

METIS INSTRUCTIONS



The Metis was designed by Filippo Materazzi, F3P, Aeromusical and F6A Italian Champion. It is the last version of his famous indoor freestyle airplane which he flew in World Air Games 2009. It has been totally updated but maintaining its particular style. Now it has bigger mobile surfaces, a higher top and bottom fuselage and a completely new milling, paying attention to maintain the strength of the airframe. Thanks to all these tricks it flies slowly and smoothly but it can become very agile, reactive and fast if you need it. This characteristic is fundamental for an aeromusical flight where you need to change the flight style according to the music, but also in a good freestyle, to differentiate the maneuvers and employ the own imagination. In addition, a beginner can improve his skills gradually, increasing step by step the movement of mobile surfaces.

The kit is composed by 3 mm and 2 mm depron, carbon rods (precutted!), super lightweight carbon control horns and all the necessary to complete the plane.

Before operating this unit, please read these instructions completely.

Before assembly, please spend some time to read our instructions. Along the way you'll learn how to properly assemble your new airplane in the least amount of time possible. Below are some tips that will help you in the assembly.

1. You need to consider the reserved servo position when installing the elevator and rudder. Also make sure that moving control surfaces do not interfere with reinforcement parts such as strings and linkage poles.

2. Before fixing carbon with C/A, paper the part that is going to be inserted and fixed in the depron. In this way you can have a stronger glueing.

3. Glue the carbon rods exactly as shown in the pictures. To obtain a rigid and strong plane is very important that the ends of carbon rods touch and are glued together.

4. Correct assembly can assure good flying, before using glue or adhesive, please check the parts position and angle of alignment.

5. Remember to use less glue as possible and to use the lightest electronic parts you find. Less weight means always better flying characteristic!

6. If you want for your plane the best flying characteristic I suggest you to use the high quality electronic parts that I tested and I use on my planes.

Filippo Materazzi

Product Specifications

Fuselage length: 95 cm (37.4 in.)

Wingspan: 90 cm (35.4 in.)

Flying weight without battery: 120 - 130 g (4.23 – 4.58 Oz)

Flying weight with battery: 140 - 150 g (4.93 – 5.29 Oz)

Motor: 15 – 22 g (0.52 – 0.77 Oz) (suggested: Hacker A10-9L)

ESC: 7 - 10 Amp (suggested: Hacker MasterECO 08)

Propeller: about 8 x 4 (suggested: Mejzlik 8x4)

Servo: 6g x 4pcs (suggested: 4 x JR DS318 or 3 x JR DS319 HV)

Radio: 5/more channel (suggested: 2 - 5 g receiver)

Battery: 2S 250-350 mAh LiPo (suggested: 15 – 22 g battery)

Do not fly under the conditions below

Windy conditions

A street with many trees or street lamps

Close to high voltage electrical wires

High Population density areas

Cautions for flying

Metis is made for indoor flight. Of course it is able to fly outdoor in not much windy condition. Make sure you have permission to fly and follow safety guidelines set by local authorities.

Note for Storage

Please disconnect the lipo packs when finished flying

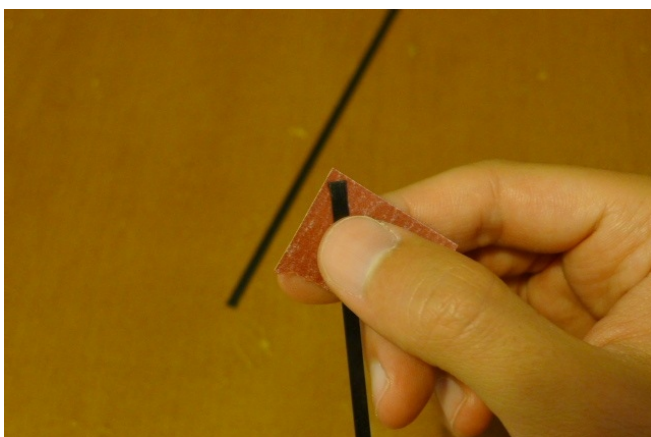
Do not press or crush the airplane when storing

CG Position: 23.5-24.5 cm from the nose

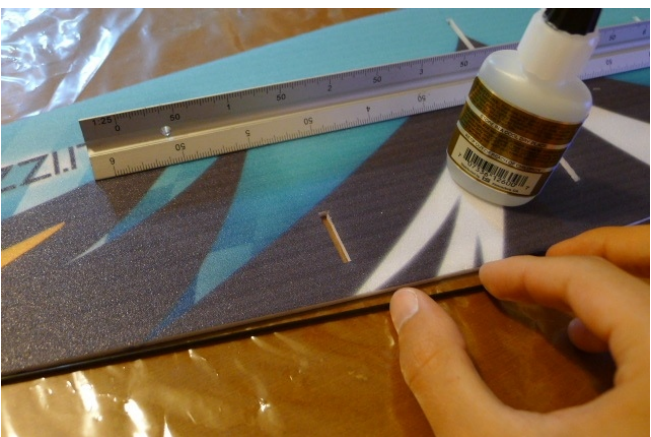




Cut a 55° bevel on ailerons. On elevator and rudder cut a 40° bevel on mobile and fixed surface.



Fix the elevator with 3M tape. Do the same with ailerons.



Use some C/A to glue the two carbon strip (73 and 79.2 cm long) on both sides of the wing as shown in the picture. NOTE: position the wing on a flat surface.



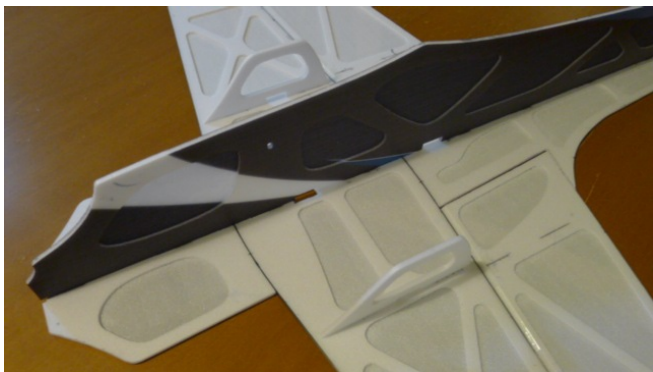
Fix the horizontal fuselages to the wing with C/A.



Insert the downside vertical winglets into the pre-reserved slots on the downside of the wing and apply some C/A to fix.



Insert the parts to reinforce control surfaces into the pre-reserved slots on ailerons and apply some C/A to fix.



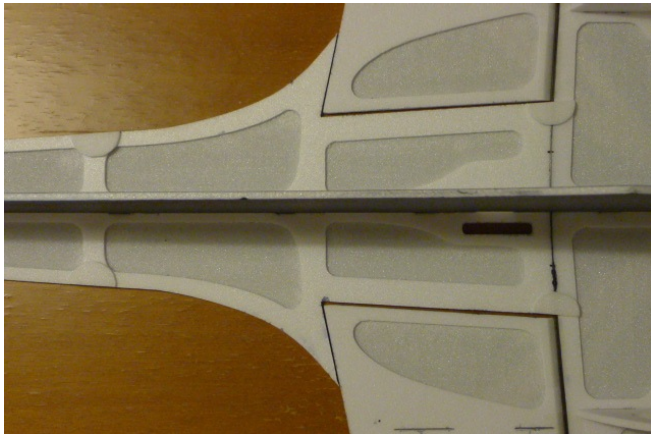
Use some C/A to fix the lower vertical fuselage on the horizontal fuselage. Be vertical and no distortion!



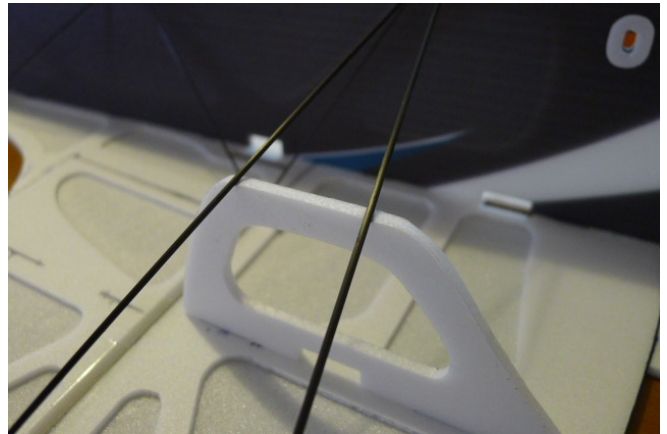
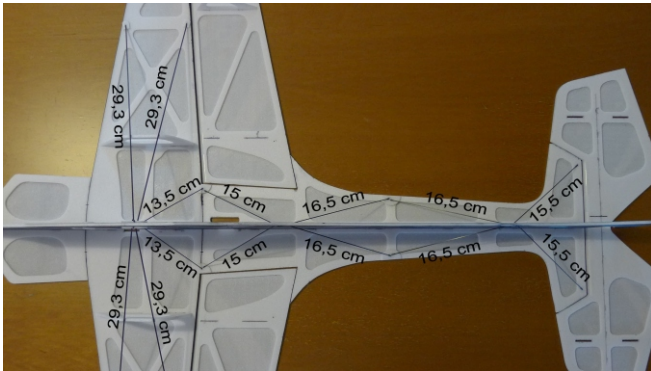
Fix with C/A the two 2 mm depron reinforcement parts on both sides of lower vertical fuselage. A micro hole indicates the position. In a consecutive step you will have to insert in it the four 1.5 mm carbon rods to reinforce the wings.



Fix with C/A the two 2 mm depron reinforcement parts on both sides of lower vertical fuselage where there is the hole for the landing gear legs.



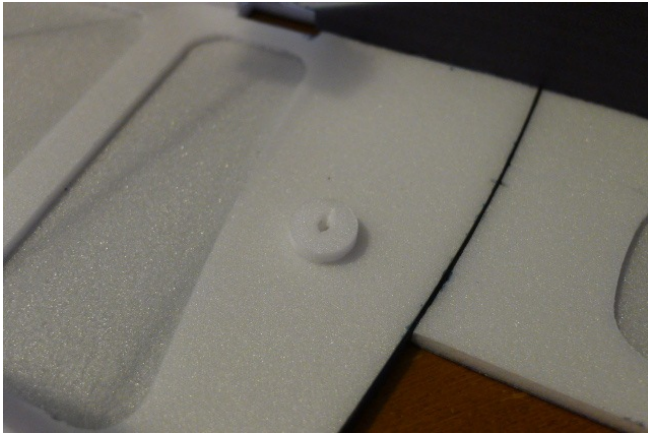
Fix with C/A the four 2 mm depron reinforcement half-moons on the bottom of horizontal fuselage as shown in the picture. The micro holes indicate the position. They are necessary to reinforce the points where the 1 mm carbon rods will be fixed.



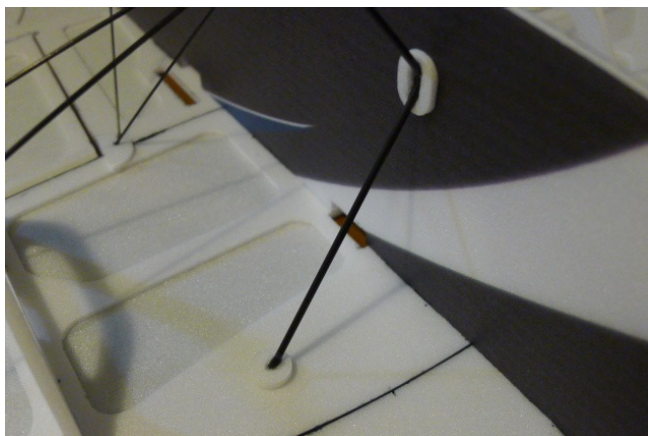
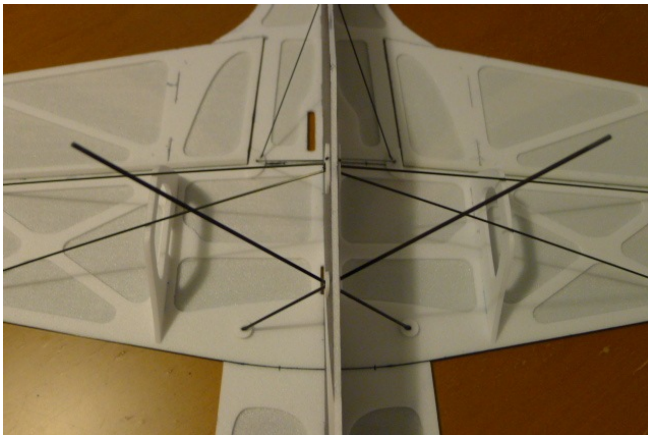
Install all the carbon rods as shown in the pictures. First of all fix with C/A the four 1.5 mm (29.3 cm long) wing carbon rods. Then the others 1 mm carbon rods.



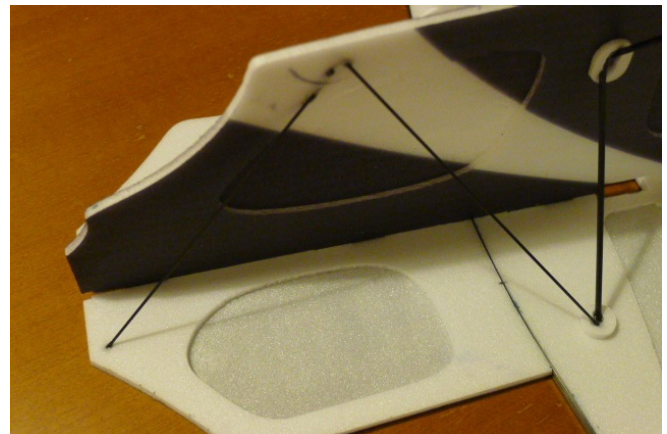
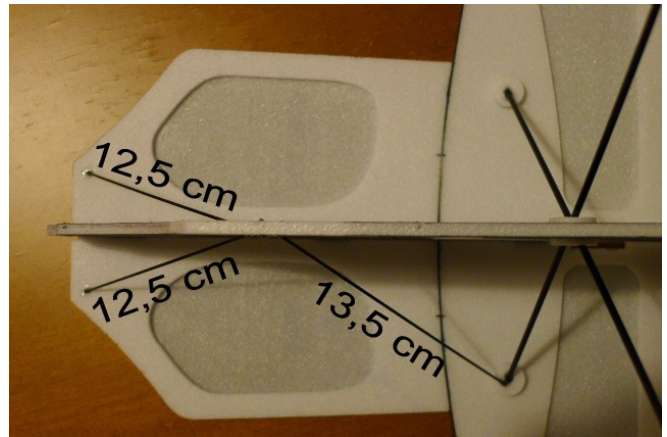
Fix with C/A the four 2 mm depron reinforcement parts on the bottom of wing at the end of each 1.5 mm wing carbon rod.



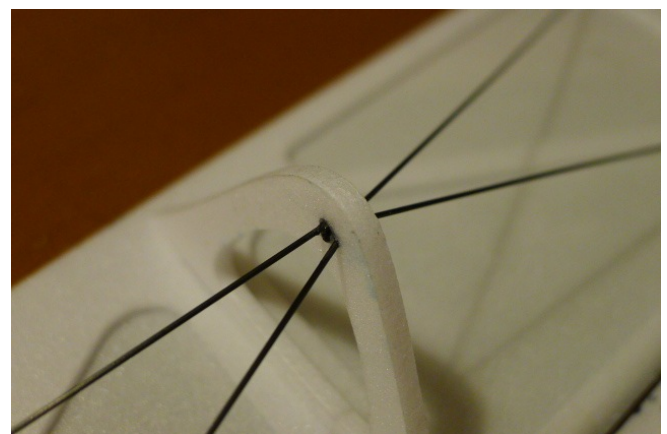
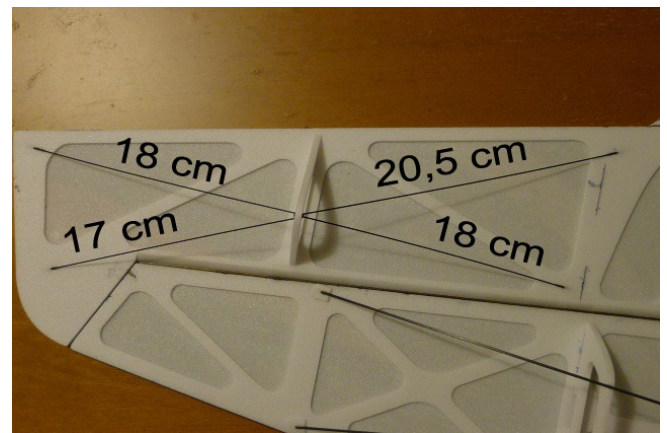
Fix with C/A the two 3 mm round depron reinforcements on the bottom of horizontal fuselage as shown in the picture. The micro holes indicate the position. They are necessary to reinforce the joint of the landing gear legs.



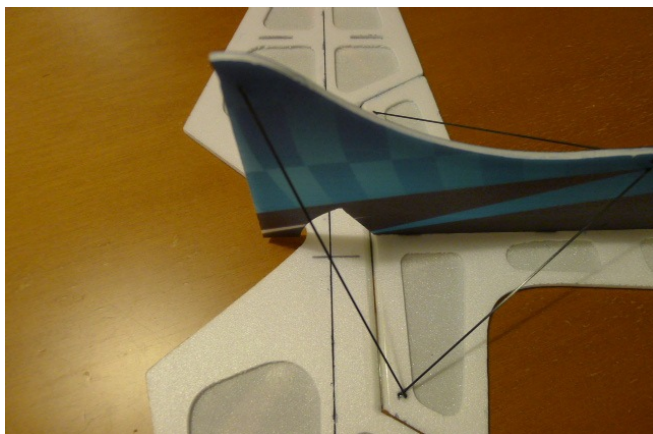
Install the landing gear. Please insert through the pre-reserved holes on the fuselage and wing the two 2 mm x 24 cm carbon rods, then use C/A to fix.



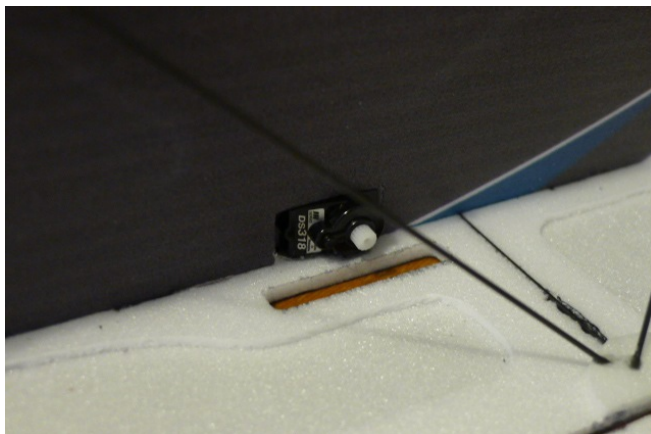
Fix with C/A the three 1 mm carbon rods as shown in the pictures.



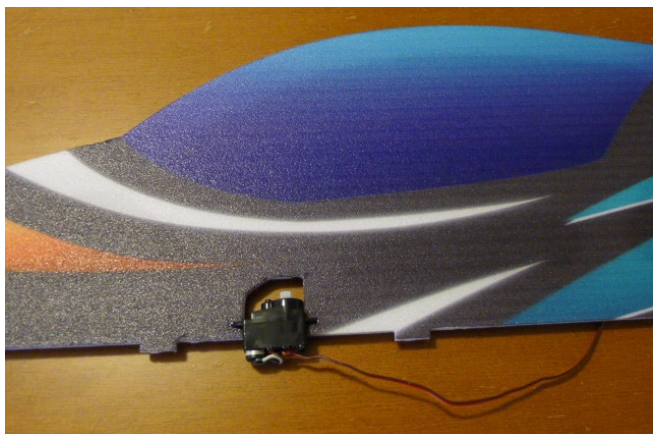
Fix with C/A the 0.8 mm carbon rods to reinforce the ailerons.



Install the 1 mm x 16 cm carbon rod paying attention to the elevator deflection. ATTENTION: elevator, when moves down, must not touch this carbon rod!



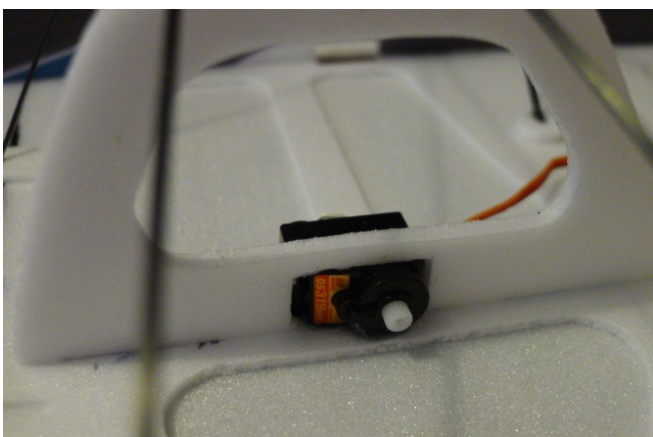
Use some C/A to fix the elevator servo in the pre-reserved slot on the lower vertical fuselage as shown in the picture.



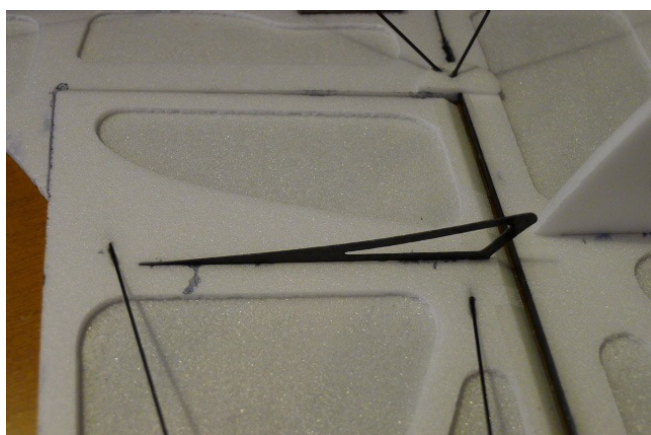
Use some C/A to fix the rudder servo in the pre-reserved slot on the upper vertical fuselage as shown in the picture.



Secure the lower part of control horns.



Use some C/A to fix the two aileron servos in the pre-reserved slots on the down-side vertical winglets as shown in the picture.



Fix with C/A the two ailerons control horns.



Use C/A to fix the upper vertical fuselage into the horizontal fuselage. Be vertical, no distortion.



Install the rudder to the fuselage with some 3M tape.



Fix with C/A the 1 mm x 14 cm carbon rod.



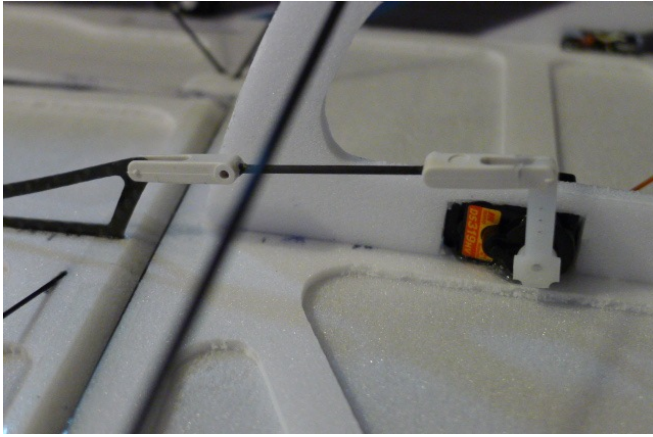
Insert the 0.5 mm x 32.5 cm carbon strip in the elevator control horn. Then glue them together in the pre-reserved slot. ATTENTION: elevator and rudder control horns are asymmetric. The shorter part goes on the side of mobile surface where there is the bevel for movement.



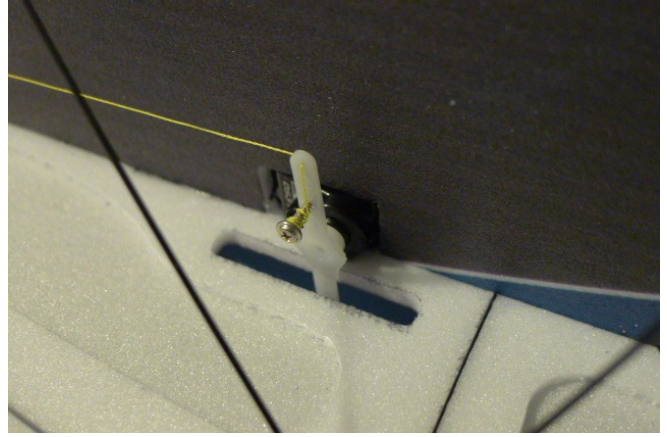
Then fix the rudder control horn.



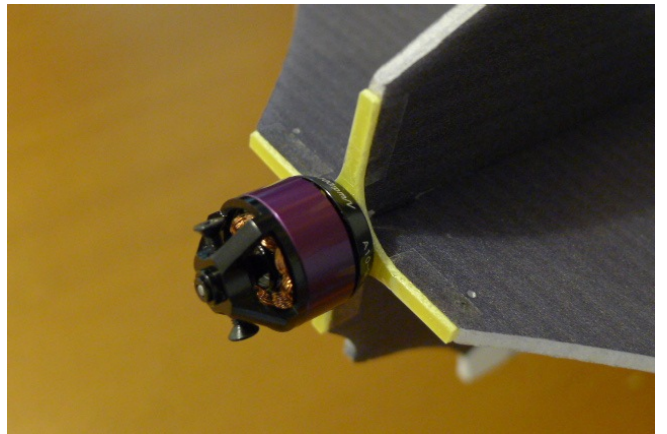
Insert the four 2 mm winglets into the pre-reserved slots on the elevator and apply some C/A to fix.



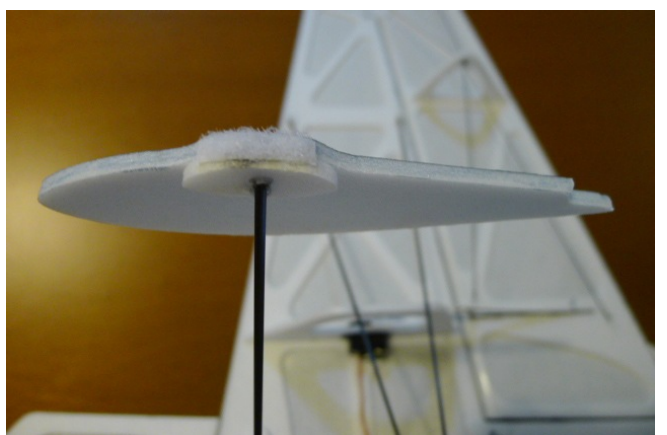
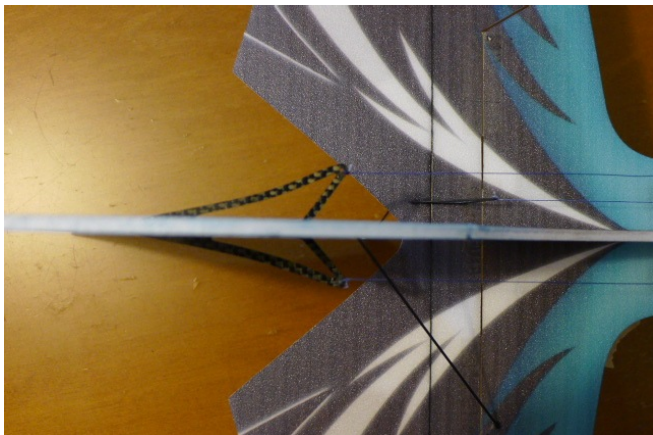
Use receiver to trim the servo arms in neutral, then fix the servo arms. Install ailerons linkages using the four clips and the two 1.3 mm x 5 cm carbon rods included in the kit.



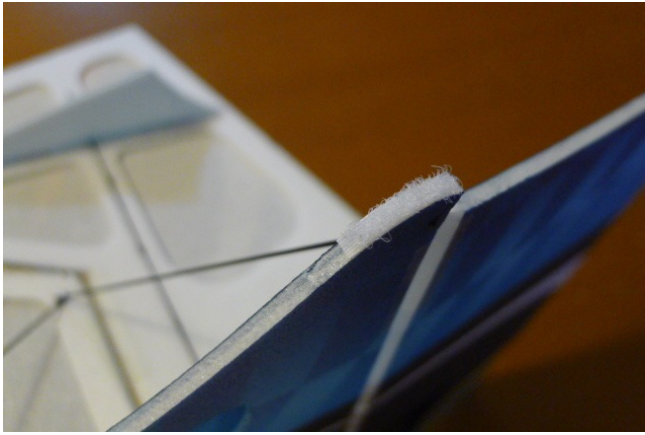
Connect the elevator and rudder servos and control horns with thread. Make sure the thread is taut and have the control surfaces in a horizontal position.



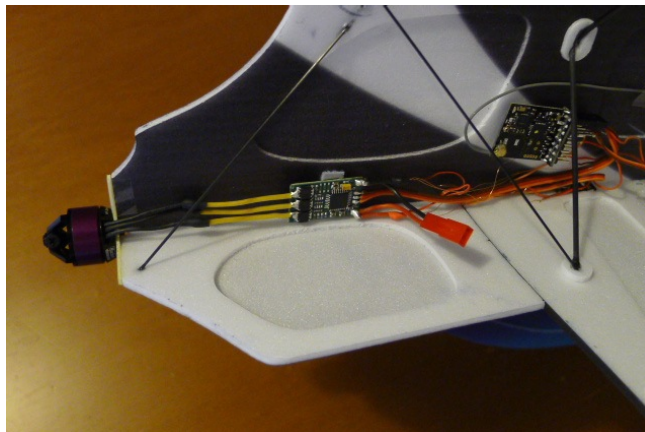
Install the motor with 3M tape and C/A.



Fix the small depron piece to the wheel pants to reinforce them. Pierce the wheel pants and fix them with C/A in the landing gear as shown in the picture. Fix with C/A a small piece of velcro on each wheel pant.



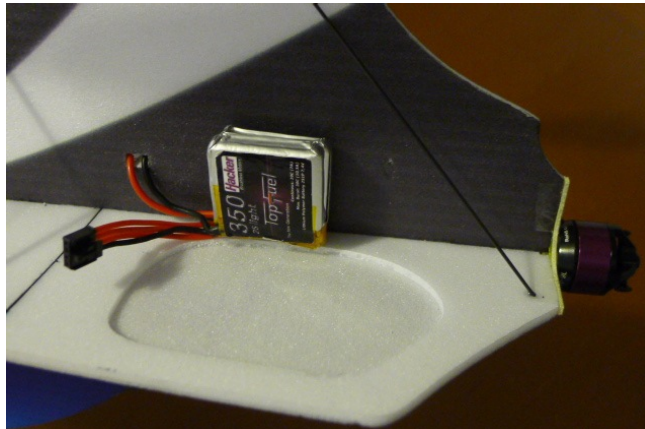
Do the same on “tail landing gear” as shown in the picture.

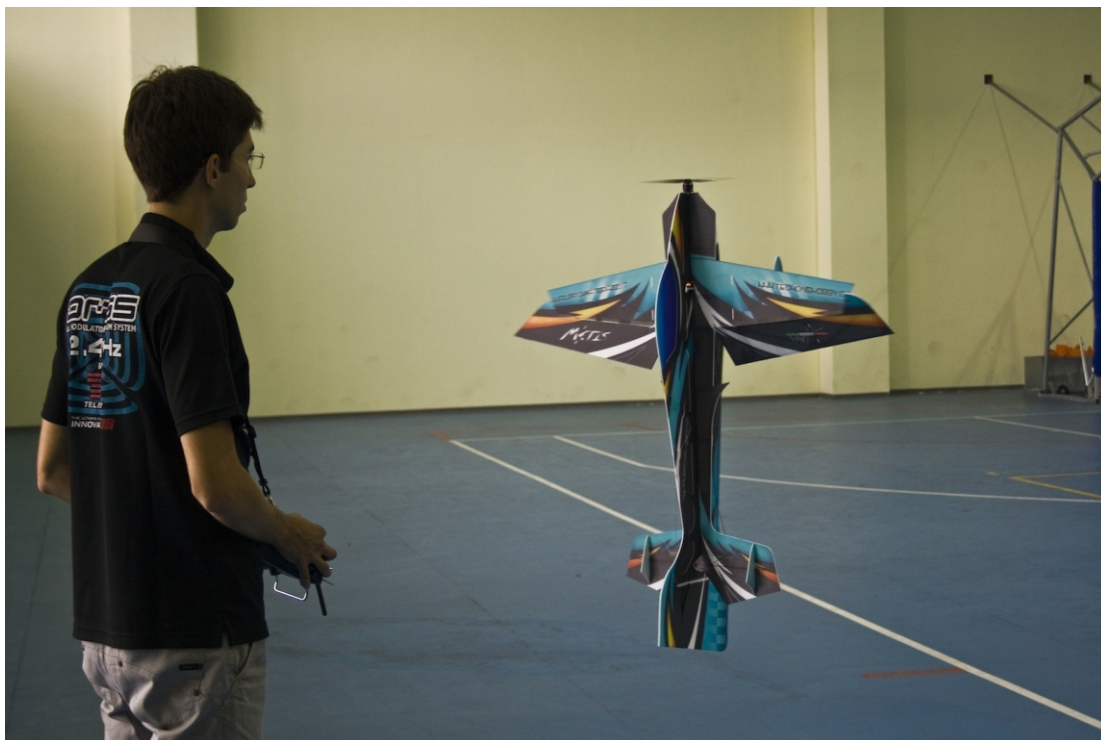


Use small pieces of velcro to fix the ESC, receiver and battery. NOTE: you can adjust the place of battery according to the CG position.



A perfect Metis is done after your careful assembly. While assembly, the flying weight is really critical to the flight performance and will be affected by adding weight, so you should reduce any unnecessary weight while assembly. Then you'll get the best flying performance.





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