

# SebArt *professional line*

## *Wind S 110 ARF*

### ASSEMBLY MANUAL

The new *Wind S 110 ARF* was designed by Italy aerobatic pilot, Sebastiano Silvestri.

This professional ARTF kit is the result of Sebastiano's 20 years experience in F3A world and his research in best F3A performances. This innovative design combined with the extremely lightweight structure, all wood airframe, give the *Wind S 110 ARF* an impressive precision and smoothness at any airspeed and flight condition.

The *Wind S 110 ARF* can be your best F3A practice plane, or... if you install the "**3D**" *optional elevator kit*, you can let it do all... precision aerobatics and unbelievable easy harriers, torque rolls, blenders, waterfalls and almost anything else you can dream up are waiting you!

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

#### ***Specifications:***

Wingspan:.....174 cm  
Length:.....180 cm  
Wing Area:.....58 dm<sup>2</sup>

#### ***Recommended Set Up:***

Weight:.....3.200-3.300 g. RTF less motor battery  
Radio:.....6-ch with 5 digital servos  
Motor: ...Hacker A50-16L + MasterBasic 90-Opto  
Prop: .....APC 18x10E or 18x12E  
Motor battery: .....4350-8S Flight Power 30C



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## **Required radio, motor and battery**

### *Radio equipment:*

- 6-channel radio system
- 5 digital servos, with two options: > **F3A + 3D**.....5 JR DS 8401 or DS 8411  
> **ONLY F3A**....3 JR DS 8401 + 2 JR DS 3201
- 2 servo extension 100mm, for aileron's servos
- 2 extension 400mm, for elevator's servos

### *Recommended electric motor for best performance:*

- Hacker A50-16L + MasterBasic 90-Opto + APC 18 x 12E

### *Recommended Li-Po battery pack for best performance:*

- FlightPower 4270mAh 8S Evolight .....for ONLY precision F3A
- FlightPower 4350mAh 8S 30C.....for unlimited 3D and precision F3A

## **Additional required item, tools and adhesives**

### *Tools:*

- Drill
- Drill bits: 1,5mm; 2mm; 2,5mm; 3mm
- Phillips screwdriver
- Hobby knife
- Masking tape
- Paper towels
- Rubbing alcohol
- Sand paper
- Soldering iron
- synthetic oil

### *Adhesives:*

- 5-minute epoxy
- thin CA
- medium CA

## **Warning**

This RC aircraft is not a toy!

If misused, it can cause serious 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.

This plane is a compromise between Aerobatics and 3D flying, and not a pylon racer.

It is built with a very light structure and for this reason we hardly recommend:

→ **Do NOT fly your airplane at high speeds, because this may cause structural failures or flutter due to the extremely large control surfaces.**

## **Before starting assembly**

Before starting the assembly of your Wind S110, 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.

Remember to take your time and follow the directions.

## **Warranty information**

SebArt guarantees 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.

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*Via Trento 69/3*  
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## Section 1 – ailerons installation

### □□ step 1

Locate the wing panel and his aileron. 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.



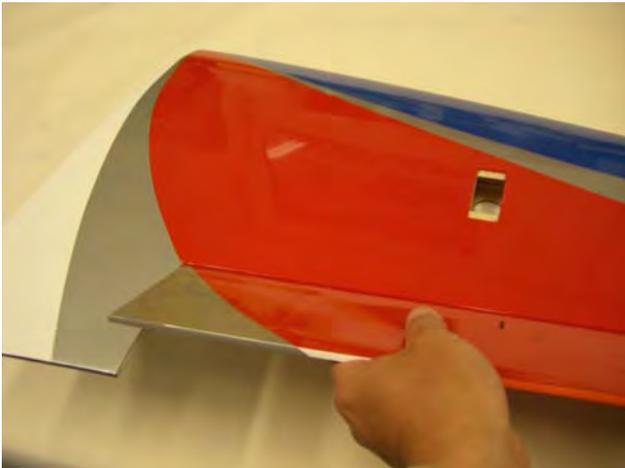
### □□ step 3

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.



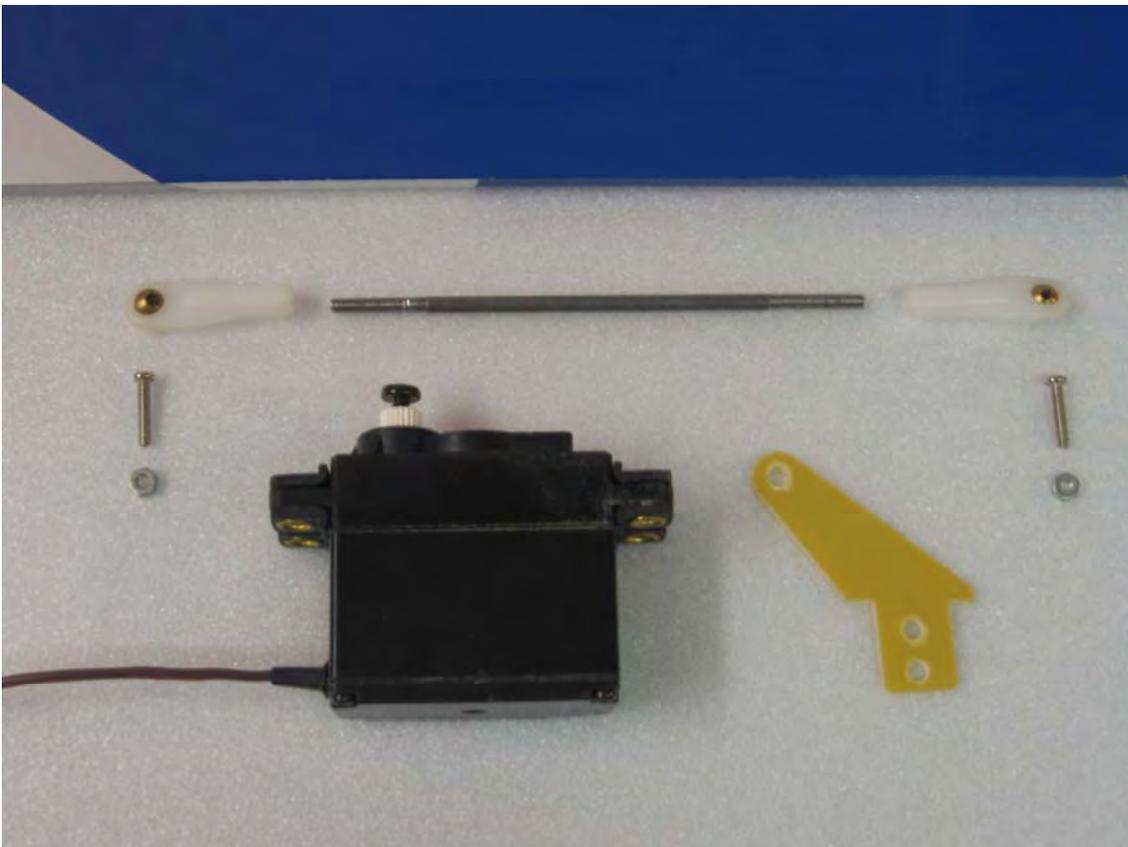
□ **step 5**

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, plus the long arm and servo (not included).  
Install the servo hardware (gommets and eyelets) included with the servo.



□□ **step 2**

With the hobby knife open the control horn location.



□□ **step 3**

Place the fibreglass horn into aileron, check for correct alignment and glue it with some drops of medium CA.



□□ **step 4**

Drill the location for the four self-tapping screw using a 1.5mm drill bit and install the servo into the wing panel using a Phillips screwdriver, as per the picture.



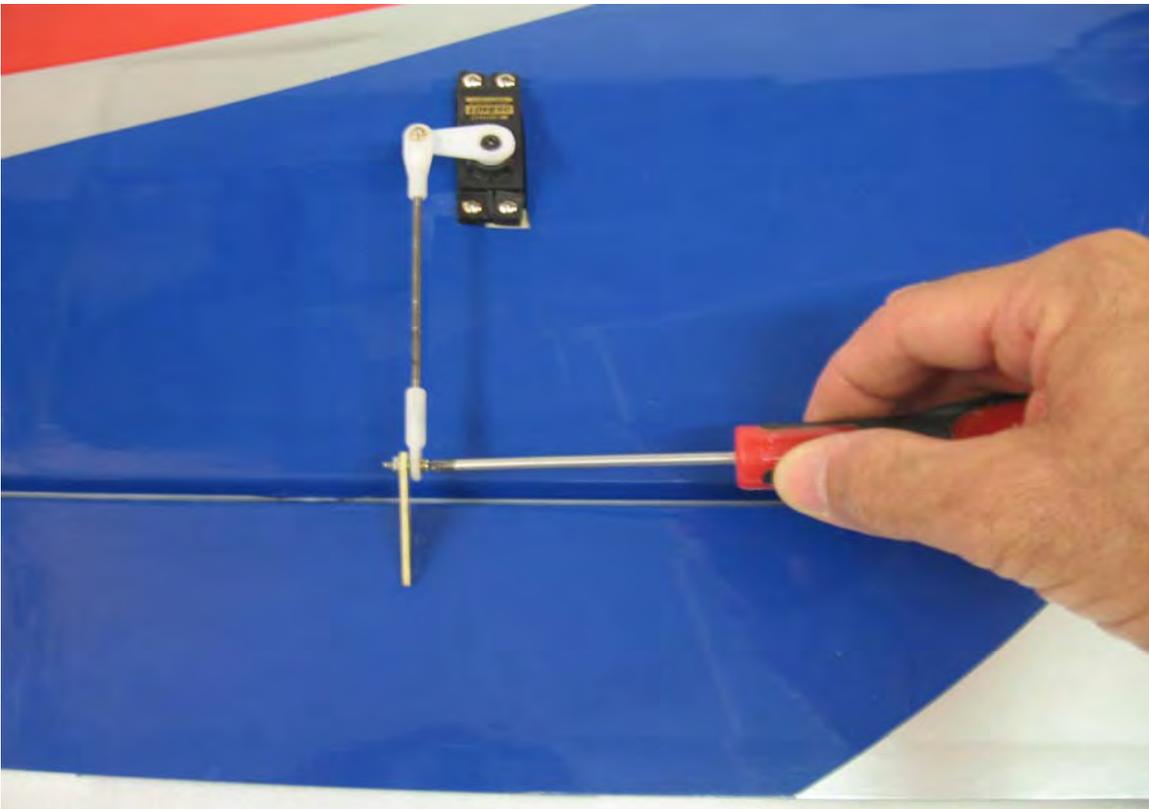
□□ **step 5**

Bring out the servo's lead.



□□ **step 6**

Install the control horn as per picture.



□ **step 7**

Repeat steps 1 through 6 for the remaining wing panel.

### Section 3 – tail wheel & rudder installation

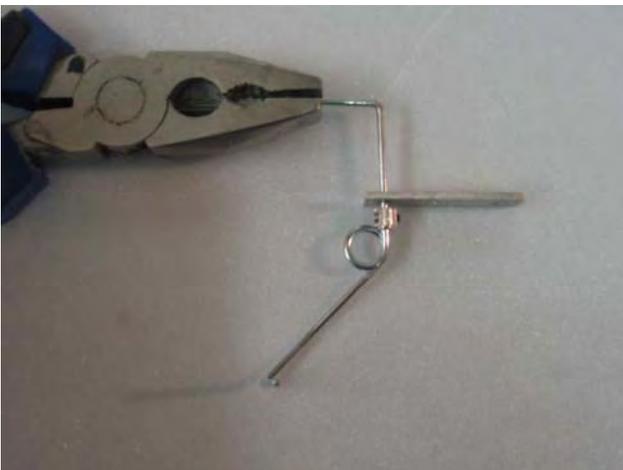
#### □ step 1

Locate the following items, included in the hardware.



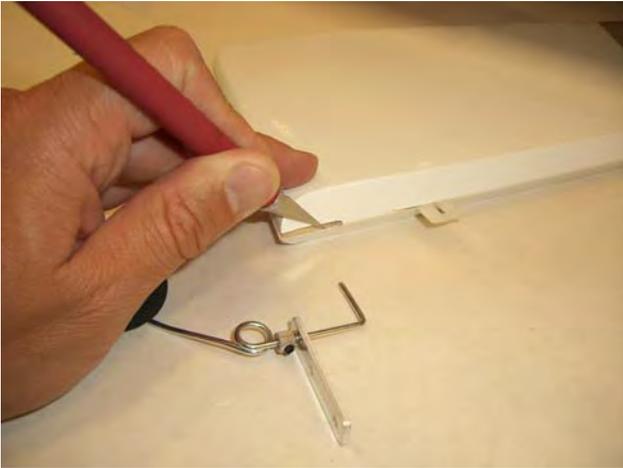
#### □ step 2

Assemble the tail wheel as follow.



□ **step 3**

With the hobby knife cut a groove 20mm length into the rudder. Using a 2mm drill bit, carefully drill the hole into rudder, 20mm from the base level, for the tail wheel, as follow.



□ **step 4**

Locate the tail wheel on rudder and glue it with some drops of medium CA.



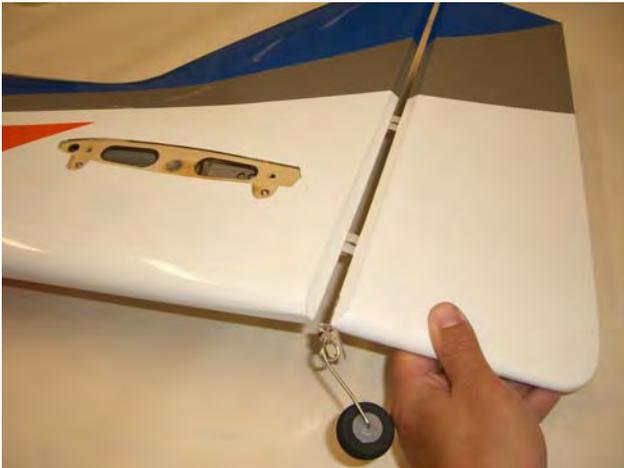
□ **step 5**

Insert the three hinges in their appropriate slots of the rudder, and glue them with some drops of thin CA.



□ **step 6**

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.



□ **step 8**

Using a 1,5mm drill bit, carefully drill the two holes for fixing the tail wheel on the fuselage. Use the two self-tapping screws to install the tail wheel as follow.



## Section 4 – elevator installation

### □□ step 1

Insert in the elevator the three hinges into their appropriate slots and verify the correct position and alignment of the elevator with the stabilizer.



### □□ step 2

Carefully glue the hinges, with some drops of thin CA, in the elevator only.



### □□ step 3

Locate the elevator hinges into the stabiliser. Glue carefully the hinges in the stabiliser with some drops of thin CA.



### □ step 4

Repeat steps 1 through 3 for the remaining stabilizer.

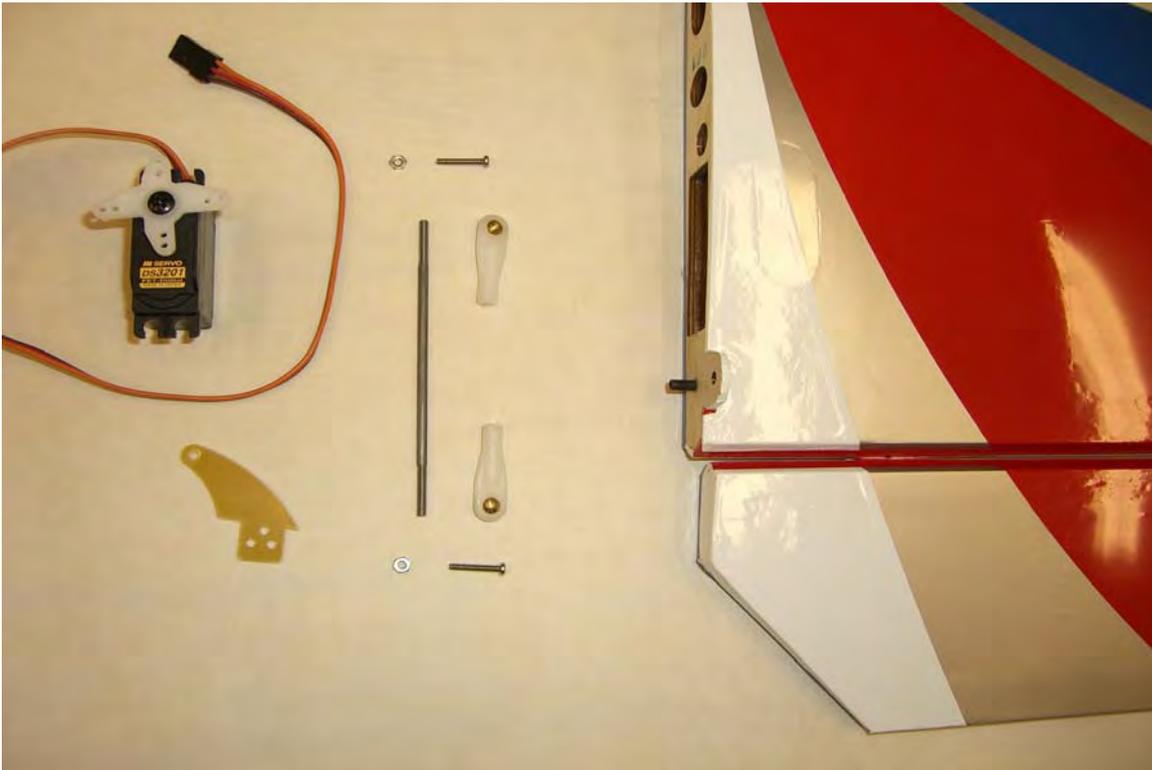
## **Section 5A – servo & control horn installation (ONLY F3A)**

**Note:** *if you chose the MINI servo installation direct in the stabilizer, you can not use the 3D optional elevators too.*

*If you want to fly both, F3A elevators and 3D optional elevators, on the same model, go direct at “Section 5B”, page 15 of this instruction manual.*

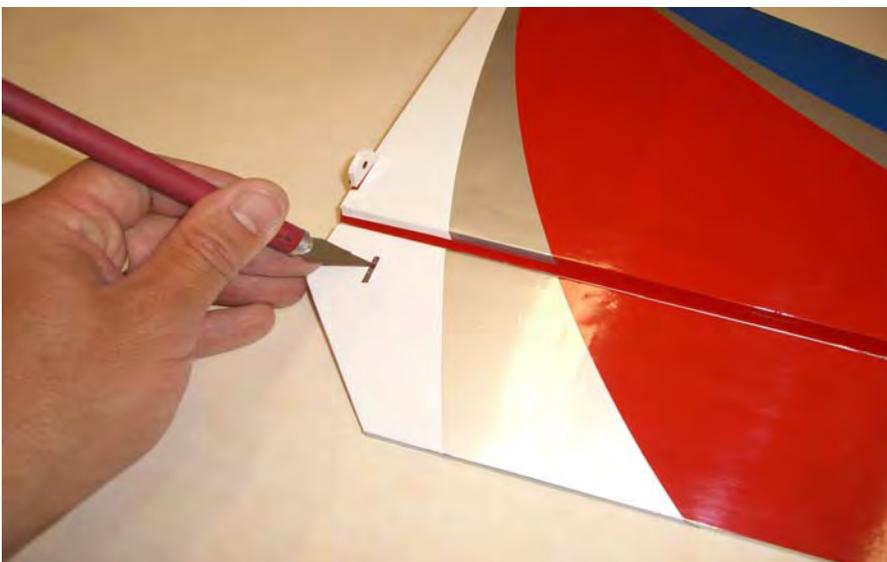
### **□□ step 1**

Locate the following items, included in the hardware and the mini servo (not included).  
Install the servo hardware (gommets and eyelets) included with the servo.



### **□□ step 2**

With the hobby knife open the control horn location.



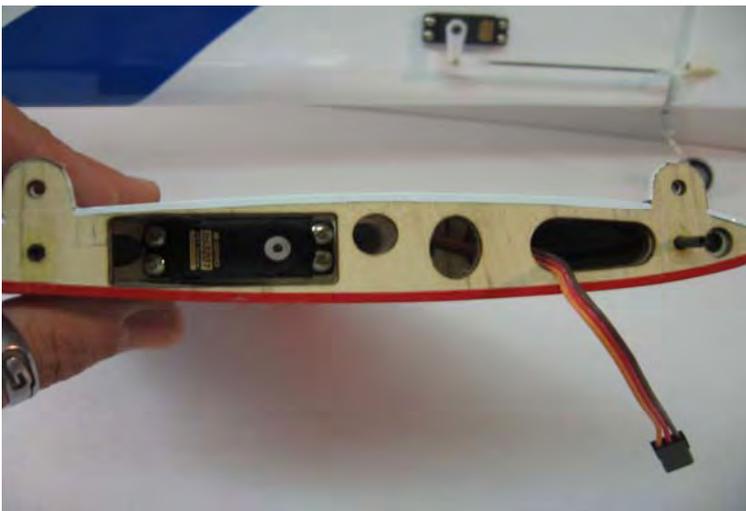
□□ **step 3**

Place the fibreglass horn into elevator, check for correct alignment and glue it with some drops of medium CA.



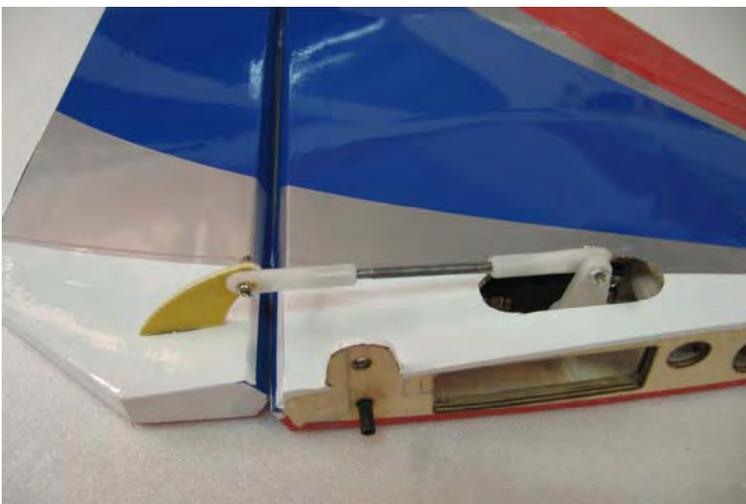
□□ **step 4**

Locate the servo into stabilizer in his location, bringing out the servo's lead.  
Drill using a 1,5mm drill bit, and install the four servo's screws using a Phillips screwdriver.



□□ **step 5**

Install the hardware and make the final adjustment as per picture.



□□ **step 6**

Install the elevator on the fuselage, with the two screws and washer included in the hardware pack.



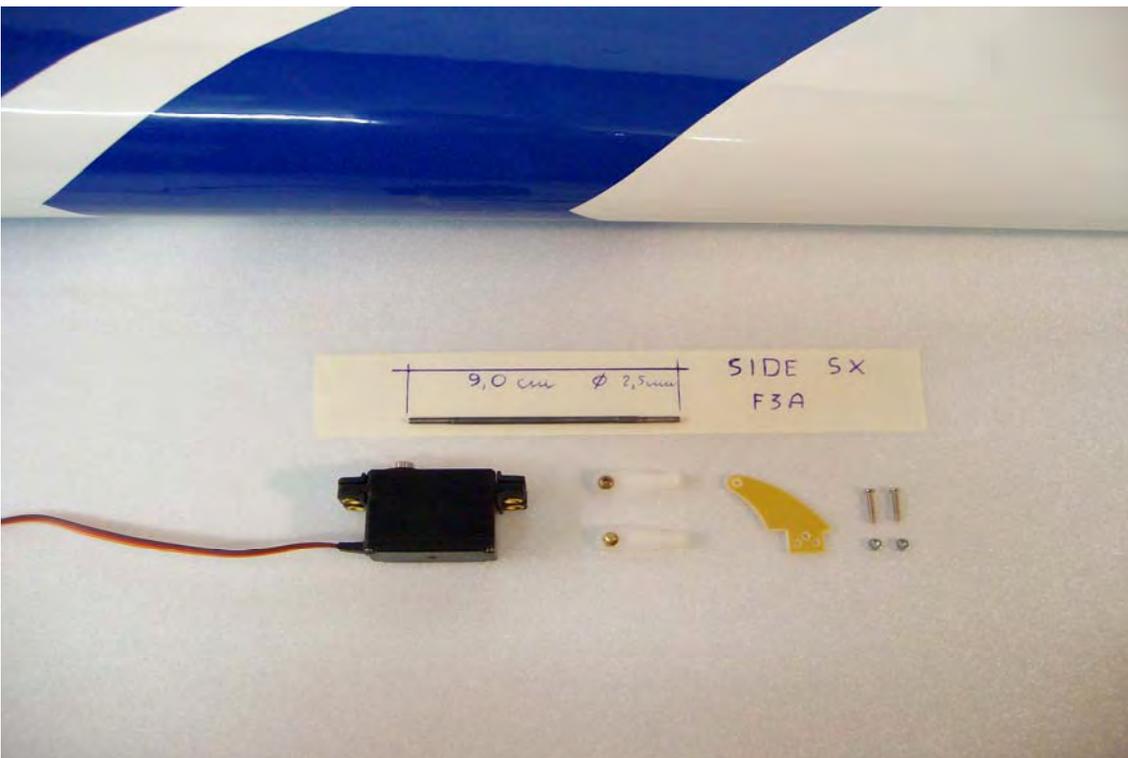
□ **step 7**

Repeat steps 1 through 6 for the remaining stabilizer.

**Section 5B – servo & control horn installation** (F3A + 3D option)

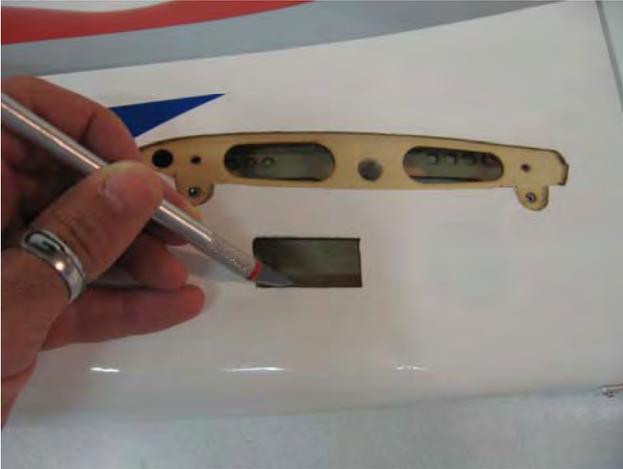
□ **step 1 (LEFT side)**

Locate the following items, included in the hardware pack and the standard size servo (not included). Install the servo hardware (gommets and eyelets) included with the servo.



□□ **step 2**

With the hobby knife open carefully the servo location in the fuselage, as follow.



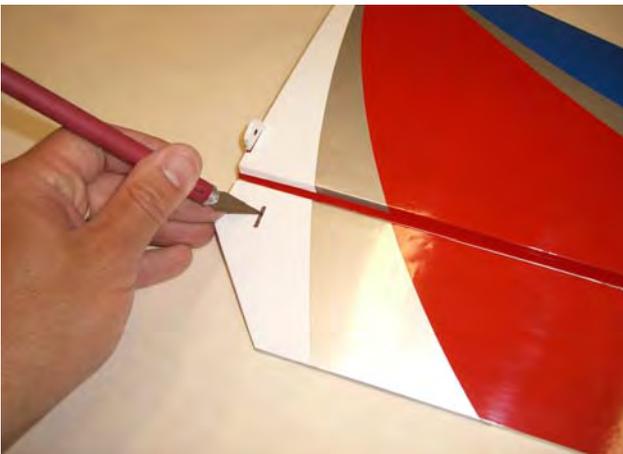
□□ **step 3**

Connect and secure, with masking tape, the servo's extension. Locate the servo and carefully bring forward into fuselage the servo's lead. Drill, using a 1,5mm drill bit, and install the four servo's screws using a Phillips screwdriver.



□□ **step 4**

With the hobby knife open the control horn location in the elevator. Place and check the correct alignment of the fibreglass horn and glue it with some drops of medium CA.



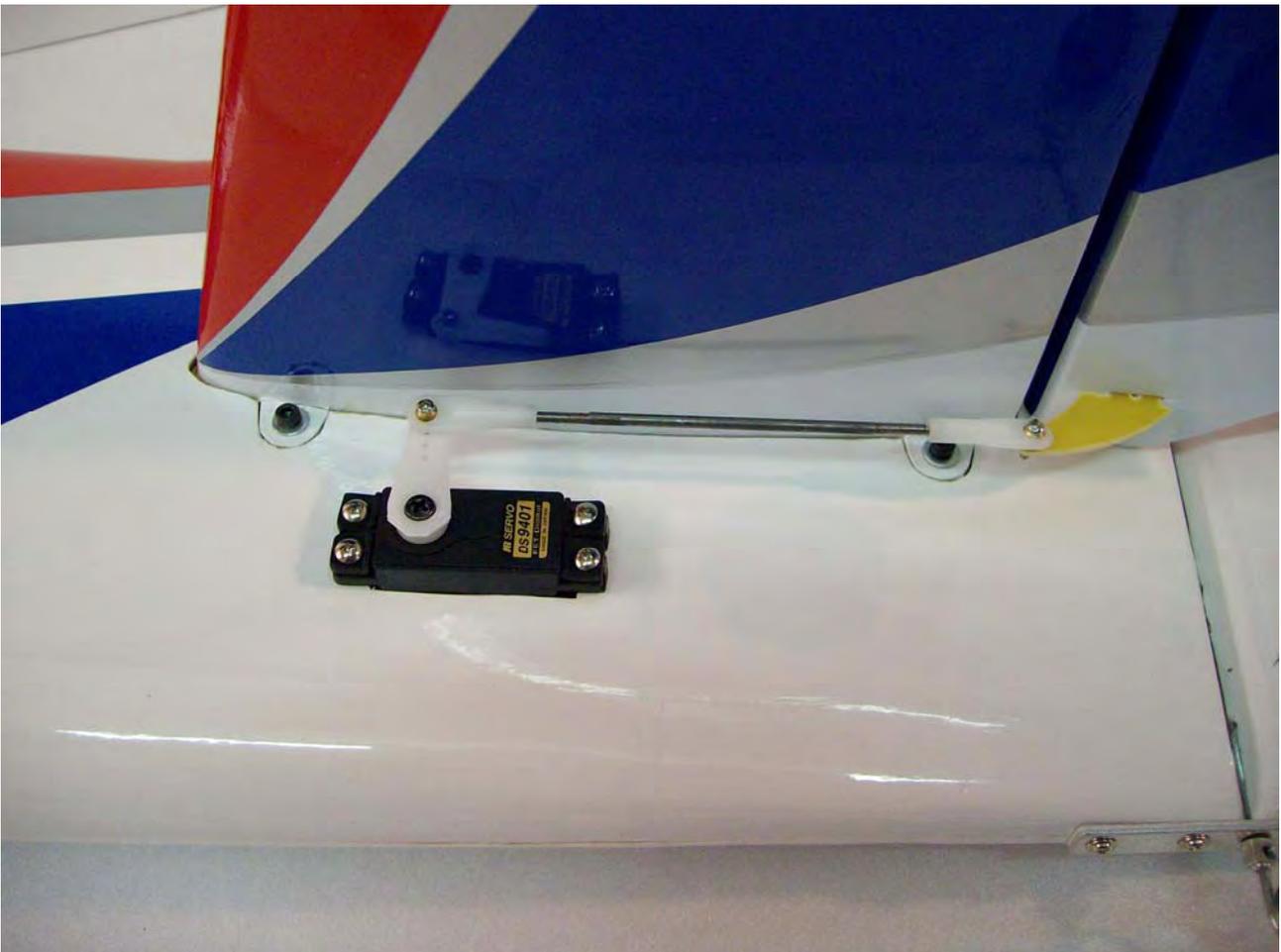
□□ **step 5**

Install the elevator carbon tube, and using the provided two screws and washer install the stabilizer.



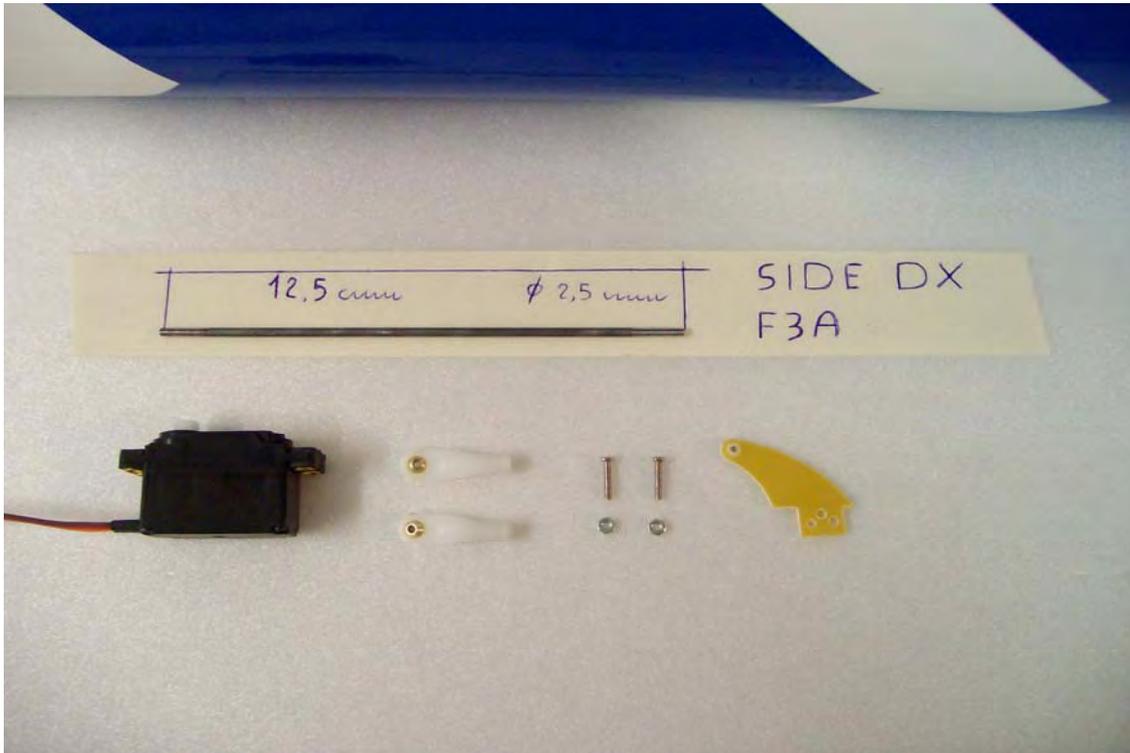
□ **step 6**

Install the hardware and make the final adjustment as per picture.



□ **step 7 (RIGHT side)**

Locate the following items, included in the hardware pack and the standard size servo (not included). Install the servo hardware (gommets and eyelets) included with the servo.

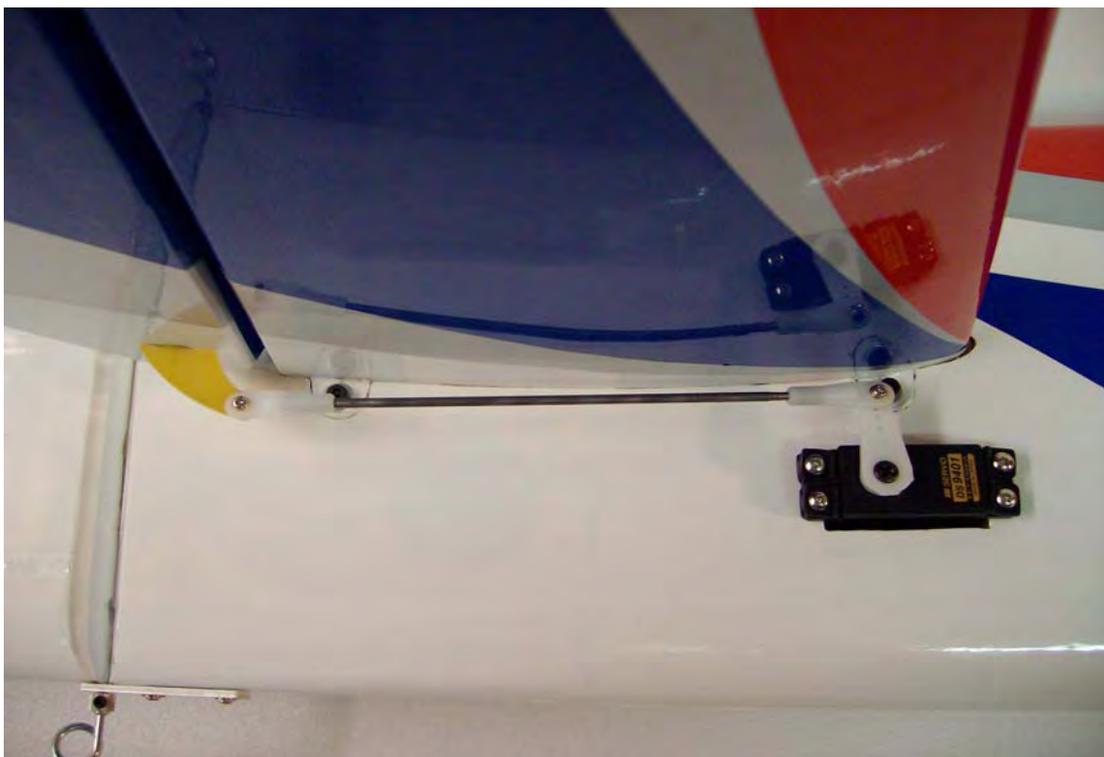


□ **step 8**

Repeat steps 2 through 5 for the remaining stabilizer.

□ **step 9**

Install the hardware and make the final adjustment as per picture.

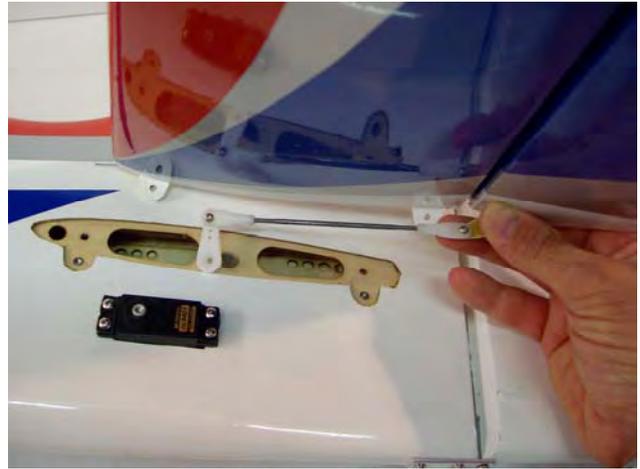
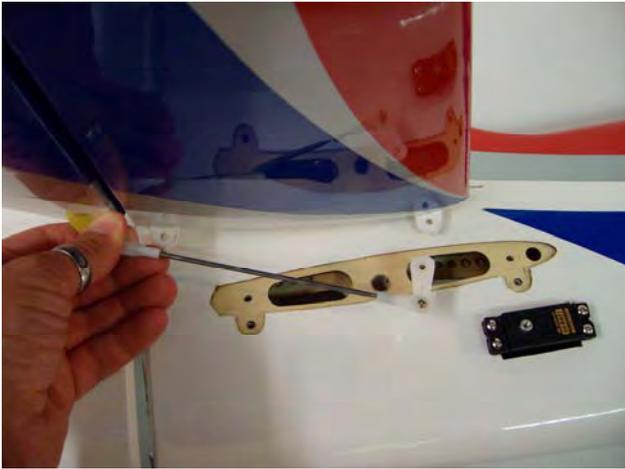


## Section 6 - 3D elevator & control horn installation (OPTIONAL)

**NOTE:** *As spare part, you can buy the “OPTIONAL 3D ELEVATOR for Wind S110”.*

### step 1

When you like to install the 3D elevator remove the F3A elevators with control horns and servo arms and the carbon tube, as follow.



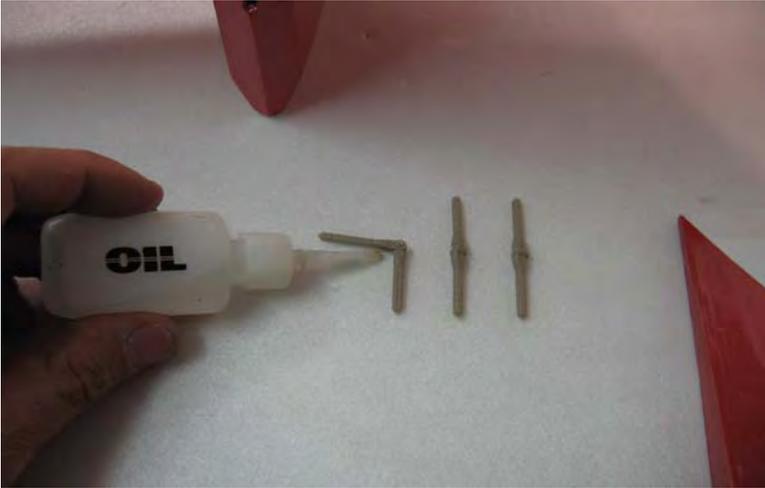
### step 2

Locate the new elevator and verify, placing the three hinges in their holes, the correct position and alignment of the elevator with the stabilizer panel.



□□ **step 3**

Prepare the hinges for the application, using one small drop of synthetic oil in their center of movement.



□□ **step 4**

Use good quality 5 minutes epoxy to glue the hinges in the elevator, and remember to check the correct sense of work for every hinge. If necessary clean the zone of the hinges with paper towels and rubbing alcohol.



□□ **step 5**

Always with 5 minutes epoxy glue the hinges in the stabilizer. If necessary clean the zone of the hinges with paper towels and rubbing alcohol.



□□ **step 6**

Work the elevator up and down some times to work the hinges and check for proper movement.

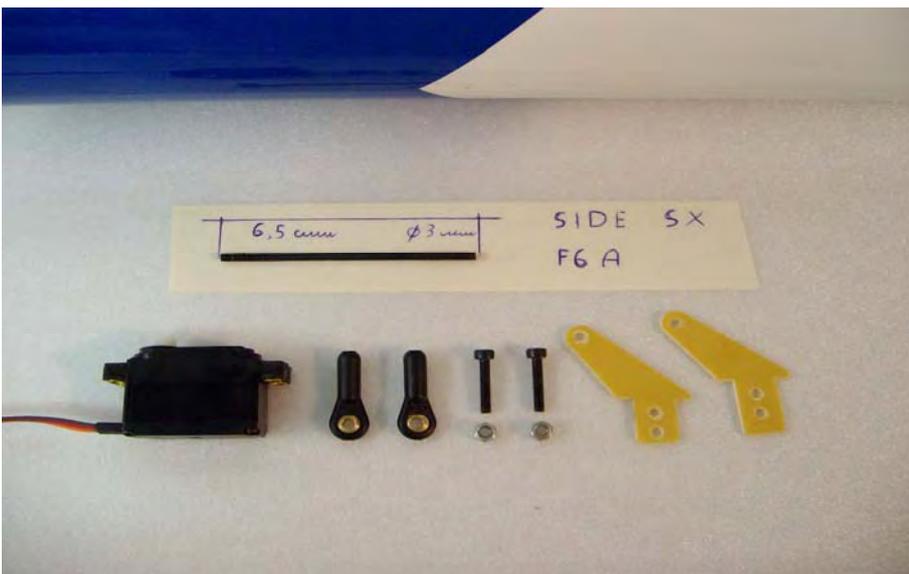


□ **step 7**

Repeat steps 2 through 6 for the remaining stabilizer.

□ **step 8 (LEFT side)**

Locate the following items, included in the hardware pack of the “OPTIONAL 3D ELEVATOR”.



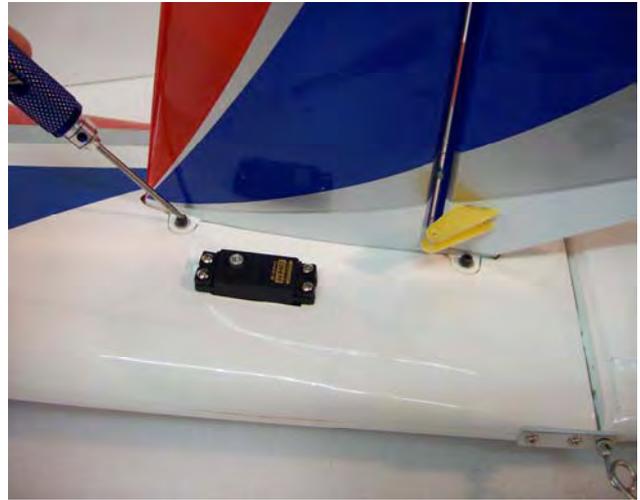
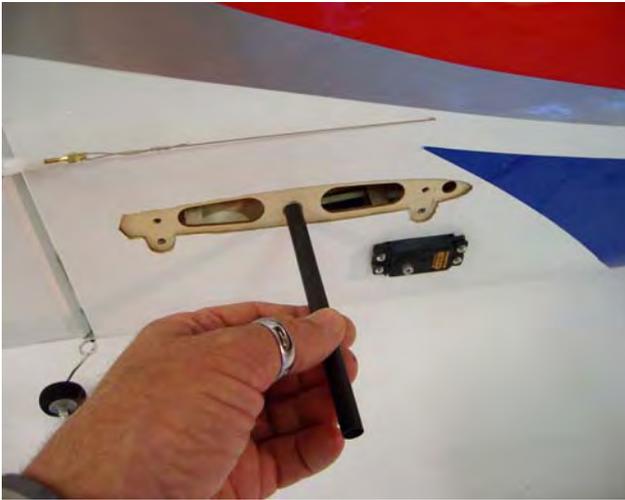
□□ **step 8**

With the hobby knife remove the cover in the control horn location. Place the fibreglass control horn into elevator, check for correct alignment and glue it with some drops of medium CA.



□□ **step 9**

Locate the new longer elevator carbon tube (310mm), included in the hardware pack of the “OPTIONAL 3D ELEVATOR”, and using the provided two screws and washer install the stabilizer.



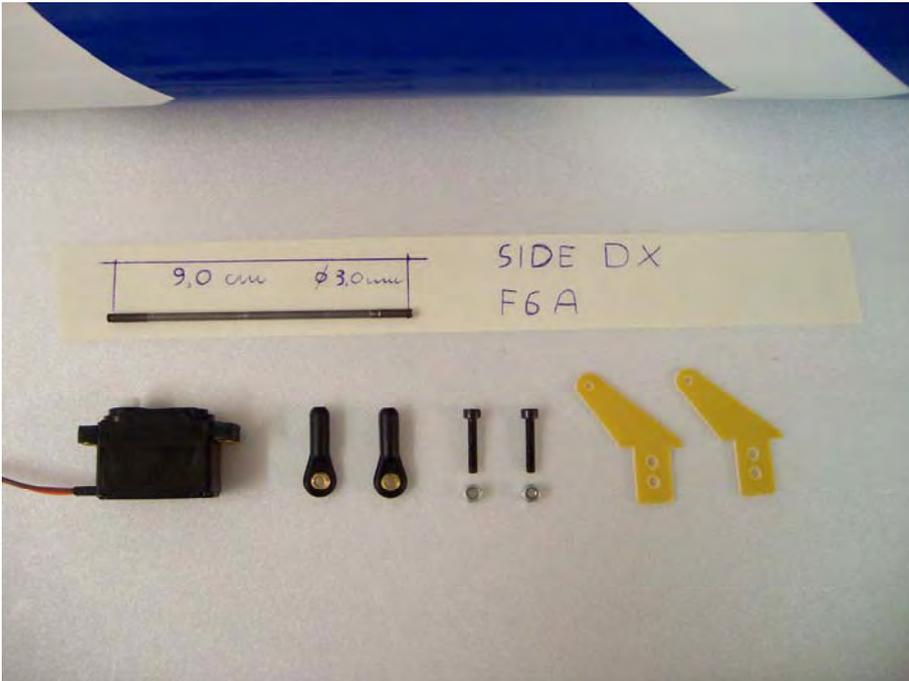
□ **step 10**

Install the hardware and make the final adjustment as per picture.



□ **step 11 (RIGHT side)**

Locate the following items, included in the hardware pack of the “OPTIONAL 3D ELEVATOR”.

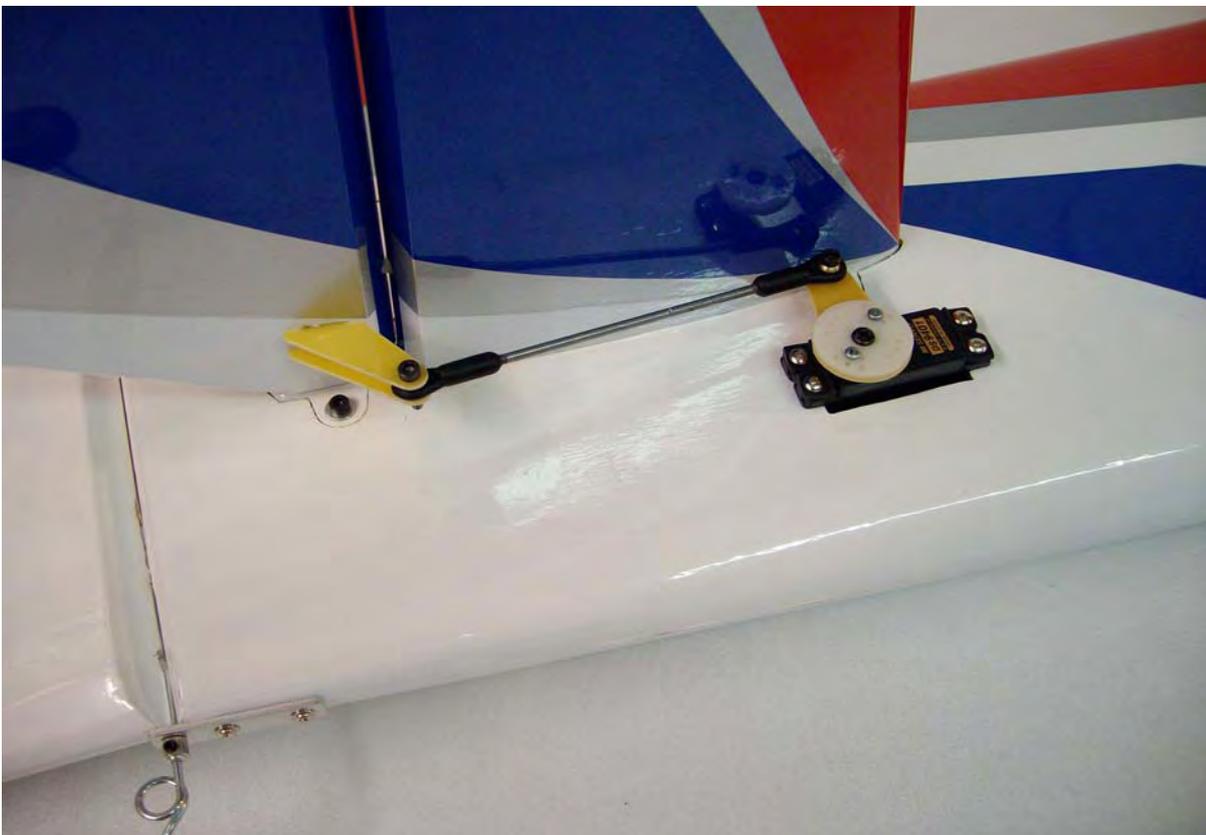


□ **step 12**

Repeat steps 8 through 9 for the remaining stabilizer.

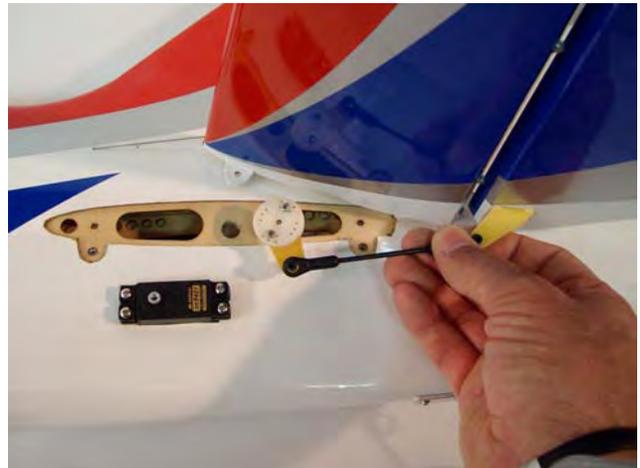
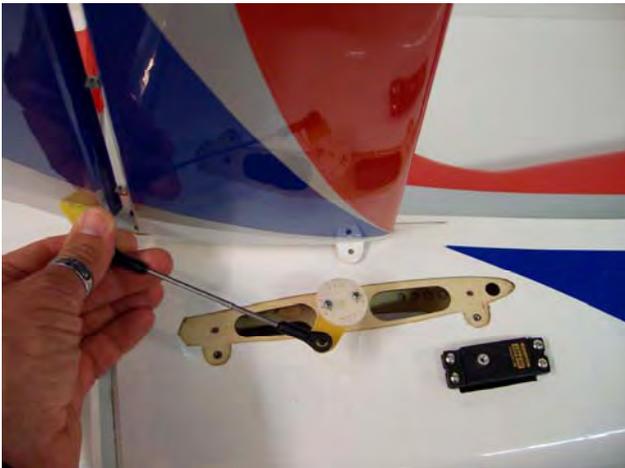
□ **step 13**

Install the hardware and make the final adjustment as per picture.



□ **step 14**

When you like to install again the F3A elevators, remove the 3D elevator with control horns and servo arms and the carbon tube, as follow.



**Section 7 – rudder servo installation**

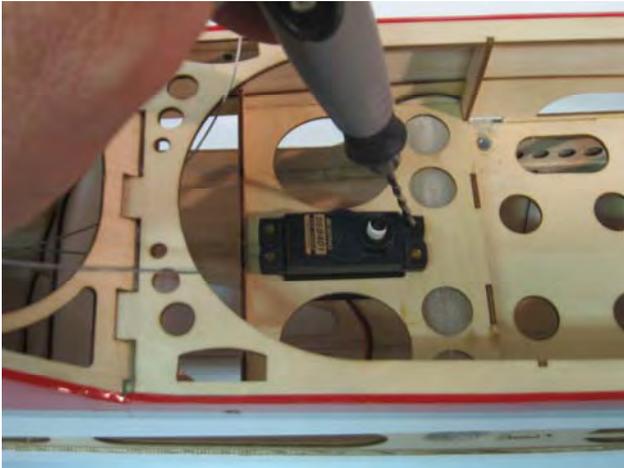
□ **step 1**

Locate the following items, included in the hardware pack and the servo (not included). Install the servo hardware (gommets and eyelets).



□ **step 2**

Drill the location for the four self-tapping screw using a 1.5mm drill bit and install the servo as per the picture.



□ **step 3**

With the hobby knife remove the cover on both rudder's side in the control horn location.



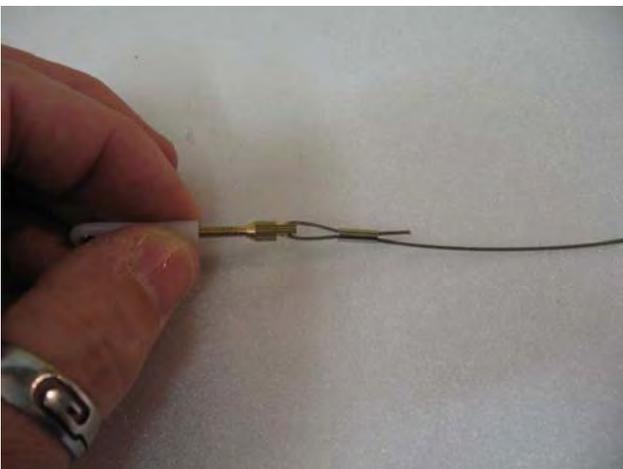
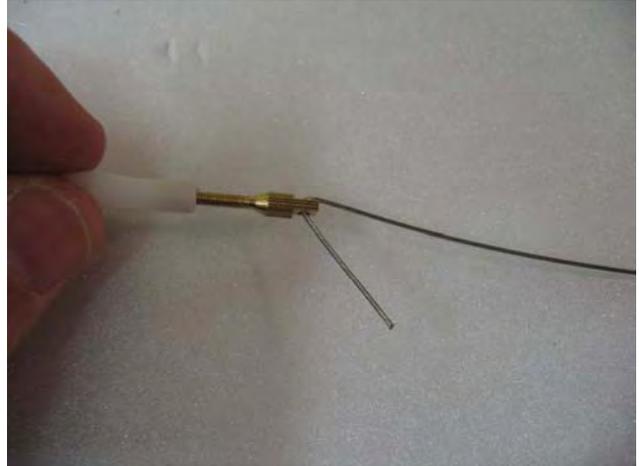
□ **step 4**

Place the fibreglass control horn in the rudder, check for correct alignment and glue it with some drops of medium CA.



□□ **step 5**

Prepare the rudder cable as follow.



□□ **step 6**

Install the rudder cable as follow.

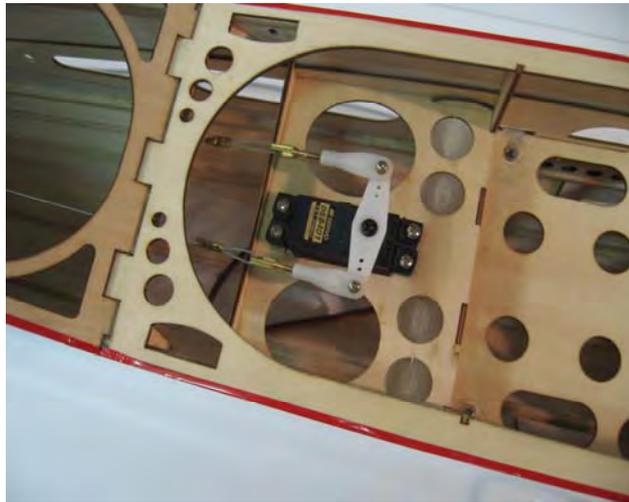


□ **step 7**

Repeat steps 5 through 6 for the opposite side of the fuselage.

□ **step 8**

Attach a heavy-duty servo arm to the rudder servo, attach the uniballs at the servo arm and adjust the linkages, in order to have rudder and servo in central position.



**Section 8 – landing gear & wheels installation**

□ **step 1**

Locate all the necessary items.



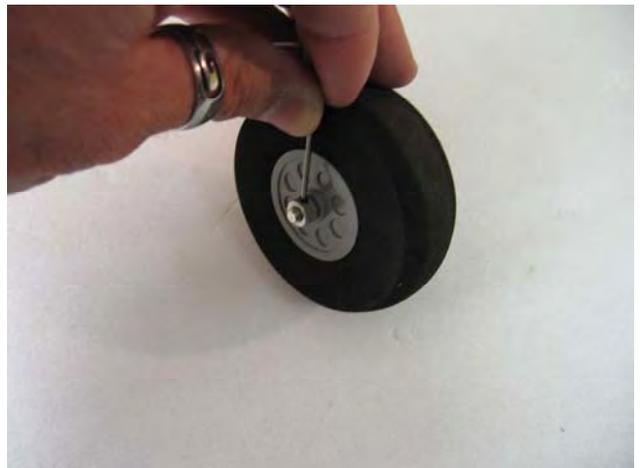
□□ **step 2**

Using screws and washers, install the landing gear as follow.



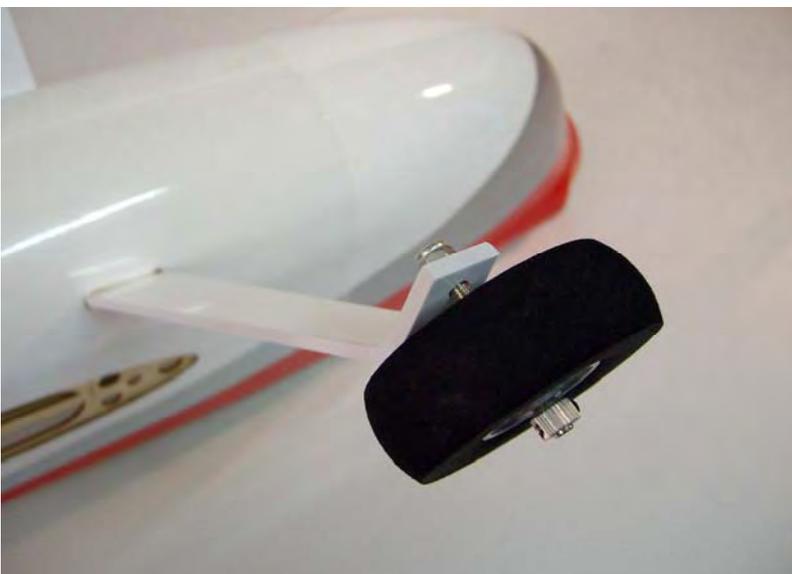
□□ **step 3**

Install the axle, wheel as follow.



□□ **step 4**

Install wheel as follow.



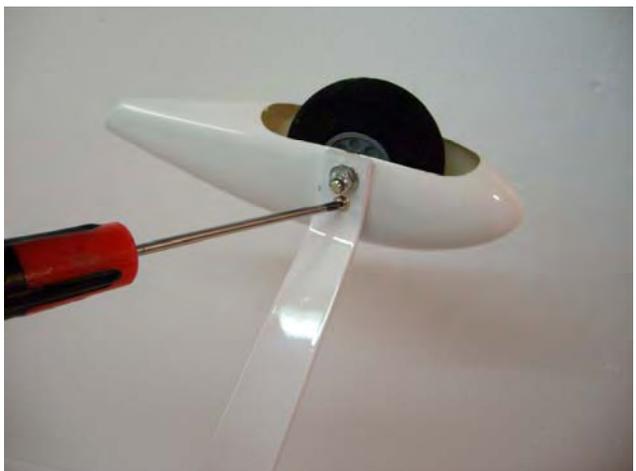
□□ **step 5**

Prepare the wheel pant and install it as follow.



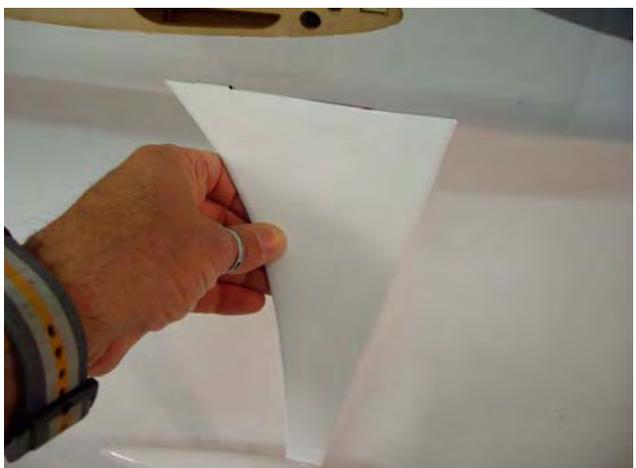
□□ **step 6**

Hold the wheel pant parallel to the fuselage and drill the location for the wheel pant screw using a 1,5mm drill bit. Attach the wheel pant to the landing gear using a 2mm short self-tapping screw.



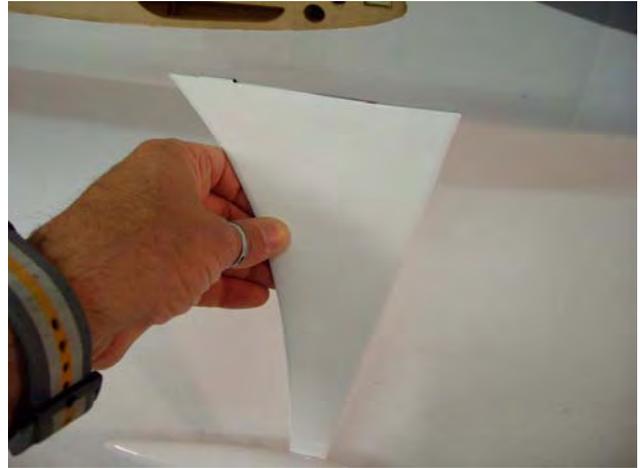
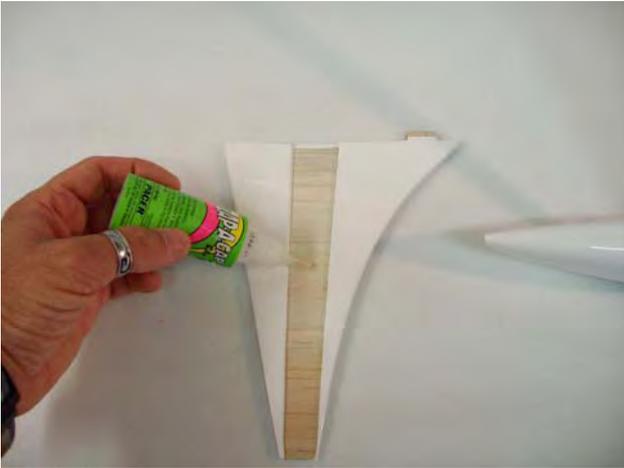
□□ **step 7**

With the hobby knife open the slot on the fuselage and test fit the landing gear fillet and his alignment.



**□□ step 8**

Once satisfied with the fit, glue the fillet on the landing gear using medium CA. Use the glue carefully avoid over runs on other areas.



**□ step 9**

Repeat steps 2 through 8 for the opposite landing gear side.

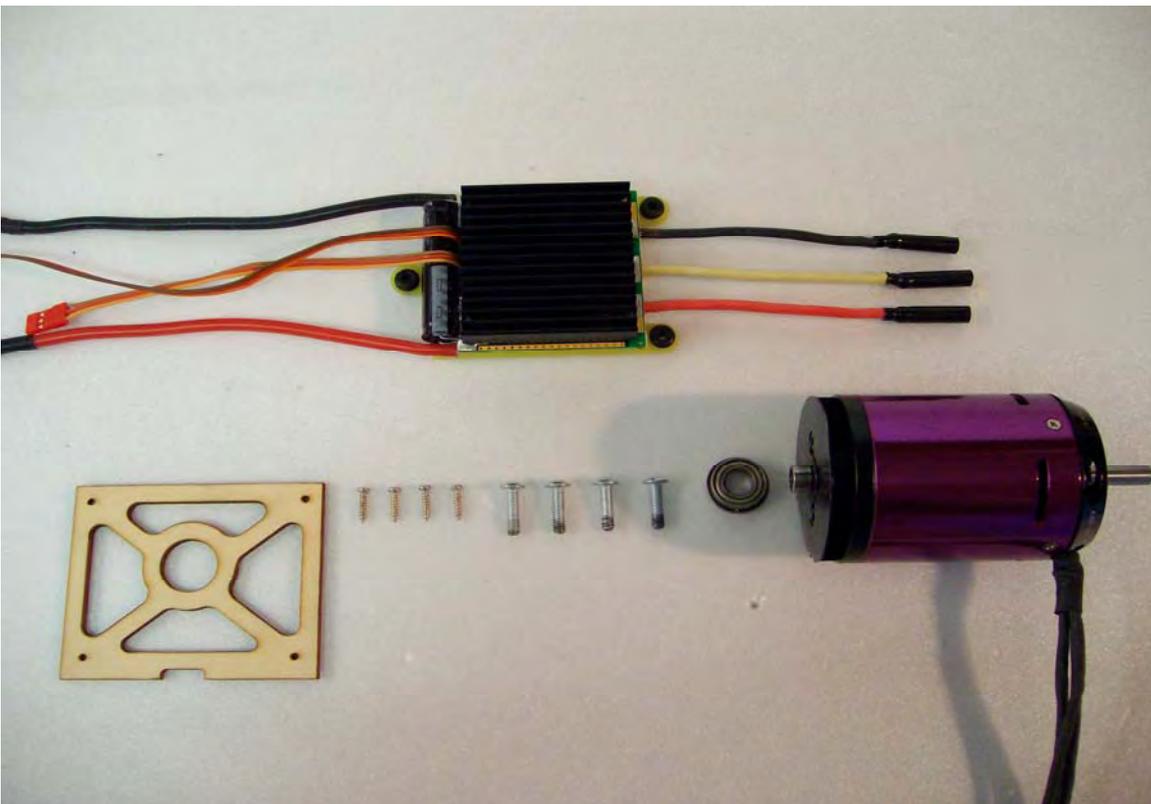
**Section 9 – electric motor installation**

We recommend to fly HACKER motor, you need the following item (not included):

- Hacker A50-16L + MasterBasic90-Opto controller + APC 18x10E or 18x12E

**□ step 1**

Locate the following items.



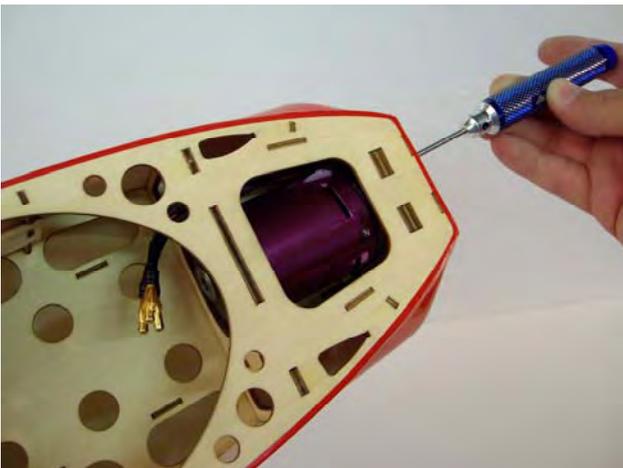
□ **step 2**

Locate on the back motor's axis the bearing included in the hardware pack.



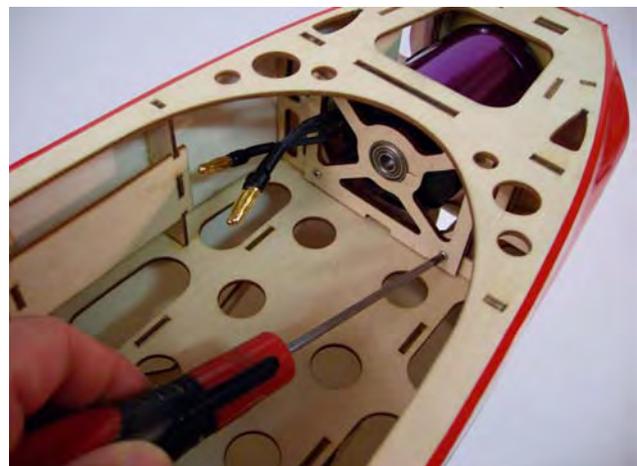
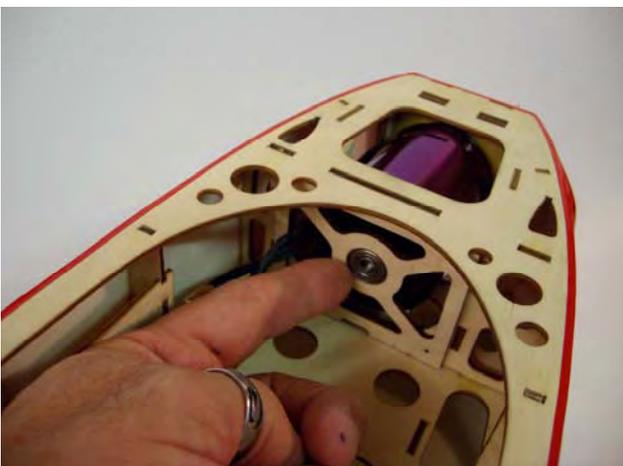
□ **step 3**

Install the motor into fuselage as follow.



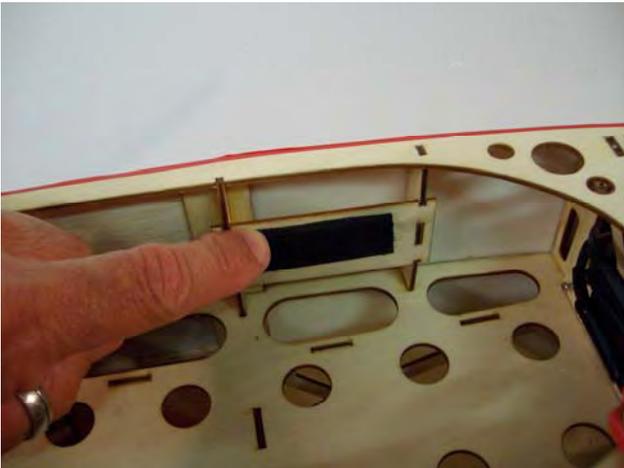
□ **step 4**

Locate the plywood frame as motor support, and install it with self-tapping screws included in the hardware pack.



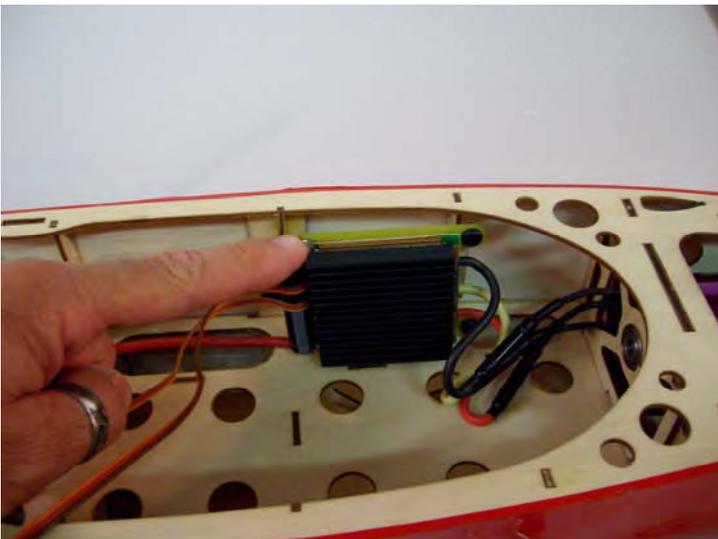
□ **step 5**

Apply the velkro on the ESC location.



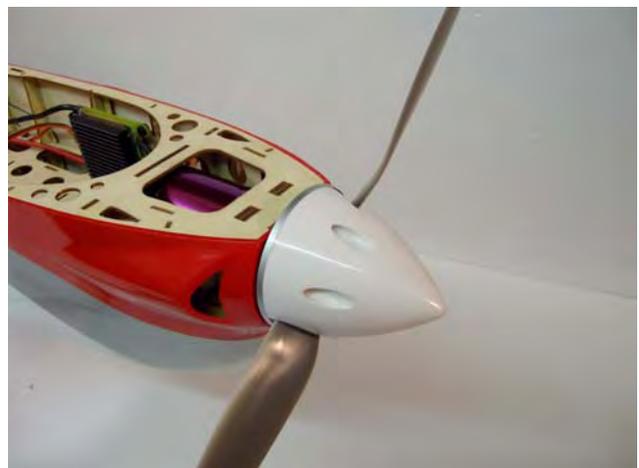
□ **step 6**

Install the ESC as follow.



□ **step 7**

Fix carefully the prop and spinner.

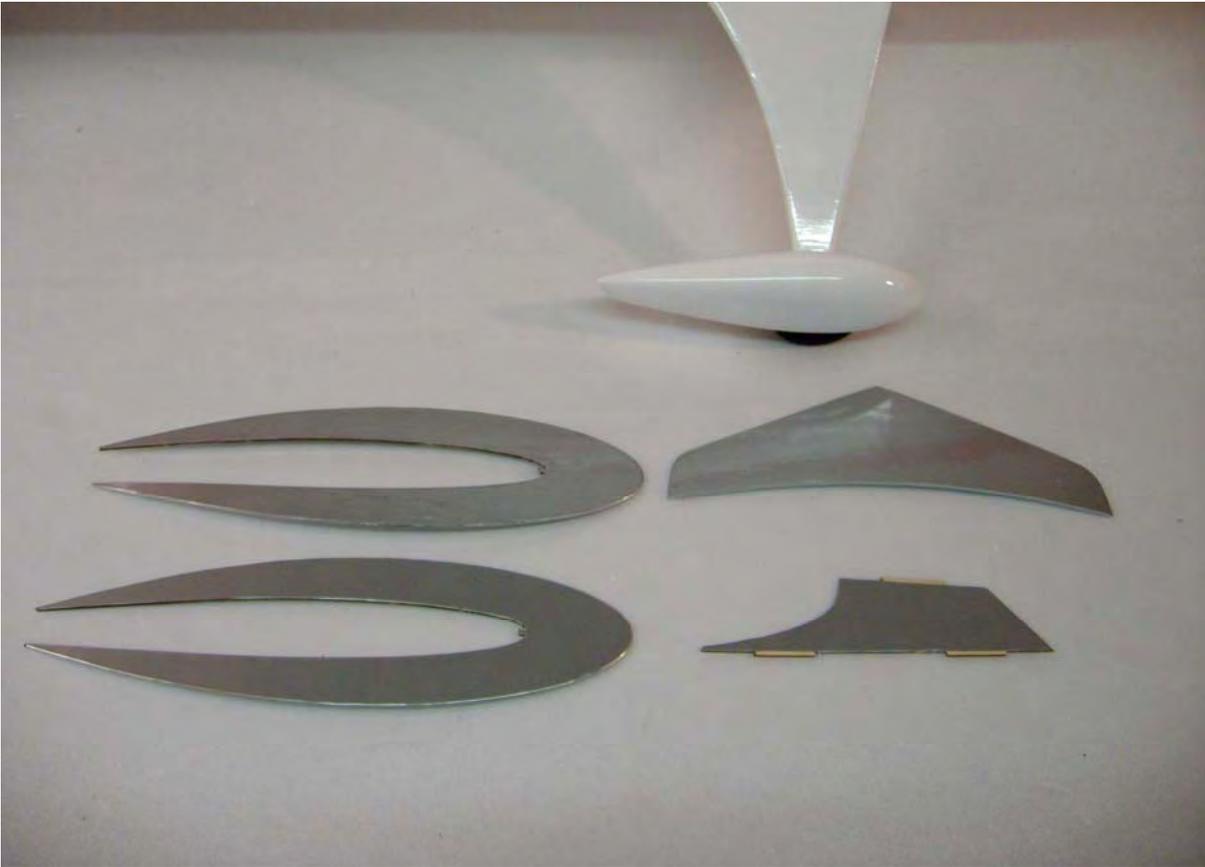


**Section 10 – 3D fuselage's & wing's Fins installation** (optional installation)

The 3D fuselage's & wing's Fins are included in the box, and they are an optional installation. If you like, install them as follow.

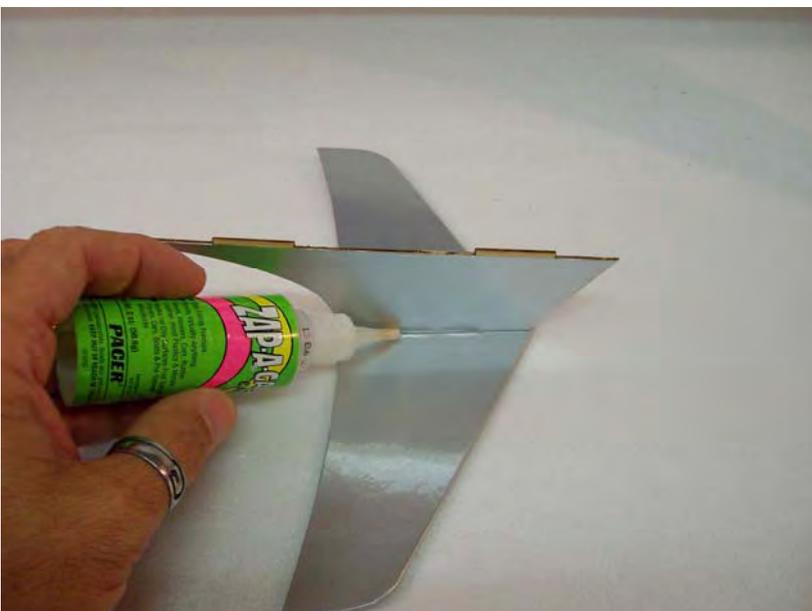
**□ step 1**

Locate the following item included in the box.



**□ step 2**

Glue with medium CA the two parts of the fuselage's fin.



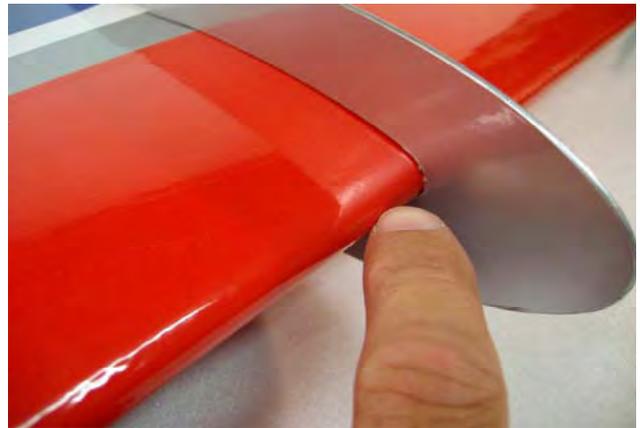
□ **step 3**

With the hobby knife open the two slots on top fuselage and carefully glue the fin with medium CA.



□□ **step 4**

With the hobby knife open the slot on the wing's leading edge and test fit the fin on wing panel.



□□ **step 5**

Glue carefully the fin with medium CA.



□ **step 6**

Repeat steps 4 and 5 for the remaining wing panel.

## Section 11 – final radio installation

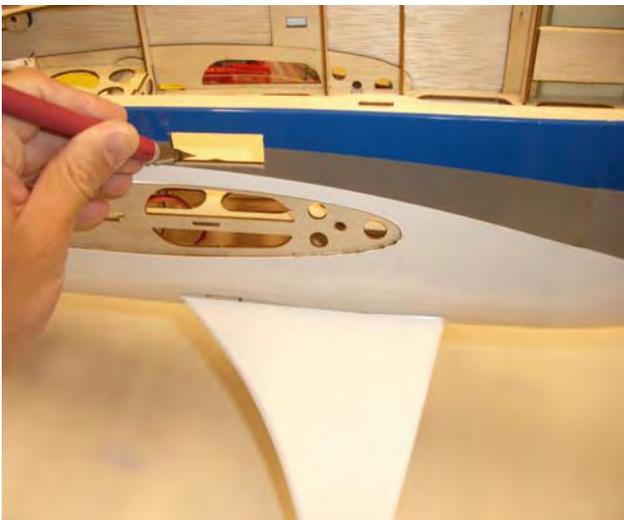
For best performance and light weight, we recommend you to install as receiver & servos power system the following item (not included):

- Power Box System “DIGI Switch” (ONLY for F3A set up)
- Power Box System “SENSOR” Switch (for F3A & 3D set up)
- Power Box System 1500 li-po battery or Flight Power 1250-2S EVO-RX li-po battery



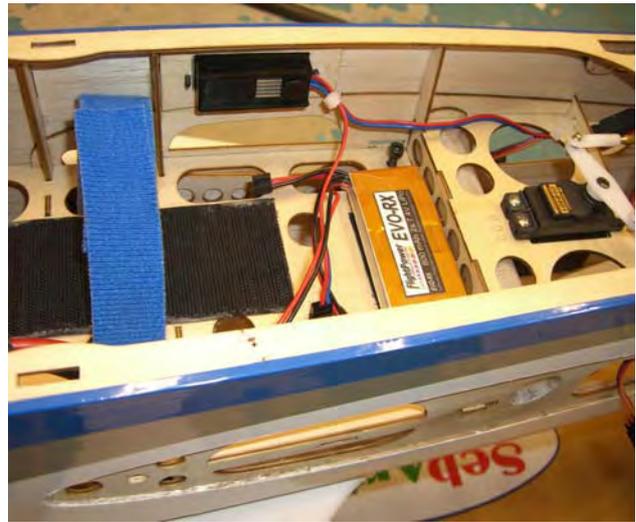
### □ step 1

With a hobby knife open the bay and locate the Power Box System “DIGI Switch” or “SENSOR Switch” as per picture.



□ **step 2**

Locate and install the switch with a Phillips screwdriver as follow.



□ **step 3**

Locate RX-battery and receiver as follow.



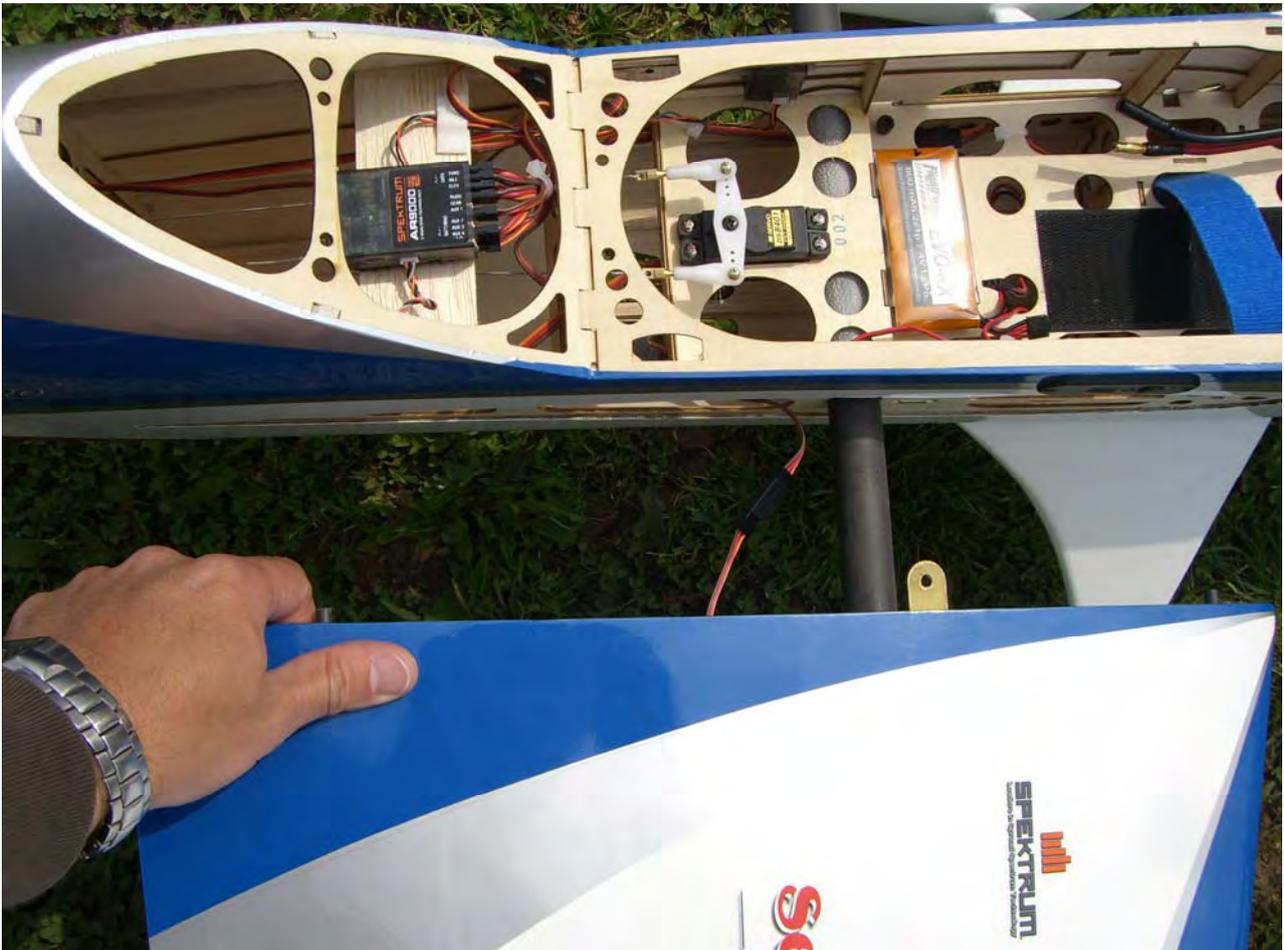
## Canopy installation

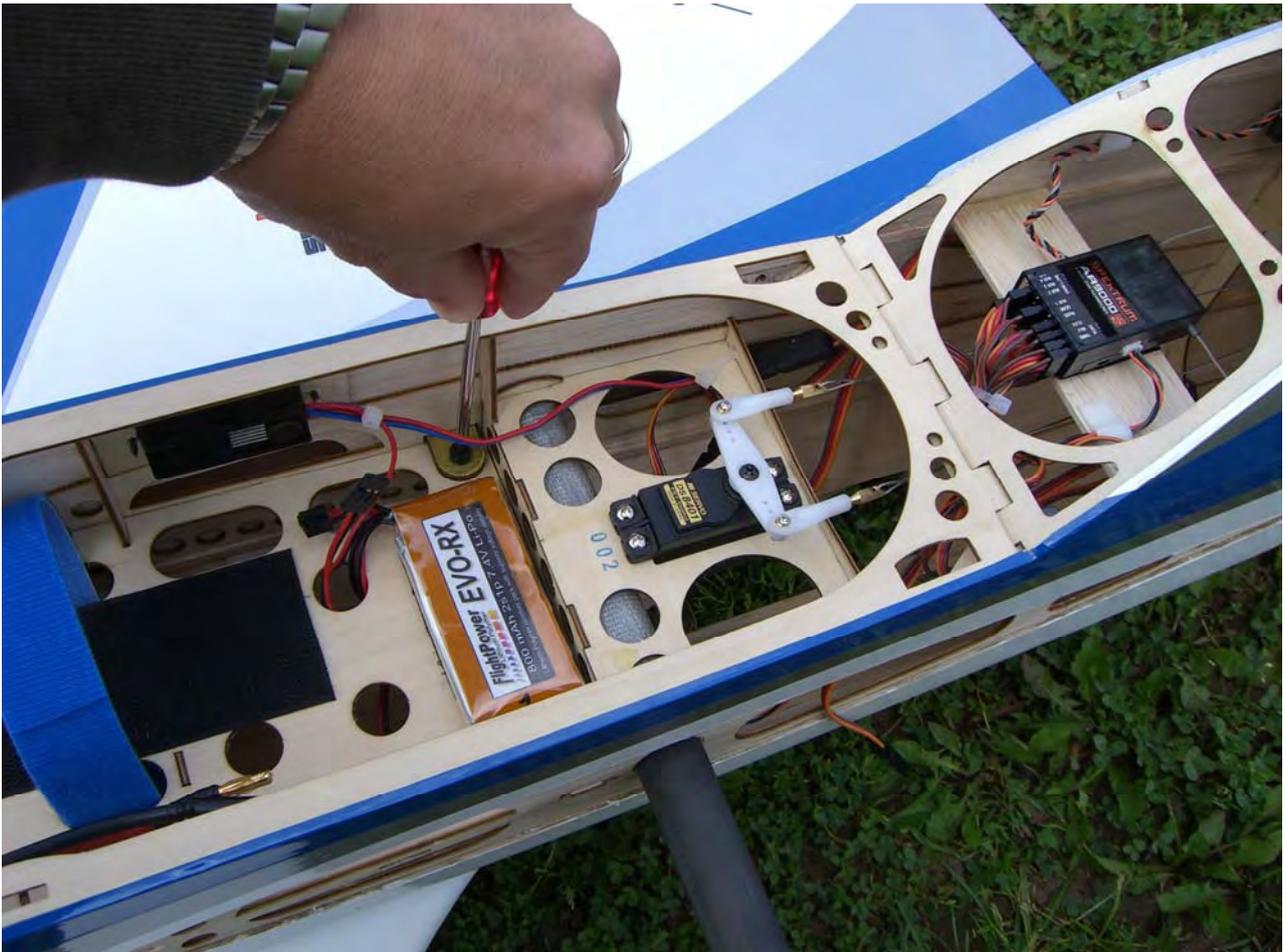
Install the canopy with the two 3mm screws and washers included in the hardware pack.



## Wings installation

Locate the wing panels and fix them using the two 4mm screws, included in the hardware pack, and a Phillips screwdriver.





### Control throws

We recommend the use of a computer radio, that will allow you to do quite a bit of fine-tuning of the feel of the Wind S 110, which will make aerobatics even easier.

Please, follow carefully the recommended linkage setups:

For the AILERON we recommend the following throws:

<b>Low rate:</b> 20° up / 20° down	<b>Expo:</b> 40%
<b>3D rate:</b> 45° up / 45° down	<b>Expo:</b> 80%

For the ELEVATOR we recommend the following throws:

<b>Low rate:</b> 20° up / 20° down	<b>Expo:</b> 25%
<b>3D rate:</b> 50° up / 50° down	<b>Expo:</b> 80%

For the RUDDER we recommend the following throws:

<b>Low rate:</b> 30° left / 30° right	<b>Expo:</b> 30%
<b>3D rate:</b> 50° left / 50° right	<b>Expo:</b> 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. 2%

\* if you have a programmable computer radio.

## Rates and expos

Use the recommended expos to soften the feel of the model, especially on high 3D 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 3D aerobatics.

For precision flying or general sport fliers, the low rate throws are perfect, even for snap rolls. When doing 3D aerobatics, flip to 3D rates just before the manover. As soon as the manover is done, flip back down to low rate to avoid over-controlling the model.

## Recommended CG

The recommended **Center of Gravity** location is **180mm** behind the leading edge of the wing against the fuselage.

- **175-185mm** is good for pattern flying F3A.
- **200mm** is good for 3D flying.

You can use the Flight Power battery pack, moving it forward or backward, to achieve the correct balance.

## Pre-flight

### ***Never attempt to make full throttle dives!***

This model have to be flown like a full-scale airplane. If the airframe goes too fast, such as in a high throttle dive, it may fail.

**Throttle management is absolutely necessary.**

## Range test your radio

- ✓ Before fly, be sure to range check your radio as manufacturer's instruction manual of you radio-system recommend.
- ✓ 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 included with your batteries and that your radio is fully charged as per its instructions.

*Finally...*

*have a nice flight!*

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