



Multipurpose Night Vision Monocular NX-122B

Binocular Night Vision Goggle NX-222B



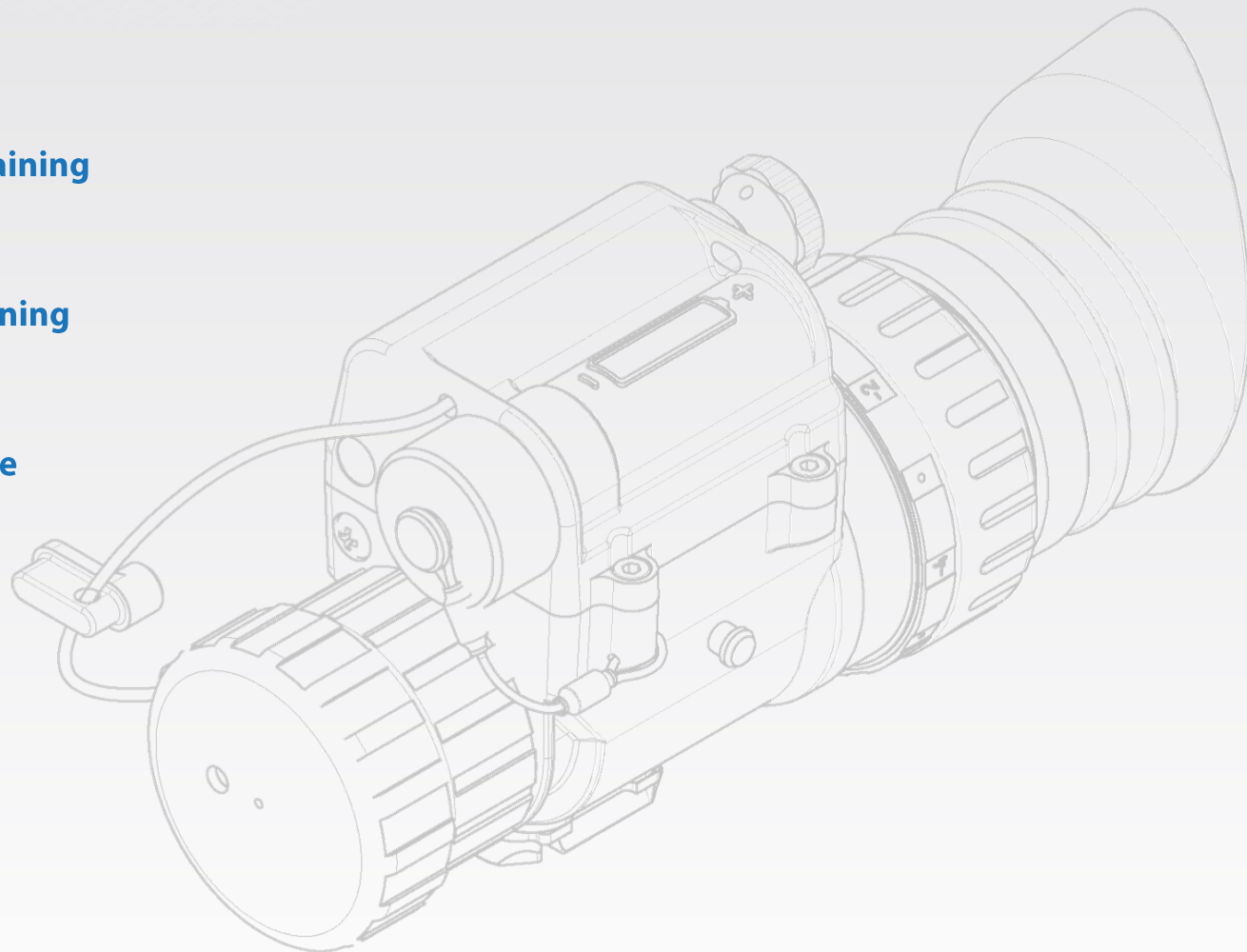
Operator's Training

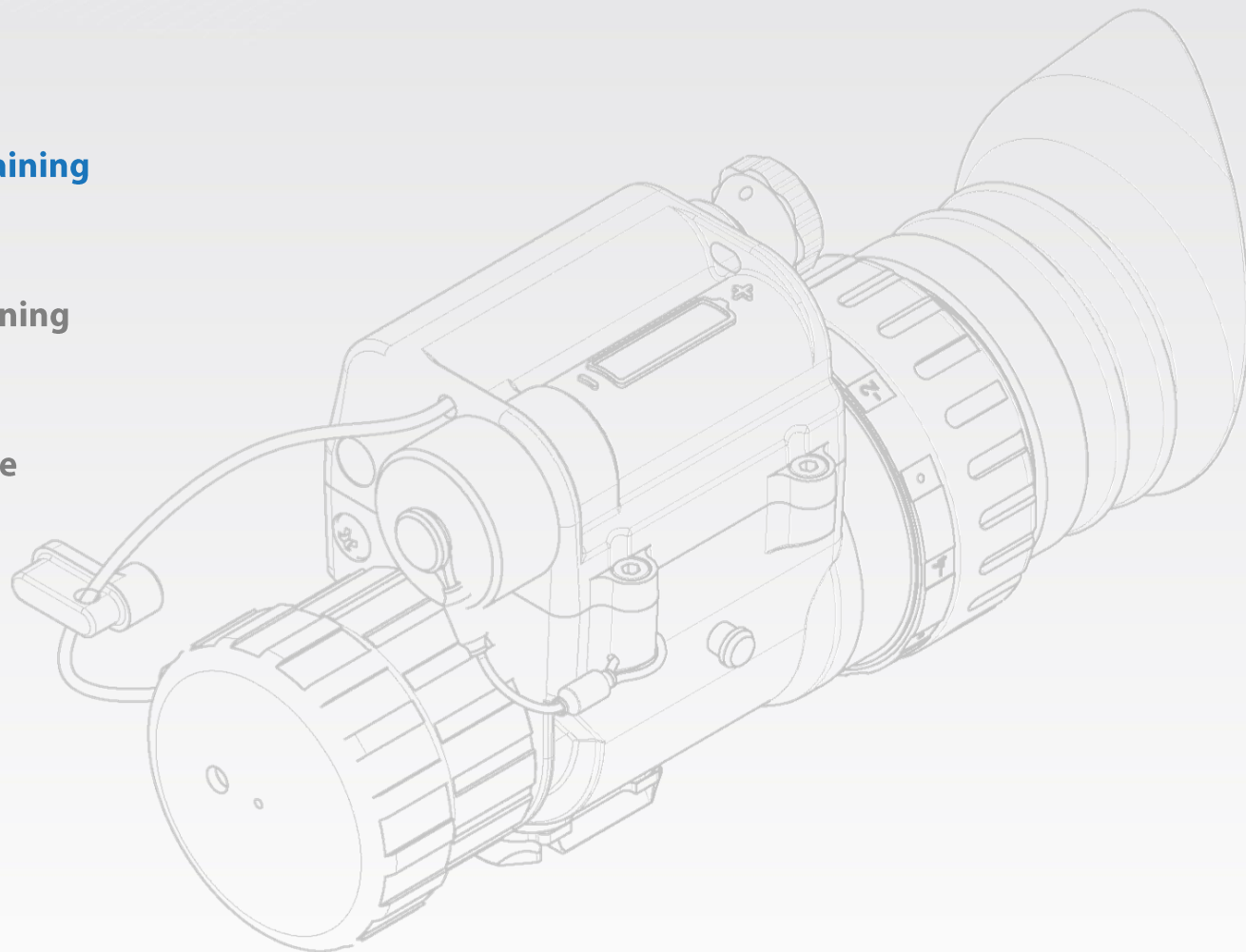
Presented by:

Thanos Orfanoudakis, Msc
ILS Engineer



1. **NX-122B Monocular Training**
2. **NX-222B Binocular Training**
3. **Preventive Maintenance**
4. **Troubleshooting**
5. **End**



1. NX-122B Monocular Training**2. NX-222B Binocular Training****3. Preventive Maintenance****4. Troubleshooting****5. End**

- The low night light enters through the objective lens in the device.
- The objective lens focuses the image onto the entrance of the Image Intensifier Tube.
- The image is intensified within the tube.
- The eyepiece lens looks at the intensified image on the tube output and projects it to the eye.

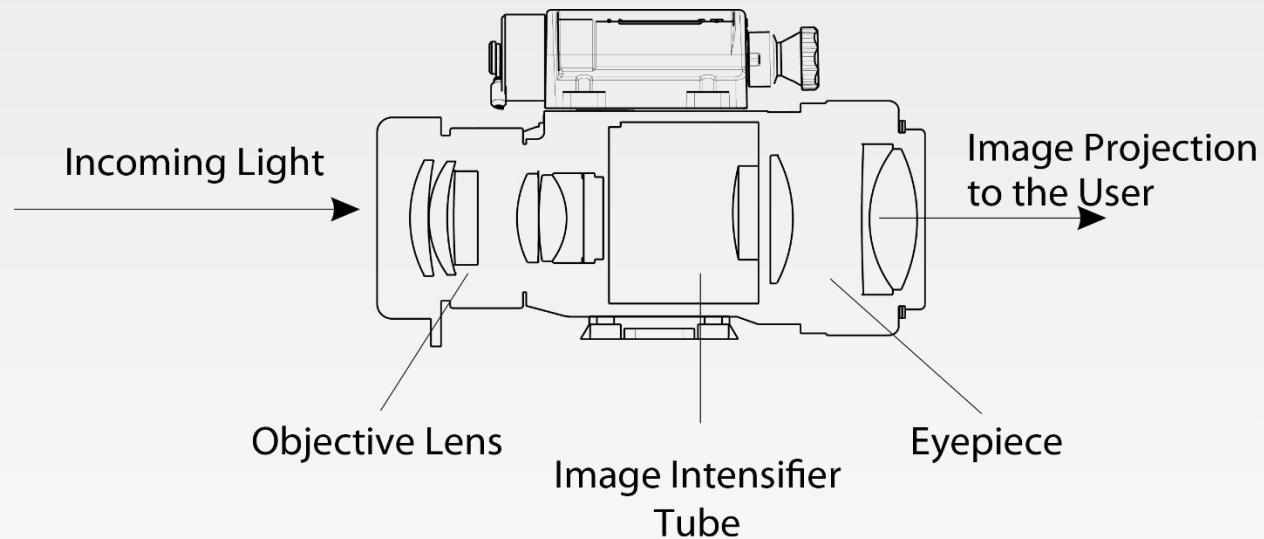
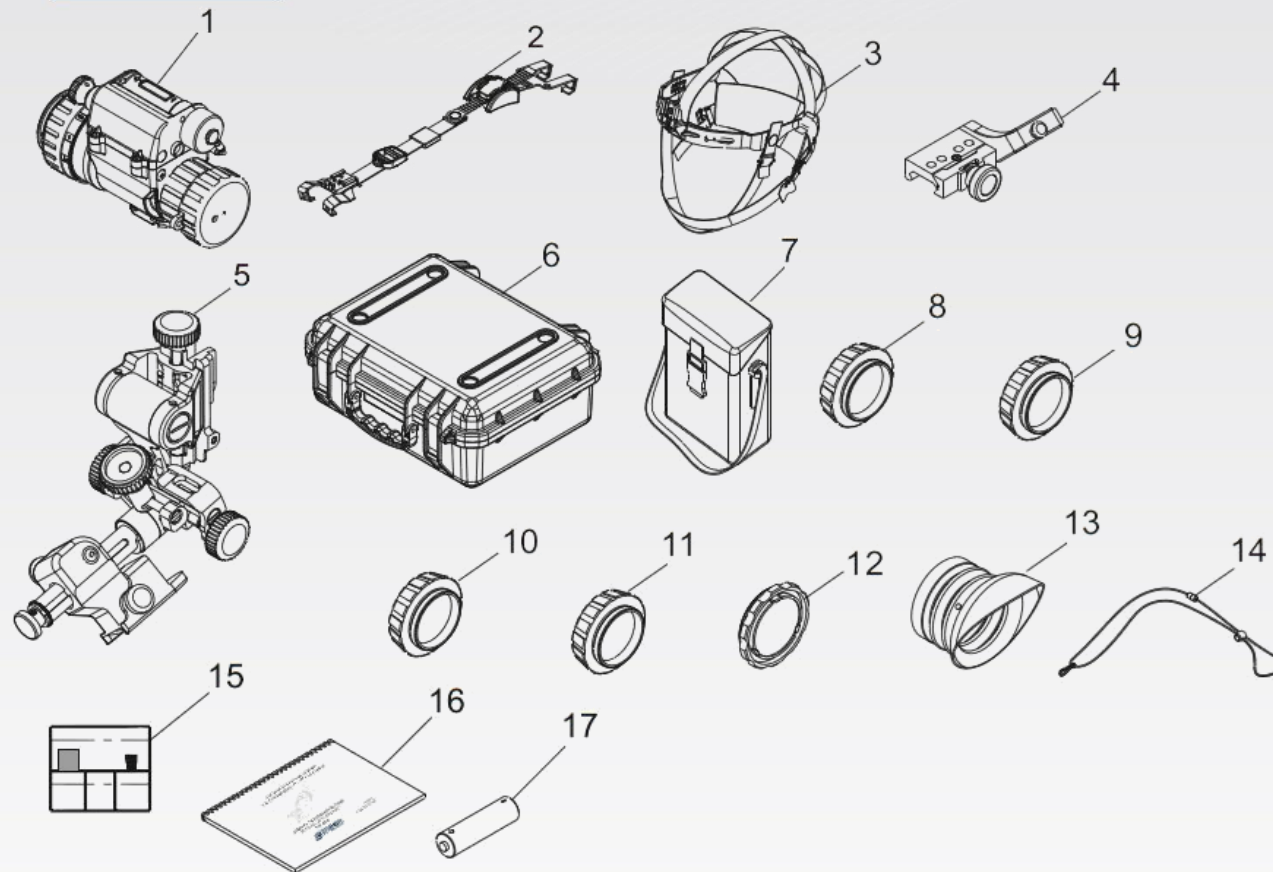


Image Intensifier Tube & Night Vision Instruments Limitations

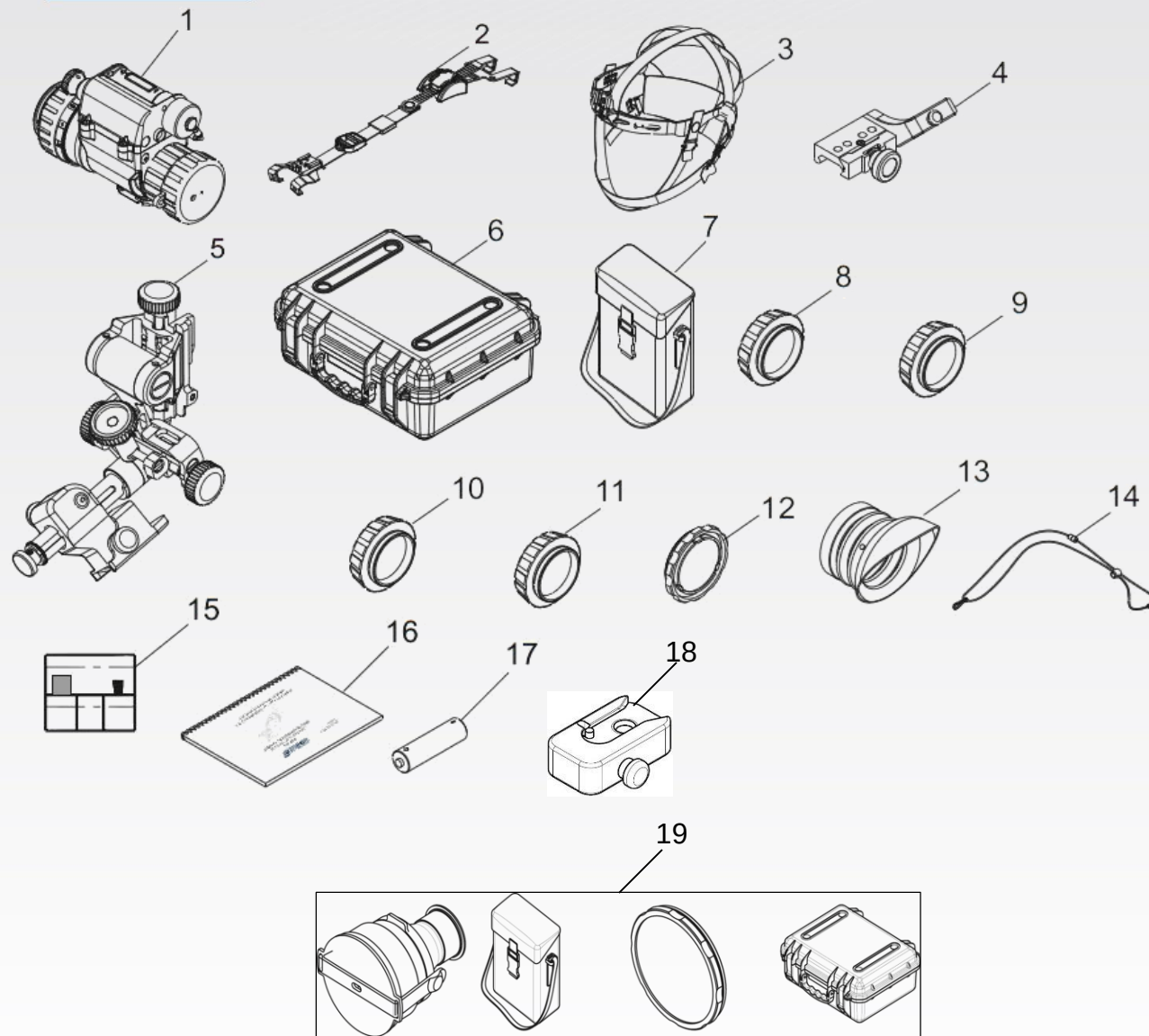
- The IIT requires some night light (moonlight, star-light, etc.) to operate in passive illumination (with no active illumination).
- The level of performance depends upon the level of light.
- Night light is reduced by passing cloud cover, while operating under trees, in building shadows, etc.
- The equipment is less effective viewing into shadows and other darkened areas.
- The equipment is less effective through rain, fog, sleet, snow or smoke.
- The equipment will not see through dense smoke.

! IIT tube is a passive device → Requires some ambient light



- Handheld, Head-Mounted, Weapon-Mounted, Helmet-Mounted or Tripod-mounted Night Vision system.

1. Multipurpose Night Vision Monocular, NX-122B
2. Helmet Support Assembly
3. Head Support Assembly
4. Weapon Mount Assembly
5. NVG Mount Assembly
6. Transport and Storage Box
7. Bag, Carrying, Monocular
8. Daylight Training Filter
9. Objective Protection Filter
10. Night Vision Compatibility Filter (Optional)
11. Laser Protection Filter (Optional)
12. Antifogging Filter
13. Eyecup
14. Strap Assembly, Neck
15. Cleaning Kit, Lens
16. Technical Manual, Operator's
17. Battery AA



Extra Options

18. Tripod Mount

19. 3x Magnifier and Carrying Bag

CAUTION

The MNVM is a precision electro-optical instrument, so handle it carefully.

- Enables, in both moonlight and starlight:
 - walking,
 - driving,
 - weapon firing,
 - short-range surveillance,
 - map reading,
 - vehicle maintenance, and
 - administering first aid.
- The MNVM is equipped with an infrared light-emitting source (LED) and a low-battery indicator.
- The MNVM automatically shuts off when disconnected from the headmount or helmet mount.
- There is also a high-light cutoff feature that shuts off power to the MNVM when it is exposed to high levels of light.
- The use of the MNVM allows the user independent vision in each eye. One eye is using the MNVM while the other remains adapted to the external, low light conditions.

Magnification

1X±3% (3X with magnifier)

Field of View

40° (11.5° with 3X magnifier)

Focus

25 cm to ∞

Eyepiece Range

+2 to -6 dp

Resolution

1.2lp/mrad (optimum illumination,
100% contrast)

Weight

<300 gr (including Lithium battery,
objective lens cover)

BATTERY TYPE	TEMPERATURE	BATTERY LIFE
AA Alkaline	-20° C	>12 Hrs.
AA Lithium	-20° C	>65 Hrs.
AA Alkaline	+23° C	>45 Hrs.
AA Lithium	+23° C	>65 Hrs.
AA Alkaline	+45° C	>40 Hrs.
AA Lithium	+45° C	>55 Hrs.

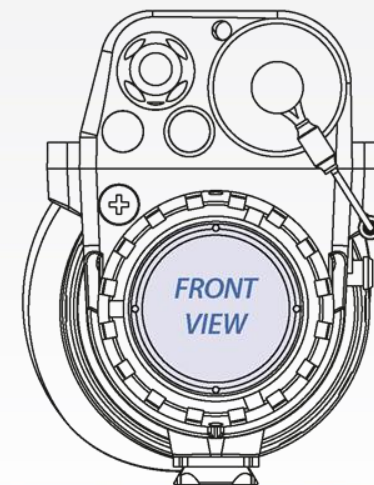
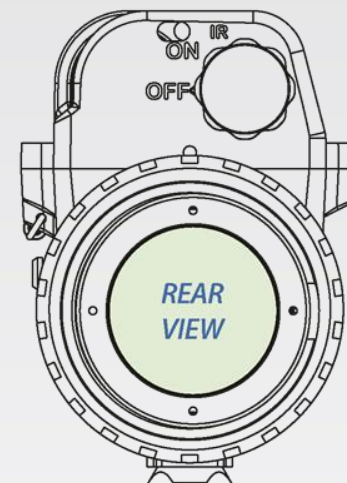
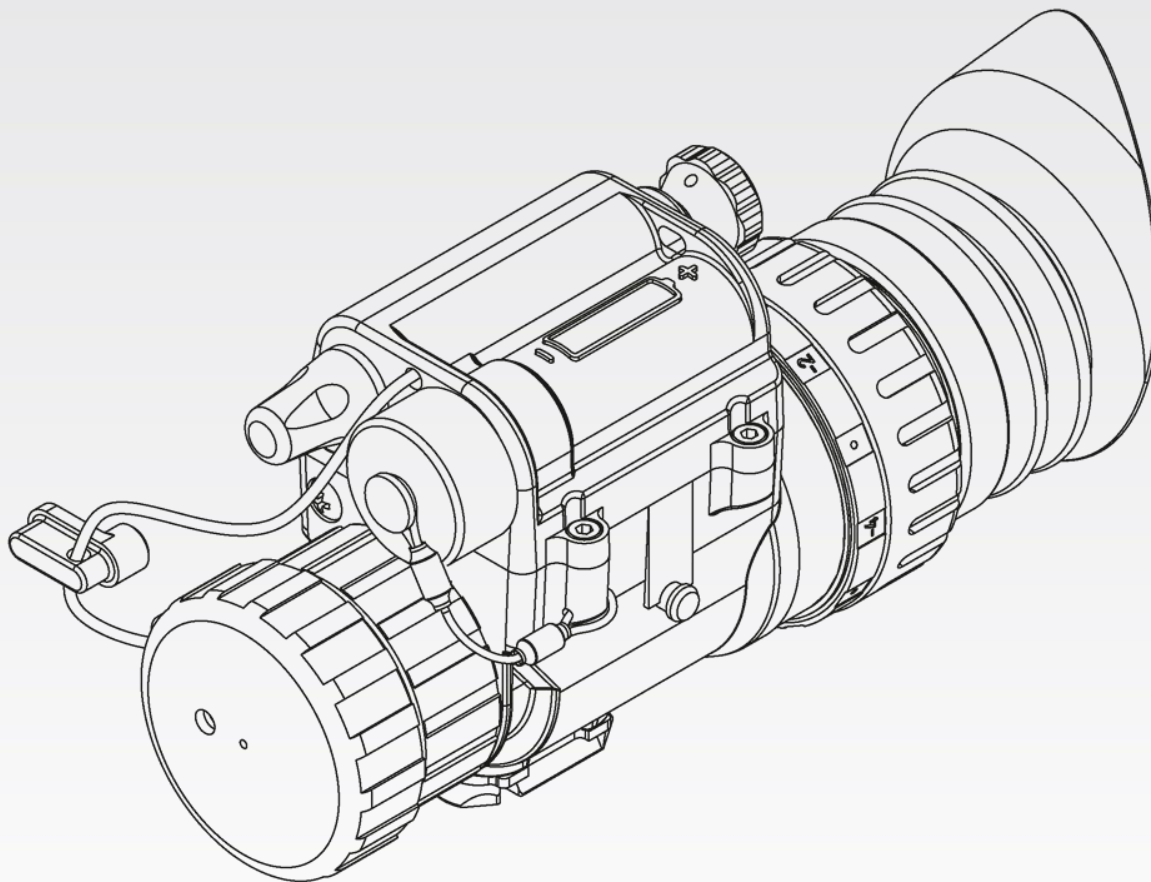
Objective lens

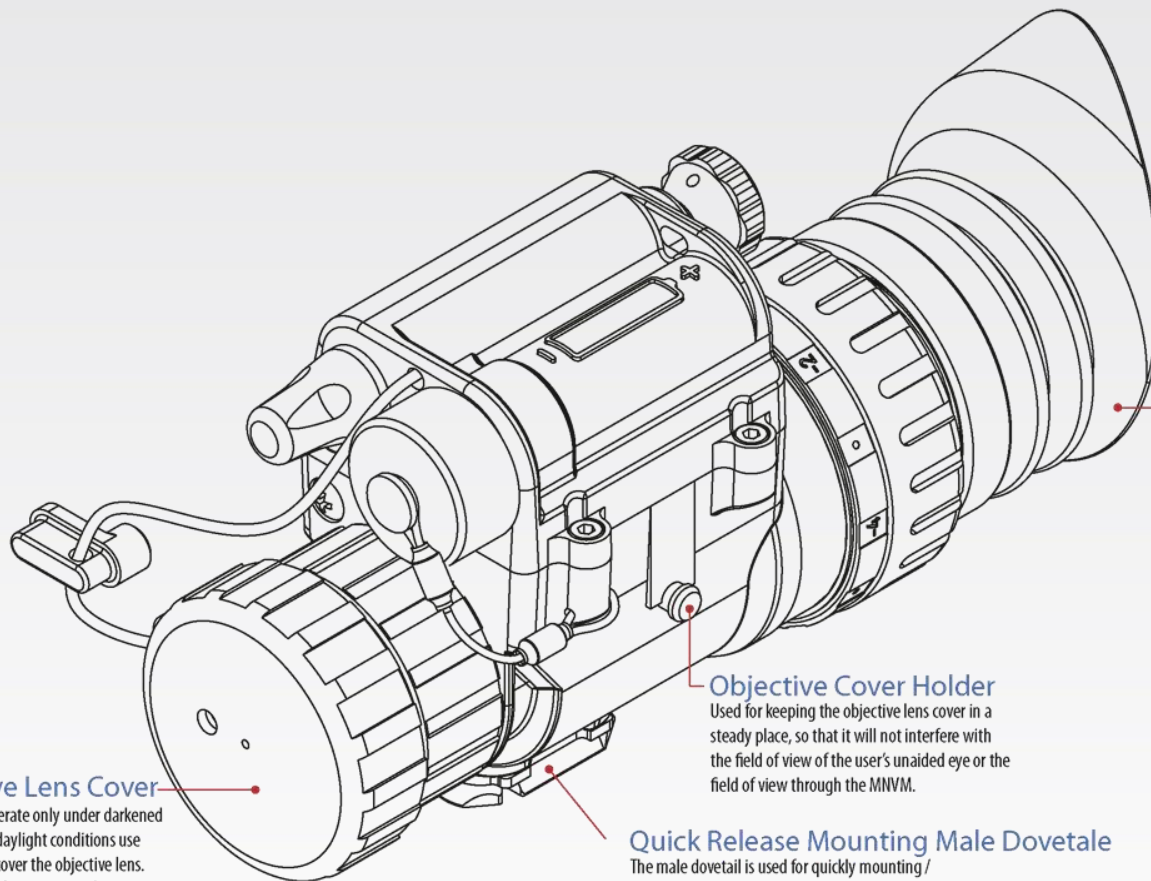
Focal distance	27mm
F#	1.23
T#	1.38
Aperture	22mm

Eyepiece lens

Range	+2 to -6 dioptries
Eye relief	25mm
Exit pupil	6mm (full field)

Dimensions (LxWxH)	115x52x73mm
---------------------------	--------------------





Objective Lens Cover

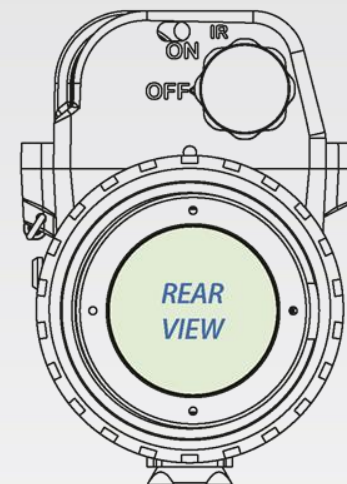
MNVM must operate only under darkened conditions. For daylight conditions use the lens cap to cover the objective lens. When the MNVM is not in use the objective lens cover should always be on.

Objective Cover Holder

Used for keeping the objective lens cover in a steady place, so that it will not interfere with the field of view of the user's unaided eye or the field of view through the MNVM.

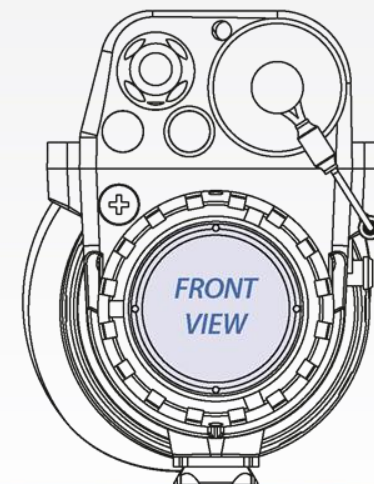
Quick Release Mounting Male Dovetale

The male dovetail is used for quickly mounting / releasing and securing the MNVM on Head, Helmet or Weapon Mounts.



Eyecup

Prevents exposure of the operator due to the image intensifier's shining



Manual Gain Control (Optional)

MGC adjusts the brightness of the picture shown by the monocular which enhances the performance in changing light conditions and provides an optimum balance in the image seen by both eyes.

Objective Lens Cover

MNVM must operate only under darkened conditions. For daylight conditions use the lens cap to cover the objective lens. When the MNVM is not in use the objective lens cover should always be on.

Objective Cover Holder

Used for keeping the objective lens cover in a steady place, so that it will not interfere with the field of view of the user's unaided eye or the field of view through the MNVM.

Quick Release Mounting Male Dovetale

The male dovetail is used for quickly mounting / releasing and securing the MNVM on Head, Helmet or Weapon Mounts.

Objective Lens Focus Ring

Focuses objective lens. Adjusts for sharpest image of viewed object.
Adjustment Range: 25 cm to infinity

Eyecup

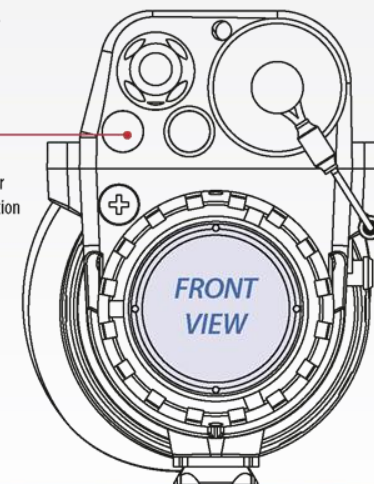
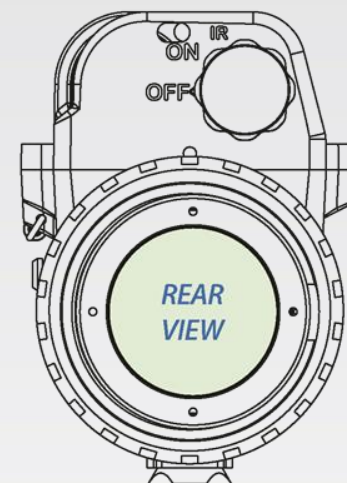
Prevents exposure of the operator due to the image intensifier's shining

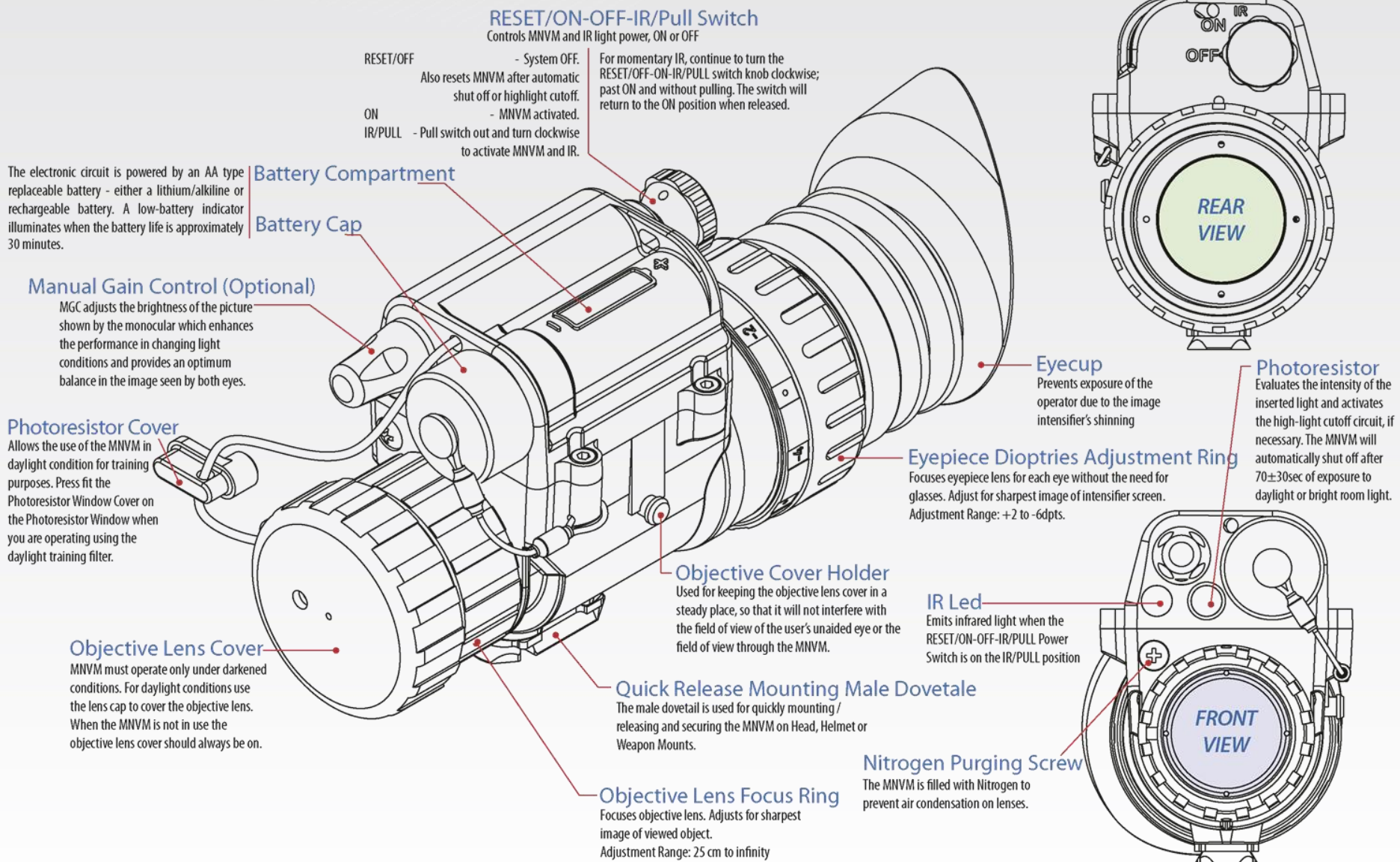
Eyepiece Dioptries Adjustment Ring

Focuses eyepiece lens for each eye without the need for glasses. Adjust for sharpest image of intensifier screen.
Adjustment Range: +2 to -6dpts.

IR Led

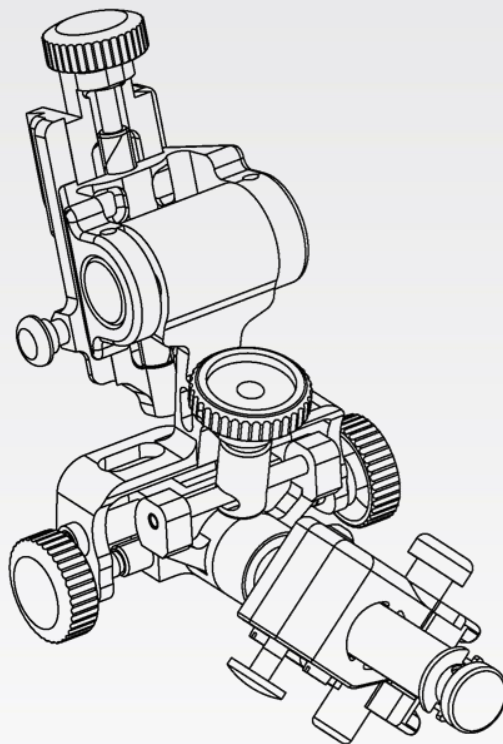
Emits infrared light when the RESET/ON-OFF-IR/PULL Power Switch is on the IR/PULL position





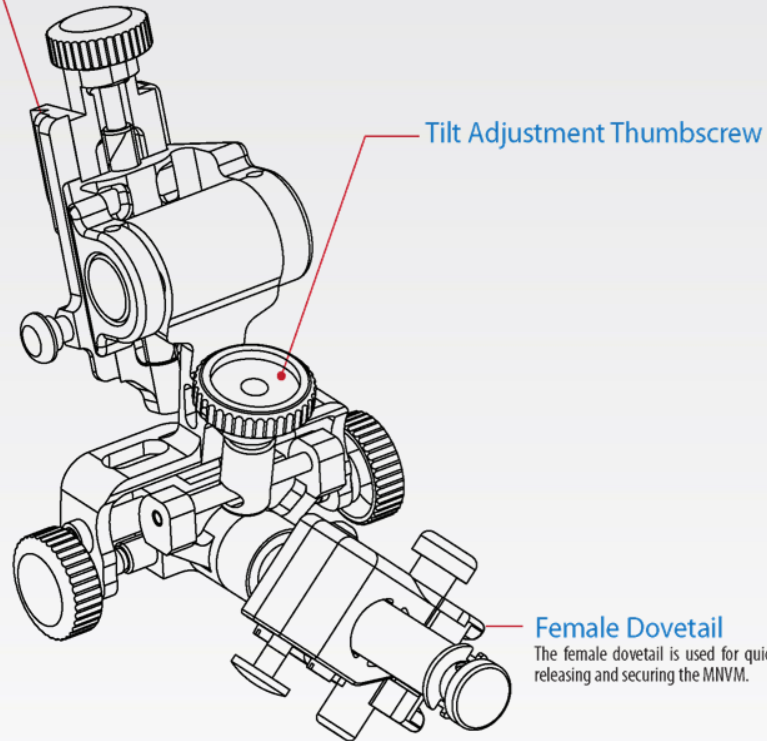
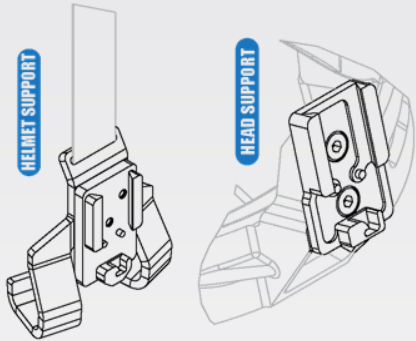
MNVM PROPERTY	SPECIFICATION
Magnification	1.0 X
Field of View	40°
Eyepiece Focus	+2 to -6 diopters
Focus Range	25 cm to infinity
Binocular operation Temperature	-40° C to 55° C
Binocular Storage Temperature	-51° C to 55° C
Operational Illumination	Overcast starlight to moonlight (or dusk/dawn with autogating)

BATTERY TYPE	TEMPERATURE	BATTERY LIFE
AA Alkaline	-20° C	>12 Hrs.
AA Lithium	-20° C	>65 Hrs.
AA Alkaline	+23° C	>45 Hrs.
AA Lithium	+23° C	>65 Hrs.
AA Alkaline	+45° C	>40 Hrs.
AA Lithium	+45° C	>55 Hrs.



Male Dovetail Mounting Interface

Mounting Interface to quickly mount on / dismount from the Helmet / Head Gear.

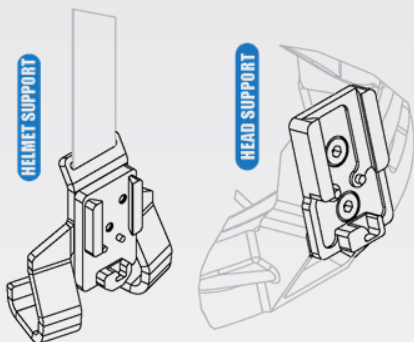


Female Dovetail

The female dovetail is used for quickly mounting / releasing and securing the MNVM.

Male Dovetail Mounting Interface

Mounting Interface to quickly mount on / dismount from the Helmet / Head Gear.



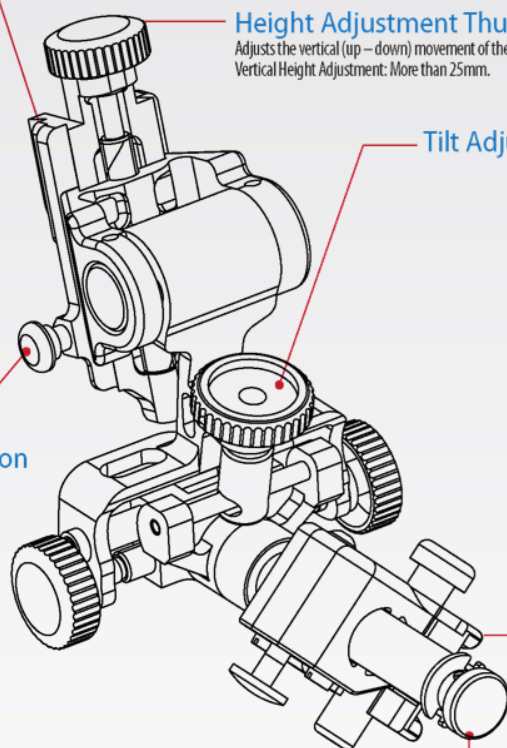
Height Adjustment Thumbscrew

Adjusts the vertical (up – down) movement of the mounted MNVMs.
Vertical Height Adjustment: More than 25mm.

Tilt Adjustment Thumbscrew

MNVG Mount Assy Quick Release Button

Permits the Binocular NVG Mount Assembly to be removed from the Head or Helmet Support Assembly by sliding upwards.



Female Dovetail

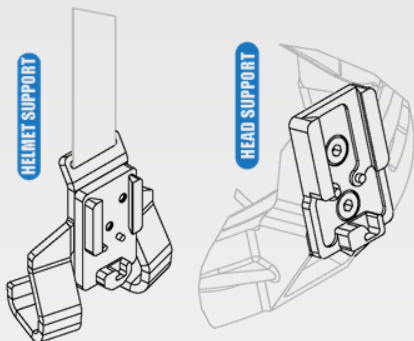
The female dovetail is used for quickly mounting / releasing and securing the MNVM.

Eye Shifting Button

Push and Rotate MNVM sideways to change viewing position from one eye to another. Easy operation that is performed with one hand in less than 5 seconds.

Male Dovetail Mounting Interface

Mounting Interface to quickly mount on / dismount from the Helmet / Head Gear.



Height Adjustment Thumbscrew

Adjusts the vertical (up – down) movement of the mounted MNVMs.
Vertical Height Adjustment: More than 25mm.

Tilt Adjustment Thumbscrew

Turn to adjust the tilt of the mounted MNVMs. Tilt Angle Adjustment Range: $+10^{\circ}$ to -10° , with reference to a horizontal optical axis.

Left – Right Adjustment Knob

Rotate Thumbscrew to achieve fine horizontal adjustment. Horizontal (L-R) Adjustment Range : 16mm

MNVG Mount Assy Quick Release Button

Permits the Binocular NVG Mount Assembly to be removed from the Head or Helmet Support Assembly by sliding upwards.

MNVM Quick Release Button

Used for separation of the MNVM from the Binocular NVG Mount assembly. Press and move the MNVM outwards to quickly release from socket.

Left – Right Adjustment Knob

Rotate Thumbscrew to achieve fine horizontal adjustment. Horizontal (L-R) Adjustment Range : 16mm

Female Dovetail

The female dovetail is used for quickly mounting / releasing and securing the MNVM.

Fore-Aft Button

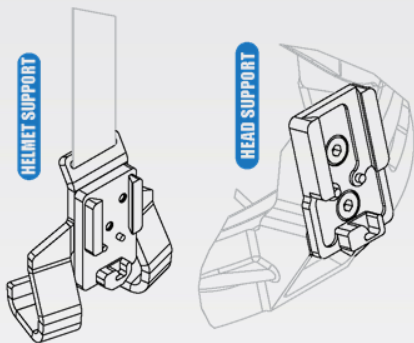
Allows for adjustment of Eye Relief for optimum performance of the Goggle. Press to initiate movement and release to secure MNVM in place.

Eye Shifting Button

Push and Rotate MNVM sideways to change viewing position from one eye to another. Easy operation that is performed with one hand in less than 5 seconds.

Male Dovetail Mounting Interface

Mounting Interface to quickly mount on / dismount from the Helmet / Head Gear.



Height Adjustment Thumbscrew

Adjusts the vertical (up – down) movement of the mounted MNVMs.
Vertical Height Adjustment: More than 25mm.

Tilt Adjustment Thumbscrew

Turn to adjust the tilt of the mounted MNVMs. Tilt Angle Adjustment Range: +10° to -10°, with reference to a horizontal optical axis.

Left – Right Adjustment Knob

Rotate Thumbscrew to achieve fine horizontal adjustment. Horizontal (L-R) Adjustment Range : 16mm

MNVG Mount Assy Quick Release Button

Permits the Binocular NVG Mount Assembly to be removed from the Head or Helmet Support Assembly by sliding upwards.

Left – Right Adjustment Knob

Rotate Thumbscrew to achieve fine horizontal adjustment. Horizontal (L-R) Adjustment Range : 16mm

Fore-Aft Button

Allows for adjustment of Eye Relief for optimum performance of the Goggle. Press to initiate movement and release to secure MNVM in place.

Eye Shifting Button

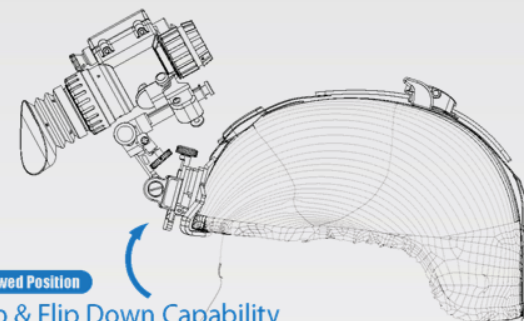
Push and Rotate MNVM sideways to change viewing position from one eye to another. Easy operation that is performed with one hand in less than 5 seconds.

MNVM Quick Release Button

Used for separation of the MNVM from the Binocular NVG Mount assembly. Press and move the MNVM outwards to quickly release from socket.

Female Dovetail

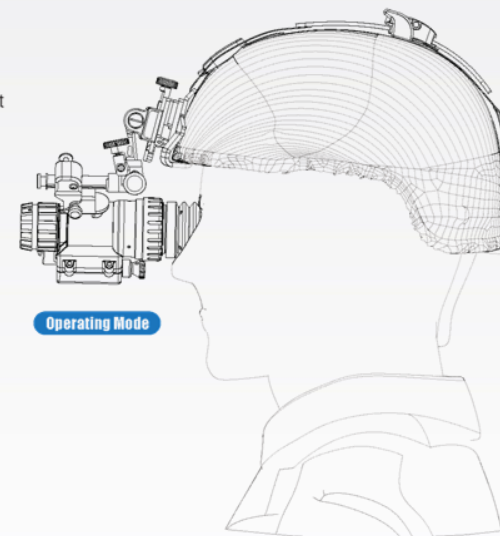
The female dovetail is used for quickly mounting / releasing and securing the MNVM.



Stowed Position

Flip-Up & Flip Down Capability Emergency Flip Up - No Buttons

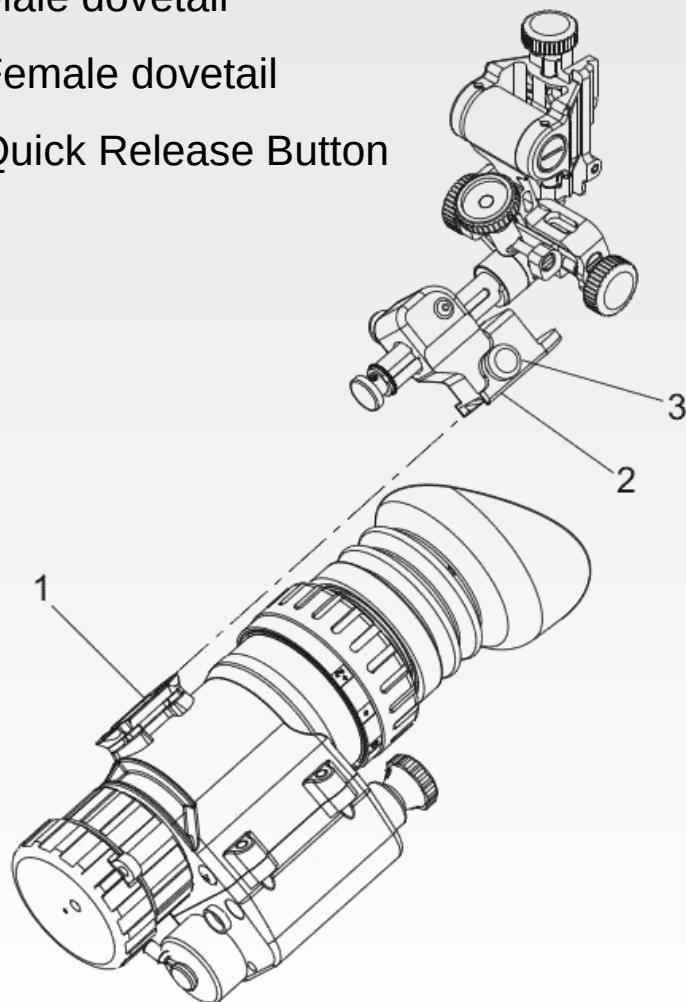
To flip up, grab the MNVM from the bottom and push upwards and rearward until it is firmly engaged. The MNVM will turn off automatically when flipped up. The MNVM will turn on automatically when flipped down. Gravity.



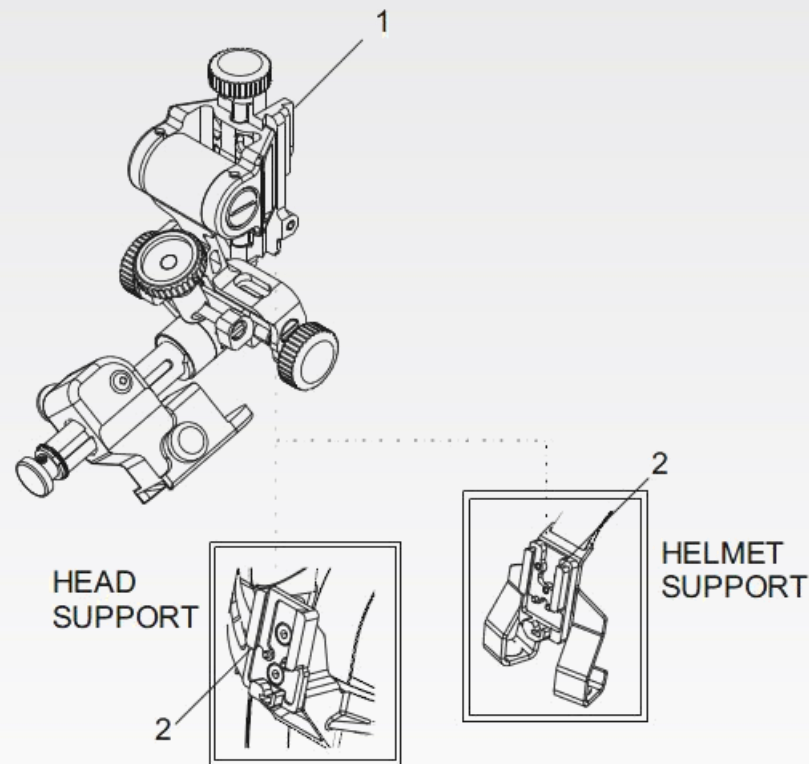
Operating Mode

- **Installation on the NVG Mount**

1. Male dovetail
2. Female dovetail
3. Quick Release Button



- **Installation of NVG Mount to Head/Helmet Support**



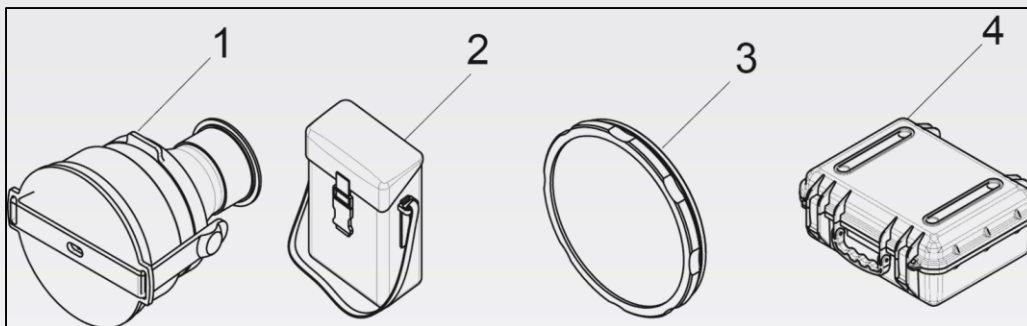
Mode of Operation	MNVM	NVG Mount	Head Mount	Helmet Mount	Weapon Mount	Tripod Mount	Magnifier
Handheld	✓						
Handheld (with Magnifier)	✓						✓
Head Mounted	✓	✓	✓				
Helmet Mounted	✓	✓		✓			
Weapon Mounted	✓				✓		
Tripod Mounted	✓					✓	✓

- Handheld Operation with Magnification 1x

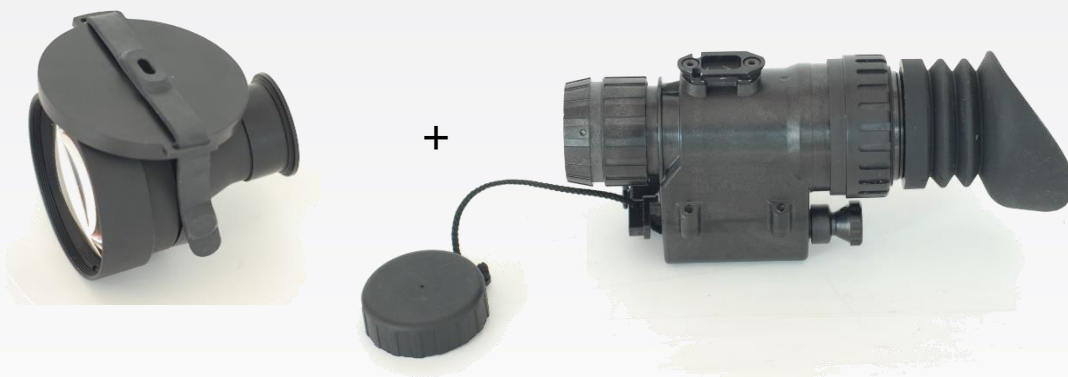


Item	Data
Magnification	1.0 X
Field of View	40°
Focus Range	<u>25 cm</u> to infinity

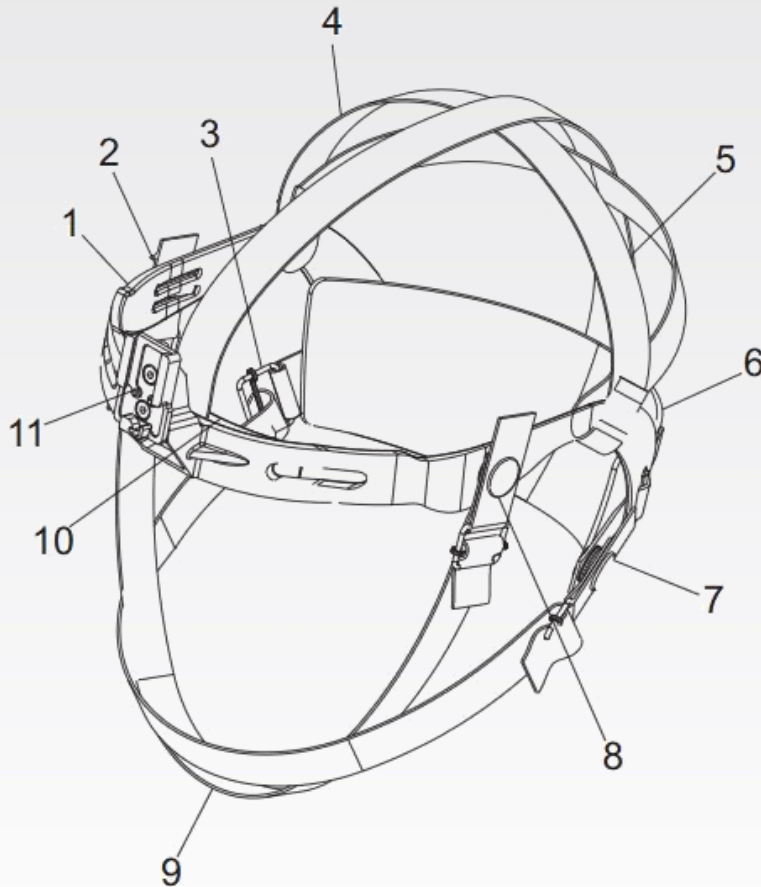
- Handheld Operation with Magnification 3x



1. 3x Magnifier Lens
2. Magnifier Carrying Bag
3. Magnifier Protection Filter
4. Magnifier Transport and Storage Box



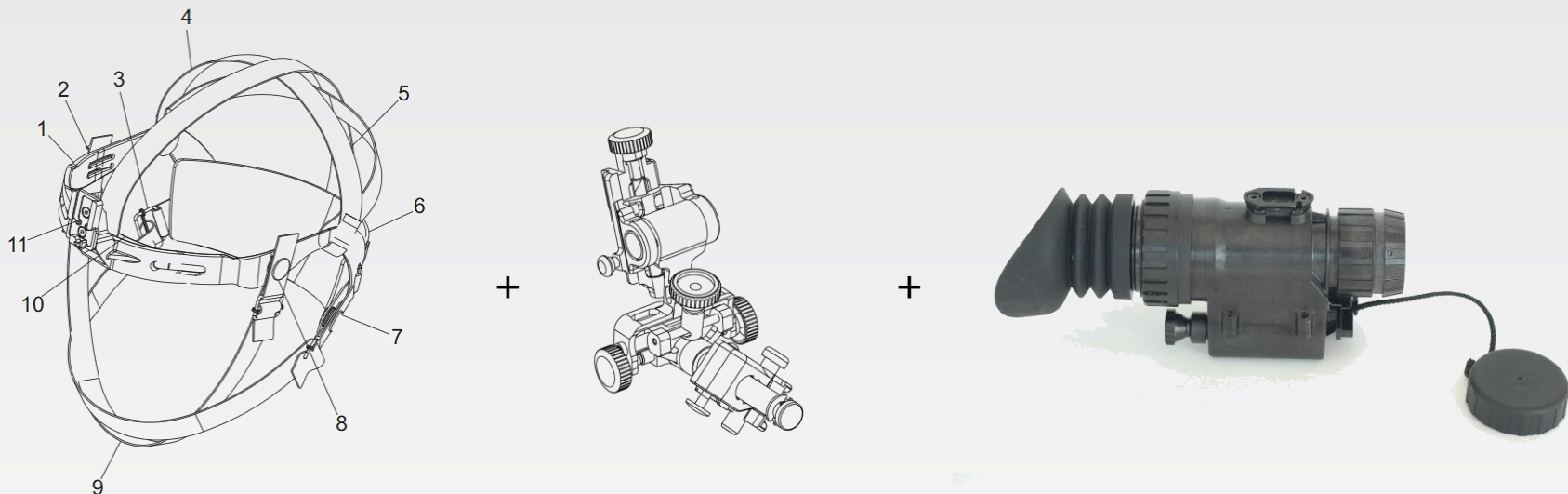
- **Head Mounted Operation**



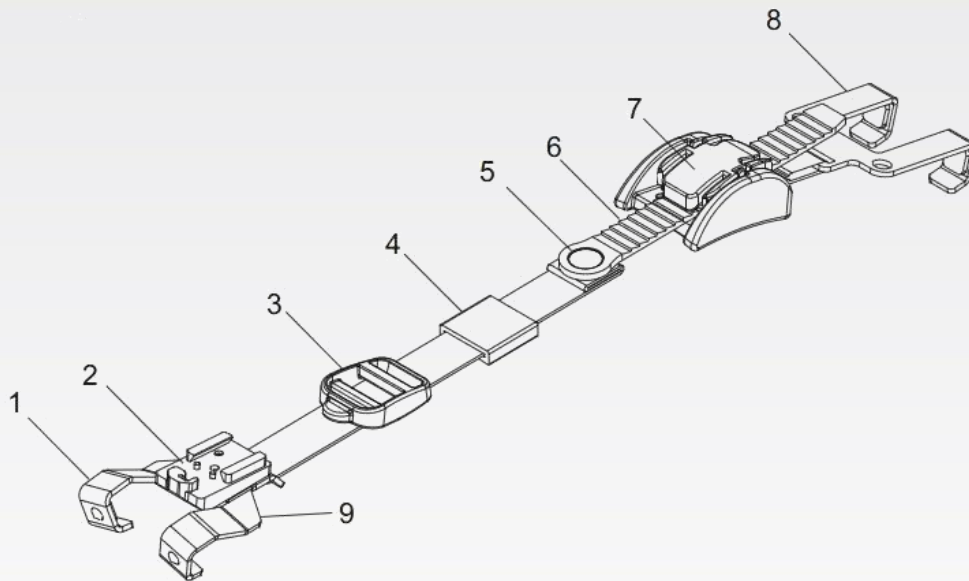
Head Support Adjustments

1. Headband
2. Right Front Chin Strap Adjustment
3. Right Rear Chin Strap Adjustment
4. Top Side Strap Assembly
5. Vertical Adjustment
6. Nape Strap
7. Left Rear Chin Strap Snap and Adjustment
8. Left Front Chin Strap Snap and Adjustment
9. Chin Strap Assembly
10. Browpad
11. Female Dovetail

- Head Mounted Operation**



- **Helmet Mounted Operation**

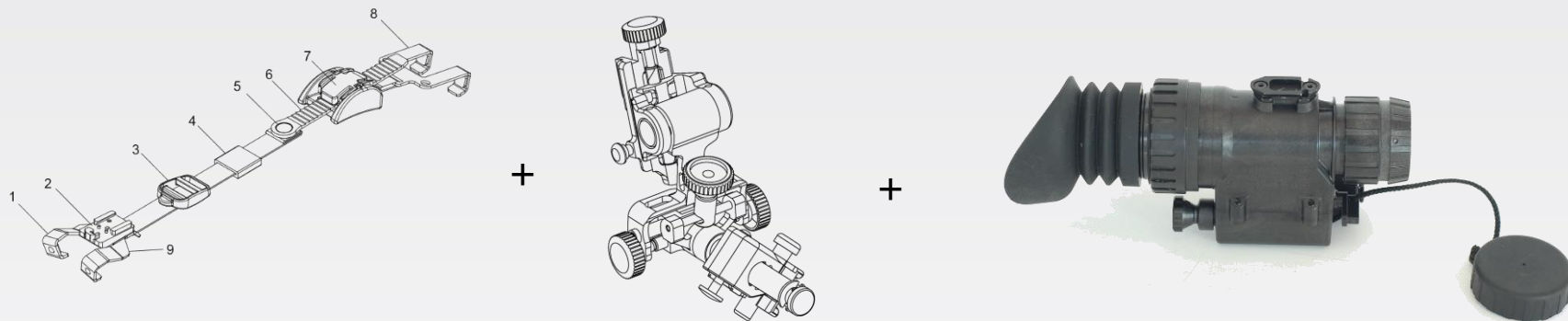


Helmet Support Assembly

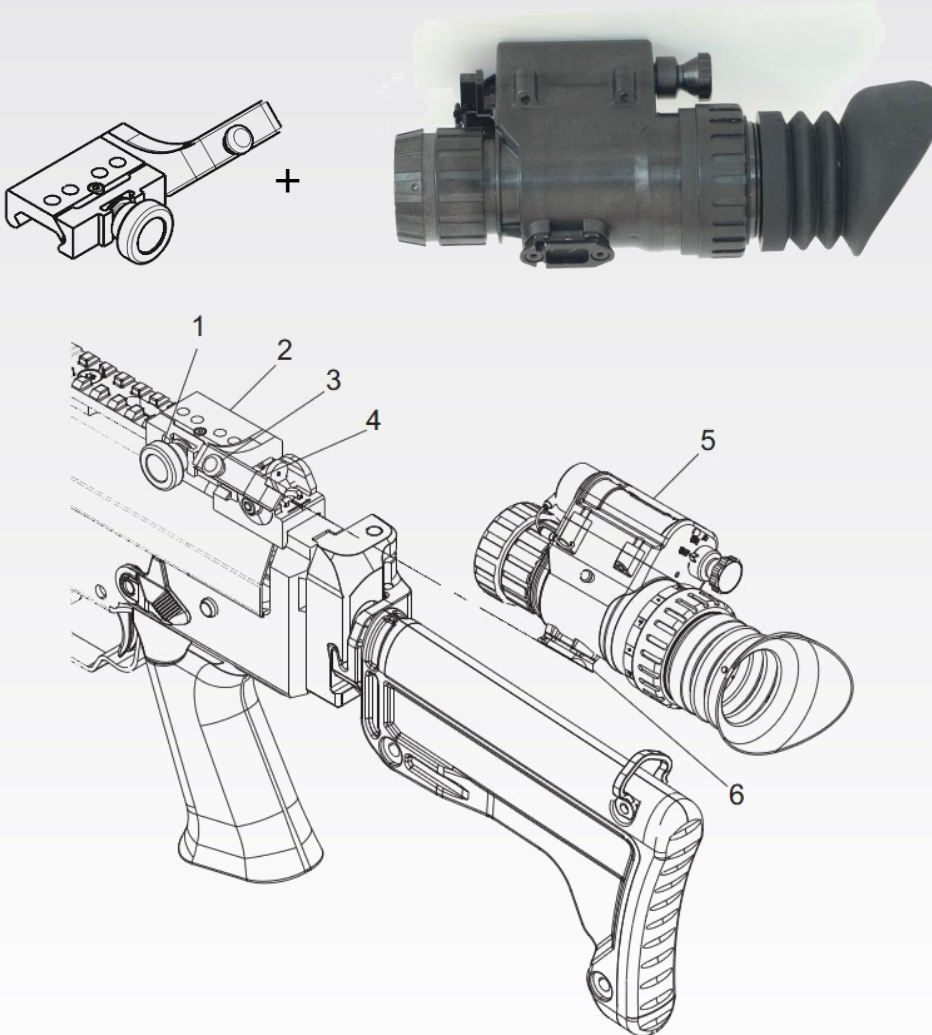
(Example - several options available for several Helmets):

1. Strap Bracket Assembly
2. Female Dovetail
3. Ladder Lock
4. Anti-Slip Slider
5. Buckle
6. Catch
7. Buckle Lever
8. Rear Clip
9. Front Clip

- Helmet Mounted Operation**



- **Weapon Mounted Operation**



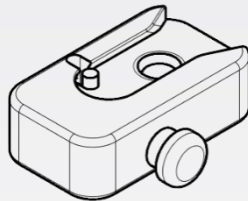
Weapon Mount Installation

(Example - several options available):

1. Locking Knob
2. Weapon Mount
3. MNVM Quick Release Button
4. Female Dovetail
5. MNVM
6. Male Dovetail

- **Tripod Mounted Operation**

Tripod +

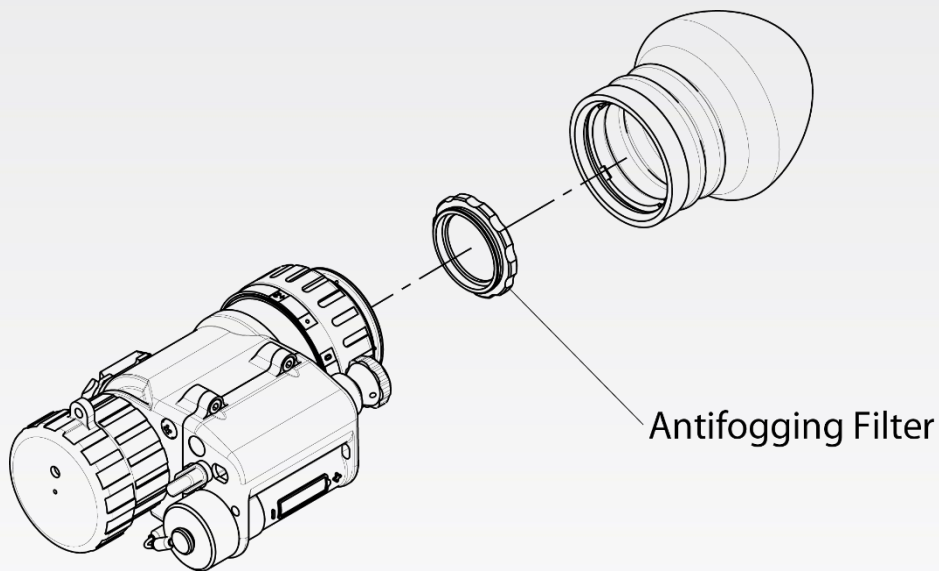


+

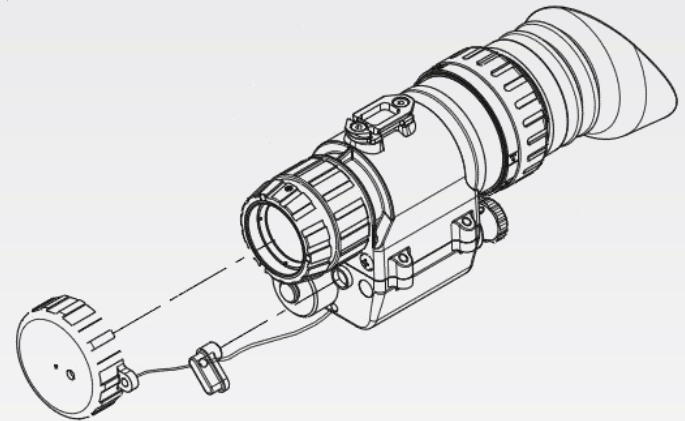


- For Observation Purposes
- With or Without Magnifier (3x)

Installation of Eyecup and Antifogging Filter



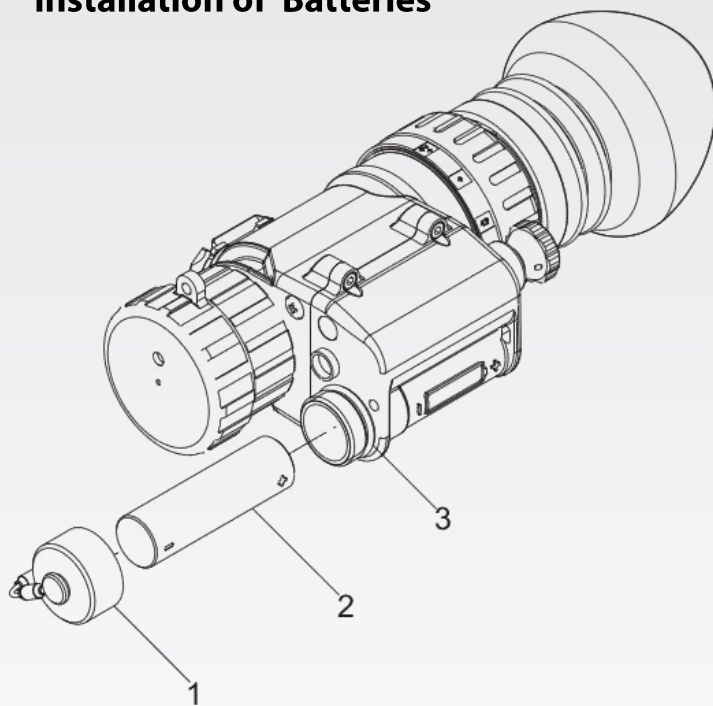
Installation of Objective Lens Cover



WARNING

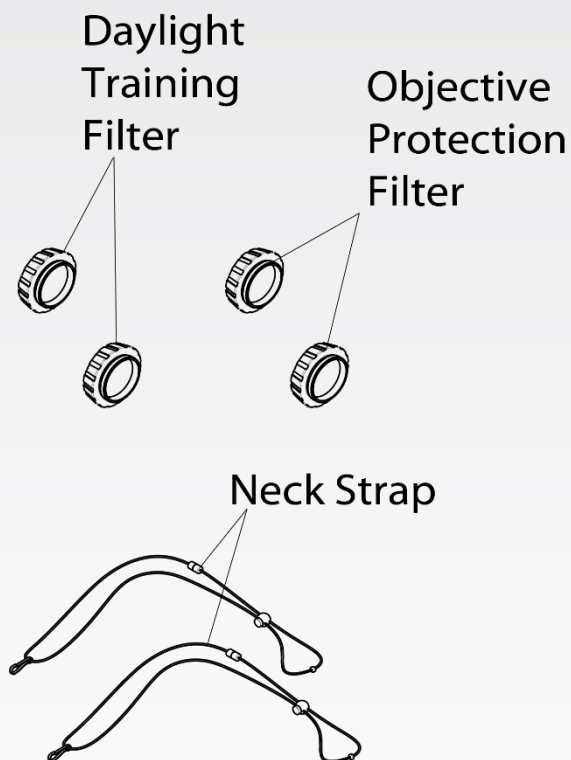
When the MNVM is not in use the objective lens cover should always be on. Damage can be caused to the Image Intensifier Tube if the objective lens is exposed to high levels of illumination for long periods of time even when the MNVM is switched off.

Installation of Batteries



1. Battery cap
2. Battery, AA type
3. O-ring

Other MNVM Accessories



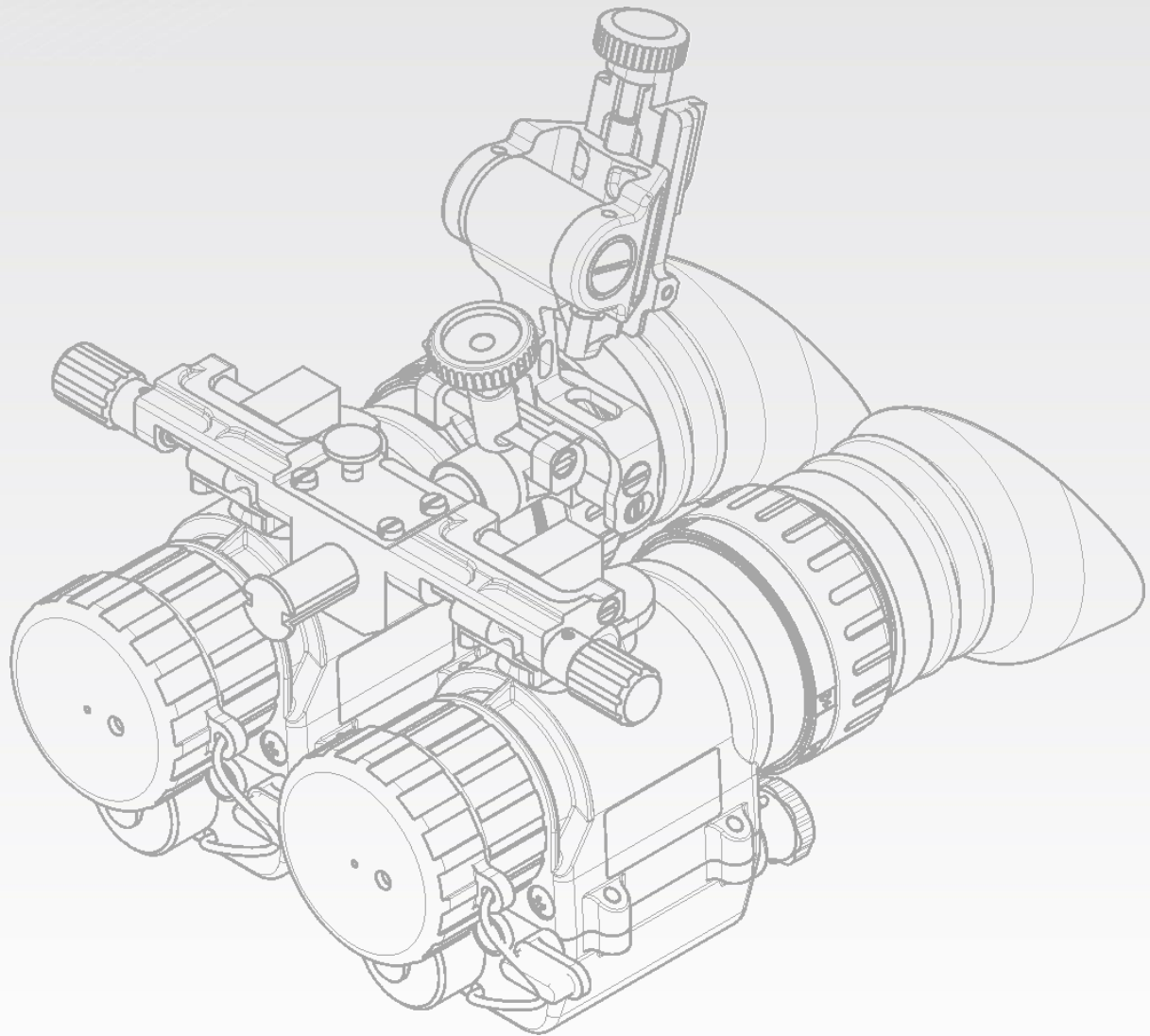
WARNINGS

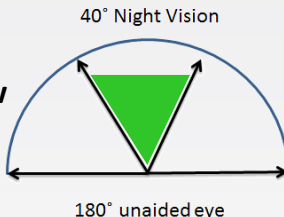
- Never point the MNVM towards intense sources of illumination such as the sun, spotlights, or highly reflective objects even when the objective lens cover is on.
- Always remove the battery after using the MNVM and prior to storage.
- Dry the MNVM thoroughly before placing it on the transportation or the storage case.
- Do not subject the MNVM to sudden temperature changes.
- The IR illuminator is a light that is invisible to the unaided eye for use during conditions of extreme darkness. However, the light from the illuminator can be detected by the enemy using night vision devices.
- When installing the headmount over the protective mask, be careful not to break the protective mask seal around your face.

WARNINGS

- Adjust vehicular speed to prevent overdriving the range of view when conditions of possible reduction of vision exist.
- Do not attempt to drive a vehicle using the MNVM when the 5X Magnifier is attached on. 5X Magnifier is to be used for observation only.
- Avoid looking straight at light sources. It may be difficult to distinguish an object that is not illuminated at high level.
- Always ensure that there is enough eye-relief distance when aiming through the MNVM
- Lithium battery may explode if overheated.
- 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.
- Do not use batteries which look bulged or have burst.
- Do not discard batteries. Turn defective batteries in for proper disposal.

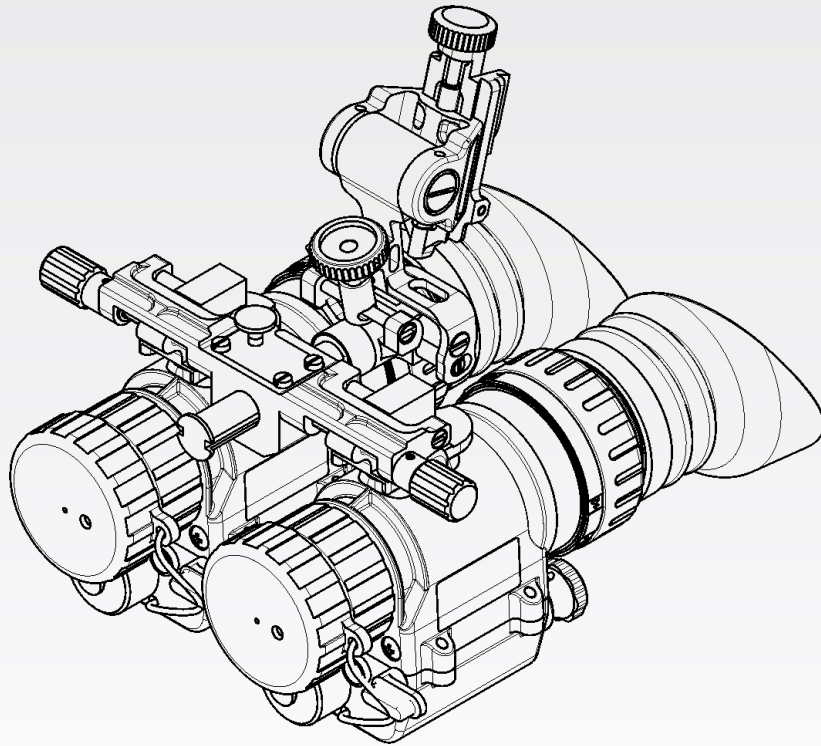
1. NX-122B Monocular Training
2. **NX-222B Binocular Training**
3. Preventive Maintenance
4. Troubleshooting
5. End



CONFIGURATION	ADVANTAGE	USE
BINOCULAR 	- Stereoscopic view - Better depth perception - Easy to adapt 	Special Operations that require good <u>depth perception</u> such as entering a building or driving a vehicle
MONOCULAR 	- Low weight - Good peripheral view - Good situational awareness 	Standard soldier equipment for <u>patrols, combat and prolonged use</u> e.g. during marches or long combat missions
WEAPON MOUNTED 	- Best performance with unmagnified sights (e.g. Aimpoint & EO Tech) 40 degrees Field of View  	Monocular / unmagnified sight combination is used for short range combat (urban terrain, entering building)

Photonis

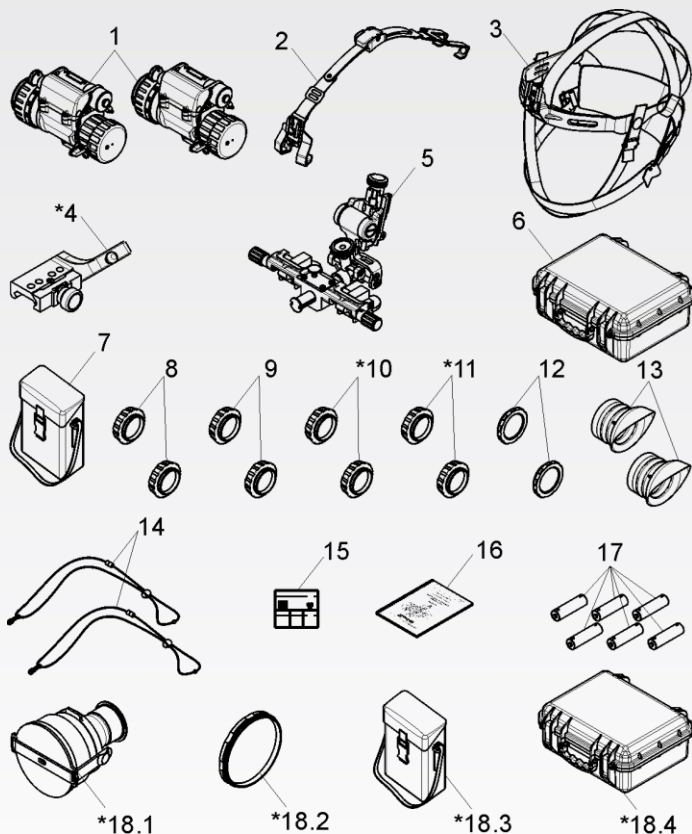
- **NX-222B: Night Vision Binocular Goggle**



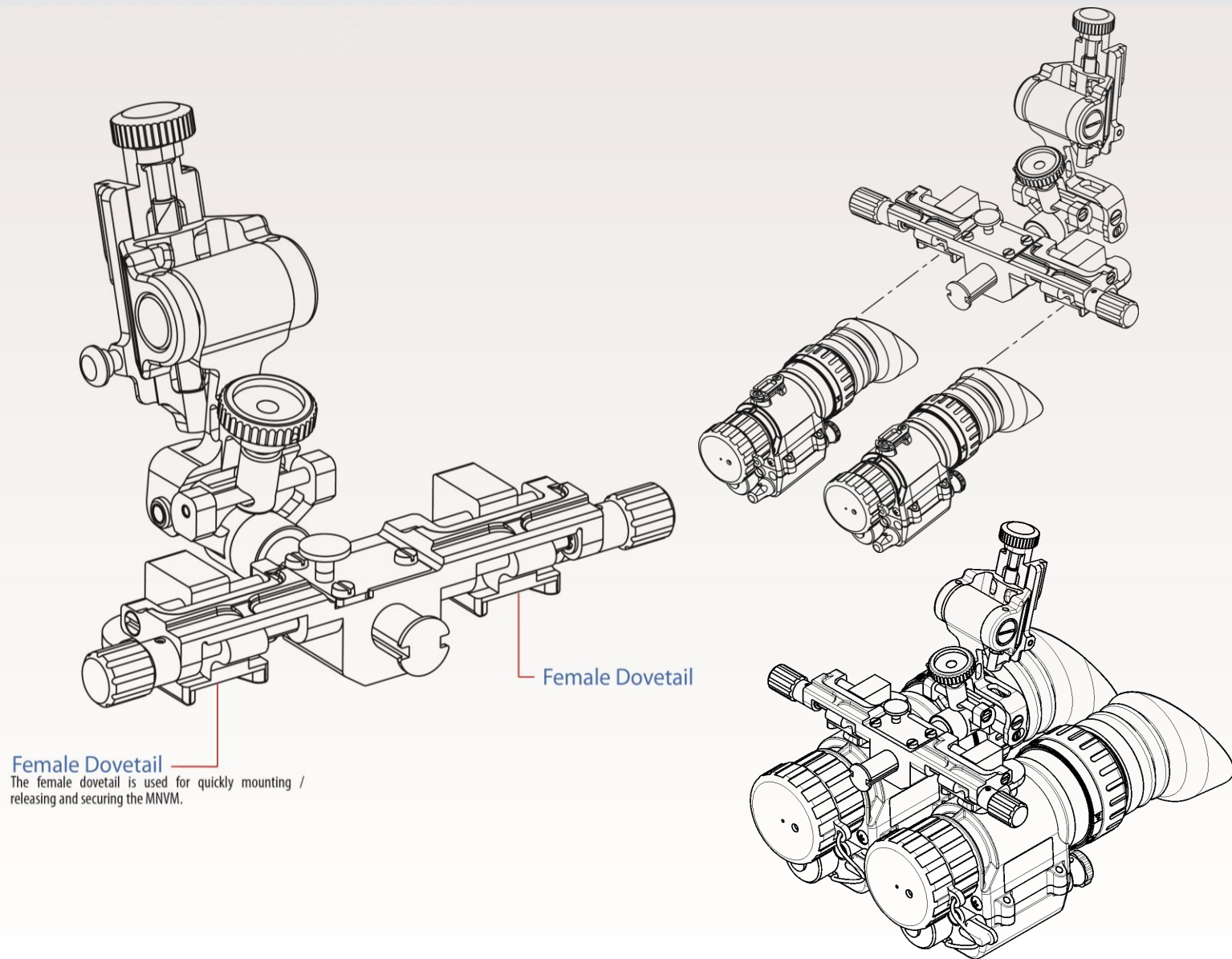
- Lightweight, robust and compact
- Automatic shut-off features
- Combination of two NX-122B MNVMs using the **Binocular NVG Mount Assembly**
- Four degrees of freedom, ambidextrous operation for head and helmet mounts
- Collimated Line of Sight
- Better depth perception than single tube systems: easier to judge distances and relative motion
- Stereoscopic View: Tasks such as driving is greatly improved

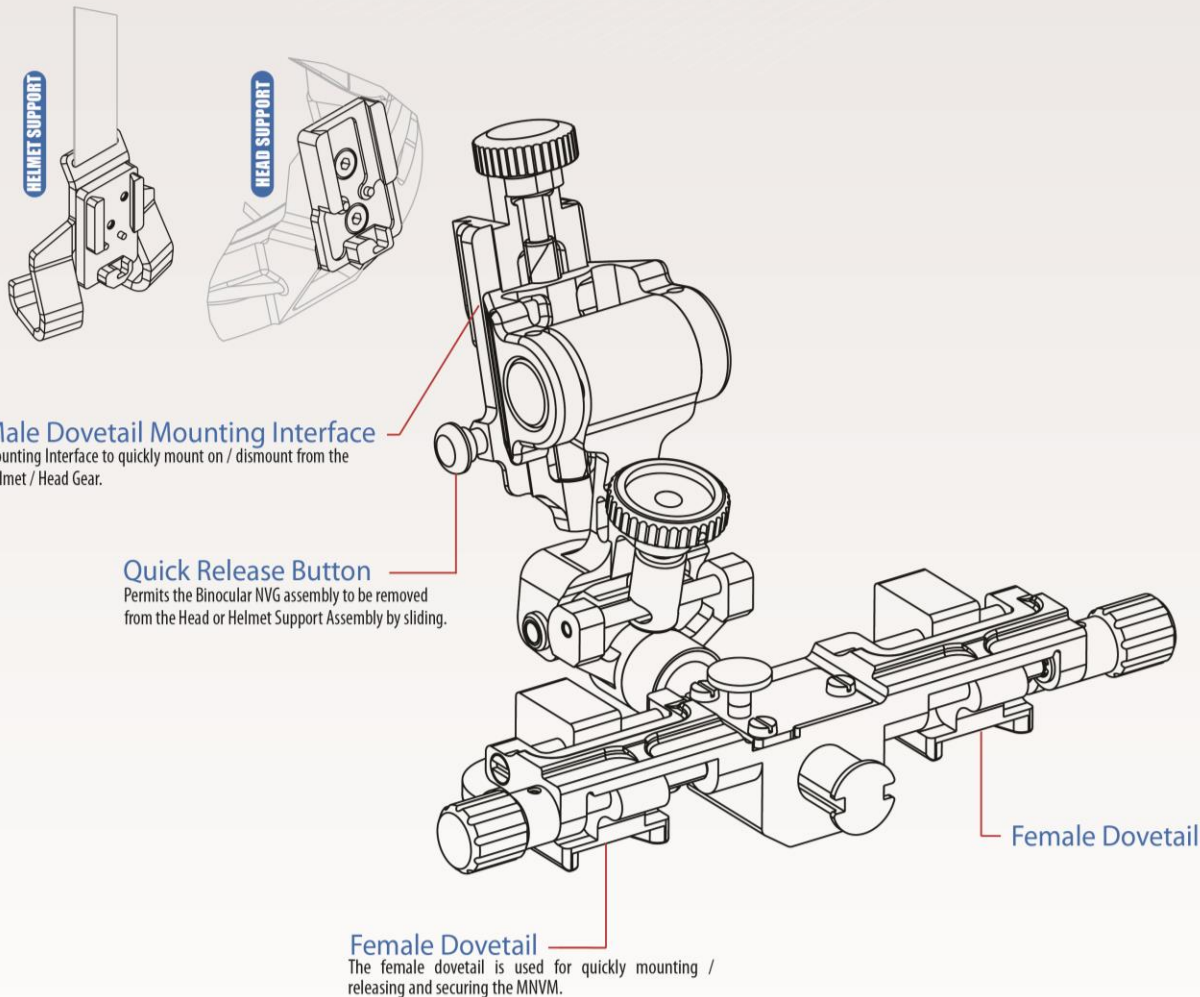
- **NX-222B: Night Vision Binocular Goggle**

- Similar kit: Two MNVMs

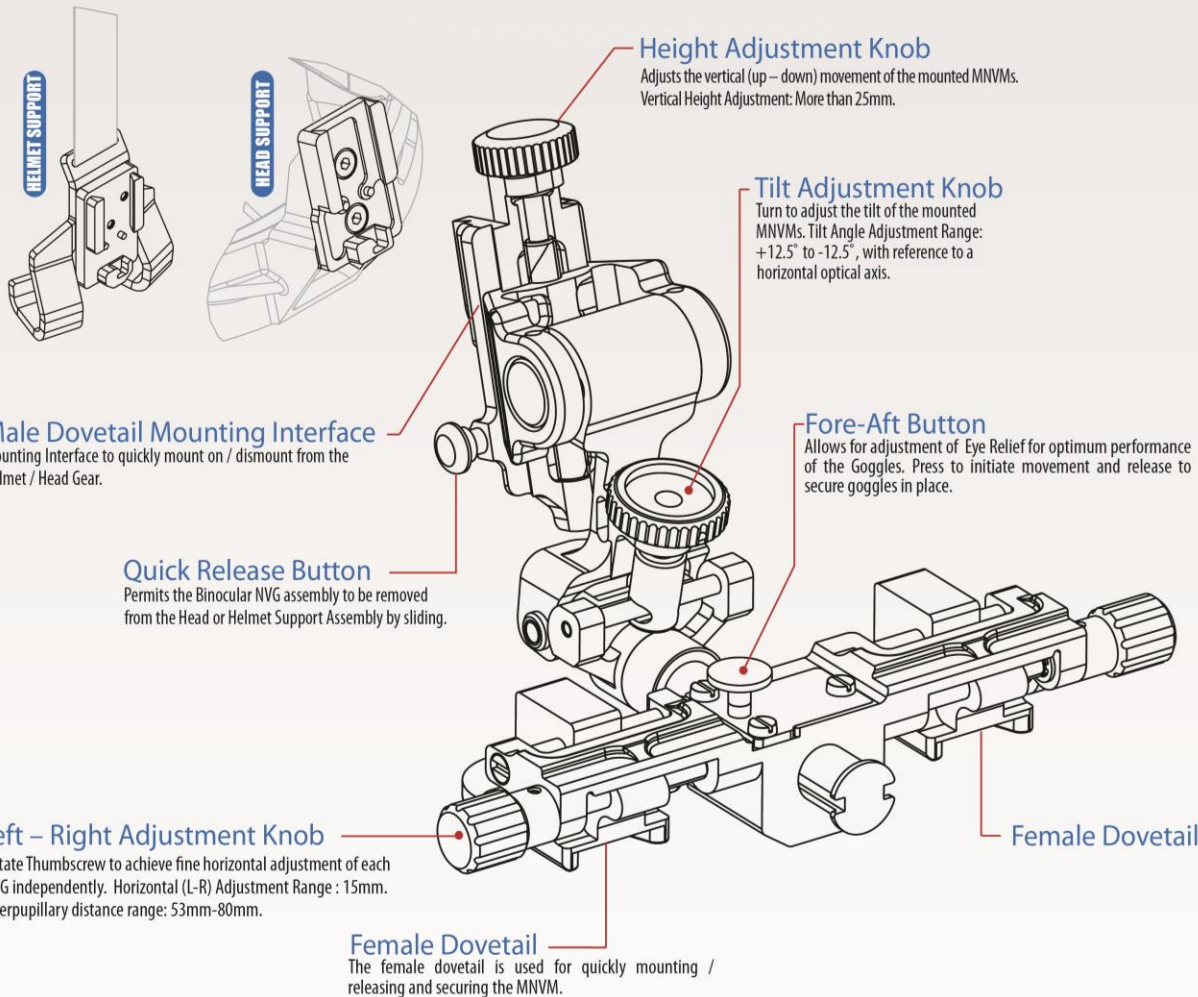


- Main Difference: Binocular NVG Mount Assembly

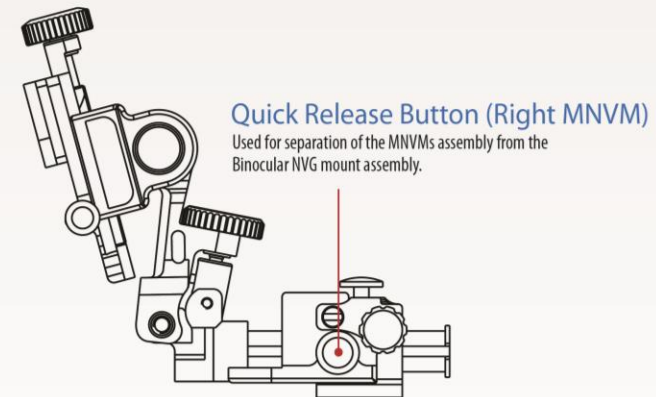
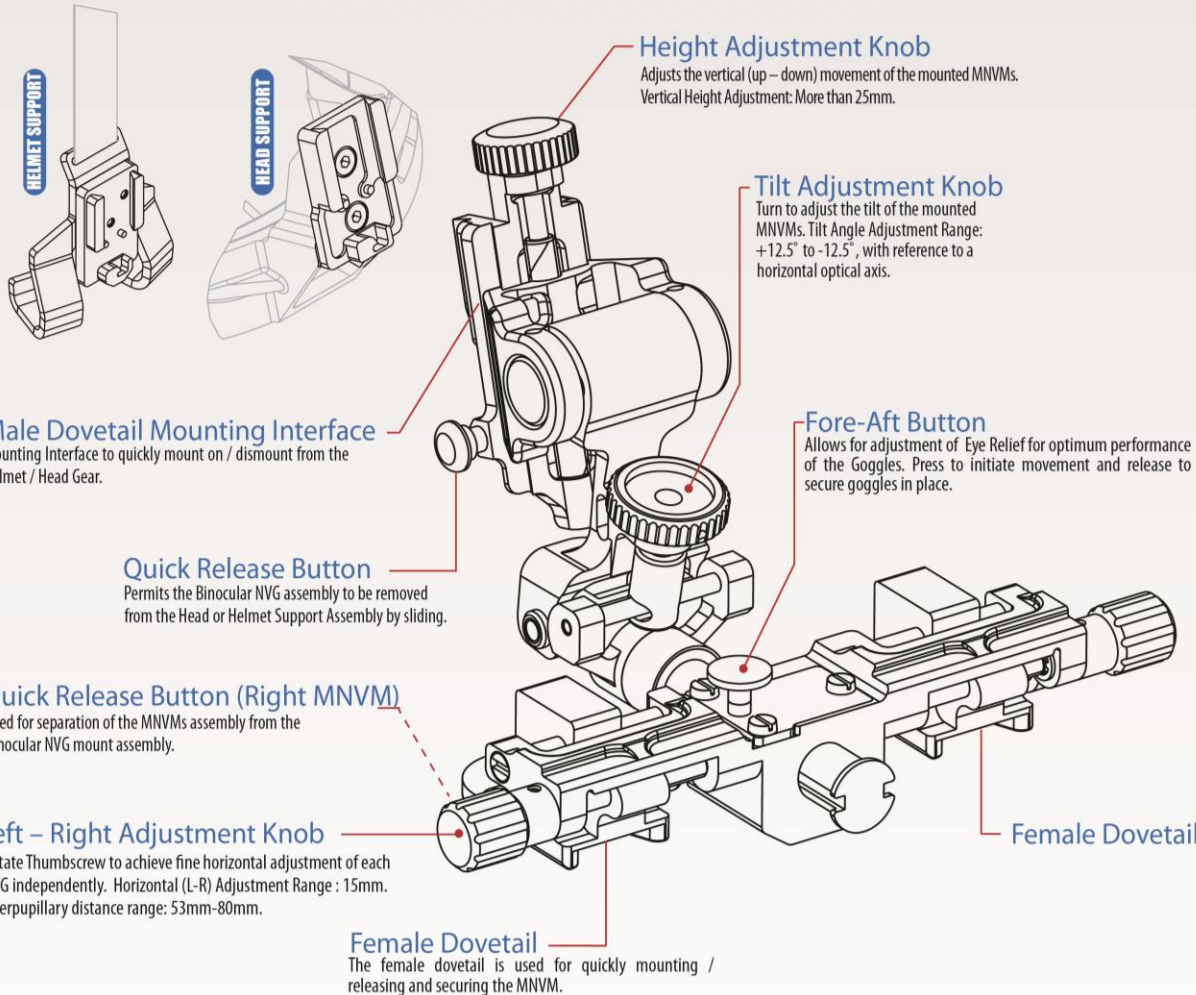




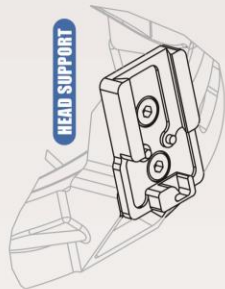
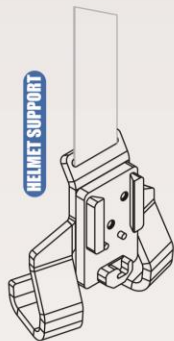
Interchangeable interface between the Head/Helmet Support and the MNVMs to operate in a binocular configuration. MNVM's are mounted in its female dovetails, and through its male dovetail mechanism on the back it is quickly mounted



Interchangeable interface between the Head/Helmet Support and the MNVMs to operate in a binocular configuration. MNVM's are mounted in its female dovetails, and through its male dovetail mechanism on the back it is quickly mounted



Interchangeable interface between the Head/Helmet Support and the MNVMs to operate in a binocular configuration. MNVM's are mounted in its female dovetails, and through its male dovetail mechanism on the back it is quickly mounted



Height Adjustment Knob

Adjusts the vertical (up – down) movement of the mounted MNVMs.
Vertical Height Adjustment: More than 25mm.

Tilt Adjustment Knob

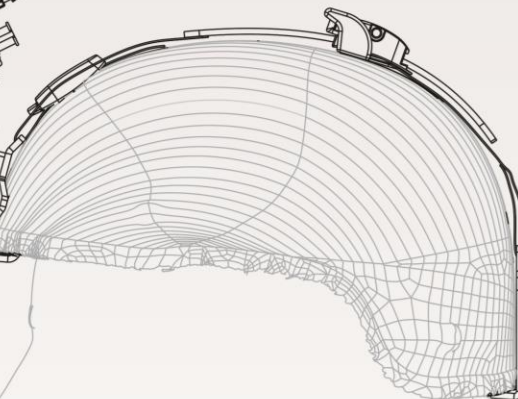
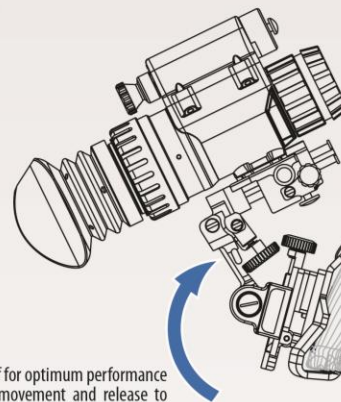
Turn to adjust the tilt of the mounted MNVMs. Tilt Angle Adjustment Range: +12.5° to -12.5°, with reference to a horizontal optical axis.

Fore-Aft Button

Allows for adjustment of Eye Relief for optimum performance of the Goggles. Press to initiate movement and release to secure goggles in place.

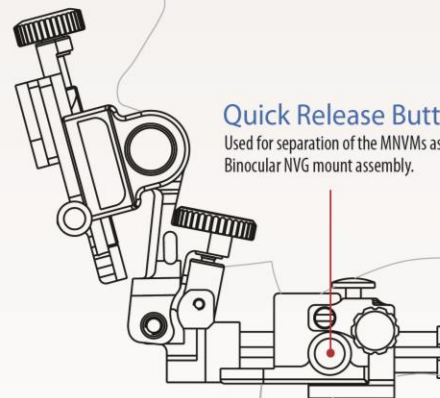
Flip-Up & Flip Down Capability Emergency Flip Up - No Buttons

To flip up, grab the MNVMs from the bottom and push upwards and rearward until it is firmly engaged. Both MNVMs will turn off automatically when flipped up. The MNVMs will turn on automatically when flipped down.



Quick Release Button (Right MNVM)

Used for separation of the MNVMs assembly from the Binocular NVG mount assembly.



Male Dovetail Mounting Interface

Mounting Interface to quickly mount on / dismount from the Helmet / Head Gear.

Quick Release Button

Permits the Binocular NVG assembly to be removed from the Head or Helmet Support Assembly by sliding.

Quick Release Button (Right MNVM)

Used for separation of the MNVMs assembly from the Binocular NVG mount assembly.

Left – Right Adjustment Knob

Rotate Thumbscrew to achieve fine horizontal adjustment of each NVG independently. Horizontal (L-R) Adjustment Range : 15mm. Interpupillary distance range: 53mm-80mm.

Female Dovetail

The female dovetail is used for quickly mounting / releasing and securing the MNVM.

Female Dovetail

Interchangeable interface between the Head/Helmet Support and the MNVMs to operate in a binocular configuration. MNVM's are mounted in its female dovetails, and through its male dovetail mechanism on the back it is quickly mounted

UNPACKING

The following steps must be accomplished prior to each mission where the MNVM(or Binocular) is used.

CAUTION

Relieve air pressure inside shipping-and-storage case by pressing relief valve button located near carrying case handle before releasing latches.

1. Release the latch securing top of shipping-and-storage case and open top.
2. Check contents of shipping-and-storage case for completeness.
3. Inspect each MNVM for obvious evidence of damage to optical surfaces, body, eyecups, RESET/OFF-ON-IR/PULL switch, battery cap, etc. Ensure that all optical surfaces are clean and ready for use. Clean with lens paper.

NOTE

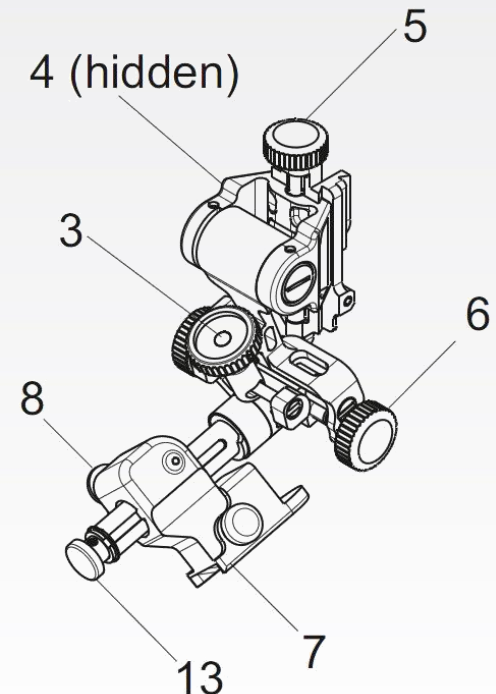
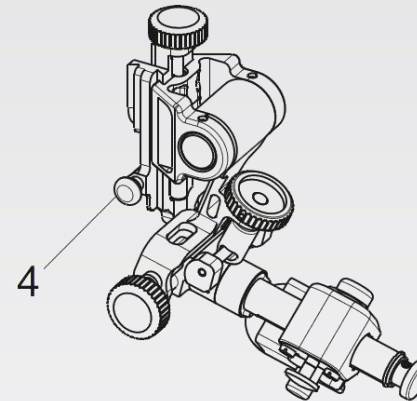
Operation of MNVM under daylight conditions will activate the high-light cutoff, causing the MNVM to shut down.

PREPARATION FOR STORAGE

Shutdown

Perform the following procedures to shut down the MNVM:

1. Turn the RESET/OFF-ON-IR/PULL switch to the OFF position.
2. Remove the MNVM from the NVG mount assembly by pressing the MNVM quick release button (7) and pulling the MNVM away.
3. Remove the NVG mount assembly (Monocular or Binocular) from the head or helmet support (if so equipped) by pressing the quick release button (4) and sliding the NVG mount assembly upwards.



Packaging After Use

1. Unscrew battery cap and remove battery.
2. Inspect the battery compartment for corrosion or moisture. Clean and dry if necessary.
3. Place back the battery cap.
4. Remove the antifogging filters, protective filter or other filters, or the 5X magnifier if installed.
Install objective lens cap.

NOTE

Prior to placing the MNVM assembly into carrying bag, ensure the MNVM and case are free of dirt, dust, and moisture.

5. Place the accompanying accessories such as antifogging filter, batteries, neck strap, lens cleaning kit, protective filter or other filters, manual, NVG mount assembly, head/helmet support into the corresponding pockets of the storage case.
6. Place the MNVM into its pocket on the shipping-and-storage case, in such a way that the MNVM's serial number is easily readable.
7. Close and latch the shipping-and-storage case.
8. Return to storage area.

OPERATION IN DUSTY OR SANDY AREAS

CAUTION

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

1. Ensure that the objective protective filter is in place.
2. Avoid pointing the MNVM into the wind unless necessary for operation.
3. Keep the soft carrying case closed unless removing or replacing items.
4. Ensure that all dust and sand is removed from the MNVM and carrying case after operation.

OPERATION IN RAINY OR HUMID CONDITIONS

CAUTION

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

1. Install the antifog filter.
2. Keep the soft carrying case closed unless removing or replacing items.
3. Dry the MNVM, 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 MNVM in a wet carrying case or a wet storage case.

OPERATION IN SALT WATER AREAS

1. After exposure to salt water, clean the exterior of the MNVM, mounts, and accessories with fresh water.
2. Dry all items completely (do NOT disassemble).
3. Use lens cleaning paper to clean the objective and the eyepiece lenses.

OPERATION IN NBC ENVIRONMENTS

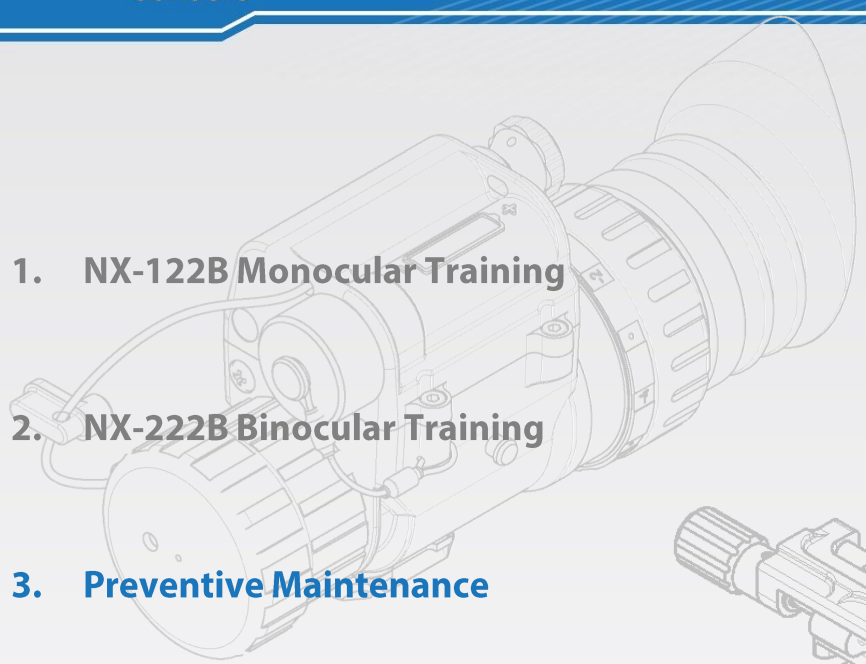
1. Decontamination — Wear a protective mask while using MNVM after decontamination process.
2. Hardness — Do not use DS-2 for decontaminating the MNVM. To decontaminate, use 5% sodium hypochlorite and rinse with hot (158°F - 70°C) soapy water

OPERATION AT LOW TEMPERATURES

- At low temperatures (below zero) more effort might be required in order to operate the MNVM.
- Do not attempt to force the manual controls since this may damage the moving parts of the MNVM.
- The capacity of the batteries is reduced at low temperatures. The reduction in the battery life is to be expected and should increase as the temperature rises.

OPERATION AT HIGH TEMPERATURES

- The MNVM can operate at temperatures up to +55 °C.
- Nevertheless you should protect the battery from exposure to very high temperatures whenever possible.
- The MNVM should not be exposed to sudden changes of temperature. If the MNVM is moved to an environment of much higher temperature, condensation might occur at the optical surfaces.



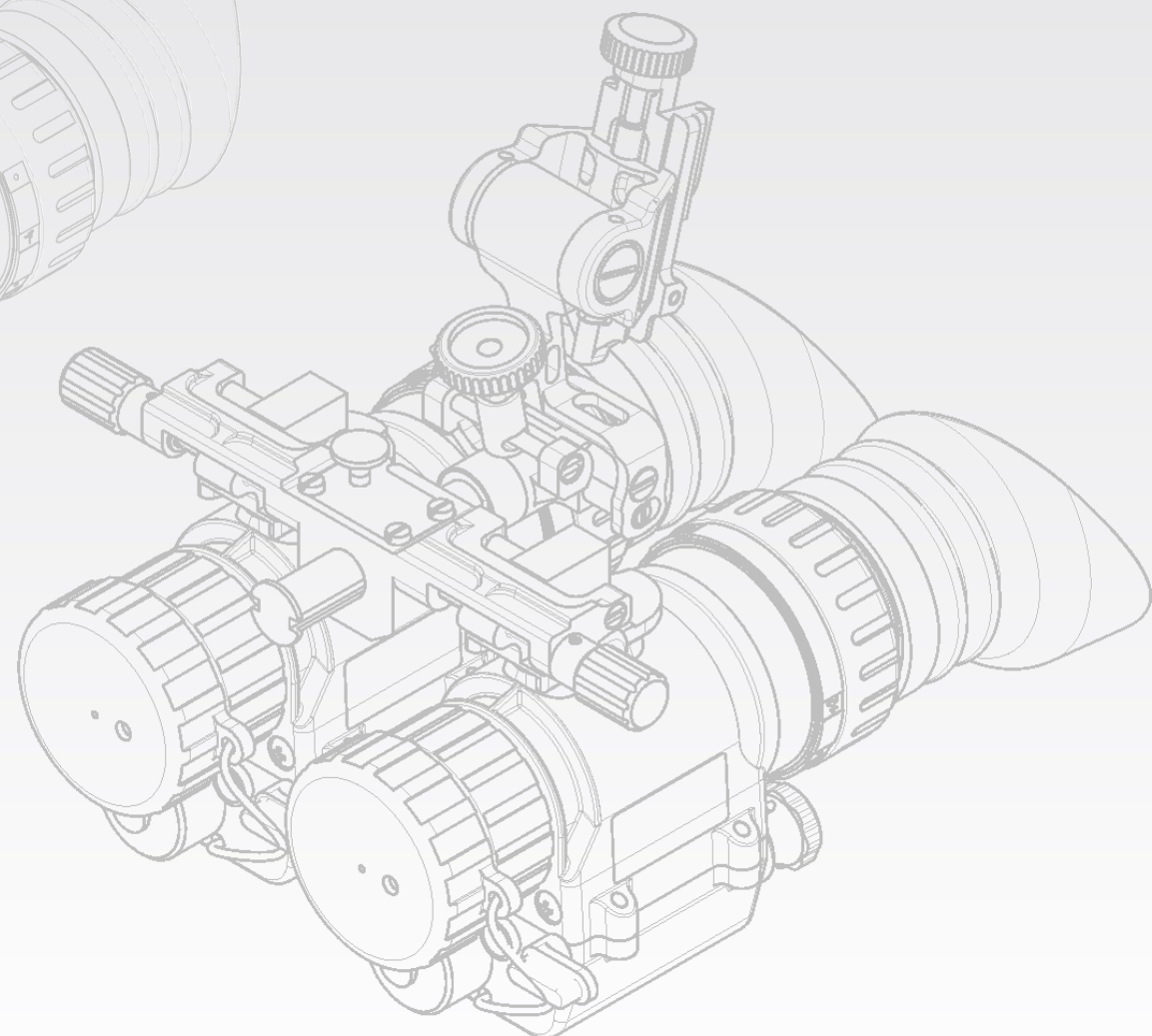
1. NX-122B Monocular Training

2. NX-222B Binocular Training

3. Preventive Maintenance

4. Troubleshooting

5. End



Preventive Maintenance – Cleaning

- **External Surfaces**
 - Use a soft brush to remove excessive dirt or sand.
 - Ensure that the battery case cover is tightly closed.
 - Use soap water and a fibreless cloth in order to clean the MNVM and its accessories.
 - Use a fibreless cloth in order to dry the MNVM and its accessories.
 - **!** After using the MNVM in salty environments wash thoroughly the MNVM and its accessories with fresh water.
- **Optical Surfaces (objective lens, eyepiece, laser laser)**
 - Use a soft brush to remove excessive dirt or sand.
 - Clean the lenses using optics cleaning paper soaked in lens cleaning solution. Wipe once gently performing a circular motion. Turn the cleaning paper on the other side and repeat the process until the glass is clean. Finally, repeat once more using dry optics cleaning paper.
- **Demist Shield**
 - Never wipe with wet cloth or paper!
 - Always wash the filter with cool, fresh water, prior to cleaning in order to remove excess sand.
 - Shake the filter in order to remove excess water and let it dry.
 - Exhale on the filter and wipe with a dry soft cloth.

Preventive Maintenance Checks and Services (PMCS)

- To ensure the readiness of the MNVM, perform the preventive maintenance procedures presented below, prior to each mission.
- Preventive maintenance procedures include inspection, cleaning, and performance of the checkout procedures.

Warnings and Cautions

- Always observe the WARNINGS and CAUTIONS appearing in the table. Warnings and Cautions appear before applicable procedures.
- You must observe the warnings and cautions to prevent serious injury to yourself and others, or to prevent your equipment from being damaged.

Explanation of Table Entries:

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		
		<u>MNVM</u>		
1.	Before/ After	Optical Surfaces	Inspect all lenses for dirt, fingerprint residue, chips, or cracks. If necessary, clean and dry lenses with water and lens tissue.	Scratches or chips hinder vision with MNVM turned on, or if cracks are present.
2.	Before/ After	External Surfaces	Inspect for cracks or damage. Scratches and gouges are OK if operation is not affected.	Cracked or damaged.

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED <u>MNVM</u>		
3.	Before/ After	Battery Compartment	Check to make sure battery cap and o-ring are present. Remove battery cap and inspect for moisture, cracks, corroded or defective spring contacts, and preformed packing present in cap.	Cap is missing or contacts damaged or corroded.
4.	Before/ After	Eyepiece Adjustment Ring	Rotate eyepiece adjustment ring to make sure the eyepiece moves freely and is not loose.	Binding, not moving freely or too loose.
5.	Before/ After	Eyecup	Inspect for dirt, dust, cracked or torn cups. Inspect for bent, broken, or improperly fitting eyecup. If necessary, clean with water.	

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		
		<u>MNVM</u>		
6.	Before/ After	Objective Lens	Rotate objective lens to ensure free movement.	Objective lens is binding or not able to move.
7.	Before/ After	Objective Lens Cover	Inspect for cracked, torn, or missing objective lens cover.	
8.	Before/ After	Housing	Check the high light cut-off with daylight or bright room light by placing the lens cup on the objective lens. Turn MNVM ON and observe that the system cuts off within 70 ± 30 sec. Turn MNVM OFF and then ON to reenergize MNVM.	If damaged, refer to higher level of maintenance

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		
		MNVM		
9.	Before/ After	RESET/OFF-ON-IR/PULL Switch	Remove the battery and turn the switch from reset/OFF to ON to IR/PULL. Each position should have a definite stopping point. Inspect for broken or missing knob.	Switch has no definite stopping points or knob is broken or missing.
10	Before/ After	Viewed Image	Refer to paragraph 2-4 to inspect for operational defects.	Flickering, flashing, edge glow, or shading is observed.
11.	Before/ After	Shuts off when removed from NVG mount assembly	Remove MNVM from NVG mount assembly while in operation. MNVM should automatically shut off.	MNVM remains on after removed from NVG mount assembly.

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		
		<u>HEAD SUPPORT</u>		
12.	Before/ After	Straps and Pads	Inspect for cuts, tears, fraying, holes, cracks, or defective fasteners.	Damage causes straps or pads to be unserviceable
13.	Before/ After	Female dovetail (socket)	Inspect for dirt, dust, or corrosion. Insert NVG mount assembly's male dovetail into socket to verify secure attachment of NVG mount assembly to head support. If necessary, clean socket with water.	Damaged, socket won't lock or is too loose.

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		
		<u>HELMET SUPPORT</u>		
14.	Before/ After	Straps	Inspect for cuts, tears, fraying, holes cracks, or defective fasteners.	Damage causes straps to be unserviceable
15.	Before/ After	Female dovetail (socket)	Inspect for dirt, dust, or corrosion. Insert NVG mount assembly's male dovetail into socket to verify secure attachment of NVG mount assembly to helmet support. If necessary, clean socket with water.	Damaged, socket won't lock or is too loose.

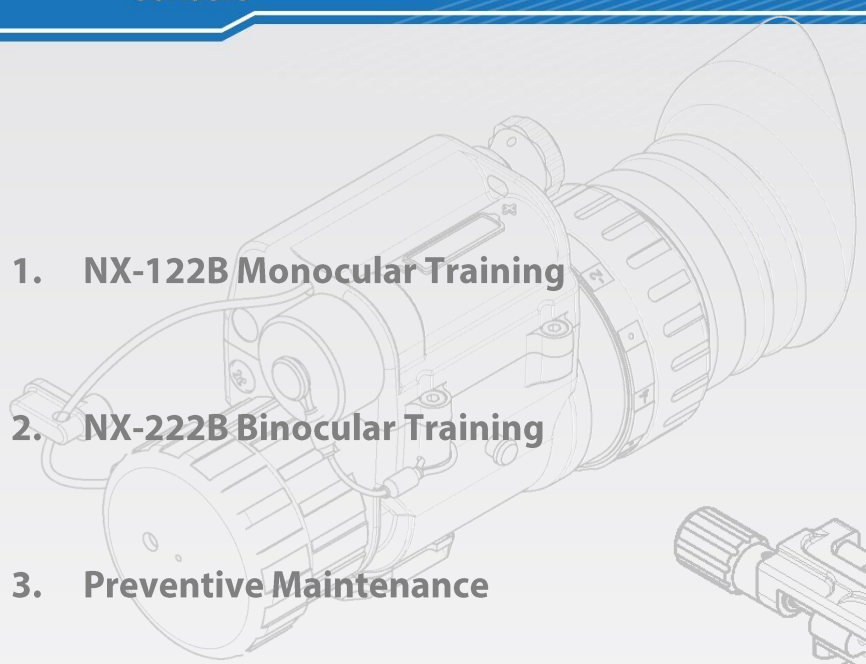
ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED		
		<u>NVG MOUNT ASSEMBLY</u>		
16.	Before/ After	NVG mount assembly male dovetail and lock mechanism	Inspect for dirt, dust or corrosion. Insert into head/helmet support socket to verify secure attachment.	Damaged, will not lock securely.
17.	Before/ After	Fore-Aft Adjustment	Press the release button and check for free motion. Inspect for damage.	Binding, damaged or non-operational slide mechanism.
18.	Before/ After	Horizontal/Tilt/Height Adjustment Knobs	Turn the NVG adjustment knobs and check for free motion. Inspect for damage.	Binding, damaged or non-operational mechanism.

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED <u>NVG MOUNT ASSEMBLY</u>		
19.	Before/ After	Flip up mechanism	Flip the lower part of the NVG mount assembly up and verify that it firmly engages both on flip up and flip down position. Inspect for damage.	Binding, damaged or non-operational lock mechanism.
20.	Before/ After	Female Dovetail MNVM locking mechanism	Inspect for dirt, dust or corrosion. Insert into MNVM's male dovetail to verify secure attachment.	Damaged, will not lock securely.

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO BE INSPECTED <u>ACCESSORIES</u>		
NOTE Damaged accessory items (protective filter, antifogging filter) 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.				
21.	Before/ After	Antifogging filter	Inspect for dirt, dust, scratches, or damage. If necessary, clean when shields are dry and with dry lens tissue only.	Damage or scratches hinder vision with MNVM on.
22.	Before/ After	Filters (Objective Protection, Daylight, LASER, NV compatibility)	Inspect for dirt, dust, scratches or damage. If necessary, clean with water and dry with lens tissue. Verify mounting onto the objective lens of the MNVM.	Damage or scratches hinder vision with MNVM on.

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		<u>ITEM TO BE INSPECTED ACCESSORIES</u>		
23.	Before/ After	Neck Cord	Inspect cord for cut, damage, or ends. Re-tie ends if necessary	
24.	Before/ After	Weapon Mount	Inspect for dust, dirt or corrosion	Damaged, will not mount to MNVM or will not mount to rail.
25.	Before/ After	3X Magnifier	Inspect optical surface for dirt, dust, scratches or cracks.	Damaged or scratches hinder vision

ITEM NO	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		<u>ITEM TO BE INSPECTED CARRYING CASE</u>		
26.	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.	
27.	Before/ After	Shoulder Strap	Inspect for cuts, tears, or excess wear or damaged clips.	



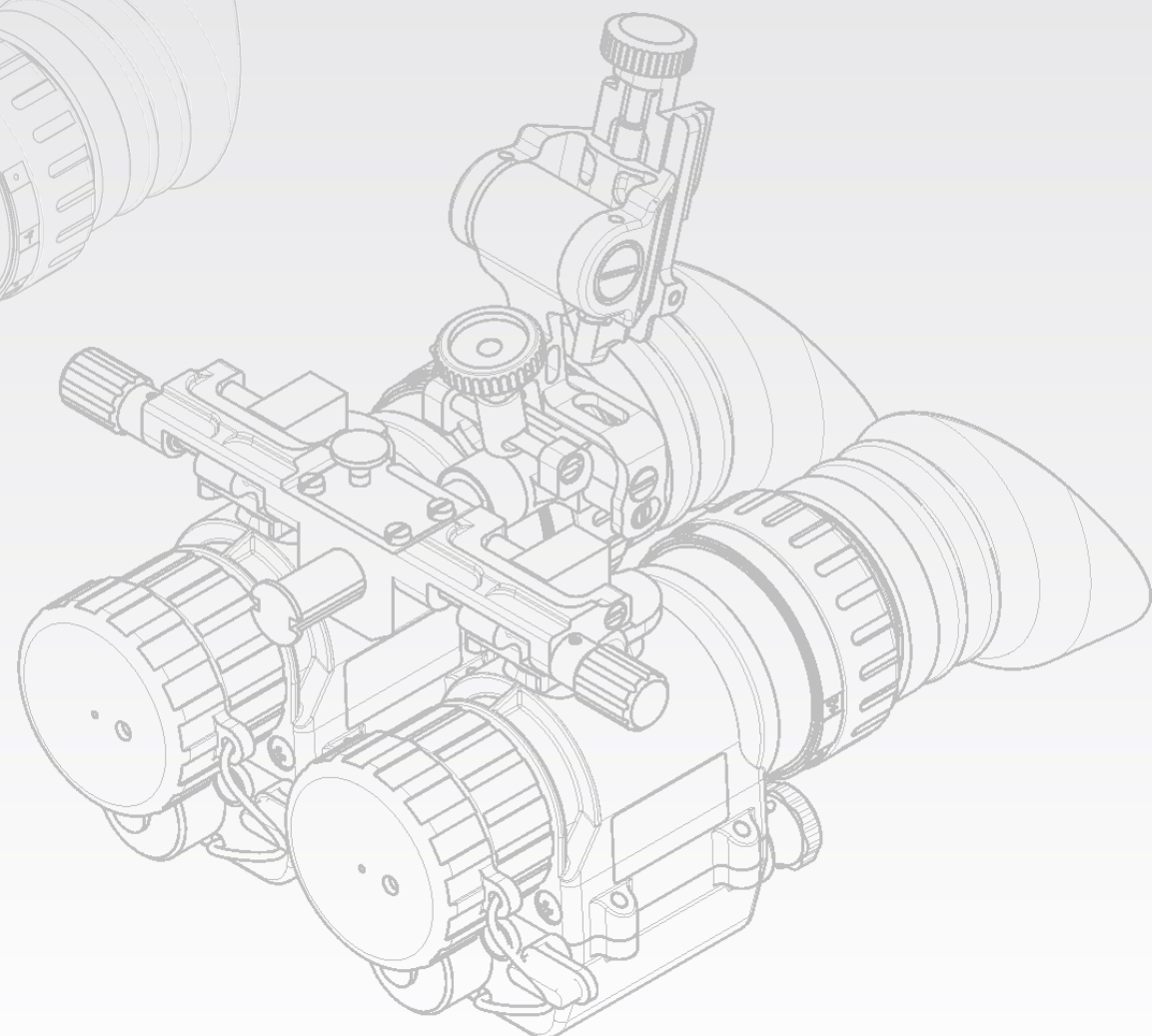
1. NX-122B Monocular Training

2. NX-222B Binocular Training

3. Preventive Maintenance

4. Troubleshooting

5. End



Troubleshooting Procedures

- Common malfunctions that you may find with your equipment.
- Perform the tests, inspections, and corrective actions in the order they appear in the table.
- This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault.
- If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
---------	-------------------	----------------------

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
1. MNVM fails to activate.	Visual.	Turn switch to RESET/OFF position and then ON.
	Check for defective, missing, or improperly installed battery.	Replace battery or install correctly.
		If the MNVM still fails to activate, refer to higher level of maintenance.

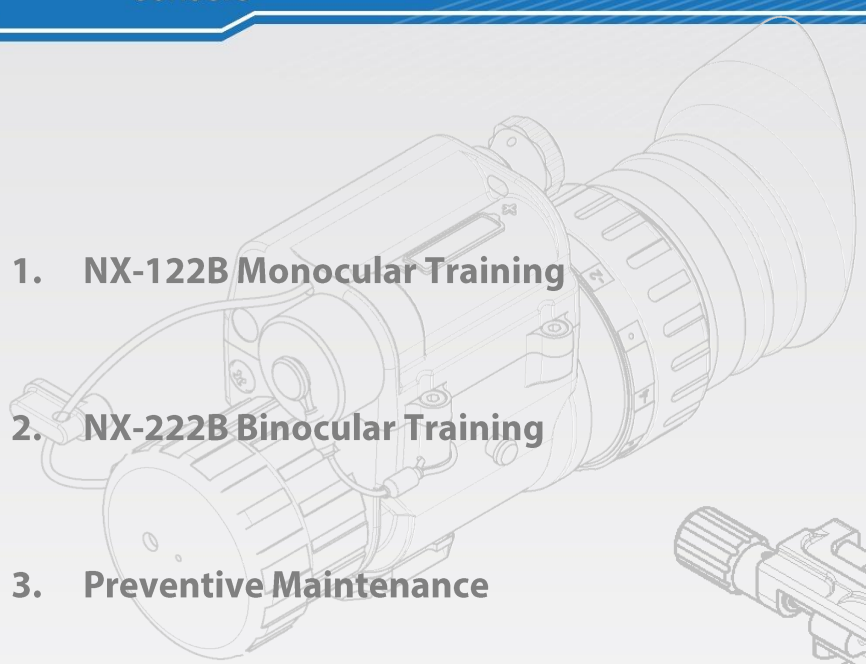
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
2. IR indicator fails to activate.	Visual.	Refer to higher level of maintenance.
3. Poor image quality.	Check objective lens or eyepiece focus.	Refocus.
	Check for fogging or dirt on lens.	Clean lens surfaces. If image quality is still poor, refer to higher level of maintenance.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
4. Light visible around eyecup.	Check eye-relief distance.	Re-adjust for proper eye-relief distance.
	Check eyecup for resiliency.	If eyecups defective, refer to higher level of maintenance.
5. Eyepiece adjustment cannot be made.	Check to see if the eyepiece adjustment ring is bent or broken.	If damaged, refer to higher level of maintenance.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
6. Battery cap difficult to turn.	Check for dirt or grit in threads.	Clean.
	Visually inspect for the presence of an o-ring (Figure 1, WP 0005 00).	If o-ring is missing, refer to higher level of maintenance.
	Check for damaged battery cap or threads on battery compartment.	If damaged, refer to higher level of maintenance.
7. MNVM does not shut off when removed from headmount during operation.	Visual.	Return the MNVM, the NVG mount assembly to higher level of maintenance.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
8. Head straps cannot be tightened.	Check for defective buckles, fasteners or straps.	If damaged, refer to higher level of maintenance.
9. Head/Helmet support socket and NVG mount assembly do not securely lock.	Check dovetails and securing pin for dirt. Check pin by pressing for proper movement.	Clean dovetails, pin and quick release button. If damaged, return both head/helmet support and NVG mount assembly to higher level of maintenance.
10. MNVM and NVG mount assembly do not securely lock.	Check dovetails and securing pin for dirt. Check pin by pressing for proper movement.	Clean dovetails and pin-quick release button. If damaged, return both NVG mount assembly and MNVM to higher level of maintenance.
11. MNVM and weapon mount do not securely lock.	Check dovetails and securing pin for dirt. Check pin by pressing for proper movement.	Clean dovetails and pin-quick release button. If damaged, return both weapon mount and MNVM to higher maintenance level.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
12. Helmet Support will not tighten to helmet.	Visual.	If damaged, refer to higher level of maintenance.
13. MNVM does not shut off when exposed to highlight.	Visual.	If damaged, refer to higher level of maintenance.
	Perform the following test under daylight or bright room light (no fluorescent light):	
	Place the lens cap on the objective lens. Turn MNVM on and observe that they shut off within 70(±30) seconds after energized.	If damaged, refer to higher level of maintenance.
14. MNVM does not shut off when exposed to highlight - continued	Turn MNVM off and then on to re-energize MNVM	If damaged, refer to higher level of maintenance.



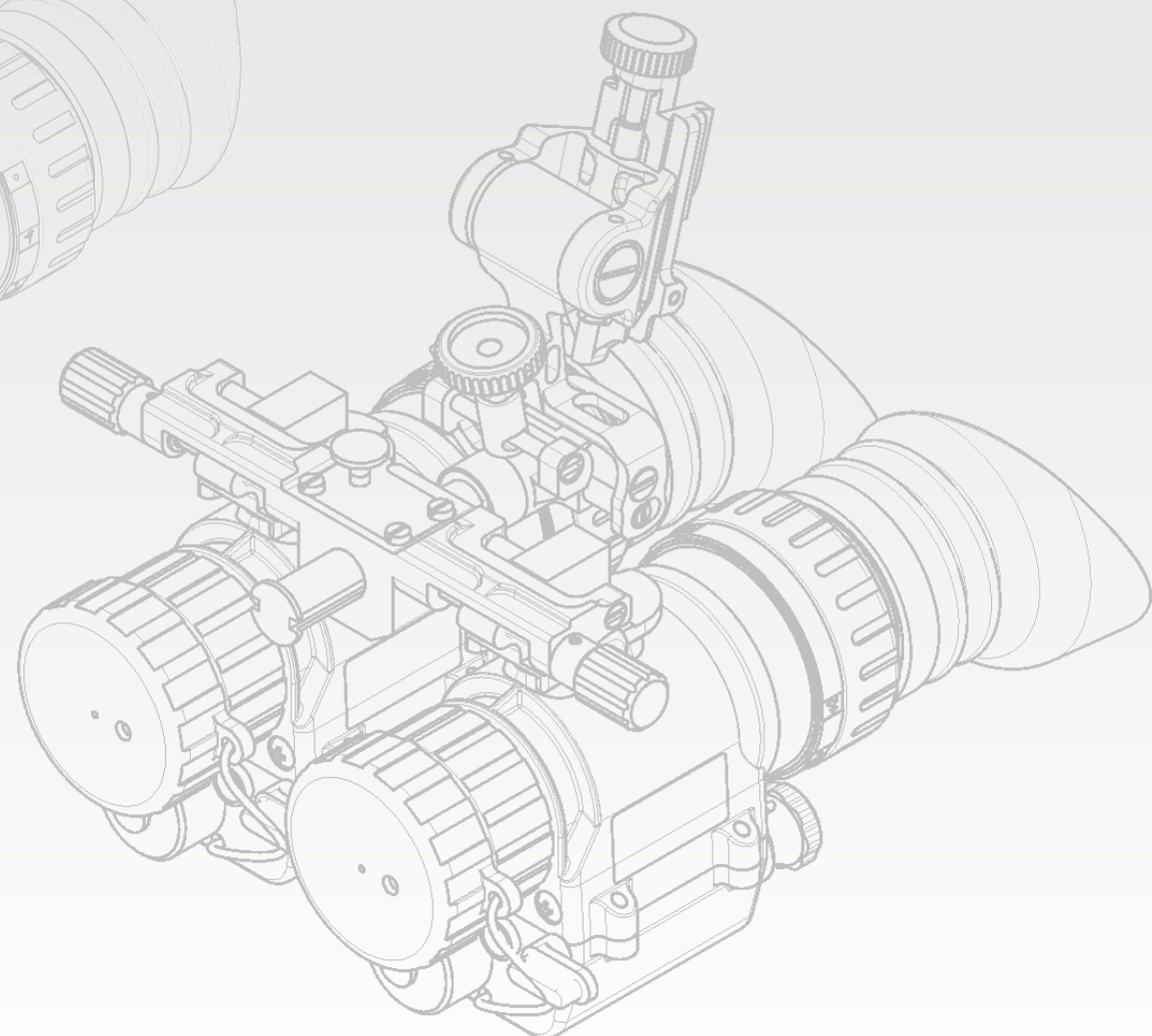
1. NX-122B Monocular Training

2. NX-222B Binocular Training

3. Preventive Maintenance

4. Troubleshooting

5. End





HEAD OFFICE: 7, Stratigi Str.,
N. Psychico,
GR-154 51, Greece,
Tel. +30-210-6728610,
Fax +30-210- 6728624

FACTORY: 57, I.Metaxa Str.,
Nisiza Place, Karelas, Koropi,
GR-194 00, Greece
Tel. +30-210-6641420,
Fax +30-210-6644093

URL: www.theon.com
E-mail: info@theon.com

Our Vision... Your **Night** Vision!

