

MVX BEAM ALIGNMENT

Object: To align the beam from the number 2 mirror to the number 3 mirror.

Tools and Items needed: Allen Wrenches, Masking Tape, and Acrylic Safety Glasses.

Warning: In cases where interlocks are defeated, you will be exposing yourself to Laser Beam Radiation. This radiation is in the form of heat. Laser radiation can cause burns in skin if directly exposed to beam. If possible, wear shatterproof protective eyeglasses. Avoid having hands in path of laser beam while machine is running.

Square the arm:

- 1) Turn the engraver off.
- 2) Remove the #2 mirror cover from the arm.
- 3) Pull the arm to front of the engraver. The arm should come into contact with the left and right shoulder screw, the shoulder screws look like two silver pins.
- 4) If one side of the arm is not touching the screw, the arm is not square.
- 5) Locate the Y axis motor, on either side of the motor are couplings. Loosen the outside screw of the coupling on the same side that the arm is not touching the pin.
- 6) Push the arm to contact the pin and then tighten the screw on the coupling.
- 7) Proceed with the beam alignment.

Setup:

- 1) Remove the x-axis carriage faceplate, which has the number 3 mirror and lens attached to it.

On the left side of the carriage is the beam entrance hole where the laser beam enters the x-axis carriage just before the number 3 mirror.

- 2) Place a piece of masking tape on the outside of the x-axis carriage so that it covers the beam entrance hole on the left side of the carriage.
- 3) Turn the machine on.
- 4) If a power test is being performed on an older engraver and the interlock needs to be defeated then locate the interlock defeat socket, place your interlock defeat tool into the socket. The defeat tool is a Gold colored bracket about 3 inches long and has a 2 pin plug attached to it. With the interlocks defeated, you can now set the laser to alignment mode and test the power.

****IF you do not have a defeat tool, proceed to Step Five (5). ******

WARNING: WITH THE INTERLOCKS DEFEATED YOU WILL BE EXPOSED TO LASER RADIATION. LASER RADIATION IS IN THE FORM OF INFRARED HEAT AND WILL BURN CLOTHING, SKIN, AND EYES. DO NOT ADJUST THE LASERBEAM IN THIS CONDITION.

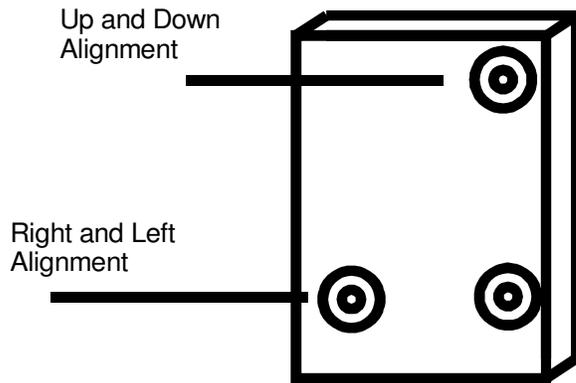
- 5) If the engraver does not have an interlock defeat tool, close the doors of the machine to enable firing of the laser.

To Fire the laser: When the engraver display reads READY and no files have been loaded into the engraver, press ESCAPE to access the main menu on the laser system display. FILE DISPLAY will be at the top of the menu, using the arrows closest to the display, scroll to PREFERENCES and push SELECT. Go to DIAGNOSTICS and push SELECT. In DIAGNOSTICS (in some cases the menu may be located under CONFIGURATION) you should see ALIGNMENT MODE. Select ALIGNMENT MODE. There you will see Power and KHZ. Use the arrow keys next to the display to select the power and press SELECT, adjust the settings so that the power is at 5%. Press SELECT to set the power and exit this selection only.

Checking Alignment:

- 1) Make sure your doors are closed and you have a green LED on the display.
- 2) With the Motion system control arrow keys, move the x-axis carriage to the back left corner of the engraving table.
- 3) Push the X, Y button in the center of the motion control arrow keys. The laser will start firing in continuous mode and will keep firing until you push the X, Y button again, which stops the laser firing. The object is to just mark the tape so that you can see where it is hitting on the carriage beam pass through hole, try not to put a big hole in the tape. **This mark will be your reference point.**
- 4) **Leave the tape in place with the burn mark** and move the x-axis carriage with the control arrows to the front right of the engraving table.
- 5) Push the X, Y button and burn another mark in the tape. Push the X, Y button again to stop the laser firing.
- 6) Look at the 2 burn marks on the tape. The burn marks should at least be touching halfway into each other and centered.
- 7) If your right side burn mark doesn't match up with the left side burn mark, you will have to make an adjustment at the number 2 mirror. Depending on the placement of the right side burn will determine what you will adjust on the number 2 mirror. Below is a diagram showing mirror adjustment screws. If the right side burn mark is to the left or right of the left side burn mark, adjust the appropriate screw shown on the diagram. Likewise, adjust for up and down as shown on the diagram.

#2 mirror adjustment screws



Once burn marks match, you have completed the beam alignment check. Turn the machine off; remove the masking tape with burn marks, and clean tape residue from carriage. Replace the x-axis carriage faceplate. If interlocks were defeated, remove defeat tool. Close all doors and run a file.

If you have any questions or concerns please call:

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