GENERAL INFORMATION ABOUT

How does my LOMO® Night Vision Device Work?

Night Vision Scopes are sophisticated opto-electronic devices that assist viewing in near or complete darkness by amplifying all available light. Unlike telescopes and binoculars, they are usually not intended for magnification of remote objects.

All LOMO® Night Vision Devices include a built-in Infrared (IR) Illuminator that provides additional light, making it possible to see in complete darkness. A small red dot appears on the front of the Night Vision Device when the IR Illuminator is ON.

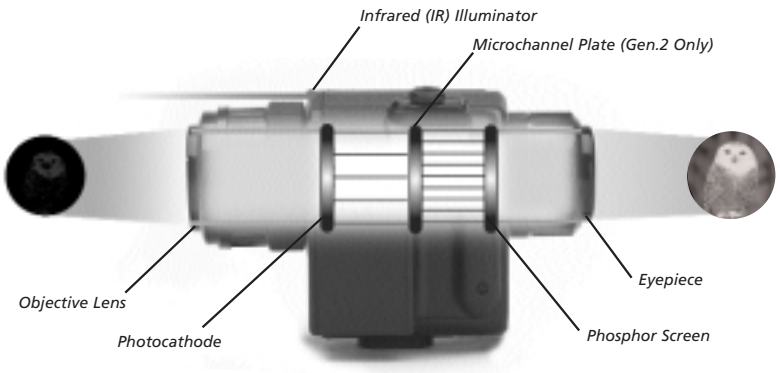

Fig. 1

LOMO® NIGHT VISION DEVICES & FAQs

When using a Night Vision Device, you are actually looking at an image that is projected by the intensifier tube located inside the unit (Fig. 1). Light enters the Night Vision Device through the objective lens and hits the photocathode in front of the intensifier tube. High-energy electrons produced by the photocathode create an image on the phosphor screen located on the back of the tube. This brighter image is projected through the eyepiece to the user's eye. The amount of light gain produced by the tube determines the brightness and clarity of the viewed image (15,000 to 40,000 times).

When do I use my LOMO® Night Vision Device?

You can use your Device any time when it is "too dark" for your naked eyes to see: for example, at night, during twilight, power outages, in the darkroom, basement, cave, etc. You can even simulate "night" during the day – each Device comes with a lens cover that is equipped with a pinhole for daytime observation. Besides protecting the optics from scratches and dust, it protects the Device from overexposure to bright light that can be harmful to the intensifier tube inside.

DO NOT operate your Device in bright light conditions such as sunlight, electric light, etc., without the protective lens cover. DO NOT point your Device at any bright light sources, such as campfires, headlights, etc. Exposure to bright light can shorten the life of your Device and possibly cause permanent damage to the intensifier tube. Such damage is not covered by your LOMO® Warranty!

How do I operate my LOMO® Night Vision Device?

The following steps are common to all LOMO® Night Vision Devices. For details specific to each Device, please refer to the corresponding pages.

1) Remove the Device from its case.

2) Install batteries.

Batteries: Devices require either AA or AAA type batteries. When installing, follow the polarity indicators on each Device. Use fresh batteries only. DO NOT mix different brands or types of batteries. Battery life will vary according to lighting conditions, which affect the rate of power consumption by your Device.

3) Turn the Device ON with the protective lens cover still attached to the objective lens. The image in the eyepiece will appear in fluorescent green.

4) Use common sense! If it's dark – remove the protective cover. If it's "too bright" – keep it on.

5) Look through the Device and focus it.

Focusing: The focusing of all Night Vision Devices is completed in two steps (Fig. 2):

A Slowly rotate the knurled ring of the *eyepiece (diopter)* either direction until a sharp image of the grain is obtained.

B Slowly rotate the knurled ring of the *objective lens* either direction until the object you are observing appears in sharp focus. The objective lens will have to be readjusted for objects that are closer or further away.

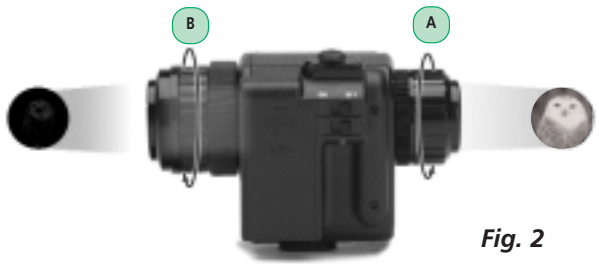

Fig. 2

6) If the image appears "too dark", turn ON the infrared (IR) illuminator. A red dot will become visible on the front of your Device.

7) Turn the Device OFF after use.

How far can I see with my LOMO® Night Vision Device ?

The effective viewing range of a Night Vision Device greatly depends on atmospheric conditions and the amount of available ambient light that can vary from "high" (full moon, street lights, etc.) to "low" (overcast) and "none" (total darkness). The following are the approximate viewing distances for LOMO Night Vision Devices under optimal conditions: clear night, full moon, high visibility:

Elf™-1, Kentaur™, ONV™ — 50m/55 yards
Chameleon™ (2.5x/4x), NVFlex™ (3x) — 100m/110 yards
Recon™-2 — 500m/550 yards

Unfavorable atmospheric conditions such as fog, haze, etc., or a lack of ambient light may reduce the effective viewing distance of your Night Vision Device.

How do I care for my LOMO® Night Vision Device ?

1) Store the Device in its original case with the lens caps on. Remove the batteries if the Device is not used for an extended period of time.
2) Protect the Device from shocks, vibrations, direct sunlight, dust, moisture and extreme temperatures.
3) Only clean the lenses with photographic quality cleaning materials .
4) Wipe the housing with a clean, soft cloth.

DO NOT attempt to service the Device yourself. DO NOT disassemble, except to remove and reinstall interchangeable objective lenses or eyepieces (Chameleon™ or NVFlex™). Doing so will void your LOMO® Warranty!

Other useful facts about LOMO® Night Vision Devices:

1) **Black spots** in the field of view **are normal**, and should not be considered an imperfection – they are cosmetic blemishes in the image intensifier tube and do not affect the performance of your Device (Fig. 3).

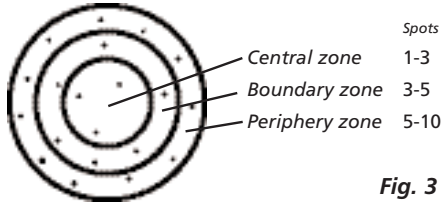

Fig. 3

2) A **humming noise** produced by the Device when functioning properly **is normal.**

3) **After you have turned your Device OFF, it is normal** for the field of view to retain its green color for up to several minutes. To make sure that the batteries are not being drained, confirm that the power and IR switches are in the OFF position.

What If I Need Help with my LOMO® Device?

Before requesting help…

Problem	Solution
The Device does not work when switched ON. No "green" in the eyepiece.	Make sure that the batteries are installed correctly and are fresh. Reset the flash protection circuit by turning the Device OFF for 30 - 60 sec.
The Device flashes with "green", especially after not being used for an extended period of time.	Let the Device run with the flashes for 5-10 minutes. It is going through a de-gasing cycle and should resume normal operation shortly.
The image is "too dark" or not in sharp focus.	Make sure that the batteries are fresh. Replace if necessary. Re-focus the Device (eyepiece first, objective second). Turn ON IR Illuminator.

Customer Service / Warranty Information:

If the above solutions do not help, please contact:

In USA, Canada, Mexico : LOMO America, Inc. Customer Service Department
By phone: 847-215-8800 (9am–6pm CST, M-F)
By fax: 847-215-9073
By e-mail: service@lomoamerica.com

Worldwide: Your Authorized LOMO® Distributor/Retailer

Warranty

LOMO Night Vision Products are warranted to be free from defects in materials and workmanship for one (1) year from the date of purchase by the original buyer. Specific warranty information is enclosed with each LOMO Night Vision Product.

Elf™-I Night Vision Monocular

Follow the Operating Instructions on Pages 6-7 of this Guide.

- A Battery compartment
- B Protective lens cover
- C ON-OFF switch
- D Eyepiece
- E Objective lens
- F IR Illuminator ON-OFF switch
- G IR Illuminator
- H ¼"-20 tripod socket
- I Hand strap

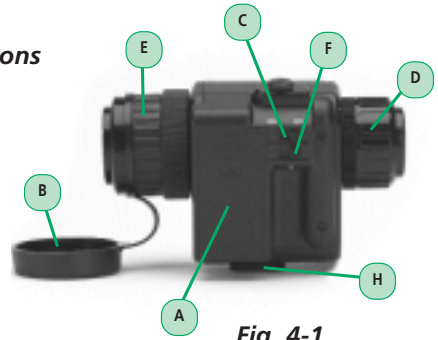

Fig. 4-1

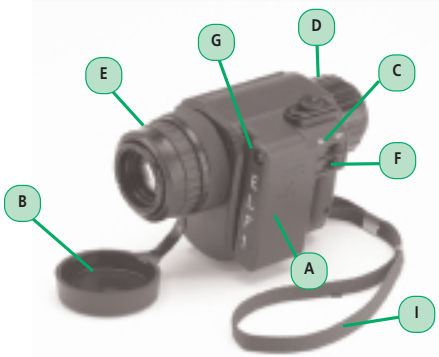

Fig. 4-2

Chameleon™ Night Vision Monocular

The Chameleon™ comes with a 2.5X objective lens installed for increased magnification. If less magnification or a wider field of view is needed, an interchangeable 1X objective lens is included and can be easily installed.

Follow the Operating Instructions on Pages 6-7 of this Guide.

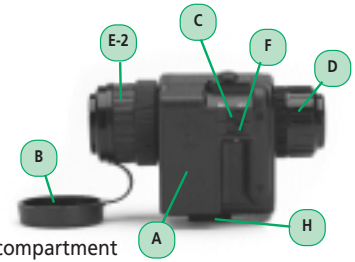

Fig. 5-1

- A Battery compartment
- B Protective lens cover
- C ON-OFF switch
- D Eyepiece
- E Objective lenses
- F IR Illuminator ON-OFF switch
- G IR Illuminator
- H 1/4"-20 tripod socket
- I Hand strap

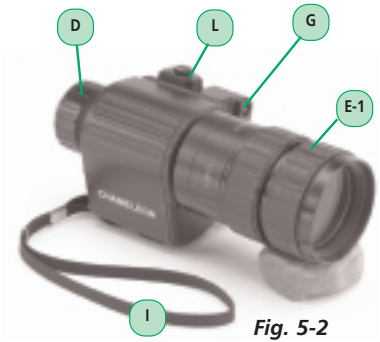

Fig. 5-2

Attaching 1X Objective Lens

1) Remove the 2.5X objective lens (E-1) by grasping it (as close to the unit as possible) and turning it counter clock-wise.
2) Attach the 1X objective lens (E-2) by threading it onto the Night Vision Device and turning it clock-wise until it fits snugly.

Optional 4x Upgrade Kit for Chameleon™ (purchased separately)

The 4x Kit includes a 90mm catadioptric lens (E-3) and attachable long-range IR Illuminator (K).

Attaching 4X Objective

1) Remove the 2.5X objective lens (E-1) by grasping the objective (as close to the unit as possible) and turning it counter clock-wise.
2) Attach the 4X objective lens (E-3) by threading it onto the Night Vision Device and turning it clock-wise until it fits snugly (Fig.5-4).

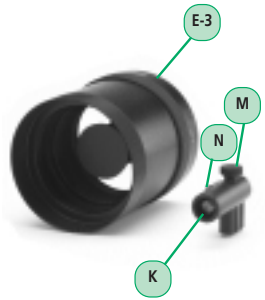

Fig. 5-3

Attaching Additional External IR Illuminator

To support the larger 4X objective lens, an additional external IR illuminator is included.

1) Remove the IR illuminator cover (L) (Fig. 5-2) from the top of the Device by loosening the cover screw. Store the cover in a safe place for later use.
2) Attach the external IR illuminator (K) (Fig. 5-3) by inserting it into the IR slot and tightening the screw (M).
3) Depress the spring-loaded IR button (N) to activate the Infrared beam. Release to de-activate.

Fig. 5-4

Kentaur™ Day/Night Vision Monocular

Night Channel:

Follow the Operating Instructions on Pages 6-7 of this Guide.

- A — Battery compartment
- B — Protective lens covers
- C — ON-OFF push button switch
- D — Eyepiece
- E — Objective lens
- F — IR Illuminator ON push button switch
- G — IR Illuminator
- H — Hand strap

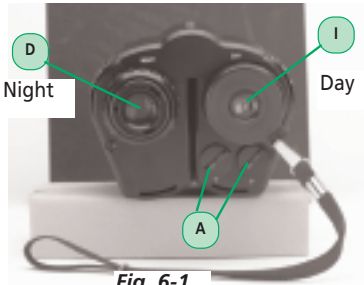

Fig. 6-1

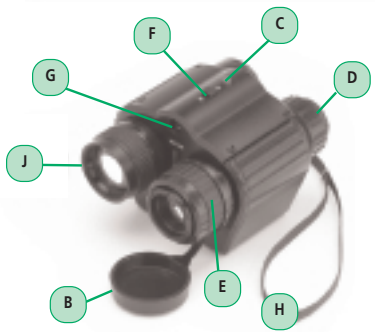

Fig. 6-2

1. Kentaur™ is a combination Day/Night Vision Scope. The Day and Night channels operate independently. Kentaur is not binoculars, but two monoculars in one "body".
2. For your convenience and improved battery life, Kentaur™ is equipped with push button switches, instead of conventional toggle switches. Press the ON button, hold for 5 seconds, and release. Press and release again when the image becomes "too dark" When using the Infrared Illuminator, press and hold the IR button as long as you need the IR Illuminator to stay ON.

Day Channel

The Day Channel consists of a catadioptric Maksutov telescope, with mirrors, instead of lenses. Look through the eyepiece (I) and focus by rotating the knurled ring (J) until a sharp image is obtained.

Never look directly at the sun with a telescope, spotting scope or any magnification device.

ONV™ Night Vision Goggles/Binocular

Follow the Operating Instructions on Pages 6-7 of this Guide.

- (A) Battery compartment
- (B) Protective lens covers
- (C) ON-IR-OFF switch
- (D) Eyepieces
- (E) Objective lenses
- (F) IR Illuminator
- (G) Locking nut
- (H) Headset
- (I) Locking screw
- (J) Mounting bracket

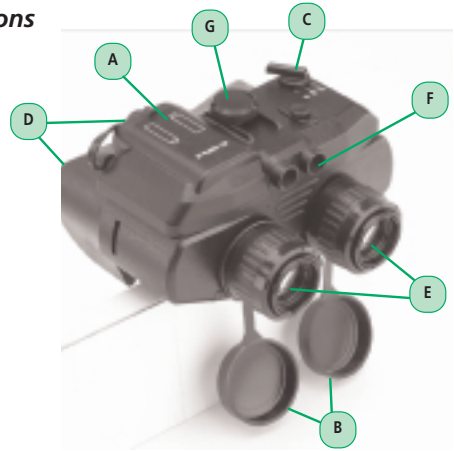

Fig. 7-1

Unique to ONV™

Inter-pupillary Distance Adjustment

Set the inter-pupillary distance between the eyepieces much like binoculars. Loosen nut (G), look through the Device, slide both halves of the Device to a distance that converges the two independent (right and left) image circles into one uniform image circle.

Hands-free Operation:

1. Before attaching the Goggles to the headset, adjust the headset straps so that the unit fits snugly, but comfortably around your head.
2. Remove the headset and attach the Goggles by tightening screw (I) to one of the holes in the mounting bracket (J).
3. With the headset on and the Goggles attached, tighten the straps and adjust the eyepieces. The eyebrow pad will maintain the optimal position of your eyes relative to the Goggles.

Fig. 7-2

Recon™-2 Night Vision Goggles

Follow the Operating Instructions on Pages 6-7 of this Guide.

- A — Battery compartment
- B — Protective lens cover
- C — ON-IR-OFF switch
- D — Eyepieces with eyecups
- E — Objective lens
- F — IR Illuminator
- G — Light sensor / flash protection circuit
- H — Headset with face plate
- I — Quick release connector
- J — Horizontal adjustment release button
- K — Receiver

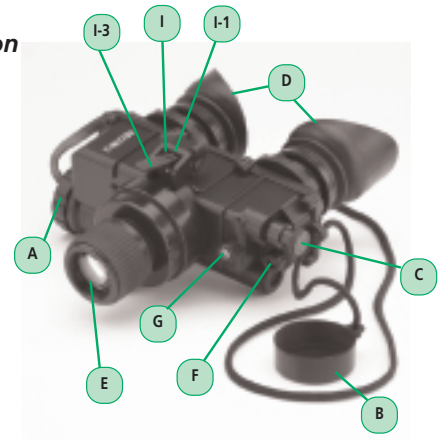

Fig. 8-1

Inter-pupillary Distance Adjustment

Set the inter-pupillary distance between the eyepieces much like binoculars. Look through the Device, slide both halves of the Device to a distance that converges the two independent (right and left) image circles into one uniform image circle.

"In-the-field of view" Indicators

- **A red dot appears in the field of view of the left eyepiece of your Goggles when the Infrared (IR) Illuminator is activated.**
- **A pulsating red dot appears in the field of view of the right eyepiece of your Goggles if the power level of the batteries drops below 2.4V.**

Flash Protection Circuit

The flash protection circuit of your Recon-2 Goggles shuts down the image intensifier tube if the ambient light reaches a level of 1lux or greater.

Hands-free Operation:

1. Before attaching the Goggles to the headset, adjust the headset straps so that the unit fits snugly, but comfortably around your head.
2. Press and hold the horizontal adjustment release Button (J) and slide the Receiver (K) to the position furthest from your face.
3. Install the Goggles onto the Headset (H) by pushing the male Goggles Connector (I-1) into the female Headset Connector (I-2) until it goes "click".
4. Adjust the horizontal position of the Goggles by pressing and holding Button (J) and sliding the Receiver (K) with the Goggles to the most comfortable position. Readjust if necessary during the course of operation.
5. Remove the Goggles from the Headset (H) by pressing and holding the quick release Lever (I-3) and pulling the Goggles out.

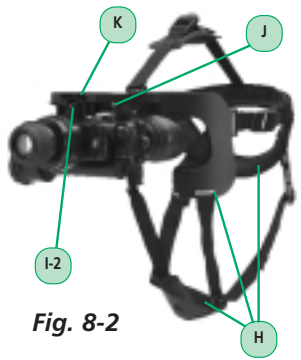

Fig. 8-2

Specifications

Model	Gen	Image Tube Gain	Magnification	Resolution lp/mm	Objective Lens Focal length,f/ratio	Field of View	Focusing Range	Battery Type	Weight*	Dimensions (mm)	(inches)
Elf™-I	I	15,000 max	1X	25 lp/mm	26mm, f/1.3	22°	0.3m/1ft. - inf.	AAA(2)	280g(10 Oz)	127 X 70 X 88	5 x 2 3/4 x 3 1/2
Kentaur™	I	15,000 max	1X Night 10X Day	25 lp/mm	26mm, f/1.3	22°	0.3m/1ft - inf.	AAA(2)	450g(16 Oz)	120 x 95 x 82	4 3/4 x 3 3/4 x 3 1/4
ONV™	I	15,000 max	1X	25 lp/mm	26mm, f/1.3	26°	0.3m/1ft - inf.	AA(2)	720g(25 Oz)	140 x 165 x 95	5 1/2 x 6 1/2 x 3 3/4
Recon™-2	II	40,000 max	1X	30 lp/mm	26mm, f/1.3	40°	0.3m/1ft - inf.	AA(2)	510g(18 Oz)	185 x 158 x 90	7 1/4 x 6 1/4 x 3 1/2

Model	Objective	Gen	Image Tube Gain	Magnification	Resolution lp/mm	Objective Lens Focal length,f/ratio	Field of View	Focusing Range	Battery Type	Weight*	Dimensions (mm)	(inches)
Chameleon™	w/26 mm	I	15,000 max	1X	25 lp/mm	26mm, f/1.3	22°	0.3m/1ft - inf.	AAA(2)	280g(10 Oz)	127 x 70 x 88	5 x 2 3/4 x 3 1/2
	w/50 mm	I	15,000 max	2.5X	25 lp/mm	50mm, f/1.7	11°	0.3m/1ft - inf.	AAA(2)	450g(16 Oz)	170 x 70 x 88	6 3/4 x 2 3/4 x 3 1/2
	w/90 mm (optional)	I	15,000 max	4X	25 lp/mm	90mm, f/1.5	6°	1.8m/6ft - inf.	AAA(2)	780g(28 Oz)	185 x 95 x 127	7 1/4 x 3 3/4 x 5

Notes:

1. All LOMO® Night Vision Devices are equipped with eyepiece diopter adjustments of ± 5 dpt.
2. All LOMO® Night Vision Devices come with a soft padded nylon case.
3. ONV™ and Recon™-2 Night Vision Goggles include a headset for hands-free operation.
4. **Batteries are not included.**

Please record the following information for your future reference

1. Model of your LOMO® Night Vision Device:

☐ Elf™-1

☐ Chameleon™

☐ 4x Upgrade Kit for Chameleon™

☐ Kentaur™

☐ ONV™

☐ Recon™-2

2. Serial Number:

3. Date of Purchase:

4. Purchased From:

Notes: