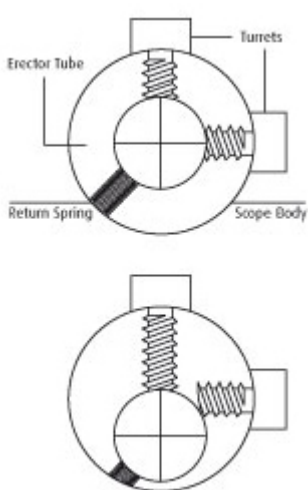


SETTING UP A SCOPE

Once you have mounted and zeroed your scope the zero should be checked periodically to make sure it has not shifted. This can happen for a number of reasons such as the scope being knocked, or changes in altitude or temperature. If the point of zero has changed the scope will need to be re-zeroed before it is used again. To ensure optimum performance from your scope it is always desirable to keep the erector tube, which carries the reticule (crosshairs), as near to the centre of the scope body as possible when the scope is zeroed. Over adjustment of one turret will lead to a restriction of the amount of adjustment in the other, and can result in difficulty in zeroing your scope. If this happens, you may need to re-centre your scope; or if transferring a scope from one gun to another, you may need to pack the mounts to achieve zero. In which case the following instructions may help.

How a Scope Works



Inside the body of every scope there is an erector tube that carries the reticule, this is held in place by a return spring, and the turret adjusters. When the scope is zeroed, the position of the reticule is altered by turning the turrets; these push the erector tube up and down or from side to side, against the tension of the return spring. If a turret is adjusted too far in one direction the erector tube will be pushed against the inside wall of the scope body which will restrict its ability to move in the other direction, and make it impossible to zero the scope.

Mechanically Centering a Scope

Most scopes are centred when they leave the factory but if you are unsure of whether yours is, here is what to do. Count the number of clicks from one extreme of the turrets travel to the other and settle for the middle ground. So if the maximum extent of adjustment is 10 revolutions, set the turret to 5, which will give equal adjustment in both directions. Your scope is now mechanically centred but ideally it should also be optically centred.

Optically Centering a Scope

Find a sturdy cardboard box that measures about 5ins by 10ins and is 4ins deep or more. Cut the flaps off the box and cut 2 "V" shaped notches into the top edges of the sides of the box so that your scope can be rested across the box. Put something heavy in the bottom of the box to add to its stability and place the scope across the box with the turret covers off. Put the box on a window sill or table so you can see through the scope. View the picture through the scope as you rotate the tube through 360 degrees and see if the reticule stays in the same position, or if it appears to move off centre. If it does move adjust the turrets until the reticule seems to stay in the same place as if it's rotating around like the spokes of a wheel. Don't worry about what the reticule is lined up with as long as its centre is constantly covering the same point. At this point you will be looking through the thickest point of each lens and the scope is not using any of the erector tubes image moving capability. The scope is now optically centred.

Packing the Scope Mount



Because there is only a limited amount of movement available to the erector tube, some rifle and scope combinations need extra help to enable the scope to be zeroed. This can be done by using an adjustable scope mount, but if it is just a question of raising the back of the scope to create more elevation adjustment, a simple answer is to pack up the back of the scope.

When material is introduced to the circular clamping section or ring of a scope mount it has a tendency to indent the aluminium scope tube and reduce the resale value dramatically. Even relatively soft materials can cause problems but one method seems to overcome the problem. Start with a piece of aluminium kitchen foil cut to about 300 x 100 mm. Then fold one edge over approximately 5 mm and then another about 7 mm and keep on folding successively 2 mm larger zig-zag sections until the full length of 300 mm is used up. Each layer of foil is approximately 0.02 of a millimetre thick and this creates a platform where the edges are ultra thin and yet the centre of the foil is about 0.33 of a millimetre thick.



Trim a piece of the foil off to match the width of the mount and place it into the bottom of the mount. When a scope is placed on top of the foil, it holds the foil in place and at the same time, it lifts the scope tube without marking it severely. The 1 inch or 30 mm circular shape of a mount is maintained and if more packing is required to achieve a zero a second piece of 0.33 mm can be added on top of the first.

If the scope requires more packing than this to allow the turrets to come into play the scope and / or the barrel need to be checked over by a gunsmith. Dry kitchen foil grips a scope tube very securely without the clamping screws being tightened to extremes and it is not effected by humidity or temperature.