

Instructions for use



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抖音

The 15028HNT-AL is a hyperbolic Newtonian reflector with a 150mm aperture and a fast F2.8 focal ratio. The optical tube is made of aluminum.

The 15028HNT-AL's primary mirror has a highly reflective ability of up to 97%. The minor axis of the secondary mirror is 70mm. It supports a 44mm full-frame image circle, and the star performance is great.

The 15028HNT-AL further enhances the structure stability of the optical axis of the primary mirror, and there are three sets of adjustment screws at the bottom of the optical tube for adjusting the angle of the primary mirror.

The 15028HNT-AL improves the bracket structure of the secondary mirror to make it more stable. The secondary mirror bracket is CNC machined, integrated manufacturing with no misalignment, which ensures beautiful diffraction spikes during astrophotography.

The 15028HNT-AL's focuser is a dual-speed rack-and-pinion large rigid focuser, that can carry 3kg, ensures a 2cm focusing travel length, and can be compatible with most motorized focusers. The focuser is designed with an enlarged handwheel. The front of the focuser is designed with a camera rotator which can rotate the focuser as a whole, the focuser has a built-in triplet corrector. one of which is an ED glass, enhancing the power in aberration correction. The structure of the focuser is very stable and can carry 3kg. The back focus of 15028HNT-AL is standard 55mm (from the M48 thread).

The 15028HNT-AL has a finder base on the side of the lens tube,

which provides additional mounting positions for finder scope or other astronomical accessories. It has a Standard Losmandy-style 200mm dovetail plate, the handle bar is 200mm length.

The 15028HNT-AL is all-metal, with CNC machined parts.

***The 15028HNT-AL focuser and rotator are shipped in a locked condition. Users should be sure to loosen the locking screws before initial use to avoid damage to the part.**

15028HNT-AL Specifications:

Aperture size: 150mm

Focal ratio: F2.8

Focal length: 420mm

Primary mirror type: Hyperbolic reflective mirror

Primary mirror material: PZ33 (similar to Pyrex glass)

Corrector: Three-element air-spaced refractive lenses
(including one ED glass)

Minor axis of secondary mirror: 70mm

Image circle: 44mm

Main tube material: Aluminum

Main tube outer diameter: 193mm

Main tube length: 443mm

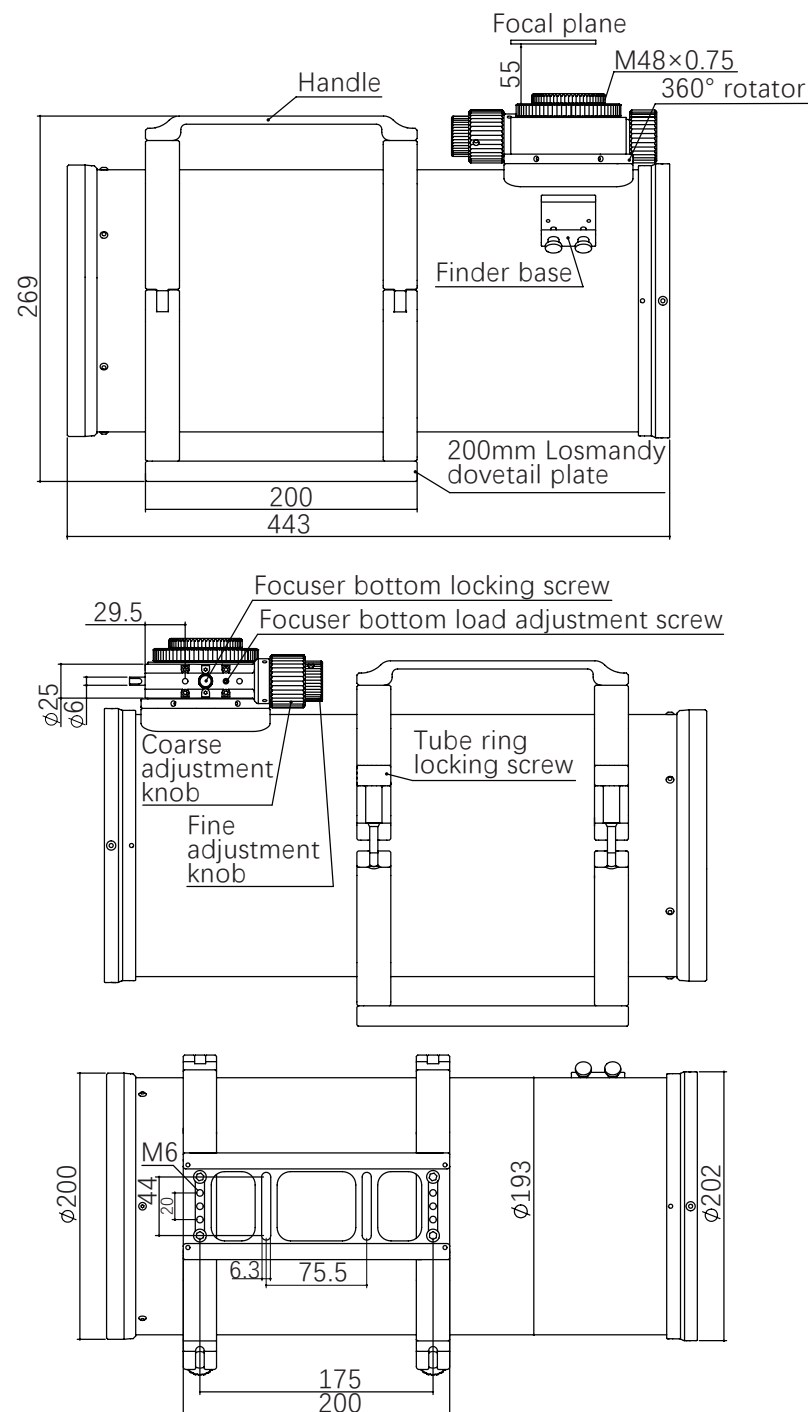
OTA weight: 4.8kg

Gross weight (including handle bar, tube ring and dovetail plate) : 6kg

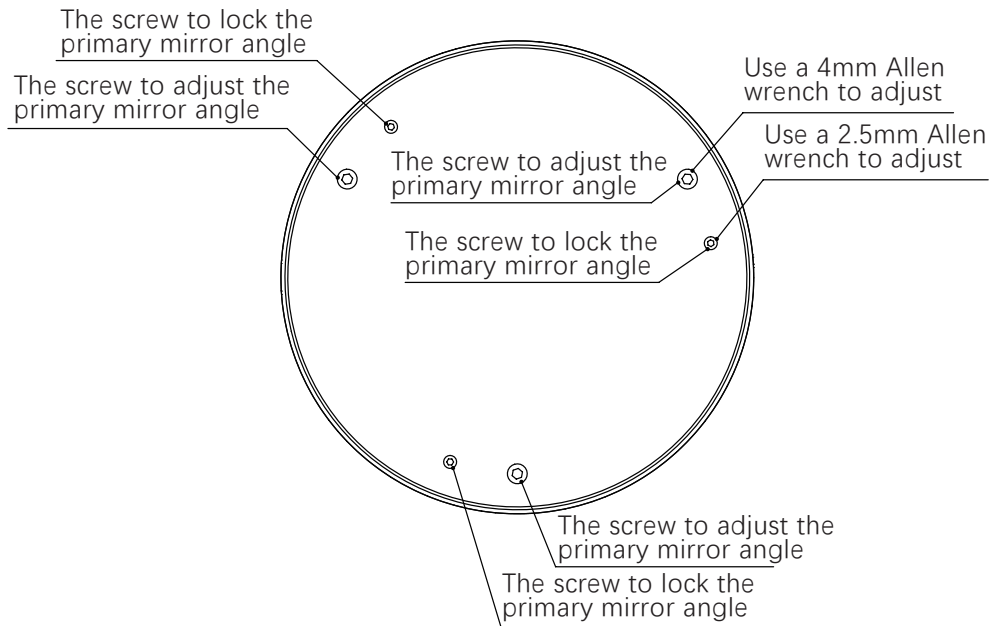
Back focus: 55mm

Package items: a 15028HNT-AL, a collimating adapter, a collimating eyepiece, a 1.25" adapter, a T8 Torx Wrench, a Warranty Card, a Manual

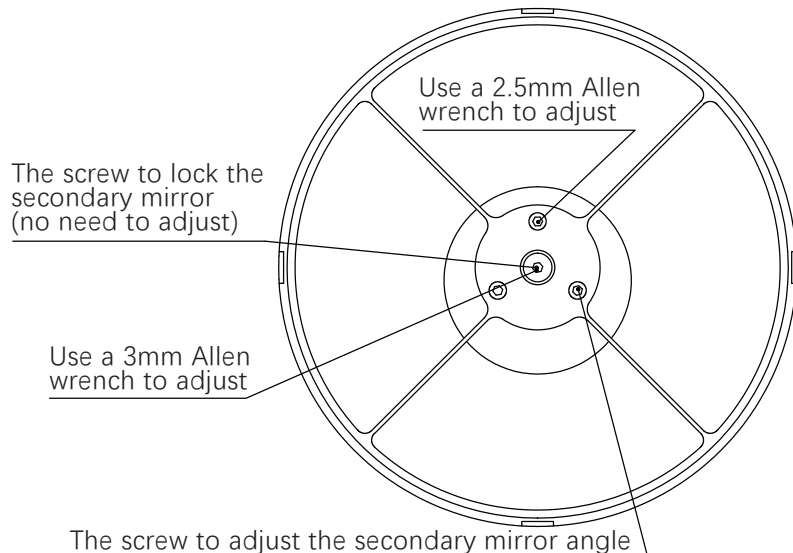
Product Size Diagram



The primary mirror adjustment screw instruction



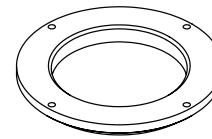
The secondary mirror adjustment screw instruction



Collimation instruction

- The 15028HNT-AL is factory collimated and fixed, but due to a variety of uncontrollable factors, such as transportation impacts or cleaning, the lens can be moved causing the optical axis to shift. Here we provide an instruction of the optical axis collimating process to make it easier to align the optical axis by users themselves.
- **Tips:** When collimating, it is recommended that the user aligns the optical tube against a light-colored background to increase contrast for easier checking.

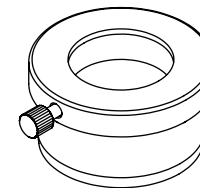
Tools Required



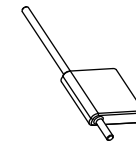
a collimating adapter



a collimating eyepiece



a 1.25" adapter



a T8 Torx Wrench

Before the collimation, remove the corrector

A. Pull out the focuser to the 1.5cm mark.

B. Lock the focuser bottom locking screw.

①

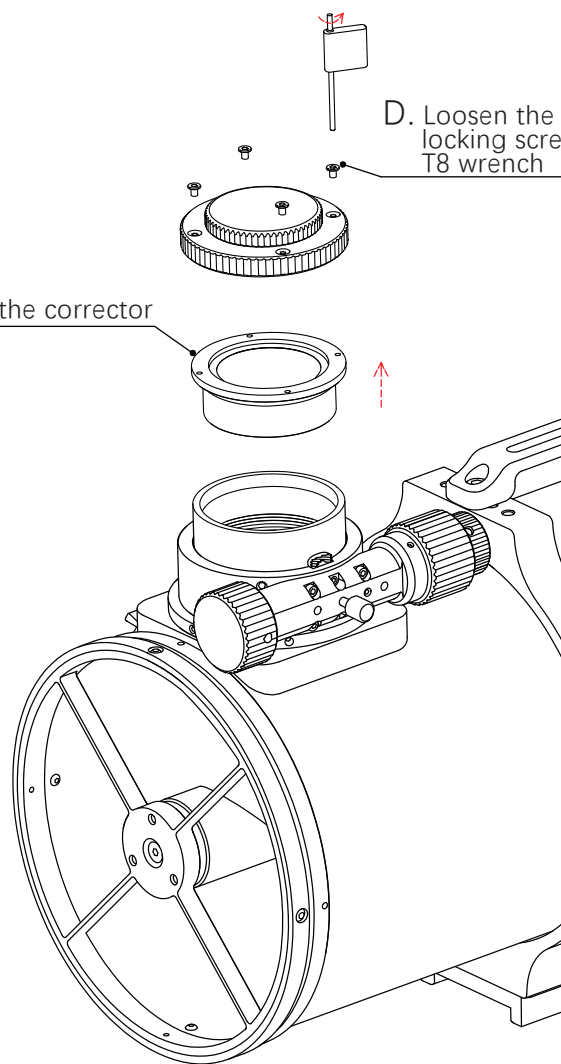
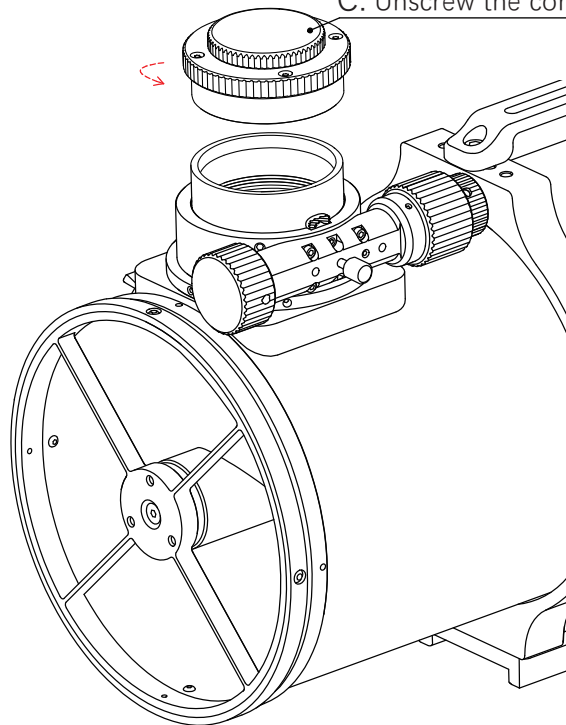
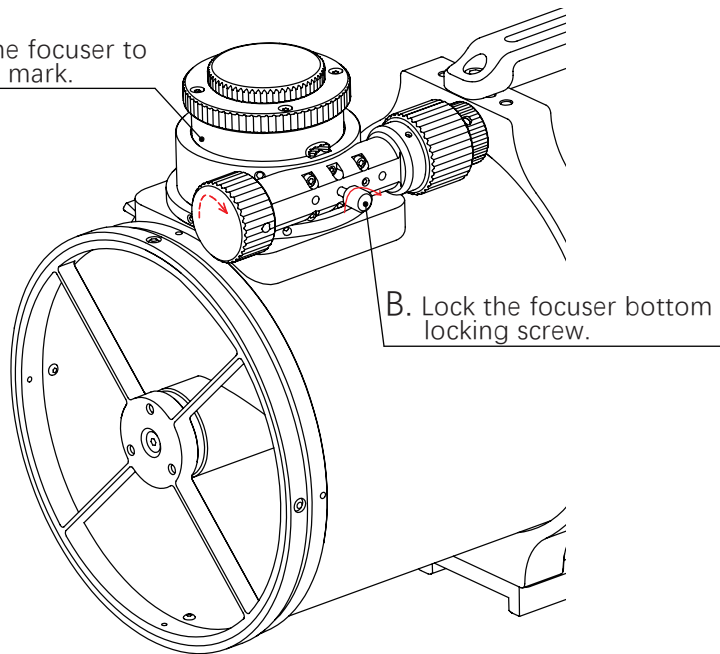
C. Unscrew the corrector

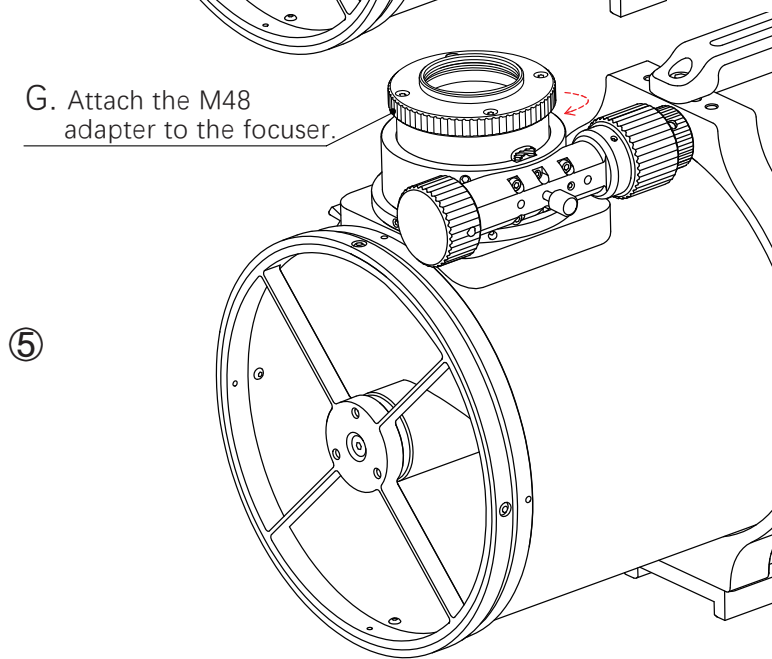
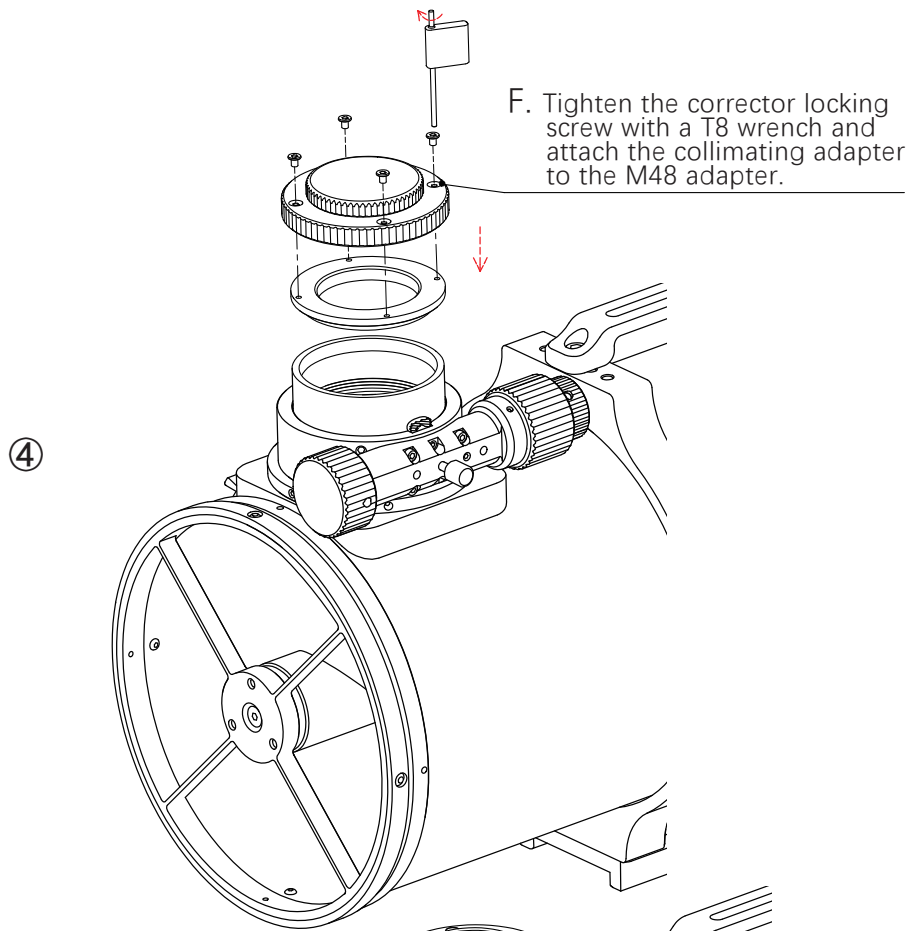
②

D. Loosen the corrector locking screw with a T8 wrench

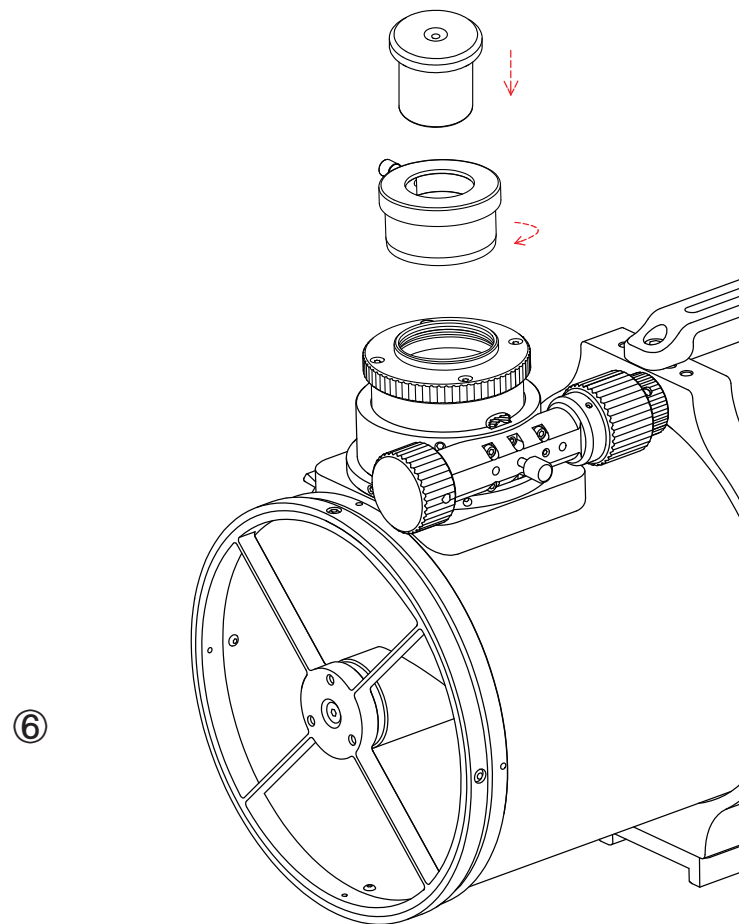
E. Take out the corrector

③





H Installation in the following order:
M48 adapter - 1.25" adapter - collimating eyepiece



Collimation

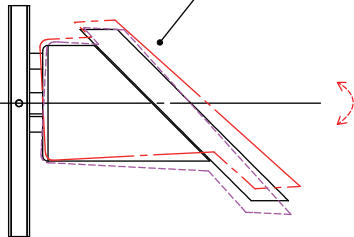
- The secondary mirror:
The 15028HNT-AL secondary mirror structure has an integrated design, it has locked the angle and height of the secondary mirror before being shipped, the structure is very stable, and users just need to adjust the tilt angle.
- The primary mirror:
There are three sets of adjustment screws at the bottom of the optical tube for adjusting the angle of the primary mirror.

Structure Introduction

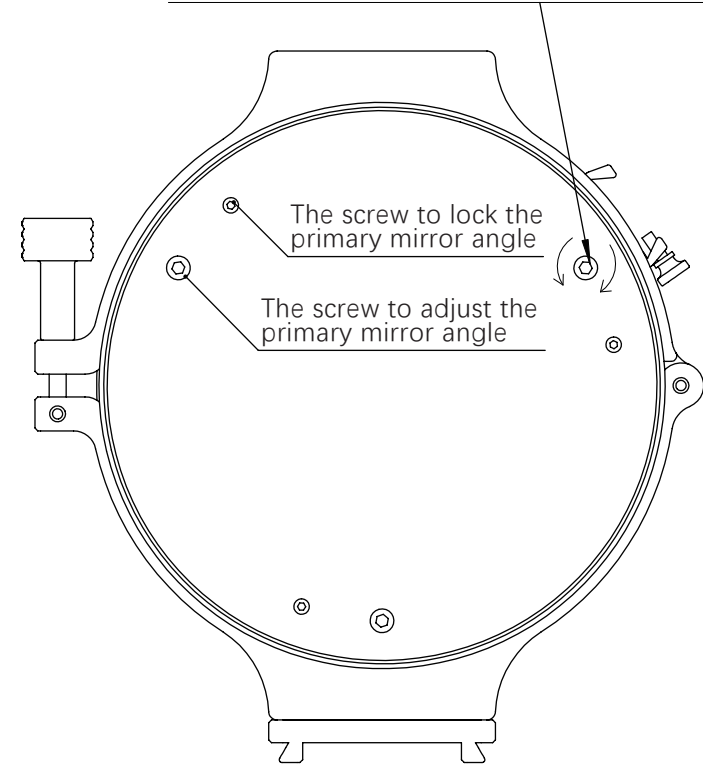
The screw to adjust the secondary mirror angle.
Tightening or loosening will change the secondary mirror's angle.
Adjust with a 2.5mm wrench.

The screw to lock the secondary mirror.
Tighten until the secondary mirror holder can be turned with force.
Adjust with a 3mm wrench.

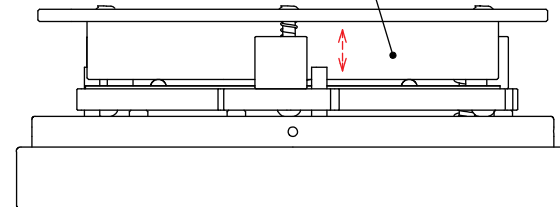
Tightening or loosening will change the secondary mirror's angle



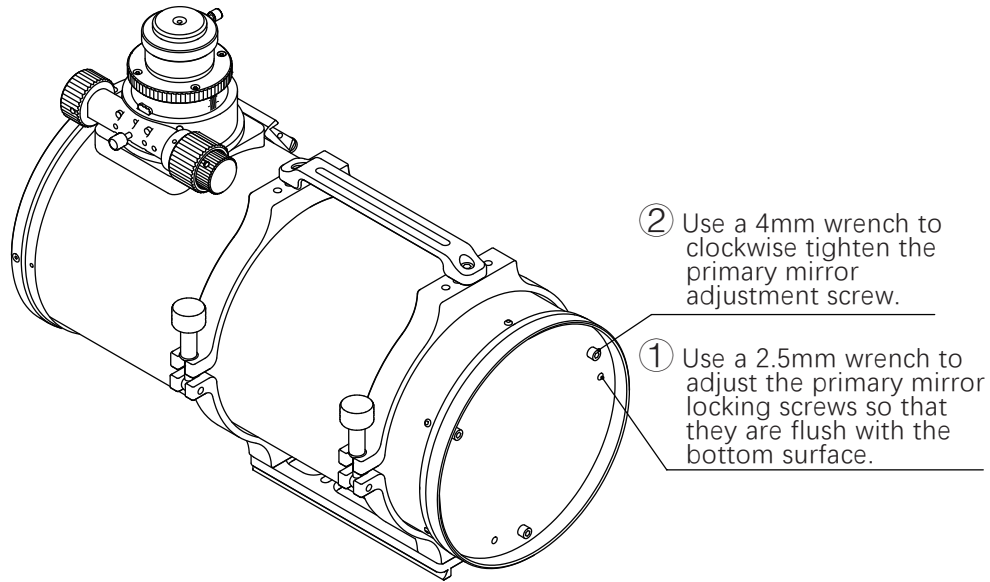
Rotate counterclockwise, the primary mirror moves closer to the secondary mirror.
Rotate clockwise, the primary mirror away from the secondary mirror.



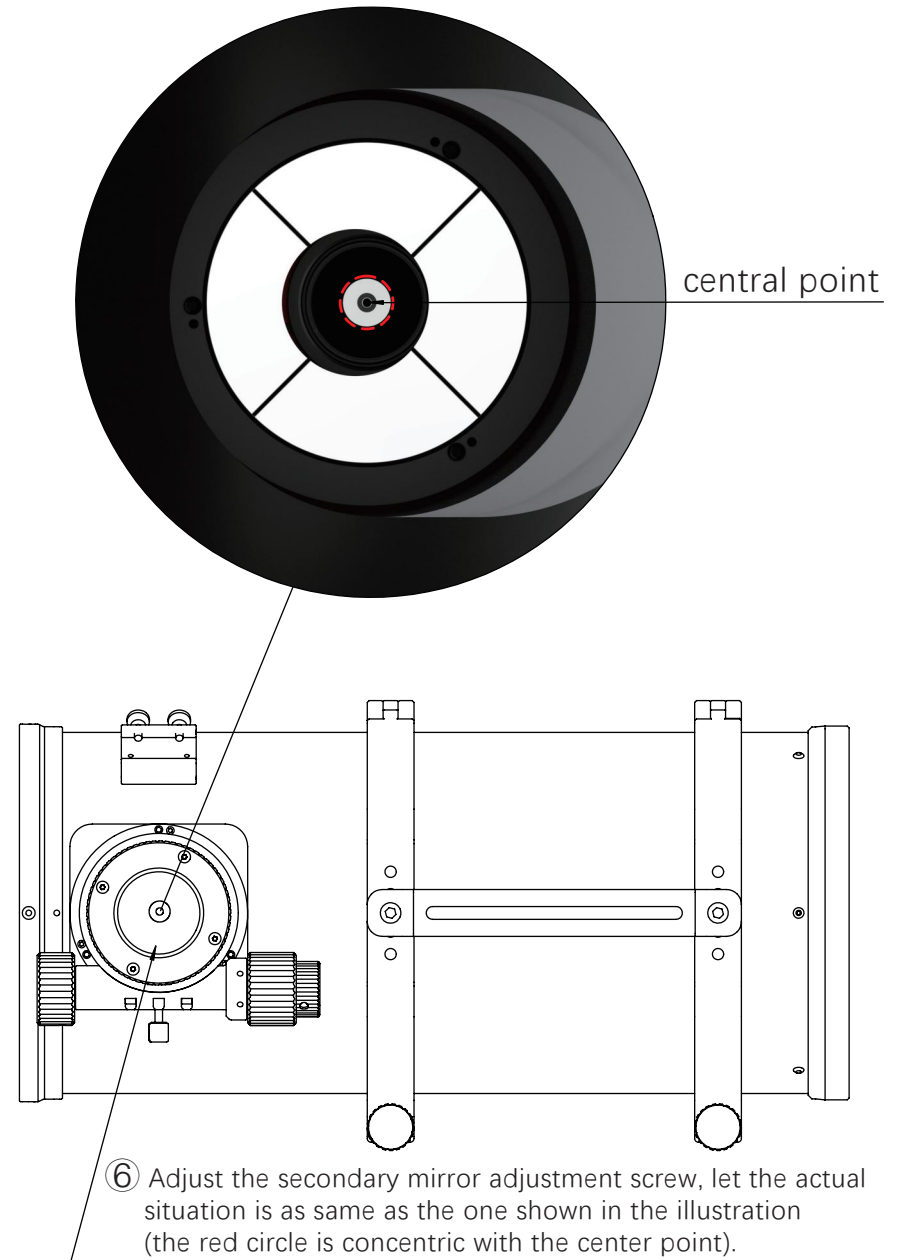
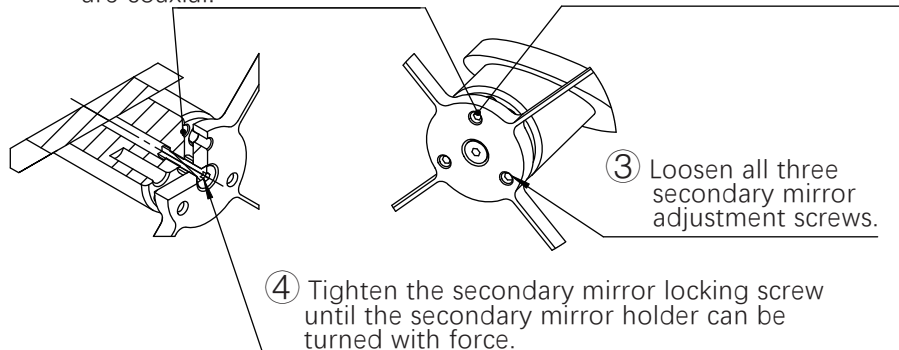
Rotating the adjustment screw can change the relative distance of the primary mirror.



Secondary Mirror Collimation Steps



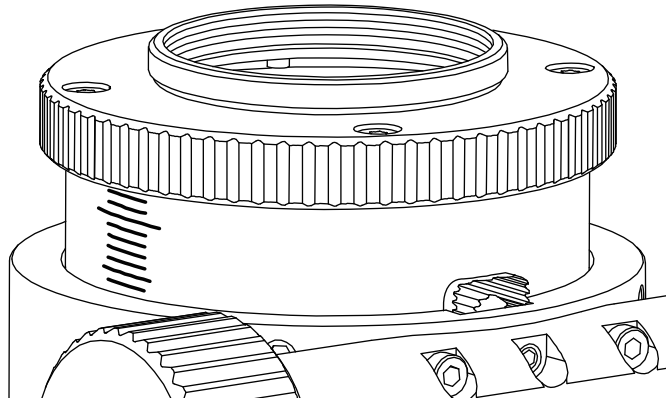
•**Tips:** At this time, the secondary mirror holder positioning hole and the adjustment screw hole are coaxial.



Primary Mirror Collimation Steps

It is recommended that do these steps before shooting.

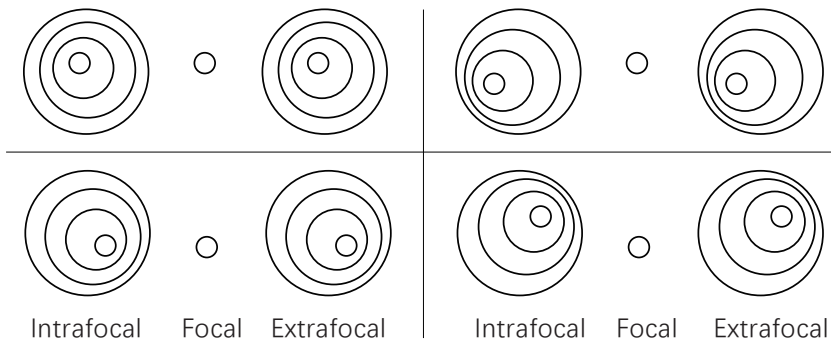
- ① Remove the collimating adapter, collimating eyepiece, and 1.25" adapter.
- ② Attach the corrector and M48 adapter (recover to the original state)



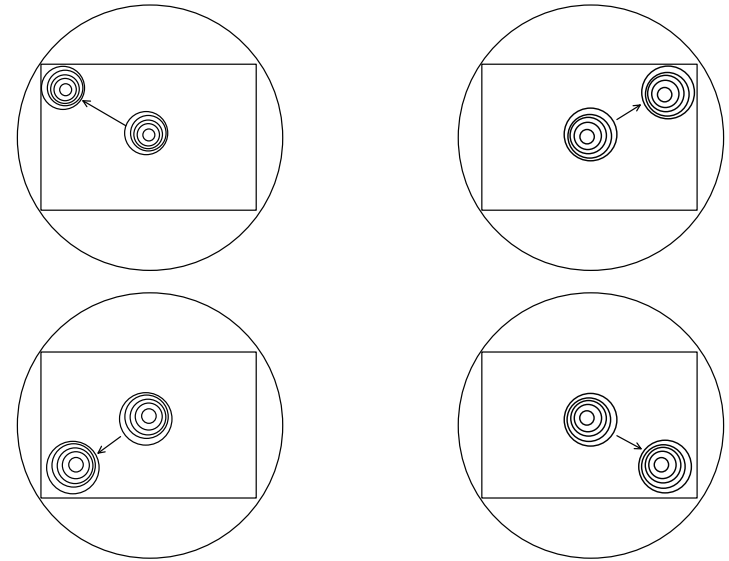
(the original state)

- ③ Connect an eyepiece or a camera and make the 15028HNT-AL in focus.
- ④ Mount the 13028HNT-AL to an equatorial mount or a base, aimed at an artificial star point or a bright star point to observe.

If it looks like the examples below, it needs to be adjusted.

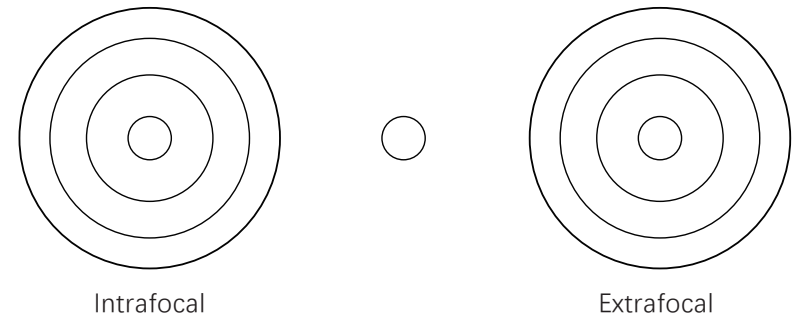


- ⑤ **Adjust the three primary mirror adjustment screws**, and move the target star point along the wider direction of the diffraction ring to the edge of the field of view. (Figure 1)

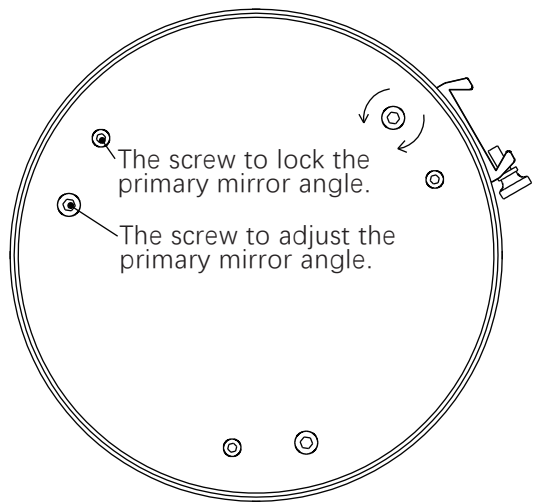


(Figure 1)

- ⑥ Adjust the equatorial mount, move the target star point back to the center of the screen again, and observe whether the star point is as shown in (Figure 2) or not.
- ⑦ If the target star point is different from (Figure 2), repeat the steps ⑤⑥ until the star point appears concentric.
- ⑧ Lock the three primary mirror locking screws, the primary mirror collimation is complete!



(Figure 2)



Tips: Please adjust the primary mirror in small increments, do not let the same primary mirror adjustment screw continue to rotate, it is recommended that each time the adjustment range of up to half a circle, adjust each screw evenly.



Official site



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Scan the QR code to watch the 15028HNT-AL optical axis collimation video