Build Tray Lockbar fabrication and installation instructions

31 Jan 2017

Step 1 – Print the lockbars

Print the "Lockbar 2x.gcode" file by sending it via USB with the MOD-t desktop app. This will print two of the "lockbars" in one print job, as you'll need two per MOD-t you want to modify.

Step 2 – Clean up the prints

Carefully remove the supports that are printed in the small cavities at either end of the bar. I found that an x-acto knife or razor blade works best for this, as the fit is important so you'll want to make sure there are no support remnants remaining in the wedge-shaped cavity.
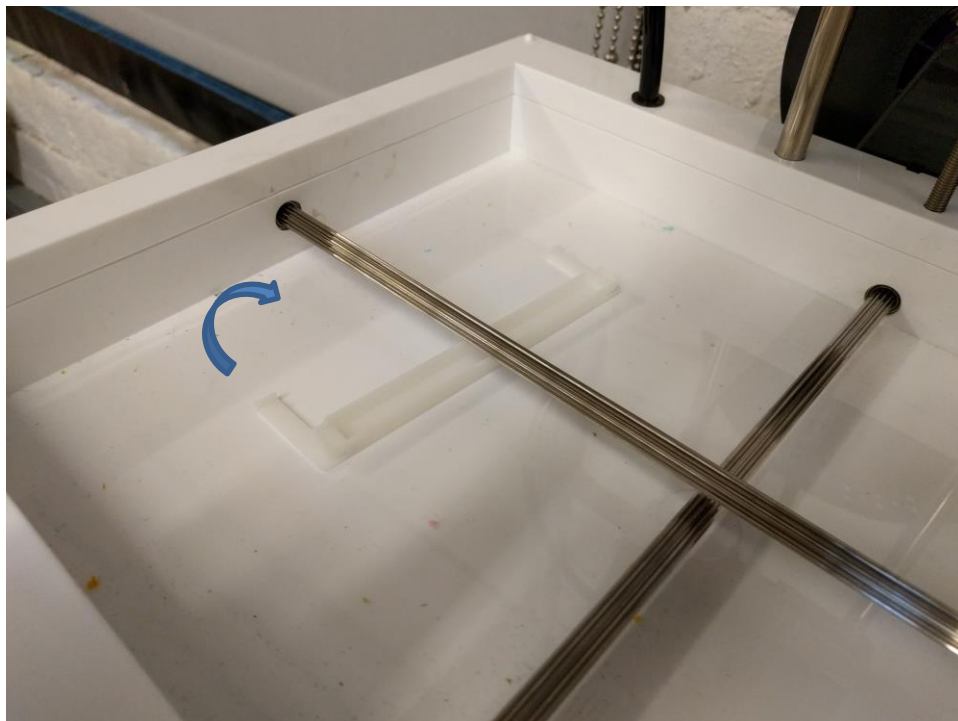
Notice wedge shape when viewed from the end
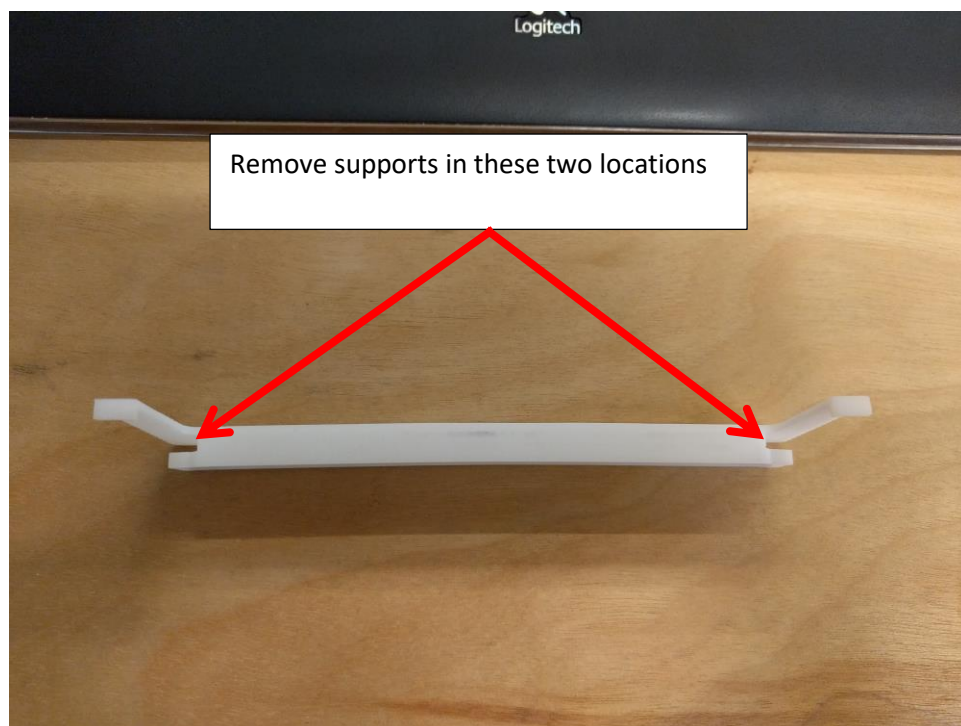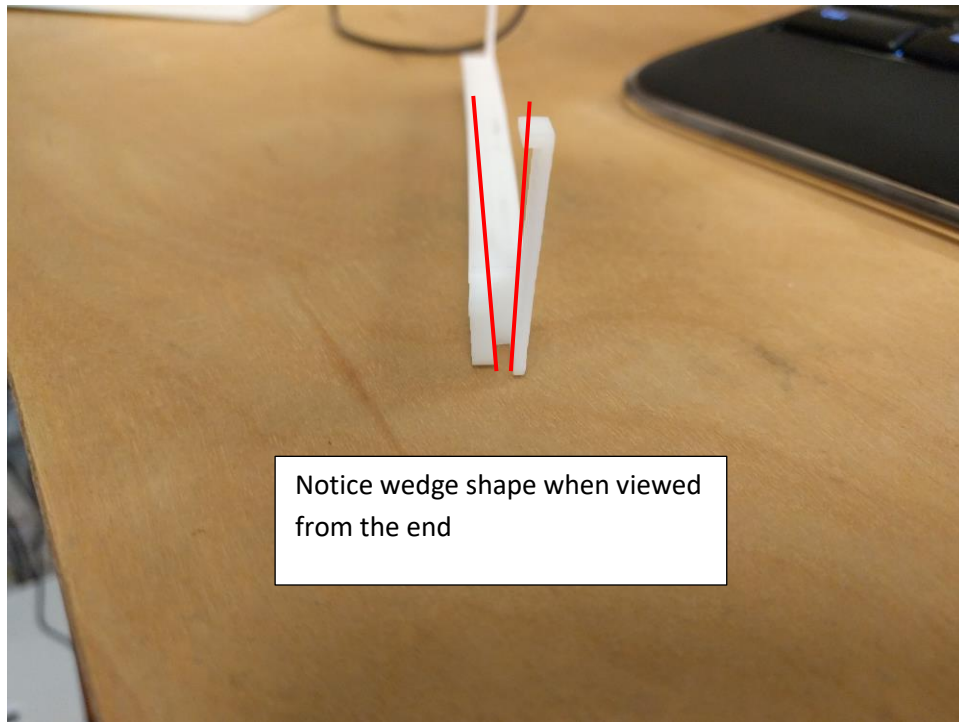
Step 3 – Install the lockbars

Installation of the lockbars will require some adjustment to get the fit just right, with a bit of trial-and-error. Start by installing the lockbars as they were printed, one at a time:

Slide one lockbar under the long pinion rod, then rotate it so it's "standing up."

Now set the build tray down while engaging two of its legs into the wedge-shaped cavities on the lockbar:

Here and here. Ignore that blue tape (for now).

Provide some upward tension on the lockbar to get the fingers to latch over the top edge of the build tray:

Now repeat with the other one, taking care to ensure the build tray is properly aligned on the pinion rod while doing so. I recommend performing the second installation with the tray at the end of its x-axis travel, allowing you to use the short pinion rod and the side of the MOD-t's base as alignment references:

Step 4 – Test the fit and adjust the lockbars

In order to operate correctly, the lockbars must be positioned such that they prevent the pinion rod from disengaging with the gear teeth on the build tray. To test this after installing the lockbars, provide some gentle upward force on one end of the build tray and test whether you're able to slide it forward-and-back over the pinion rod without the pinion rod turning. If so, then the lockbar is too loose. Test this on both sides.

Should one or both lockbars be too loose, you'll need to first uninstall it (following the reverse of the installation procedure above) and add some shims to the top surface of the build tray, where the lockbar fingers interface with it. In my example case, I've used narrow strips of blue painter's tape which I cut to size with a razor, visible in the images above.

Once you've added some shims, re-install the lockbars and test the fit again. This may require several repetitions to get the fit just right. The proper fit will (a) prevent disengagement of the build tray gear teeth from the pinion rod, and (b) allow free, unrestricted rotation of the pinion rod to drive the build tray.