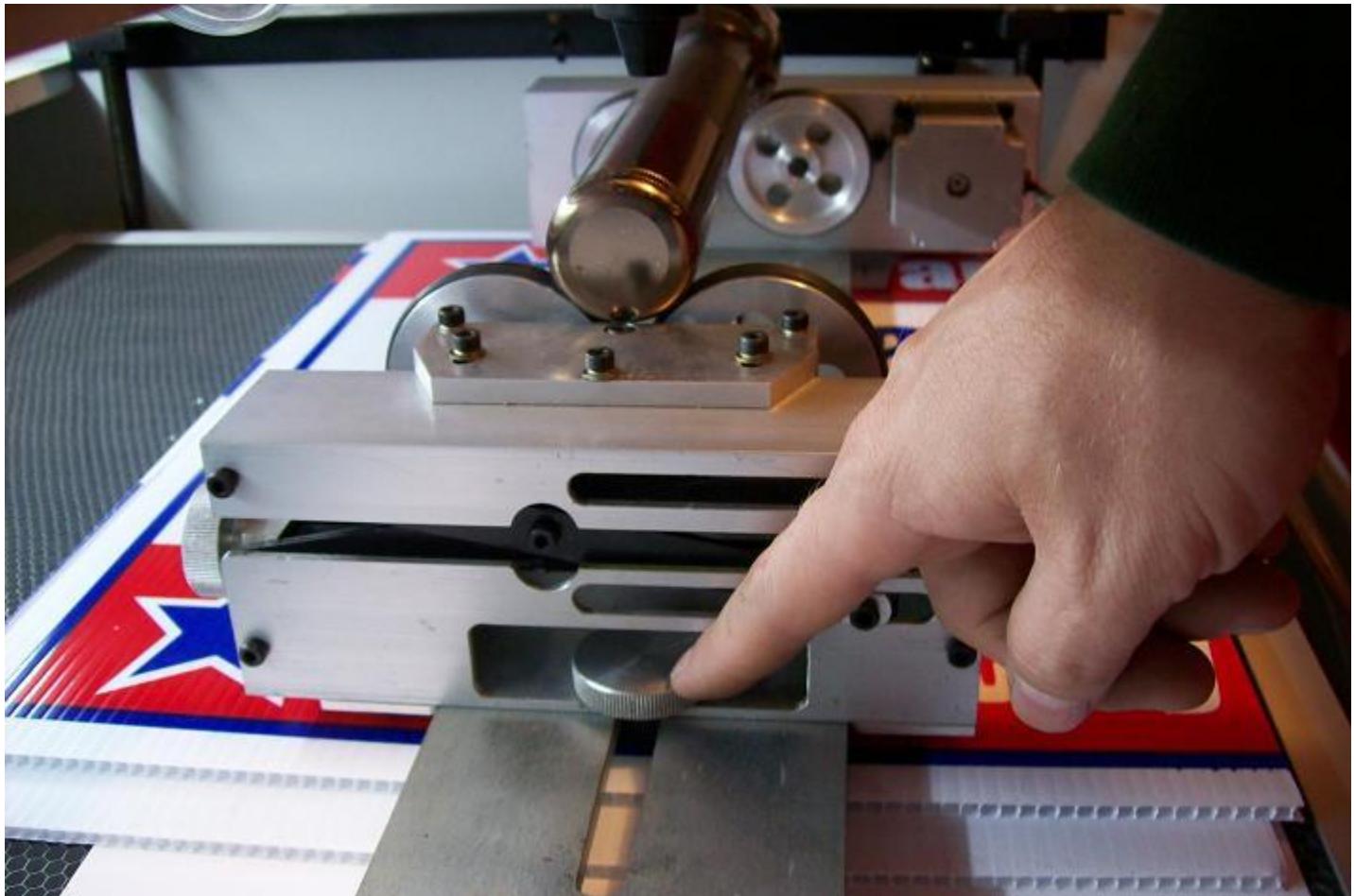


## Using the Roller-Type Rotary attachment...

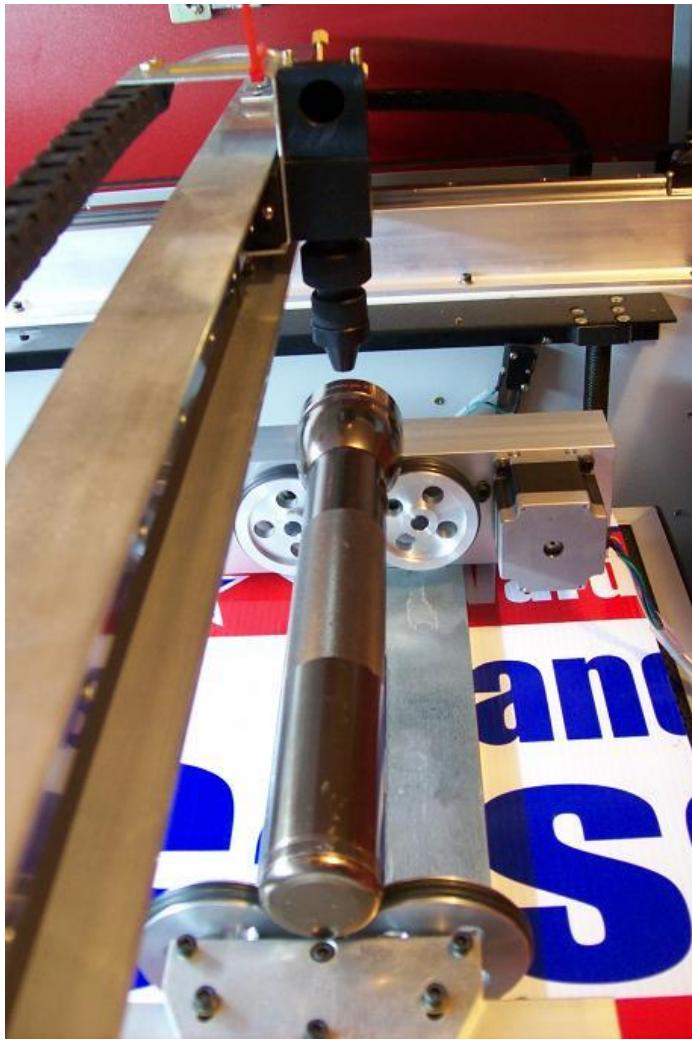
Our customer was very interested in purchasing our laser machine, and also interested in using the roller-style rotary attachment.



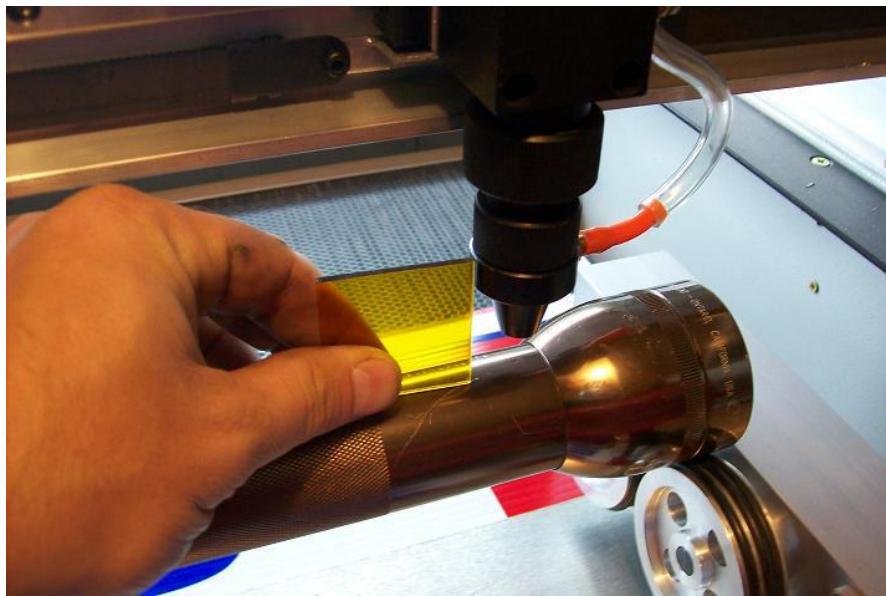
\*\*\*\* Make sure the main door is up and safety switches will NOT allow the laser to fire. \*\*\*

- 1) Move the worktable down such that the attachment and materials will surely fit underneath the focal head assembly. When you put the rotary attachment down in the work area, be careful not to damage the honeycomb bed. Some customers put a plywood insert in place of the honeycomb bed. You can see in this picture that I used some corrugated plastic board to protect the honeycomb bed from getting dented by me as I adjust the roller attachment. The tail-stock end of the rotary attachment is a free-rolling support for the material to engrave onto.
- 2) Adjust the tailstock end of the attachment so it is at the right distance from the head. This is to ensure the material fits securely on the roller attachment. The tailstock end is needed to help support the material and the front end of the roller attachment drives the motion. The front end of the material needs adequate weight to make sure the roller o-rings keep traction during the cutting motions.

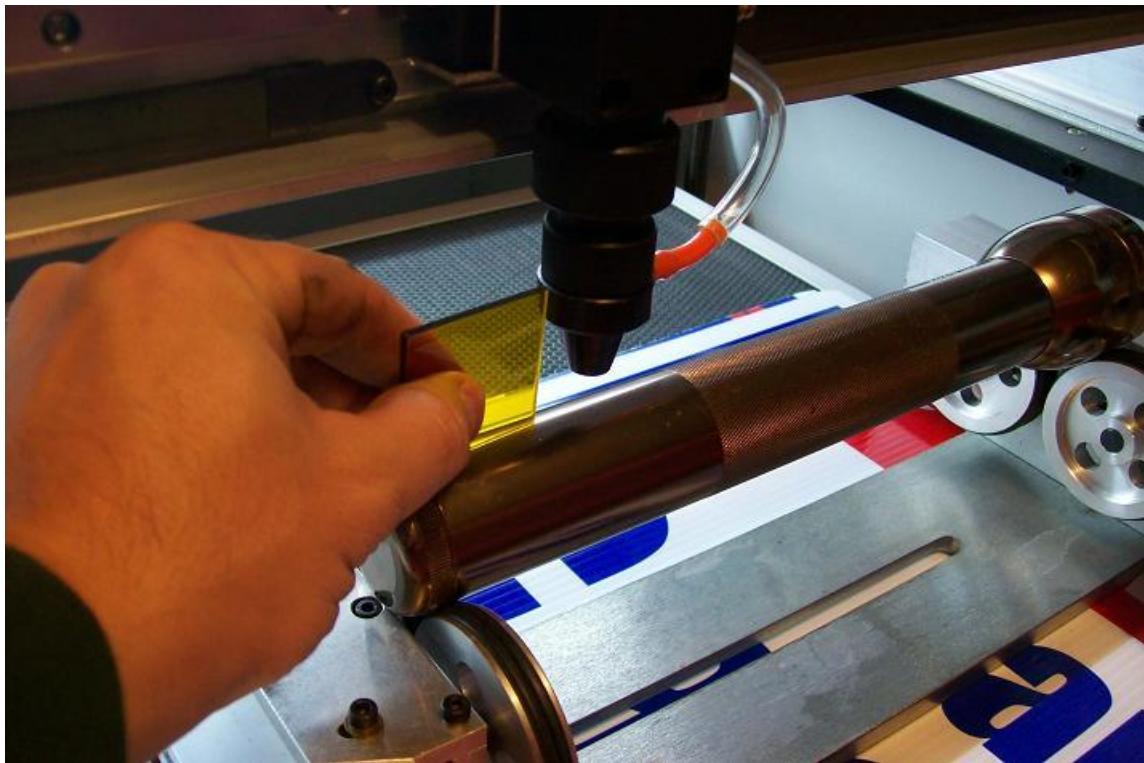
Extra\*\*\* It is very neat to engrave wine glasses, but they often do not have the weight needed to keep traction. I usually press "Silly Putty" into the wine glass to give it more weight and disperse the heat as not to shatter the thin glass.



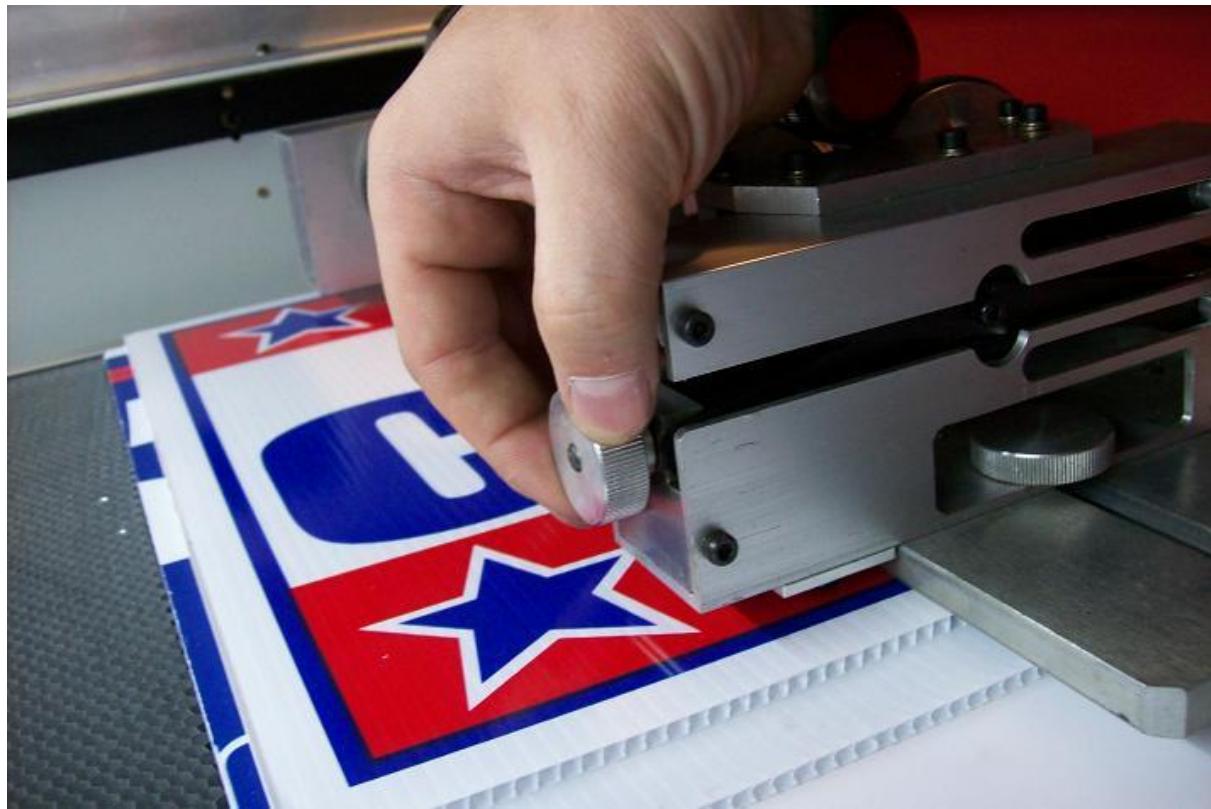
3) Look at how the rotary attachment sits under the Y Axis Rail. Align the rotary attachment to be in line with the rail. We need for the laser to hit in the "top-dead-center" of the material that you have on the rotary attachment.



4) Now to make sure the laser will be in focus. Move the focal assembly to the right end of the material and bring the worktable up to make a focused position. Be carefull not to run the material too far up.



5) Move the focal assembly to the tail-stock end of the material and adjust the rollers up to make a focused position. Be carefull not to run the material too far up. The flashlight in this picture will have a long distance that could be engraved, but some materials may only present a short distance that could be in focus.. (example: short wine glasses)



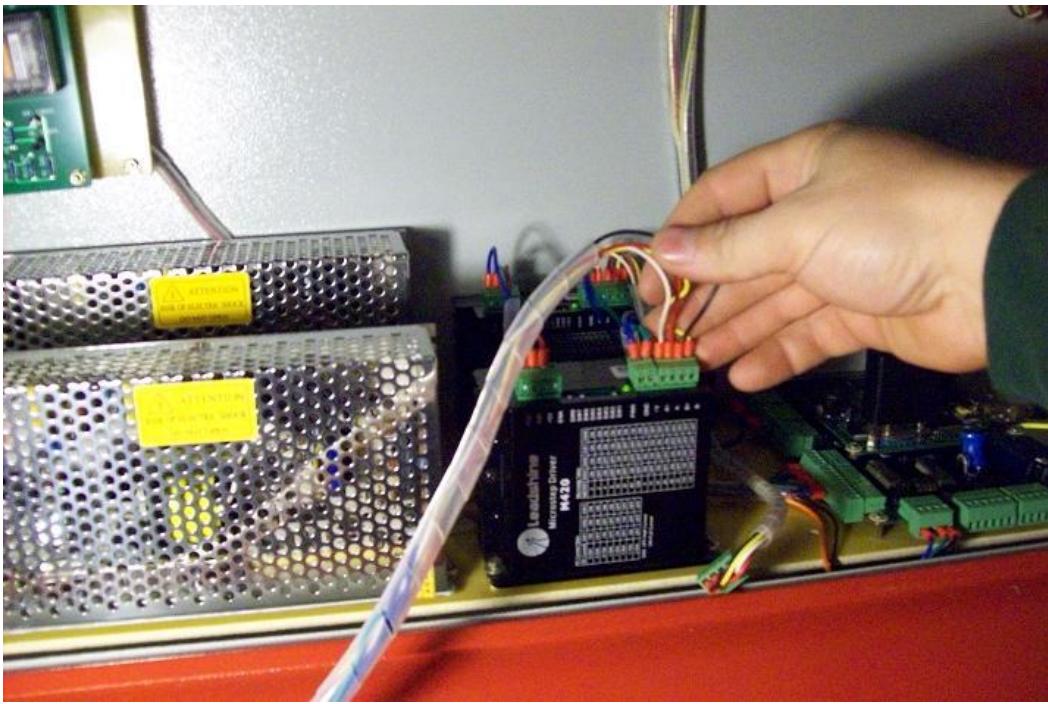
\* This picture shows the knob for adjusting the height of the tail-stock end of the rotary attachment.



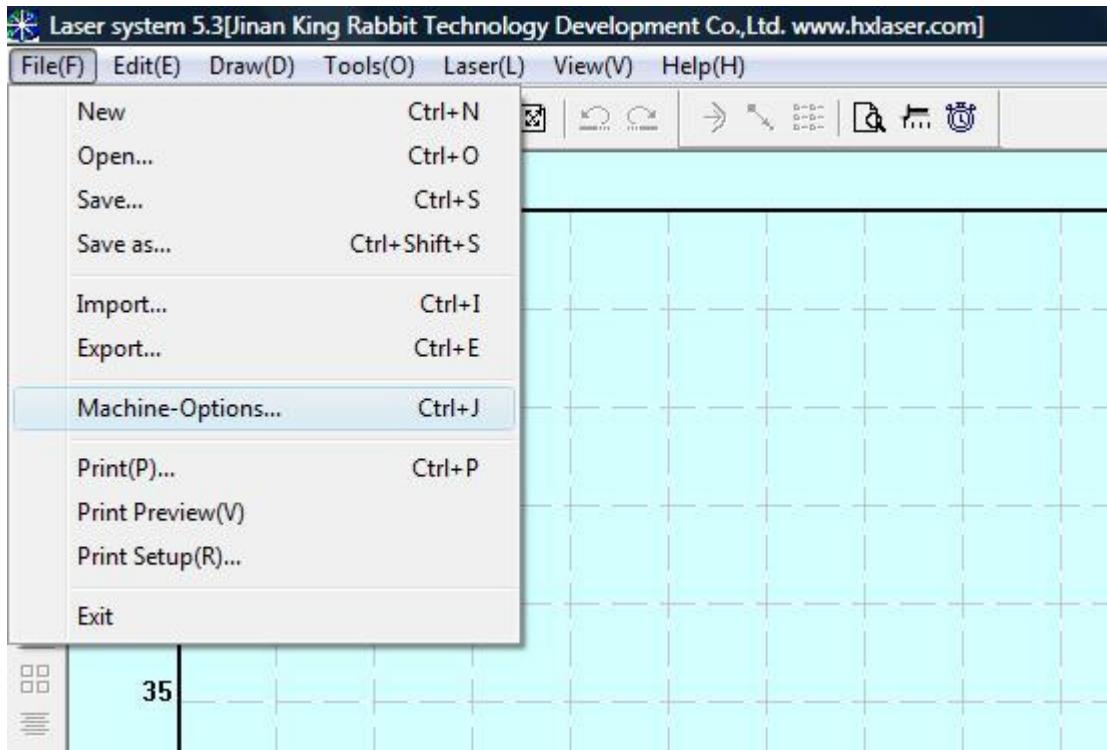
6) Now that the rotary attachment is sitting in place, it needs to be connected to the machine. The motor connector and wires need to be routed through the square hole and taken to the motor amplifier. This picture shows the square hole from inside the laser work area.



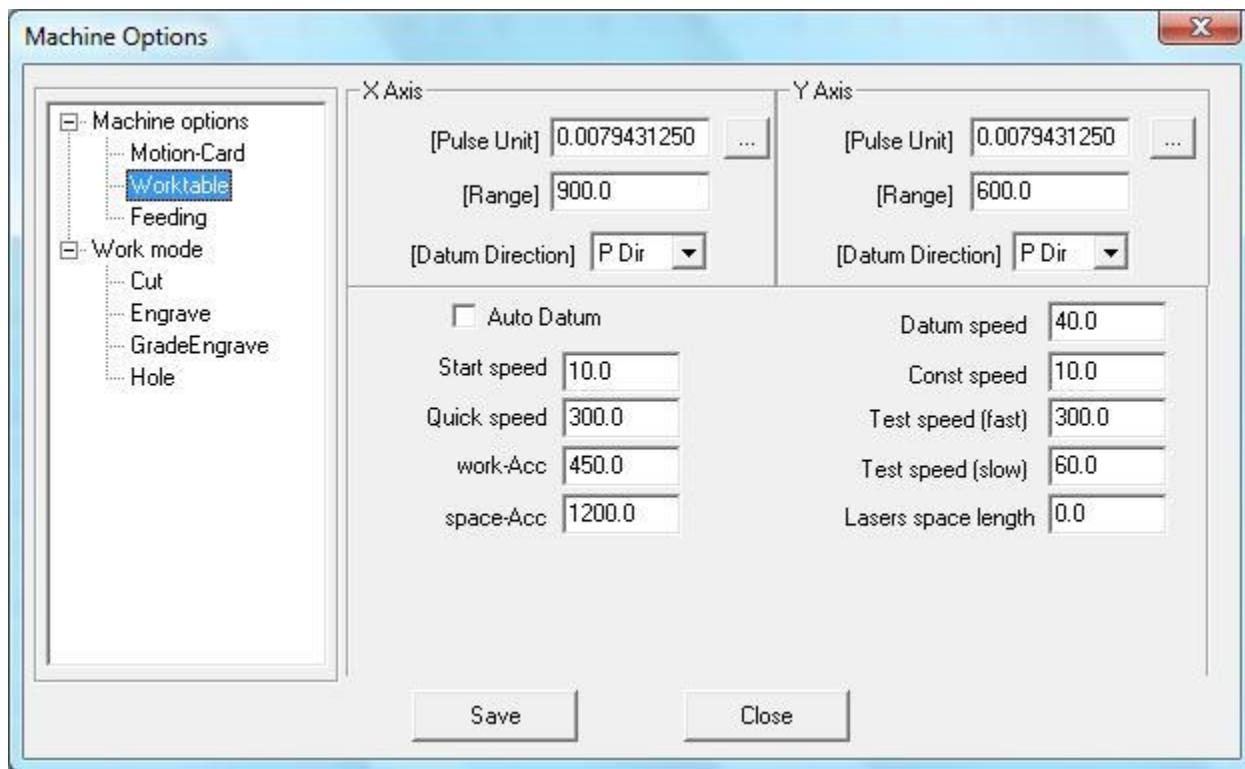
This picture shows the square hole from inside the electronics panel.



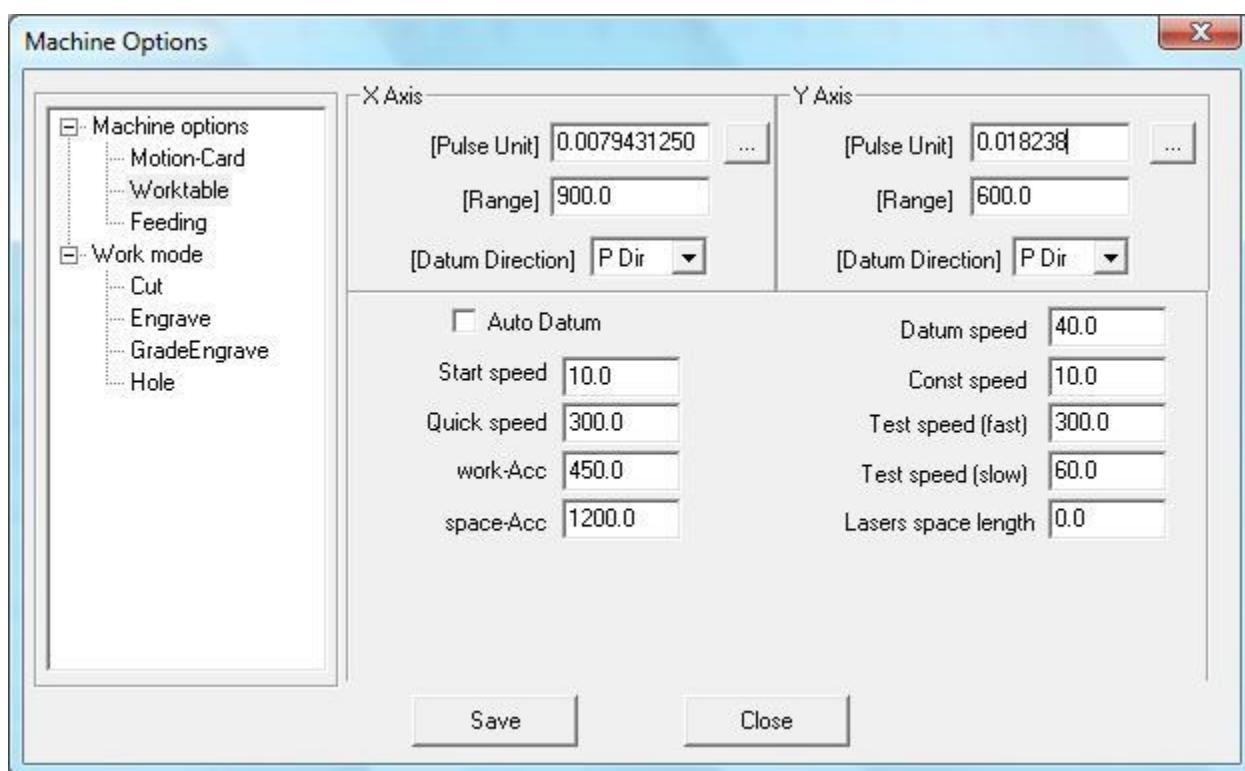
\*\*\* Make sure the power is OFF before you remove the motor wires. Tie the wires off to the side. Place the wire connector (for the rotary attachment) onto the connector of the Y-Axis amplifier. Do not push too hard... It helps to slightly wiggle the connector as you push it on. After everything is reconnected, turn the power back on.\*\*\*



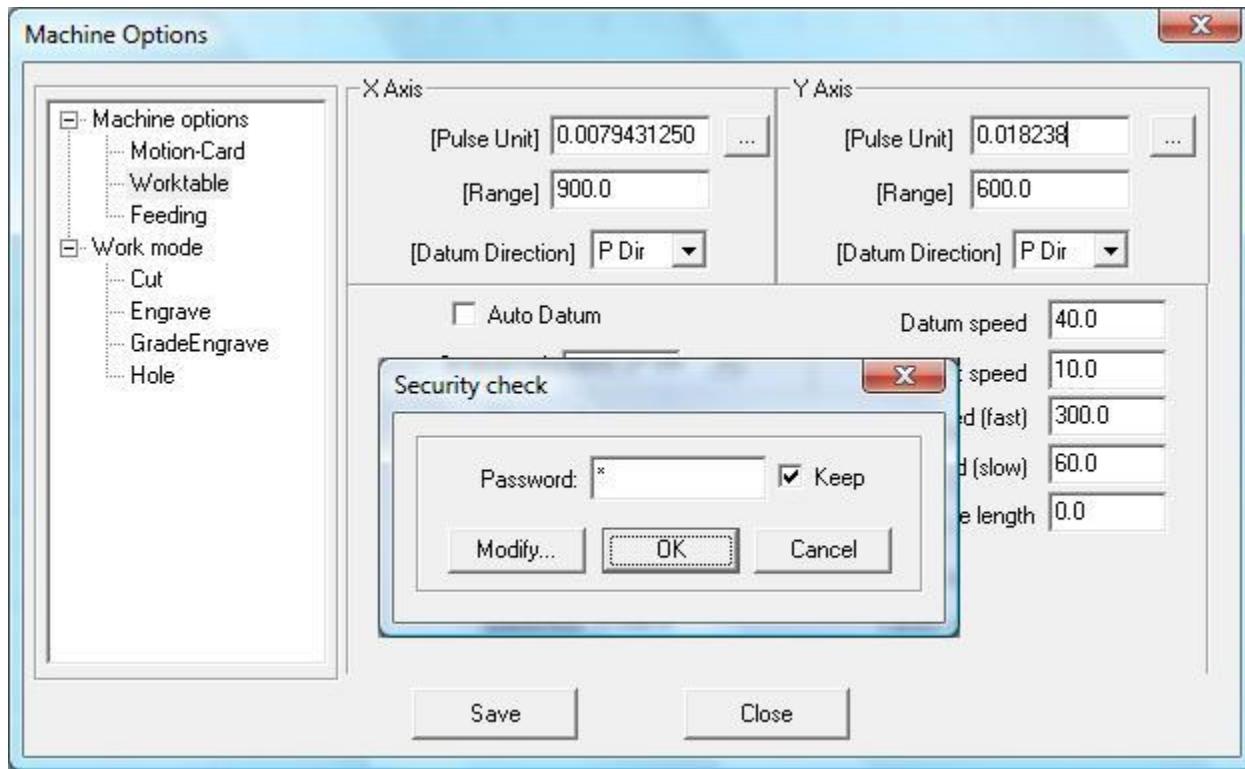
7) Now we need to adjust the software settings to produce images that are truly the correct proportion and not stretched in the Y axis direction. We expect that the computer system is turned on, software is already installed, and the LaserCut 5.3 is working correctly. Start LaserCut 5.3 with a fresh project. Select the "File" in the menu and then select "Machine-Options" .. or press Ctrl and J buttons together for the hotkey function. The "Machine-Options" window will turn on.



- 8) Select the settings for the "Worktable" ... seen here in the picture as highlighted in blue.
- 9) Notice the current value for the Y-Axis [Pulse Unit] is 0.007943125. This is the default distance that each pulse command will move the laser machine. This value is used for the linear rails.



- 10) Change the value for the Y-Axis [Pulse Unit] to 0.01823829. This is the "approximate" value for the drive end of the rotary axis. This number might be different depending on the diameter of the O-rings in your rotary attachment.



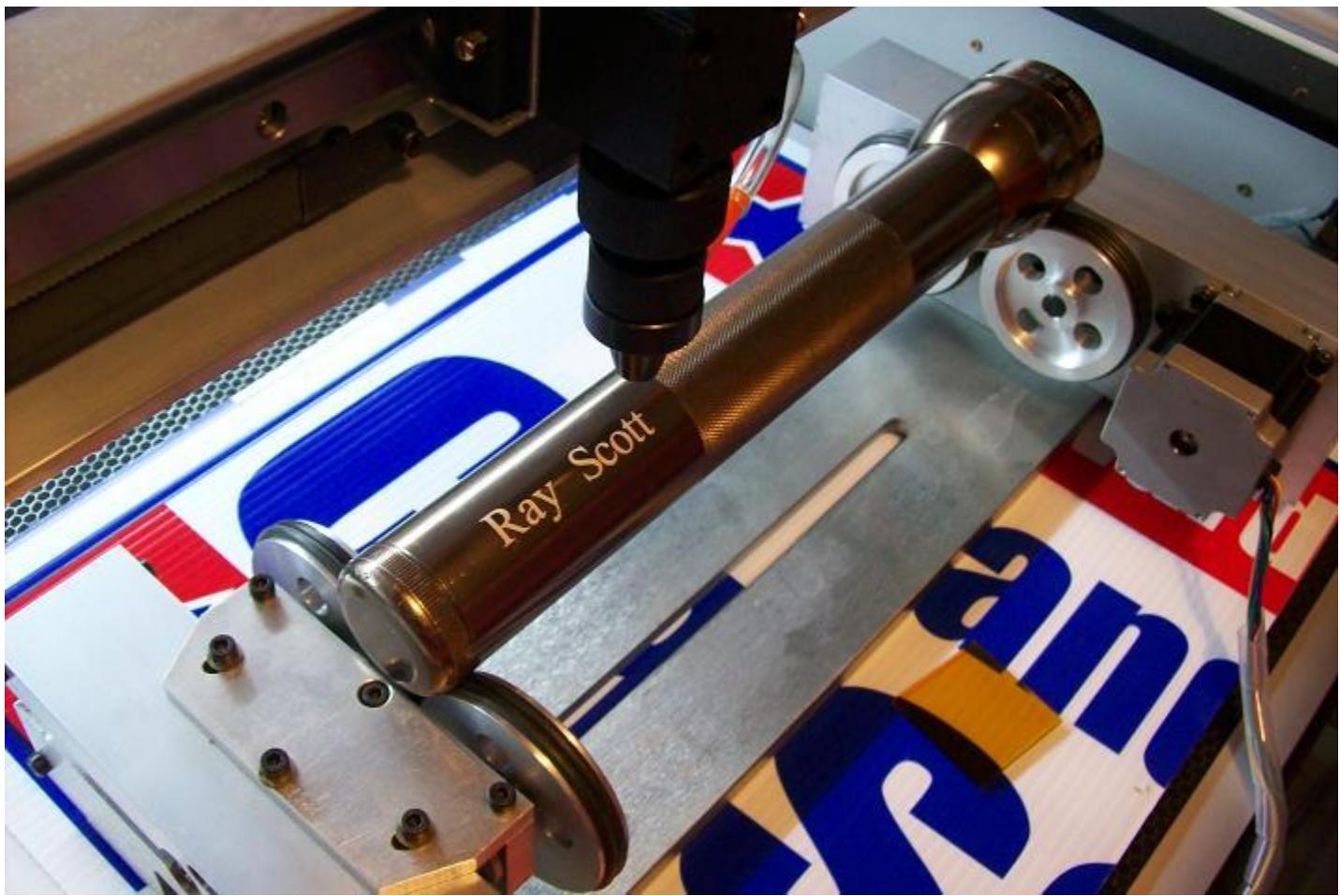
11) Save the changes to the "Machine Options" that we have just made. Simply press "OK" .. you should not need to insert a new password.

12) Close the "Machine Options" window.

\*\*\* Your are now ready to start a new project with the rotary axis. \*\*



Here is an example of how I engraved my name around the top of the Maglight flashlight.



Please notice that the flashlight has two obvious diameters. The diameter of the flashlight head at the drive wheels is larger than the body of the flashlight. We cannot turn the flashlight around because we can't get it to be level that way... We must use the flashlight with the bulb at the drive end of the rotary attachment. The problem is "How do we set up the rotary attachment for us to have finished pictures that aren't stretched?" It is pretty easy to do trial and error to get a "square picture", but let's do it with math. Measure the diameter of the drive end (D1) and diameter of the body (D2). Now use your calculator to find  $D2/D1 * 0.01823829 =$  (new Y-Axis Pulse value). Enter this number into the Machine Options table, save settings, .. and ready to engrave the new section of the flashlight.

Please remember that you will need to put the original Y-Axis Pulse value back into the "Machine Options" section before you can use the laser machine in normal mode (without the rotary axis).

#### Questions:

Q) I did the installation, but all the graphics are backwards or upside-down. What to do to fix this? A) Go the the electrical connector of the stepper motor. There should be four wires going into a green plastic connector. Turn the machine power off. Loosen the screws for the two wires at the end of the connector (B+ and B-), Switch the position of these two wires. Tighten the screws back down. Turn the machine power back on. The rotary attachment will now go the other direction when given a command to move.

