

BF 109 „Fatty“



From the Fatty Season:



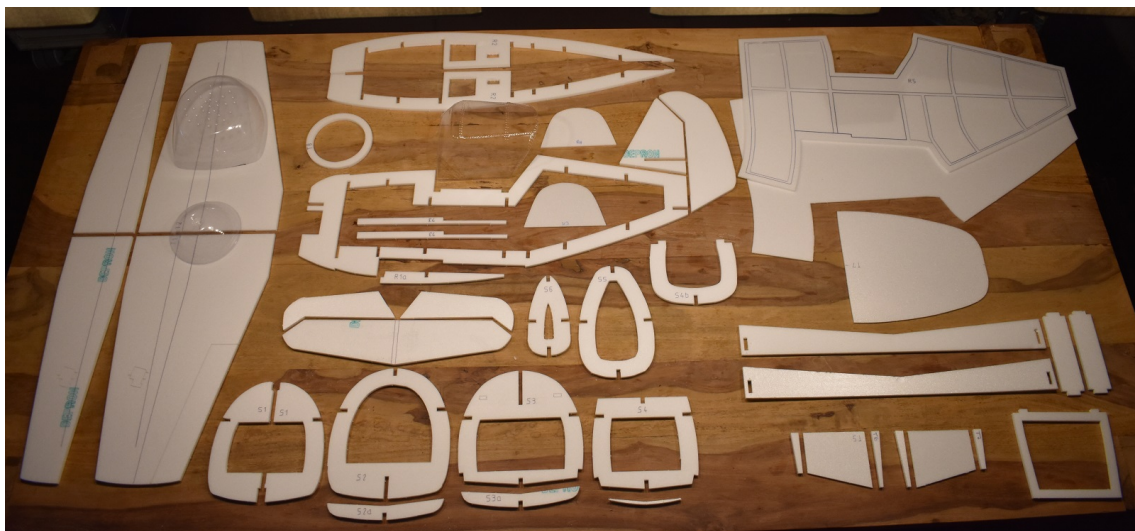
Building Instruction

The RC model of the BF 109 as a "cartoon variant" is part of the Fatty season, which is available here in the webshop. The models are simple in construction and allow quick construction progress. The wing consists of only a few components. The selected "KF" profile thus facilitates assembly. The start can be done with a starter trolley, by hand or a built-in retractable landing gear.

Technical specifications:

- ***Wingspan: 800 mm***
- ***Fuselage length: 770 mm***
- ***Weight: approx. 700 grams (depending on motorization and battery selection)***
- ***Motorization: DT 750 or other BL with max. 750 rpm***
- ***Regulator: 30A***
- ***Propeller: 13 X 6.5 inches (GWS)***
- ***Battery selection: 3S - 1300 mAh to 3 S - 1800 mAh***
- ***RC function: rudder / elevator / aileron and motor***

The Depron components are precisely cut using a CNC machine. Positions of all adjacent components were also marked and labeled CNC. This ensures that all adjoining components can be glued on without any problems. The PVC components were deep drawn.



The manufacture of all components and the completeness of the kits were carried out by hand and conscientiously. If you notice inaccuracies of fit or missing components, please contact me in order to be able to offer you and the following customers the most satisfactory product possible. info@scale-parkflyer.de

General:

The DEPRON building material is a very light building material that is normally used in house construction. In hardware stores it can be found in wallpaper departments under the name "Unter Wallpaper" as an insulating layer under the wallpaper. Due to its low weight (e.g. 10X10 cm of 6 mm Depron weighs 2 grams) and its stability, it is ideally suited for the construction of "slow flyers" up to weight classes of well over 3 kg. Depron has had a justified place in the model flight sky for many years reached.

Depron processing:

Depron can be deformed cold with the ball of the hand over the edge of a table. The sanding of corners and protruding edges is easy to do with fine sandpaper. When cutting Depron you should use a sharp utility knife with a narrow blade. UHU-Por is very suitable for bonding Depron-Depron, unless it is under tension during bonding, or in connection with other materials, or the bond is subjected to a higher load. You use the tried and tested water-based epoxy resin or white glue. "Modeling filler" from "Moldofil" from the hardware store is ideal for filling gaps and unevenness. The paste, similar to toothpaste, can be smoothed into the Depron gap very easily and after hardening is hardly harder than Depron.

necessary building materials:

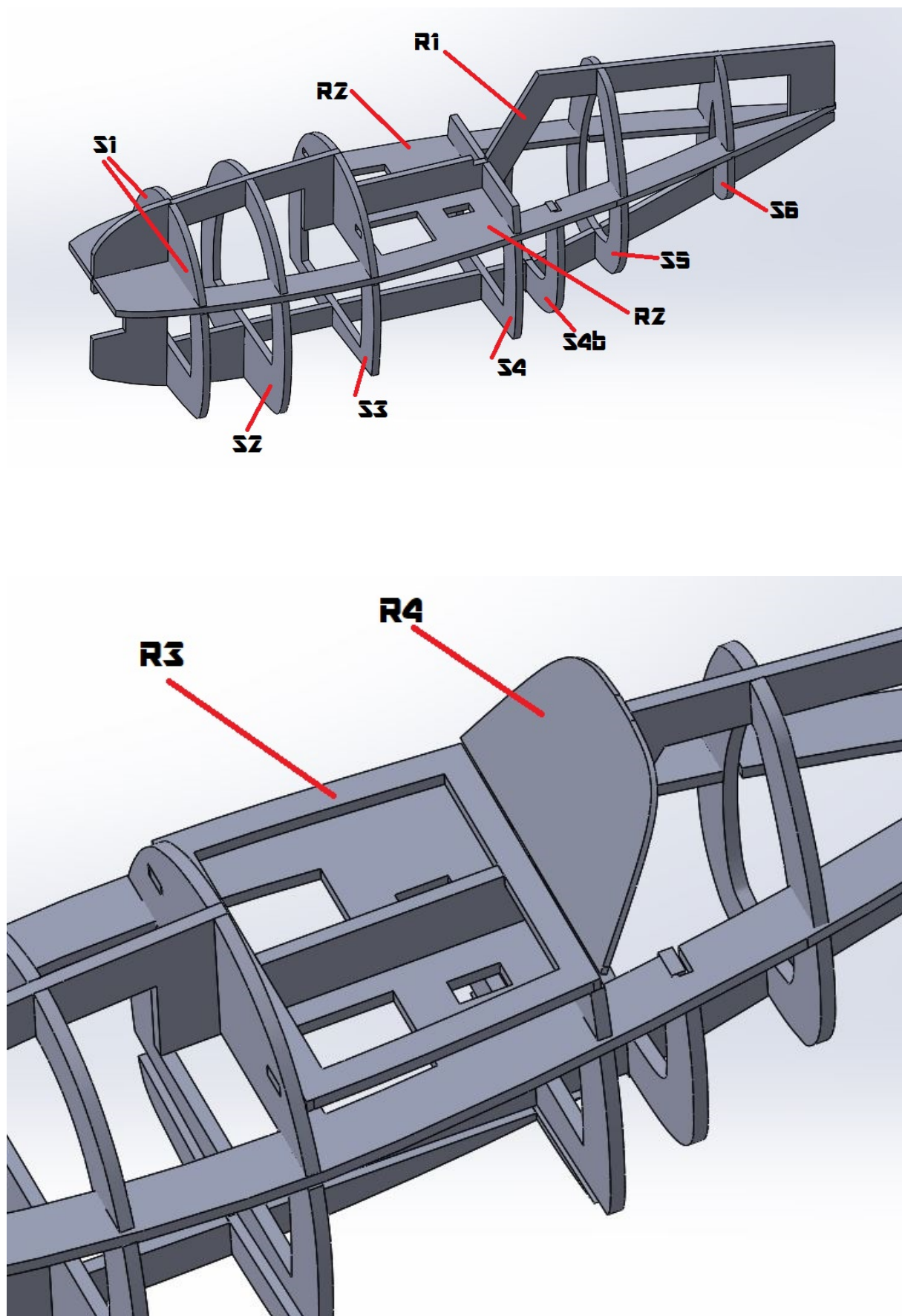
All the necessary Depron components can be found in the Depron parts set. All additional necessary building materials such as stiffening materials (CFRP, wood etc.) or adhesives or RC components are not included!

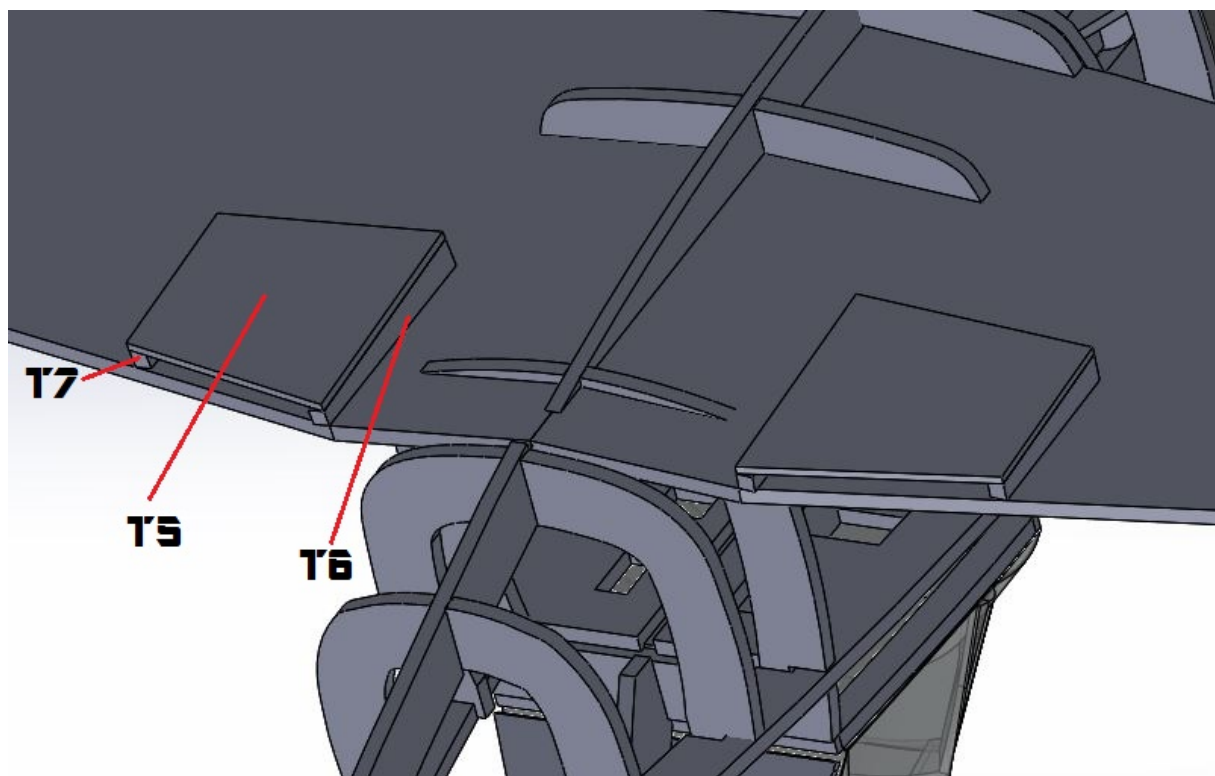
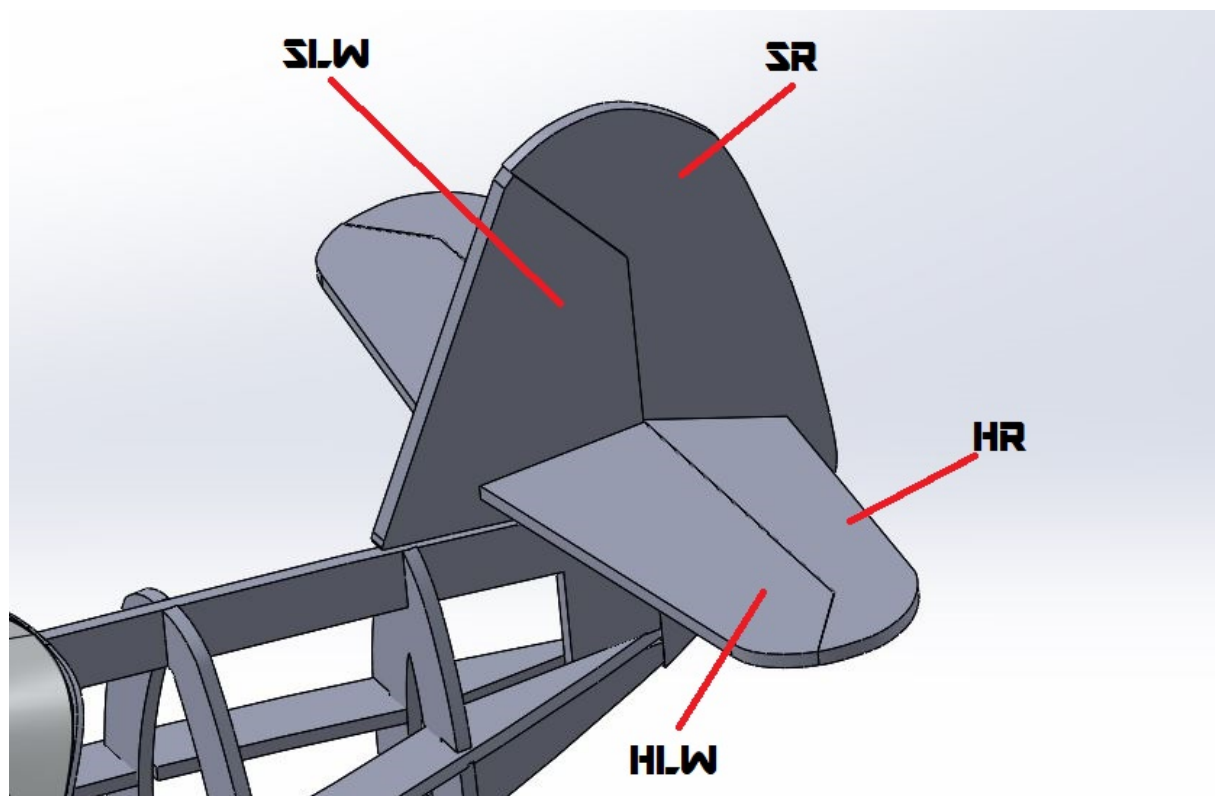
In addition, PVC components such as: canopy, engine hood and the spinner are included in the kit.

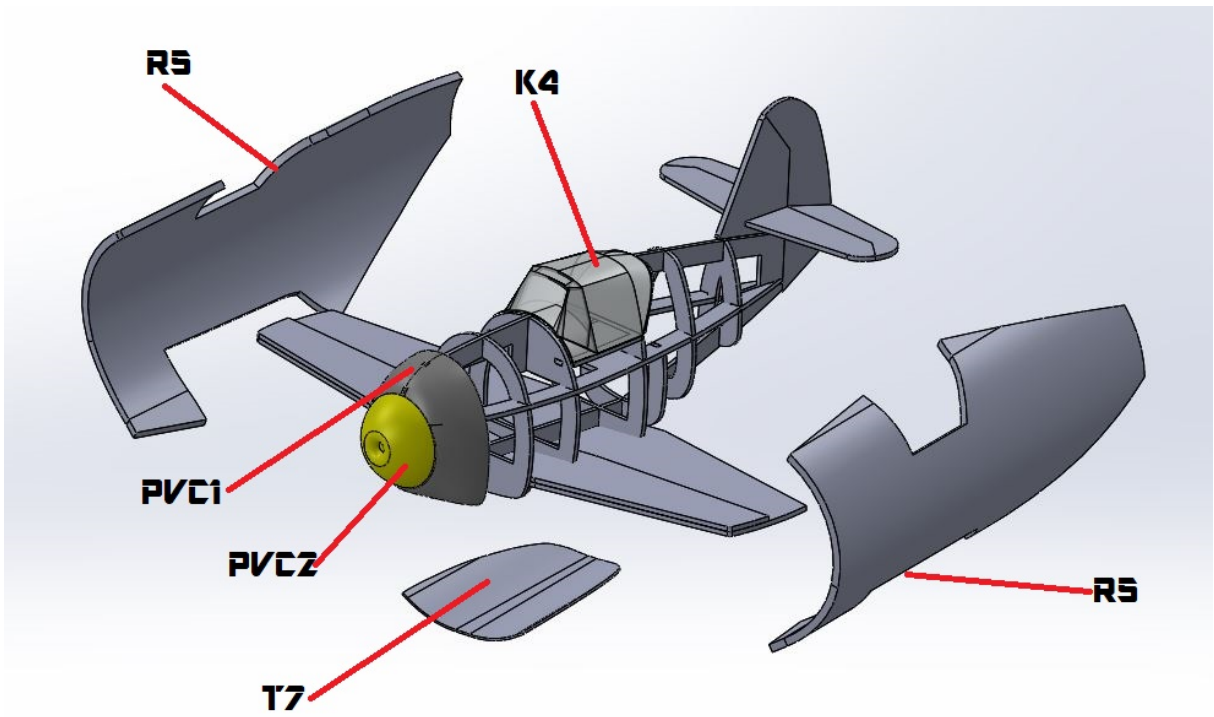
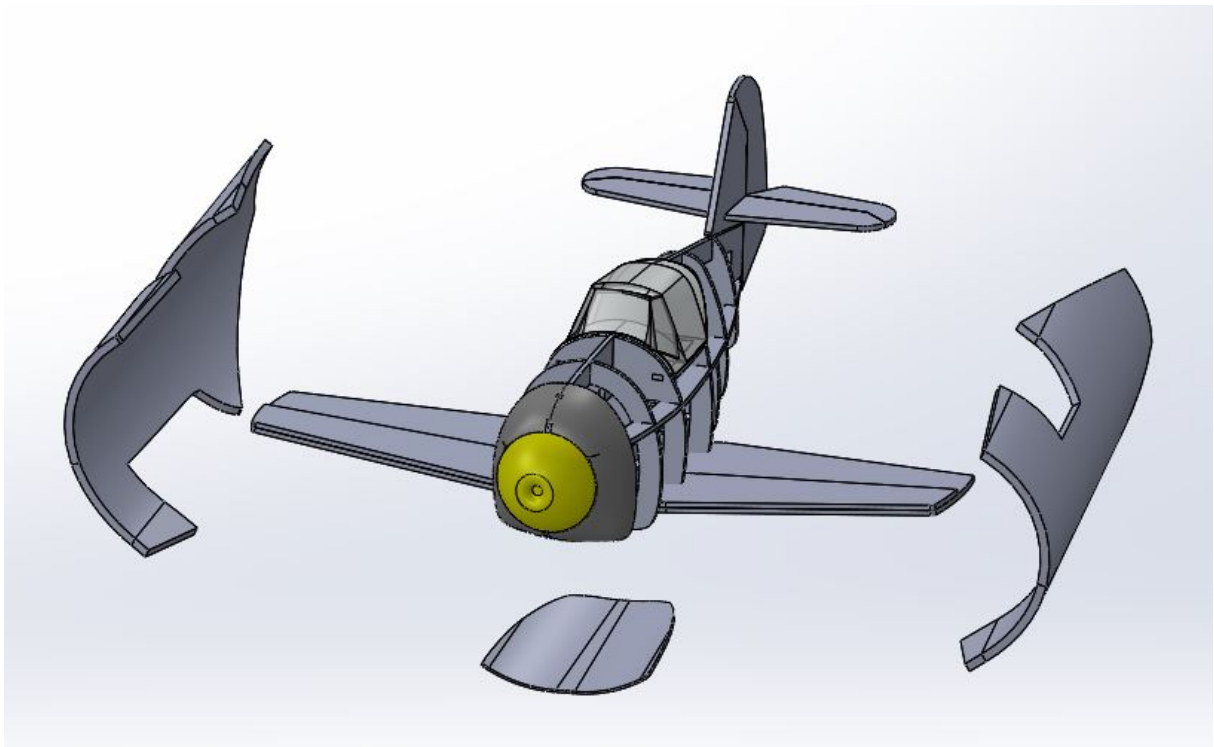
Partlist:

Pos.	Bezeichnung	Anzahl	Material
R1	Fuselage	1	6 mm Depron
R1a	Fuselage lower part	1	6 mm Depron
R2	Longitudinal Fuselage framework	2	6 mm Depron
S1	Frame 1	2	6 mm Depron
S2 - S6	Frame 2 until 6	je 1 X	6 mm Depron
R3	Canopy Frame	1	6 mm Depron
R4	Canopy Frame	1	3 mm Depron
R5	Plating	2	3 mm Depron
R6	Wing reinforcement	2	6 mm Depron
T7	Planking under Wing	1	3 mm Depron
T8	Spinner Frame	1	6 mm Depron
HLW	Tailplane	1	6 mm Depron
HR	Elevator	2	6 mm Depron
SLW	Vertical stabilizer	1	6 mm Depron
SR	Rudder	1	6 mm Depron
T1	Wing bottom left	1	6 mm Depron
T2	Wing bottom right	1	6 mm Depron
T3	WinTop left	1	6 mm Depron
T4	Wing Top right	1	6 mm Depron
T5	Cooling Water cooler Plate	2	3 mm Depron
T6	Cooling Water Cooler Frame inside	2	6 mm Depron
T7	Cooling Water Cooler Frame outside	2	6 mm Depron
K1	Canopy Frame Bottom	1	3 mm Depron
K2	Aft Canopy Frame	1	3 mm Depron
K3	Forward Canopy Frame	1	3 mm Depron
K4	PVC Canopy	1	PVC 0,5 mm
PVC 1	Engine Hood	1	PVC 0,5 mm
PVC 2	Spinner	1	PVC 0,5 mm

Position of all Components:







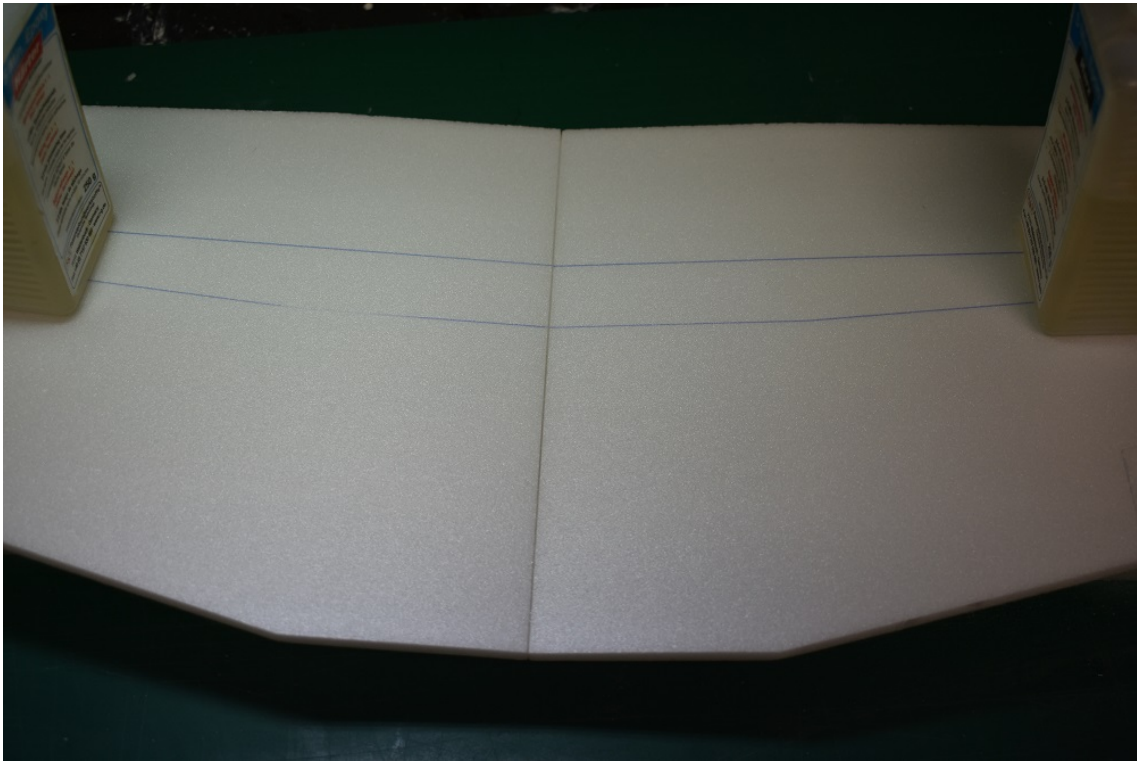
Building Instruction:

Wing:

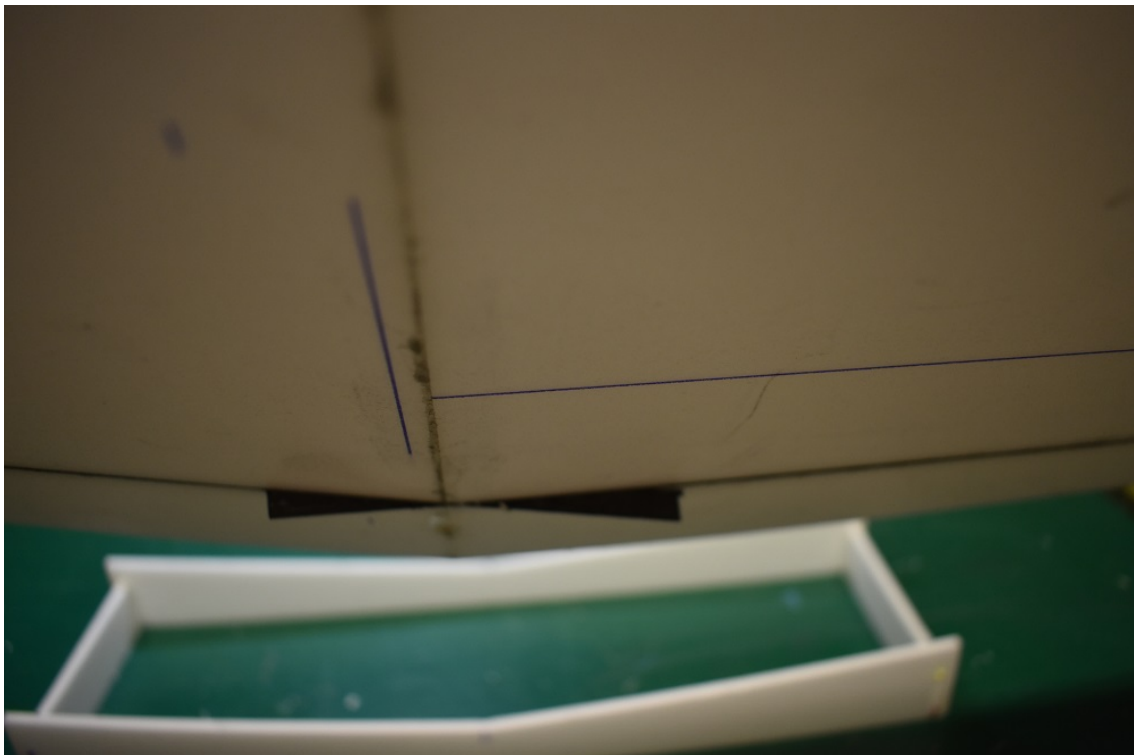
Assembling the Heling

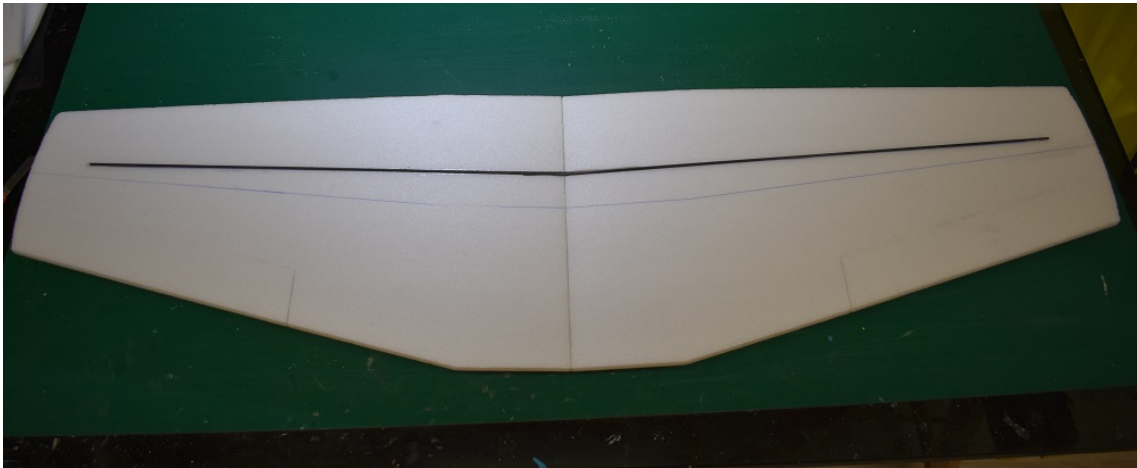
Prepare wing parts T1 to T4. To do this, place the wing T1 and T2 on the heling and lightly grind the glue joint until they fit together without a gap.





Use a 6 X 0.5 mm or 8 X 0.5 mm carbon flat bar to reinforce the wing. To do this, cut into the marking along the wing so that the carbon rod can be inserted without play. The flat bar should be flush with the underside of the wing. Cut the carbon rod to length so that there is enough adhesive surface available to bond both sufficiently. Since the overhang under the wing is within the skin, it is not visible.





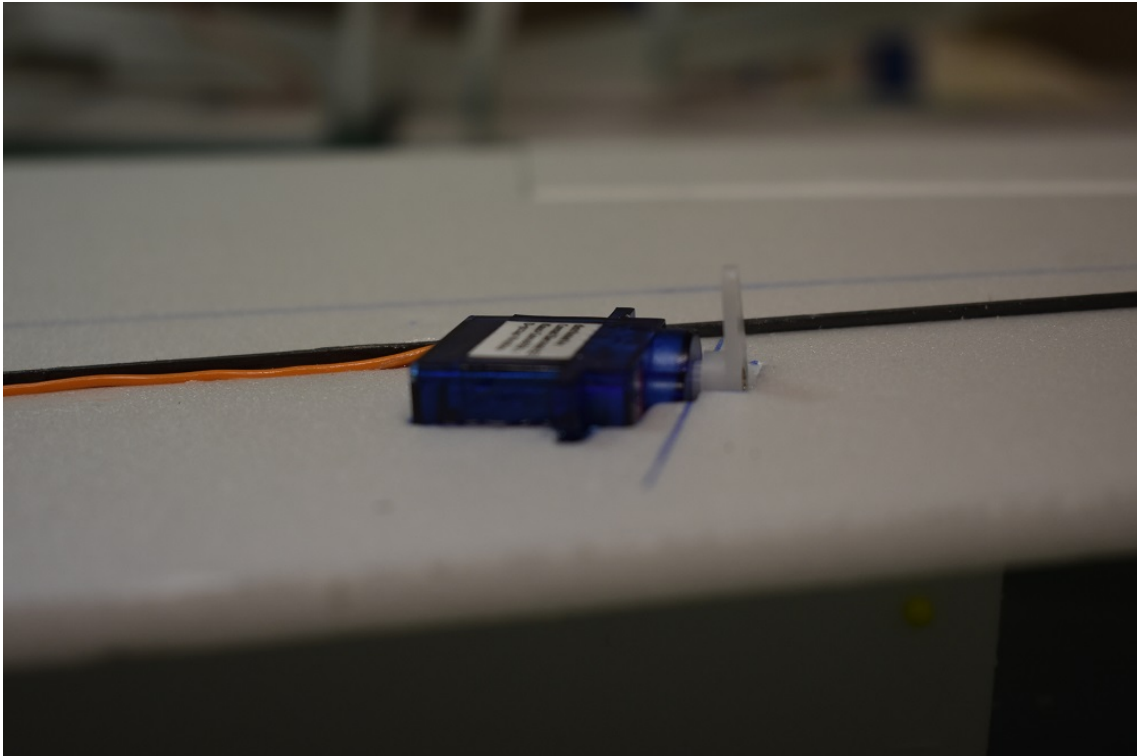
Adjust the upper parts of the wing (caron rod may need more space in the Depron) and sand the glue joint. Do not stick on yet!



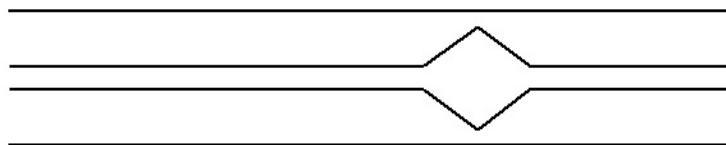
Insert the ailerons using the hinges.

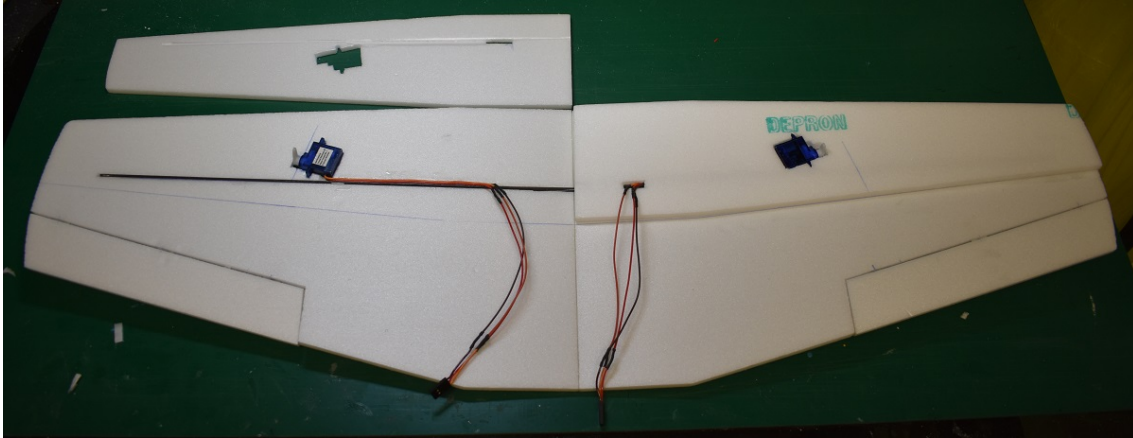


Prepare the aileron servos. Extend the servo cable until the connectors reach sufficiently into the fuselage area. Adjust the servos to neutral and glue them flush to the bottom of the lower wing.



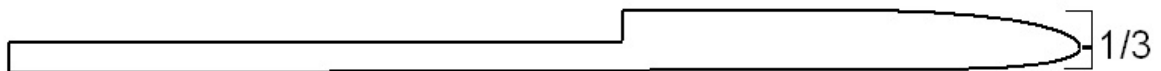
Cut a cable duct into the lower and upper wing. It is sufficient to notch a "V" with the craft knife. This can lead along the carbon spar. Cut an opening through the upper part of the wing so that the cables can be led out upwards.





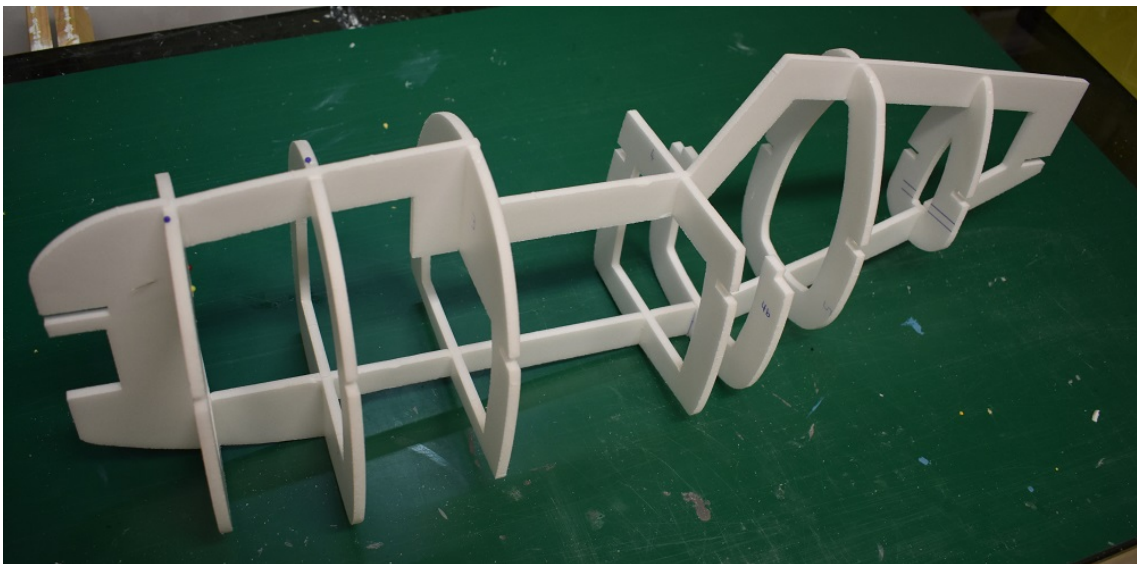
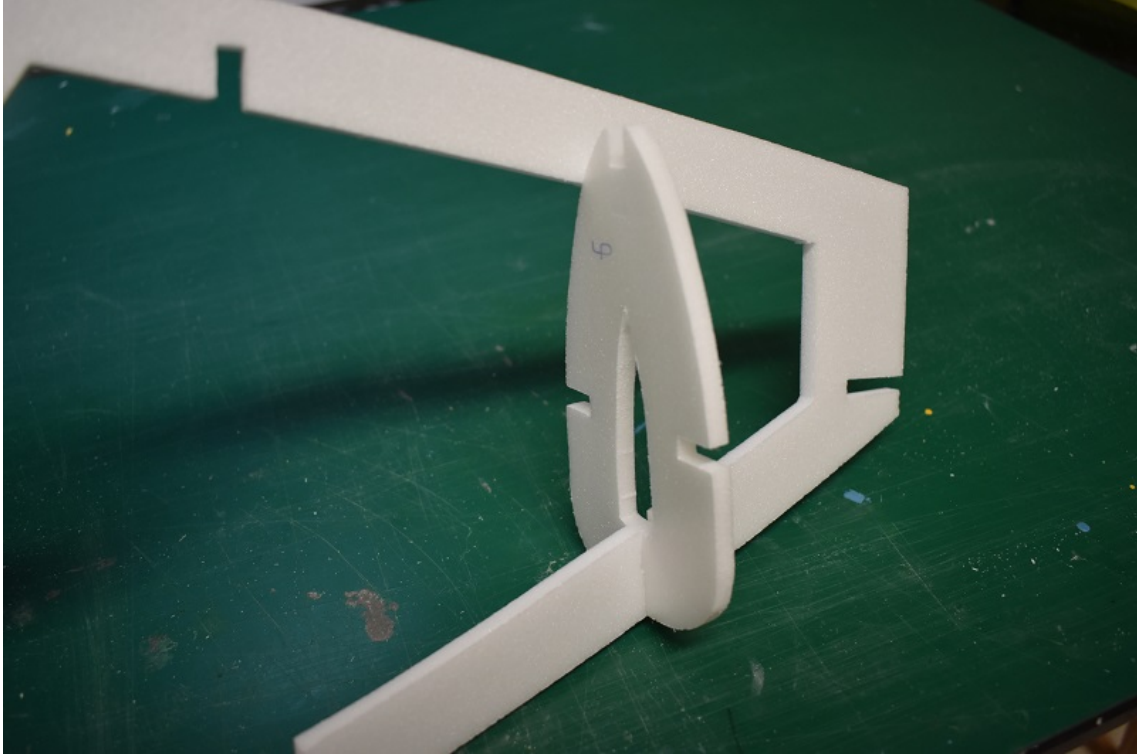
Glue on the upper wing.

Sand the leading edge: Like every profile, sand the leading edge up to $\frac{2}{3}$ and down to $\frac{1}{3}$. The KF step must remain sharp!

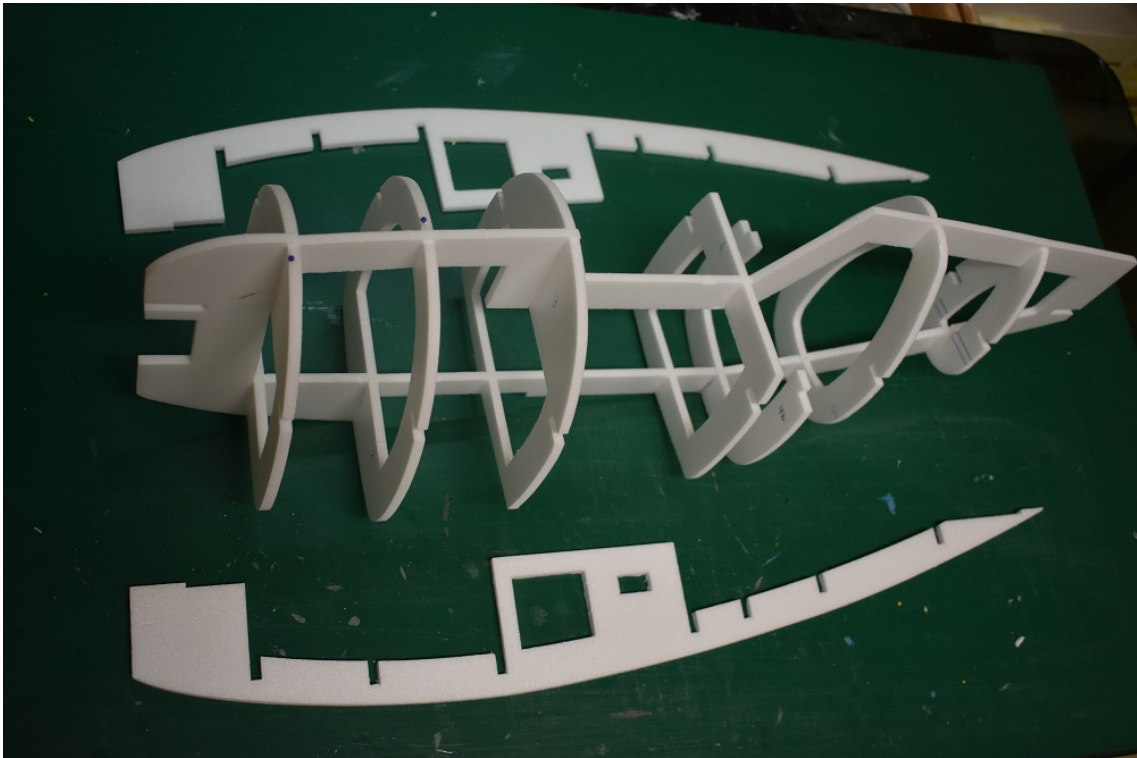


Fuselage:

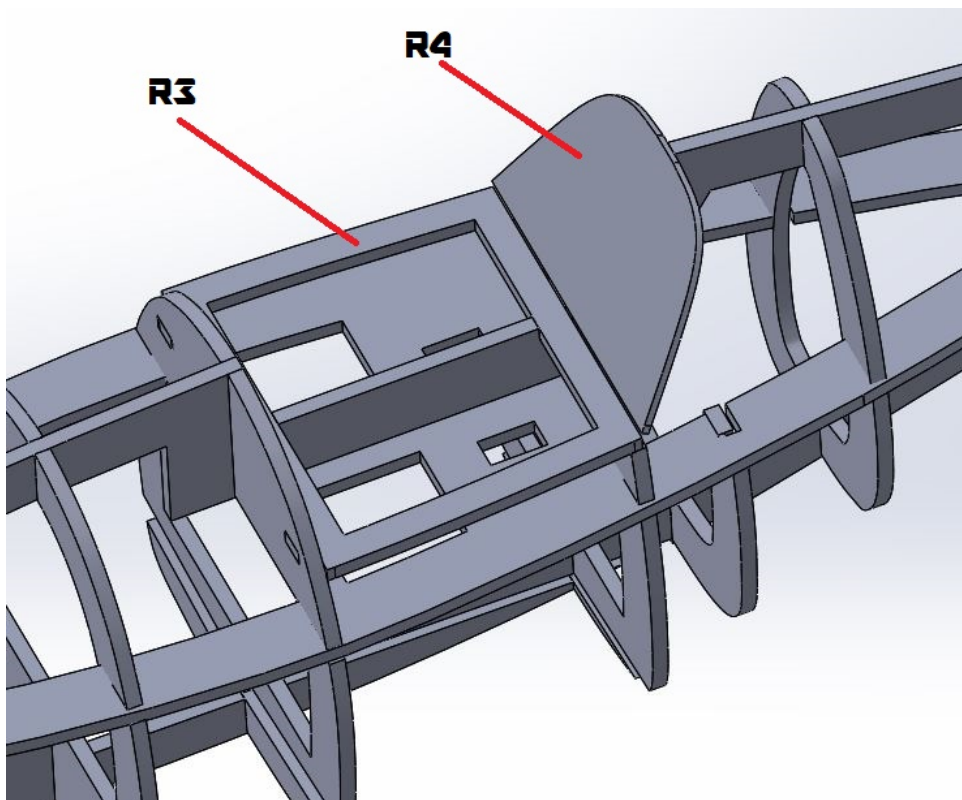
Insert frames S1 to S6 into the trunk stringer R1 starting from the rear and glue them flush with R1. S1 is in two parts.



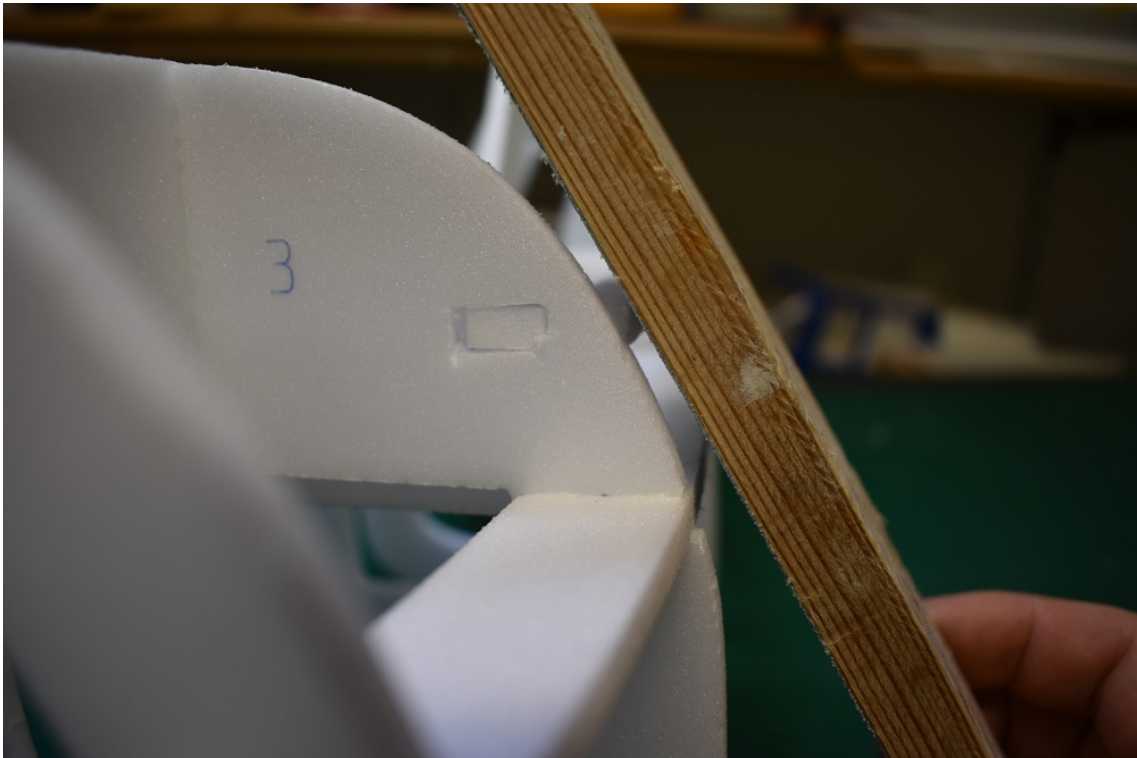
Now the longitudinal stringers R2 can be pushed in sideways, aligned and glued.



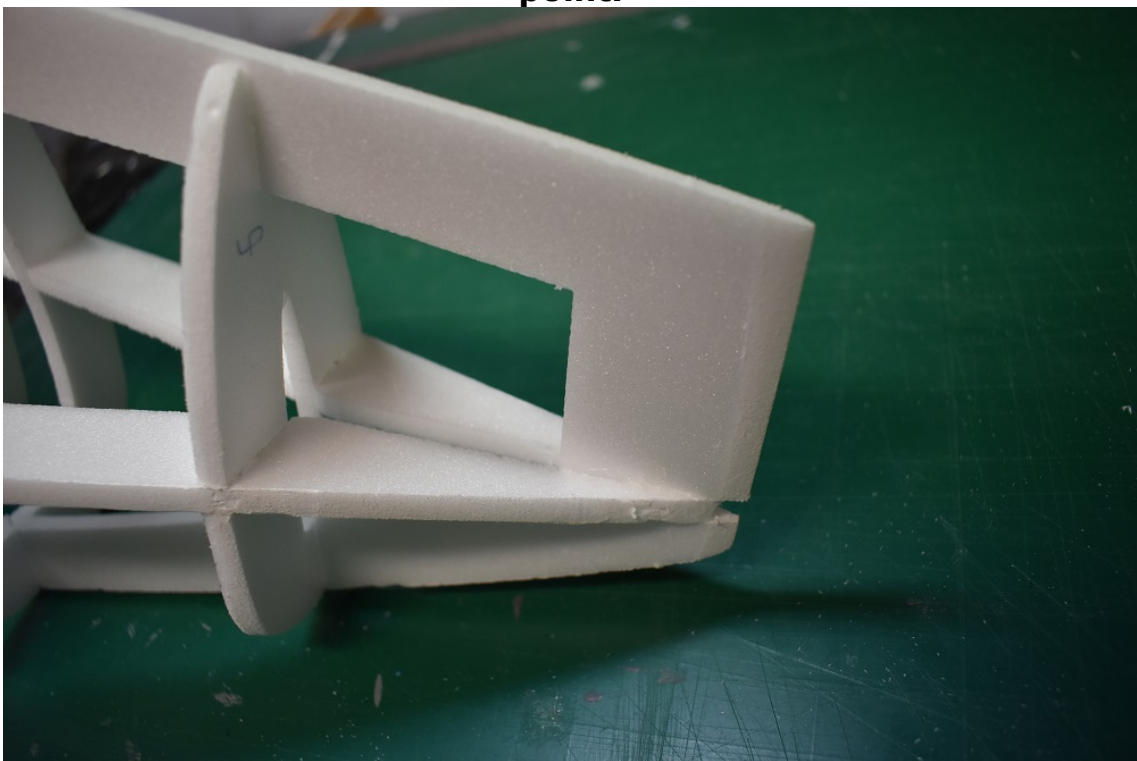
Now insert R3 and R4 according to the drawing and glue them together. The top edge of R4 should be flush with R1.



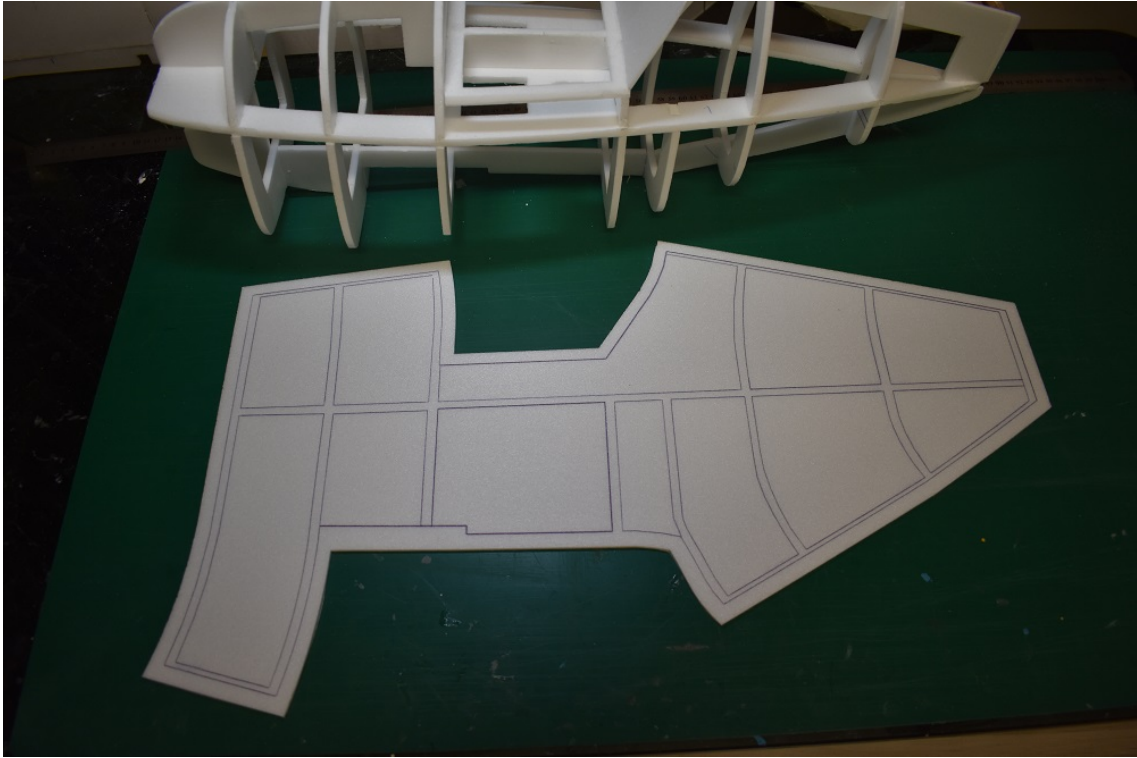
Now sand all components together so that the planking will later lie flat on the joints.



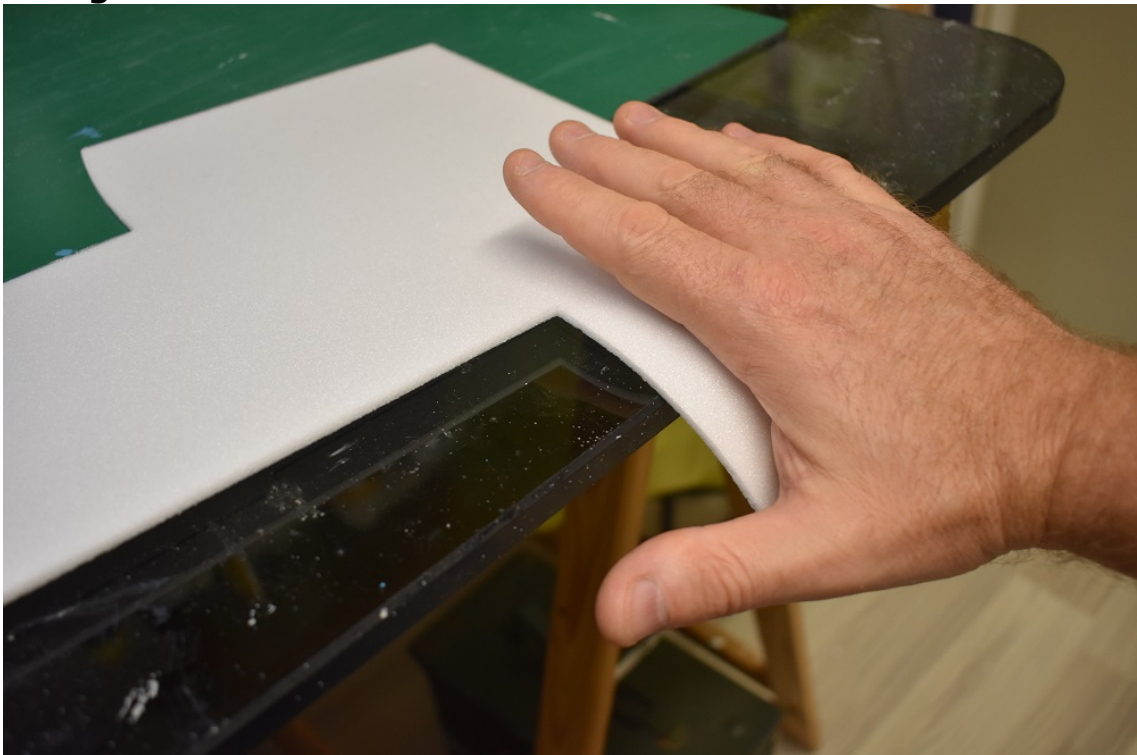
Let the tail run out to a point.



Preparation of the first hull paneling.



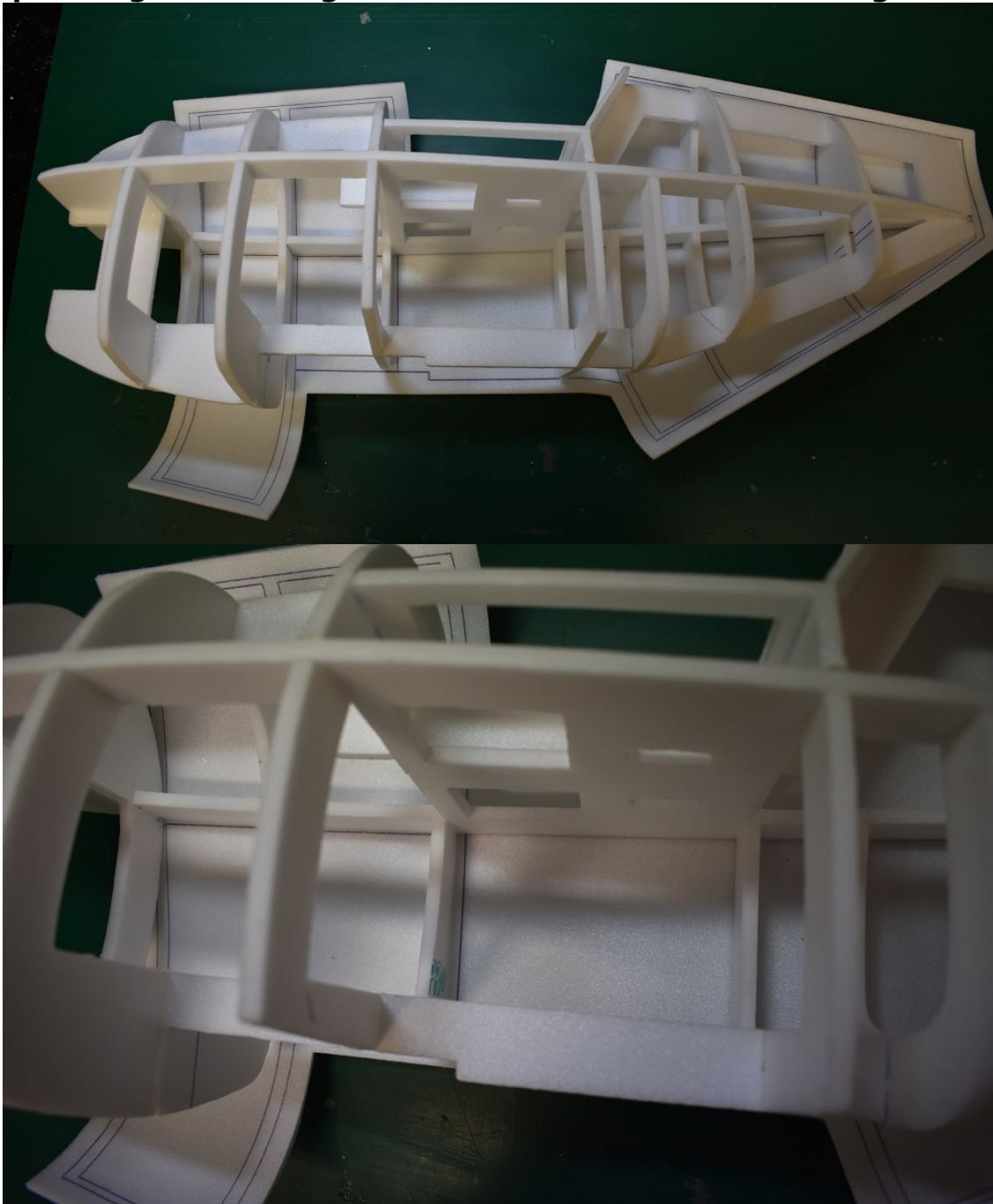
Marking must be inside. Carefully pull the planking over the edge of the table with the ball of your hand until the radius of the trunk is approx. Do not pull immediately with too much pressure so that the Depron does not break. It is best to slowly approach the bending radius.

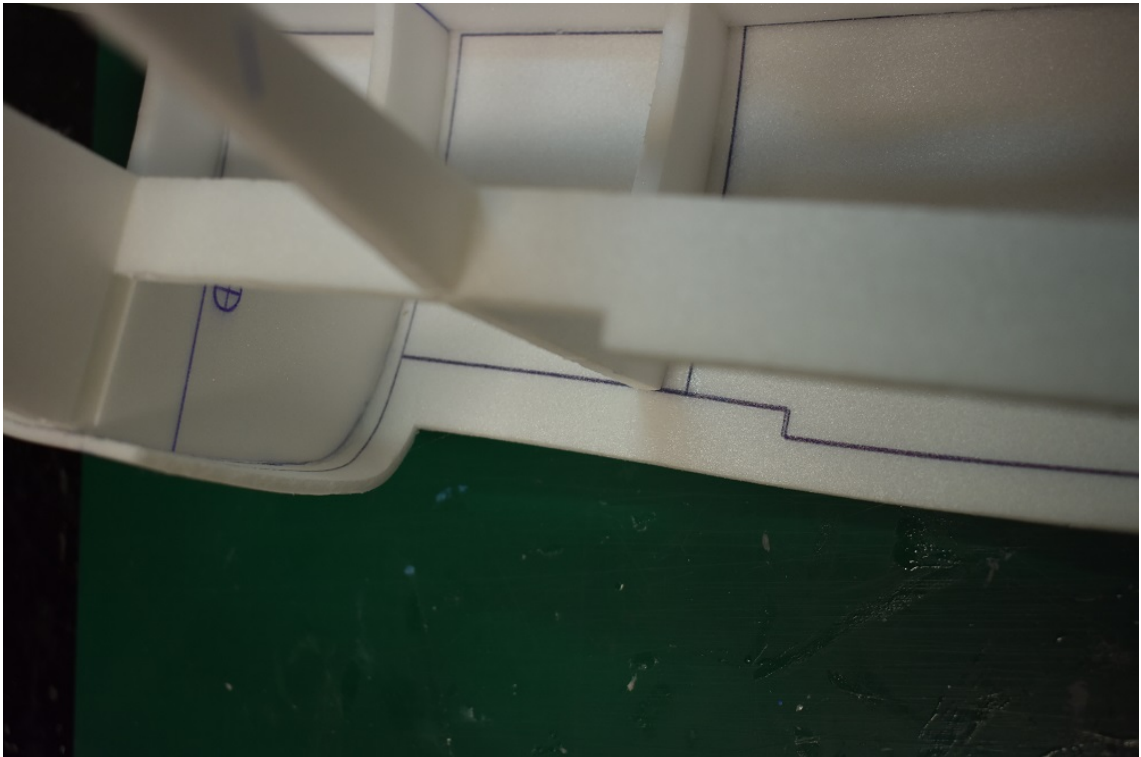
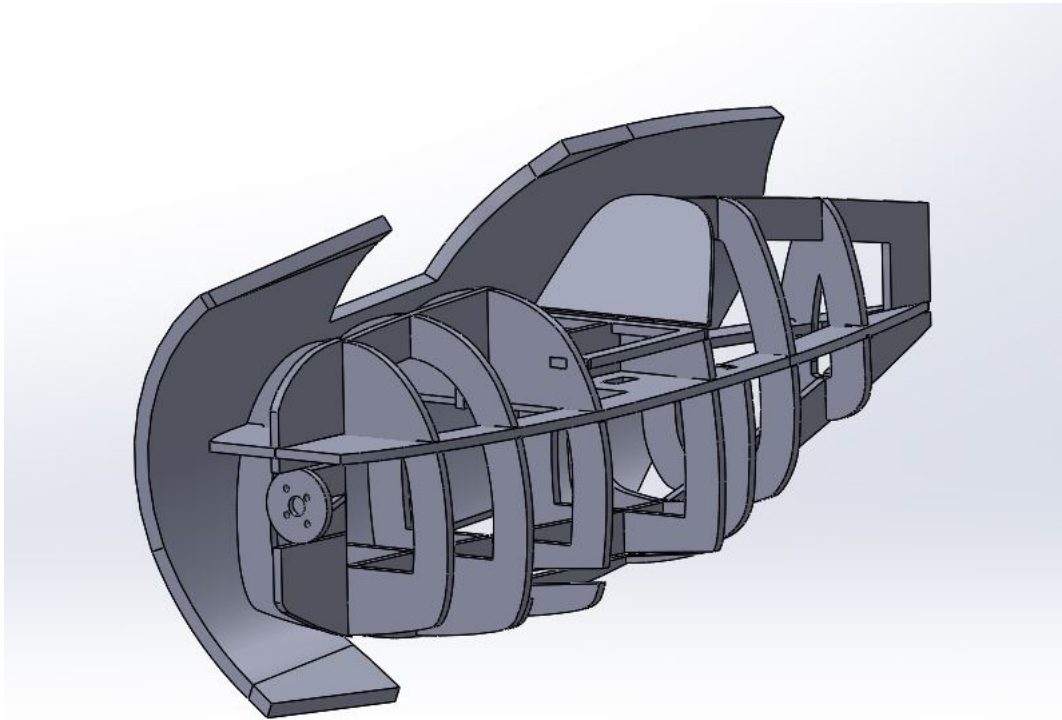


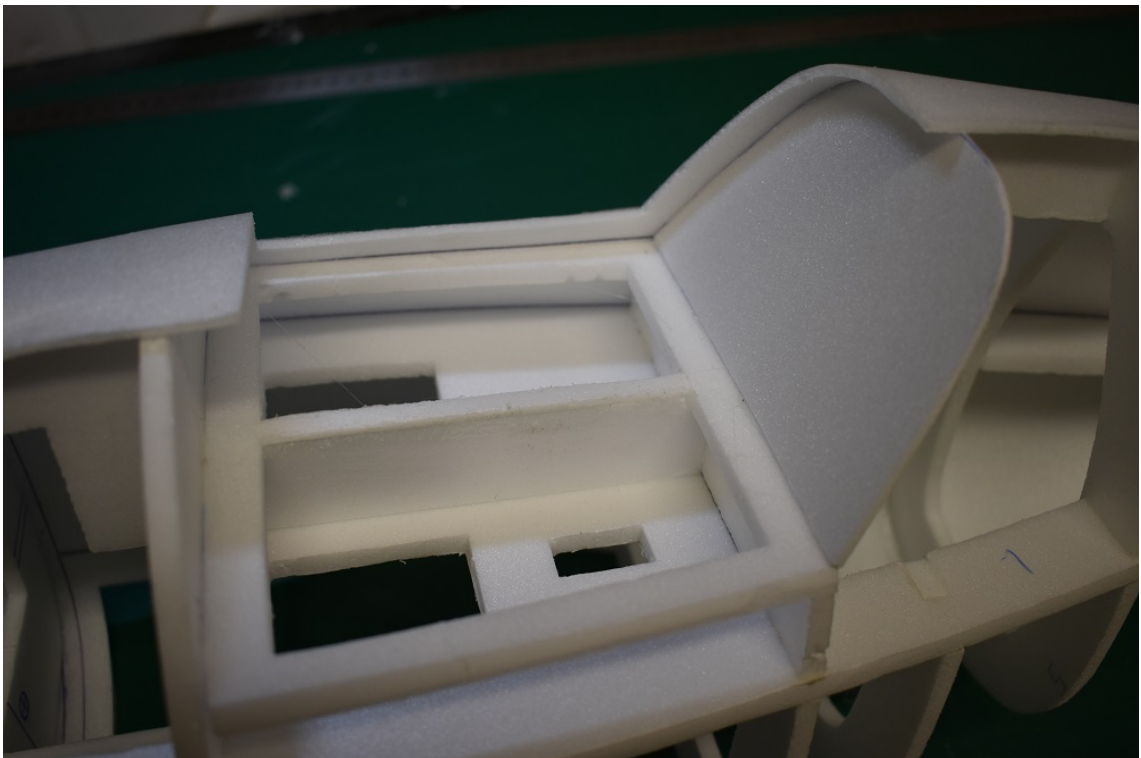
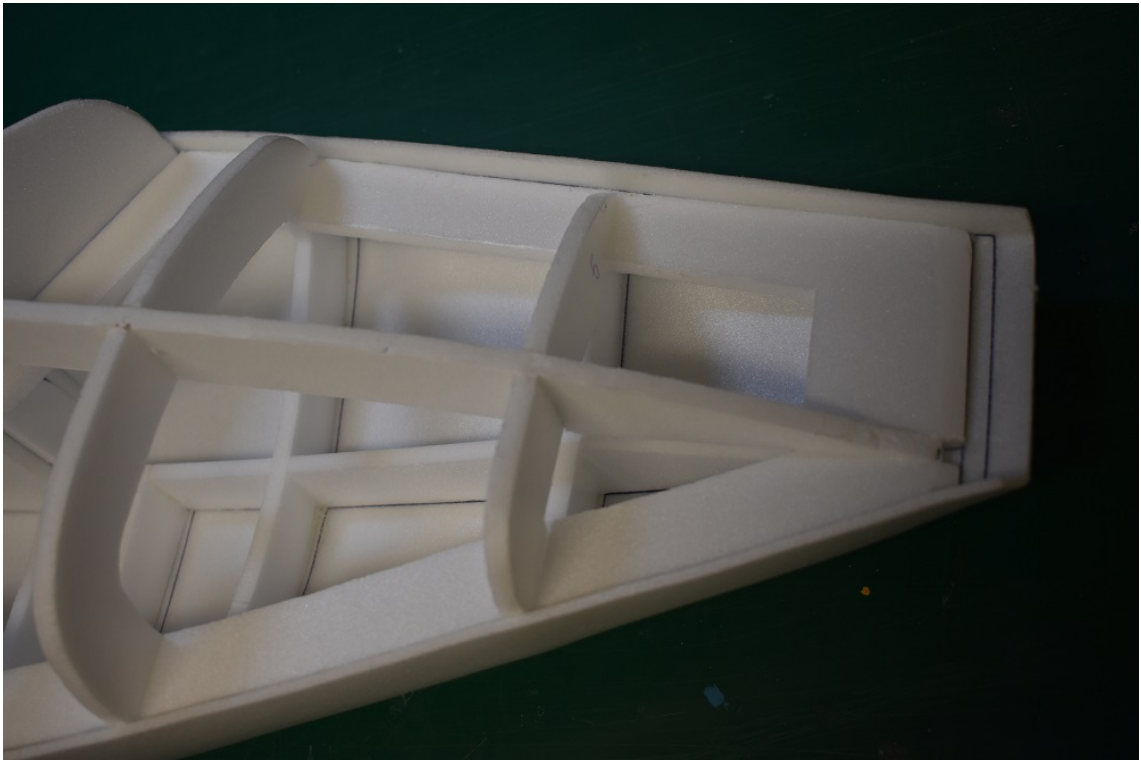
The planking should be pre-milled as far as:



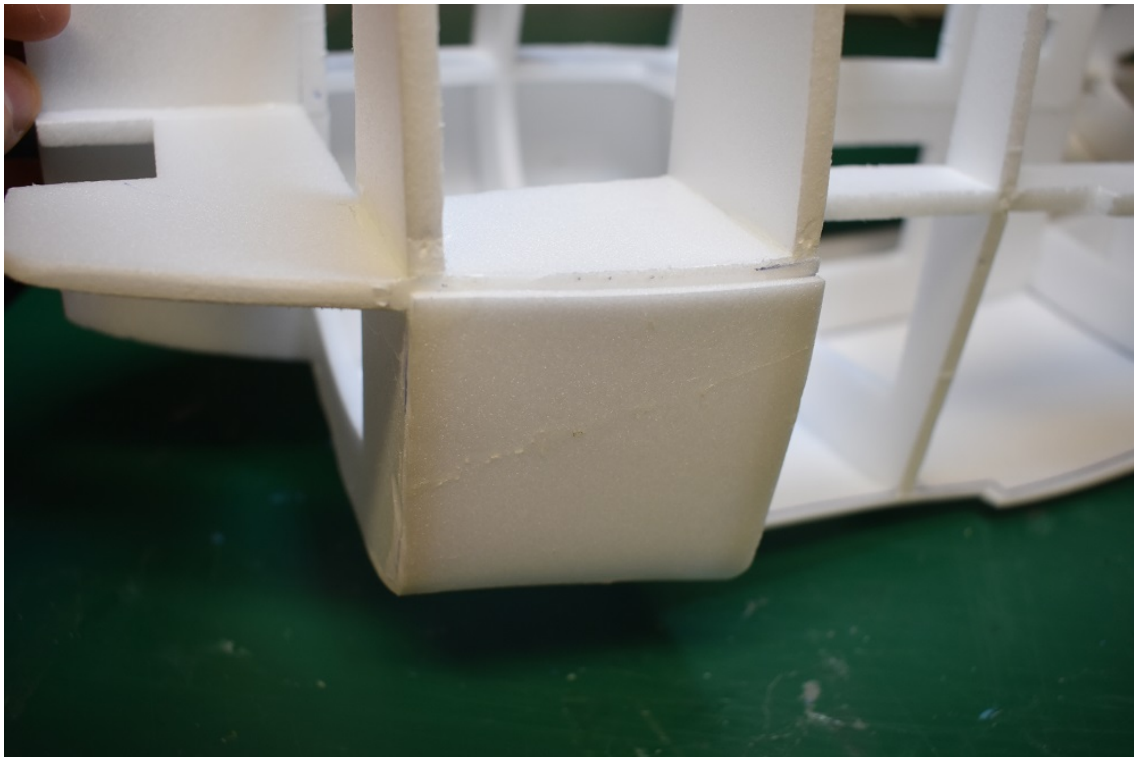
Place the fuselage in the sheeting. The marking of the adhesive surfaces is an orientation, the material overhang does not allow the planking to be perfectly aligned. Excess material is trimmed later. The bonding can be done with z-b. UHU POR take place. To do this, coat both components, place baking paper between them (UHU POR does not stick together), align the body and pull out the baking paper piece by piece. The bonding can of course be done in stages, also with other adhesives. The planking should be glued over the middle of the fuselage.



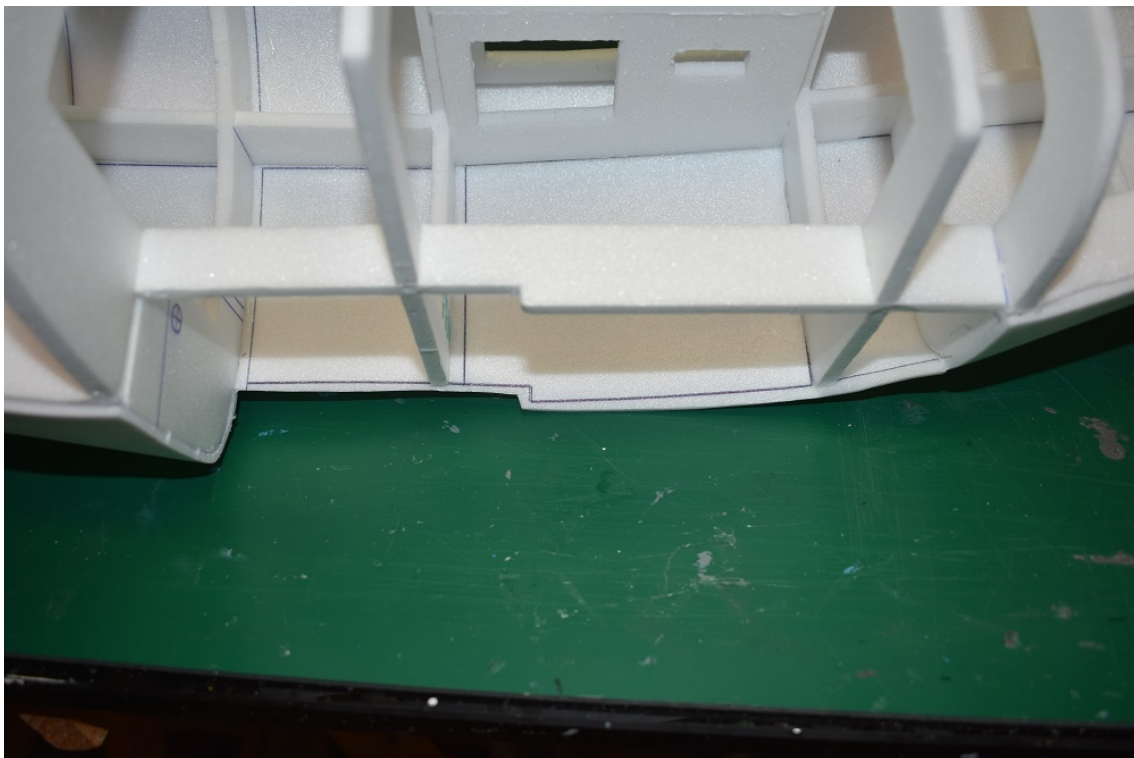




Cut off the excess material up to the middle of R1

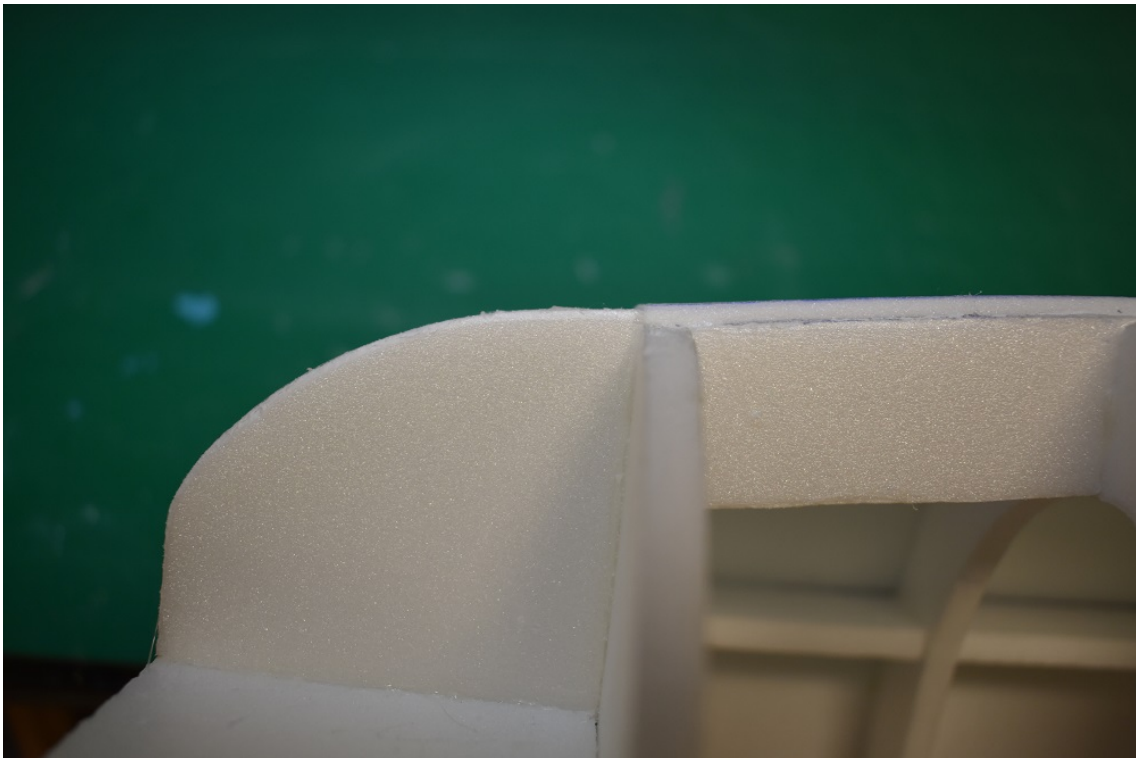


Carefully cut off the area of the wing. To do this, lay the wing on several times until the cladding on the wing is separated without gaps.





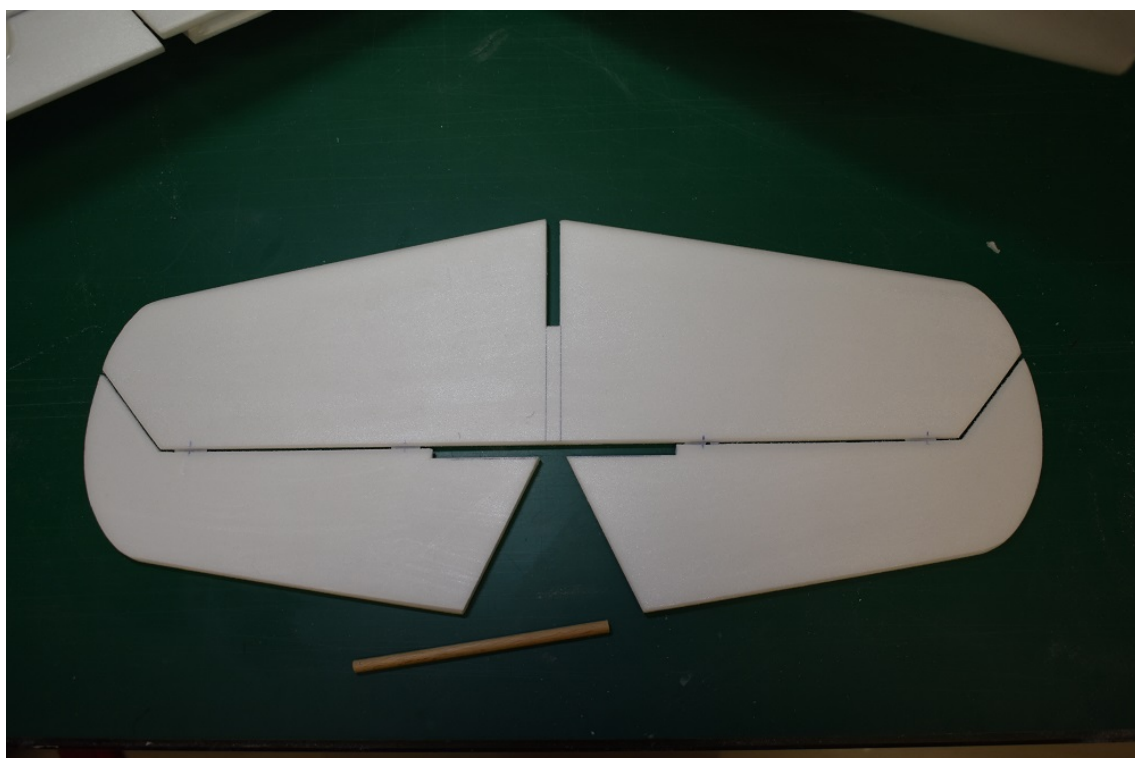
The cladding can be cut off by connecting the front edge S1. The planking now ends with R1 bow.



Place the hull reinforcement R6 flush with the planking. In the rear area, R6 must be sanded a little until it rests against the planking. If the shape of the planking did not run optimally, the course can be adjusted during the gluing process until it has hardened.

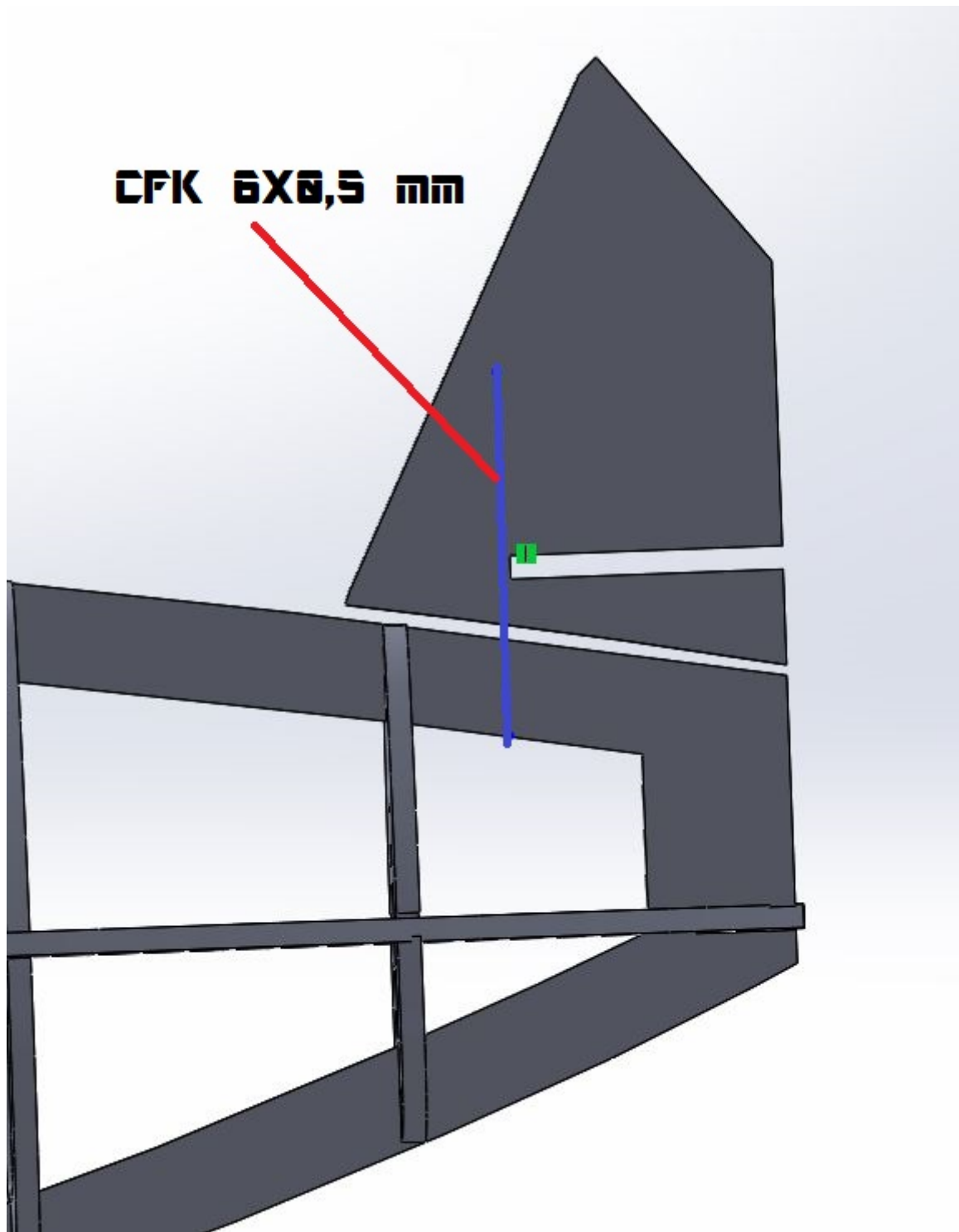


Now that the servos and Bowden cables for rudder / elevator are used, prepare the rudder & elevator unit. The tailplane can be completely prepared. Insert a 6 mm piece of pine wood as a rudder connection, insert the hinges.



Just prepare the rudder, don't glue the rudder yet!

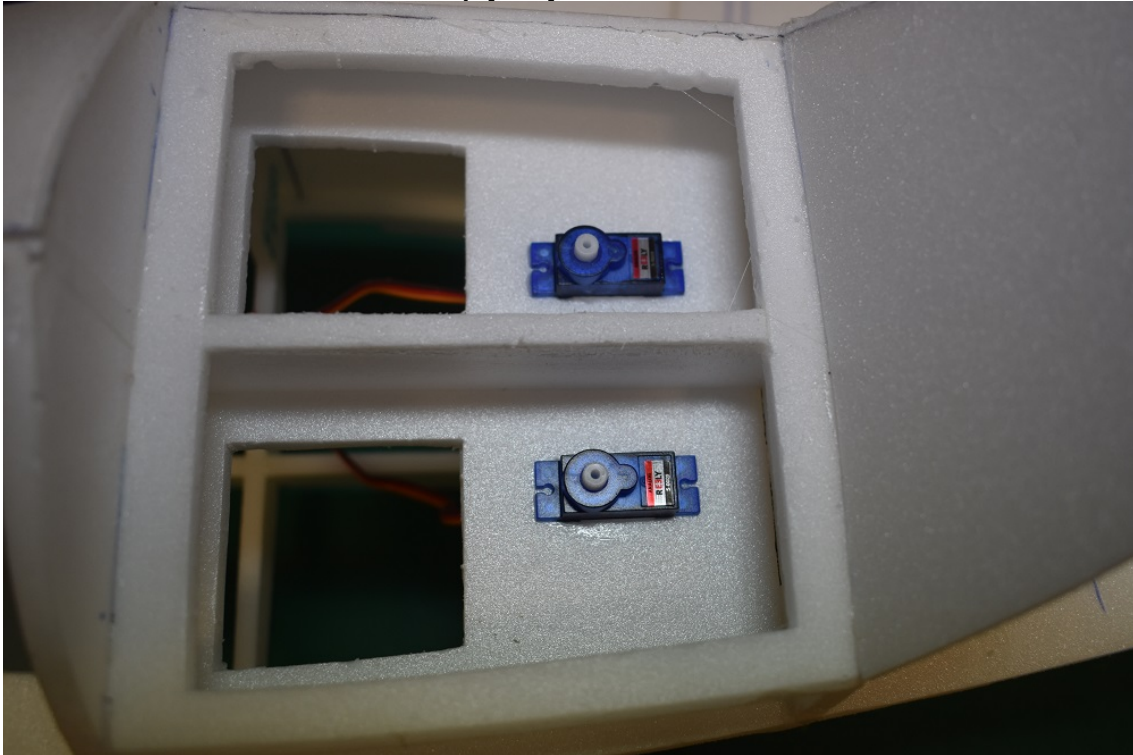




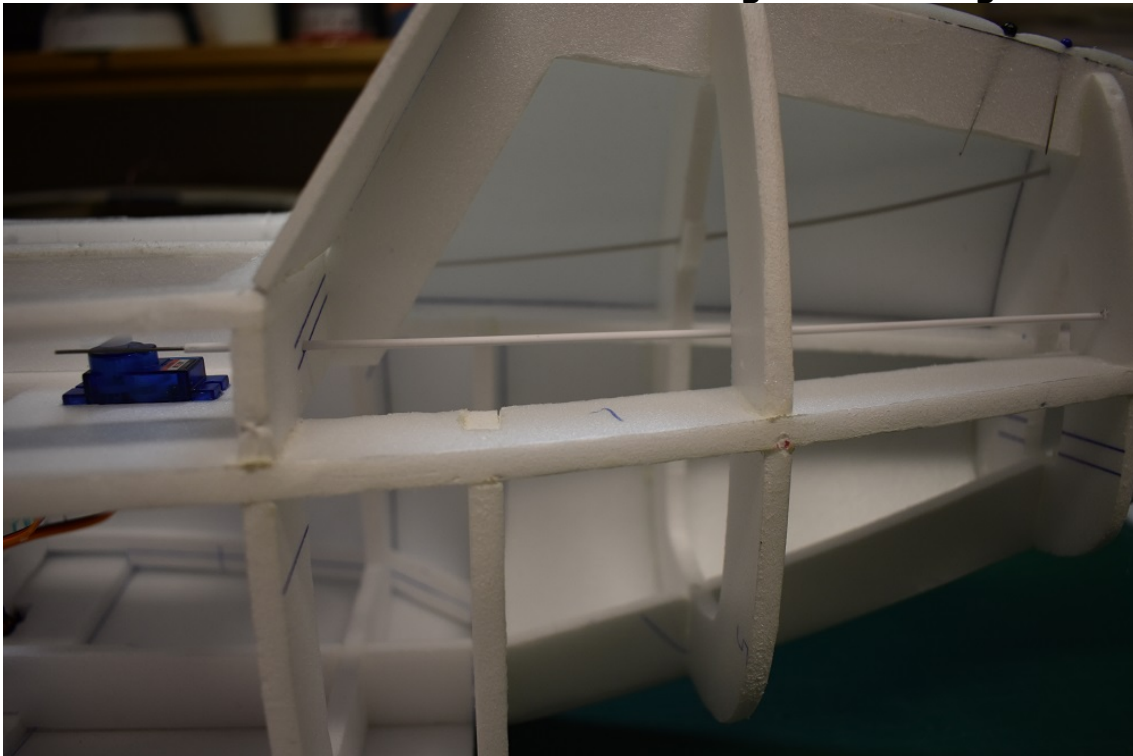
To stiffen a carbon flat bar 6X05 mm insert into the fuselage and glue it perpendicularly. Prepare the gap in the vertical stabilizer. Put everything together for control (including the tailplane). Check whether both rudders have enough space for max. Rudder deflection.



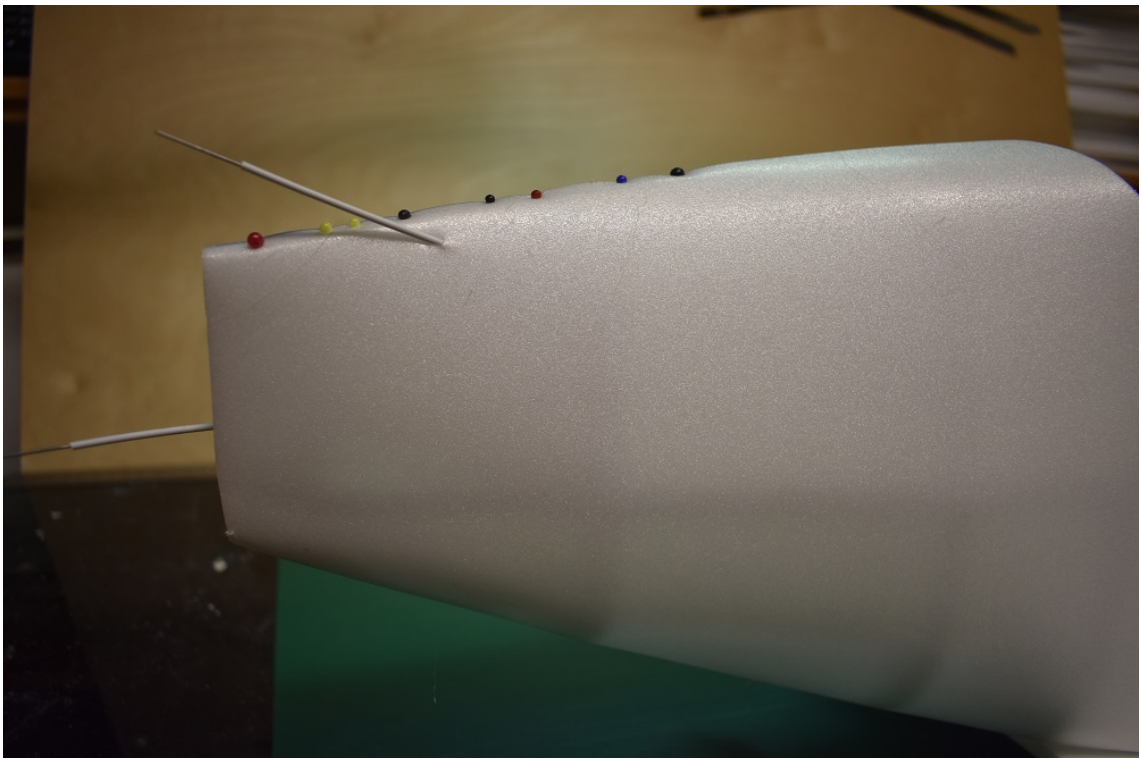
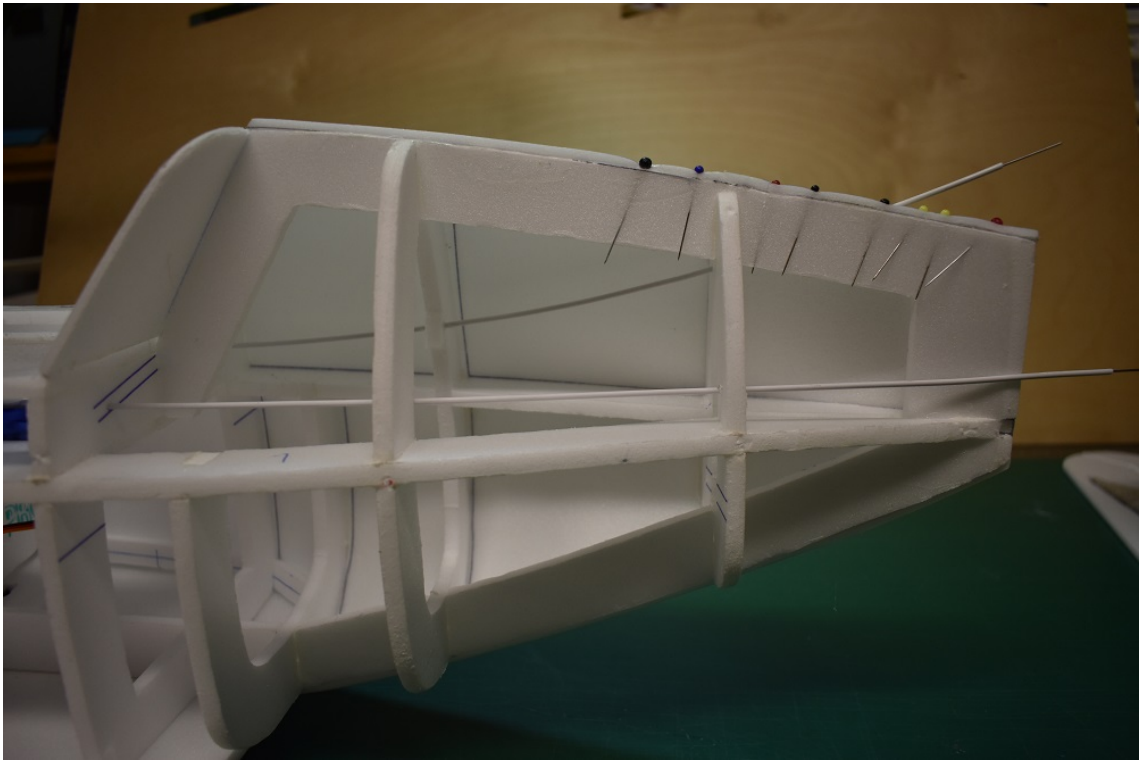
Insert servos, prepare Bowden cables.

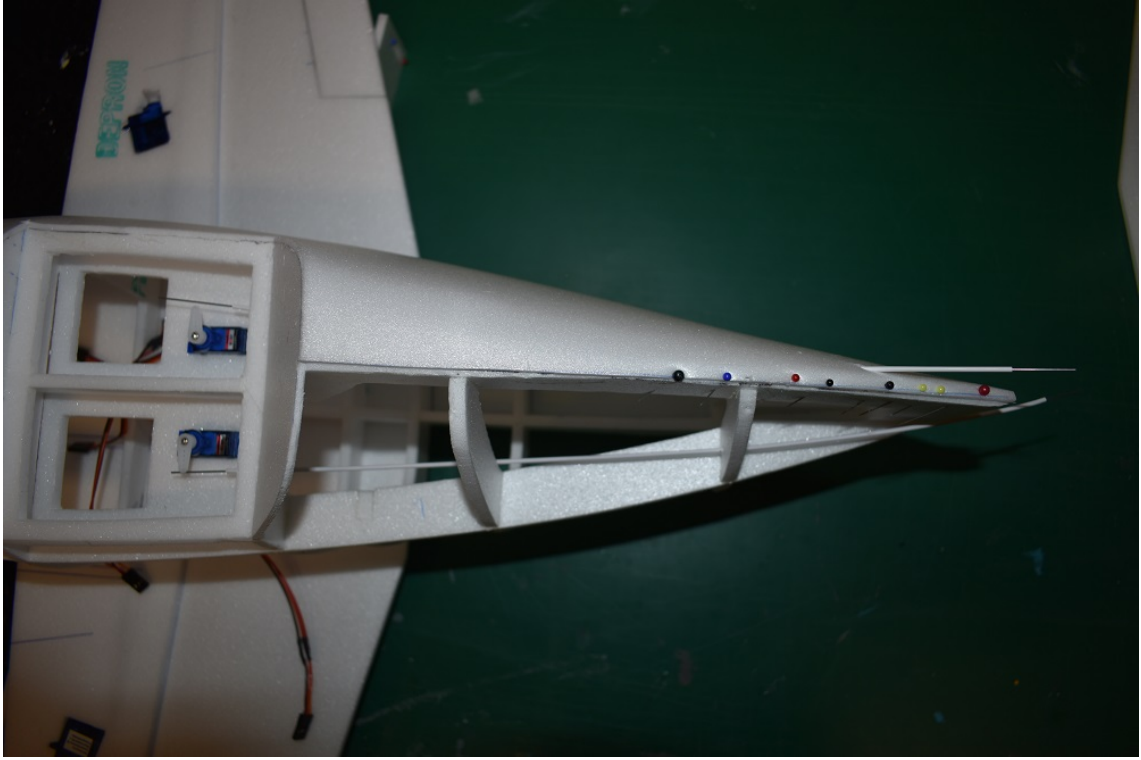


Course of the Bowden cables through the fuselage.

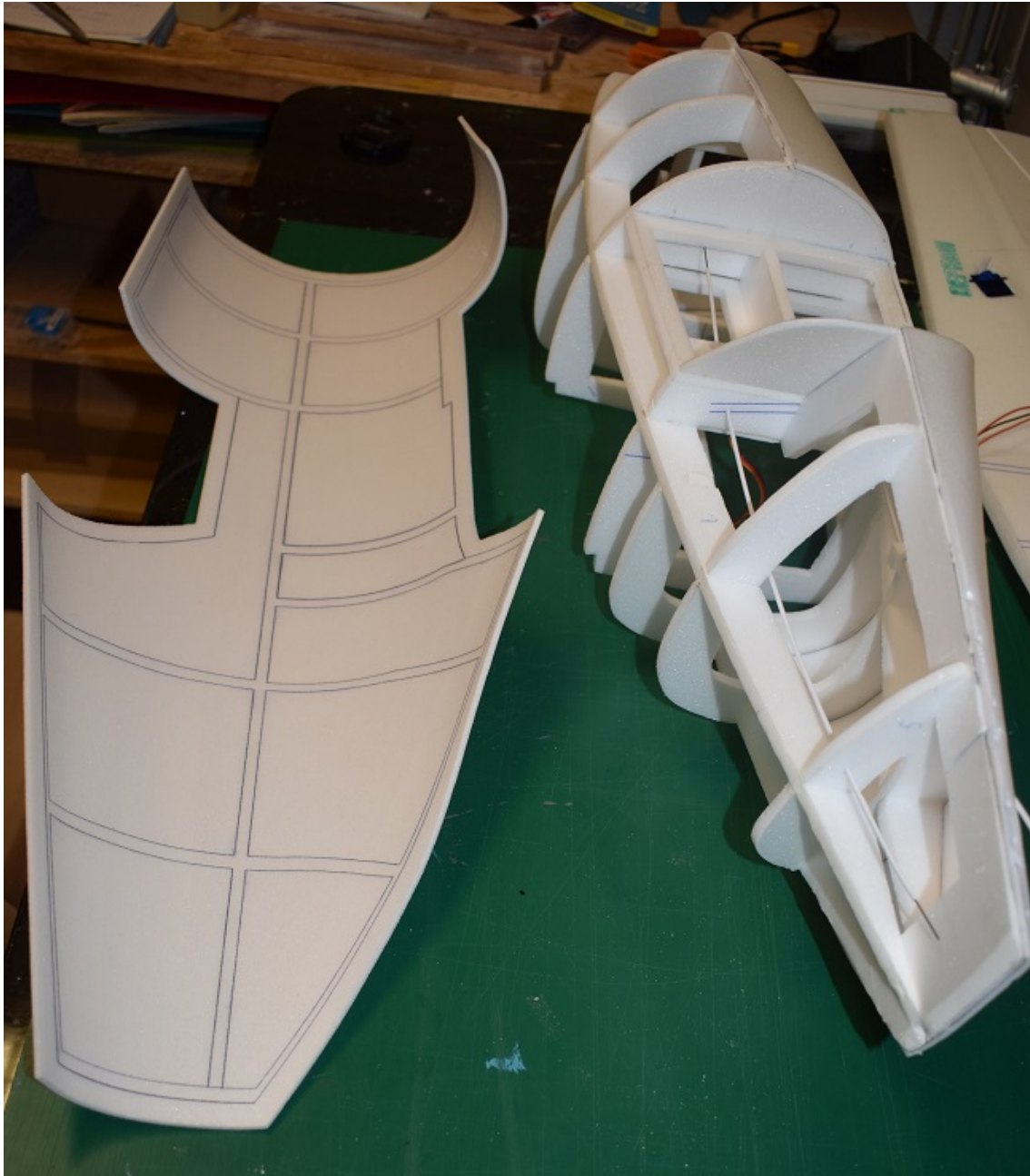


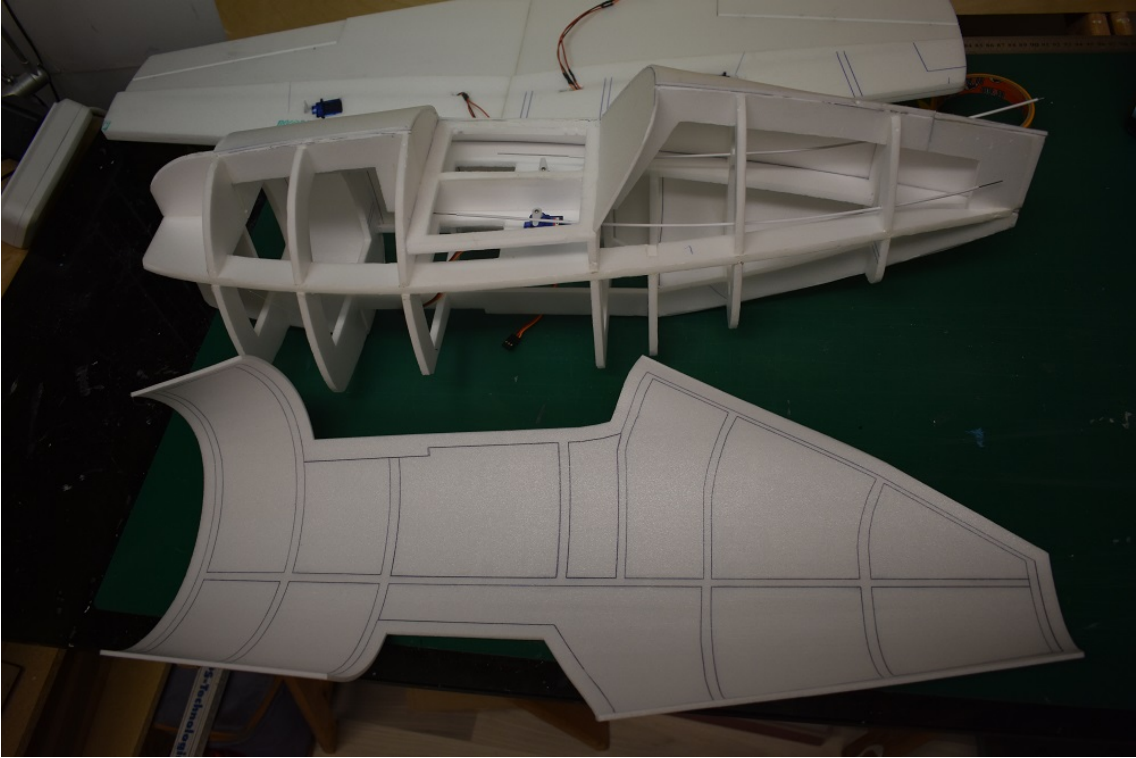
The position at which the Bowden cables should run out of the fuselage can then be checked with the tail unit attached.



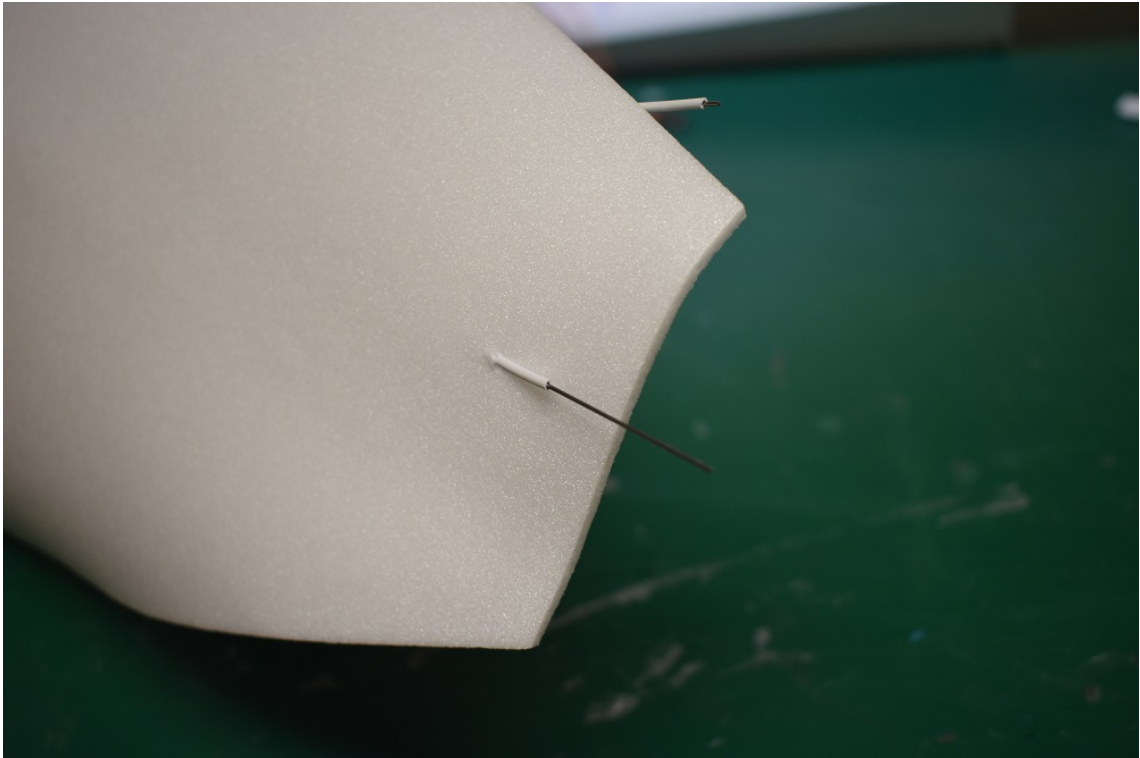


Prepare the second fuselage sheeting for gluing to the fuselage.

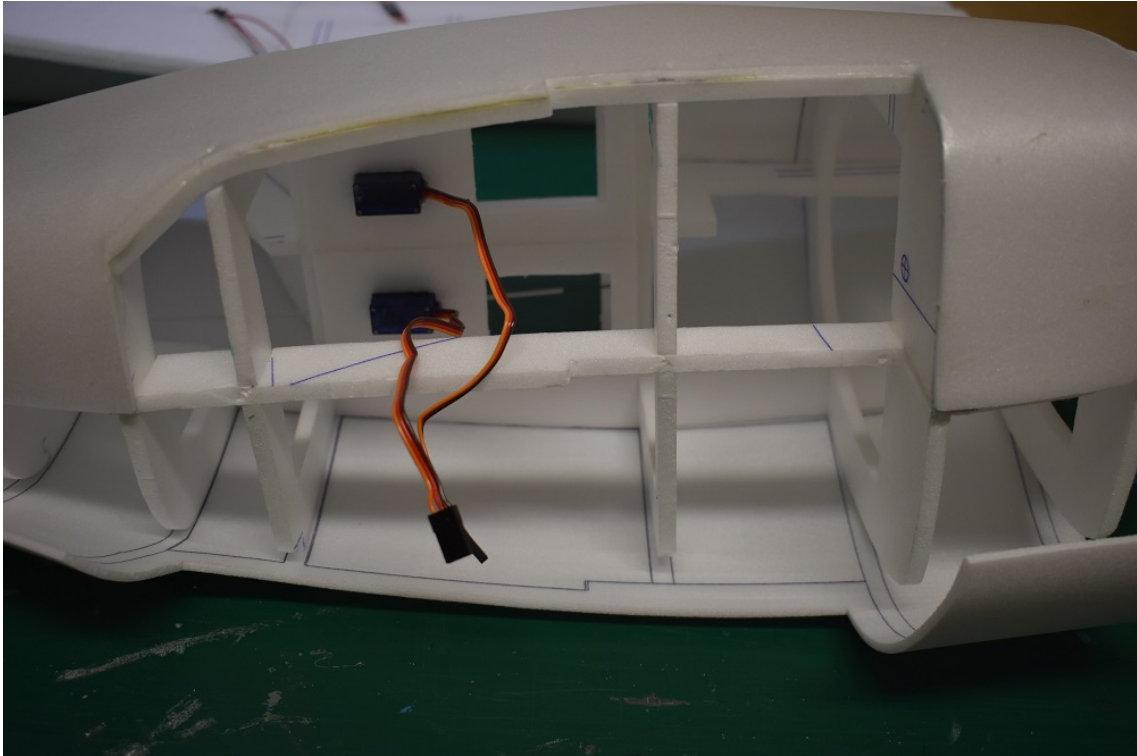


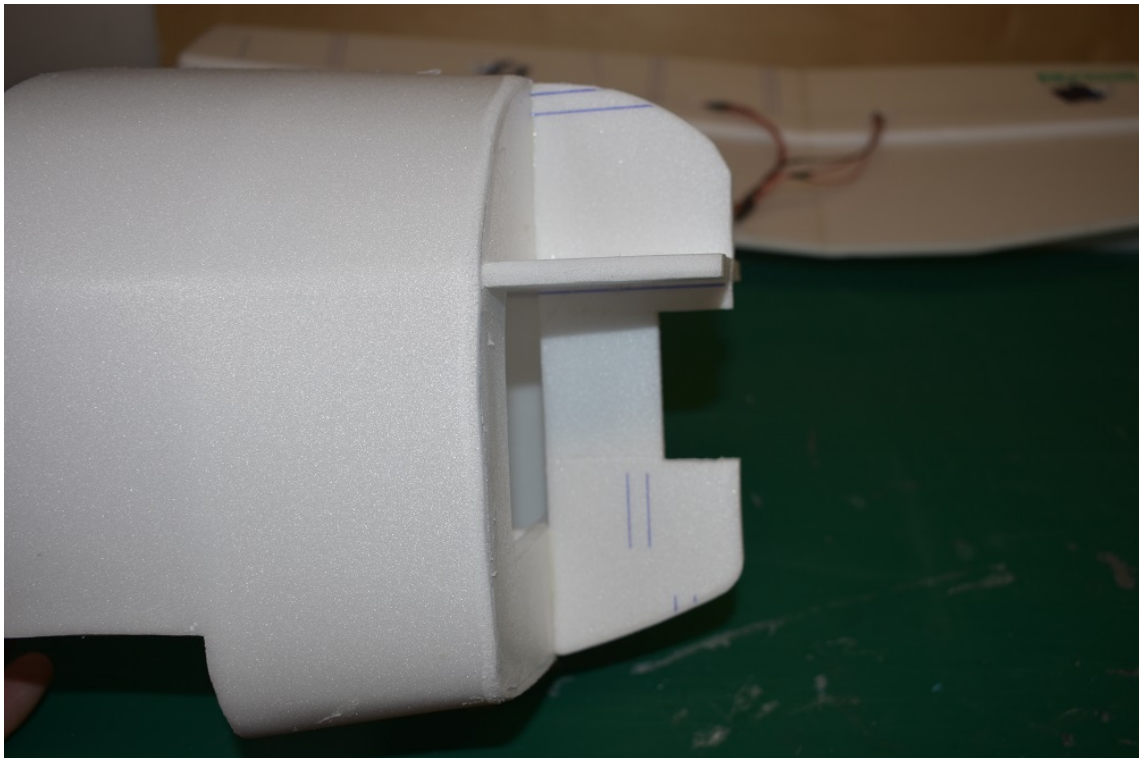
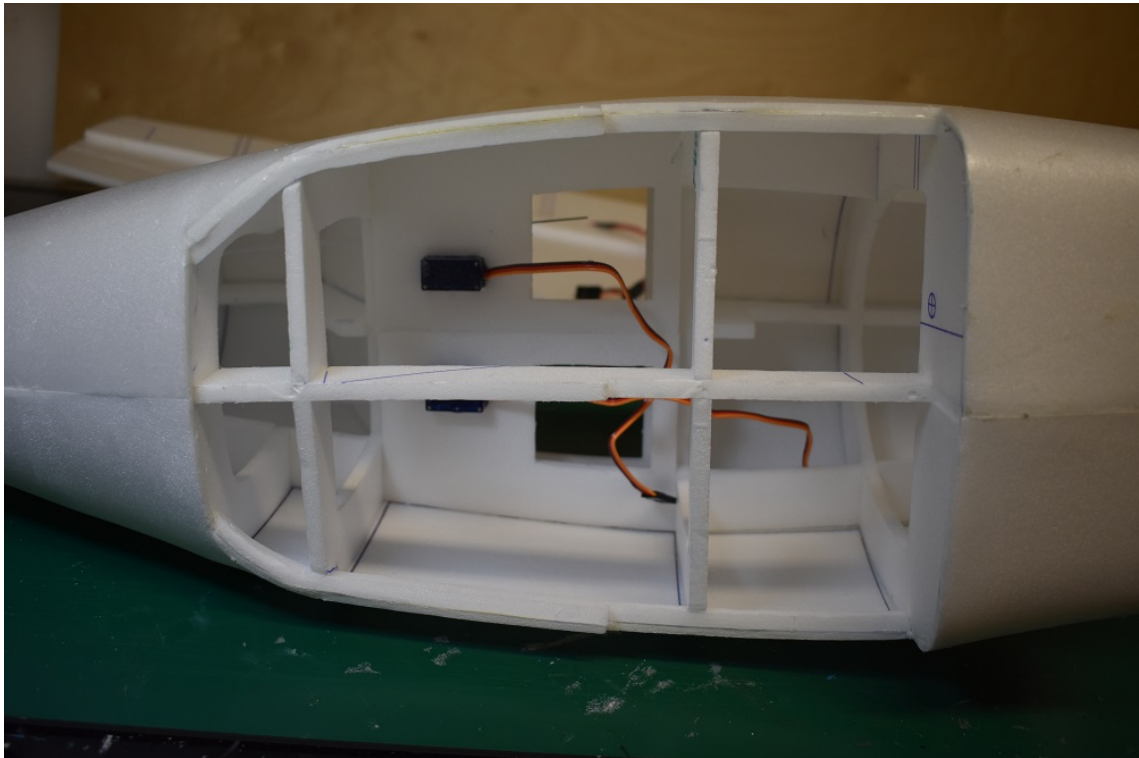


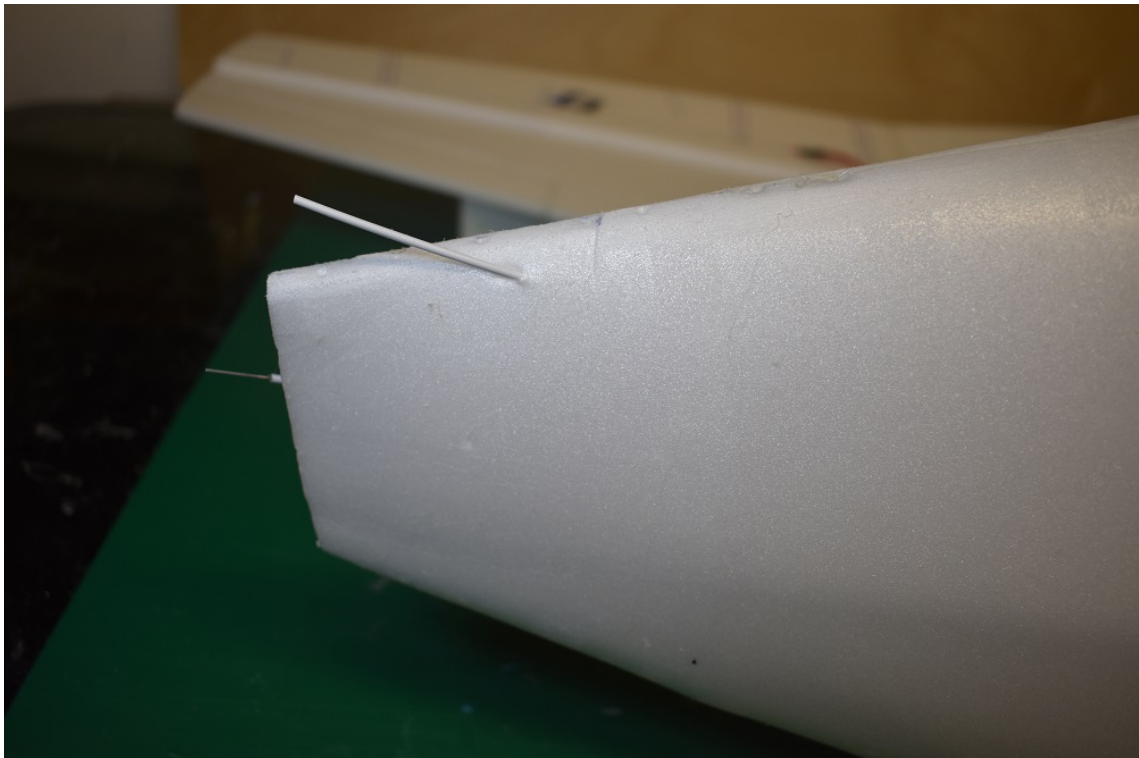
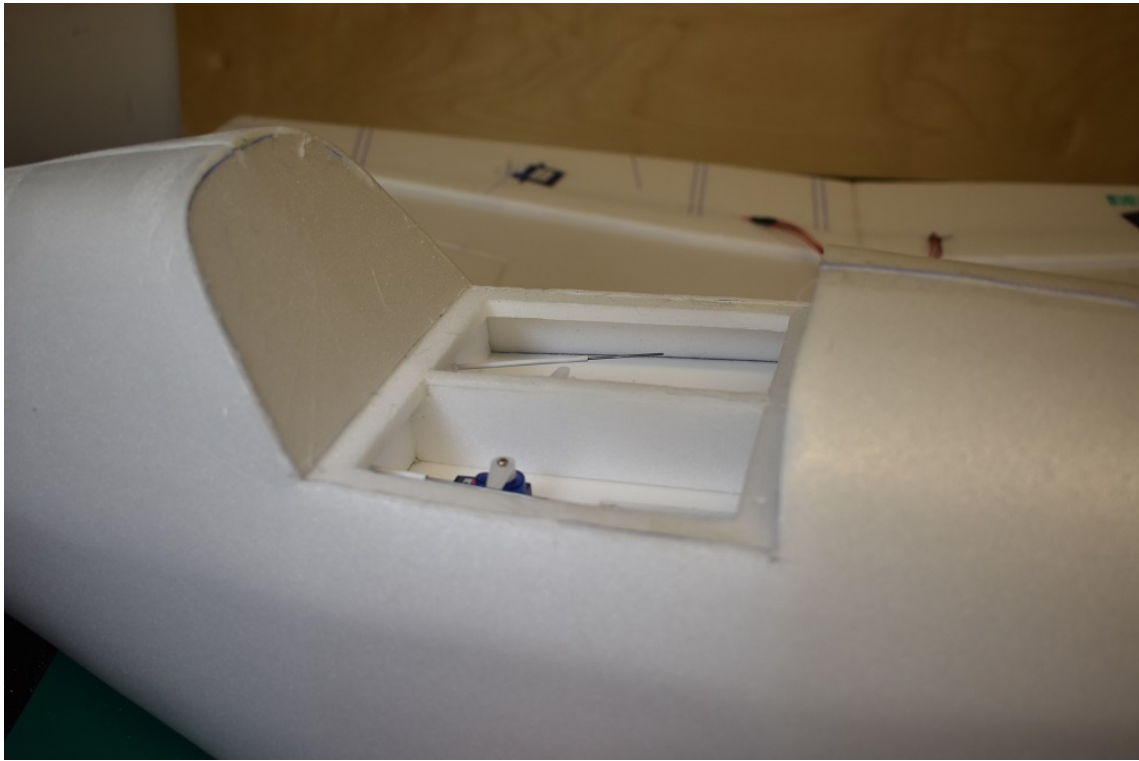
Place the rudder floor pull through the planking before gluing:

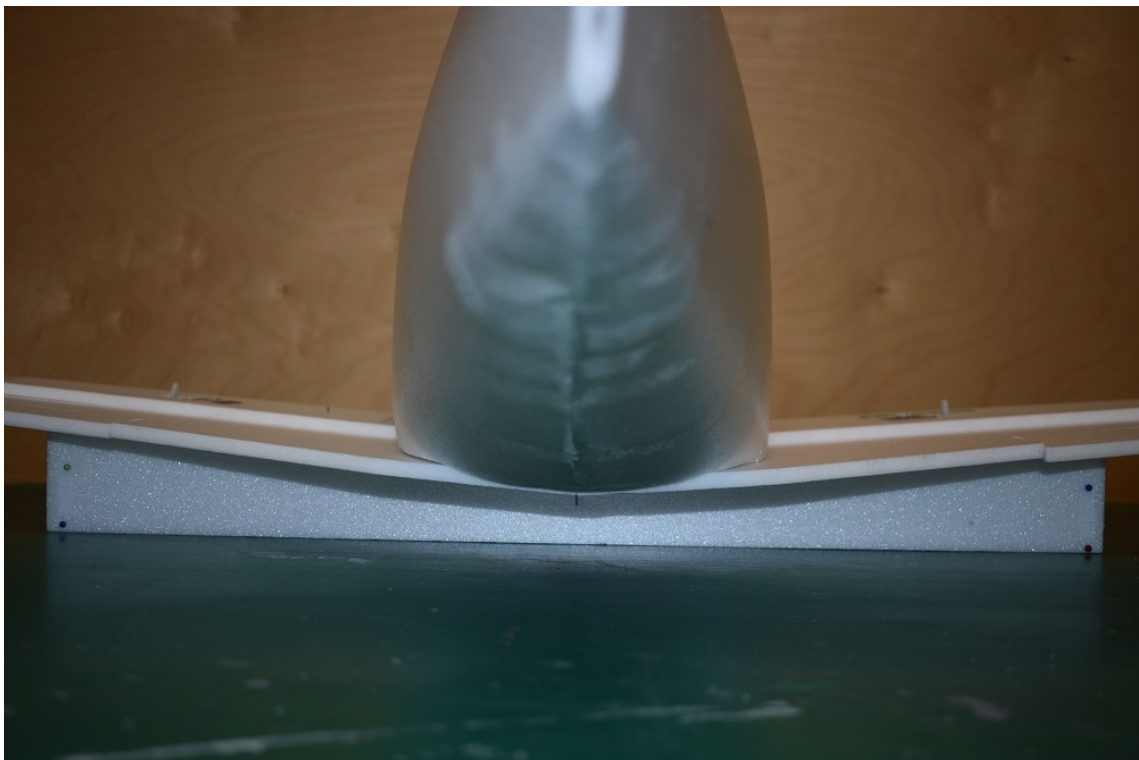
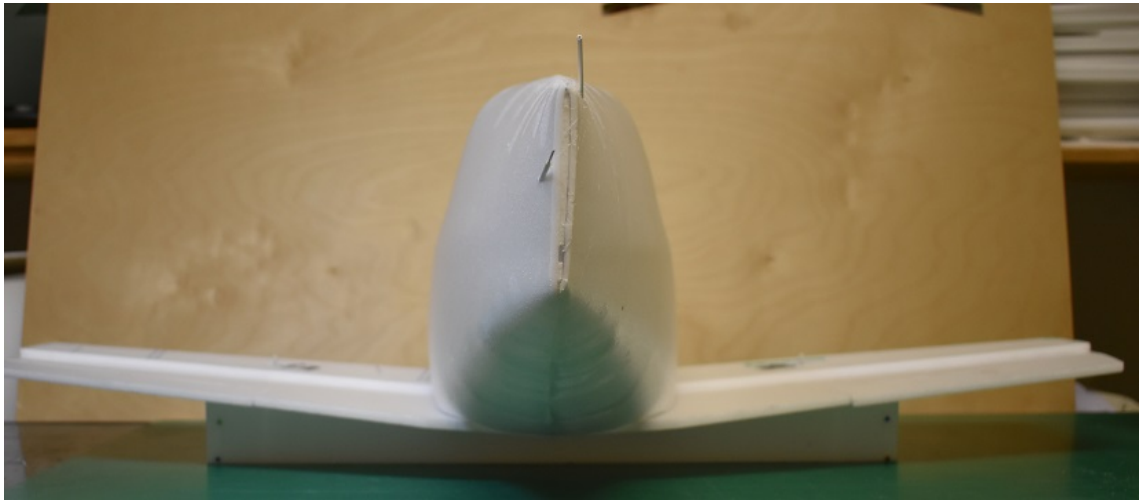


Let the glue joints overlap at the top and bottom and as soon as the cladding sticks over a large area, adapt the cladding to the finished side.





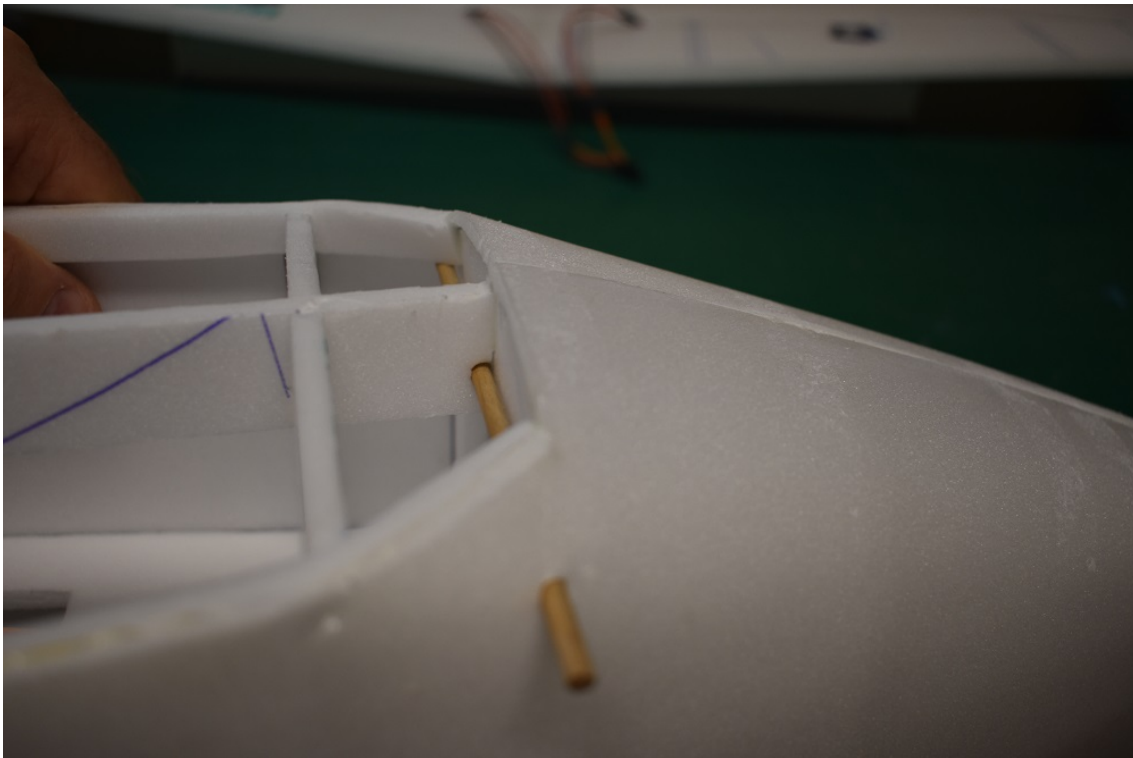
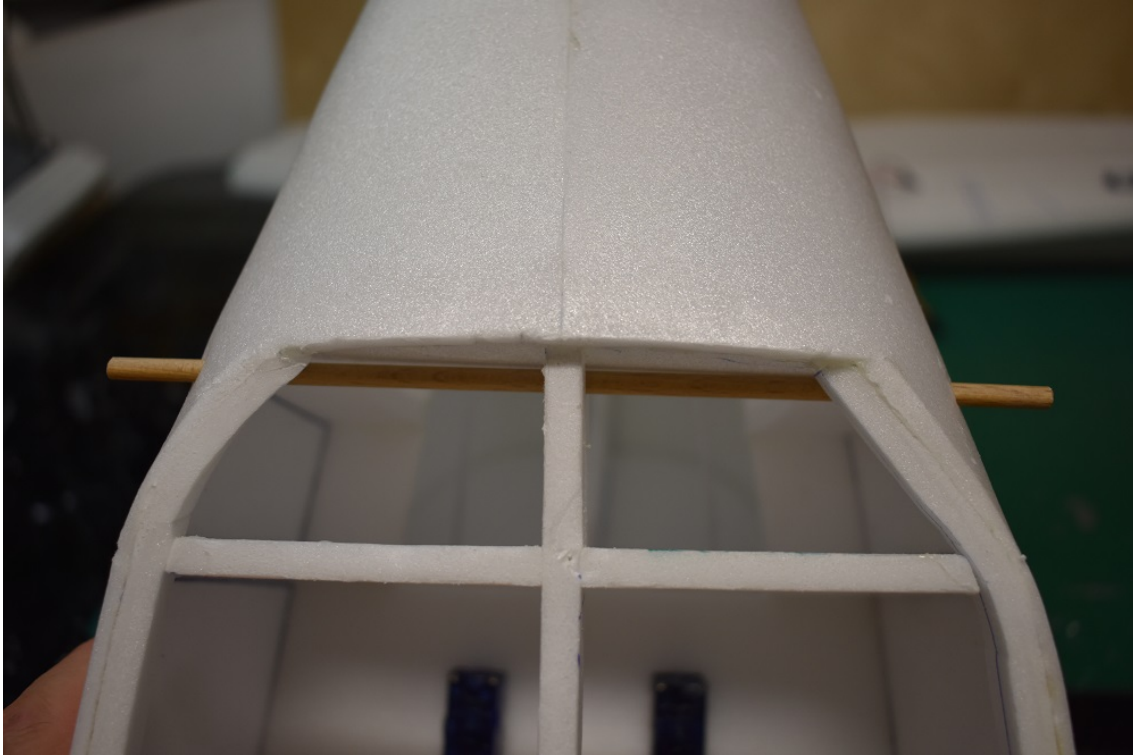


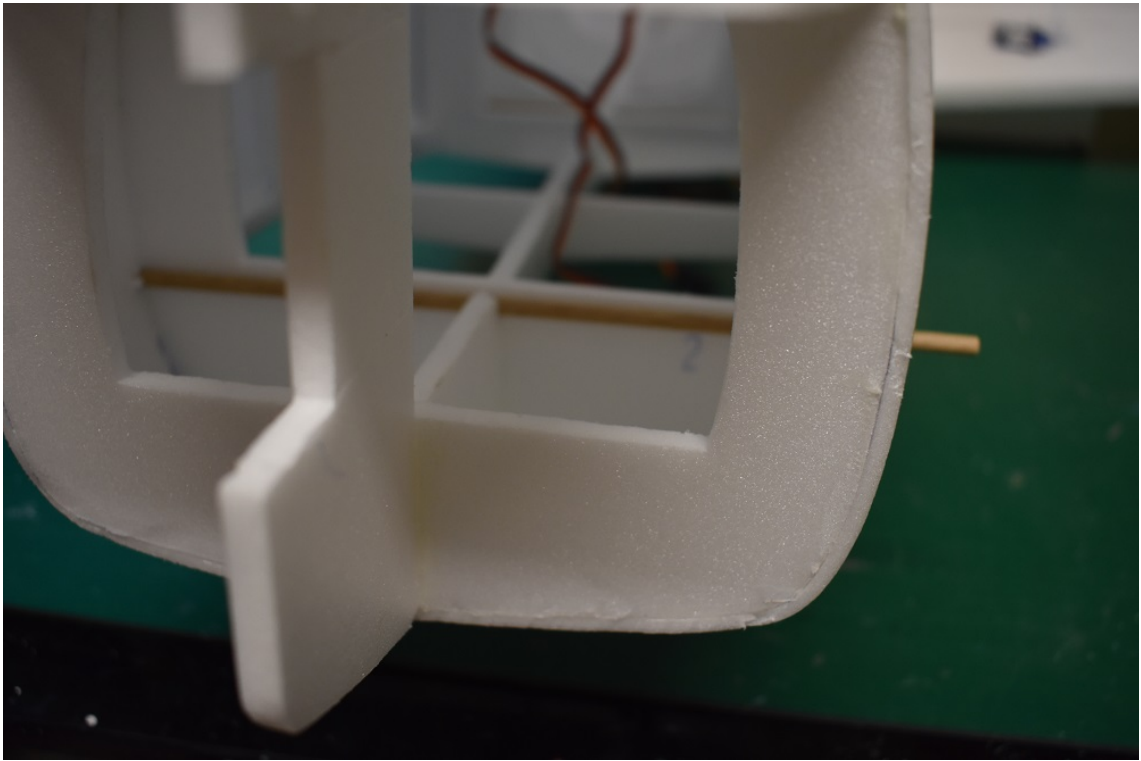


Prepare to attach the wing. There are multiple possibilities.

- **Fixed gluing of the wing to the fuselage.**
- **Wing attachment by means of elastic bands**
- **Wing attachment by means of bolts and plastic screws.**

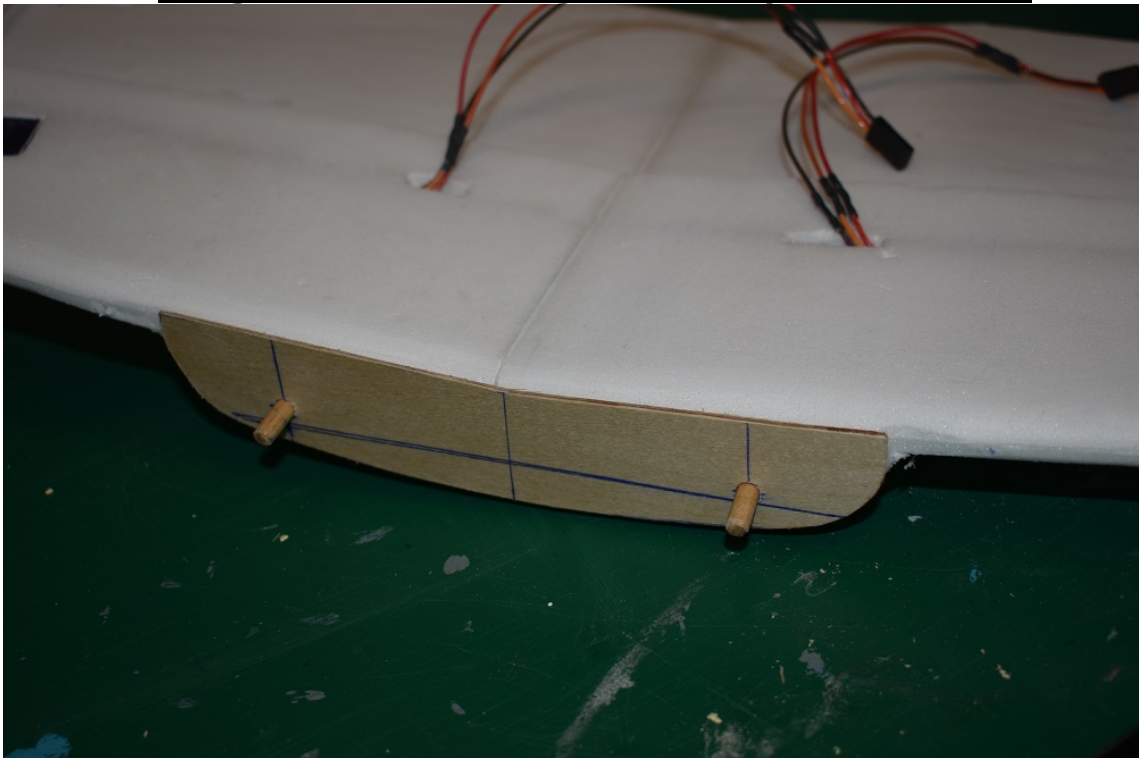
Wing attachment using elastic straps:

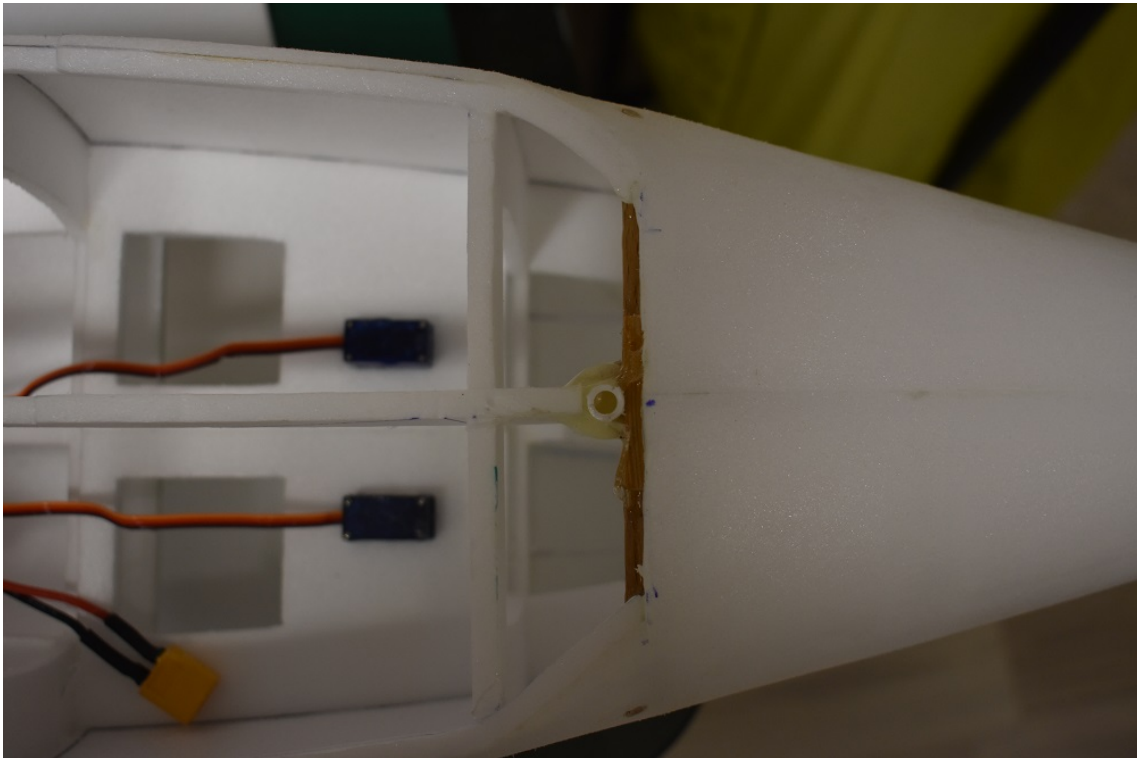






Wing attachment using bolts and plastic screws:

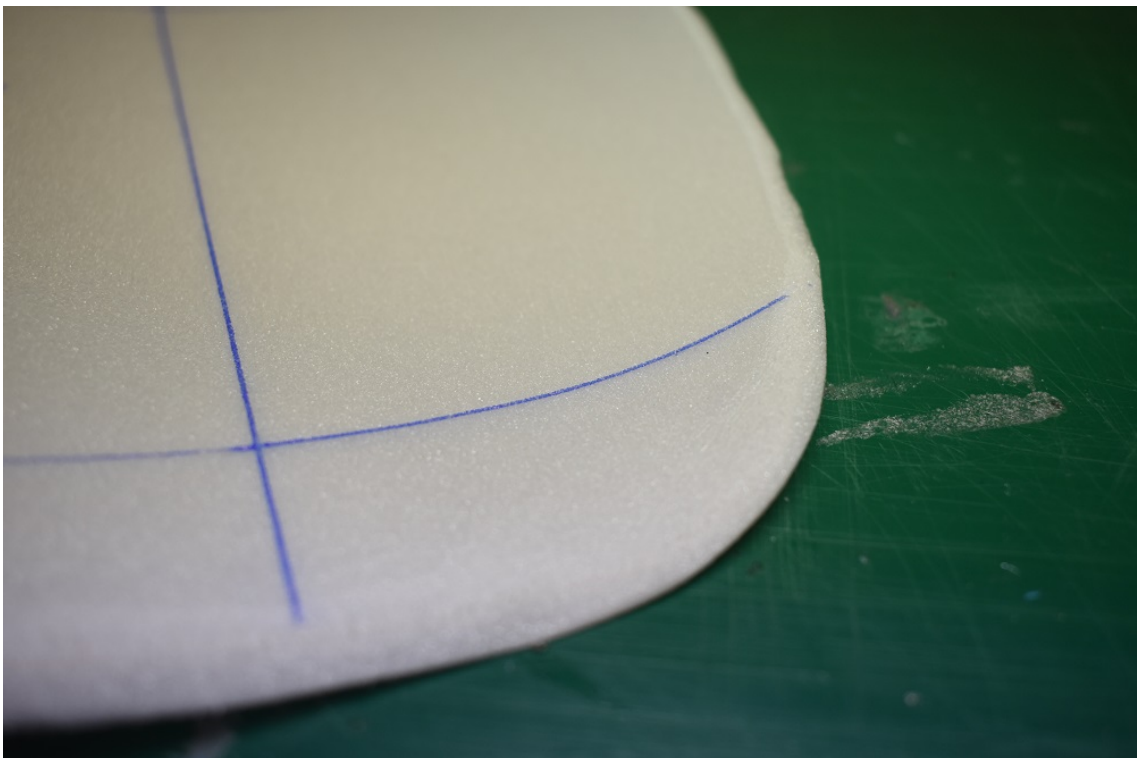
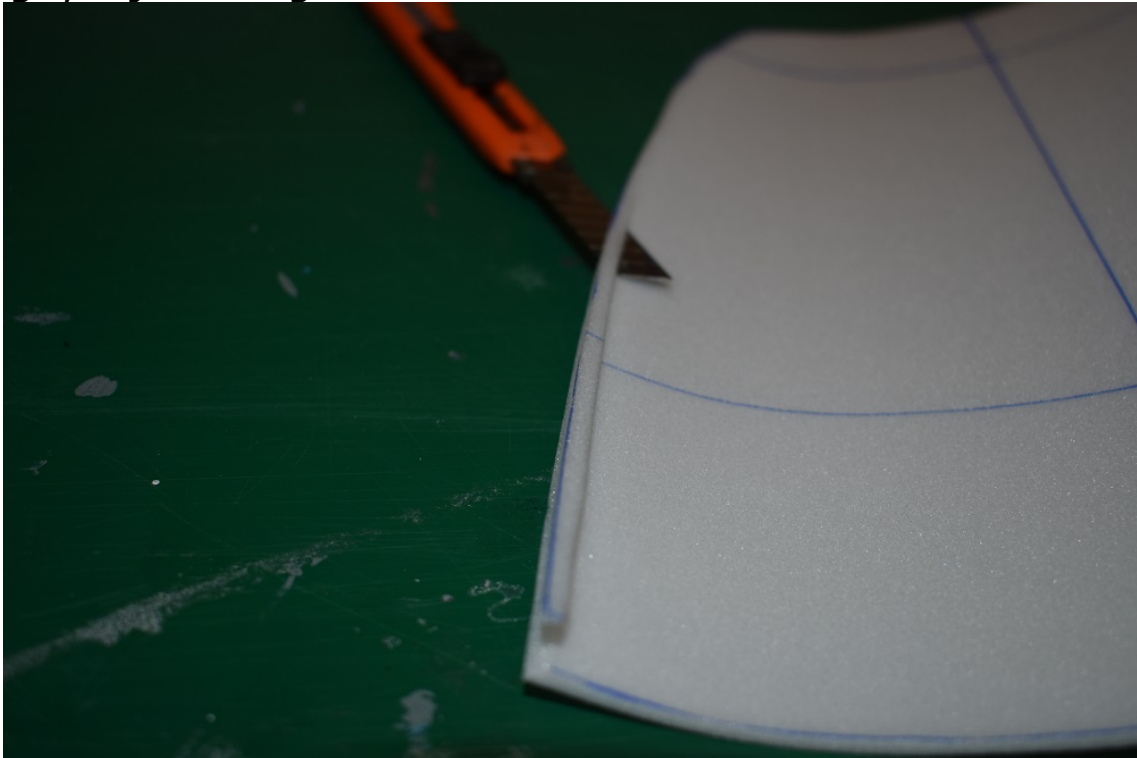


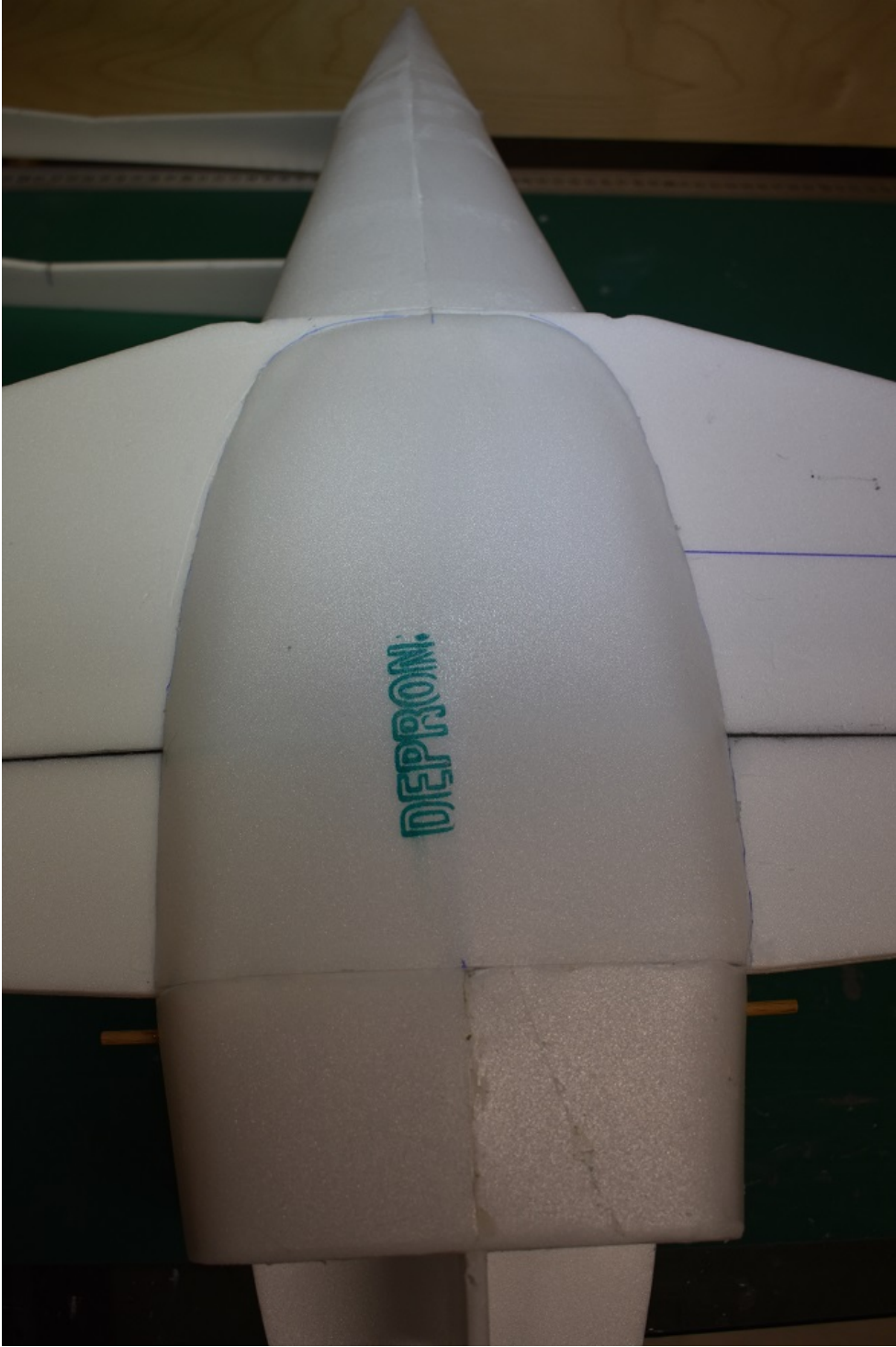


**For each variant, attach and align the wing.
Lay frames S2a to S4a with R1a in the middle of the wing.**

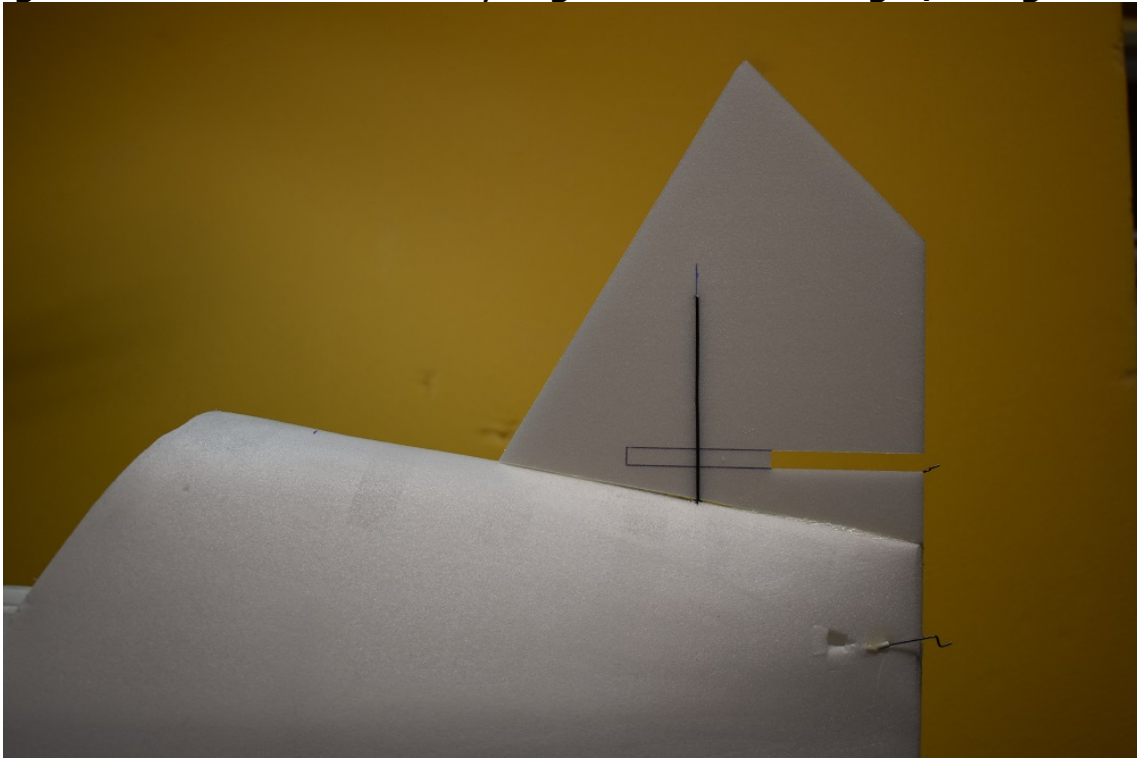


Pre-bend the planking. Sand / cut the adhesive surface at an angle, adjust and glue it.

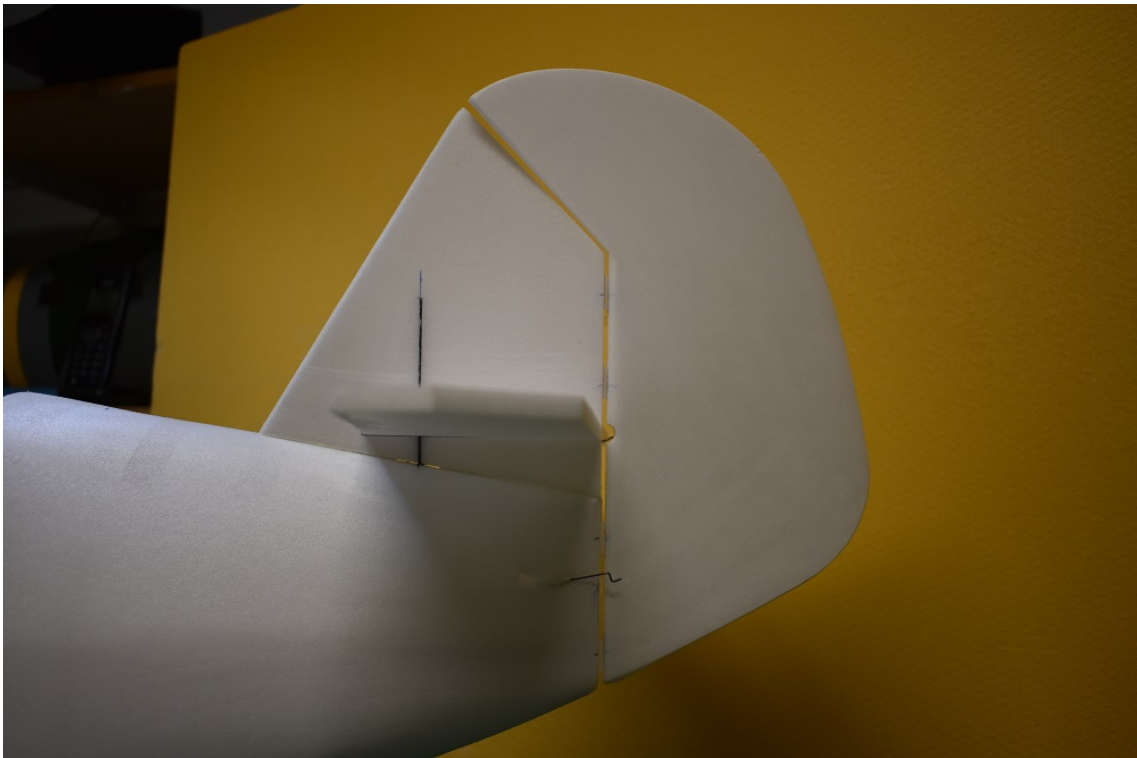




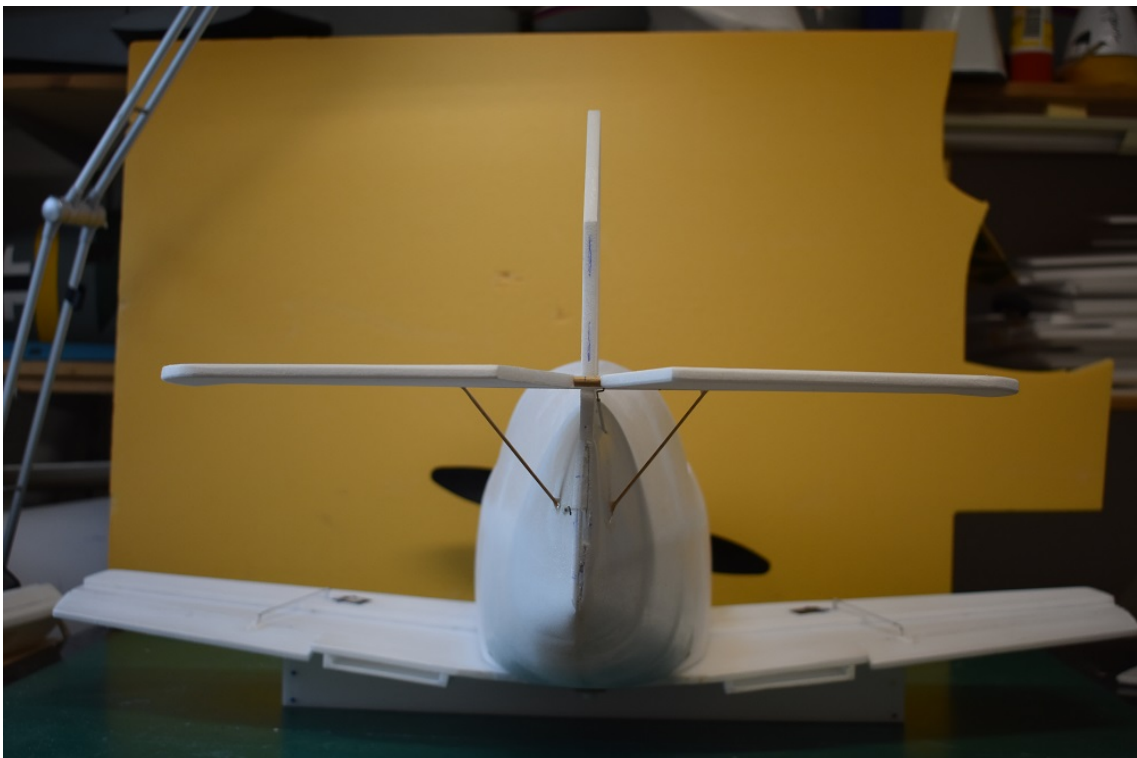
to glue the vertical stabilizer, align it to the fuselage / wing.



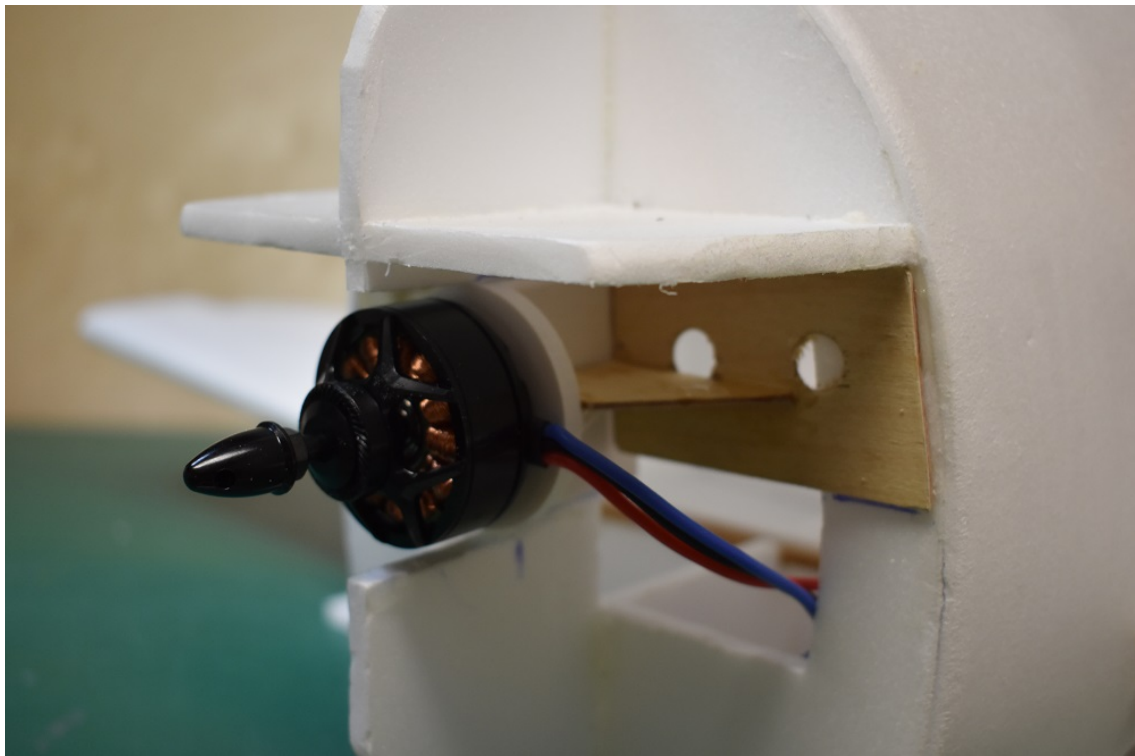
Insert the horizontal stabilizer, also align this geometrically. Glue the rudder tightly.

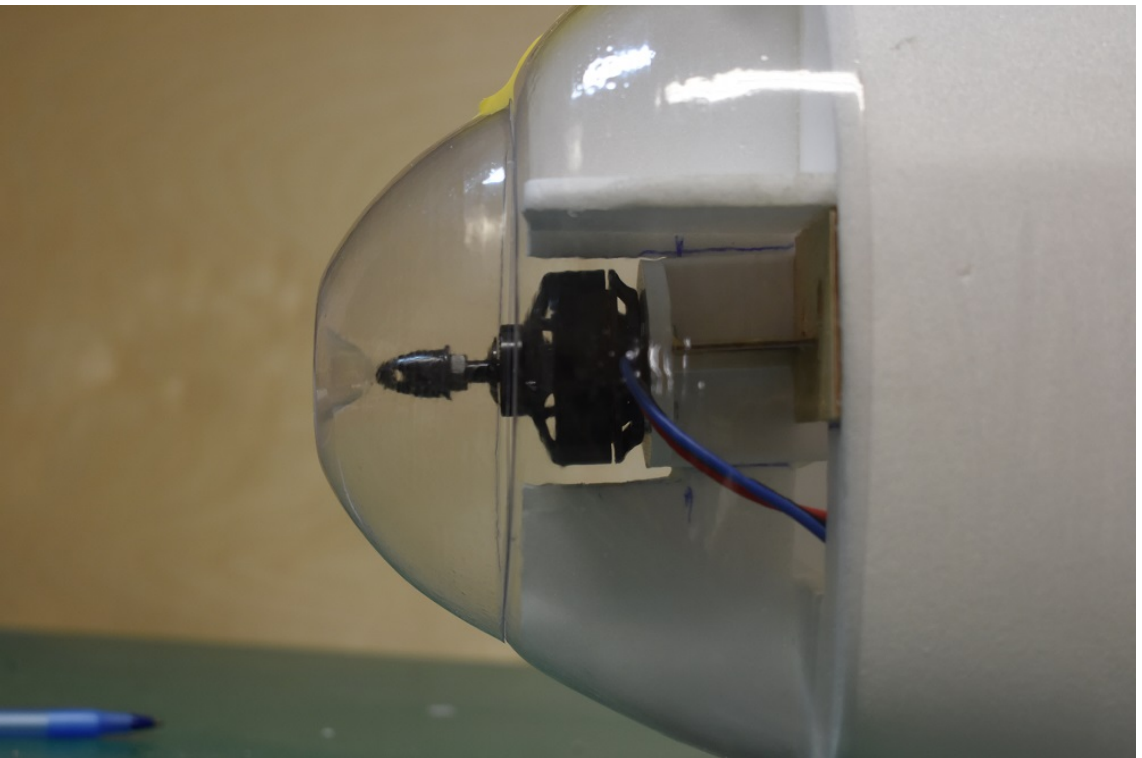
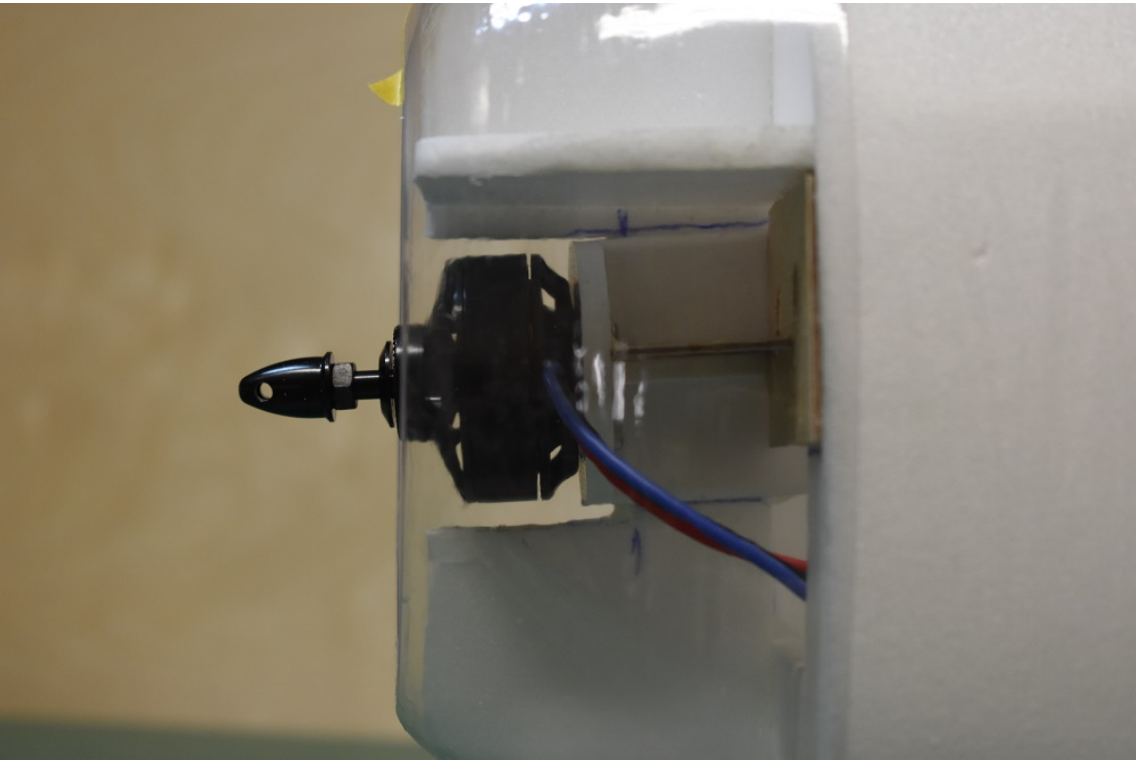


Struts can be used in the same way as the original to stiffen the tail unit. Coffee stirring sticks can be used for this.

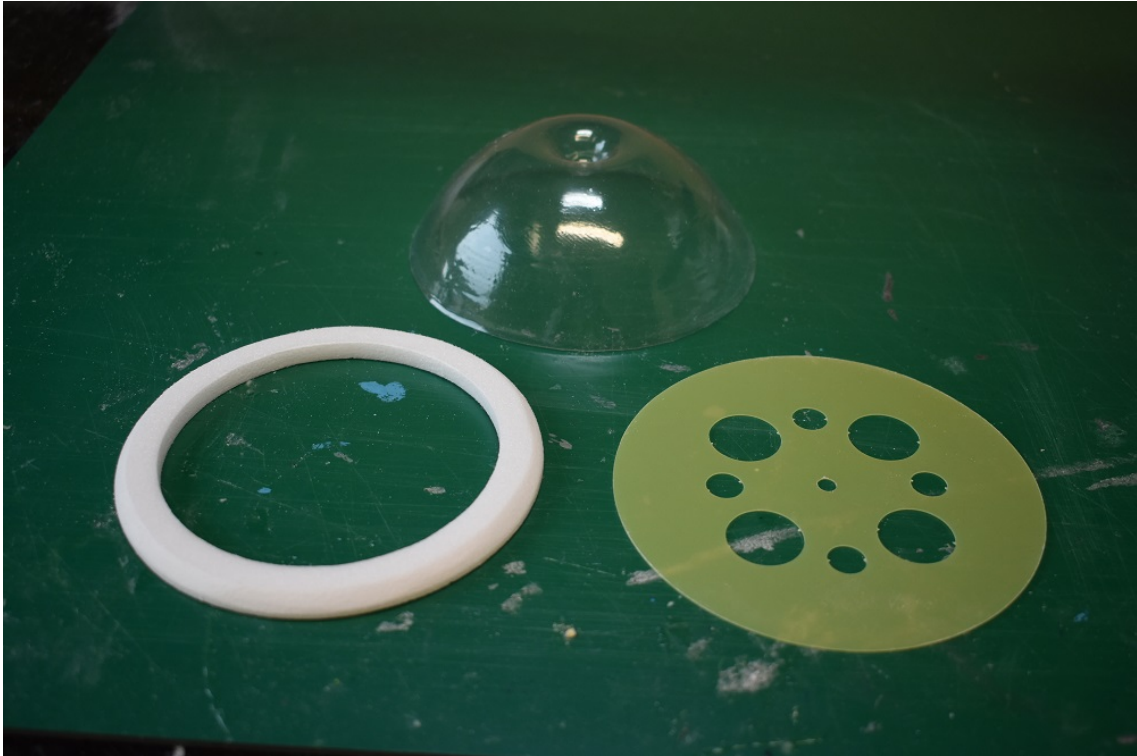


Now insert and adjust the drive motor. A stiffening in the Depron hull is absolutely necessary in order to initiate the force. Sufficient stability can be added using plywood and carbon rods. Here, as an example, a 3D printed motor holder was used, the force transmission of which goes to frame S1 with plywood. In addition to the necessary fall (2 degrees downwards) and pull (2 degrees to the right), it should be checked to what extent the motor has to be installed in the fuselage so that the spinner can run with a sufficient gap. Adjust the PVC 1 hood to the fuselage. To do this, bevel the planking on bulkhead S1 a little until the hood rests on the hull without any gaps.



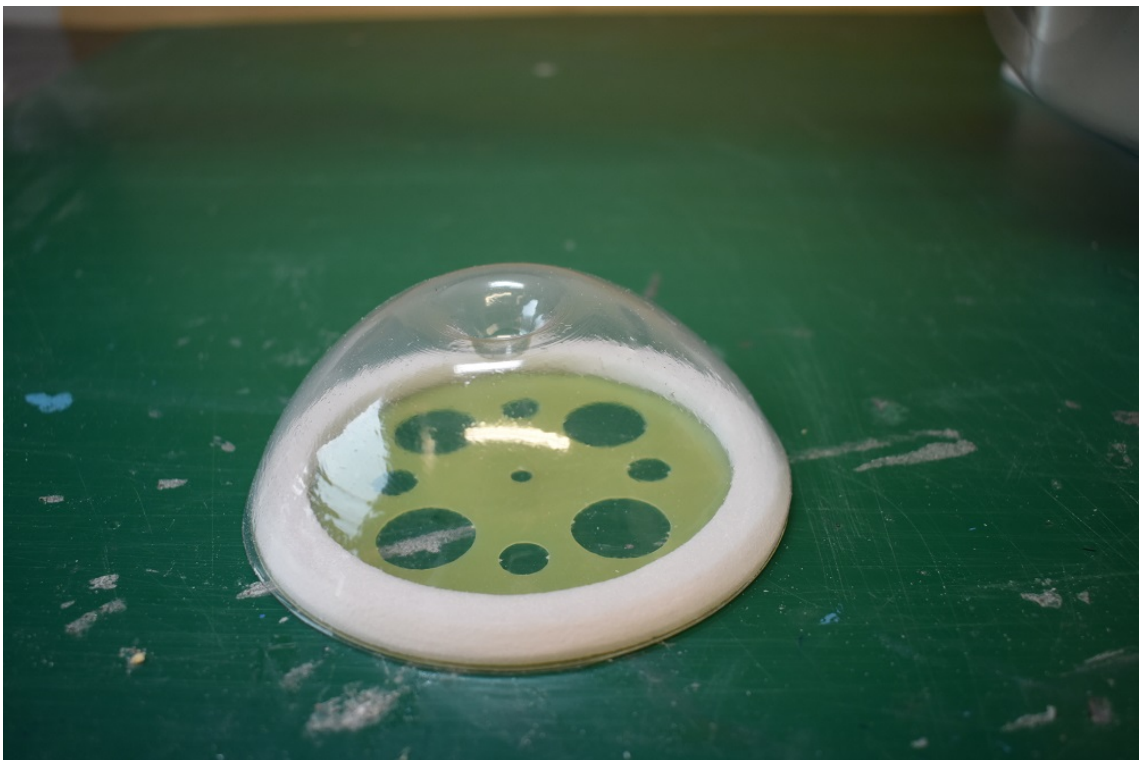
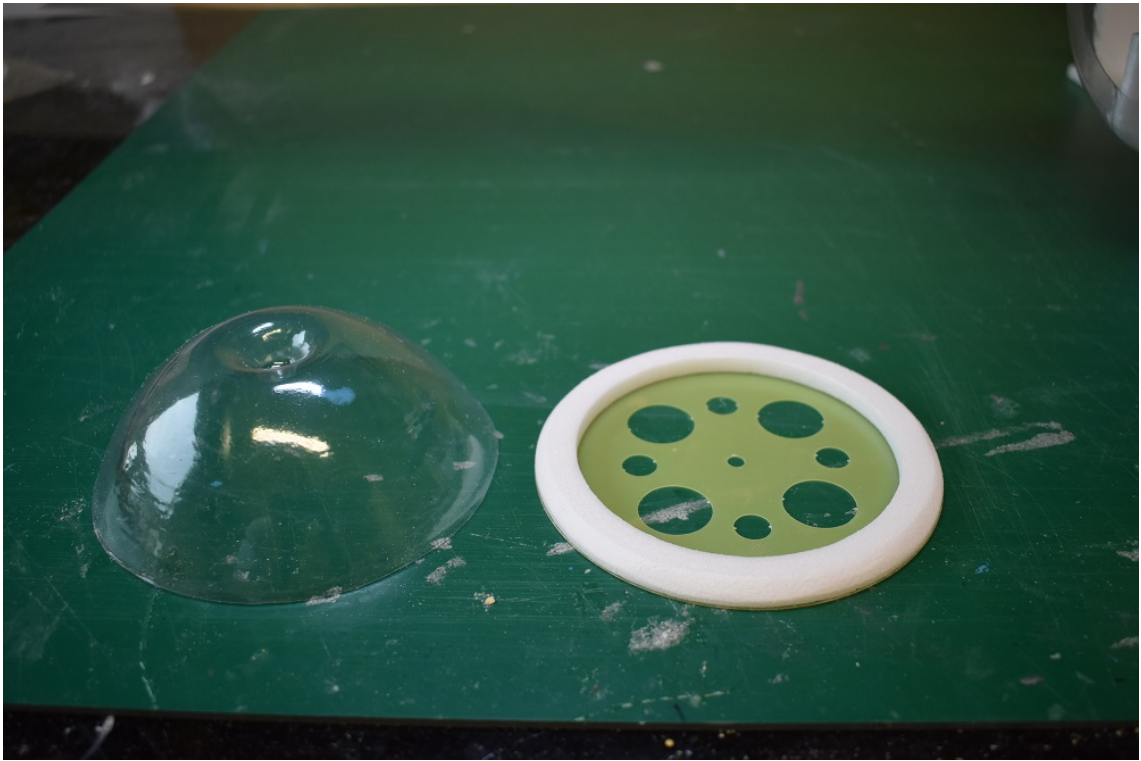


Prepare the spinner. To complete the spinner, a support plate made of 1.5 mm plywood, better 0.5 mm GRP, is required. Diameter 104 mm.



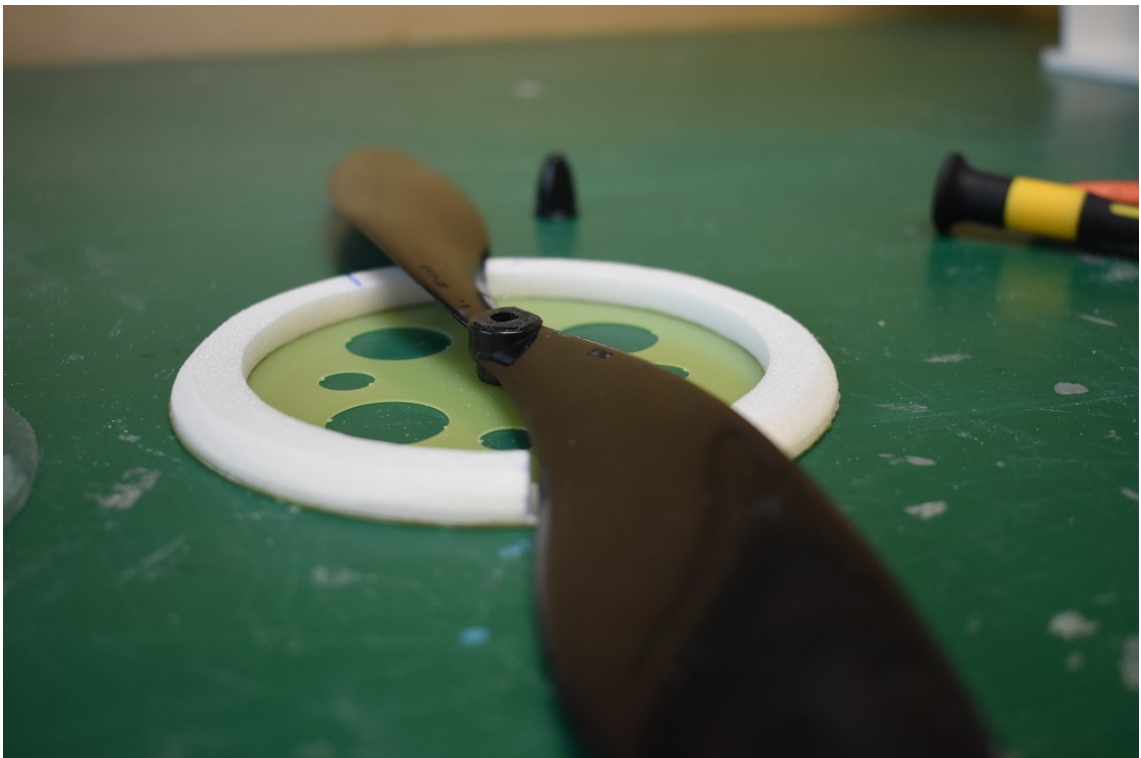
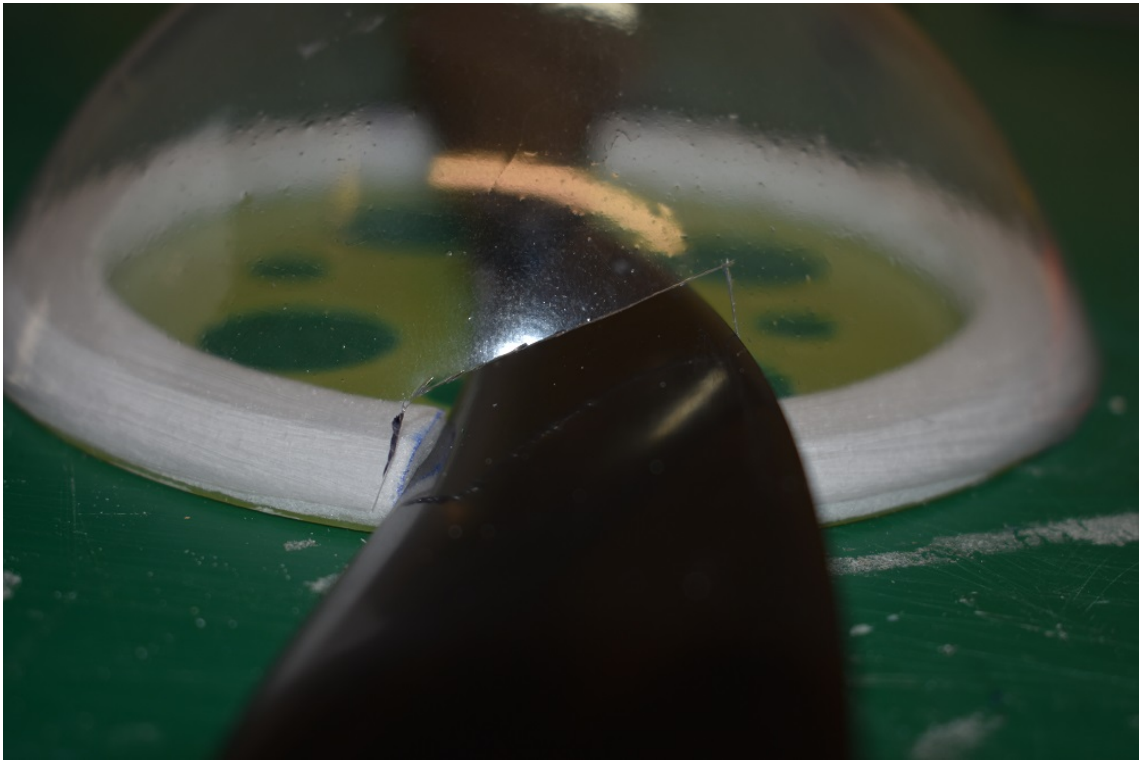
Adapt the Depronring T8 to the shape of the spinner by grinding this conical until the spinner fits well into the ring. Glue the ring T8 onto the carrier plate.

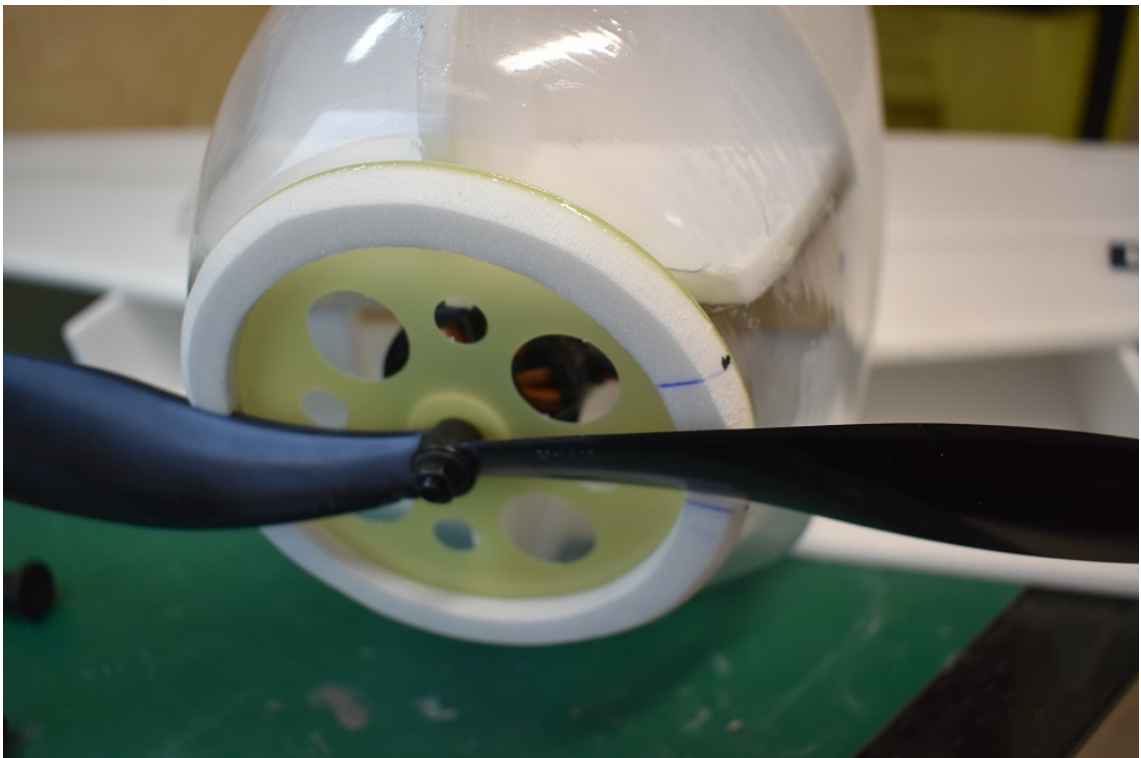
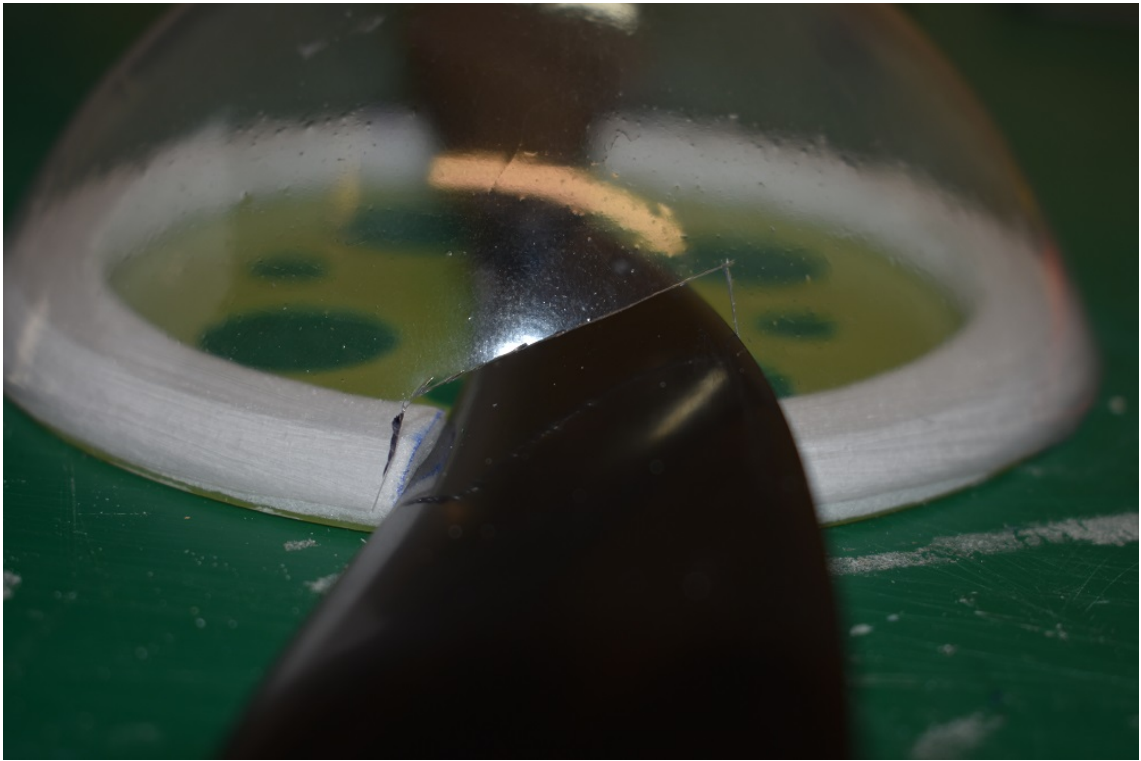


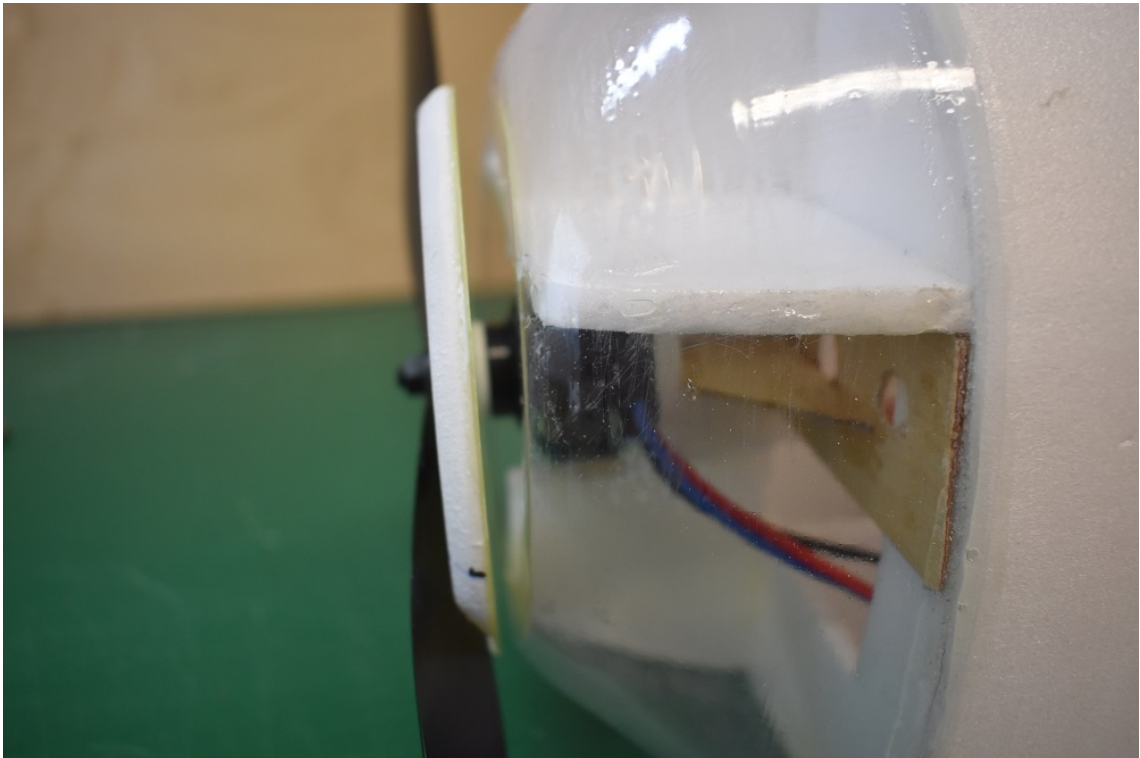


Prepare cutouts for the propeller.

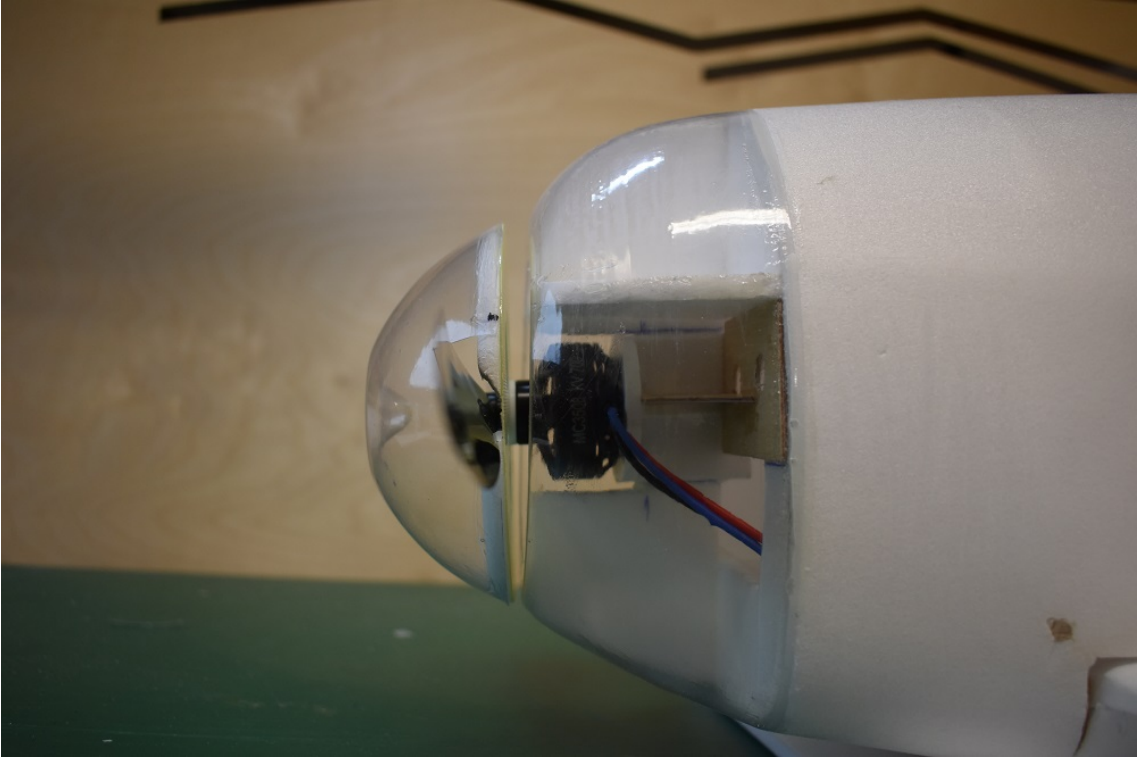




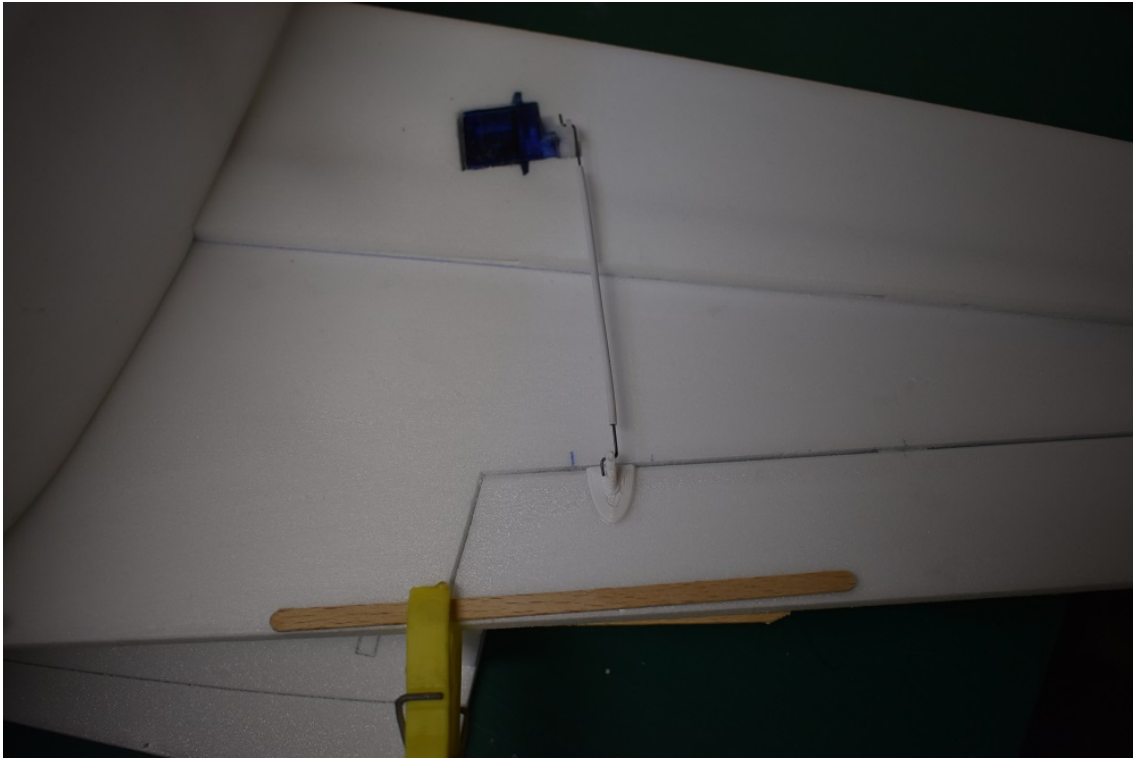




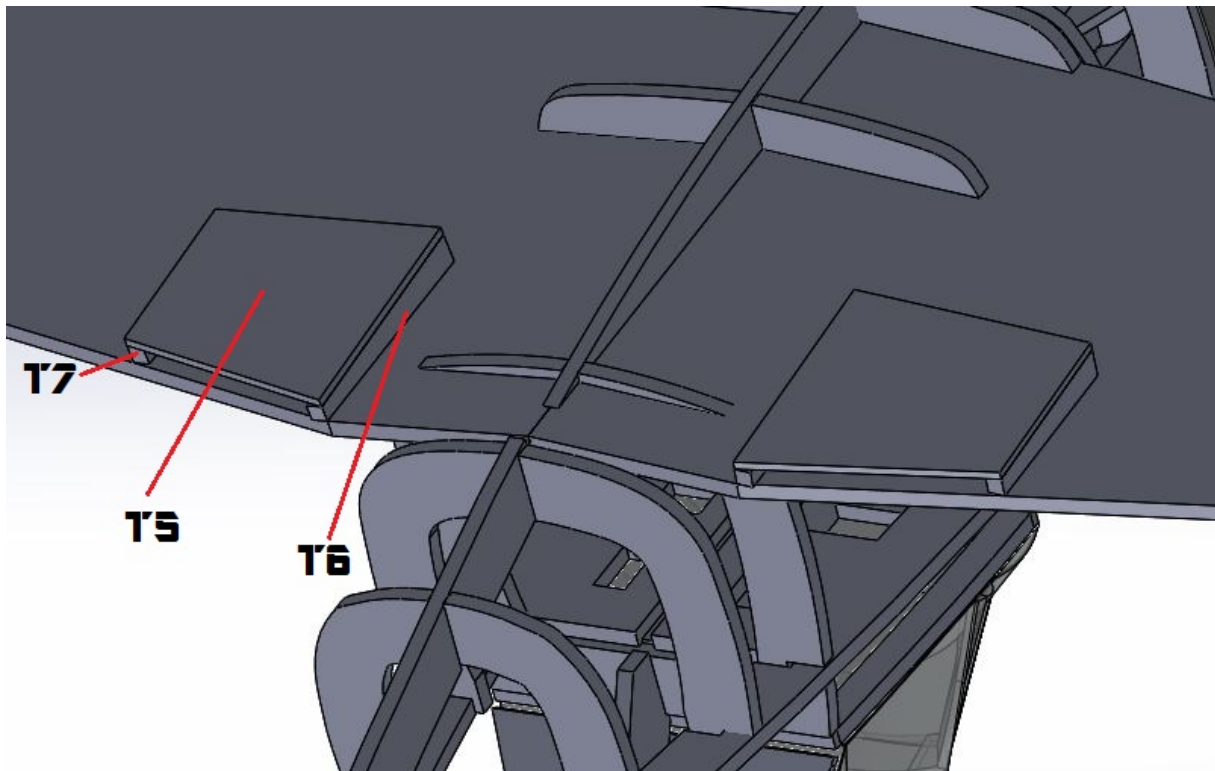
Finally, the PVC2 spinner can be glued to the carrier plate with UHU POR. Important: glue together wet to have enough time to align the spinner so that it runs smoothly without imbalance.

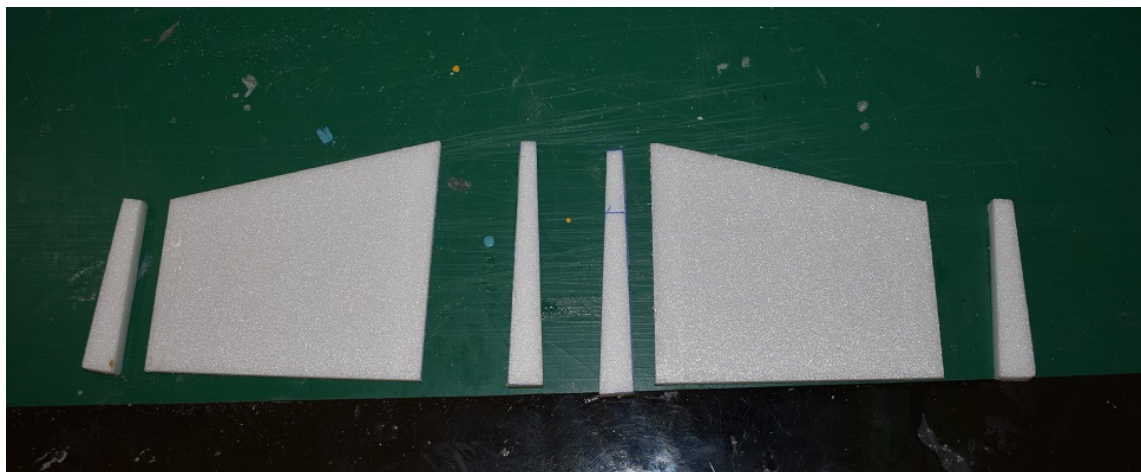


Connection of all servos.



For the optics, the cooling water cooler can be placed under the wing.







The canopy consists of the Depron parts K1 to K4. To prevent the canopy from sticking to the fuselage, protect the adhesive points with scotch tape.

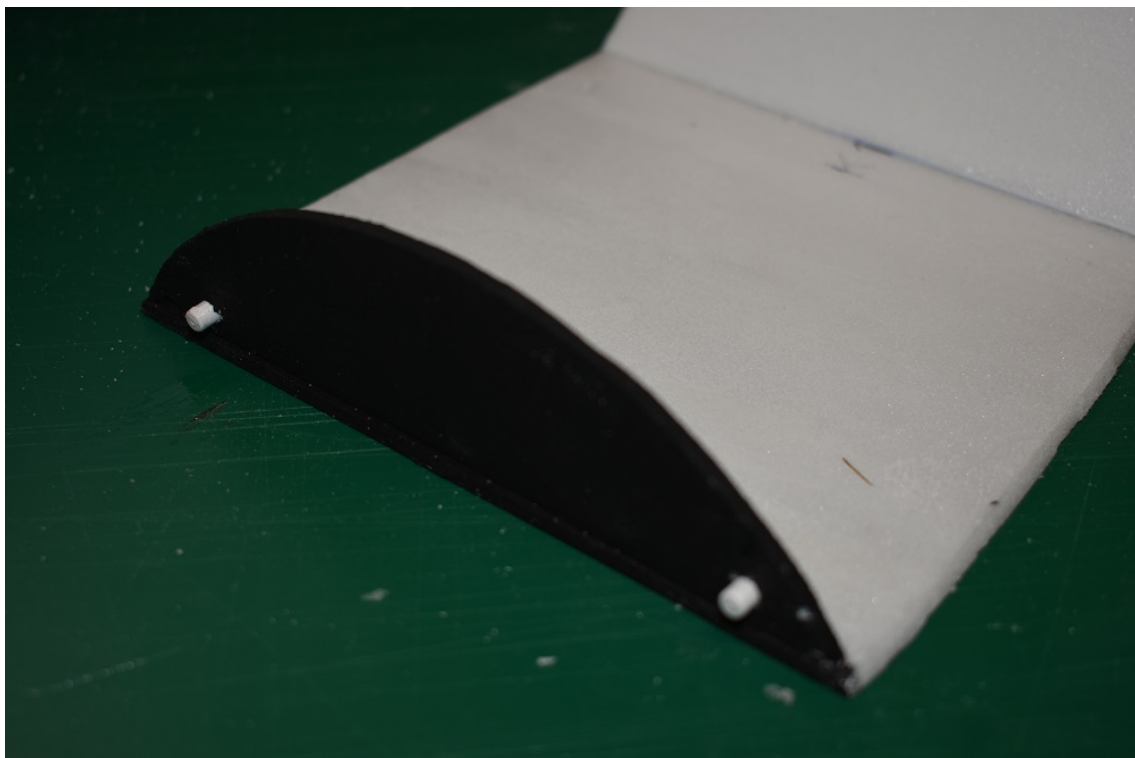


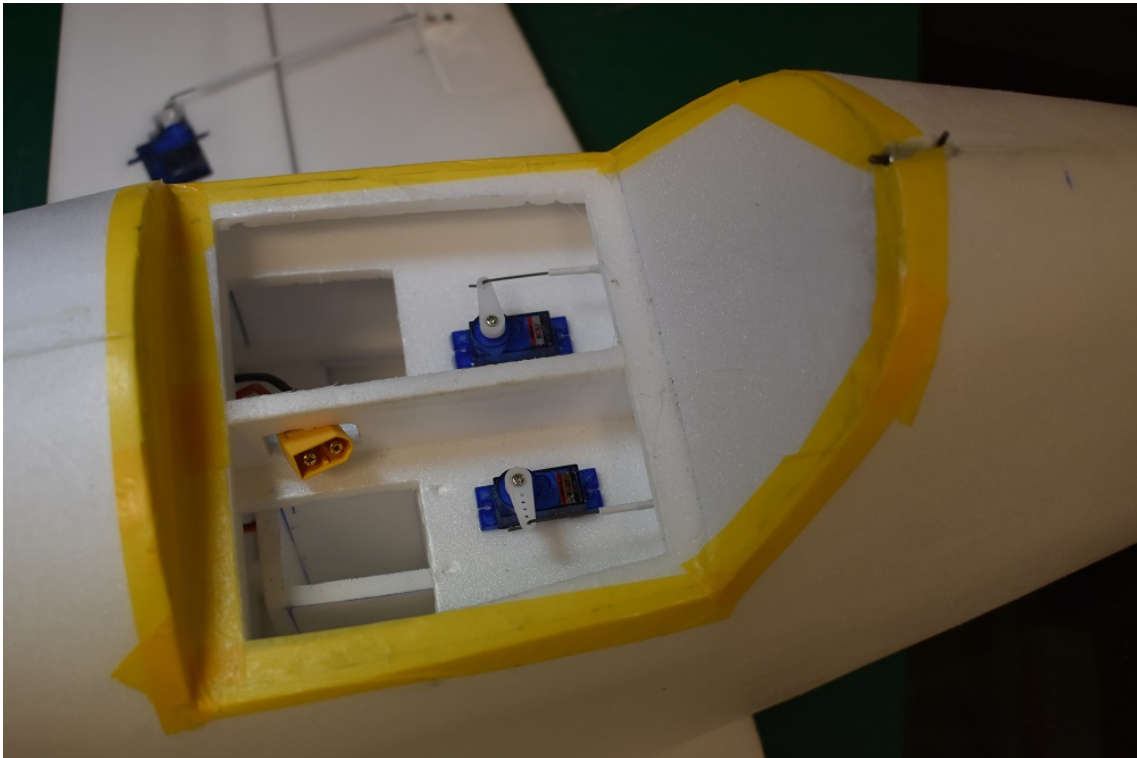
Put on K1 to K3 and glue them together.





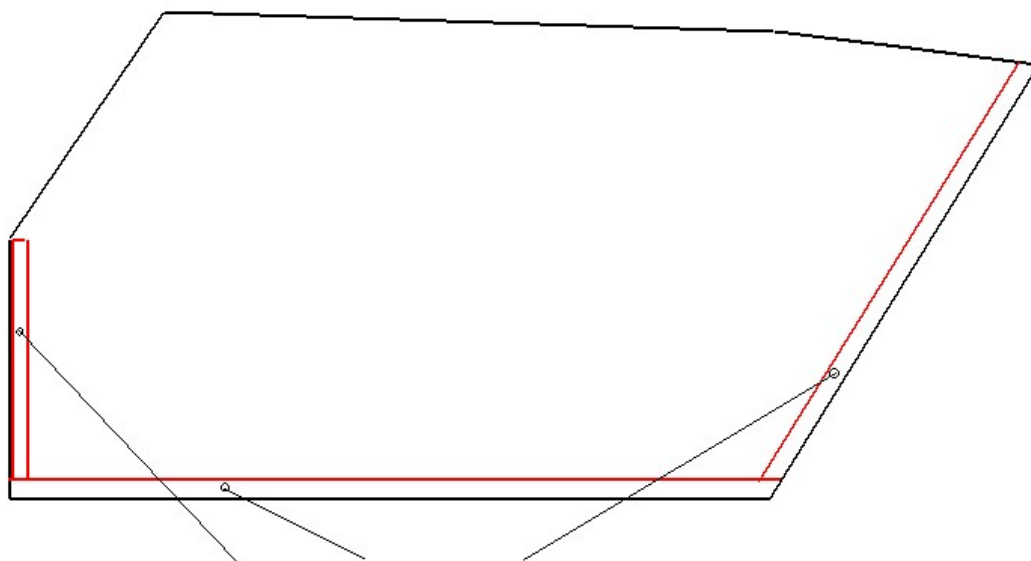
For the subsequent locking of the canopy as access to the fuselage, for example Spigots are used and a car lock.





Put on the cabin (K4). The PVC hood sits "in front of" K1. Adapt and glue the unit.

Kabinenhaube



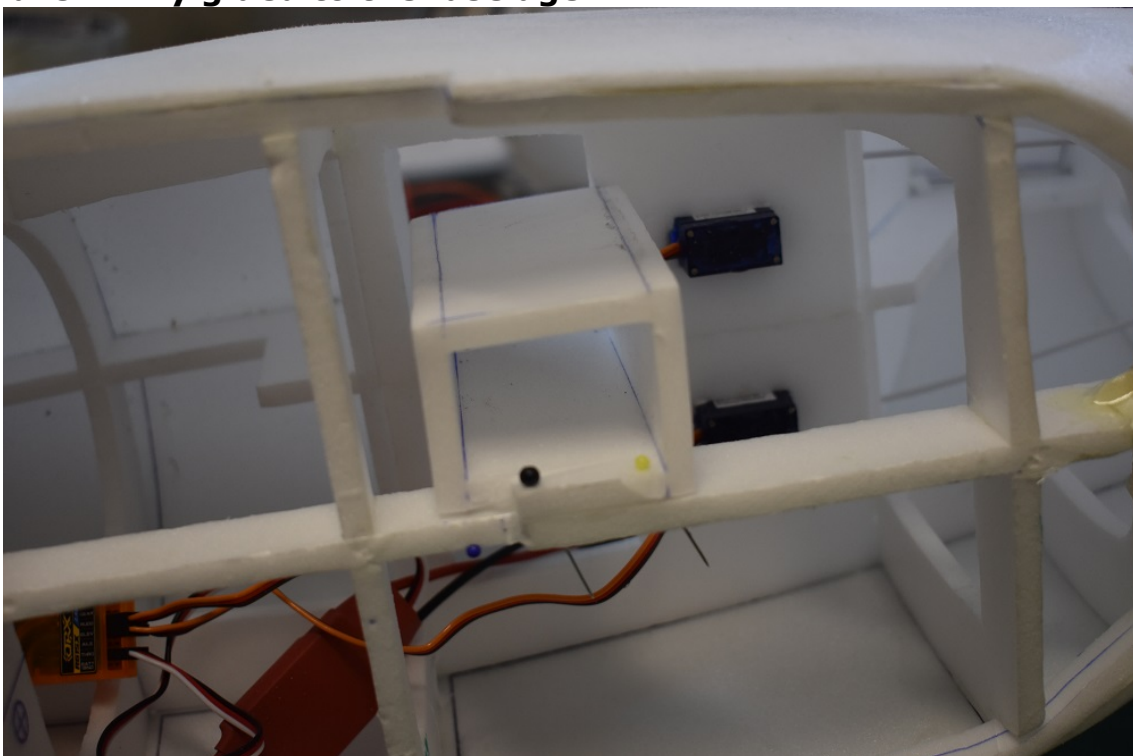
3 mm Versteifung K1 bis K3

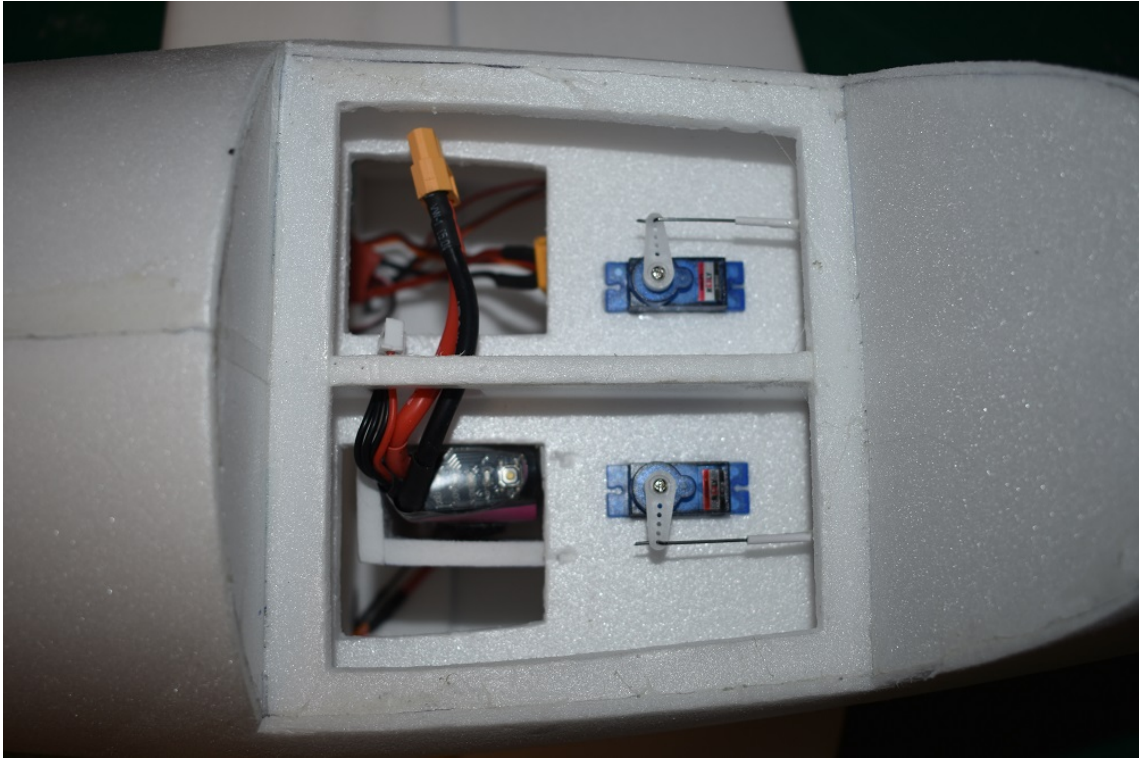


Depending on the choice of drive motor and flight battery, the flight battery is in different positions. Weighing the model with all components to determine the center of gravity.

The center of gravity is on the wing leading edge at: 67 mm

In this case (construction 1) directly below the canopy. For this purpose, a 6 mm Depron shaft was built in the size of the battery and is firmly glued to the fuselage.





Details and paintwork.

Now the model can be completely sanded. For glue gaps, "Modelier" "Moltofill", a kind of paste for touching up plaster, can be optimally used to fill the gap. After curing, the material is hardly harder than Depron and you have a clean shell in your hands.



Details of the BF 109: There are several links in the shop about suitable 3D printing components that can be found freely on the internet. The look is enhanced with these details. This includes the following components:

- cooler
- Exhaust



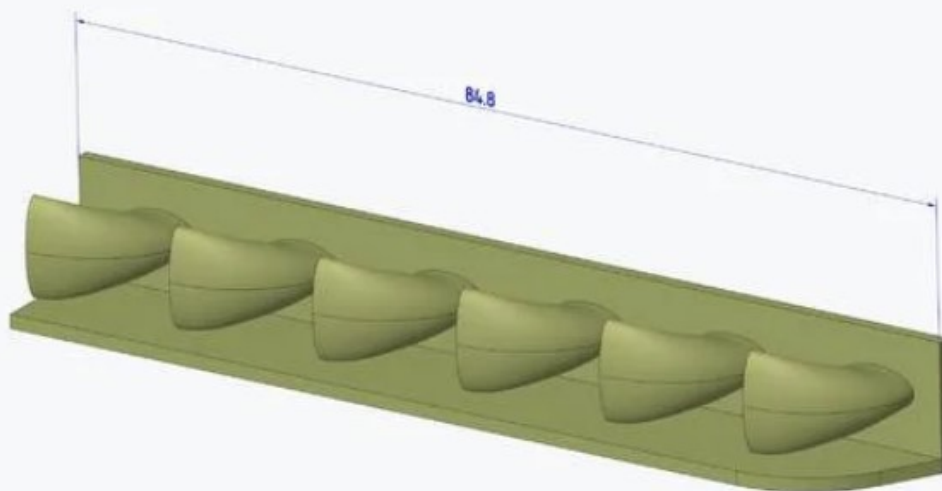
BF 109 Air intake, BF 109 Entrée d'air, BF 109 Lufteinlass

by [rotor02](#) July 11, 2020



Exhaust BF109 (ME 109)

by [rotor02](#) July 06, 2020

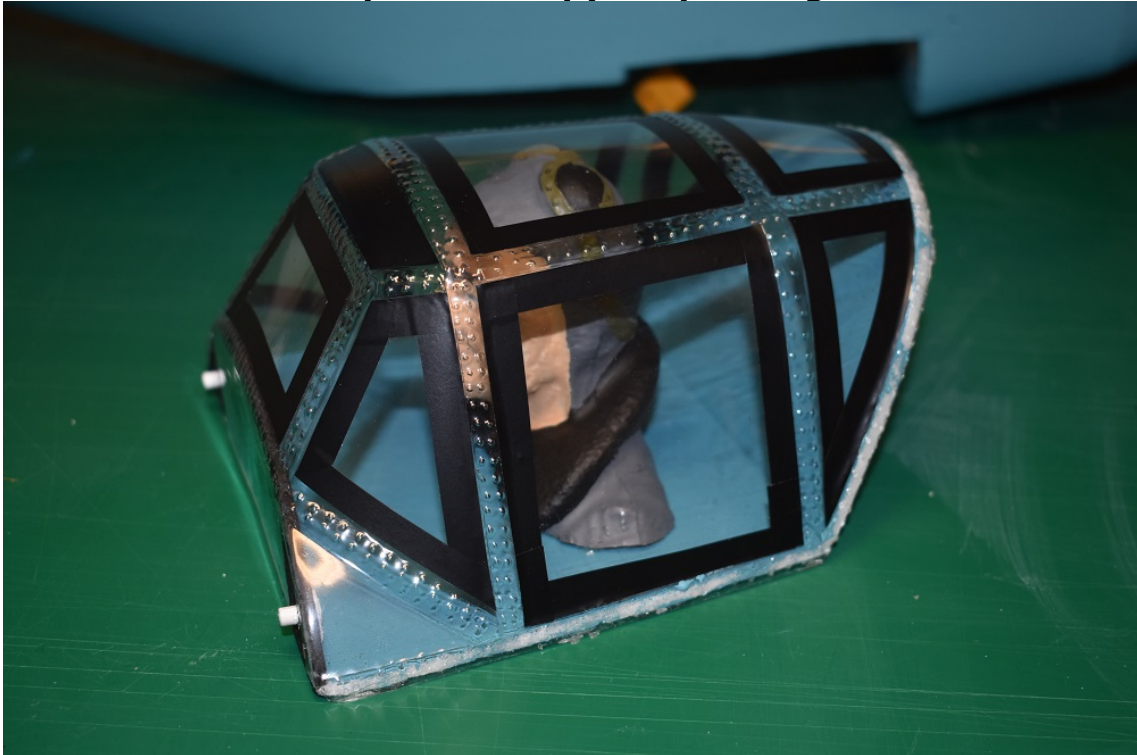


Painting:

I recommend "Kreul" water-based paints for the finish. Depron, lightly sanded, can be rolled out contour-free with a soft paint roller. If you want to achieve a little more stability, you should apply "Aqua Clou" (water-based) parquet varnish and coat it several times with intermediate sanding. This makes Depron more secure and a bit more stable. The underside of the fuselage can be stiffened with 25 grams of glass mat to make landings on the fuselage without landing gear more abrasion resistant.



Prepared canopy for painting:



RC system:

Rudder deflections: height 20 mm, side 15 mm and transverse 15 mm on each side.

Center of gravity: The center of gravity is 67 mm from the leading edge of the wing.

**Battery fastening: e.g. using Velcro in the bow (or as described in the instructions) of the fuselage
Recommendation 3 S 1800 mAh.**

Construction inquiries, advice, feedback or suggestions:

I would be happy if I received feedback from you by email about construction, impressions or photos for the customer gallery that can be viewed in the shop.

Of course I will help with construction problems by phone or email.

I am happy to call you back with an email request.

Always have a good flight with your new model.



Frank Seuffert

info@scale-parkflyer.de

Warning!!

Before you fly the R/C model it is essential to read the operating and building instructions in full. This sheet is part of the operating instructions. Please keep it in a safe place for further reference. If you ever sell the model make sure to pass on this sheet to the new owner together with the model. A remote controlled model aircraft (model plane) is not a toy. It is not suitable for children under 14 years of age unless they fly under strict supervision of a knowledgeable adult. Since the manufacturer and his agents have no control over the proper assembly, operation and maintenance of their products, no responsibility or liability can be assumed for their use. Correct assembly, safe operation and proper maintenance are the responsibility of the builder and the flyer.

Attention: Any rotating components on model aircrafts (propeller, main and tail rotor blades) are an ever present danger of injury to operators and spectators. This radio-controlled model aircraft is a technically complex device, which must be built exactly in accordance to the building instructions and operated and maintained with care by a responsible person. Failure to do so may result in a model incapable of safe flight operation. All fasteners and attachments must be secured for safe operation. Do not make any alterations.

General Safety Rules for flying an R/C model aircraft

NEVER ignore the local and national regulations for operating model airplanes. Contact local authorities, hobby shops, R/C clubs or the Academy of Model Aeronautics.

NEVER fly without appropriate liability insurance.

NEVER get near the model airplane with the propeller or main rotor spinning. Keep a safe distance of at least 10 ft. Ask spectators to clear the scene and stay away at least 35 ft. Be aware that rotating propellers and rotor blades are very dangerous and can cause serious injury.

NEVER fly your R/C model near or over crowds, playgrounds, streets, rail roads, airports, power lines or hospitals/radiology practices.

NEVER start and fly with unsafe and questionable equipment.

NEVER fly if you don't feel confident with your equipment, your location or your capabilities.

ALWAYS fly at approved flying fields and obey field regulations.

ALWAYS follow frequency control procedures. Interference can be dangerous to all. Prior to turning on your R/C equipment at the flying site make absolutely sure that the frequency you are going to use is not being occupied by someone else. In such case make appropriate arrangements with the others flyer(s).

ALWAYS perform each time before your first flight a range check of your radio equipment. With the transmitter switched on and its antenna collapsed, the receiver need to receive full signal at least over a distance of 30 yards.

ALWAYS familiarize yourself with your radio equipment. Check all transmitter functions before each flight. Do not only make sure that the servos move, but that their movements are correctly coordinated and are moving in the proper direction as well.

ALWAYS keep a safe distance from the propeller or rotor while starting the motor.

ALWAYS stay behind your model airplane when the engine is running.

ALWAYS keep in mind: Safety First! Loosing your model airplane will cost you some money for replacement parts, but your and others health is not replaceable.

ALWAYS ask an experienced R/C pilot for assistance in trimming the model and in receiving flight training under his supervision.

ALWAYS follow all recommended maintenance procedures for model, radio and motor.

ALWAYS check your R/C model for any worn, broken, damaged or loose parts. You are ultimately responsible for the maintenance of your R/C model and its accessories.

ALWAYS follow carefully the instructions, which have been supplied with your batteries, in particular, when you are using Lithium-Ion or Lithium Polymer batteries.

ALWAYS use the motor/engine recommended for the aircraft and do not exceed the revolutions per minute (rpm) it is designed for. Otherwise the propeller or the main and tail rotor blades may exceed their maximum permissible rpm and may get torn apart. Fragments of the propeller/rotor may get ripped off, flying away at high speed.

ALWAYS make sure that your batteries have been fully charged, otherwise proper function of your equipment will not be guaranteed.

ALWAYS avoid abrupt movement of the control stick while the model is in flight

ALWAYS use only the specified number of battery cells. Otherwise the motor and/or speed controller may be overloaded, may get damaged and/or causes radio interference or fire hazard.

ALWAYS have an eye on the wind and weather conditions and changes.

ALWAYS look for a wide and open flying area, especially if you are a beginner. You will need the space.

ALWAYS keep an eye on your co-flyers.

ALWAYS be considerate of the environment you are guest in.