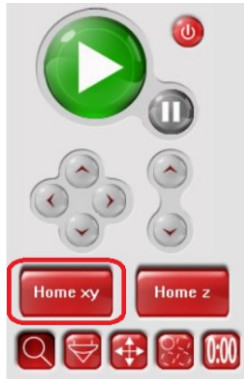


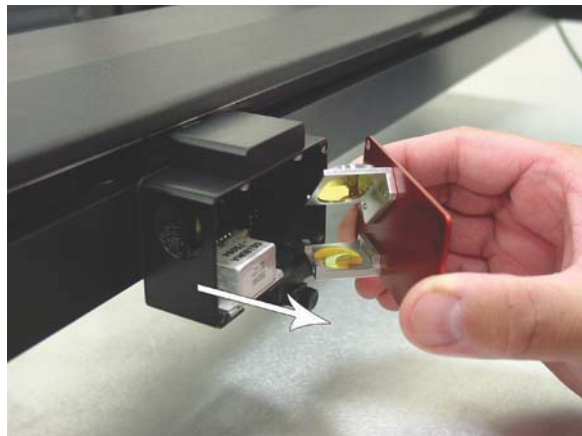
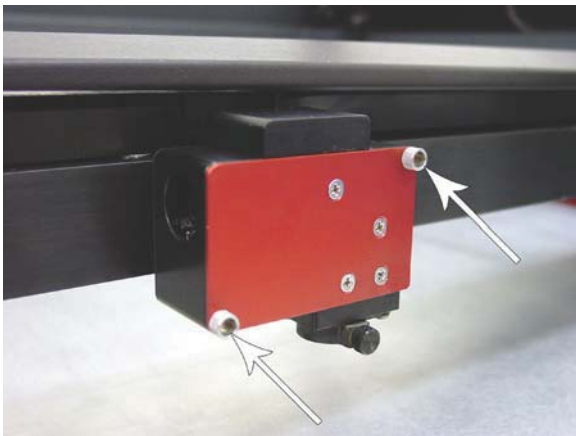
Laser Beam Check and Alignment



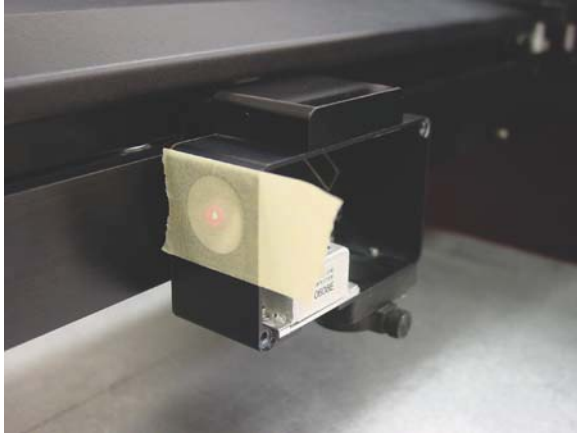
Verify the table is clear of any objects that could obstruct the movement of the motion system. **THE RED DIODE IS ONLY A GUIDE.** The red diode may be slightly off center compared to the burn mark you will make in the following steps so we recommend you make a burn mark for best results.



1. Power the ILS ON letting it home, or re-home by clicking the Home XY Tab. button in the Viewer Tab of the UCP.



2. Remove the optics from the Focus Lens Carriage by unscrewing the 2 thumb screws. Pull the face plate towards you. Place the optics in a safe, clean location.



3. Place a strip of masking tape over the hole on the left side of the Focus Carriage.
4. The red diode beam should appear on the tape. The beam should be fairly centered over the hole.

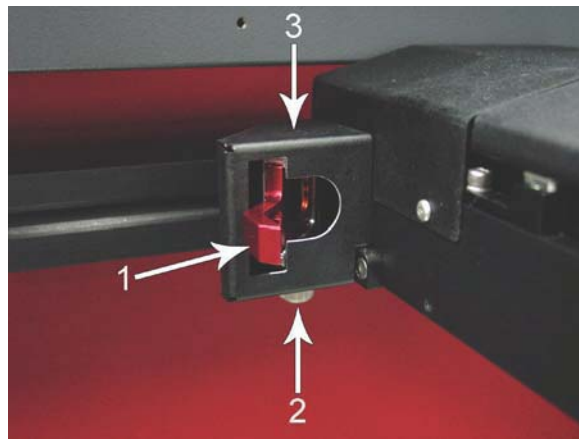


5. Using the Focus Feature of the Viewer Tab, verify the position of the red diode beam relative to the hole in the focus carriage in **all** four corners of the table.

6. The red diode should be **fairly centered** on the hole in all four corners of the table.
7. If the red diode beam is **not centered** on the hole in all four corners of the table, the beam will need to be aligned. Do not remove the masking tape or reinstall the optics.
8. Power off the ILS and unplug the unit.



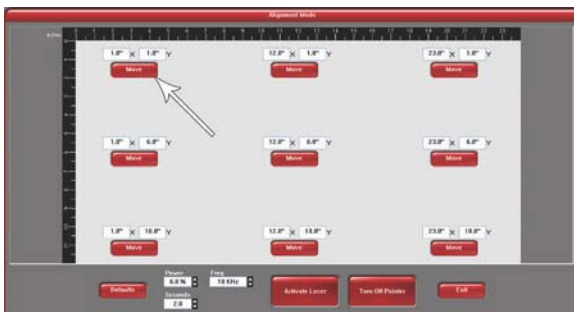
9. Slowly move the X-axis arm forward.



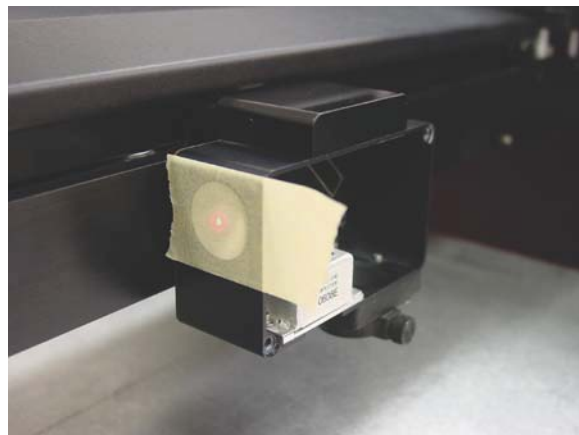
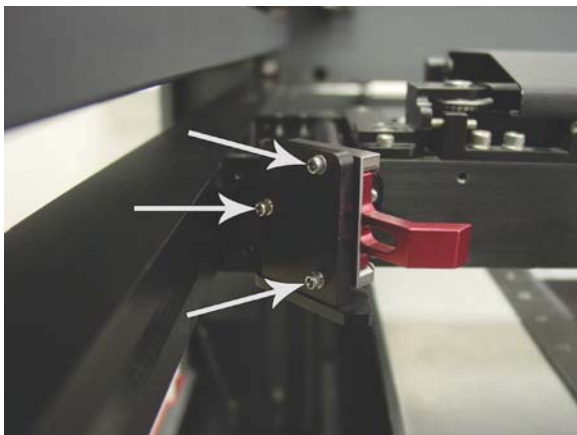
10. Remove the #2 mirror (1) from its holder by grasping its protruding handle and sliding it out. Underneath the #2 mirror cover is a large thumbscrew (2). Undue the screw and remove the #2 mirror black cover (3).

11. Plug in the ILS and turn the power on with the top door open.

12. Once finished homing, proceed to the System Tab. Click Alignment Launch Tab. The Alignment Mode window will appear.

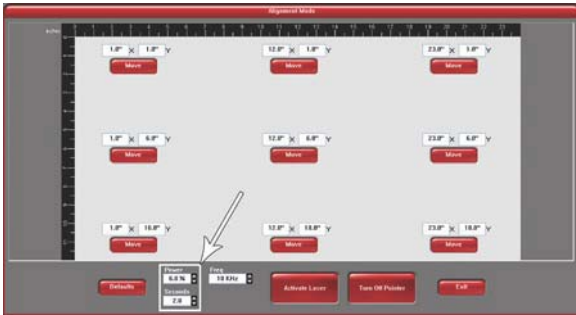


13. Click on the upper left hand Move button. The focus carriage will move to the indicated X, Y position.

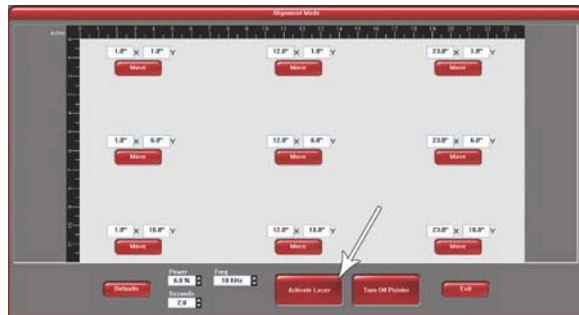


14. With the cover removed, reinsert the #2 Mirror back into its holder and locate the three adjusting screws behind the #2 Mirror Mount.

Note: To create a small burn mark on the tape in the next step you will need to adjust your Power and Seconds settings in the Alignment Mode screen (lower left side). Lower power laser tubes, for example 25 watt laser tubes require higher power settings than higher power laser tubes. For example, 60watt laser tubes require lower power settings to make the burn mark on the tape.



15. Start with 5% Power and 2 seconds. Move the focus carriage to the upper left corner by selecting 1.0"x1.0" Move.



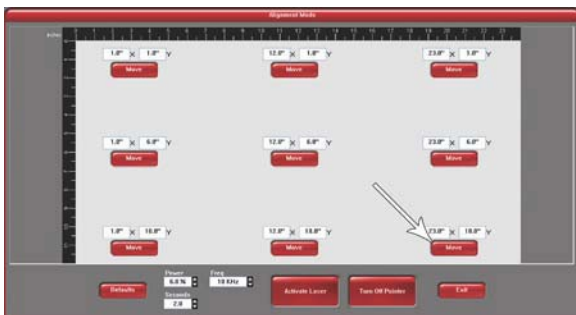
16. Close the top door if it's not already closed.

17. Press Activate Laser.

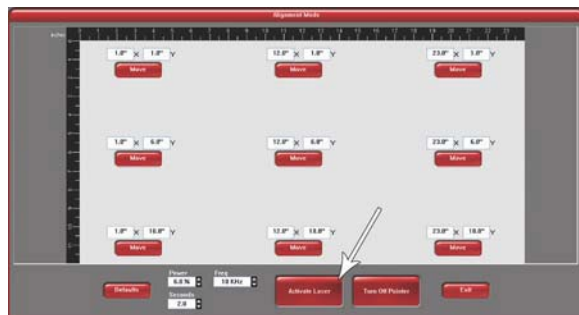
A slight burn should appear in or near the center of the taped hole.

18. If the burn mark is centered or near center, continue to the next step.

19. With the burn centered or near centered, keep the piece of tape on the focus carriage.



20. Now click on the lower right side Move button.



21. Close the top door if it's not already closed and then click on the Activate Laser button. Take note of the burn mark.

22. Both burn marks should be over lapping each other at least 50%.
If they aren't continue adjusting the #2 Mirror for the lower right hand corner.

IF YOU HAVE ONLY ONE LASER CARTRIDGE IN YOUR ILS SYSTEM, BEAM ALIGNMENT IS COMPLETE. IF YOU HAVE A SECOND LASER CARTRIDGE, CONTINUE ON TO STEP 23.

23. Power off the ILS Machine

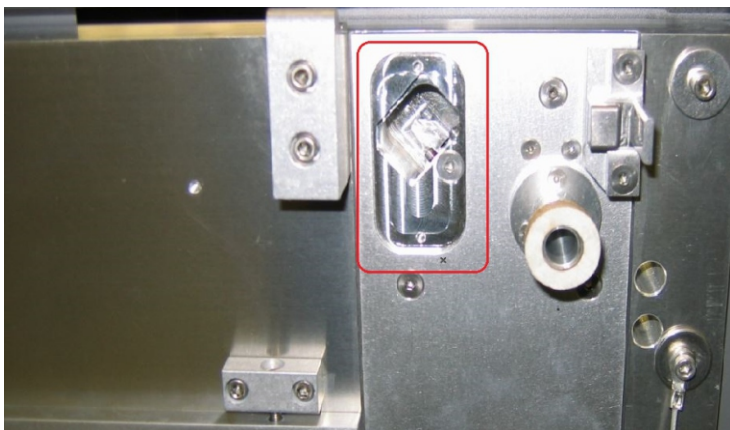
24. Open the rear cover and remove the connector & cable from the top laser cartridge.
25. Disconnect the connector & cable from the bottom laser cartridge and attach the connector & cable labeled "Top" to the bottom laser cartridge.

At this time, you can also remove the top laser cartridge as this will need to be removed if any adjustments are required in the beam combiner to adjust the bottom laser cartridge.

26. Power on the ILS Machine and open the Alignment Mode in the System Tab. of the UCP.

There should still be a piece of tape with a burn hole on the focus carriage from aligning the top laser cartridge. Move the carriage into the near field and verify that the red dot pointer is on top of the burn hole on the tape, next move the carriage to the far field and verify that the red dot pointer is on top of the burn hole in the tap. (this may be difficult in the far field as the red dot pointer is usually very diffused in this position) The red dot point though will give a general indication of how close the beam alignment is between the top & bottom laser cartridges.

27. Place a 2nd piece of tape over the tape already on the focus carriage. Use the same power setting you used on the top cartridge and do a burn test in both the near & far fields. The burn between the top & bottom tube should be as close as possible. The further away the burns are from each other will cause quality issues when engraving (especially with a superspeed). The near field should be on top of the burn hole from the top cartridge already. If the far field is out of alignment, remove the two small screws & cover to access the beam combiner mirror adjustment screws. (DO NOT USE THE #2 MIRROR TO ADJUST THE BOTTOM CARTRIDGE!). You can adjust these screws until the burn holes in the far field are in alignment between the top & bottom laser cartridge.



28. Power off the ILS Machine.

29. Place the top laser cartridge back in place. Verify the connector & cables are attached to the proper tubes (each will have a label, either "top" or "bottom") and close the rear door to the ILS machine.
30. Power on the ILS machine & go back into beam alignment mode. With fresh tape on the focus carriage burn both the top & bottom lasers in both the near & far fields to insure that the burn holes from each laser are as close as possible to each other in both the near & far field.
31. If still out of alignment, repeat the necessary steps to correct this issue.
32. Once the laser alignment is proper, remove the tape for the focus carriage, re-install the lens kit. You have completed beam alignment.