

*JETWORKS*



*Blackburn*  
**BUCCANEER**  
*Parkjet*

# Blackburn Buccaneer History

The mighty Buccaneer was an aircraft so tough as to be apparently forged from solid steel. It still ranks as the best-loved post-war attack aircraft in the UK. So much so that on the night when the Bucc was officially retired in March 1994, one of the officers in the Officers Mess RAF Lossiemouth pointed out that "The only replacement for a Buccaneer is a Buccaneer".

The Buccaneer, designed to fulfill a Royal Navy requirement for a long-range carrier-based attack aircraft, first entered service in July 1962. From its first operational missions to its last in 1994, it remained one of the fastest low-level aircraft in any service. This was due to its high-thrust engine, small wings and extremely robust design which gained it many nicknames such as the Brick.

Back in the early 1960s, the first production Buccaneer S.1 was underpowered, criticized and unappreciated by their users. Only three years later, with the arrival of the Spey-engined S.2, the full potential of the airframe was revealed.

The Royal Navy's requirement for a bomber to fly subsonic, under-the-radar missions to penetrate enemy airspace without detection proved successful and the Bucc was better suited for that role than the Mirage III or F-4.

In the 1970s, a political decision was made to retire Royal Navy's large carriers and fixed-wing aircraft. The S.2 examples were progressively transferred to shore bases and to the Royal Air Force. The RAF re-designated some of the aircraft as S.2As and later, after more modifications, as S.2Bs. A small number of new production S.2Bs were also built, beginning in early 1970, and all earlier unmodified Buccs were updated and redesignated S.2C and S.2D.

Meanwhile, the Buccaneer Mk 50 version had been supplied to the South African Air Force (SAAF) in 1965, these were fitted with a supplementary twin-chamber rocket motor in the aft fuselage to facilitate takeoffs from hot, high-altitude airfields. It is in South Africa that the Buccaneer first saw combat in the 1970s, but it was not until the very end of its career that the Buccaneer was able to prove itself in the service of its home country. In 1991, after almost 30 years of service, Operation Granby in 1991 was the last active deployment of the Blackburn Buccaneer. Thirteen modernized RAF Buccaneer S Mk.2B aircraft fought very successfully from Bahrain for the duration of the Gulf War.

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# Designers Notes

The Buccaneer has such a reputation with the people who operated it 'the low level tossers!' I wanted to make this design lots of fun so that people could do some low level bombing of their local flying field! Designed with working air brakes and bomb bay, this design should gives hours of fun.

It is a more complex build due to the curvaceous shape of the original plane and the position of the air intakes / exhaust in relation to the wings. but take your time and a really nice model is easily achievable.

Proud supporter of



[www.maf-uk.org/](http://www.maf-uk.org/)

All donations given will be passed on to the charity M.A.F donation for \$10 to Paypal address :-

[clicketyclarkstone@gmail.com](mailto:clicketyclarkstone@gmail.com)

please quote 'Jetworks MAF donation'

Thank you! and happy flying.

Craig :)

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# BUCCANEER

Page 2



# Before you start.



## Adhesives

- > For the majority of construction :
  - UHU Creativ for Styrofoam (also called UHU POR)
  - 3M 77 Spray adhesive.
- > For wing spars and motor mounts :
  - Epoxy. (5 and 15mins cure times are the most convenient) micro-balloons can be added to reduce weight.
- > For servo's / and quick grab :
  - Hot melt glue gun - Caution if the glue gets too hot it will melt foam - test first!

## Tapes

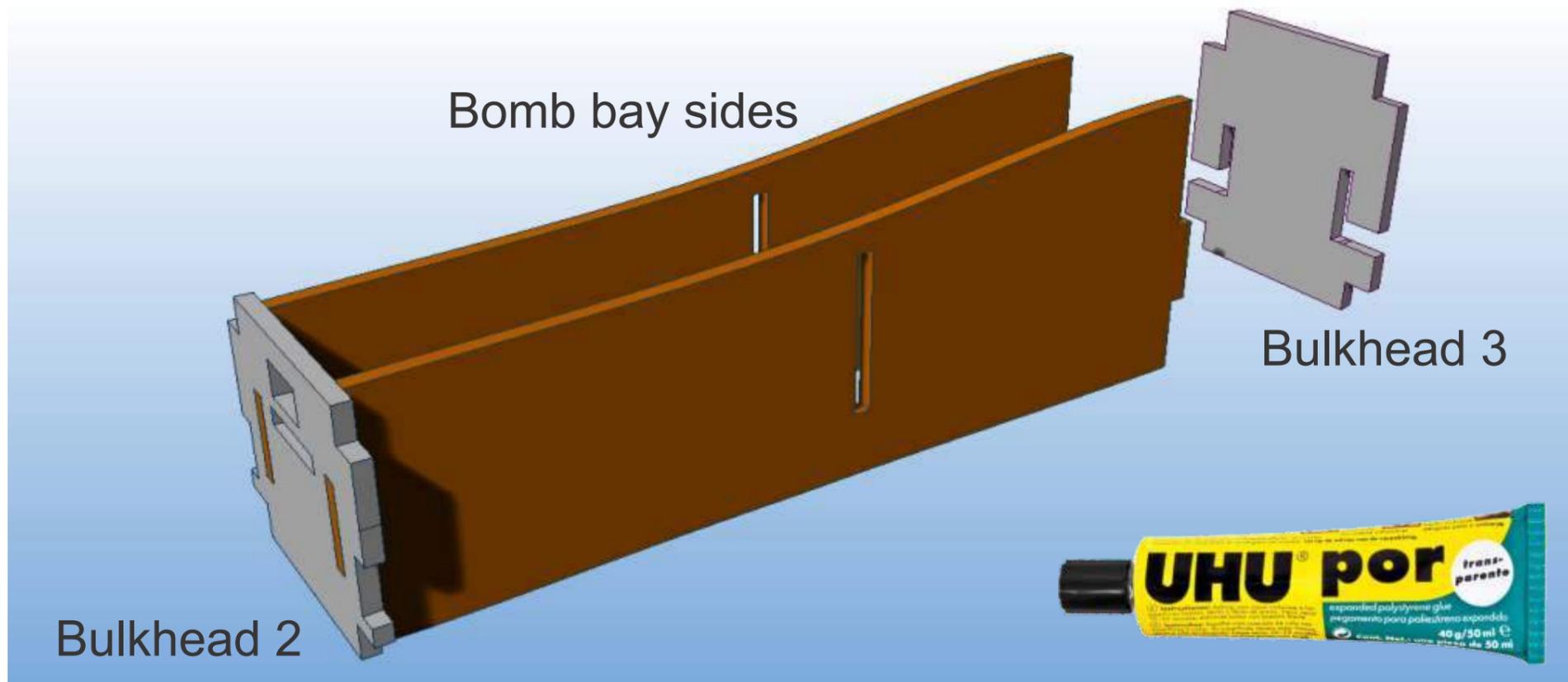
- > For holding parts tightly together whilst glue sets
  - Low tack masking tapes
- > For leading edges, hinges, general strengthening
  - 3M Gift tape (Purple - not green one!) - I prefer lightweight plastic hinges.

## Cutting parts

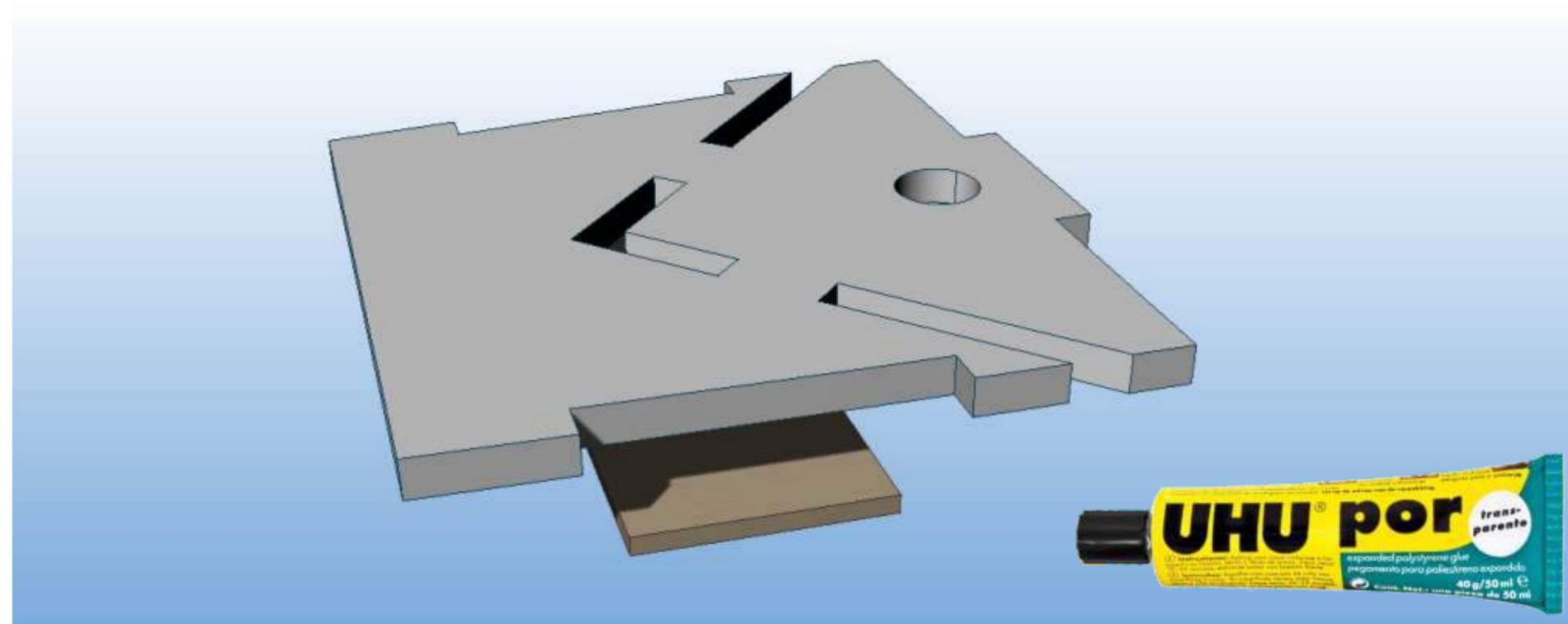
1. Print the plans,
  2. Cut around each part using scissors - allow a border of approx (1/4") 6mm
  3. Use either 3M spray mount or a very light coat of 3M 77 to the back of the parts and stick in an economical layout on the Depron foam.
  4. Using a safety rule and craft knife over a cutting mat - important! use a fresh blade otherwise it will drag and spoil the foam. (I find the stanley knife perfect) make the straight edge cuts, then the curved parts freehand.
  5. Once the parts are cut-out, keep the template stuck to the part until just before needed to help identify the parts.
  6. After use, I find it helpful to keep all the used tempates in case replacement parts need making. (the glue eventually dries and they don't stick together!)
- IMPORTANT** Wherever the plans call for marking guidelines onto the depron, please ensure that you do otherwise it can cause problems later on. I suggest you use a Sharpie Fineliner to transfer the lines.

## Glueing parts together.

1. Ensure a really good fit - this will reduce the amount of adhesive used. The Bar Sander is a great tool for this.
2. Follow the adhesive instructions closely.
3. Use ordinary steel head pins to help keep the parts located whilst epoxy sets.
4. Use objects as weights such as paperweights to apply pressure whilst adhesive sets.
5. Use masking tape to apply pressure whilst adhesive sets. Also use masking tape to along the slots for the wing spars whilst gluing the carbon rod spars into the wings. This prevents the glue protruding and gives a nice finish.



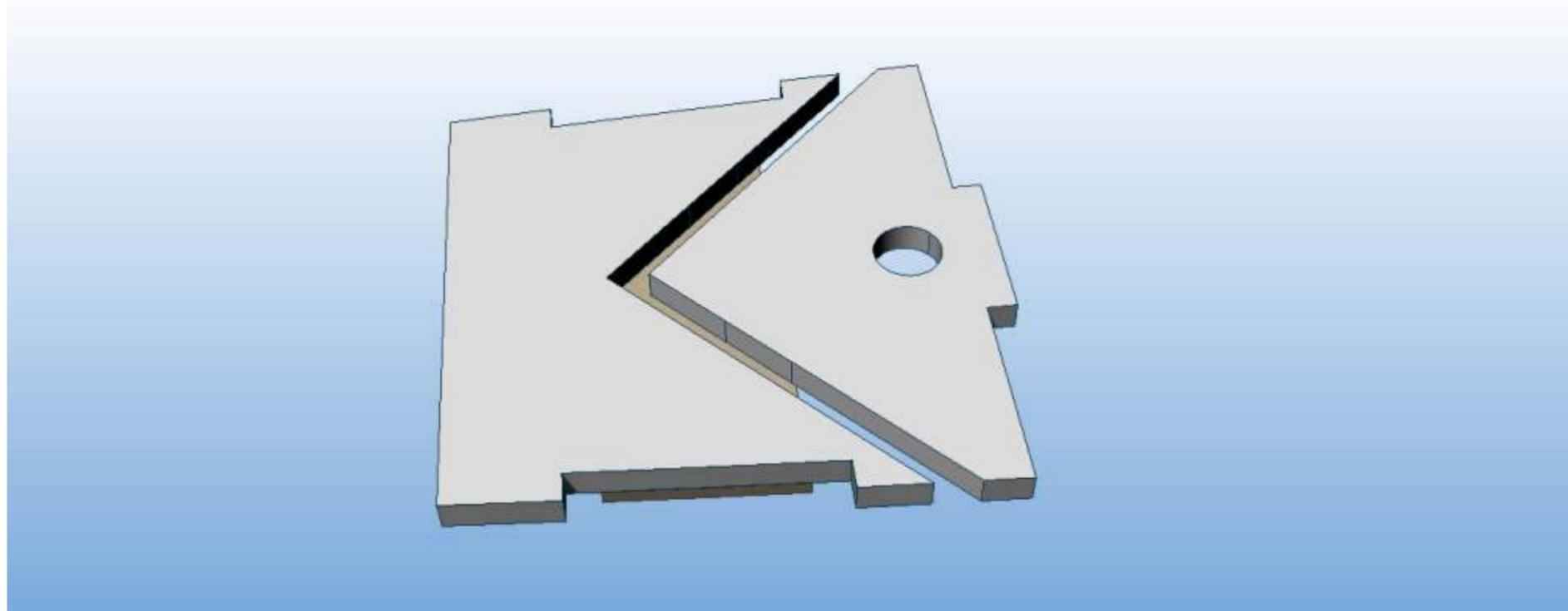
Glue bulkheads 2 and 3 to the two bomb bay sides as shown.



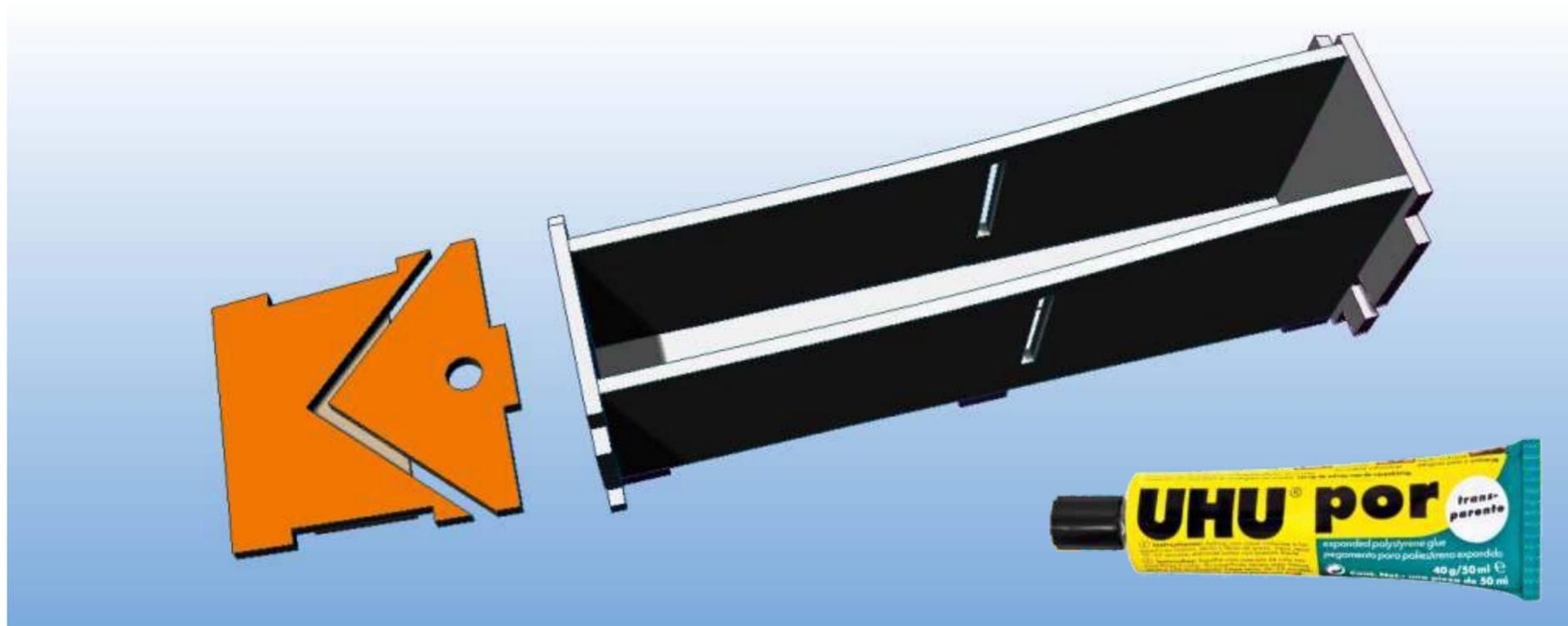
Glue the 3mm plywood lower brace to the spar joint support piece.

Avoid getting glue into the slot area.



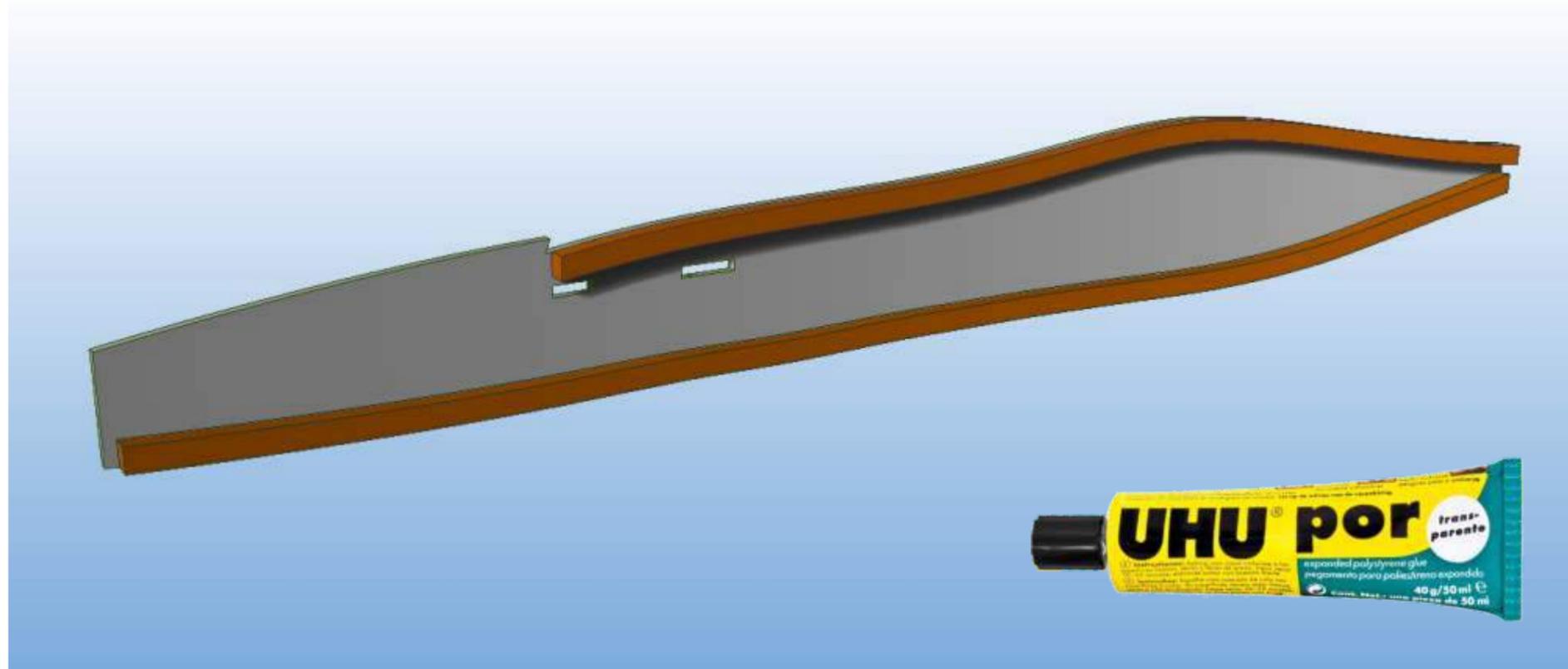


Trim out the slot tabs as shown using a hobby knife.

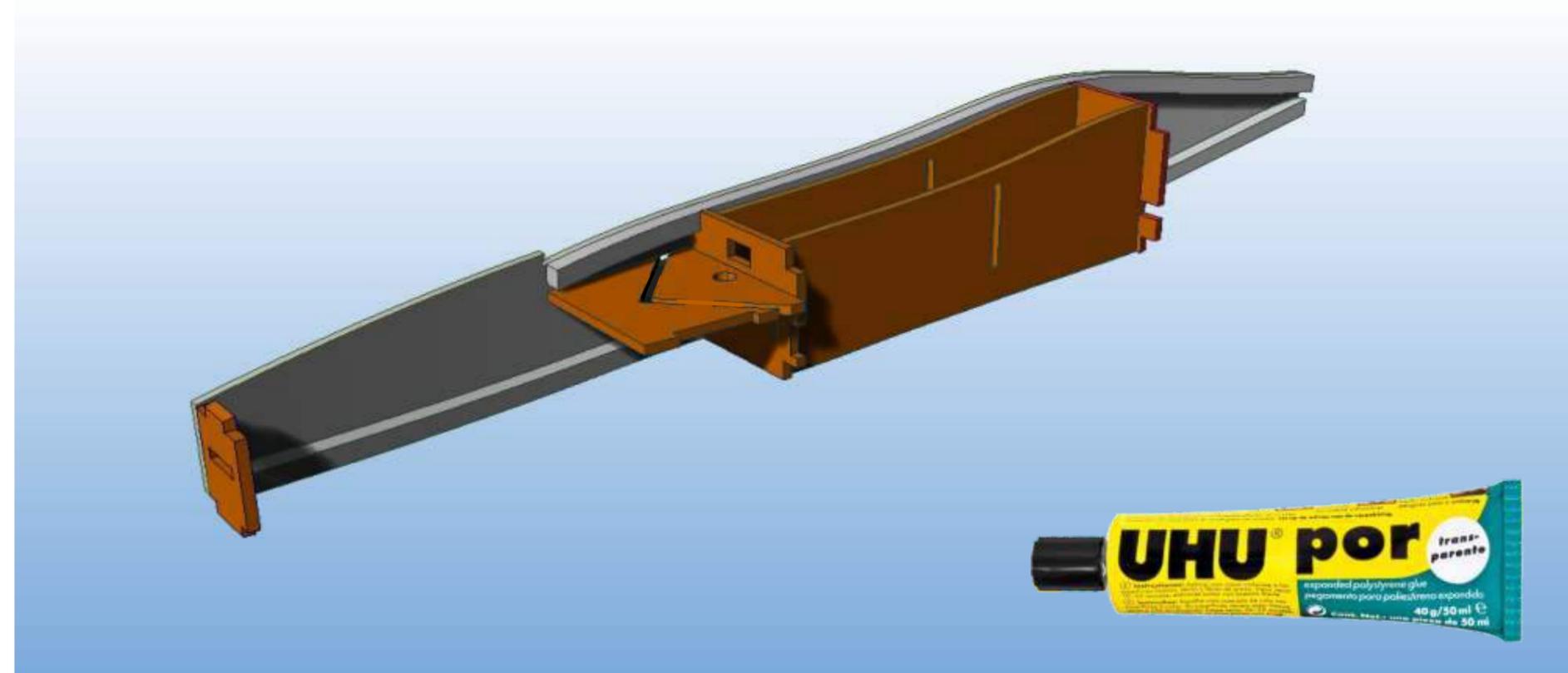
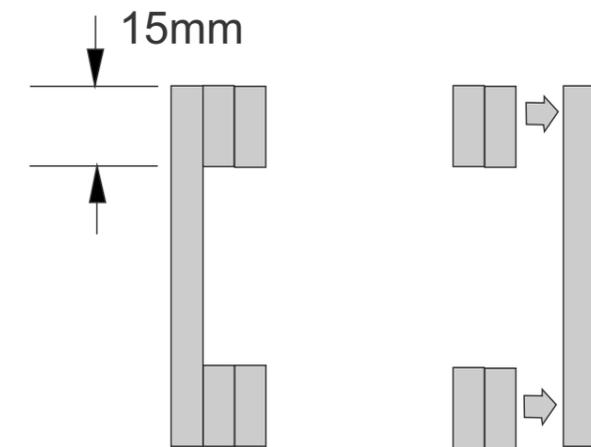


Glue the Spar joint support piece to the assembly as shown



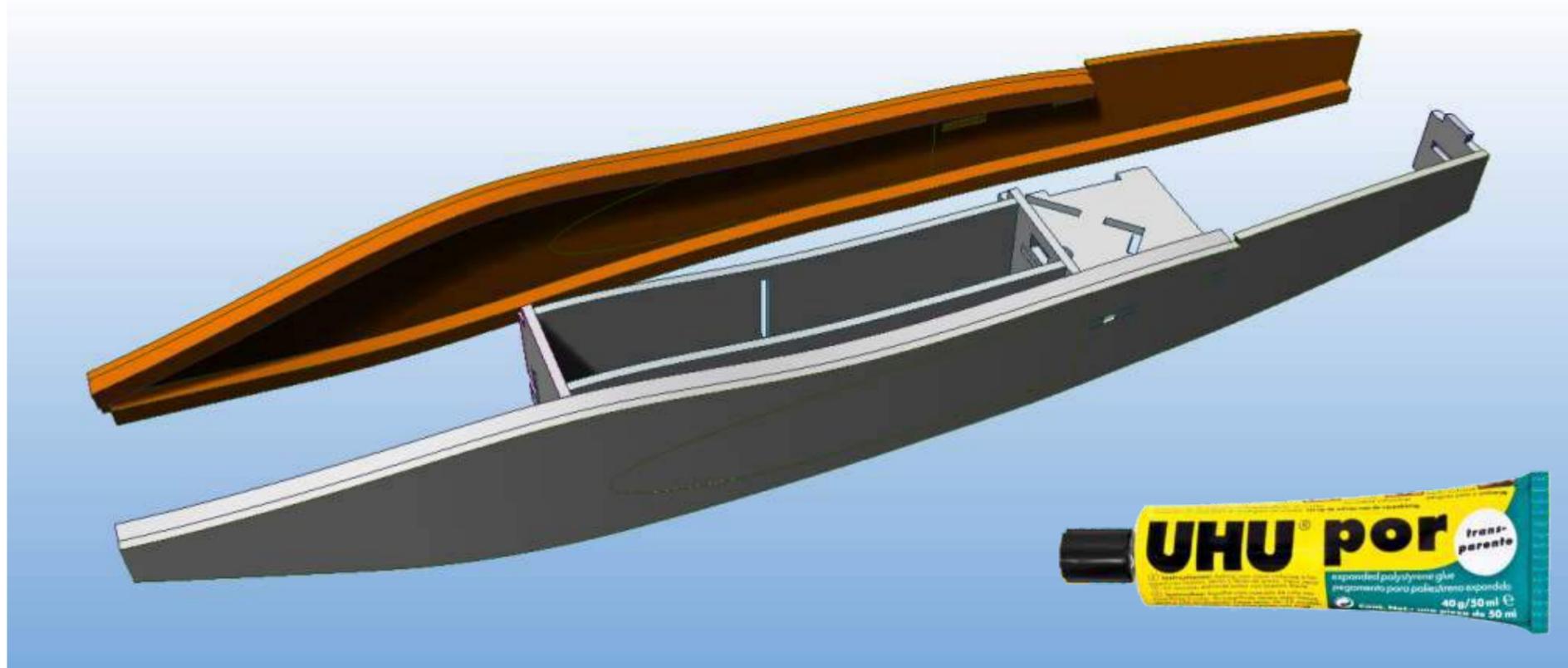


Glue 15mm corner reinforcing strips to the edges of the side fuselage pieces (inner) as shown



Including bulkhead 1, Glue one side of the fuselage to the assembly





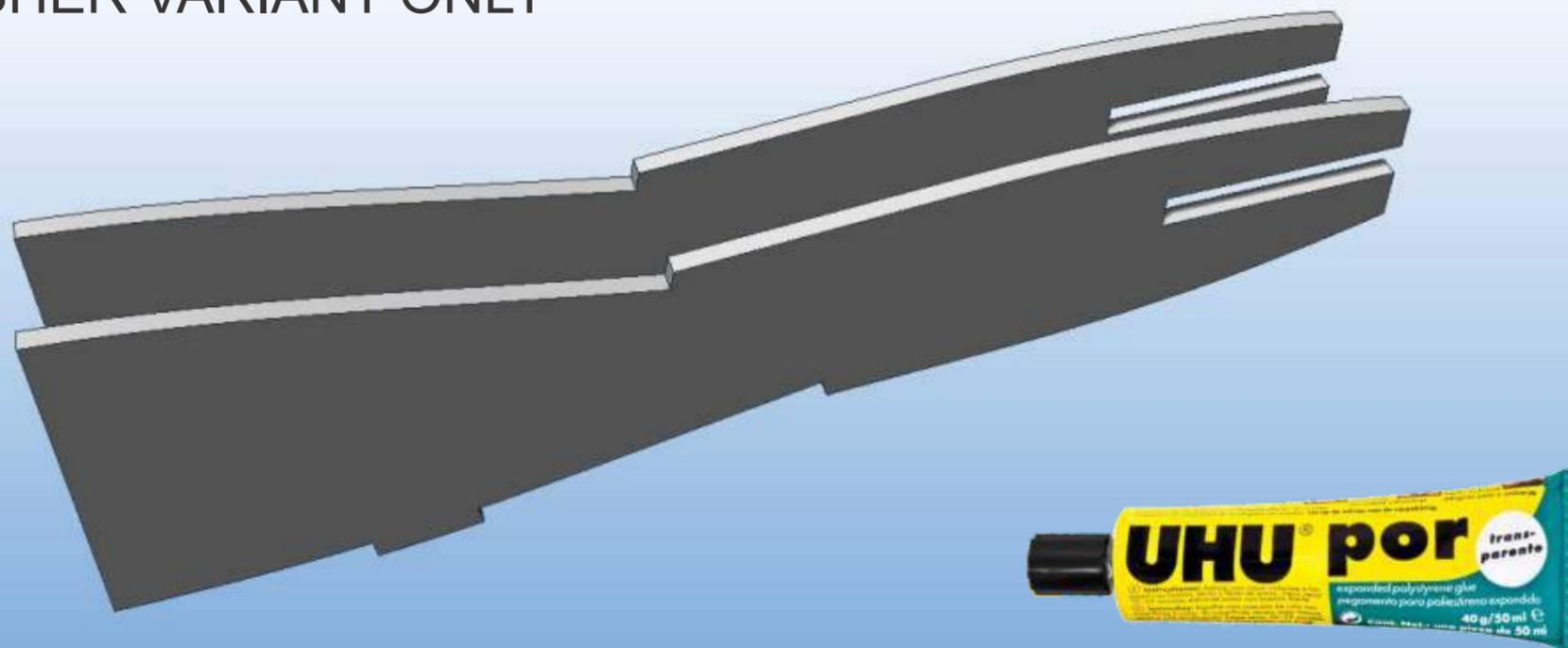
Glue the other side to the assembly.



Glue the Fuselage belly (inner) to the assembly.



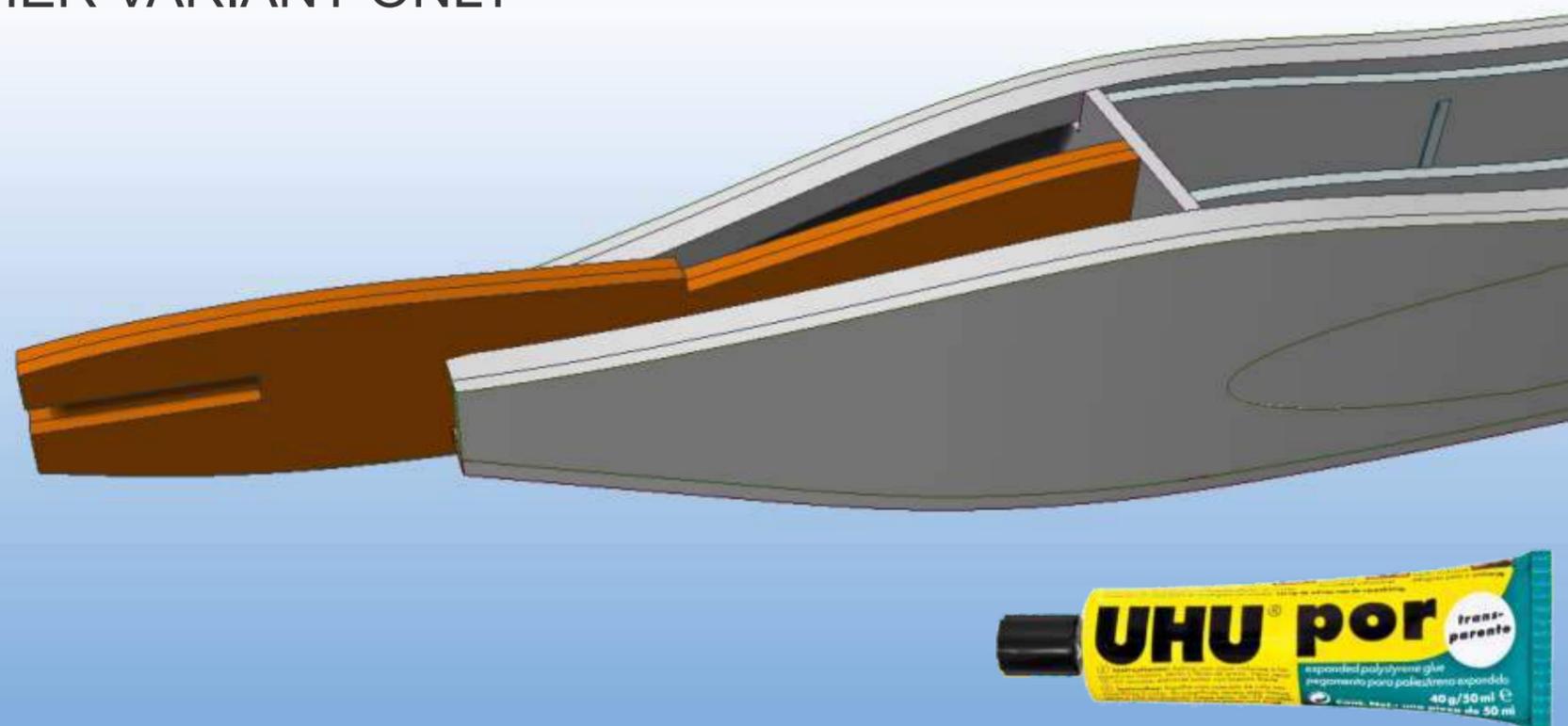
## PUSHER VARIANT ONLY



CHOICE :

IF you are making the pusher variant of the plane, glue together the two motor mount pieces.

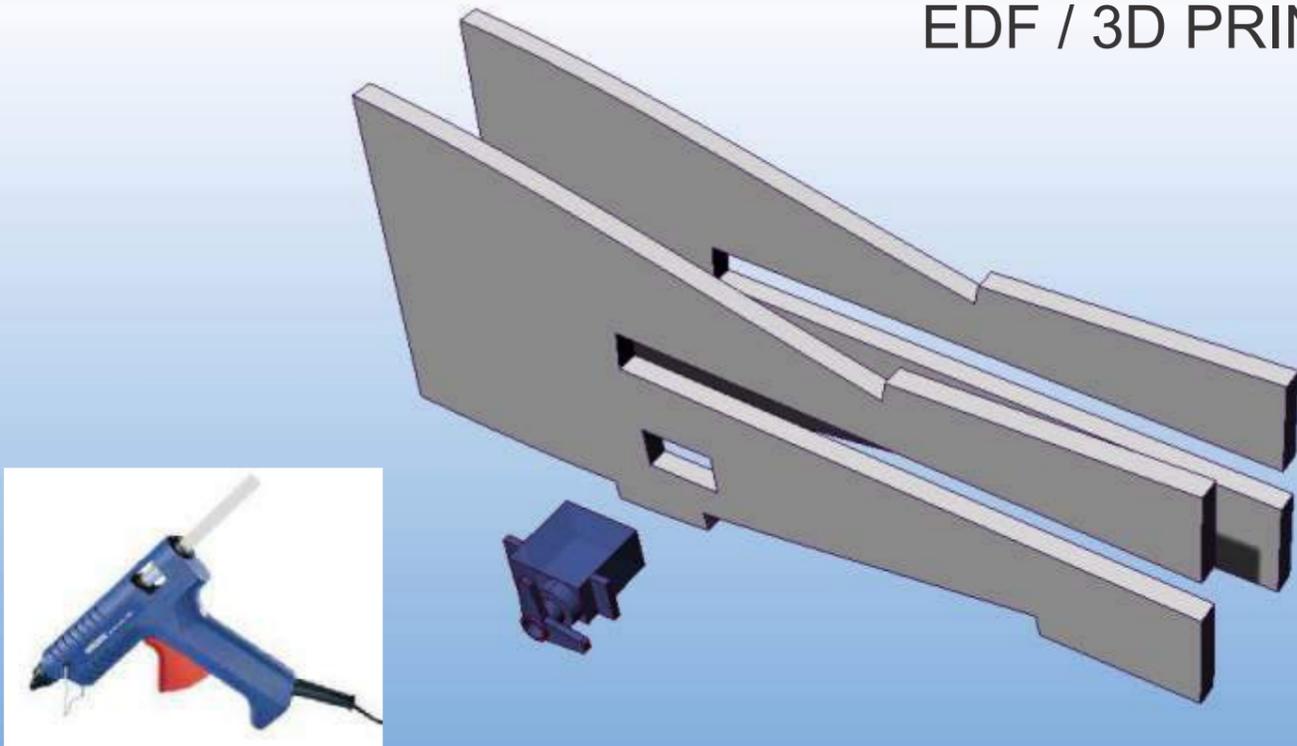
## PUSHER VARIANT ONLY



Trim away the corner fuselage reinforcers (if necessary) to glue the motor mount into the fuselage assembly.



## EDF / 3D PRINT VERSION ONLY



Glue together the two air brake servo mount pieces using UHU por.

Glue the servo in place using hot melt glue.

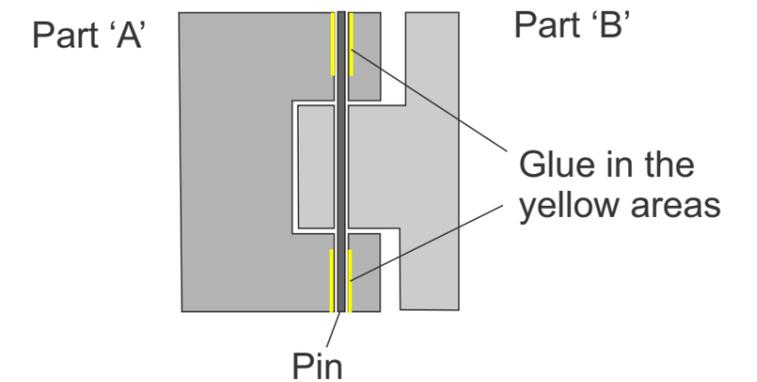
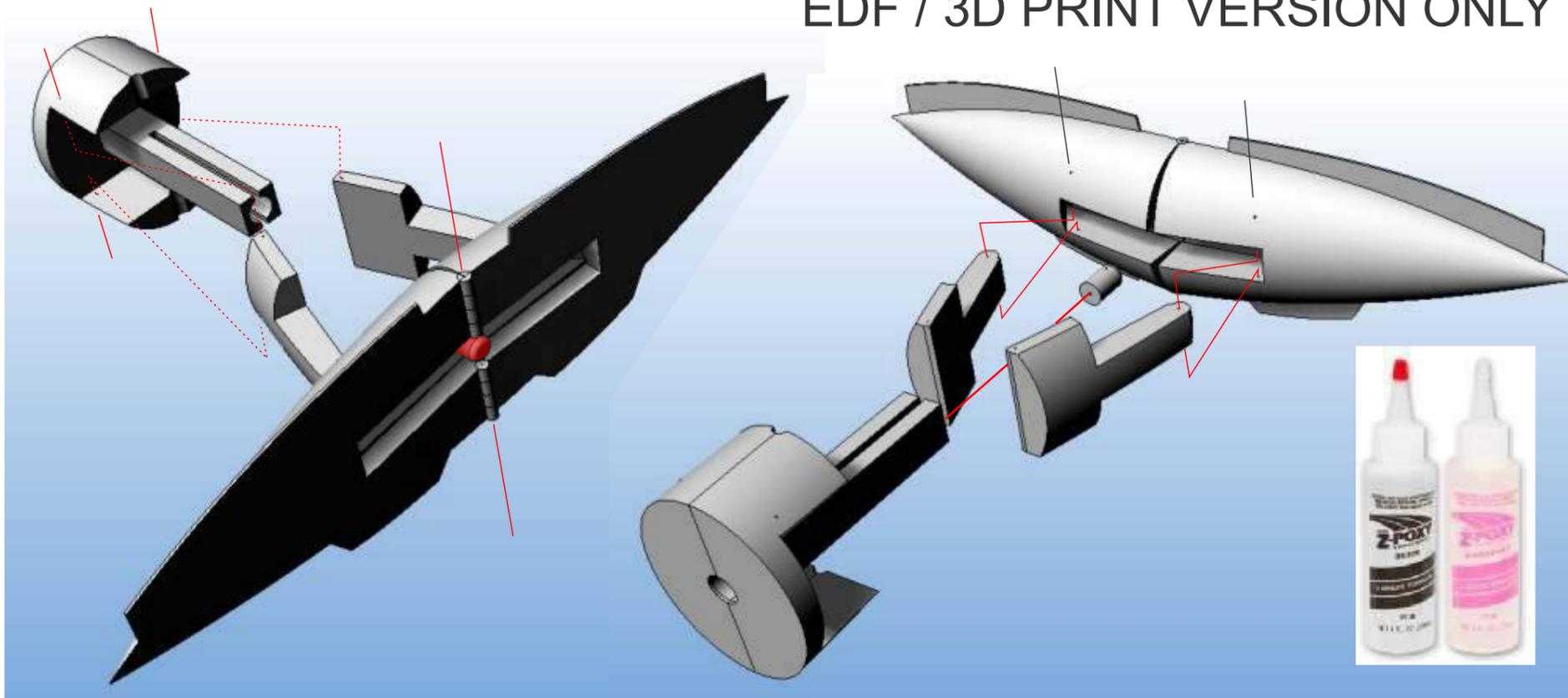


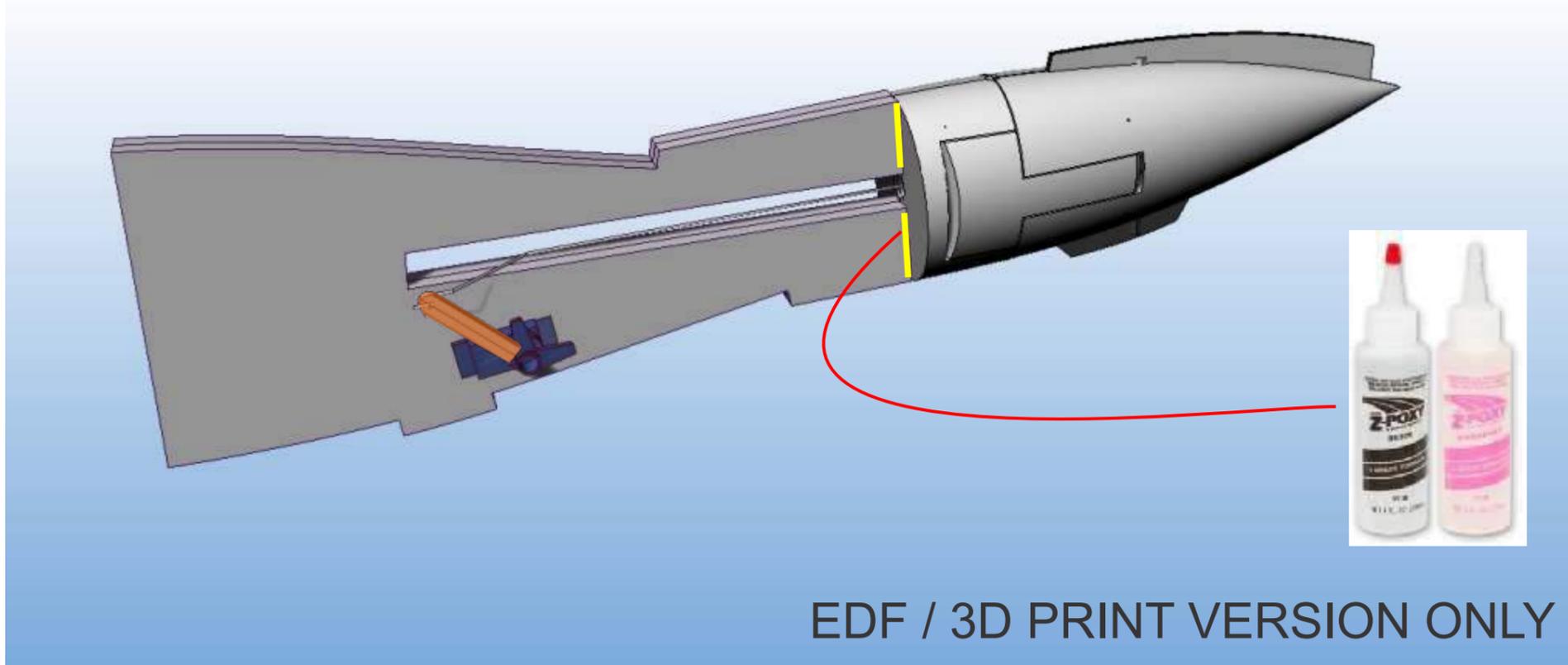
Drill out the 3d print with a 1mm drill bit. Use 1mm Piano wire to pin together all the pieces as shown.

Sand parts to reduce friction and to ensure a smooth operation of the airbrake.

put a dab of epoxy at the end of the pins to stop the pins working loose.

## EDF / 3D PRINT VERSION ONLY

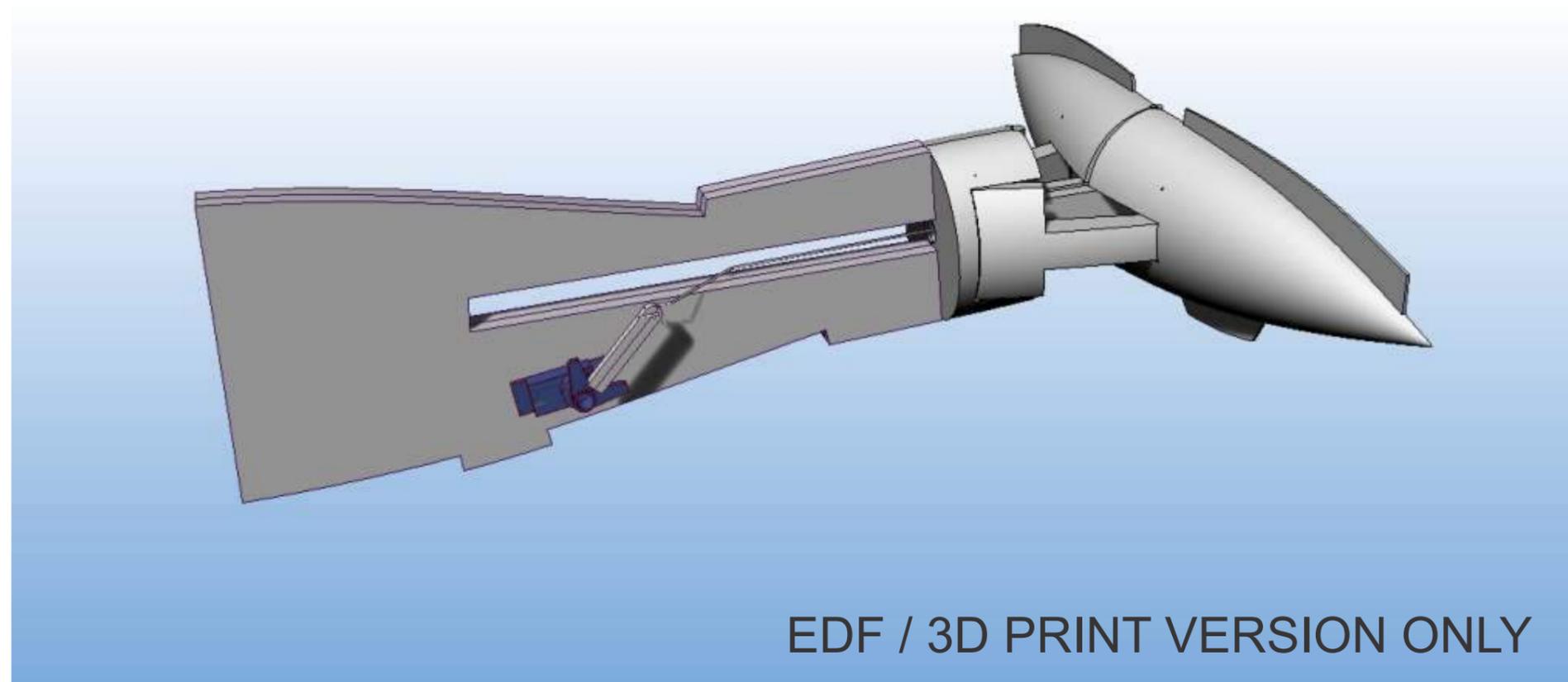




Glue 3d print assembly base to the depron servo mount piece using epoxy.

Screw the servo arm extender to the servo arm and connect the piano wire to the end as shown

EDF / 3D PRINT VERSION ONLY

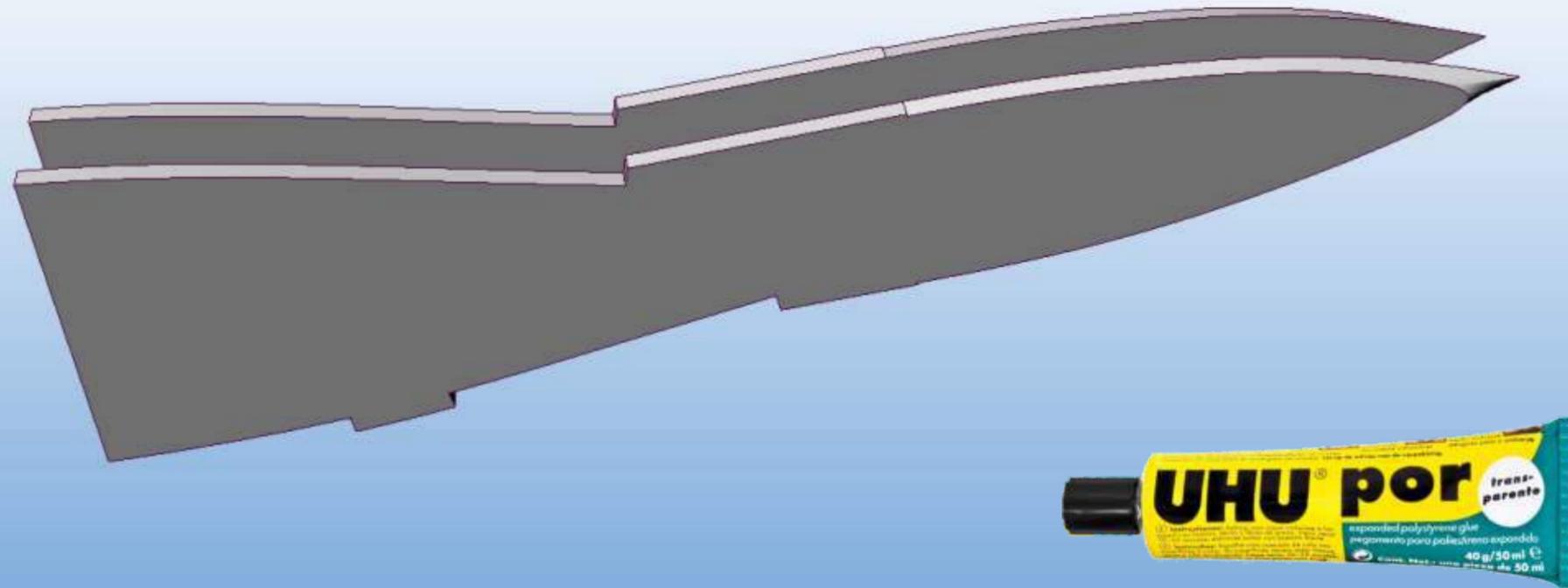


Operate the airbrake several times to ensure a smooth problem free operation. Ensure that the pushrod doesn't have any flex.

EDF / 3D PRINT VERSION ONLY

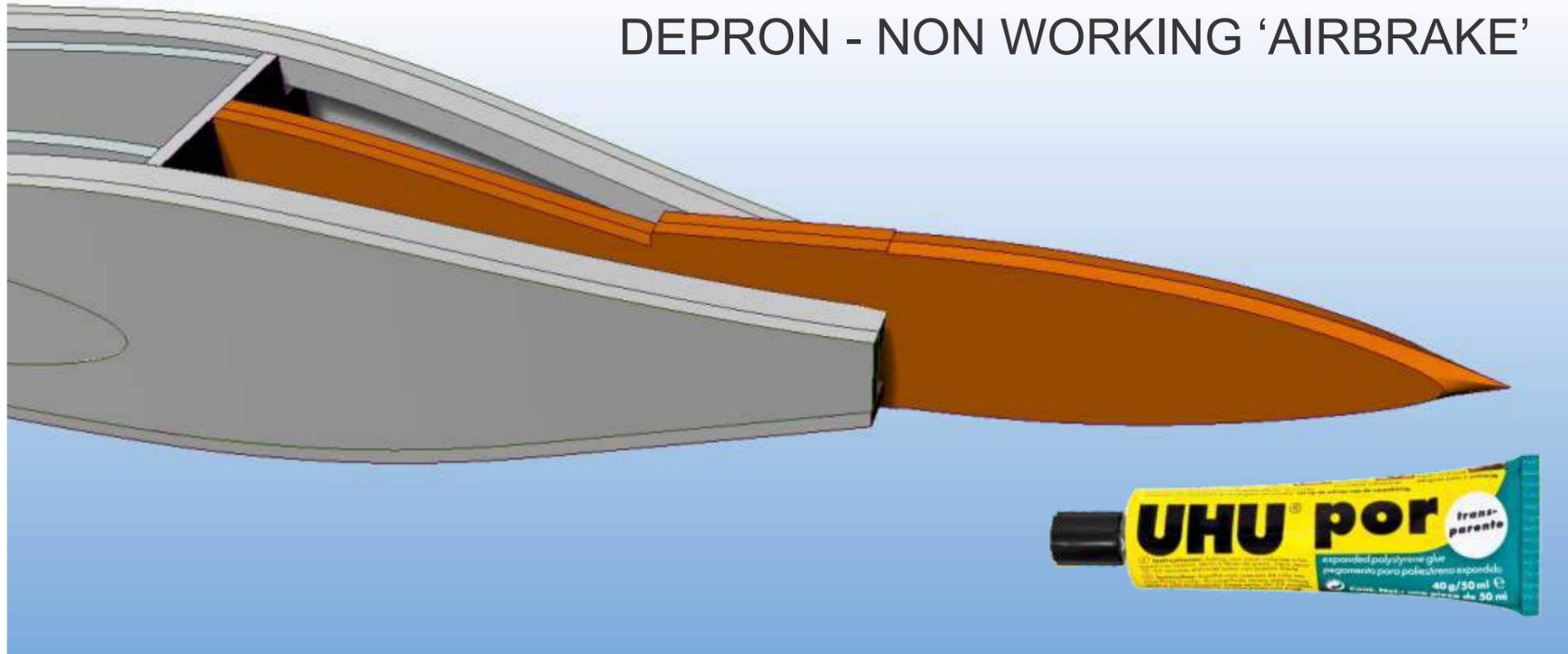


# DEPRON - NON WORKING 'AIRBRAKE'



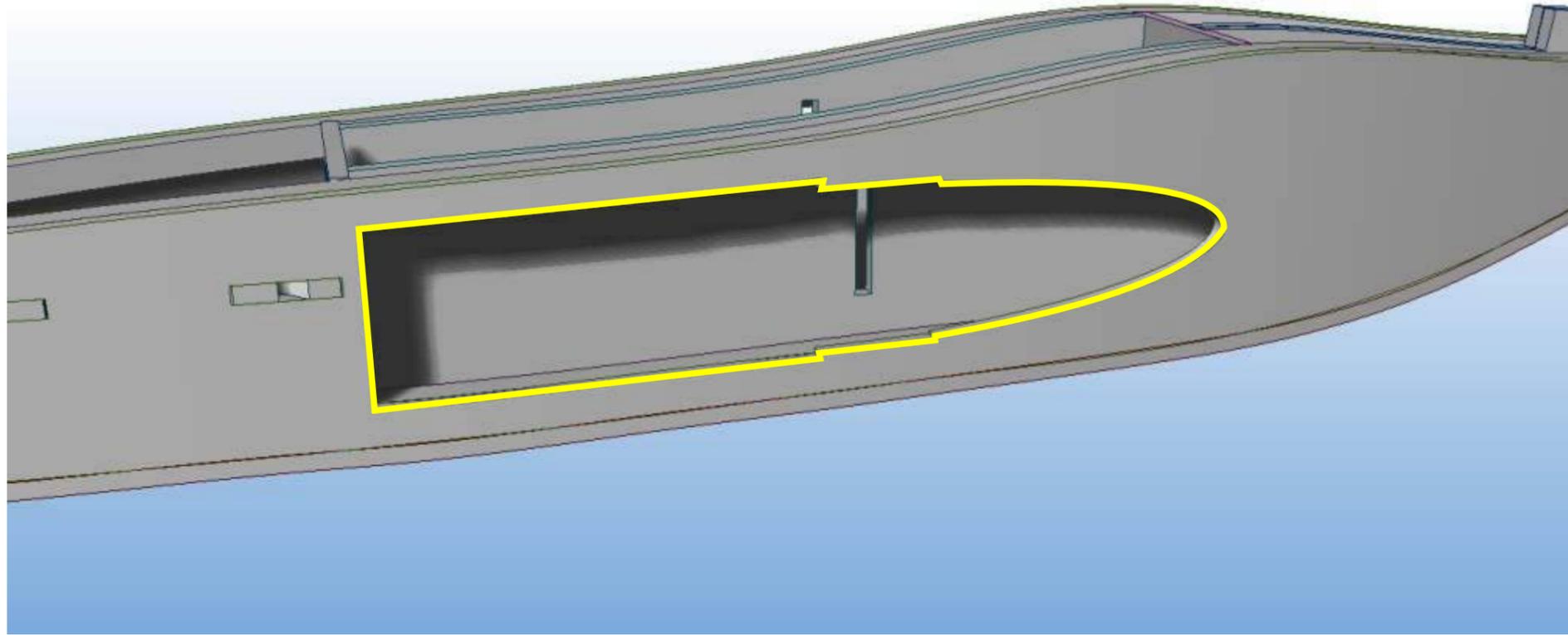
Glue together the airbrake pieces.

# DEPRON - NON WORKING 'AIRBRAKE'



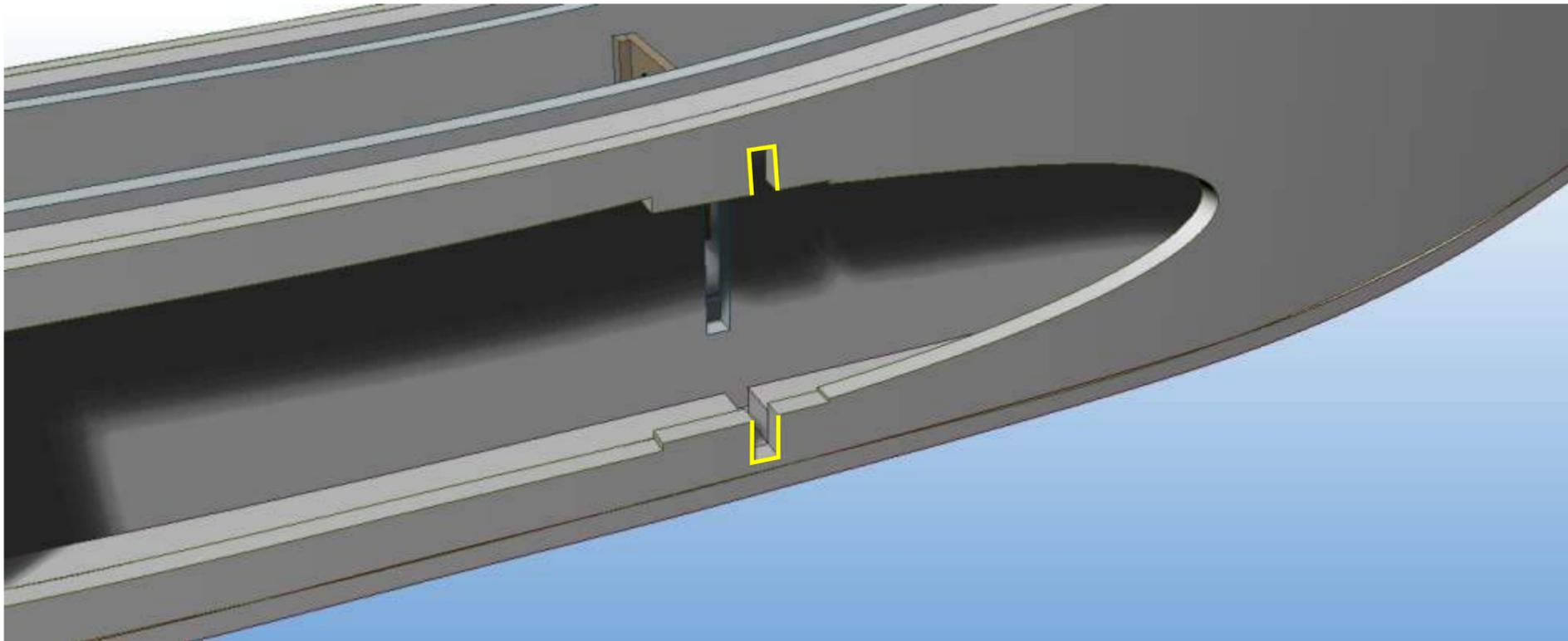
Glue the airbrake middle pieces into the assmebly as shown





Trim away the apertures on the sides of the Fuselage sides (inner)

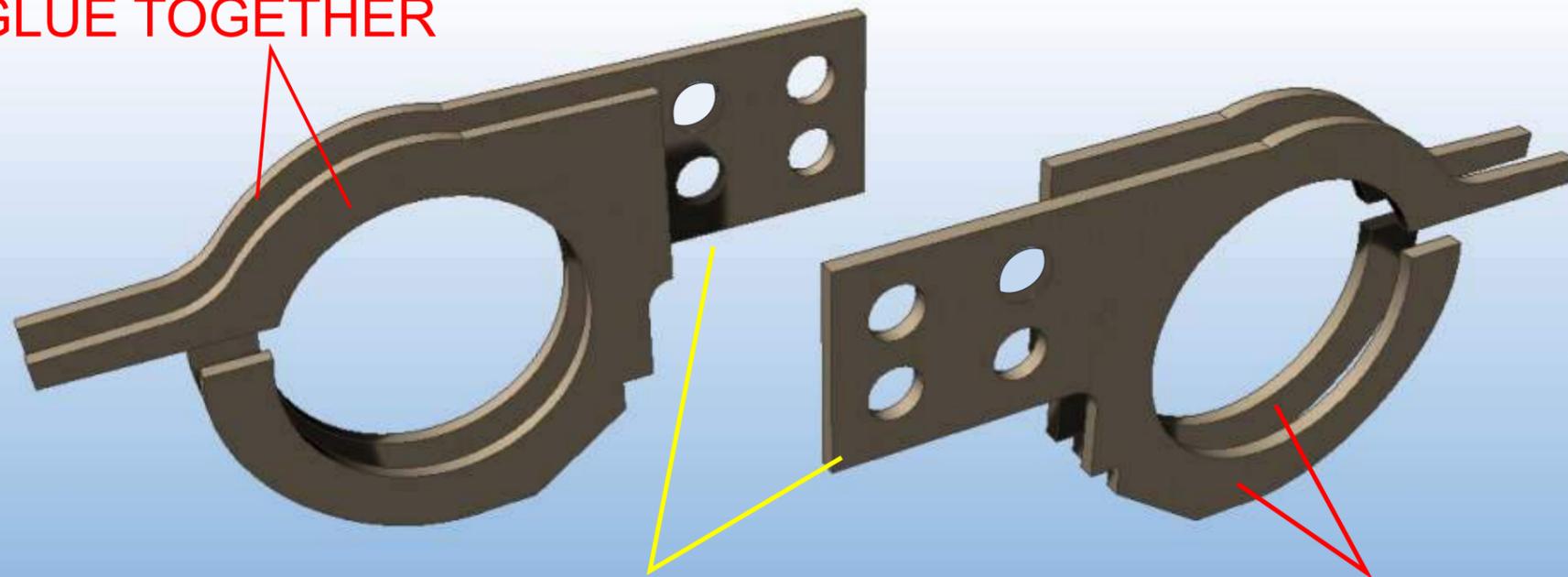
Trim the corner reinforcers to match the aperture.



Trim away the slots for the Plywood fuselage bulkhead - cutting through the corner reinforcers (but not the bomb bay sides) as shown.



**GLUE TOGETHER**



**DON'T GLUE TOGETHER (YET)**

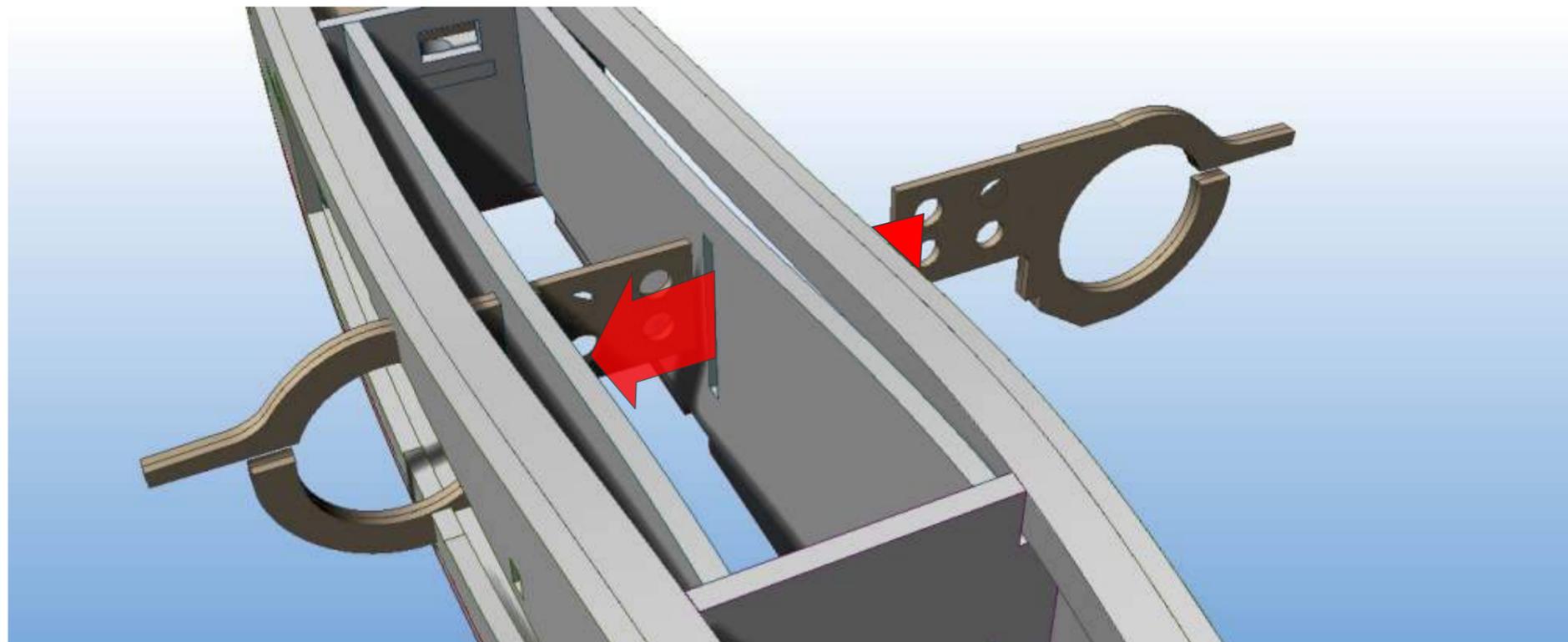
**GLUE TOGETHER**

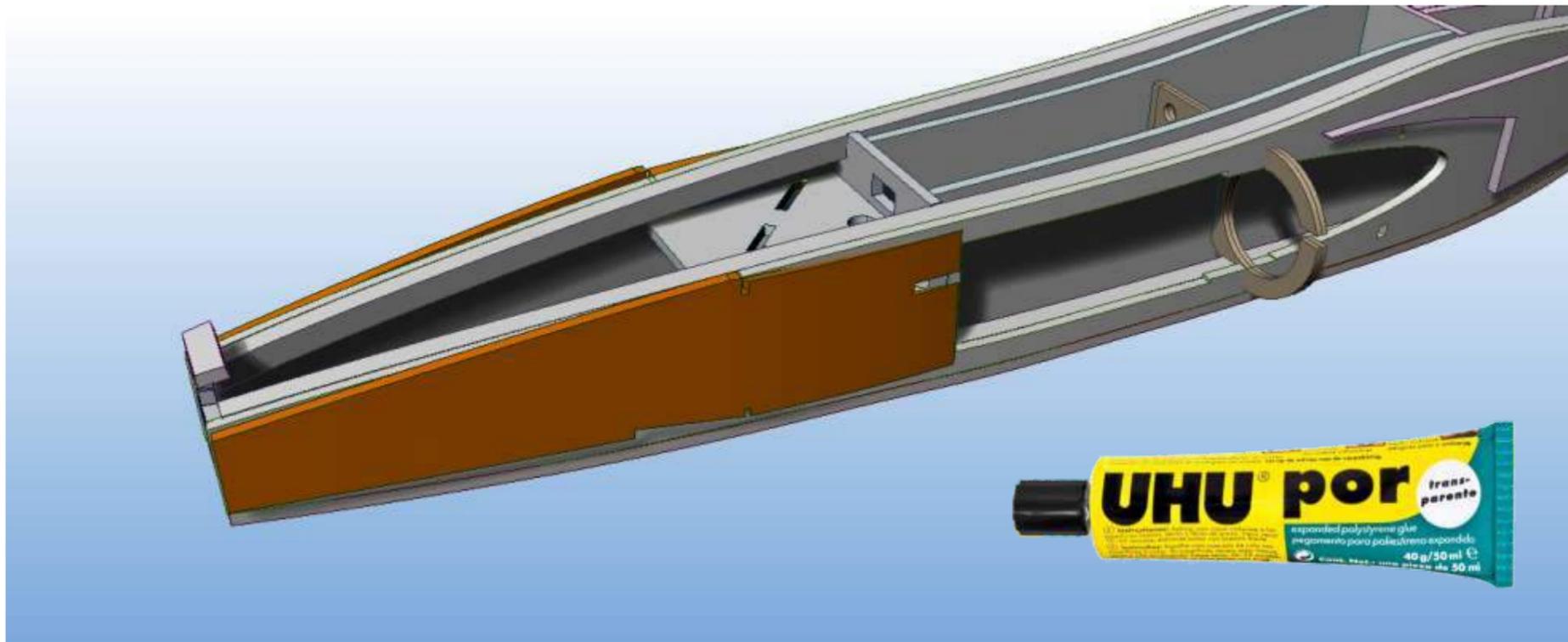
Create the two pieces of the plywood spar bulkhead by glueing the circular pieces together as shown. Use Epoxy and ensure a good bond.

Don't glue the two main parts of the

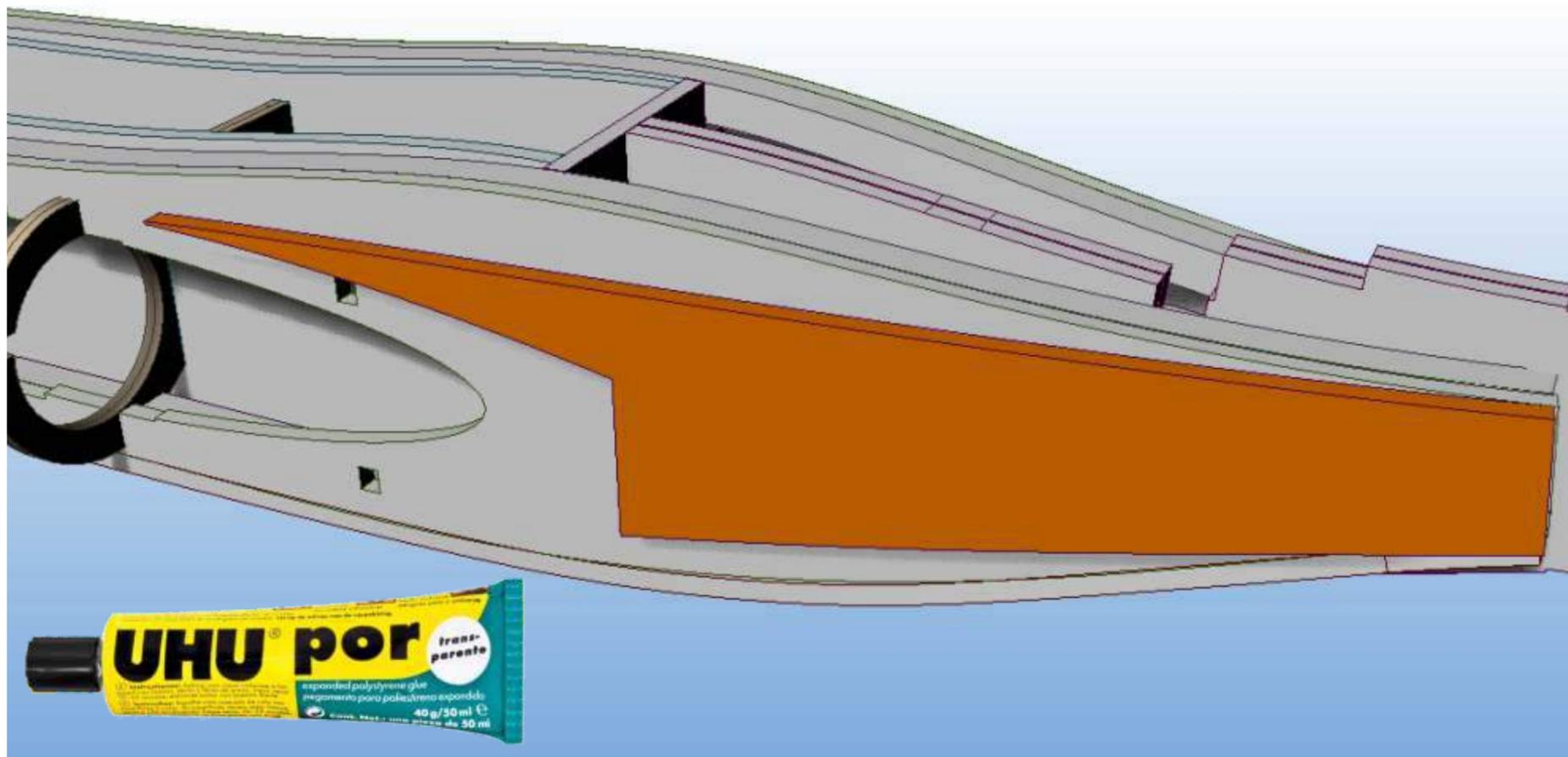


Dry fit first, then epoxy the plywood spar bulkhead pieces both to the fuselage assembly and to each other.



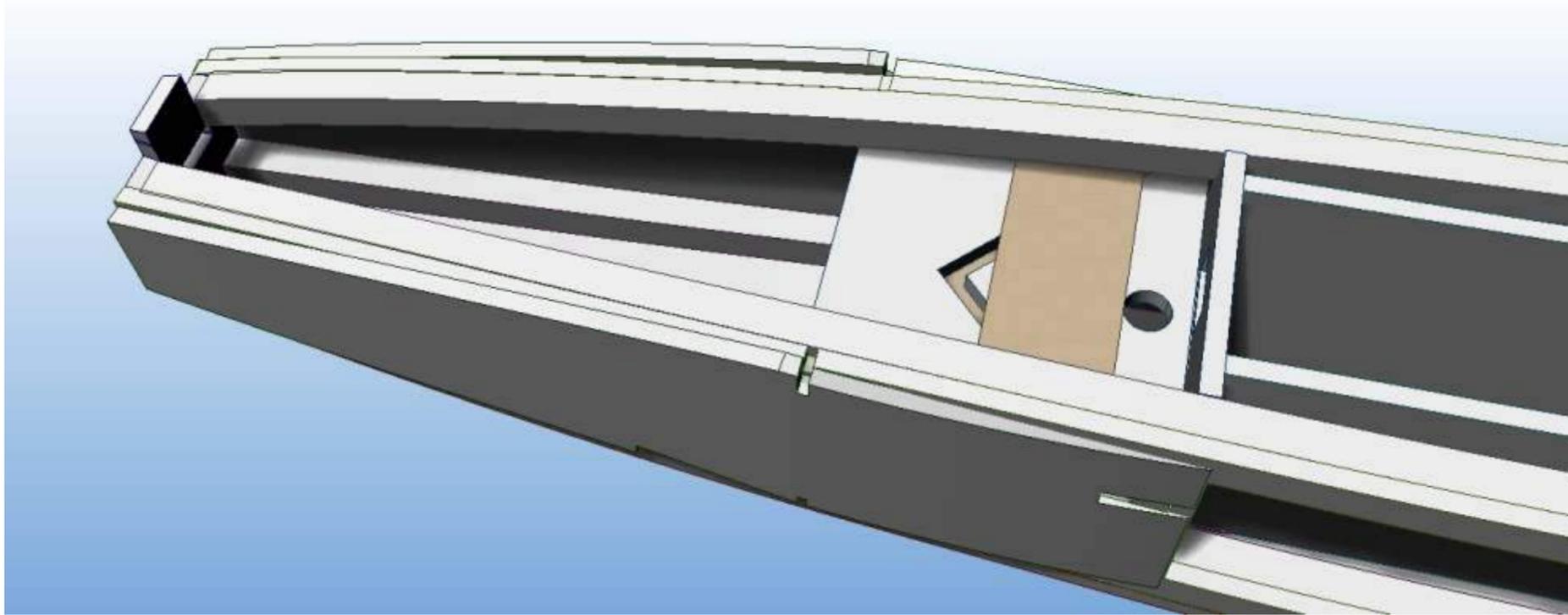


Glue the forward fuselage (outer) piece to the assembly - aligned to the marks shown on the drawing.

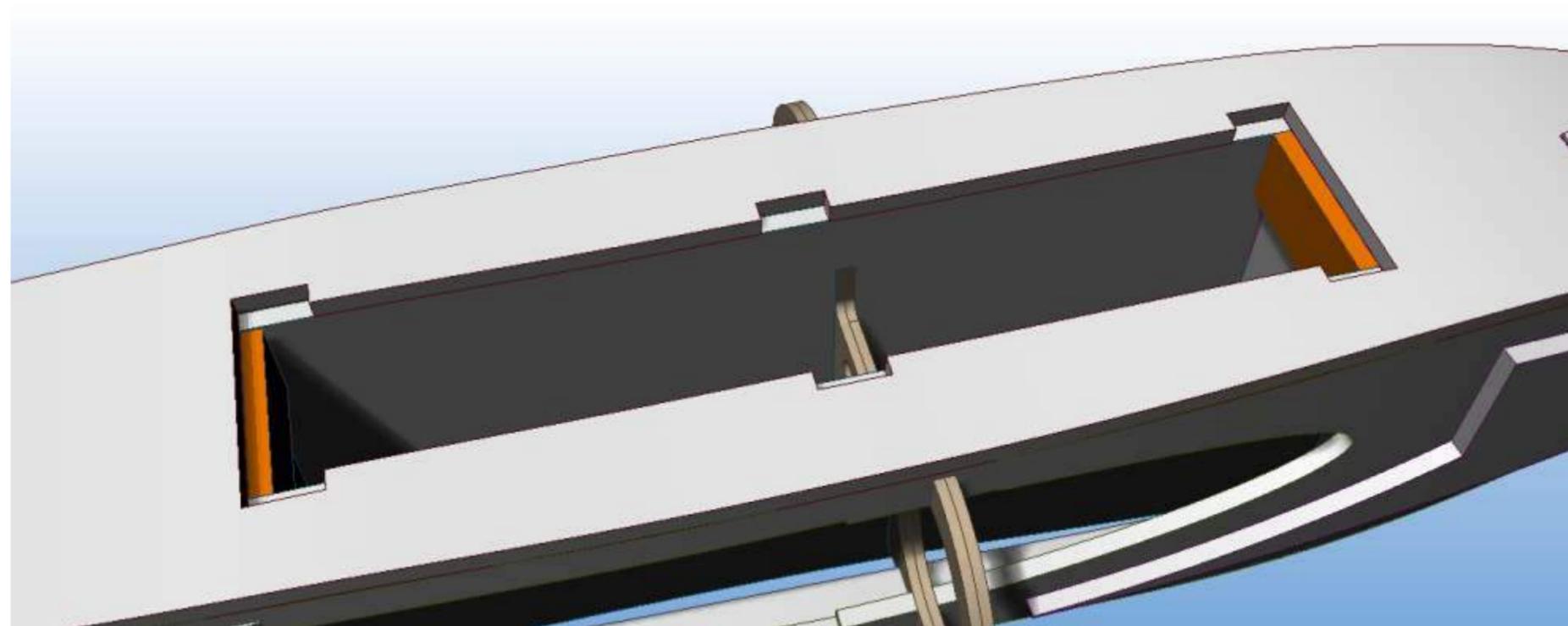


Glue the rear fuselage (outer) piece to the assembly - aligned to the marks shown on the drawing.



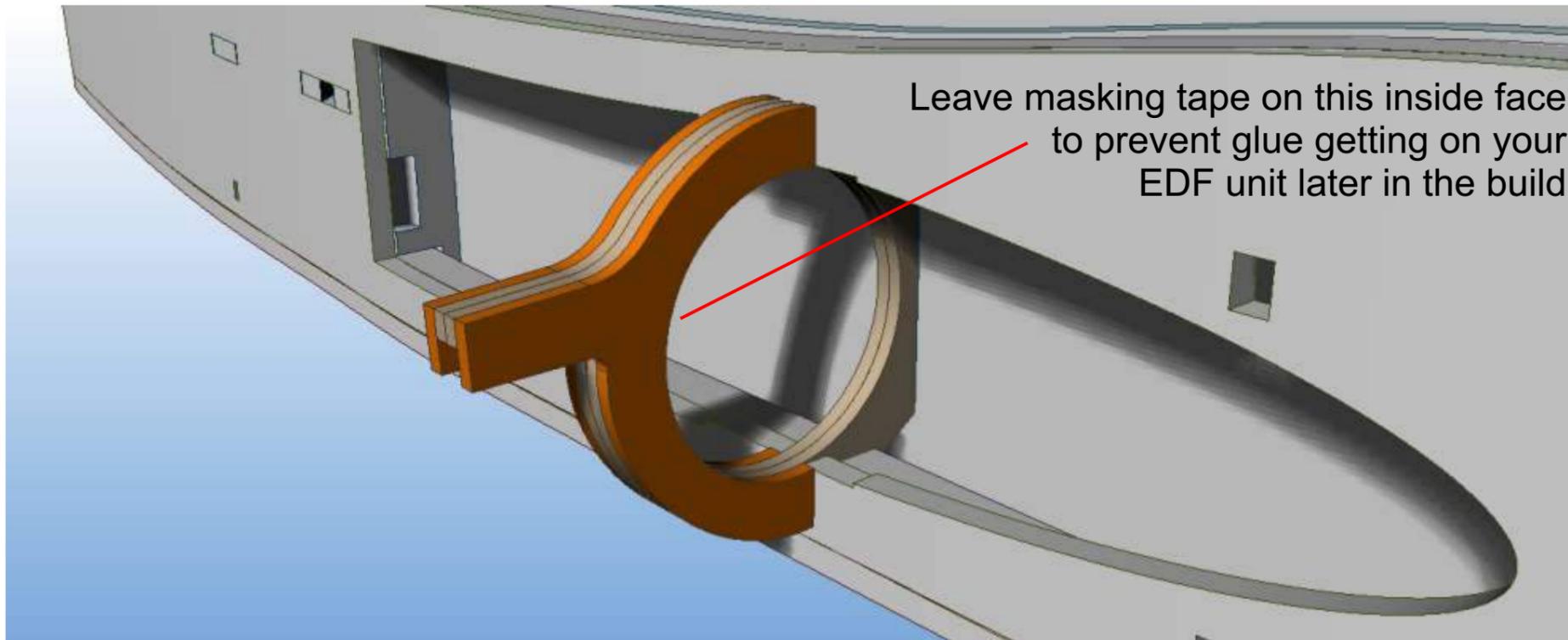


Glue the 3mm lite-ply upper brace to the assembly.

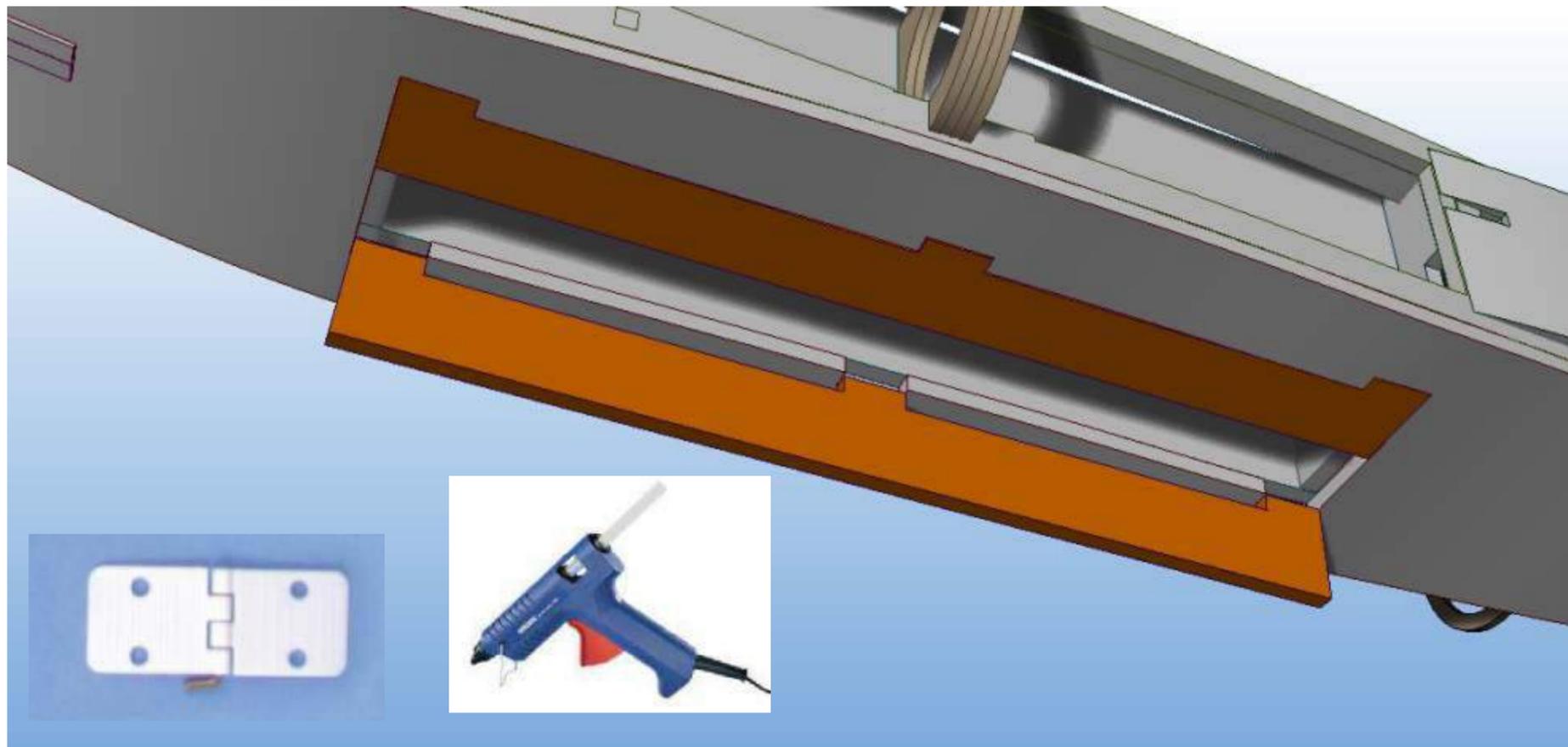


Glue the two bomb bay door end stops in place.



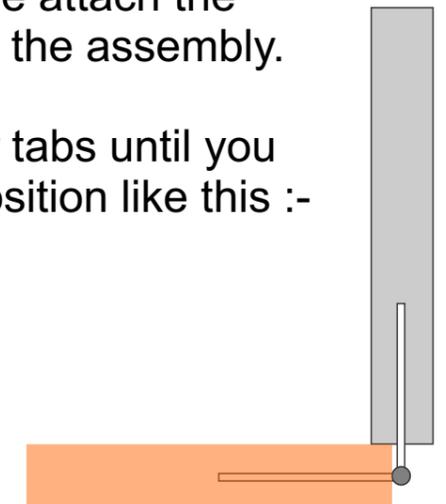


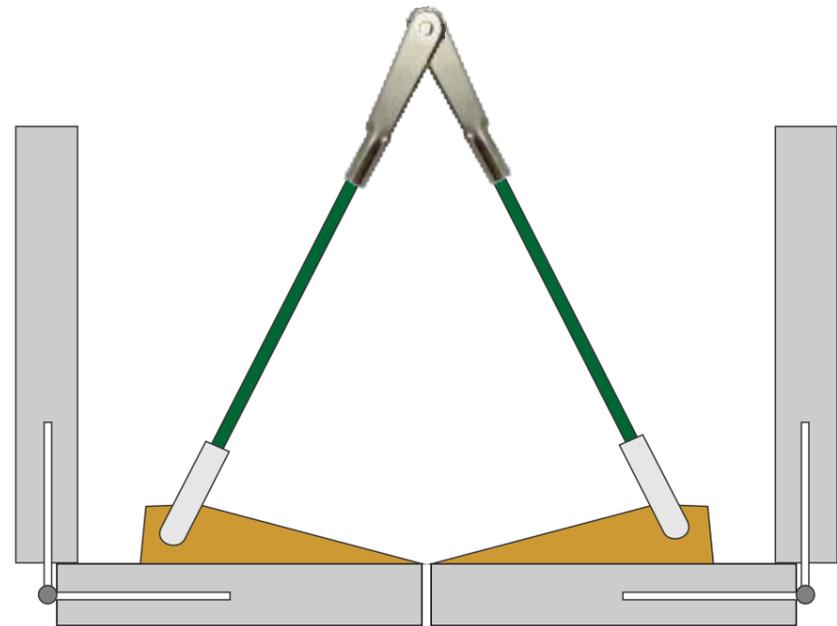
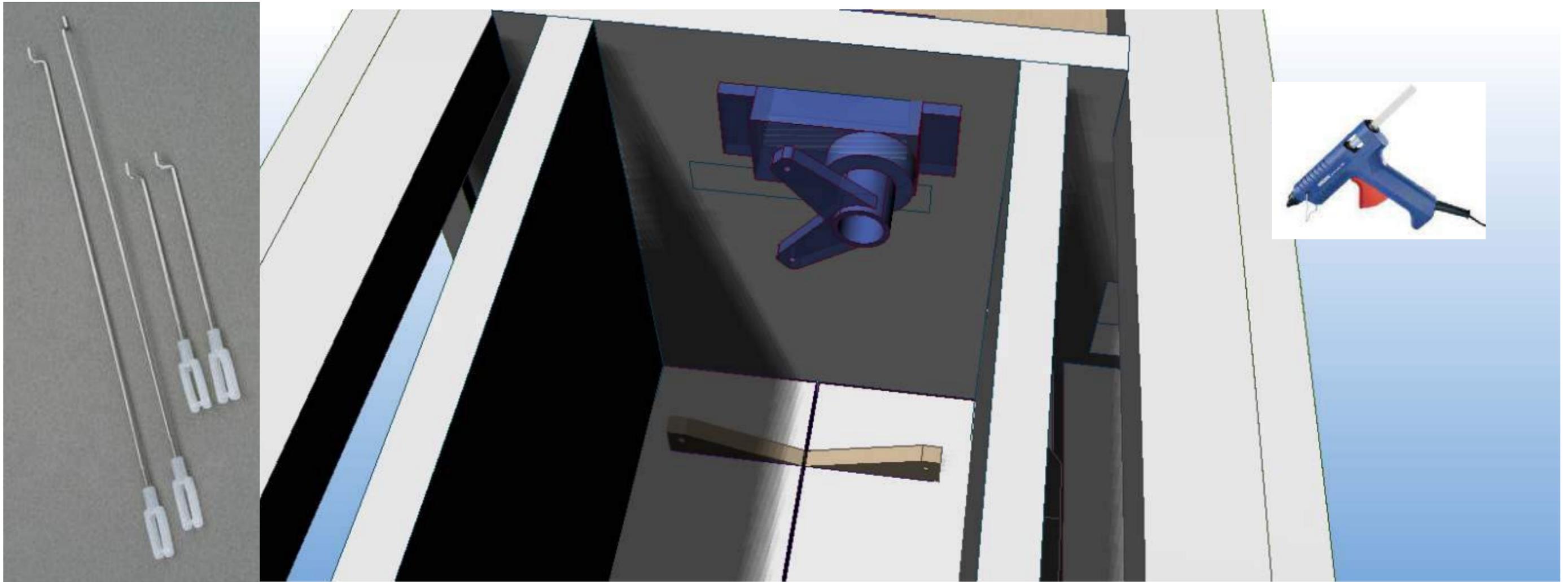
Glue the plywood spar bulkhead sides to the ply spar bulkhead as shown using EPOXY.



Using Graupner mini hinges held in place using hot glue attach the bomb bay doors to the assembly.

Trim back the door tabs until you achieve a hinge position like this :-

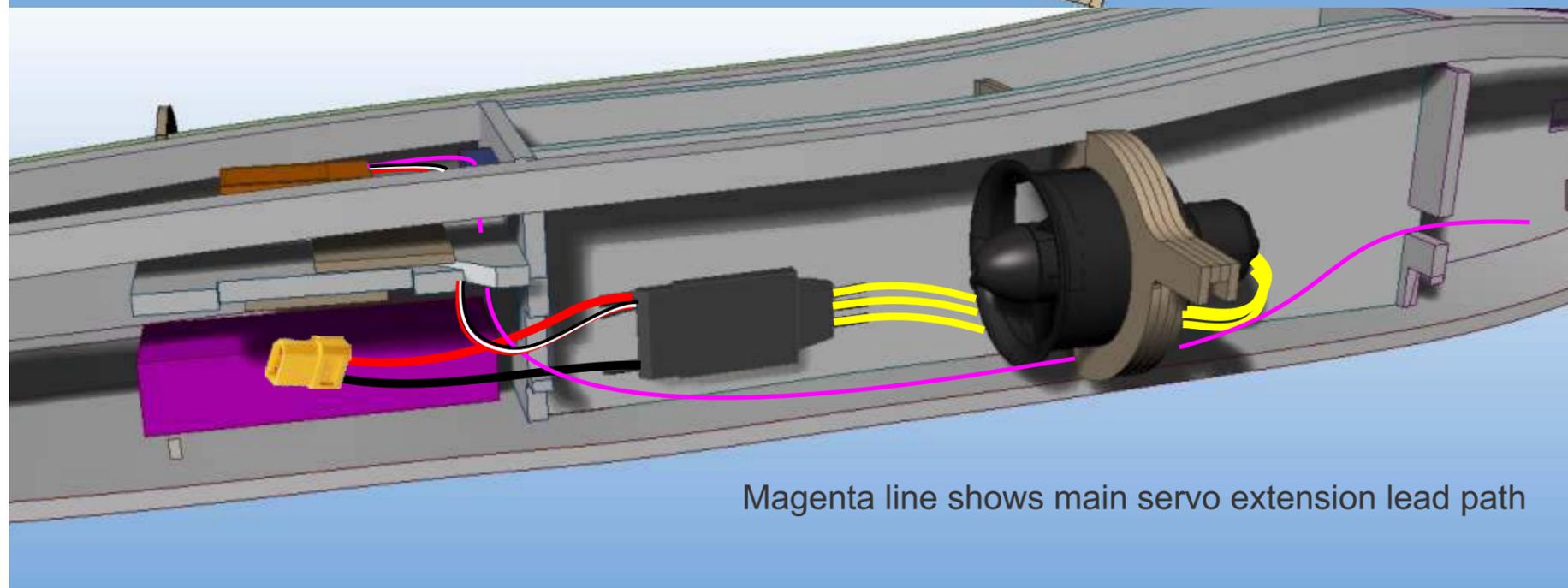
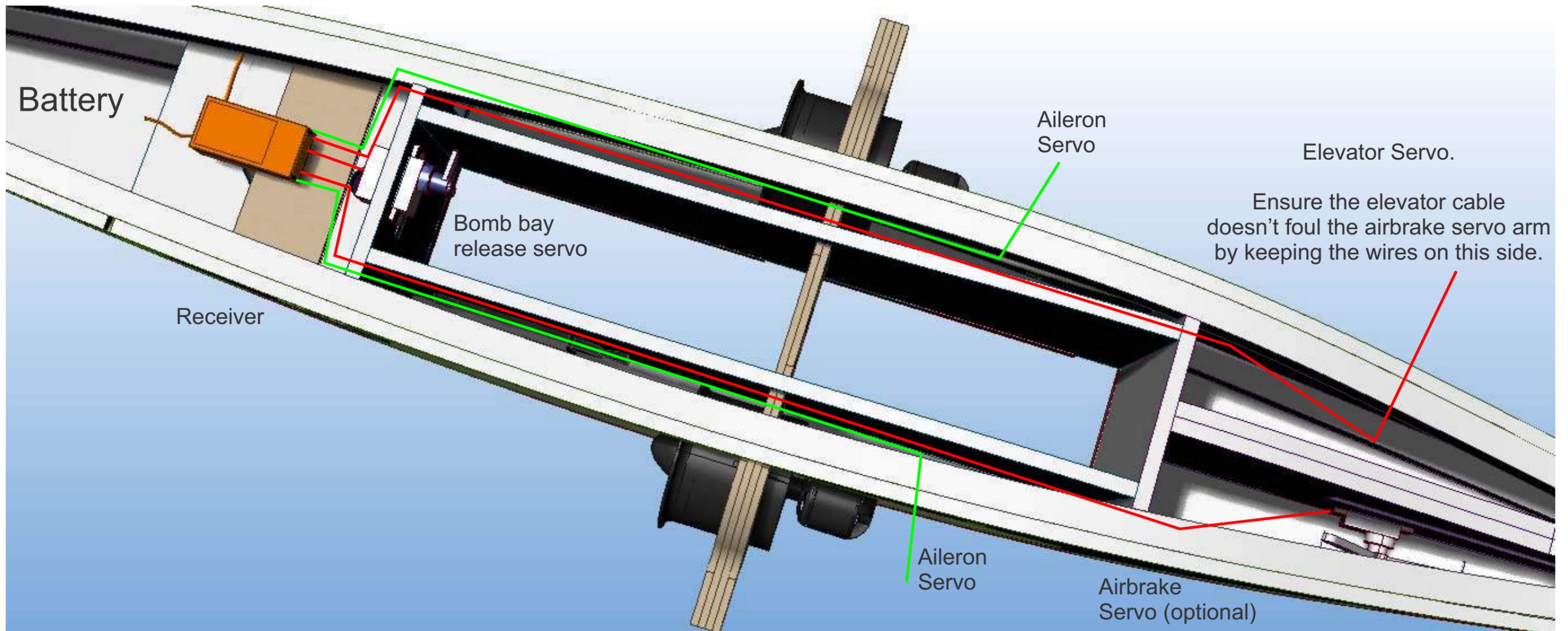




Position the servo with the servo horn outermost hole on the centreline of the plane.

Construct the linkage as shown, I suggest cutting off the pin side of two metal clevises and then using a single self tapping screw through both clevises to the outermost control horn. ensure a good fix, but allow the clevises to slide left-right.





Using servo extension leads, route the servo cables through the fuselage as shown.

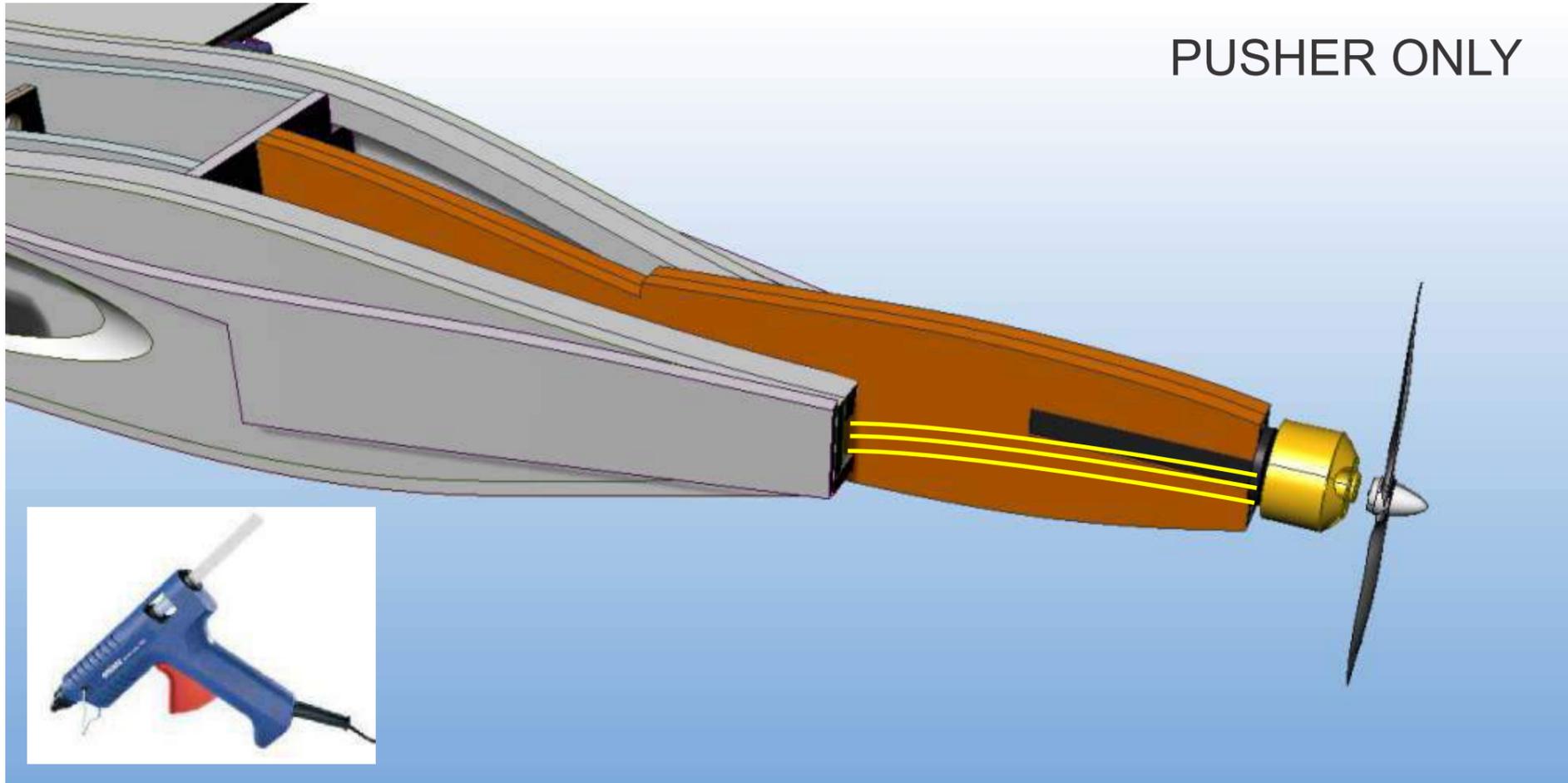
#### PUSHER VARIANT

Position the ESC as per an EDF ESC, then run the 3 motor cables through to the rear of the fuselage and out to the motor.

Connect and test all the electronics



## PUSHER ONLY

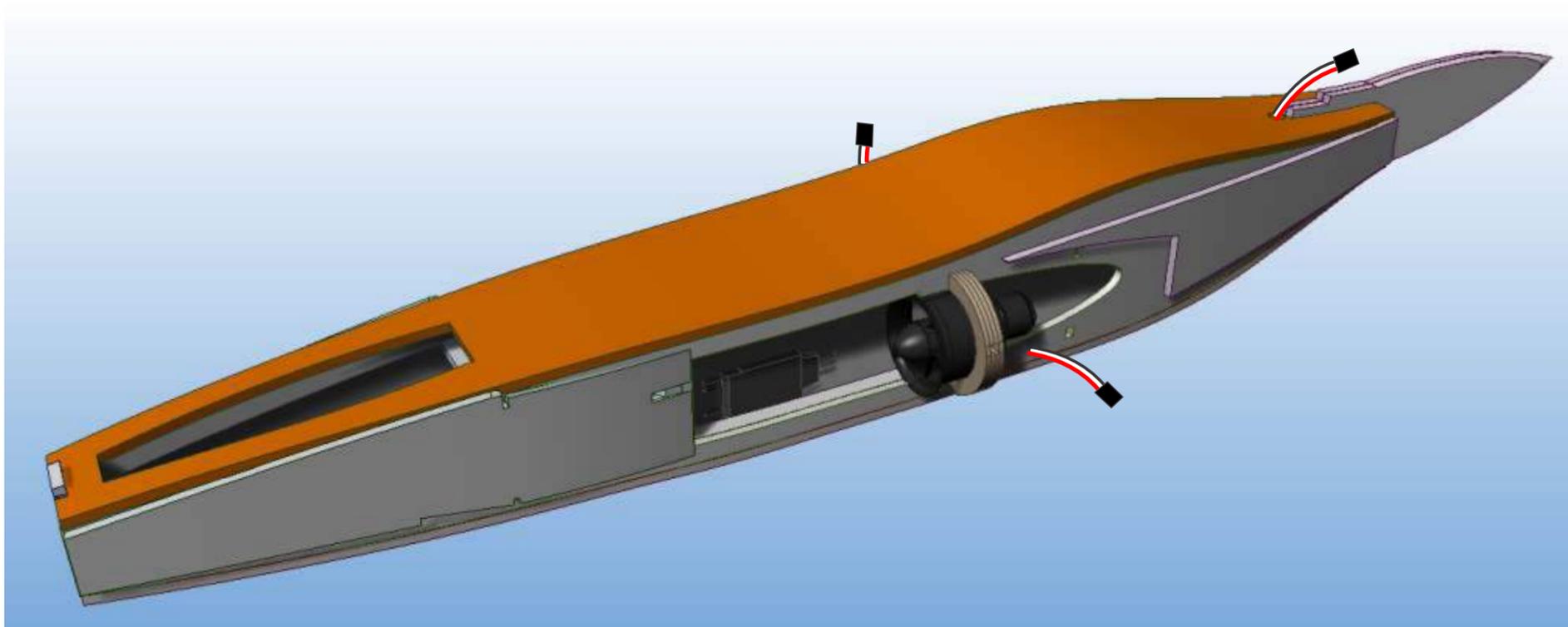


Glue the motor stick mount into the motor mount using hot melt glue.

Hobbyking - SKU:OR004-00602



Connect the electronics to the motor and test everything is OK. (check prop spin direction)



Once all the electronics have been tested, secure all the cables, and leave run the elevator and aileron servo cable extension plugs to the outside.

Glue the Upper fuselage (inner) in place.



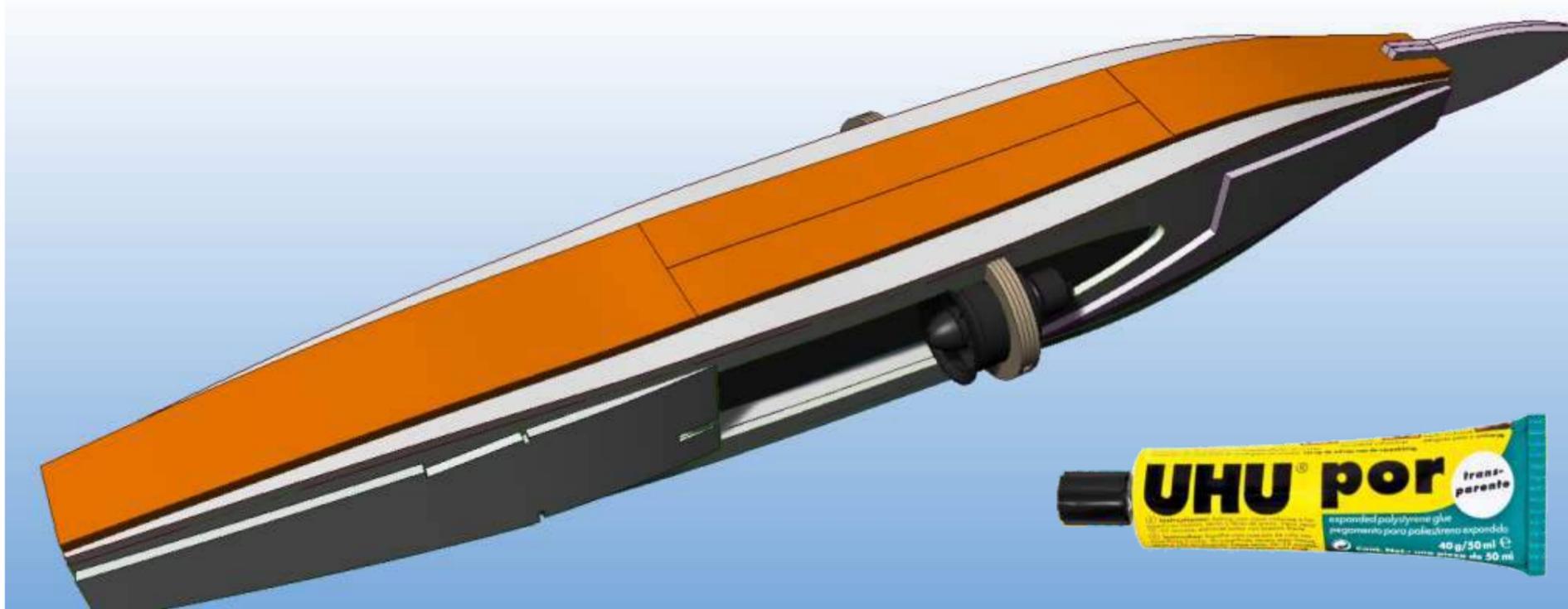


Glue the Fuselage top (middle) piece onto the assembly.



Glue the Fuselage top (upper) piece onto the assembly.





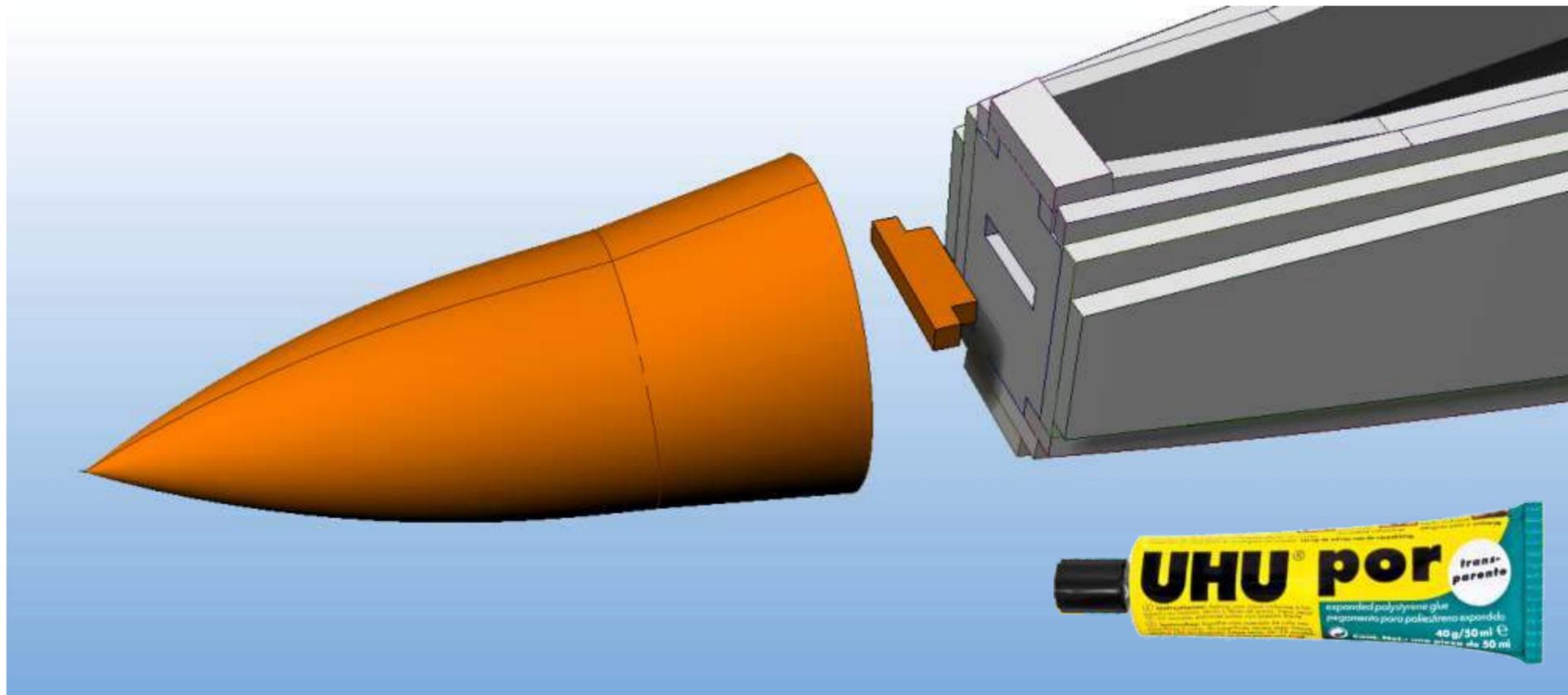
Glue the Fuselage belly (mid) piece onto the fuselage assembly.

Trim away the outer edges of the bomb bay door parts to ensure that it doesn't bind during door operation.



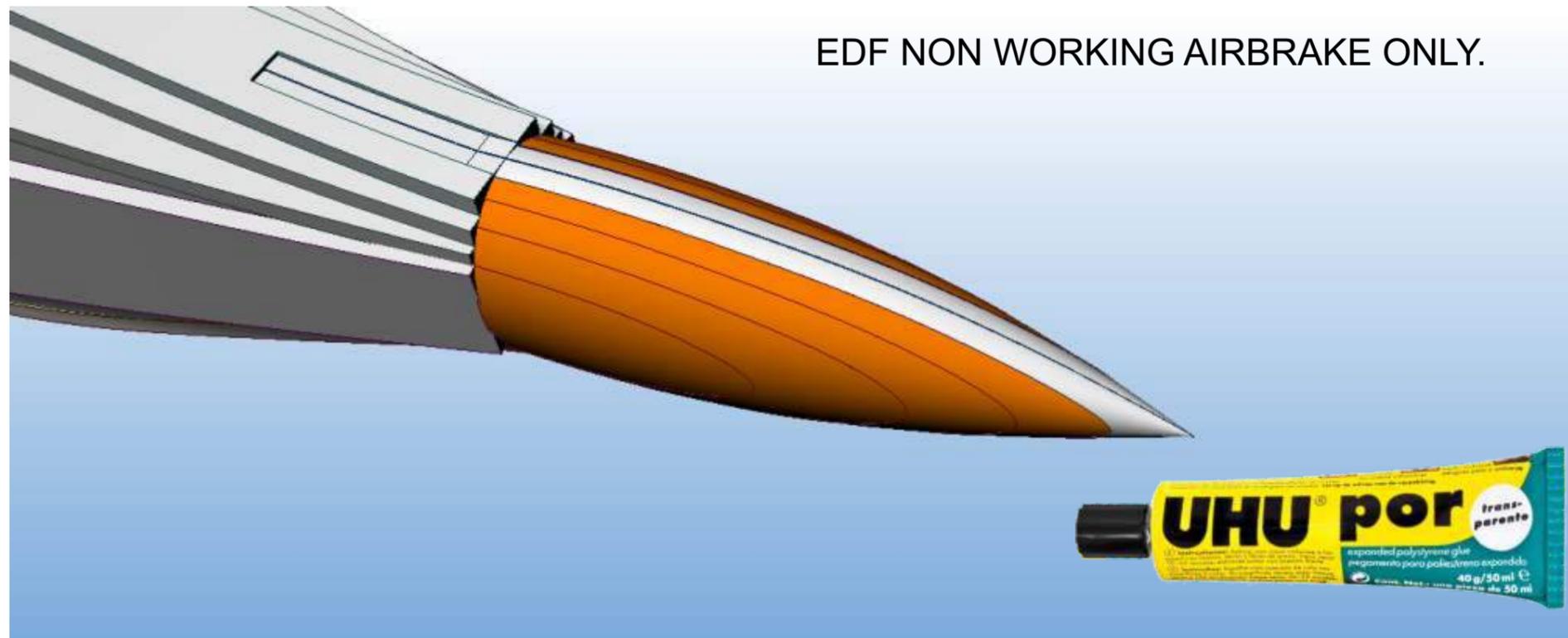
Glue the Fuselage belly (outer) onto the fuselage assembly.





Laminate and sand the nosecone pieces to create the nosecone.

Utilising the nosecone aligner, Glue the nosecone onto the assembly.

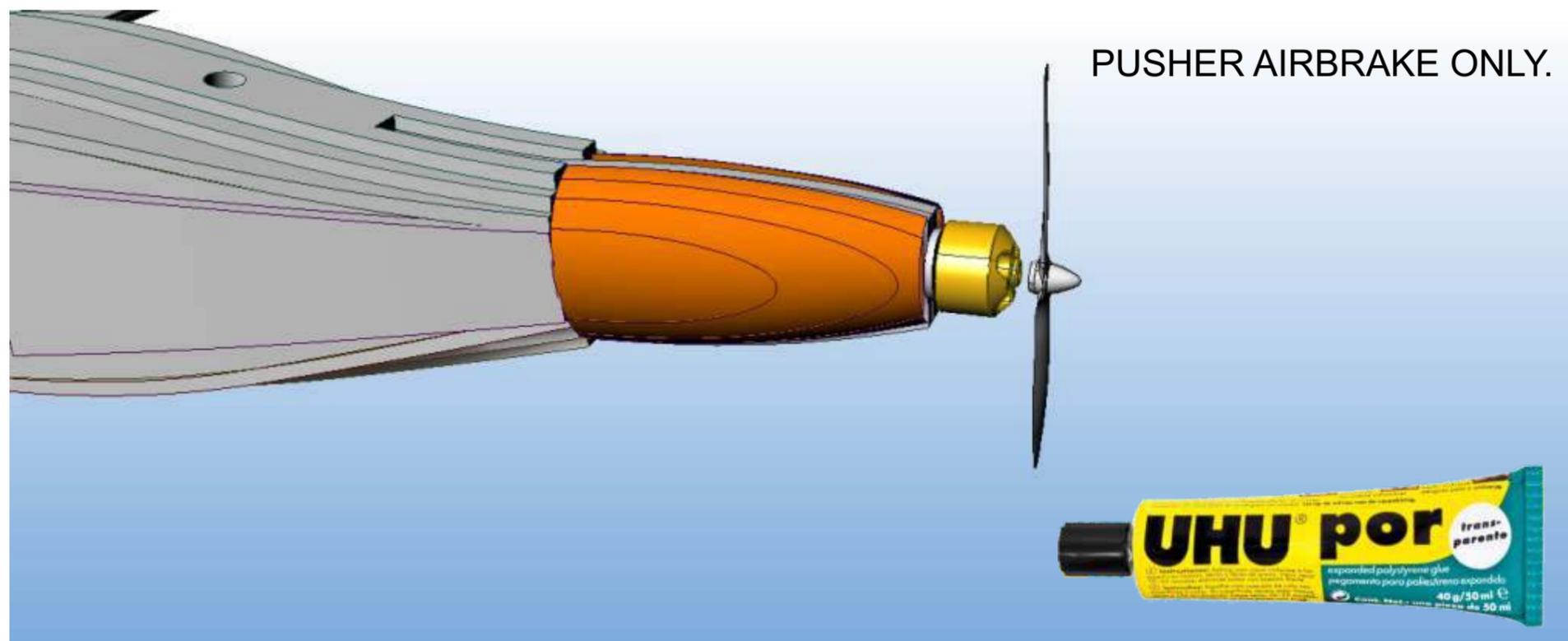


EDF NON WORKING AIRBRAKE ONLY.

EDF non working Airbrake only.

Glue the remaining airbrake pieces together onto the assembly as shown.

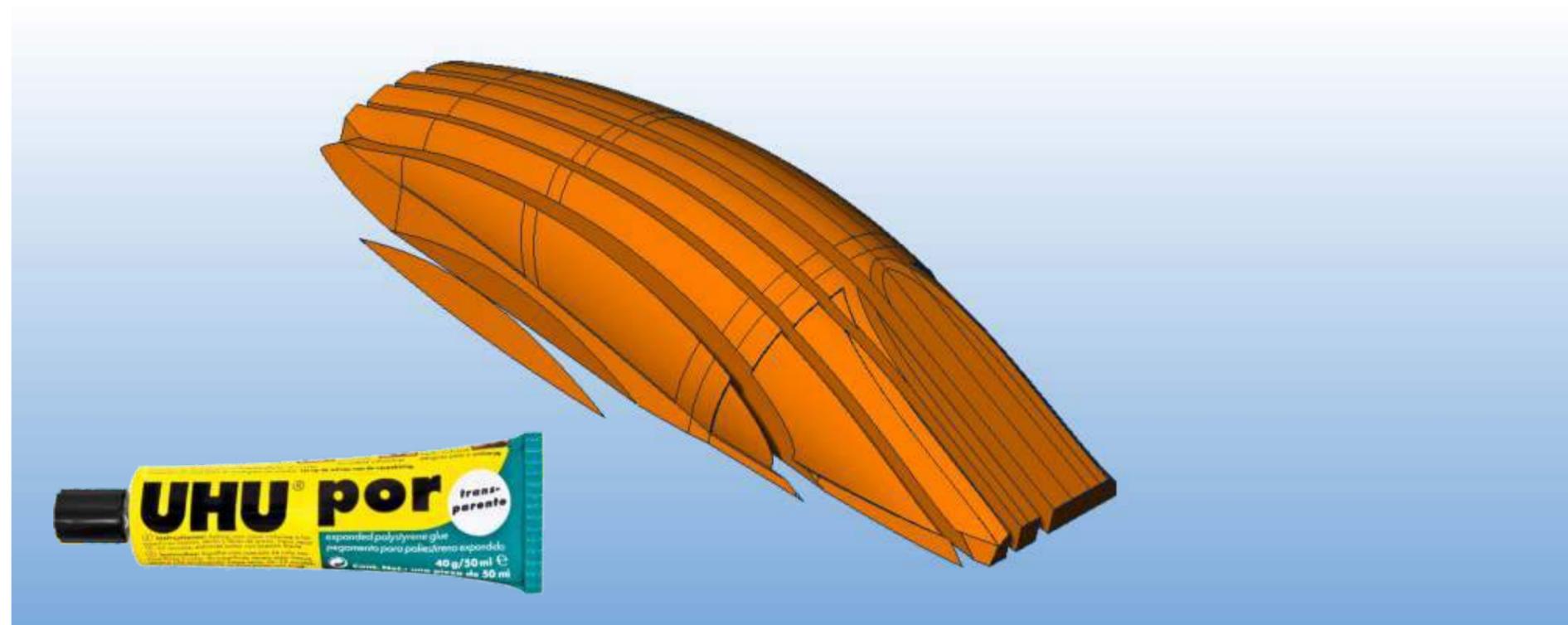




PUSHER AIRBRAKE ONLY.

Dig a channel on an innermost piece to allow for the motor cables to pass through.

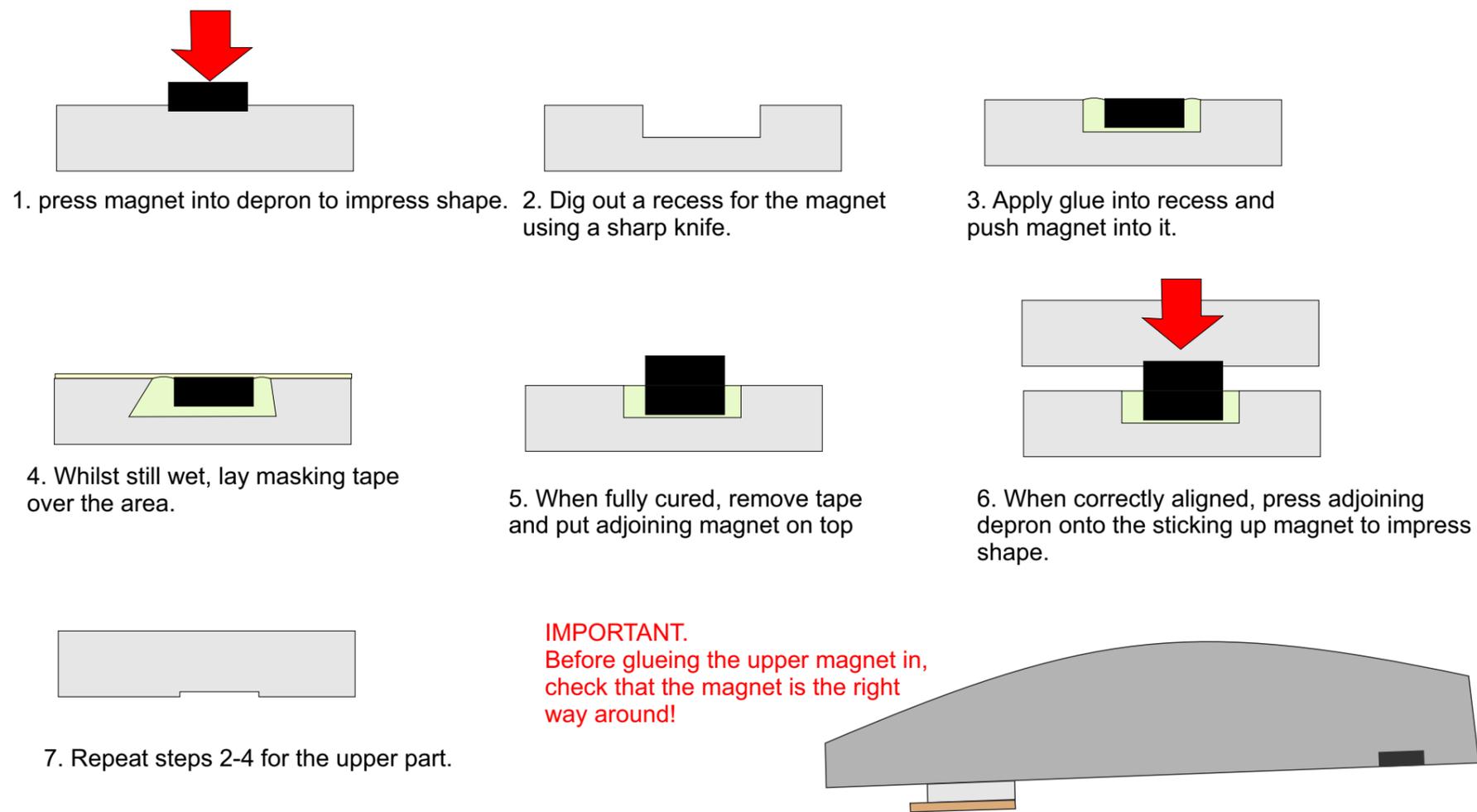
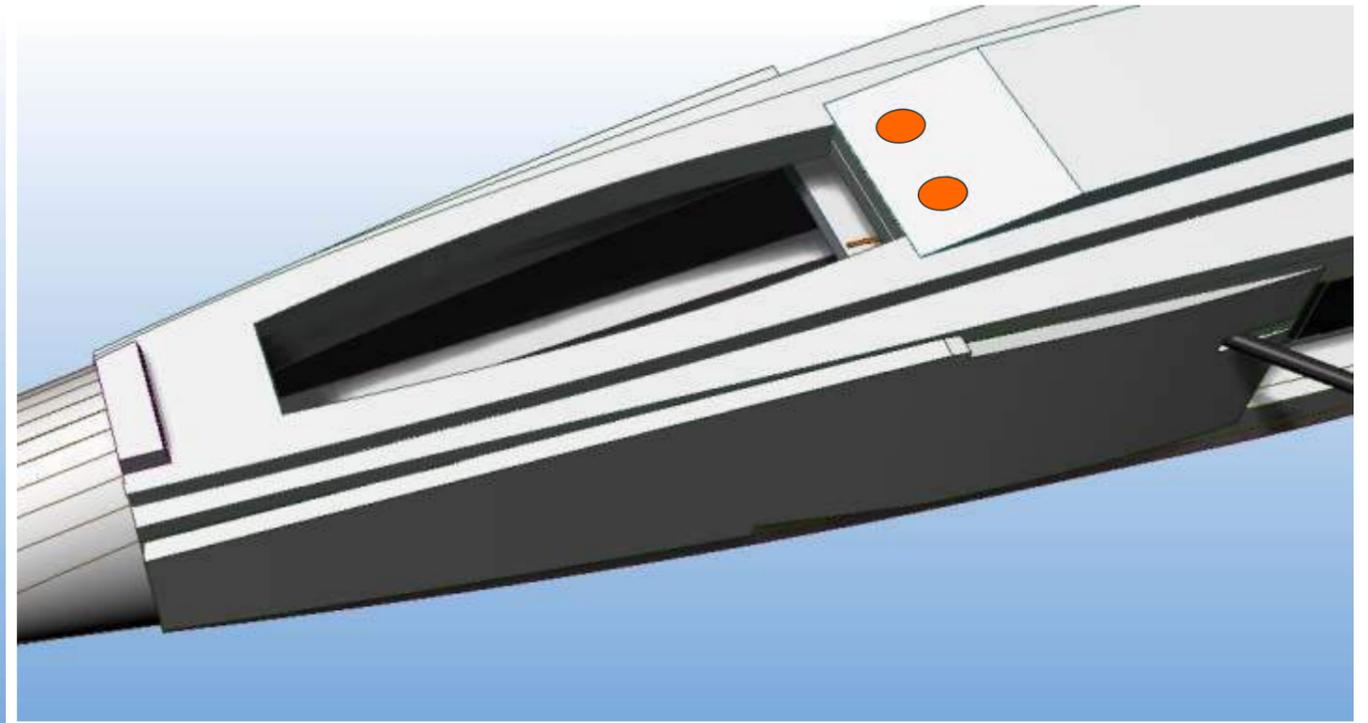
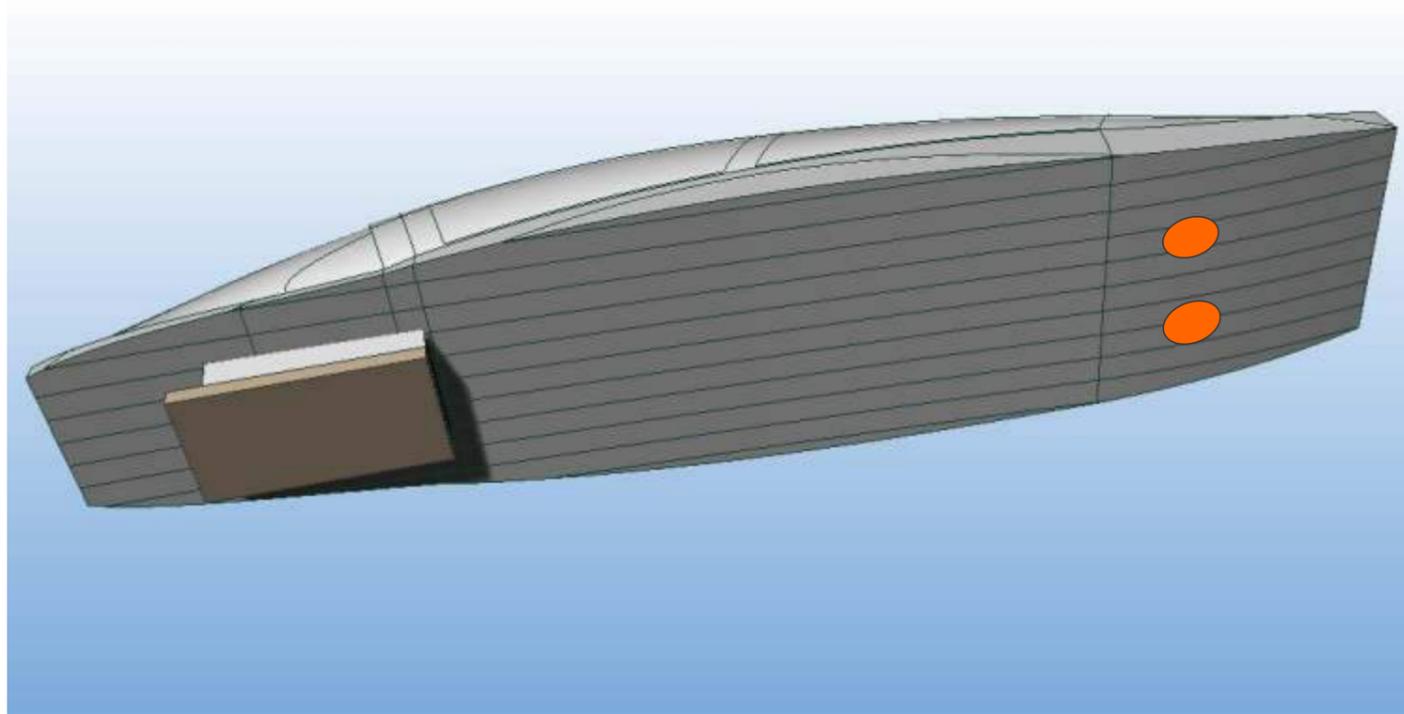
Glue the remaining airbrake pieces together onto the assembly as shown.



Laminate all the pieces of the canopy together as shown.

Sand to shape.





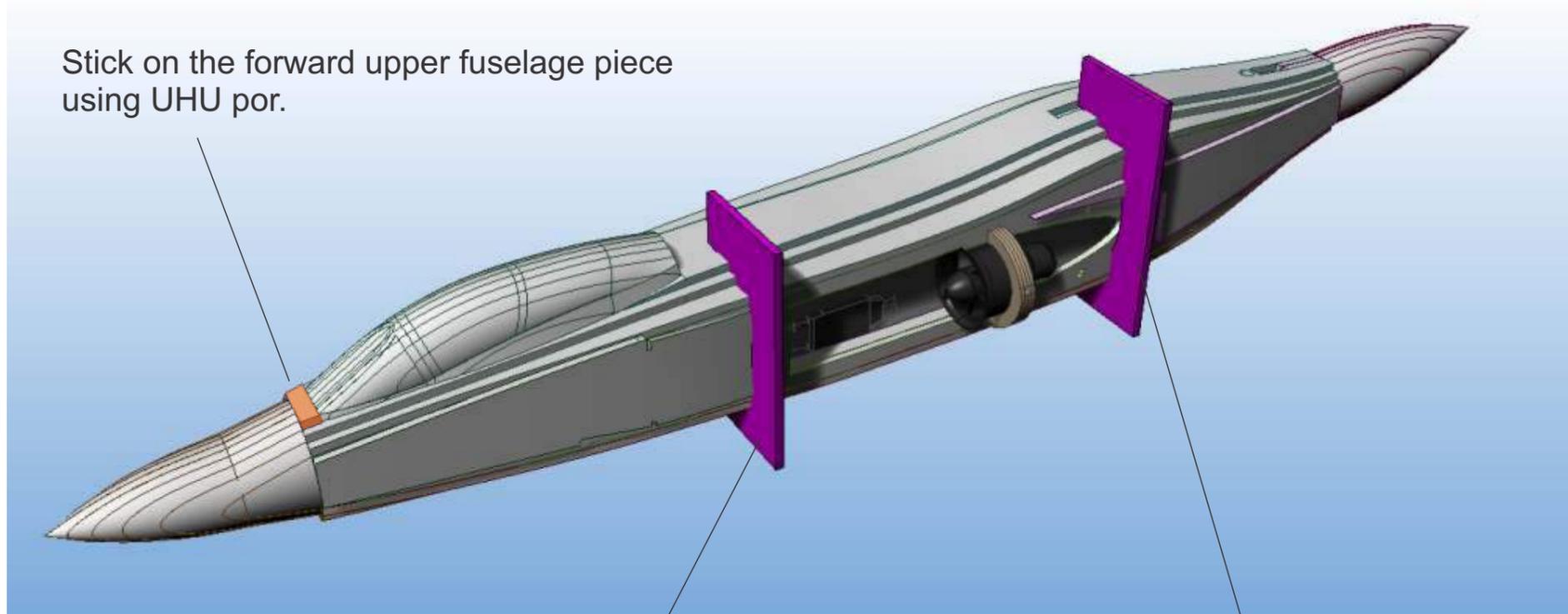
Build a tongue using a piece of scrap depron and 3mm liteply at the front of the canopy.

Attach the magnets to the magnet panel

Epoxy the magnets to rear of the canopy so that the canopy is removable but holds firmly in place when mounted.



Stick on the forward upper fuselage piece using UHU por.



Mark out on the top of the fuselage the turtledeck location as a no-sand area.

Using the sanding jigs positioned as shown, sand the fuselage to achieve the correct shape.

Sand the 'mountains' until the 'valleys' are no more.

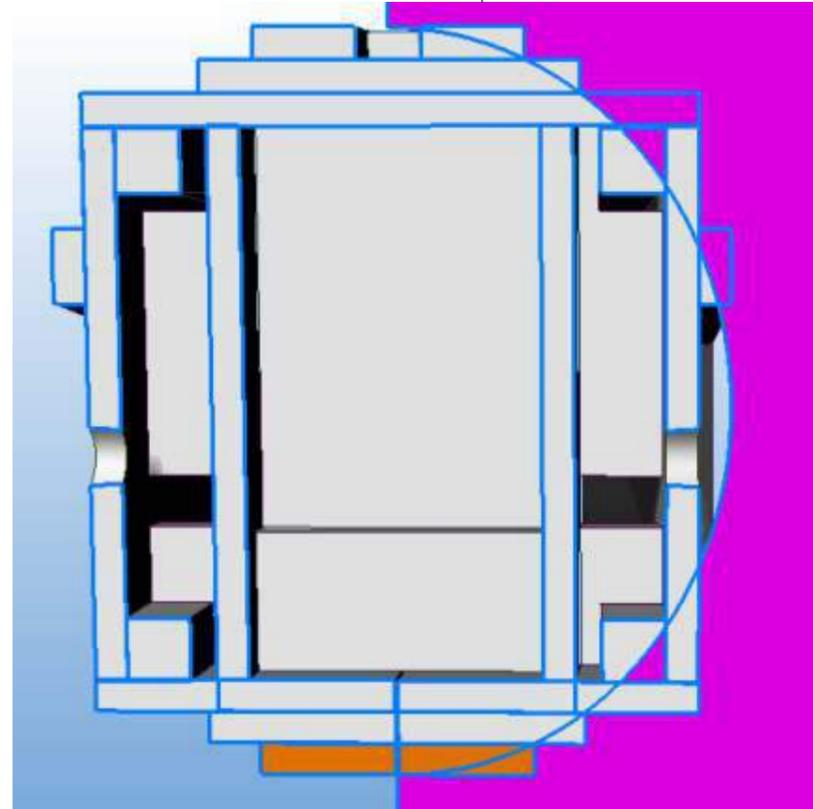
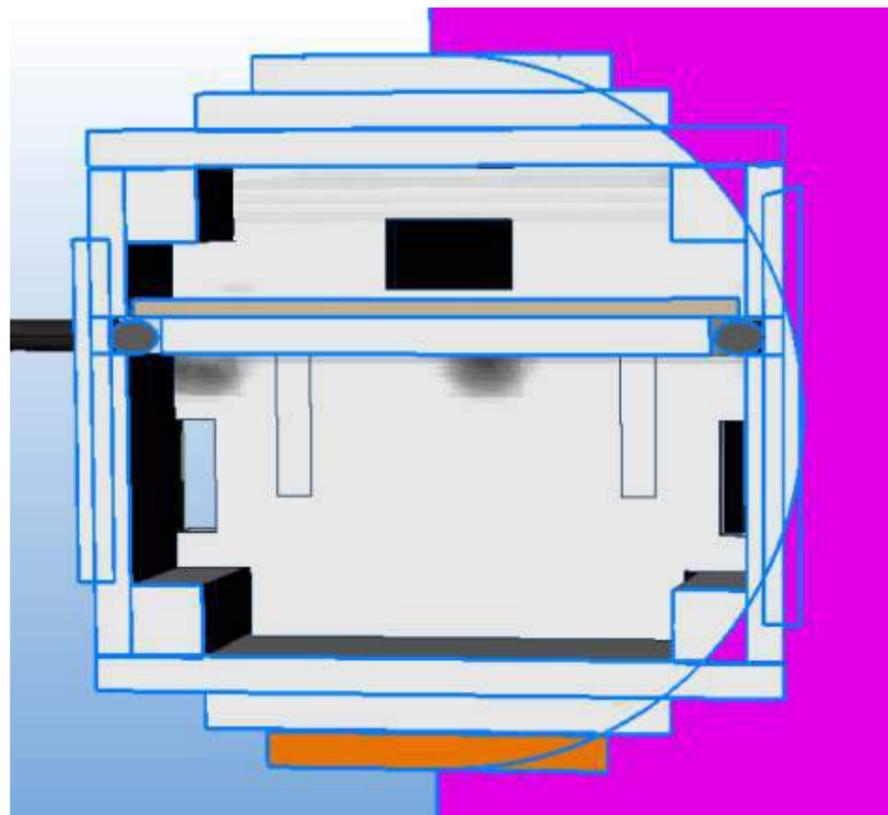
1. Using a extendible craft knife, remove the large obvious pieces.

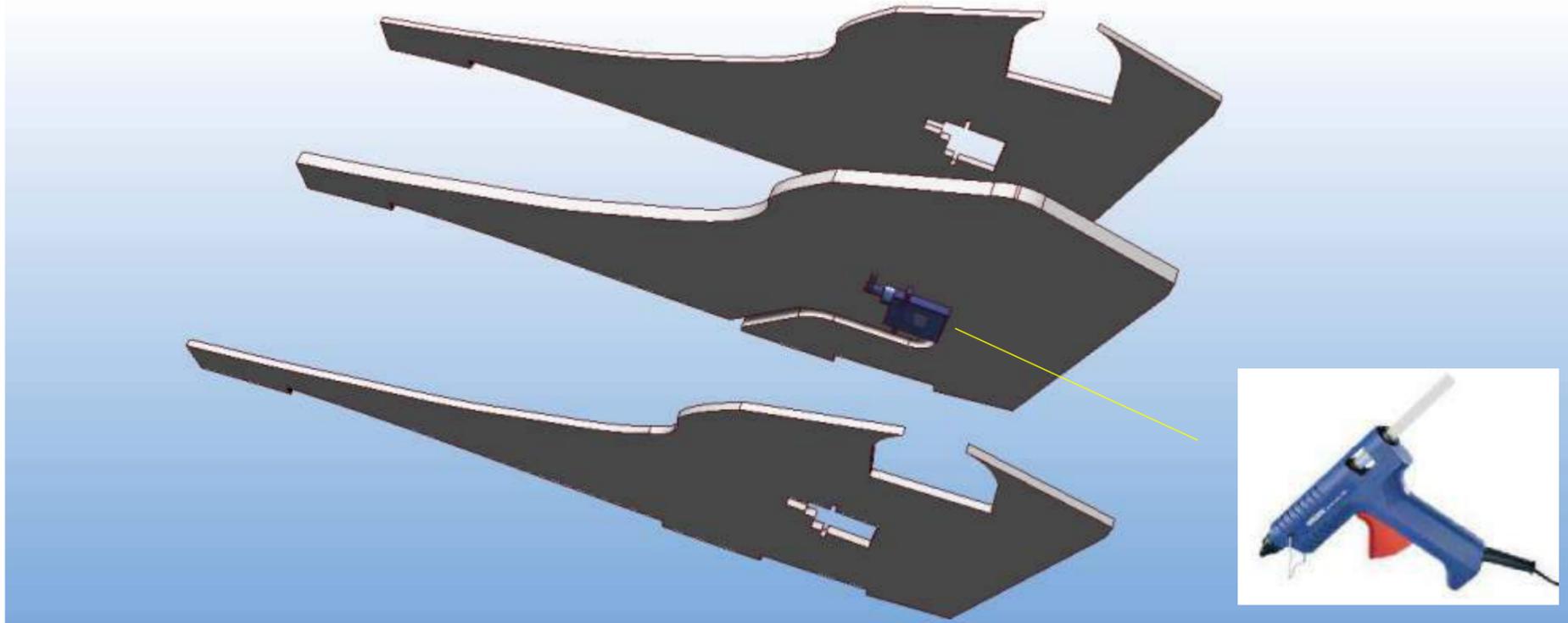


2. Using a small orbital sander with finger attachment to sand down to the 'valleys'



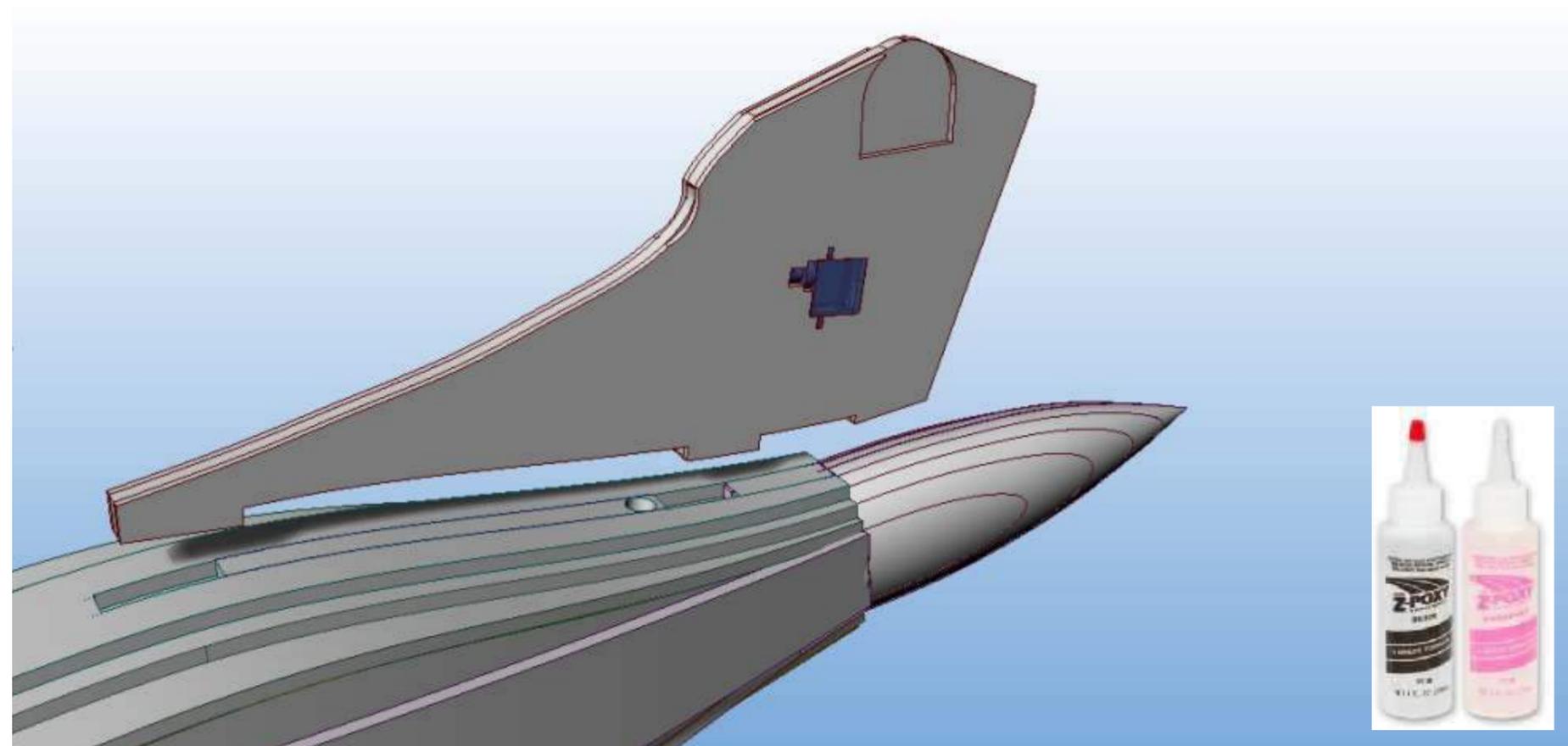
3. Using sandpaper with block, work through finer and finer grades of sandpaper until a smooth finish is achieved.





Ensuring that the servo arm position is calibrated to dead centre. Hot Glue the elevator servo on the centreline of the 6mm vertical stabiliser, and run the cables through the slot prepared for it.

Glue the two outer 3mm peices in place using UHU por.

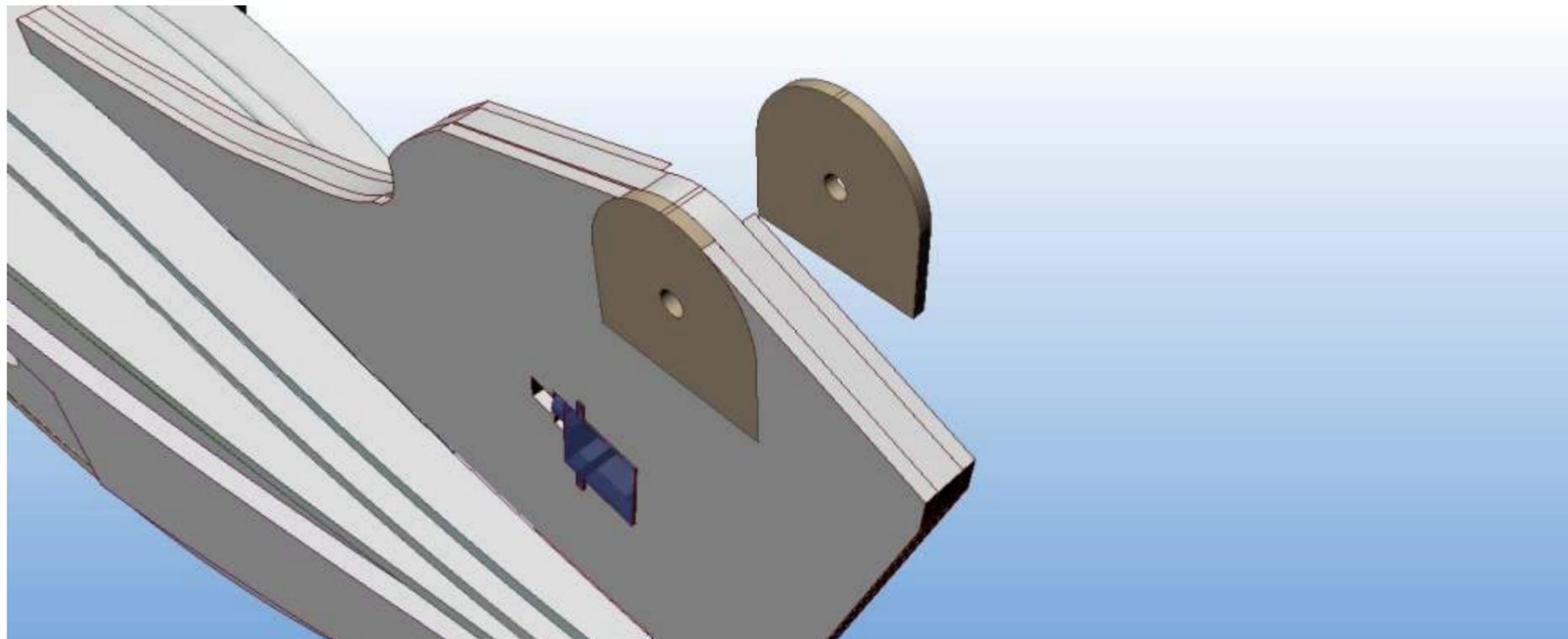


Test dry-fit and carefully align the vertical stabiliser assembly to be vertical.

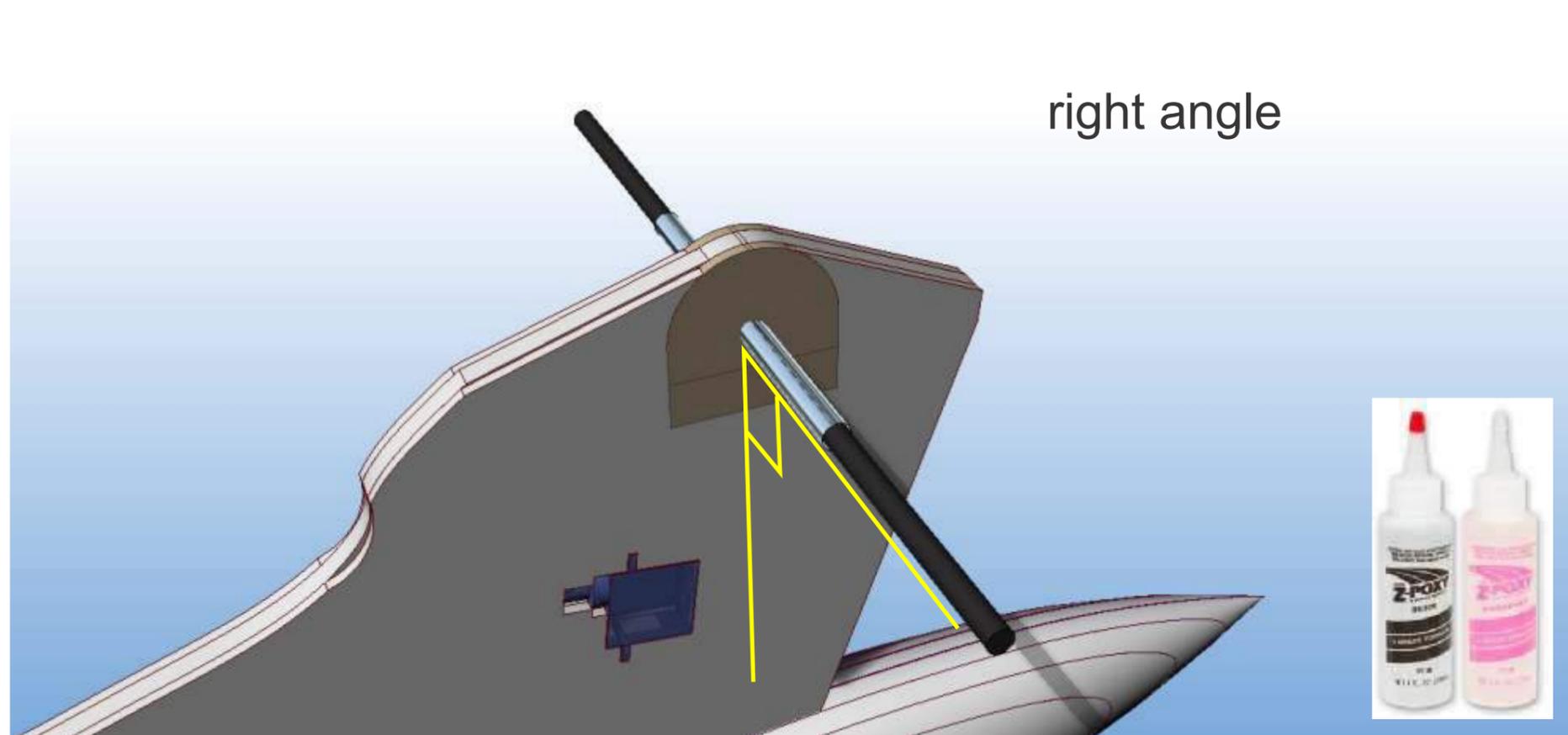
Connect the elevator servo to the extension cable. (tape the connectors together) and push the excess cables into the right side of the fuselage rear cavity.

Epoxy the vertical stabiliser in place and secure in a vertical position until the glue is set.





Glue the two 3mm liteply pieces onto the vertical stabiliser as shown.

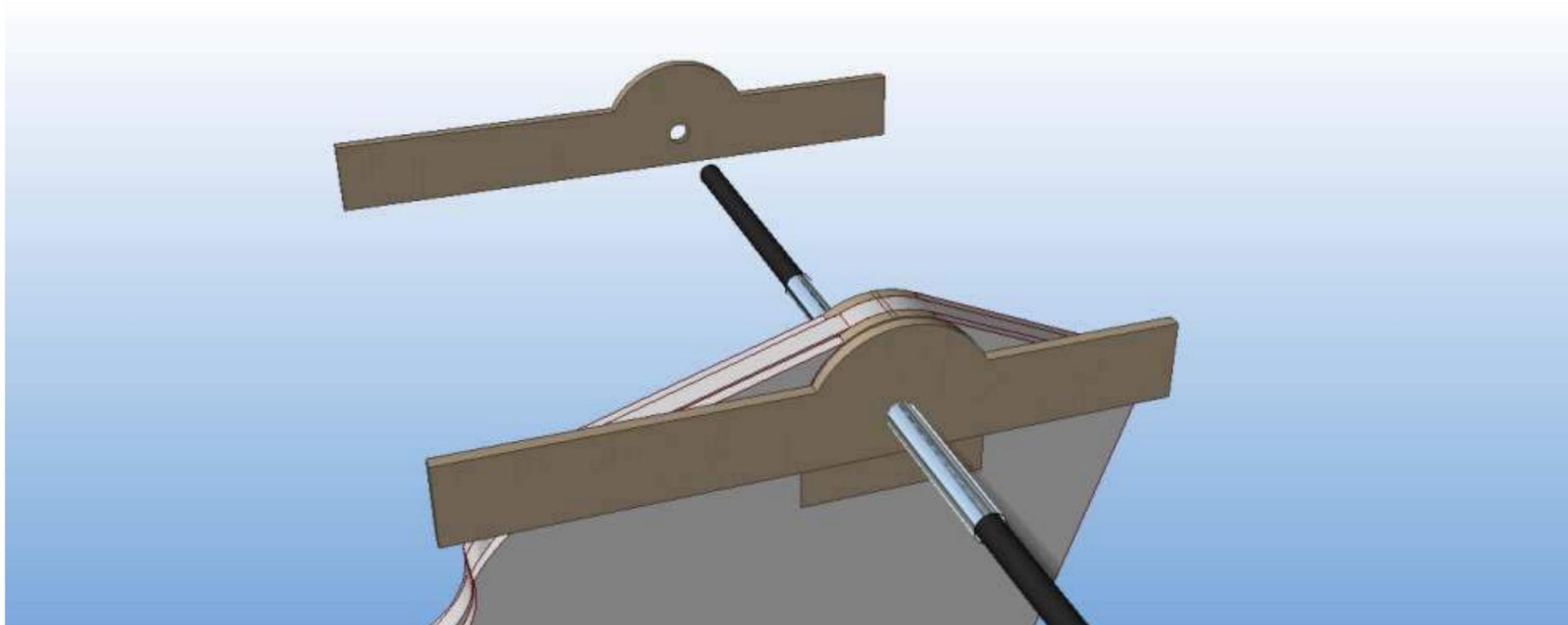


right angle

Drill through the centrepoint of the horizontal stabiliser in order to get a snug fit around the aluminium sheath tube. Use epoxy to get a good bond.

Ensure that the tube is horizontal - using the carbon tube within it to extend the length of the measuring point to gain better accuracy.

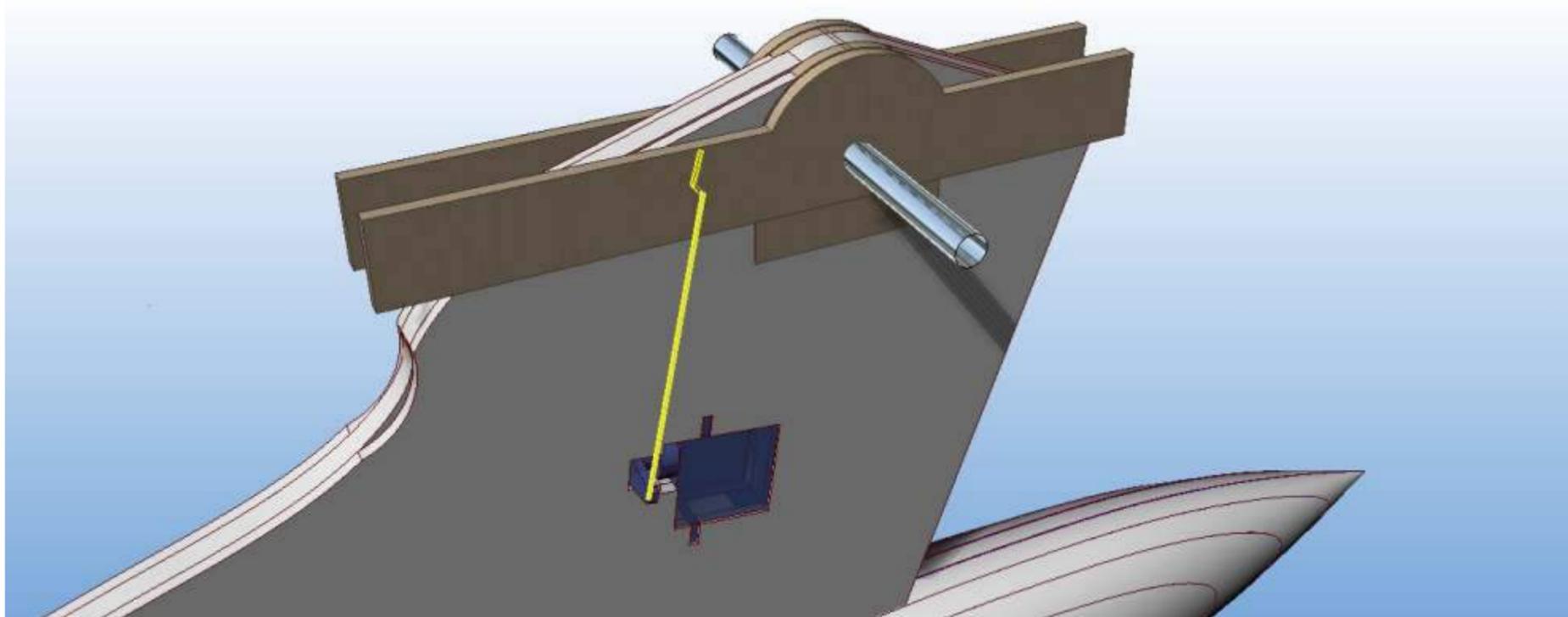




Slide the two lite-ply top fairing side pieces over the aluminium tube.

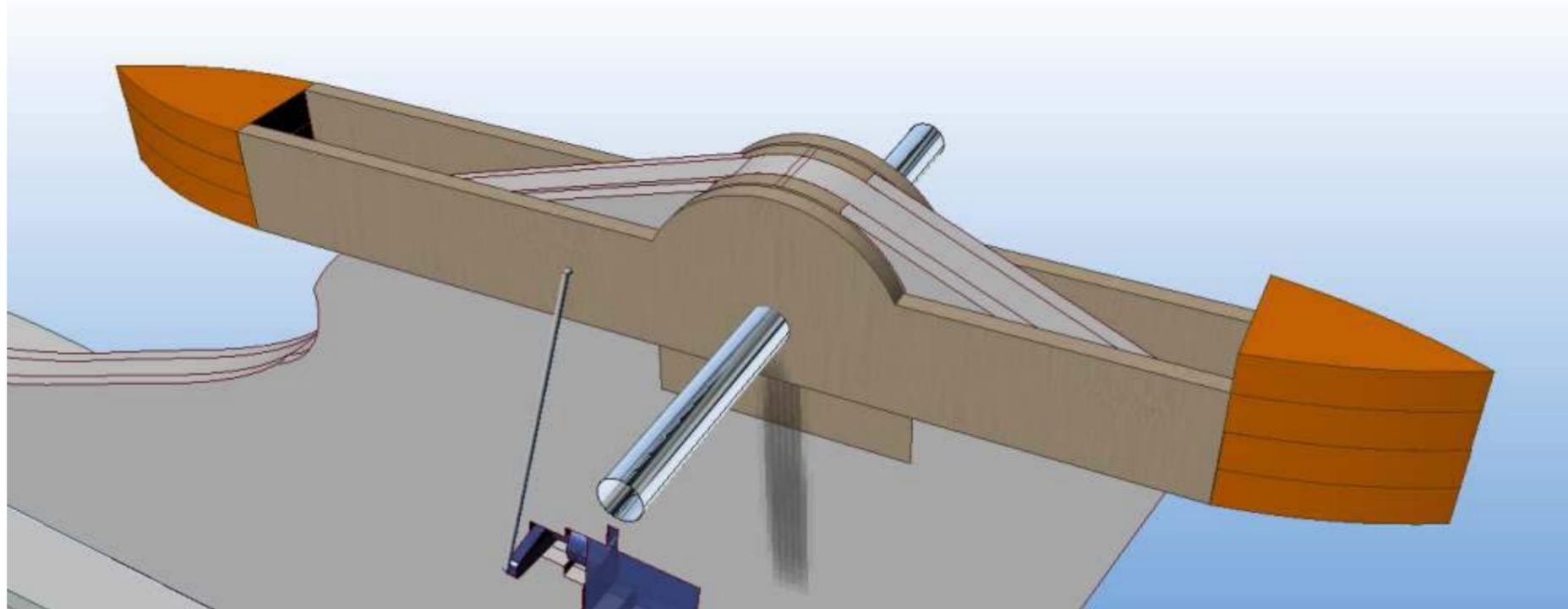
Enlargen the hole (if required) enough that the fairing sides will turn freely when up against the vertical stabiliser.

**DO NOT GLUE**

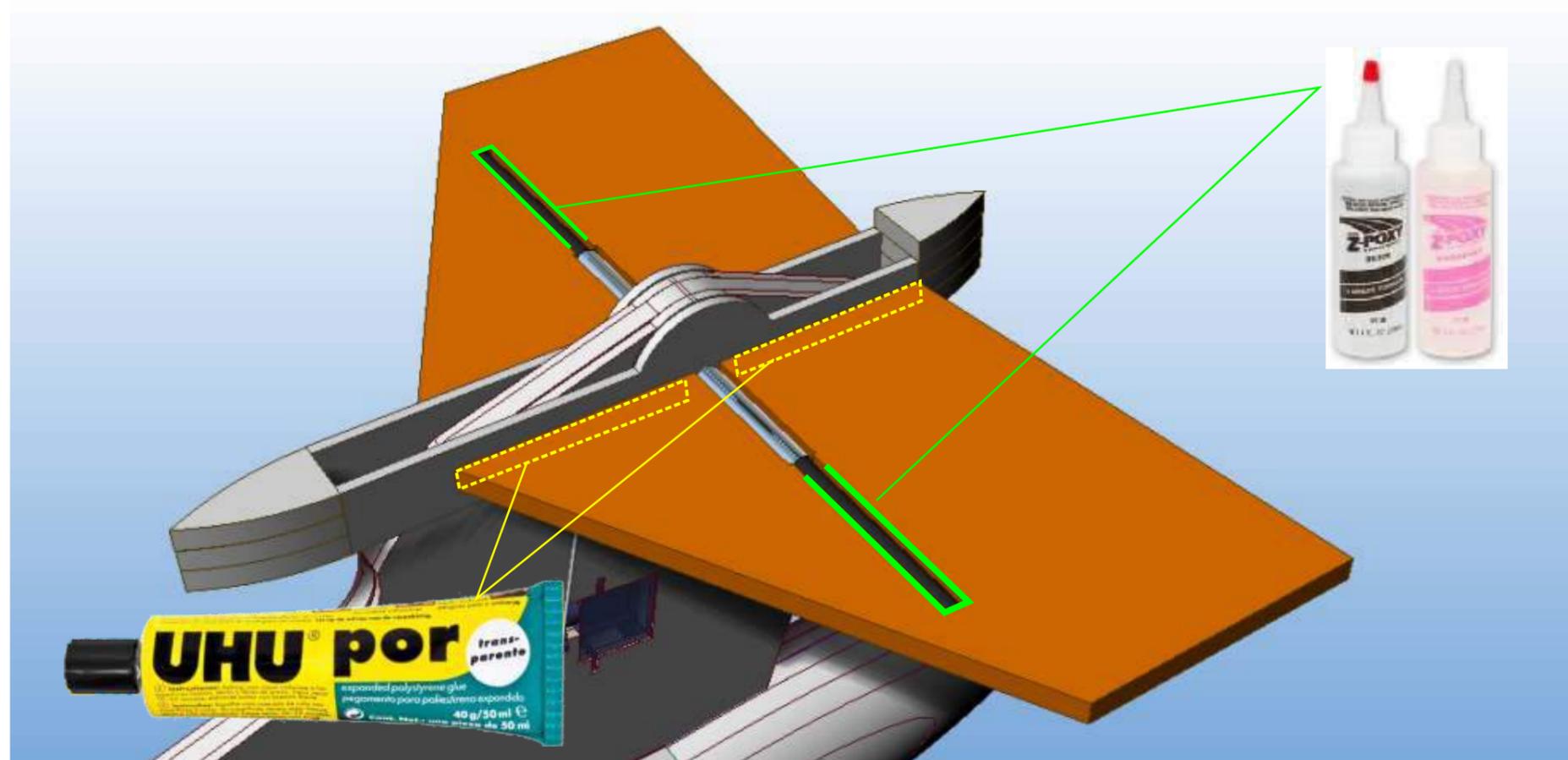


Attach the servo arm pushrod, as shown removing some of the depron out of the path of the Z bend - this will be hidden behind the fairing.





Laminate together and glue the Bullet fairing and aft antenna pieces onto the top fairing sides.

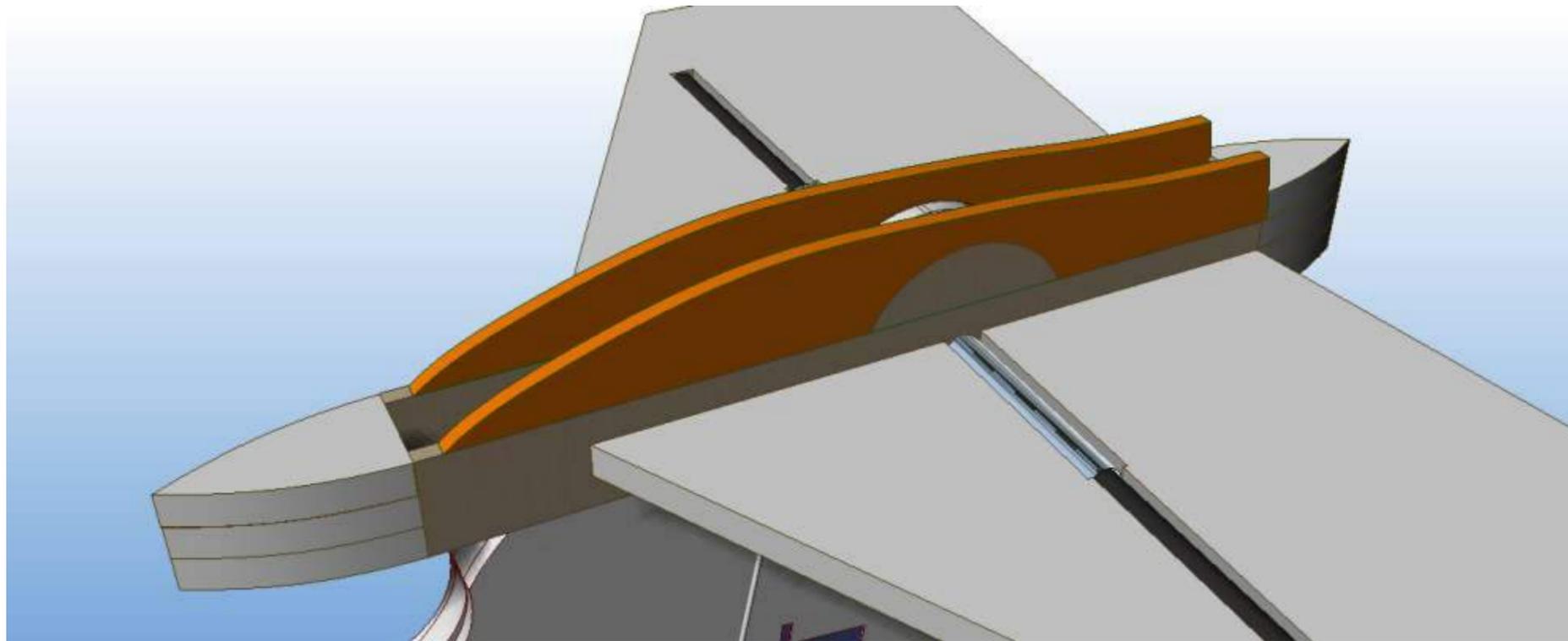


Thread the carbon tube through the aluminium tube and attach the horizontal stabiliser onto the fairing assembly.

Use UHU Por to attach the inner edges.

Use Epoxy CAREFULLY to ensure that non gets close to the aluminium tube

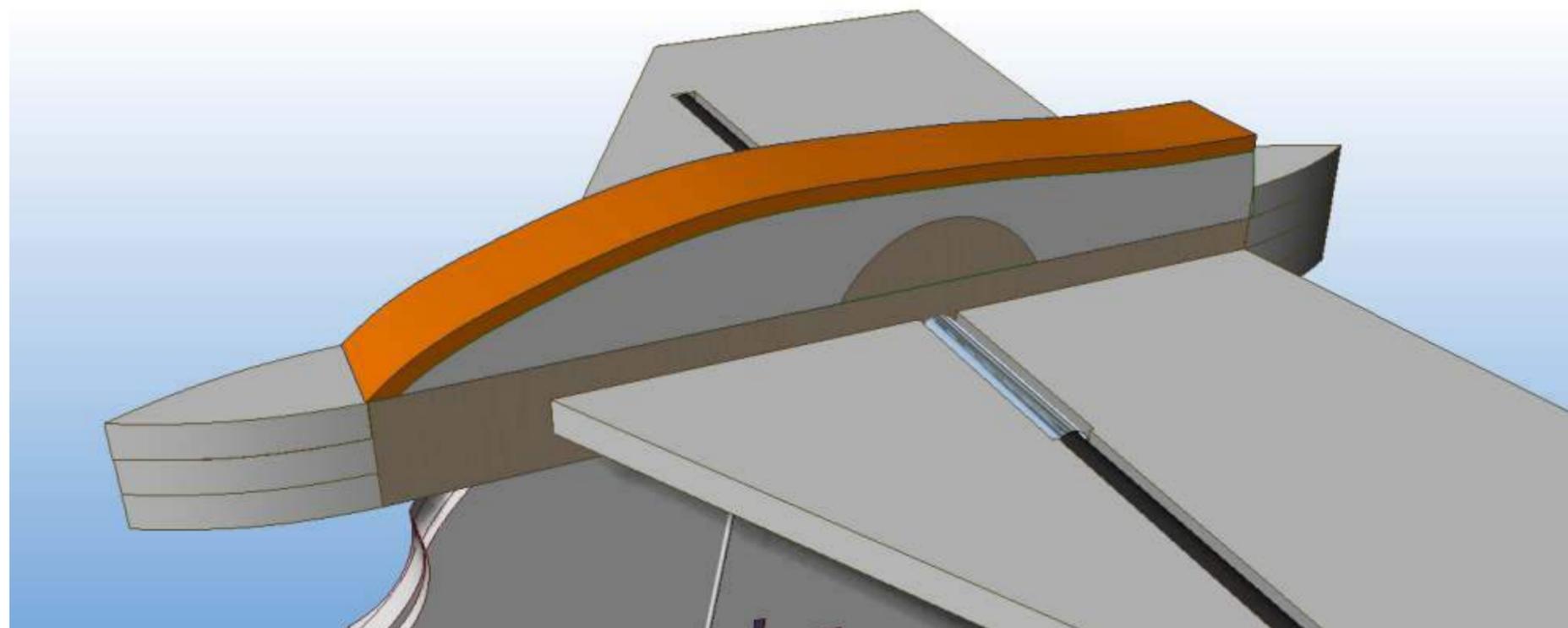


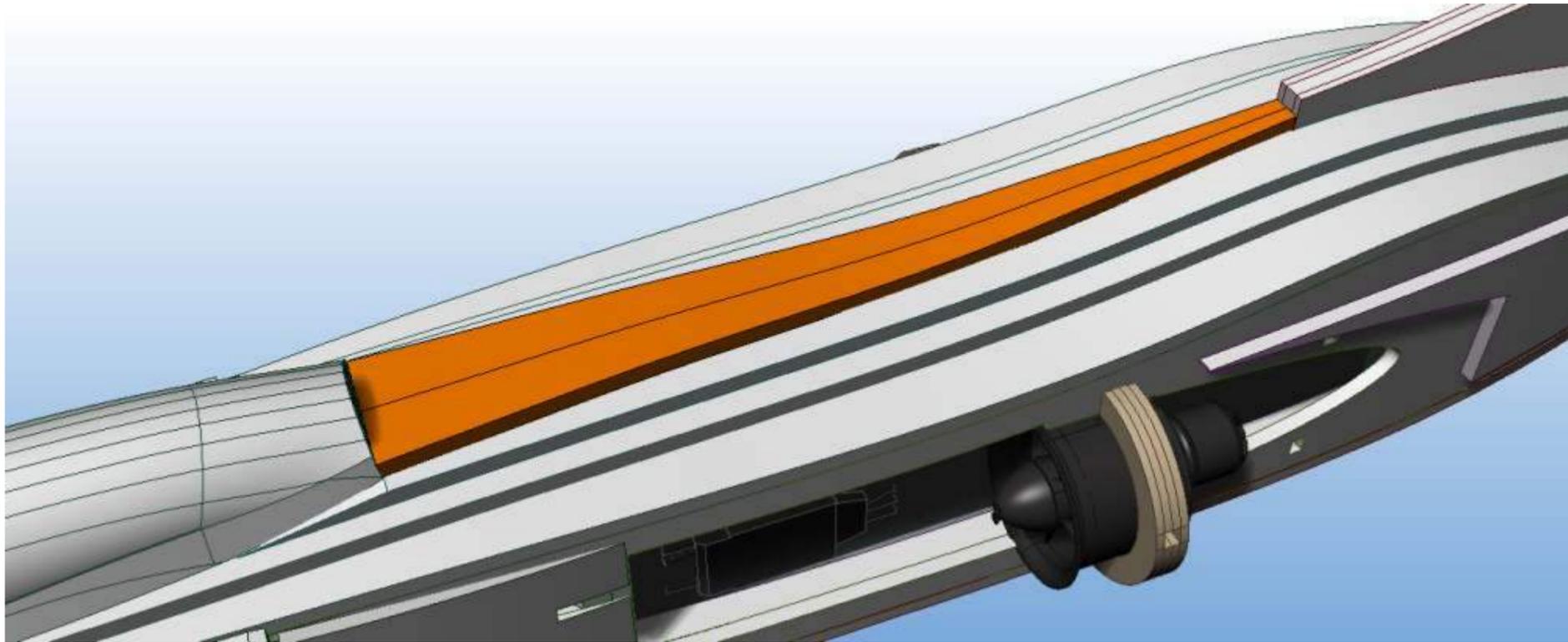


Glue the upper fairing sides (3mm depron) onto the edges of the liteply fairing sides.



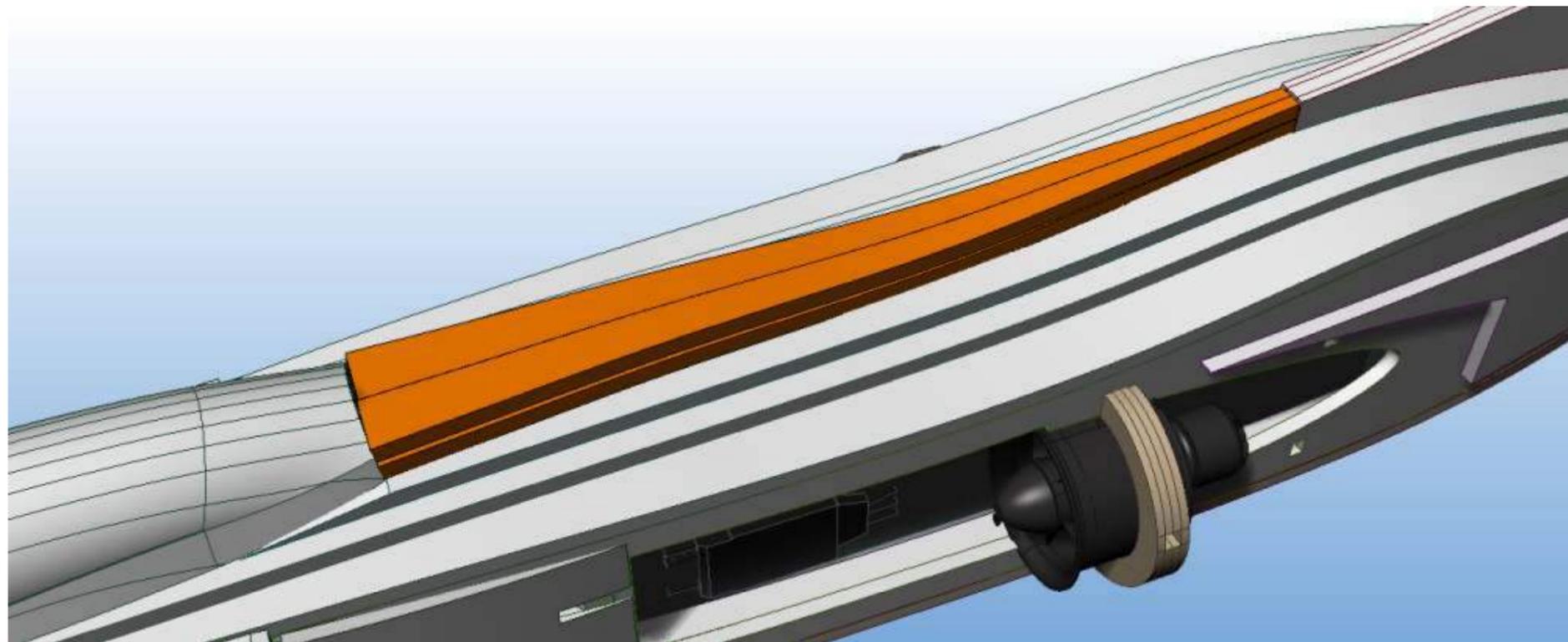
Glue the upper fairing top piece onto the assembly as shown





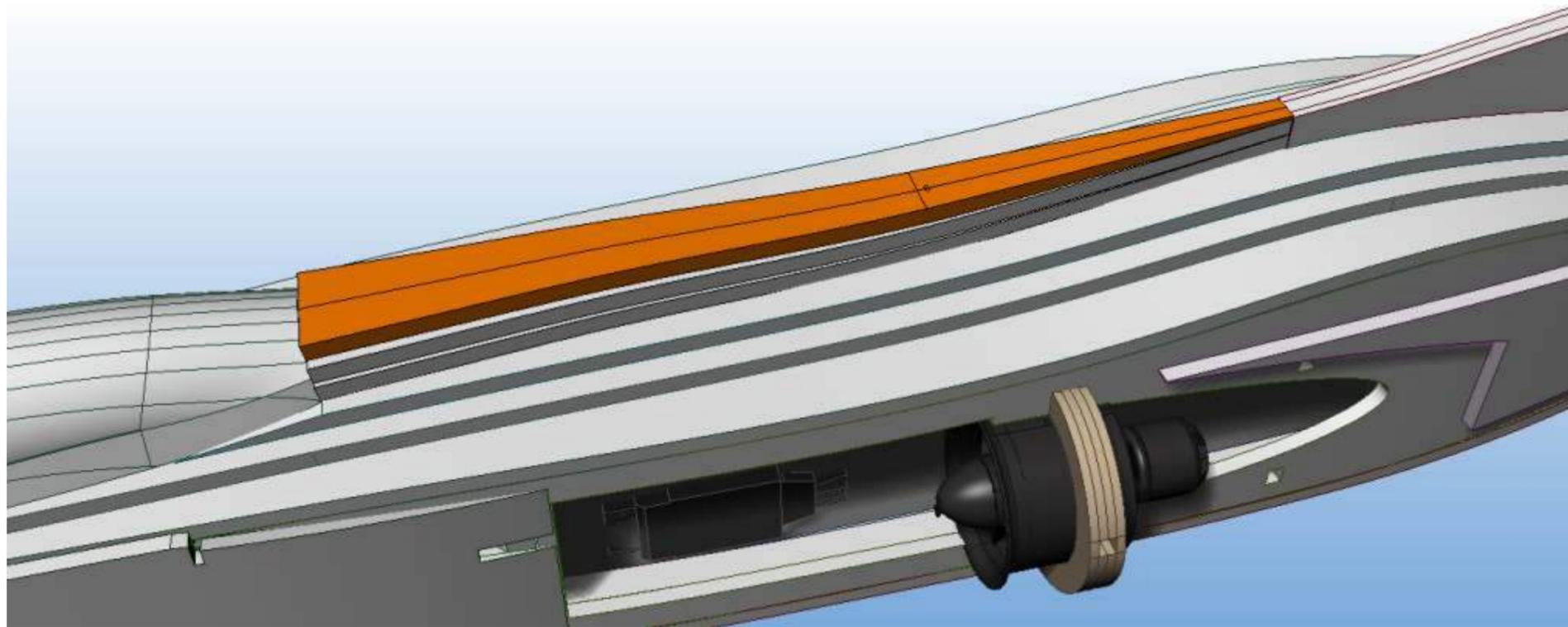
Temporarily put masking tape onto the fuselage and dry fit the Turtledeck lower piece against the fuselage.

DO NOT GLUE YET



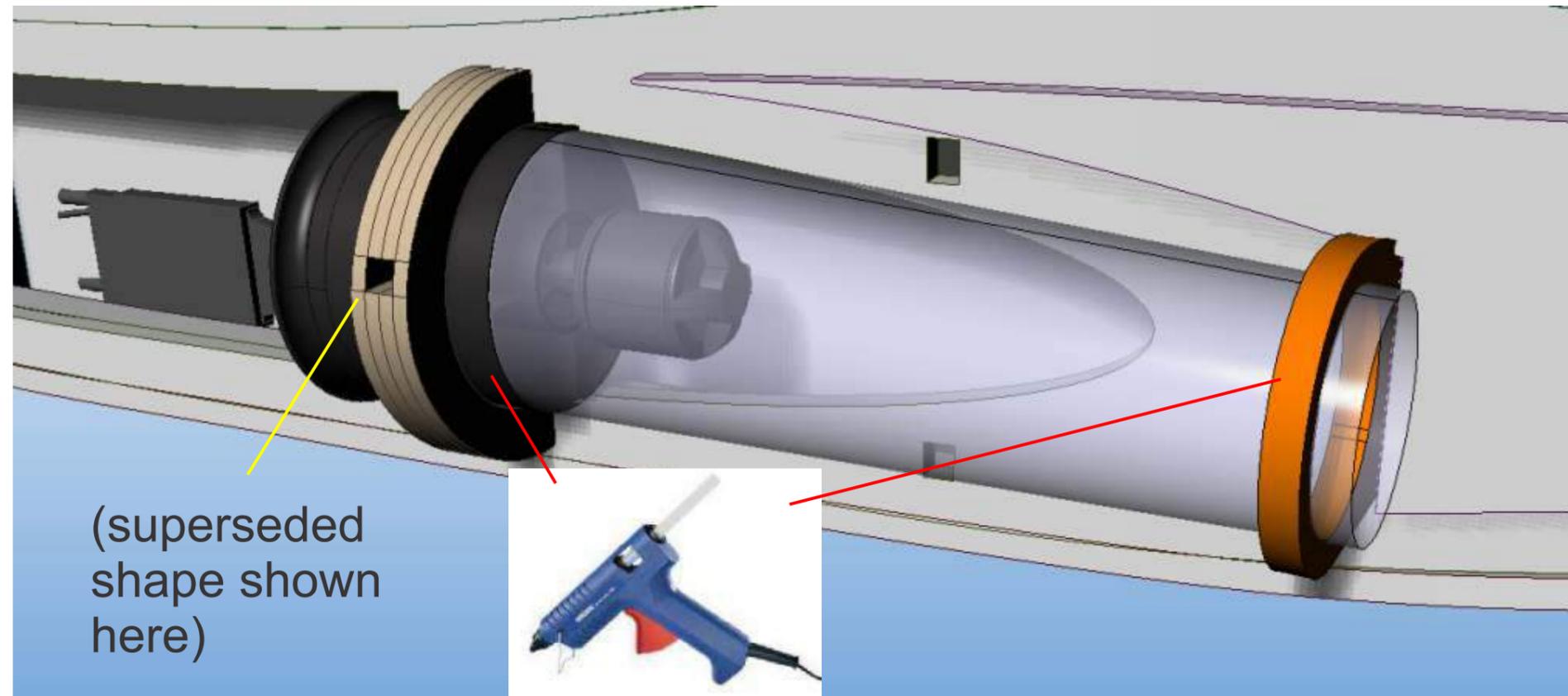
Whilst the turtledeck (lower) is resting in place. glue the Turtledeck (middle) piece to it, ensuring that the shape of the fuselage top is followed.





Whilst the turtledeck assembly is still resting in place. glue the Turtledeck (top) piece to it, ensuring that the shape of the fuselage top is followed.

Remove and sand to shape. Once the correct shape is achieved, glue in place

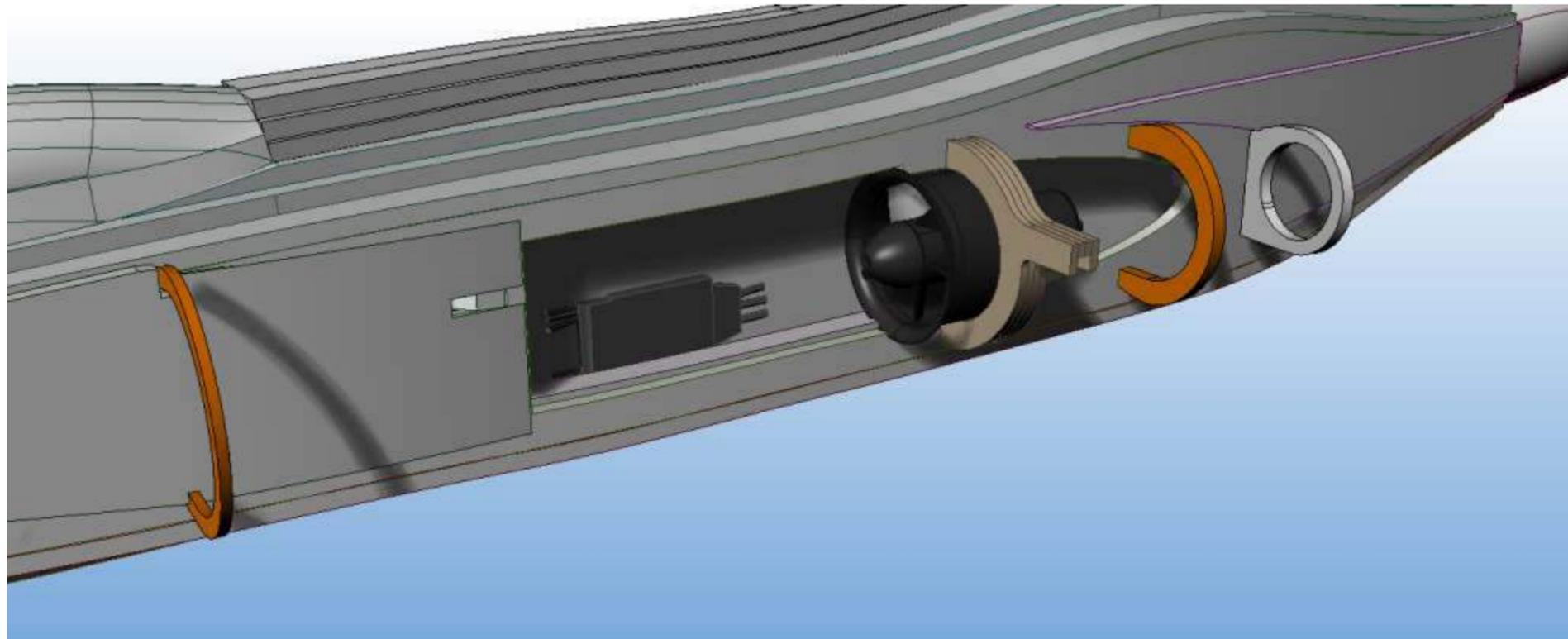


Glue the thrust tube rear bulkhead in place at 90 degree to the thrust tube as shown (these pieces are angled forward against the fuselage).

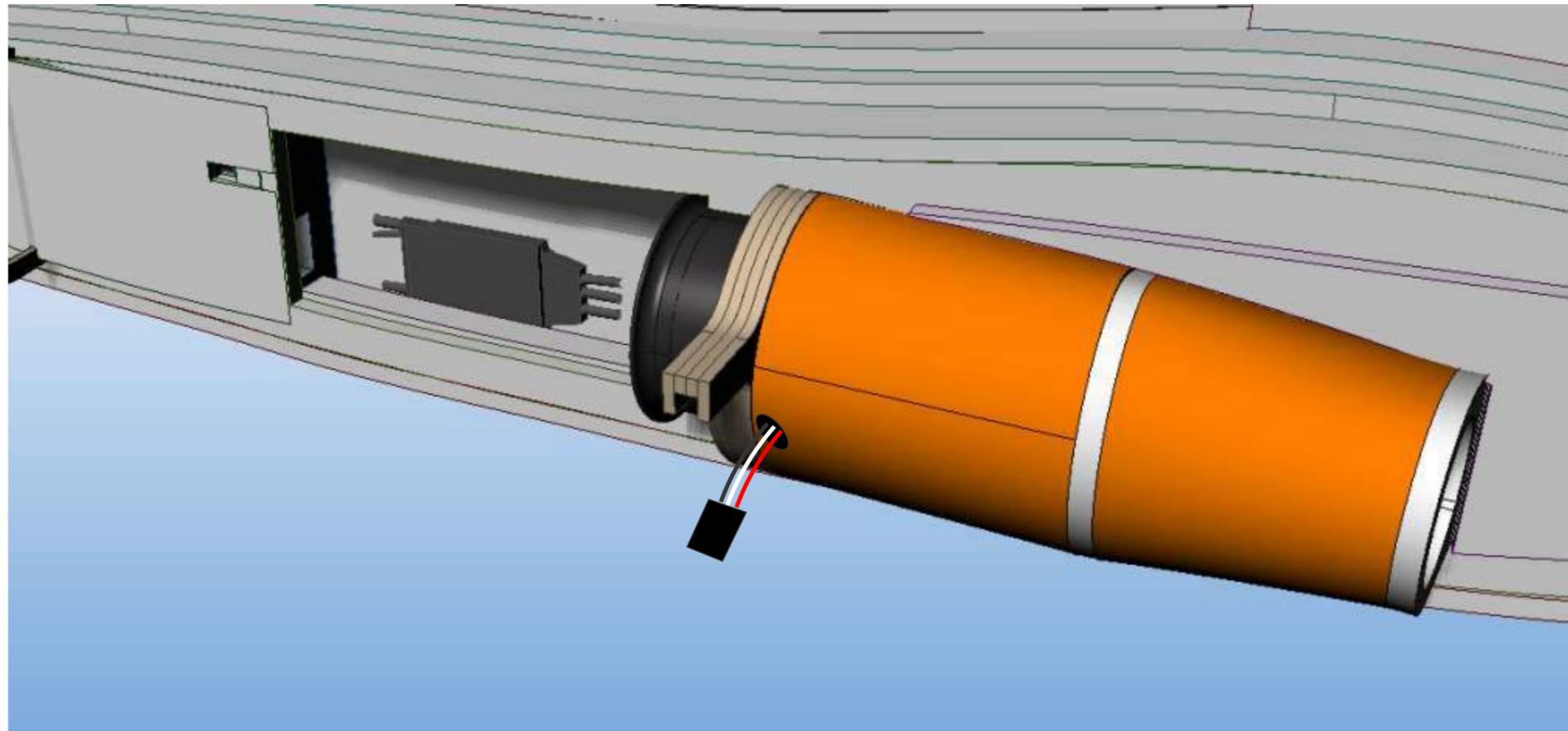
Using OHP film and nylon reinforced tape, make the thrust tubes and carefully glue in place using hot melt glue (careful not to melt the tube)

(superseded shape shown here)





Using the holes pre cut in the fuselage sides, glue the forward lite-ply air intake former and the rear nacelle former in place as shown

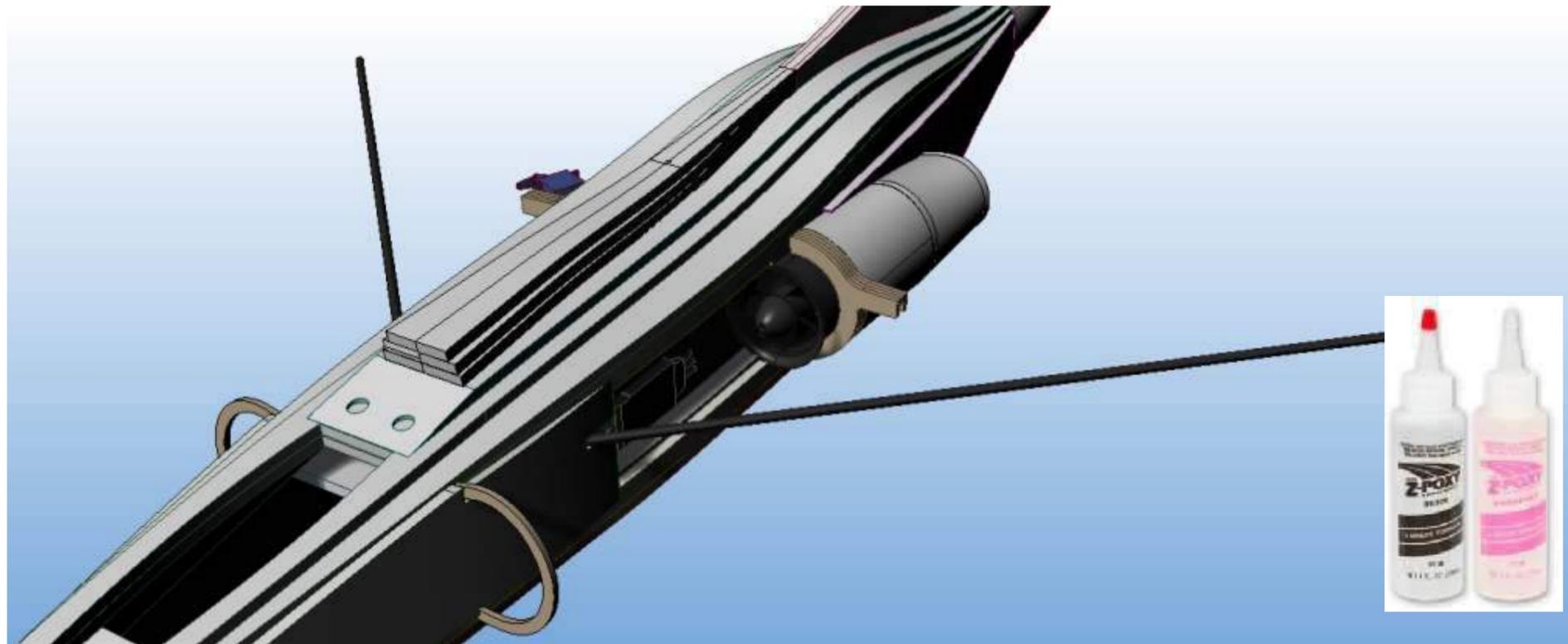


Using paper templates first, shape and glue the 3mm depron pieces to the inside faces of the formers as shown.

Cut a hole for the servo extension cable connector to pull out as shown.



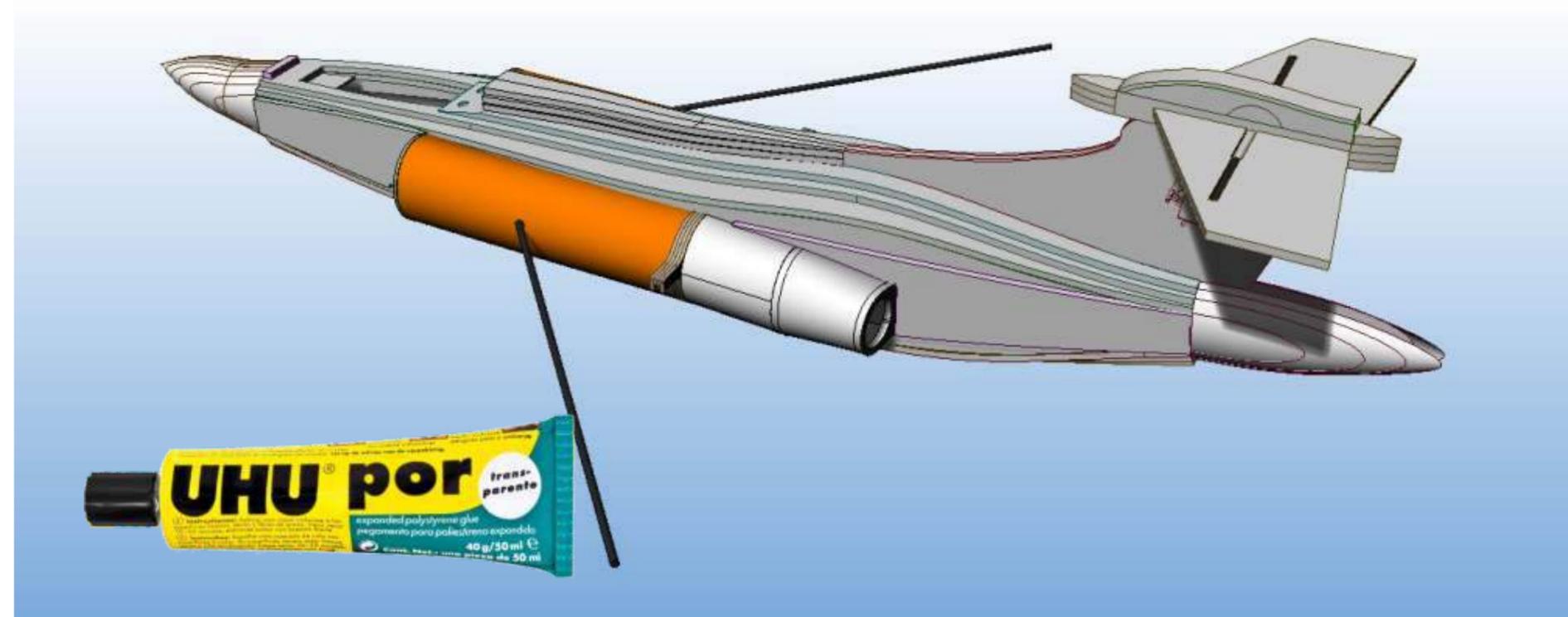




Using access through the removable canopy, use masking tape over the bottom of the spar joint support piece to prevent drips.

Mitre the end of the carbon tubes, coat with epoxy and slide into the holes prepared for them.

Prepare a makeshift jig (eg books of same thickness) to hold both spars horizontal while the glue sets.

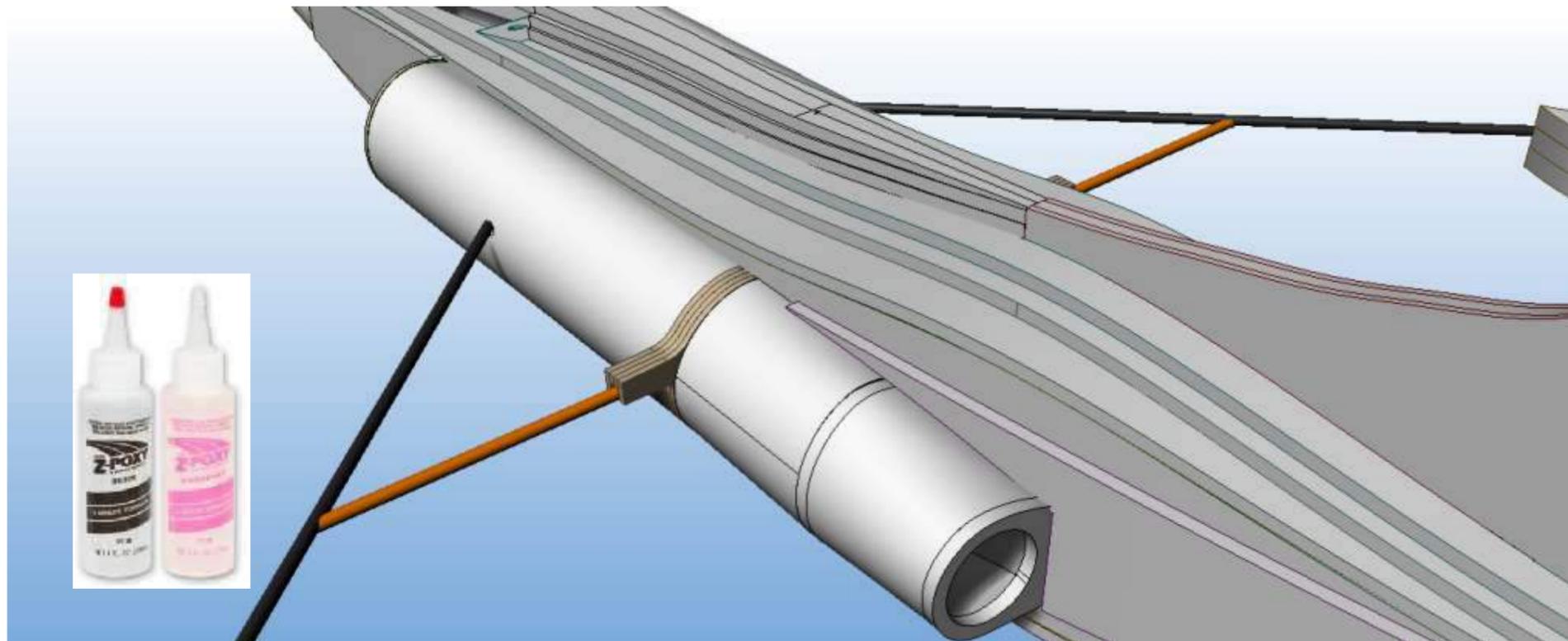


Make a paper template of the engine nacelles. Use a slot in the middle for the carbon tube to pass through.

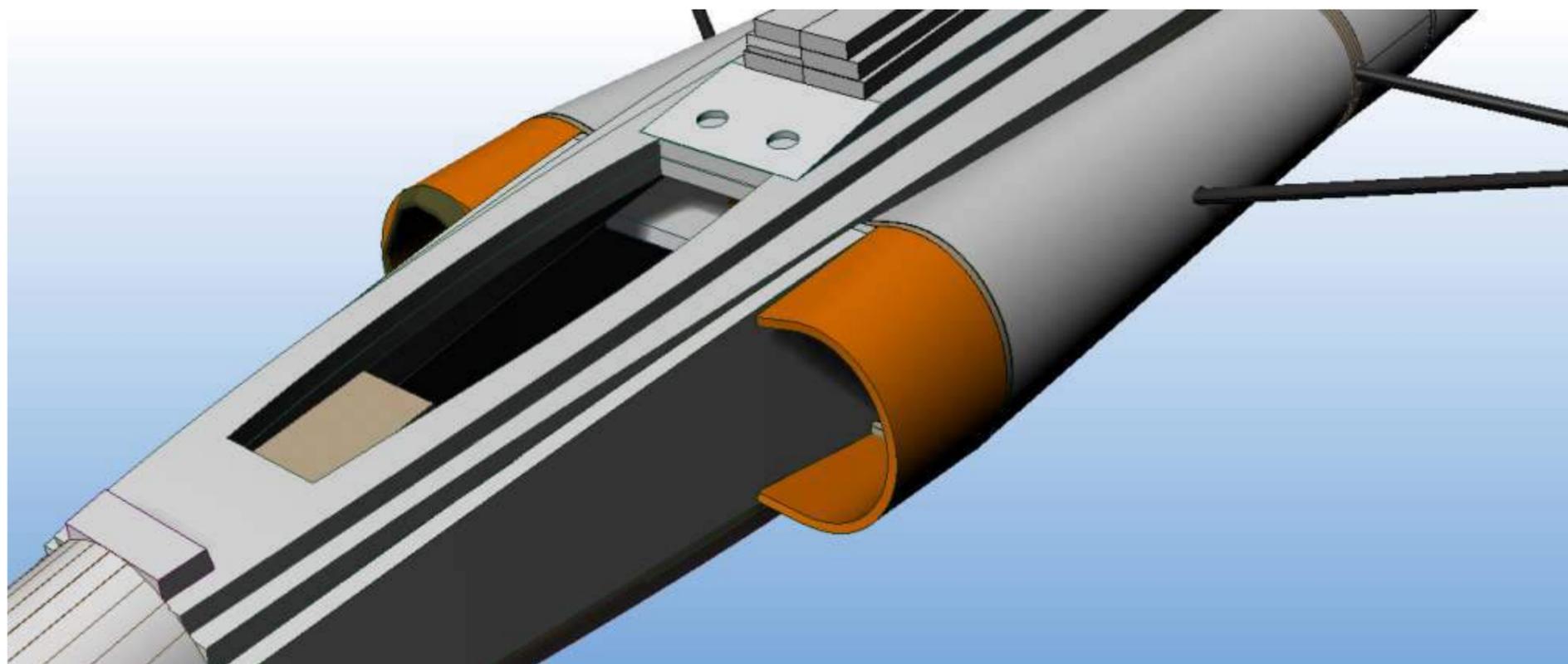
Prepare the 3mm depron pieces with a small 6mm horizontal slot in the middle to allow positioning

Glue in place using UHU Por



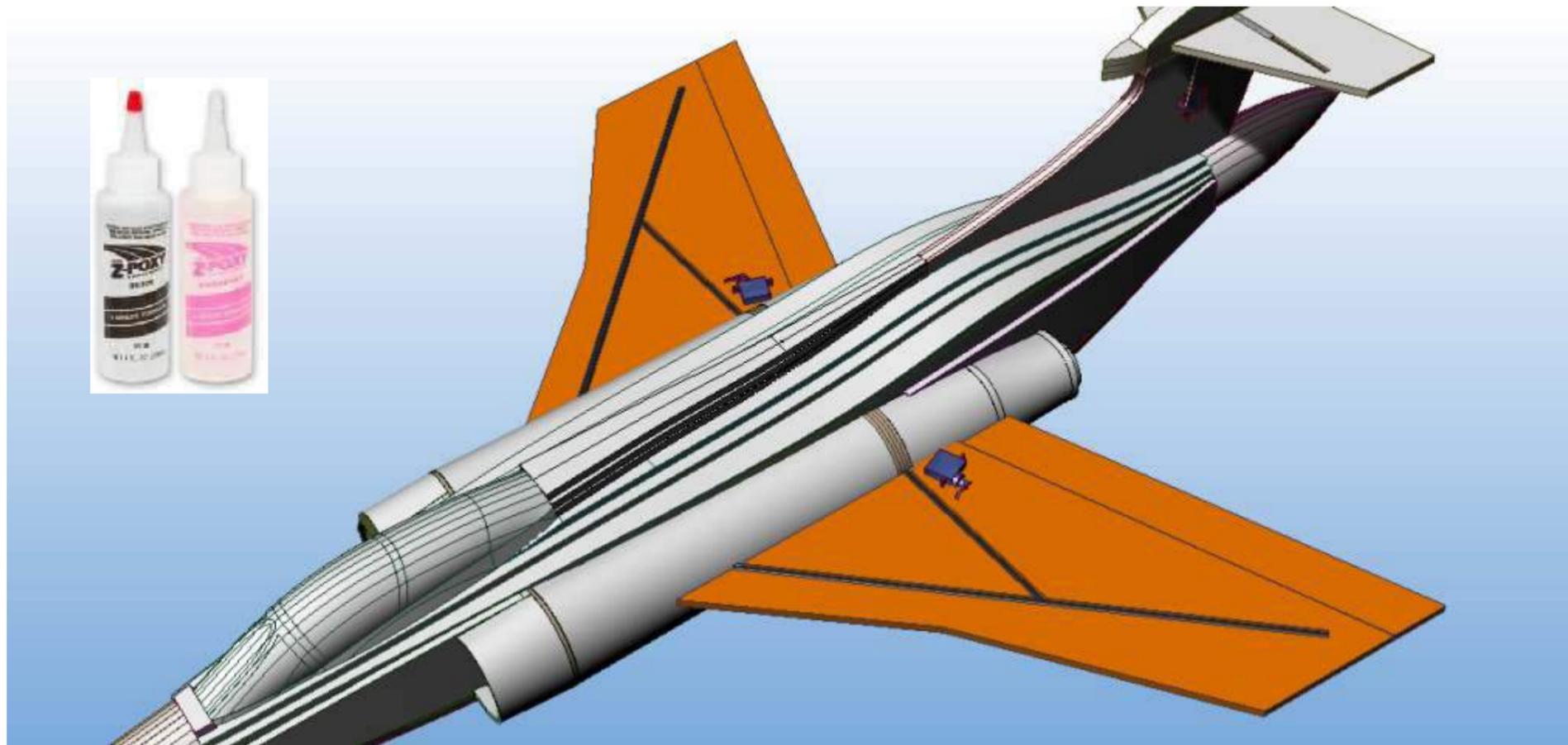


Glue the rear carbon spar in place using Epoxy. Ensure that the wing plane is horizontal and also that the bond between the glue and epoxy is a good joint.



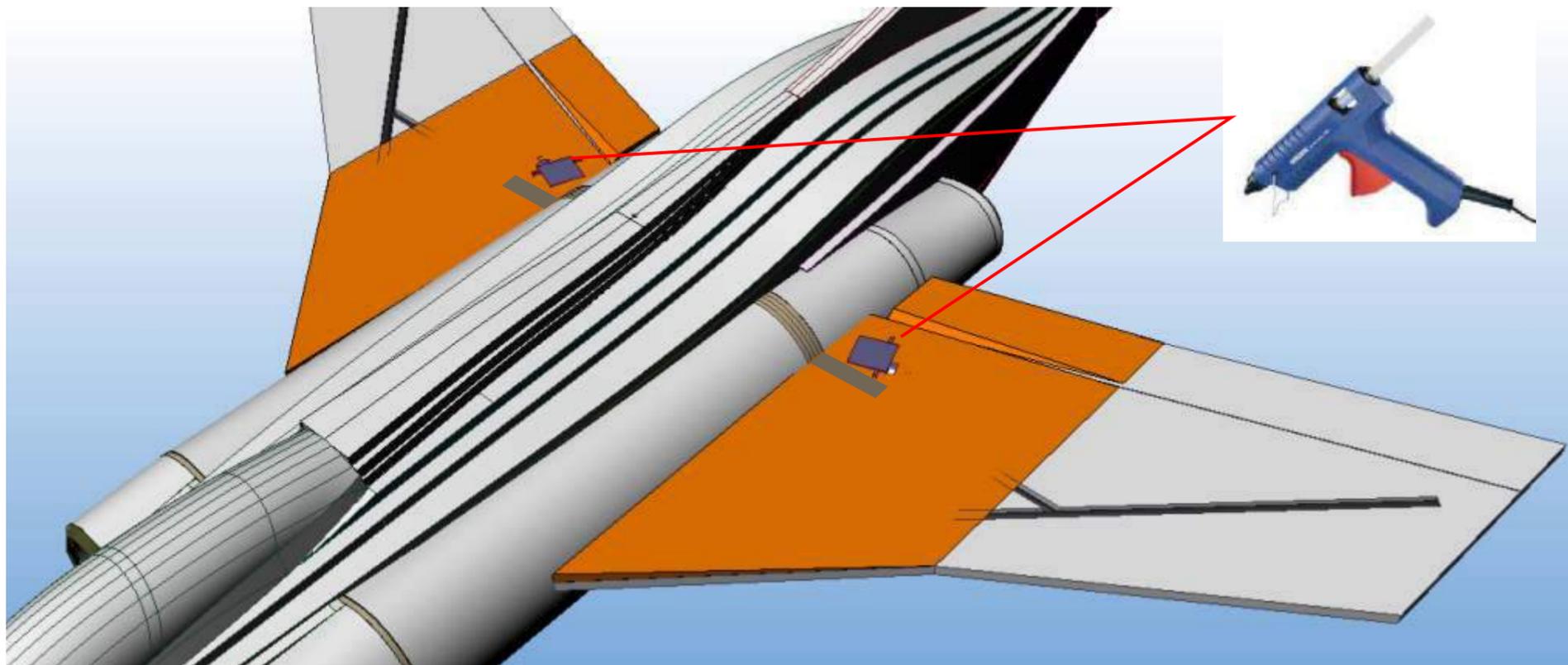
Using the depron JIG, create two 3mm air intake pieces laminated over the top of one another (outer one shown). Sand a soft leading edge over both of them.





Scribe to fit the inner wing edge to suit your nacelle shape, then glue (using 1/2 hour EPOXY) the wing to both the nacelles and carbon rods using masking tape to contain the glue while it sets.

Using your makeshift wing aligner jig (matching books under each wing) leave to set.



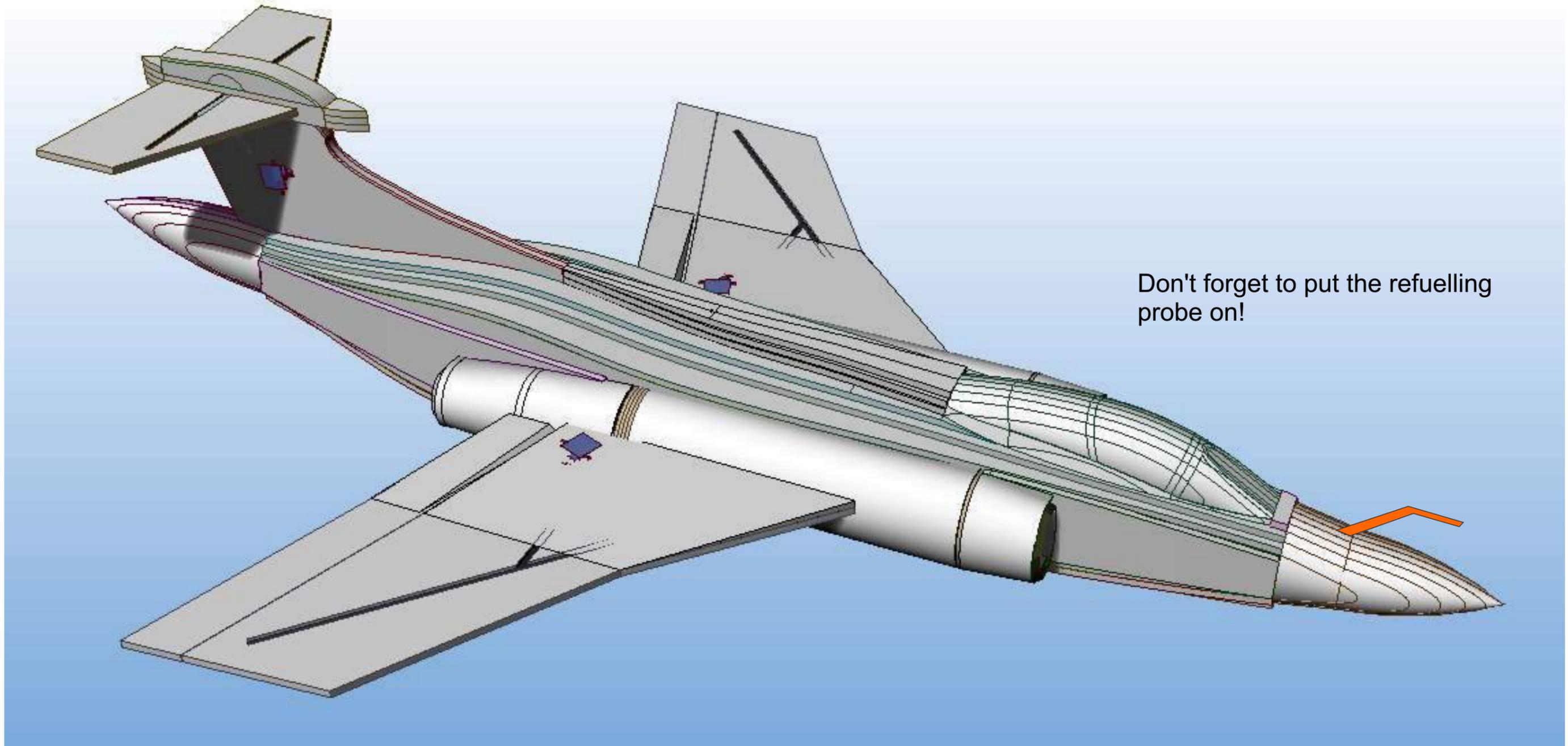
Sand the upper wing thickener panel to a feather edge and glue to the wing.

Mount the ailerons using the same method as the bomb bay doors.

Glue the servos in place using hot melt glue.

Sand the leading edge to shape.





Don't forget to put the refuelling probe on!

Congratulations! Your model is now complete. You can fly it as it is or finish it further.





Use Google images to help you find your favourite Buccaneer and to add scale details and paint schemes! there are so many to choose from!

# **BUCCANEER**

