

AUTO-ADJUSTING GEARBOX - NO MORE WORM MESHING!

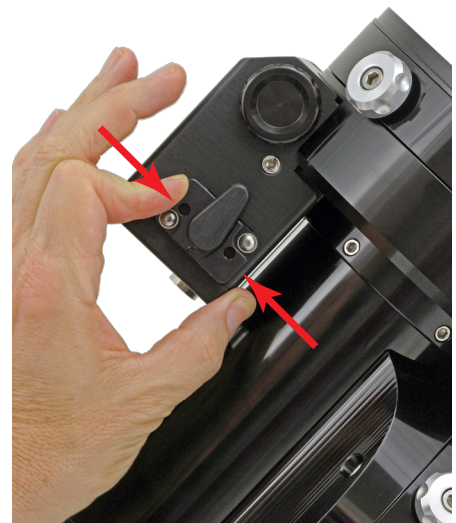
The good news is that your mount is always in mesh, thanks to the Auto-Adjusting Motor Gearboxes! The *Mach1GTO* mount represents a new era in the ease of gearbox adjustment. Our new design eliminates the need for gear mesh adjusting. It has become automatic. Spring pressure holds the worm screw in perfect mesh with the worm wheel at all times.

The only adjustment that may ever need to be made is to re-set a backstop...and that is rarely needed if ever.

Checking and Adjusting the Gearbox Backstops in R.A. and Dec.

This is a very easy and quick process. It is also a process that you should almost never need to do. Many mounts will go several years or longer without the need to tweak this backstop. Adjusting this backstop is about the only way that you can actually mess up your gear mesh. So, approach with caution. (Tool needed: 5/64" hex key)

1. **Put the mount into a Park 3 position.** This is important to ensure that there is not uneven pressure on the gears due to an out of balance load. Be sure that the mount is powered off. Park 3 is counterweight shaft down and scope in line with the R.A. axis, pointing toward the pole.
2. **Remove the Lever Assembly Cover.** Grip the cover and pull it straight out.
3. Make sure the lever is in its normal position - snapped in place, parallel to the respective axis.
4. **Loosen the Lever Assembly screws.** Using a 5/64" or 7/64" hex key, loosen the two screws (#1 in the illustration) so that the assembly is freed to move. This should require less than one turn of each screw.
5. **Apply a slight pressure to the Lever Assembly.** Using your index finger and thumb, apply a very gentle pinching pressure to shift the assembly towards your thumb (it only needs to touch). This sets the proper backstop position. Do Not push on the gearbox itself, as that would cause the box to pivot out of mesh and give a bad adjustment.
6. **Tighten the screws.** While maintaining the slight pinching pressure, snug and then tighten both screws. Do Not Overtighten.
7. **Replace the Lever Cover.** Replace the cover and you are finished. It is that simple!
8. **Repeat with the other axis.** Repeat the process with the other axis, if necessary.



What to do if you believe that there is a backlash in the gearbox

- First if you think that there is a worm gear mesh issue, you are probably wrong. If you think there is backlash, it is almost certainly from a different source, so look elsewhere first.
 - Check the mesh of the spur gear reduction set. With your thumb and forefinger gently attempt to move the middle spur gear back and forth. There should be a slight amount of movement so that the gears do not bind up; however, it should be slight. If there seems to be too much looseness, contact Astro-Physics for further help.
 - Check to be sure that the two shoulder bolts that secure the spur gears are snug. Important: the bolts should be snug...Do Not Overtighten, as they can break or damage the gears.
 - Check that the entire motor/gearbox is securely fastened to the axis housing. There should be a very small amount of front-to-back rocking that is possible due to the spring loading mechanism, but there should be no discernible side-to-side movement. If you feel side-to-side play, contact Astro-Physics
- **IMPORTANT!** Do the following with the mount powered ON. It should be UNPARKED and tracking should be STOPPED. There are two or three small screws securing the worm spur gear to the worm. A screw may be obscured by the gear overtop. For that reason the mount is powered on so that you can rotate the gear using the direction buttons at 12X or 64X. If you would attempt to turn the R.A. gears by hand, you would loose your PE correction; therefore use the direction buttons.
 - Check that the worm's spur gear is securely attached to the worm shaft. The 2 screws must be tight. (Be careful, however! They are small screws, not automotive lug nuts!)

