FMS

PITTS

Perfect Appearance Excellent Performance

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OPERATING MANUAL

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WARNING

⚠ WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product and NOT a toy. It must be operated with caution and common sense and enquires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision.

This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Safety Precautions and Warnings

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others. This model is controlled by a radio signal subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance in all directions around your model, as this margin will help avoid collisions or injury.

Age Recommendation: Not for children under 14years. This is not a toy.

- Never operate your model with low transmitter batteries.
- 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 in the street or in populated areas for any reason.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) 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.
- Never lick or place any portion of your model in your mouth as it could cause serious injury or even death.

FMS Kindly Reminder

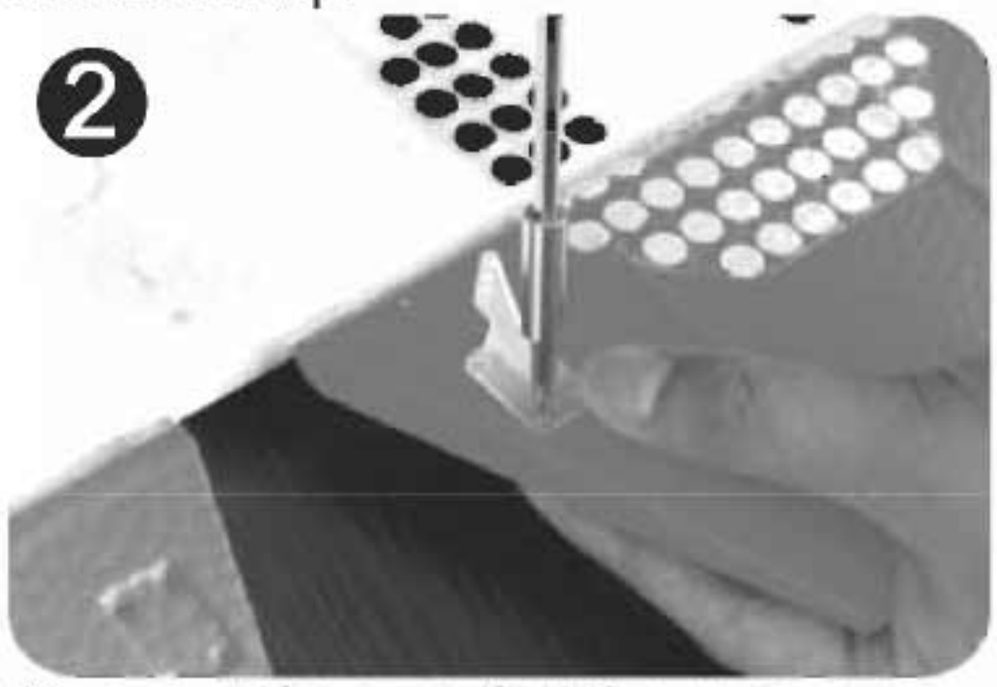
Thank you for your great attention and support to our company.

If there is any problem regarding the plane, or any suggestion on our products, such as manual, package, color scheme, even structure, please feel free to contact us at info@fmsmodel.com

Installing the control horn

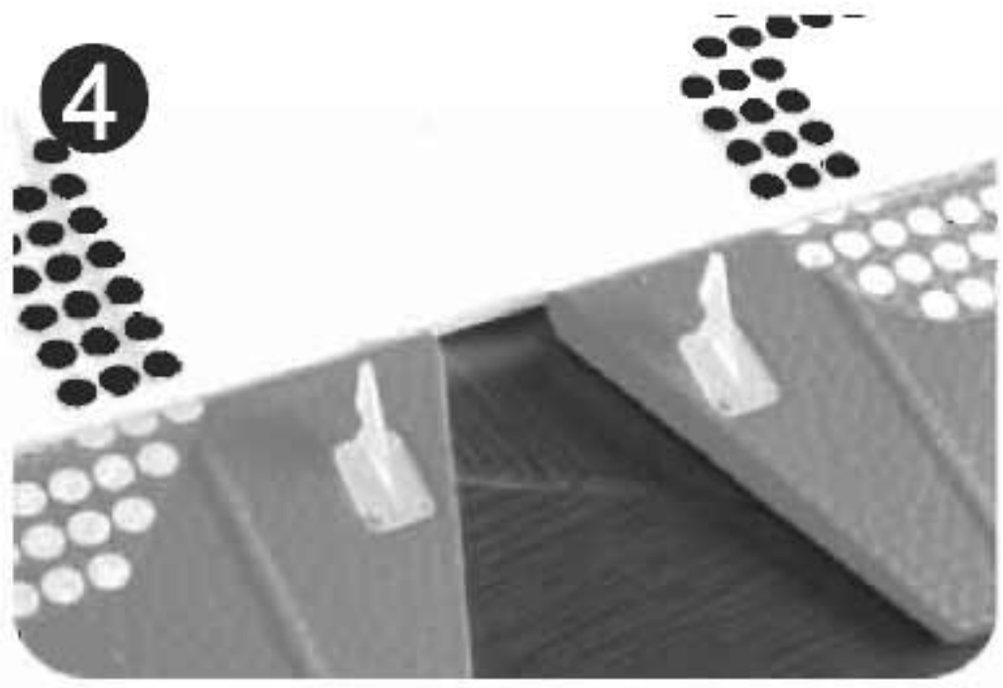
1. The plastic control surface horns for the rudder and elevator are stapled to the bags containing the rudder and elevator, do not to accidentally discard them.

2. Install the elevator control surface horns with the screws provided in the small plastic bag on the bottom of the elevator surface, the side with a slide slot is the top.



3. Always make sure that the screws are seated into the back plates of the control horns.
It is very important that these are tight during flight.

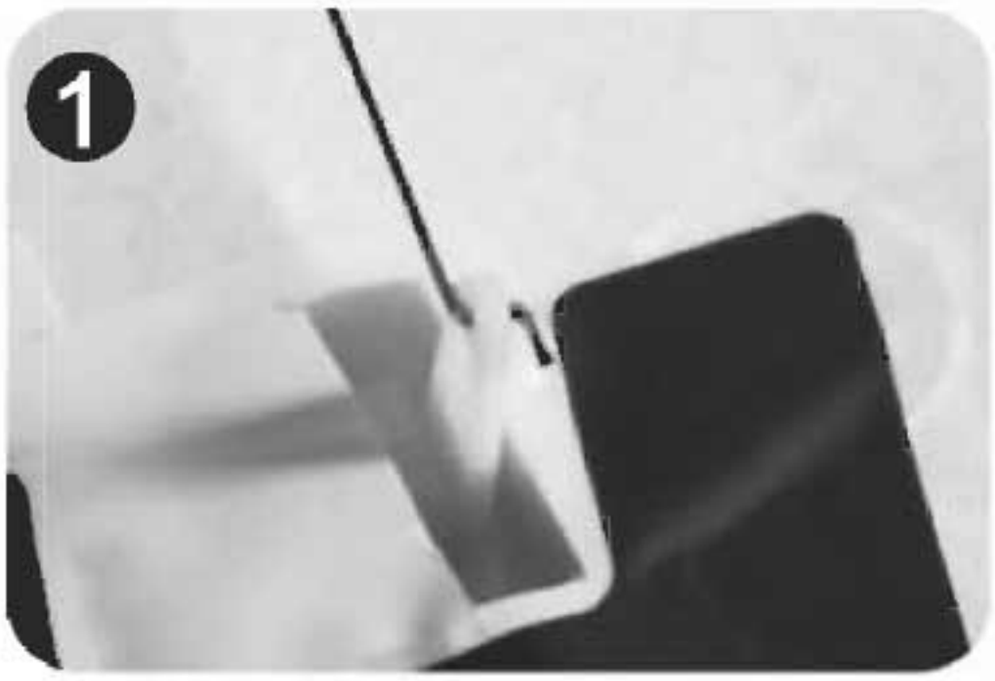
4. Make sure the control surface horn is facing the proper direction before installing for the most deflection.



5. Now attach the aileron surface control horn onto the bottom of the lower main-wing half.

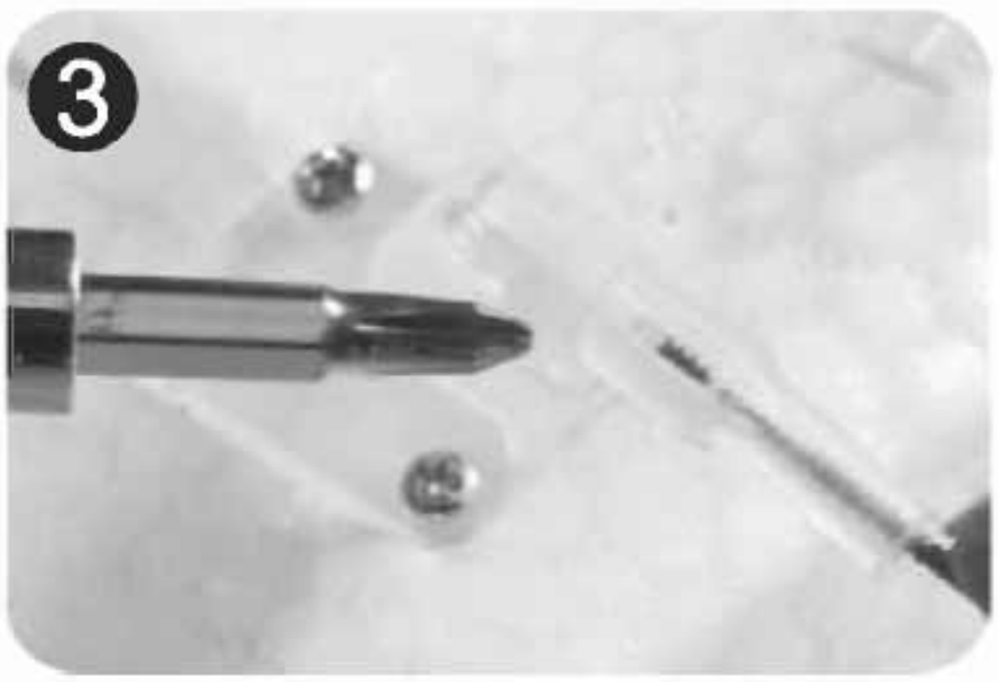
Building the main wing

1. Put the Z-bend end of the linkage into the desired servo control horn hole. It is a tight fit and should allow the linkage to move just slightly within the hole to avoid binding up.

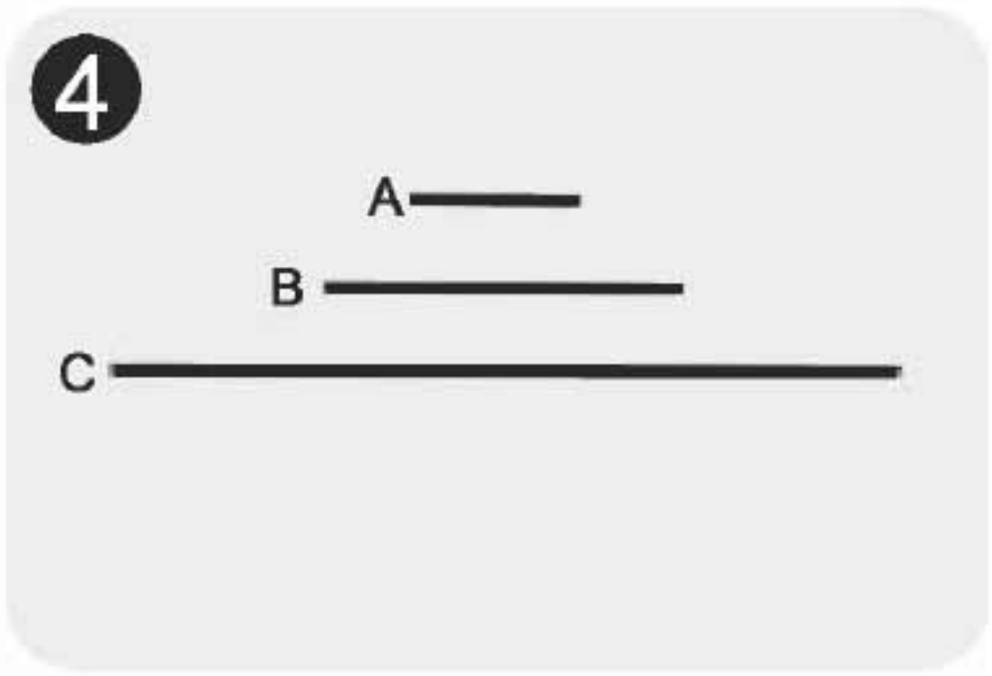


2. Snap the clevis into the surface control horn.

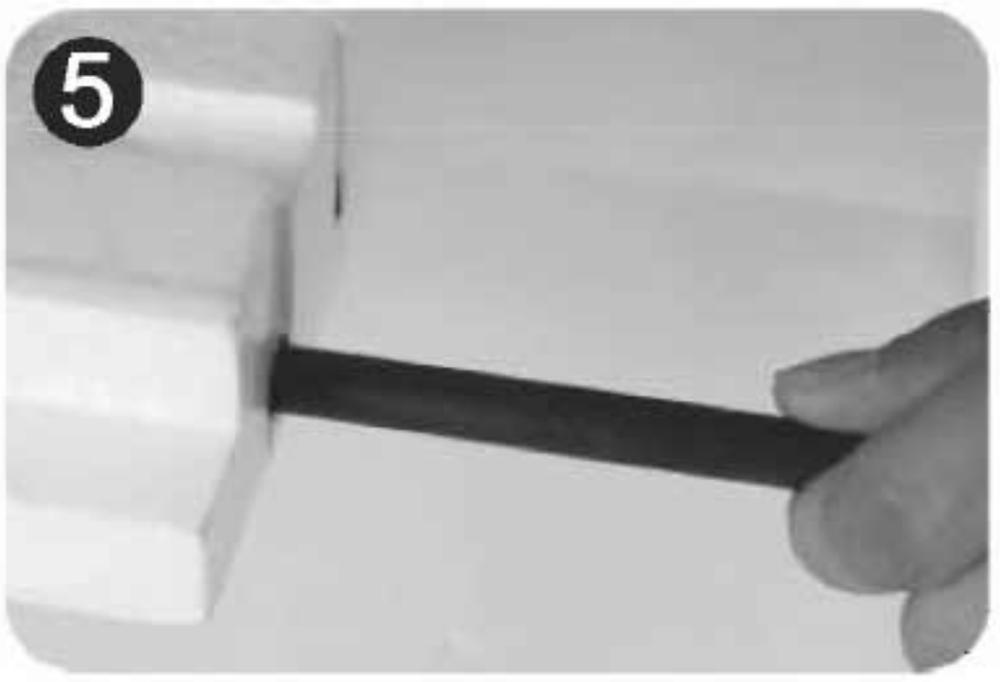
3. The provided piece of fuel tubing keeps the clevis closed during flight. Do all the linkages the same way.



4. There are three glass fiber tubes in different lengths for the main wing connection.
   A: Short tube
   B: Intermediate tube
   C: Long tube

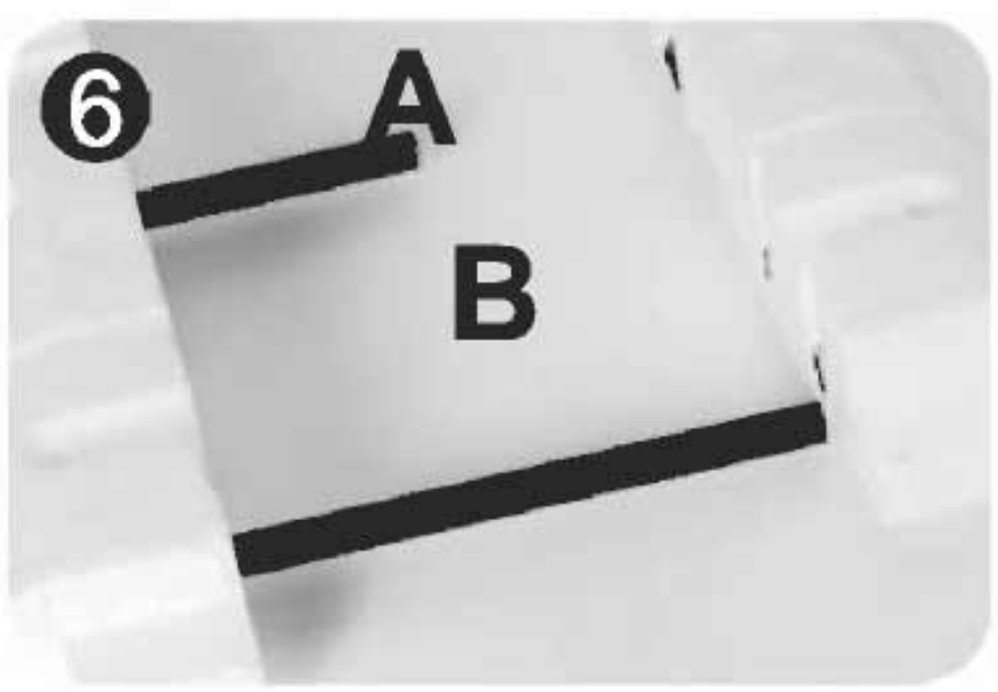


5. When sliding the tubes into the wings, they should go in easily. Do not push them farther than they will go with little resistance. That would push the wing tubes into the foam of the wing and possibly prevent them from fully inserting into the opposite wing half.

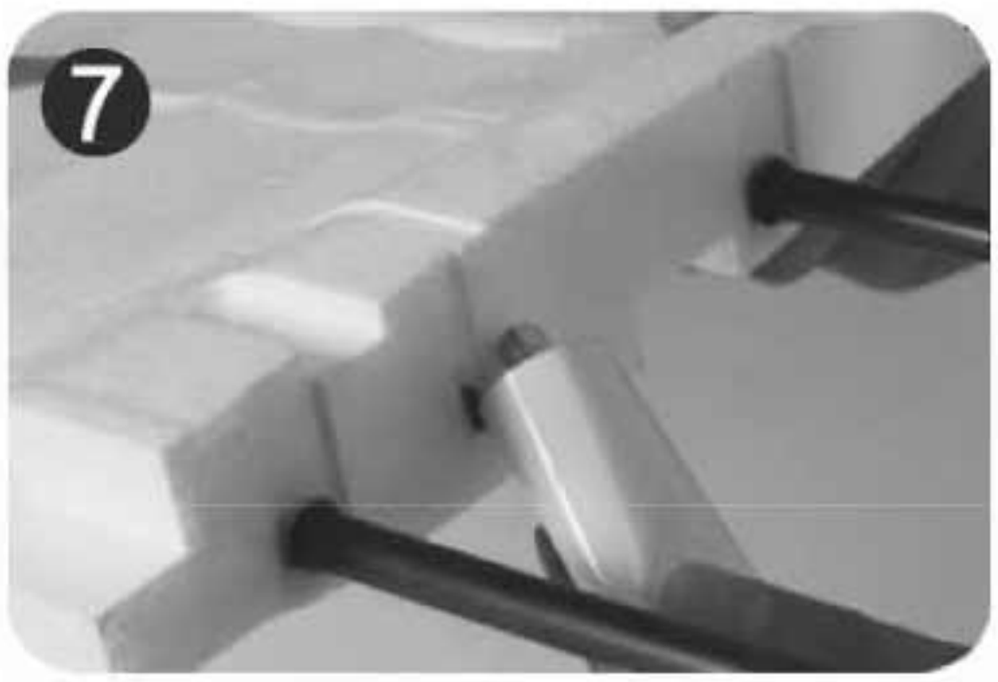


Building the main wing

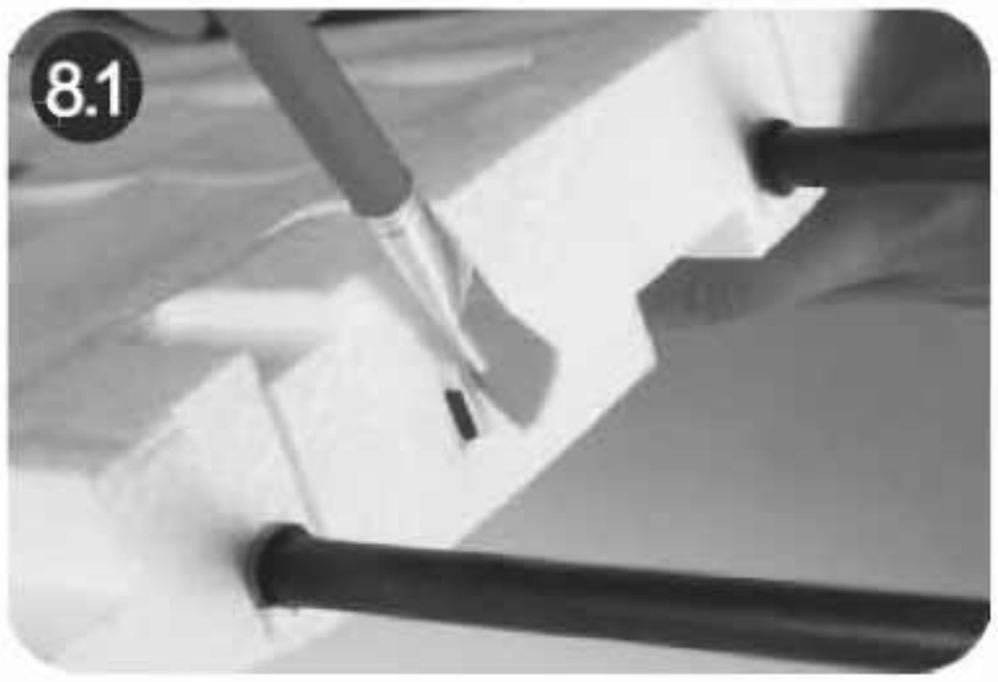
6. Use tubes **A&B** to connect the two lower wing halves. Tube **A is used for** the trailing edge (aft), tube B is used for the leading edge (front) of the wing.

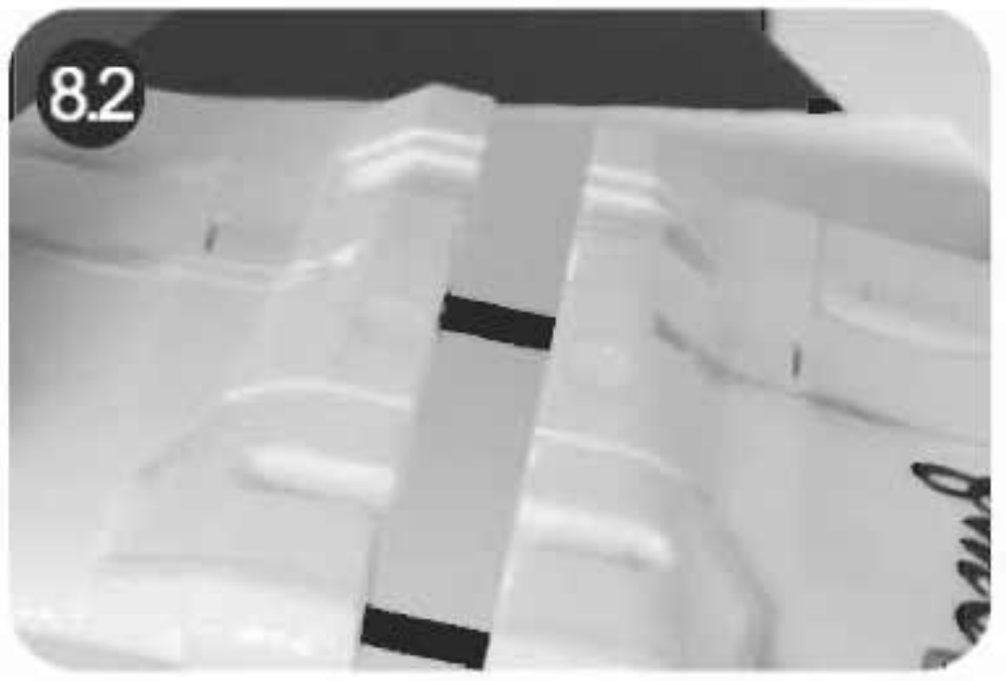


7. Use a brush or spackle to apply a thin coat of glue where the two wing halves fit together.

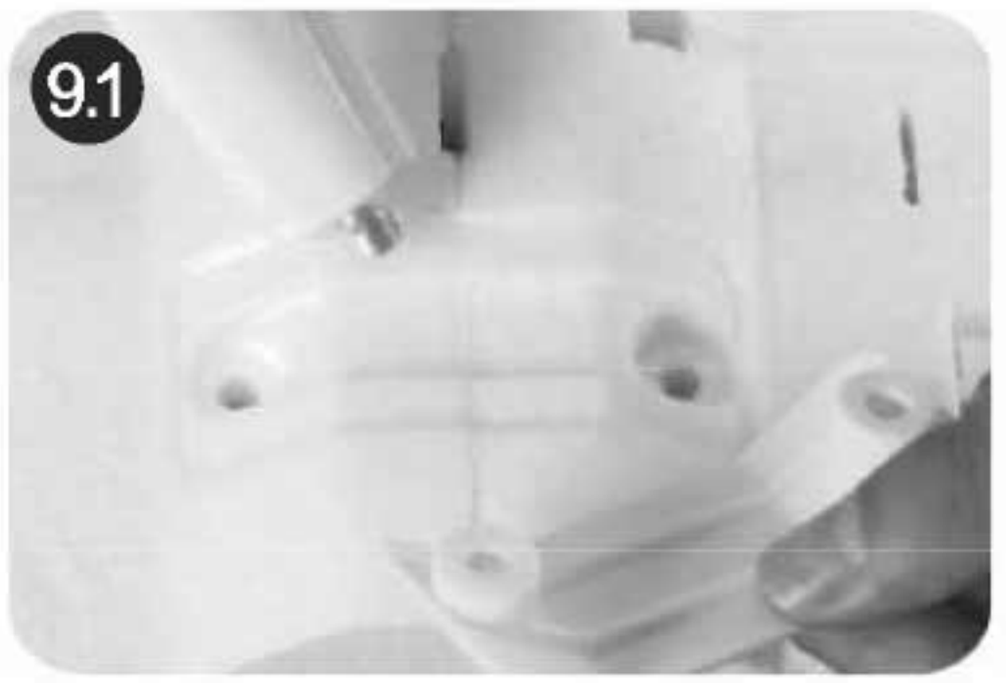


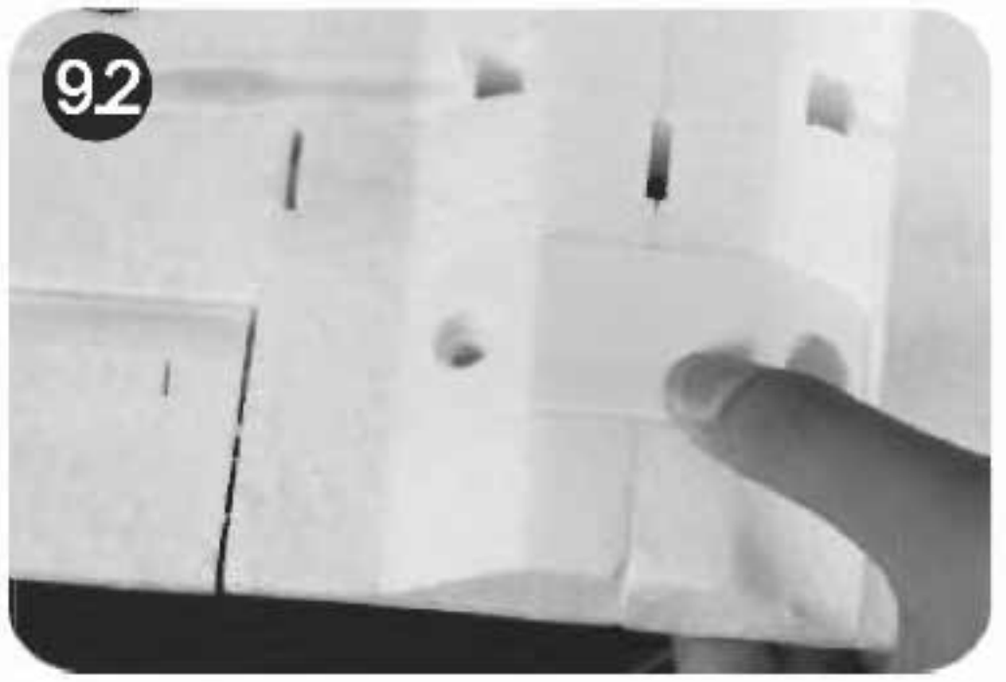
8. Let the glue dry off for about 5 minutes, then connect the two wing halves. Make sure that there is no gap in between them.





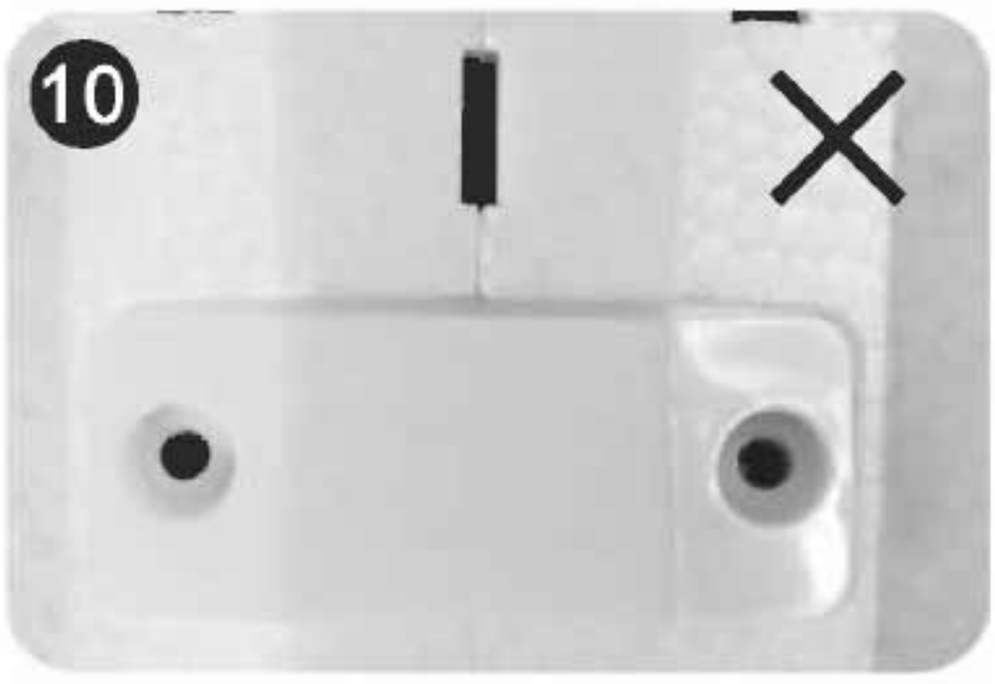
9. Use a small amount of glue to attach the rear lower wing bolt plate.
Make sure that you place the plate into the notch correctly.
The plate only fits right in one direction.
Refer to pictures 10&11 for the right placement.



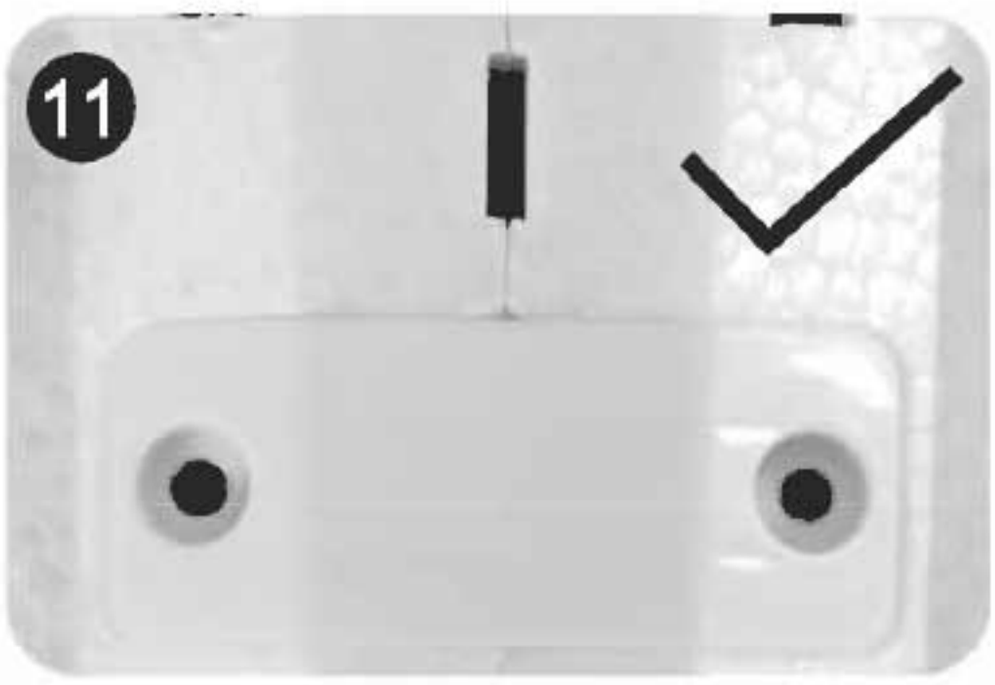


Building the main wing

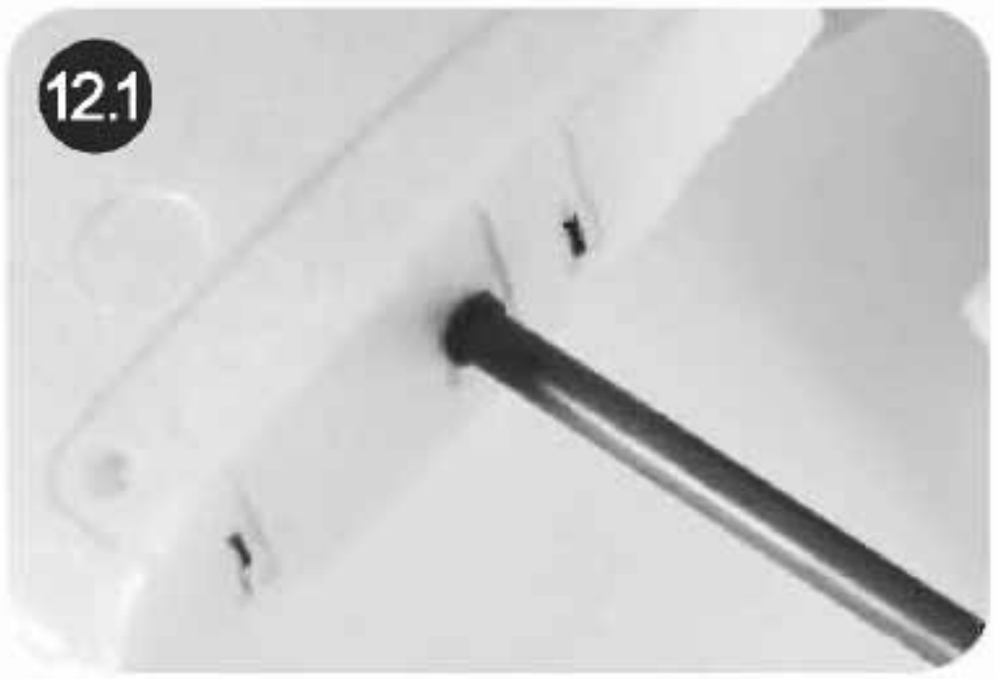
10. Plate mounted the wrong way round. Note that one side of the plate is wider than the other and the plate will not fit into the notch if you try to mount it as shown in the picture.

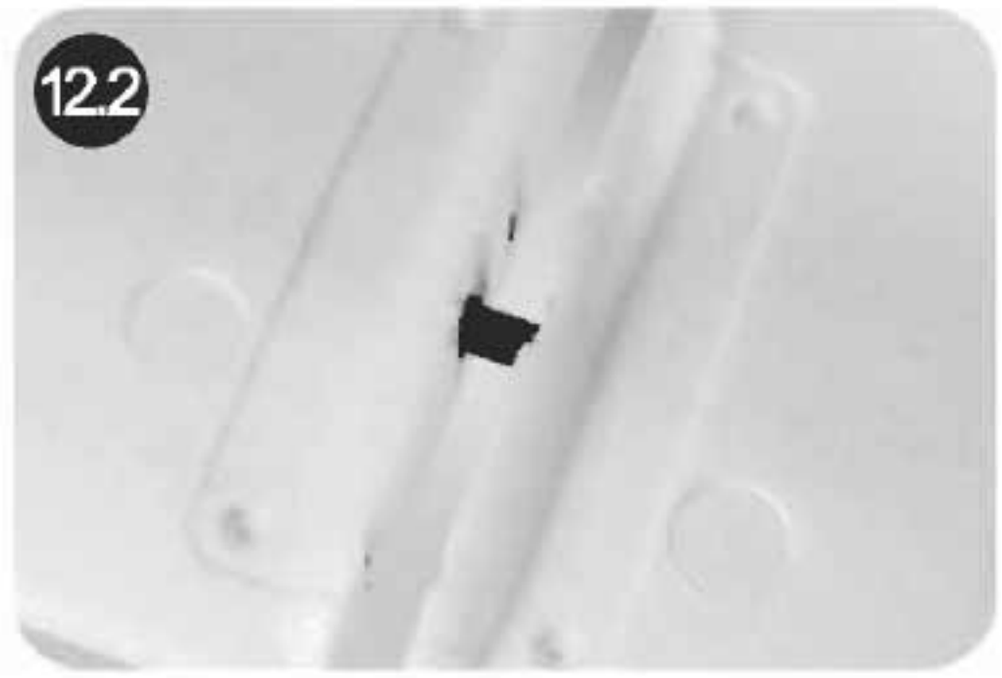


11. This is how the plate should be mounted.



12. Repeat steps 6-8 for the top wing. Use tube C instead of A&B to connect the two wing halves.

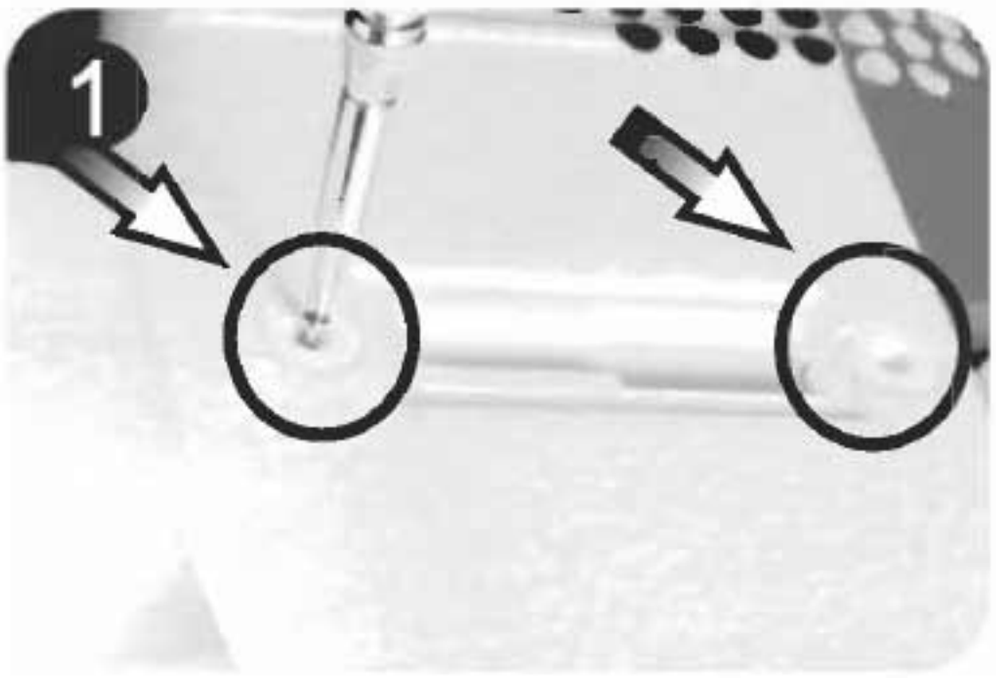




13. Use a small amount of glue to secure the upper wing bolt plates.
There is no difference in between these two plates and they can be mounted either way.

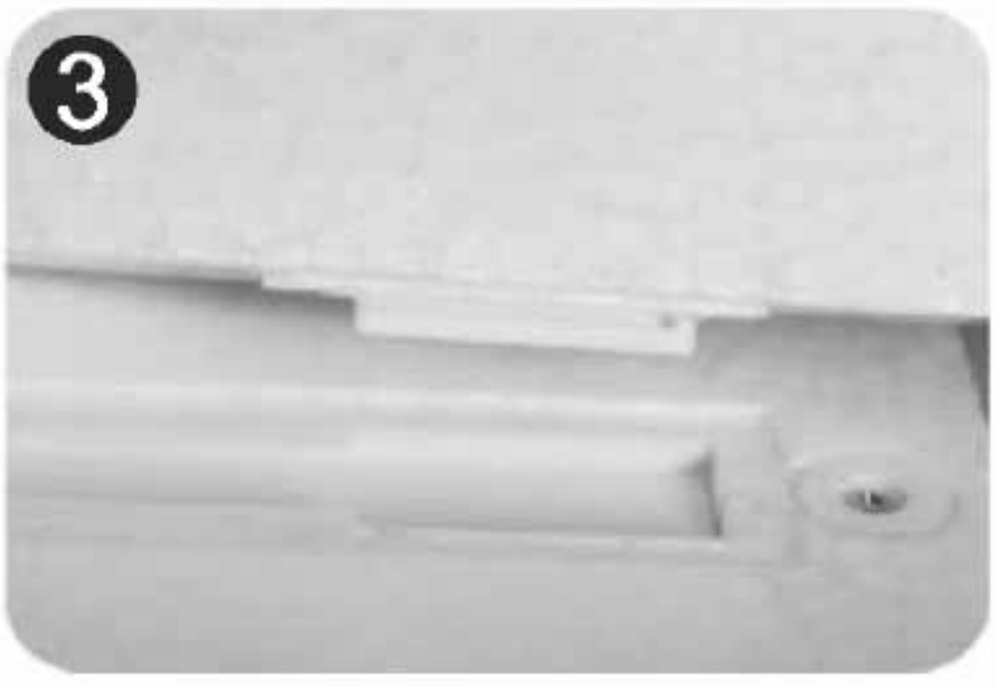
Installing the elevator and rudder to the fuselage

1. Install the stabilizer to the aft part of the fuselage and make sure that the notch faces up. (Screws: PA 2.6x35, 2PCS)

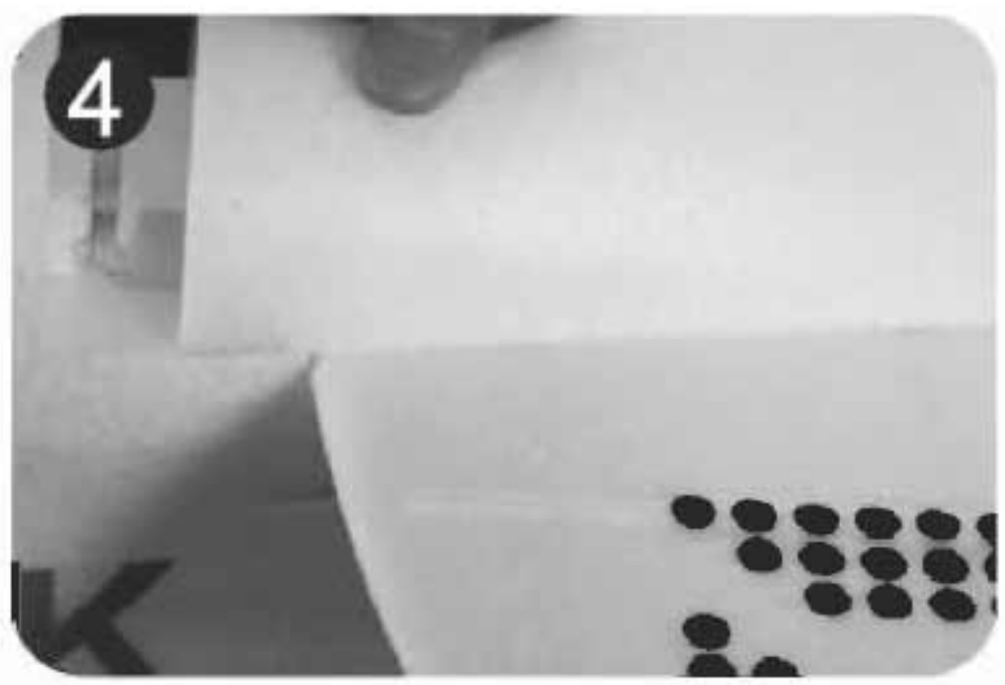


2. Make sure the centerline of the stabilizer aligns with the centerline of the fuselage.

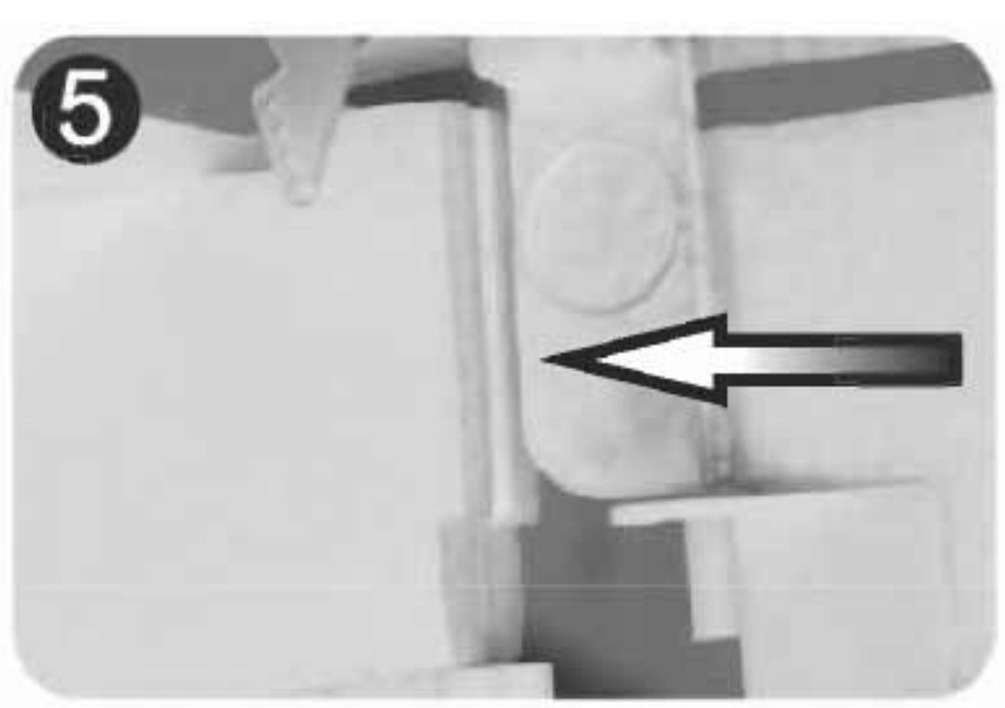
3. Insert the protrusion on the lower part of the rudder into the notch on top of the stabilizer.



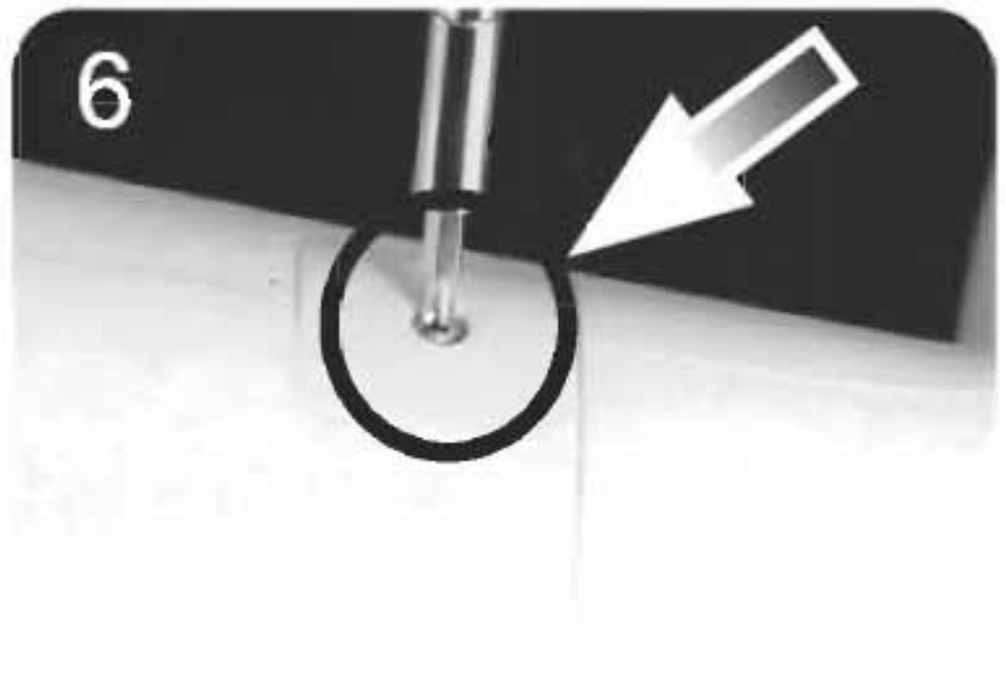
4. Make sure there is no gap in between the rudder and the stabilizer.



5. Apply a thin coat of glue on both sides of the rudder hinge and slide the rudder forward into place.

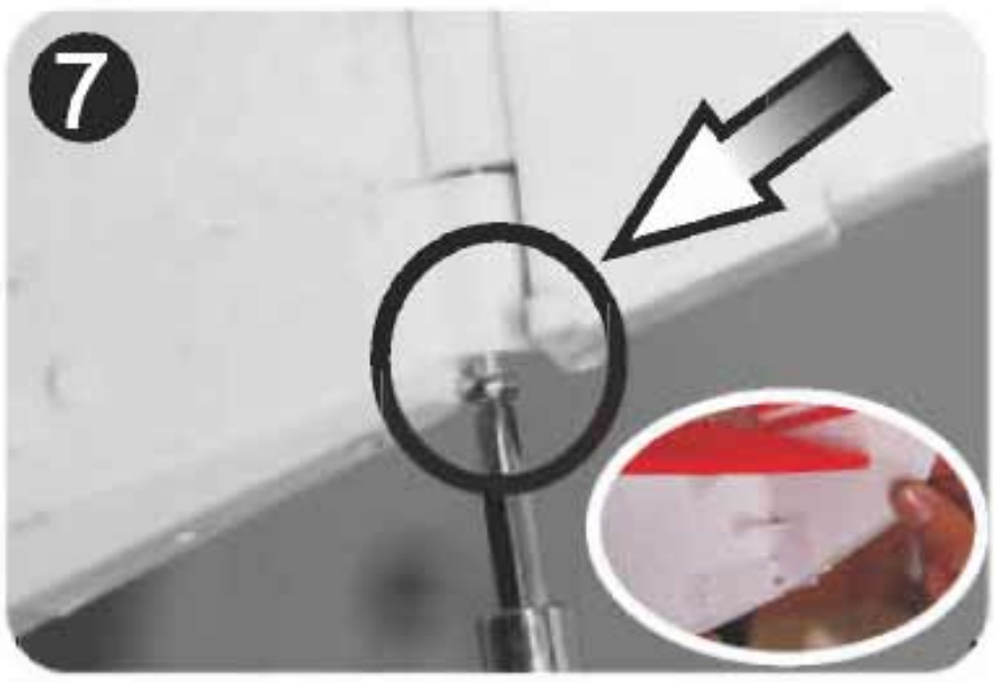


6. After fitting the rudder into place properly, use the provided machine screw to attach the front part of the rudder fin to the fuselage.
(Screw: PA2.6x35, 1PC)



Installing the elevator and rudder to the fuselage

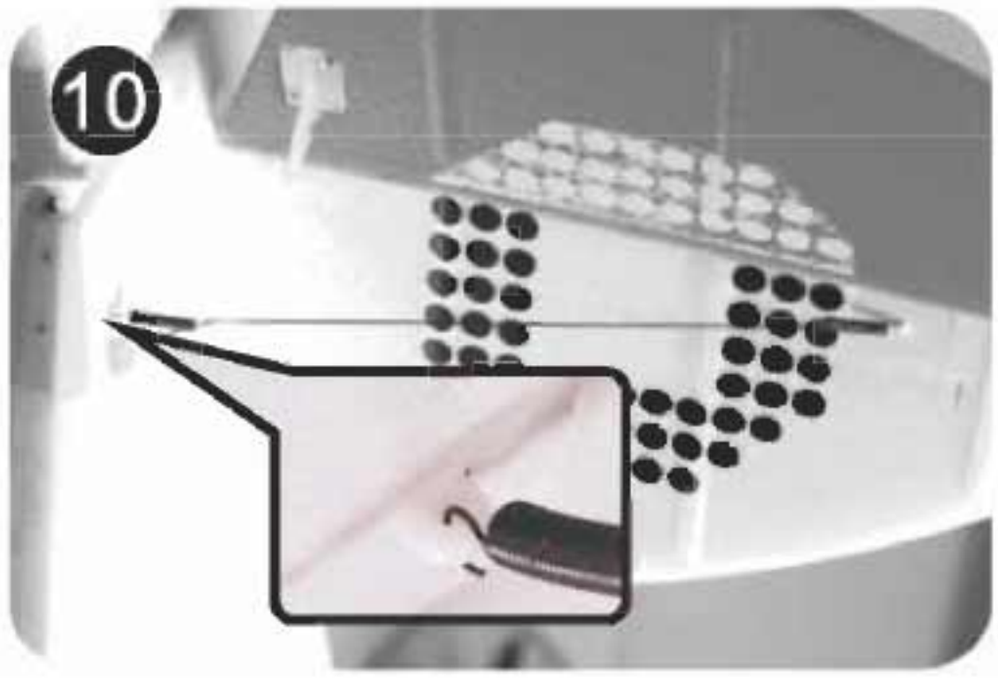
7. Use the provided machine screw to lock the rudder hinge. Make sure to not secure the screw too tight as so it does not affect the movement of the rudder. Wiggle the rudder control surface several times to make sure that there is no excessive drag which might prevent the surface from moving freely. (Screw: PM3.0x30, 1pc)



8. Snap the elevator support rods into place. There are two rods in the kit, one for each side.

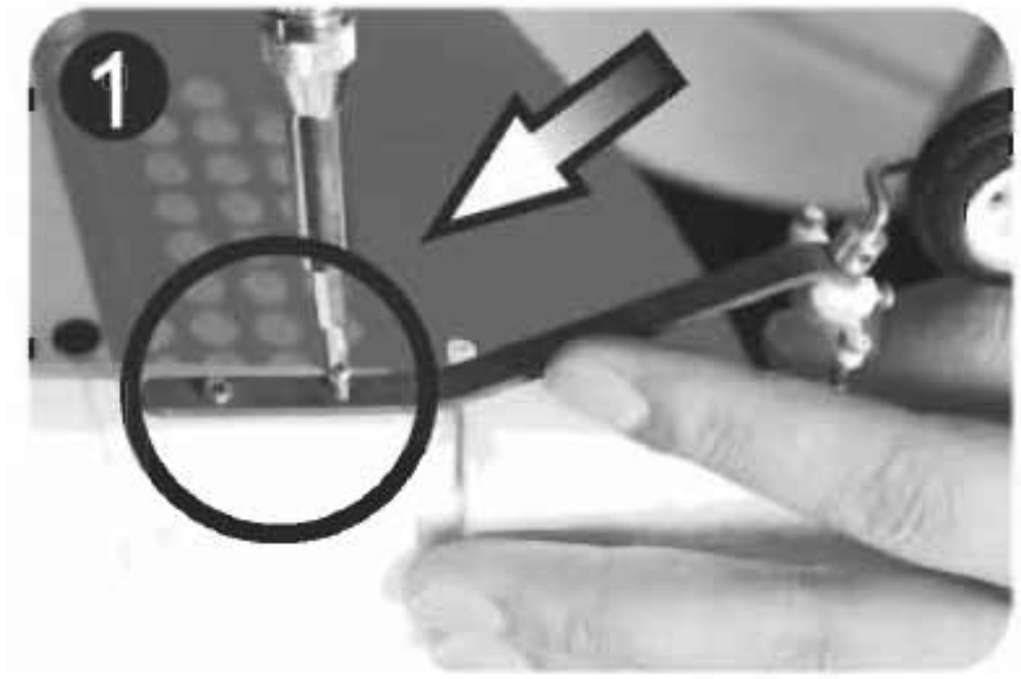
9. Make sure to install the rods on their designated sides.

10. To install the nylon string, cut it to the right length and knot it to the spring. Then hook the spring into place as illustrated in the picture. Repeat for both sides of the rudder.

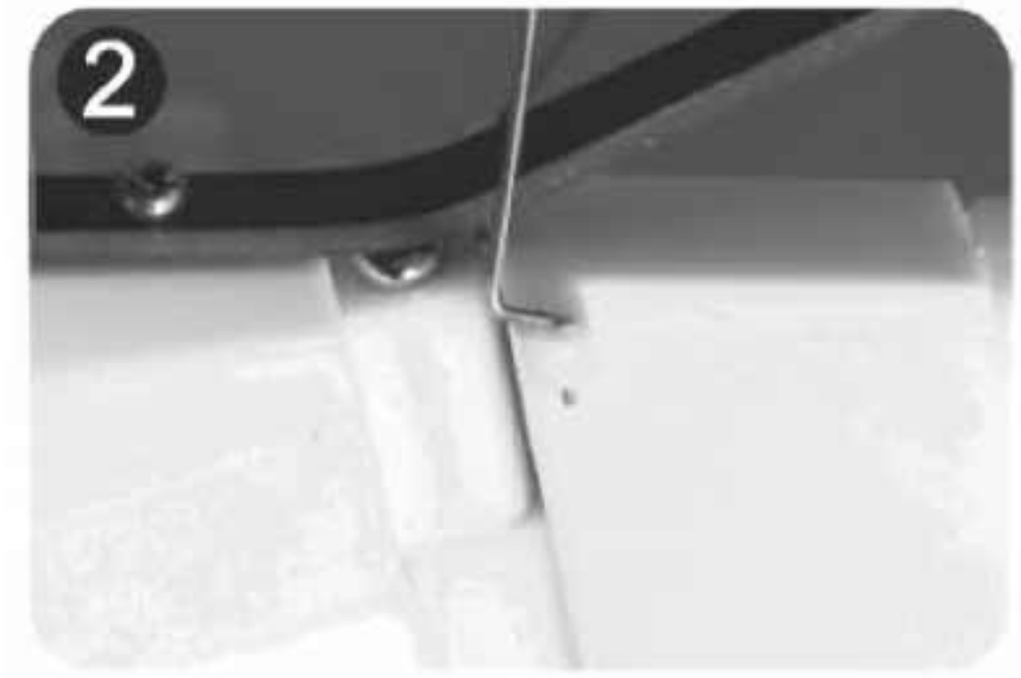


Installing the tail wheel assembly

1. Install the rear landing gear with the provided self tapping screw. (Screw: PA 2.6x15, 2PCS)

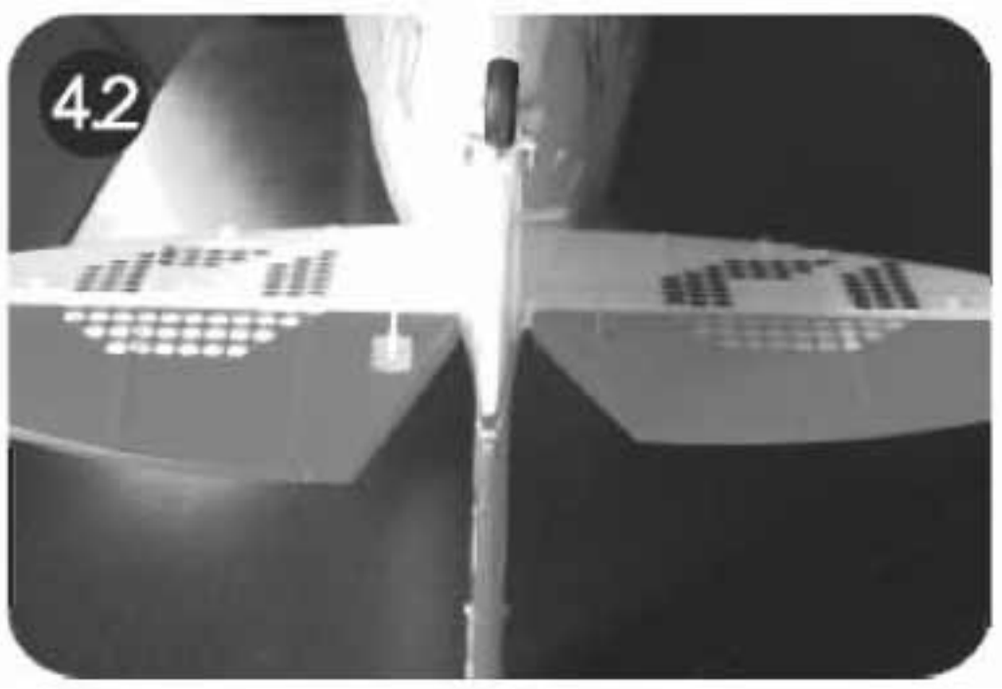


2. Insert the Z-bend ends of the provided linkage rods into the bellcrank on the rudder.



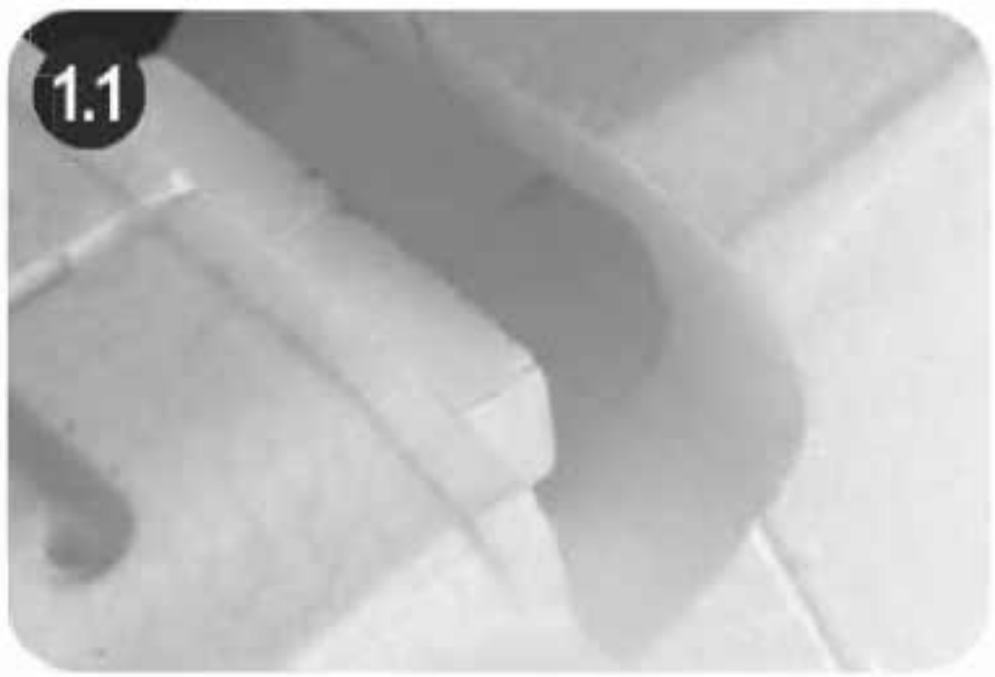
3. Next, insert the other ends of the linkage rods into the control connectors that are attached to the tail wheel steering control horns.

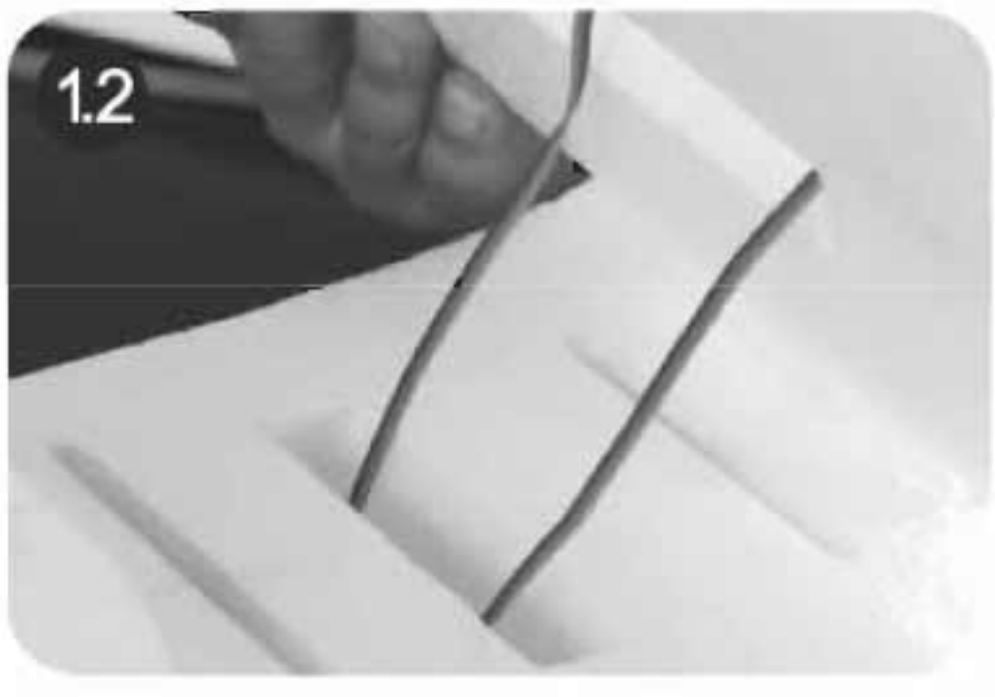
4. Align the tail wheel with the rudder as shown in the picture. Use a screwdriver to tighten the control connectors.



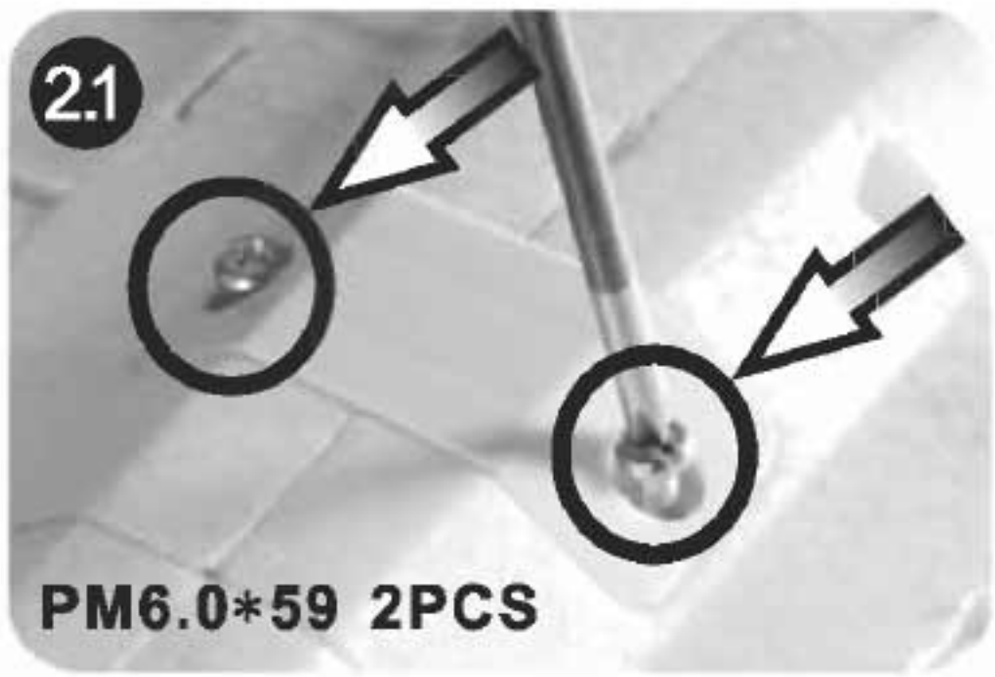
Mount the lower wing to the fuselage

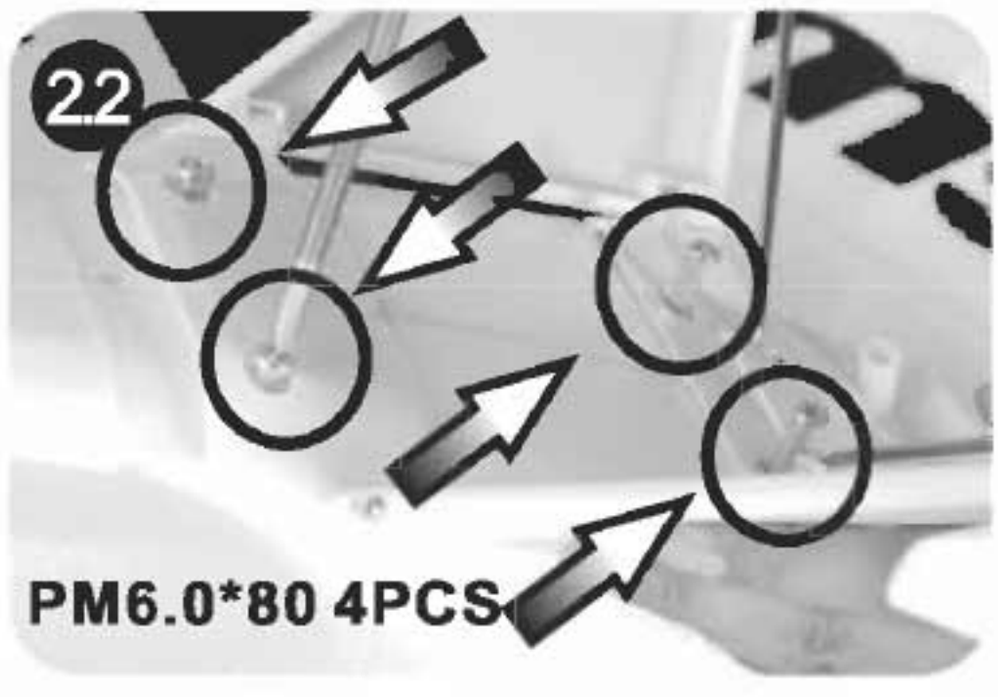
1. Position the wing as so the nose in front of the lower wing fits into the notch in the forward part of the fuselage's lower wing bay.
Guide the two aileron servo cables through the holes in the bottom of the fuselage.
Put the lower wing into place and gently pull the aileron servo cables from inside of the canopy simultaneously to avoid any tangling of the servo cables.





2. Attach the lower main wing and the landing gear using six of the provided machine screws Two screws are used for the rear wing bolt plate, two for the front wing plate (landing gear rear base) and two for the landing gear front base.
(Screws: PM6.0x59, 2pcs
(rear wing bolt plate); PM6.0x80, 4pcs)

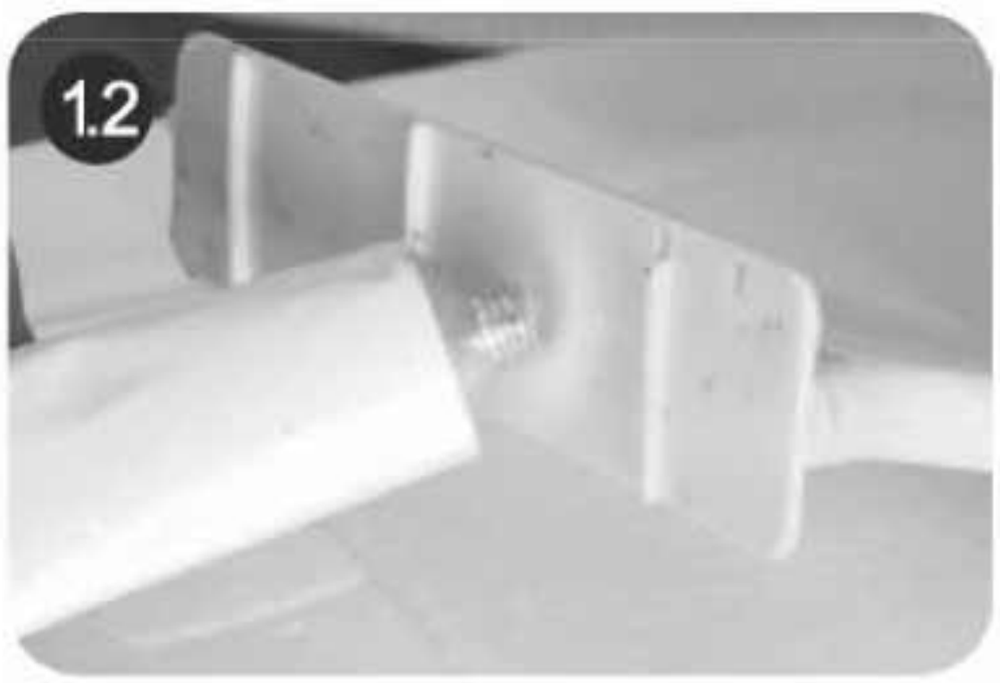




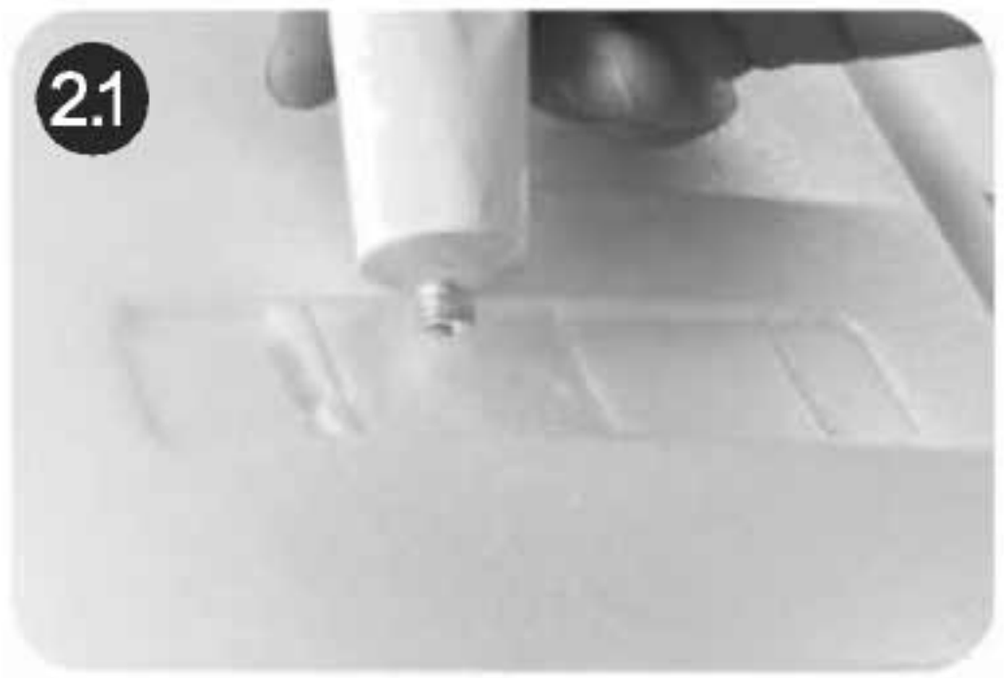
Installing the top wing and rigging

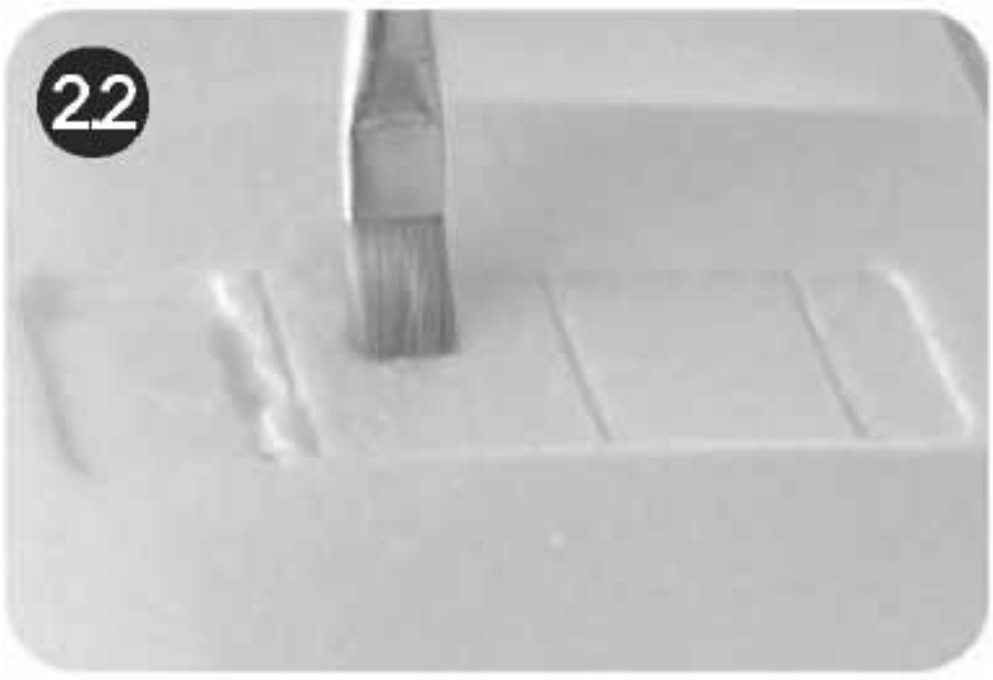
Part 1: Install the inter plane strut and cabane.

1. The way to identify and install the strut, First, the strut base are designed fit the notch properly when the installation complete, there is no gap reveal between the base and the strut. If not , try to fit the other end of the strut into the notch. Then ,when the fitting process completed the black and red dots face the wing tip end, the strut inclined forward, if not, try to change the other strut.



2. Take off the strut and apply glue in the base notch on top of the lower wing and well-distributed with the brush, We recommend apply glue on the strut base for mor firmly combination, then fix the strut into place properly.





3. Apply glue on the fuselage and cabane where the cabane fitted and well-distributed it on the surface and let dry at least 5 minutes.

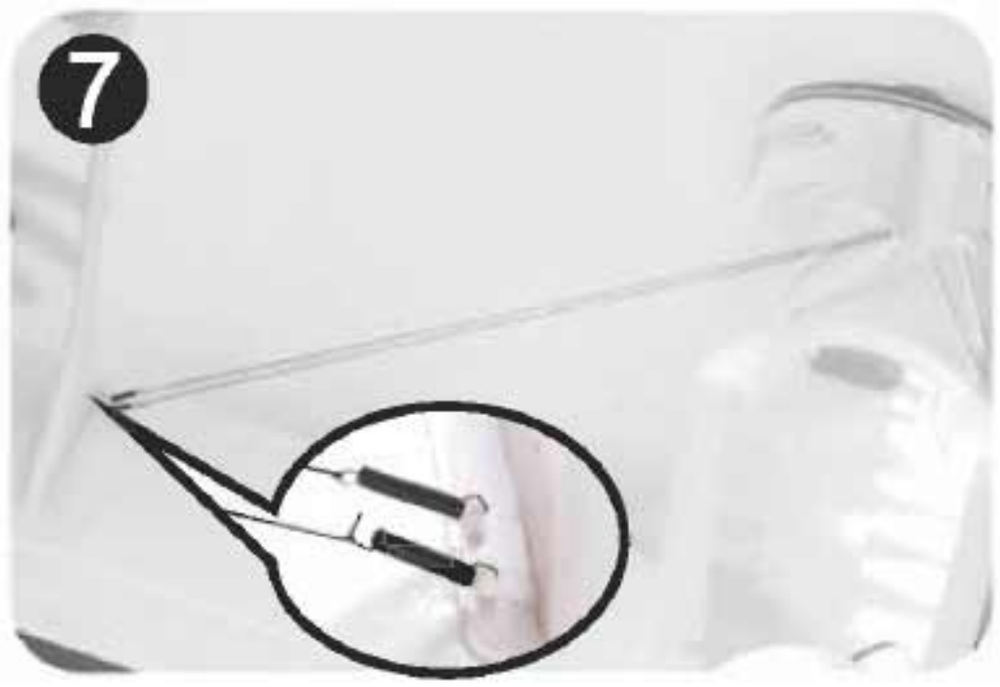
Installing the top wing and rigging

4. Fit the cabane into place as show and make sure the cabane properly fit into place with no slot reveal between the combination.

5. Before we mounted the top wing on the cabane and struts we must finish the netting work of the flying wires.

6. Thread the two end of the in stored nylon wire through the pre drilled hole(the middle two of the four hole), the recommend length of the wire is 900mm,

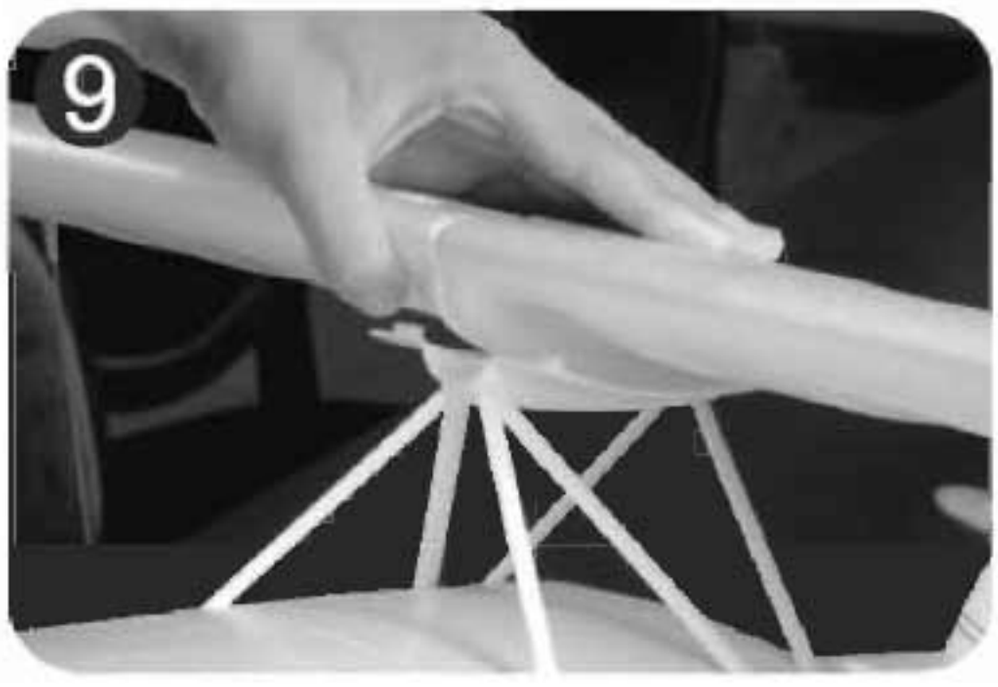
7. Knot the end of the wire on the spring hook then connect the hook with the fuselage semi-rings make sure the two ways of the wire parallel.



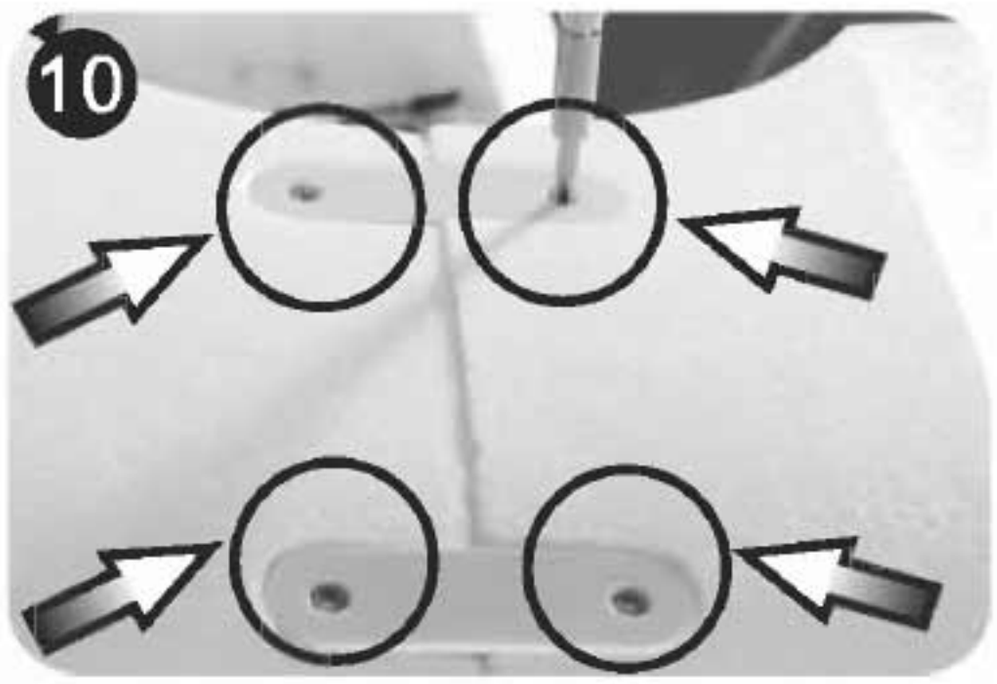
Installing the top wing and strain rope

8. Well-distributed the glue on the struts and top wing where the struts and top wing fitting together.

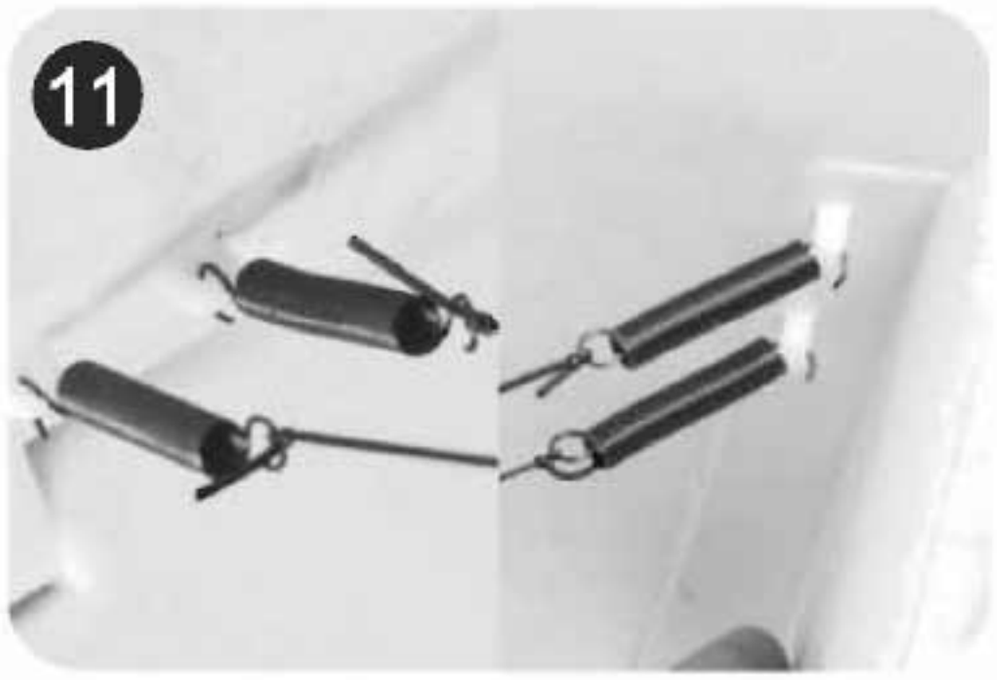
9. Mount the top wing to the cabane and struts.



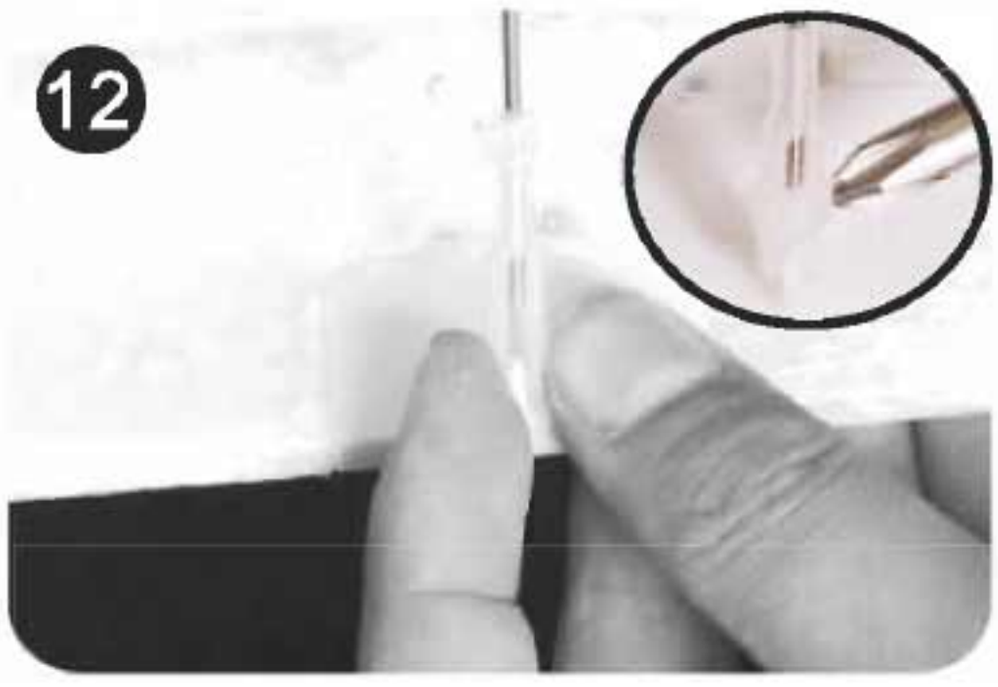
10. Use screwdriver to tighten the four machine screws to secure the wing to the cabane. (PM3.0*22 4PCS)



11. Connect the other cluster of cross strain ropes with two spring hook at each end of the ropes. Make sure the two lines are parallel connected.
The strain connection on starboard and port side are the same.

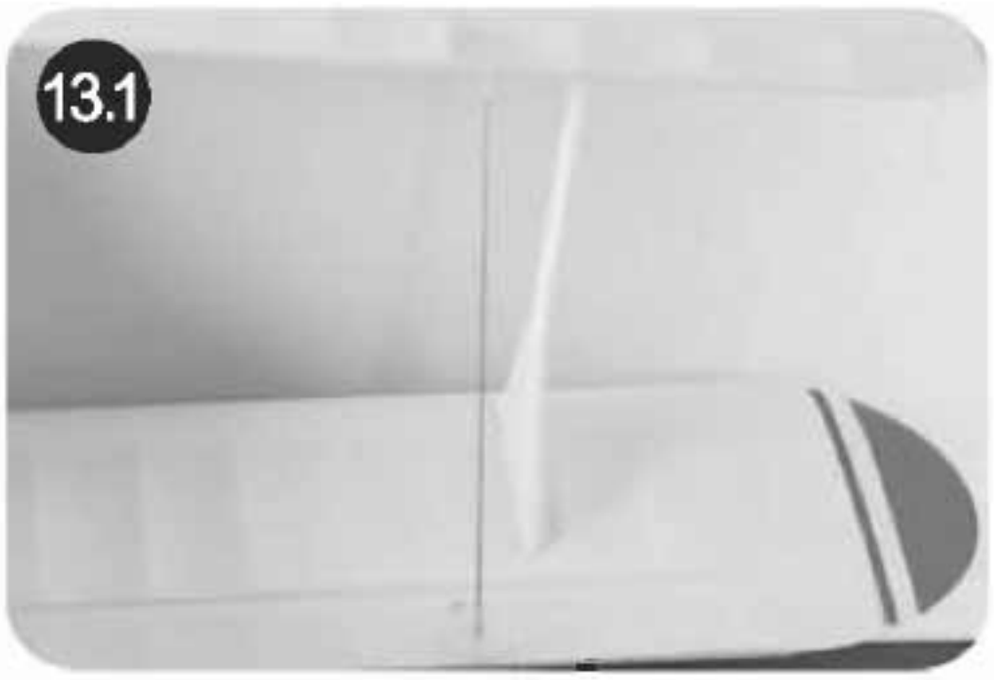


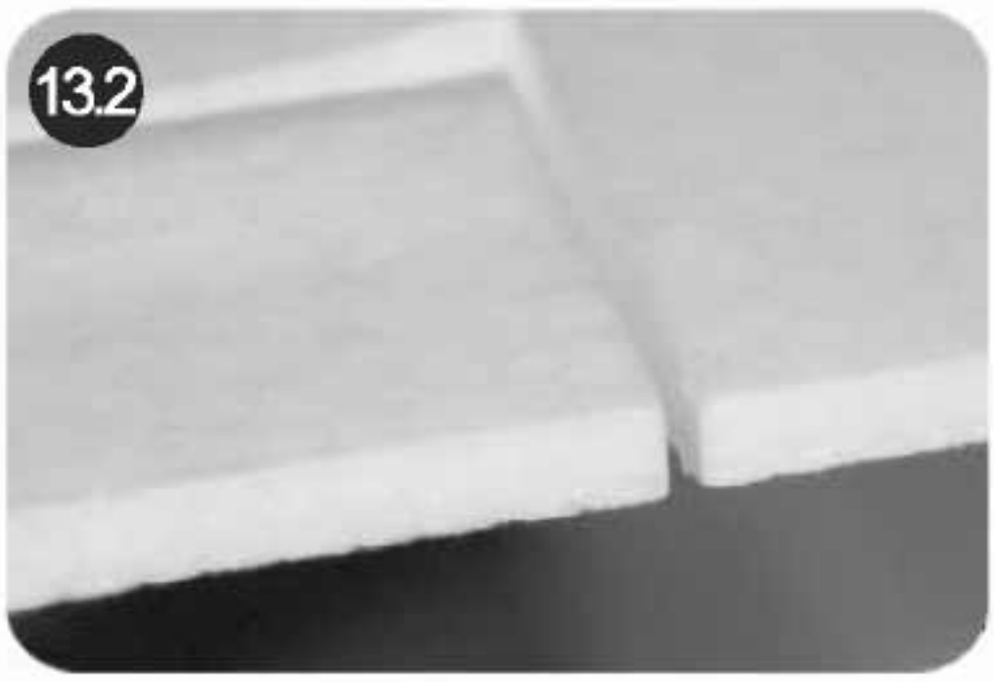
Part 2: The inter plane control surface connection.
12. Connect the clevis the same with the aileron.

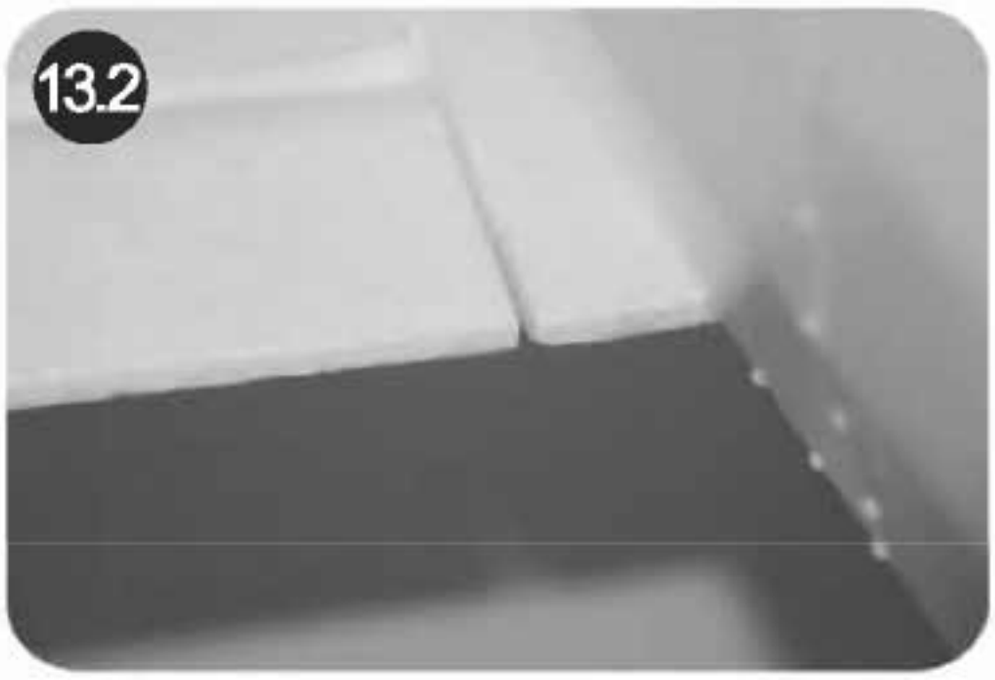


Installing the top wing and strain rope

13. Adjust the control surface, make sure the trailing edge of the surface align with the wing root trailing edge. This step are critical for the max performance of aerobatic characteristic.



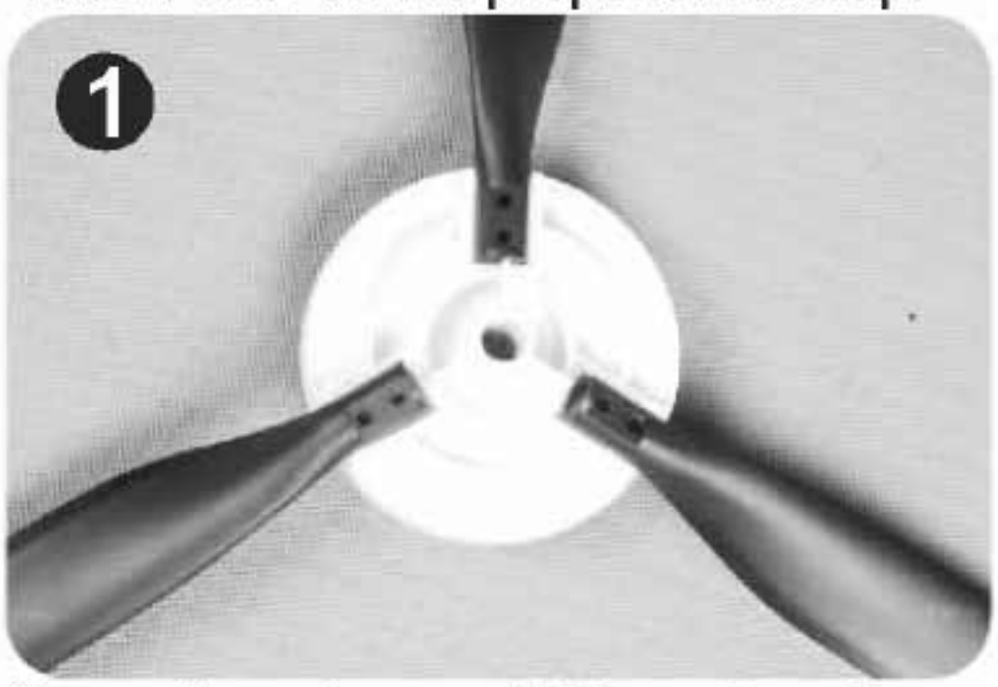




Installing the propeller

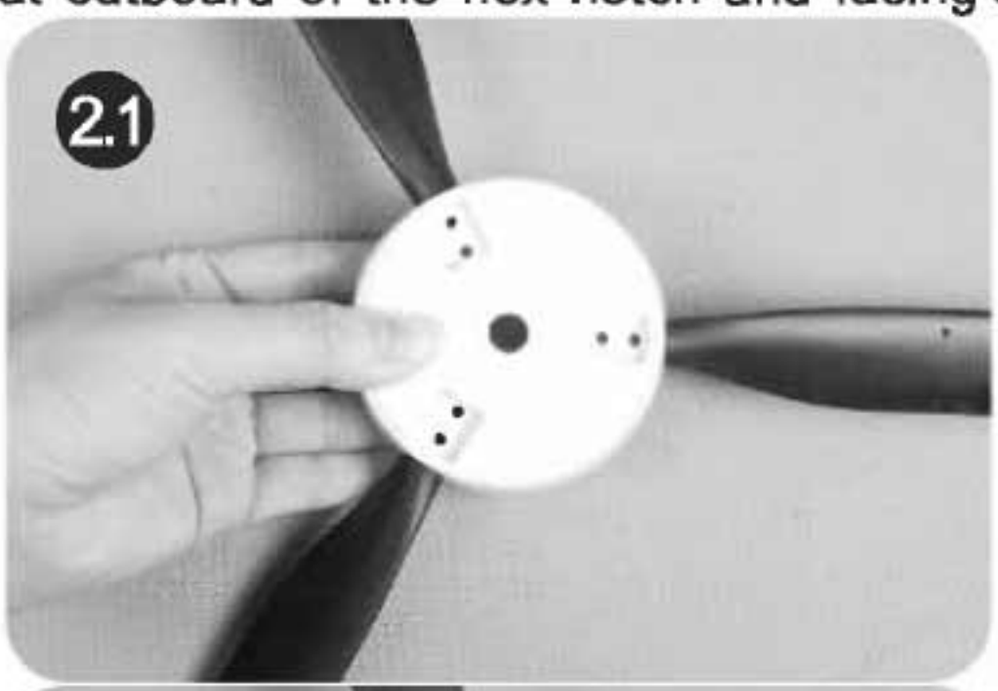
Install the propeller set

1. Put three propeller blades rightly onto the back plate. Make sure the letter with "FMS 14X8" on the propeller face up.



2. Cover the spinner middle part on the propeller. Make sure the propeller is fully inside the cover so the hole of cover and propeller can fully match. Place the nylon insert lock nuts rightly into the hex notch on bottom of the spinner back plate

Note: 1. always hold the nuts into place in the process of the blades mounting.
2. The round side of the nuts should be at outboard of the hex notch and facing up.

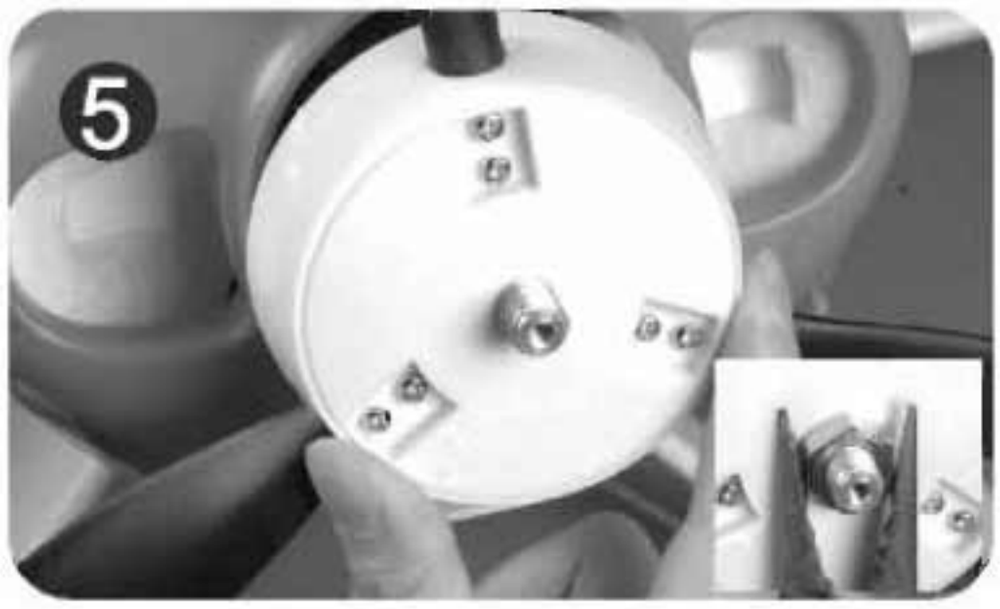


Installing the propeller

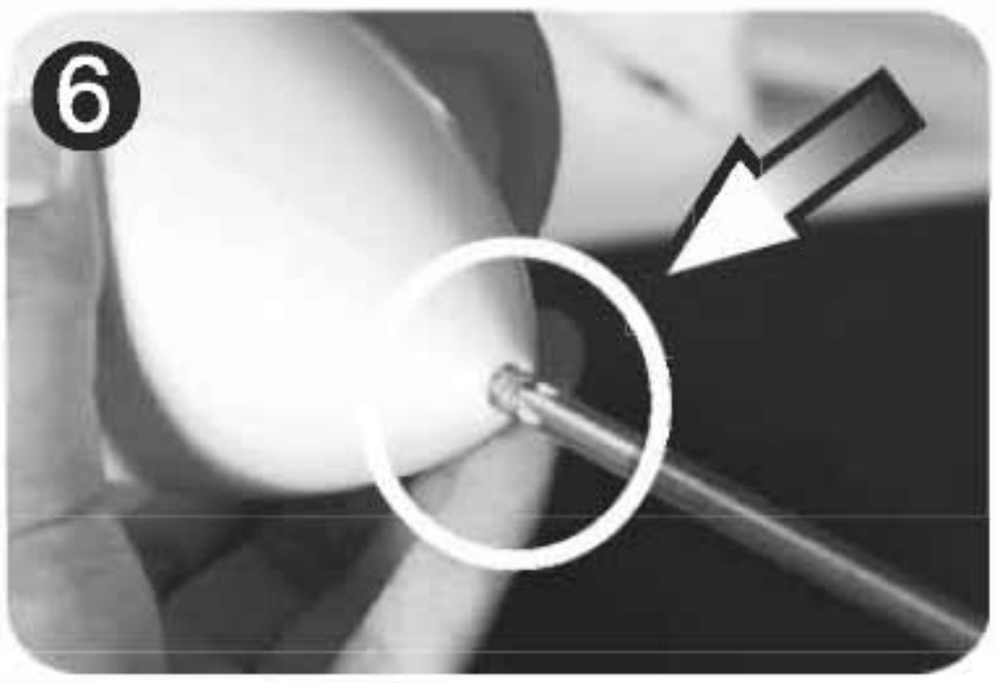
3. Secure it using the provided screws in spinner package (6pcs)

4. Verify the status of the propeller installation completed.

5. Slide the propeller assembly on to the motor shaft.
Make sure the backplate is properly keyed into the hex on the shaft.

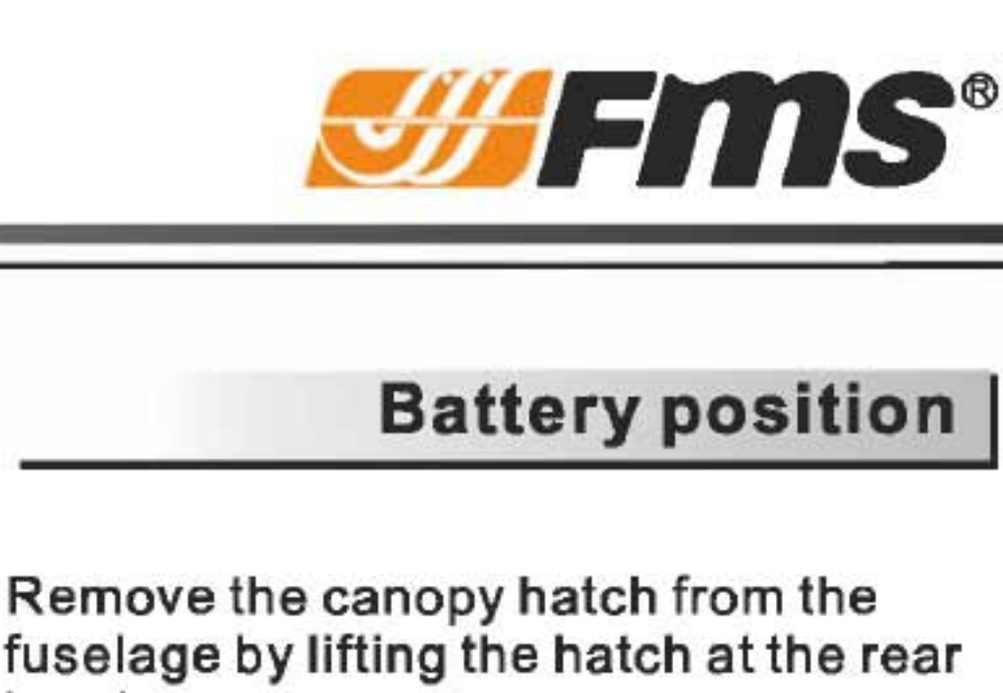


6. Fit the front spinner in to place using the screw driver to secure the front spinner with one machine screw. (PM4.0*60 1PC)

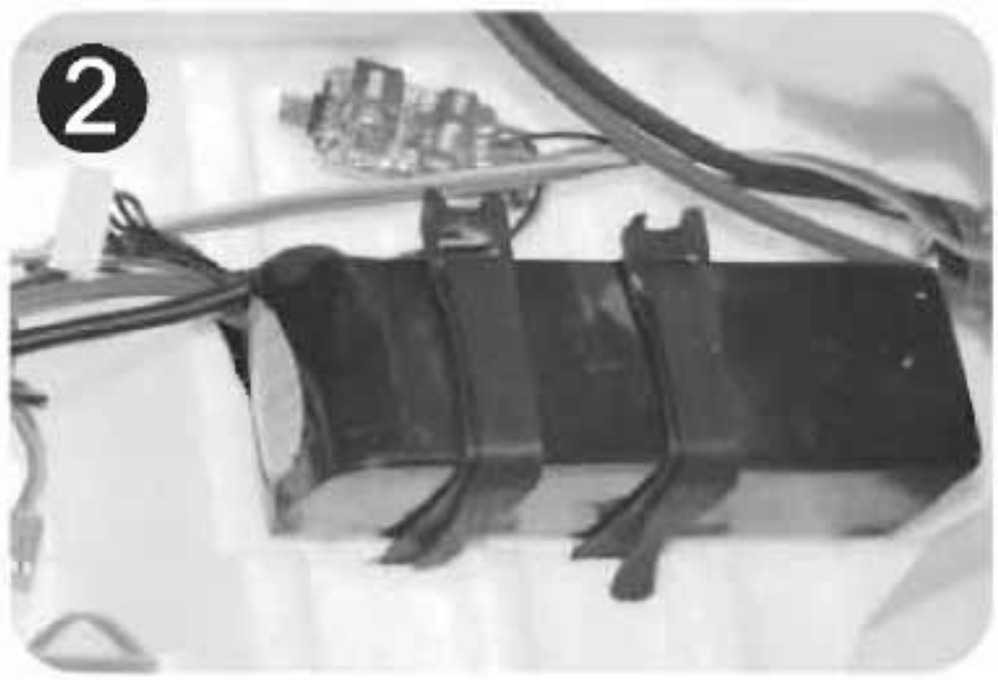


Battery position

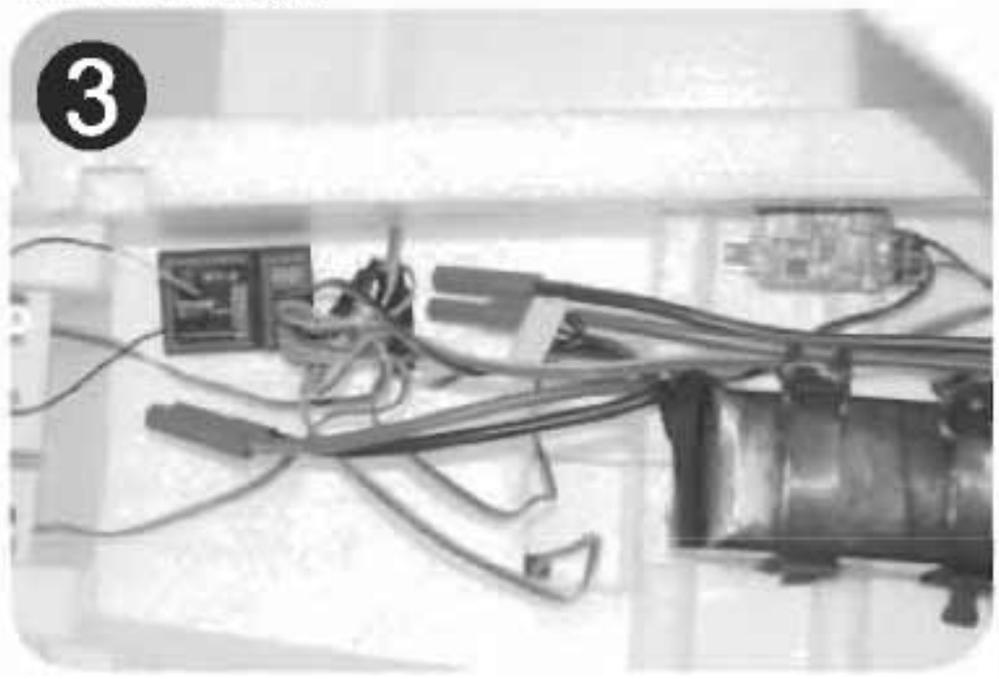
1. Remove the canopy hatch from the fuselage by lifting the hatch at the rear band.



2. Locate the motor battery, we recommend the battery be charged before it is installed. Slide the battery under the hook and loop straps.
Use the straps to secure the battery in the fuselage.



3. Please connect the UBEC at least in a distance 50mm/1.9in far away from the receiver to avoid the electromagnetic interference.



FMS User Manual of 6A UBEC

Specification Of 6A UBEC:

1. Switch Mode
2. Output:5.0V/6A , 5.5V/6A or 6.0V/6A switchable(Changeable with a blue jumper)
3. Input:6V-25V (2-6S Lipo, 5-18S NiMH/NiCd)
4. Output Current:Continuous Current 6A, Burst Current 10A
5. Size:45.0mm*23.0mm*10.0mm(Length*Width*Height)
6. Weight:18.0g

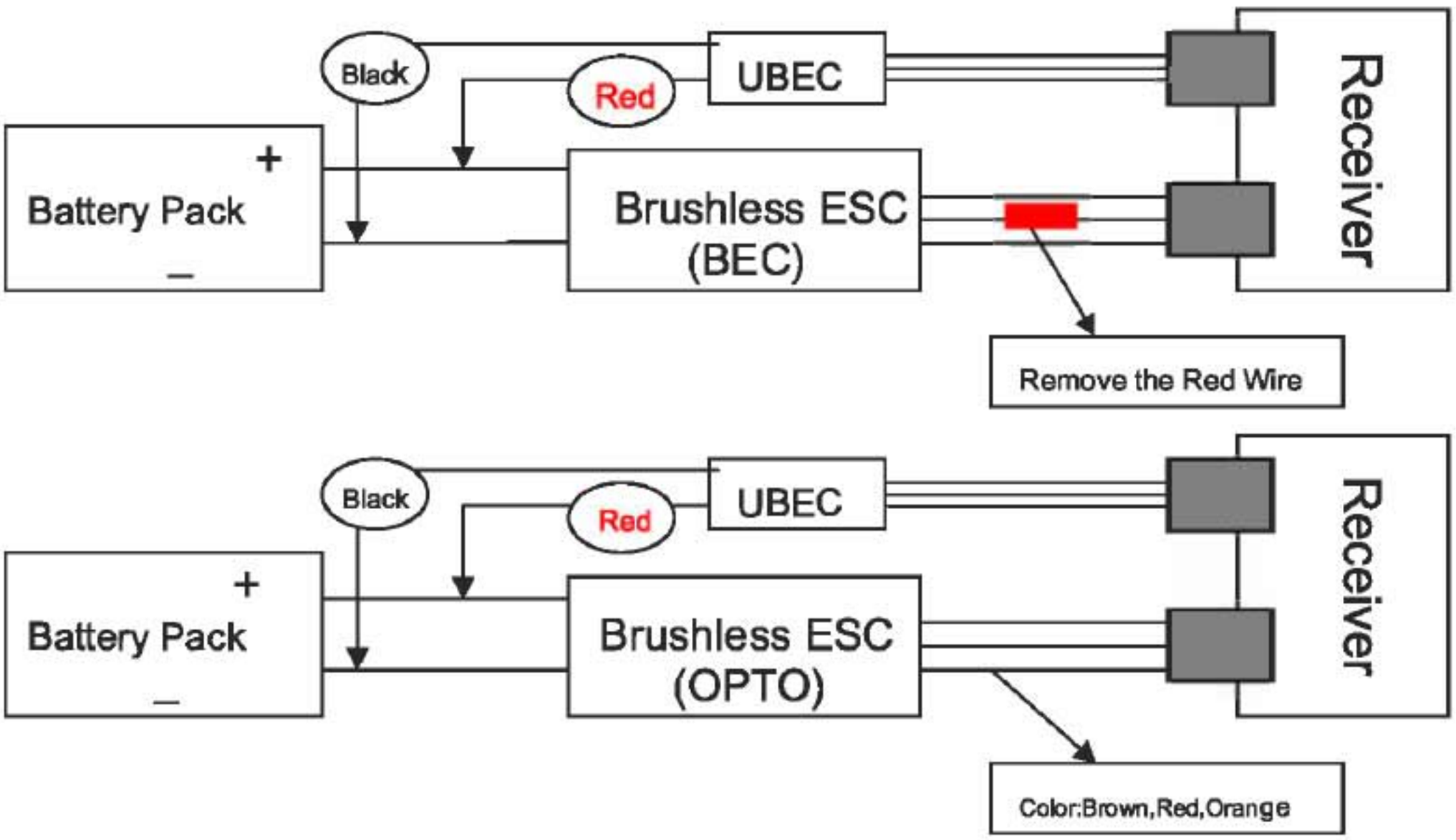
Note: We recommend use the jumper cap to connect the two middle pins in four for your safty flying.

Features:

1. Adopting the USA CPU and decreasing the electromagnetic interference, to be sure that receiver works well.
2. The working status of UBEC is shown by an indicator (LED). When UBEC works, the blue LED lights.
3. Battery polarity reversal protection (If the connection is wrong, the UBEC can not work.)

How to Use the UBEC, please carefully look at the connections as follows :

1. Connecting UBEC with ESC OPTO, you just parallelly connect the input connector of UBEC with the battery pack, and plug the output connector of the UBEC into one of spare channels of the receiver.
2. Using ESC SBEC, you must remove the red wire of the signal wires of ESC SBEC to receiver before connecting with the UBEC. (the connection with ESC SBEC is same as connection with the ESC OPTO)



Note: Because of the weather and ground, please connect the UBEC at least in a distance 50mm/1.9in far away from the receiver to avoid the electromagnetic interference.

Main specification

Specification

Wingspan	:	1400mm /55.1 in
Length	:	1297mm /51.1 in
Weight	:	3300g /116.4 oz
CG Position	:	90mm
Battery	:	22.2V 3300mAh Li-Po Battery
ESC	:	85A
Motor	:	5060-KV360
Wing Area	:	60.2dm²
Wing Load	:	54.8g/dm²
RC System	:	4 Channel, 4 Servos And 1 Brushless ESC

Center Of Gravity(C.G.)

Center of Gravity

When balance your model, adjust the motor battery as necessary so the model is level or slightly nose down.
This the correct balance point for your model.
After the first flights, The **CG** position can be adjusted for your personal preference.

1. The recommended Center of Gravity(**CG**) location for your model is (90mm) back from the leading edge of the top main wing as shown with the battery pack installed. Mark the location of the **CG** on top of the wing.
2. When balancing your model, support the plane inverted at the marks made on the top of the main wing with your fingers or a commercially available balancing stand. This is the correct balance point for your model, Make sure the model is assembled and ready for flight before balancing.
   Note: Always balance the plane with the retracts down.

Control throw setting

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.
2. Check the movement of the elevator with the radio system.
   Moving the elevator stick toward the bottom of the transmitter makes the airplane elevator move up.
3. Check the movement of the ailerons with the radio system, moving the aileron stick right makes the right aileron move up and left aileron move down.
4. Use a ruler to adjust the throw of the elevator, aileron and rudder.
   Adjust the position of the pushrod at the control horn and the transmitter to achieve the following measurements when moving the sticks to the end point.
   Note: Always disassemble the propeller set when binding the transmitter and testing the control surface.

Main specification

The suggested throws for the FMS PITTS are as follows:

	Low rate	High rate
Elevator -	27 degree up an down	45 degree up and down
Rudder -	22.2 degree left and right	37 degree left and right
Ailerons -	12 degree up and down	20 degree up and down

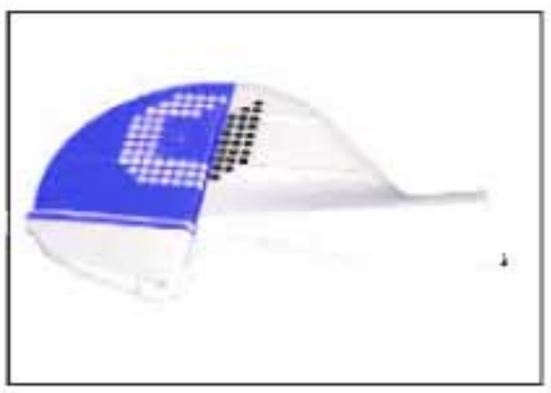
Spare Parts List

Item#	Description
FJ-101	Fuselage
FJ-102	Main Wing Set(top)
FJ-103	Main Wing Set(lower)
FJ-104	Rudder
FJ-105	Elevator
FJ-106	Canopy (One foam canopy)
FJ-107	Canopy (One plastic canopy)
FJ-201	Cowl
FJ -202	Front Landing Gear Set
FJ-203	Main Landing Gear Mounting Plate
FJ-204	Inter Plane Strut
FJ-205	Cabane
FJ-206	Spinner
FJ -207	Propeller
FJ -208	Inclined Stay Bar (For elevator)
FJ-209	Rear Landing Gear Assembly
FJ-301	Brushless Motor (5060-KV360)
FJ-302	ESC (85A)
FJ-303	17g Servo
FJ-304	Motor Board
FJ-305	Motor Shaft
FJ-306	Motor Amout
FJ-307	Linkage Rod
FJ-308	Screws Set
FJ-309	Stickers (A set of stickers)

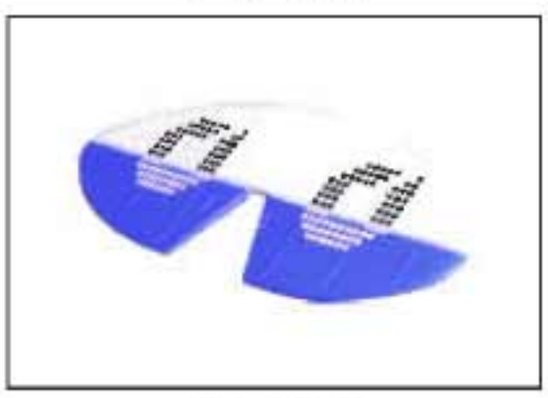
FJ-101

FJ-102

FJ-103



FJ-104



FJ-105

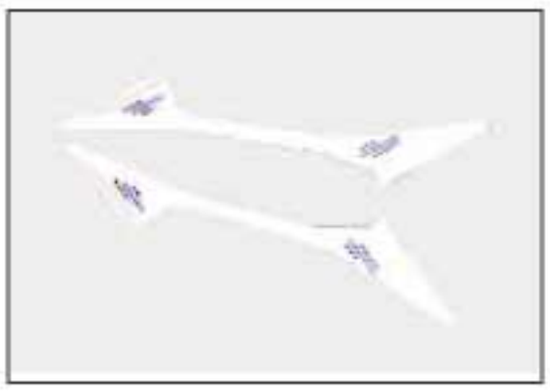
FJ-106

FJ-107

FJ-201

FJ-202

FJ-203

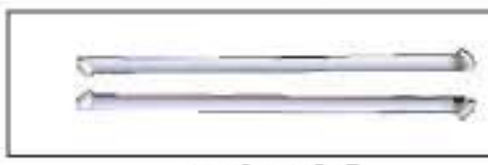


FJ-204

FJ-205

FJ-206

FJ-207

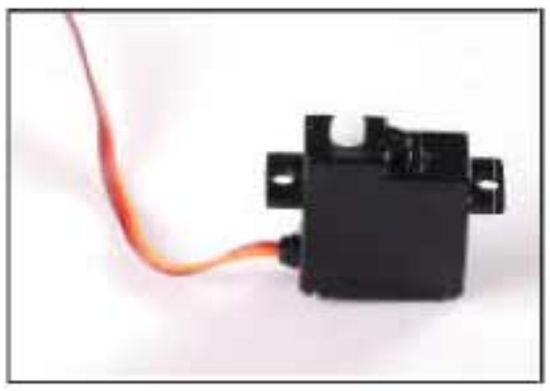


FJ-208

FJ-209

FJ-301

FJ-302



FJ-303

FJ-304

FJ-305

FJ-306

FJ-307

FJ-308

FJ-309

Trouble shooting

Problem	Possible Cause	Solution
Aircraft will not respond to the throttle but responds to other controls.	ESC is not armed. Throttle channel is reversed.	Lower throttle stick and throttle trim to lowest settings. Reverse throttle channel on transmitter.
Extra propeller nosie or extra Vibration.	Damaged spinner, propeller. motor or motor mount. Loose propeller and spinner parts. Propellor installed backwards.	Replaced damaged parts. Tighten parts for propeller adapter, propeller and spinner.
Reduced flight time or aircraft underpowered.	Flight battery charge is low. Propeller installed backward. Flight battery damaged.	Remove and install propeller correctly.Completely recharge Flight battery. Remove and install propeller correctly. Replace flight battery and obey flight battery instructions.
Control surface does not move, or is slow to respond to control inputs.	Control surface, control horn, linkage or servo damage, Wire damaged or connections loose.	Replace or repair damaged parts and adjust controls. Do a check of connections for loose wiring.
Control reversed.	Channels need be reversed in the transmitter.	Do the Control Direction Test and adjust controls for aircraft and transmitter.
Motor loses power. Motor power pulses then motorloses power.	Damage to motor, or battery. Lose of power to aircraft. ESC uses default soft Low Voltage Cutoff(LVC).	Do a check of batteries, transmitter, receiver, ESC, motor and wiring for damage (replace as needed). Land aircraft immediately and Recharge flight battery.
LED on receiver flashes slowly.	Power lose to receiver.	Check connection from ESC to receiver. Check servos for damage. Check linkages for binding.

Battery Selection and Installation.

1. We recommend the 22.2V 3300mAh 25C Li-Po battery.
2. If using another battery, the battery must be at least a 22.2V 3300mAh 25C battery.
3. Your battery should be approximately the same capacity ,dimension and wight as the 22.2V 3300mAh 25C Li-Po battery to fit in the fuselage without changing the center of gravity a large amount.

Range Check Your Radio System

After final assembly, range check the radio system with the **FMS PITTS**. Refer to your specific transmitter instruction manual for range test information .

Take off and landing tips

1. Take off using full power.
2. Ensure that you set a timer and land with plenty of battery power in reserve.
3. Never exceed 3 minutes to fly with the maximum power others.
4. Never exceed the limited flying weight.

First Flight Preparation

1. Remove and inspect contents.
2. Charge flight battery.
3. Read this instruction manual thoroughly.
4. Fully assemble model.
5. Install the flight battery in the aircraft（once it has been fully charged).
6. Bind aircraft to your transmitter.
7. Make sure linkages move freely.
8. Make sure the rubber ring has been properly slide on the clevis.
9. Perform the Control Direction Test with the transmitter.
10. Adjust light controls and transmitter.
11. Perform a radio system Range Check.
12. Find a safe and open area.

Please read the following instructions and fully understand it.

1. Do not fly in strong wind or bad weather.
2. Never fly the model in crowded areas, where there are lots of people, automoblies on the road or power lines overhead . Also do not to fly around the airport. Please make yourself enough room for the flying and operating, as the plane can travel at high speed. Remember you are responsible for the safety of others.
3. Children under the age of 12 should have an adult guide. Never recommend for the children under the age of 14.
4. Never leave the charger in wet conditions.
5. The **PITTS** is made from PA and polythene which are tinder. When it meets the heat, transfiguration can easily happen, so you must keep it away from heat.
6. Do not attempt to catch the PITTS while flying, please do not touch the propeller.
7. Never leave this system unattended around children with battery in the unit, as injury may be caused due to children's turning on the transmitter or the plane.
8. During the preparation for the flight, please remember to turn on the transmitter before connecting the battery pack.
9. Close the throttle on the transmitter before connecting battery otherwise the motor may operate.

AMA

If you are not already a member of the AMA, please join, The AMA is the governing body of model aviation and membership provided liability insurance coverage, protects modelers' rights and interests and is required to fly at most R/C sites.

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Academy of Model Aeronautics National Model Aircraft Safety Code

Effective January 1, 2011

A. GENERAL: A model aircraft is a non-human-carrying aircraft capable of sustained flight in the atmosphere. It may not exceed limitations of this code and is intended exclusively for sport, recreation and/or competition.
All model flights must be conducted in accordance with this safety code and any additional rules specific to the flying site.

1. Model aircraft will not be flown:
   (a) In a careless or reckless manner.
   (b) At a location where model aircraft activities are prohibited.
2. Model aircraft pilots will:
   (a) Yield the right of way to all man carrying aircraft.
   (b) See and avoid all aircraft and a spotter must be used when appropriate. (AMA Document #540-D-See and Avoid Guidance.)
   (c) Not fly higher than approximately 400 feet above ground level within three (3) miles of an airport, without notifying the airport operator.
   (d) Not interfere with operations and traffic patterns at any airport, heliport or seaplane base except where there is a mixed use agreement.
   (e) Ensure the aircraft is identified with the name and address or AMA number of the owner on the inside or affixed to the outside of the model aircraft. (This does not apply to model aircraft flown indoors).
   (f) Not operate aircraft with metal-blade propellers or with gaseous boosts except for helicopters operated under the provisions of AMA Document #555.
   (g) Not operate model aircraft while under the influence of alcohol or while using any drug which could adversely affect the pilot's ability to safely control the model.
   (h) Not operate model aircraft carrying pyrotechnic devices which explode or burn, or any device which propels a projectile or drops any object that creates a hazard to persons or property.

Exceptions:

- Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight.
- Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Team AMA Program Document (AMA Document #718).

3. Model aircraft will not be flown in AMA sanctioned events, air shows or model demonstrations unless:
   (a) The aircraft, control system and pilot skills have successfully demonstrated all maneuvers intended or anticipated prior to the specific event.
   (b) An inexperienced pilot is assisted by an experienced pilot.
4. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

B. RADIO CONTROL (RC)

1. All pilots shall avoid flying directly over unprotected people, vessels, vehicles or structures and shall avoid endangerment of life and property of others.
2. A successful radio equipment ground-range check in accordance with manufacturer's recommendations will be completed before the first flight of a new or repaired model aircraft.
3. RC model aircraft must use the radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
4. RC model aircraft will not operate within three (3) miles of any pre-existing flying site without a frequency-management agreement (AMA Documents #922-Testing for RF Interference; #923- Frequency Management Agreement)
5. With the exception of events flown under official AMA Competition Regulations, excluding takeoff and landing, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and the pilot's helper(s) located at the flight line.
6. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual. This does not apply to model aircraft flown indoors.
7. RC night flying requires a lighting system providing the pilot with a clear view of the model's attitude and orientation at all times.
8. The pilot of a RC model aircraft shall:
   (a) Maintain control during the entire flight, maintaining visual contact without enhancement other than by corrective lenses prescribed for the pilot.
   (b) Fly using the assistance of a camera or First-Person View (FPV) only in accordance with the procedures outlined in AMA Document #550.

C. FREE FLIGHT

1. Must be at least 100 feet downwind of spectators and automobile parking when the model aircraft is launched.
2. Launch area must be clear of all individuals except mechanics, officials, and other fliers.
3. An effective device will be used to extinguish any fuse on the model aircraft after the fuse has completed its function.

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MADE IN CHINA