

Tomahawk Design



Building Instructions for the Viper Jet



Tomahawk Design

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No liability for orthographic mistakes

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Subject to change without Notice

Made in Germany

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Description

The Viper was designed as an exceptional Sportjet. The high level of prefabrication enables one to complete the kit in a swift and easy manner. All control surfaces are prehinged and the accessories are hand picked and the whole setup fully optimized. The ducted intake makes for a direct and unobstructed airflow and increases performance.

Technical Data

Wingspan	1040 mm / 41 inches
Length	970 mm / 38 inches
Flying weight depending on equipment	ca. 980 g / 34.5 ounces
Channels	Ailerons, elevator, rudder and throttle

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Safety instructions

• Building Instructions

- Please read the complete manual in its entirety before you begin the build and before you do the maiden flight, including the Safety Instructions. Should there be any questions please contact the manufacturer Tomahawk Design.
- Keep this manual. Should you sell this model airplane hand this manual over to the new owner and pilot.

2. Hazard notes

- Unaproprate assembly or use of model airplanes can lead to damage of property, financial damage, severe injuries or even death and permanent damage to ones health or the health and lives of animals.
- Keep away from the intake, the engine and fan unit. The blades can possible cause injuries and the scoops can possible suck in ones hair.
- The loud noise generated by EDF units can lead to hearing damage. We recommend the use of adequate ear protection.
- The manufacturer and the distributor are not accountable for damages and accidents caused due to the use of this model as they have no control over the proper use of product and safety measures. The user shall determine the suitability of this product for his or her intended use, and shall assume all risks and liability in connection therewith.

3. Application

- The described model is not a toy. It only belongs into the hands of experienced adults and is intended to be used as a model airplane only. Transportation of items, animals or even humans is prohibited.

4. Damage Limits

- TOMAHAWK DESIGN OR IT'S DISTRIBUTORS SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Tomahawk Design or it's distributors exceed the individual price of the Product on which liability is asserted. As Tomahawk Design and it's distributors have no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

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5. Skills and Expertise

- The completion and use of this model airplane is for experienced adults. This is not a toy. This product is not intended for use by children without direct adult supervision.
- Should you be in need of advice or help please contact experienced model airplane builders and pilots or join your local flying club.

6. Building, Maintenance and Repairs

Follow the instructions in the building manual and use only the included parts and materials in order to operate correctly and avoid damage or injury.

- Follow the instructions regarding center of gravity (CG) and control throws.
- Always make sure that all controls are functioning per the transmitter input that you are giving and make sure that all components are functioning and installed right. Should there be visible or audible damage do not proceed.
- Keep the model airplane in a secure location, safe from direct sunlight or heat.
- Repair and Maintenance of the EDF unit are only to be made by trained technicians. Contact your dealer should you have any questions.

- Never get closer to the intake scoop for less than 6 inches. Ensure that others and especially children keep the necessary distance.
- Keep away from power lines and other aircraft.
- Do not operate this model airplane while under the influence of alcohol, drugs or medication.
- Always make sure that the model airplane is properly trimmed and that the Center of Gravity (CG) is correct.

Warranty

Tomahawk Design warrants that the Products purchased will be free from defects in materials and workmanship at the date of purchase by the Purchaser. Please contact your dealer should you have any questions.

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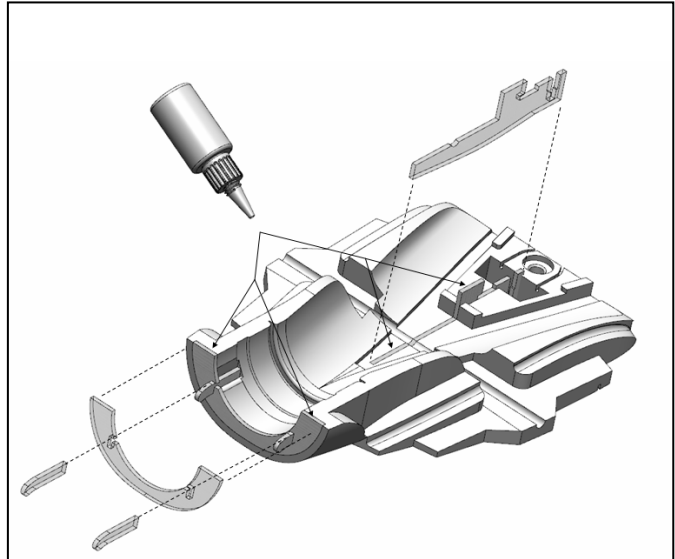
Picture 22....33 Fuselage assembly

Picture 34....35 CG and decals

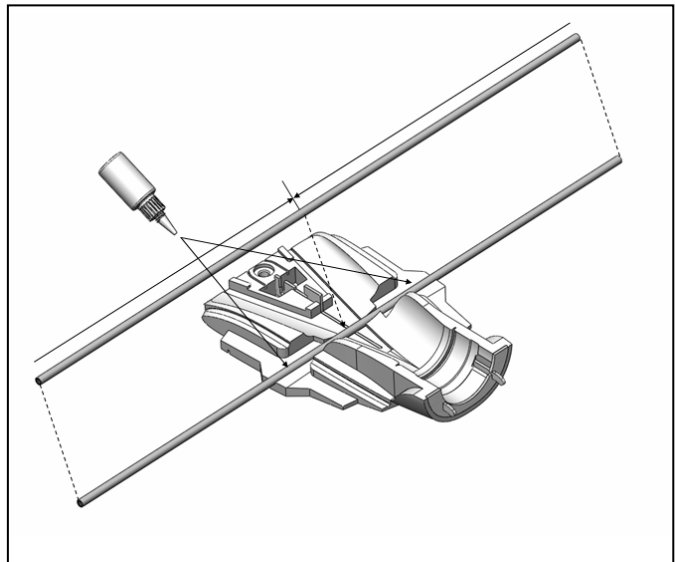
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Wing assembly

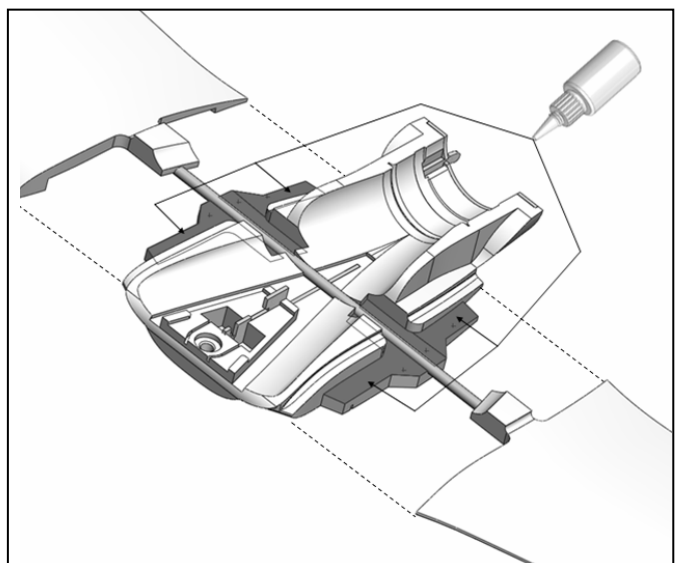
1. Install and glue the 4 wooden formers into the wing-midsection. Test-fit all parts before applying glue. Do the same for all of the following build steps



2. Glue the fiberglass tube into place in the wing-midsection



3. Install and glue the right wing-panel to the midsection followed by the one on the left.

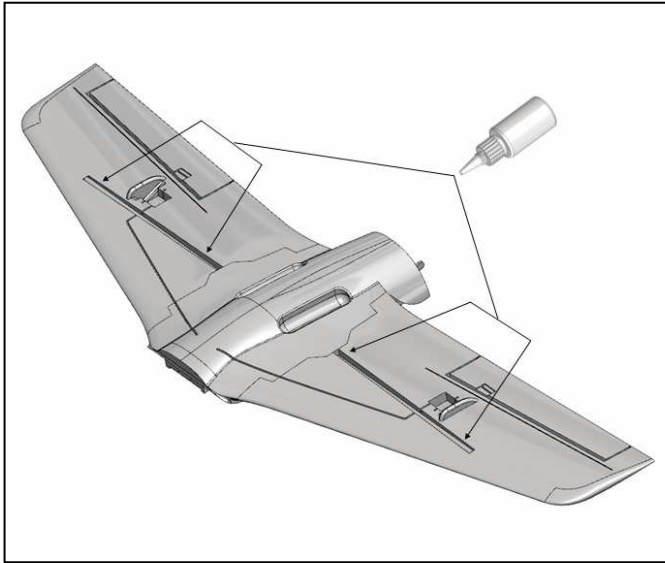


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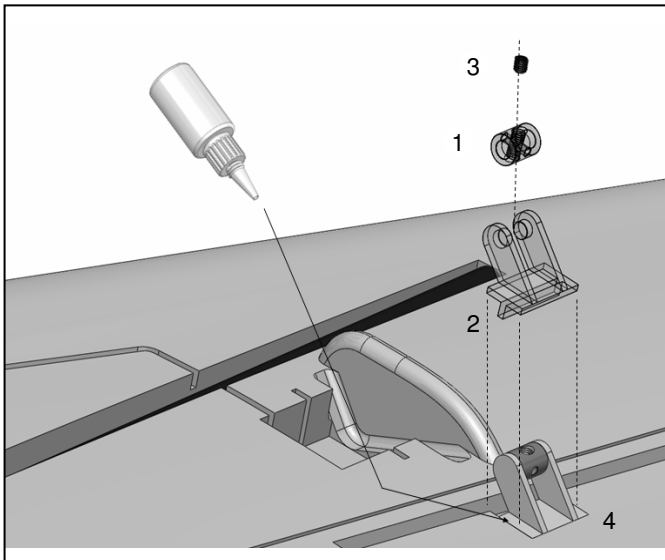
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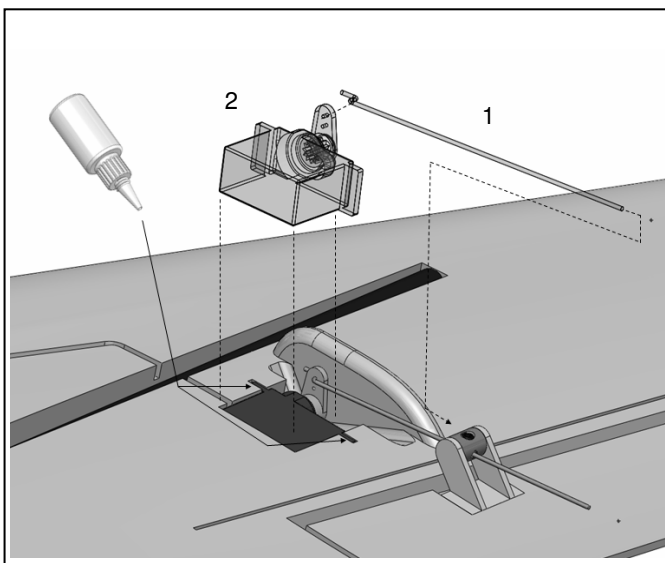


4. Install the fiberglass tubes using CA.



5. Insert the joint (1) (milled from aluminum) into the ruder horn (2) (cast part). Loosely install the M3 (Metric size 3) set screw (3)

(4) Glue the ruderhorn assembly into place.



6. Connect the servo (2) with the servo linkage (1) !ATTENTION! Test the sub trim of the servo. Only apply glue to the servo flaps when you install them in the prepared servo cutouts on the bottom of the wing. Extend the servo lead to a total length of 55mm or 2.2 inches. Test the setup when done.

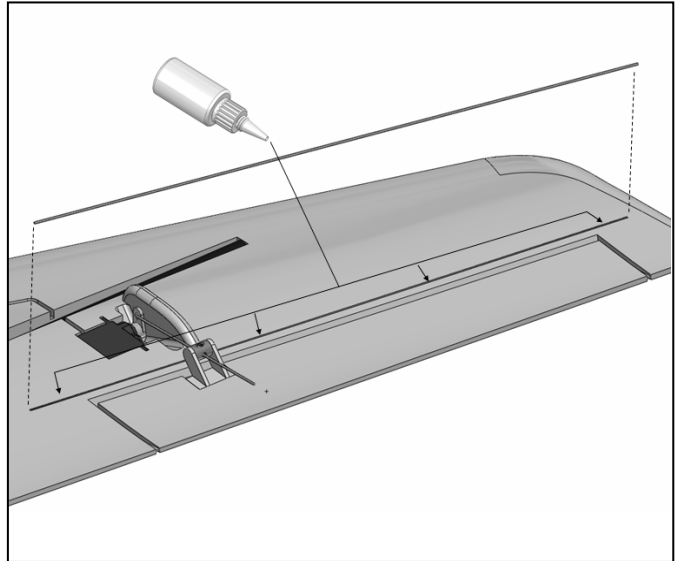
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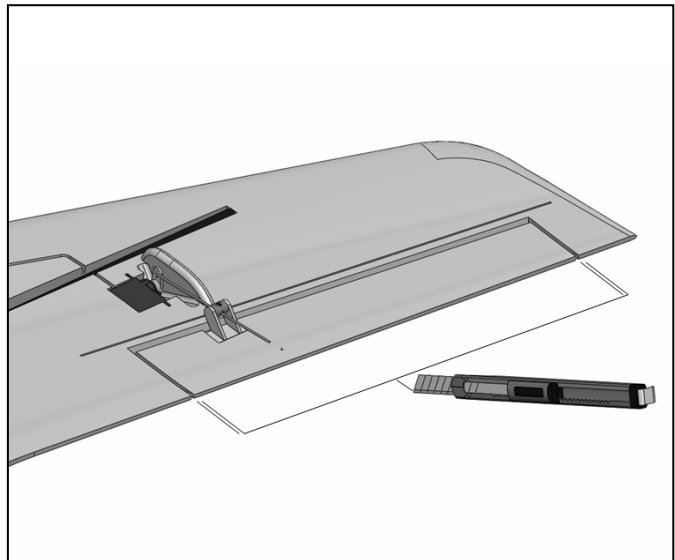
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7. Install the thin fiberglass rod on the bottom of the wing and glue into place using CA, applying it to the full length of the fiberglass rod. If needed shorten the fiberglass rod to the right length.



8. Cut free both sides of the ailerons using a sharp hobby knife. Carefully bend the ailerons up and down to „loosen“ the hingeline. Make sure not to overextend the ailerons

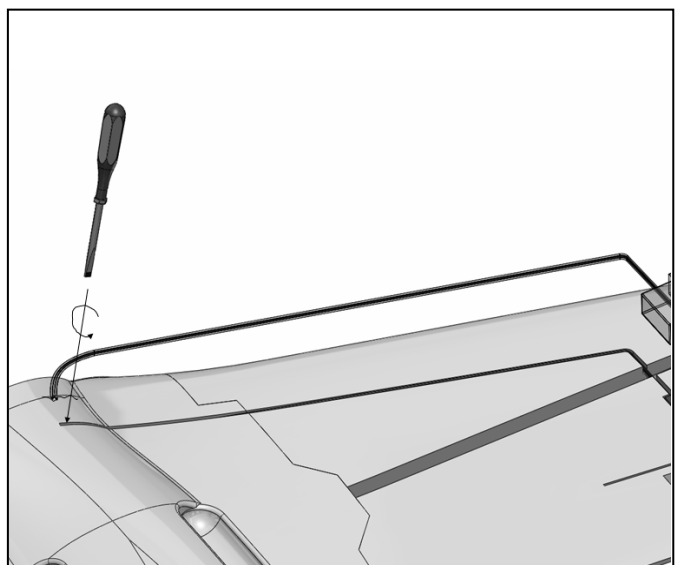
DO NOT cut off the ailerons at the hingeline.



9. Insert the servo lead into the cutout channel and thread the servo connector through the foam wing to the other side.

You can carefully use a flathead screwdriver to accomplish this step of the build.

Repeat steps 5 through 9 to finish the other wing panel.

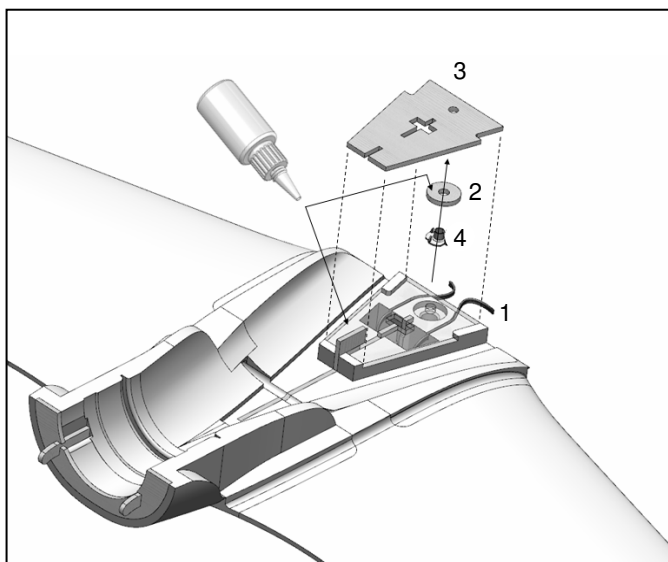


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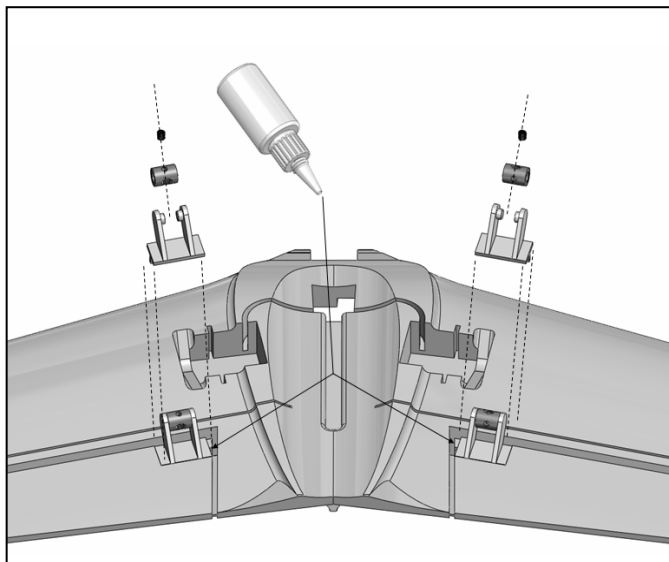
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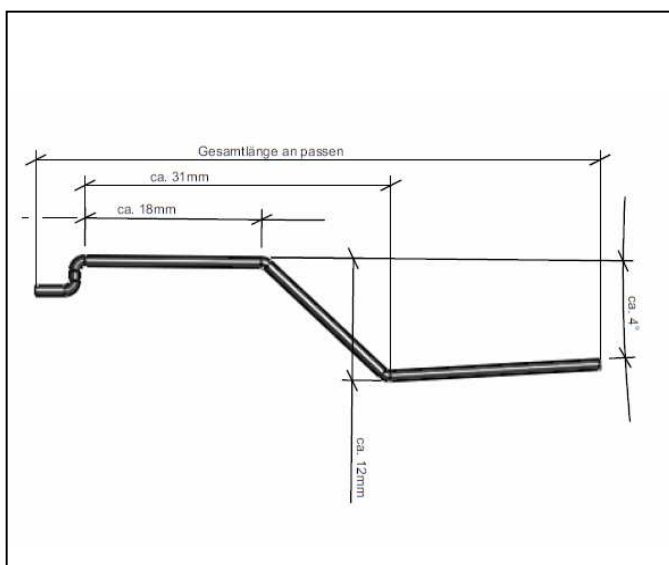
10. Insert the servo leads into the prepared slots (1). Glue the plywood reinforcement part (2) with former (3).

(4) Install the blind nut and glue it to the wood. Once finished glue this assembly to the center wingsection.



Elevator assmebly

11. Insert the joint (milled from aluminum) into the ruder horn (cast part). Loosely install the set screw.



12. Bend the servo linkage according to the drawings.

31mm equal 1.2 inches, 18mm equal 0.7 inches, 12mm equal 0.5 inches the number on the right reads 4 degrees.

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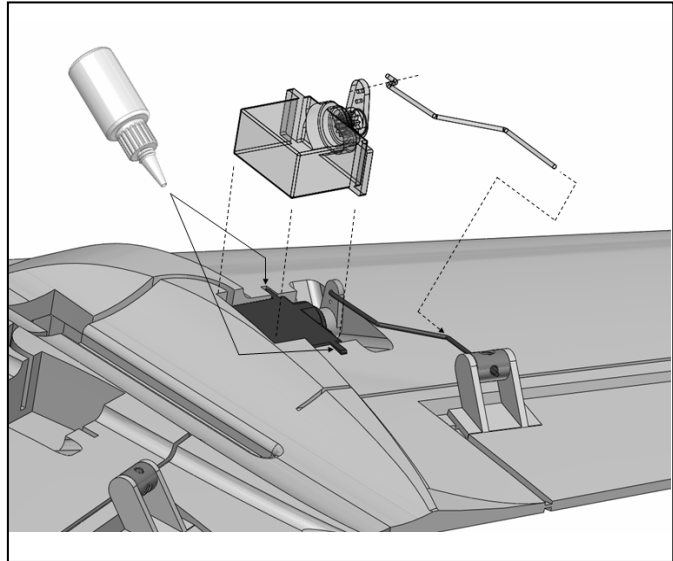
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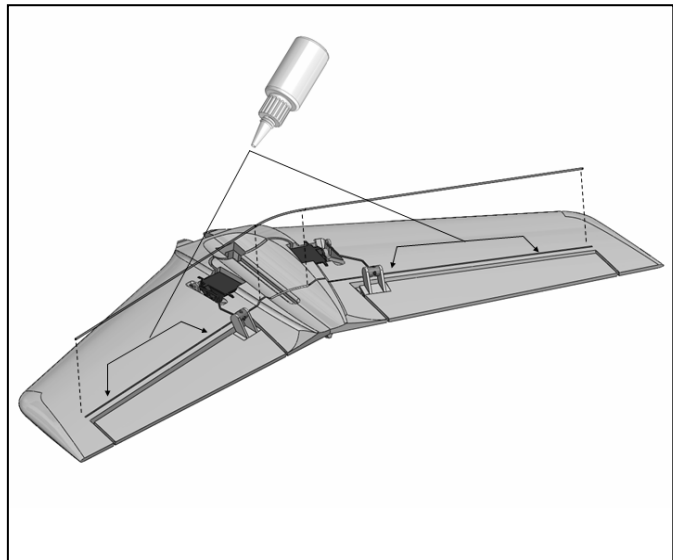
13. Extend the total length of the servo leads to 60mm or 2.4 inches. Install the servos including the linkages. **!ATTENTION!** Test the servos sub trim before proceeding and apply glue only to the servo flaps.

Repeat steps 12 and 13 in order to finish the other wing half.



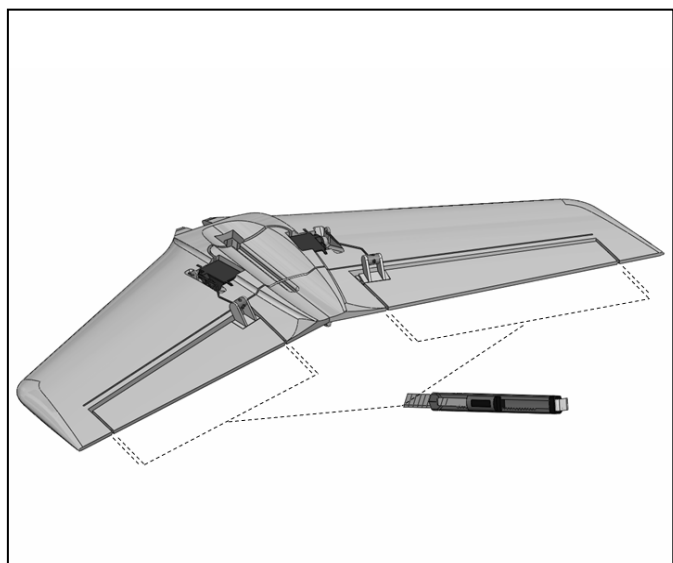
14. Install the thin and long fiberglass rod.

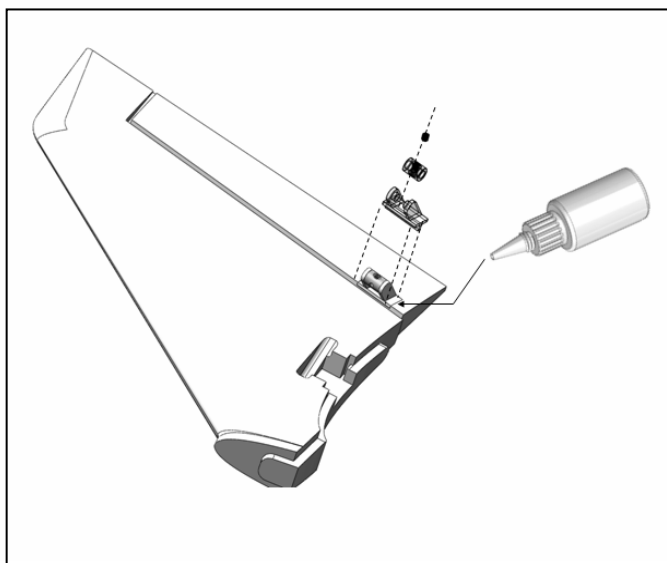
ATTENTION: Do not cut this rod. It is meant to be continuous and in one piece going from wingtip to wingtip.



15. Cut free both sides of the elevators using a sharp hobby knife. Carefully bend the elevators up and down to „loosen“ the hingeline. Make sure not to overextend the ailerons

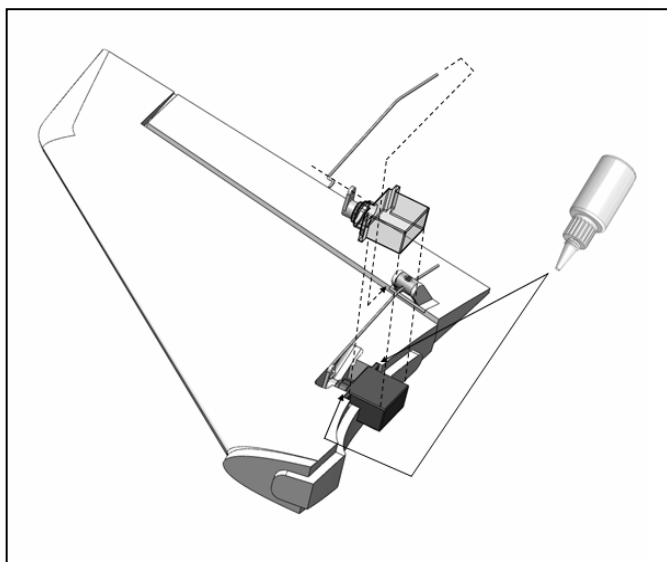
DO NOT cut off the elevators at the hingeline.



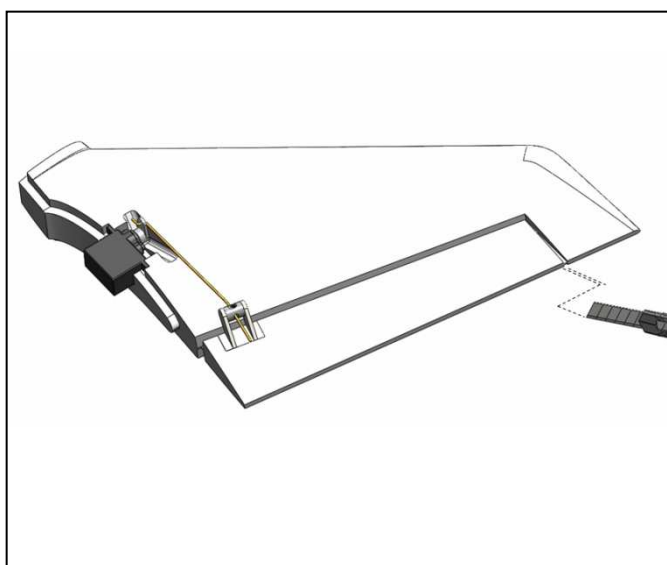


Rudder Assmebly

16. Insert the joint (milled from aluminum) into the ruder horn (cast part). Loosely install the set screw. Glue the whole assembly in place.



17. Extend the total length of the servo leads to 60mm or 2.4 inches. Install the servos including the linkages. !ATTENTION! Test the servos sub trim before proceeding and apply glue only to the servo flaps. Adjust the length of the linkage if needed.



18. Cut free both sides of the rudder using a sharp hobby knife. Carefully bend the rudder left and right to „loosen“ the hingeline. Make sure not to overextend the ailerons

DO NOT cut off the rudder at the hingeline.

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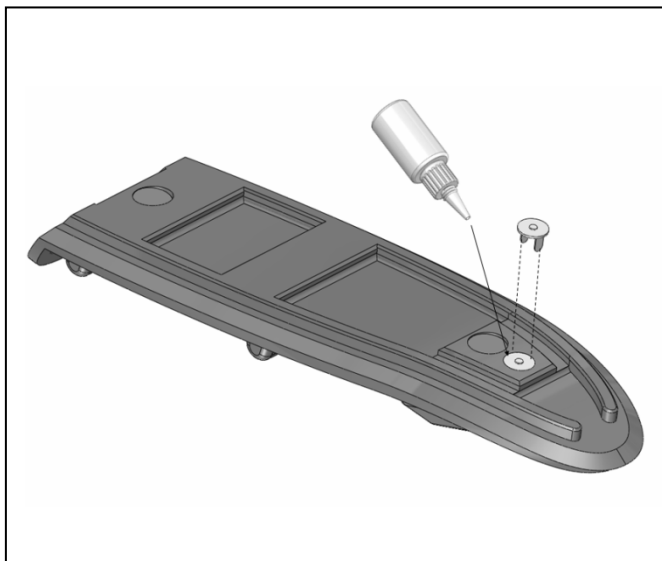
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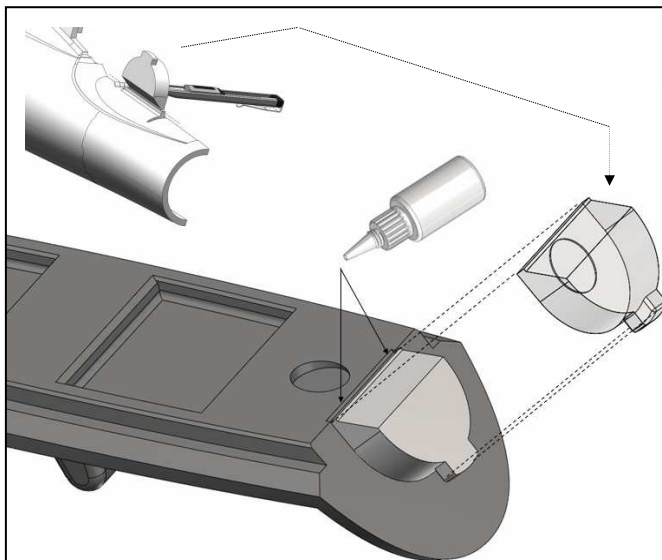
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Canopy assembly

19. Install the magent flush to the canopy frame but do NOT apply glue yet.

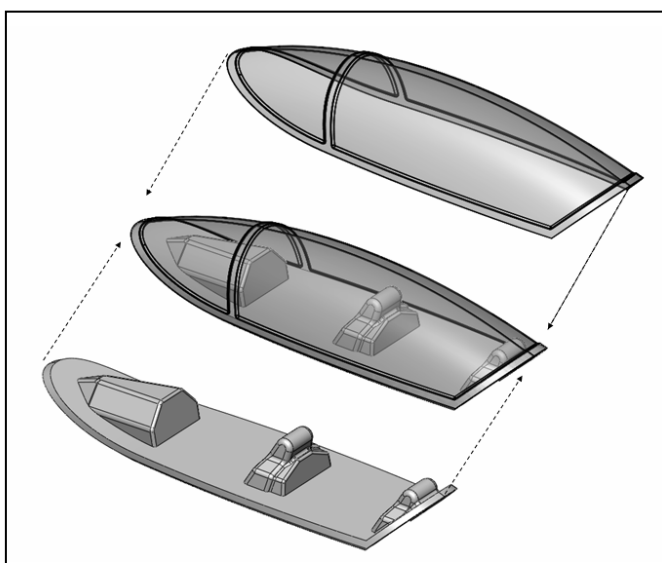


20. Remove the sprue from the end of the fuselage and glue it to the canopy frame according to the drawing. Leave the centering notch in place.

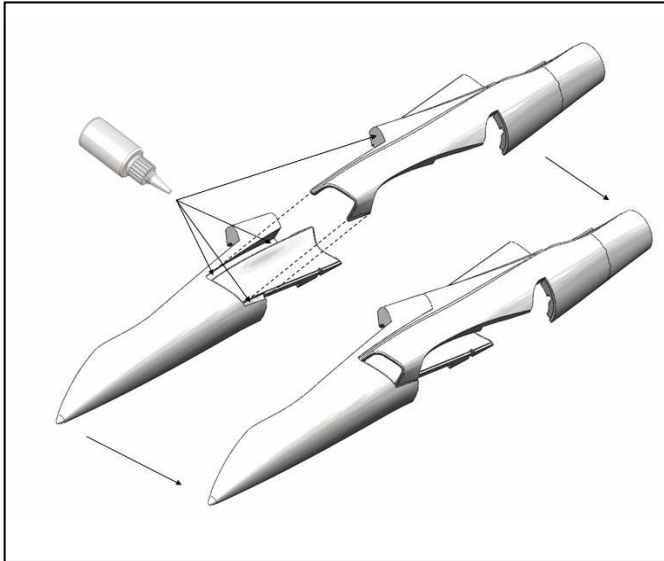


21. Center the clear canopy and temporarily fix it to the canopy frame using electrical tape. Glue the canopy to the canopy frame carefully using very little amounts of CA. CA tends to fog – be careful not to stain your clear canopy during this step. If you want to avoid the risk of tainting your clear canopy use electrical tape to fix the canopy to the frame instead.

!ATTENTION! Do not forget to apply paint and decals before you attach the clear canopy to the frame

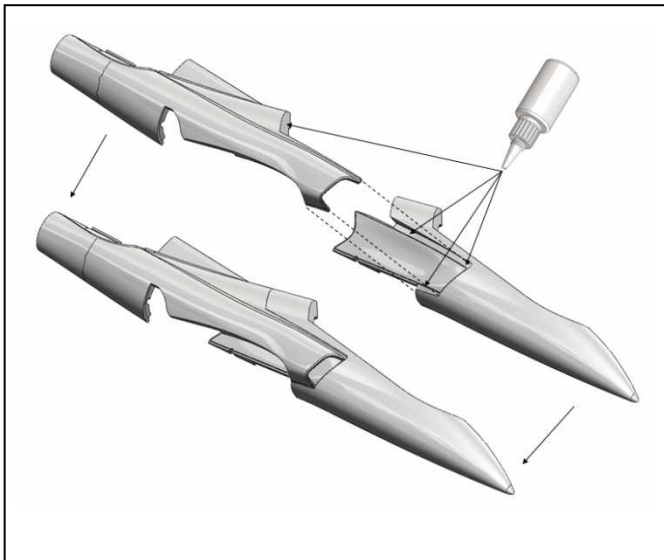


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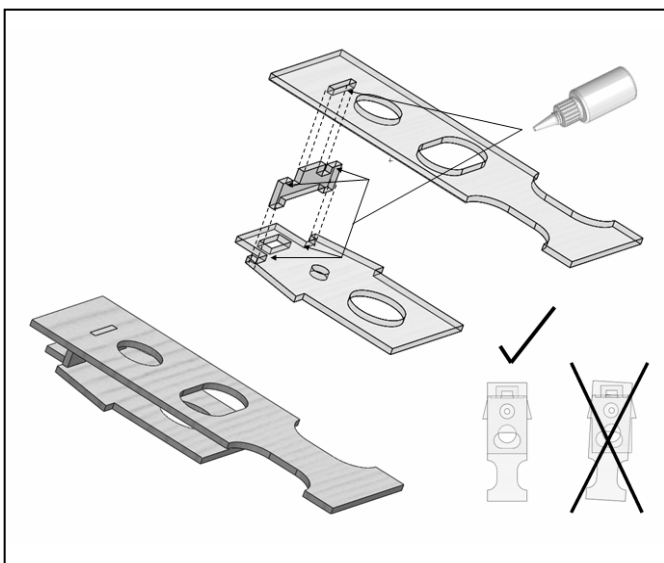


Fuselage assembly

22. Place the front and aft parts of the left fuselage section on an even and true surface and glue together.



23. Place the front and aft parts of the right fuselage section on an even and true surface and glue together..



24. Install and glue the plywood formers for the battery-board in place

!ATTENTION! The pieces have to be absolutely parallel to another and aligned in a straight line. Please test fit in the fuselage before applying glue.

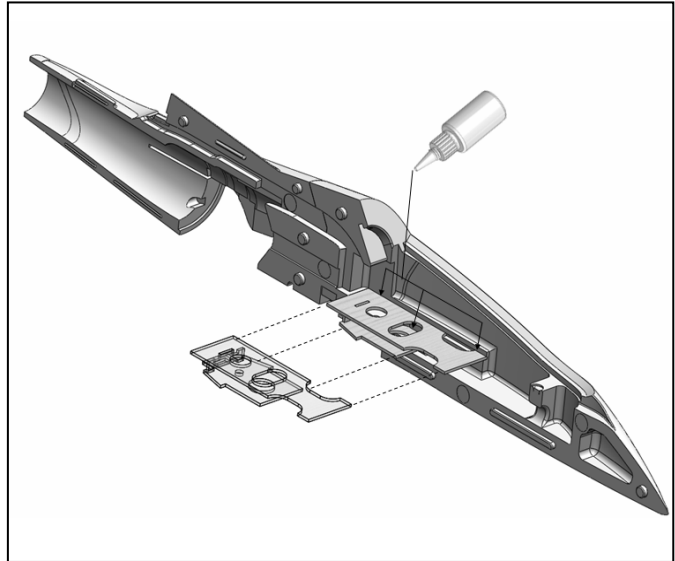
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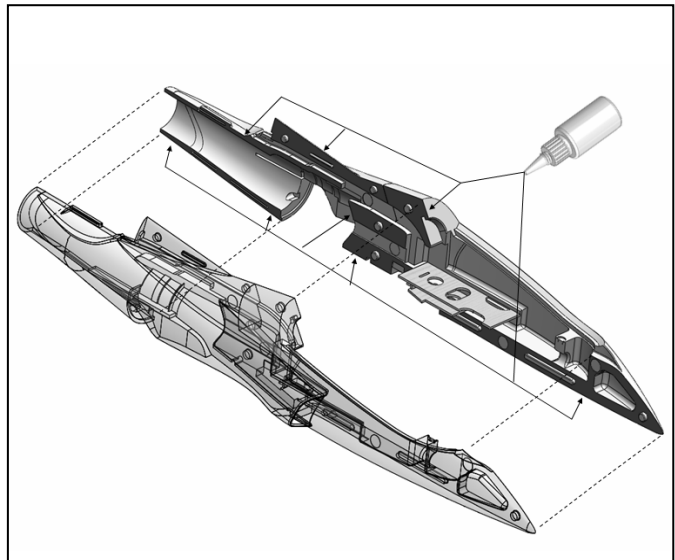
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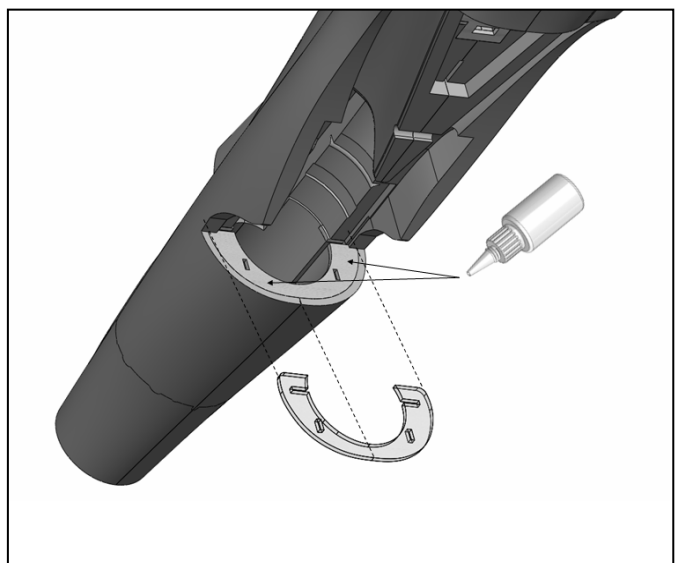
25. Glue the batteryboard assmebly to the left fuselage half



26. Join the two fuselage halves and glue them together.
!ATTENTION! Make sure that the fuselage ends up true and straight.



27. Glue the wooden former into place

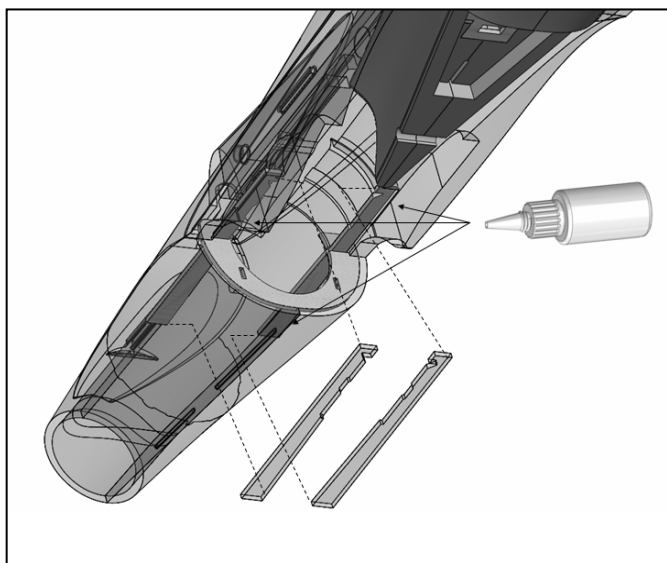


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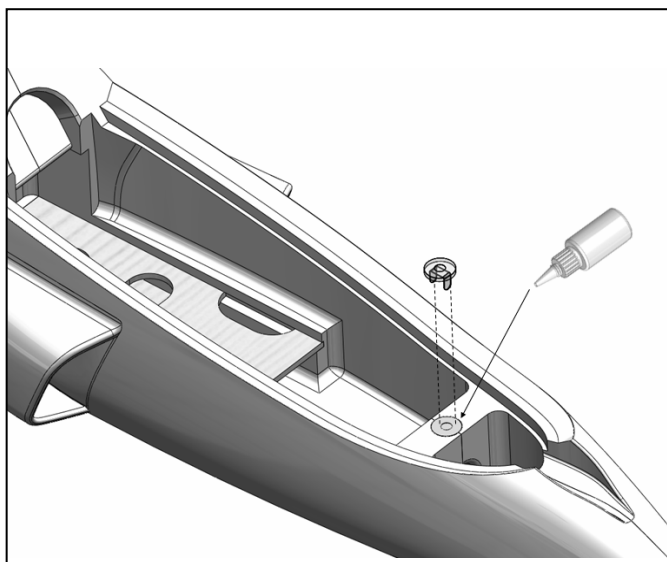
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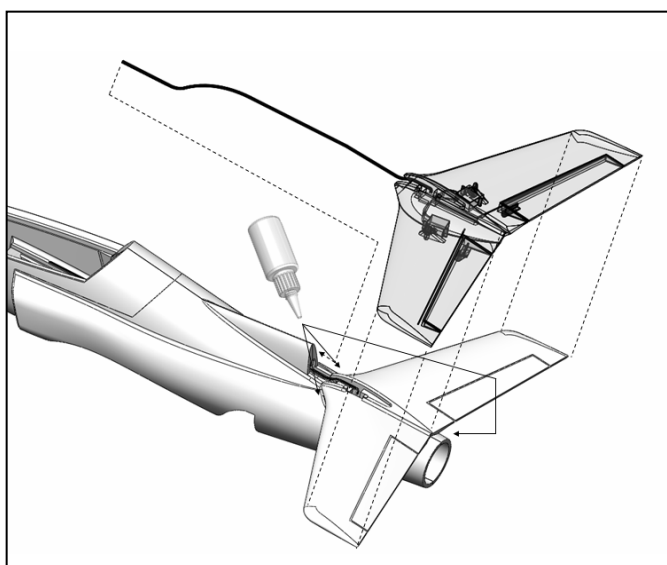
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28. Glue the plywood reinforcement parts into place on the fuselage

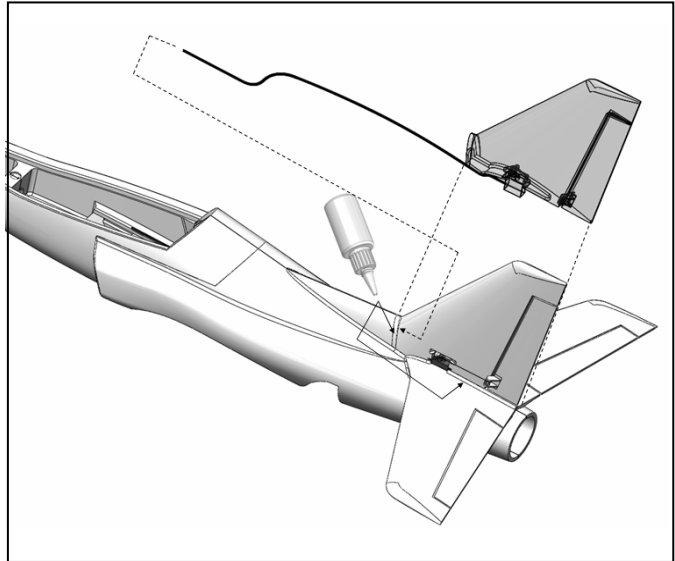


29. Glue the canopy magnet into place on the fuselage, make sure that it is flush. Now put the canopy into place, making sure that the two magnets make contact and connect. Now lift the canopy, the two magnets should now sit on top of each other. Carefully apply CA on the canopy frame, where the magnet goes. Just a small amount, you do not want to glue the two magnets to each other. Now place the canopy frame in place and let the assembly fully cure. Done right you will hear an audible „click“ when you put the canopy in place later on



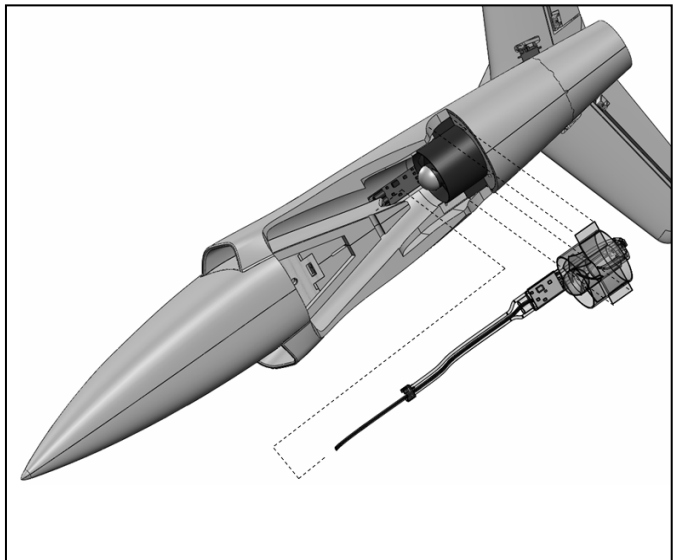
30. Lead the elevator servo cable through the fuselage and glue the elevator to the fuselage. Make sure that the elevators match and are flush with the fairings.

31. Lead the rudder servo cable through the fuselage and glue the rudder to the fuselage

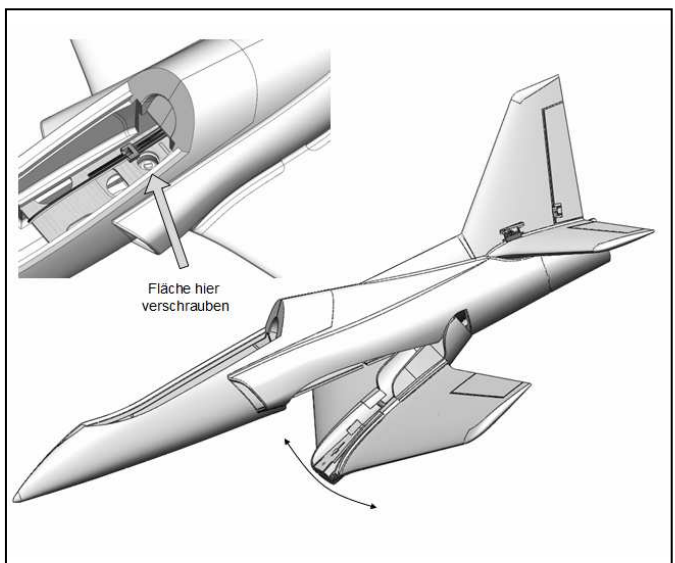


32. Connect the ducted fan unit to the speed controller. !Attention! Make sure that the engine turns the right way, otherwise correct your setup.

Lead the speed controller cable and the power cables through the fuselage and install the ducted fan unit using double-sided tape.



33. The wing is being secured to the fuselage using a Polyamid M5 (metric size size) x 20mm plastic bolt and a washer. In the rear the decals will further strengthen the assembly.

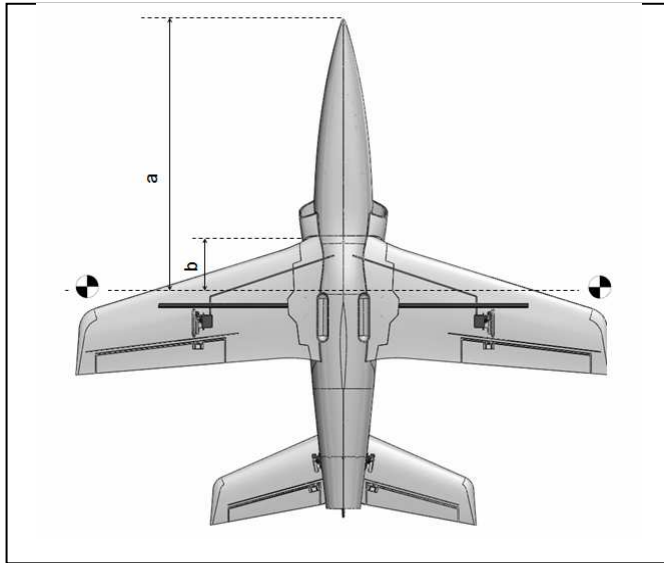


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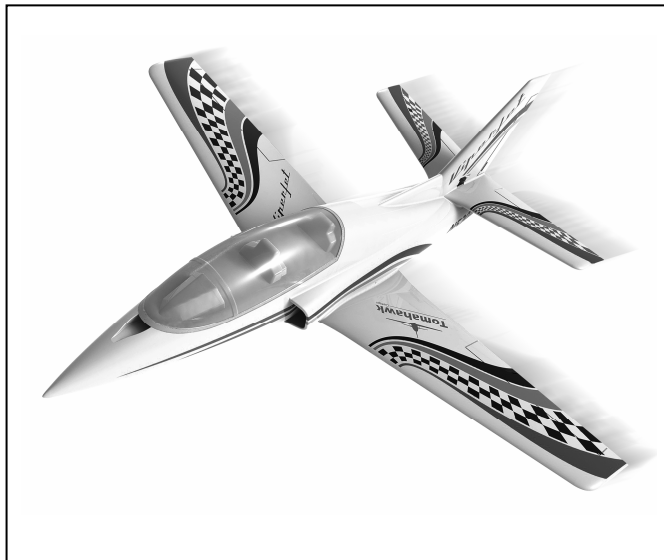
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34. You will install the receiver and battery pack in the front of the fuselage. The exact position is determined by the CG, which is at:

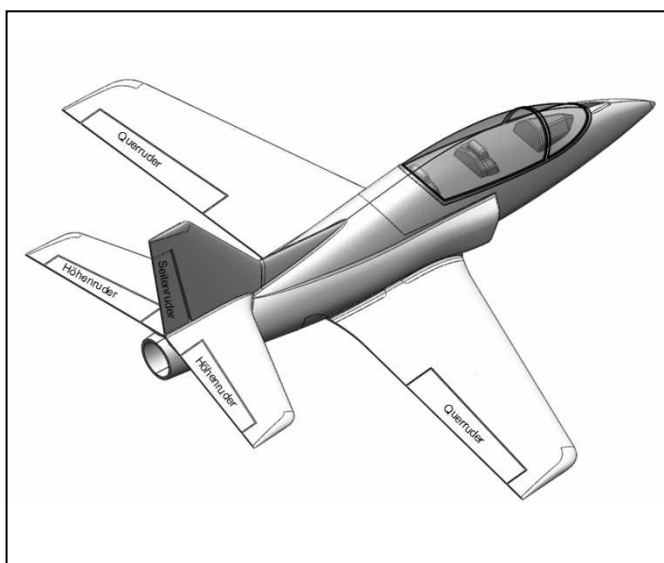
A, measured from the tip of the airplane
515 mm or 20.25 inches

b, measured from the very leading edge of the wing
90 mm or 3.55 inches



35. Place the decals according to the photos on the packaging.

Attention: Position the decals perfectly before applying pressure.



36. Throws

- a. Ailerons: ca. $\pm 20^\circ$ - 25°
(Recommended Expo: 30%)
- b. Elevator: ca. $\pm 25^\circ$ - 30°
(Recommended Expo: 40%)
- c. Rudder: ca. $\pm 30^\circ$ - 35°
(Recommended Expo: 40%)

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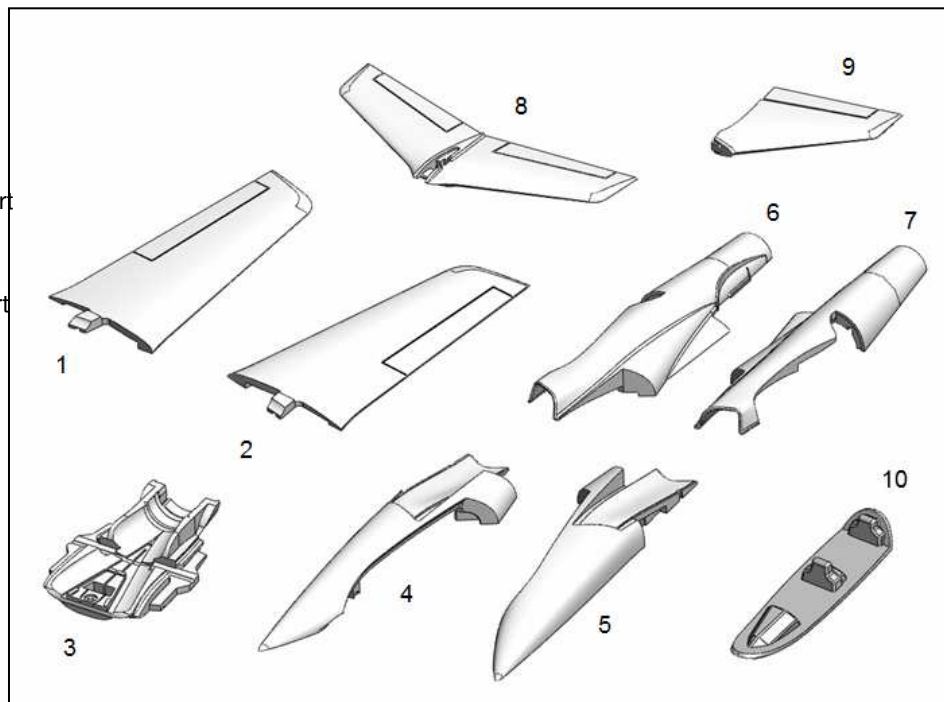
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37. Foam parts

(included with the kit)

1. Left wing panel
2. Right wing panel
3. Centersection wing
4. Front right fuselage part
5. Front left fuselage part
6. Rear left fuselage part
7. Rear right fuselage part
8. Elevator
9. Rudder
10. Canopy frame



38. Loose parts/ formers

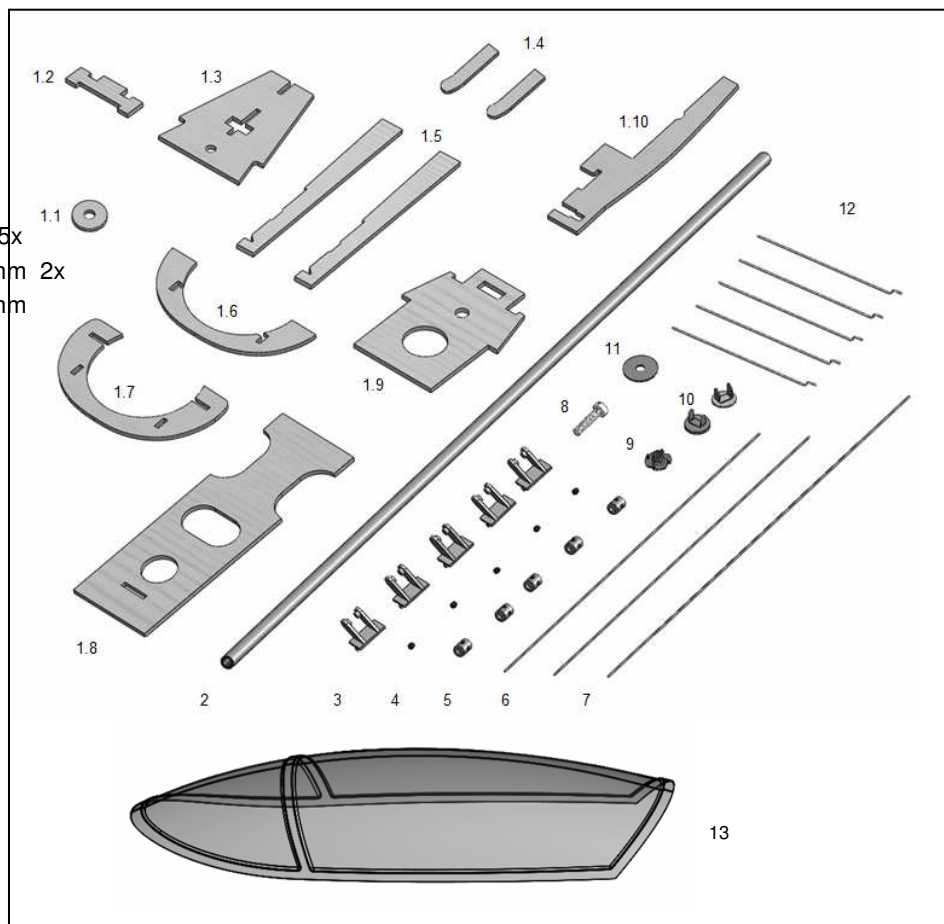
(included with the kit)

1.1 -1.10 formers

2. Fiberglass tube
3. Control arm 5 x
4. Set screw 5 x
5. Milled aluminum part 5x
6. Fiberglass rod 1x350mm 2x
7. Fiberglass rod 1x450mm
8. Plastic bolt
9. Blind nut
10. Magnet assembly
11. Washer
12. Linkage 5x
13. Clear canopy

Not depicted:

14. Large decal sheet
15. Small decal sheet



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Recommended Equipment

- 5 Servos (Metalgear recommended) Lengthmm X Height 12mm X Widthmm
- 5 Servolead extensions (Length depending on servos used)
- 1 6-channel receiver
- 1 69-mm ducted fan unit max. 900 Watt of power (Wemotec Mini Fan pro with 2 W20 Motor included with the complete kit, kits without fan unit available)
- 1 speed controller (60A minimum)
- 1 Lipo 30C oder better, 4S, 2600-3200mAh

!!!!THIS MODEL AIRPLANE IS NOT SUITABLE FOR THE USE OF TURBINES!!!!

Tools needed

Knife
Needle-nosed pliers
Screw drivers
Tape
CA

Replacement parts

- # Fuselage
- # Wings
- # Rudder
- # Canopy
- # Loose parts
- # Former set
- # Decal sheet

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