Clean Sky Imager

When yo u clean the sky imager, be sure to undo the latches on the side and open the main enclosure so that the mirror stands to the side. You have to do this for two reasons:

1. The polish you will be using to clean it must not be exposed to direct sunlight and more importantly,

2. You will most likely have to rotate the mirror when you clean it and this will cause the shadowband (black strip on the mirror) to be misaligned which will allow sunlight to reflect off the mirror and possibly damage to camera.

You should first flush the mirror with water to wash off large dust particles to keep you from scratching the mirror when you use the Turtle Wax chrome polish to polish the mirror and remove rust.

Cleaning the sky imager is similar to polishing a shoe. Use a microfiber cloth to get a dab of Turtle Wax chrome polish which should already be waiting for you on the roof and apply it to the mirror in a small circular motion. The mirror is prone to develop rust so you'll have to apply some pressure if you want to remove it. When the polish is applied it should settle into a foggy haze. Use a different part of the microfiber cloth to buff it into a shine.

Some important things to note:

When rotating the mirror to clean it, you must only rotate it clockwise.
Rotating it CCW will unscrew the mirror from the enclosure and cause it to come lose. When you are completely finished with cleaning the mirror, wait a few minutes for the mirror to rotate back into its original position and when it is done repositioning, then you may close the enclosure and fasten the latches on the side.

The microfiber cloths already on the roof have been used several times. I forgot to take them with me when I left last time but do not use them.

The first day I used the polish, I accidentally dropped the bottle. When you are on the roof, you will notice that small pebbles are strewn about the floor. A good number of these pebbles managed to get inside the bottle and currently reside in the polish. When getting polish from the bottle, be very careful as to not pick up any of these pebbles onto the cloth you are using to clean the mirror. You will see what I'm talking about once you open the bottle and examine it.

Most Importantly:

In order for the sky imager to work correctly it must be pointed north and level to high precision. The sky imager is currently pointed north and level in such a manner but since it is not completely fastened to the cinder blocks it is mounted on, it is subject to some movement when you are polishing the mirror.

Thus, you are bound to misalign the mirror when cleaning and it must be realigned every time after you clean the mirror.

In order to align (enclosure is closed), you must align the device at solar noon. With that being said, you must plan your cleaning and any other possible modifications that may ever have to be made to the TSI accordingly.

How to align:

Check this website to find out the time of solar noon at the location of the sky imager.

http://www.esrl.noaa.gov/gmd/grad/solcalc/

It works similar to google maps as far as pinpointing a location on the earth is concerned. When reading the time, a time such as 13:21 means
12:21

Use the field laptop as your clock. For a precise time update the clock on the windows toolbar and synchronize it with nist.gov shortly before solar noon.

Place a leveling tool on the sky imager in order to make sure it is level as you move it.

You should be standing behind the imager arm (looking north). To align the device, you must make sure the shadows on both sides of the enclosure are the same at the time of solar noon. It takes a lot of adjustment so if solar noon is at 12:40, I would recommend starting to align the device at 12:35 just so you can get a feel of how you would need to tweak the positioning.