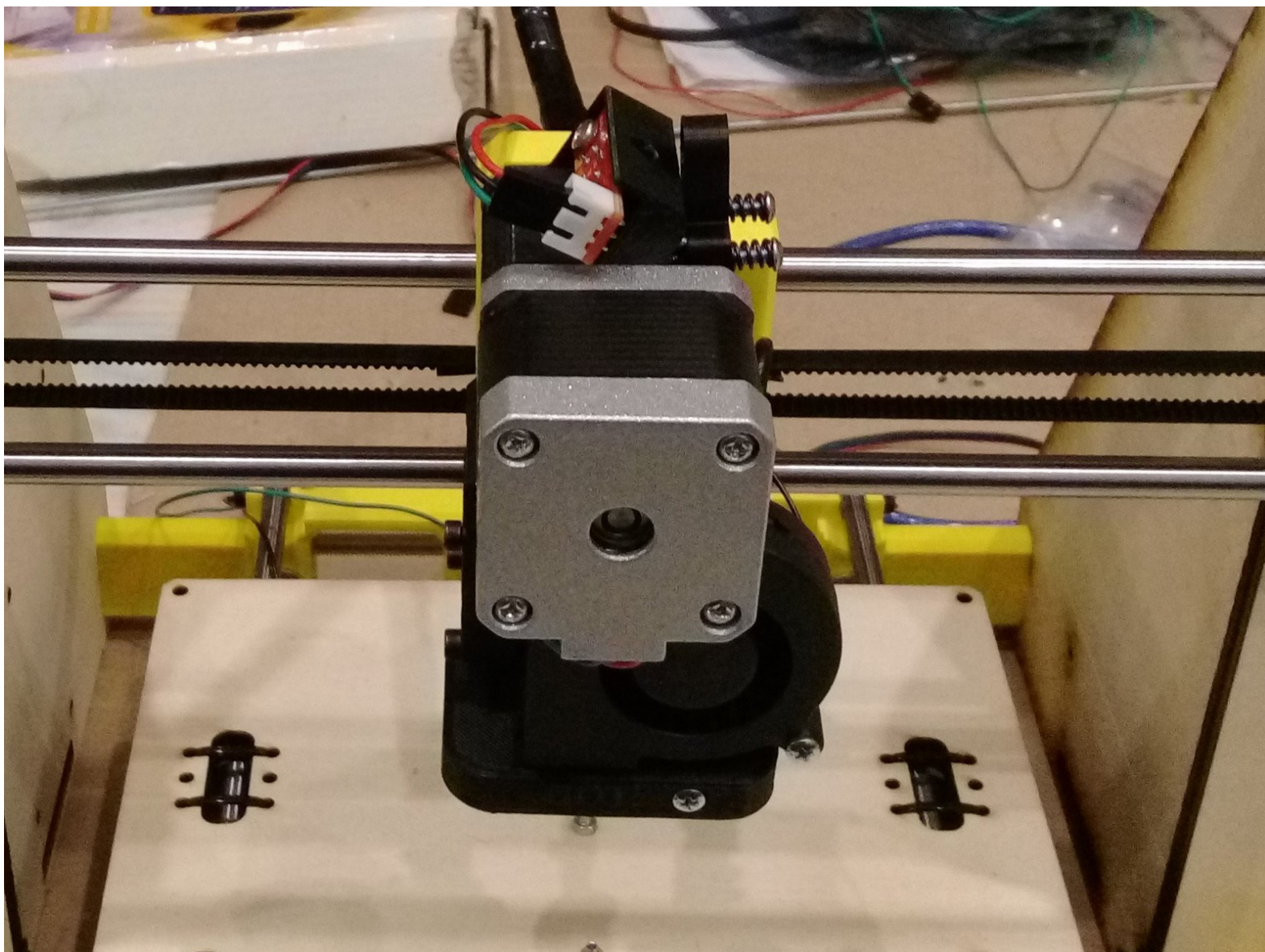


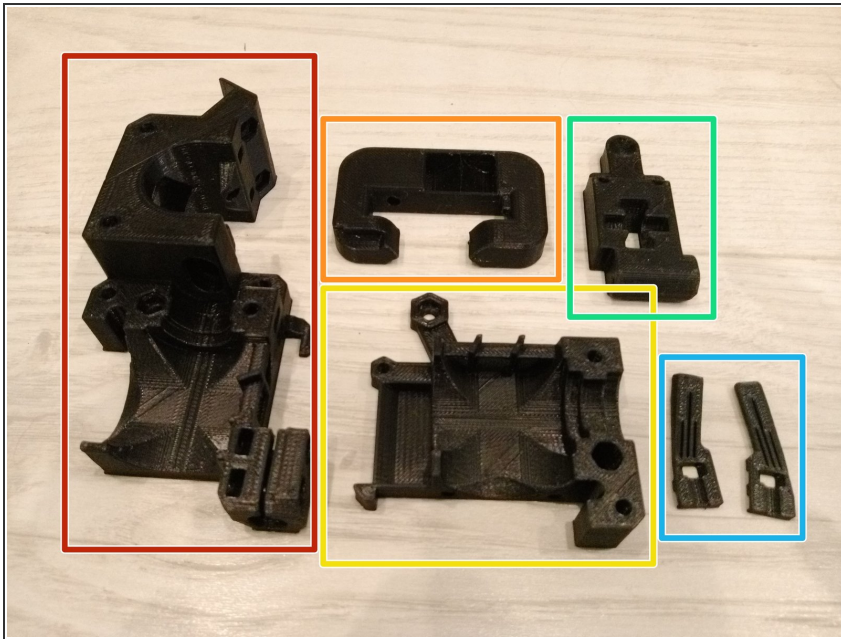
# MK2Clone

## 4. Extruder Assembly

Written By: q3ok

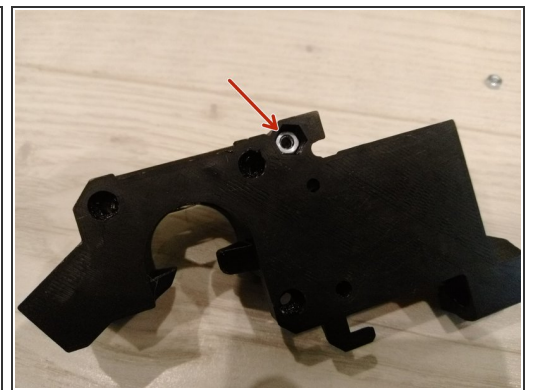
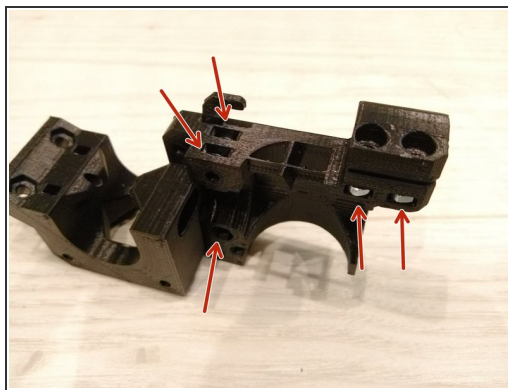
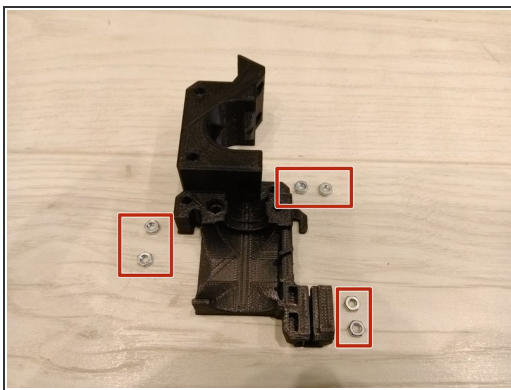


## Step 1 — Printed parts needed



- extruder-body
- extruder-cover
- fan-nozzle
- extruder-idler
- cable-holder

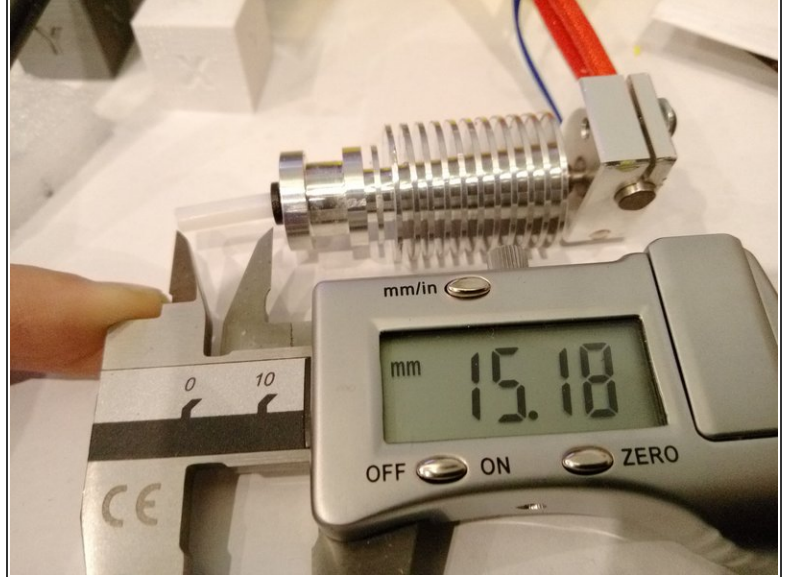
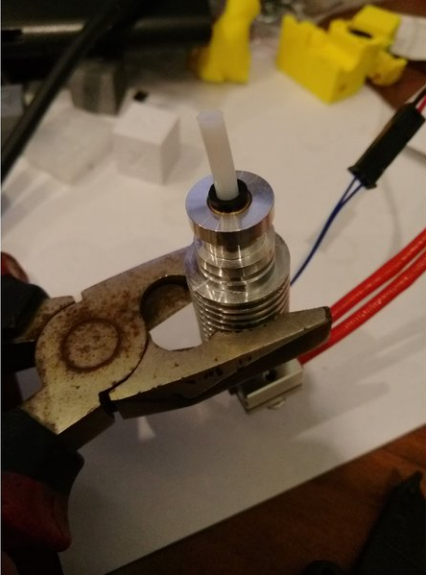
## Step 2 — Extruder nuts



- Take 6 M3 nuts
- Insert them in places marked on photos
- ⓘ Place all of the nuts as deep as possible

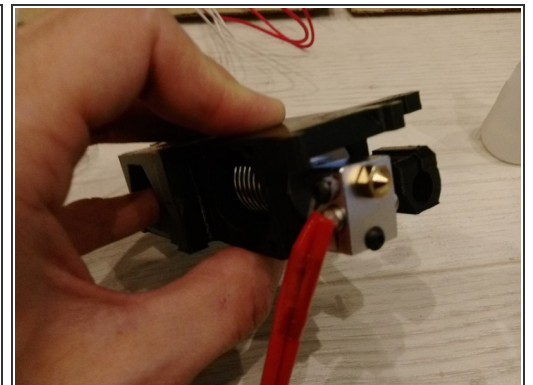
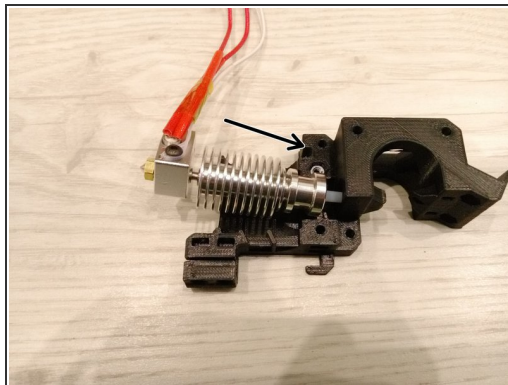
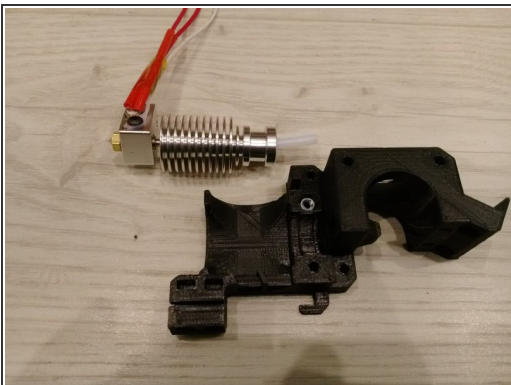


### Step 3 — Prepare hotend



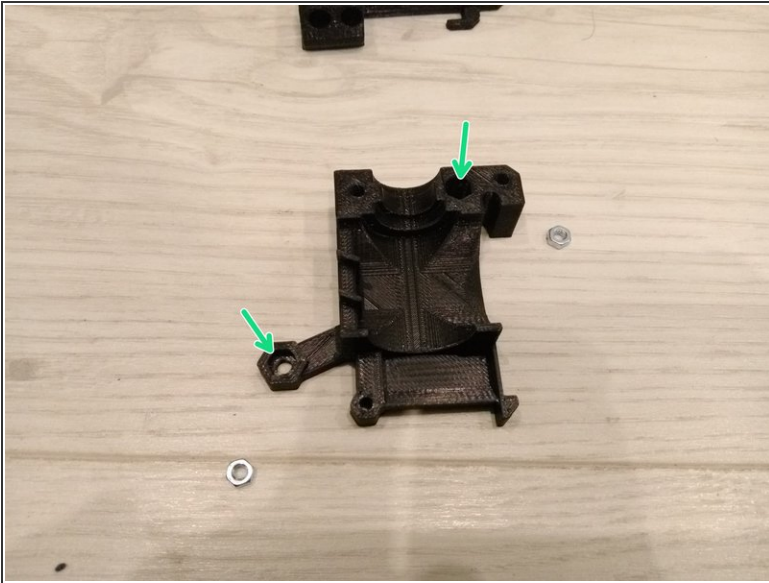
- ① Prepare the hotend, as described on E3D Assembly Manual for v6
- ✦ Do not insert the blue plastic part on the top of hotend, and ignore the E3D 30x30 fan as well. Make sure the correct orientation of cables.
- Leave around 15mm of PTFE coming out from the hotend

### Step 4 — Hotend



- Slide the hotend into extruder-body as shown on images
- ① The hotend should be already assembled, instructions are available on E3D
- Make sure if the cables and heat block position is correct (same as on last picture)

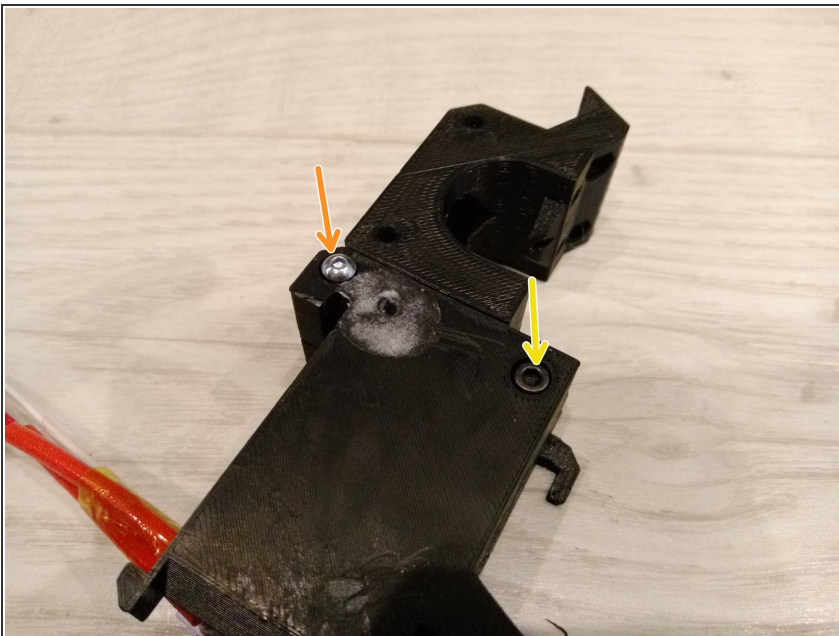
## Step 5 — Extruder cover preparation



- Take two M3 nuts and insert them as shown on picture

⚠ Push the nuts as deep as possible, if they don't stick, you can use a glue (some kind of super-glue or cyanoacrylic glue)

## Step 6 — Extruder cover placing



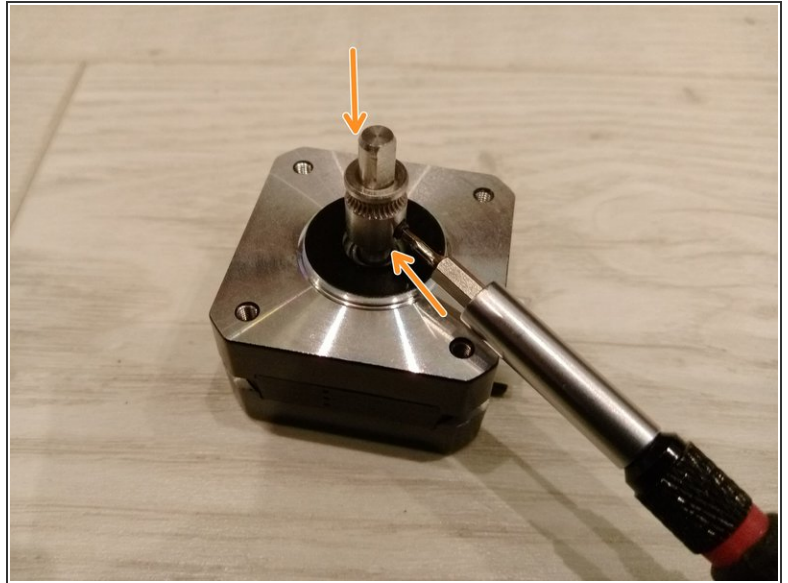
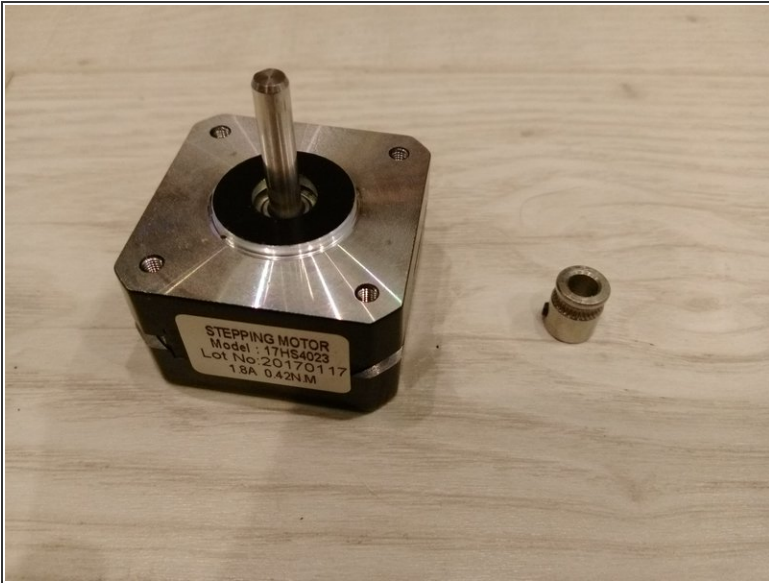
- M3x18 screw

- M3x25 screw

ⓘ Place the extruder cover on extruder-body, and tighten it until the hotend will be secured in place.



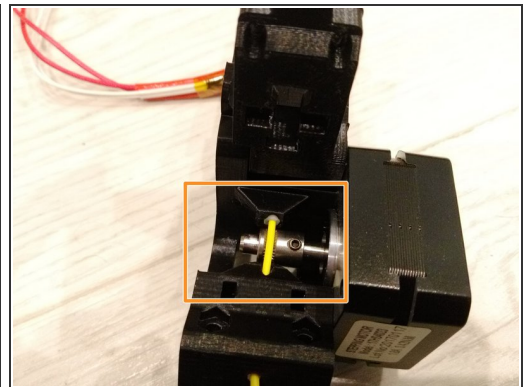
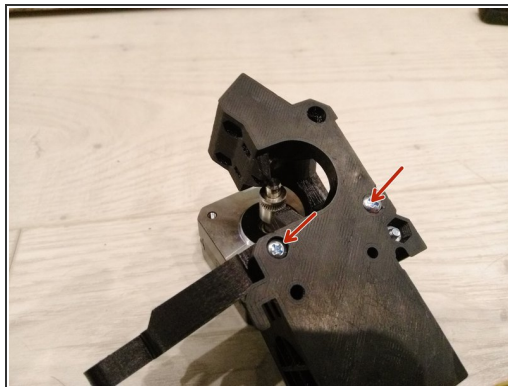
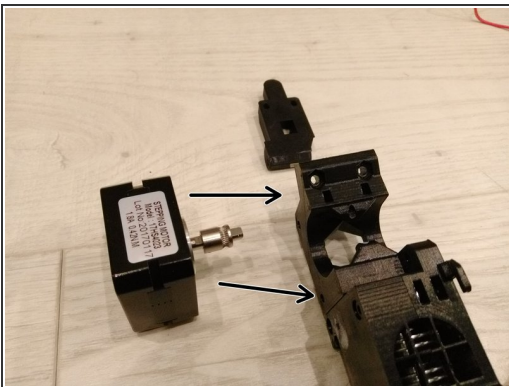
## Step 7 — Extruder motor preparation



- Take the 17HS4401 stepper motor and MK8 pulley
- Insert the pulley on motor and screw it gently (do not tighten it yet)

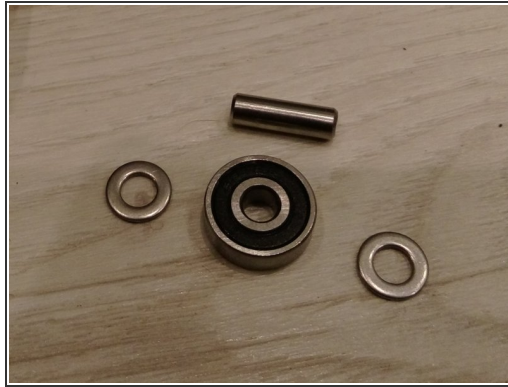
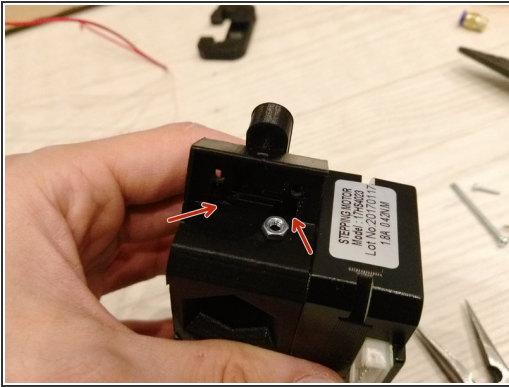
⚠ The stepper motor on photos isn't 17HS4401, its just for photos

## Step 8 — Assemble motor and idler



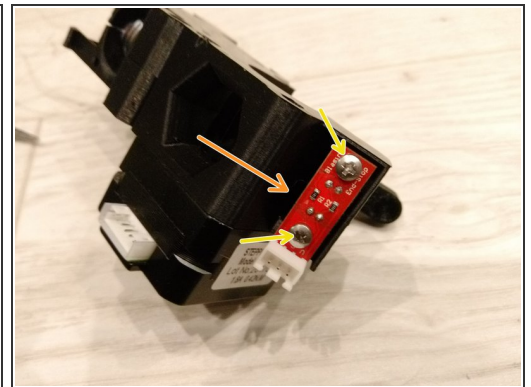
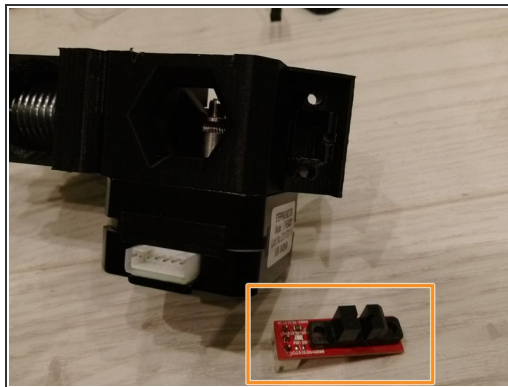
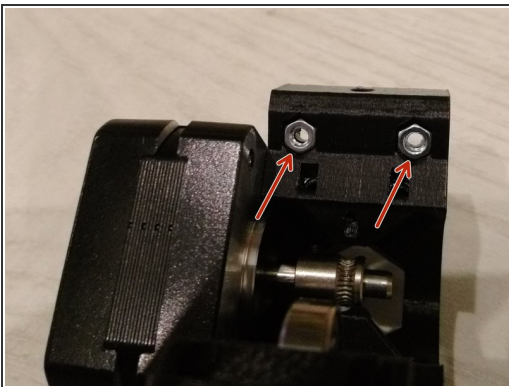
- Insert the motor to extruder body
- Screw the idler with motor and extruder-body with motor with two M3x30 screws
- Check the position of MK8 pulley againsts filament, and if needed adjust position of the pulley

## Step 9 — Preparing extruder idler



- Take two M5 washers and insert them into holes on top of extruder-body
- Take the 625 bearing and 5x16 shaft (can be 3d printed if you dont have metal one) and assemble it as shown on image
- ⓘ Depending on your 3d printed parts you may need or not the M5 washers, if you are unable to insert the shaft with bearing with the washers, remove them

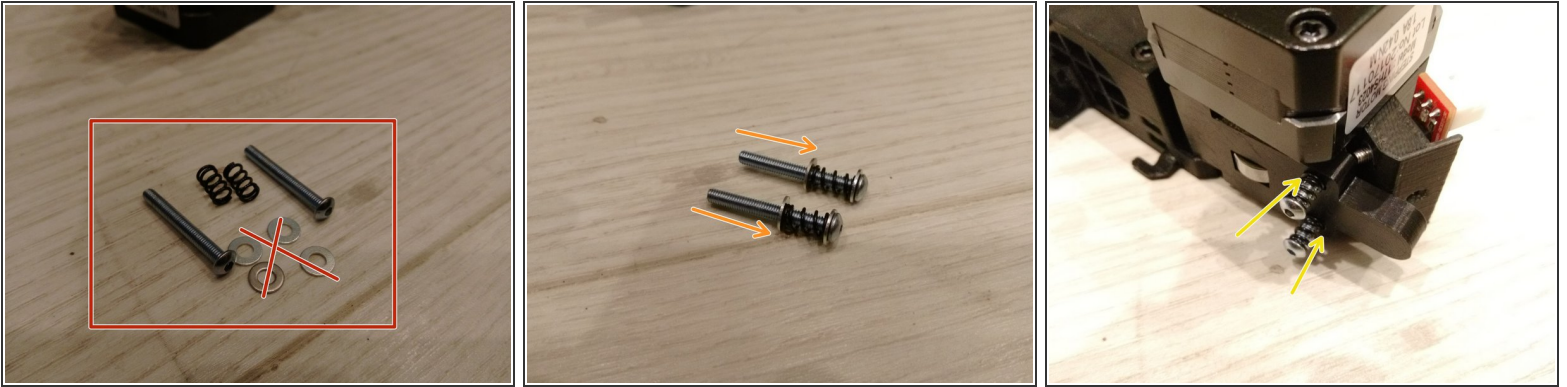
## Step 10 — Filament sensor assembly



- Take two M3 nuts and insert them into as shown on picture into top of extruder-body
- Take the optical sensor, and insert it into extruder-body
- Using two M3x15 screws mount the sensor to the extruder-body
- Put a M3 washer on every screw between the extruder-body and the optical sensor (otherwise the sensor may not work properly)

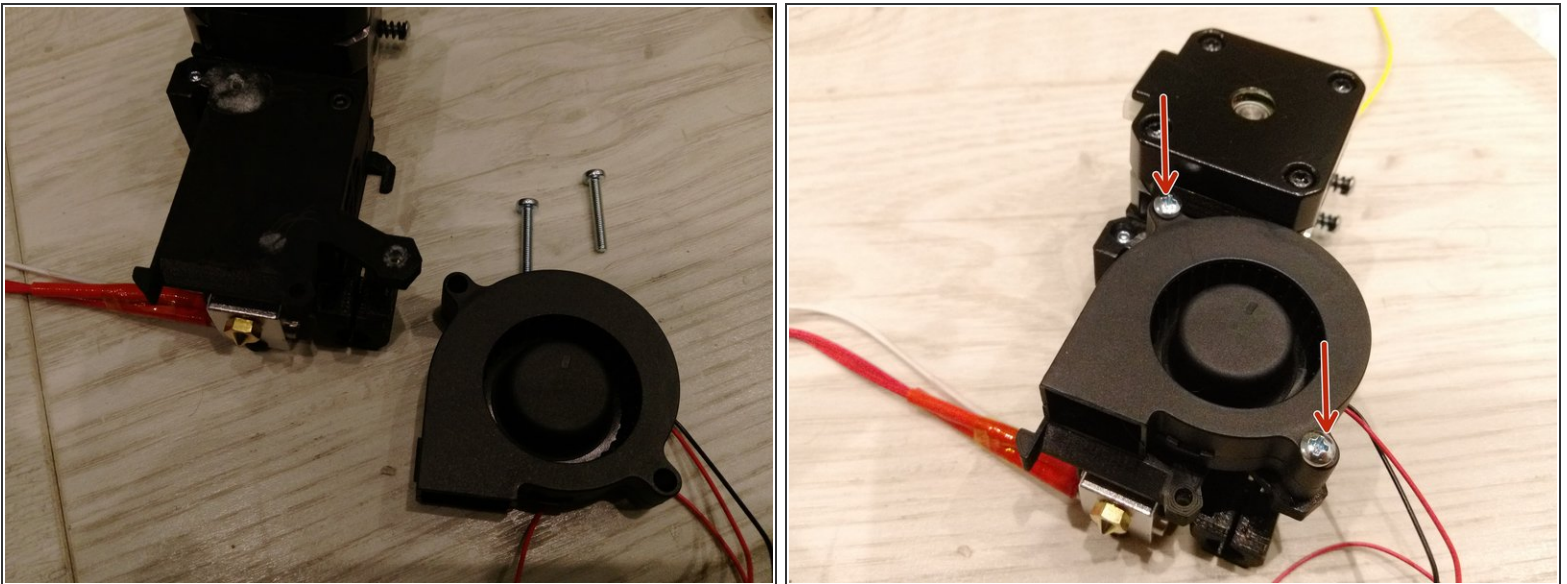


## Step 11 — Extruder idler to extruder body mount



- Take two M3x25 screws, and two springs (ignore the M3 washers shown on picture)
- Insert the springs on screws
- Screw in the extruder idler into body as shown on picture

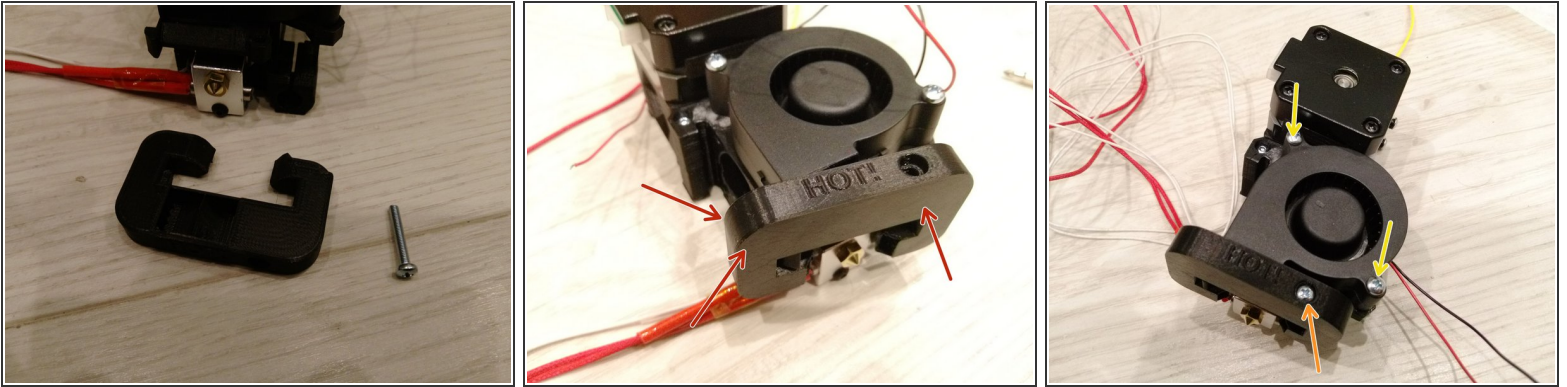
## Step 12 — Print fan assembly



- Take the SUNON turbine fan and two M3x20 screws
- Screw the fan into extruder-body as shown on image

**⚠ Do not tighten the fan screws yet!**

## Step 13 — Fan-nozzle



- Take the fan-nozzle and M3x20 screw
- Insert the fan nozzle as shown on image (starting from the left)
- Screw in the M3x20 screw mounting the fan nozzle, do not overtighten it
- Adjust print fan position to the fan-nozzle and tighten the fan screws



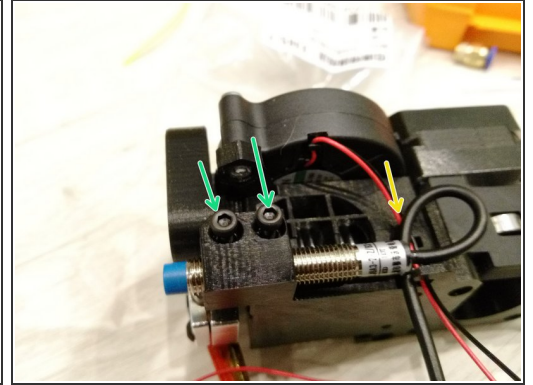
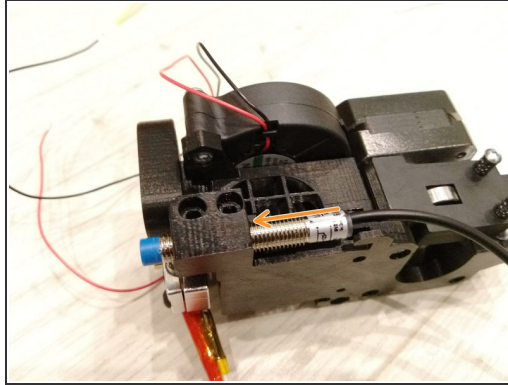
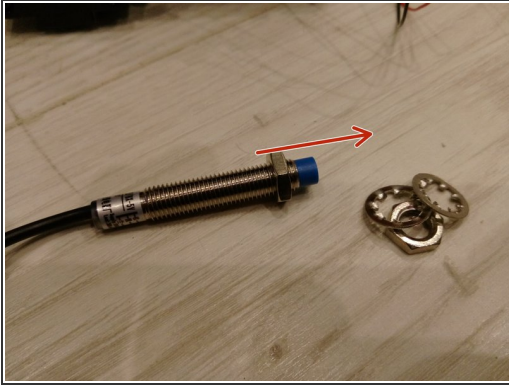
## Step 14 — Inductive probe preparation



- Take the 3-pin cable and the inductive probe
- Solder the cables from inductive probe to the 3pin, to allow to connecting it to the RAMPS
- BROWN -> VCC
- BLUE -> GND
- BLACK -> SIGNAL

 If you solder wrong wires, you can destroy the inductive probe

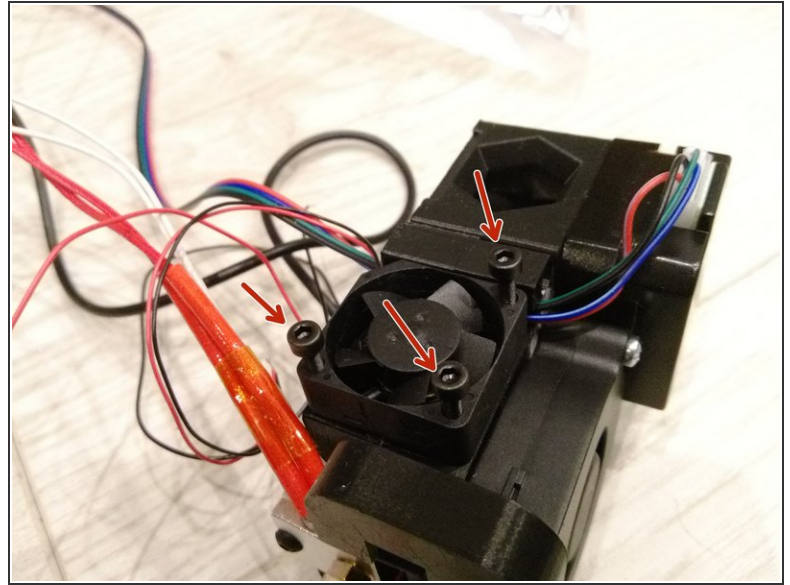
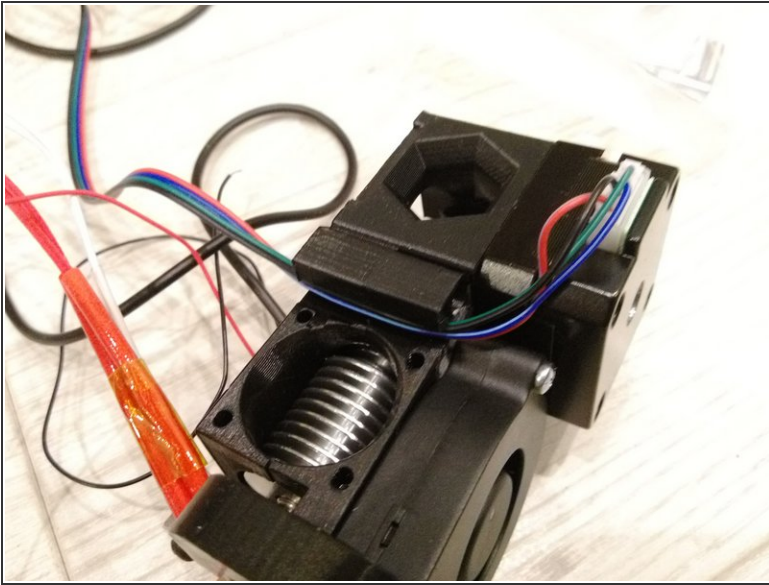
## Step 15 — Inductive probe



- If you have nuts on the probe, remove them
- Insert the probe into extruder body as shown on image
- Guide the probe cables with print fan cables
- Tighten (gently) the probe using two M3x10 screws

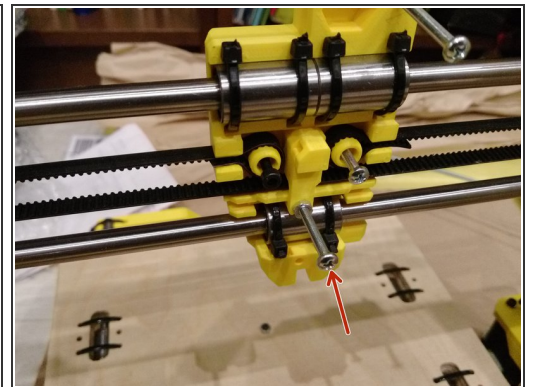
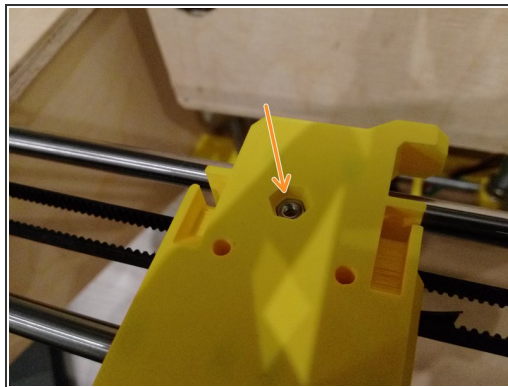
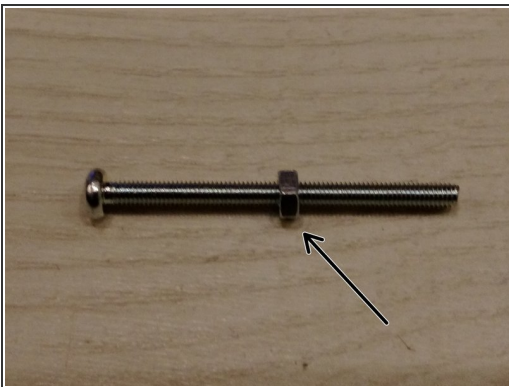


## Step 16 — Mount hotend fan



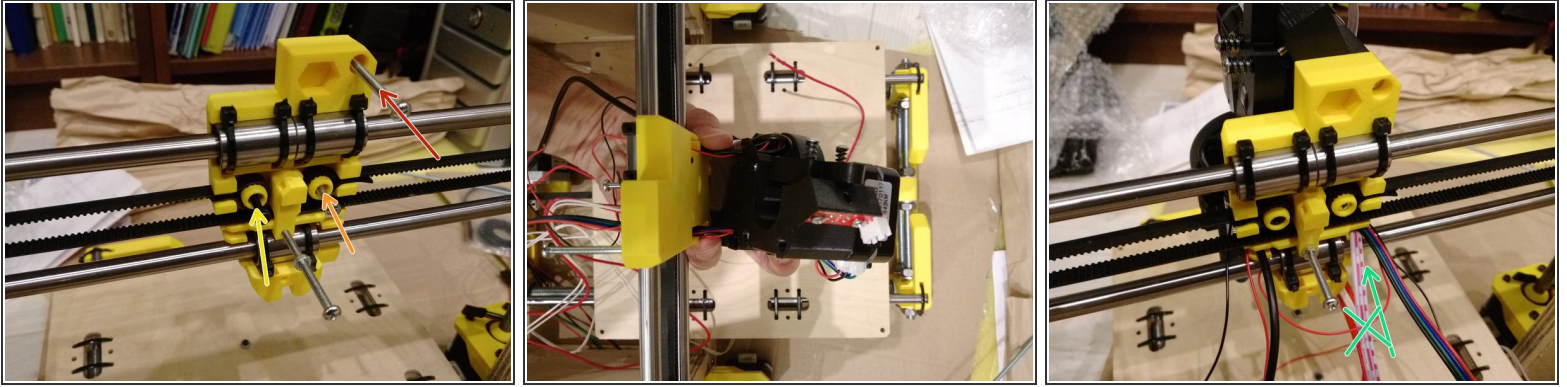
- Take the SUNON 30x30 fan
- Attach the fan to extruder using 3x M3x18 screws
- ⓘ Make sure you guide the cables as shown on images

## Step 17 — X-carriage preparation #1



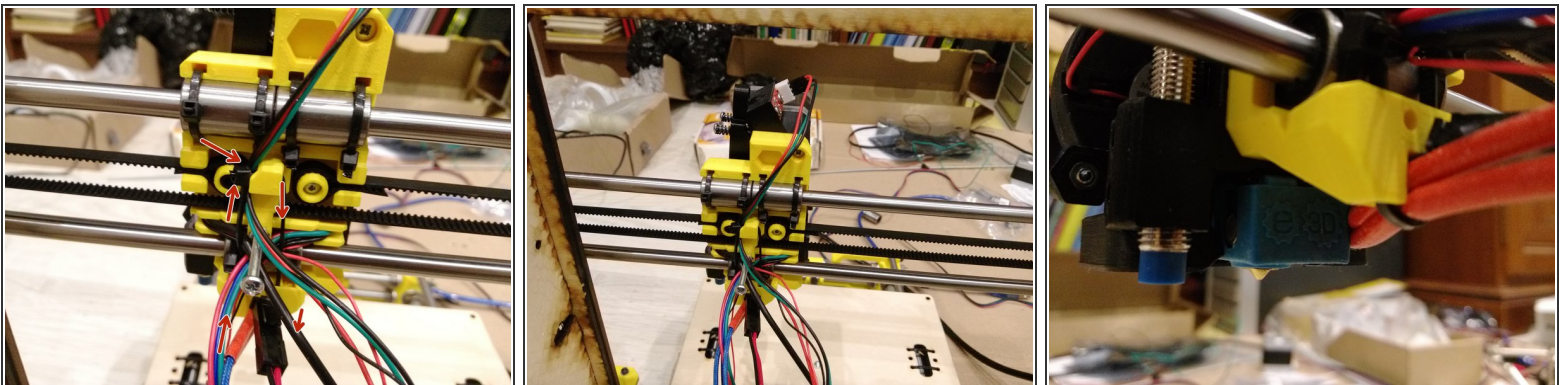
- Insert M3 nut on M3x40 screw, somewhere in the middle
- Insert M3 nut to front of x-carriage as shown on image
- Insert the nut from back of x-carriage and screw the nuts on screw and the one inserted from the front, against each other (in same way as the M8 and M10 nuts was tightened at Y assembly)

## Step 18 — Insert the extruder onto x-carriage



- Insert M3x40 screw
- Insert M3x25 screw
- Insert M3x18 screw
- ① Mount the build extruder part and guide the cables as shown on the pictures, using the three screws mentioned before
- The cable from optical filament sensor should NOT be there as on picture, leave the cable on the front of extruder

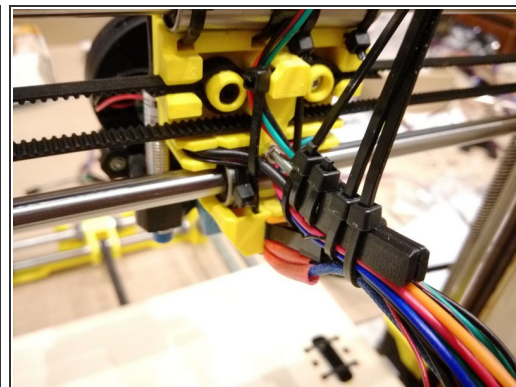
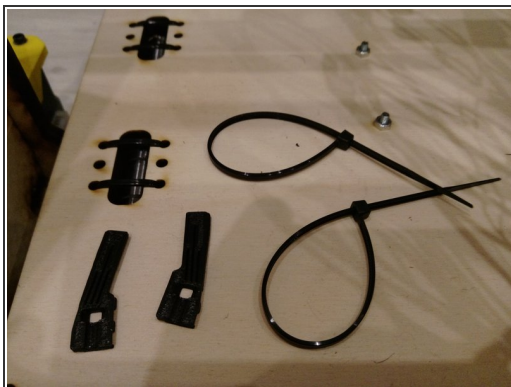
## Step 19 — Cable guide



- ① Guide the cables as shown on pictures
- Insert the ziptie holding the cables in position

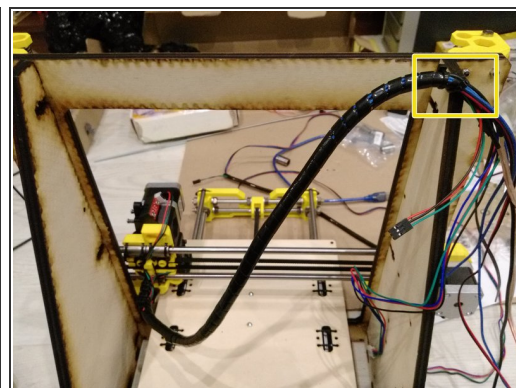
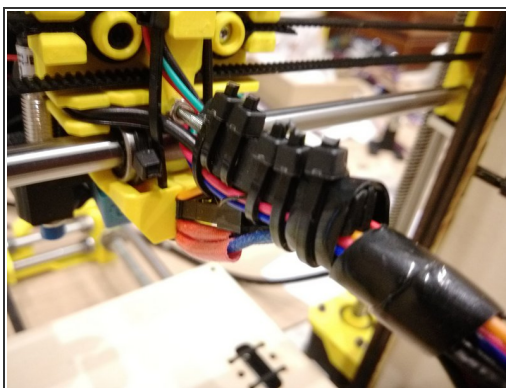
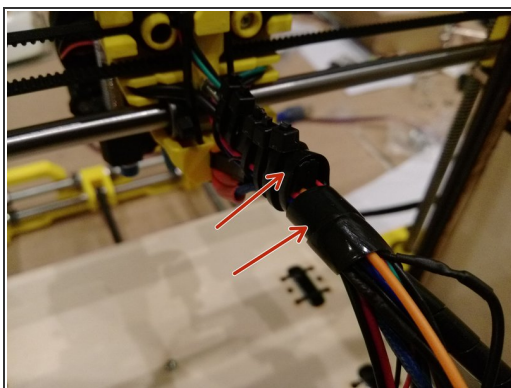


## Step 20 — Cable guide #2



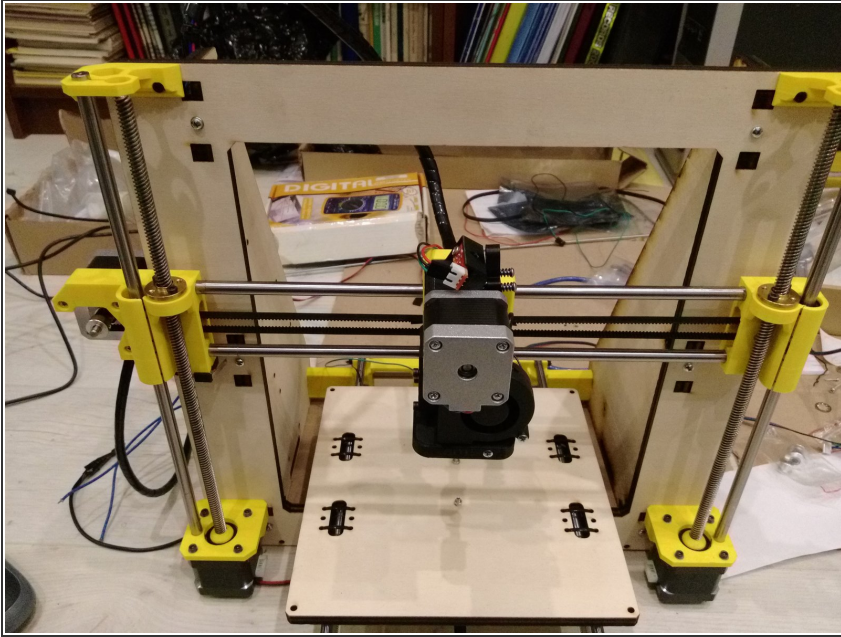
- Take the cable-holder and two zipties
- Place the cable holder on the protruding screw as shown on image, and tighten using the zipties
- Take additional two zipties and tighten all the cables to just mounted plastic holder, as shown on last picture

## Step 21 — Cable wrap



- Start wrapping the cables, the first "wrap" should be around the plastic part - and tighten to the plastic holder using a ziptie.
- Move the x-carriage to the bottom right of the printer (manually, rotating the z axis screws by fingers)
- Wrap the cables until those will be able to reach the top left of the printer as shown on the last image
- Tighten the cables to the frame using a ziptie at top left

## Step 22 — Extruder assembly done



① Extruder assembly is finished!

- Go to the next step - the [LCD assembly](#)