SebArt *professional line*

AngelS EVO 50E

ARF

ASSEMBLY MANUAL

The new ***AngelS*** ***EVO 50E*** *ARF*, was designed by the 10 times F3A Italian Champion Sebastiano Silvestri, it is the replica of his 2 meter size F3A competition airplane, 3rd at the European Championships in Swizerland 2006.
This professional ARTF kit is the result of Sebastiano's long research and experience in F3A world. This combined with an extremely lightweight structure, the all wood airframe, and the **new revolutionary Lift Generator on landing gear** give the ***AngelS*** ***EVO 50E*** an impressive thrust-to-weight ratio and an impressive precision at any airspeed and flight condition.

The ***AngelS*** ***EVO 50E*** can do it all… it is ready for any pattern sequence as for unbelievable easy torque rolls, slow speed knifedge and almost anything else you can dream up are waiting you!

.....the only aerobatic limit is your fantasy!

Specifications

Wing Span:…….....158 cm (62,6 in.)
Length:….....…….. 165 cm (65,4 in.)
Wing Area:……..... 45,8 dm2 (71 sq.in.)
Weight:…..2.200 g. RTF less battery (77,4 oz)
Radio:…..4-Channel with 4 standard servos

Recommended power set up:
Motor:..... Hacker A50-16S
ESC:……. X70 SBec-Pro
Battery: Flight Power 3300-6S or 3700-6S
Propeller: ……. APC 16x10E

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Required radio, motor and battery

Radio equipment:

- Minimum 4-channel radio system
- 4 digital standard servo, recommended JR PROPO DS9401 or DS8301
- 1 servo extension 600mm, for elevator servo
- 2 servo extension 100mm, for aileron's servos

Recommended electric motor for best performance:

- Hacker A50-16S + X70 SBec-Pro controller + APC 16x10E

Recommended Li-Po battery pack for best performance:

- Flight Power EVO 3300mAh 6S…..for unlimited 3D
- Flight Power EVO 3700mAh 6S…..for duration and precision

Additional required item, tools and adhesives

Tools:

- Drill
- Drill bits: 1,5mm, 2mm, 3mm
- Phillips screwdriver
- Hobby knife
- Sanding paper
- Masking tape
- Soldering iron

Adhesives:

- thin CA
- medium CA

Warning

This RC aircraft is not a toy!
If misused, it can cause serius bodily harm and damage to property.
Fly only in open areas, preferably in official flying sites, following all instructions included with your radio and motor.

Before starting assembly

Before starting the assebly of your KatanaS 5*0E*, remove each part from its bag and protection for a prior inspection. Closely inspect the fuselage, wing panels, rudder, and stabilizer for damage. If you find any damage or missing parts, contact the place of purchase.
If you find any wrinkles in the covering, use a heat gun or covering iron to remove them. Use caution while working around areas where the covering material overlap to prevent separating the covers.

Using the manual

This manual is divided into sections to help make assembly easier to understand and to provide breaks between each major section.
In addition, check boxes (□) have been placed next to each step to keep track of each step completed. Steps with two boxes indicate that the step will require repeating, such as for a right or left wing panel, two servos, etc.
Rember to take your time and follow the directions.

Warranty information

SebArt garantees this kit to be free from defects in both material and workmanship at the date of purchase.
This warranty does not cover any parts damage by use or modification, and in no case shall SebArt's liability exceed the original cost of the purchased kit.
Further, SebArt reserve the right to change or modify this warranty without notice.
In that SebArt has no control over the final assembly or material used for the final assembly, no liability shall be assumed or accepted for any damage of the final user-assembled product. By the act of using the product, the user accepts all resulting liability.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

SebArt di Sebastiano Silvestri
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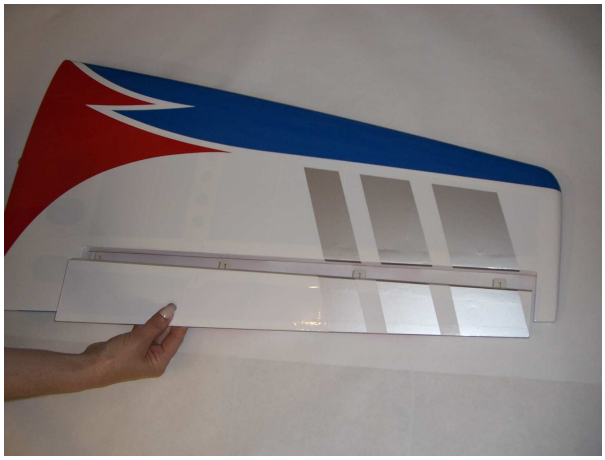
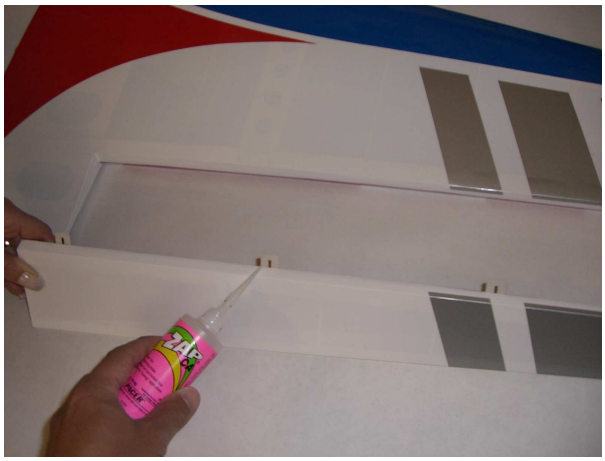
Section 1 – ailerons installation

□□ step 1
Trial fit the four aileron hinges, included in the hardware pack, in their place and verify the correct position and alignment of the aileron with the wing panel.



□□ step 2
Carefully glue, with some drops of thin CA, each of the four hinges in the aileron.



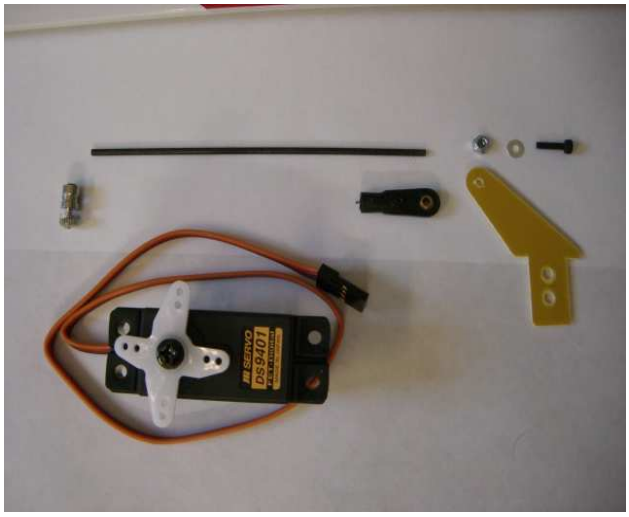
□□ step 3
Locate the aileron and carefully glue, with some drops of thin CA, the hinges into the wing panel.

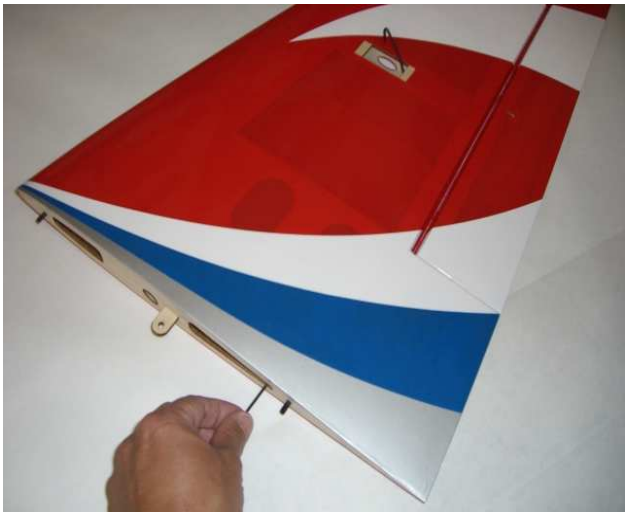
□□ **step 4**
Work the aileron up and down some times to work the hinges and check for proper movement.

□ **step 5**
Repeat steps 1 through 4 for the remaining wing panel.

Section 2 – aileron servo & control horn installation

□□ **step 1**
Locate the following items included in the hardware pack and the servo.





□□ **step 2**
Install the servo hardware (gommets and eyelets) and put the servo into the wing panel, as per pictures.

□□ step 3
Drill using a 1,5mm drill bit, and install the servo into the wing panel using a Phillips screwdriver.

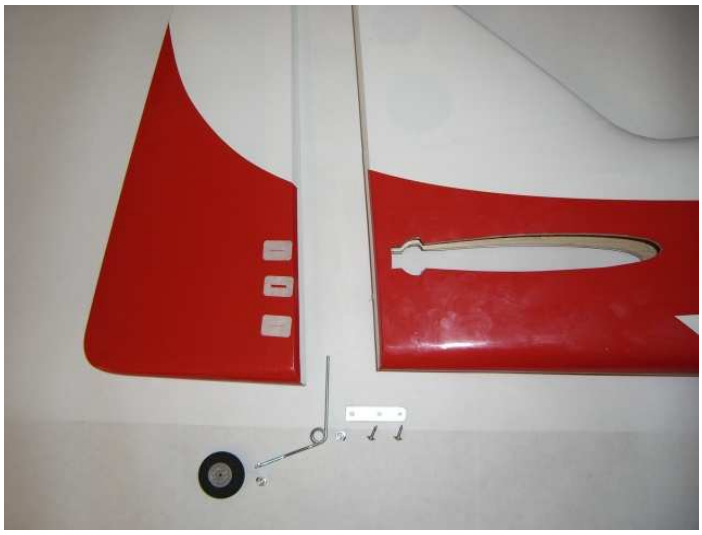
□□ step 4
Glue the fibreglass horn with medium CA into the aileron.

□□ step 5
Install the hardware and make the final adjustment as per pictures.

□ step 6
Repeat steps 1 through 5 for the remaining wing panel.

Section 3 – rudder installation & tail wheel installation

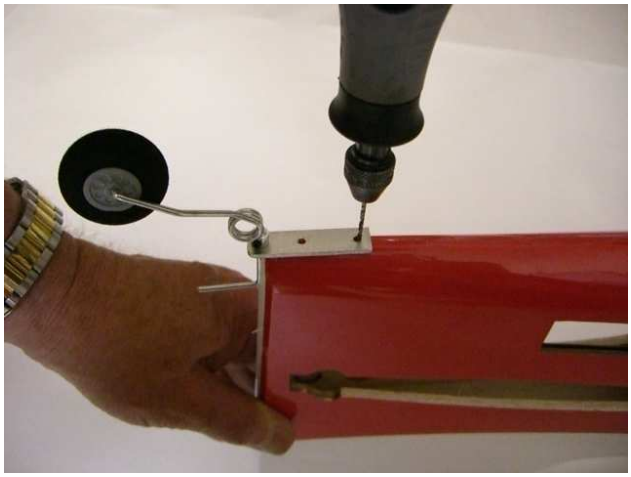
□ step 1
Locate the items included in the hardware pack.

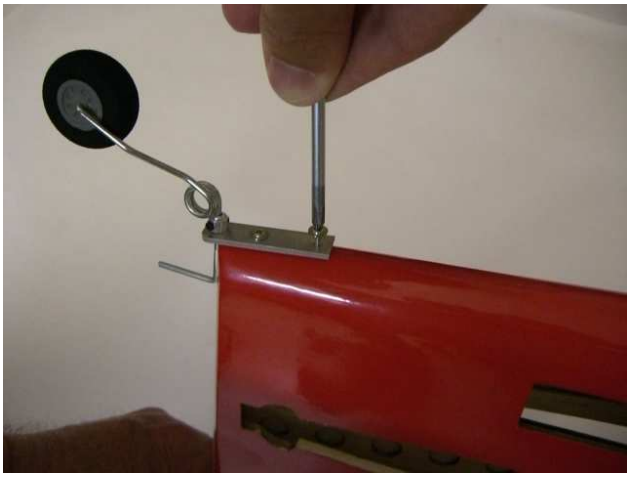


□ step 2
Drill in the rudder, 20mm from the bottom, the location for the tail wheel using a 2mm drill bit.
With the hobby knife cut a groove of 20mm length into the rudder.

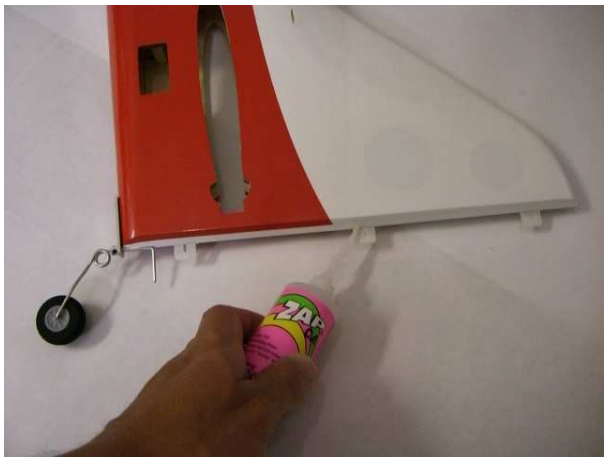
□ step 3
Than locate the items included in the hardware pack and assemble them as per picture.

□ step 4
Drill the screw locations for the tail wheel using a 1,5mm drill bit, and install it as per picture.

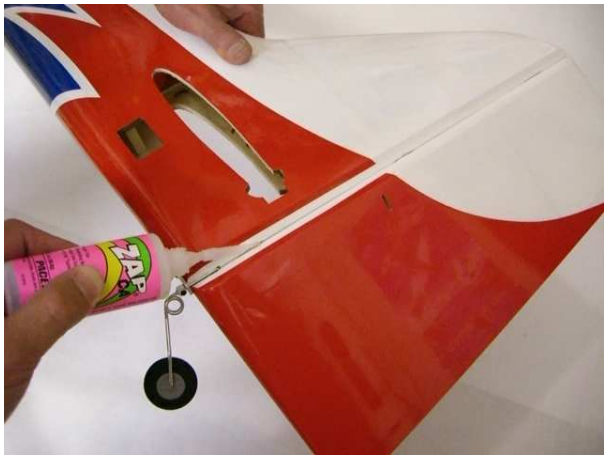




□ step 5
Insert the three hinges in their appropriate slots and glue them with some drops of thin CA.



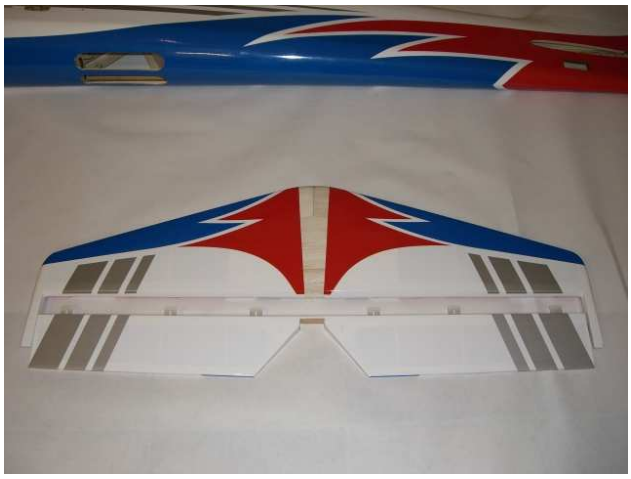
□ step 6
Carefully put some drops of medium CA into the 2 mm hole into the rudder. Carefully locate the rudder and glue the hinges with some drops of thin CA.



□ step 7
Work the rudder right and left some times to work the hinges and check for proper movement.

Section 4 – elevator installation

□ step 1
Insert in the elevator the four hinges into their appropriate slots and verify the correct position and alignment of the elevator with the stabilizer. Than carefully glue the hinges, with some drops of thin CA, in the elevator only.

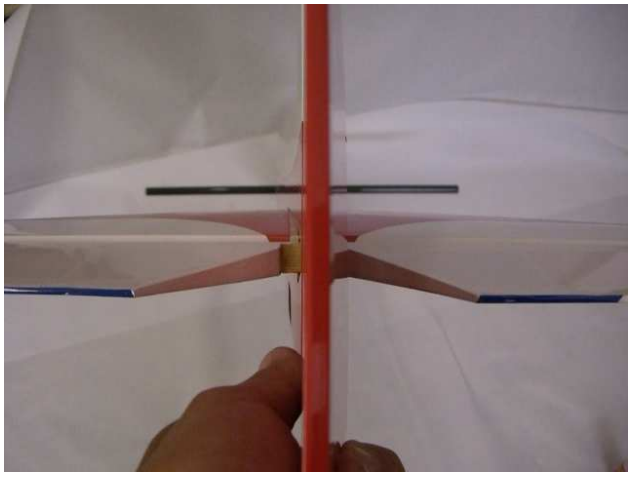


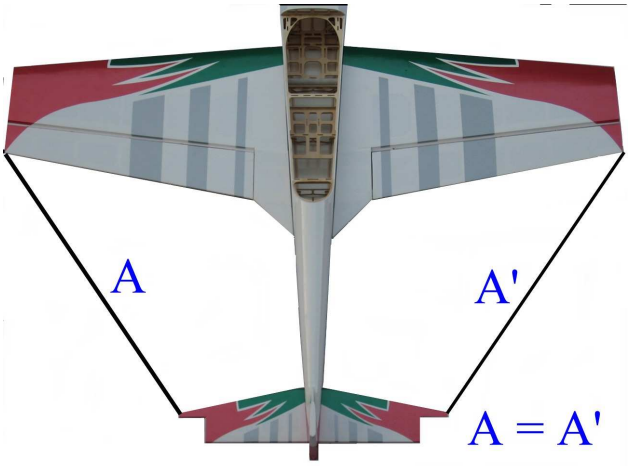
□ step 2
Insert carefully the elevator through the fuselage.

□ step 3
Insert the stabiliser into fuselage space and locate the elevator hinges into the stabiliser.

□ step 4
Glue carefully the hinges in the stabiliser with some drops of thin CA.

□ step 5
Locate the carbon tube in his position and carefully check the alignment of the stabilizer with the fuselage, as per pictures.





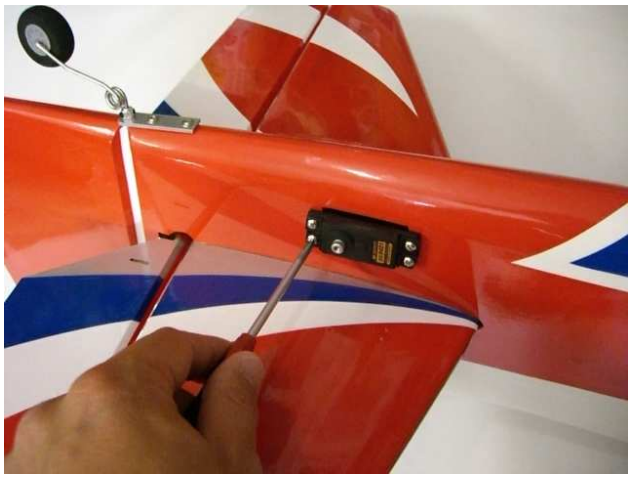
□ step 6
Once satisfied with the alignment, glue carefully with thin CA the stabilizer at the fuselage.

Section 5 – elevator servo & control horn installation

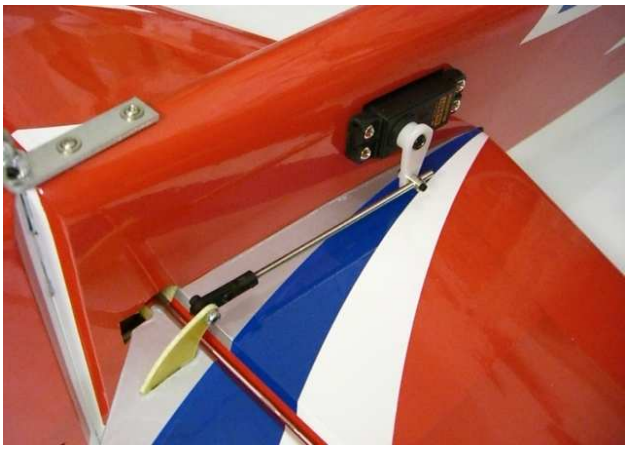
□ step 1
Locate the following items included in the hardware pack, servo extension 600mm long and servo.

□ step 2
Than install the servo hardware (gommets and eyelets) and locate the servo into the fuselage.

□ step 3
Drill using a 1,5mm drill bit, and install the servo into the fuselage using a Phillips screwdriver.

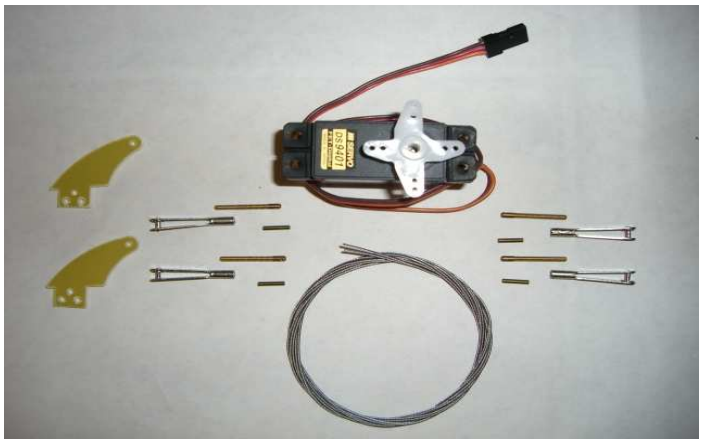


□ step 4
Glue the fibreglass horn with medium CA into the elevator. Than install the hardware and make the final adjustment as per picture.



<u>Section 6 – rudder servo & control horn installation</u>

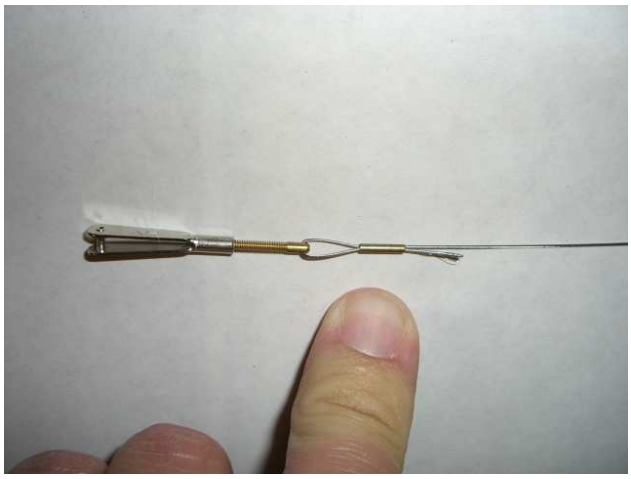
□ step 1
Locate the following items included in the hardware pack, servo extension 600mm long and servo.

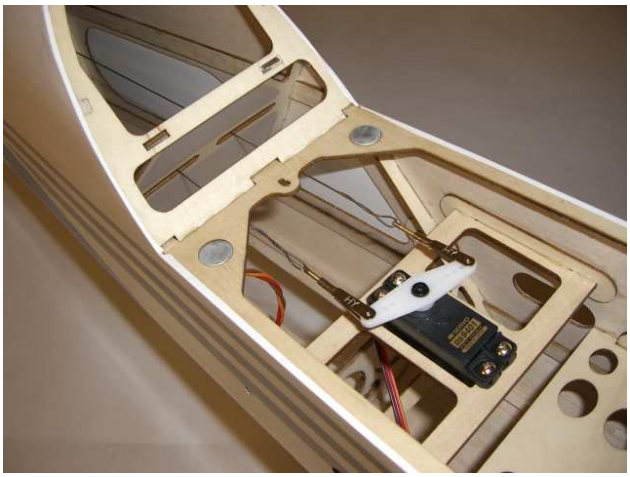


□ step 2
Than install the servo hardware (gommets and eyelets), drill using a 1,5mm drill bit, and install the servo into the fuselage using a Phillips screwdriver.

□ **step 3**
Glue the fibreglass horn with medium CA into the rudder.

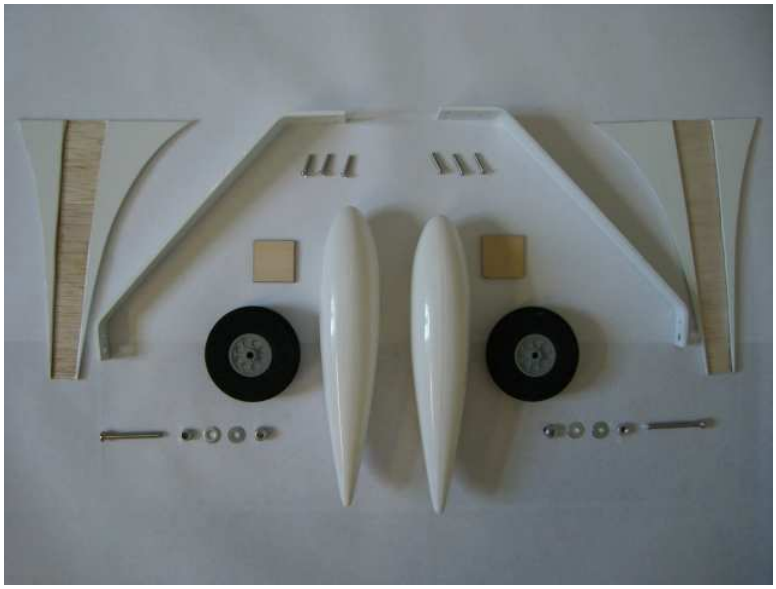
□ **step 4**
Install the hardware and make the final adjustment as per picture.





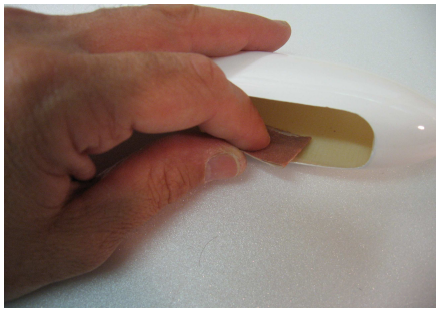
Section 7 – landing gear & wheels installation

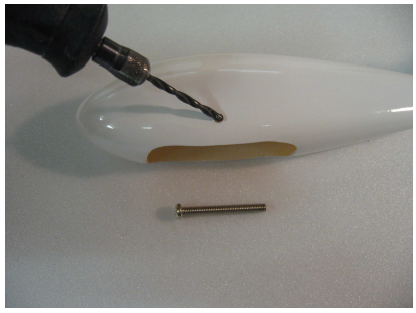
□ step 1
Locate the following items included in the hardware pack.



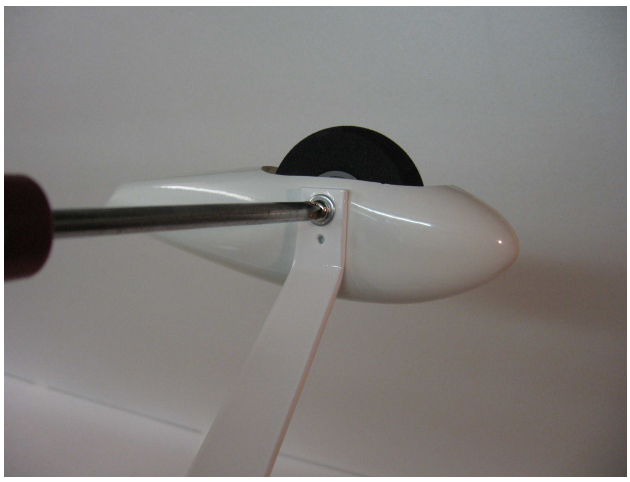
□ step 2
Locate the landing gear on the fuselage and fix it with the screws included in the hardware pack.

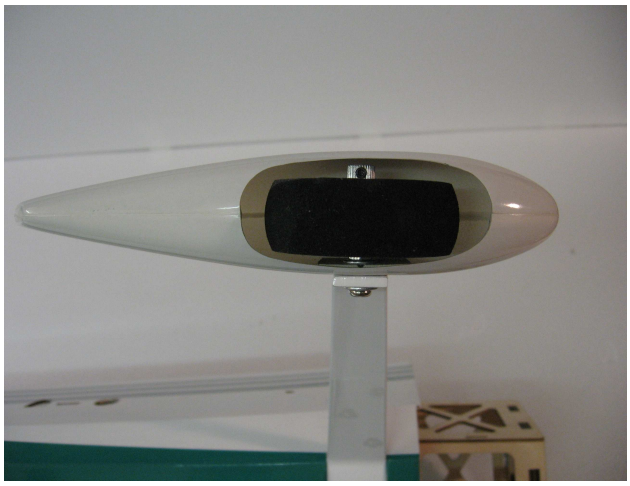
□□ step 3
Sand with the sanding paper the inside of the wheel pant; locate the wood reinforcement, glue it with some drops of medium CA and drill the location for the wheel axis screw using a 3mm drill bit as per pictures.



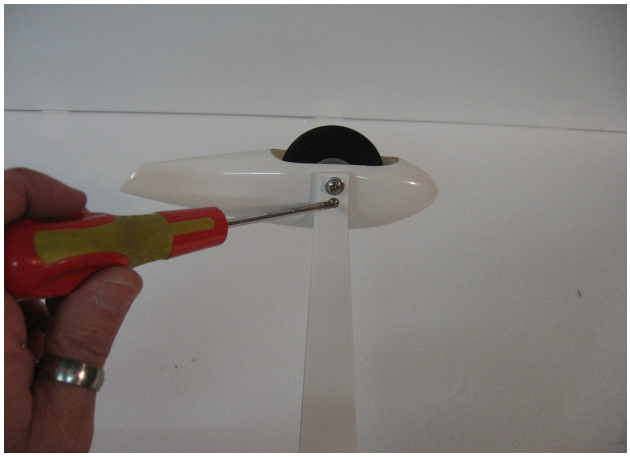


□□ step 4
Install wheel and wheel pant as per pictures.



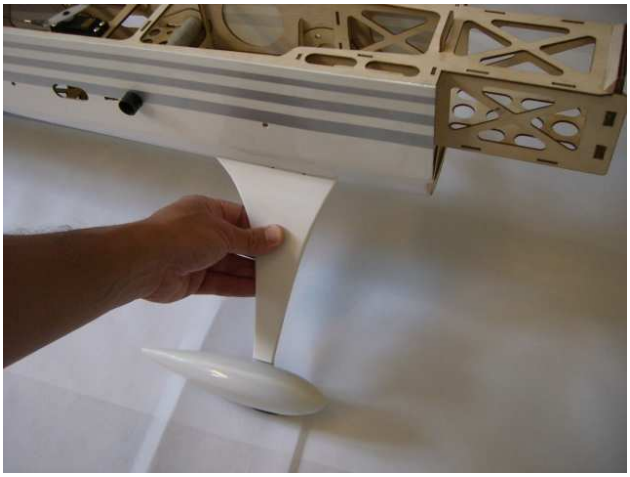


□□ step 5
Drill the location for the wheel pant fixing screw using a 1,5mm drill bit and than fix the wheel pant with the screw included in the hardware pack.



□□ step 6
Test fit the L.G. Lift Generator and his alignment with the fuselage.

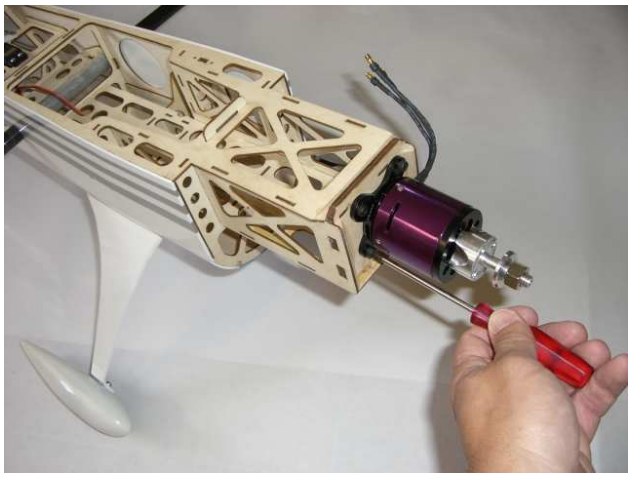
□□ **step 7**
Glue carefully the landing gear fillet with some drops of medium CA, as per picture.



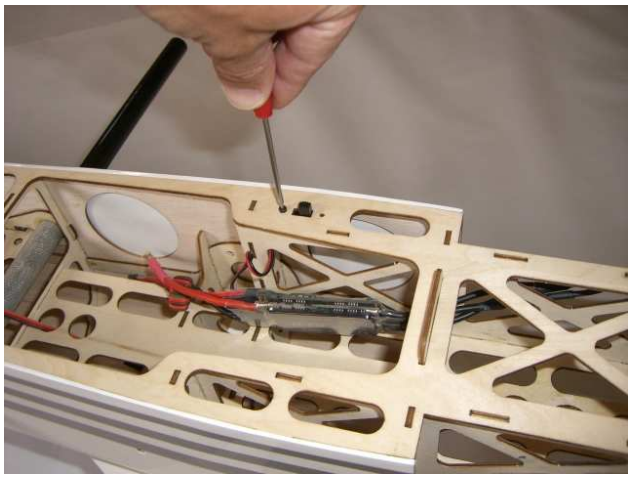
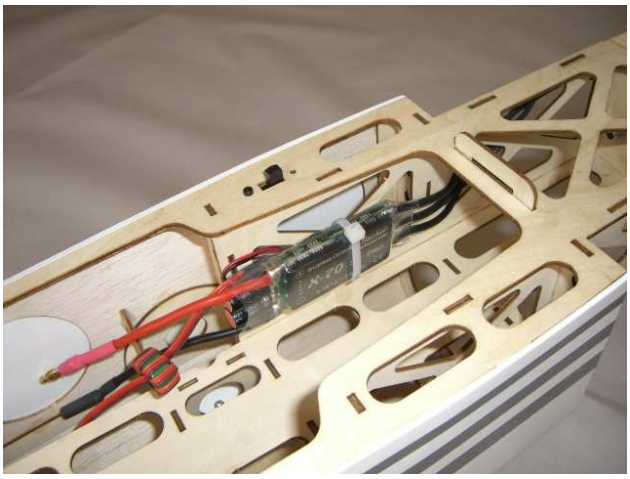
□ **step 8**
Repeat steps 3 to 7 for the other side of the landing gear.

Section 8 – electric motor installation

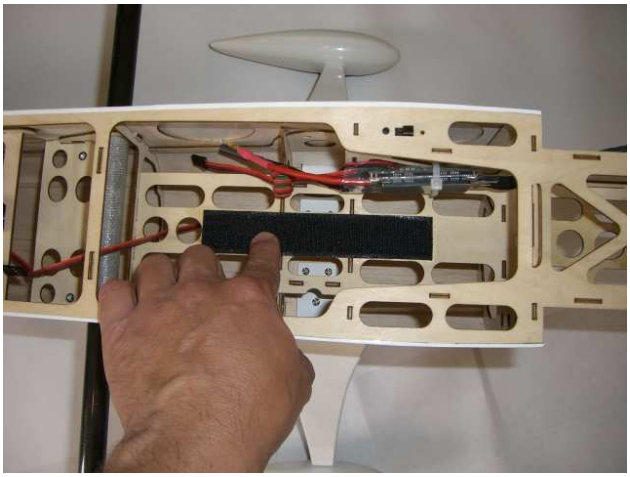
For best performance, we recommend to use HACKER motor.
□ **step 1**
Locate the motor and fix it with the four screws included in the motor hardware pack.



□ step 2
Locate and fix the ESC and his switch as per picture.

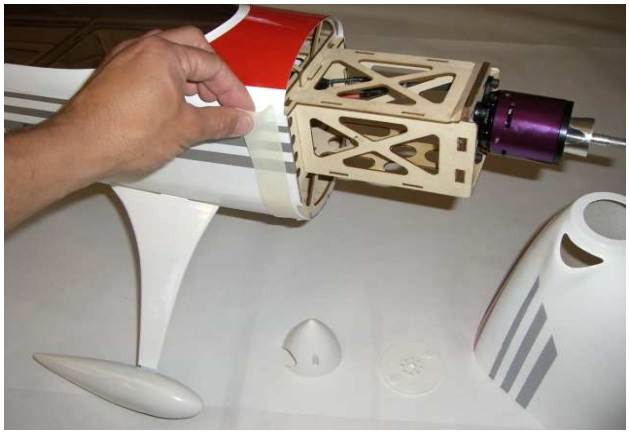
□ step 3
Glue with some drops of medium CA on side of the Velcro strip included in the hardware pack.

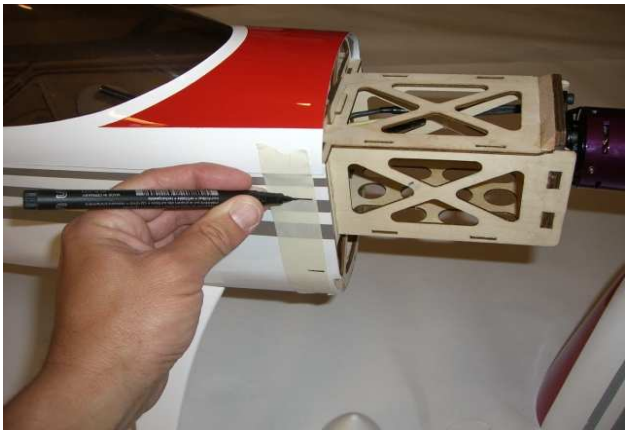


□ step 4
With the hobby knife open the cooling holes in the fuselage as per picture.

Section 9 – cowl installation

□ step 1
Apply a piece of masking tape on the line were you have to make the holes for the cowl fixing screws, than mark the position as per the picture.

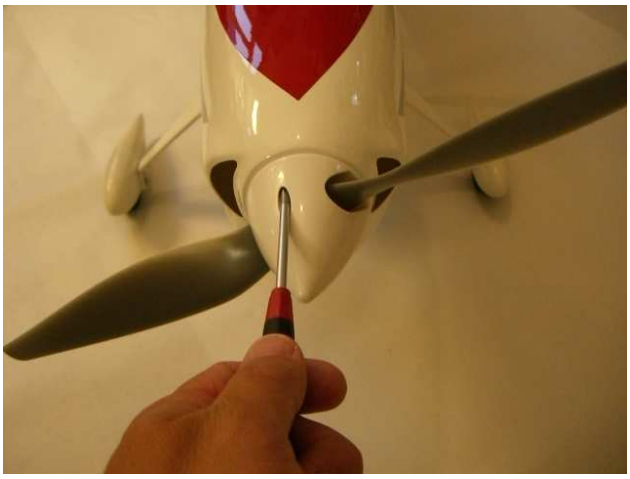




□ step 2
Slide the cowling onto the fuselage and install the spinner back plate. Then apply another piece of masking tape on the same line of the one applied before. Drill the location for the four self-tapping screws using a 1.5mm drill bit.

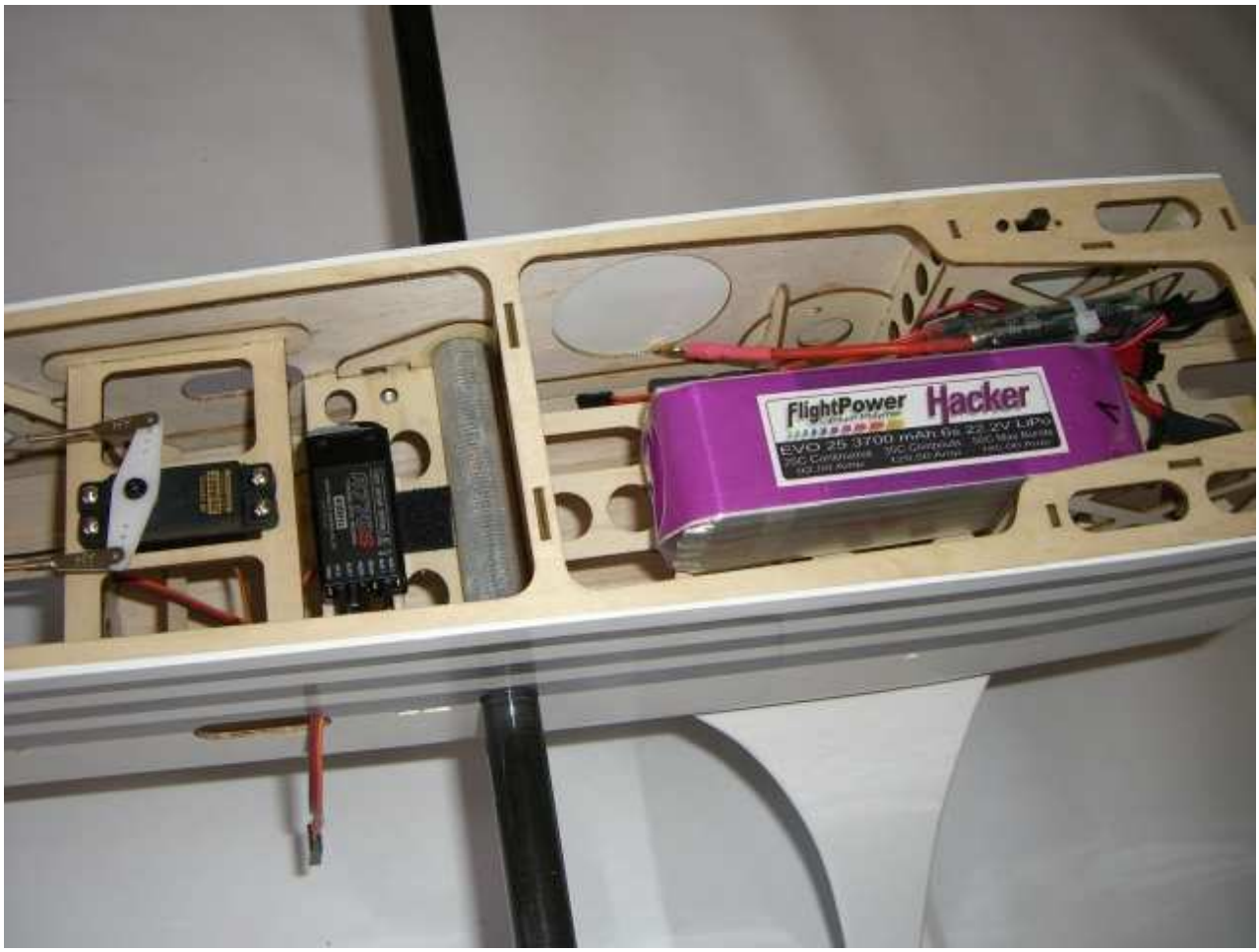
□ step 3
Attach the cowl using the four self-tapping screws, included in hardware pack, with a Phillips screwdriver.

□ **step 4**
Fix carefully the prop and the spinner as per picture.



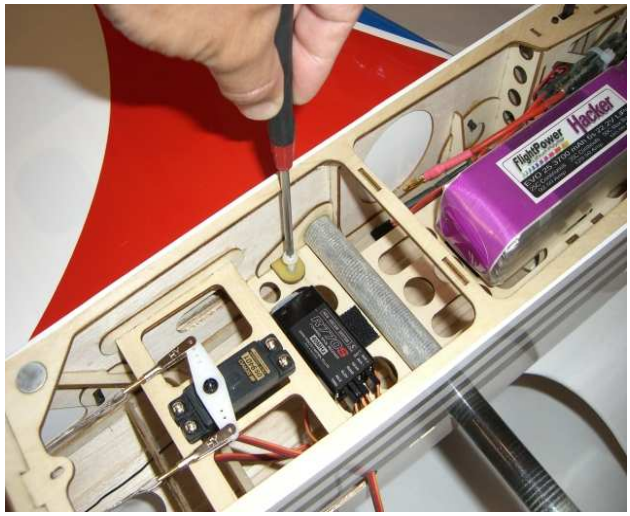
Section 10 – final radio installation

Install the receiver, two extension 100mm for aileron servos and the battery pack as per the picture.



Wings installation

Locate the wing panels and fix them using the two nylon screws, included in the hardware pack, and a Phillips screwdriver.



Decal set application

Control throws

Please, follow carefully the recommended linkage setups for ailerons and elevators.

- For the AILERON we recommend the following throws:
  Low rate: 20° up / 20° down **Expo:** 40%
  High rate: 40° up / 40° down **Expo:** 80%

- For the ELEVATOR we recommend the following throws:
  Low rate: 20° up / 20° down **Expo:** 20%
  High rate: 45° up / 45° down **Expo:** 50%

- For the RUDDER we recommend the following throws:
  Low rate: 30° left / 30° right **Expo:** 30%
  High rate: 45° left / 45° right **Expo:** 60%

Note: the **Expo** is (+) for JR systems, and (–) for Futaba systems.

Mixing

For best performance, we recommend a linear-mix*: **Rudder → Elevator UP**
When you give full rudder to the right or left side, the elevator have to go up (positive) approx. 6%
* if you have a programmable computer radio.

Rates and expos

Use the recommended expos to soften the feel of the model, expecially on high rates. The goal is to get the model to feel the same around neutral as it does on low rates.
Use low rate settings for all flying, included starts and landings, and high rate for snap, spins etc.

Recommended CG

The recommended **Center of Gravity** location is **145mm** behind the leading edge of the wing against the fuselage.
Use the Flight Power battery pack, moving it forward or backward, to achieve the correct balance.

Range test your radio

- Before fly, be sure to range check your radio as manufacturer's instruction manual of you radio-system recommand.

- Double-check all controls (aileron,elevator, rudder and throttle) move in the correct direction.

- Be sure that your Flight Power batteries are fully charged, as per the instructions and that your radio is fully charged as per its instructions.

Finally...

have a nice flight!

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