supplied) to the earphone jack for monitoring the sound during playback or recording.

Cleaning EVF (Electronic Viewfinder)

To Remove



1

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

2

Pull free.

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

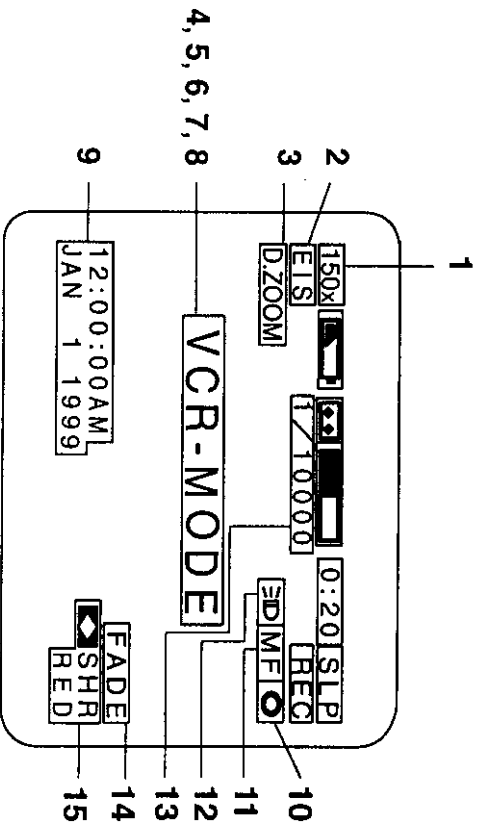
3

To re-install EVF

Line up the marks on the Eyepiece with the grooves inside the EVF shaft and attach. Turn the EVF clockwise 1/8 of a turn to lock in place.

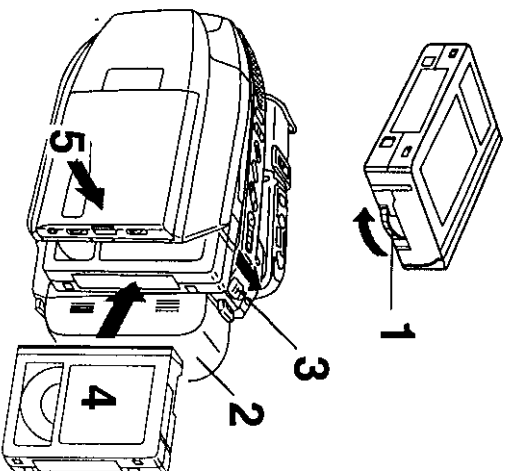
Viewfinder/LCD Monitor Indications

CAMERA/VCR mode



- 1 Zoom Magnification level (page 32).
- 2 Digital E.I.S. (page 38).
- 3 Digital Zoom (page 37).
- 4 VCR-MODE
Appears 1 minute when POWER is set to VCR or if RECORD/PAUSE is pressed in VCR mode.
- 5 DEW
If moisture condensation occurs in unit, "WARNING DEW DETECTED" appears, Power Lamp flashes, and Camcorder will shut off in 15 seconds. Wait until lamp no longer flashes when Camcorder is turned on to use.
- 6 Time Lapse (page 40).
- 7 Security Mode (page 39).
- 8 Message Mode (page 42).
- 9 Date and Time (page 19).
- 10 Backlight (page 32).
- 11 Manual Focus (page 33).
- 12 Light ON/OFF (page 20).
- 13 High Speed Shutter (page 34).
- 14 Fade (page 35).
- 15 Color Digital Fade (page 36).

Cassette Insertion/Removal



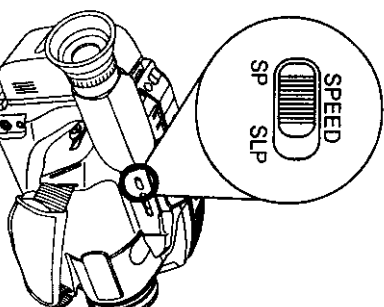
- 1 Turn Tape Wheel in direction of arrow until there is no slack.
- 2 Attach Battery (page 10).
- 3 Slide TAPE EJECT to open door.
- 4 Insert cassette as shown.
- 5 Press here to close door.

Record/Playback Time

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

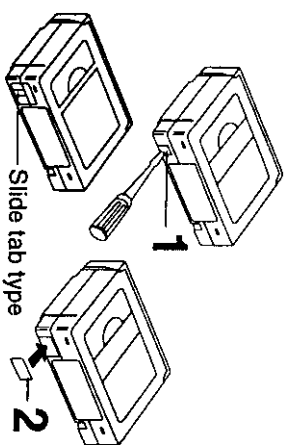
Tape Speed Selector Position	Cassette type		
	TC-20	TC-30	TC-40
SP (Standard Play)	20 minutes	30 minutes	40 minutes
SLP (Super Long Play)	1 hour	1 hour 30 minutes	2 hours

• SLP playback may contain more picture noise.



Erase Protection Tab

A record tab ensures recordings are not accidentally erased.



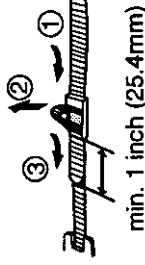
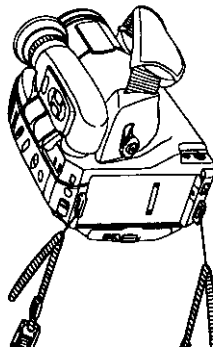
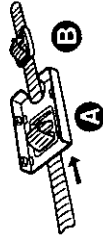
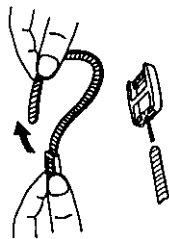
- 1 To prevent erasure, break off tab with screwdriver. (Or, slide tab open.)
- 2 To record again, cover hole with adhesive tape. (Or, slide tab closed.)

Cassette Information

Attaching Shoulder Strap/Remote Holder

Remove Battery Pack before doing steps.

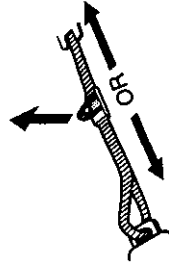
- 1 Undo strap ends from buckles.
- 2 Remove one buckle.
- 3 A Thread strap (with no buckle) through Remote Holder so it faces outward.
B Replace buckle.
- 4 Thread strap ends through Strap Rings on Camcorder.



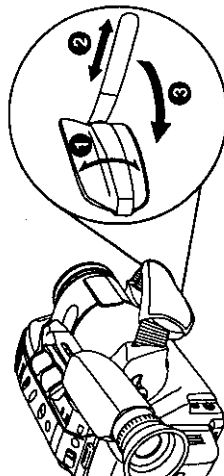
min. 1 inch (25.4mm)



Adjusting the Length



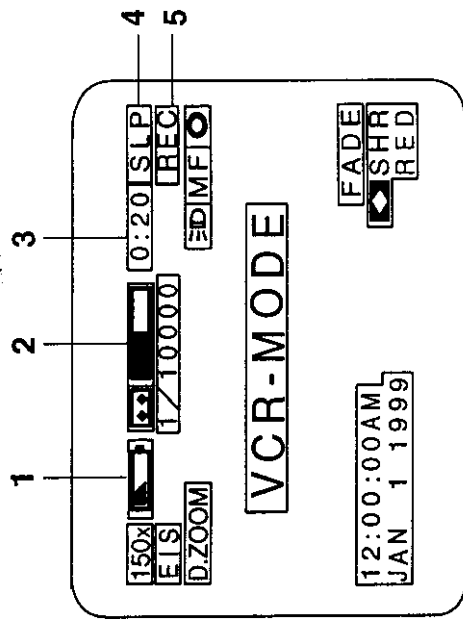
Hand Strap



Adjust Hand Strap length to fit your hand as shown.

Viewfinder/LCD Monitor Indications

CAMERA/VCR mode



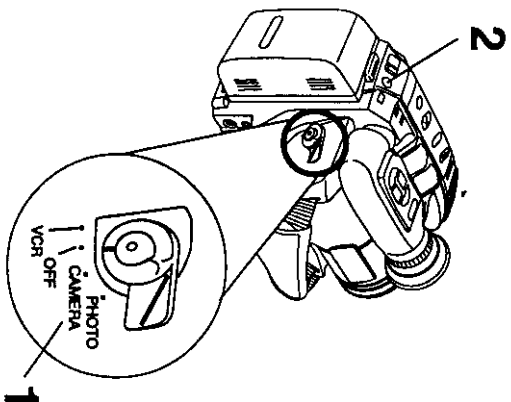
- 1 Battery Remaining (page 46)
"WARNING LOW BATTERY" appears and External Power Lamp starts flashing 15 seconds before Camcorder shutoff.
- 2 Tape Remaining
• If cassette is not inserted or has no record tab in Camera (RECORD) mode, "1" flashes 1 minute and "CHECK TAPE" appears 5 seconds before Camcorder shutoff.
• As end of tape is reached, "2" flashes and "TAPE END" appears 5 seconds before Camcorder shutoff.
- 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.
- 4 TAPE SPEED (pages 13, 21)
(SP=standard play, SLP=super long play, T.LAPSE=time lapse).
- 5 Operating Mode
REC (record)
PAUSE
FF (fast forward)
PLAY
REW (rewind)

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

For Your Information

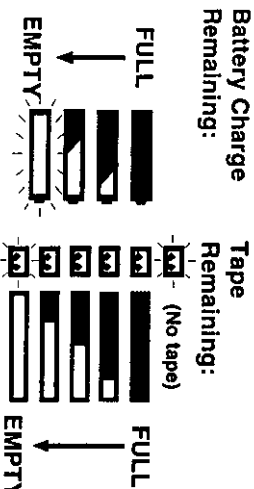
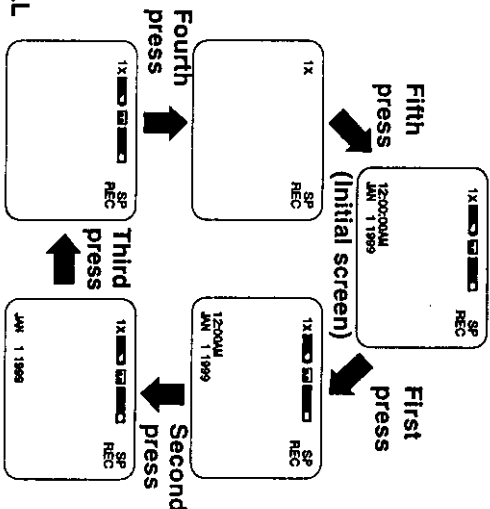
Viewfinder/LCD Monitor Indications

Tape remaining and battery charge level can be displayed.



1 Set POWER to CAMERA.

2 Press DISPLAY repeatedly to select the following displays.



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 21).

- Only the Date and/or Time are recorded.

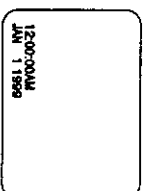
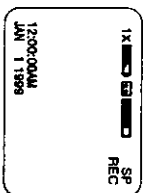
Display-Off Mode

No indication, except Intelligent Titrer (pages 43-45), will be displayed.

With no tape inserted, press **DISPLAY** and **STOP** together over 1 second.

Press **DISPLAY** repeatedly to remove time/date.

Indications are restored when Camcorder is turned off, and then on again.



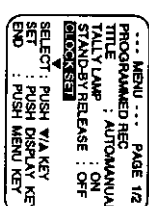
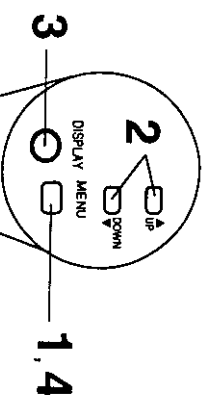
Using MENU Mode

MENU Mode

Before you begin...

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

1 Press MENU for MENU mode.



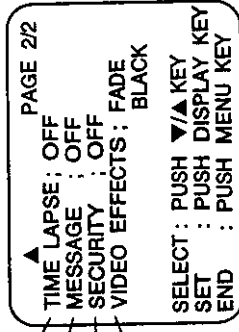
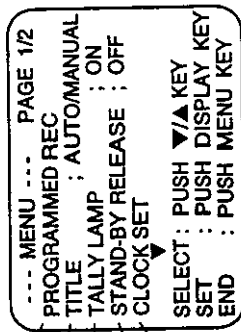
2 Press UP ▲ or DOWN ▼ to highlight menu item.

3 Press DISPLAY to set selection

4 Press MENU to exit.

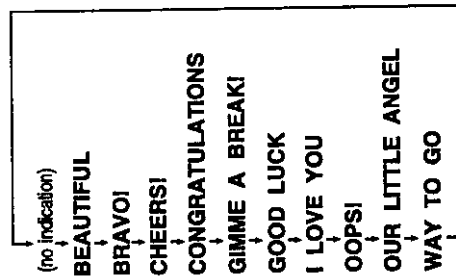
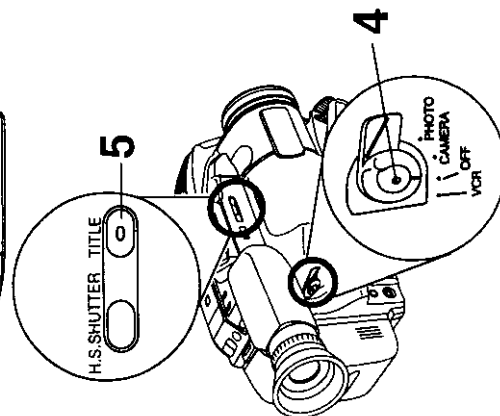
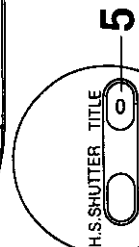
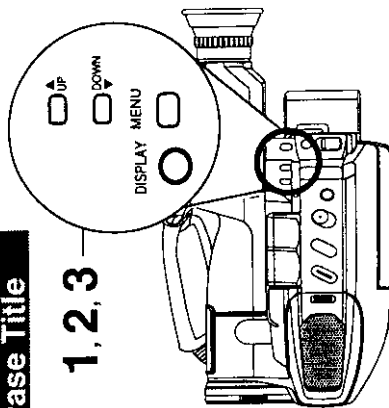
Note:

- The Menu mode is canceled if UP/DOWN(▲/▼), DISPLAY, or MENU are not pressed within 5 minutes.



- 1 **PROGRAMMED REC** (page 25).
Camcorder starts and stops recording at a preset time.
- 2 **TITLE** (pages 43~45).
AUTO/MANUAL : 16 items
PHRASE : 10 items
- 3 **TALLY LAMP** (page 41).
ON: lamp lights during recording.
- 4 **STAND-BY RELEASE** (page 23).
ON: enables quick resumption of recording from Stand-by mode.
- 5 **CLOCK SET** (pages 17~19).
Select to set clock.
- 6 **TIME LAPSE** (page 40).
ON: setup TIME LAPSE recording.
- 7 **MESSAGE** (page 42).
ON: setup MESSAGE recording.
- 8 **SECURITY** (page 39).
ON: setup MOTION SECURITY recording.
- 9 **VIDEO EFFECTS** (pages 35, 36).
AUTO FADE : BLACK/WHITE
DIGITAL FADE : TYPE → 7 type
COLOR → 8 colors

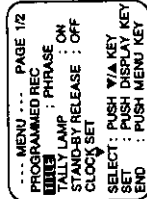
1, 2, 3



Before you begin...

- Connect Camcorder to power source.
- Set POWER to CAMERA.
- Insert cassette with record tab (page 13).

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



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).

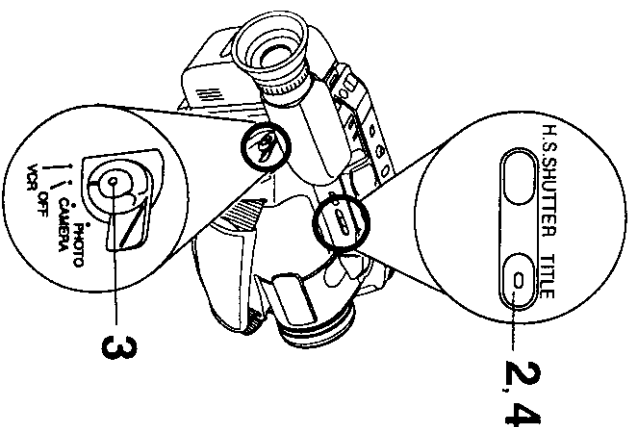
Intelligent Titler

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 / HOI HOI HOI
	HAPPY EASTER
	HAPPY ANNIVERSARY
	HAPPY BIRTHDAY
	VACATION
	WEDDING DAY
	A SPECIAL DAY

These Titles must be displayed manually.

Manual Title



Before you begin...

- Connect Camcorder to power source.
- Set **POWER** to **CAMERA**.
- Insert cassette with record tab (page 13).

- 1 Confirm that **TITLE: AUTO/MANUAL** is set in Menu mode (steps 1-3, page 43).
- 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.

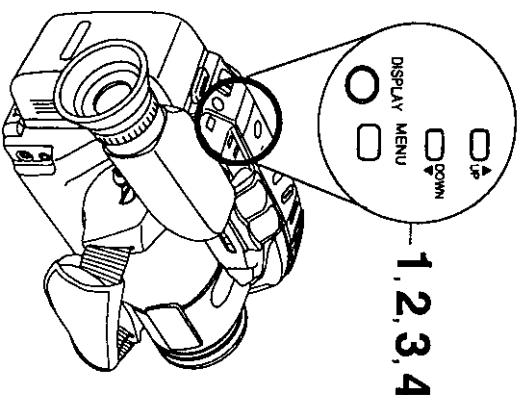
Note:

- To redisplay title, press **TITLE** in Pause (Record mode).

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**.

Note:

- Setting **POWER** to **VCR** also displays **CLOCK SET** menu.
- Clock may lose or gain up to 2 minutes per month. To adjust, see page 19.

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

CLOCK SET

... MENU ... PAGE
PROGRAMMED REC
TITLE : AUTOMANUAL
TALLY LAMP : ON
STAND-BY RELEASE : ON
...
SELECT : PUSH V/A KEY
SET : PUSH DISPLAY
END : PUSH MENU KE

- 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 : JAN 1 1993
SELECT : PUSH V/A KEY
SET : PUSH DISPLAY
END : PUSH MENU KE

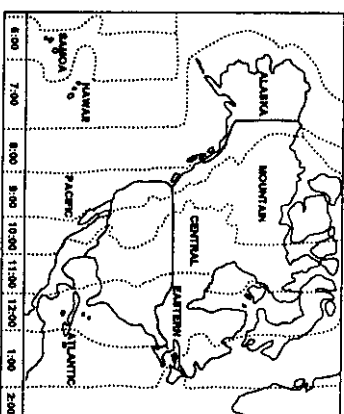
- 3 Press **DISPLAY** for SELECT TIME ZONE menu. Press **UP** or **DOWN** to select local time zone.

... SELECT TIME ZONE
ATLANTIC
CENTRAL
MOUNTAIN
PACIFIC
ALASKA
HAWAII
SAKOMA
SELECT : PUSH V/A KEY
SET : PUSH DISPLAY

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

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

Time Zone chart



Note:

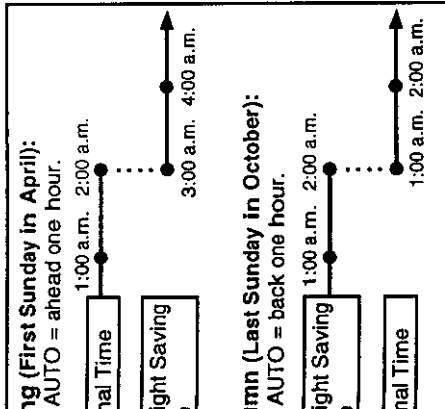
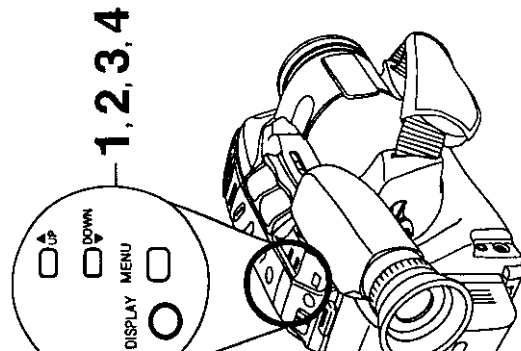
When travelling outside the listed time zones, set clock to local time manually (page 19).

Setting the Clock

Daylight Saving Time

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

Camcorder is preset to DST: **ON**. 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**.

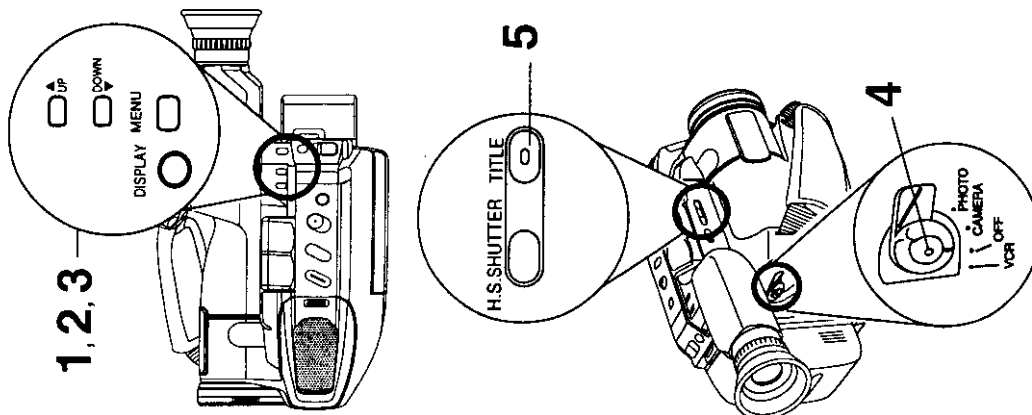
Note:

- When **POWER** is set to **VCR**, **CLOCK SET** menu appears.
- Auto DST does not function if time zone is set to Hawaii or Samoa (page 17).

- 1 Press **MENU** for **MENU** mode.
Press **UP** or **DOWN** to select **CLOCK SET**.
--- MENU --- PAGE 1/2
PROGRAMMED REC : AUTOMANUAL
TALLY LAMP : ON
STAND-BY RELEASE : OFF
CLOCK SET
SELECT : PUSH V/A KEY
SET : PUSH DISPLAY KEY
END : PUSH MENU KEY
- 2 Press **DISPLAY** for **CLOCK SET** menu. Press **UP** or **DOWN** to select **D.S.T.**.
--- CLOCK SET ---
TIME ZONE : EASTERN
D.S.T. : AUTO
DATE/TIME : 12:00:00AM
JAN 1 1999
SELECT : PUSH V/A 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 V/A KEY
SET : PUSH DISPLAY KEY
- 4 Press **DISPLAY** to confirm entry. Press **MENU** twice to exit.

Automatic Title

Camcorder auto-displays title greeting on selected holidays when power is first turned on. See title list on page 44.



- 1 Press **MENU** for **MENU** mode.
Press **UP** or **DOWN** to select **TITLE**.
--- MENU --- PAGE 1/2
PROGRAMMED REC : AUTOMANUAL
TALLY LAMP : ON
STAND-BY RELEASE : OFF
CLOCK SET
SELECT : PUSH V/A 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** to remove title during recording.

Note:

- Once removed, title will not be auto-displayed. To redisplay, or select from other titles use **Manual Title** (page 44).

Message Mode

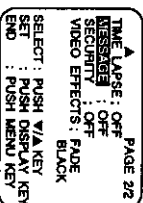
Leave audio/video messages for family or friends.

Before you begin...

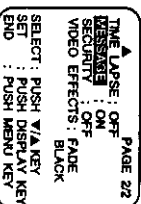
- Connect Camcorder to power source.
- Use AC Adaptor for extended use.
- Insert cassette with record tab (page 13).
- Set POWER to CAMERA.

1 Press MENU for MENU mode.

Press **UP** ▲ or **DOWN** ▼ to select **MESSAGE**.



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



3 Flip LCD in direction of lens.

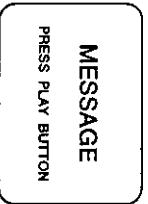
Press **RECORD/PAUSE** to start recording your message.



4 Press RECORD/PAUSE to end.

• Camcorder auto-rewinds to the message start, then goes to Stand-by mode.

• Tally lamp flashes and display alerts recipient.



5

Press **PLAY** to playback message.

• LCD can be in any position for playback.

• To cancel feature, set **POWER** to OFF.

Note:

- One message limit.
- If tape is ejected or battery (if used) is depleted while in Stand-by mode, the message mode is exited. To playback message (tape is inserted and/or new power source is attached), set **POWER** to VCR and press **PLAY**.
- In Message mode, **MENU**, **TITLE**, and **SECURITY** MODE buttons are unavailable.
- Title cannot be displayed in Message mode.
- Message button is unavailable during Time Lapse and Programmed Rec stand-by.

Setting Date and Time

Date and time, including leap year, are calculated up to DEC 31, 2097.

Before you begin...

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

Note:

- When POWER is set to VCR, CLOCK SET menu appears.

1 Press MENU for MENU mode.

Press **UP** ▲ or **DOWN** ▼ to select **CLOCK SET**.



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



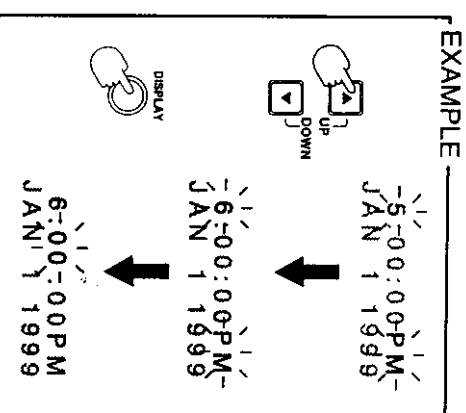
3 Press DISPLAY for DATE/TIME menu.



4 Press or hold down UP ▲ or DOWN ▼ to select hour, then press DISPLAY to fix.

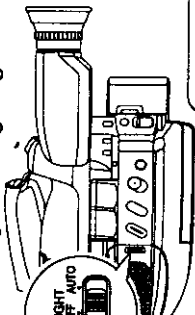
Repeat for minute, month, day, and year. Clock starts when year is entered.

Press **MENU** twice to exit.



Using the Light

Recording in dim lighting.



Before you begin...

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

Set LIGHT to AUTO.

Light turns on/off automatically according to lighting conditions.

Or, set **LIGHT** to **ON/OFF** manually.

L appears in EVF when Light is on.

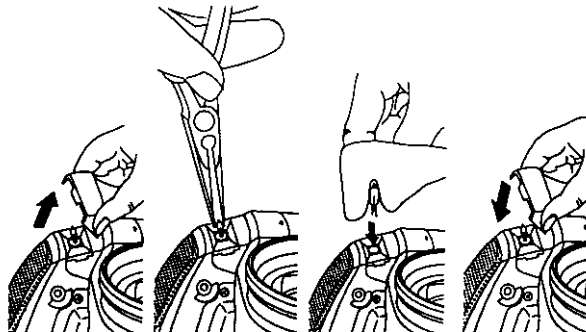
Caution:

Light becomes hot. Never cover Light while on.

Before you begin...

- Order Part No. VULS0001 for replacement bulb.
- Set **POWER** to **OFF**.

Replacing the Bulb



ANGER:

- Only replacement bulb (PART NO. VULS0001) supplied by Panasonic to use risk of fire.
- Handle new bulb with cloth or tissue as oils will decrease bulb life.
- Move lens cover and allow bulb to cool before replacing to avoid possible hazard.

Note:

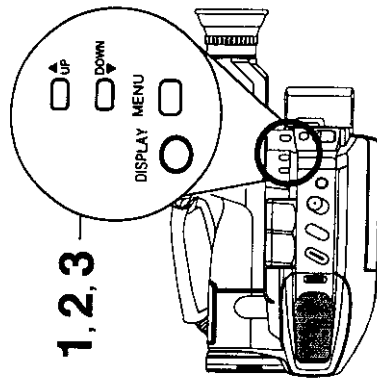
- Using Light reduces battery operating time.
- Provide proper ventilation when using Light extensively in hot environment.
- Using Light when the Camcorder is powered by a car battery may shorten bulb life.
- Set Light to OFF when not in use.
- Handle bulb gently. Excessive force may cause bulb to crack.

Tally Lamp

The tally lamp can be set to come on or stay off during recording. Factory default setting is ON.

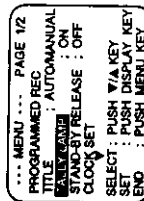
Before you begin...

- Connect Camcorder to power source.
- Set **POWER** to **CAMERA**.
- Insert cassette with record tab (page 13).



1

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

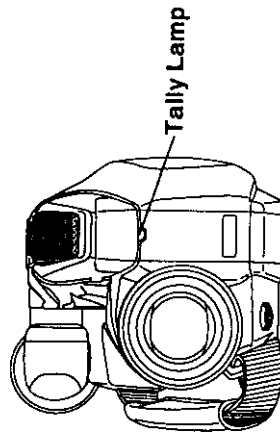


2

Press **DISPLAY** to select:
ON → lamp lights during recording.
OFF → lamp stays off.

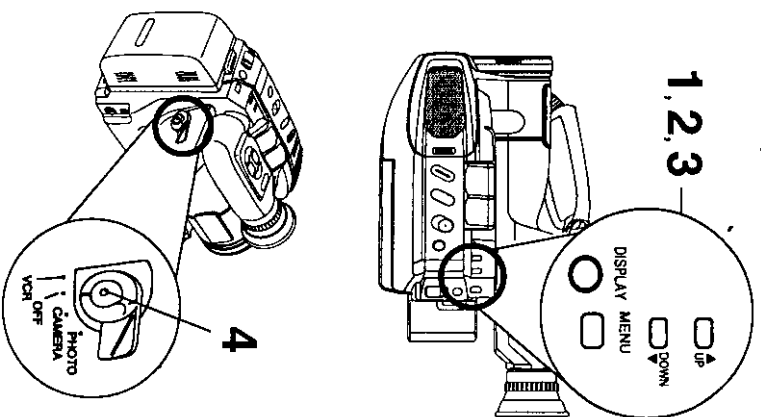
3

Press **MENU** to exit.



Time Lapse

This feature reduces tape speed to 1/3 SLP for long term period recording (up to 6 hours with TC-40 tape).

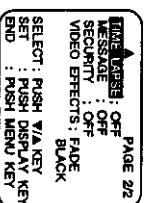


Before you begin...

- Connect Camcorder to power source.
- Use AC Adaptor for longer recordings.
- Insert cassette with record tab (page 13).
- Set POWER to CAMERA.
- Slide TAPE SPEED to SLP.

1

Press **MENU** for MENU mode.
Press **UP** or **DOWN** to select **TIME LAPSE**.



2

Press **DISPLAY** for ON or OFF.
TIME LAPSE: ON
Records at 1/3 SLP speed (up to 6 hours). Playback will be normal SLP speed. Sound is muted.

3

Press **MENU** to exit.

4

Do a recording (page 21).



To cancel Time Lapse, do steps 1, 2, and 3. In step 2, select OFF.

IMPORTANT:

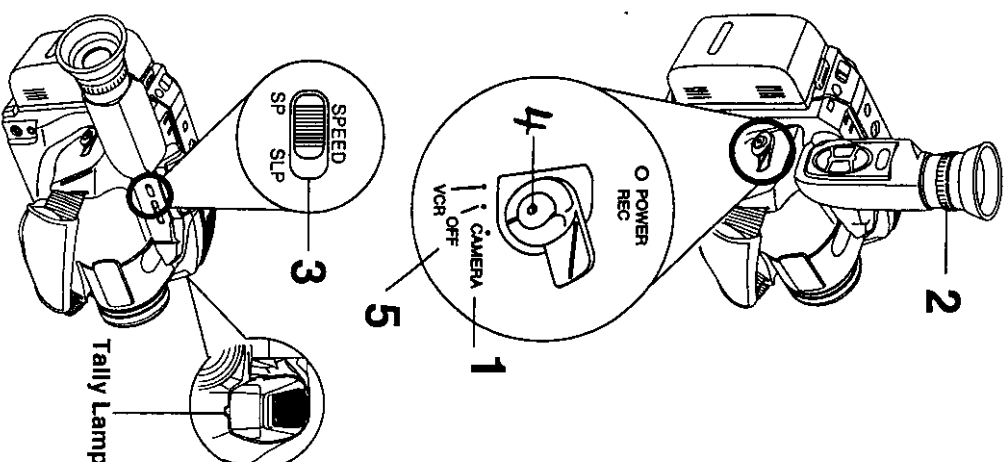
- Time Lapse recording system is not part of VHS standard. Therefore, time lapse recordings should be played back on Camcorder only.
- Recordings other than time lapse may be played back on any **VHS** camcorder or **VHS** VCR.

Simple Recording

Camera Recording

Before you begin...

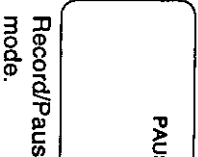
- Connect Camcorder to power source.



1

Set **POWER** to **CAMERA**.
Lens Cover opens.

- Be sure **POWER** is fully turned to **CAMERA** position.



2

Look into Viewfinder and adjust **Vision Adjustment** control to eyesight.

3

Slide **TAPE SPEED** to **SP** or **SLP** (page 13).

4

Press **RECORD/PAUSE** to start or pause recording.
REC lamp lights during recording. Tally lamp also lights if set to ON (page 41).



5

Set **Power** to **OFF** when finished.

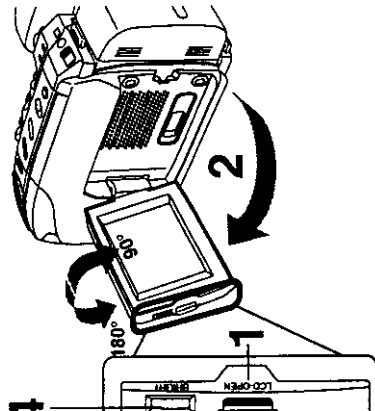
- To remove cassette, slide **TAPE EJECT** in Record/ Pause mode. (page 13).

Note:

- When Camcorder is aimed at excessively bright objects, or bright lights, a vertical bar may appear in picture. This is normal for the CCD pick-up. Try to avoid this when possible.

Using the LCD Monitor

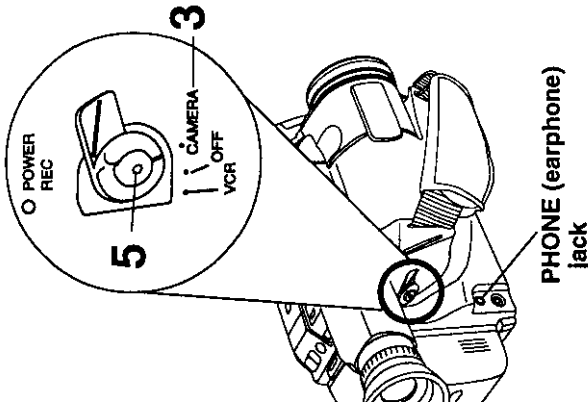
recording scene on the LCD (Liquid Crystal Display).



Before you begin...

- Connect Camcorder to power source.

- 1 Press **LCD-OPEN** to unlock LCD.
- 2 Swing LCD fully open and adjust viewing angle.
Caution:
Rotating partially open LCD monitor may block cassette door and damage Camcorder body.
- 3 Set **POWER to CAMERA**.
• LCD monitor turns off/on by the POWER switch.
• Viewfinder shuts off when LCD is fully opened and turns back on when LCD is locked closed.
• Both Viewfinder and LCD monitor turn on when LCD is at 180° (see below left).
This allows both you and the subject to view the recording.



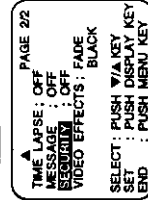
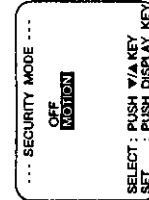
- 4 Turn **BRIGHT** to adjust LCD brightness level.
- 5 Start recording (page 21).

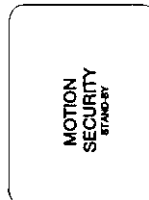
Note:

- Using LCD reduces battery operation time.
- To hear sound while recording, connect earphone (M3 type not supplied) to PHONE jack.
- Lock LCD closed when not in use.

Before you begin...

- Connect Camcorder to power source.
- Use AC Adaptor for longer recordings.
- Insert cassette with record tab (page 13).
- Set **POWER to CAMERA**.
- Securely position and aim Camcorder.

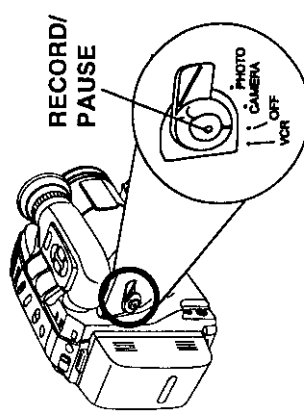
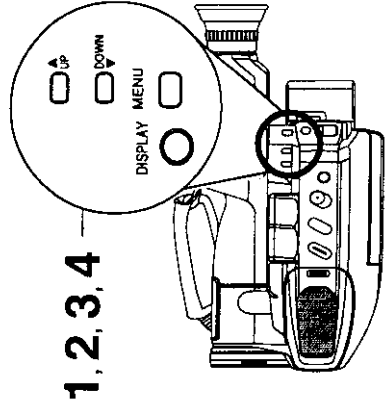
- 1 Press **MENU** for MENU mode.
Press **UP** or **DOWN** to select **SECURITY**.

- 2 Press **DISPLAY** for SECURITY menu. Press **UP** or **DOWN** to select **MOTION** or **OFF**.


- 3 Press **DISPLAY** to confirm entry.
Press **MENU** to exit.
- 4 Press **RECORD/PAUSE** to Motion Security stand-by mode. If cassette is not inserted, "E" will flash.


- Recording will start about 3 seconds after motion is detected.
- Date and time are recorded if displayed in EVF (page 19).
- Recording stops 30 seconds after motion ceases.

Note:

- Security recording starts if Camcorder is repositioned.
- This feature is not available during normal recording.
- While in Security stand-by, the following are not available:
Stand-by mode, Digital E.I.S., Video Effects, Message, and Time Lapse.



Motion Security may false 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:

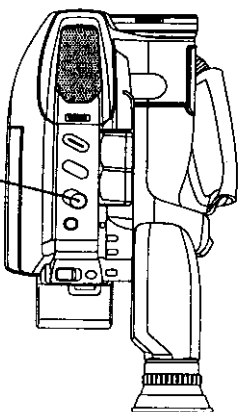
- motion is very slow or fast.
- moving object is very small.
- motion occurs only in 1 corner of viewing area.
- in poor lighting (in this case, MOTION SECURITY flashes).
- background is plain, like a white wall, or has distinct horizontal or vertical stripes.

Digital E.I.S.

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

Helps stabilize picture when recording in unstable situations.

Before you begin...
• Set **POWER** to **CAMERA**.



1, 2

1

Press **EIS** to display "EIS" in the EVF.

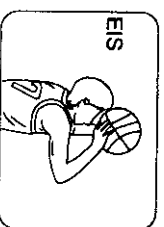
- Image becomes slightly enlarged and shutter speed auto-adjusts from 1/80 to 1/350 according to brightness.
- Use High Speed Shutter (page 34) if needed. Shutter speed setting remains after EIS is canceled.

2

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

E.I.S. may not function during...

- extreme Camcorder movement.
- recording of subject with distinct horizontal or vertical stripes.
- low light situations (EIS indicator flashes).
- intense fluorescent lighting situations.
- recording of very fast motion.

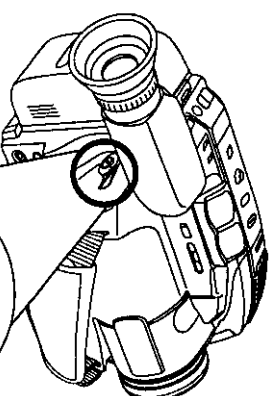


Digital EIS ON

NORMAL

Stand-by Quick Release

If left in **RECORD/PAUSE** mode for 5 minutes, Camcorder switches to Stand-by mode to save energy. When set to ON, Stand-by Quick Release lets you record again by simply pressing **RECORD/PAUSE**. Factory setting is OFF.



RECORD/
PAUSE

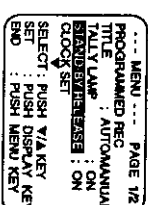
1

1

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

2

Press **MENU** for **MENU** mode.
Press **UP** or **DOWN** to select **STANDBY RELEASE**.



3

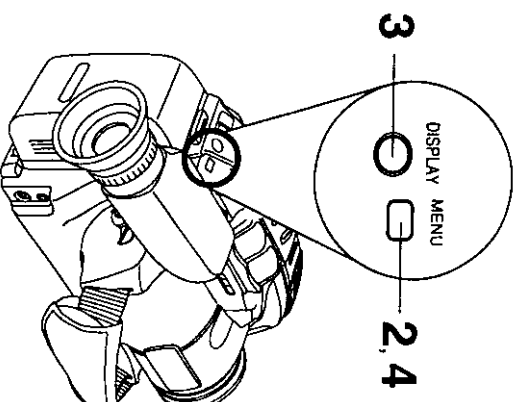
Press **DISPLAY** to select ON/OFF.
ON: From Stand-by mode,
press **RECORD/PAUSE** to record.

4

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

4

Press **MENU** to exit.

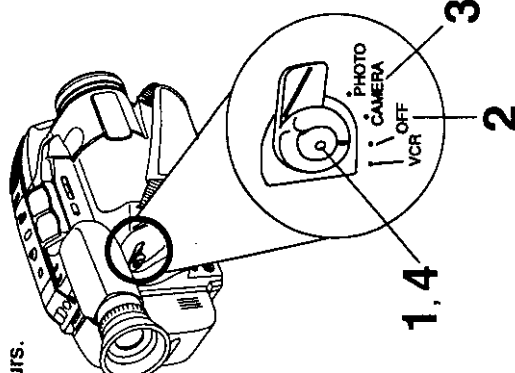


3

DISPLAY MENU

2, 4

smooth transition between scenes if recording is stopped, and then started within 10 seconds.



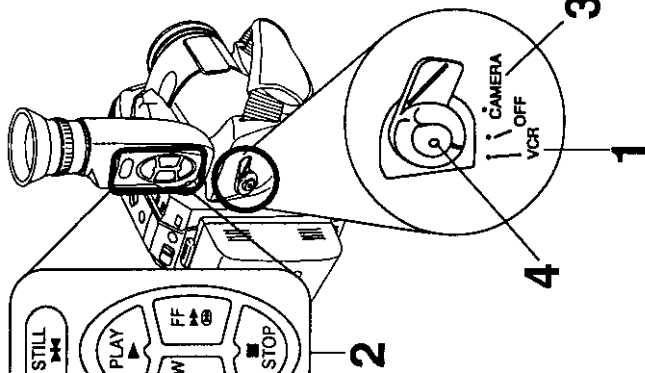
- 1 Press **RECORD/PAUSE** to stop recording.
- 2 Set **POWER** to **OFF** and leave cassette in Camcorder.
- 3 To resume recording, set **POWER** to **CAMERA**.
- 4 Press **RECORD/PAUSE** to resume recording.

Note:

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

Manual Easy Editing

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

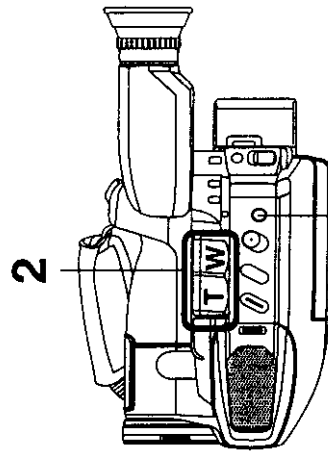


- 1 Set **POWER** to **VCR**.
- 2 A Press **REWIND/SEARCH** to rewind a few seconds of tape.
B Press **PLAY** to review recording.
C Press **STILL** where you want to continue recording.
- 3 Set **POWER** to **CAMERA**.
- 4 Press **RECORD/PAUSE** to resume recording.

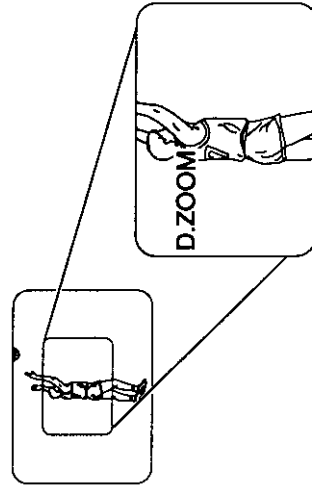
Power Zoom magnification is digitally increased.

Before you begin...

- Set **POWER** to **CAMERA**.



- 1 Press **DIGITAL ZOOM**.
D.ZOOM mode (150x maximum).
Higher digital magnification levels may cause picture distortion.
- 2 Hold down "T" on **POWER ZOOM**.
Digital Zoom starts when normal zoom reaches maximum (26x).
• Zoom level appears in EVF.
• **POWER ZOOM** switch controls digital zoom level.
• Normal zoom resumes when level falls below 26x.
- 3 Press **DIGITAL ZOOM** so no indication appears in EVF to turn off Digital Zoom.



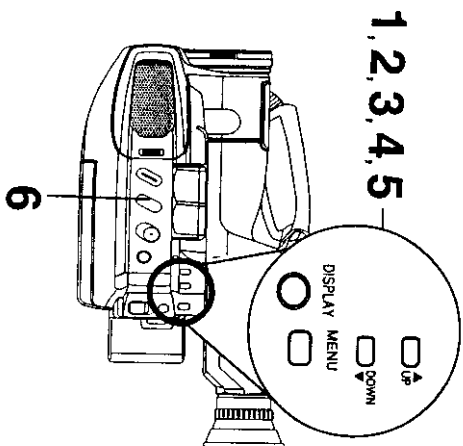
Fade

Color Digital Fade

Choose from 7 fade effects in 8 different colors.

Before you begin...

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



1

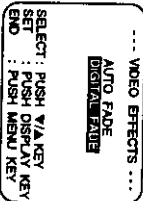
Press **MENU** for MENU mode.

Press **UP** or **DOWN** to select **VIDEO EFFECTS**.



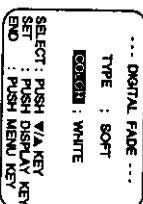
2

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



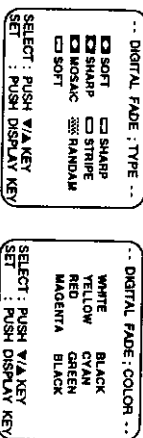
3

Press **DISPLAY** for DIGITAL FADE menu. Press **UP** or **DOWN** to select TYPE or COLOR.



4

Press **DISPLAY** for TYPE or COLOR menu. Press **UP** or **DOWN** to select TYPE and COLOR mode.



5

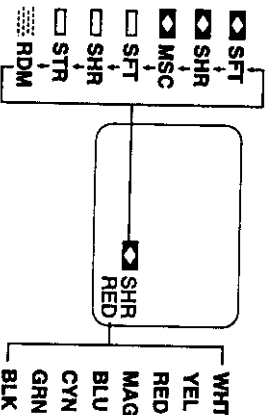
Press **DISPLAY** to confirm entry. Press **MENU** twice to exit.

6

Hold **FADE** down during recording to fade out. Release to fade in.

Note:

- Audio is not affected by fade.

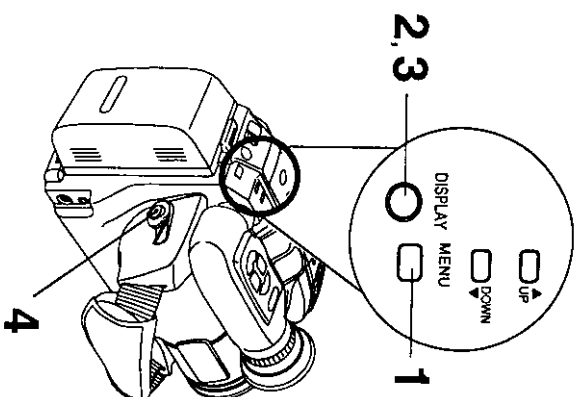


Programmed Recording

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

Before you begin...

- Connect Camcorder to power source.
- Use AC Adaptor for longer recordings.
- Insert cassette with record tab (page 13).
- Set POWER to CAMERA.



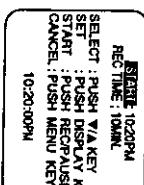
1

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



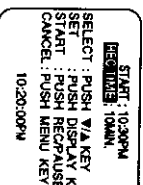
2

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



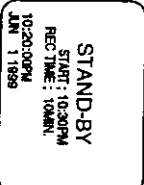
3

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



4

To cancel the setup, press **MENU** twice. Press **RECORD/PAUSE** to place Camcorder in stand-by mode.

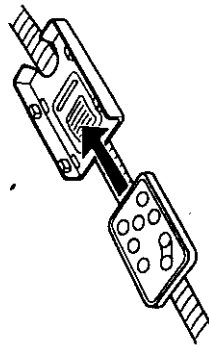


Note:

- Start time may not exceed 24 hours from time set.
- Camcorder shuts off at tape end, or 12 hours after Interval Recording starts.
- To cancel, set POWER to OFF.

Camera Recording

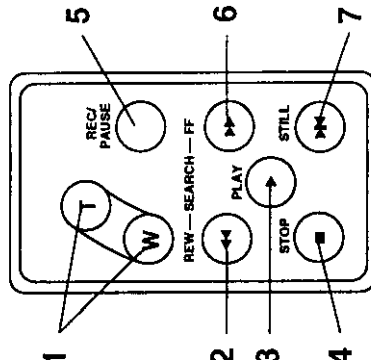
Remote Control Holder



When not in use, slide remote into its shoulder strap holder (page 14).

Remote Control Operation

Points Camcorder main functions up to about 16 feet (5 m) away. remote at sensor on Camcorder.

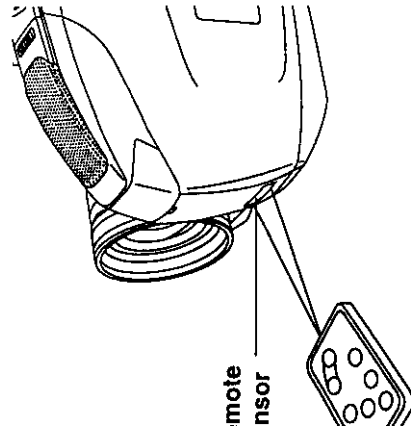


Controlled Functions

- 1 POWER ZOOM Button
page 32.
- 2 REWIND/SEARCH Button
page 27.
- 3 PLAY Button
page 27.
- 4 STOP Button
See page 27.
- 5 RECORD/PAUSE Button
page 21.
- 6 FAST FORWARD/SEARCH Button
page 28.
- 7 STILL Button
page 28.

Important Note:

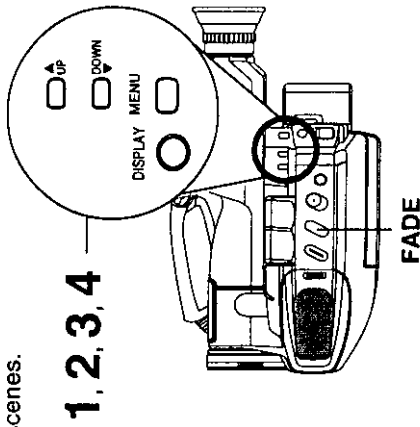
- After 5 minutes in Rec/Pause mode, Camcorder shut off to conserve battery. If recording is resumed within 30 minutes, simply press REC/PAUSE more than 1 second. If over 30 minutes, set POWER to OFF, then CAMERA, then press REC/PAUSE.



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

Auto Fade (Black or White only)

An interesting way to open and close scenes.



Before you begin...

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

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

PAGE 22
 TIME LAPSE : OFF
 MESSAGE : OFF
 SECURITY : OFF
VIDEO EFFECTS
 SELECT : PUSH **W/A** KEY
 SET : PUSH DISPLAY KEY
 END : PUSH MENU KEY
- 2 Press **DISPLAY** for VIDEO EFFECTS menu. Press **UP** or **DOWN** to select **AUTO FADE**.

VIDEO EFFECTS ...
 AUTO FADE
 DIGITAL FADE
 SELECT : PUSH **W/A** KEY
 SET : PUSH DISPLAY KEY
 END : PUSH MENU KEY
- 3 Press **DISPLAY** for AUTO FADE menu. Press **UP** or **DOWN** to select **BLACK** or **WHITE**.

AUTO FADE : COLOR ...
 BLACK
 WHITE
 SELECT : PUSH **W/A** KEY
 SET : PUSH DISPLAY KEY
- 4 Press **DISPLAY** to confirm entry. Press **MENU** twice to exit.

Fade In:

In **RECORD/PAUSE** mode, press **FADE** so "FADE" flashes in EVF.

Press **RECORD/PAUSE**.

Recording starts as picture and sound gradually fade in.

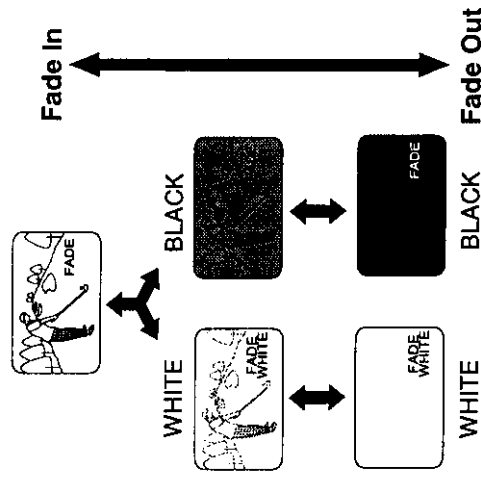
Fade Out:

While recording, press **FADE** so "FADE" flashes in EVF.

Press **RECORD/PAUSE**.

Picture and sound gradually fade out, and recording is paused.

If **FADE** is pressed accidentally, press again so "FADE" disappears in EVF.



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.

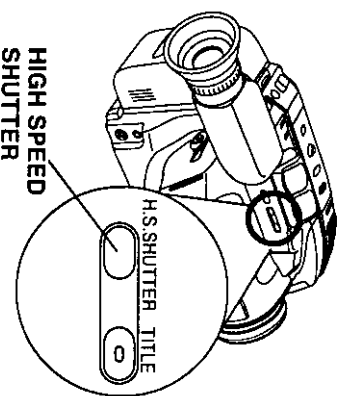
Auto Shutter

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

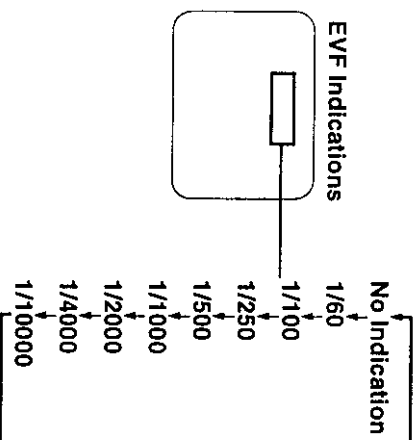
- AUTO mode is selected each time POWER is set to CAMERA.

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.



Press **HIGH SPEED SHUTTER** while recording.
Press repeatedly for shutter speed. (See below, left.)



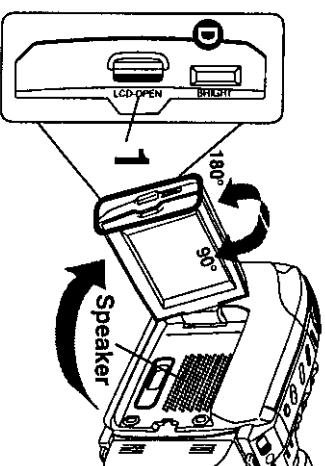
- Note:**
- Provide additional halogen or tungsten light for use indoors or in poor light. Fluorescent light degrades picture.
 - Auto Focus may not function properly if high speed shutter is used in inadequate light.
 - Setting reverts to AUTO each time POWER is set to CAMERA.

Playing Back Recording

Playback on EVF or LCD Monitor

Before you begin...

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



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

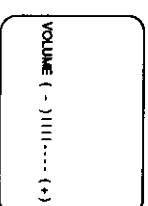
Set **POWER** to **VCR**.

- If tape has no record tab, auto playback begins.
- LCD monitor turns on/off by the POWER switch.
- Viewfinder shuts off when LCD is fully opened and turns back on when LCD is locked closed.
- Return LCD monitor to locked position when not in use.

3 Playback function buttons.

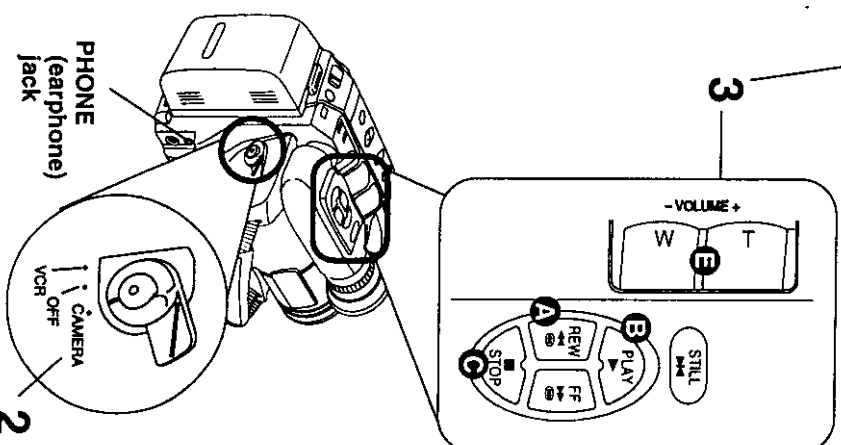
- A** **REW** (rewind) : rewind tape.
- B** **PLAY** : play tape.
- C** **STOP** : stop tape.
- D** **BRIGHT** : adjust LCD brightness.
- E** **VOLUME** : Adjust volume of speaker, or earphone if connected.

Press "T" : Volume up.
Press "W" : Volume down.



- 4 Lock LCD monitor closed. (EVF turns on.)

- Note:**
- Using LCD reduces battery operating time.
 - When earphone (M3 type not supplied) is connected to PHONON jack, speaker is muted.



Special Effects

Before you begin...

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

Quick Visual Search

During playback, press:

FF : fast forward search

REW : rewind search

Press again or **PLAY** for normal play.

Still Picture

Press **STILL** to freeze picture.

Press again for normal play.

This feature works best in SLP mode (pages 13, 21).

Search Speed

SP (Standard Play) : 3 times normal.

SLP (Super Long Play) : 9 times normal.

ing search, horizontal noise bars will appear. Audio is muted.

protect video heads and tape, operating modes will revert as follows after 5 minutes:

→ Stand-by

nd-by → Power off (when Battery Pack is used).

e auto-rewinds if played or fast forwarded to end.

Tracking Control

Auto Tracking

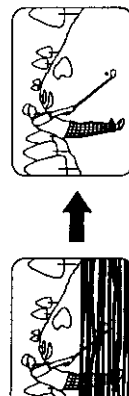
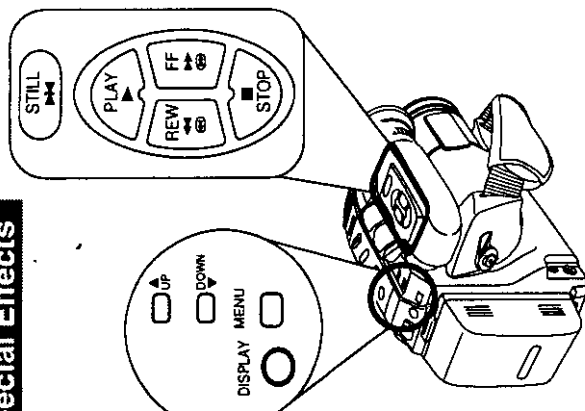
Continuously analyzes each recording for optimum picture quality.

Manual Tracking

Some recordings require manual adjustment to reduce noise.

Press **UP** ▲ or **DOWN** ▼ until Playback picture clears up.

Press **DISPLAY** to return to Auto Tracking.



Focus

Auto Focus

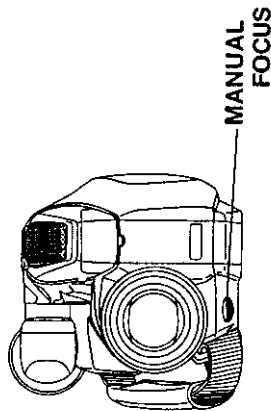
Before you begin...

- 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. Press **MANUAL FOCUS** to remove "MF" in EVF if necessary.

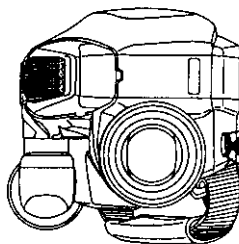
- subject is not centered in Viewfinder.
- subject has shiny surface.
- subject is slanted.
- subject is bright and flat, like a white wall.
- subject has fast motion, like a golf swing.



Manual Focus

Use Manual Focus (MF) when :

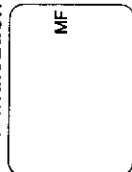
- recording through glass.
- lighting is poor.
- subject is far away with objects in foreground.
- subject has distinct horizontal lines.



1

Press **MANUAL FOCUS** so "MF" (Manual Focus) appears in EVF.

EVF Indication



2

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

3

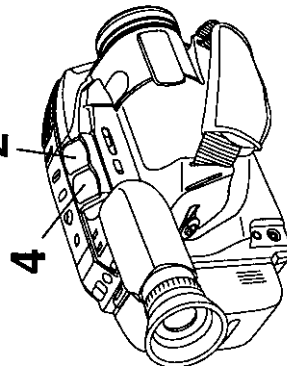
Turn **MANUAL FOCUS** until subject is in focus.

- 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.



Macro Focus (close-ups)

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

Hold down "W" on **POWER ZOOM** to maximum wide angle.

Bring Camcorder up close to the subject.