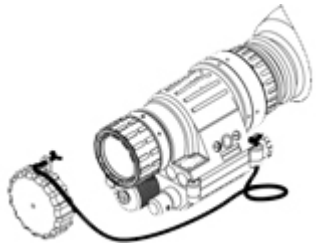
AN/PVS-14
NIGHT VISION
MONOCULAR
DEVICE
(NVMD)



AN/PVS-14
(NSN 5855-01-432-0524)
OPERATOR MANUAL
January 2012

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SAFETY SUMMARY

WARNING

Do not carry batteries in pockets containing metal objects such as coins, keys, etc. Metal objects can cause the batteries to short circuit and become very hot.

WARNING

The IR Source is a light that is visible to the unaided eye for use during conditions of extreme darkness. However, the enemy using night vision devices can detect the light from the IR Source.

WARNING

The NVMD will not be turned off automatically when flipped up. The Monocular must be turned off by the power switch.

WARNING

Toxic Material

The Image Intensifier's phosphor screen contains toxic materials.

- **If an image-intensifier assembly breaks, be extremely careful to avoid inhaling the phosphor screen material. Do not allow the material to come in contact with the mouth or open wounds on the skin.**
- **If the phosphor screen material contacts your skin, wash it off immediately with soap and water.**
- **If you inhale/swallow any phosphor screen material, drink a lot of water, induce vomiting, and seek medical attention as soon as possible.**

WARNING

Equipment Limitations

To avoid personal injury and property damage when using the NVMD carefully read and understand the following safety precautions.

- **The NVMD requires some ambient (moonlight, starlight, or artificial light, etc.) to operate. The level of performance depends on the level of light.**
- **Night light is reduced by passing cloud cover, while operating under trees, in building shadows, etc.**
- **The NVMD is less effective viewing into shadows and other darkened areas.**
- **The NVMD is less effective through rain, fog, sleet, snow, smoke, and other reflective material.**
- **The NVMD will not "see" through dense smoke.**

WARNING

When installing the Headmount over the protective mask, be careful not to break

the protective mask seal around your face.

HOW TO USE THIS MANUAL

Usage

You must familiarize yourself with the entire manual before operating the equipment. Read the complete maintenance task before performing the maintenance and follow all **WARNINGS, CAUTIONS,** and **NOTES.**

Manual Overview

The manual contains chapters for Introduction including Equipment Descriptions and Functional Description, Operating Instructions, and Maintenance Instructions. Refer to Appendix A for component listings and repair parts and to Appendix B for Optional Items.

CHAPTER 1
INTRODUCTION

SECTION I. GENERAL INFORMATION

1.1 SCOPE.

This manual provides descriptive information, operating instructions and maintenance procedures for the Night Vision Monocular Device (NVMD). The NVMD is the commercial equivalent of the AN/PVS-14, GEN III, device. The NVMD (Figure 1-1) is a self-contained night vision device that enables improved night vision using ambient light from the night sky (moon, stars, skyglow, etc.).

1.2 WARRANTY INFORMATION.

Night Vision Monocular Devices still under warranty and requiring maintenance shall be returned to distributor or seller for service. Contact your seller for more warranty or return information.

1.3 NOMENCLATURE CROSS REFERENCE.

Table 1-1 provides a cross reference of common names and official terms. Except in the Chapter 4 and 5, the common names will be used. The official names are used in the Chapter 4 and 5 because they reflect the provisioning nomenclature.

Table 1-1. Nomenclature Cross Reference List.

Common Name	Official Nomenclature
Battery	Battery, “AA” alkaline or "AA" lithium
Headmount	Headmount Assembly
Helmet Mount	Helmet Mount Assembly
Image Intensifier	Image Intensifier Assembly
NVMD	Night Vision Monocular Device
NVMD System	Night Vision Monocular Device, with accessories
Monocular	Monocular Assembly
Objective Lens Cap	Cap, Lens

SECTION II. EQUIPMENT DESCRIPTION

1.4 PURPOSE AND USE.

WARNING

Equipment Limitations

To avoid personal injury and property damage when using the NVMD carefully read and understand the following safety precautions.

- **The NVMD requires some ambient (moonlight, starlight, or artificial light, etc.) to operate. The level of performance depends on the level of light.**
- **Night light is reduced by passing cloud cover, while operating under trees, in building shadows, etc.**
- **The NVMD is less effective viewing into shadows and other darkened areas.**
- **The NVMD is less effective through rain, fog, sleet, snow, smoke, and other reflective material.**
- **The NVMD will not "see" through dense smoke.**

The PVS-14 is a hand-held, headmounted, night vision system that enables walking, weapon firing, short-range surveillance, map reading, vehicle maintenance, and administering first aid in both moonlight and starlight. Each unit allows for vertical adjustment (by using head straps), fore-and-aft adjustment, objective lens focus and eyepiece focus. The Monocular is also equipped with an infrared (IR) source, a low-battery indicator and a gain control.

NOTE

Special ordered systems might contain different or lack some of the components listed within this manual. Basic operation remains the same for all NVMD.

CAUTION

The PVS-14 is a precision optical instrument and must be handled carefully at all times to prevent damage.

CAUTION

Be careful when leaving the helmet mount in the flipped up position or removing the helmet mount from the helmet, damage can result.

1.5 EQUIPMENT DESCRIPTION.

The PVS-14 System, shown in Figure 1-1, consists of the following (Accessories contained in NVMD kit may differ due to contract and/or program requirements.):

1.5.1 Monocular. The Monocular Assembly (Item 1) is a lightweight, multipurpose, left or right eye pocketscope, made of a high strength hard plastic material. The NVMD is equipped with a GEN III, MX-11769 type Image Intensifier Assembly. The Monocular operates on one “AA” 1.5Vdc Alkaline or lithium battery. The expected battery life for the NVMD will vary depending upon gain control setting and ambient operating temperature. A Lithium battery is recommended at temperatures at or below 32° F (0° C) for extended battery life. A low voltage indicator becomes visible in the eyepiece to alert the operator that a minimum of 30 minutes of

operation remains. Batteries are provided with the NVMD system. The Monocular is reverse polarity protected. The battery cartridge and objective lens cap are fastened to the monocular by the neck cord to prevent loss.

1.5.2 Headmount. The Headmount (Item 2) secures the monocular to the operator's head for night viewing and provides freehand support for use with a weapon, protective mask or other purposes. It is adjustable and cushioned. The thin browpad used for large heads, comes attached to the Headmount; the thick and medium browpads, used for smaller heads are stored in the carrying case.

1.5.3 Carrying Case. The Carrying Case (Item 3) is provided for transportation and protection of the Monocular Assembly, Headmount Assembly, batteries and accessories. Two slide keepers are provided for belt attachment and three D-rings for shoulder and leg strap attachment. A Carrying Case Strap (Item 4) is also provided which can be attached to the two D-rings on the back of the Carrying Case.

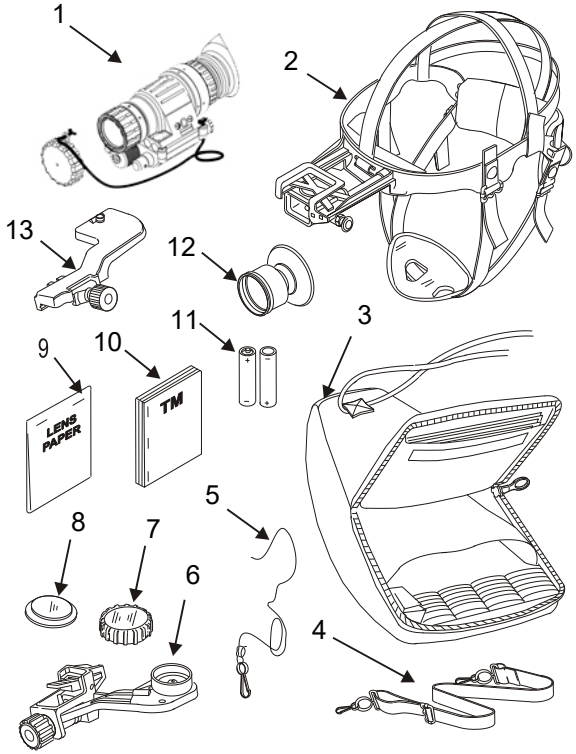

Figure 1-1. PVS-14, (NVMD)
(Accessories shown may differ).

1.5.4 Retaining Cord. The Retaining Cord (Item 5) enables the user to attach the NVMD to a button hole or belt loop to guard against dropping or losing it.

1.5.5 Headmount/Helmet Mount Adapter. Headmount/Helmet Mount Adapter (Item 6) is attached to the Monocular to allow it's use with the AN/PVS-7B or AN/PVS-7D Headmount or Helmet Mount. It allows for mounting in front of the left or right eye.

1.5.6 Sacrificial Window. A replaceable Sacrificial Window (Item 7) is supplied to protect the Objective Lens during operation in adverse conditions.

1.5.7 Demist Shield. The Demist Shield (Item 8) is used to prevent the Eyepiece Lenses from becoming fogged.

1.5.8 Lens Paper. Lens paper (Item 9) is used in cleaning the lens surfaces (paragraph 3.5).

1.5.9 Manual. An Operator's Manual (Item 10) is provided with each NVMD system. The manual provides complete information on how to operate, maintain, and repair the NVMD.

1.5.10 “AA” Alkaline Batteries. The NVMD operates on two (2) “AA” 1.5Vdc Alkaline or Lithium batteries (Item 11). Batteries are provided with the NVMD system shipped from seller.

1.5.11 Eyeguard. The Eyeguard (Item 12) should be used when Weapon Mount is used.

1.5.12 Weapon Mount. The Weapon Mount (item13) adapts the monocular to the receiver rail as configured for the modular weapon system kit.

1.6 REFERENCE DATA.

The following tables provide information pertaining to the physical characteristics (Table 1-2) and performance characteristics (Table 1-3) for the NVMD system.

Table 1-2. Physical Characteristics.

Characteristic	Value
Monocular Weight (With headmount/helmet mount adapter)	13.83 ounces (392 grams)
Carrying Case Size	Approx. 14” X 8”
Batteries	"AA" 1.5 Vdc alkaline or "AA" 1.5 Vdc lithium 2 each
Eye Relief	25mm with 14mm exit pupil

Table 1-3. Performance Characteristics.

Characteristic	Value
Expected Battery Life	(Life is dependent on gain setting and operating temperature. The use of Lithium Batteries is recommended at temperatures below 0˚ C)
Monocular Operating Temperature	-51°C to +85°C
Monocular Storage Temperature	-51°C to 85°C
Illumination Required	Overcast starlight to moonlight
Diopter Focus	+2 to –6 diopters
Objective Focus	25cm (9.8”) to infinity
Field of View	40˚
Magnification	1.0X

SECTION III. FUNCTIONAL DESCRIPTIONS

1.7 MECHANICAL FUNCTIONS.

The mechanical functions of the NVMD allow for differences in the physical features of individual operators and provide for operating the system. These functions include the power switch, eye relief adjustment, diopter adjustment, gain control, and Objective focus. The mechanical controls are identified in Figure 1-2. In addition to these controls, the optional helmet mount assembly provides tilt adjustment.

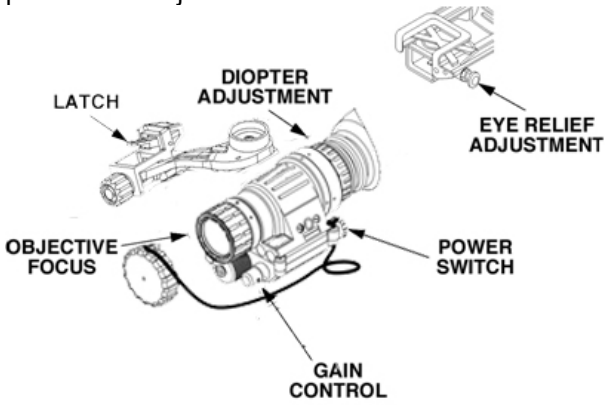

Figure 1-2. Mechanical Functions for the NVMD.

1.8 OPTICAL FUNCTIONS

The optical functions include an Objective Lens, Image Intensifier and eyepiece (Figure 1-3). The Objective Lens collects light reflected from the night scene by the moon, stars, or night sky, inverts the image and focuses that image on the Image Intensifier. The Image Intensifier converts the captured light into a visible image and reinverts the image, which can then be viewed through the Eyepiece Lens.

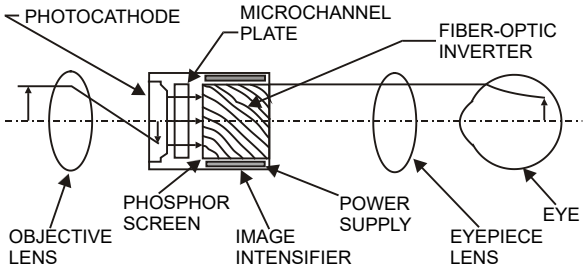

Figure 1-3. NVMD Optical Diagram.

1.9 ELECTRONIC CIRCUIT FUNCTION

The electronic circuit regulates the direct-current voltage from the batteries to the Image Intensifier assemblies and IR illuminator as required. It also monitors the output voltage of the batteries and turns on a low-battery indicator when the available battery voltage is 1.9 – 2.1 Vdc.

1.9.1 Power Source. One replaceable 1.5 volt "AA" size battery powers the electronic circuit.

1.9.2 High Light Cut-Off. The Monocular will automatically shut off after 70 (±30) seconds of operation in daylight or bright room light. Individual bright lights (headlights, flashlights, or other concentrated light sources) will not actuate the high light detector located on the front of the Monocular. To turn the Monocular back **ON**, turn the power switch to **RESET/OFF** position and then to **ON** again.

CHAPTER 2
OPERATING INSTRUCTIONS

SECTION I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2.1 SCOPE.

This section contains the description and instructions for the use of the controls and indicators for the NVMD.

2.2 NVMD CONTROLS AND INDICATORS.

The NVMD is designed to adjust for different users and corrects for most differences in eyesight.

Table 2-1. NVMD Controls And Indicators.

Description	Function
Power Switch	Controls Monocular and IR light power, **ON** or **OFF**.
	RESET/ OFF — Same as System **OFF**. Also resets Monocular after automatic shutoff.
	ON — Monocular activated.
	IR/PULL — Turn the knob clockwise to momentarily activate the IR Source. Pull and turn the knob clockwise from the **ON** position to continuously activate the IR Source.

CAUTION

Do not use excessive force to place the power switch into momentary IR position.

Table 2-1. NVMD Controls And Indicators – Continued.

Description	Function
Low Battery Indicator	When blinking it indicates a low battery condition with less than 30 minutes of battery life remaining. It is visible through the eyepiece just outside the intensified field-of-view.
IR Source **ON** Indicator	When illuminated it indicates that the IR Source is **ON**. It is visible through the eyepiece just outside the intensified field-of-view.
Gain Control	Adjusts the system gain from a minimum value of approximately 25 to a maximum value greater than 3,000.
Objective Focus	Focuses Objective Lens. Adjusts for sharpest image of viewed object.
Diopter Adjustment	Focuses Eyepiece Lens for use without the need for glasses. Adjust for sharpest image of intensifier screen.
Eye Relief Adjustment	Adjusts the distance between your eye and the Monocular.

Table 2-1. NVMD Controls And Indicators - Continued.

Description	Function
Latch	Latch used for separation of Monocular from Headmount/Helmet Mount.
Battery Polarity Indicators	This feature, molded into the Battery Cartridge, shows the proper orientation of the batteries. Some versions have a bubble molded into the top of the Battery Cartridge, to show the + for proper orientation.

SECTION II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

2.3 SCOPE.

This section contains the Operator's preventive maintenance checks and services. To ensure the readiness of the NVMD, perform the preventive maintenance procedures in accordance with PMCS Table 2-2, prior to each mission. Preventive maintenance procedures include inspection, cleaning, and performance of the checkout procedures. The materials required to perform preventive maintenance are clean cloths, Lens Paper, Lens Brush, Lens Cleaning Compound, and clean water.

2.3.1 Warnings and Cautions. Always observe WARNINGS and CAUTIONS appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe these WARNINGS and CAUTIONS to prevent injury to yourself and others or prevent your equipment from being damaged.

2.3.2 Explanation of Table Entries. The PMCS table has five (5) columns. The following is a description of the information given in each column:

(1) Item No. Column. This is the PMCS number for the procedure to be performed. Item numbers appear in the order that you must do checks and services for the intervals listed.

(2) Interval Column. This column identifies when the procedure is to be performed. BEFORE procedures must be done before you operate or use the equipment for its intended mission. DURING procedures must be done during the time you are operating or using the equipment for its intended mission. AFTER procedures must be done immediately after you have operated or used the equipment.

(3) Location, Check/Service Column. This column provides the location and the item to be checked or serviced. The item location is underlined.

(4) Procedure Column. This column gives the procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or operation. You must do the procedure at the time stated in the interval column.

(5) Not Fully Mission Capable if: Column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

NOTE

Damaged accessory items (Sacrificial Window, Demist Shield) do not cause the entire end item to be “not fully mission capable.” However, the damaged item should be replaced as soon as practical to restore full capability of the system.

(6) Other Table Entries. Be sure to observe all special information and notes that appear in your table.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD.

Item No.	Interval	Location: Check/ Service	Procedure	Not Fully Mission Capable If:
		MONOCULAR		
1	Before/ After	Optical Surfaces	Inspect all lenses (Objective, Eyepiece, IR lens and High Light Cut-Off Window) for dirt, fingerprint residue, chips, or cracks. If necessary, clean and dry lenses with water and lens tissue.	Scratches or heavy scratches that hinder vision with Monocular turned **ON**, or if cracks are present.
2	Before/ After	Battery Cartridge/ Housing	Inspect external surfaces for cracks or damage. Scratches, cracks, and gouges are OK if operation is not affected.	Cracks or damage in battery housing.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D.

Item No.	Interval	Location: Check/ Service	Procedure	Not Fully Mission Capable If:
2 Cont.	Before/ After	Battery Cartridge/ Housing Cont'd.	Inspect battery compartment. Check to make sure Battery Cartridge is present. Remove Battery Cartridge and inspect for moisture, cracks, corroded or defective spring contacts, and o-ring present in cartridge.	Cartridge is missing, contacts damaged, or corroded, O-Ring is missing.
			Remove any batteries and turn the power switch from **REST/OFF** to **ON** to **IR/PULL**. Each position should have a definite stopping point. Inspect for broken or missing knob.	Power switch has no definite stopping points or knob is broken of missing.
			Install batteries per paragraph 2.6 and check IR Source (and momentary IR Source, if so equipped) functions by following the operating instructions in paragraph 2.22.	IR Source does not work.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D

Item No.	Interval	Location: Check/ Service	Procedure	Not Fully Mission Capable If:
2 Cont.	Before/ After	Battery Cartridge/ Housing Cont'd.	Check the High Light Cut-Off with daylight or bright room light (not fluorescent light) by placing the Lens Cap on the Objective Lens. Turn Monocular **ON** and observe that the system cuts **OFF** within 70 ±30 seconds. Turn Monocular **OFF** and **ON** to reenergize Monocular. NOTE If the Monocular fails this High-Light Cut-Off test, it does not cause the end item to be non-mission capable. However, it should be sent to higher level of maintenance as soon as possible.	If damaged, refer to higher level of maintenance.
			Check gain control for free movement and operation per paragraph 2.25.	Knob is not free moving or does not vary gain.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D.

Item No.	Interval	Location Check/ Service	Procedure	Not Fully Mission Capable If:
3.	Before/ After	Monocular	Inspect for cracks or damage. Scratches, cracks, chips and gouges are OK if operation is not affected.	Cracks or damage in the Monocular.
4.	Before/ After	Eyepiece Lens	Rotate diopter adjustment to make sure the Eyepiece Lens moves freely and is not loose. Range is approximately ½ turn.	Binding, not moving freely or too loose.
5.	Before/ After	Eyecup and/or Eyeguard	Inspect for dirt, dust, and cracked or torn Eyecup and/or Eyeguard. Inspect for bent, broken, or improperly fitting Eyepiece Lens. If necessary, clean with water.	Chips and cracks are permitted on the Eyecup and/or Eyeguard retaining rings as long as they do not interfere with installation of Eyecup and/or Eyeguard.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D.

Item No.	Interval	Location: Check/ Service	Procedure	Not Fully Mission Capable If:
6.	Before/ After	Objective Lens	Rotate focus ring to ensure free movement (range is approximately 1/3 turn). Check Objective Lens for chips, cracks and dents.	Focus ring is binding or not able to move.
				Chips, cracks, or dents prevent the ability to focus.
			Check the infinity focus-locking ring for tightness. Check for cracks.	Cracked or loose.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D.

Item No.	Interval	Location Check/ Service	Procedure	Not Fully Mission Capable If:
7.	Before/ After	Neck Cord and Objective Lens Cap	Inspect for cracked, torn or missing Objective Lens Cap. Inspect Neck Cord for cut, damage, or loose ends. Re-tie ends if necessary.	Damaged.
8.	Before/ After	Viewed Image	Refer to paragraph 2.4 to inspect for operational defects.	Flickering, flashing, edge glow, or shading is observed.
			NOTE If any of the following items are damaged it does not cause the entire end item to be "not fully mission capable". However, the damaged item should be replaced as soon as practical to restore full capability of the system.	
		HEADMOUNT / HELMET MOUNT		
9.	Before/ After	Straps/Pads	Inspect for cuts, tears, fraying, holes, cracks, or defective fasteners.	Damage causes straps or pads to be unservice-able.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D.

Item No.	Interval	Location: Check/ Service	Procedure	Not Fully Mission Capable If:
10.	Before/ After	Socket	Inspect for dirt, dust, or corrosion. Insert Monocular latch into Socket to verify secure attachment of Monocular to head-mount. If necessary, clean socket with water.	Damaged, latch won't lock or is too loose.
11.	Before/ After	Eye Relief Adjustment	Press the Eye Relief Adjustment and check for free motion. Inspect for damage.	Binding, damaged or non-operational slide mechanism.
12.	Before/ After	Tilt Adjustment	Loosen knob and tilt mount to check for free movement. Tighten knob to ensure adjustment locks.	Tilt mechanism will not lock. Unable to adjust tilt angle.
HEADMOUNT/HELMET MOUNT ADAPTER				
13.	Before/ After	Headmount / Helmet Mount Adapter	Inspect for dirt, dust or corrosion. Insert into Headmount or Helmet Mount Socket to verify secure attachment.	Damaged, will not latch securely.

Table 2-2. Preventive Maintenance Checks and Services (PMCS) for the NVMD – CONT'D.

Item No.	Interval	Location: Check/ Service	Procedure	Not Fully Mission Capable If:
		ACCESSORIES		
		CAUTION The coating on the Demist Shield can be damaged if cleaned while wet or if cleaned with wet Lens Paper. Clean only when the Demist Shield is dry and only with dry paper.		
14.	Before/ After	Demist Shield / Sacrificial Window	Inspect for dirt, dust, scratches or damage. If necessary, clean when shield is dry and with dry lens tissue only.	Damaged or scratches hinder vision with Monocular on.
		CARRYING CASE		
15.	Before/ After	Case	Remove all items and shake out loose dirt or foreign material. Inspect for tears, cuts, excess wear, or damage to mounting clips.	
16.	Before/ After	Shoulder Strap	Inspect for cuts, tears, or excess wear or damaged clips.	
	During	None		

2.4 INSPECTION CRITERIA FOR PROPER IMAGE INTENSIFIER OPERATION.

2.4.1 General. As directed in the PMCS table, Image Intensifier Assembly operation must be checked before each mission. This section provides information for the operator concerning what to look for, how to look for it, and how to determine if the Monocular should be returned for service. The rejection of any Monocular for cosmetic blemishes must be based on an outdoor evaluation. The operator must record all conditions and describe the specific defects and sign it so the maintainer can take corrective action.

CAUTION

Perform the following inspection in the dark.

To perform this inspection, attach the Monocular to the Headmount as described in paragraph 2-6a and turn the switch to the **ON** position. Look through the Monocular and view the image.

There are two groups of "defects" you may encounter - operational defects and cosmetic blemishes. Operational defects are an immediate cause to reject the Monocular. Cosmetic blemishes are not a cause for rejection unless they become severe enough to interfere with the ability to perform the mission.

2.4.2 Operational Defects. These defects relate to the reliability of the Image Intensifier and are an indication of instability. If identified, they are an immediate cause for rejecting the Monocular. They include shading, edge glow, flashing, flickering, and intermittent operation.

(1) Shading. If shading is present, you will not see a fully circular image (see Figure 2-2). Shading is very dark and you cannot see an image through it. Shading always begins on the edge and migrates inward eventually across the entire image area. Shading is a high contrast area with a distinct line of demarcation. Do not use if shading is present. Return the Monocular with this specific defect recorded to seller for repair.

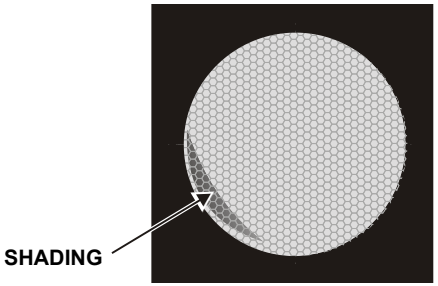

Figure 2-1. Shading

(2) Edge Glow. Edge glow is a bright area (sometimes sparkling) in the outer portion of the viewing area (See Figure 2-3). To check for edge glow, block out all light by cupping a hand over the lens. If the Image Intensifier is displaying edge glow the bright area will still show up. Do not use if edge glow is present. Return the Monocular with this specific defect recorded to seller for repair.

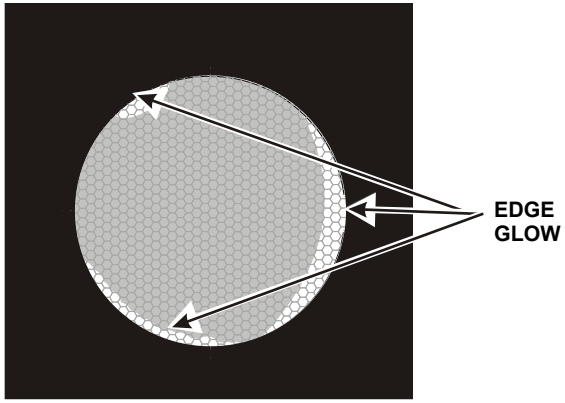

Figure 2-2. Edge Glow.

(3) Flashing, Flickering, or Intermittent Operation. The image may appear to flicker or flash. If there is more than one flicker, check for loose Battery Cartridge, or weak batteries. If the problem cannot be corrected, do not use with this condition. Return the Monocular with this specific defect recorded and, if possible, indicate the rate of flashing or flickering to seller for repair.

2.4.3 Cosmetic Blemishes. These are usually the results of manufacturing imperfections that do not affect Image Intensifier reliability and are not normally a cause for rejecting a Monocular. However, some types of blemishes can get worse over time and interfere with the ability to perform the mission. If you believe a blemish is cause for rejection, record the specific nature of the problem on and identify the position of the blemish by using the clock method and approximate distance from the center (e.g., 5 o'clock toward the outside, 2:30 near the center, or 1:00 midway). The following are cosmetic blemishes:

(1) Bright Spots. A bright spot is a small, nonuniform, bright area that may flicker or appear constant (See Figure 2-4). Not all bright spots make the Monocular rejectable. Cup your hand over the Objective Lens to block out all incoming light. If the bright spot remains, return the Monocular to seller. Bright spots usually go away when the light is blocked out. Make sure any bright spot is not simply a bright area in the scene you are viewing. **Bright spots are acceptable if they do not interfere with the ability to view the outside scene and the ability to perform the mission.**

(2) Emission Points. A steady or fluctuating pinpoint of bright light in the image area and does not go away when all light is blocked from the Objective Lens (See Figure 2-4). The position of an emission point within the image area does not move. Not all emission points make the Monocular rejectable. Make sure any emission point is not simply a point light source in the scene you are viewing. **Emission points are acceptable if they do not interfere with the operator's ability to view the image or to perform the mission.**

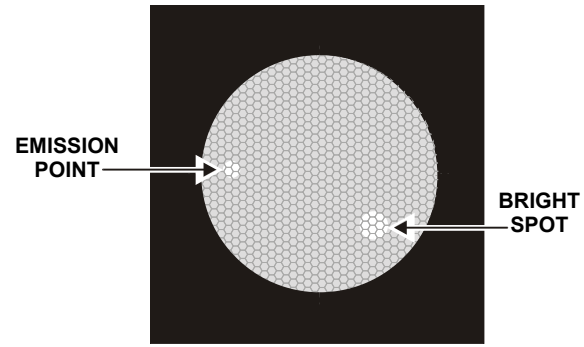

Figure 2-3. Bright Spots and Emission Points.

(3) Black Spots. These are cosmetic blemishes in the Image Intensifier or debris between the lenses. Black spots are acceptable as long as they do not interfere with viewing the image. **No action is required if this condition is present unless the spots interfere with the operator's ability to view the image or to perform the mission**.

(4) Fixed-Pattern Noise (Honeycomb). This is usually a cosmetic blemish characterized by a faint hexagonal (honeycomb) pattern throughout the viewing area that most often occurs at high-light levels or when viewing very bright lights (See Figure 2-5). This pattern can be seen in every Image Intensifier if the light level is high enough. **This condition is acceptable as long as the pattern does not interfere with the operator's ability to view the image or to perform the mission**.

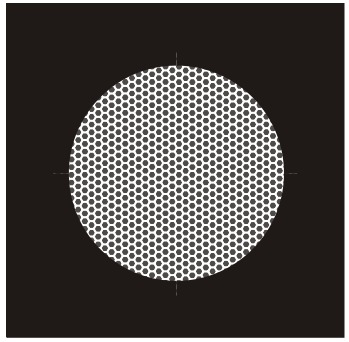

Figure 2-4. Fixed-Pattern Noise.

(5) Chicken Wire. An irregular pattern of dark thin lines in the field of view either throughout the image area or in parts of the image area (see Figure 2-6). Under the worst case condition, these lines will form hexagonal or square-wave shaped lines. **No action is required if this condition is present unless it interferes with viewing the image and interferes with the operator's ability to view the image or to perform the mission.**

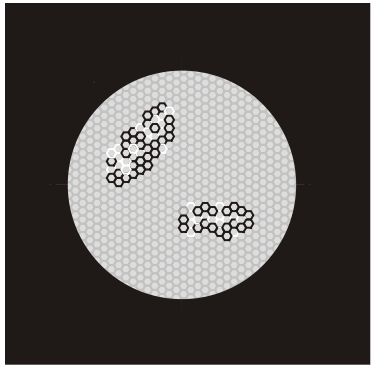

Figure 2-5. Chicken Wire.

SECTION III. OPERATION UNDER USUAL CONDITIONS

This chapter contains the information necessary to prepare the Monocular for operation. This includes unpacking (2.5.1), Battery installation (2.5.2), Eyecup or Eyeguard installation (2.5.3), Demist Shield installation (2.5.4), Sacrificial Window installation (2.5.5), Headmount installation and adjustment (2.5.6), Headmount/Helmet Mount Adapter installation (2.5.7), Helmet Mount Installation (2.5.8), Weapon Mount Installation (2.5.9), and 3X or 5X Magnifier Lens Assembly Installation (2.5.10).

2.5 ASSEMBLY AND PREPARATION FOR USE

2.5.1 Unpacking. The following steps must be accomplished prior to each mission where the NVMD is used.

1. Open Carrying Case (Figure 1-1), remove Monocular, and check contents for completeness.
2. Inspect the Monocular for obvious evidence of damage to optical surfaces, Body, Eyecup, Switch, Battery Cartridge, etc.
3. Ensure that all optical surfaces are clean and ready for use. Clean with Lens Paper.

2.5.2 Installation Of Batteries. The Monocular operates with one “AA” battery. A set of batteries are supplied with the NVMD; additional batteries must be obtained separately.

CAUTION

To protect the Image Intensifier, keep the Lens Cap on the Objective when the Monocular is not in use or when checked out in daylight conditions.

Table 2-3. Estimated Battery Life.

BATTERY TYPE	TEMPERATURE	NEGLIGIBLE IR USAGE	IR SOURCE USAGE 10% OF THE TIME
“AA” Alkaline	21°C(70°F)	60 Hrs	55 Hrs
“AA” Lithium L91	21°(70°F)	70 Hrs	65 Hrs
“AA” Alkaline	-20°C(-4°F)	12 Hrs	10 Hrs
“AA” Lithium L91	-20°(-4°F)	60Hrs	55 Hrs

NOTE

At operating temperatures below –20C (-4F), Alkaline batteries are not recommended, as operating life will be severely reduced. Lithium-iron disulfide 1.5V AA batteries or equivalent should be used below –20C (-4F).

CAUTION

- **Make certain the Switch is in the OFF position before installing the battery.**

1. Open Battery Compartment by turning battery cap counter-clockwise.
2. Observe polarity, as indicated on the inside Battery Compartment, and insert battery into Battery Compartment.
3. Close Battery Compartment by turning battery cap clockwise/. Hand-tighten only, do use use any tool(s) to tighten as this may damage battery compartment.

2.5.3 Installation of Eyecup or Eyeguard.

Perform the following procedure to install Eyecup or Eyeguard onto the Monocular.

1. Carefully press the Eyecup or Eyeguard over the end of the Eyepiece Lens.
2. Rotate the Eyecup or Eyeguard into proper viewing position. Adjust for best fit. The Eyecup must seal around your eye and prevent the green glow from escaping.

2.5.4 Installation of Demist Shield. Perform the following procedures to install the Demist Shield on the Eyepiece Lens.

CAUTION

If the Demist Shield needs to be cleaned, refer to paragraph 3-2 for cleaning. If the Demist Shield is wiped while wet or with wet Lens Paper, you will damage the coating.

NOTE

If inclement operating conditions are expected to exist (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 Eyecup.
2. Carefully press a Demist Shield onto the eyepiece. Be careful not to smudge the eyepiece or Demist Shield.

3. Replace the Eyecup (see paragraph 2.5.3).

2.5.5 Installation of Sacrificial Window.
Perform the following procedures to install the Sacrificial Window.

CAUTION

If adverse operating conditions (dust or sand) are expected to exist, attach the Sacrificial Window to protect the Objective Lens from scratches or other damage.

1. If the Objective Lens Cap is in place, remove it.
2. Carefully push the Sacrificial Window onto the Objective Lens until it stops. Turn the Sacrificial Window clockwise until it snaps into place.

2.5.6 Installation and Adjustment of Headmount. Perform the following procedures for donning the Headmount. Refer to Figure 2-8.

NOTE

Do not don the Headmount while the Monocular is attached to it.

1. Prior to donning the Headmount, loosen the four ends of the Chinstraps approximately two inches from the Sliding Bar Buckles.
2. Snap the front and rear snaps in place.

NOTE

If the Headmount is too loose, remove the attached thin Browpad and replace with either the medium or thick Browpad stored in the Carrying Case. Refer to paragraph 3-3a for removal and replacement of the Browpads.

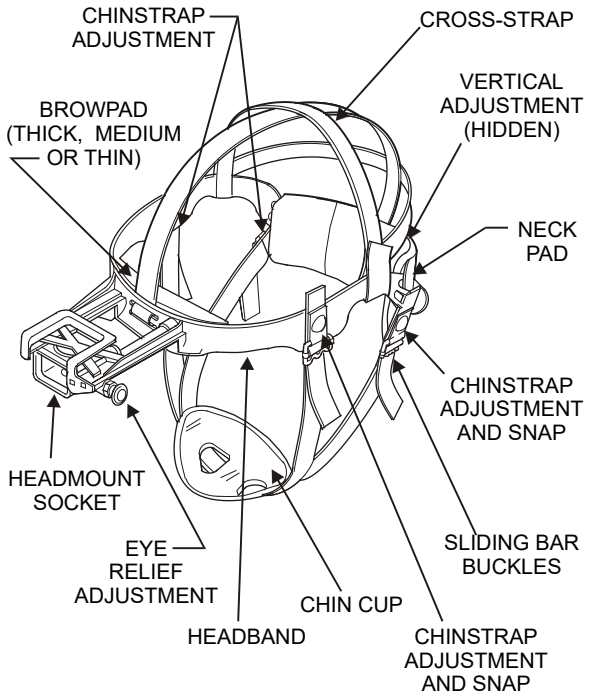

Figure 2-5. NVMD Headmount Adjustments.

3. With both hands grasp the neck pad 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 sides of the chinstrap until you feel light pressure against your chin. (DO NOT TIGHTEN.)
5. Maintain the position of the chin cup and remove any slack from the chinstraps. (DO NOT TIGHTEN.)
6. Ensure that the cross-strap is not twisted and remove slack by adjusting the vertical adjustment at the neck pad.
7. Adjust chinstrap and vertical adjustment until the chin cup and headband are in a comfortable but firm position.

NOTE

After installing the Monocular, minor strap adjustments may be necessary to achieve comfort.

8. Install the Headmount/Helmet Mount Adapter (refer to paragraph 2-12).
9. Refer to paragraph 2-19 for operating procedures.

2.5.7 <u>Installation of Headmount/Helmet Mount Adapter</u>. Install the Headmount/Helmet Mount Adapter (Figure 1-1) into the Monocular by aligning thumbscrew to hole and tightening as shown in Figure 2-9. There is an alignment boss on the Headmount/Helmet Mount Adapter that fits into a groove on the Monocular. Make sure the boss on the Adapter fits into the groove on the Monocular.

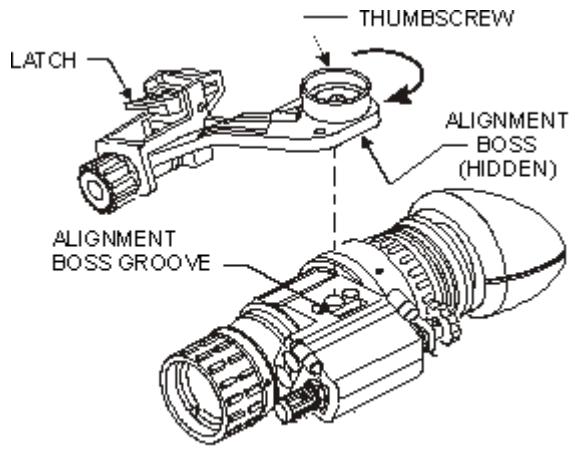

Figure 2-6. Headmount/Helmet Mount Adapter Installation.

2.5.8 Installation of Optional Helmet Mount Assembly. Perform the following procedures to attach the Helmet Mount to helmet.

1. Remove the Helmet Mount Assembly from the Carrying Case. Make sure Helmet Mount is complete. Refer to Figure 2-10 for the Helmet Mount components and features.

CAUTION

To prevent possible equipment damage, remove both the NVMD and the mount assembly from the helmet when not required for immediate use. The Clip/Strap Assembly can remain in place on the helmet.

2. If the mount assembly and Clip/Strap Assembly are connected, remove the mount assembly. To do this, push the release lever at the top center of the mount and slide the two assemblies apart.
3. Adjust the Clip/Strap Assembly to fit the helmet size being used.

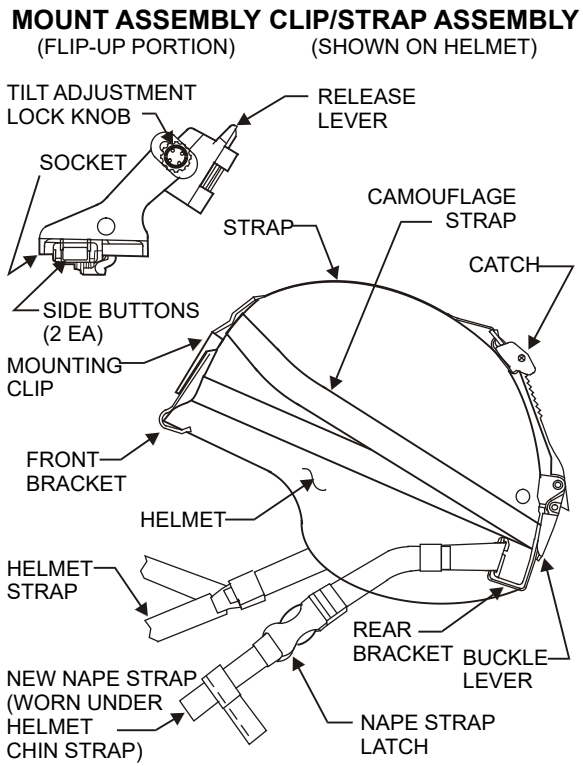

Figure 2-7. Helmet Mount Features.

4. With the catch in the most extended position, place the strap over the top of the helmet, center and hook the rear bracket onto the rear of the helmet. Center the front bracket hook on the front of the helmet and hold it in place (see Figure 2-11).
5. With the buckle lever open, take up the slack in the Clip/Strap Assembly using the catch. Close the buckle lever (see Figure 2-11.
6. If the PASGT helmet has its cloth cover and camouflage strap installed, it will be necessary to slide the camouflage strap up (at about 30° – 45° angle) at the front of the helmet (see Figure 2-11).
7. Disengage the nape strap latch on the left side of the nape strap.
8. Don the helmet. Do not fasten the helmet chin strap.
9. Engage the nape strap at the nape strap latch. Tension the nape strap for a stable fit, then install and tension the helmet chin strap. The brow of the helmet should be parallel to the ground and the helmet stable on the head.

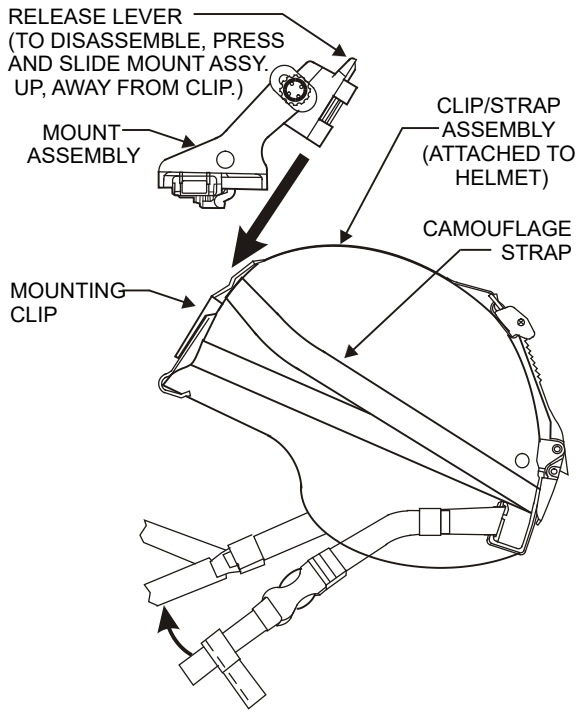

Figure 2-8. Attaching the Mount Assembly to the Clip/Strap Assembly.

10. To install the mount assembly in the Clip/Strap Assembly, place it over the top of the mounting clip and slide it down until it locks into place with a click (see Figure 2-11).

2.5.9 Installation of Weapon Mount. Perform the following procedure to install the weapon mount.

CAUTION

The NVMD is not a weapon sight, however, it can be used in conjunction with a collimated dot sight or laser aiming device.

NOTE

It is recommended that the eyecup be replaced with the eyeguard during weapon mounted use.

1. Orient the Monocular and Weapon Mount as shown in Figure 2-12. Be sure to align the alignment boss on the Weapon Mount with the alignment groove in the Monocular.
2. Screw in the thumbscrew to secure the Monocular to the Weapon Mount.

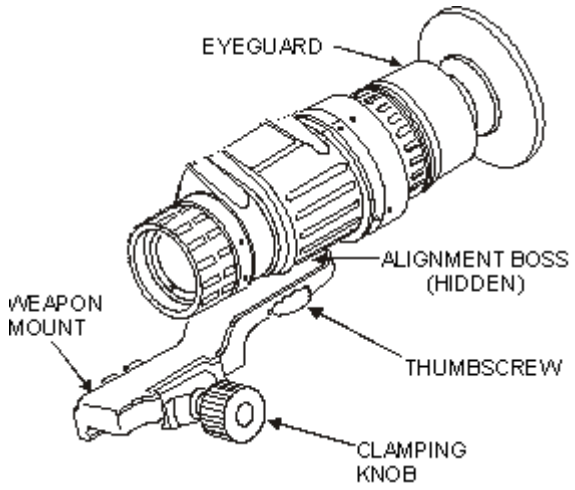

Figure 2-9. Weapon Mount.

3. Loosen the clamping knob on the Weapon Mount. Position the Weapon Mount with the Monocular onto the weapon's mounting rail. Tighten by turning the clamping knob.

   NOTE

   There is a ratchet in the Weapon Mount that prevents overtightening of the clamp. Turn until the knob clicks.

4. Check the position of the Monocular by holding the weapon in your normal firing position. Adjust the fore/aft position of the Monocular as necessary by loosening the clamping knob and repositioning the Weapon Mount on the weapon's mounting rail.

2.5.10 Installation of Optional 3X or 5X Magnifier. The 3X or 5X magnifier can be threaded directly into the 1X objective lens. They can also be threaded into the focus ring adapter and slipped on over the end of the objective lens.

Figure 2-13 illustrates these installation procedures.

2.6 OPERATING PROCEDURES

Operating procedures for using the NVMD as hand-held or head mounted Monocular are contained in the following paragraphs. Prior to operating the Monocular, make certain that all the steps in paragraph 2.5, ASSEMBLY AND PREPARATION FOR USE, have been read and performed.

2.6.1 Hand-Held Operation.

CAUTION

Operate the Monocular only under darkened conditions or use the Lens Cap to cover the Objective Lens for daylight conditions.

NOTE

When using the Monocular without a mounting device, make sure to place the Neck Cord around your neck.

1. Ensure that the battery is installed per paragraph 2.5.2.
2. Turn the switch to **ON**.

NOTE

The sharpest image will be observed only when the Objective Lens and Eyepiece Lens are properly focused.

3. Rotate the diopter adjustment for the clearest view of the Image Intensifier screen.
4. Focus the Objective Lens while observing an object until the sharpest image is obtained.

2.6.2 Headmounted Operation. Perform the following procedures for head mounted operation.

CAUTION

Operate the Monocular only under darkened conditions or use the Lens Cap to cover the Objective Lens for daylight conditions.

1. Ensure that the battery is installed per paragraph 2.5.2.
2. Install the Headmount/Helmet Mount Adapter per paragraph 2.5.7.

3. Don the Headmount per instructions in paragraph 2.5.6.

NOTE

To make it easier to align the Monocular, Eyecup, and Eyepiece Lens to the eye, depress the eye relief adjustment and slide the Headmount socket all the way forward before attaching the Monocular.

4. Align the Headmount/Helmet Mount Adapter's latch to the Headmount socket (Figure 2-14). Press and hold down the latch lever while installing the Monocular into the Headmount socket. Release the latch when the Monocular fully engages the socket.

5. Set your eye relief by depressing the eye relief adjustment (Figure 2-14) and move the Monocular back toward your non-dominate eye until the Eyecup comfortably seals around the eye.

6. Turn the Monocular **ON**.

7. Readjust the vertical adjustment of the Headmount until the Monocular is properly aligned with your eye.

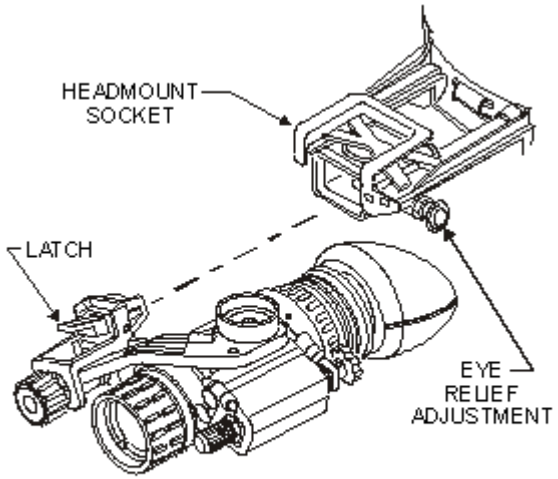

Figure 2-10. Headmount/Helmet Mount Adapter Operation.

NOTE

The sharpest image will be observed only when the Objective Lens and Eyepiece Lens are properly focused.

8. Rotate the diopter adjustment (Figure 2-1) for the clearest view of the Image Intensifier screen.

NOTE

Any readjustment of eye relief requires readjustment of the diopter.

9. Adjust the eye relief distance by pressing the eye relief adjustment and sliding Monocular fore or aft to obtain a full field-of-view of the image. Reset the diopter adjustment for best image.

10. Adjust the Objective Focus (Figure 2-1) while observing an object until the sharpest image is obtained.

2.6.3 Weapon Mounted Operations.

NOTE

The NVMD can be used in conjunction with a collimated dot aiming device mounted on the forward mounting rail. The brightness control for the aiming device should be set at or near it's minimum setting.

Perform the following procedures for weapon mounted operation:

1. Ensure that the batteries are installed per paragraph 2.5.2.
2. Assemble the weapon mount to the monocular per paragraph 2.5.9, steps 1 and 2.
3. Mount the monocular with adapter onto the M16/M4 receiver rail per paragraph 2.5.9, steps 3 and 4.
4. Rotate the diopter adjustment for the clearest view of the image intensifier screen.
5. Adjust the objective lens focus (Figure 2-1) while observing an object until the sharpest image is obtained.

2.6.4 IR Source Operations.

WARNING

The IR Source is a light that is invisible to the unaided eye for use during conditions of extreme darkness. However, the enemy using night vision devices can detect the light from the source.

NOTE

The purpose of the IR Source is for viewing at close distances up to 3 meters when additional illumination is needed.

1. Pull the power switch (Figure 2-1) knob out and rotate clockwise to the IR position. With the Monocular held to the eye, observe that a red light appears in the eyepiece. This indicates that the IR Source is operating.
2. For momentary IR, turn the Power Switch clockwise (without pulling) past the **ON** position. Observe that a red light appears in the eyepiece.

2.6.5 Operation With Gain Control. Turn the variable Gain Control (Figure 2-1) to balance the illumination input to the eye.

2.6.6 Preparation For Storage.

2.6.6.1 Shutdown. Perform the following procedures to shut down the Monocular.

1. Turn the Monocular switch to the **OFF** position.
2. Remove the Monocular from the Headmount/Helmet Mount and remove the mount adapter from the Monocular.

2.6.6.2 Packaging After Use.

WARNING

Do not carry batteries in pockets containing metal objects such as coins, keys, etc. Metal objects can cause the batteries to short circuit and become very hot.

1. Remove Battery Cap and remove battery.
2. Inspect the battery housing for corrosion or moisture. Clean and dry if necessary.
3. Replace the Battery Cap.
4. Remove the Demist Shield and/or Sacrificial Window if installed. Install Objective Lens Cap.

   NOTE

   Prior to placing Monocular into Carrying Case, ensure NVMD and case are free of dirt, dust, and moisture.
5. Store the Monocular and it's accessories in Carrying Case as shown in Figure 2-15.
6. Return to storage area.

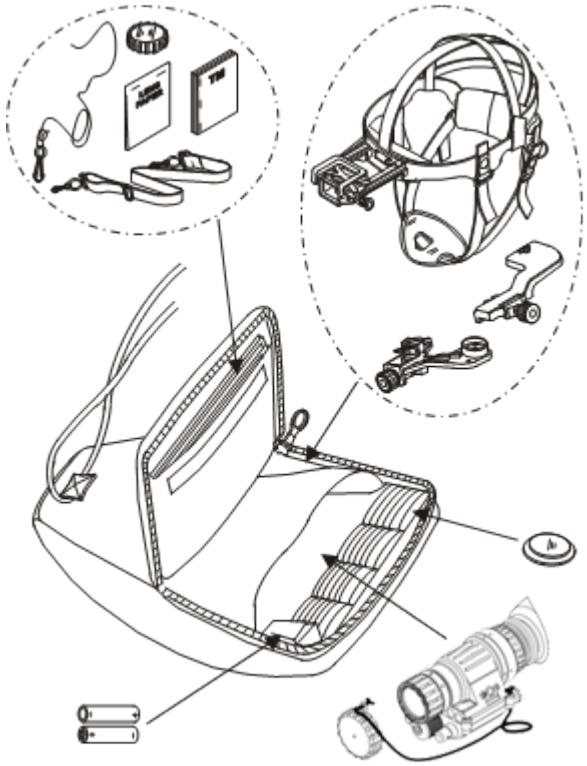

Figure 2-11. Storing Monocular and Accessories in Carrying Case.

SECTION IV. OPERATION UNDER UNUSUAL CONDITIONS.

2.7 OPERATION UNDER UNUSUAL CONDITIONS.

2.7.1 Extreme Weather Conditions. When using the NVMD in extreme cold, dusty and sandy areas, rainy or humid conditions, salt water areas, or extreme heat, follow these precautions:

2.7.1.1 Extreme Cold. At operating temperature below –20C (-4F), Alkaline batteries are not recommended, as operating life will be severely reduced. Lithium-iron disulfide 1.5V AA batteries or equivalent should be used below –20C (-4F). Lenses may fog over or frost up during cold, rainy and/or snowy weather. Under those conditions, remove Lens Cap and clean Objective Lens and Eyepiece Lens. Replace Objective Lens Cap.

2.7.1.2 Dusty or Sandy Areas. Avoid operation of NVMD under these conditions if possible. If operation is necessary, observe the following precautions:

CAUTION

Operation in dusty or sandy areas can pit and scratch the optical elements and damage the mechanical components unless the precautions given here are observed.

(1) Ensure that the Sacrificial Window is in place over the Objective Lens (paragraph 2.5.5).

(2) Avoid pointing the Monocular into the wind unless necessary for operation.

(3) Keep the Carrying Case closed unless removing or replacing items.

(4) Ensure that all dust and sand is removed from the NVMD and Carrying Case after operation.

2.7.1.3 Rainy or Humid Conditions. In rainy or humid conditions observe the following precautions:

CAUTION

Operation in rainy or humid conditions can cause corrosion and deterioration of the NVMD unless the precautions given here are observed.

(1) Install the Demist Shield per paragraph 2.5.4.

(2) Keep the Carrying Case closed unless removing or replacing items.

(3) Dry the Monocular and accessories after exposure to rain or high humidity and before storage. This will prevent mildew from forming in the case.

(4) Do NOT store Monocular in a wet Carrying Case.

2.7.1.4 Salt Water Areas. In salt water areas, observe the following precautions:

(1) Clean per paragraph 3.5.

(2) Dry all parts thoroughly after removing all traces of salt water.

2.7.2 Operation in Nuclear, Biological and Chemical (NBC) Environments. In NBC environment areas, observe the following precautions:

WARNING

Do not use contaminated Eyecup. It must be replaced.

(1) Decontamination - Wear a protective mask while using Monocular after decontamination process.

CAUTION

Do not use DS-2 for decontaminating the NVMD.

(2) Hardness - To decontaminate, use 5% sodium hypochlorite (Chlorine Bleach) and rinse with hot (158°F) soapy water.

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CHAPTER 3
MAINTENANCE INSTRUCTIONS

WARNING

Do not disassemble the NVMD, or personal injury and equipment damage may result.

3.1 SCOPE.

This chapter contains the lubrication instructions, troubleshooting procedures, and maintenance procedures the operator will use for maintaining the NVMD.

SECTION I. LUBRICATION INSTRUCTIONS

3.2 LUBRICATION INSTRUCTIONS.

No lubrication is required.

SECTION II. TROUBLESHOOTING PROCEDURES

3.3 SCOPE.

This section contains troubleshooting information for locating and correcting most of the operating troubles that may develop in the NVMD. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections that will help determine probable causes and corrective actions to take. Perform the tests/inspections and corrective actions in the order listed.

NOTE

This manual cannot list all possible malfunctions that may occur, or all tests, inspections, and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious), or is not corrected by listed corrective actions, contact seller per paragraph 1.2.

3.4 TROUBLESHOOTING PROCEDURES.

Troubleshooting procedures are listed in Table 3-1.

Table 3-1. Troubleshooting Procedures.

Malfunction	Test or Inspection	Corrective Action
1. Monocular fails to activate.	Visual	Turn power switch to **RESET/OFF** position and then **ON**.
	Check for defective, missing or improperly installed batteries.	Replace batteries or install correctly.
2. IR Source fails to activate.	In a dark location with system turned on, activate IR Source. Visually check IR Source operation; scene should brighten.	If IR Source still fails to activate, return to seller for repairs.
3. IR Source indicator fails to activate.	Visual.	Return to seller for repairs.

Table 3-1. Troubleshooting Procedures – Cont'd.

Malfunction	Test or Inspection	Corrective Action
4. Poor image quality.	Check Objective Lens or Eyepiece Lens focus.	Refocus
	Check for fogging or dirt on Objective Lens or Eyepiece Lens.	Clean lens surfaces per paragraph 3.2.
5. Light visible around Eyecup.	Check eye relief distance.	Readjust for proper eye relief distance.
	Check Eyecup for resiliency.	Replace Eyecup if defective.
6. Diopter adjustment cannot be made.	Check to see if the diopter adjustment is bent or broken.	If damaged, return to seller for repairs.
7. Battery Cartridge difficult to open.	Visually inspect for the presence of an o-ring.	If O-Ring is missing, return Battery Cartridge to seller for repairs.
	Check for damaged Battery Cartridge.	If damaged, return to seller for repairs.

Table 3-1. Troubleshooting Procedures – Cont'd.

Malfunction	Test or Inspection	Corrective Action
8. Head straps cannot be tightened.	Check for defective buckles, fasteners or straps.	If damaged, return to seller for repairs.
9. Headmount socket and Headmount/Helmet Mount Adapter latch does not catch.	Check socket or latch for dirt.	Clean socket and latch.
	Check socket or latch for damage.	If damaged, return Headmount and Headmount/Helmet Mount Adapter to seller for repairs.

Table 3-1. Troubleshooting Procedures – Cont'd.

Malfunction	Test or Inspection	Corrective Action
10. Monocular does not cut off when exposed to high light.	Visual. Perform the following test under daylight or bright room light (not fluorescent light). Place the Objective Lens Cap on the Objective Lens. Turn Monocular **ON** and observe that it cuts off with 70 ±30 seconds after energized. Turn Monocular **OFF** and then **ON** to reenergize Monocular.	If damaged, return to seller for repairs.

SECTION III. OPERATOR'S MAINTENANCE PROCEDURES

3.5 CLEANING THE NVMD.

CAUTION

- **The Monocular 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 Paper while wet or with wet Lens Paper can damage the coating.**

Clean Monocular with water if necessary and dry thoroughly. Clean lenses with Lens Paper (and water if necessary, except for Demist Shield).

3.6 HEADMOUNT MAINTENANCE.

3.6.1 Browpad Replacement. Replace the Browpads when cracked, torn, or contaminated. Perform the following procedure to remove and replace the Browpads.

1. Firmly grasp the Headmount and remove the old Browpad.
2. Gently press on the new Browpad. Lightly smooth out any wrinkles in the new Browpad.

3.6.2 Neckpad Reinstallation. During operation of the Monocular, it is possible for the Neckpad to become separated from its position on the headband. Perform the following procedure to reinstall the Neckpad.

1. Lift the upper headband strap retention tab (see Figure 3-1) allowing the Neckpad strap to be inserted underneath.
2. Slip the Neckpad strap all the way under the upper strap retention tab and then pull the lower part of the Neckpad strap under the lower strap retention tab.

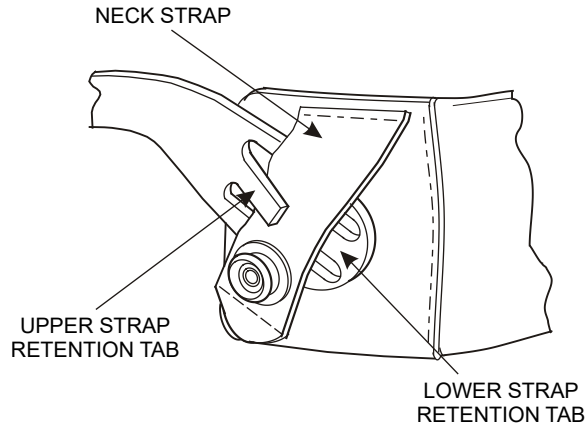

Figure 3-1. Reinstalling the Neck Pad.

3. Repeat steps 1 and 2 for the other side of the headband and neckband if necessary.

3.6.3 <u>Lacing the Sliding Bar Buckles</u>. While donning and adjusting the Headmount, it is possible for a strap to slip out of a Sliding Bar Buckles. Perform the following procedure to replace the strap and Sliding Bar Buckle.

1. Thread the strap from the inside of the buckle over the moveable sliding bar (see Figure 3-2). Thread the strap back through the buckle but this time under the sliding bar and over the serrated part of the buckle.

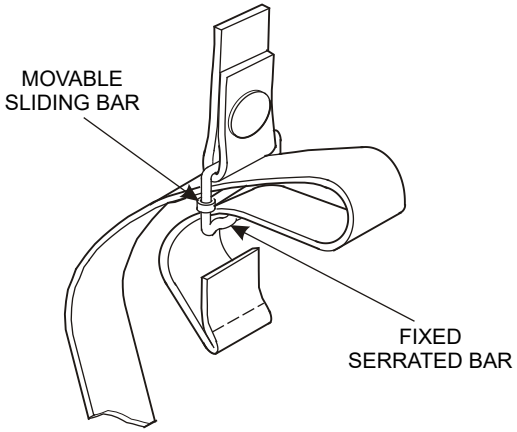

Figure 3-2. Threading the Sliding Bar Buckles.

2. Pull the strap through the buckle and tighten as necessary.
3. Repeat steps 1 and 2 for any other straps and buckles that may have come undone.

3.7 NECK AND CORD MAINTENANCE

The Neck Cord may be broken, frayed, or loose at one or both ends.

If loose, retie cord. If broken or severely frayed, install new cord as follows (see Figure 3-3):

1. Tie a knot in one end of the Neck Cord.
2. Insert end of Neck Cord without knot down through Monocular hole on right side and then up through the hole on the left side.
3. Thread Neck Cord through the Objective Lens Cap hole as shown.
4. Secure by tying a knot in end Neck Cord.

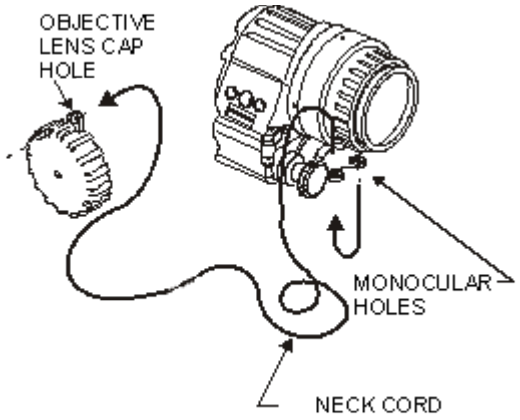

Figure 3-3. Neck Cord Replacement

APPENDIX A
COMPONENTS OF THE KIT

SECTION I. INTRODUCTION

A.1 SCOPE.

This Appendix contains the NVMD organizational level parts list. Only those parts and assemblies authorized for replacement is identified.

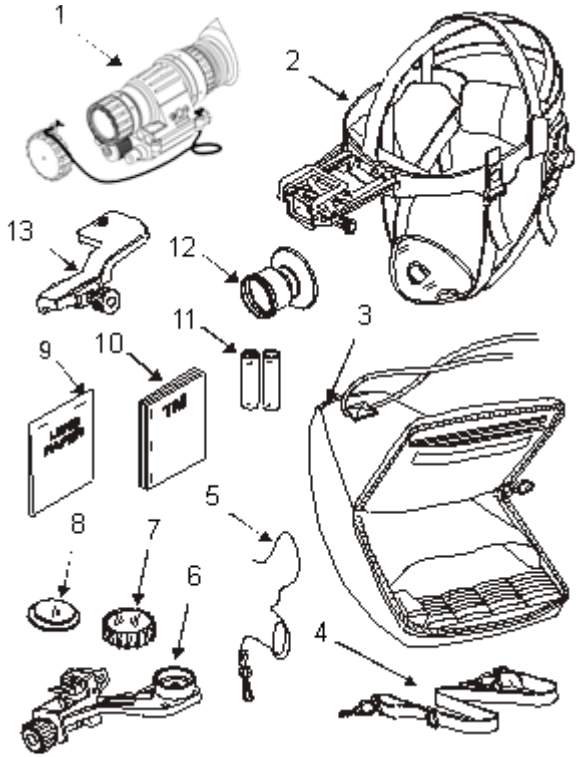

Figure A-1. PVS-14 Night Vision Monocular Device, (NVMD).

Table A-1. Parts List, Night Vision Monocular Device, (NVMD) NVMD System.

FIG 4-1 ITEM NO	CAGE CODE	PART NUMBER	DESCRIPTION	QTY
	5UQR0		Night Vision Monocular Device, (NVMD) NVMD	
1	5UQR0	100149-SNVG-14	Monocular Assembly [See Fig. 4-2 For Parts]	1
2	5UQR0	100112	Headmount Assembly [See Fig. 4-3 For Parts]	1
3	5UQR0	100115	Case, Carrying	1
4	5UQR0	100111	Strap, Shoulder Assembly	1
5	5UQR0	100113	Cord, Retainer	1
6	5UQR0	100475	Adapter, Headmount/Helmet Mount	1
7	5UQR0	100476	Window, Sacrificial	1
8	5UQR0	100477	Shield, Demist	1
9	5UQR0	100509	Paper, Lens	1 PKG
10	5UQR0	100297	Manual, Operator’s	1
11	5UQR0	100399	Battery, “AA” Alkaline, 1.5 Vdc	2
12	5UQR0	100478	Eyeguard	1
13	5UQR0	100479	Mount Assembly, Weapon	1

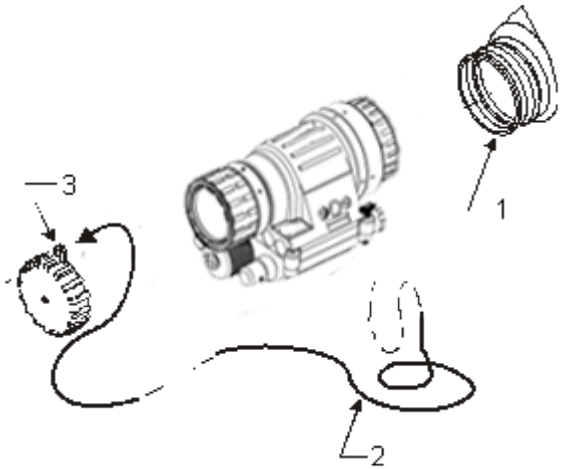

Figure A-2. Monocular Assembly.

Table A-2. Parts List, Monocular Assembly.

FIG 4-2 ITEM NO	CAGE CODE	PART NUMBER	DESCRIPTION	QTY
	5UQR0		Monocular Assembly	
1	5UQR0	100480	Eyecup	1
2	5UQR0	100481	Cord, Neck	1
3	5UQR0	100482	Cartridge, Battery	1
4	5UQR0	100483	Cap, Lens	1

APPENDIX B
OPTIONAL ITEMS

SECTION I. INTRODUCTION

B.1 SCOPE.

This appendix lists optional items that will be needed to operate and maintain the Night Vision Monocular Device (NVMD) Model NVMD. These items may not be provided as part of the NVMD system and are listed for information only. These items may be obtained from sources other than seller.

Table B-1. Optional Items List

ITEM NO.	CAGE CODE	PART NUMBER	DESCRIPTION	QTY
1	5UQR0	100484	Brush, Lens	1
2	5UQR0	100399	Battery, “AA” Alkaline, 1.5 Vdc	1
3	5UQR0	100485	Battery, “AA” Lithium, 1.5 Vdc	1
4	5UQR0	100486	Magnifier Lens Assembly, 3X	1
5	5UQR0	100487	Magnifier Lens Assembly, 5X	1
6	5UQR0	100488	Mount Assembly, Helmet	1
7	5UQR0	100489	Kit, Daylight Training Filter	1