

## Tightening the Main Bearing Pre-load Retaining Ring of Your Mach1GTO

The correct amount of main bearing pre-load tension is essential to peak performance in a German Equatorial Mount, especially in the declination axis where reversals of drive direction are common during guided exposures. Proper tension prevents unwanted movement while still allowing free rotation of the axis.

Incorrect pre-load tension shows itself as a slight movement in RA (East-West) when reversing direction in declination (North-South) on your Mach1GTO. This type of unexpected movement can indicate that the main bearing pre-load retaining ring is not quite snug enough. As a reversing torque is applied to the worm in order to turn the axis, a lateral movement first takes up this "slack" before the desired rotation commences. This is an easy problem to solve, and it is something that you should know how to keep perfectly adjusted.

To see the retaining ring in question, simply open the sight-hole access-cover on the axis in question and look inside the axis toward the large end. You will see a ring with two small holes spaced 180° apart.

*Note: the images at right are of a Mach1GTO in production, and do not have all the parts attached yet.*

Reach your fingers into the sight-hole and see whether you can turn the ring. If you are experiencing this unwanted movement, the chances are that the ring is loose enough that you can turn it a small amount without too much difficulty. Tighten it as much as you can with your fingers by turning it in a clockwise direction. This may very well be all the tightening that is required. If this still is not sufficient, remove the counterweight adapter from the dec axis or the polar scope adapter from the RA axis and insert a pair of "helpers" into the two small holes. Your "helpers" can be a couple of nails, two drill bits, two of the smaller hex keys from your set, or anything else that will allow you to get a better grip to tighten the ring.

**YOU DO NOT WANT TO OVER-TIGHTEN THIS RING!** You want it just tight enough that the unwanted movement stops and no tighter. If the pre-load is too tight, the rotation of the axis will be impinged.

Bearing Pre-load Retaining Ring

