GRAVOGRAPH
NEW HERMES

Maintenance

1. **Maintenance**
   Keeping the laser system clean will ensure the highest quality engraving. The frequency of cleaning will depend entirely on the type of material being engraved, the performance of your exhaust blower, the operating environment, and the amount of laser system usage over a given period of time. Dirt or debris that is allowed to build up on the motion system components will cause uneven or rough engraving, or loss of engraving position as well as premature component failure. Smoke or dirt buildup on the optics can cause damage to them, loss of laser power, or premature failure of these components. Use good judgment and keep in mind that a clean machine is the best performing machine. Always turn the laser engraving system OFF and unplug it before performing any cleaning procedures.

   A. Suggested Cleaning and Maintenance Supplies

   - Soap solution mixture of 1 tablespoon liquid soap and 1 quart of water in a spray bottle
   - Paper towels
   - Cotton cloth
   - Denatured alcohol **(NOT** to be used on any painted surface, plastic, or the Door Window)
   - Acetone (can be used on the engraving table but nowhere else)
   - Cotton swabs (supplied)
   - Lens cleaner (supplied)
   - Lens tissue (supplied)
   - Vacuum cleaner
   - Set of Allen wrenches sized (Metric)

NOTE

When using acetone or denatured alcohol, please follow the instructions on the printed label of these materials for safe handling procedures.

B. System Cleaning

- Turn off and unplug the laser system.
- Open the Top Door and thoroughly remove all loose dirt and debris from inside the machine with a vacuum cleaner.
- Clean the Engraving Table surface with either soap solution, alcohol, or acetone, and paper towels. **NEVER** pour or spray any solution directly into the laser system. Always dampen your paper towel or cloth outside of the machine with the cleaning solution and then wipe down the parts you are cleaning with the dampened cloth.
- Clean X Rail and the Y Rails by using either the cotton swabs or paper towels, and alcohol or soap solution. Pay close attention to the bearing tracks that the bearings roll in since any debris left to build up in these bearing tracks will cause the bearings to wear and the engraving quality to become rough.
- After the rails and tracks are cleaned, use a clean swab or paper towel, and alcohol to clean all of the bearings by holding the swab against each bearing and moving the motion system by hand to roll the bearings against the swab
- Clean the Door Window with a cotton cloth and the soap solution. The Door Window is made out of acrylic. **DO NOT** use paper towels because they will scratch the acrylic. Also, **DO NOT** use window cleaner, alcohol, or acetone as these chemicals will crack the acrylic. Only use cleaners designed for acrylic.
- Use a soft cloth or paper towels and the soap solution to clean the enclosure. **DO NOT** use alcohol, acetone, or any other harsh chemicals as this will damage the paint.

C. Optics Cleaning

A visual inspection of the Mirrors, Beam Window, and Focus Lens should be performed at least once a day.

CAUTION

DO NOT clean an optic that is visually clean. Excessive cleaning can damage the optics. Before cleaning the optics, we recommend that you wash your hands thoroughly to prevent contamination. **NEVER** touch any optic with your fingers. The acids from your skin can destroy the coatings on the optics.

Inspect the Mirrors and clean them only if there is debris present. There are two ways to clean the mirror, with a moistened cotton swab or a moistened lens tissue. To clean the Mirrors with a cotton swab, moisten the cotton swab with the Lens Cleaning solution supplied with the laser system. **DO NOT** use other types of cleaners or solutions. Gently roll the cotton swab across the mirror once. **DO NOT** drag the swab or roll it back and forth as this can scratch the mirror. If the mirror did not come clean, use a fresh cotton swab and repeat the procedure. Do not worry about small pieces of lint that come off of the cotton swab. They will be vaporized as soon as the laser hits it. You can cause more damage to the mirror by trying to get it off than by leaving it alone. The other method is to use a piece of lens tissue and the Lens Cleaning solution. Place a drop of solution onto the lens tissue. Grasp the tissue by the edges and drag the moistened tissue across the mirror in one direction. If the mirror does not come clean in the first attempt, repeat the procedure with a fresh piece of moistened lens tissue. **DO NOT** re-use the same lens tissue twice and **DO NOT** put any finger pressure on the surface of the mirror as this can scratch it.

D. Adjustments and Lubrication

There are no periodic adjustments required. The bearings in the motion system will self adjust to take up any clearances as they begin to wear. The belts are fiber reinforced and will not stretch under normal use so periodic tension adjustment is not necessary. Optical alignment is not necessary because the laser and the mirrors are fixed. All bearings in the system are sealed and do not require lubrication. **DO NOT** lubricate the tracks that the bearings ride in. The only lubrication that may be required is the screw threads for the table lifting mechanism. After some time, contaminants can bind to the lubricant making the Z Axis adjustments more difficult to turn or sound squeaky. If this is the case, wipe off the contaminated grease with a soft cloth a apply fresh white lithium grease to the screw threads. Run the table up and down to work in the grease.

E. Electronic Upgrading

The laser systems onboard computer is equipped with a special "Flash" upgrade technology. If the electronic operation of the system should ever require upgrading, it can be done electronically without the changing of any parts. The upgrade file gets downloaded from your computer to the laser system via the parallel port. This file is then run on the laser system and it only takes a few minutes. Once the file has completely run, the laser system will automatically restart and the new changes will take effect. For more specific details, please refer to the instructions that will accompany the flash disk.

F. Fuse Replacement

If a fuse must be replaced, use only the following type:

Europe and other countries

5 x 20 mm, Glass, time delay, 250V, 5A fuse, designed to IEC 127-2 sheet 3, and approved by a recognized European testing agency.

USA

If a fuse must be replaced, use only the following type:
5 x 20 mm, Glass, time delay, 250V, 10A fuse, UL approved

G. Maintenance Schedule

Since the maintenance requirements of the laser system is dependent on the type of material being run, the quantity of material being removed, the hours of operation, and the quality of the exhaust blower, it must be user defined. As a starting point, we recommend checking and, if necessary, cleaning the laser system after every 8 hours of engraving or cutting. Depending on your particular operation, you may need to adjust this schedule. If you are noticing a considerable buildup of debris on the optics and the motion system, clean the system at more frequent intervals. If your system has remained relatively clean, you can extend your cleaning intervals. You need to be the judge but keep in mind that a clean machine is a better performing machine and can extend the life of the parts as well as reduce the possibility of down time. Maintaining and cleaning the laser system should not take more than five (5) minutes a day. If you have any questions about maintaining the laser system, please contact our Service Department.