Section 10: Engraving Machine Cleaning

In This Section

Cleaning - Important!

Fire Warning!

Through normal use your laser system can collect debris and soot that are potentially flammable. Keeping you laser system clean and the area around it clean are important parts of laser maintenance. Some materials are extremely flammable and can easily ignite and burst into open flame setting the machine afire. This open flame is very dangerous and has the potential to destroy not only the machine, but the building in which it is housed.

Please read the following warnings and recommendations and follow them closely at all times!

- ***NEVER*** let the laser system operate if it will be unattended.
- ***KEEP*** the area around the machine clean and free of clutter, combustible materials, explosives, or volatile solvents such as acetone, alcohol, or gasoline.
- ***ALWAYS*** keep a properly maintained and inspected fire extinguisher on hand. Epilog recommends a Halotron fire extinguisher or a multi-purpose dry chemical fire extinguisher. The Halotron extinguishers are more expensive than a dry chemical, but offer certain advantages should you ever need to use an extinguisher. The Halotron extinguisher discharges a clean, easily removable substance that is not harmful to the mechanics or wiring of the laser system. The dry chemical extinguisher discharges a sticky, corrosive powder that is very difficult to clean up.
- ***ALWAYS*** use air assist when vector cutting.

- ***BE CAREFUL!*** when vector cutting. Many materials have the potential to burst suddenly into flames – even materials that may be very familiar to the user. Always monitor the machine when it is operating.
- ***KEEP YOUR LASER SYSTEM CLEAN –*** A build up of cutting and engraving reside 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 grid to clean any small pieces that have fallen through the grid.

The single most important thing that you can do to keep your laser working as if it were new is to keep it clean! Five minutes once a day will keep the residue and debris from building up and causing problems. There is almost no maintenance required for your laser if you **KEEP IT CLEAN**!

To keep your system clean use a soft cloth and a mild solvent like Isopropyl alcohol to remove the smoke and debris from the table, X-beam and anywhere else that collects dirt and debris.

Cleaning the optics requires special care. Please see the instructions on the following pages.

Cleaning the Optics

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

The two optical components most likely to require cleaning are the focus lens and the mirror directly above it.

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. Rubbing alcohol should be used only to remove fingerprints. If you run out of the cleaner supplied by Epilog, acetone can be used as a temporary measure, but should not be used for regular cleaning as it contains impurities which can damage the optics. If you run out of optics cleaner, pure ethyl (grain) alcohol such as “Golden Grain" and "Everclear" are highly recommended because of their pure nature and because they are readily available.

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. Allow the optics to dry before you operate your engraver.

Cleaning the Bearings and X-Beam

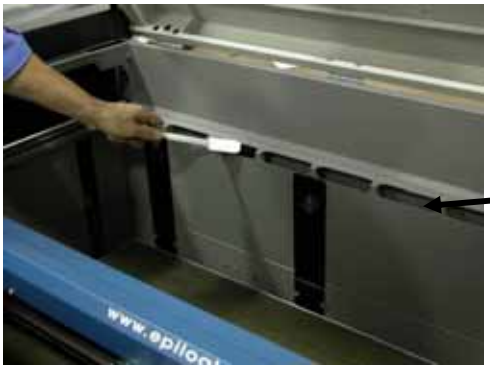
The bearing system in the laser should be inspected and cleaned about once a week depending on use. Use a soft cloth or cotton swab with some alcohol or similar mild solvent to clean the X-axis beam. Try to wipe clean the inner part of the X-axis beam where the bearings ride. The inside of the beam is accessible and should be kept clean, but our experience shows that with proper exhaust ventilation it will stay very clean by itself.

Cleaning the Exhaust

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 photos below show where to clean the duct work of your machine. You should also occasionally check your exhaust blower and the duct work that is connected to it.

Section 10: Engraving Machine Cleaning

The photos below show how to clean the plenum, the downdraft ports and the exhaust port at the rear of the machine. While these photos are of a different Epilog model, the concept is identical to the cleaning required of the Zing.



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

Clean the down draft ports too.

Periodically remove the duct from the back of the machine and clean both exhaust ports.

Inspect and clean your exhaust fan and the duct work connected to it.

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.

Insure 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!***

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Section 11: Engraving Machine Calibration / Maintenance

In This Section

- Config and Calibration Settings

Calibration Settings Using the Keyboard

There are a number of factory settings that normally only need to be set once at the factory to calibrate the system.

The numerical range of adjustment is shown in the table below. Each single digit change is equal to a half thousandth of an inch - .0005" (0.00125 mm) (except the Laser and Stamp Match values, which are in pixels). For example, changing the X-Home position value from 350 to 395 would move the X-Home position 0.0225 inches (0.55 mm) to the right.

Because the adjustment increments are so small it may be easier to think of the change as a two digit change is equal to 0.001 inch.

Config

The Config key takes you into the factory settings that do not normally need to be reset by the end user. These functions are listed below.

To access and move from one Config setting to another use the following instructions:

6) Press the Config key – **Config Menu:** will appear on the keyboard display.

7) Press the **Focus** key to scroll through the different menu items.

8) Once you reach the menu item you are looking for use the **Up** or **Down** cursor keys to change the value of the item. Press and release the Up or Down keys to change the settings by one unit. Press and hold the Up or Down keys to produce a rapid change of the setting.

CONFIG SETTINGS	***RANGE***

X - Home: ***Range: +999 to -999***

Increasing this value will move X-Home to the left.

Y - Home: ***Range: -100 to +999***

Increasing this value will move Y-Home up.

Laser Match: ***Range: -20 to +20***

Establishes the left to right vertical alignment of alternating raster lines.

Stamp Match: ***Range: -20 to +20***

Establishes the left to right vertical alignment of alternating raster lines for stamp mode.

Sys Unit: ***Range: Inch or mm***

Set the units of operation in the laser system to **Inches** or **mm**.

In addition to the Config key, there are a couple of hidden calibration settings that are accessed through the keys on the front control panel. These settings are accessed by simultaneously pressing a two key combination. The two key combinations are described below as well as the function to be set.

Laser T.M. ***Reset + Up*** ***Range: 0 to 3***

Activates laser tickle mode.
0 is off, 1 is most common if used.

Laser T.I. ***Reset + Down*** ***Range: 0 to 3***

Activates laser tickle duration.
0 is off, 1 is most common if used.

Auto Delete ***Reset + Job*** ***Range: Yes or No***

Automatically deletes every job after it has finished running or if the job is stopped and Reset. The factory default is No.

Bed Size ***Reset + Config*** ***Range: 16 x 12***

Sets the bed size of your system. This setting should never need to be changed.

IP Address ***Go + Pointer***

Set your IP Address using this key combination. See the section for Setting IP Address earlier in this manual.

Changing Calibration settings:

- Press the two-key combination for the setting you want to change.
- Increase or decrease the numerical value using the Up and Down keys. To speed the process of changing a number, apply constant pressure to the Up or Down key to change the number by units of ten. Single click to change by units of one.
- Press the Go button. The setting is now changed.
- If you want to just see what the setting is, but do not want to change it, press the Stop button after you have viewed the calibration setting.