

POLAR ALIGNMENT FOR EQ1 & EQ2

In order for your telescope to track objects in the sky you have to align your mount. This means tilting the head over so that it points to the North (or South) celestial pole. For people in the Northern Hemisphere this is rather easy as there is a bright star very near the spot Polaris. For casual observing, rough polar alignment is adequate. Make sure your equatorial mount is level and the red dot finder is aligned with the telescope before beginning.

Look up your latitude on a map, road maps are good for this purpose. Now look at the side of your mount head, there you will see a scale running from 0-90 degrees (Fig.a). Unlock the hinge of the mount by gently pulling on the lock lever counter-clockwise. At the bottom of the head is a screw that pushes on a tongue under the hinge, changing the angle. Spin this until your latitude is shown on the scale by the indicator pin, then lock the hinge (Fig.a).

"Pole Star" is less than one degree from the North Celestial Pole (NCP). Because it is not exactly at the NCP, Polaris appears to trace a small circle around it as the Earth rotates. Polaris is offset from the NCP, toward Cassiopeia and away from the end of the handle of the Big Dipper (Fig.b).

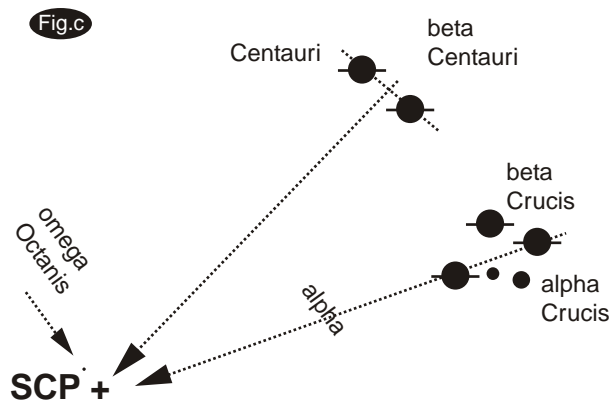
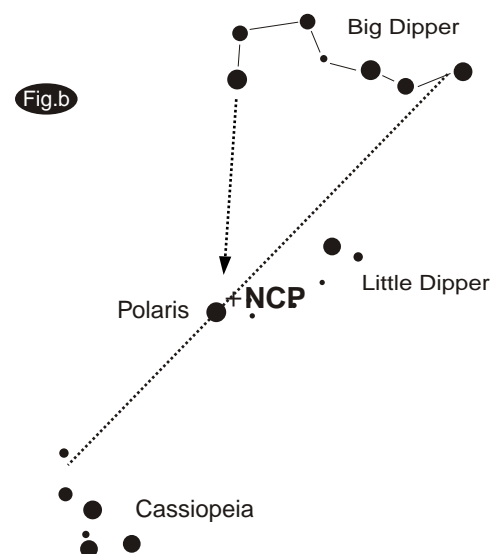
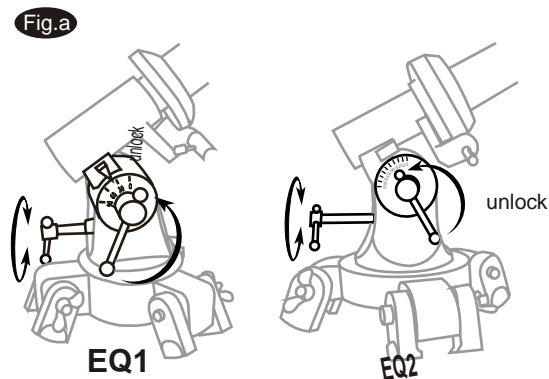
EQ1: Unlock the DEC lock knob and rotate the telescope tube until the pointer on the setting circle reads 90°. Retighten the DEC lock knob. Loosen the azimuth lock knob and rotate the mount horizontally until the R.A. axis points roughly at Polaris. Retighten the azimuth lock knob. Look through the finderscope and centre Polaris on the crosshairs by adjusting the azimuth and latitude settings if a more accurate polar alignment is desired.

EQ2: Unlock the DEC lock knob and rotate the telescope tube until the pointer on the setting circle reads 90°. Retighten the DEC lock knob. At the top of the main shaft is a white line with "R""A" on either side of it. Loosen the azimuth lock knob and rotate the mount until the white line points roughly at Polaris. Retighten the azimuth lock knob. Look through the finderscope and centre Polaris on the crosshairs by adjusting the azimuth and latitude settings if a more accurate polar alignment is desired.

After a while you will notice your target drifting slowly North or South depending on the direction of the pole relative to Polaris. To keep the target in the center of the view, turn only the R.A. slow-motion cable. After your telescope is polar aligned, no further adjustments in the azimuth and latitude of the mount should be made in the observing session, nor should you move the tripod. Only movements in R.A. and DEC axis should be made in order to keep an object in the field.

Southern Hemisphere

In the Southern Hemisphere you must align the mount to the SCP by locating it's position with star patterns, without the convenience of a nearby bright star. The closest star is the faint 5.5-mag. Sigma Octanis which is about one degree away. Two sets of pointers which help to locate the SCP are alpha and beta Crucis (in the Southern Cross) and a pointer running at a right angle to a line connecting alpha and beta Centauri (Fig.c).

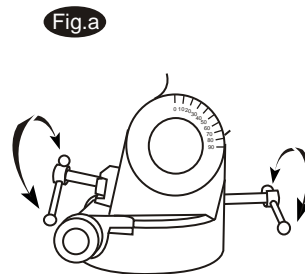


POLAR ALIGNMENT FOR EQ3-2 & EQ4

In order for your telescope to track objects in the sky you have to align your mount. This means tilting the head over so that it points to the sky's North (or South) pole. For people in the Northern Hemisphere this is rather easy as there is a bright star very near the spot Polaris. For casual observing, rough polar alignment is adequate. Make sure your equatorial mount is level and the finderscope is aligned before beginning.

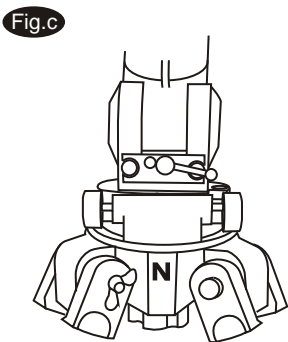
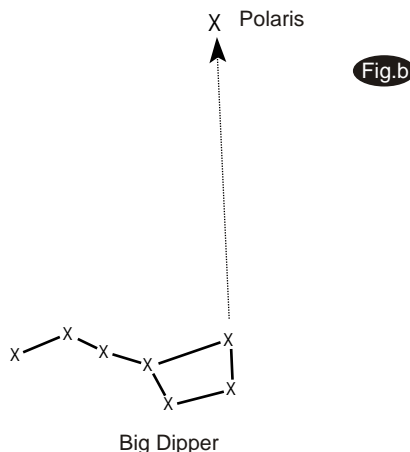
Setting the latitude

Look up your latitude on a map, road maps are good for this purpose. Now look at the side of your mount head, there you will see a scale running from 0-90 degrees (Fig.a, EQ3-2 shown here). At the base of the head, just above the legs, are two screws opposite each other under the hinge. All you have to do is loosen one side and tighten the other until your latitude is shown by the indicator pointer (Fig.a).



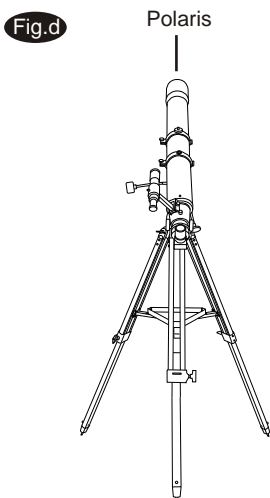
Finding Polaris

Which one is Polaris? The easiest way to find it is to look for the Big Dipper. Draw an imaginary line along the two end stars in the bowl of the Big Dipper. The first star you come to along this line is Polaris (Fig.b).



Aligning Your Telescope to Polaris

Unlock the DEC lock knob and rotate the telescope tube until the pointer on the setting circle reads 90°. Retighten the DEC lock knob. Move the tripod so that the "N" at the base of the equatorial mount faces north and the R.A. axis points roughly at Polaris. Use the two azimuth adjustment knobs above the "N" to make fine adjustments in azimuth if needed. For more accurate alignment, look through the finderscope and centre the Polaris on the crosshairs.



Along the R.A. axis shaft, the farther away from the back of the shaft that you are the more accurate you will be. Even though the true celestial pole may be up to twice the moon's diameter away (Polaris circles the pole once a day) you won't find this a problem unless you are doing long exposure photography. After a while you will notice your target drifting slowly North or South depending on the direction of the pole relative to Polaris. To keep the target in the center of the view, turn only the R.A. slow-motion cable. After your telescope is polar aligned, no further adjustments in the azimuth and latitude of the mount should be made in the observing session, nor should you move the tripod. Only movements in R.A. and DEC axis should be made in order to keep the polar alignment of your telescope.

The polar alignment above is adequate for casual observing. More precise alignment using Polar Axis Finderscope is required for long exposure astrophotography.