

# Setting up the Laser Boring System

## To Start

You will need some Allen wrenches (1/8" and M2), some wrenches, and 2 AA batteries which are not included.

Install your most-used boring bar in the "D" frame. You can use any bar with either a 3/4" or 1/2" shaft. Both the John Jordan and the Trent Bosch bars will work well.

## Assembling and adjusting the trap

Install the bed bar and bed lock on the bed of your lathe with the adjustable handle near the middle of the bar.

Screw the two all-thread sections into the bed bar. Make sure that they are screwed in as far as possible without their extending out the bottom.

Tighten one of the 5/8 nuts down on each of the all-thread sections against the bed bar to lock it.

The lower trap rail has two slots which will mate with the two all-thread sections and which can be locked between the two remaining nuts on the all-thread. The adjustable handles on the trap should be on the tailstock side of the lathe.

Loosen the handles, remove the upper rail, and, using your tool rest, the boring bar and "D" frame, adjust the 5/8 bolts so that the cutter is at center height, the bar is level with the bed, and the trap is also level with the bed. Then lock down the bolts. If you have bars whose cutters are at different heights, it will do no harm if some of them cut a little above center.

Loosen the upper rail stops so that they drop to the bottom of the slot and mount the upper rail. Using the "D" frame and several pieces of paper for clearance, and working from one end to the other, lock the upper rail onto the lower rail. Repeat until you get the clearance you want. Then raise the upper rail stops against the upper rail and lock them down. This way you can remove the upper rail and it will index to exactly where you want when it is reinstalled.

## Assembling and adjusting the laser system

Mount the laser upright to the "D" frame using the Adjustable handle. You will find that there is a little bit of slop in the fit so as you are tightening the handle, pull it to the rear a little. This way, when you remove and reinstall the laser system, it will be in the same orientation every time.

Remove 2 of the shoulder bolts (1/8" Allen wrench) from the laser adjuster, install the laser support arm, and reinstall the bolts. The arm goes between the two black pressure plates. The adjuster gives you both horizontal adjustment and rotary adjustment. The rotary adjustment may be a bit stiff in the beginning but will loosen up. You will find that the adjuster works well once you get used to the feel of it. Now is a good time to spray the support arm with a little WD-40.

Install 2 AA batteries in the battery pack.

## Adjusting the laser beam

This is going to be a bit time consuming and tricky so prepare yourself.

Warning: a number of the setscrews on the laser head are installed with thread lock and you should not be adjusting them under normal conditions. If they need adjustment at some time in the future, you would need to lock them into place but I don't anticipate this happening

Put the "D" frame with your most-used cutter installed on a flat surface (the lathe bed would be fine) and clamp it down so it won't move. Put a piece of paper near your cutter and tape it down to your surface.

Back off the tilt adjustment screw so that it does not contact the tilting tube.

Adjust the beam so that it shines on the center of your cutter, then readjust the arm a little so that it shines on the paper.

Now, as you rotate the laser rotating tube, the beam will form a circle. Mark the beam on the paper in four places at 90 degrees from each other. Then make a mark in the center of the circle. Now you must adjust the initial adjustment setscrews (M2 Allen wrench) so that the beam is on your center mark. Typically you should only need to adjust the 4 bottom screws – back off 1 or 2 and then tighten the opposing screw(s). Turning the screws puts some pressure on the rotating mechanism so that it will be necessary to make sure that it is flat against the support arm before evaluating the quality of your work. It will likely require several iterations to get this right.

Now you are ready to do some hollowing.