



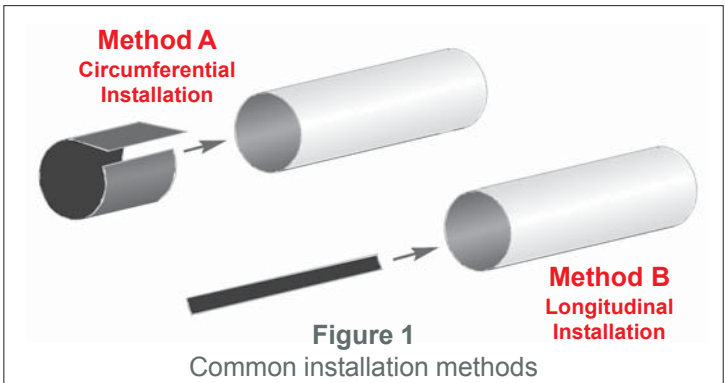
Hi-tack Flocked Light Trap Installation Tips

ABOUT *ProtoStar* FLOCKED LIGHT TRAP

ProtoStar flocked material is specifically engineered as a light trapping surface applicant (unlike some flocked papers that are just for decorative texturing). It is designed to have almost zero reflectivity at all angles of viewing. It is made from 100% synthetic materials, and is not damaged by normal dew and moisture. It will not shed fibers onto your optical surfaces under normal use. (There may be trace amounts of residual flock fibers left over from the manufacturing process. This can be easily removed with a lint roller, and only needs to be done one time.)

INSTALLATION STRATEGIES

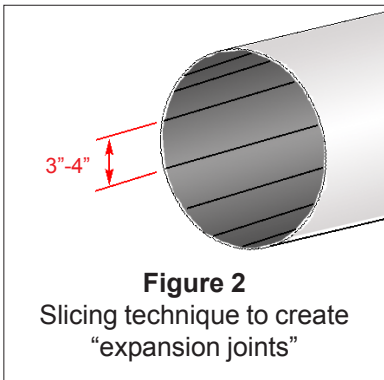
It is usually necessary to remove all optical components, hardware, and accessories from the telescope. Next, decide on an installation method from **Figure 1**.



Method A: Circumferential Installation

Installing one continuous piece around the inside circumference of the tube can be done for larger tubes, and it is easier to do it in short sections. Begin with the middle of the tube, and work out to the ends. Don't worry about seams or overlapped sections, as installation flaws are virtually impossible to see once the job is complete. For small diameter tubes, wrapping the flocked paper around a wooden dowel or tube, and rolling it on is a proven method.

IMPORTANT: When using method A, an important final step is to make longitudinal slit cuts every 3-4 inches with a razor knife as shown in **Figure 2**. This is necessary because the flocked paper will expand and contract with temperature changes more than the tube material itself. Without these cuts the flocked material will shrink in cool temperatures, and pull itself away from the tube wall. Reach in as far as you can from each end of the tube and slice the material. (It is not important the slices meet at the middle of the tube.) These longitudinal cuts will act as expansion joints. They will be invisible, so no harm is done to an otherwise clean installation job.



Method B: Applying Longitudinal Strips

Long and/or small diameter tubes can be difficult to work inside of. One good method for lining these tubes is to cut long strips that are individually applied along the length of the tube. Allow each strip to stick out beyond the tube by a small amount, and then trim them all at once with a razor knife when the tube is completely lined. (**Note:** When applying the material with this method, it is *not* necessary to longitudinally slice it as described for Method A.)

GENERAL TIPS FOR ALL METHODS

- Installation is made easier by installing smaller sections. Large pieces are more difficult to manage, and they have a bad habit of sticking to surfaces you'd rather they not.
- If you apply the material in sections, try to keep the overlapped edges to less than about 1/8". The self-adhesive does not stick to the "fuzzy" side permanently.
- If you are applying the flocked light trap to an existing telescope, go ahead and cover over and holes in the tube. The simplest way to restore small mounting holes is by piercing through the flocking with a pointed tool like a sharp pencil. *Do not try to drill through the flocking*, as it can catch on the drill bit and tear out a large piece of the material.
- For most telescope sizes, application of flocked light trap material is easier if you have a partner. Request assistance from a friend if possible.
- Leave 1/2" or so of extra material sticking out both ends of the tube during installation. Trim the ends with a razor knife when the installation is complete and the adhesives have set.
- If the inside wall of your tube is already painted, **do not** clean it with alcohol or any other solvent before applying the flocked material.
- The self-adhesive backing sticks well to most surfaces, but carbon fiber and fiberglass tube walls may require using an additional adhesive to keep the edges down. A slow setting adhesive like silicone adhesive is best.

OTHER USES FOR **Protostar** FLOCKED LIGHT TRAP

Don't forget that scraps and small pieces of flocking can be used in other places for stray light suppression. Some of these applications include:

- The exposed edge of the secondary mirror (for glued-on mirrors).
- Exposed areas around the primary mirror cell.
- Lining Barlow lenses (do not remove the backing--just roll it into a small tube, and slip it in).
- Lining dew caps and tube extensions.
- Focuser drawtube baffle stops.

MAINTENANCE

Depending on your use, you may occasionally need to remove dust or other particles from the flocked surface. This is best done with a rolling tape lint remover (typically used for clothing). **Do not try to vacuum the inside, as this can scuff and damage the flocking.**

TECHNICAL ASSISTANCE

If you have a special application, or a question not covered in these instructions, feel free to call us for technical support at (614)-785-0245 (M-F 9:00 PM to 5:00 PM EST).

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