



Atlas Pro AZ/EQ-G RA Axis Gear Mesh Adjustment

Ideally, there should be a tiny amount of noticeable “play” in the right ascension (RA) and declination (Dec) axes, when the mount head is moved by hand (with clutches locked). This small amount of play, or “backlash” ensures that the worm is not too tightly meshed to the drive gear, which could bind up and cause poor or erratic tracking. The gear mesh for the Atlas Pro mount is set at the factory. However, if you believe or determine that there is too much or too little play to ensure proper tracking and guiding, you can easily adjust the gear mesh in either axis. To do so, all you will need are a 2mm and a 4mm Allen (hex) wrench.

Refer to the two pictures below, which show the mount's RA gearbox from the top (near the telescope mounting saddle) and the bottom (adjacent to the declination clutch and counterweight shaft). Note that there are four socket head cap screws that fasten the gearbox housing to the mount, and two smaller, recessed mesh adjustment setscrews, one on the top end and one on the bottom.

To adjust the RA gear mesh:

1. First, note the amount of play in the axis when you manually rotate the axis with the RA clutch tightened.
2. Then, use a 4mm Allen wrench to loosen the four gearbox screws by only $\frac{1}{4}$ turn or so.

3. Next, with the 2mm Allen wrench, loosen one of the two recessed mesh adjustment setscrews by about $\frac{1}{2}$ to 1 turn. Then tighten the opposite mesh adjustment setscrew by the same amount.
4. Now retighten the four gearbox screws that you loosened in step 2.
5. Check the amount of play in the axis, like you did in step 1. Is there more play, or less? If you had too much play to begin with and now there is less – great! You can decide if you need to adjust it to be tighter still, or maybe need to back off a bit. In either case, you would again loosen the four gearbox screws and make fine adjustments to the mesh adjustment setscrews – loosening one and then tightening the other by the same amount. When the amount of play feels just right, i.e., there is a very small but perceptible amount, then you're done. Be sure to retighten the four gearbox screws.

If you had too little or no play in the axis to start with, then hopefully you'll feel some now. If you don't, then either you didn't loosen the gears enough, or you tightened them further. In the latter case you'll need to make the opposite adjustments to the two setscrews.

It may take two or three rounds of adjustment to set the gear mesh the proper amount. Then, of course, you'll want to check it by using the mount in the field.

If you have any questions about this procedure, call Orion Customer Support at 800-676-1343, or send an email to support@telescope.com.

