Section 3: X Carriage

The following is the assembly instructions for the X carriage assembly. The complete Mendel uses a total of 1 of these assemblies. The bill of materials for this assembly is:

<table>
<thead>
<tr>
<th>Description</th>
<th>Printed/Purchased</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ja_bearing_360_assembly</td>
<td>Made</td>
<td>2</td>
</tr>
<tr>
<td>ja_bearing_180_assembly</td>
<td>Made</td>
<td>2</td>
</tr>
<tr>
<td>ja_x_carriage</td>
<td>Printed</td>
<td>1</td>
</tr>
<tr>
<td>M3 X 12 SHCS</td>
<td>Purchased</td>
<td>4</td>
</tr>
<tr>
<td>M3 Nut</td>
<td>Purchased</td>
<td>4</td>
</tr>
</tbody>
</table>

The x carriage assembly.

This is where it gets exciting, after all that boring bearing stuff, we don’t touch another 623 bearing. Here a flat x carriage part gets 4 bearing housings attached and becomes the first functional assembly of our Mendel. Note that the 180 bearings are on the front and the 360 on the back. Also note that the extruder mount is not centered, to allow mounting a Wade’s extruder front to back or side to side orientation. Also of note is the opto flag mounting tab on the lower left corner.
The printed part in the build orientation. Note this is an older version. I have since centered the opening and extruder mounting holes!

For all of you who fondly remember plastic model airplane kits from childhood, I introduce the Mendel sprue tab. The bars to hold the belts for the x carriage and the y carriage are printed attached to this part, and cut off for use.

The actual printed part.
Note the “3” and “2” to show where the 360 (3 bearing) and 180 (2 bearing) assemblies mount.

Take a sharp pair of nippers and carefully cut off the bars near the carriage part.

Continue until ass parts are free.
Use a #31 or M3 drill in a pin vise to drill out holes.

Trim the flashing off really carefully….
Push M3 nut and push it into nut recess.

Trim smaller bars.
Drill out holes as above.

Now put M3 X 12 SHCS through bar and into nut. Repeat for 4 screws.

Bars and screws in. This is a bottom view to show which side the bearings go on.
Remove 2 screws and washers from bearing assembly. Place bearing housing in place and insert and tighten screws. Repeat for the 4 bearing housings. Should look like this.

Front view.
Now place straightedge across each end to check both bearing housings are in the same plane (above is not). Loosen bearing housing attachment screws and adjust if not. In a bad case, you may have to drill oversize holes in the x carriage to get this to adjust correctly. This is important to not have the carriage bind. We’re done with this assembly. On to the next!