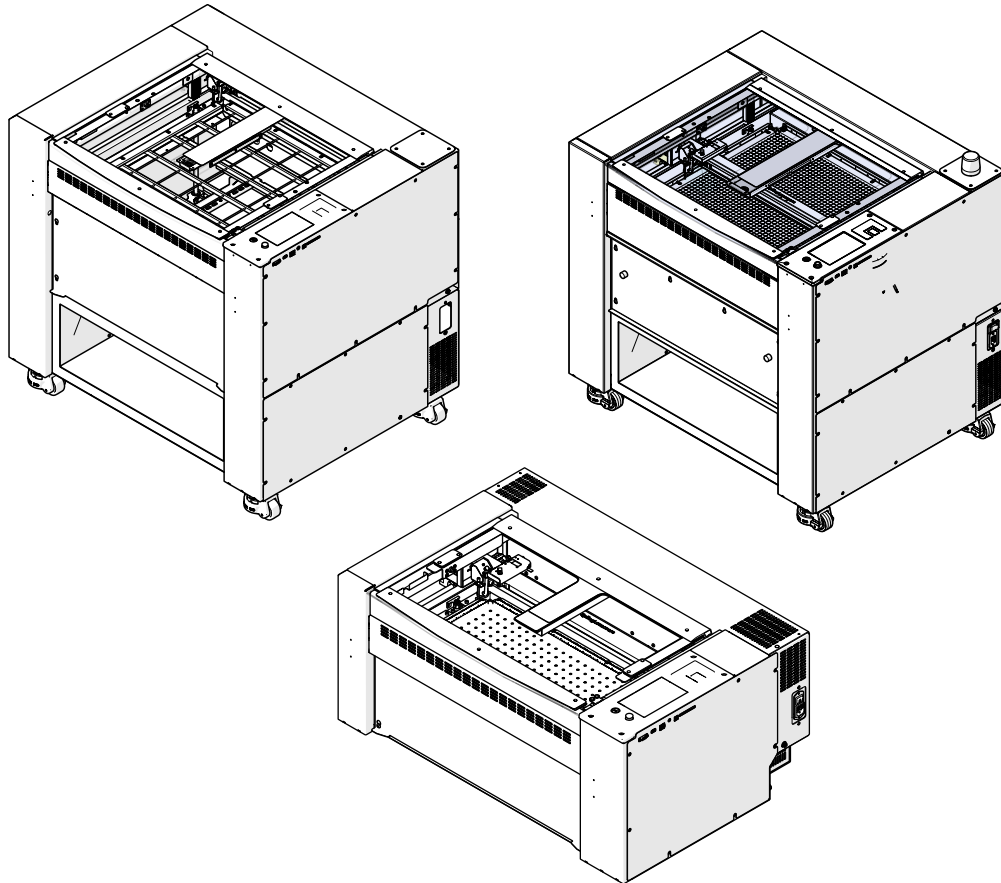


CO₂ Laser Replacement Checklist Low Output



Fusion Maker / Edge / Pro 17000 Series

Tools/Materials Required:

- Anodized Aluminum
- Alignment Target
- Phillips Head Screwdriver
- 5/32" Hex Wrench
- 3/32" Hex Wrench
- Masking Tape

CO2 Laser Replacement Checklist - Low Output

Having to continually reduce speed and increase power can indicate low output from the laser. This document will help identify a low output laser tube.

Checklist:

- ☐ Optics
- ☐ Alignment
- ☐ Focus

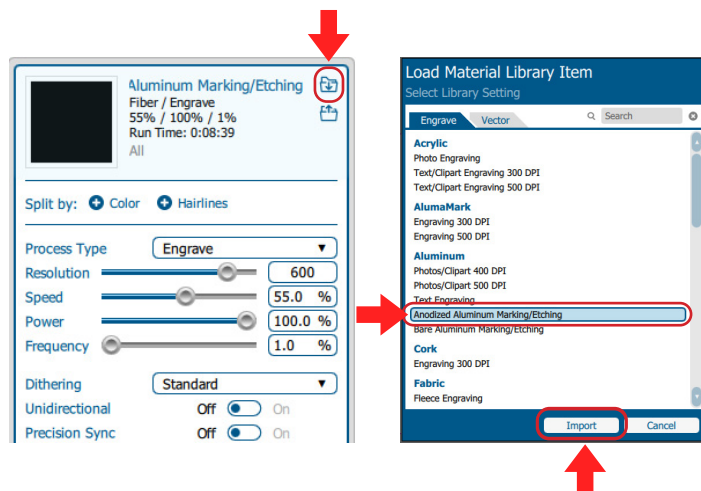
Reference Engraving:

1. Download the sample file below.

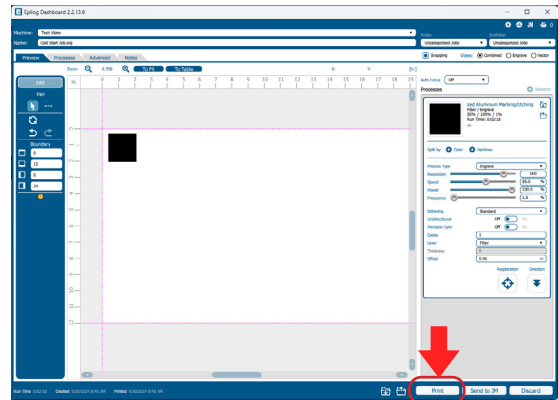
[Reference Engraving](#)

2. Open the file and send it to the Epilog Dashboard.

3. Import the anodized aluminum setting from the materials library.

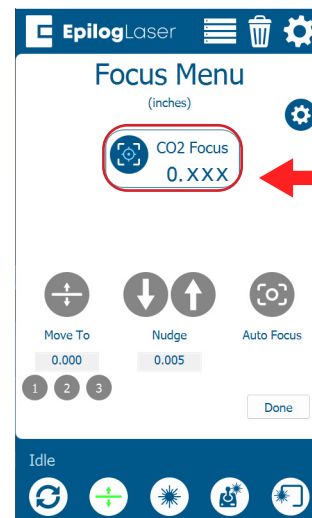


4. Send the file to the laser.



5. Load a piece of 0.025" thick anodized aluminum in the top left corner of the machine.

6. Set the table height with the manual focus gauge and record the CO2 focus value located on the lasers display.



CO2 Focus Value

CO2 Focus Value _____

7. Close all doors and panels.

8. Run the job, and save the engraving for reference throughout this procedure.

9. Label the engraving to help keep track of your progress.



If your CO2 Focus value is above 0.04" or below 0.01" skip to the [Verify Focus](#) section of this document.

Checking Carriage Optics:

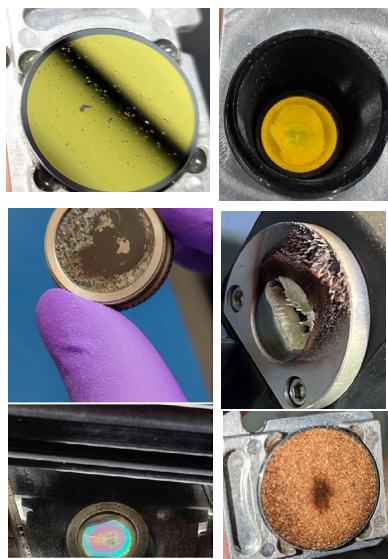
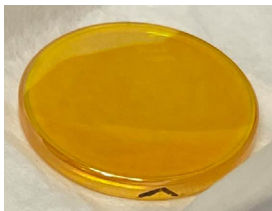
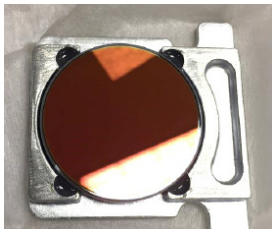
Detailed instructions for these steps can be found at the links below.

- [Optics Cleaning](#)
- [Optics Removal and Installation](#)

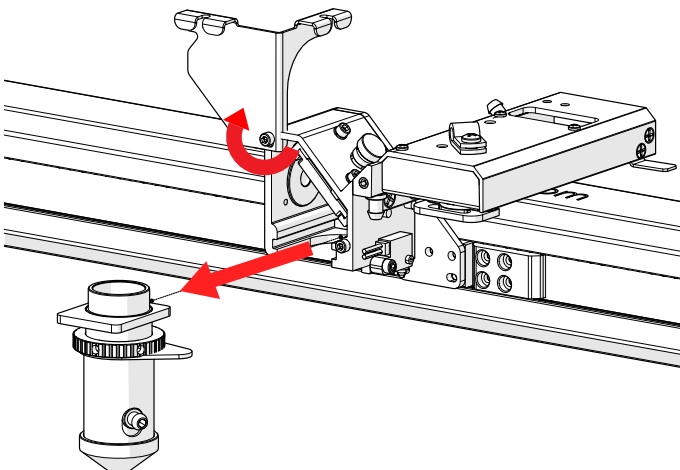


Optics should be clean and free of debris. Discolored or damaged optics should be replaced.

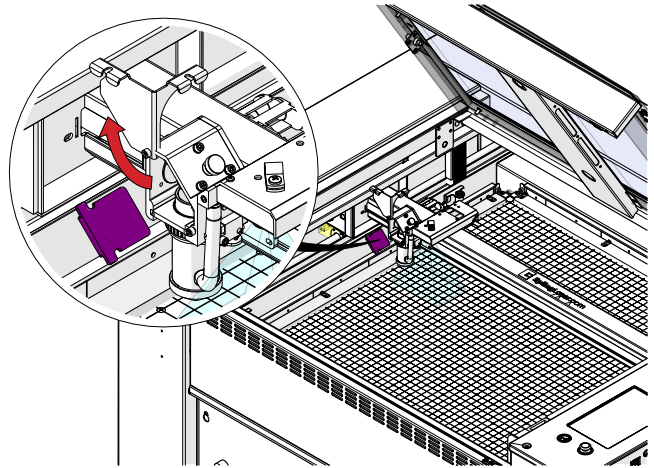
Examples:



1. Remove the lens assembly. Clean both sides of the lens and check for damage.



2. Remove the carriage mirror. Clean and check for damage.



3. Reinstall the mirror and lens.

4. Run the Reference Engraving job again. Pick a new unused area of the anodized aluminum to do the second engraving.

5. Compare the engraving from this section to the initial engraving.

Improvement:

- Low Output has been resolved.
- Follow the optics cleaning procedure below.
- After the full optics cleaning repeat test engraving.

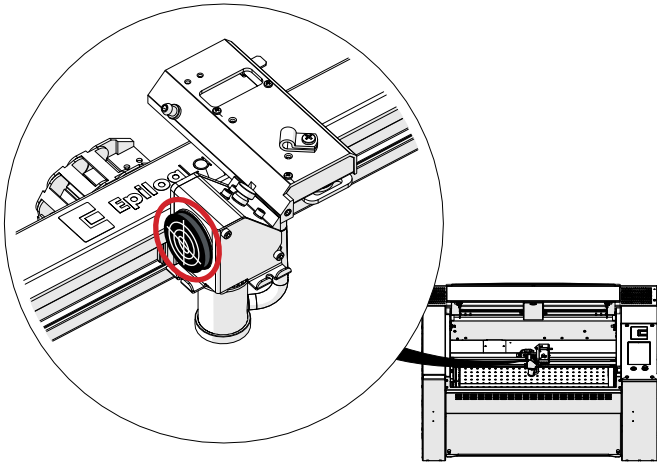
[Optics Cleaning](#)

No Improvement:

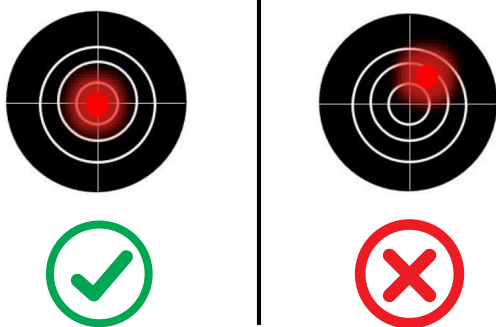
- Proceed to the next section.

Verify Alignment:

1. Install the alignment target into the carriage head.



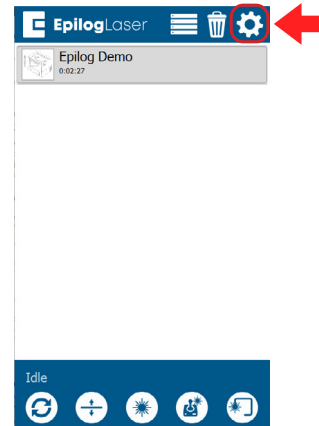
2. Jog the carriage to Top Left (home position). Turn on the red dot pointer. Verify the red dot is within the center ring of the target.



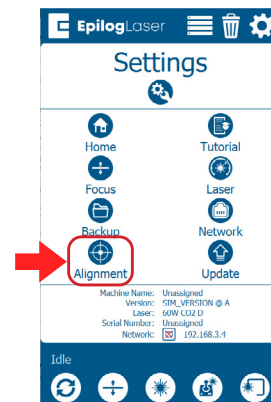
3. Jog the carriage to the bottom right. Verify the red dot is within the center ring of the target.

4. Place a piece of masking tape over the alignment target.

5. Click the gear icon in the top right of the display.



6. Select Alignment.



7. Ensure all doors and panels are closed. If the interlocked doors are not closed the laser will not fire.

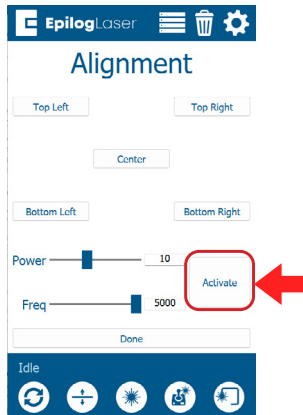


The carriage should be in the bottom right corner for Step 8.



Be careful not to burn through the target. Check the target frequently. Remove the target when finished.

8. Get a burn mark by **tapping** the Activate button and watching for a burn mark on the tape.



If the red dot, and burn mark do not match, follow this link to the full [Alignment Procedure](#).

Improvement:

- If you've made adjustments to the alignment, run the test engraving.
- Compare the engravings.
- Low Output has been resolved.

No Improvement:

- Proceed to the next section

Verify Focus:

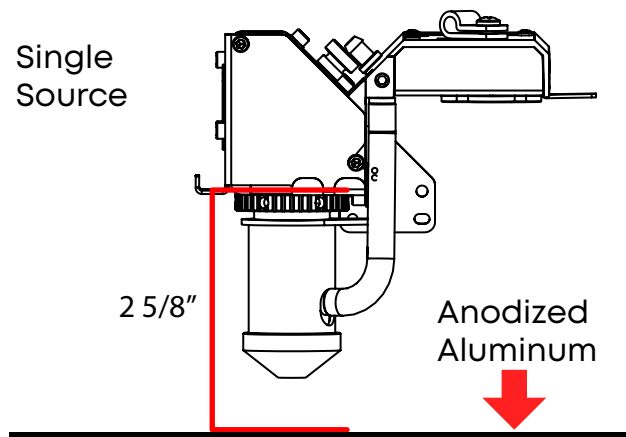
The goal of this section is to verify the focal distance is set properly. This is done by running a job and adjusting the table to find the brightest mark. There are specific steps for single source and dual source machines.

1. Send the [Reference Engraving](#) file to the machine with the anodized aluminum settings.

2. Load a piece of anodized aluminum into the machine.

For Single Source Machines (CO2 Only):

1. Adjust the table until the material measures 2 5/8" (66mm) from the focus gauge bracket.



2. Close all doors and panels.

3. Run the job.

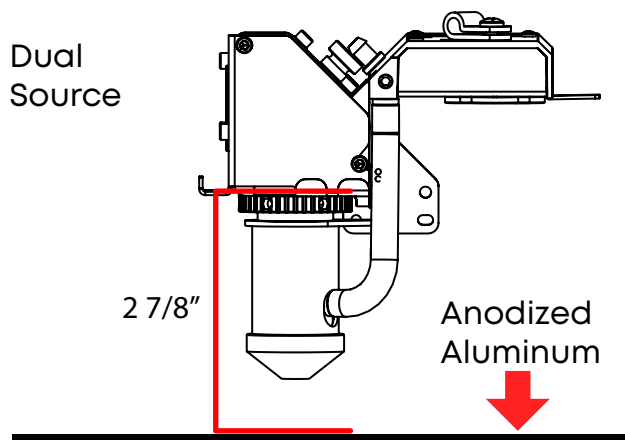
4. While the job is running, raise and lower the table, looking for the brightest mark.

For Dual Source Machines (CO2 and Fiber):

1. Run the job.

2. Once job is in progress, pause the job.

3. Adjust the table until the material measures 2 7/8" (73mm) from the focus gauge bracket.



2. Run the Reference Engraving file again with the new CO2 Focus Value.

3. Compare this sample to the original.

Improvement:

- Low Output has been resolved.
- Follow the focus procedure below.

[Focus Procedure](#)

No Improvement:

- If the alignment or optics procedures were skipped, complete those.
- Possible low output from tube.
- Contact Epilog Tech Support.

Conclusion:

If you are still experiencing low output after the alignment, focus, and optics cleaning procedures, please reach out to Epilog Laser Technical Support. Please include pictures of the test engravings, red dot pointer, burn mark, and recorded focus values.

Checklist:

- ☐ Optics
- ☐ Alignment
- ☐ Focus

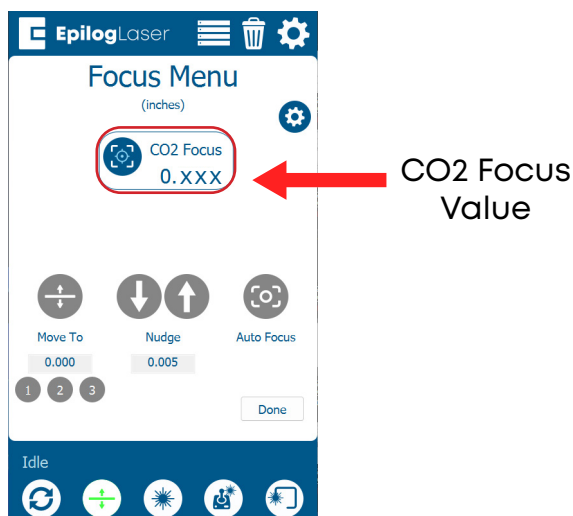
4. Close all doors and panels.

5. Resume the job

6. While the job is running, raise and lower the table, looking for the brightest mark.

For Single and Dual Source Machine:

1. Record the CO2 focus value. Compare this value to the initial value recorded in Step 6 of the [Reference Engraving](#) section.



CO2 Focus Value _____