

Updated Focus Procedures for the Laser Cutter

Focus the beam: Using the arrow keys on the laser cutter keypad, move the laser head over your material where the job will be cut. **Ensure that the small autofocus plunger on the right side of the laser head is going to contact the material when the bed moved up.**

Use the Z/U button and up down arrow keys to select **Auto Focus** on the machine panel. Hit enter. The laser cutter bed will move up until contact is made with the plunger, and then move back down to the correct focus distance for cutting.

WARNING: the most common error students make is to auto focus while the plunger is over the mesh bed, and not over their material. When this happens, the laser head will puncture the bed and the machine will jam. At this point the staff will need to manually lower the bed to recover. The machine will be unusable until staff is able to do so.

Focus the beam: Using the arrow keys on the laser cutter keypad, move the laser head over your material where the job will be cut. You will be focusing the machine manually using the Z-axis move and the manual focus jig (see Fig. 2). Press the Z/U button to put the machine into the “Z-axis move” mode. The left arrow moves the bed up, and the right arrow moves the bed down.

Adjust the height using the left/right buttons until the manual focus jig just fits between your material and the bottom of the laser head (see Fig. 3). This should be a tight fit; you should be able to slide the jig between your material and the laser head without visible gaps.

WARNING: DO NOT, under any circumstances, trigger the autofocus function. This will crash the head into your material, and could damage the machine. It will require (at a minimum) inspection before the machine can be used again.

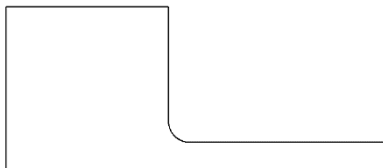


Figure 2: Manual Focus Jig

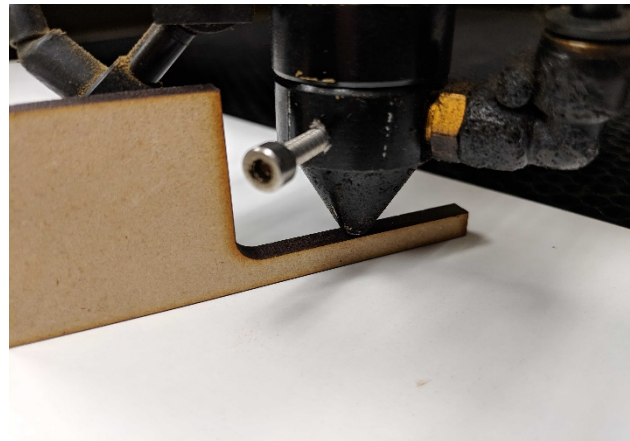


Figure 1: Using the Manual Focus Jig to Focus on Material

LASER CUTTER USAGE CHECKLIST

These steps are meant as a quick reference. More details can be found in previous sections of this document.

1. Sign in on the laser cutter log sheet.
2. Document setup:
 - a. Login to the computer with your ADCRM account.
 - b. Open RDWorks.
 - c. From RDWorks, import your .DXF file to cut.
 - d. Draw test cut boxes ensuring that they are long and skinny in both horizontal and vertical directions.
3. Laser cutter setup:
 - a. Make sure the bed is free of debris.
 - b. Turn on laser cutter systems (all 4), wait for laser head to calibrate.
 - c. Place cutting material in the bed.
 - d. Position the head at the top left corner of your material and press the "origin" button.
 - e. Move cutting head to center of expected cutting area.
 - ~~f. Use the autofocus to focus the laser head.~~
 - f. Use the Z-axis move to adjust the focus height and check with the manual focus jig
4. Cutting Test Cuts:
 - a. In RDWorks set every layer off except for your test rectangles
 - b. Download your file to the laser cutter and use the FRAME button to ensure that the cuts will fit on your material.
 - c. Cut your test rectangles and ensure they are cut through.
5. Cutting Your Parts:
 - a. Set every layer to OUTPUT = OFF except for the layer you want to cut.
 - b. Click "download" and choose a name (or leave as DEFAULT).
 - c. On the laser cutter, press "start/pause."
 - d. While the laser is cutting, watch the cutter and be ready to engage in fire safety protocols.
 - e. Wait 10 seconds for blower to remove smoke before opening the lid.
6. Cleanup:
 - a. Move the laser head away from your material.
 - b. Remove your material from the cutting bed. Make sure to clean up tiny pieces that were left behind.
 - c. Remove your waste material from BE-138, DO NOT put it in lined trash cans.
 - d. Delete your files from the laser cutter.
 - e. Turn off all 4 laser cutter systems.
 - f. Log off of ADCRM account.
 - g. Sign out on laser cutter log sheet.