

# PENTAX

---

**VHS** VIDEO CAMERA/RECORDER

---

## MODEL PV-C33A

---

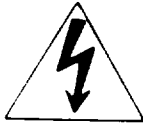
## INSTRUCTION MANUAL

---



**PENTAX** *MOVIE*

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



**CAUTION**

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



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

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

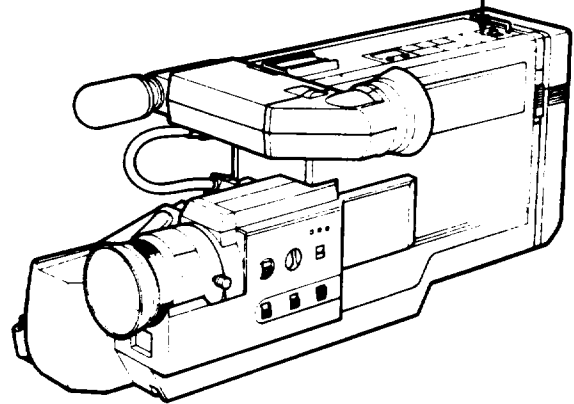
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.

## DEW (MOISTURE CONDENSATION)

"DEW" ("POWER") Light indicates condensation on the recorder mechanism. If the video camera/recorder is moved from a cold area to a warm area and the humidity is high, moisture can form on the metal surface of the recording mechanism. If this happens, the tape could be damaged. To prevent damage the video camera/recorder will not operate except for "EJECT". Should "DEW" ("POWER") Light flash with the power on, press "EJECT" and remove the cassette. Wait for the moisture to dry (until "DEW" Light stop flashing).

**NOTE:** "POWER" Light is used as "DEW" Light. When "POWER" Light is continuously on, it is the "POWER" Indicator. When it flashes, it is the "DEW" Indicator.

"DEW" ("POWER") Light

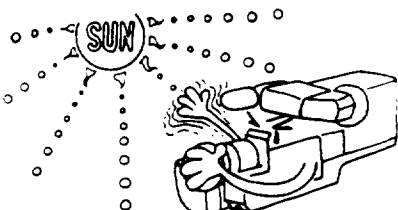


Read the Important Safety Instructions for AC Adaptor/Charger before use.

## PRECAUTION

- It is possible that a picture will not appear when the Video Camera/Recorder is used for the first time or when it has not been used for an extended period of time. This is due to the property of the pickup tube and in this case, warm up the Video Camera/Recorder and set "POWER SAVE" Switch to "POWER SAVE" position with the lens capped for 30 to 60 minutes.
- Never point the lens at the sun or any other strong light.

Do not shoot excessively bright objects or small point of light for a long time to prevent damage to the pickup tube. When you are not using the Camera/Recorder, switch off its power and attach the lens cap.



- Be sure not to leave it in a place at high temperature exceeding 50°C, or the pickup tube will deteriorate. Be careful not to leave the unit in the following places:

- \* Inside a car with the window closed and in direct sunshine.
- \* Near heating appliances.
- \* In direct sunshine in summer.



- The hue sometimes changes for a short while when the Camera/Recorder is turned about sharply during shooting. This is the effect of the earth's magnetism and it does not indicate that anything is wrong with the Camera/Recorder.

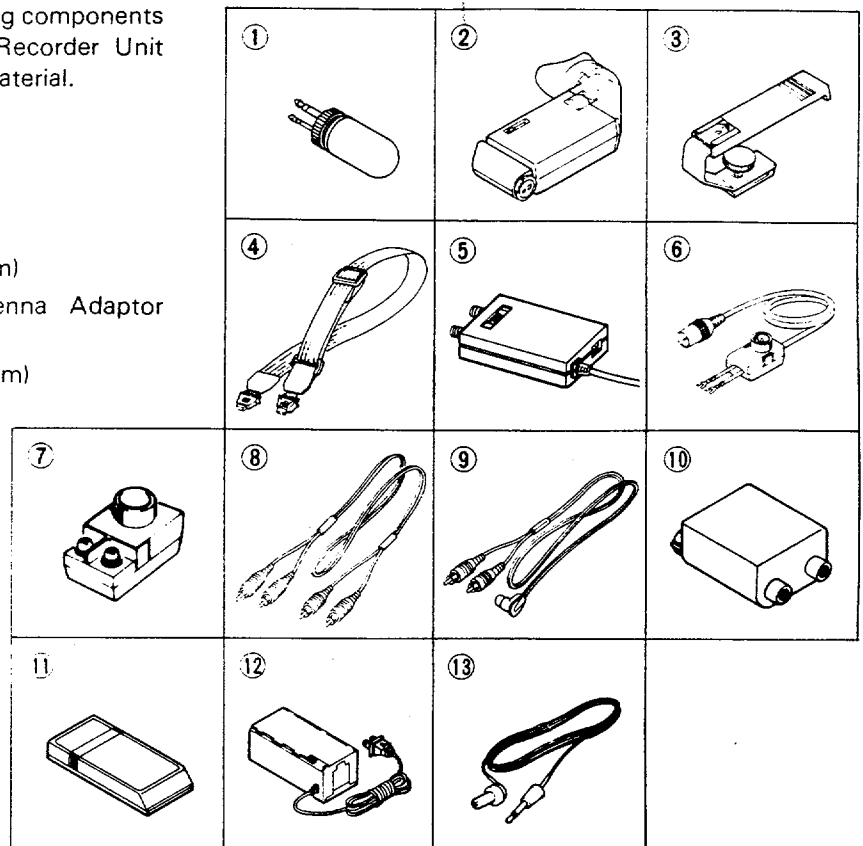
Congratulations on buying the **VHS** Video Camera/Recorder. For maximum pleasure and convenience please read these simple instructions before operating your Camera/Recorder.

**WARNING:** Many television programs are copyrighted. One court has held that private, non-commercial, in-home video taping of copyrighted televised programs constitutes copyright infringement. Purchasers are advised not to copy such programs.

\* **HQ** This Video Camera/Recorder with this marking incorporates **VHS** high-quality picture technology and is compatible with any Video Tape Recorder bearing the **VHS** mark.

Check to make sure you have the following components and accessories (besides the Camera/Recorder Unit itself) before disposing of the packing material.

1. Microphone
2. Electronic Viewfinder
3. Carrying Handle
4. Shoulder Strap
5. RF Converter Unit (with Cable, 1.5 m)
6. 75-ohm Coaxial Cable with Antenna Adaptor (75/300-ohm), 1.5 m
7. Antenna Adaptor (300-ohm to 75-ohm)
8. Audio/Video Input Cable
9. Audio/Video Output Cable
10. Audio/Video Input Adaptor
11. Battery Pack (1 hour type)
12. AC Adaptor/Charger
13. Earphone



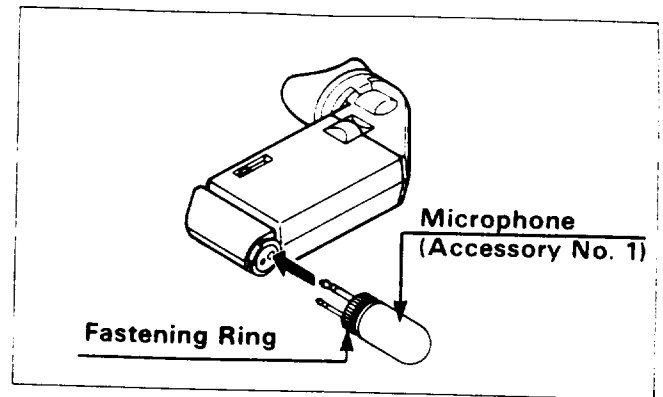
## TABLE OF CONTENTS

How to assemble video camera/recorder .....	3	Producing best color program .....	20
Power sources .....	4	Connections and operations for viewing the picture played back on your TV .....	21
Checking the battery pack .....	6	Connections and operations for recording TV program .....	23
Charging the battery pack .....	6	Using the F-search and R-search features .....	24
Identification and operation of controls .....	7	Using the pause feature .....	25
Making a sample camera recording .....	13	Using the memory feature .....	25
Using the auto-white balance feature .....	15	Operating hints .....	25
Using the auto focus feature .....	16	Camera/Recorder to VTR dubbing .....	26
Using the power zoom feature .....	18	Tape counter digit/minute chart (approx. figures) .....	26
Using the macro feature .....	18	Troubleshooting .....	27
Using the power save feature .....	18	Head cleaning .....	29
Using the instant review feature .....	19	Periodic maintenance .....	29
Using the auto iris feature .....	19	Specifications .....	29
Using the fade in/fade out feature .....	19	Optional accessories .....	30
Eyepiece adjustment .....	20		

# HOW TO ASSEMBLE VIDEO CAMERA/RECORDER

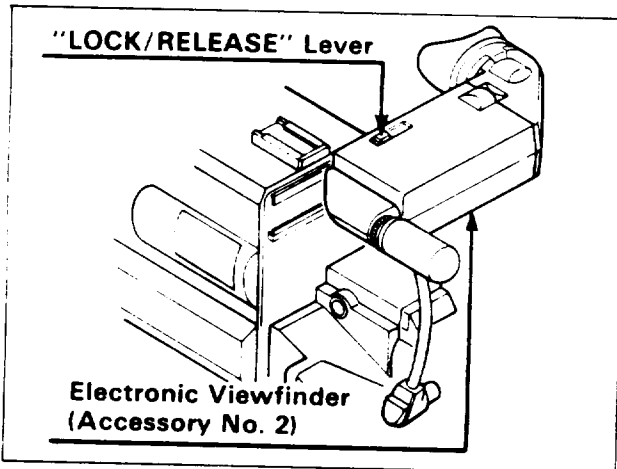
## ■ MOUNTING THE MICROPHONE

1. Attach the Microphone (accessory No. 1) to the Electronic Viewfinder.
2. Rotate the fastening ring firmly.

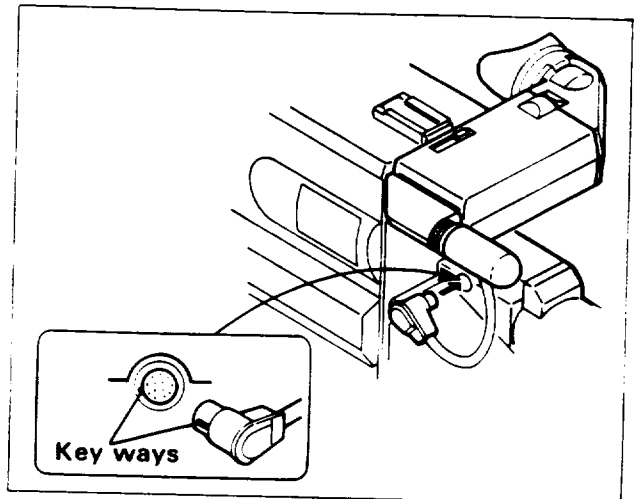


## ■ ELECTRONIC VIEWFINDER

1. Set "LOCK/RELEASE" Lever on the Electronic Viewfinder (Accessory No. 2) to "RELEASE" position and then slide the Electronic Viewfinder into the shoe in front of the Video Camera/Recorder.
2. Position the Electronic Viewfinder as desired and set "LOCK/RELEASE" Lever to "LOCK" position.



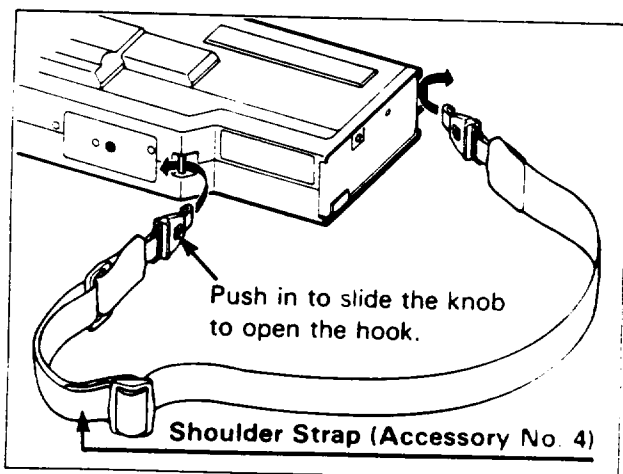
3. Connect the Cable from Electronic Viewfinder to the jack of the Video Camera/Recorder.



**NOTE:** To remove the Electronic Viewfinder follow the procedures in reverse way.

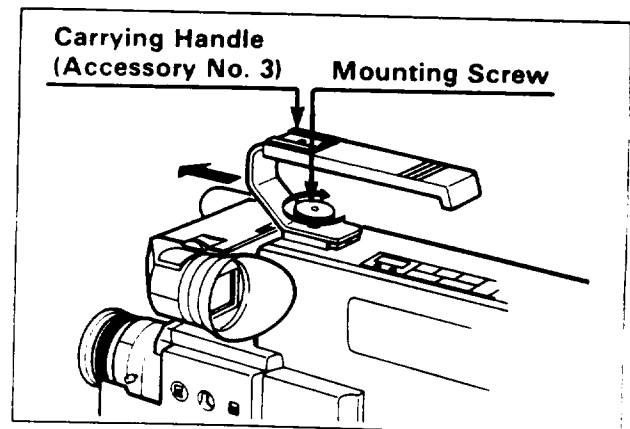
## ■ INSTALLING THE SHOULDER STRAP

1. Attach the Shoulder Strap (Accessory No. 4), as illustrated below.



## ■ MOUNTING THE CARRYING HANDLE

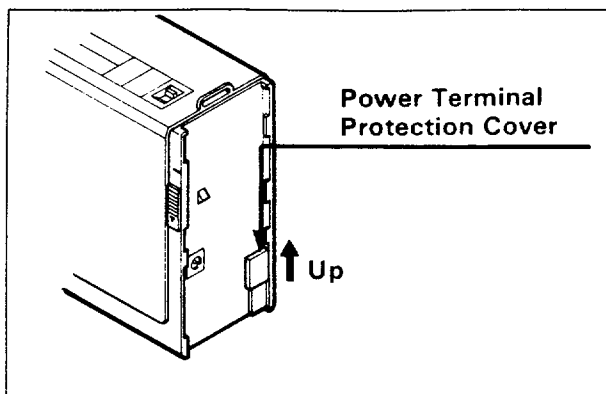
1. Slide the Carrying Handle (Accessory No. 3) into the Shoe on the top of Video Camera/Recorder.
2. Fasten the Mounting Screw.



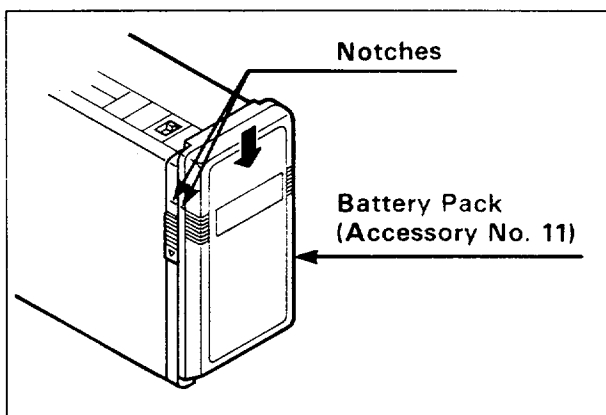
# POWER SOURCES

## ■ WHEN USING WITH THE BATTERY PACK (Accessory No. 11)

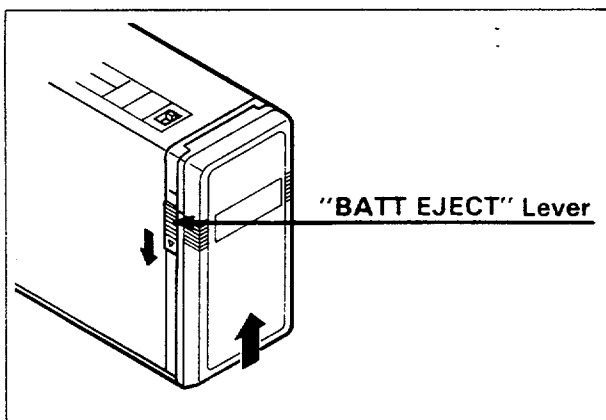
1. Be sure that the Power Terminal Protection Cover is in the uppermost position and it is covering the Terminal.



2. For attachment align the notch on the side of the Battery Pack (Accessory No. 11) with that on the rear left side of the Video Camera/Recorder so that they are jointed together in the grooves, and slide the Battery Pack downward, as illustrated.

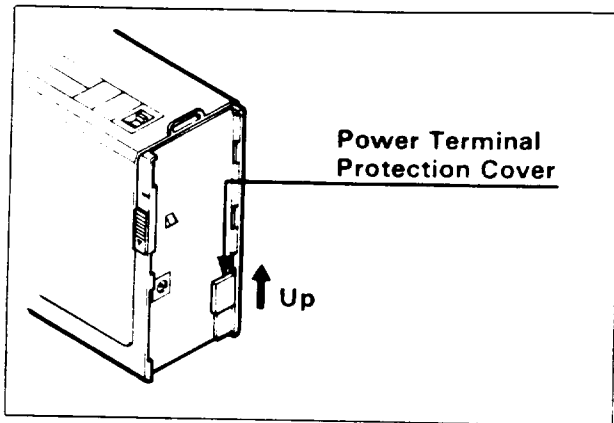


3. For removal, slide the Battery Pack upward while holding the "BATT EJECT" Lever downward.

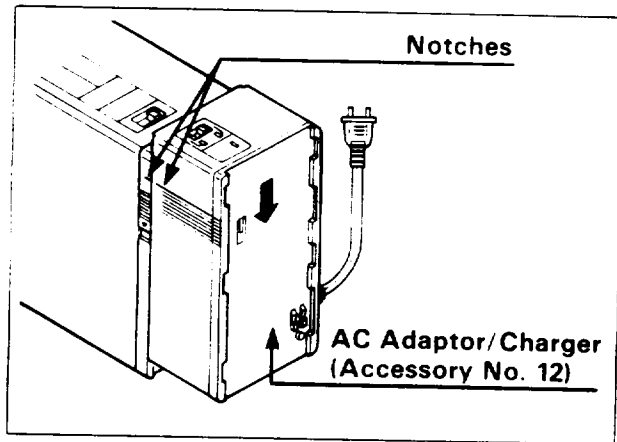


■ **WHEN USING WITH THE AC ADAPTOR/CHARGER (Accessory No. 12)**

1. Be sure that the Power Terminal Protection Cover is in the uppermost position and it is covering the Terminal.



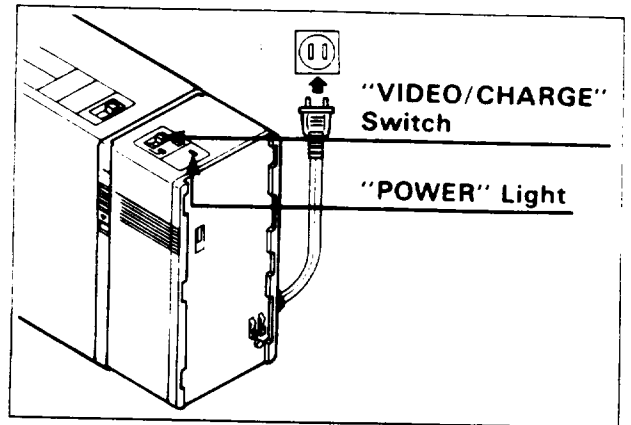
2. For attachment align the notch on the side of the AC Adaptor/Charger (Accessory No. 12) with that on the rear left side of the Video Camera Recorder so that they are joined together in the grooves, and slide the AC Adaptor/Charger downward as illustrated.



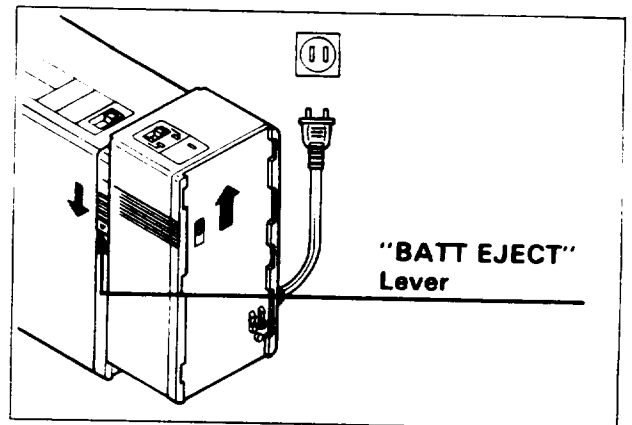
3. Plug the AC Adaptor/Charger power cord into AC electrical outlet, and the "POWER" Light will come on.

**NOTE:** This Adaptor/Charger is universal for use with AC 100 ~ 240V around the world. (Require plug adaptor for matching AC outlet.)

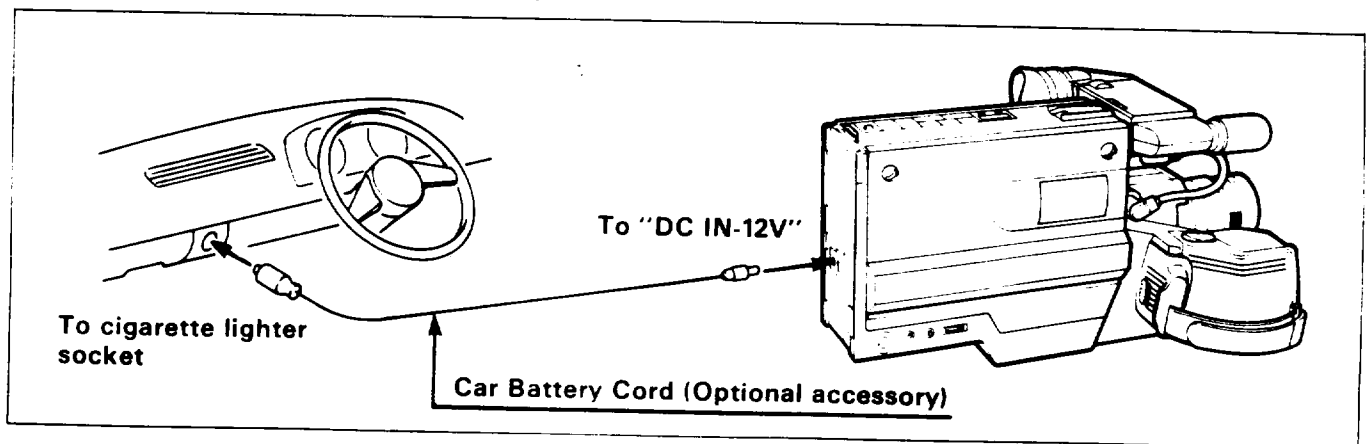
4. Set "VIDEO/CHARGE" Switch to "VIDEO" position.



5. For removal, slide the AC Adaptor/Charger upward while holding the "BATT EJECT" Lever downward.



■ **WHEN USING WITH THE CAR BATTERY**



1. Connect the optional car battery cord to the "DC IN-12V" jack of the Video Camera/Recorder and the car's cigarette lighter socket.

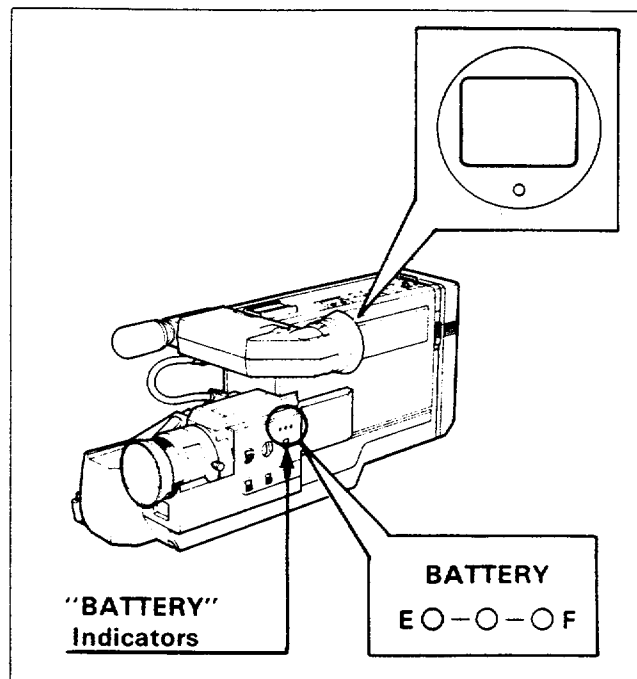
**NOTE:** The Car Battery Cord is designed to be used only with automobiles having a 12-volt negative ground system.

## CHECKING THE BATTERY PACK

When the Indicator Lamp (RED) in the Electronic Viewfinder flashes while the Video Camera/Recorder is operated with a Battery pack (Accessory No. 11), it indicates that the battery capacity is insufficient. Then, charge it or replace it with a charged battery pack.

**NOTE:** The "BATTERY" Indicators on the side of the Video Camera/Recorder also show the battery conditions.

- When the battery is fully charged, all three Indicators will illuminate.
- When the recording or playback continues for a few minutes, two indicators will illuminate.
- When the battery is almost discharged, only one Indicator will illuminate.

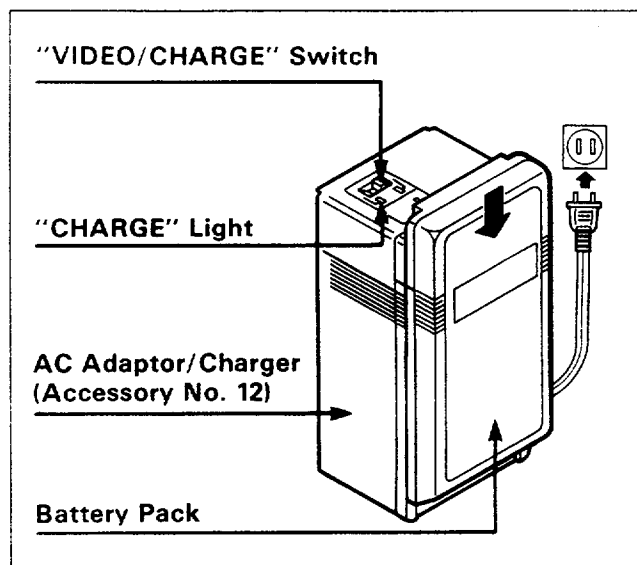


## CHARGING THE BATTERY PACK

1. Attach the Battery Pack to the AC Adaptor/Charger (Accessory No. 12).
2. Plug the AC Adaptor/Charger power cord into AC outlet.
3. Set "VIDEO/CHARGE" Switch to "CHARGE" position. The Charge Indicator Light will be lighted while the Battery is accepting a charge, and will go out when the Battery is fully charged.

### NOTES:

1. The AC Adaptor/Charger may be left attached to the Video Camera/Recorder during the Battery charging operation, but it cannot be used to power the Video Camera/Recorder while charging the Battery Pack.
2. The time for Battery charging is approx. one hour for 1 hour type.
3. An optional 2 hour type Battery may also be charged by this AC Adaptor/Charger.  
In this case, the time for Battery charging is approx. two hours.



# IDENTIFICATION AND OPERATION OF CONTROLS

## "WHITE BAL"ance Switch

When this Switch is in the "AUTO" position, the color balance is set automatically. With the Switch is pushed up from the "SET" position, adjust the white balance manually. (See page 15.)

## "MANUAL IRIS" Control

Set "AUTO/MANUAL IRIS" Switch to "MANUAL" position and then turn this Control to the right or left for manual iris controlling.

## Zoom Ring (Manual Zooming)

The picture size can be magnified 6 times with the use of the zoom feature. Just rotate the Zoom Ring for a close up (T) or wide angle picture. Macro close-up, as close as 1 cm from object, is feasible.

## Focus Ring

Focus on the object by turning the Focus Ring in the MANUAL FOCUS mode. (See page 17.)

**NOTE:** Do not attempt to manually turn the Focus Ring when the Camera Recorder is in the AUTO FOCUS mode.

## Lens

F1.2 (8.5 ~ 51 mm) 6:1 power zoom lens features auto focus and auto iris functions.

## Auto Focus Window

To automatically focus the camera lens, this window receives infrared light which is transmitted from the Camera Recorder lens and is reflected back from the object.

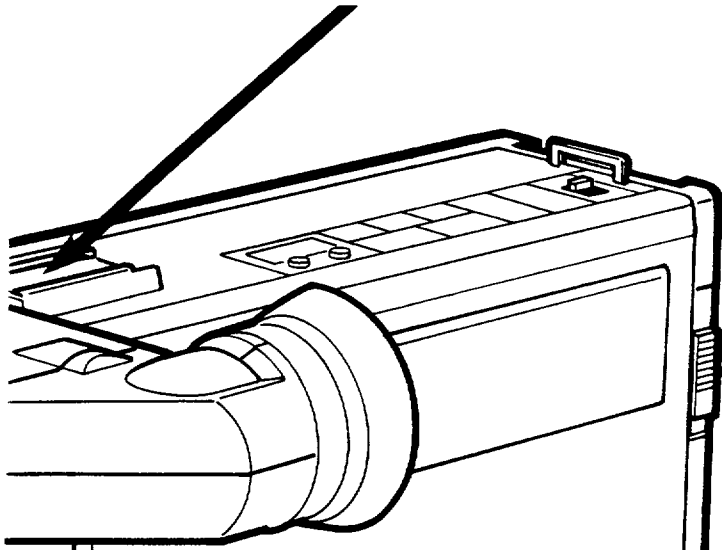
## "AUTO/MANUAL FOCUS" Switch

Set this Switch to the "AUTO" position for automatic focusing, and to the "MANUAL" position for focusing with the Focus Ring. When the Switch is held in the upper position, automatic focusing is performed until the Switch is released.



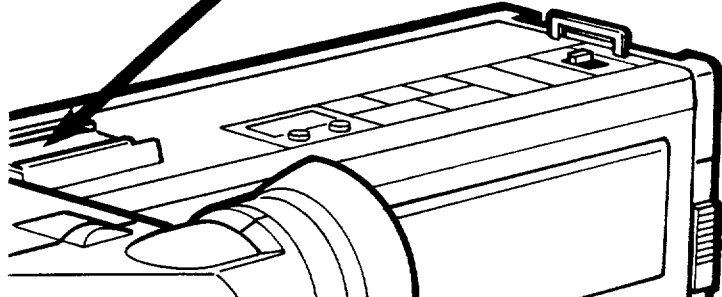
**Accessory Shoe**

Used to attach the Carrying Handle (Accessory No. 3) or Camera Light.



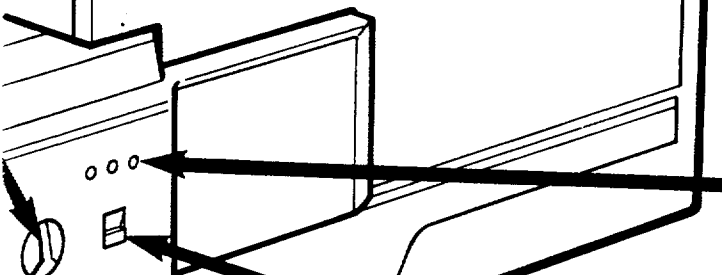
**"BATT EJECT" Lever**

Releases the Battery or the AC Adaptor/Charger attached to the Video Camera/Recorder.



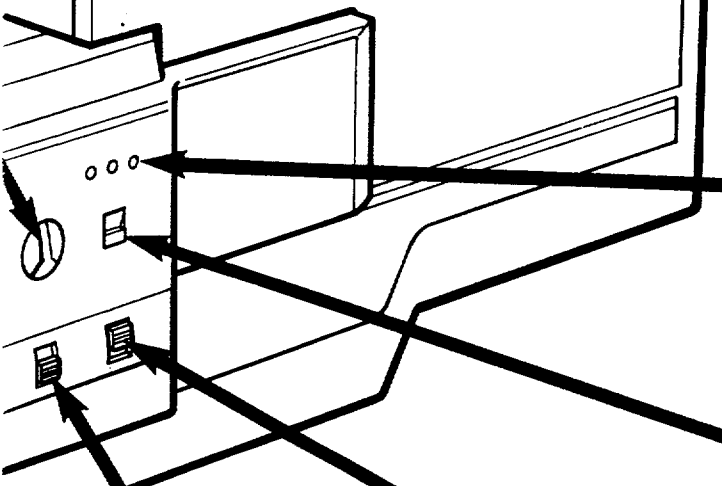
**"BATTERY" Indicators**

These three Lights give the user a general idea of the Battery conditions. A fully charged Battery causes all three Lights to light.



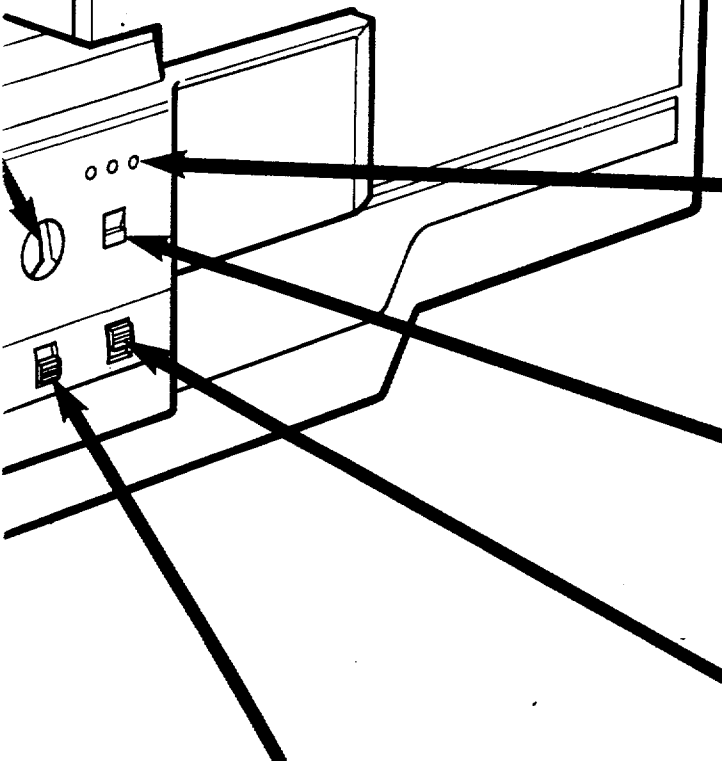
**"REVIEW" Button**

Used to check the last few seconds of recorded segment in the record/pause mode.



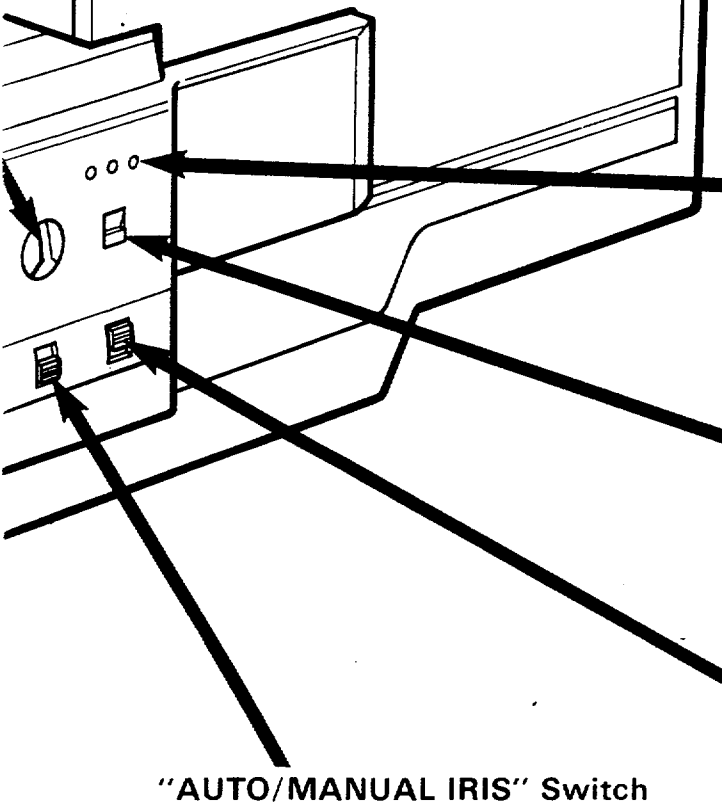
**"AUTO/MANUAL IRIS" Switch**

When this Switch is in the "AUTO" position, the iris is controlled automatically. Set the Switch to "MANUAL" position to control the iris manually by turning "MANUAL IRIS" Control.



**"POWER SAVE" Switch**

This is a Stand-by Switch to minimize the Battery power consumption. In "POWER SAVE" position, the Electronic Viewfinder is disabled.



### "REWIND" Button

Press this Button during Stop or Fast forward mode, and fast-rewinding starts. Press the Button during playback of tape, and the tape is played back in the rewind direction approximately 3 times faster than the normal speed to confirm the recorded contents.

Press "PLAY" Button to return to normal playback mode or press "STOP" Button to stop tape movement.

### "PAUSE" Button

Press this Button during playback to display a still picture on the viewfinder.

### Tape Counter

Indicates tape position. Used to locate a particular point on the tape.

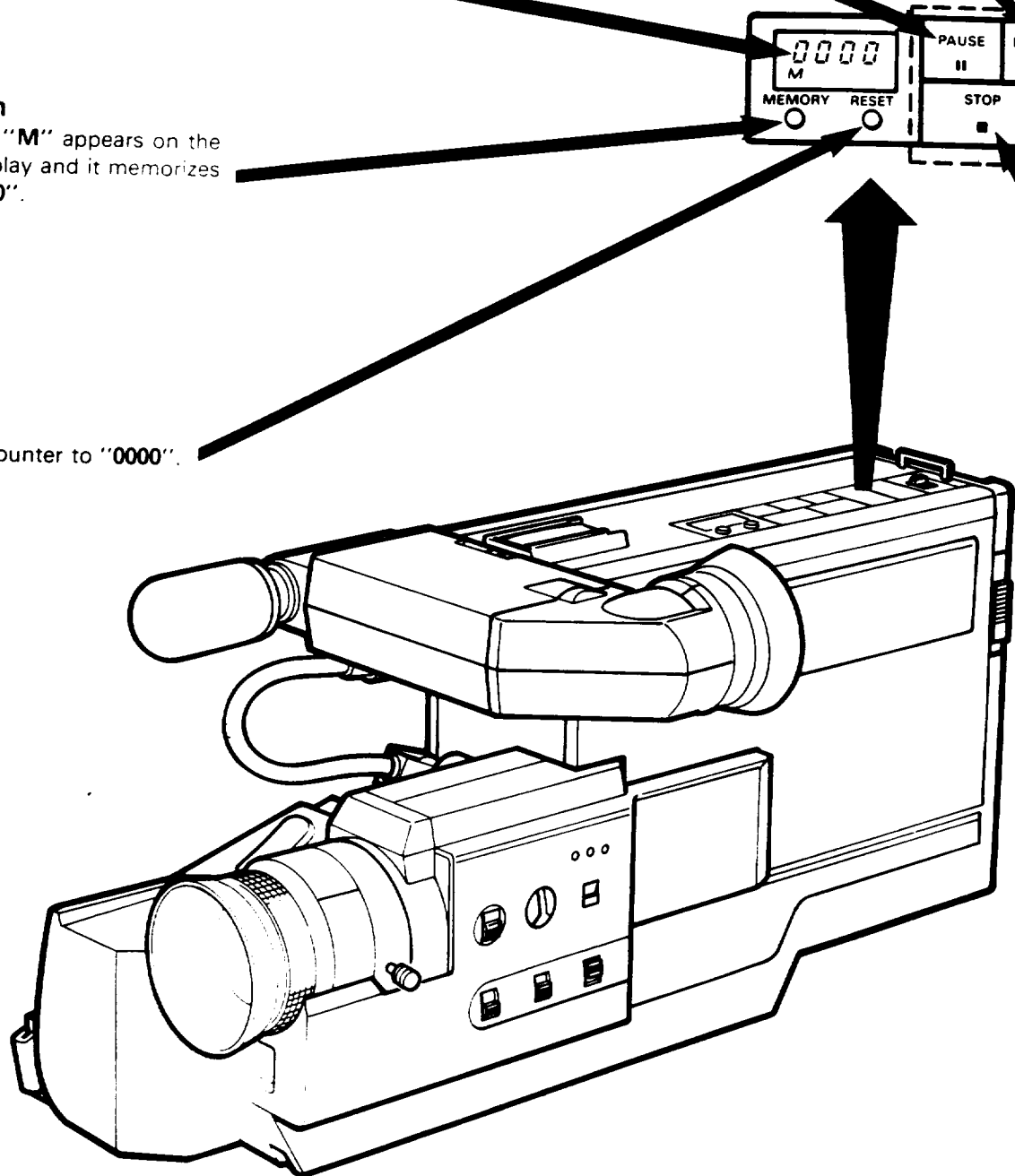
### "MEMORY" Button

If this Button is pressed, "M" appears on the Digital Tape Counter Display and it memorizes the tape position of "0000".

(See page 25.)

### "RESET" Button

Press to reset the Tape Counter to "0000".



### "F.FWD" Button

Press this Button during Stop or Rewind mode, and fast-forwarding starts.

Press the Button during playback of tape, and the tape is played back in the forward direction approximately 3 times faster than the normal speed to confirm the recorded content.

Press "PLAY" Button to return to normal playback mode or press "STOP" Button to stop tape movement.

These Buttons are related to playback function and will not function during recording.

### "POWER" ON/OFF Button

Press "POWER" ON/OFF Button to turn Camera/Recorder on. Press again to turn Camera/Recorder off.

### "VTR/CAMERA" Select Switch

This Switch changes the Camera/Recorder to the record mode or to the playback mode. The Switch must be in "CAMERA" position for recording.

### "POWER" Light and Dew Indicator Light

"POWER" Light illuminates when "POWER" ON/OFF Button is pressed and Camera/Recorder is on.

Flashing of the Light on the "POWER" ON/OFF Button indicates dew condensation on Camera/Recorder mechanism. While this Light is flashing, the unit will not operate. Then leave the power on. When the Light stops flashing, the unit can be operated.

### "EJECT" Button

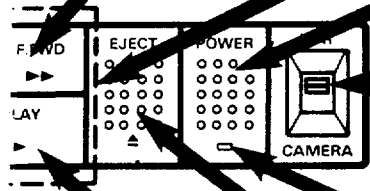
Operates with "POWER" either on or off.

### "PLAY" Button

Used for playback of tape recorded in SP mode.

### "STOP" Button

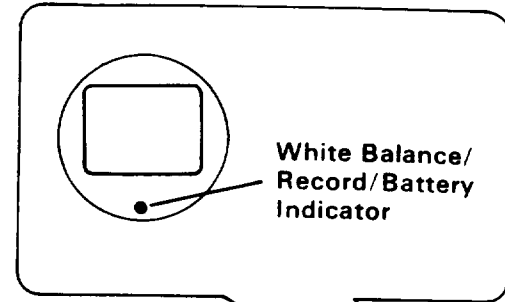
The "STOP" Button is used to stop playback, rewind, and fast forward operations. The "STOP" Button has no effect during record operation.



### Cassette Holder

Press "EJECT" Button to open the Cassette Holder. Be aware of the Cassette direction when inserting.

**NOTE:** Power source must be connected to open the Cassette Holder.



White Balance/  
Record/Battery  
Indicator

### "EAR"phone Jack

Sound being recorded by the microphone or played back may be monitored by attaching earphone (Accessory No. 13) to this jack.

**NOTE:** Doesn't work at "REVIEW" mode.

### "DC IN-12V" Jack

Used for the optional Car Battery Cord which connects to the cigarette lighter socket in your car.

### Power Terminal Protection Cover

This Cover should be in the uppermost position covering the terminal at all times.

### "A/V OUT" Jack

Connect the Audio/Video Output Cable (Accessory No. 9) to this jack and to the audio and video inputs of your TV/monitor receiver. You may also connect the RF Converter Unit (Accessory No. 5) to this jack and your TV receiver.

### "REC/PAUSE" Jack

Recording and pausing may be remotely controlled by a wired Remote Pause switch (Optional accessory).

### **"LOCK/RELEASE" Switch**

Slide the Lever to "RELEASE" position. Used to adjust the eyepiece position of Electronic Viewfinder (EVF).

### **Electronic Viewfinder (EVF)**

Displays what the Camera/Recorder lens sees. The electronic viewfinder also functions as a convenient black-and-white monitor during playback of recorded material.

### **Microphone**

Sensitive to sounds coming from the direction in which the camera is pointed. Detachable with fastening ring.

### **Power Zoom Switch**

This switch performs zooming electrically.  
"W": Picture becomes wider gradually.  
"T": Picture becomes telescopic gradually.

### **Hand Strap**

Adjust to best fit to your hand.

### **"TRACKING" Control**

Used when playing a tape recorded on another VTR. Adjust for best picture. At all other times leave it in the center position, which can be found as a small detent in the movement of the knob.

### **Record Start/Stop Button**

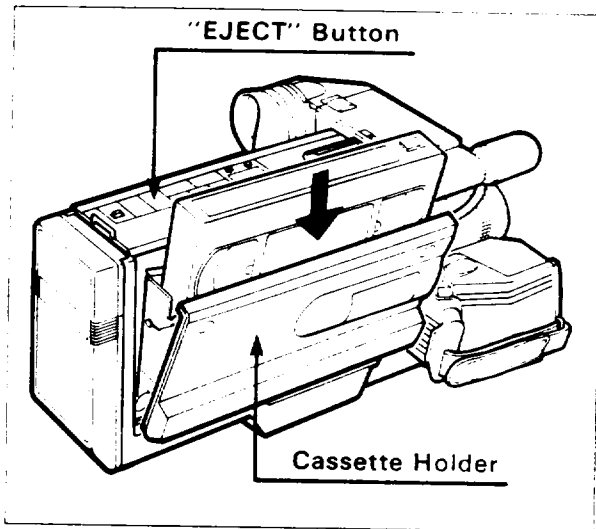
This Button is used to control the Camera/Recorder. When this Button is pressed with the Camera/Recorder set to the recording mode, the tape runs to start recording. When this Button is pressed again, the tape stops and the Camera/Recorder enters the record/pause (stand-by) mode.

# MAKING A SAMPLE CAMERA RECORDING

1. Connect either one of the "POWER SOURCES". (See pages 4 and 5.)
2. Press "EJECT" Button and insert the cassette so the transparent window is toward you and the arrow toward the Cassette Holder. Slide the Cassette into Cassette Holder as far as it will go.

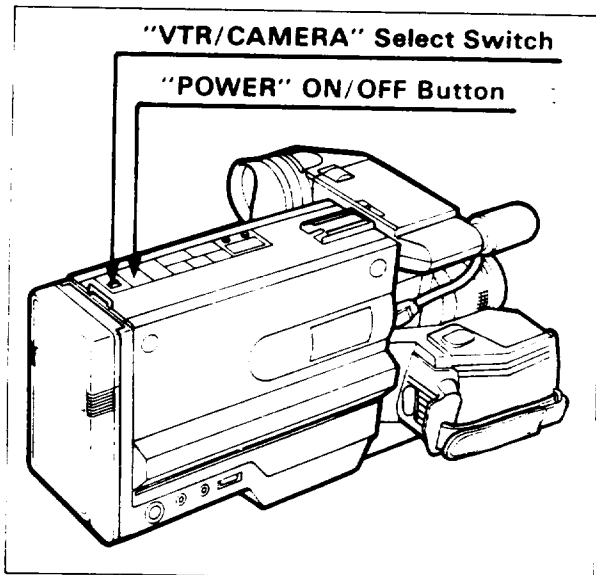
**NOTE:** If the power source is not connected to Camera/Recorder, the Cassette Holder will not open.

3. Press the Cassette Holder. The Holder will latch in the operating position.



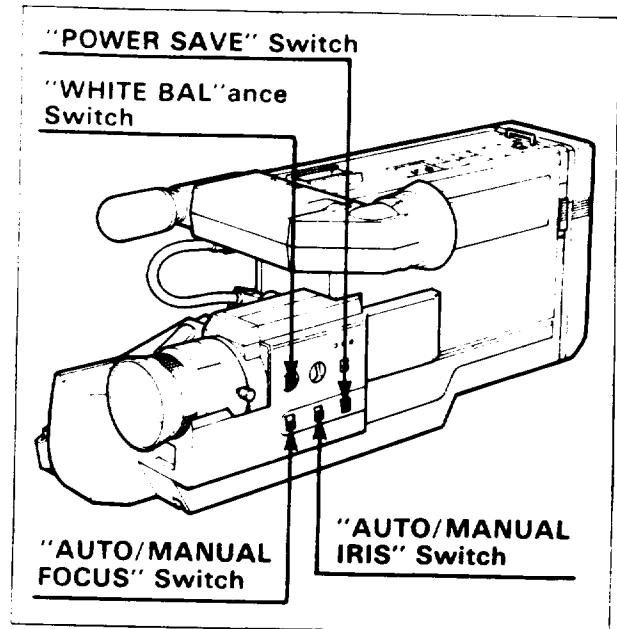
4. Set "VTR/CAMERA" Select Switch to "CAMERA" position.
5. Press "POWER" ON/OFF Button on. The Video Camera/Recorder will enter record/pause mode automatically.

**NOTE:** If the erase prevention tab on the cassette is removed, the Camera/Recorder will not enter record/pause mode.

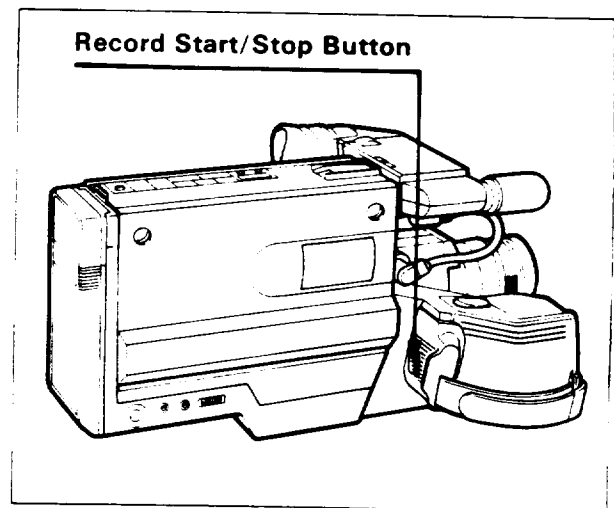


6. Set "WHITE BAL"ance switch to "AUTO" position.
7. Set "POWER SAVE" Switch to "NORMAL".
8. Set "AUTO/MANUAL IRIS" Switch to "AUTO".
9. Set "AUTO/MANUAL FOCUS" Switch to "AUTO".

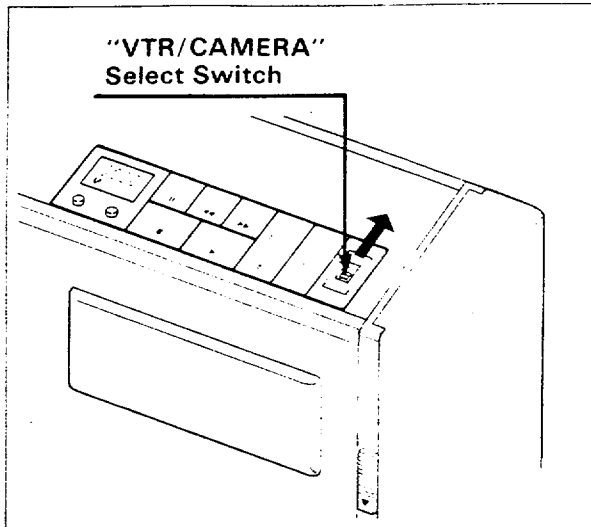
**NOTE:** See page 20 for "EYEPIECE ADJUSTMENT".



10. Now, press Record Start/Stop Button to start shooting the picture. You are now recording the picture you see through the Electronic Viewfinder. The Record/Battery Indicator in the Electronic Viewfinder will light.
11. Press Record Start/Stop Button to stop recording. Press the Button again to resume recording. The Record/Battery Indicator in the Electronic Viewfinder goes off in the record/pause (stand-by) mode.

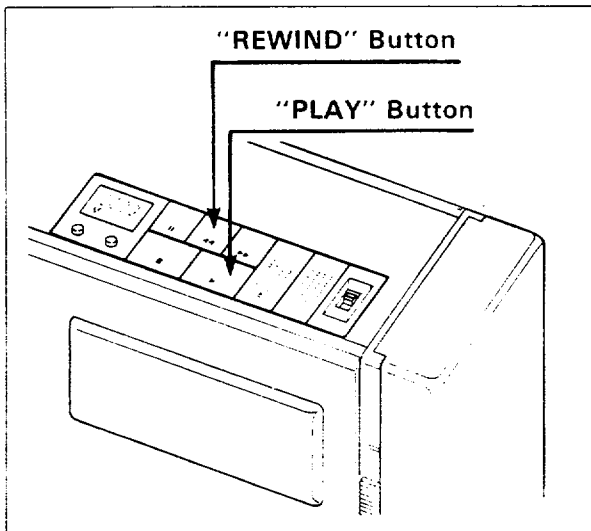


12. After recording, set "VTR/CAMERA" Select Switch to "VTR", and the Camera Recorder will be now in the stop mode.

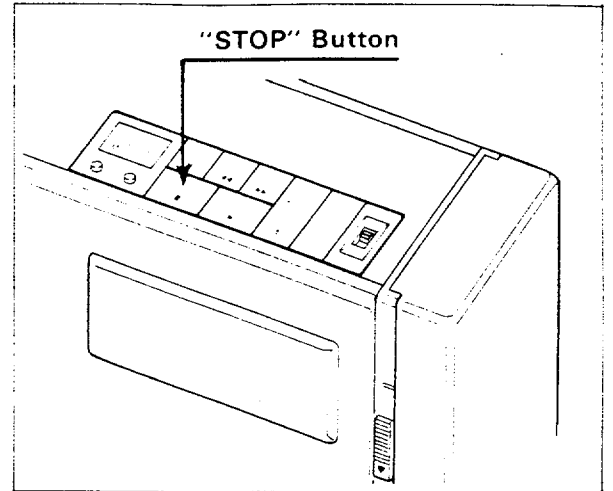


13. Press "REWIND" Button. The tape will be re-wound to the beginning.  
 14. Press "PLAY" Button. The picture you just recorded will be seen through the Viewfinder and sound will be heard by earphone (Accessory No. 13).

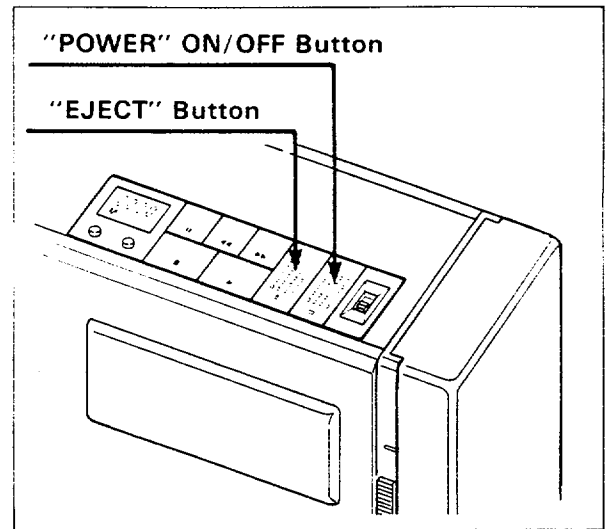
**NOTE:** If you connect the Video Camera Recorder to your TV, you can see the picture played back on your TV. Refer to "CONNECTIONS AND OPERATIONS FOR VIEWING THE PICTURE PLAYED BACK ON YOUR TV" on pages 21 and 22.



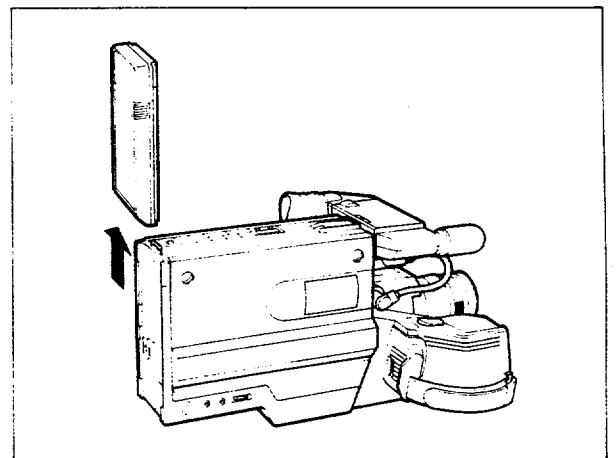
15. After playing, press "STOP" Button.



16. Press "POWER" ON/OFF Button off and then "EJECT" Button to remove cassette.

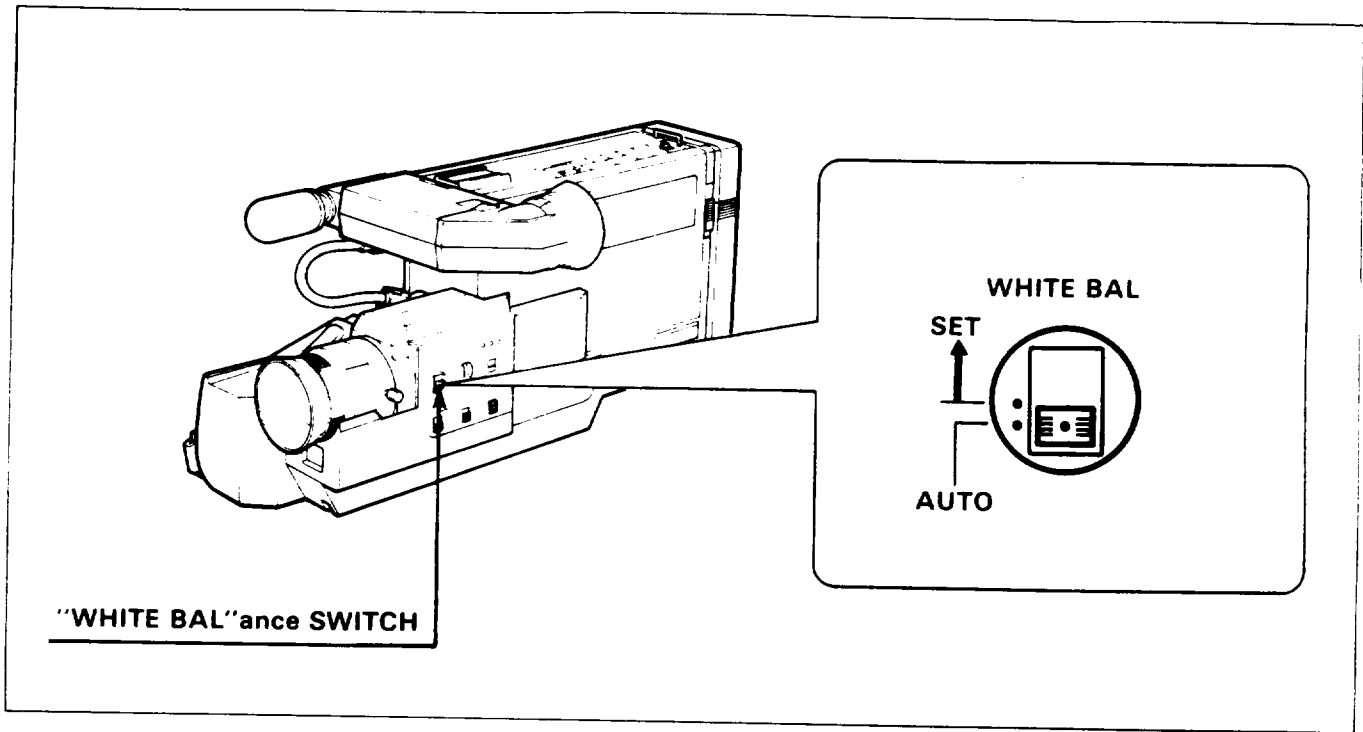


17. Always remove the power source from the Video Camera Recorder after use.



# USING THE AUTO-WHITE BALANCE FEATURE

The human eye is adaptable to light, so that a white object appears white whether it is viewed indoors or outdoors. However, a camera cannot adapt itself, so a white object can appear as bluish or reddish depending on the color temperature of light source. Your Video Camera/Recorder is equipped with an automatic white balance system which will automatically maintain white balance when the "WHITE BAL"ance Switch is placed in "AUTO" position.



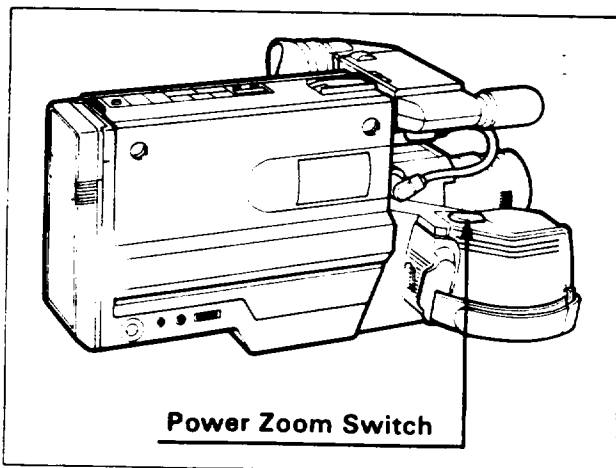
## ■ To manually adjust the white balance

This Video Camera/Recorder can adjust white balance automatically when the color temperature of light source is in the range of 3000°K — 6000°K. However, when the color temperature is more than 6000°K (snow scene, etc.) or less than 3000°K (in candle light, etc.), white balance cannot be adjusted automatically. In this case, adjust the white balance for the light condition manually.

1. Shoot a white wall or paper to fill the screen.

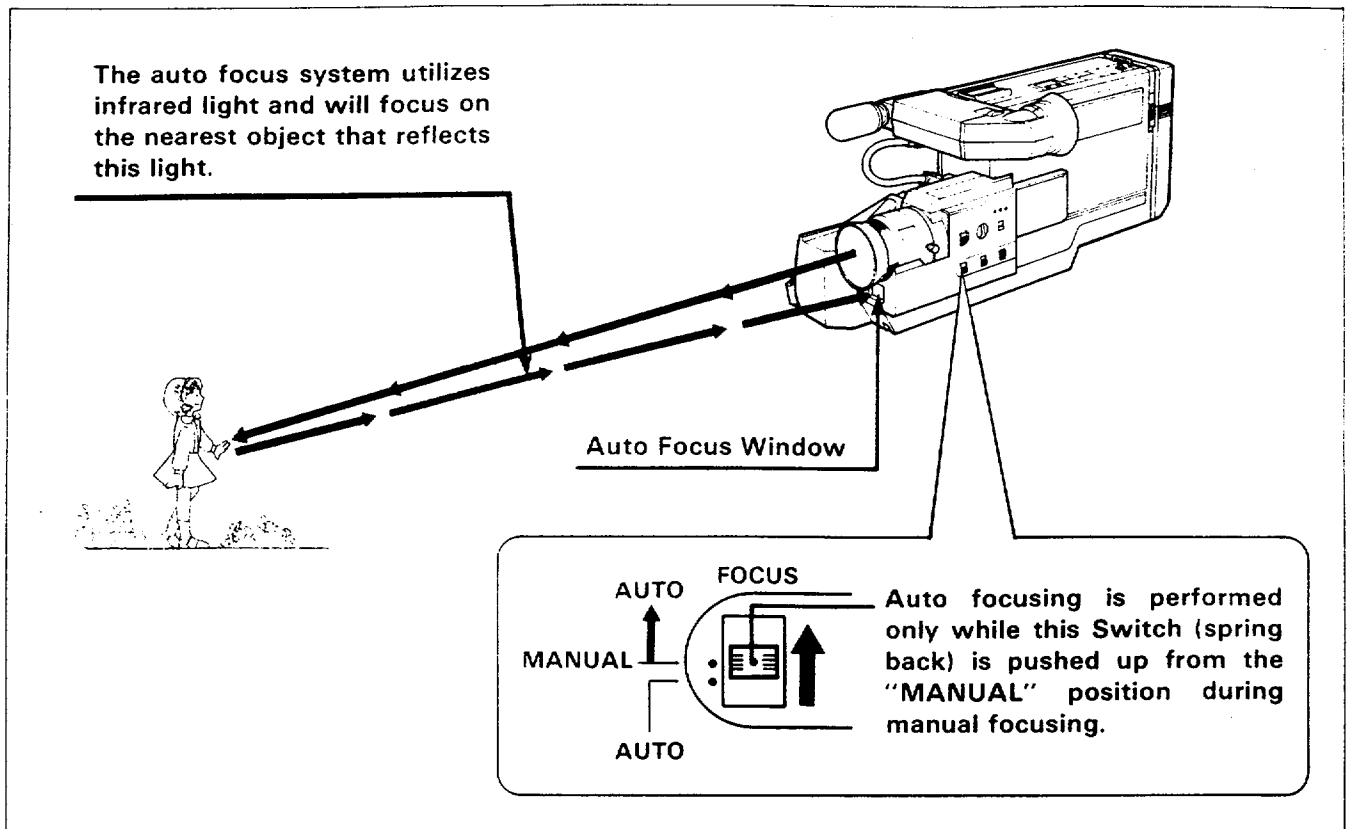
**NOTE:** When there is no white wall or paper nearby, point the Video Camera/Recorder with the Lens Cap attached toward the object and zoom out on the object by pressing Power Zoom Switch on the "W" side.

2. Set "WHITE BAL"ance Switch to "SET" position and then push up the Switch (spring back). Indicator in the Viewfinder starts blinking to show that the white balance adjustment is being made.
3. Release "WHITE BAL"ance Switch when the Indicator in the Viewfinder goes off. Now white balance adjustment is completed.





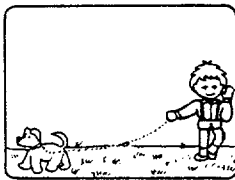
# USING THE AUTO FOCUS FEATURE



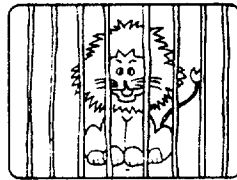
With the **AUTO/MANUAL FOCUS** Switch set to "AUTO" position, the ordinary objects are automatically in optimum focus.

## ■ OBJECTS HARD TO AUTO FOCUS

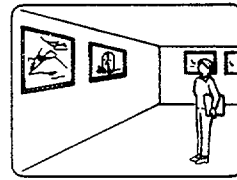
The distance between the Auto Focus Window and the object is measured, and the Focus Ring is automatically turned for focusing. However, with the scenes such as shown below, the auto focusing may not operate properly. Then, perform the manual focus. See next page.



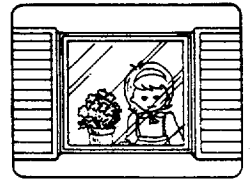
1. Object is not in the center.



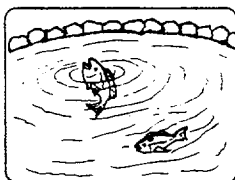
2. Object in far and near positions at the same time.



3. Object with continuous variation from far to near positions.



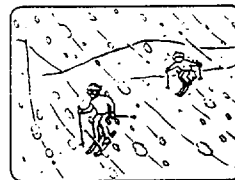
4. Object behind glass.



5. Black object or water which are hard to reflect infrared light.



6. Object which is moving such as a crowd.

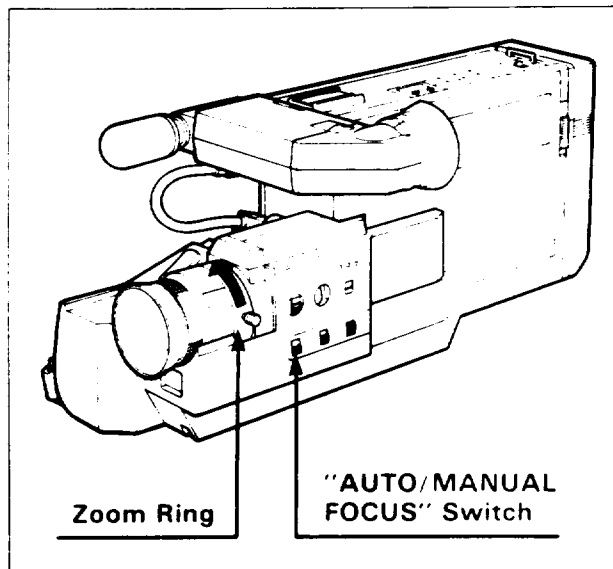


7. Object in the snow or fog.

## ■ MANUAL FOCUSING

1. Set "AUTO/MANUAL FOCUS" Switch to "MANUAL" position.
2. Zoom up the object by turning the Zoom Ring.

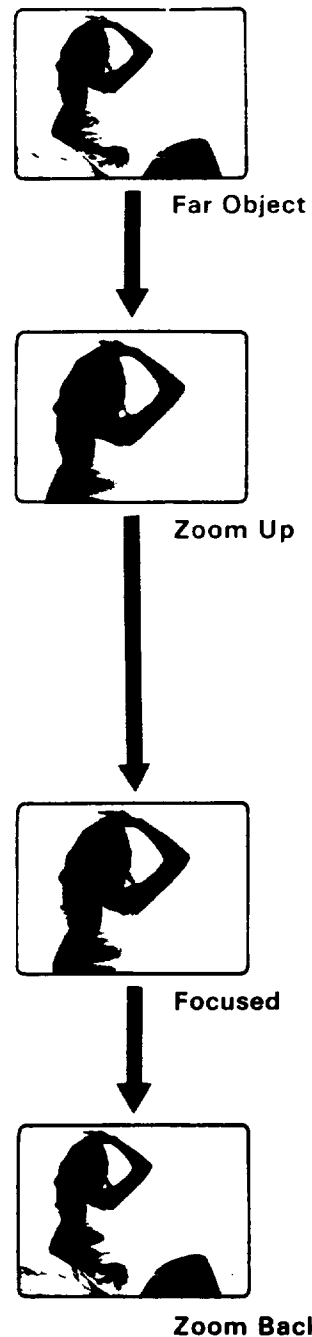
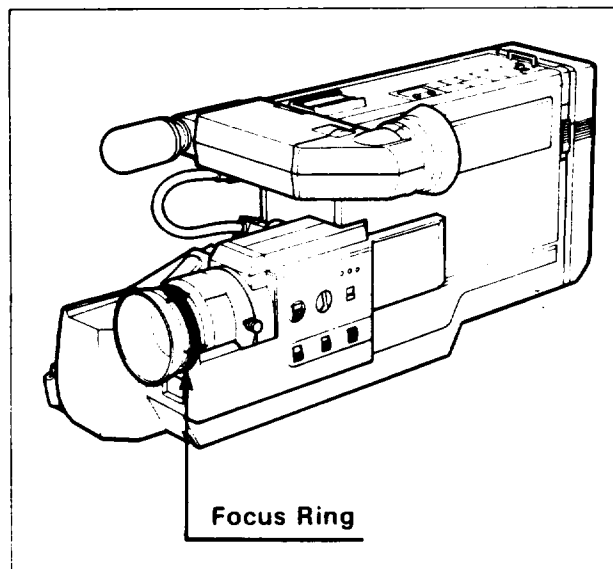
**NOTE:** See page 18 for "USING THE POWER ZOOM FEATURE".



3. Focus on the object by turning the Focus Ring.

**NOTE:** If focusing is performed without zooming up first, the picture may become out of focus when the zoom-up is done during actual picture taking.

4. Then, zoom back the object as desired.

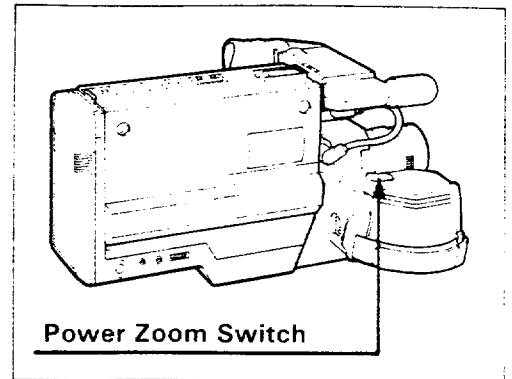


## USING THE POWER ZOOM FEATURE

- Press Power Zoom Switch on the "W" side, and the picture gradually widens.



- Press Power Zoom Switch on the "T" side, and the picture gradually becomes telescopic.

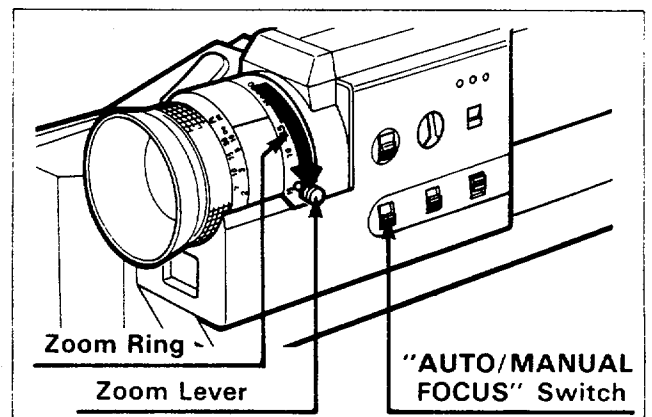


**NOTE:** Do not touch the Zoom Lever or Zoom Ring during power zooming.

## USING THE MACRO FEATURE

It permits you to shoot objects as close as 1 cm from the lens tip.

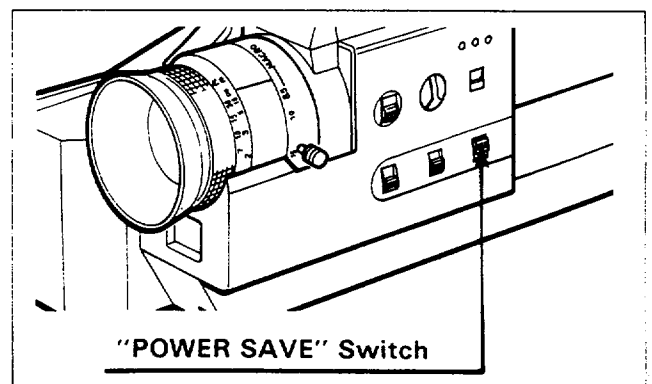
1. Set "AUTO/MANUAL FOCUS" Switch to "MANUAL" position.
2. Turn the Zoom Lever to "MACRO" while pulling out the Zoom Lever.
3. Turn the Zoom Ring within the "MACRO" range (yellow line on the Zoom Ring) for focusing.



## USING THE POWER SAVE FEATURE

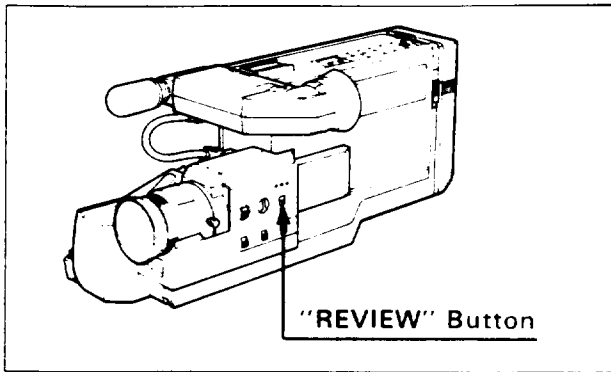
The "POWER SAVE" Switch is used to extend play/record time in record/pause (stand-by) or stop mode during Battery operation. When the Switch is set to "POWER SAVE" position, power consumption is minimized.

When the Switch is set to "NORMAL" position, the Video Camera/Recorder operates normally.

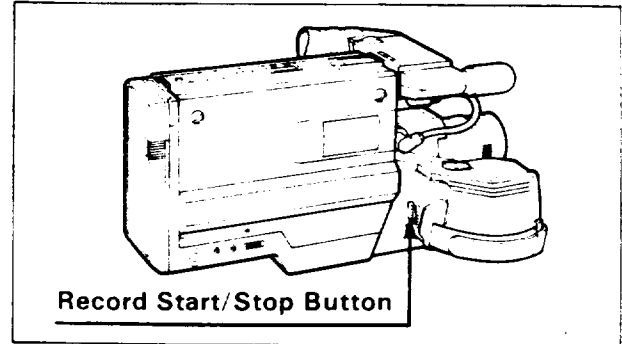


## USING THE INSTANT REVIEW FEATURE

1. In record/pause (stand-by) mode, press **"REVIEW"** Button, and the recorded scene of the last few seconds is played back in the reverse direction and then played back in the forward direction.



2. When the tape reaches the end of the scene you have just recorded, the Video Camera Recorder returns to the record/pause (stand-by) mode. Recording starts again when the Record Start/Stop Button is pressed again.



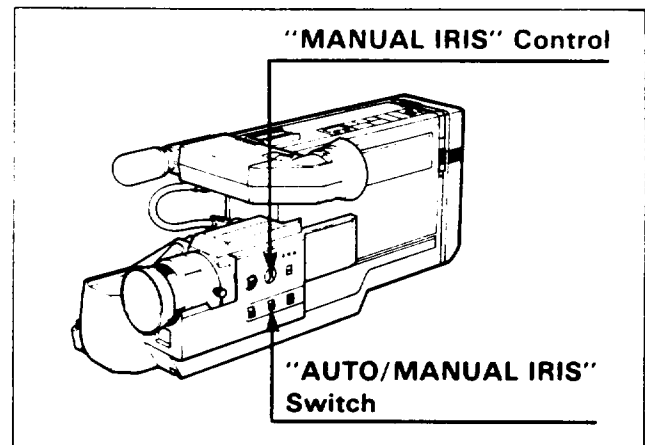
## USING THE AUTO IRIS FEATURE

This Camera/Recorder is provided with an auto iris mechanism which automatically adjusts the lens aperture in accordance with the incident light when the **"AUTO/MANUAL IRIS"** Switch is placed in **"AUTO"** position. When the object is dark, the iris opens automatically, and it closes when the object is bright. When the power is switched off and/or **"POWER SAVE"** Switch is set to **"POWER SAVE"** position, the iris is automatically set to the fully closed position.

### ■ To manually adjust the iris

You can also adjust the iris manually.

- When the object is in bright light and the background is dark, set **"AUTO/MANUAL IRIS"** Switch to **"MANUAL"** and then adjust the **"MANUAL IRIS"** Control counterclockwise to narrow the iris closing.
- When the background is in bright light and the object appears to be too dark, set **"AUTO/MANUAL IRIS"** Switch to **"MANUAL"** and then adjust **"MANUAL IRIS"** Control clockwise to widen the iris opening.



## USING THE FADE IN/FADE OUT FEATURE

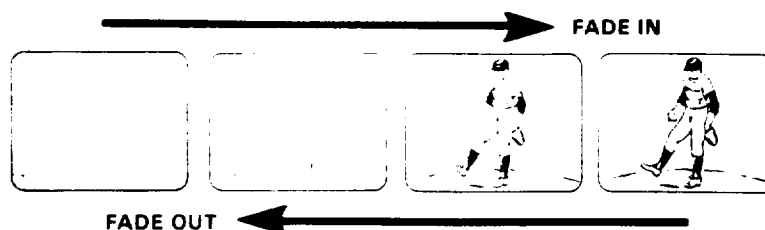
This is a technique to take a picture in such a way that the picture gradually appears on a blank screen (fade in) and the picture gradually disappears from the screen (fade out).

### ■ FADE IN

1. Set **"AUTO/MANUAL IRIS"** Switch to **"MANUAL"** and then turn **"MANUAL IRIS"** Control fully counterclockwise (CLOSE) before starting recording. The picture in the Electronic Viewfinder disappears.
2. Gradually turn **"MANUAL IRIS"** Control to its click position after starting recording.

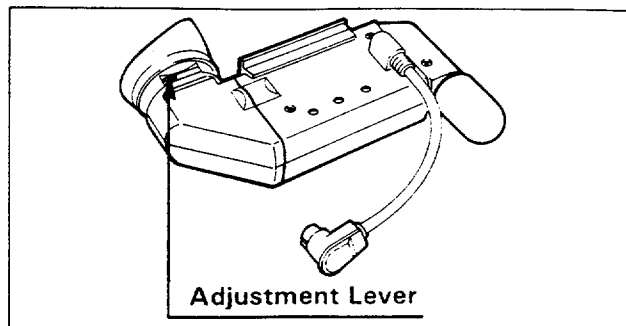
### ■ FADE OUT

1. Set **"AUTO/MANUAL IRIS"** Switch to **"MANUAL"** and then set **"MANUAL IRIS"** Control to its click position before starting recording.
2. Gradually turn **"MANUAL IRIS"** Control fully counterclockwise after starting recording. The picture fades out.



# EYEPIECE ADJUSTMENT

To use the electronic viewfinder without eyeglasses on, move the Lever for your optimum focus adjustment.

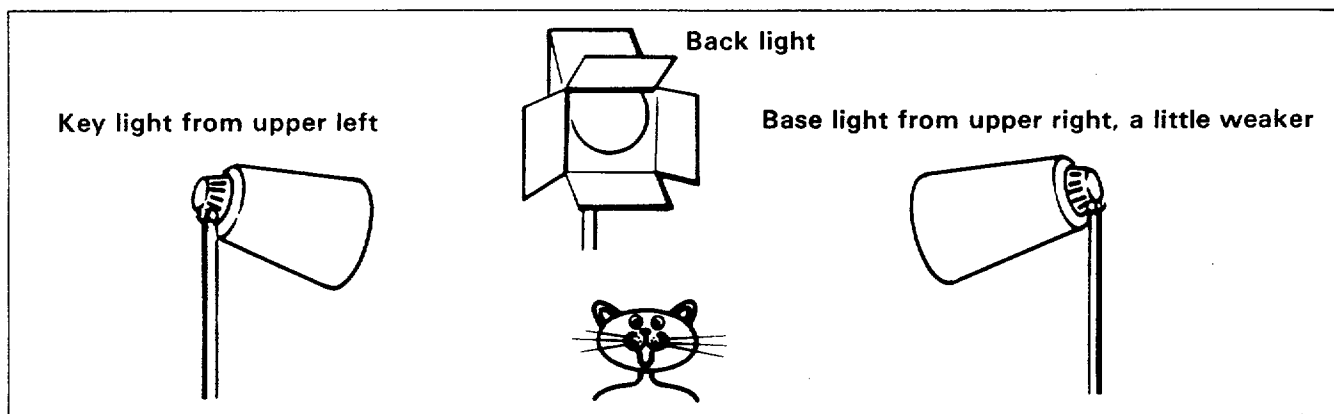


# PRODUCING BEST COLOR PROGRAM

**LIGHTING** — Lighting should be uniform from the top —

### Essential points on lighting people

1. A key light should be provided at the upper left in front of the person.
  2. A weaker base light (spot) should be provided at the upper right and balanced with the key light. (Adjusting so that the left:right ratio is 2 : 1.5 by moving the lights backwards and forwards.)
  3. Use one more light behind the subject. This emphasizes the person's head and shoulders and prevents the subject from being lost in the background.
- Caution:** Do not place lighting equipment near the Video Camera/Recorder as heat from the lighting equipment can cause the Video Camera/Recorder to malfunction.



### Approximate brightness value (for reference only)

Unit: lux

Illumination of 500 to 100,000 lux is required for clearest pictures, though the camera can shoot an object in illumination of 7 to 100,000 lux. Increase illumination when object illumination is less than 500 lux. Install an ND (Neutral Density) filter (46 mm dia. and 0.75 mm pitch) on the lens if an object's illumination exceeds 100,000 lux.

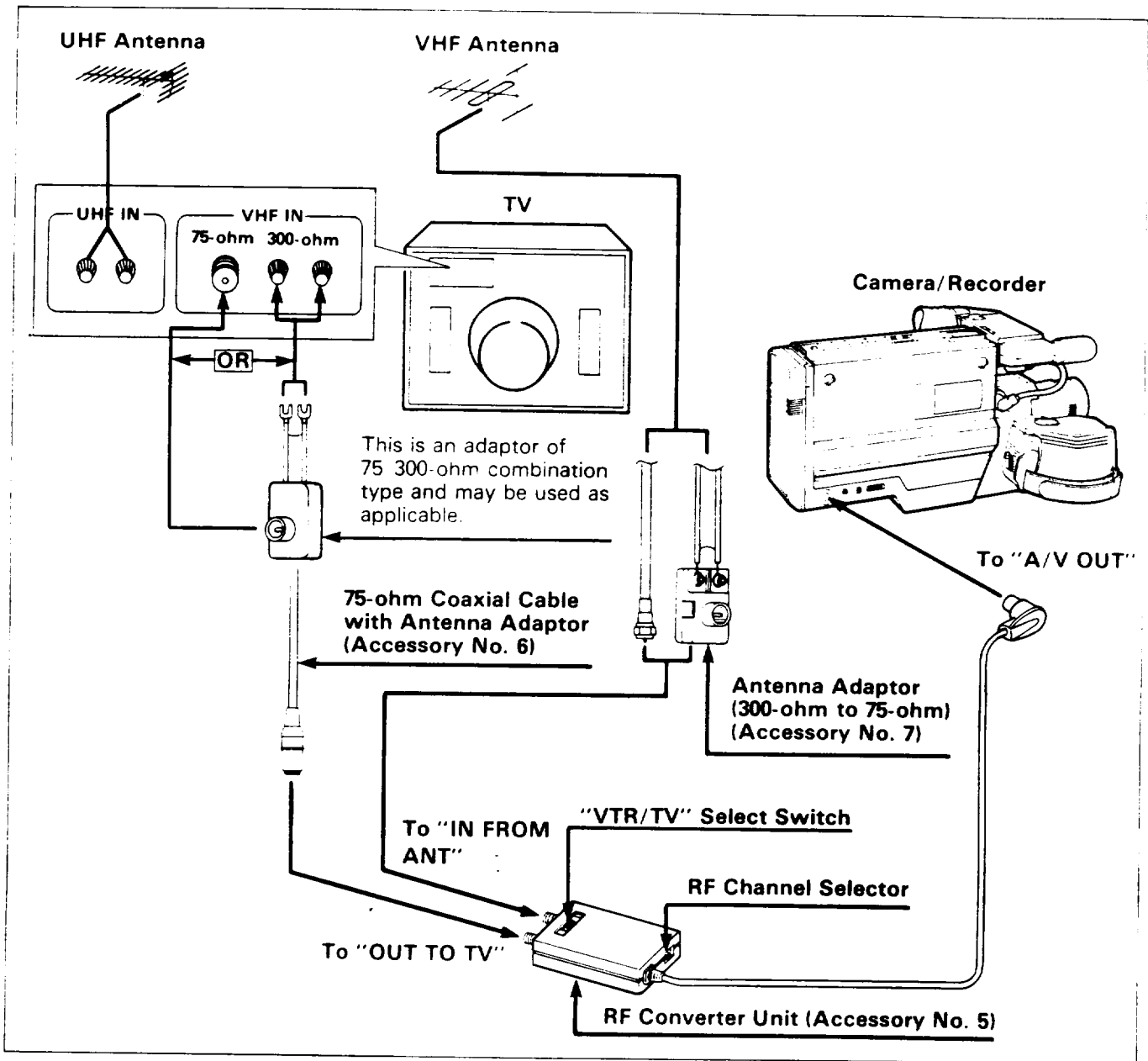
10	<ul style="list-style-type: none"> <li>• Candle at 20 cm (10–15)</li> <li>• Cigarette lighter at 30 cm (15)</li> <li>• During intermission at a movie theater (15–35)</li> </ul>
100	<ul style="list-style-type: none"> <li>• Workshop in a machinery factory (150–200)</li> <li>• Arcade at night (150–200)</li> <li>• Flashlight at 1 meter (250)</li> <li>• Study desk with fluorescent lighting (400)</li> <li>• Office with fluorescent lighting (400–500)</li> <li>• Library reading room (400–500)</li> <li>• Bowling alley (500)</li> <li>• Sales floor of a department store (500–700)</li> </ul>
1,000	<ul style="list-style-type: none"> <li>• Clear day one hour before sunset (1,000)</li> <li>• Cloudy day one hour after sunrise (2,000)</li> </ul>
10,000	<ul style="list-style-type: none"> <li>• Cloudy day at 10 AM (25,000)</li> <li>• Cloudy day at noon (32,000)</li> <li>• Clear day at 3 PM (35,000)</li> <li>• Clear day at 10 AM (65,000)</li> </ul>
100,000	<ul style="list-style-type: none"> <li>• Clear day at noon (100,000)</li> </ul>

# CONNECTIONS AND OPERATIONS FOR VIEWING THE PICTURE PLAYED BACK ON YOUR TV

To play back a tape recorded on your Video Camera/Recorder and view it on your TV receiver, you must connect the Video Camera/Recorder to the TV receiver using either Audio/Video Output Cable (Accessory No. 9) or RF Converter Unit (Accessory No. 5).

You also may play back the tape recorded by your Video Camera/Recorder on any other VHS video tape recorder. The Video Camera/Recorder records and plays back in VHS standard speed (SP). The tape recorded in long play (LP) or extra long play (EP) will not be played back on this Video Camera/Recorder.

**Example 1: If your TV is a regular TV,**

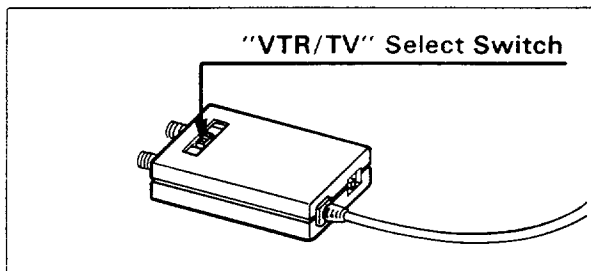


1. Disconnect the VHF antenna leads from the rear of the TV receiver.

**NOTE:** Leave the UHF antenna leads connected to the TV.

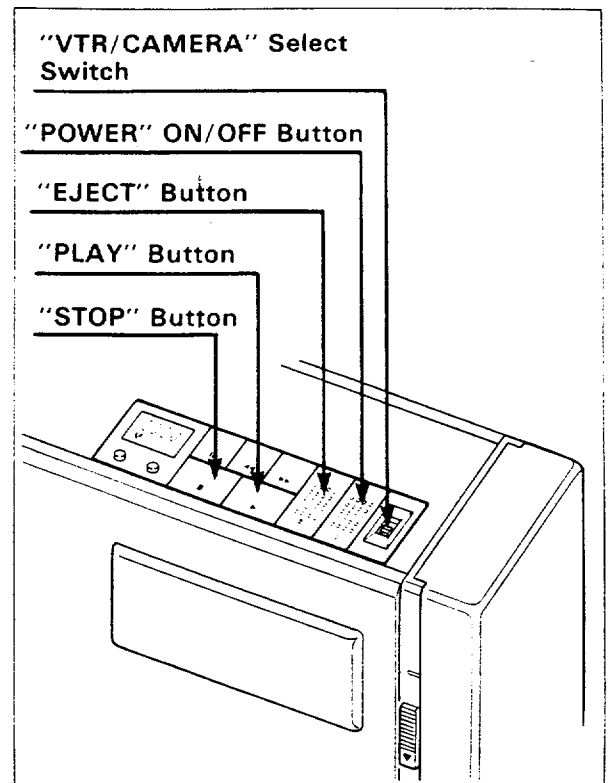
2. Connect the VHF antenna lead to "IN FROM ANT" on the RF Converter Unit (Accessory No. 5). If the cable is round (75-ohm), it will connect directly to the "IN FROM ANT". If it is the flat type (300-ohm), connect it to the Antenna Adaptor (300-ohm to 75-ohm) (Accessory No. 7) and slip the Adaptor on to the "VHF IN FROM ANT" terminal.

3. Connect the 75-ohm Coaxial Cable (Accessory No. 6) to "OUT TO TV" on the RF Converter Unit.
4. Connect the other end to the VHF antenna terminal on the TV, as illustrated on page 21.
5. Connect the Connector Cable from RF Converter Unit to "A/V OUT" jack on the Video Camera/Recorder.
6. Turn on the TV and set to Channel 3 unless Channel 3 is one of the TV stations in your area. If Channel 3 is used in your area, set your TV to Channel 4.
7. Set the RF Channel Select Switch on the RF Converter Unit to "CH3" or "CH4" to match the channel selector on your TV. This is the Video Camera/Recorder channel on your TV set. Your TV receiver must be turned to this channel any time a video cassette is played back on the Video Camera/Recorder.
8. Set "VTR/TV" Select Switch on the RF Converter Unit to "VTR".



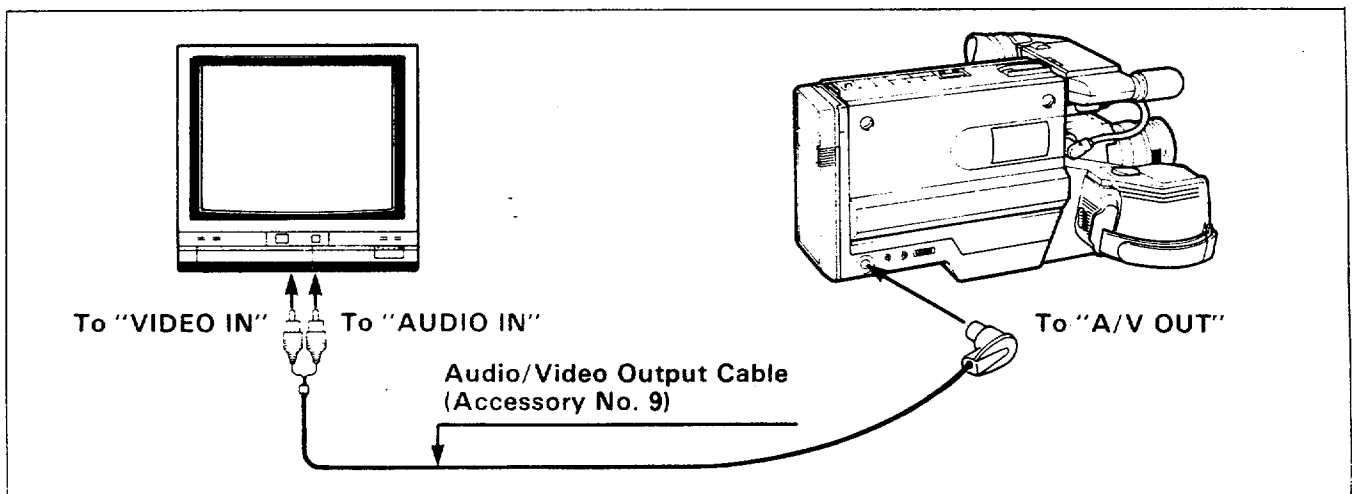
9. Press "EJECT" Button on the Video Camera/Recorder and then insert the cassette.

10. Set "VTR/CAMERA" Select Switch to "VTR" position.
11. Press "POWER" ON/OFF Button on.
12. Press "PLAY" Button.
13. After playing press "STOP" Button.



**NOTE:** If you want to watch a TV program with Video Camera/Recorder connected as illustrated, set "VTR/TV" Select Switch on the RF Converter Unit to "TV" position.

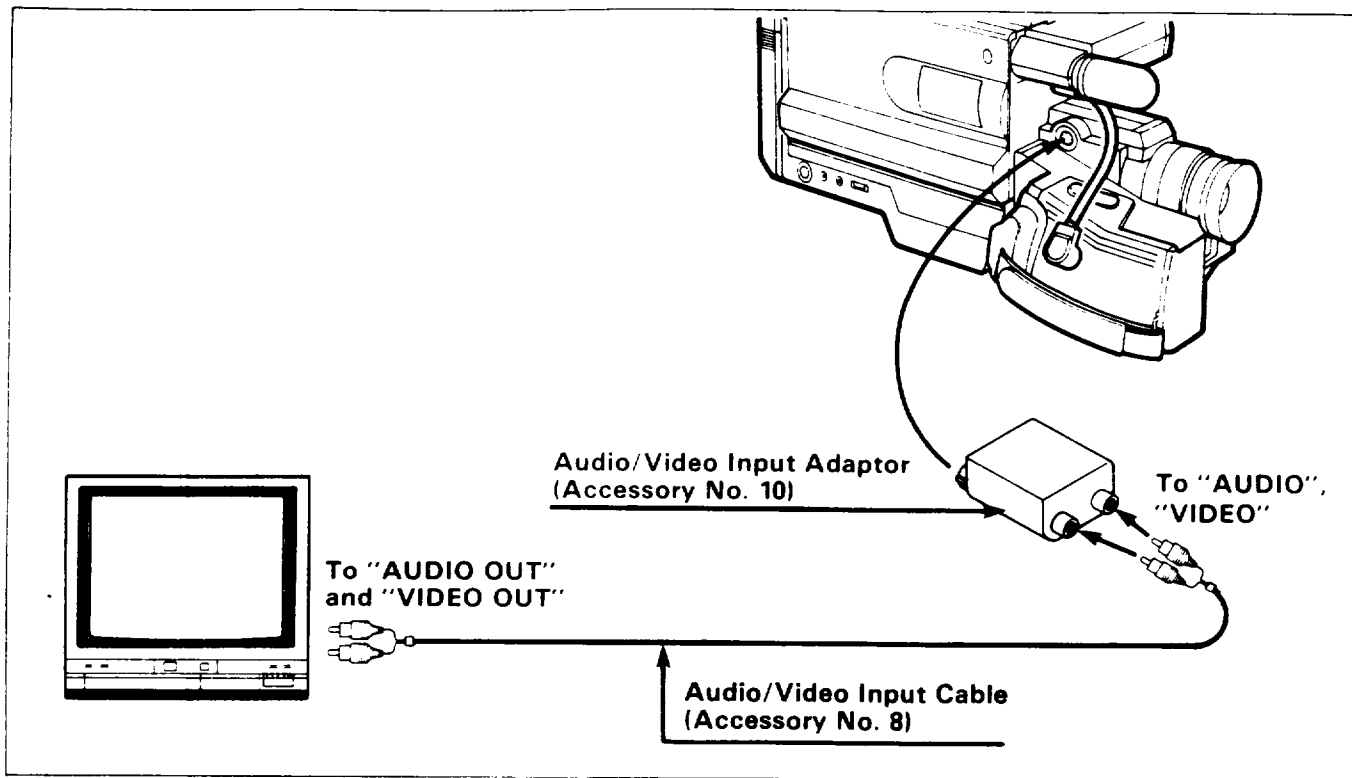
**Example 2:** If your TV has "VIDEO IN" and "AUDIO IN" jacks.



1. Connect the Audio/Video Output Cable (Accessory No. 9) to "AUDIO IN" and "VIDEO IN" of your TV.
2. Connect the other end of the Audio Video Output Cable to "A/V OUT" of your Video Camera/Recorder.
3. Turn on TV.
4. Perform same procedures in Steps 9 through 13 of "Example 1" above.

# CONNECTIONS AND OPERATIONS FOR RECORDING TV PROGRAM

If your TV has audio/video out jacks, you can record the TV program with Camera/Recorder.

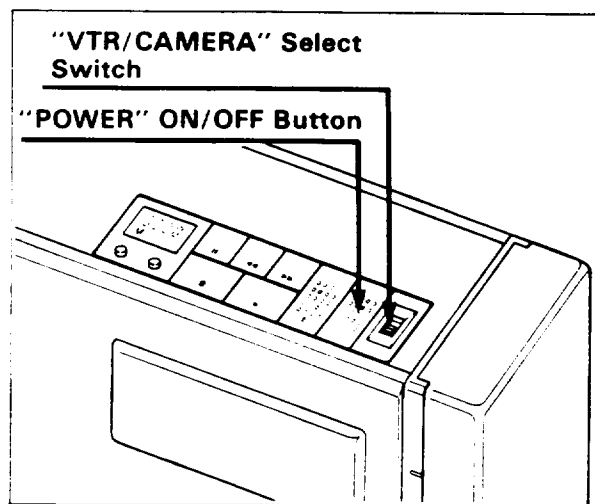
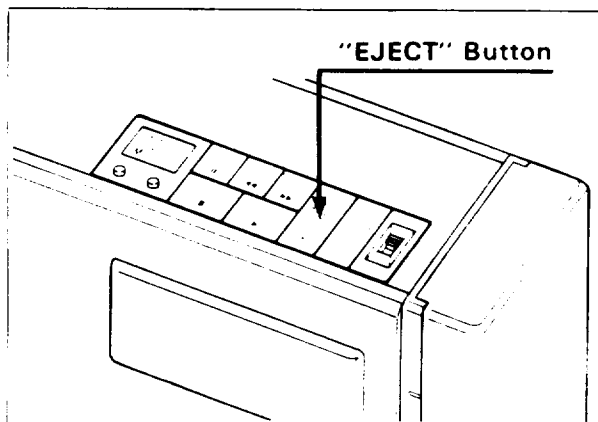


1. Remove the cable of the Electronic Viewfinder from the Video Camera/Recorder.
2. Locate Audio/Video Input Adaptor (Accessory No. 10).
3. Plug the Audio/Video Input Adaptor to Video Camera/Recorder.
4. Connect the Audio/Video Input Cable (Accessory No. 8) to "AUDIO" and "VIDEO" of the Audio/Video Input Adaptor. Connect the other ends to "AUDIO OUT" and "VIDEO OUT" of your TV respectively.

5. Press "EJECT" Button and insert the cassette.

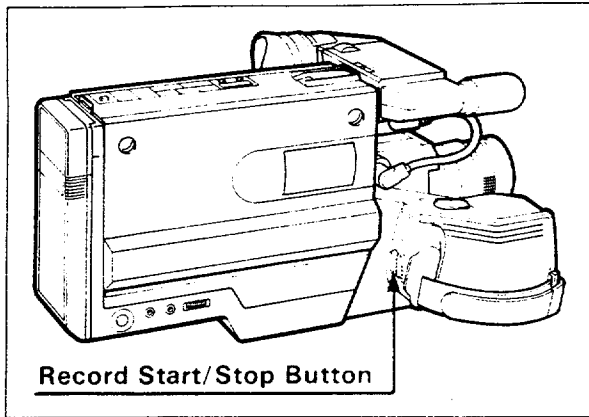
**NOTE:** Power source must be connected to the Video Camera/Recorder.

6. Set "VTR/CAMERA" Select Switch to "CAMERA".
7. Press "POWER" ON/OFF Button on.
8. Press Record Start/Stop Button to start recording. You are now recording the program you see on your TV screen.

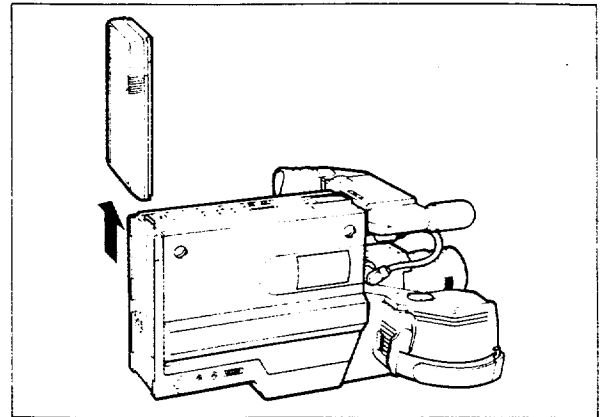




9. Press Record Start/Stop Button once again to stop recording.

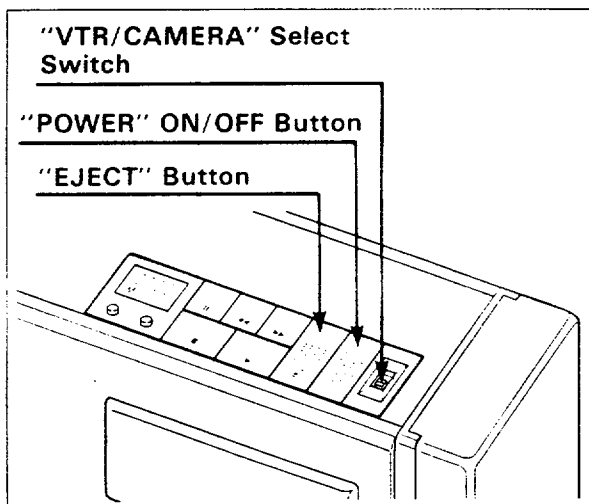


12. Remove the Power Source from the Video Camera/Recorder.



10. After recording, set "VTR/CAMERA" Select Switch to "VTR", and the Video Camera/Recorder will be now in the stop mode.
11. Press "POWER" ON/OFF Button off and then "EJECT" Button to remove the cassette.

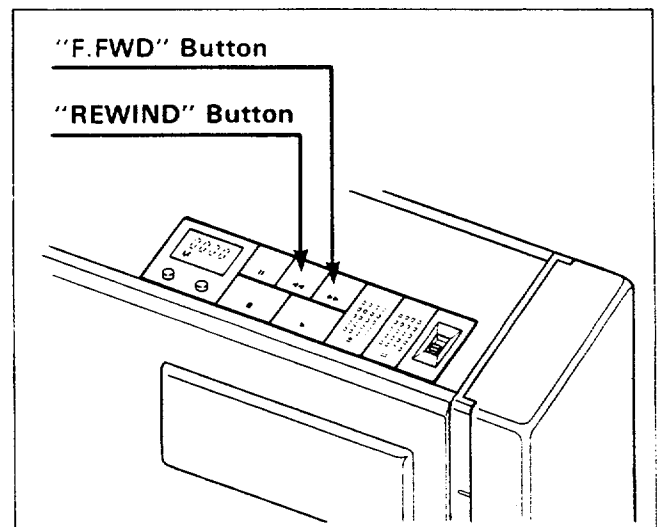
**NOTE:** Be sure to remove the Power Source after using the camera.



## USING THE F-SEARCH AND R-SEARCH FEATURES

When you press "F.FWD" or "REWIND" Button during playback, the tape will be played back at a speed about 3 times faster than the normal playback speed, and you can easily locate a certain spot on the tape.

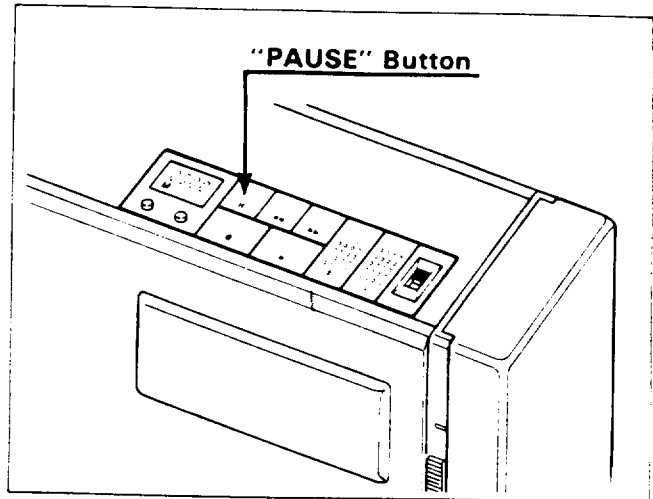
**NOTE:** There will be some noise (interference) in the F-search or R-search pictures.



## USING THE PAUSE FEATURE

When "PAUSE" Button is pressed during playback, "PAUSE" Light will come on and a still picture can be seen. To start again press "PAUSE" Button and "PAUSE" Light will go off and playback will be resumed.

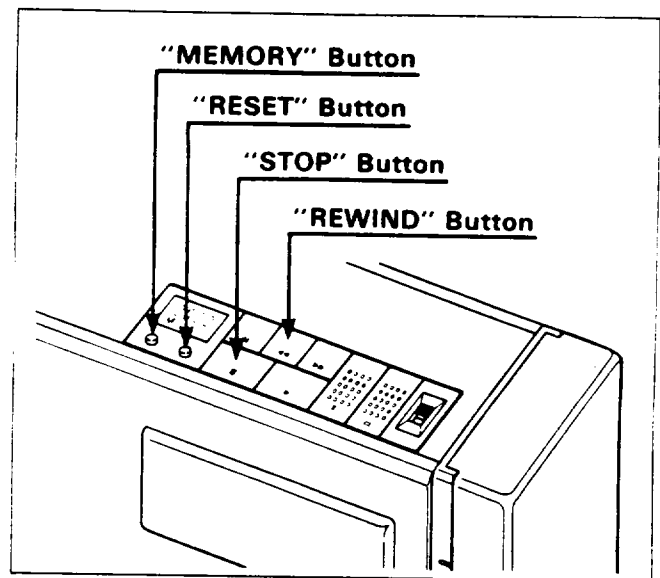
**NOTE:** There will be some noise (interference) in the still picture.



## USING THE MEMORY FEATURE

When the "MEMORY" Button is on, a tape that is being rewound automatically stops when the Counter reads approximately "0000". This is useful if there is a section of tape you want to review immediately after recording or if you want to return to the same point several times in a row.

1. Press "MEMORY" Button. (The mark "M" appears on the counter display.)
2. Start playing or recording a tape.
3. At the point you want playback to start, press "RESET" Button to reset the Counter to "0000".
4. Continue to play or record.
5. Press "STOP" Button.
6. Press "REWIND" Button. The tape will be rewound to the preselected point, at approximately "0000" indication.

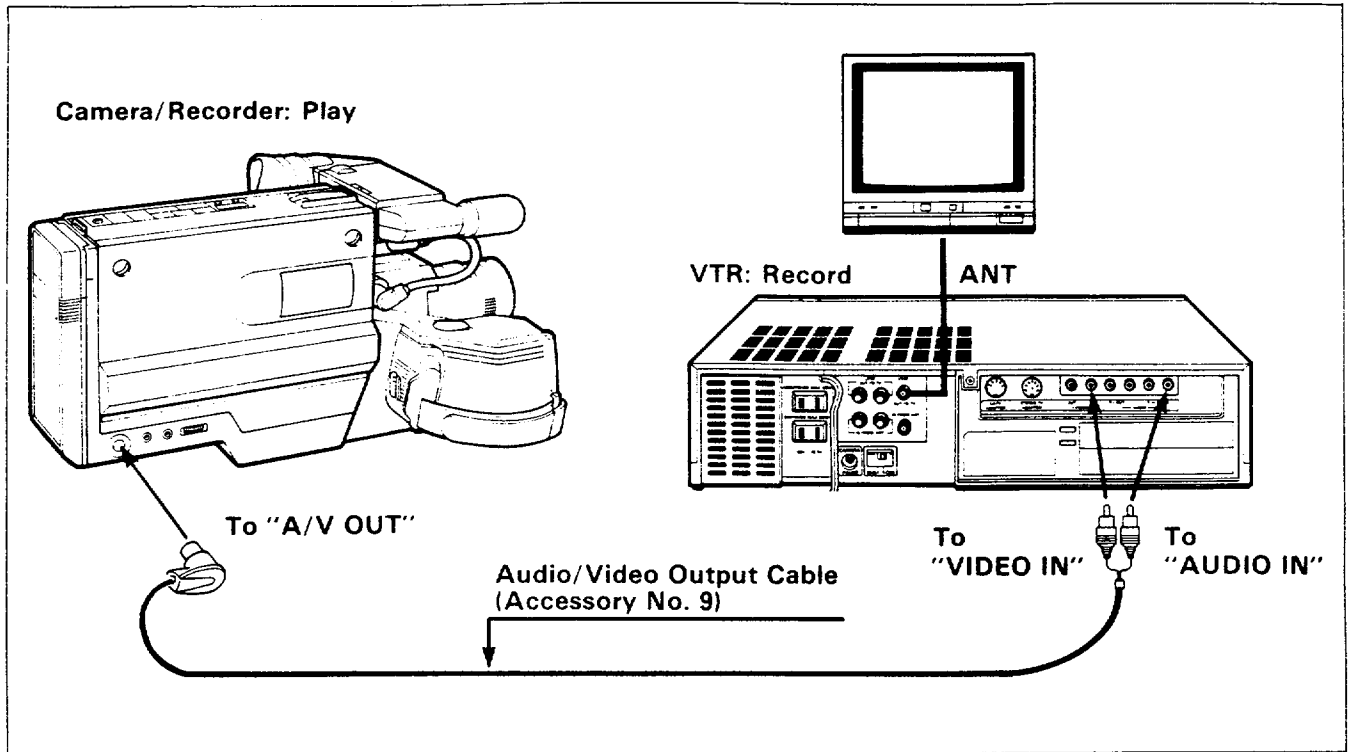


## OPERATING HINTS.....

- \* After you have finished using the Camera/Recorder, remove the cassette and the power source from the Camera/Recorder and attach the Lens Cap.
- \* Always reset the "COUNTER" to "0000" when starting to use a cassette. Make a note on the cassette what number the "COUNTER" reads when the recording is finished if less than the full cassette is used. This allows you to record more program materials at the end of the first recording. Any other locations on the tape can be noted on the cassette label also, if desired, so you can quickly locate them later.

# CAMERA/RECORDER TO VTR DUBBING

If you wish to exchange or copy some of your friend's favorite home recordings, the following instructions can be used to connect one VTR to another for this purpose.



1. Connect the Audio/Video Output Cable (Accessory No. 9) to "A/V OUT" of your Camera Recorder.
2. Connect the other ends to "AUDIO IN", "VIDEO IN" of another VTR respectively.
3. Play the tape on Camera/Recorder and record it on VTR.

**NOTE:** If you connect the "VHF OUT OF TV" connector of VTR to the "TV ANT" connector, as illustrated and press "VTR/TV" Selector to turn the SELECTOR's Light on, the picture being dubbed by VTR can be monitored.

## TAPE COUNTER DIGIT/MINUTE CHART (APPROX. FIGURES)

Minute \ Tape	Tape			
	T-30	T-60	T-120	T-160
30	1130	1130	2110	2210
60 (1 hour)		2110	3530	3760
90			4690	5020
120 (2 hours)			5680	6120
150				7100

# TROUBLESHOOTING

Your Video Camera/Recorder is a highly sophisticated instrument. It has been carefully checked and adjusted at the factory under the most rigid quality control and inspection systems. However, should problems develop, check the following points and take necessary corrective measures.

## INSERTING OR REMOVING THE CASSETTE

Symptom	Check Point & Correction
Cassette Holder cannot be opened when you press "EJECT" Button.	* Connect the Power Source.
Cassette cannot be inserted into Cassette Compartment.	* Load cassette in direction indicated by arrow on cassette.

## CAMERA RECORDING

Symptom	Check Point & Correction
Picture does not appear in the Viewfinder.	* Remove the Lens Cap.
	* Set "POWER SAVE" Switch to "NORMAL" position.
	* Press "POWER" ON/OFF Button on.
	* Plug the connector cable from Electronic Viewfinder to the Jack of Camera/Recorder.
	* Set "VTR/CAMERA" Switch to "CAMERA" position.
The Camera/Recorder will not go into the recording mode, even when Record Start/Stop Button is pressed.	* The cassette has had the erase prevention tab removed. Stick a piece of cellophane tape over the erase prevention hole or select a different cassette.
	* Press "POWER SAVE" Switch to "NORMAL" position.
	* Set "VTR/CAMERA" Switch to "CAMERA" position.
	* The Indicator Lamp in the Electronic Viewfinder flashes to indicate Battery is discharged. Try another Battery or charge the Battery.

## RECORDING TV PROGRAMS OFF THE AIR

Symptom	Check Point & Correction
The Camera/Recorder will not go into the recording mode, even when Record Start/Stop Button is pressed.	* The cassette has had the erase prevention tab removed. Stick a piece of cellophane tape over erase prevention tab hole or select a different cassette.
	* Press "POWER SAVE" Switch to "NORMAL" position.
	* Set "VTR/CAMERA" Switch to "CAMERA" position.
	* The Indicator Lamp in the Electronic Viewfinder flashes to indicate Battery is discharged. Try another Battery or charge the Battery.

## PLAYBACK OF PRE-RECORDED CASSETTE

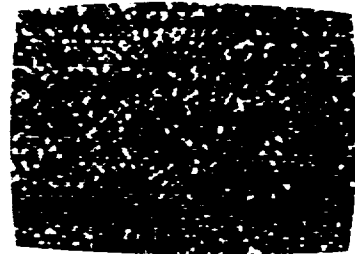
Symptom	Check Point & Correction
"PLAY" Button cannot be engaged.	* Set "VTR/CAMERA" Switch to "VTR" position.
No picture appears on Electronic Viewfinder when "PLAY" Button is pressed.	* Set "POWER SAVE" Switch to "NORMAL" position.
No picture appears on television screen when "PLAY" Button is pressed. (TV is connected to the Camera/Recorder by using RF Converter Unit.)	* Set the television to the Camera/Recorder channel (3 or 4) depending upon the selected channel on the RF Channel Select Switch of RF Converter Unit.
Interference on playback picture.	* Adjust "TRACKING" Control.
	* When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain the best picture.
	* The pre-recorded tape is EP or LP recording. This Camera/Recorder is for use in SP recording only.
Picture bends at the top of TV screen.	* Tape is damaged. Try another cassette.
Color of your TV screen is too bright, too faint or change.	* TV set has VIR circuit. Turn it off during playback.

## DEW LIGHT

Symptom	Check Point & Correction
"DEW (POWER)" Light flashes.	* Condensation on the Camera/Recorder mechanism – wait until the Unit has reached normal room temperature, and condensation has dried. "DEW (POWER)" Light will then stop flashing.

# HEAD CLEANING

- Picture playback may become blurred or be interrupted. This does not mean that the recorded program has been erased.
- Dirt accumulated on the head after long periods of use causes this problem. In this case, head cleaning requiring highly technical care is necessary.
- For head cleaning consult the nearest dealer or VTR Service Center for recommendations.



## PERIODIC MAINTENANCE

The Video Camera/Recorder is a precision electromechanical device which will require periodic maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the warranty period by most users, unless the Video Camera/Recorder is heavily used or seldom used. Normal maintenance is the responsibility of the user, although defective parts are covered during the warranty period. Consult your VTR Service Center to determine recommendations for normal maintenance based on your location, use patterns and machine age.

## SPECIFICATIONS

### ■ General

Power requirements	12V DC
Power consumption	9.5 watts (nominal)
Dimensions	6-7/16"(W) x 7-7/16"(H) x 13-15/16"(D) 164(W) x 189(H) x 354(D) mm
Weight	5.5 lbs (2.5 kg)


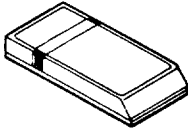
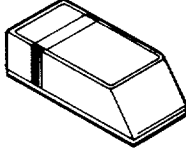
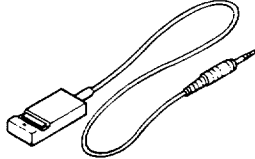
### ■ Video Recorder Section

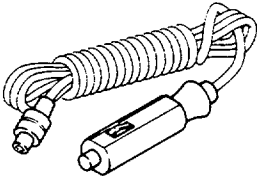
Format	VHS
Record/playback system	Four video record/playback heads
Video signal	EIA standard NTSC color
Tape speed	33.35 mm/sec.
Video input	1.0 Vp-p, 75 ohm
Video output	1.0 Vp-p, 75 ohm
Audio input	-7.8 dBs (316 m Vrms), more than 47K ohms
Audio output:	-7.8 dBs (316 m Vrms), less than 1K ohm
Fast forward/rewind time	Less than 10 minutes with T-160 cassette

### ■ Camera Section

Scanning	525 lines 60 fields 30 frames
Required minimum illumination	7 lux
Camera tube	1/2" striped Saticon
Lens diameter	46 mm

# OPTIONAL ACCESSORIES

<p><b>Carrying Case</b> PV-Z55</p>	<p><b>Battery Pack</b> (1 hour type) PV-BT11</p>	<p><b>Battery Pack</b> (2 hour type) PV-BT12</p>	<p><b>Remote Pause Switch</b> VM-RM20</p>
			

<p><b>Car Battery Cord</b> PC-YC12</p>


# **PENTAX**

**PENTAX CORPORATION**, 35 Inverness Drive East, Englewood, CO 80112  
Service information : (303) 799-8000

**PENTAX CORPORATION**, 1101 Stewart Ave., Garden City, NY 11530  
Service information : (516) 222-0830

**PENTAX CORPORATION**, 350 East Devon Ave., Itasca, IL 60143  
Service information : (312) 250-9000

**PENTAX CORPORATION**, 3063 Reseda Blvd., Northridge, CA 91324  
Service information : (818) 701-5080