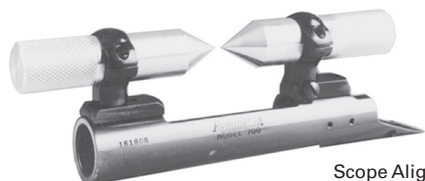
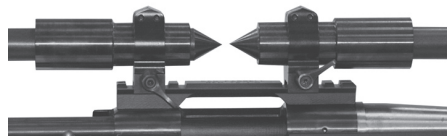


Sleeved Scope Alignment Rods



Scope Alignment Rods

Brownells Scope Ring Alignment Rods are multiple function tools. They are used to turn in dovetail type rings, such as the front rings on Redfield/Leupold type conventional scope mounts or both rings of dual-dovetail-type mounts. They are also used to align the front and rear rings to prevent scope body damage during initial installation.



WARNING



Never attempt to disassemble or reassemble a firearm unless you are absolutely certain that it is empty and unloaded. Visually inspect the chamber, the magazine and firing mechanism to be absolutely certain that no ammunition remains in the firearm. Disassembly and reassembly should follow the manufacturer's instructions. If such instructions are not immediately available, contact the manufacturer to see if they are available. If they are not available at all, then you should consult other reference sources such as reference books or persons with sufficient knowledge. If such alternative sources are not available and you have a need to disassemble or reassemble the firearm, you should proceed basing your procedures on common sense and experience with similarly constructed firearms.

With regard to the use of these tools, the advice of Brownells Incorporated is general. If there is any question as to a specific application it would be best to seek out specific advice from other sources and not solely rely on the general advice and warnings given.

HOW TO USE

Two different types of Scope Ring Rods are available; the original aluminum rods in 1" or 30mm, and the all steel Sleeved rods. The Sleeved rods consist of two pieces for each rod; a steel sleeve in two diameters, 1" and 30mm, and a steel inner point section that is a close sliding fit to the sleeve. In use, the two different types are essentially identical. Setup of the Sleeved rods requires the appropriate diameter section of the Sleeves be placed in the ring half, and the inner point sections be positioned so the points can come together.

Note: Since the Sleeved Scope Alignment Rods are all steel, and are polished in-the-white, they must be kept lightly coated with oil to prevent rust. After each use, wipe down all four pieces with a lightly oiled shop cloth, and store them in their hard-shell storage box.

RING INSTALLATION - REDFIELD-TYPE RINGS: Lightly lubricate the dovetail lug on the bottom of the front ring with a good grade light grease such as Rig, Lubriplate, or Brownells Action Lube Plus™. Using the appropriate Magna Tip® screwdriver bit, loosen the ring screws and slide one of the Scope Ring Alignment Rods into the ring about 1" (2.5cm) from the pointed end of the rod. Tighten the ring screws on the Alignment Rod, with almost as much pressure as would be used when mounting the scope. Insert the front ring's dovetail section into its base with the Alignment Rod on the right hand side of the base, at 90° to the bore. Make sure the ring is down tight against the base and turn the Alignment Rod's knurled handle "forward", toward the muzzle. It may be necessary to "work" the handle back and forth slightly, as the fit of the dovetails of both ring and base are deliberately machined to very close tolerances. Turn the Alignment Rod slightly past parallel to the bore, and bring it back to parallel.

BROWNELLS® SCOPE RING ALIGNMENT RODS

READ & FOLLOW THESE
INSTRUCTIONS

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Loosen the ring screws on the rear scope ring. Fit the rear ring between the base's windage screws and lightly snug them using the appropriate Magna-Tip Windage Screw Bit. Slip the second Alignment Rod into the rear scope ring, with the point toward the muzzle, and lightly tighten the ring screws, to the point where the Alignment Rod may still be moved in the ring using very light pressure. Move the rear Alignment Rod forward, until its point approaches the front Alignment Rod's point. By sighting from the rear Alignment Rod toward the front one, it is easy to see if the two rods are aligned lengthwise. If necessary, adjust the windage screws until the points of the the Alignment Rods almost touch. By looking down onto the Alignment Rods, while holding a 6" steel rule along the rods above the rings, any misalignment can be quickly noted and corrected with either the windage screws or by turning the front ring slightly in its dovetail, or both. Do not tighten the windage screws "finished tight" yet.

Vertical alignment may also be examined by comparing the heights of the points from the side. If the base appears to need shims to bring the points in line with each other, regard this as a temporary shim. Remember, you are aligning the rings with the machined surfaces of the receiver, not with the bore!

Loosen the ring screws and remove the Alignment Rods. Remove the ring screws and the top sections of the rings, setting them aside carefully so they don't get mixed up, front to rear, or turned around. Set the scope in the ring bottom halves, and determine the proper eye relief and crosshair alignment, following the scope manufacturer's instructions. Set the ring top halves in place and tighten the screws, following the ring manufacturer's instructions.

Boresight the rifle, using a collimator. Use the base windage screws to align the scope for windage. Determine the vertical adjustment needed using the scope's internal adjustment. If more than 10" worth of adjustment from center are needed to bring the scope's crosshairs into "zero", it may be advisable to shim the base. Each .012" thick Brownells Scope Mounting Shim will change the point of impact vertically about 8½" at 100 yards. CAUTION: If shims are added or removed from under the base, be sure the

base screws are properly retightened. Shims placed under the REAR base will bring the point of impact UP. Be sure the windage and ring screws are properly tightened.

RING INSTALLATION - WEAVER-TYPE RINGS: Attach the rings to the bases using the appropriate Magna-Tip Clamp Screw Bit, with both clamp screws on the same side of the receiver. Loosen the top strap screws on the ring, using the appropriate Magna-Tip screwdriver bit. Slide the Scope Ring Alignment Rods into the rings until their points almost touch. Lightly tighten the ring top straps on the Alignment Rods. Visually determine that the rings are properly aligned, both vertically and horizontally. It may be necessary to turn one of the bases around 180° or possibly to swap the rings around to get proper initial alignment of the rings. Shim the bases as needed for vertical alignment, using Brownells Scope Mounting Shims. Each .012" shim will change the point of impact vertically about 8½" at 100 yards. Shims placed under the REAR base will bring the point of impact UP! CAUTION: If shims are added or removed from under the base, be sure the base screws are properly retightened. Again, remember that at this point, you are aligning the rings with the machined surfaces of the receiver, not with the bore!

Remove the Alignment Rods, and install the scope in the rings following the ring manufacturer's and scope manufacturer's instructions. Be sure to set the eye relief correctly and make sure the crosshairs of the scope are horizontal/vertical *after* the ring top straps are tight! Boresight the rifle,

using a collimator. If more than about 10" of internal adjustment in any direction is needed to align the crosshairs of the scope with the center of the collimator, shim the base as needed and/or swap the rings around, or turn the bases around, until the scope will boresight correctly.

If major windage adjustments are needed due to receiver scope screw holes that are not lined up with the bore, one or both of the bases may be filed on the angled sides of the base. Keep the top and bottom angles the same as the factory angles, but bring the appropriate side closer to the base centerline. After the base angles have been re-cut, they can be touched up with Aluma-Hyde. This has to be done on a cut-and-try-basis, to get the scope's internal adjustments as close to their mechanical centers as possible.

After any shimming or other adjustments have been made to the mounts, be sure to double check that the mounting and clamp screws are properly tightened.

Reassemble the firearm according to the manufacturer's instructions. Check for proper functioning using **ACTION PROVING DUMMIES**. Make sure **ALL SAFETY MECHANISMS** are fully functional as designed and approved by the manufacturer. If these tests prove satisfactory, test-fire the firearm with live ammunition in a **SAFE** and **APPROPRIATE** manner. **IMPORTANT!** Start the live ammunition tests by first loading an **ACTION PROVING DUMMY**, then a live round, into the magazine. Only after several tests have been conducted in this manner should additional rounds be placed in the magazine and fired.