

SECTION 9: CLEANING & MAINTENANCE

Reduce Fire Risk with a Clean Laser

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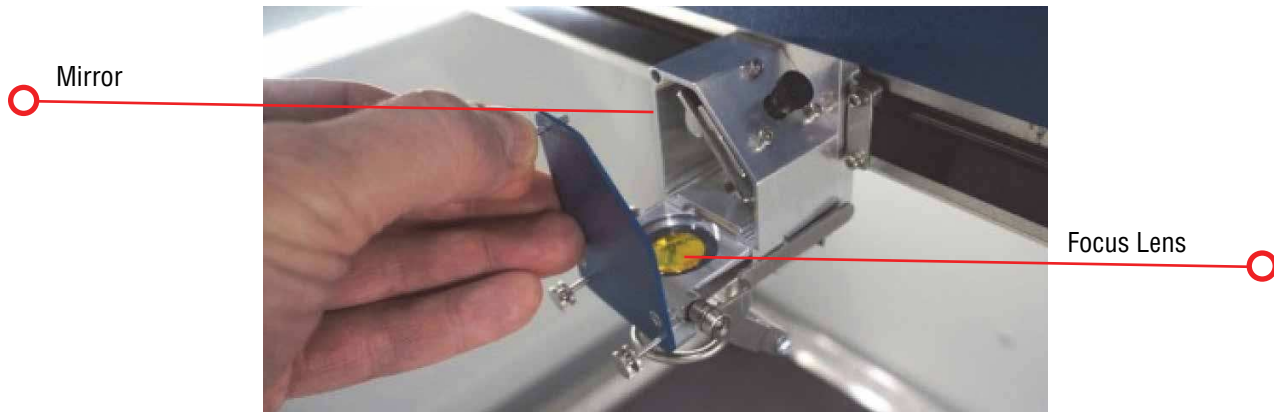
Cleaning the laser is an excellent way to prevent fire with the laser. A buildup of cutting and engraving residue and debris is dangerous and can create a fire hazard in its own right. Keep your laser system clean and free of debris. Regularly remove the Vector Cutting Table to clean any small pieces that have fallen through the grid.

For more information on fire safety, see “Fire Warning” on page 5.

Cleaning the Optics

About once a week, or if you notice dust building up, you will need to clean the optics (mirrors and lenses) of your laser. If smoke, resin, or other contaminants are allowed to accumulate they will reduce the available laser power and may cause damage to the optics.

The two optical components most likely to require cleaning are the focus lens and the mirror directly above it. The lens and mirror are a single assembly, and can be removed from the machine for cleaning by unscrewing the three thumbscrews on the front lens cover.



To clean the optics, use a high-quality cotton swab moistened with the optics cleaner supplied in the accessory kit. Please read the label on the bottle carefully.

If you run out of the cleaner supplied by Epilog, Reagent or laboratory grade Acetone can be substituted. Another option is a 10 to 1 water to white vinegar mixture. This is very good at removing finger prints and other minerals which can be left behind on the optics. Also, if “Golden Grain” or “Everclear” are available in your area these are also good substitutes for the optical cleaning solution.



Never use Alcohol or Hardware grade Acetone, they contain impurities which can damage the optics in your machine.

Wet the swab thoroughly with the solvent, and then blot it against a piece of cotton so that it is no longer soaking-wet. Then daub the optic gently, rotating the swab after each daub to expose clean cotton to the surface until the optic is free of visible contamination. At that point, prepare a fresh swab and clean the surface with a gentle zigzag motion across it. Avoid any hard “scrubbing” of the surface, especially while there are visible particles on it, and try not to use repetitive circular motions. When you are done, be careful to remove any cotton threads that may have snagged on the mountings.

SECTION 9: CLEANING & MAINTENANCE

Cleaning the Optics

Allow the optics to dry before you operate your engraver.

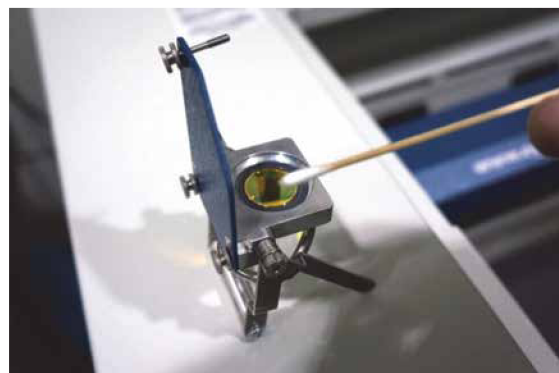
When reinstalling the lens assembly, make sure that the Crash Bar is sitting on top of the locating pins on the side of the carriage.



In addition to the focus lens and the mirror directly above it, there is a mirror located on the left side of the X-beam. This mirror is very well protected and should not need regular cleaning. It can be accessed with a cotton swab if it does need cleaning.



The photos below shows how to clean the focus lens. Remove the lens carriage from the machine to clean both the top and bottom of this lens.



SECTION 9: CLEANING & MAINTENANCE

Cleaning and Lubricating the Bearing Rails

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While the bearing rail on the Fusion M2 lasers are self lubricating, we still suggest a periodic lubrication to keep the laser running at top performance.

Clean the X-axis Bearing Rail

Use a soft cloth or cotton swab with some alcohol or similar mild solvent to clean each of the bearing tracks which the optics (mirror and lens) run along. A cotton swab is perfect for cleaning out the inside of the grooved tracks of the X-axis rail.

Use a soft cotton cloth or cotton swab to clean the entire length of the X-axis rail.

This photo shows a cotton swab cleaning out the top groove of the X-axis rail. There is another groove on the bottom side of the rail. You will need to move the X-axis belt out of the way to access the rail. There is enough flex in the belt to move it out of the way, but do not pull on it so hard that it becomes stretched or stressed.



Lubricate the X-axis Bearing Rail

After cleaning the rail, place about an inch long bead of Epilog supplied grease into the top and bottom grooves of the X-axis rail. The following photo shows where to grease the bottom groove of the rail.

After applying the grease to both grooves, run the X-carriage over the grease to work it into the bearing block and rail.

Turn the machine off to easily move the X-carriage back and forth over the grease.



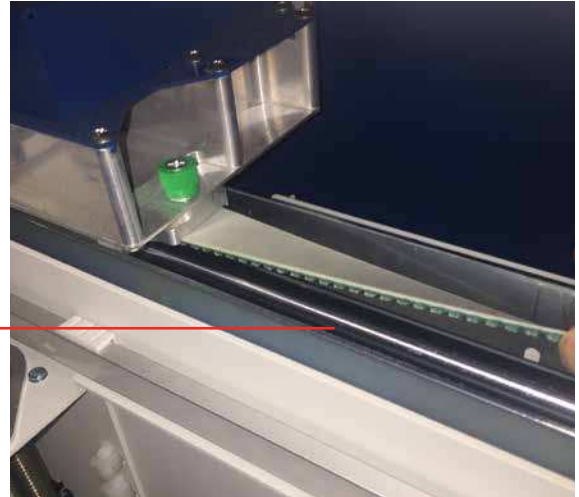
SECTION 9: CLEANING & MAINTENANCE

Cleaning the Exhaust Plenum

Clean the Right Side Y-Axis Rail

Clean the length of the right side Y-axis rail using a soft cotton cloth. Lubrication is not required.

○ Clean the right side Y-axis rail with a soft cloth.



Clean the Left Side Y-Axis Rail

Clean the length of the left side Y-axis rail using a soft cotton cloth. Lubrication is not required.

After cleaning the rails and bearings, clean off the table and the rest of the inside of the machine. Spending just a few minutes a week will pay off in the long run with better quality and performance.

○ The left side Y-axis rail (the silver cylinder) should also be wiped with a soft cloth.



Cleaning the Exhaust Plenum

Make sure the exhaust blower you are using receives proper maintenance. Periodically clean the exhaust blower and duct system to remove built-up debris. If you detect odor while engraving, or if the smoke in the cabinet is visible in the area of the lens carriage, inspect the exhaust system. Check for loose or broken pipe/hose connections, or obstructions. The following photos show where to clean the duct work of your machine. You should also occasionally check your exhaust blower and the connected duct work.

SECTION 9: CLEANING & MAINTENANCE

Cleaning the Vents

Clean the vents from the inside of the machine. It is best to use a flexible or wire brush that can access the inside of the vent.

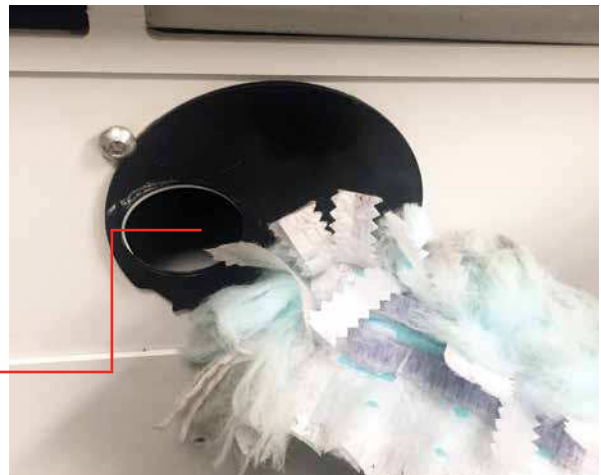
Clean the vents with a flexible or wire brush.



Cleaning the Down Draft Ports

In addition to the top vents, also clean the down draft ports. These are the air ports that the exhaust system pulls from when using your Vector Cutting Table.

The down-draft ports are located in the black circles at the back of the machine.

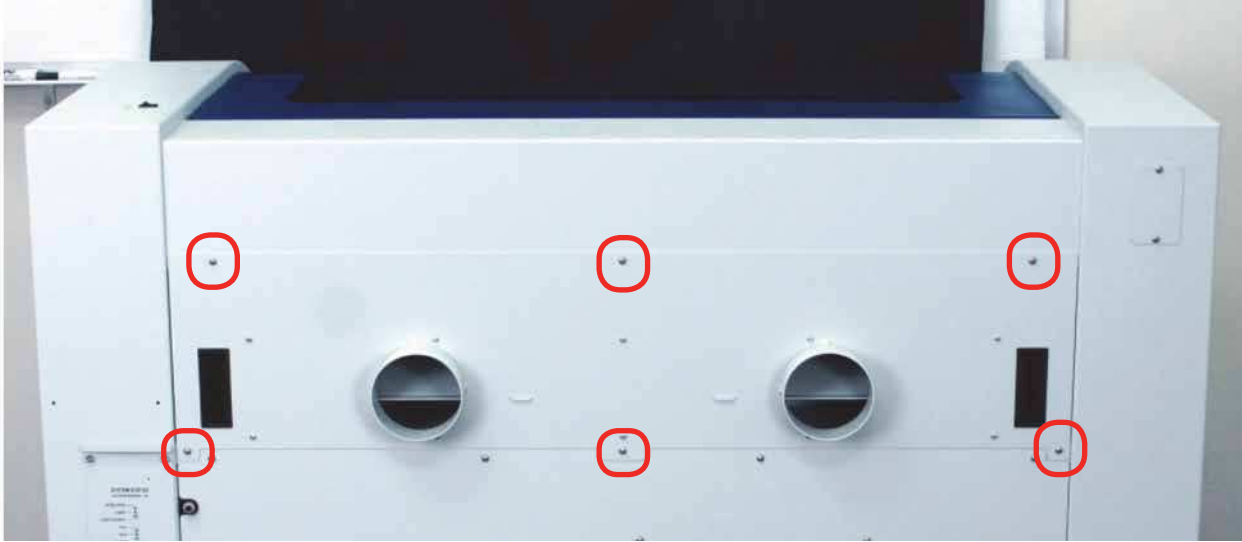


SECTION 9: CLEANING & MAINTENANCE

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In addition to cleaning the inside of the machine you should occasionally clean the exhaust plenum. The exhaust plenum can be completely removed from the Fusion. Remove the six screws that hold the exhaust plenum in place.



The photos below the plenum partially removed and the back of the machine with the plenum fully removed.



Laser Tube

The laser tube used in your system does have a maximum service life, and there is very little maintenance that is required. At some point in the life of the laser you will need to replace it for gas recharge, electrical repair or mechanical repair. Replacing laser tubes is common practice and Epilog has made the process of changing tubes extremely easy for users to perform with a minimum amount of effort. The laser tubes can be refurbished and are available on an exchange basis by contacting Epilog technical support.

Ensure that all of the laser cooling fans are properly working at all times. The fans keep the laser tube cool and prevent it from overheating. An overheated laser tube will produce erratic output and may fail completely.

If the laser system is in a dirty or dusty environment, make sure that the cooling fins on the laser tube are kept free of dust buildup. Use compressed air to blow the dust and debris off of the laser tube fins. Be sure that the system is unplugged before performing any maintenance on the machine!

Laser Tube Air Filter

To help protect your laser tube from dust, dirt and debris, we have included a filter on the back of the Fusion Laser. Every three months, check the filter to see if it needs replacement. The filter is a standard 12" x 30" x 1" (304.8 x 762 x 25.4 mm) furnace filter and can be found at any home store. Changing this filter is much more likely in a dustier shop environment.