

Main Reason for Cleaning & Maintaining Your Laser System:

- Ensures top quality and efficiency of cutting and engraving results!
- Easily identify and alleviate minor operating issues before they have a chance to escalate!
- Increases the laser cartridge's lifespan and general system duration—protecting your business's investment!
- Saves company resources in the long-run and offers you a greater return on investment!

Quick Laser Cleaning Checklist

Cleaning Supplies

- White Cloth or Rags *Never use paper towels or other paper products, only cloth. White enables you to see when components are clean.
- Soap Solution Squeeze Bottle—1 part Joy Soap to 4 parts water.
- Q-tip Brand Cotton Swabs or Puritan Cotton Tipped Applicators.
- **Acetone Squeeze Bottle** *Use carefully, the epoxy pots holding the optics could deteriorate if excess acetone is used, which could cause the optics to fall out of their housing.
- White Lithium Grease.

► Daily Check/Clean During Use

(Estimated 2 minutes to check/ 5 minutes or less to clean at the beginning or end of the day).



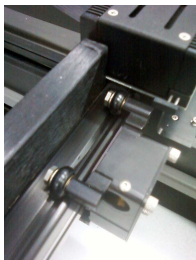
X-axis & Y-axis Rails and Belts

Check the X-axis and Y-axis rails by running one of your fingers down the whole length of the track. If dirt and other debris are deposited on your finger, clean the rails as necessary. If ridges are present, this means the rails have not been cleaned adequately in the past. Use a solution of 1 part Joy Soap to 4 parts water and bath the rails with a soft white cloth/rag until the rails are **baby smooth**. *Remember to clean the bottom track of the X-axis rail too. Use new sections of the rag after bathing one track for a couple swaths. Test the rails cleanliness by using a clean section of the rag, if



residue still remains, continue bathing the rails. Use a dry section of the rag to dry the tracks immediately following. Clean the top side of the X-axis and Y-axis belts as well. Clean the rail under both the X-axis and Y-axis belts by lifting up the belts slightly and using your dampened white rag to remove all material residues. Q-tips can also be used to clean this area. The belts can also be cleaned using a tooth brush if necessary every couple months.

► Daily Check/Weekly Clean During Use
(Estimated 2 minutes to check/10 minutes or less to at the beginning or end of the day).



X-axis & Y-axis Bearings

Once the X-axis and Y-axis rails are clean; use a clean dampened section of your rag and place in front and over the top of one bearing at a time (your laser system has three X-axis bearings attached to the head and a total of four Y-axis bearings—two on each side rail). Next, hold the rag on the bearing with one hand and use your other hand to move the head back and forth on the clean rail. Repeat the process until the rag section is white (indicating a clean bearing). The bottom X-axis bearing is only accessible from the left hand side and can be more challenging to clean with the metal guard protecting the right side of the bearing. If necessary, the head assembly can be removed from the X-axis rail by using an Allen Wrench to undo the two screws holding the X-axis belt clamp to the head assembly (Caution; do not remove the center bolts that hold the belt ends tight). In order to prevent losing the screws; place a white cloth on the table of your laser to serve as the holding agent. Lift the whole head assembly directly upward and towards you for removal. You can reattach the head assembly to the X-axis rail by reversing the order that the head was removed. Be certain to have the bottom bearing located between the two top bearings. Secure the X-axis belt to the head assembly by using the two screws you removed earlier.

► Daily Check/Weekly Clean During Use
(Estimated 2 minutes to check/10 minutes to clean every few days during use).



Optics

- #1 Mirror (Beam Window)
- #2 Mirror (Corner Mirror)
- #3 Mirror and Focus Lens

Check your optics to make sure they are free of contamination/scratches and clean with cotton swabs and Acetone if needed. Remember to store your Q-tips or Puritan Cotton Applicators in a closed container or bag. The cotton tips should be protected from contaminants. Other cleaners like optical cleaner or Alcohol will not remove contamination on the optics completely, a residue will always remain; therefore, we suggest you use a small squeeze bottle designated for optics cleaning and fill the bottle with Acetone. Don't ever submerge cotton swabs in Acetone solution, for the entire solution becomes contaminated otherwise. Instead, squeeze a small amount of Acetone onto a grouping of 4-5 cotton swabs and then with a quick downward whip motion with your arm and wrist remove excess solution (we suggest using safety glasses

with this action). Note: the cotton swabs should not be dripping with solution just dampened. Do not lay the dampened cotton swabs down; however, keep them in your non-dominant hand. With your dominant hand start cleaning your optic from the center outward while rolling the cotton swab to a virgin section the whole time. Make sure not to allow Acetone to get into the epoxy pots (the holding agent for the optic to the housing) around the rim of the optic, the Acetone will break down the epoxy and the optics will eventually drop out—so please handle optic cleaning with care! Prepare to use 1-2 dozen cotton swabs per optical cleaning session—having a large pile of used cotton swabs is normal. When cleaning the Beam Window, take some of the used cotton swabs and wipe the black housing area, when this housing gets debris accumulation, this serves as a reminder to clean the Beam Window. When cleaning the Focus Lens, make sure to clean over a protected surface or cloth, the Focus Lens assembly can easily slip out of your hands and could break easily if it falls to the floor—so please handle with care. If you have questions about cleaning your optics or their general condition please call Ron Blake with Highlight Technologies, Inc.: 208-442-0755 or ron@hltlasers.com.

► Weekly Check/Monthly Clean During Use
(Estimated 2 minutes to check/10 minutes to clean every few weeks during use).



Top Door

Check the Top Door for build up and clean the bottom edge—typically neglected during routine cleaning. Build up can redeposit on the clean X-axis rail and reduce engraving/cutting quality.

► Weekly Check/Monthly Clean During Use
(Estimated 2 minutes to check/10 minutes to clean every few weeks during use).



Top Door, Side Pass-Through Doors, and Front Pass-Through Door Rims

Check the entire rim of top and pass-through doors for debris build up. Remove debris with dampened cloth and a mild cleaning solution. Focus on the interlock areas to be sure they are clear of debris. If these areas are left unattended your interlocks may not make a complete connection and debris from the doors can redeposit onto other laser components or your engraving work.

- **Weekly Check/Monthly Clean During Use**
(Estimated 2 minutes to check/15 minutes to clean and dry one a month during use).



Cooling Vent Filters

Check the Cooling Vent Filters—typically forgotten. Depending on your laser's model, the filters are typically located on the back of the laser cartridge's cover, directly underneath the position of the laser cartridge/power supply (a small one), and on the right-hand side of the cover as well--two to three different locations. Dust accumulation can result in overheating and is the major contributor to cartridge power and lifespan reduction. Clean in warm/hot water and allow to dry completely before reattaching. The easiest way to clean the filters is by placing the dusty side down and running faucet water through the filter (this prevents dust clumping/sticking on the filter). Using several paper towels wrapped around the filter, squeeze the filters until completely dry. Allow the filters to air dry if necessary before reattaching to the laser system. Remember, the filters should be completely dry before running the laser system. *You can accelerate the drying time of the filters by using a hair dryer or hand dryer if necessary.

- **Monthly Check/ Twice Annually Clean During Use**
(Estimated 2 minutes to check/20 minutes to clean every 6 months during use).



Lead Screws and Base Cleaning

Check the Lead Screws. You can clean the lead screws with Simple Green cleaner or a similar cleaning product. If large amounts of debris build up on the lead screws, this can prevent proper Z-axis movement. Place a rag behind the lead screw and spray down to the base of the screw. Rub the rag from left to right down the lead screw. Lower the table to clean the upper section of the lead screws. Follow the cleaning by applying White Lithium grease the whole length of the lead screw to all three lead screws. A heavy application of White Lithium grease is not necessarily better, simply apply a narrow stream of grease down the lead screw, take your finger and even out the grease and spread the grease around the whole diameter of the lead screw. Run the Z-axis table all the way down and back up using the up and down arrows on your control panel—homing the Z-axis is not necessary for this step. Make sure to remove build up grease from both ends of the lead screw—the excess grease will attract debris and is not necessary. When cleaning the lead screws, its best to use a shop vacuum to remove excess material cuttings and then using a dampened rag clean the whole area of the base.

- **Monthly Check/Once or Twice Annually Clean During Use**
(Estimated 5 minutes to check/20 minutes to clean every 6 months during use).



Honeycomb Cutting Table

Check the cutting table debris caught in the holes or held in the base channels. Remove the cutting table by unscrewing the plenum screws (two on each side) and gently pull the cutting table out of the laser. Using a shop vacuum clean out excess debris caught in the honeycomb and in the base channels. If debris is heavily caked on the honeycomb, the use of a power washer at a 90 degree angle 6" above the table can be used to completely dislodge debris. Note: if the water stream of the power washer is slanted, the small holes of the cutting table will smash together. If a power washer is not available, you can take the cutting table to a car wash for cleaning. Make sure the cutting table is completely dry before reinserting into the laser system. The plenum should be flush with the back of the laser system, when tightening the screws; they should be tight enough where the skin on your fingers feels like its starting to peel off.

- **Monthly Check/Once or Twice Annually Clean During Use**
(Estimated 2 minutes to check/10 minutes to clean every 6 months during use).



Laser Cartridge Housing

Open the door of your laser system's cartridge housing and check for dust accumulation. Excess dust accumulation can lead to a reduction in power and overall cartridge lifespan. Dampen a cloth and wipe the laser cartridge along with around the housing, especially around the vents and power supply fan. The laser cartridge(s) can be removed easily; however, handle with care, your laser cartridge is the most expensive component of your laser system.

Thank you for choosing Highlight Technologies, Inc. for your laser system and servicing needs! We appreciate your business and look forward to helping you ensure a long and prosperous life for your Universal Laser System. If you have any questions about your laser or are in need of replacement parts at any time, please feel free to call us at 208-442-0755 or email ron@hltlasers.com.

Aubrey Innes

Marketing and Sales Manager
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