

# **Hero Me Remix 4 for DIY Direct Drive Kit September 2019**

## **Installation Guide for Base 1 with 5015 Fans**

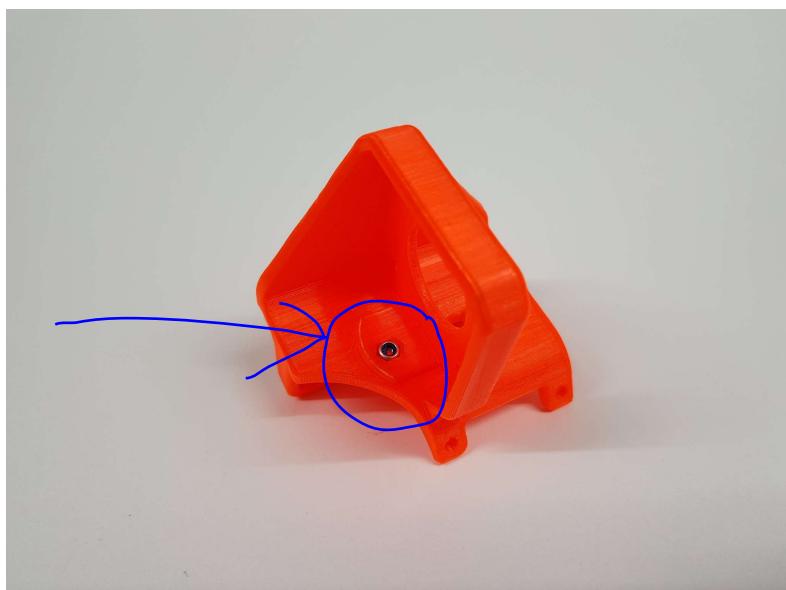
You will Need the following, Please be careful when handling all cables.  
The soldering on most budget fans can be very weak and easily broken.

1 x Extruder Stepper Motor extension cable 300mm min – 400mm long  
1 x Cable Management Extrusion\Containment  
4x M3 x 16mm Hex Bolts  
5x M3 x 20mm Hex Bolts  
2 x M3 Nylok Nuts  
3 x M3 Standard Nuts  
4 x M3 x 6mm Bolts  
4 x M3 washers or wire fan guard  
Cable Ties  
Insulation Tape  
Usual Tools including Hex Wrenches, Thin nose pliers, M3 spanner & side cutters.

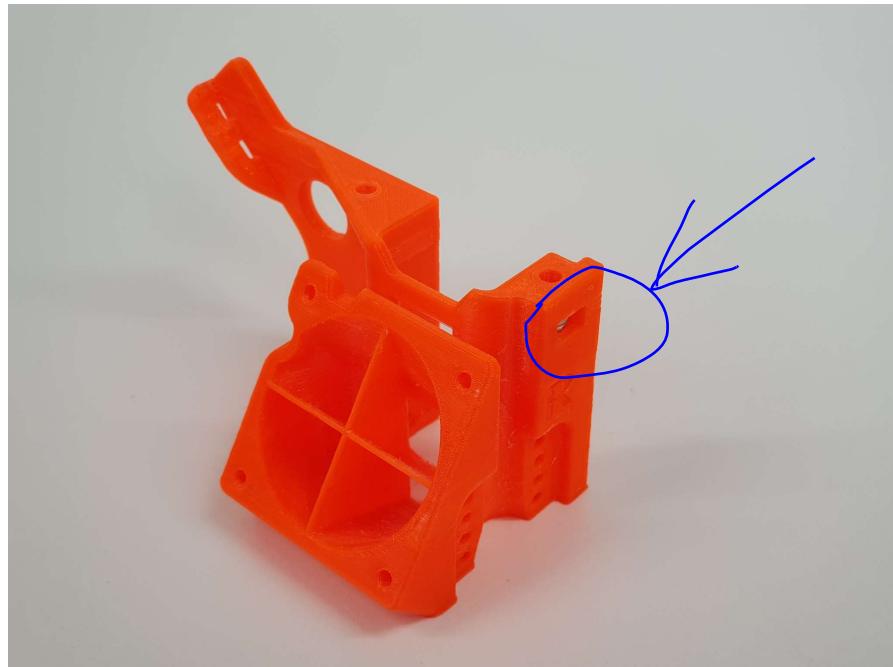
### **1. Part Preparation**

You will need to undertake some preparation with your newly printed parts prior to assembly.

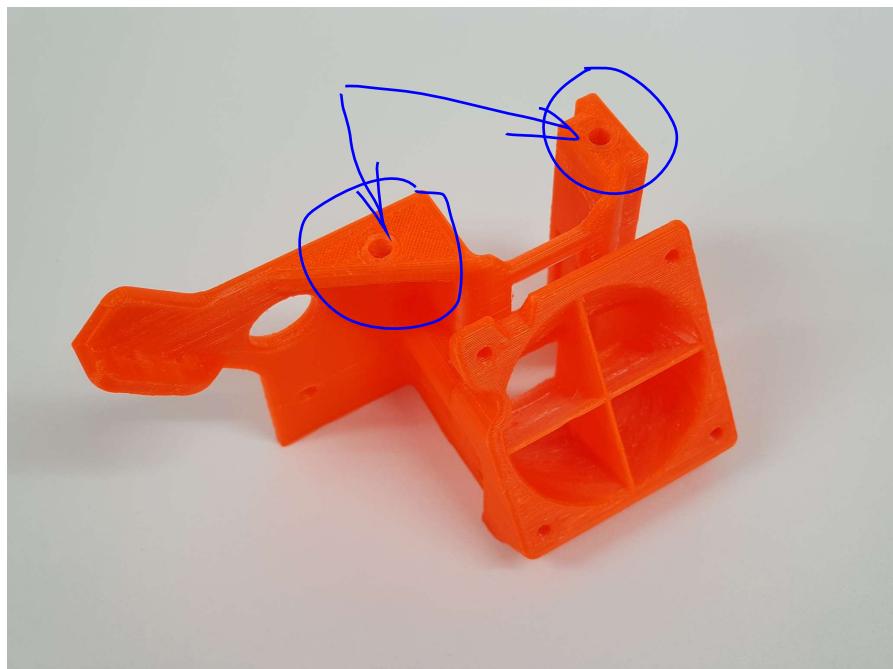
Insert 1 x M3 Nylok into Direct Drive Bracket top face. Make sure the nut is flush has the stepper motor will bottom to the surrounding pad.



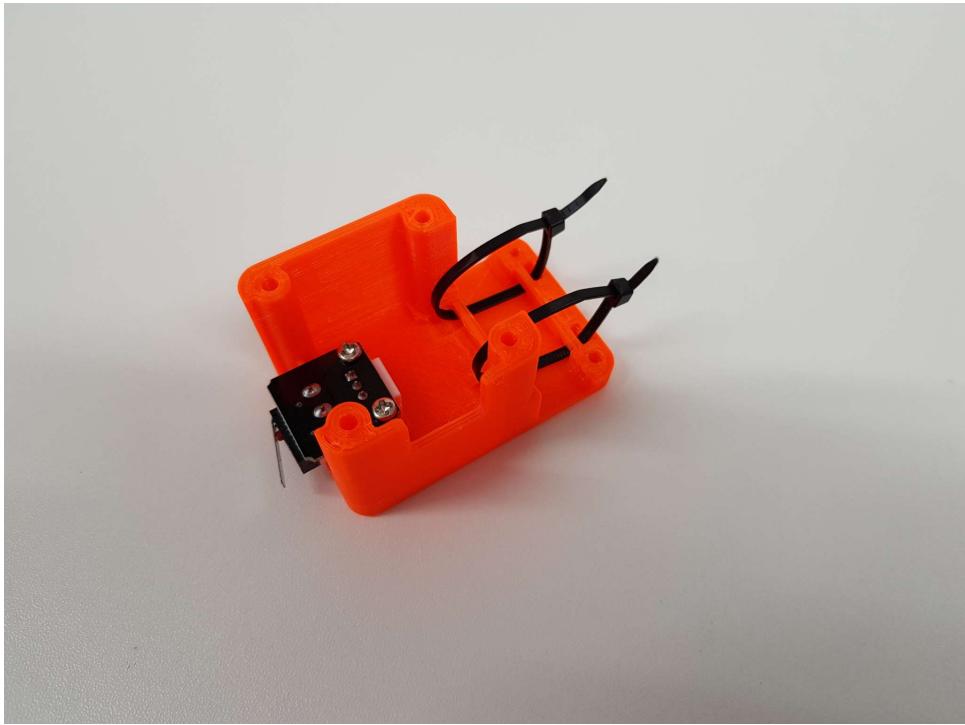
Insert 1 x M3 Nylok into the right hand slot in the Duct Base



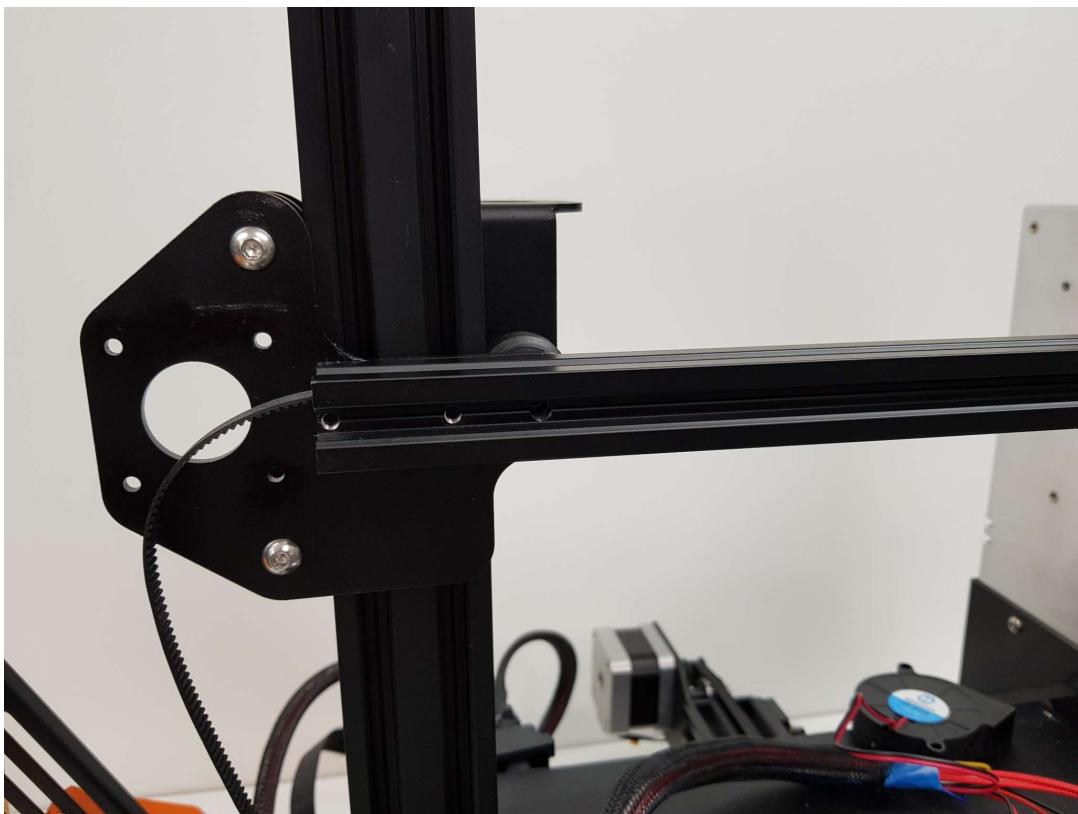
To aid bridging I have created some sacrificial layers for 2 of the holes in the top of the Duct Base. These will require cleaning out with a drill bit or hobby knife prior to assembly.



Fix existing X end stop to the new cowl and insert 2 cable ties ready for later use.



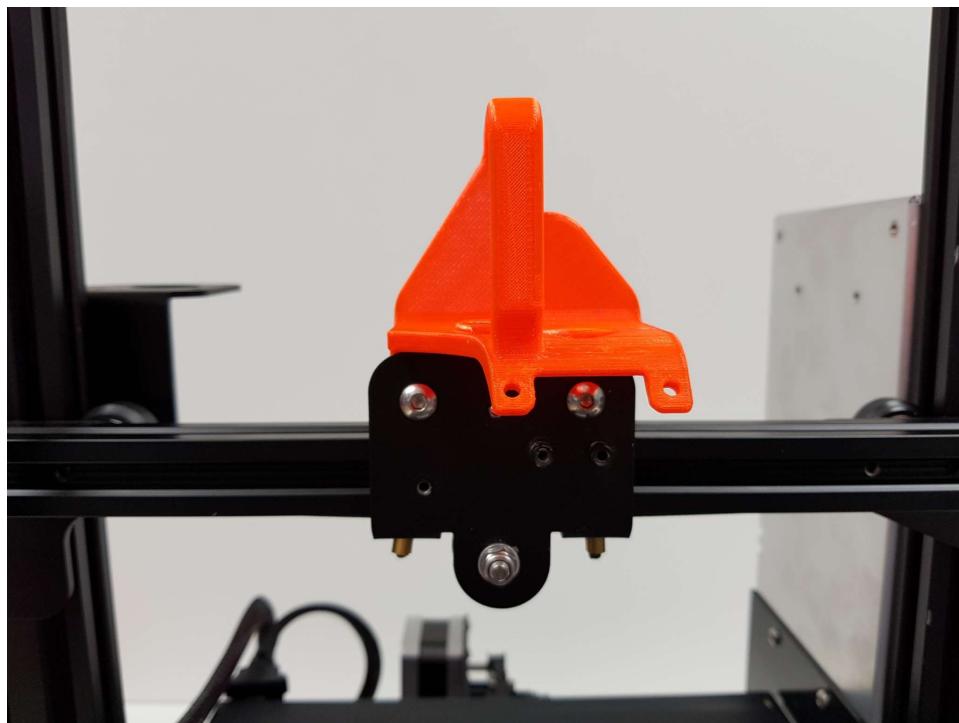
2. Remove the Extruder assembly from and the X Carriage and the X End Stop Cowl from the printer. Make sure to keep hold of the X carriage stepper motor when undoing the 4 bolts fastening the cowl to the frame.



3. Insert the existing stock 8mm wheel spacer into the printed direct drive bracket. Make sure the spacers are flush with the inner face (shown).



4. Reassemble the Extruder mounting plate with the new direct drive bracket using the stock\existing wheels\and nuts in the same configuration.

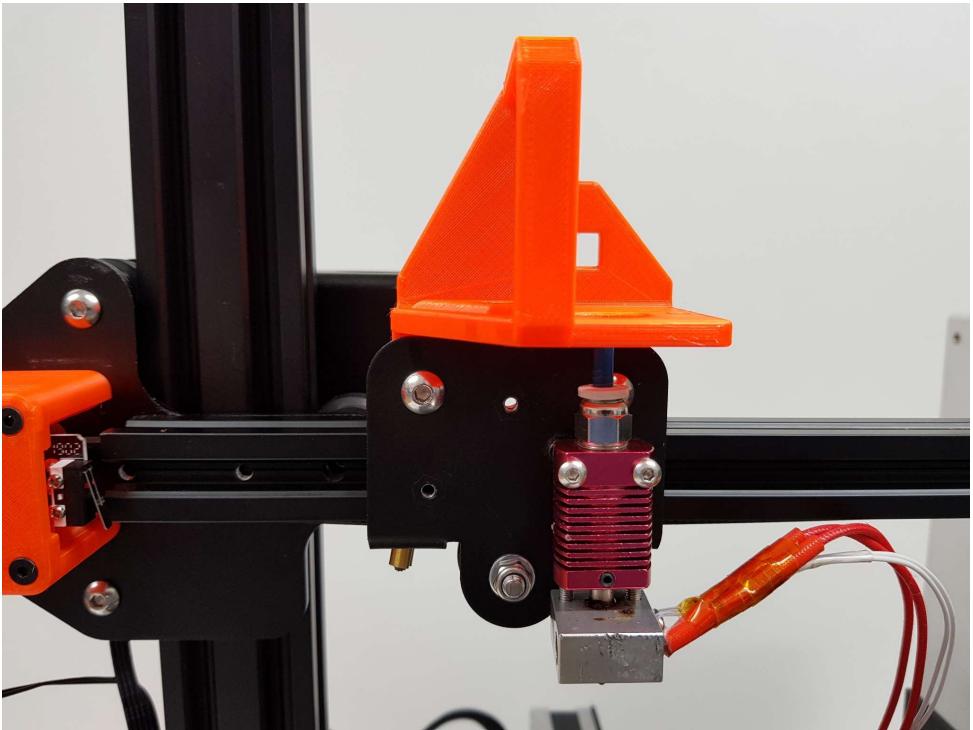


5. Install the new X stop cowl with the existing screws. Reconnect belt and stepper motor and tension the belt.

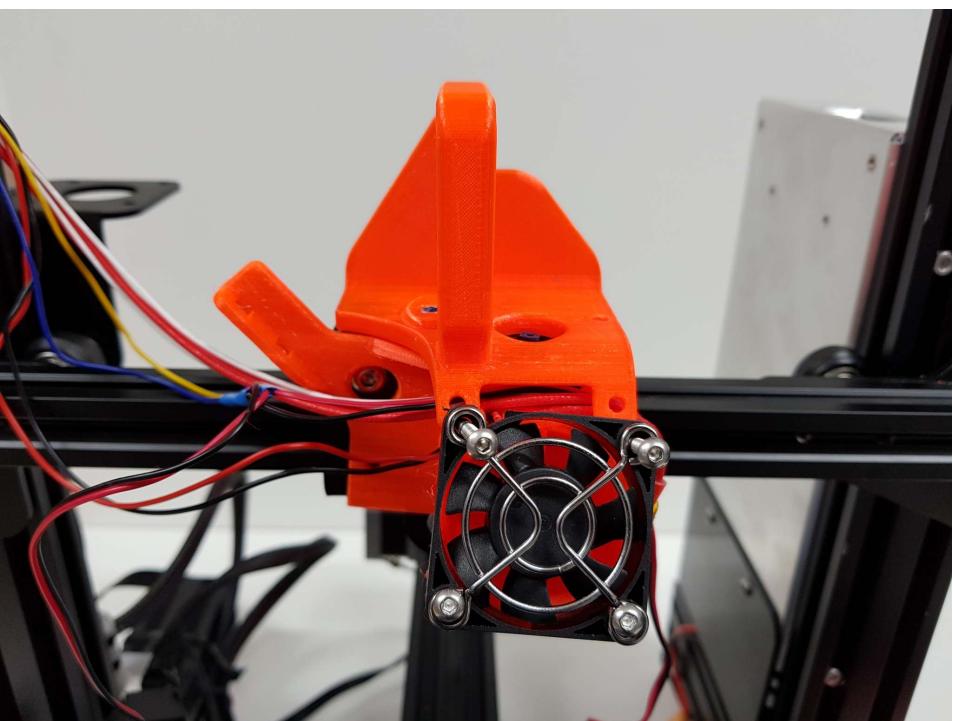


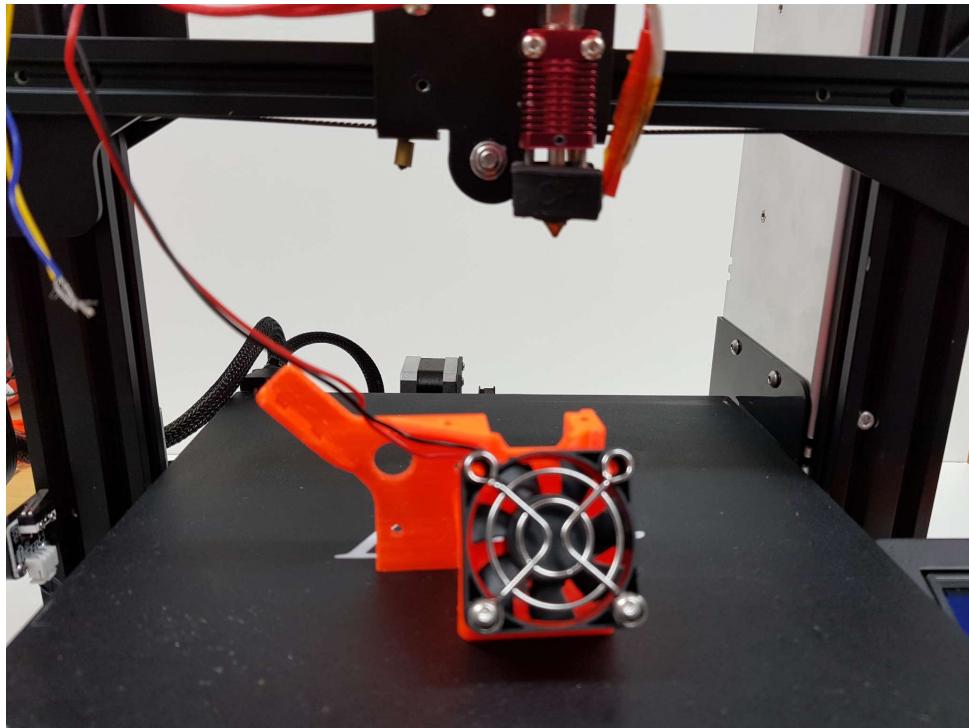
6. Attach the Hot End to the Mounting Plate with the stock screws. Please note if you are installing to a CR10S you may need to space the hot end off with 2 x 1mm washers to align the hot end nozzle with the extruder nozzle. I noticed that on my CR10S the mounting bosses for the hot end are 1mm less than the Ender 3 counterparts. You will also need a small length of Bowden Tubing to connect the hot end to the extruder. I found that the optimum length should have the tube protruding 11mm from the hot end nozzle.



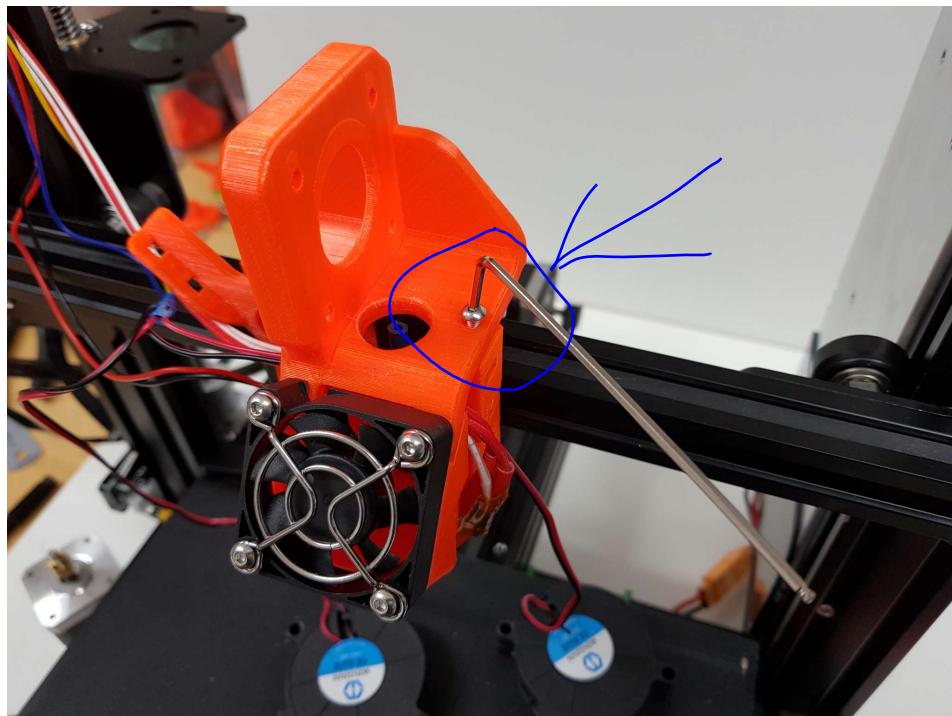


7. Bring the duct base to the top bracket making sure the heater and thermistor cables are wrapped to the left under the fan top fixing tabs. The seating of the this base does need some gentle manoeuvring but will fit in place eventually. The base 2 version does not have the additional top fixing tabs and therefore slightly easier to install. It can be useful to loosely fix the 2 lower M3 x 16mm + washer or fan guard prior to positioning base. I would suggest using washers to allow a stronger fix. I found a basic wire fan guard to do the job well.

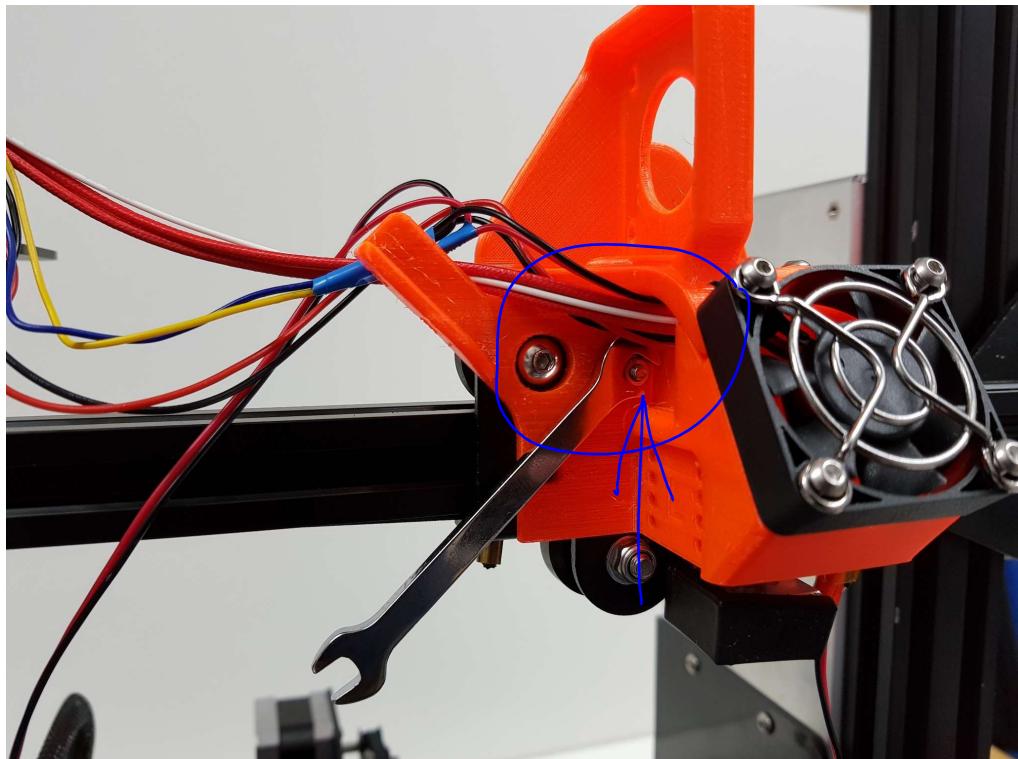
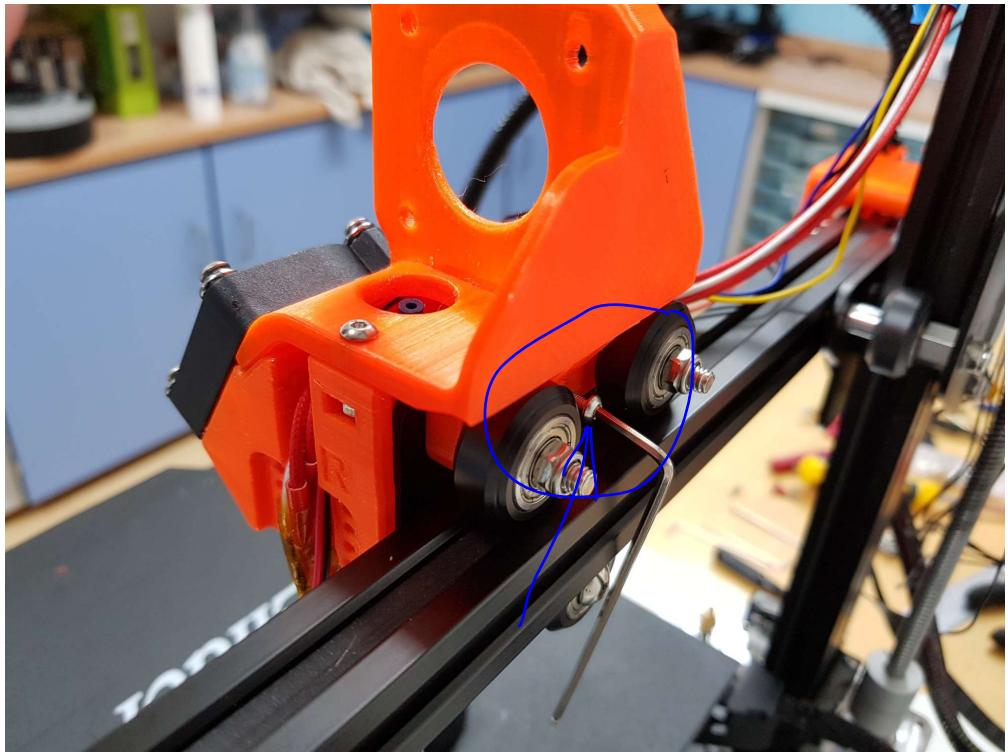




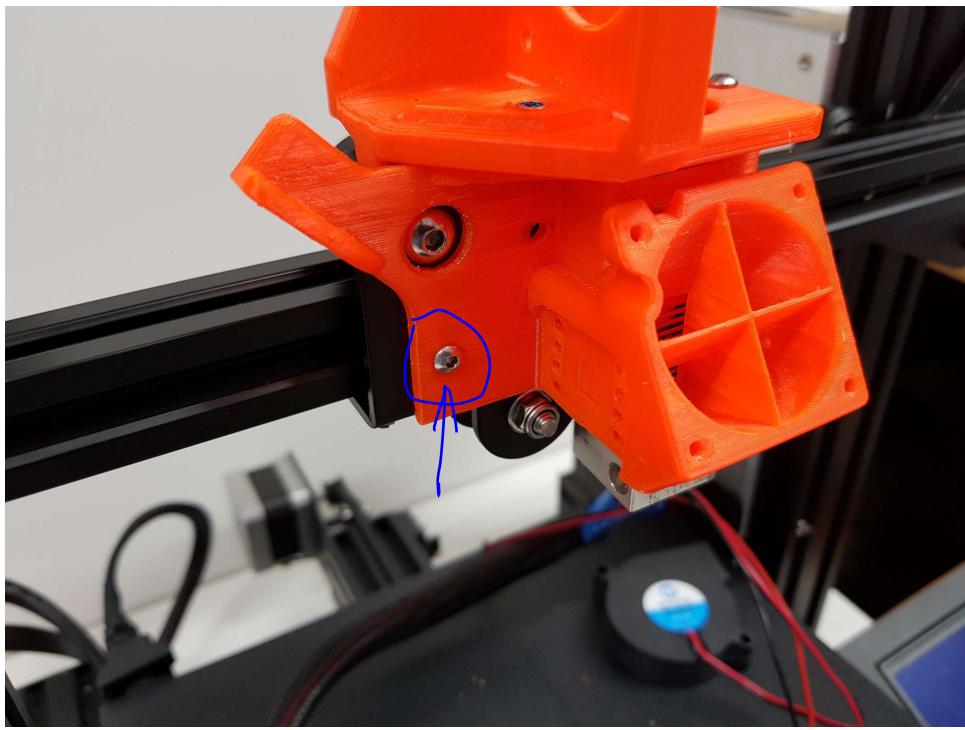
8. Insert a M3 x 16 bolt into the hole right of the fan base and fix to the M3 Nylok previously inserted into the Base unit. Screw Tight. Insert 2 x M3 x 20 mm bolts into the 2 top fan tabs and tighten all fan bolts.



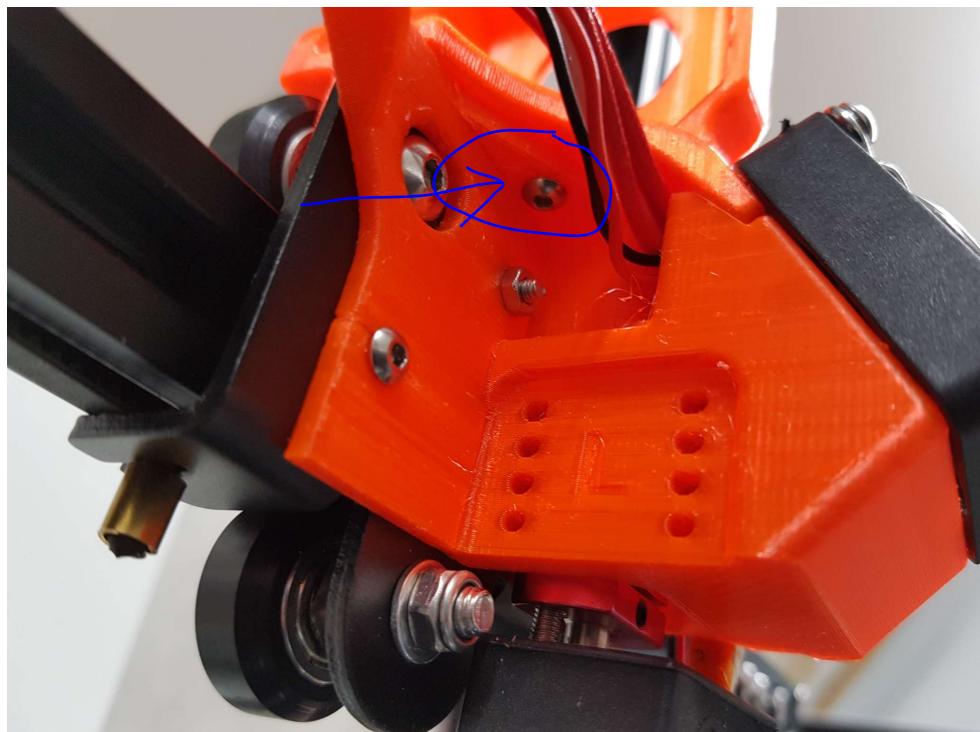
9. Fix a M3 x 16 through the rear of the mounting plate into the M3 boss of the mounting plate. For good measure you can also fix the bolt from the other side of the assembly with a M3 nut.



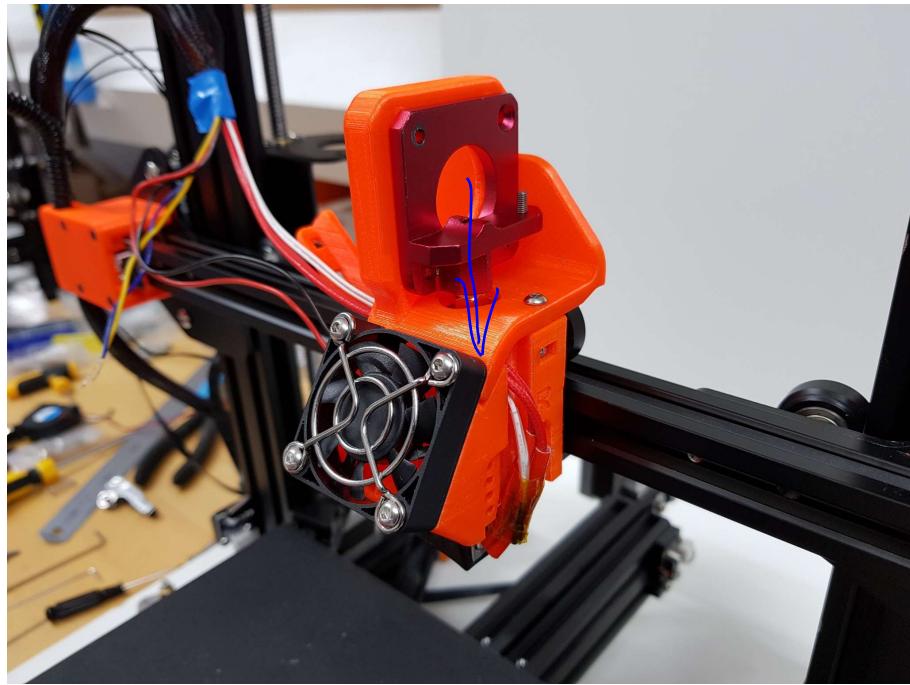
10.. Fix one of the stock M3 x 6 Bolts through the base into the existing mounting bracket boss.



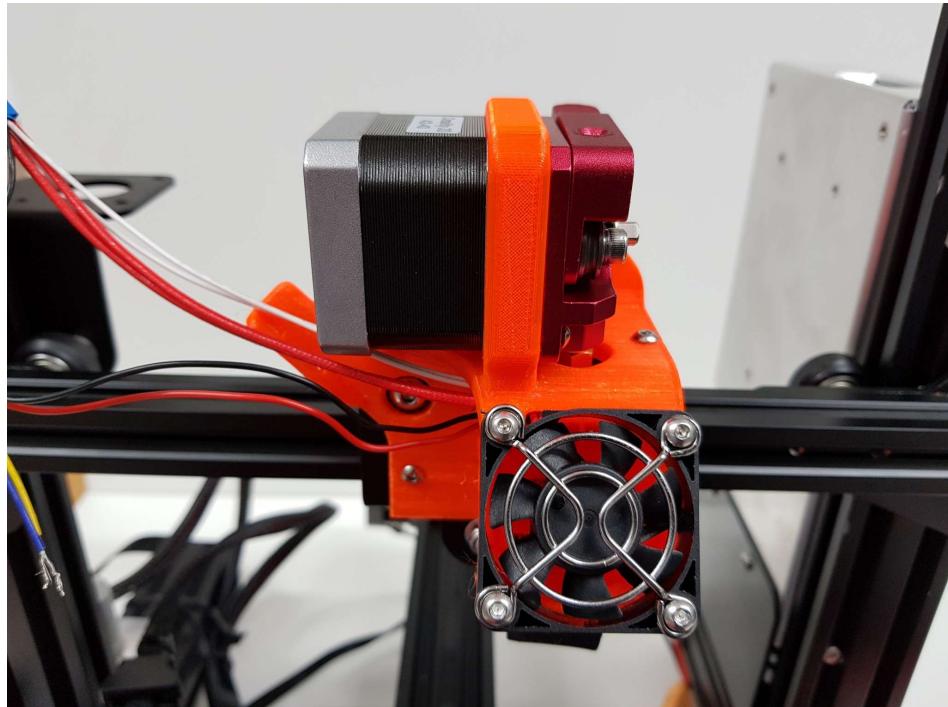
11. On the underside top flange of the Duct Base screw a M3 x 10 bolt through the recently cleared hole into the Nylok in the Direct Drive Mounting Bracket.



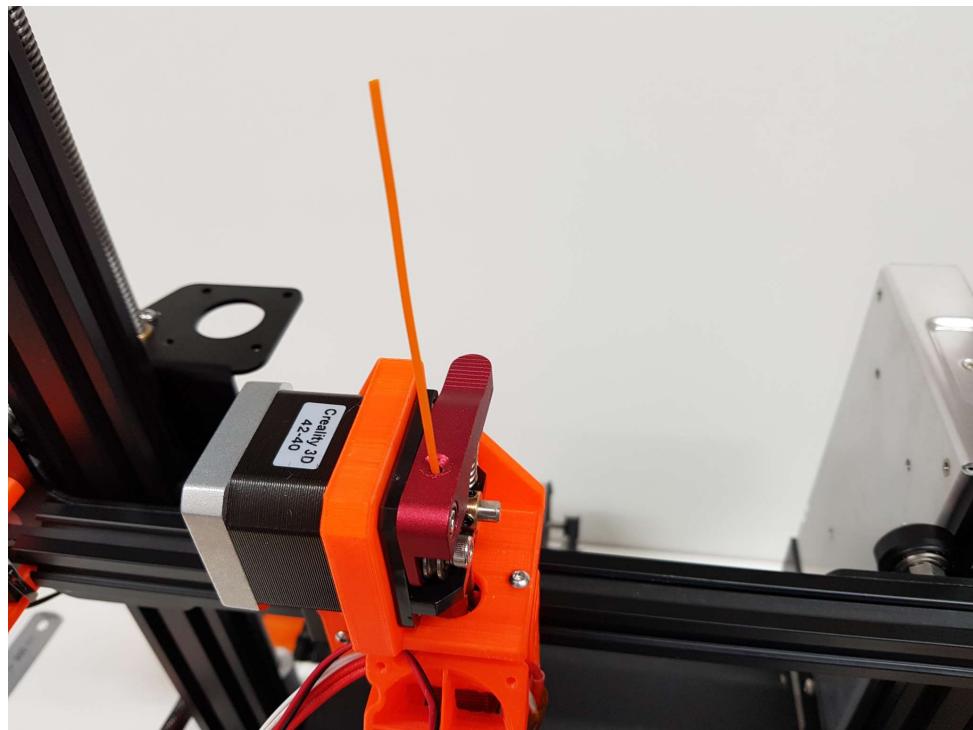
12. Slide the bowden tube gland on the extruder head onto the short length of tube protruding from the hot end.



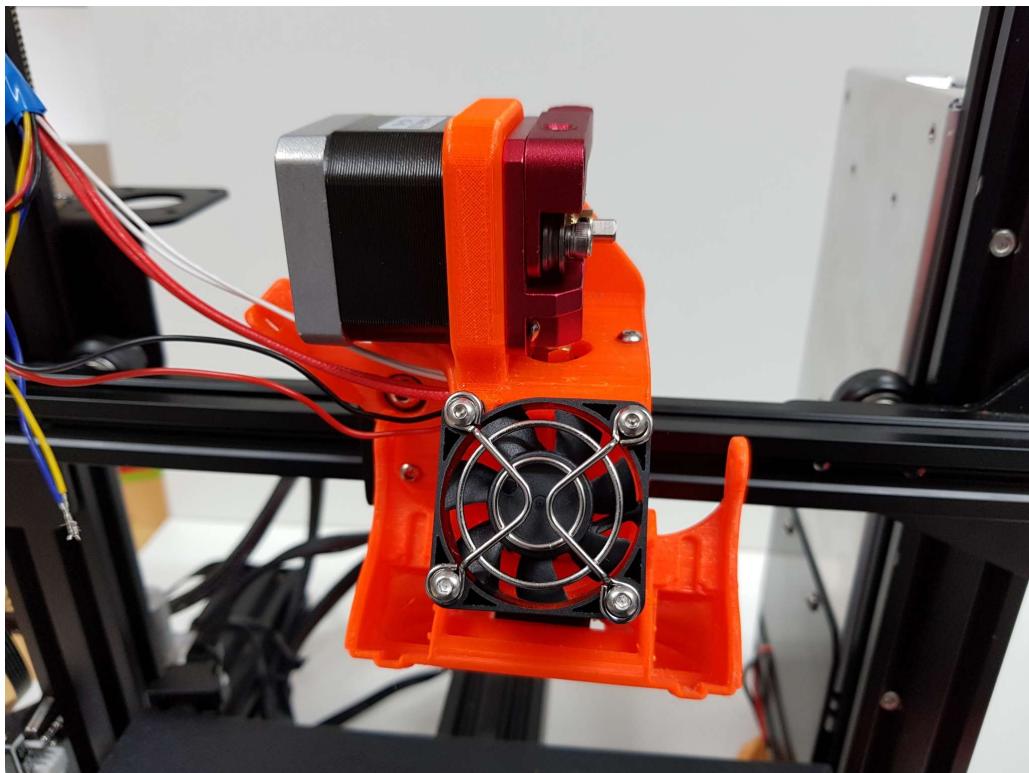
13. Fix the Extruder Stepper Motor through the bracket to the head assembly using the existing\stock bolts. The motor can be mounted with the socket on either side. I prefer to mount with the socket to the back for visual neatness. If mounted to the back you need to make sure the cables are tidy so not to snag on the left hand upright.



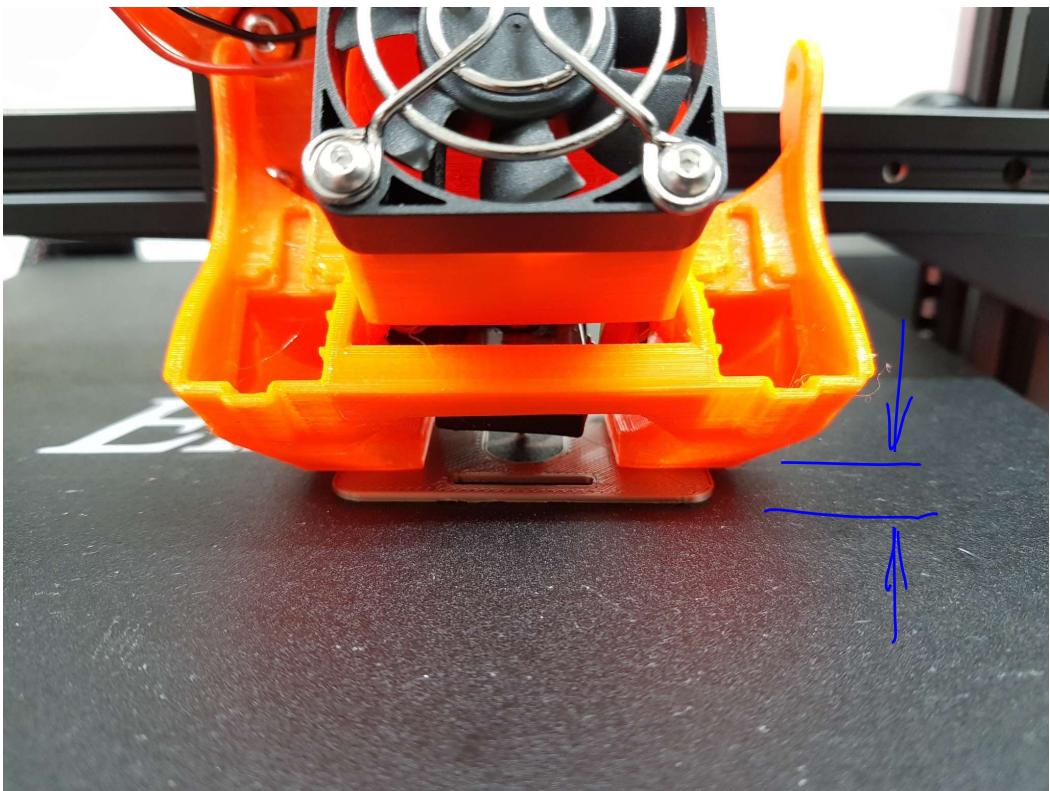
14. Check with a short length of filament that the tubes are inline and the filament is easily inserted.



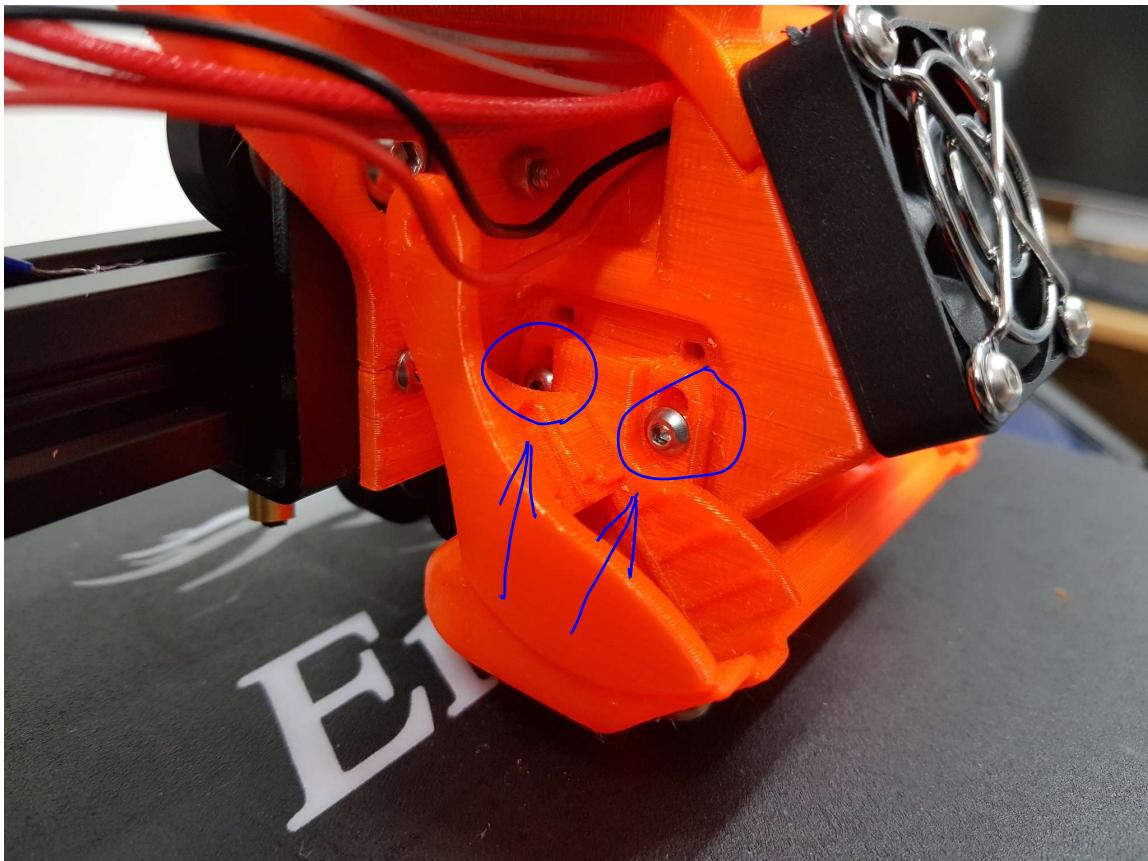
15. Slide the fan duct on to the duct base. I have reverted to a bridged version on this thing has there was some noise vibration on my early tests which bridging the duct seemed to cure. I have also uploaded the standard individual LH & RH ducts.

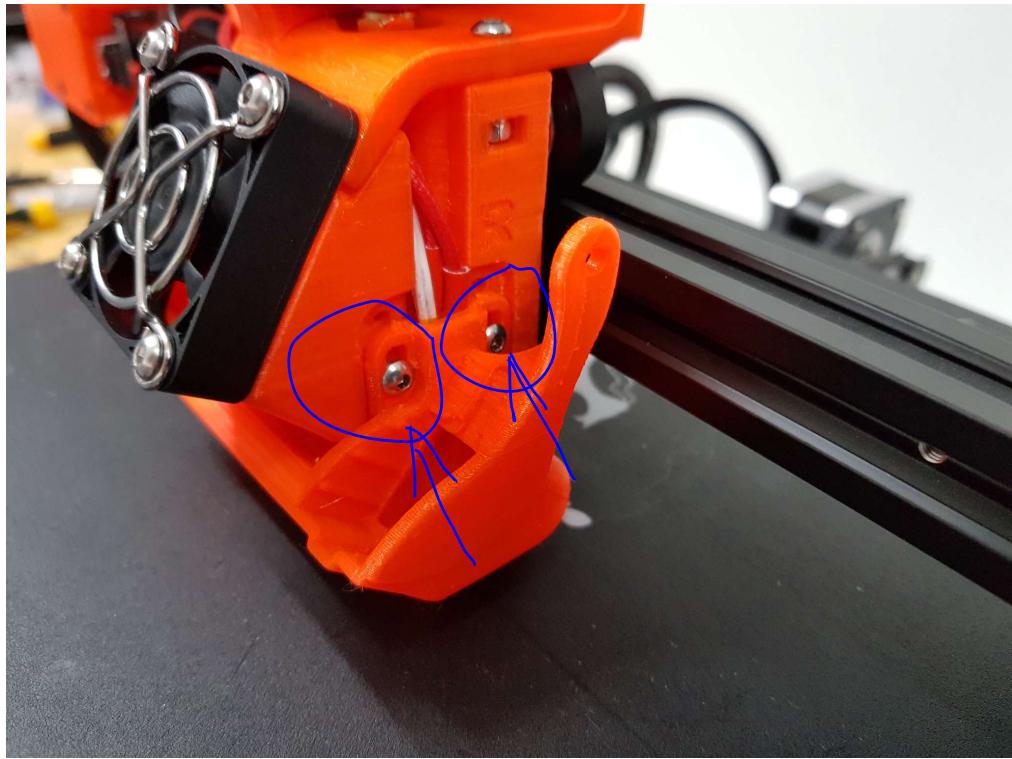


16. Home the Z axis manually and use one of the uploaded helpers to level the duct height relative to the nozzle height.

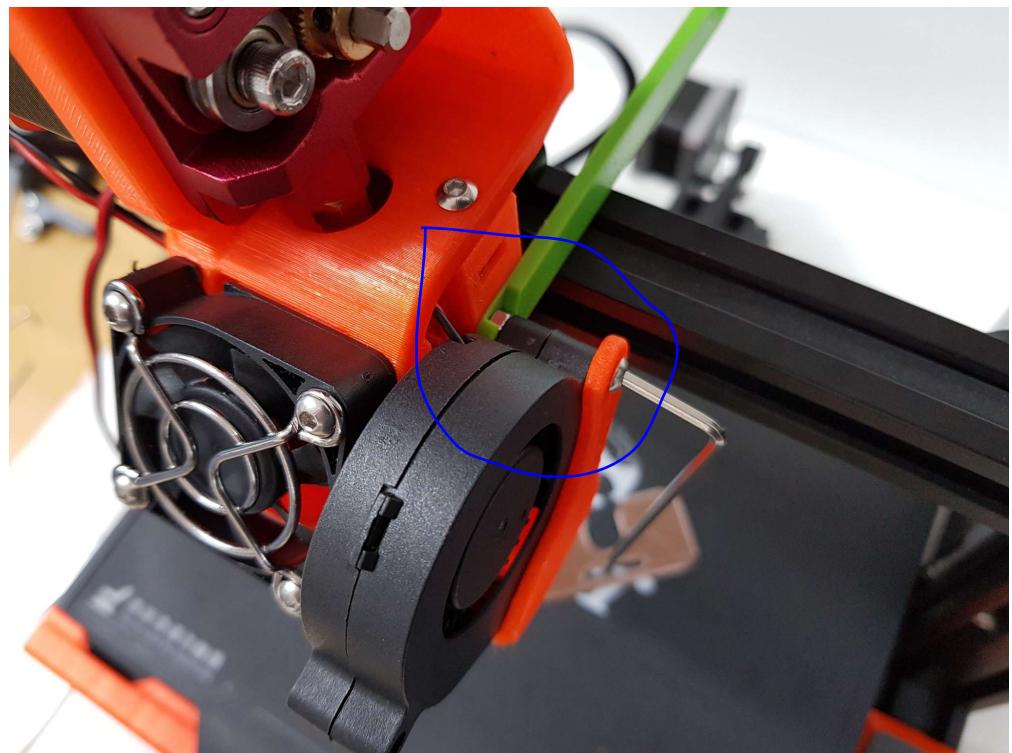


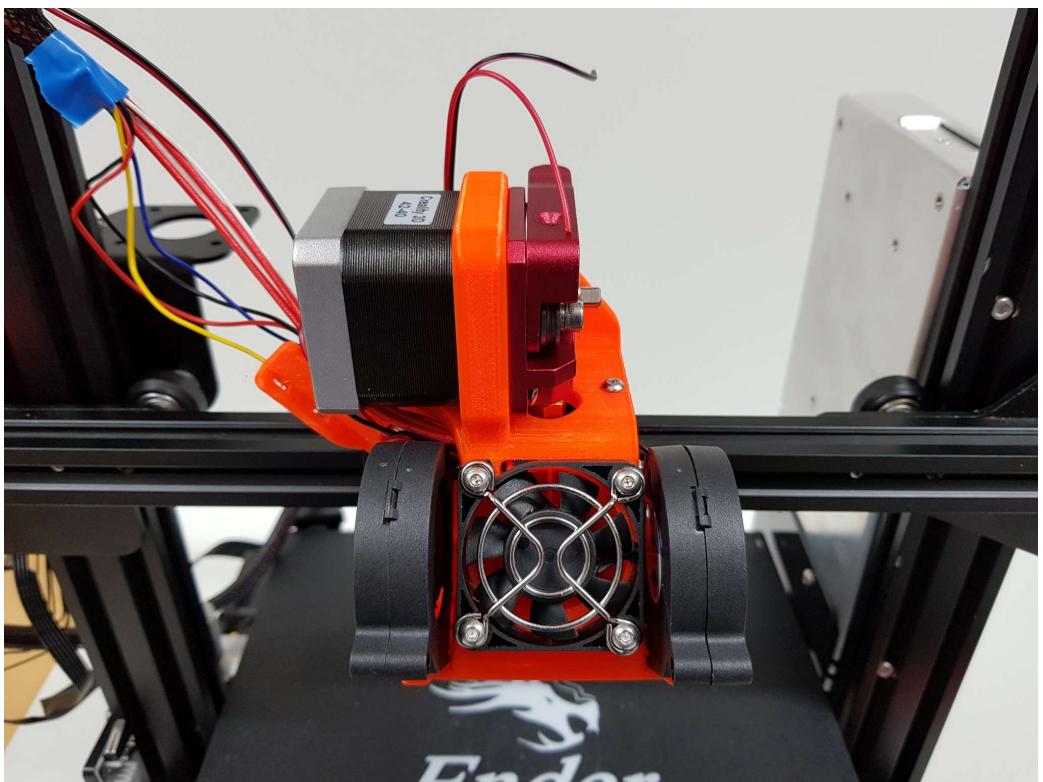
17. Fix the duct to the Duct Base with 2 x M3 x 6mm bolts on either side of the duct.



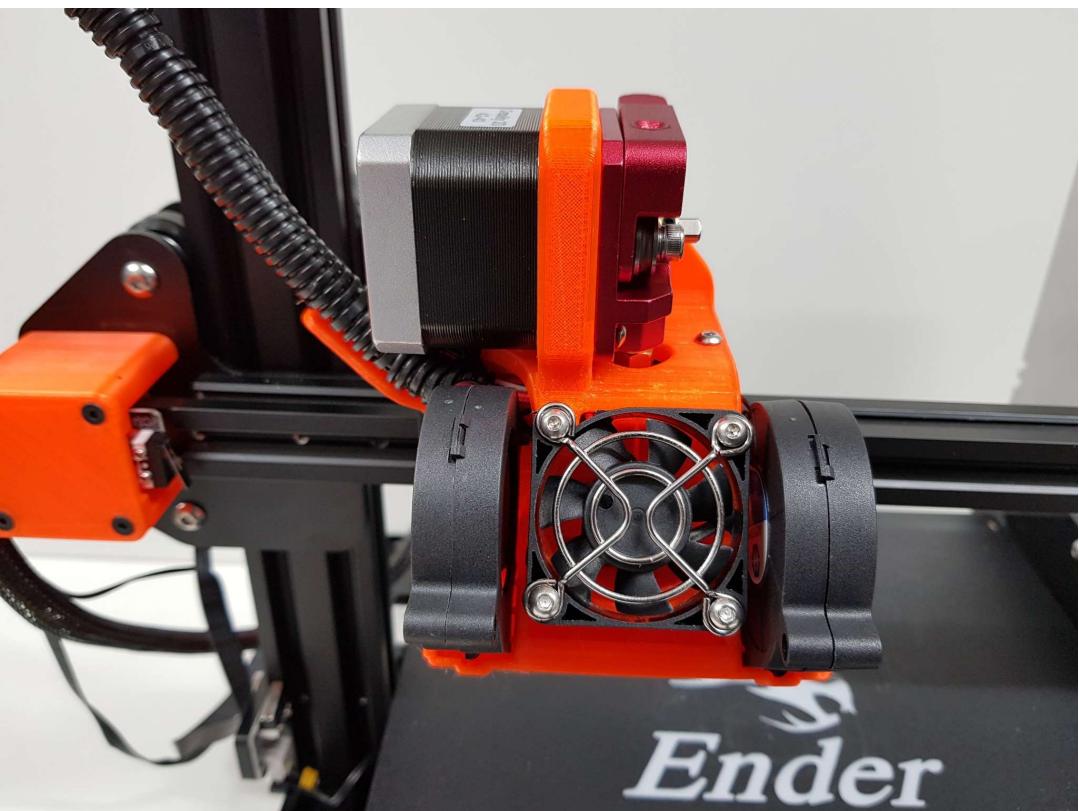


18. Fix both ducts into place using 2 x M3 x 20mm bolts and 2 x M3 standard nuts. This can be quite fiddly particularly on the left hand side but is doable. Use the uploaded nut holder to hold the nut in position when tightening the bolts. Note, fix the right hand side fan first and make sure you have threaded the cable through the cable management channel in the duct base before fixing the left hand fan.

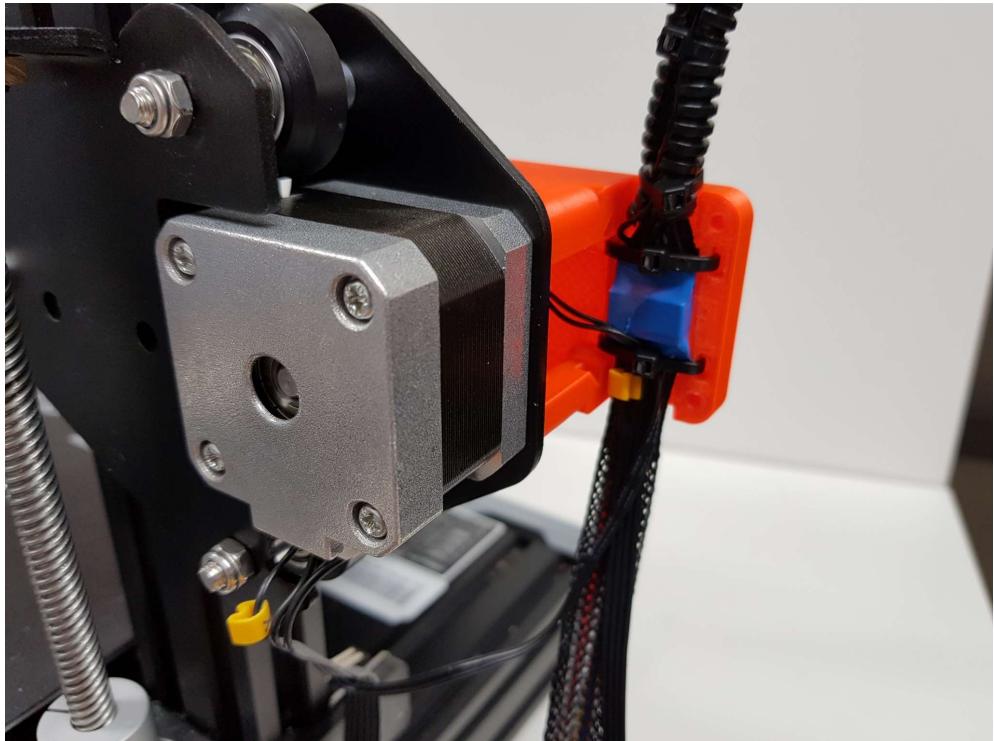




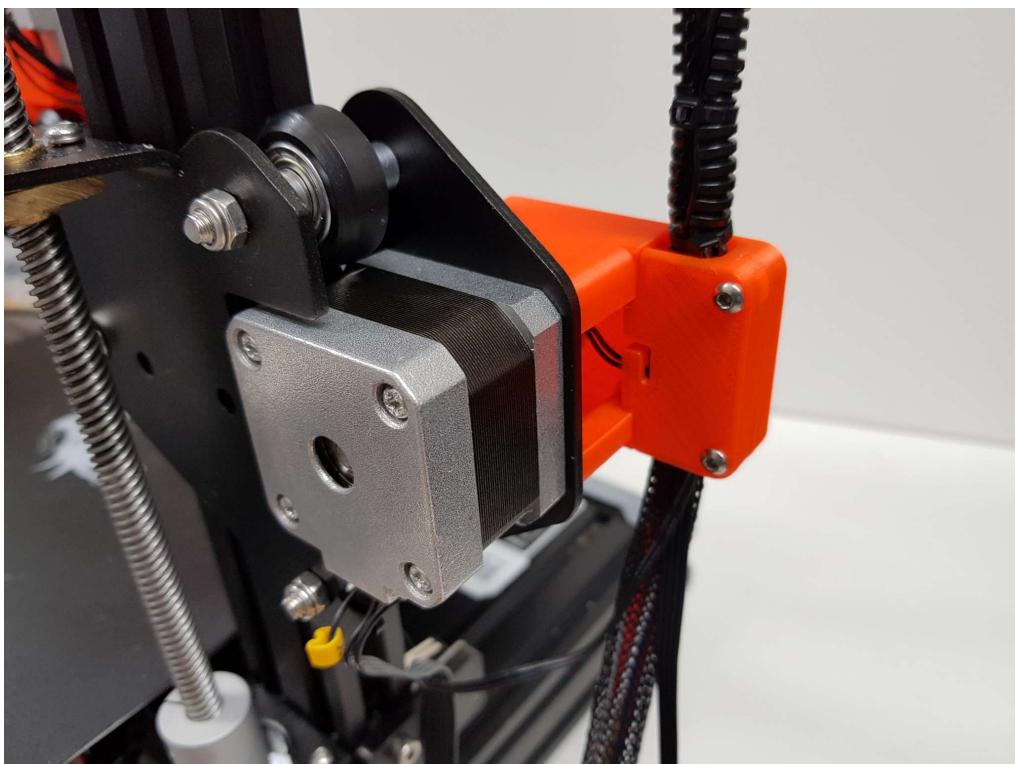
19. Spend some time carefully tidying the cables and if available use some form of cable tidy to contain the existing wires and the stepper motor extension cable. Alternatively a series of cable ties will suffice.



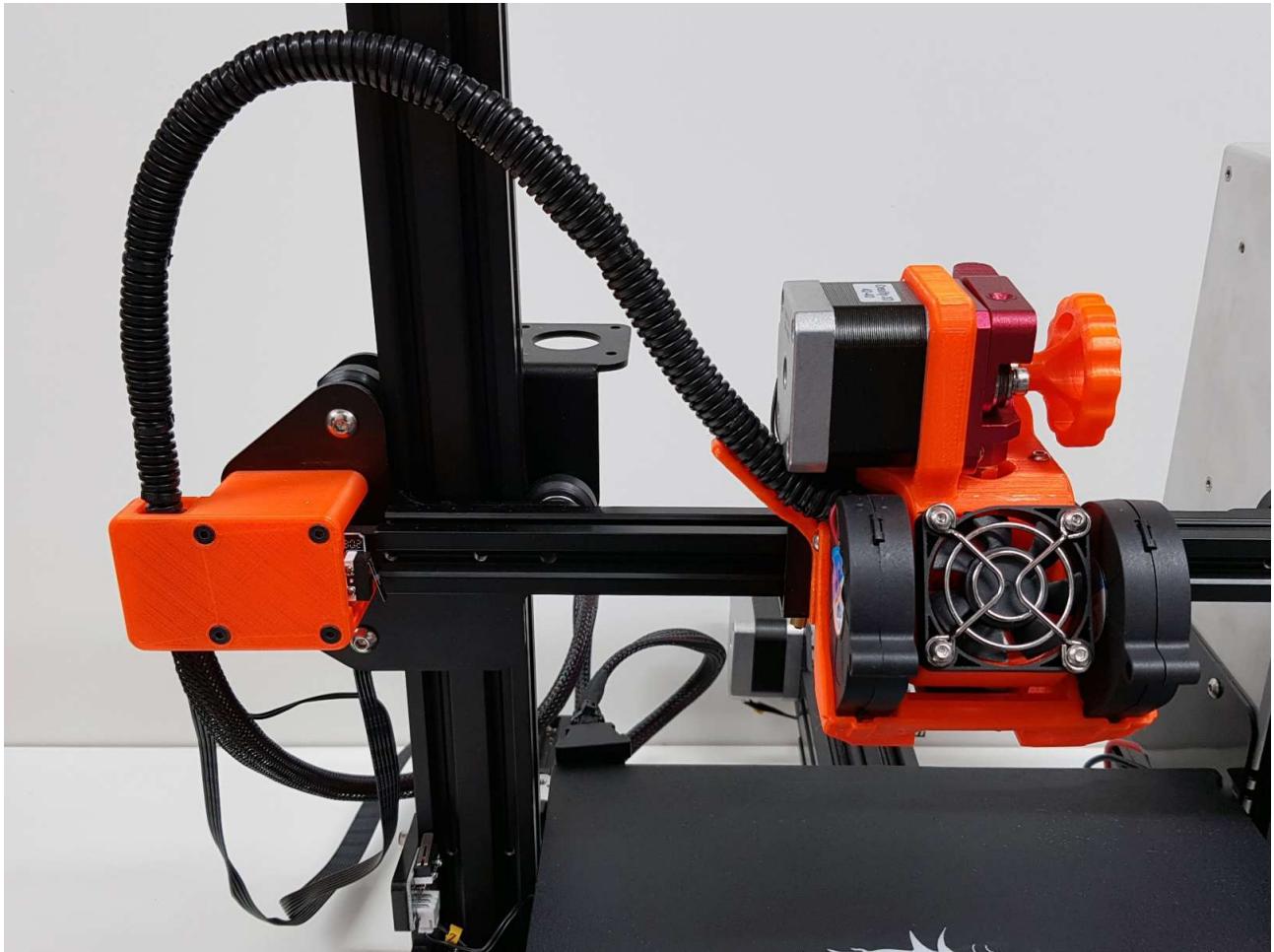
20. Connect the stepper motor extension cable to the existing lead and cable tie to the X stop cowl junction box as per image below. Note although cabled tied it is worth fastening the extension socket with some insulation tape as well. I have found out of experience that the continual movement of the cable can work the extension jack free over time.



21. Fix lid to cowl junction box for a tidy finish to the cables.



## 22. Complete!



### Notes:

1. I have also uploaded a base & bracket 2 version which assembles in a very similar way but does not include the fan fixing tabs, so slightly less tidy but slightly easier to assemble.
2. Print Quality – Although my test prints so far have been quite good (due to the side mounted design the results are better IMHO than other direct drive upgrade kits I have previously purchased), the increased weight of the direct drive assembly does cause some minor artefacts to the surface quality in comparison to the alternative Bowden equivalent. I have tested with the stock fan arrangement and even braced the printer to the wall but additional surface noise is still evident. Therefore to summarise this is an ideal and inexpensive option for someone who wants to try direct drive printing or to print alternative materials, print faster but do not expect higher print quality results than an existing Bowden set up.

Apologies in advance for any typos or grammatical errors in this document.

Boothy 25\09\19