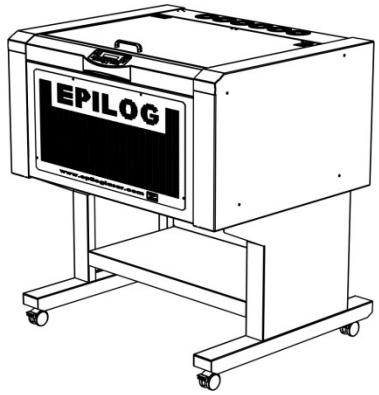


Laser Alignment

Step-By-Step for the
Epilog Mini / Helix
Manufactured From 2004 to 2009
(8000 Model)

Laser alignment can be done if any of the following applies to you.

- You are experiencing a general Loss of Power
- You are experiencing ‘Fading’ in one of the corners of the table.
- You are losing power in certain positions on the table.
- You have replaced a Laser Tube.
- You have replaced a Mirror or Optic.

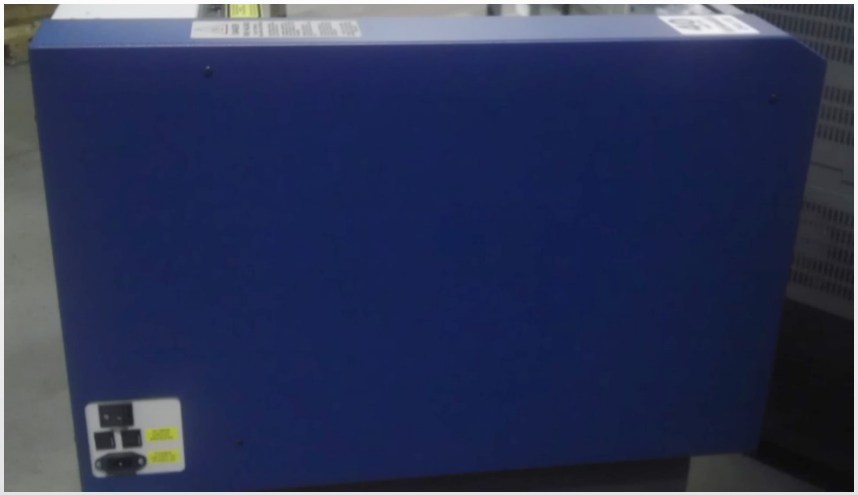
Things You Will Need

- Black Alignment Target
- Masking Tape
- Phillips Head Screwdriver - #2
- Allen Wrench - 3/32”
- Safety Glasses

Remove Panels

Remove Left Side Panel and Rear Panel so that you can access the mirrors and pointer.

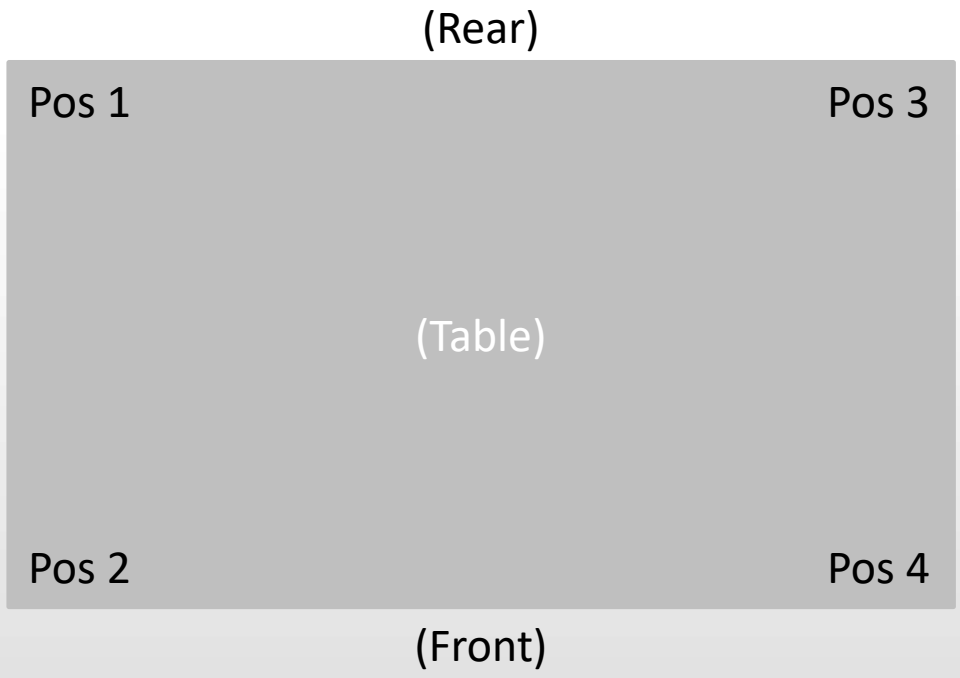
Always wear safety glasses when the panels have been removed and always stand away from the exposed sides when firing the laser.



Tip: Any Safety Glasses will work. You don't need special 'laser' glasses for the CO2 Laser.

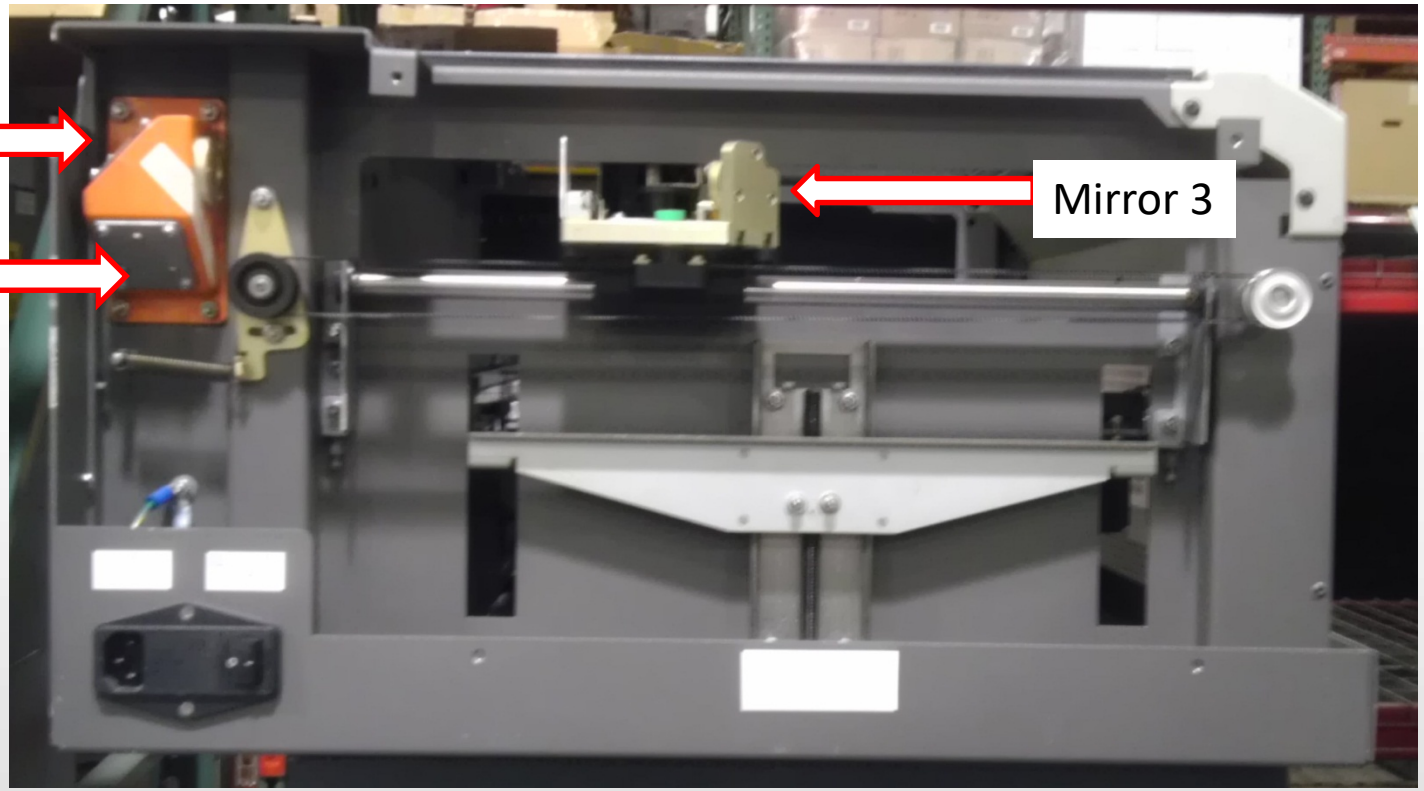
Table Positions

To make the process easier to understand the corners of the engraving area will be labeled as follows:



Mirror Numbers and Locations

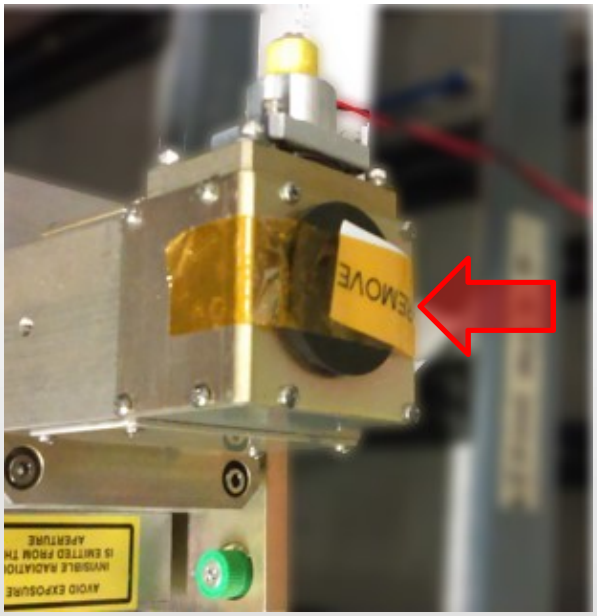
There are 3 mirrors used to adjust the laser beam. These mirrors are shown in the picture below.



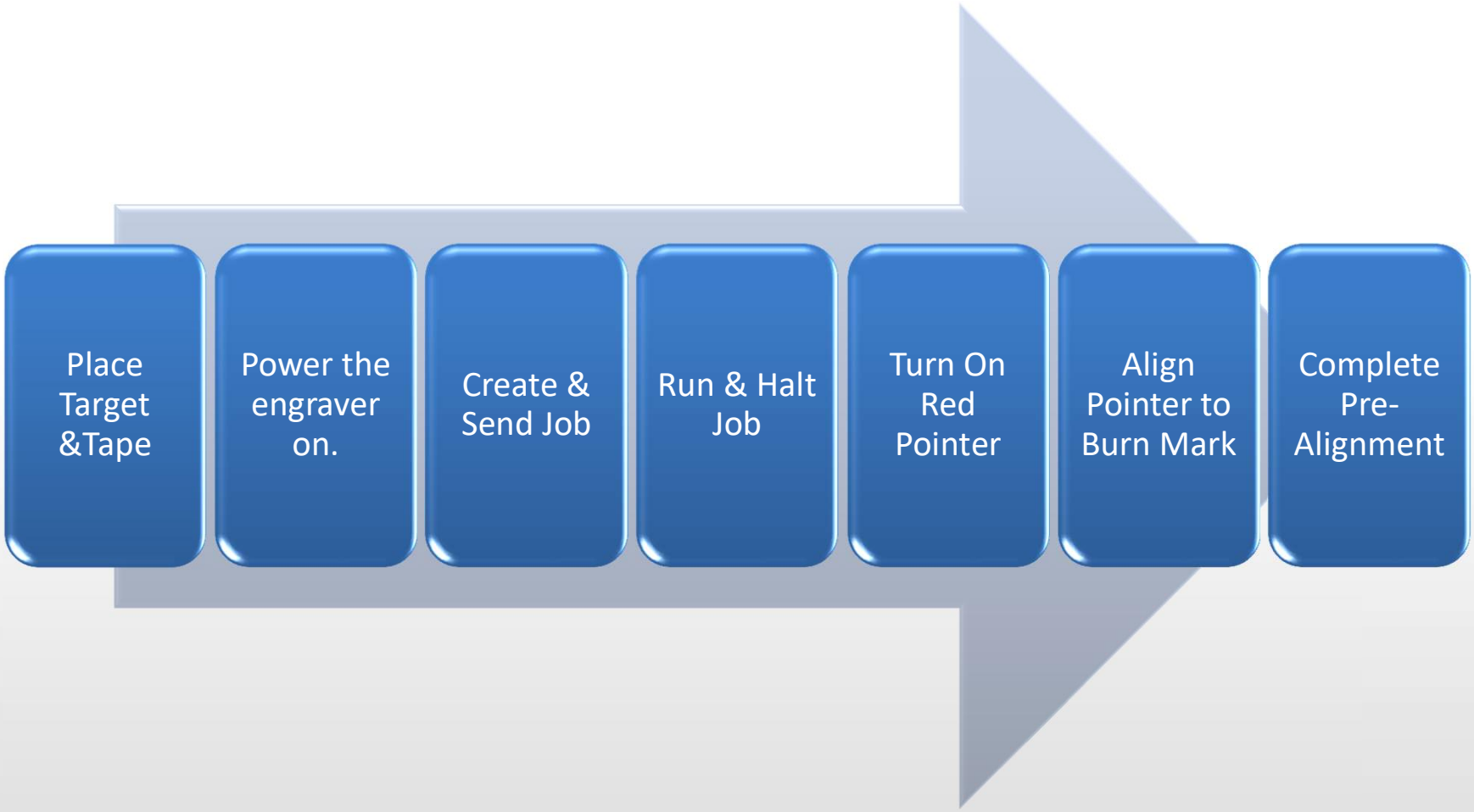
Tip: The Mirror Numbers match the Table Positions. When adjusting alignment on Position 1 you should only use Mirror 1 and so on.

Before you start!

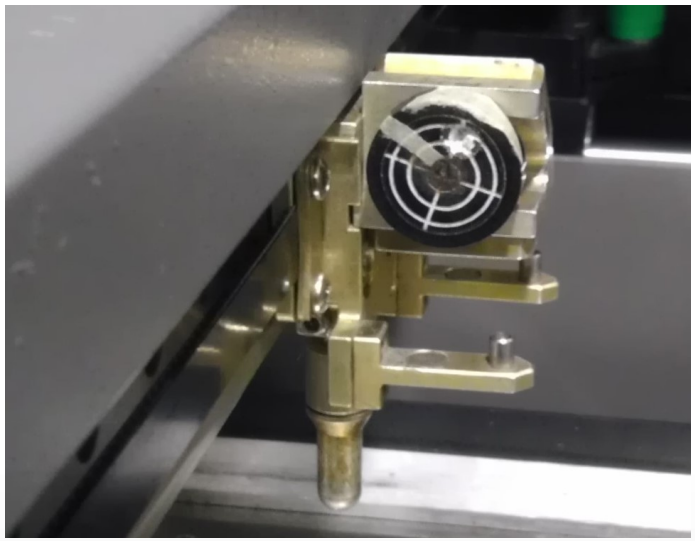
If you are performing this alignment because you have been sent a new Laser Tube. Please be sure that the protective tape covering the end of the new Tube has been removed before attempting to fire the laser.



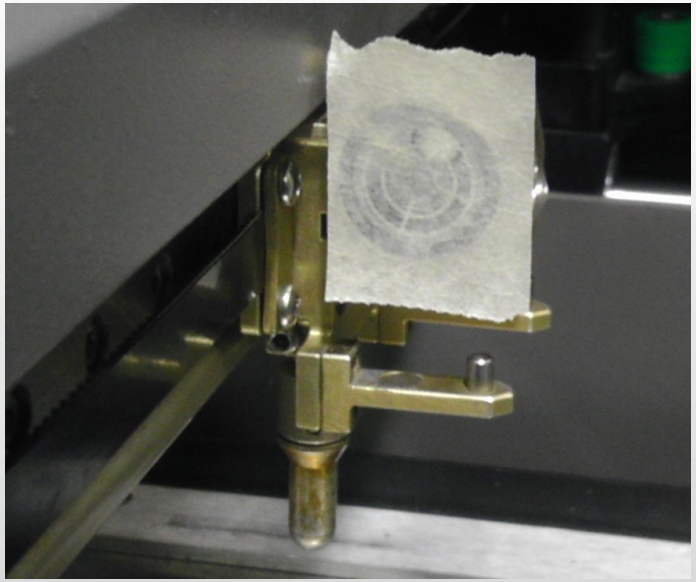
Pre-Alignment Procedure



Place Target & Tape



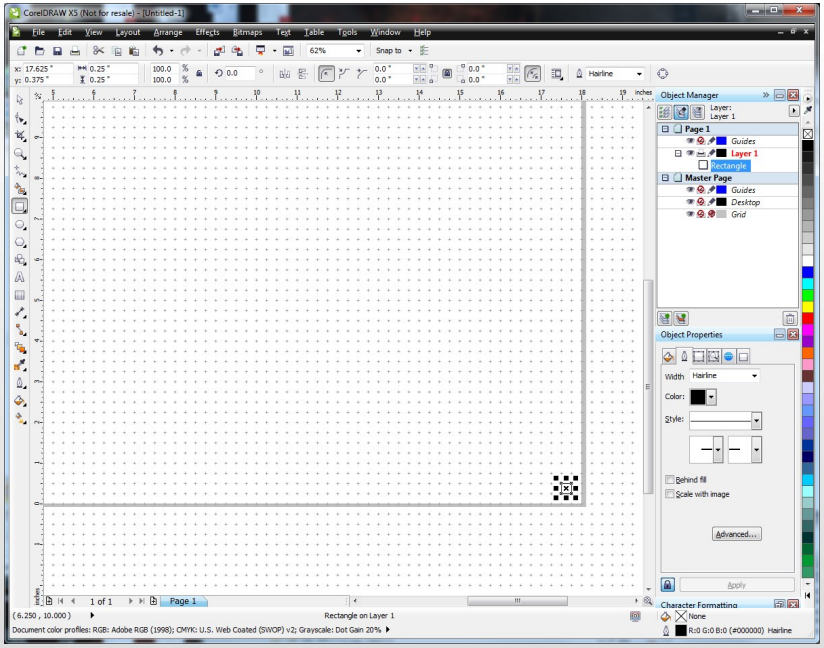
Place Alignment Target in Lens Carriage.



Place Masking Tape on Target.

Create & Send Job

- Job Size = Bed Size (18x12, 24x12 or 24x18)
- Place a ¼” Vector Box near the bottom right corner.
- Send job at 10% Speed, 10% Power, 2500 Freq.

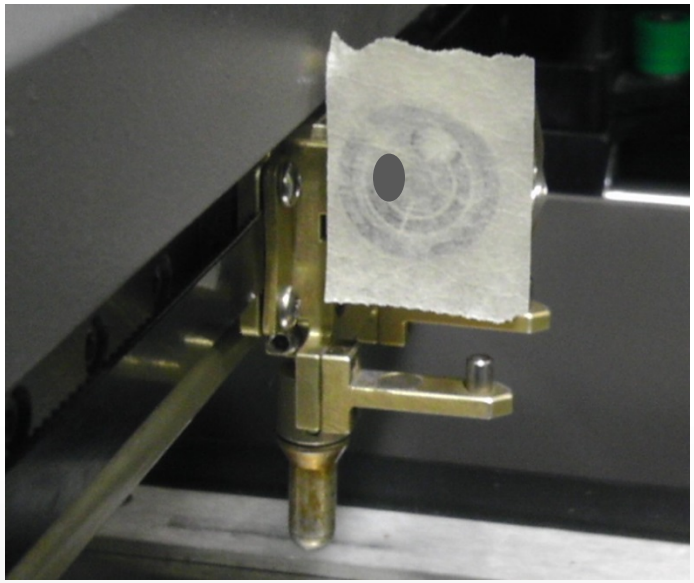


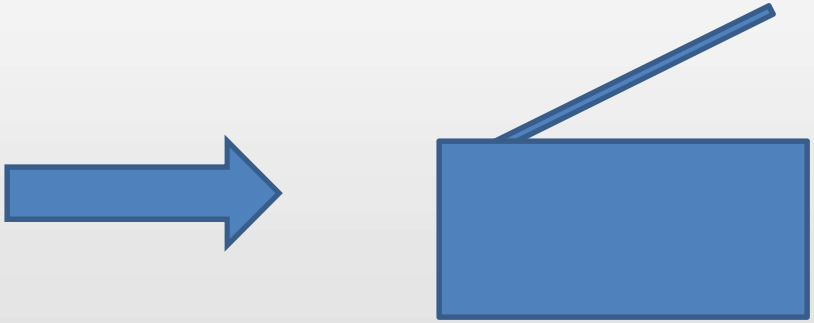
Run & Halt Job

- Press “GO” on the engraver.
- Watch for the tape to start to burn.
- Open the Door of the machine. (Stops laser fire.)
- Press “Stop”. (To pause the engraver.)

Tip: This can happen VERY fast. Be ready!

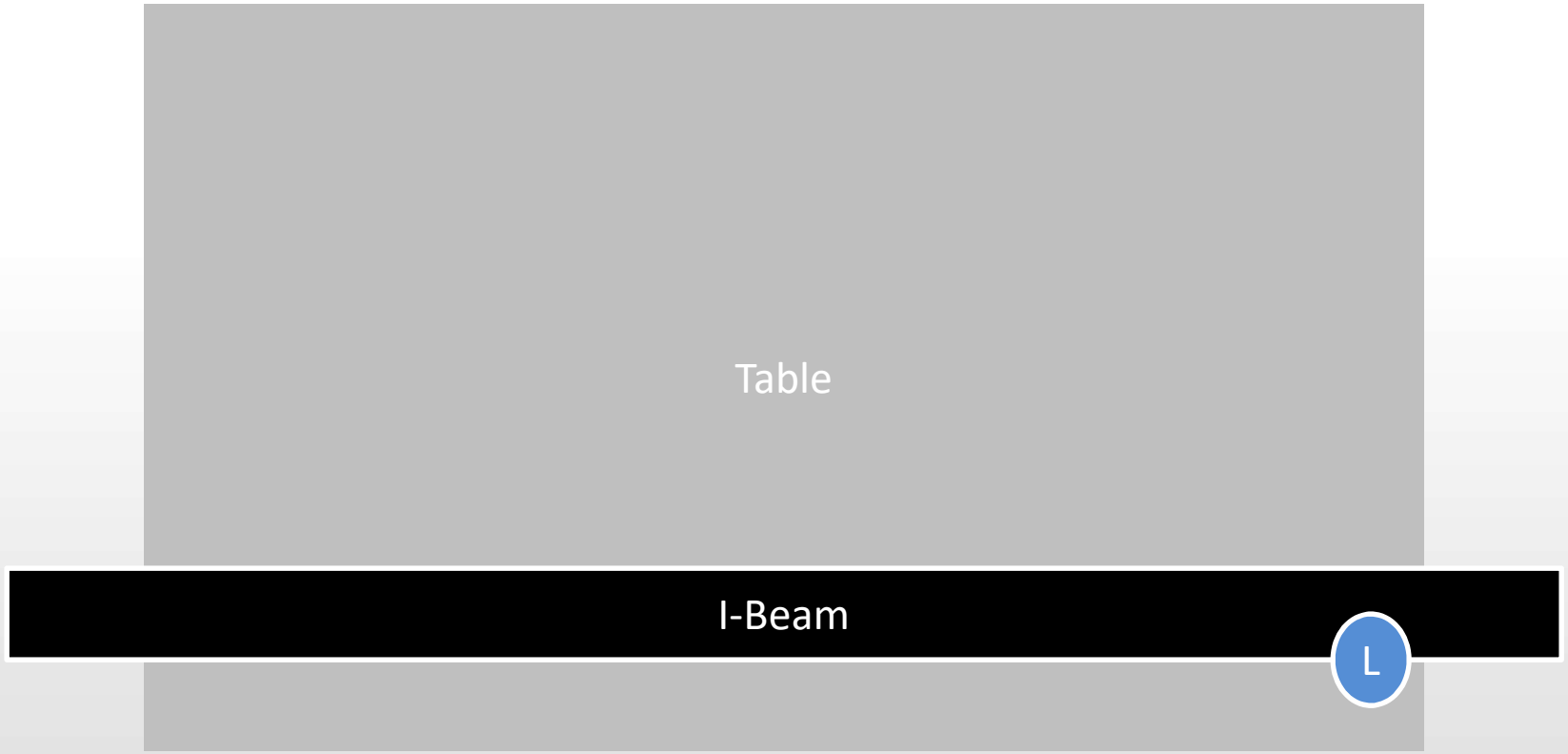
Run & Halt Job





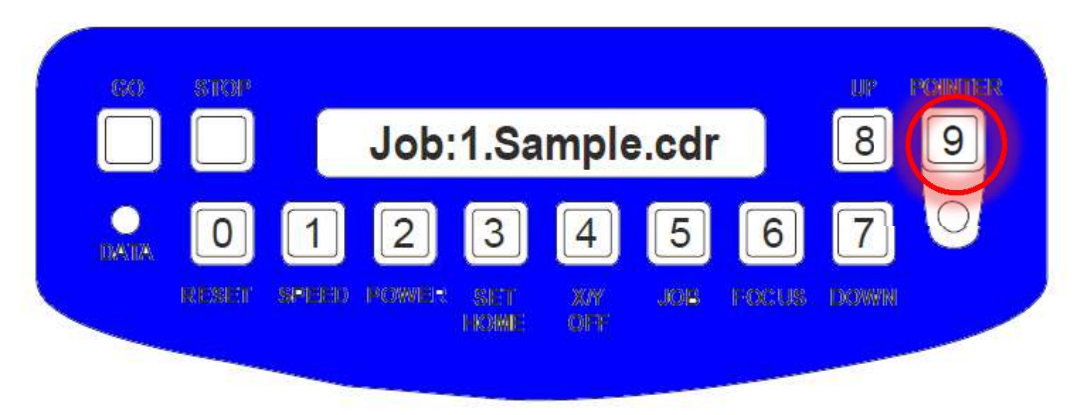
Tip: If the engraver returns to the “Home” position, you will need to repeat this process.

The lens carriage should now be in Position 4 and there will be a burn mark on the tape.

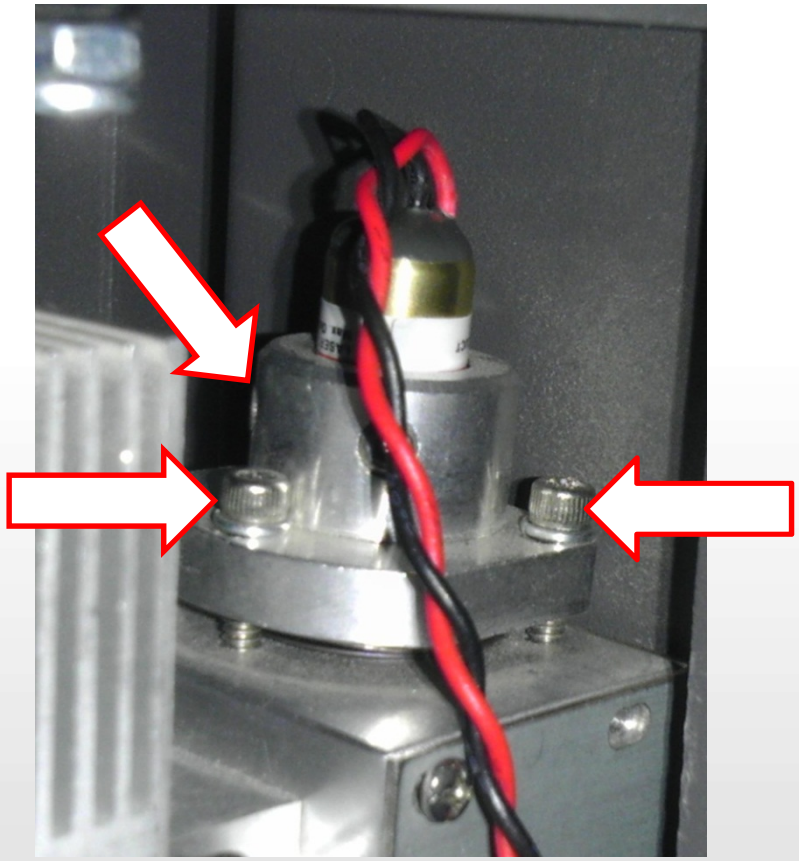


Turn On Red Pointer

- Press the “Pointer” button to turn on the Red Dot Pointer

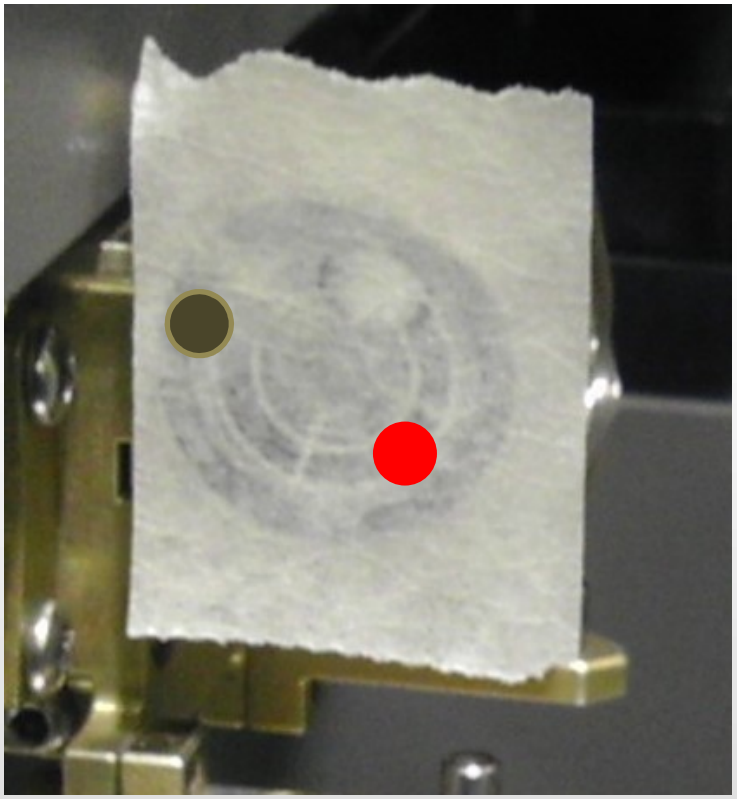


Align the pointer to the burn mark



Pointer Adjustment Screws

The Red Dot Pointer is in the rear of the machine, mounted to the right end of the laser tube.

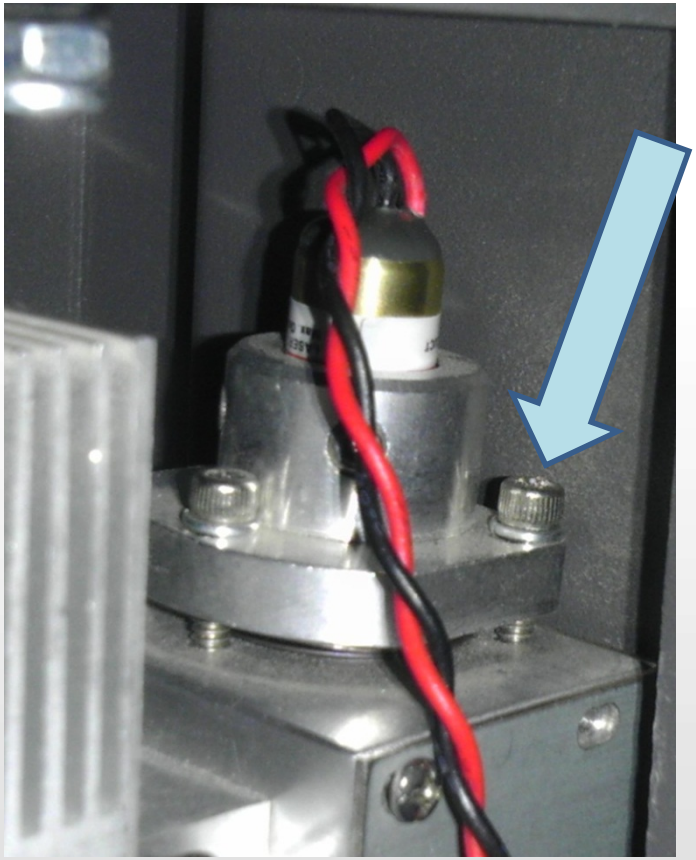


Tip: Small adjustments can make large changes! Always make Very Small Adjustments.

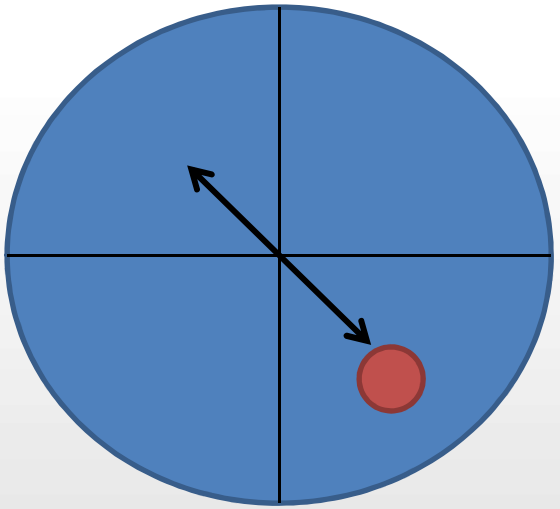
Next

Align the pointer

Which Adjustment Screws to Use



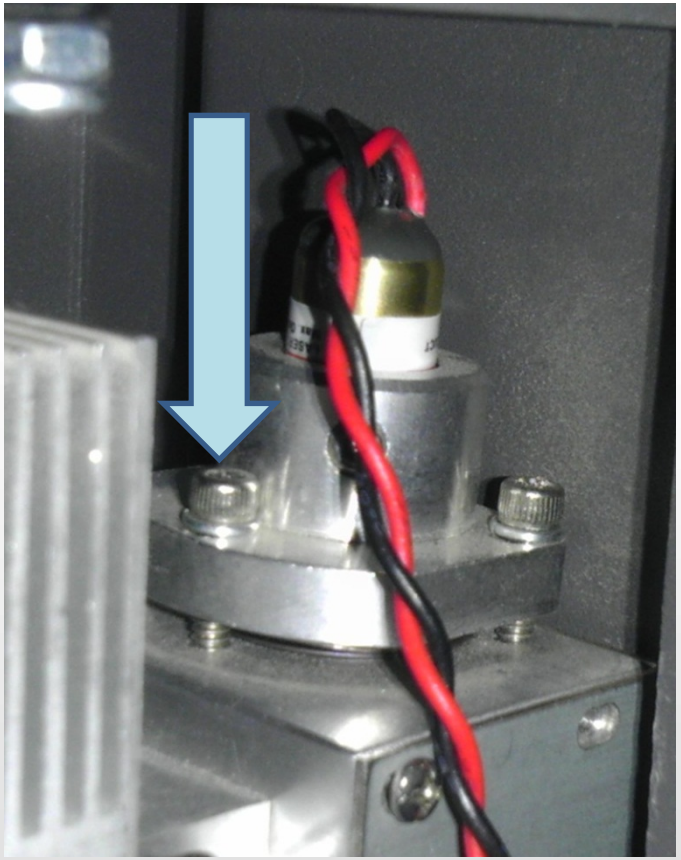
Clockwise



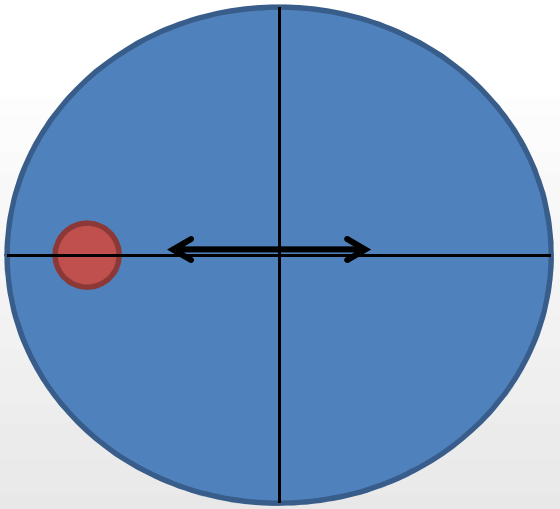
Next

Align the pointer

Which Adjustment Screws to Use



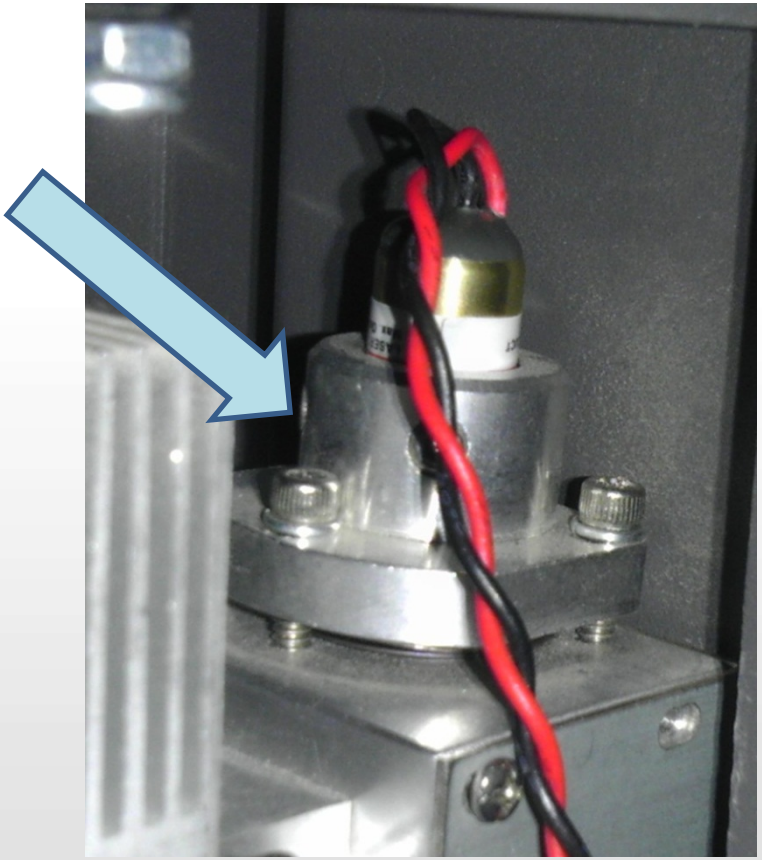
Clockwise



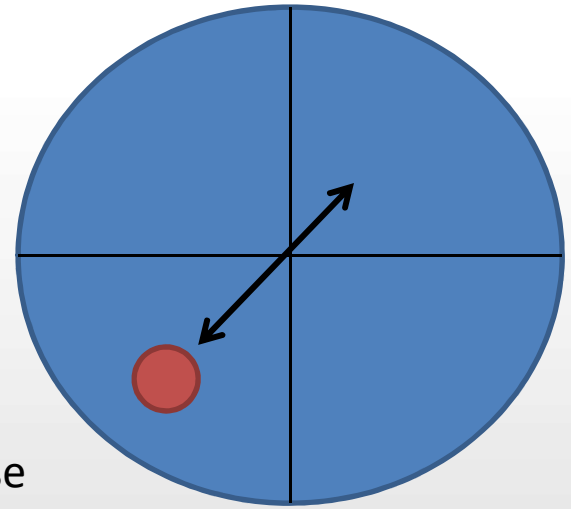
Next

Align the pointer

Which Adjustment Screws to Use



Counterclockwise

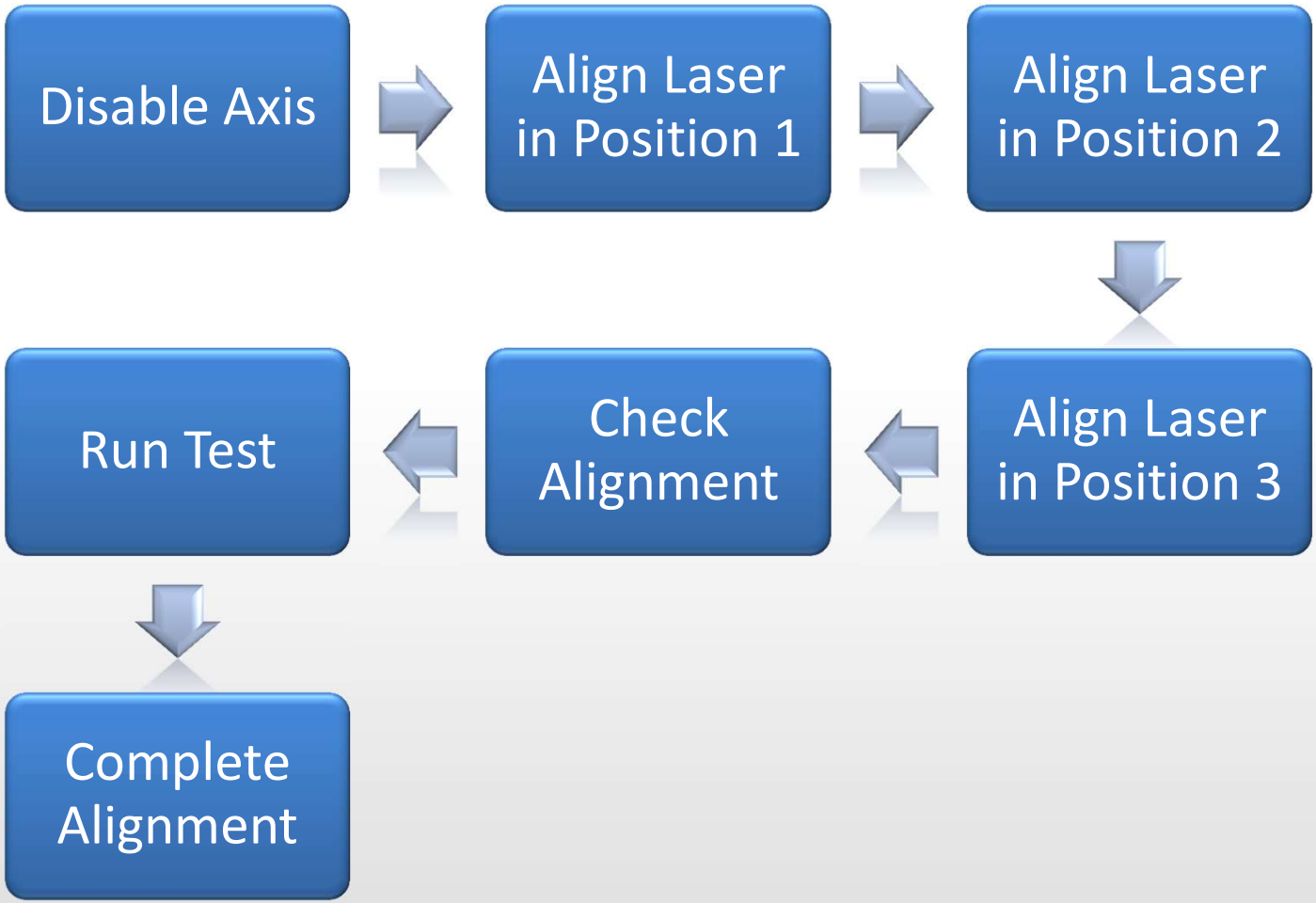


Next

Complete Pre-Alignment

Once the Red Pointer is aligned with the Burn Mark in Position 4 than the Pre-Alignment is complete and your Red Pointer will represent the path of the cutting beam in the rest of the engraver.

Laser Alignment Overview

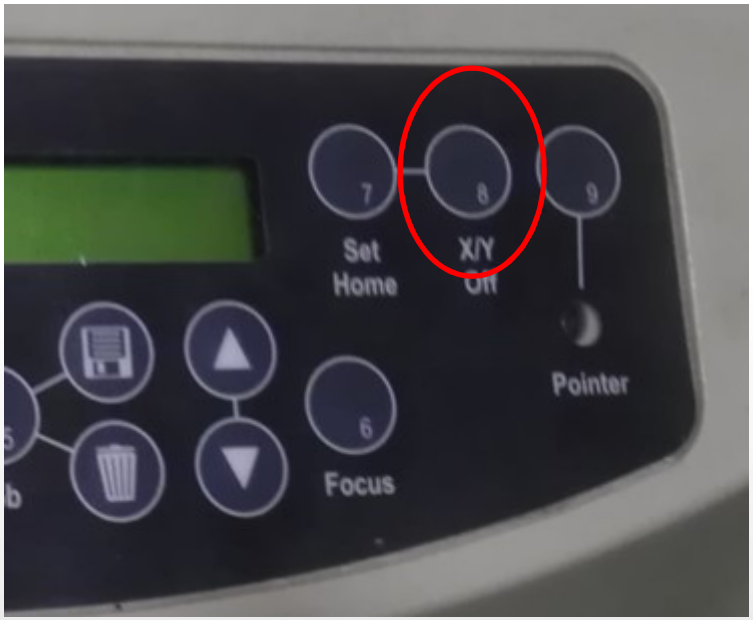


Pro Tip!

An accurate alignment is all about repetition. Repeat the alignment steps until you can get between positions 1, 2 and 3 with very minimal movement of the red dot pointer. The more often you repeat, the more accurate it becomes!

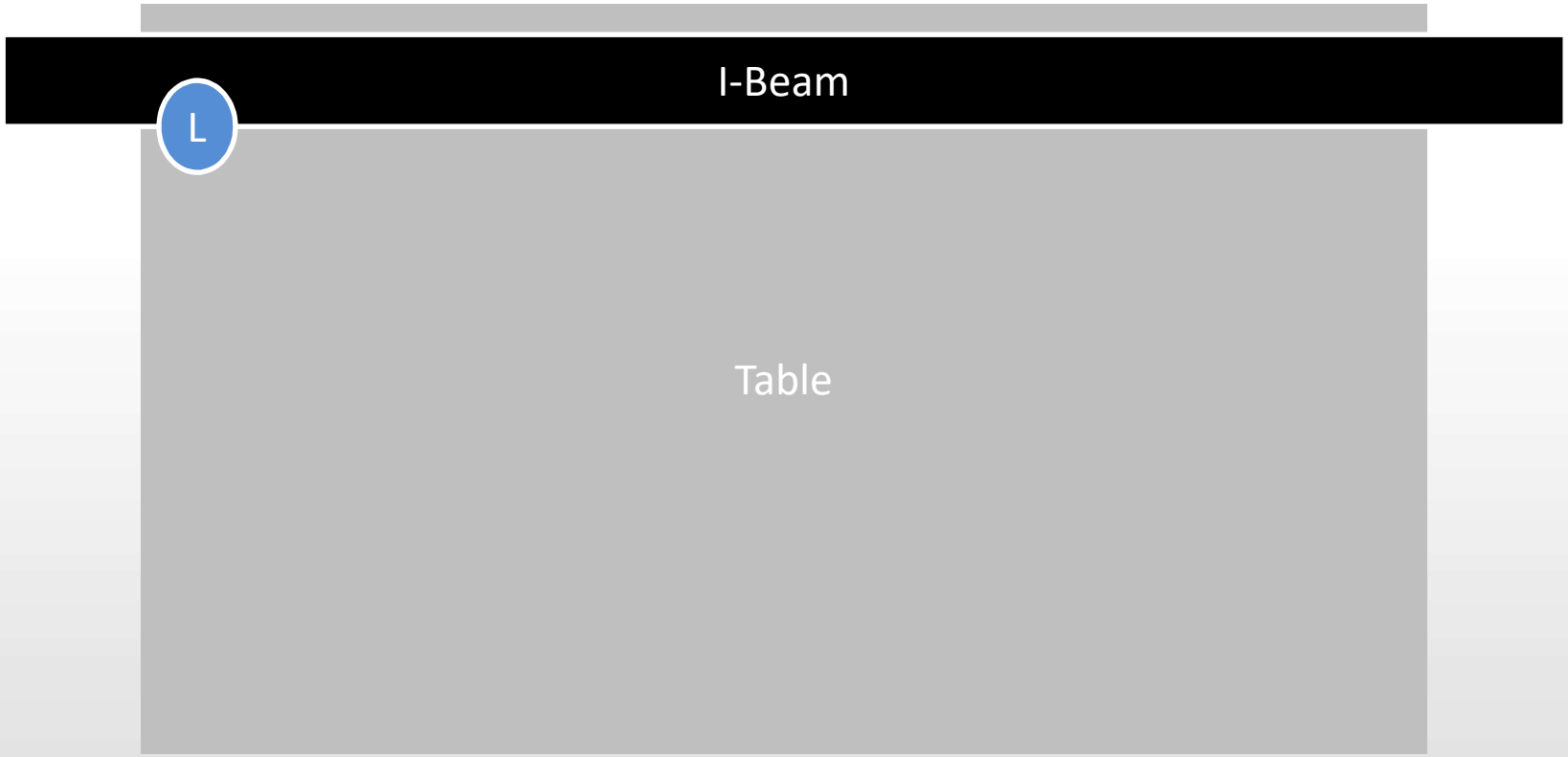
Disable Axis

- On the Engraver press "X/Y Off".
- Press "Go" to confirm.
- You may now move the lens carriage freely by hand.

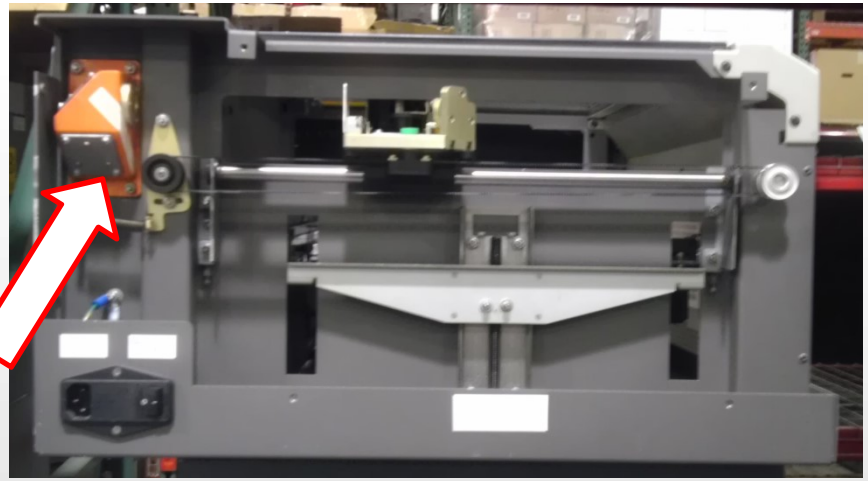


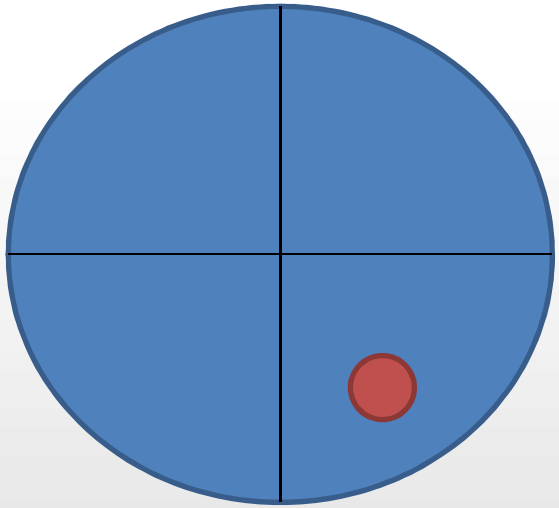
Align Position 1

Move the Lens Carriage to Position 1



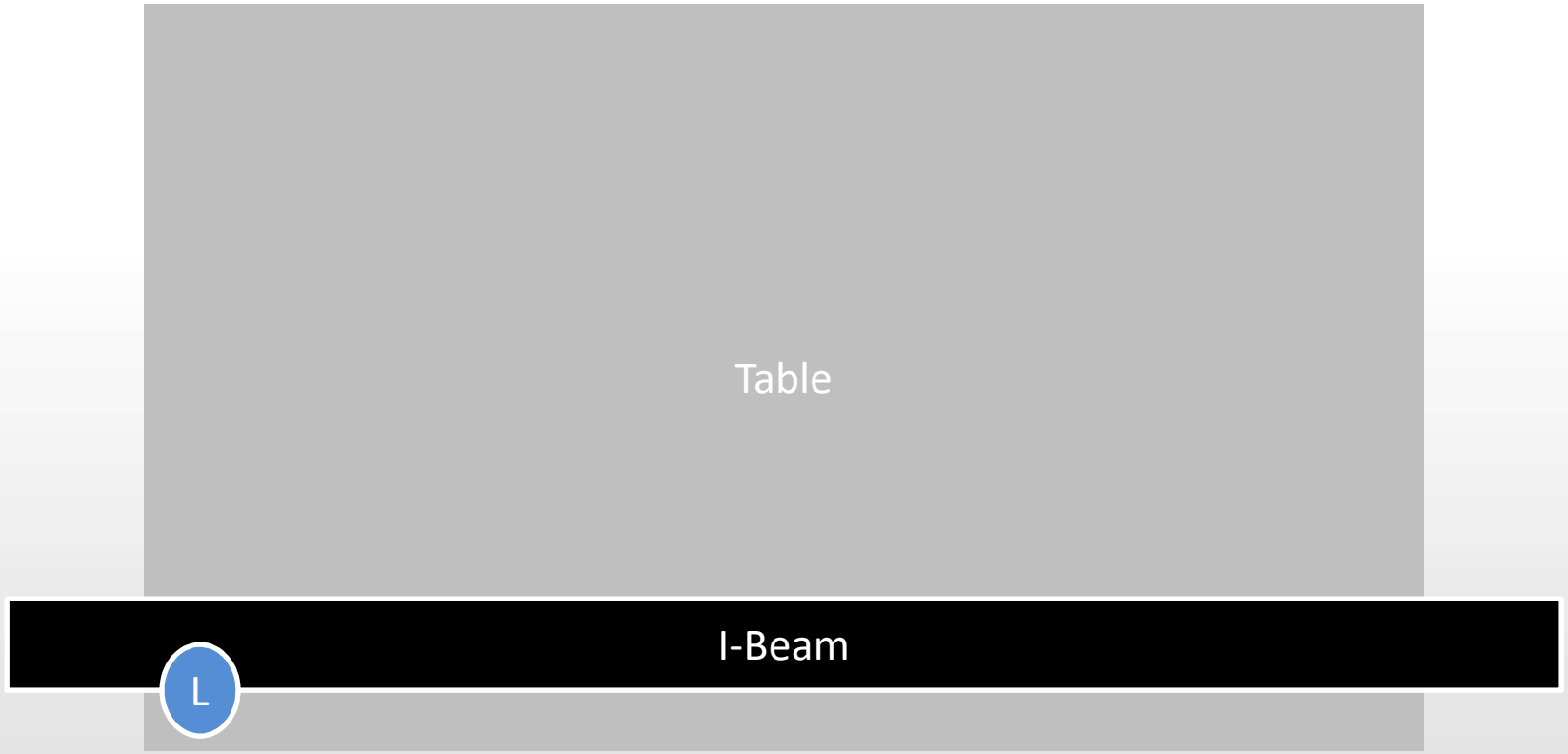
Use Mirror 1 to move the pointer to the center of the alignment target



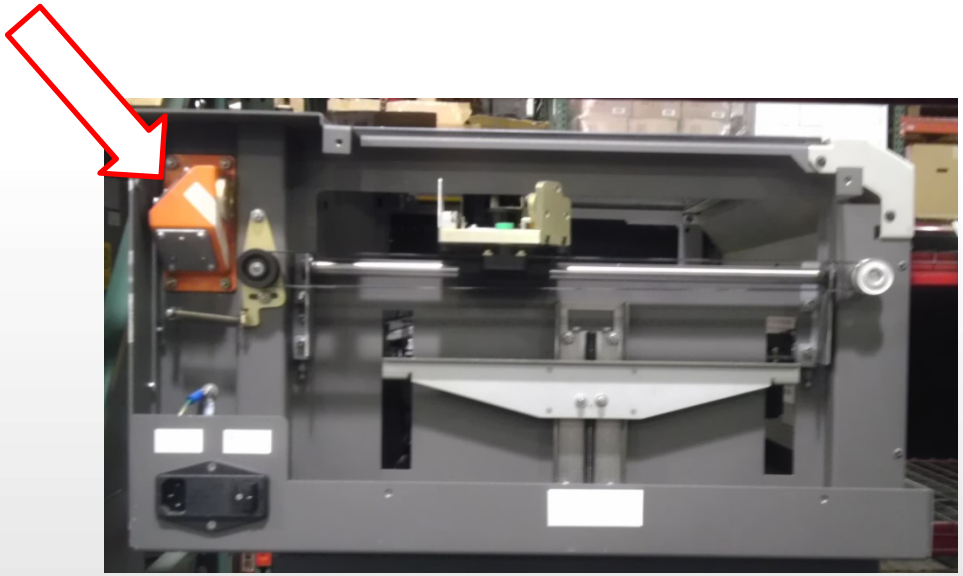


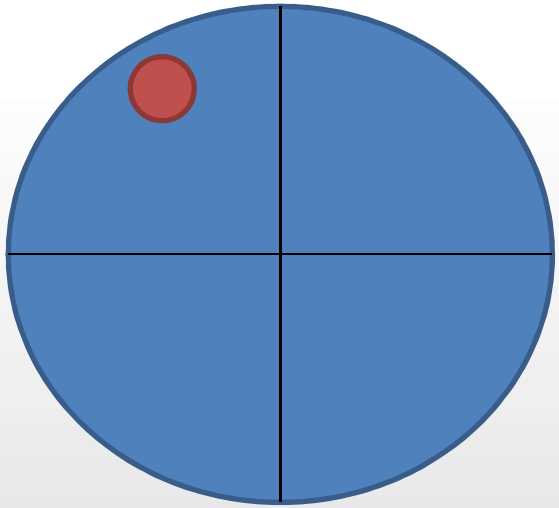
Align Position 2

Move the Lens Carriage to Position 2



Use Mirror 2 to move the pointer to the center of the alignment target



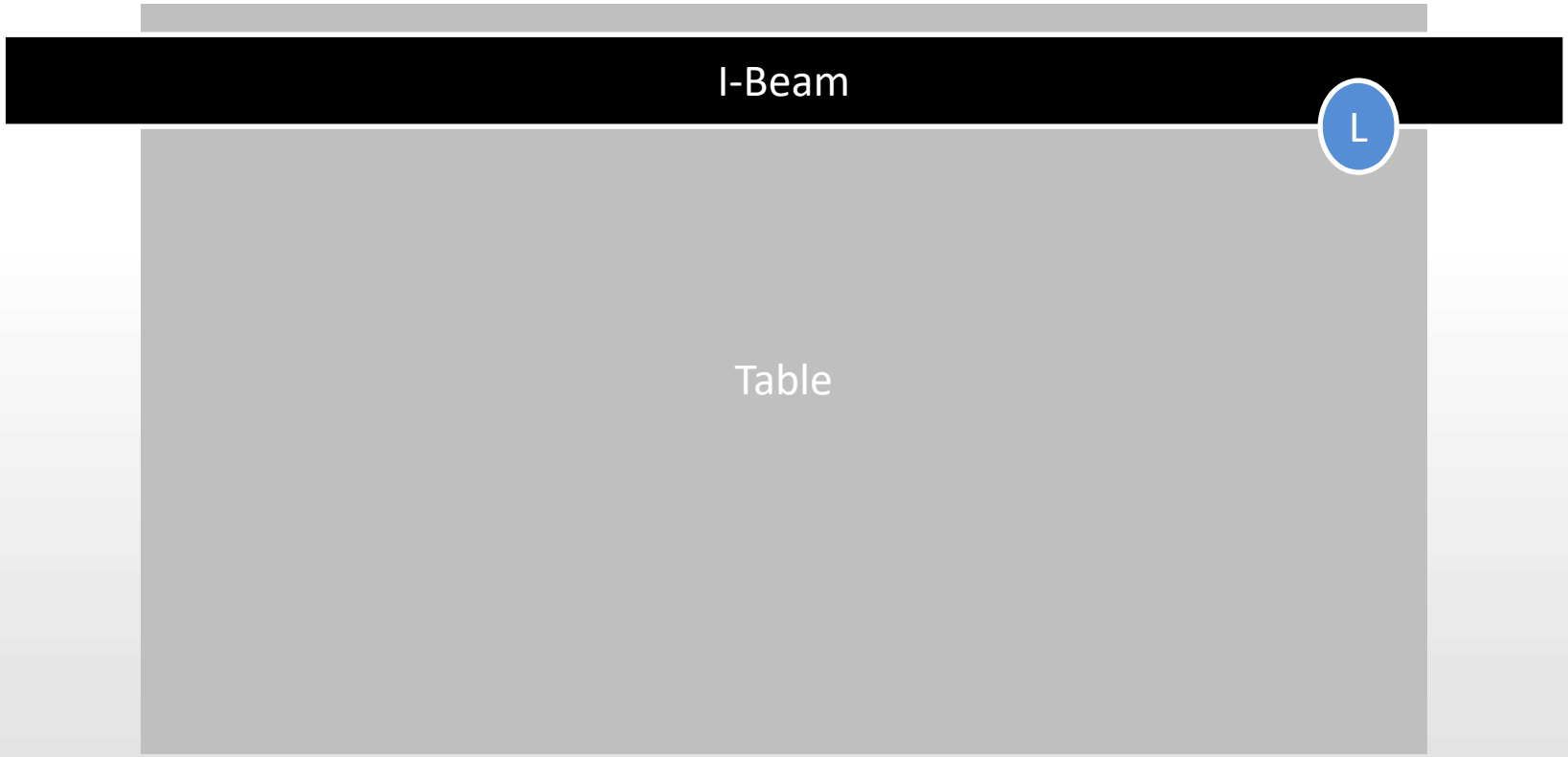


Repeat

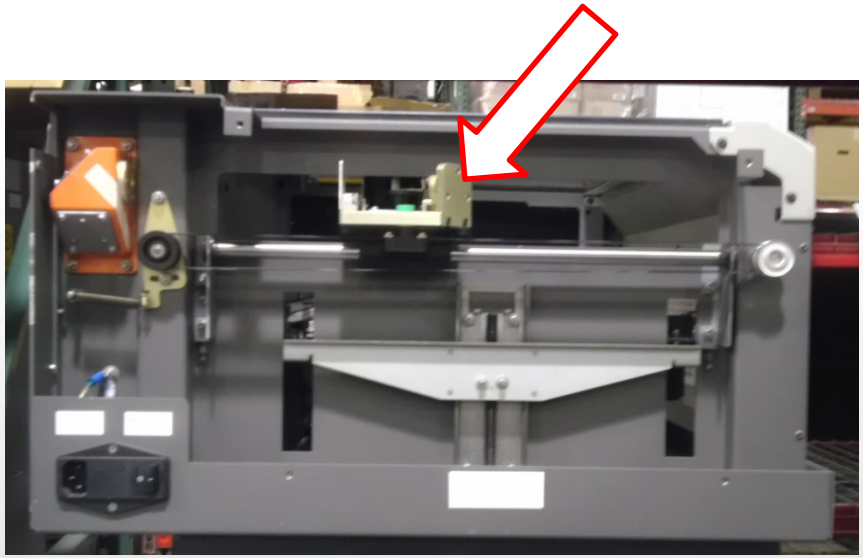
Repeat Slides 20 – 23 until you can move between positions 1 and 2 without the Red Pointer moving out of then center of the Alignment Target.

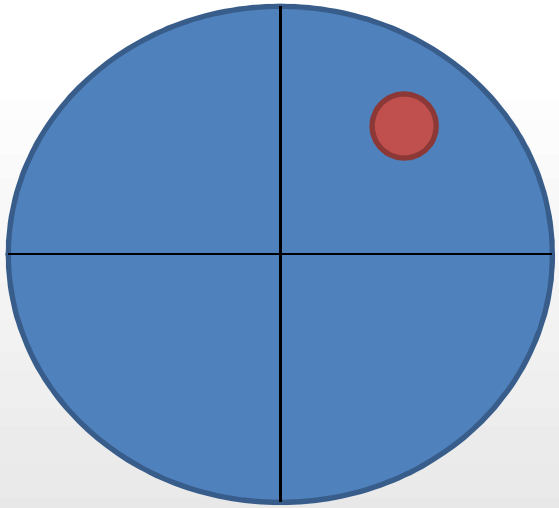
Align Position 3

Move the Lens Carriage to Position 3



Use Mirror 3 to move the pointer to the center of the alignment target



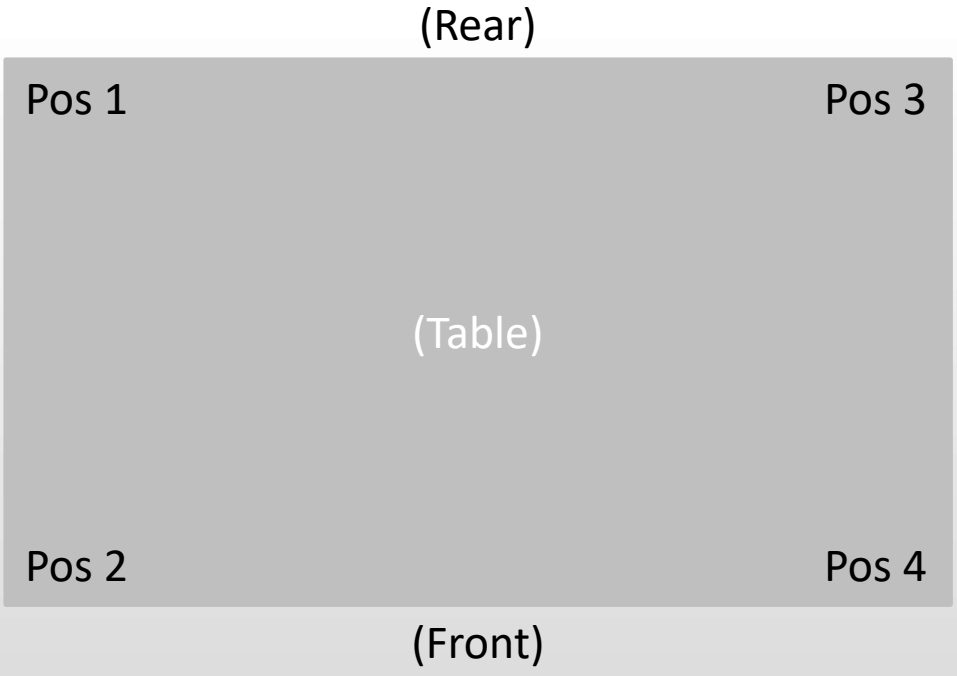


Repeat

Repeat Slides 20, 22, 25 and 26 until you can move between positions 1 and 3 without the Red Pointer moving out of then center of the Alignment Target.

Check Alignment

Move the lens carriage to each of the positions on the table to insure that the red pointer is in the center area of the Alignment Target.



Run Test

- Create a file the size of your bed. (18x12, 24x12 or 24x18)
- Place an object in each corner of the file.
- Send the File to the machine with your standard speed and power settings for that material.
- Make sure that engraving is even in all corners of the engraver.

Complete Alignment

Be sure to put the panels back on the engraver before running the machine any further. If you have any questions please contact Epilog Tech Support at (303) 215 - 9171