

# Quasar®

VHS

## OWNERS MANUAL

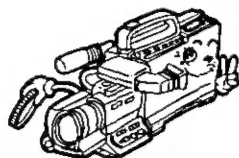
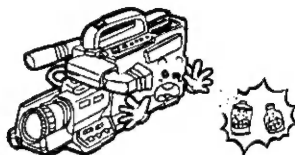


**VM-11AC**  
VHS MOVIE  
(INCLUDES  
AC ADAPTOR)

**IMPORTANT**

Please read owners manual before attempting to operate.

# IMPORTANT SAFEGUARDS



- 1. READ AND RETAIN THE SAFETY AND OPERATING INSTRUCTIONS**  
Before operating this product read the operating instructions and then retain them to make full use of the safeguards and features incorporated in this Video product.
- 2. FOLLOW THE INSTRUCTIONS, AND BE SURE TO HEED ALL WARNINGS**-on the equipment and in the manual, for easy maintenance, confident operation and trouble free service of this Video product.
- 3. WATER AND MOISTURE**-Do not use this Video product if it gets wet or anywhere 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.
- 4. DISCONNECT BATTERY FROM THIS VIDEO PRODUCT AND UNPLUG VIDEO ACCESSORIES FROM THE WALL OUTLET BEFORE CLEANING**  
Do not use liquid cleaners, strong or abrasive detergents, or aerosol cleaners. Use a damp cloth for cleaning.
- 5. THIS VIDEO PRODUCT SHOULD BE OPERATED ONLY FROM THE TYPE OF POWER SOURCE INDICATED ON THE MARKING LABEL.**  
If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For Video products intended to operate from battery power, or other sources, refer to the operating instructions.
- 6. THIS VIDEO PRODUCT IS EQUIPPED WITH A POLARIZED ALTERNATING-CURRENT LINE PLUG** (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If the plug does not fit fully into the socket, try reversing it. If the plug still does not fit fully into the socket, you may find that a proper outlet is needed to meet today's Electrical Standards. Do not defeat the safety purpose of the polarized plug. An electrician will replace your outlet safely.
- 7. WHEN YOU USE A POWER SUPPLY CORD**  
Route the power cord so that it will not be subject to walking traffic or abuse, particularly at plug-ins, convenience receptacles, or cord exit points from the unit. Where an extension is needed, use a polarized cord.  
**HAZARDOUS FRAYED CORDS OR DAMAGED PLUGS SHOULD BE REPLACED BY A QUALIFIED SERVICE TECHNICIAN.**  
**OVERLOADED WALL OUTLETS AND EXTENSION CORDS ARE DANGEROUS RISKS OF FIRE OR ELECTRICAL SHOCK.**
- 8. TURN OFF THIS VIDEO PRODUCT WHEN NOT BEING USED OR DURING A LIGHTNING STORM**, disconnect from any power source to avoid damage due to lightning and power surges or when it is left unattended or unused for long periods.
- 9. DO NOT LEAVE THIS VIDEO PRODUCT IN DIRECT SUNLIGHT**  
When the viewfinder eyepiece or optical Video lens is exposed to direct sunlight it works as a magnifying glass. The concentrated sunlight can cause damage to internal parts of the product.  
**DO NOT AIM THIS VIDEO PRODUCT DIRECTLY AT THE SUN OR OTHER BRIGHT OBJECT**-direct exposure to a strong light source could permanently damage the pick-up tube, whether it is turned on or off.
- 10. TO PROTECT THE LENS AND KEEP IT CLEAN**-always place the Video product lens cap back on the lens when the product is not in use. Do not touch the surface of the lens with your hand. Use a commercial optical lens solution and optical lens paper when cleaning the lens. Improper cleaning can scratch the lens coating.
- 11. DO NOT PLACE THIS VIDEO PRODUCT ON AN UNSTABLE SUPPORT**  
This Video product could fall causing serious unintended injury or damage. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the Video product. Any mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer. Do not allow unnecessary movement (shaking and striking) of this video unit when storing and handling to avoid damage to the sensitive pick-up tube.
- 12. USE RECOMMENDED ATTACHMENTS**  
Do not use attachments not recommended by the Video product manufacturer as they may be hazardous.
- 13. BE SURE THE VENTILATION SLOTS ARE NOT BLOCKED AND AVOID SUDDEN CHANGES IN TEMPERATURE**  
The ventilation slots in the body of the Video product prevent abnormal increases of internal temperature. The openings must never be blocked by placing the Video product on a bed, sofa, rug, or other similar soft surface. This Video product should not be placed in a custom-built enclosure unless proper ventilation is provided or the manufacturer's instructions have been adhered to. This Video product should never be placed near or over a radiator or heat register. Also, when moving the product through sudden changes of temperature from a cold place to a warm place, moisture may form on the tape or inside the unit, causing the DEW Indicator on the EVF to flash and the Power to shut off automatically.

14. **SEPARATE THE UNIT FROM ANY INTERFERENCE CAUSING APPLIANCES.** Placing the unit directly above or below your TV set may cause interference. Keep all magnets away from electronic equipment.
15. **AVOID OBJECT AND LIQUID ENTRY-**Never push objects of any kind into this Video product through the 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 on the Video product.
16. **DO NOT ATTEMPT TO SERVICE,** repair, or disassemble this Video product yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.
17. **DAMAGE REQUIRING SERVICE-**Disconnect the power supply from this Video product and refer servicing to qualified service personnel under the following conditions:
  - a) When the power-supply cord or plug of AC Adaptor is damaged.
  - b) If liquid has been spilled, or objects have fallen into the Video product or the unit has been exposed to rain or water.
  - c) If the Video product does not operate normally. Be sure to follow instructions as an improper adjustment of other controls not in the operating instructions may result in damage and will often require extensive work by a qualified technician to restore the Video product to its normal operation.
  - d) If the Video product has been dropped or the external case has been damaged or when there is a distinct change in performance, this indicates a need for qualified service.
18. **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.
19. **SAFETY CHECK-**Upon completion of any service or repairs to this Video product, ask the service technician to perform safety checks to determine that the Video product is in proper operating condition.
20. **INSURE SAFE ANTENNA AND CABLE CONNECTIONS**

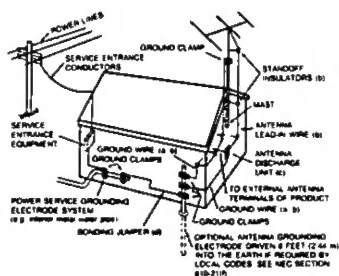
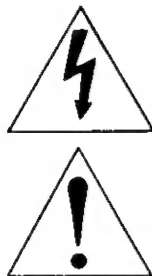
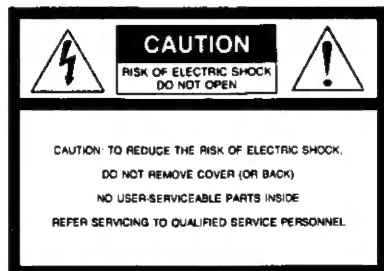


Figure 1

- If an outside antenna or cable system is connected to the equipment, be sure the antenna or cable system is grounded so as to provide some protection against built up static charges and voltage surges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, 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. See Figure 1 for items a-d below.
- a. Use No.10 AWG (5.3 mm<sup>2</sup>) copper, No.8 AWG (8.4 mm<sup>2</sup>) aluminum, No. 17 AWG (1.0 mm<sup>2</sup>) copper-clad steel or bronze wire, or larger, as ground wire.
  - b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 m) to 6 feet (1.83 m) apart.
  - c. Mount antenna discharge unit as close as possible to where lead-in enters house.
  - d. Use jumper wire not smaller than No. 6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21(j).
21. **ELIMINATE ANTENNA PROXIMITY TO HIGH VOLTAGE POWER SOURCES, OR CHANCE OF ACCIDENTAL CONTACT BY INSTALLER**  
An outside antenna system should be located where it will never be reached by power lines, electric light or power circuits and where it will never contact these power sources if it falls. Installer should use extreme care to avoid possible fatal contact by touching power lines, circuits or other power sources when installing outside antenna.

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



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

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

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The features the VHS Movie offers are designed to help you make video recordings even if you have never used a movie camera before. This means that except for making a selection or two all of the recording conditions will be taken care of automatically.

The VHS Movie is not just limited to automatic functions, the features needed for highest quality reproduction may be set manually as well. With some experience, you will find the VHS Movie especially enjoyable to use in the widest range of recording conditions.

This manual will introduce you to the VHS Movie. You can begin with it now to learn the basics about handling your VHS Movie. When you get familiar with the use of the features, take a closer look at the professional hints that come later in the book, once you have acquired these few techniques you will enjoy using them often with the VHS Movie.

Thank you for purchasing the VHS Movie.

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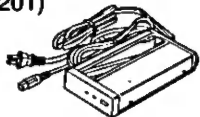


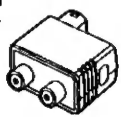






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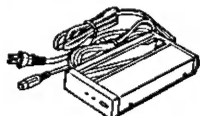
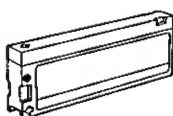
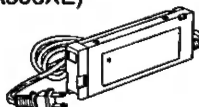
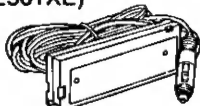



## Accessories packed with your VHS Movie

1 pc. AC Adaptor (VA201) 	1 pc. Battery Pack (VE551XE)* 	1 pc. Remote Control* (VSQS0421) 	1 pc. Audio/Video Output Adaptor* (VSQS0411 or VSQS0507) 
1 pc. VHF Connecting Cable* (VSQS0215 or VSQS0217) 	1 pc. 300ohm-75ohm Transformer* (VSQS0496 or VSQS0497) 	1 pc. Audio/Video Cable* (VJPS0216) 	1 pc. Earphone* (VEB0005) 
1 pc. Shoulder Strap* (VYCS0572) 	3 pcs. NR44 Battery (VSBW0001)* 		

### \*NOTE:

Above accessories marked (\*) may be purchased through a Quasar Servicing Dealer or a Factory Service Center of Matsushita Service Company.

### Optional Accessories

1/2" Video Cassette Tape (VC-T120) (VG-T120) (VF-T120) 	AC Adaptor (VA201) 	Battery Pack (VE551XE) 	Plug-In AC Adaptor (VA506XE) 
Car Battery Cord (VE561XE) 	Character Generator (VE281) 	System Carrying Case (VE272) 	System Carrying Case (VE271) 

### CAUTION:

**TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

Your VHS Movie is designed to record and playback in SP mode only. The VHS Movie will not perform normal playback for programs pre-recorded in LP or SLP mode.

**TO PREVENT DAMAGE TO THE EXPENSIVE PICK-UP TUBE, DO NOT AIM THE LENS DIRECTLY AT THE SUN, OR BRIGHT LIGHTS, EVEN WHEN THE POWER IS OFF. THIS ACTION COULD PERMANENTLY DAMAGE THE PICK-UP TUBE.**

Only use those tapes with the **VHS** mark. It is recommended that only cassette tapes that have been tested and inspected for use in 2, 4, 6, and 8 hour VCR machines be used.

The serial number of these products may be found on the bottom of the VHS Movie and on the surface of the AC Adaptor. No others have the same serial number as yours. You should record the number and other vital information here and retain this book as a permanent record of your purchase to aid identification in case of theft.

**Date of Purchase**

**Dealer Purchased From**

**Dealer Address**

**Dealer Phone No.**

**Model No.** VM-11/VA201

**Serial No.**

# FEATURES

Your new Quasar VHS Movie is a compact, light weight unit. Actually a combination of VHS Video Camera, Recorder and Player, your VHS Movie operates steadily for up to 2 hours 40 min. using T160 tape. Because it uses standard VHS tape, the VHS Movie format is directly compatible with any other VHS VCR. The features detailed below will show how you can enjoy the convenience and performance in the design of your VHS Movie.

## High Quality System

This VHS Movie equipped with the HQ System is compatible with existing VHS equipment.

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## Fade In/Out Feature

With the press of a button you can fade into the picture and at the end of the action gently fade out for a truly professional result.

(Page 20)

## Record Review

While in record/pause mode you may use the Electronic View Finder (EVF) and the Record Review feature to check the last few seconds of tape just recorded.

(Pages 19, 33)

## Power Zoom and Macro Function

The smooth power zoom will bring the subject 6 times closer, or with the Macro function you can move into the miniature, right up to 1 inch from the lens, for a sharp full screen image.

(Pages 18, 32)

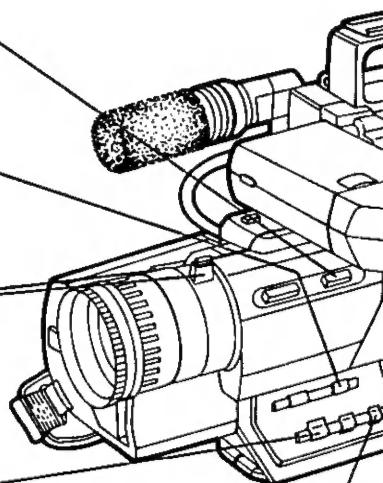
## Automatic/Manual Focusing

The Auto focus system works via an infrared light beam aimed at objects positioned before the center of the lens. When the Focus switch is set to AUTO, the camera will focus the picture for you automatically. Set the Focus Switch to MANUAL and while you press the focus button the Camera will automatically focus. Release button for full manual adjustment of lens using the Lens Focus Ring.

(Page 18)

## Automatic White Balance

Automatic indoor/outdoor light compensation and the Automatic White Balance will continuously adjust for the optimum color balance. When using the camera in special lighting situations set to FIXED position.







### Automatic Iris

With the Automatic Iris feature, the light level for the pick-up tube is continuously maintained for proper picture brightness and contrast

(Page 21)

### Record A TV Program

The VHS Movie enables you to record a TV program through the AC Adaptor if the TV has VIDEO OUT & AUDIO OUT Terminals

(Page 13)

### Playback Video

Immediately view your recordings in the Electronic View Finder (EVF) using any of the special effect playback functions STILL, FF search, REW search, along with the usual PLAYBACK of tapes you may have just recorded

(Page 26)

### Audio Dubbing

With the Audio Dub feature, you can substitute your comments or a mood with music in a previously recorded tape at any segment

(Pages 14, 15)

### Indicators On Electronic Viewfinder

The easily adjustable viewfinder has a 2/3 inch black and white TV screen showing the exact camera lens view under every condition. The EVF display indicators show the Recording status, Date/Time, Tape Counter, Memory-on, and Battery strength. A Light Indicator appears in low light conditions, and as a reminder, Tape, Battery and Dew warnings may flash on the EVF screen

(Pages 24, 25)

### 3 Way Power Supply

Since your VHS Movie is a compact camera, recorder and playback system, you can move your video production anywhere using one of the three available power supplies

**INDOORS** – The AC Adaptor allows you to plug-in the VHS Movie, charge batteries, or hook up to a monitor or regular TV

**OUTDOORS** – With the Battery Pack connected to your VHS Movie you have approximately 2 hours of continuous use. You can also minimize power consumption with the special **STANDBY** mode

**IN YOUR VEHICLE** – The VHS Movie simply plugs into the cigarette lighter with the Car Battery Cord (optional)

# DESCRIPTION OF CONTROLS

## LENS HOOD

Shields camera lens and accepts lens cap to protect lens.

## LENS FOCUS RING

Rotate this ring to manually focus the picture when the Focus switch is in the MANUAL position.

## EVF LOCK BUTTON

Release the lock to rotate the Electronic Viewfinder for compact storage.

## TALLY LIGHT

The red tally light flash alerts those being recorded that recording is in progress.

## DATE/TIME DISPLAY & FUNCTION CONTROL PANEL

(See page 9.)

## BACKLIGHT BUTTON

Press this button while recording your subject, and the lens opening will automatically compensate for high contrast light conditions. (See page 20.)

## FADE BUTTON

When this button is pressed the picture in the viewfinder image will fade out. When the button is released the picture will automatically fade in. (See page 20.)

## STANDBY BUTTON/INDICATOR

When this button is pressed the VHS Movie is ready to record, but uses a minimum amount of battery power. (See page 12.)

## RECORD REVIEW BUTTON

Press this button to playback the last few seconds of your recording. (See page 20.)

## WHITE BALANCE SWITCH (AUTO/FIXED)

The White Balance Switch in AUTO position will automatically maintain optimum color balance in either the indoor or outdoor range of lighting conditions.

When recording an outdoor scene from indoors or with an amber filter press and set this switch to the "☉ FIXED" position.

When recording an indoor scene from outside or with a blue filter press and set this switch to the "☾ FIXED" position.

## DATE & TIME SWITCH

DATE/TIME: Date and time will be displayed and recorded.

CLEAR: No date and time will be displayed and recorded.

DATE: Date will be displayed and recorded.

(See page 23 for use.)

## FOCUS SWITCH

AUTO Position - Slide this switch to AUTO for constant Auto Focusing.

MANUAL position - Slide this switch to MANUAL and while you press the switch, the picture will automatically focus. Release the switch to adjust Lens Focus Ring by hand.

## MACRO BUTTON (ON ZOOM LEVER)

Used to unlock Zoom Lever so it moves into the far left Macro position for close-up photography as close as one inch from the lens.

## ZOOM LEVER

Use this lever to manually Zoom in and out on your subject (or Power Zoom Switch page 8).

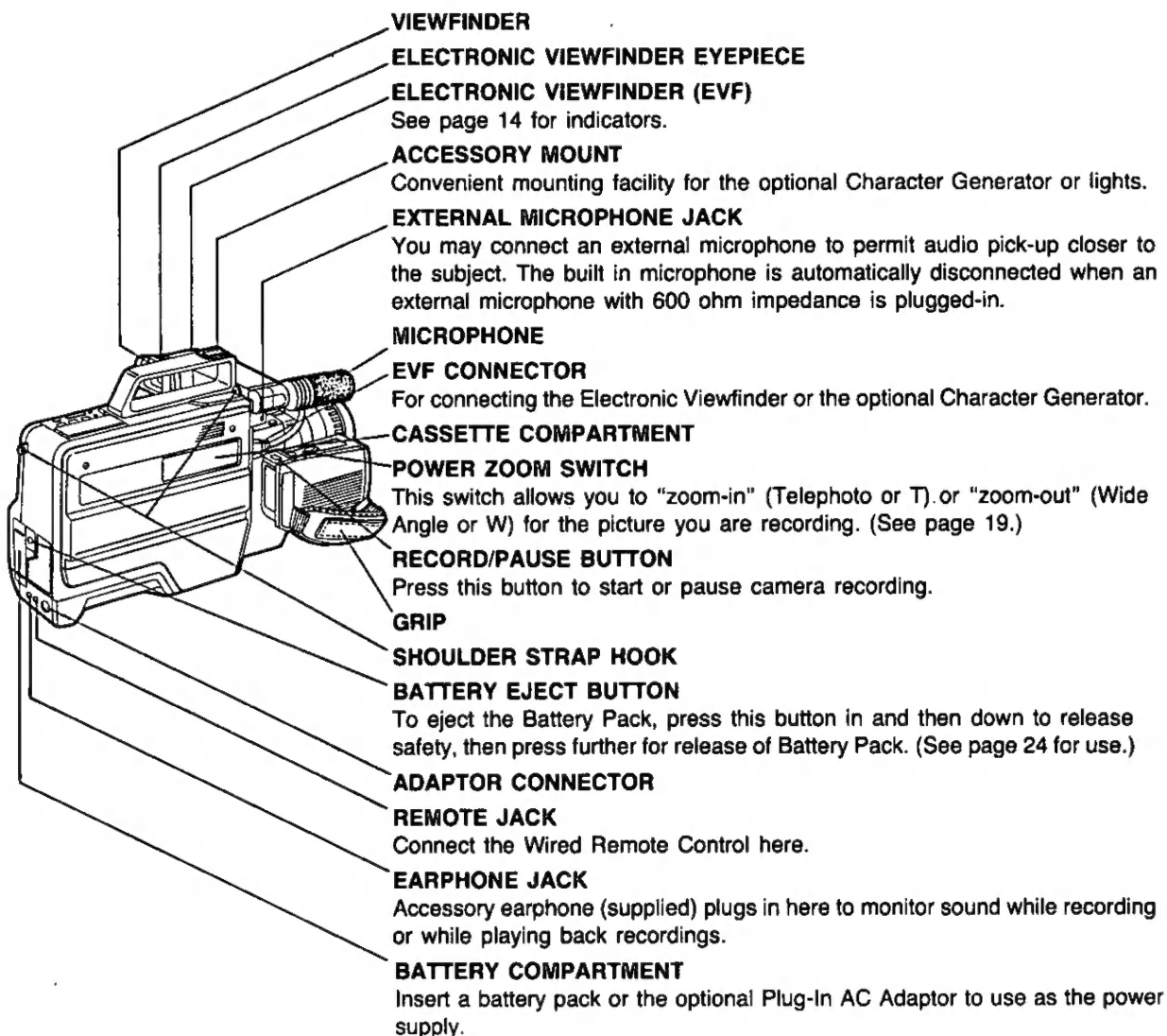
## DISTANCE DETECTION WINDOWS

These two windows are used to detect subject to camera distance for the automatic focus feature.

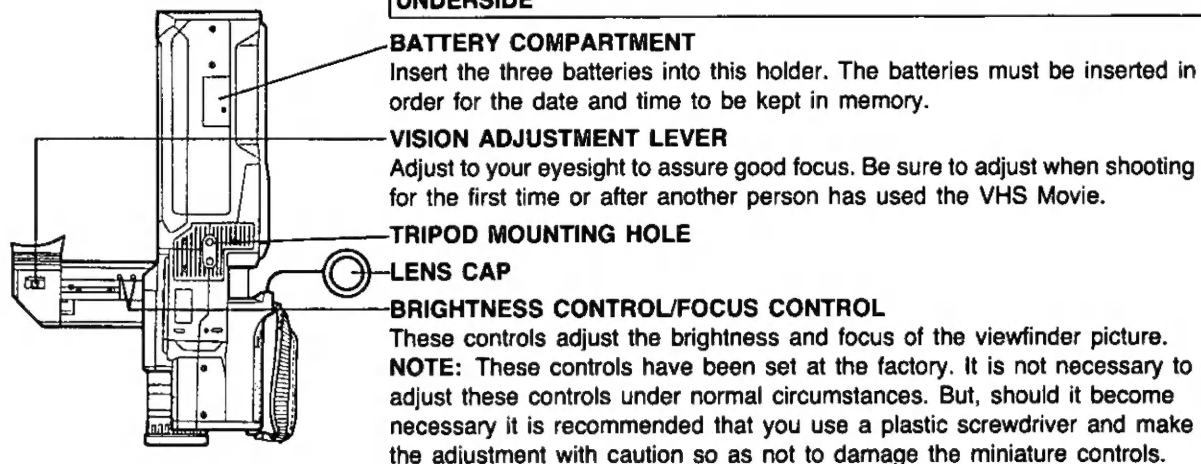
## WHITE BALANCE DETECTION WINDOW

Detects the color temperature for white balance. For proper white balance operation, do not block the window with your hand or another object.



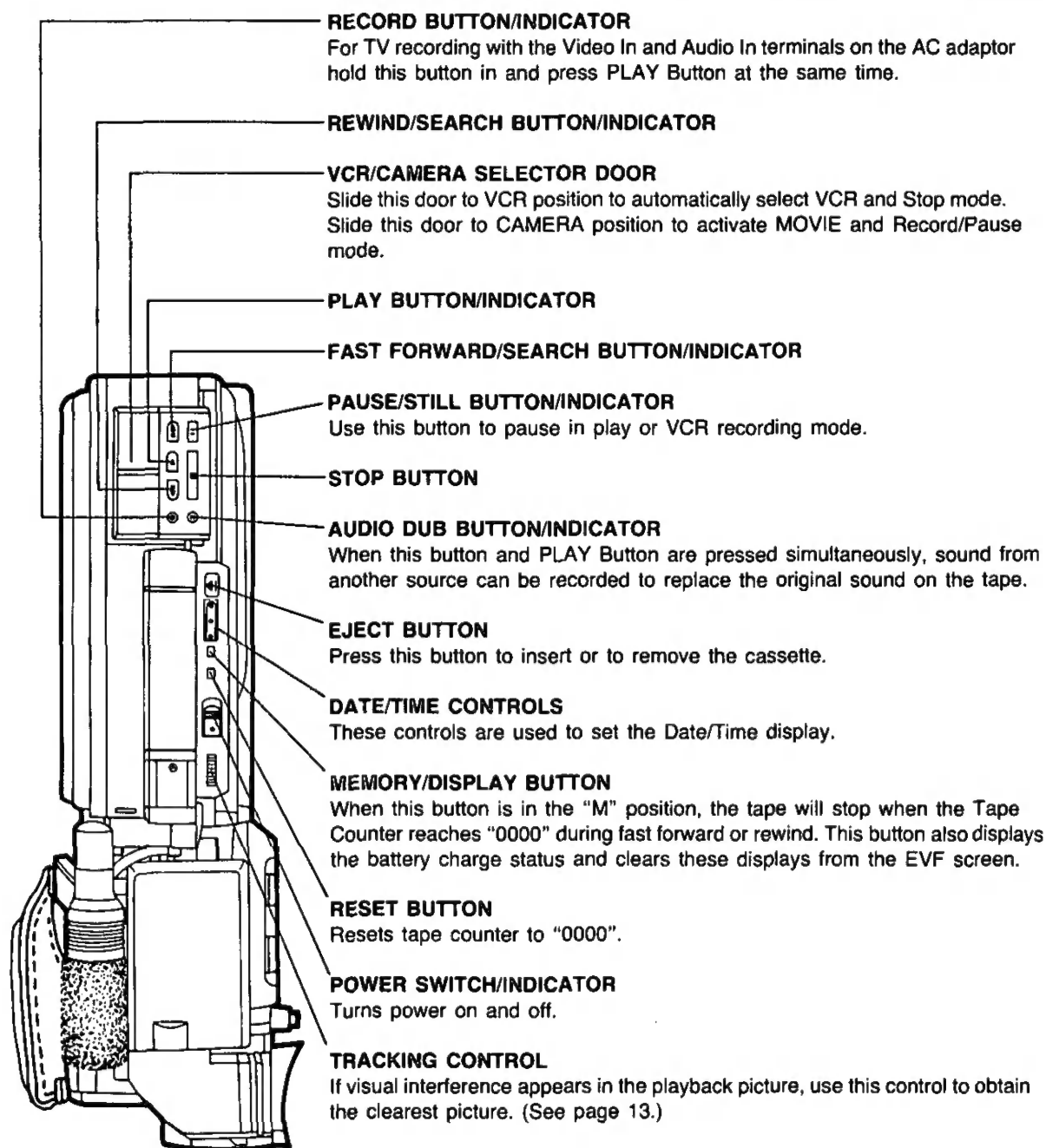


#### UNDERSIDE

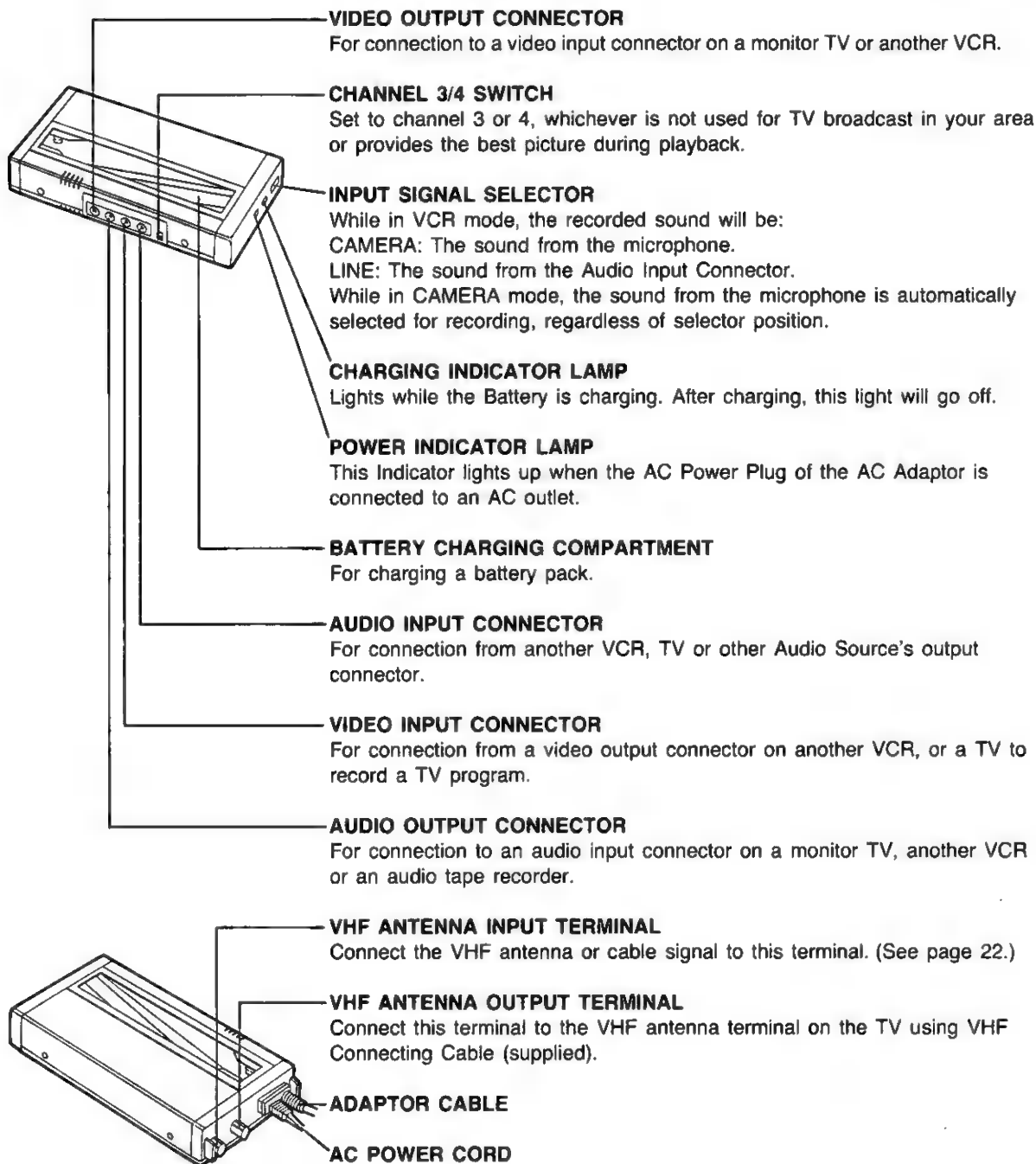


# DESCRIPTION OF CONTROLS (CONTINUED)

## DATE/TIME DISPLAY & FUNCTION CONTROL PANEL



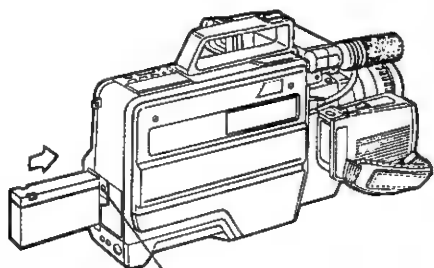
## AC ADAPTOR



# RECORDING

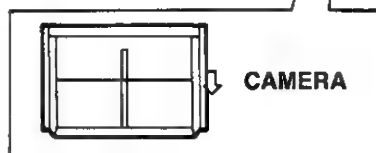
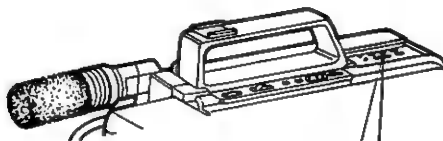
Begin the simple trial here to become familiar with the operation of your VHS Movie.

- 1** Insert the Battery Pack into the Battery Compartment.

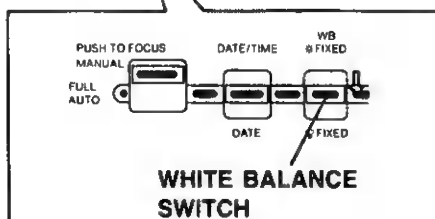
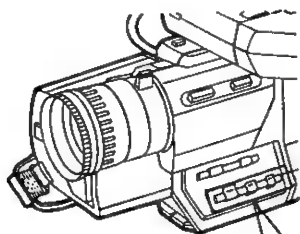


**BATTERY EJECT BUTTON**  
(See page 24.)

- 2** Slide the VCR/CAMERA Selector Door to CAMERA position.

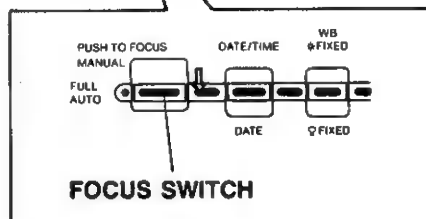
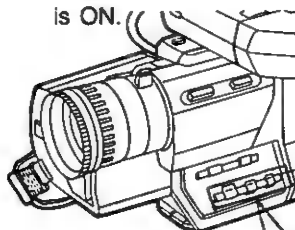


- 5** Set the White Balance Switch to AUTO for normal color values. The FIXED position is for special color conditions (page 18).



**WHITE BALANCE SWITCH**

- 6** Set the Focus Switch to the AUTO position. (See page 18 for manual focusing.)  
**NOTE:** In Auto position, the Auto Focus will function in camera mode whenever the power is ON.



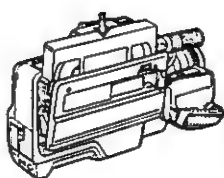
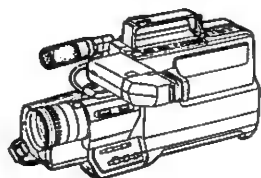
**FOCUS SWITCH**

## How to Insert Cassette

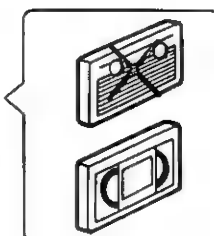
The VHS Movie may be ON or OFF when you insert a cassette.

1/ Press EJECT Button.

2/ Insert cassette and close cassette door.



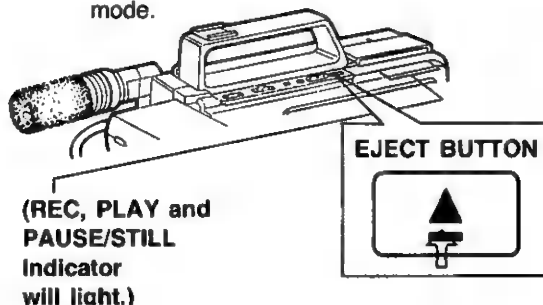
Press here gently to close.



Video Cassettes can only be used with the window side of cassette facing cassette door, and the arrow pointing down. Do not attempt to insert a cassette which is upside down or backwards.

**4** Press EJECT and insert cassette with tab. (See "How to Insert Cassette" on opposite page.)

- Control automatically passes to record/pause mode.

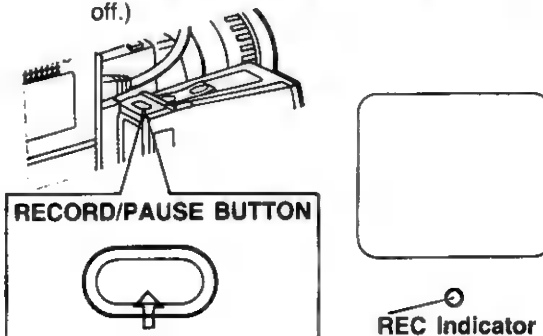


(REC, PLAY and PAUSE/STILL Indicator will light.)

**8** Press RECORD/PAUSE Button to start recording.

REC Indicator (in the EVF) will light and the Tally Light on the front of the Viewfinder will flash while recording is in progress.

- Use the Power Zoom Switch by pressing "T" or "W" with your finger tips.
- To pause when recording, press RECORD/PAUSE Button again. (REC indicator will go off.)



Set the **STANDBY** Button to **STANDBY** to conserve battery power during long pauses between recordings. The picture will disappear from the viewfinder and the **STANDBY** Indicator next to the **STANDBY** Button will light.

**Always pause the recording before switching to STANDBY.**

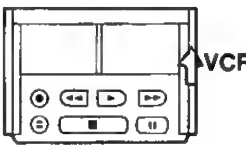
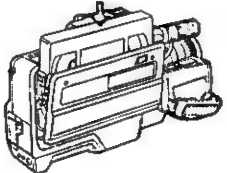
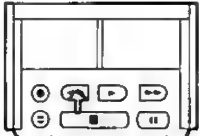
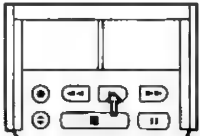
### Earphone Jack

Connect the earphone (supplied) to the earphone jack for monitoring the sound track as it is being recorded or played back.



# PLAYBACK

Now, you will want to see a playback of your first recording. You can play back your VHS Movie recordings immediately on the VHS Movie Electronic Viewfinder by following the steps given below. You may also play back your VHS Movie recordings directly to a monitor TV. (See page 22 for TV connection.)

## PLAYBACK

<p><b>1</b> Slide the VCR/CAMERA Selector Door to VCR position.</p> 	<p><b>2</b> Turn the VHS Movie ON and insert cassette. Control automatically passes to stop mode for playback and Special Effects.</p> 
<p><b>3</b> Rewind tape if necessary to beginning of tape by pressing REWIND Button.</p> 	<p><b>4</b> Press PLAY Button. Recorded picture should appear on the Viewfinder after a few seconds. (PLAY Indicator lights up.)</p> 

## SPECIAL EFFECTS PLAYBACK OPERATIONS

TO RAPIDLY LOCATE A PARTICULAR SEGMENT	TO VIEW A STILL PICTURE
<p><input type="checkbox"/> Hold down the desired SEARCH Button.</p>  <p>REW/SEARCH or FF/SEARCH</p> <p><b>SEARCH SPEED</b></p> <p>about 3 times normal speed.</p> <ul style="list-style-type: none"> <li>• Special effects playback can be activated during playback.</li> <li>• During search playback, horizontal noise bars will appear on the TV and audio will not be heard. This is normal.</li> </ul>	<p><input type="checkbox"/> Press PAUSE/STILL Button</p>  <p>PAUSE/STILL</p> <p><input type="checkbox"/> Press again to release the tape from pause/still mode.</p> <ul style="list-style-type: none"> <li>• In order to protect the tape and Video heads the VHS Movie modes will automatically revert as follows: <ul style="list-style-type: none"> <li>• REC/PAUSE <math>\xrightarrow{\text{IN 5MIN}}</math> STANDBY</li> <li>• STILL <math>\xrightarrow{\text{IN 5MIN}}</math> STOP</li> <li>• STOP <math>\xrightarrow{\text{IN 5MIN}}</math> POWER OFF</li> </ul> </li> <li>-with Battery, Plug-In AC Adaptor power</li> </ul>

## TRACKING CONTROL



## TRACKING CONTROL

For playing back tapes recorded on your VHS Movie, the TRACKING CONTROL is normally left in the detent (center) position.

If there is noise in the picture or when playing back a prerecorded tape or tape recorded on other machines, adjust this control until noise has moved out of the picture as shown.

## NOTE:

- After recording or playback is finished, make a habit of fully rewinding the tape by pressing the REWIND Button before EJECT.
- VHS Movie playback for pre-recorded LP or SLP programs may be completely snowy.
- When the tape reaches its end during playback, or fast forward, the tape will rewind automatically.
- To return to CAMERA mode from any function in the VCR mode, slide the VCR/CAMERA Selector Door to CAMERA position, then press the Record/Pause Button to record.
- If the prevention tab has been removed from the cassette, "TAPE" in EVF and REC Indicator on the Record Button will flash in CAMERA mode, and record mode will not function.



The Electronic Viewfinder is a miniature monitor that displays in black and white what you are recording as you will see it in playback, and you can view this recording immediately in playback on this display. The EVF display also enables you to check the VHS Movie recording conditions and set them before you begin recording.

## BATTERY REMAINING INDICATION

(NOTE: This indication will not be recorded.)



When the Battery is fully charged, the indicator appears as shown.

E ---- F



As Battery charge is consumed, the indicator changes as shown.

E -- F

E - F

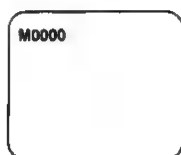


When the Battery is almost fully discharged, "BATTERY" will flash for approximately 7 minutes prior to automatic power shut off. When this happens, a battery recharge is necessary.

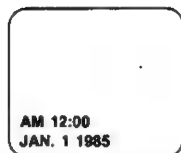


## TAPE COUNTER/MEMORY INDICATION

(NOTE: This indication will not be recorded.)



The tape counter helps you monitor the amount of tape used. "M" indicates the memory feature is operating. (See page 17.)



## DATE/TIME INDICATION

With the date/time feature ON, the date and time will also be recorded with the scenes you record. (See page 23 for use.)



When adjusting the date and time for the first time or after replacing the battery, "PLEASE SET CLOCK" appears indicating the clock needs adjustment.

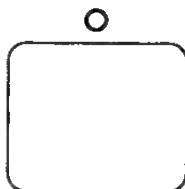
# INFORMATION ON ELECTRONIC VIEWFINDER INDICATORS (CONTINUED)

## RECORDING INDICATION



This green indicator will light while a camera recording is being made.

## WHITE BALANCE INDICATOR



This red indicator will light when the **FIXED** position is selected. (Refer to page 18)

## LOW LIGHT INDICATION



When this indicator appears, the light level may be inadequate. More light should be provided to achieve better picture quality and color.

## TAPE WARNING INDICATION



If the cassette tab is missing, this indicator will flash and no recording will start. (Refer to page 41.)

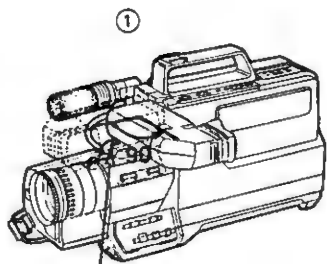
## DEW INDICATION



This indicator appears if excessive moisture condenses in the unit. If the **DEW** Indicator is **ON**, the unit will not operate. If this happens, the **DEW** Indicator will flash for about 10 seconds and the **VHS Movie** will automatically turn off. In this case, wait until the indicator no longer flashes when the **VHS Movie** is turned on again.

**NOTE:** When more than one warning is required on display, "**BATTERY**" and "**TAPE**" will flash alternately.

## HOW TO ADJUST THE ELECTRONIC VIEWFINDER



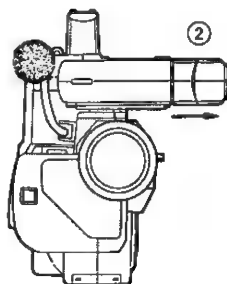
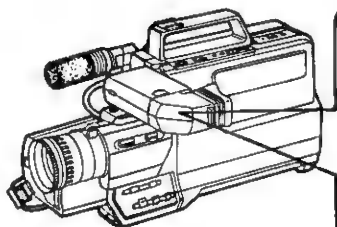
EVF LOCK BUTTON

1. The Electronic Viewfinder will slide forward on its mount and swing to the left to lock into a right-angled viewing position. (For special uses, remove the EVF by sliding it completely forward and pressing the recessed release button on the underside of EVF, then pull the EVF off of the mount.)
2. In the locked position you may extend or contract the EVF for comfortable left or right eye viewing.

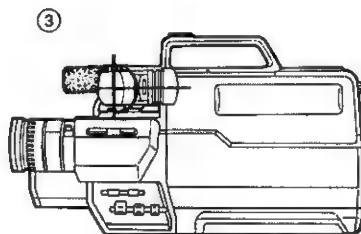
### To store

- ☐ In the locked position extend the EVF out to clear the EVF Lock Button. Press this button and swing the EVF parallel to the handle.
- ☐ Fully contract the EVF back to its compact position.

3. The eyepiece may be tilted 90° up and down.



(front view)

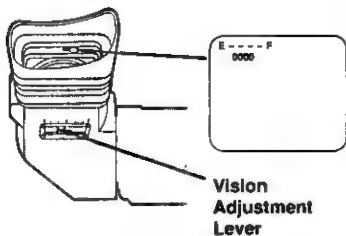


(side view)

## VISION ADJUSTMENT LEVER

1. When the VHS Movie Power is ON, make contact with the EVF eyepiece as shown at left.
2. Locate the lever on the underside of eyepiece and move it to adjust for clear view of the EVF screen display.

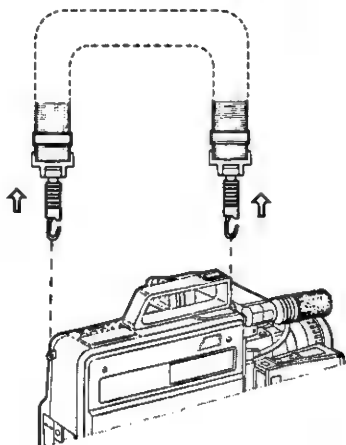
Viewfinder



Vision Adjustment Lever

## HOW TO USE THE SHOULDER STRAP

The shoulder strap makes it easier to carry the VHS Movie when you're not recording. Attach the shoulder strap to the VHS Movie as illustrated at left.

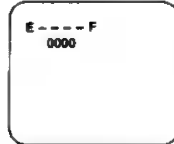
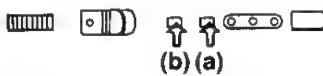


# OPERATING REFINEMENTS

## TAPE COUNTER "0000"/COUNTER MEMORY

The Tape Counter keeps accurate track of where the tape is at all times so the beginning and ending of your programs can be easily located. When the Memory function is selected the VHS Movie will stop during Rewind or Fast Forward whenever it reaches the point where the tape counter was previously set to "0000".

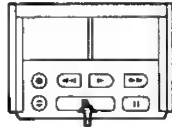
- 1 (a) Press the MEMORY/DISPLAY Button.  
Tape Counter and Battery indication appear.  
(b) At desired location:  
press RESET Button.  
"0000" indication appears.



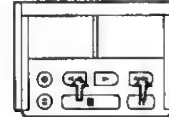
- 2 To use the Memory feature, press MEMORY/DISPLAY Button. "M" appears.



- 3 After recording or playback is finished, press STOP Button.



- 4 Press FF, or REWIND Button. Tape stops whenever "M0000" is indicated.



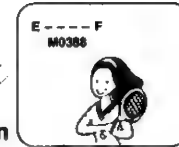
Picture with  
no overlay



Tape Counter helps  
you monitor amount  
of tape used.



"M" indicates  
memory feature  
is operating.



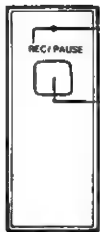
Press  
MEMORY/  
DISPLAY  
Button

Press  
MEMORY/  
DISPLAY Button

Press  
MEMORY/  
DISPLAY Button

## REMOTE CONTROL

This control allows you to record from a remote position without disturbing the VHS Movie or the subject.



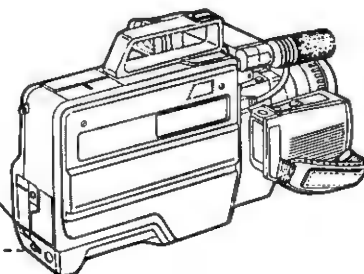
### Recording Indicator

This indicator lights when the VHS Movie is in record mode.

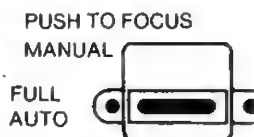
### Remote Record Button

Pressing this button starts a recording when the VHS Movie is in record/pause mode. When pressed again, it resets the VHS Movie to record/pause.

Remote  
Jack



## FOCUS SYSTEM



Focus Switch

The VHS Movie can be focused both manually and automatically. Set the Focus Switch to the **MANUAL** position for manual focusing. You can now focus manually by rotating the lens focus ring.

Pressing the Focus Switch while in the **MANUAL** position activates the Auto Focus system until the Focus Switch is released. Should the subject change, re-focusing may be required. The focus setting will not automatically change until the Focus Switch is pressed again.

To lock the **AUTO** focus position, slide the Focus Switch to the **AUTO** position. The VHS Movie will now focus automatically.

Do not cover the Distance Detection Windows. These detect distance for the automatic focus function.

The VHS Movie will automatically focus on the subject placed in the center of the EVF when the Focus Switch is set to **AUTO** position or when the Focus Switch is pressed while the Focus Switch is in the **MANUAL** position.

For the following scene conditions, manual focusing is recommended.

1. Scene with both far and near objects.
2. Perspective scene.
3. Non-reflective object such as a black curtain.



4. Small object: Note.... Auto focus system needs a reflected area. When camera to object distance is 10 feet, an object must have a reflected area which is greater than a circle of approx. 4 inches in diameter.



5. The auto focus lens may not focus on an object over approx. 40 feet due to the limitation of auto focus system.



Operation in the manual focus mode should be performed using the following focusing procedure.

- a. Aim the VHS Movie at scene to be recorded.
- b. Press and hold the T side of the Power Zoom Switch until the lens zooms to maximum close up setting.
- c. Rotate the lens focus ring for the sharpest picture at this setting. (It may be necessary to back away from the subject to focus image properly).
- d. Press the W side of the Power Zoom Switch. Picture should stay in focus over the entire zoom range. Re-focusing may be required when the VHS Movie is aimed at a new scene.

## WHITE BALANCE

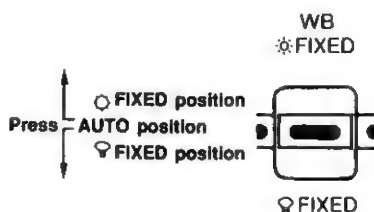
When the VHS Movie is first turned on allow about 30 seconds warm up. With the White Balance Switch, select the **AUTO** position for continuous color balance in both indoor and outdoor lighting situations.

Under the following conditions it is recommended that you press and set the White Balance Switch to the **FIXED** position for better color reproduction. (WHITE BALANCE Indicator lights up.)

☼ **FIXED**: When recording an outdoor scene from indoors, or outside with an amber filter.

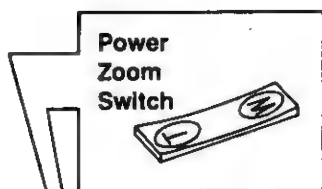
💡 **FIXED**: When recording an indoor scene from outside, or inside with a blue filter.

(See page 40.)

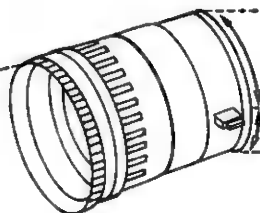
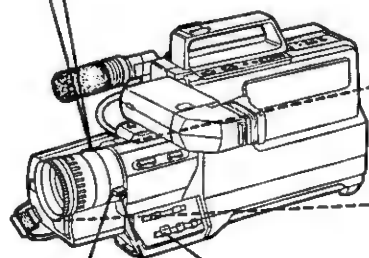


White Balance Switch

# USEFUL FEATURES FOR RECORDING



Your new VHS Movie has been designed with these special features enhancing your subject and your skill, when you are ready to give the professional touch to your recordings.



Press Macro Button for close-up range

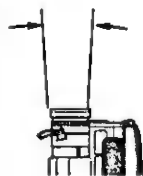
Zoom Lever    Macro Button    Focus Switch

## ZOOMING IN OR OUT ON YOUR SUBJECT

The VHS Movie has a power zoom lens that gently changes the viewing angle. Zooming is possible by lightly pressing the T or W side of the Power Zoom Switch. The power zoom is conveniently located at your finger tips on the hand grip so you can control it with one hand while focusing with your left. You can also manually zoom at anytime; the zoom ring has a handy lever for steady turning.



Zoom Out  
(Wide Angle)  
W



Zoom In  
(Telephoto)  
T



## TAKING CLOSE-UP PICTURES

A sharp focus of greatly enlarged images as close as one inch from the lens lets you fill your screen with a world in miniature. The Macro function is for close up images and is used apart from normal camera recording.

1. Set the Focus Switch to MANUAL position.
  2. Turn the Zoom Ring Lever to the extreme left position.
  3. Press the Macro (green) Button on the Zoom Ring Lever and set the Zoom Ring Lever for Macro focus range adjustment.
- When using the Macro function, it may be helpful to steady the VHS Movie by mounting it on a tripod.



① Press Record/Pause Button

**RECORD REVIEW (INSTANT REPLAY)**

This function allows you to monitor the last 4 seconds of recorded material on the viewfinder screen or monitor screen by pressing the Record Review button while the VHS Movie is in the camera record/pause mode. When playback is finished, the VHS Movie will return to the record/pause mode automatically, and the next segment will be recorded in synchronization with the last segment recorded.



② Press Record Review Button

③ Then Stops, Ready for the Next Edit.

③ Plays ... 4 sec. for Forward.

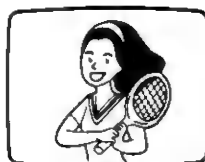
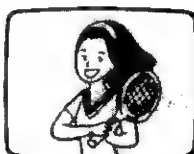
**BACKLIGHT BUTTON**

This Button may be used to adjust the light level on a recording subject that is darker than the surrounding scene. You will find this backlight adjustment useful for recording a subject in a shadowed area or in front of strong backlight. Press the Backlight Button while recording a high contrast scene, then release when the lighting condition changes.

**FADE IN & FADE OUT**

Use the Fade Button to activate the fade feature. Picture will fade out when holding down the Fade Button. When the button is released, picture will fade in. This feature eliminates sudden scene changes. For instance, before starting a recording segment, hold down the Fade Button until the picture fades out. Then press the Record/Pause Button to start the recording, releasing the Fade Button at the same time.

To fade out at the end of a recording segment, hold down the Fade Button. Then when the picture has faded out, press the Record/Pause Button to pause the recording.

**FADE OUT  
RECORDING IN PROGRESS****Press the FADE Button****FADE IN**

Picture fades out



Picture fully faded out

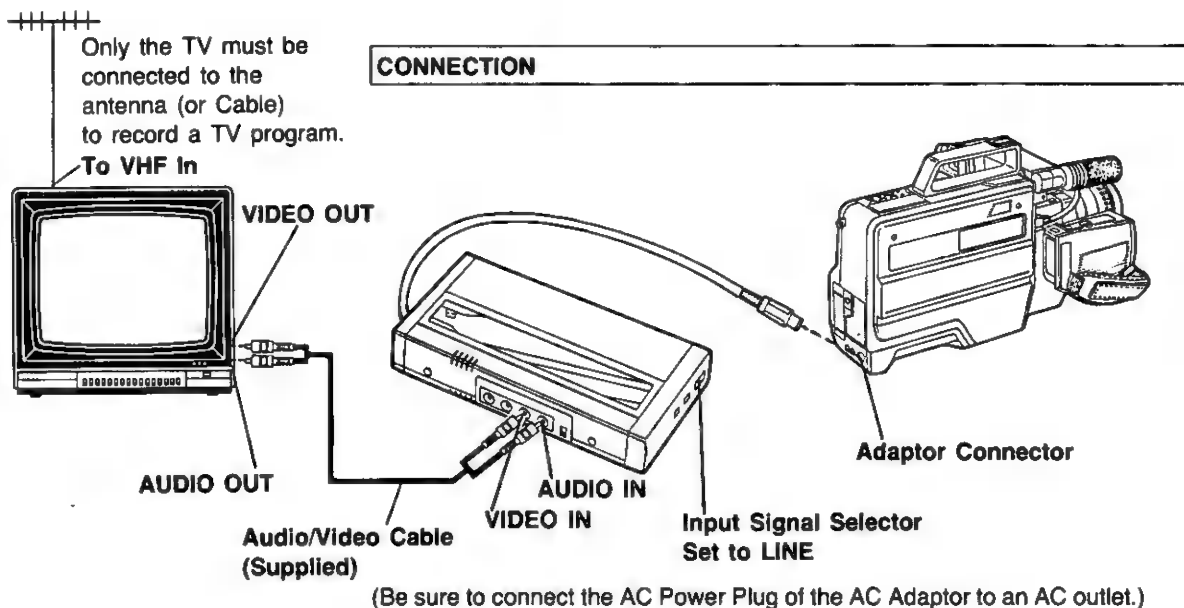
**RECORD/PAUSE MODE****Release the FADE Button  
and RECORD/PAUSE Button****FINE-EDITING**

To obtain proper continuity when taping from the stop mode, or after charging the battery:

1. Rewind the tape for a short distance (about 5 digits on Tape Counter) by pressing **REWIND** Button.  
Then press the **PLAY** Button and view the picture on the viewfinder.
2. At the location where you wish to continue recording, press **VCR PAUSE/STILL** Button.
  - A. Then, Slide **VCR/CAMERA** Selector Door to **CAMERA** position; the VHS Movie will go into the record/pause mode and then press **Camera REC/PAUSE** Button to continue recording.
  - B. For **VCR** recording hold **RECORD** Button in press **PLAY** Button and then press **VCR PAUSE/STILL** Button again, the VHS Movie will begin recording.

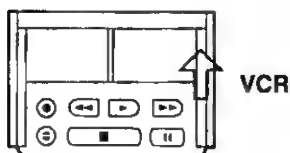
# TO RECORD A TV PROGRAM

The VHS Movie enables you to record a TV program through the AC Adaptor when the TV has VIDEO OUT & AUDIO OUT Terminals.

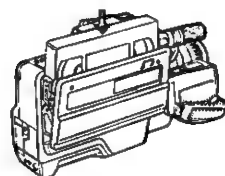


## OPERATION

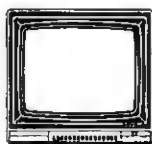
- 1** Slide the VCR/CAMERA Selector Door to VCR position.



- 2** Turn the VHS Movie ON and insert cassette with tab. Control automatically passes to stop mode.



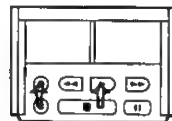
- 3** (a) Turn TV ON, select the CHANNEL to be recorded on TV. The selected channel picture will appear on the TV.  
(b) Set the Input Signal Selector on adaptor to LINE.



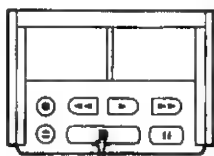
Select the CHANNEL

- 4** Hold RECORD Button in and press PLAY Button. During recording, be sure the TV POWER Button is ON.

**NOTE:**  
A rolling white pattern may appear if you have made a Memory/Display Button selection.  
(See bottom page 43.)



- 5** Press STOP Button to stop recording.



- To pause recording, press PAUSE/STILL Button.



PAUSE/STILL

- Within 5 minutes press pause to return to recording.  
• After 5 minutes, pause mode will automatically go into standby mode.

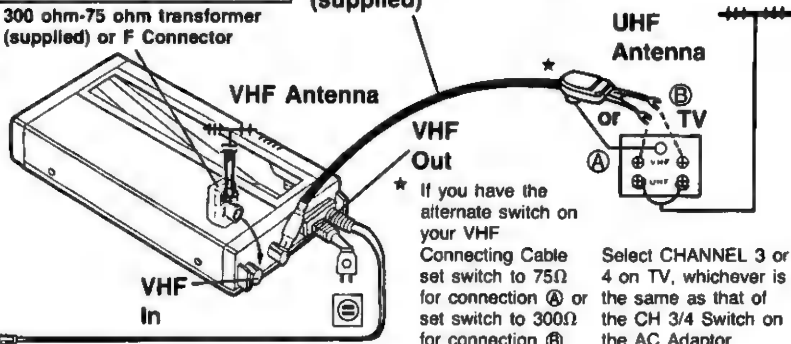
The VHS Movie may also be connected to a TV to view your tapes in their final program form, while you are recording them or any time later.

## WHEN YOUR TV DOES NOT HAVE VIDEO IN & AUDIO IN TERMINALS

### WITH AC ADAPTOR POWER

300 ohm-75 ohm transformer (supplied) or F Connector

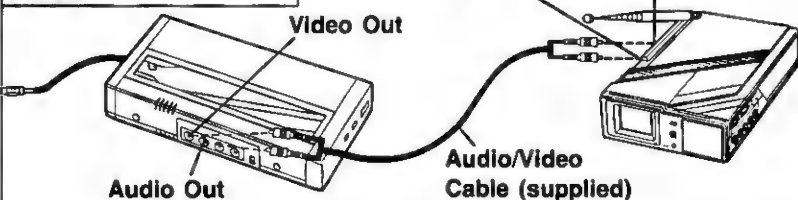
VHF Connecting Cable (supplied)



- The VHS Movie is in VCR mode when ON, and TV mode when turned OFF (with AC Adaptor ON and the VCR/CAMERA Selector Door is in VCR position).
- TO WATCH TV ONLY:
  1. Turn the VHS Movie OFF.
  2. Turn TV ON and select the desired channel.

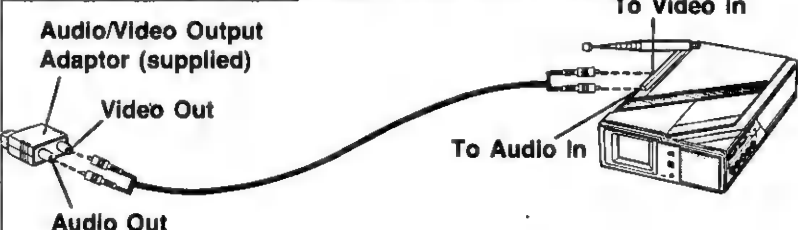
## WHEN YOUR TV HAS VIDEO IN & AUDIO IN TERMINALS

### WITH AC ADAPTOR POWER

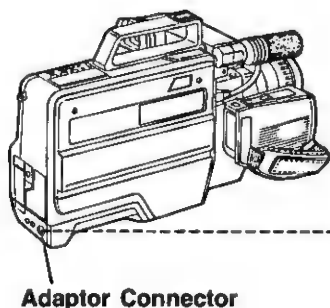
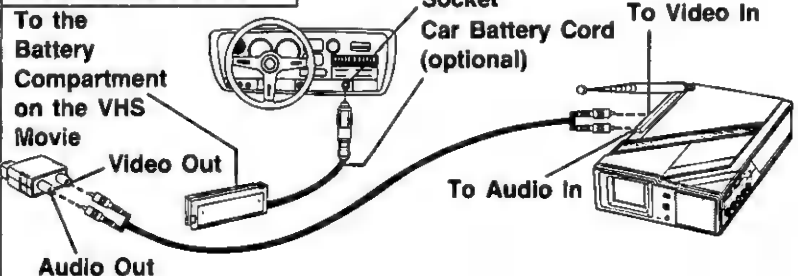


### WITH BATTERY POWER

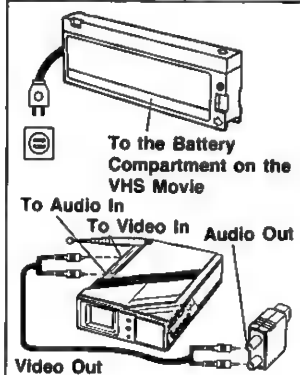
(Be sure the Battery Pack is plugged in the VHS Movie.)



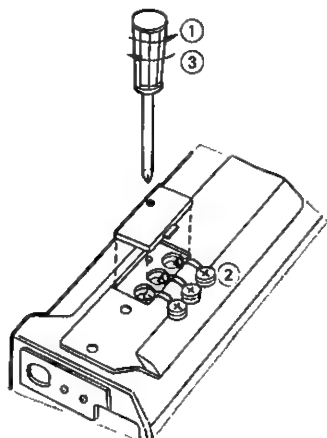
### WITH CAR BATTERY CORD CONNECTION



### WITH PLUG-IN AC ADAPTOR POWER (VA506XE)



# DATE/TIME DISPLAY



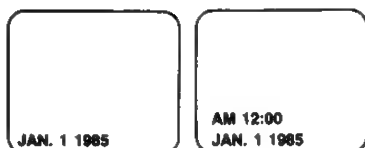
The VHS Movie has an auto date function which calculates the date and time, including leap year, automatically until Dec 31 1999. This function is activated by the battery even when the VHS Movie power is off. The battery must be inserted before date and time can be kept automatically as follows.

## INSTALLING THE BATTERY

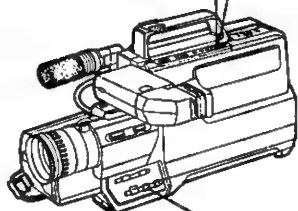
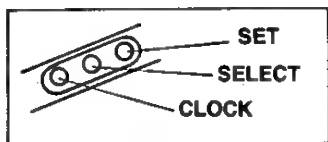
1. Turn the panel lock screw counterclockwise and remove the Battery Cover from the Battery Compartment.
2. Install the 3 batteries (supplied) into their socket holes with the ⊕ side up.
3. Place the hinged panel into the Battery Compartment and turn the screw clockwise to tighten.

### NOTE:

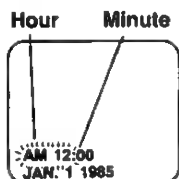
Keep the battery out of the reach of little children since swallowing the battery may be harmful. When replacing the batteries, be sure to use the same battery (NR44) or the equivalent.



### Date/Time Controls



### Date & Time Switch



## TO DISPLAY THE DATE AND TIME

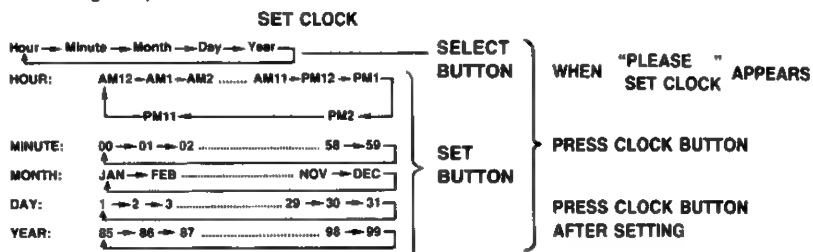
Turn the VHS Movie on and look into the EVF.

By setting the Date & Time Switch, the date or date & time can be displayed.

## TO SET THE DATE AND TIME

The Date and Time display may be set in Record/Pause or Stop mode and then recorded as an overlay in a recording when the display is on. Press the Date/Time Controls (SET, SELECT, CLOCK) by using a thin, dull tip end.

1. Press the CLOCK Button lightly, and the time and date are displayed. "AM 12" flashes. After setting, press the CLOCK Button again to start clock.
2. When the SELECT Button is pressed, the flashing portion displayed will change in the following sequence shown below.
3. When the SET Button is pressed, the flashing portion will change in the following sequence:

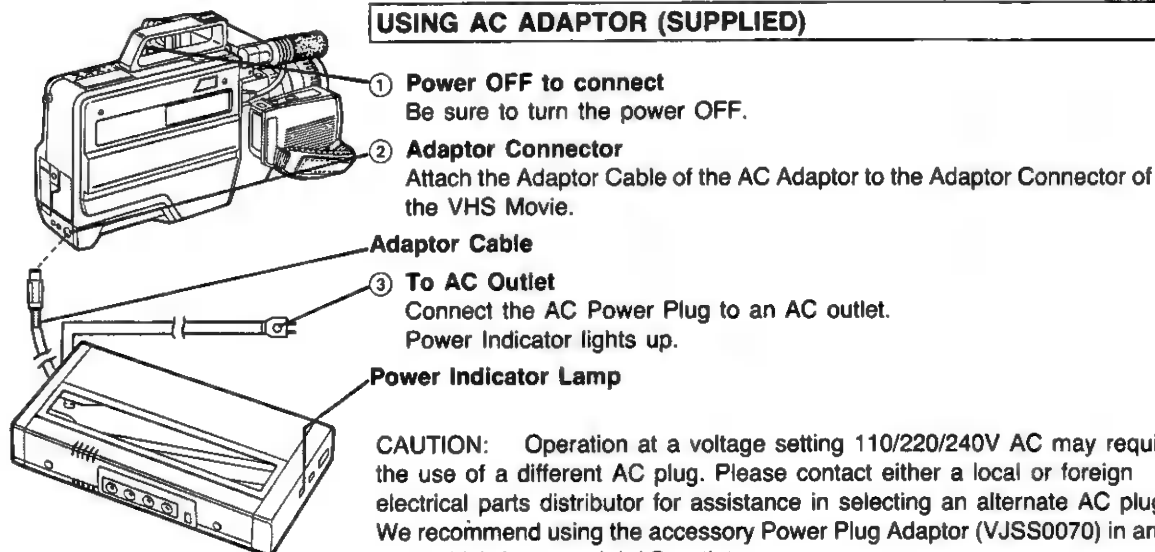


### NOTE:

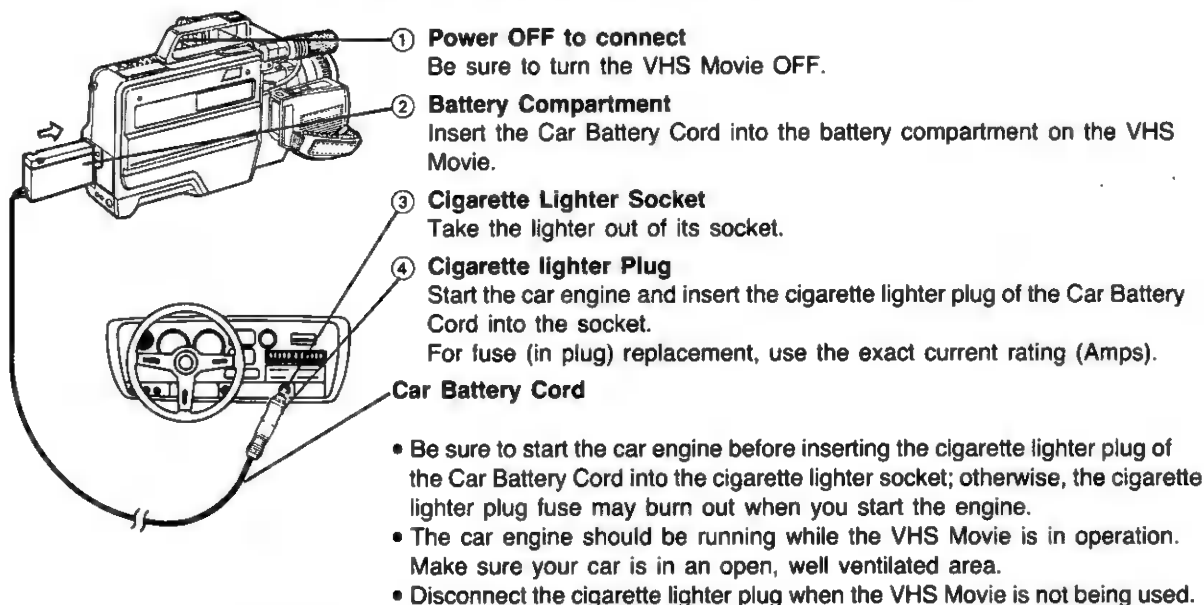
- If the SET Button is held down the displays will advance rapidly.
- When adjusting the date and time for the first time or after discharging the battery, "PLEASE SET CLOCK" appears indicating the clock needs adjustment. Battery life is around 1 year. (See page 14 for indication.)
- It is recommended that the VHS Movie power is on before replacing the batteries.

This will save you from resetting the date and time.

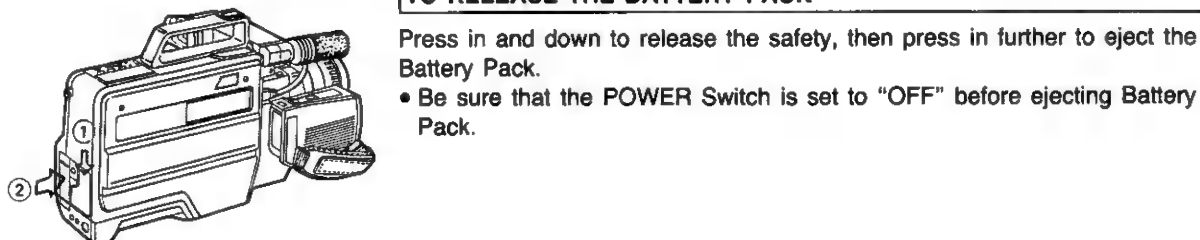
## USING AC ADAPTOR (SUPPLIED)



## USING CAR BATTERY CORD (OPTIONAL)



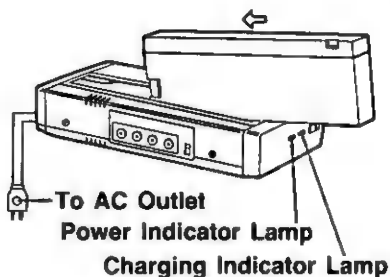
## TO RELEASE THE BATTERY PACK



# BATTERY CHARGING WITH AC ADAPTOR

Your AC Adaptor can be used to charge Battery Packs in either of the two ways shown below, or both together to charge two Battery Packs at the same time.

## CHARGING DIRECTLY ON THE AC ADAPTOR



1. Connect the AC Power Plug of the AC Adaptor to an AC outlet. Power Indicator lights up.
2. Place the Battery Pack in the AC Adaptor as illustrated at left. The Charging Indicator will light during charging. The Battery should charge in about 1-2/3 hours. When charging is finished, the Charging Indicator light will go out.

## CHARGING IN THE VHS MOVIE

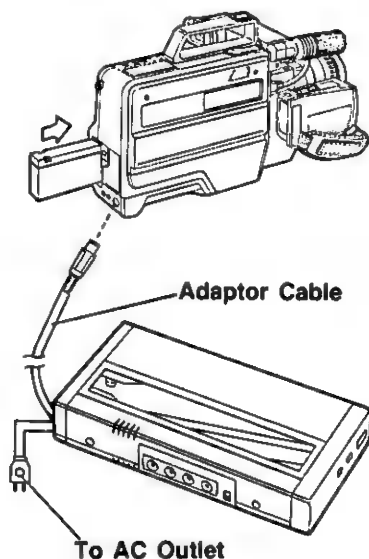
1. Be sure to turn the VHS Movie OFF. Battery Charging will not take place if the VHS Movie is ON.
2. Attach the Adaptor Cable of the AC Adaptor to the Adaptor Connector of the VHS Movie.
3. Connect the AC Power Plug of the AC Adaptor to an AC outlet. Power Indicator lights up.
4. Insert the Battery Pack. The Charging Indicator will light during charging. The Battery should charge in about 1-2/3 hours. When charging is finished, the Charging Indicator light will go out.

### NOTE:

- The useful operation time of the Battery Pack will gradually decrease after repeated use and recharging. The Battery Pack is no longer serviceable if the operation time is too short even after a sufficient charge.
- If you charge two Battery Packs at the same time, Batteries should charge together in about 3-1/3 hours.

## A WORD ABOUT THE BATTERY PACK

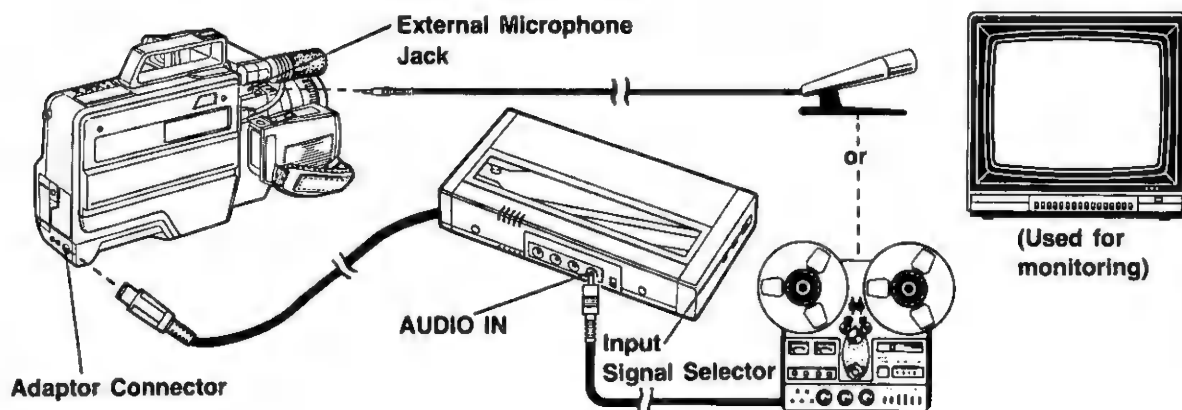
- Store the Battery Pack in a cool, dry, and dark place.
- Do not drop it or subject it to strong jolts.
- Always charge the Battery Pack soon after use. Discharging for a long time may make its life shorter and recharging impossible.
- Be careful not to put the Battery Pack near fire because this may short-circuit it.
- Batteries should never be disposed of in fire.
- Do not use any other chargers than specified.
- Do not use the Battery Pack for appliances other than specified.
- Do not use it below 0°C or above 40°C (32°F or 104°F). If the temperature exceeds these limits a safety device will automatically prevent operation of battery.
- Should it be broken and the internal electrolyte containing sulfuric acid be spilt over skin or clothing, be sure to wash immediately in water or neutralize with ammonium water or sodium bicarbonate and call your doctor.
- Do not use an insufficiently charged or worn out Battery Pack.





Your own soundtrack may be substituted onto a previously recorded tape with either a microphone, tape recorder, or your own component audio system.

## CONNECTIONS



## OPERATION

### PREPARATION

Prepare the audio source to be used for dubbing.  
TV ON, CH 3 or 4.

Turn on the VHS Movie and AC Adaptor (if used).  
Insert cassette with tab. (see page 41 for details.)

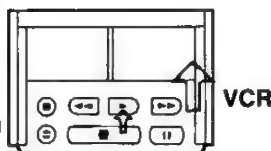
- Set the Input Signal Selector to the desired position.  
The recorded sound will be:  
CAMERA: The sound from the microphone.  
LINE: The sound from the Audio Input Connector on the AC Adaptor.



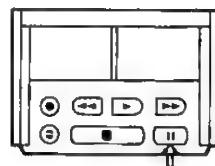
- Slide the VCR/CAMERA Selector Door to VCR position and press the PLAY Button.

**NOTE:** A rolling white pattern may appear if you have made a Memory/Display Button Selection.

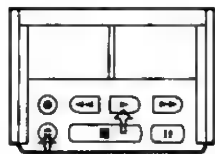
(See bottom page 43.)



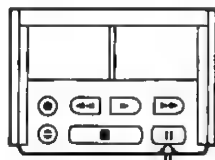
- Press PAUSE/STILL Button at the start of the segment to be dubbed.



- Press AUDIO DUB Button together with PLAY Button to put the VCR in the pause mode. The audio source that you supply may be heard through the TV (if connected).



- Press PAUSE/STILL Button once again to release pause and start Audio Dubbing.  
□ Press STOP Button to stop Audio Dubbing.



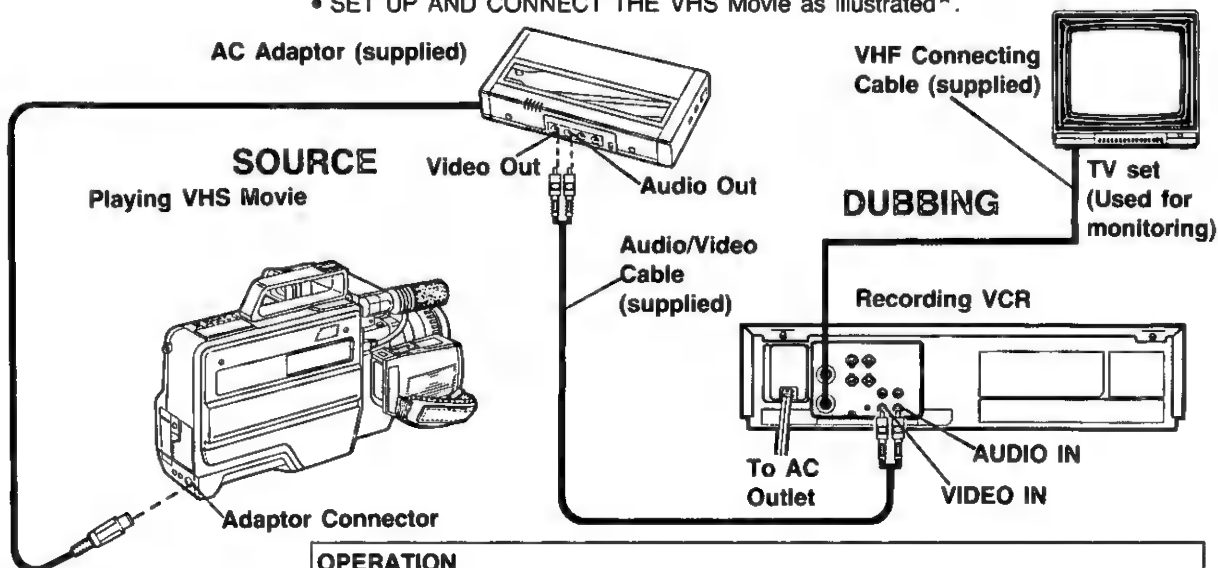
**NOTE:** When a microphone is used for dubbing, do not place it near the speaker of your TV while dubbing is being done. A howling noise (feedback) may occur.

# RE-RECORDING (VIDEO/AUDIO DUBBING)

It is simple to dub tapes using two VHS Movies or another VCR for playing or recording as described below. You are cautioned that the unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

## CONNECTIONS

- SET UP AND CONNECT THE VHS Movie as illustrated\*.



## OPERATION

- Press Power ON at TV and both the VHS Movie and the other recorder.
- Set TV CHANNEL Selector to the predetermined VCR Channel (3 or 4).
- On Recording VCR set VCR/TV Selector to VCR.
- Slide the VCR/CAMERA Selector Door to VCR position on the VHS Movie.

SOURCE	DUBBING
<p>On the Playing VHS Movie with original tape.</p> <ol style="list-style-type: none"> <li>① Insert Source tape.</li> <li>② Press MEMORY/DISPLAY Button to clear display. See page 17. (Dubbing VCR will record what you see on playback screen.) Setup to Pause at desired playback</li> <li>③ Press PLAY, then review on monitor TV.</li> <li>④ Press PAUSE on the VHS Movie at the start of the scene you will want to playback to the Dubbing VCR: The VHS Movie is now ready in Play/Pause mode.</li> </ol>	<p>On the recording VCR with blank or programmed dubbing tape.</p> <ol style="list-style-type: none"> <li>⑤ Select tape speed SP, LP or SLP.</li> <li>⑥ Insert tape on which you want to do the re-recording (Dubbing). Setup to Pause at desired recording</li> <li>⑦ Press PLAY Button, review tape on VCR with monitor TV.</li> <li>⑧ Press PAUSE, at start of section you desire to dub;</li> <li>⑨ Press Tape Counter Reset Button to "0000".</li> <li>⑩ Press RECORD and PLAY Buttons together: Dubbing VCR is now ready in Record/Pause mode.</li> </ol>
<h3>Begin Dubbing</h3> <ol style="list-style-type: none"> <li>⑪ Release the VHS Movie Play/Pause mode and Dubbing VCR Record/Pause mode at the same time to begin Dubbing.</li> <li>⑫ Press STOP Buttons on both units to stop Dubbing.</li> </ol>	

## NOTE:

- Source tapes from other VCRs must be pre-recorded in SP mode for VHS Movie playback.
- For technical reasons, dubbing a tape may reduce its quality.

\* Operation for Recording (Dubbing) VHS Movie setup is similar. See page 21 for similar setup connections.

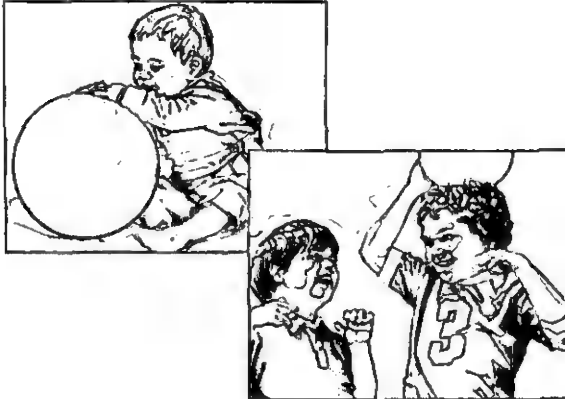
# *Using Your VHS Movie*



# EVENTS YOU CAN SHARE WITH VIDEO

---

Use your VHS Movie to keep special family moments close to everyone for years to come. The various sights, sounds and incidents of the important expressive events in life can be recorded on video tape. Everyone will enjoy handling the VHS Movie and children love to watch themselves on a TV screen. Video is fun for all of the family.



## Special Family Gatherings

Weddings, births, anniversaries and many other occasions of celebration and reunion are special gatherings to remember. But the VHS Movie is so easy to use you will find yourself recording all kinds of things. You can see the results of your "snapshots" right on the scene. If you make a mistake, just record over it again, there is no wasted tape.

## Children Growing Up

Wouldn't it be interesting to see what you were like at age three? It could be a reality for your children. First words, first steps, first time off to school, there is nothing like video for bringing back all of those once-in-a-lifetime events. And when your children grow up and have children of their own you can give them a video copy of those special moments.

## Travel Video

Your new VHS Movie is so compact and lightweight that you can easily take it traveling. A video vacation is much more fun, you bring home your adventures as video entertainment for all to join in.





### Video Letters

Video is a great way of keeping in touch with family and friends. The video advantage is that your friends and relatives can see you in their own homes. If you are far away from someone dear to you, you can close that distance with a video letter.



### Valuable Learning Aid

Musical instruments, golf, dance, tennis ... the possibilities are unlimited. At home you can view your instructor's example as many times as you like. Set the VHS Movie on a tripod and record your own performance for comparison. With video you will find how well your enjoyment is expressed.

### Video Album

Take your photo albums and turn them into video albums. Just use your VHS Movie to record each photograph, in any order you want. Then, on TV, you can relate the situation and impressions to everyone at the same time.



### Video Hobby Collection

Say your hobby is bird watching. Instead of just looking at birds, you can use the VHS Movie to create a "video collection of wild life, complete with bird calls". The VHS Movie is quiet, you can record continuously for long periods of time without disturbing your subject or changing the tape.





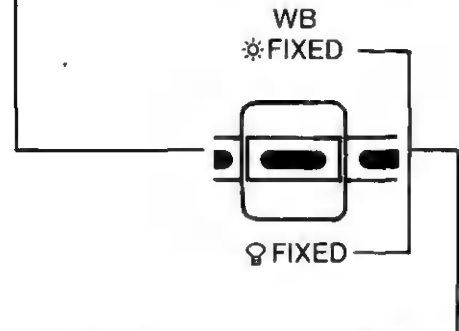
# CHECK BEFORE RECORDING YOUR SCENE

A video camera may have excellent basic performance but it will not be very useful if it is not easy to operate. In the past, good video cameras required a fair degree of technical knowledge on the part of the user. But the VHS Movie design offers you the ideal combination of outstanding performance and operating convenience. Simple convenient functions make it easy for anyone to achieve high quality results with just a little basic knowledge and practice. These functions also help prevent mistakes and take care of many adjustments automatically. Follow the recommended tips and habits of professional handling offered here and you will add to your recordings what your VHS Movie is designed to give, professional results.



When you switch the VHS Movie Power ON, allow about 30 seconds warm up.

With the White Balance Switch, select the AUTO position for continuous color balance in both indoor and outdoor lighting situations.



Under the following conditions it is recommended that you press and set the White Balance Switch to one of the FIXED positions for better color reproduction.

(WHITE BALANCE Indicator lights up.)

☼ FIXED: When recording an outdoor scene from indoors or while outside with an amber filter.

💡 FIXED: When recording an indoor scene from outside or while inside with a blue filter.

(See page 40.)



**FIXED WHITE BALANCE**  
Indication

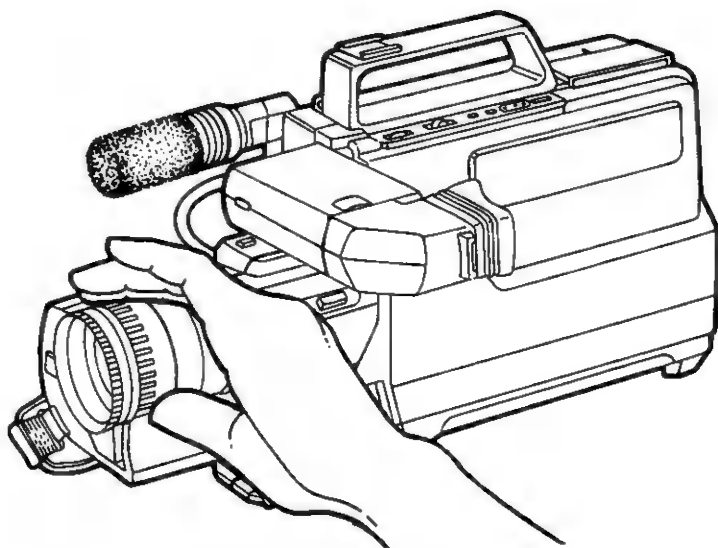
Viewfinder

**BATTERY,**  
**LIGHT,**  
**TAPE,**  
**TAPE COUNTER/MEMORY, DATE/TIME,**  
**DEW Indicators**

**RECORDING** Indication



Check the EVF display to confirm conditions of battery, lighting, and other functions.

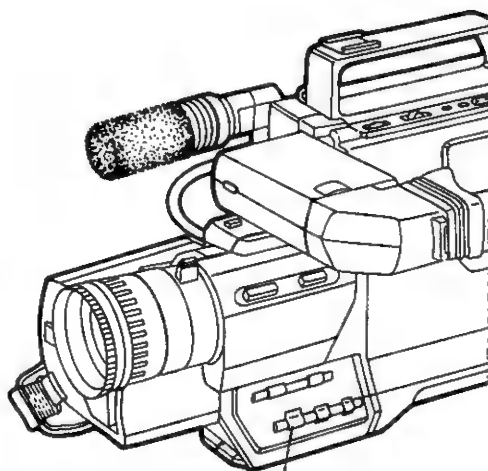


Out of Focus



Adjust Focus

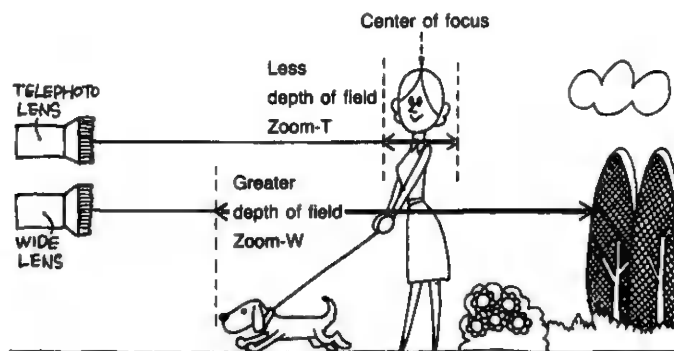
Proper Focus



Focus Switch

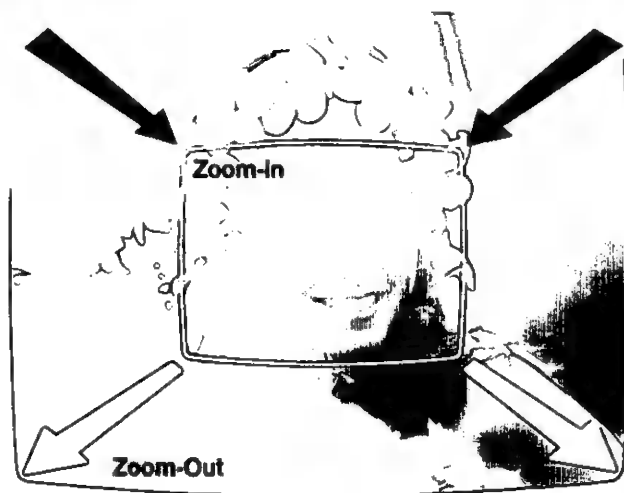
## Depth of Field

While you have the focus adjusted in the TELE (Zoom-T) position, you may notice that the distance is very short between objects in focus. This "Focal Length" distance is short from the front to the back of the picture at the center of focus you have set with the focus feature. This is called a shallow "Depth of Field". Move the zoom lever slowly toward the WIDE (Zoom-W) position, for a deep "depth of field". The distance is greater between objects in focus. If you are following a moving subject, set the focusing ring to 5m and set the zoom ring to the WIDE position. Then, as the subject moves, the VHS Movie will usually have enough depth of field to keep their image in focus.



# USING A ZOOM LENS

Many people when first using a VHS Movie tend to zoom in and out repeatedly, creating a picture that is tiring to watch. Certainly, the "zoom" has its place in visual expression. But this is only one of the many capabilities of a zoom lens. With experience, you will find that the zoom action is most effective when used sparingly. A zoom lens is like having many different lenses in one, from wide angle to telephoto. By adjusting the zoom lens, you choose the ideal perspective to match each part you take of the action or story.



Take a look at the scenes above. Here the zoom lens is used to "trim" the total scene so that only the desired "take" is in the final recording.





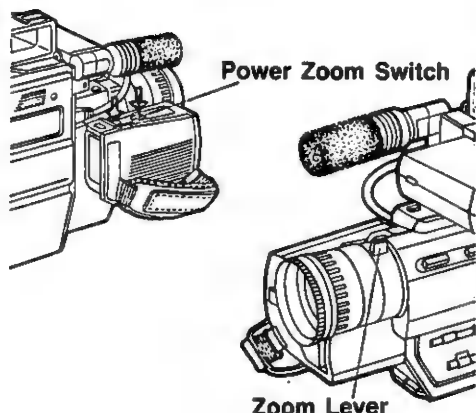
**Zoom-In Position**



**Zoom-Out Position**

The depth of field, selecting what you will have in focus, depends on focal length. The zoom lens can be used to select a desired depth of field, because it varies focal length. For example, if you want your subject to be sharply outlined against a blurred background, then you would place the VHS Movie at a distance from the subject and set the lens for a telephoto image (Zoom-T Position).

On the other hand, if you want to see both the subject and the background clearly, then you would move closer to the subject and set the lens for a wide-angle shot, (Zoom-W Position).



### Follow Zoom

Even if your VHS Movie has a power zoom lens, there are some types of shots where manual adjustment will give a more interesting effect. The "follow zoom" is one example. As the subject moves toward you, zoom out (W) slowly so that the subject stays the same size in the picture. Therefore, the background changes although the subject does not seem to be getting closer to the viewer.



**Follow Zoom**

### Slow and Flash Zoom Shots

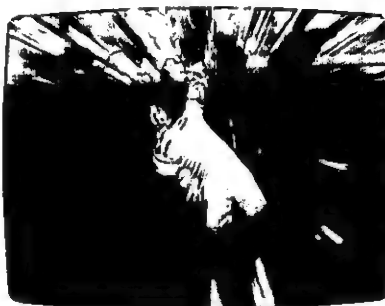
If you zoom in very, very slowly on a distant scene, you will get a powerful effect that is quite different from normal speed zooming. In fact, this kind of very slow zoom image can give the same feeling as using a more powerful zoom lens.

Another case is the "flash zoom".

Here you zoom in as fast as possible, creating a dynamic tension in the picture.



**Slow Zoom**



**Flash Zoom**

# VHS MOVIE ANGLES



High Level



Mid-High Level



Mid-Low Level



Low Level

The height and position of the VHS Movie in relation to the subject has a big influence on how the final picture will look. Keeping the VHS Movie at the subject's eye level creates the most "normal" or least distracting conventional impression. If the person is standing, then you hold the VHS Movie at the same level as their eyes. If the person is sitting down, hold the VHS Movie lower so it is still at eye level. Similarly, you would lower the VHS Movie to match the height of a child, or a pet. Although "eye level" gives the most natural coverage of a subject's actions, there are many other possibilities. If you are recording from above eye level, then it is called a "high-angle" shot. If you are recording upwards from below eye level, then it is a "low-angle" shot.



Camera angle informs the audience of their position. The most natural position of the audience is at "eye level", at this position the audience's attention will most naturally be drawn to your subject.

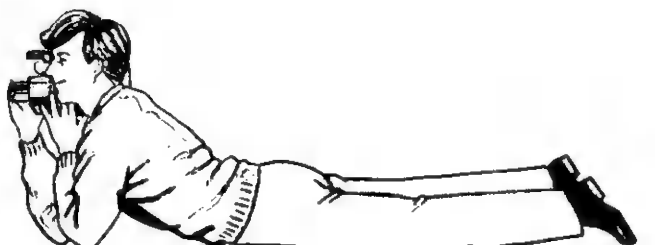




Looking Up to a Subject



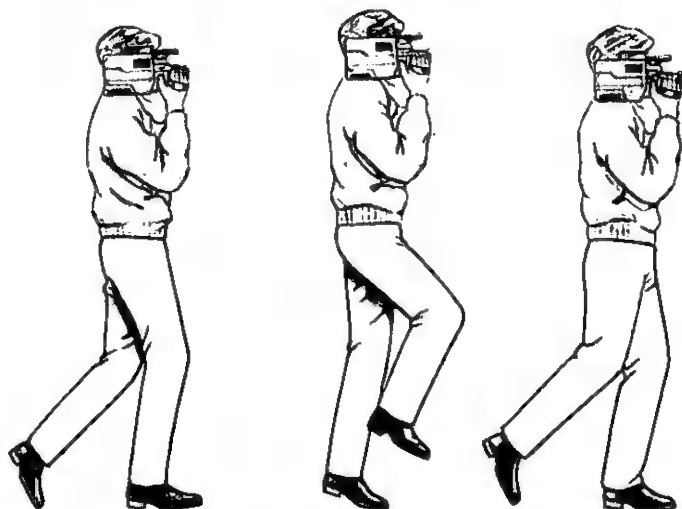
Looking Down to a Subject



Using an extreme low angle shot, you effectively "look up to" the subject, creating a feeling of authority, power, or oppression. You can try this by putting the VHS Movie at nearly ground level and recording people, tall buildings, or cars racing along a road.

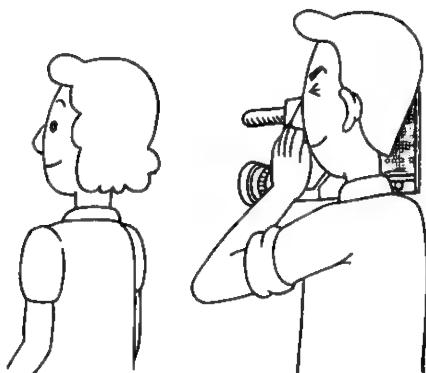
On the other hand, a high video camera angle is good for "cover shots" at the beginning of a scene when you want to orient the viewer or establish the situation. In this case, you would set the telephoto lens to the wide-angle position to cover the largest area. But how can you get a shot from above your own eye level? With the VHS Movie, you simply hold the VHS Movie above your head while watching the picture on the EVF (many small portable monitor TVs are also available). Or record from the upper floors of a nearby building.

# VHS MOVIE MOVEMENT



## Hand Held Movement of the VHS Movie is Difficult

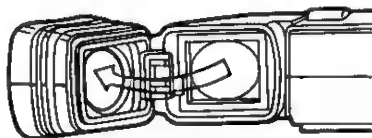
In the previous pages we have assumed that the VHS Movie was kept motionless. However, you will often want to move the VHS Movie, either to make the picture more interesting or to cover a moving subject. This is when you run into problems of picture instability. As your head bobs up and down, so will the picture. Professional cameramen keep a steady picture by walking with their legs bent, twisting their hips, and holding the VHS Movie parallel to the walking surface. But this takes a lot of practice. One way out is to move with the same rhythm as the subject so the viewer will not notice the unsteadiness.

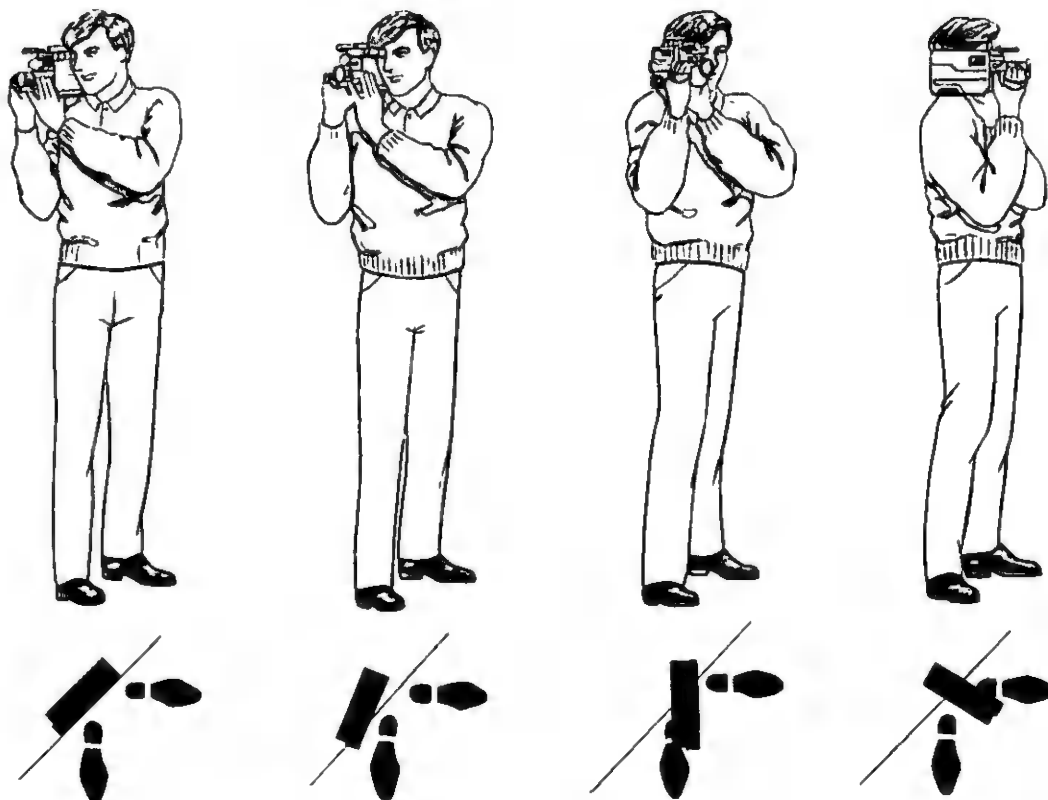


## Here's a typical professional approach:

Start at subject's head, tilt down slowly toward the feet, pull away (zoom-W), and then circle around. When done properly, this kind of continuous, moving shot will add a lot to an interesting subject.

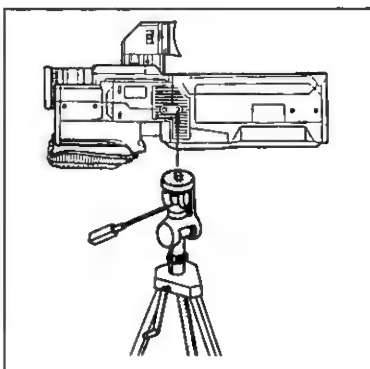
You can swing the eyepiece away from the EVF and hold the VHS Movie away from your body. Often the angle of the EVF can be changed for easy viewing when the VHS Movie is not at eye level.





### The Art of Panning

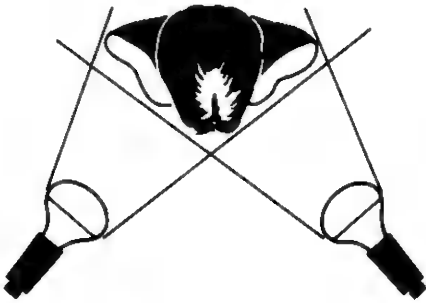
Panning is a pivotal movement of the VHS Movie from left to right or vice versa. You will often want to hold the shot for a few seconds after you finish panning. But if your body is twisted you can't hold the VHS Movie steady. To avoid this, stand so that the VHS Movie will be directly in front of you when you come to the end of the pan. In other words, you twist your body into position for the beginning of the pan.



For the greatest stability and smoothest panning (and tilting) movement, we recommend using a tripod.

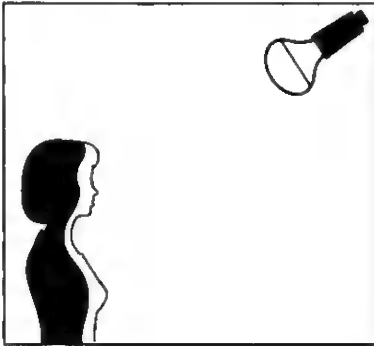
# LIGHTING TECHNIQUE

---

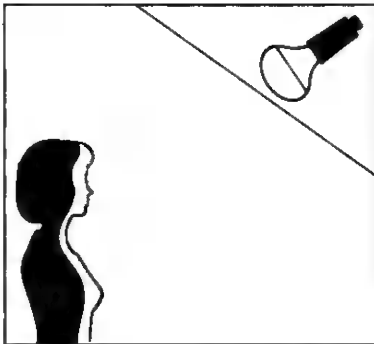


Lighting is often necessary to achieve sufficient brightness for a good picture. It is also an art in itself. Many amateurs simply mount a light on the VHS Movie or use two lights parallel to the VHS Movie on either side. This simple approach creates strange shadows and tends to make the subject look flat. (See diagram.)

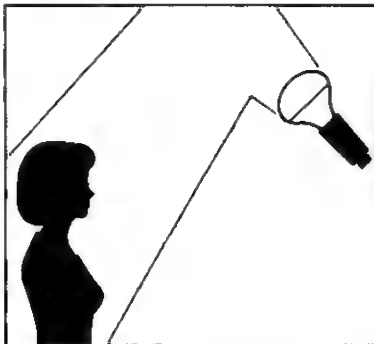
Good lighting "models" the subject, giving a natural three-dimensional effect. If you are going to use lights on both sides, it is better to have one as a "sublight" with about one-third the brightness. If both bulbs are the same wattage, put the sublight 1.7 times further away than the main light.



For a more three-dimensional effect, the main light should be raised so that it is at a 45° vertical angle.

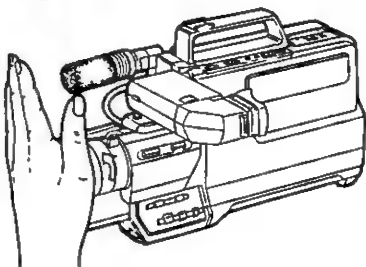


To prevent dark shadows when using a strong light, diffuse the light with tracing paper (but keep the paper far enough away to prevent a fire).



Or bounce the light off the ceiling.

However, light bouncing off the walls or ceiling may cause an undesirable color change in the picture.



- Light filters extend your control of any lighting situation. The middle column of the color temperature chart on the next page indicates their general use.

You can substitute the VHS Movie Lens Hood with any standard or "special effect" photographic lens filter that is 49 mm in diameter.

**TO REMOVE:** Face the Lens, turn the Lens Hood to fully counterclockwise position. Cover the Lens Hood with the palm of your hand, lightly press and squeeze the Lens Hood Ring. Turn the Ring counterclockwise (facing lens).






## TO PRODUCE THE BEST COLOR VIDEO PROGRAM

The VHS Movie has been designed for normal scene illumination of 150 footcandles (1500 lux )

An illumination of 150 footcandles (1500 lux) is standard, but the camera may be used at F12, if illumination is more than 0.7 footcandles (7 lux)

### Rough Values of Brightness

The figures in this table are approximate values for reference

Color temperature of natural light	Color temperature unit K	Color temperature of artificial light	Colors of light
<ul style="list-style-type: none"> <li>Fair, blue sky light </li> <li>Slight cloudy sky light </li> <li>Cloudy, rainy sky light </li> <li>Sunlight in fine-weather midday</li> <li>Average sunlight in fine weather</li> <li>Sunlight 2 hours after sunrise and before sunset</li> <li>Sunlight 1 hour after sunrise and before sunset</li> <li>Sunlight 40 min after sunrise and before sunset</li> <li> Sunrise</li> <li> Sunset</li> <li>Sunlight 30 min after sunrise and before sunset</li> <li>Sunlight 20 min after sunrise and before sunset</li> </ul>	<p>Lens Filter Range</p> <p>Lower the color temperature using an amber filter with "O FIXED" position</p> <p>↓</p> <p>8,000</p> <p>7,000</p> <p>6,500</p> <p>6,000</p> <p>5,500</p> <p>"O FIXED" position</p> <p>5,000</p> <p>4,500</p> <p>AUTO position</p> <p>4,000</p> <p>3,500</p> <p>3,200</p> <p>"V FIXED" position</p> <p>3,000</p> <p>2,800</p> <p>↑</p> <p>Raise the color temperature using a blue filter with "V FIXED" position</p> <p>2,500</p> <p>Lens Filter Range</p>	<ul style="list-style-type: none"> <li>Color television</li> <li>Fluorescent lamp (Daylight)</li> <li>Camera flash bulb</li> <li>Blue lamp for photography</li> <li>Fluorescent lamp (White)</li> <li>Normal flash bulb</li> <li>Fluorescent lamp (Off-white)</li> <li>Tungsten lamp for photography</li> <li>Halogen lamp</li> <li>Iodine lamp</li> <li>Tungsten lamp</li> <li>Acetylene lamp</li> <li>Kerosene lamp</li> <li>Candlelight</li> </ul>	<p>Bluish</p> <p>Whitish</p> <p>Yellowish</p> <p>Reddish</p>

# A WORD ABOUT THE CASSETTE

With the VHS Movie you can now use standard VHS Video Cassettes that can also be used by any VHS standard Video Cassette Recorder.

## TYPES OF VIDEO CASSETTE

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

MAXIMUM RECORD/ PLAYBACK TIME		
T160	T120	T60
2HRS. 40MIN.	2HRS.	1HR.

## NOTES FOR VIDEO CASSETTE USE

Video Cassettes and their tapes are made with high precision. Be sure to observe the following points.

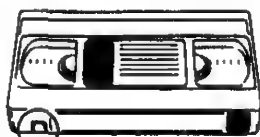
- Don't subject the tape to unnecessary movement.
- Don't insert and eject the video cassette over and over again, because this may result in tape looseness or scratches on the tape.
- Never try to disassemble the cassette or splice the tape.
- Don't open the cassette, touch the tape, or put anything inside the cassette.

## VIDEO CASSETTE STORAGE

- Avoid places where humidity is high or there is dust.
- Avoid places where there is magnetism (magnets, motors, transformers, speakers, etc.).
- Avoid dropping the cassette; don't subject it to intense shaking or vibration.
- Don't place cassettes in direct sunlight; keep them away from sources of heat.
- Store cassettes vertically.

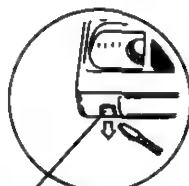
## ACCIDENTAL ERASURE PREVENTION

- Accidental erasure of recorded material can be prevented by breaking off the tab on the rear of the cassette with a screwdriver or similar tool. This will cause the erasure prevention mechanism to function.
- If, for any reason, you later want to record on a cassette which has been protected as described above, recordings can be made by covering the hole (where the tab was) with cellophane tape.



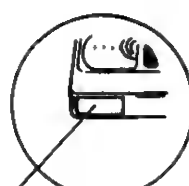
Accidental Erasure Prevention Tab

- To prevent accidental erasure



Break off the tab  
with a screwdriver

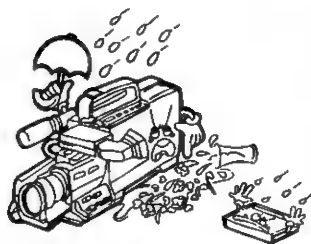
- To record again



Cover the hole  
with cellophane tape



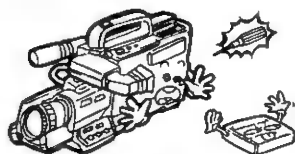
## USE & LOCATION



- **To avoid shock hazard**

The VHS Movie and power supply should not be exposed to rain or moisture. Do not connect the power supply or operate the VHS Movie if it gets wet. Your VHS Movie has been designed for outdoor use in all kinds of weather, however it will probably not survive any type of direct exposure to water, rain, sleet, snow, or a direct splashing from a pool or even a cup of coffee. Do not attempt to disassemble this unit. There are no user serviceable parts inside.

Unplug the VHS Movie from the power supply before cleaning.

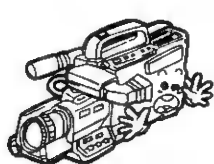


- **Do not aim the VHS Movie at the sun or other bright objects**

This action could permanently damage the pick-up tube whether the VHS Movie is turned on or off.

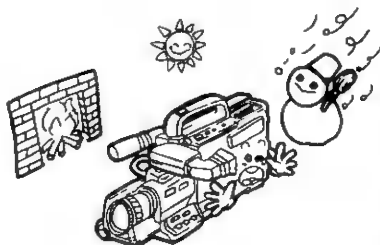
- **Do not leave the VHS Movie in direct sunlight**

When the viewfinder eyepiece is exposed to direct sunlight it works as a magnifying glass. The concentrated sunlight can cause damage to internal parts of the VHS Movie.



- **Avoid sudden changes in temperature**

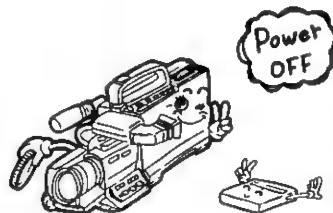
If the unit is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the unit. In this case, the DEW Indicator will flash on the EVF and the power will shut off automatically.



- **Do not leave the VHS Movie or the power supply turned on when not in use.**

- **Storage of your VHS Movie**

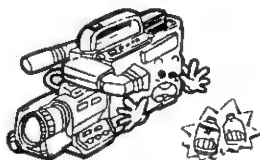
Store and handle your VHS Movie in a manner that will not subject it to unnecessary movement (avoid shaking and striking). The VHS Movie contains a sensitive pick-up tube which could be damaged by improper handling or storage.



## CARE

- **To clean your VHS Movie**

Do not use strong or abrasive detergents when cleaning the VHS Movie body.

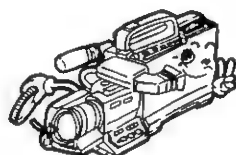


- **To protect the lens**

Always replace the lens cap on the VHS Movie lens when the VHS Movie is not in use.

Do not touch the surface of the lens with your hand.

Use a commercial VHS Movie lens solution and paper when cleaning the lens. Improper cleaning can scratch the lens coating.



# BEFORE REQUESTING SERVICE

If you have a problem it may be minor. You may be able to correct it yourself. Use the chart below to locate your problem and then follow the recommended suggestions.

Troubles	Corrections	Reference pages
No power	• Make sure the Power Supply is plugged in (if the Power Supply is being used)	24
	• Make sure the STANDBY Button has not been pressed ON	12
	• Make sure the POWER Switch is ON	12
	• Check the DEW Indicator. If it is displayed, the unit will not operate	15
	• Be sure you are using a fully charged battery	25
	• Make sure all necessary cables are connected correctly, and firmly	22
	• Make sure the lens cap is OFF	8
Video cassette can't be inserted	• Check that the Power Plug is completely connected to an AC Outlet	24
	• Insert the cassette with the window side facing out and the safety tab facing up	11
Video cassette can't be removed	• Check that the Power Plug is completely connected to an AC Outlet	24
No operation starts when operation buttons are pressed	• Check the DEW Indicator. If it is displayed, the unit will not operate	15
Recording does not operate	• Make sure that the small tab on the back of the cassette is still intact	41
	• Make sure the Battery Indicator on the viewfinder is not flashing	14
	• Make sure the DEW Indicator on the viewfinder is not flashing	15
Auto Focus does not operate	• Make sure the Focus Switch is set to Auto position	18
	• Make sure the VHS Movie is ON, with the VCR/CAMERA Selector Door in CAMERA position	11
Focus is not sharp	• Make sure the surface of the lens is not dirty or dusty	42
	• Make sure the lens is properly focused	18,32
	• Make sure the Focus Switch is set to AUTO position	18,32
The sound from microphone can't be monitored	• Make sure the VHS Movie is set to record or record/pause mode	/
Color Balance not proper	• Is the lighting adequate? Low lighting conditions can affect the color • White Balance Switch may need to be set to the FIXED position	18,31
Color picture is not satisfactory	• Check to be sure the color TV is adjusted properly	/
Rolling white pattern appears on screen	• This is a normal effect when the Tape Counter/Memory and Battery Display have not been cleared while in VCR mode, with the AC Adaptor in LINE position and the VIDEO IN terminal disconnected	21,28

Troubles	Corrections	Reference pages
There is no playback picture, or the playback picture is noisy or contains streaks ...	<ul style="list-style-type: none"> <li>• Rotate the TRACKING CONTROL slowly in either direction.</li> </ul>	13
During playback, the picture indicates motion or blurred action ...	<ul style="list-style-type: none"> <li>• Portions of the still picture where the normal speed motion was particularly rapid may produce this effect. This is normal.</li> </ul>	
If the top of your playback picture waves back and forth excessively ...	<ul style="list-style-type: none"> <li>• Because the VHS Movie playback signal is not as stable as an off-the-air TV signal, you might experience the following symptom on your TV screen: "Top of TV screen is bent or unstable when a VHS Movie tape is played back. This symptom is more noticeable when a pre-recorded tape, recorded by another VCR, is played back." To solve this problem, locate the horizontal hold control on your TV. Turn it slowly to correct the wavy picture. If your TV does not have the horizontal hold control or adjusting the control does not help, some modifications have to be made to the TV set. Technically this is called "Horizontal AFC time constant change." If such a problem is noticed, please contact your local TV service center. (Some nominal service charges are required.)</li> </ul>	

#### Cleaning care for video heads . . .



Clogged Video Head

- (a) **Video Head Cleaning:** Your VHS Movie will not normally require head cleaning; however, it is possible that the heads may become clogged when playing an old or damaged tape. If the image on your screen resembles the photograph on the left, while playing back a tape, the heads may require cleaning.
- (b) **Cleaning the Heads:** To clean the heads, obtain a head cleaning tape such as Quasar VC-TCL30. There is a wide range of cleaning cartridges, however, using a worn or poor quality cleaning cartridge will shorten head life. Be sure to follow the instructions that come with the cassette, as excess use can shorten head life. It is recommended that the cleaning be done by a qualified technician, please contact your nearest Quasar Servicing Dealer or Matsushita Services Company which listed on page 45.

Refer servicing to qualified service personnel.

#### USING YOUR TAPES OR VIDEO RECORDER IN ANOTHER COUNTRY.

Tapes made on VIDEO RECORDERS sold in the United States can only be played back on VCR units which use the NTSC television system and have matching tape speeds, for playback on VHS Movie tapes must be in SP mode.

You can only use your VHS Movie in another country which has a television system designed for standard U.S. Television channel frequencies.

**NOTE:** VHS VIDEO Recorders produced for the United States conform to the NTSC television system.

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.

## CONSUMER WARRANTY—QUASAR VIDEO TAPE PRODUCT

Your product is designed and manufactured to ensure a minimum of maintenance. However, should your unit ever require service, a nationwide system of **FACTORY SERVICENTERS** and **AUTHORIZED INDEPENDENT SERVICENTERS** is maintained to support your product's warranty.

### Service in the Continental U S A Factory Servicenters

#### MATSUSHITA SERVICES COMPANY

Division of Matsushita Electric Corporation of America  
50 Meadowland Parkway Secaucus New Jersey 07094

#### ALABAMA

2523 5th Avenue  
South Birmingham  
AL 35233  
205 252 4195

#### ARIZONA

2121 Priest Drive, South  
Suite 107  
Tempe, AZ 85282  
602-968-8645

#### CALIFORNIA

6550 Katella Avenue  
Cypress CA 90630  
714 895-7425

930 South Mt. Vernon Drive  
Colton, CA 92324  
714-825-3110

260 Visitation Mall  
Brisbane, CA 94005  
415 467 6860

20201 Sherman Way  
Suite 102  
Canoga Park, CA 91306  
818-709 1775

3012 Gold Canal Drive  
Rancho Cordova,  
CA 95670  
916-638-4357

Viewridge Research Park  
4830 Viewridge Avenue  
San Diego CA 92123  
619-560 9200

#### COLORADO

14401 E 33rd Place  
Suite E  
Aurora, CO 80011  
303-371 6968

#### FLORIDA

16175 NW 52nd Avenue  
Miami FL 33014  
305 624-6521

4101 N Dixie Highway  
Oakland Park FL 33334  
305-563 5847

208 Volusia Avenue  
Daytona Beach, FL 32014  
904 258-8512

4115 W Kennedy  
Boulevard  
Tampa, FL 33609  
813-872 2686

#### GEORGIA

1575 Northside drive  
Suite 325  
Atlanta, GA 30324  
404-874-3346

4245 International Blvd  
Suite C  
Norcross GA 30093  
404 925 6880

#### ILLINOIS

425 E Algonquin Road  
Arlington Heights, IL 60005  
312 981 4840

9501 W Grand Avenue  
Franklin Park, IL 60131  
312 452-2580

#### INDIANA

7025 Kensington Drive  
Indianapolis IN 46226  
317-542 7730

#### MARYLAND

8711 Liberty Plaza Mall  
Randallstown MD 21133  
301-655-0300

#### MASSACHUSETTS

101 University Avenue  
Westwood MA 02090  
617-329-4280

151 Andover Street  
Danvers, MA 01923  
617 774 4356

#### MICHIGAN

1270-A Rankin Street  
Troy, MI 48064  
313-585-8666

#### MINNESOTA

7860-12th Avenue, South  
Airport Business Center  
Bloomington MN 55420  
612 854-8624

#### MISSOURI

10212 St. Charles  
Rock Road  
St. Ann, MO 63074  
314-423-1900

#### NEW JERSEY

45 Hartz Way  
Secaucus NJ 07094  
201-348-7400

#### OHIO

494 Northland Boulevard  
Cincinnati OH 45240  
513 851-4180

#### PENNSYLVANIA

8362-80 State Road  
Philadelphia, PA 19136  
215-332-5550

4986 Library Road, Rt. 88  
Hillcrest Shopping Center  
Bethel Park, PA 15102  
412-343-0555

#### TENNESSEE

925-8th Avenue, South  
Nashville, TN 37203  
615-244-4434

#### TEXAS

7420 Harwin Drive  
Houston, TX 77036  
713-781-1528

10613 Sentinel Drive  
San Antonio TX 78217  
512-654-6677

1825 Walnut Hill Lane  
Irving, TX 75062  
214-659 1770

#### WASHINGTON

4060 Lind Avenue, SW  
Renton, WA 98055  
206-251-8283

To locate an Authorized Servicenter in Your Area within the Continental U S A

# DIAL TOLL FREE: 1-800-447-4700

## 24 Hours a Day, 7 Days a Week

Requests for assistance in obtaining repairs or technical information  
Service Administration offices

contact any one of the following

#### EASTERN

45 Hartz Way  
Secaucus NJ 07094  
201 348 7460

#### MIDWEST

425 East Algonquin Road  
Arlington Heights IL 60005  
312 981 4842

#### WESTERN

6550 Katella Avenue  
Cypress CA 90630  
714 895-7438

#### SOUTHERN

1854 Shackle Ford Court  
Suite 105  
Norcross GA 30093  
404 925 6860

Correspondence requesting products information should be sent to Consumer Relations Department Quasar Company  
Division of Matsushita Electric Corporation of America 9401 W Grand Ave Franklin Park, IL 60131

## QUASAR COMPANY QUASAR Video Equipment Limited Warranty

Quasar Company, will repair this product, free of charge in the U.S.A. in the event of a defect in materials or workmanship as follows

**Parts** (Except camera pick-up tube/CCD Image Sensor)  
New or rebuilt parts in exchange for defective parts for one (1) year from the date of original purchase

**Camera Pick-Up Tube/CCD Image Sensor**  
New pick-up tube/CCD Image Sensor in exchange for defective pick-up tube/CCD Image Sensor for six (6) months from the date of original purchase

**Batteries** (If included)  
New rechargeable batteries in exchange for defective rechargeable batteries for ten (10) days from the date of original purchase. 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 from the date of original purchase

**Labor**  
Carry-in or mail-in service for ninety (90) days from the date of original purchase. After the ninety (90) day labor warranty period is over, purchaser pays for all labor charges for removal and installation of parts and camera pick-up tube/CCD Image Sensor

**OBTAINING SERVICE**  
During your labor coverage period as shown above warranty service must be done by an authorized Quasar servicer. Quasar has an extensive nationwide network of authorized servicers, and your Quasar dealer can recommend one to you or you may call Matsushita Services Company at 1-800-447-4700. Proof of original purchase date may be required by the servicer, so you should retain your purchase receipt or other proof of the purchase date

This warranty only covers failures due to defects in materials or workmanship which occur during normal use. It does not cover normal maintenance, including, but not limited to video and audio head cleaning, or failures due to damage which occurs in shipment or failures which are caused by products not supplied by Quasar Company, or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, improper antenna, inadequate signal pick-up, adjustment of consumer controls, modification or commercial use, such as hotel, office or rental use of the product or service by anyone other than a MSC Factory Servicenter or Authorized Servicenter or damage that is attributable to acts of God

### **LIMITS AND EXCLUSIONS**

There are no express warranties except as listed above. **QUASAR COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. DURATION OF IMPLIED WARRANTIES, IF ANY, IS LIMITED TO ONE (1) YEAR.** 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 the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the Quasar Company Consumer Relations Department, at 9401 West Grand Avenue, Franklin Park, IL 60131

### **If you ship the product**

Carefully pack and send it prepaid, adequately insured and preferably in the original carton. Attach a postage-affixed letter, detailing the complaint, to the outside of the carton.

*DO NOT send the product to the Executive or Regional Sales offices. They are NOT equipped to make repairs.*

### **Service in Puerto Rico...**

**Please contact your nearest authorized Quasar dealer**

### **Service in Hawaii...**

**Please contact your nearest authorized Quasar dealer**

# SPECIFICATIONS

<b>Power Source</b>	VHS Movie DC 12V AC Adaptor 110/120/220/240V AC, 50/60 Hz
<b>Power Consumption</b>	VHS Movie 12V DC 14 W AC Adaptor 40 W
<b>Television System</b>	EIA Standard (525 lines, 60 fields) NTSC color signal
<b>Video Recording System</b>	4 rotary heads, helical scanning system
<b>Audio Track</b>	1 track
<b>Tape Format</b>	Tape width 1/2 inch (12.7 mm), high density tape
<b>Camera Tube</b>	One 1/2" integrated, stripe filter electrostatic focusing, magnetic deflection, separate mesh, Special tube Newvicon type S4200
<b>Focus</b>	Electro-Static Type
<b>Lens</b>	6.1 Zoom Lens Auto iris closed with power off Auto Zoom Lens and Macro construction Auto focus system F 1.2 f 9mm – 54mm, Lens filter diameter 49mm
<b>Electronic Viewfinder</b>	Monochrome 2/3 inch CRT, built-in
<b>Minimum Light Intensity</b> on optical image	7 Lux (F1.2) 0.7 footcandles
<b>Optimum Light Intensity</b> on optical image:	1500 Lux 150 footcandles
<b>External Microphone</b> Input Level:	–70 dB, 4.7 Kohms unbalanced, M3 connector
<b>Operating Temperature</b>	32°F~104°F (0°C~40°C)
<b>Operating Humidity</b>	10%~75%
<b>Weight</b>	VHS Movie 5.6 lbs (with handle) AC Adaptor 1.5 lbs
<b>Dimensions</b>	VHS Movie 14-5/8" (W) × 8-11/16" (H) × 4-9/16" (D) 372 (W) × 220 (H) × 115 (D)mm (with handle) AC Adaptor 7-7/8" (W) × 1-7/16" (H) × 4-1/8" (D) 200 (W) × 36 (H) × 105 (D) mm

Weight and dimensions shown are approximate

Designs and specifications are subject to change without notice

## Quasar Company, Franklin Park, Illinois

Division of Matsushita Electric Corporation of America

