E2 AOB Dichroic Recovery Document

So, the E2 Dichroic / AOB got messed up during a change. You might see messages like those shown below and specifically the Dichroic status is listed as unknown. While these instructions are written with E2 in mind, these steps will work for any of the telescope's HUT systems provided you use that telescope in place of E2 at each step in this document.
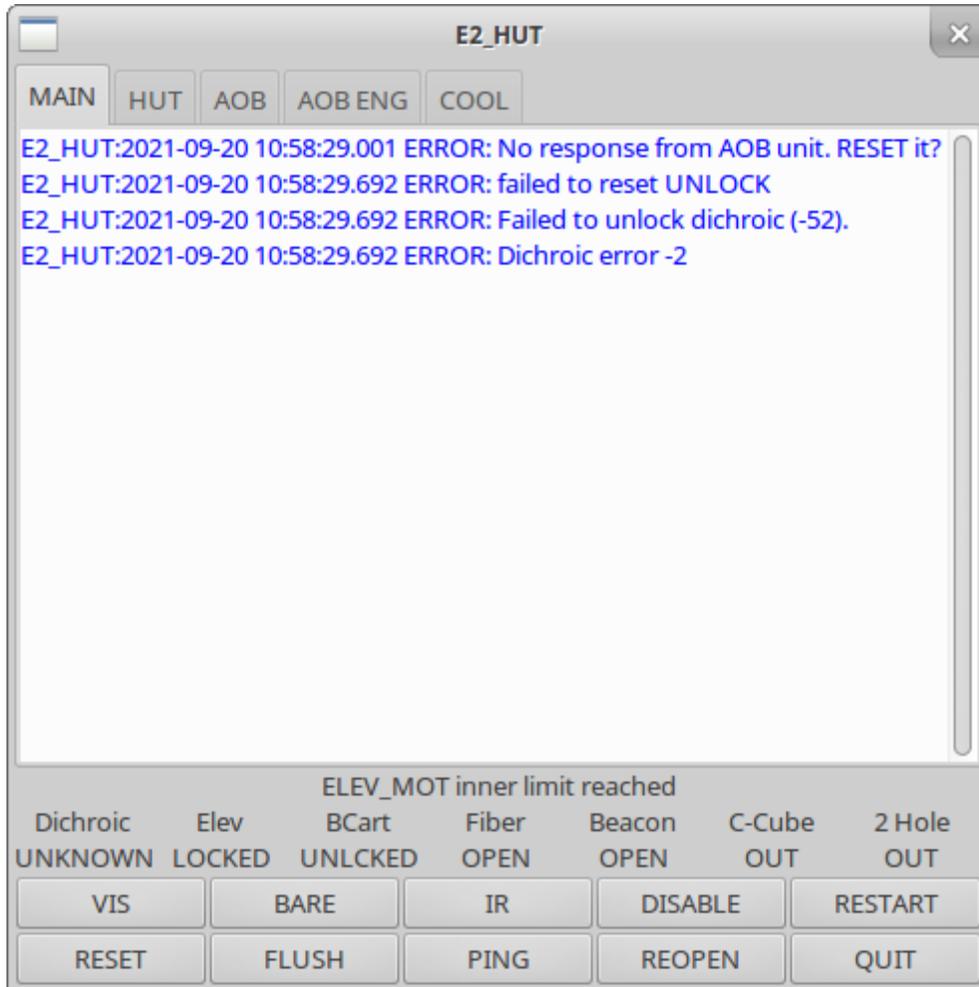
For any problems or questions with this procedure, please contact Matt Anderson

Step 1. Recycle the AOB power.

On the RPC Gui, E2WFS column, turn off the AOB power. Pause a few seconds. Turn the AOB power back on. If you happen to be at the telescope, in the dome, you will hear some clicking when you do this power cycling.
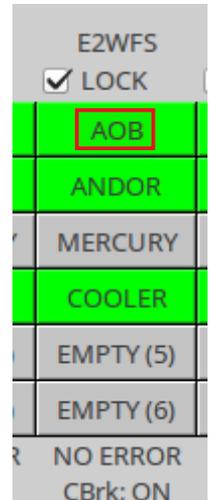
Step 2. Reinitialize communications by restarting the PIC.

 You will need a HUT GUI with engineering mode. If you don't have one, start it with "hutgtk -E E2 &". On the engineering tab, labelled "AOB ENG", click the button labelled "RESTART PIC".
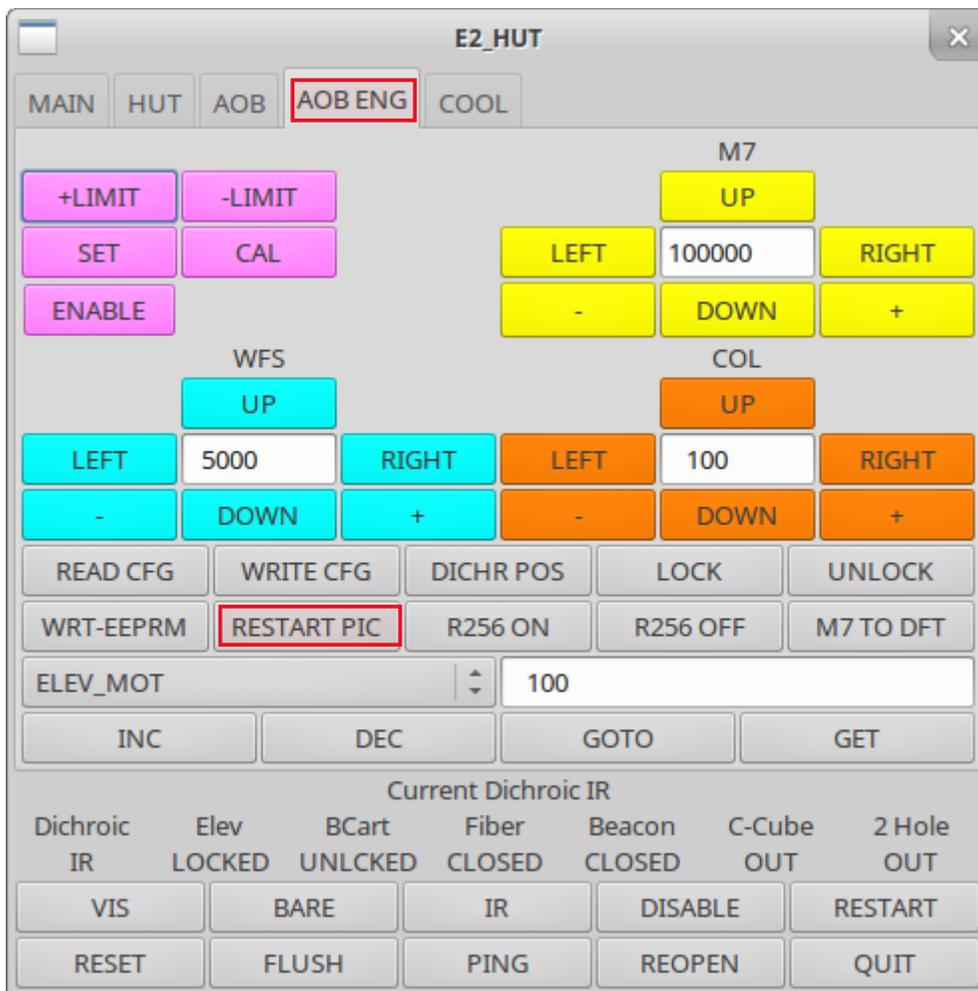
Step 3. Make sure the dichroic is unlocked.

It most likely is, but to be safe, select ELEV_MOT from the pull-down menu and click the "UNLOCK" button.
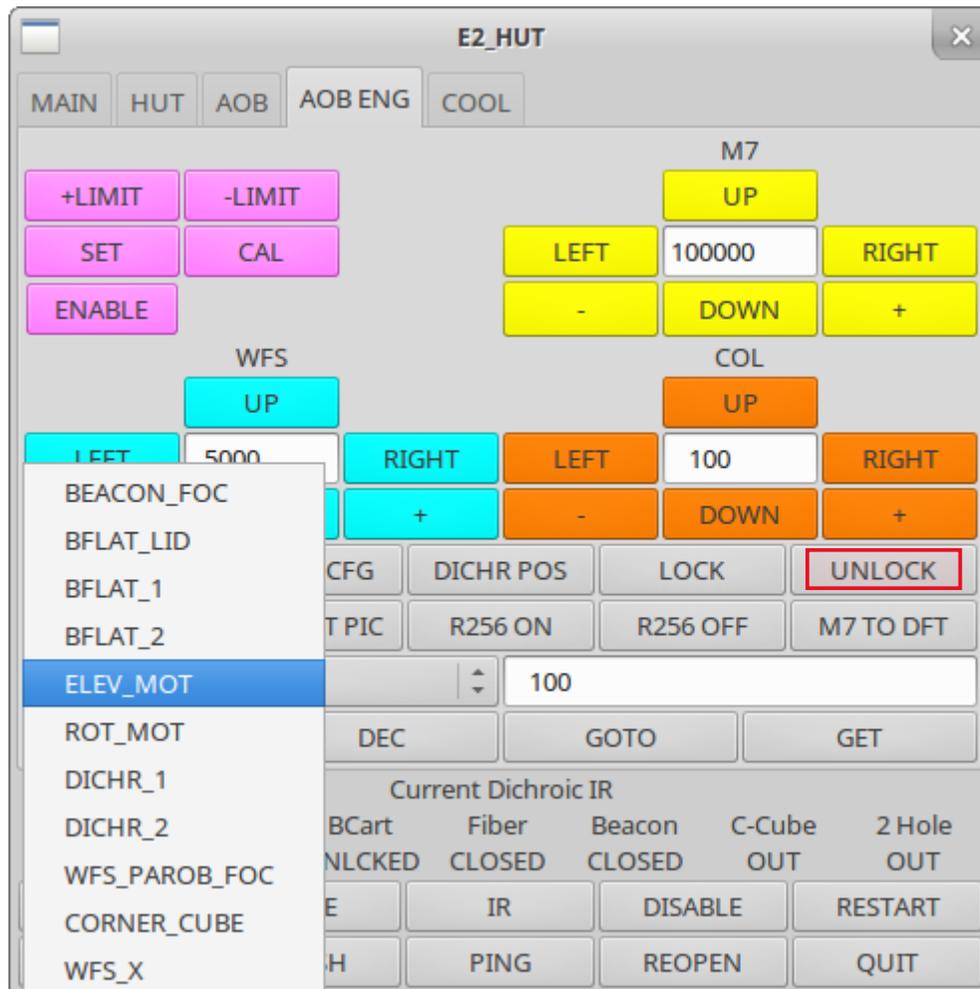
Step 4. Check where the software thinks the Dichroic is.

On the Engineering tab in the HUT GUI, select "ROT_MOT" found on the pull-down menu.
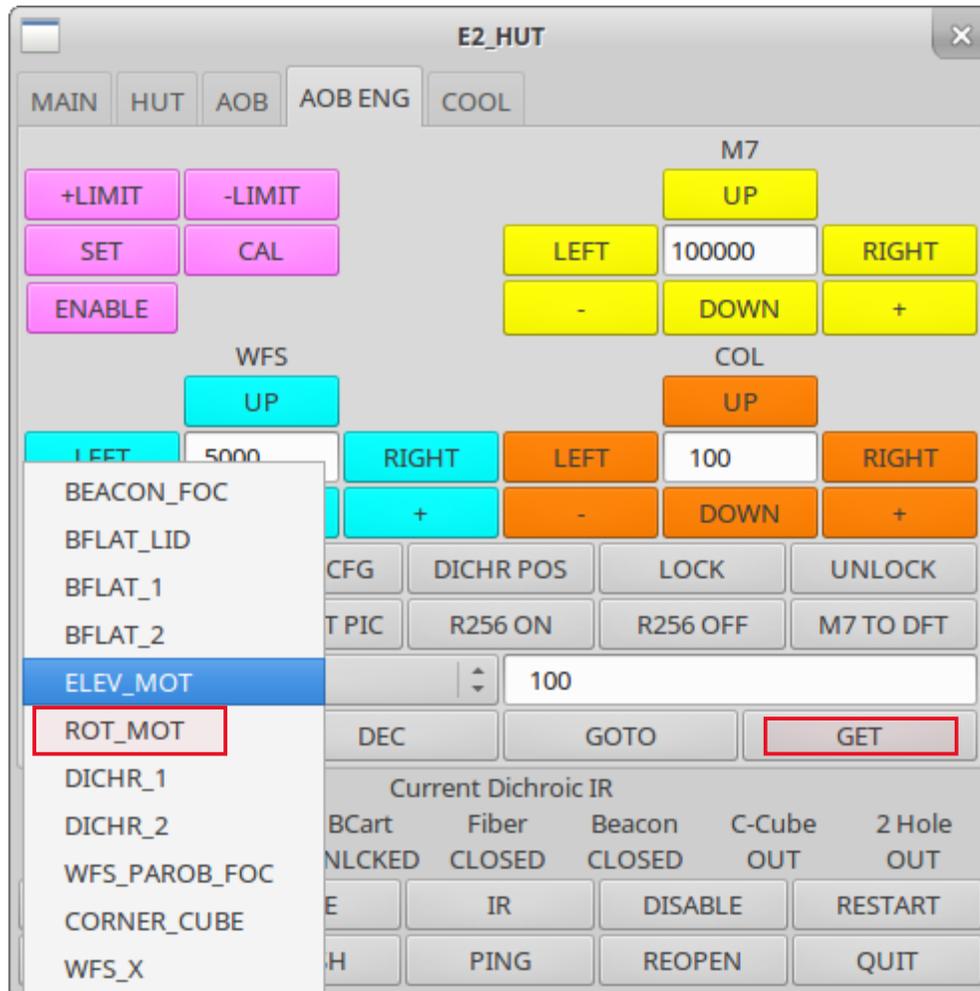
Step 5. Locate the proper dichroic numbers.

Check the aob configuration file to see what the numbers should be for the dichroic you want.

In a terminal enter:

less /ctrscrut/chara/etc/E2_aob.cfg
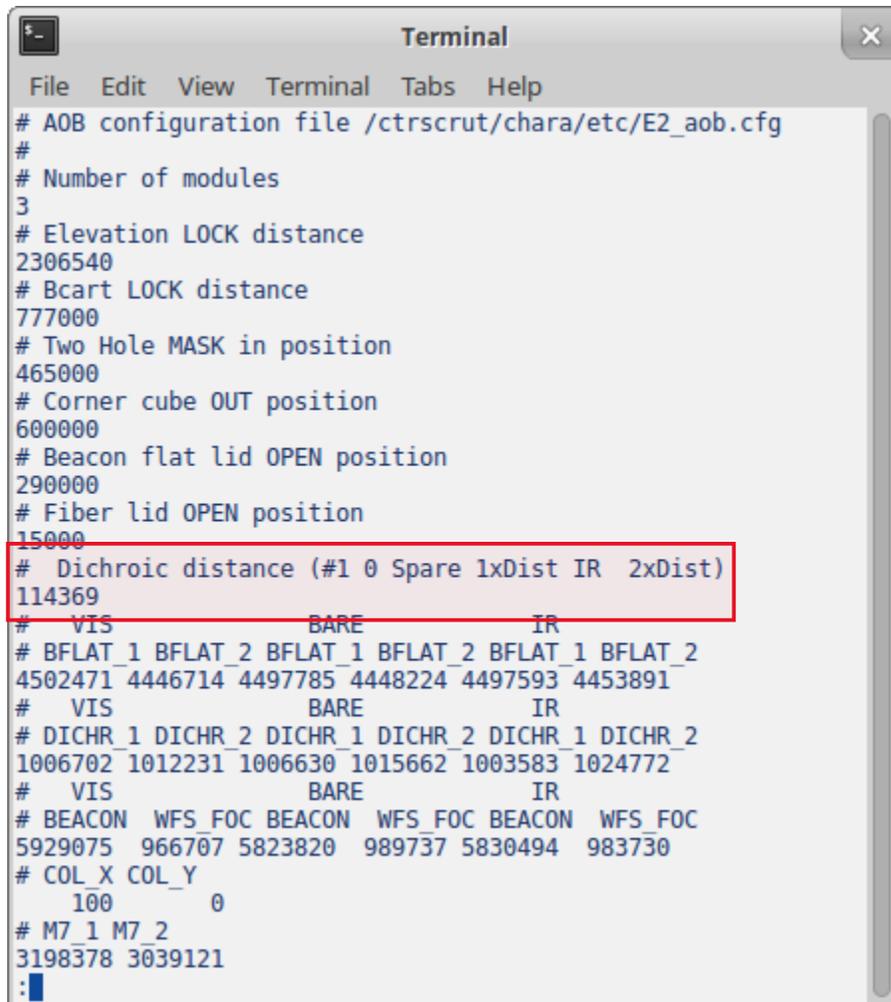
```
# AOB configuration file /ctrscrut/chara/etc/E2_aob.cfg
#
# Number of modules
3
# Elevation LOCK distance
2306540
# Bcart LOCK distance
777000
# Two Hole MASK in position
465000
# Corner cube OUT position
600000
# Beacon flat lid OPEN position
290000
# Fiber lid OPEN position
15000
#  Dichroic distance (#1 0 Spare 1xDist IR  2xDist)
114369
#    VIS              BARE              IR
# BFLAT_1 BFLAT_2 BFLAT_1 BFLAT_2 BFLAT_1 BFLAT_2
4502471 4446714 4497785 4448224 4497593 4453891
#    VIS              BARE              IR
# DICHR_1 DICHR_2 DICHR_1 DICHR_2 DICHR_1 DICHR_2
1006702 1012231 1006630 1015662 1003583 1024772
#    VIS              BARE              IR
# BEACON  WFS_FOC BEACON  WFS_FOC BEACON  WFS_FOC
5929075  966707 5823820  989737 5830494  983730
# COL_X COL_Y
    100      0
# M7_1 M7_2
3198378 3039121
:
```

For the ROT_MOT:

a value of 0 is the visible dichroic (VIS),

a value of 1x the "Dichroic Distance" or 114369 is the bare dichroic,

and a value of 2x "Dichroic Distance" or 228738 is the infrared dichroic (IR).

Step 6: Check the physical position of the Dichroic at the telescope.
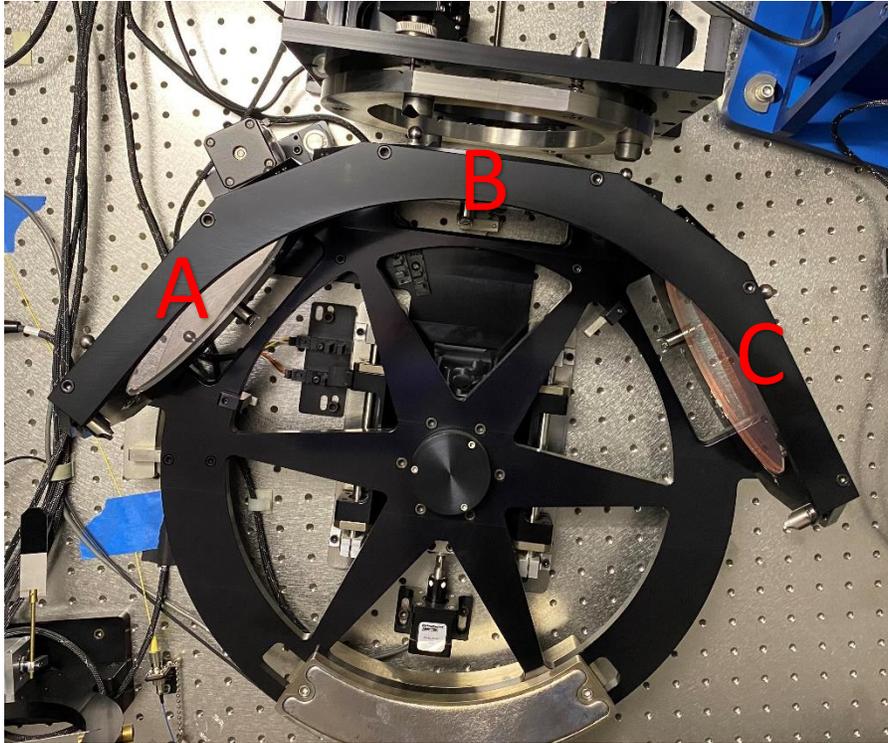
At the telescope you will see one of the three dichroics lined up with the hard points (above the B dichroic in the image).

The dichroics are:

A: Visible Dichroic

B: Bare Glass

C: Infrared Dichroic

Step 7: Manually align the proper dichroic.

By-hand, gently rotate the carousel so that the desired dichroic is below the hard points. The small balls should line up with the v-shaped grooved pucks above the carousel. The carousel should rotate freely. If it doesn't double check that it is unlocked. (See Step 2)

The kinematic balls (purple) should align with the v-groove pucks so that the balls slot into the grooves when the ELEV_MOT is locked as seen in the image below.
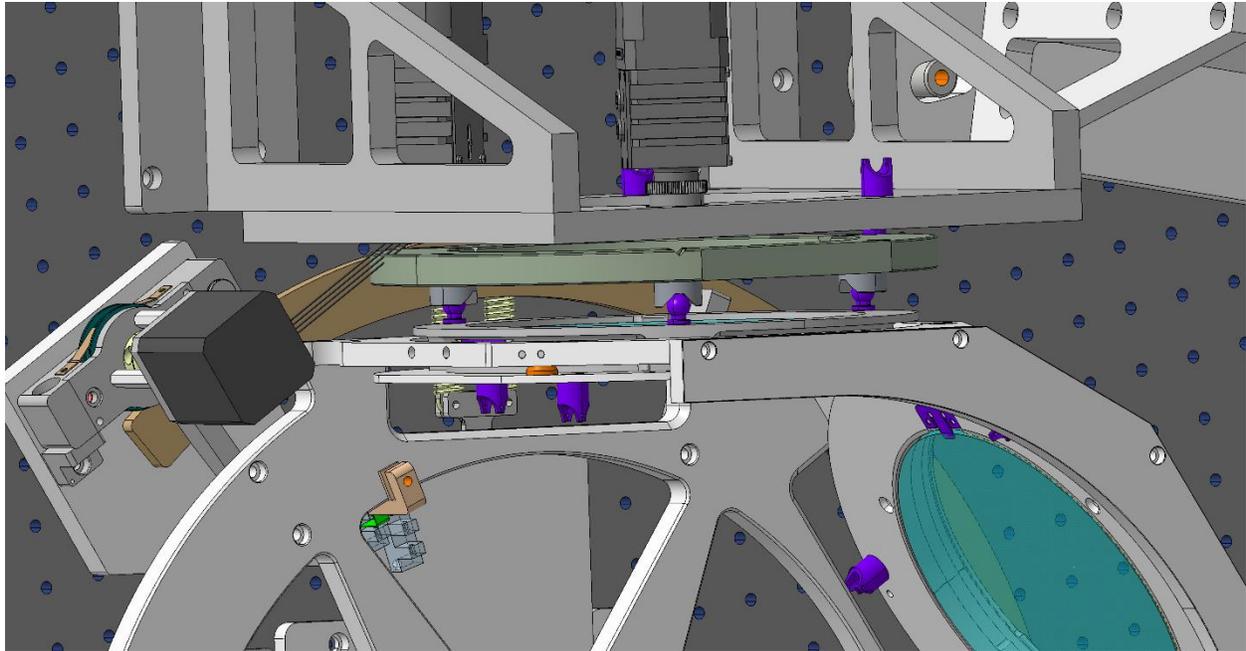
Step 8: Update the HUT with the current dichroic position.

In the HUT GUI, select ROT_MOT from the pull-down menu. Enter the proper number into the field to the right of the pull-down menu (Proper numbers are listed in Step 5). Press the "ENABLE" button then press the "SET" button.
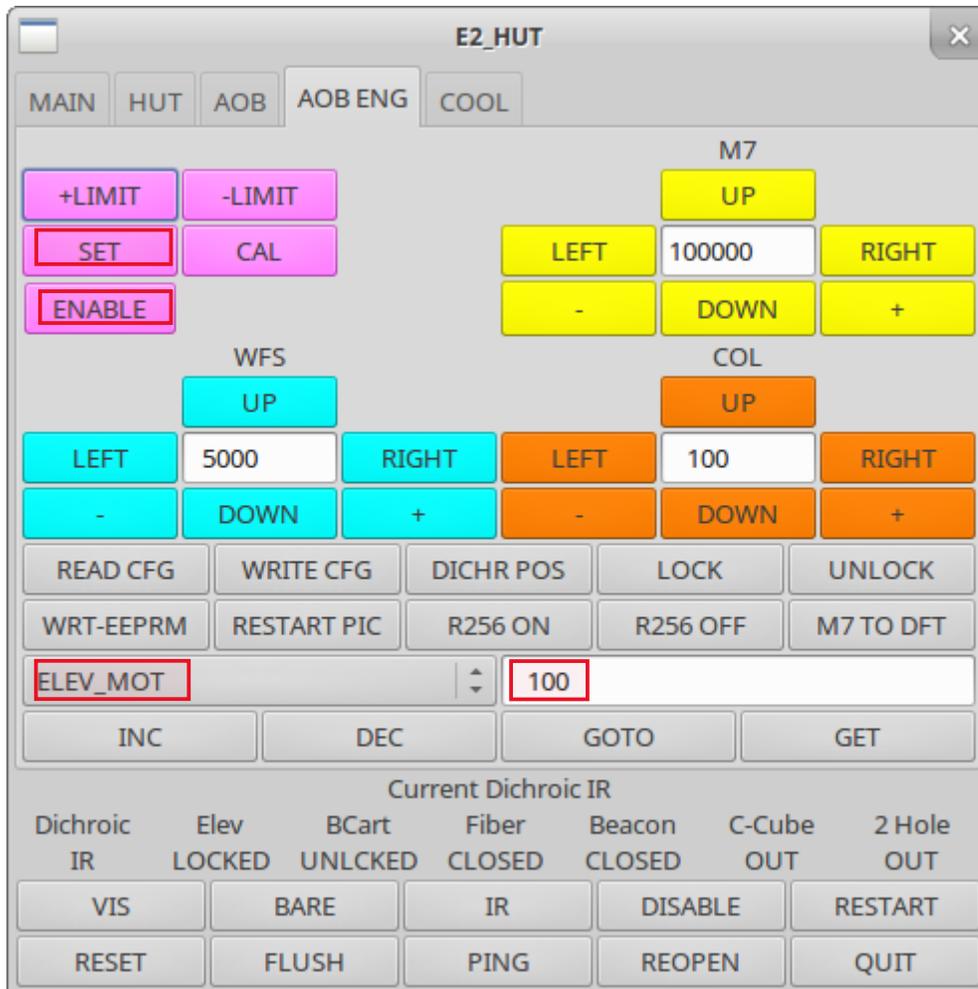
Step 9: Relock the dichroic.

In the HUT GUI, select the ELEV_MOT from the pull-down menu and press the "LOCK" button.
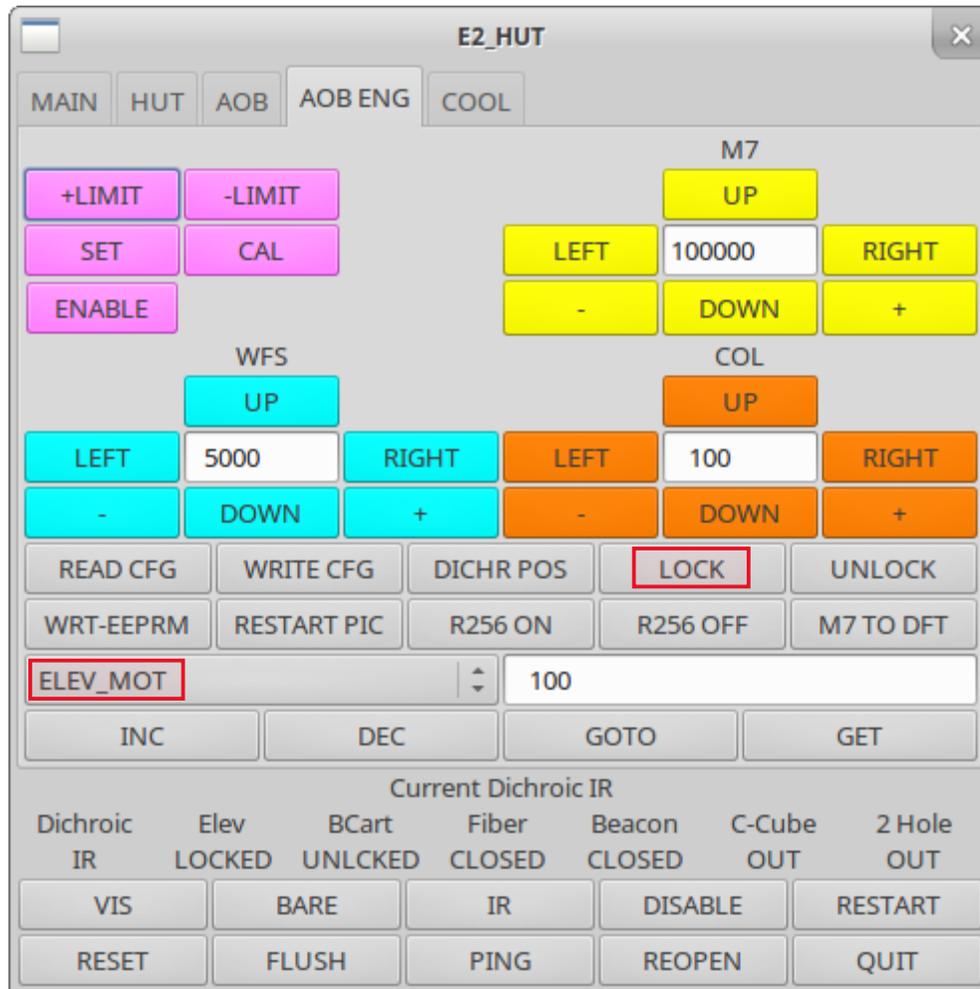
Step 10: Update the HUT for the newly aligned dichroic.

Push the dichroic button for the one you have in place. (ie. If you aligned and locked the visible dichroic, then press the "VIS" button.) Since the proper dichroic is in place, the HUT should only move the tip-tilt positions of the various optics and update the Dichroic displayed in the status field.
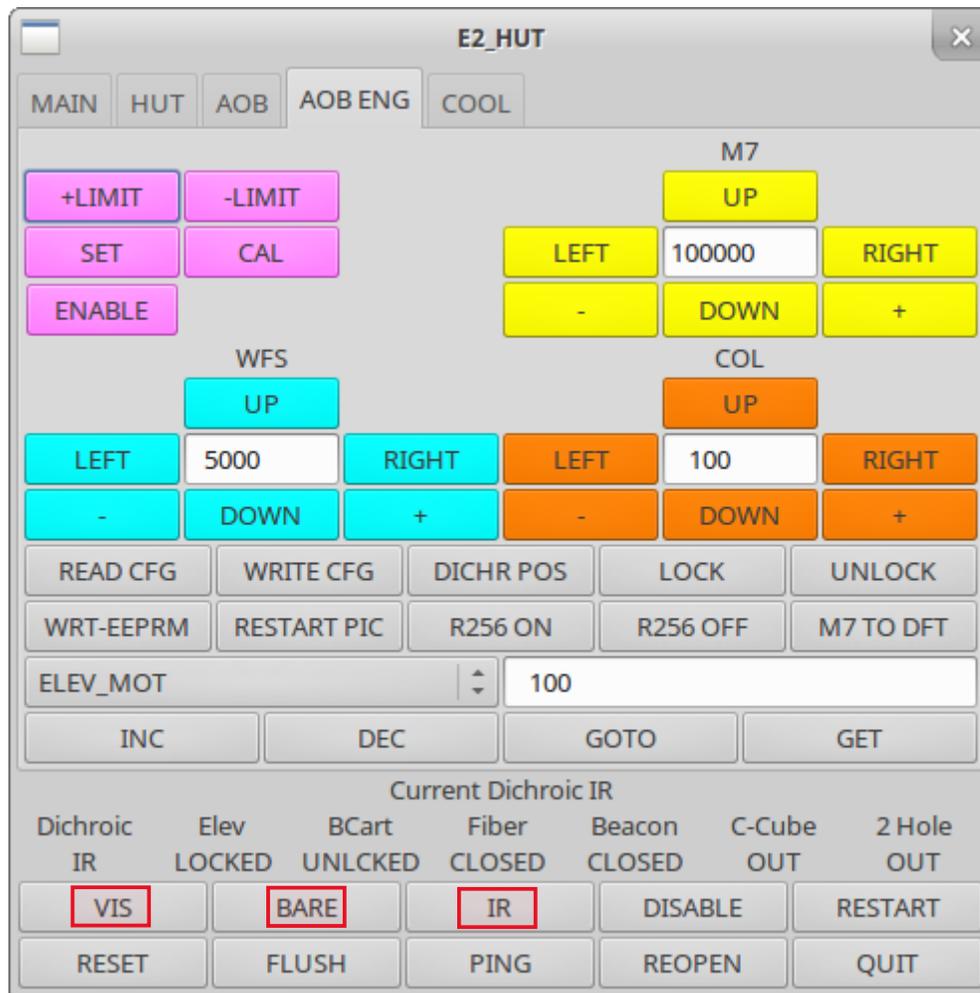
The AOB/HUT system should now be aligned and operational on the dichroic you wanted in the first place.