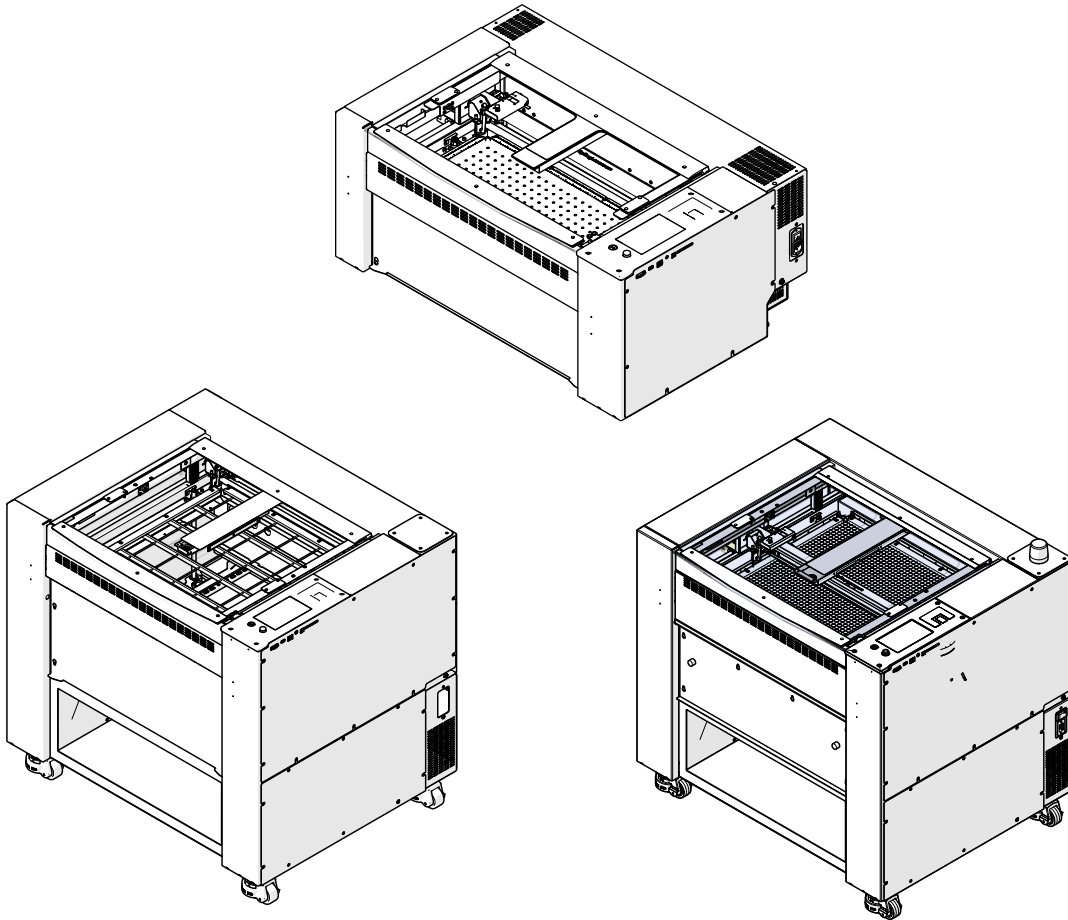


Fiber Laser Alignment Fusion Edge - Fusion Pro 24 & 36



Parts Required

- LC0397 - Holder, Alignment, Target

Tools/ Materials Required

- 5/32" Allen Wrench
- 3/32" Allen Wrench

Fiber Laser Alignment

Fiber laser alignment should be checked periodically to ensure that the engraver is operating at optimum performance.

Complete this procedure if any of the following behaviors are observed:

- Laser power appears weak in certain areas of the table, especially when moving from left to right in the engraver
- The engraver is unable to effectively cut through materials at or around the recommended settings.
- Optics in the lens assembly fail prematurely.
- If the engraver has been moved to a new location.

Or if any of these components have been replaced:

- Fiber laser
- Mirror #1, #2, or #3
- X-axis assembly
- Red dot diode

Fiber Laser Safety



The laser assembly used in the Fusion Pro fiber engraver can cause serious and or permanent injury if safety procedures are not observed.

Do not fire the fiber laser with any of the engraver panels removed.

Do not place any part of your body in the beam path while the laser is in operation.

Do not defeat the safety interlock system in the engraver.

Prescription, Lexan, and or polycarbonate eyewear **will not** protect your eyes from the fiber laser.

Do not fire the fiber laser with any of the engraver panels removed.



17000 - Fiber Laser Alignment

The Fiber laser alignment consists of two (2) parts:

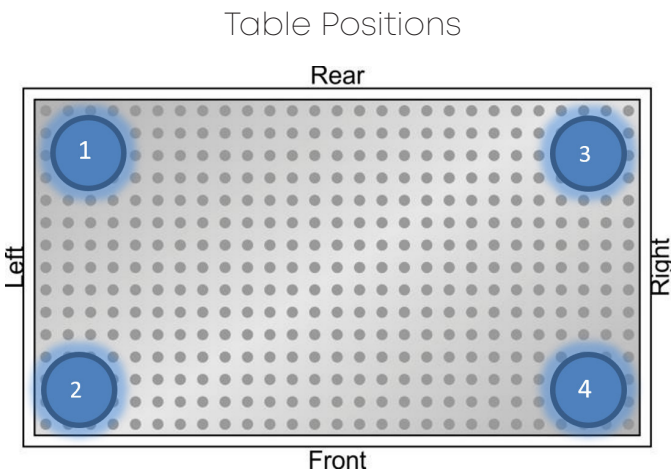
- Marking laser alignment.
- Perpendicular alignment

Fiber Laser Red Dot Pointer

In a fiber- only equipped engravers, it is not necessary to align the red dot pointer to the laser beam. This is done internally by the manufacturer and cannot be adjusted in the field.

The red dot pointer in the fiber laser is much larger than the red dot pointer in the CO2 laser. The red dot pointer in the fiber laser will be upwards of an 3/8" (9.5mm) wide.

Marking Laser Alignment



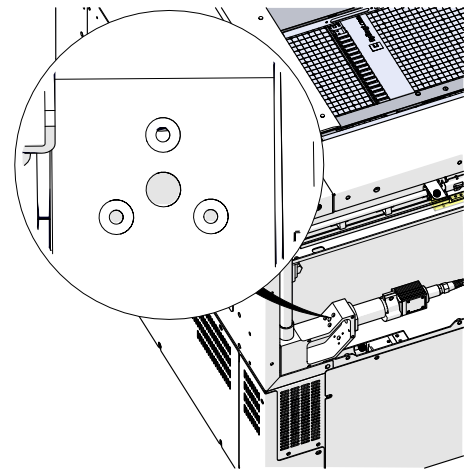
There are four (4) mirrors in the Fusion Pro Fiber which may need to be adjusted while aligning the cutting laser.

Each of the mirrors in the Fusion Pro engraver are referenced by number in this procedure and correspond to a specific table location. When adjusting a mirror, ensure that the correct one is being adjusted for that specific table location.

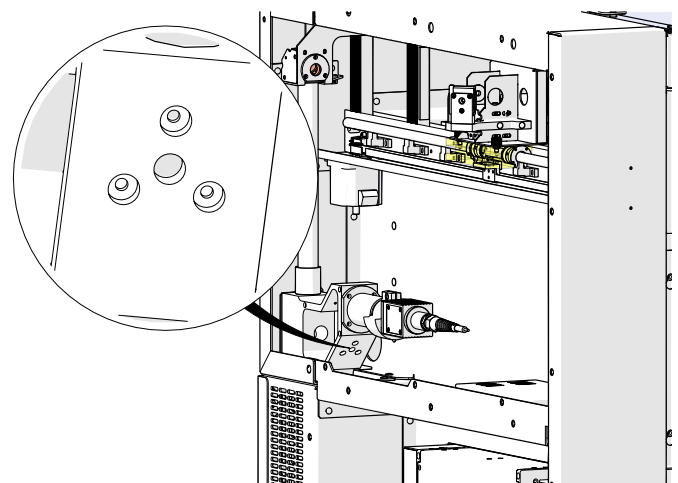
While the mirror numbers in the Fusion Edge fiber-only laser are similar to the Fusion Edge CO2-only laser, they are used to adjust different positions on the table.

Mirror Locations, Numbers, and Corresponding Table Position

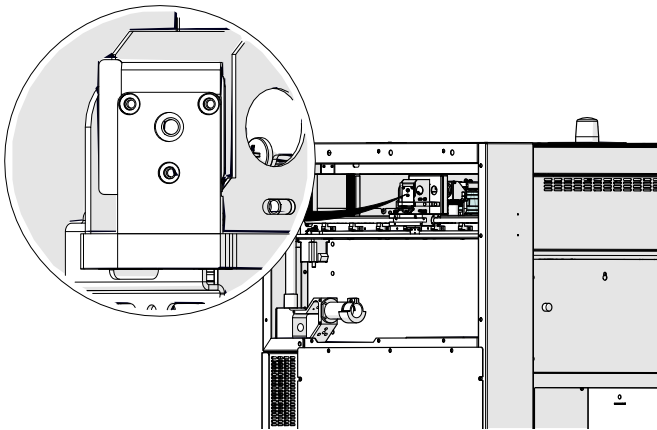
Near Field Mirror / Position 1 & 2



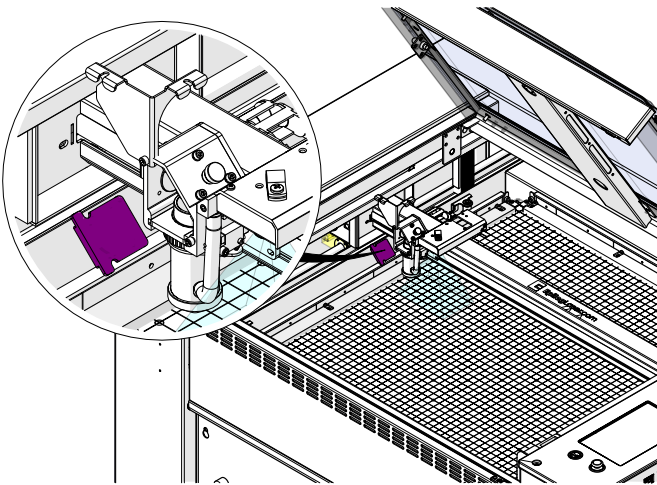
Far Field Mirror / Position 4



Mirror 3/Position 3



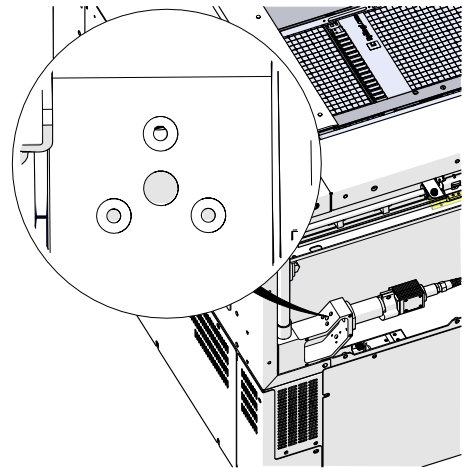
Mirror 4/Perpendicularity of Laser



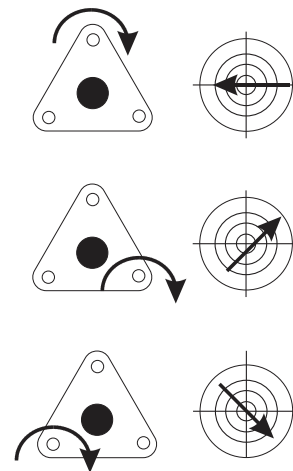
Adjusting Near Field Mirror/ Position 1

1. Place a piece of masking tape on the alignment target and place the alignment target over the window optic on the carriage assembly.
2. Ensure that the red dot pointer is activated.
3. In Alignment Mode, press Top Left to move the lens carriage to the top left corner (position 1) of the engraver.

4. Inspect the location of the red dot in relation to the center of the alignment target. If the red dot pointer is not in the center of the alignment target, adjustments will need to be made to the near field mirror.
5. Remove the left side panel of the engraver.
6. Adjust the red dot position so it is centered on the alignment target using the three (3) Allen adjustment screws located on the back of the near field mirror:
- 7.

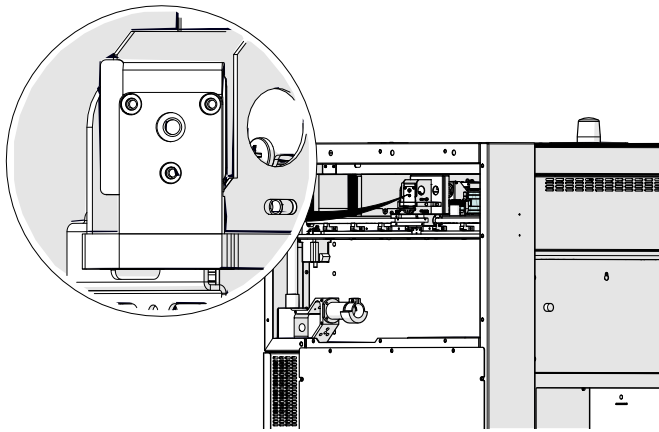


Near Field Mirror Adjustment Screw Guide

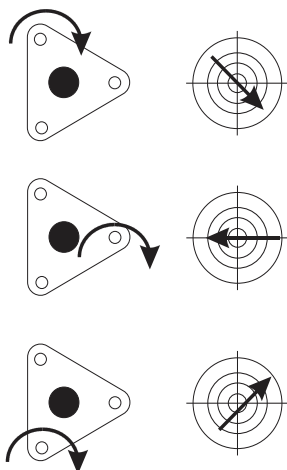


Adjusting Mirror 3/Position 3

1. Ensure that the red dot pointer is activated.
2. In Alignment Mode, press Top Right to move the lens carriage to the top right corner (position 3) of the engraver.
3. Inspect the location of the red dot in relation to the center of the alignment target. If the red dot pointer is not in the center of the alignment target, adjustments will need to be made to mirror 3.
4. Adjust the red dot position so it is centered on the alignment target using the three (3) Allen adjustment screws located on the back of mirror 3:



Mirror 3 Adjustment Screw Guide



5. Once the red dot position is centered on the alignment target, move the carriage back to positions 1 and 4.
6. If the red dot position is still centered on the alignment target while the lens carriage is in positions 1 and 4, move to the Perpendicular Alignment.
7. If the red dot position is no longer centered on the alignment target while the lens carriage is in positions 1 and or 4 after making adjustments to mirror/position 3, adjustments to the near field and far field mirrors will need to be made again.
8. Move between positions 1, 4, and 3, adjusting the respective mirror for each position until the red dot is centered on the alignment target at all three positions.

In some cases, this process can take several back and forth movements between positions 1, 4, and 3. Ensure that the correct mirror is being adjusted for each position.

Perpendicular Alignment

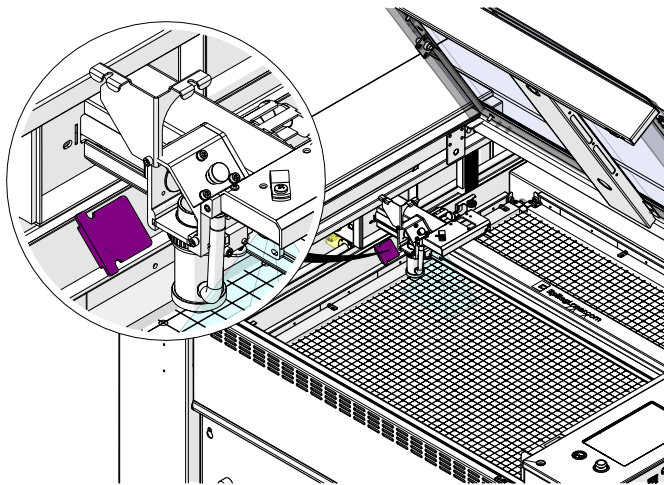
Once the mirrors have been aligned, we need to adjust for the perpendicularity of the cut. By making these adjustments, we can ensure that the vector cut is as close to 90 degrees as possible.

This is a very important step for customers who do a lot of cutting with the machines. While fiber machines are used mainly for engraving and marking, this process ensures that the laser beam exits the lens tube unobstructed.

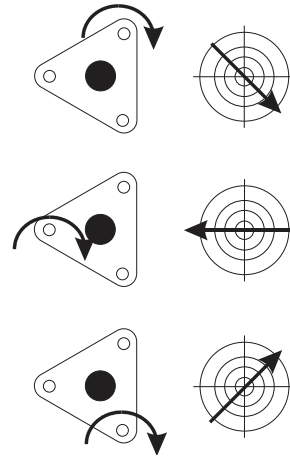
Failure to verify the perpendicular alignment can result in poor vector performance and premature failure of the optics in the lens carriage.

17000 - Fiber Laser Alignment

1. Ensure that the red dot pointer is activated.
2. Use the Focus menu to raise the table up, stopping short of depressing the autofocus plunger.
3. Remove the alignment target from the lens carriage and place it on the table, directly under the lens tube. Move the target so the red dot is centered on the alignment target. Once here, place a piece of masking tape over the target to ensure that it does not move.
4. Using the Focus menu, lower the table 3-4" (75mm - 100mm).
5. Inspect the location of the red dot in relation to the center of the alignment target. If the red dot pointer is not in the center of the alignment target, adjustments will need to be made to mirror 4:



Mirror 4 Adjustment Guide



Adjust the red dot location so that it is centered on the alignment target.

Raise the table while watching the location of the red dot. If the red dot moves off of the center of the alignment target, repeat this process, until there red dot does not change position when raising or lowering the table.

If further assistance is required, contact Epilog Laser Technical Support by phone at 303-215-9171, or by email at tech@epiloglaser.com.