

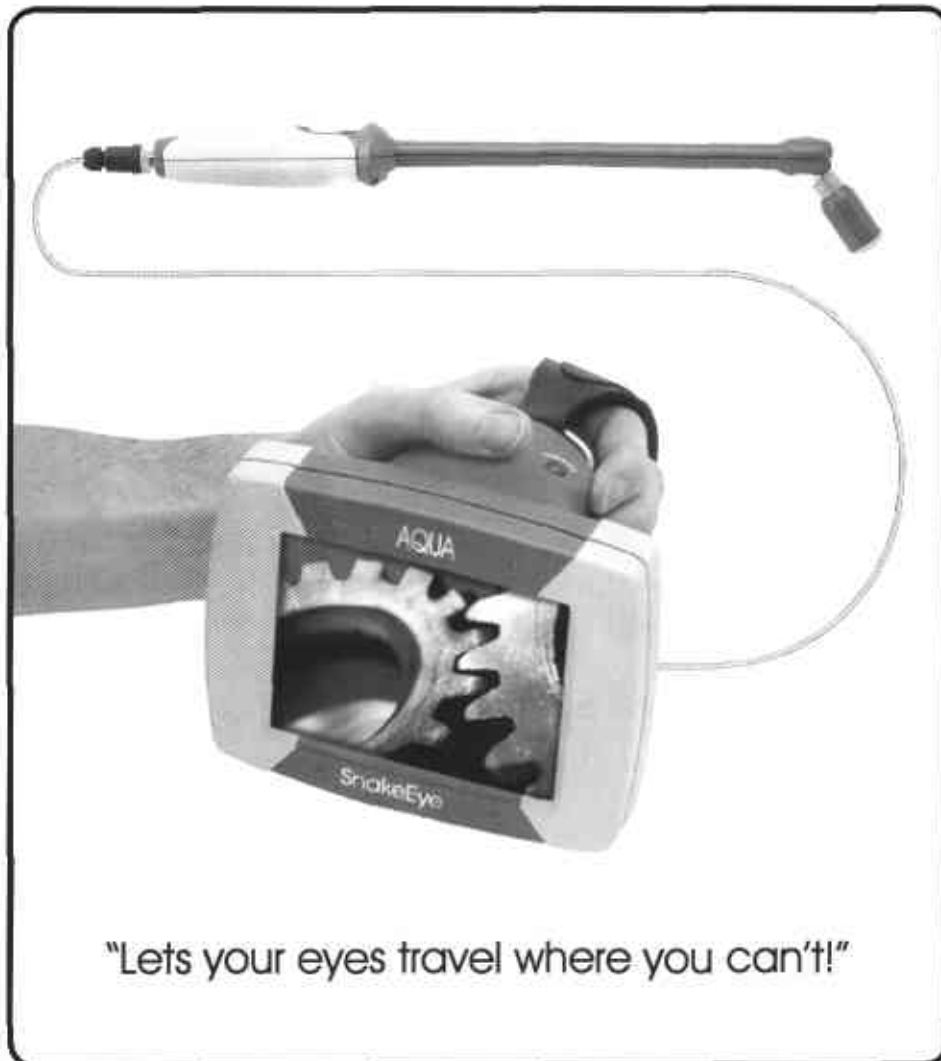


# SnakeEye™

VIDEO  
DIAGNOSTIC  
TOOL

---

## Operator's Manual



"Lets your eyes travel where you can't!"



## **TABLE OF CONTENTS**

- I. INTRODUCTION**
- II. GETTING STARTED**
- III. PUTTING IT TOGETHER**
- IV. POWERING UP**
- V. "LIGHTS, CAMERA, ACTION"**
- VI. RECORDING**
- VII. MAINTENANCE**
- VIII. TROUBLESHOOTING**
- IX. OPTIONAL ACCESSORIES**
- X. ACCESSORIES, REPLACEMENT PARTS & CUSTOMER SERVICE**
- XI. SnakeEye™ LIMITED WARRANTY**

### **Symbol Legend**

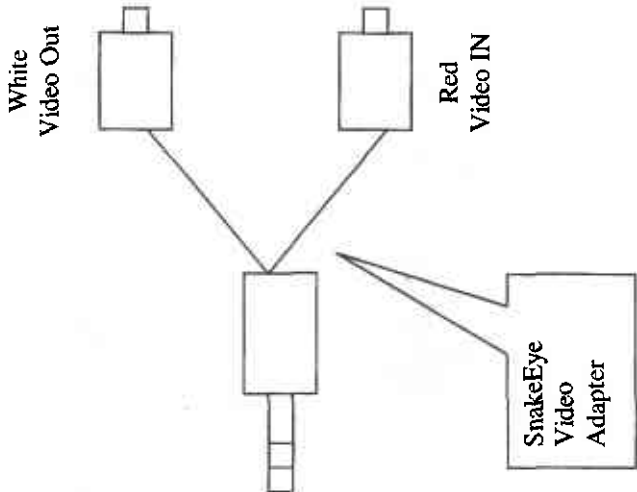
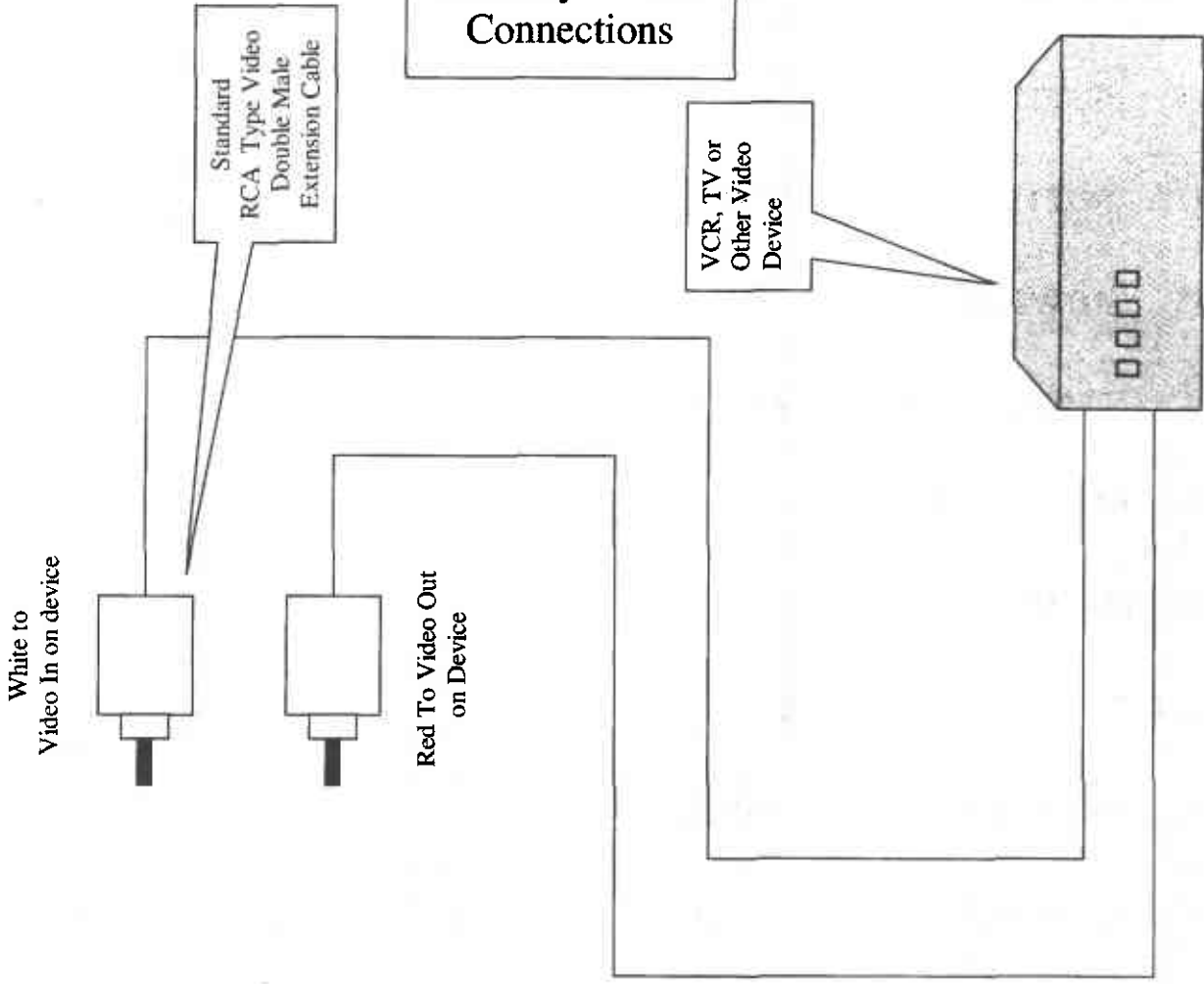


Caution



Electric Shock

# SnakeEye Video Connections



The WHITE connector is VIDEO OUT.

The RED connector is VIDEO IN.

Both video out and video in must be connected to SnakeEye to maintain an image on the hand held display.

Video out on SnakeEye is connected to video in on the VCR or other device. Video out on the VCR is connected to the video in on SnakeEye.

## I. INTRODUCTION

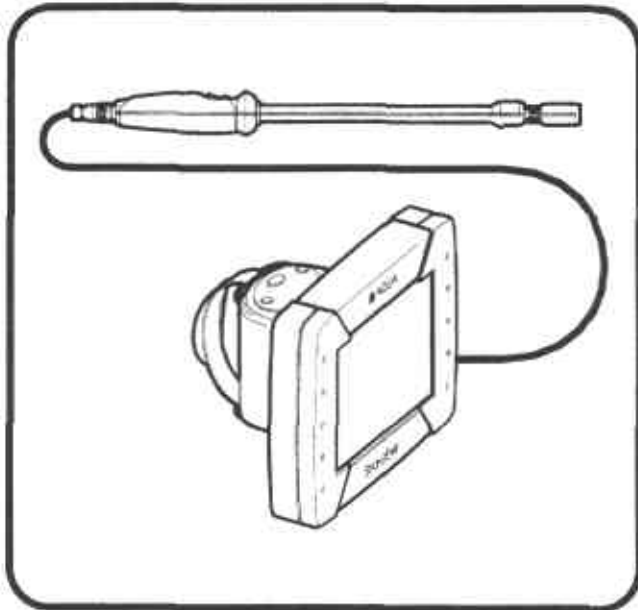
Congratulations on your purchase of SnakeEye™.

This sophisticated diagnostic tool incorporates the latest in remote visual technology and will provide years of reliable service when properly operated and maintained.

### Important Note:



*Failure to operate and maintain SnakeEye™ in accordance with the instructions in this manual may result in damage to the unit, damage to other personal property or personal injury.*



Read this manual carefully before operating SnakeEye™ and keep the manual on file for future reference.

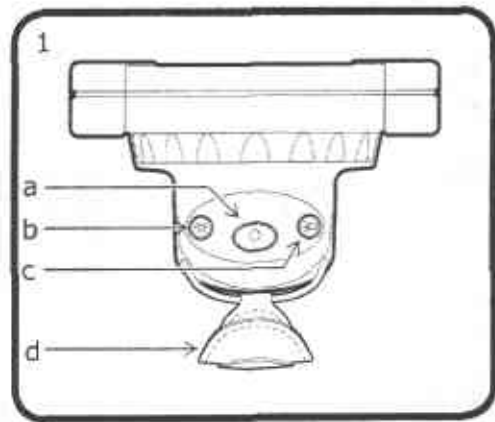
## II. GETTING STARTED

Please take a moment to familiarize yourself with the various components that comprise SnakeEye™.

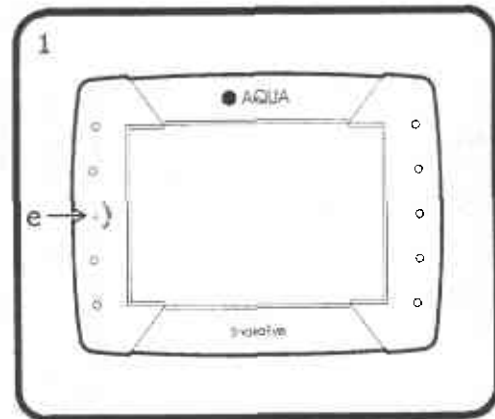
Each of the following items is stored in an individual compartment within the portable carrying case. Each compartment is designed to accommodate and protect a specific component and the components should always be stored in the appropriate compartment when not in use.

### 1. Monitor

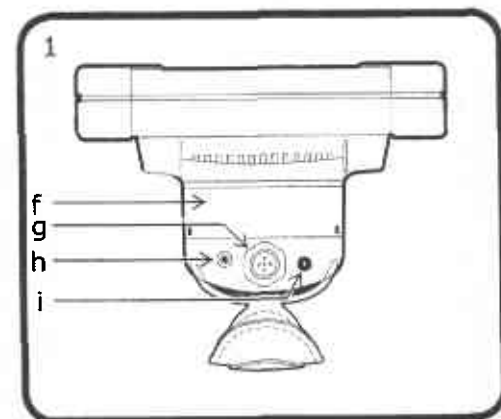
- a. Monitor Power ON/OFF Button (Green)
- b. Monitor "Backlight" HIGH/LOW Button (Blue)
- c. Camera Head Light ON/OFF Button (Red)
- d. Adjustable Hand Strap
- e. Low Battery Indicator
- f. Battery Pack Compartment
- g. Monitor Connector Cable Port
- h. Video IN/OUT Port
- i. DC Power Port



Top View

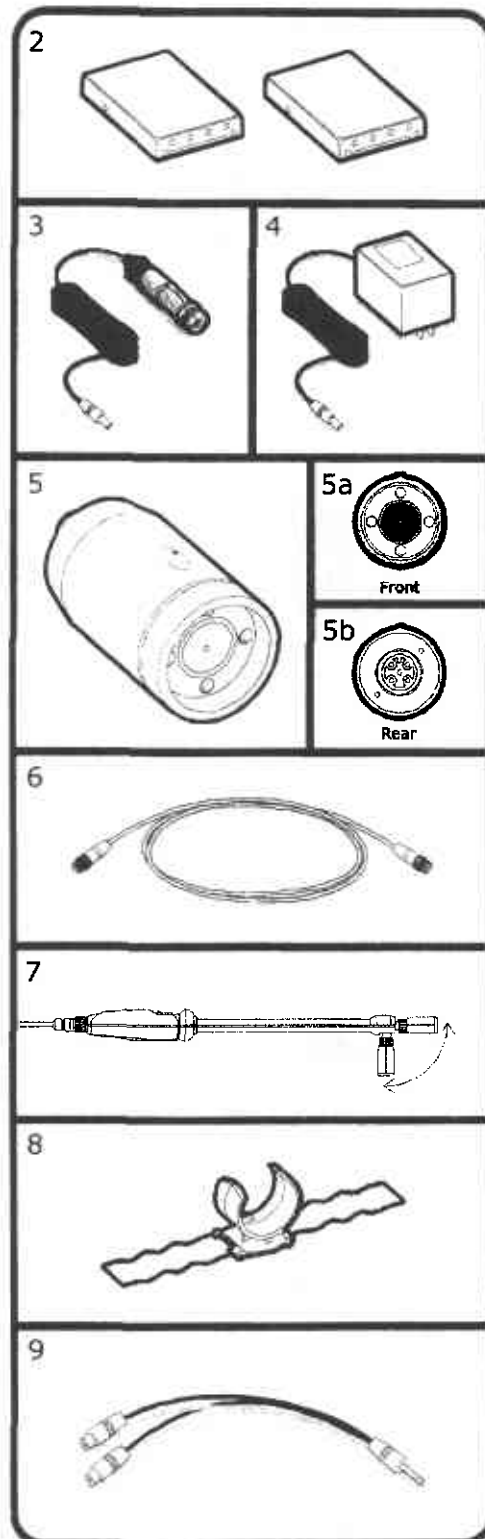


Front View



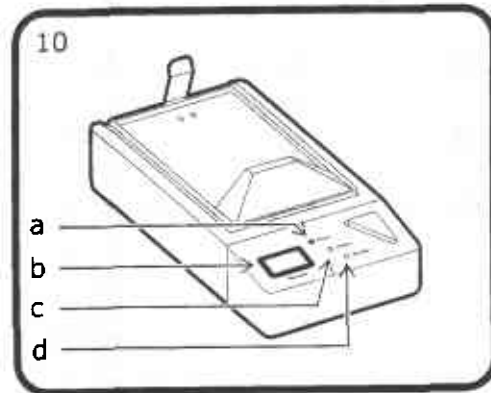
Bottom View

2. **Internal Battery Packs (2)**
3. **12 Volt DC Power Cord & Adapter**
4. **AC/DC Power Cord & Transformer**
5. **Standard Camera Head (LED)**
  - a. Camera Head Lights
  - b. Camera Head Connector Cable Port
6. **Monitor/Camera Head Connector Cable**
7. **Camera Head Extension Wand & Swivel Mount**
8. **Adjustable Camera Head Finger Strap**
9. **Video IN/OUT Connector Cable**



## 10. Battery Charger

- a. Power ON Indicator Light (Red)
- b. Charging Indicator Gauge
- c. Charging Indicator Light (Green)
- d. "Refresh" Indicator Light



## III. PUTTING IT TOGETHER

There are two methods of connecting the Monitor (#1) to the Camera Head (#5).

Each method utilizes the supplied four-foot Connector Cable (#6) optional thirty or one hundred foot cable (See "Optional Accessories"). One end of the cable connects directly to the Monitor, the other end connects either directly to the Camera Head or indirectly to the Camera Head through the supplied Extension Wand (#7).

### Monitor Connection

- Insert the male end of the Connector Cable into the female Cable Connector Port (#1g) on the Monitor.
- Fully hand tighten the cable nut in a clockwise direction until the connection is secure.

### Camera Head Connection

- Make certain the Connector Cable has been properly connected to the Monitor.
- Insert the female end of the Connector Cable into to the male Connector Port (#5b) on the Camera Head.
- Hand tighten the cable nut in a clockwise direction until the connection is secure.

### Extension Wand Connection

The Extension Wand is designed to extend the effective operating range of the unit. This accessory comprises a rigid handle, multidirectional camera mount and a sliding button which controls the angle of the Camera Head in the swivel mount.

Under most conditions, the Extension Wand provides the greatest operating flexibility.

- Make certain the Connector Cable has been properly connected to the Monitor.



- Insert the female end of the Connector Cable into the male Connector Port on the Extension Wand.
- Hand tighten the cable nut in clockwise direction until the connection is secure.
- Place the Camera Head in the swivel mount at the end of the Extension Wand.
- Hand tighten the cable nut in a clockwise direction until the connection is secure.

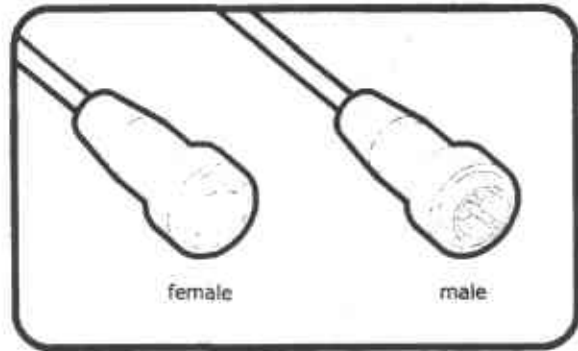
**Note:**

*We recommend that you take a moment to familiarize yourself with the multidirectional swivel mount control button before operating SnakeEye™ with the Extension Wand.*

**About Those Cable Nuts**

Before proceeding, make certain all connections have been properly made. The cable connectors must be properly seated and the cable nuts properly tightened in order to effect a proper connection.

When properly made, these connections are moisture proof. Also, failure to make these connections properly may result in poor picture quality or in intermittent interruption of the video signal.



As you will note, the cable nut connectors are precision machined and are designed to be hand tightened only. Never use a tool to tighten these connections. Doing so may cause damage to the connections and will void our warranty.

**Disconnecting The Cable Connector**

To disconnect the cable, turn the cable nut counterclockwise and pull.

**Adjustable Camera Head Finger Strap**

This accessory (#8) is designed for use when the area to be inspected is "hand accessible."

- Make certain the Camera Head has been properly connected to the Monitor.
- Attach the Camera Head to the Finger Strap by sliding the Camera Head into the semicircular notch until the slot on the bottom of the Camera Head engages the raised ridge on the bottom of the Strap.

- Slide the Strap over the selected finger and adjust the Strap as necessary.

#### **IV. POWERING UP**

SnakeEye™ is powered by a 6 volt DC Battery Pack (#2).

SnakeEye™ also is designed to operate on standard 12 volt DC current in conjunction with the supplied DC Power Cord & Adapter (#3) or standard household AC current in conjunction with the supplied AC/DC Power Cord & Transformer (#4).

#### **Internal Battery Pack**

SnakeEye™ is supplied with two interchangeable, rechargeable Nickel Metal Hydride (NiMH) Battery Packs.

#### **Installing The Battery Pack**

The Battery Pack Compartment (#1f) is located at the bottom of the Monitor.

- Pull the compartment cover firmly downward to access the compartment.
- Insert the Battery Pack into the compartment, "contact end" first.
- Push the Battery Pack down until it is engaged by the retaining latch.
- Press the compartment cover down until it "snaps" into place.

#### **Note:**

*The compartment cover must be properly closed in order to engage the moisture seal.*

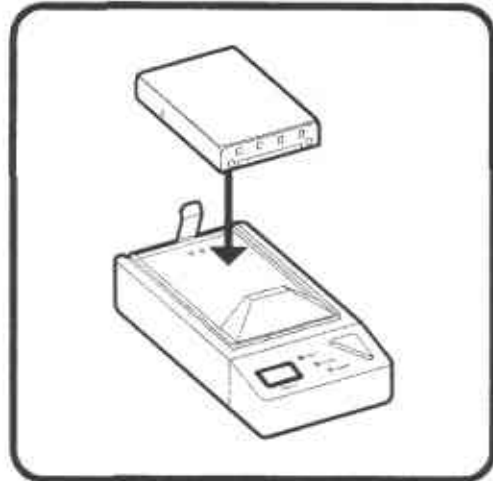
## Battery Charger

The Nickel Metal Hydride batteries lose their charge when "sitting idle" and must be fully charged before being used to power SnakeEye. The Battery Charger (#10) operates on 12 volt DC current when used with supplied 12 volt DC Power Cord & Adapter (#3) or standard household AC current when used with supplied AC/DC Power Cord & Transformer (#4).

*These same power cords are used to operate the Monitor on either 12 volt DC or standard household AC current when the Battery Pack is not being used to provide power.*

### To Charge The Battery Pack:

- Place the Battery Pack in the Battery Charger with the contacts facing the display panel.
- Push gently downward on the Battery Pack until it "snaps" into place and the green light illuminates.
- Insert the selected power cord adapter into the AC/DC Power Port on the Battery Charger.
- Plug the male adapter on the DC Power Cord into the cigarette lighter socket in your vehicle or independent 12 volt DC power source, or the Transformer on the AC/DC Power Cord into any standard household AC outlet.



The Red Power ON Indicator Light (#10a) will illuminate confirming the Battery Charger is receiving power from the selected source.

The Green Charging Indicator Light (#10c) will illuminate indicating the Battery Pack has been properly seated and is being charged.

Fully charging a completely depleted Battery Pack takes approximately one hour. The Charging Indicator Gauge (#10b) provides a continual reading of the charging status. When the Battery Pack has reached a full charge, an audio signal will emit five short "beeps," the Green Charging Light will "blink" and the Charging Indicator Gauge will read solid black.

A fully charged Battery Pack will provide power to SnakeEye™ for up to ninety minutes with only the camera on and low backlight. The Red Low Battery Indicator (#1e) on front of the Monitor housing will illuminate when the battery pack operating capacity has been reduced. The light is an indicator only, and does not mean the battery should be immediately replaced.

**Note:**



***Always allow the Battery Pack to cool down before recharging. In order to prevent damage to the Battery Pack, the Battery Charger includes a safety feature which prevents charging while the Battery Pack is warm.***

**12 Volt DC Power**



SnakeEye™ can be powered from any 12-volt DC vehicle battery or independent 12 volt DC power source.

- Insert the female end of the DC Power Cord into the male DC Power Port on the bottom of the Monitor (#1i).
- Plug the male adapter into the cigarette lighter socket in your vehicle or independent 12 volt power source.

**Note:**

*The male socket adapter operates with a supplied, standard 2 amp fuse. When replacing the fuse, access the fuse compartment by turning the tip of the adapter in a counterclockwise direction.*

*The fuse is spring loaded and caution must be taken to ensure that the spring does not "fly out" of the end of the fuse compartment when it is opened.*

*Replacement fuses are available at most electronic supply and hardware stores.*

**AC Power**



SnakeEye™ can be powered with standard household AC current.

- Insert the female end of the AC Power Cord into the male DC Power Port on the bottom of the Monitor (#1i).

- Plug the AC/DC Transformer into a standard household AC outlet.

**Note:**

**The supplied AC/DC Transformer is designed specifically for use with SnakeEye™. Other transformers may vary either in power output or in connector polarity. Use of any other transformer may cause serious damage to the unit and will void the warranty.**

**V. "LIGHTS, CAMERA, ACTION"**

Before proceeding, make certain the Camera Head is properly oriented. The top of the Camera Head is embossed with a small "oval". This signifies the "12 o'clock position".

**Note:**

*In order to maintain proper orientation of the Monitor image while SnakeEye™ is in use, the Monitor is designed to rotate to a maximum of 180° in both a clockwise and a counter clockwise direction (total rotation approximately 360°).*

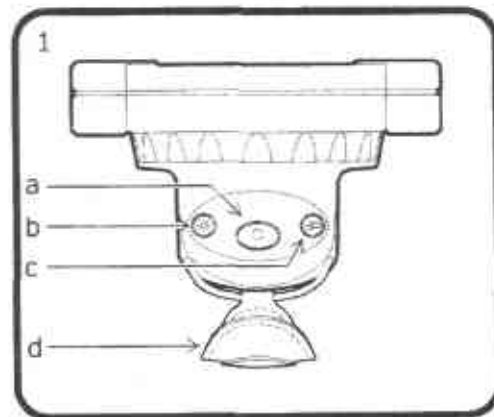
Once the Monitor has been connected to the desired power source and the Camera Head has been properly oriented and connected to the Monitor either directly or in conjunction with the Extension Wand, SnakeEye™ is "ready for action."

There are three Buttons on top of the Monitor.

GREEN Power ON/OFF (#1a). This Button turns the Monitor ON and OFF.

BLUE Monitor Brightness Adjustment (#1b). The Monitor screen is designed with a "Backlight" feature. The Backlight is set on "Low" and comes on automatically when the Monitor is turned ON. This button turns the Backlight setting from "Low" to "High" and from "High" to "Low."

RED Camera Head Light (#1c). The Camera Head includes four high intensity perimeter lights. This button turns the Camera Head lights ON and OFF.



Top View

**Note:**



**The "High" Backlight setting consumes significant Battery Pack power. Continual use of this feature will reduce the operating capacity of a fully charged Battery Pack from approximately ninety minutes to approximately 30 minutes.**

Both the LCD Monitor and the Camera Head are engineered to operate in temperatures ranging from 32°F to 122°F (0°C to 50°C). Operate the unit within these parameters only.

## VI. RECORDING

SnakeEye™ outputs Monitor images as standard NTSC (National Television System Committee) video signals, which can be transmitted to and recorded on NTSC compatible VCRs.

The Monitor will also receive and display images from VCRs that output NTSC video signals.

### Note:

*Virtually all VCRs manufactured for sale in the United States are NTSC compatible.*

### Recording The Image

Recording SnakeEye™ Monitor images on a VCR requires both the supplied Video I/O Cable (#9) and a dual "Dubbing" cable. Dual Dubbing cables are available in a variety of lengths at most electronic supply stores. See diagram at the end of this section.

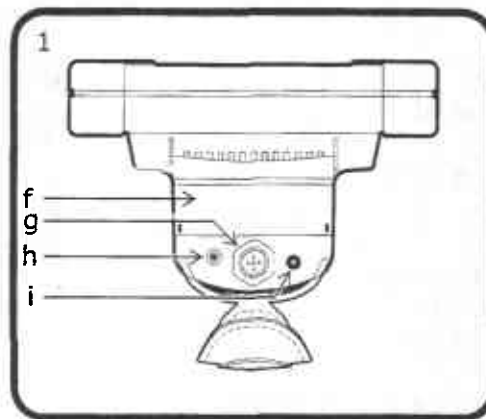
The single end of the supplied Video I/O Cable is a Black male adapter. The double end of the Video I/O Cable has a Red and White female adapter.

All four adapters on the dual Dubbing cable are male. The cable ends may come in various colors. It is important to correlate the video out of the SnakeEye to the video in of the recorder and visa versa. Follow the Video Connection Diagram.

To record a SnakeEye™ Monitor image on an NTSC compatible VCR:

- Plug the male adapter on the single end of the Video I/O Cable into the Video IN/OUT Port (#1h) on the Monitor.

Bottom View



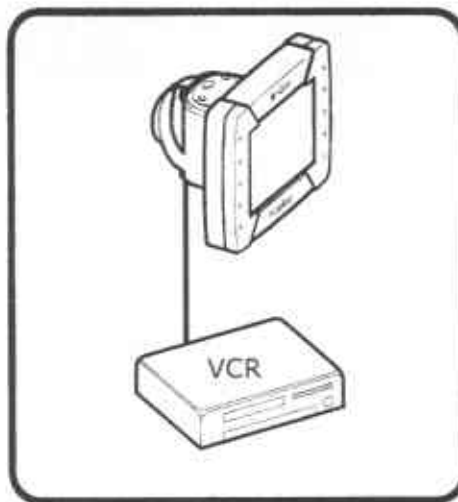
- Plug the white female adapter on the double end of the Video I/O Cable into either of the male adapters on the Dubbing cable.
- Plug the Red female adapter on the other male connector on the Video I/O Cable.

- Plug the male adapter on the Dubbing cable that corresponds to SnakeEye Video Out into the Video IN port on the VCR.
- Plug the other male adapter on the Dubbing cable into the Video OUT port on the VCR.
- Make certain the SnakeEye™ Monitor is turned on.
- Turn the VCR on and insert a recording tape.
- Press the RECORD button on the VCR.

**Note:**

*If the VCR is connected to a television and the television is turned on, the image being captured by the SnakeEye™ Camera Head will appear on the television screen.*

To confirm that the Camera Head image is being properly recorded, stop the recording process, rewind the tape and press the PLAY button on the VCR. The recorded image will appear on the SnakeEye™ Monitor.



**VII. MAINTENANCE**

The LCD Monitor features an anti-reflective, coated plastic screen. This screen should be cleaned only with a solution especially formulated for anti-reflective, coated plastic surfaces. This solution and special cleaning cloths are available through most optometrists and other eye care specialists.

Clean the Camera Head and all other parts and accessories only with a clean, damp cloth.

## VIII. TROUBLESHOOTING

Although the SnakeEye™ is a technologically sophisticated tool, most operating problems are simple to identify and resolve. Should you encounter a problem, please refer to the following guide before contacting us.

You will note: The majority of operating problems are "Battery Pack" or "connection" related.

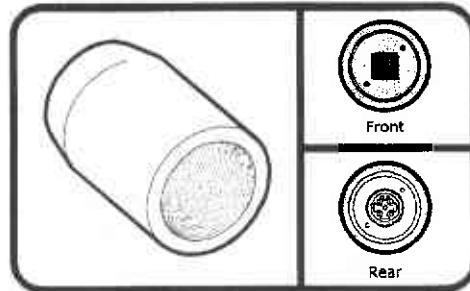
Problem	Possible Cause	Solution
Unit will not operate	Dead Battery	Replace with charged battery
	Battery not properly seated	Make certain Battery Retaining Latch is properly engaged
	AC or DC Adapter not properly connected to the unit or to the power source	Check all connections
Unit turns on but no image appears on Monitor	Camera Head is not properly connected to the Monitor	Check all connections
	Video I/O Adapter Cable is connected	Disconnect cable to re-establish connection between Monitor and Camera Head
Unit will not stay on	Weak Battery	Replace with charged battery
Unit shuts off when Backlight feature is engaged	Weak Battery	Replace with charged battery
Not able to record	Improper connections	Check all connections
Not able to view VCR image on Monitor	Improper connections	Check all connections

## IX. OPTIONAL ACCESSORIES



The following SnakeEye™ accessories are available through Aqua Communications:

### **C-Mount Camera**



Part Number: OA-1

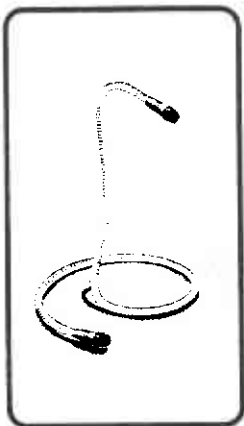
This accessory adapts SnakeEye™ to borescopes and fiberscopes, providing visual access to areas as small as 4 mm in diameter.

Whereas inspection through a borescope or fiberscope may be limited to one individual viewing an area through a single eyepiece, this optional configuration allows numerous individuals to view the same area as a full color image on the SnakeEye™ Monitor.

**Note:**

*This accessory is also CS-Mount compatible.*

### **Gooseneck Adapter**



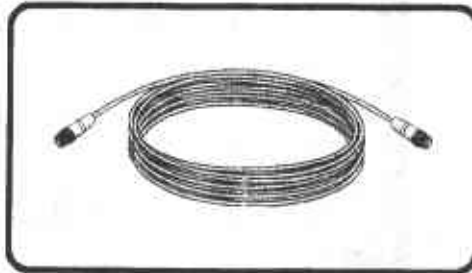
This accessory is utilized in place of the supplied Extension Wand when bending around corners is required.

The Gooseneck is flexible and can be shaped into an infinite variety of configurations enabling insertion of the Camera Head into areas that otherwise might not be accessible. The Gooseneck will retain its shape until it is reconfigured.

Part Number: OA-2

## **IX. OPTIONAL ACCESSORIES CONTINUED**

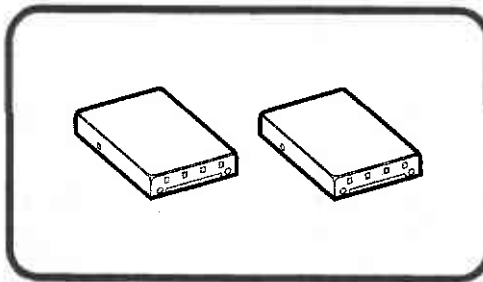
### **30' , 100' Monitor/Camera Head Connector Cable**



Part Number: OA-3

This accessory is used in place of the supplied four foot cable and is designed to provide for "remote" placement of the Camera.

### **Replacement Battery Packs (2)**



Part Number: OA-4

Replacement Battery Packs (2) are available in the event the supplied Battery Packs are lost or damaged.

## X. ACCESSORIES, REPLACEMENT PARTS & CUSTOMER SERVICE

If you have questions concerning the operation of your SnakeEye™ or wish to order accessories or replacement parts, please contact your distributor or our Customer Service Department at 781-642-7088 ext. 3011.

The Aqua SnakeEye Customer Service Department is open Monday through Friday from 9:00 AM to 5 PM EST.

When ordering parts or accessories, please be prepared to provide the relevant Part Number (See Below). Our service representatives will provide you with current pricing information as well as parts and accessory availability.

In order to ensure shipment of the appropriate replacement parts or accessories, you must provide us with both the model and serial numbers of your SnakeEye™. These numbers are imprinted on the Monitor and Camera Head.

### Important Note:



*Never use replacement parts from any source other than Aqua Communications. Use of such parts may damage the unit or create hazardous conditions and will void the warranty.*

### Part Numbers:

PART #		BASE KITS	
BK-01W		Base Kit W (Wand and LED Camera)	
BC-01C		Base Kit C (C-Mount Camera)	
BK-01CW		Base Kit CW (Wand, LED Camera and C-Mount Camera)	
OPTIONAL ACCESSORIES			
OA-01		C-Mount Camera	
OA-02		Gooseneck Adapter	
OA-03		30 Foot Extension Cable	
OA-03-100		100 Foot Extension Cable	
OA-04		Battery Pack (2)	
OA-05		Neck Strap	
OA-06		Sun Shield	
OA-07-2		Telescoping Wand 2'-4'	
OA-07-4		Telescoping Wand 4'-7'	
OA-07-6		Telescoping Wand 6'-11'	
OA-07-8		Telescoping Wand 8'-15'	
REPLACEMENT PARTS			
RP-01		Display Unit	
RP-02		LED Camera	

RP-03	4 ft Cable
RP-04	Rigid Wand Adapter
RP-05	Finger Adapter
RP-07	Battery Charger
RP-08-01	AC Adapter (120 V)
RP-08-02	AC Adapter (100 V)
RP-08-03	AC Adapter (240 V)
RP-09	DC Adapter
RP-10	Video I/O Cable
RP-11	Carrying Case

## **XI. SnakeEye LIMITED WARRANTY**

"We," "our" or "us" refers to Aqua Communications, the manufacturer of SnakeEye™. "You" or "your" refers to the original owner of the SnakeEye™ unit covered under this warranty. The name of the original owner is to be noted on the enclosed Warranty Card.

We warrant this product against defects or malfunctions in materials and workmanship for ninety (90) days from the date of original purchase. We make no other express warranty or representation of any kind whatsoever concerning SnakeEye™ or the unit you have purchased.

We will honor your rights under this warranty as long as you can prove in a reasonable manner that any defect in materials or workmanship occurred within 90 days of the original purchase date.

The purchase date must be substantiated by a dated sales receipt. Any such defect which is evidenced within 90 days of the original purchase date will be repaired or the defective part or parts replaced at our discretion.

This warranty does not apply:

1. When the product has been serviced or repaired by anyone other than us;
2. When the product has been connected, installed, altered, adjusted or handled in a manner other than as specified in the instructions provided in the Owners Manual;
3. When the serial or model number has been altered or removed; or
4. When any defect, loss or damage has resulted from any accident, misuse or negligence.

### **Electronic Registration**

For your added convenience, we offer on-line warranty registration. Please log onto our web site at [www.aquacomm.com](http://www.aquacomm.com) and click on SnakeEye™ Warranty Registration.

## **Warranty Procedures**

In the event of a problem, please consult the "Troubleshooting Guide" in this manual before contacting Aqua Communications.

If the problem persists, call us at 781-642-7088 ext. 3011 and ask to speak with a Service Technician.

1. Should it become necessary, please request a Return Authorization (RA) Number and instructions about which components and/or accessories to return to us. When you call, please be prepared to provide both the model and serial numbers of your unit. These numbers are imprinted on the Monitor and Camera Head.

2. Carefully wrap and pack the items to be returned to protect them from damage during shipping. Enclose a copy of your dated sales receipt and a brief note detailing the problem along with your name, address, daytime telephone number and RA Number.

3. Please also include the RA Number on the outside of the shipping carton and make certain the RA Number and shipping address are legible. Shipments which do not include a legible RA Number on the outside of the shipping carton will be returned.

You are responsible for the costs associated with shipments to us.

If we determine that the defect is not covered under the terms of the warranty, you will be obligated to pay all associated repair, replacement and return shipping costs. These costs will be estimated in advance.



