

Takahashi Focuser Modification Kit

User Manual

Version 1.1

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1. Product Model

This product fits some of Takahashi single-speed focusers. The product models and the corresponding Takahashi telescopes that they fit are listed in the table 1-1.

Models of the Modification Kit	Models of the Telescope
FME130	Takahashi Epsilon E130/E160
FME180	Takahashi Epsilon E180
FMT130	Takahashi TOA130-NS
FMFS60	Takahashi FS-60CB
FMFA60	Takahashi FOA60

Table 1-1

2. Installation Steps

A video demonstration of the installation steps can be found at the following address:

<https://www.youtube.com/video/eGZ-FgdeAm8>

- 1、 Remove the two focus tuning knobs
- 2、 Remove the screw cover
- 3、 Loosen the screws on the copper cover and remove the copper cover and focus shaft, as shown in Figure 2-1.



Figure 2-1

- 4、 Put one of the bearings into the housing, and then use the nylon head screw (Figure 2-2) to fix the bearing to prevent the bearing from falling off from the housing, as shown in Figure 2-3. Do not overtighten the screw. Overtightening may cause the bearing to deform.



Figure 2-2



Figure 2-3

- 5、 Insert the focusing shaft from the end of the housing that does not have bearing, as shown in Figure 2-4.



Figure 2-4

- 6、 Push the second bearing through the focusing shaft and fix the bearing in the housing with the nylon head screw, as shown in Figure 2-5. At this time, manually move the focusing shaft left and right slightly. Check whether the focusing shaft can move freely. This is to make sure that the focusing shaft can rotate freely and the bearings are not deformed due to over-tightening of the nylon head screws. If the focus shaft cannot move freely, loosen the screws slightly.



Figure 2-5

- Put the housing and the shaft on the focusing cylinder. Move the housing or focusing shaft slightly so that the focusing shaft and the rack are aligned, the housing and the focusing cylinder match each other, as shown in Figure 2-6.



Figure 2-6

- Use two M3 screws to connect the housing to the focusing cylinder, as shown in Figure 2-7. Do not make the M3 screws tightened completely at this time. The tightness of the two screws will be adjusted again in the next steps.



Figure 2-7

- 9、 Install the knobs. Put the M4 set screws into the screw hole of the knob, as shown in Figure 2-8. Then, put the knob on the focusing shaft. Use the hex key to tighten the knob to the focusing shaft through the hole in the housing, as shown in Figure 2-9.



Figure 2-8

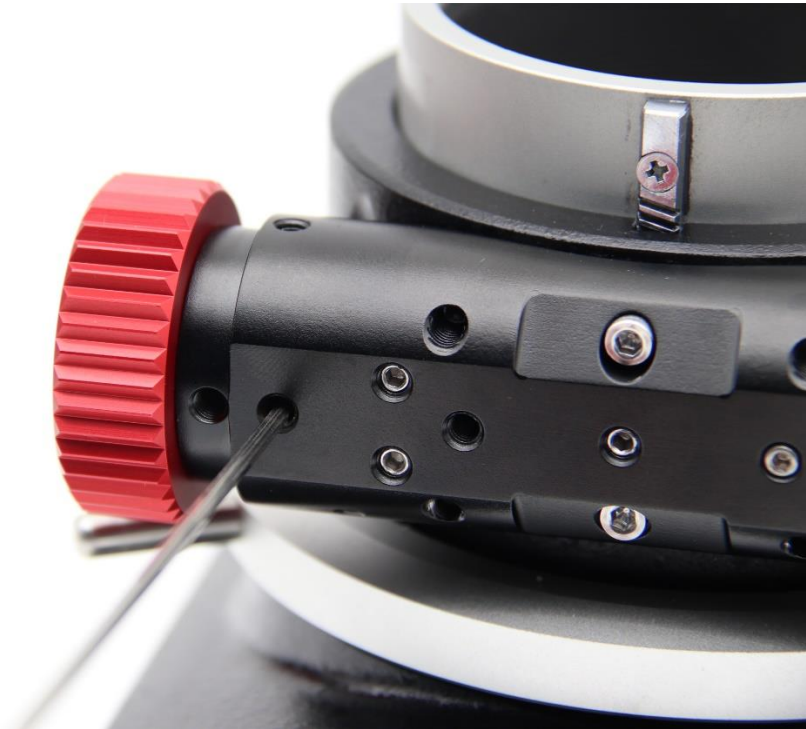


Figure 2-9

- 10、 While adjusting the tightness of the two M3 screws, turn the knobs to feel that there is a suitable damping.
- 11、 Use 4 M4 nylon head screws to fix the housing on the focusing cylinder, as shown in Figure 2-10. These 4 screws, together with the other 2 M3 screws, allow the housing to be stably attached to the focusing cylinder. When tightening the 4 nylon head screws, you can continue to rotate the knobs or adjust the tightness of the 2 M3 screws to make the focus damping and the housing position reach a suitable state.



Figure 2-10

12、Screw a M4 nylon head screw and a thumb nylon head screw into the corresponding screw holes of the housing, as shown in Figure 2-11. These two screws allow for further adjustment of the damping. In actual use, you can use only one of the screws, or none of them.



Figure 2-11

3. Install Oasis Focuser

Installing the Oasis Focuser on the Takahashi focusers is optional, not mandatory. With this modification kit the Oasis Focuser is easy to install and stable for use.

To ensure that the Oasis Focuser can be installed correctly, please read the Oasis Focuser User Manual and Installation Reference Manual before installation. The following installation steps assume that you have read the Oasis Focuser User Manual and Installation Reference Manual. Both of the manuals can be downloaded at the following address:

https://www.astroasis.com/download/files/focuser/Oasis_Focuser_User_Manual_EN.pdf

https://www.astroasis.com/download/files/focuser/Oasis_Focuser_Installation_Reference_Manual_EN.pdf

Installation steps:

- 1、 Remove one of the knobs from the side of the housing where there is a 30mm diameter circle. Put the M3 setscrews (Figure 3-1) into the screw holes of the shaft-converter. Attach the shaft-converter into the focusing shaft, then use a hex key to fix the shaft-converter on the focus shaft, as shown in Figure 3-2. The end of the shaft-converter and the end of the housing should be aligned, as shown in Figure 3-3. The tolerance should be within $\pm 0.5\text{mm}$.

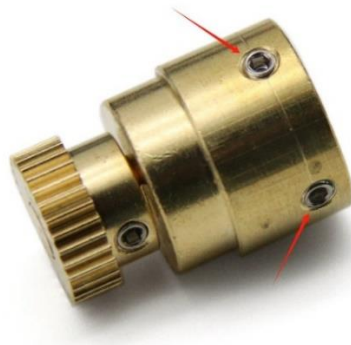


Figure 3-1

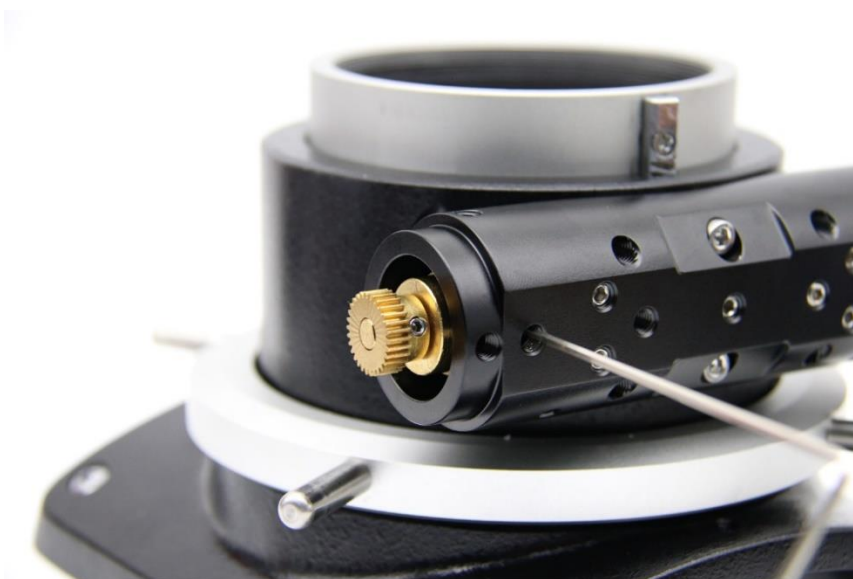


Figure 3-2

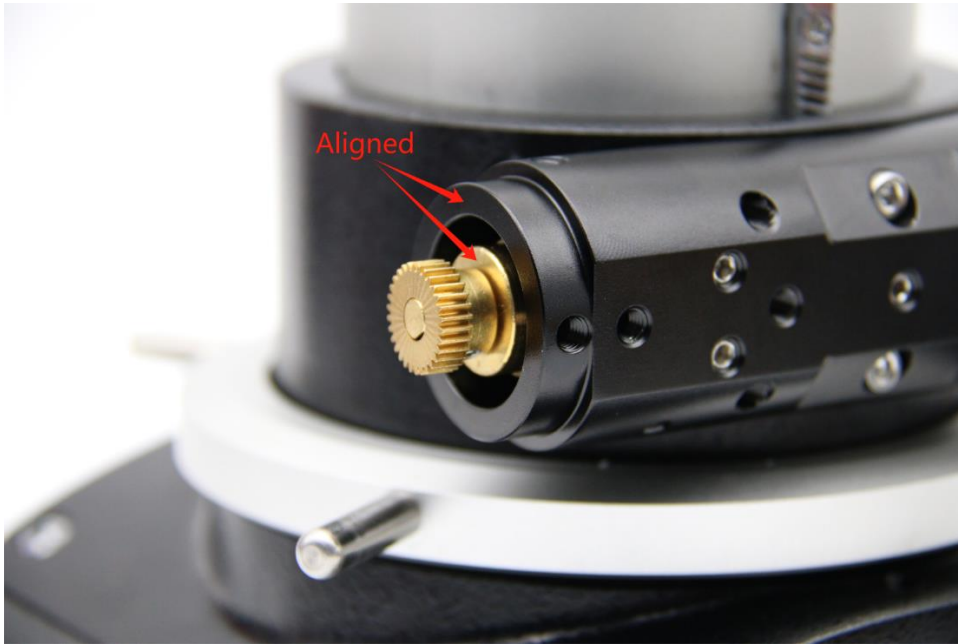


Figure 3-3

2、 Use a 30mm clamp to connect the Oasis Focuser on the housing, as shown in Figure 3-4.



Figure 3-4