

Addendum to Instruction Manual (IN 208) for #9843 Orion® SpaceProbe™ 3 EQ

Center-Marking the Primary Mirror

To achieve best accuracy when collimating with the Orion SpaceProbe 3 EQ, you will need to mark the center of the primary mirror with one of the supplied collimation targets. This will not affect the telescope's performance. If you do not wish to mark your primary mirror, you will need to judge the primary mirror's center by eye during the collimation procedure. While this is not recommended, it is possible to get adequate alignment of the optics without marking the primary mirror's center.

To accurately locate and mark the mirror's center point, you will need to make a paper template.

First, remove the primary mirror from your telescope. If you are unsure how to do this, consult your telescope's instruction manual. If the primary mirror is glued into its cell, it is not necessary to remove it from the cell. Handle the mirror by its edges only, and be careful not to touch the surface with your fingers.

Get a clean sheet of paper that is big enough to cover the entire mirror's surface. For large diameter mirrors, you may need to tape several sheets of paper together. Lay the primary mirror on the paper and trace its outline with a pencil (Figure 1). Next, cut out the circle you have just traced with a pair of scissors. Fold the paper circle into quarters by folding the circle precisely in half, and then folding it in half again (Figure 2). Now, cut about 1/4 inch off the tip of the paper wedge you have created (Figure 3). Unfold the paper, and you will find that you have a paper template of your mirror with a hole at the center.

Make sure the template is still clean; place the paper template over the surface of the primary mirror. Carefully register the template edge with the edge of the mirror (Figure 4). Now, take one of the supplied collimation targets and affix it to the center of the mirror's surface through the hole of the paper template (Figure 5). The center of the primary mirror is now marked, and you can reinstall the primary mirror in the telescope (Figure 6).

Note: For mirror cells that use mirror clips to secure the primary mirror in place, it is important not to overtighten the mirror clips. For Orion reflector telescopes, tighten the mirror clip anchor screws until just snug, and then back off each screw by 1/2 turn. Overtightened mirror clips will put stress on the primary mirror's figure, and will introduce astigmatism into the optical system as a result.

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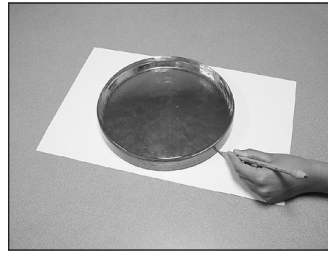


Figure 1. Trace the outline of the mirror on the paper.

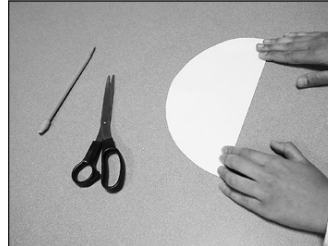


Figure 2a. Fold the paper circle in half.

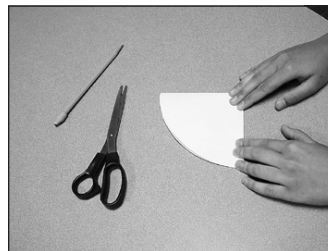


Figure 2b. Then fold in half again.

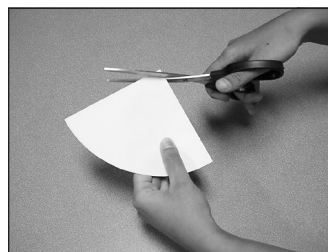


Figure 3. Cut the tip off the paper wedge.

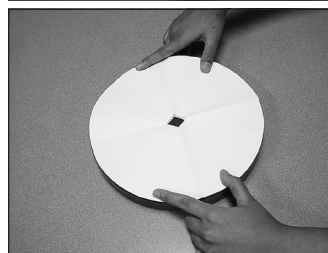


Figure 4. Place the template on the mirror surface and carefully register its edge.

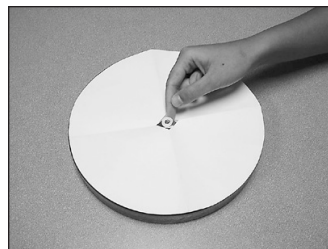


Figure 5. Affix the ring label to the mirror surface through the hole in the template.



Figure 6: The primary mirror's center is now marked, and it is ready to be reinstalled.