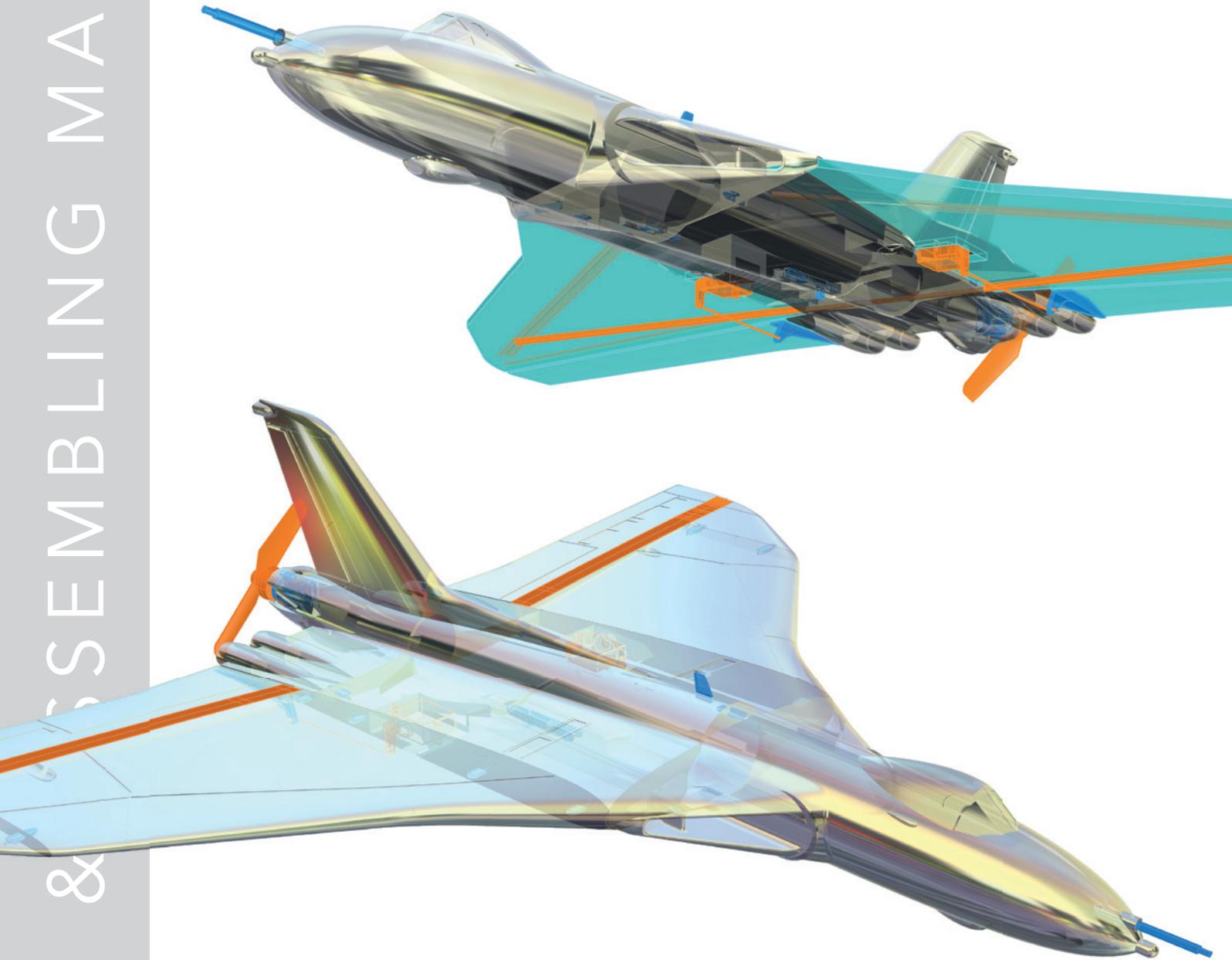


# PLANE PRINT



## PLANE PRINT *micro* VULCAN

RC scale Funflyer – Indoor and Outdoor Version



[www.planeprint.com](http://www.planeprint.com)

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

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The design of this aircraft is subject to the copyright of René Marshall and PLANEPRINT and may **not** be used or modified for any other purpose.

# PLANE PRINT *micro*VULCAN



VERSION FOAM – Indoor

VERSION AERO – Outdoor

 LW-PLA  PLA  FOAM  OTHER

# RC Components

## AERO AND FOAM version

- MOTOR**
- GOOSKY S2 Tail Motor V1 or V2 max (recommended)
  - OMPHOBBY M2 Tail Motor for M2 2019/V2 OSHM2065

- BATTERY** 2S LiPo-Battery, 450 mAh

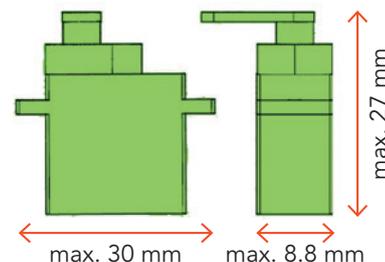
- PROP** Original to match the motor

- BEC-CONTROLLER** at least 15 A

- RECEIVER** 3 Channels

- SERVOS** **AERO version** 2 Pieces:
- KAVAN GO-06 MG
  - Volta D6M
  - Hitec HS-40
  - PLANET-HOBBY ECO Plus Picco 8
  - CHASERVO DS 06

- SERVOS** **FOAM version** 2 Pieces:
- KAVAN GO-02
  - MASTER S308
  - NEEBRC 2G Micro Servo
- or similar 2 to 3 gram servos



Ideas for painting with acrylic paint:



VERSION AERO – Outdoor



VERSION FOAM – Indoor

# Required accessoires – basic equipment

- LW-PLA foaming! (**cannot be replaced by PLA!**), ~150 grams
- Tough PLA (or PLA), ~10 grams

Printer space of 180x180x180 (cube) needed!

## Materials

Links to recommended accessories can be found on [www.planeprint.com/microvulcan](http://www.planeprint.com/microvulcan) (scroll down)

- some **tapping screws**  
(search for: M2 flat head tapping screw assortment)
- **CA super glue** (liquid and liquid medium)
- **CA activator**
- **Steel wire** Ø0.8\*~100mm
- **Self adhesive velcro tape**



### The following parts are only required for the FOAM VERSION:

- **Carbon rod** Ø2\*1000mm, 1 piece  
Cut the rod to the following lengths (mm): 2x285, 1x430
- **Foam board 3 mm uncoated!**\* (or Foam like Depron or EPP, for example **KAVAN Vectopor 3.0mm** – such boards are also available separately in model shops)
- **UHU POR** (or a comparable **contact** adhesive)
- **Tape** (If you want to paint the model, painter's tape is a good choice)



## Tools

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

\* These parts cannot be printed for weight reasons, LW PLA is much heavier than foam.



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.planepprint.com/print](http://www.planepprint.com/print)

For this model you need the following profiles:



**NOTE** When printing the PLANEPRINT **microVULCAN** 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



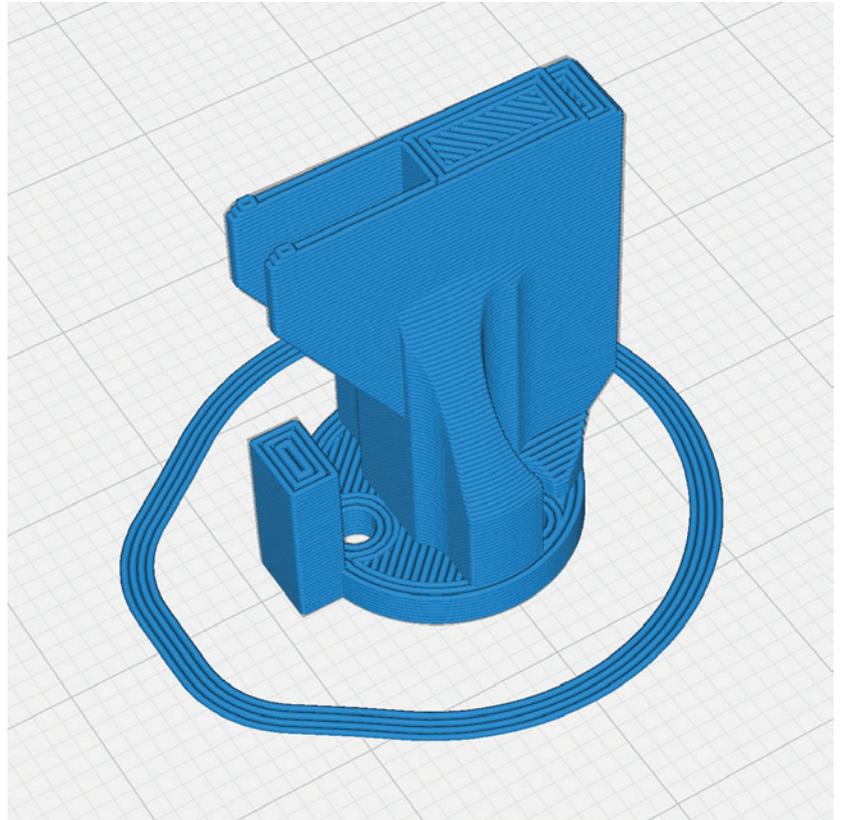
The information about the basic settings you can find on our website at PRINT.  
Please note the additional settings for the individual parts!

## P2\_Motor mount\_vu.stl (BOTH versions)

**MATERIAL** PLA, Weight: ~ 1 g

### ADDITIONAL SETTINGS

None required



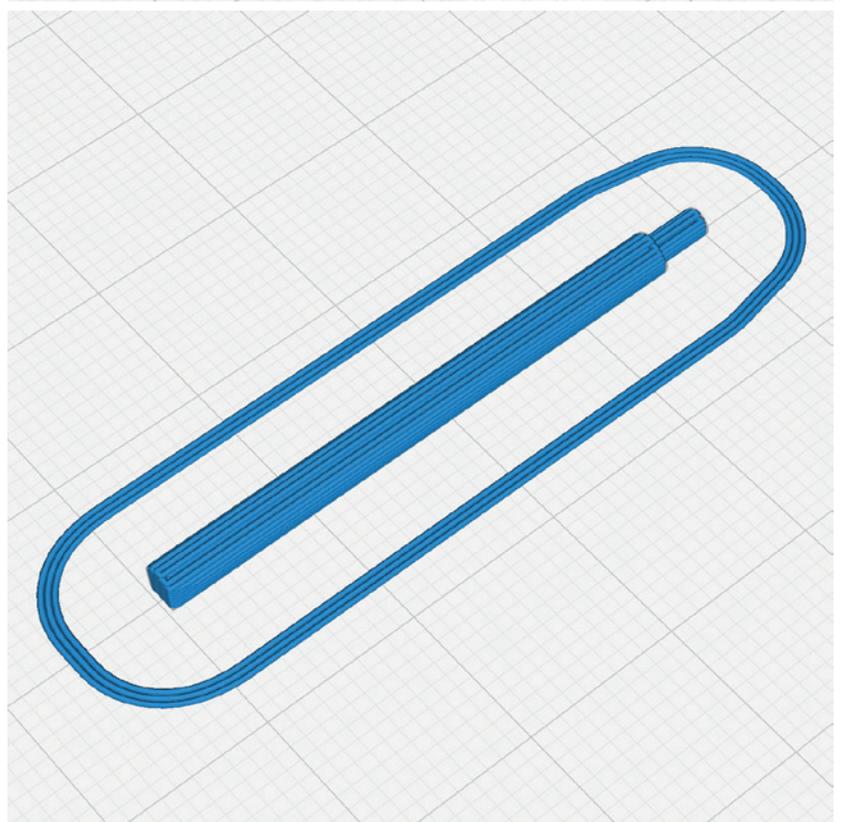
## P2orP4\*\_Pilots tube\_vu.stl (BOTH versions)

**MATERIAL** PLA, Weight: ~ 1 g

### ADDITIONAL SETTINGS

None required

\* You can also print this part with a soft filament such as TPU, then it won't break.



# PROFILE P2\_Hollowbody Tough PLA or PLA



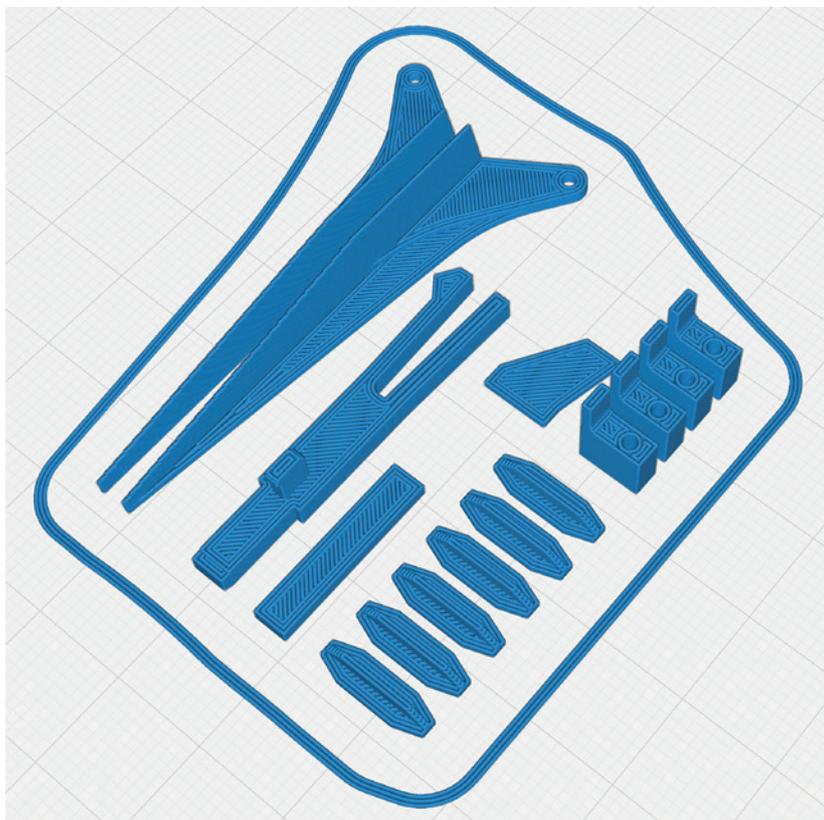
The information about the basic settings you can find on our website at PRINT.  
Please note the additional settings for the individual parts!

## P2\_Parts\_vufo.stl (FOAM version only)

**MATERIAL** PLA, Weight: ~ 3 g

### ADDITIONAL SETTINGS

None required



## P2\_Parts\_vua.stl.stl (AERO version only)

**MATERIAL** PLA, Weight: ~ 3 g

### 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!

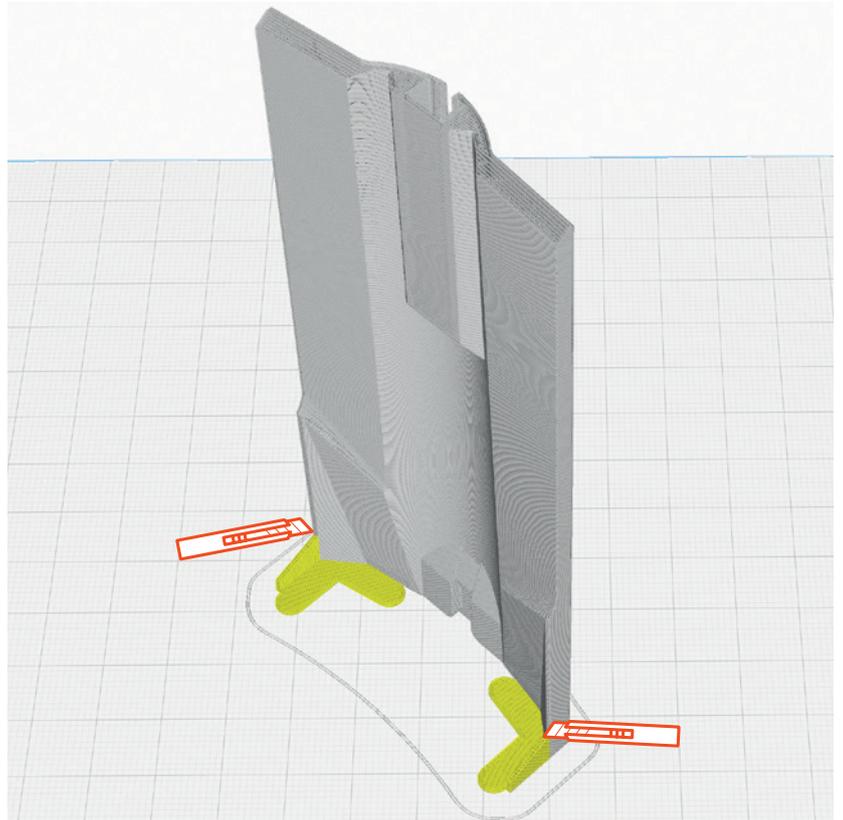
## P5\_Cover\_vu.stl (BOTH versions)

**MATERIAL** LW PLA, Weight: ~ 5 g

**TIME** ~ 1 hour

### ADDITIONAL SETTINGS

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



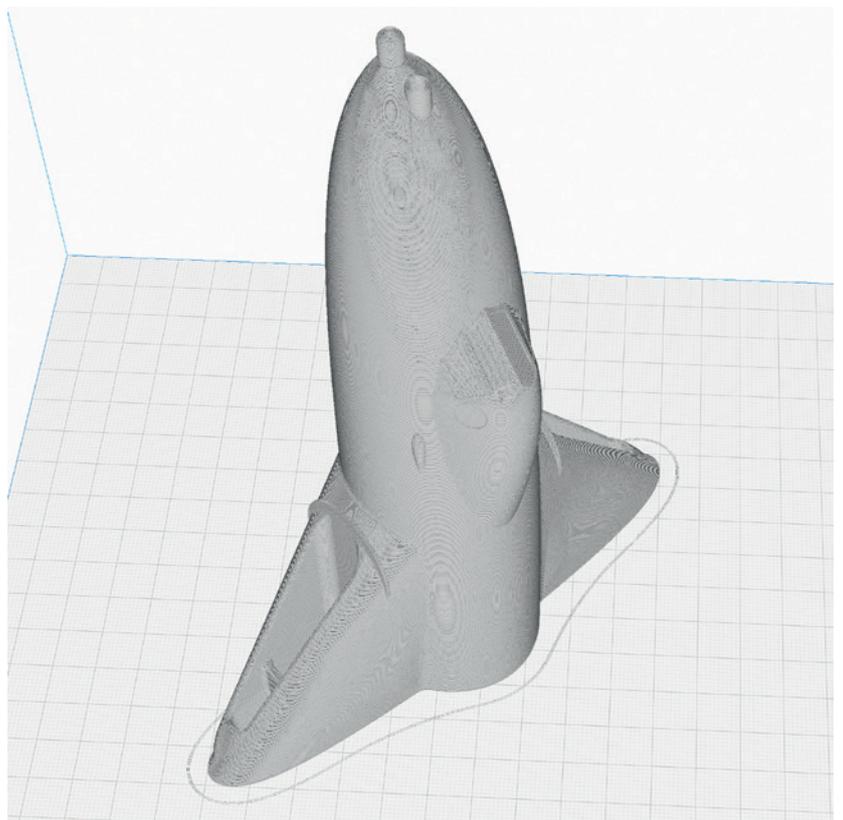
## P5\_FUS 1\_vua.stl (AERO version) or P5\_FUS 1\_vufo.stl (FOAM version)

**MATERIAL** LW PLA, Weight: ~ 17 g

**TIME** ~ 3 hours 30 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!

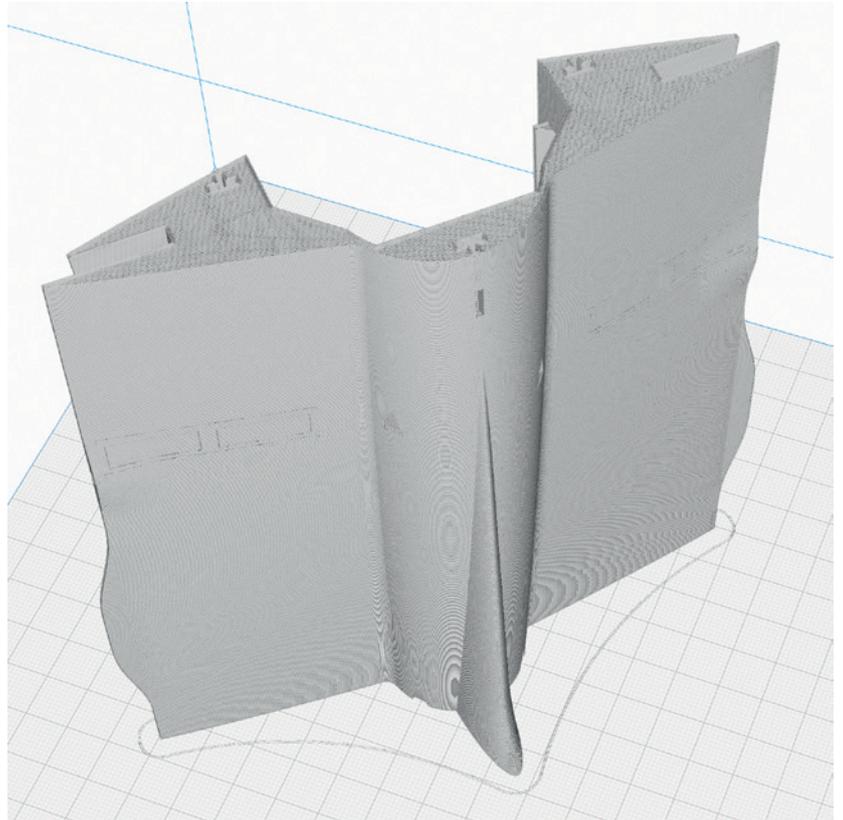
## P5\_FUS 2\_vufo.stl (FOAM version only)

**MATERIAL** LW PLA, Weight: ~ 25 g

**TIME** ~ 6 hours

### ADDITIONAL SETTINGS

None required



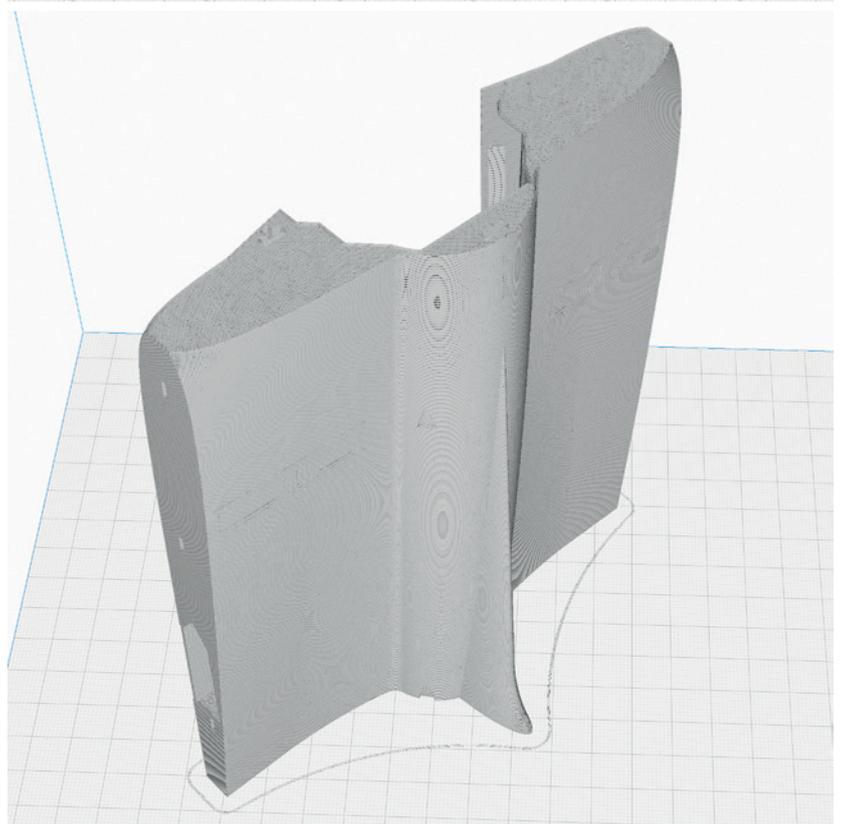
## P5\_FUS 2\_vua.stl (AERO version only)

**MATERIAL** LW PLA, Weight: ~ 31 g

**TIME** ~ 6 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!

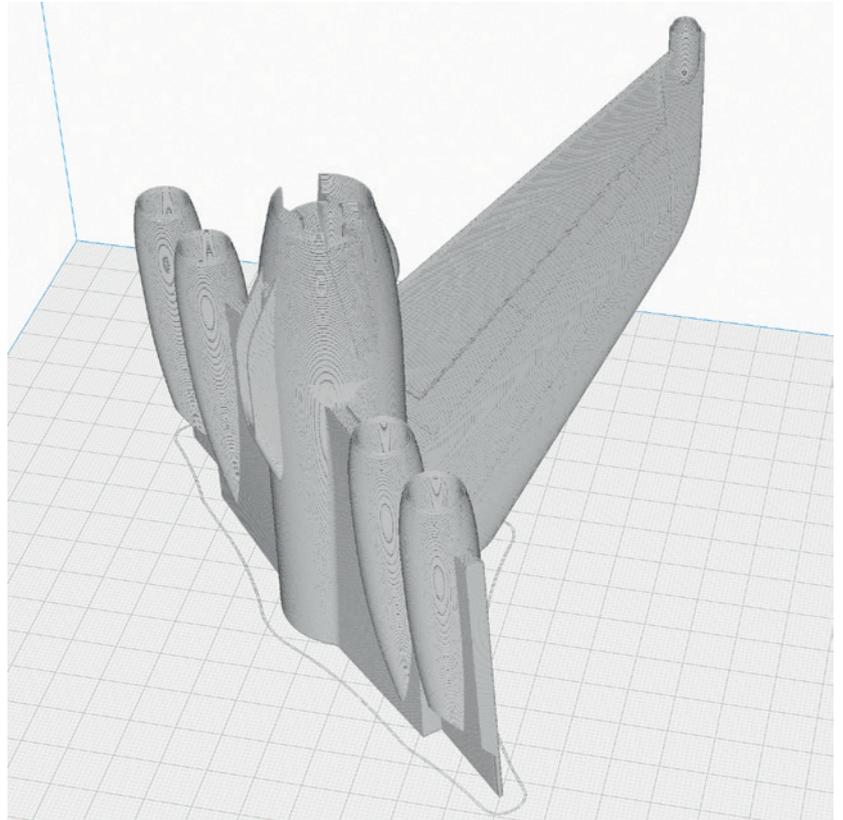
## P5\_FUS 3\_vufo.stl (FOAM version only)

**MATERIAL** LW PLA, Weight: ~ 18 g

**TIME** ~ 4 hours

### ADDITIONAL SETTINGS

None required



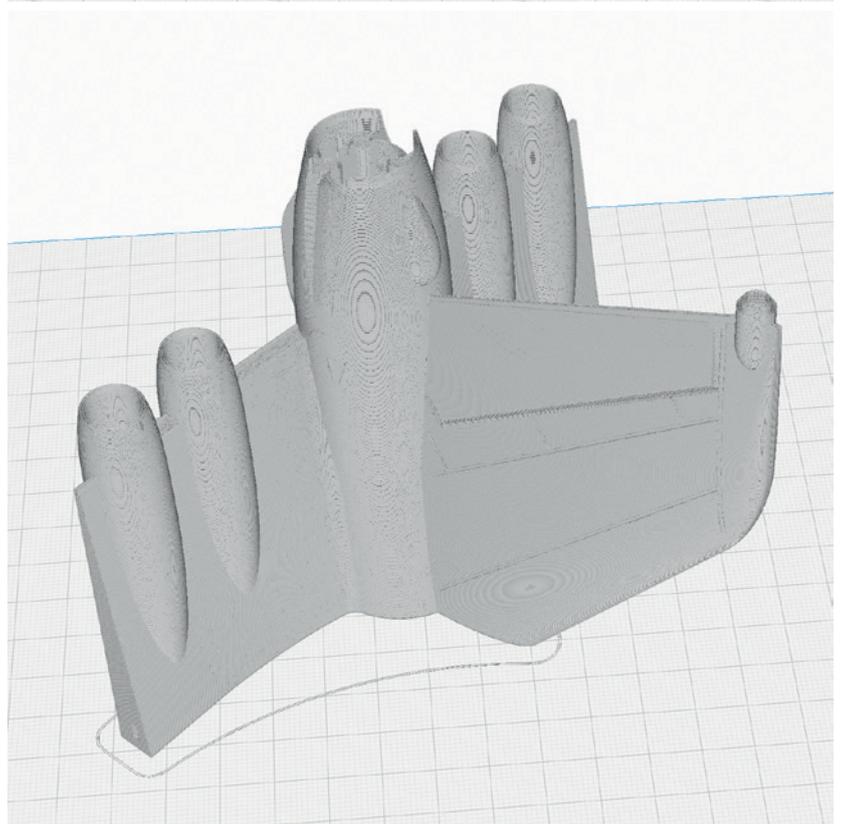
## P5\_FUS 3\_vua.stl (AERO version only)

**MATERIAL** LW PLA, Weight: ~ 18 g

**TIME** ~ 4 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!

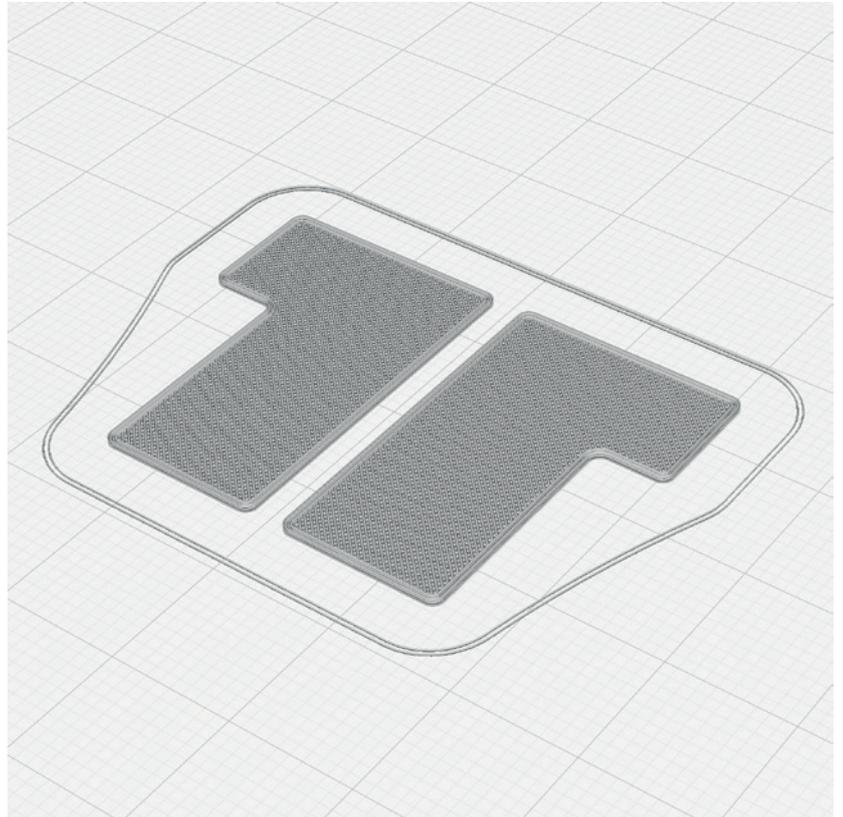
## P5\_Servo covers\_vua.stl (AERO version only)

**MATERIAL** LW PLA, Weight: ~ 0.5 g

**TIME** ~ 2 minutes

### ADDITIONAL SETTINGS

None required



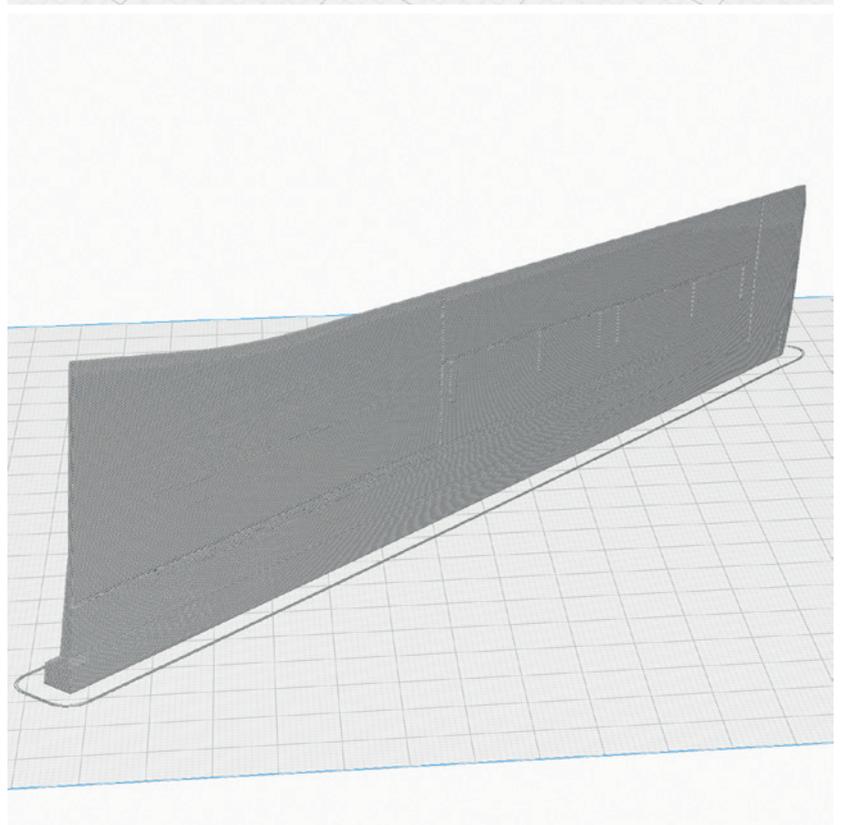
## P5\_ELEVON L\_vua.stl and P5\_ELEVON R\_vua.stl (AERO version only)

**MATERIAL** LW PLA, Weight: ~ 6 g

**TIME** ~ 1 hour

### ADDITIONAL SETTINGS

- Brim recommended



# 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!

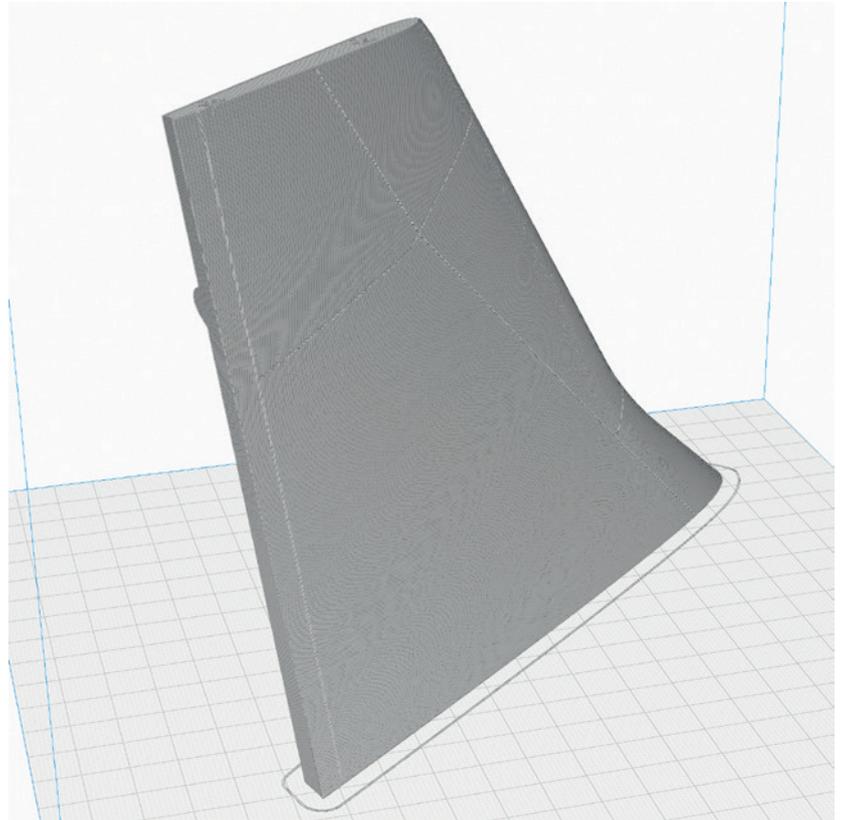
**P5\_WING L1\_vua.stl and  
P5\_WING R1\_vua.stl  
(AERO version only)**

**MATERIAL** LW PLA, Weight: ~ 16 g

**TIME** ~ 3 hours

**ADDITIONAL SETTINGS**

None required



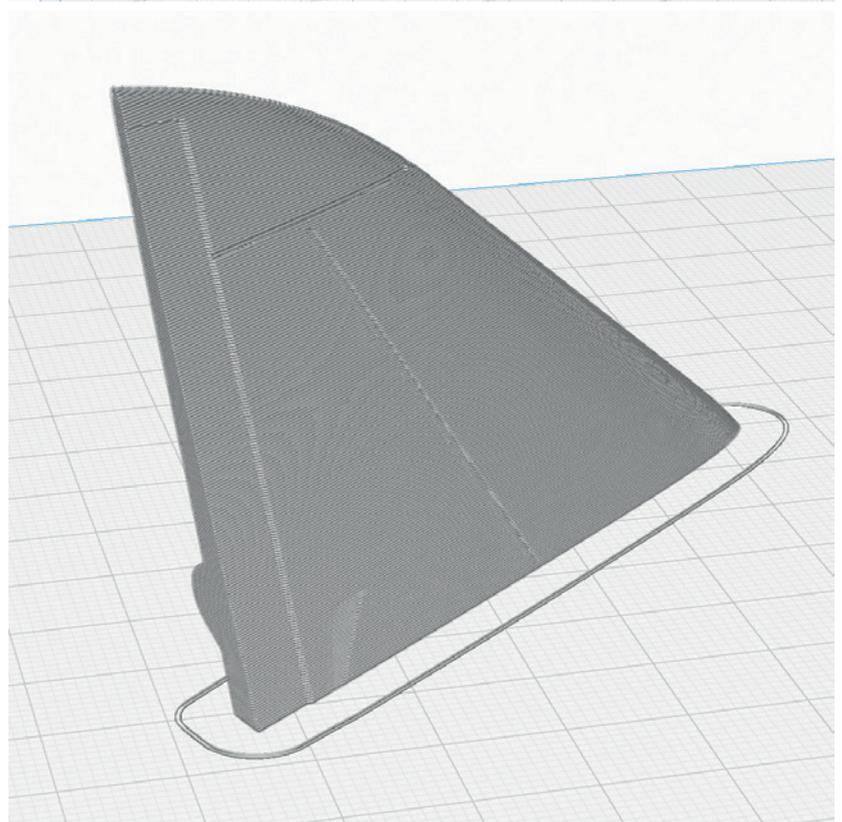
**P5\_WING L2\_vua.stl and  
P5\_WING R2\_vua.stl  
(AERO version only)**

**MATERIAL** LW PLA, Weight: ~ 3 g

**TIME** ~ 20

**ADDITIONAL SETTINGS**

None required



## 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.

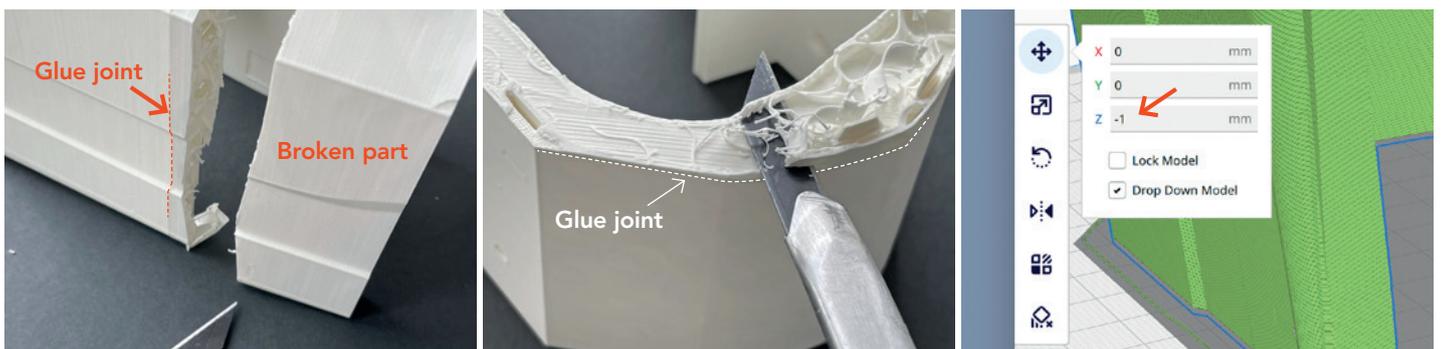
After assembly, **align the two parts exactly** and wipe off the excess CA glue from the surface with a cloth. Now spray with activator spray along the gluing surface and carefully press the parts together.

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



## PROFILES 5 parts are easy to repair

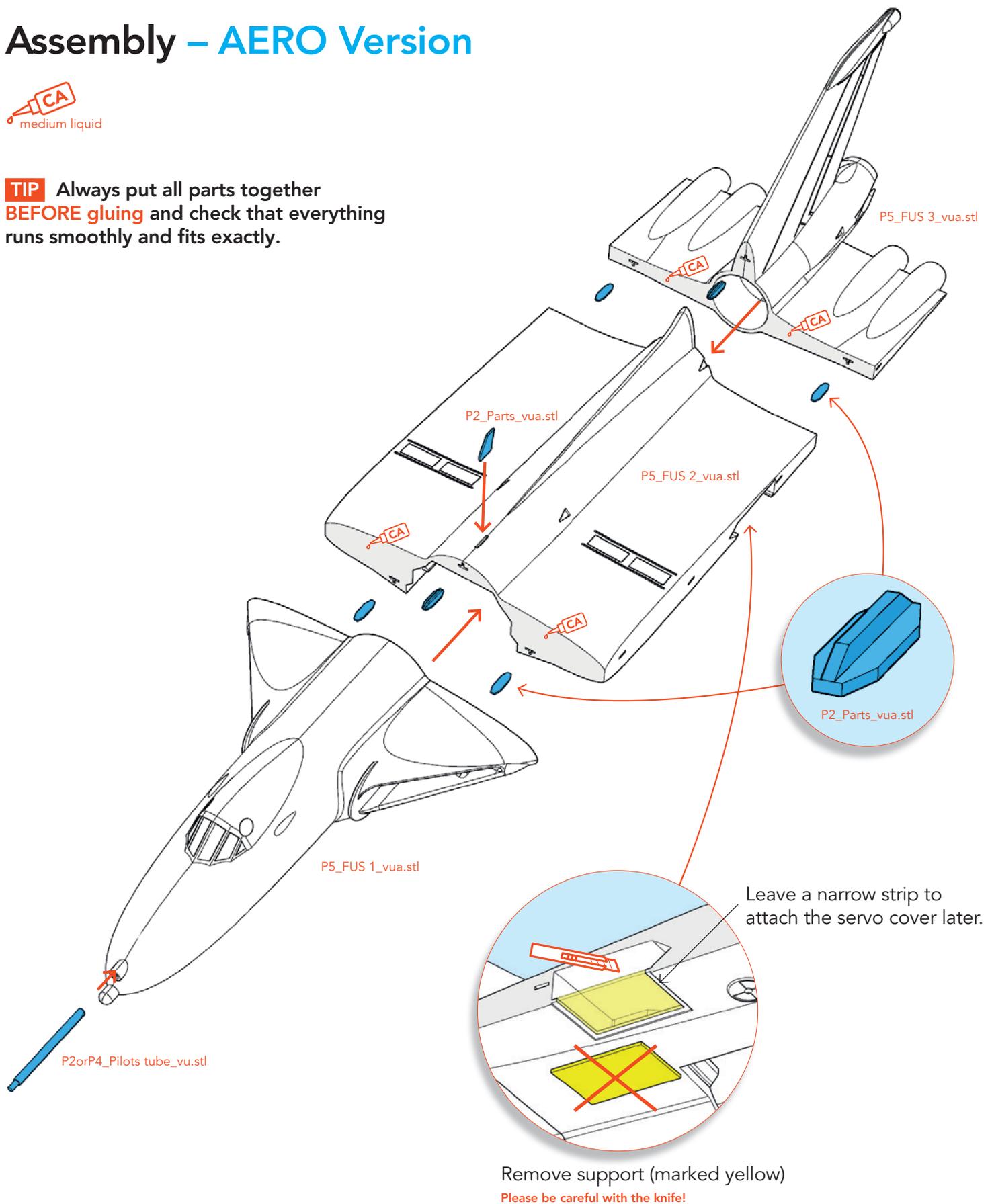
- STEP 1** Using the knife, carefully remove the damaged part about 3 mm from the glue joint between two parts.
- STEP 2** Cut wall and infill and clean the surface with sandpaper. **The top surface of the damaged part remains!**
- STEP 3** The remaining top surface is about 1 mm thick. To compensate for this, you can move the new part to be printed down the Z axis in Cura by 1 mm.



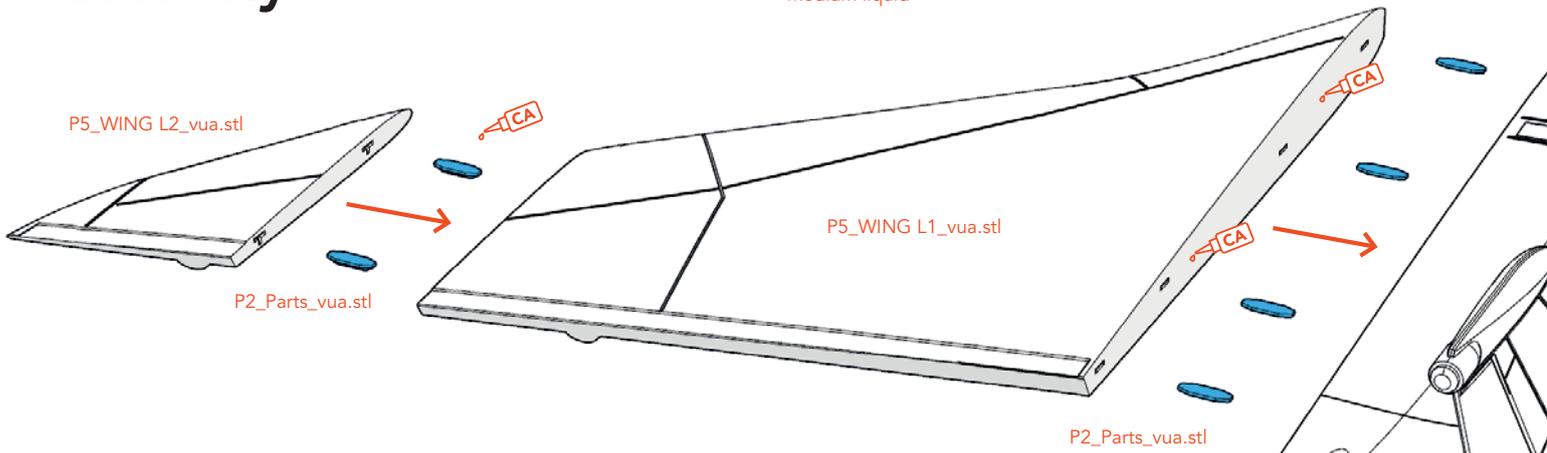
# Assembly – AERO Version



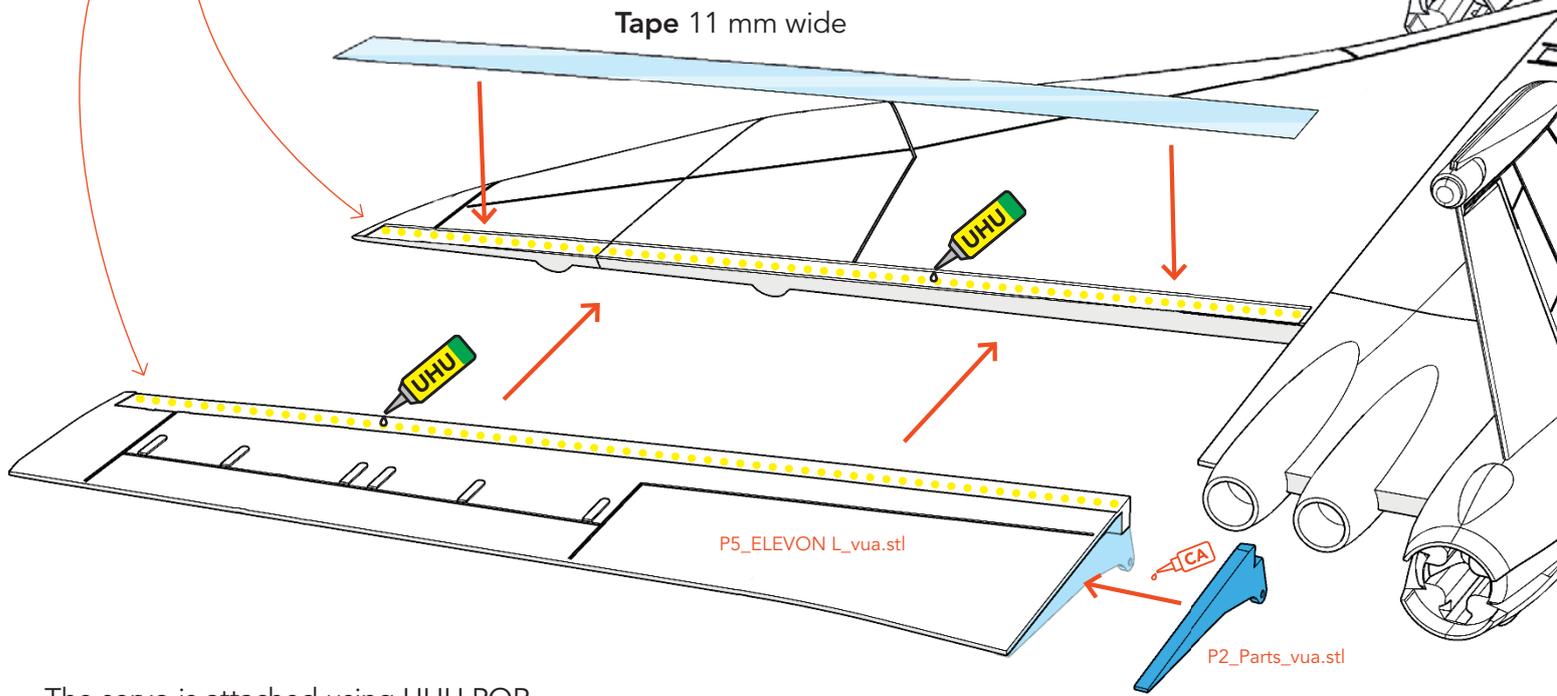
**TIP** Always put all parts together **BEFORE** gluing and check that everything runs smoothly and fits exactly.



# Assembly – AERO Version

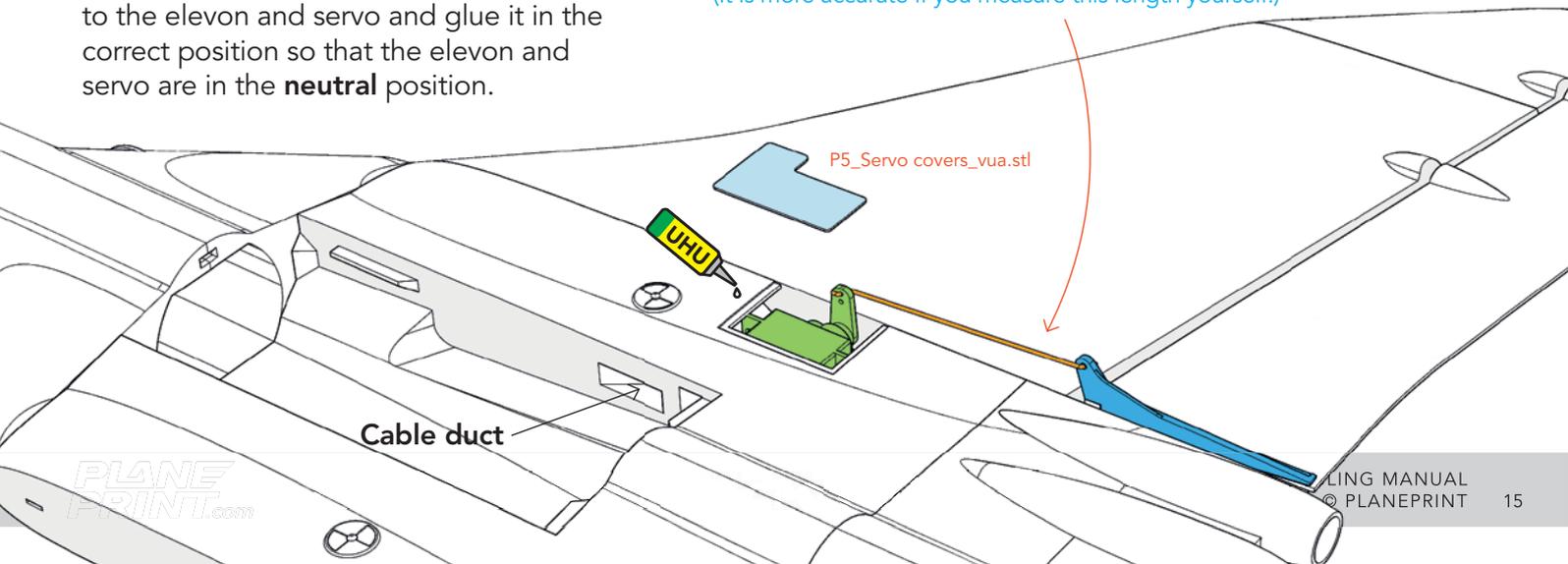


Treat the adhesive surface of the wing with UHU POR or CA glue beforehand and allow it to dry. **Then stick an 11 mm wide strip of tape** onto the elevon. Move the elevon all the way to the wing and check whether it has enough downward travel.



The servo is attached using UHU POR. Apply sufficient glue **to both adhesive surfaces** (servo and wing) and **allow to dry thoroughly**. Then attach the Steel wire to the elevon and servo and glue it in the correct position so that the elevon and servo are in the **neutral** position.

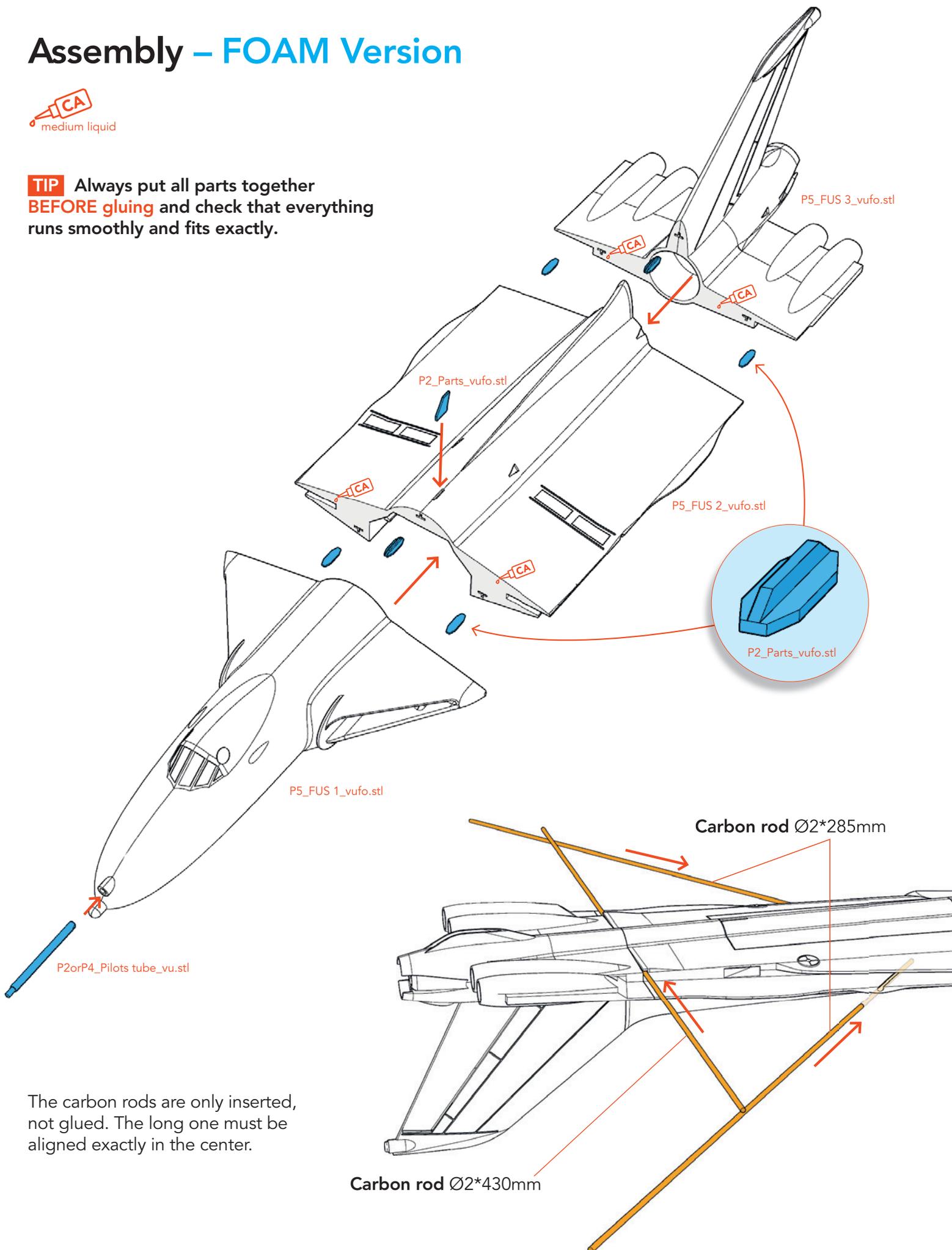
Steel wire  $\varnothing 0.8 \times 59$ mm  
(It is more accurate if you measure this length yourself.)



# Assembly – FOAM Version



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



The carbon rods are only inserted, not glued. The long one must be aligned exactly in the center.

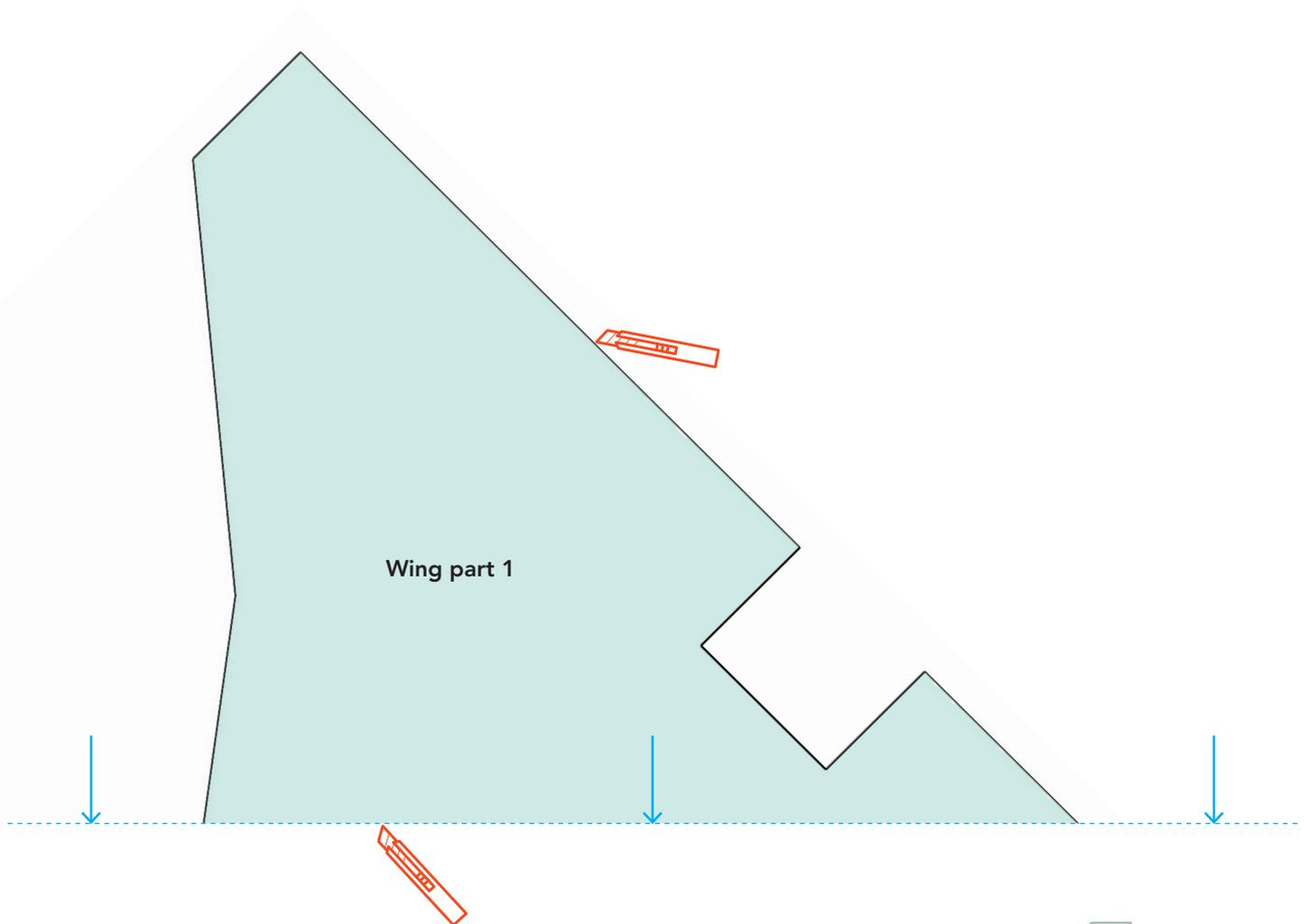
# Assembly – FOAM Version

## Cutting template for the Foam parts

Print out these two pages on A4 paper and cut out the templates.

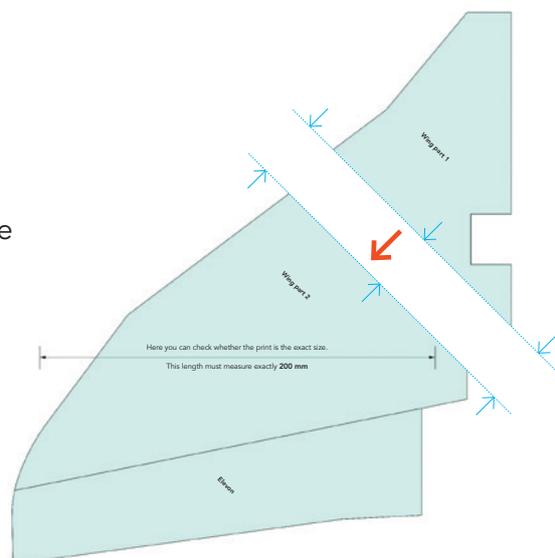
**IMPORTANT** The print must be set to 100% page size, so that the size fits exactly!

Alternatively, you can also find a **DXF file for machine cutting** in the download.

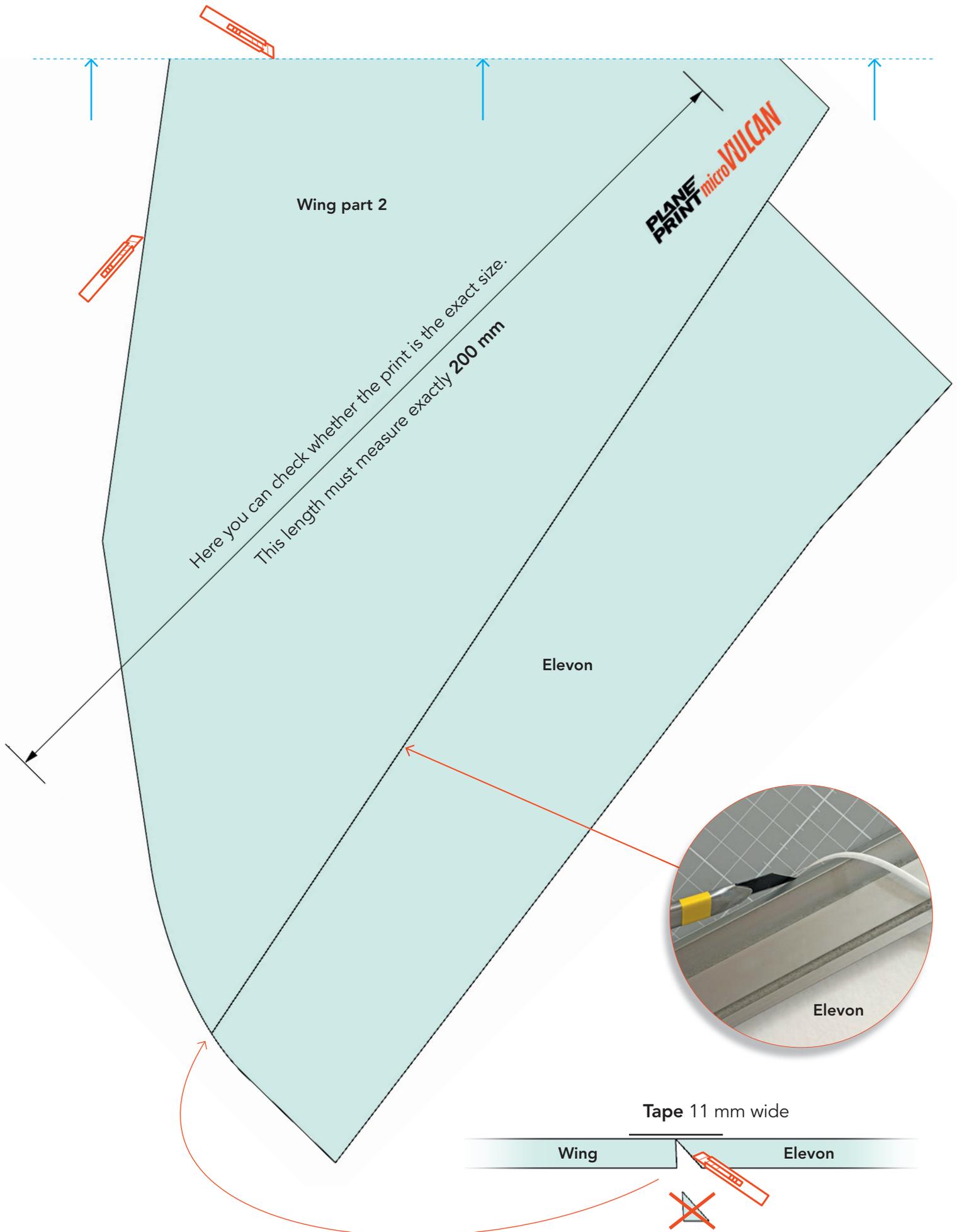


Tape the two pieces together and then attach them to the foam board. Be sure to **use a new sharp blade** to get a nice cut.

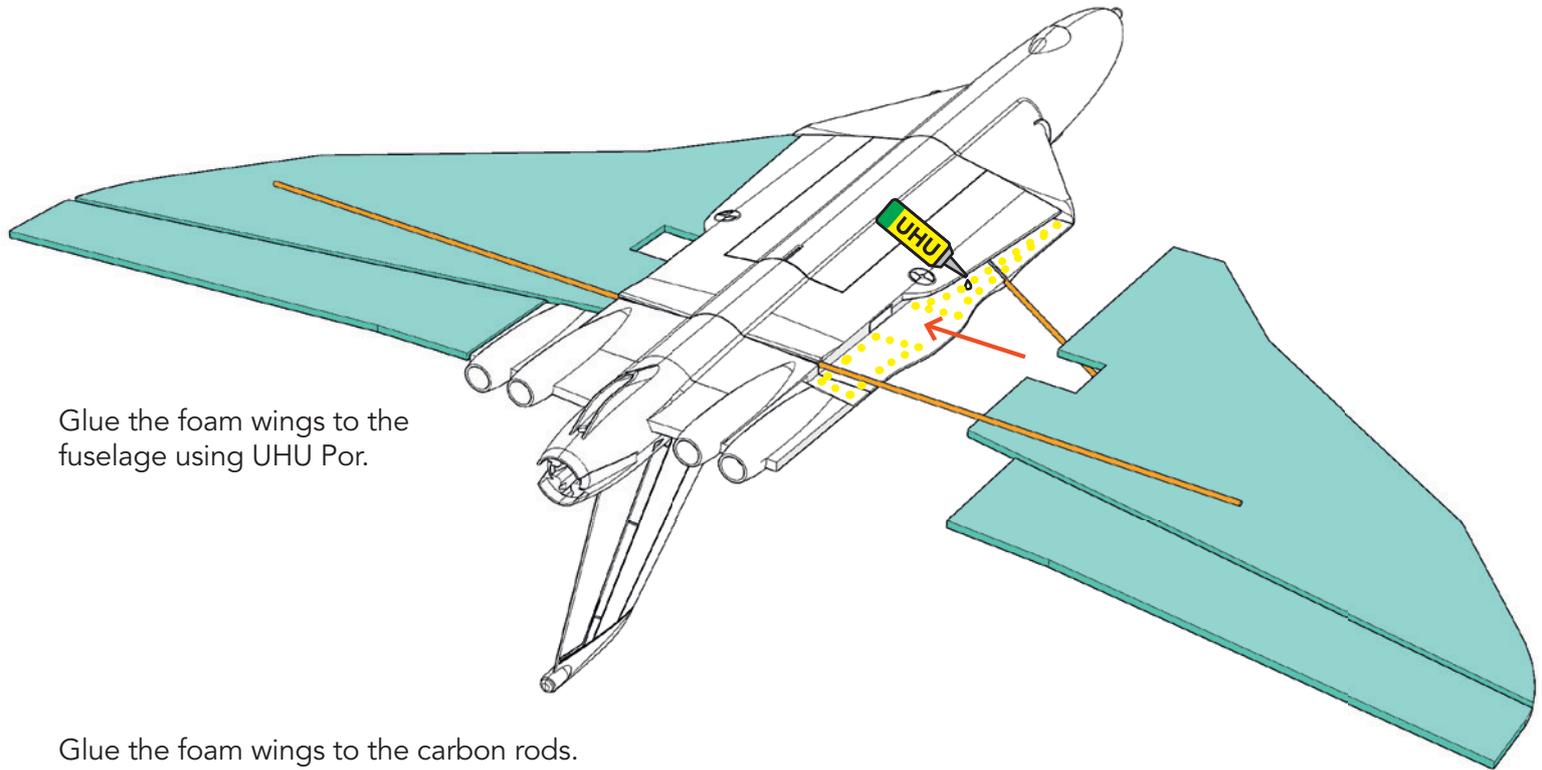
You can also cut two boards at the same time, but make sure you **hold the knife exactly vertically!**



# Assembly – FOAM Version



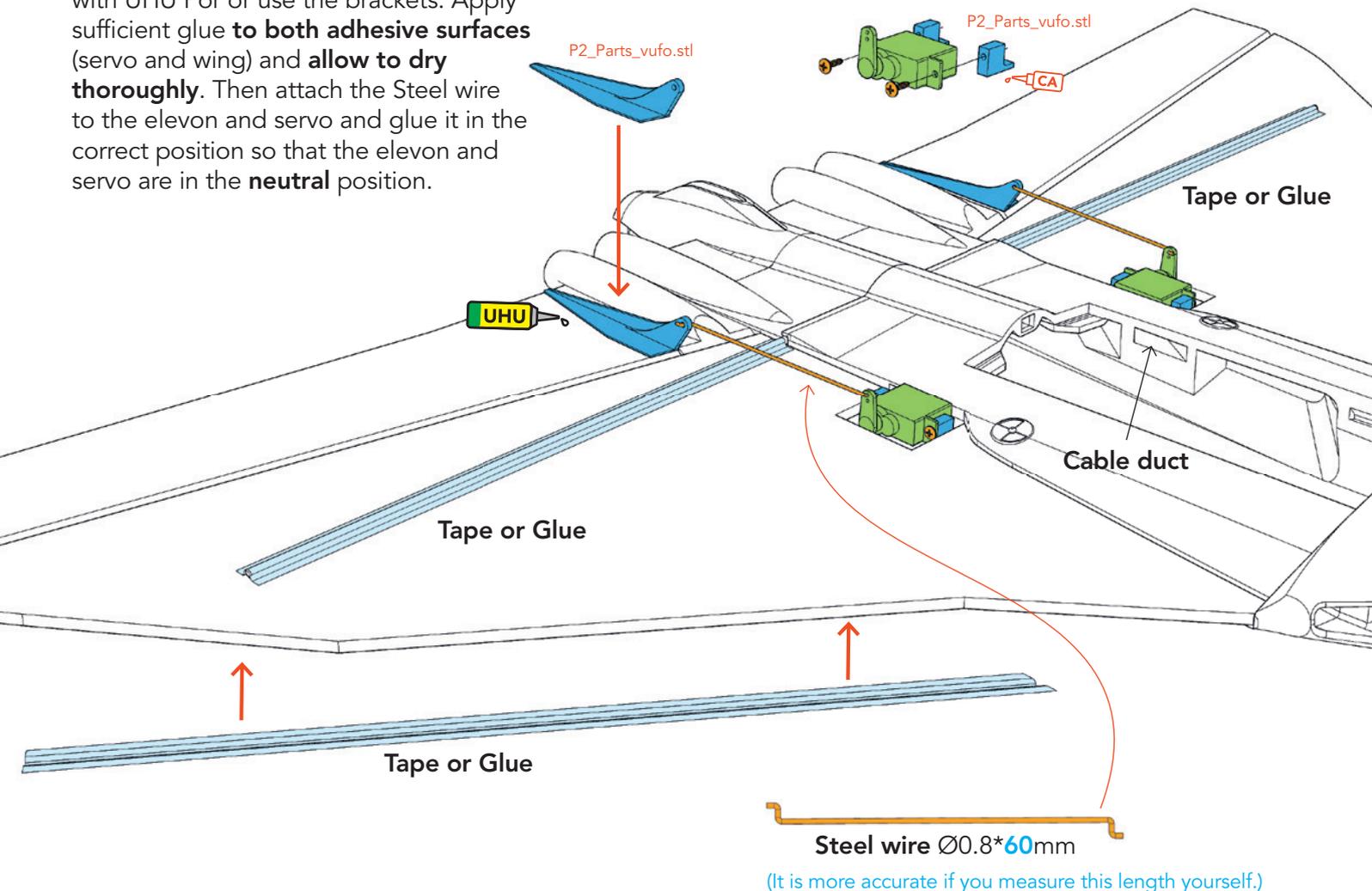
# Assembly – FOAM Version



Glue the foam wings to the fuselage using UHU Por.

Glue the foam wings to the carbon rods.

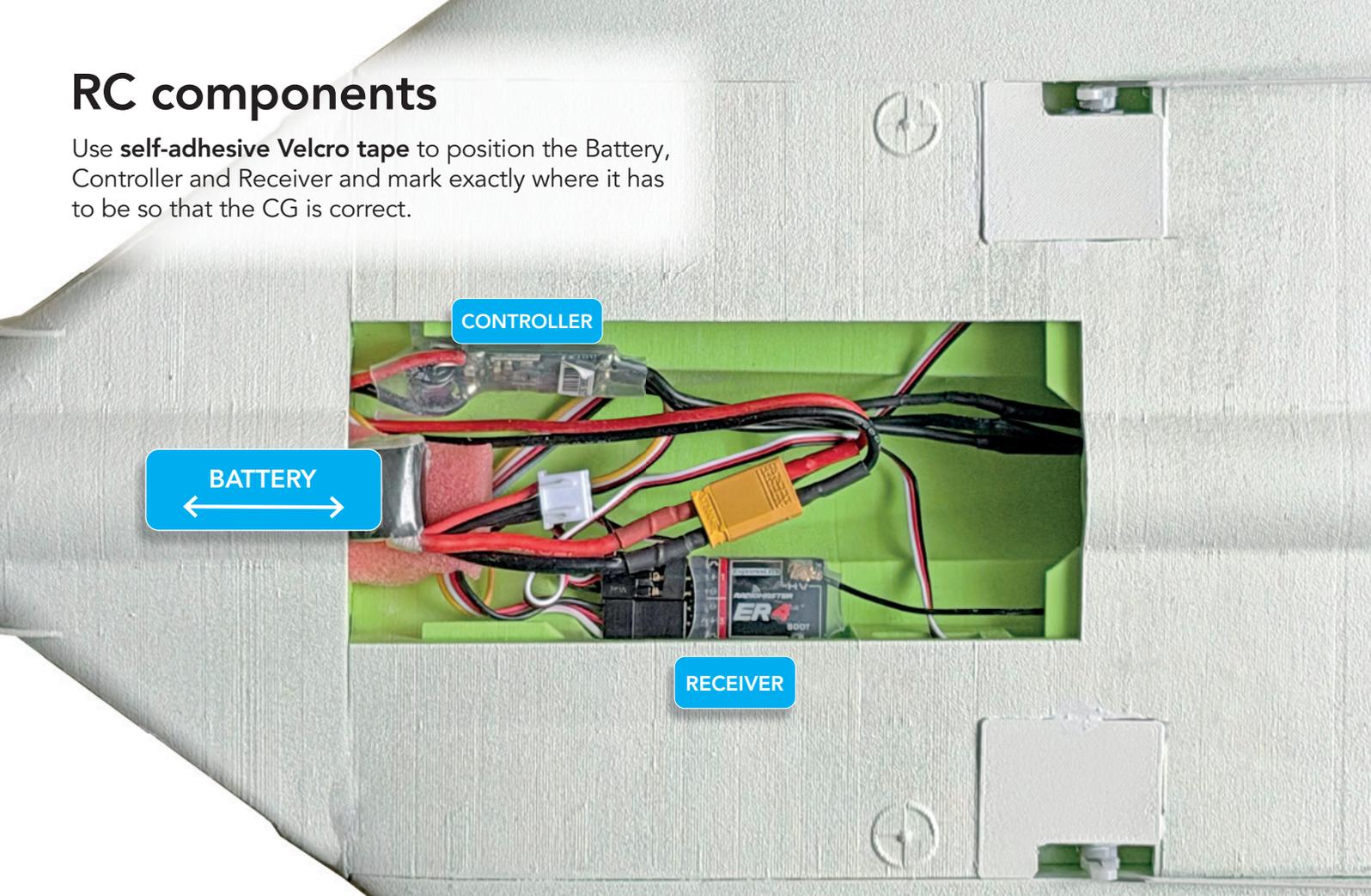
You can either glue the servos directly with UHU Por or use the brackets. Apply sufficient glue **to both adhesive surfaces** (servo and wing) and **allow to dry thoroughly**. Then attach the Steel wire to the elevon and servo and glue it in the correct position so that the elevon and servo are in the **neutral** position.





# RC components

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.

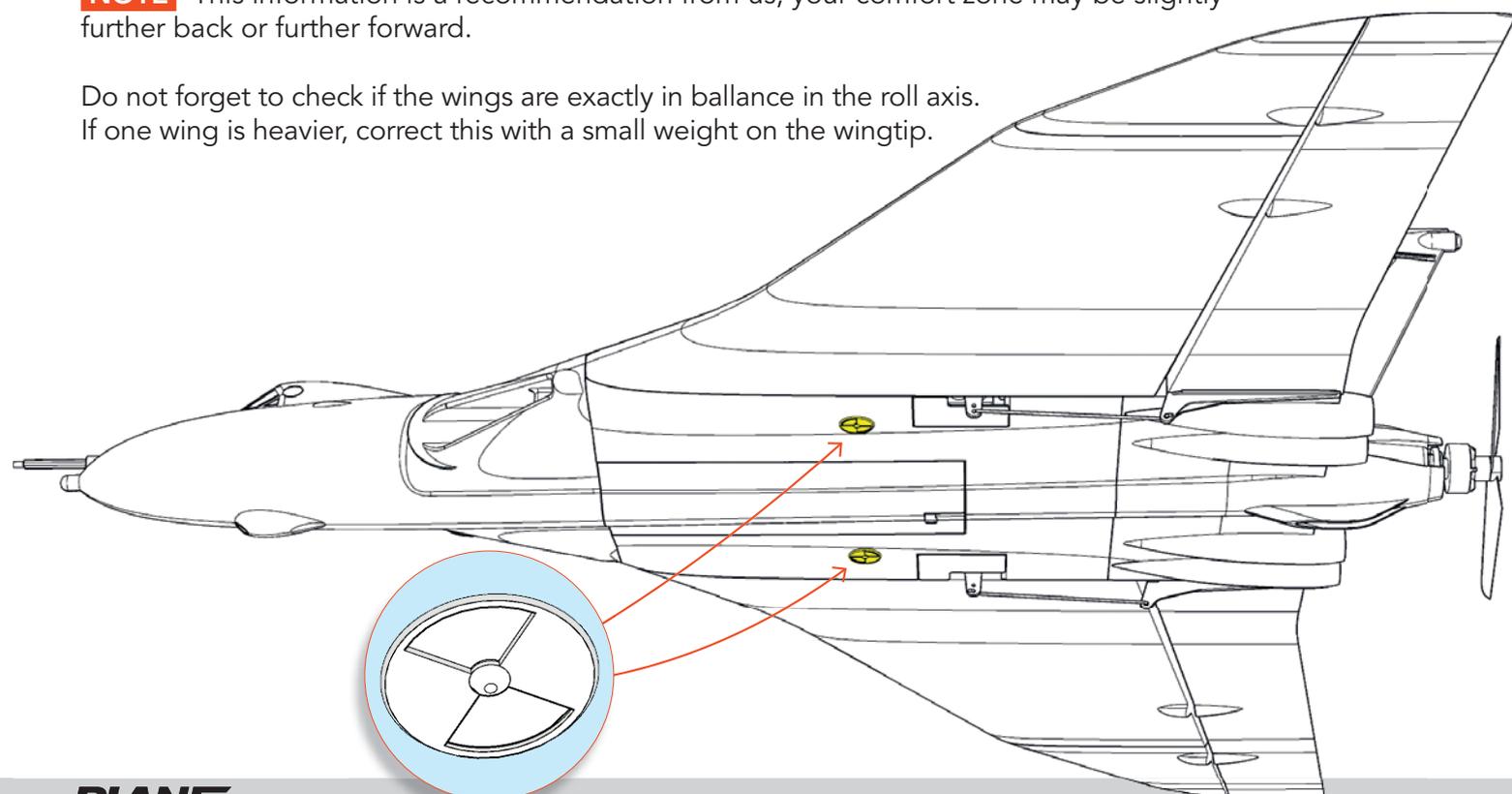


# Center of Gravity (CG)

The bird must balance on these points – **see the markings on the wing**.

**NOTE** This information is a recommendation from us; your comfort zone may be slightly further back or further forward.

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



# Technical specifications

**WINGSPAN** 550 mm/21.6 inches

**LENGTH** 480 mm/18.9 inches

**FLIGHT WEIGHT** ~153 grams (FOAM version), ~195 grams (AERO version)

**WING LOAD** 15 g/dm<sup>2</sup> (FOAM version), 20 g/dm<sup>2</sup> (AERO version)



# Control Direction Test Look at the aircraft from behind

## ELEVATOR

ZERO Position: AERO 2 mm up/FOAM 3 mm up



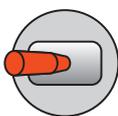
AERO 13 mm up/FOAM 25 mm up



AERO 11 mm down/FOAM 17 mm down



## AILERON



AERO 13 mm up  
FOAM 25 mm up

AERO 11 mm down  
FOAM 17 mm down



AERO 11 mm down  
FOAM 17 mm down

AERO 13 mm up  
FOAM 25 mm up

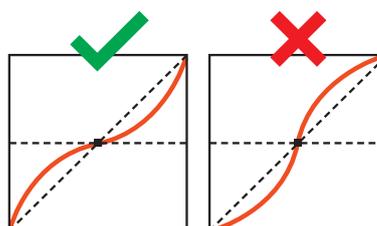


- TIPS**
- The motor brake should be activated so that the propeller does not brake during gliding.
  - We recommend setting a **Flight Mode to a switch for hand launch**: both elevons should be trimmed +2 mm upwards here. To launch, simply hold the microVULCAN by the vertical stabilizer and throw it upwards at an angle of approx. 30°. **Be careful not to get your hand caught in the propeller!**

## EXPO

**ELEVATOR** AERO 50 %/FOAM 50 %

**AILERON** AERO 65 %/FOAM 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