Part 5

Tightening the Frame

Parts

You will need the following parts;

- 2 x printed bar clamps
- 2 x 440mm threaded rod
- 4 x M8 nuts
- 4 x M8 washers

Preparation

Make sure the threaded rods are de-burred by screwing a bolt on to each end. If the fit is a problem work a nut down to and off the troublesome end to ease the burr.

Particular care needs to be taken easing the bar clamps with a file, do not take off too much material and make sure an M8 threaded rod can fit in the hook and an M8 smooth rod can fit in the tear drop hole snugly. Be very careful as it is easy to split the clamp when forcing the smooth rod in.

1 Verify that the triangle vertices have identical distances from plastic to plastic along each of the three sides, the recommended distance is 290mm. It is critical that the distances between all three apexes is identical but the actual distance is not, a jig made of wooden dowel rod will make this and subsequent maintenance exercises easier. Once you are sure of this, finger tighten the outer vertex nuts until they are firmly attached and unable to move, but do not crush the plastic parts

290 mm

290 mm

290 mm
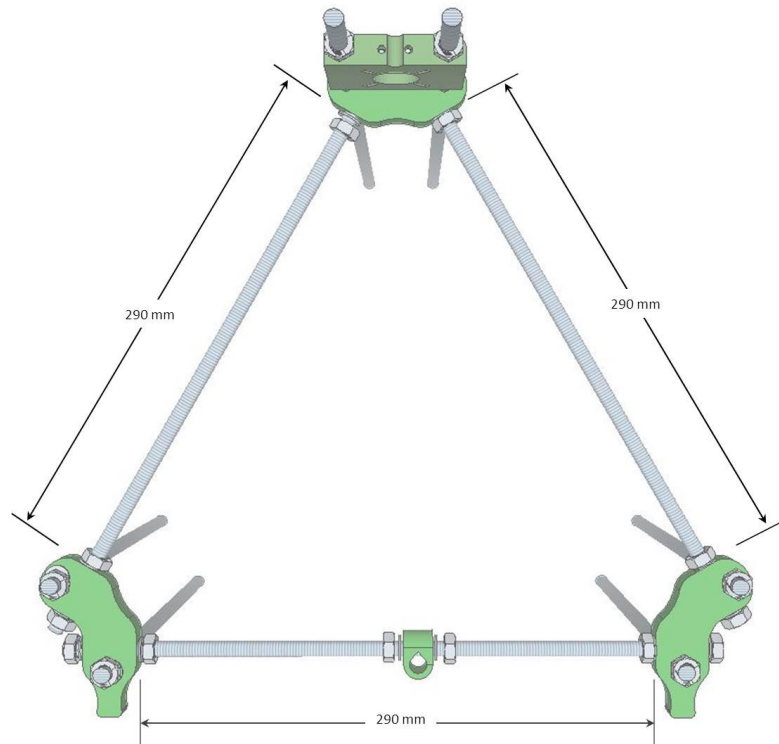
2 Adjust each of the bottom rods until they have the identical distance from plastic to plastic between the inside ends of the vertices, the recommended distance is 250mm . Use frame jig to check this if you have it. Once you are sure this is true, **finger** tighten the outer vertex nuts until they are firm but do not crush the plastic.

Adjust the nuts and bar clamps at each end so they are 150mm between centres and equidistant from each vertex. Again finger tighten the nuts about the bar clamps, do not use a spanner.

250 mm

150 mm
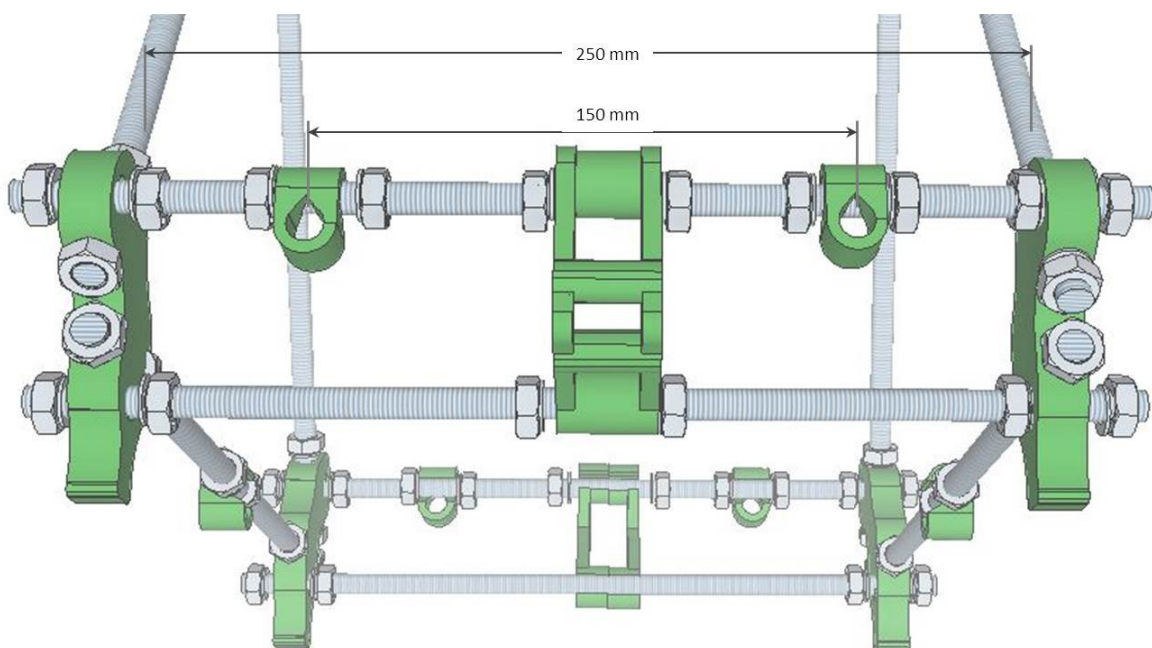
3

Adjust the top of the frame so that the distance between the inside ends of the vertices is precisely J2 (250mm) and the length of rod outside the vertex on one side is the same as the length outside the vertex on the other side. Double-check the distances before finger tightening the nut on the outside of the vertex.

250 mm
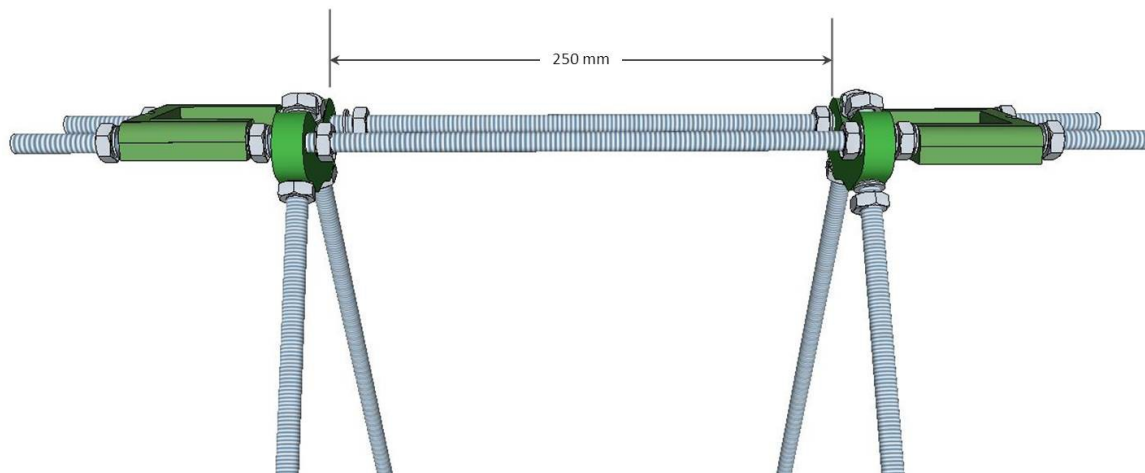
4

The frame should now be fairly stable. Using a plumb line or similar (for example a nut hanging on a length of yarn), adjust the bar clamps on the bottom side of each triangle until they are close to centre of the top vertices. Do not tighten the nuts either side of the bar clamps yet. These need to space the 440 mm threaded rod exactly 1 bar clamp from the centre line of the bot. This is so the polished z-rods are exactly centred with the bot and run perfectly vertical.
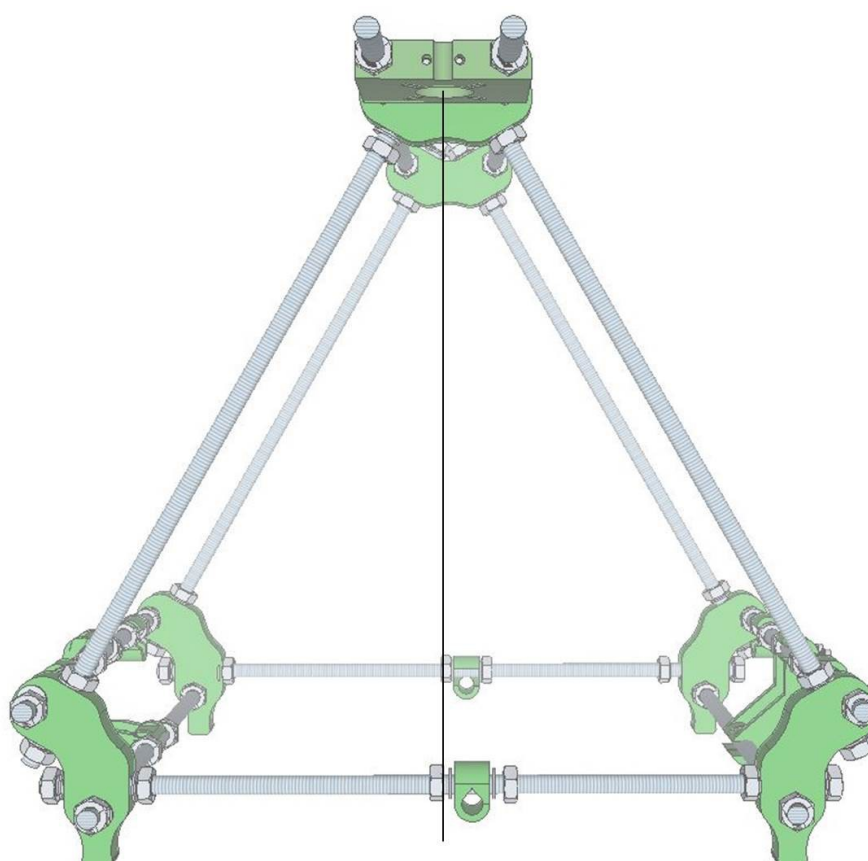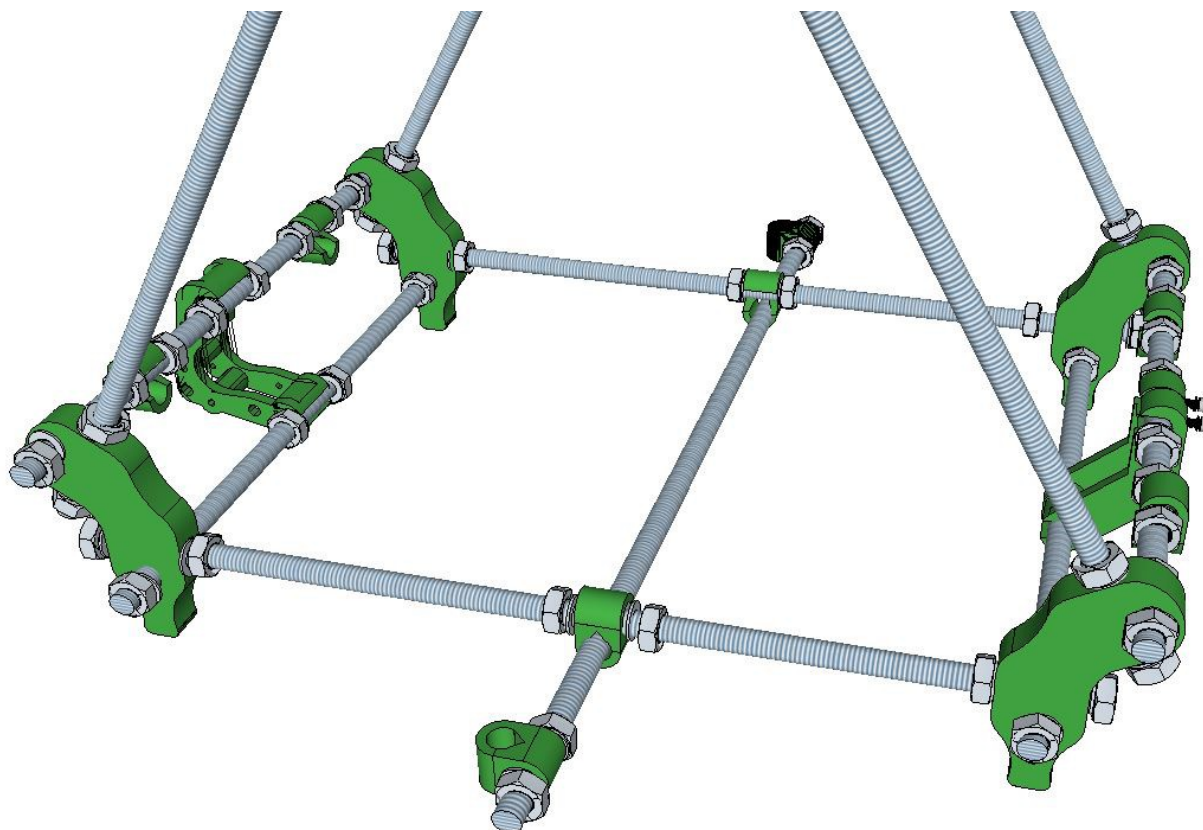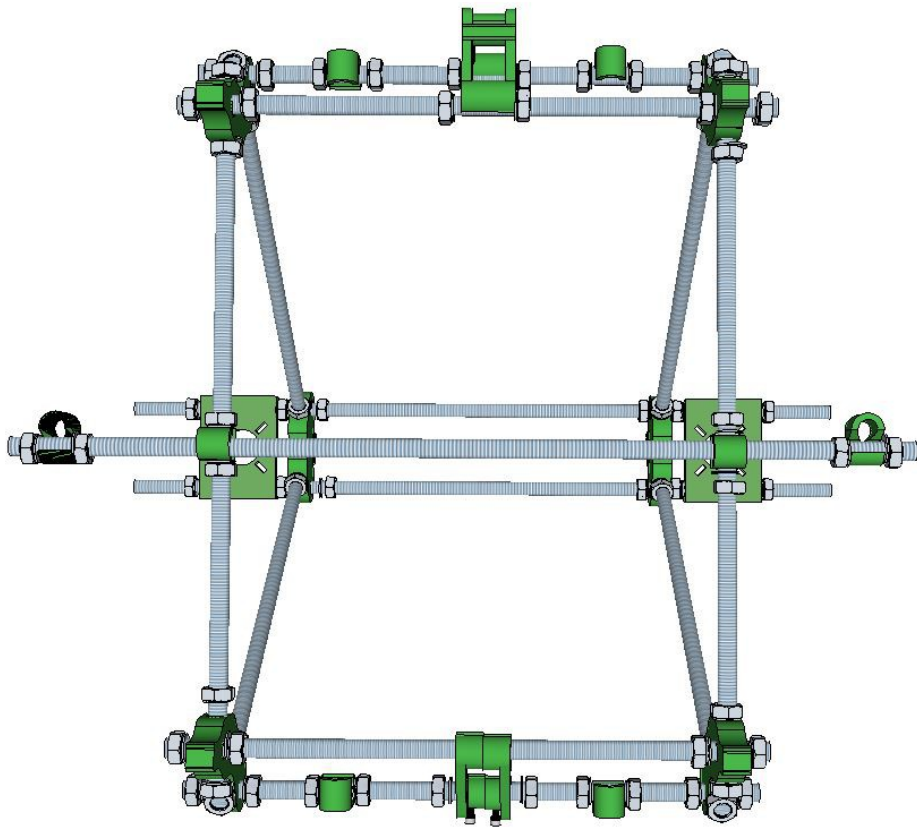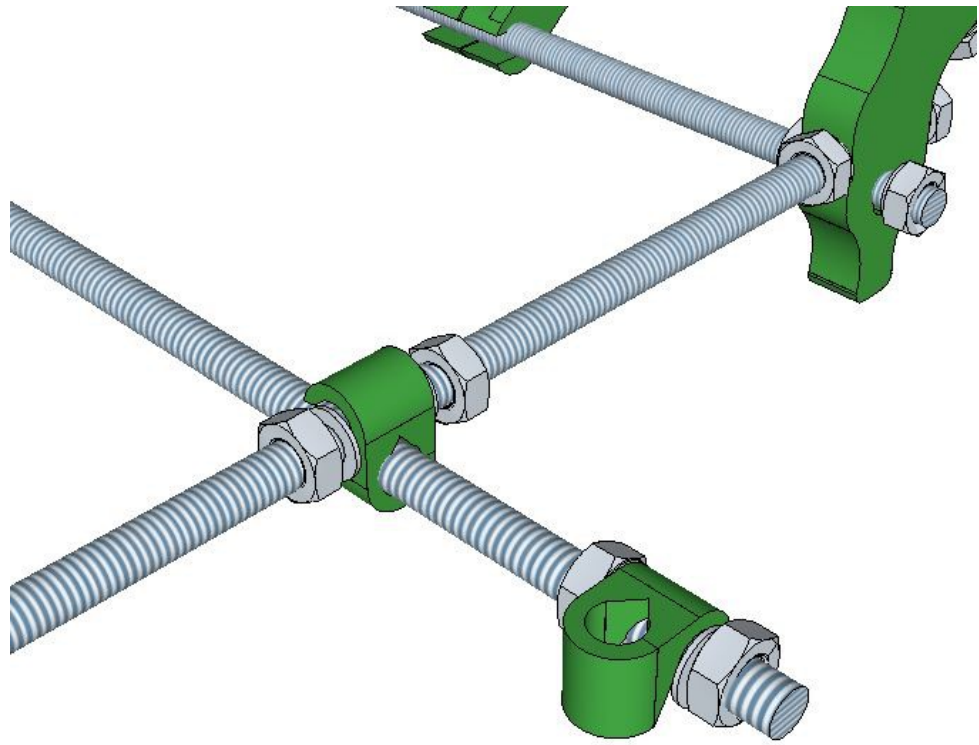
5 Insert the 440mm threaded rod through the two bar clamps on the bottom of the frame. Make sure the new rod is underneath the centre of the triangle bottom rod. Adjust it so that the same length sticks out on each side.
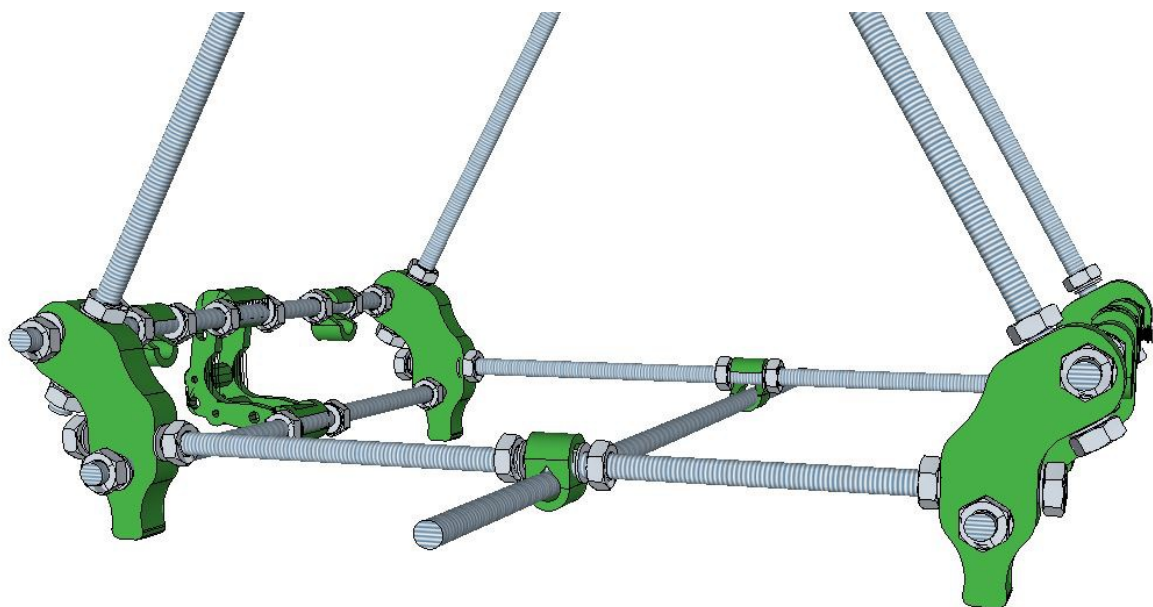
6 On each side, place a nut, washer, bar clamp (threaded through the holes), washer, and another nut.

[View from Below]