

Collimating a Schmidt-Cassegrain

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SCT's generally keep their collimation quite well if not mistreated but there will come a time in every SCT owner's life that they have to re-align their secondary mirror. Here is a simple and effective way to do it that won't cost you hundreds in fancy equipment.

First put your best diagonal on the back of the telescope and using a good high-power eyepiece point the scope at Polaris (Polaris doesn't move much so it's easy or, if you have a good artificial star use it).

De-focus Polaris so that it's about $\frac{1}{4}$ the field of the eyepiece. If your telescope is out of collimation the shadow of the secondary mirror in the defocused image will be offset towards the edge much like the top image in the graphic to the right.

Now, reach around the front of your SCT and put your finger on a collimation screw. You'll see the shadow of your finger in the defocused image (you might need to change hands to get all the way around). Move your finger from screw to screw until the shadow is over the thinnest part of the defocused image (second graphic from the top). Now look around the front of the scope. If your finger is on a screw then that screw is the one you'll turn. If it is between screws then you'll be turning the screw opposite where your finger is.

Now, using the mount's slow-motion controls move the image in the direction of the thinnest part of the defocused image about $\frac{2}{3}$ of the way out to the edge of the field (less if the shadow is not THAT off centre).

Now turn the screw you identified **ONLY IN SMALL AMOUNTS** to bring the image back to centre (bottom graphic). If you had to turn the screw more than one half turn in either direction then either loosen or tighten the opposite two screws evenly to keep tension correct. For example, if you've been tightening one screw then loosen the other two and vice-versa.

Your collimation should be better. Repeat this until the shadow of the secondary is as well centred as possible.-

