rc3Dprint

QUICKIE

PRINTING AND ASSEMBLY INSTRUCTION

THANK YOU

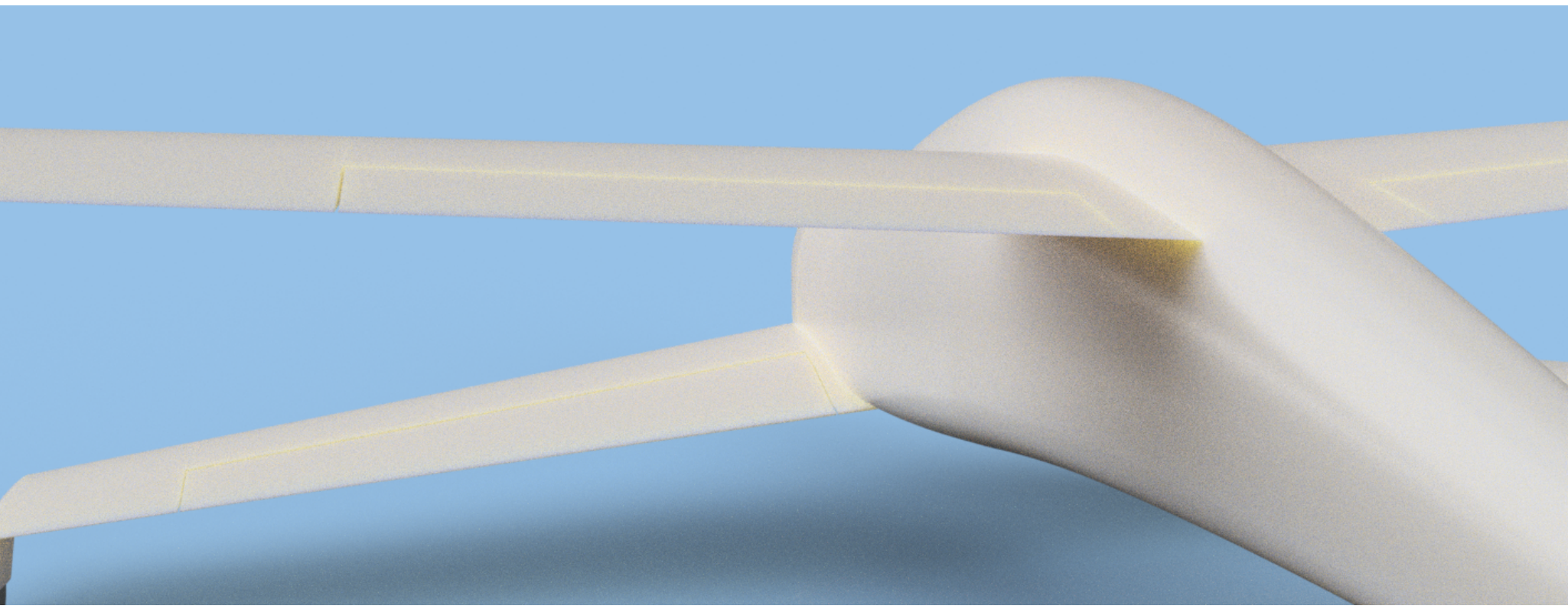
Thank you for downloading this Quickie. These models take many hours of work to make available to you so please don't share the STL files with others. Send them to www.rc3print.com where they can download the models themselves. This enables me to continue to develop new models to make them available for download.

This document aims to help you print and assemble your aircraft. Our designs are made to be simple, this model is designed explicitly with LW-PLA in mind, so it incorporates carbon tube spars. If you print it from regular PLA it will obviously be heavier and you should take this into account.

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. 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, Facebook, or by email and tag @rc3dprint for discount codes on future orders.



PARTS LIST

REQUIRED

Motor - 2836 motor (or similar) - 1 x ESC and LIPO as required - 3S/4S battery

4 - Channel radio kit minimum. 6 channels preferred - one channel for each control surface.

5 x 9g servo

Pultruded carbon tubes: 2 x 1m 8mm Outside Diameter + 1m 10mm Outside Diameter _ 8mm Inside Diameter - 1m 3mm Tube -

Assorted small ‘servo’ screws for mounting motors and the fuselages removable join

30cm of 1.1m diameter piano wire for rudder hinge

CA glue

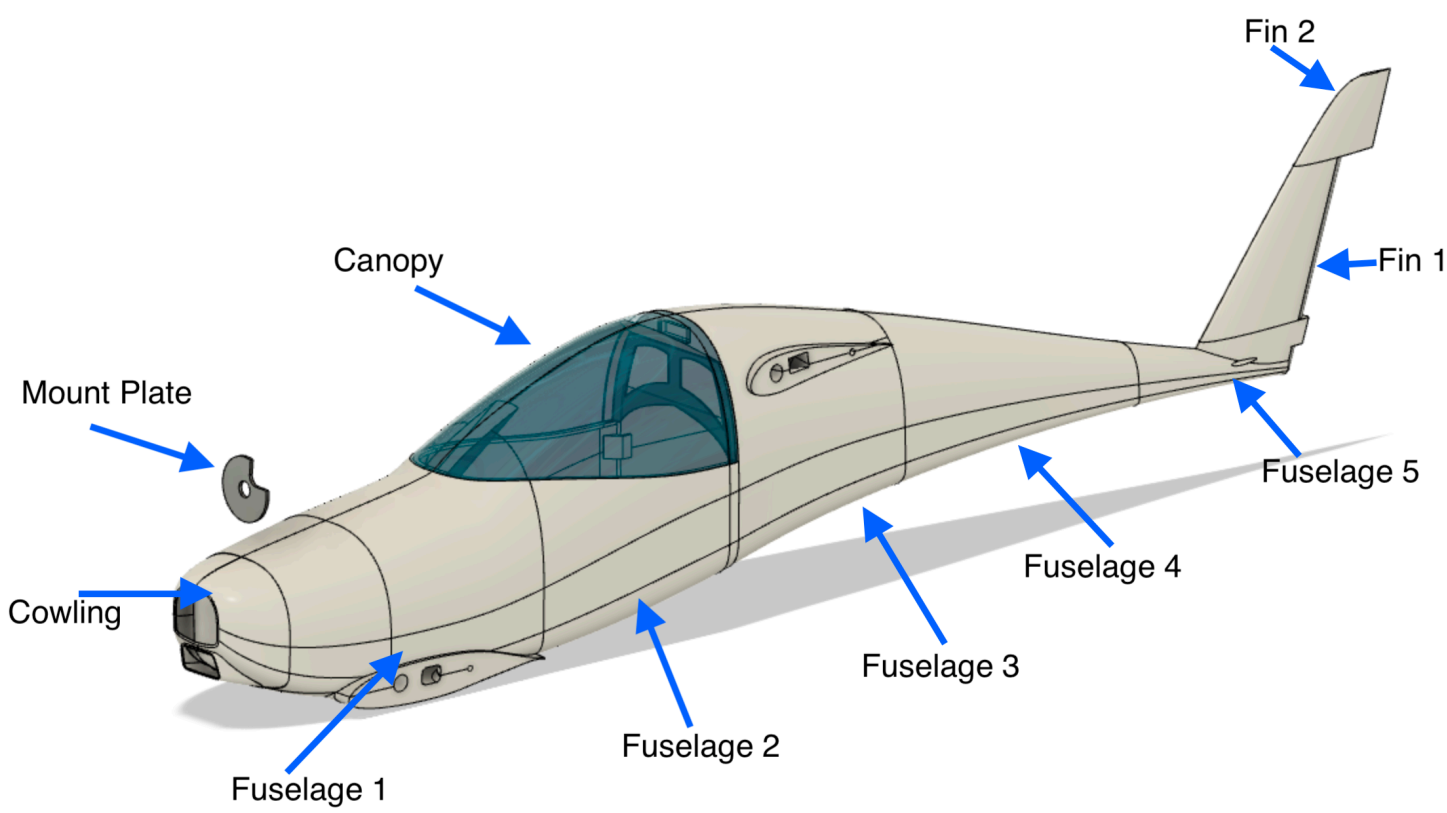
Hot glue (optional for rudder servo)

1 x electric propellers to complement your electric set up, up to 10inch

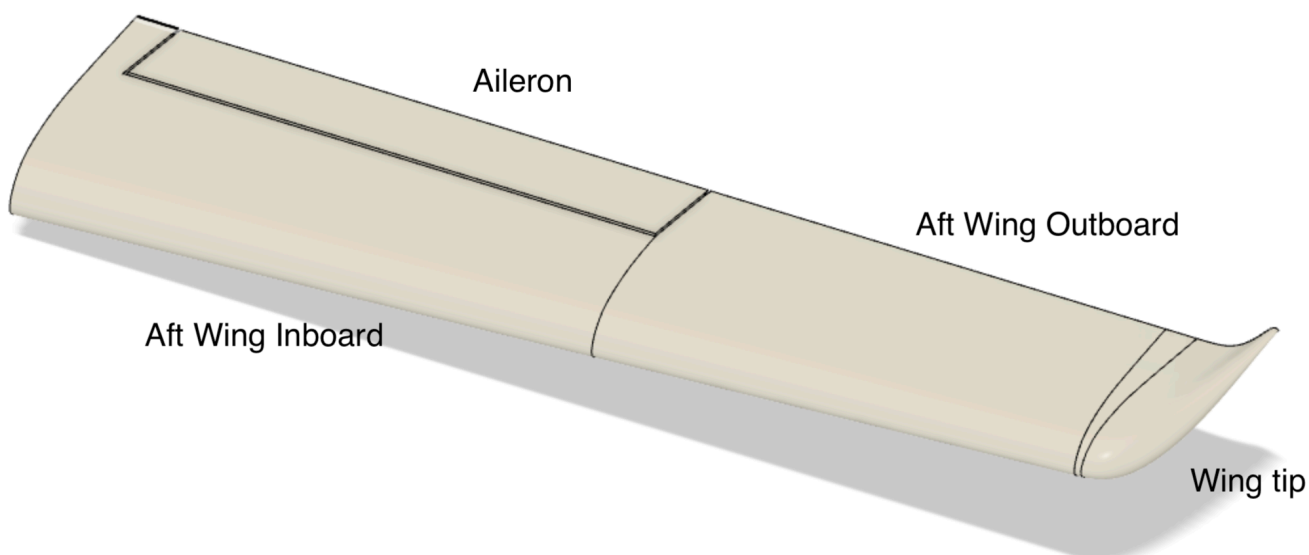
2 x 25mm x 8mm x 2mm N35 Magnets - https://amzn.to/35GtsmC

INCLUDED STL. FILES

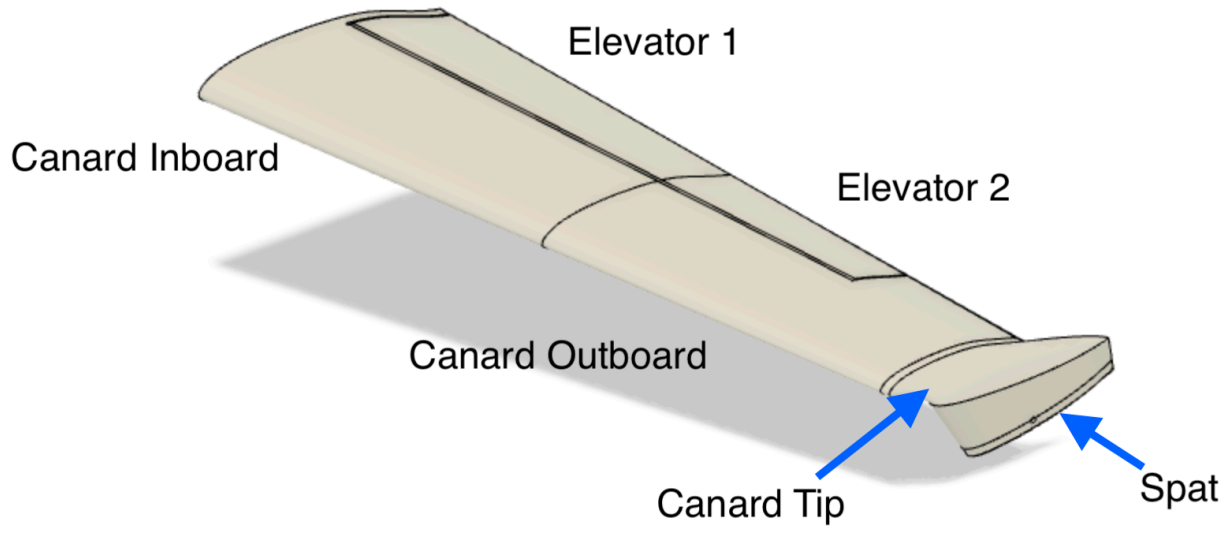
FUSELAGE



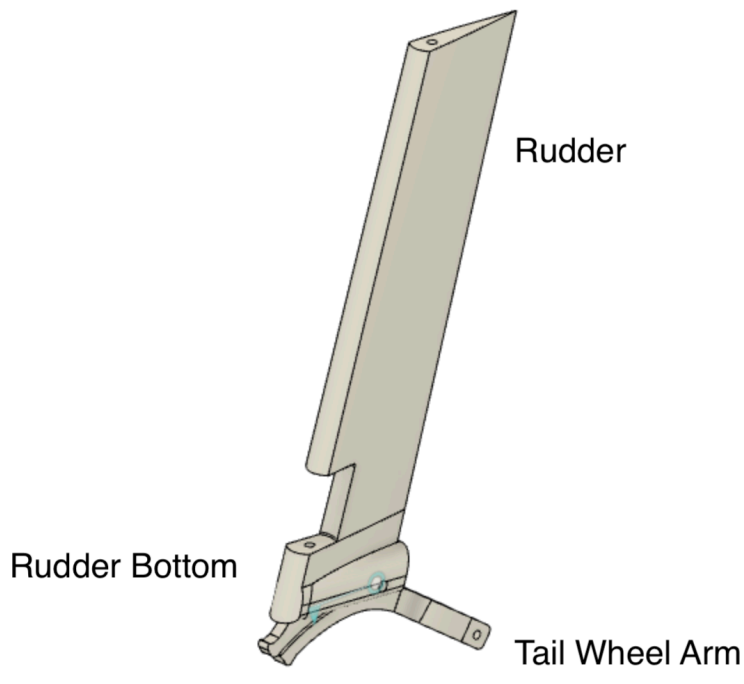
AFT WING



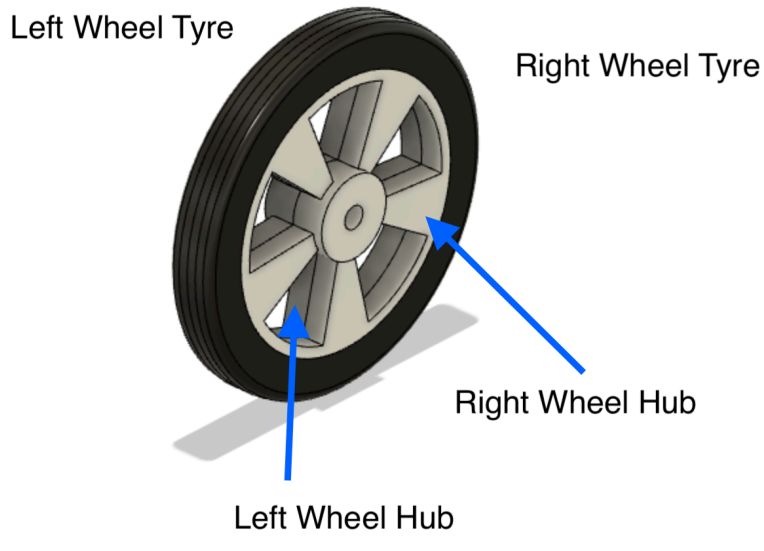
CANARD



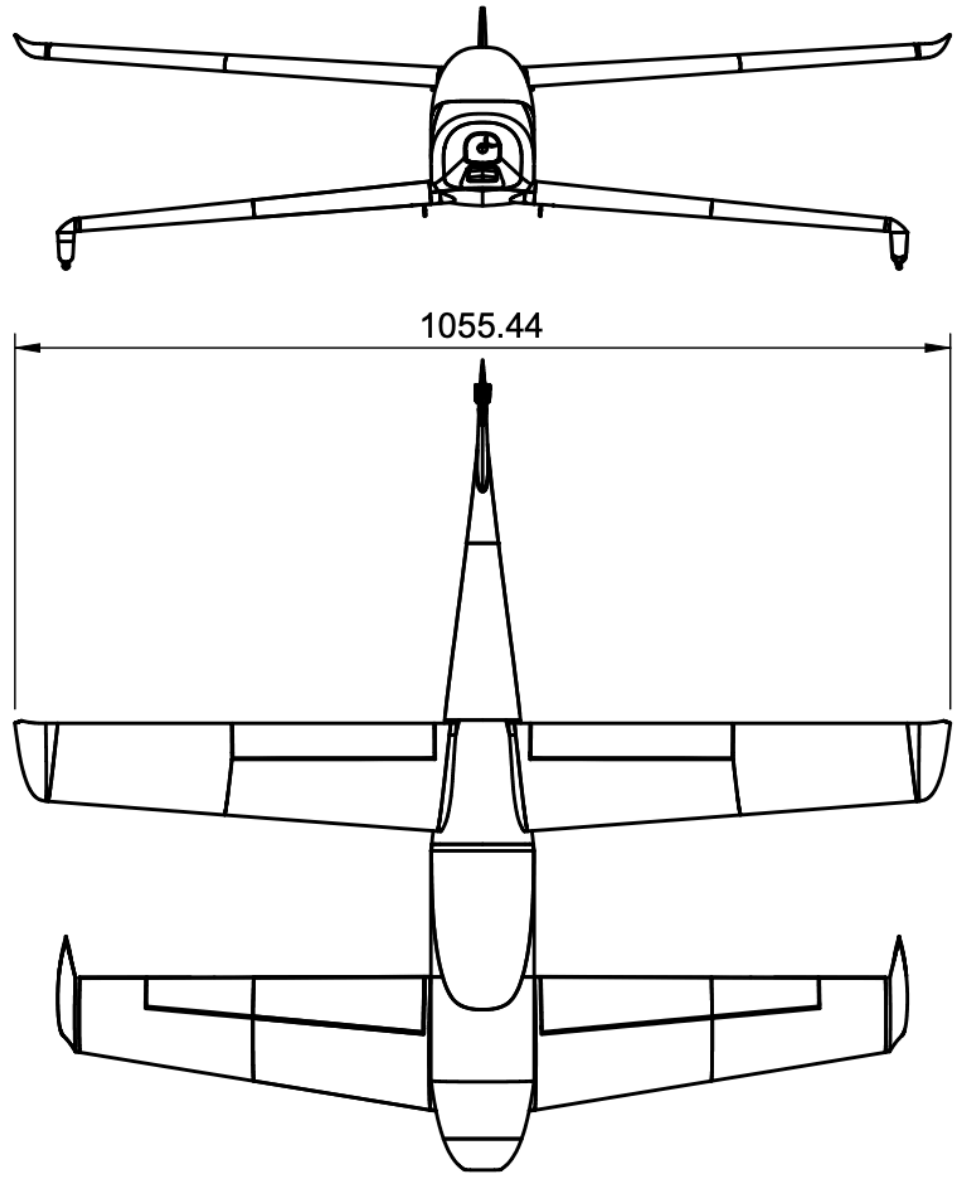
RUDDER ASSEMBLY



MAIN WHEEL PARTS



SPECIFICATIONS



Wing Span & Area

1055mm - 25.43dm²

Weight of Printed Parts

450g

Flying Weight

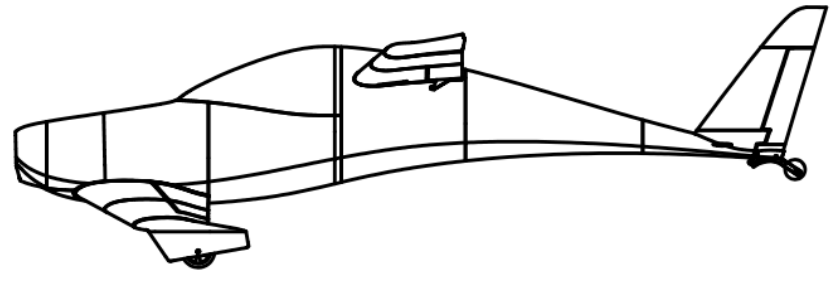
(2200mAh 3S): 750g

Wing Loading

25.4 g/dm² 11.6 oz/sq.ft

Wing Cube Loading

7



Channels

4 Channel Minimum

Centre of Gravity

1.5 cm Behind of trailing edge of canard - See the line on the fuselage.

PRINTING PROFILES

* If printing in LW-PLA from Colorfabb we recommend following the calibration process suggested by the manufacturer regarding nozzle temp and flow, below are suggestions

LW-PLA PROFILE 1

Save this profile as LW-PLA. Changes to generic ‘Low Quality’ PLA profile.

Layer height	**0.24mm**
Wall Thickness	0.4mm
Wall line count	1
Top/Bottom Pattern	Lines
Infill Density	3
Infill Pattern	Cubic
Flow	50%
Printing Temperature	240C*
Build Plate Temperature	60C (optional)
Fan Speed	20% Maximum
Generate Support	No
Build Plate Adhesion	Brim or Skirt

PLA PROFILE

Wall Thickness	0.4mm
Wall line count	1
Top/Bottom Pattern	Lines
Infill Density	2
Infill Pattern	Cubic
Infill Speed	I suggest double the normal printing speed.
Printing Temperature	215C
Build Plate Temperature	60C (optional)
Fan Speed	20% Max
Generate Support	No
Build PLate Adhesion	Skirt

Save this profile as PLA PROFILE

A WORD ON RETRACTIONS

With regular PLA a common problem is under extrusion at layer change - to fix this change the setting *extra prime amount* in Cura to +1-3mm.

With LW-PLA it is recommended to switch retractions OFF since trying to retract the foaming filament can cause problems. If you need to fix under extrusion you can still use the method above but will need to turn retractions ON and set the retraction distance to 0mm.

ASSEMBLY

4 MUST READ POINTS

1. DRY FIT EACH PIECE TOGETHER BEFORE GLUING IN PLACE. THIS IS TO CHECK FOR FIT.

2. THE RUDDER HINGE IS GLUED IN PLACE WITH THE FIN DURING ASSEMBLY. EITHER FIN 2 OR THE RUDDER BOTTOM NEEDS TO BE GLUED ON LAST WITH THE HINGE IN PLACE.

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.** TIME TAKEN HERE WILL ENSURES YOUR AIRCRAFT IS STRONG.

- Begin by marking out the drill holes for your motor mount. I use the small servo sized screws in a 1mm drilled hole. A *mount plate* to be printed in regular PLA or ABS is provided. This goes inside the fuselage 1, you can glue it in place then the drill the mount holes all at once.

- Glue together *fuselage* pieces 1, 2 and 3. It is a good idea to fit the rudder servo into fuselage 3 at this stage. A dab of hot glue on the sides of the servo works well for this.

Check which way round the servo should go by sighting the servo control rod hole on *Fuselage 4*.

- *Fuselage 4, 5* include a 3mm carbon rod, which also goes into *fuselage 3*. Dry fit these pieces together to check the length of the rod then glue them together. It is also a good idea to connect the servo wire to the rudder servo at the same time, running it through to the tail, you can cut the rudder end to size later.

- Glue *Fin 1* and *Fin 2* to the tail. Put the rudder section in place and run the rudder hinge up into the Fin. You can then glue on the *Rudder Bottom* part. The tail wheel arm is attached with a 2mm pice of wire you could you coat hanger. You may need to drill out the holes to fit. Depending on the expansion of your filament you may need to sand down the tail wheel arm to ensure it moves OK. Add a small rubber band for suspension.

- To complete the fuselage attach your motor, its a good idea to feed your ESC'c wire through the front of the fuselage to connect it up. Once you're happy with the motor mounting you can glue on the cowling.

- The wings are assembled around carbon tubes. Due to blobs and stringing you may need to use an appropriately sized drill bit to clean out the holes. I have found it is a good idea to do this with he drill bit in hand rather than attached to a drill.

- In fuselage 1 and 3 you need to insert the carbon tubes to act as sleeves for the spars. It is a 10mm OD (outside diameter), 8mm ID (inside diameter) tube. Insert the full length tube first and mark out where you need to cut it to be flush with the fuselage. The canard wings can remain removable by drilling a small hole through the carbon sleeve and wing spar at the appropriate points on the bottom of the fuselage with the wing in place. Small screw then hold the canard in position during flight. The aft wing is currently not removable and should be glued.

- Both wings utilise a 3mm carbon tube for the control surface hinge. They also stop the wing from turning by reaching into the fuselage. Due to the angles the aft wing rear spar can only reach 5mm-10mm or so into the fuselage and needs a bit of help to get it in place.

- The wheel hubs are printed in PLA and the tyres printed in TPU. You can drill out the holes for wheel axels to whatever size you wish. You can also use suitably sized pre-purchased wheels. In order to prevent rubbing its a good idea top use small washers either side of the wheel.

- Position the rudder linkage to the rudder bottom and connect up to the rudder control rod.

- To install the canopy, glue the two magnets in place. IT IS HIGHLY IMPORTANT TO MAKE SURE THE POLES ARE SET CORRECTLY OTHERWISE THE CANOPY WILL BE REPELLED. Depending on your filament expansion you may need to use a multi tool to trim the “latch”.

ADVICE FOR MAIDEN FLIGHT

Make sure the control surfaces are moving correctly! The elevator on the front wing should move down to lift the noise up. It is also possible to have the canard surfaces act as ailerons and the rear surface act as elevators.

The battery should be positions such that it won’t move, I tend to use sticky telco for this.

Check the CG. Check the CG again! There is a very fine line on the underside of the fuselage, just behind the canard which gives you the calculated CG position.

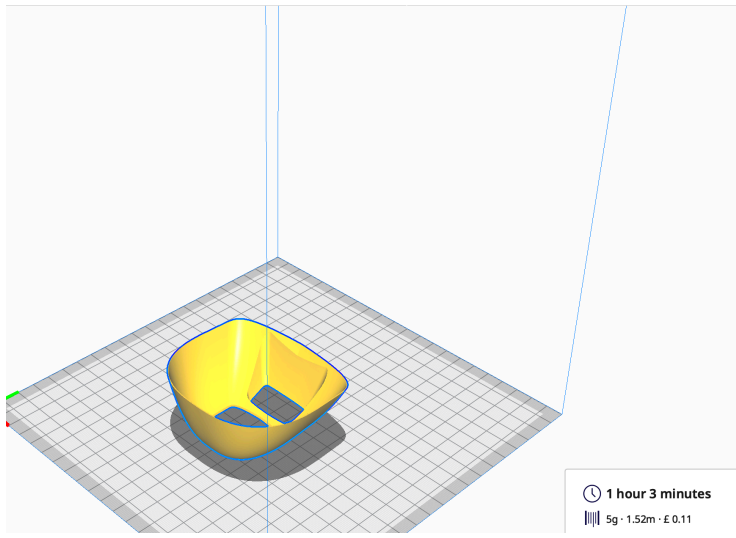
I suggest carrying out the maiden flight from a take off roll rather than a hand launch. As such I would recommend a smooth surface. This enables you to find the neutral elevator position. In order to avoid an unexpected uncontrollable pitch up I would start with a small amount of nose down and slowly release the stick once take off speed is achieved.

Have fun.

CURA COMPONENT PLACEMENT

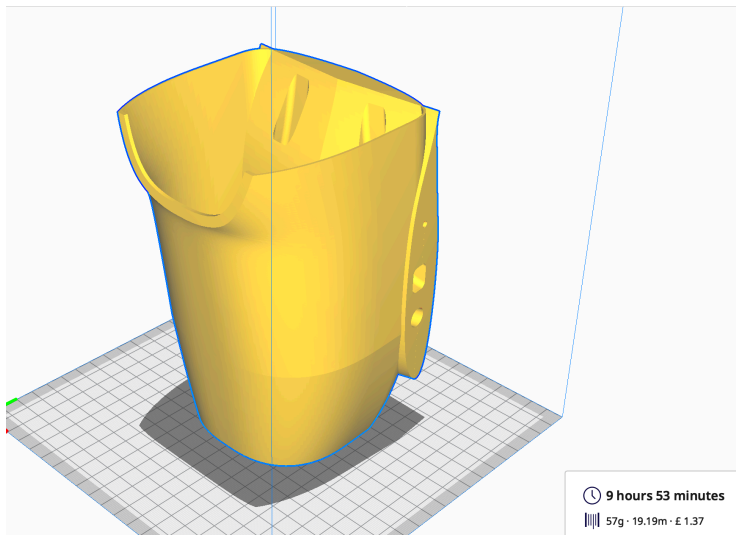
COWLING

Unique settings: None



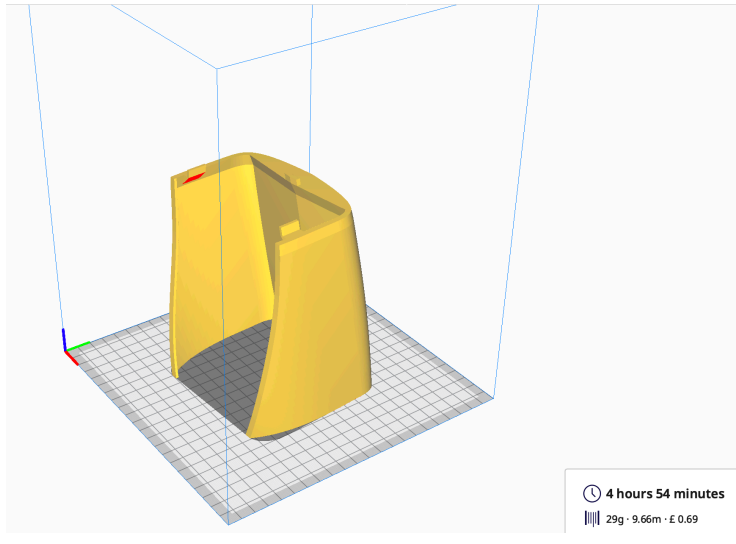
FUSELAGE 1

Increase bottom layer thickness to 2mm



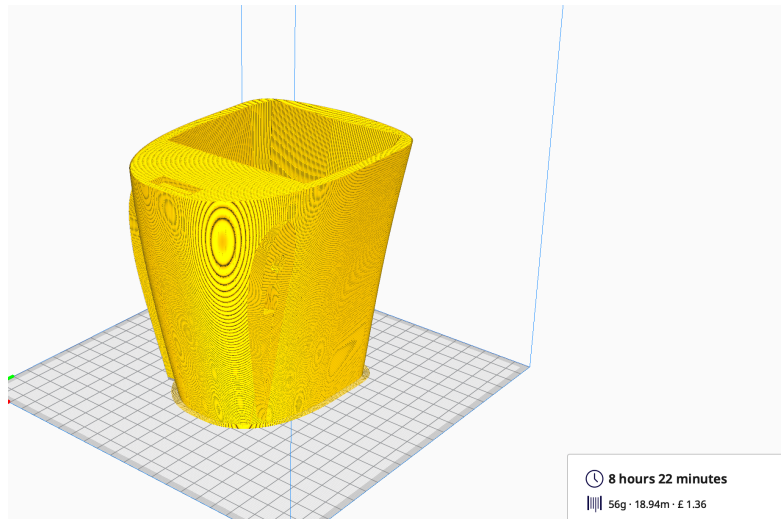
FUSELAGE 2

Unique Settings: None



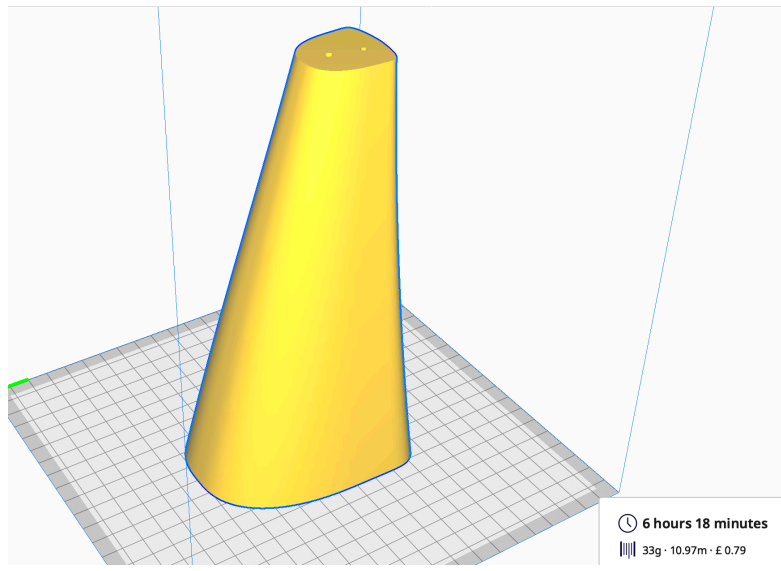
FUSELAGE 3

Unique setting: Supports can be enabled for the wing root trailing edges



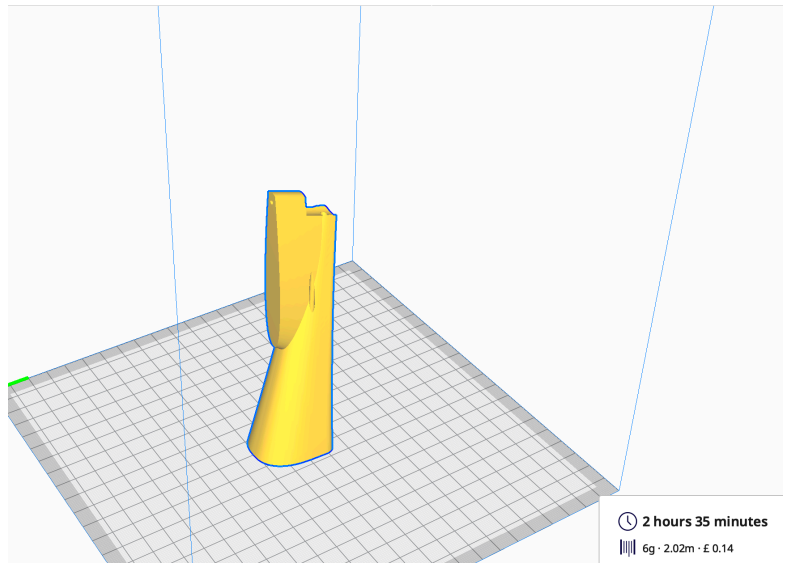
FUSELAGE 4

Unique Settings: None



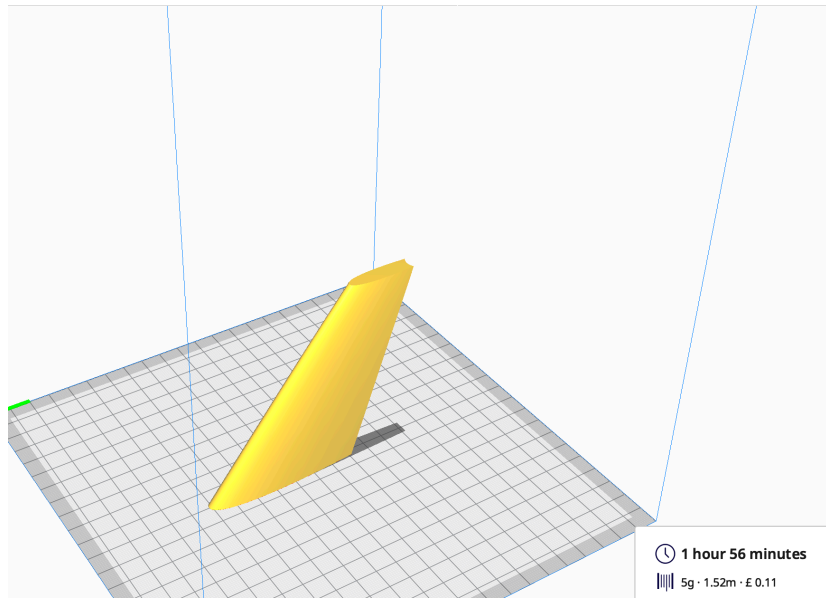
FUSELAGE 5

Unique Settings: None



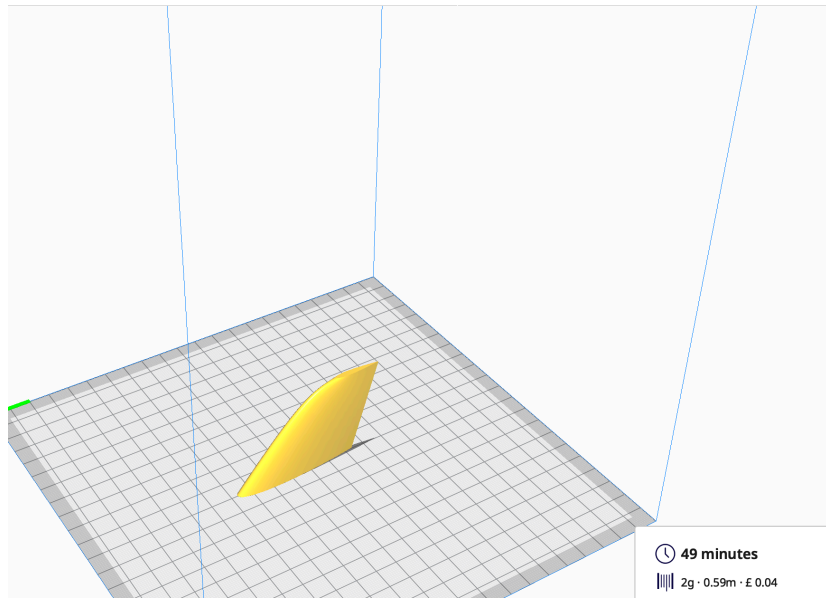
FIN 1

Unique Setting: None



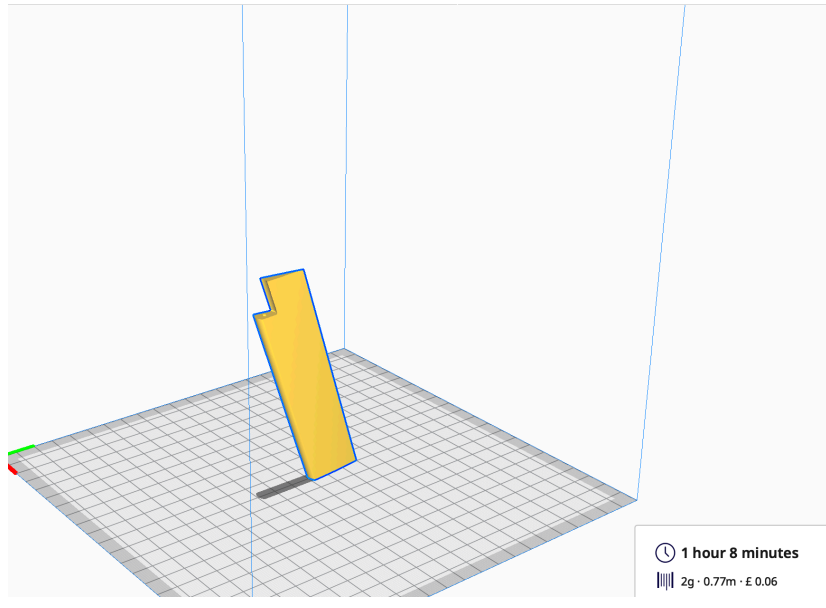
FIN 2

Unique Settings: None



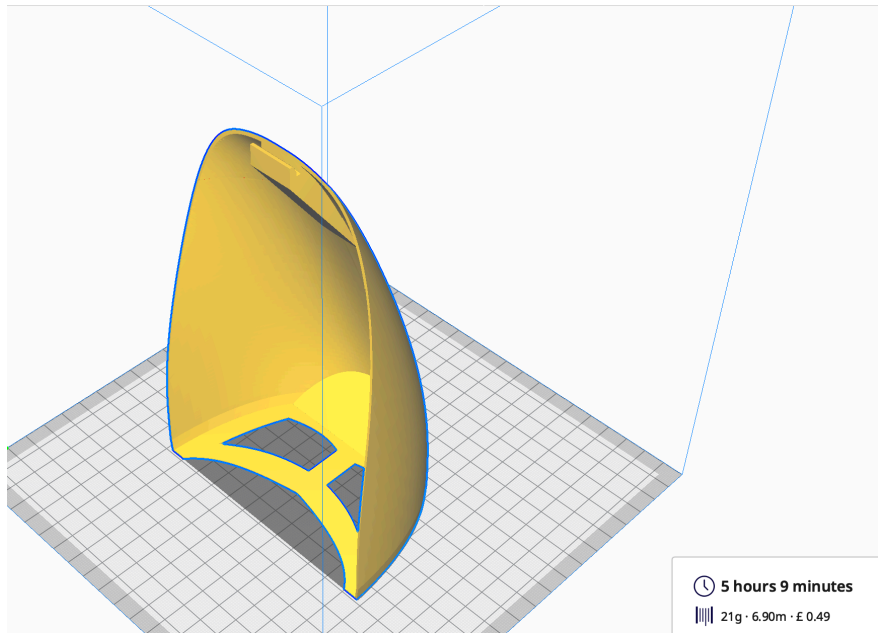
RUDDER

Unique Settings: None



CANOPY

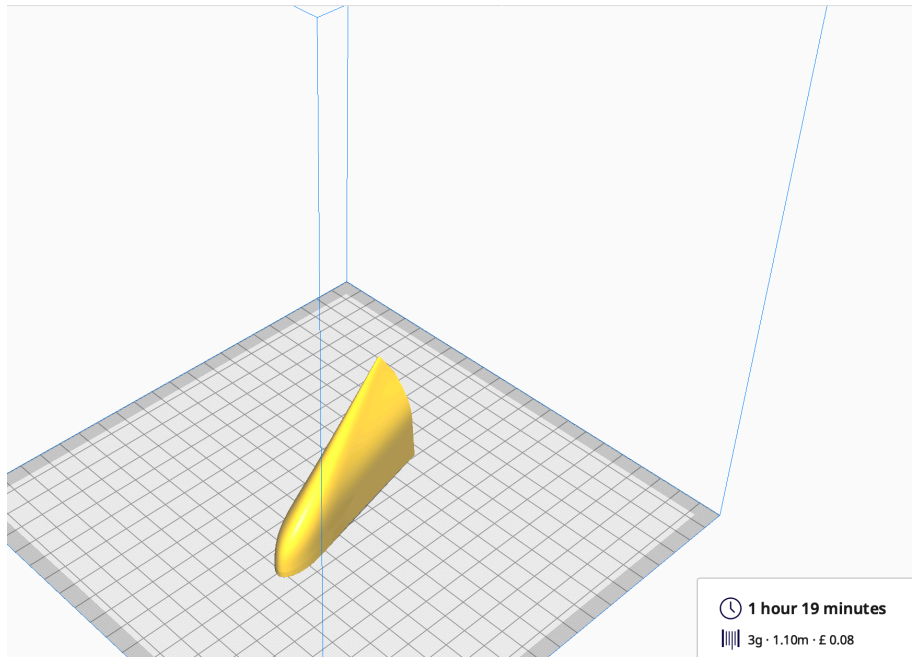
Unique Settings: None



L & R AFT WINGTIP

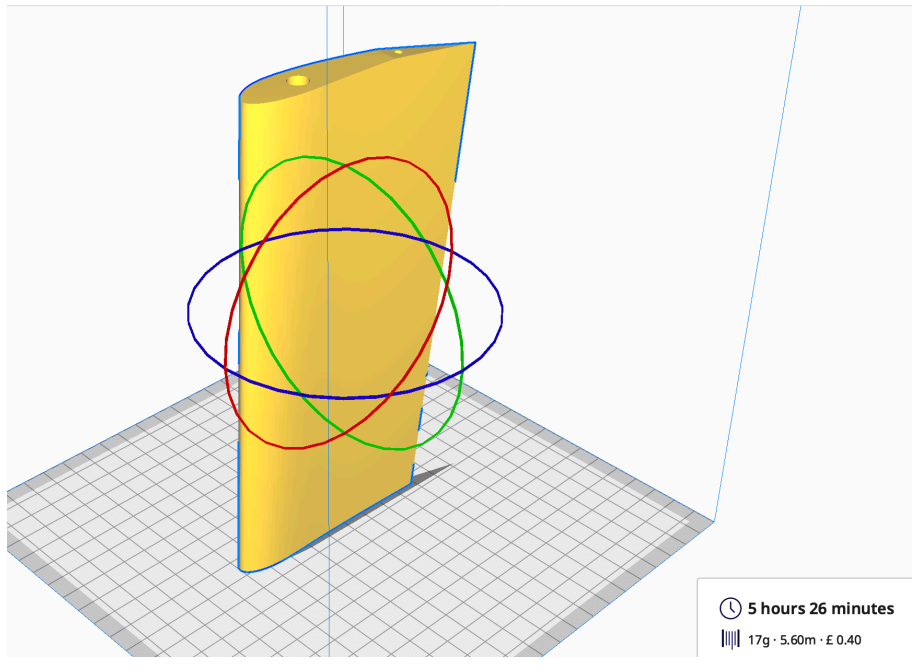
Unique Settings: None

Can be printed with 0% infill



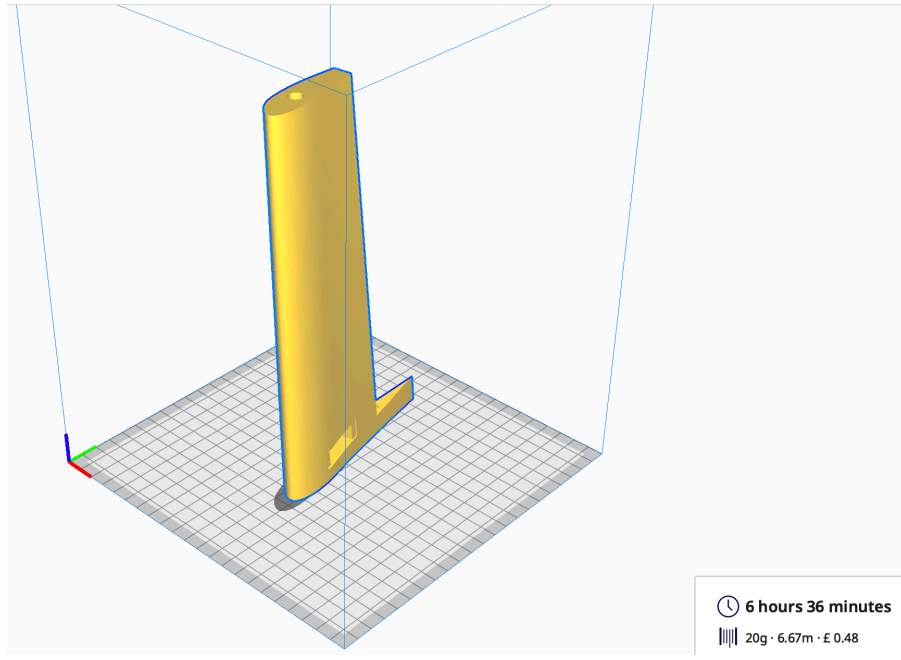
L & R AFT WING OUTBOARD

Unique Settings: None



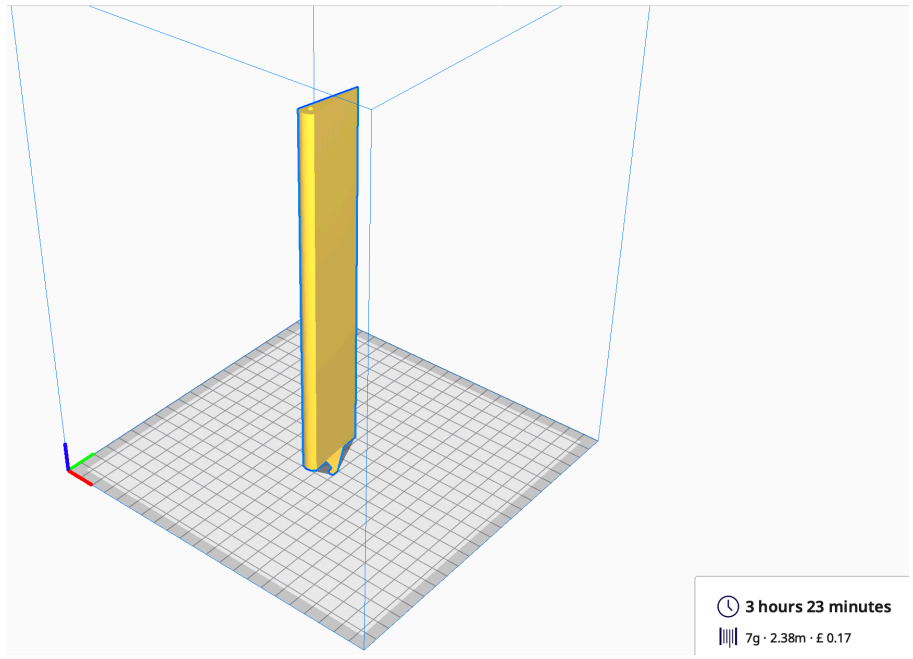
L&R AFT WING INBOARD

Unique Settings: None



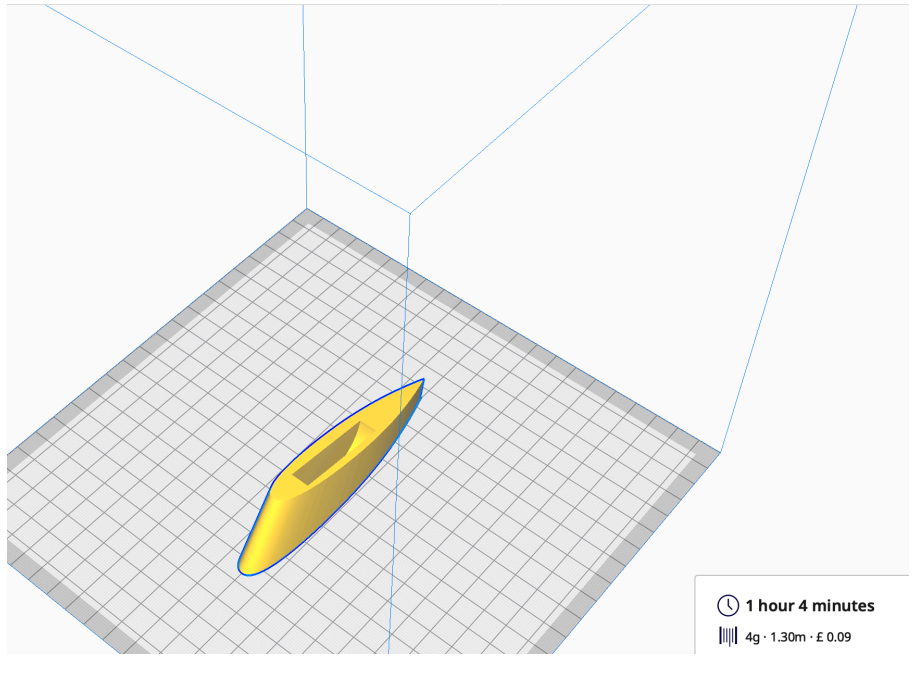
L&R AILERON

Unique Settings: None



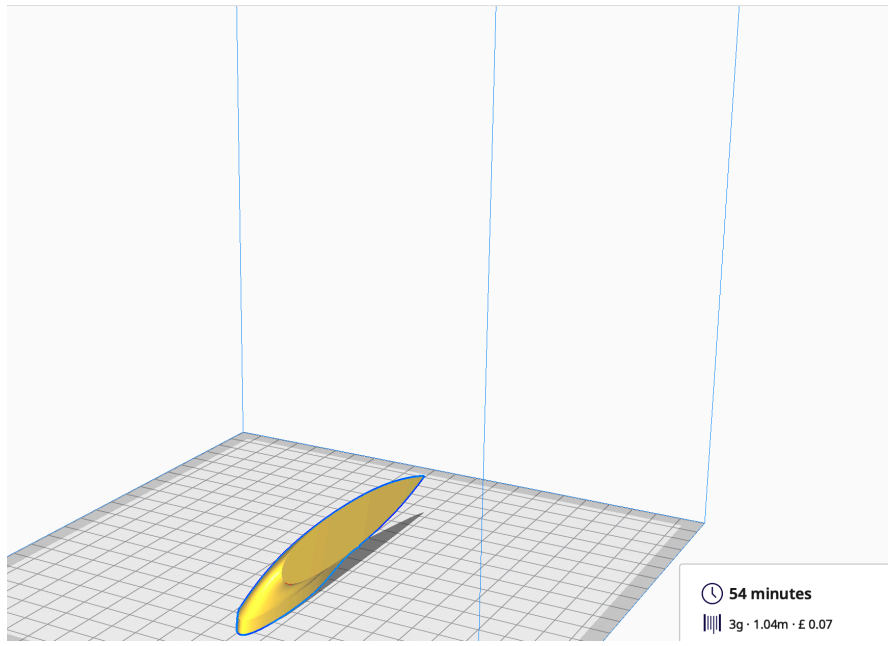
L&R WHEEL SPAT

Unique Settings: None



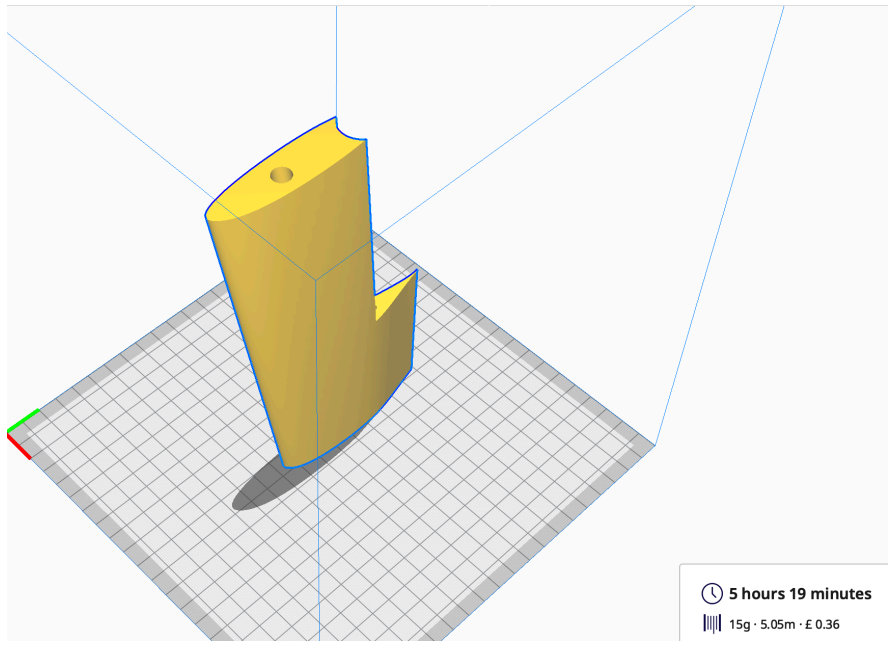
L&R CANARD TIP

Unique Settings: This part may require printing with supports enabled.



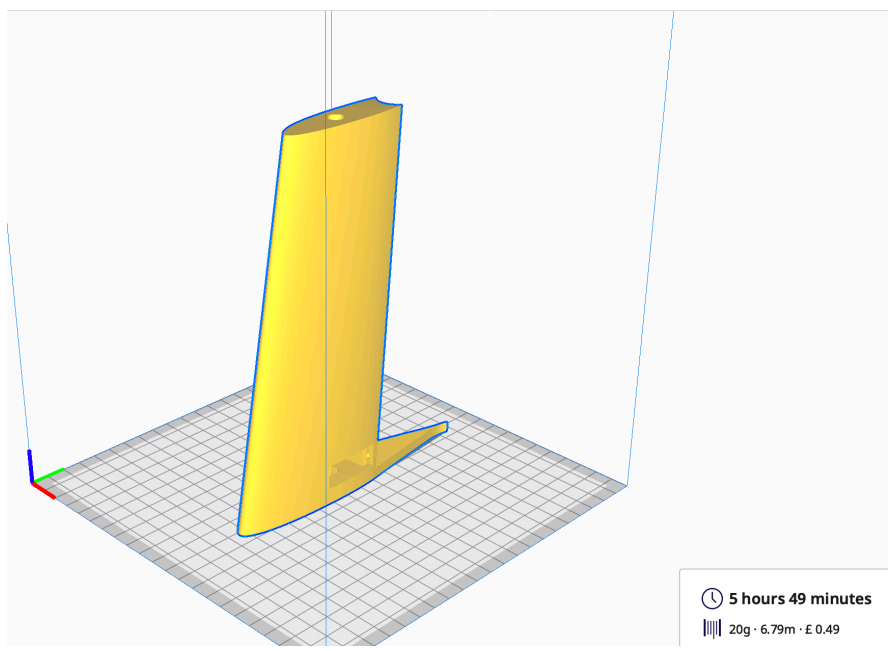
L&R CANARD OUTBOARD

Unique Settings: None



L&R CANARD INBOARD

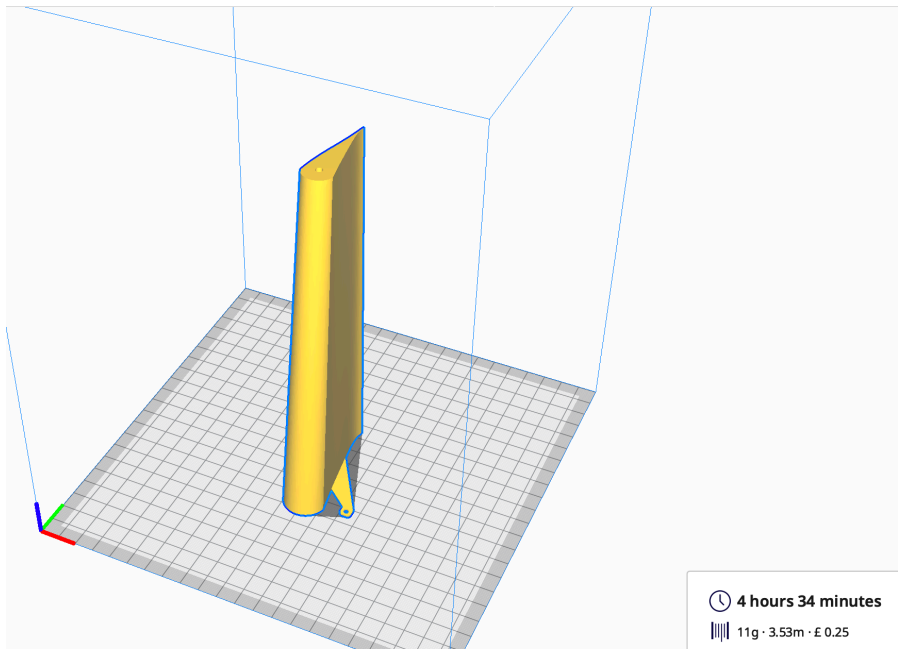
Unique Settings: None



L&R ELEVATOR 1

Unique Settings: None

Can be printed with 0% infill



L&R ELEVATOR 2

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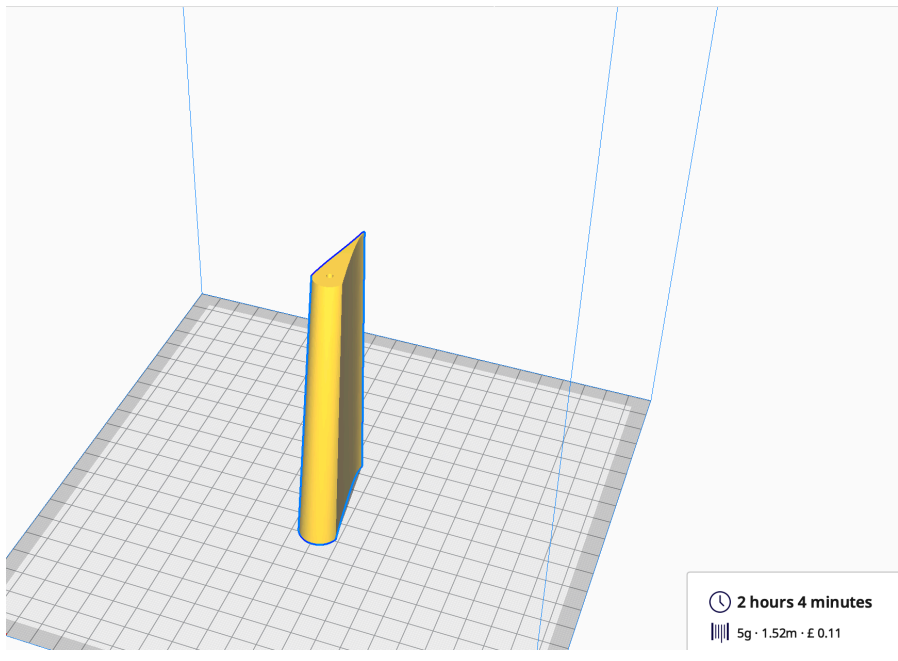
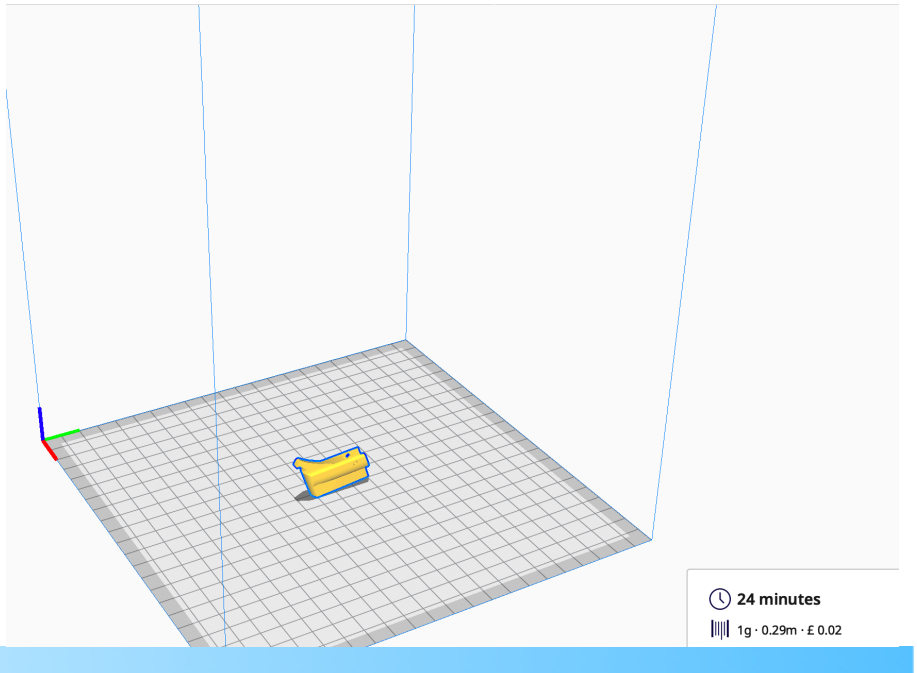
Can be printed with 0% infill



RUDDER BOTTOM

Print this part from PLA or ABS

Unique Settings:

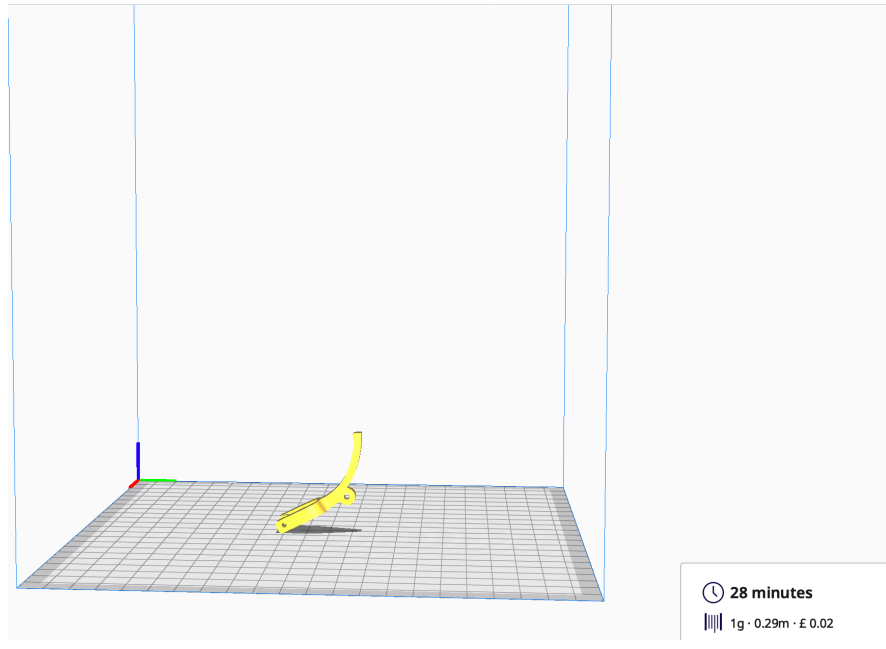


TAIL WHEEL ARM

Printed in PLA or ABS

Supports are required to print this part.

Infill 30%



MOTOR MOUNT BACKPLATE

Printed in PLA or ABS