

Dew shield assembly instructions

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1.5" extra for overlap

All the obstructions and slots are marked on the chip board roll.

A chip board roll is made so that the locations of the rails and other obstructions on the telescope can be marked. An extra 1.5" is added to one end for the overlap between the ends.

Making the inner shell



The inner shell is made with aluminum flashing. Be care unwrapping the flashing, it will spring open if it is not opened carefully.



Using the paper model from the previous slide, the aluminum flashing is cut with the appropriate slots to fit over the optical assembly.

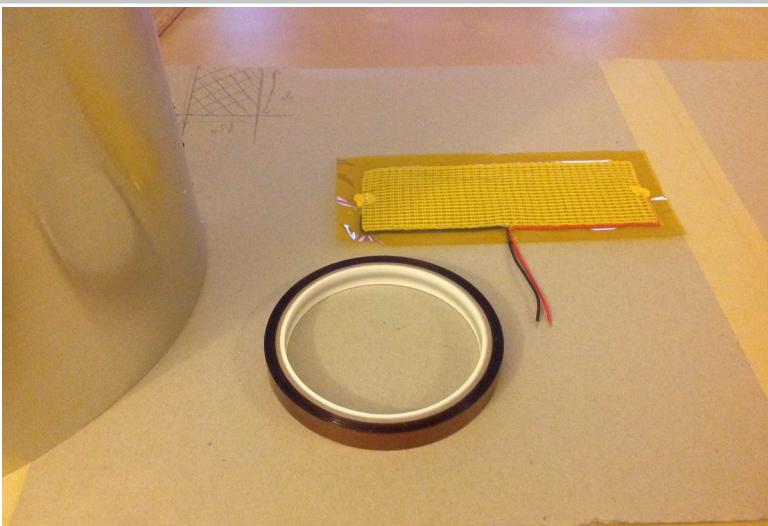
Creating the inner shell



Aluminum foil sticky tape is used to fasten the overlapped edges together both inside and outside.

The tape at the top and bottom edges of the shell are cut with a knife and not folded over the edge.

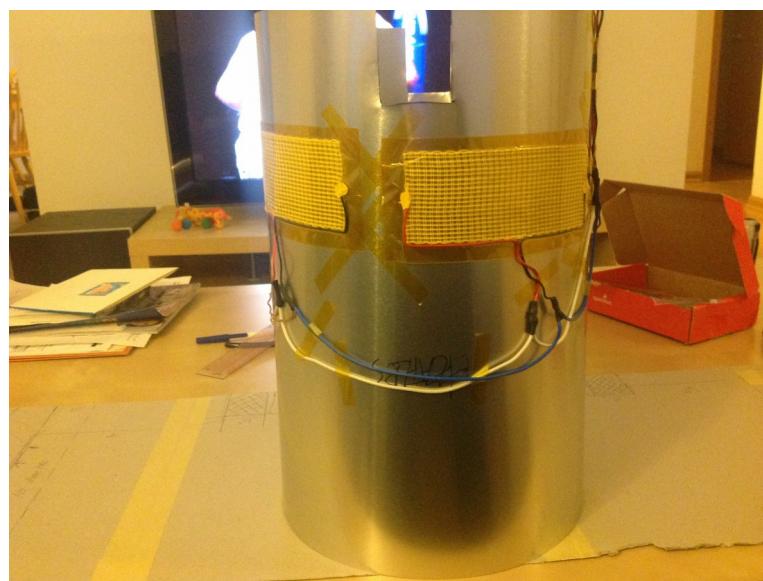
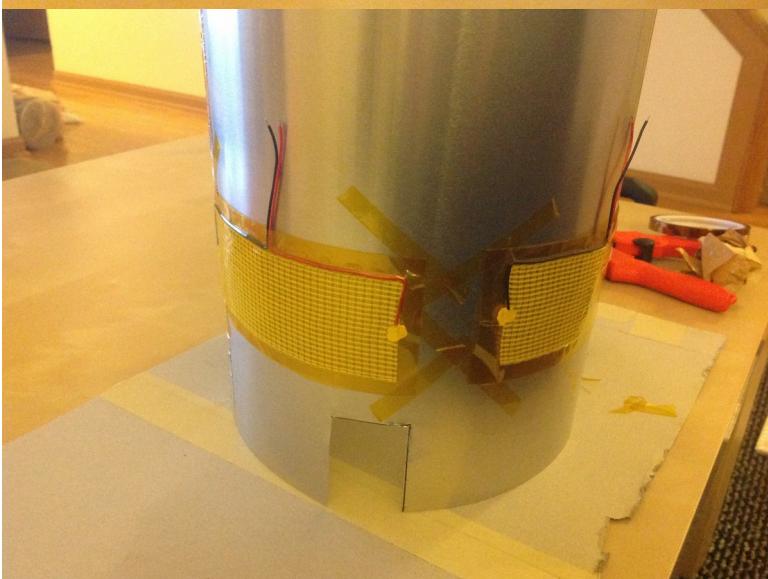
Attaching the heat pads



Heat pads are attached to the inner shell using heat resistant kapton tape. These parts are available from Sparkfun. See bill of materials.

The heat pads are about 1" from the edge of the telescope when the heat pad is installed.

The heat pads are wired in parallel by soldering and the splices are insulated with heat shrink tubing.



Adding the insulation



IMPORTANT! Before sticking on the insulation, photograph where the wires are! You need to know where the wires are so that when you rivet the outer shell to the inner shell, you don't cut off any wires.

1/8" duct insulation that is sticky on one side is cut to size and stuck to the inner shell.

About 1/4" along every edge where the aluminum shell is left free of insulation so that caulking can be used to fill this void.

Adding the outer shell



A paper model is used to get the size of the outer shell. An extra 1.5" length is added so that there is an overlap when it is wrapped around the insulation.

The outer shell is tightly rolled over the insulation and aluminum tape is used to hold the overlapped edges together.

The inner and outer shells are riveted together with 3 rivets at the overlaps locations of both the two shells, i.e. the rivets go through 4 layers of aluminum.



Filling the voids with caulk



The slots are also cut in the outer shell.

The voids between the inner and outer shell are filled with black latex caulk. Latex caulk was chosen because it stretches with cracking when the dew shield deformed when fitted on the telescope.

The caulk takes about 24 hours to dry and a few days to cure and harden.

Flocking with black felt



Black felt that is sticky on one side is used to flock the inside of the dew shield.

The felt is also used to fill in the voids between the optical tube assembly and the dew shield.



Securing the dew shield to the optical tube assembly



The dew shield is secured to the optical tube assembly with velcro.

The dew shield is complete at this point. The next step is to add a temperature controller.

