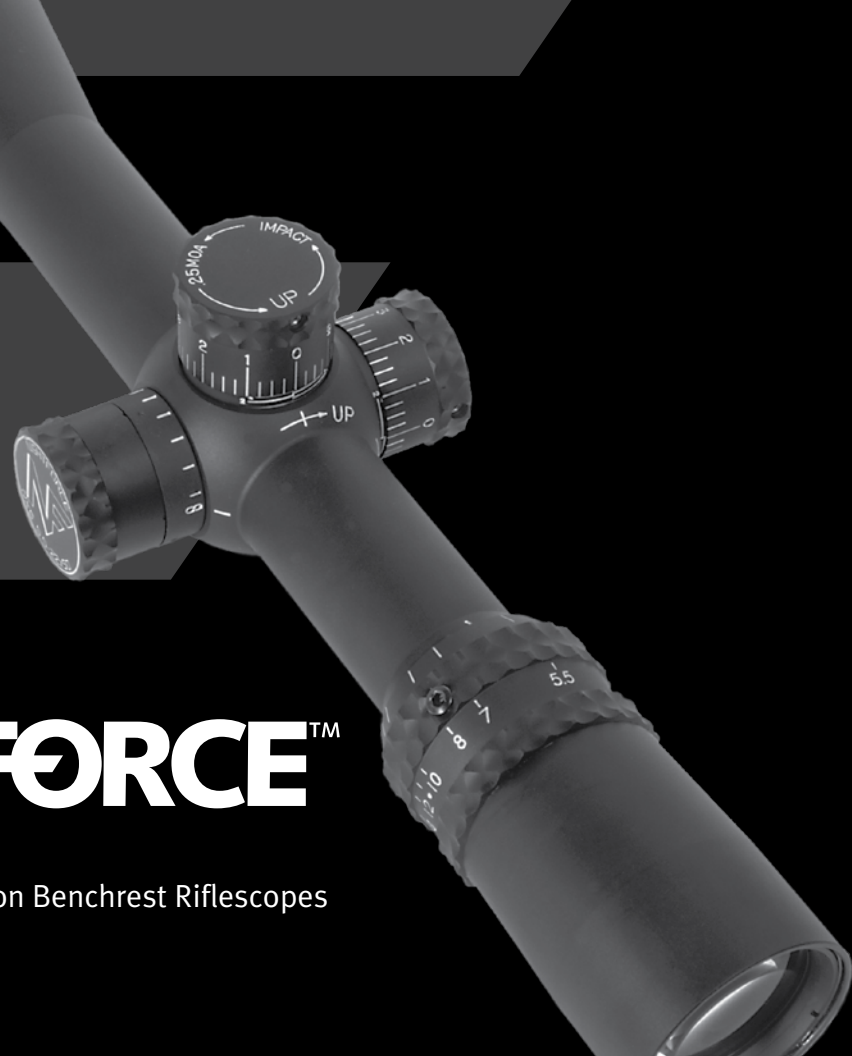




NIGHTFORCE™

Owner's Manual
for NXS and Precision Benchrest Riflescopes

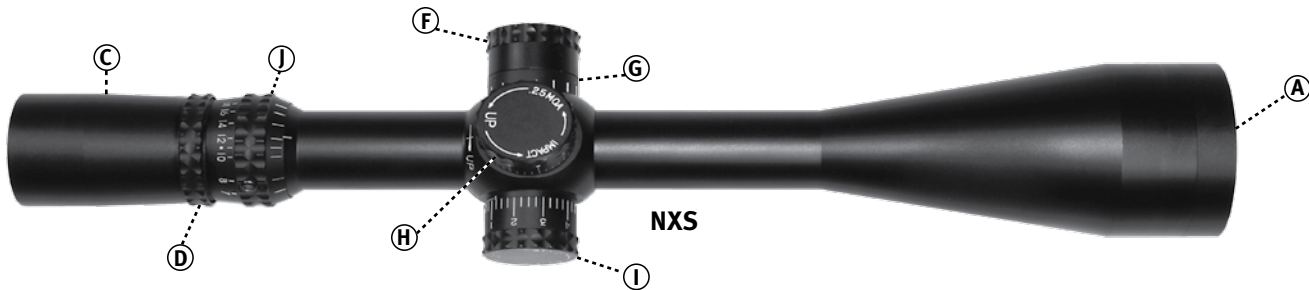


Contents

Focusing the Reticle.....	2	Leveling the Reticle.....	9
Parallax Adjustment.....	3	Establishing a Close-Range Zero.....	10
Click Values.....	4	Zeroing Turrets.....	11
Reticle Illumination.....	5	Caring for Your Riflescope.....	12
Installing the Riflescope.....	7	Frequently Asked Questions.....	13
Mounting the Riflescope.....	8		

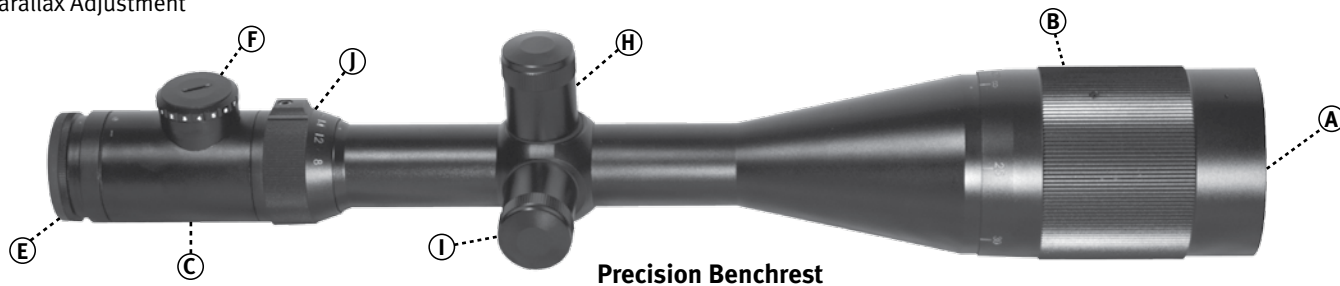
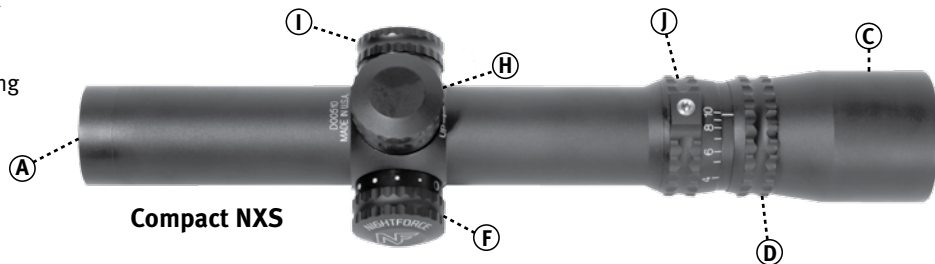
Record the riflescope serial number here for future reference: _____

The serial number is located on the flat surface of the turret saddle, on the bottom of the scope.



- A: Objective Lens
- B: Adjustable Objective
- C: Eyepiece
- D: Eyepiece Lock-ring
- E: Fast Focus Eyepiece
- F: Illumination Control and Battery Compartment
- G: Side Parallax Adjustment

- H: Elevation Turret
- I: Windage Turret
- J: Power Zoom Ring



Focusing the Reticle

There are two user-adjustable optical settings on Nightforce NXS and Precision Benchrest riflescopes: the reticle focus and the parallax adjustment. The Compact NXS models only have the reticle focus. The reticle focus is used for setting the reticle focus to match your particular vision. It should not be used to try to focus the target image or to adjust for parallax. If you plan to wear vision correction when shooting, then set this focus while wearing your corrective lenses. The reticle focus should be set before setting the parallax adjustment. If the reticle focus is inadvertently set to the extreme ends of travel it can adversely effect parallax. Record the number of turns you have made on the eyepiece from the original factory setting so you can return to it if needed.

Note: All Nightforce riflescopes are factory set for average eye strength, so this adjustment may not be necessary.

WARNING!

To avoid permanent eye damage or blindness, do not look directly at the sun or other extremely bright lights through the rifle scope.

1. Set the power zoom ring at the highest magnification.

2. On riflescopes with parallax adjustment, set it to the infinity setting [∞].
3. Look through the rifle scope eyepiece at a light colored background such as a white wall, overcast sky, or drape a thin white cloth over the objective to eliminate background clutter. Determine if the reticle is clear and in focus instantly when you look through the eyepiece. Be aware that staring at the reticle for an extended period of time during this process will cause your eye to compensate, resulting in a false indication of reticle focus. Look away for a few seconds then retry for best results. You are looking for a sharp, crisp and well defined reticle image.
4. If adjustment is necessary, follow the steps outlined for the type of Nightforce rifle scope you have. Due to the way the human eye focuses, best results are usually obtained by turning the eyepiece inward until the reticle is slightly blurred then moving it outward until sharp focus is obtained. Refer to Figure 1.

Reticle Focus Adjustment — NXS

Grasp the eyepiece with one hand and the locking ring with the other and rotate the eyepiece counter-clockwise, turning it away from the lock-ring while holding the lock-ring, power zoom ring and the rifle scope to keep them from turning with the eyepiece. Several turns of the eyepiece may be

necessary to achieve any measurable difference. To achieve an out-of-focus starting point for your vision, you may need to turn the lock-ring several turns inward first, then turn the eyepiece inward as needed to achieve an out-of-focus position.

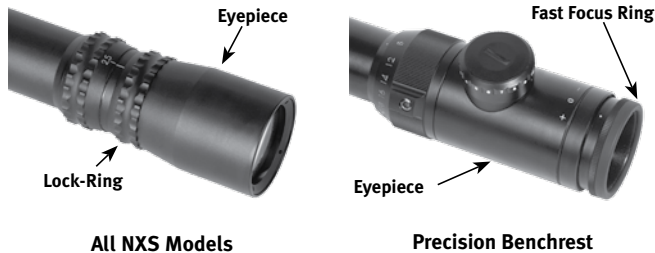


Figure 1 - Reticle Focus

Once the desired reticle focus is achieved, lock the eyepiece in place by turning the lock-ring into firm contact with the eyepiece while holding the eyepiece in position. Tighten the lock-ring against the eyepiece so that the eyepiece, lock ring and power zoom ring move as a single unit.

Reticle Focus Adjustment — Precision Benchrest

The Nightforce Precision Benchrest model has a fast focus eyepiece without any locking mechanism. Turn the knurled

ring on the end of the eyepiece inward until the reticle is out of focus, then turn it outward until the sharpest reticle image is achieved. The friction-fit design maintains the focus once set.

If the reticle tends to fade in and out of focus, or you are experiencing eye strain with extended shooting sessions, that is an indicator that the reticle is not properly focused for your eye. Once you have achieved the best focus you can, using the method above, it is recommended that you fine-tune the focus one to two turns in either direction, on a target at 100 to 200 yards. Use a target of medium value such as light tan or gray rather than white for best results. A properly focused reticle will remain sharp for extended periods.

Parallax Adjustment

Nightforce NXS and Precision Benchrest riflescopes have parallax adjustment mechanisms. The NXS Compact models, due to their intended use at closer ranges, their ultra-compact design, wide angle of view and lower magnification do not have this feature.

Parallax is the apparent movement of the reticle in relation to the target as the shooter moves his eye across the exit pupil of the riflescope, caused by the target and the reticle being on different focal planes. A nod of the head up and down will quickly determine if parallax is present. If parallax has been

eliminated, the reticle will remain stationary in relation to the target regardless of head placement.



Precision Benchrest

NXS

Figure 2 - Parallax Adjustment

Note: The greater the distance, the greater the parallax becomes. Especially at longer distances, significant sighting error can result if parallax is not removed.

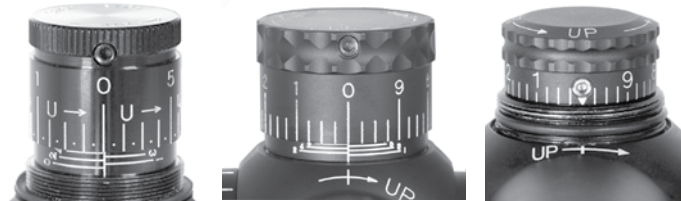
Nightforce has two different styles of parallax adjustments. See Figure 2. The Precision Benchrest models have an adjustable objective parallax focus ring, found on the front of the riflescope.

The NXS models, 3.5-15x and higher, have a side parallax adjustment turret that also doubles as the illumination switch. It is found on the left side of the riflescope, directly opposite the windage turret.

Click Values

When making elevation and windage adjustments, you need to know how much the impact will move with each click. See figure 3. Depending on the model, your riflescope is going to have click values as follows:

- Nightforce NXS scopes with the MOA turrets are calibrated in 1/4 (0.250) MOA increments. All Nightforce MOA turrets provide true MOA measurements.
- Nightforce NXS scopes with Mil-Radian turrets are calibrated in 1/10th mil clicks, or 1cm at 100 meters.
- Nightforce Precision Benchrest models have 1/8th (0.125) MOA clicks.



Precision Benchrest

Full-sized NXS

Compact NXS

Figure 3

Reticle Illumination

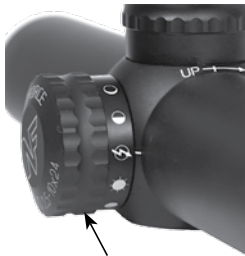
Nightforce riflescopes are equipped with illuminated reticles. The illumination can be used to make the reticle more visible in low light situations or against darker targets. The intensity of the illumination is adjustable for varied conditions. See Figure 4.



On/Off & Intensity Control for Precision Benchrest



On/Off for NXS



On/Off & Intensity Control for Compact NXS



Intensity Control for NXS

Figure 4 - Illumination Control

Instructions for the three types of illumination follow. Depending on the intensity and conditions, your battery can last up to 720+ hours of continuous use. For all models, replace depleted batteries with an Energizer® CR2032 or equivalent. Install the battery with the positive (+) side up. Don't forget to turn off the illumination when not in use to prevent depletion of the battery. See Figure 5.



NXS



Compact NXS



Precision Benchrest

Figure 5 - Battery Replacement

Compact NXS Models

The illumination switch and the intensity level for the Compact Nightforce riflescopes is controlled by the turret on the left side of the riflescope. The graphic icons on the turret indicate greater or lesser intensity positions, plus the off position. The turret can be turned in any direction to the off point or to the desired intensity setting.

The battery is found underneath the threaded cap on the illumination turret. To remove the cap, twist the top portion of the knurled ring counterclockwise while holding the bottom portion of the knurled ring still. See Figure 5.

NXS Models

These riflescopes combine the parallax adjustment, reticle on/off switch, battery compartment and the illumination intensity adjustment dial in a single turret on the left side of the riflescope.

To turn the illumination on, simply pull out on the turret until it clicks into the on position. To turn it off, push it back into the original position.

The battery is held underneath the turret cover, which is removed by turning the top part of the turret counterclockwise until the cover comes off.

Adjusting the intensity of the illumination is done by turning the small dial found underneath the battery with a small flat blade screwdriver. Be very gentle when adjusting the intensity setting. It is a sensitive component that can be easily damaged if turned past the stops. A very slight movement will make a large change in brightness.

The reticle brightness is set at the factory for most situations. If the intensity is set in a daylight location it will be excessively bright in low light situations. If you need to adjust the brightness, make the adjustment in a dark room. Turn on the illumination then remove the cover and the battery. See Figure 5. With the cover off, hold the battery in place, contacting the side of the battery pocket with battery to complete the circuit, so you don't have to reinstall the cap while making adjustments. Adjust until it just begins to produce light flare around the reticle lines. This will usually be ideal for low light field situations.

Precision Benchrest Models

The illumination turret is found on the eyepiece for these models. Turn the turret to the desired intensity setting or to the off position when no illumination is desired.

To replace the battery, unscrew the top of the turret counterclockwise, with a coin inserted in the slot provided. See Figure 5.

Installing the Riflescope

FAILURE TO PROPERLY INSTALL THE RIFLESCOPE MAY CAUSE DAMAGE AND VOID THE WARRANTY.

Note: Record the serial number of your riflescope on the Warranty Card at the end of this manual, and at the front of this owner's manual for future reference. It is found on the flat surface of the turret saddle, on the bottom of the riflescope. Once it has been installed you will not be able to read the serial number without removing the riflescope from the rifle.

Nightforce Torque Specifications

- Base attachment screws - 15 inch pounds
- Ring top screws - 15 inch pounds
- Ring crossbolt nut - 68 inch pounds

Ring and Base Selection

Your riflescope and rifle are only as good as the link between them. The mounting of your riflescope is as important as the bedding of the rifle's action to the stock. To ensure the highest level of performance, the following steps in the mounting procedure must be followed as described.

We recommend Nightforce bases, rings and one-piece mounts for a solid and precise installation. Please use the following

guidelines to select the proper mounting solutions for your rifle.

- A high quality ring and base combination using a Picatinny 1913 Mil. Std. type rail is recommended for field use and/or high-recoil applications. Nightforce rings, bases, Unimounts and one piece mounts are ideal for virtually all applications.
- Under no circumstances do we recommend the use of turn-in style rotary/dove tail type ring and base designs, especially those equipped with windage adjustment.
- If we do not offer a ring/base combination that is compatible with your firearm, please consider using Talley Mfg. or Warne products.

WARNING!

Make sure that your rifle is not loaded before proceeding. Recheck the chamber if you stop the procedure then resume later.

Mount Installation

Note: Do NOT lap the Nightforce Unimount, Direct Mount or Ultralite Rings. Other ring/base combinations may or may not require lapping. If you are not comfortable with the lapping procedures that follow you may wish to have this procedure done by a competent gunsmith.

Attaching the Base to the Action

Once you have determined that the base-to-action mating is acceptable, install the base to the action, torquing the mounting screws to the manufacturer's specifications.

Attaching Rings to Base

Install the rings on the base per the manufacturer's specifications using the proper torque on the locking mechanism. Avoid positioning the rings where they will make contact with the turret assembly, the objective bell section, or the power zoom ring on the riflescope body. Apply forward pressure to the ring while tightening it in place to keep the cross bolt on the ring in firm contact with the forward surface of the cross slot in the base.

With Nightforce rings and one-piece bases you should not need to lap the rings. With other brands lapping may be required. If the scope lays into the rings stress-free, there is no need to lap the rings. If required, we recommend lapping be done by a qualified technician or gunsmith. Do not overlap the rings. Damage to the scope from improper lapping/installation is not covered by the warranty.

Clean/degrease the inside of the rings and the clean the outside of the scope tube before installing in the rings.

WARNING!

With hard-recoiling rifles, serious injury or even death can result from eyepiece impact with the shooter under fire. Be certain that your installation provides sufficient eye relief for the recoil generated by your rifle before firing a shot. Remember that shooting uphill, especially in the prone position, can dramatically reduce eye relief. With magnum rifles you should have the eye relief checked by a competent gunsmith.

Mounting the Riflescope

1. For initial fitting of the riflescope to the rifle set the Nightforce riflescope to the highest magnification. Place the riflescope in the lower portion of the rings as far forward as possible. Install both ring tops. Tighten ring top screws with just enough tension to hold the riflescope where positioned, while still allowing smooth movement fore and aft and rotationally.
2. Hold the rifle in your normal shooting position with the riflescope positioned fully forward in the rings. Place your head as far forward on the stock as you might position it in field use. Slowly move the riflescope back just to the point where the full field of view is obtained. It is recommended to mount the riflescope at this position with as much eye relief as pos-

sible (3.5"-4") or slightly forward to ensure maximum eye relief. See Figure 6.

Note: Eye relief will change with the thickness of the clothing you wear and may need to be readjusted.

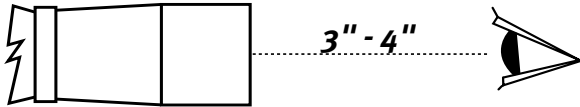


Figure 6 - Eye Relief

Leveling the Reticle

For precision shooting, the reticle and the rifle need to be squared, or plumb, to each other. Any out of square condition can cause sighting errors that will be magnified even more at longer distances.

The reticle in all Nightforce scopes is confirmed plumb with the flat surface on the bottom of the turret saddle. See Figure 7. You can use pin gauges, a sliding sine bar or flat shims to align the flat surface with the top of the scope rail. To level the reticle using a plumb line, follow the three steps that follow.

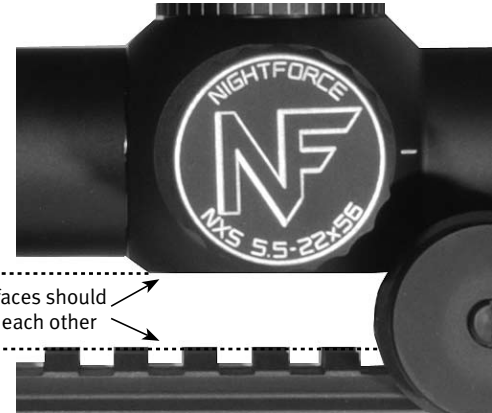


Figure 7

1. Level the rifle on a steady rest such as sandbags or a stable shooting rest. This can be accomplished with a bubble level attached to the riflescope base, or on a flat section of the action.
2. Use a plumb line or some other known plumb vertical line at a distance from the rifle where you can see it clearly through the riflescope. A distance of 100 yards is recommended, but good results can often be obtained as close as 50 yards.
3. Center the reticle on the plumb line and rotate the riflescope

in the rings until the vertical line of the reticle is parallel with the plumb line. Recheck the rifle level and adjust the reticle position as needed. When both the rifle and the reticle are plumb, **tighten all ring top screws evenly** until the riflescope is secure in the rings. Recheck the rifle and reticle one more time for plumb, adjust as needed, then torque the screws to the recommended torque settings. Your Nightforce riflescope is now properly mounted.

Establishing a Close-Range Zero

The quickest way to get on paper with a new installation is to first bore sight the riflescope. A simple yet reliable method is by looking through the bore at a round, high contrast target, approximately 5"– 6" in diameter, that can be seen clearly with the naked eye at 100 yards yet is small enough to “float” in the center of the rifle bore when viewed through the opened action. This can save you time and ammunition.

1. Remove the bolt, place the rifle on a steady rest and adjust the riflescope to be parallax-free for the distance to the target. See the ***Parallax Adjustment*** section on page 3.
2. Looking through the bore from the action end, center the round target downrange so that it is floating in the center of the bore, then adjust the elevation and windage turrets

until the reticle is centered on the target while the target is still centered in the bore. See figure 8.

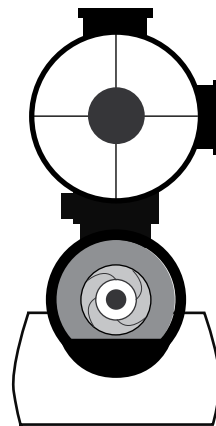


Figure 8

3. If you feel confident in the bore sighting, proceed to live firing at 100 yards (or the distance you have chosen for your close range zero). Firing one shot at a large target background printed with a 1" grid will allow you to easily spot the bullet hole and quickly determine the number of clicks needed for adjustment. If that first shot isn't on the target, recheck your bore sighting and/or move the target to 25 yards if necessary to get a shot on the paper.

- Without adjusting the turrets, move the rifle to center the reticle on the target. Carefully turn the windage and elevation turrets without moving the rifle, until the reticle is aligned on the center of the bullet hole from that first shot on the target.
- Fire at least a three-shot group at the desired close-range zero distance, then fine-tune your zero as needed.

Zeroing Turrets

The elevation and windage turrets can be set to the zero position on the number dial once you have zeroed the riflescope. To do this, loosen the set screws on the elevation and windage turrets using the supplied Allen wrench, allowing the dial to turn freely without changing the actual setting. Align the zero point on the number scale engraved in the turret with the center line engraved on the rotation scale on the turret body underneath the turret.

Keep downward pressure on the knob while locking it in position with the Allen wrench, holding the wrench only by the short end when tightening. Do not overtighten to prevent damaging the components inside. (Approx. 15 inch pounds) Note that you cannot zero both the dial and the horizontal rotation scale so they both read “zero” because the horizontal rotational scale is meant to indicate the number of revolutions

up from the bottom. Remember to record the rotations so you know what rotation your zero is on. See Figure 9.



Figure 9 - Turret Zero

Multiple Range Testing

Using the Nightforce Ballistic software can be a big time-saver in this process. It can also give you precise adjustments based on the known bullet, velocity and atmospheric data to get you on the target with the first shot at surprisingly long distances, without first range testing at that distance.

Caring for Your Riflescope

With proper care your Nightforce riflescope will give you many years of dependable service.

Cleaning the Riflescope Exterior

Clean the riflescope body with a clean cloth lightly moistened with clean water or alcohol. Do not use strong solvents. While cleaning your rifle, be sure to protect your riflescope's lenses by installing the covers that came with the riflescope. Ammonia-based bore solvents can destroy the coating on the glass. Avoid spilling gun cleaning solvents anywhere on the riflescope.

In the event of submersion in mud, sand, dirty or salt water, flush the outside of the riflescope with clean water to remove encrusted material and salt. If your riflescope came with screw-on turret covers, install them before flushing with water. Wipe the outside metal surfaces dry with a soft cloth then proceed to the *Cleaning Lenses* step below.

Cleaning Lenses

We recommend using a Nightforce cleaning kit to care for the lenses on your riflescope. The kit contains an ultrasoft brush, microfiber cloth and cleaning solution.

With the lens facing down to allow the debris to fall away from the surface, remove loose dirt and dust with compressed air and/or a lens brush. If there is grit stuck to the lens that won't come off with the compressed air or a brush, flushing the surface with alcohol or distilled water will prevent that grit from being rubbed into the glass by the cleaning swabs.

Using a soft, clean, lint-free cotton swab or lens cleaning cloth, and lens cleaning fluid applied to the swab, clean the lens starting in the center, working to the outside. Make only one pass in the corner where the glass meets the metal. Once you reach the corners of the lens, do not re-use that swab as it will often contain abrasive grit that will scratch the surface. Start over in the center with a new swab and repeat the process until the glass is clean. Use a very small amount of cleaning solution for the last pass to prevent streaks.

Long Term Storage

If the riflescope will not be used for an extended period of time, remove the battery and store it separately. Keep the riflescope in a cool, dry, dust-free location.

Frequently Asked Questions

Q: Is the whole eyepiece on the NXS supposed to move?

A: Yes. When the eyepiece is locked in place by the lock-ring, after adjusting the reticle focus for your vision correction, the power zoom ring and the eyepiece move as one unit. This type of design allows for a faster and easier power setting change under stress or in cold or wet conditions. You don't have to hunt for a tiny power zoom ring. Just grab the entire eyepiece, even with a gloved hand, and turn it to the position desired. It also makes for greater strength and water resistance.

Q: Can I get my reticle changed and if so for how much?

A: The reticle can be changed to any of those offered in the model that you have, for a nominal fee plus return shipping charges. Available reticles and the fee charged for the change are listed on our web site, www.nightforceoptics.com. Ship your scope, shipping prepaid, with instructions as to the reticle desired to:

Lightforce USA Inc.
Attn: Service Dept.
1040 Hazen Lane
Orofino, Idaho 83544

Q: Do I need to lap my Nightforce rings?

A: Lapping may be required with some installations. See pages 7-10. Refer to the instructions that came with your lapping kit for details on lapping. You may also wish to have the riflescope installed by a qualified gunsmith.

Note: *Ultralite rings and Ultralite Unimounts should not be lapped.*

Q: What ring height do I need?

A: You will need a ring height that provides enough clearance between the barrel and the riflescope to allow the attachment of dust covers if desired, and does not permit the riflescope to contact the barrel.

Nightforce ring measurements are from the top of the base to the center of the ring opening. Please see our web site for more information on selecting the proper ring height: www.nightforceoptics.com

Q: Why can I not see the illumination when the turret is pulled out to turn on the illumination on my NXS scope?

A: The illumination level is preset at the factory for a low ambient light level environment. Try looking through the scope in

a darkened room. If the illumination is still not visible, check the battery and/or the intensity setting. (See pages 4-7)

Q: What is a mil-radian turret and what is it used for?

A: Mil-Radian target turrets are available on some Nightforce NXS models that provide a click value of 0.1 mil rather than a 0.25 MOA. These provide precise Mil-Radian angular units of measure for both windage and elevation, an ideal interface with our Mil-Dot or MLR reticles. Adjustments are calibrated in 0.1 mil per click (approximately 0.36 MOA) with 5.0 mil. per revolution.

Q: Is it OK to turn the elevation and windage knobs to their extreme positions?

A: Yes, but care must be taken not to exert additional force once the end of the travel range has been reached.

Q: Can I change the turrets from MOA to Mil-Radian or vice versa later if I want to?

A: Yes, depending on the model, for a nominal fee the turrets can be changed from one type to another. Contact us for more information.

Please visit our web site at www.nightforceoptics.com for more answers to other frequently asked questions.



NIGHTFORCE™

Limited Lifetime Warranty

We are proud to back up every Nightforce riflescope with a transferable Limited Lifetime Warranty which covers mechanical defects in materials and workmanship in the optical and mechanical components of the riflescope. In the event of a defect in materials or workmanship that is covered by this warranty, we will either repair the riflescope or replace it at no charge, with a comparable product at our discretion.

Exclusions to this warranty include intentional or accidental damage, abuse, misuse, unauthorized modifications or repairs, and improper mounting. This warranty does not cover any consequential or incidental damages resulting from the inability to use the riflescope. Any serial number obliteration or alteration on the product will void the warranty.

To ensure warranty coverage, fill out completely and mail in the provided warranty card found in the back of the owner's manual, along with a copy of the sales receipt. The warranty begins on the date the product was purchased by the original owner. The optical and mechanical components are covered without time limitations. The electronic components are covered for a period of three years.

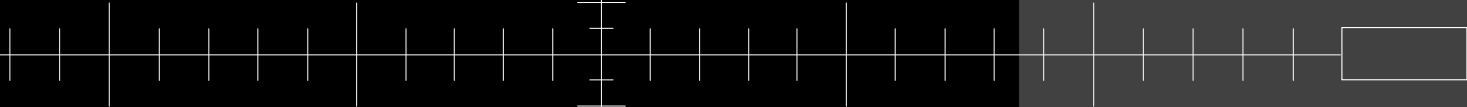
This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

Before sending a riflescope in for service, please call Lightforce USA Inc. at the number below, to determine if the problem can be resolved without sending us the product.

- Remove any mounting rings or accessories other than dust covers and the original shade.
- Record and keep on hand the serial number.
- Include with the riflescope a detailed description of the defect(s), your name, phone number and the address you wish the riflescope returned to.
- Place the boxed or protectively wrapped riflescope in a well-padded outer box insured for replacement value and send it shipping prepaid, to the address below.

Nightforce Optics, Inc.
Attention: Service Dept.
1040 Hazen Lane
Orofino, Idaho 83544

tel 208.476.9814 • fax 208.476.9817
www.nightforceoptics.com



Precision Optics for
Precision Shooting

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