



# OPERATOR MANUAL

## TAG™ SERIES

### Thermal Acquisition Goggle

TAG-32S (320 x 240, 19mm lens)

TAG-32M (320 x 240, 35mm lens)

TAG-32L (320 x 240, 60mm lens)

TAG-64S (640 x 480, 19mm lens)

TAG-64M (640 x 480, 35mm lens)

TAG-64L (640 x 480, 60mm lens)



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MANUAL  
for**

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## **ADVISORY OVERVIEW**

The following description categorizes the level of risk associated with each cautionary statement displayed throughout the manual.

### **WARNING**

**HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO OR DEATH OF PERSONNEL.**

### **CAUTION**

**HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO OR DESTRUCTION OF EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.**

### **NOTE**

**HIGHLIGHTS AN ESSENTIAL OPERATION, PROCEDURE, CONDITION OR STATEMENT.**

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# CHAPTER 1:

## GENERAL INFORMATION

### 1.1 Introduction:

This manual provides operation and preventative maintenance instructions for the TAG. It also provides specifications and data on the performance of the goggle. To ensure the safety of the operator and the correct operation of the goggle it is recommended that this manual is read carefully in its entirety before any deployment or field application.

### 1.2 Equipment Description:

The TAG is a reliable high performance thermal binocular designed to increase combat effectiveness of forward observers by enhancing the ability to detect, recognize, and identify hostile threats.

The TAG incorporates the latest technology with such features as a 320 x 240 or 640 x 480 VOx detector and built-in reticles.

The TAG series offers a range of optical magnifications allowing for multiple applications including hands free use for navigating and Close Quarter Battle (CQB) operations as well as down range performance for reconnaissance and to direct fire.

The TAG was designed using currently fielded U.S. Military night vision components for improved reliability and ease of integrated logistic support. The unit can be tripod mounted and an optional AN/PVS-7 bayonet style helmet mount is also available.

### 1.3 Standard Kit Parts List:

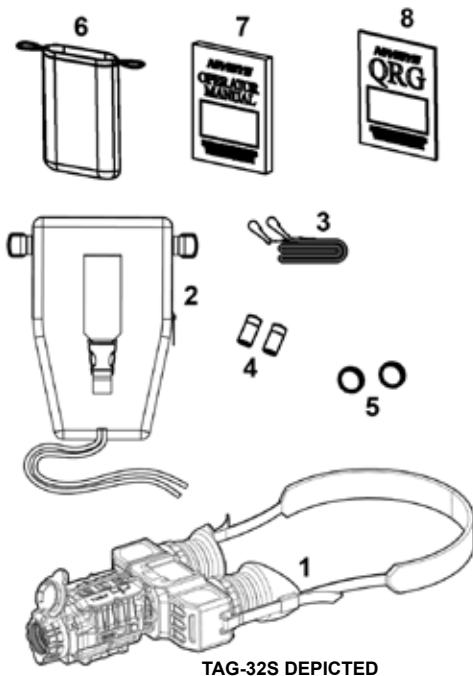
The standard TAG kit comes with the items listed in the following table.

Item	Part No.	Description	Qty.
1	7320-001 7321-001 7322-001 7640-001 7641-001 7642-001	TAG-32S (320x240, 19mm lens) TAG-32M (320x240, 35mm lens) TAG-32L (320x240, 60mm lens) TAG-64S (640x480, 19mm lens) TAG-64M (640x480, 35mm lens) TAG-64L (640x480, 60mm lens)	1
2	A3187392	Soft Carrying Case	1
3	A3144267	Shoulder Strap	1
4	580-0002-0	Battery, CR123 Lithium	2
5	A3144263	Demist Shield	2
6	170-12	Cleaning Kit	1
7	830-0035-0	Operator Manual, TAG	1
8	830-0036-0	Quick Reference Guide, TAG	1

**Table 1-1 Standard Kit Parts List**

#### 1.4 Standard Kit Parts Illustration:

The illustration below is provided for quick identification of the standard parts of the TAG kit.



**Figure 1-1 Standard Kit Parts Illustration**

## 1.5 **Optional Items List:**

The TAG is compatible with the following optional items and accessories listed in the following table.

<b>Item</b>	<b>Part No.</b>	<b>Description</b>
1	3260-000	External Video Module
2	7B257-2F	Shipping/Storage Case
3	A3144268	Headmount Assembly with Brow Pads
4	A3256368	Helmet Mount, PASGT. Flip-up
5	3250-000	Remote Switch
6	7320-900	Head Mount Interface

**Table 1-2 Optional Items List**

## 1.6 Optional Items Illustration:

The illustration is provided as a visual key to optional items that can be used with the standard TAG.

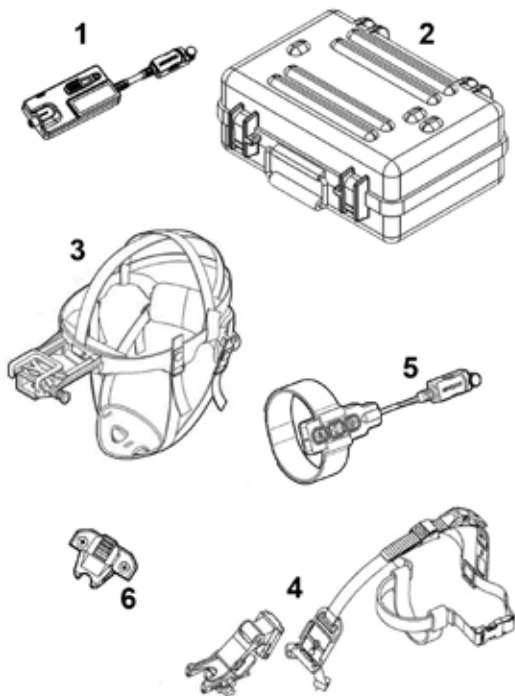


Figure 1-2 Optional Parts Illustration

### 1.7 320 x 240 (-32) System Performance and Data:

The table below lists the technical specifications and data of the 320 x 240 TAG system. The data contained herein is subject to change without notice.

ITEM	LIMITS		
<b>Electrical Data</b>			
Power Source	Battery (3.0V DC max.)		
Battery Requirements	CR123 Lithium (2ea.)		
Battery Life	>4 hrs @ 21°C (70°F)		
<b>Physical Data</b>			
	<b>-32S</b>	<b>-32M</b>	<b>-32L</b>
Overall Dimensions, without eyecups (L x W x H)	18.8cm x 14.7cm x 6.6cm  (7.4" x 5.8" x 2.6")	20.1cm x 14.7cm x 7.1cm  (7.9" x 5.8" x 2.9")	22.1cm x 14.7cm x 7.9cm  (8.7" x 5.8" x 3.1")
Weight (with batteries)	625g (22oz)	675g (23.8oz)	801g (28.3oz)
<b>Environmental Data</b>			
Operating Temperature	-20°C to +50°C		
Storage Temperature	-20°C to +70°C		
Immersion	1m for 1 hour		

**Table 1-3 320 x 240 System Performance and Data**

<b>Optical Data</b>			
	<b>-32S</b>	<b>-32M</b>	<b>-32L</b>
Sensor	320 x 240 Vanadium Oxide (VOx) Microbolometer Uncooled 30Hz frame rate		
Thermal Sensitivity	<50mK		
Spectral Response	7 – 14μm		
Video Output (Optional)	NTSC/PAL Composite Video		
Magnification	1.0X	1.8X	3.1X
Objective Lens	19mm, f/1.25	35mm, f/1.4	60mm, f/1.1
Field of View	24° (H) x 19° (V)	13° (H) x 10° (V)	7.7° (H) x 6.1° (V)
Diopter Range	+2 to -6 diopters		

**Table 1-3 320 x 240 System Performance and Data, (cont.)**

## 1.8 640 x 480 (-64) System Performance and Data:

The table below lists the technical specifications and data of the 640 x 480 TAG system. The data contained herein is subject to change without notice.

ITEM	LIMITS		
<b>Electrical Data</b>			
Power Source	Battery (3.0V DC max.)		
Battery Requirements	CR123 Lithium (2ea.)		
Battery Life	>4 hrs @ 21°C (70°F)		
<b>Physical Data</b>			
	<b>-64S</b>	<b>-64M</b>	<b>-64L</b>
Overall Dimensions, without eyecups (L x W x H)	18.8cm x 14.7cm x 6.6cm  (7.4" x 5.8" x 2.6")	20.1cm x 14.7cm x 7.1cm  (7.9" x 5.8" x 2.9")	22.1cm x 14.7cm x 7.9cm  (8.7" x 5.8" x 3.1")
Weight (with batteries)	625g (22oz)	675g (23.8oz)	801g (28.3oz)
<b>Environmental Data</b>			
Operating Temperature	-20°C to +50°C		
Storage Temperature	-20°C to +70°C		
Immersion	1m for 1 hour		

Table 1-4 640 x 480 System Performance and Data

<b>Optical Data</b>			
	<b>-64S</b>	<b>-64M</b>	<b>-64L</b>
Sensor	640 x 480 Vanadium Oxide (VOx) Microbolometer Uncooled 30Hz frame rate		
Thermal Sensitivity	<50mK		
Spectral Response	7 – 14 $\mu$ m		
Video Output (Optional)	NTSC/PAL Composite Video		
Magnification	1X	1.4X	2.3X
Objective Lens	19mm, f/1.25	35mm, f/1.4	60mm, f/1.25
Field of View	24° (H) x 19° (V)	13° (H) x 10° (V)	7.7° (H) x 6.1° (V)
Diopter Range	+2 to -6 diopters		

**Table 1-4 640 x 480 System Performance and Data, (cont.)**

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## CHAPTER 2: PREPARATION FOR USE

### 2.1 Introduction:

This section contains instructions for installing and attaching various components and accessories to the TAG for operation under normal conditions.

### 2.2 Battery Precautions:

#### **WARNING**

**DO NOT MIX OLD AND NEW BATTERIES.  
DO NOT MIX BRANDS OF BATTERIES. DO  
NOT MIX DISPOSABLE AND RECHARGEABLE  
BATTERIES. FAILURE TO FOLLOW THESE  
INSTRUCTIONS COULD RESULT IN DEATH,  
INJURY OR IMPOSITION OF LONG-TERM  
HEALTH HAZARDS.**

#### **WARNING**

**INSPECT BATTERIES FOR BULGING PRIOR  
TO USE. IF THE BATTERY SHOWS SIGNS OF  
BULGING, DO NOT USE.**

#### **WARNING**

**DO NOT HEAT, PUNCTURE, SHORT CIRCUIT,  
ATTEMPT TO RECHARGE OR OTHERWISE  
TAMPER WITH THE BATTERIES. TURN OFF  
THE TAG IF THE BATTERY COMPARTMENT  
BECOMES UNDULY HOT. IF POSSIBLE, WAIT  
UNTIL THE BATTERIES HAVE COOLED  
BEFORE REMOVING THEM.**

**WARNING**

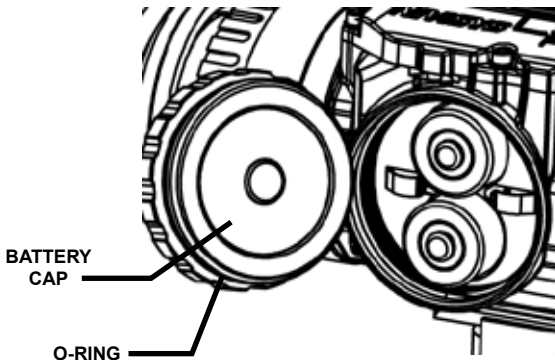
**DO NOT REPLACE BATTERIES IN A POTENTIALLY EXPLOSIVE ATMOSPHERE. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH, INJURY OR IMPOSITION OF LONG-TERM HEALTH HAZARDS.**

**CAUTION**

**OBEY THE BATTERY MANUFACTURER'S DIRECTIONS FOR BATTERY DISPOSAL.**

**2.3 Battery Installation:**

The electronic circuit of the TAG is powered by two (2) Lithium CR123 cells. Install the batteries as follows.



**Figure 2-1 Battery Installation**

1. Remove the battery cap by turning it counter-clockwise.

2. Check to ensure the o-ring is present and undamaged. Replace o-ring if necessary.
3. Insert batteries into the battery compartment, negative (-) ends first, positive ends toward the battery cap.
4. Replace battery cap, turning it clockwise until a stop occurs.

#### 2.4 Installation of the Eyecups:

Perform the following procedure to install the eyecups onto the TAG:

1. Carefully press each eyecup over the diopter cell retainer.
2. Rotate each eyecup into proper viewing position.

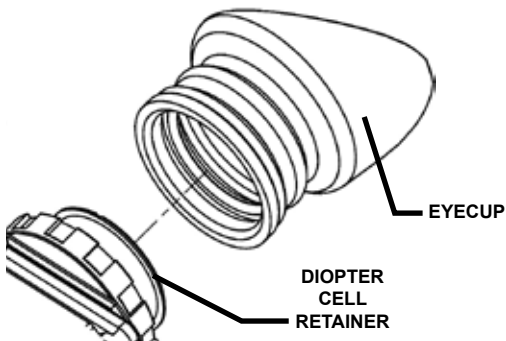


Figure 2-2 Eyecup Installation

#### 2.5 Installation of the Demist Shields:

Perform the following procedure to install the demist shields on the diopter lenses.

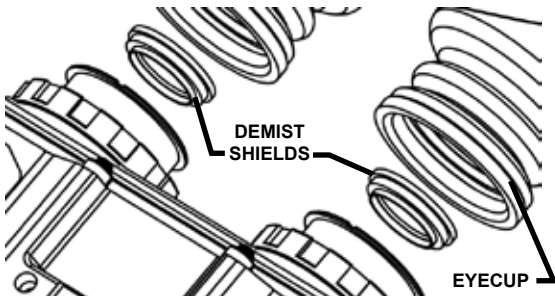
**CAUTION**

**IF THE DEMIST SHIELD IS WIPED WHILE WET OR WITH WET LENS TISSUE, THE COATING WILL BE DAMAGED.**

**NOTE**

**IF INCLEMENT OPERATING CONDITIONS ARE EXPECTED (E.G. SIGNIFICANT TEMPERATURE CHANGE AND HIGH HUMIDITY), INSTALL DEMIST SHIELD TO MINIMIZE EYEPIECE LENS FOG PRIOR TO EXECUTION OF MISSION.**

1. Carefully remove the eyecups.
2. Carefully press a demist shield onto each eyepiece. Be careful not to smudge the eyepieces or demist shields.
3. Replace the eyecups



**Figure 2-3 Demist Shield Installation**

## 2.6 Camera Neck Strap Installation:

To install the camera neck strap to the TAG perform the following.

1. Remove one end of the camera neck strap from the plastic fastener it is installed in. Ensure the tri-glide fastener remains threaded on the strap about 6 inches away from the end.
2. Locate the neck strap eyelets on the rear housing.
3. Insert the free end of the strap through one of the eyelets and pull through about 3 inches.
4. Thread the end of the strap back through the fastener from which it was released.
5. Repeat the steps with the remaining end of the neck strap.
6. Ensure the camera neck cord is installed correctly by pulling the neck strap away from the TAG. No slipping should occur if installed correctly.

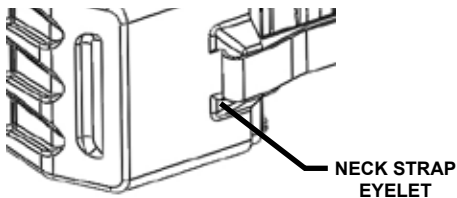


Figure 2-4 Neck Strap Eyelet Location

## 2.7 19mm Lens Cover Installation:

The TAG-32S and TAG-64S are issued with the lens cover pre-installed. In the event installation or re-installation is necessary, perform the following procedure.

1. Insert the hinge pin into one of the two hinge bosses so that it enters the boss completely but does not exit out of the other side. A small pair of slip-joint pliers is helpful.

- Align the spring so that the ends face outward and insert it into the lens cover. One end of the spring will remain outside of the lens cover.
- Press the lens cover in between the hinge bosses so that the spring and hinge pin are in line.

**NOTE**

**THE SPRING END THAT REMAINS OUTSIDE  
THE LENS COVER WILL BE TORQUED  
AGAINST THE HINGE BOSS AS THIS IS DONE.**

- Press the hinge pin through the spring, lens cover and through the other hinge boss.
- Check that the cover freely pivots around the hinge pin.

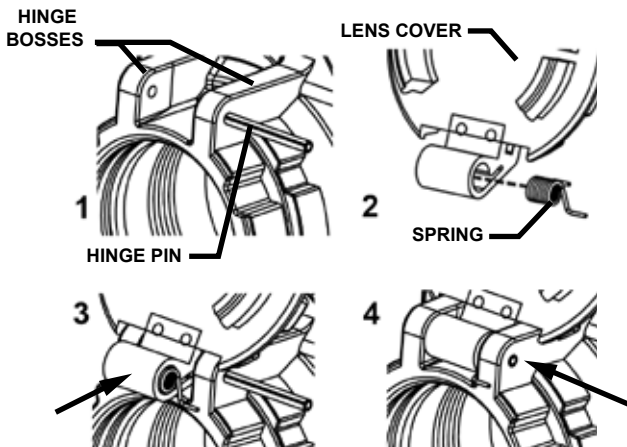


Figure 2-5 Lens Cover Installation (19mm Lens)

## 2.8 35mm Lens Cover Installation:

The TAG-32M and TAG-64M are issued with the lens covers pre-installed. In the event installation or re-installation is necessary, perform the following procedure.

1. Close the lens cover assembly.
2. Ensure the lens cover catch is facing up.
3. Press the lens cover assembly onto the objective lens.
4. Gently rock the lens cover assembly back and forth while continuing to press firmly onto the objective lens.
5. The lens cover is fully seated as the lens cover base and the TAG body meet.

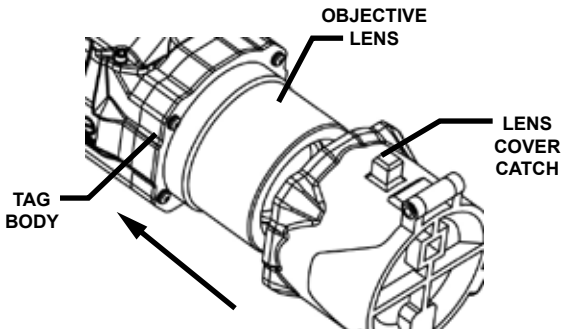


Figure 2-6 Lens Cover Installation (35mm Lens)

### NOTE

**PROPER INSTALLATION OF THE LENS COVER MATCHES THE PROFILE OF THE LENS COVER BASE TO THE PROFILE OF THE TAG BODY.**

## 2.9 60mm Lens Cover Installation:

The TAG-32L and TAG-64L are issued with the lens covers pre-installed. In the event installation or re-installation is necessary, perform the following procedure.

1. Stretch the lens cover retainer over the lens cover catch.
2. Push the lens cover retainer until seated on the lens cover retainer catch.
3. Push the lens cover over the lens cover catch.

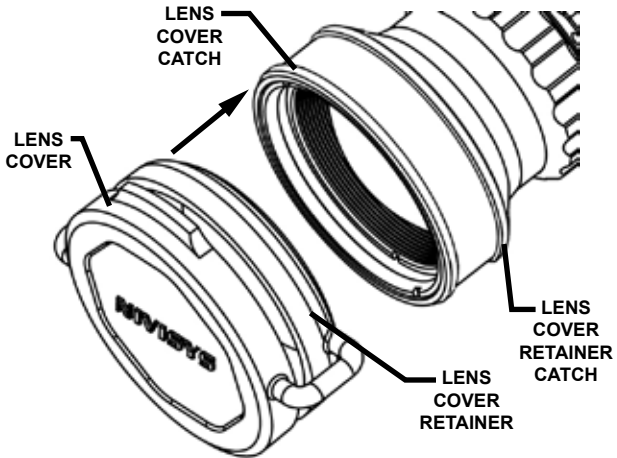


Figure 2-7 Lens Cover Installation (60mm Lens)

### NOTE

**THE 60MM LENS CAN BE ROTATED FOR OPERATOR PREFERENCE.**

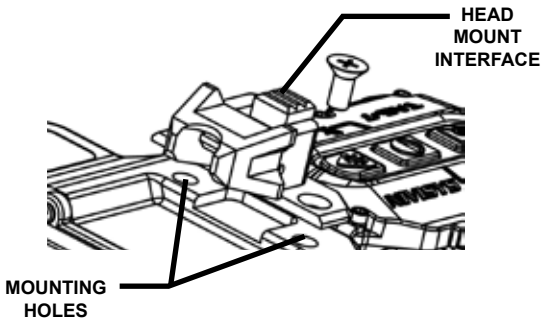
## 2.10 Head Mount Interface Installation (Optional):

The head mount interface is an optional component of the TAG system that allows the TAG to be head or helmet mounted. Perform the following to install the head mount interface to the TAG.

### NOTE

**TO PERFORM THIS OPERATION A PHILLIPS  
HEAD SCREW DRIVER IS REQUIRED  
(NOT PROVIDED)**

1. Locate the bag with the head mount adapter and two 6-32 x 5/16 flat head screws provided by manufacturer.
2. Align the holes in the mounting plate to those on the top of the rear housing of the TAG so that the pyramid connector points toward the eyepieces of the goggle.
3. Use the provided screws to fasten the head mount adapter to the rear housing.
4. Secure the head mount adapter by tightening the screws with a Phillips head screw driver.



**Figure 2-8 Head Mount Interface Installation**

## **2.11 Installation of the Head Mount Assembly (Optional):**

The head mount assembly is an optional piece of equipment that may be used in conjunction with the 19mm lens when applicable. Perform the following procedures for putting on the head mount assembly mount.

### **WARNING**

**THE TAG FIELD OF VIEW IS NOT OPTIMIZED FOR USE DURING TRANSPORTATION OF ANY KIND. IT IS NOT RECOMMENDED TO USE THE TAG WHILE WALKING, RUNNING OR OPERATING OF MOVING VEHICLES.**

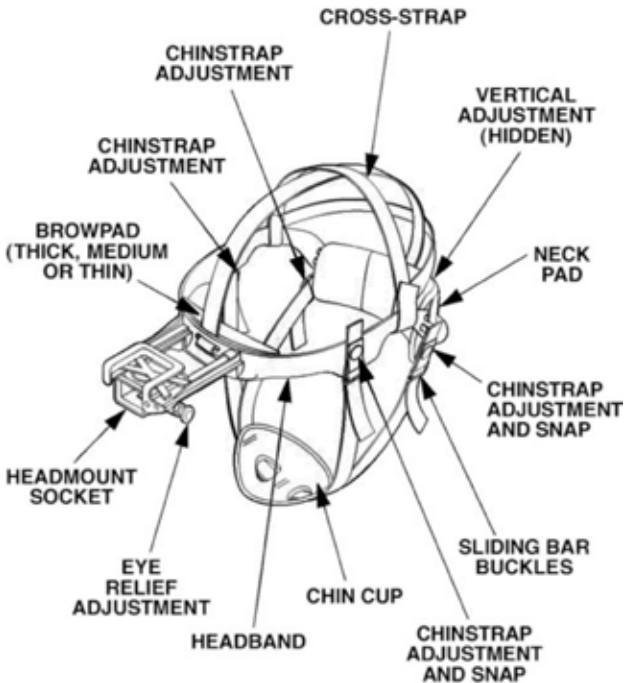
### **WARNING**

**DO NOT PUT ON THE HEAD MOUNT WHILE THE TAG IS ATTACHED.**

1. Prior to putting on the head mount, loosen the four chin straps so the ends of each strap are approximately two inches from the sliding bar buckles.
2. Snap the front and rear snaps in place.
3. With both hands, grasp the neck pad assembly and pull the harness over your head and the neck pad down to the back of your neck.
4. Holding the chin cup in position on chin, adjust both rear chin cup assembly straps until you feel light pressure against your chin. (DO NOT TIGHTEN.)

### **NOTE**

**IF THE HEAD MOUNT IS TOO LOOSE, REMOVE THE ATTACHED THIN BROW PAD AND REPLACE WITH THE MEDIUM OR LARGE BROW PAD, STORED IN THE CARRYING CASE.**



**Figure 2-9 Head Mount Illustration**

5. Maintain the position of the chin cup and remove any slack from the front and rear chin straps. (DO NOT TIGHTEN).
6. Ensure that the cross-strap assembly is not twisted and remove slack by adjusting the vertical adjustment strap at the neck pad.

7. Adjust chinstrap and vertical adjustment until the chin cup and headband assembly are in comfortable but firm position.

### 2.12 Attaching the TAG to a Head/Helmet Mount (Optional):

1. Press and hold the latch lever of the mount interface.
2. Slide the pyramid connector into the receiving head or helmet mount socket.
3. Release the latch lever to lock the mount interface into the head/helmet mount.
4. Pull the TAG away from the head or helmet mount to verify that it is securely attached.

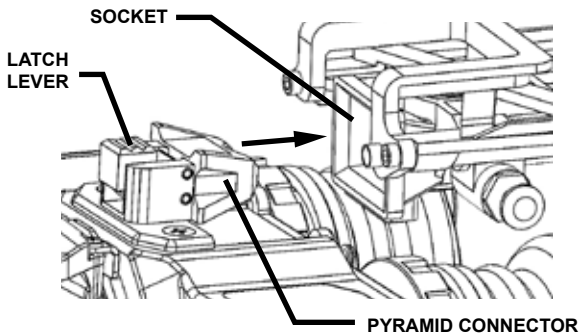


Figure 2-10 Attaching the TAG to a Head/Helmet Mount

### 2.13 Attaching the TAG to a Tripod:

The TAG is equipped with a tripod mounting block to allow for hands free operation. To attach the TAG to a tripod perform the following procedure:

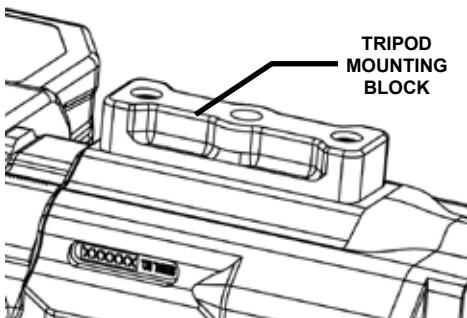
1. Locate the mounting block on the bottom of the TAG, opposite side of the keypad.
2. Thread the 1/4-20 bolt from the tripod or tripod quick-disconnect plate into the mounting block.
3. Hand tighten the connection between the TAG and the tripod hardware.
4. Ensure that the connection is tight before use.

**CAUTION**

**THE TAG MOUNTING BLOCK IS EQUIPPED WITH A 1/4-20 THREADED HOLE FOR USE WITH STANDARD CAMERA TRIPOD MOUNTING CONNECTIONS ONLY.**

**NOTE**

**DAMAGE TO THE UNIT CAUSED BY FAULTY TRIPOD CONNECTION IS NOT COVERED UNDER WARRANTY**



**Figure 2-11 Tripod Mounting Block**

## 2.14 Hot Shoe Connector:

A hot shoe connector is built into the unit in order to facilitate various optional accessories of the TAG such as a remote switch, video out cable and external battery cable.

The hot shoe connector is covered by a hot shoe dust cover that should be in place at all times when not in use in order to protect the circuitry within the unit. To access the connector, lift and rotate the dust cover. To replace the dust cover, rotate the cover squarely over the hot shoe interface and gently push the cover into place.

### **CAUTION**

**HOT SHOE CONNECTOR CAN BE DAMAGED IF DUST COVER IS NOT REPLACED CORRECTLY. BE SURE NOT TO BEND PINS WHEN REPLACING HOT SHOE DUST COVER.**

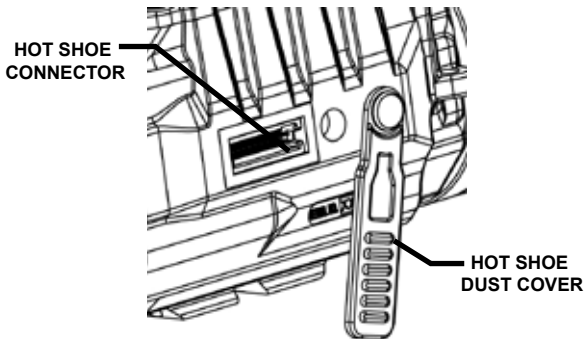


Figure 2-12 Hot Shoe Location

# CHAPTER 3:

## OPERATING INSTRUCTIONS

### 3.1 Introduction:

This chapter contains instructions for the safe operation of the TAG under normal circumstances and environments.

### 3.2 Operating Precautions:

#### **WARNING**

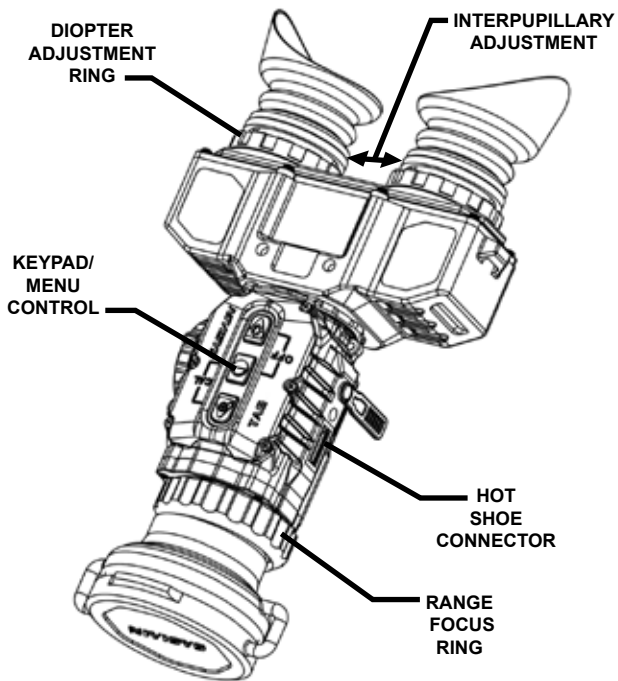
**THE THERMAL FOCAL-PLANE ARRAY  
UTILIZED WITHIN THE TAG IS  
SENSITIVE TO EXPOSURE TO EXTREMELY  
HIGH LEVELS OF RADIANT FLUX. NEVER  
EXPOSE THE TAG, EITHER POWERED OR UN-  
POWERED, DIRECTLY TO THE SUN OR ANY  
OTHER SOURCE OF RADIANT FLUX THAT  
THE HUMAN EYE CANNOT TOLERATE.**

#### **NOTE**

**INADVERTENT SUN DAMAGE  
IS NOT CONSIDERED A DEFECT  
IN MATERIAL OR WORKMANSHIP,  
AND IS NOT COVERED  
IN THE PRODUCT WARRANTY.**

### 3.3 Controls and Indicators:

The TAG is designed to adjust for different users and corrects for most differences in eyesight. The controls and indicators for the TAG are shown in Figure 3-1 and are described in Table 3-1.



**TAG-32L DEPICTED**

**Figure 3-1 Controls and Indicators**

<b>Control and Indicators</b>	<b>Functions</b>
Keypad/ Menu Control	Switches unit ON or OFF. Activates Calibration, Polarity, Display Brightness and Digital Zoom. Controls Internal Menu System such as reticle selection, azimuth adjustment and elevation adjustment.
Battery Indicator (not shown)	Icon located in the eyepiece display that shows battery life of the system.
Diopter Adjustment Ring	Focuses eyepiece lens. Adjust for sharpest image of display screen.
Hot Shoe	Controls the interface between the TAG and accessories such as the RS-16 (remote switch) and the X-VID (external power and video).
Interpupillary Adjustment	Slide diopter rings to adjust for differences in the spacing between users eyes.
Range Focus Ring	Adjusts the focus of the viewed scene from 5m to infinity. Available in the TAG-32L and TAG-64L models only.

**Table 3-1 Controls and Indicators**

### **3.4 Powering ON the TAG:**

When the TAG is powered ON, the circuit will energize and the start up screen will appear for a few seconds in the display.

To activate the TAG perform the following procedure.

1. Close the objective lens cover.
2. Press and hold any of the three keypad buttons for at least one second.

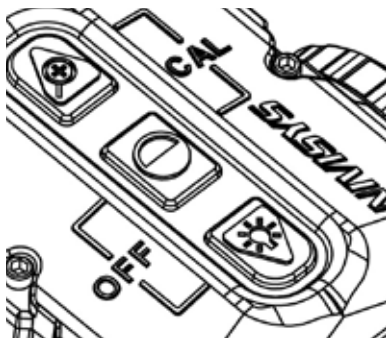


Figure 3-2 Keypad Buttons

### 3.5 Battery Indicator:

To monitor available battery power observe the battery icon in the lower right hand quadrant of the eyepiece display. When battery life is low the battery icon will flash.



Figure 3-3 Low Battery Indicator



**Figure 3-4 Battery Power Icons**

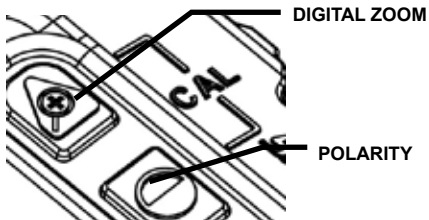
Two conditions determine the length of time the TAG will operate on a set of batteries:

1. The brightness setting on the display.
2. The temperature at which the unit operates.

### **3.6 Thermal Calibration:**

The TAG features shutterless core technology. For this reason the lens cover of the unit must be used to calibrate the system. Calibration gives the user the clearest picture possible. To calibrate the system perform the following procedure.

1. Fully close the lens cover.
2. Simultaneously pressing the digital zoom and polarity buttons.



**Figure 3-5 Calibration**

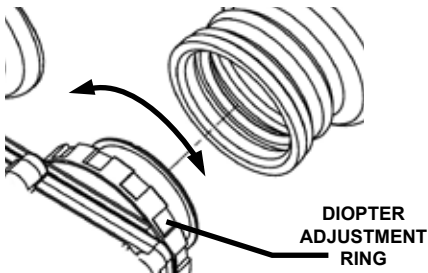
**NOTE**

**FOR THE TAG-32S OR TAG-64S ONLY. FULLY CLOSING THE LENS COVER ACTIVATES AN AUTOMATIC CALIBRATION, WHICH DOES NOT REQUIRE THE OPERATOR TO SIMULTANEOUSLY HOLD DOWN THE DIGITAL ZOOM AND POLARITY BUTTONS.**

All TAG units will automatically perform an initial calibration at power up. For this reason it is necessary to keep the lens cover closed for a minimum of 2 seconds at power up. A second calibration is suggested at 30 seconds after power. This allows the thermal sensor to adjust to the surrounding temperatures. Additional calibrations may be required as surrounding temperature changes or any time a fixed, non-uniform shading appears on the display screen.

**3.7 Diopter Adjustment:**

To adjust the diopter settings on the TAG rotate the diopter adjustment ring for each eye as necessary for the sharpest displayed image of the scene and the menu.



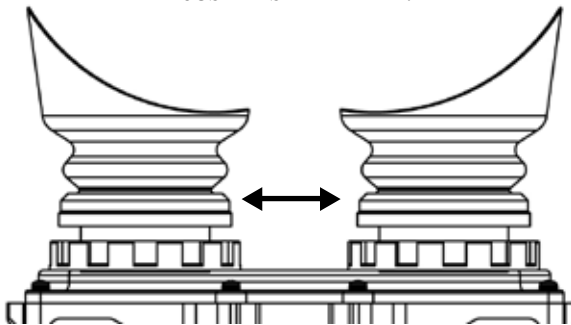
**Figure 3-6 Diopter Adjustment**

### 3.8 Interpupillary Adjustment:

Adjust for distance between eyes by sliding the eyepieces either together or apart so each eye can observe the entire field at the same time.

#### NOTE

**THE SHARPEST IMAGE WILL BE OBSERVED ONLY WHEN BOTH EYEPIECES ARE PROPERLY FOCUSED. THE DIOPTRER ADJUSTMENT RINGS ARE USED TO FOCUS THE DISPLAY SCREEN WITH OR WITHOUT GLASSES. EACH EYEPIECE MUST BE ADJUSTED SEPARATELY.**



**Figure 3-7 Interpupillary Adjustment**

### 3.9 Range Focus Adjustment (TAG-32L and TAG-64L only):

The range focus ring is used to focus the objective lens for objects viewed at varied distances. Rotate the range focus ring counter-clockwise for distant objects up to infinity. Rotate the range focus ring clockwise for close objects up to 5 meters.

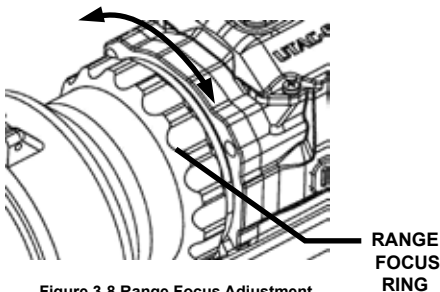


Figure 3-8 Range Focus Adjustment

### 3.10 Digital Zoom:

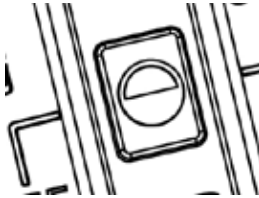
Press the Zoom button to electronically zoom the output by 2X. Press the button again to return to basic optical magnification.



Figure 3-9 Zoom Button

### 3.11 Polarity (White-Hot/Black-Hot):

The TAG Polarity button determines one of two viewing modes to identify environmental temperature differences: HOT temperatures are seen as WHITE on the screen or HOT temperatures are seen as BLACK on the screen. Press the Polarity button to toggle between the viewing modes.



**Figure 3-10 Polarity Button**

### **3.12 Display Brightness:**

When the system is first turned on the unit activates white-hot with a midrange display brightness setting. The unit has 12 brightness settings for white-hot and 12 brightness settings for black-hot. When adjusting the brightness, each time the Display Brightness button is pressed, the level of intensity will increase. A brightness level number will appear in the field of view.

#### **NOTE**

**AFTER THE UNIT REACHES ITS MAXIMUM BRIGHTNESS SETTING IT WILL CYCLE BACK TO ITS LOWEST SETTING.**



**Figure 3-11 Display Brightness Button**

### 3.13 Menu Activation and Use:

To activate Menu Mode:

1. Press and hold the Polarity (Menu/Select) button until the menu appears on upper left portion of the display screen.
2. Use the Zoom (Scroll Up) and Display Brightness (Scroll Down) buttons to scroll through the menu items.
3. The Polarity (Menu/Select) button becomes the “select” tool.

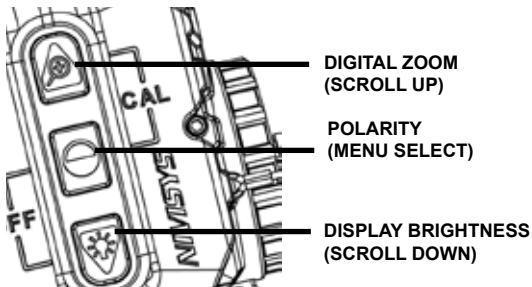


Figure 3-12 Menu Buttons



Figure 3-13 Menu Location

### 3.14 Selecting Reticle Type:

To choose a specific reticle perform the following:

#### **NOTE**

**THE TAG WILL START UP WITHOUT A RETICLE DISPLAYED. IN ORDER TO SELECT AND DISPLAY A RETICLE PERFORM THE FOLLOWING.**

1. Press and hold the Polarity (Menu/Select) button until the menu appears in the top left hand corner.
2. Scroll until “TYPE” is highlighted.
3. Press the Polarity (Menu/Select) button to select “TYPE”
4. Scroll until desired reticle appears in display.
5. Press the Polarity (Menu/Select) button to exit “TYPE” function.
6. Press the Polarity (Menu/Select) button again to exit menu mode.



Figure 3-14 Reticle Types

#### **NOTE**

**RETICLE WILL AUTOMATICALLY CHANGE BLACK/WHITE DEPENDING ON BACKGROUND TARGET TO GIVE BEST CONTRAST.**

### **3.15 Removing Reticle:**

To remove the reticle from the display screen perform the following:

1. Press and hold the Polarity (Menu/Select) button on TAG keypad until menu appears in top left hand corner.
2. Scroll until “ON/OFF” is highlighted.
3. Press the Polarity (Menu/Select) button to select. The reticle will disappear.
4. Press Polarity (Menu/Select) button again to exit menu mode.

#### **NOTE**

**THE RETICLE WILL ALSO BE REMOVED FROM THE DISPLAY BY POWERING THE TAG OFF AND BACK ON.**

### **3.16 Adjusting Azimuth:**

To adjust the azimuth within the menu system of the TAG, perform the following:

#### **CAUTION**

**ALL BORESIGHT AND RETICLE ADJUSTMENTS MUST BE PERFORMED IN THE ZOOM MODE ONLY.**

#### **NOTE**

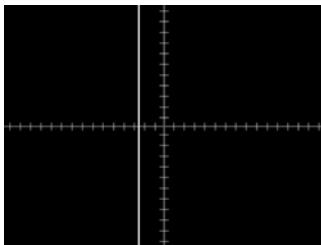
**THE “DOT” RETICLE RETAINS AN INDEPENDENT BORE SIGHT.**

1. Press and hold the Polarity (Menu/Select) button on keypad until the menu appears in top left hand corner.
2. Scroll until “AZIMUTH” is highlighted.
3. Press the Polarity (Menu/Select) button to select “AZIMUTH”.



**Figure 3-15 Azimuth Selection**

4. A master cross-hair with indices will appear IN ADDITION TO the reticle location. The distance between each index mark represents 20 pixels on the display. The reticle can be moved at 1 pixel intervals or scrolled across the screen by holding the button down.



**Figure 3-16 Azimuth Adjustment**

5. Scroll up to move the reticle to the right to the desired position.

**NOTE**

**MOVING THE RETICLE TO THE RIGHT HAS THE SAME RESULT AS MOVING THE MEAN POINT OF IMPACT (MPI) TO THE LEFT.**

6. Scroll down to move the reticle to the left to the desired position.

**NOTE**

**MOVING THE RETICLE TO THE LEFT HAS THE SAME RESULT AS MOVING THE MPI TO THE RIGHT.**

7. Once satisfied with the azimuth position of reticle, press Polarity (Menu/Select) button to exit and store the “AZIMUTH” selection. The menu will default to “EXIT.”
8. Press the Polarity (Menu/Select) button to exit the menu or scroll to another desired tab on the menu.

**3.17 Adjusting Elevation:**

To adjust the elevation within the menu system of the TAG, perform the following:

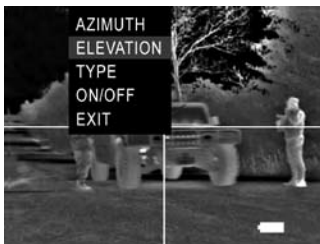
**CAUTION**

**ALL RETICLE ADJUSTMENTS MUST BE PERFORMED IN THE ZOOM MODE ONLY.**

**NOTE**

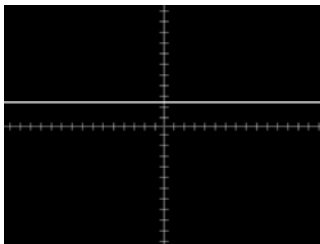
**THE “DOT” RETICLE RETAINS AN INDEPENDENT POSITION.**

1. Press and hold Polarity (Menu/Select) button on keypad until menu appears in top left hand corner.
2. Scroll until “ELEVATION” is highlighted.



**Figure 3-17 Elevation Selection**

3. Press the Polarity (Menu/Select) button to select “ELEVATION”.
4. A master cross-hair with indices will appear IN ADDITION TO the reticle location. The distance between each index mark represents 20 pixels on the display. The reticle can be moved at 1 pixel intervals or scrolled across the screen by holding the button down.



**Figure 3-18 Elevation Adjustment**

5. Scroll up to move the reticle up to desired position.
6. Scroll down to move the reticle down to the desired position.

**NOTE**

**MOVING THE RETICLE UP HAS THE SAME RESULT AS MOVING THE MPI DOWN.**

**NOTE:**

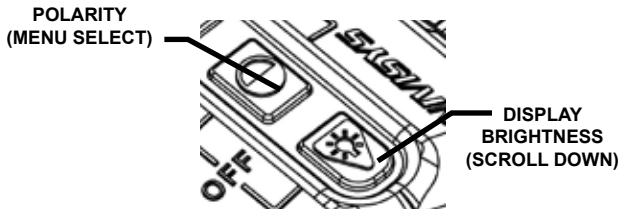
**MOVING THE RETICLE DOWN HAS THE SAME RESULT AS MOVING THE MPI UP.**

7. Once satisfied with the elevation position of reticle, press the center (Menu/Select) button to exit and store the “ELEVATION” selection. The menu will default to “EXIT.”
8. Press the center (Menu/Select) button to exit the menu or scroll to another desired tab on the menu.

### **3.18 Powering OFF the TAG:**

To power OFF the system perform the following:

1. Simultaneously press the Polarity (Menu Select) and Display Brightness (Scroll Down) buttons on the keypad. Visually check that the unit is inoperative by looking through the eyepiece.



**Figure 3-19 Powering OFF the TAG**

### **3.19 Preparation for Storage:**

1. Remove batteries from the goggle.
2. Inspect the battery housing for corrosion or moisture. Clean and dry if necessary.
3. Replace the battery cap.
4. Remove the demist shields if installed.
5. Install objective lens cap.

#### **NOTE**

**PRIOR TO PLACING TAG INTO CARRYING CASE, ENSURE TAG AND CASE ARE FREE OF DIRT, DUST, AND MOISTURE.**

6. Place the TAG, accessories and cleaning supplies back into their storage/carrying cases. It is best to place the items in their original locations to prevent any possible damage to the unit and/or accessories.
7. Return to storage area.

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# CHAPTER 4:

## MAINTENANCE INSTRUCTIONS

### 4.1 Introduction:

The TAG is designed to be used in diverse environments and rugged conditions. It is recommended that regular and simple maintenance is performed for optimal system performance.

### **CAUTION**

**THIS WEAPON SIGHT IS A PRECISION  
ELECTRO-OPTICAL INSTRUMENT AND MUST  
BE HANDLED CAREFULLY.**

**DO NOT SCRATCH THE EXTERNAL LENS  
SURFACES OR TOUCH THEM WITH YOUR  
FINGERS.**

**WIPING DEMIST SHIELD WITH LENS TISSUE  
WHILE WET OR WITH WET LENS TISSUE CAN  
DAMAGE THE COATING.**

### 4.2 Preparing for Maintenance:

Before performing any maintenance or cleaning of the system, remove all power sources from the TAG including batteries and/or external power supplies.

### 4.3 Cleaning the TAG:

When necessary, use a moistened clean cloth to wipe the outside of the unit, EXCEPT FOR THE OPTICAL SURFACES. Be sure to wipe away excess dirt and dust that may restrict the performance or damage moving and mating parts. If needed, the use of a very diluted detergent solution is permissible. Dry with a soft clean cloth, or allow unit to air-dry before storing it.

#### **4.4 Cleaning the Optics:**

When cleaning of the lens is required, first blow any loose dirt or grit away from the surface of the lens. EXCEPT FOR THE DEMIST SHIELD, use the supplied lens tissue lightly moistened with water or lens cleaning fluid to lightly wipe the optical surfaces, using a circular motion. Discard each lens tissue after one use to avoid transferring grit or foreign matter onto the lens surfaces. If the lens remains dirty, use a cotton swab lightly moistened with lens cleaning fluid to remove the foreign matter from the lens. Dry with a clean unused lens tissue.

#### **4.5 Checking for Damage and Corrosion:**

As a general guideline, conduct an inspection of the TAG, accessories, and the case after every use. Look for heavy wear and cracks in rubber or plastic. Inspect for moisture or corrosion in the battery compartment. Check for scratches, condensation and foreign matter on optical surfaces. Report missing or damaged items, for replacement.

# CHAPTER 5: TROUBLESHOOTING

## 5.1 Troubleshooting Procedures:

Table 5-1 lists common malfunctions that may occur with the equipment. Perform the tests, inspections and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

<b>Malfunction</b>	<b>Test or Inspection</b>	<b>Corrective Action</b>
Unit fails to power ON.	Visual.  Check for defective, missing or improperly installed batteries.	Power the system ON.  Replace battery or install correctly.  Tighten battery cap securely.  If TAG still fails to power ON, refer to higher level of maintenance.
No display in eyepiece.	Visual check to see if lens cover is still on.	Open lens cover.

**Table 5-1 Troubleshooting**

Poor image quality.	Check for fogging or dirt on objective lens or eyepiece lenses.  Visual.	Clean optics.  Adjust Range Focus. (On -64L and -32L only)
Diopter adjustment cannot be made.	Check to see if the diopter adjustment ring is bent or broken.	If damaged, refer to higher level of maintenance.
Interpupillary adjustment cannot be made (left & right eye).	Defective eyepiece assembly.	Refer to higher level of maintenance.

**Table 5-1 Troubleshooting, (cont.)**

# APPENDIX A: SPARE AND REPAIR PARTS LIST

## A.1 Introduction:

This section provides information needed to identify, contact and order spare and/or repair parts for the TAG.

## A.2 Contact Information:

To order spare or repair parts for the TAG or any night vision products contact:

Nivisys Industries, L.L.C.  
400 S. Clark Drive, Suite #105  
Tempe, Arizona 85281 USA

Phone: 1-480-970-3222

Fax: 1-480-970-3555

Nivisys Industries GSA #: GS-07F-6054P

## A.3 Spare Part List:

The following is a list of parts that may be ordered for spare parts for the TAG.

Part No.	Description	Qty.
830-0035-0	Operator Manual, TAG	1
830-0036-0	Quick Reference Guide, TAG	1
310-0020-0	Mount Adapter, Tripod	1
A3187392	Soft Carrying Case	1
A3144267	Shoulder Strap	1

Table A-1 Spare and Repair Parts List

580-0002-0	Battery, CR123 Lithium (2ea. required for operation)	1
A3144263	Demist Shield	1
170-12	Cleaning Kit	1
A3144422	Eyecup (Open)	1
116-0001-0	Camera Neck Strap	1
A3144315	Purge Screw	1
A3144316	Purge Screw O-Ring	1
7320-900	Head Mount Interface	1
710-0004-0	Tripod Mount Screw (requires 2)	1
3200-112	Hot Shoe Dust Cover	1
3200-114	Dust Cover Retaining Pin	1
830-0057-0	RS-16 Quick Reference Guide	1
4200-800	35mm Lens Cover Assembly	1
220-0013-0	60mm Lens Cover Assembly	1
A3144268	Head Mount Assembly	1
3250-000	RS-16 (Remote Switch)	1
3260-000	X-VID (External Video and Power)	1
3200-900	Lens Cover Replacement Kit	1

**Table A-1 Spare and Repair Parts List, (cont.)**

## **APPENDIX B: WARRANTY INFORMATION**

### **Equipment Warranties And Remedy:**

Seller warrants that each newly manufactured item sold hereunder and such portion of a repaired/refurbished item as has been repaired or replaced by Seller under this warranty, shall be free from defects in material or workmanship at the time of shipment and shall perform during the warranty period in accordance with the specifications incorporated herein. Should any failure to conform to these warranties be discovered and brought to Seller's attention during the warranty period and be substantiated by examination at Seller's factory or by authorized field personnel, then at its own cost, Seller shall correct such failure by, at Seller's option, repair or replacement of the non-conforming item or portion thereof, or return the unit purchase price of the non-conforming item or component. Buyer agrees that this remedy shall be its sole and exclusive remedy against Seller and that no other remedy shall be available or pursued by Buyer against Seller. In no event shall the Seller be liable for any cost or expense in excess of those described in this paragraph and expressly excluding any liability or damages for special, incidental or consequential damages.

The warranty period for newly-manufactured items shall extend 12 months from the date of shipment by Seller unless a different warranty period is agreed in writing to by Seller. The warranty period for repaired/refurbished electronic components shall extend for the unexpired warranty period or 90 days, whichever is longer, of the item repaired or replaced.

This warranty shall not extend to any item that upon examination by Seller is found to have been subject to:

- A. Mishandling, misuse, negligence or accident.

- B. Installation, operation or maintenance that either was not in accordance with Seller's specifications and instructions, or otherwise improper.
- C. Tampering, as evidenced, for example, by broken seals, damaged packaging containers, etc.
- D. Repair or alteration by anyone other than Seller without Seller's express advance written approval.

Failure to promptly notify Seller in writing upon discovery of any non-conforming item during the warranty period shall void the warranty as to such item. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller, who shall arrange for transportation. The cost of transportation for articles returned to Seller and/or redelivered to Buyer shall be paid by Seller only if Seller is responsible for repair or replacement under this warranty. In the event the item is found to conform to the specifications and requirements of this order, the transportation charges related to the return and re-delivery thereof are for the account of Buyer.

**Return Material Authorization Number (RMA#):**

Warranty and non-warranty items returned to Nivisys for repair or replacement require a RMA#. Email [support@nivisys.com](mailto:support@nivisys.com), call 1-480-970-3222 or fax 1-480-970-3555 with a serial number and detailed information to obtain a RMA#.

**THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

**Inside cover intentionally left blank.**



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