VORTEX

THE FORCE OF OPTICS®

DIAMONDBACK®

RIFLESCOPE

RIFLESCOPE MANUAL

VORTEX® OPTICS

The Vortex® Diamondback® Riflescopes

The perfect match for hunters. Solid construction from a rugged single-piece tube of aircraft-grade aluminum is the foundation for highly reliable performance features such as generous long eye relief and precise, smooth controls. Waterproof and fogproof, the Diamondback® riflescope is truly ready for any situation.

Adjustable Objective
(Available on select models)

Dual Use: Shooting Tactical / Hunting

Riflescope Adjustments

Reticle Focus

Vortex Diamondback riflescopes use a ***fast focus*** eyepiece designed to quickly and easily adjust the focus on the riflescope's reticle.

Adjust the reticle focus

To adjust the reticle focus:

- Look through the riflescope at a blank white wall or up at the sky.
- Turn the eyepiece focus knob in or out until the reticle image is as crisp as possible.
- ***Note:*** Try to make this particular adjustment quickly, as the eye will try to compensate for an out-of-focus reticle.

Once this adjustment is complete, it will not be necessary to re-focus every time you use the riflescope. However, because your eyesight may change over time, you should re-check this adjustment periodically.

Variable Power Adjustments

To change magnifications, turn the magnification ring to the desired level.

Warning

Looking directly at the sun through a riflescope, or any optical instrument, can cause severe and permanent damage to your eyesight.

Windage and Elevation Adjustments

The Diamondback riflescope incorporates adjustable elevation and windage dials with audible clicks. Each audible click moves the bullet's point-of-impact 1/4 of a minute of angle (MOA).

1/4 MOA closely corresponds to 1/4 inch at 100 yards, 1/2 inch at 200 yards, 3/4 inch at 300 yards...taking four (4) clicks to move the bullet's point-of-impact approximately one inch at 100 yards.

How to adjust windage and elevation settings

Begin adjusting the windage and elevation settings by first removing the outer covers. Then, move the turrets in the direction you wish the bullet's point-of-impact to change. To make the adjustments, rotate the adjustment dial in the appropriate direction (up/down or left/right) as indicated by the arrows.

To adjust settings, turn dials:
· Up / Down
· Left / Right

After sight-in, you can re-align the zero marks on the turret dials with the reference dots if you wish (see *Indexing Adjustment Dials with Zero Reset* on page 12). Replace outer covers when done.

Image Focus and Parallax Correction

Select Diamondback riflescope models have an adjustable objective which provides maximum image sharpness and eliminates parallax error. Lower power models do not use image focus/parallax adjustments and are pre-focused at a distance of 100 yards.

Adjustable Objective (AO models)
Match shooting yardage to indicator dot. 100-yard setting shown.

> ***Parallax*** is a phenomenon that results when the target image does not quite fall on the same optical plane as the reticle within the scope. When the shooter's eye is not precisely centered in the eyepiece, there can be apparent movement of the target in relation to the reticle, which can cause a small shift in the point of aim. Parallax error is most problematic for precision shooters using high magnification.

Using image focus/parallax correction:

- Be sure the reticle is correctly focused (see *Reticle Focus* on page 4).
- Rotate the adjustable objective until numbers match the distance you are shooting. Align yardage number to the indicator arrow on scope body.
- Check for proper setting by looking through the scope to verify image sharpness and, at the same time, look for reticle shift while moving your head back and forth. The setting is correct if there is no apparent movement between the reticle and target while your head is moving back and forth. If there is apparent movement, adjust the focus knob slightly until the movement is eliminated.

When properly set, the target image should be sharp and crisp.

Riflescope Mounting

To get the best performance from your Diamondback riflescope, proper mounting is essential. Although not difficult, the correct steps must be followed. If you are unsure of your abilities, it would be best to use the services of a qualified gunsmith.

Rings and Bases

Mount an appropriate base and matching rings to your rifle according to the manufacturer's instructions. Your new Vortex Diamondback riflescope will require 1-inch rings.

Use the lowest ring height that will provide complete clearance of scope and rifle—avoiding any contact with barrel, receiver, bolt handle or any other part of the rifle. A low mounting will help assure proper cheek weld, aid in establishing a solid shooting position, and promote fast target acquisition.

Eye Relief and Reticle Alignment

Begin with riflescope loosely installed in rings on the rifle. Before tightening the scope ring screws, adjust scope position for maximum eye relief to avoid injury from recoil.

- Set the riflescope to the middle of its magnification range.
- Slide the riflescope as far forward as possible in the rings.
- While viewing through the riflescope in a normal shooting position, slowly slide the riflescope back towards the shooter's face—paying attention to the field of view. *Just as the full view is visible, stop.*
- Without disturbing the front-back placement, rotate the riflescope until the vertical crosshair exactly matches the vertical axis of the rifle. Use of bubble levels, a reticle leveling tool, a weight hung on a rope, or a flat feeler gauge will help with this procedure.
- After aligning the reticle, tighten and torque the ring screws down per the manufacturer's instructions.

Use bubble levels to square the riflescope (and reticle) to the base.

Bore Sighting

Initial bore sighting of the riflescope will save time and money at the range. This can be done in a number of ways. A mechanical or laser bore sighter can be used according to the manufacturer's instructions. On some rifles, bore sighting can be done by removing the bolt and sighting through the barrel.

To visually bore sight a rifle:

- Place the rifle solidly on a rest and remove the bolt.
- Sight through the bore at a target approximately 100 yards away.
- Move the rifle and rest until the target is visually centered inside the barrel.
- With the target centered in the bore, make windage and elevation adjustments until the reticle crosshair is also centered over the target.

Visually bore-sighting a rifle.

Final Range Sight-In

After the riflescope has been bore-sighted, final sight-in should be done at the range using the exact ammunition expected to be used while shooting. Sight in and zero the riflescope at the preferred distance. 100 yards is the most common zero distance, although a 200 yard zero may be preferred for long range applications.

Be sure the reticle is in focus (see *Reticle Focus* on page 4). If scope is equipped, set the parallax adjustment to match the distance being used for sight-in:

- Following all safe shooting practices, fire a three-shot group as precisely as possible.
- Next, adjust the reticle to match the approximate center of the shot group (see section on *Windage and Elevation Adjustment* on page 5).

Note: If the rifle is very solidly mounted and cannot be moved, simply look through the scope and adjust the reticle until it is centered on the fired group.

- Carefully fire another three-shot group and see if the bullet group is centered on the bulls eye.

This procedure can be repeated as many times as necessary to achieve a perfect zero.

Indexing Adjustment Dials with Zero Reset

Diamondback riflescopes feature windage/elevation dials that allow you to re-index the zero indicator after sight-in without disturbing your settings. Though not required to do, this process will allow you to quickly return to your original zero if temporary corrections are dialed in the field. Reset the windage and elevation dials in this way:

1. Remove the outer cap. While firmly holding the dial, loosen and remove center screw.

2. Lift dial off of scope. Orient dial to reposition the zero mark on the index line.

3. Install dial and reinstall and tighten center screw while firmly holding the dial.

Maintenance

Cleaning

The fully waterproof and fogproof Vortex Diamondback riflescope requires very little routine maintenance other than periodically cleaning the exterior lenses. The exterior of the scope may be cleaned by wiping with a soft, dry cloth.

When cleaning the lenses, be sure to use products, such as the Vortex Fog Free cleaning products or Lens Pen, that are specifically designed for use on coated optical lenses.

- Be sure to blow away any dust or grit on the lenses prior to wiping the surfaces.
- Using your breath, or a very small amount of water or pure alcohol, can help remove stubborn things like dried water spots.

Lubrication

All components of the Vortex Diamondback riflescopes are permanently lubricated, so no additional lubricant should be applied.

Note: Other than to remove the turret caps, do not attempt to disassemble any components of the riflescope. Disassembling of riflescope may void warranty.

Storage

If possible, avoid exposing your Vortex riflescope to direct sunlight or any very hot location for long periods of time.

Troubleshooting

Sighting-in Problems

Many times, problems thought to be with the scope are actually mount problems. Be sure that correct base and rings are being used in the correct orientation, and that the base screws and rings are tight. Insufficient windage or elevation adjustment range may indicate problems with rings, base, base alignment, base mount holes drilled in the rifle's receiver, or barrel/receiver alignment.

Check for Correct Base and Ring Alignment

- Roughly center the reticle by adjusting both windage and elevation turrets to the mid point of their travel ranges.
- Attach bore sighter, or remove bolt and visually boresight rifle.
- Look through the scope. If the reticle appears way off center on the boresighter image or when compared to the visually centered target when looking through rifle's bore, there may be a problem with the bases or rings being used. Confirm that correct base and rings are being used—and in the proper orientation.

Tips for Solving Bullet Grouping Problems

- Maintain a good shooting technique and use a solid rest.
- Check that all screws on rifle's action are properly tightened.
- Be sure rifle barrel and action are clean and free of excessive oil or copper fouling.
- Check that rings are correctly torqued per the manufacturer's instructions.
- Some rifles and ammunition don't work well together—try different ammunition and see if accuracy improves.

The VIP Warranty

We build optics based on our commitment to your absolute satisfaction. That's why Vortex products are unconditionally guaranteed and we make this Very Important Promise to you—a Very Important Person.

Rest assured that in the event your Diamondback becomes damaged or defective, Vortex Optics will repair or replace the riflescope at no charge to you. Call Vortex Optics at 800-426-0048 for prompt, professional, and friendly service.

VIP WARRANTY
UNLIMITED UNCONDITIONAL
Lifetime Warranty

Vortex Optics
2120 West Greenview Drive
Middleton, WI 53562
service@vortexoptics.com

Visit ***www.vortexoptics.com*** for more information. Canadian customers may visit ***www.vortexcanada.net*** for customer service information.

Note: The VIP warranty does not cover theft, loss, or deliberate damage to the product.

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