

HOW TO SET THE FOCUS ON A RIFLESCOPE.

Many riflescopes that are brought to me, either to mount on a rifle for the owner, or for me to repair are not focussed correctly for the owner's eyesight. Often, the owner is unaware that the image of the reticle is not as good as it, perhaps, could be.

Hopefully, what follows may help you to improve the setting of your own riflescope.

It would be reasonable to assume that when you raise the rifle and look into the riflescope your instincts tell you that, somehow, you are looking through the instrument and out to the target in the distance. The reality is actually quite different.

The eyepiece section of the riflescope [the part which allows you to adjust the focus] actually works the same way as a hand-held magnifying glass. Just as you would move the magnifier towards the page you are trying to read and stop when the type is clear and sharp, so to, should you adjust the eyepiece until the reticle appears sharp and black. So how do you do that with an eyepiece which can't be moved as quickly as a hand-held magnifying glass?

Well, firstly, you need to know if your scope has an eyepiece which is locked with a small locking ring and works on a slow, fine thread, OR has what is now known commonly as a European type focus system. The latter does not have a locking ring but the outer section of the eyepiece can be gripped and twisted in and out on a quick-focus cam or rapid thread type arrangement.

With both types proceed as follows: undo the locking ring for the first type by holding the locking ring in one hand and by turning (anti-clockwise) the eyepiece, with the other and with the Euro type, undo the moveable eyepiece outer section, again, anti-clockwise. Carefully unscrew the eyepiece until a resistance is felt, then stop. The next stage is to select a neutral back-ground. Use either the blue sky or a plain interior wall very close by. The idea is that when you raise the 'scope to glance into it, all you will see is the reticle (at present out of focus), and a back-ground, the proximity of which cannot be determined. This is important because of how the riflescope optics and your eye actually work.

If you wear spectacles when you are shooting then put them on for this set-up procedure.

When you have decided where you are going to point the scope to look into it, hold the scope away from your face for a few moments and let your eyes relax. Don't stare or try to concentrate on the wall or sky. When you are comfortable, swing the scope up to the shooting eye, and AS SOON AS YOU SEE THE RETICLE, TAKE IT IMMEDIATELY AWAY AGAIN. You just need the "first impression only". At this stage it should be of a blurred reticle against an infinity background of blue (for a clear sky) or the wall colour if indoors. What you must NOT do is to stare into the 'scope, even for a second or two, but just flick the scope up and straight back down again as soon as your brain recognizes the blurred reticle. Then, move the eyepiece in a little and repeat the quick glance technique. Pause each time so your eyes are perfectly comfortable before the next glance. Repeat, as many times as is necessary, until your glance confirms a perfectly sharp, black reticle. That is where the eyepiece needs to be for YOUR eye. If you have a locking ring type scope, bring the

locking ring up to meet the eyepiece and lock the two firmly together. If you have the European type assembly I suggest you memorize, mark, or tape the eyepiece to stop it from moving from this setting. Again, I stress the need to not "look" at the reticle. The reason is simply that when the reticle is out of focus, your eye will automatically try to compensate for this if you give it even half a chance. We don't want your eye to have to make ANY compensation at all, hence the need for the swiftest possible glance only. The brain will instantly know if the reticle is sharp or not. Commonly I have found that riflescopes come in with the eyepiece screwed too far in for normally sighted people. This is a sure sign of staring too long at the reticle when trying to set the focus.

Once the eyepiece is set correctly it must be left in that setting until your actual eyesight changes. Don't try to use it to make a close target clearer. It is not meant to do that for you. On a fixed-focus type of riflescope, there is no other focus adjustment to be made.

If you have either an adjustable objective model or one with side-focus, there is another thing to work with but set the eyepiece focus first.

"Adjustable objective"; "side-focus"; "range-adjustable". Riflescopes with any one of these descriptions allow for the elimination of parallax error when time permits before each shot. Parallax is an error, inside the 'scope, between the aerial or apparent image plane of the target and the actual plane of the reticle. For there to be no parallax, the projected target image must fall exactly upon the reticle. When parallax is present, that image is either projected in front of or behind the reticle. This means that if you move your head across the stock, you will be peering at the two images from a different angle. This results in looking around one side or the other of the reticle at the target or vice-versa, thereby inducing an aiming error which invites you to move the muzzle left or right (usually) in an effort to correct for the aiming misalignment. This in fact CAUSES the misalignment of the true aim. With an AO/side-focus 'scope you can get it right if you have time. The secondary use for this feature on any AO/SF type riflescope is to set it for an approximately correct distance for your next anticipated quick shot. If you are hunting in the bush, set the adjustment for around twenty to thirty meters. In semi-open scrub country, look around you and imagine how far away a suddenly appearing animal might be and set the scope at about that distance. Set the magnification on a vari-power scope at the same time to a power suitable for the anticipated next shot distance; lowest power in the bush and perhaps around six magnification in the more open country. You will have plenty of time for adjusting both parallax and magnification for the long shots when the animal doesn't know you are there. That's the time to set it precisely. What you don't want is to have the parallax set at infinity, power set on twenty and a deer jump up and run off through the bush from ten meters away. The scene will be a total blur if you swing the scope to your eye with that combination of settings and circumstance.

To eliminate parallax with the adjustable type system riflescope you firstly need a perfect rest for the rifle such as a bipod or some other support. Look at the target and while holding the rifle absolutely still move your head side to side across the stock and look for the reticle appearing to move across the target. If you see this error then make adjustments on the AO or SF and test again. If the error got worse you adjusted the wrong way. Try again in the other direction and the error will reduce until it finally disappears. You have then focussed the objective perfectly for that distance and are now ready to take the shot.

With a non-AO/SF 'scope you can't eliminate parallax except at the one only distance set at the factory when the riflescope was built. The answer with this type of non-adjustable riflescope is to ensure that your head, and therefore your shooting eye, is in exactly the same position on the stock behind the eyepiece every shot you fire.

Thank you for reading. I hope this article is of help.
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