

Little Apple-A4 -50E

ARF

ASSEMBLY MANUAL

The new *Little Apple-A4-50E ARF*, was designed in an extremely lightweight structure, the all wood airframe with refreshing colors cover. High-wing design is easy to fly for the beginner. This is the electric motor assembly manual, but we still provide the engine mount and the fuel tank spare parts. In case when you became a good player you can change to the methanol engine power.

The *Little Apple-A4-50E* will bring you the flying sky, if you want to fly and just do it.

.....without any aerobatic limit when you fantasy to do it !

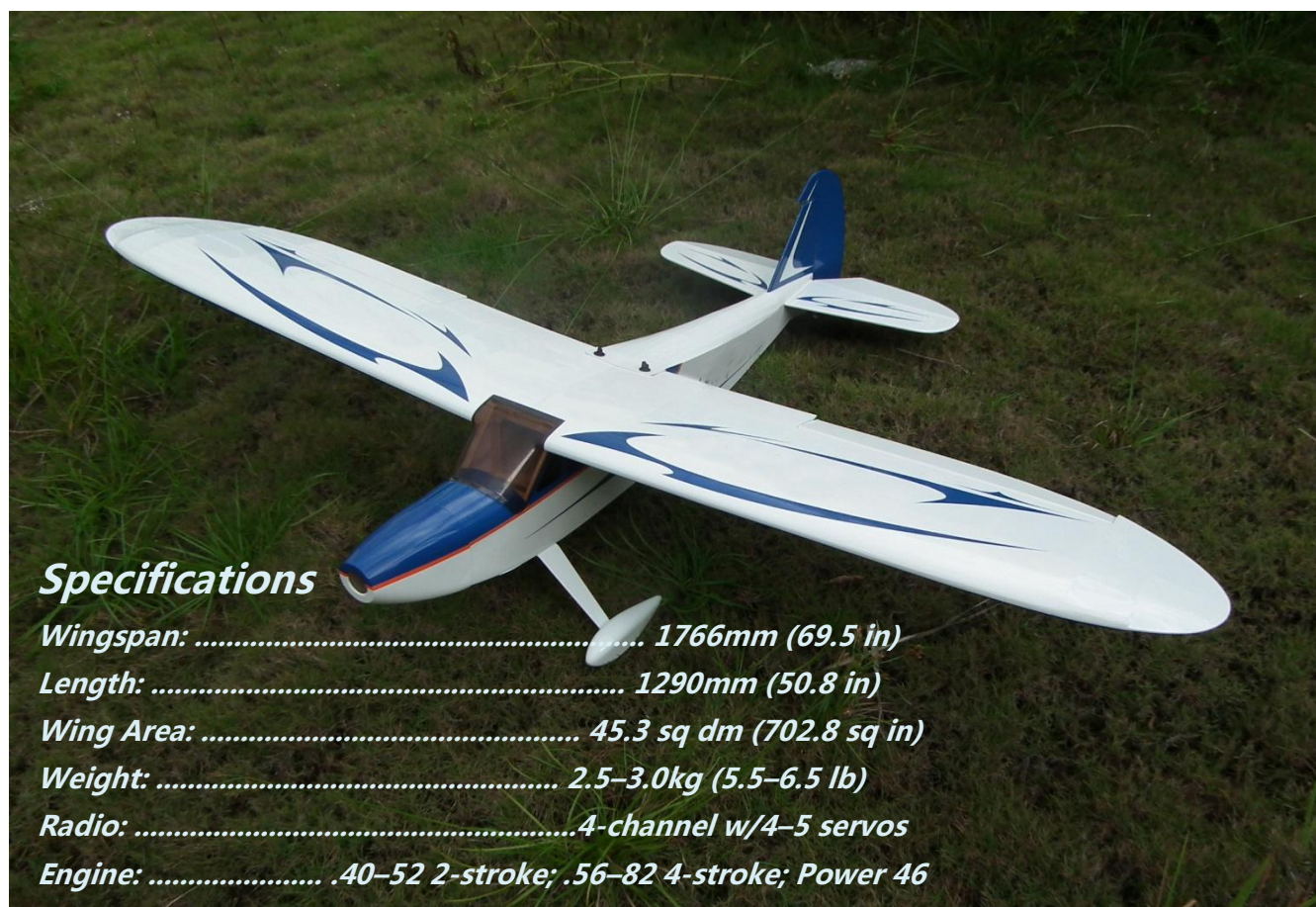


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Required radio, motor and battery

Radio equipment:

- DX6i 6-channel radio or greater with receiver(SPM6600)
- JRPS821 DS821 Digital Sport Servo (5)(4 required for EP version)
- JSP98110 6-inch Servo Extension (2)
- JSP98020 Y-Harness or JSP98110 6-inch Servo Extension (2) for receiver to aileron servos
- JR Switch, Charges witch (JRPA004)
- Receiver battery, 2700mAh

Recommended electric motor for best performance:

- E-flite® Power 46 BL Outrunner Motor (EFLM4046A)
- 60-Amp Pro Switch-Mode BEC Brushless ESC (EFLA1060)
- Thunder Power 4S 3850–4500mAh LiPo Battery Pack
- APC Propeller 13x6.5-inch (APC13065E) to 14x7 (APC14070E)

Additional required item, tools and adhesives

Tools:

- Drill
- Drill bits: 1,5mm, 2mm, 3mm, 5.3mm
- Phillips screwdriver
- Hobby knife
- Sanding paper
- Masking tape
- Soldering iron
- Socket head screw wrench: 1.5mm 2.5mm 3mm

Adhesives:

- thin CA
- medium CA
- 30min Epoxy adhesive(AB)

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

Before starting assembly

Before starting the assembly of your Little Apple-A4-50E, 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.



Contents of Kit and Parts Layout

1. Fuselage
2. Right Wing Panel with Aileron
3. Left Wing Panel with Aileron
4. Tail Set
5. Painted Cowling
6. Carbon Fiber Wing Tube
7. Aluminum Landing Gear
8. Wheel Pants
9. Engine Mount with Hardware
10. Fuel Tank, 320cc
11. PU Wheels, 2 1/4-inch(2)
12. White Plastic Spinner, 2 1/4-inch
13. Window
14. Wing Retaining Plate

Included Parts Listing

Fuselage	(1)
Right wing with control horn	(1)
Left wing with control horn	(1)
Horizontal stabilizer with control horn	(1)
Vertical fin with control horn	(1)
Aluminum landing gear	(1)
Wheel pants (left and right)	(2)
Front windshield	(1)
Φ15*410mm Carbon fiber wing tube	(1)
Tail ornament triangular wood	(1)

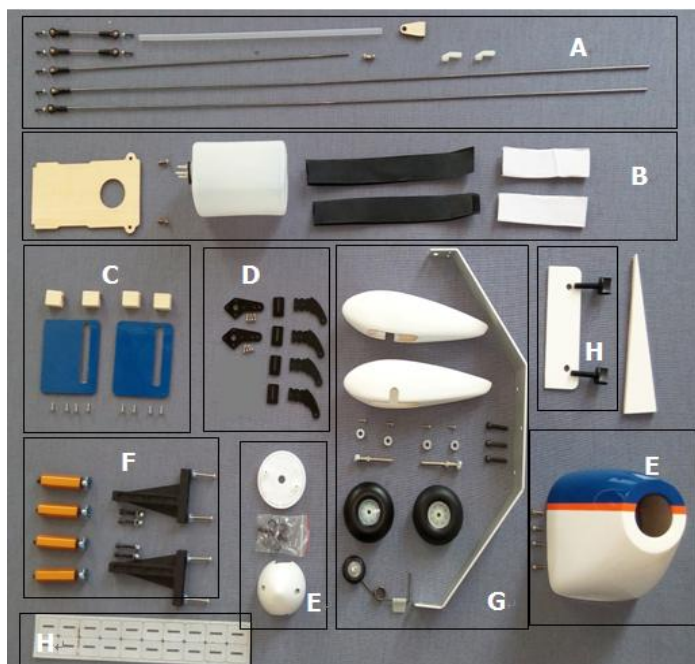
Push rods	A
Φ2*56mm Pushrod (aileron)	(2)
Φ2*680mm Pushrod (elevator)	(1)
Φ2*690mm Pushrod (rudder)	(1)
Nylon Pushrod keeper	(2)
Metal Linkage Stopper	(1)
Plywood throttle pushrod support	(1)
Φ5.1*250mm Nylon Pushrod tube	(1)
M2*10mm Socket Head Cap Screw	(7)
M2 Lock nut	(7)

Fuel Tank	B
Plywood Battery Tray	(1)
M3*10mm Machine Screws With Shoulder Washer	(2)
320CC Fuel Tank	(1)
25*160mm Velcro	(2)
25*100mm Velcro with Foam tape	(2)

Servo Cover Plate	C
Servo Cover Plate	(2)
Servo Fixation Block	(4)
T2*8mm Self-tapping Screw With Shoulder Washer	(8)

Arms & Horns	D
Black Epoxy Rocker Arm	(2)
Black Epoxy Horn	(4)
T2*8mm Self-tapping Screw	(12)

Cowling	E
M3*10mm Machine Screws With Shoulder Washer	(2)
Painted Cowling	(1)
2.25" Spinner	(1)
Rubber washer	(4)
T2*8mm self-tapping screw	(2)



Main & Tail Landing Gear	G	Motor & Engine Mount	F
Aluminum Main Landing Gear	(1)	Small nylon engine mount	(2)
2.25" Pu wheel	(2)	M3*20mm Machine screw with shoulder washer to fix engine mount	(4)
Wheel Pants	(2)	M3 Blind nuts	(4)
Φ4mm Wheel axle	(2)	M3*25mm Socket Head Cap Screw to fix engine	(4)
Φ4.1*10mm Wheel Collars	(4)	M3 Lock nut	(4)
M3*3mm Set Screw	(4)	Inner Φ4.2*47mm Hexagon Aluminum pillars to fix motor	(4)
M4*18 Socket Head Cap Screw to fix landing gear	(3)	M4*60mm Socket Head Cap Screw	(4)
Φ4.1mm Flat Washer	(3)	M4 Blind nuts	(4)
T2*8 self-tapping screw to fix wheel collars	(4)	Wing Retaining	H
PU Tail wheel	(1)	Plywood Wing Retaining Plate	(1)
Φ2.1*7mm Tail Wheel Collars	(1)	M6*30 Nylon thumb screw to fix the wing	(2)
Tail landing gear	(1)	AC Hinges	(20)
M3*3mm Set Screw to fix tail wheel	(1)		

Section 1 – ailerons installation

Required Parts

Main Wing (Right & Left)

Aileron (Right & Left)

Eight Hinges (Right & Left)

Tools and Adhesives

Hobby knife

Thin CA

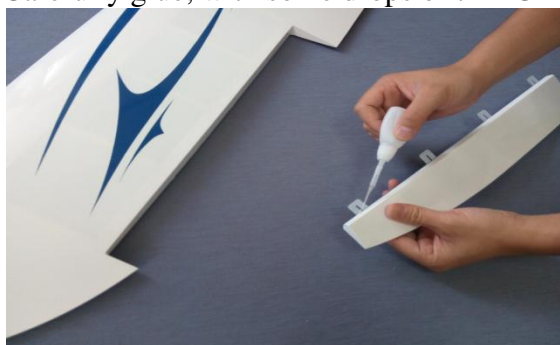
□□ step 1

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

Required Parts

2 Servo Cover Plate	(Right & Left)
4 Servo Fixation Block	(Right & Left)
8 T2*8mm Self-tapping Screw With Shoulder Washer	(Right & Left)
2 Black Epoxy Rocker Arm	(Right & Left)
2 Black Epoxy Horn and pedestal	(Right & Left)
2 $\Phi 2*56$ mm Pushrod (aileron)	(Right & Left)
4 Bolt Through Ball	(Right & Left)
4 M2*10mm Socket Head Cap Screw	(Right & Left)
4 M2 Lock nu	(Right & Left)
2 Servo with hardware	(Need to buy)

Tools and Adhesives

Hobby knife	Phillips screwdriver	Drill and drill bits 1.5mm
Thin CA	Socket head screw wrench 1.5mm	



Right and left are the same

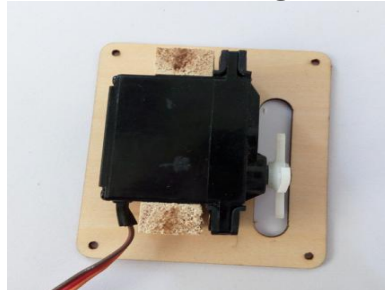
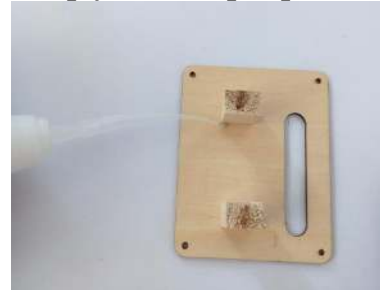
□□ step 1

Locate the following items included in the hardware pack and the servo.



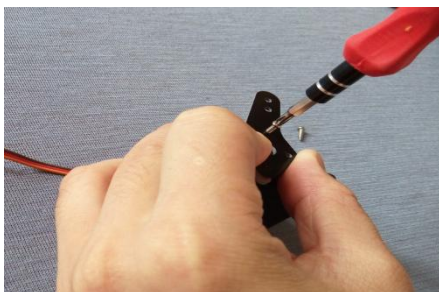
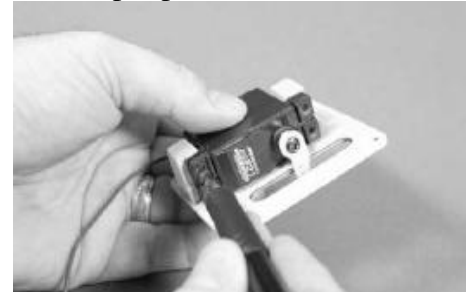
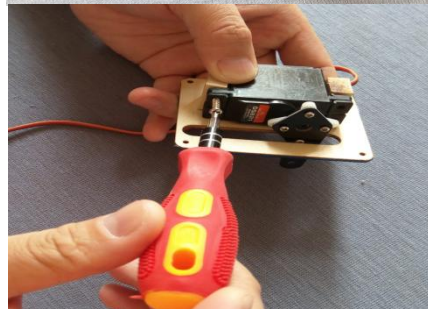
□□ step 2

Test the best position of the servo wood block, and glue it on the plywood as per picture showed.



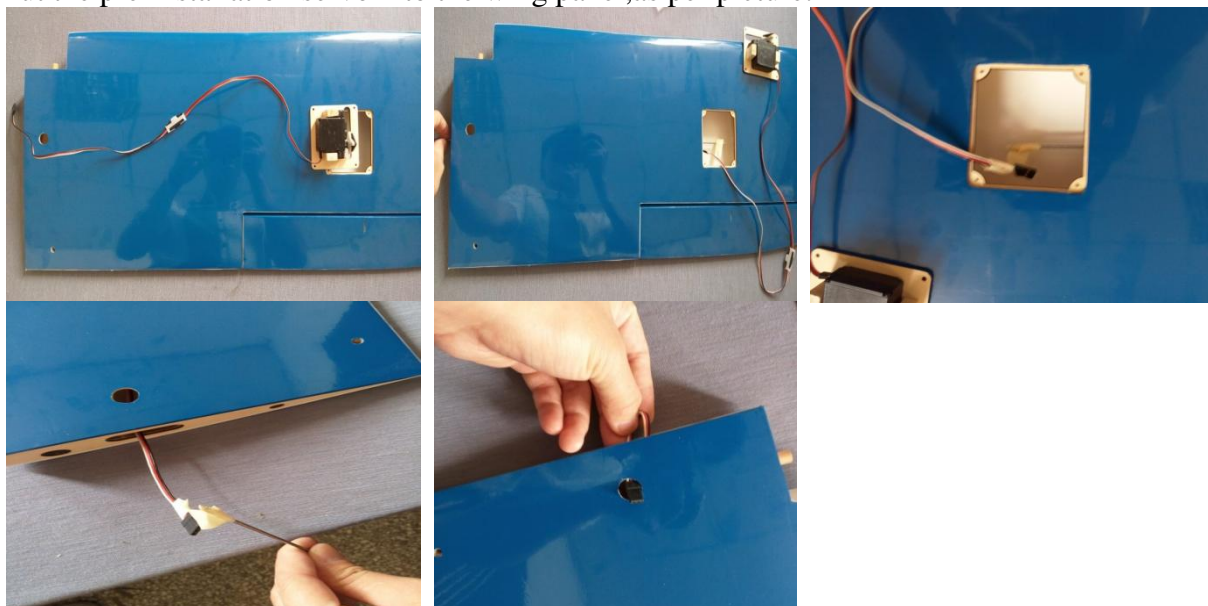
□□ step 3

Pre-install the rock-arm and the servo with the T2*8mm self-tapping screw as per picture.



□□ step 4

Put the pre-installation servo into the wing panel, as per picture.



□□ step 5

Glue the epoxy horn with medium CA into the aileron, as per picture.



□□ step6

Install the push and pull rod connecting rod, and use the four T2*8mm Self-tapping Screw With Shoulder Washer to fix the servo cover plate.



□ step 7

Repeat steps 1 through 6 for the remaining wing panel.

Section 3 – elevator installation

Required Parts

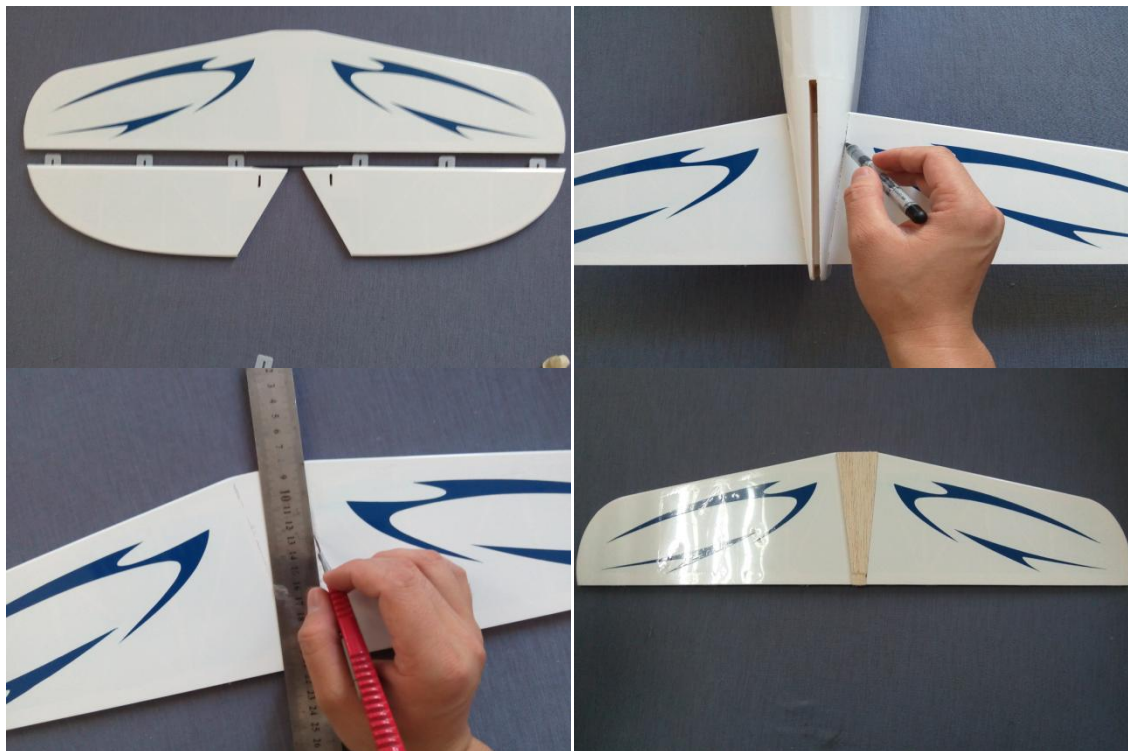
1 horizontal tai 1 Elevator 6 Hinges 1 Elevator connect steel wire

Tools and Adhesives

Hobby knife Thin CA Straight Steel Ruler
Remark pen Hobby knife

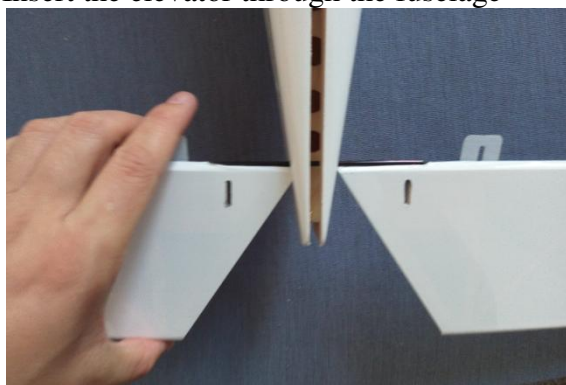
□ step 1

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 put the horizontal tail into the fuselage tail and make remark. Take out the horizontal tail and use a hobby knife to detruncate some covering. As per picture shown.



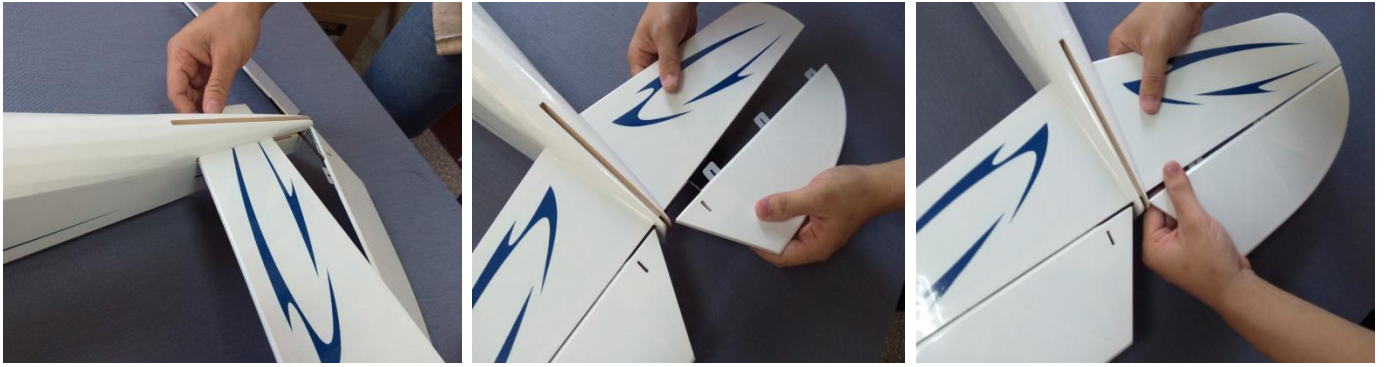
□ step 2

Insert the elevator through the fuselage



□ step 3

Insert the horizontal tail into fuselage space and locate the elevator hinges into the horizontal tail



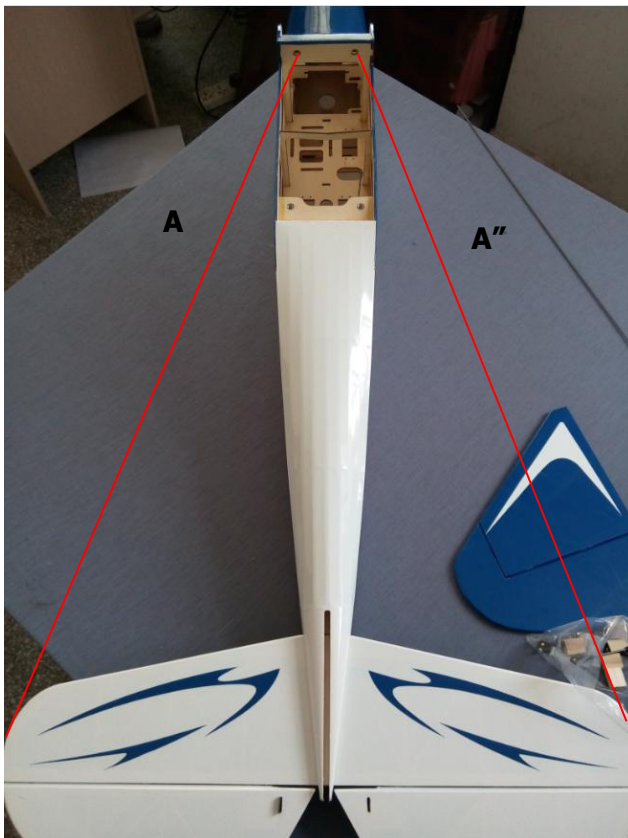
□□step 4

Glue carefully the hinges in the horizontal tail and elevator with some drops of thin CA.



□ step 5

Carefully check the balance of the horizontal tail with the fuselage, as per pictures.



$$A=A''$$

□ step 6

Once satisfied with the balance, glue carefully with thin CA the horizontal tail at the fuselage.



Section4 – rudder installation & tail wheel installation

Required Parts

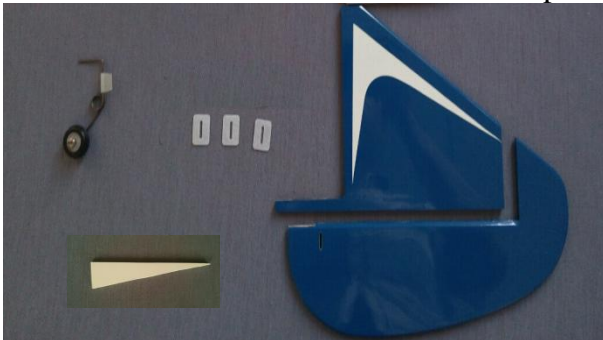
1 Rudder 1 Vertical fin 3 Hinges 1 Set tail wheel system 1triangular lightwood block

Tools and Adhesives

Hobby knife Thin CA Straight Steel Ruler
Marking pen Hobby knife 30min Epoxy

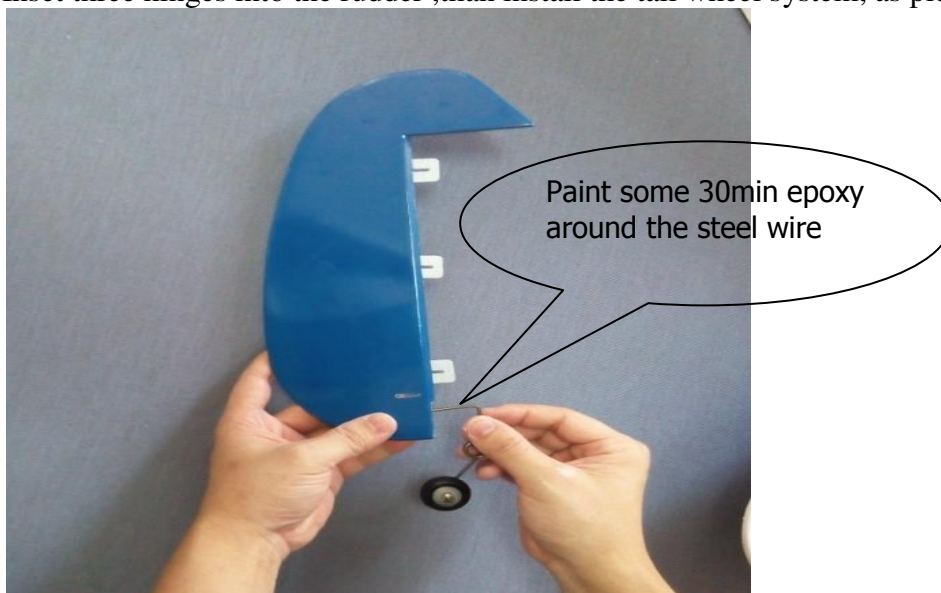
□ step 1

Locate the items included in the hardware pack.



□ step 2

Inset three hinges into the rudder ,than install the tail wheel system, as picture shown.



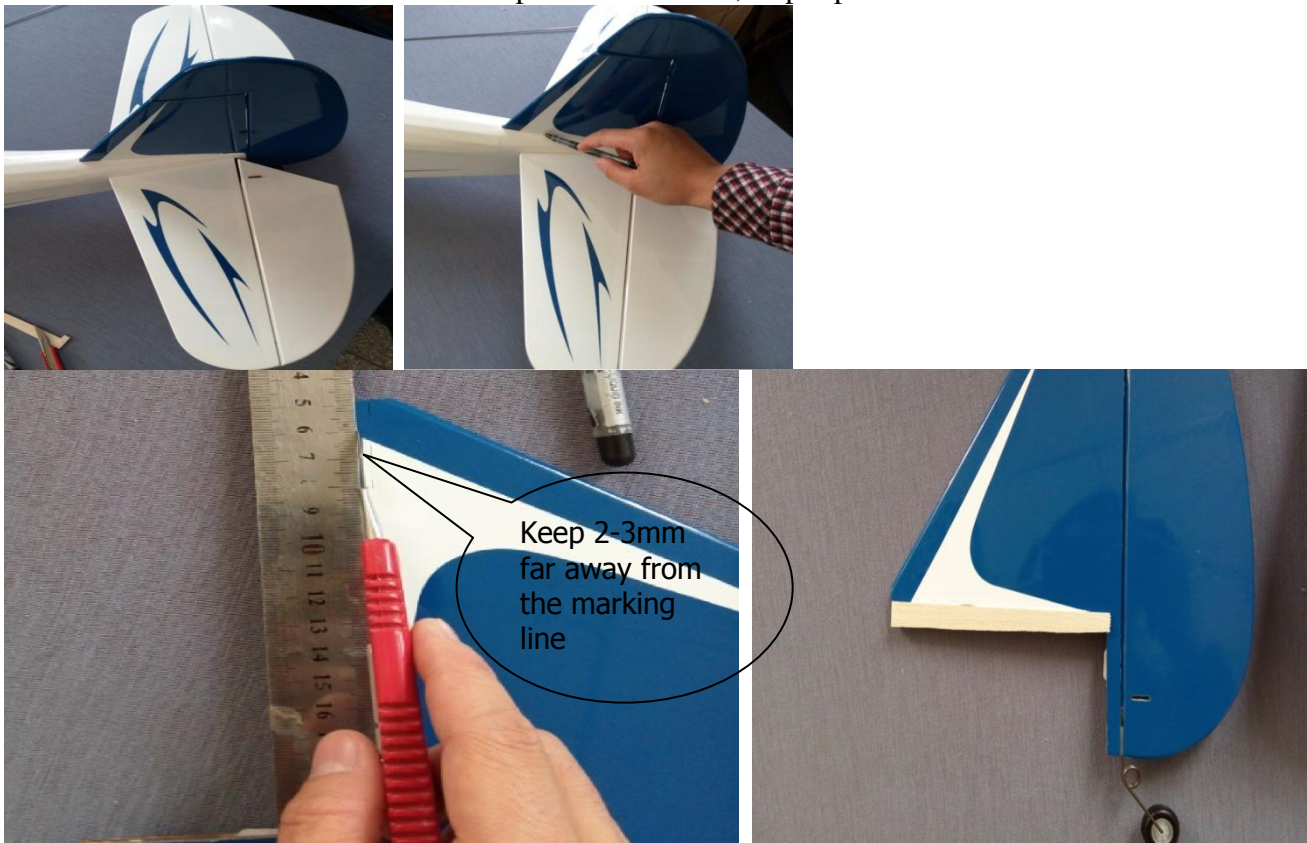
□ step 3

Install the rudder to the vertical fin, and glue each hinges with thin CA.



□□ step 4

Inset the assembled rudder to the vertical fin into the fuselage, and make a remark on the cover. Than take out the vertical fin and use a knife to chip-off some cover, as per picture shown.



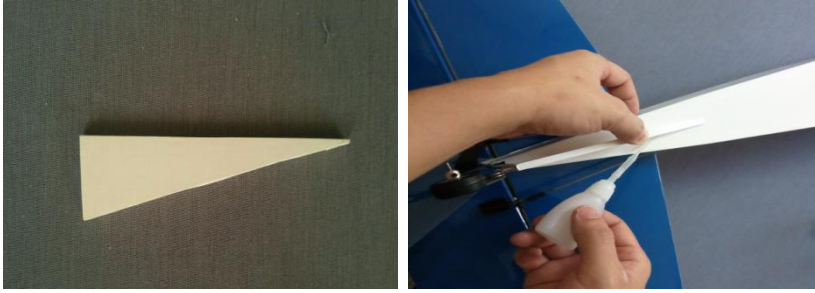
□ step 5

Insert the pretreatment vertical fin and rudder into the fuselage and glue it with thin CA, as picture shown.



□ **step 6**

Bottom up the fuselage and fix the triangular lightwood block to the vertical fin, as the picture shown.



Section 5 – elevator servo & control horn installation

Required Parts

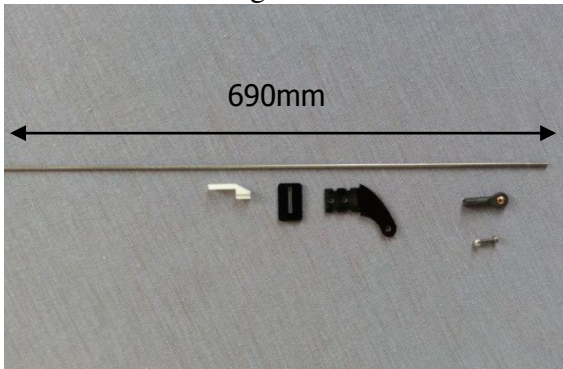
1 $\Phi 2 \times 690\text{mm}$ Pushrod (elevator) 1 Nylon Pushrod keeper
1 M2*10mm Socket Head Cap Screw 1 M2 Lock nut 1 Black Epoxy Horn with pedestal
1 Nylon ball joint

Tools and Adhesives

Socket head screw wrench 1.5mm Pliers 30min Epoxy Phillips screwdriver
Adhesive-Paper

□ **step 1**

Locate the following items included in the hardware pack.



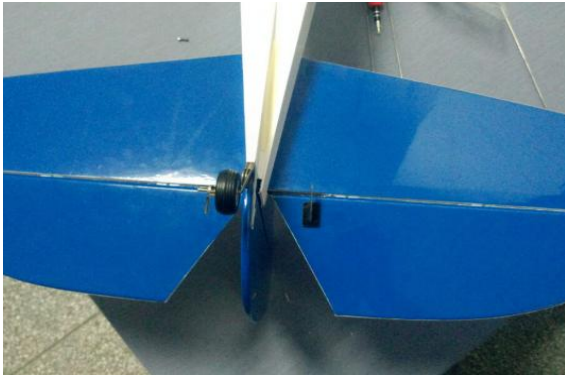
□ **step 2**

Install the horn as per picture.



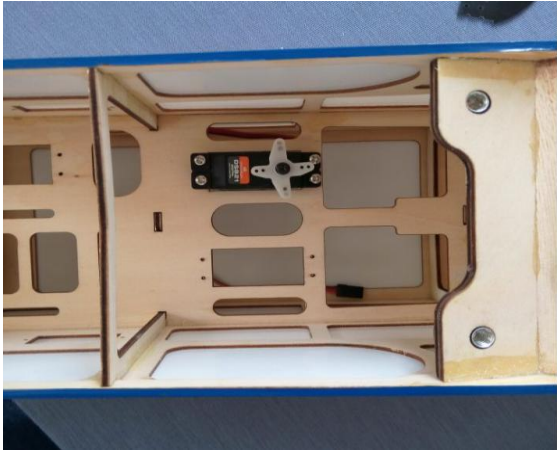
□ **step 3**

Up side down the fuselage and install the horn into the right elevator(front under the left elevator), as the picture shown.



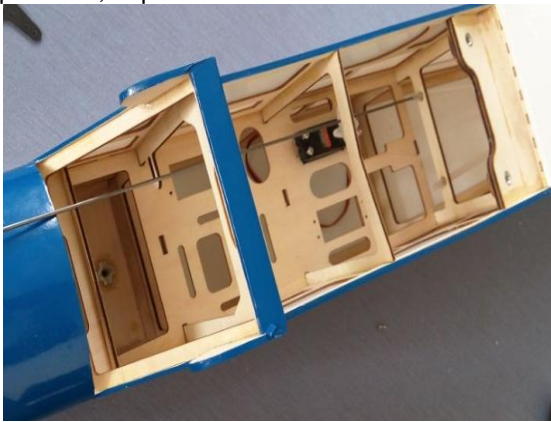
□ **step 4**

Install the elevator servo in the fuselage, as the picture shown.



□ **step 5**

Put elevator push rod (with screw thread side) through the elevator Pushrod tube hole, reach the elevator horn position, as picture shown.



□ **step 6**

Use the nylon ball joint to proofread the distance between the rudder push rod and the horn, as picture shown.



□ **step 7**

Calculate the push rod length in need, then make a remark on the servo side, as picture shown.



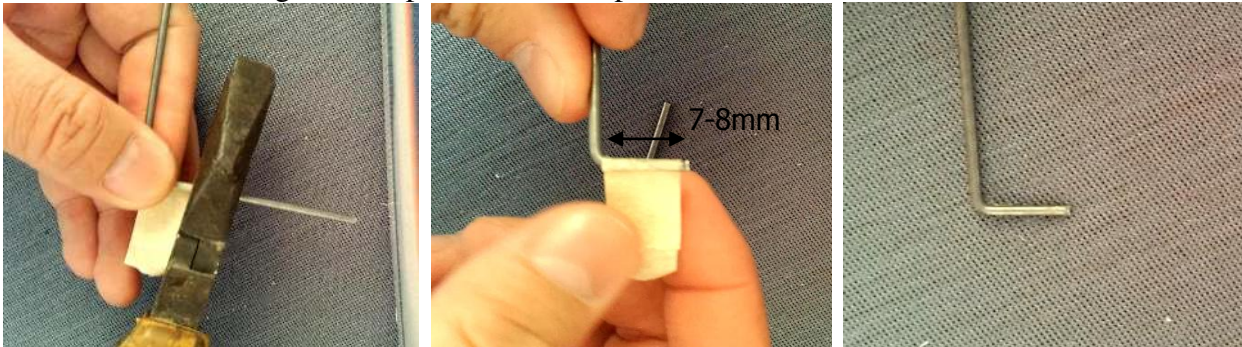
□ **step 8**

Take out the elevator push rod and use a pliers to bend the push rod to 90°, as the picture shown.



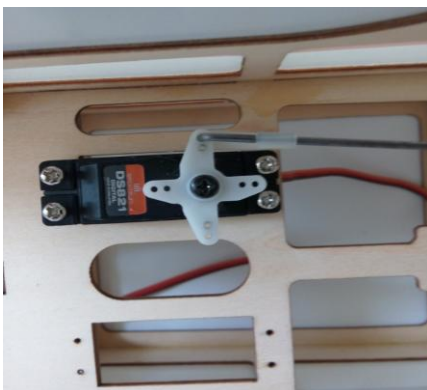
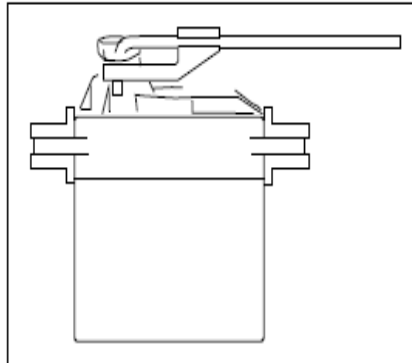
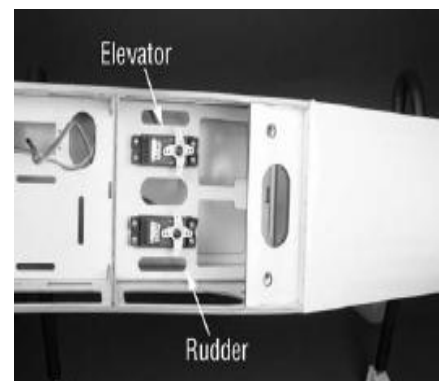
□ **step 9**

Cut the redundant length of the push rod, as the picture shown.



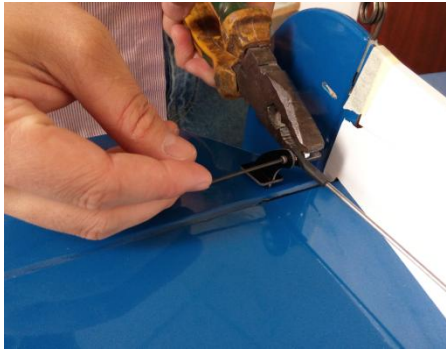
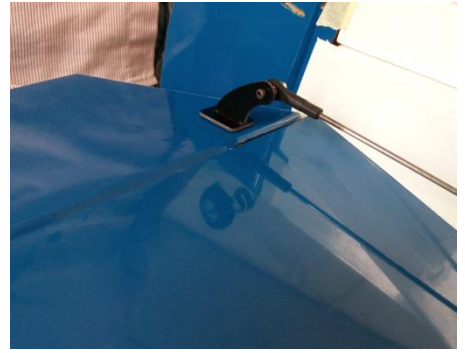
□ **step 10**

Install the elevator push rod into the push rod tube again, and use the Nylon Pushrod keeper to lock the push rod in the elevator horn.



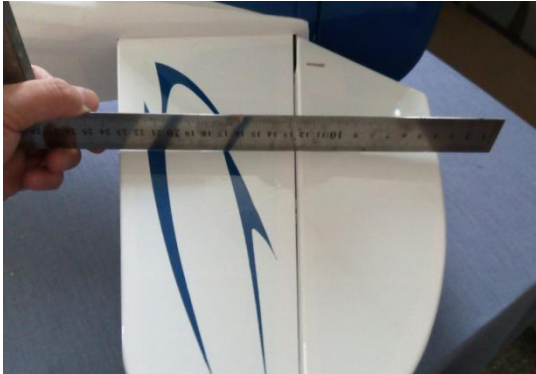
□ **step 11**

Up side down the fuselage and install the ball joint to the elevator push rod and the elevator, as the picture shown.



□ **step 12**

Keep the horizontal tail and the elevator in a level.



Section 6 – rudder servo & control horn installation

Required Parts

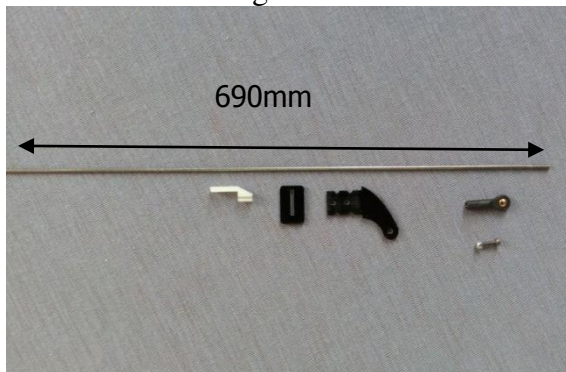
1 $\Phi 2 \times 690\text{mm}$ Pushrod (elevator) 1 Nylon Pushrod keeper
1 M2*10mm Socket Head Cap Screw 1 M2 Lock nut 1 Black Epoxy Horn with pedestal
1 Nylon ball joint

Tools and Adhesives

Socket head screw wrench 1.5mm Pliers 30min Epoxy Phillips screwdriver
Adhesive-Paper

□ step 1

Locate the following items included in the hardware pack.



□ step 2

Install the horn as per picture.



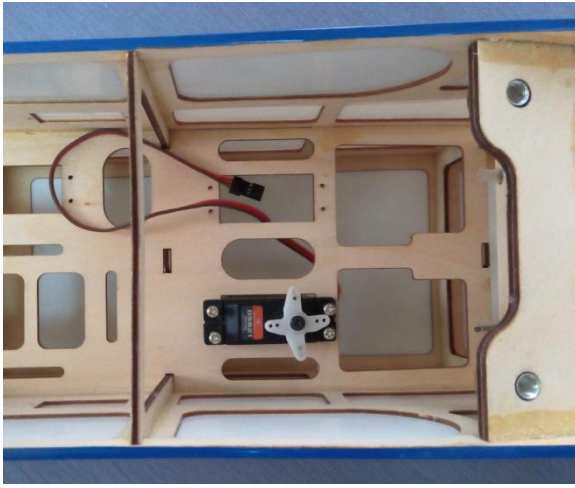
□ step 3

Install the horn into the right rudder right side, as the picture shown.



□ step 4

Install the rudder servo in the fuselage, as the picture shown.



□ **step 5**

Put rudder push rod(with screw thread side) through the rudder pushrod tube hole, reach the rudder horn position ,as picture shown.



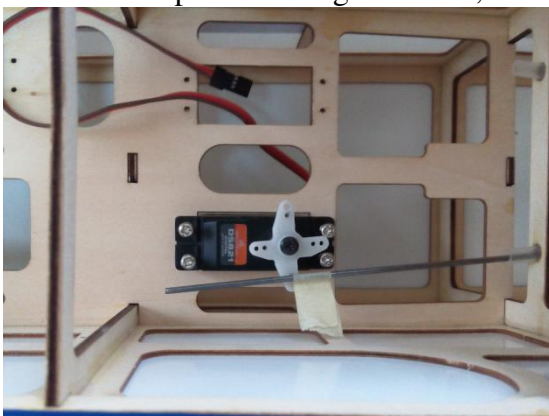
□ **step 6**

Use the nylon ball joint to proofread the distance between the rudder push rod and the horn, as picture shown.



□ **step7**

Calculate the push rod length in need, than make a remark on the servo side, as picture shown.



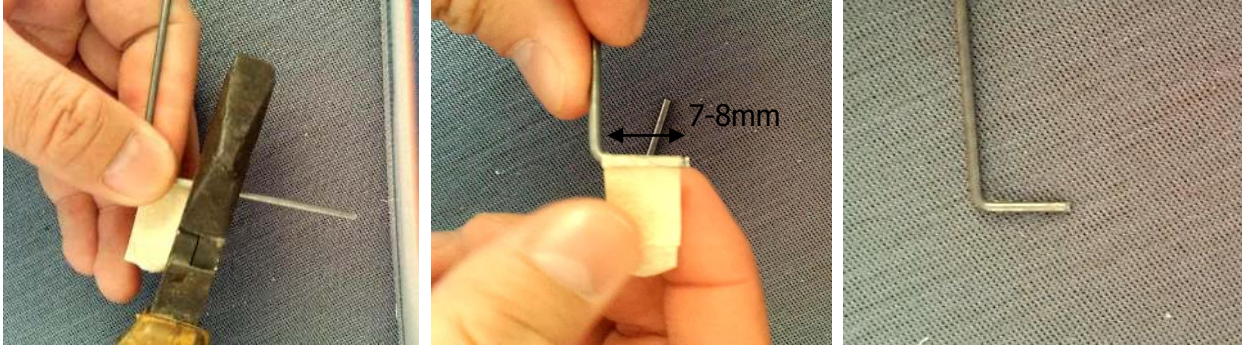
□ **step 8**

Take out the rudder push rod and use a pliers to bend the push rod to 90° , as the picture shown.



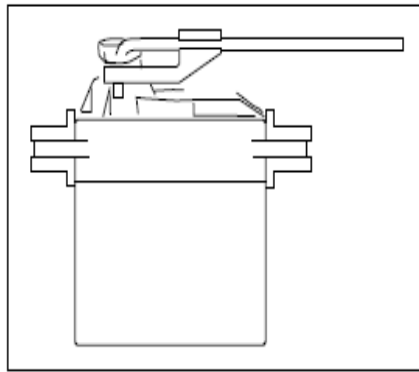
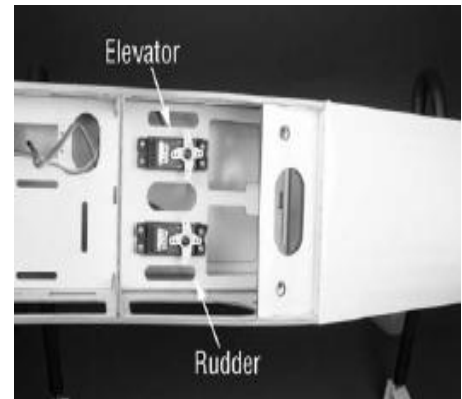
□ **step 9**

Cut the redundant length of the push rod, as the picture shown.



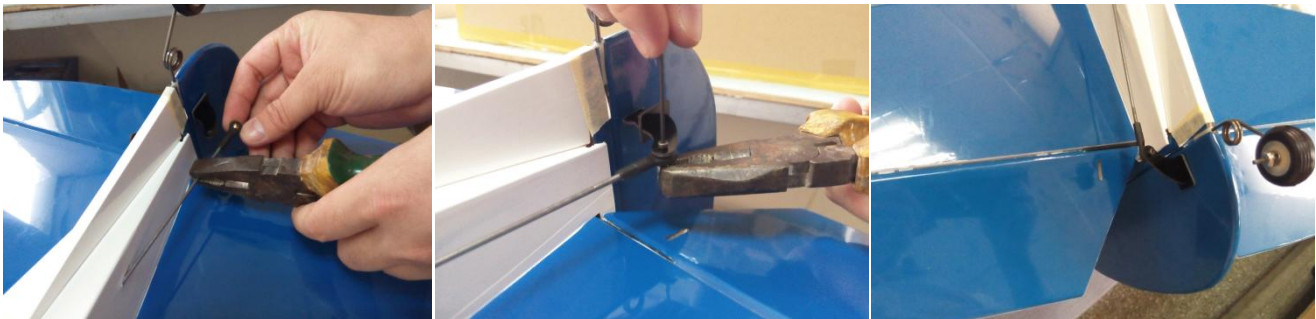
□ **step 10**

Install the rudder push rod into the push rod tube again, and use the Nylon Pushrod keeper to lock the push rod in the rudder servo horn.



□ **step 11**

Up side down the fuselage and install the ball joint to the rudder push rod and the rudder horn, as the picture shown.



Section 7 – landing gear & wheels installation

Required Parts

- 1 Aluminum Main Landing Gear
- 2 2.25" Pu wheel
- 2 Wheel Pants
- 2 $\Phi 4$ mm Wheel axle
- 4 $\Phi 4.1 \times 10$ mm Wheel Collars
- 4 M3*3mm Set Screw
- 3 M4*18 Socket Head Cap Screw
- 3 $\Phi 4.1$ mm Flat Washer
- 4 T2*8 self-tapping screw with washer

Tools and Adhesives

Phillips screwdriver Drill and drill bits 1.5mm Threadlock
Socket head screw wrench 1.5mm
Box wrench: 7/16-inch, 1/2-inch
Hex wrench or ball driver: 1.5mm 3mm

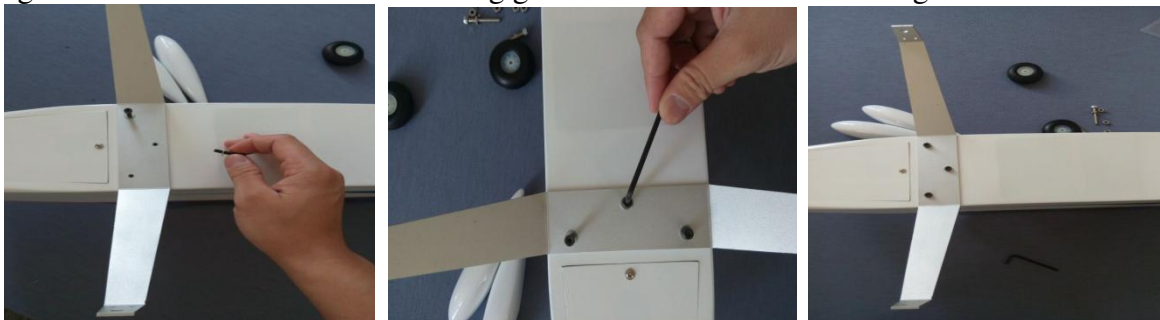
□ step 1

Locate the following items included in the hardware pack.



□ step 2

The main landing gear is mounted to the bottom of the fuselage using three M4*18 Socket Head Cap Screw and three $\Phi 4.1$ mm Flat Washer. Apply a drop of threadlock on each of the screws. Use a 3mm hex wrench to tighten the screws to secure the landing gear to the bottom of the fuselage.



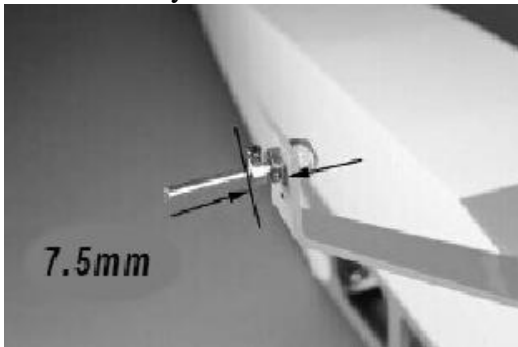
□□ step 3

Attach the wheel axle to the landing gear using a 7/16-inch box wrench (axle) and 1/2-inch box wrench (nut). Make sure the nut on the axle side aligns with the landing gear as shown in the photo so the wheel pant can be installed.



□□ step 4

Attach a $\Phi 4.1 \times 10\text{mm}$ Wheel Collars to the axle using a 3mm x 5mm set screw. Make sure to apply threadlock to the screw so it will not vibrate loose. Position the collar so it is 7.5mm from the landing gear as shown and use a #2 Phillips screwdriver to tighten the screw on the flat area of the axle. The position of the wheel may need to be fine-tuned in the last step of this section.



□□ step 5

Slide the wheel on the axle. Use a 5/32-inch wheel collar and a 3mm x 5mm machine screw to secure the collar. Make sure to position the collar so the wheel can rotate freely on the axle. Use a #2 Phillips screwdriver to tighten the screw on the flat area of the axle.



□□ step 6

Use a 1.5mm drill bit to drill two holes on the wheel pant, and then use Phillips screwdriver to drive the 2 T2*8mm self-tapping screw with washer in to the pant to retaining it.



□ step 7

Repeat steps 3 to 6 for the other side of the landing gear.



Section 8 – electric motor installation

□ step 1

Find the parts in the hardware pack.



□step 2

According the motor size to draw the holes position on the fire wall, as the picture shown.



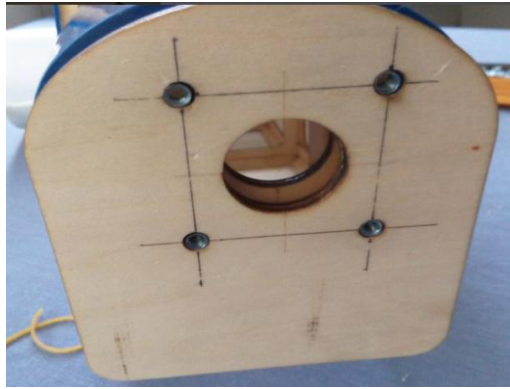
□step 3

Us a 5.5mm drill bit to dill four holes, as the picture shown.



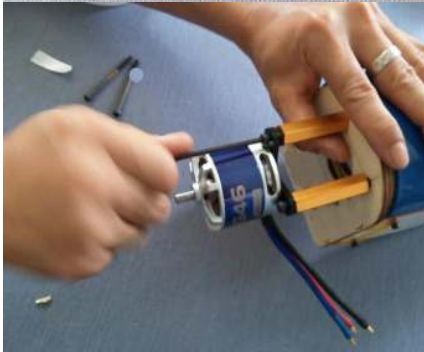
□step 4

Fix the four Blind Nuts into the four holes



□step 5

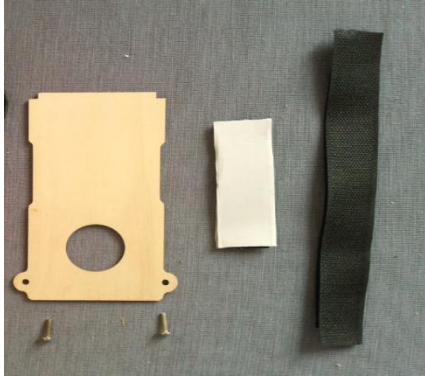
Use 3mm hex wrench or ball driver to install the motor on the fire wall, as the picture shown.



Section9 –electronic speed controller and his switch and battery installation

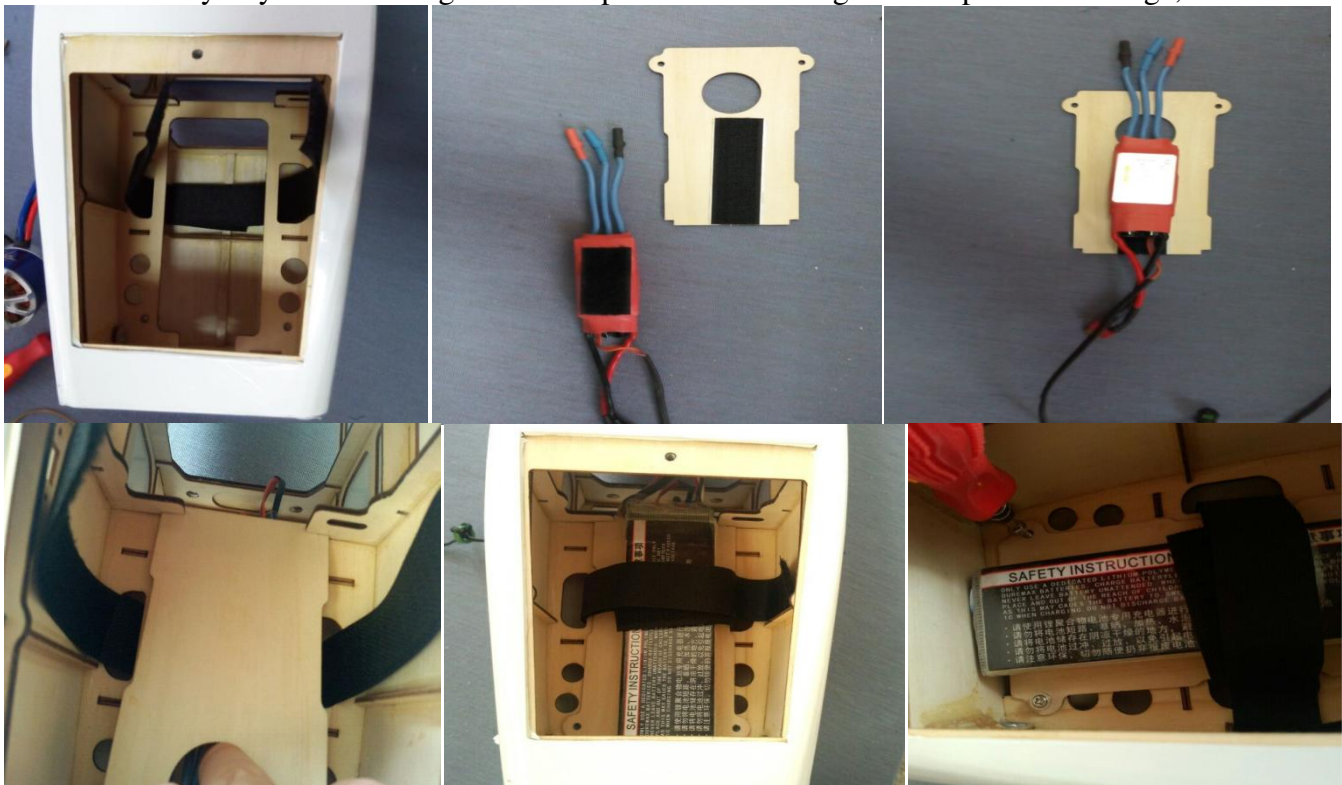
□step 1

Find the parts in the hardware pack, the ESC and battery need to buy.



□step4

Insert the battery tray in the fuselage with the speed control facing to the top of the fuselage,



□step5

Use a hobby knife to chip-off the cover of the switch position, as the picture shown.



□step6

After install the electronic speed controller and switch and battery, install the cover plate, as the picture shown.



Section 10 – cowl installation

□□step 1

Apply a piece of masking tape on the line where you have to make the holes for the cowl fixing screws, then 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 3mm drill bit.



□□step 3

Attach the cowl using the four M3*10mm self-tapping screws with shoulder washer, included in hardware pack, with a Phillips screwdriver.



□step 4

Fix carefully the prop and the spinner as per picture.



Section 11 – final radio installation

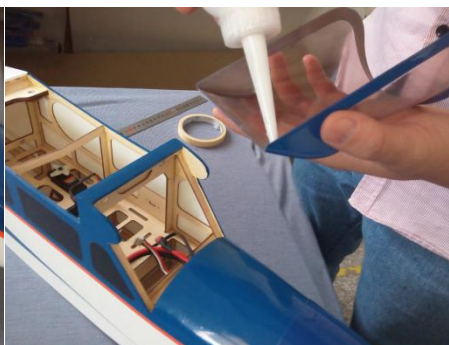
Install the receiver, as the picture shown.



Section 12 – window installation

□step1

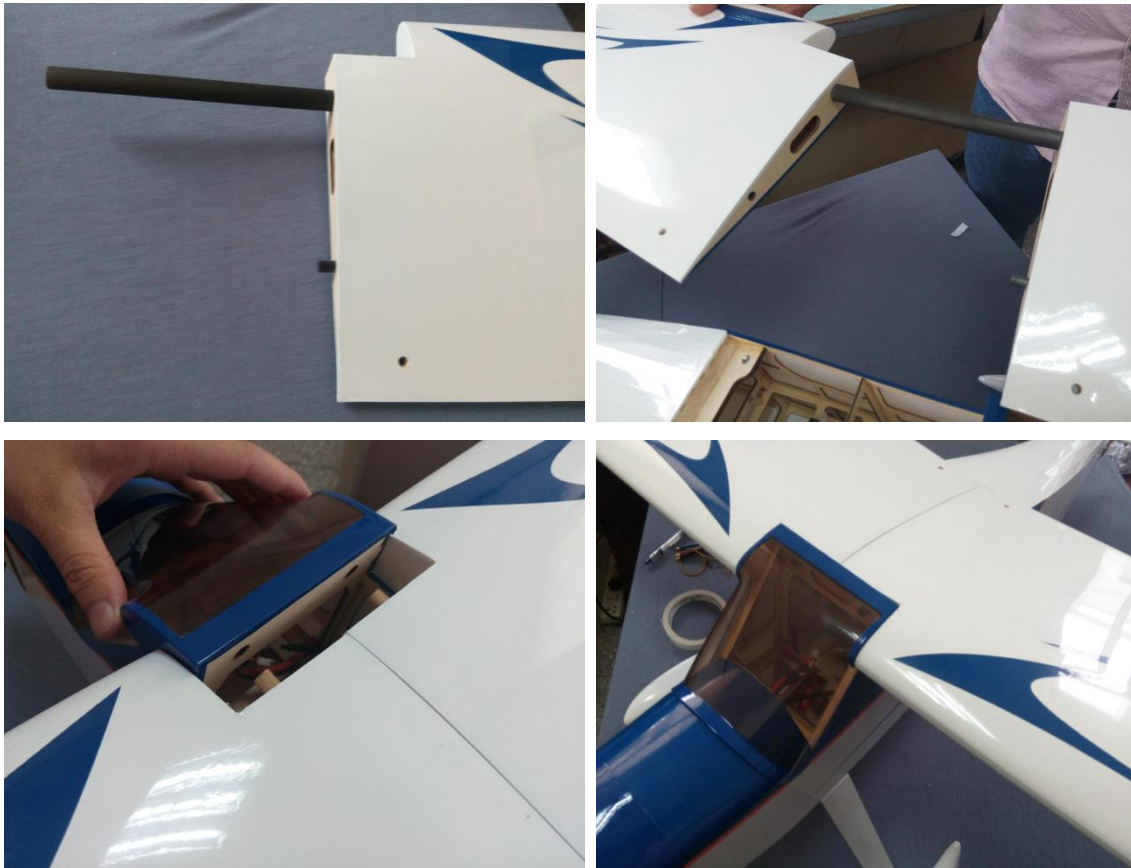
Apply some glass sealant on the window edge, and fix it on the fuselage wait the sealant to dry, as picture shown.



Section 13 – wings installation

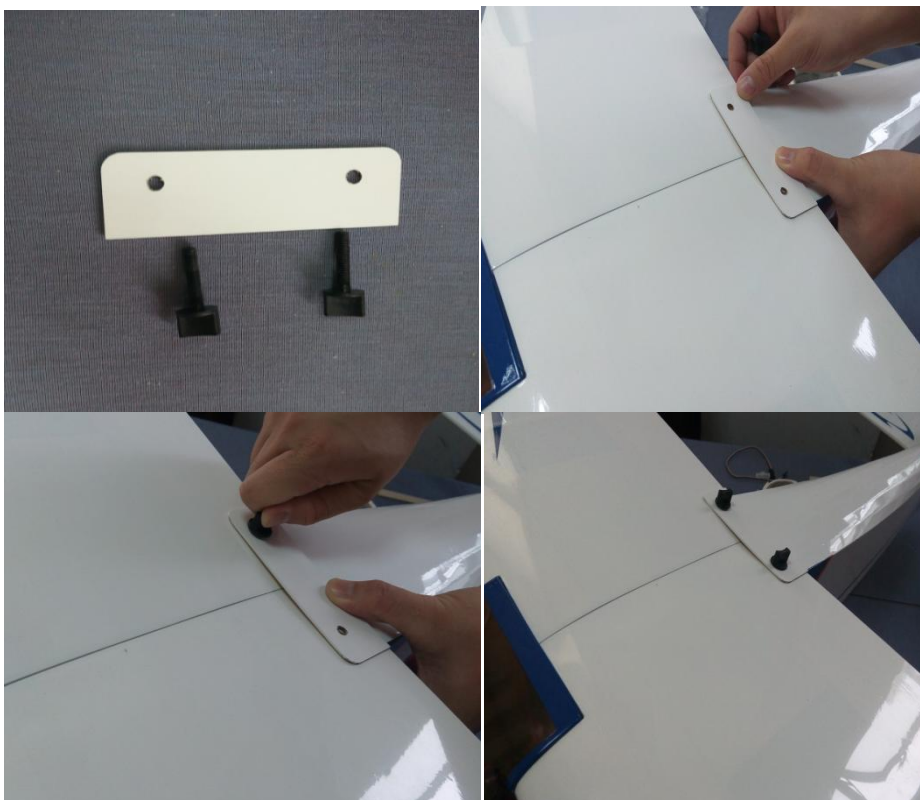
□step1

Install the carbon fiber tube into the main wing, as the picture shown.



□step2

Find the part in the hardware pack to retaining the wing, as picture shown.



Control Throws

☐ Step 1

Turn on the transmitter and receiver of your model. Check the movement of the rudder using the transmitter. When the stick is moved right, the rudder should also move right. Reverse the direction of the servo at the transmitter if necessary.

☐ Step 2

Check the movement of the elevator with the radio system. Moving the elevator stick toward the bottom of the transmitter will make the airplane elevator move up.

☐ Step 3

Check the movement of the ailerons with the radio system. Moving the aileron stick right will make the right aileron move up and the left aileron move down.

☐ Step 4

Use a ruler to adjust the throw of the elevator, ailerons and rudder.

Aileron High Rate

Up	1-inch	(25mm)	23 Degrees
Down	1-inch	(25mm)	23 Degrees

Aileron Low Rate

Up	5/8-inch	(16mm)	14 Degrees
Down	5/8-inch	(16mm)	14 Degrees

Elevator High Rate

Up	1 3/8-inch	(35mm)	21 Degrees
Down	1 3/8-inch	(35mm)	21 Degrees

Elevator Low Rate

Up	7/8-inch	(22mm)	14 Degrees
Down	7/8-inch	(22mm)	14 Degrees

Rudder High Rate

Left	1 1/2-inch	(38mm)	25 Degrees
Right	1 1/2-inch	(38mm)	25 Degrees

Rudder Low Rate

Left	1-inch	(25mm)	17 Degrees
Right	1-inch	(25mm)	17 Degrees

Note: Measurements are taken at the widest point on the control surface. These are general guidelines measured from our own flight tests. You can experiment with higher or lower rates to match your preferred style of flying.

Note: Travel Adjust, Sub Trim and Dual Rates are not listed and should be adjusted according to each individual model and preference.

Rates and expos

Use the recommended expos to soften the feel of the model, especially 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.

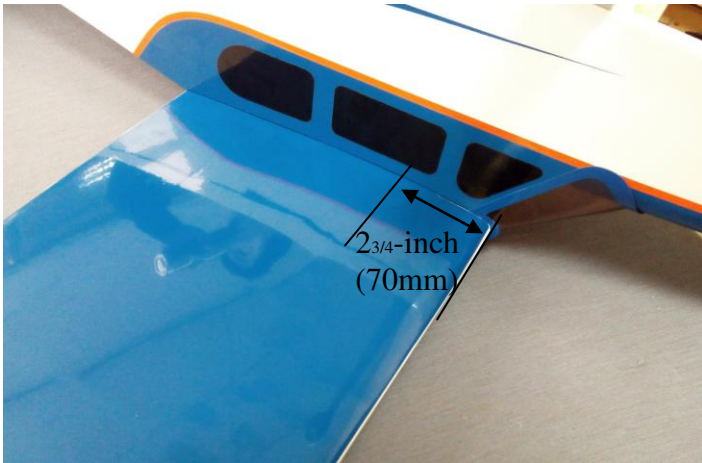
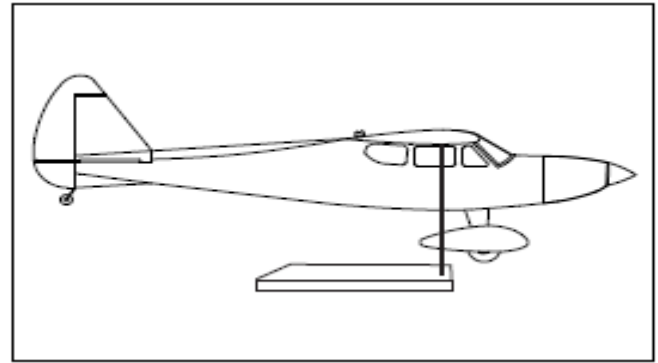
Center of Gravity(CG)

An important part of preparing the aircraft for flight is properly balancing the model.

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (CG) location for the your model is 2 3/4-inch (70mm) back, or 25% of the chord, from the leading edge of the wing. Mark the location for the Center of Gravity on the bottom of the wing next to the fuselage as shown. The CG range for your model is 2 1/2 to 3 inches (64mm to 76mm) from the leading edge of the wing. When balancing your model, support the plane upright at the marks made on the bottom of the wing with your fingers or a commercially available balancing stand. This is the correct

balance point for your model. You might find you may be required to add a small amount of weight to either the front or back of the fuselage to achieve the correct balance.



After the first flights, the CG position can be adjusted for your personal preference.

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 and that your radio is fully charged as per its instructions.

Age requirements

Age Recommendation: 14 years or over. This is not a toy. This product is not intended for use by children without direct adult supervision.

Safety, Precautions and Warnings

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.

This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is necessary to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions or injury.

- Always operate your model in an open area away from cars, traffic or people.
- Avoid operating your model in the street where injury or damage can occur.
- Never operate the model out into the street or populated areas for any reason.
- Never operate your model with low transmitter batteries.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.
- Keep all chemicals, small parts and anything electrical out of the reach of children.
- Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.

Finally...

enjoy your flight!