

A070 - Laser Beam Check and Alignment

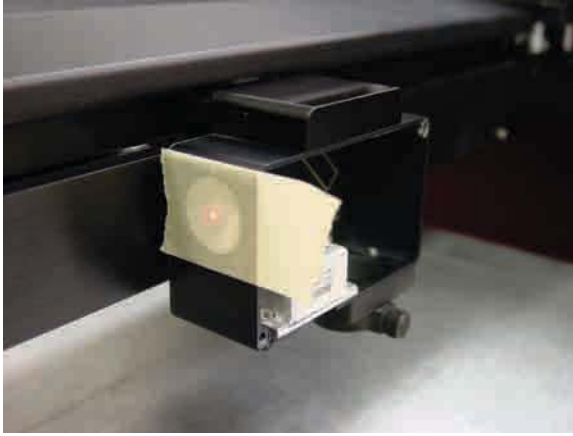
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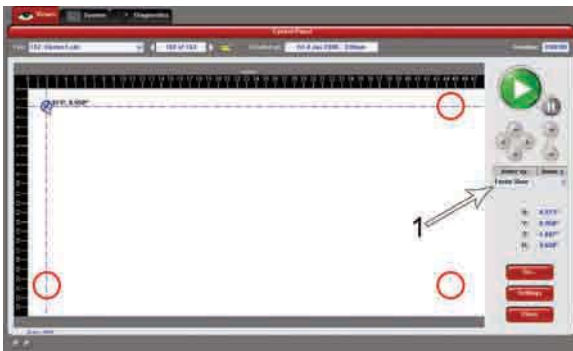
Verify the table is clear of any objects that could obstruct the movement of the motion system. **THE RED DIODE IS ONLY A GUIDE.** The red diode may be slightly off center compared to the burn mark you will make in the following steps so we recommend you make a burn mark for best results.

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

2. Remove the optics from the Focus Lens Carriage by unscrewing the 2 thumb screws and pull the face plate out towards you. Place the optics in a safe, clean place.



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 red diode beam should be fairly centered over the hole.

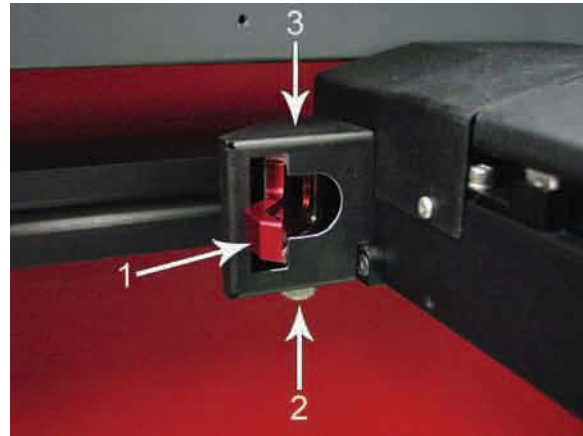


5. Using the Focus Feature (1) of the Viewer Tab in the UCP, verify the position of the red diode beam relative to the hole in the focus carriage in **all** four corners of the table.

6. The red diode should be **fairly centered** on the hole in all four corners of the table. If this is the case, you can remove the masking tape from the hole in the focus carriage and reinstall the optics. The red diode is aligned.
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.



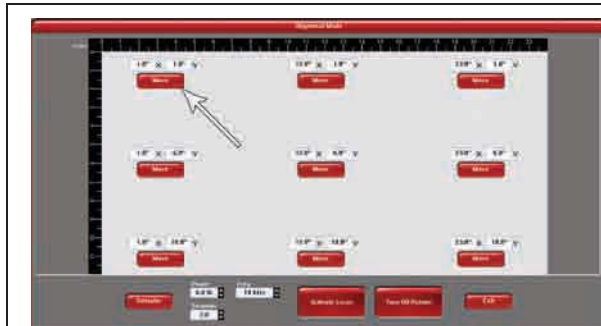
9. Slowly move the X-axis arm forward.



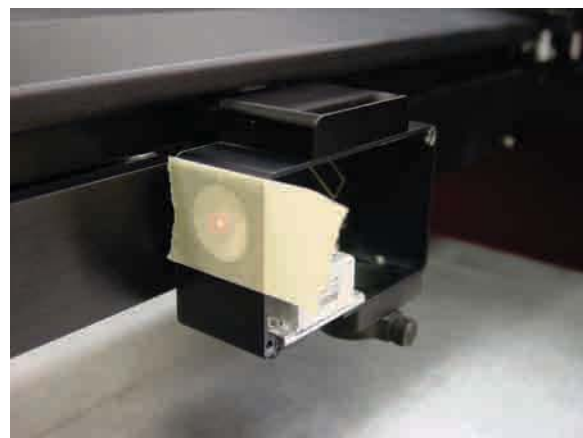
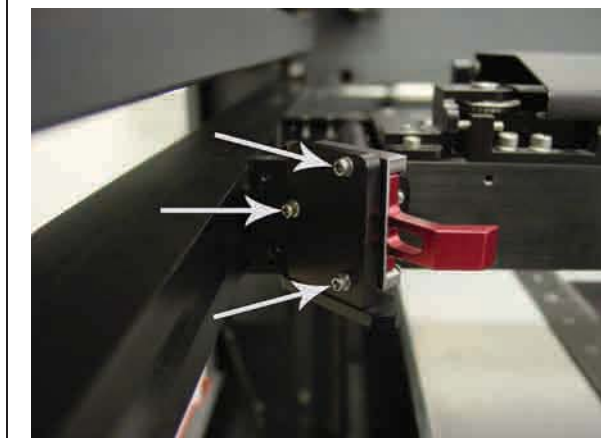
10. Remove the #2 mirror (1) from its holder by grasping its protruding handle and sliding it out. Underneath the #2 mirror cover is a large thumbscrew (2). Undue the screw and remove the #2 mirror black cover (3).

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

12. Once it finishes homing proceed to the System Tab then click on the Alignment Launch button. The Alignment Mode window will appear.





13. Click on the upper left hand Move button. The PLS's 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. Turn these screws to center the red dot diode.

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 25watt laser tubes, require higher power settings and higher power laser tubes, for example 60watt laser tubes, require lower power settings to make the burn mark on the tape.

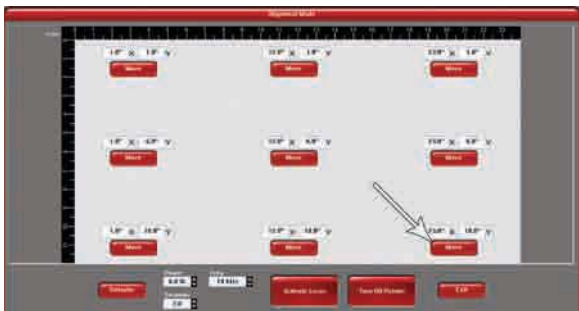
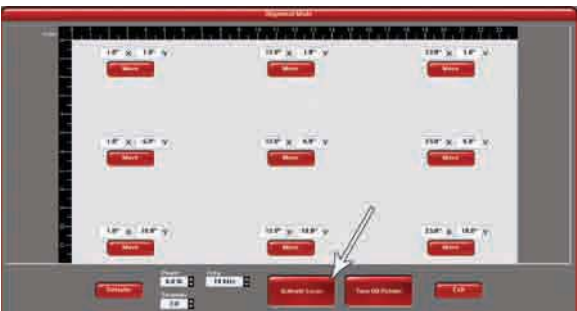
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| <p>15. Once the red diode is centered adjust the Power and Seconds settings on the lower left side of the Alignment Mode window. Start with 5% Power and 2 Seconds.</p> | <p>16. Close the top door if it's not already closed and then click on the Activate Laser button.</p> <ul style="list-style-type: none"> If a burn mark is not made continue to modify the Power and Seconds settings. |

17. If the burn mark is not centered use a new piece of tape and adjust the corresponding screw in small turns on the #2 Mirror mount until the burn mark is centered.

- Keep in mind you can use the red diode as a guide.

18. If the burn mark is centered continue to the next step.

19. Once the burn mark is centered keep the piece of tape on the focus carriage.

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| <p>20. Now click on the lower right side Move button.</p> | <p>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.</p> |

22. Both burn marks should be overlapping each other. If they are not continue to adjust the #2 Mirror for the lower right hand corner.

23. Once aligned Exit the Alignment Mode Window and remove the masking tape from the Focus Lens Carriage and reinstall the optics.

24. Power off and unplug the PLS.

25. Reinstall the cover and two screws over the #2 mirror mount from step 10.

R000 – #3 Mirror and Focus Lens

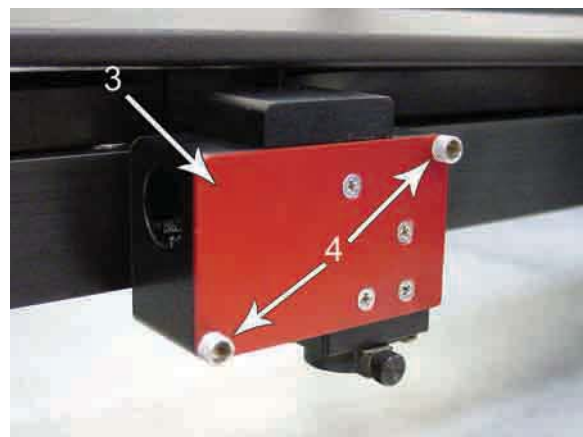
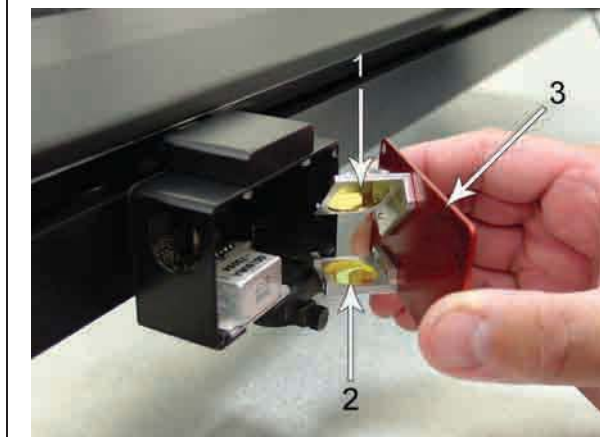
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NOTE: Place any hardware removed from the laser machine in a safe place.

1. Turn off the laser machine.

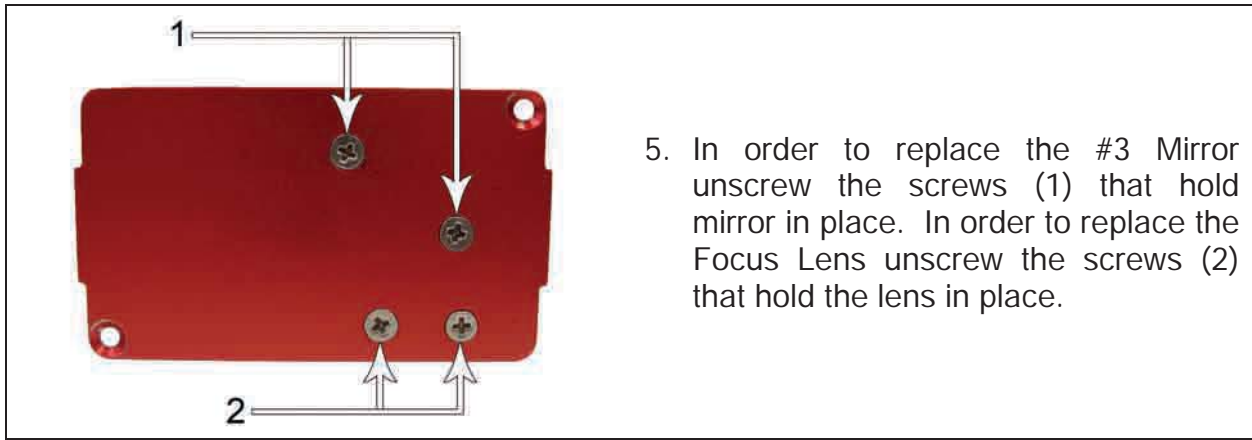


2. Open the top door and bring the X-Axis Arm forward.



3. To gain access to the #3 Mirror (1) and the Focus Lens (2), hold the front cover (3) with one hand, and remove the two thumbscrews (4) with the other hand. Pull the front cover straight out. The #3 Mirror and the Focus Lens are both mounted to the front cover.

4. Clean the #3 Mirror and Focus Lens if necessary.



5. In order to replace the #3 Mirror unscrew the screws (1) that hold mirror in place. In order to replace the Focus Lens unscrew the screws (2) that hold the lens in place.

6. Installation is opposite of removal.