

MANUA

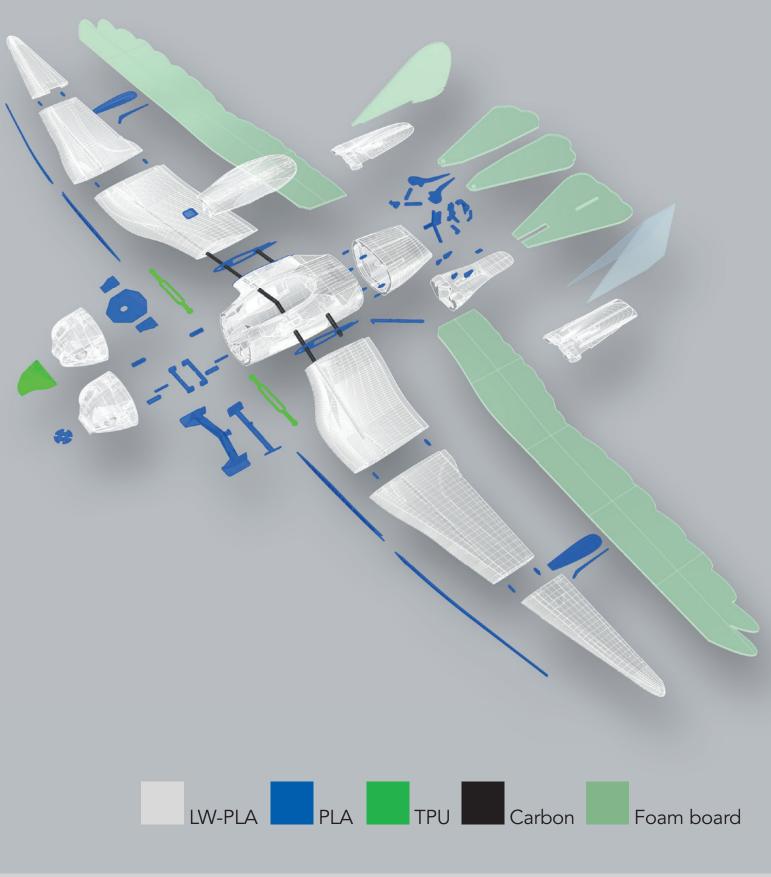


Realistic Bird model – motor and glider version



www.planeprint.com the ONLY place where you can get original Planeprint STL files legally!







RC Components



Stemedu Micro 3.7g Servo GH-S37D • PICCO 8 DIGITAL SERVO

Required accessoires – basic equipment

Links to recommended accessories can be found on www.planeprint.com/falcon (scroll down)

- LW-PLA (cannot be replaced by PLA or pre-foamed LW), ~250 grams
- PLA or Tough PLA, ~70 grams
- **TPU A95**, ~20 grams
- CA super glue (liquid and medium)
- CA activator
- some tapping screws Ø2mm
- UHU POR glue (or another glue suitable for Depron and Foam)
- Foam board 3 mm **uncoated!*** (or Foam like Depron, Styropor or EPP, you can see how much you need on the next pages
 - Such boards are also available separately in model shops)
- Carbon tube Ø6*1000mm, 1 piece (2x310mm, 2x70mm)
- Steel wire Ø1*1000mm, 1 piece (2x300mm, 2x50mm)
- Rod connection small, 2 pieces
- Neodym-Super-Magnet 5x5x5mm, 2 pieces
 Overhead transparency, 1 piece (200x200 mm)
- (This film must not be too heavy! A thickness of 0.2 mm is ideal) • Fabric tape or fabric
- Adhesive tape
- Adnesive tape
 Solf adhesive vel

PRINT.com

• Self adhesive velcro tape

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







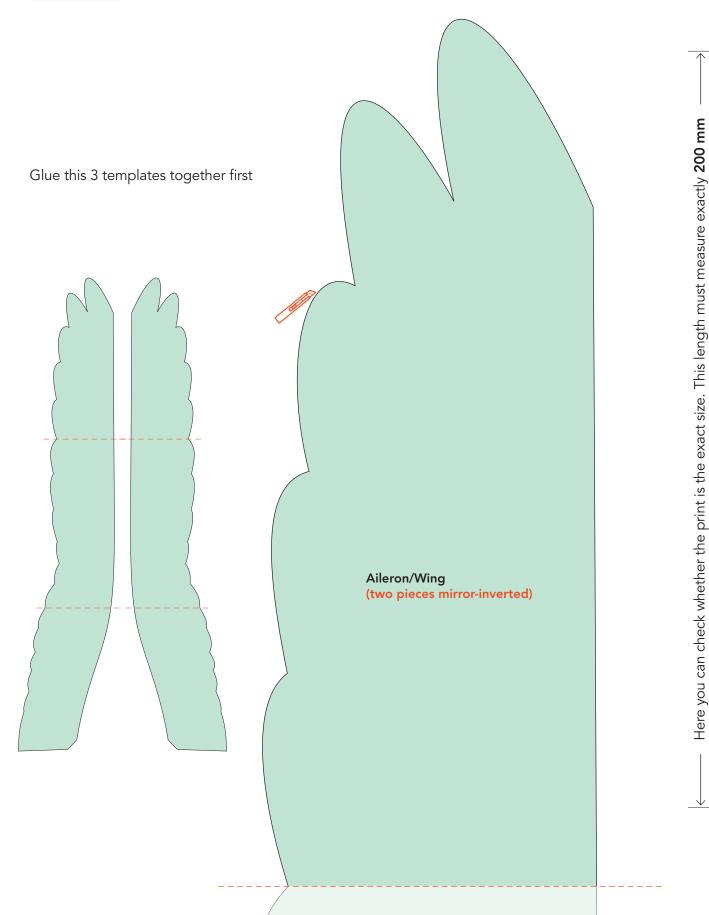


3

Cutting template for the Foam parts

Print out these pages on A4 paper and cut out the templates. For the Aileron, cut them out along the red dotted line and glue the parts together exactly. Attach them to the foam board and cut the foam parts with a sharp knife.

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

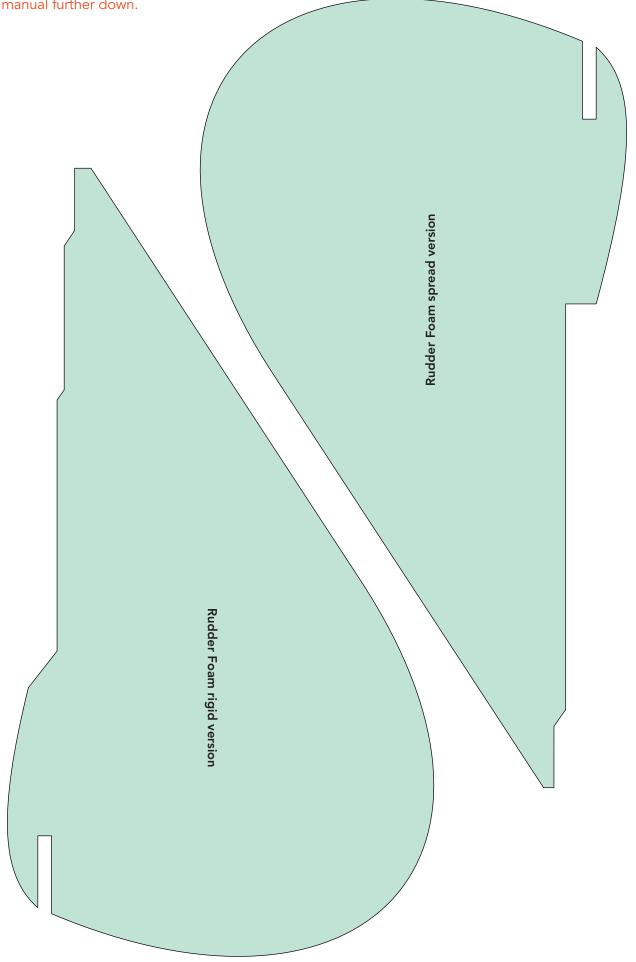


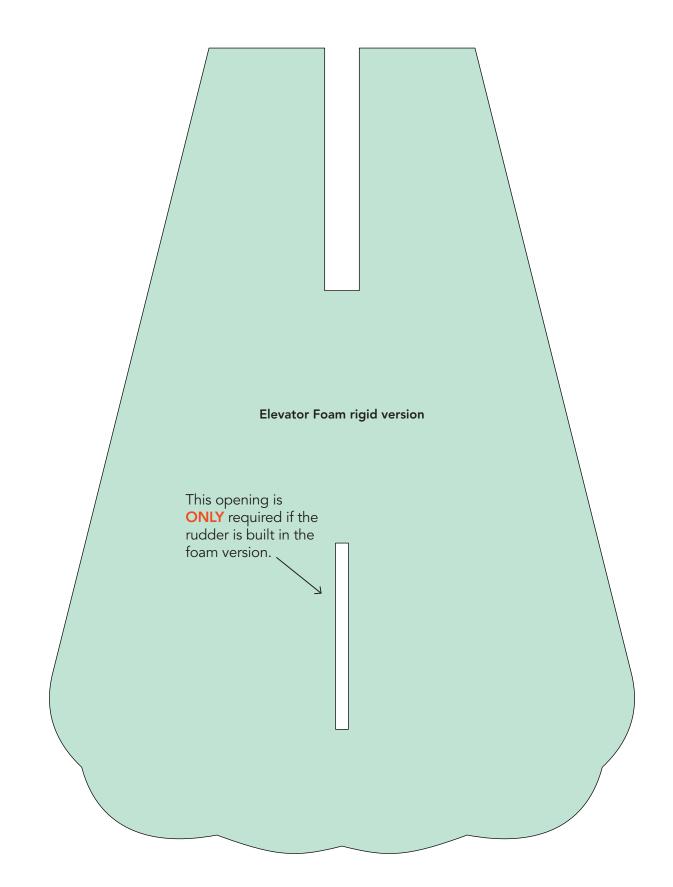


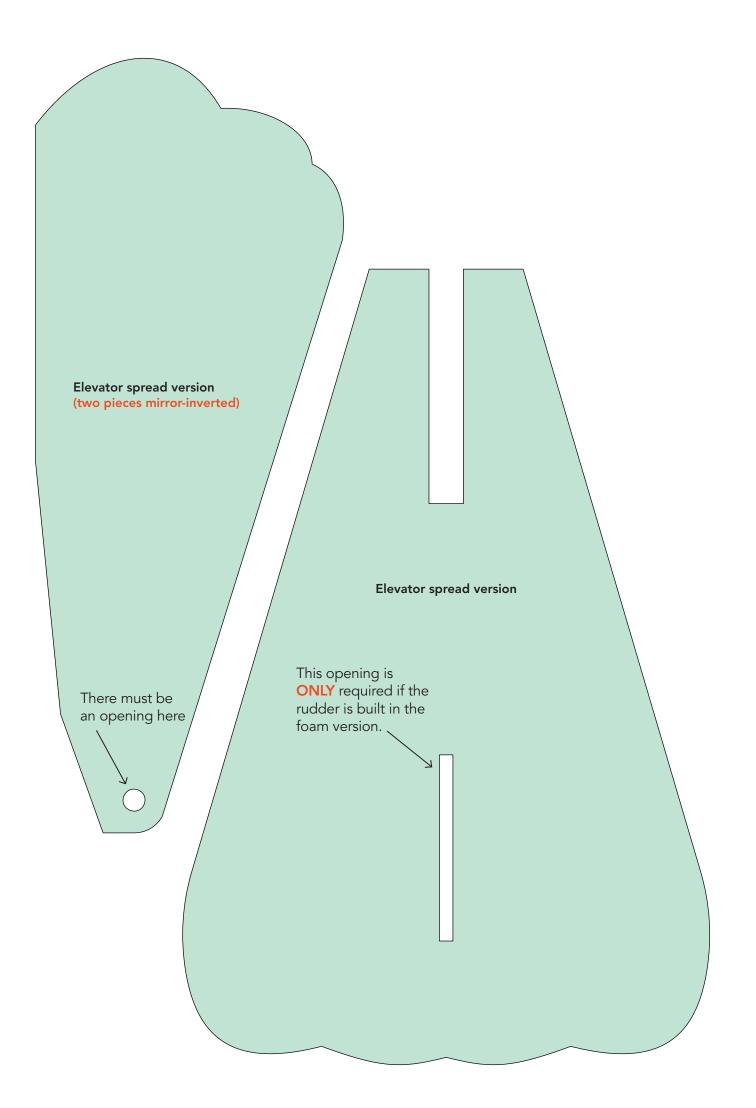


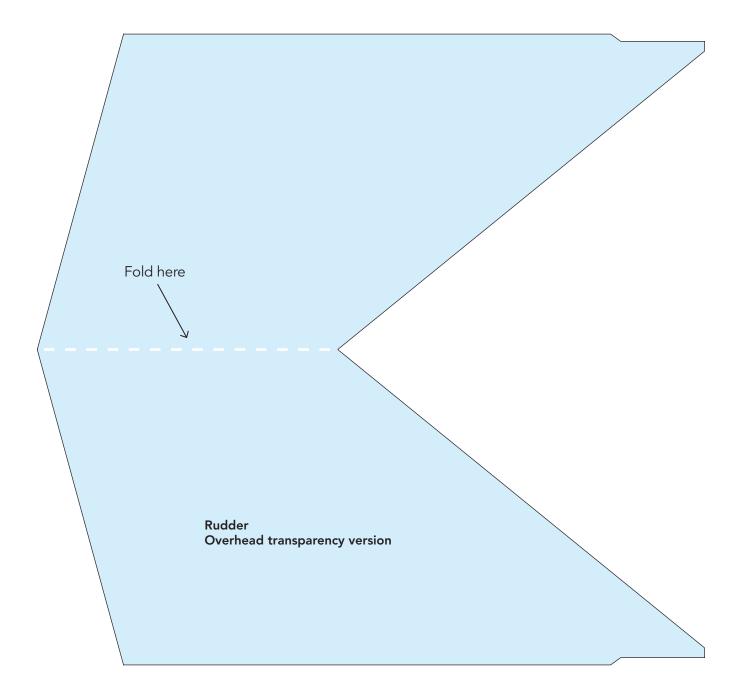
There are different versions here!

You can decide which one you want to build in the manual further down.











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:





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



P1_Setting gauges-fn.stl

MATERIAL PLA, Weight: ~ 7 g

ADDITIONAL SETTINGS

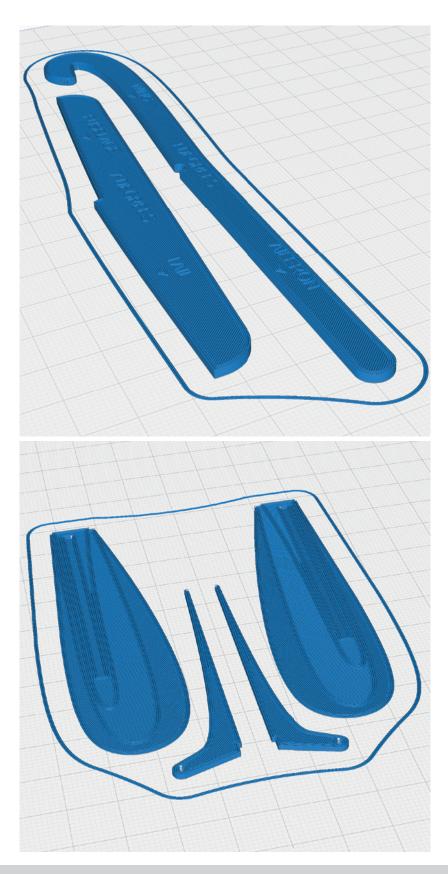
Wall Line Count/Perimeters: 20

P1_AIL horns-fn.stl

MATERIAL PLA, Weight: ~ 3 g

ADDITIONAL SETTINGS

None required





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

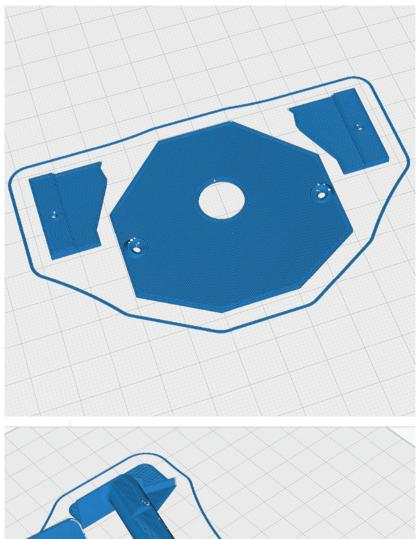


P1_battery mount-fn.stl

MATERIAL PLA, Weight: ~ 6 g

ADDITIONAL SETTINGS

None required

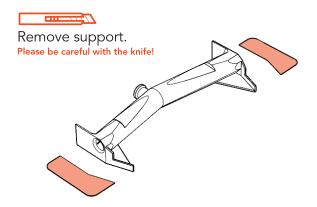


P1_Center parts-fn.stl

MATERIAL PLA, Weight: ~ 17 g

ADDITIONAL SETTINGS

Wall Line Count/Perimeters: 3







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

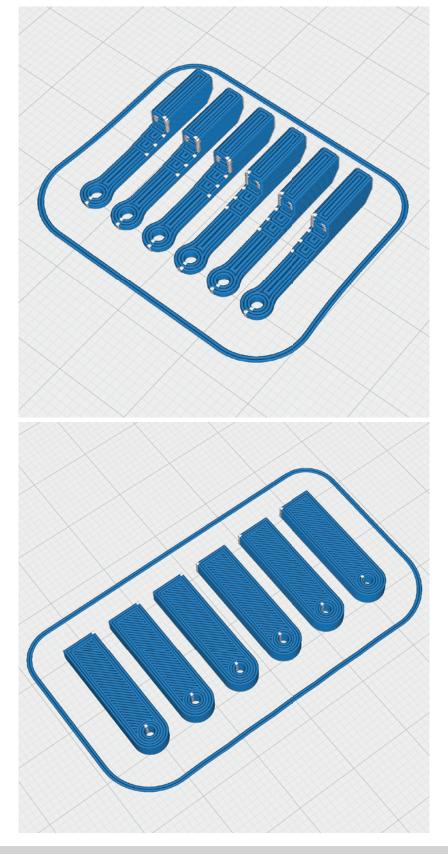


P1_Clips-fn.stl

MATERIAL PLA, Weight: ~ 1 g

ADDITIONAL SETTINGS

None required



P1_Head mount-fn.stl

MATERIAL PLA, Weight: ~ 2 g

ADDITIONAL SETTINGS

None required





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

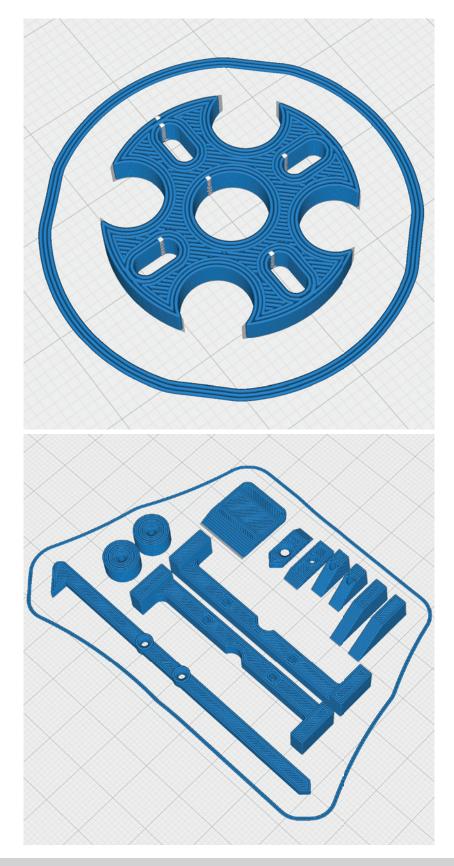


P1_Motor mount 16-19-fn.stl

MATERIAL PLA, Weight: ~ 1 g

ADDITIONAL SETTINGS

None required



P1_Parts-fn.stl

MATERIAL PLA, Weight: ~ 6 g

ADDITIONAL SETTINGS

None required



FALCON

15

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

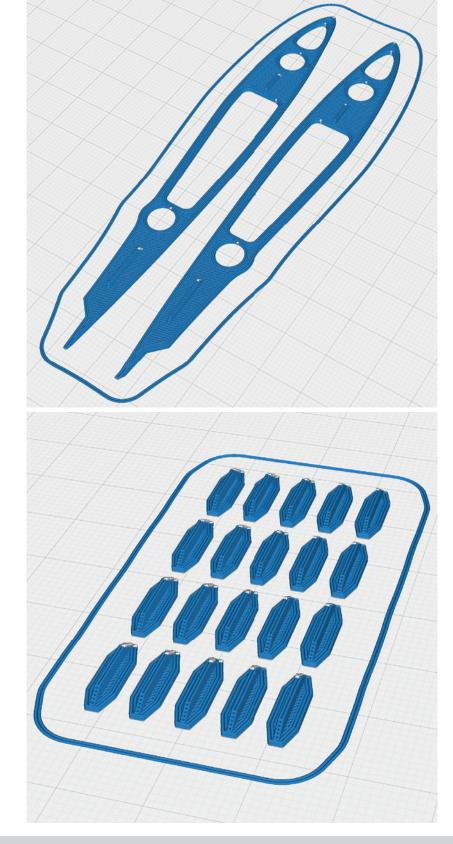


P1_Protectors-fn.stl

MATERIAL PLA, Weight: ~ 2 g

ADDITIONAL SETTINGS

None required



P1_T-connects-fn.stl

MATERIAL PLA, Weight: ~ 1 g

ADDITIONAL SETTINGS

None required



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

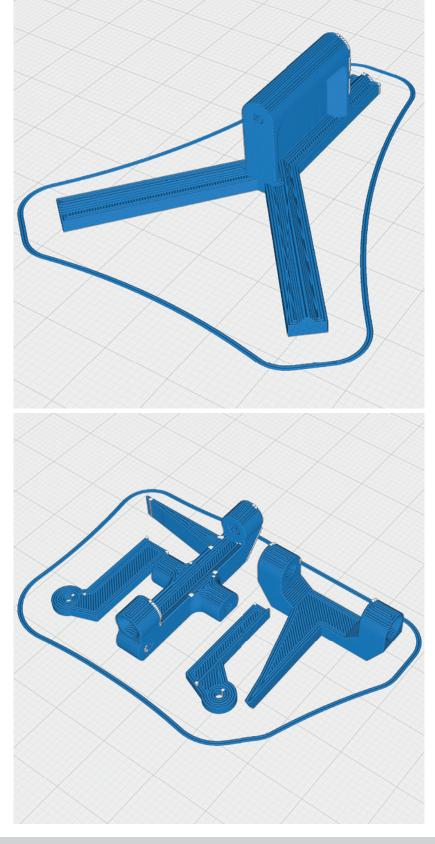


P1_Tail joint 1-fn.stl

MATERIAL PLA, Weight: ~ 2 g

ADDITIONAL SETTINGS

None required



P1_Tail joint 2-fn.stl

MATERIAL PLA, Weight: ~ 3 g

ADDITIONAL SETTINGS

None required



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

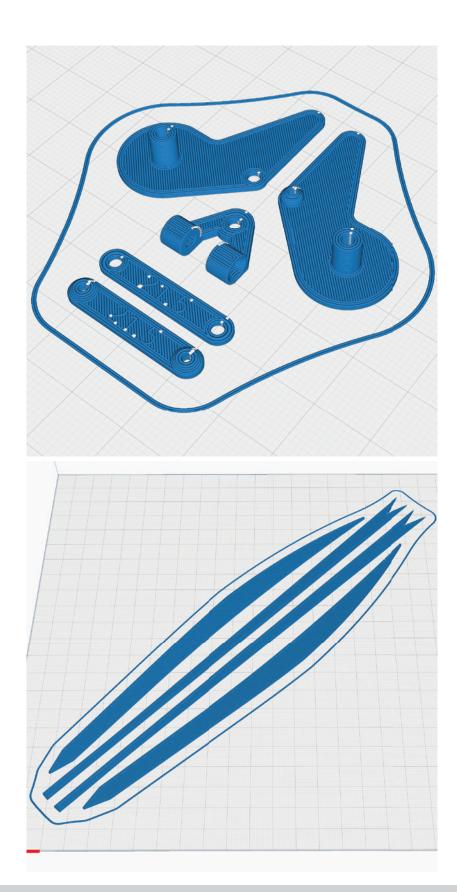


P1_Tail joint 3-fn.stl

MATERIAL PLA, Weight: ~ 2 g

ADDITIONAL SETTINGS

None required



P1_Wing Spar-fn.stl

MATERIAL PLA, Weight: ~ 10 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_Tension belt-fn.stl

MATERIAL TPU, Weight: ~ 1 g

ADDITIONAL SETTINGS

- Infill Density: 100 %
- print twice

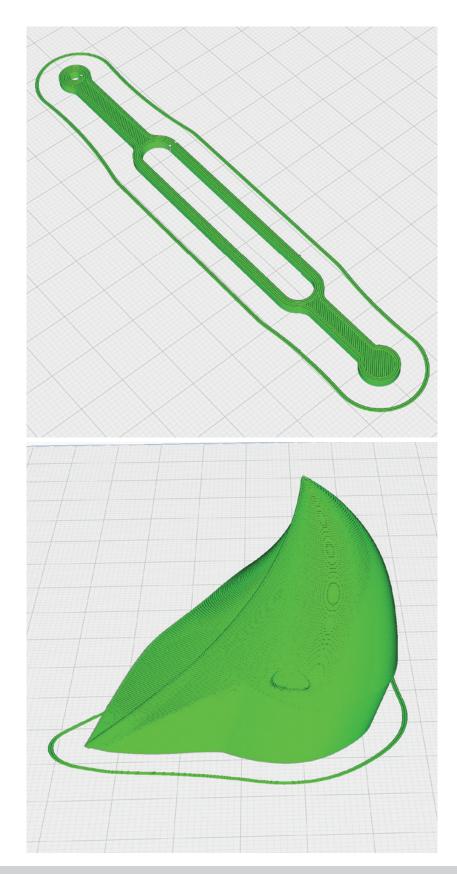


MATERIAL TPU, Weight: ~ 14 g

ADDITIONAL SETTINGS

• Infill Density: 100 %

You can also print this part with PLA. TPU has the advantage that it is softer and the tip cannot break off.







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 (not pre-foamed)!

Basic settings for LW-PLA: Please follow the instructions in our WINGTEST AND CALIBRATION TOOL on our website for correct adjustment! For optimum quality, there should only ever be one part on the build plate!

P5_Body 1-fn.rstl

MATERIAL LW PLA, Weight: ~ 49 g

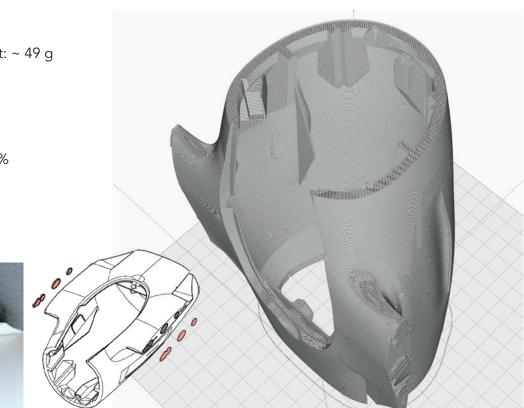
TIME ~ 9 hours

ADDITIONAL SETTINGS

• Infill Density/Fill Density: 3 %







P5_Body 2-fn.stl

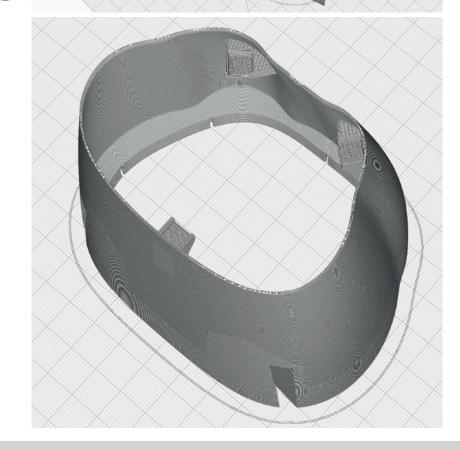
MATERIAL LW PLA, Weight: ~ 17 g

TIME ~ 2 hours 40 minutes

ADDITIONAL SETTINGS

• Infill Density/Fill Density: 3 %

Remove the stringing threads







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 (not pre-foamed)!

Basic settings for LW-PLA: Please follow the instructions in our WINGTEST AND CALIBRATION TOOL on our website for correct adjustment! For optimum quality, there should only ever be one part on the build plate!

P5_Cover-fn.stl

MATERIAL LW PLA, Weight: ~ 7 g

TIME ~ 1 hour 15 minutes

ADDITIONAL SETTINGS

- Infill Density/Fill Density: 3 %
- Brim

Remove support. Please be careful with the knife!



FALCON

P5_Head glider-fn.stl

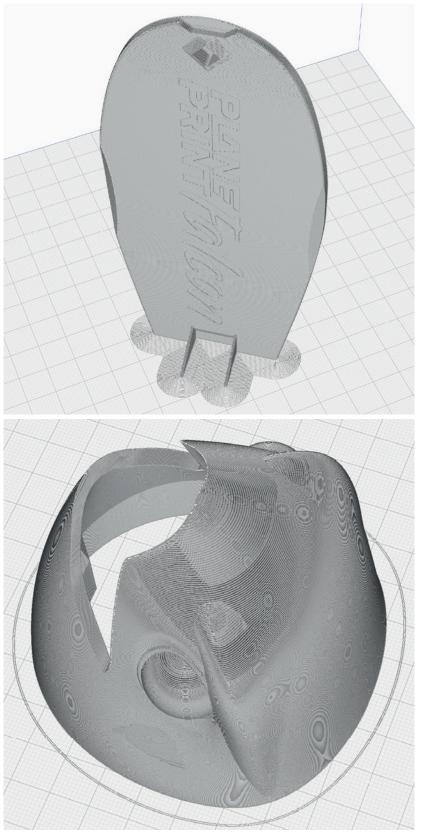
MATERIAL LW PLA, Weight: ~ 13 g

TIME ~ 2 hours 30 minutes

ADDITIONAL SETTINGS

• Infill Density/Fill Density: 8 %

Remove the stringing threads







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 (not pre-foamed)!

Basic settings for LW-PLA: Please follow the instructions in our WINGTEST AND CALIBRATION TOOL on our website for correct adjustment! For optimum quality, there should only ever be one part on the build plate!

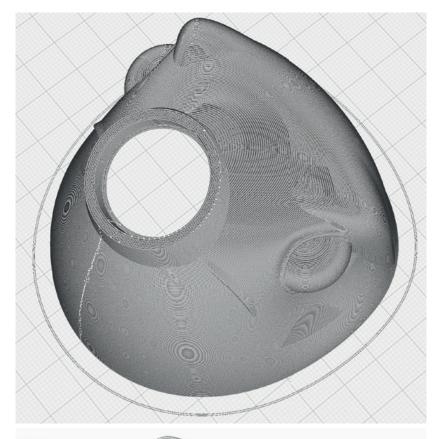
P5_Head motor-fn.rstl

MATERIAL LW PLA, Weight: ~ 14 g

TIME ~ 2 hours 30 minutes

ADDITIONAL SETTINGS

• Infill Density/Fill Density: 8 %



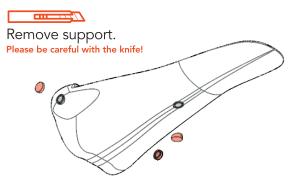
P5_Tail base-fn.stl

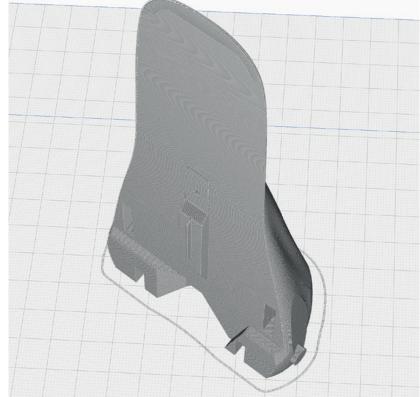
MATERIAL LW PLA, Weight: ~ 9 g

TIME ~ 1 hour 30 minutes

ADDITIONAL SETTINGS

• Infill Density/Fill Density: 3 %









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 (not pre-foamed)!

Basic settings for LW-PLA: Please follow the instructions in our WINGTEST AND CALIBRATION TOOL on our website for correct adjustment! For optimum quality, there should only ever be one part on the build plate!

There are four versions here! You can decide which one you want to build in the manual further down. P5 Tail XXX-fn.stl MATERIAL LW PLA, Weight: ~ 7 to 8 g TIME ~ 1 hour 20 minutes ADDITIONAL SETTINGS • Infill Density/Fill Density: 3 % Brim Remove support. Please be careful with the knife! P5_Wings 1-fn.stl MATERIAL LW PLA, Weight: ~ 59 g TIME ~ 10 hours ADDITIONAL SETTINGS • Infill Density/Fill Density: 3 % Remove support and round the edge of the nose nicely! Please be careful with the knife!

FALCON

RINTcom





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 (not pre-foamed)!

Basic settings for LW-PLA: Please follow the instructions in our WINGTEST AND CALIBRATION TOOL on our website for correct adjustment! For optimum quality, there should only ever be one part on the build plate!

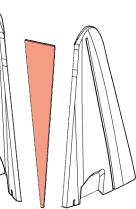
MATERIAL LW PLA, Weight: ~ 43 g TIME ~ 7 hours 30 minutes ADDITIONAL SETTINGS • Infill Density/Fill Density: 3 % Image: Set of the support and round the edge of the nose nicely! Please be careful with the knife! P5_Wings 3-fn.stl MATERIAL LW PLA, Weight: ~ 21 g

ADDITIONAL SETTINGS

TIME ~ 3 hours 40 minutes

P5_Wings 2-fn.rstl

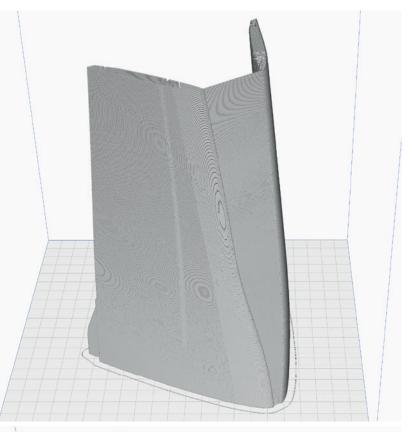
None required

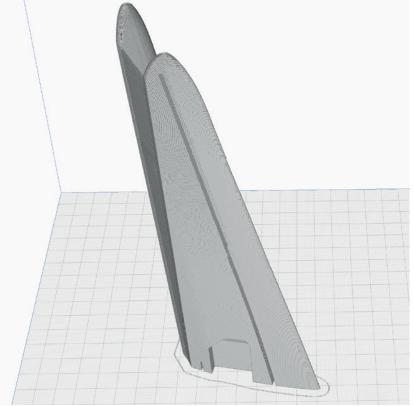


Remove support and round the edge of the nose nicely! Please be careful with the knife!





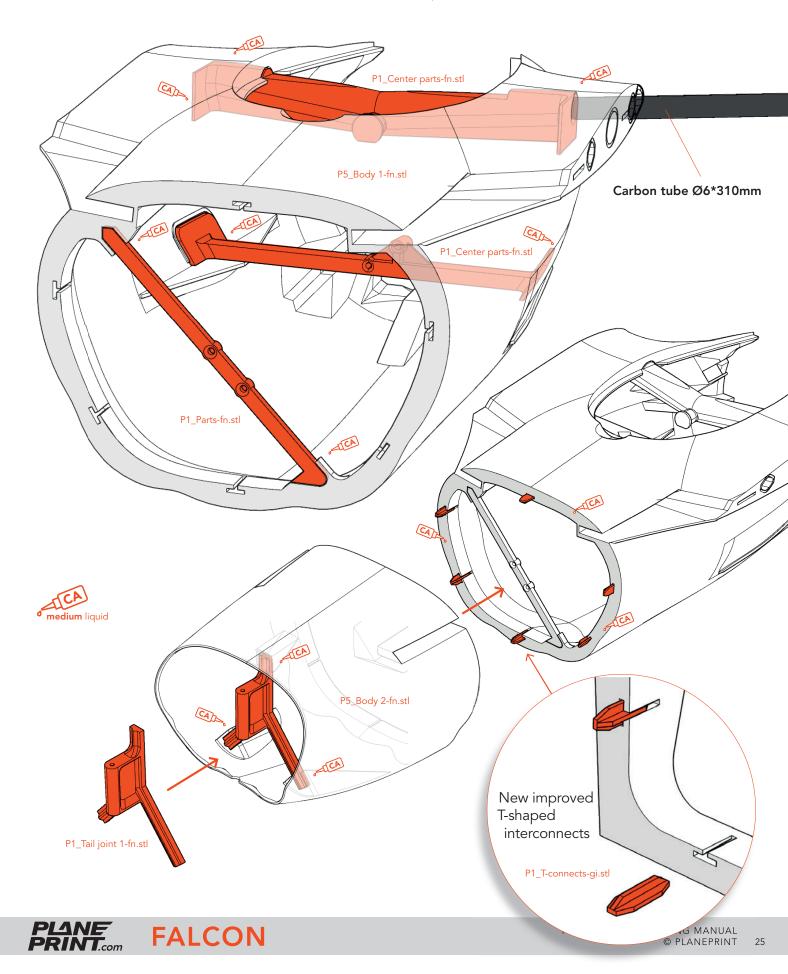




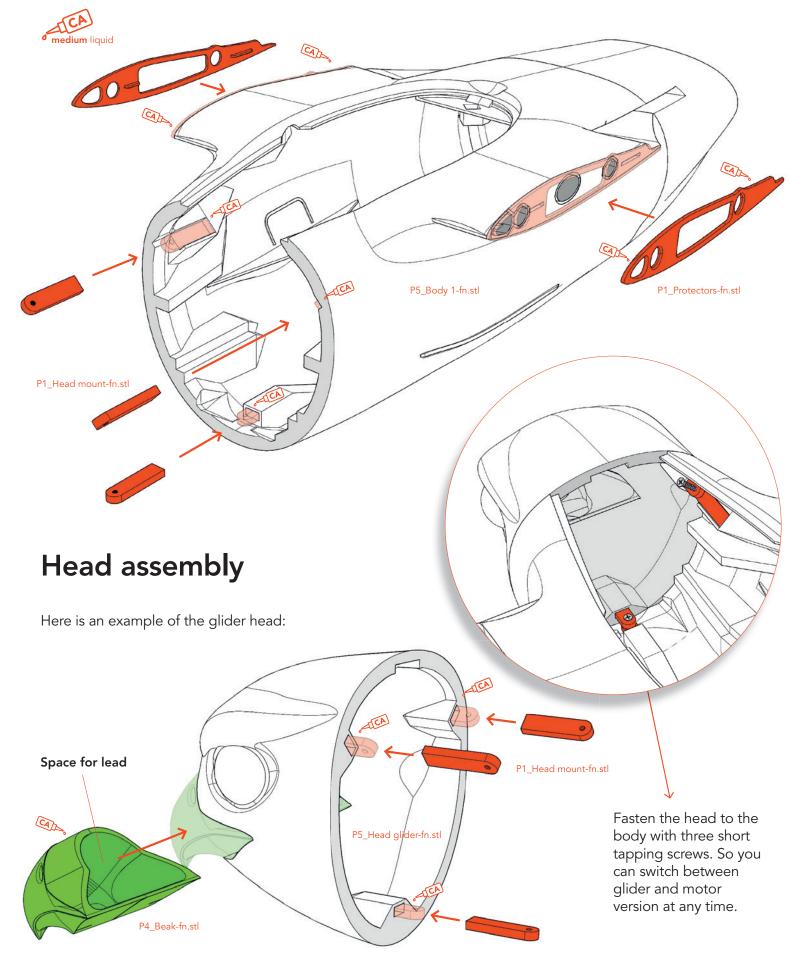


Align the center part using the carbon tubes so that they are correctly positioned in the body, then remove the tubes and run thin CA glue into all joint surfaces. These parts must be very well fixed.

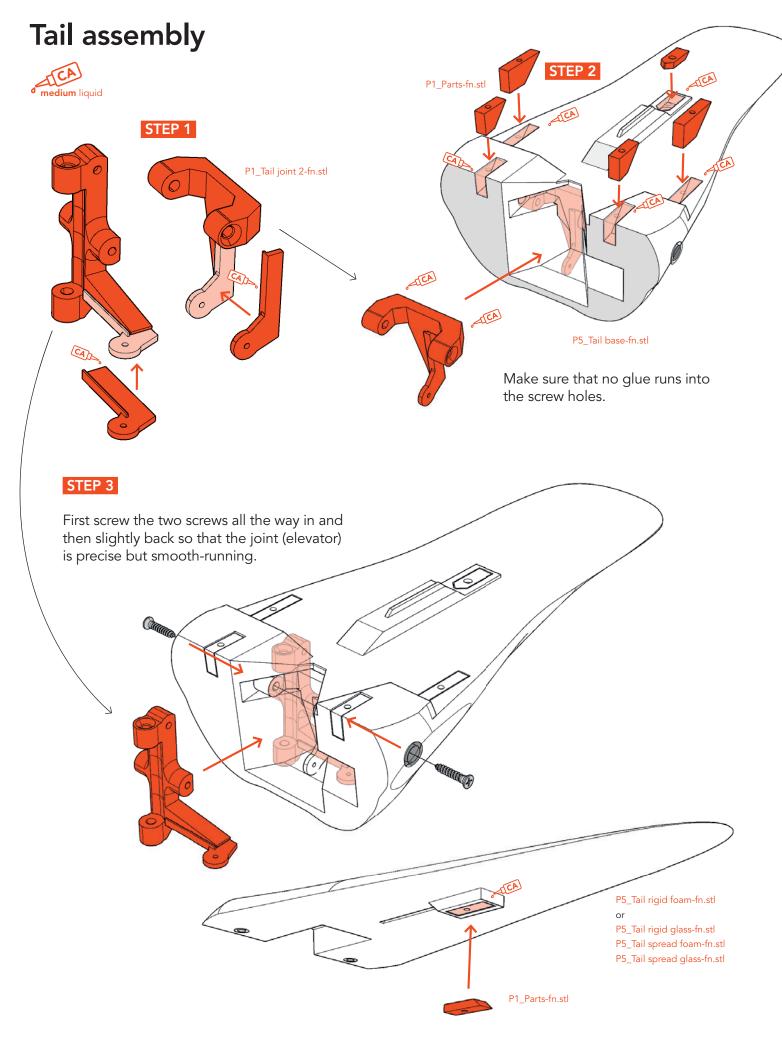
If the carbon tubes are stiff, move them back and forth until the hole is adjusted. They should be precise but easy to insert. **They must not be glued!**



Body assembly





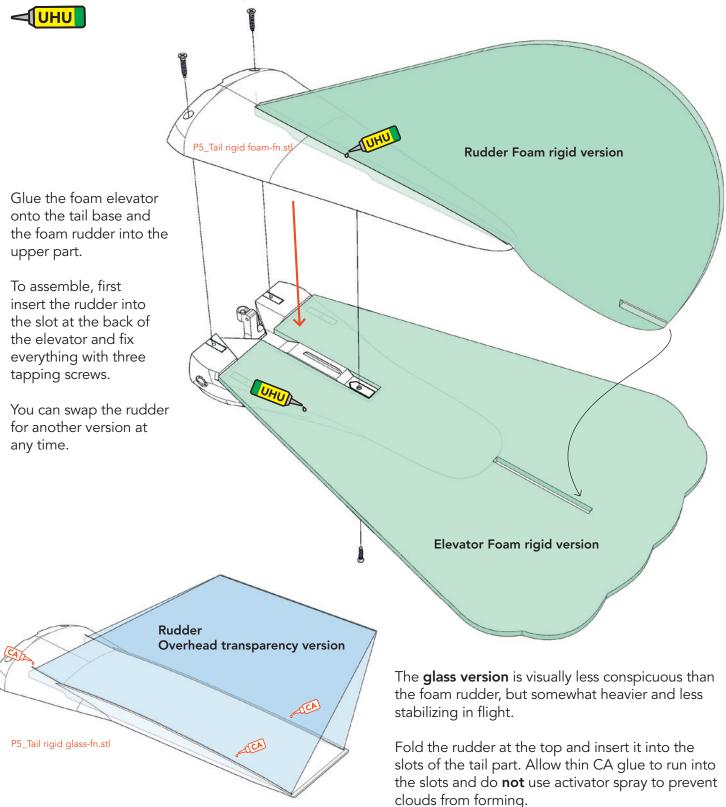




Tail assembly – rigid version

This tail version is the simplest and lightest. If you want to build the version with movable feathers, skip this page.

NOTE For Depron use **UHU POR**, other adhesives will damage the material. It is also suitable for other types of foam. UHU POR is a contact adhesive. Coat both adhesive surfaces (foam and LW PLA) with adhesive and wait until it is dry. Then join the parts together.





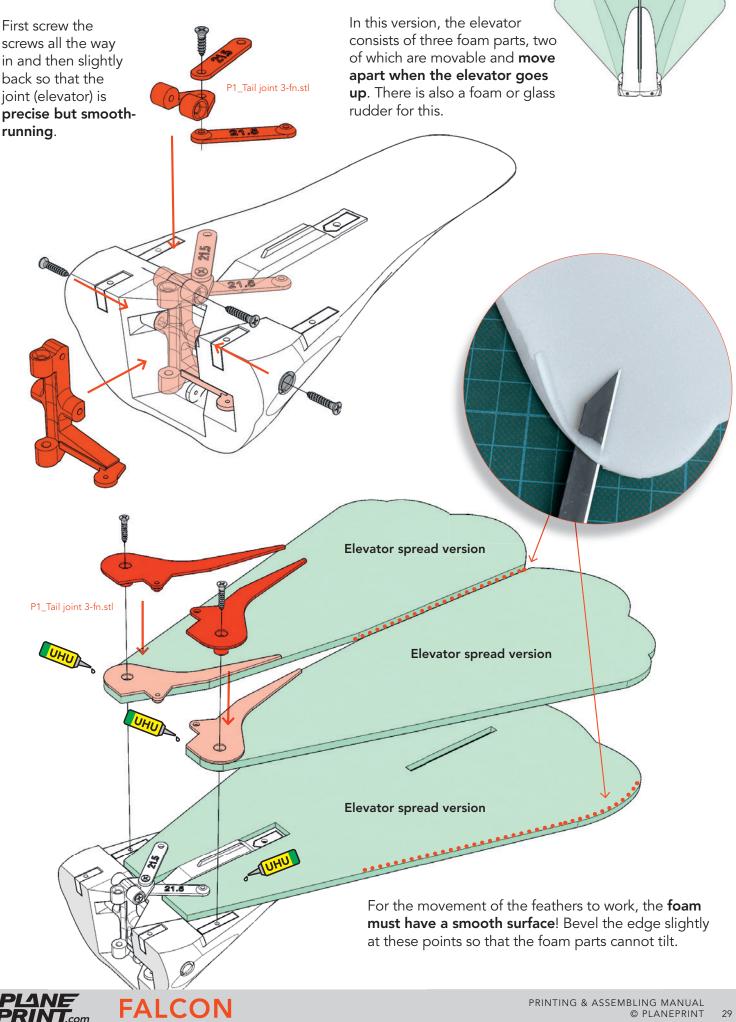
FALCON



28

Tail assembly – Spreadable version

RIN .com



PRINTING & ASSEMBLING MANUAL © PLANEPRINT

29

Tail assembly – Spreadable version

B

R

Steel Wire Ø1mm

P1_Clips-fn.stl

Steel wires Ø1*300mm

mm

Finally, the two levers are connected to the expandable elevators. All joints must run absolutely smoothly so as not to put too much strain on the servo!

The two movable elevator parts touch each other when the elevator is at the bottom, at the top they are spread to the maximum. Check the process several times and make sure that everything works smoothly, the function of the elevator is essential in flight!

If the angles do not fit, you can print the alternative levers and try them out.

21

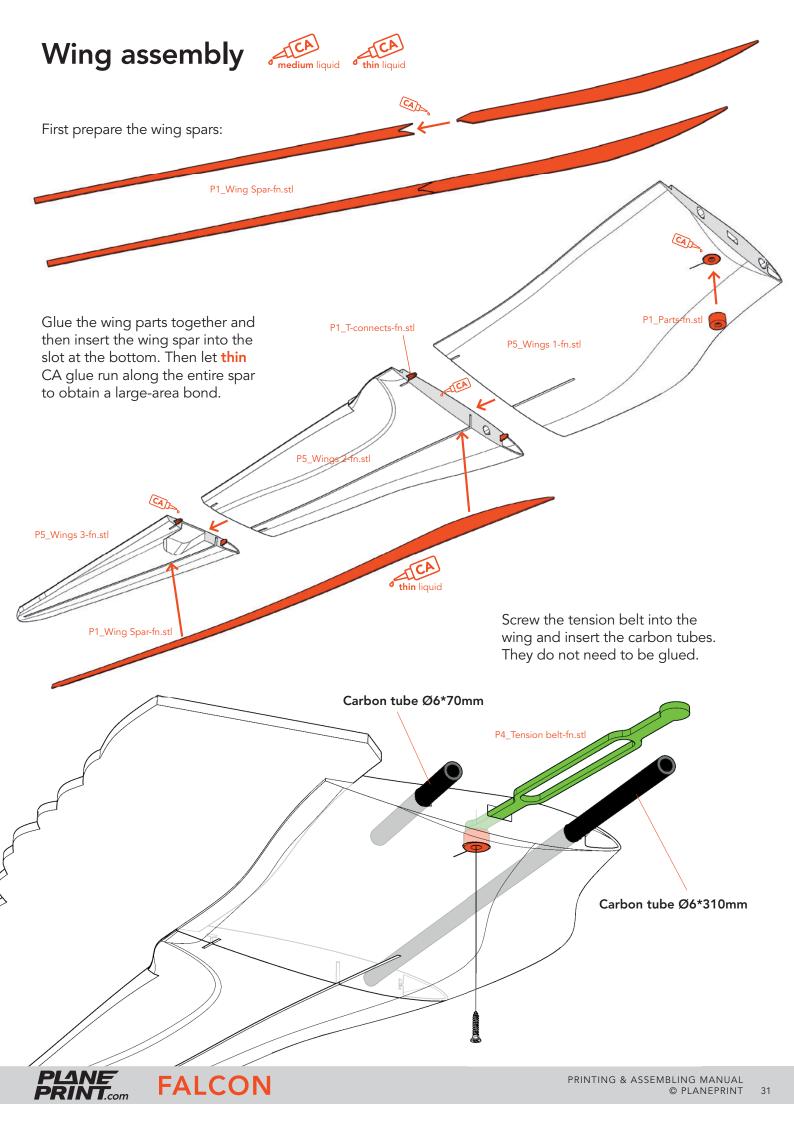
Π

P1_Joint levers-fn.st

Attach two steel wires to the levers on the tail and insert them through the guide holes in the body (they must cross)

Attach the tail to the joint in the body using two tapping screws.





Wing assembly

Cut out the foam parts for the wing (Wing/Aileron) and temporarily fix them along the aileron with two strips of adhesive tape. Make sure that a **gap of 1 to 2 mm** remains open for the later aileron hinge!

..........

... then fold the foam part over and apply UHU POR to the wing and foam and allow the glue to dry.

Align

here

When the glue is dry, glue the parts together.

Remove the adhesive tapes and cut a narrow stripe from fabric (or use a tape for the hinges, it should be paintable).

Wet the fabric strip and the area along the hinge with UHU POR, let it dry and then glue the strip to the wing and aileron. The gap allows the outer part to move without a visible aileron.

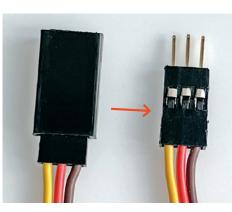
Fabric strip

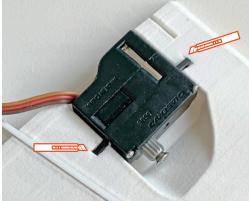


Wing Servo

Cut out two servo covers from fabric according to this template:

You can cut off the aileron servo cable and solder on an extension or use an extension cable. Because there is little space in the narrow wing, the outer sheath must be removed (carefully! with side cutters or a knife).

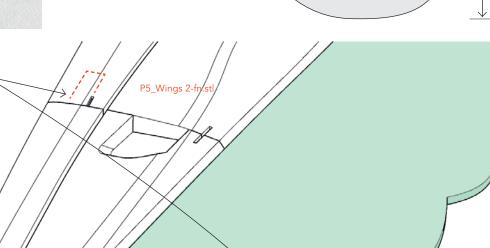




Stick the servo into the wing with double-sided adhesive tape or wrap it with tape and glue it with CA glue.

Carefully enlarge this **opening** in the servo duct with a knife until the servo cable plug fits through.

Glue the control horn onto the aileron as shown in the picture below and finally, if everything is set up correctly, the fabric servo cover.









Here you can check whether the print is the exact size.

This length must measure exactly 130 mm

Fuselage Servos

Install the servos as shown in the picture. Make the servo arms rather short so that the entire angle of the servo can be utilized (less load on the servo)!

10 - 12 mm \leftarrow 0 , 90° Elevator Rudder

Motor mount

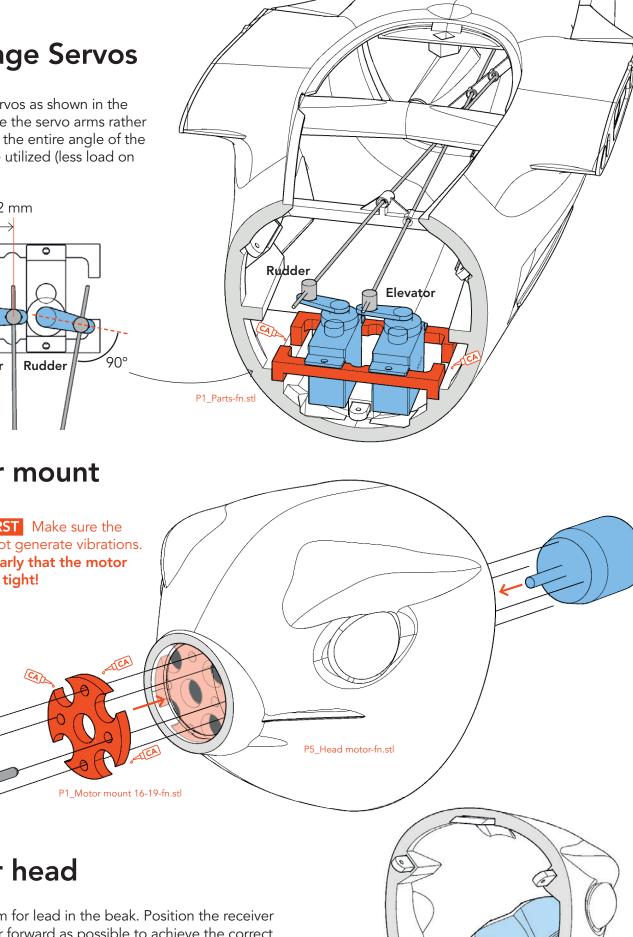
SAFETY FIRST Make sure the prop does not generate vibrations. Check regularly that the motor mounting is tight!

P1_Motor mount 16-19-fn.stl

Glider head

There is room for lead in the beak. Position the receiver battery as far forward as possible to achieve the correct CG in combination with the lead.

FALCON



34



Cover

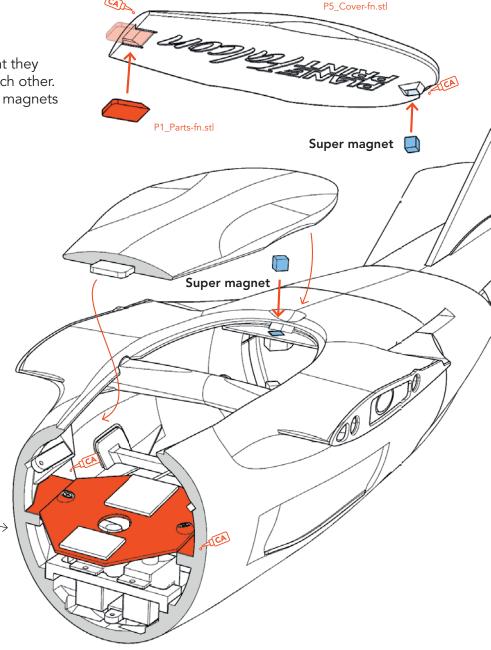
When gluing the magnets, make sure that they are correctly aligned and do not repel each other. You can put a piece of tape between the magnets as a separator until the glue is firm.

Battery fastening

Velcro tape

P1_battery mount-fn.stl

Only glue the mounting base to the body so that you can remove the battery plate at any time.



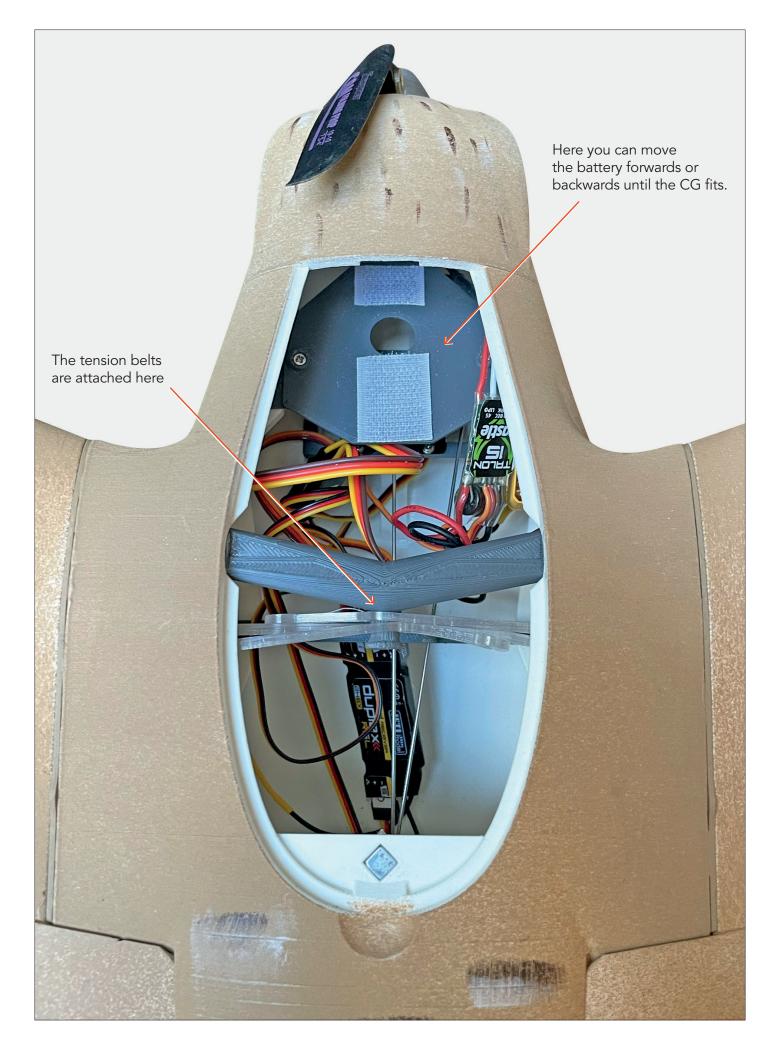
Painting

I sprayed the base with two spray paints (acrylic), light gray and light beige, very thinly all over the bird. The plumage was painted on with a flat brush and acrylic paints. Make sure that the paint is rather dry, this automatically gives a realistic effect. I used dark brown, a little black for blending and white. Yelloworange for the beak area. The eyes are simply painted black and then painted several coats of high-gloss varnish (or nail varnish).

It is an advantage if you do not use colors that are too dark, otherwise you will have to protect the bird from direct sunlight on warm days (**the PLA can become soft!**). This is usually not a problem with light colors.

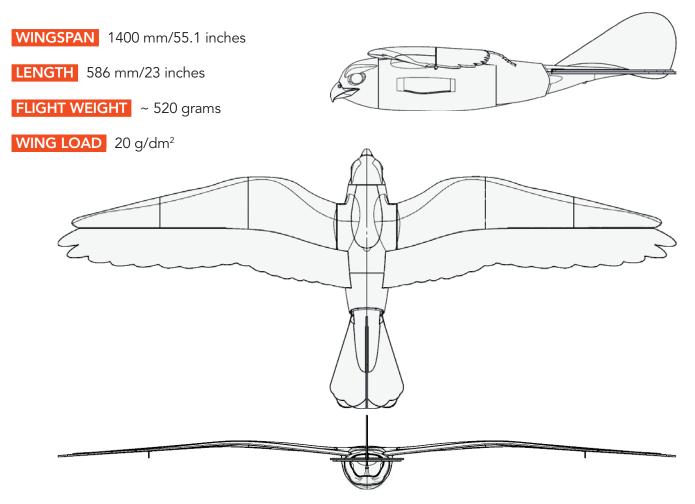








Technical specifications



Center of Gravity (CG)

The bird must balance on these points – **see the markings on the body**. (28 mm/1.1 inch behind the leading edge)

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.

FALCON



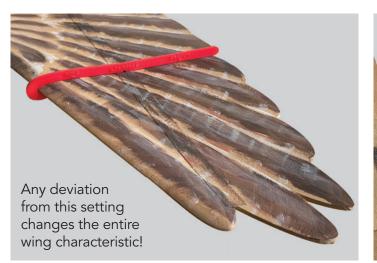
PRINTING & ASSEMBLING MANUAL © PLANEPRINT 37

0

Basic setting It is very important that these settings are correct!

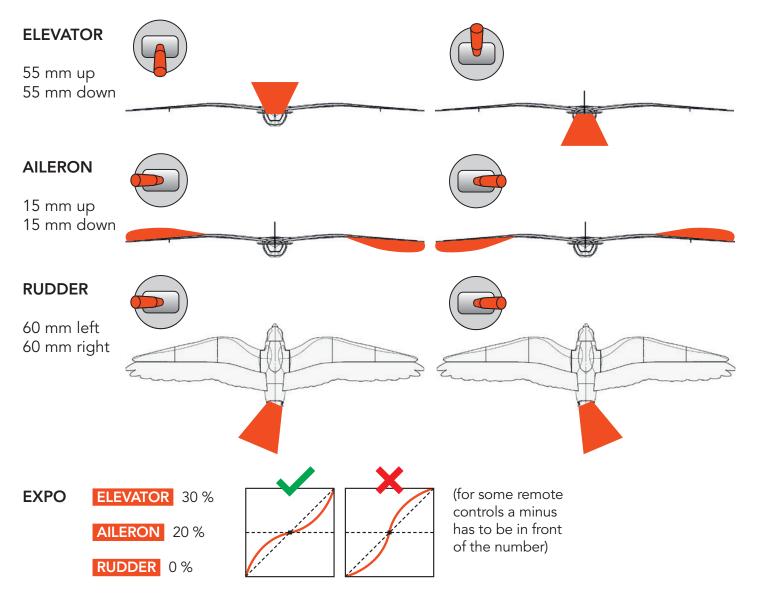
Place the setting gauges on the aileron at the height of the servo on top of the wing and program the correct zero position. Likewise between body and elevator.







Control Direction Test Set a normal aircraft (no Delta). Look from behind!





Flying tips

HAND LAUNCH

To start from the hand with the motor version, you should give about half throttle and only increase the throttle after a few meters. Despite the large downward correction angle of the engine, the Falcon pulls up slightly when it gets fast. You have to be prepared to correct a little with the elevator. We do not recommend a fixed correction program, as the effect becomes more pronounced the faster the bird flies.

Throw it upwards at a flat angle (10 to 20 degrees) and make sure that it does not have a sideways effect when released from the hand. Be careful around the propeller area!

LANDING

The Falcon has the positive characteristic that it **does not stall over the wing** in the event of a stall, but only **goes into a descent** by turning the nose further and further down. It still flies even with the elevator fully pulled. You can recognize this flight condition by the **many small pitching movements**, which are a series of micro-stalls.

FALCON

It is therefore important **for the landing to give a little more speed** on the final approach to ensure enough energy to recover before ground contact.

Especially on a slope, when landing with a tailwind, you must be careful not to approach too slowly.

WHICH TAIL VERSION IS THE BEST?

The **transparent foil rudder looks better** than the foam version, **but is much heavier** and requires significantly more weight at the front due to the long lever and short neck of the Falcon. It is also slightly smaller than the foam rudder and therefore does not stabilize quite as well.

If you want **maximum flying fun**, including acro maneuvers, we recommend **using the foam rudder**.

If the main aim is to get as close as possible to the image of a real animal, the glasrudder is an advantage.

It can therefore be easily changed at any time with three screws. **But don't forget to always pay atten**tion to the correct CG!

Please be aware of wildlife and fly the Falcon only in areas where it is allowed!



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!

