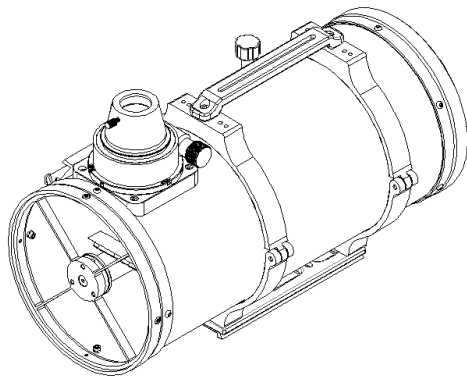


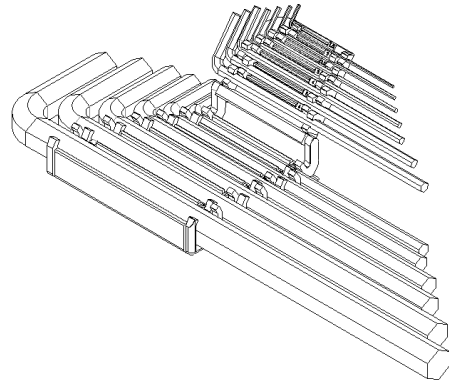
# Collimation of the SharpStar 150HNT

【Preparation is Required before Collimation】

Sharpstar 150 Hyperboloid Newtonian Reflector, Allen Wrench, Laser Calibrator, Crosshair Eyepiece



Sharpstar 150 Hyperboloid Newtonian Reflector



Allen Wrench

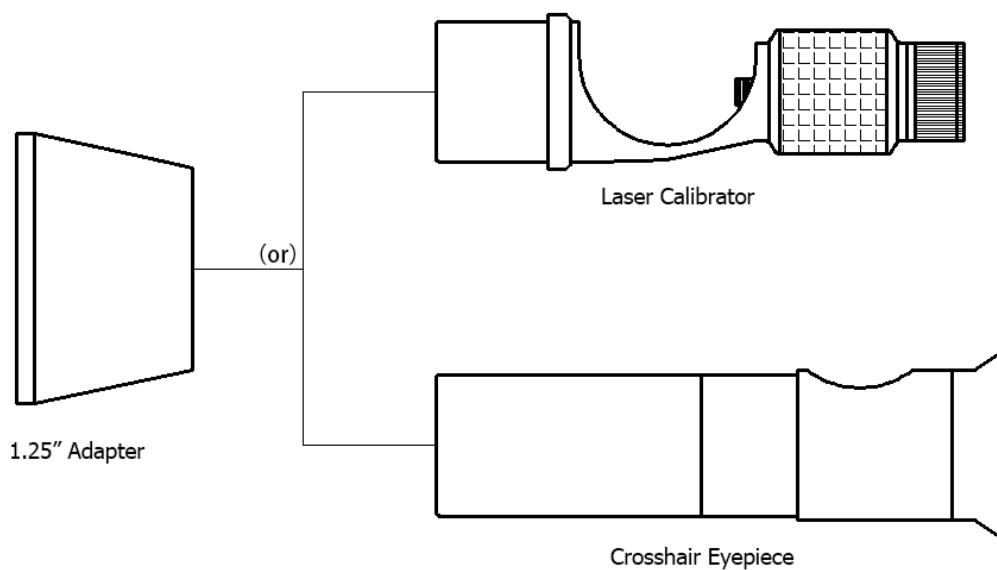


Laser Calibrator



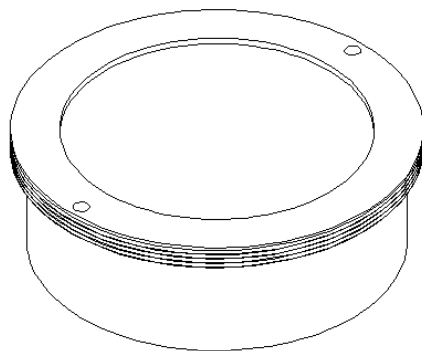
Crosshair Eyepiece

【Connection Way】

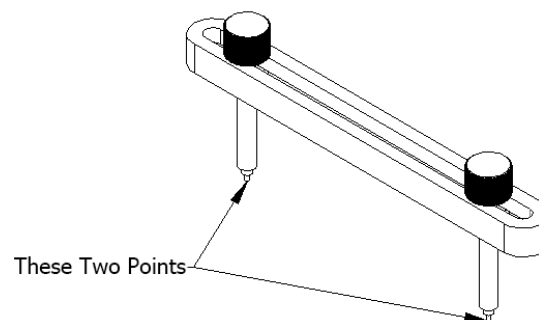


### 【Preparation for Collimation】

Owing to the existence of diopter in the reducer, the reducer assembly must be removed in order to collimate the 150HNT. Put the tool with its two sharp points into the two holes in the reducer group frame accordingly, and then turn the tool to take the reducer group off.



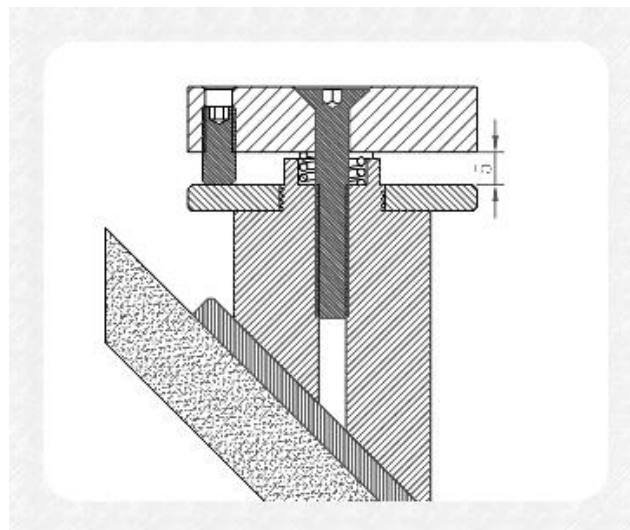
Reducer Group



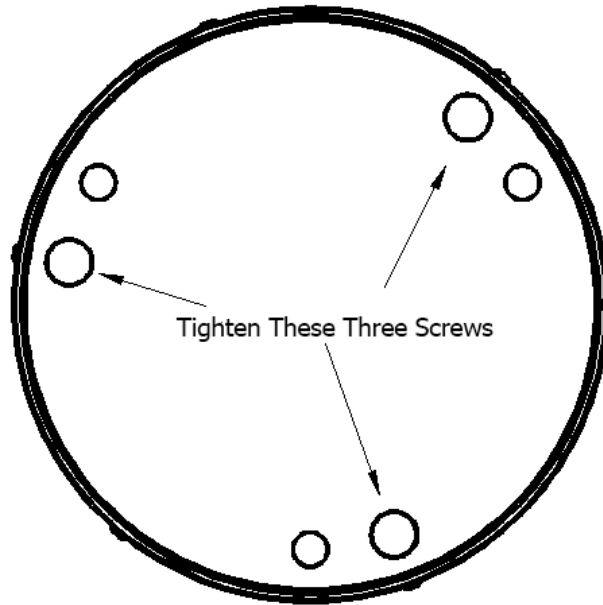
150 Reducer-specific Tool

### 【Laser Collimation】

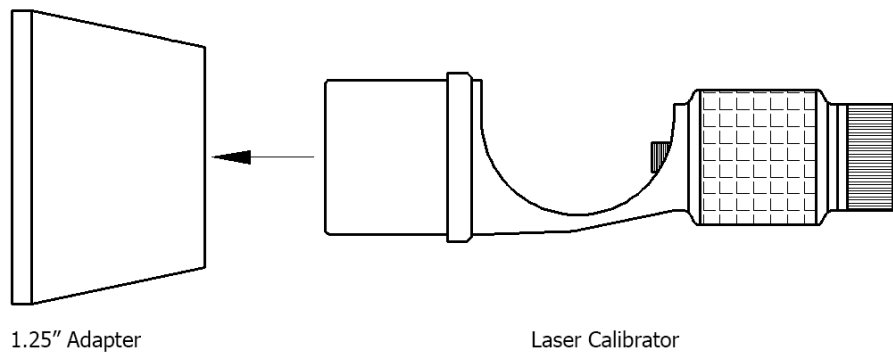
**STEP 1:** Adjust how far the spider disk of the secondary mirror from the stainless steel top-surface, great if the distance is 5mm as the three set screws in the spider disk contact with the top-surface slightly.



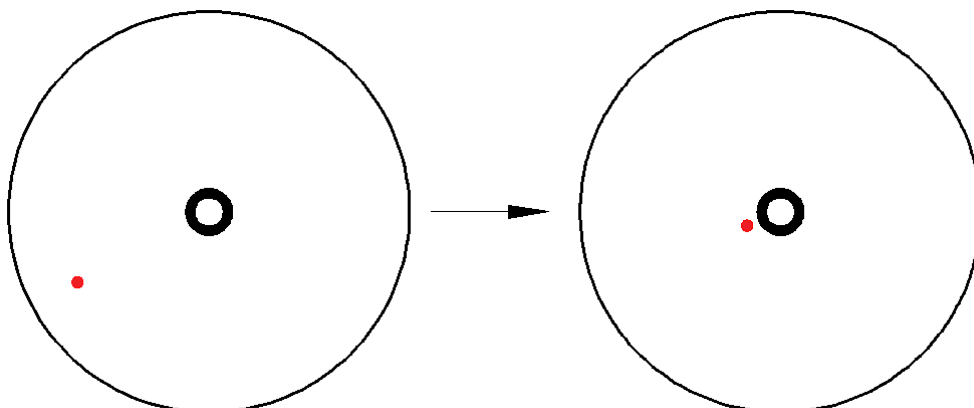
**STEP 2:** Loosen the three small screws and tighten the three large screws on the back circle.



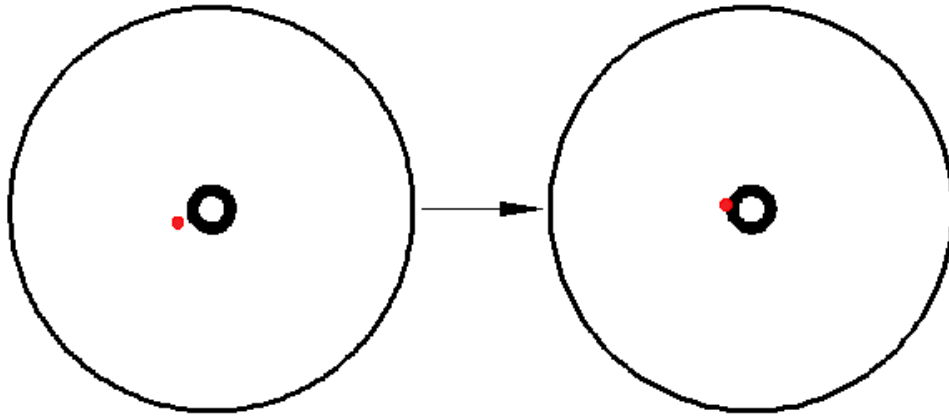
**STEP 3:** Insert the laser calibrator into the 1.25" adapter.



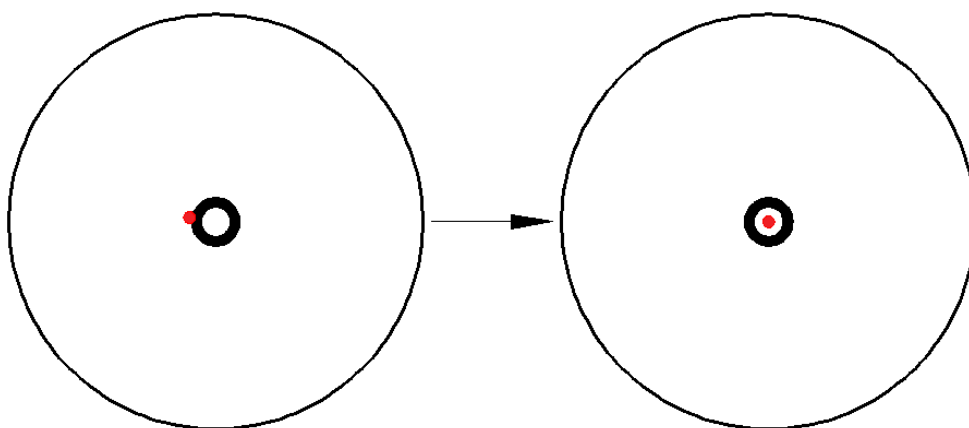
**STEP 4:** A laser dot will be shown on the primary mirror. Using the wrench and hand adjust the screws on the cross of secondary mirror to change its position so that the dot is move to the center of the circle.



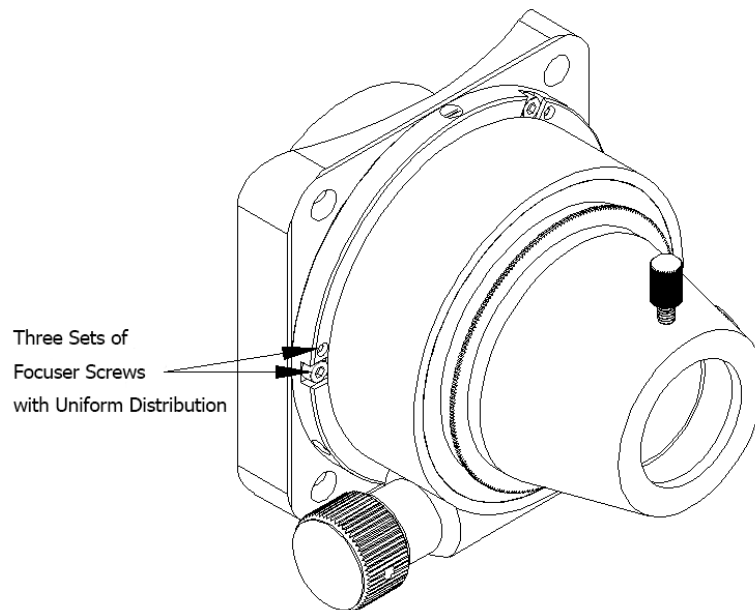
**STEP 5:** Next, adjust the three set screws on the cross of secondary mirror to center the laser dot on the black circle, and pre-tighten them to hold the secondary mirror (from slightly contact in Step 1).



**STEP 6:** It then becomes necessary to loosen the three large screws to further center the dot, and tighten the three small screws to hold this adjustment. Note the location of the red dot in relation to the black circle or the location of the feedback red dot provided by laser calibrator in relation to the central hole in the process of observing.



**STEP 7:** Because the short focal ratio can lead to a more sensitive light axis, and thus the adjusted axis in Step 6 may be offset again in the process of tightening the small screws on the back circle. Now further fine adjustment is required to re-center the dot.

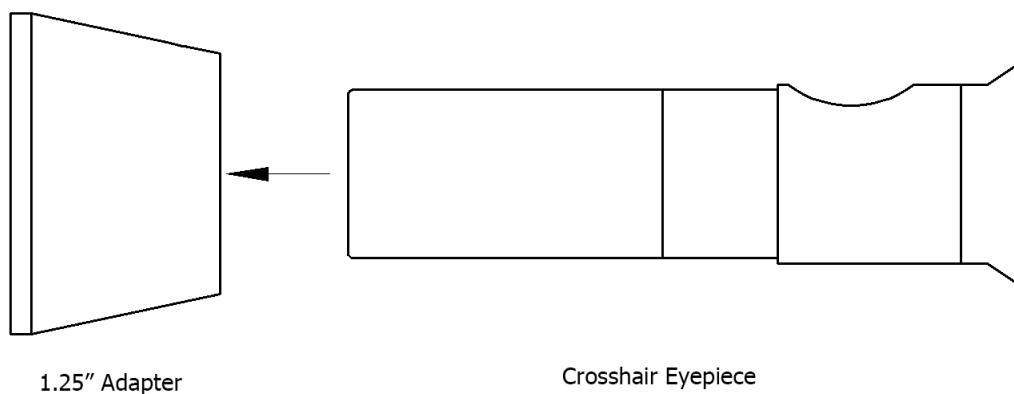


**STEP 8:** Put the reducer group back into the focusing barrel.

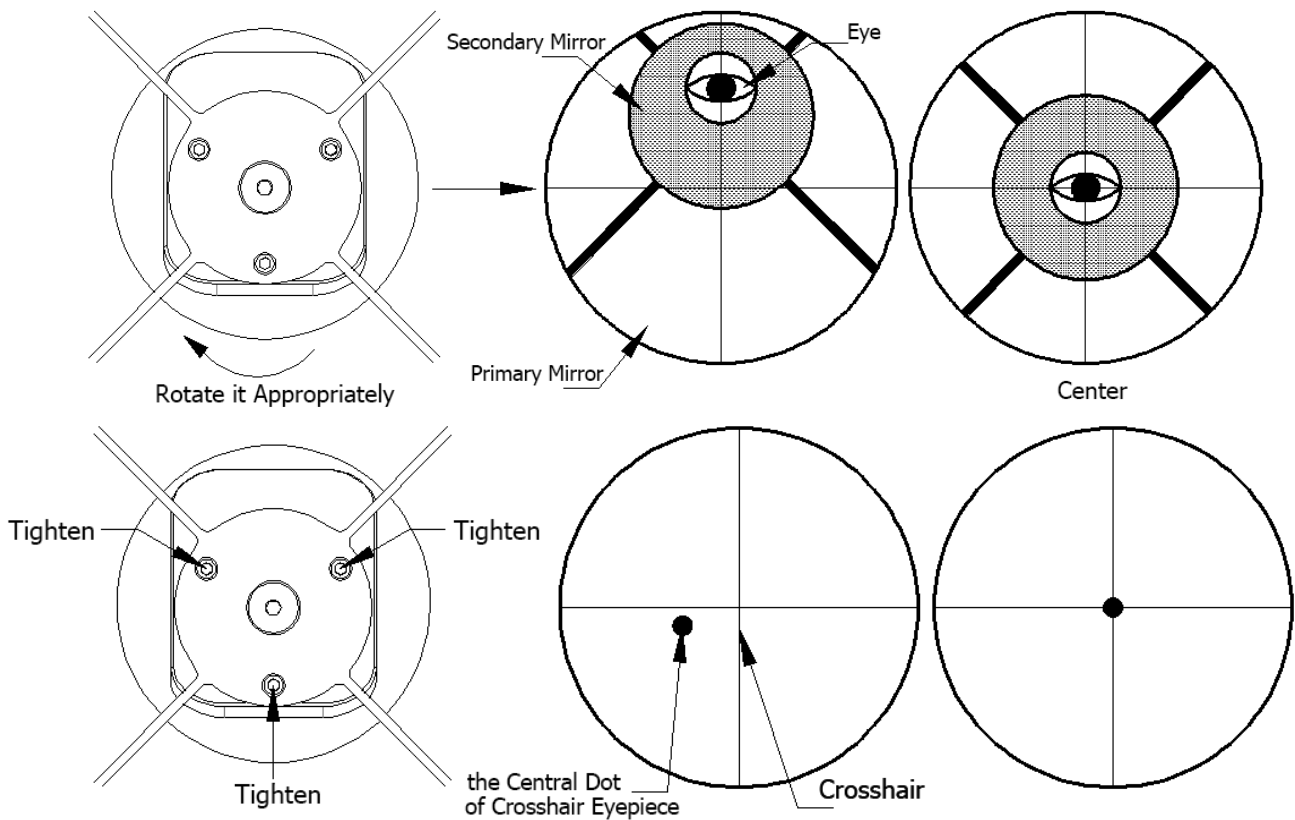
### **【Crosshair Eyepiece Collimation】**

See **STEP 1** and **STEP 2** in Laser Collimation, which aren't repeated here.

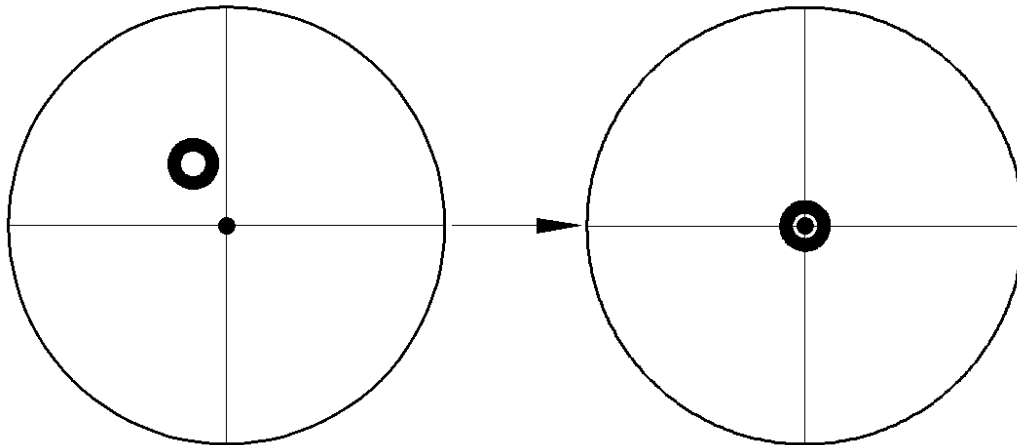
**STEP 3:** Insert the crosshair eyepiece into the 1.25" adapter.



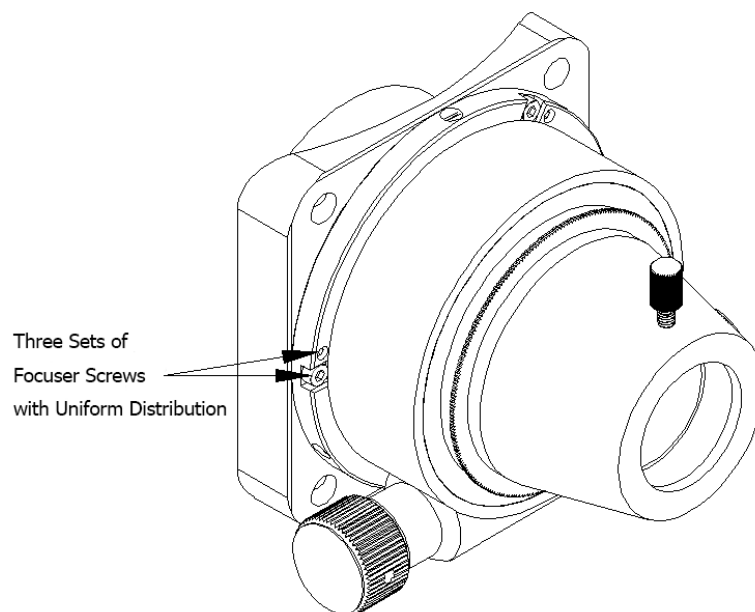
**STEP 4:** There are the circle of primary mirror, the circle of secondary mirror, the central mark on the primary mirror, the reflection hole on the surface of the secondary mirror and a crosshair in your field. Rotating the secondary mirror group and using the wrench with set screws on the cross to control the position of the secondary so that the circle of the primary mirror is moved to be concentric with the circle of the secondary mirror as seen through the collimating eyepiece, and the center reflection of the eyepiece is centered over the crosshair. After this is done, make certain that the adjustment has been locked in place though tightening the set screws.

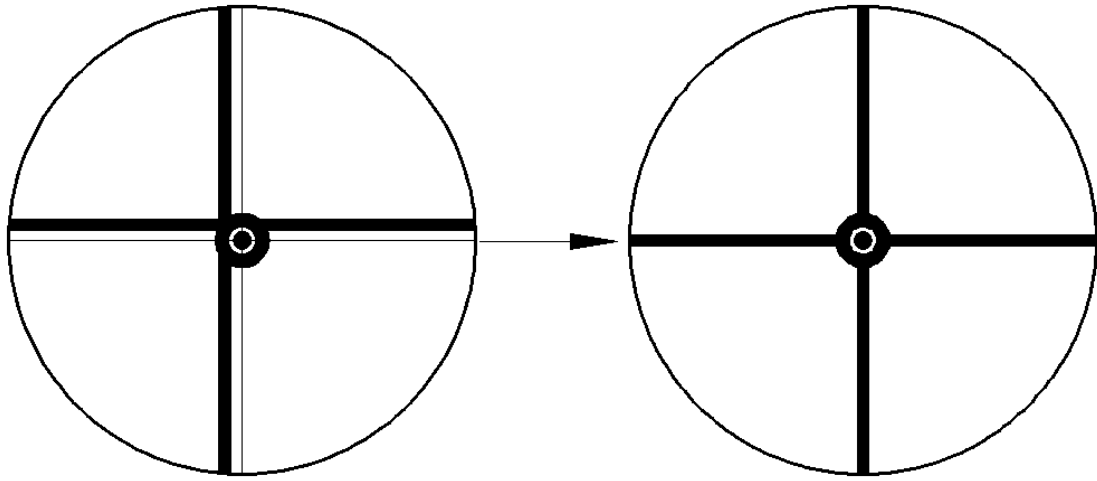


**STEP 5:** It's now necessary to loosen the three large screws to center the primary mirror mark on the hole placed on the collimating eyepiece. Then tighten the small screws.



**STEP 6:** Turn the focuser or the crosshair eyepiece, as seen the crosshair of crosshair eyepiece and the crosshair of secondary mirror have the same center. If not, adjust the three screws on the focuser until the desired pattern is obtained and then tighten them.





**STEP 7:** Put the reducer group back into the focusing barrel.