Bear Lab

2. X axis

Written By: Grégoire Saunier

This document was generated on 2024-04-25 07:08:53 AM (MST).

Step 1 — X Ends Parts
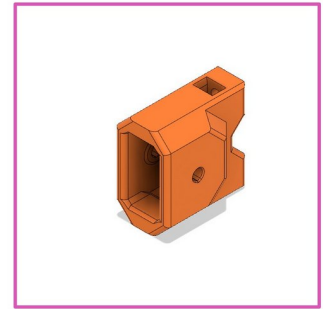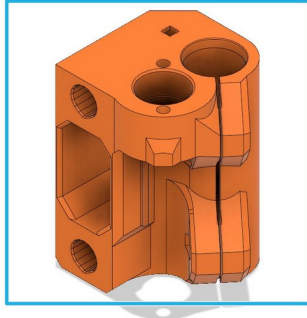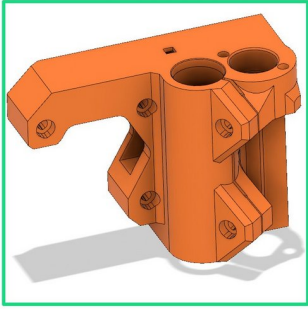
- *x_end_motor*

- *x_end_idler*

- *x_end_idler_idler_mount*

This document was generated on 2024-04-25 07:08:53 AM (MST).

Step 2 — X End Idler
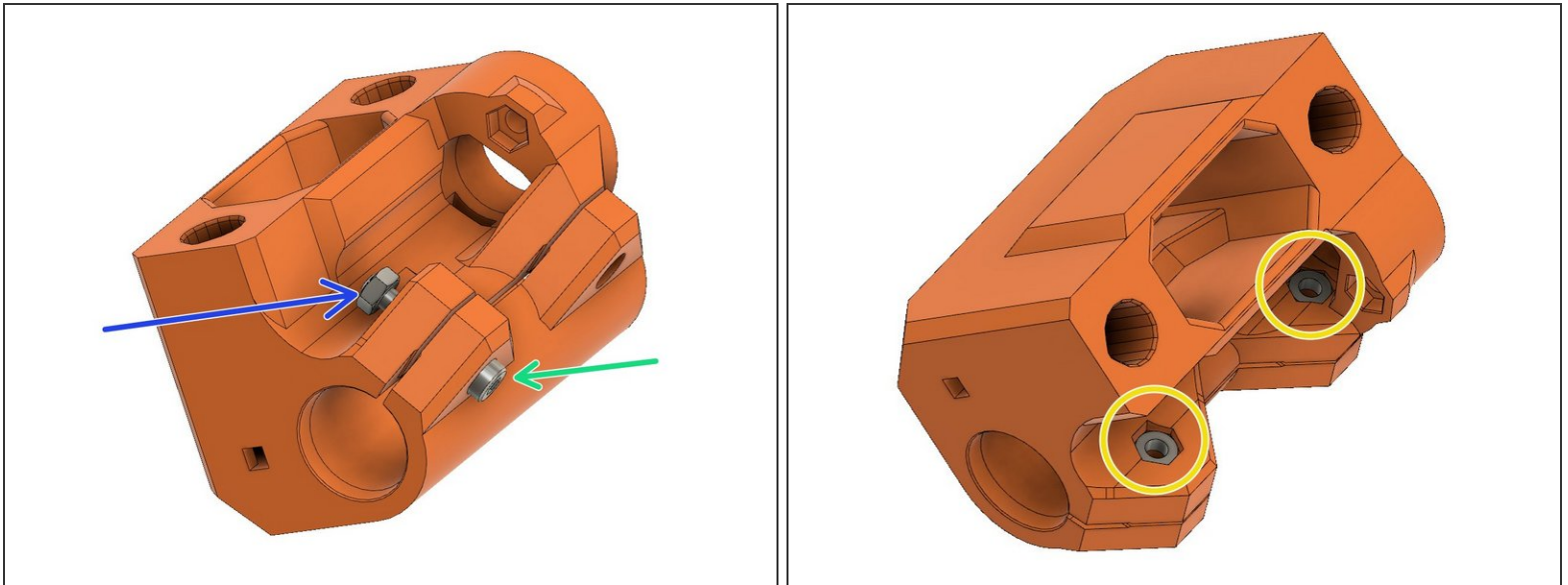
- Insert an M3x18mm socket head screw in one of the *x_end_idler* clamp holes. This screw helps insert the hex nut.

- Using tweezers, hold an M3 hex nut so that it can be threaded onto the M3x18mm socket head screw. Tighten that screw until the M3 hex nut is firmly seated.

- Remove the M3x18 socket head screw and repeat on the other clamp hole.

Step 3 — X End Idler
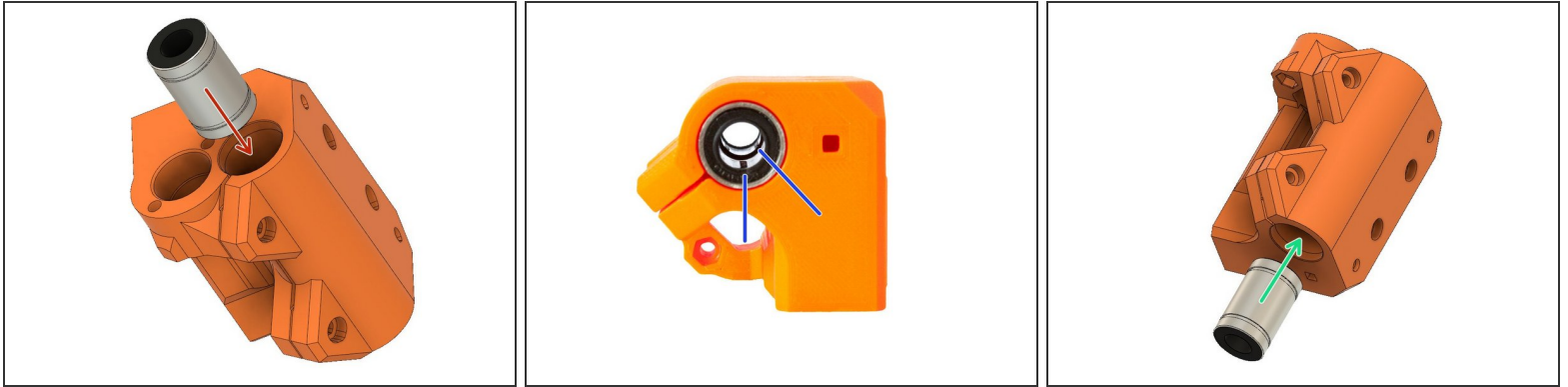
- Insert an LM8UU linear bearing into *x_end_idler* until it hits the internal stop.

- The next LM8UU linear bearing will have to be inserted so that the rows of balls are at 45° compared the rows in the other bearing.

- Insert that LM8UU linear bearing until it hits the internal stop.

- ⚠ Verify that row of balls are rotated by 45° from each other
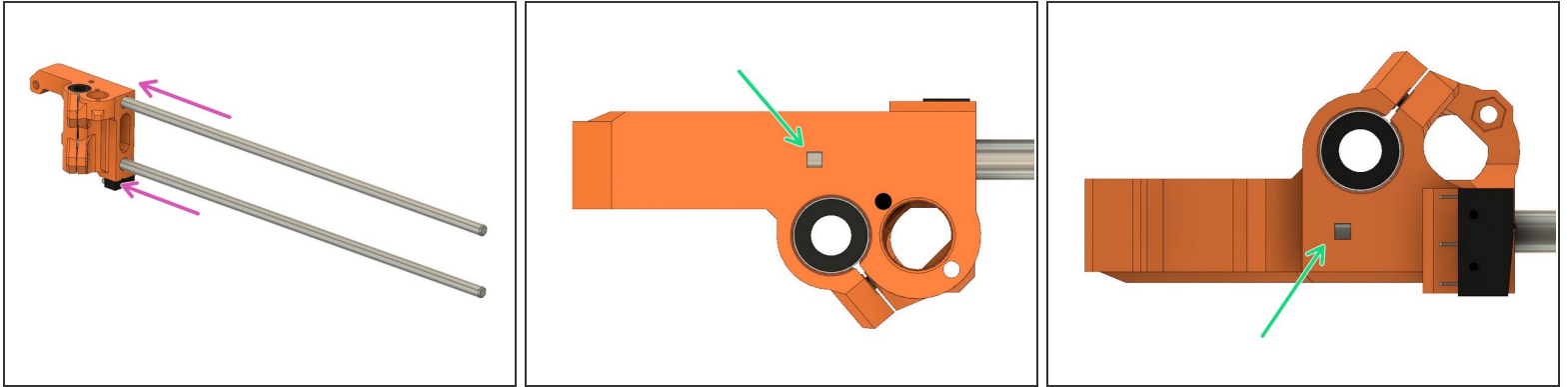
Step 4 — X End Idler
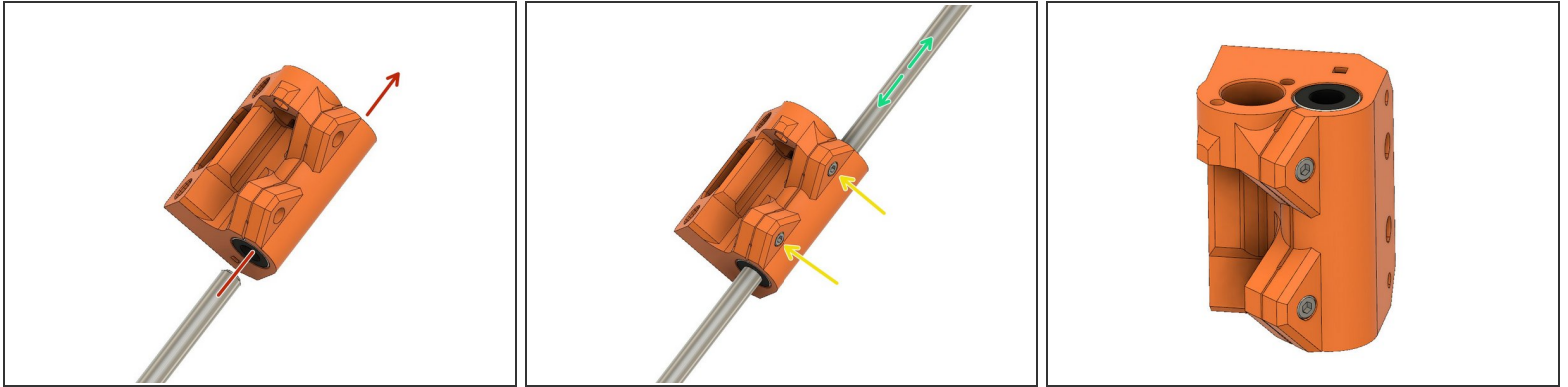
- ● Temporarily insert a 8mm smooth rod through both LM8UU linear bearings.

- ● Engage two M3x10 socket head screws in the hex nuts, but do not tighten them at this time.

- ● Alternatively tighten the two M3x10 clamp screws to secure the linear bearings. Slide the smooth rods back and forth while tightening.

- ⚠ Don't over-tighten the clamp screws; they need to be just tight enough to keep the bearings from moving.

- ● Remove the 8mm smooth rod.

Step 5 — X End Motor
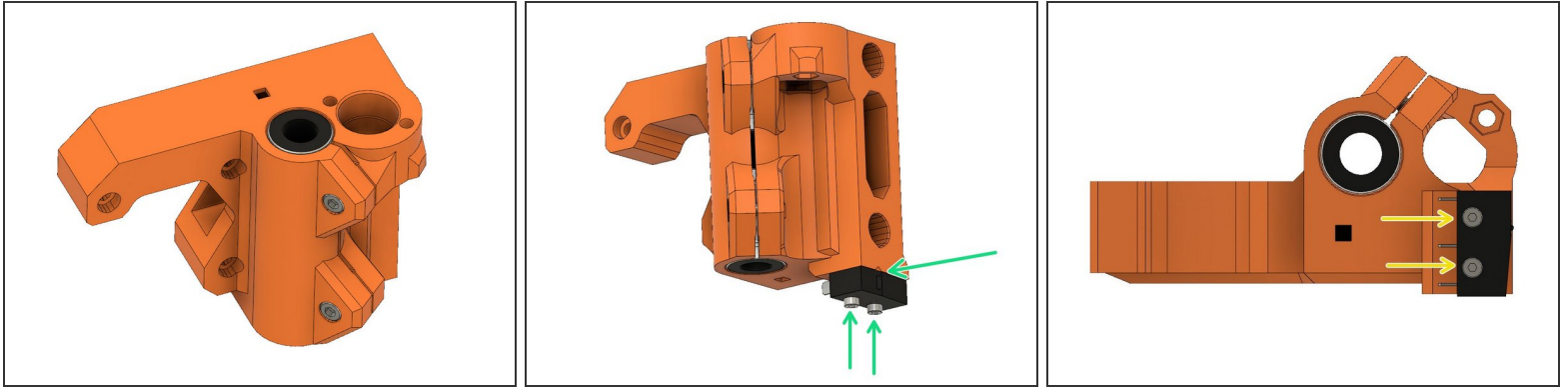
- Repeat the 3 previous steps on *x_end_motor*

- **MK2s and MK2.5 only:** Use two M2x12 screws to attach the x-endstop switch. Ensure the correct orientation of the switch.

- **MK2s and MK2.5 only:** While tightening the screws, apply gentle pressure in the direction shown.

- ⚠ **MK2s and MK2.5 only:** Do not to over-tighten the M2x12 screws!

- ⚠ **MK2s and MK2.5 only:** Double check x-endstop switch orientation

This document was generated on 2024-04-25 07:08:53 AM (MST).

© 2024   guides.bear-lab.com/   Page 6 of 15

Step 6 — X Smooth Rods

- Check the x_end_motor holes for the smooth rods to ensure they are clean

- Slide the two 370mm smooth rods in the *x_end_motor*.

- Ensure that the smooth rods are fully inserted. You can see them in the little windows on top and bottom.

Step 7 — X Smooth Rods Assembly
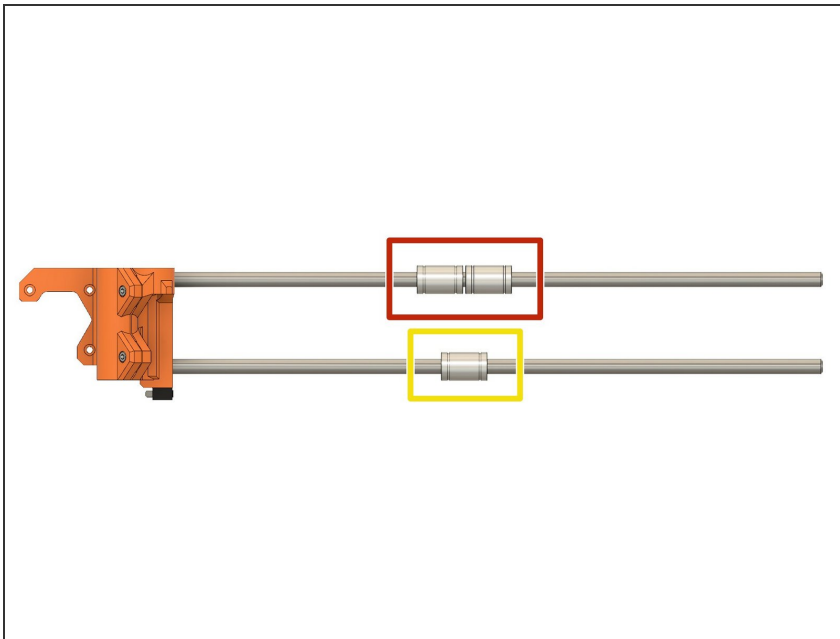
- Insert two LM8UU linear bearings on the top smooth rod.

- Insert one LM8UU linear bearing on the bottom smooth rod

- ⚠ Be very careful inserting the LM8UU linear bearings.

Step 8 — X Smooth Rods Assembly
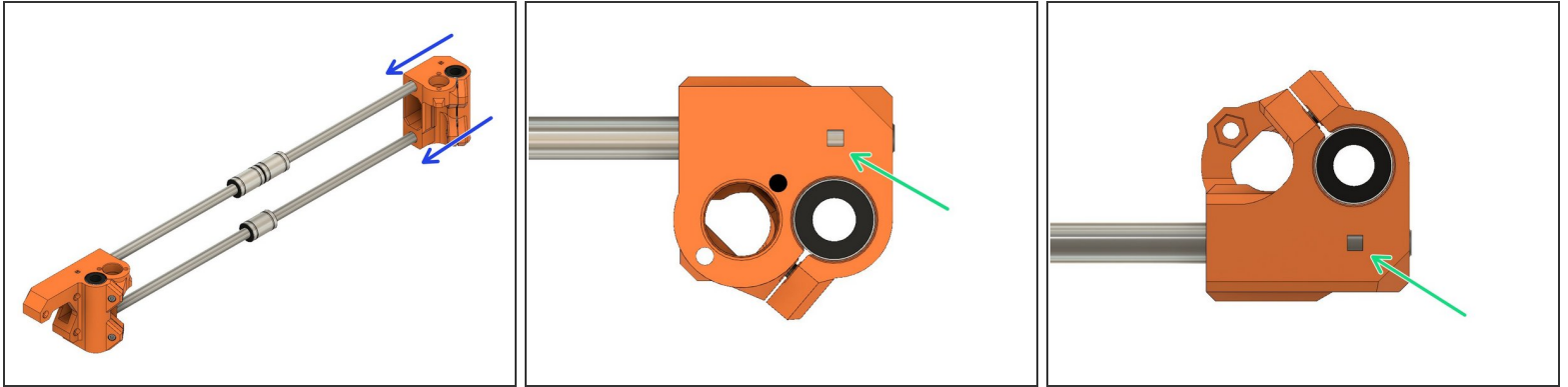
- Insert both rods simultaneously into the *x_end_idler* and provide even pressure to force the rods all the way in.

- Using the observation windows, verify that each rod is fully seated.

- ⚠ Take the time to double check observation windows on both *x_end_idler* and *x_end_motor*.

Step 9 — X End Motor
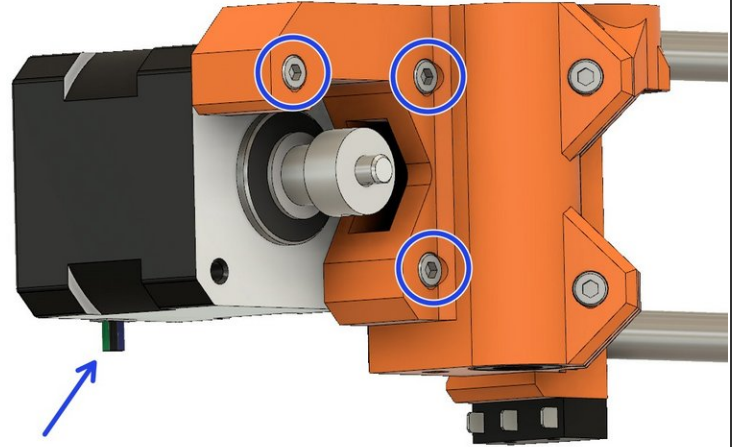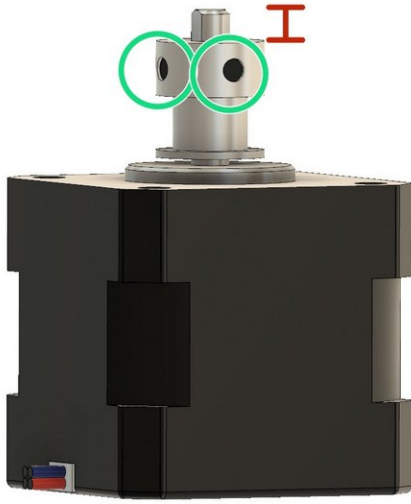
ⓘ The 2GT 16T pulley grooves are not visible on the images

● Position the 2GT 16T pulley so that approximately 3.5 to 4 mm of the shaft protrudes. Ensure the pulley is not touching the motor.

● Align one of the set screws on the motor shaft flat and then tighten alternatively both set screws until they are both snug.

● Using three M3x18 screws, attach the x-axis motor. Note the orientation of the wires.

⚠ Double check the pulley position and ensure it does not touch the motor

Step 10 — X End Idler Idler Mount
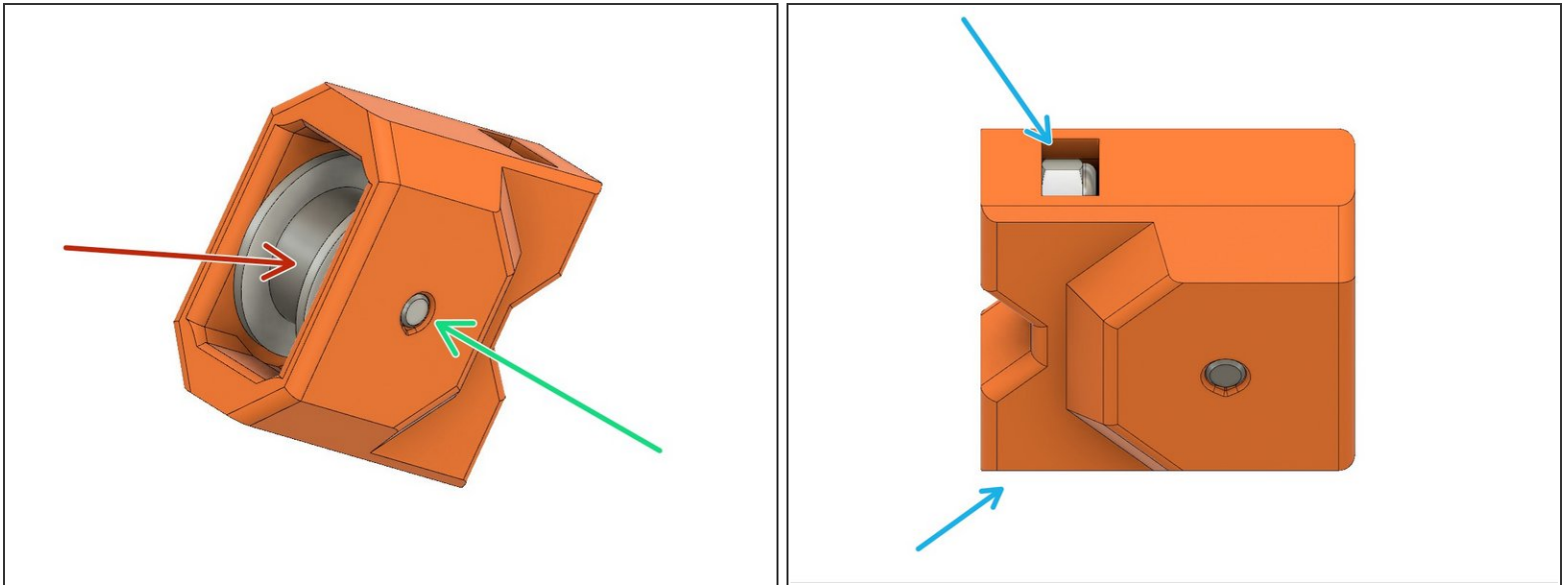
- Insert the idler in the *x_end_idler_idler_mount*.

- Press the dowel pin through the *x_end_idler_idler_mount* and idler bearings.

- ⚠ Verify that the dowel is not protruding from either side.

- ⚠ Verify that the idler spins freely.

- Insert two M3 nylock nuts in the top and bottom of *x_end_idler_idler_mount*. Note the orientation of the nylock nuts.

Step 11 — X End Idler Idler Mount
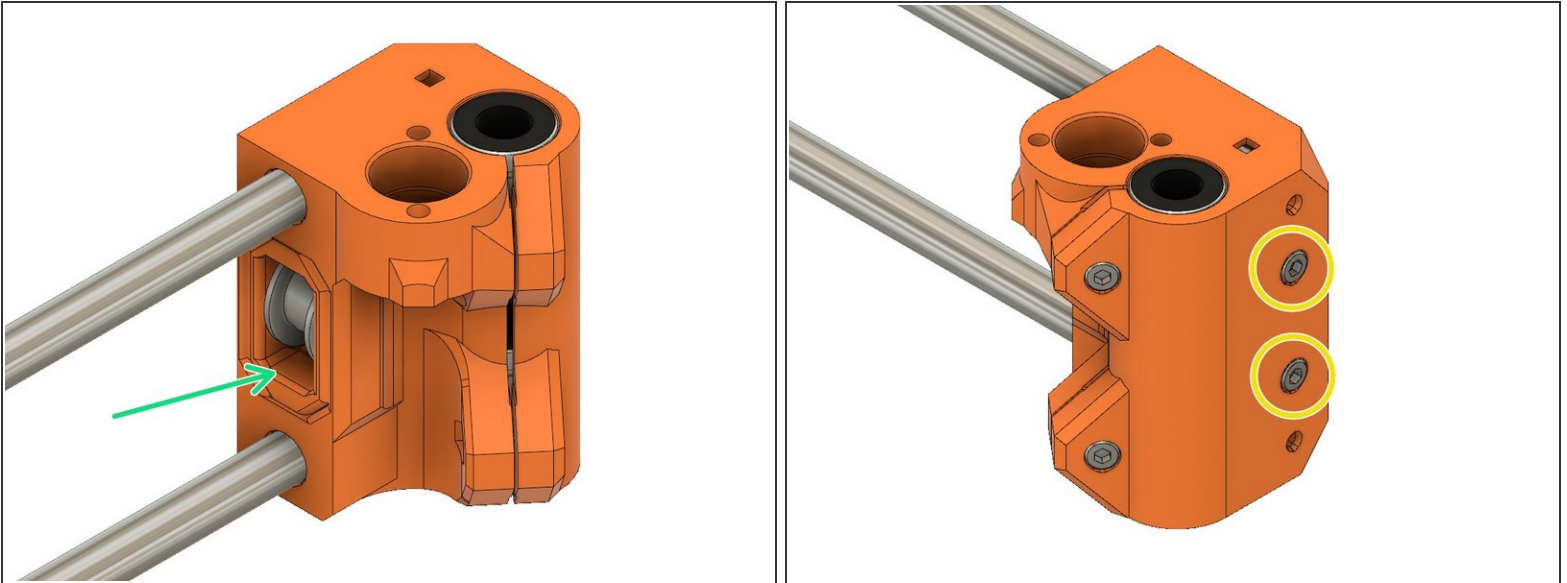
- Insert the *x_end_idler_idler_mount* in the *x_end_idler*.

- Secure it with two M3x18 screws. Don't tighten the screws, only engage them.
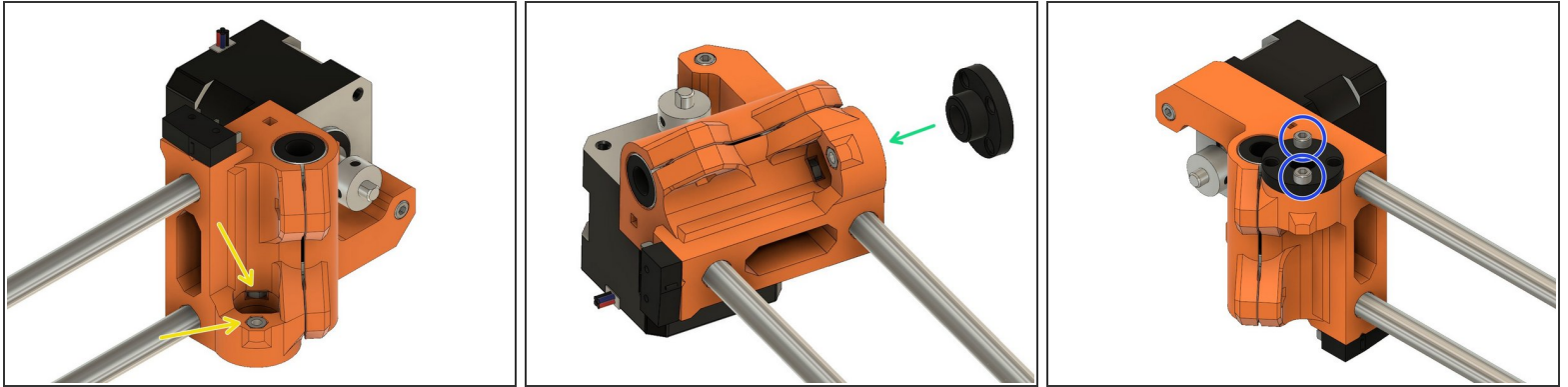
Step 12 — Trapezoidal Nuts
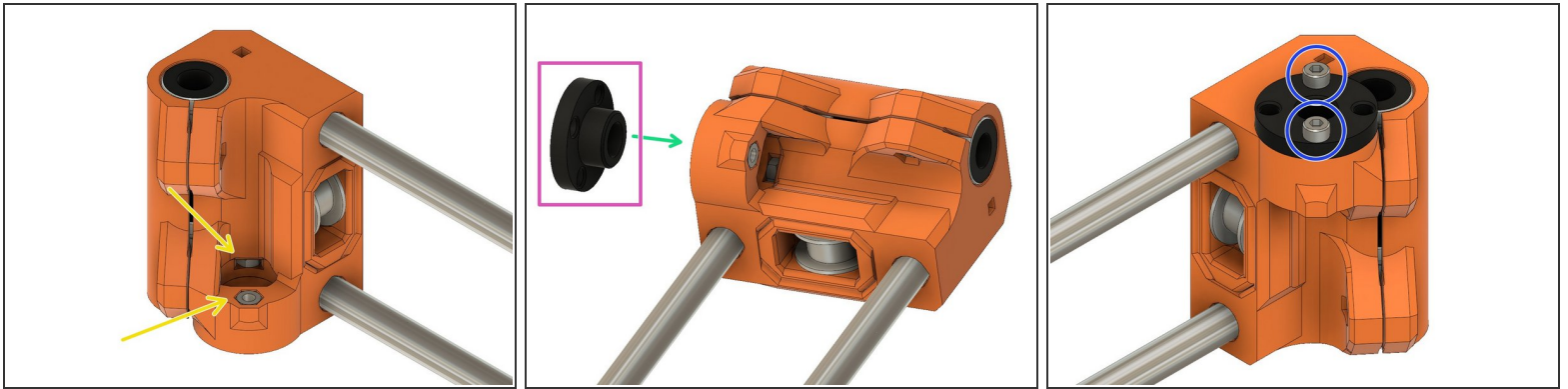
- Insert two M3 hex nuts in the dedicated pockets *of x_end_idler*.

- Note the orientation of the trapezoidal nut.

- Insert a trapezoidal nut on top of *x_end_idler*.

- Using two M3x18 screws, tighten the trapezoidal nut. Don't over-tighten the screws. They will be loosened and re-tightened after the x-end has been mounted on the z-axis rods.
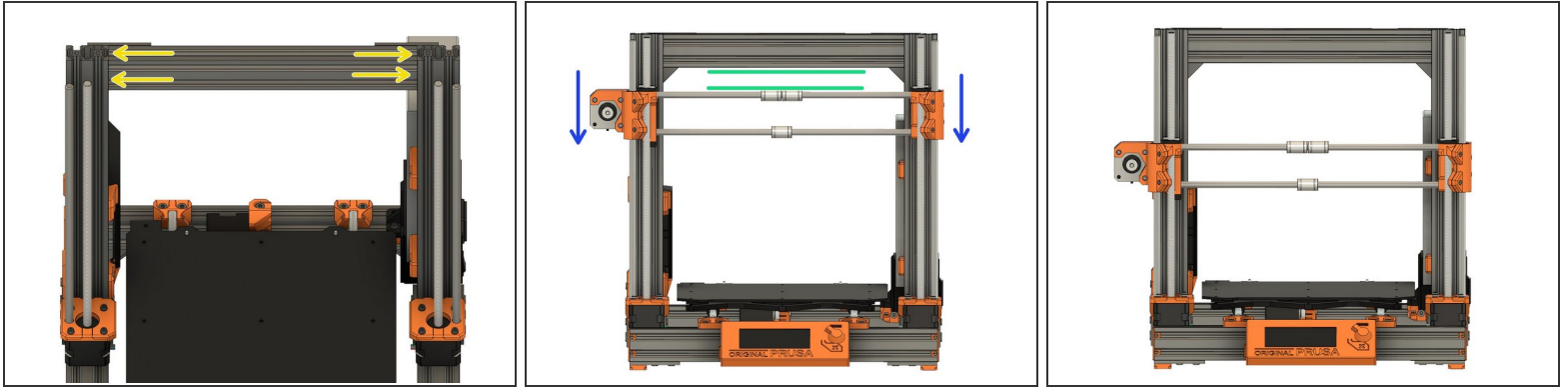
⚠ Verify trapezoidal orientation.

## Step 13 — Trapezoidal Nuts

- Insert two M3 hex nuts in the dedicated pockets of *x_end_motor*.

- Insert a trapezoidal nut on top of *x_end_motor*.

- Using two M3x18 screws, tighten the trapezoidal nut. Don't over-tighten the screws.

- ⚠ Verify trapezoidal orientation.

Step 14 — Assembling X Axis On Z Axis

- Check that *z_tops* and "z_end_caps" have been removed.

- Carefully slide the X axis assembly onto the Z-axis. Rotate the lead screws to engage the X axis in the trapezoidal nuts.

- Continue to rotate the lead screws with your fingers to move down the X axis assembly by few centimeters. If the X end is not parallel with the horizontal v-v-slot at the top of the Z axis, rotate one side to make the X axis assembly parallel to top of Z axis.

- Continue to move the X axis assembly down to the middle of the Z axis. Keep the X axis as flat as possible

This document was generated on 2024-04-25 07:08:53 AM (MST).

Step 15 — Assembling X Axis On Z Axis
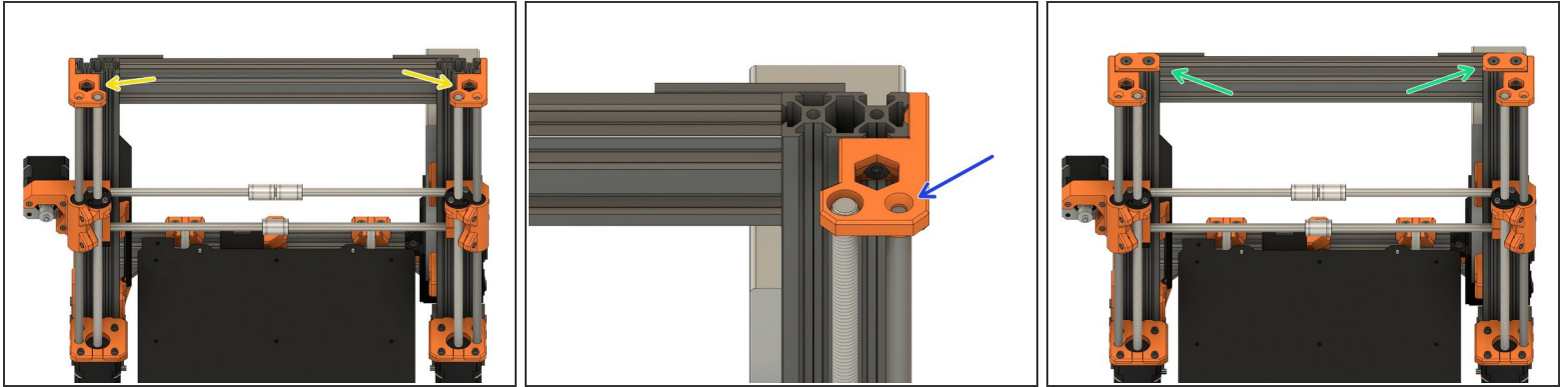
- Install the *z_tops* with the two M5x10 screws and tighten them snug.

- Make sure the *z_tops* are flush with Z smooth rods on both sides

- Tighten the *z_ends_caps* on top of Z axis with the M5 screws.

Step 16 — Next chapter

- Congratulations you have finished this chapter :-)

- Go to the next chapter: 3. Extruder

To reassemble your device, follow these instructions in reverse order.

This document was generated on 2024-04-25 07:08:53 AM (MST).