AGM™
GLOBAL VISION



PVS-14L

LIGHTWEIGHT NIGHT VISION MONOCULAR

USER MANUAL

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AGM Global Vision, LLC

MAIN OFFICE

2407 E Interstate 30, Suite 100

Grand Prairie, TX 75050

Tel. 928.333.4300

support@agmglobalvision.com

www.agmglobalvision.com

EUROPEAN OFFICE

#6 Andrey Lyapchev Blvd
Sofia, P.C. 1756
Bulgaria
Tel. +35.988.560.0326
info@agmglobalvision.eu
www.agmglobalvision.eu

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SAFETY SUMMARY

- Read and follow all instructions
- Read all warnings
- Only use the attachments/accessories specified by the manufacturer
- All service must be provided by the manufacturer

WARNING:

This product contains natural rubber latex, which may cause potentially fatal allergic reactions! If you are allergic to latex, it is important that you strictly avoid exposure to products that contain it.

WARNINGS:

The intensifier's phosphor screen contains toxic materials.
Please note:

- If the intensifier tube breaks, be extremely careful to avoid inhaling the phosphor screen material. DO NOT allow the material to come in contact with your mouth, eyes, or any open wounds on the skin.
- If the phosphor screen material comes in contact with your skin, wash it off immediately with soap and water.
- If you inhale or swallow any phosphor screen material, drink a lot of water, induce vomiting, and seek medical attention as soon as possible.

WARNINGS:

- When used in total darkness, the light from the unit's infrared (IR) illuminator is invisible to the naked eye. **However, the light can be detected by other Night Vision Devices (NVD).**
- To reduce the risk of detection by another NVD, avoid prolonged use of the IR illuminator.
- Light from the IR illuminator is more easily detected by other NVDs when used in fog, smoke, and rain. Avoid prolonged use of the IR illuminator in these conditions.
- The monocular will not turn off automatically when flipped up. The monocular needs to be turned off with the power switch.
- The compass illuminator is visible to other people using night vision devices.
- Do not use contaminated eyecup or eye guard. If contaminated, they must be replaced.
- When installing the head mount over the protective mask, be careful not to break the seal of the protective mask around your face.

CAUTION:

- The PVS-14L is a precision optical instrument. To prevent damage to the unit, it should be handled carefully at all times.
- To protect the device from damage, do not direct it at bright light sources such as street lights, headlights, lanterns, fire, etc.
- Do not test the device in daylight for more than ten (10) minutes, even with the daylight filter/ lens cap on.
- To protect the image intensifier when using the device in daylight or when the device is not in use, keep the lens cap securely fitted over the objective lens.
- Use of rubber eyecup for extended periods of time may cause skin irritation or inflammation. If any symptoms develop, consult a doctor immediately.
- Do not scratch the external lens surfaces or touch them with your fingers.

NOTES:

To avoid physical danger to the user and damage to the equipment, you must read and understand the following equipment limitations.

- The built-in IR illuminator is meant to provide additional illumination when needed, while viewing scenes at close distances (up to 3 meters).
- To operate properly, the equipment requires some ambient light in the environment (moonlight, starlight, etc.).
- Performance of the device in night-time conditions is dependent on the level of ambient light in the environment. Please remember:
  - The level of ambient light in an area is reduced by the presence of clouds, shade, or objects that block natural light, such as trees, buildings, or large vehicles.
  - The equipment is less effective when operated in shadows and other conditions where there is very little to no ambient light.
  - The equipment is less effective when operated in smoke, dust, rain, fog, sleet, or snow.
  - The equipment cannot “see” through dense smoke.

1 GENERAL INFORMATION

1.1 SYSTEM DESCRIPTION

The PVS-14L is a handheld, head-mounted, helmet mounted, or weapon-mounted night vision system that enables the user to operate the device in moonlit or starlit conditions. The PVS-14L allows hands-free operation (if needed), including walking, use of weapons, short-range surveillance, map reading, vehicle maintenance, and the administration of first aid. Each unit includes both objective lens and eyepiece focus and can be adjusted either vertically and horizontally (using head or helmet mount). The monocular is also equipped with manual gain control, an IR source, and a low battery indicator. A bright light cutoff feature shuts off power to the device when they are exposed to excessive levels of light for more than 70 (±30) seconds.

1.2 OPERATION PRINCIPLES

1.2.1 MECHANICAL FUNCTIONS

The PVS-14L includes mechanical adjustments to accommodate physical differences between individual users. Functional features include the power switch, gain control, diopter adjustment, objective lens focus, release latch, eye relief adjustment. The mechanical controls are identified in Figure 1-1.

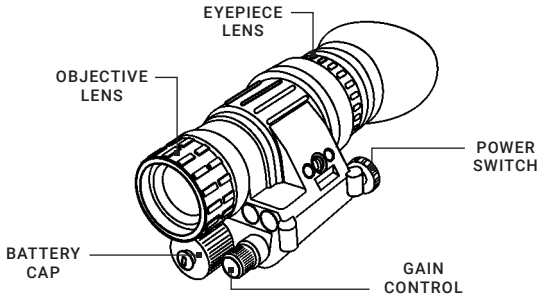


FIGURE 1-1. MECHANICAL FUNCTIONS FOR PVS-14L

1.2.2 OPTICAL FUNCTIONS

The optical functions include an objective lens, image intensifier, and eyepiece lens. The objective lens collects light reflected from the moon, stars, or other ambient light in the environment, and inverts and focuses an image of the scene onto the image intensifier. The image intensifier converts the captured light into a visible image, re-inverting it so that can be viewed though eyepiece lens.

1.2.3 ELECTRICAL FUNCTIONS

A. Power Source. The electronic circuit is powered by replaceable batteries; you have the option of using one AA 1.5 Volt Alkaline battery (BA-3O5S/U) or one 1.5 Volt Lithium battery (L91).

B. Power Switch. Power from the batteries is supplied to the components through the RESET/OFF-ON-IR/PULL switch as follows:

RESET/OFF Position. With the switch in the OFF position, the circuit will not supply energy to the image intensifier or the IR illuminator. You can also turn the switch to this position to reset your device after bright light cutoff.

ON Position. Energy is drawn from the battery compartment to power the device. When the voltage drops to 1.2 VDC, a low battery indicator will begin to blink in the eyepiece, indicating approximately 30 minutes of remaining power.

IR/PULL Position. Energy is drawn from the battery compartment to power the image intensifier and IR light source, and a steady red indicator light will appear in the eyepiece.

The IR can be activated momentarily by turning the switch to IR position without pulling the knob.

C. Bright Light Cutoff. The device 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 activate this function, unless the high light detector on the front of the device is pointed directly at the light source. To turn the device back on in the event that this function is triggered, flip the switch to RESET/OFF and then back to ON again.

1.3 STANDARD AND OPTIONAL EQUIPMENT

The PVS-14L night vision multi-purpose system includes the items shown in Figures 1-2 and 1-3. Major components include the monocular, head mount, and carrying case.

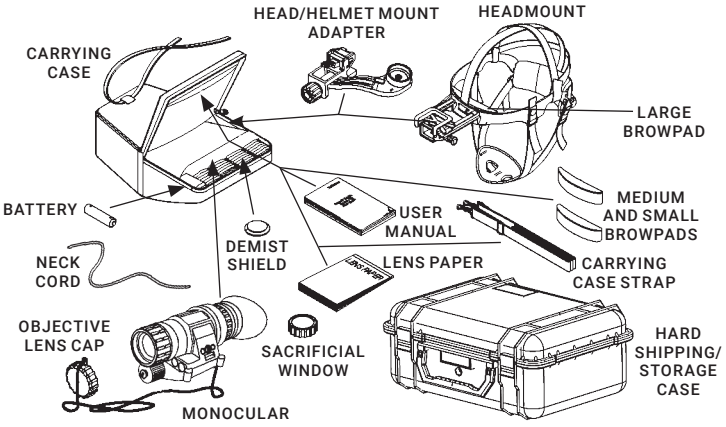


FIGURE 1-2. COMPONENTS OF PVS-14L

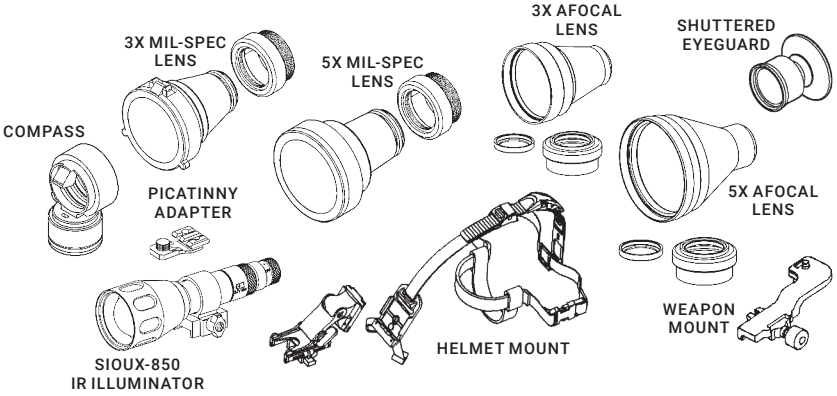


FIGURE 1-3. OPTIONAL EQUIPMENT

A. MONOCULAR

The monocular (see Figure 1-1) consists of various components: an objective lens, an image intensifier (not shown), an eyepiece lens, and a battery cap.

The monocular also uses the accessories listed below:

B. DEMIST SHIELD

The demist shield can be used to prevent the eyepiece lenses from becoming fogged.

C. SACRIFICIAL WINDOW

A replaceable sacrificial window is provided and can be used to protect the objective lens during operation in adverse conditions.

D. HEAD MOUNT (may be optional, depends on the region of sale)

The head mount secures the monocular to the operator's head, providing freehand support for use with a weapon, protective mask, or other purposes in which freehand operation is needed. It is adjustable and cushioned for maximum comfort. The Large (thin) brow pad comes attached to the head mount and should be used by physically larger individuals; the Small (thick) and Medium brow pads are stored in the carrying case and may be more appropriate for users who are of small or average build.

E. HEAD MOUNT/HELMET MOUNT ADAPTER

The head mount/helmet mount adapter is attached to the monocular. It allows the user to mount the device in front of either eye.

F. CARRYING CASE

The provided textile carrying case can be used to protect or transport the monocular, head mount, battery, and accessories. It comes with two slide keepers that can be attached to a belt, as well as three D-rings that can be used to strap the device to your leg or shoulder. The carrying case is also equipped with a strap that can be attached to the two D-rings on the back of the carrying case.

G. HARD SHIPPING/STORAGE CASE

A protective case used for the shipping/storage of the PVS-14L and its accessories.

H. PASGT HELMET MOUNT (P/N: 6103PHM1)

The PASGT helmet mount secures the monocular to the Personal Armor System Ground Troops (PASGT) helmet, allowing freehand support for use with a weapon, protective mask, or other purposes in which freehand operation is necessary.

I. MICH HELMET MOUNT (P/N: 6103MHM1)

The MICH helmet mount secures the monocular to the MICH helmet, allowing freehand support for use with a weapon, protective mask, or other purposes in which freehand operation is required.

J. WEAPON MOUNT (NSN: 5340-01-446-8588)

The weapon mount adapts the monocular to the receiver rail (as configured for the modular weapon system kit).

K. COMPASS (NSN: 5855-01-381-6052)

The compass allows the operator to see azimuth readings in the monocular.

L. SHUTTERED EYEGUARD (NSN: 6650-01-444-1229)

Prevents light from being emitted by eyepiece. If the user's face is illuminated, they become visible to others in the field, and their position becomes compromised.

M. 3x AFOCAL MAGNIFIER LENS ASSEMBLY (P/N: 61023XA1)

The 3x magnifier lens assembly can be added to the monocular to extend the operator's range of observation.

N. 5x AFOCAL MAGNIFIER LENS ASSEMBLY (P/N: 1023XA1)

The 5x magnifier lens assembly can be added to the monocular to extend the operator's range of observation.

O. 3x AFOCAL MIL-SPEC LENS (NSN: 5855-01-423-0817)

The 3x magnifier lens assembly can be attached to the monocular to extend the operator's range of observation.

P. 5x AFOCAL MIL-SPEC LENS (NSN: 5855-01-511-8594)

The 5x magnifier lens assembly can be attached to the monocular to extend the operator's range of observation.

Q. SIOUX-850 LONG-RANGE INFRARED ILLUMINATOR (P/N: 501SIOUX850IR1)

A detachable LED extra long-range infrared illuminator with a wide-angle adjustable beam. Comes fully assembled with a dedicated mount in order to be installed on a Picatinny/Weaver rail. The Picatinny/Weaver Adapter, Rechargeable Battery, and Charger are included.

2 OPERATING INSTRUCTIONS

2.1 CONTROLS AND INDICATORS

NOTE:

The PVS-14L is a precision electro-optical instrument and must be handled carefully at all times to prevent injury to the user or damage to the device. If the equipment fails to operate, refer to the Troubleshooting Procedures in Chapter 4.

The PVS-14L can be adjusted to accommodate most differences in physical size and eyesight. The controls and indicators for the PVS-14L are shown in Figure 2-1 and described in Table 2-1.

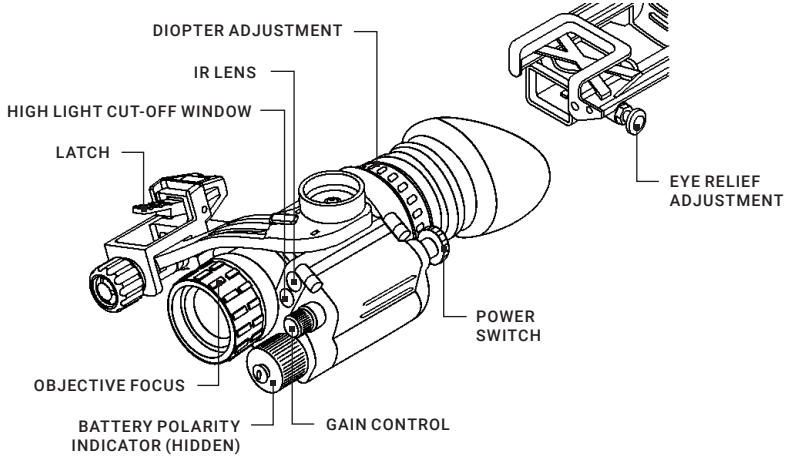


FIGURE 2-1. MONOCULAR CONTROLS AND INDICATORS

TABLE 2-1. CONTROLS AND INDICATORS

CONTROLS AND INDICATORS	FUNCTIONS	
Power Switch	Controls the monocular and IR source, ON or OFF.	
	RESET/OFF	Same as system OFF. Also resets monocular after high light cut-off.
	ON	Monocular is activated.
	IR/PULL	Turn the knob clockwise to briefly activate the IR source. For continuous operation of the IR, pull and turn the knob clockwise from the ON position.
CAUTION: **Do not use excessive force when operating the power switch.**		
Low Battery Indicator	The low battery indicator will blink on and off when there are fewer than 30 minutes of battery life remaining. It is visible through the eyepiece, just outside of the intensified field of view.	
IR Source On Indicator	The IR Source On indicator will blink when the IR is activated. It is visible through the eyepiece just outside of 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 the objective lens and adjusts for the sharpest image of the viewed object or environment.	
Diopter Adjustment	Focuses the eyepiece lens for use without glasses. Adjusts for the sharpest image of the intensifier screen.	
Eye Relief Adjustment	Adjusts the distance between your eye and the monocular.	
Latch	The latch is used to separate the monocular from the head mount/ helmet mount adapter.	
Battery Polarity Indicators	This feature is engraved into the battery housing and shows the proper orientation of the battery. Some versions have a bubble molded into the top of the battery house that indicates polarity.	

NOTE:

Both the low battery and IR active Indicators are visible in the eyepiece lens.

2.2 ASSEMBLY AND PREPARATION FOR USE

2.2.1 UNPACKING

The following steps must be taken prior to each use of the PVS-14L.

1. Open the carrying case, remove the PVS-14L, and inventory all items.
2. Inspect the monocular for obvious evidence of damage to optical surfaces, body, eyecup, eye guard, power switch, battery cap, etc. Verify that all optical surfaces are clean and ready for use. If necessary, clean with dry lens paper (wet or damp lens paper can damage the optics).

2.2.2 BATTERY INSTALLATION

CAUTION:

To protect the image intensifier when the monocular is in standby mode, off, or being operated in daylight, always keep the objective lens cap securely fitted over the lens.

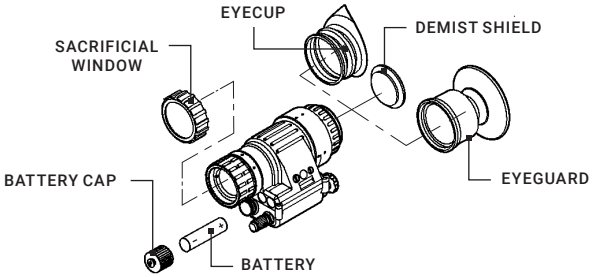


FIGURE 2-2. BATTERY, EYECUP AND EYEGUARD INSTALLATION

The PVS-14L operates with one AA battery. The battery is **not** supplied with the PVS-14L and must be purchased separately by the user.

At operating temperatures below -20°C (-4°F), AGM does not recommend the use of Alkaline batteries, as the battery life will be severely reduced. Lithium-iron disulfide L91 1.5V AA batteries should be used in conditions below -20°C (-4°F).

TABLE 2-2. ESTIMATED BATTERY LIFE

BATTERY TYPE	TEMPERATURE	NEGLIGIBLE IR USAGE	IR USAGE 10% OF THE TIME
AA Alkaline	21°C (70°F)	40 hrs.	35 hrs.
AA Lithium L91	21°C (70°F)	45 hrs.	40 hrs.
AA Alkaline	-20°C (-4°F)	10 hrs.	9 hrs.
AA Lithium L91	-20°C (-4°F)	40 hrs.	35 hrs.

CAUTION:

Before installing a battery, verify that the device is OFF.

To install the battery into the PVS-14L

1. Unscrew the battery cap.
2. Align the polarity markings on the battery with those etched onto the battery compartment.
3. Replace the battery cap and tighten it.

2.2.3 INSTALLATION OF THE EYECUPS

To install the eyecups (Figure 2-2):

1. Carefully press the eyecup or eye guard over the end of the eyepiece lens.
2. Rotate the eyecup or eye guard into the proper viewing position. Adjust for the best fit. The eyecup must seal around your eye, preventing the green light from escaping.

2.2.4 INSTALLATION OF THE DEMIST SHIELDS

To install the demist shield on the eyepiece lens (Figure 2-2):

CAUTION:

If the demist shield needs to be cleaned, refer to Paragraph 3.1.1 for instructions. Do not attempt to clean the demist shield while it is wet, or with wet lens paper. Doing so will damage the coating.

NOTE:

If inclement conditions are expected (e.g. significant temperature changes, high humidity, etc.), install the demist shield prior to the mission in order to reduce lens fogging.

1. Carefully remove the eye cup or eye guard.
2. Press the demist shield onto the eyepiece. Be careful not to smudge the eyepiece lens or demist shield with your fingers or hands.
3. Replace the eyecup or eye guard (see Paragraph 2.2.3).

2.2.5 INSTALLATION OF THE SACRIFICIAL WINDOW

To install the sacrificial window (Figure 2-2):

CAUTION:

If adverse operating conditions (e.g., large amounts of dust or sand) are expected, attach the sacrificial window prior to the mission to protect the objective lens from damage.

1. If the objective lens cap is in place, remove it.
2. Gently push the sacrificial window onto the objective lens until it stops. Turn the sacrificial window clockwise until it snaps into place.

2.2.6 INSTALLATION AND ADJUSTMENT OF THE HEAD MOUNT

To install the head mount:

NOTE:

Do not put the head mount on with the monocular attached.

1. Before putting the head mount on, loosen the four ends of the chin strap (approximately two inches from the sliding bar buckles; see Figure 2-3).

NOTE:

If the head mount is too loose, remove the attached thin brow pad (Figure 2-3) and replace it with either the medium or thick brow pad (these are stored in the carrying case). Refer to Paragraph 3.1.2 for removal and replacement of the brow pads.

2. Snap the front and rear clasps into place (Figure 2-3).
3. Using both hands, grab the neck pad (Figure 2-3) and pull the harness over your head, sliding the neck pad down over the back of your neck.
4. Holding the chin cup in place, adjust both sides of the chinstrap until you feel it press lightly against your chin. DO NOT TIGHTEN.
5. Maintain the position of the chin cup and remove any slack from the chinstrap. DO NOT TIGHTEN.
6. Ensure that the cross-strap is not twisted. Remove any slack by adjusting the vertical adjustment of the neck pad.
7. Adjust the chinstrap and vertical adjustment until the chin cup and headband are in a comfortable but secure position.

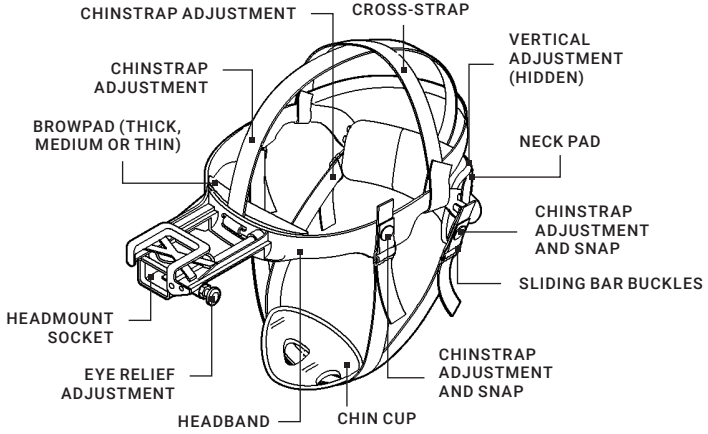


FIGURE 2-3. PVS-14L HEADMOUNT ADJUSTMENTS

NOTE:

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

8. Install the head mount/helmet mount adapter (refer to Paragraph 2.2.7).

9. Refer to Paragraph 2.3.2 for operating procedures.

2.2.7 INSTALLATION OF THE HEAD MOUNT/HELMET MOUNT ADAPTER

To install the head mount/helmet mount adapter (Figure 1-2) on the monocular, align the thumbscrew to the hole and tighten it (Figure 2-4). An alignment boss on the head mount/helmet mount adapter should fit into the groove on the monocular. Confirm that the boss on the adapter fits into the groove.

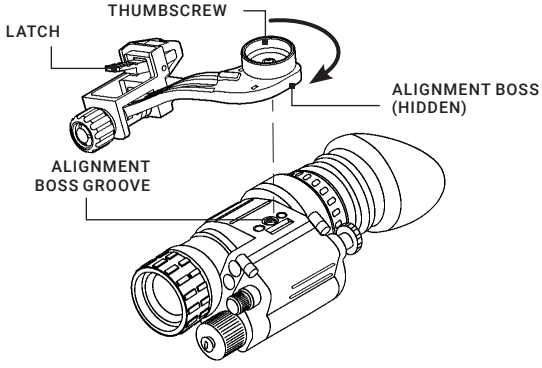


FIGURE 2-4. HEADMOUNT/HELMET MOUNT ADAPTER INSTALLATION

2.2.8 INSTALLATION OF THE HELMET MOUNT TO A HELMET

1. Remove the helmet mount from the carrying case. Refer to Figure 2-5 for helmet mount features.

2. Press the release (Figure 2-6) to remove the mount from the helmet mount bracket.

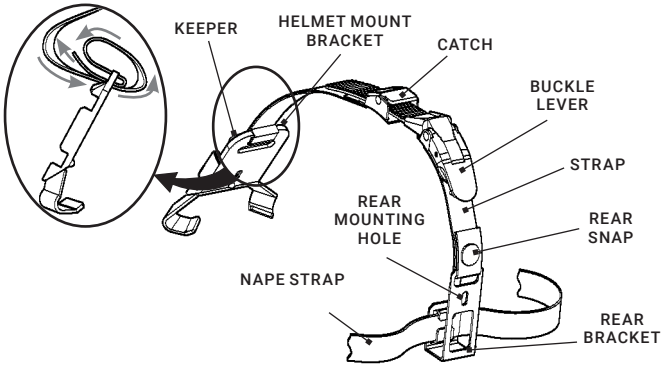


FIGURE 2-5. INSTALLATION OF HELMET MOUNT

3. Verify that the strap is laced onto the helmet mount bracket (Figure 2-5).
4. With the catch pushed forward (Figure 2-5), place the strap over the top of the helmet center (Figure 2-6).
5. Hook the rear bracket (Figure 2-5) on the center of the back of the helmet. Lay the strap, now hooked to the helmet mount bracket, over the top of the helmet.

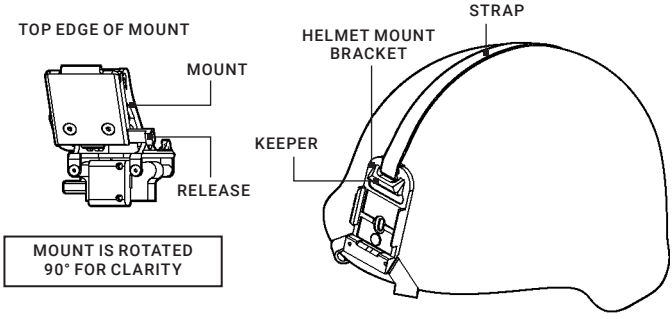


FIGURE 2-6. HELMET MOUNT

6. Hook the helmet mount bracket to the center of the front lip of the helmet and hold it in place (Figure 2-6).
7. With the buckle lever open, use the catch to remove any slack in the strap. Close the buckle lever.
8. Disengage the neck strap latch on the left side of the neck strap.
9. Put the helmet on. Do not fasten the helmet chinstrap.
10. Hold the neck strap where the strap meets the latch. Tighten the strap until it fits securely, then install and tighten the chinstrap. The brow of the helmet should be parallel to the ground, and the helmet should be stable on your head.
11. Insert the top edge of the mount under the keeper on the helmet mount bracket and rotate it downward until the latch clicks into place (Figure 2-7). To release the mount from the helmet bracket, press the release and pull it forward and down.

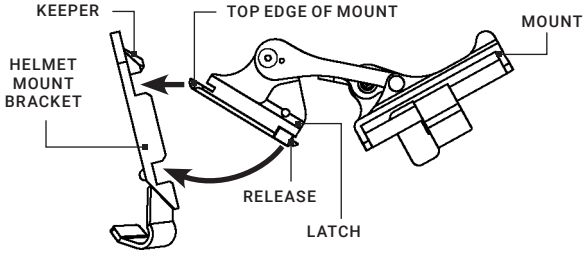


FIGURE 2-7. REASSEMBLY OF HELMET MOUNT

2.2.9 INSTALLATION OF THE HEAD MOUNT WITH A PROTECTIVE MASK

Perform the following to put the head mount on with a protective mask.

1. Place the protective mask on your head per the instructions provided with the protective mask.

WARNING:

When installing the head mount over the protective mask, be careful not to break the protective mask seal around your face.

2. To install the head mount assembly, see the instructions in Paragraph 2.2.6.

NOTE:

It may be necessary to remove the brow pad when wearing the head mount over a protective mask.

2.2.10 INSTALLATION OF THE WEAPON MOUNT

To install the weapon mount:

CAUTION:

The PVS-14L is not a weapon sight. However, it can be used in conjunction with a collimated dot sight or laser aiming device.

NOTE:

If you intend to mount the device to a weapon, AGM recommends replacing the eyecup with an eye guard for additional safety and comfort.

1. Adjust the monocular and weapon mount as shown in Figure 2-8. Align the alignment boss on the weapon mount with the alignment groove in the monocular.

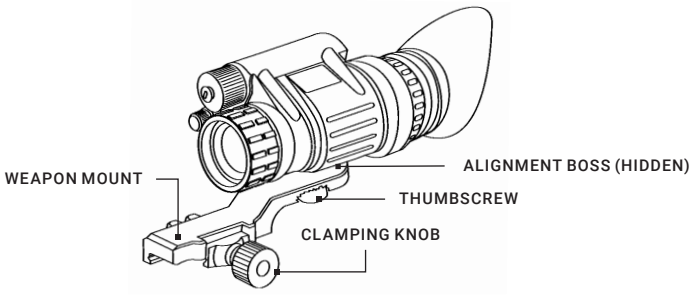


FIGURE 2-8. WEAPON MOUNT USAGE

2. Screw in the thumbscrew to secure the monocular to the weapon mount.
3. Loosen the clamping knob on the weapon mount. Position the weapon mount, now secured with the monocular, onto the weapon's mounting rail. Turn the clamping knob to tighten.

NOTE:

There is a ratchet in the weapon mount that prevents over-tightening of the clamp. Turn it until the knob clicks.

4. To check the position of the monocular by holding the weapon in your normal firing position. Adjust the position of the monocular as needed by loosening the clamping knob and repositioning the weapon mount on the weapon's mounting rail.

2.2.11 MOUNTING AN IR ILLUMINATOR

To mount an IR illuminator to the PVS-14L, use the Picatinny/Weaver adapter. Perform the following steps in the order shown below:

1. To install the Picatinny/Weaver Adapter into the monocular, align the adapter's thumbscrew to the hole and tighten it (Figure 2-9). Confirm that the alignment boss on the adapter fits into the groove on the monocular.
2. Loosen the screw on the IR illuminator.
3. Mount the IR illuminator on the rail of the adapter and tighten the screw.

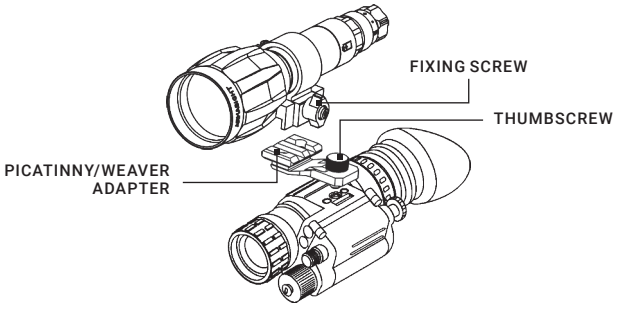


FIGURE 2-9. MOUNTING AN IR ILLUMINATOR

2.2.12 INSTALLATION OF THE COMPASS

CAUTION:

- **Use of the compass with a plastic head mount or plastic helmet mount will result in inaccurate compass readings. The magnet cannot be removed from these mounts.**
- **The magnet must be removed from the ruggedized metal helmet mount prior to installing the compass. Failure to do so will result in inaccurate compass readings.**
- **If the magnet is not removed, contact Customer Support for instructions on returning the ruggedized metal helmet mount for magnet removal. Figure 2-10 shows the location of the magnet.**

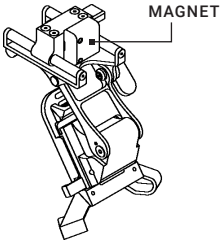


FIGURE 2-10. LOCATING THE MAGNET

1. If necessary, remove the sacrificial window or objective lens cap.
2. Turn the monocular on.
3. While looking through the monocular, rotate the objective lens focus completely counterclockwise.
4. Press the compass onto the objective lens at an angle. Slowly turn the compass counterclockwise until it is in the vertical position, with the illumination button pointing down (Figure 2-11).
5. Verify that the compass fits securely to the objective lens.

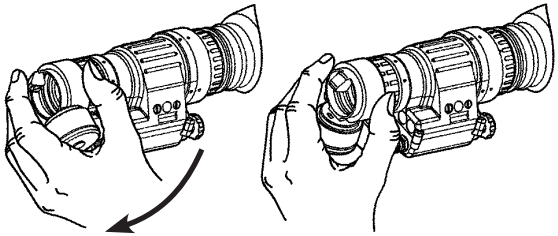


FIGURE 2-11. COMPASS INSTALLATION

NOTE:

For the compass to fit properly, the O-ring must be correctly placed in the compass.

6. Refer to Paragraph 2.3.6 for compass operation.

2.2.13 INSTALLATION OF THE MAGNIFIER

The 3x or 5x magnifier can be threaded directly into the objective lens. It can also be threaded into the focus ring adapter and slipped on over the end of the objective lens.
Figures 2-12 and 2-13 illustrate these installation procedures.

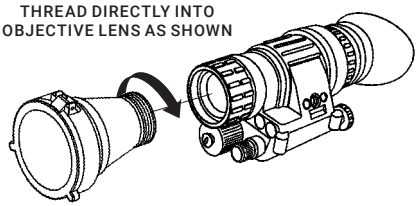


FIGURE 2-12. 3X MAGNIFIER INSTALLATION

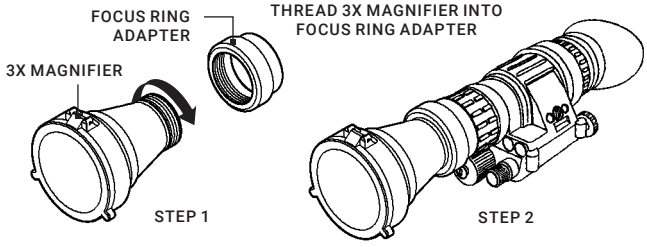


FIGURE 2-13. 3X MAGNIFIER INSTALLATION WITH FOCUS RING ADAPTER

2.3 OPERATING PROCEDURES

This section contains operating procedures for using the PVS-14L as a handheld, head-mounted, helmet-mounted, or weapon-mounted monocular. Before operating the monocular, verify that all steps in Paragraph 2.2 (“Assembly and Preparation for Use”) have been performed.

2.3.1 HANDHELD OPERATION

Only operate the monocular in dark environments; if it is necessary to operate the device in daylight, always secure the cap over the objective lens.

NOTE:

When using the monocular without a mounting device, make sure to place the neck cord around your neck.

1. Verify that the batteries have been installed per Paragraph 2.2.2.
2. Turn the device ON.

NOTE:

The sharpest image can only be achieved 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. While viewing an object, focus the objective lens until the image becomes clear and sharp.

2.3.2 HEAD-MOUNTED OPERATION

Perform the following procedures for head-mounted operation.

CAUTION:

Only operate the monocular in dark environments; if it is necessary to operate the device in daylight, always secure the cap over the objective lens.

1. Verify that the batteries are installed per Paragraph 2.2.2.
2. Put the head mount on per the instructions in Paragraph 2.2.6.

NOTE:

Before attaching the monocular, press the eye relief adjustment button and slide the head mount socket all the way forward; this will make it easier to align the monocular, eyecup, and eyepiece lens with your eye.

3. Align the latch of the head mount/helmet mount to the head mount socket (Figure 2-14). Hold the latch lever down while installing the monocular into the head mount socket. Release the latch when the monocular is fully engaged in the socket.
4. To set your eye relief, press the eye relief adjustment button (Figure 2-14). Move the monocular back towards your non-dominant eye until the eyecup is comfortably sealed around your eye.
5. Turn the monocular ON.
6. Adjust the vertical position (Figure 2-3) of the head mount until the monocular is properly aligned with your eye.
7. Rotate the diopter for the clearest view of the image intensifier screen.
8. To adjust eye relief distance, press down on the eye relief button. Slide the monocular either forward or backward to obtain a full view of the image. Reset the diopter adjustment for the sharpest image.

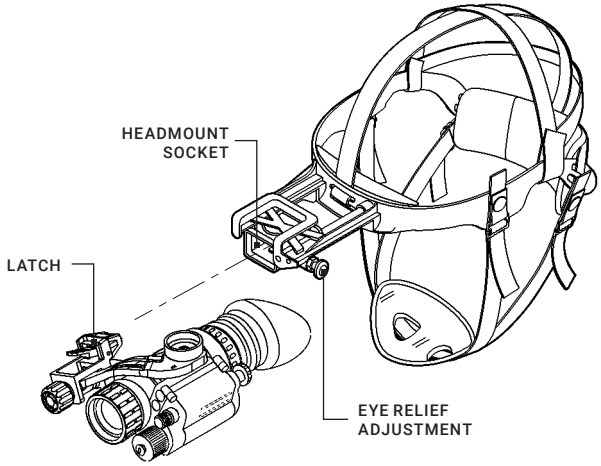


FIGURE 2-14. HEADMOUNT/HELMET MOUNT ADAPTER OPERATION

NOTE:

Any adjustment for eye relief requires adjustment of the diopter.

9. While looking at an object, adjust the objective lens focus (Figure 2-1) until the image becomes clear and sharp.

NOTE:

The sharpest image will only be visible when the objective lens and eyepiece lens are both properly focused.

2.3.3 HELMET-MOUNTED OPERATION

CAUTION:

Take precaution when using/handling the helmet mount. Most damage occurs when the helmet mount has been left on the helmet while not in use. Follow these precautions to protect the helmet mount.

CAUTION:

- **To prevent damage, do not use excessive force when changing the up/down position of the PVS-14L.**
- **Do not throw or drop the helmet while the helmet mount is attached.**
- **If the monocular is flipped up, do not attempt to flick the monocular down by shaking the helmet. This places significant stress on the helmet mount.**
- **Return the helmet and the helmet mount to unit maintenance to have the bracket directly mounted via the helmet screws.**

NOTE:

With the head mount/helmet mount adapter, the PVS-14L can be transferred from the left to the right eye or vice versa. It also enables the user to flip the mount up when positioned over either eye.

NOTE:

The helmet mount allows the user to place the PVS-14L in either a flipped up or flipped down position. When flipped down, the device will be directly in front of the eyes. When flipped up, the unit will remain out of the line of sight. Both positions have a definitive stopping point to indicate that the device is positioned correctly.

For helmet-mounted operation:

1. Confirm that the batteries are installed per Paragraph 2.2.2.
2. Put on the helmet mount per the instructions in Paragraph 2.2.8.
3. Place the monocular in the socket of the helmet mount.

Set your eye relief by depressing the side buttons (or, if using a metal mount, the side lever) (Figure 2-15) and carefully move the monocular until the eyecup comfortably seals around your eye. Adjust the helmet straps vertically as needed.

4. Turn the device ON. Adjust the tilt using the tilt adjustment lock knob (a lever on the metal mount, see Figure 2-15), until you obtain a comfortable viewing angle.

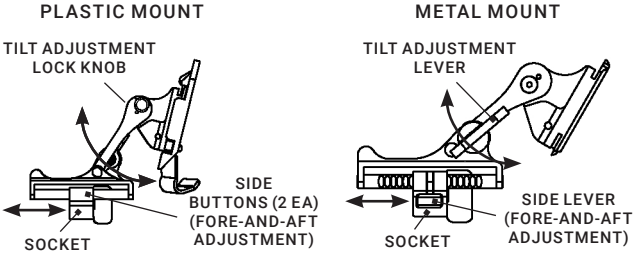


FIGURE 2-15. TILT AND FLIP-UP ASSEMBLY MECHANISMS

NOTE:

The sharpest image will only be visible when the objective lens and eyepiece lens are both properly focused.

5. Rotate the diopter for the clearest view of the image intensifier screen.

NOTE:

Any eye relief adjustment requires diopter adjustment.

6. Adjust eye relief distance by holding the side buttons (or lever, if using a metal mount) down (Figure 2-15) and sliding the monocular back and forth until you obtain a full view of the image. Adjust the diopter for the sharpest image.
7. While viewing an object, adjust the objective lens focus (Figure 2-1) until the image becomes sharp and clear.
8. To flip the device up, grasp the helmet tilt and flip-up assembly and rotate upward and backward until the latch is firmly engaged.

WARNING:

The monocular will not automatically turn off when flipped up but must be turned off using the power switch.

9. To flip the device down, grasp the helmet tilt and flip-up assembly and rotate downward and forward until the latch is firmly engaged.
10. Turn the device ON to resume viewing.

2.3.4 WEAPON-MOUNTED OPERATION

NOTE:

The PVS-14L 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 its lowest setting.

Perform the following procedures for weapon-mounted operation:

1. Verify that the batteries are installed (Paragraph 2.2.2).
2. Attach the weapon mount to the monocular (Paragraph 2.2.10), steps 1 and 2.
3. Mount the monocular, with the adapter, to the M16/M4 receiver rail (Paragraph 2.2.10, steps 3 and 4).
4. Rotate the diopter adjustment for the clearest view of the image intensifier screen.
5. While viewing an object, focus the objective lens (Figure 2-1) until the image becomes sharp and clear.

2.3.5 IR SOURCE OPERATIONS

WARNING:

The IR source is intended for use in extreme darkness and will be invisible to the naked eye. However, its light can be detected by other night vision devices.

NOTE:

The built-in IR source is intended for use at close distances (up to 3 meters) when additional illumination is needed.

1. Pull the power switch knob out and rotate it clockwise to the IR position. With the monocular held to the eye, confirm that a red light appears in the eyepiece. This indicates that the IR source is operating.
2. For brief IR operation, turn the power switch clockwise (without pulling) past the ON position. Confirm that a red light appears in the eyepiece.

2.3.6 OPERATION WITH A COMPASS

WARNING:

The light emitted by the compass can be seen by others using night vision devices.

CAUTION:

If you use the compass on a head/helmet mount with the magnet installed, your compass readings will be inaccurate. Only the magnet on the metal mount can be removed without causing damage to the equipment (Paragraph 2.2.12).

NOTE:

- **The compass reading is magnetic North, not true North.**
- **The compass reading is within 2° of correct absolute magnetic bearing. Compass readings with the mounted monocular (head/helmet mount) can be up to 15° off from the correct, absolute magnetic bearing. This occurs mostly in the East (90°) to West (270°) direction, and less in the North (360°) to South (180°). If the compass is inadvertently magnetized, this could cause an additional 15° error.**
- **The objective lens focus can be fine-tuned after installation, but in order to obtain an accurate reading, the compass must be vertical (e.g., the compass image must be level).**

1. Install per Paragraph 2.2.12.
2. To view a distant object more clearly, adjust the objective lens focus by turning the compass clockwise.
3. To view the compass via the monocular, hold the compass with your index finger on top and your thumb on the illumination button on the bottom. Press the button slowly with your thumb until the desired brightness is obtained. The image should appear as shown in Figure 2-16.

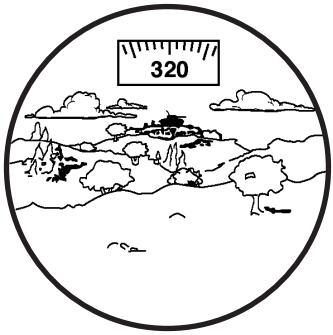


FIGURE 2-16. VIEW THROUGH INSTALLED COMPASS

NOTE:

- **Increase brightness slowly. Excessive brightness may burn a temporary image into the image intensifier. Do not increase brightness any more than is necessary to clearly read the compass heading.**
- **For proper compass operation, the monocular must be focused at or near infinity.**

4. Compass readings should change when you move your head from side to side. Rotate or tap the compass to ensure that it is operating correctly. Hold the monocular in a level position to confirm free rotation of the compass scale.
5. The tick mark closest to the center of the lighted display is the compass bearing. The tick marks are in degrees, with longer tick marks every five degrees and bearing labels every 10 degrees.

2.3.7 OPERATION WITH A MAGNIFIER

1. Install per Paragraph 2.2.13.

NOTE:

The paired magnifier and objective lens will turn as a unit.

2. While viewing an object, adjust the magnifier focus until the image becomes sharp and clear.

2.3.8 OPERATION WITH A GAIN CONTROL

Turn the gain control knob (Figure 2-17) to adjust the image in the eyepiece.

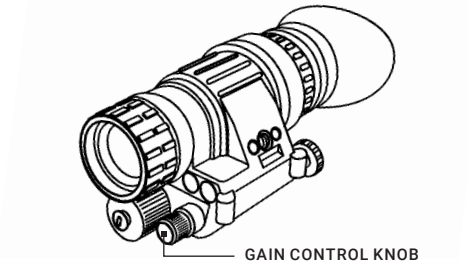


FIGURE 2-17. GAIN CONTROL

2.3.9 PREPARATION FOR STORAGE

1. To shut down the monocular:

(a) Turn the monocular OFF.

(b) Remove the monocular from the head mount, helmet mount, or weapon, and remove the weapon mount from the monocular.

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 overheat when inserted into the device.

2. Packaging After Use:

(a) Remove the battery cap and battery.

(b) Inspect the battery housing for corrosion or moisture. Clean and dry if necessary.

(c) Replace the battery cap.

(d) If installed, remove the demist shield or sacrificial window. Replace the objective lens cap.

NOTE:

- **Prior to placing the PVS-14L into the carrying case, verify that the monocular and the case are both clean and free of dirt, dust, or moisture.**
- **The monocular and helmet mount should not be left on the helmet when the helmet is removed.**

(e) Refer to Figure 1-2 for proper placement of the components.

(f) Place the monocular into the shallow pocket of the carrying case.

(g) Place the carrying case into the shipping/storage case (optional).

(h) Return the case to the storage area.

2.4 OPERATION UNDER UNUSUAL CONDITIONS

2.4.1 OPERATION IN DUSTY OR SANDY AREAS

CAUTION:

Always observe the below precautions when operating in dusty or sandy areas, as use in these types of adverse environments can cause gouges and scratches to the optical parts of the device, as well as damage the mechanical components.

1. Verify that the sacrificial window is in place.
2. Avoid pointing the monocular into the wind unless it is absolutely necessary.
3. Keep the carrying case closed unless removing or replacing items.
4. Ensure that all dust and sand is removed from the PVS-14L and carrying case after operation.

2.4.2 OPERATION IN RAINY OR HUMID CONDITIONS

CAUTION:

Always observe the below precautions when using the device in rainy or humid environments, as these adverse conditions can cause corrosion and deterioration.

1. Install the demist shield (Paragraph 2.2.4).
2. Keep the carrying case and the shipping and storage case closed unless removing or replacing items.
3. Always dry the monocular, mounts, 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 the monocular in a wet carrying case or in a wet shipping and storage case.

2.4.3 OPERATION IN SALT WATER AREAS

After exposure to salt water, clean the PVS-14L (Paragraph 3.4.1).

2.4.4. OPERATION IN NUCLEAR, BIOLOGICAL, AND CHEMICAL ENVIRONMENTS

WARNING:

Never reuse an eyecup or eye guard that has been contaminated by hazardous materials or environments. Contaminated eyecups and eye guards must be replaced.

1. Decontamination – Always wear a protective mask when decontaminating the PVS-14L.
2. Hardness – Do not use the DS-2 to decontaminate the PVS-14L. To decontaminate the device, use 5% sodium hypochlorite and rinse with hot (70°C/158°F), soapy water.

3 MAINTENANCE AND TROUBLESHOOTING

3.1 MAINTENANCE

3.1.1 CLEANING

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.**
- **Never wipe the demist shield with wet lens paper or while the shield is wet, as this can damage the coating.**

If necessary, clean the monocular with water and dry them thoroughly.

Clean the lenses with lens paper (and water if necessary, **except** for demist shields).

Demist shields must be dry before being cleaned with dry lens paper.

3.1.2 HEAD MOUNT MAINTENANCE

A. Brow Pad Replacement. To replace the brow pad when it becomes cracked, torn, or contaminated:

1. Firmly grasp the head mount and remove the old brow pad.
2. Gently press on the new brow pad. Gently smooth out any wrinkles in the new brow pad.

B. Neck Pad Installation. The neck pad may become separated from the headband. To reattach the neck pad:

1. Lift the upper headband strap retention tab (Figure 3-1) to make space for the neck pad strap to be inserted underneath.

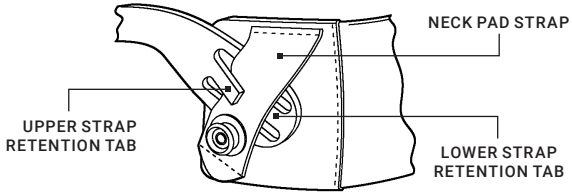


FIGURE 3-1. RE-INSTALLING THE NECK PAD

2. Slip the neck pad strap all the way under the upper strap retention tab; pull the lower part of the neck pad strap under the lower strap retention tab.

3. If necessary, repeat steps 1 and 2 for the other side of the headband and neck band.

C. Lacing the Sliding Bar Buckles. When putting on or adjusting the head mount, the strap may slip out of the slide fastener. To adjust the strap and sliding bar buckle:

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

2. Pull the strap through the buckle and tighten.

3. Repeat steps 1 and 2 for any other straps and buckles that have come undone.

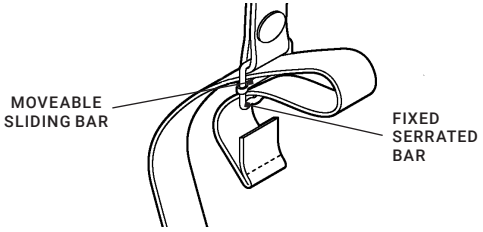


FIGURE 3-2. LACING THE SLIDING BAR BUCKLES

3.1.3 NECK CORD MAINTENANCE

The neck cord (Figure 1-2) may be broken or frayed, or the ends may come untied.

If loose, re-tie the ends of the cord. If broken or severely frayed, install a new cord as follows:

1. From the rear, insert the ends of the cord through the holes in the monocular.

2. Thread the end of the right cord through the hole in the objective lens cap.

3. Tie a knot at each end of the cord.

3.2 TROUBLESHOOTING

Table 3-1 common malfunctions that may occur with your equipment. Perform the tests, inspections, and corrective actions in the order listed.

This table does not list all the malfunctions that may occur with your device, nor does it include all tests, inspections, or corrective actions that may be necessary to correct them. If you identify an equipment malfunction that is not listed, or the suggested corrective actions do not correct the issue, please contact Customer Support.

TABLE 3-1. OPERATOR TROUBLESHOOTING

MALFUNCTION	PROBABLE CAUSE/TEST/ INSPECTION	CORRECTIVE ACTION
1. Monocular fails to activate.	Visual. Check for defective, missing, or improperly installed battery/ batteries	Turn the power switch to RESET/OFF, and then turn it ON. Replace the battery or install it 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 the IR source still fails to activate, please contact Customer Support.
3. IR source indicator fails to activate.	Visual.	Please contact Customer Support.
4. Poor image quality.	Check objective lens or eyepiece lens focus. Check for fogging or dirt on the objective and eyepiece lenses.	Refocus. Clean lens surfaces per Paragraph 4.4.1.
5. Light visible around eyecup.	Check eye relief distance. Check eyecup for resiliency.	Adjust for proper eye relief distance. If eyecup is defective, please contact Customer Support.
6. Diopter adjustment cannot be made.	Check to see if the diopter adjustment is bent or broken.	If damaged, please contact Customer Support.
7. Battery cap is difficult to open.	Verify that the O-ring is present. Check for damage to the battery cap.	If the O-ring is missing, please contact Customer Support. If damaged, please contact Customer Support.
8. Head straps cannot be tightened.	Check for defective buckles, fasteners, or straps.	If damaged, please contact Customer Support.
9. Head mount or helmet mount socket and head mount/helmet mount adapter latch does not catch.	Check socket or latch for dirt. Check socket or latch for damage.	Clean socket and latch. If damaged, please contact Customer Support.
10. Monocular does not shut off when exposed to bright light.	Visual. Perform the following test in daylight or bright room light (not fluorescent light). Place the cap over the objective lens. Turn the monocular ON and observe that it cuts off within 30-70 seconds after powered on. Turn the monocular OFF and then ON to power up the monocular.	If damaged, please contact Customer Support.

4 WARRANTY INFORMATION

4.1 WARRANTY INFORMATION AND REGISTRATION

4.1.1 WARRANTY INFORMATION

This product is guaranteed to be free from manufacturing defects in material and workmanship under normal use for a period of three (3) years from the date of purchase. In the event that a defect covered by the warranty below occurs during the applicable period stated above, AGM Global Vision, at its discretion, will either repair or replace the product; such action on the part of AGM Global Vision shall be the full extent of AGM Global Vision's liability, and the Customer's sole and exclusive reparation. This warranty does not cover a product if it has been (a) used in ways other than its normal and customary manner; (b) subjected to misuse; (c) subjected to alterations, modifications or repairs by the Customer or by any party other than AGM Global Vision without prior written consent of AGM Global Vision; (d) is the result of a special order or categorized as "close-out" merchandise or merchandise sold "as-is" by either AGM Global Vision or the AGM Global Vision dealer; or (e) merchandise that has been discontinued by the manufacturer and either parts or replacement units are not available due to reasons beyond the control of AGM Global Vision. AGM Global Vision shall not be responsible for any defects or damage that in AGM Global Vision's view are a result from the mishandling, abuse, misuse, improper storage or improper operation of the device, including use in conjunction with equipment that is electrically or mechanically incompatible with, or of inferior quality to, the product, as well as failure to maintain the environmental conditions specified by the manufacturer. This warranty is extended only to the original purchaser. Any breach of this warranty shall be enforced unless the customer notifies AGM Global Vision at the address noted below within the applicable warranty period.

The customer understands and agrees that except for the foregoing warranty, no other warranties written or oral, statutory, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, shall apply to the product. All such implied warranties are hereby and expressly disclaimed.

4.1.2 LIMITATION OF LIABILITY

AGM Global Vision will not be liable for any claims, actions, suits, proceedings, costs, expenses, damages, or liabilities arising out of the use of this product. Operation and use of the product are the sole responsibility of the Customer. AGM Global Vision's sole undertaking is limited to providing the products and services outlined herein in accordance with the terms and conditions of this Agreement. The provision of products sold and services performed by AGM Global Vision to the Customer shall not be interpreted, construed, or regarded, either expressly or implied, as being for the benefit of or creating any obligation toward any third party of legal entity outside AGM Global Vision and the Customer; AGM Global Vision's obligations under this Agreement extend solely to the Customer. AGM Global Vision's liability hereunder for damages, regardless of the form or action, shall not exceed the fees or other charges paid to AGM Global Vision by the customer or customer's dealer. AGM Global Vision shall not, in any event, be liable for special, indirect, incidental, or consequential damages, including, but not limited to, lost income, lost revenue, or lost profit, whether such damages were foreseeable or not at the time of purchase, and whether or not such damages arise out of a breach of warranty, a breach of agreement, negligence, strict liability, or any other theory of liability.

4.1.3 PRODUCT REGISTRATION

In order to validate the warranty on your product, the customer must complete and submit AGM Global Vision PRODUCT REGISTRATION FORM on our website (**www.agmglobalvision.com/customer-support**).

4.1.4 OBTAINING WARRANTY SERVICE

To obtain warranty service on your unit, the End-user (Customer) must notify the AGM Global Vision service department via e-mail. Send any requests to **support@agmglobalvision.com** to receive a Return Merchandise Authorization number (RMA). When returning any device, please take the product to your retailer, or send the product, postage paid and with a copy of your sales receipt, to AGM Global Vision's service center at the address listed above. All merchandise must be fully insured with the correct postage; AGM Global Vision will not be responsible for improper postage or merchandise that becomes lost or damaged during shipment. When sending product back, please clearly write the RMA# on the outside of the shipping box. Please include a letter that indicates your RMA#, the Customer's Name, a Return Address, reason for the return, contact information (valid telephone numbers and/or an e-mail address), and proof of purchase that will help us to establish the valid start date of the warranty. Product merchandise returns that do not have an RMA# listed may be refused, or a significant delay in processing may occur. Estimated Warranty service time is 10-20 business days. The End-user/Customer is responsible for postage to AGM Global Vision for warranty service. AGM Global Vision will cover return postage/shipping after warranty repair to the End-user/Customer only if the product is covered by the aforementioned warranty. AGM Global Vision will return the product after warranty service by domestic UPS Ground service and/or domestic mail. Should any other requested, required, or international shipping methods be necessary, the postage/shipping fee will be the responsibility of the End-user/Customer.

For service, repair or replacement, please contact:

AGM Global Vision, LLC

MAIN OFFICE

2407 E Interstate 30, Suite 100

Grand Prairie, TX 75050

Tel. 928.333.4300

support@agmglobalvision.com

www.agmglobalvision.com

EUROPEAN OFFICE

#6 Andrey Lyapchev Blvd
Sofia, P.C. 1756
Bulgaria
Tel. +35.988.560.0326
info@agmglobalvision.eu

www.agmglobalvision.eu

5 SPECIFICATIONS

5.1 SPECIFICATIONS

The following tables provide information pertaining to the operational, electrical, mechanical, optical, and environmental characteristics of the monocular.

TABLE 5-1. OPERATOR ADJUSTMENT LIMITS

ITEM	LIMITS
Diopter Focus	-6 to +2 diopters
Objective Focus	9.8 in / 25 cm to infinity

TABLE 5-2. ELECTRICAL DATA

ITEM	DATA
Power Source	Battery (1.5 Vdc max ea.)
Battery Requirements	One AA Alkaline or one AA 1.5 Vdc Lithium L91

TABLE 4-3. MECHANICAL DATA

ITEM	PVS-14L
Carrying Case	Size: Approx. 14 x 9.5 x 8 in / 352 x 240 x 200 mm
Monocular (see Note)	Size: 4.25 x 2.5 x 2.7 in / 108 x 68 x 69 mm Weight: 10.2 oz / 0.29 kg

NOTE:

The size of the monocular does not include lens cap and eyecup.
The weight of the monocular does not include accessories.

TABLE 4-4. OPTICAL DATA

ITEM	PVS-14L
Magnification	1.0x
Field of View	40°
Eyepiece Focus	-6 to +2 diopters
Objective Focus	9.8 in / 25 cm to infinity

TABLE 5-5. ENVIRONMENTAL DATA

ITEM	DATA
Operating Temperature	-60°F to 120°F / -51°C to +49°C
Storage Temperature	-60°F to 185°F / -51°C to +85°C
Submersible	66 ft / 20 m
Illumination Required	Overcast starlight to moonlight

NOTE:

All data subject to change without notice.

APPENDIX

A. SPARE PARTS LIST

The parts authorized in this list of spare parts are required for operator maintenance. This list includes parts that must be removed in order to replace authorized parts.

The PART NO. Column indicates the primary number used by the manufacturer to identify an item; this number controls the design and characteristics of the item, including standards, engineering specifications, and inspection requirements.

The NSN column indicates the National Stock Number.

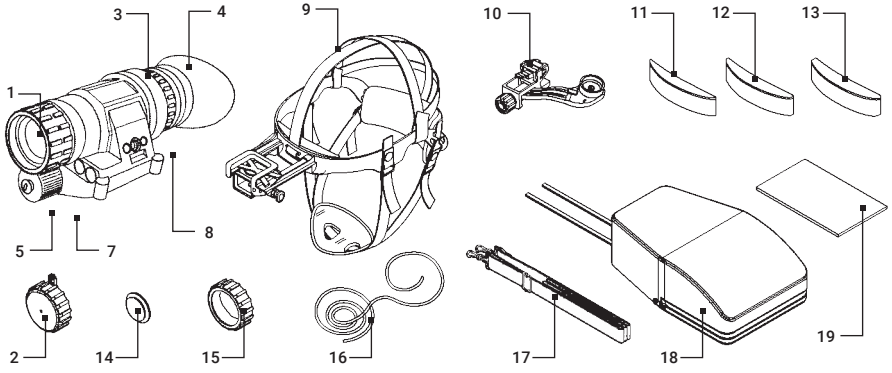


FIGURE A-1. PVS-14L SPARE PARTS

TABLE A-1. PVS-14L SPARE PARTS LIST

ITEM	DESCRIPTION	PART NO.	NSN
1	PVS14 Objective Lens Assembly		6650-01-444-1212
2	PVS14 Lens Cap		6650-01-444-1212
3	PVS14 Eyepiece Assembly		5855-01-444-1224
4	PVS14 Eyecup		5855-01-246-8273
5	Battery Cap		6160-01-569-6331
6	O-Ring (not shown)		5330-01-444-1227
7	Variable Gain Knob Assembly		5355-01-444-1232
8	Switch Knob Assembly		5930-01-509-8264
9	Head Mount Assembly		5855-01-246-8266
10	Headset/Helmet Mount Adapter		5965-01-444-1216
11	Large Brow Pad		5855-01-297-7847
12	Medium Brow Pad		5855-01-355-8600
13	Small Brow Pad		5855-01-355-8599
14	Demist Shield		5855-01-246-8272
15	Sacrificial Window		5855-01-246-8271
16	Cord		4020-01-446-8097
17	Shoulder Strap Assembly		5340-01-250-2431
18	Carrying Case		5855-01-398-4284
19	User Manual	11P14USMN	

NOTES

AGM Global Vision, LLC

MAIN OFFICE
2407 E Interstate 30, Suite 100
Grand Prairie, TX 75050
Tel. 928.333.4300
support@agmglobalvision.com
www.agmglobalvision.com

EUROPEAN OFFICE
#6 Andrey Lyapchev Blvd
Sofia, P.C. 1756
Bulgaria
Tel. +35.988.560.0326
info@agmglobalvision.eu
www.agmglobalvision.eu