

Using the Laser Boring System

I am going to assume that you know at least the basics of using a trapped boring bar system so will be dealing only with the areas where this one is different.

Safety stops

The “D” frame is drilled for two safety stops. A major danger is that, in a moment of inattention, you allow the “D” frame to come out of the trap. Using these stops religiously can go a long way to making sure that can't happen.

How the laser head works -- theory

The laser head rotates and tilts. When the tilt adjustment screw is backed off, the tilt tube is held vertical, against the positive stop setscrew, by spring pressure. If you now rotate the laser head, the spot will stay in the same place if the setup has been properly done.

If you now screw in the tilt adjustment, then rotate the laser head, the tilting of the tube will cause the beam to describe an arc and the center of the arc will be the original location of the spot .

Using the laser system

For the system to work properly, the tool's cutting edge should be circular.

Cut a small piece of card stock several inches long to your wall thickness.

Back the tilt adjustment screw (the one with the black plastic knob) out so that it does not contact the tilting tube.

Adjust the arm, using the laser adjuster at the top of the upright, so that the spot is in the **center of the cutter**. At this point, since the beam is vertical, rotating the laser head will not cause the spot to deviate from that point.

In order to set your wall thickness, you use the tilt adjustment screw. Hold the wall gauge against the cutter's edge perpendicular to the tilt adjustment screw and rotate the screw (screw it in) until the spot falls off the card. Now the laser is tilted so if you rotate the head, the spot will form an arc around the cutter.

If you are unclear about what is happening, you might try this: Adjust the tilt screw so that the spot falls on the cutting edge of the tool. Now as you rotate the head, it will follow the edge. This isn't very useful since it will give you a wall whose thickness is zero but it might help you to visualize what is going on.

Put the cutter inside the piece and rotate the head so that the tilt adjustment screw is approximately perpendicular to the wall where you will be cutting.

In order for any laser system to give you a proper measurement, the line between the spot and the cutting edge must be perpendicular to the wall where you are cutting. With any other alignment, the wall will be thinner than you expect. With most implementations there is guess work or calculation here. But not with this one.

Rotate the laser head and you will see that the spot follows an arc (more or less vertical) on the outside of the work. When the spot is at the bottom of the arc, you have a true perpendicular. As your wall thickness decreases, the arc will become more pronounced, so that you can readjust it at any time and the measurement will become more accurate.

Viewed another way, when the spot is at the bottom of the arc it is also as close to the outside contour of the wood as possible. Then, when the spot falls off the wood, you have your desired wall thickness.

Remember that once the cutter is inside the work, the only adjustment you make is to rotate the laser barrel. Do not touch the tilt adjustment screw nor the adjuster at the top of the upright.

Warnings, thoughts...

As with any complex tool, there is a learning curve here. My experience with the system is that it is not much affected by vibration but nothing is totally unaffected. So, until you become more familiar with how it works in your environment, it makes sense to check for movement of the laser beam frequently. Take the cutter out of the piece and back off the adjustment screw. If the beam is in the center of the cutter, all is well. If not, fix it. Reset your wall thickness and go at it again.