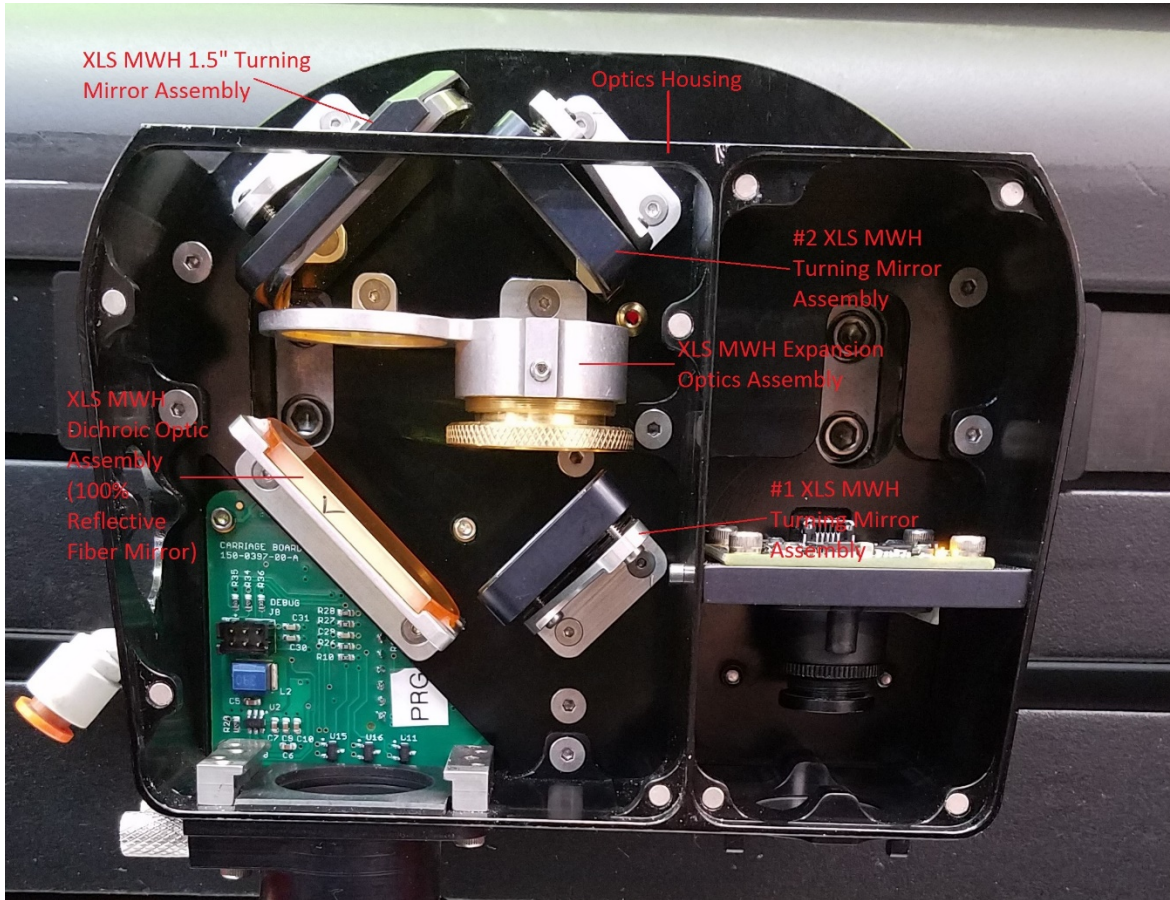
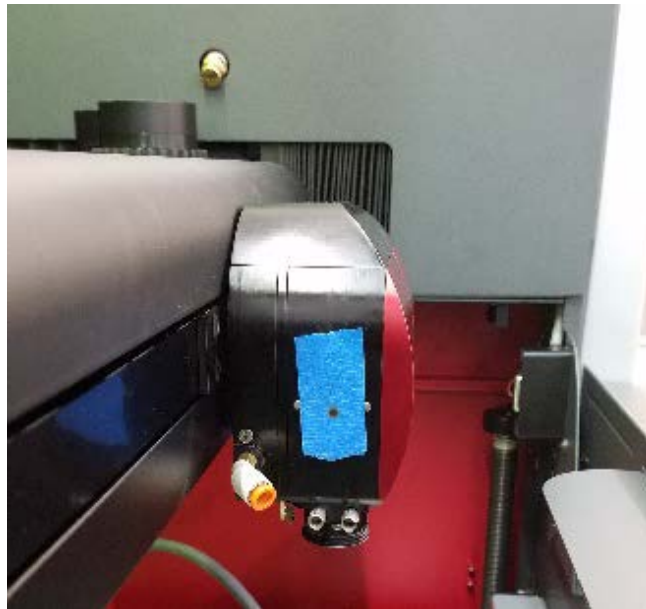


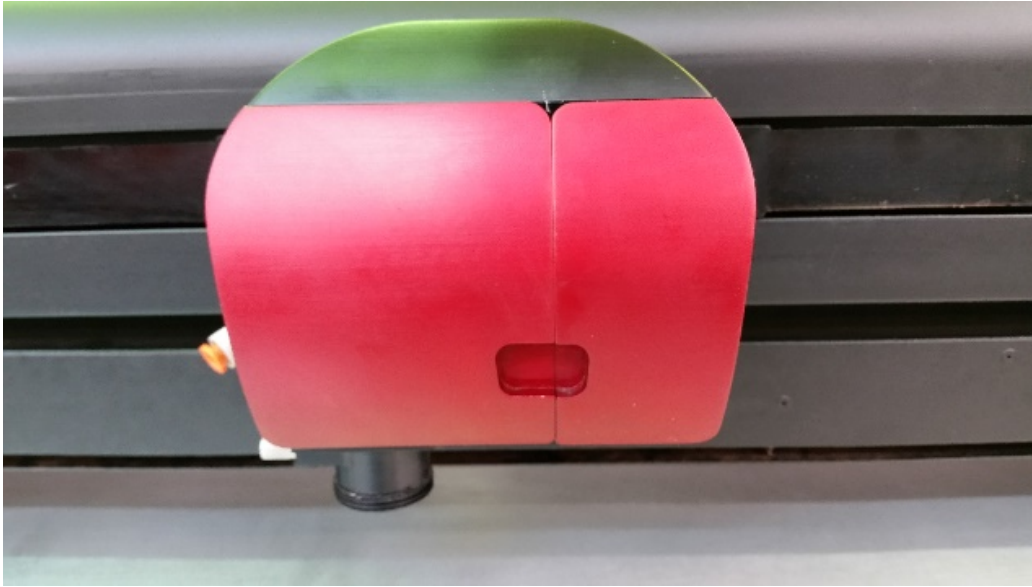
Multi Wave Hybrid Beam Alignment



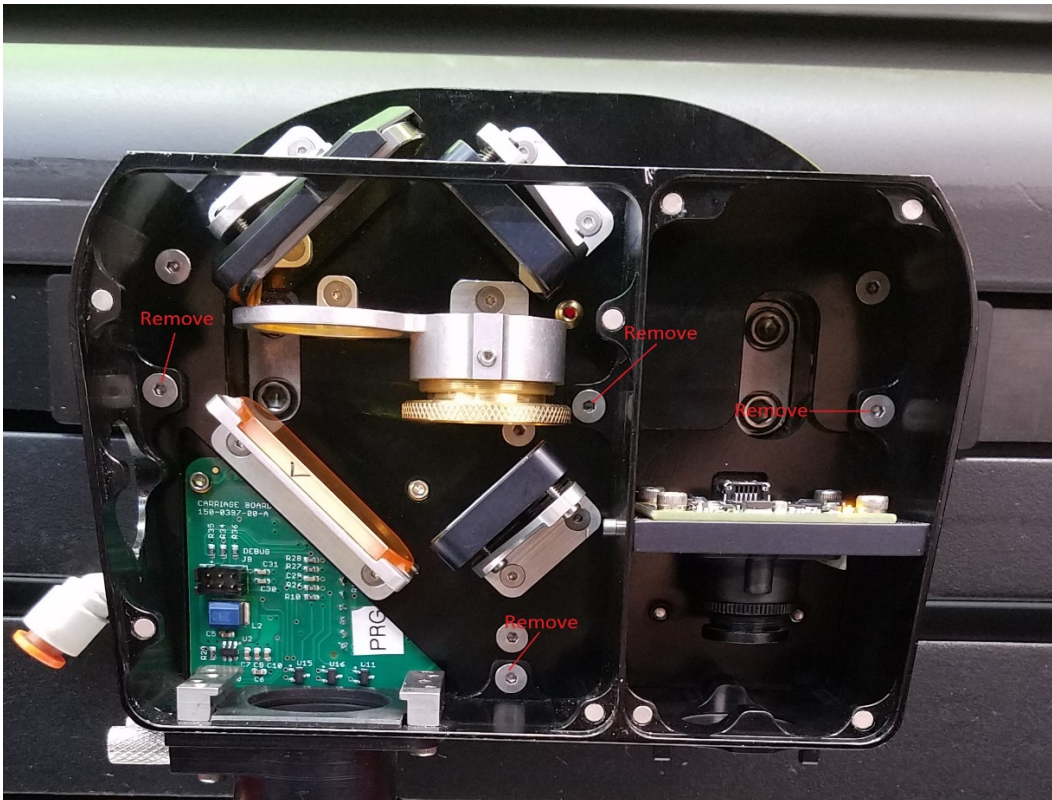
1. Perform standard beam alignment procedure verifying the 3 beams are aligned to each other.



2. Power system down.
3. Remove the 3 magnetic covers, 2 red, 1 black.

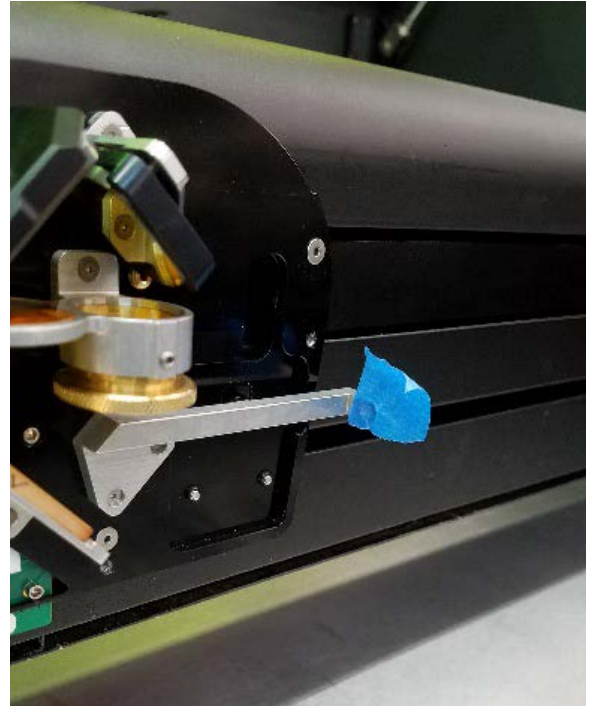
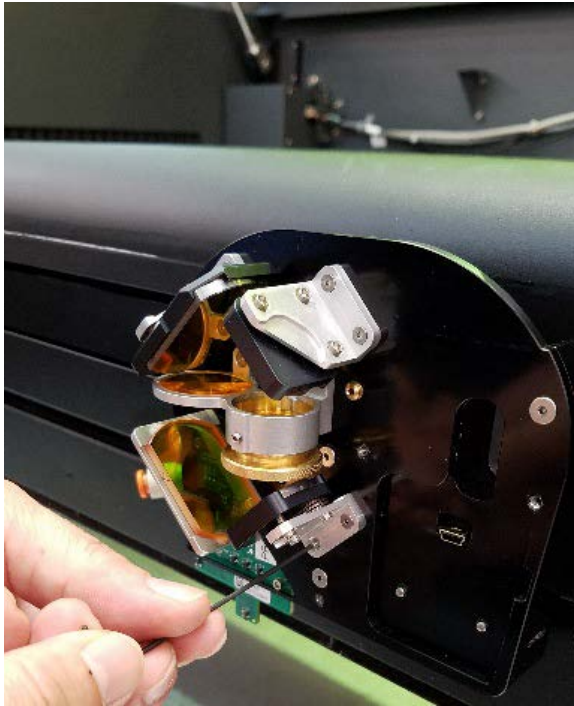


4. Using a 1/16th Hex wrench, remove the 4 screws shown below.

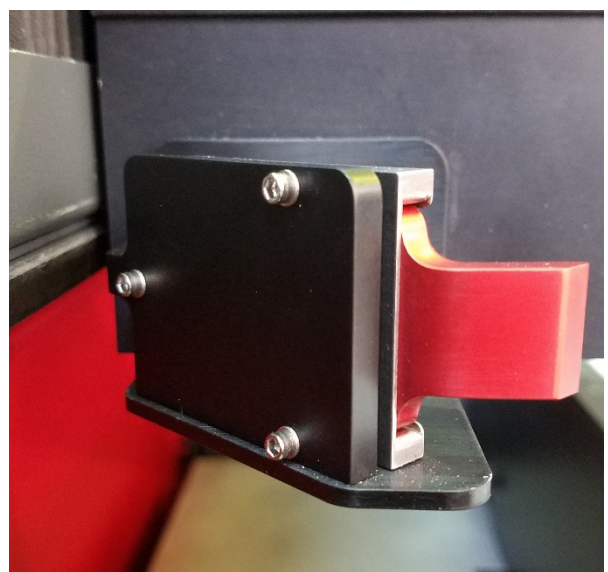
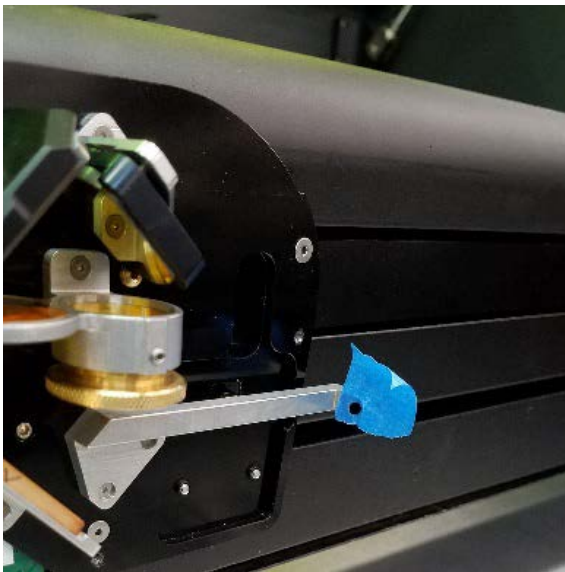


5. Gently remove the Optics Housing from the Optics Bracket. You may feel small resistance due to the camera USB cable.

- Using a 0.050" Hex wrench, remove the #1 XLS MWH Turning Mirror Assembly. Install alignment tool as shown using the same 2 screws.

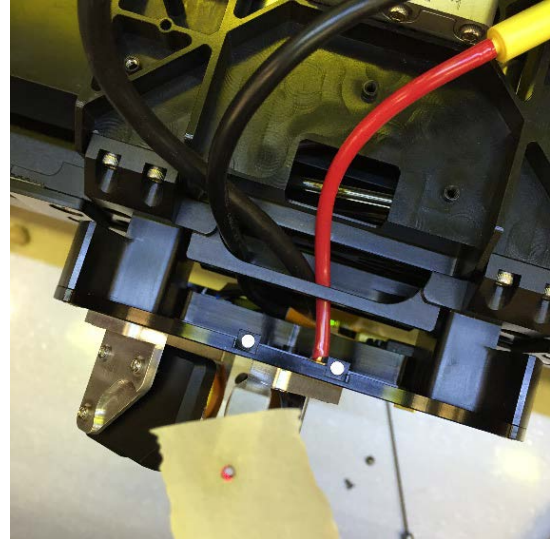
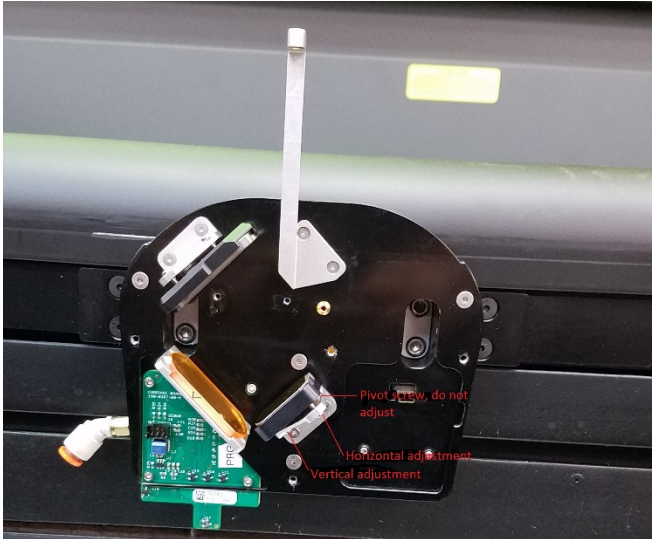


- Under System Configuration "Alignment", select center location of table. Activate laser 1 using only enough power to discolor the tape. Usually 5% power .3 second. If centered or near center, you're aligned well enough. If not, on the left side of arm adjust the 3 5/64th socket head cap screws located on the back of the #2 mirror until centered. Use red diode for alignment reference.

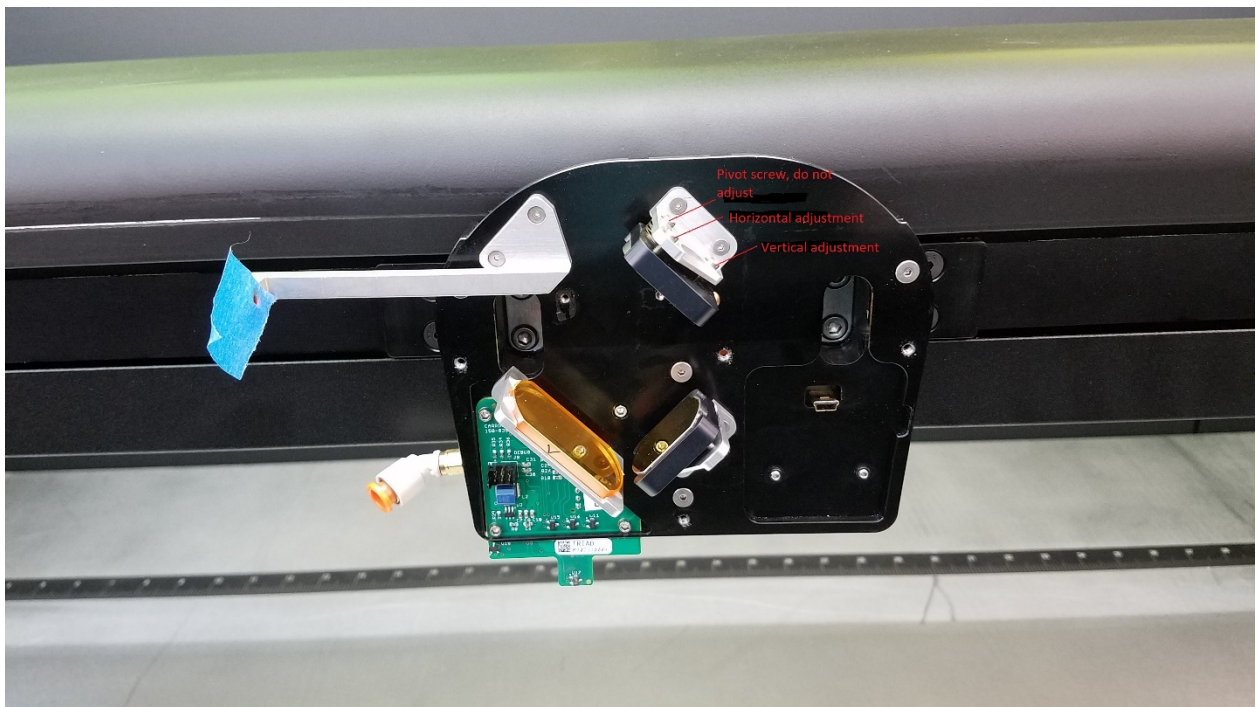


- Once centered, remove alignment tool. Reinstall the #1 XLS MWH Turning Mirror Assembly.

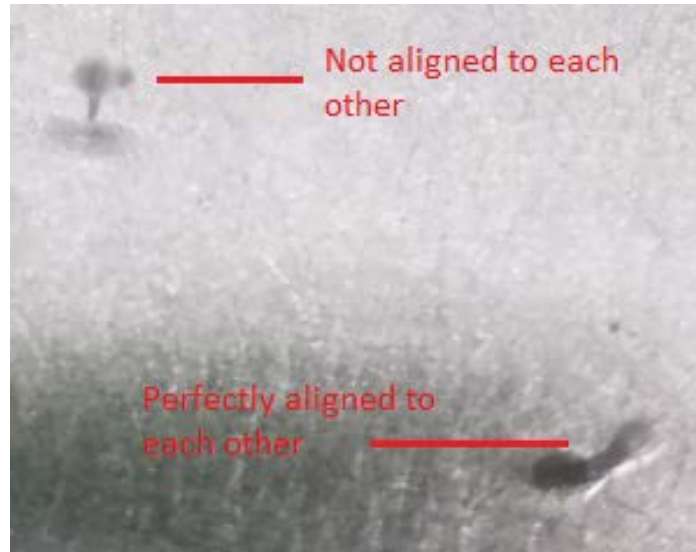
- Remove the Expansion Optics and #2 XLS MWH Turning Mirror Assembly. Install alignment tool as shown. Apply masking tape, burn the tape as earlier. Burn should be centered. If not, adjust the screws on #1 MWH Turning Mirror Assembly until burn is centered.



- Reinstall the #2 MWH Turning Mirror Assembly *but not the Expansion Optics*.
- Remove the XLS MWH 1.5" Turning Mirror Assembly, install alignment tool.
- Burn the tape once again. If burn isn't centered, adjust the 2 screws of the #2 XLS MWH Turning Mirror Assembly.



13. Reinstall both the XLS MWH 1.5" Turning Mirror Assembly and Expansion Optics.
14. Reinstall Optics Housing removed in step 5. Reconnect Camera USB. *Do not reinstall the 3 covers.*
15. The 100% reflective fiber mirror also reflects about 3% of the CO2 beam downward, we'll need to align the 97% to the 3% reflected.
16. Place a piece of easy to mark material beneath the lens (center table), in or at near perfect focal distance.



17. Active the beam at 50% power for .2 seconds. You'll most likely see 2 burns, 1 deep and 1 shallow.
18. Adjust the 2 screws of the XLS MWH 1.5" Turning Mirror Assembly, bringing the deep burn to match the shallow burn. Remember the shallow burn is in a fixed location.



19. You've completed the Hybrid Multiwave Beam Alignment procedure.