

Appendix-3: Aligning the Telescope to Polaris (North Star)

1. **Remove all caps** from the finder scope and the telescope and place these in the small plastic box. Turn on the reticle illuminators if conditions are dark enough.
2. **Index markers synced:** Move each axis so that the index markers on both axes are pointing towards each other. The telescope should now be “looking” north.
3. **If it is dark enough, locate Polaris in the sky** to see if the telescope is essentially pointing in the direction of that star.
4. **Locate Polaris in the smaller finder scope.** If Polaris is not in the finder, use the ultra-widefield box finder with the bullseye. Move the telescope in azimuth by working the two horizontal azimuth screws found near the (declination) shaft supporting the counterweight. Adjust these knobs back and forth until Polaris is located and best centered on the bullseye and then in the finder scope. One person should be doing the looking, while another individual makes the adjustments. A third individual could be looking into the main telescope’s eyepiece. The fourth individual should be reading the directions.
5. **Loosen the altitude screws** (front and back of mount) and work both together to raise or lower the mount to center Polaris. A readjustment of the azimuth may also be necessary.
6. **Center Polaris in the telescope eyepiece:** Look through the main telescope and use the same procedures to adjust Polaris, so that it is located in the center of the eyepiece’s field of view in the main telescope. The last three

procedures could be accomplished simultaneously. See below.

7. **Aligning as a team**: One person looks through the finder scope; one person looks through the main telescope; one person controls the azimuth screws, and one person controls the altitude screws... **Do not perform altitude and azimuth adjustments simultaneously.**
8. **Tighten all screws uniformly** once Polaris is centered in the main telescope. This includes the screw that attaches the equatorial head to the tripod. Keep watching Polaris in the main telescope to make sure that all screws are tightened to similar tensions and that Polaris remains in the center of the field of view in the main telescope.
9. **Check the finder scope** to make sure that Polaris is also located in the center of its field of view. If Polaris is not centered, adjust the finder scope's alignment screws so that Polaris is centered.

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