



Retrofitting Your Ball Screw Mill with Limit Switches

Instruction Overview

If you have an older style ball screw mill saddle that is missing the hole for the X-axis limit switch adjustment screw, use the following instructions to assure the X-axis limit switch operates correctly. When we introduced our MASSO CNC Controller, we added limit switches as a feature of the new controller. We added the 10-32 hole for an eccentric trigger screw to give some additional adjustment room for the X-axis limit switch on our ball screw mills.

Adjusting the Limit Switch to Work without the Hard Stop

Older ball screw mill saddles don't have the screw hole for the eccentric trigger screw stop. The adjustment screw is not entirely necessary. The roller on the limit switch will make contact with the same surface area of the mill saddle. You may need to bend the arm slightly on the limit switch so the roller will make contact with the side of the mill saddle sooner (see Figure 1).

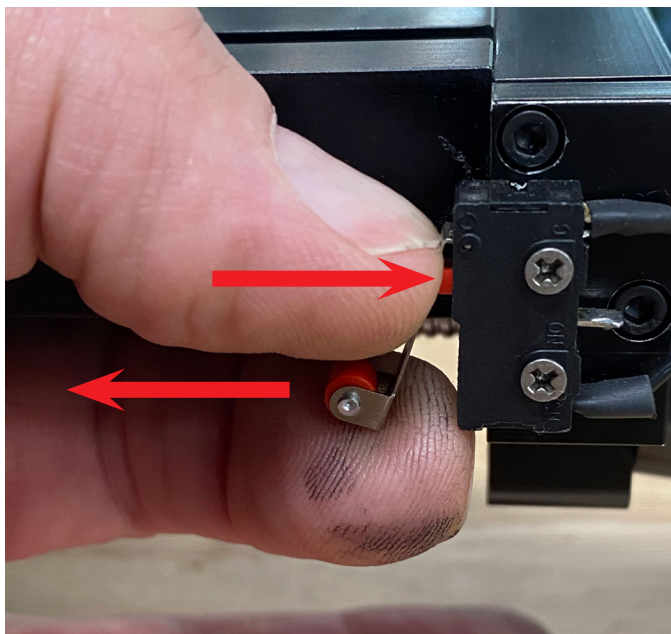


FIGURE 1—Bend the arm outward slightly in the direction of the arrows.

The reason we added the screw was to guarantee that the limit switch would trigger before the hard stop screw (which is located on the bottom, rear side of the mill table) made contact with the mill saddle (see Figures 2 and 3).

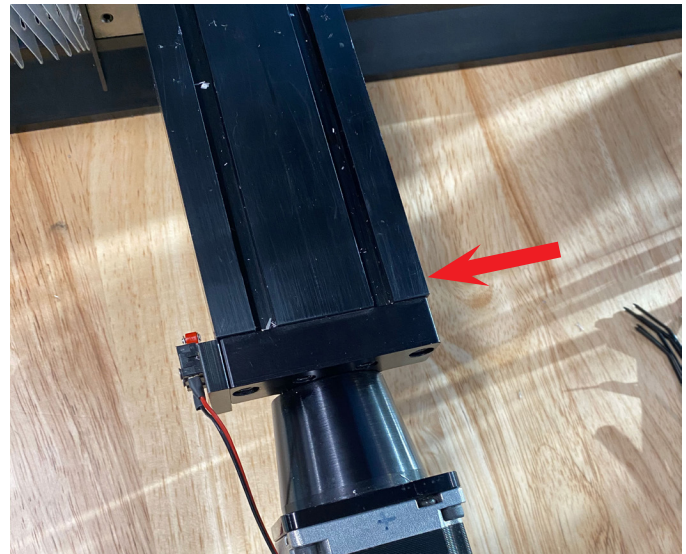


FIGURE 2—Mill table top view. The hard stop screw is located under the mill table near the location of the red arrow.

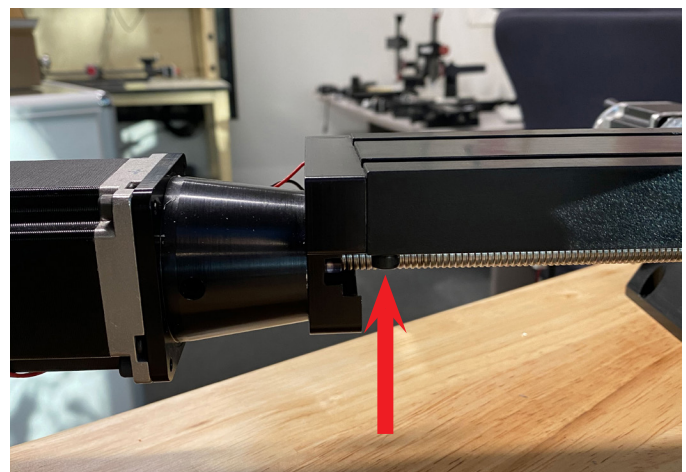


FIGURE 3—Side view showing the hard stop screw.

If you bend the limit switch arm slightly, the limit switch should make contact with the mill saddle and trigger before the hard stop hits and before the stepper motor coupler makes contact with the ball nut mount that is on the mill saddle (see Figures 4 and 5).

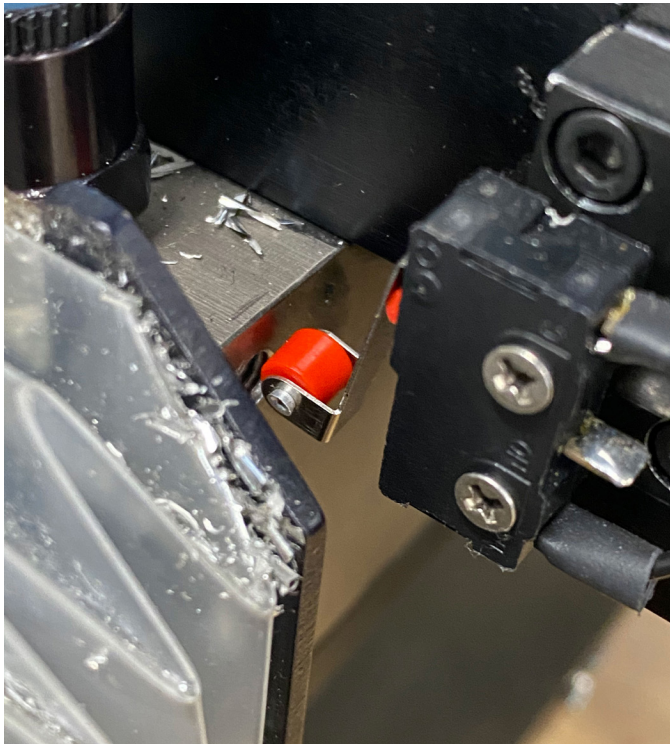


FIGURE 4—Limit switch contact area.

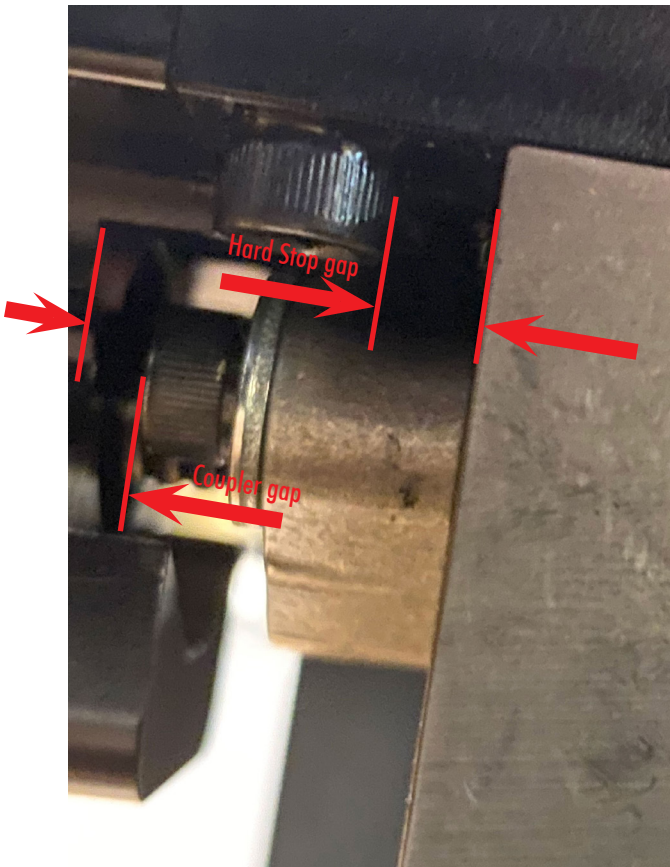


FIGURE 5—This view is from the underside of the mill table. The red arrows are pointing to the gaps between the hard stop and the coupler.

If you adjust your limit switch, you should be able to home out your machine and run it without any problems.

Adding a Hole for the Eccentric Trigger Screw

If you decide that you need (or would like to have) the limit switch adjustment screw, you can drill and tap a hole in the same location. We use a 10-32 screw. Any small screw size that you have will work. The hole location is shown on the print copy below. Just measure from the edges and make a mark. Then use a prick punch to make an indent for your drill to pick up on. This will keep your drill bit from wandering. Drill and tap the hole and insert your screw.

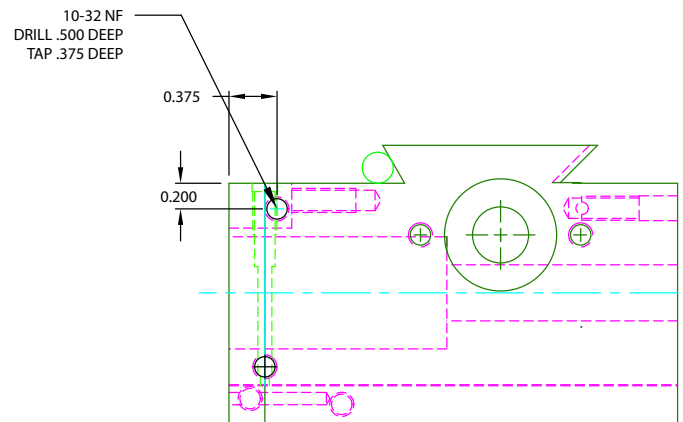


FIGURE 6—The above diagram shows the hole location for drilling and tapping for the 10-32 X-axis eccentric trigger screw.

Thank you,
Sherline Products Inc.