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Mauna Loa Solar Observatory Observer's Log  
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Fri Mar 13 17:21:39 GMT 2015

Year: 15 Doy: 072

Observer: waters

WEATHER COMMENT: waters: Fri Mar 13 17:21:43 GMT 2015

Temp 35F with windspeed at about 15mph from the Southwest.

Scattered cirrus covering the sky with some altostratus on the Southeastern horizon.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Fri Mar 13 17:24:45 GMT 2015

Snow is iced over and Ben and I spent some time trying to clear part of the drive up to the NOAA buildings, to no avail. On a

plus, the Sun is breaking through and will hopefully melt more of the snow.

\_\_\_\_end\_\_\_\_

PSPT COMMENT BY waters: Fri Mar 13 18:39:50 GMT 2015

Pspt started.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Fri Mar 13 18:40:07 GMT 2015

Gong has been unstowed.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Fri Mar 13 19:19:37 GMT 2015

Currently, Ben and Dennis are working on the modulator while Greg is fine tuning the RA. Hopefully we'll get some clear skies in a

couple hours, so that once we're done with the modulator, we can rebalance the spar and tune SGS with the Sun.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Fri Mar 13 19:48:32 GMT 2015

In a thick band of clouds, Pspt idled for a bit.

\_\_\_\_end\_\_\_\_

PSPT COMMENT BY waters: Fri Mar 13 21:46:28 GMT 2015

PSPT restarted.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Fri Mar 13 21:47:20 GMT 2015

The tension for the RA has been set and the clutch locked in place. Now just waiting for the skies to clear a bit more.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Fri Mar 13 22:51:12 GMT 2015

Pspe crashed, restarting.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Sat Mar 14 00:12:44 GMT 2015

Skies have cleared. Put the old cameras in, the field lens was taken out and the occulter has been put back in.

Filter also put in.

We rebooted the Kcor computer since we have turned on and off part of the Kcor nema box all day.

\_\_\_\_end\_\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Sat Mar 14 00:37:21 GMT 2015

SGS is currently guiding. Starting the start up process for Kcor.

\_\_\_\_end\_\_\_\_

\*\*KCOR PROBLEM COMMENT BY waters \*\*: Sat Mar 14 00:55:36 GMT 2015

When starting up the Kcor Focus gui and attempting to run it, I receive this error:

Error 8601 occurred at Photonfocus\_Toolkit.lvlib:pf\_Get\_Error\_msg.vi:27. This error code is undefined etc.

Once I hit okay, another table comes up:

```
Photonfocus_Toolkit.lvlib:pf_Get_Error_msg.vi:27<APPEND>
<b>Complete call chain:</b>
Photonfocus_Toolkit.lvlib:pf_Get_Error_msg:27
Photonfocus_Toolkit.lvlib:pf_Set_Camera_Property_F.vi:3
K-Cor - Photon Focus - Configure Camera.vi:2
Focus.vi
<b>PFLib error code:</b> -11
<b>Error message:</b> Error: port is closed.
```

I have also run the acquisition gui for Kcor and get the first error but not the second one. I have so far rebooted it four times to see if I can rid the machine of the error.

\_\_\_\_end\_\_\_\_

KCOR COMMENT BY waters: Sat Mar 14 01:57:25 GMT 2015

Was able to figure out the error, the light above the 1 on the intelligent power controller wasn't lit. Also Ben showed me how to revert the focus.vi show I could focus the O1. The camera focus doesn't seem to be working properly either. I tried to adjust the cameras manual but I couldn't get close and with the auto focus, it wouldn't do anything.

\_\_\_\_end\_\_\_\_

KCOR COMMENT BY waters: Sat Mar 14 02:01:55 GMT 2015

Removed color corrector lens to add a Lyot spot to the lens surface next to the Lyot stop. This was the design location for the Lyot spot. The color corrector lens edge chipped. Most of the chip is outside the clear aperture, but a small section was inside. I used black tape to block this area. Kcor should still function with the added tape. The lyot spot was created with a black sharpie pen. There is an identical spare color corrector lens that can replace the chipped lens. Adding this lens will require no alignment since the mount design is "bolt and go". Note there are two set screws that

hold each of the aft optics. One screw needs to be completely removed to get at the set screw with the nylon tip that is next to the lens. Dennis G.M

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Here is a better explanation of what happened with the chipped color corrector lens. What I was trying to do was add the Lyot spot to the designed position in Kcor. This required that the aft optics lens assembly be removed and the color corrector lens be removed. The Lyot spot was designed to go on the lens that is resting against the Lyot stop inside the aft optics. We did not add the Lyot spot back in 2012/2013 because all calculations showed it was insignificant

and should not affect Kcor's performance. Back in 2013 when installing Kcor for the 1st time in coronagraphic skies I noticed the Lyot diffraction spot was actually much brighter than any dust or dig defect on the O1.

The aft optics assembly is a "bolt and go" assembly (Yoder optic mount), so this pinned assembly can be removed and put back together without an interferometer. This is unlike the beam splitter which can't be removed without re-aligning with an interferometer.

What I think I did was I did not loosen the dual set screw assembly so the color corrector lens could easily fall out. I only loosened one set screw so the lens did not have much room to slide out. The edge of the lens caught the side of its mount and chipped. This high index glass is very brittle. Also I think I had an 11300ft experience where I kept wondering why the set screw against the lens could not back off from the lens after loosening the

1st set screw.

In any case the lens is reinstalled and the crack is blocked with black tape. I think that the thru put of Kcor should be affected by less than a few percent. We should be good to go for the March 19/20th eclipse. Note I was able to add the Lyot spot on the intended lens with a black Sharpie pen, so we should see a reduction in stray light. The good news is we have a spare color corrector lens that in every way can be installed into Kcor without any adjustment to the optical system. Back when I ordered these lenses I made sure the tolerances on all the lenses were such that any lens could be swaped out without affecting Kcor's performance. So as far as all your calibrations and prior work on Kcor go you will not notice the replacement of this color corrector lens.

\_\_\_end\_\_\_

KCOR COMMENT BY waters: Sat Mar 14 02:10:43 GMT 2015

Ben has 'fixed' the error with the acquisition software. Unfortunately I just shutdown everything upstairs to try and chill the Comp camera. Allen, Dennis and Greg C. should be able to see if the 'fix' worked.

\_\_\_end\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Sat Mar 14 02:48:18 GMT 2015

Comp cryo has been successfully refilled and the temp is already back down to -180C. Dewar still has a good amount left to o. Once I have pspt shut down and everything closed up, I'll be heading down. Have a good weekend!

\_\_\_end\_\_\_

GENERAL OBSERVATORY COMMENT BY waters: Sat Mar 14 02:54:58 GMT 2015

Shabar laptop is currently upstairs, we were using it to have access to Kcor when we were up in the dome checking the modulator. When facing South, it is on the table that is to the left of the two Nema boxes that are on the South wall. Can't miss it. Also, I'm leaving the Comp camera off just in case anything happens in the night.

\_\_\_end\_\_\_