

**Installation Instructions for the MPA-TAK2.5 and MPA-TAK2.7 Feather Touch Micro Pinion Assembly**  
**WARNING WARNING WARNING : PLEASE READ THIS CAREFULLY, ESPECIALLY THE LAST PART.**

Tools Required:  
1/16 inch Allen Wrench (Supplied)  
Spanner Spring (Supplied)  
Standard Phillips Screw Driver

**1. Preparation of Telescope for Pinion Removal**

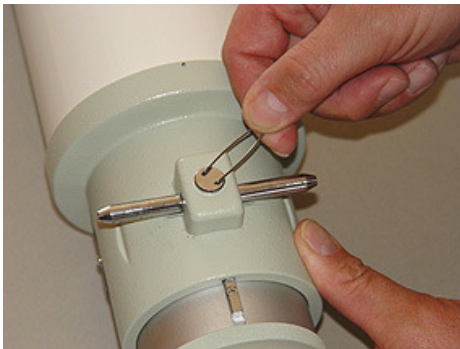


**1.a.** Place the telescope on a towel or a clean work surface as shown.



**1.b.** Remove the two focuser knobs using a standard Phillips screw driver as shown. Be careful not to slip.

**1.c.** Once the knobs are removed push the draw tube in and out and carefully observe the pinion. It should turn without wobble. If it does wobble it means that the pinion is bent and this may effect the operation of the Feather Touch Micro. Straightening the pinion may be necessary but only someone with the skills to do so should attempt this task, otherwise contact the manufacturer for repair or replacement.



**1.d.** Remove the pinion cover nut using the supplied spanner spring as shown. Turn the nut counter clockwise to loosen.



**1.e.** Remove the two Phillips screws that holds the pinion saddle in place.

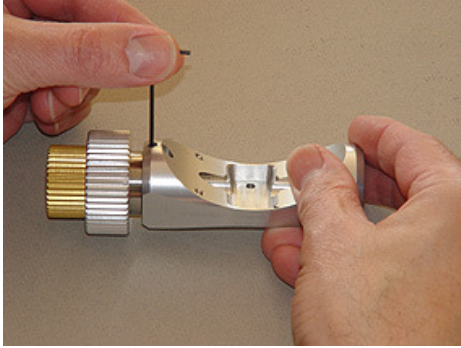


**1.f.** Remove the pinion saddle.



**1.g.** Remove the pinion from the focuser housing and place it on a clean piece of paper or paper towel.

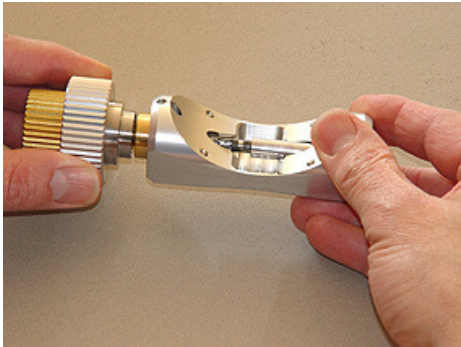
## **2. Installation of the Takahashi Pinion to the Feather Touch Micro Assembly**



- 2.a.** Remove the Feather Touch Micro from the shipping box and loosen the set screw to allow removal of the reduction assembly. Use the 1/16 Allen wrench that is supplied.



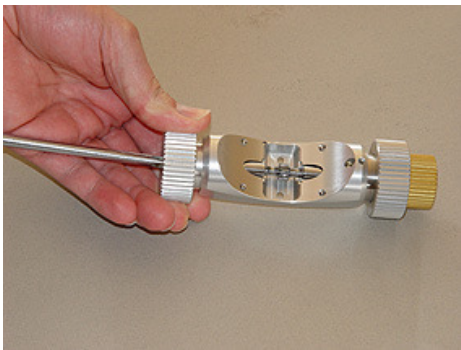
- 2.b.** Take the Takahashi pinion and insert it into the reduction assembly as shown. If it is difficult to insert use the Allen wrench and loosen the screw on the locking collar.



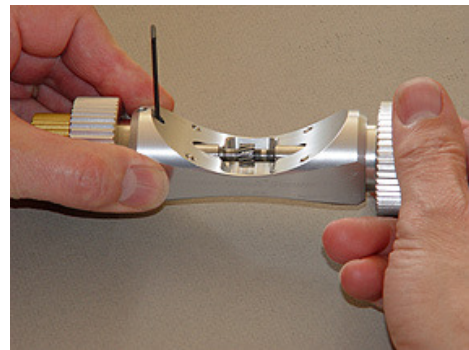
- 2.c.** Insert the assembly into the pinion block as shown. If the pinion is too loose and moves during assembly, tighten the collar slightly using the Allen wrench. Do not over tighten. It will still need to be moved by hand during the adjustment phase.



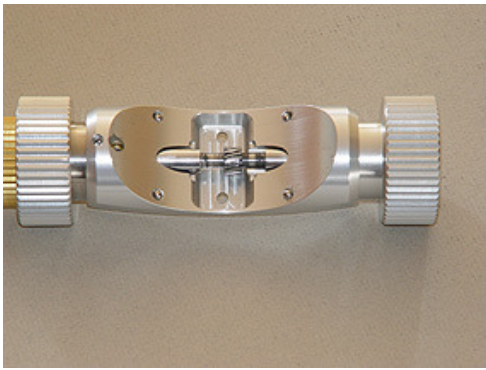
- 2.d.** Fasten the reduction assembly to the pinion housing using the Allen wrench as shown. Do not over tighten, as this could damage the assembly. FINGER TIGHT IS ADEQUATE.



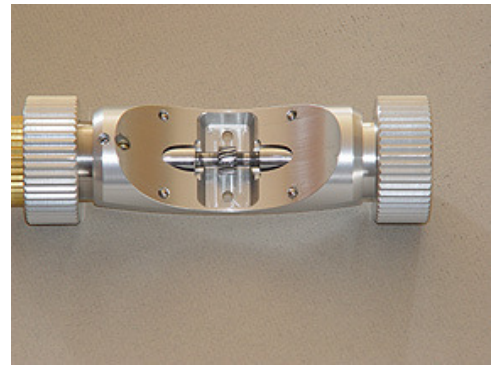
- 2.e.** Insert the course focuser knob on the pinion and fasten it with the Phillips screw that is supplied. Hold the knob firmly while tightening the screw. Use a good Phillips screw driver so that the knob can be properly tightened and be careful not to slip.



- 2.f.** Rotate the pinion until the set screw is visible through the access hole and insert the 1/16 Allen wrench into the set screw. Holding the pinion assembly in one hand, twist the course knob slightly thereby moving the pinion relative to the pinion housing, and center the pinion relative to the cut out in the pinion housing. Firmly tighten the collar with the short lever being careful not to over tighten.

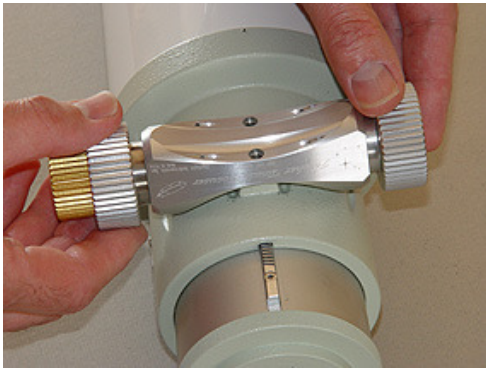


2.g. An exaggerated view of a misaligned pinion.

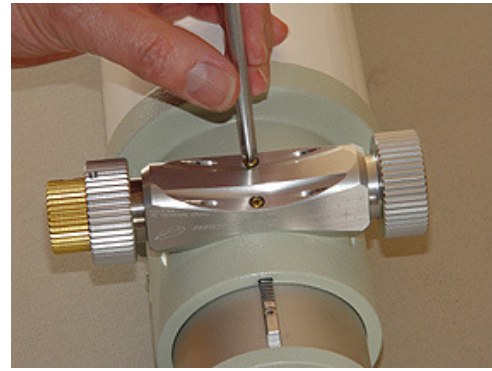


2.h. Right view showing proper alignment.

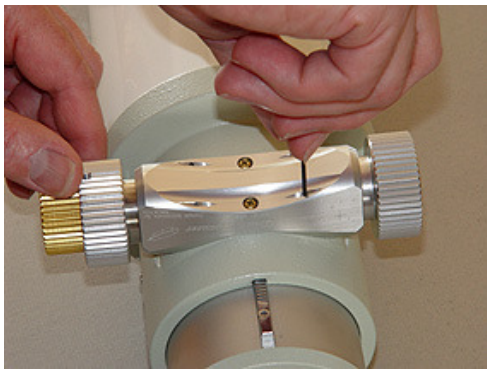
### 3. Installation of the MPA-TAK2.5 / MPA-TAK2.7 Feather Touch Pinion Assembly to the Telescope.



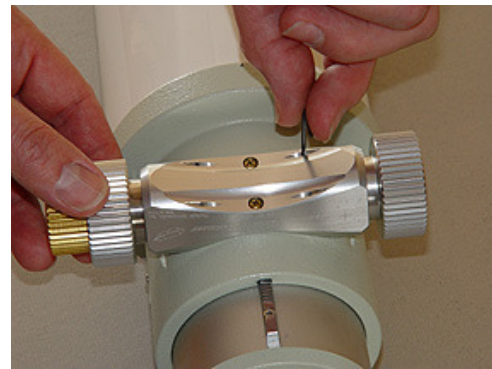
3.a. Place the pinion assembly on the Takahashi focuser housing as shown. The holes in the pinion housing should line up with the holes on the focuser housing. If they do not you may have to re-center the pinion.



3.b. After placing the Phillips screws into the housing use the Phillips screw driver and drive the screws until they almost tighten the pinion housing. This step is important because you need to adjust the rack to the pinion by using these two screws and the four leveling screws with the 1/16 Allen wrench shown in the illustrations below.



3.c. Insert the 1/16 Allen wrench into the adjustment hole and tighten leveling screws on the front side until you can see that contact is made between the leveling screw and the focuser housing. Do this for both sides. Then work on the back screws repeating the same steps.



3.d. Repeat step 3.c for the back screws.

Note: The four leveling screws are used to set the position of the pinion housing and the two Phillips are used to hold the pinion housing in place. Check the backlash by turning the coarse focus knob and noticing the backlash between the rack and pinion. Ideally you want a very slight amount of backlash. If the pinion gets forced onto the rack too firmly, a stiffer motion will result and performance will be compromised. Some patience is required because you will need to adjust the four leveling screws against the Phillips screws to achieve this alignment. Watch for an even gap between the pinion housing and the focuser housing and above all **DO NOT OVER TIGHTEN THE PHILLIPS SCREWS. THIS COULD RESULT IN A SERIOUS PROBLEM IF YOU STRIP THE TREADS IN THE FOCUSER HOUSING. PATIENCE AND CAUTION WILL BE YOUR BEST FRIEND!** If you need any assistance with this adjustment please contact us: Tel: 260-244-0020 or Email: [support@starlightinstruments.com](mailto:support@starlightinstruments.com).