PRINTING & ASSEMBLING MANUAL

PLANE PRINT

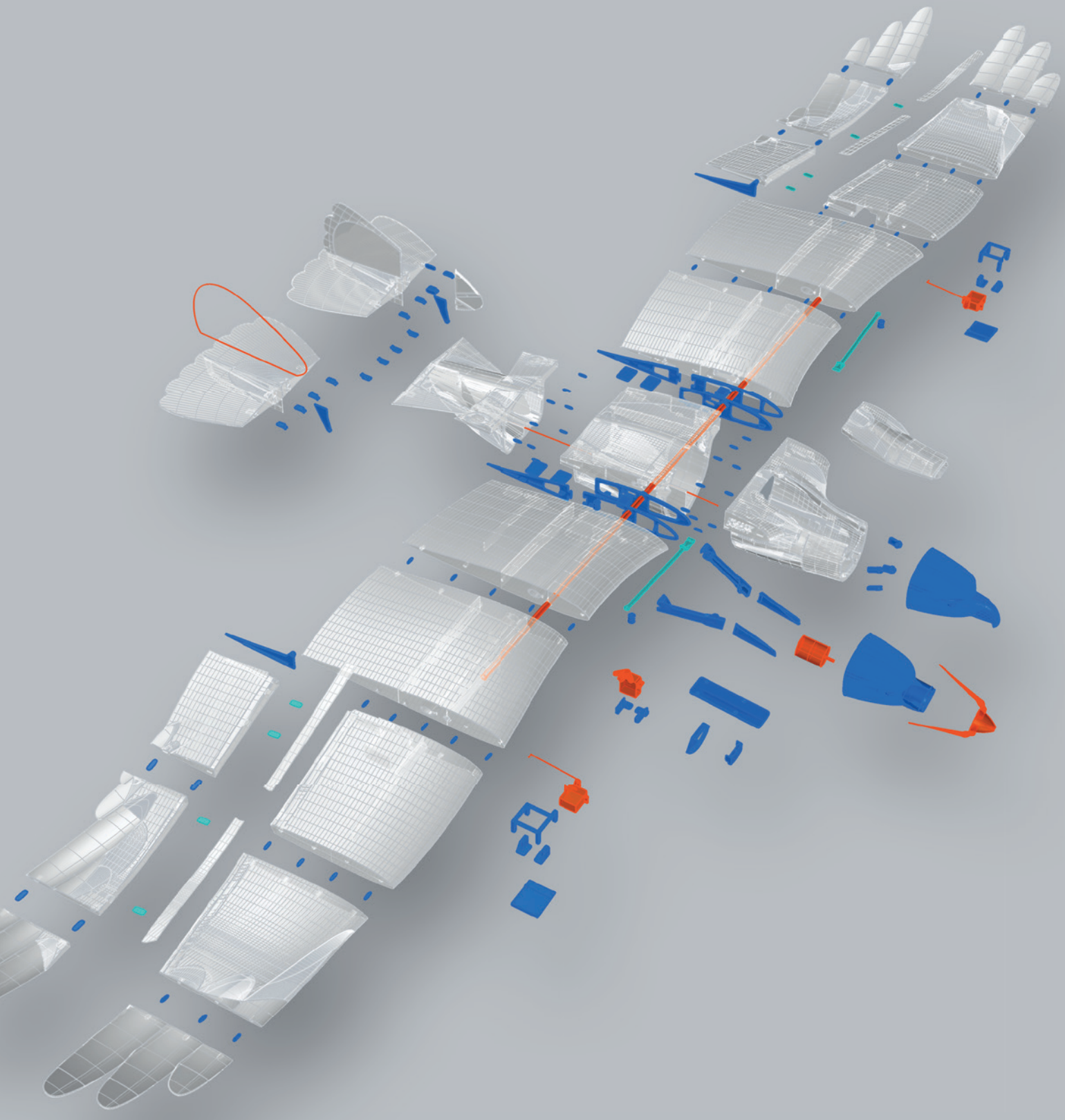
PLANE PRINT EagleNG

Realistic RC airplane „Bird“ – motor and glider

www.planeprint.com

the **ONLY** place where you can get original Planeprint STL files **legally!**

PLANE PRINT Eagle NG



RC Components

MOTOR Motors up to Ø 28 mm, for example **Kavan C2836-915** or comparable motors

FOLDING PROP **9x5** (4S setting)

SPINNER **Ø 30mm**

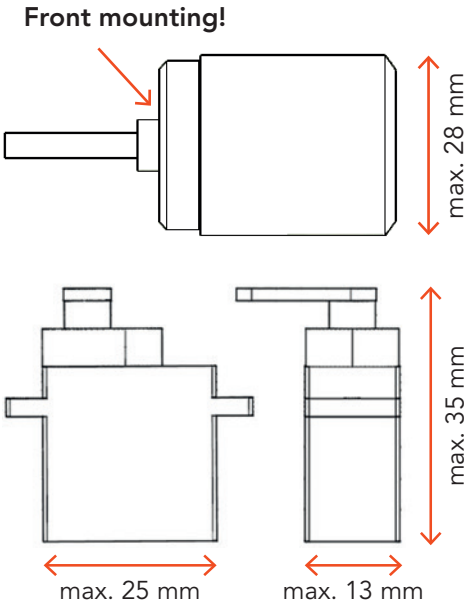
BEC-CONTROLLER **30 A** (Follow the manufacturer's instructions for the motor.)

RECEIVER **3 channels** (Glider), **4 channels** (Motor version)

BATTERY **4S Lipo**, about 850-1000 MaH (3S setup also possible) Perfect weight 120 grams, lighter does not make sense because otherwise lead is required.

SERVOS **3 pieces** like **Corona 929MG, Savöx SH-0254, KST Clubman CM509MG** or equivalent, we recommend using servos with metal gears, especially for the tail.

SERVO EXTENSION CABLE 200 mm, **4 Pieces**

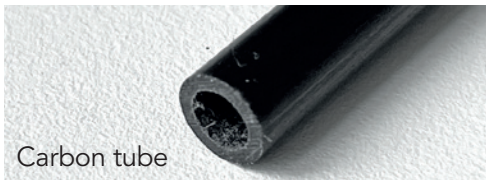


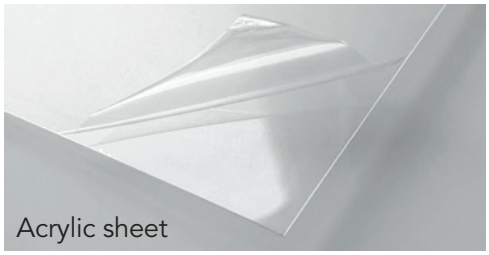
Required accessoires – basic equipment

- **LW-PLA** foaming! **(cannot be replaced by PLA!)**, ~750 grams
- **Tough PLA** (or PLA), ~170 grams
- **TPU A95** ~10 grams

Printer space of 180x180x180mm (cube) needed!


Tapping screws 2mm


Carbon tube


Acrylic sheet


Rod connection

Materials

- some tapping screws
  (search for: M2 flat head tapping screw assortment)
- CA super glue (liquid and liquid medium)
- CA activator
- Carbon tube Ø8*1000mm (inside 6mm), 1 piece
- Steel wire Ø0.1*600mm
- Rod connection (hole for Ø1to2mm steel wire), 1 piece
- Neodym-Super-Magnet 5x5x5mm, 4 pieces
- Acrylic sheet 0.5 mm, 200*100 mm (e.g. for picture frames)
- Self adhesive velcro tape
- Some lead (for the glider version)

Tools

Cutter knife, small Philips screwdriver, Sandpaper grain ~150, Needle nose pliers

The development of a complex, airworthy RC flight model to express on any standard 3D printer is a very extensive process. **Therefore, we appeal to your fairness not to forward the STL data you have acquired to third parties.**

Thank you for your understanding and have fun with your PLANEPRINT MODEL!

Printing the parts – Printing profiles

This manual is constantly being improved and supplemented, we recommend downloading the **latest version** from our website **before building**.

To print all **PLANEPRINT** models **you need to set some basic profiles in Cura** (If you use another slicer, please set the same parameters).

You can find the description at www.planeprint.com/print

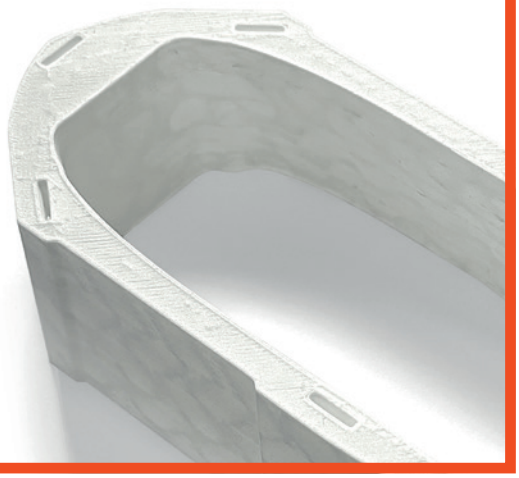
For this model you need the following profiles:

P2 **P4** **P5**

NOTE When printing the PLANEPRINT **Eagle NG** you should pay particular attention to a light weight of **each** individual part.

PROFILE P5_Gyroid

It is **essential for the necessary stability** of the **LW parts printed with PROFILE_5 are as stable as possible**. Please use a test part to check the strength by fracture tests. It must not break along the layer lines under any circumstances! Also note that the printing temperature for LW-PLA is as low as possible to obtain a wall thickness of 0.4 to 0.6 mm at a flow of 55 to 65 % (depending on brand and printer).
Caution: at too high temperatures, LW-PLA becomes brittle and breaks more easily.



PROFILE P2_Hollowbody Tough PLA or PLA

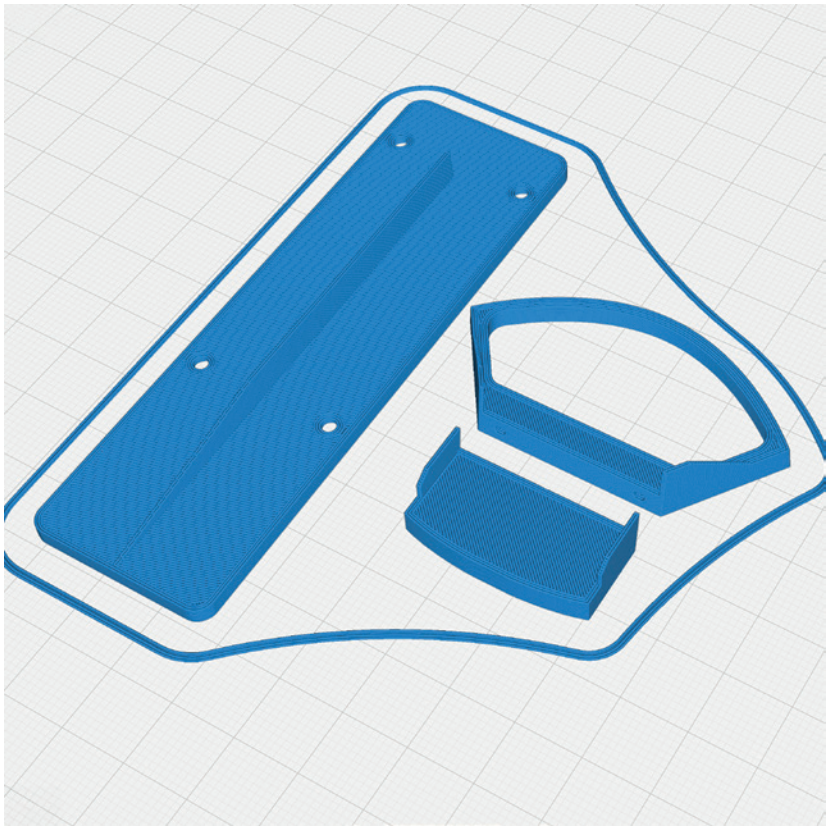
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P2_Battery mount_eng.stl

MATERIAL PLA, Weight: ~ 8 g

ADDITIONAL SETTINGS

None required

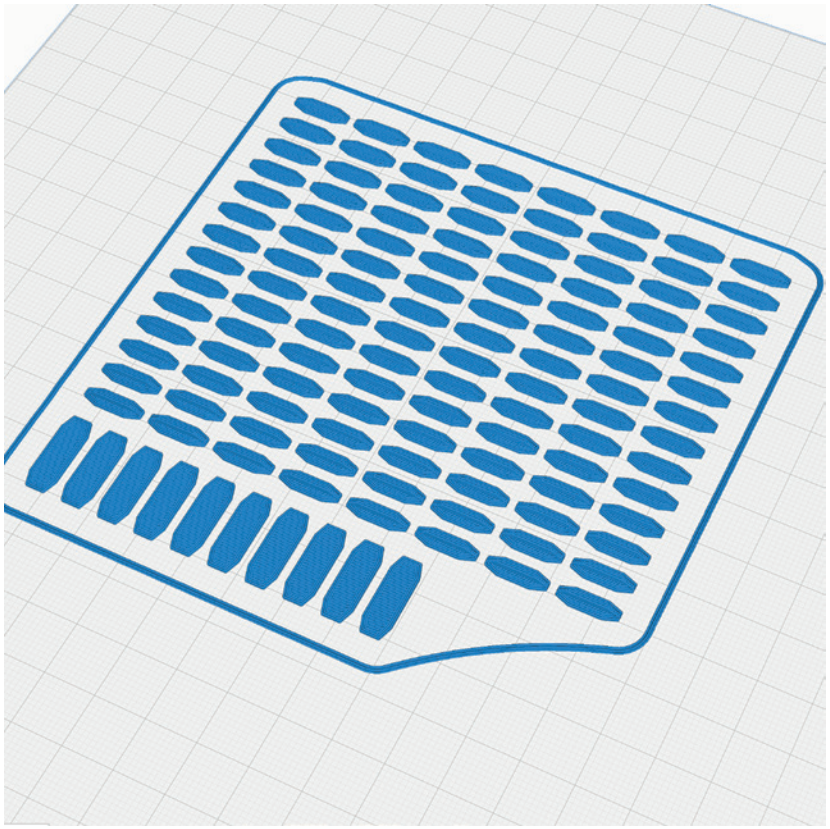


P2_Connects_eng.stl

MATERIAL PLA, Weight: ~ 7 g

ADDITIONAL SETTINGS

None required



PROFILE P2_Hollowbody Tough PLA or PLA

P2

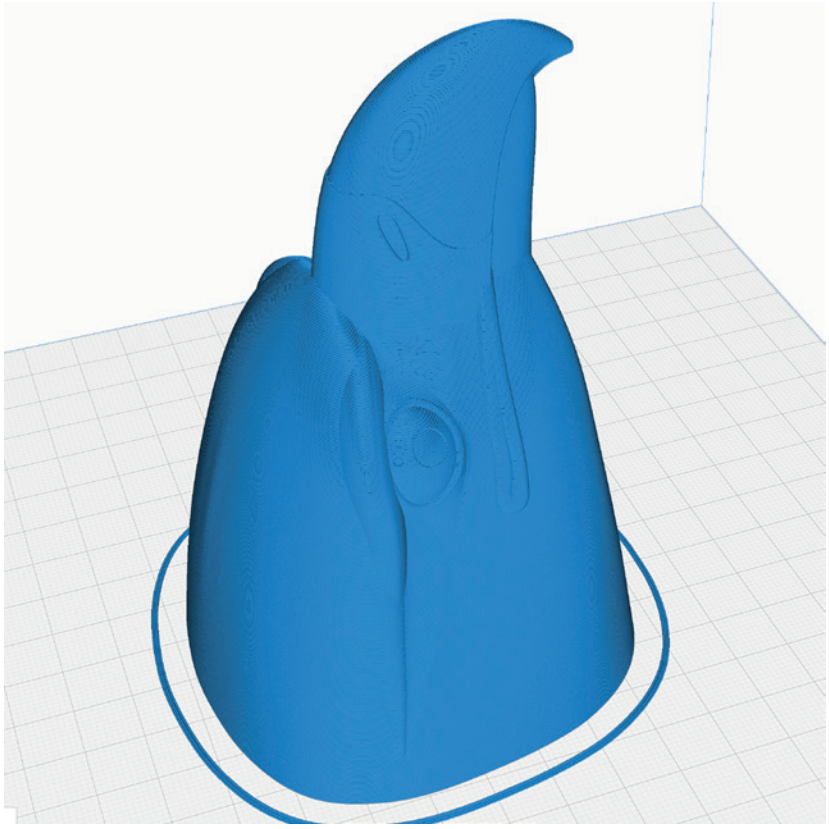
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P2_Head Glider_eng.stl

MATERIAL PLA, Weight: ~ 43 g

ADDITIONAL SETTINGS

None required



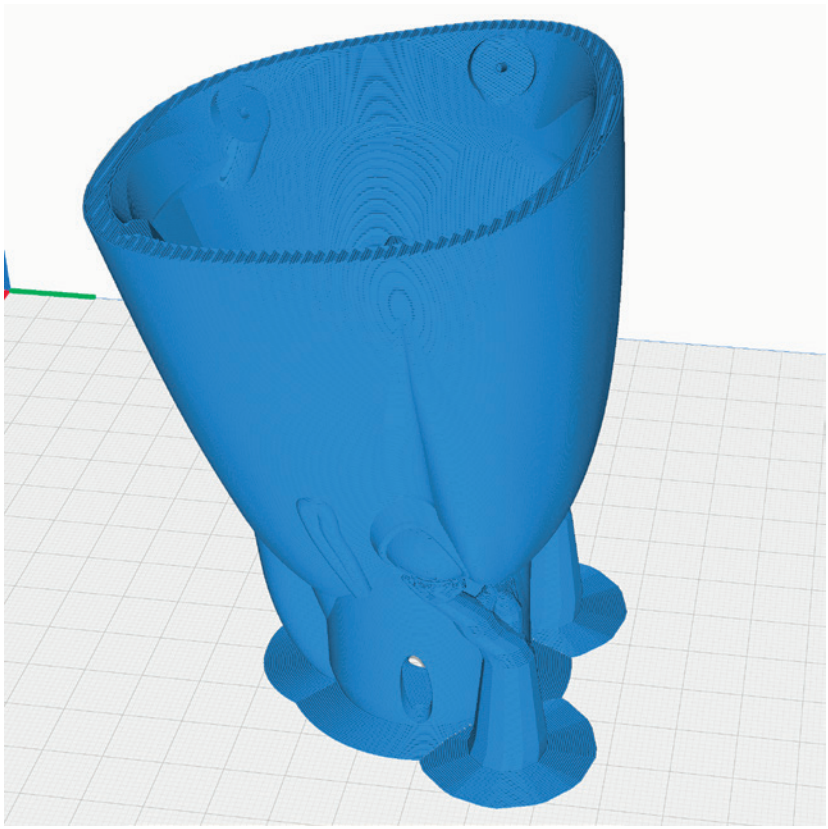
P2_Head Motor 16-19_eng.stl or P2_Head Motor undrilled_eng.stl*

MATERIAL PLA, Weight: ~ 50 g

ADDITIONAL SETTINGS

- Bottom Layers: 10
- use Brim
- Set Support (tree)

* If your motor requires different hole positions.



PROFILE P2_Hollowbody Tough PLA or PLA

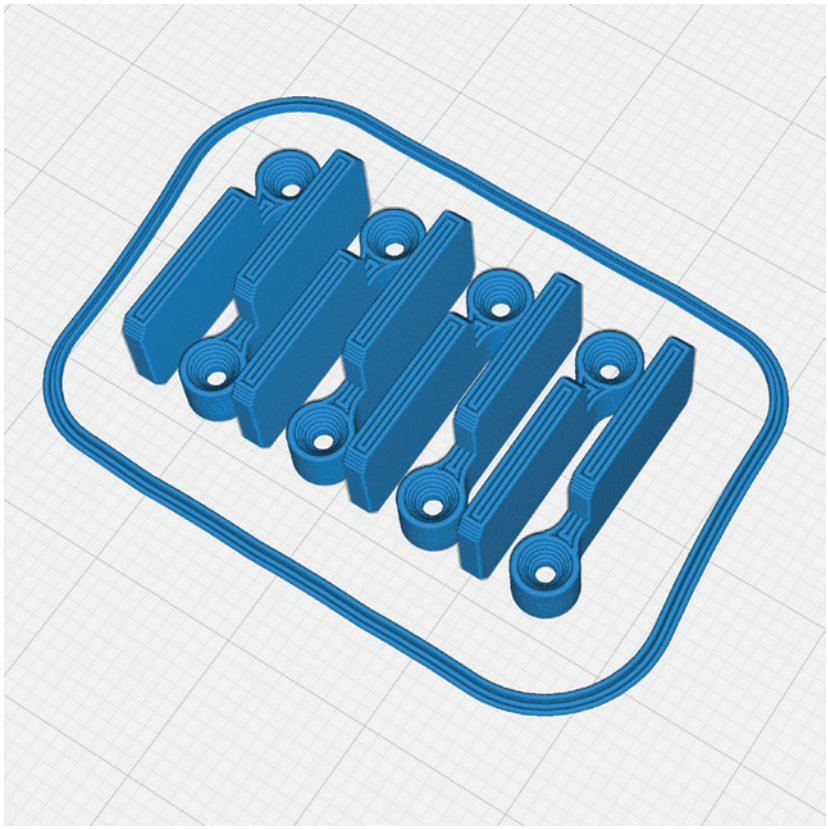
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P2_Hinges ELE_eng.stl

MATERIAL PLA, Weight: ~ 2 g

ADDITIONAL SETTINGS

None required



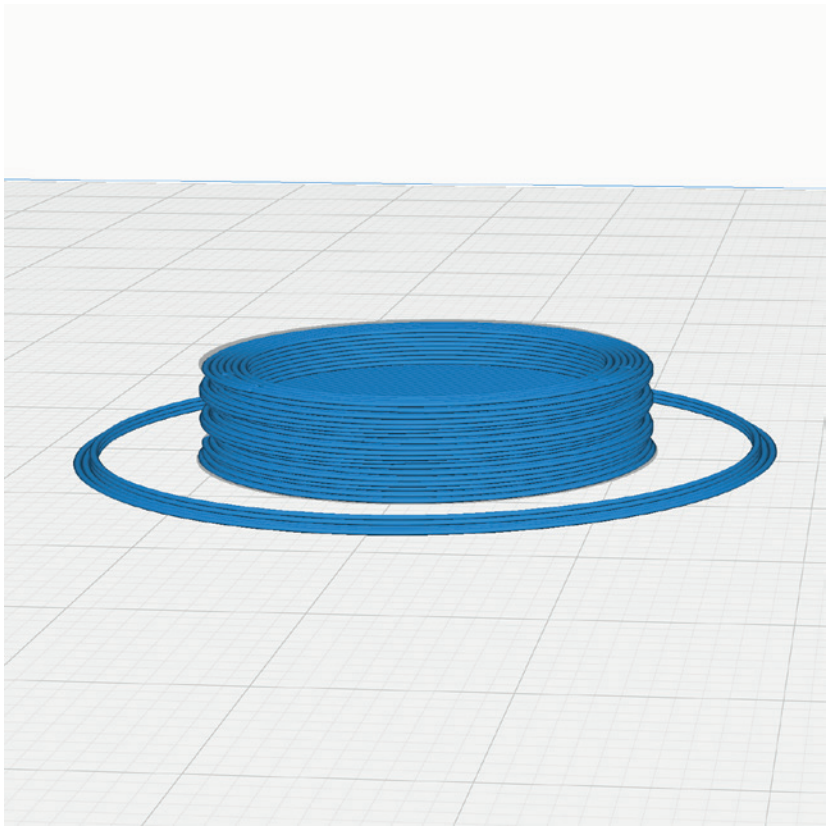
P2_Lead Cover_eng.stl

MATERIAL PLA, Weight: ~ 1 g

ADDITIONAL SETTINGS

None required

INFO Only necessary if you are using the glider head.



PROFILE P2_Hollowbody Tough PLA or PLA

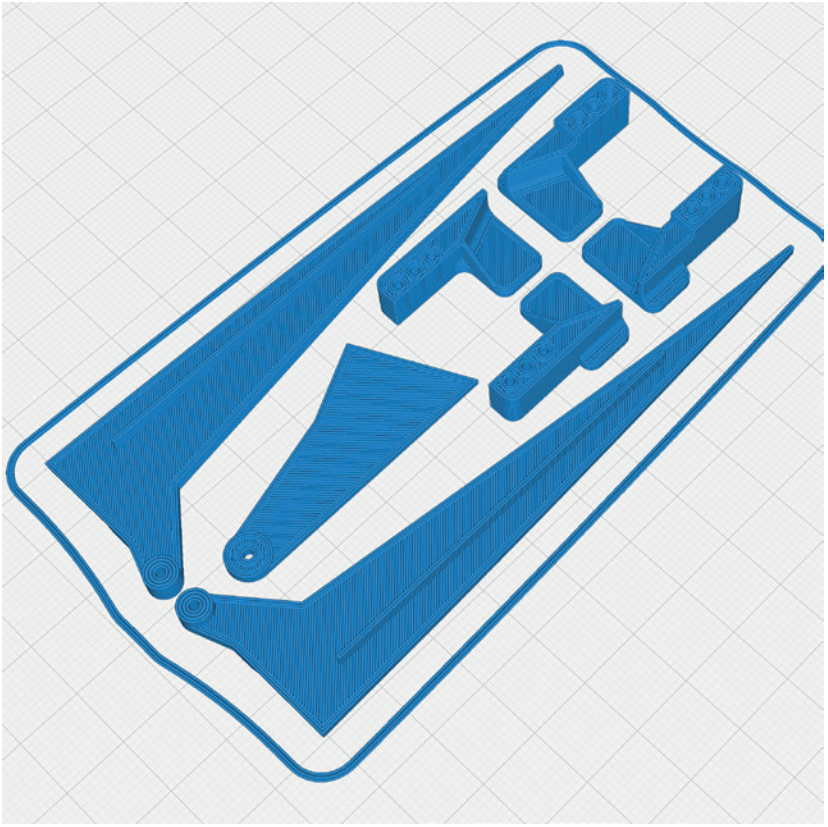
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P2_Linkage_eng.stl

MATERIAL PLA, Weight: ~ 8 g

ADDITIONAL SETTINGS

None required

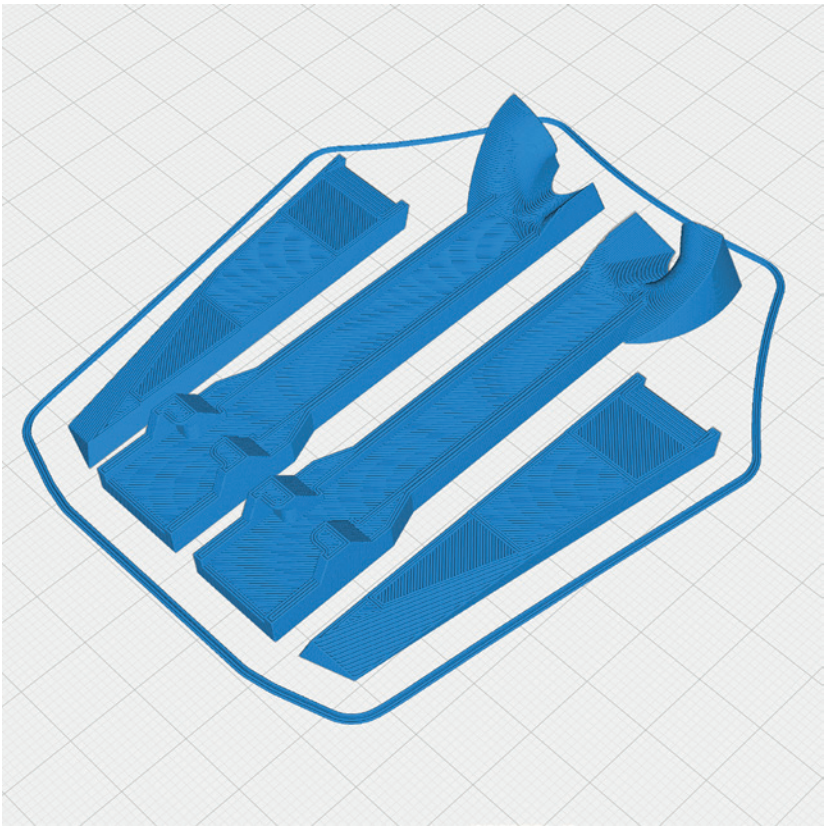


P2_Mount Wing_eng.stl

MATERIAL PLA, Weight: ~ 10 g

ADDITIONAL SETTINGS

None required



PROFILE P2_Hollowbody Tough PLA or PLA

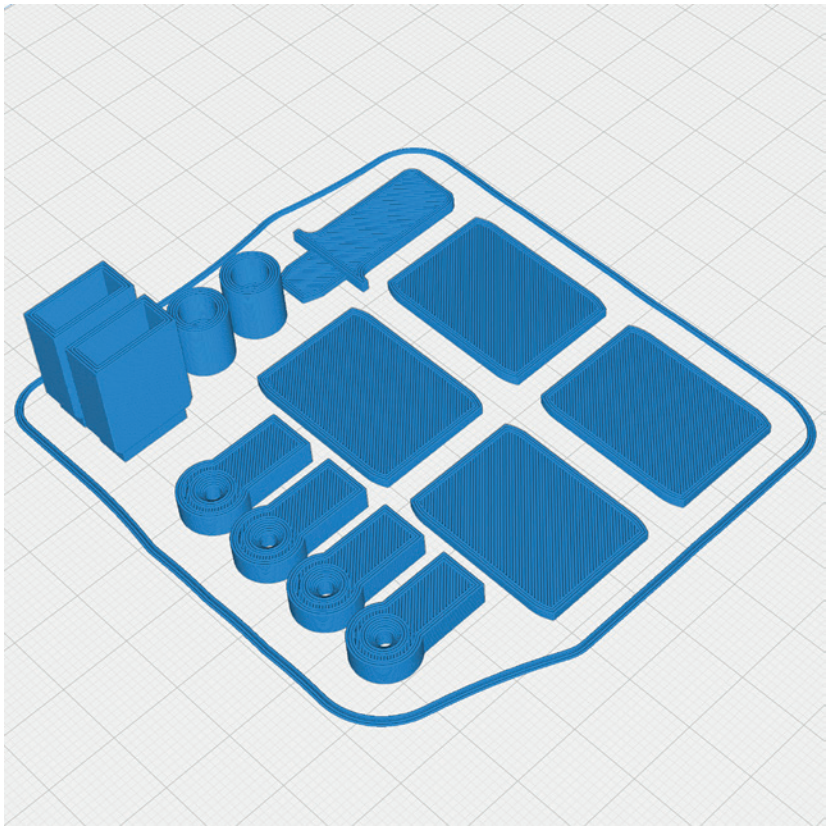
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P2_Parts_eng.stl

MATERIAL PLA, Weight: ~ 8 g

ADDITIONAL SETTINGS

None required

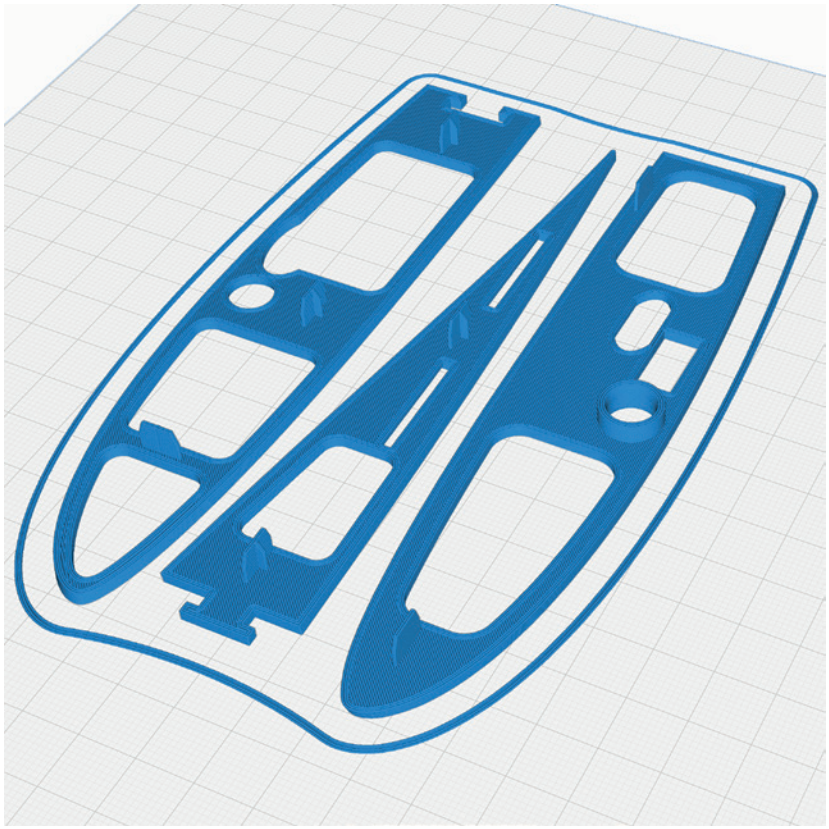


P2_Protectors L_eng.stl and P2_Protectors R_eng.stl

MATERIAL PLA, Weight: ~ 10 g

ADDITIONAL SETTINGS

None required



PROFILE P2_Hollowbody Tough PLA or PLA

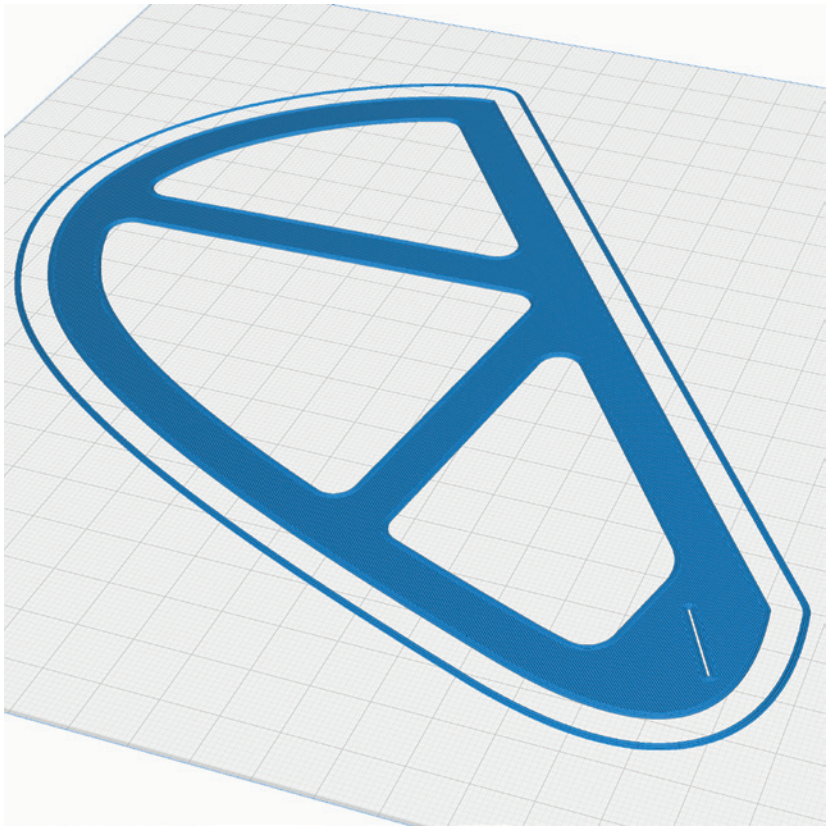
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P2_Rudder Template_eng.stl

MATERIAL PLA, Weight: ~ 4 g

ADDITIONAL SETTINGS

None required



P2_Servo mount AIL_eng.stl

MATERIAL PLA, Weight: ~ 12 g

ADDITIONAL SETTINGS

None required

PROFILE P4_Flex TPU A95

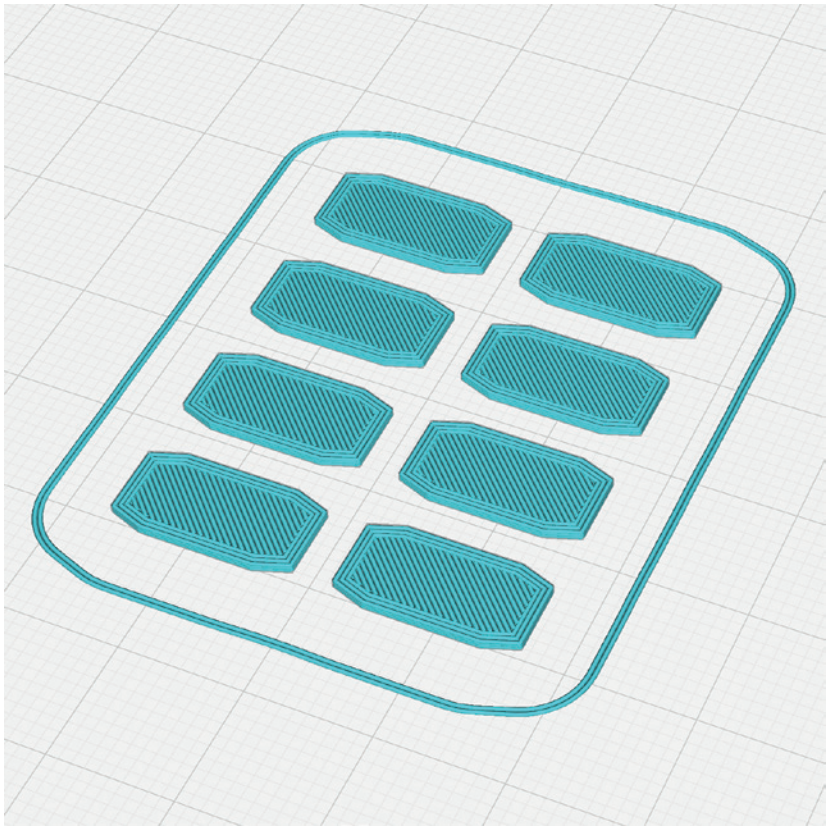
The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!

P4_Hinges_eng.stl

MATERIAL TPU, Weight: ~ 1 g

ADDITIONAL SETTINGS

None required

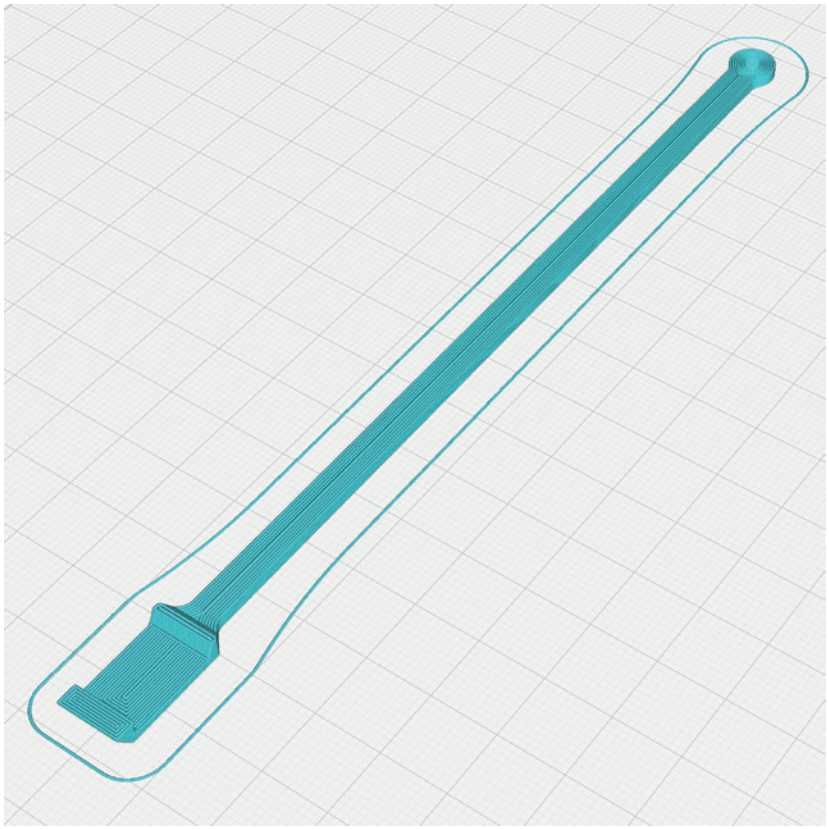


P4_Wingbelt_eng.stl

MATERIAL TPU, Weight: ~ 2 g

ADDITIONAL SETTINGS

- Wall Line Count/Perimeters: 12
- Print it twice



PROFILE P5_Gyroid LW-PLA (foaming)!

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

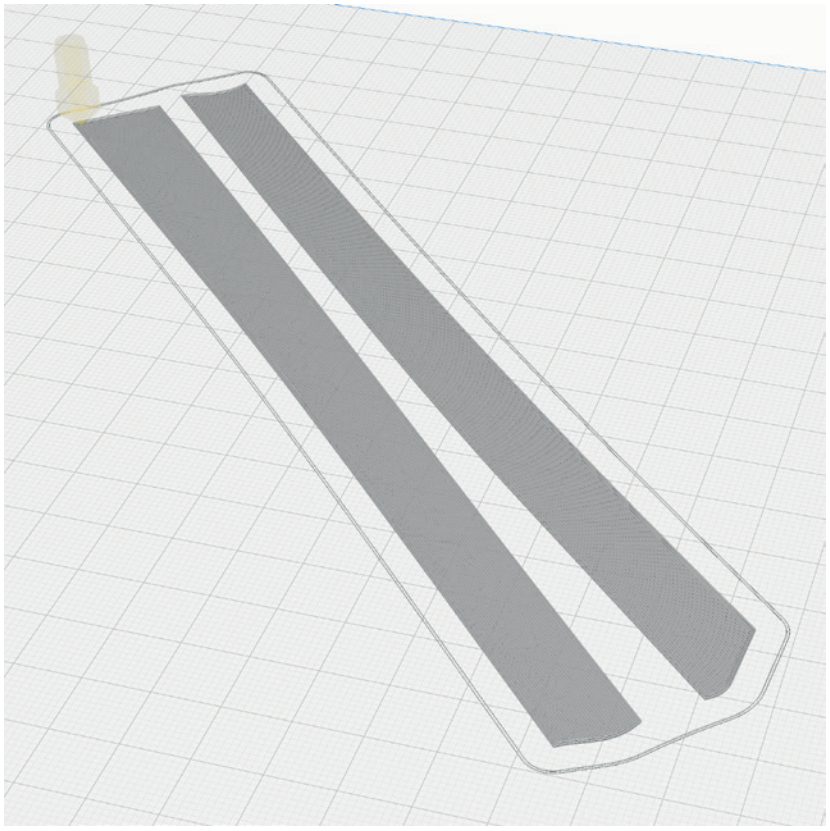
P5_Ail gap cover L_eng.stl and P5_Ail gap cover R_eng.stl

MATERIAL LW PLA, Weight: ~ 1 g

TIME ~ 5 minutes

ADDITIONAL SETTINGS

- Layer height: 0.15 mm



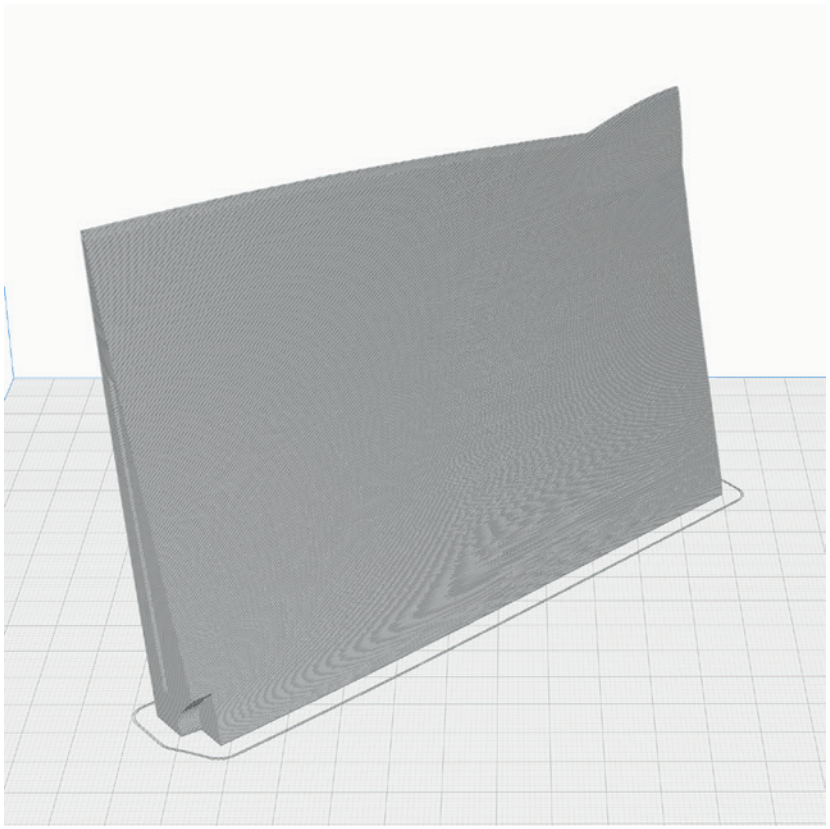
P5_AIL L1_eng.stl and P5_AIL R1_eng.stl

MATERIAL LW PLA, Weight: ~ 14 g

TIME ~ 2 hours

ADDITIONAL SETTINGS

None required



PROFILE P5_Gyroid LW-PLA (foaming)!

P5

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

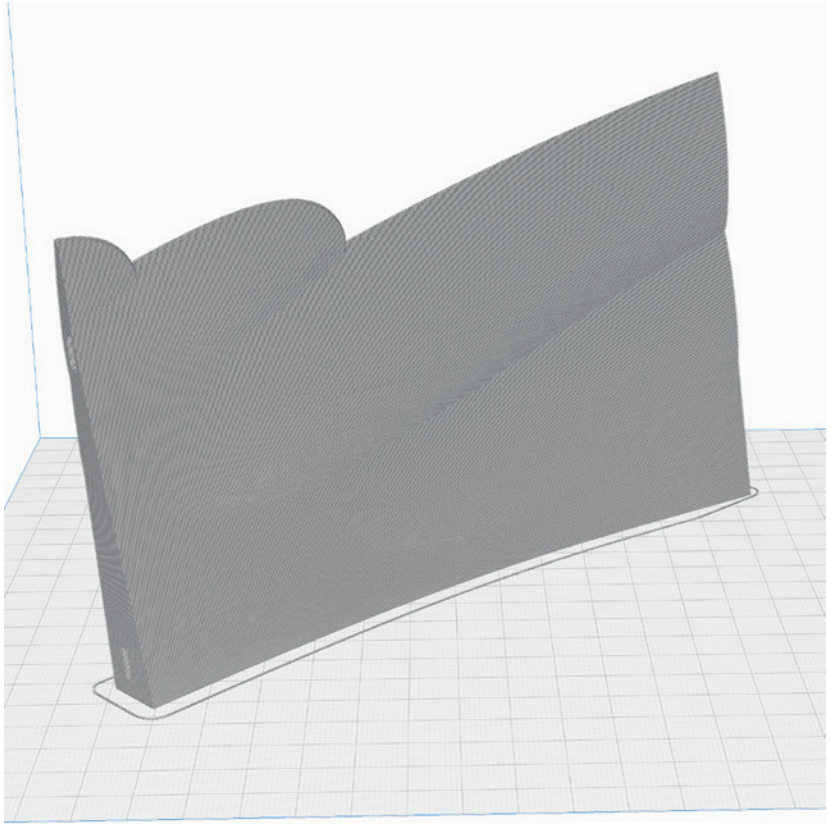
P5_AIL L2_eng.stl and P5_AIL R2_eng.stl

MATERIAL LW PLA, Weight: ~ 14 g

TIME ~ 2 hours

ADDITIONAL SETTINGS

None required



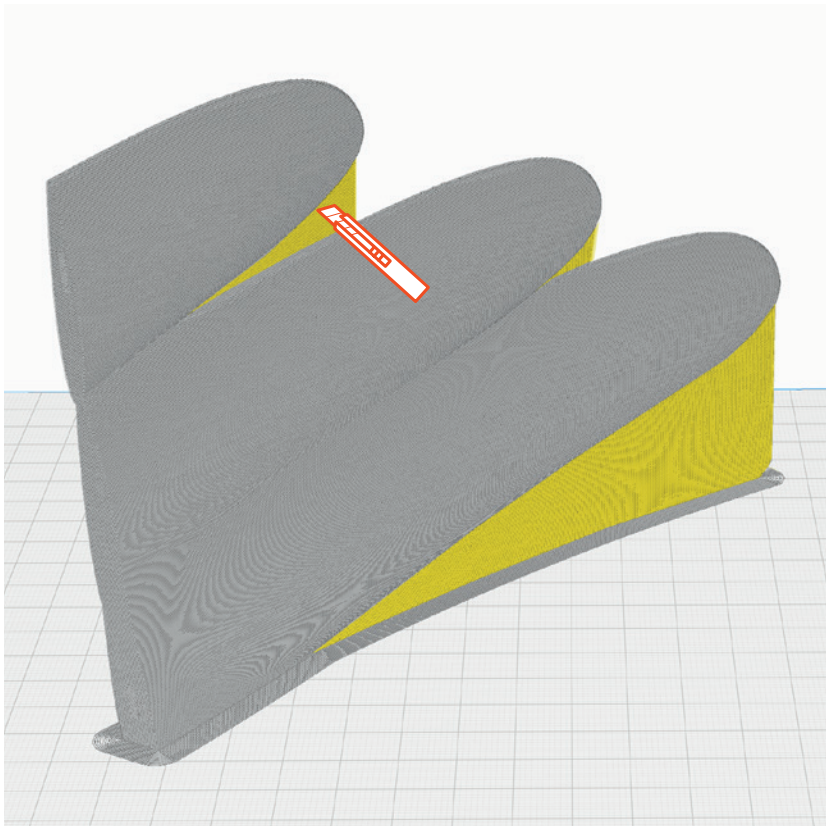
P5_AIL L3_eng.stl and P5_AIL R3_eng.stl

MATERIAL LW PLA, Weight: ~ 10 g

TIME ~ 1 hour 30 minutes

ADDITIONAL SETTINGS

- use Brim
- Remove support (marked yellow)
  Please be careful with the knife!



PROFILE P5_Gyroid LW-PLA (foaming)!

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

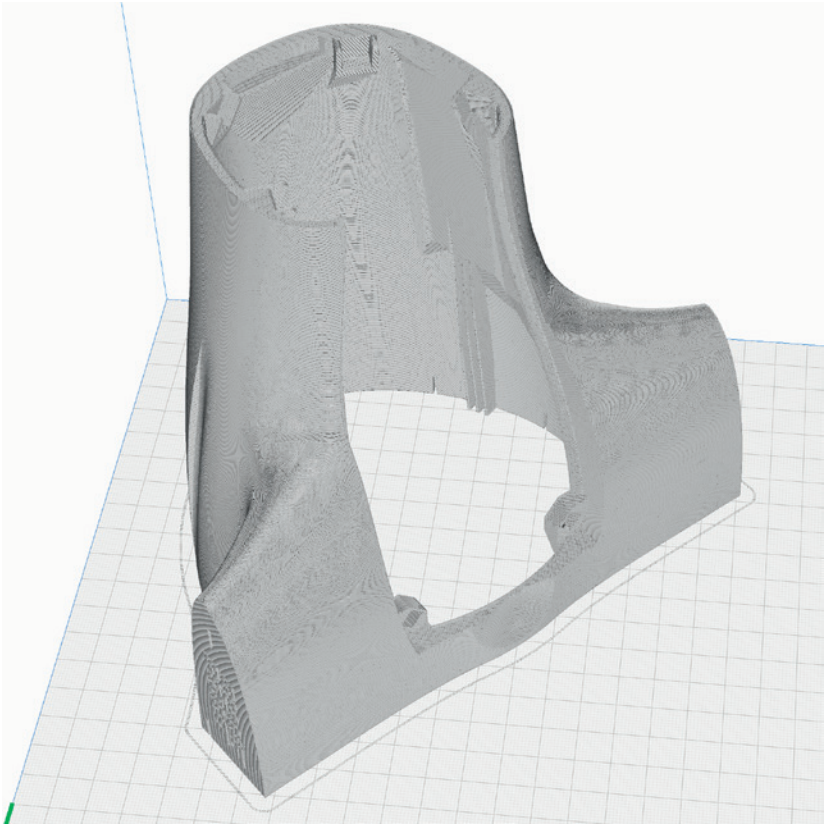
P5_Body 1_eng.stl

MATERIAL LW PLA, Weight: ~ 40 g

TIME ~ 6 hours

ADDITIONAL SETTINGS

None required



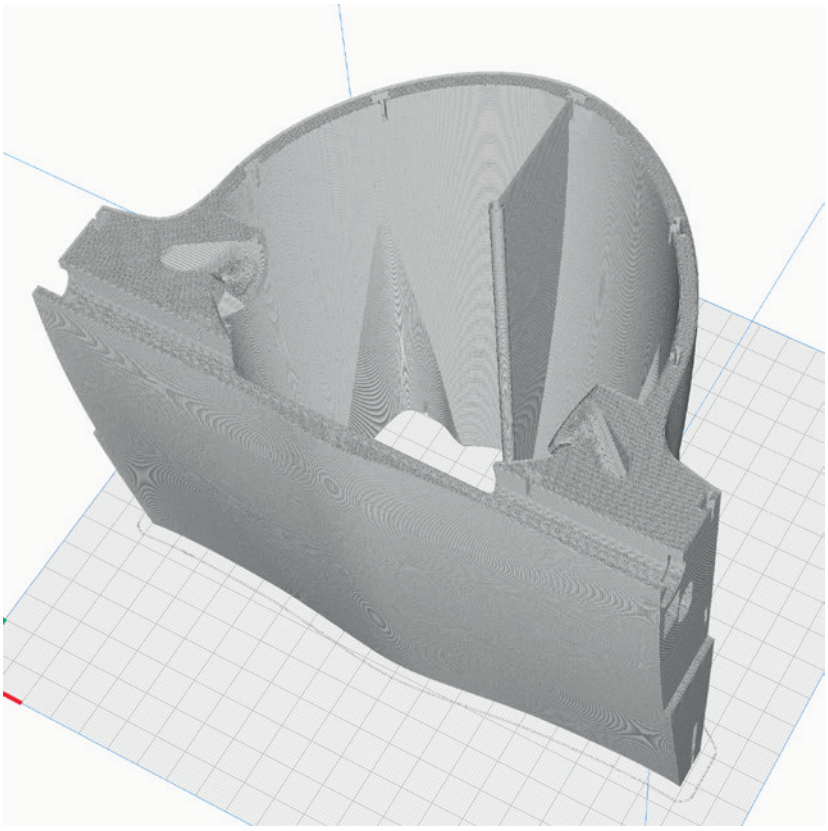
P5_Body 2_eng.stl

MATERIAL LW PLA, Weight: ~ 65 g

TIME ~ 8 hours

ADDITIONAL SETTINGS

None required



PROFILE P5_Gyroid LW-PLA (foaming)!

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

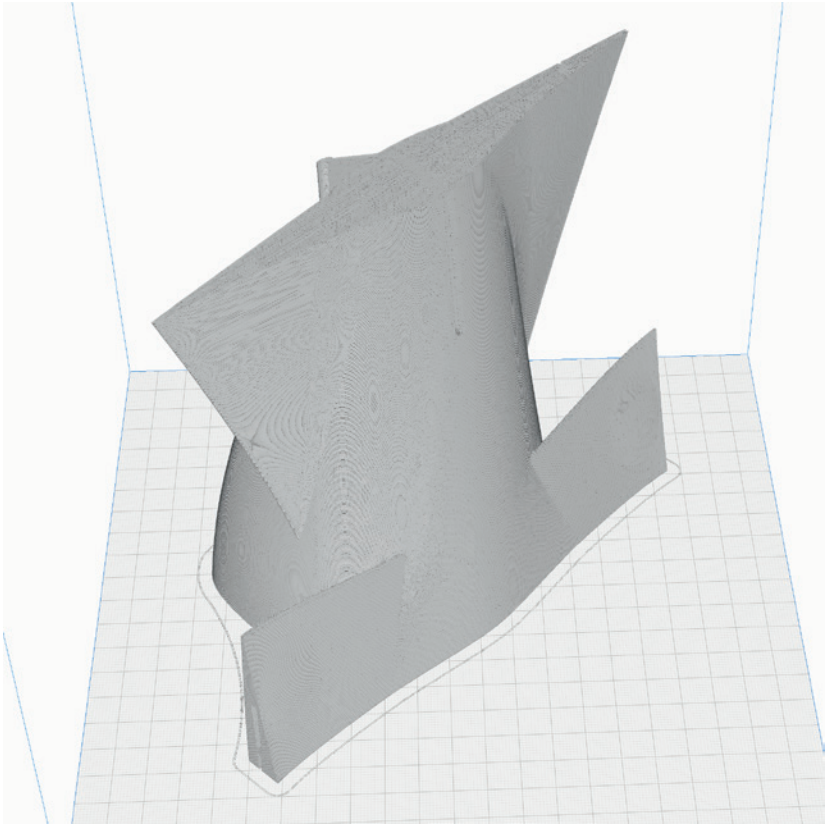
P5_Body 3_eng.stl

MATERIAL LW PLA, Weight: ~ 45 g

TIME ~ 5 hours

ADDITIONAL SETTINGS

None required



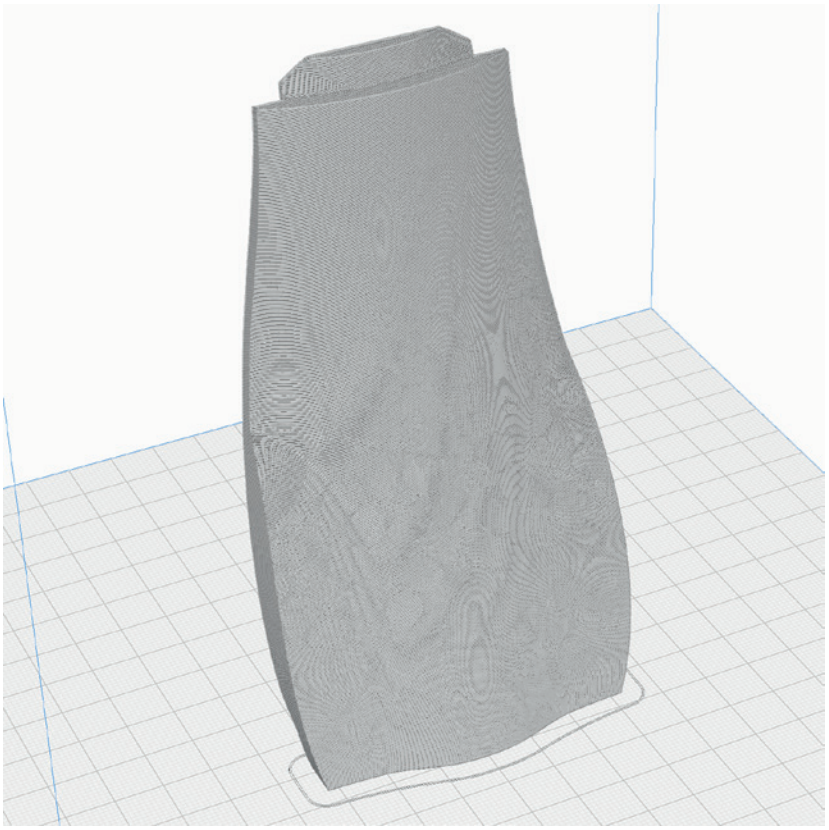
P5_Cover_eng.stl

MATERIAL LW PLA, Weight: ~ 9 g

TIME ~ 1 hour

ADDITIONAL SETTINGS

None required



PROFILE P5_Gyroid LW-PLA (foaming)!

P5

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

P5_ELE_eng.stl

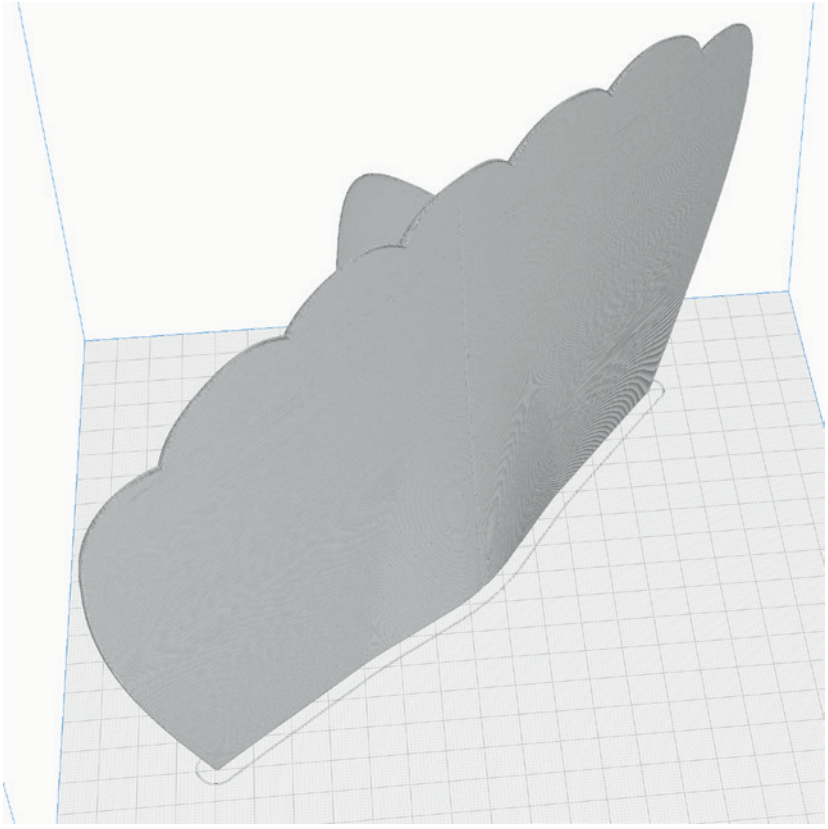
MATERIAL LW PLA, Weight: ~ 23 g

TIME ~ 5 hours

ADDITIONAL SETTINGS

- Infill density: **3 %**

INFO Only necessary if you are using the Tail version with foil rudder.



P5_Tail 1_eng.stl

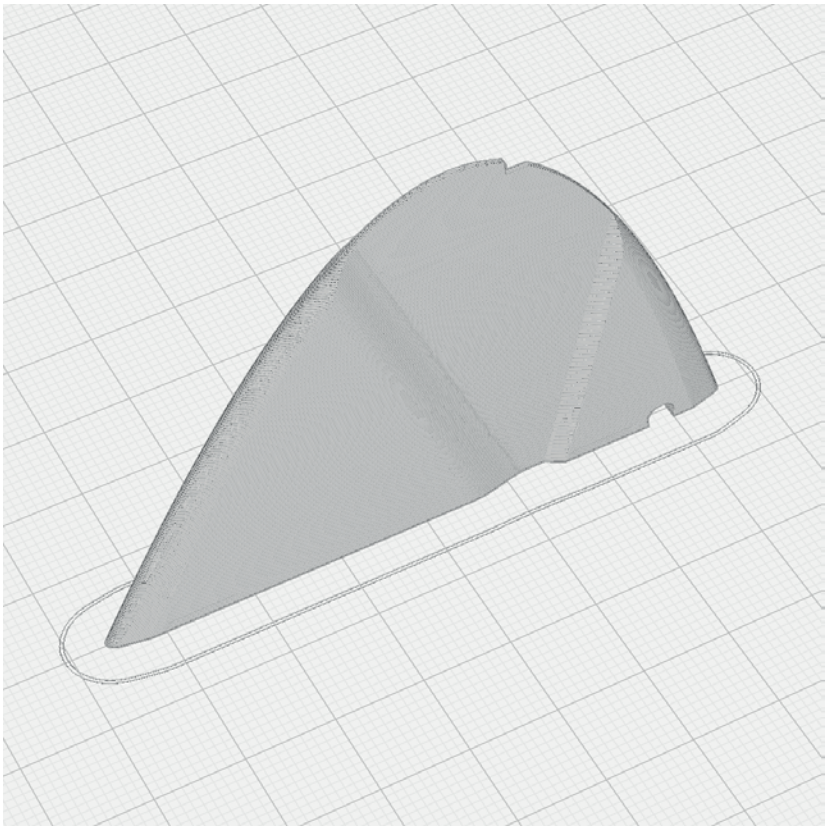
MATERIAL LW PLA, Weight: ~ 2 g

TIME ~ 15 minutes

ADDITIONAL SETTINGS

None required

INFO Only necessary if you are using the fully printed Tail version.



PROFILE P5_Gyroid LW-PLA (foaming)!

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

P5_Tail 2_eng.stl

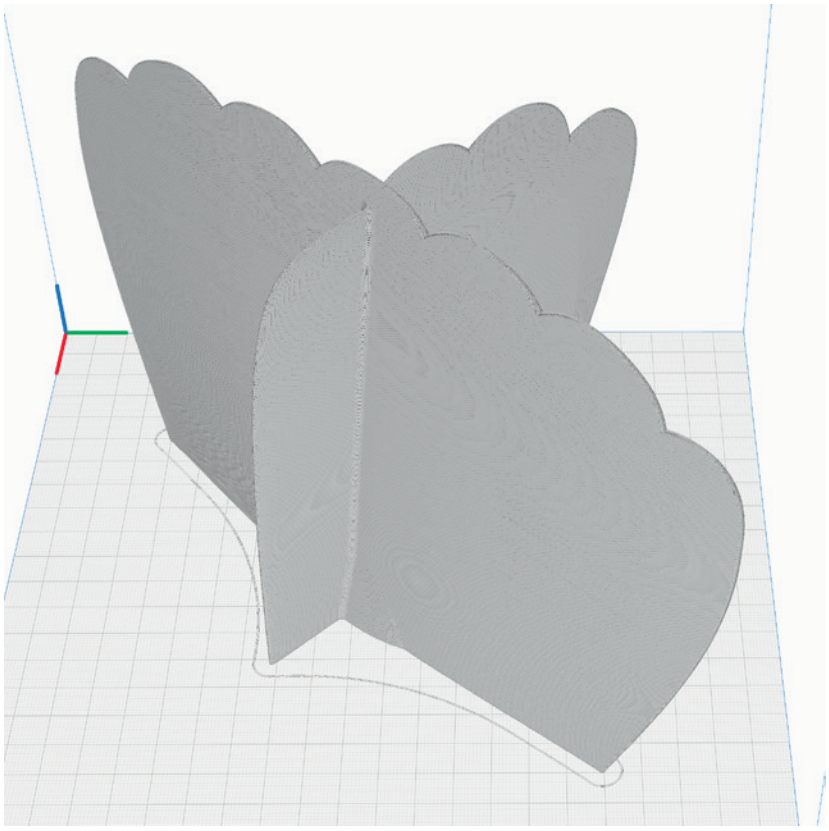
MATERIAL LW PLA, Weight: ~ 35 g

TIME ~ 6 hours

ADDITIONAL SETTINGS

- Infill density: **3 %**

INFO Only necessary if you are using the fully printed Tail version.



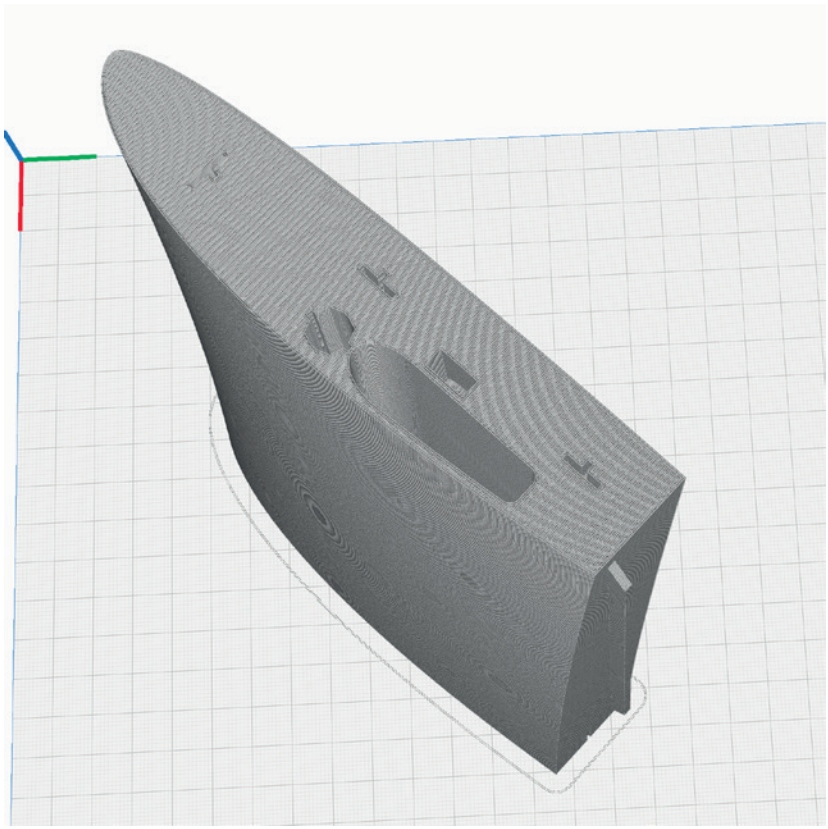
P5_Wing L1a_eng.stl and P5_Wing R1a_eng.stl

MATERIAL LW PLA, Weight: ~ 44 g

TIME ~ 5 hours

ADDITIONAL SETTINGS

None required



PROFILE P5_Gyroid LW-PLA (foaming)!

P5

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

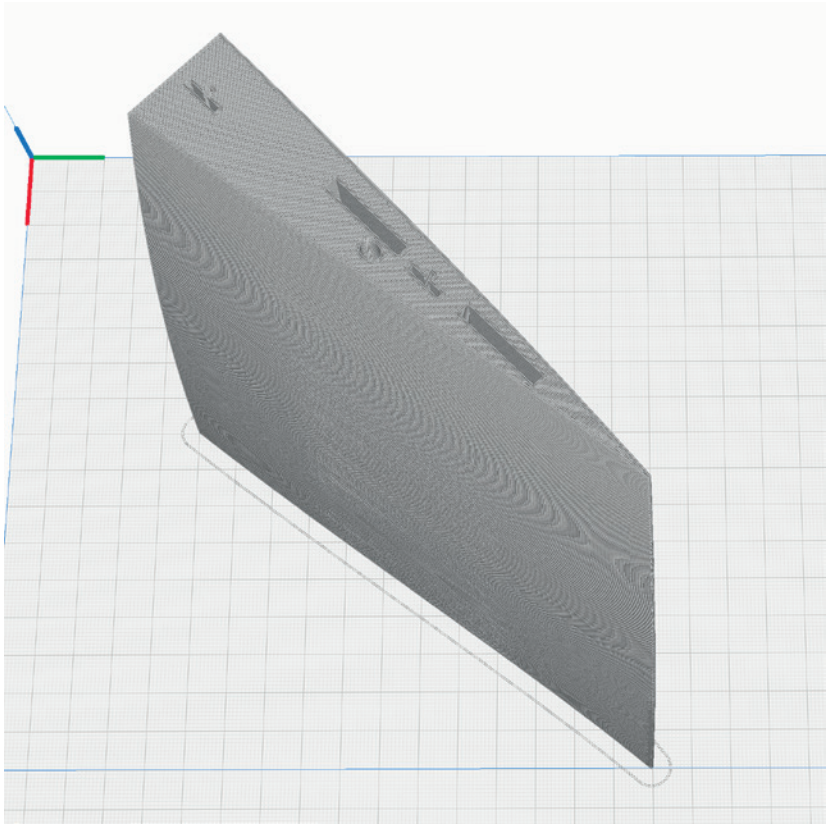
P5_Wing L1b_eng.stl and P5_Wing R1b_eng.stl

MATERIAL LW PLA, Weight: ~ 30 g

TIME ~ 3 hours 30 minutes

ADDITIONAL SETTINGS

None required



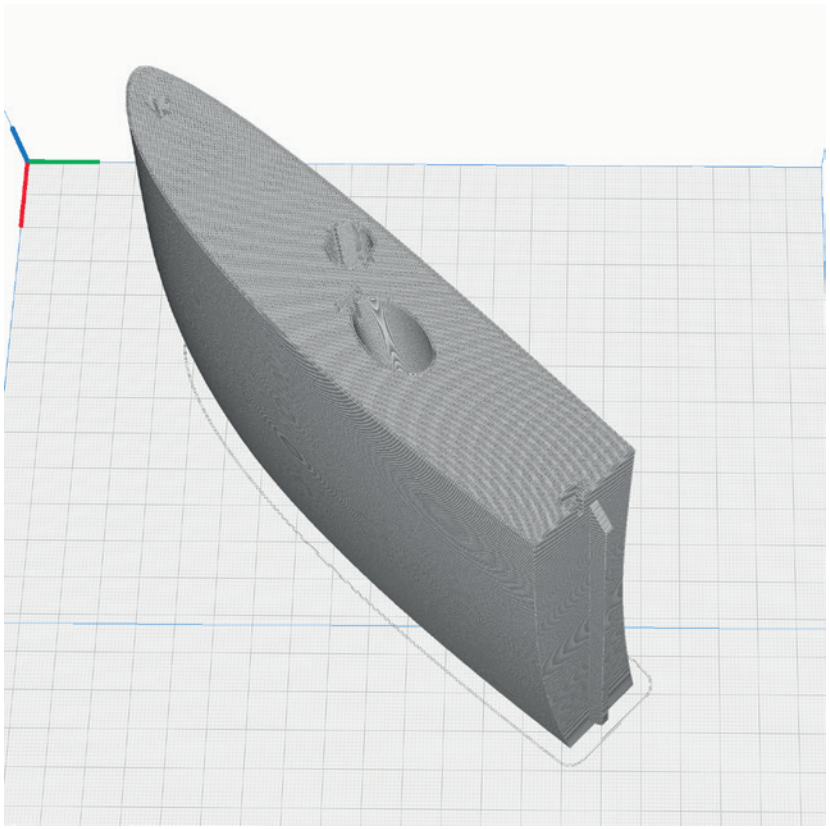
P5_Wing L2a_eng.stl and P5_Wing R2a_eng.stl

MATERIAL LW PLA, Weight: ~ 45 g

TIME ~ 5 hours

ADDITIONAL SETTINGS

None required



PROFILE P5_Gyroid LW-PLA (foaming)!

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

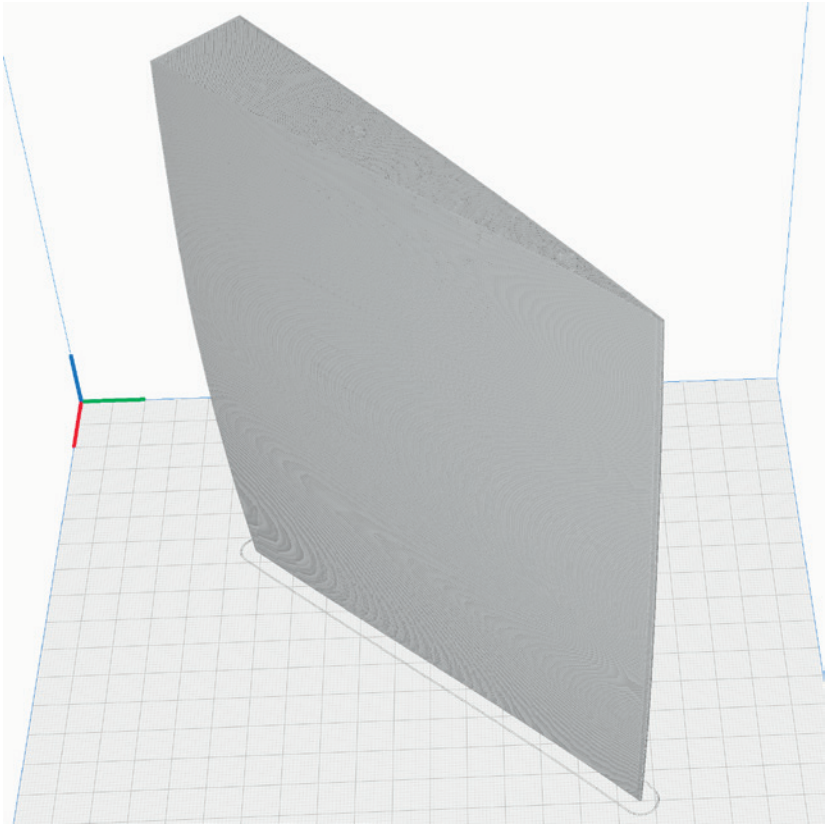
P5_Wing L2b_eng.stl and P5_Wing R2b_eng.stl

MATERIAL LW PLA, Weight: ~ 30 g

TIME ~ 3 hours 20 minutes

ADDITIONAL SETTINGS

None required



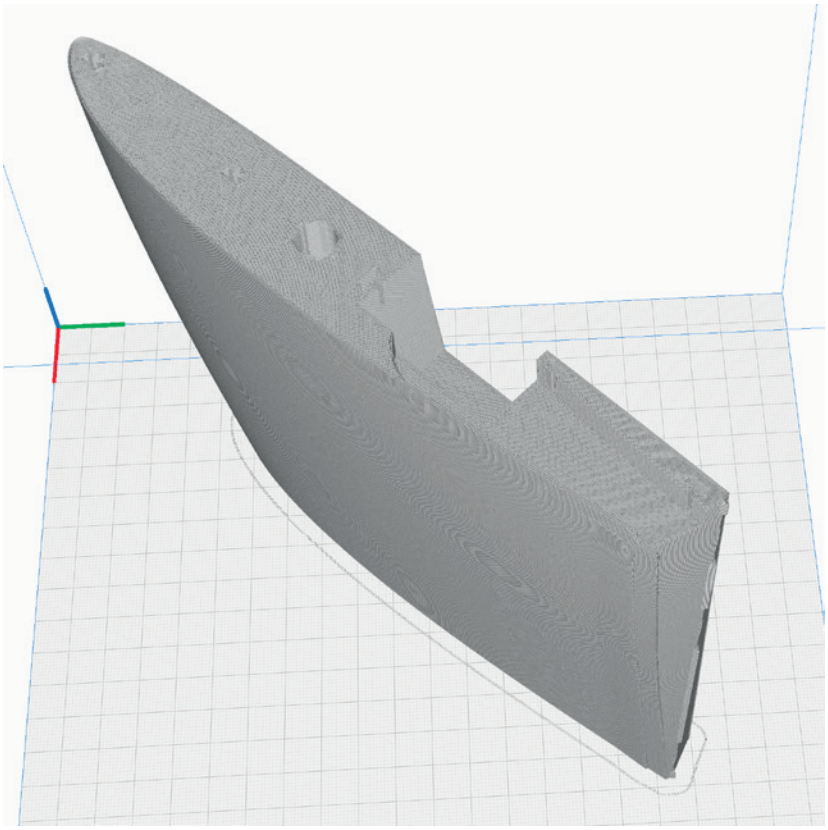
P5_Wing L3_eng.stl and P5_Wing R3_eng.stl

MATERIAL LW PLA, Weight: ~ 48 g

TIME ~ 5 hours 20 minutes

ADDITIONAL SETTINGS

None required



PROFILE P5_Gyroid LW-PLA (foaming)!

The information about the basic settings you can find on our website at PRINT.
Please note the additional settings for the individual parts!
It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

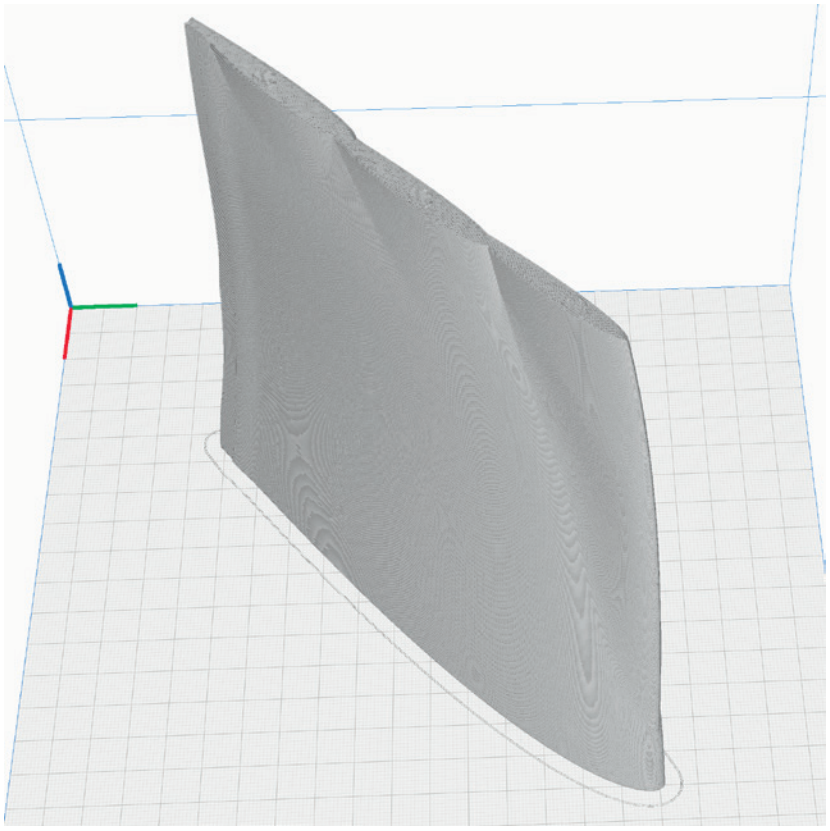
P5_Wing L4_eng.stl and P5_Wing R4_eng.stl

MATERIAL LW PLA, Weight: ~ 28 g

TIME ~ 3 hours

ADDITIONAL SETTINGS

None required



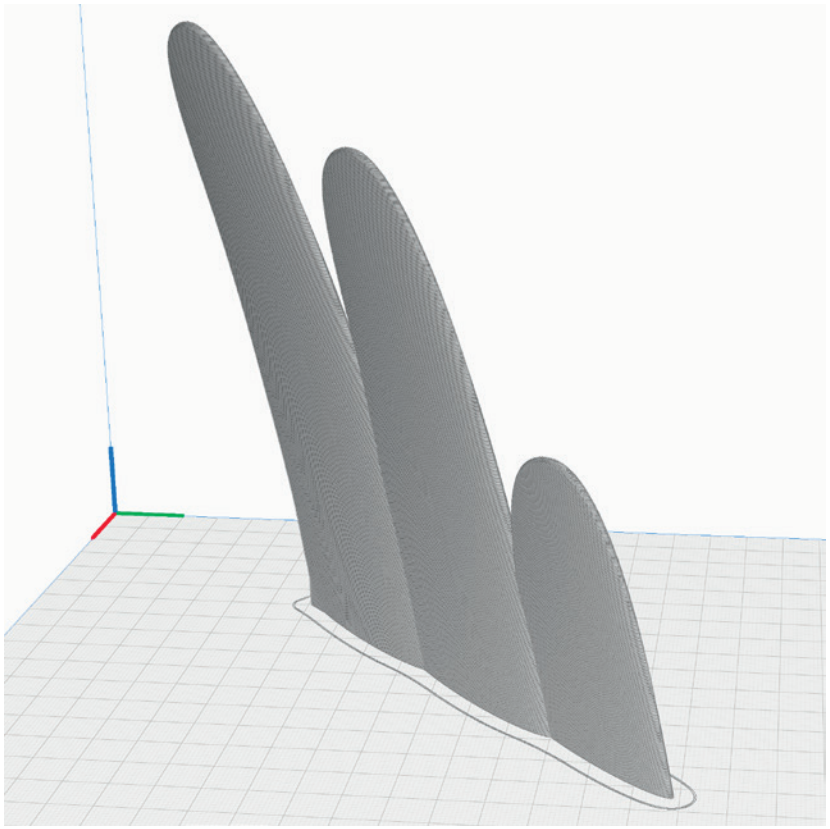
P5_Wing L5_eng.stl and P5_Wing R5_eng.stl

MATERIAL LW PLA, Weight: ~ 11 g

TIME ~ 1 hour 20 minutes

ADDITIONAL SETTINGS

- use Brim



Basic Information:

Gluing the parts printed with PROFILE P5

STEP 1 As a first step, it is important to **roughen and smooth the adhesive surfaces** with sandpaper.

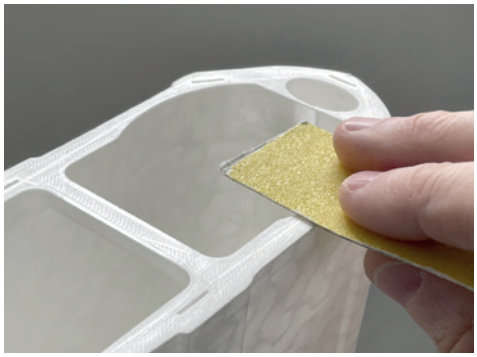
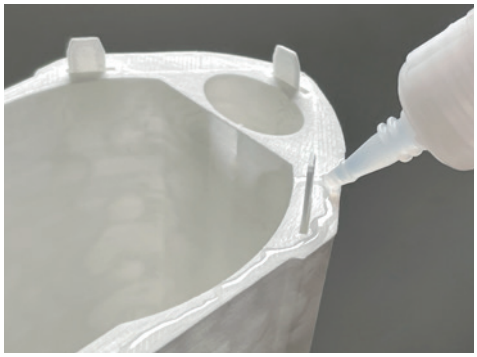
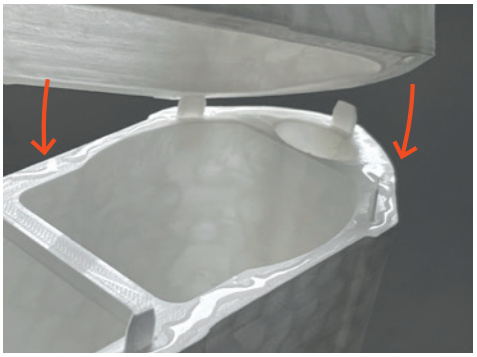
STEP 2 Insert the **interconnects into the slots** provided on one side.

STEP 3 Apply **a lot of glue** to the side with the interconnects. It is important that there is glue everywhere, especially on the outside and inside of the wall surfaces, in order to achieve a perfect connection. The interconnects only serve to align the parts to each other. It is better **not** to apply glue here, otherwise it can happen that the glue suddenly hardens while the parts are being put together and stops the process.

Use medium viscosity CA glue, thinner glue would run down the parts too easily.

After assembly, **align the two parts exactly** and wipe off the excess CA glue from the surface with a cloth. Now spray with activator spray along the gluing surface and carefully press the parts together.

STEP 4 Clean the glued areas slightly with a **sharp-bladed** cutter.

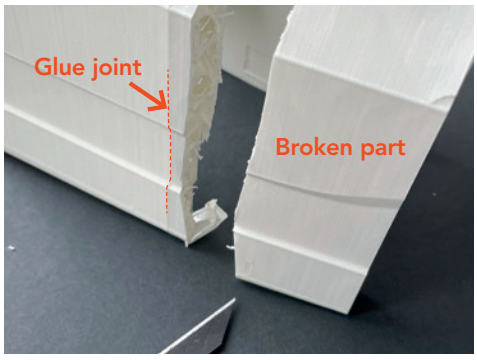




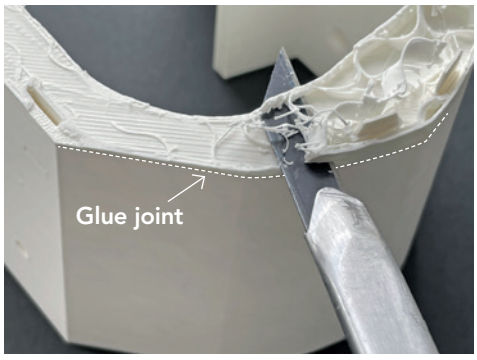
PROFILES 5 parts are easy to repair

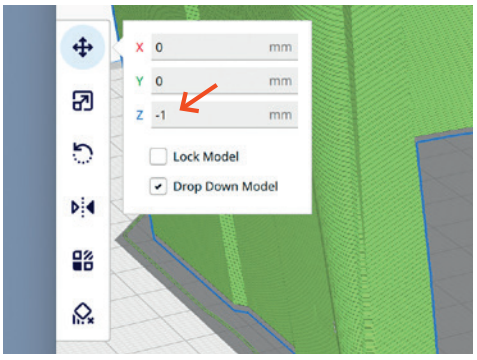
STEP 1 Using the knife, carefully remove the damaged part about 3 mm from the glue joint between two parts.

STEP 2 Cut wall and infill and clean the surface with sandpaper. **The top surface of the damaged part remains!**

STEP 3 The remaining top surface is about 1 mm thick. To compensate for this, you can move the new part to be printed down the Z axis in Cura by 1 mm.

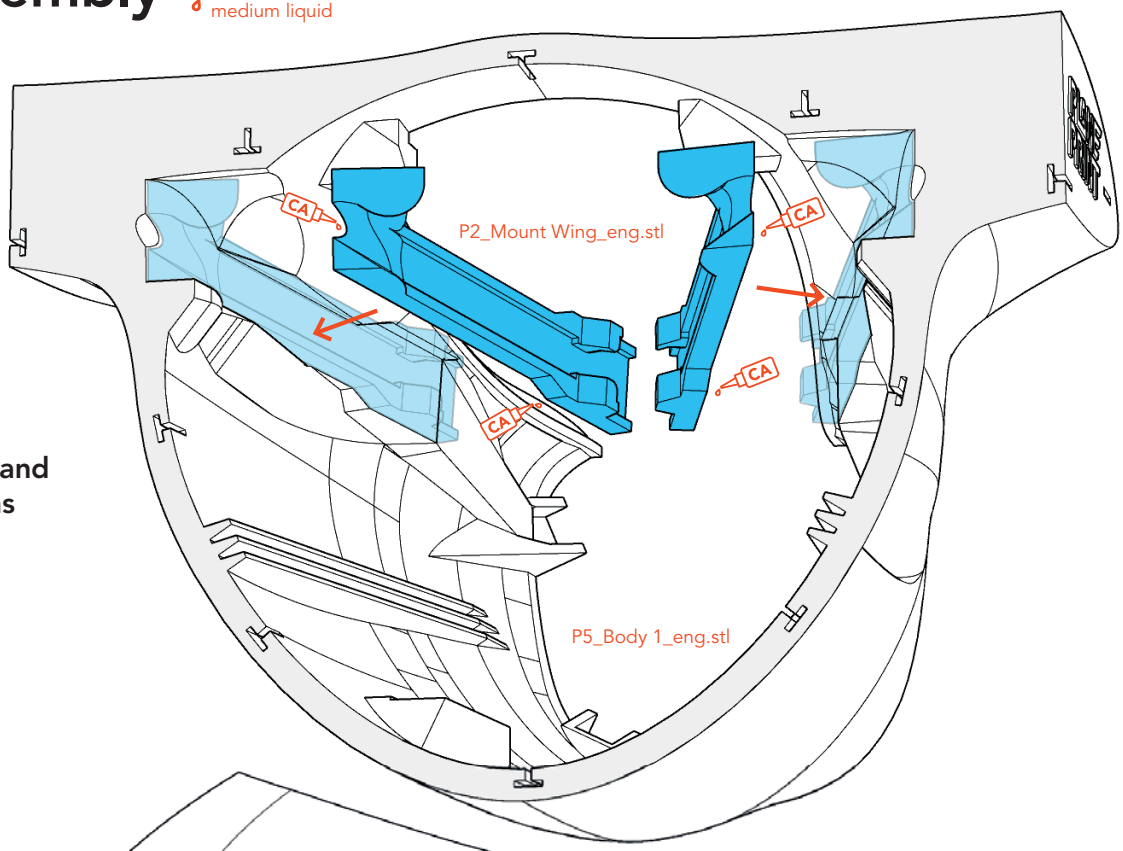




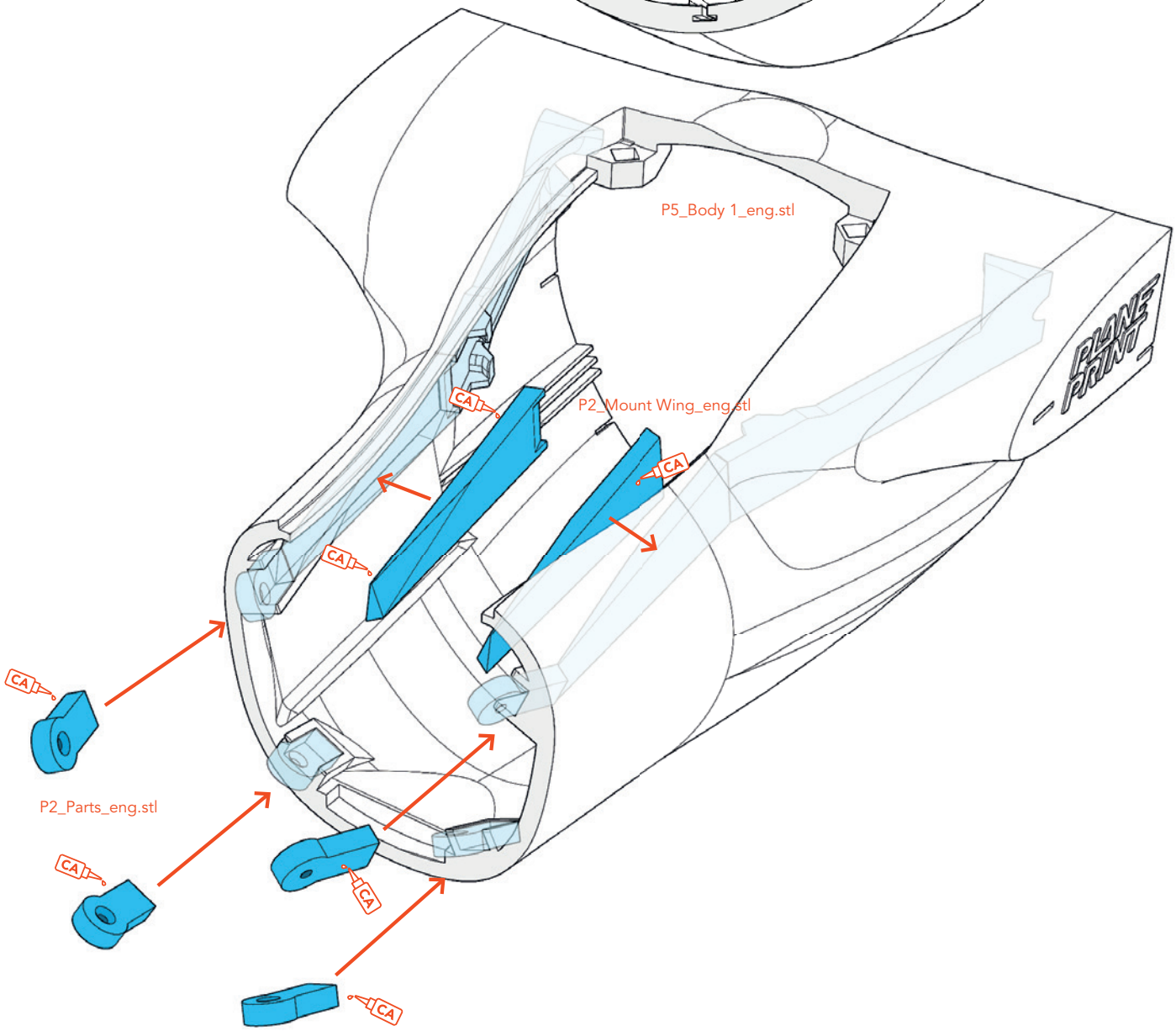


Fuselage assembly

CA medium liquid

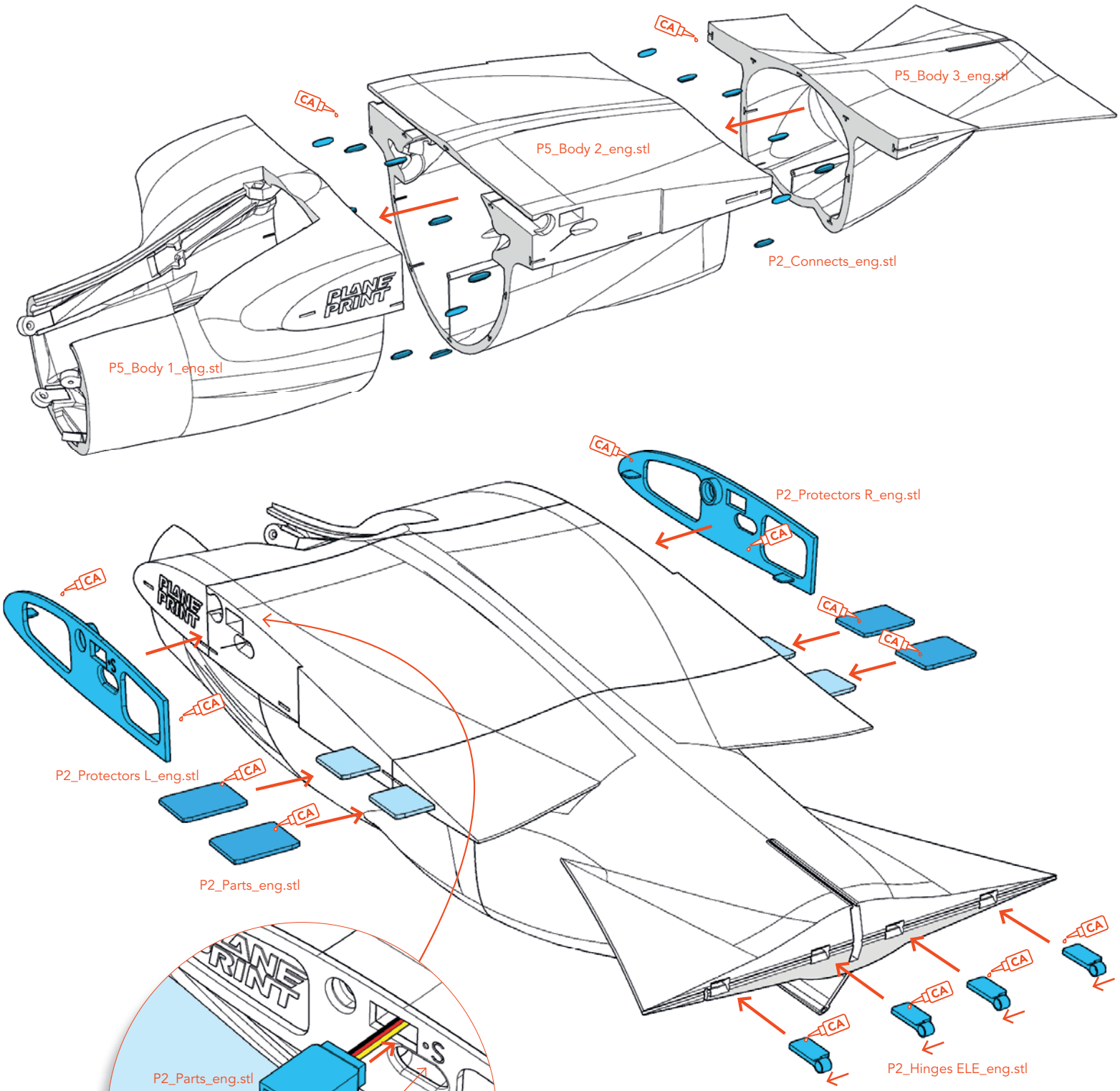


TIP Always put all parts together **BEFORE gluing** and check that everything runs smoothly and fits exactly.

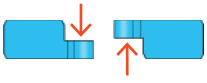


Fuselage assembly

CA medium liquid



Pay attention to the **alignment** of the hinges.

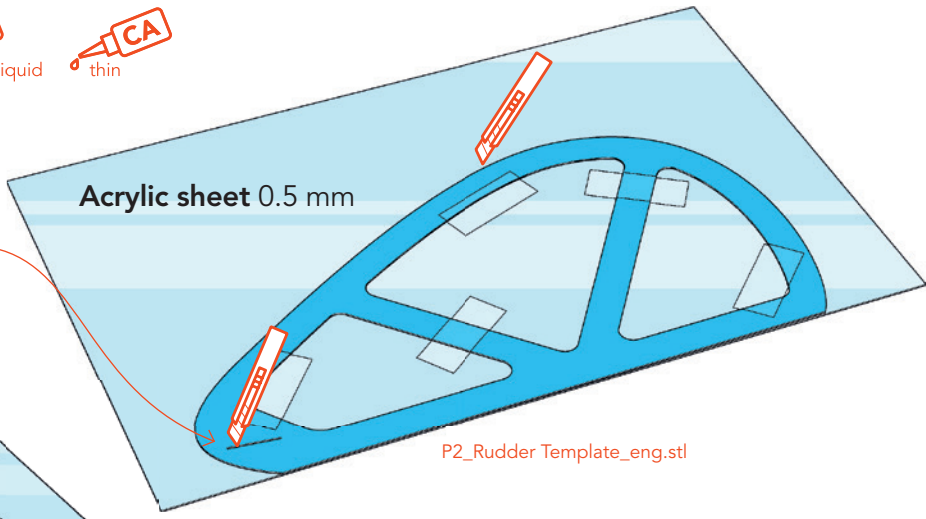


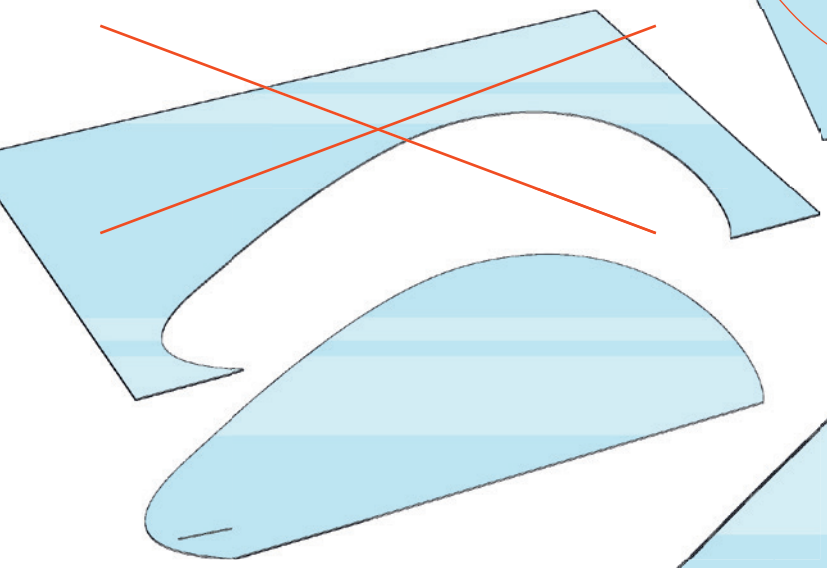
Tail glass version

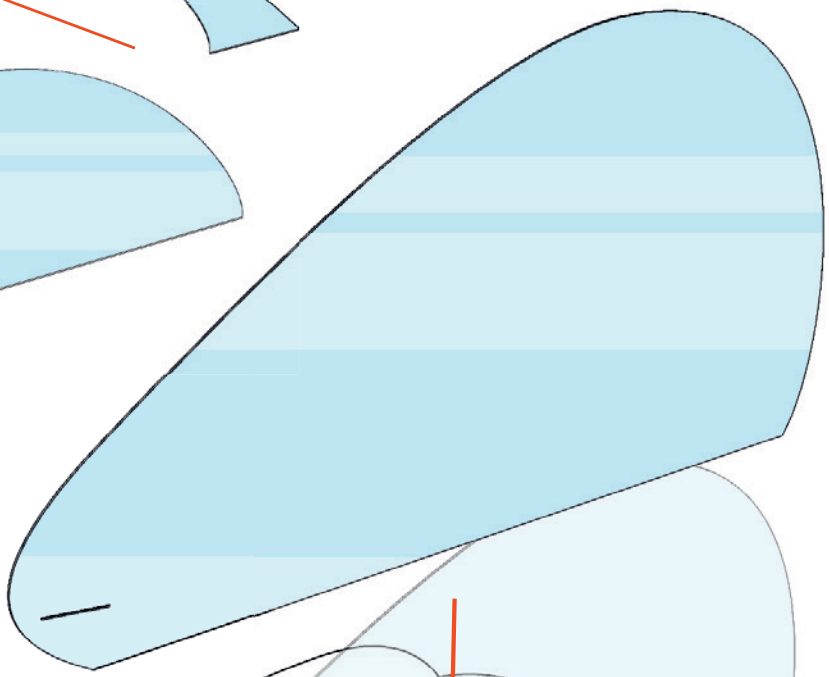
CA medium liquid

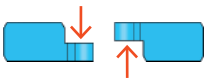
CA thin

Use the rudder template as a guide for cutting the glass rudder. **Make a mark here**, which will later serve as an adjustment aid.

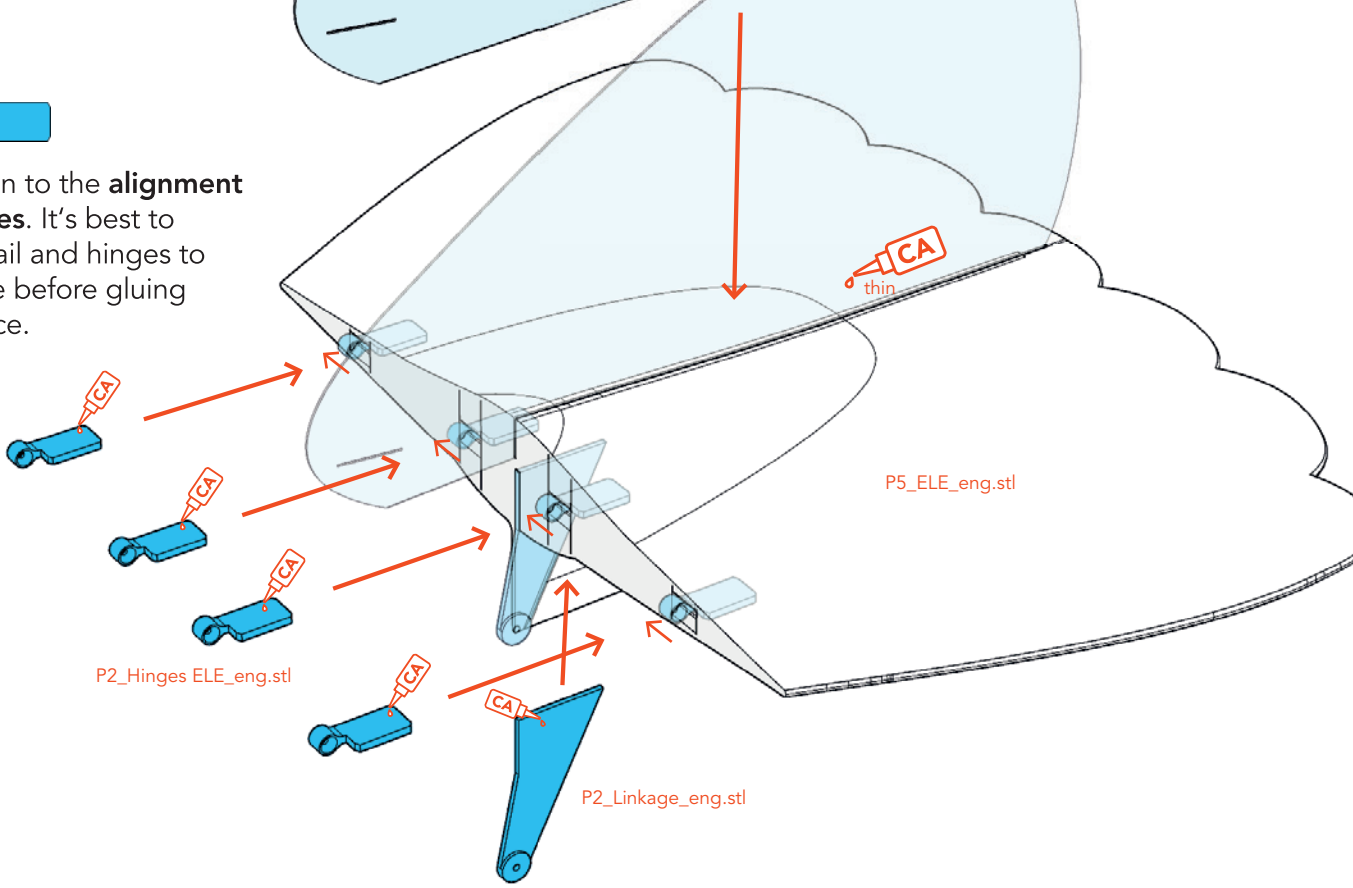




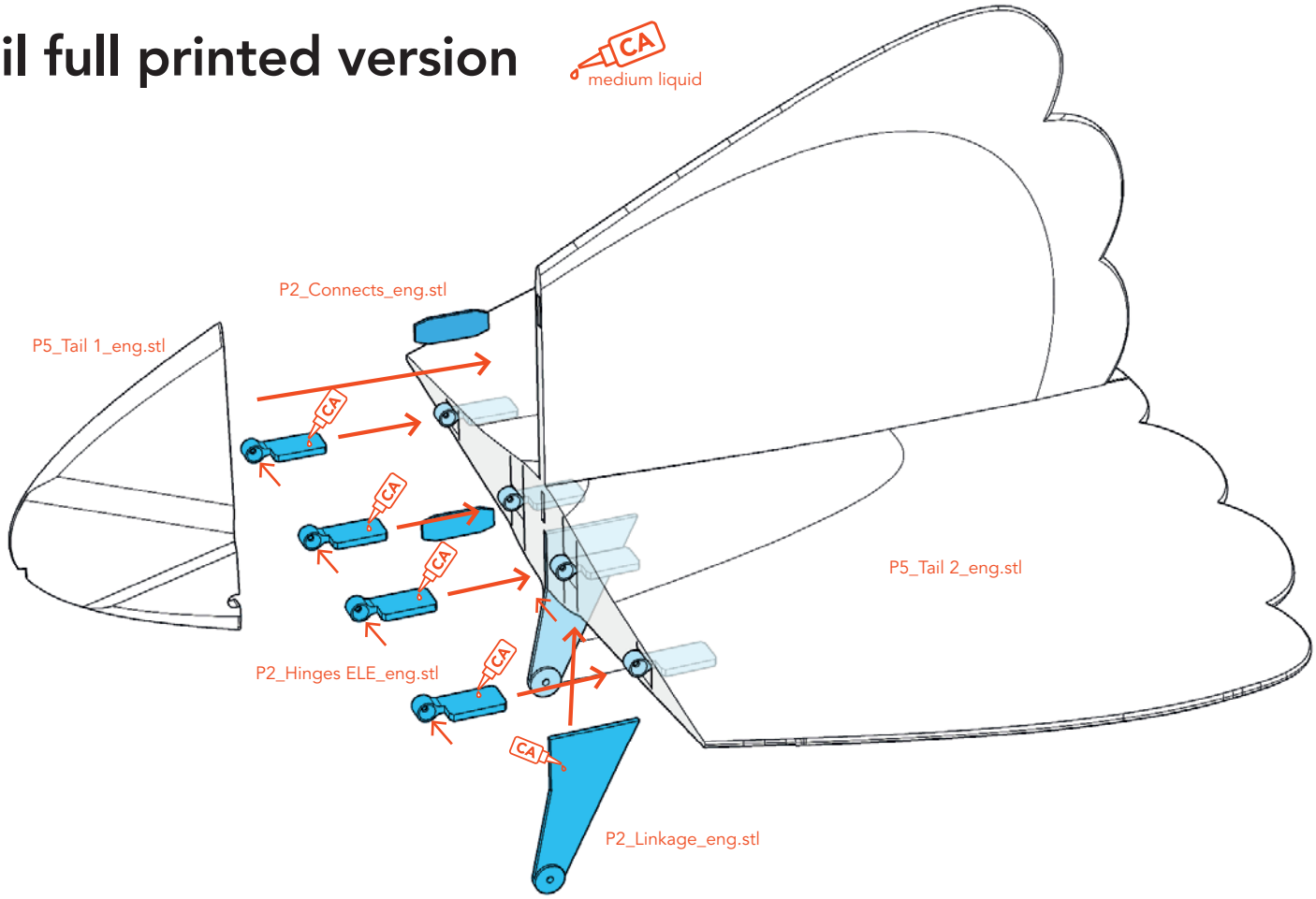




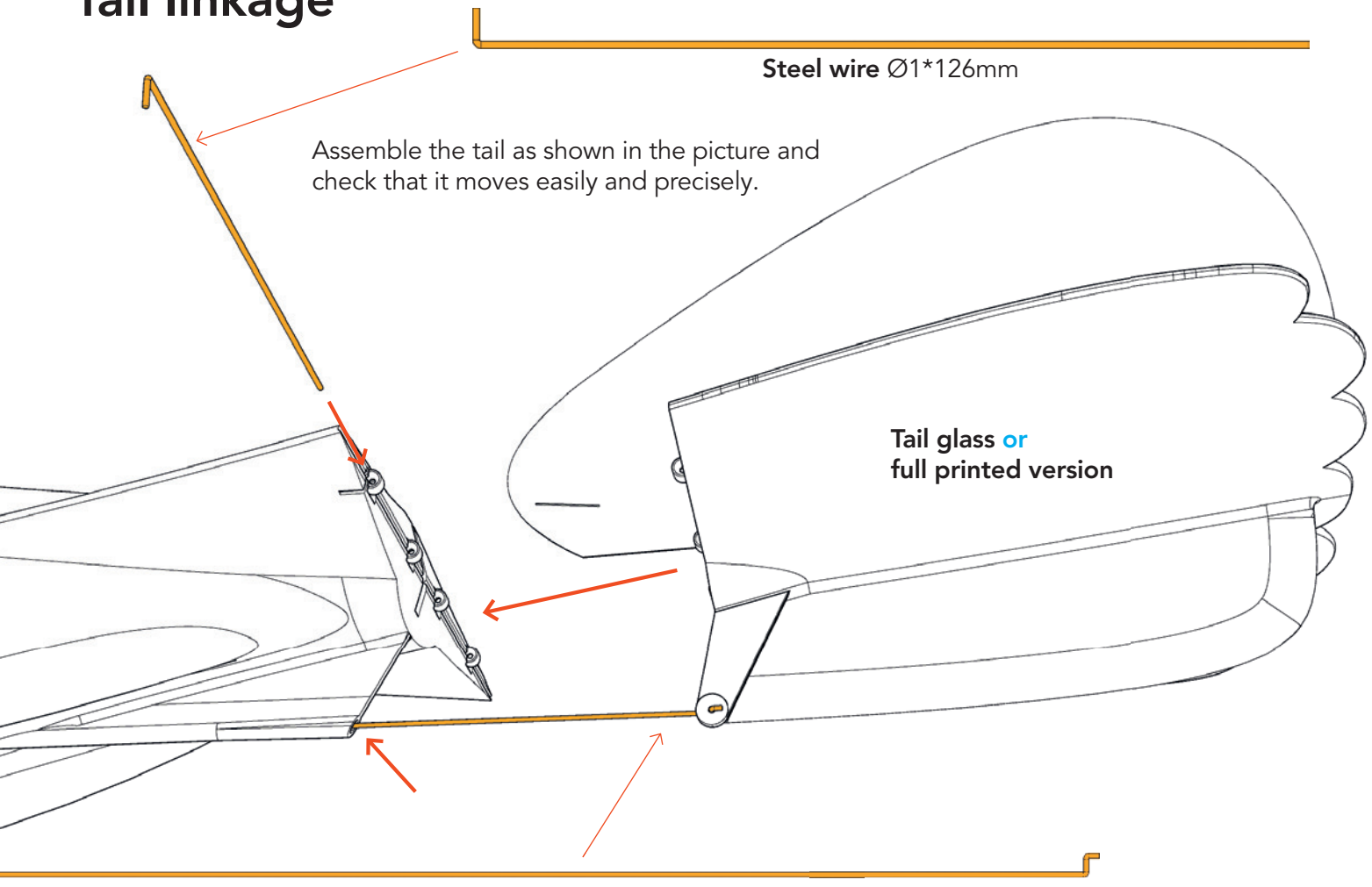
Pay attention to the **alignment of the hinges**. It's best to attach the tail and hinges to the fuselage before gluing them in place.



Tail full printed version

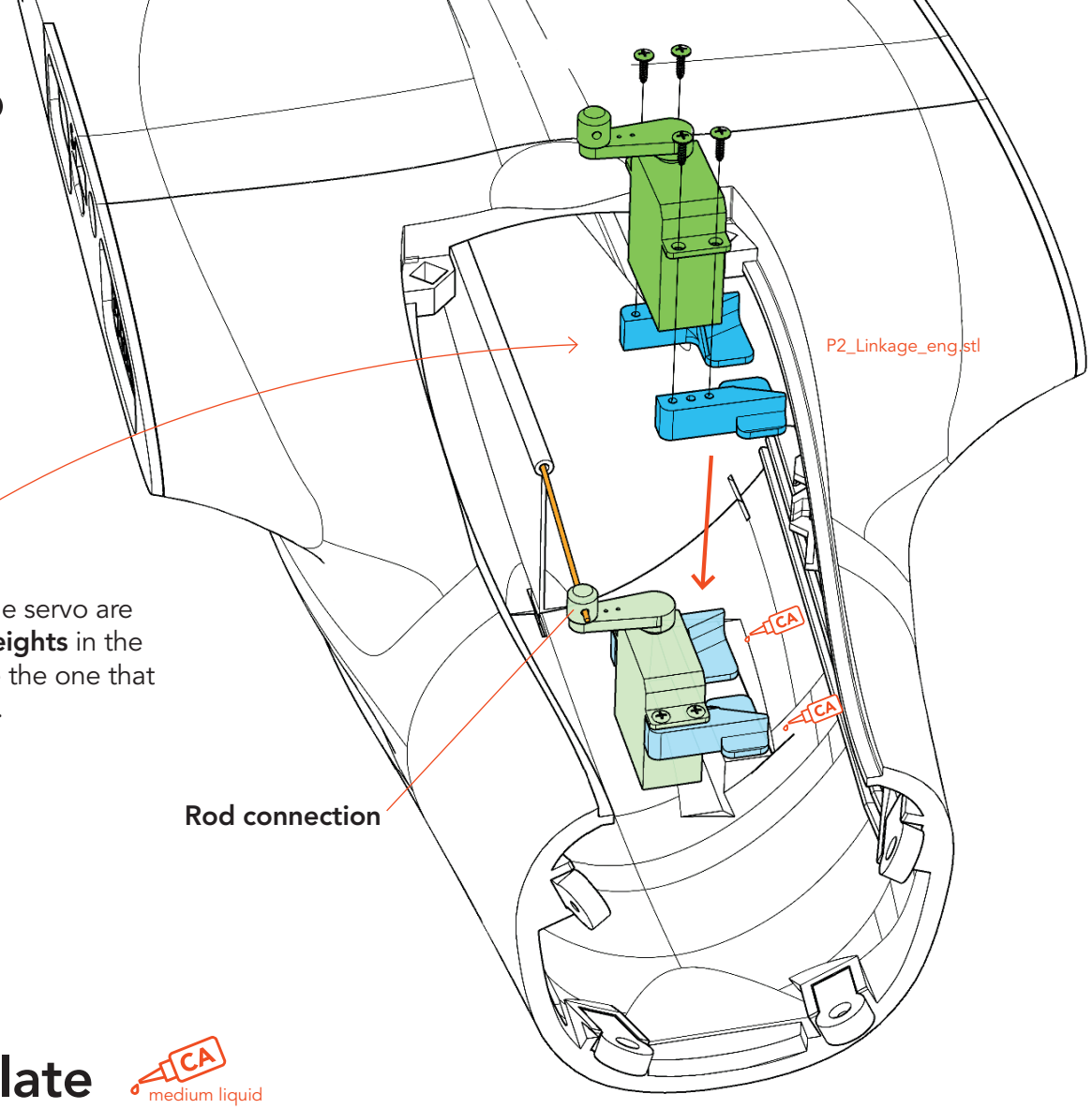


Tail linkage



Tail Servo

CA
medium liquid

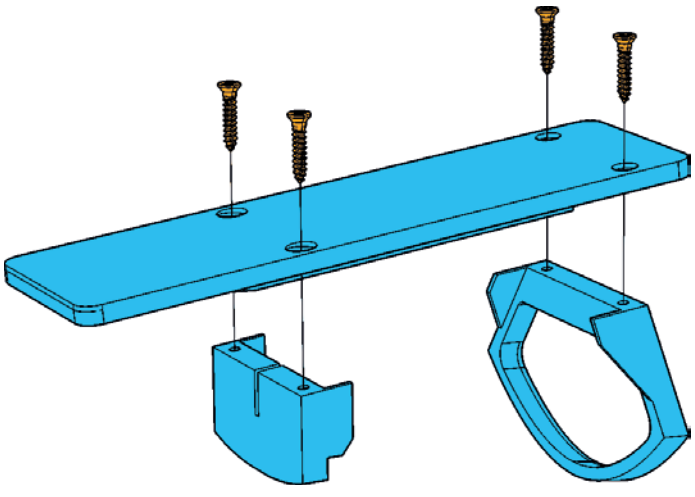


The **brackets** for the servo are **available in two heights** in the STL file. Simply use the one that best fits your servo.

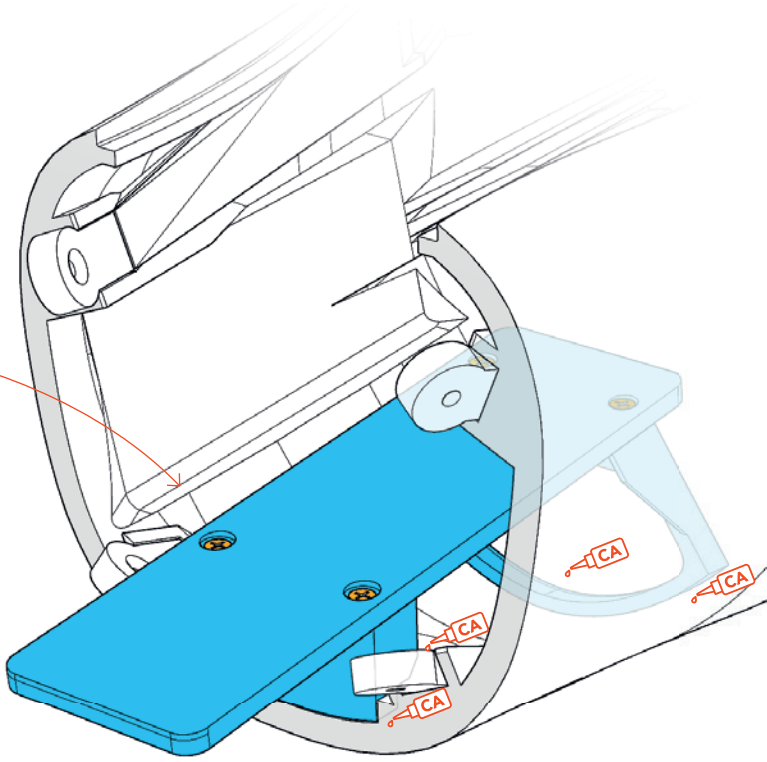
Rod connection

Battery plate

CA
medium liquid



P2_Battery mount_eng.stl

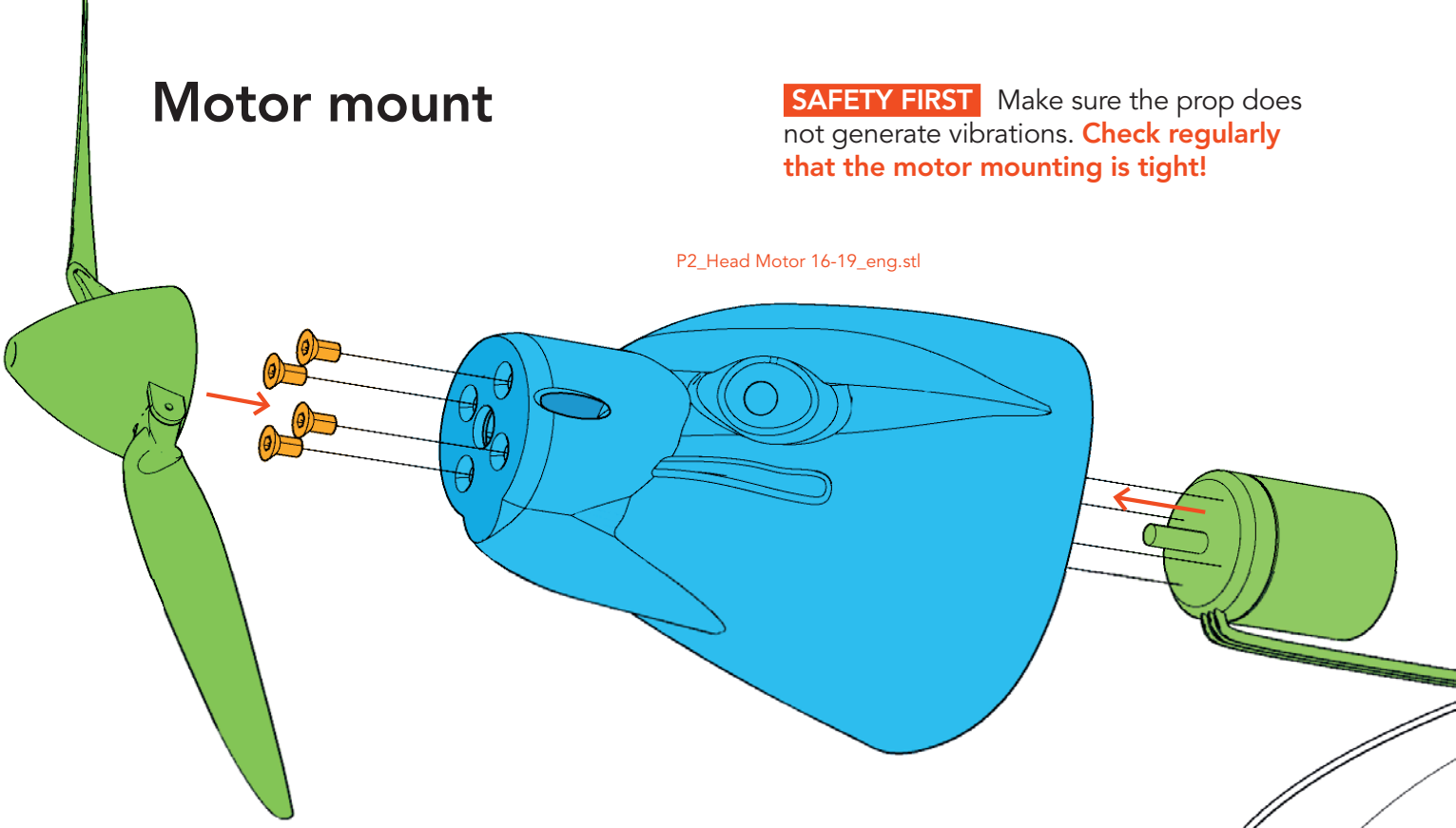


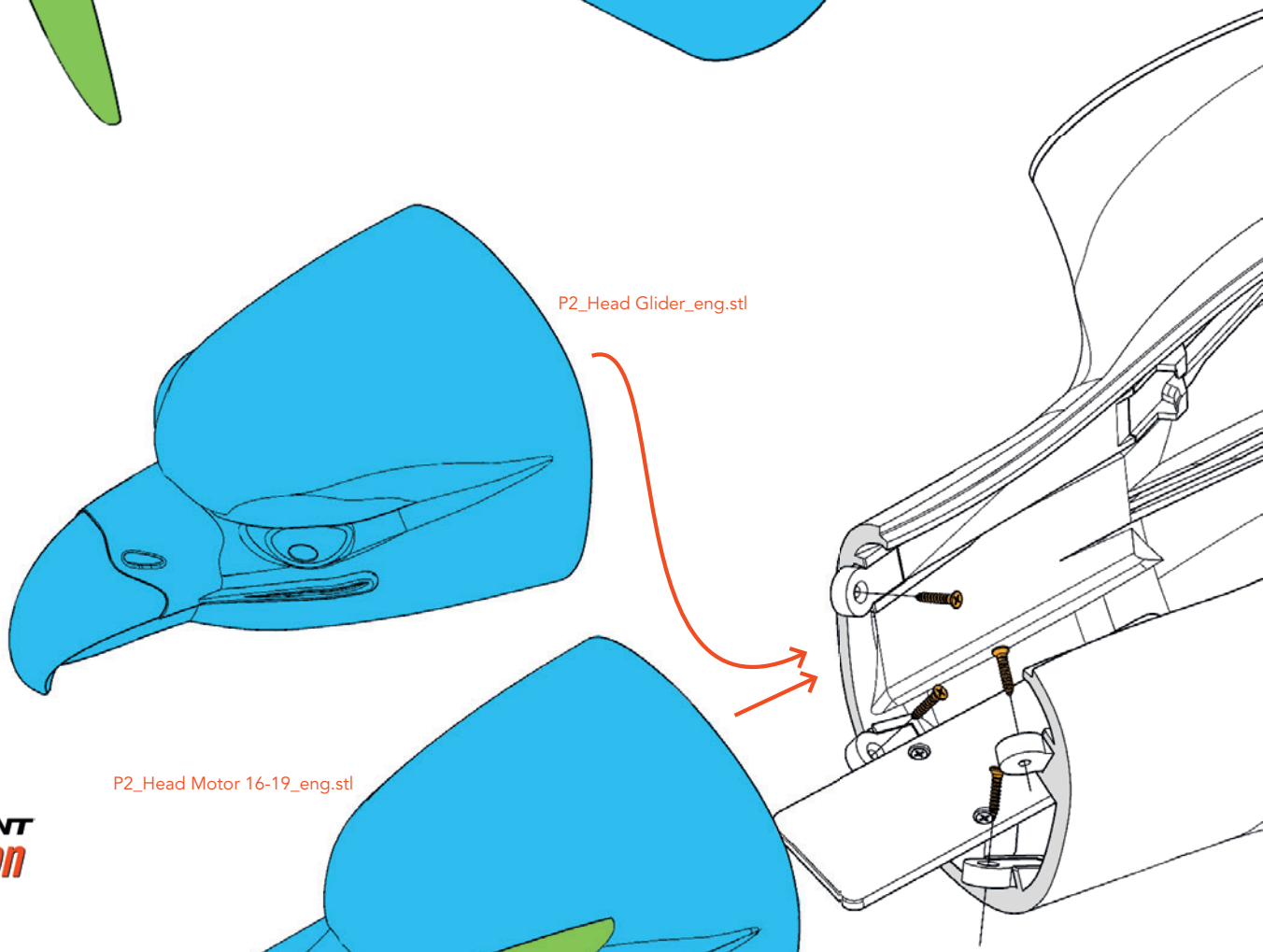
Screw the plate onto the brackets and glue them into Body 1. The battery is attached with **self-adhesive Velcro strips** and can be positioned so that the CG is exactly right.

Motor mount

SAFETY FIRST Make sure the prop does not generate vibrations. **Check regularly that the motor mounting is tight!**

P2_Head Motor 16-19_eng.stl





P2_Head Glider_eng.stl

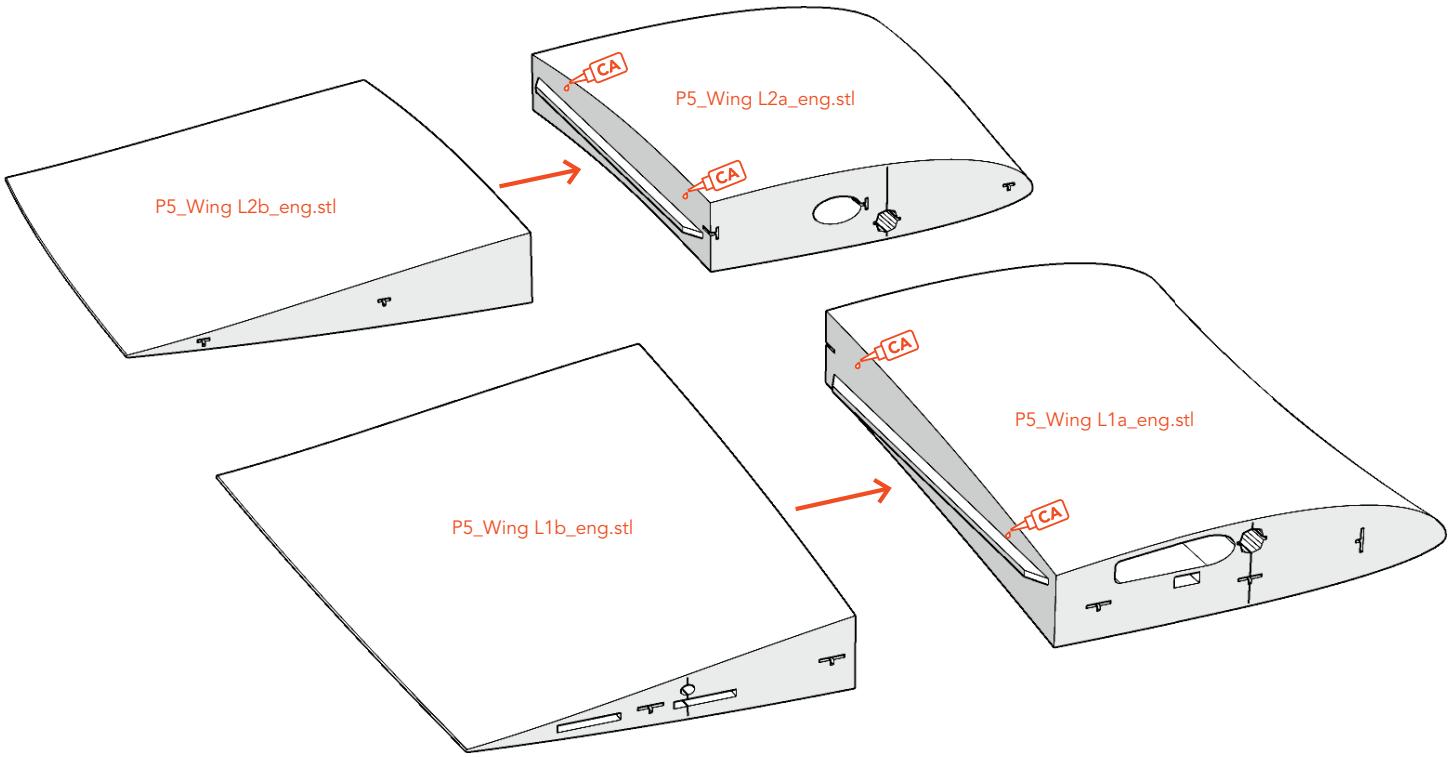
P2_Head Motor 16-19_eng.stl

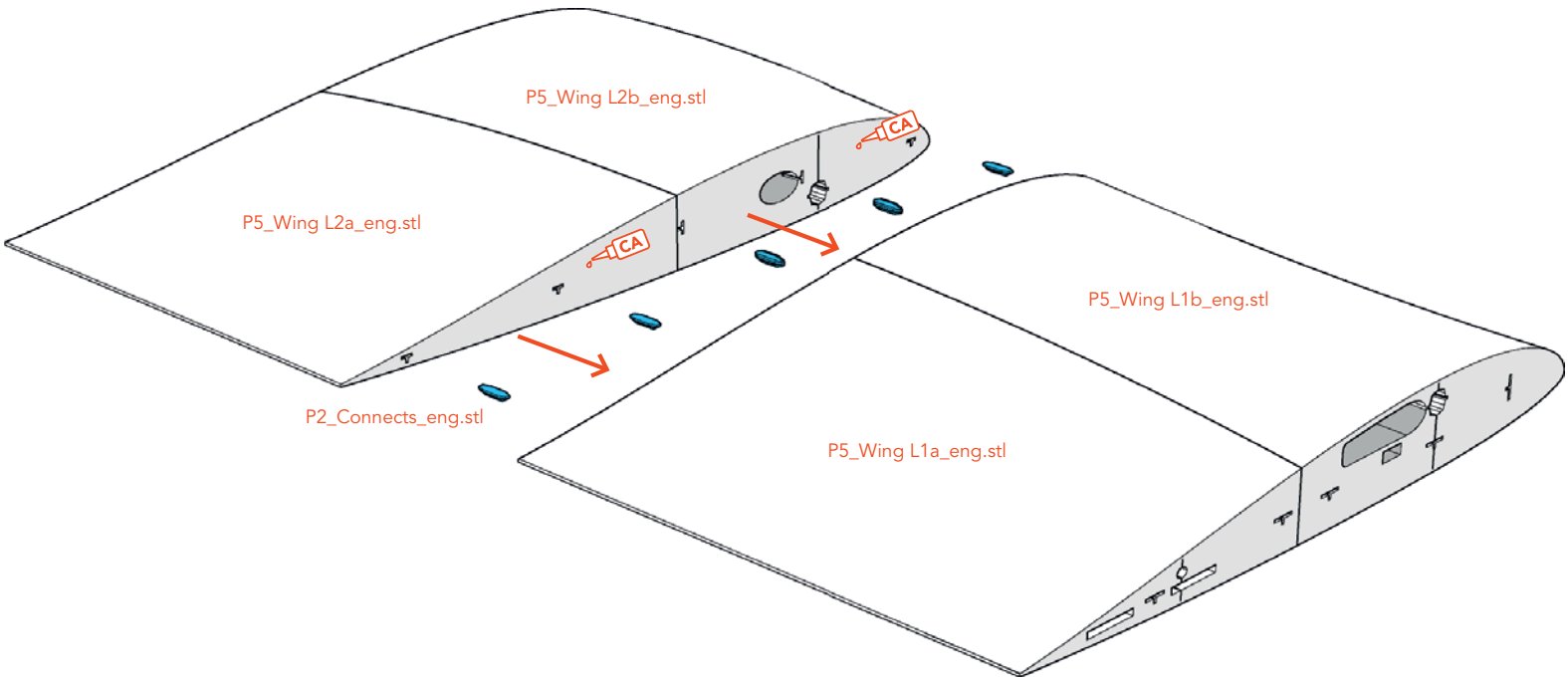
PLANEPRINT Innovation

Screw the head of your choice to the fuselage using four tapping screws. **You can change the heads at any time, giving you flexibility.**

Wing assembly

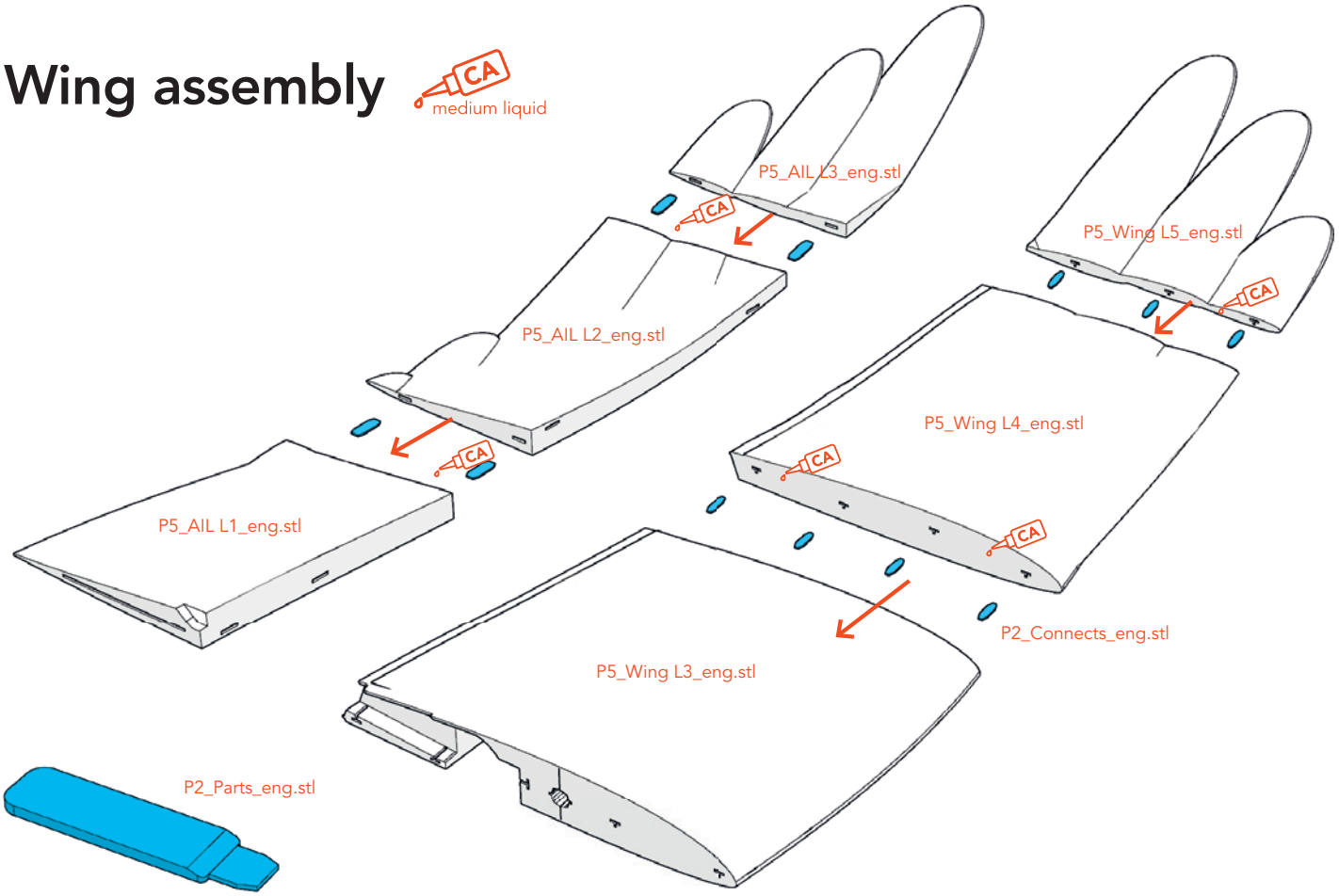
CA medium liquid



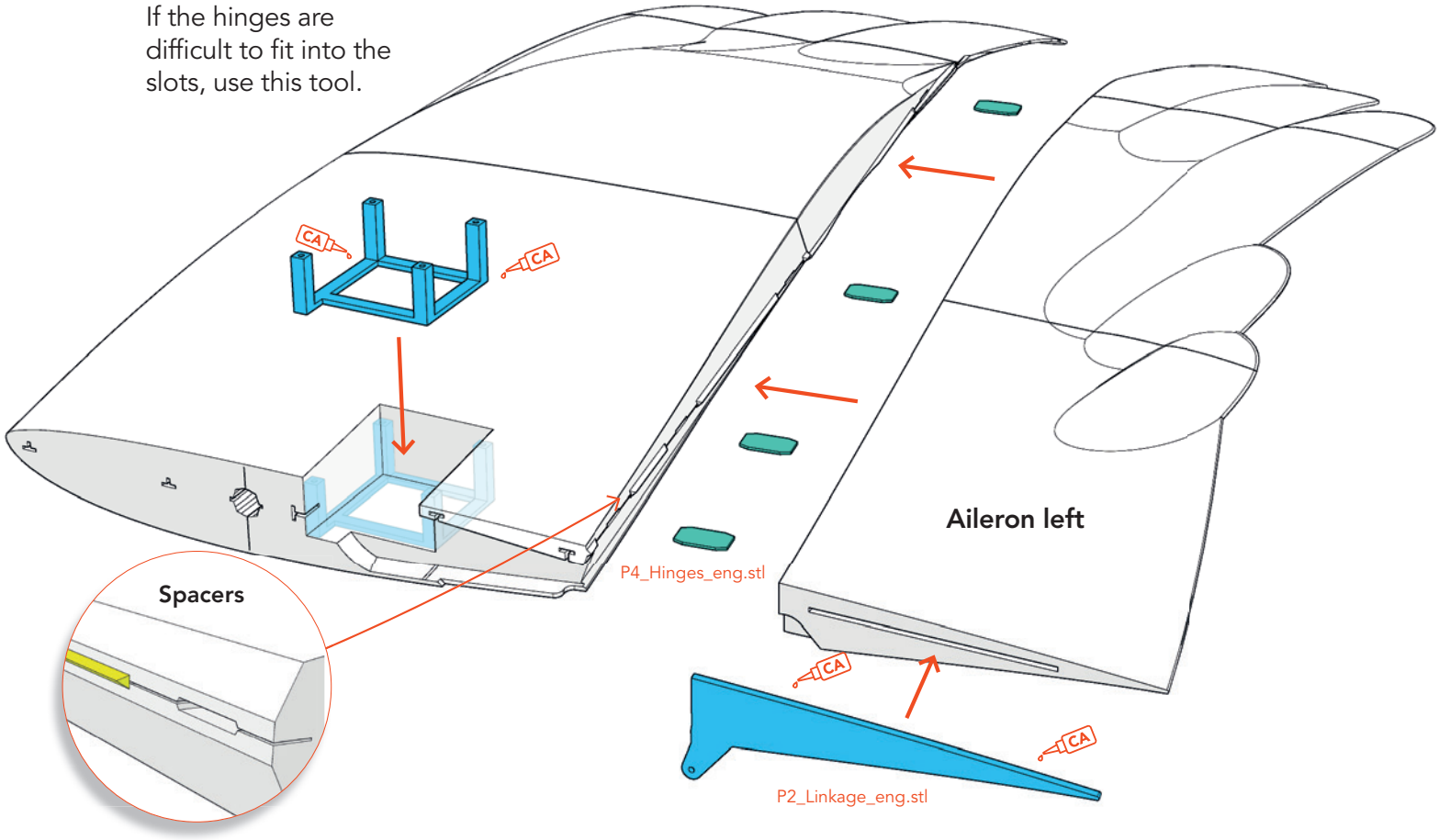


Wing assembly

CA medium liquid

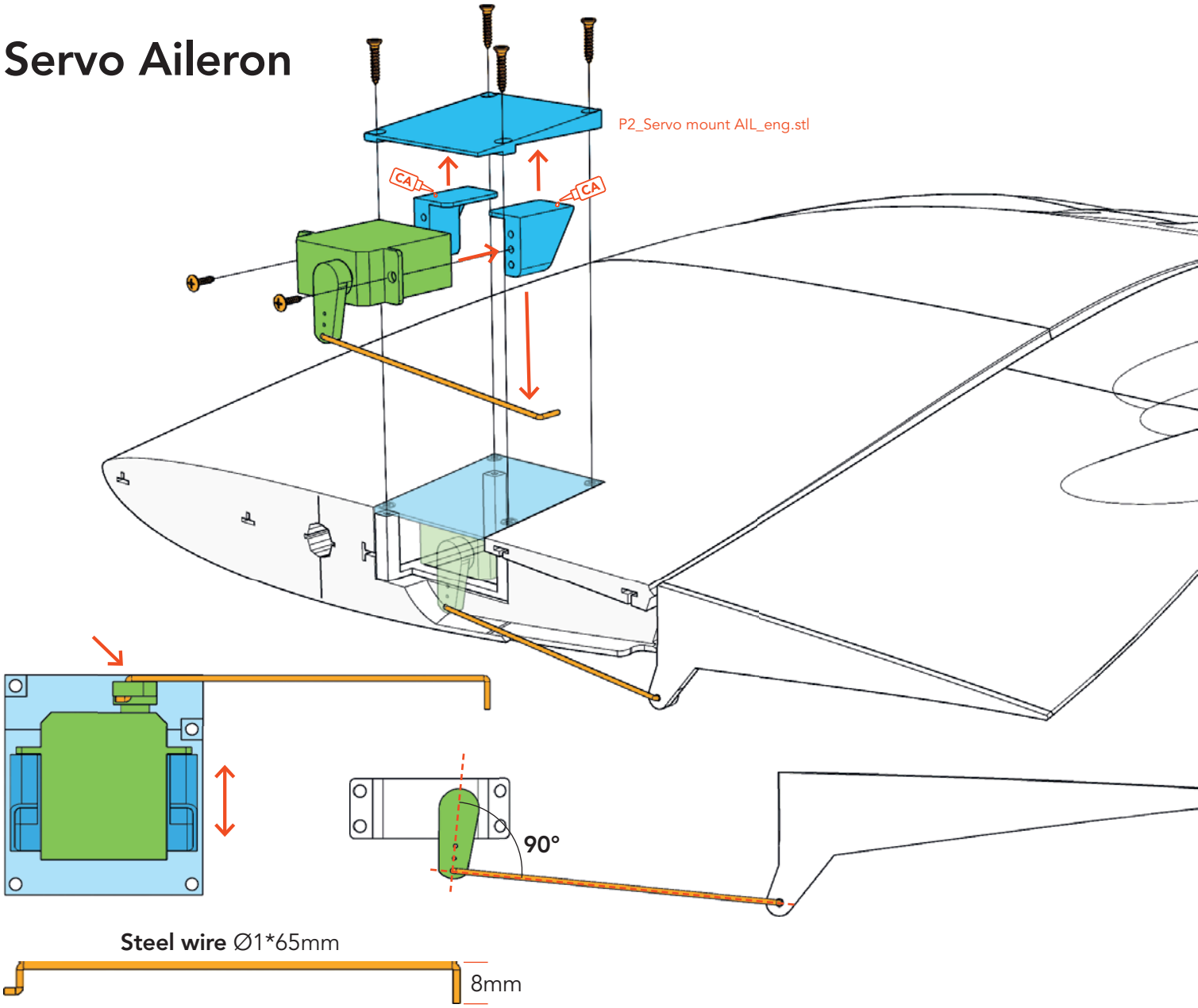


If the hinges are difficult to fit into the slots, use this tool.



Installation the TPU Hinges: First insert the hinge into the **Aileron** and add a drop of liquid CA adhesive into the gap. Wait for the glue to drain completely, then spray the activator on it. Then put the Aileron in the Wing **until they touches the spacers** and put a drop of CA glue on the hinge. Wait again for the glue to run in, and then spray the activator on it. **Do not use too much glue, the Aileron must move easily!**

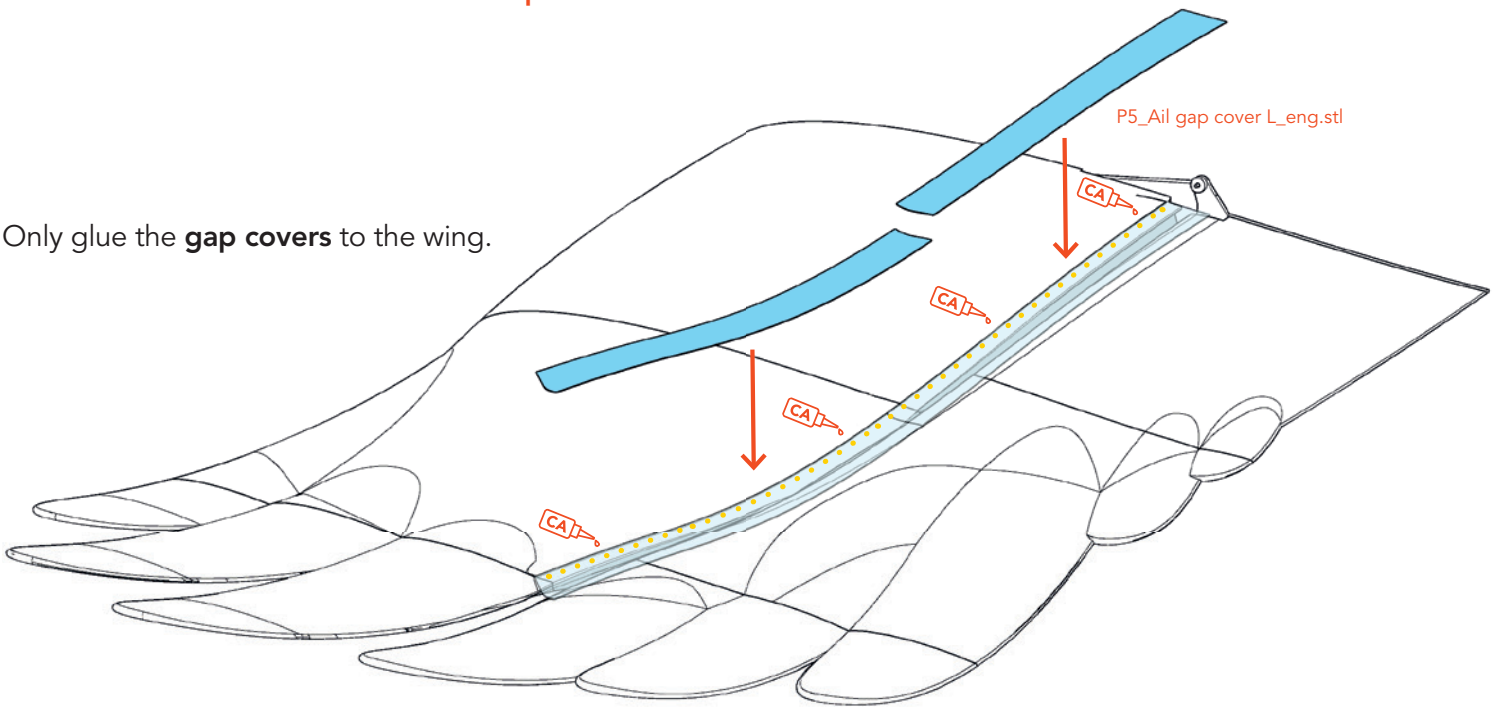
Servo Aileron



Steel wire Ø1*65mm

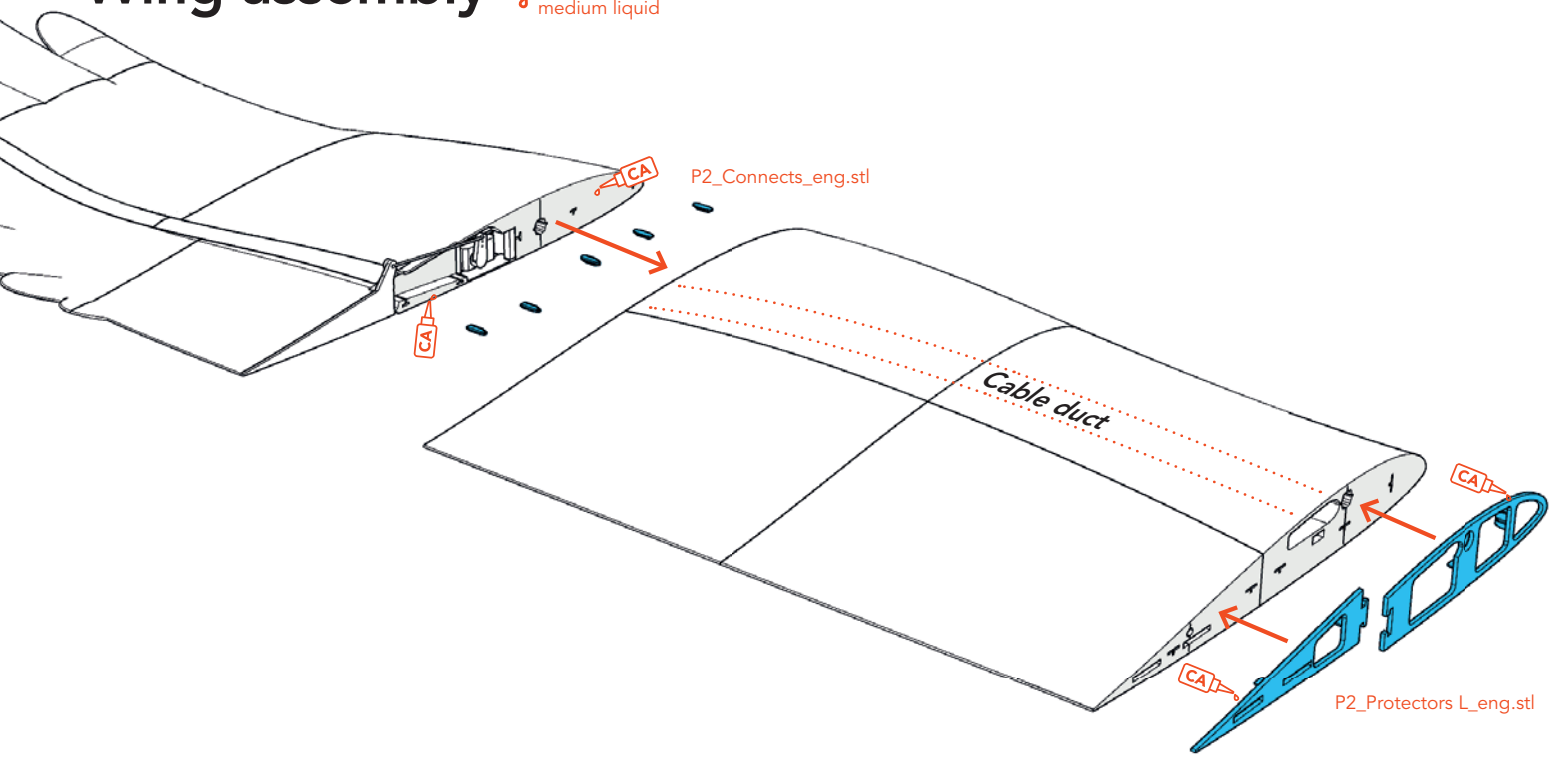
The required length of this wire may vary if your servo has the servo lever in a different position.
Check that the aileron is in the neutral position.

Only glue the **gap covers** to the wing.

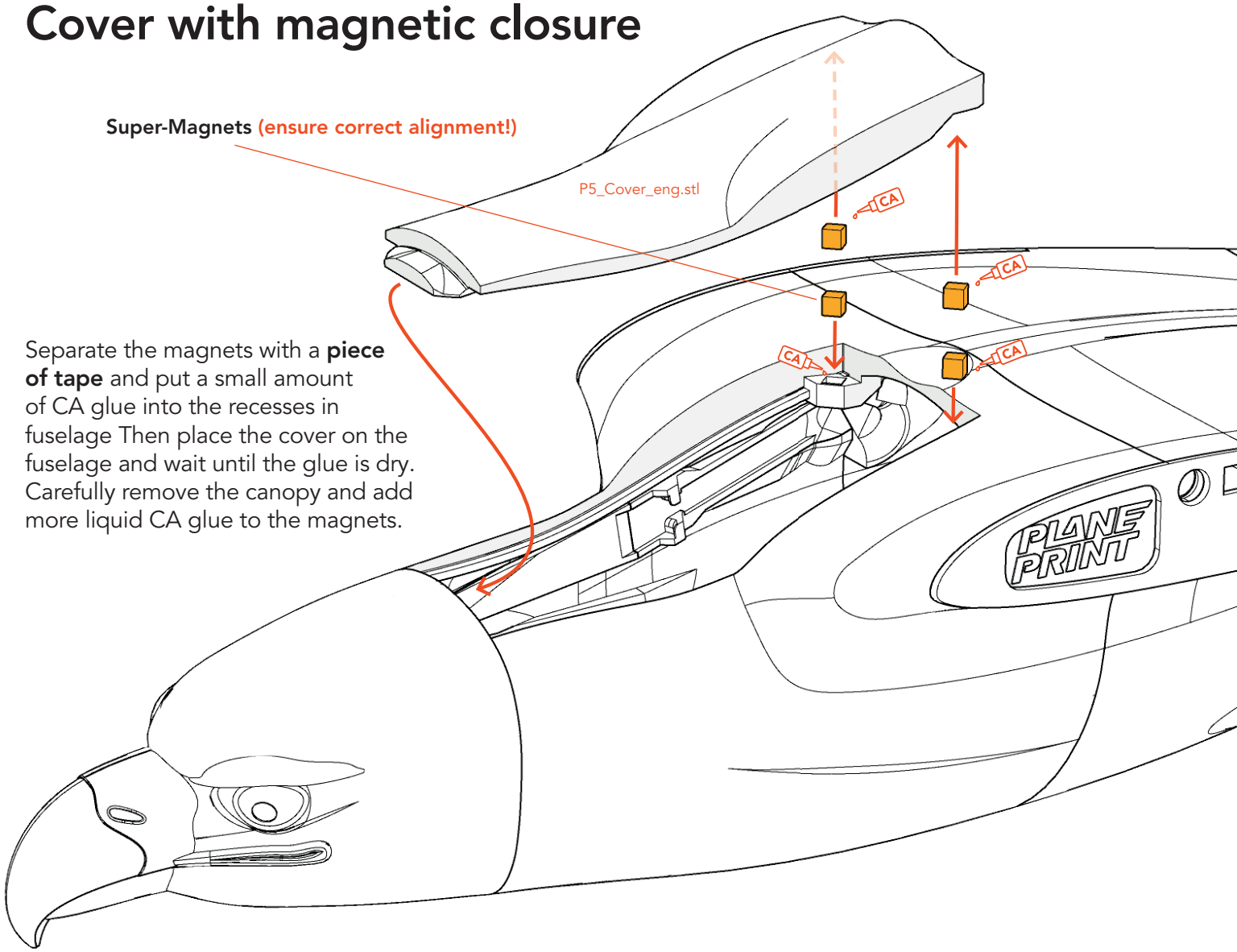


Wing assembly

CA medium liquid



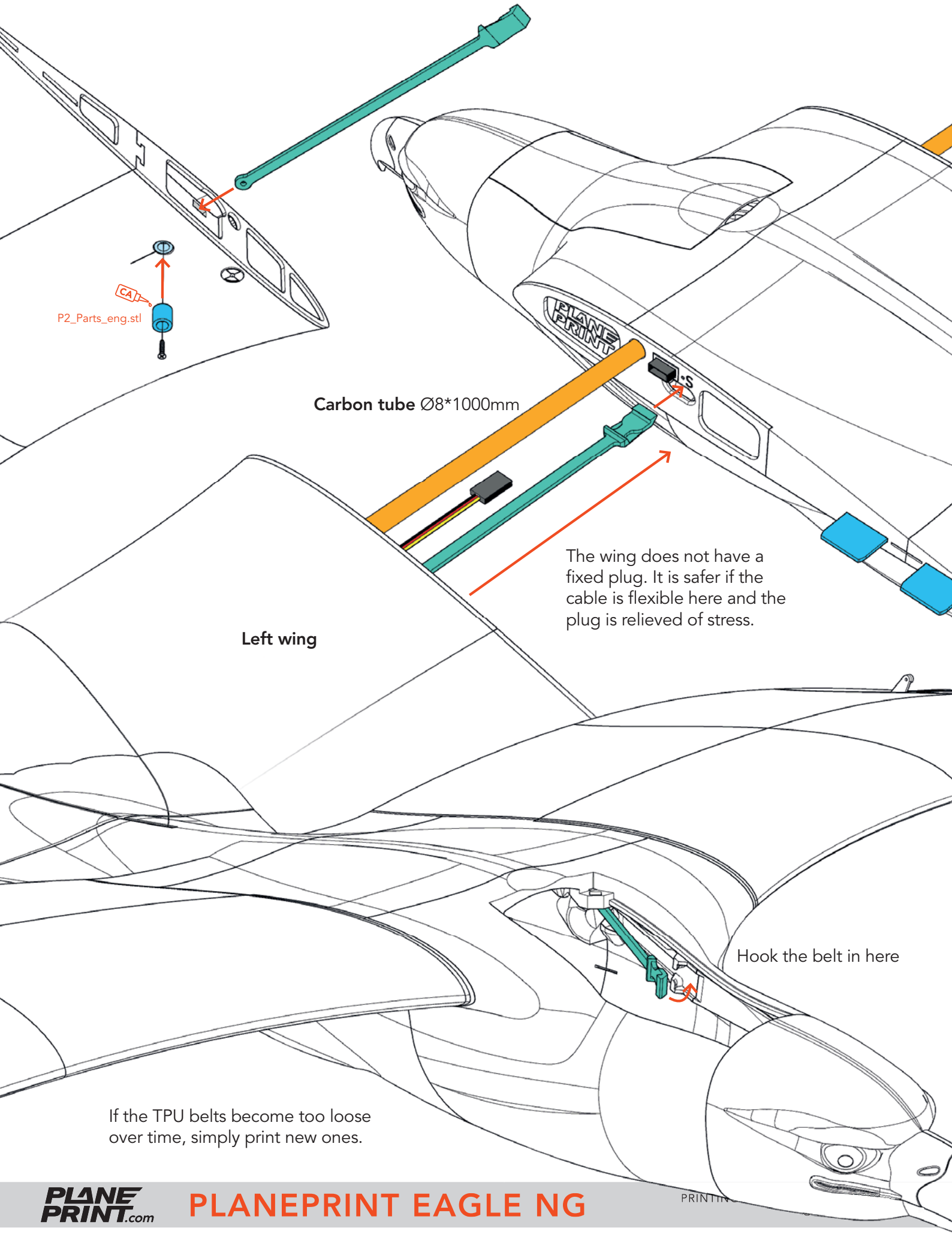
Cover with magnetic closure



Separate the magnets with a **piece of tape** and put a small amount of CA glue into the recesses in fuselage Then place the cover on the fuselage and wait until the glue is dry. Carefully remove the canopy and add more liquid CA glue to the magnets.

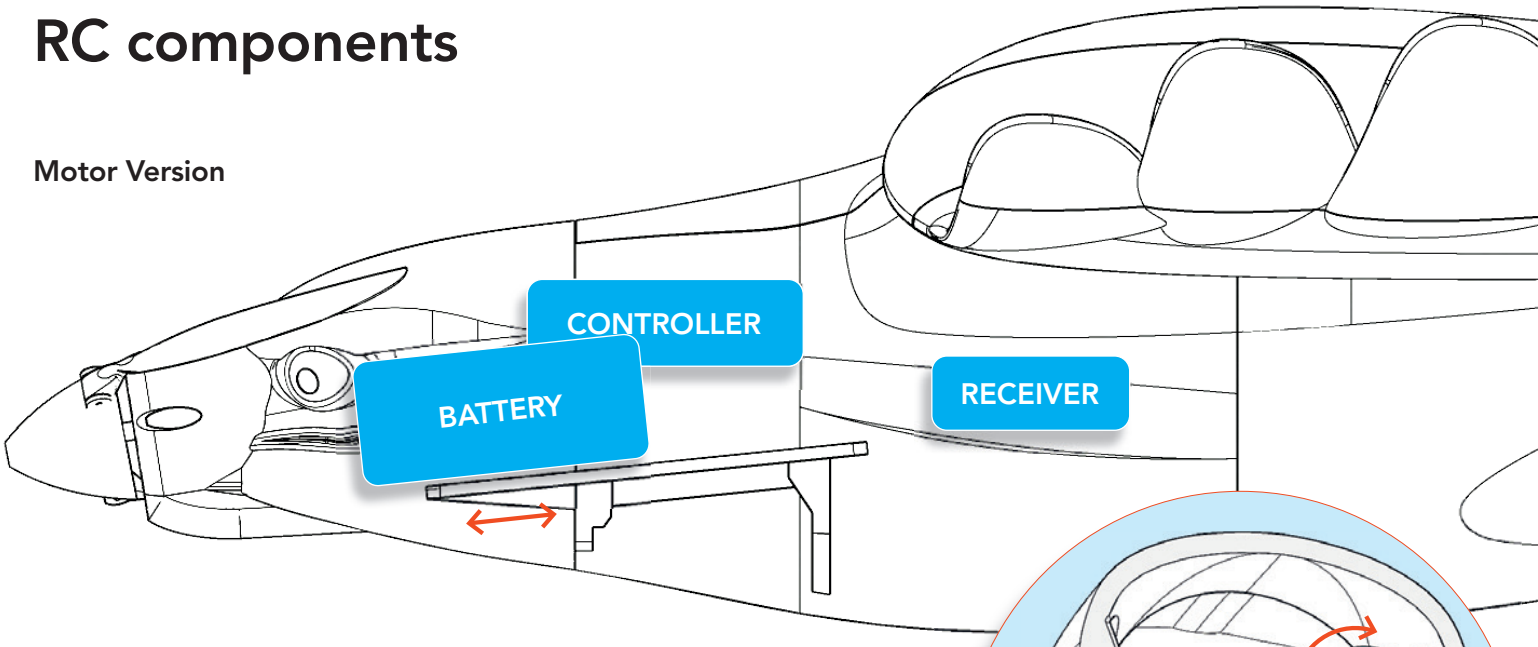
Tool-free Wing fastening

PLANEPRINT Innovation



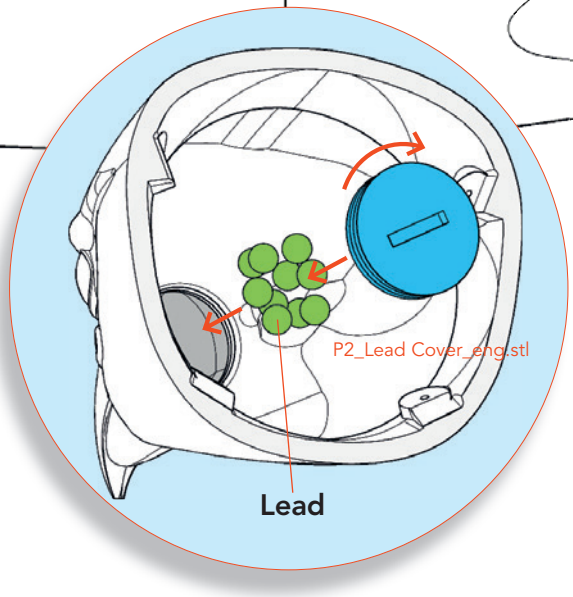
RC components

Motor Version



Use **self-adhesive Velcro tape** to position the Battery, Controller and Receiver and mark exactly where it has to be so that the CG is correct.

Glider Version

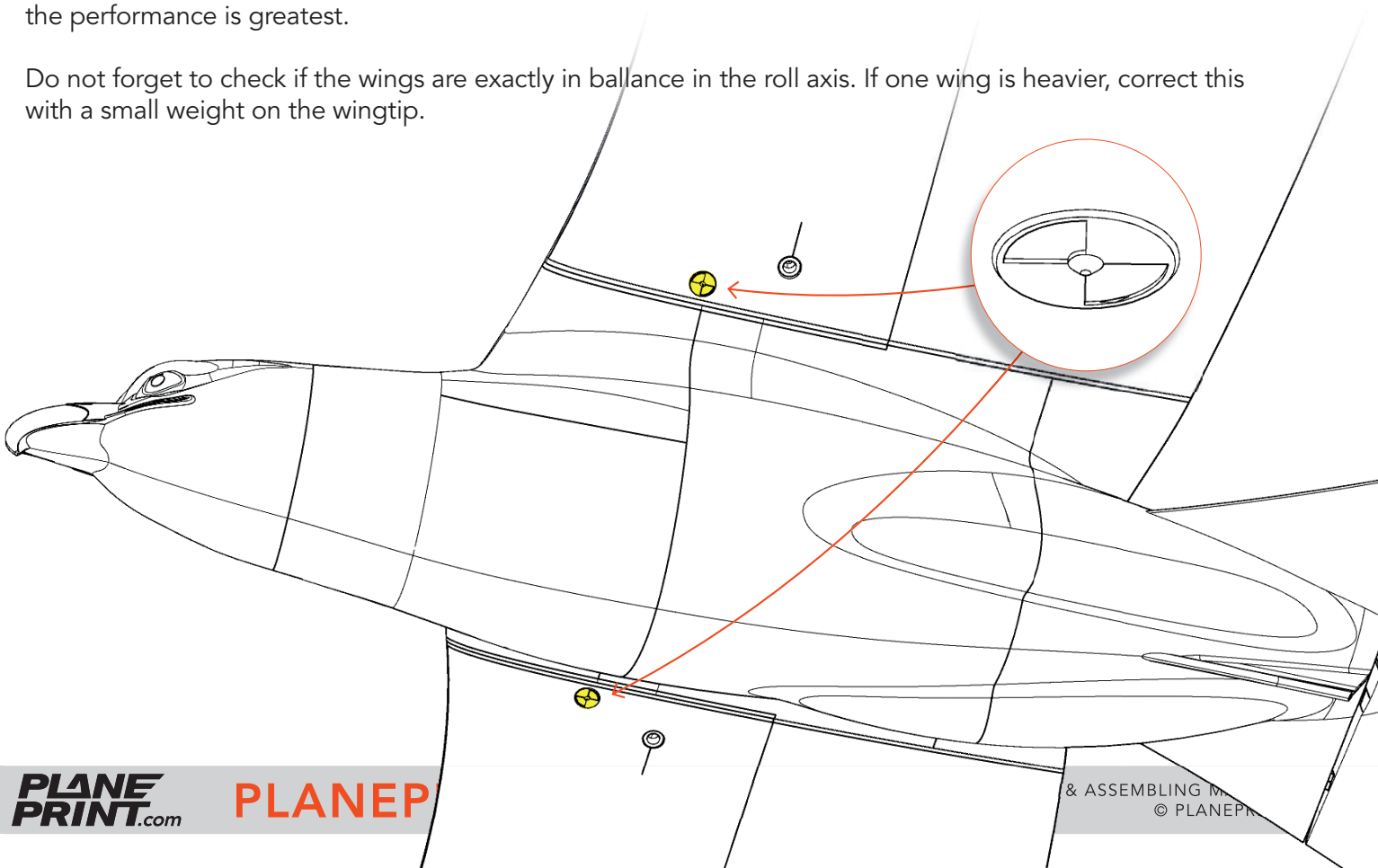


Center of Gravity (CG)

The bird must balance on these points (never behind it!) – **see the markings on the wing**.

NOTE The range of optimum CG is particularly small with a flying wing and you have to find the most comfortable CG for yourself in flight. The further forward it is, the easier the model is to fly, the further back the performance is greatest.

Do not forget to check if the wings are exactly in ballance in the roll axis. If one wing is heavier, correct this with a small weight on the wingtip.



Technical specifications

WINGSPAN 1900 mm/74.8 inches

LENGTH 725 mm/28.5 inches

FLIGHT WEIGHT 1270 grams

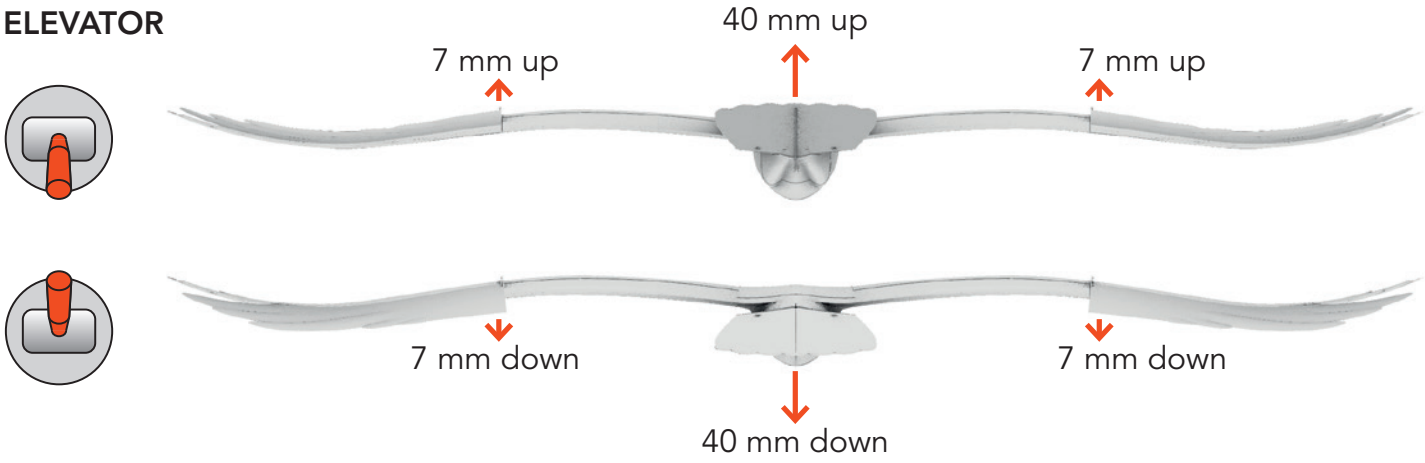
WING LOAD 22 g/dm^2

TIP The STL files for this model are designed for a printer build volume of 180x180x180mm. If you have a build volume of 250x250x250mm, you can print the Eagle NG at 125% scale and get a **wingspan of 2375mm/93inches**. A 10mm carbon tube will then fit instead of an 8mm one. Of course, some manual adjustments will be necessary.

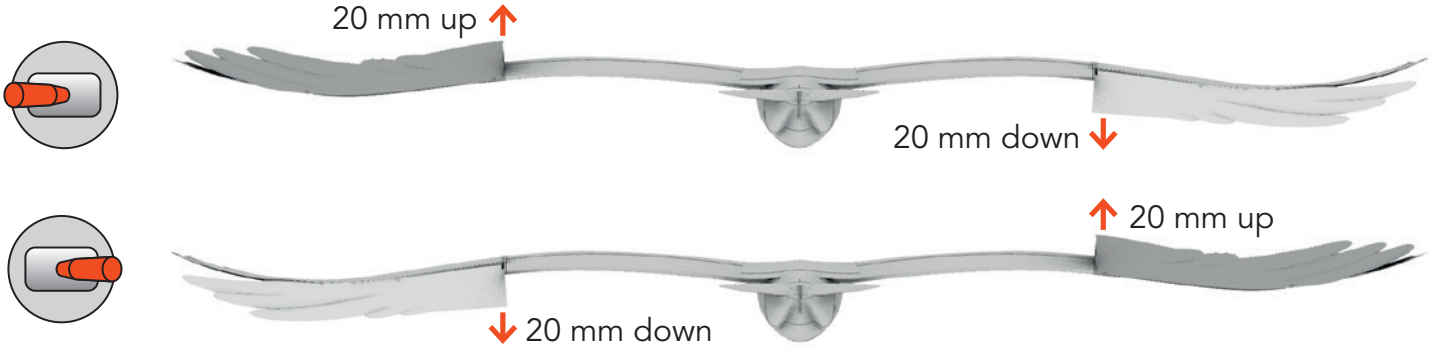
Control Direction Test

Look at the aircraft from behind

ELEVATOR

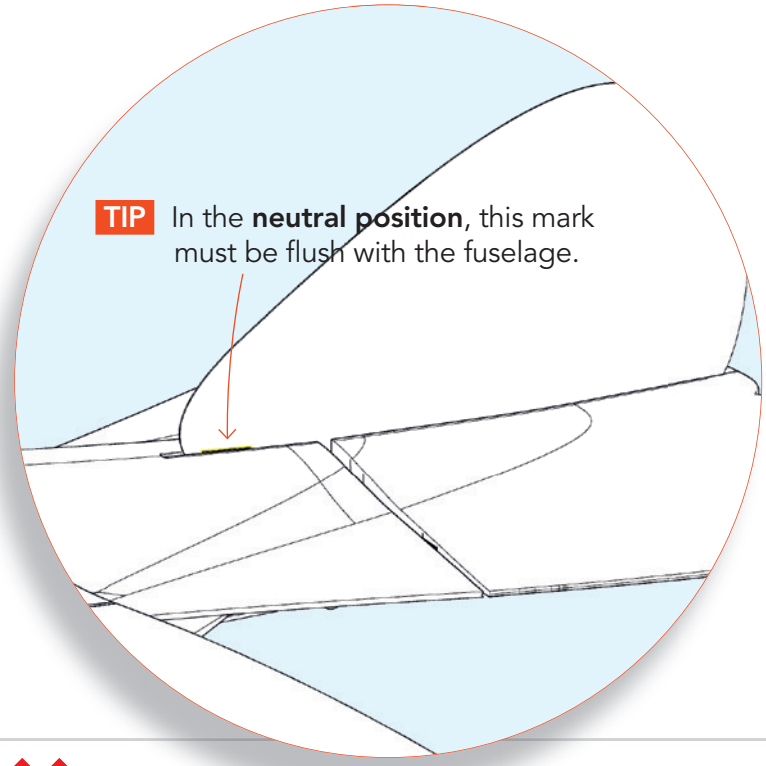


AILERON



TIP The Eagle NG can basically be flown with separate ailerons and elevator.

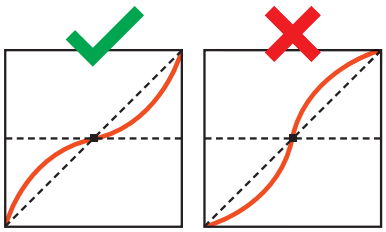
However, it flies much better if you **mix the ailerons with the elevator** with an offset of about 10%, as with a delta mixer (see specifications above).



EXPO

ELEVATOR 10 %

AILERON 30 %



(for some remote controls a minus has to be in front of the number)

AGE RECOMMENDATION 14+

NOT FOR CHILDREN UNDER 14 YEARS.
THIS IS NOT A TOY!

The STL data (or data processed from it, such as G codes) must never be passed on to third parties!

The purchase of the STL does not authorize the production of models for third parties.

By using the download data, an RC model airplane, called „model" for short, can be manufactured using a 3D printer. As a user of this model, only you are responsible for safe operation that does not endanger you or others, or that does not damage the model or property of others.

PLANEPRINT.com assumes no responsibility for damage to persons and property caused by pressure, transport or use of the product. Filaments, printing supplies, hardware or consumables that can not be used after faulty 3D printing will not be replaced by PLANEPRINT.com in any way.

When operating, always keep a safe distance from your model in all directions to avoid collisions and injuries.

This model is controlled by a radio signal. Radio signals can be disturbed from outside without being able to influence it. Interference can lead to a temporary loss of control.

Always operate your model on open terrains, far from cars, traffic and people.

Always follow the instructions and warnings for this product and any optional accessories (servos, receivers, motors, propellers, chargers, rechargeable batteries, etc.) carefully.

Keep all chemicals, small parts and electrical components out of the reach of children.

Avoid water contact with all components that are not specially designed and protected. Moisture damages the electronics.

Never take an item of the model or accessory in your mouth as this can lead to severe injuries or even death.

Never operate your model with low batteries in the transmitter or model.

Always keep the model in view and under control.
Use only fully charged batteries.

Always keep the transmitter switched on when the model is switched on.

Always remove the battery before disassembling the model.

Keep moving parts clean and dry at all times.

Always allow the parts to cool before touching them.

Always remove the battery after use.

Make sure that the Failsafe is properly set before the flight.

Never operate the model with damaged wiring.

Never touch moving parts.

We develop our models to the best of our knowledge and belief. We accept no liability for consequential damage and injuries caused by improper use or incorrectly printed parts. **Please be careful when handling motors, batteries and propellers** and only move your model with insurance and in approved places!

PLANE PRINT