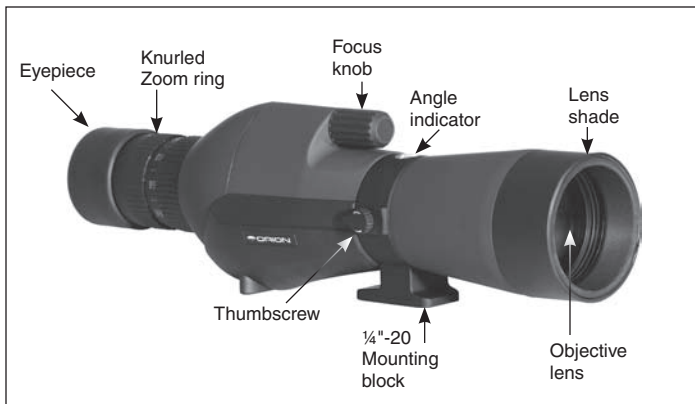


# Orion® TrailHead™ Spotting Scopes

## #9520 15-45x65mm Straight • #9521 20-60x85mm 45° Angled



**Figure 1:** The TrailHead 15-45x65mm straight zoom spotting scope.

*Congratulations on your purchase of a quality Orion spotting scope. Your TrailHead zoom spotting scope is a high-quality optical instrument for viewing birds, wildlife, sports events, or anything else you want to see more closely. It will provide many years of superb, enjoyable viewing. Before using your spotting scope, we recommend that you read through the following instructions. Please refer to Figures 1 and 2 above to identify the various parts mentioned in this manual.*

### Attaching to an Optional Tripod

The TrailHead zoom spotting scope can be attached to a sturdy camera tripod or other mount by use of the 1/4"-20 threaded hole in its mounting block. This hole accepts 1/4"-20 mounting studs that are standard on most tripods.

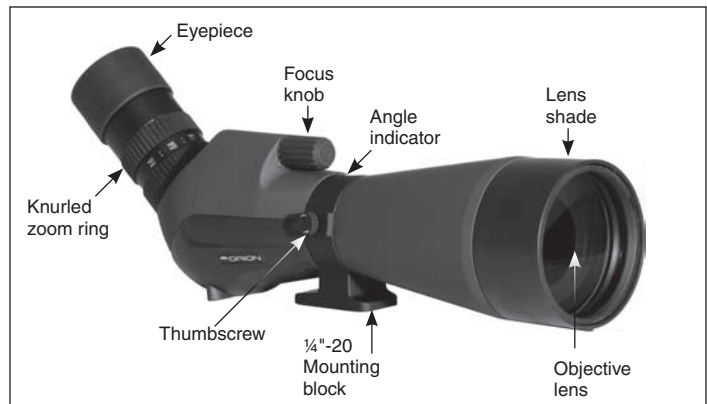
The spotting scope can be rotated relative to the mounting block, should you wish to change the orientation of the eyepiece for a more comfortable viewing angle. With the spotter attached to a tripod, loosen the thumbscrew on the mounting block's ring, and grasp the body of the spotting scope. Rotate it to the desired position, and re-tighten the thumbscrew when done.

### Extending the Lens Shade

A nice feature of the TrailHead zoom spotting scope is its retractable lens shade. Having a retractable lens shade is desirable, as it keeps the length of the spotting scope shorter, and thus more portable, when transporting it.

When using the spotter, especially in bright daylight, the lens shade helps reduce glare (stray light) from entering the field of view. Glare is undesirable because it decreases overall image contrast. To use the lens shade you must first remove the lens cap. The lens shade can be extended by grasping and pulling it away from the objective lens. Retract the lens shade by pushing it inwards before putting it back into its case.

**WARNING: Never look directly at the Sun through your spotting scope — even for an instant — without a professionally made solar filter that completely covers the front of the instrument, or permanent eye damage could result. Young children should use this spotting scope only with adult supervision.**



**Figure 2:** The TrailHead 20-60x85mm angled zoom spotting scope.



**Figure 3:** The TrailHead zoom spotting scope with the dew shield extended.

### Focusing

Point the spotting scope in the general direction of an object at least 20 feet away. Rotate the focus knob with your fingers until the object comes into sharp focus. Go a little bit beyond sharp focus until the image just starts to blur again, and then reverse the rotation of the knob, just to make sure you've hit the exact focus point.

### Using the Zoom Eyepiece

The TrailHead zoom spotting scope line provides continuous zoom magnification of either 15-45x (on the 65mm) or 20x to 60x (on the 85mm). The magnification is adjusted by rotating the knurled rubber zoom ring on the eyepiece. The arrow indicator and magnification scale show the current magnification setting. Changing the magnification may also require slight refocusing to achieve the sharpest image.

For general use, it's a good idea to start viewing at the lowest magnification until you've acquired your viewing target. Then you can zoom-in to a higher magnification to see more detail. Note that as magnification increases, the images will become dimmer; this is an inherent law of physics, and cannot be avoided.

### Twist-Down Eyecups

The spotting scope features a rubber twisting eyecup on the zoom eyepiece. This eyecup is usually left in the up position for use without eyeglasses. To use the spotting scope with eyeglasses, simply grasp the eyeguard and gently twist clockwise to lower it to the desired position. The eyeguard has handy click stops to keep it in place once it is set.

### Use of the View-Through Carry Case

A feature of the TrailHead spotting scopes is that they can be used while still inside the carrying case and mounted on a tripod. This



**Figure 4:** The TrailHead zoom spotting scope mounted in the view-through case (angled model shown).

is especially helpful in achieving a fast and convenient setup and will keep the exterior of the scope clean. The case can be sealed up quickly to protect the scope from the elements. Although the TrailHead is waterproof it should not be left outside for extended periods of time, even when it is in its carry case.

Make certain the TrailHead is oriented properly in the carry case so that the 1/4"-20 hole in the mounting ring can be used to attach the spotting scope to a tripod. Note that you cannot rotate the spotting scope while the TrailHead is in its carry case and mounted on a tripod.

### Care and Maintenance

Although the TrailHead zoom spotting scopes are durable and waterproof, it should avoid prolonged, unnecessary exposure to the elements. Keep the spotter in its case and indoors when not in use.

If it gets splashed with water, or is used in the rain, the spotting scope will not be harmed. It is internally purged with nitrogen and sealed, so water on the body or optics is not a problem. Simply wipe water off the body with a cloth or towel and use lens tissue to dry the objective and eyepiece lenses after a wet observing session. It is also recommended to leave the spotting scope in a dry place with the caps off overnight to let it completely dry out.

Store the instrument in a cool, dry place; storage in a humid environment will result in mold growth on the exterior of the lenses that can destroy the optical coatings. This is not covered by the warranty.

### Cleaning the Lenses

The lens surfaces of the TrailHead zoom spotting scopes are coated with anti-reflection coatings, which can be damaged with careless handling. Avoid touching lens surfaces with your fingers or any coarse material. Clean the lenses if they get noticeably dirty. The dust that builds up on them promotes mold growth, which etches the glass and destroys the coatings. Always use lens cleaning tissue and fluid designed specifically for telescope optical coatings.

Do not use regular tissue or fluids made for eyeglasses or household use. Do not disassemble the spotting scope to clean it.

To clean the lenses, first blow air on the lens with a blower bulb or compressed air to remove any large particles. Then brush the lens with a soft lens brush and blow air on it again to remove any dislodged particles. Put two drops of lens cleaning fluid on a sheet of lens tissue (never directly on the lens). Wipe the lens gently with a circular motion, taking care to avoid undue pressure or rubbing, which can scratch the coatings. Quickly remove the excess fluid by wiping with a clean, dry lens tissue. For the large objective lens, clean only a small area at a time, using a fresh lens tissue on each area.

### Specifications

#### #9520 15-45x65mm Straight

Objective lens diameter:	65mm
Magnification range:	15x to 45x continuous zoom
Field of view:	3° at 15x, 1.6° at 45x
Eye relief:	22mm at 15x, 21mm at 45x
Weight:	3 lbs.
Length:	15 inches

#### #9521 20-60x85mm 45° Angled

Objective lens diameter:	85mm
Magnification range:	20x to 60x continuous zoom
Field of view:	2.2° at 20x, 1.2° at 60x
Eye relief:	21mm at 20x, 18mm at 60x
Weight:	3.9 lbs.
Length:	16.5"

#### Both TrailHead models

Coatings:	Fully multi-coated
Close focus:	20 feet
Tripod attachment:	Mounting block accepts 1/4"-20 studs, spotting scope can rotate relative to mounting block
Weather resistance:	Waterproof
Case:	Soft carry case included
Tripod:	Optional

### One-Year Limited Warranty

The Orion TrailHead Spotting Scopes are warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid to: Orion Warranty Repair, 89 Hangar Way, Watsonville, CA 95076. If the product is not registered, proof of purchase (such as a copy of the original invoice) is required.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mishandled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. For further warranty service information, contact: Customer Service Department, Orion Telescopes & Binoculars, 89 Hangar Way, Watsonville, CA 95076; (800) 676-1343.