

rc3Dprint



PRINTING AND ASSEMBLY MANUAL



THANK YOU

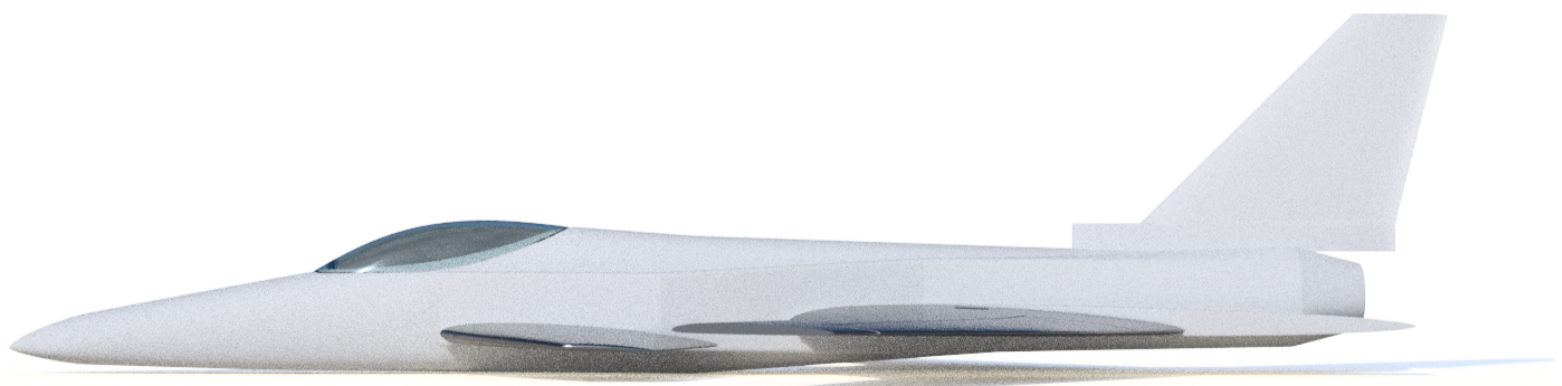
Thank you for purchasing the X-29. These models take many hours of work to make available to you so please don't share the STL files with others. Send them to www.rc3print.com so they can purchase them at a reasonable price. This enables us to keep making improvements and bring you new aircraft.

This document aims to help you print and assemble your aircraft. Our designs are made to be simple builds. That being said 3D printers often have many differences so you may need to tweak settings to get the best results.

Included in this document you will find suggested Cura settings and layouts for each part and assembly instructions. Many of the components in the design are *solid bodies*, this has some advantages over hollow bodies in that you can adjust some settings such as wall thickness, infill percentage, etc. As such we recommend using Cura to slice the files. The walls of these solid bodies are single line 0.4mm thickness to reduce weight with parts having an inside and outside wall for strength. This model is designed to be printed in a low density foaming filament like LW-PLA.

As you are printing and assembling the model yourself we take no liability for damage or loss resulting from your use of these files. Please fly responsibly and follow all local laws.

Share your flights on instagram and tag @rc3dprint for discount codes on future orders.



PARTS LIST

REQUIRED

64mm, 70mm or 80mm EDF 4S(min) LiPo and a suitable ESC

4 - Channel radio kit.

3 x 9g servos

Pultruded Carbon Tubes:

1m with 8mm Outside Diameter

1m with 4mm Outside Diameter

2mm wire for landing gear.

Magnets (see [‘What Do I Need Section?’](#) on website for a link)

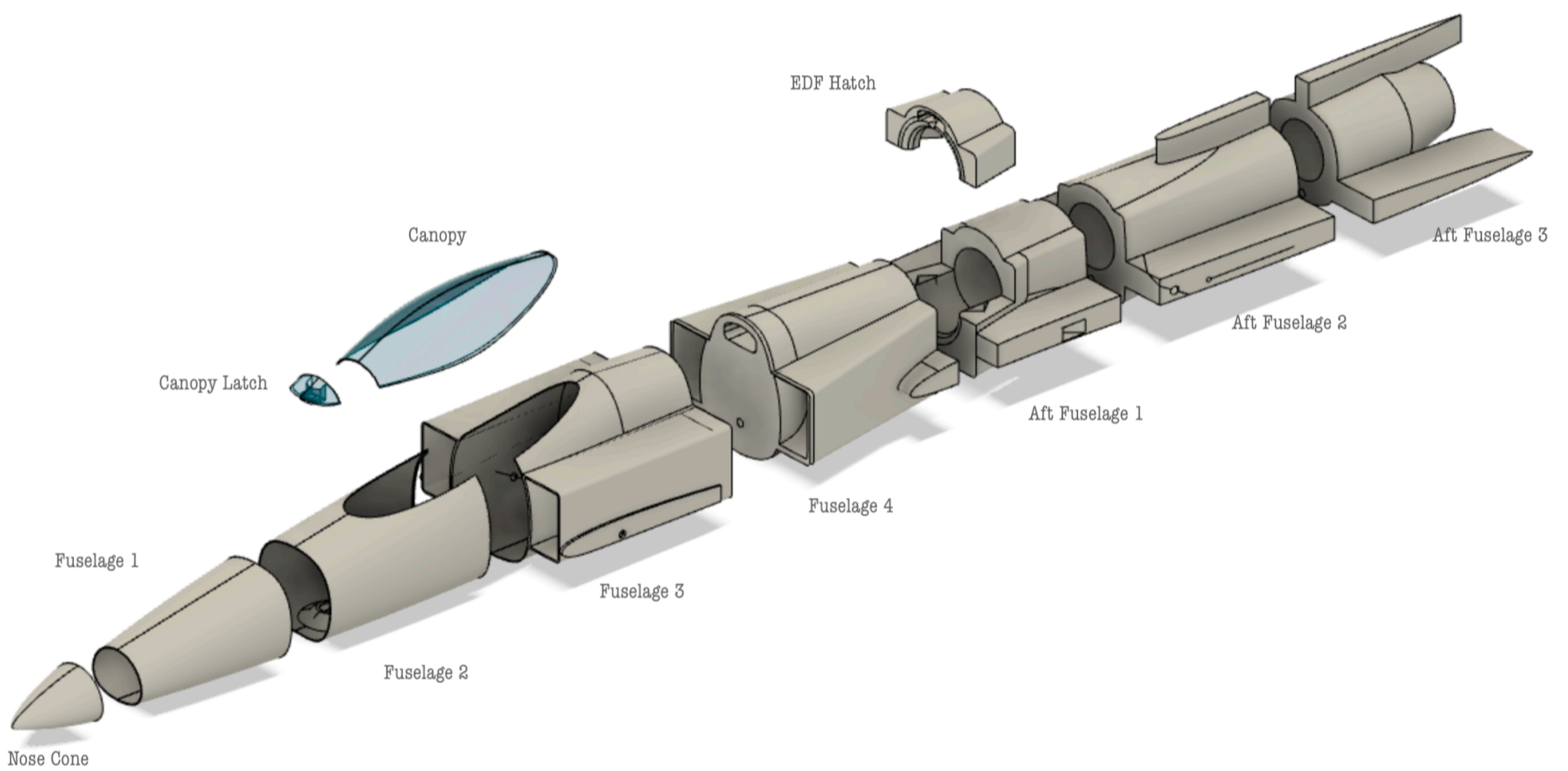
Collars with grub screws for landing gear assembly.

CA glue

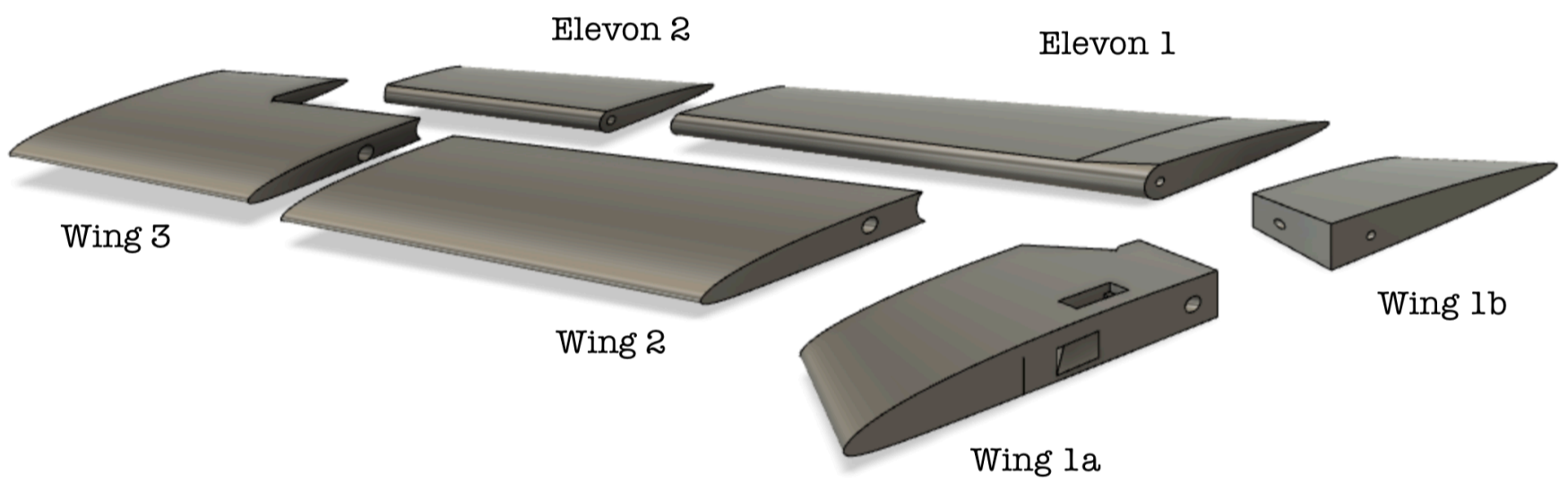
Hot glue (optional)

INCLUDED STL. FILES

FUSELAGE

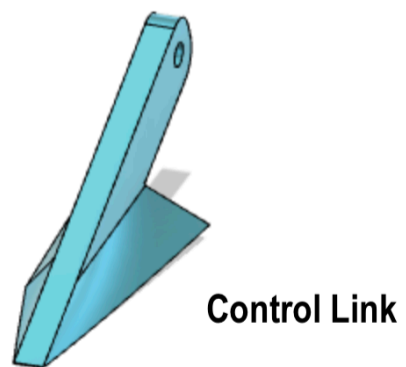
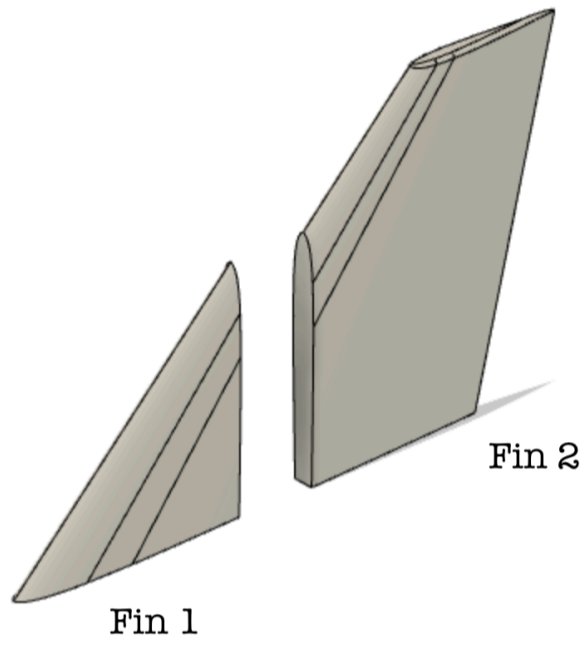
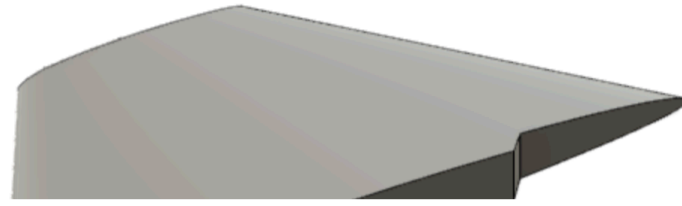


WING



CANARD

TAIL



SPECIFICATIONS

Wing Span

1005mm

Flying Weight

(1600mAh 4S): 1000g

Wing Area

26.55dm²

Wing Loading

37.77g/dm² 12.3oz/ft²

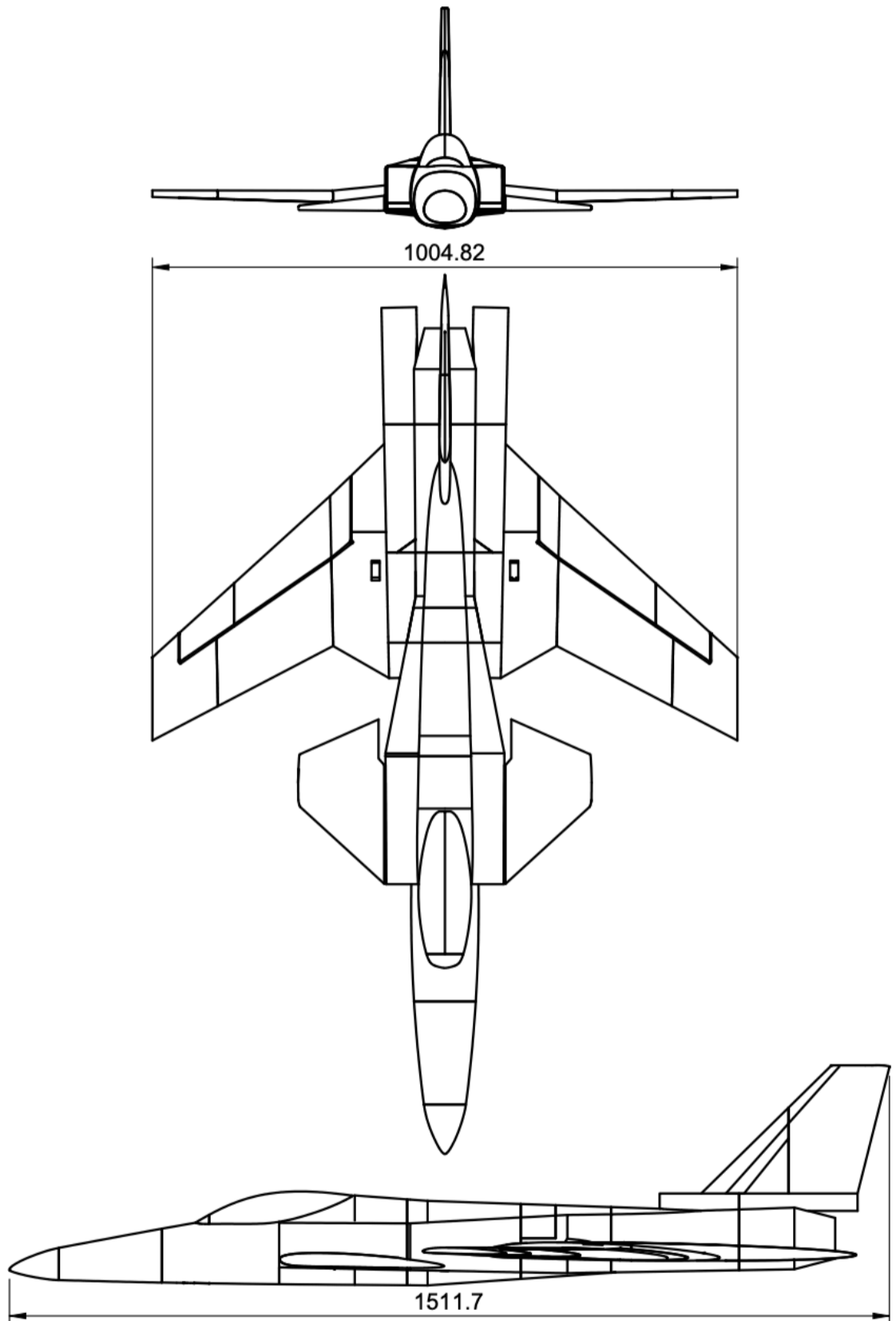
Wing Cube Loading

7.3

Channels

Mixed Elevons and nose wheel steering

Centre of Gravity = At the aft edge of the canard, marked on the underside of the Fuselage.



PRINTING PROFILES

Printing with LW-PLA or other low density foaming filaments requires some individual printer set up. You should follow the manufacturers guidance. The table below will provide some ball park figures for printing temperature and flow rate.

For this model we are trying to achieve a single 0.4mm wall, using a low % infill, with flow rate <60%

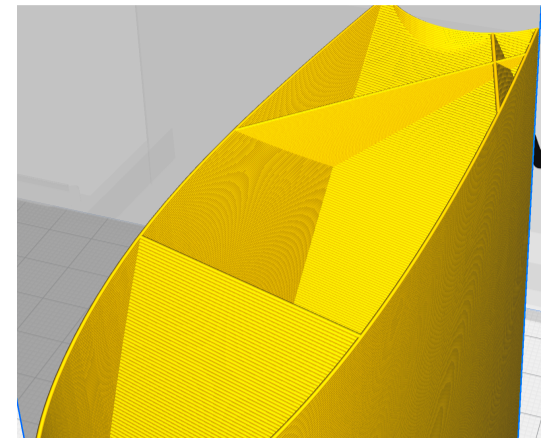
The infill print speed should be set to a value $\sim 2x$ higher than the wall speed.

LW-PLA PROFILE 0.24MM

Wall Thickness	0.4mm
Wall line count	1
Top/Bottom Pattern	Lines
Infill Density	2-3%
Infill Pattern	Cubic
Connect Infill Lines	Off
Printing Temperature	240C
Flow	50% - 60%
Build Plate Temperature	60C (optional)
Retractions (see below)	On, 0mm
Retraction Extra Prime Amount	0.9mm
Fan Speed	20% Maximum
Generate Support	No
Build PLate Adhesion	Skirt, or Brim as recommended for individual pieces

Retractions are *On* and set to 0mm as foaming filament doesn't like to be retracted. Having the setting on however allows the nozzle to be primed (Retraction Extra Prime Amount) before starting a layer to prevent under extrusion at layer change.

When you preview the part you should see something like this: A single wall around the outside with lines of infill and any other built in structure on the inside.



ASSEMBLY

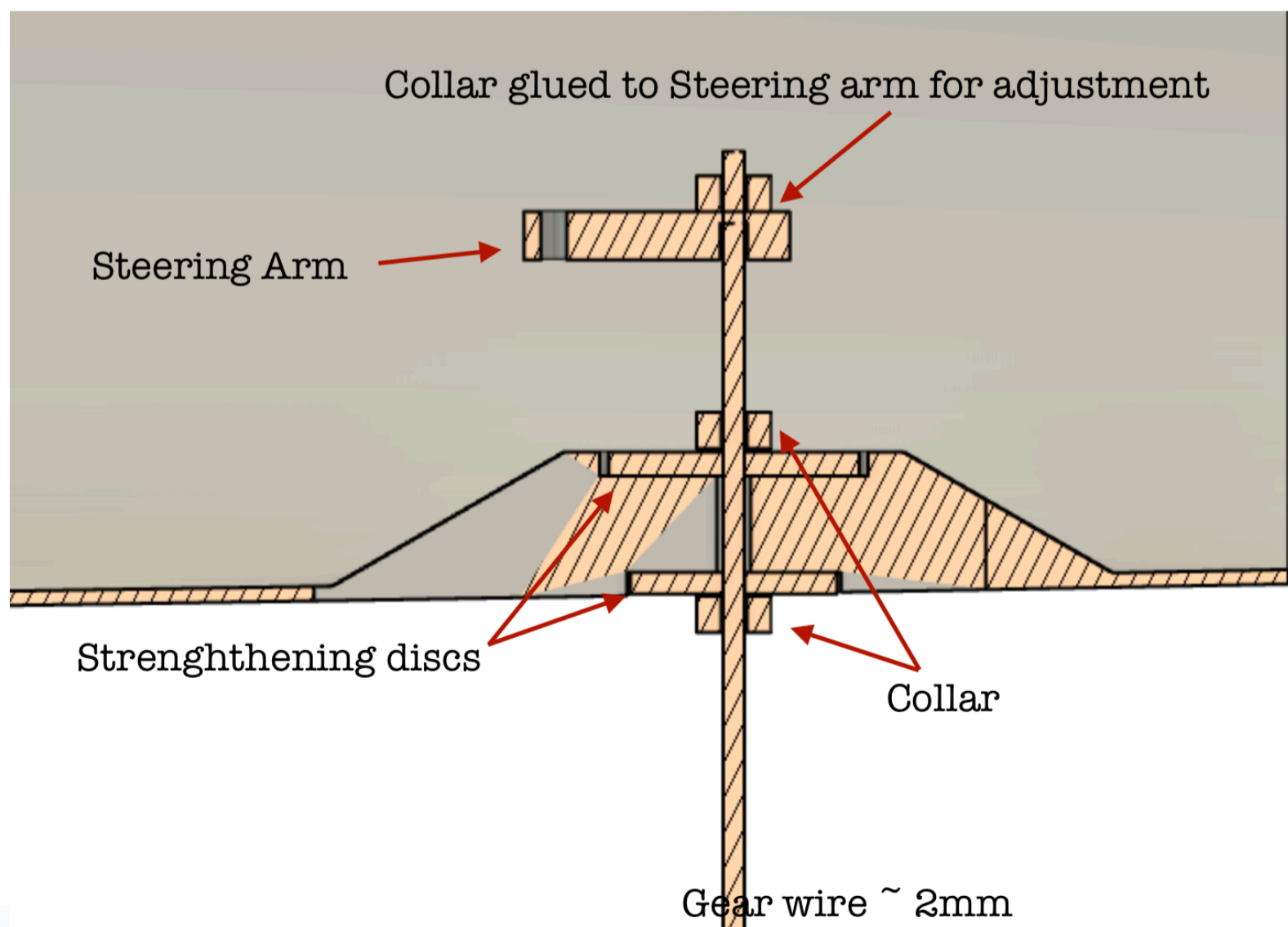
I know how excited we all get and like to bound ahead without looking at instructions so here are...

3 MUST READ POINTS

- 1. TO CHECK YOUR EDF FITS, PRINT THE EDF HATCH FIRST AND CHECK THE FIT. IF YOUR EDF HAS TABS YOU MAY NEED TO USE A SHARP KNIFE TO CUT OUT OUT SOME SECTIONS TO FIT THESE. ANY OTHER PROBLEM YOU CAN EMAIL ME AT RC3DPRINT@ICLOUD.COM AND WE'LL FIX IT.**
- 2. PLACE SERVOS, CONNECT UP ALL YOUR WIRING AND PLACE IT THROUGH THE WIRE RUNS BEFORE FINAL ASSEMBLY.**

3. THE ELEVONS NEED TO BE IN PLACE WHEN THE WING IS GLUED TO THE FUSELAGE. ASSEMBLE THE 3 AFT FUSELAGE PIECES FIRST. THERE IS A HOLE FOR AN 8MM TUBE THROUGH THE FUSELAGE PIECES TO HELP WITH POSITIONING. THIS TUBE IS NOT REQUIRED FOR RIGIDITY THOUGH AND CAN BE REMOVED AFTER IT HAS HELPED WITH POSITIONING.

- Assemble Fuselage 3 and 4 and glue them to the Aft Fuselage, again, using the 8mm tube for positioning. You may want to check if you will be able to place your EDF in the cradle with Fuselage 4 Attached to Aft Fuselage 1, if you not you may need to place it in first.
- The wings are assembled around the main wing spar and elevon hinge spar. The servos can be mounted with small screws, though it is advisable to also use a dab of hot glue to keep them in position due tot he nature of LW-PLA.
- The Tail Fins are simply glued into position.

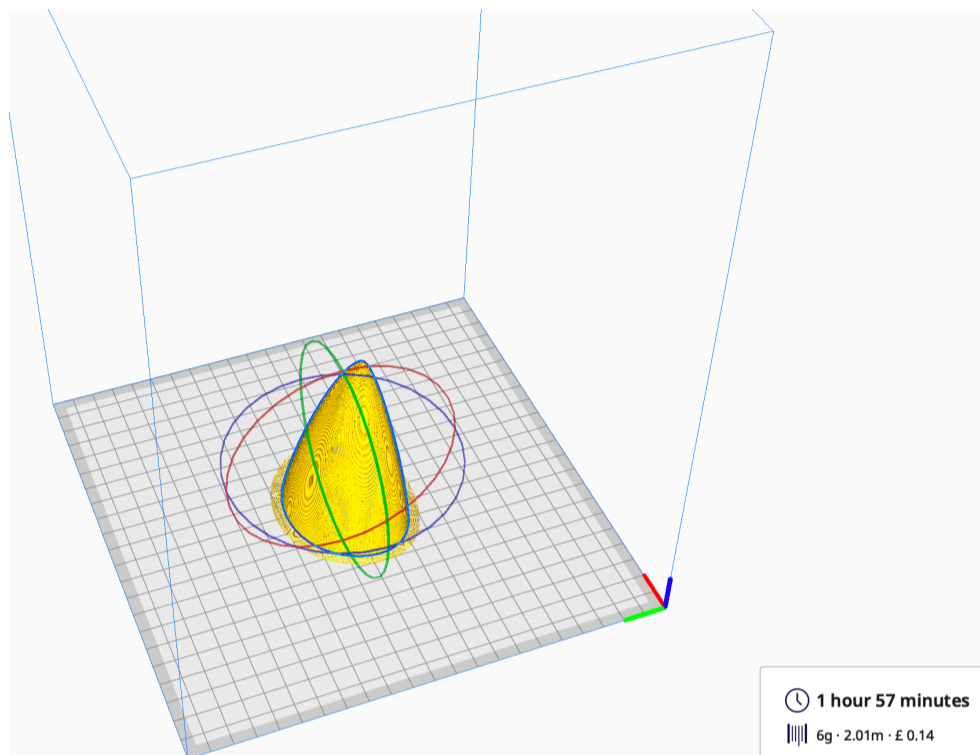


- If you plan on using a landing gear, set the nose gear in place before gluing forward fuselage together as this is easier. As the model is lightweight I used a simple wire nose gear. To strengthen the LW PLA there are two discs that should be printed in PLA or ABS. These are glued in either side of the fuselage to spread the load of the nose gear wire. Below is a schematic. There is a cutout in the fuselage to position a servo to drive the steering arm.
- The CG is marked on the underside of Fuselage 4 and is at the trailing edge of the canard. To achieve this, the battery should be affixed with velcro just in front of the landing gear. You may want to affix the velcro before assembling the nose and putting the nose cone in place.
- Glue together the remaining parts of the fuselage.
- The canopy is printed in 2 parts, glue them together. The front latch goes under the fuselage rim. Place two magnets (be careful to check the polarity attracts) one under the fuselage at the back of the canopy, and another on the underside of the canopy above. This will hold the canopy in place.
- Affix the wings in place on the side of the fuselage. The wings on this model are not designed to be removable.
- The aft gear is glued in place, with a 2mm wire axle running through the centre. There is a small rectangular indentation on the underside of Aft Fuselage 2 this is a guide of the gear. The back of the gear should just cover this mark.
- The CC is marked on the underside of Fuselage 4 and is at the trailing edge of the canard. To achieve this, the battery should be affixed with velcro just in front of the landing gear

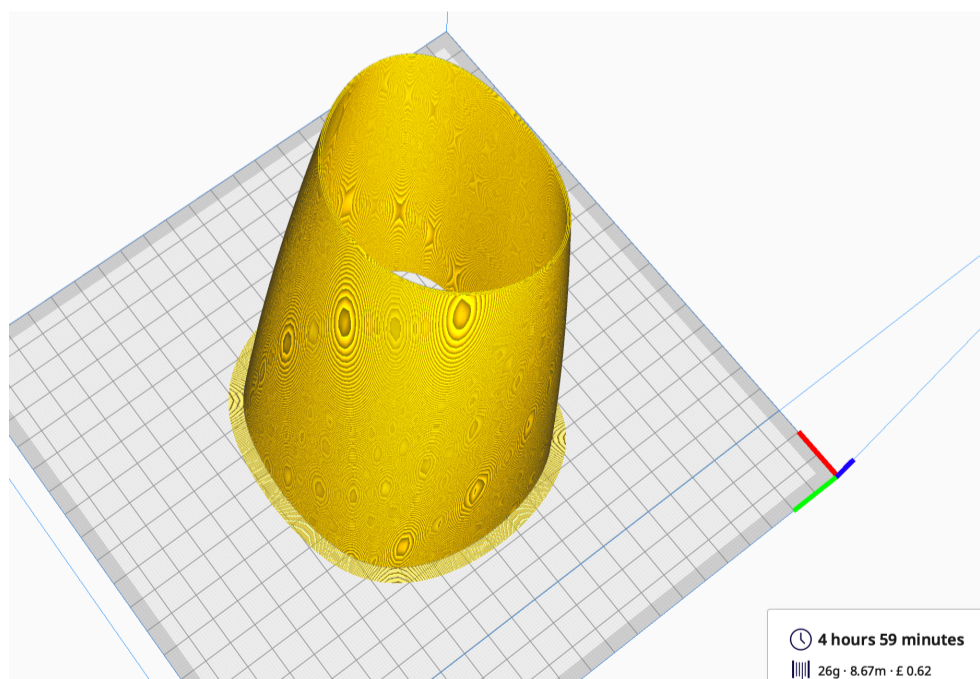
CURA COMPONENT PLACEMENT

NOSE

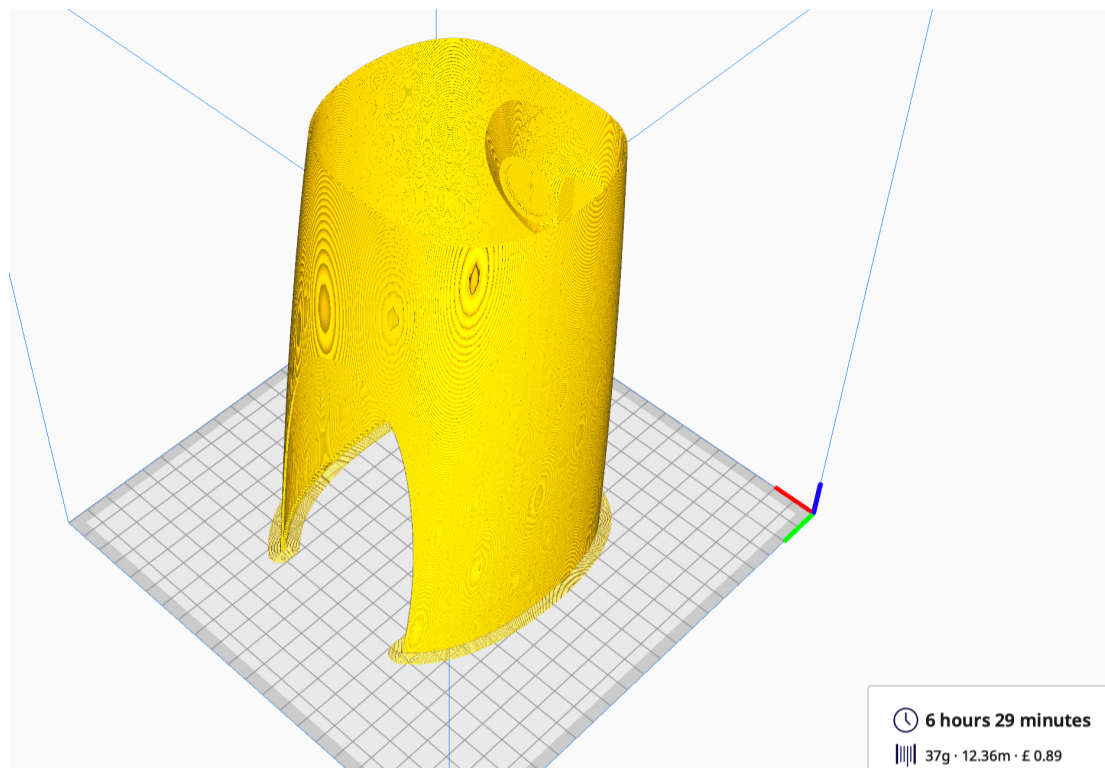
1% Infill



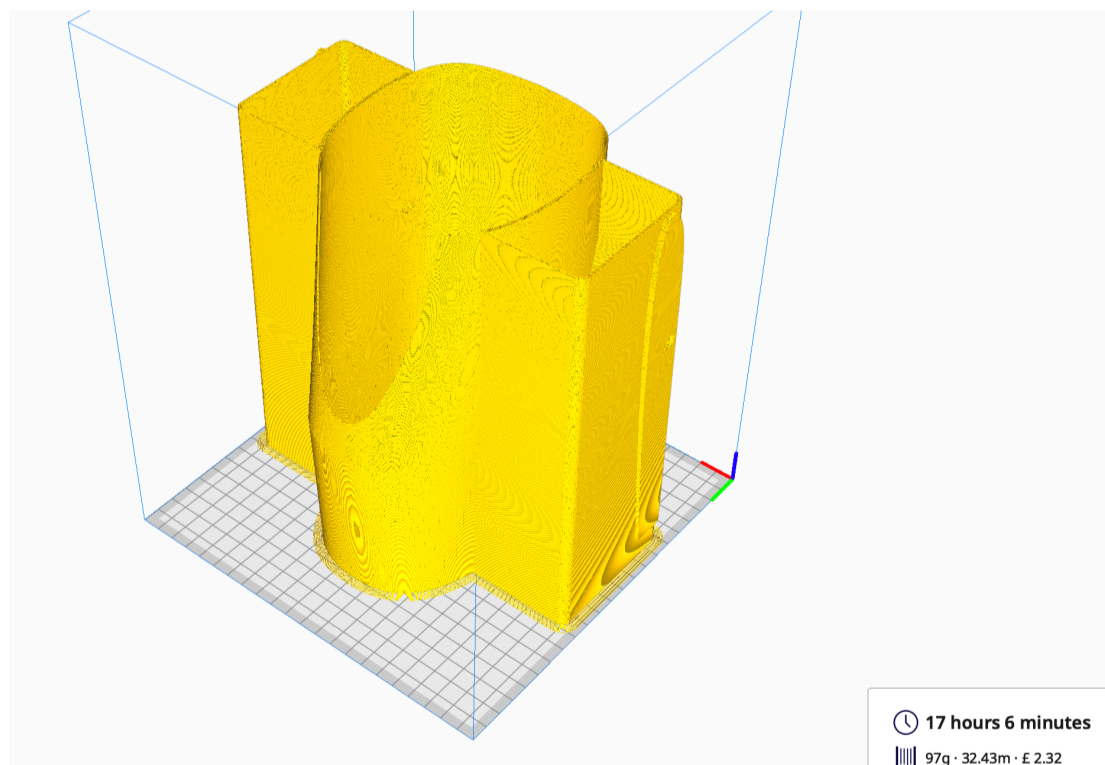
FUSELAGE 1



FUSELAGE 2

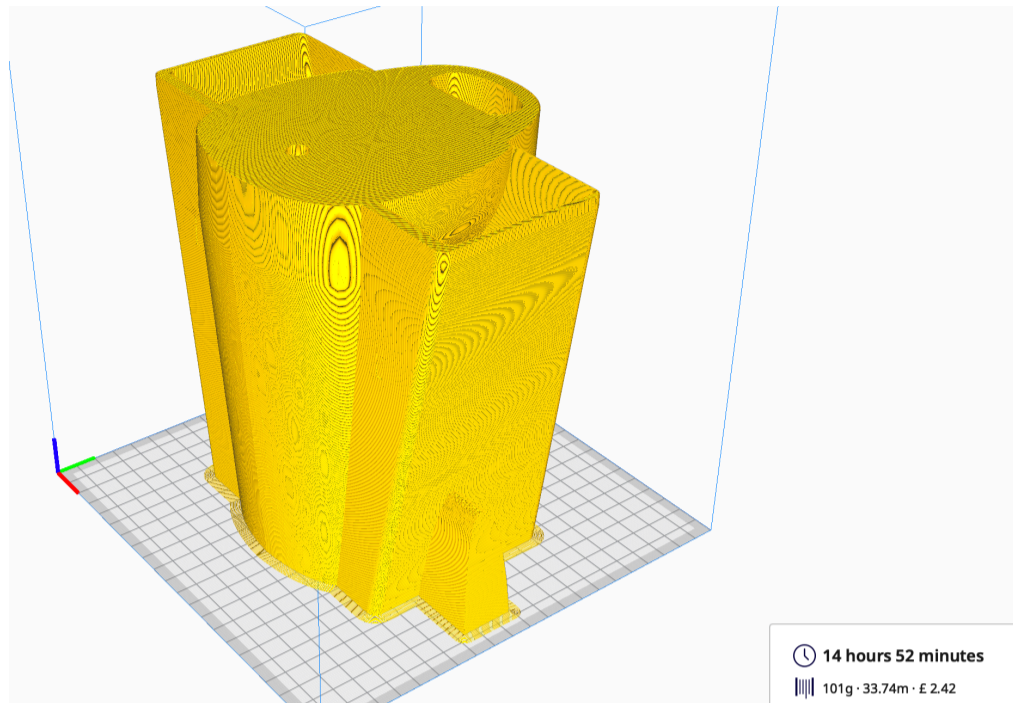


FUSELAGE 3



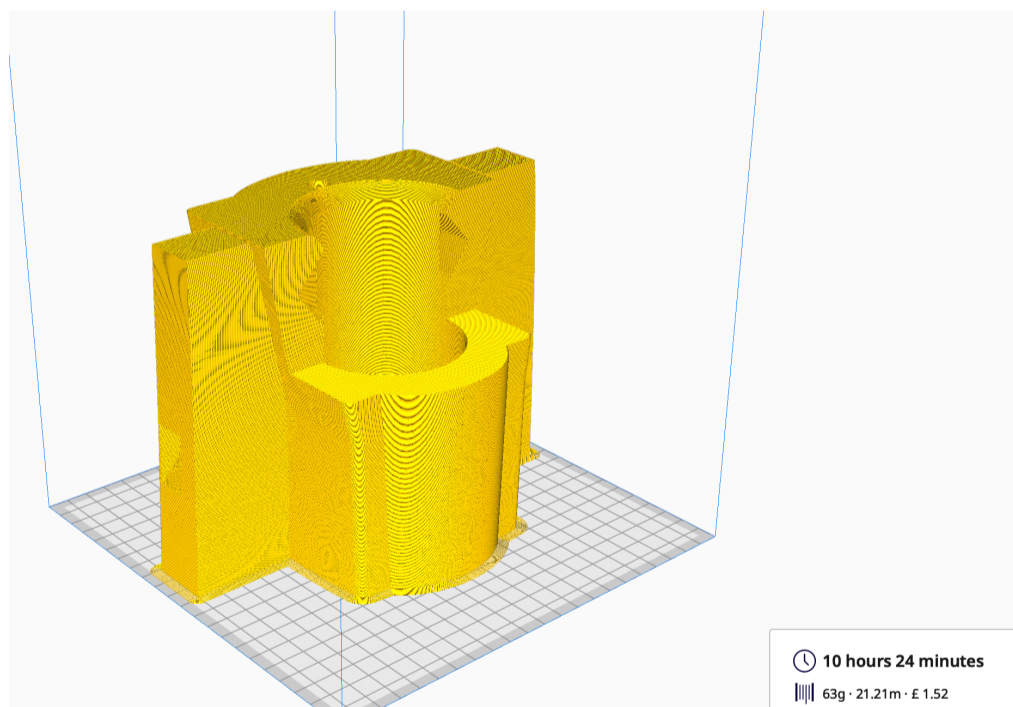
FUSELAGE 4

1.5% infill



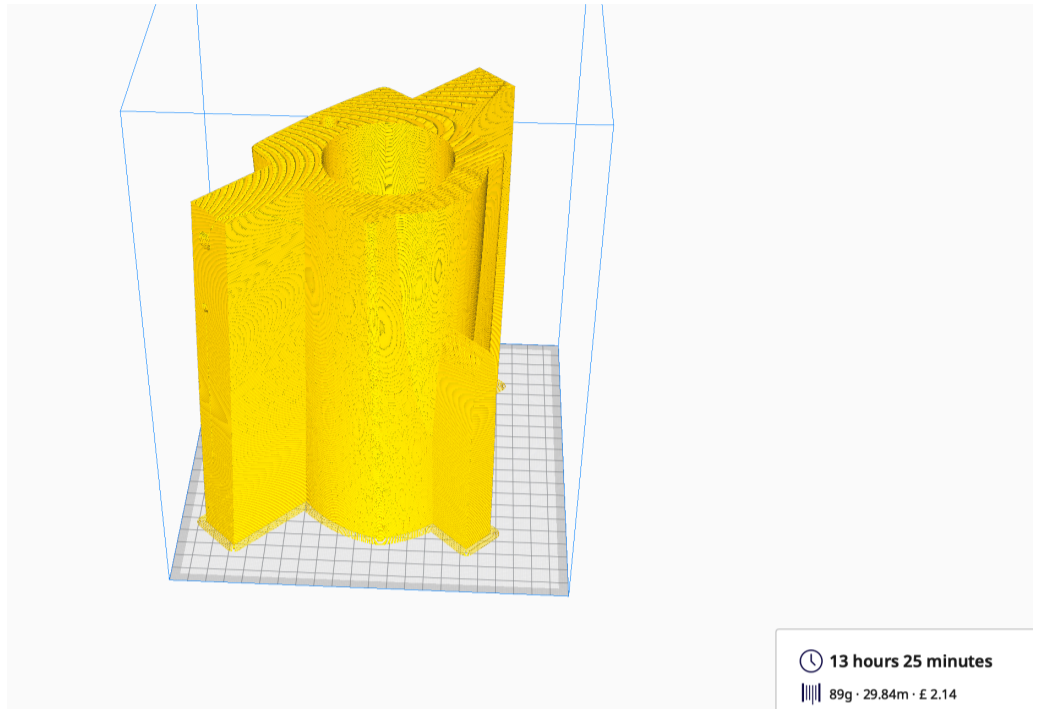
AFT FUSELAGE 1

1.5% infill



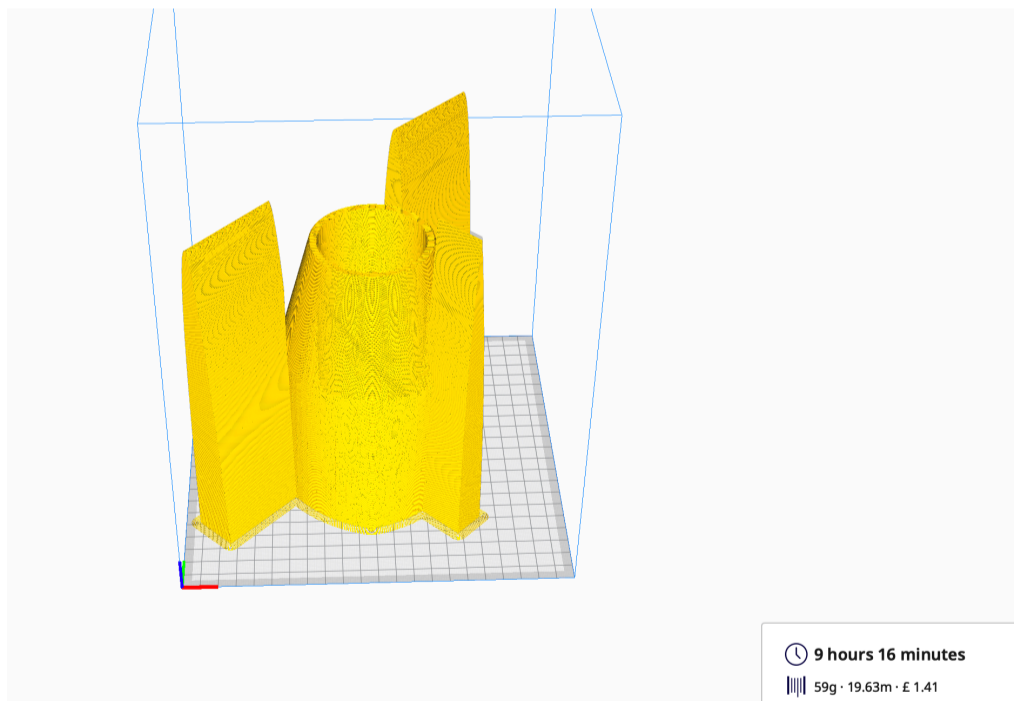
AFT FUSELAGE 2

Infill 1.5%

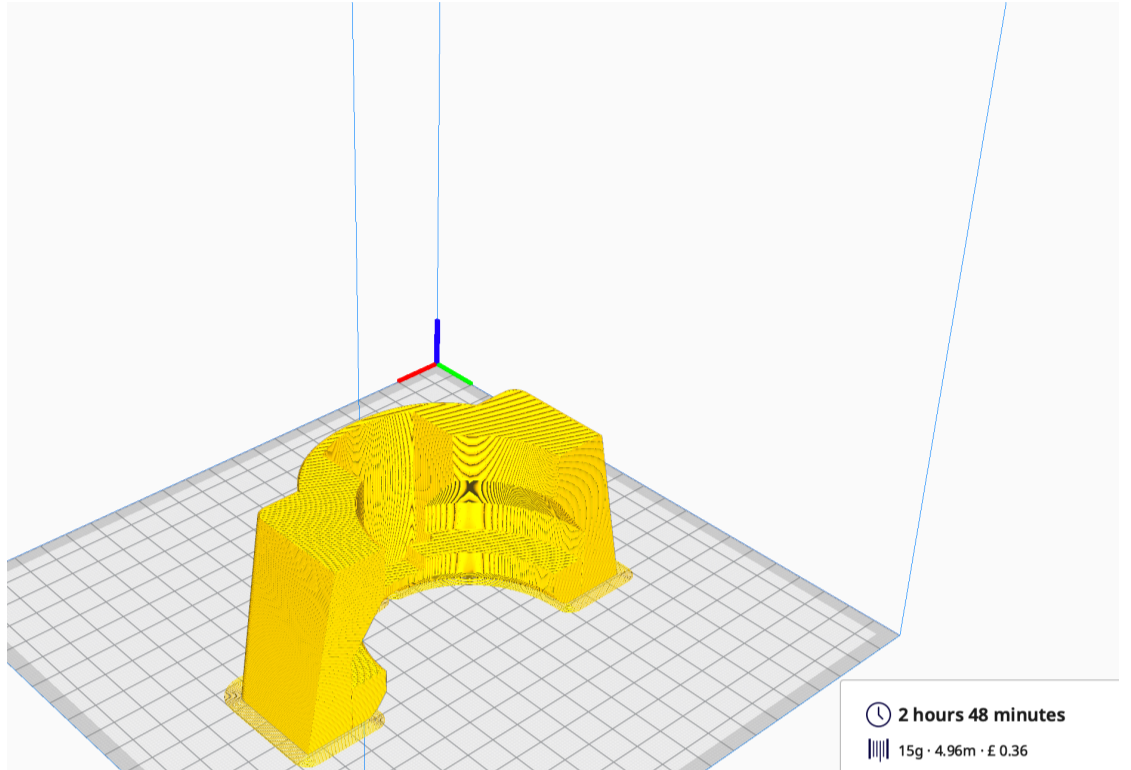


AFT FUSELAGE 3

Infill 1.5%

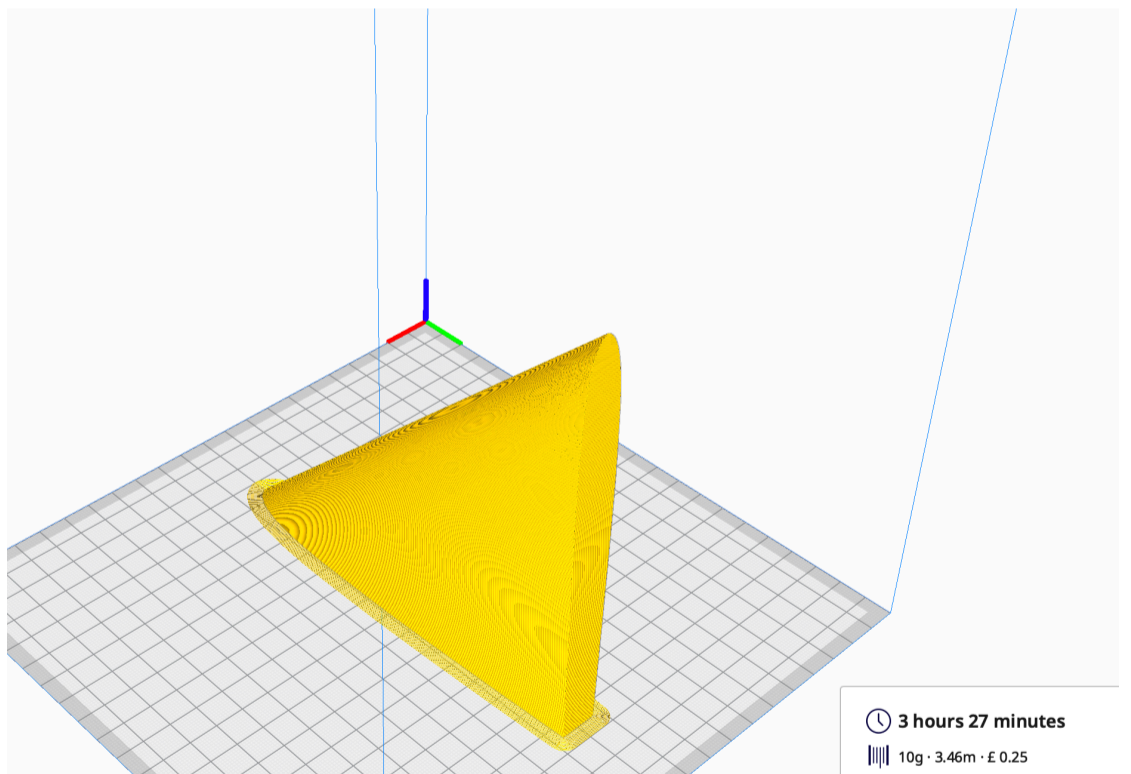


EDF HATCH



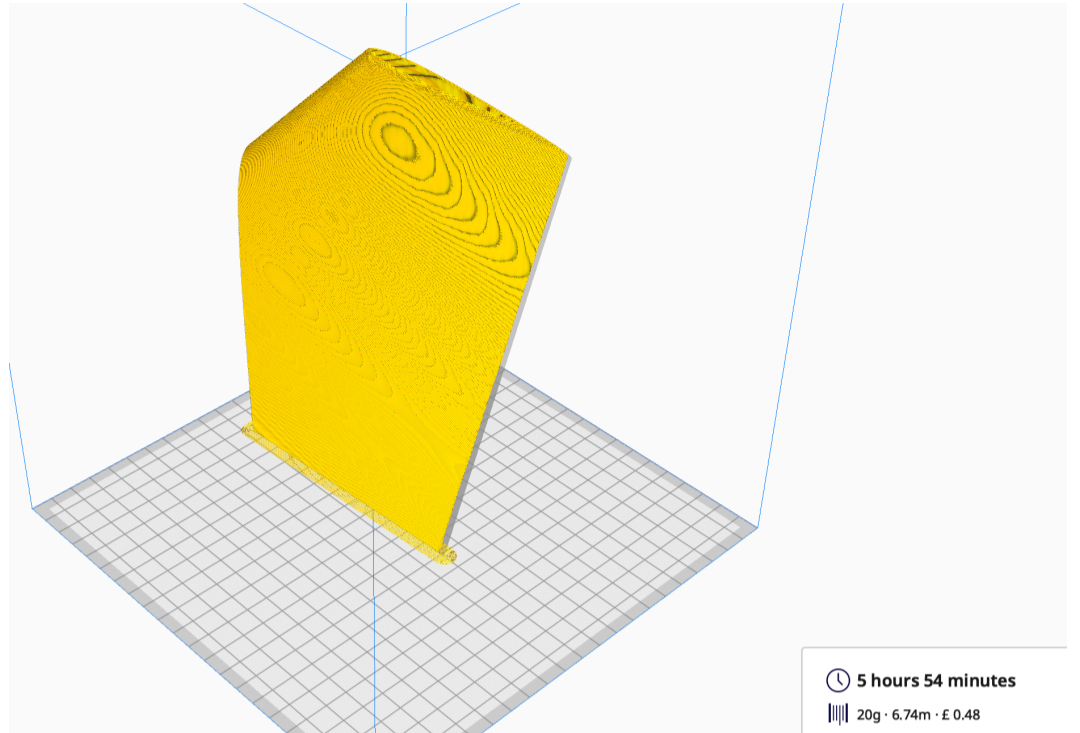
FIN 1

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FIN AFT

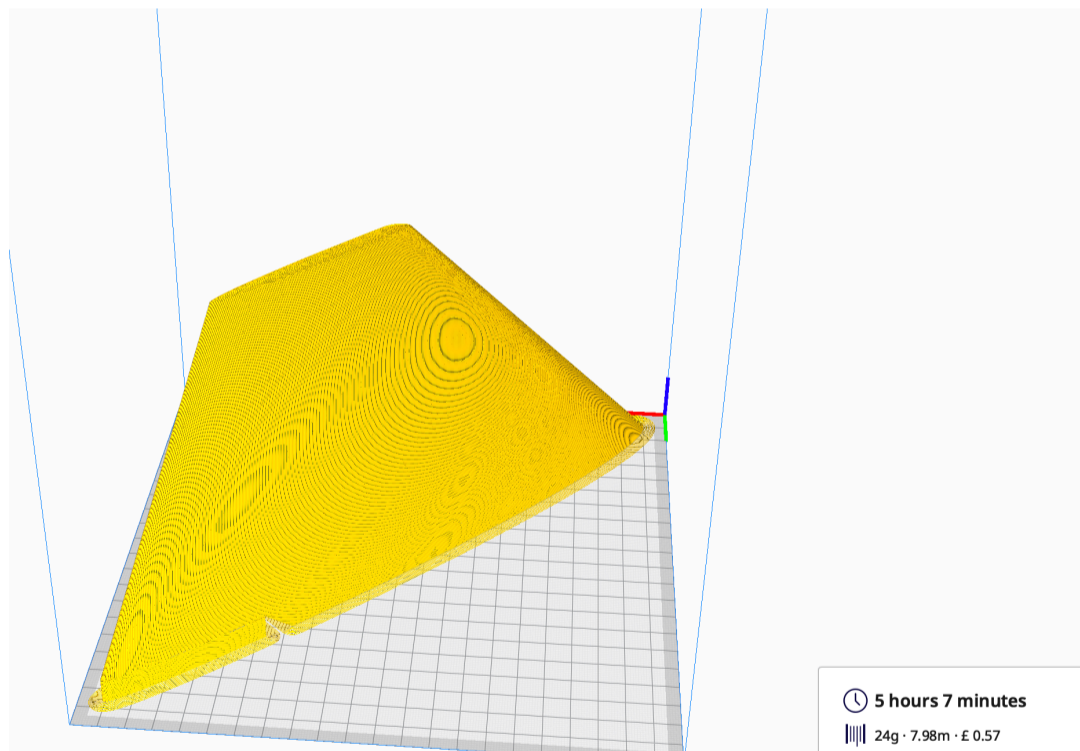
2% infill



CANARD

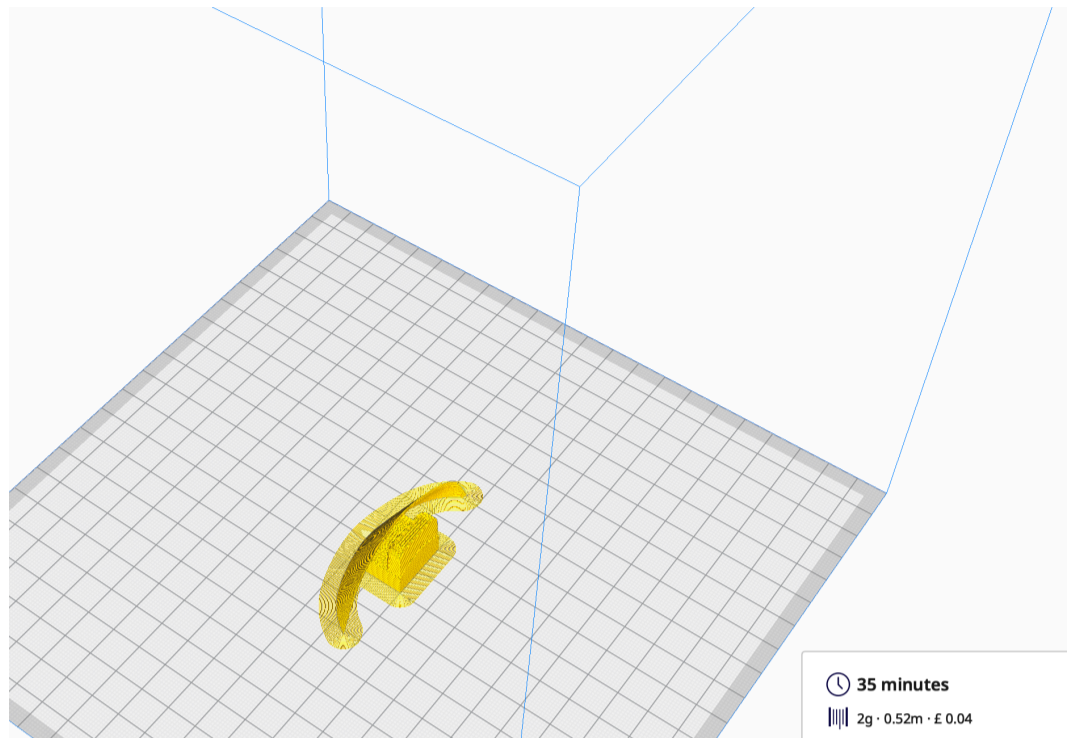
2% infill

Supports ON



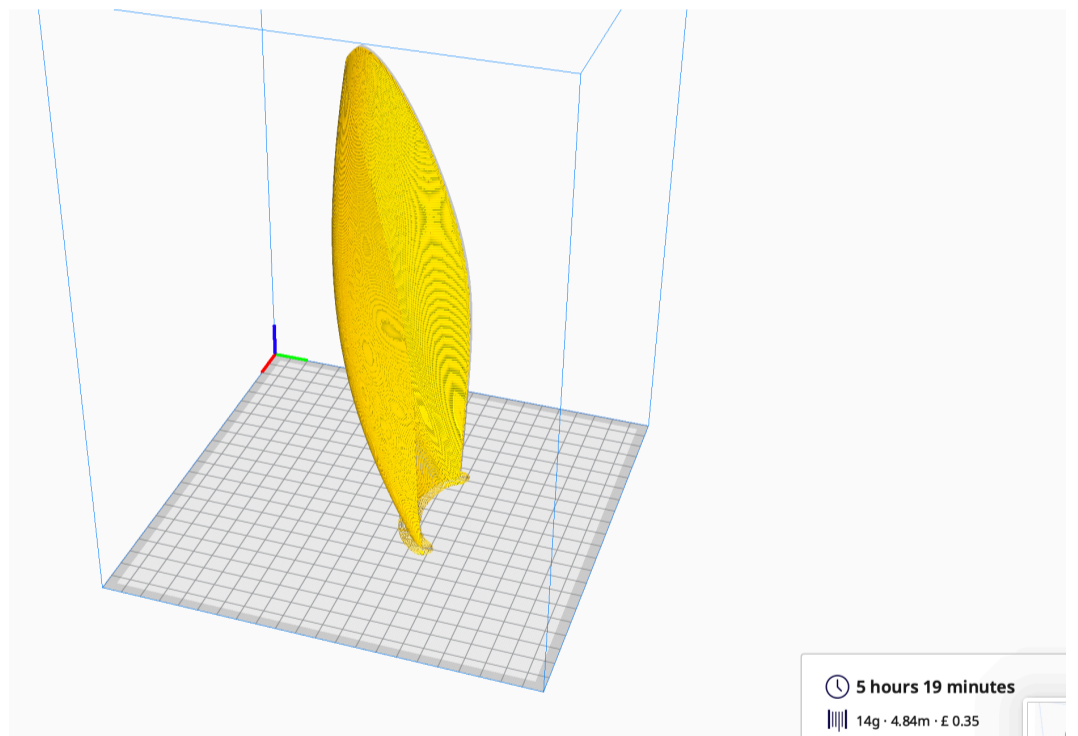
CANOPY LATCH

10% infill



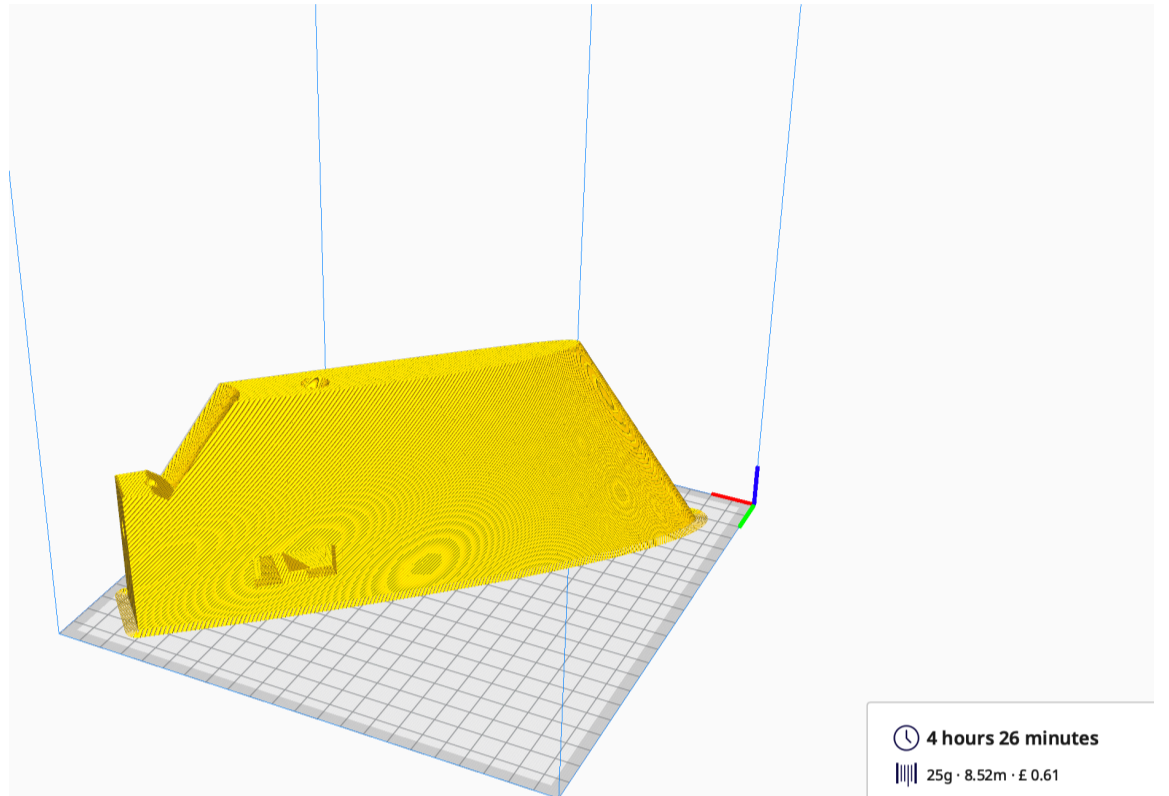
CANOPY

(For shorter Z printers the Canopy has been split into 2 - print in the same orientation as seen here)



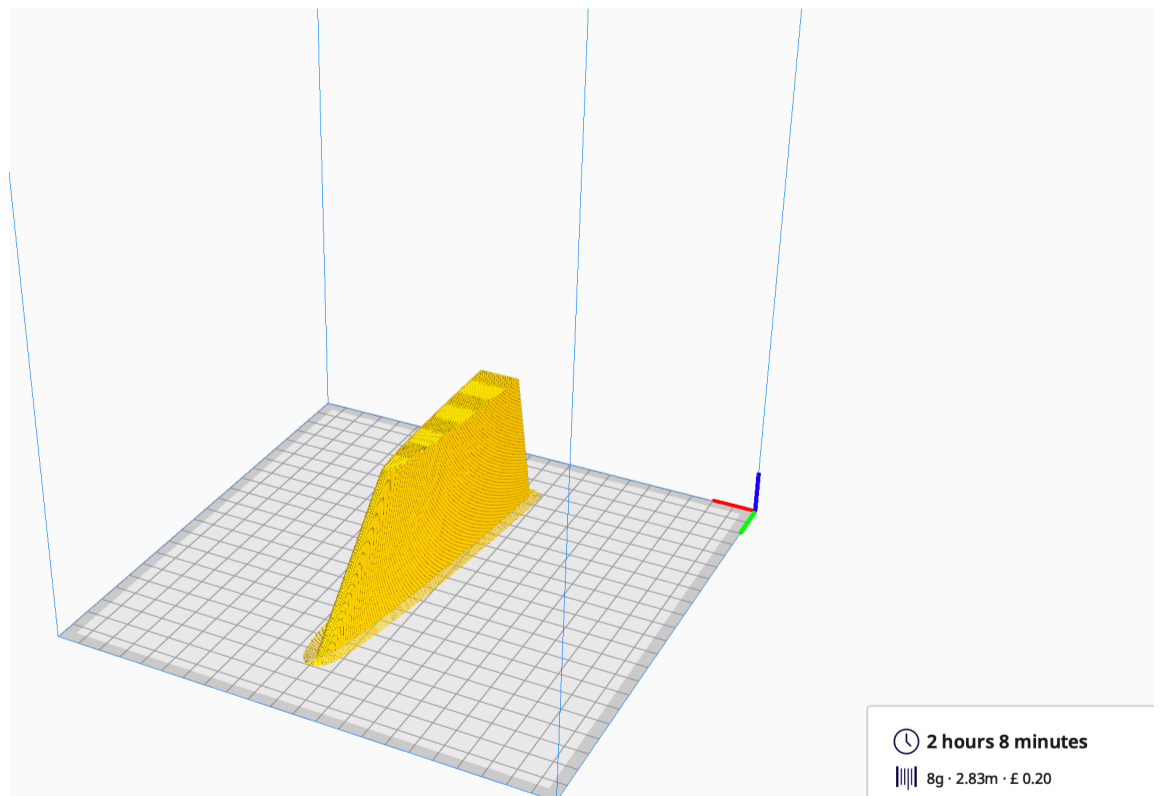
WING 1A

2% infill



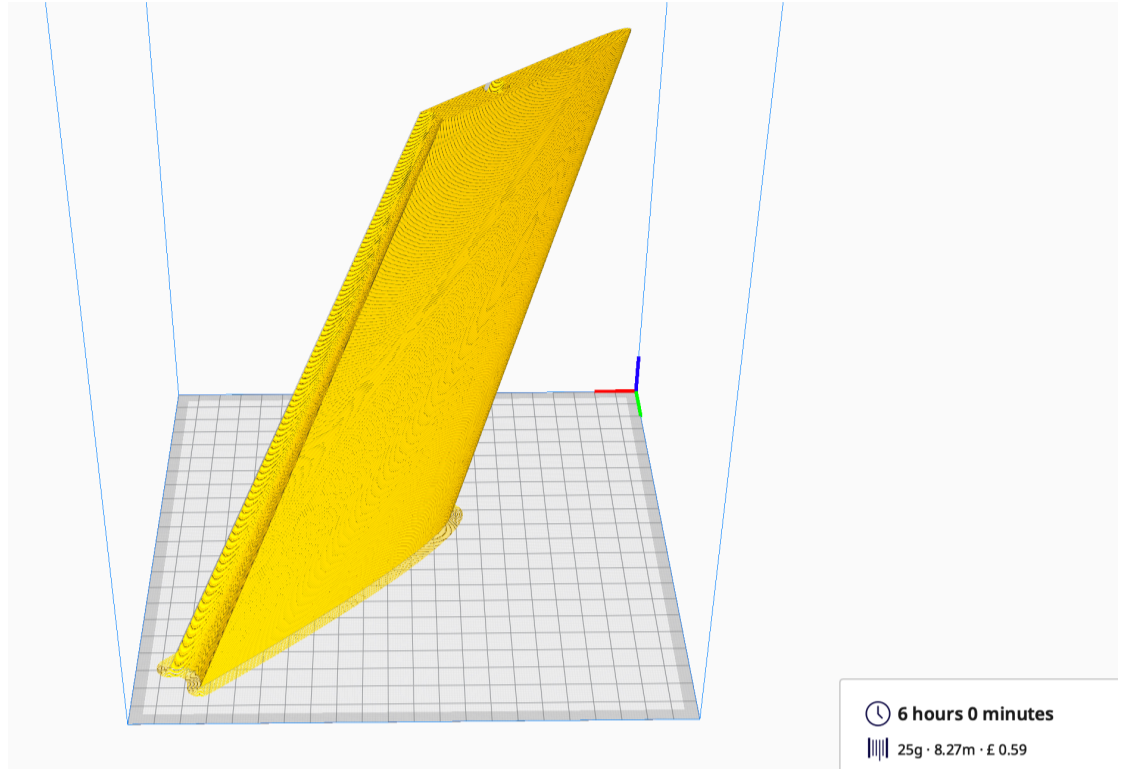
WING 1B

1% infill



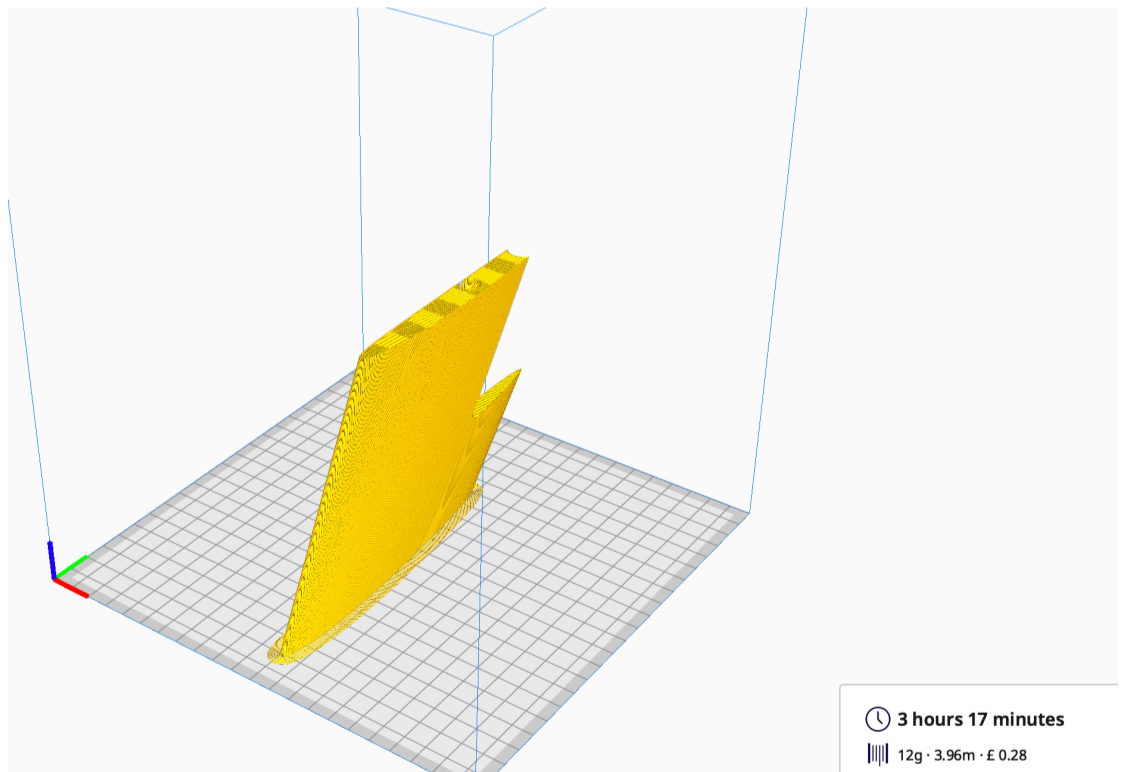
WING 2

2% infill



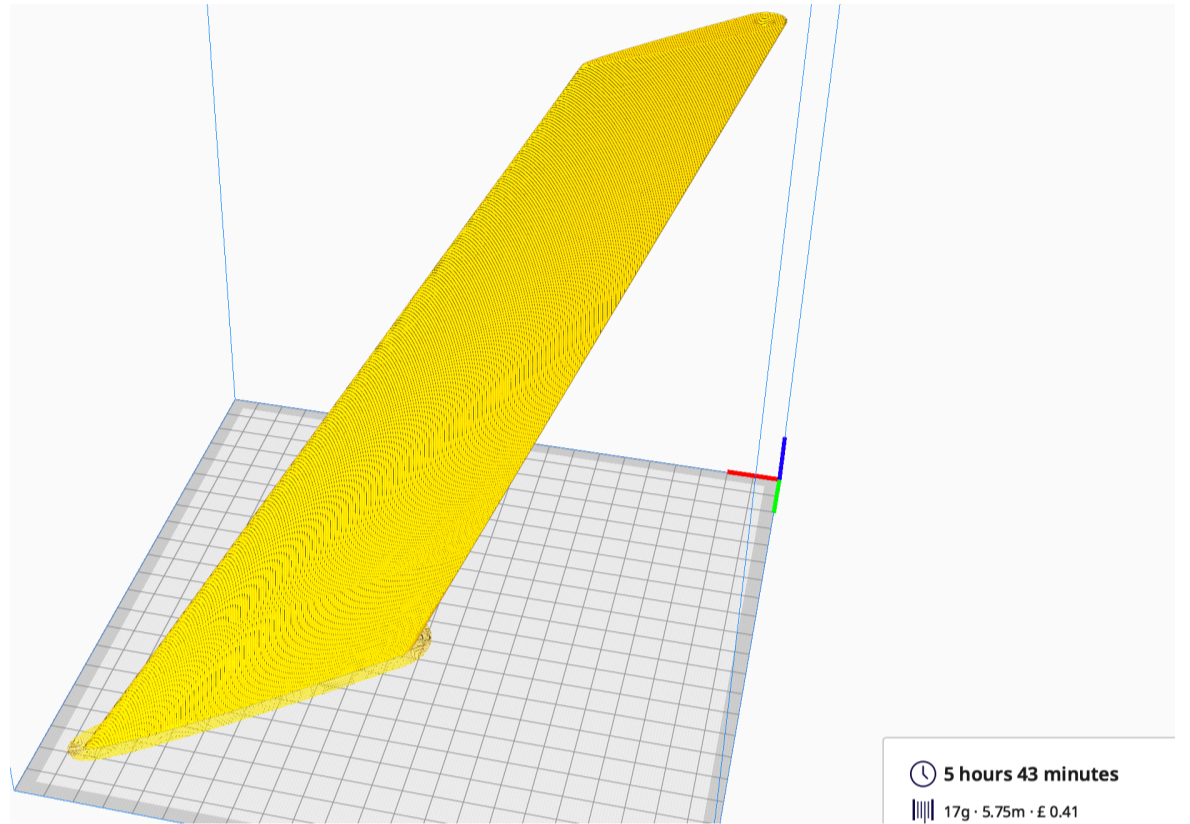
WING 3

2% infill



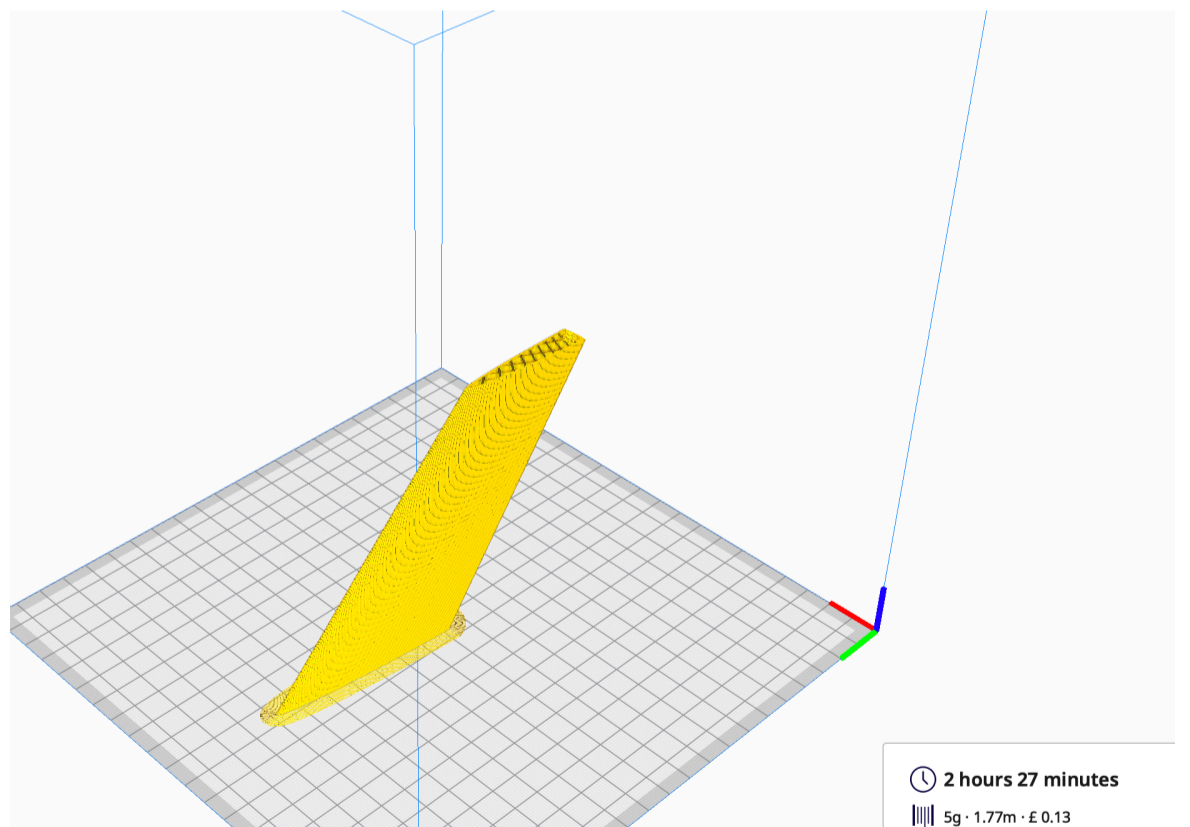
ELEVON 1

2% infill



ELEVON 2

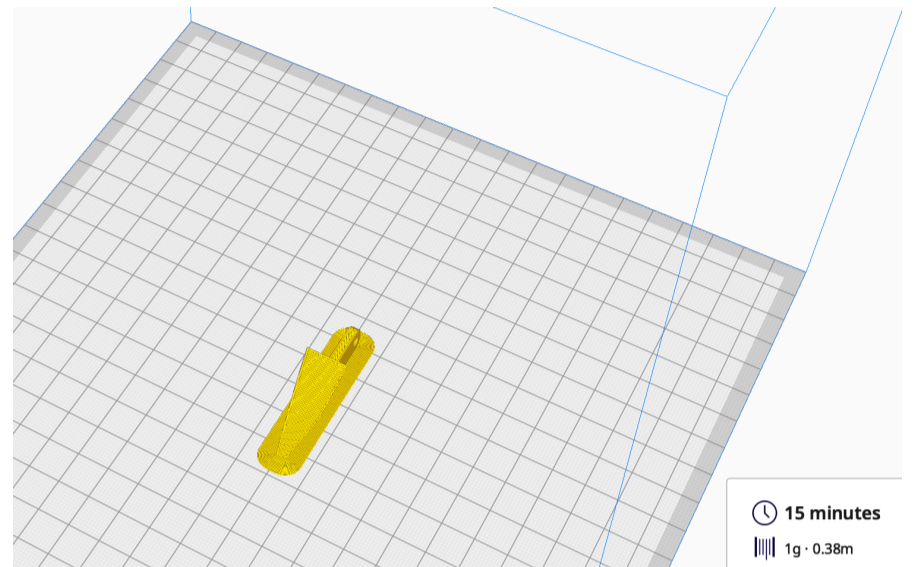
2% infill



CONTROL LINKAGES X 2

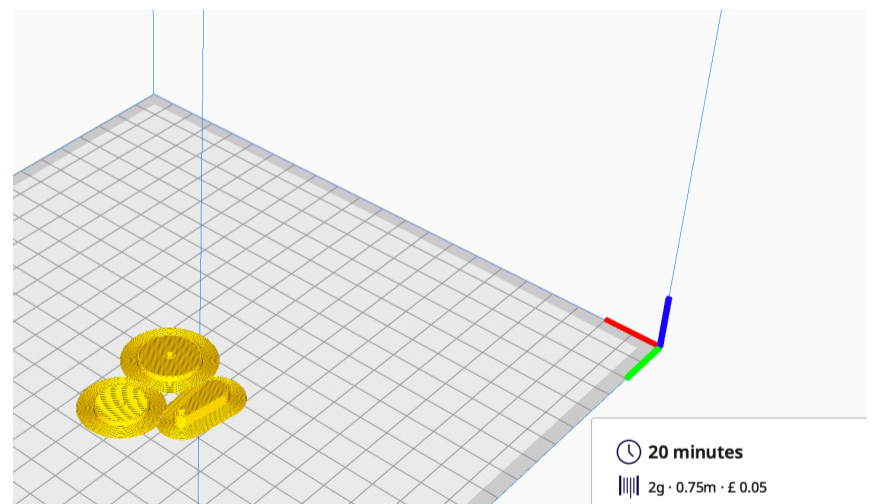
Standard PLA profile

Adhesion: Brim



STEERING DISCS AND ARM

Standard PLA Profile



MAIN GEAR LEGS

PLA or LW-PLA

10% infill

