Sure-Lock Mirror Support Clutch Knobs

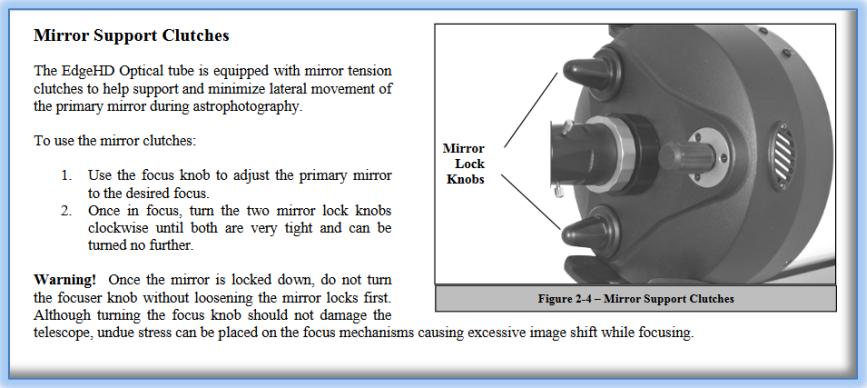
#19792 – Replacement Lock Knobs for the Celestron® EdgeHD

Introduction

When Celestron introduced the EdgeHD telescopes with field flattener optics built inside the baffle tubes of the OTA, they also incorporated a new mirror locking mechanism similar the Flop-Stopper for the classic Celestrons. Originally developed by Ironwood Observatories the Flop-Stopper took advantage of the Celestron OTA's built-in shipping bolt holes. Threaded for ¼-20 shipping bolts, the Flop-Stopper included a long stainless steel shaft with a threaded end. That end threaded through the outer casting and screwed into the primary mirror cell of the telescope. An outer housing screwed onto the rear casting and a center hole allowed the thin stainless shaft to pass through. A safety button and side-mounted thumbscrew completed the assembly.

Celestron's Implementation

With the EdgeHD, Celestron included a similar stainless shaft attached to the mirror cell, but enclosed the entire mechanism in a conical locking mechanism. Two of these lock mechanisms formed a triangle with the main mirror focus knob. The Celestron EdgeHD manual refers to these lock knobs as Mirror Support Clutches.



Mirror Support Clutches

The EdgeHD Optical tube is equipped with mirror tension clutches to help support and minimize lateral movement of the primary mirror during astrophotography.

To use the mirror clutches:

1. Use the focus knob to adjust the primary mirror to the desired focus.
2. Once in focus, turn the two mirror lock knobs clockwise until both are very tight and can be turned no further.

Warning! Once the mirror is locked down, do not turn the focuser knob without loosening the mirror locks first. Although turning the focus knob should not damage the telescope, undue stress can be placed on the focus mechanisms causing excessive image shift while focusing.

Figure 2-4 – Mirror Support Clutches

Obstruction Concerns

Many Celestron users find that these Mirror Support Clutches protrude too far and interfere with focusers, filter wheels, and other add-on devices. Optec's TCF-Leo suffers from this with the largest C1400 OTA, but the C1100 can easily clear the lock knobs.

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Sure-Lock Replacement Knobs

Limited Back Focus

Compounding the problem is the limited back-focus available for accessories. The Celestron EdgeHD C925, C1100, and C1400 each have a back-focus distance of about 147mm as measured from the top of the larger 3-1/4" threads. When using Optec's Lepus HD telecompressor, the back-focus distance is reduced to about 100mm on-axis.

Sure-Lock Knobs

To solve this problem with the TCF-Leo, Optec engineers designed a low profile replacement lock knob to replace the mirror support clutch covers. Made from solid 360 brass, the Sure-Lock knob screws directly onto the mirror support clutch in place of the taller black conical lock nuts. Featuring a large diameter knurled design, Celestron users will find the Sure-Lock replacement knobs fit tighter and hold the primary mirror position even more securely than the original equipment Mirror Support Clutches.

Sold in sets of two, Optec's Sure-Lock knobs are easily installed without tools. When removing the original black lock knobs, leave the grease in place on the captivated aluminum plunger knob that makes contact with the actual steel shaft. The conical shape inside each Sure-Lock knob will drive the plunger tightly against the shaft when tightened locking the mirror in place.

A Word of Caution

Note that the small stainless shafts will extend beyond the top of the Tru-Lock knobs. It is imperative the user exercise caution when the mirror is moved all the way back. During normal use at infinity focus, the mirror position is far enough forward to present only a short section of the stainless shaft. Be careful to avoid making contact with the shaft.

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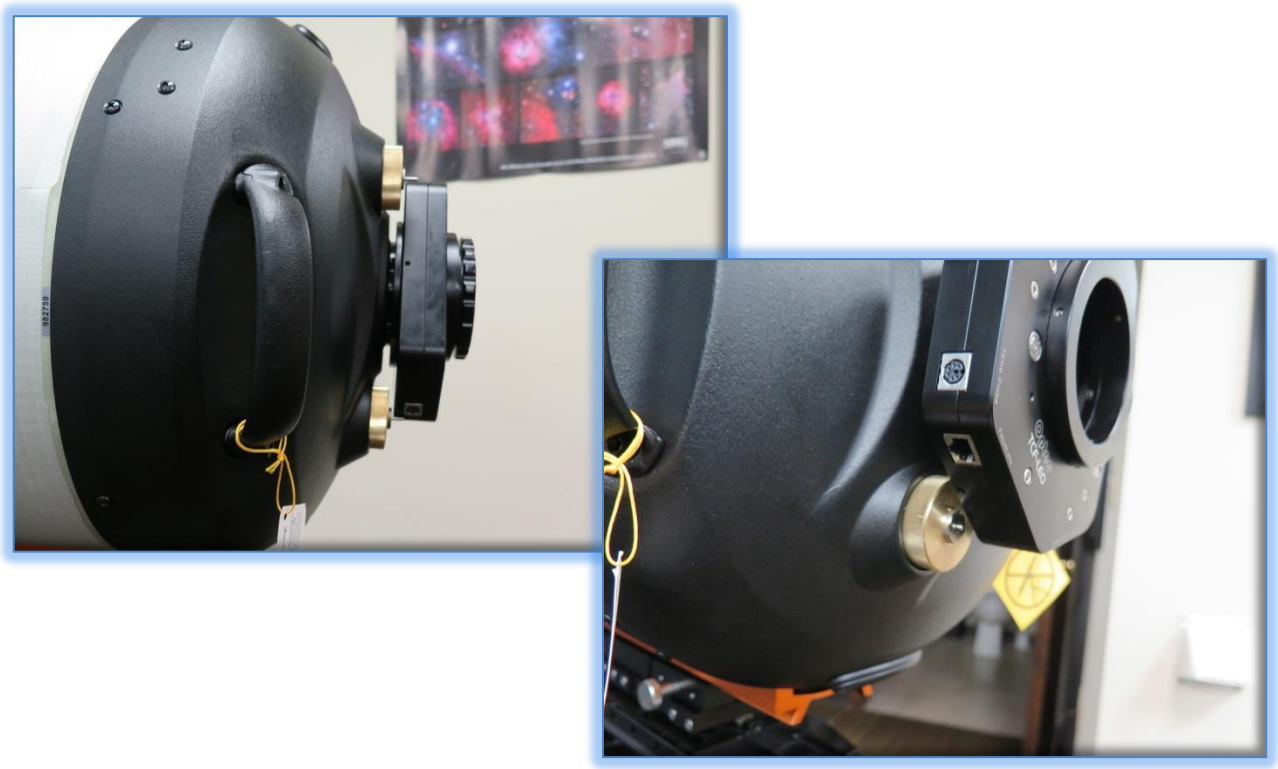
Disclaimer

SURE-LOCK KNOBS SHOULD NEVER BE USED ON VISUAL TELESCOPES. These lock knob replacements are for use with imaging telescopes equipped with the TCF-Leo focuser and other camera systems only.

TCF-Leo Low Profile Focuser

Optec developed the TCF-Leo as a solution to the limited back-focus of the EdgeHD C1100 and other telescope OTAs with fast f-ratios. Unfortunately, the mirror support clutches or lock knobs of the 14-inch C1400 are even closer than the 11-inch OTA. Thus, the Sure-Lock replacement knobs are required to take full advantage of the low profile focuser.

These photos show how the TCF-Leo can be installed on the C1400 OTA and take full advantage of the low profile focuser.



Contact Optec Support if you encounter any problems or have any questions regarding the **Sure-Lock Mirror Support Clutch** replacement knobs.

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