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CROSSFIRE™

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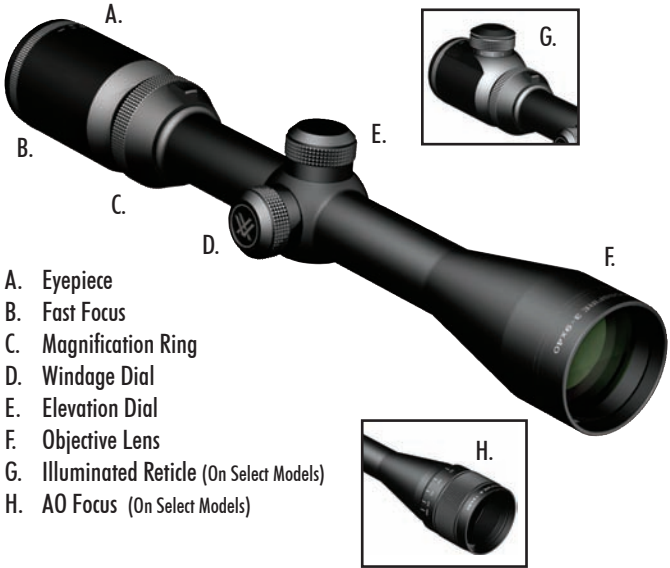
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**Please read this entire manual
before mounting your riflescope.**

Vortex Crossfire Riflescopes



- A. Eyepiece
- B. Fast Focus
- C. Magnification Ring
- D. Windage Dial
- E. Elevation Dial
- F. Objective Lens
- G. Illuminated Reticle (On Select Models)
- H. AO Focus (On Select Models)

Riflescope Adjustments

Reticle Focusing

Vortex riflescopes in the Crossfire series (except for the 2x20 EER) use a “Fast Focus” style eyepiece mechanism for quick and easy reticle focusing. To set it, begin by looking at a distant object for several moments (NOT through the scope), allowing your eyes to focus on that object. Then, holding the scope up to the sky, quickly look through it and pay attention to the sharpness of the reticle. Adjust the eyepiece focus until it is as sharp as possible while doing this process. The reticle image should be crisp and sharp immediately when you look.

As your eyesight may change over time, you should re-check this adjustment periodically.

Windage and Elevation Adjustment

Vortex Crossfire riflescopes incorporate fingertip-adjustable elevation and windage dials with tactile and audible clicks. Each small click will move the point of impact 1/4* Minute of Angle (MOA) which corresponds to 1/4” at 100 yards, 1/2” at 200 yards, 3/4” at 300 yards, and so forth. For example, it takes 4 clicks to move the bullet’s point of impact one inch at a sight-in distance of 100 yards.

**Some models use 1/8 MOA adjustments. Refer to vortexoptics.com for specific information on your rifle scope model.*

How to Adjust Windage and Elevation Settings

First of all remove the covers. Then, move the dials in the direction you wish the bullet's point of impact to change. To make the adjustments, turn the adjustment dial in the appropriate direction (Up/Down or Left/Right) as indicated by the arrows.

Tall Target Turret Models

The Crossfire adjustable objective (AO) models use tall target turrets for improved adjustability. These turrets will also allow you to re-index the zero indicator after sight-in – without disturbing your settings. This very handy feature allows you to return quickly to your original zero if temporary corrections are used in the field.

After the final sight-in is complete, use a small jewelers screwdriver and loosen the three small screws located on top of the turret. Carefully rotate the outer dial until the "0" mark is re-aligned with the indicator line and re-tighten the small screws.



Variable Magnification Adjustments

Change the magnification by turning the power adjust ring on the eyepiece to the indicated level.

Note: *The Crossfire 2x20 EER is a fixed 2x power scope, and has no adjustment.*

Parallax Adjustments

The Vortex Crossfire AO riflescopes use an adjustable objective lens system for parallax correction. 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.

Adjustable Objective Lens

Because parallax causes the greatest problem with small targets and high magnification, as with varmint and target shooting, adjustable objectives are available for selected models. All other Crossfire series riflescopes are set at the factory to be parallax-free at 100 yards.

To set the adjustable objective lens, begin by properly focusing the reticle (see Focusing, page 5). Once this is done, match the distance you are shooting (range number) on the objective lens dial to the indicator arrow on the scope body. For the best accuracy, use a laser rangefinder to measure distances.



Illumination Adjustment

Select riflescopes in the Crossfire series use a variable intensity reticle illumination knob. Adjust the position of the knob to increase the intensity of the illumination (rotate in a clockwise direction) as well as turn the illumination off and on.

Battery Operation

The Crossfire's illuminated reticle operates on one CR2032 Lithium battery with a typical life of up to 1,000 hours (Level 1), 70 hours (Level 6), and 25 hours (Level 11). To replace this battery, use a coin and remove the outer cover of the illumination knob.

Caution: *Avoid looking directly at the sun through a riflescope, or any optical instrument, which can damage to your eyesight.*

Riflescope Installation

To get the best results from your Vortex Crossfire 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.

1. Reticle Centering

Your Vortex Crossfire riflescope is pre-set from the factory with the reticle in the center of the adjustment ranges. This is the ideal position to begin sight-in. If you have changed the settings and wish to reset the reticle to the center, it can be done easily:

- Turn the dial (windage or elevation) fully until stopped in one direction or the other.
- Carefully counting the clicks, turn the dial in the other direction until stopped.
- Turn the dial back again half the amount of clicks counted previously and that adjustment will be centered.

Once you go through this process with both windage and elevation dials, the reticle will be centered.

2. Mount as Low as Possible

Using a high quality base matched to your firearm and 1-inch rings, mount the riflescope as low as possible on the rifle. Be sure to follow the manufacturer mounting instructions supplied with the rings and mounting base. Whether you use high, medium or low rings will depend on the model of scope and your particular firearm. A lower mounting will help assure proper cheek weld, and aid in a solid shooting position and fast target acquisition.

We recommend using the lowest rings that will give complete clearance of the scope and rifle. Avoid any contact with barrel, receiver, bolt handle or any other part of the rifle. Work the scope's zoom ring and rifle's action to assure no contact.

3. Adjust for Maximum Eye Relief

Before the final tightening of the scope rings, adjust for maximum eye relief to avoid injury from recoil.

- With the scope set at the lowest magnification, slide the scope as far forward as possible in the rings.
- While viewing through the scope in the normal shooting position, slowly slide the scope back towards you while paying attention to the field of view. When you feel you just hit the full field of view, stop. Without disturbing the front-back setting, rotate the scope until the elevation dial is at the top of the scope and the vertical crosshair of the reticle matches the vertical axis of the rifle.
- Tighten rings per manufacturers instructions when complete.

4. Bore Sighting

Initial bore sighting of the scope at distance of 25–50 yards will save you time and money at the range. This can be done using a bore sighting tool according to the manufacturer's instructions.

If you have a bolt action rifle, you can bore sight without a tool. Place the rifle solidly on a bench, remove the bolt, sight through the bore, and center the target inside the barrel. With the bulls-eye centered in the bore, make windage and elevation adjustments until the reticle crosshair is also centered over the bulls-eye.

If your base allows it, make the initial windage adjustments using the mounting base rather than the internal adjustments of the scope.

5. Final Range Sight-In

The final sight-in should be done at the range, using the exact ammunition with which you expect to hunt or shoot. If your scope has an adjustable objective, set the parallax adjustment to match the distance being used for sight-in. After the scope has been bore sighted:

- Fire a shot or two to check that you're roughly on target. If necessary, adjust the reticle to put you near the center of the target as described in the Windage and Elevation Adjustment section on page 5.
- Fire a three-shot group as precisely as possible. Using the center of this group as a reference, make necessary adjustments for windage and elevation correction. Adjust the dials in the direction you wish the group to move.
- Fire a final three shot group to confirm proper adjustment.
- Repeat this process until you achieve satisfactory results.

You will get maximum adjustability and performance from your Crossfire riflescope if the internal windage and elevation adjustments are near center. Vortex scopes come centered from the factory, but you will need to make some adjustments when initially sighting in your scope. Many ring and base setups allow you to adjust windage at the base mount. If possible, use these adjustments for initial windage change.

Although usually not necessary, you can correct the elevation adjustments at the mount using shims under the bases. Assuming a typical ring spacing of 3.25", a shim of .001" will yield 1" at 100 yards, 2" at 200 yards, 3" at 300 yards, 4" at 400 yards, and so on.

- Shim under the front base for more Down adjustability.
- Shim under the rear base (nearest shooter) for more Up adjustability.

If large windage or elevation corrections have been made using bases or shims, it may be necessary to have the rings lapped. Please consult with a qualified gunsmith if you are unsure of this procedure.

Note: *Problems with an insufficient elevation adjustment range could be caused by incorrect mounts or faulty mounting holes.*

Riflescope Maintenance

Your Crossfire riflescope will require very little routine maintenance other than periodically cleaning the exterior lenses. All components of Vortex riflescopes are permanently lubricated so no additional lubricant should be applied. Do not attempt to disassemble any components of your riflescope.

Lens Care

When cleaning the lenses, be sure to use products designed for use on coated optical lenses such as the Vortex Lens Pen or the Fog Free lens cleaning kits. Be sure to blow away any dust or grit on the lenses prior to wiping the surfaces. Using your breath, a very small amount of water or pure alcohol, you can help remove stubborn things like dried water spots.

Scope Body Care

The exterior of the scope may be cleaned by wiping with the soft, dry cloth provided with the Crossfire riflescope.

Storage

Avoid storing your Vortex riflescope exposed to direct sunlight or any hot location. High temperatures can adversely affect internal lubricants.

Troubleshooting Tips

Please check the following items prior to returning a scope for service.

1. Mounts

There are many times when problems thought to be with the riflescope are really with the scope's mount. Be sure the mounts are tight to the rifle, and that the scope is secure in the rings. You should not be able to twist or move the scope in the rings.

2. Windage and Elevation Adjustment

Insufficient windage or elevation adjustment range can indicate problems with either the base mount holes drilled in the rifle's receiver or with the barrel and receiver alignment.

Start by centering the reticle again (see Reticle Centering, page 8) and then check the bore sight. If the reticle is way off while centered, base adjustments or shimming may be needed. Consult a qualified gunsmith if you're unsure of the correct procedure.

3. Failure to Group Well

If a rifle fails to group well, there are several things to check.

- Be sure the rifle's action is bedded correctly and that all mounting screws are properly tightened.
- Be sure the rifle's barrel and action is clean and free of excessive oil or copper fouling.
- Be sure the rifle and ammunition work well together. You may need to try shooting a different brand and type of ammunition.

Vortex Technical Service

If your Crossfire riflescope requires warranty service, please follow these practical instructions before shipping:

- Remove the rings and any other accessories from the scope.
- Please pad the scope and include a note with your name, address, daytime phone, e-mail contact, and a description of the problem.
- Pack the scope inside a shipping carton to avoid damage during the shipping process.

Technical Service Contacts

Send all service repairs to:

Vortex Optics
2120 West Greenview Drive
Middleton, Wisconsin 53562 USA

Telephone: (800) 426-0048
Email: info@vortexoptics.com



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