

rc3Dprint



**PRINTING AND
ASSEMBLY
INSTRUCTION**

THANK YOU

Thank you for downloading this P180 PiaggioAvanti. 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 where they can download the models themselves. This enables me to gauge interest and see whether to bother making more available for download.

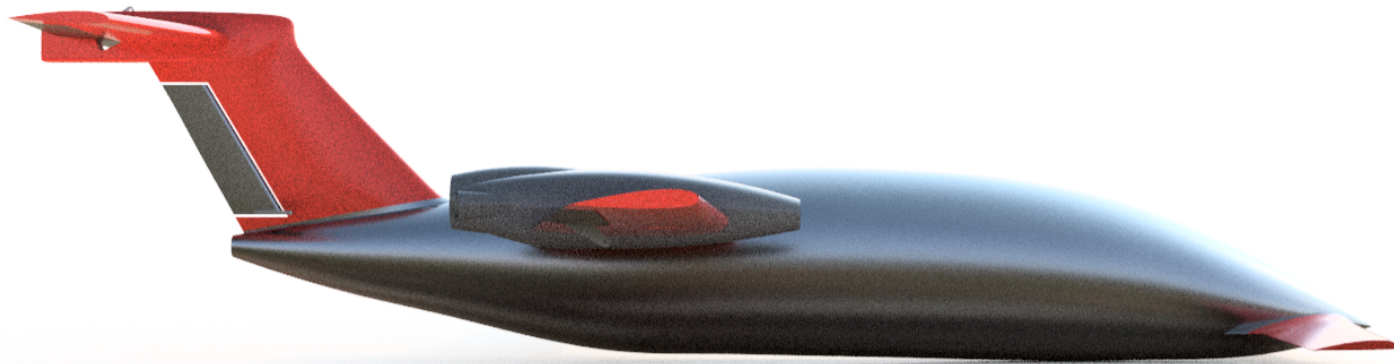
This is one of our experimental models so please share your build and flights with me, either through the website or on instagram @rc3dprint!

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

Included in the document you will find Cura profiles 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 most parts then double walled for strength.

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 results on instagram and tag @rc3dprint for discount codes on future orders.



PARTS LIST

REQUIRED

Motor - 2 X 2217 motor minimum (or similar) - 2 X ESC and LIPO as required - 3S battery minimum

4 - Channel radio kit minimum.

4 x 9g servo + 2 x servo extension

Ice lolly (popsicle) sticks are optional for aligning surfaces during the build

Assorted small screws for mounting motors and the fuselages removable join

3m of 1.1mm diameter piano wire for control rods and hinges

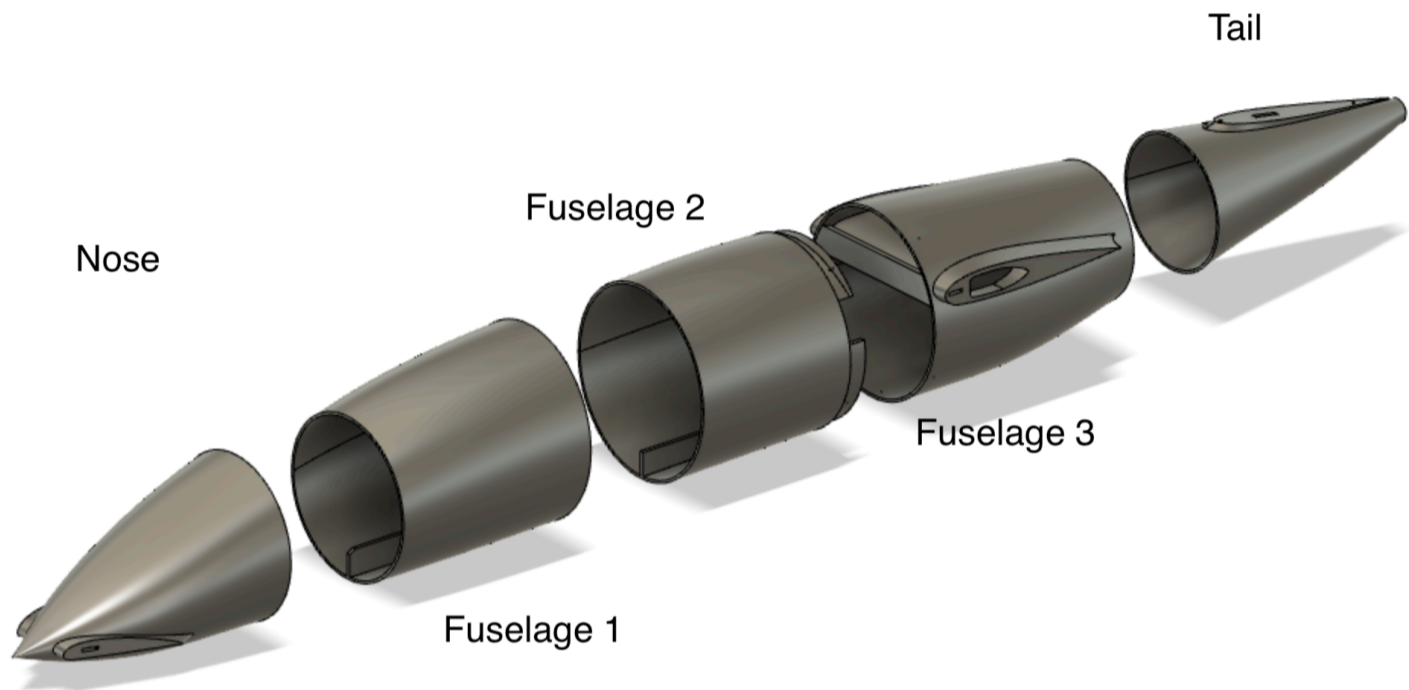
CA glue

Hot glue (optional)

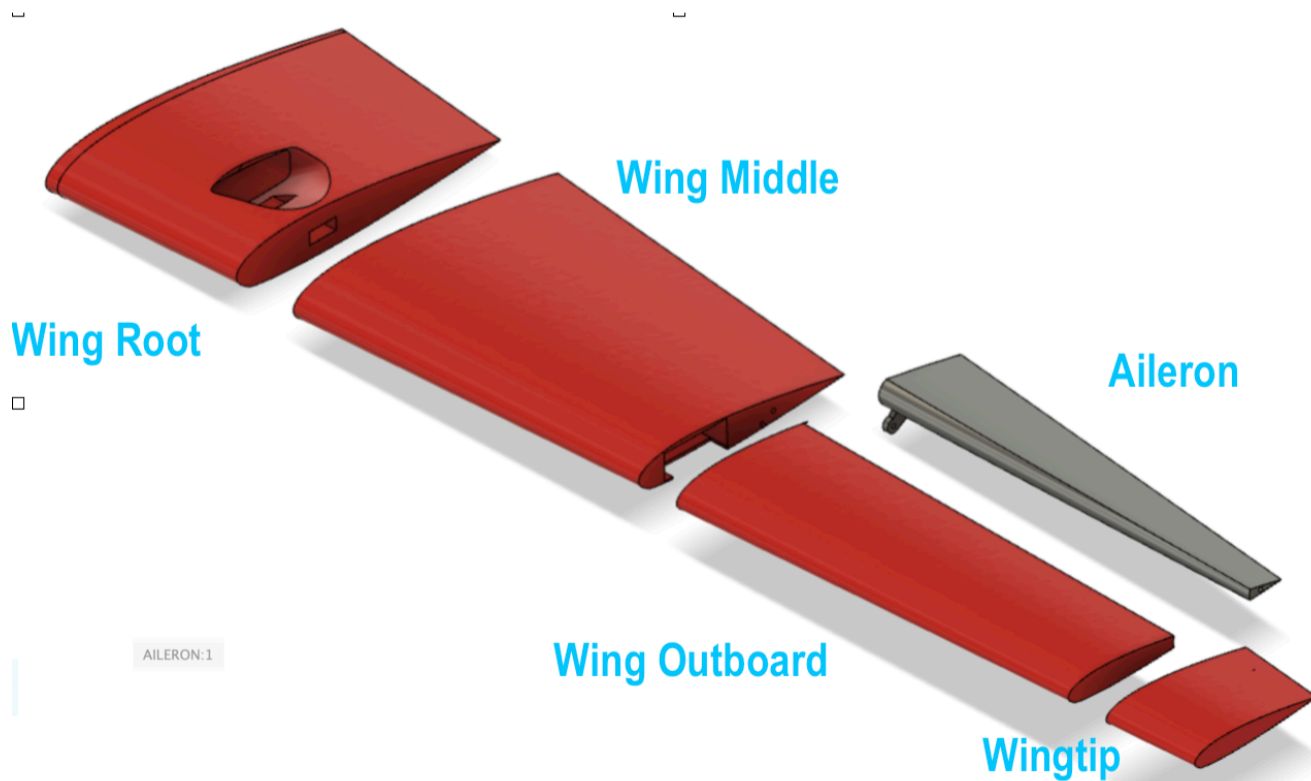
2 x electric propellers to complement your electric set up, up to 9inch

INCLUDED STL. FILES

FUSELAGE



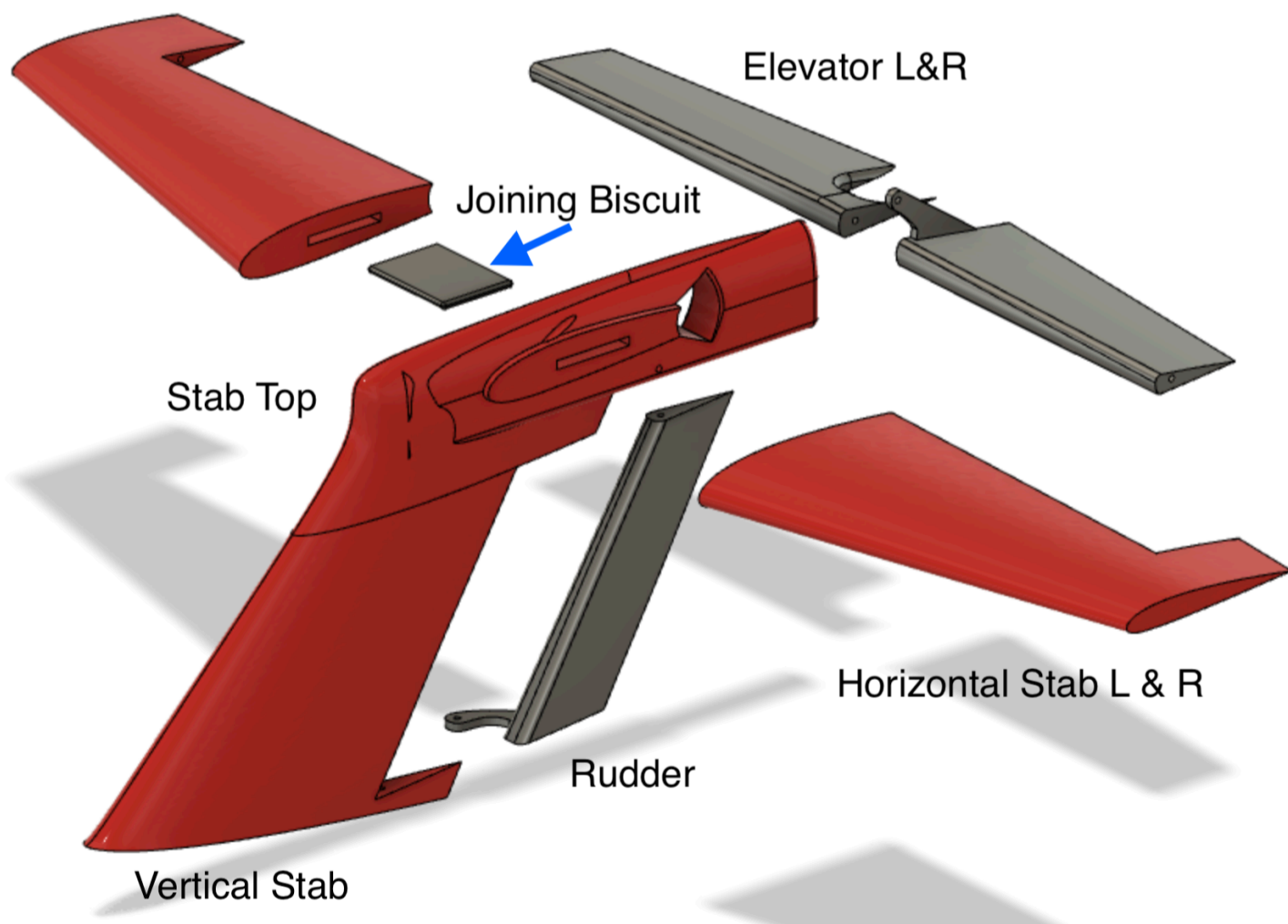
WING



NACELLES

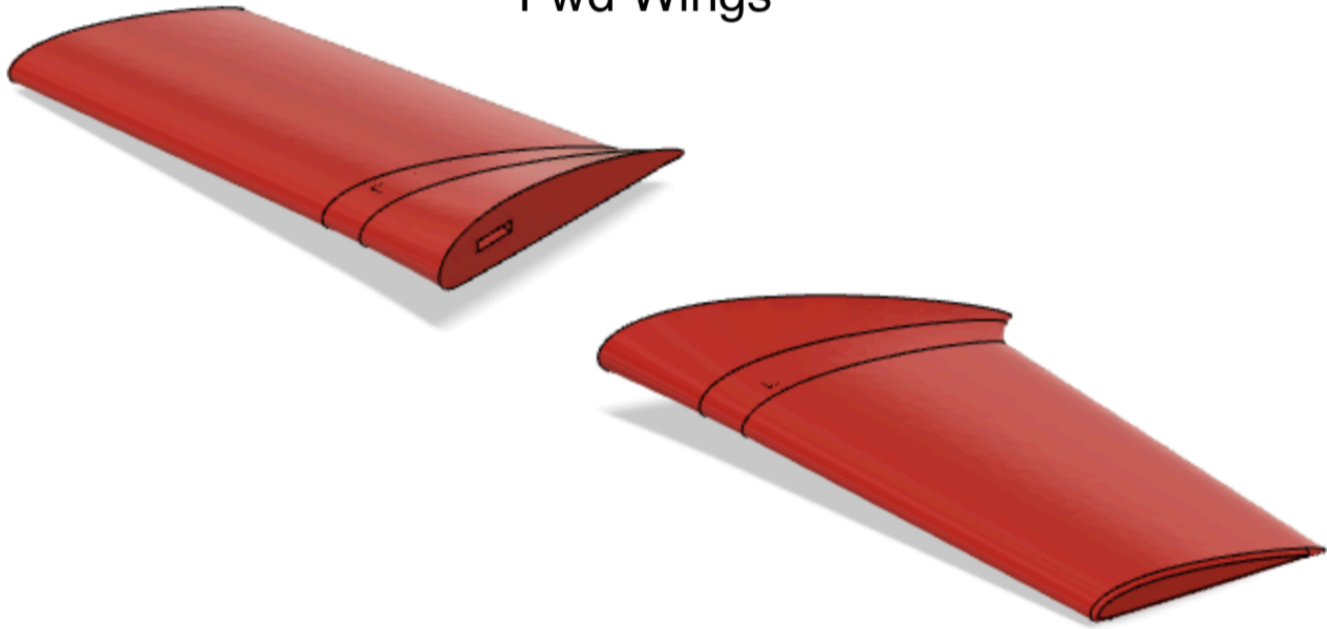


EMPENNAGE



FORWARD WING

Fwd Wings



SPECIFICATIONS

Wing Span & Area

1175mm - 16.09dm²

Weight of Printed Parts

765g

Flying Weight

(2200mAh 3S): 1100g

Wing Loading

68.3 g/dm² 22.3 oz/sq.ft

Wing Cube Loading

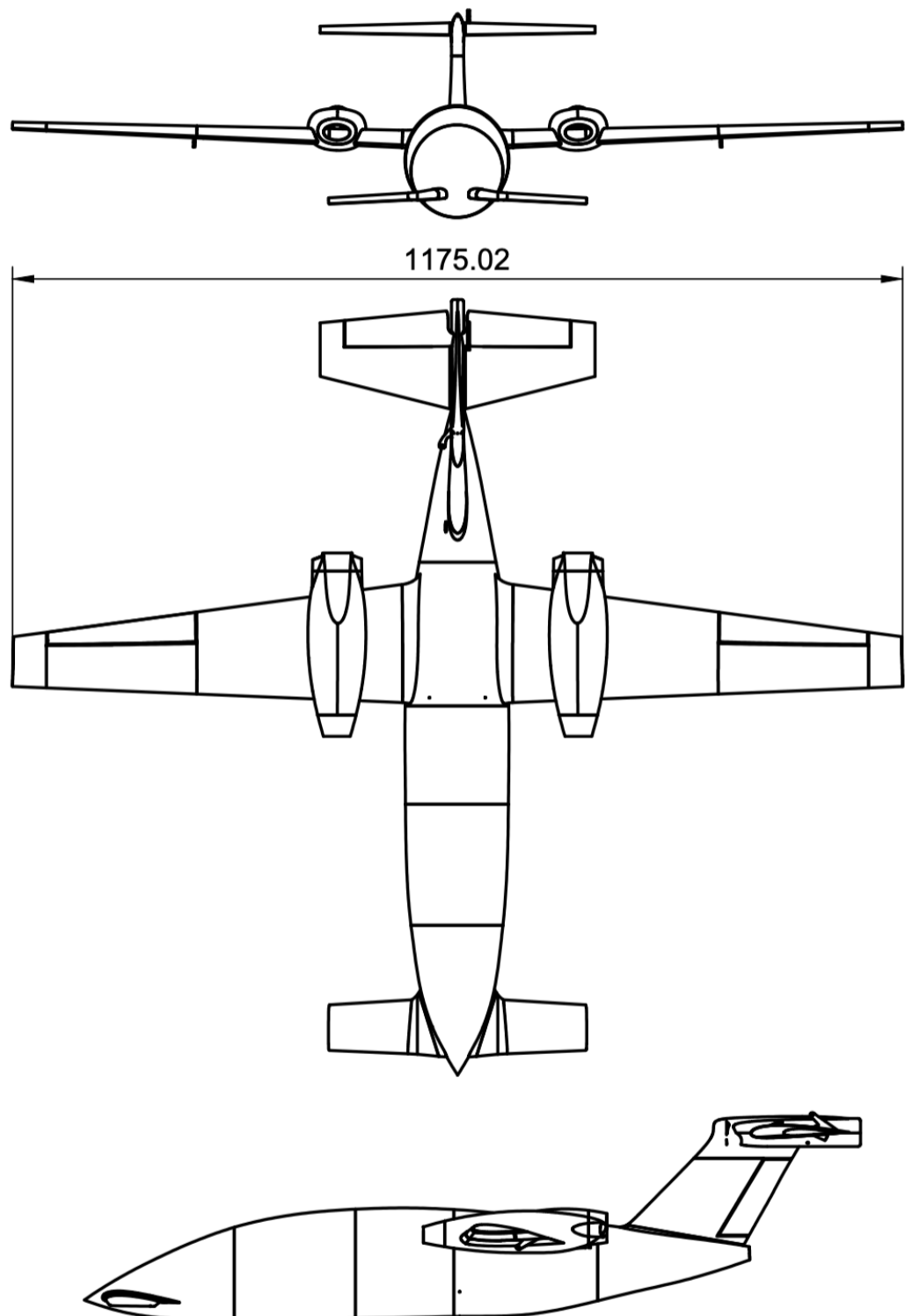
17

Channels

4 Channel

Centre of Gravity

2-4cm ahead of main lifting surface



PRINTING PROFILES

Please save the following profiles in Cura, ready to be used as required for the selected part to be printed.

Load a generic PLA profile into Cura for your printer, then change the following from the default options Profile 1.

PLA PROFILE 1

Wall Thickness	0.4mm
Wall line count	1
Top/Bottom Pattern	Lines
Infill Density	3
Infill Pattern	Cubic
Printing Temperature	215 -230C
Build Plate Temperature	60C (optional)
Fan Speed	20% Maximum
Generate Support	No
Build Plate Adhesion	Brim or Skirt

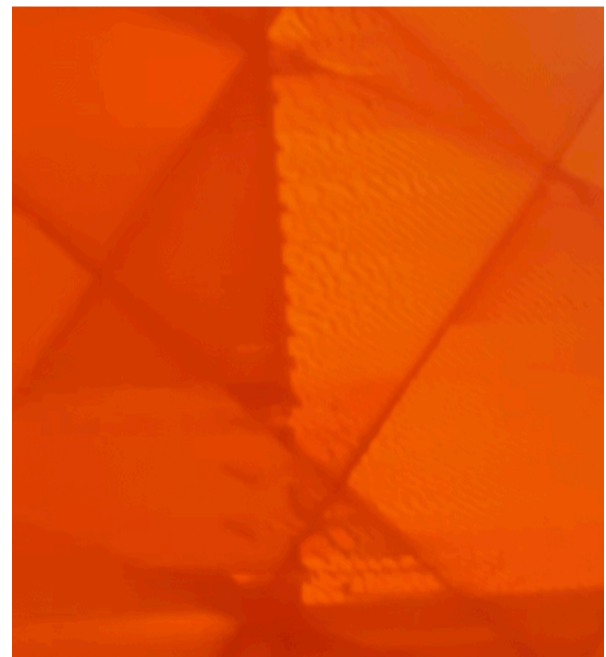
Save this profile as PROFILE 1

PLA PROFILE 2 - FIREWALLS

Wall Thickness	0.4mm
Wall line count	1
Bottom Thickness	2mm
Top/Bottom Pattern	Lines
Infill Density	5
Infill Pattern	Cubic
Printing Temperature	215 -230C
Build Plate Temperature	60C (optional)
Fan Speed	20% Max
Generate Support	No
Build PLate Adhesion	Skirt

Save this profile as PROFILE 2

A common problem is under extrusion at layer change - to fix this change the setting *extra prime amount* in Cura to 2-3mm

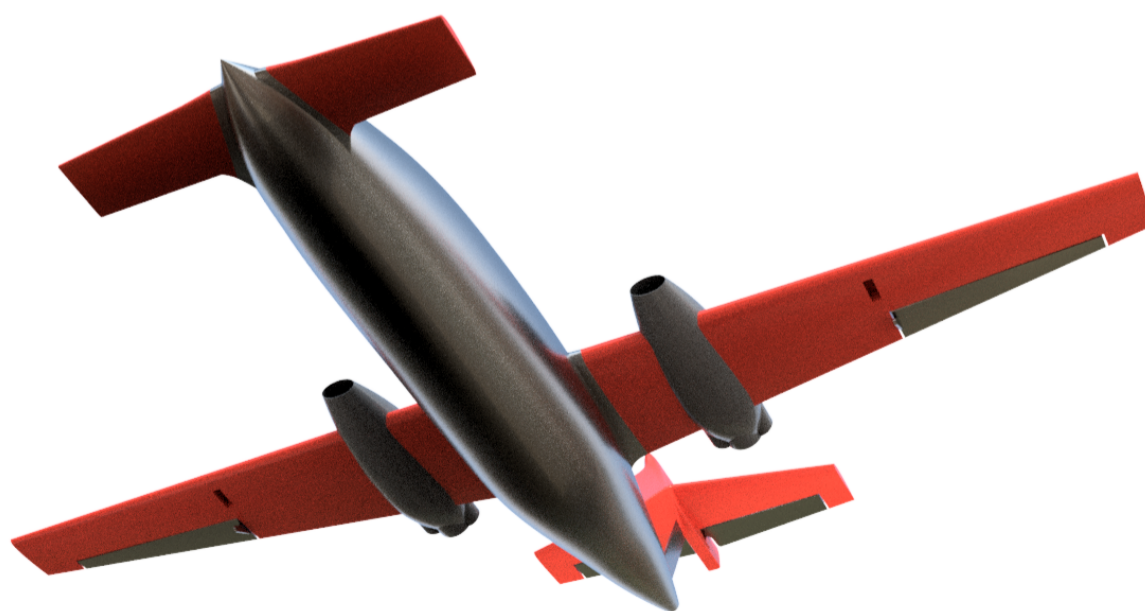


ASSEMBLY

4 MUST READ POINTS

- 1. THE SERVOS NEED TO BE IN PLACE IN THE WINGS BEFORE THE WINGS ARE GLUED TOGETHER.**
 - 2. DON'T GLUE THE MOTOR COWLINGS IN PLACE UNTIL YOU HAVE FITTED THE MOTORS. THIS IS BECAUSE YOU MAY NEED TO DRILL OUT THE MOUNTING HOLES.**
 - 3. THE AILERONS AND ELEVATORS ARE GLUED IN PLACE DURING WING CONSTRUCTION.**
 - 4. THROUGHOUT THE BUILD, ADHESIONS SHOULD BE CAREFULLY REMOVED AND FACES TO BE GLUED TOGETHER SHOULD BE SANDED FIRST TO ENSURE GOOD CONTACT. THIS IS **CRITICAL** AS WE DO NOT USE ANY CARBON TO STRENGTHEN THE AIRCRAFT.**
- Begin by checking the motor mounting holes. It is possible that with the thermal expansion of your print filament you might need to drill out the holes. Use a suitable size drill bit for your screws. Once done you can glue together the sections of the fuselage. The aircraft is joined in the centre fuselage by screws, this gives access to the lipo's and receiver, don't glue this! The rest of the fuselage is carefully glued together. your motors. So long as the motor mounts are set up you can glue on the motor cowlings.

- Before you fit and build your wings be sure to calibrate your servos, as it is difficult to do after the wing is built. For mounting the servos I would recommend a small blob of hot glue.
- Continue to glue the wings together, being careful to feed the servo wires through the channel. For the ailerons, if required drill out the hinge holes and place a piano wire hinge in place, then glue the wing sections together to secure the aileron.
- The Nacelles are fixed to the wings by carefully sliding them down the length of the wing. The motor ESC's need to be fed through from the nacelles to the ends of the wing, this should be done before gluing the wing to the fuselage. When gluing the wings to Fuselage 3 you can use Ice Lolly sticks to help align and stiffen the wing.
- Assemble the horizontal stab and elevator (2 pieces) using piano wire for hinges, again drilling out the hinge holes if required. Once assembled you can join the Horizontal Stab to the Vertical Stab Top using the Joining Biscuit but make sure the elevator is in place. When gluing the Vertical Stab together and to the fuselage you can make use of the elevator control run to help line everything up as well as the Vertical stab joining biscuit. Just make sure the piano wire doesn't get glued itself.
- The Forward Wings can be guided into place using ice lolly sticks.



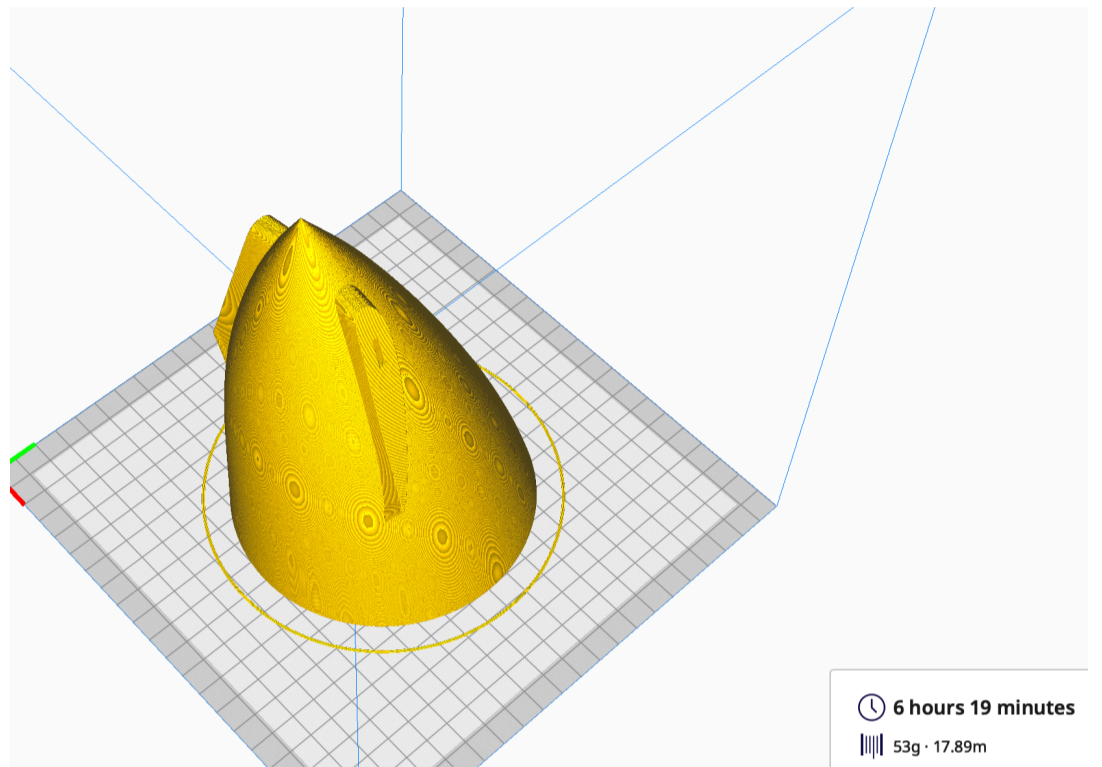
CURA COMPONENT PLACEMENT

NOSE

Profile 1

Adhesion: Skirt

Unique settings: None

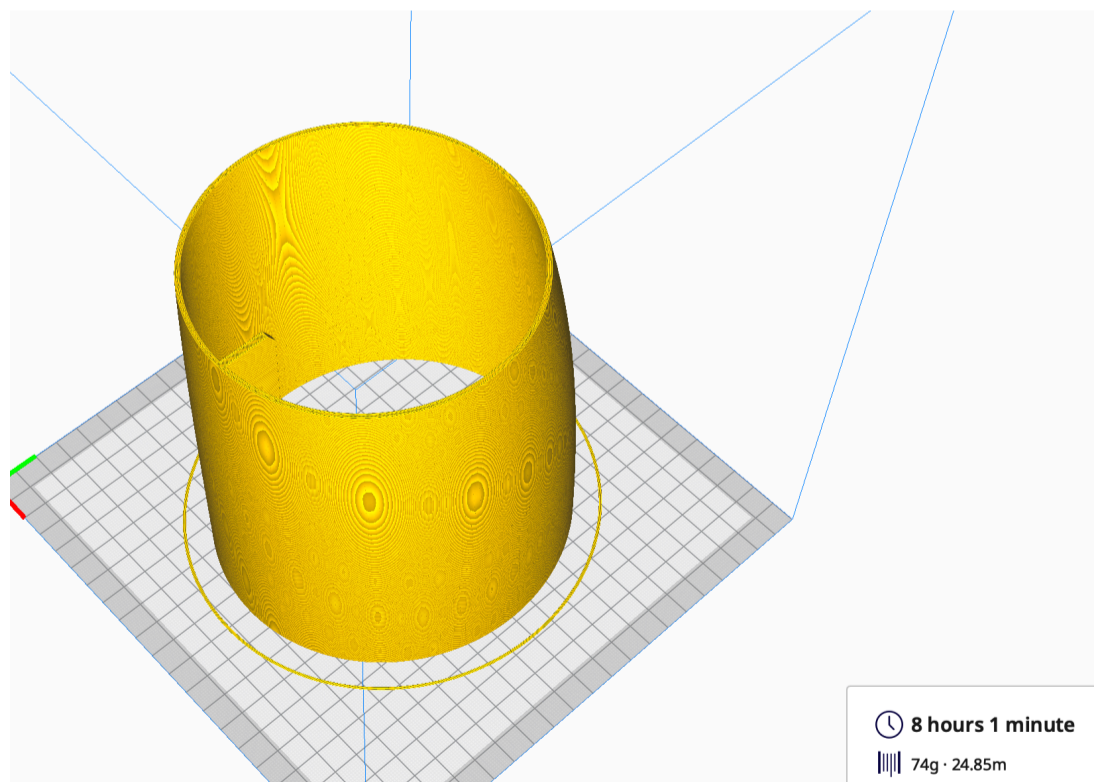


FUSELAGE 1

Profile 1

Adhesion: Skirt

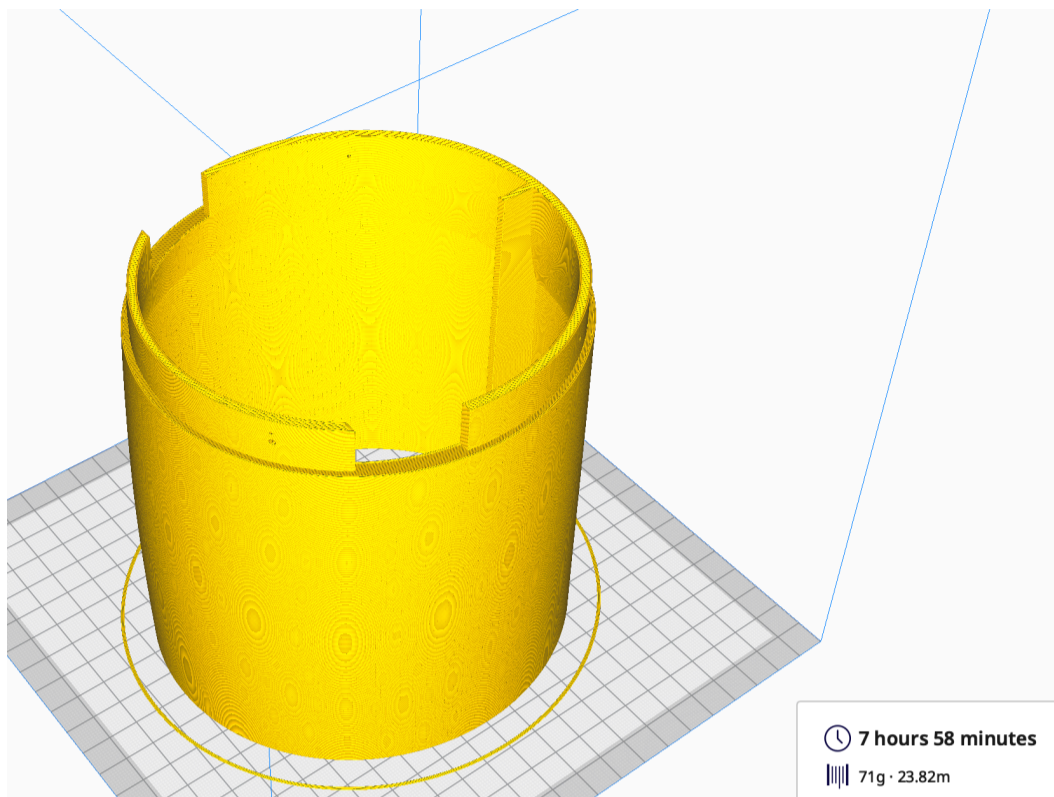
Unique settings: None



FUSELAGE 2

Profile 1

Adhesion: Skirt



FUSELAGE 3

Profile 1

Adhesion: Skirt

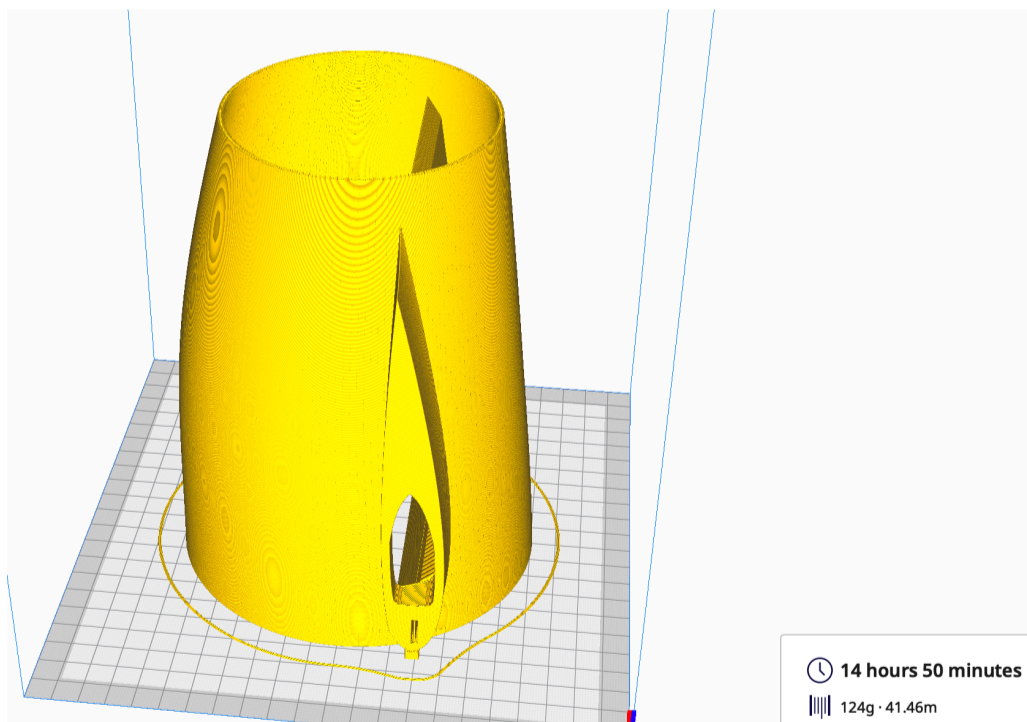
Unique settings: Supports may be required for the wing roots.

Supports: Yes

Support Overhang Angle: 60

Pattern: Zig Zag

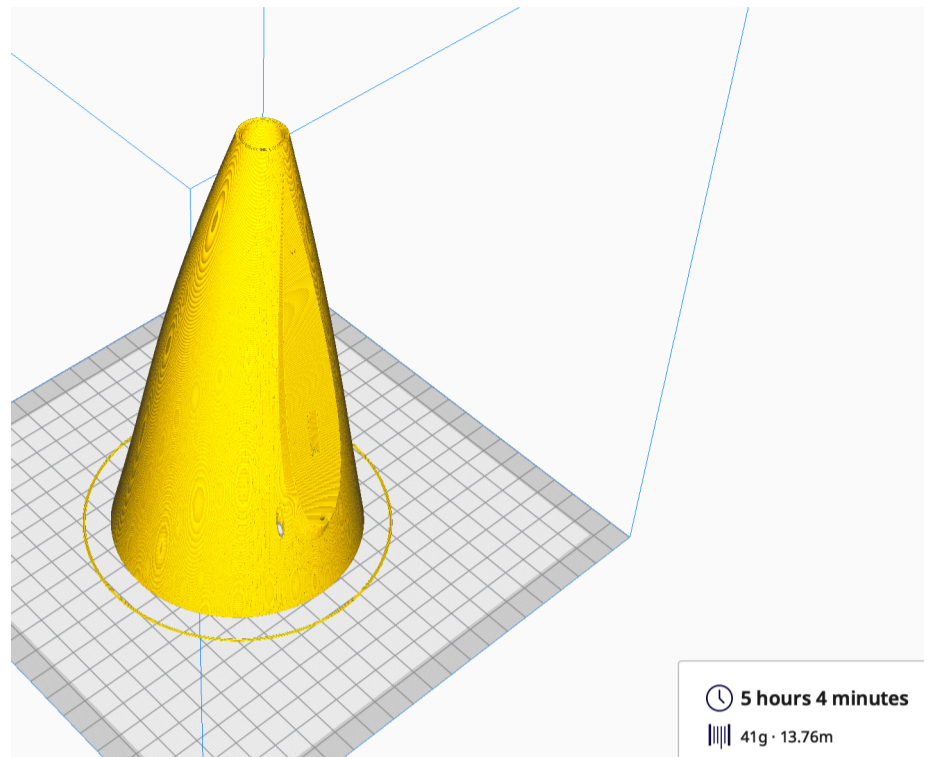
Density: 20%



TAIL

Profile 1

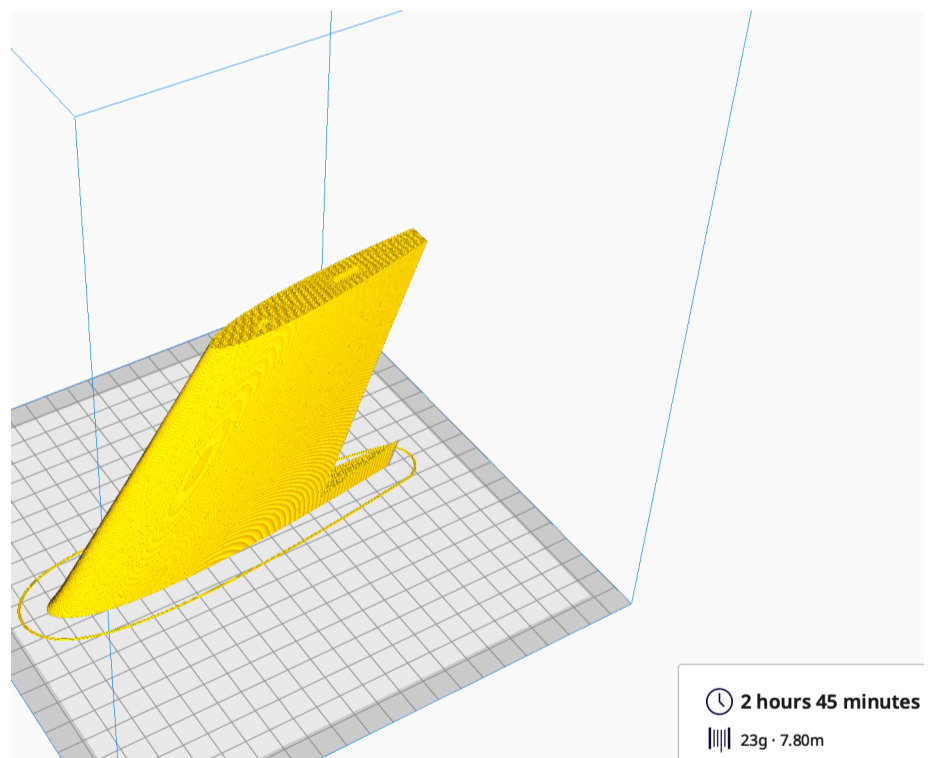
Adhesion: Skirt



VERTICAL STABILISER

Profile 1

Adhesion: Skirt

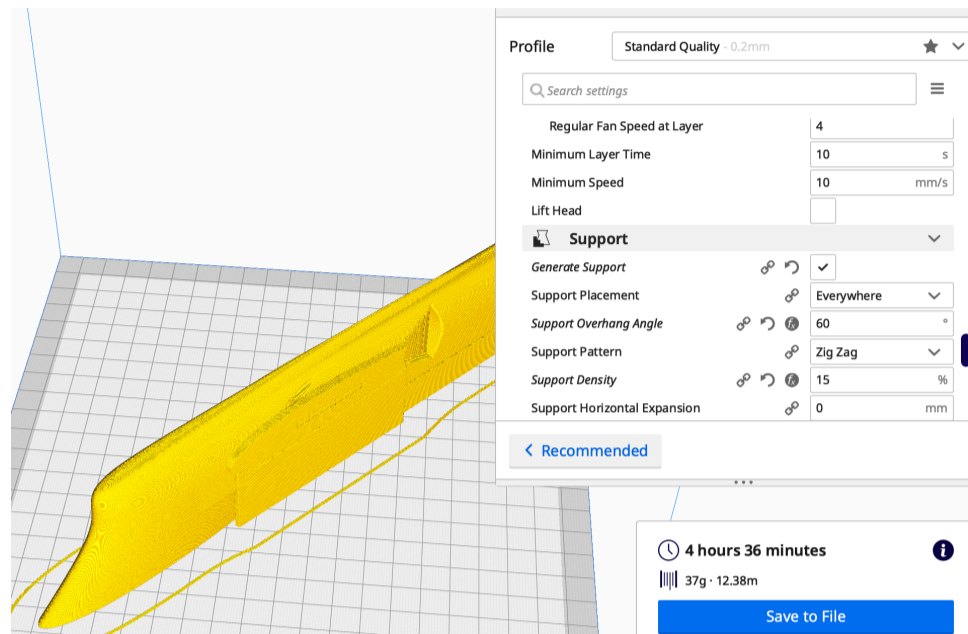


VERTICAL STAB TOP

Profile 1

Adhesion: Skirt

Unique Setting: Supports (see box right for settings)

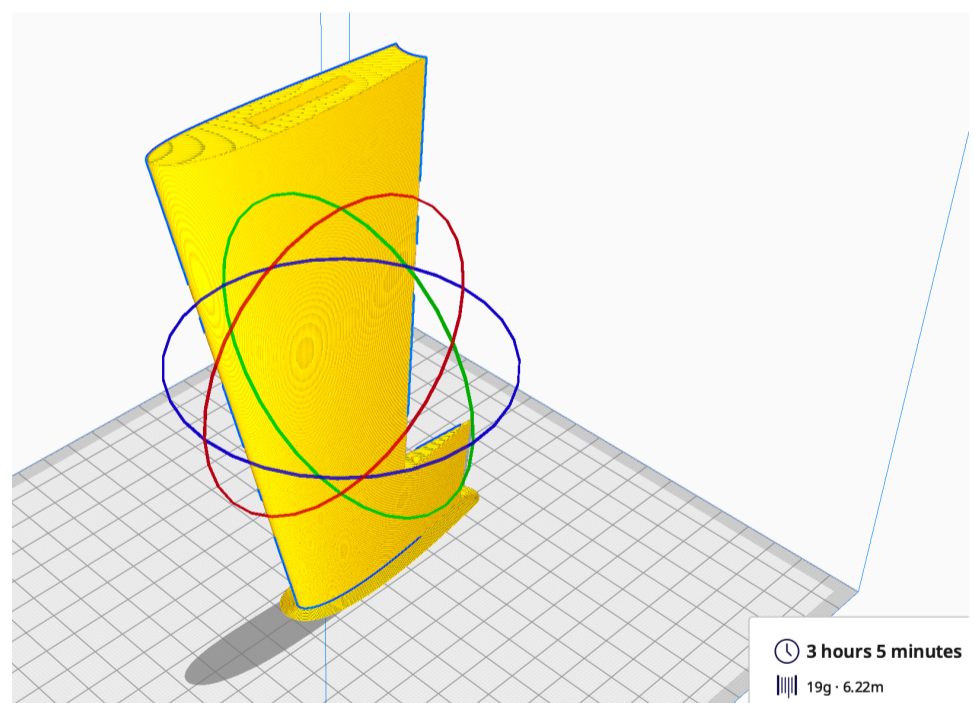


HORIZONTAL STAB (LEFT & RIGHT)

Profile 1

Adhesion: Brim

The brim helps with the bed adhesion.

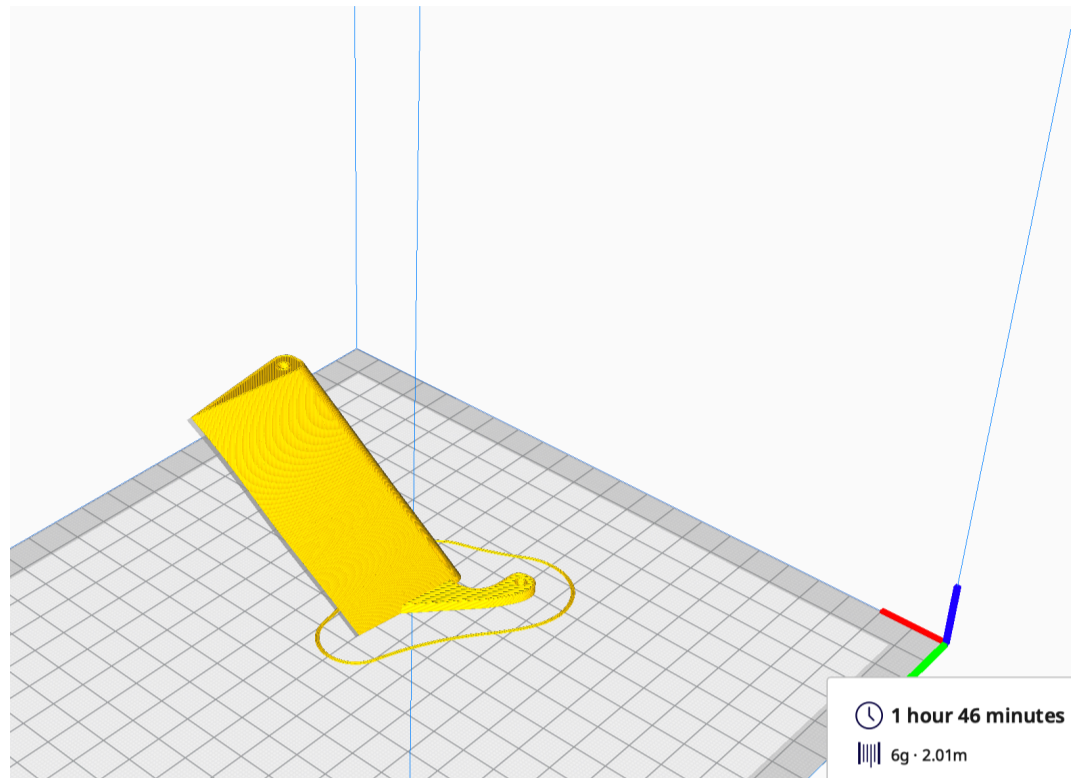


RUDDER

Profile 1

Adhesion: Brim or Skirt

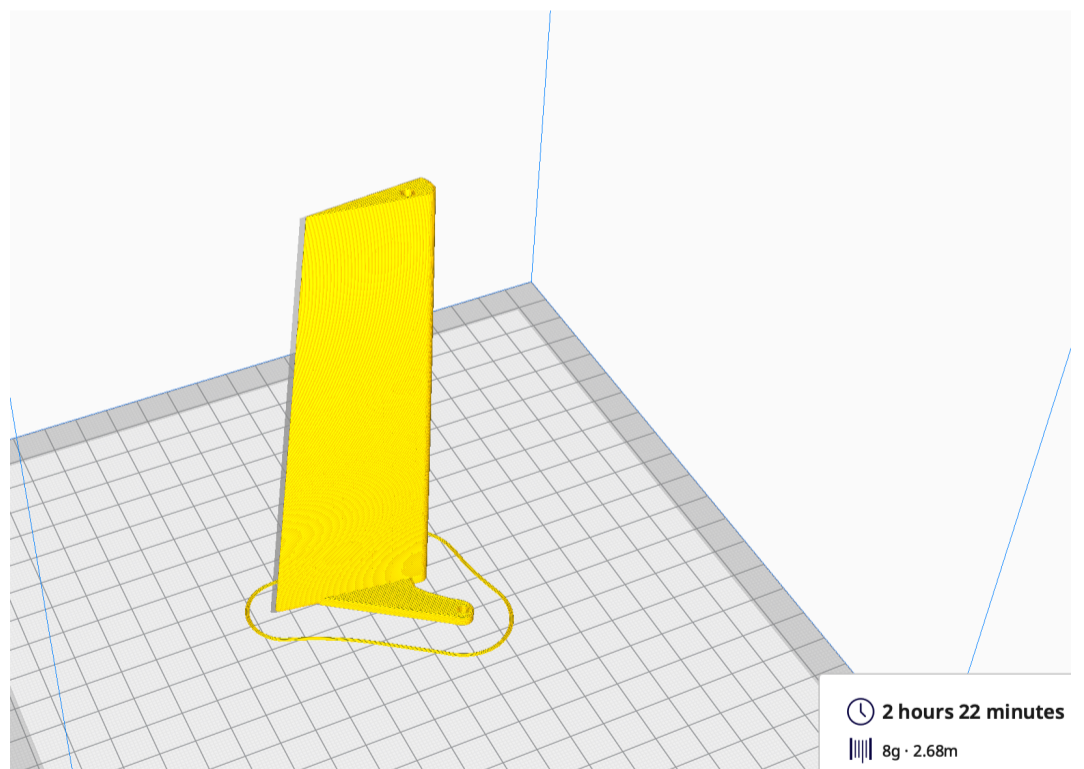
This part is tall and thin so requires good print bed adhesion.



ELEVATOR LEFT

Profile 1

Adhesion: Brim or Skirt

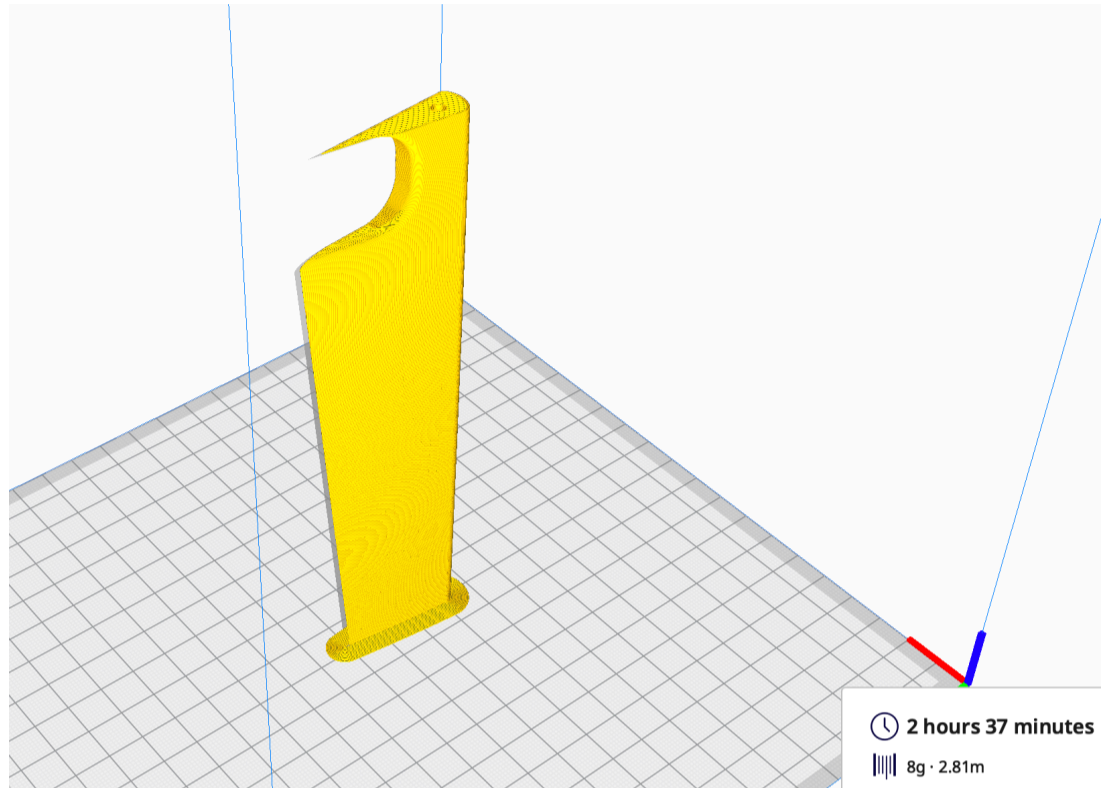


ELEVATOR RIGHT

Profile 1

Adhesion: Brim

This part is tall and thin, a good bed adhesion is needed to stop the part falling over

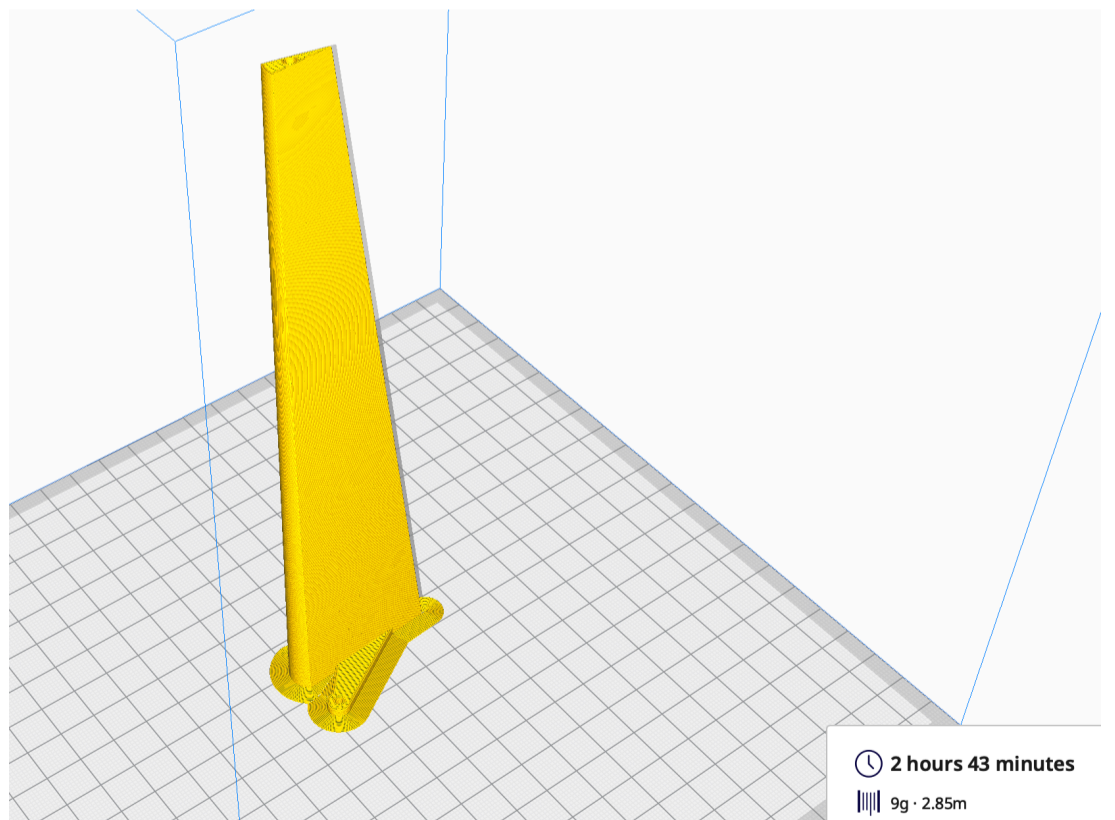


Aileron (left & right)

Profile 1

Adhesion: Brim

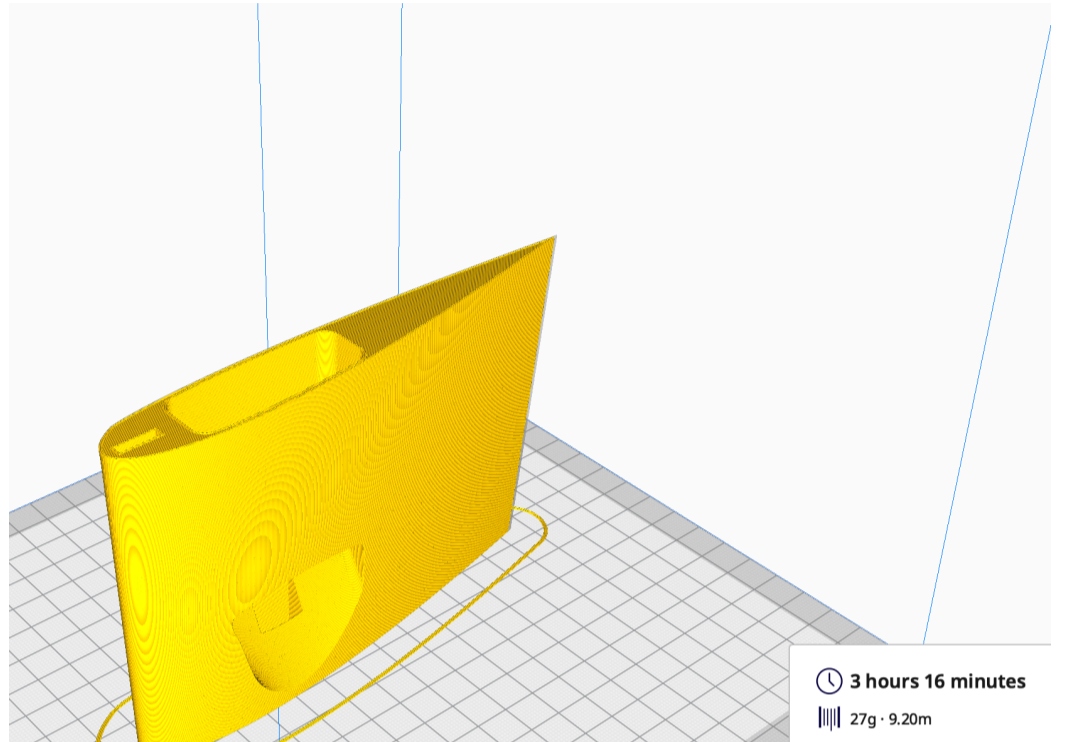
This part is tall and thin, a good bed adhesion is needed to stop the part falling over.



WING ROOT

Profile 1

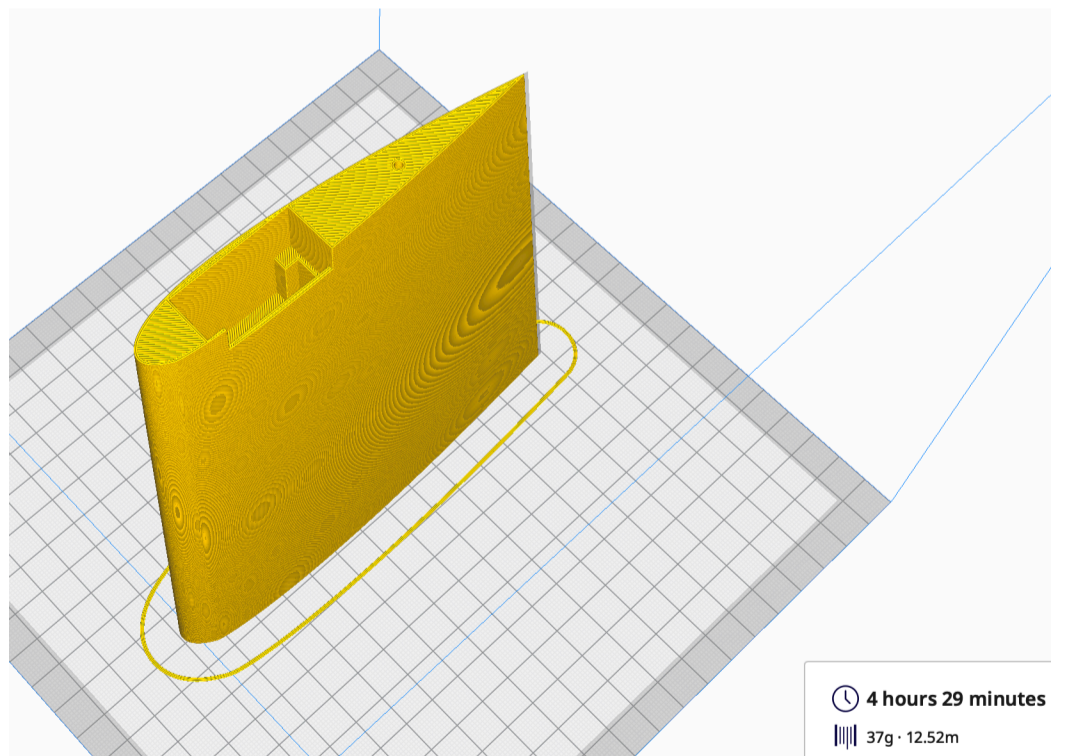
Adhesion: Skirt



WING MIDDLE

Profile 1

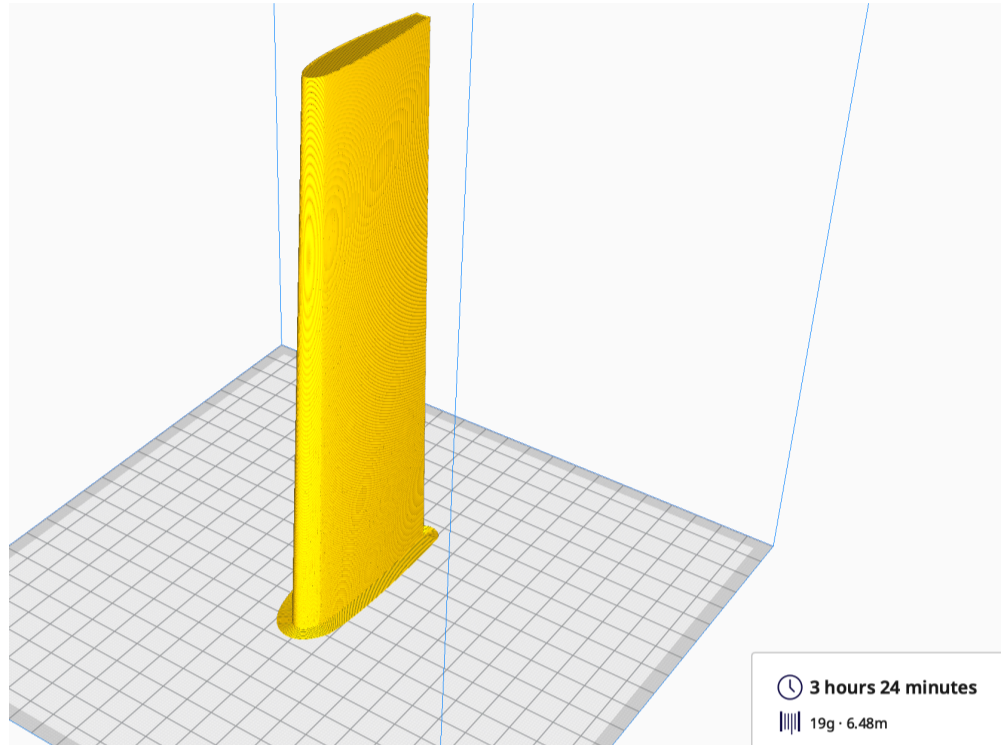
Adhesion: Skirt



WING OUTBOARD

Profile 1

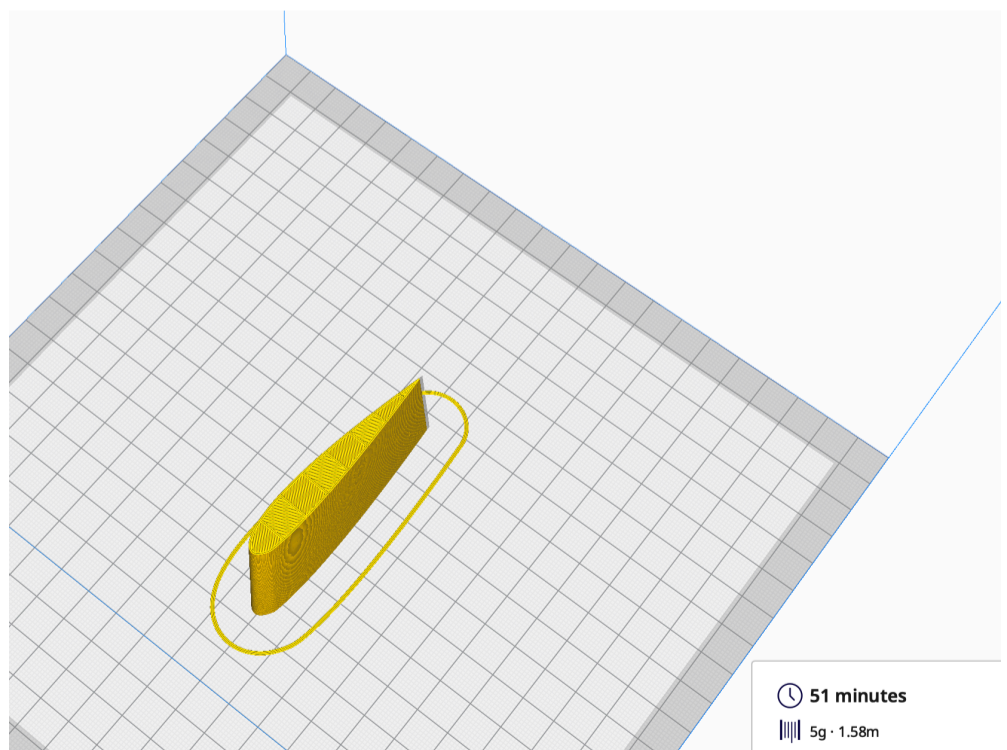
Adhesion: Skirt



WINGTIP

Profile 1

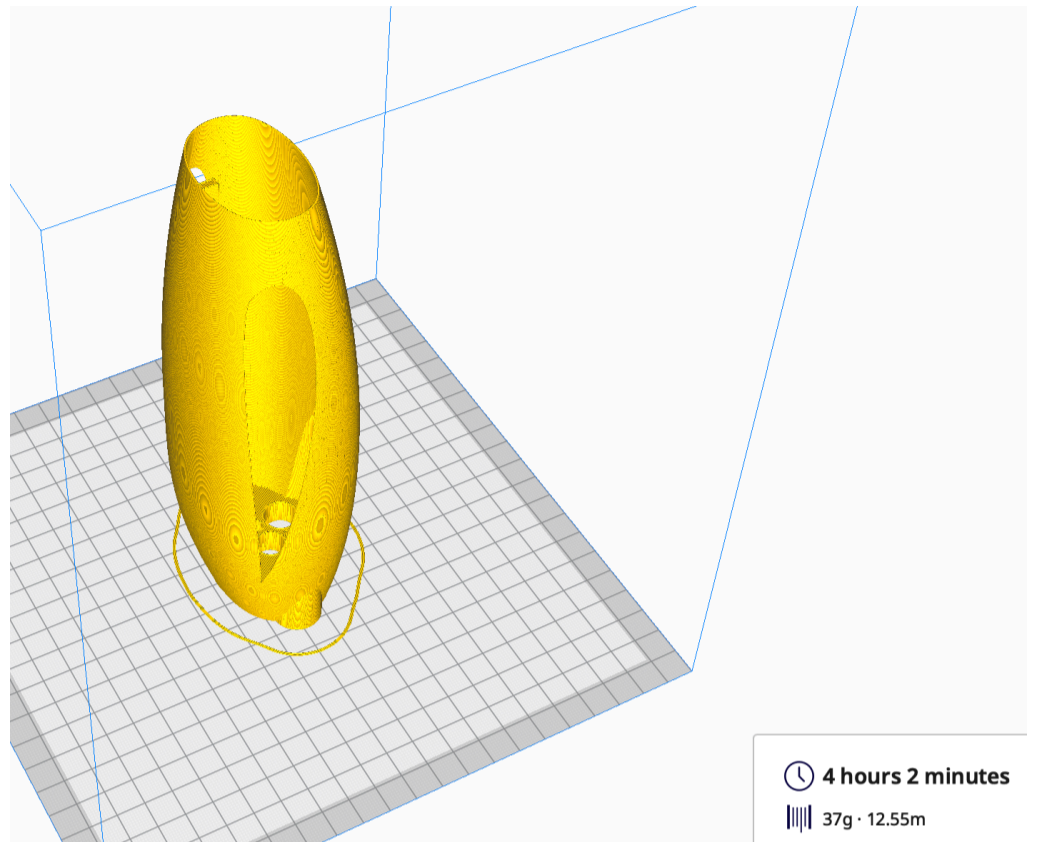
Adhesion: Skirt



NACELLE (LEFT & RIGHT)

Profile 2

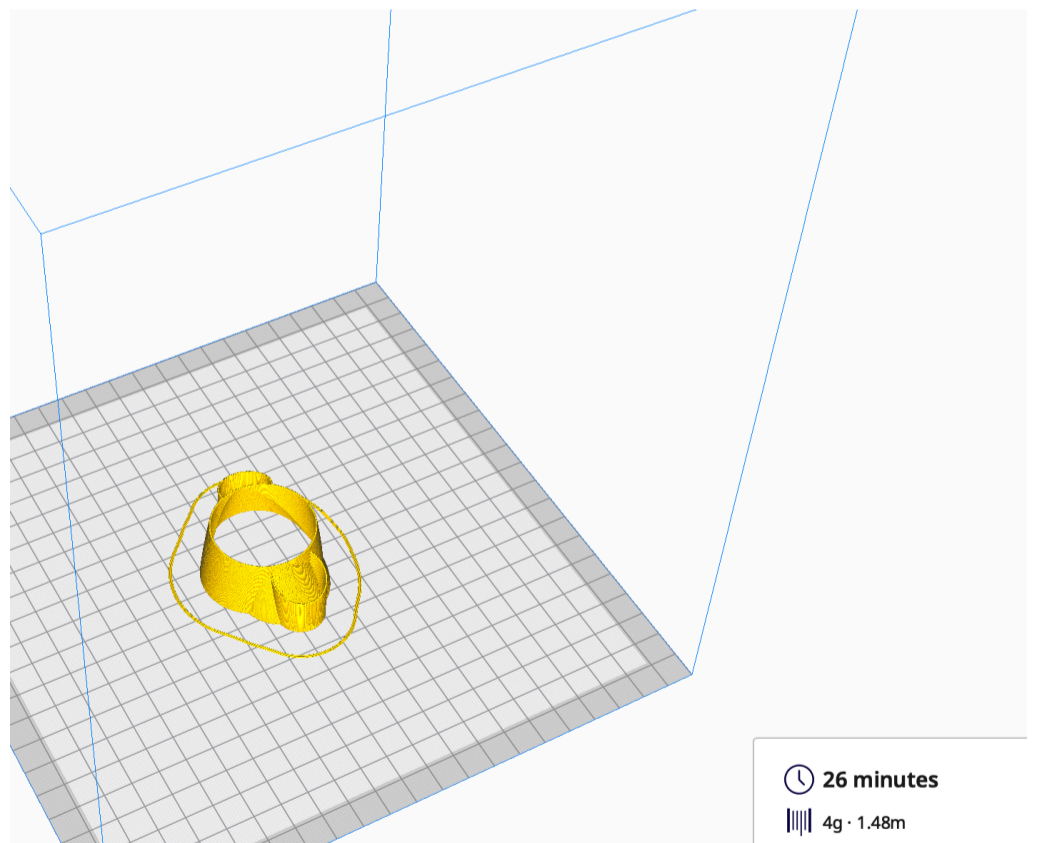
Adhesion: Skirt



NACELLE COWLING (LEFT & RIGHT)

Profile 1

Adhesion: Skirt



INTAKE (LEFT & RIGHT)

Profile 1

Adhesion: Skirt

