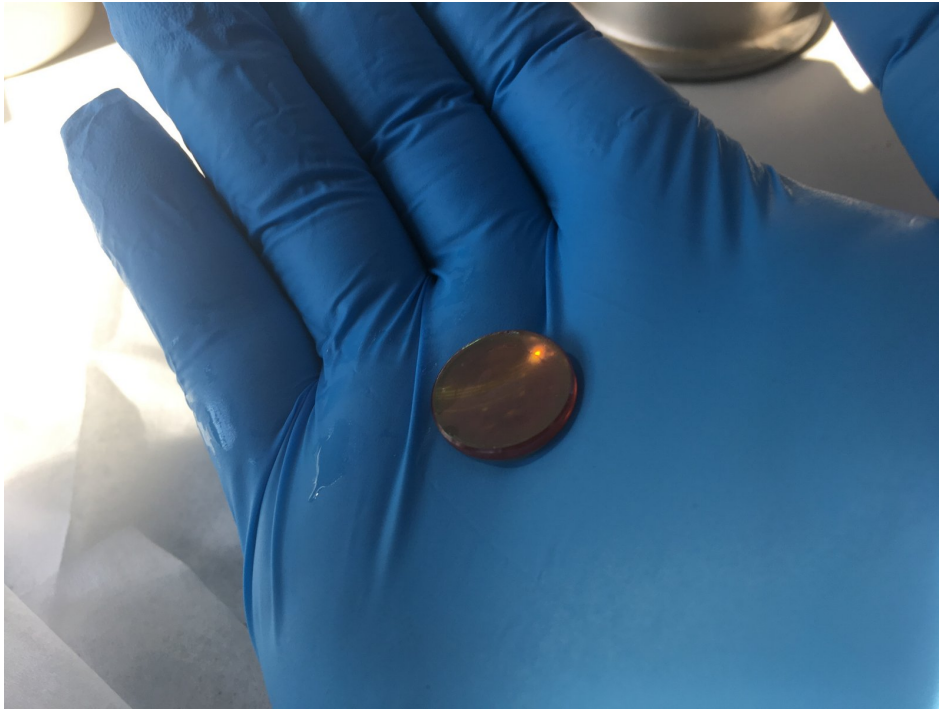


Lens Cleaning Procedure

How to clean the laser cutter lens.



INTRODUCTION

Important: Only undertake this procedure if you have been trained to do so!

The alignment is rather sensitive and the lens is delicate. Without training you may easily make things worse and require that the machine be taken offline.



TOOLS:

- [Lens Wrench](#) (1)
 - [3mm Hex Wrench](#) (1)
 - [99% isopropyl alcohol](#) (1)
 - [Nitrile Gloves](#) (1)
 - [Kim Wipes](#) (1)
-

Step 1 — Turn on the laser cutter



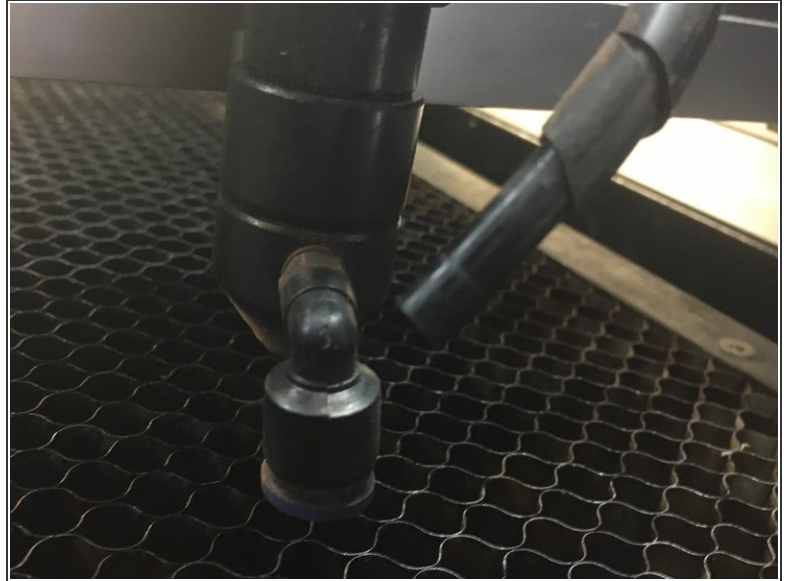
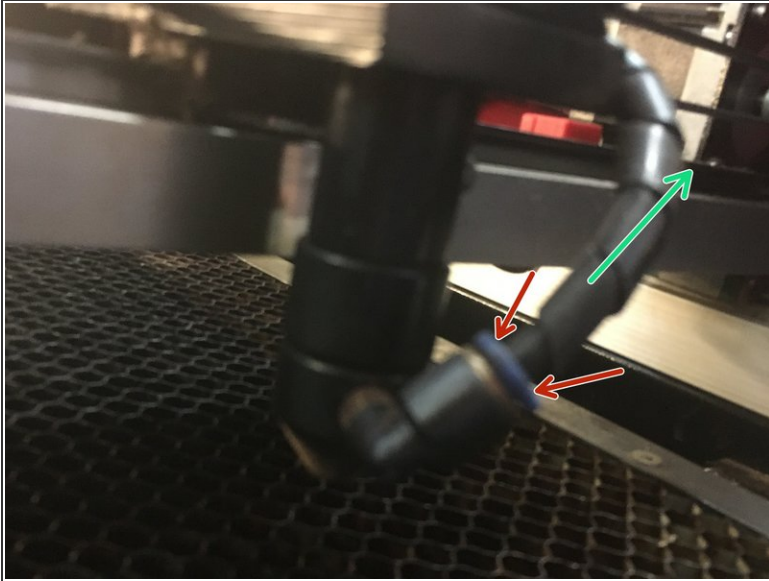
- Follow [02 - Laser Cutter Start-up](#) to turn on the laser cutter
- Use the jog buttons to move the head to a comfortable position near the front of the machine.
- Lower the platform to give yourself enough room to work.

Step 2



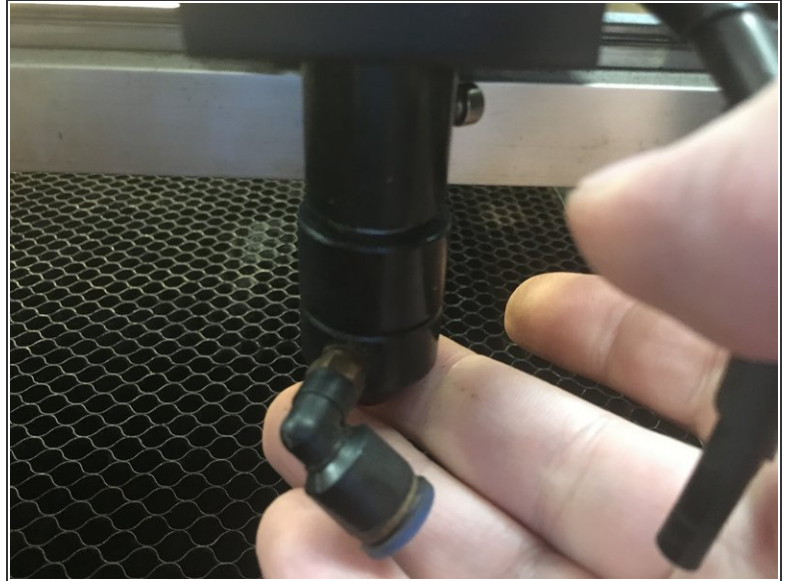
 Turn off the laser cutter before continuing.

Step 3



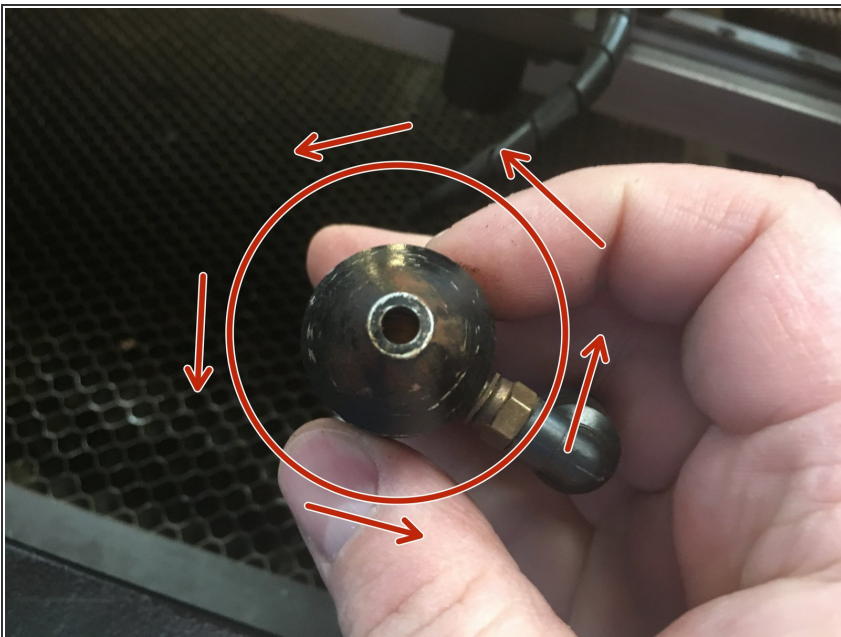
- Locate the air hose connector
 - Press down on the blue retaining ring.
 - While pressing down on the retaining ring, pull the air line out of the connector.
- ⚠ Excessive force should not be required to remove the hose.

Step 4



- Locate the socket-head cap screw holding the lens tube into the mirror assembly.
- ⚠ Place a hand under the lens tube. As you loosen the screw the lens tube will drop out of the mirror assembly.
- Using a 3mm hex wrench, loosen the cap-screw.
- Remove the lens tube from the mirror assembly.

Step 5




- The air nozzle portion of the lens tube is threaded onto the tube body. Turn the nozzle counter-clockwise to remove it.

Step 6



- Use the lens wrench tool to loosen the ring holding the lens in place.

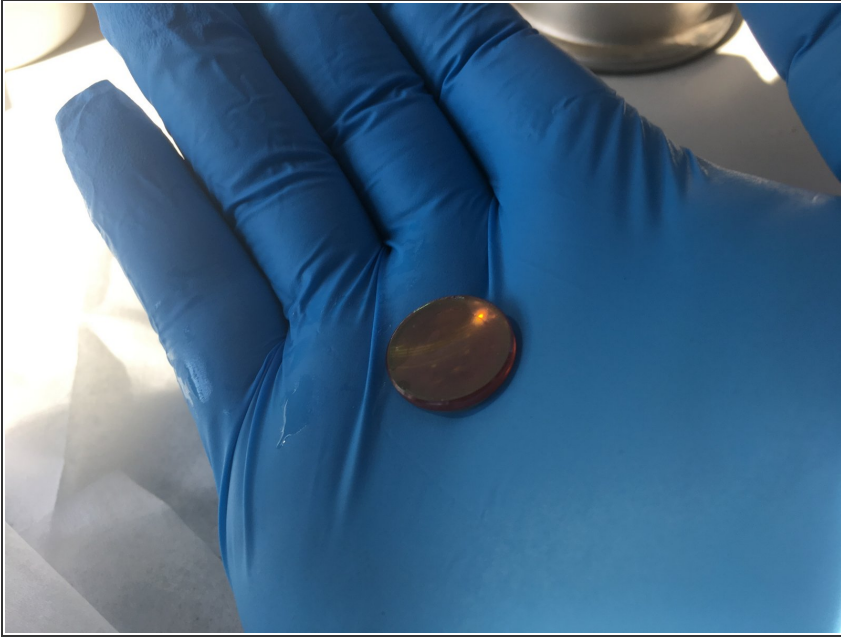
 Don't use the wrench to fully remove the lens retaining ring. Just use it to loosen it.

Step 7



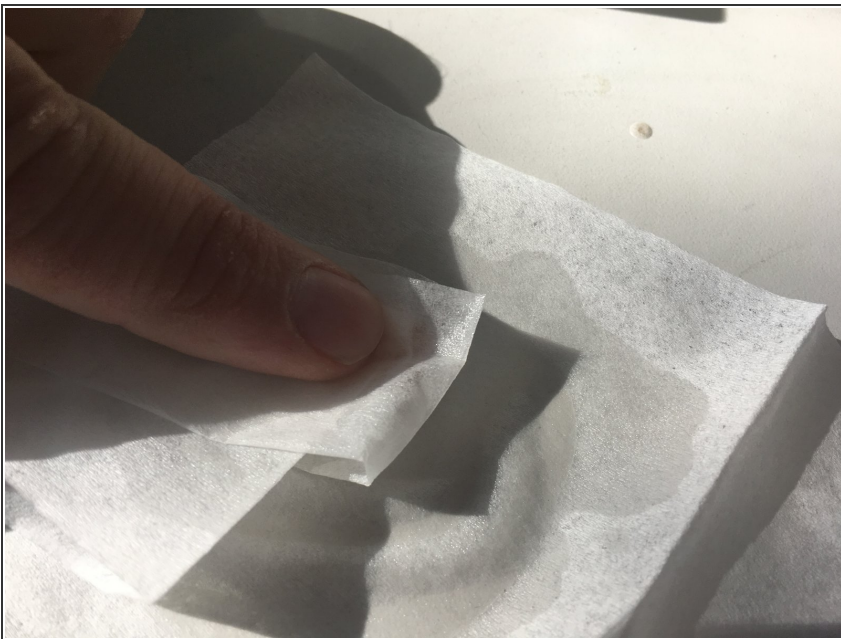
- Use your finger to loosen and remove the lens retaining ring the rest of the way.

Step 8



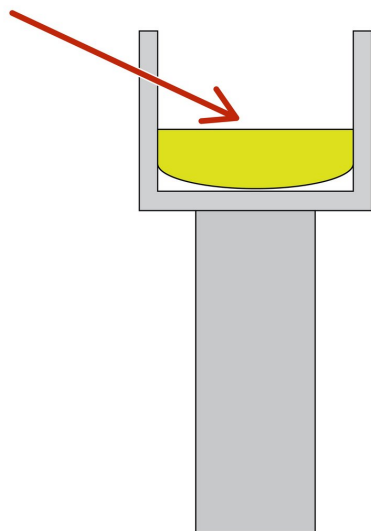
- Don your nitrile gloves!
- ⚠ The material the lens is made of is not particularly good for humans to play with. Gloves are a must while handling the lens.
- ⚠ Oils left on the lens after cleaning can be fused to the surface by the laser after cleaning. Gloves help prevent these oils from ending up on the lens.
- Turn the lens holder over into your gloved hand to remove the lens.

Step 9



- Use an alcohol moistened Kimwipe to clean both side of the lens.
- ⚠ Be exceedingly gentle with the lens to avoid introducing scratches.
- ⚠ Use an excess of rubbing alcohol to help dissolve any residue that might scratch the lens.

Step 10



- Reinstall the lens in the lens tube.



Pay attention that the **FLAT** side of the lens will be facing **DOWN** when the lens tube is reinstalled in the machine.

Step 11



- Tighten the lens retaining ring by hand.



NOTE: Despite the image, you should still be wearing gloves at this point. Oil from your hands can easily make its way onto the lens during this step.

Step 12

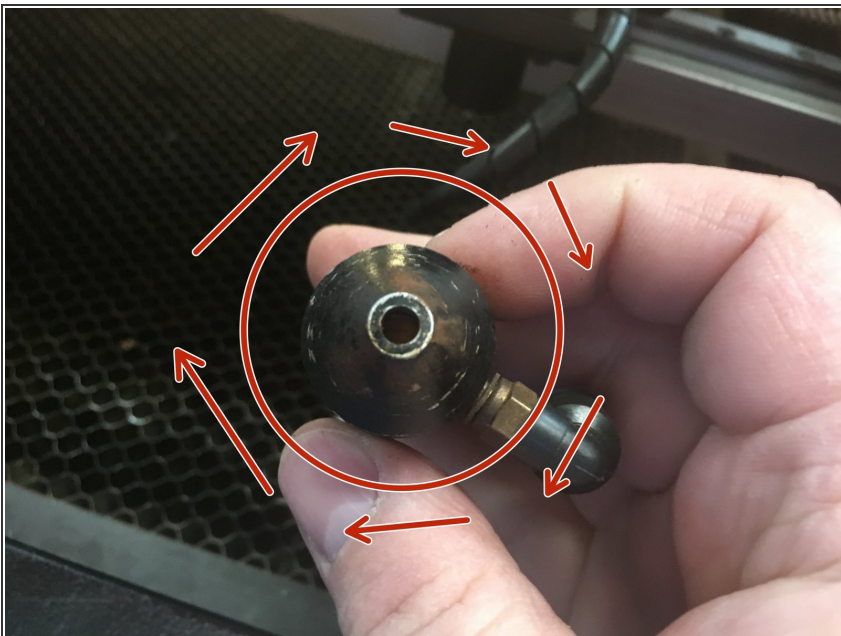


- Use the lens wrench to tighten the retaining ring against the lens.



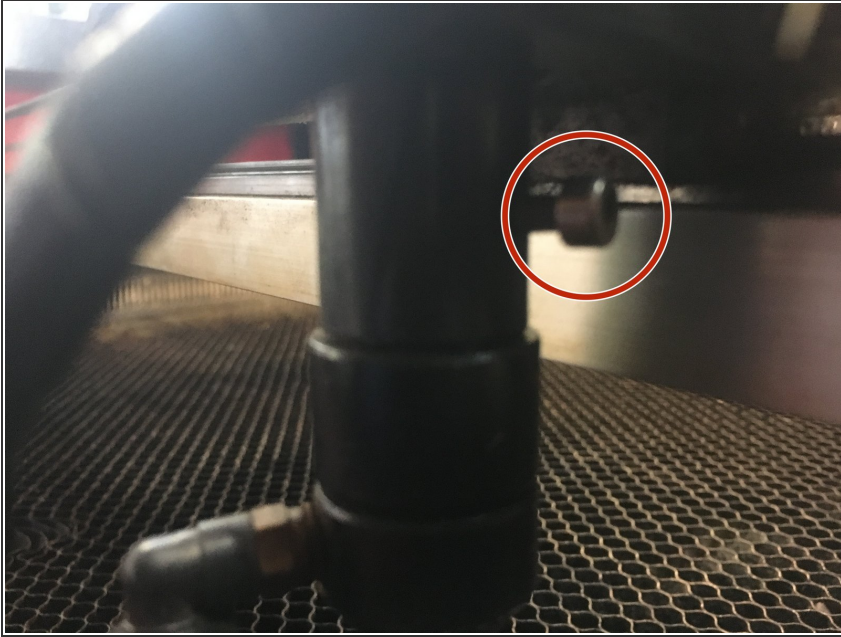
GENTLY tighten the lens ring. Be very careful to not apply too much force or you could easily crack the lens.

Step 13



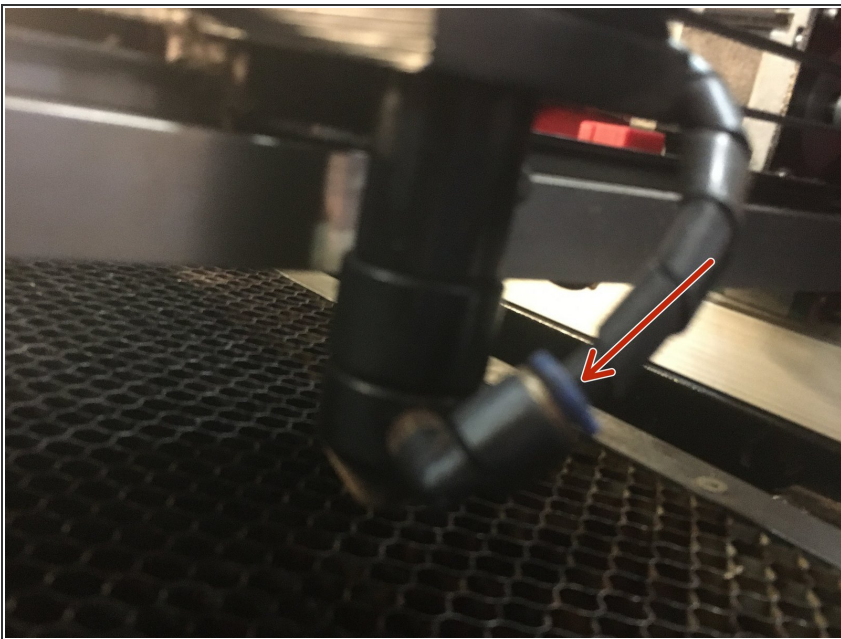
- Screw the air assist nozzle back onto the lens tube.

Step 14



- Reinstall the lens tube and tighten the socket-head cap screw to hold it in place.

Step 15



- Reinstall the air assist hose by pushing the hose into the connector.
- The hose should seat easily.

Step 16



- Run a test program in RDworks to ensure that the machine remains functional both for cutting and engraving.
- ① The "Laser Training Ruler" is a good program to use for this.

Always be sure to run a test job (the laser training ruler works well) to ensure that nothing is amiss after the operation is complete.