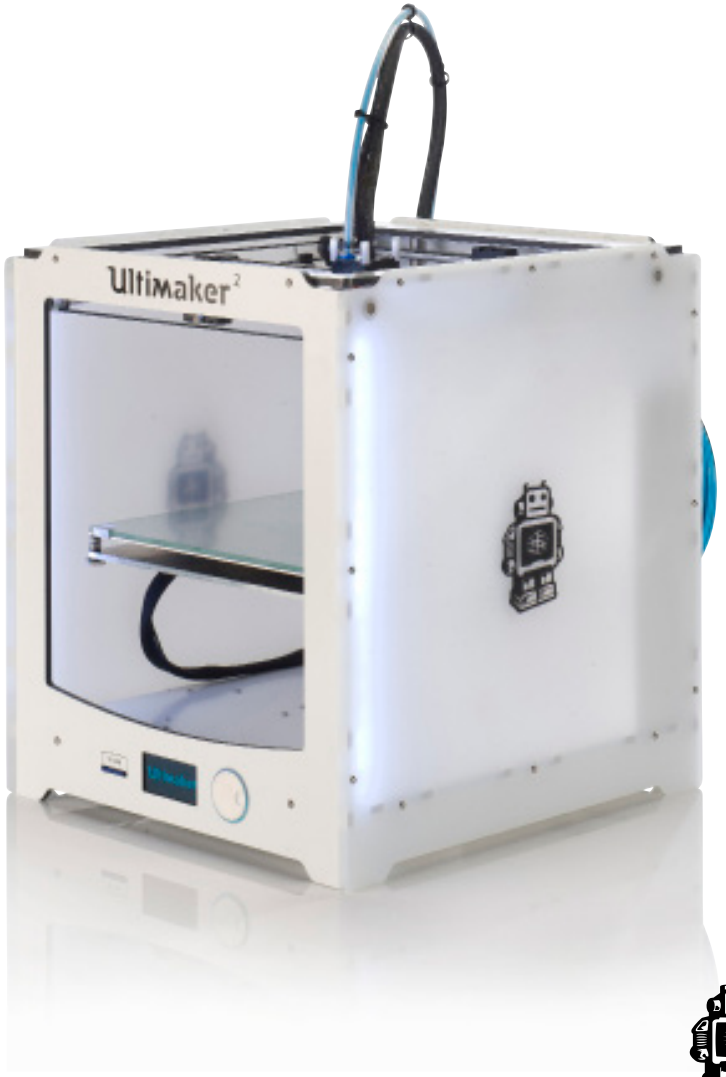
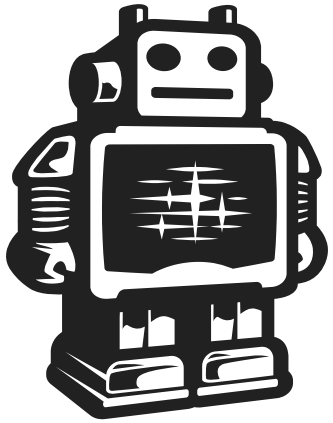
Ultimaker 2

The fast, easy to use, Open-source 3D printer

Assembly manual



English Version 1.02



Ultimaker

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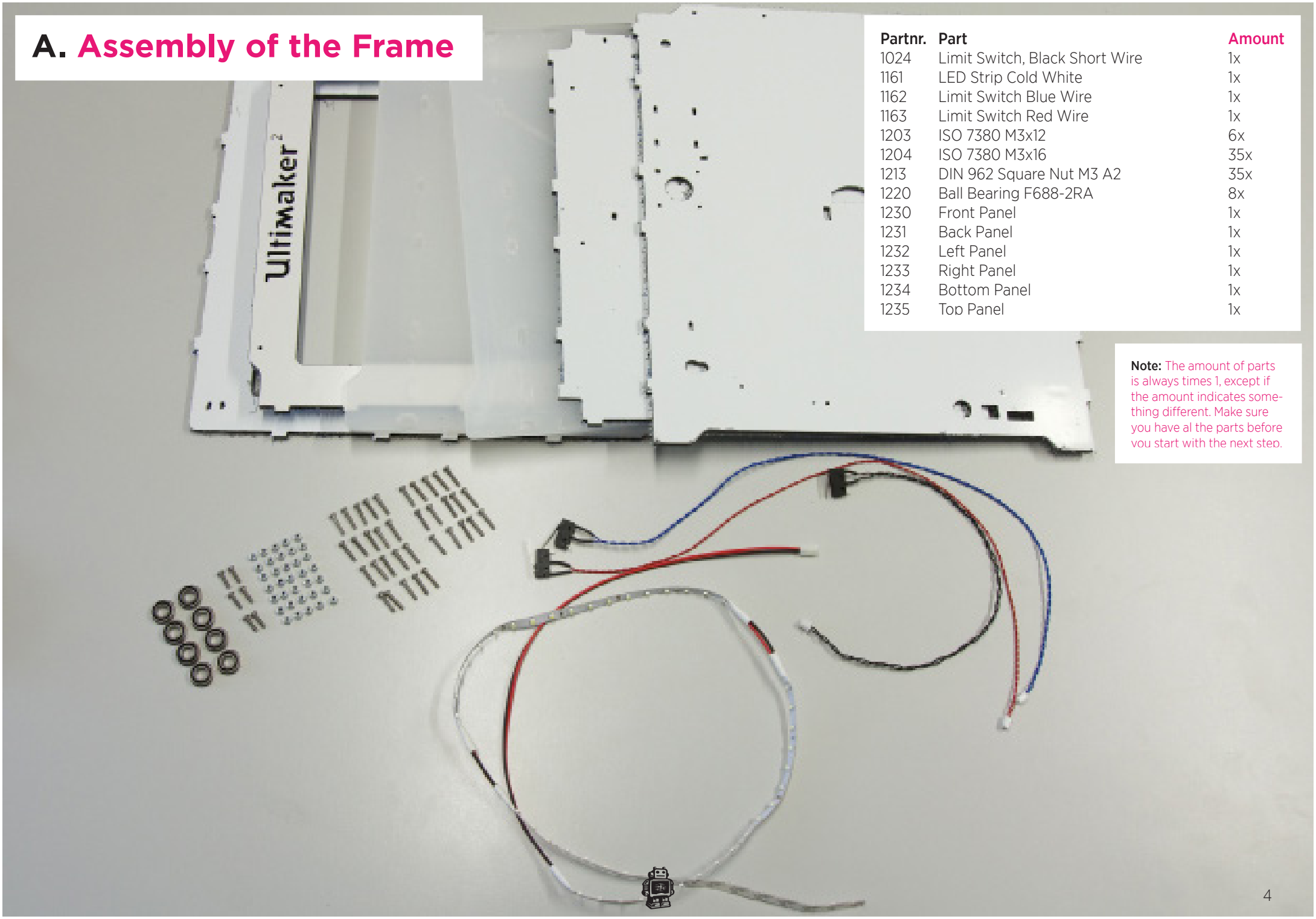
A. Assembly of the Frame

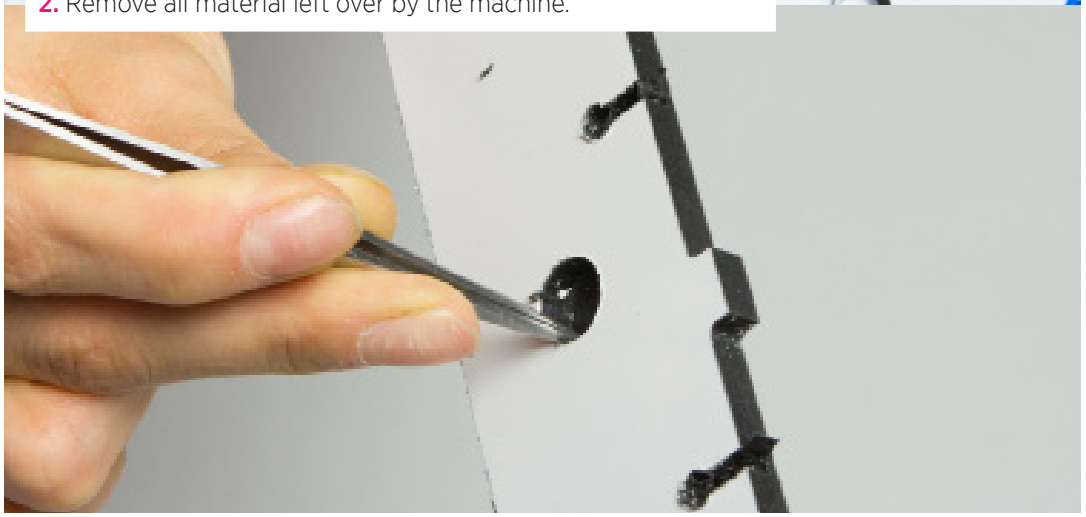


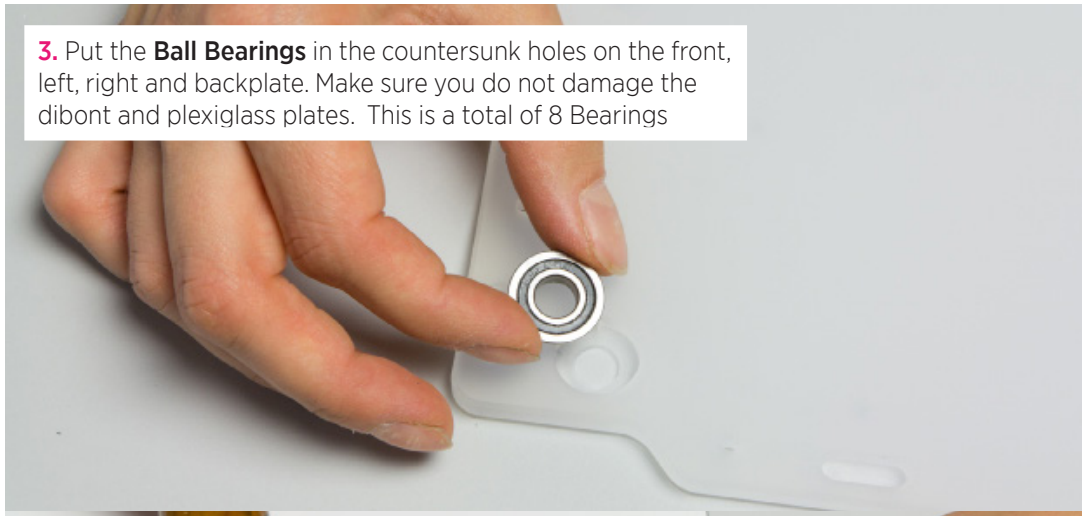
Partnr.	Part	Amount
1024	Limit Switch, Black Short Wire	1x
1161	LED Strip Cold White	1x
1162	Limit Switch Blue Wire	1x
1163	Limit Switch Red Wire	1x
1203	ISO 7380 M3x12	6x
1204	ISO 7380 M3x16	35x
1213	DIN 962 Square Nut M3 A2	35x
1220	Ball Bearing F688-2RA	8x
1230	Front Panel	1x
1231	Back Panel	1x
1232	Left Panel	1x
1233	Right Panel	1x
1234	Bottom Panel	1x
1235	Top Panel	1x

Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

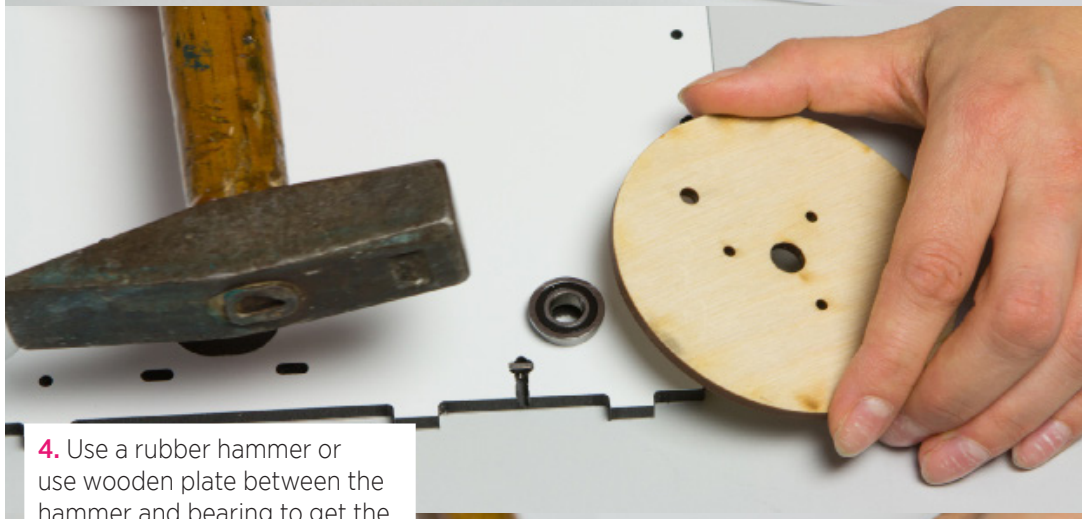
1. Remove the protection foil from the dibond and plexiglas

2. Remove all material left over by the machine.

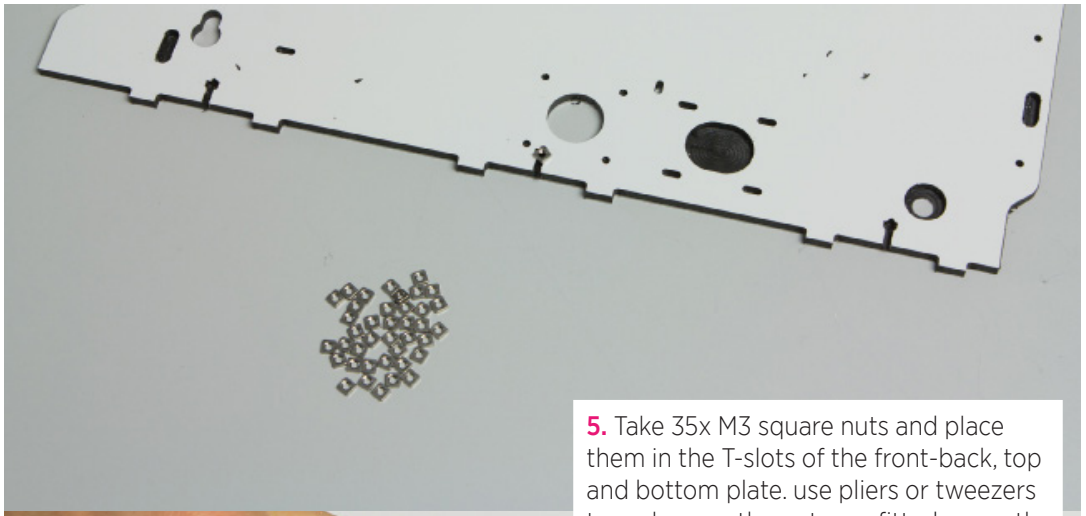




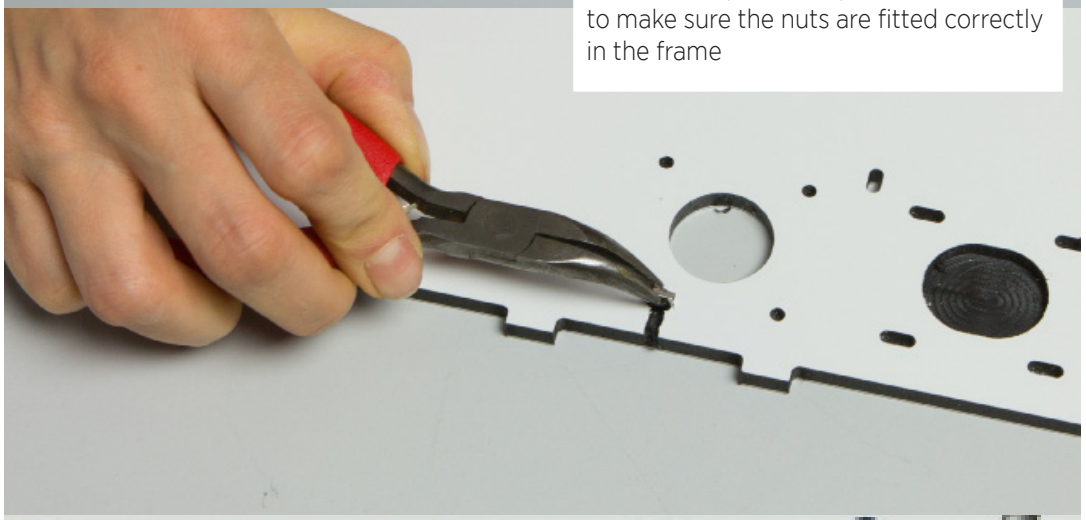
3. Put the **Ball Bearings** in the countersunk holes on the front, left, right and backplate. Make sure you do not damage the dibont and plexiglass plates. This is a total of 8 Bearings

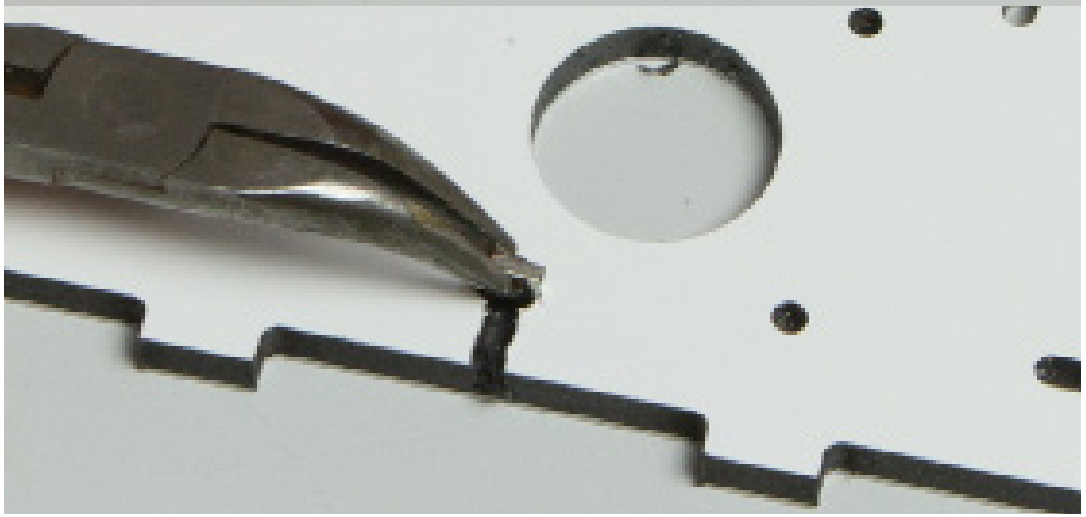


4. Use a rubber hammer or use wooden plate between the hammer and bearing to get the bearing in place, make sure the flanges flush with the plate.

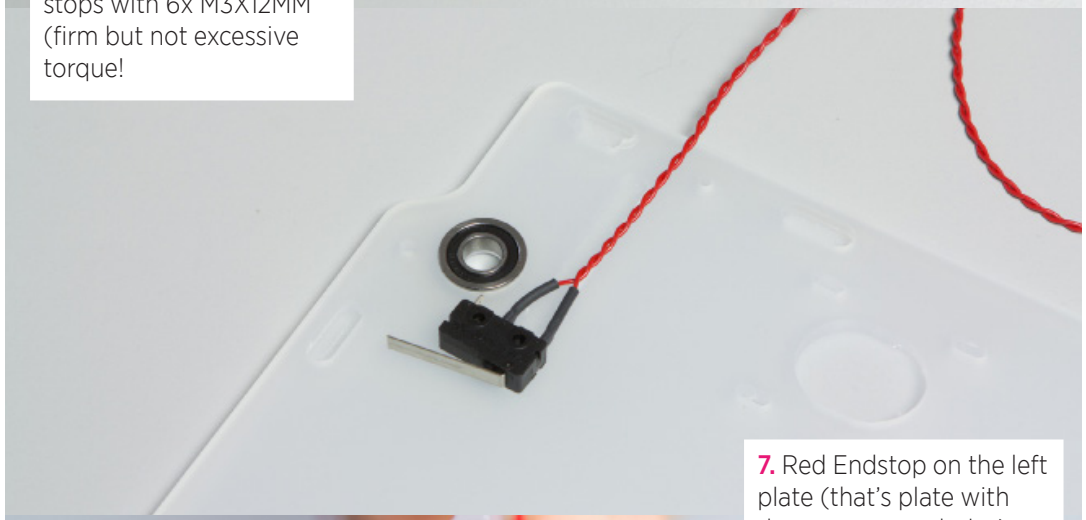


5. Take 35x M3 square nuts and place them in the T-slots of the front-back, top and bottom plate. use pliers or tweezers to make sure the nuts are fitted correctly in the frame

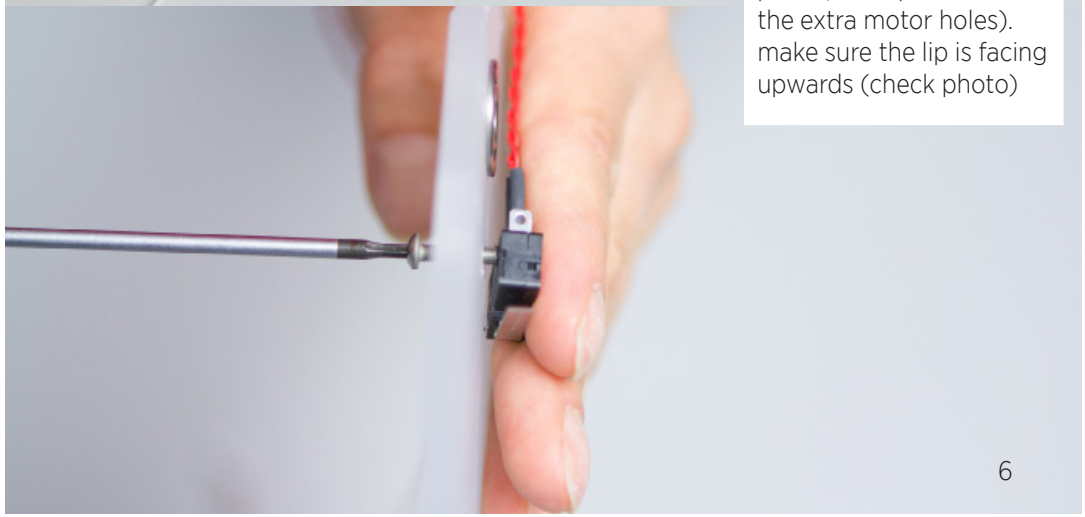


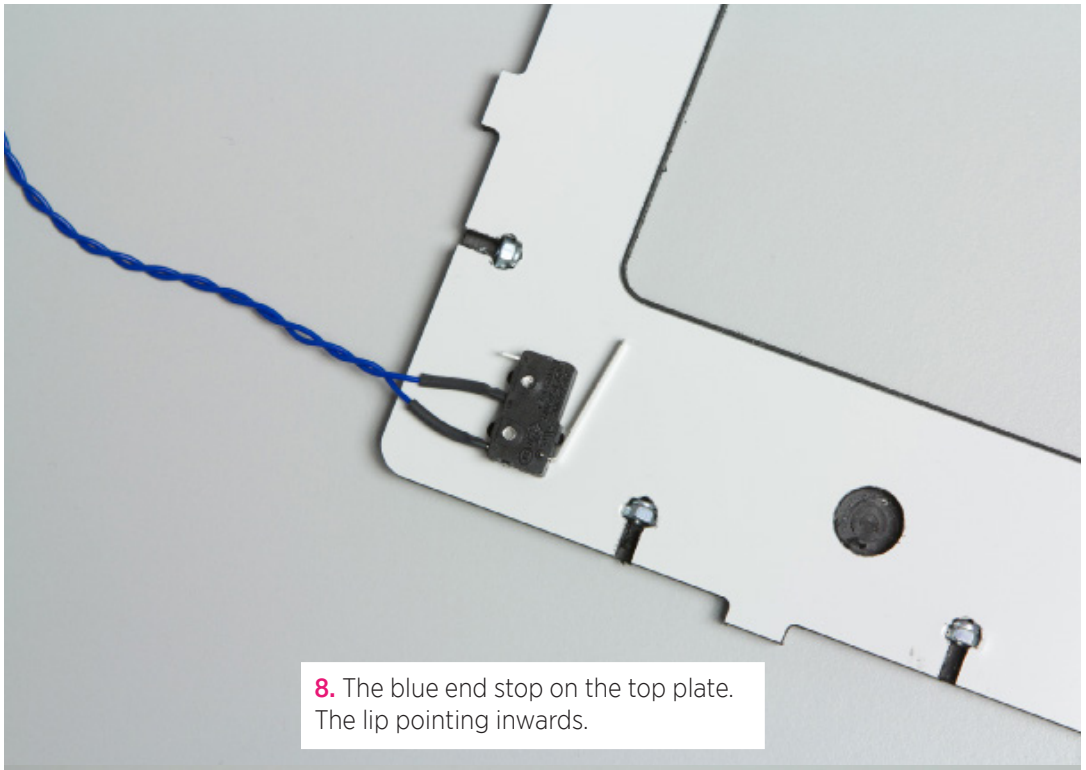


6. Attaching the 3 end-stops with 6x M3X12MM (firm but not excessive torque!

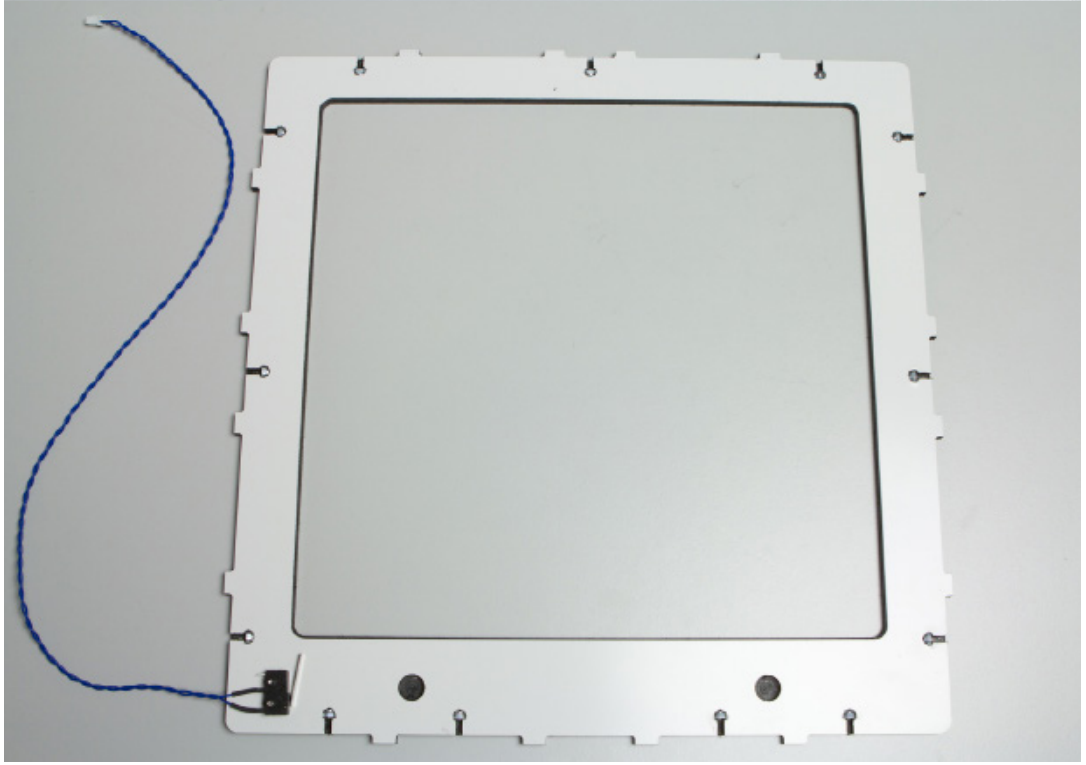


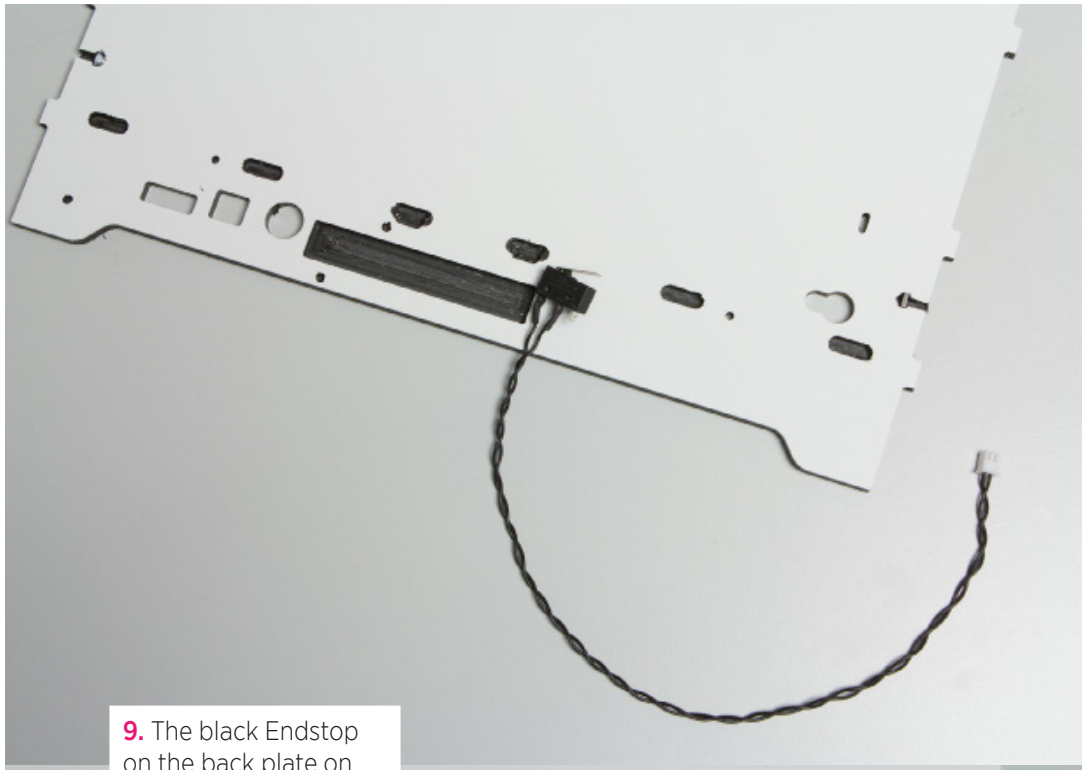
7. Red Endstop on the left plate (that's plate with the extra motor holes). make sure the lip is facing upwards (check photo)



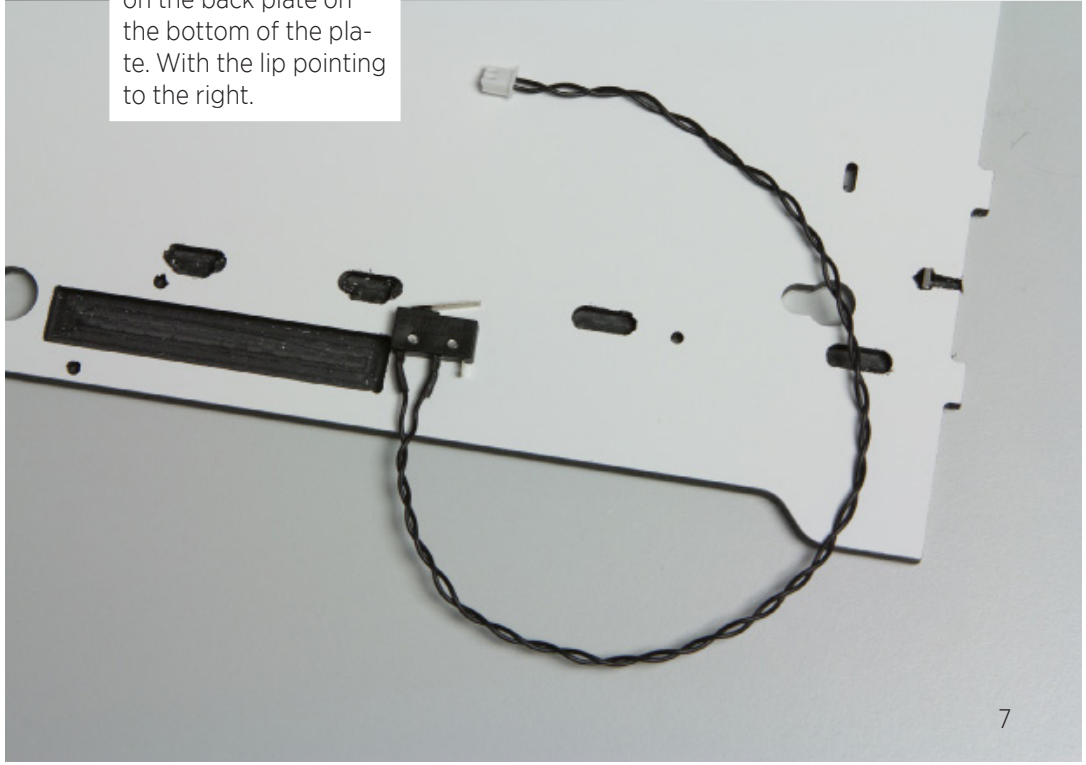


8. The blue end stop on the top plate. The lip pointing inwards.

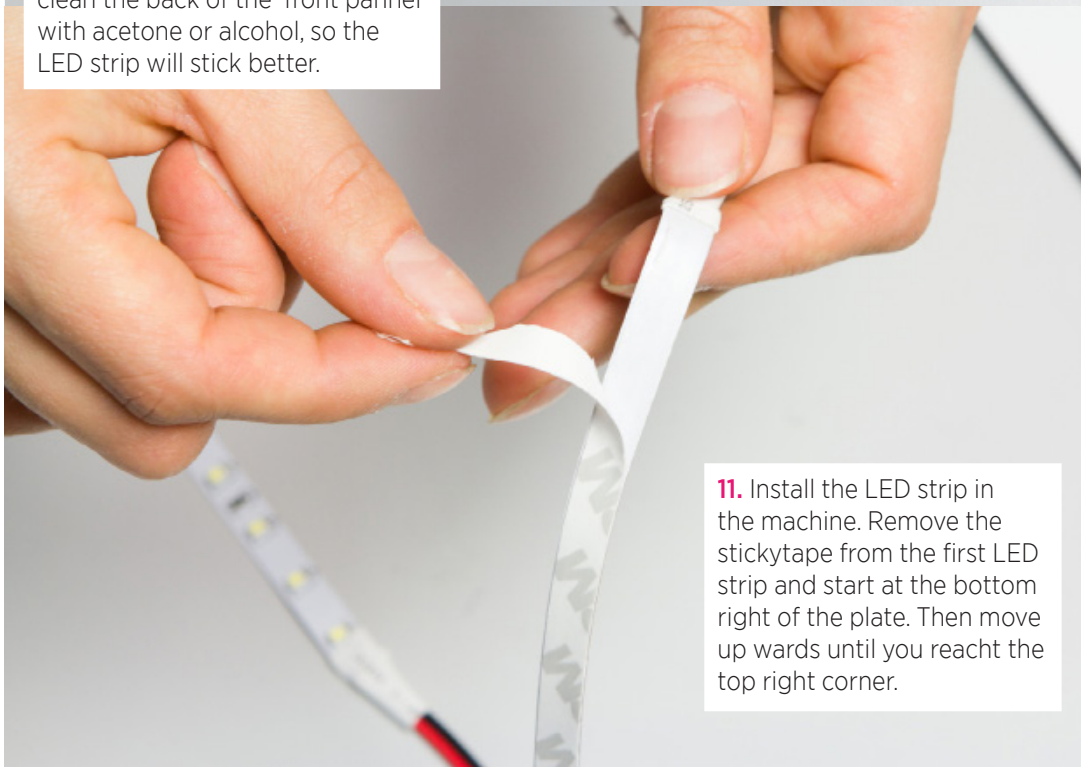




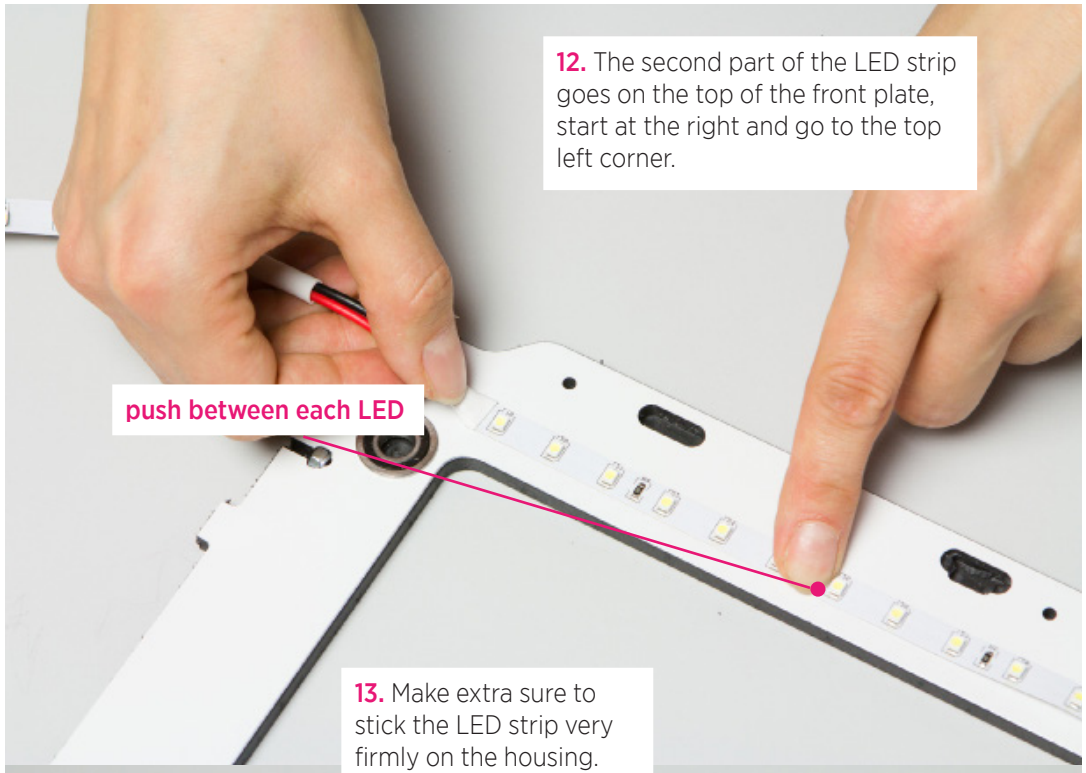
9. The black Endstop on the back plate on the bottom of the plate. With the lip pointing to the right.



10. Turn the Front pannel around so the T-slots are visible. Now clean the back of the front pannel with acetone or alcohol, so the LED strip will stick better.



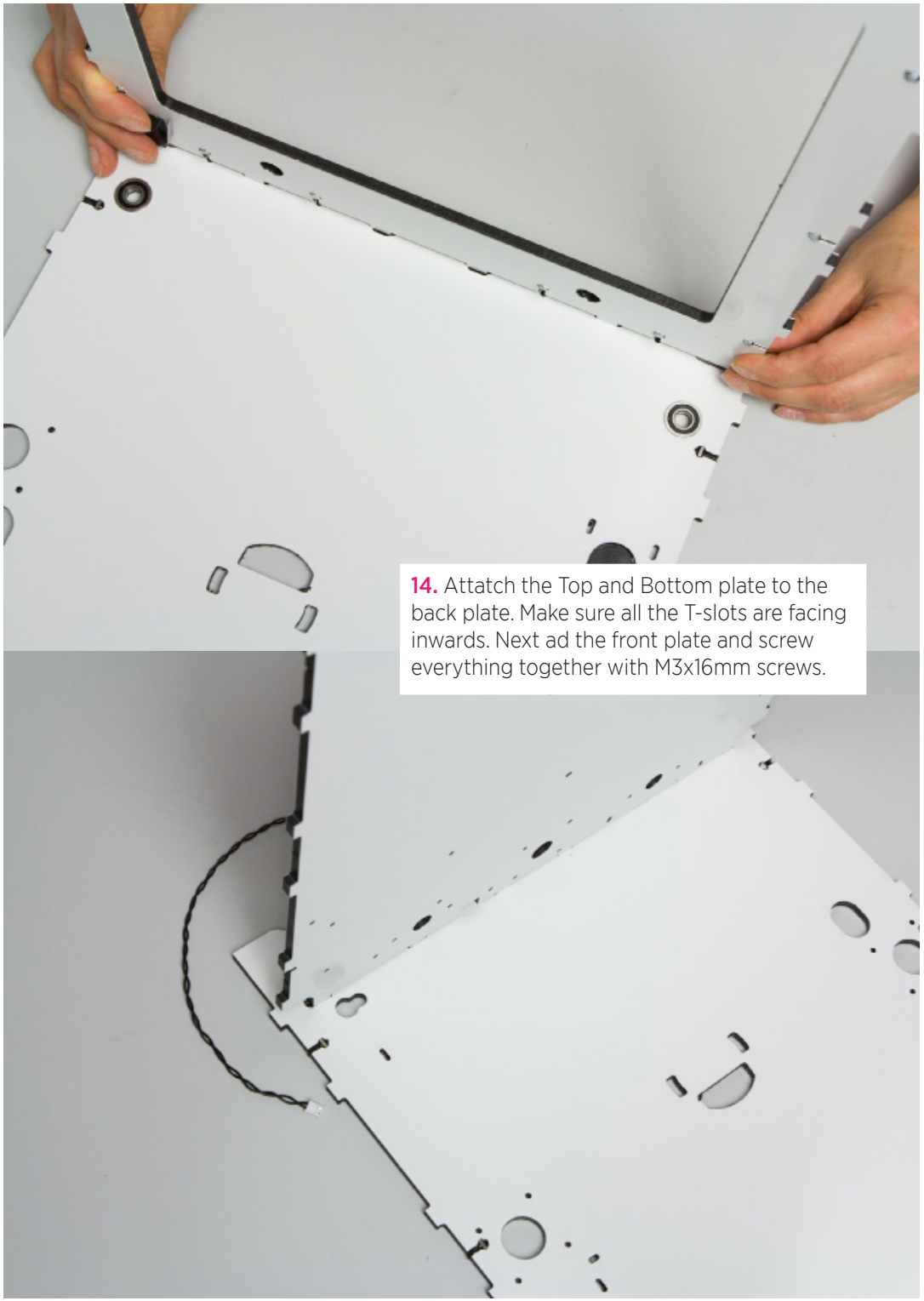
11. Install the LED strip in the machine. Remove the stickytape from the first LED strip and start at the bottom right of the plate. Then move up wards until you reacht the top right corner.



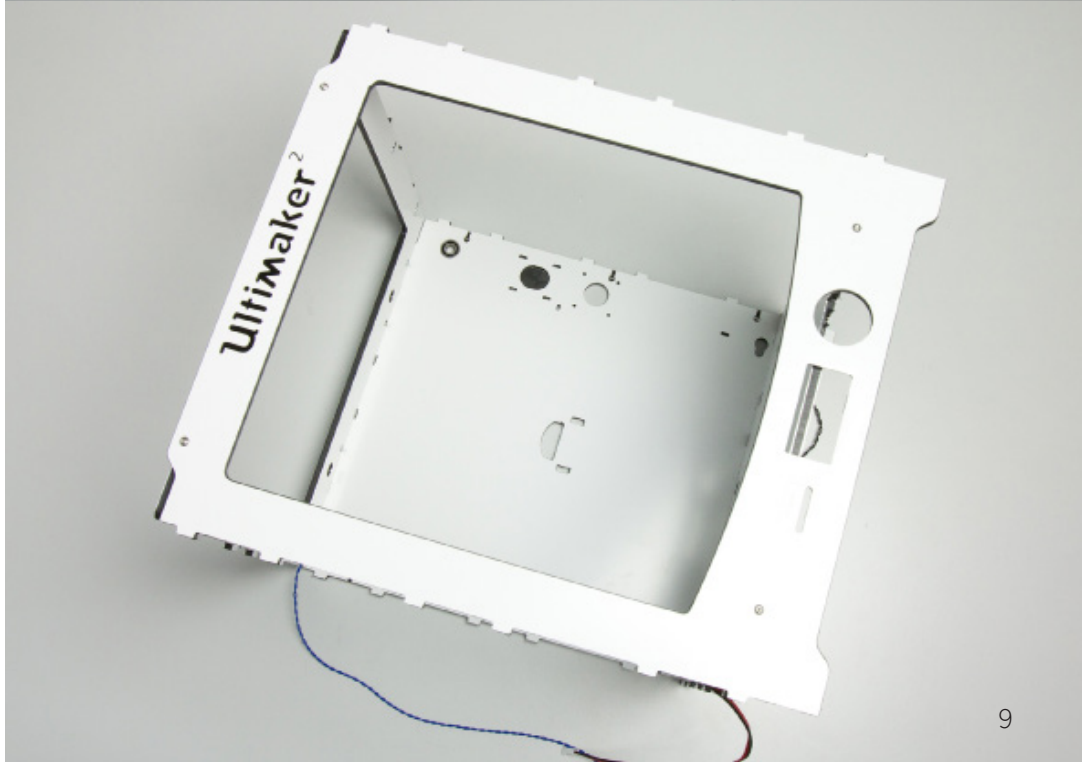
12. The second part of the LED strip goes on the top of the front plate, start at the right and go to the top left corner.

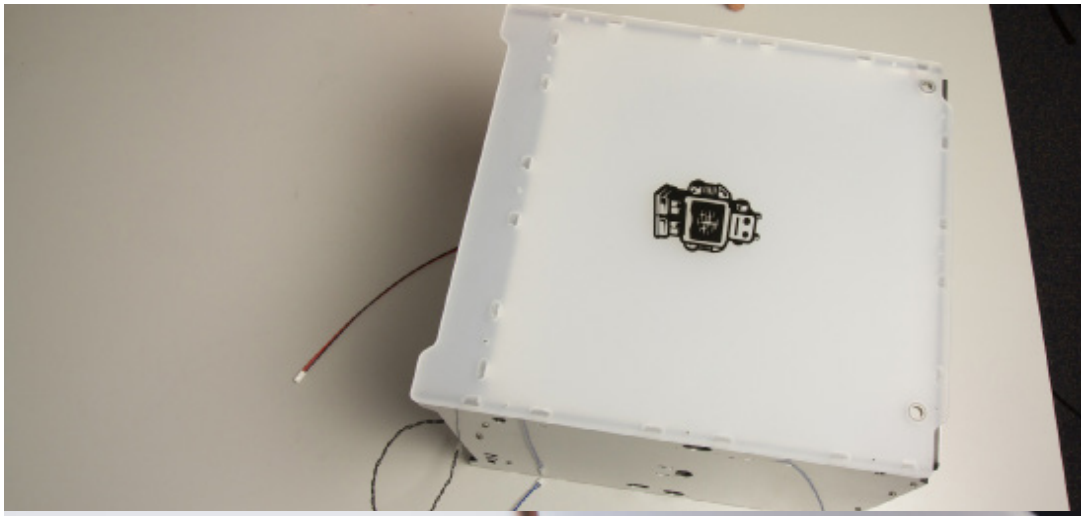
push between each LED

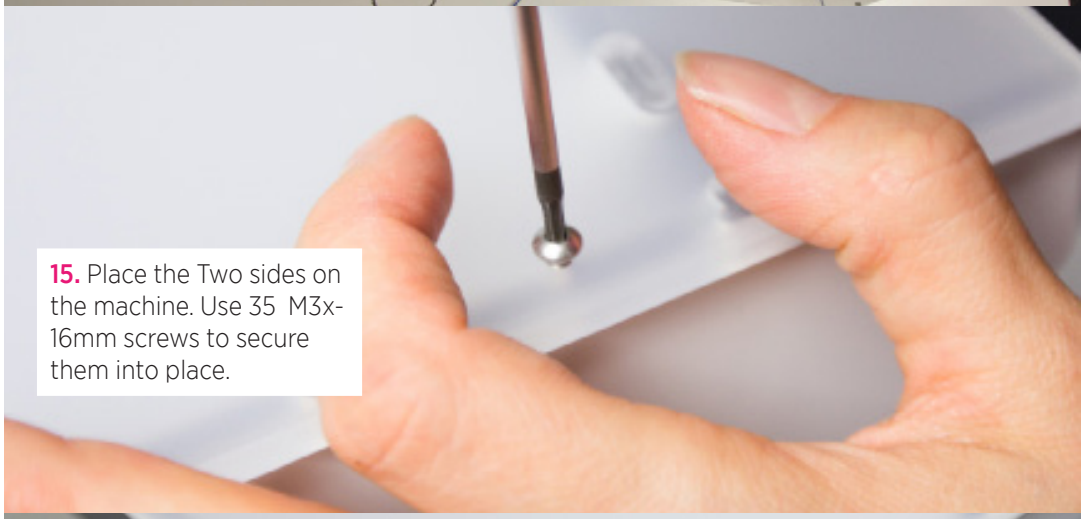
13. Make extra sure to stick the LED strip very firmly on the housing. Otherwise, it can deat-tach at a later stage!



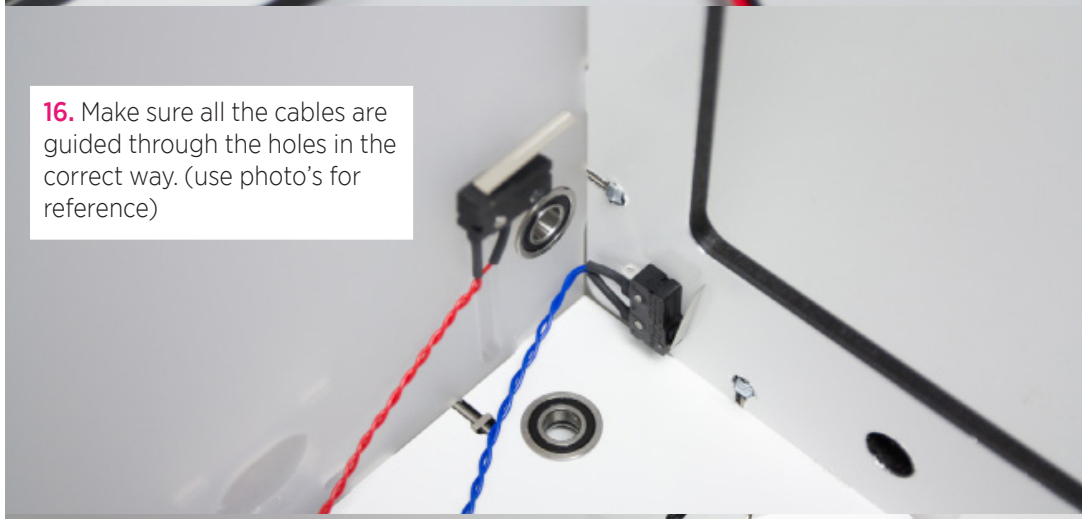
14. Attatch the Top and Bottom plate to the back plate. Make sure all the T-slots are facing inwards. Next ad the front plate and screw everything together with M3x16mm screws.



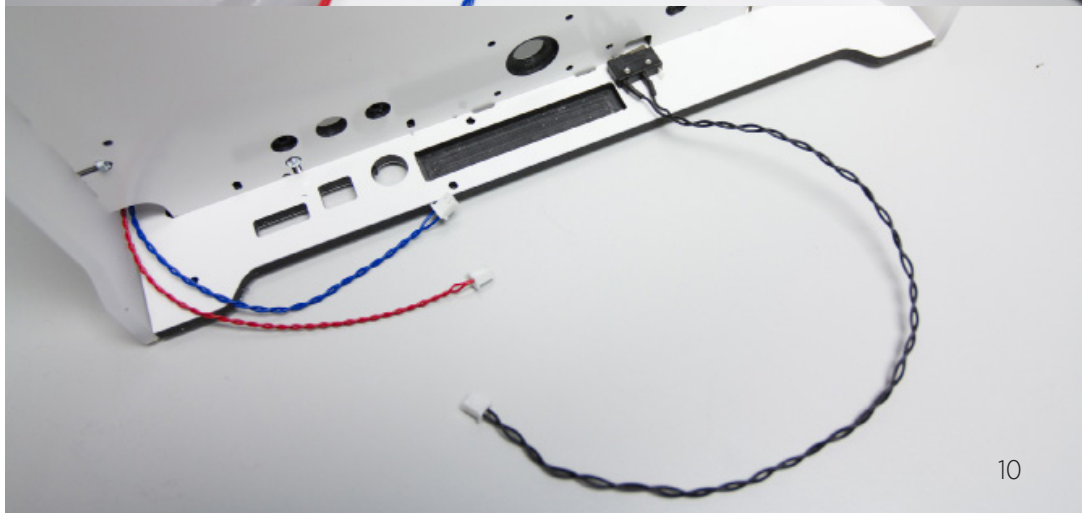




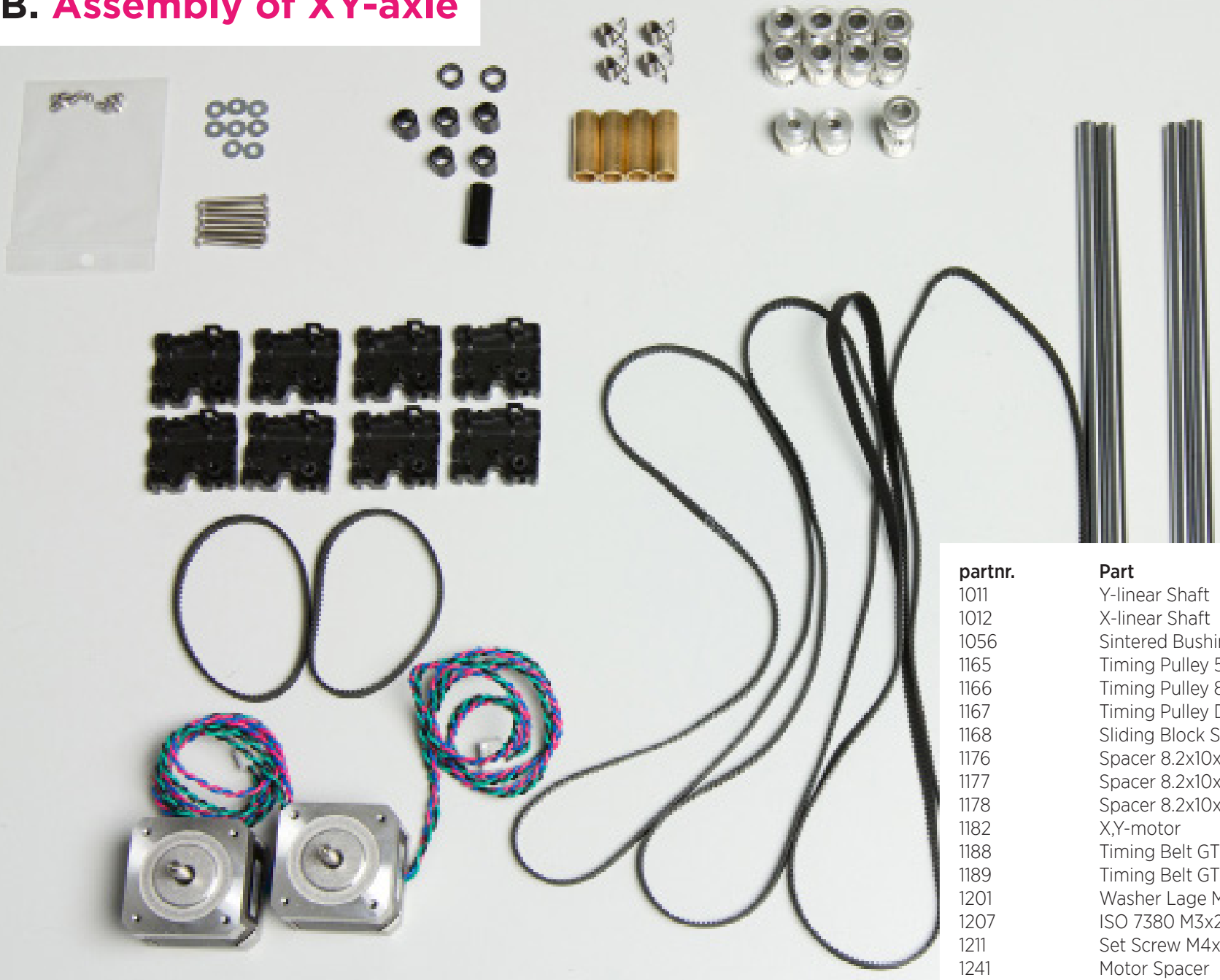
15. Place the Two sides on the machine. Use 35 M3x-16mm screws to secure them into place.



16. Make sure all the cables are guided through the holes in the correct way. (use photo's for reference)



B. Assembly of XY-axle



Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

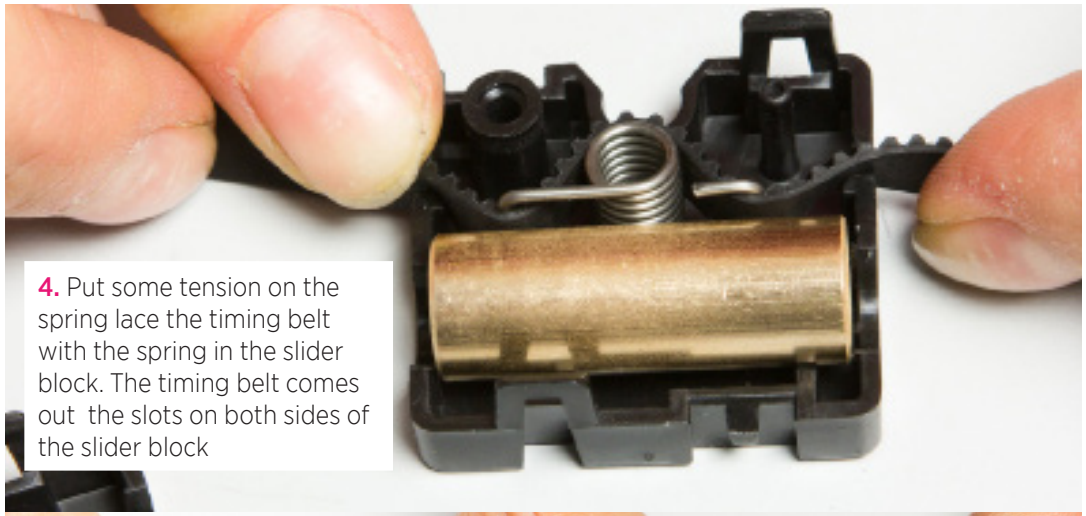
partnr.	Part	Amount
1011	Y-linear Shaft	2x
1012	X-linear Shaft	2x
1056	Sintered Bushing	4x
1165	Timing Pulley 5mm Shaft GT2	2x
1166	Timing Pulley 8mm Shaft GT2	8x
1167	Timing Pulley Double 8mm Shaft GT2	
1168	Sliding Block Spring	4x
1176	Spacer 8.2x10x5	2x
1177	Spacer 8.2x10x10	5x
1178	Spacer 8.2x10x25	
1182	X,Y-motor	2x
1188	Timing Belt GT2 200	2x
1189	Timing Belt GT2 610	4x
1201	Washer Lage M3	8x
1207	ISO 7380 M3x25	8x
1211	Set Screw M4x4	12x
1241	Motor Spacer	2x
1255	Sliding Block	8x

B1. Sliderblocks

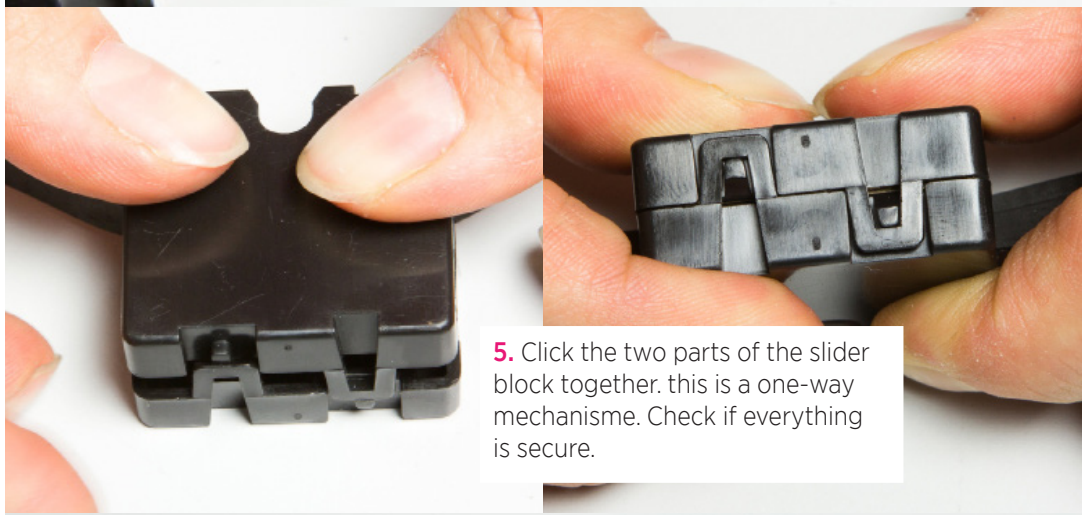
1.This photo shows all the parts needed for the sliderblocks

2. Place the timing belt around the spring, so the teeth are to the outside.

3. Put the two parts of the sliding block next to each other and put a brass bushing in one of the two (identical parts).



4. Put some tension on the spring lace the timing belt with the spring in the slider block. The timing belt comes out the slots on both sides of the slider block



5. Click the two parts of the slider block together. this is a one-way mechanisme. Check if everything is secure.

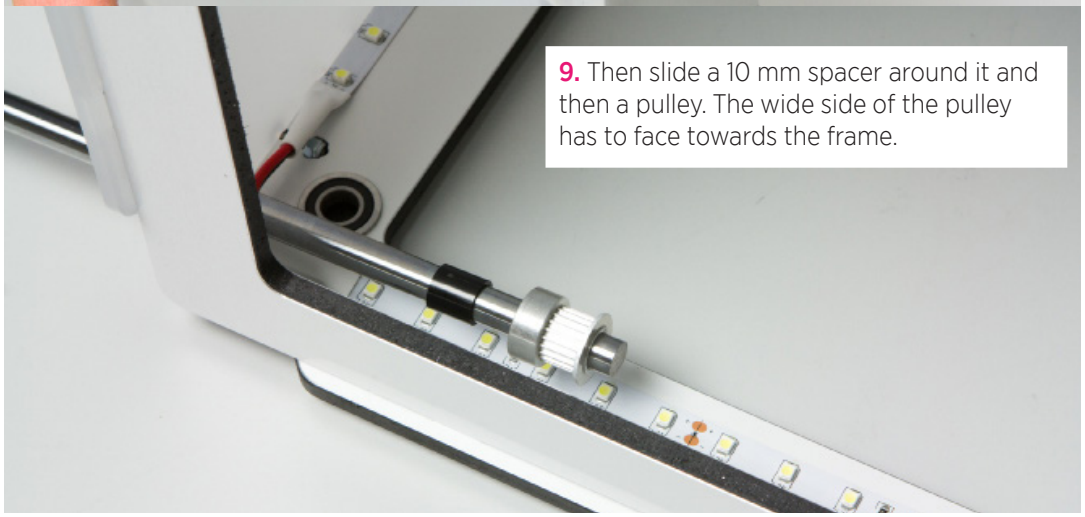
6. Repeat this procedure four times, this will result in 4 assembled sliding mechanisms

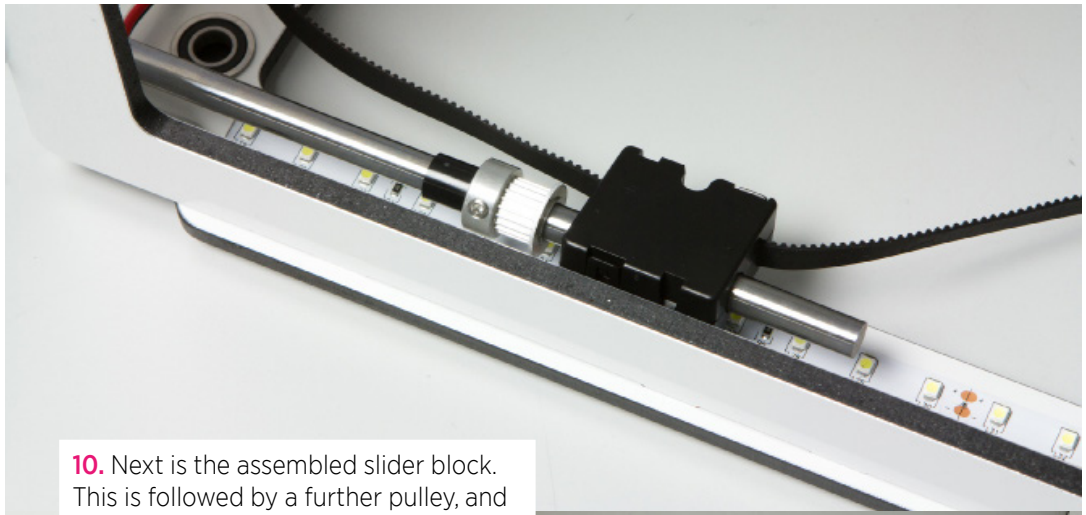
B2. XY-Assen

7. Screw a setscrews in all the 8 axes pulleys (with the 8mm holes) and in the double 8mm pulley setscrews: 8x M4x4mm. Doing this now is much easier than later on in the build.

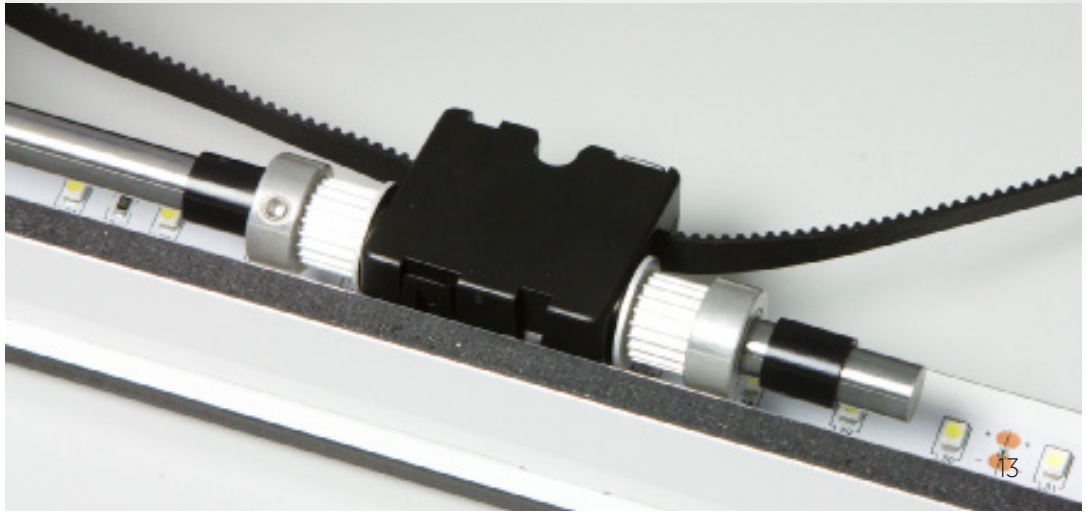
8. Slide one of the short axes through the hole at the front left of the machine.

9. Then slide a 10 mm spacer around it and then a pulley. The wide side of the pulley has to face towards the frame.

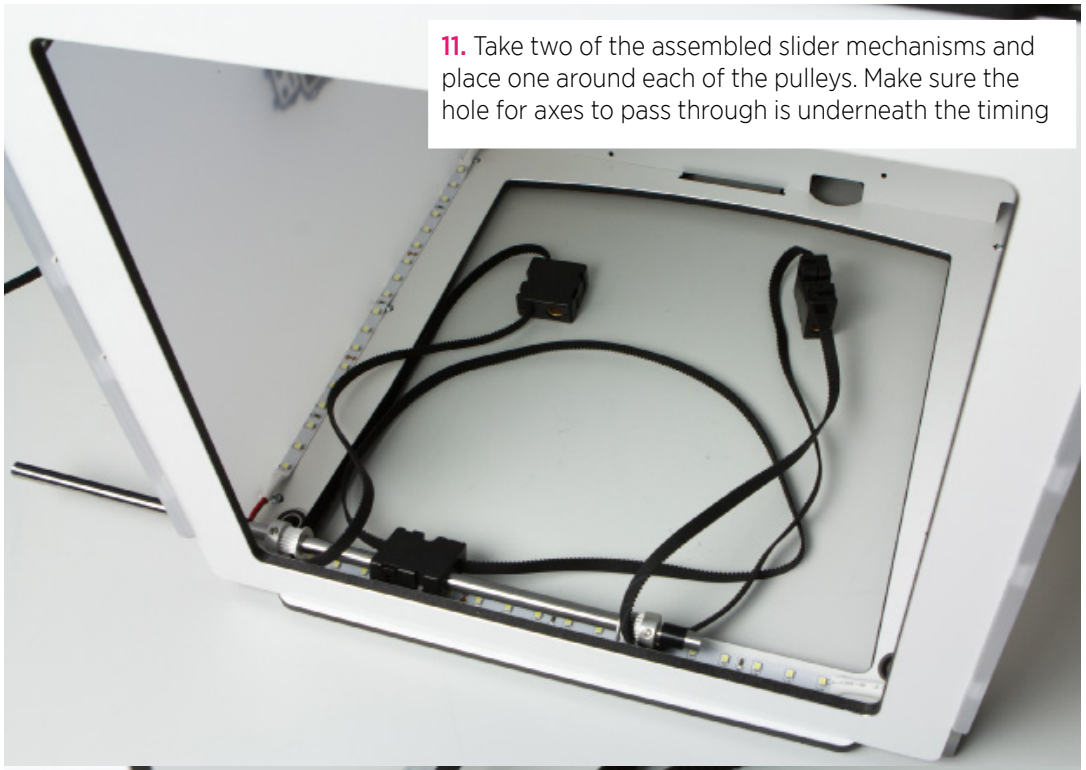


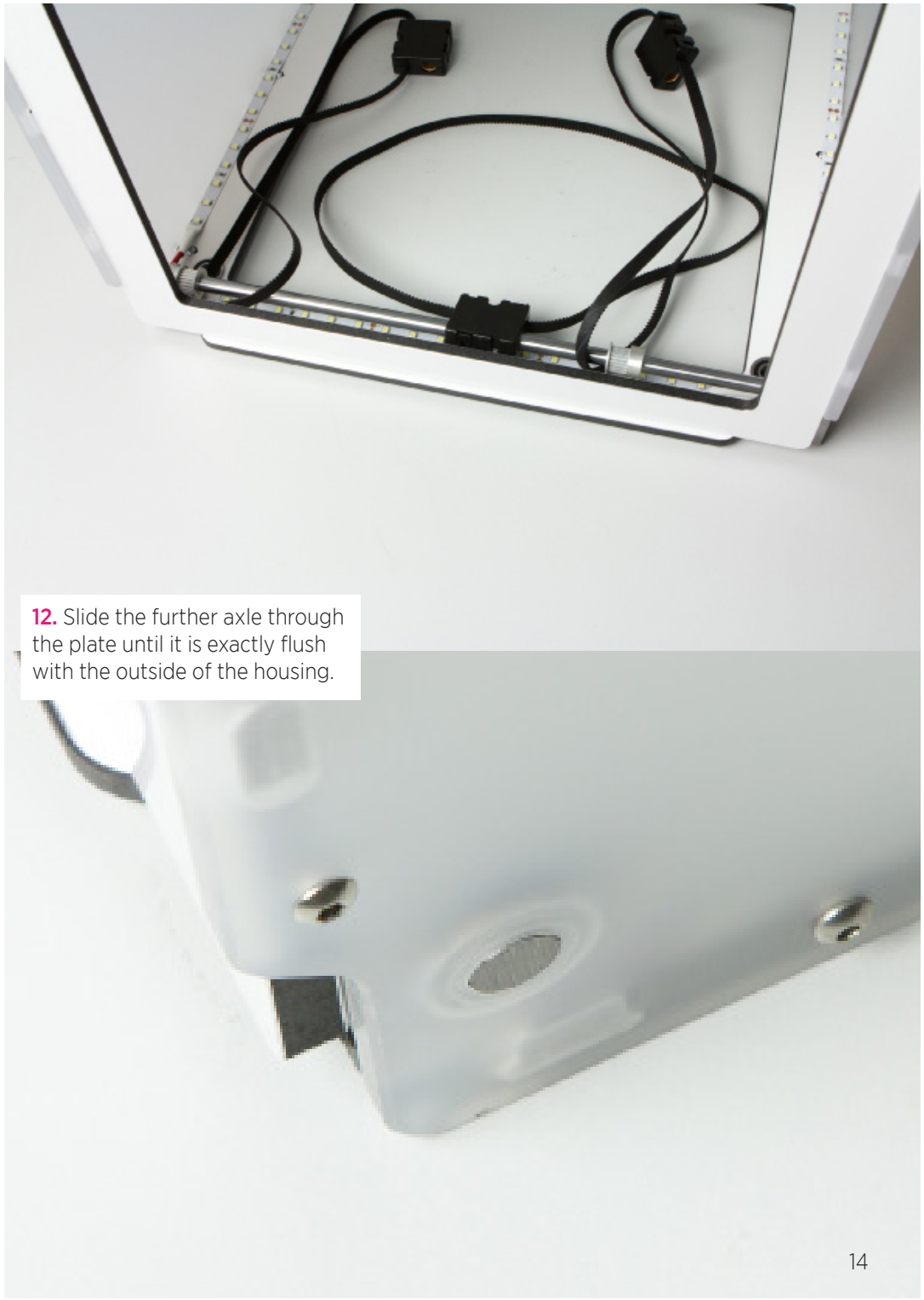


10. Next is the assembled slider block. This is followed by a further pulley, and finally again a 10 mm spacer. Check if its correct using the photo



11. Take two of the assembled slider mechanisms and place one around each of the pulleys. Make sure the hole for axes to pass through is underneath the timing

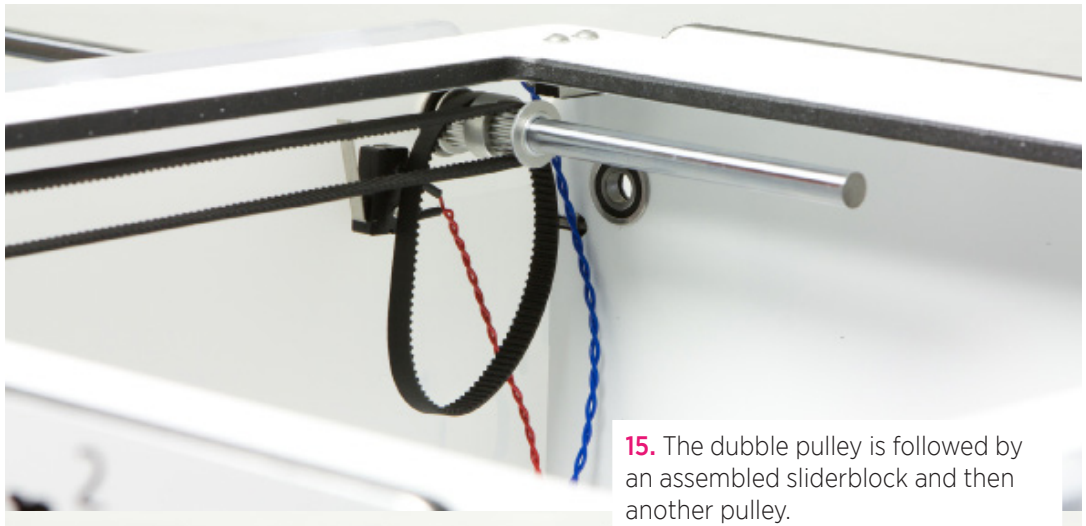




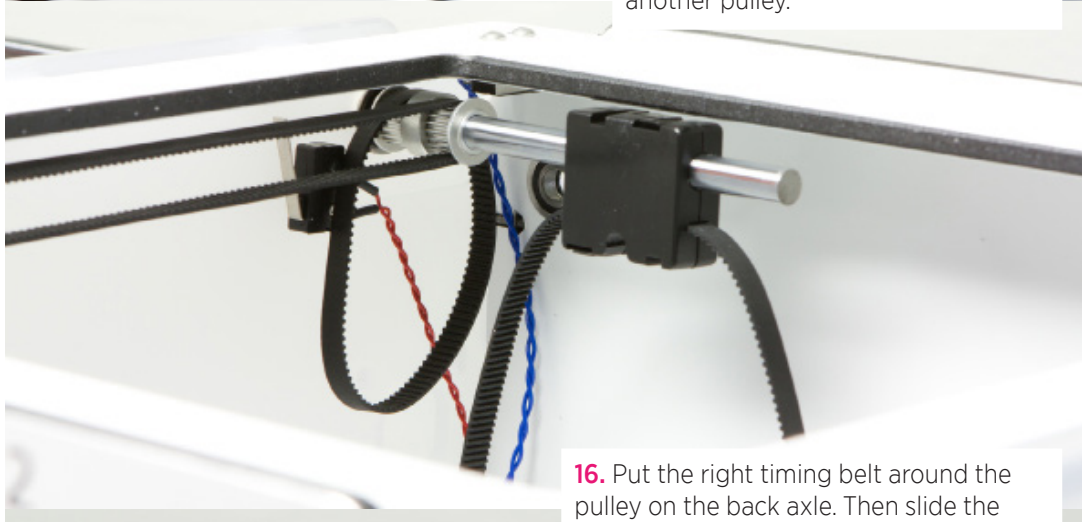
12. Slide the further axle through the plate until it is exactly flush with the outside of the housing.

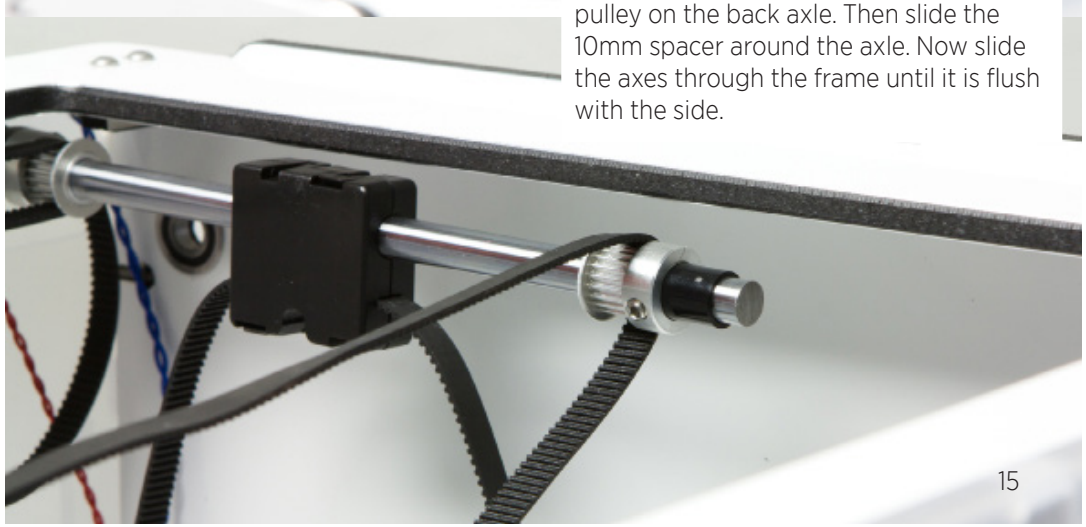
13. Take the other short axes and slide it through the hole back of the left pannel. Then take the dubble pulley and place it on the axle.

14. Place the sort timing belt on the dubble pulley. Make sure it's on the side closest to the frame. this short belt will attatch to the motor later on in the process. Now take the long belt from the left sliderblock and place it around the pulley.



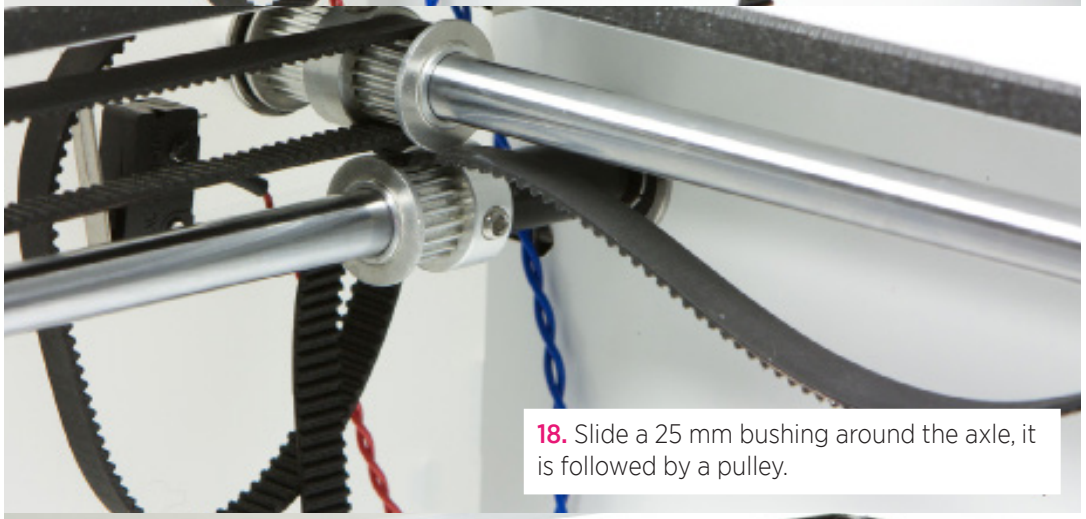
15. The dubble pulley is followed by an assembled sliderblock and then another pulley.



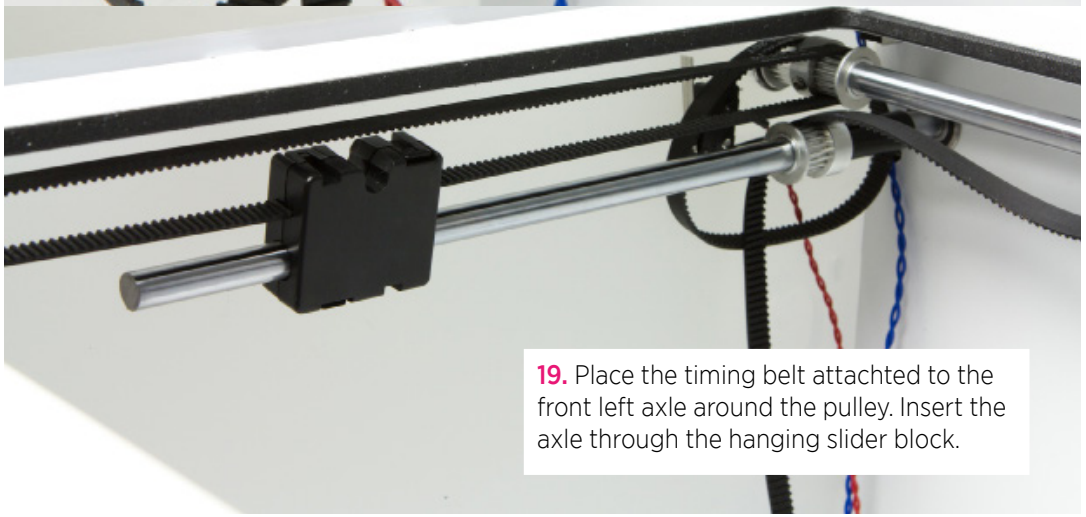


16. Put the right timing belt around the pulley on the back axle. Then slide the 10mm spacer around the axle. Now slide the axes through the frame until it is flush with the side.

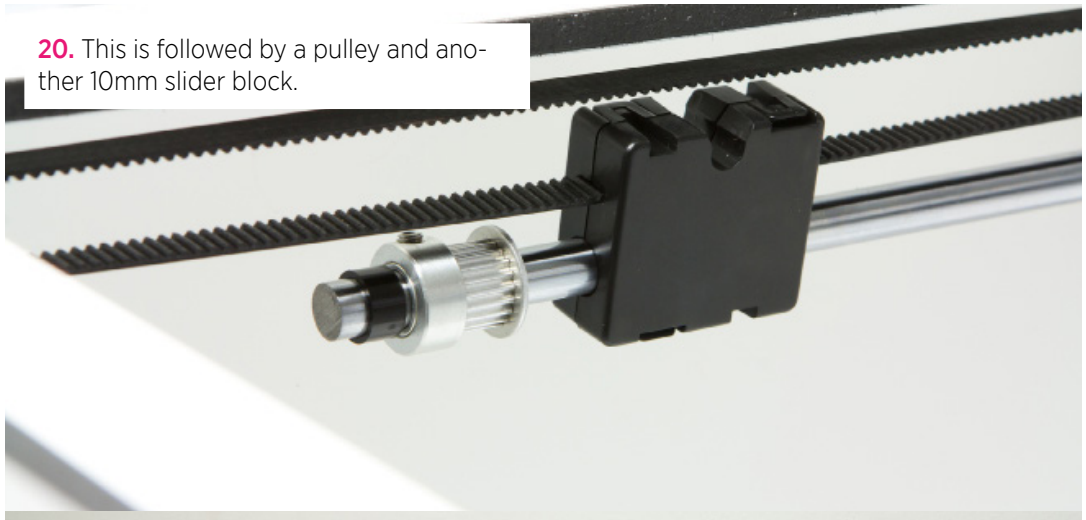
17. The next shaft that we are going to assemble, is the axle of the back left.



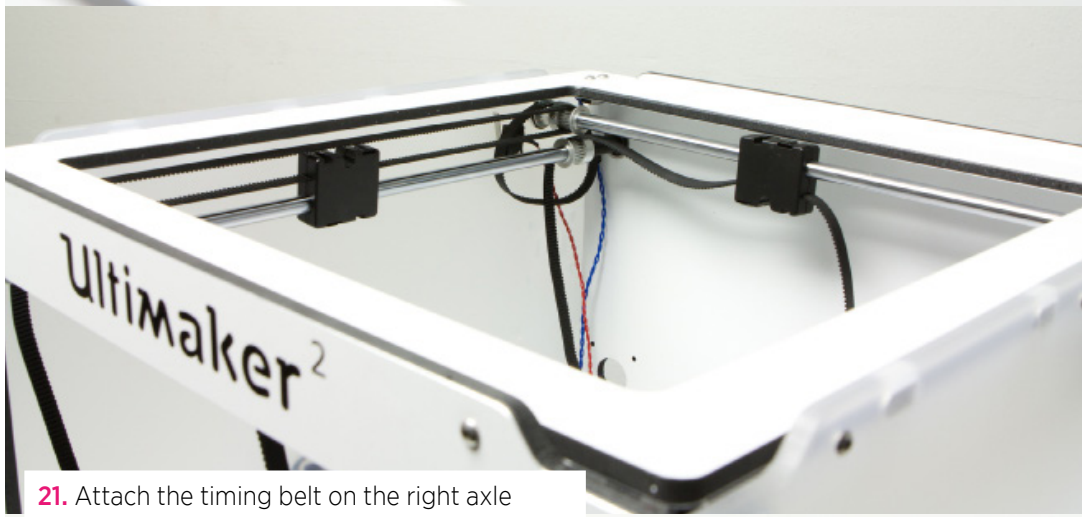
18. Slide a 25 mm bushing around the axle, it is followed by a pulley.



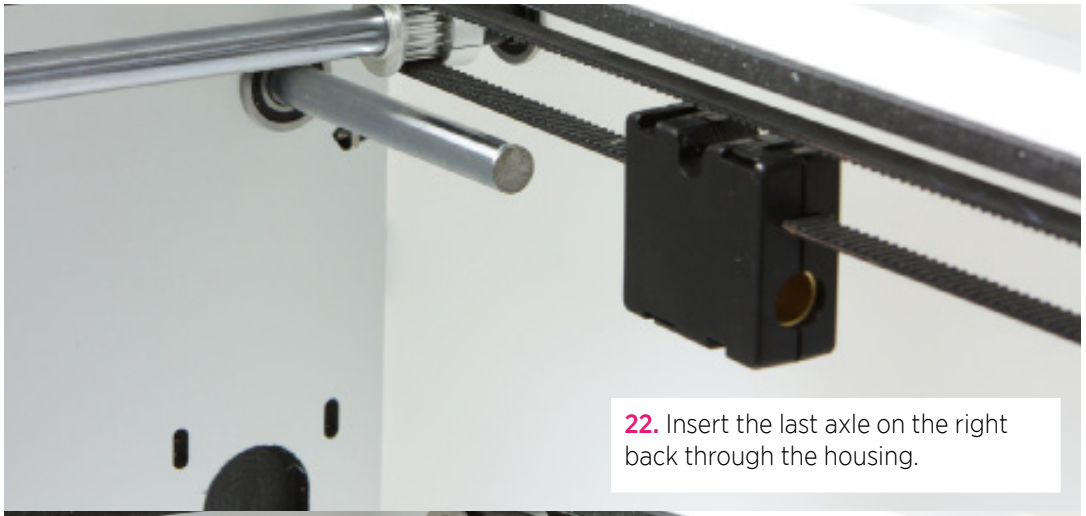
19. Place the timing belt attachted to the front left axle around the pulley. Insert the axle through the hanging slider block.



20. This is followed by a pulley and another 10mm slider block.



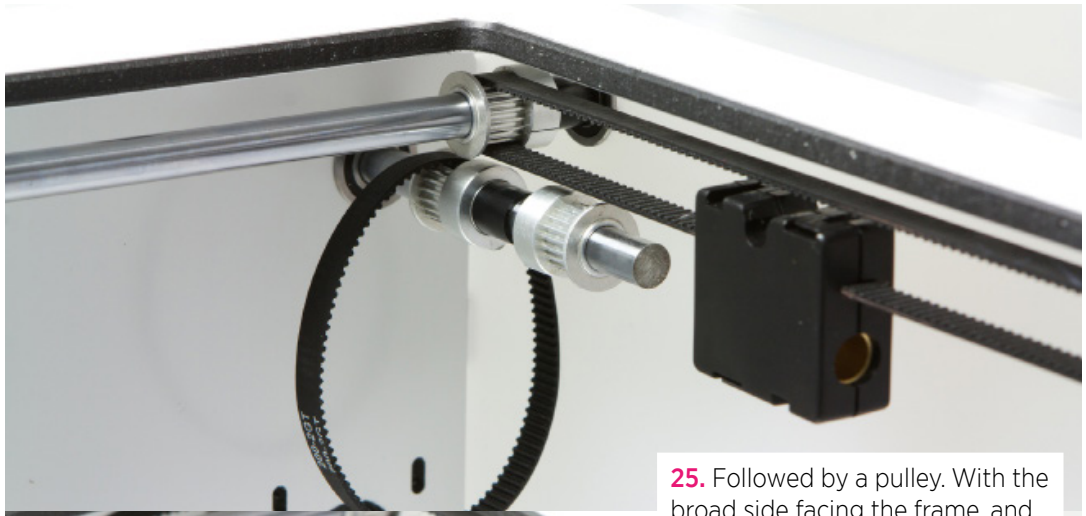
21. Attach the timing belt on the right axle of the pulley and insert the shaft through the housing, so that it is flush with the frame



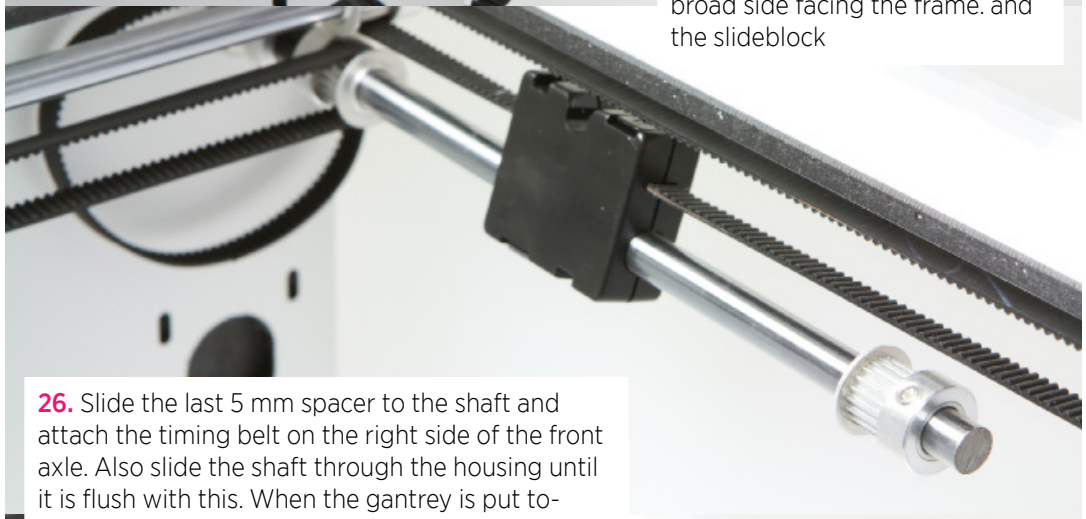
22. Insert the last axle on the right back through the housing.

23. You start with a pulley with the narrow facing the frame. This is different from all the other pulleys. Put a small timing belt around the pulley

24. Then slide a 10mm spacer on to the shaft.



25. Followed by a pulley. With the broad side facing the frame. and the slideblock



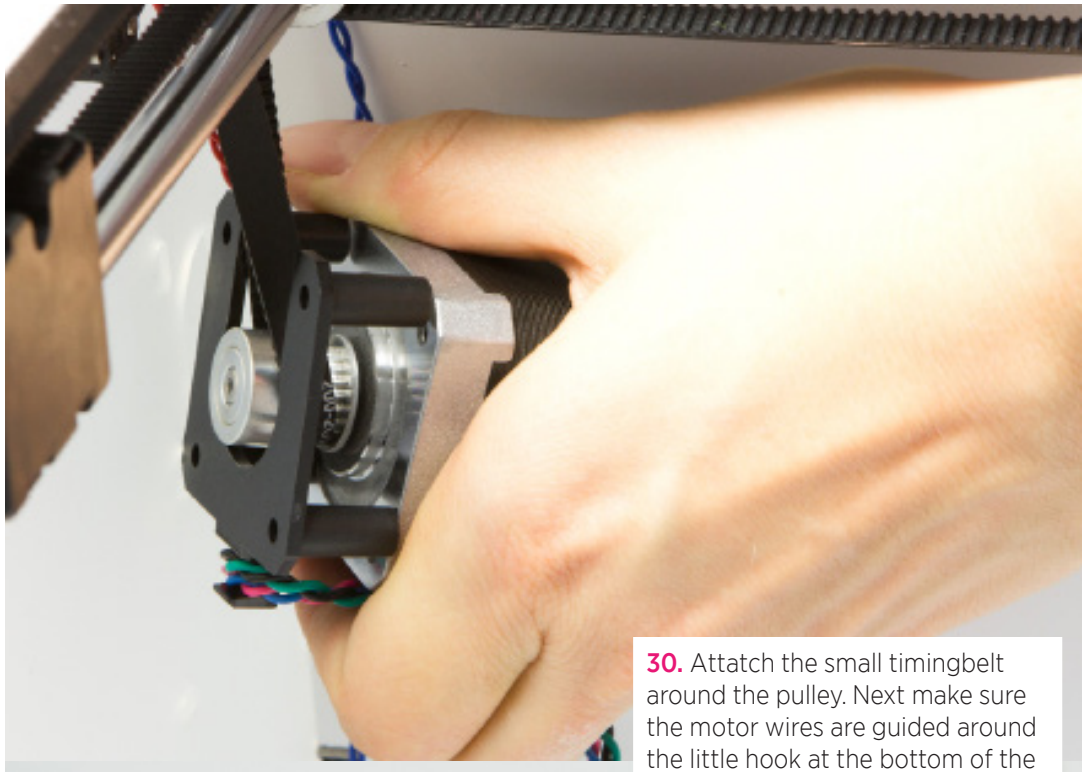
26. Slide the last 5 mm spacer to the shaft and attach the timing belt on the right side of the front axle. Also slide the shaft through the housing until it is flush with this. When the gantrey is put together all the screws can be tightend down firmly

B3. XY-motoren

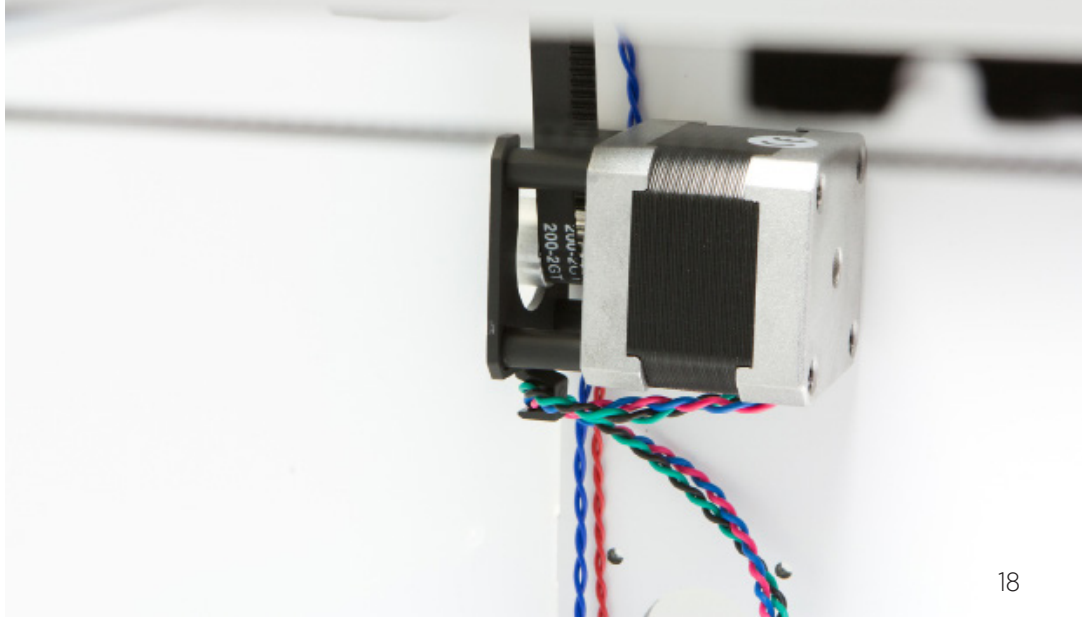
27. These are the nessacery parts to secure the motors. Make sure that you take the two with the shorter axels

28. Secure the two pulleys with the 5mm hole on the motors with the M4x4 slugs. the end of the pulley has to be flush with the axle. make sure you screw them tight

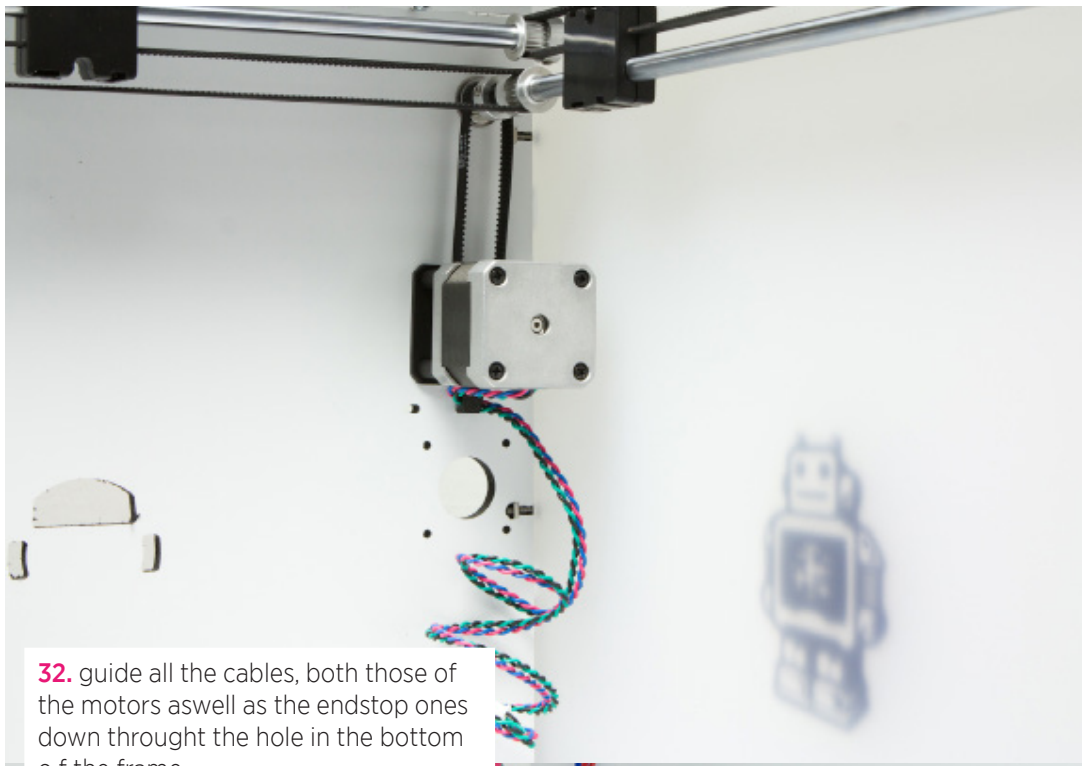
29. The wide side of the pulley has to face away from the motor



30. Attatch the small timingbelt around the pulley. Next make sure the motor wires are guided around the little hook at the bottom of the motorspacer. do this before you attach the spacer to the frame of the machine.



31. Attatch the motors with 8 M3x-25mm screws.Use 8 M3 Washers between the screwhead and the frame. Start with the top two screws to make it easier to position the motor.



32. guide all the cables, both those of the motors aswell as the endstop ones down throught the hole in the bottom o f the frame.

33. Repeat this entire procedure for the other motor.

C. Assembly of the Z-stage

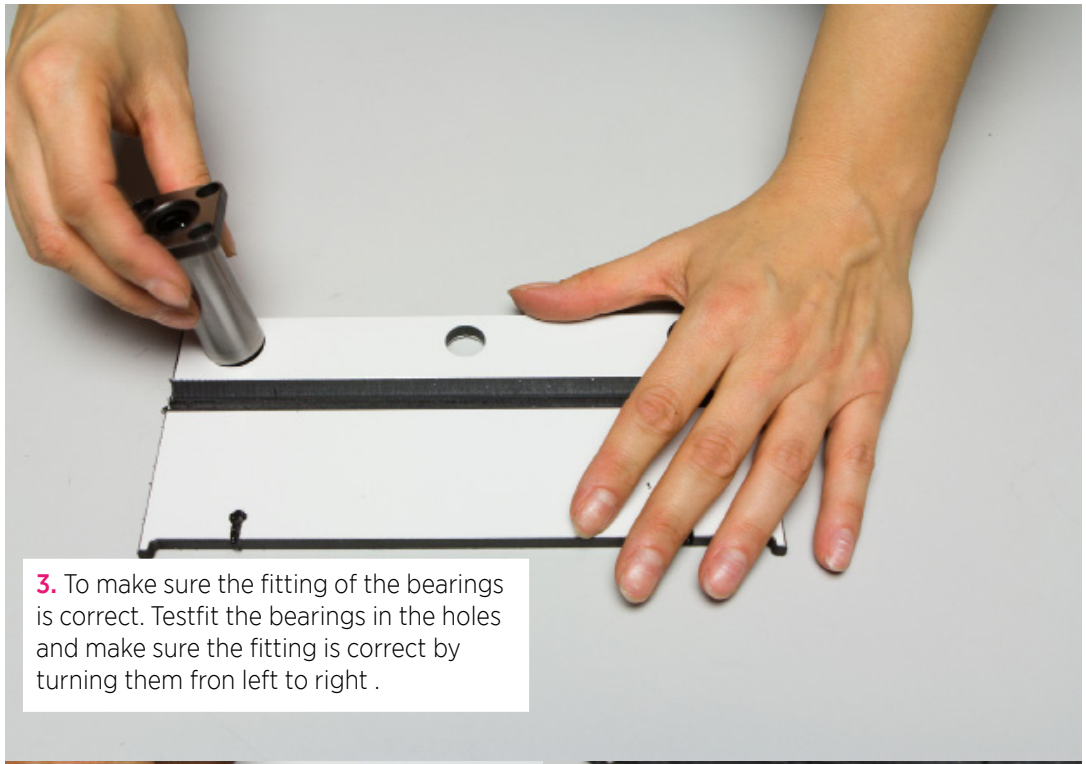
partnr.	Part	Amount
1152	Table Spring D2150	3x
1153	Print Table Base Plate	
1154	Print Table Glass	
1155	Print Table Heated Bed	
1156	Z-shaft Cap Bottom	2x
1157	Print Table Back Cover	
1159	Z-motor With Trapezoidal Lead Screw	
1169	Z-linear Shaft	2x
1170	Square Flanged Linear Bearing LMK12LUU	2x
1183	Heated Bed Cable	
1187	Trapezoidal Lead Nut	
1200	ISO 7380 M3x8	4x
1202	ISO 7380 M3x10	14x
1204	ISO 7380 M3x16	2x
1206	ISO 7380 M3x20	4x
1213	DIN 962 Square Nut M3 A2	2x
1214	ISO 7040 nut M3 Prev. Torque A2	8x
1215	ISO 10642 M3x8 A2	4x
1216	ISO 10642 M3x20 A2	3x
1217	ISO 10642 M4x10 A2	8x
1243	Heated Bed Cable Clip	
1254	Print Table Mounting Aid	3x
1256	Build Platform Glass Retainer Back	4x
1257	Knurled Nut Platform	3x
1288	Washer M6	3x
1402	Key Wrench T2.5	

Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

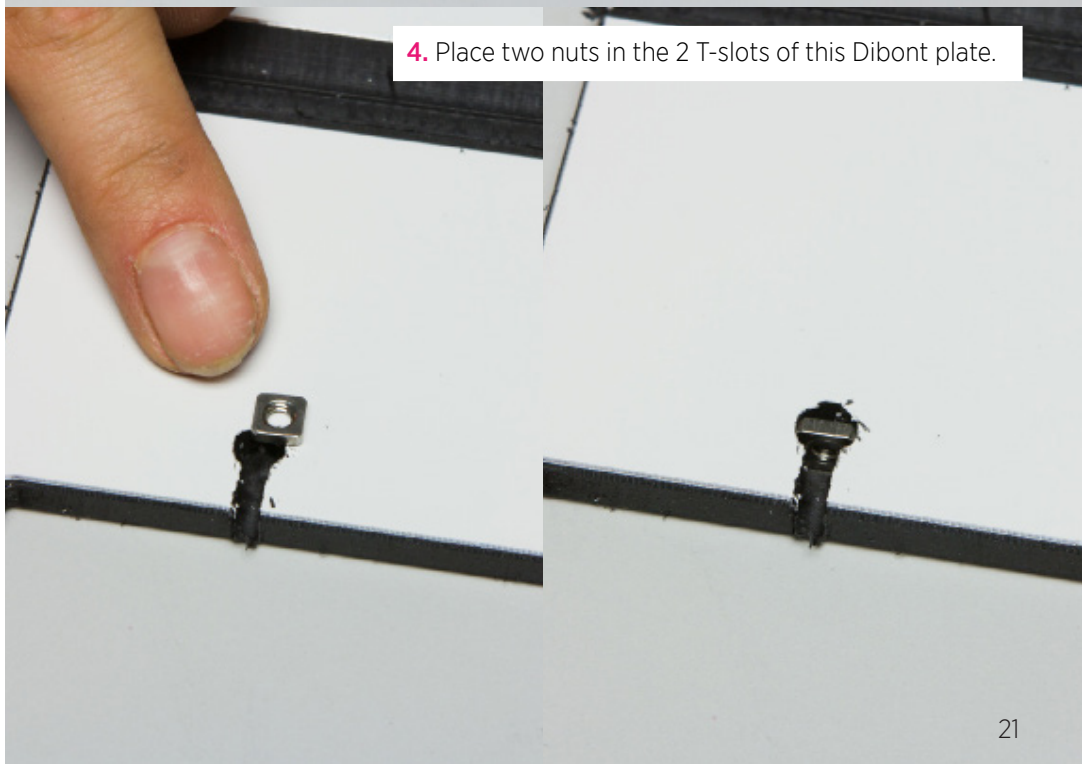
C1. Z-stage

1. Make sure all plastic has been removed from the small dibond plate.

2. Remove all jagged particles that have been left by milling.

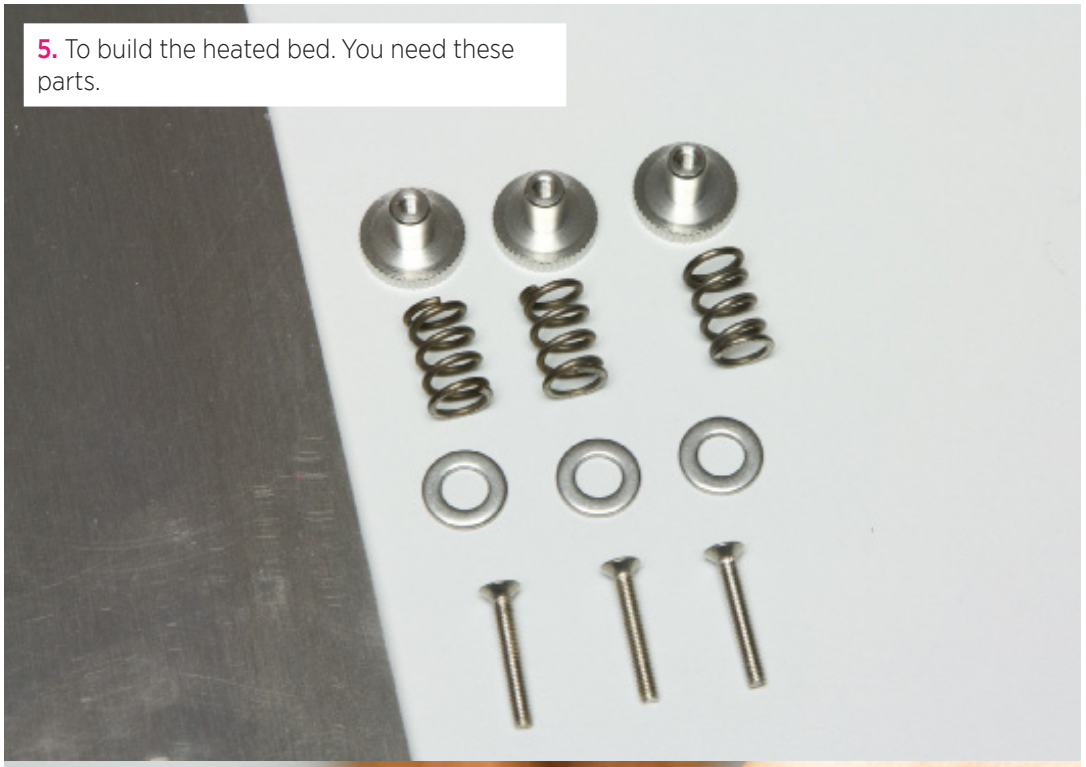


3. To make sure the fitting of the bearings is correct. Testfit the bearings in the holes and make sure the fitting is correct by turning them fron left to right .



4. Place two nuts in the 2 T-slots of this Dibont plate.

5. To build the heated bed. You need these parts.



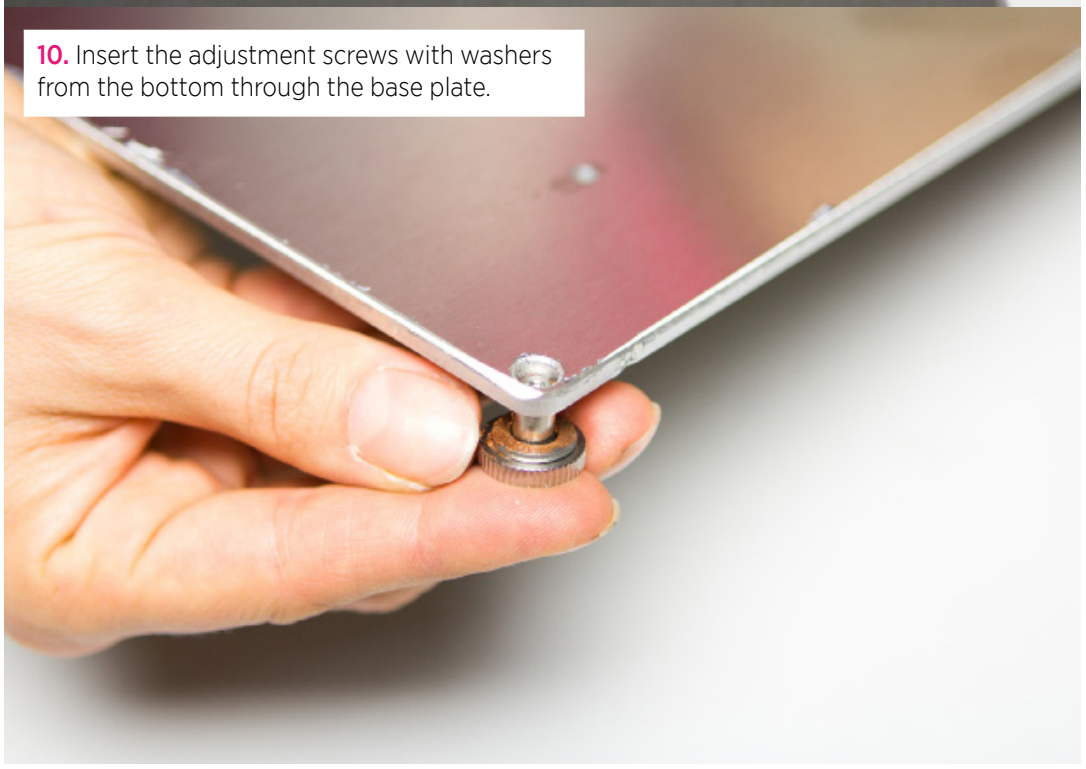
6. The top of the stainless steel ring comes in contact with the aluminum and therefore should be greased with copper

7. Place the greased ring on the adjustment screw.

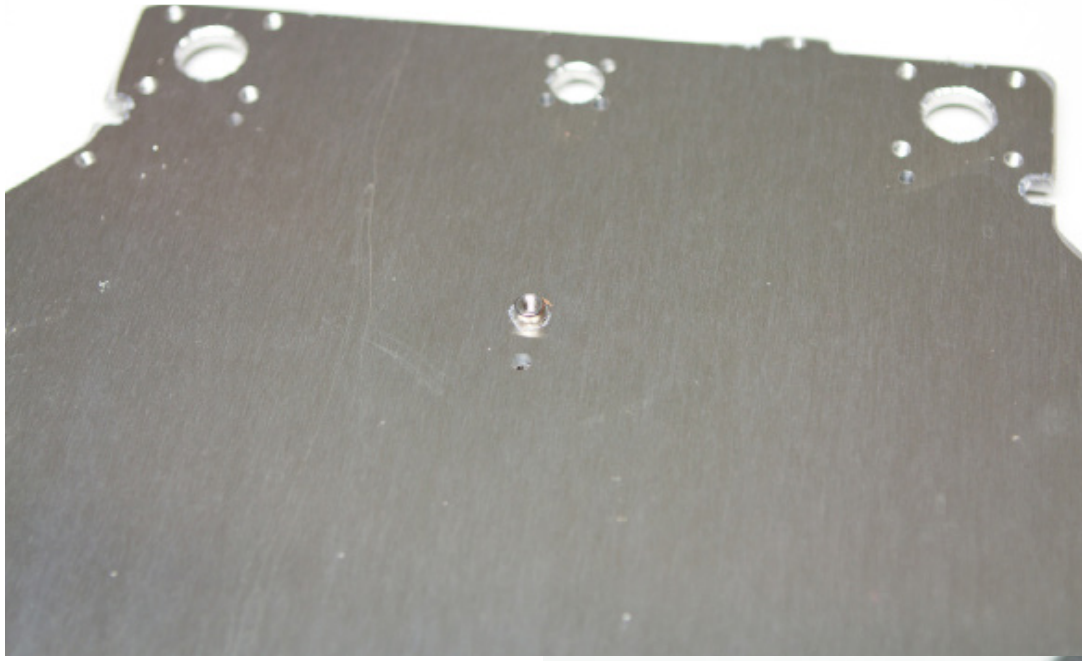
8. Now remove all the foil from the aluminum plate.

9. position the aluminium plate in such a way that the notch is on the right side of the middle hole

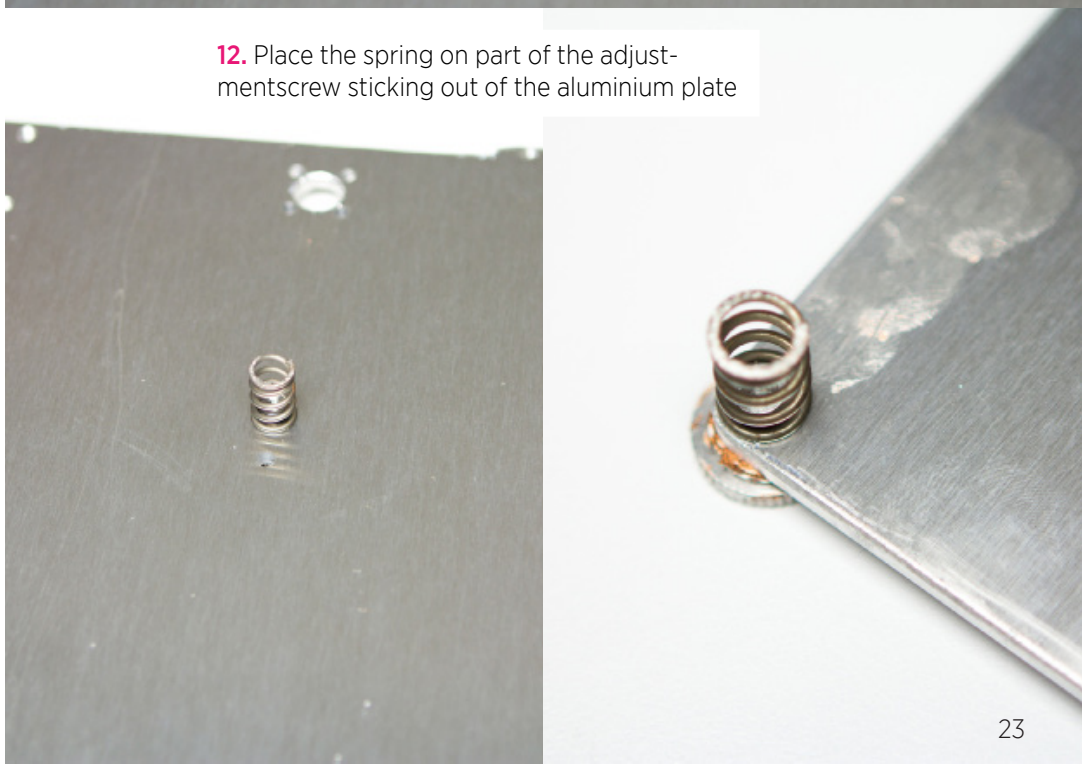
10. Insert the adjustment screws with washers from the bottom through the base plate.

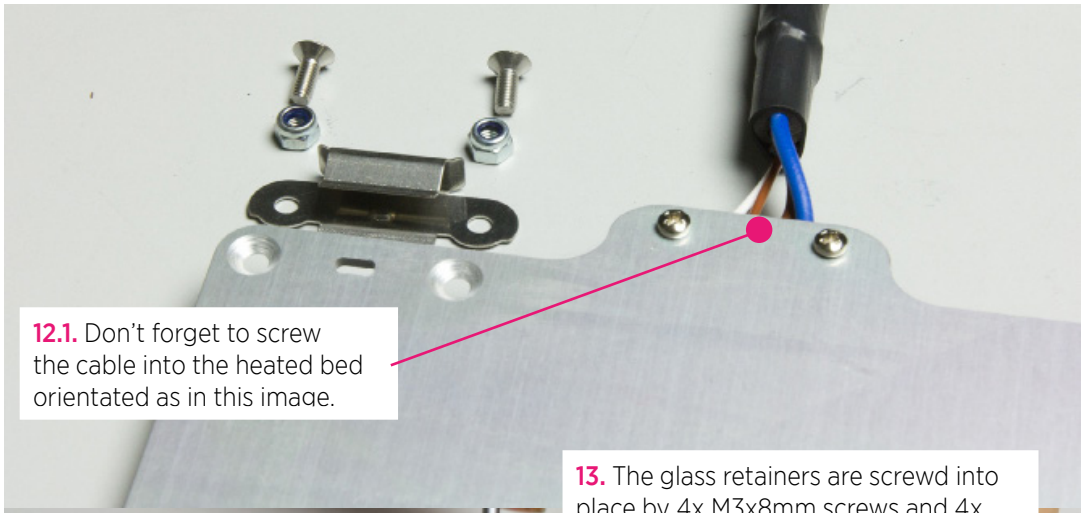


11. Place them in the 3 appropriate holes.



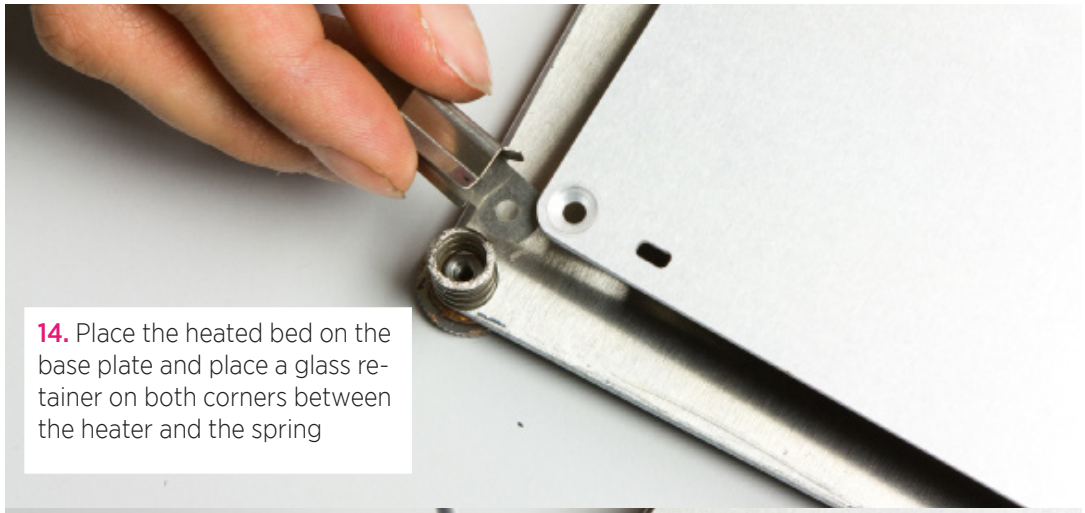
12. Place the spring on part of the adjustmentscrew sticking out of the aluminium plate





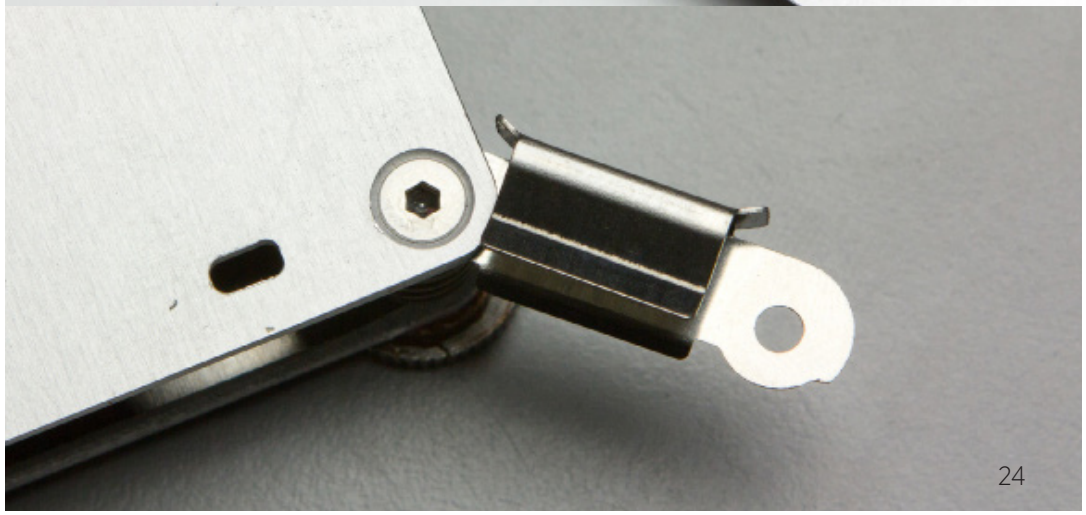
12.1. Don't forget to screw the cable into the heated bed orientated as in this image.

13. The glass retainers are screwd into place by 4x M3x8mm screws and 4x lock nuts.



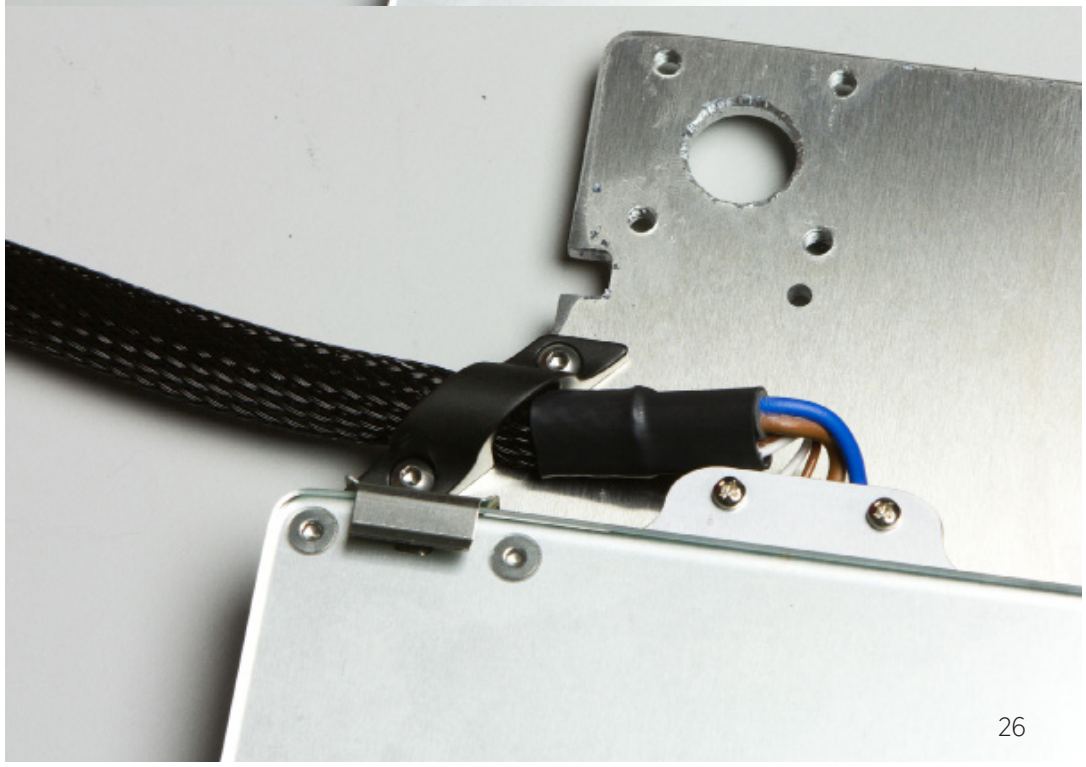
14. Place the heated bed on the base plate and place a glass retainer on both corners between the heater and the spring

15. Screw it down with 3x M3x20 countersunk screws.

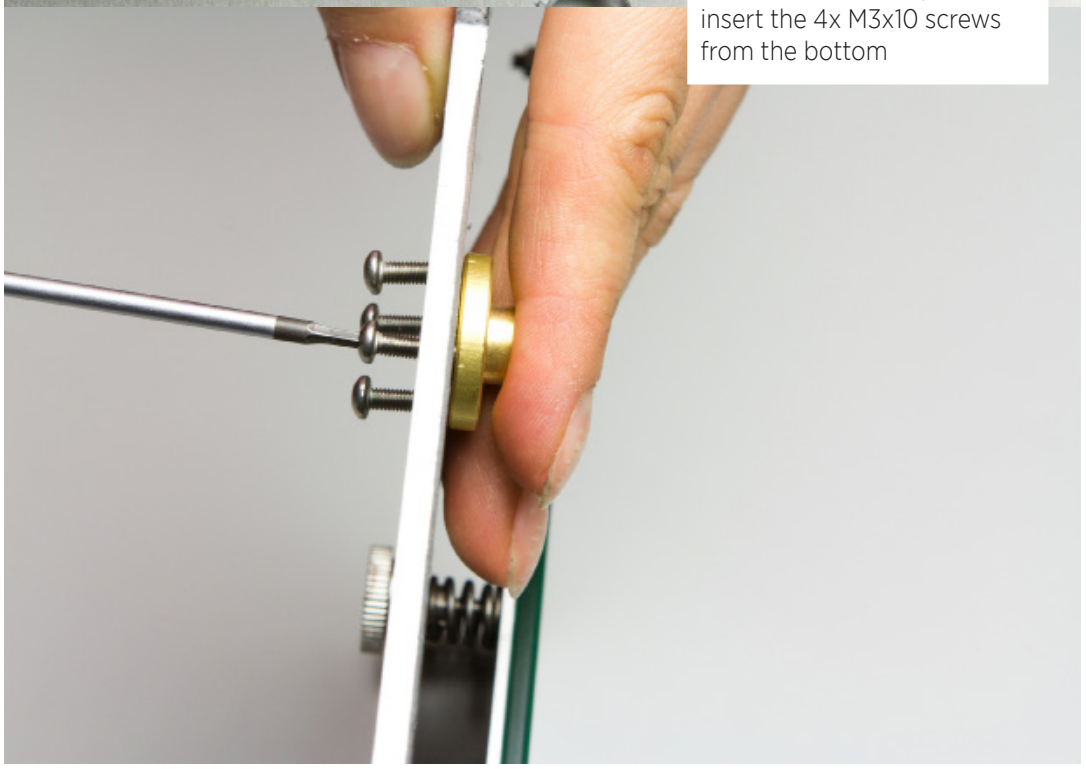


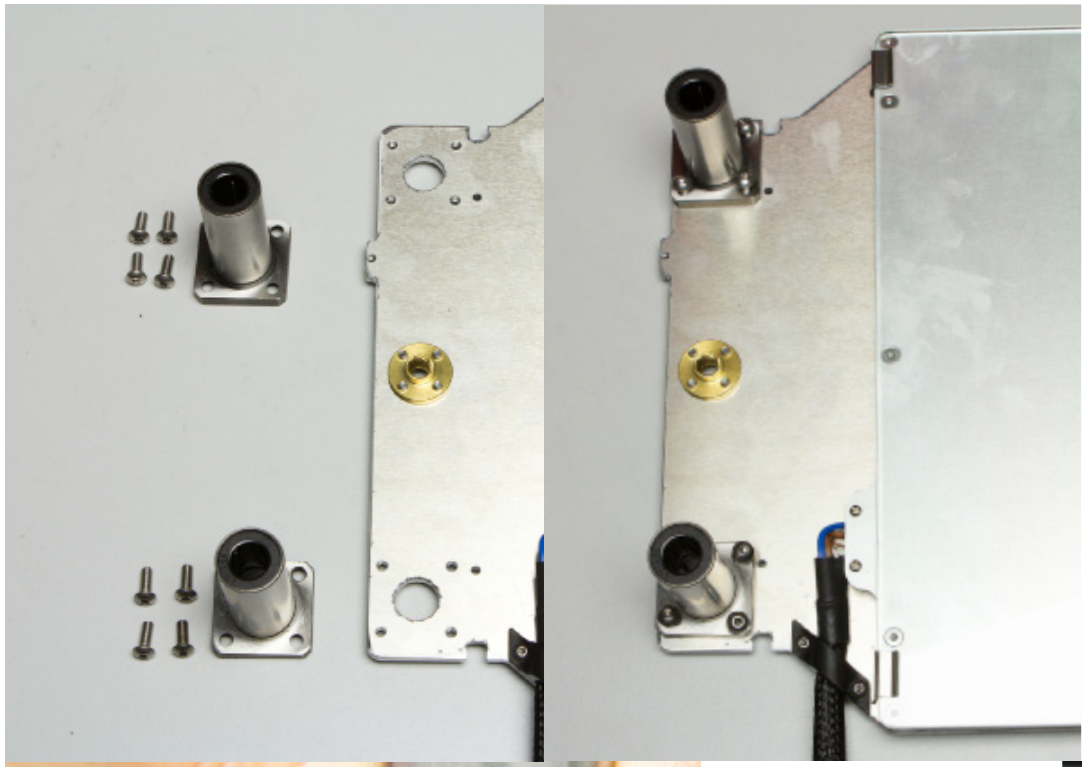
16. Slide the glass in the rear two glass retainers. Click the two front glasretainers onto the glass, so the glass is secure.

17. Attach the cable guide on the heated bed with 2xM3x10 mm screws.



18. Attach the trapezoidal nut screws on the base plate and insert the 4x M3x10 screws from the bottom



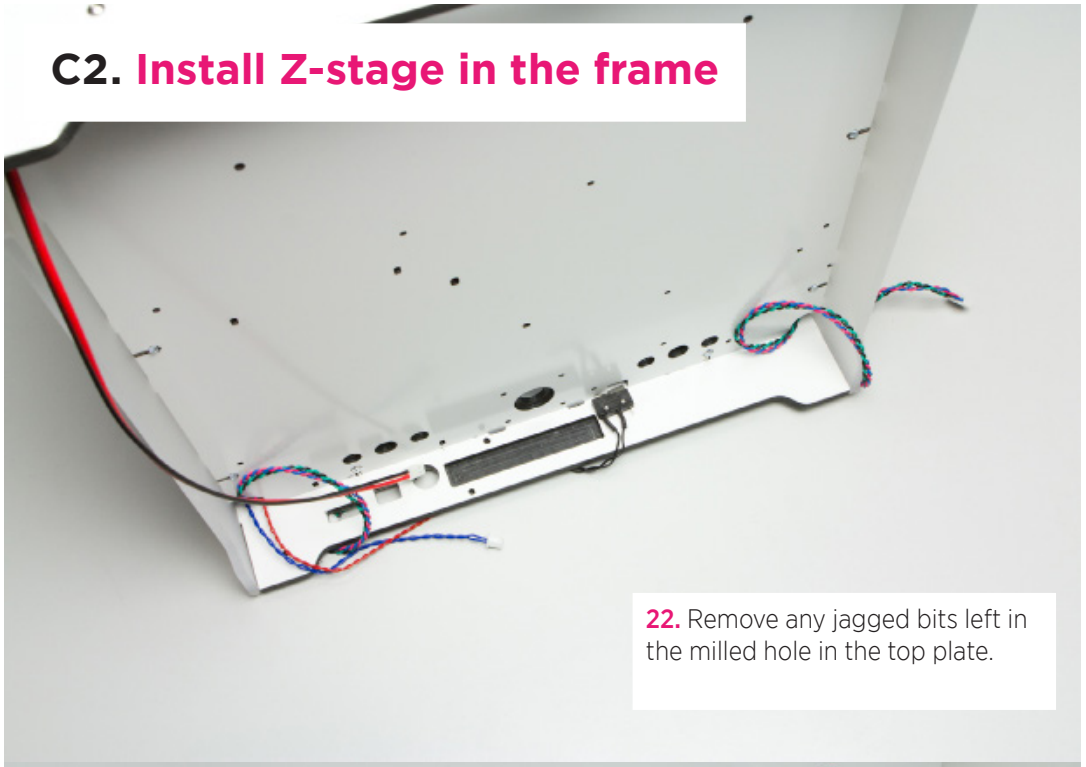


19. Attach the flange bearings loosely to the base plate with 8xM4x10mm. the bearings need to be able to move a little bit and will be tightened at a later stage.

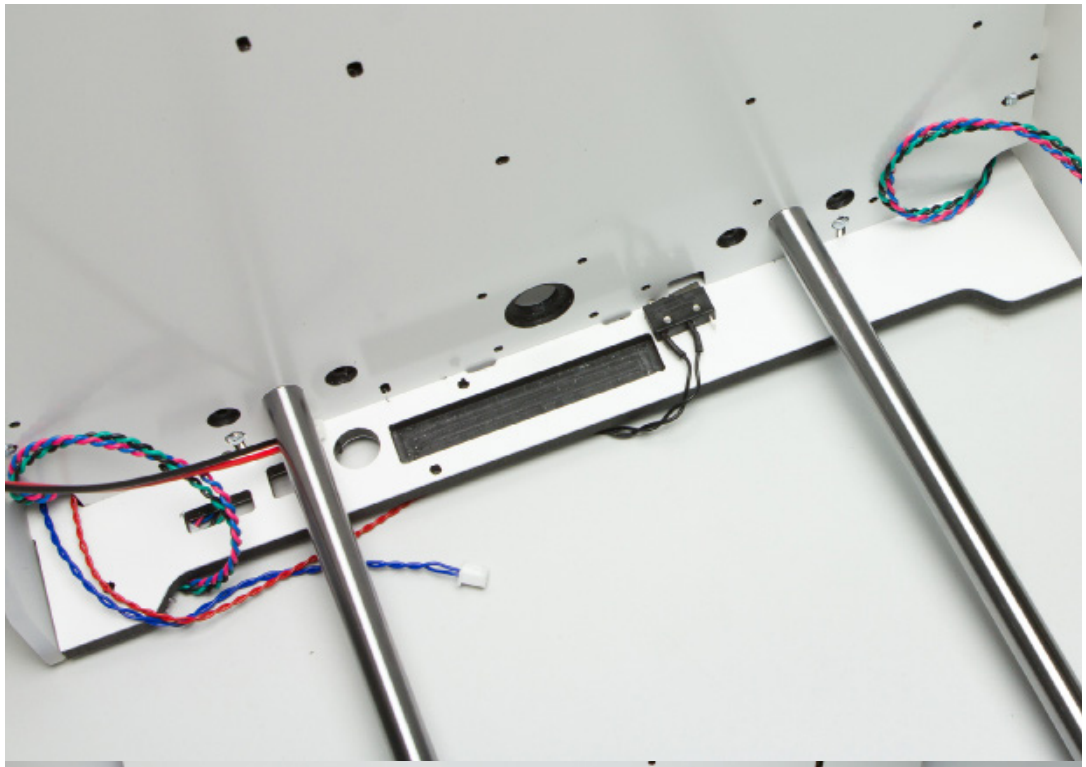
20. Screw a M3x20 screw in this hole from the top. This will act as Endstop.

21. Put 4xM3 locknut into the two cover plates.

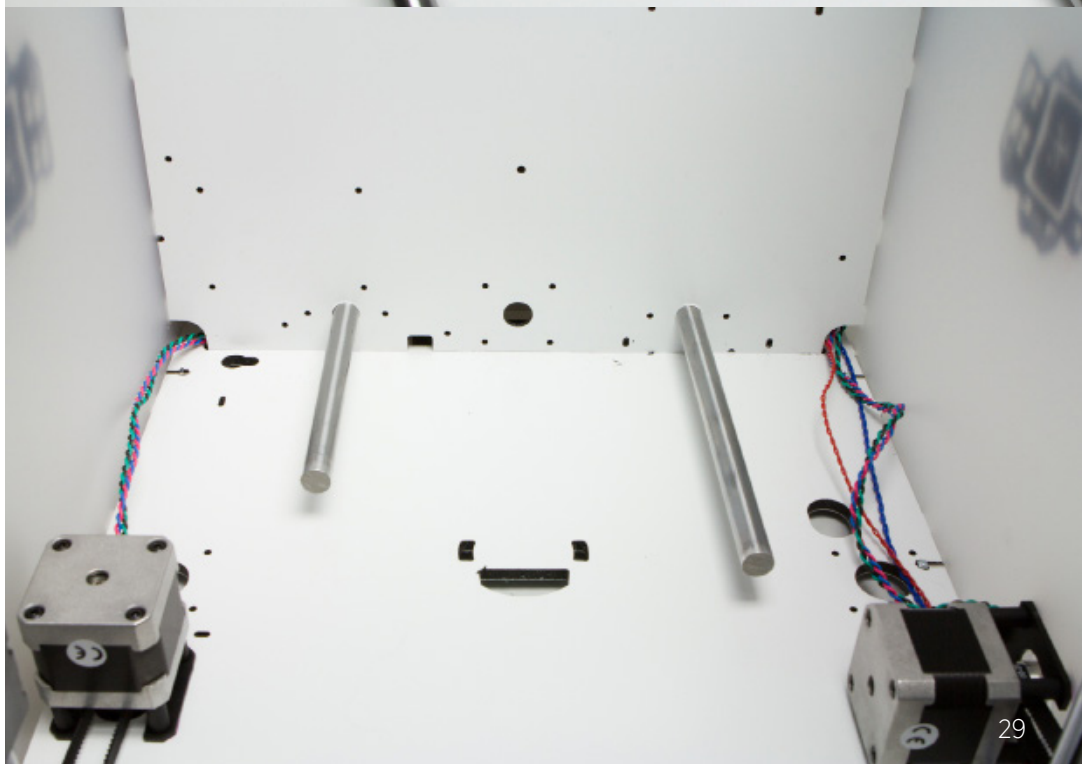
C2. Install Z-stage in the frame



22. Remove any jagged bits left in the milled hole in the top plate.



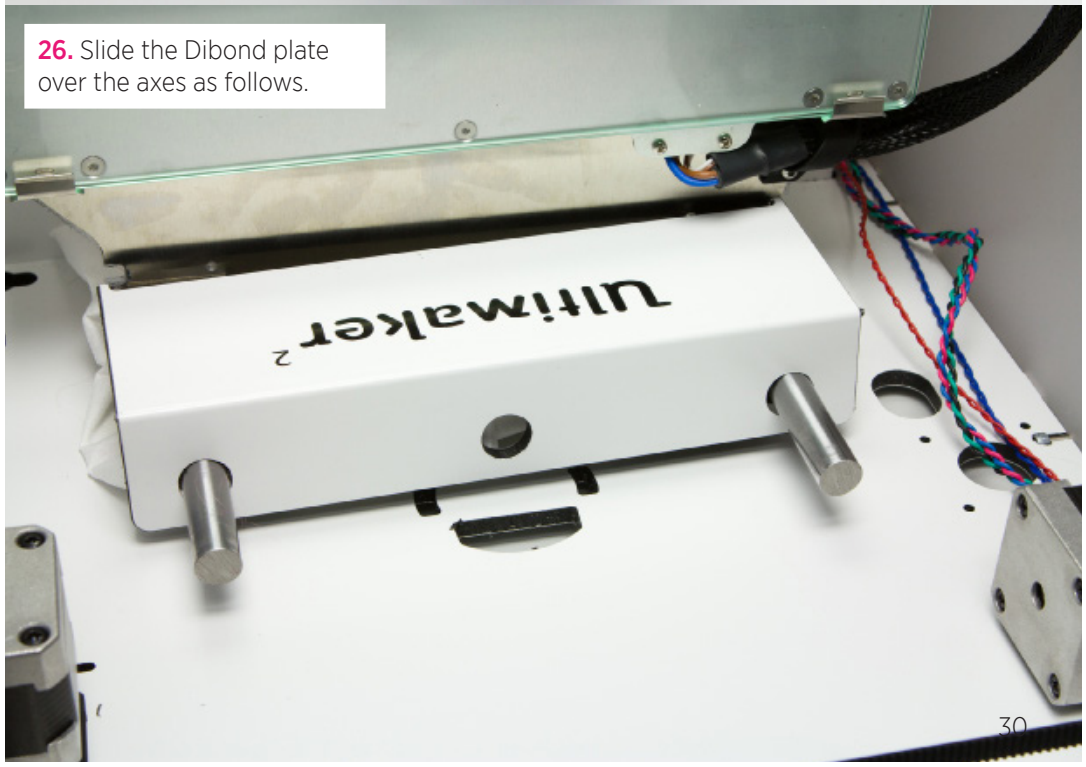
23. Insert the shafts in the bottom of the frame. Don't slide the axles all the way to the top

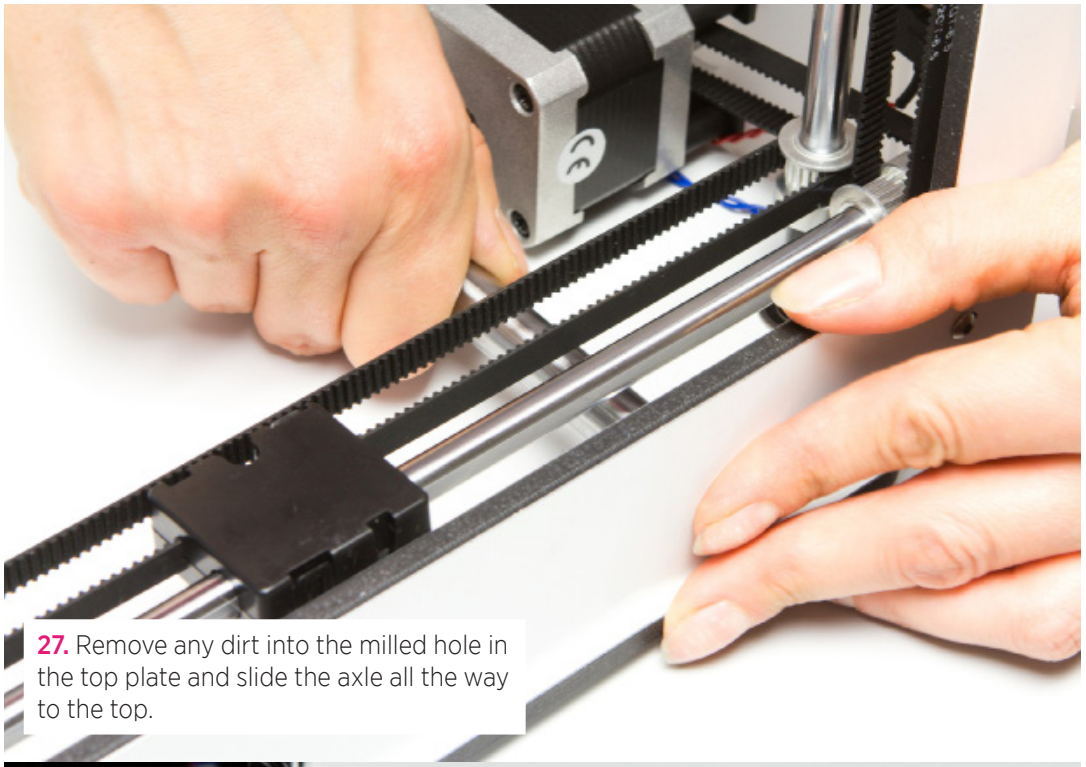


24. Put the build platform in the fram and insert the 12mm axle through the build platform . Put something (a piece of paper) between the screw and the frame to prevent scratches.

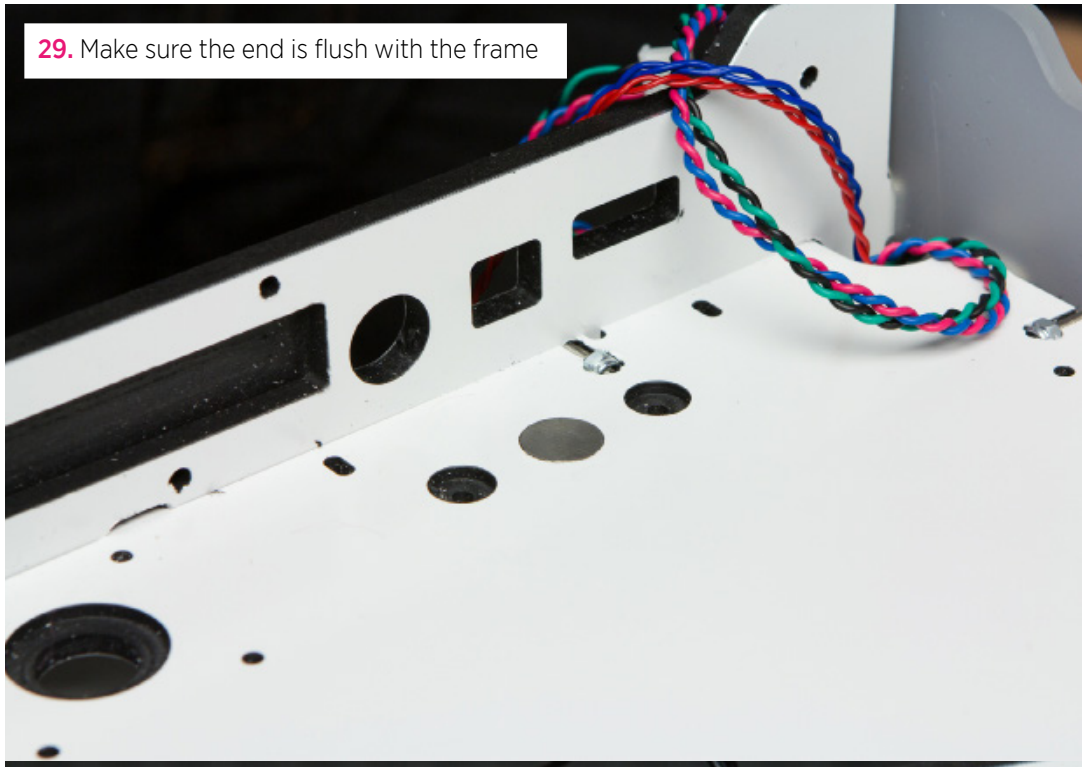
25. Fold the small Dibond plate at an angle of 90 degrees, please note this can be done only once.

26. Slide the Dibond plate over the axes as follows.

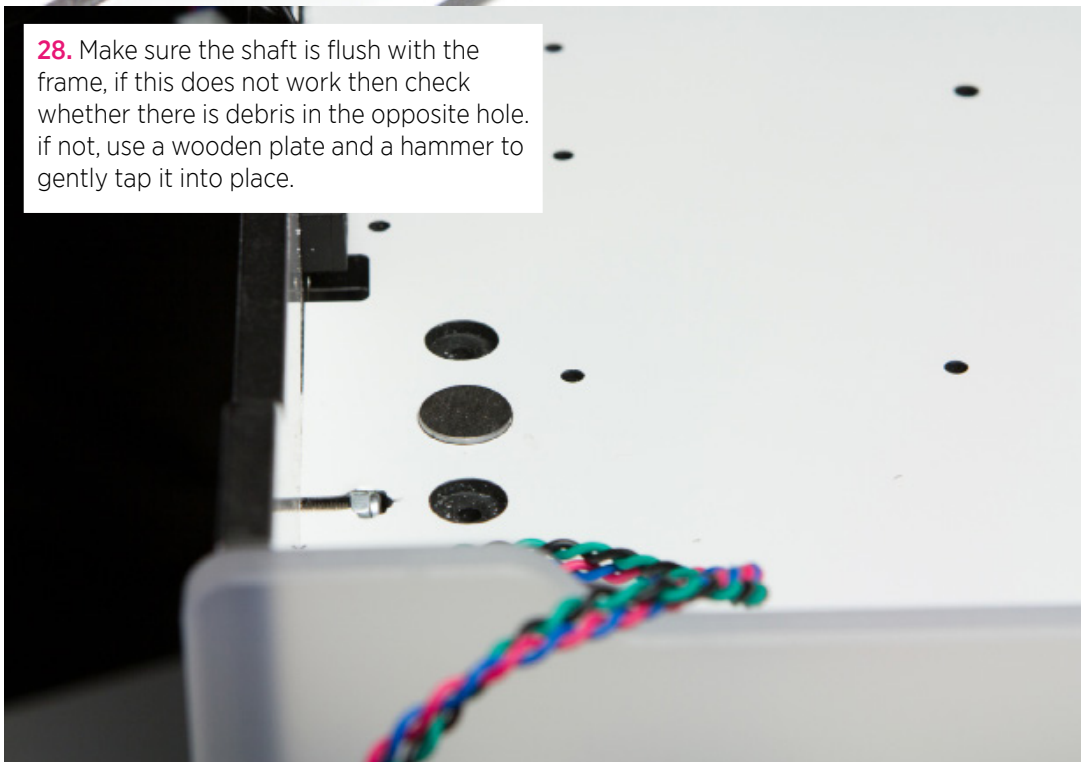




27. Remove any dirt into the milled hole in the top plate and slide the axle all the way to the top.

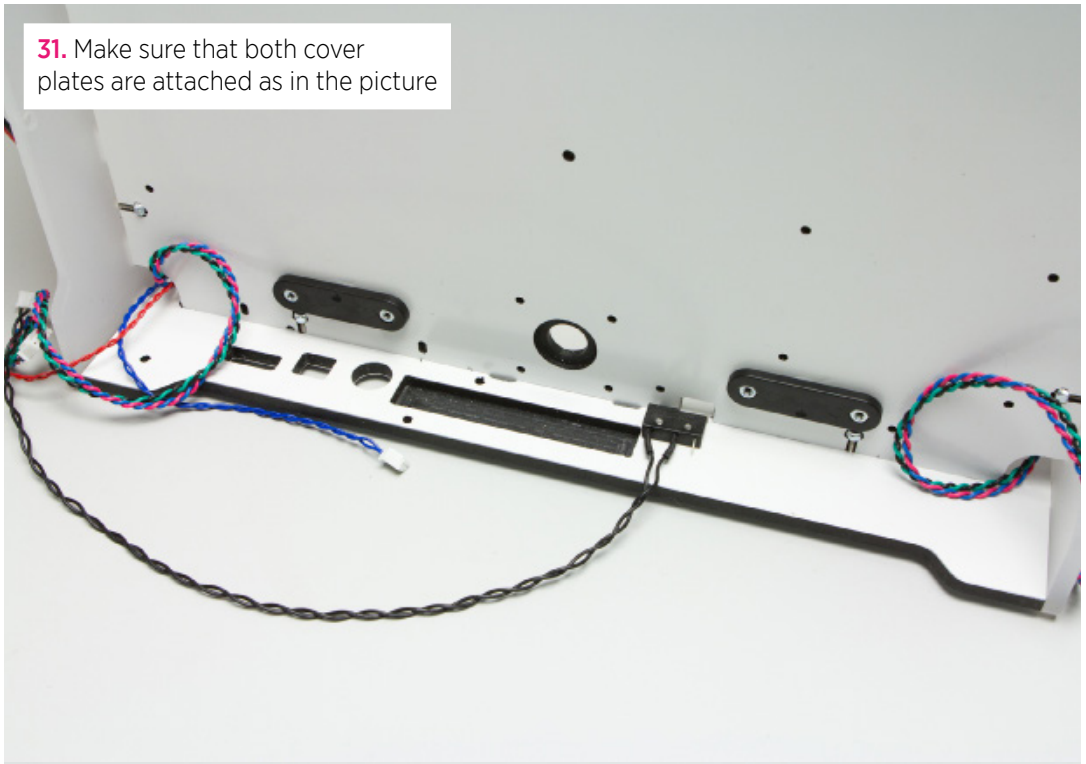


29. Make sure the end is flush with the frame

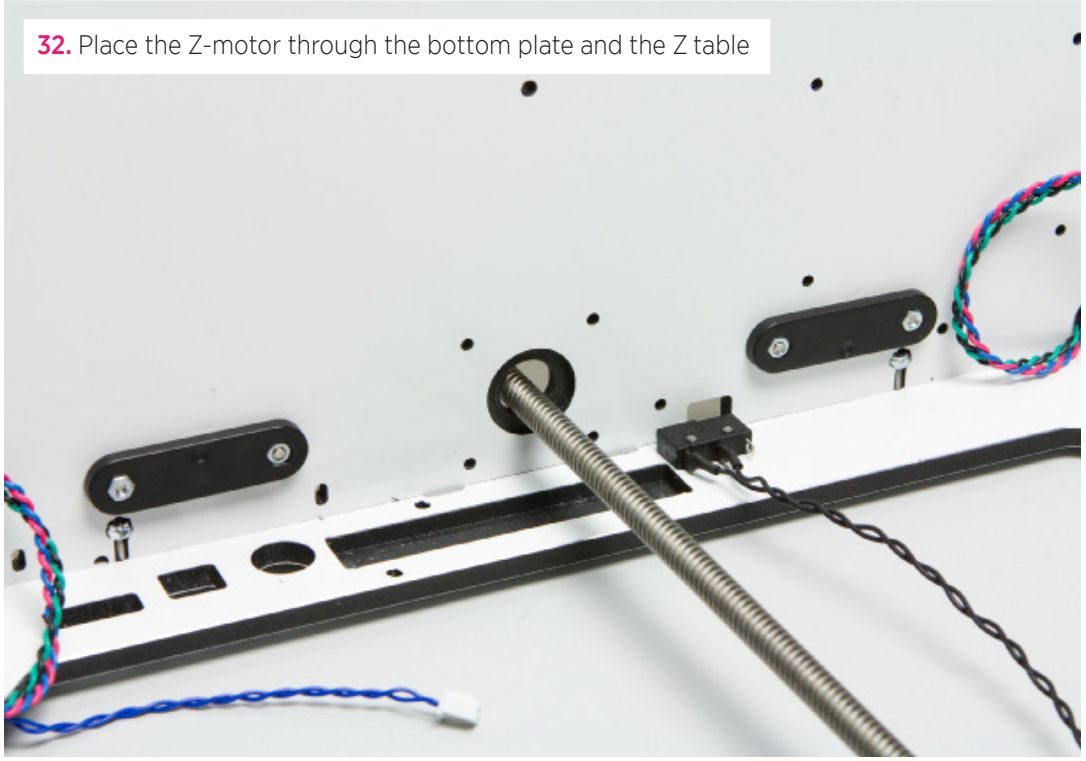


28. Make sure the shaft is flush with the frame, if this does not work then check whether there is debris in the opposite hole. if not, use a wooden plate and a hammer to gently tap it into place.

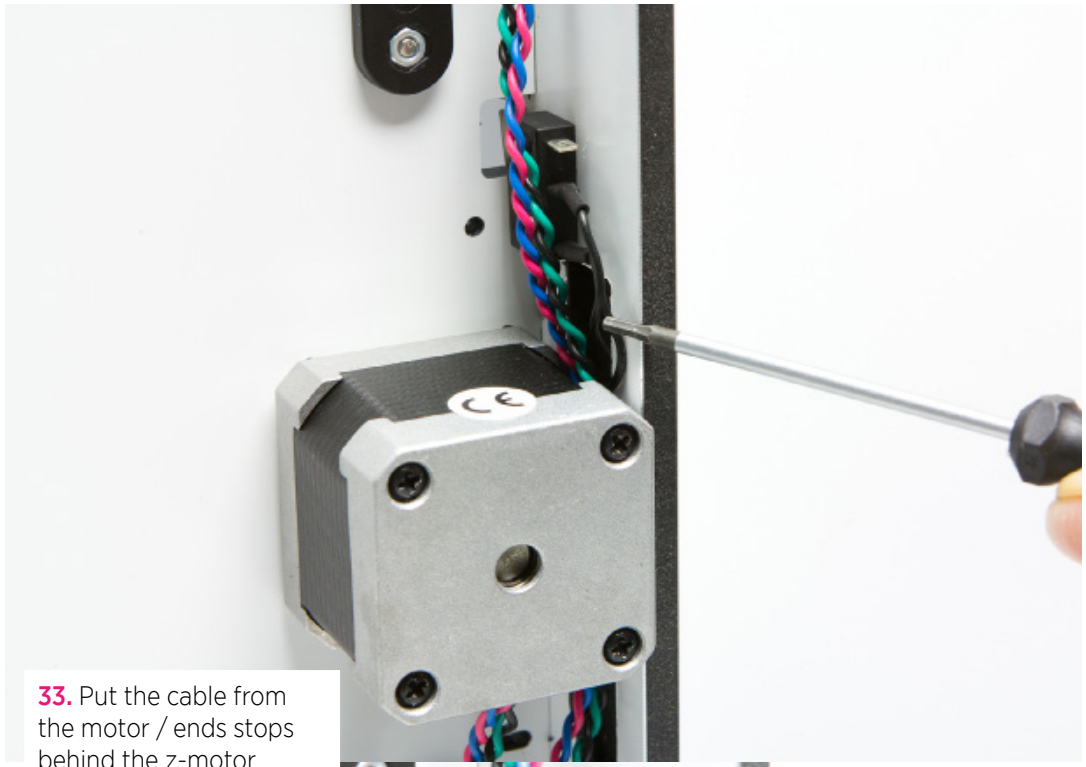
30. Install the covers for the axes from the inside of the housing. The notches fall into the milled holes in the bottom plate. Fix it into place with 4xM3x10mm screws. There can't be any gap between the black cover plate and the housing.



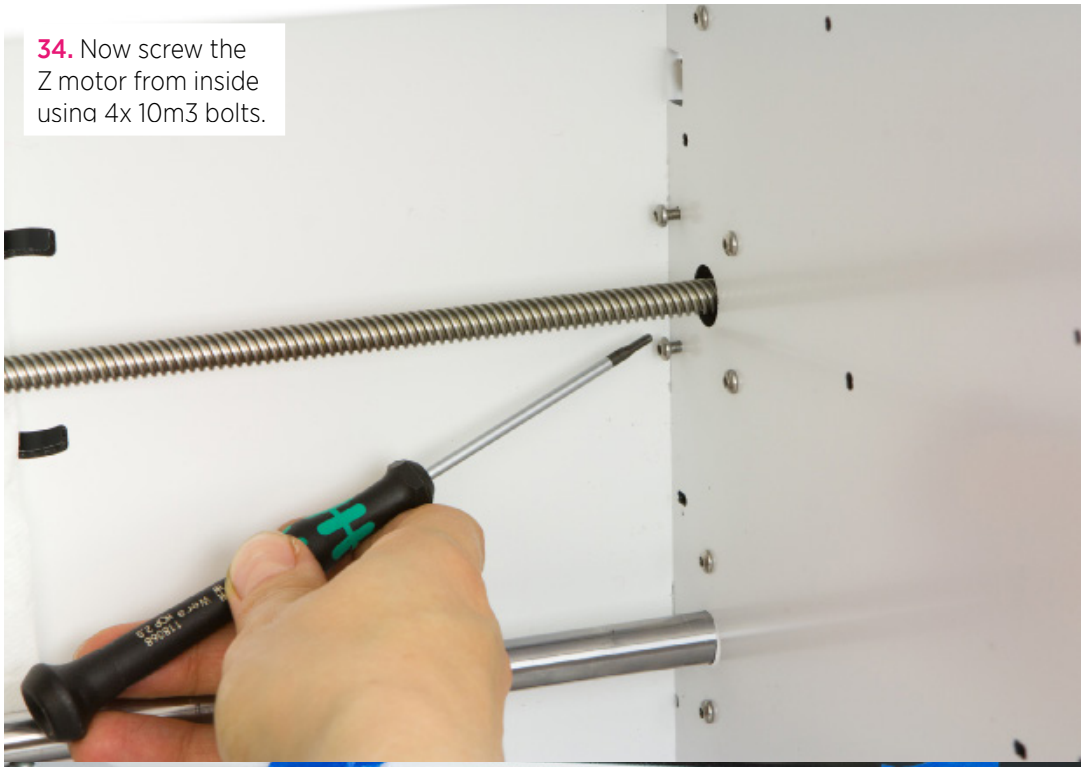
31. Make sure that both cover plates are attached as in the picture



32. Place the Z-motor through the bottom plate and the Z table

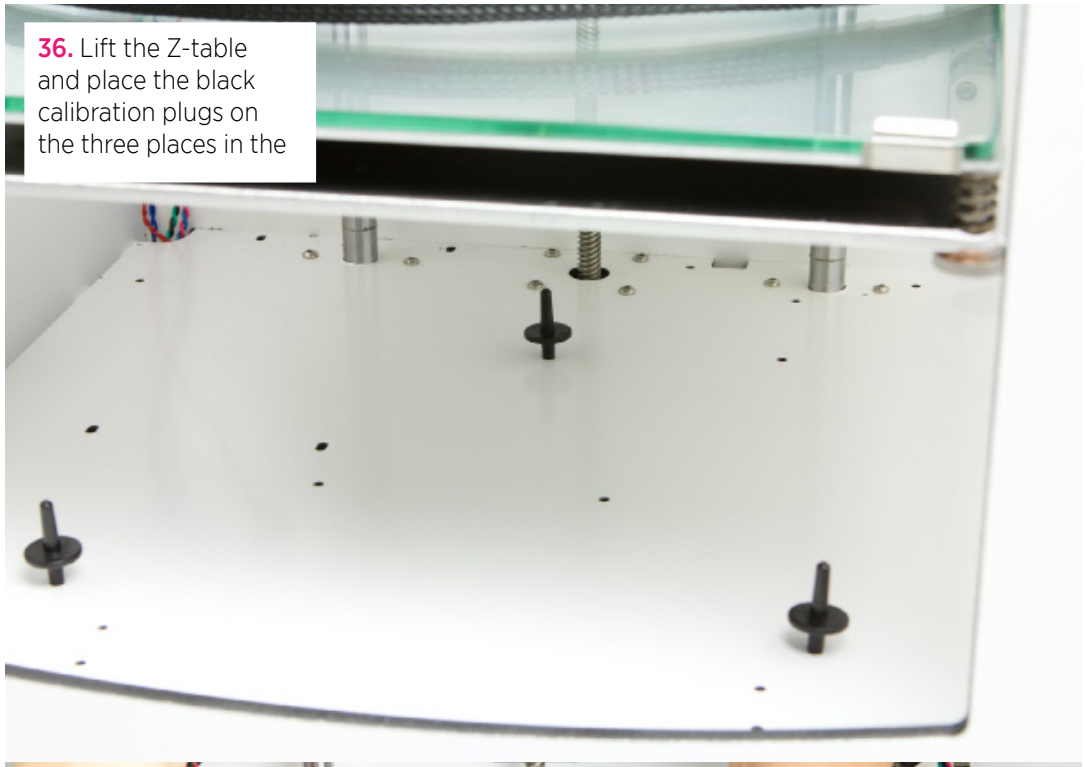


33. Put the cable from the motor / ends stops behind the z-motor through the milled slot. Then press the Z motor in place so it fits securely.



34. Now screw the Z motor from inside using 4x 10m3 bolts.

35. Put the frame with Z-table upright and tape the Dibond plate on the top edge, this simplifies your work in the next step.



36. Lift the Z-table and place the black calibration plugs on the three places in the

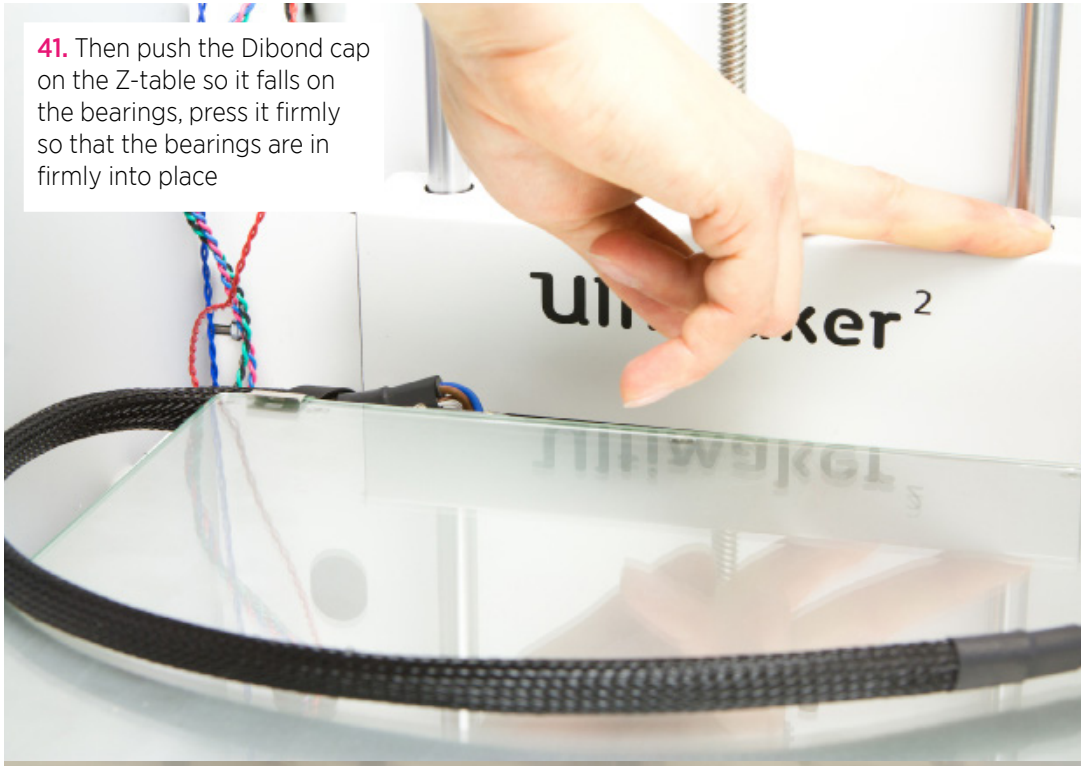
37. Let the Z-table down again and make sure it is exactly on top of the calibration plugs

C3. Stabilize z-stage

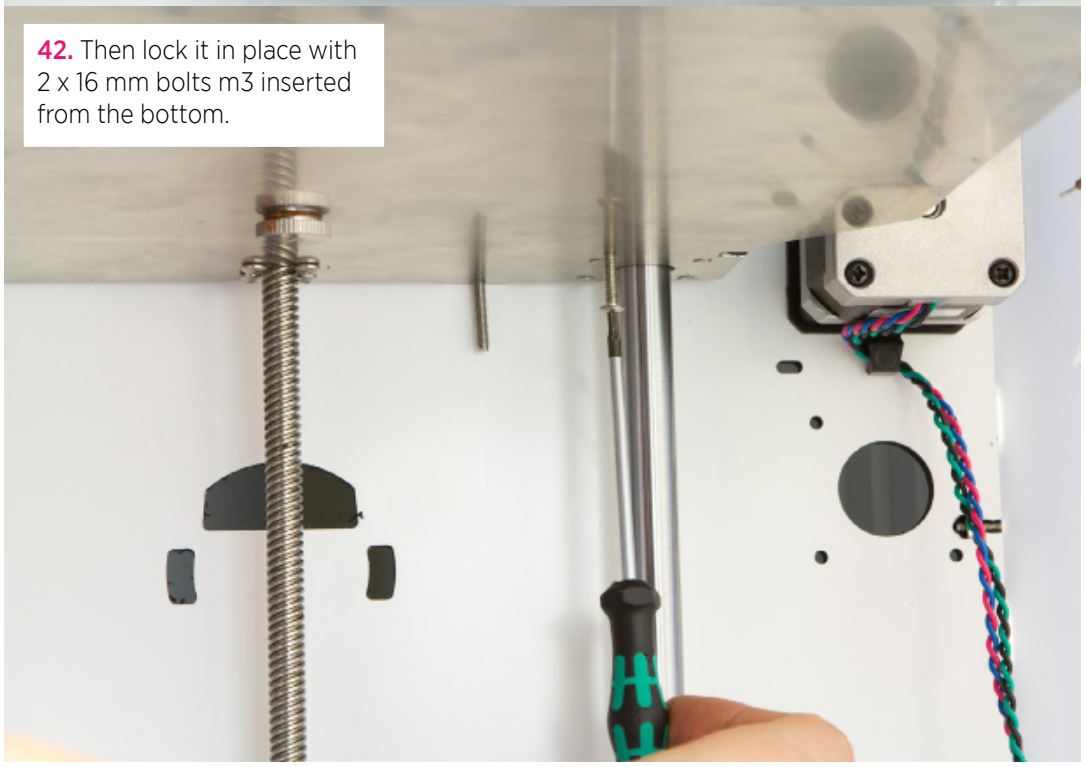
38. Turn 1 of the 8 bolts that hold the bearing on the Z-table. Then wiggle the Z-table and up and down so that the bearing can turn into the best position.

39. Repeat until you have all had the 4 bolts.

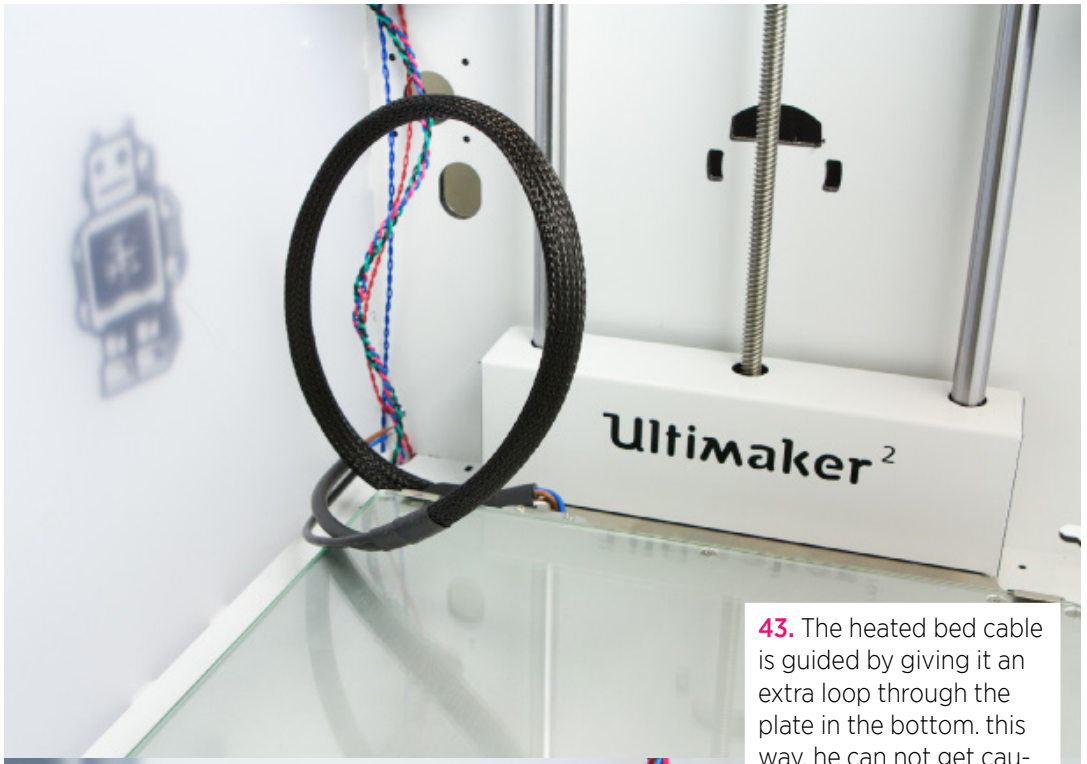
40. Repeat until you have all had the 4 bolts for the other bearing



41. Then push the Dibond cap on the Z-table so it falls on the bearings, press it firmly so that the bearings are in firmly into place



42. Then lock it in place with 2 x 16 mm bolts m3 inserted from the bottom.



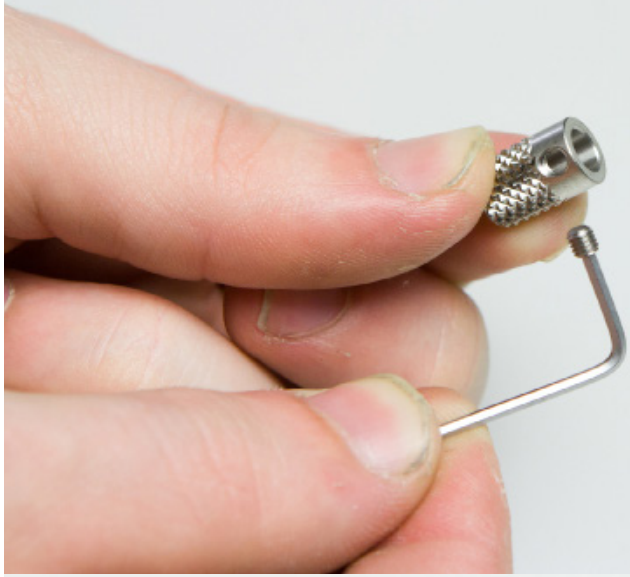
43. The heated bed cable is guided by giving it an extra loop through the plate in the bottom. this way, he can not get caught underneath the bed..

D. Assembly of the Material feeder

partnr.	Part	Amount
1021	Ball Bearing 688-2RS	1x
1069	Tube Coupling Collet	1x
1143	Feeder Spring D2110	1x
1158	Reel Holder	1x
1179	Feeder Motor	1x
1201	Washer Large M3	4x
1206	ISO 7380 M3x20	1x
1207	ISO 7380 M3x25	4x
1209	Nut M3	1x
1212	Set screw M3x3	
1258	Feeder Part A	1x
1259	Feeder Part B	1x
1260	Feeder Lever A	1x
1261	Feeder Lever B	1x
1263	Feeder Knurled wheel	1x
1264	Feeder Nut Holder	1x
1400	Key Wrench T1.5	1x

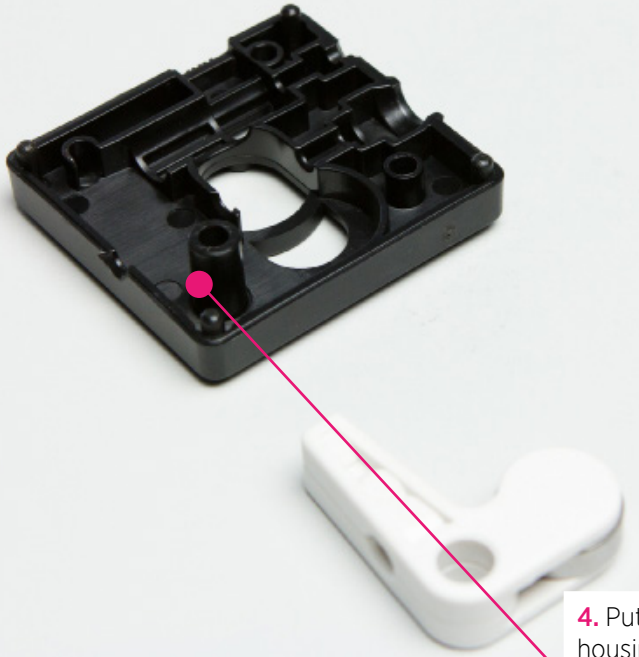
Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

1. Screw the M3 socket screw in the sleeve.



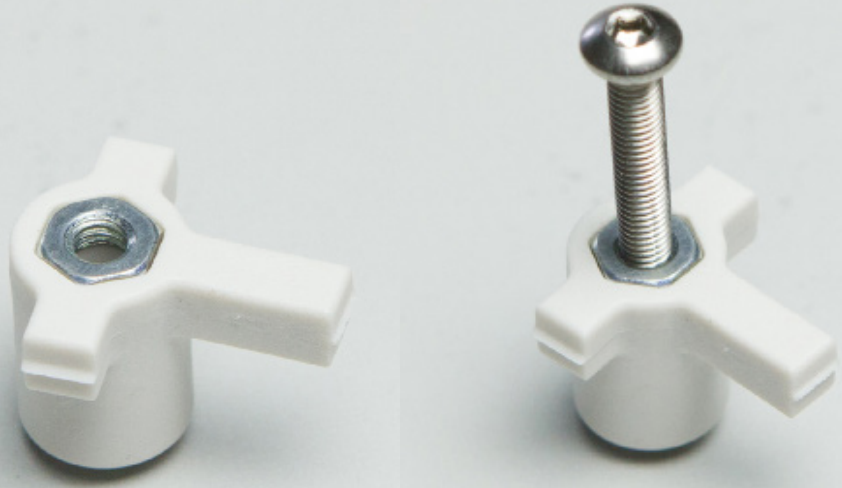
2. put the sleeve on the end of the motor, with the screw towards the end then screw this very firmly. Make sure that the top of the sleve and the axle are flush.

3. Press the two parts of the lever to each other, with the 8 mm the bearing in between



4. Put the lever in the housing. Add a little green grease between the two parts of the lever and axle. As a result, he turns slightly smoother.

5. Place a hex nut in the t-part and screw in M3x20 screw

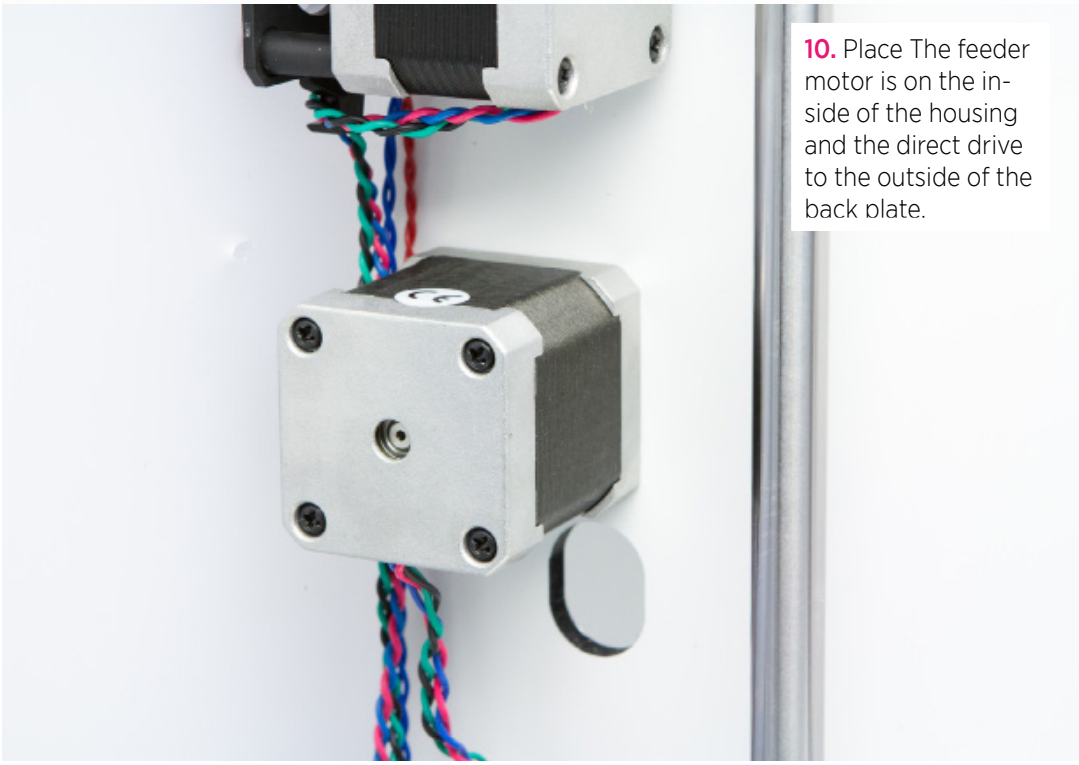


6. Place the T-piece in the housing in such a way, that the screw pointing towards the outside.

7. Attach the spring between the t-piece and the lever. Sometimes it is more convenient to combine the spring and the t-piece and then place the combined parts in the extruder.

8. Place the tube coupler

9. Close it by placing the other half on the extruder



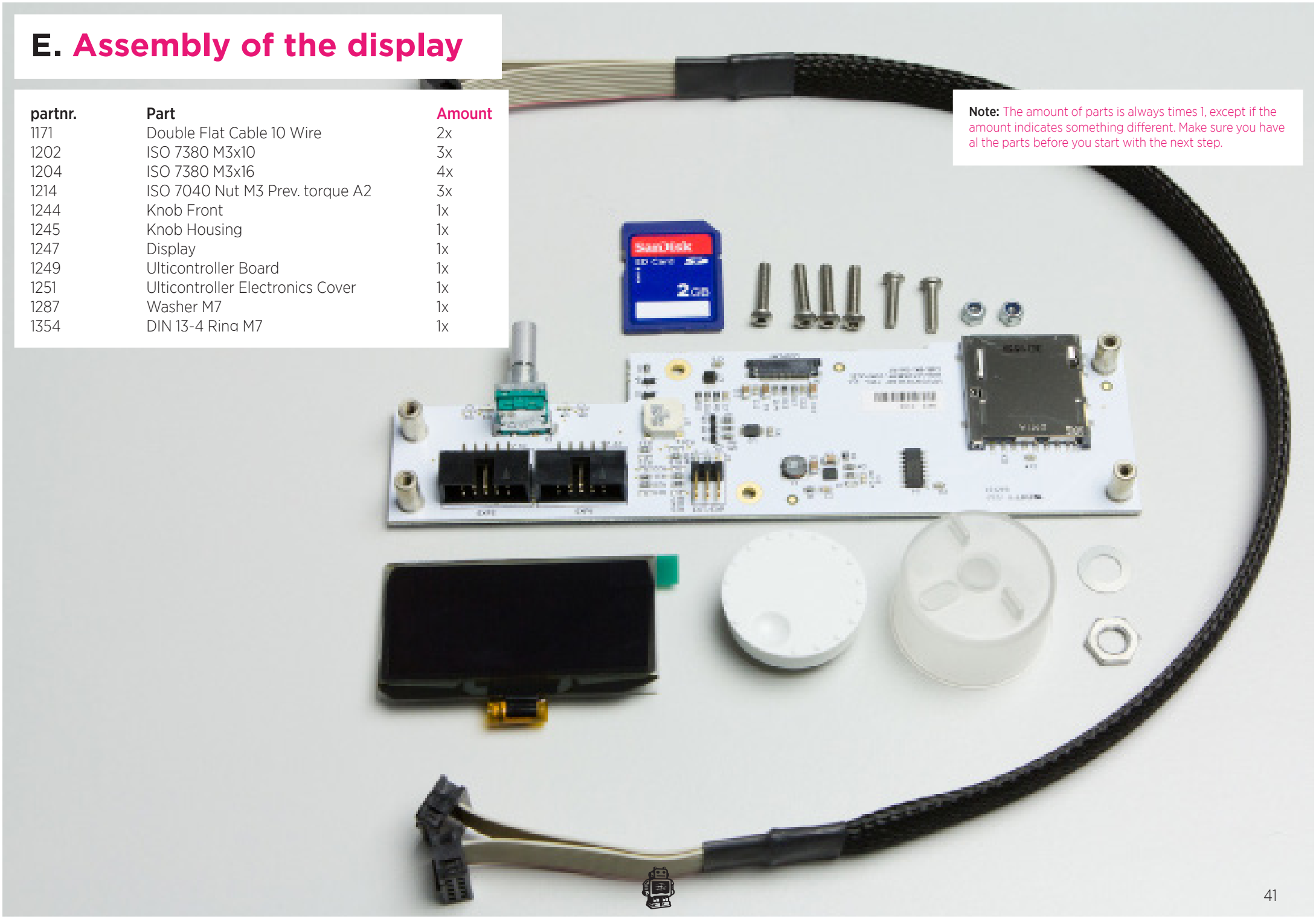
10. Place The feeder motor is on the in-side of the housing and the direct drive to the outside of the back plate.

11. The slide in direct drive should point to the side of the machine

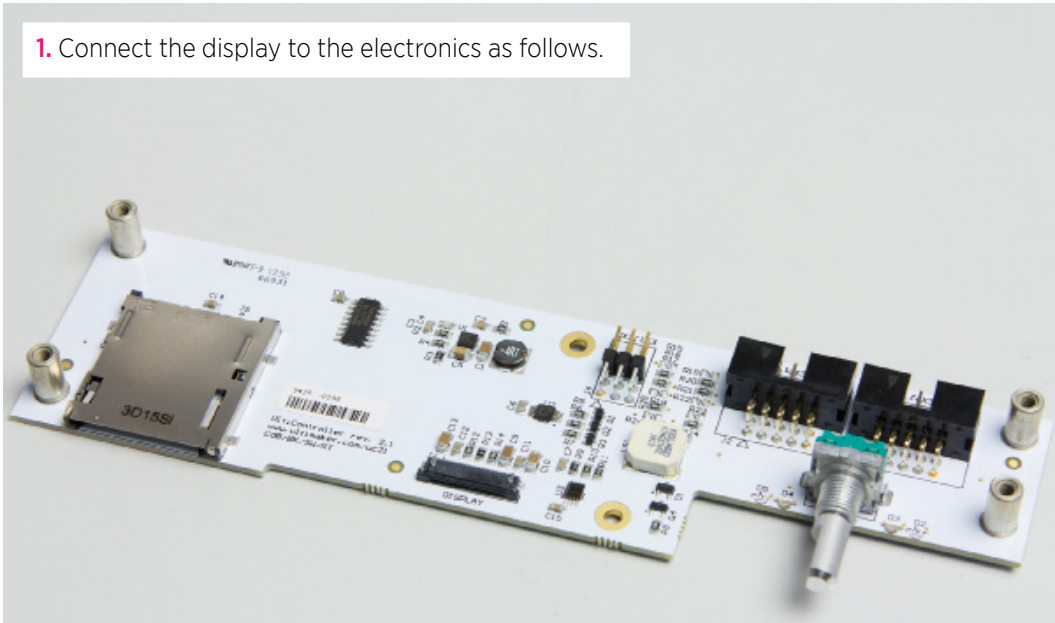
E. Assembly of the display

partnr.	Part	Amount
1171	Double Flat Cable 10 Wire	2x
1202	ISO 7380 M3x10	3x
1204	ISO 7380 M3x16	4x
1214	ISO 7040 Nut M3 Prev. torque A2	3x
1244	Knob Front	1x
1245	Knob Housing	1x
1247	Display	1x
1249	Ulticontroller Board	1x
1251	Ulticontroller Electronics Cover	1x
1287	Washer M7	1x
1354	DIN 13-4 Ring M7	1x

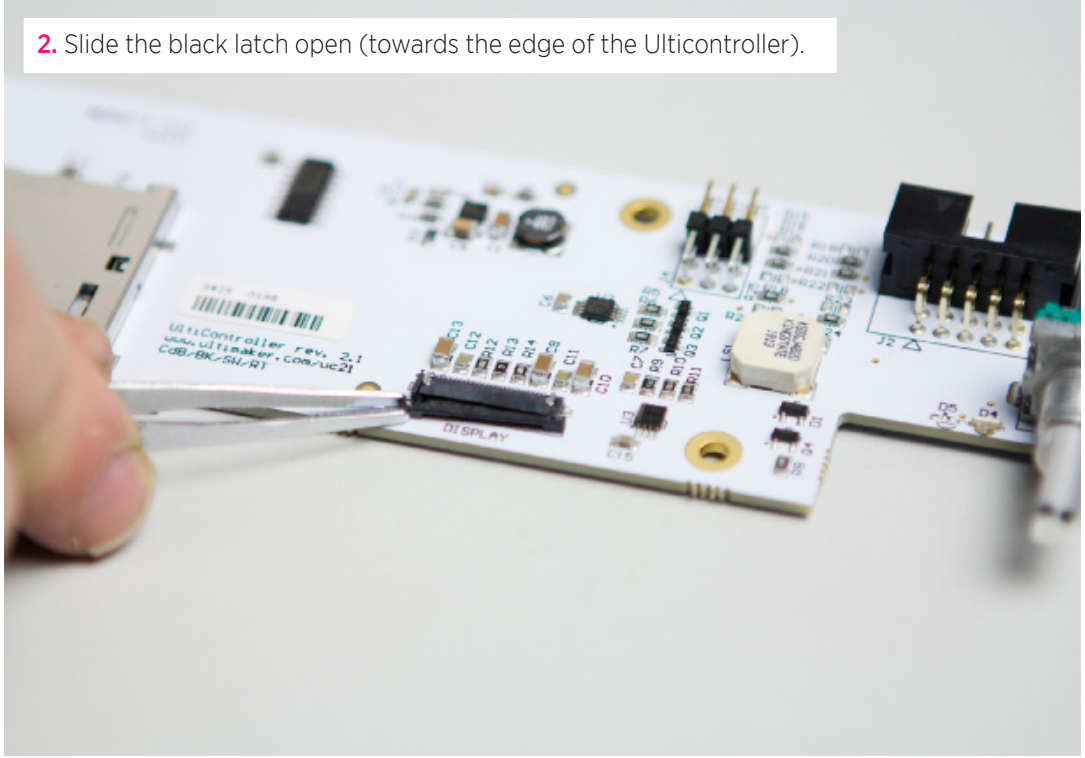
Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

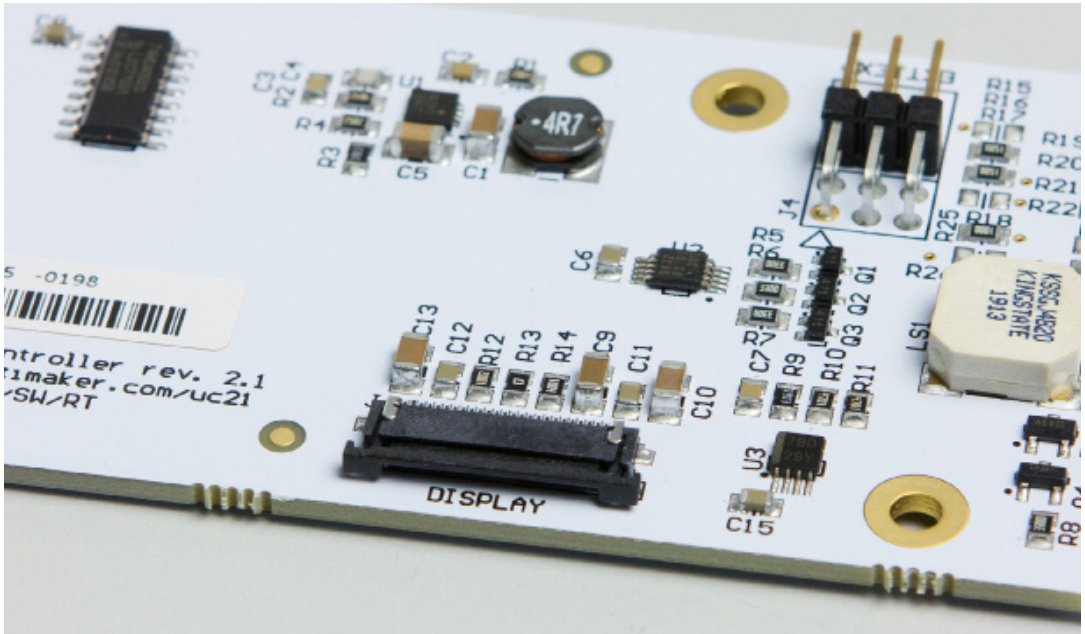


1. Connect the display to the electronics as follows.

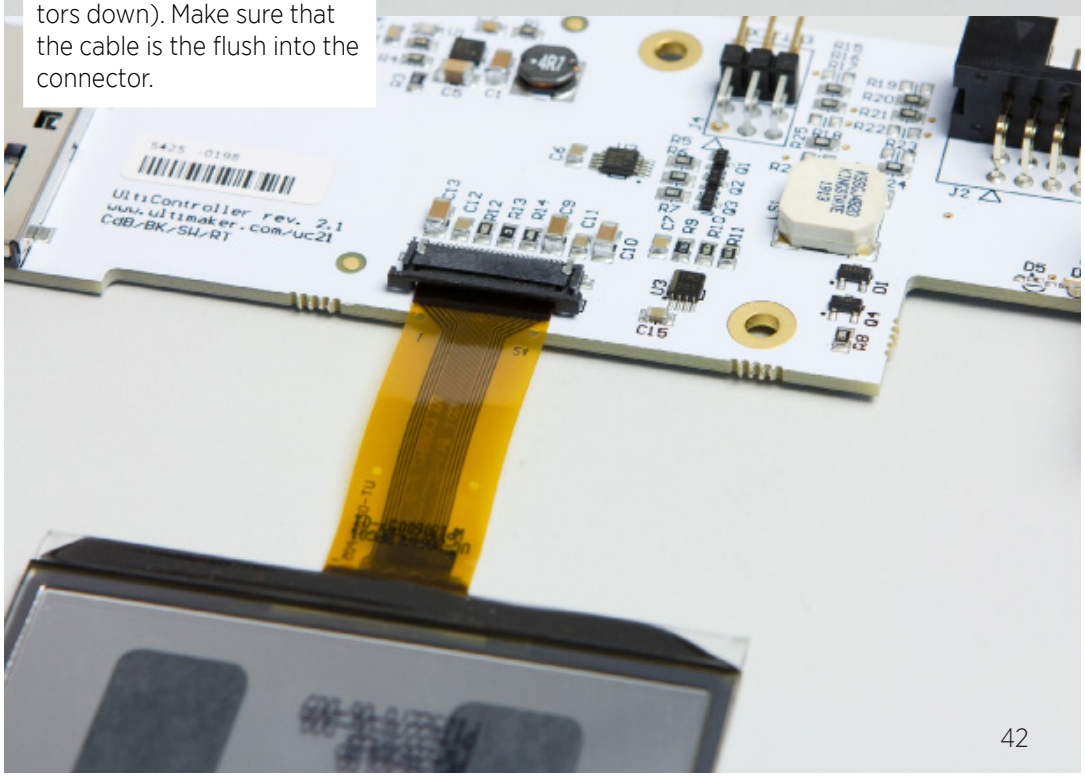


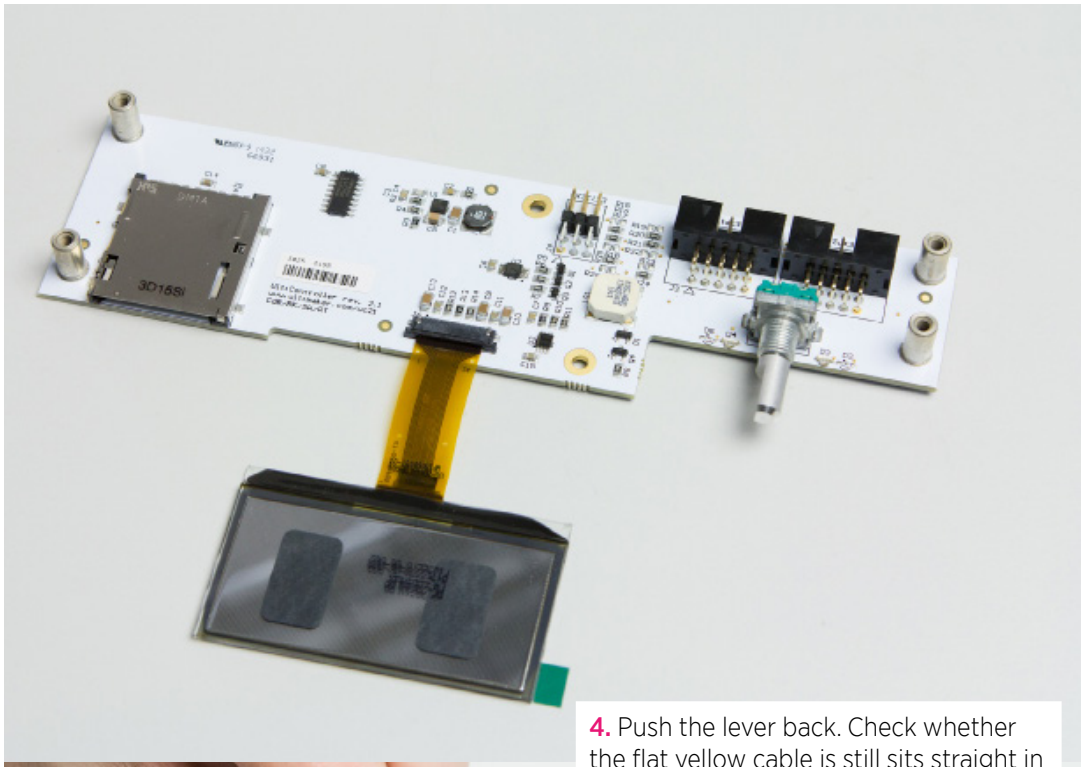
2. Slide the black latch open (towards the edge of the Ulticontroller).



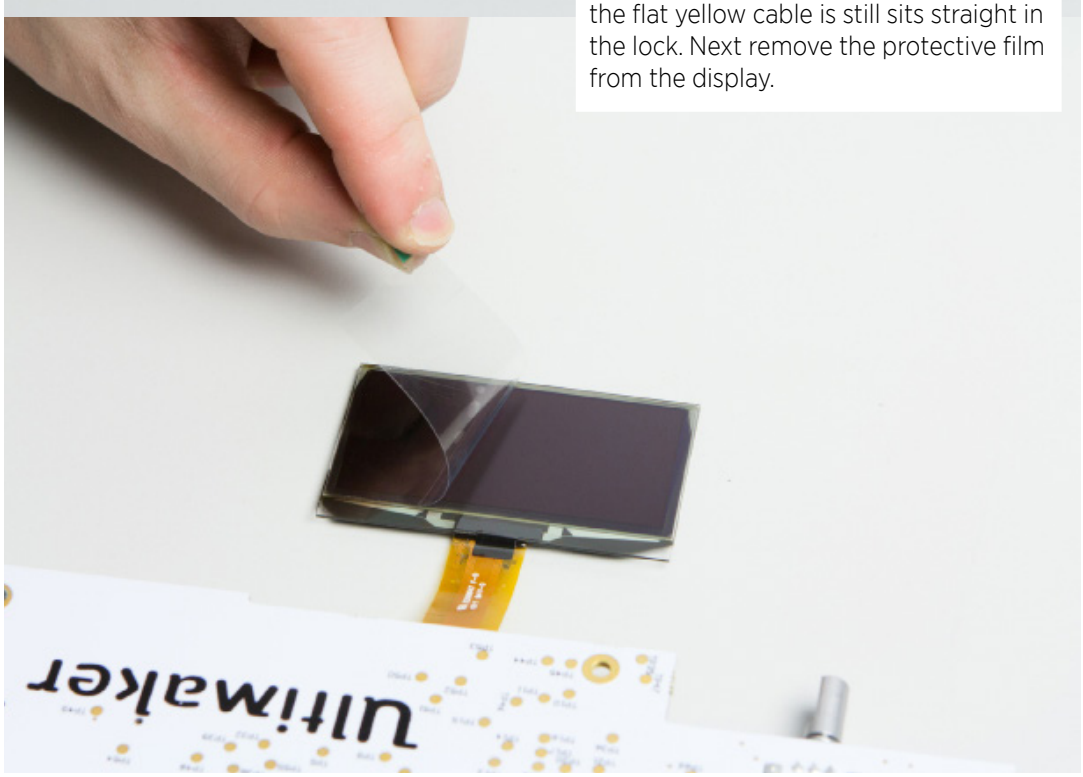


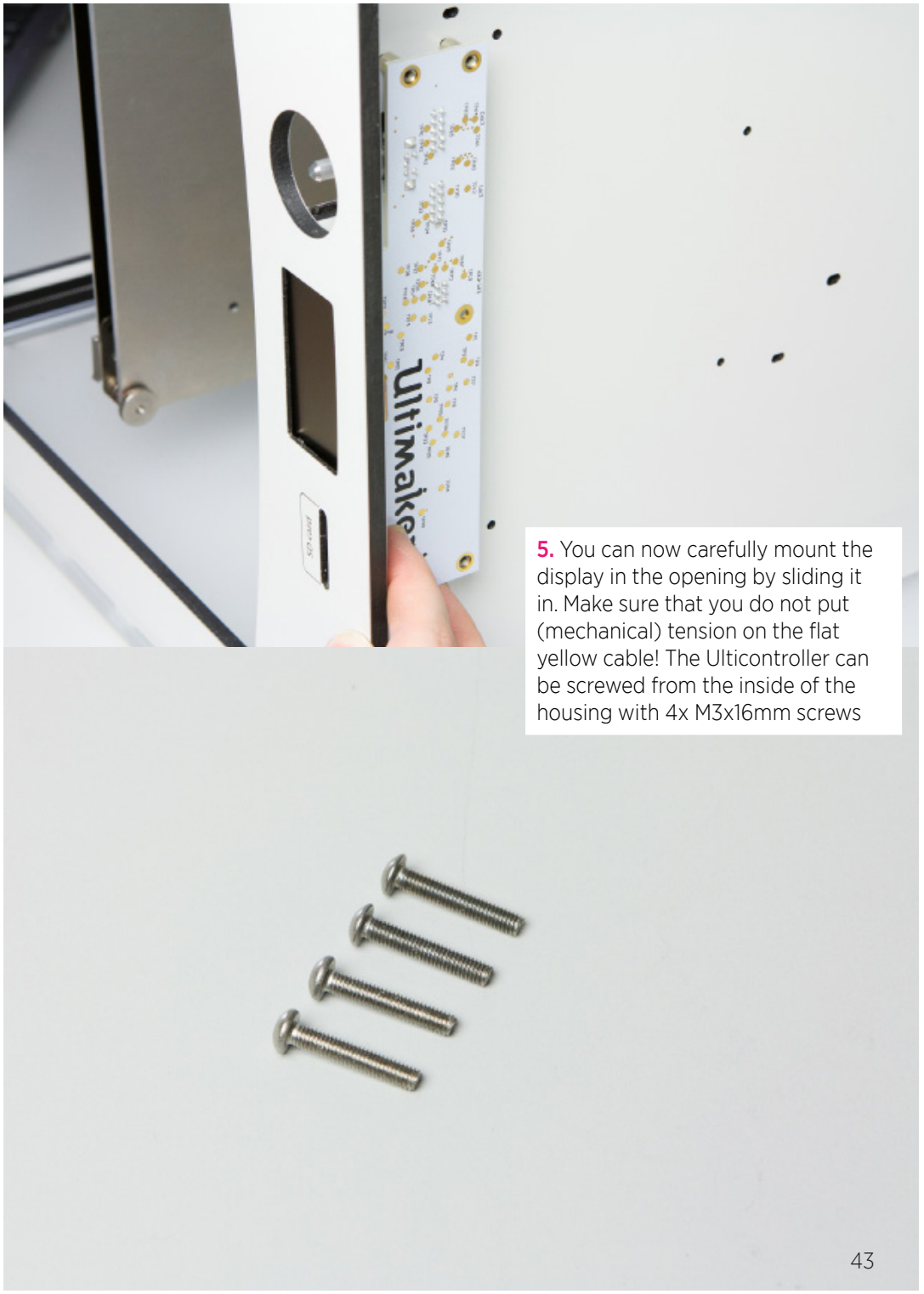
3. Place the end of the flat yellow cable inside (connectors down). Make sure that the cable is the flush into the connector.





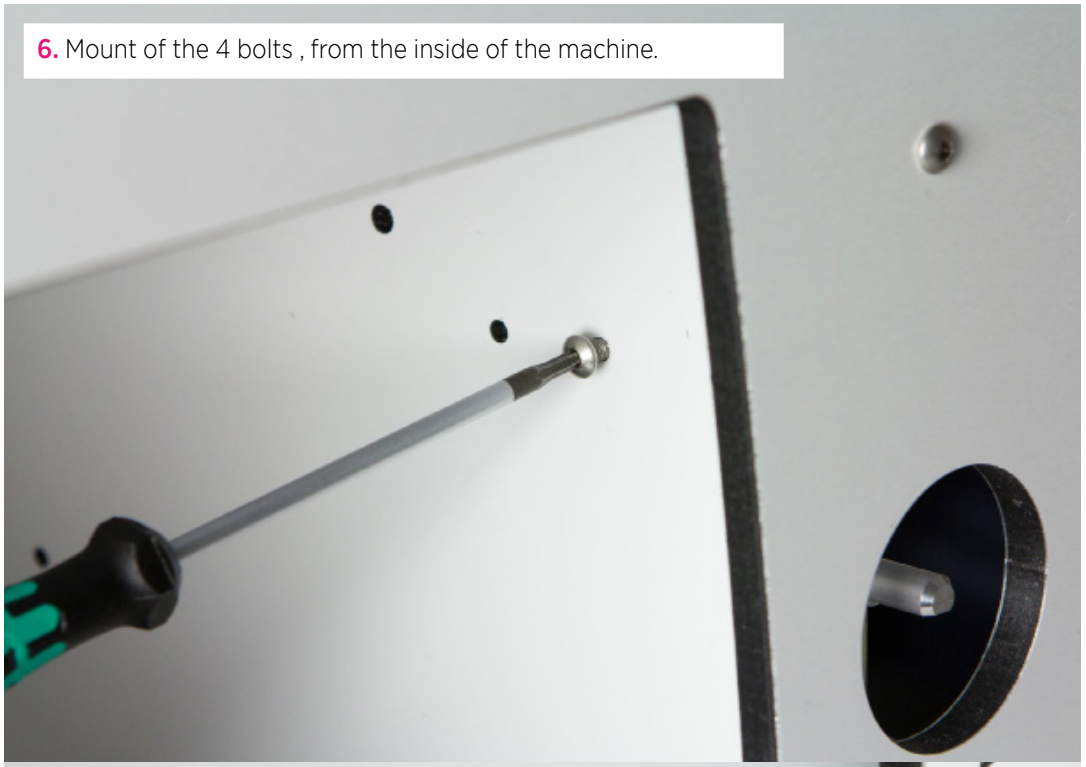
4. Push the lever back. Check whether the flat yellow cable is still sits straight in the lock. Next remove the protective film from the display.





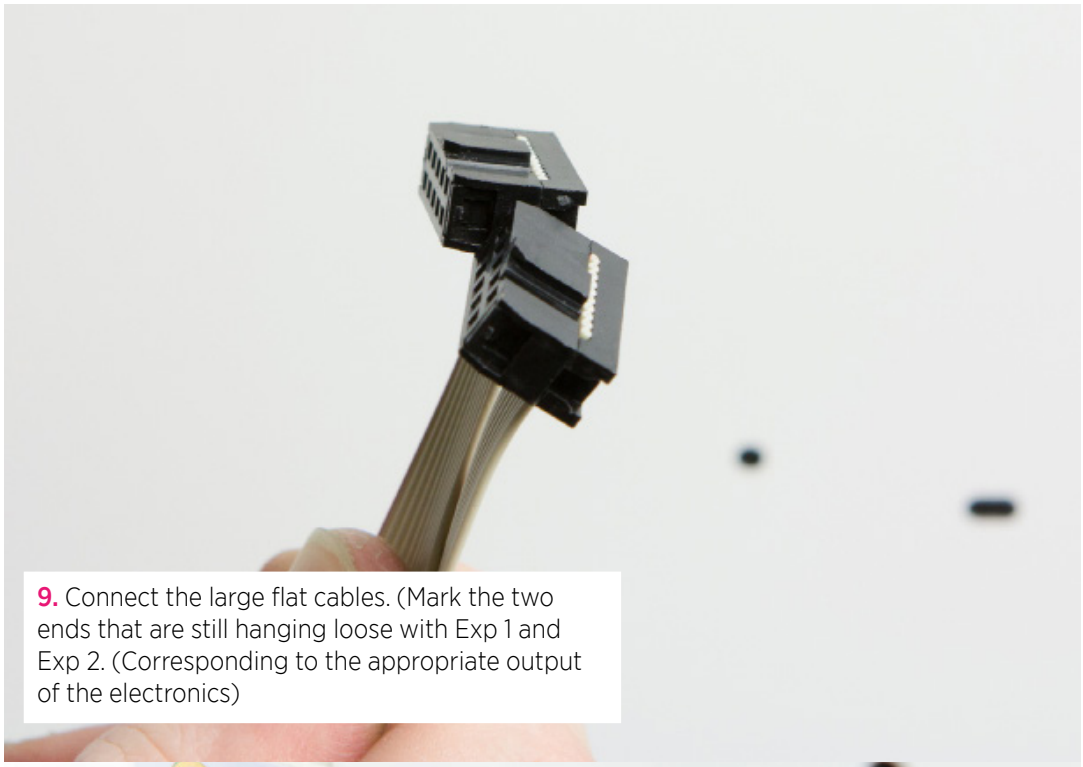
5. You can now carefully mount the display in the opening by sliding it in. Make sure that you do not put (mechanical) tension on the flat yellow cable! The Ulticontroller can be screwed from the inside of the housing with 4x M3x16mm screws

6. Mount of the 4 bolts , from the inside of the machine.

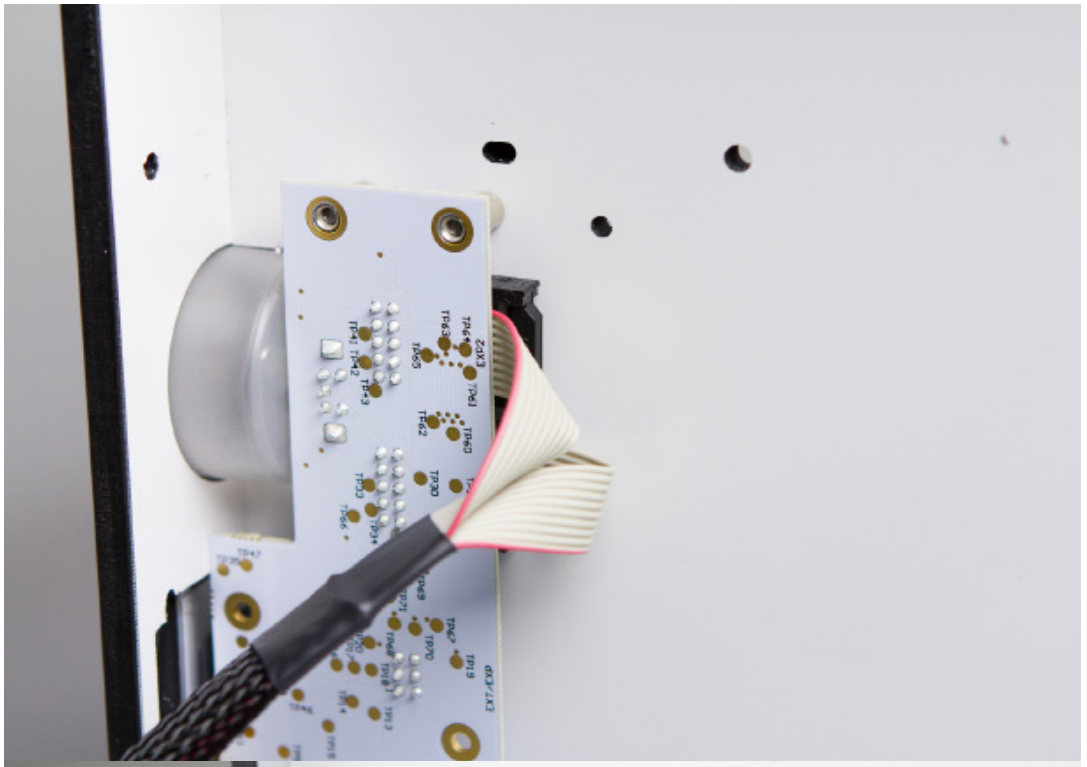


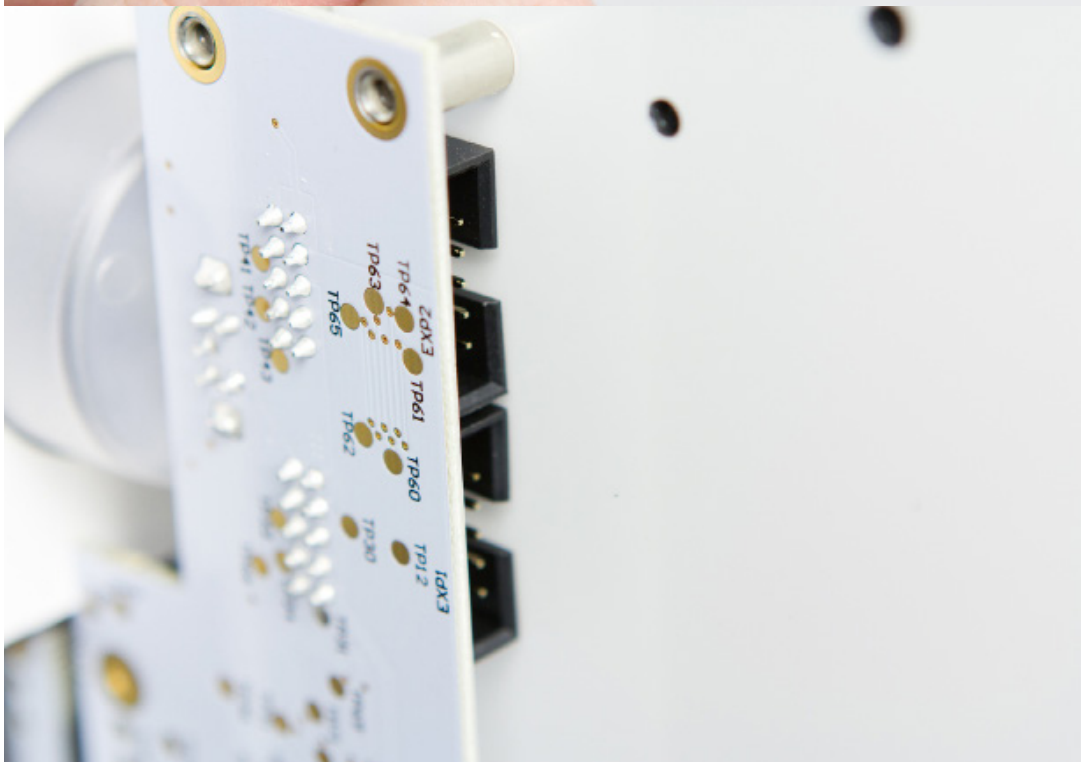
7. Slide the buttoncasing in the frame-hole in the front of the frame. the oval hole should be orientated upward .

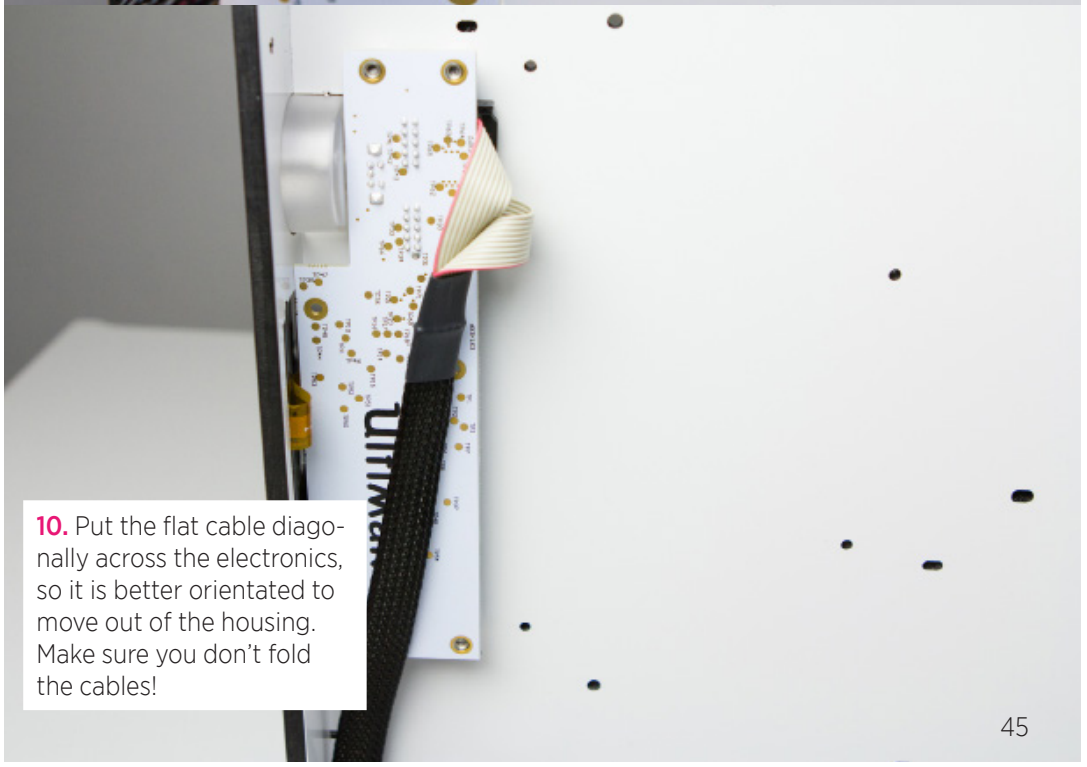
8. Slide the housing over knob and install the nut and tighten up.



9. Connect the large flat cables. (Mark the two ends that are still hanging loose with Exp 1 and Exp 2. (Corresponding to the appropriate output of the electronics)

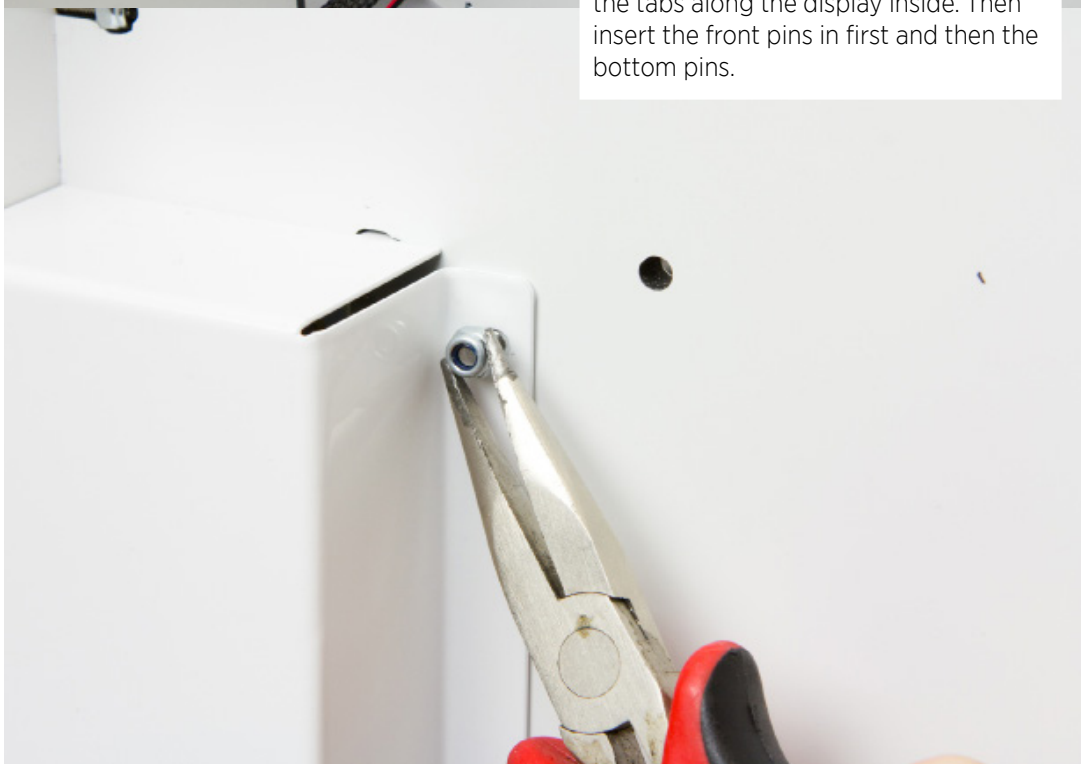






10. Put the flat cable diagonally across the electronics, so it is better orientated to move out of the housing. Make sure you don't fold the cables!

11. The cover of the display electronics has two flaps. These hold the display pressed against the front plate. Slide the tabs along the display inside. Then insert the front pins in first and then the bottom pins.



12. Then mount the cover with 2x M12 bolts and matching lock nuts. Flat cable should come out on one side.

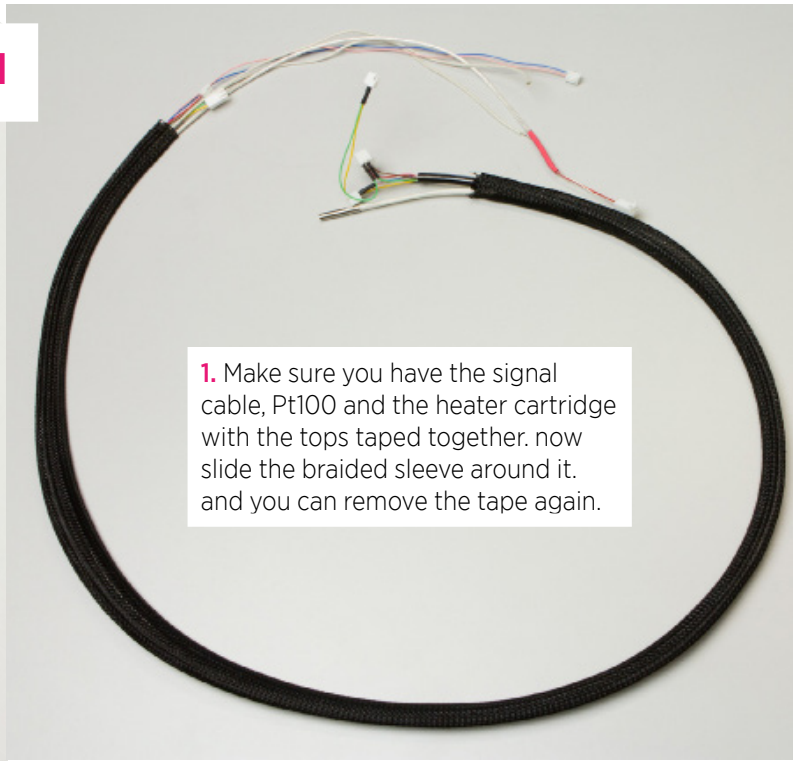
13. Finally push the button itself in the housing on the shaft.

F. Assembly of the hot end

partnr.	Part	Amount
1065	Linear Bearing LM6LUU	2x
1069	Tube Coupling Collet	
1071	Clamp Clip	2x
1074	Print Head Thumb screw	4x
1172	Print Head Shaft X	
1173	Print Head Shaft Y 1185 PT100B sensor	
1186	Print Head Cable	
1200	ISO 7380 M3x8	4x
1266	Bowden Tube	
1268	Heater Cartridge 24V 25 W	
1280	Braided Sleeve	
1281	Clip	5x
1301	Integrated nozzle heater block 3mm filament	
1306	Hot end holder bottom	
1307	Hot end holder top	
1308	Cooling Rib Hot End	
1309	PTFE Isolator Coupler 3.2 mm	
1310	Hot end Isolator	
1311	Spring D2000	
1313	Model Cooling Fan 12VDC 0.1A	2x
1320	Print Head Top	
1321	Print Head Middle	
1322	Print Head Bottom	
1329	Dual Fan bracket	
1330	Hot-End Cooling Fan 5VDC 0.08A	
1348	ISO 7380 M3x4	4x
1351	ISO 4762 M2,5x10	
1352	Set Screw M3x14	

Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

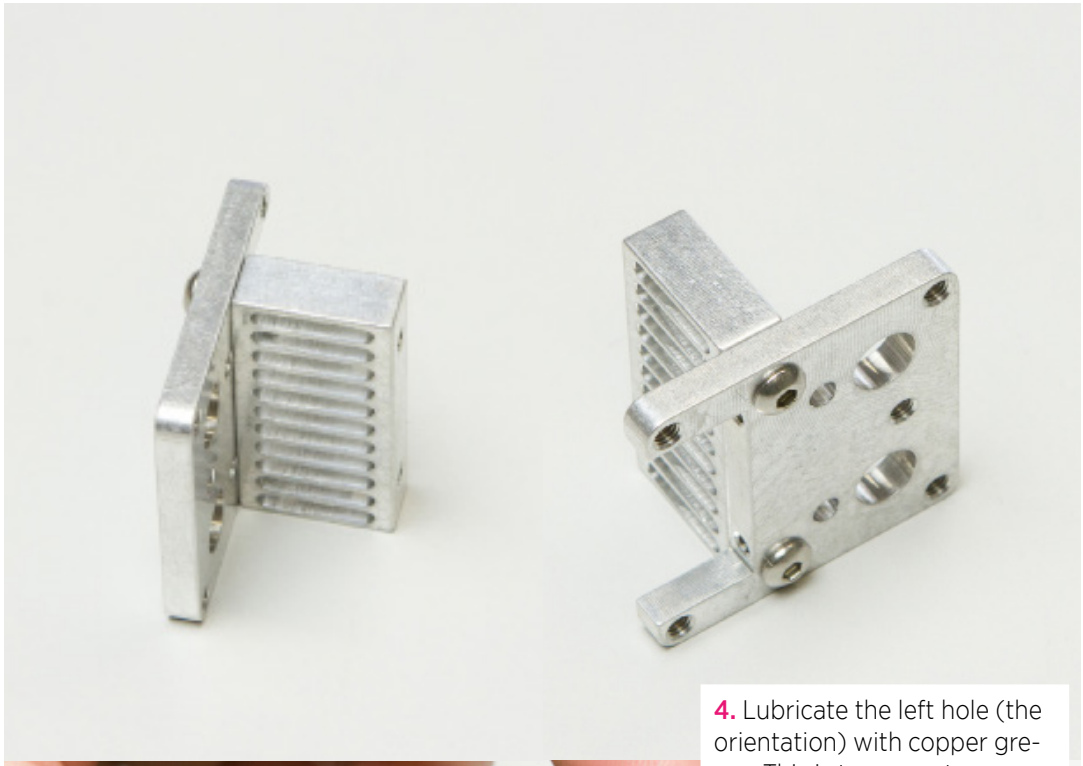
F1. Hot end

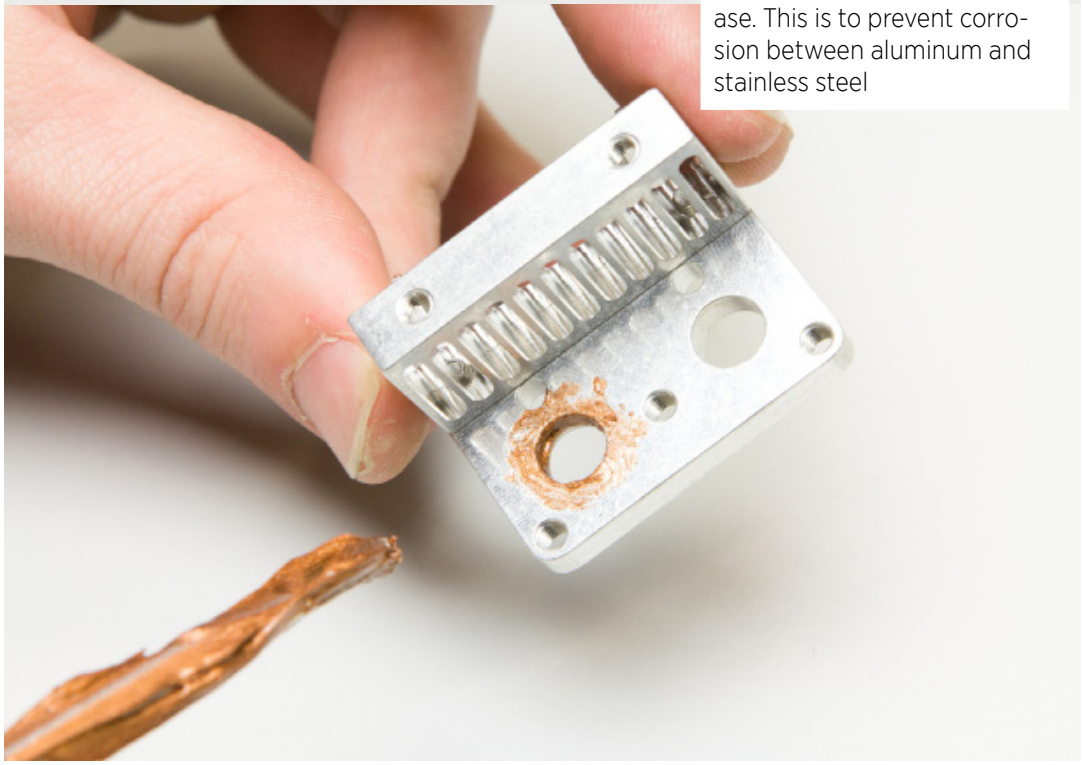


1. Make sure you have the signal cable, Pt100 and the heater cartridge with the tops taped together. now slide the braided sleeve around it. and you can remove the tape again.

2. These are the components required for the hot-end

3. Take the metal part without the notches .This is the lower part of the hot-end. Screw the adapter on it with 2x M3x8 screws

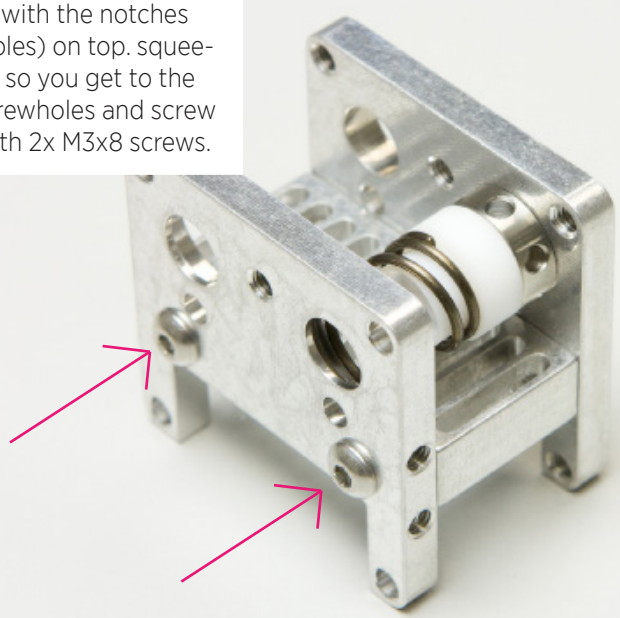


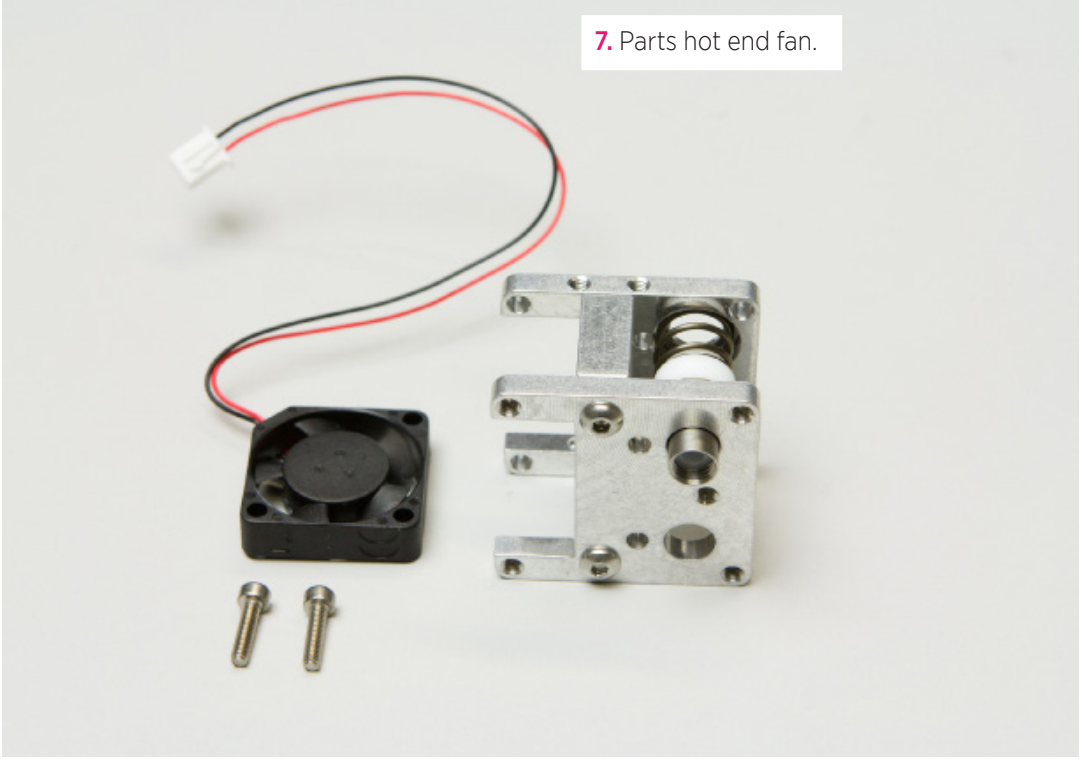


4. Lubricate the left hole (the orientation) with copper grease. This is to prevent corrosion between aluminum and stainless steel

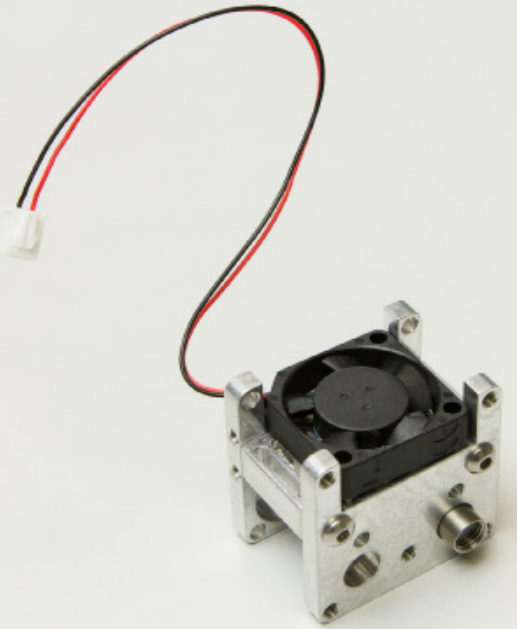
5. Attach the Teflon insulator coupler, the hot-end insulator and spring together. Place it on the hole which you just lubricated the copper grease.

6. Then place the Top Plate of the Hot-end (with the notches around the holes) on top. squeeze it together so you get to the upper two screwholes and screw it together with 2x M3x8 screws.

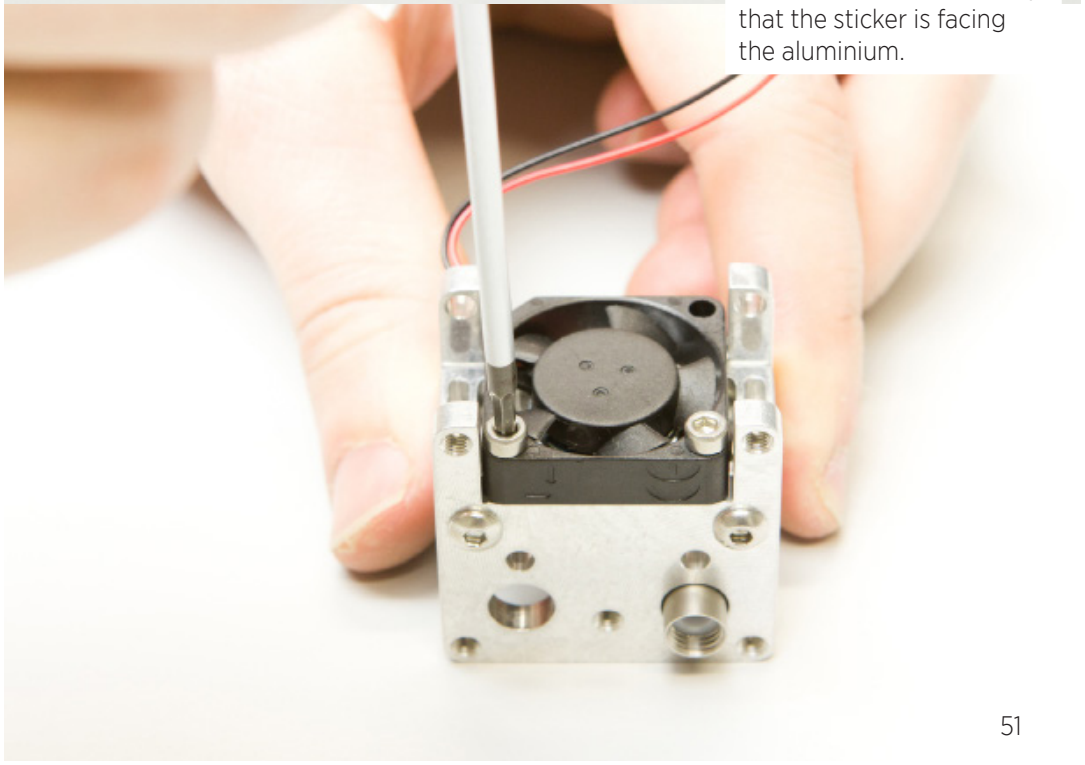




7. Parts hot end fan.

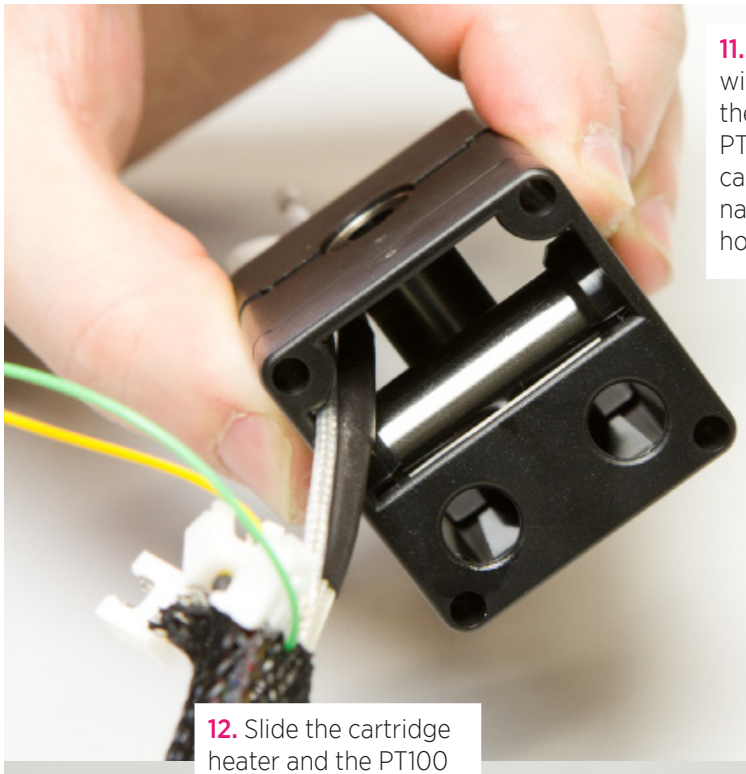


8. Screw the hot-end cooling fan 5vDC onto the back of the hot-end with 2xm2,5x10mm screws. position the fan in such a way that the sticker is facing the aluminium.

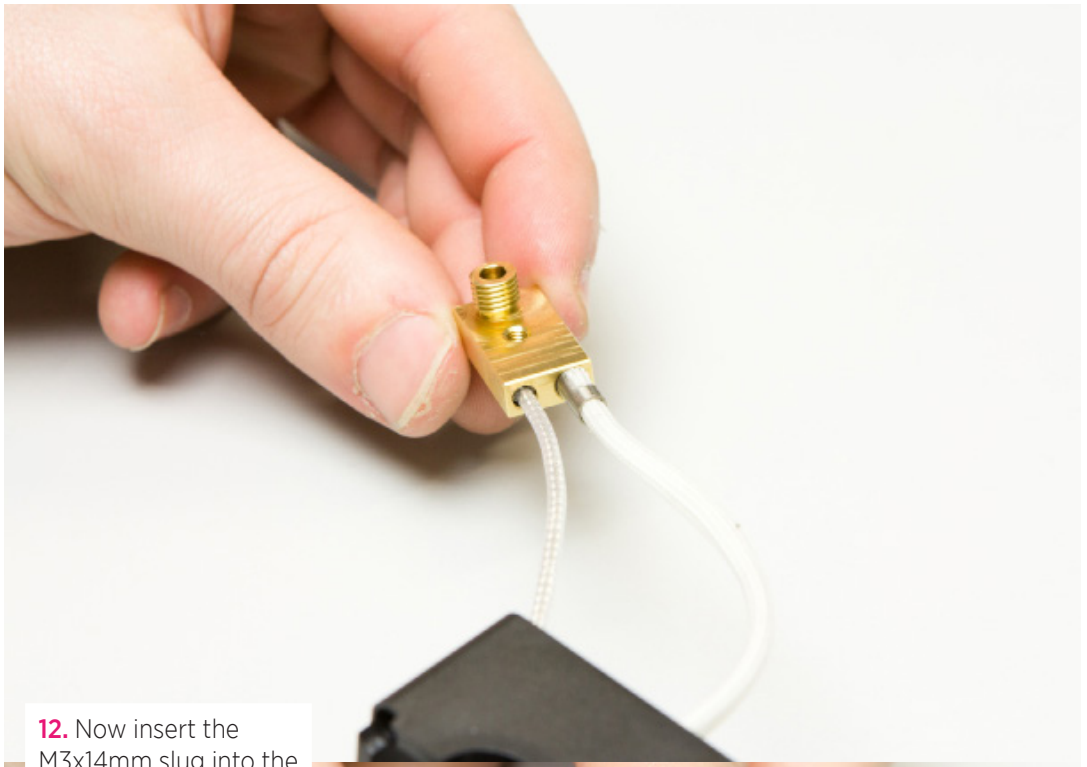


9. Place the 2 Linear Bearings in the plastic casing in the following fashion.

10. Snap the parts together. these are supposed to go together without any efford.

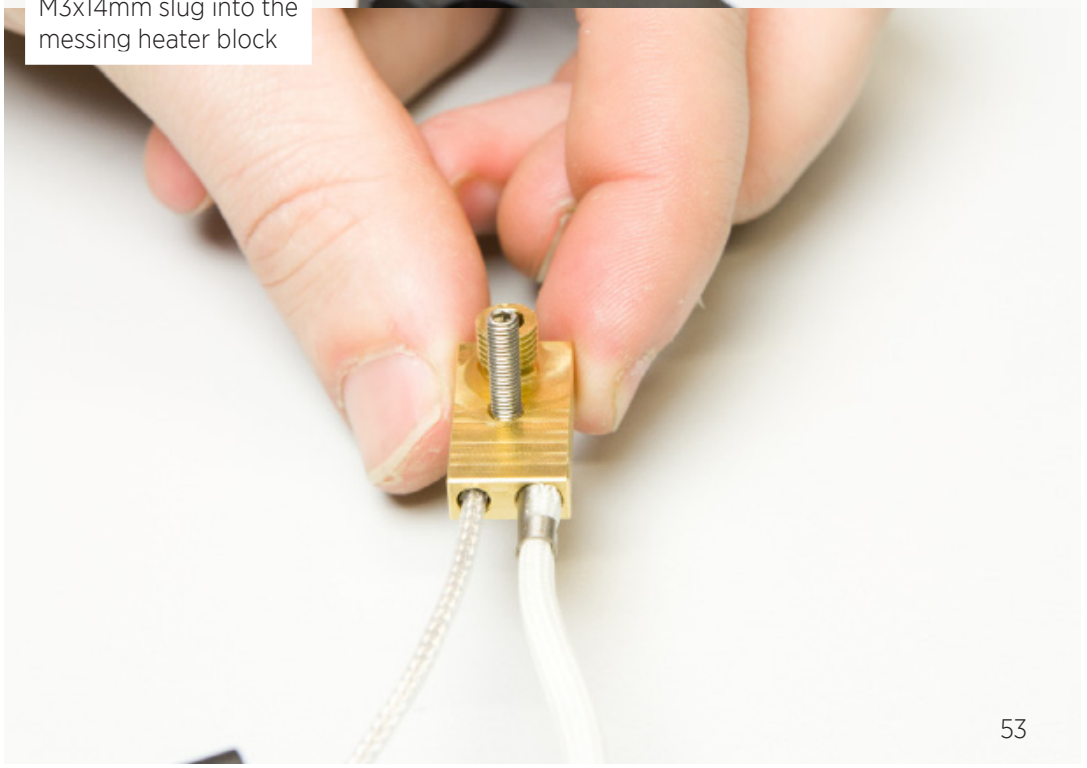


11. Guide the printhead cable with the braided sleeve and the Cartridgeheater and PT100 through the plasic casing. making sure the signal cable still sits above the housing.



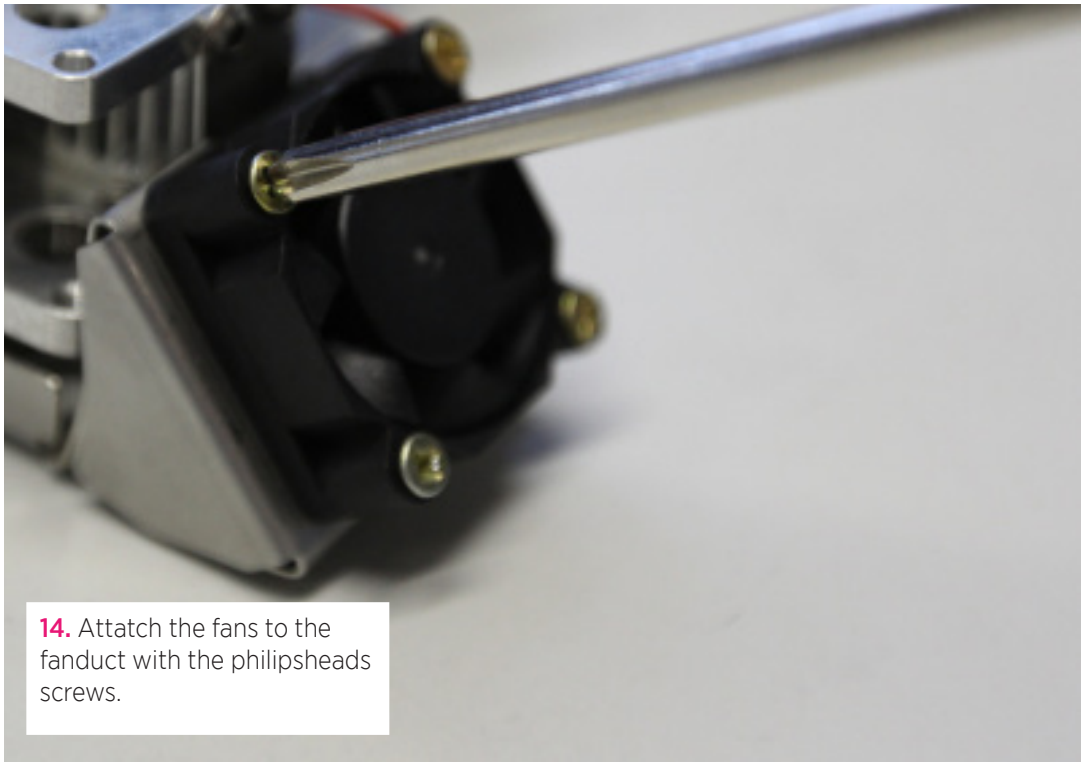
12. Slide the cartridge heater and the PT100 into the nozzle

12. Now insert the M3x14mm slug into the messing heater block



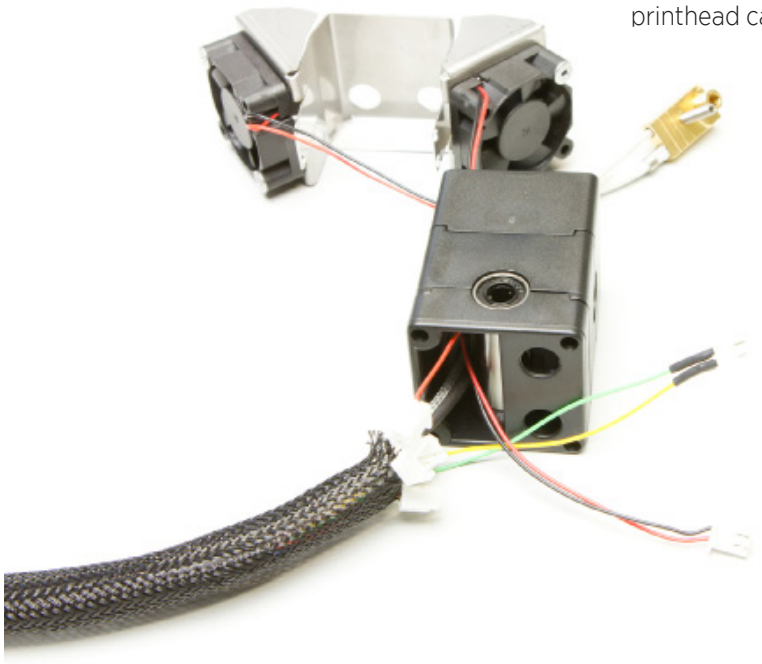
F2. bevestigen van de fans

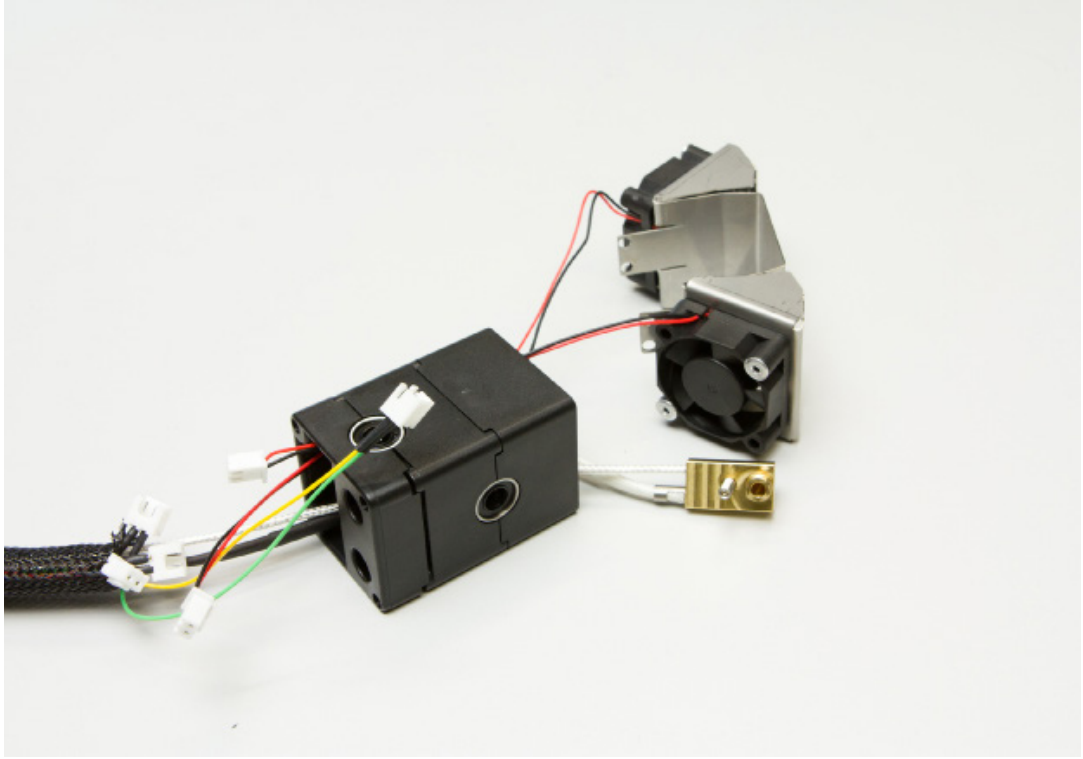
13. Parts for the Printhead fan.



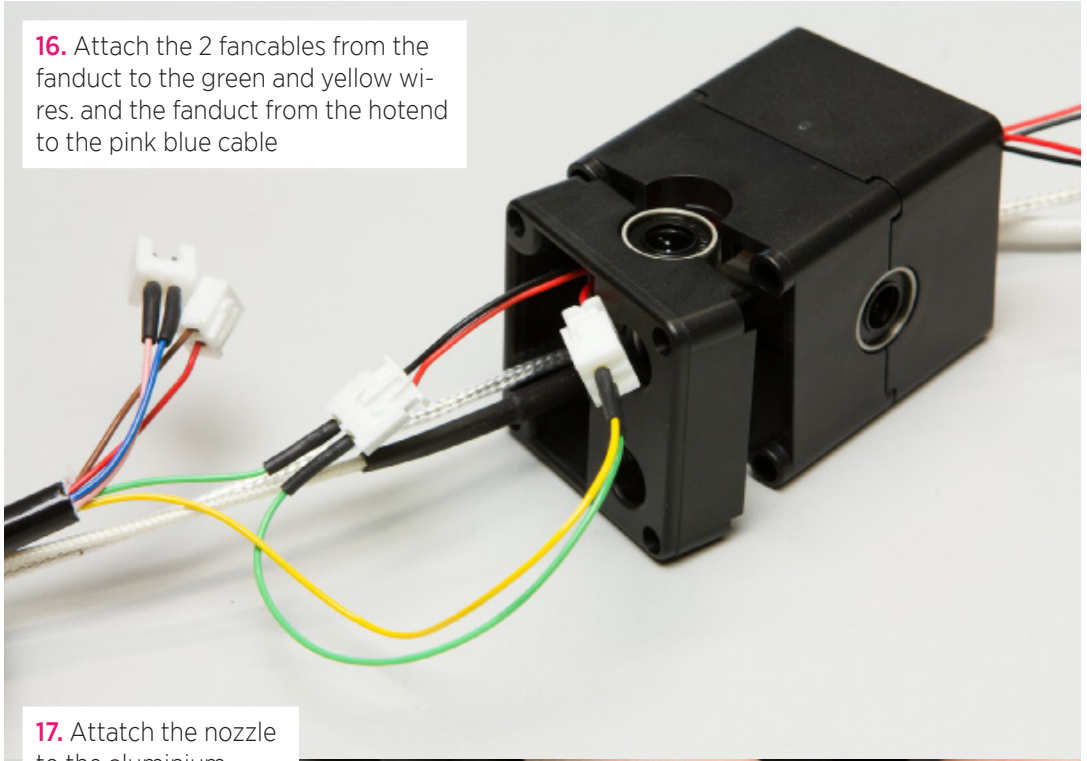
14. Attatch the fans to the fanduct with the philipsheads screws.

15. Guide the 2 fancables up through the housing and attach them to the printhead cable.

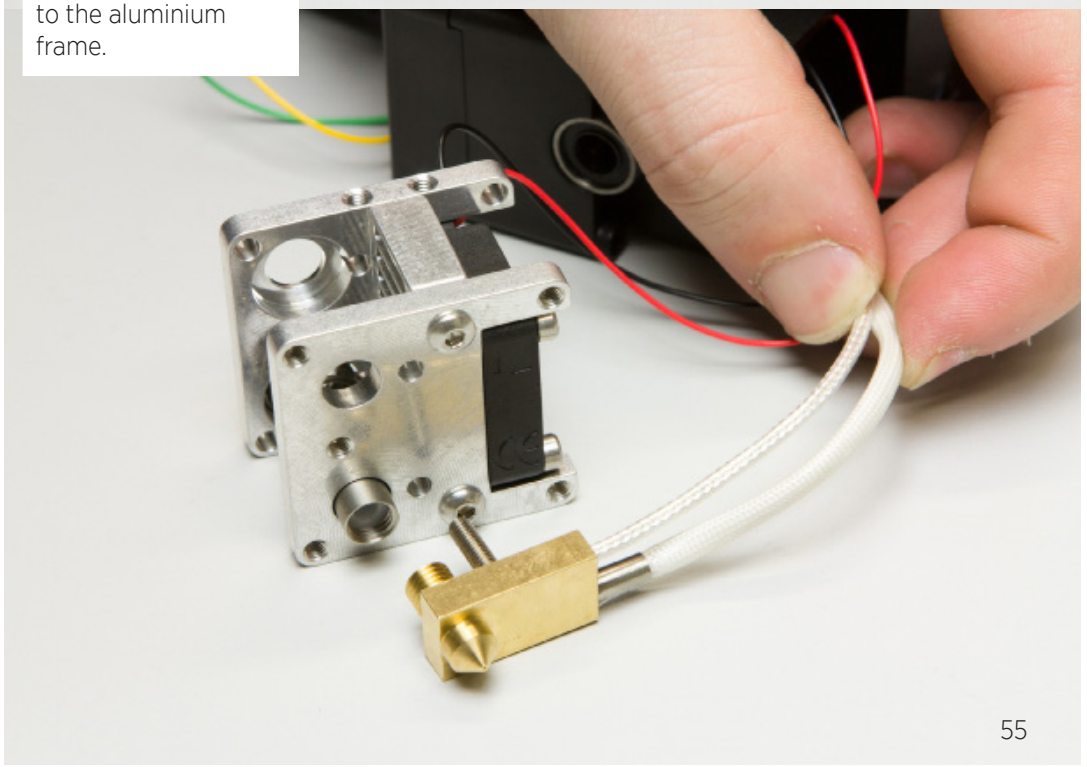


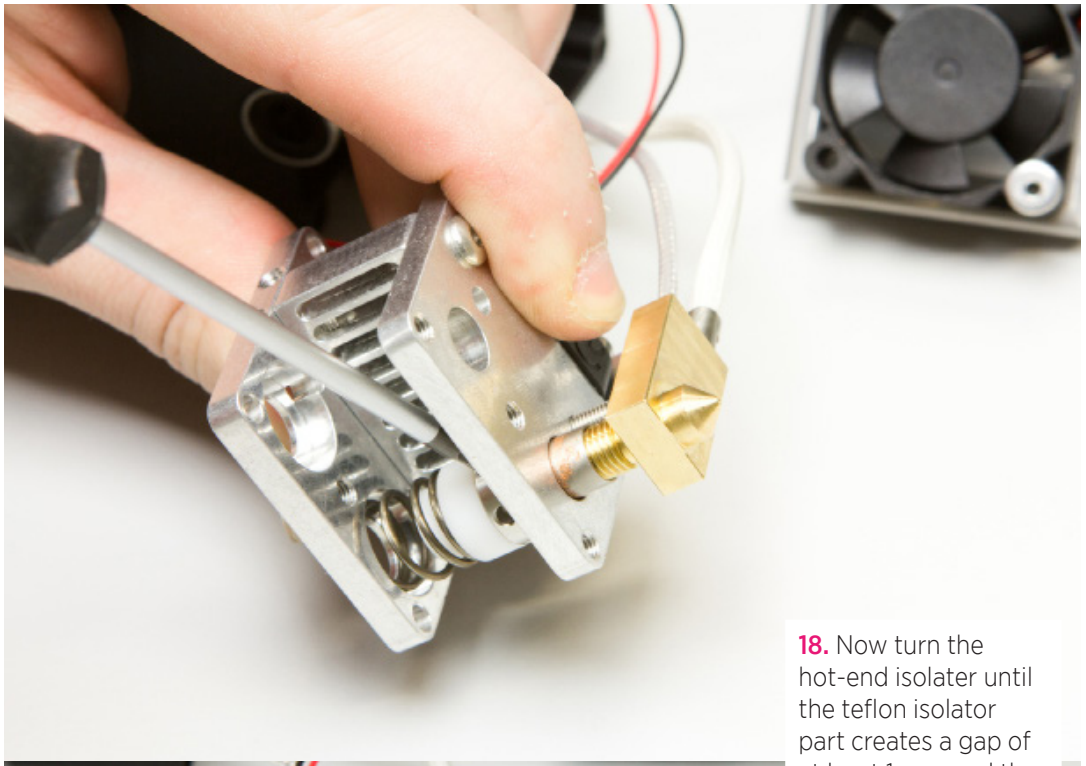


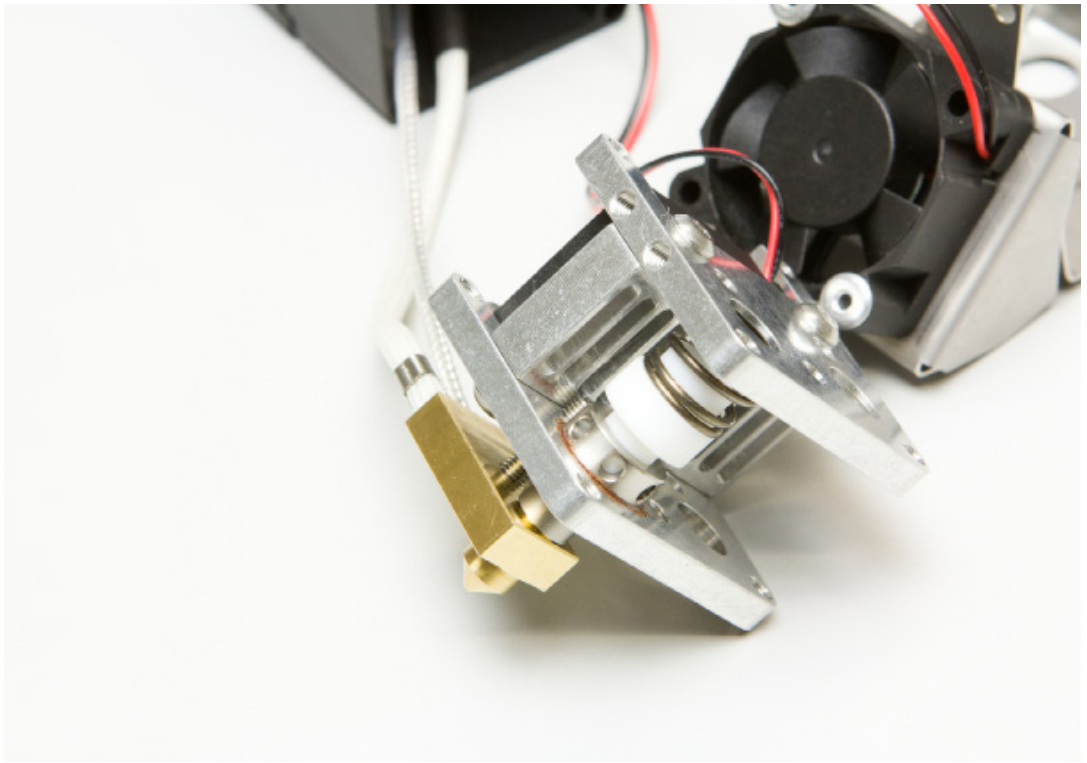
16. Attach the 2 fancables from the fanduct to the green and yellow wires. and the fanduct from the hotend to the pink blue cable

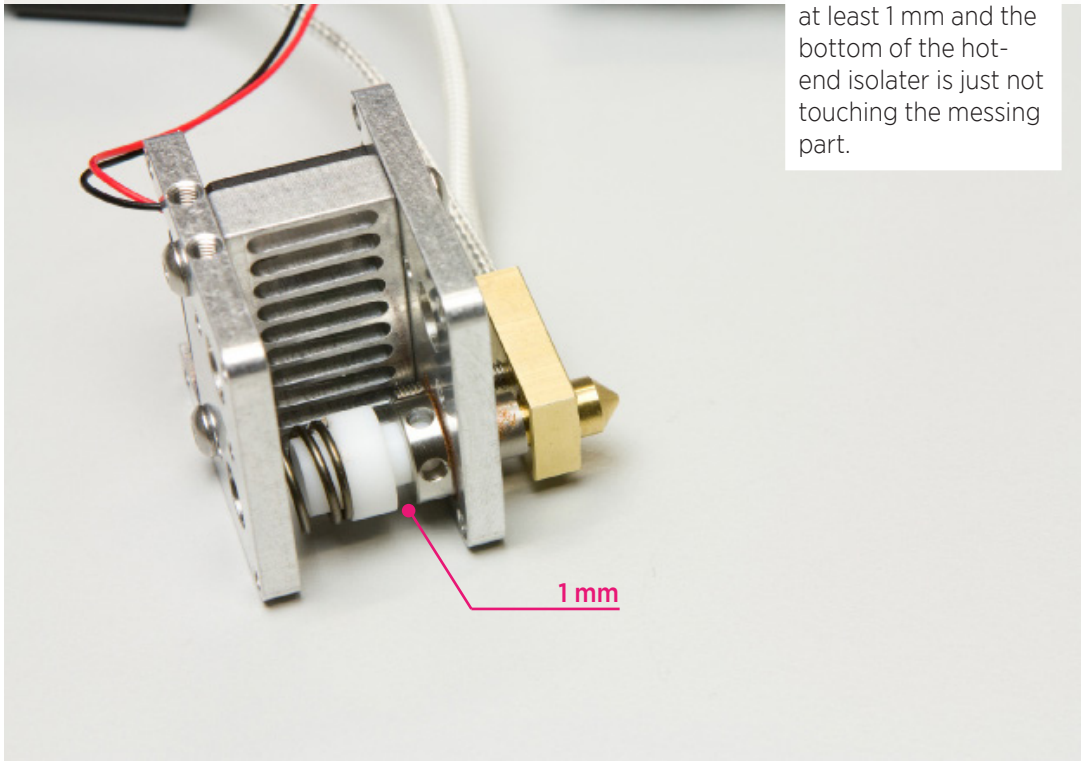


17. Attatch the nozzle to the aluminium frame.

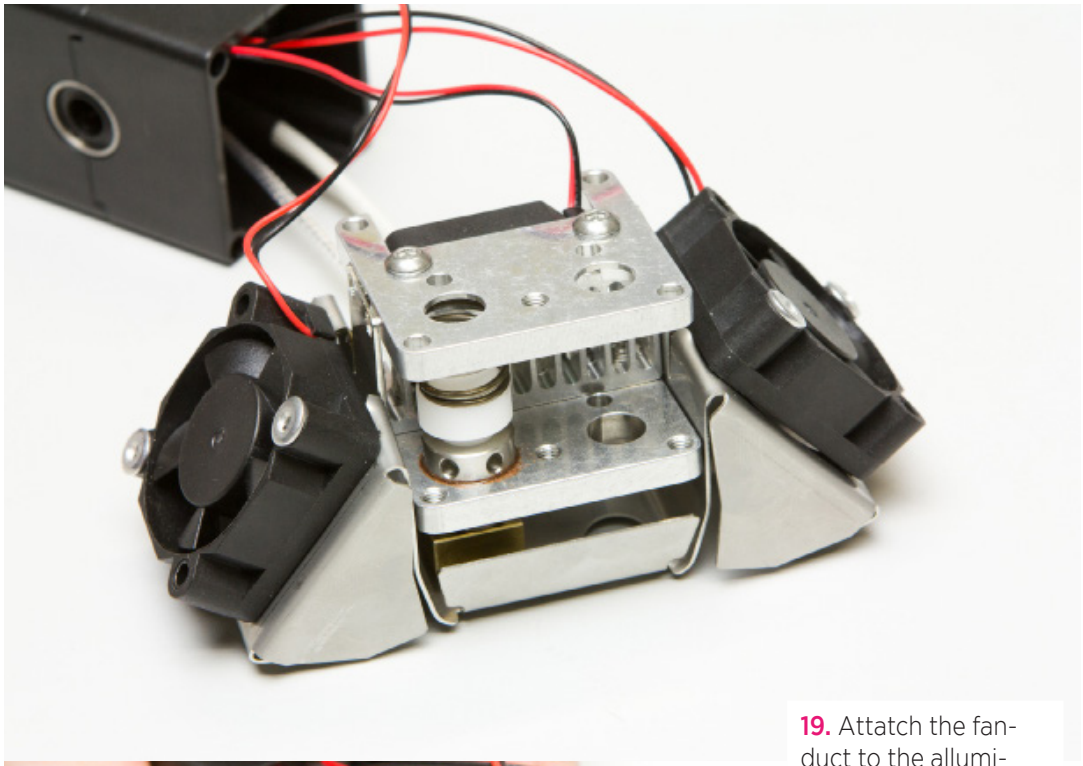


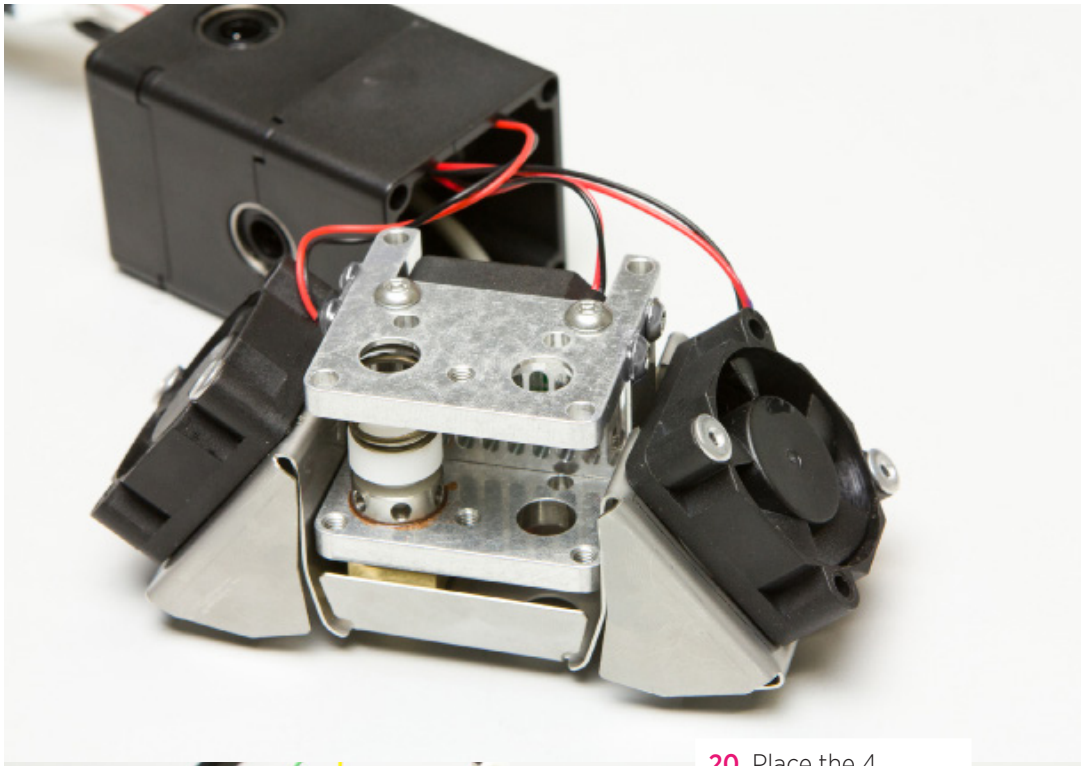




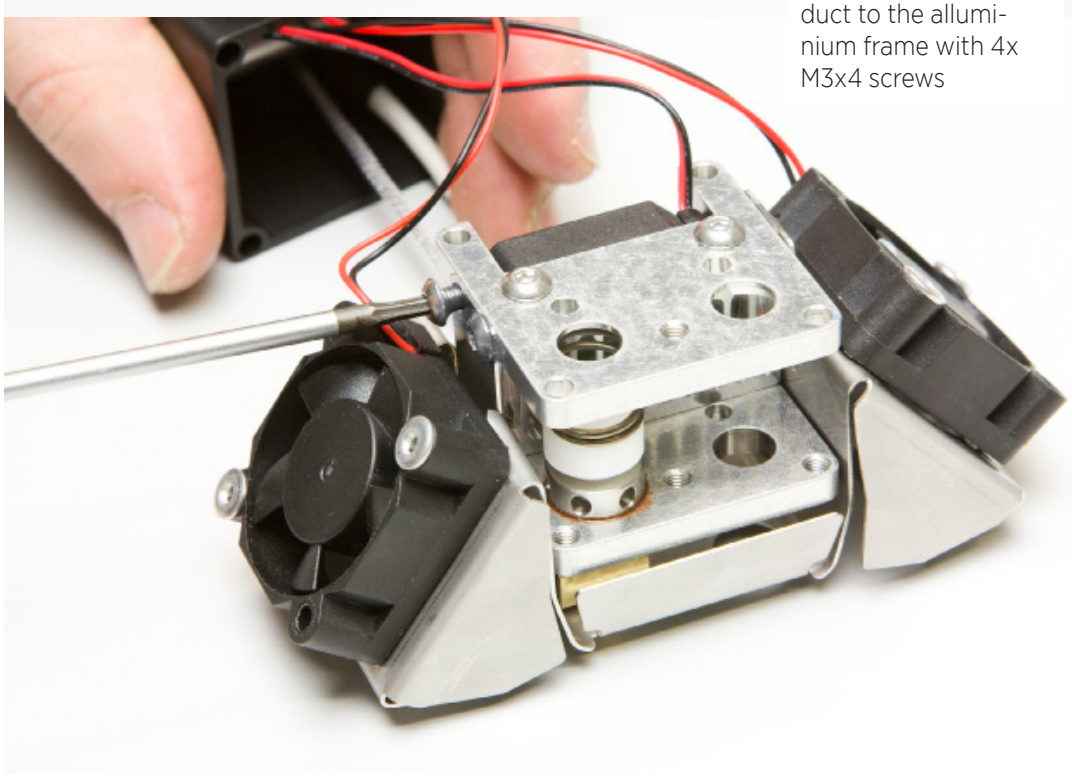


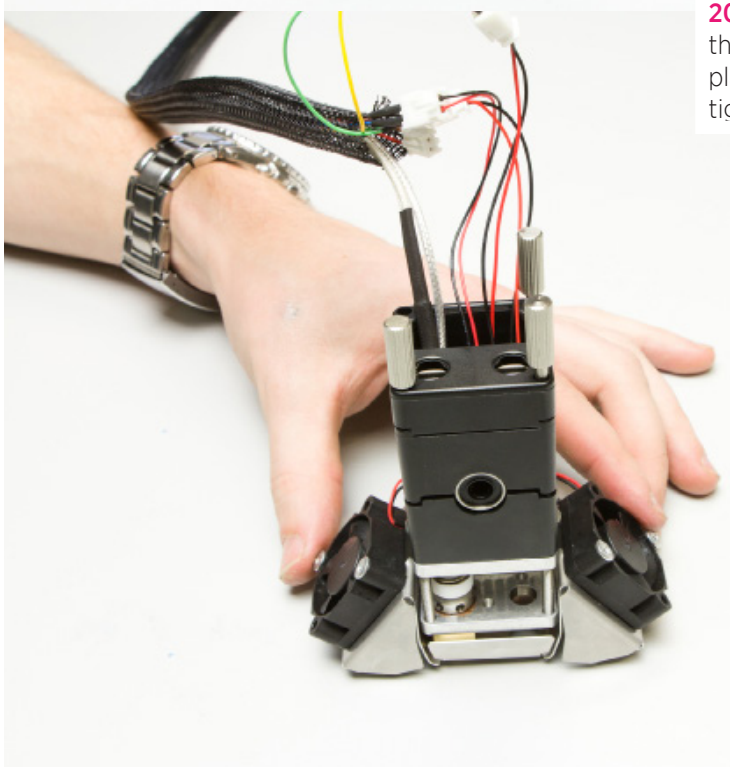
18. Now turn the hot-end isolater until the teflon isolator part creates a gap of at least 1 mm and the bottom of the hot-end isolater is just not touching the messing part.





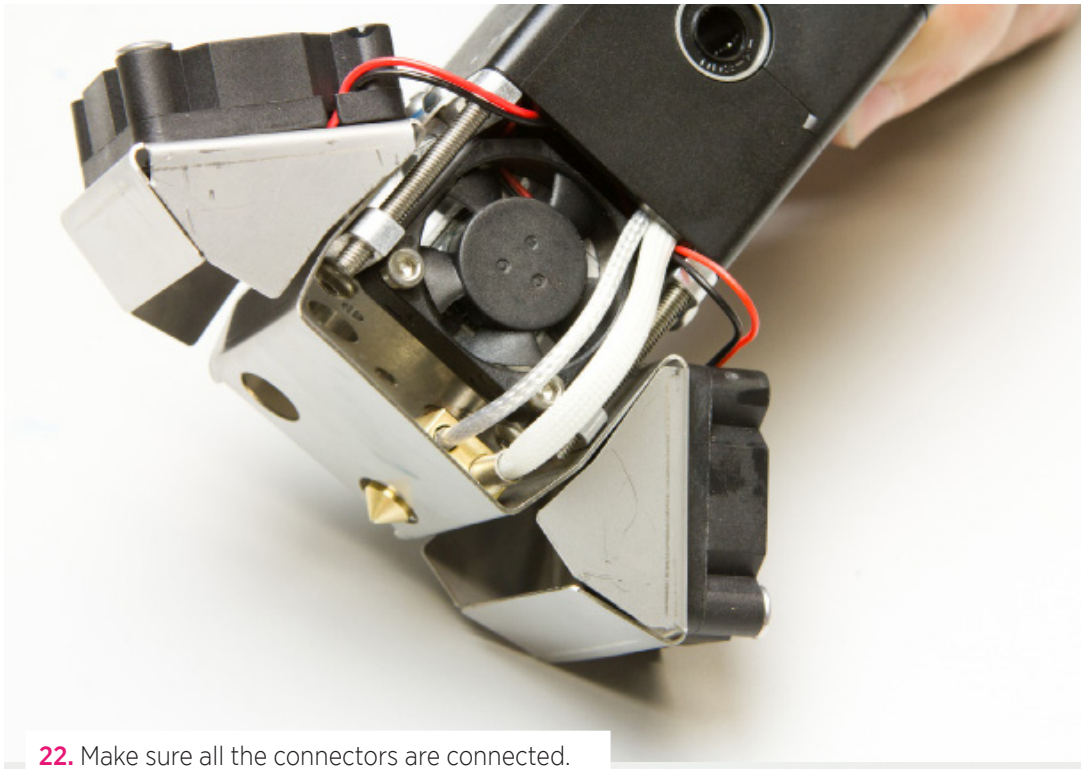
19. Attatch the fan-duct to the allumi-nium frame with 4x M3x4 screws



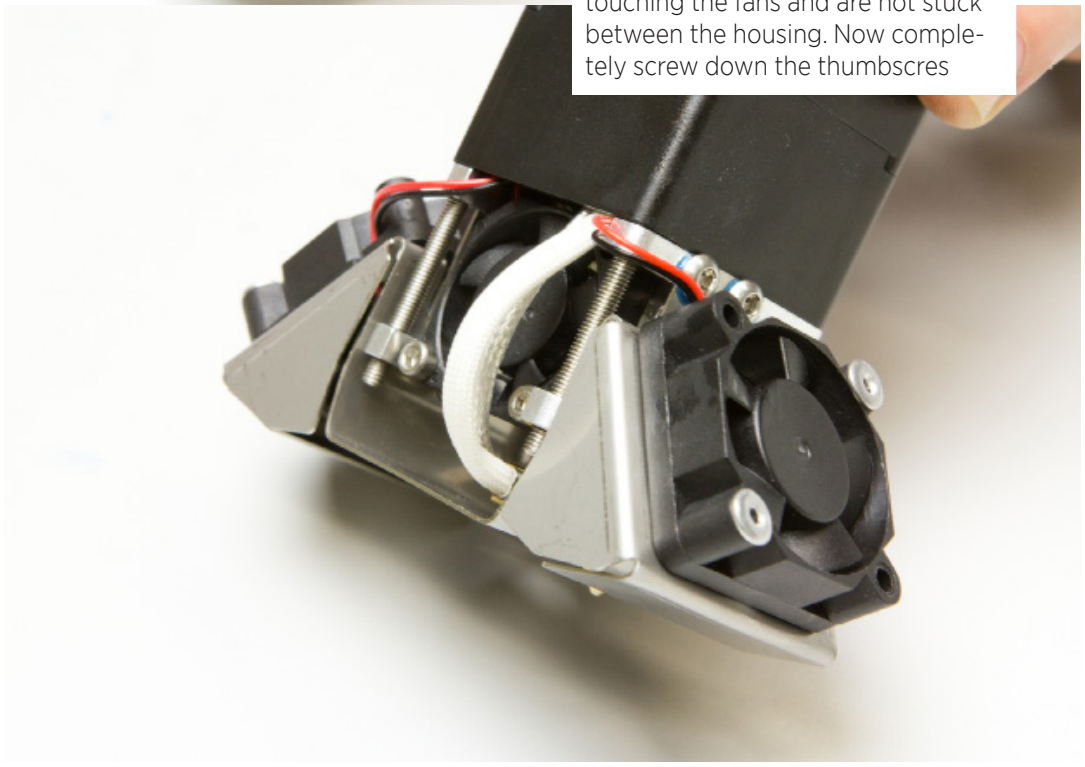


20. Place the 4 thumbscrews in the plastic frame. and tighten them down.

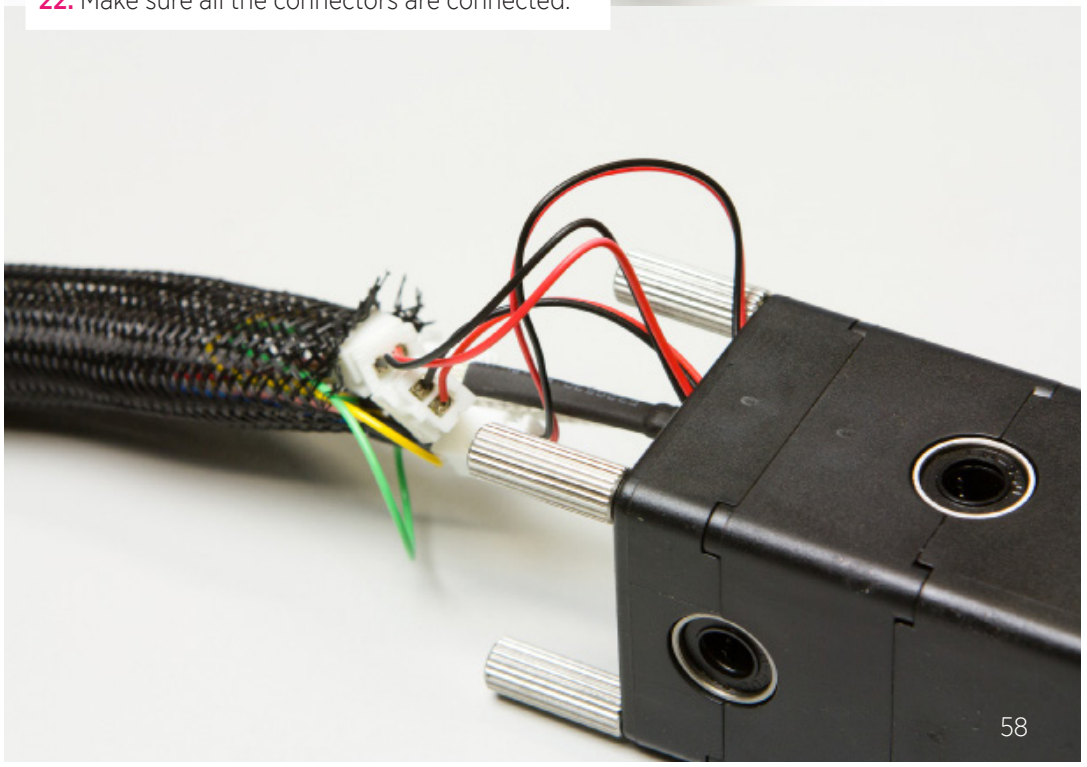
F3. kabels wegwerken

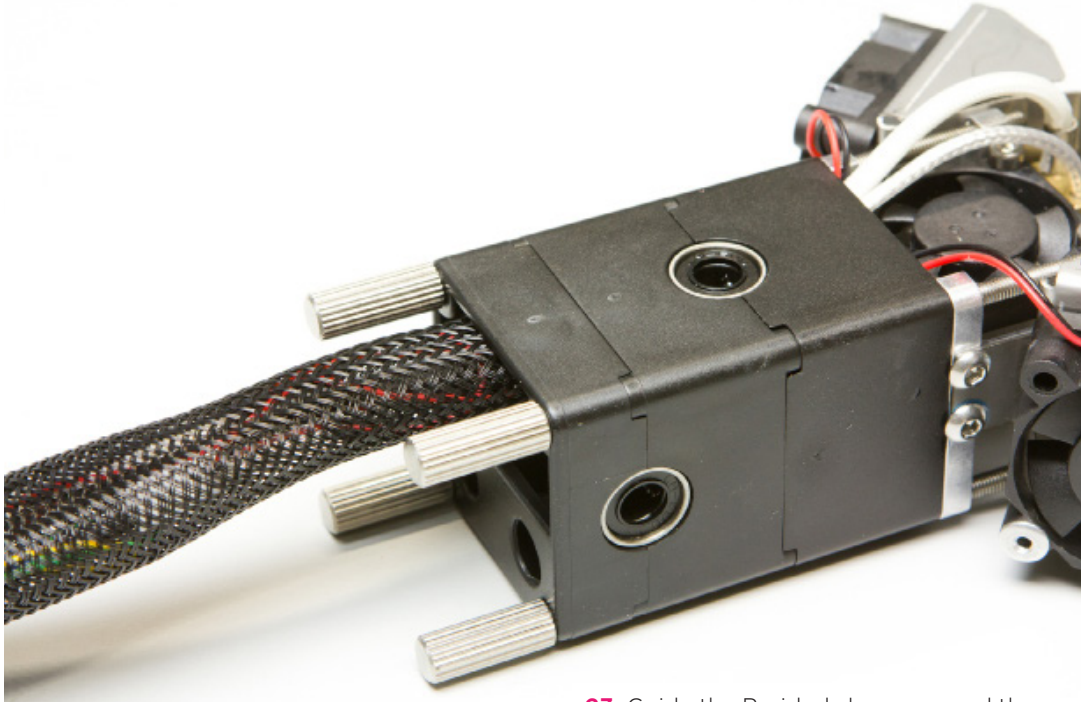


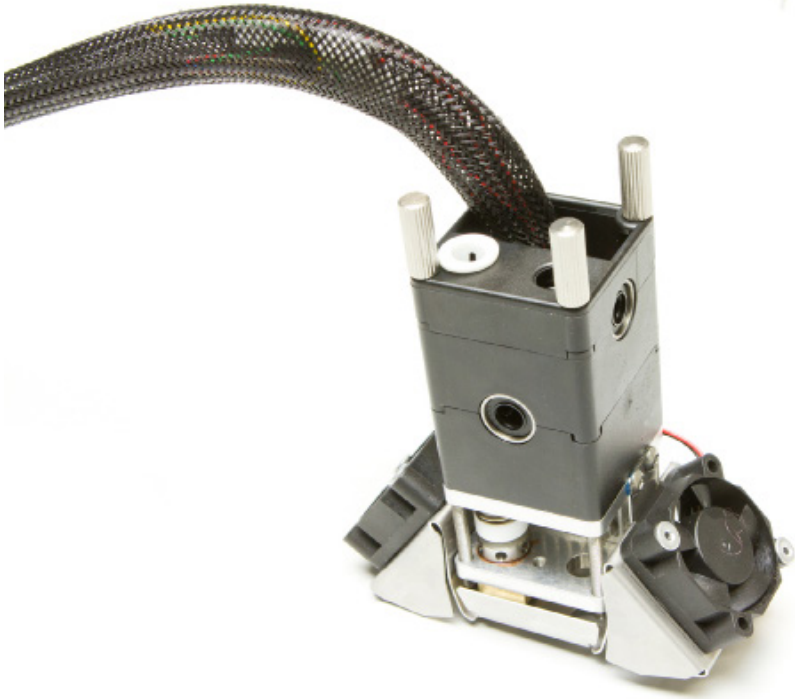
21. Make sure that the cables are not touching the fans and are not stuck between the housing. Now completely screw down the thumbscres



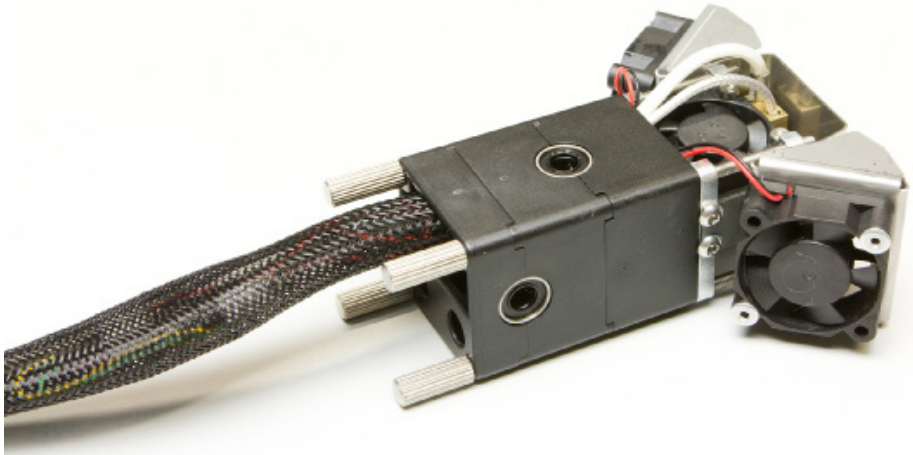
22. Make sure all the connectors are connected.





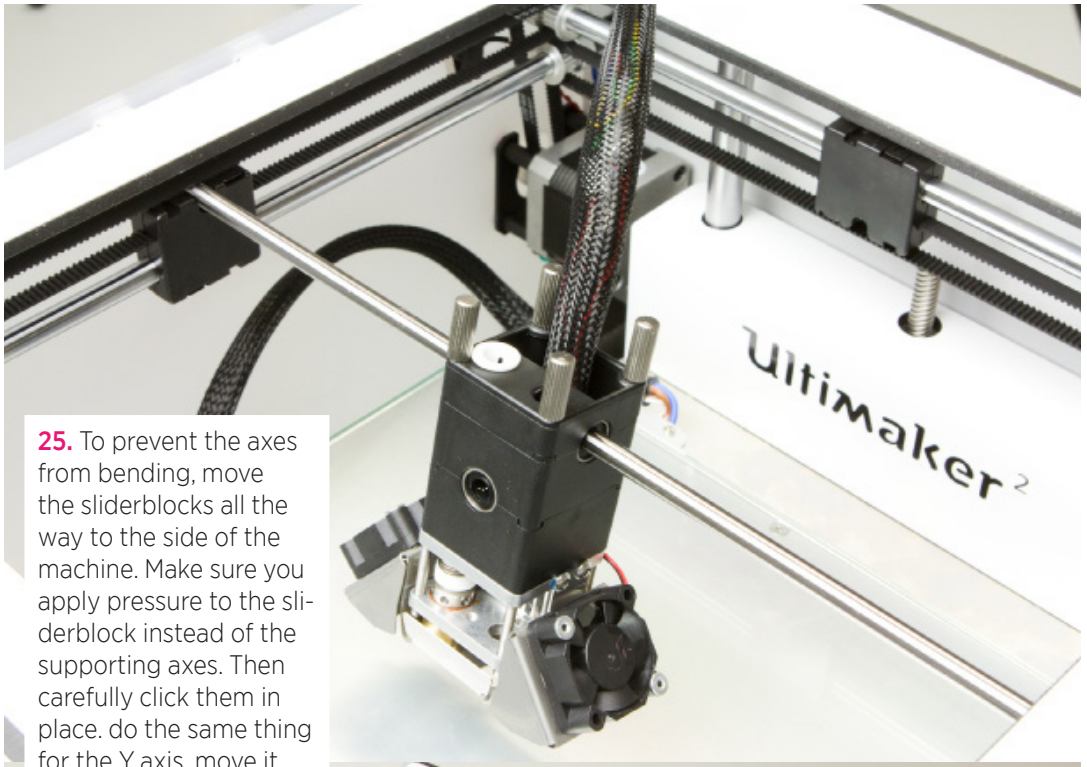


23. Guide the Braided sleeve around the connectors and into the top of the frame. so u don't see anything sticking out.

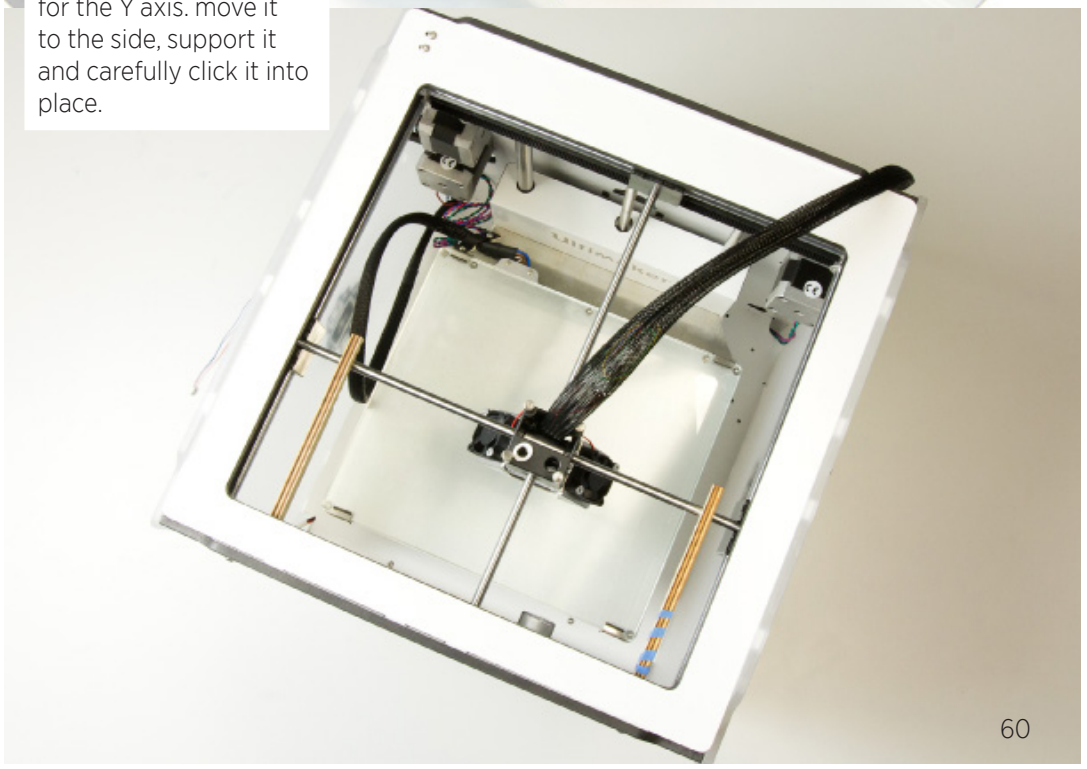


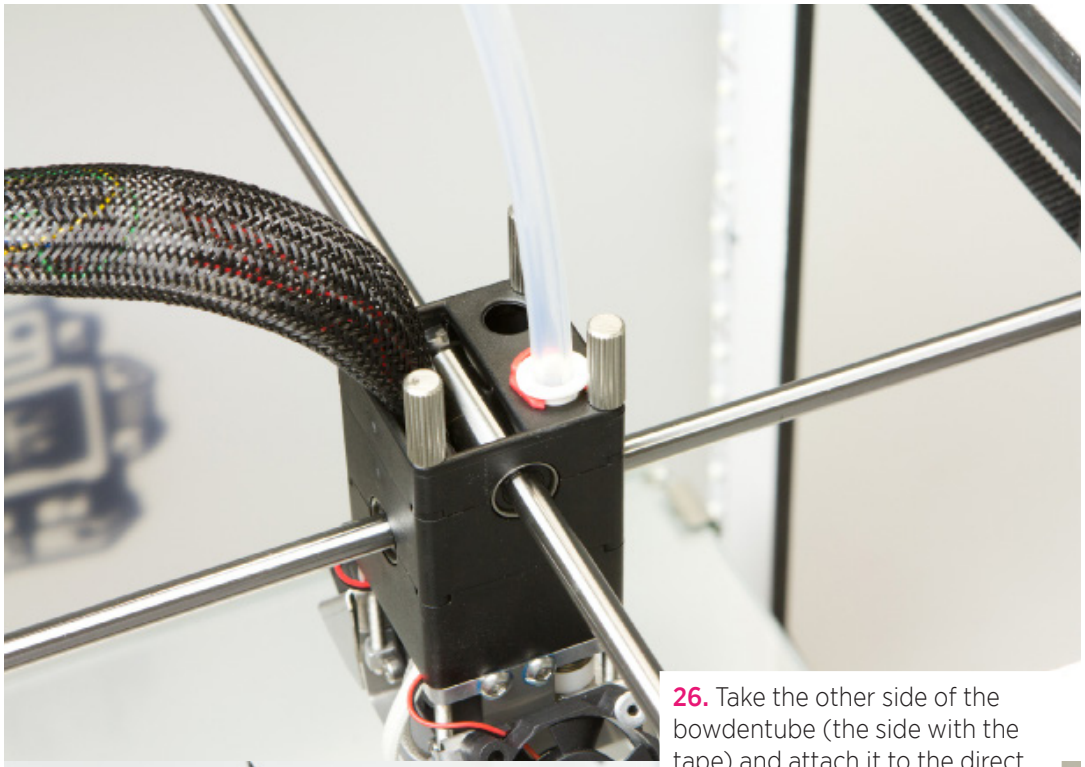
F4. Printhead bevestingen in frame

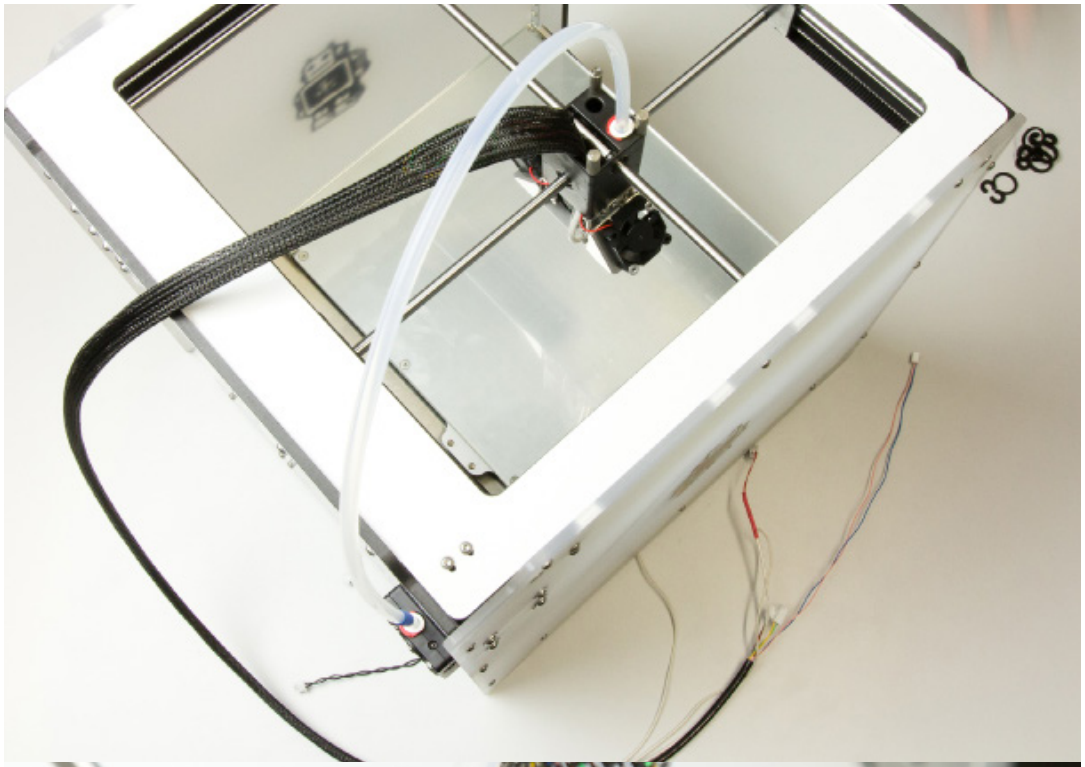
24. Take the X and Y axes and Put the X axis through bearing in the plastic Printhead housing.



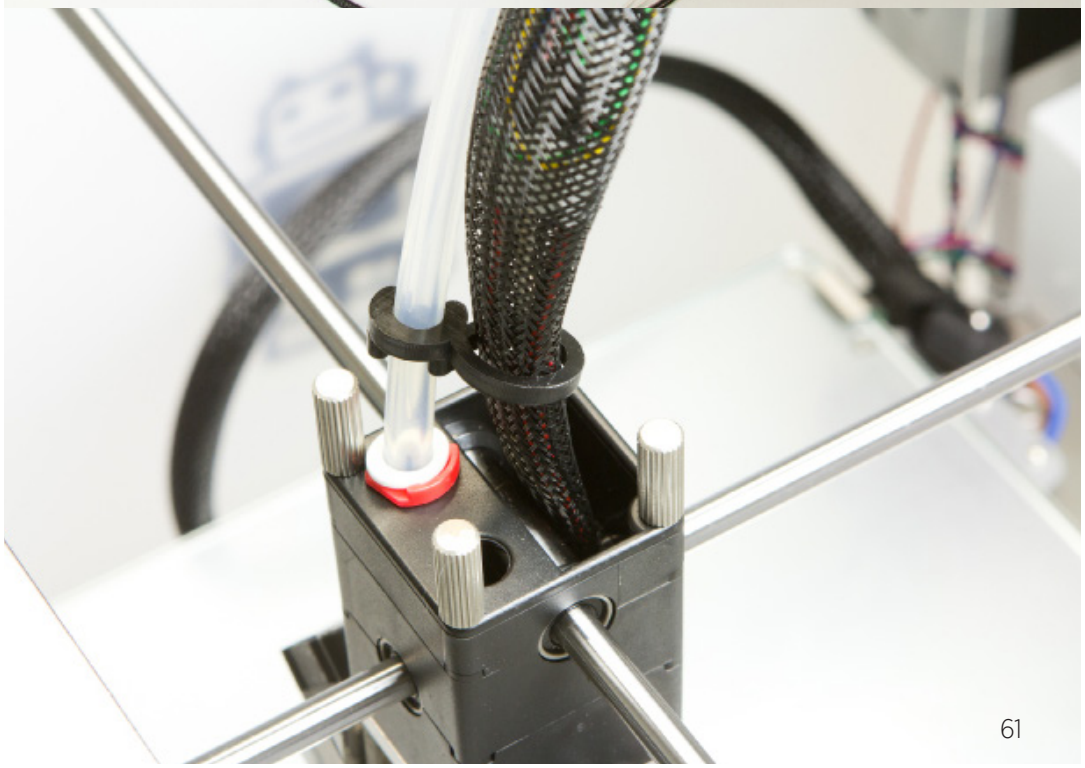
25. To prevent the axes from bending, move the sliderblocks all the way to the side of the machine. Make sure you apply pressure to the sliderblock instead of the supporting axes. Then carefully click them in place. do the same thing for the Y axis. move it to the side, support it and carefully click it into place.

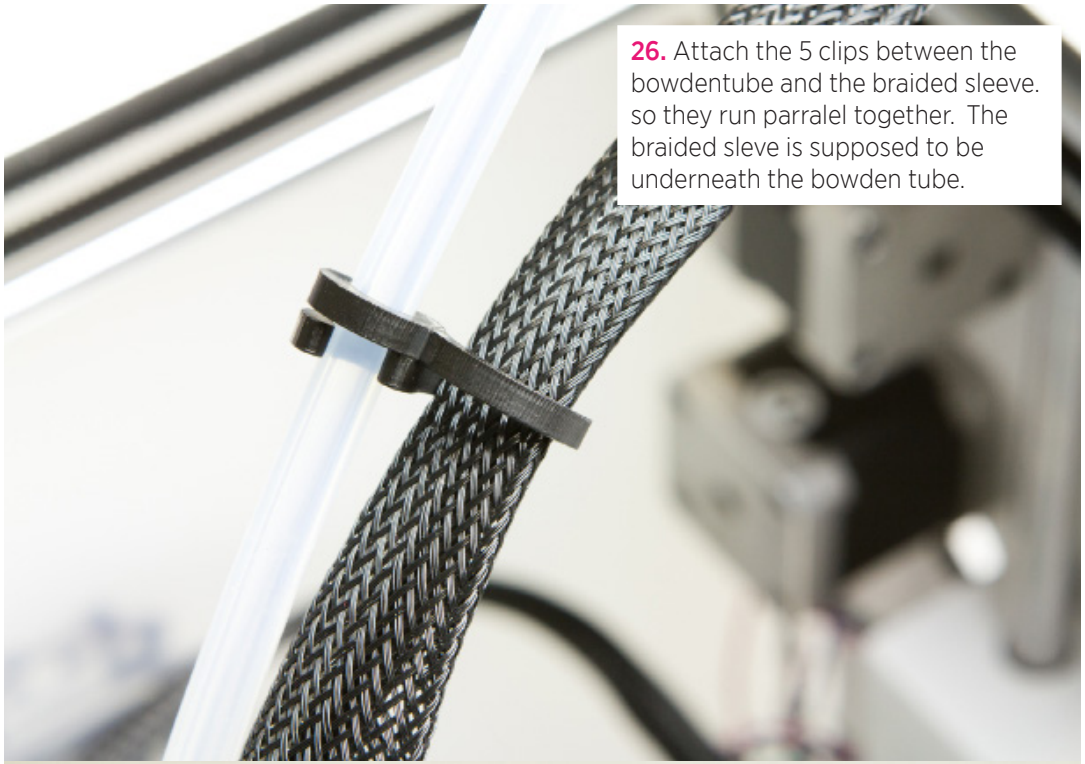




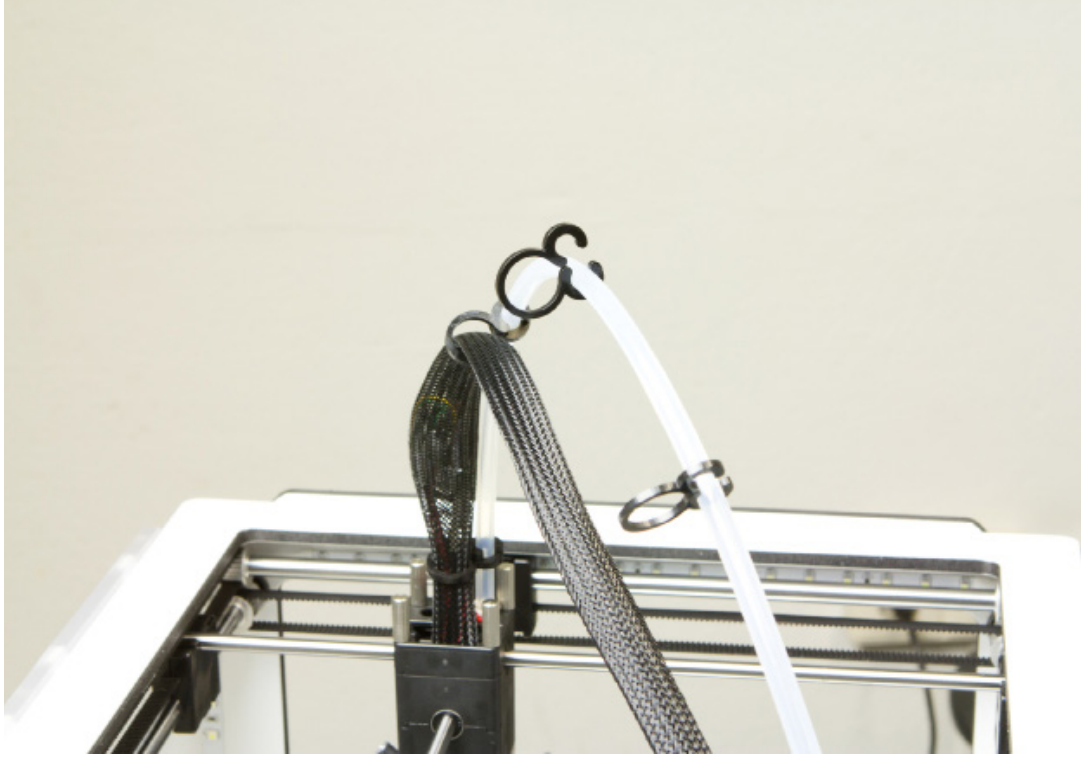


26. Take the other side of the bowdentube (the side with the tape) and attach it to the direct drive. secure everything with the red clamp.





26. Attach the 5 clips between the bowdentube and the braided sleeve. so they run parralel together. The braided sleve is supposed to be underneath the bowden tube.

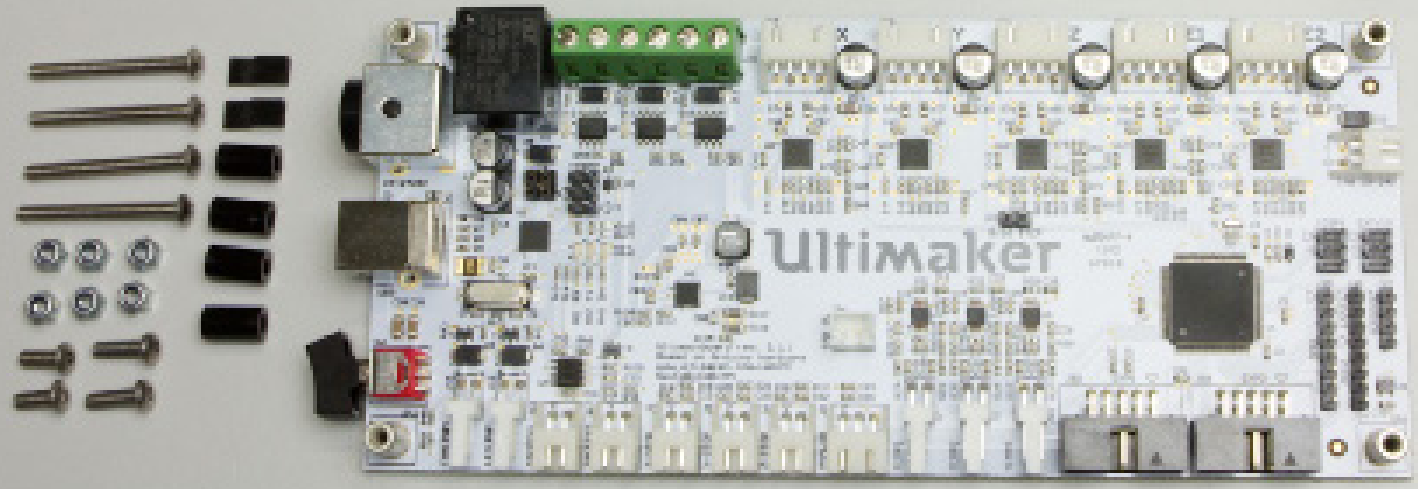


27. Guide the cables through the frame and underneath the feeder downwards until they reach the electronics.

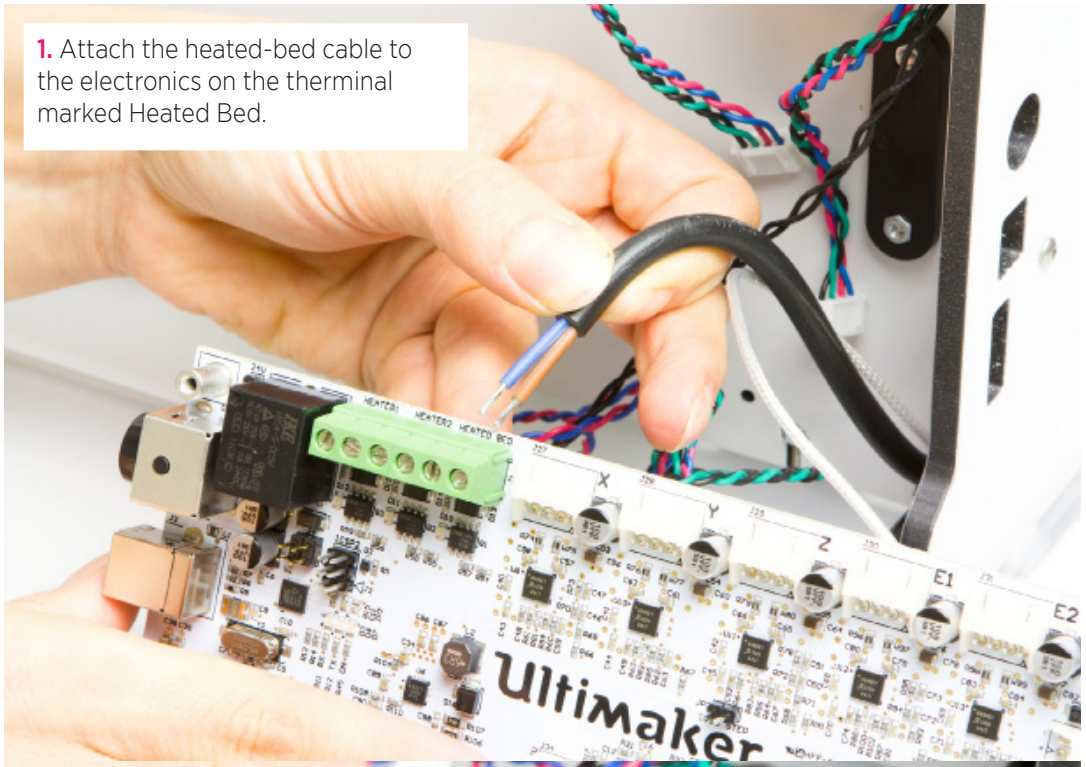
G. Assembly of the electronics

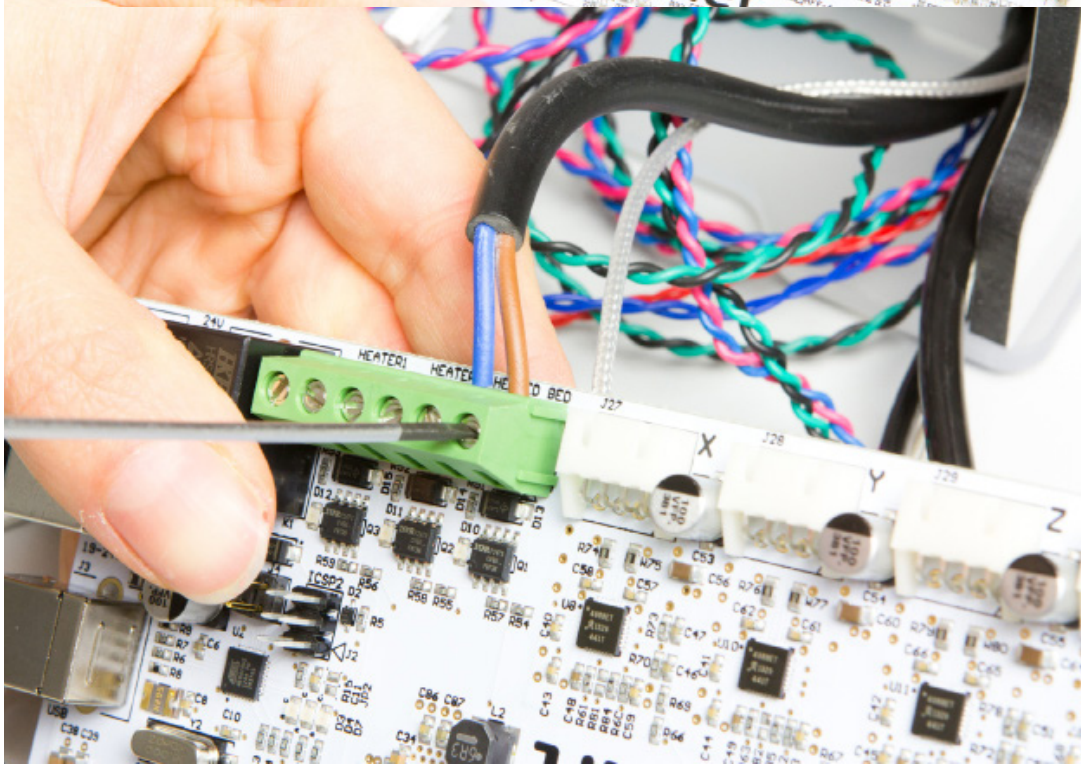
partnr.	Part	Amount
xxxx	Mainboard v2.1	1x
xxxx	Mainboard electronics cover	1x
xxxx	Spacers 3.2x6x10mm	8x
xxxx	jumper	2x
xxxx	cable cover	2x
xxxx	ISO 7380 m3x8	2x
xxxx	ISO 7380 m3x12	2x
xxxx	ISO 7380 m3x30	4x
xxxx	ISO 7040 Nut m3 pin torq	6x

Note: The amount of parts is always times 1, except if the amount indicates something different. Make sure you have al the parts before you start with the next step.

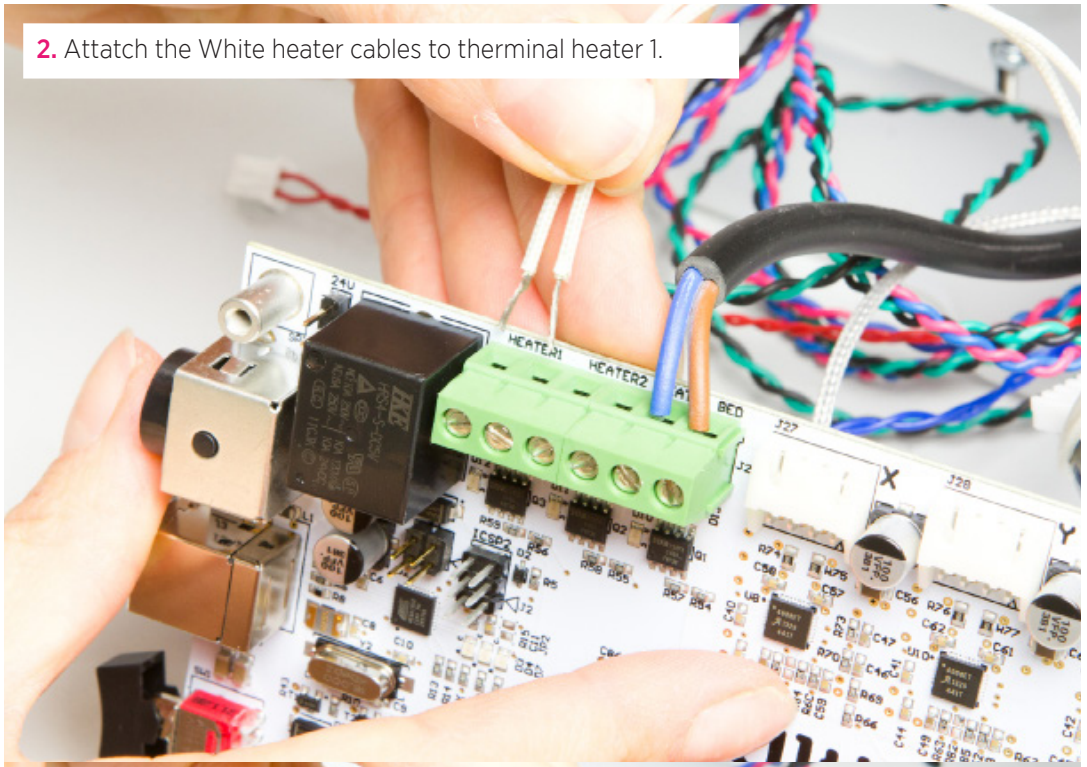


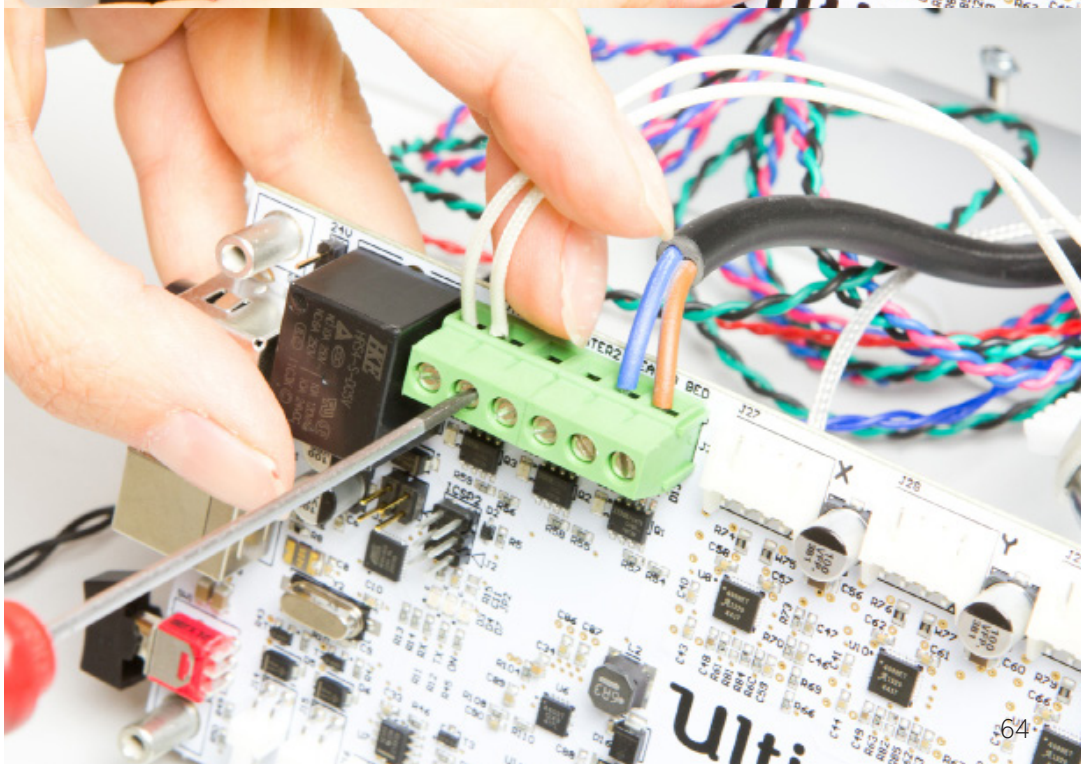
1. Attach the heated-bed cable to the electronics on the therminal marked Heated Bed.

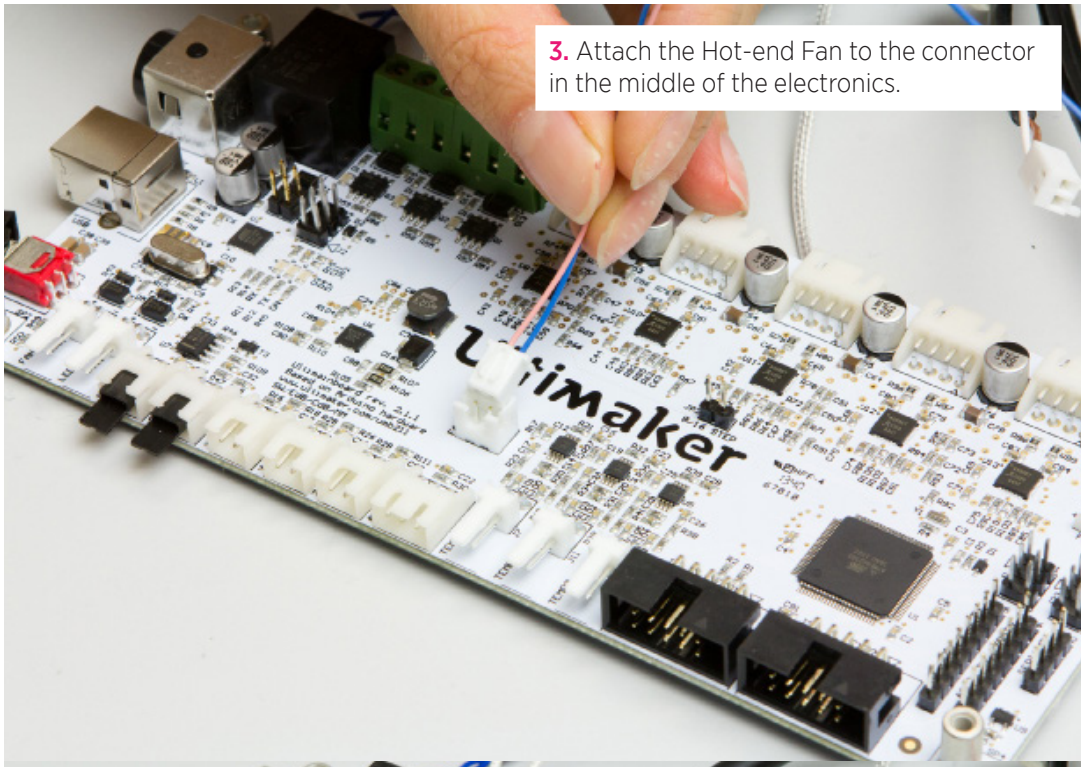




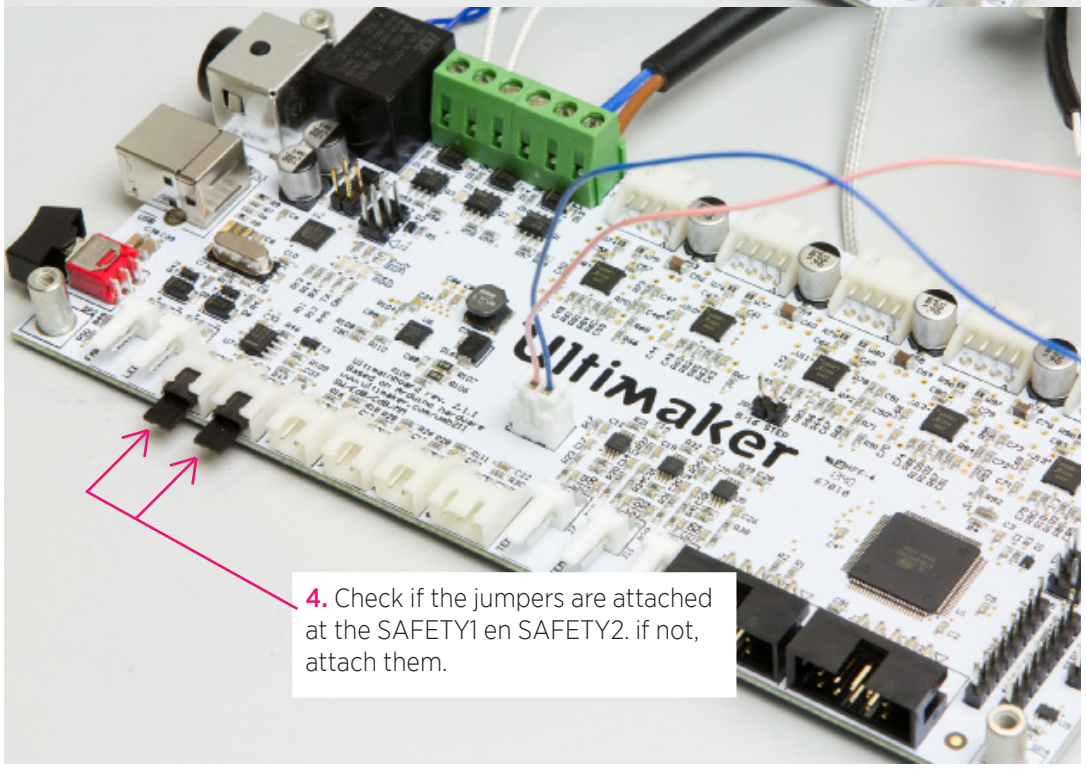
2. Attatch the White heater cables to therminal heater 1.



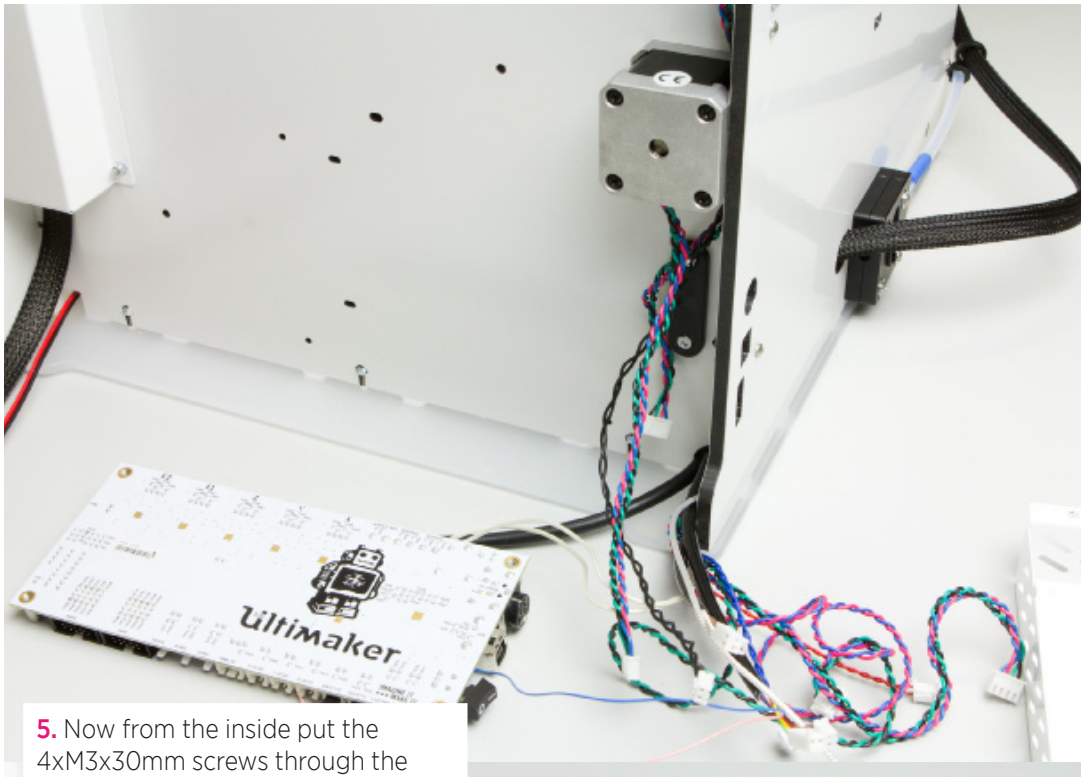




3. Attach the Hot-end Fan to the connector in the middle of the electronics.

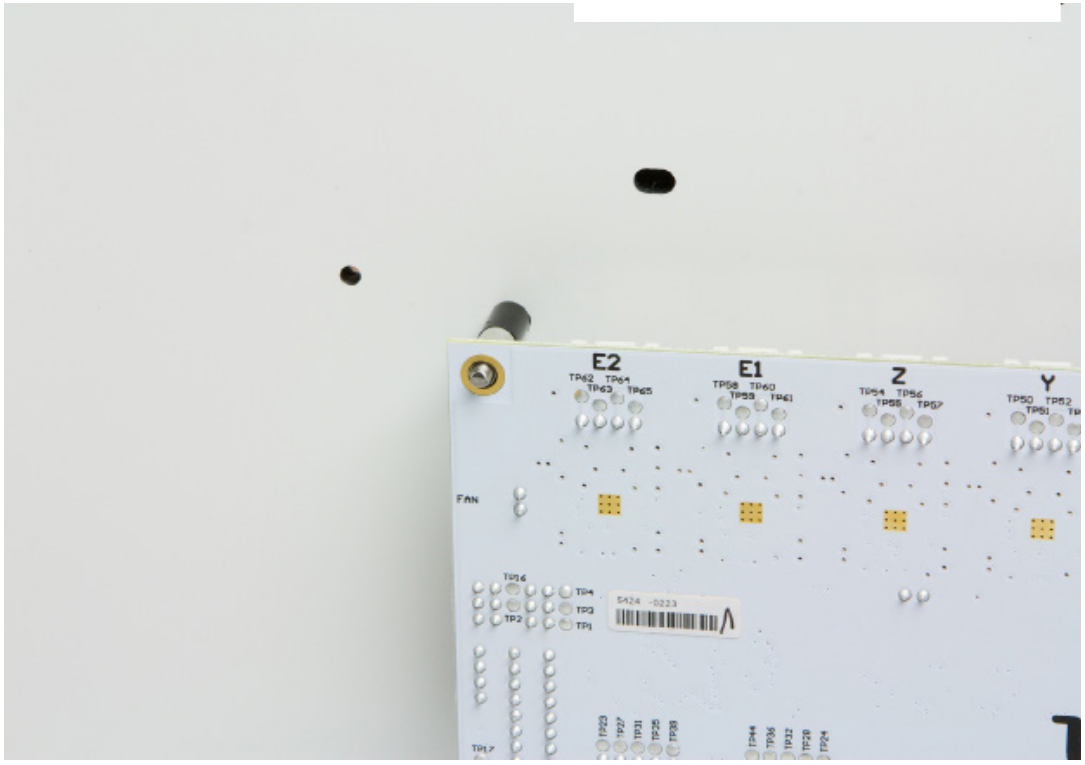


4. Check if the jumpers are attached at the SAFETY1 en SAFETY2. if not, attach them.

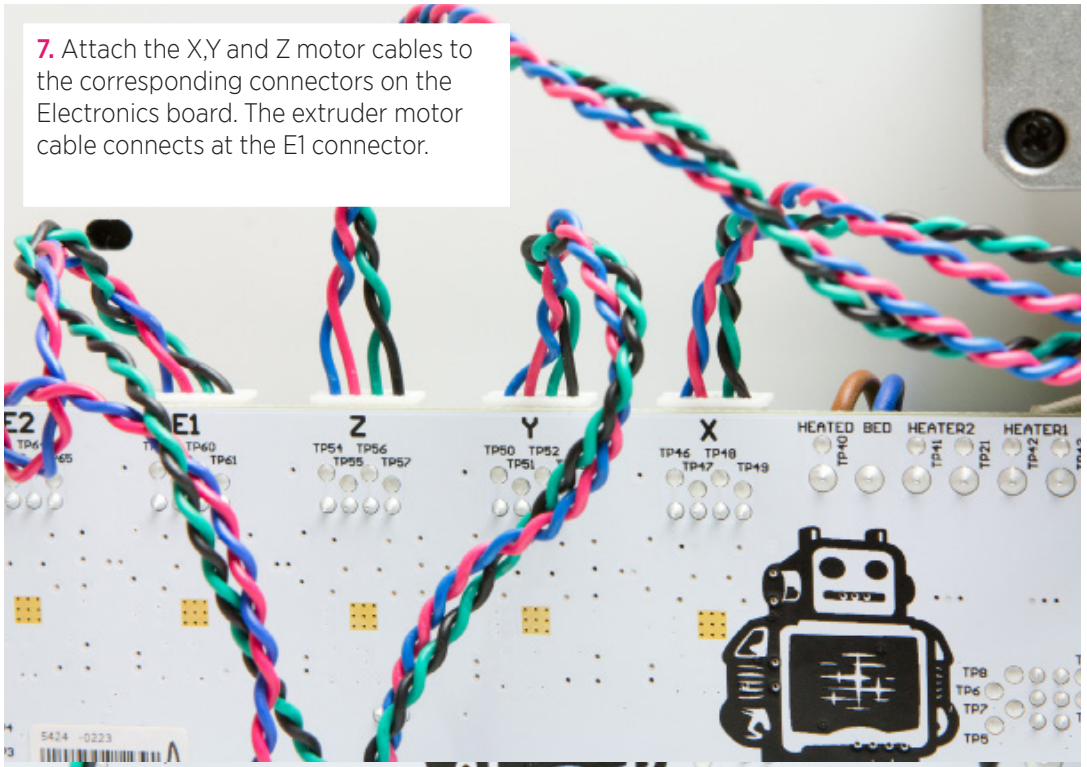


5. Now from the inside put the 4xM3x30mm screws through the bottom plate. these will be used to secure the electronics.

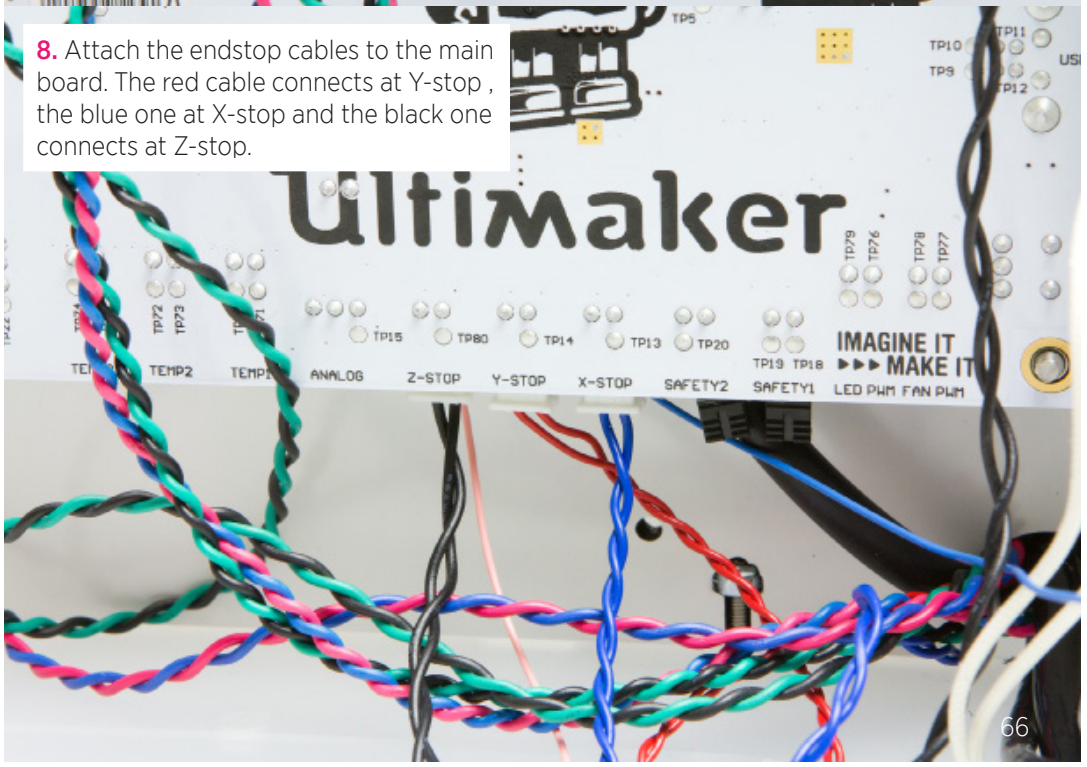
6. Het electronica Mainboard attaches to the bottom. attach the electonics with 4xM3x25mm screws.

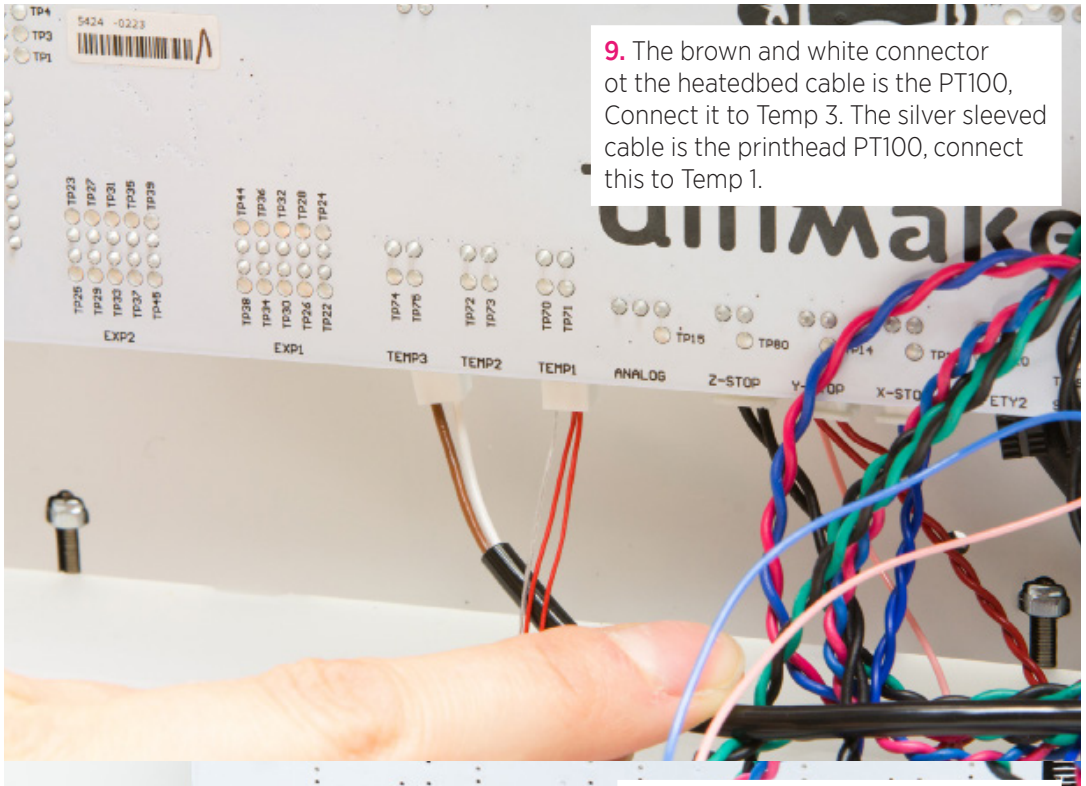


7. Attach the X,Y and Z motor cables to the corresponding connectors on the Electronics board. The extruder motor cable connects at the E1 connector.

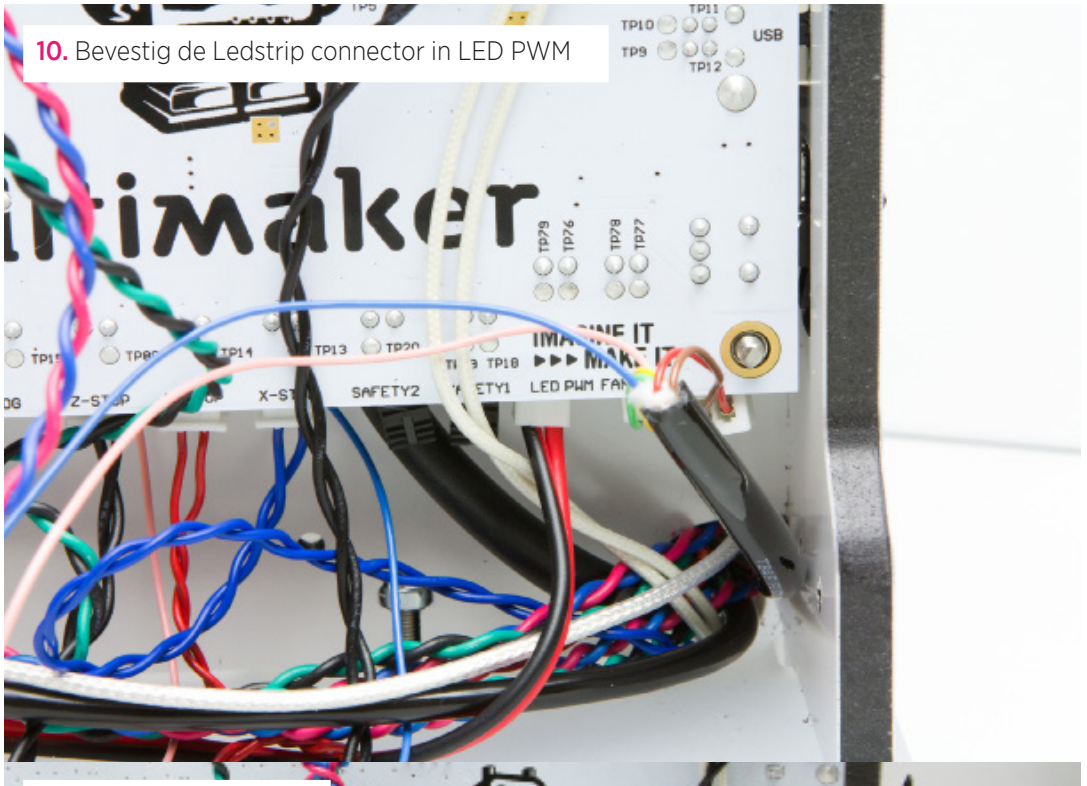


8. Attach the endstop cables to the main board. The red cable connects at Y-stop , the blue one at X-stop and the black one connects at Z-stop.

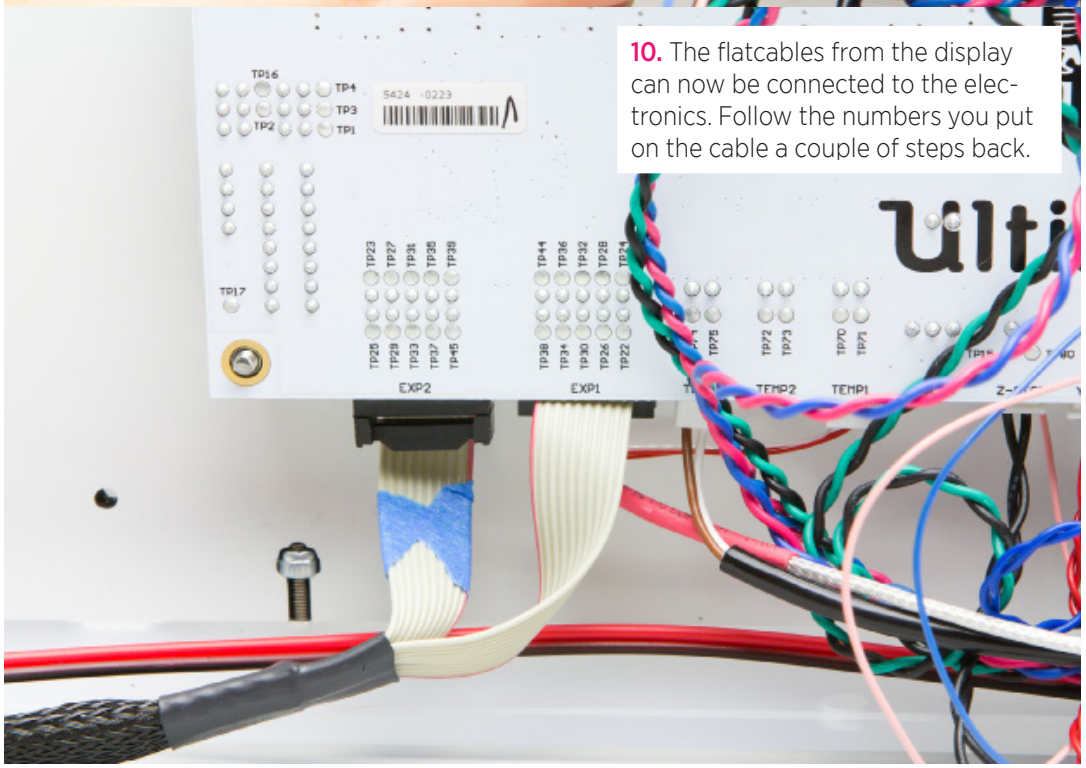




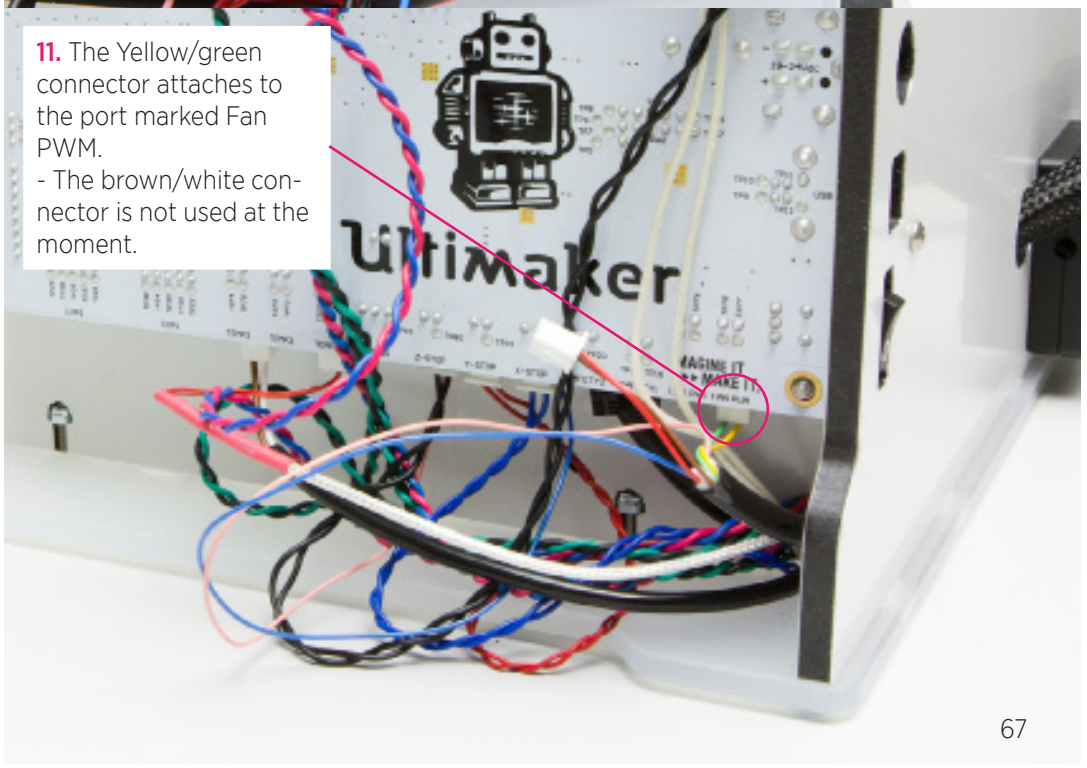
9. The brown and white connector ot the heatedbed cable is the PT100, Connect it to Temp 3. The silver sleeved cable is the printhead PT100, connect this to Temp 1.



10. Bevestig de Ledstrip connector in LED PWM



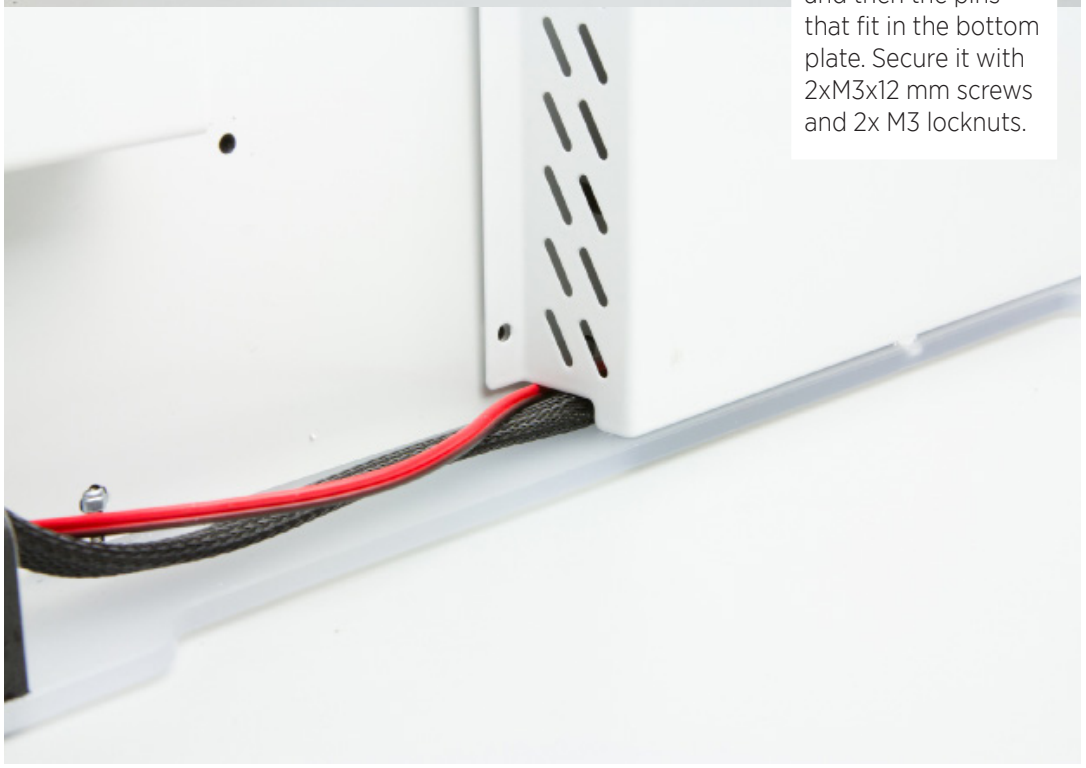
10. The flatcables from the display can now be connected to the electronics. Follow the numbers you put on the cable a couple of steps back.

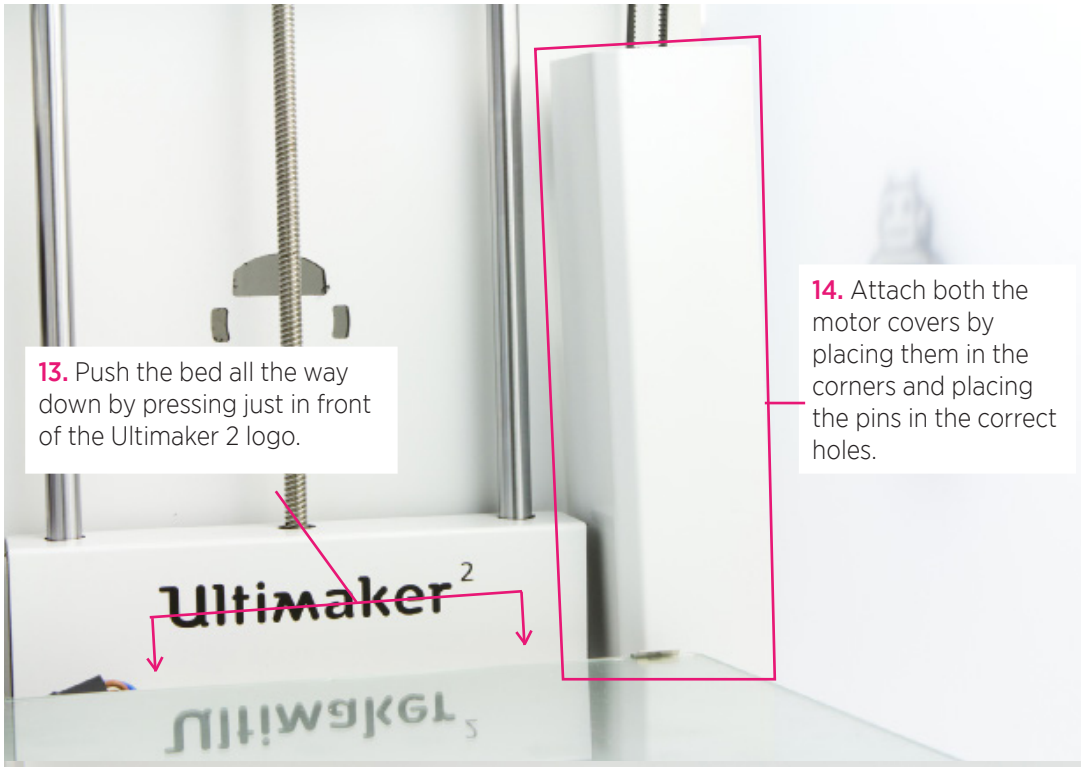


11. The Yellow/green connector attaches to the port marked Fan PWM.
- The brown/white connector is not used at the moment.

G1. Plaatsen van kappen

12. Now slide the electronics coverplate into place. start witht the pins that fit in the back plate and then the pins that fit in the bottom plate. Secure it with 2xM3x12 mm screws and 2x M3 locknuts.

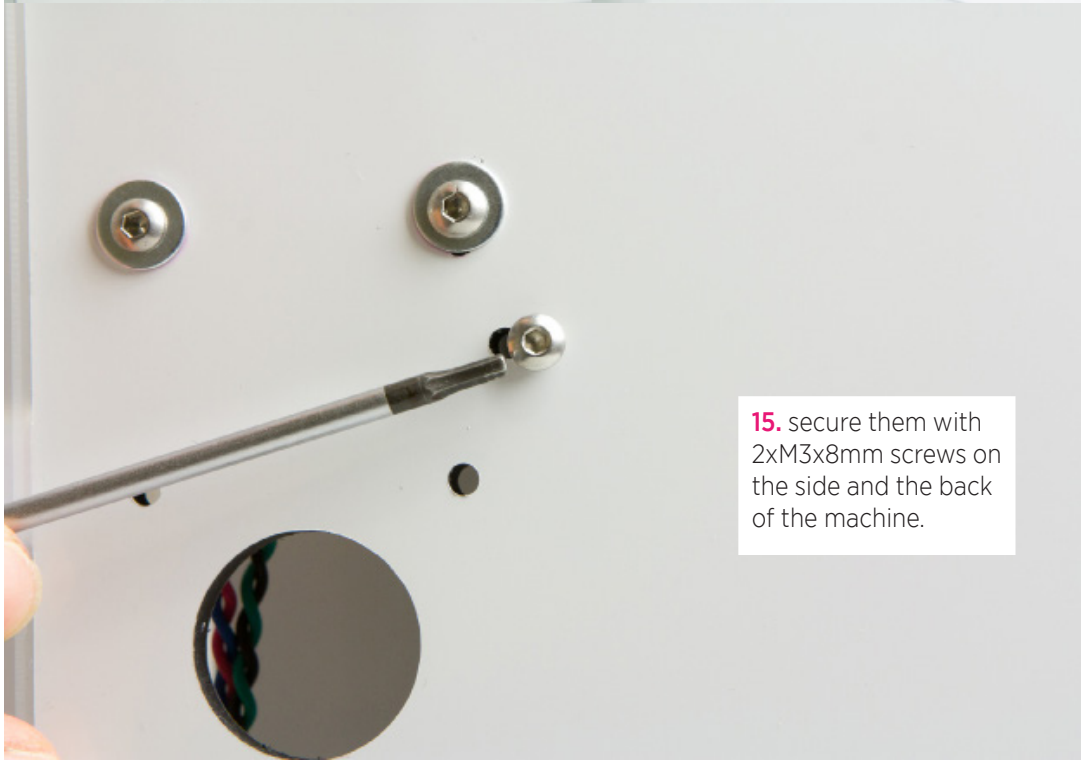




13. Push the bed all the way down by pressing just in front of the Ultimaker 2 logo.

14. Attach both the motor covers by placing them in the corners and placing the pins in the correct holes.

16. Make sure the Heated-bed cable is twisted when placing the motor covers. this is to prevent the cable from getting caught underneath the bed



15. secure them with 2xM3x8mm screws on the side and the back of the machine.