

# PENTAX VIDEO

COLOR VIDEO  
CAMERA

PC-K003A

OPERATION MANUAL



Thank you for choosing the Pentax color video camera.

To avoid damage due to improper use or storage please read this operation manual carefully. We recommend that you keep this manual and the product warranty together in a safe place for further reference.

Before your first recording please take some test shots to be certain that the camera is functioning properly. Quality of recordings is dependent on proper operation and we cannot guarantee superior quality recordings.

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

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## FEATURES

Your Pentax color video camera is a lightweight VHS-type tri-electrode VTR camera that provides faithful color reproduction. It is equipped with a high-resolution power zoom lens.

### **High Resolution Power Zoom Lens**

The 14-84mm 6X power zoom lens is equivalent to the 50-300mm zoom lens on a conventional 35mm camera. It gives you standard perspective plus a telescopic setting. The zoom lens can be operated manually or electronically. A macro position is also provided for focus as close as 1cm from the lens.

### **Faithful Color Reproduction and Recording**

This model is a single tri-electrode tube camera which allows for faithful color reproduction. It has been designed to provide minimal color deviation and stable color reproduction over prolonged recording periods.

### **Electronic Viewfinder with Centralized Indicators**

The electronic viewfinder provides easy framing and focusing and allows you to monitor the recording process. It can also be used as a black and white monitor of your color VTR recordings. The white balance, lighting, video start, battery warning and power save indicators are located inside the viewfinder making it easy to monitor camera functions.

### **Auto Iris**

The auto iris and automatic sensitivity control circuits eliminate the need to adjust the lens aperture every time you switch subjects and let you enjoy effortless continuous filming.

### **Boom Microphone**

The built-in directional condenser microphone allows you to record synchronized sound tracks to accompany your color films.

### **Power Conserving Mechanism**

The camera is equipped with a power save switch. With the switch in the power save position, power consumption is cut to about one-fourth of its normal level, preventing excess drain on the batteries.

### **Remote Control Switch**

The remote control switch makes it possible to operate the recording and playback functions of the VTR from a distance, enabling you to operate the camera away from the recording unit.

Color Video Camera PC-K003A

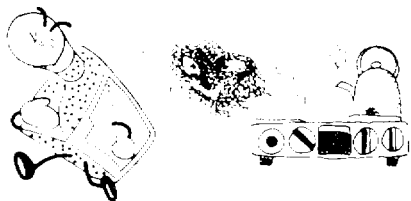


Video Deck PV-K003A

Color Video Tuner PV-K003A

## PRECAUTIONS

Your color video camera converts light images coming through the lens into electronic signals by means of a vidicon tube. These signals are then sent to the VTR or monitor. The vidicon tube — the heart of the camera — is a delicate mechanism. To protect the tri-electrode tube the following precautions relating to use and storage of the camera should be followed at all times.



When the camera is used for the first time or after a long period of storage it is possible that a normal picture will not appear in the viewfinder. In this case the camera should be warmed with the lens capped for 30-60 minutes after which a normal picture should appear.

- **Avoid contact with flammable or explosive substances.** Never use this camera in the vicinity of flammable or explosive substances; gasoline, ethyl, thinner, acetone, propane or natural gas.

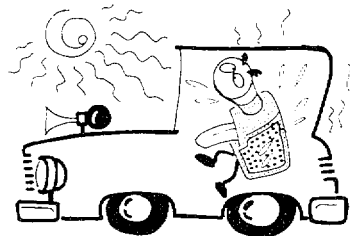
- **Keep away from water and dust.** Malfunction may be caused by water or dust inside the camera body. Avoid using the unit in rain or snow conditions or where it will be exposed to spray.

- **Do not subject the camera to heavy shock or vibration.** To protect the unit from excess vibration or shock, be sure to use the special carrying case whenever it is necessary to transport the camera.

- **Avoid extremely high or low temperature and high levels of humidity.**

The camera is designed for use in temperature ranging from 0-40° C. High levels of humidity are potentially damaging to delicate camera mechanisms. Take care to avoid leaving the camera exposed to direct sunlight in a closed vehicle.

Bringing a camera that has been used in outdoor low temperatures directly into a heated room can result in clouding of the lens and condensation within the camera body. This could lead to accidents or malfunction.



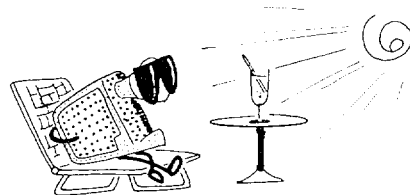
- **Avoid exposing the camera to strong radio wave or magnetism.**

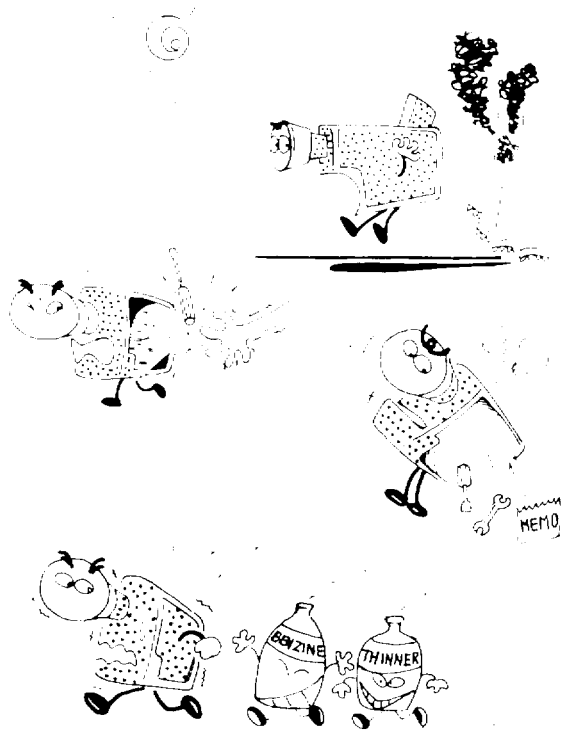
When the camera is used near radio or TV transmitting equipment or in other locations where a strong magnetic field is generated by a motor or magnet, interference may appear on the screen and the picture may waver and bend.



- **Avoid pointing the camera at the sun or other strong light.**

In order to prevent damage to the pick-up tube do not shoot excessively bright objects for extended periods of time. (Fluorescent or street lights, searchlamps, etc.)





- **Avoid pointing the electronic viewfinder's magnifying screen directly towards the sun as this is a potential fire hazard.**

- **Do not open the camera case.**  
High voltage is generated inside the camera case. Never attempt to service the unit yourself.

- **Do not use chemical cleaners.**  
Rosins are used on the camera body. Do not use chemical cleaners such as benzine, alcohol, thinner or other volatile substances to clean the camera. These substances may cause deterioration of the surface coating. Use a soft cloth for cleaning.



- Use a lens brush or blower to clean any dust that may adhere to the surface of the lens.

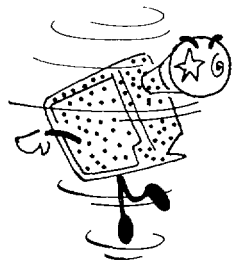
- If an object is filmed for an extended period of time under low light conditions its image may remain on the screen when the camera is turned rapidly away. This image will disappear in a short time and does not indicate equipment failure.

- There is sometimes a change of hue when the camera is swung rapidly during shooting. This is an effect of the terrestrial magnetic field and does not indicate equipment failure.

- Do not wind the power cord, camera cable or VTR cable around the camera itself. This causes kinks in the cords.

- Disconnect the camera cable from the portable VTR or power adaptor when not in use.

- When not using the camera switch off the power and attach the lens cap.



## DESCRIPTION OF PARTS

### Power Save/Operate Switch

Set the switch on 'Power Save' when not filming. This reduces power consumption and lengthens the life of the batteries.

### Power Zoom Switch

For automatic power zoom.

### Zoom Ring

### Zoom Lever

For manual operation of the zoom lens.

### Macro Switch

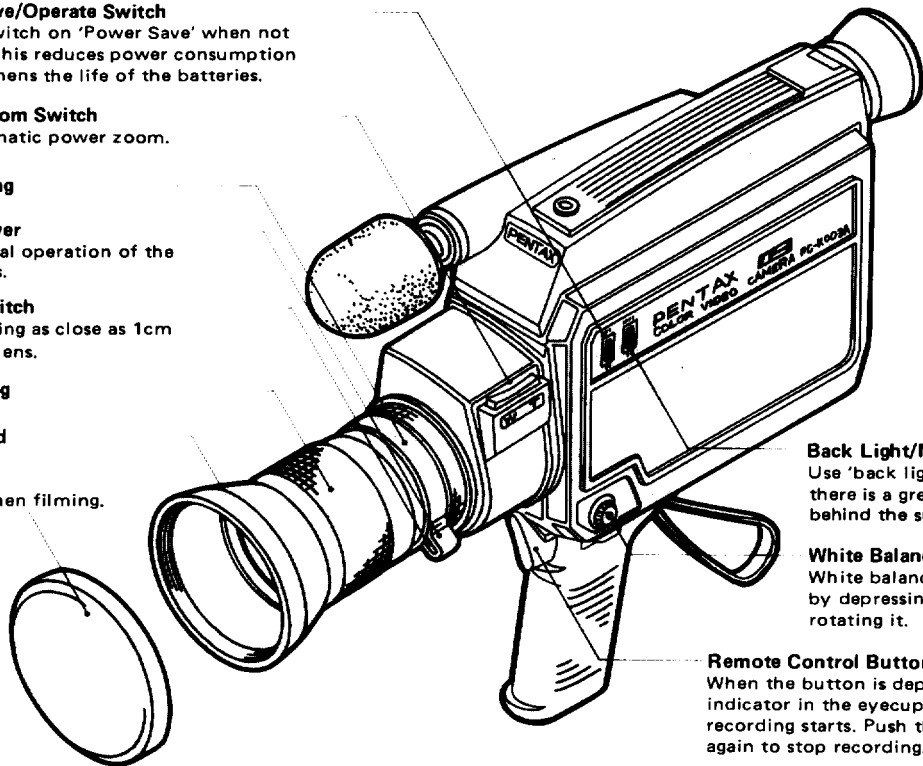
For focusing as close as 1cm from the lens.

### Focus Ring

### Lens Hood

### Lens Cap

Detach when filming.



### Back Light/Norm Switch

Use 'back light' setting when there is a great deal of light behind the subject

### White Balance Control

White balance is adjusted by depressing this dial and rotating it.

### Remote Control Button

When the button is depressed the 'V' indicator in the eyecup lights and recording starts. Push the button once again to stop recording.

**Boom Microphone**

Extendable directional condenser microphone.

**Electronic Viewfinder**

Monitors the picture as you film.

**Eyecup**

**Light Sensitivity Switch**

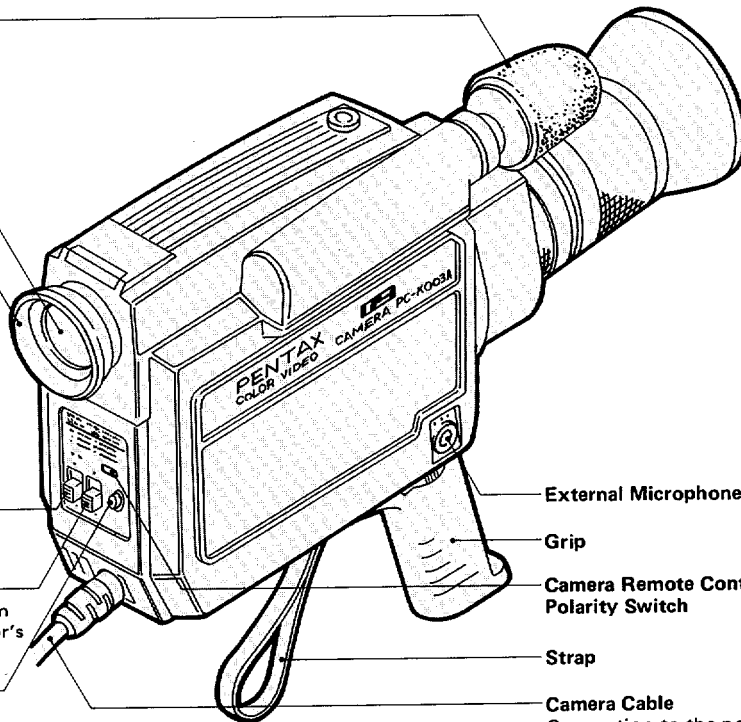
Set on 'high' position if subject illumination is insufficient.

**Rear Microphone Switch**

When the switch is on, the tracks from the boom microphone and the narrator's microphone are mixed.

**Instant Review Switch**

Allows you to check the quality of your recording.



**External Microphone Jack**

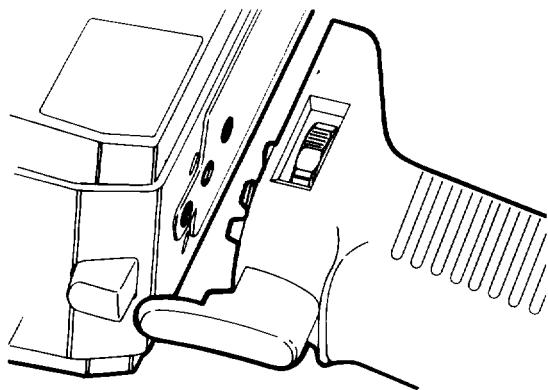
**Grip**

**Camera Remote Control Polarity Switch**

**Strap**

**Camera Cable**  
Connection to the portable video deck.

## ASSEMBLY



### Mounting the Grip

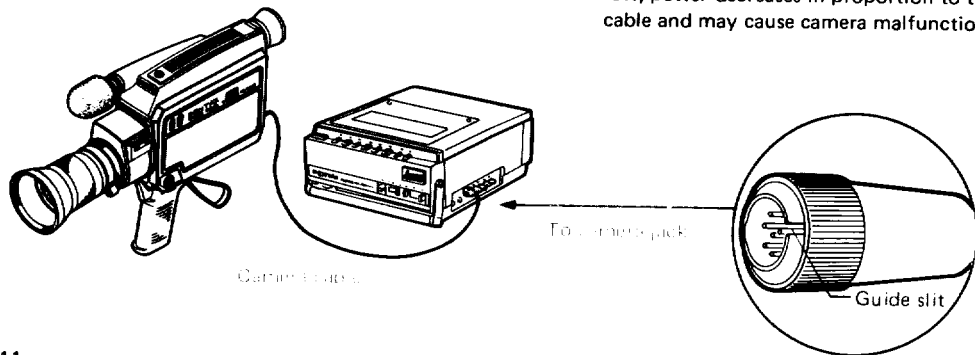
Align the mounting screw on the grip with the tripod mount on the camera as indicated in the accompanying illustration. Rotate the mounting screw to the right to secure firmly.

For maximum stability, detach the grip before mounting the tripod.

### Connection to Video Deck

Connect the camera cable to the camera jack on the VTR. Line up the guides and tighten the ring to secure the connection.

Do not use the extension cable (optional accessory) when using a battery-powered VTR. When the voltage is low, power decreases in proportion to the length of the cable and may cause camera malfunction.

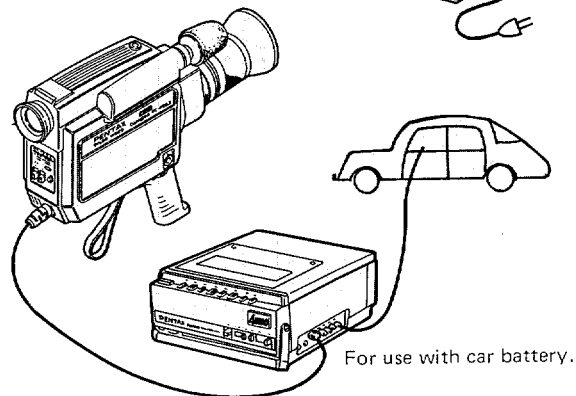
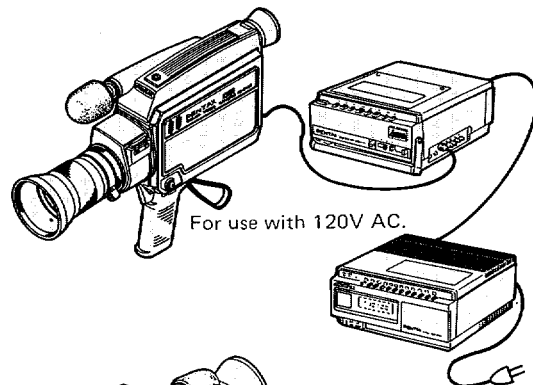
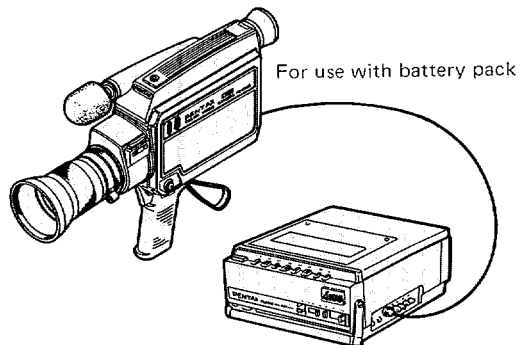


### Power Source

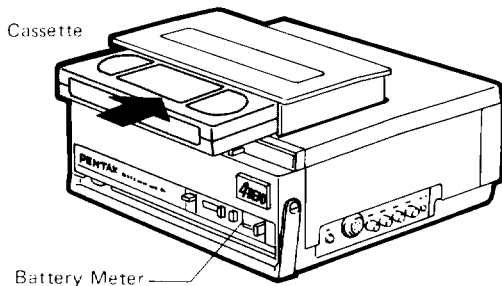
The color video camera may be powered by any one of three power sources, the rechargeable battery pack, 120V AC or a car battery. It is recommended that you use the battery pack while familiarizing yourself with the equipment. (See the VTR manual for further information)

In some cases your new battery pack will be sold uncharged. Check its power reserve by plugging it into the VTR unit before connecting the camera.

When filming for an extended period of time it is best to use an AC power source.

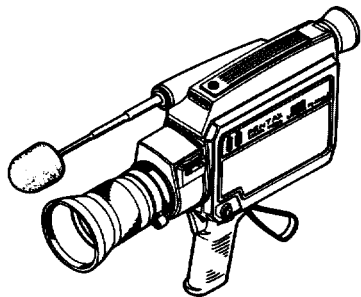


## USING YOUR COLOR VIDEO CAMERA

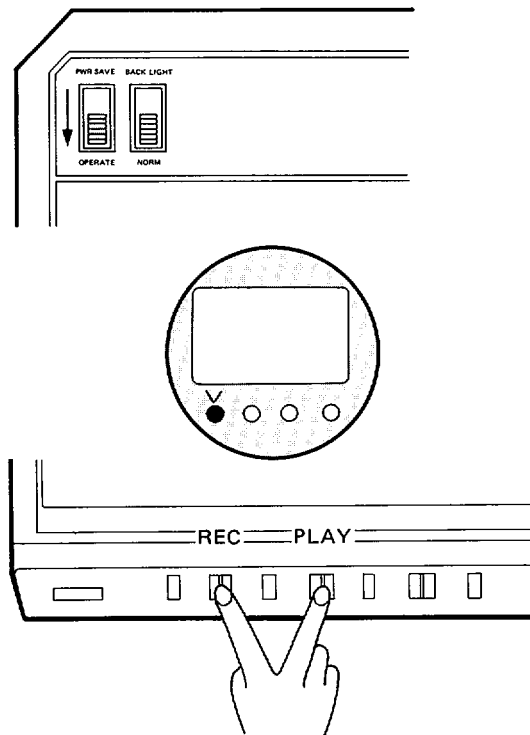


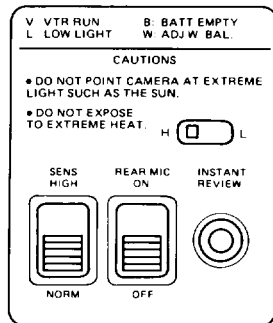
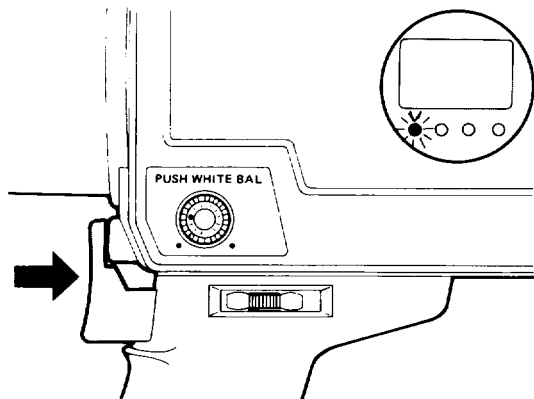
### Recording

1. Insert the cassette and press the 'power' switch on the extreme left of the VTR. If the needle on the battery meter remains in the red portion of the gauge it is necessary to recharge the batteries before recording. (For detailed explanation see the VTR manual.)
2. Remove the lens cap and extend the boom microphone as shown in the accompanying illustration.



3. Set the 'power-save/operate' switch located on the left side of the camera to 'operate.' A green mark will be visible.
4. Check that the video start indicator 'V' in the viewfinder is not lit. If the 'V' is visible, depress the remote control switch on the camera grip. The indicator should go off. To start the recording process, depress the remote control switch once again. The 'V' indicator will light and recording begins. (This applies only when the VTR unit is in the standby mode.)
5. To place the VTR unit on standby, depress the recording and playback buttons simultaneously. The 'V' indicator in the camera's viewfinder will disappear and recording will be stopped.





6. Depress the remote control switch on the camera grip to start recording. The 'V' will appear in the viewfinder. As long as the 'V' is visible in the viewfinder the recording will continue, there is no need to keep the switch depressed. (Be sure the cassette has been inserted in the VTR unit.)
  
7. To stop the recording process push the remote control switch once again. The 'V' indicator in the viewfinder will disappear and the tape will stop. When using the color video camera in conjunction with the PV-R020A VTR the video check apparatus is operable. After stopping the recording, push the 'instant review' button to automatically rewind and playback the last few seconds of the tape. (Each time you push the button approximately three seconds of the tape is rewind.) This gives you the opportunity to check the quality of the recording in progress. After playback the tape will stop automatically and you can continue recording from where you left off.
  
8. To resume recording push the remote control switch.
  
9. When the recording is finished, push the stop button on the VTR and cut the power switch after the tape has stopped.

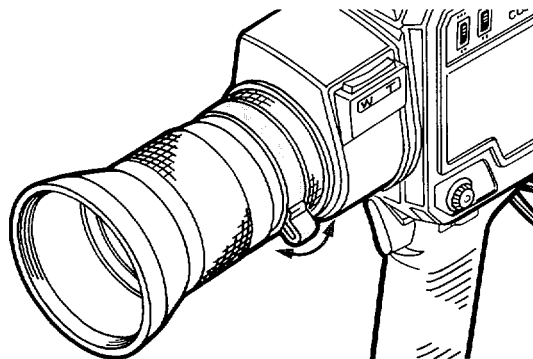
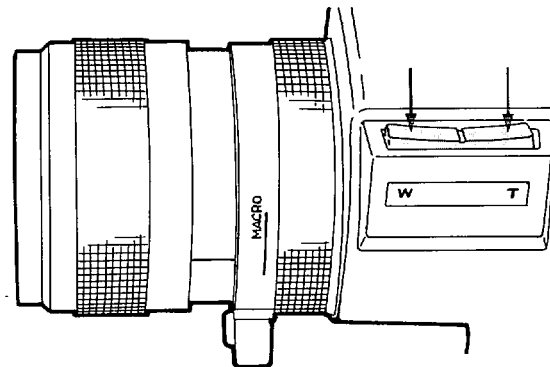


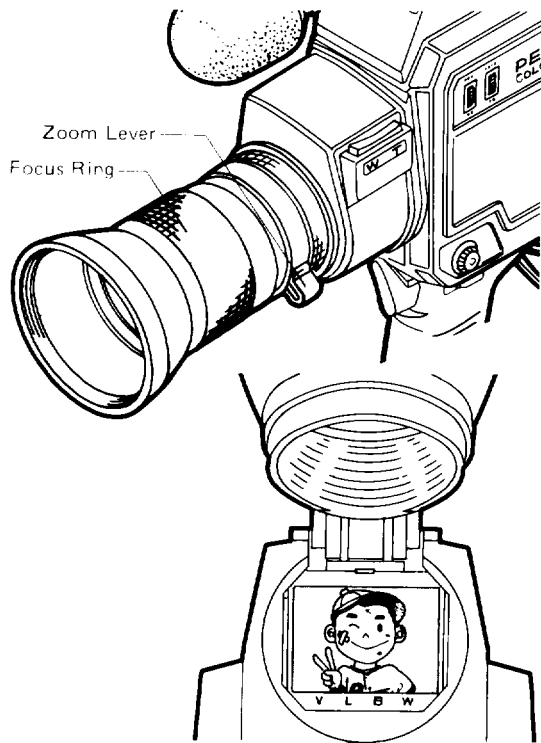
### Zooming

1. Observe the picture in the electronic viewfinder and depress the 'T' side of the power zoom switch. As you depress the switch the power zoom mechanism will zoom in on the subject electronically. When the telescopic lens has reached its limit (Tele) depress the 'W' side of the switch. The lens will retract to the wide angle limit (Wide) over a period of approximately 7 seconds.

Do not touch the zooming lever or zoom ring during power zoom operations. The power mechanism can be damaged by interference with the electronically controlled movement.

2. To operate the zoom lens manually, rotate the zoom lever or zoom ring. The manual mode enables you to control the speed and range of the zooming process.





#### Focusing

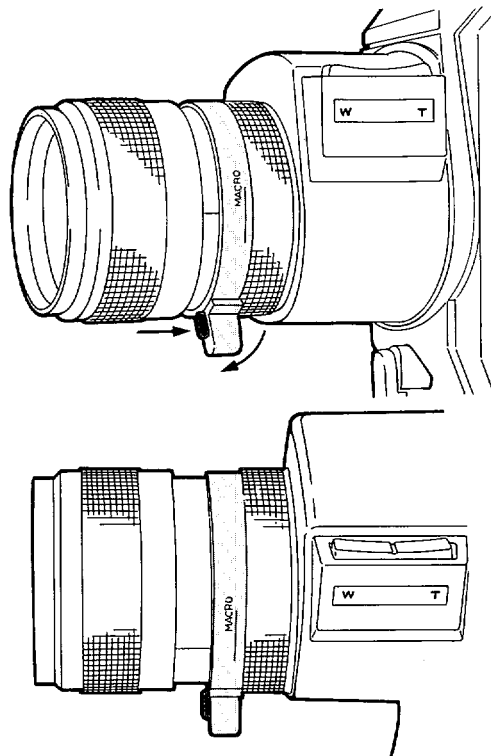
1. While observing the image in the viewfinder bring the subject into focus by rotating the focusing ring. The subject will appear largest at the telephoto setting making it easier to focus correctly. Focus adjustments should be performed using this telephoto setting as the subject may appear out of focus when zoomed.

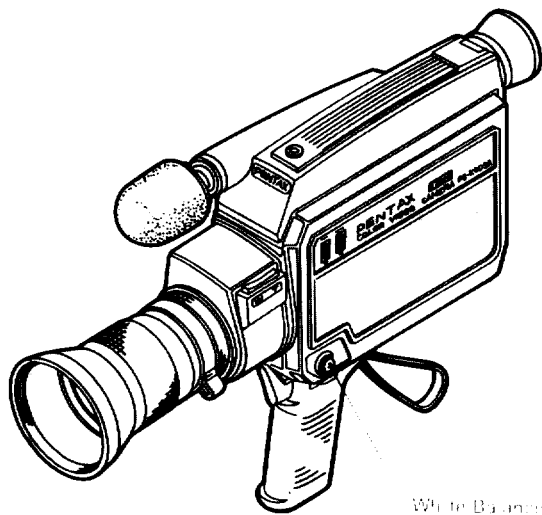
#### Eyecup

Use the eyecup to monitor the pictures from the VTR and check the quality of the recording in process. The magnifying lens in the eyecup is made of plastic and should not be cleaned with benzene, thinner, alcohol or lens cleaner. Wipe with a clean, soft cloth if necessary. To avoid possible eye damage and fire hazard the convex magnifying lens should never be pointed towards the sun. Also take care that sunlight does not enter the camera through the back of the magnifier. This could cause damage to the cathode ray tube and inner mechanisms of the camera.

### Macro Mechanism

1. For close-up focusing rotate the zoom lever while depressing the green button. The 'macro' position allows focusing as close as 1cm from the lens. When the subject is extremely close to the lens, care must be taken to prevent underexposure and uneven illumination. (For instructions on attaching the lens hood refer to page 25.)
2. Focus by moving the zooming ring within the green 'macro' range to bring the subject into focus. When the subject is extremely close to the lens you may have difficulty focusing and there is a danger of bumping the subject with the lens. At close range it is difficult to steady the camera and the image may be blurred. In this instance it is recommended that you use a tripod. When the object to be photographed can be moved it is easier to move the subject to bring it into focus. You can also move the camera back and forth to focus at close range. Remove the lens hood if you find it getting in the way while shooting in the macro mode.





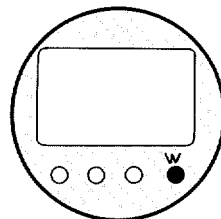
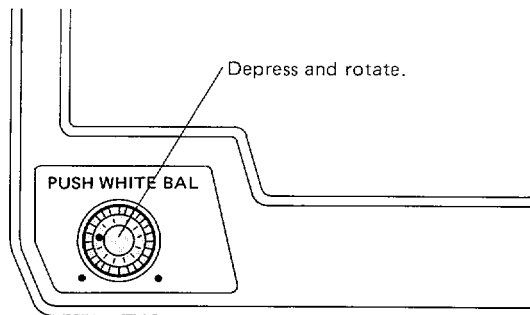
White Balance Control Dial

#### Adjusting the White Balance

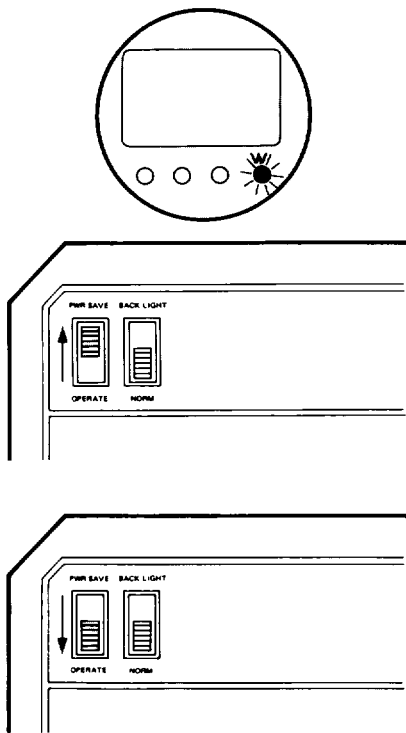
To the human eye most light sources appear white but actually the spectrum runs from reddish morning light, blue light on overcast days, green light from fluorescent lamps, etc. The human eye is able to adapt to changes in the light source and under most conditions a white object will appear white. The camera, however, lacks this ability to adapt to different light values and a change in the light source will result in a change in the color of the image on the film. The white balance control allows you to compensate for this change in color. Adjustments in the white balance will allow you to shoot subjects in their natural colors. (In some cases, such as evening skies, you will want to catch the red spectrum. If so, ignore the red warning light in the viewfinder and continue filming.)

1. Point the camera at a white object (a sheet of paper, a white shirt or wall) and zoom in so that the object takes up a large portion of the viewfinder screen.
2. Observe the subject in the viewfinder and depress the white balance control dial. If the 'W' indicator in the viewfinder lights up either red or green, rotate the balance control while holding it in until the 'W' disappears. A red signal indicates that you should turn the dial to the left, a green signal should be compensated for by turning the dial to the right. If the indicator does not appear when the control is depressed initially it shows that the white balance needs no further adjustment.

When the control is rotated as is (without being depressed) the white balance will change but the indicator in the viewfinder will not operate so there is no way to check the adjustment. Once the white balance has been set try to avoid disturbing the control knob.



White Balance Indicator



#### Power Save Switch

When the camera is connected to a portable VTR and the power is being supplied to the battery pack, as much power is consumed during the standby mode as during the recording process. The power save switch on the camera is designed to prevent excess drain on the batteries. When the interval between shots is more than several minutes, keep the switch in the 'power save' position for a 75% reduction in power consumption.

When you wish to resume recording, switch to 'operate' and after the picture in the viewfinder has stabilized depress the remote control switch to continue shooting.

### Indicators in the Electronic Viewfinder

For effortless monitoring of camera functions a number of warning indicators have been positioned within the electronic viewfinder of your Pentax color video camera. When the camera is in the power save mode the 'V', 'L' and 'B' indicators will not light.

#### **V: VTR Start indicator (green)**

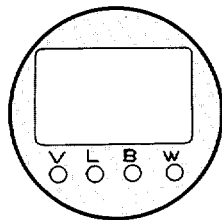
This indicator lights when the VTR is in the standby mode and the remote control button is depressed to start recording. Press the remote control button once more to stop the recording. The green indicator will go off.

#### **L: Low light indicator (red)**

This indicator lights when subject illumination is insufficient. Increase the illumination or switch to 'high' light sensitivity.

#### **B: Battery indicator (red)**

This indicator lights when the voltage supplied from the portable VTR falls below safe recording levels. Change or recharge the batteries immediately.



#### **W: White balance indicator (red/green)**

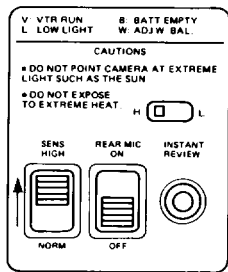
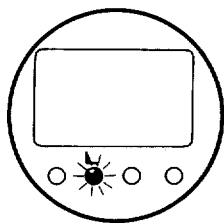
#### **W: Power save indicator (orange)**

If the white balance is out of adjustment the white balance indicator will light when the balance control dial is pressed.

- When the picture is too red, the indicator shows red.
- When the picture is too green, the indicator shows green.

If the indicator is lit, rotate the white balance control dial while holding it in until the light goes out.

When the power save/operate switch has been set to 'power save' the 'W' indicator will light orange.



#### Auto Iris Mechanism

The camera is provided with an auto iris mechanism which automatically adjusts the lens aperture in accordance with the incident light. When the subject is dark, the iris opens automatically and when the subject is bright the lens will close. When the power is switched off the iris returns automatically to the fully closed position. The camera does not have a manual aperture control.

#### In case of insufficient light

If the subject is underexposed even with the auto iris in the fully open position the 'L' indicator in the electronic viewfinder will glow, indicating that the subject needs more illumination. To obtain sharp, natural color, the illumination should be increased until the indicator in the viewfinder disappears.

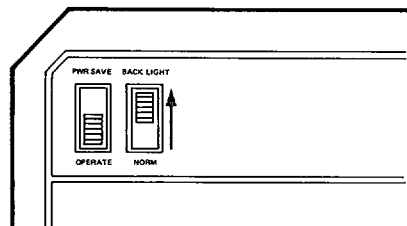
In conditions where there is insufficient light (such as indoor filming), set the light sensitivity switch on 'high' for increased sensitivity and more pleasing color pictures.



#### Backlit Conditions

If there is a great deal of light behind the subject or if faces are shaded, the subject may appear dark and difficult to distinguish. In this case switch the back light/norm switch to 'back light' to open the iris and allow more light from the subject to enter the camera. If you switch from filming a darkened subject to a brighter one, take care to return the switch to the 'norm' position to avoid overexposed pictures.

Take care with backlit conditions as flares may appear.



### Brightness Approximations

(Use these figures as a guideline)

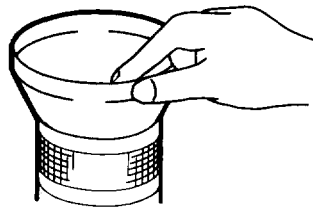
Lux	Conditions
10	• Candle at 20cm (10-15 lux)
100	• Flashlight at 1m (250 lux) • Small room lit by two 30-watt fluorescent lamps (300)
500	• Subway platform (300) • Study desk with fluorescent lighting (400) • Sales area of department store (500-700) • Office with fluorescent lighting (400-500) • Library reading room (400-500) • Bowling alley (500) • Subway car (500)
1000	• Clear conditions, one hour before sunset (1000) • Amusement arcade (1000) • Office with fluorescent lighting and windows, daytime (1000) • Cloudy conditions, one hour after sunrise (2000)
10,000	• Cloudy conditions, 10 am. (25,000) • Cloudy conditions, high noon (32,000) • Clear conditions, 3 pm. (35,000) • Clear conditions, 10 am. (65,000)
100,000	• Clear conditions, high noon (100,000)

### Subject Brightness

Subject brightness must be sufficient for pleasing color pictures. The table on the facing page gives standard brightness values. The figures given are approximations and should be used as a general guideline. When brightness is less than 500 lux, additional illumination is recommended.

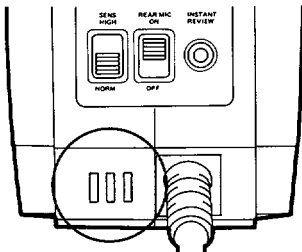
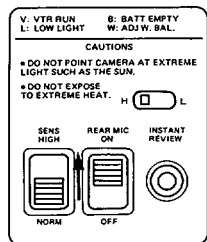
### Attaching Filters

When attaching ordinary or special filters, lens hood must be removed. The lens hood, being made of soft resin, is apt to warp and be difficult to remove if you grasp two places of the rim of the hood. Turn and remove the hood as illustrated.



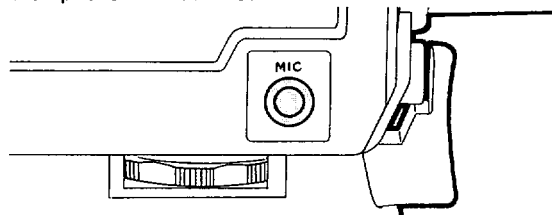
### Rear Microphone Switch

To mix sound picked up on the boom microphone during filming with a narration or commentary, switch the rear microphone 'on' and commence filming. When the camera has been connected to an auxiliary microphone the tracks from the auxiliary and rear microphones will be mixed.



### Auxiliary Microphone Jack

For connecting an auxiliary microphone to the camera. When an auxiliary microphone is used the boom microphone will not function.

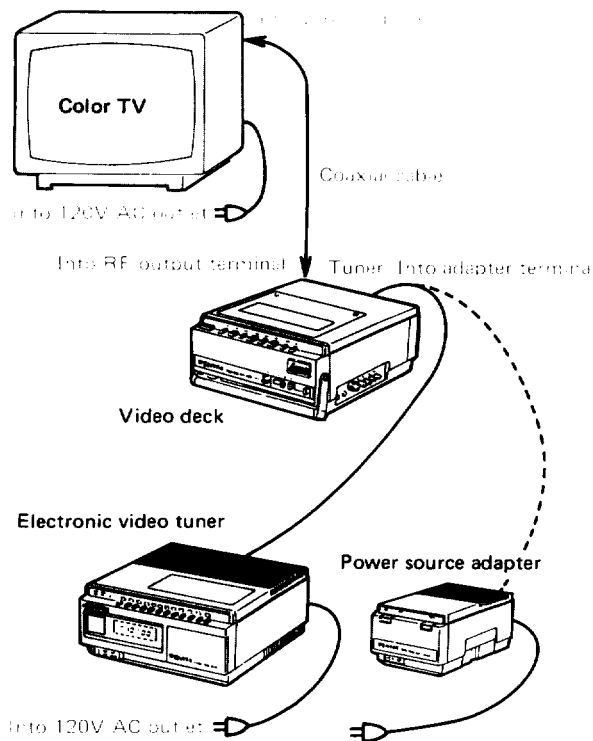


### Video Monitor

Your Pentax color video camera is equipped with a convenient video monitoring capability that allows you to check the quality of your recordings at once without having to rely on a video monitor unit.

1. Set the power save switch on 'operate.'
2. Rewind the tape to the starting point. It helps if you make a note of the numbers appearing on the tape counter at the beginning and end of each recording. Power 'on' → Rewind → (check tape counter) → Stop
3. Press the playback button on the VTR. The playback will appear on the viewfinder in black and white. (Use the eyecup for monitoring the recording.) A color TV monitor is required to view the tapes in color. (See pg. 27.)-
4. When the tape is finished, press the stop button on the VTR. Take care to avoid erasing portions of the film.

## PLAYBACK ON A HOME COLOR TV



Faithful color reproduction and high quality pictures can be expected when the tapes are played back on a color TV screen. To connect the VTR unit to your TV see the illustration at left.

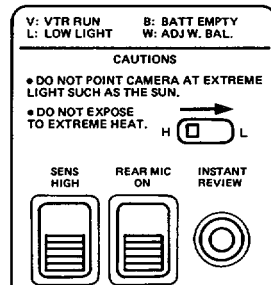
1. Disconnect the antenna from its jack on the rear of the TV. Connect the TV's VHF terminal with the RF output terminal on the video deck using the accompanying coaxial cable. (For details see VTR manual.)
2. Plug the electronic video tuner into the tuner/adapter terminal of the VTR.
3. Plug the VTR into an 120V AC outlet.
4. Switch on the electronic tuner and the VTR unit. Set the video/TV switch on the VTR to the 'video' position.
5. Set the television to the predetermined open channel for video viewing.
6. Press the playback button on the VTR. A picture will appear on the television screen.
7. To stop the playback, press the stop button on the VTR. (For details see the VTR manual.)

## TROUBLESHOOTING GUIDE

Trouble:	Check these:
Image fails to appear in the electronic viewfinder	<ol style="list-style-type: none"> <li>1. Check that the camera cable is firmly connected.</li> <li>2. Check that the VTR unit power switch is 'on.'</li> <li>3. Check batteries.</li> <li>4. Check that the power save switch is on 'operate.'</li> <li>5. Check that the lens cap has been removed.</li> </ol>
Poor color	<ol style="list-style-type: none"> <li>1. Check the white balance. Adjust if the 'W' is apparent in the viewfinder.</li> </ol>
Camera fails to record	<ol style="list-style-type: none"> <li>1. Check that the power save switch is on 'operate.'</li> <li>2. Check that the low lighting indicator 'L' is not visible in the viewfinder.</li> <li>3. Check the batteries.</li> <li>4. Check that the 'B' indicator is not visible in the viewfinder.</li> </ol>

### Camera Remote Control Polarity Switch

When using the camera with a VTR unit other than Pentax the 'V' (video start) indicator may be lit even while the camera is *not* recording. In this case switch the remote control polarity to the opposite position. The unit should now function normally.



## SPECIFICATIONS

<b>Pickup tube:</b>	2/3-inch tri-electrode vidicon (HS 256 or equivalent)
<b>Color system:</b>	NTSC
<b>Sync system:</b>	Internal sync
<b>Scanning lines:</b>	525 lines, 2:1 interlace
<b>Video output:</b>	1 Vp-p, 75 $\Omega$ (unbalanced)
<b>Video signal-to-noise ratio:</b>	Better than 45 dB (luminance channel, AGC OFF, sensitivity switch NORM).
<b>Recommended subject illumination:</b>	500 lux or more (f/1.6)
<b>Minimum illumination:</b>	75 lux (f/1.6)
<b>Built-in microphone:</b>	Unidirectional electret condenser microphone and non-directional electret condenser commentating microphone
<b>External mic input:</b>	-65 dB, high impedance
<b>Audio line output:</b>	-20 dB, low impedance
<b>Lens:</b>	f1.6, 14-84mm 6X zoom (w/MACRO), auto iris
<b>Lens mount:</b>	Specially designed mount
<b>Filter screw diameter:</b>	52mm, 0.75mm screw pitch
<b>Viewfinder:</b>	Electronic viewfinder Picture tube: 1.5-inch Video input: 1Vp-p, 75 $\Omega$ (unbalanced) Display functions: VTR start, low light, battery warning, white balance and power save mode
<b>Color temperature adjustment:</b>	From tungsten lamp to cloudy sky
<b>Automatic sensitivity control range:</b>	75-100,000 lux
<b>Power requirements:</b>	12V DC, 6.7W, 1.7W (in power save mode)
<b>Dimensions:</b>	70(W) x 245(H) x 330(D)mm, 2.76"(W) x 9.65"(H) x 13.0" with electronic viewfinder, 6X zoom lens, grip and camera cable.
<b>Weight:</b>	1.9 kg (4.2 lb.) with electronic viewfinder, 6X zoom lens, grip and camera cable.

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# **PENTAX**

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\* The specifications and design are subject to change without notice.

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