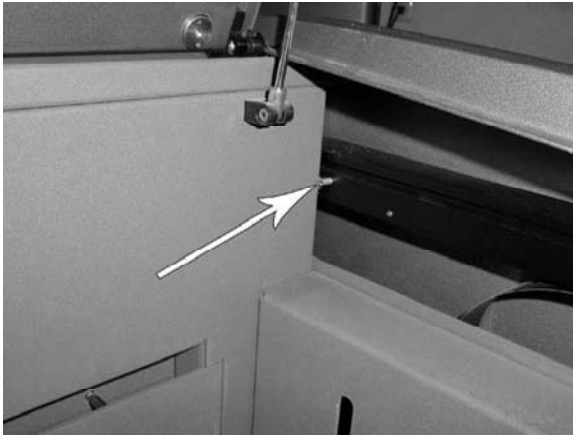


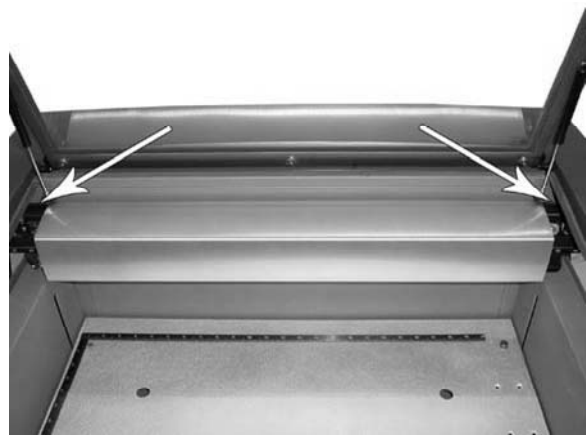
A050 - X-axis Arm Alignment Check and Adjust (Squaring)

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1. Make sure the VLS is powered OFF and unplugged.

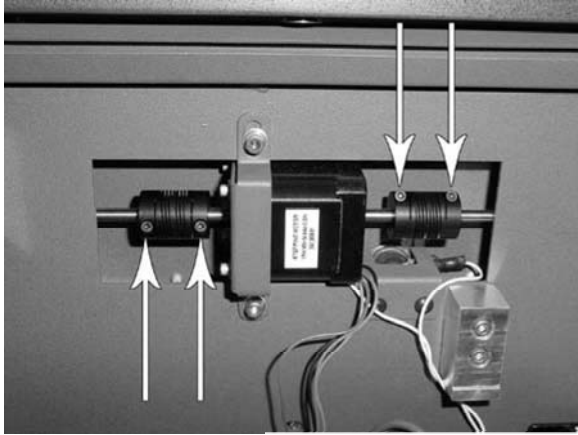


2. Open the Top Door.
3. Locate the pins that are pressed into the Y-axis Rails. There are two pins, one on each rail, in the rear corners of the main enclosure.



4. Gently push the X-axis Arm all the way to the back. Observe if both sides of the arm touch the two respective pins, at the same time. You may need a flashlight to see the pins. If you cannot, make a judgment by the gap between the arm and the rear wall.
5. If one side touches one pin, and the other side doesn't, the arm is not square and you will need to proceed to step 6. If the arm touches both pins you are done with this process.

6. Remove the Rear Cover.
7. Remove the Laser Tube.



8. Locate the Y-motor from the rear of the machine.
9. Choose **one** of the four motor shaft coupler screws and loosen it.
10. Standing on the side of the machine, with one hand push the arm towards the pins and hold it there firmly. With the other hand, tighten the coupler screw that you loosened. Tighten the other 3 coupler screws just in case they are loose. You may need the assistance of another person.

11. Reassemble the system.

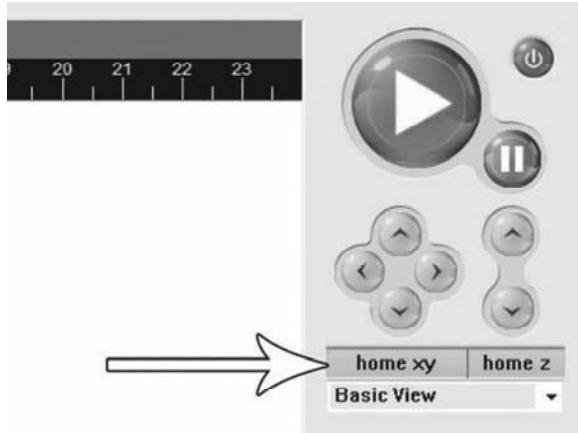
12. If the X-axis arm continues to come out of square, then either the Y-axis Belt is loose or worn excessively or the Y-axis Drive Gear is slipping. Proceed to those sections and then perform this procedure again.

A060 - Laser Beam Check and Alignment

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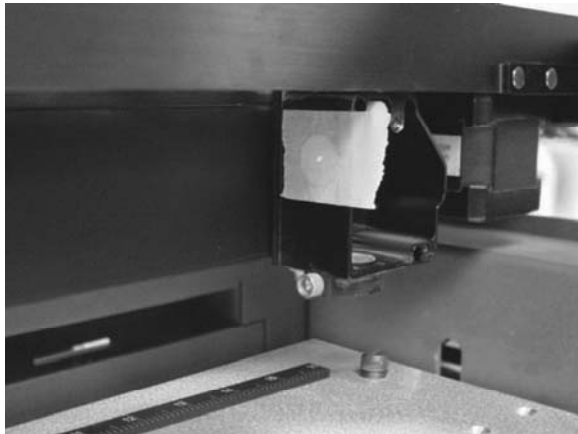
Make sure the table is clear of any objects that could obstruct the movement of the motion system. **The red diode is ONLY a guide.** The red diode may be slightly off center compared to the burn mark you will make in the following steps so we recommend you make a burn mark for best results.



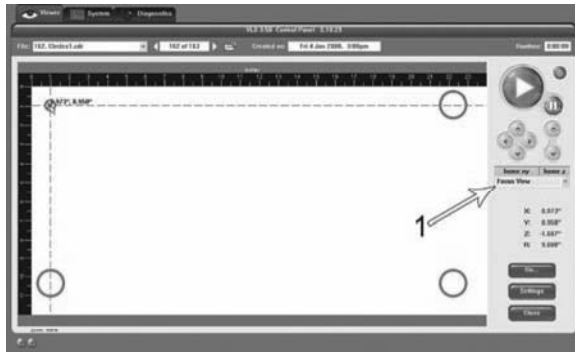
1. Power the VLS ON and let it home, or re-home it by clicking the Home XY button in the Viewer Tab of the UCP.



2. Remove the optics from the Focus Lens Carriage and place in a safe, clean place.



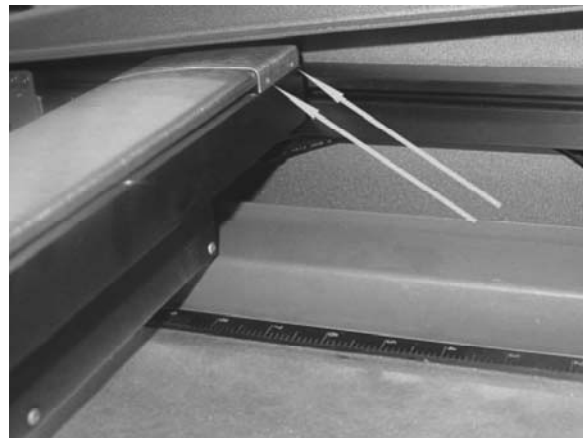
3. Place a strip of masking tape over the hole on the left side of the Focus Carriage.
4. The red diode beam should appear on the tape. The red diode beam should be fairly centered over the hole.



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 laser beam 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 VLS and unplug the unit.

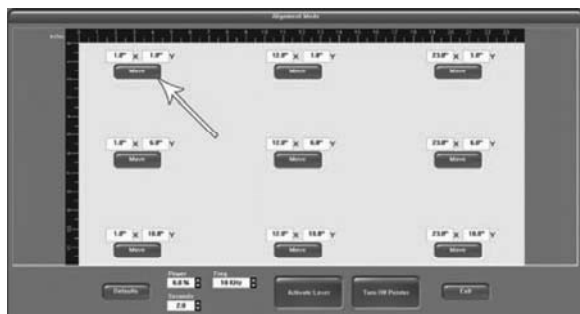


9. Slowly move the X-axis arm (1) forward.

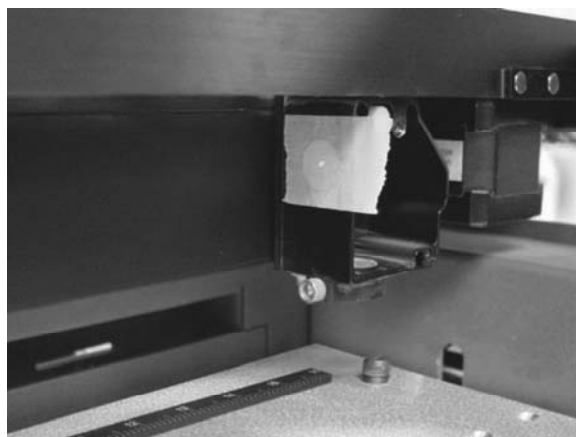
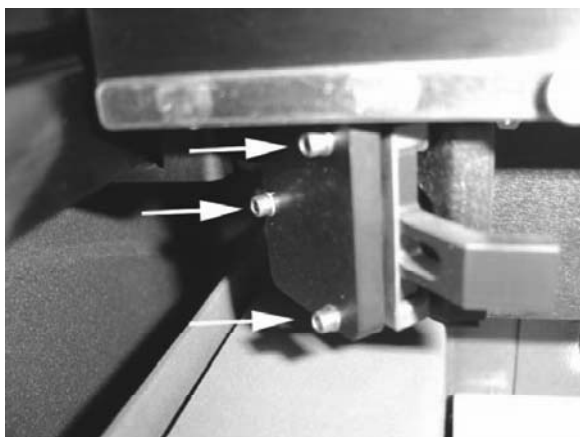


10. Locate and carefully remove the two screws securing the cover on the left-hand side of the X-axis arm. Remove this cover.

11. Plug in the VLS 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.

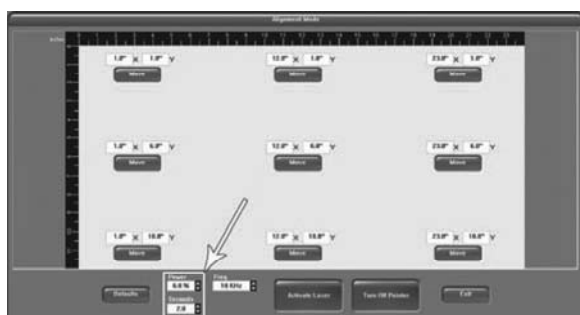


13. Click on the upper left hand Move button. The VLS's focus carriage will move to the indicated X, Y position.

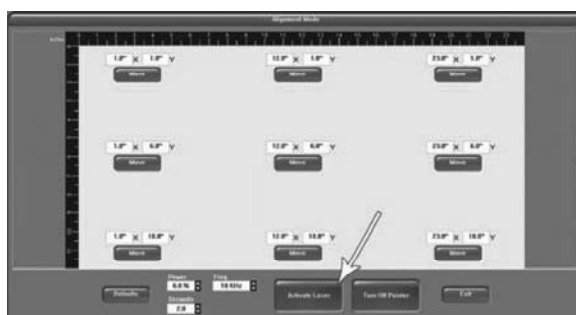


14. With the cover removed, locate the three adjusting screws on the #2 Mirror mount on the left-hand side of the X-axis arm. Turn these screws to center the red dot diode.

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 require higher power settings and higher power laser tubes require lower power settings to make the burn mark on the tape.

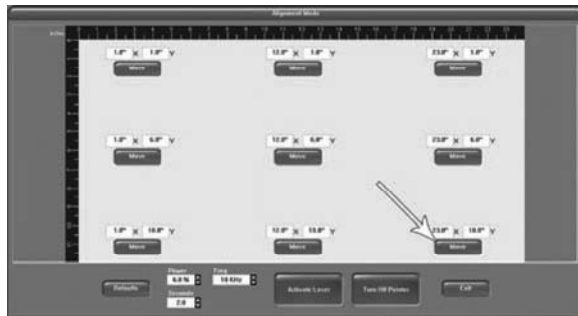


15. Adjust the Power and Seconds settings on the lower left side of the Alignment Mode window. Start off with 5% Power and 2 Seconds.

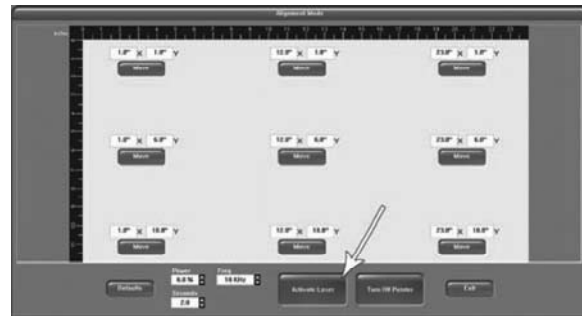


16. Close the top door if it's not already closed and then click on the Activate Laser button.

17. If the burn mark is not centered adjust the corresponding screw on the #2 Mirror mount.
18. If the burn mark is centered continue to step 20.
19. Continue making a burn mark on a new piece of tape until the burn mark is fairly centered on the upper left hand corner.
20. Once the burn mark is centered keep the piece of tape on the focus carriage.



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



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

23. Both burn marks should be over lapping each other near the center. If they are not continue to adjust the #2 Mirror for the lower right hand corner.
24. Once aligned Exit the Alignment Mode Window and remove the masking tape from the Focus Lens Carriage and reinstall the optics.
25. Power off and unplug the VLS.
26. Reinstall the cover and two screws over the #2 mirror mount from step 10.