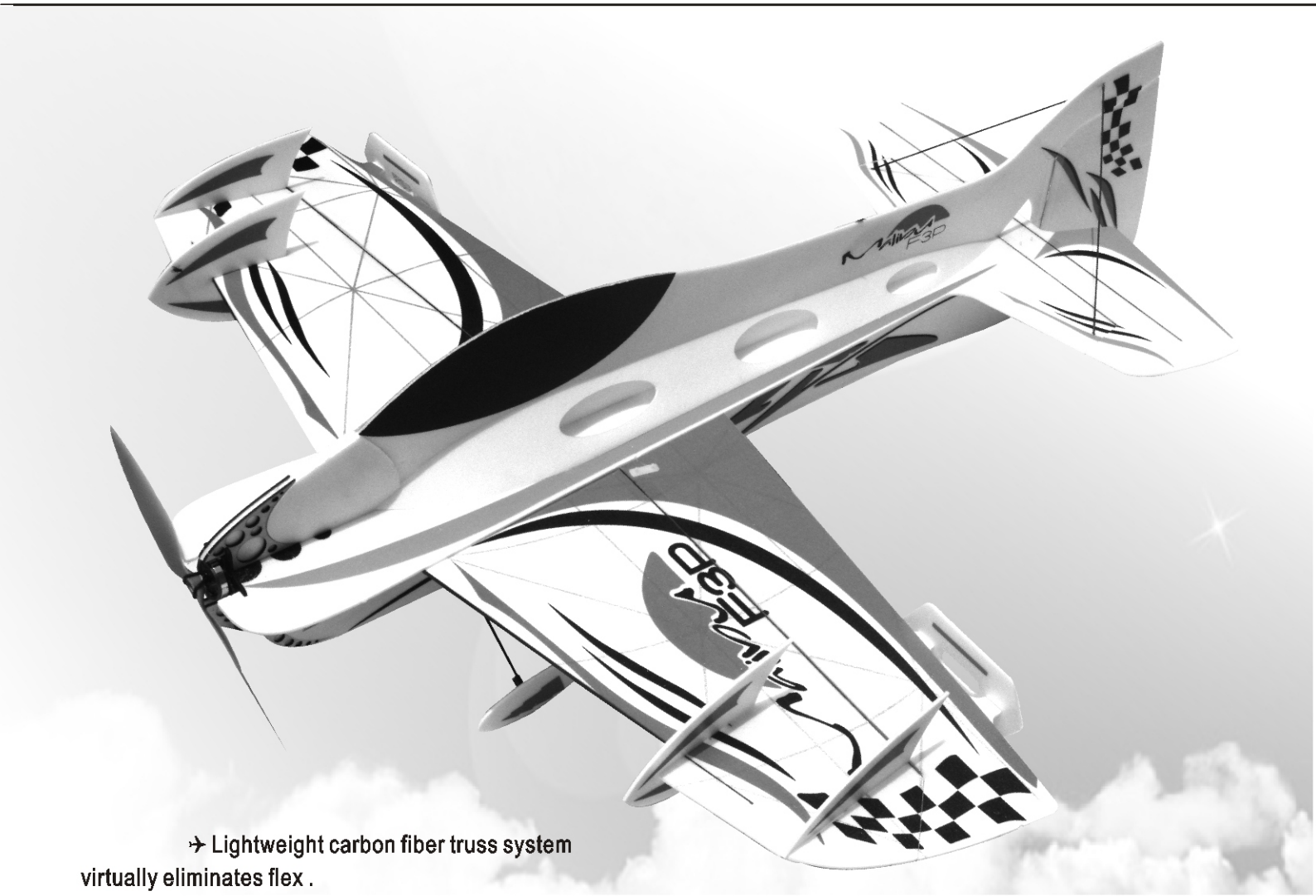
TECHone™

MALIBU-F3P

ELECTRIC MALIBU F3P ARF

Instruction Manual



✈ Lightweight carbon fiber truss system virtually eliminates flex .

✈ Ideal for indoor flight and capable of outdoor flight in low winds.

✈ Laser-cut 3mm genuine Depron parts for optimum strength and minimum weight .

✈ Minimal assembly required—flight ready in as little as 3 hours .

✈ Vibrant screen printed trim scheme.

Specifications

Wingspan: 846mm (33. 3in.)
Propeller: .....9060 Slow Flyer Prop
Flying Weight: .....160g (5. 6oz) -185g (6. 5oz) with battery
Fuselage length: 890mm (35in.)
Wing Area: .....280 sq in (18. 0 sq dm)

Notes

Table of Contents

Introduction

Thank you for purchasing the Assuage electric 3D Indoor flyer.

the Malibu -F3P ARF has superb slow flight responsiveness so you can fly high-alpha 3D with authority. Its carbon fiber reinforced Depron foam construction provides the solid, precise feel of a balsa profile plane without the weight. This allows you to fly the Malibu -F3P ARF outside in windier conditions that would keep most other profile foamies grounded. The Malibu -F3P ARF is another exciting addition to TECH ONE's outstanding line of electric RC aircraft and accessories.

TECH ONE uses top-quality engineering and materials in everything it makes,so you always get the maximum level of value and fun. TECH ONE backs all of its products with the best customer service and support in the hobby so your electric flight experience is always a positive one.

These assembly instructions are designed to guide you through the entire assembly process of your new airplane in the least amount of time possible. Along the way you'll learn how to properly assemble your new airplane and also learn tips that will help you in the future. We have listed some of our recommendations below. Please read through them before beginning assembly.

✈Please read through each step before beginning assembly. You should find the layout very complete and straightforward. Our goal is to guide you through assembly without any of the headaches and hassles that you might expect.

✈There are check boxes next to each procedure. After you complete a procedure,check off the box. This will help prevent you from losing your place.

✈Cover your work table with brown paper or a soft cloth,both To protect the table and to protect the parts.

✈Keep a couple of small bowls or jars handy to put the small parts in after you open the accessory bags.

✈We're all excited to get a new airplane in the air,but take your time. This will Ensure you build a straight,strong and Great flying airplane.

Warning

An R/C aircraft is not a toy! If misused,it can cause serious bodily harm and damage to property. Fly only in open areas, preferably AMA (Academy of Model Aeronautics) approved flying sites,following all instructions included with your radio. Always assume the electric motor can come on at any time so use extreme caution. Before beginning assembly of your Malibu -F3P we strongly Suggest that you read through this instruction manual so you can become familiar with the parts and the assembly sequence. Assemble the kit according to the sequence provided in the instruction manual. Do not attempt to modify or change the kit design as doing so could adversely change the models flying characteristics.

Seek Assistance

If you are new to R/C we suggest you find an experienced pilot to check out your aircraft and help you with the first few flights. This will help prevent damage to your model and will speed up the learning process making your R/C experience all the more enjoyable. You can contact local R/C clubs or your dealer to obtain the names of experienced R/C pilots who would be Willing to help you with your first few flights.

Although this is an ARF (Almost-Ready-to-Fly) kit,it does have some construction features that can be challenging to the less experienced modeler. If you encounter difficulty in any construction sequence,please feel free to contact one of our technicians we stand ready to provide any assistance we can concerning the construction of your Assuage 3D. Contact us at:

TECH ONE HOBYY

EMIAL: techonehobby@gmail.com

Www.techhobby.com.cn

Radio Equipment Required

You will need to use a 4 or more channel transmitter with a 4 or more channel micro receiver and 3 micro servos. Ideally,the transmitter should feature dual rates and exponential for the ailerons,elevator . The receiver should be as light as possible,preferably around 9 grams. The servos should be the lightest available,yet still have an adequate amount of torque. We suggest using servos that weigh no more than 5 grams and have a torque rating of no less than 10 ounces per square inch.

Additional Required Equipment

Battery charger

Motor Required: 2204/54 or A20-34S Brushless Outrunner Motor

ESC Required: 10 Amp Brushless ESC

Battery Required: 7.4V 420mAh / 500mAh Li-po

Required Tools and Adhesives (not included in the kit)

5 Minute Epoxy
Foam-Friendly Thin and Thick C/A
Aerosol Zip-Kicker
0 and #1 Phillips Head Screwdrivers
1.5mm Hex Wrench
Adjustable Wrench
Wire Cutters
Z-Bend Pliers
Needle Nose Pliers
Modeling Knife
Scissors
Electric or Hand Drill
Assorted Drill Bits
Straight Edge Ruler
Pencil
T-Pins
Builder's Triangle
220 Grit Sandpaper with Sanding Block
Masking Tape
Paper Towels
Rubbing Alcohol
Epoxy Mixing Sticks
Epoxy Mixing Cups
Soldering Iron
Solder
Heat-Shrink Tubing (Assorted Sizes)
Heat Gun (for Heat-Shrink Tubing)

Important Information Aboutfoam–Please Read

You can use 5 minute epoxy or foam-friendly C/A for assembly. If you use C/A, you MUST USE FOA M-FRIEN DLY C/A AN D AEROSOL C/A "KICKER ." If you use C/A that is not foam-friendly and non-aerosol "Kicker," these products will melt the foam and ruin the airplane.

If you use the Pacer Aerosol Zip-Kicker that is recommended, it is very important that you use it properly to prevent melting the foam. Always spray a very light "mist" from no less than 12" (30cm) from the surfaces to be glued. After spraying the surfaces, immediately wipe off any excess with a soft towel. If you spray too much on one area or leave it on too long, it will melt the foam.

Do not use any harsh solvents, such as acetone, to clean the airframe. Harsh solvents will melt the foam. It is okay to use rubbing alcohol. If you want to add more painted details to your airplane, use water-based acrylic paints and test on a scrap piece first.

Lithium Poly Mer Battery Warnings–Please Read

WARNINGS AND SAFETY PRECAUTIONS FOR ALL BRANDS OF LITHIUM POLYMER BATTERIES

Please read and understand the warnings listed in this section. Make sure to read any and all warnings included in the packaging with your battery,too. If used improperly,lithium polymer (LiPO) batteries can be very dangerous,so please follow these warnings and suggestions at all times.

✈ Your LiPO battery may explode or catch fire. Serious injury,loss of property,fire and death can result from misuse.

✈ All instructions,warnings and cautions must be followed at all times. Failure to do so can lead to serious injury or fire.

✈ Do NOTuse your LiPO battery before reading and understanding all directions nand warnings.

✈ Do NOTovercharge your LiPO battery. Maximum voltage for each LiPO battery must be followed.

✈ Do NOTover-discharge your LiPO battery. NEVER discharge below minimum volts.

✈ Do NOTdischarge your LiPO battery at a rate greater than the maximum continuous discharge.

✈ Do NOTuse or charge your LiPO battery if it is hot.

✈ ONLY use a charger made specifically for LiPO batteries.

✈ Do NOTcharge your LiPO battery at a rate higher than1C. Example: if the your LiPO battery's rating is 340mAH,then the charger's charge rate must be Set at 340mAH orless.

✈ Do NOTleave your LiPO battery in direct sunlight or in a Hot car or storage area.

✈ Do NOTget your LiPO battery wet or expose to moisture.

✈ Do NOTshort-circuit your LiPO battery.

✈ ONLY discharge and charge your LiPO battery outdoorsor in a firesafe container.

✈ Do NOTcharge your LiPO battery with reverse polarity.

✈ Do NOTleave your LiPO battery connected when not inuse.

✈ Do NOToperate or charge your LiPO battery unattended.

✈ Do NOTsolder to your LiPO battery directly and do notget your LiPO battery hot in any way.

CHARGING PRECAUTIONS FOR ALL BRANDS OF LITHIUM POLYMER BATTERIES

✈ Do NOTuse your LiPO battery if you do not understand the warnings and proper use of your LiPO battery.

✈ Always let your LiPO battery cool and "rest" between uses and charging.

✈ To avoid over-discharging your LiPO battery,only use a speed control that is made for LiPO batteries.

✈ We recommend the use of a firesafe container when charging or storing your LiPO battery.

✈ Do NOTcharge your LiPO battery inside your car or inside your house.

✈ Inspect your LiPO battery before each use for swelling or other malformation. If a cell has ballooned,your LiPO battery MUSTbe discarded.

✈ Set your charger to 1C (charge at 1/2C or less for the first 5 cycles).

✈ Check polarity first,then connect your LiPO battery to your charger.

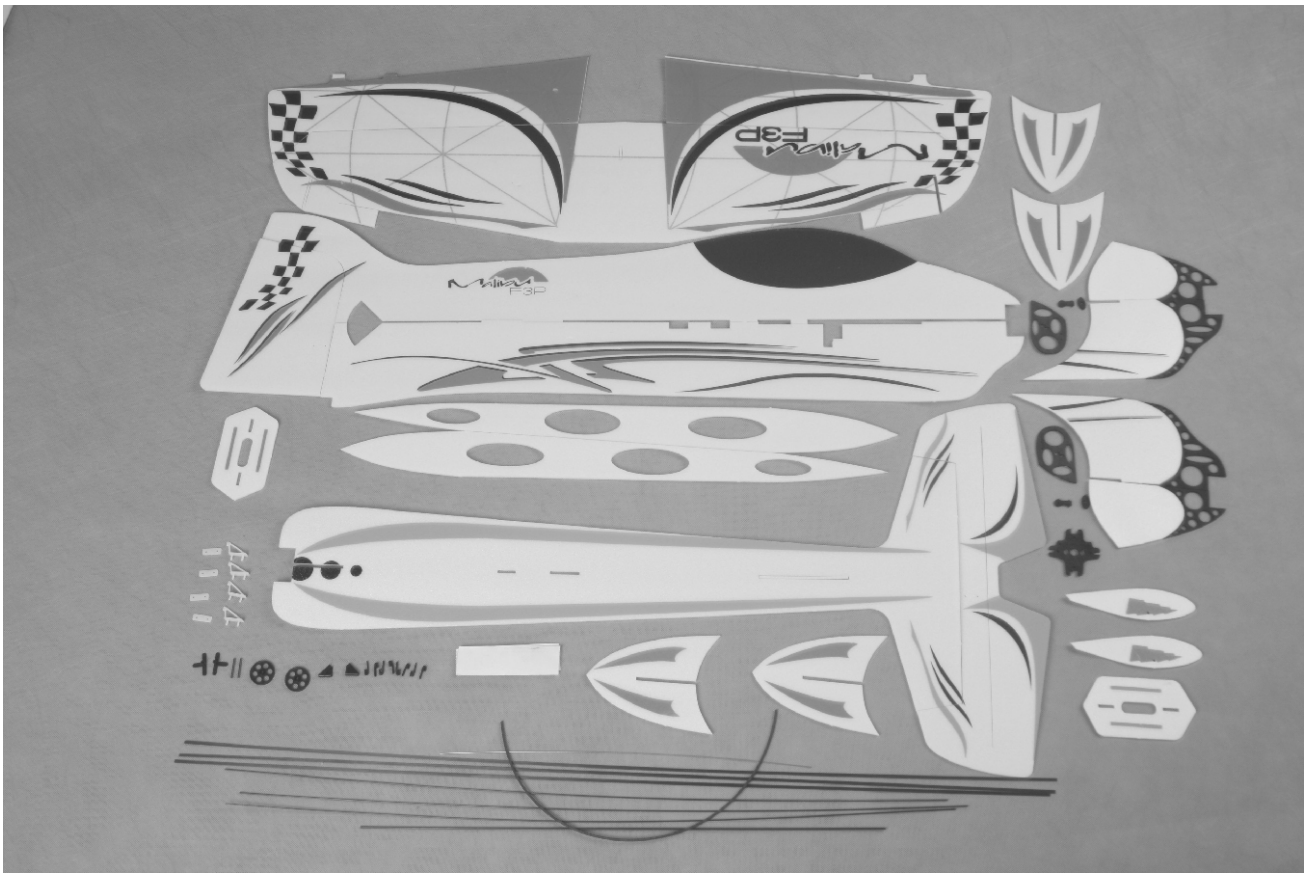
✈ In use,do not over-discharge your LiPO battery or exceed maximum discharge.

✈ When handling your LiPO battery,remember not to poke, bend or damage the cells. The cell's outer casing is soft and can be damaged.

✈ Remember,your LiPO battery must never exceed 160 degrees Fahrenheit for any reason.

Kit Contents

Before you begin assembly,group the parts as we list them below. This will ensure that you have all of the parts before you begin assembly and it will also help you become familiar with each part.



Fuselage side board -1
Fuselage main board - 1
Wing with Ailerons - 1
Horizontal Elevator - 1
Rudder - 1
Wing Fences - 4
Landing Gear Struts - 2
Doublers with Round Hole - 2
Wheel Covers - 2
Main Gear Wheels - 2
Carbon Fiber Rods 1.3mm - 5
Carbon Fiber Rods 2.0mm - 1
Doublers with Elongated Hole -2
Plywood Pushrod Supports - 2
Plain Wires - 1
Control Horn Backplates - 4
Control Horns - 4
Carbon Fiber Strips -3
Heat-Shrink Tubing - 1
Wood Screws - 4
Plywood Motor Mount - 1
Hook and Loop Material - 1

Tips From The Pros

✈Do not throw away any of the extra pieces of carbon fiber strips and carbon fiber rods until after you're done with assembly.

✈Make sure to test-fit the parts together before applying glue. This will ensure that the parts fit properly before gluing them together.

✈When gluing anything that has a smooth surface,like the plastic doublers,roughen the gluing surfaces lightly with 220 grit sandpaper. This will allow the glue to stick better.

✈We do not suggest storing your airplane in an extremely hot environment (like the back of your car in direct sunlight) for any length of time. The extreme heat could Damage the foam parts and possibly damage the fragile components of the radio control system or battery.

✈After flying the airplane,you may want to add right and/or down thrust to the motor. You can do this by adding thinwashers between the motor mount And the firewall.

✈To make aligning and gluing the top wing into place easier,glue it into place with the airplane upside down on Your work table.

✈ If the control horns still move slightly with the backplates installed,apply some glue to the control horns to lock them firmly into place.

✈ When assembling the pushrods,apply a few drops of thin C/A to the end of the pushrods after shrinking the heat-shrink material. The thin C/A will "wick" into the joint,giving It an extra measure of security.

✈ When using your heat gun near the foam surfaces,be careful not to melt the foam.

✈ When installing the landing gear struts,make sure that both axles are even with each other (the same distance from the bottom of the wing) or else the airplane won't sit level on the ground. Make sure that the axles are straight,too,or else the airplane won't roll straight on the ground.

✈ When installing your motor onto the plywood motor mount,use pan head screws,so that when tightened,they're flush with the back of the motor mount. This will prevent the heads of the screws from interfering with the installation of the motor assembly onto the firewall.

Section 1: Airframe Assembly

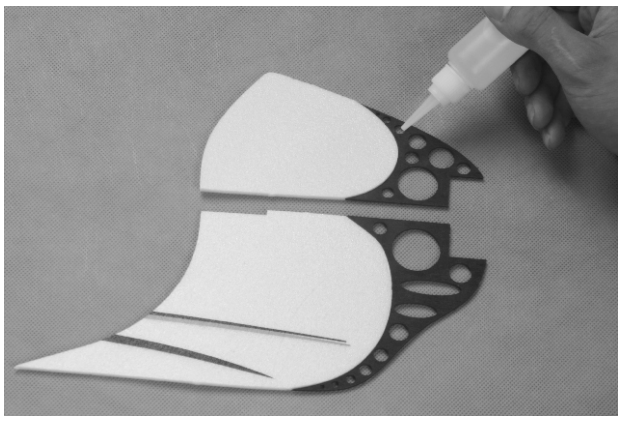
Parts Needed

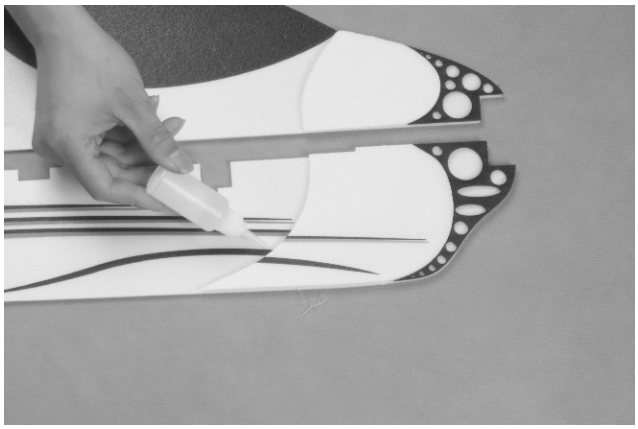
Fuselage
Wing
Stabilizer/elevator
Carbon rod
Rudder

Tools and Adhesives Needed

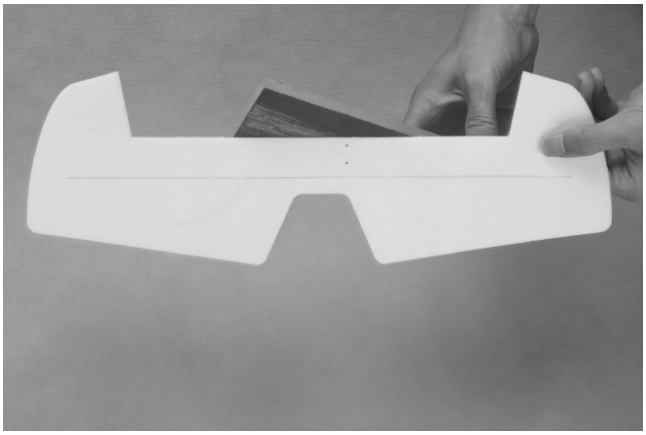
foam-friendly C/A
Ruler Hinge tape
Low-tack tape
Aerosol Zip-Kicker
Modeling Knife
Builder's Triangle
220 Grit Sandpaper with Sanding Block
Masking Tape

Step 1.
Glue the foam strengthen slice to the head of fuselage side board.



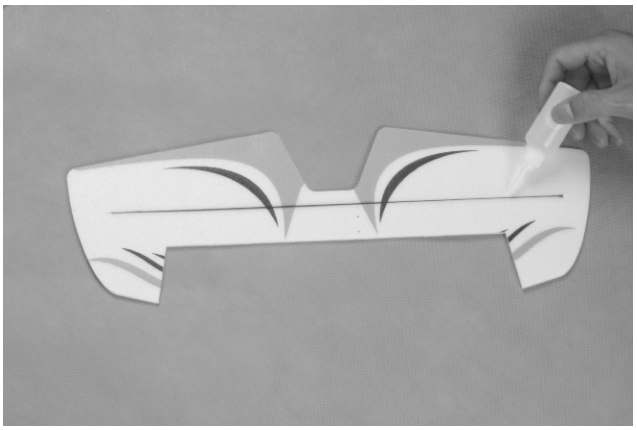


Step 2.
Sand a 45°bevel into the bottom leading edge of the elevator.



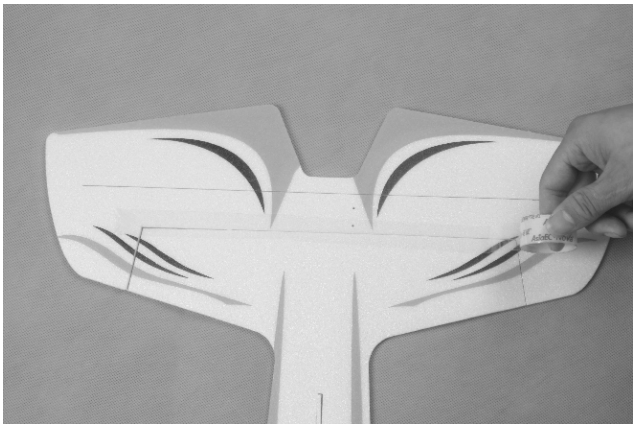
Step 3.

Cut a piece of carbon fiber strip to a length of 14-2/3" (376mm),then glue it to the below of the elevator,using some foam-friendly C/A.IMPORTANT Make sure that the elevator is flat and that the leading edge is straight while the glue cures.



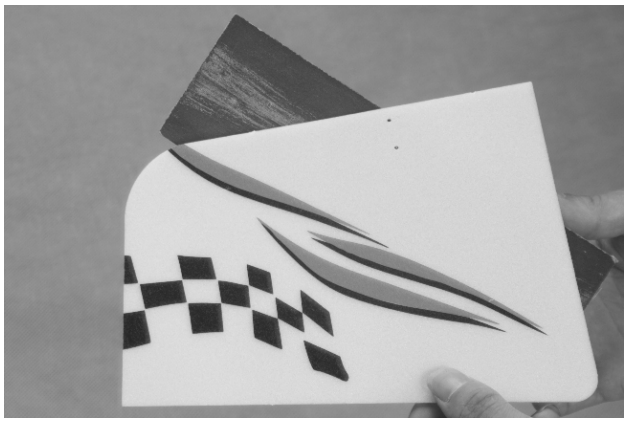
Step 4.

While holding the elevator tight against the stabilizer,apply a strip of clear plastic tape (not included) to the top of the hinge line on both sides of the elevator.



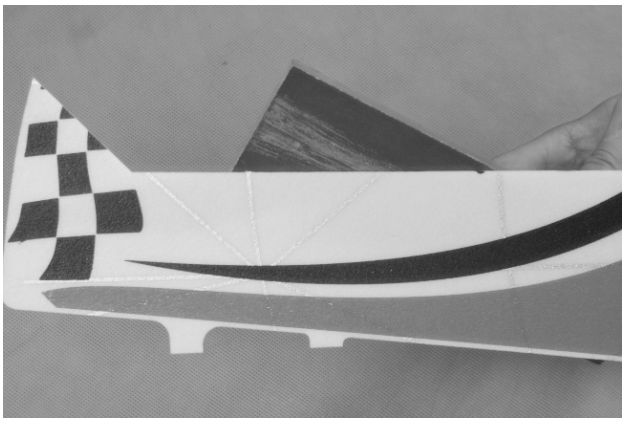
Step 5.

Sand a 45° bevel into the left side of the leading edge of the rudder.



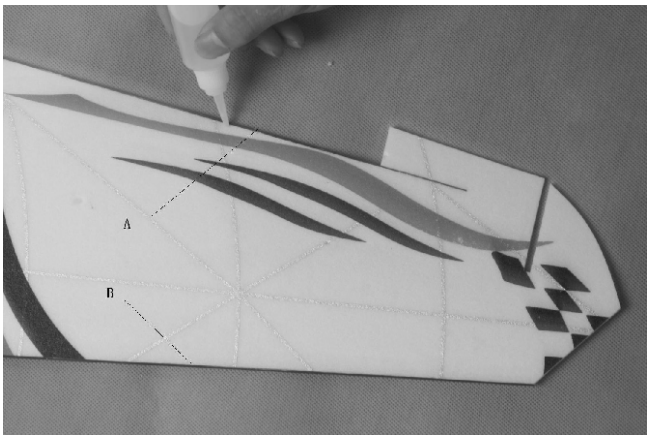
Step6.

Sand a 45° bevel into the bottom of the leading edge of the two ailerons.



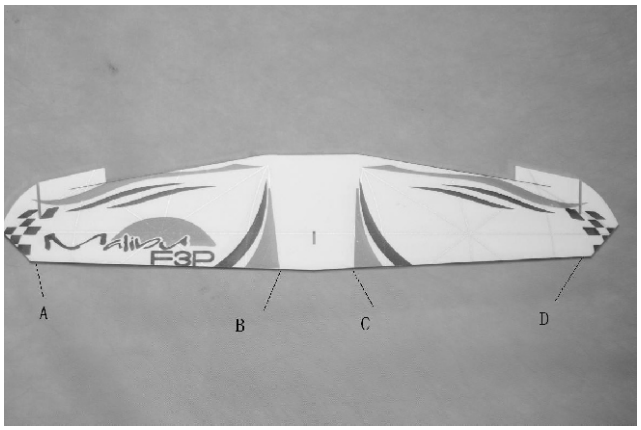
Step7.

Use foam-friendly C/A to glue the carbon strips to A and B to strengthen the wings.



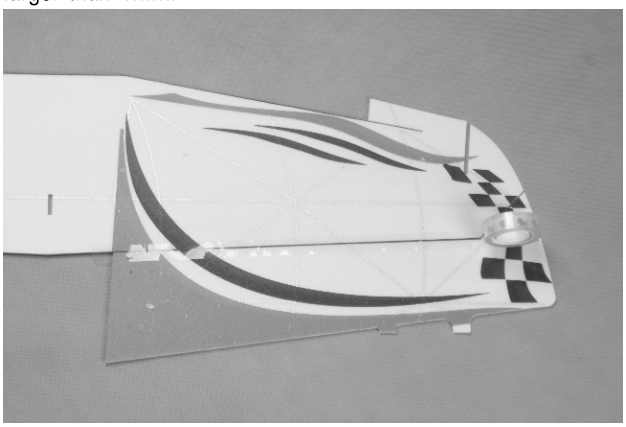
Step8.

Use some tape to wrap the carbon strips on A,B,C and D showed in the picture to avoid the carbon falling off.



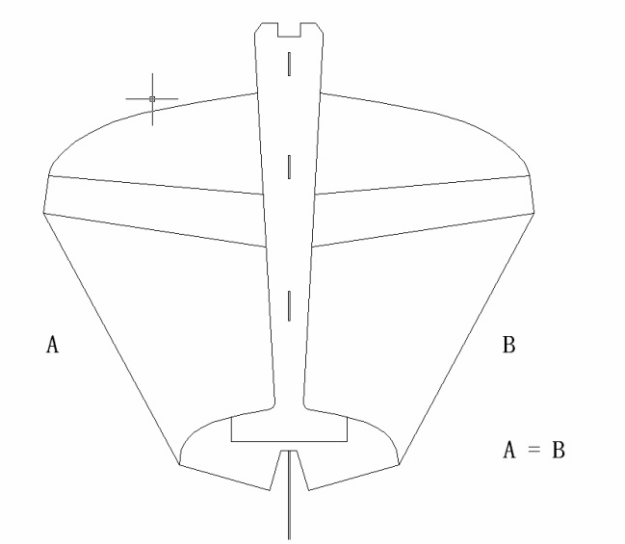
Step9.

Apply some tape to adhibit the ailerons onto the back of the wing. NOTE: gap between aileron and back of the wing no larger than 1mm.



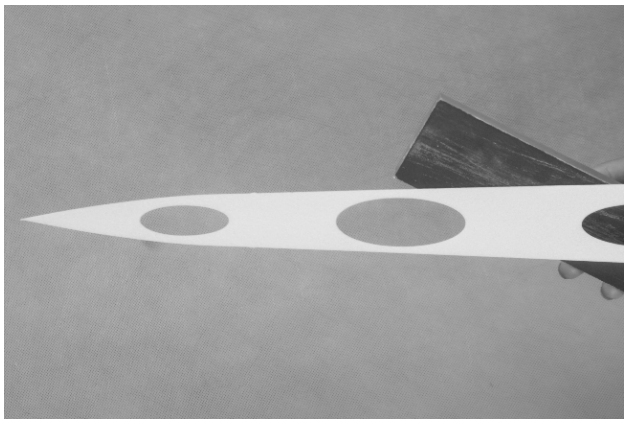
Step10.

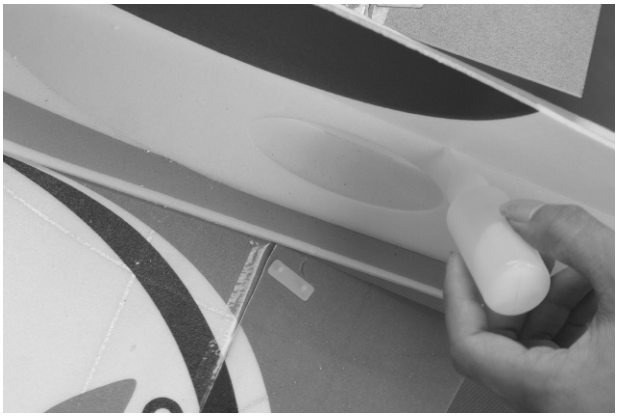
Glue the wings with aileron to fuselage. Notice: Measure from the tips of the wing to the rear of the fuselage. The measurements must match from right to left. If not,adjust the position of the wing until both measurements are equal.

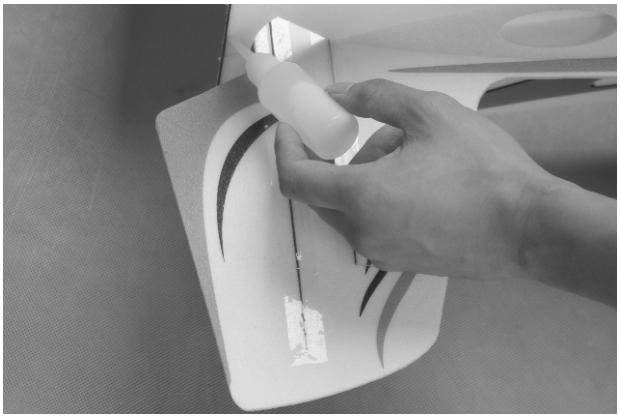


Step11.

Glue the side board and main board of fuselage.
Important: Make sure the side board is vertical to the main board.

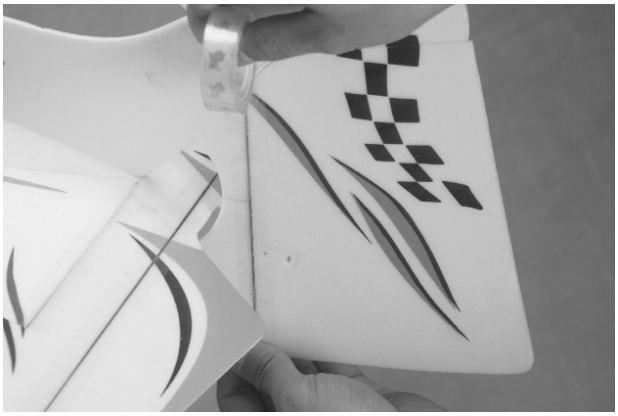






Step 12.

Hinge the rudder to the back of the fuselage, using the same techniques that you used tohinge the Elevator to the stabilizer.

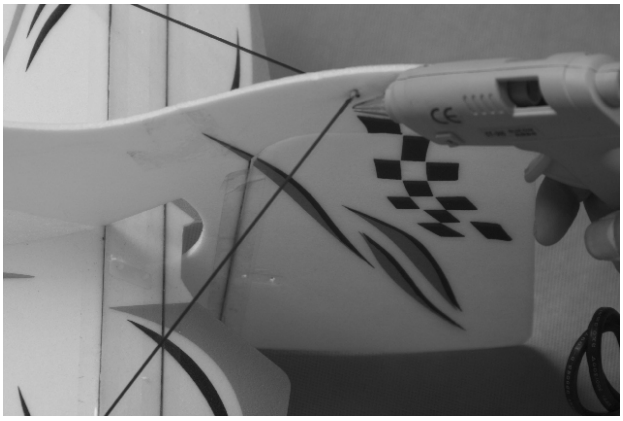


Section 2: Installing the Bracing

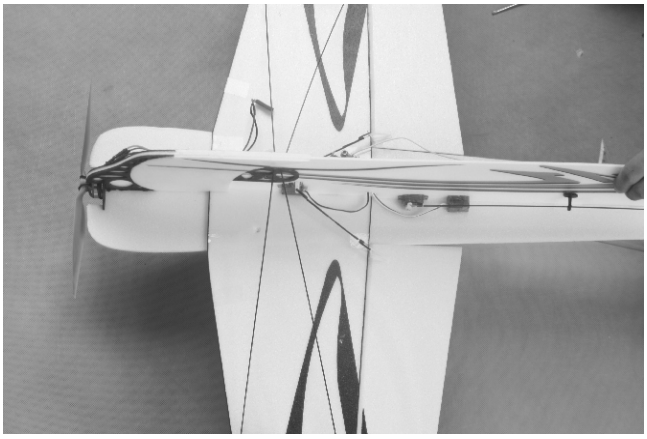
Parts Needed
Assembled airframe
Diameter 1.3mm Carbon rod

Tools and Adhesives Needed
foam-friendly C/A
Low-tack tape
Modeling Knife
Builder's Triangle
Masking Tape
Sandpaper
Side cutters
Eye protection
Note: It is important that each carbon rod attaches to the next,and to the carbon blade spars on the edges of the foam. This is necessary

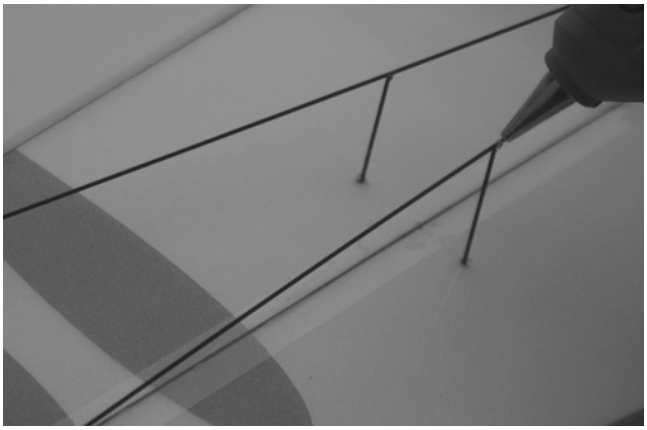
Step1.
Locate the two carbon rods. Pass the rods through the fin and stabilizer. Butt the rods together in the fin and use foam-friendly C/A to glue the rods to the fin ONLY at this time. Use a square to align the stabilizer with the fin. Once the fin is perpendicular to the stabilizer,use foam-friendly C/A to glue the carbon rod to the stabilizer. Square each side before gluing the rod on
that particular side.



Step2.
Installing the wing bracing is similar to installing the fuselage bracing,as you want the rods to be glued to the carbon bracing that has been preinstalled on the wing and fuselage. The rods are staggered and fit into notches in the fuselage. Make sure the rods are straight and are not Flexing the wing. Use foam-friendly C/A to glue the rods in position. The wing should be flat and parallel to the horizontal stabilizer, while also being perpendicular to the vertical
fuselage. Use side cutters to trim away any excess carbn rod.



Step3.
If you think flexing the wing is not enough,do as showed in the picture to improve the flexibility.

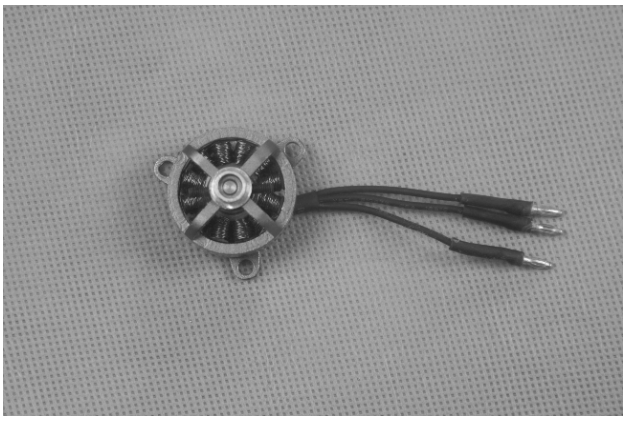


Section 3: Motor Installation

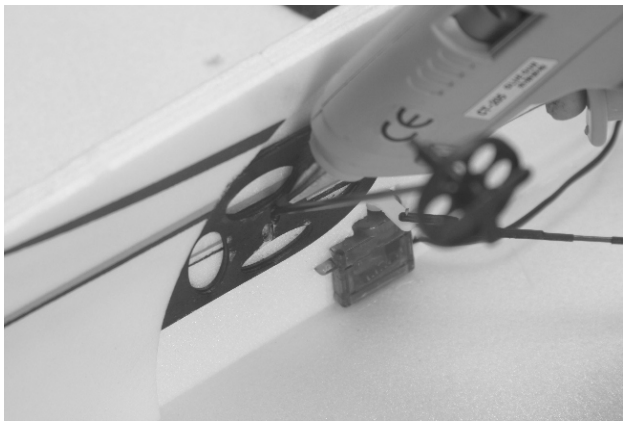
Parts Needed
Fuselage - 1
Wood Screws - 4

Tools and Adhesives Needed
Foam-Friendly Thin C/A
1 Phillips Head Screwdriver
220 Grit Sandpaper with Sanding Block

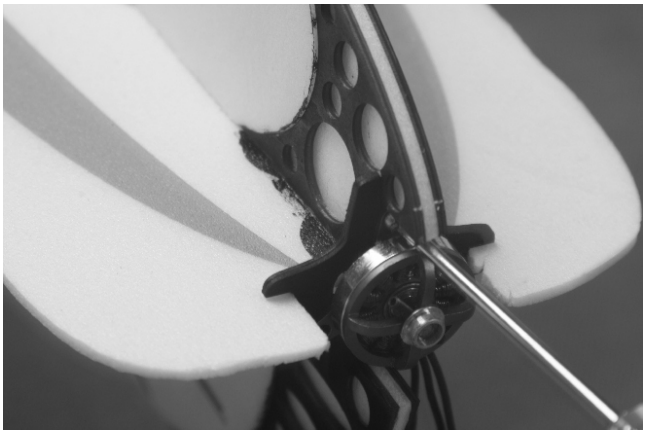
Step1.
Install the propeller adapter onto your motor,using the screws provided with your motor. Install the aluminum motor mount onto your motor,using the screws provided with your motor.



Step2.
Glue the firewall to the head of the plan.



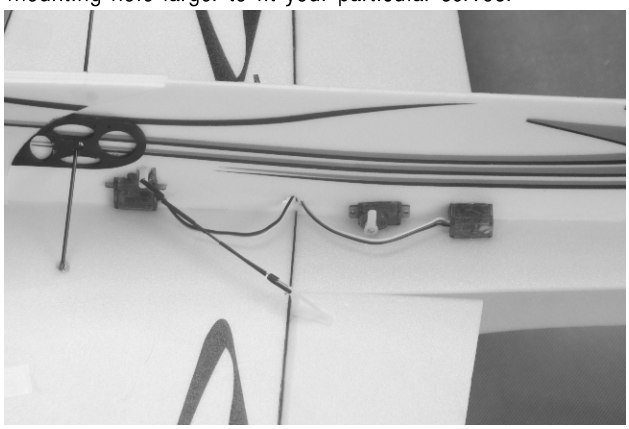
Step3.
Install the motor assembly onto the firewall,using the four wood screws provided. PRO TIP After flying the airplane,you may want to add right and/or down thrust to the motor. You can do this by adding thin washers between the motor mount and the firewall.



Section 4: Control Systems Installation

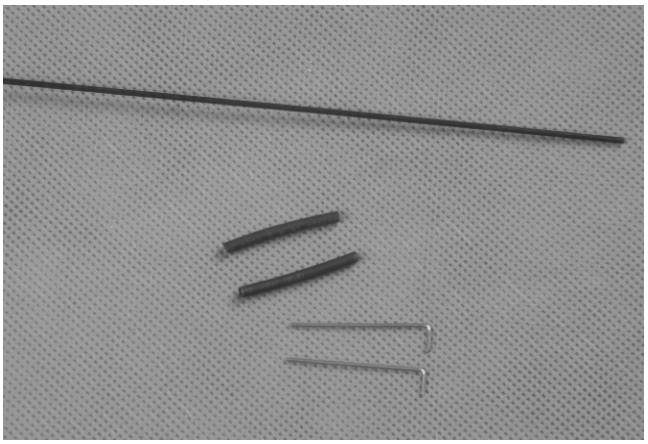
Parts Needed
Carbon Fiber Rods
Plain Wires
Control Horn Backplates
Control Horns
Heat-Shrink Tubing
Tools and Adhesives Needed
Foam-Friendly Thin and Thick C/A
Wire Cutters
Needle Nose Pliers
Modeling Knife
Straight Edge Ruler
Pencil
220 Grit Sandpaper with Sanding Block
Heat Gun

Step1.
Install the elevator aileron and rudder servos into the servo mounting hole in the right side of the fuselage. Use a dab of foam-friendly thick C/A to secure them into place. Because the size of servos differs,you may need to cut the servo mounting hole larger to fit your particular servos.

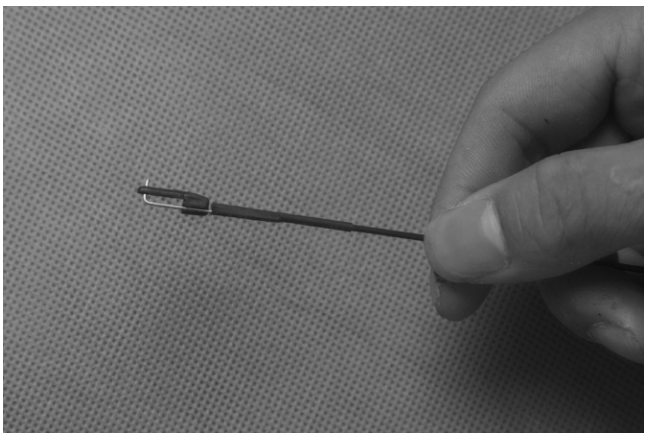


Step 2.
Carefully cut the front of the control horn mounting base off (A),then install the control horn onto the bottom of the elevator,using the backplate provided. Make sure to push the backplate firmly onto the control horn. It should click into position and hold the control horn tightly.
PRO TIP If the control horn still moves slightly with the backplate installed, apply some glue to the control horn to lock it into place.

Step3.
Cut two pieces of carbon fiber rod ,then cut two pieces of heat-shrink tubing to a length of 1-1/2" (38mm). Cut two pieces of plain wire to a length of 1-1/2" (38mm), then make a L-Bend in one end of each piece of wire and a 4mm long 90° bend in the other end of each piece of wire.

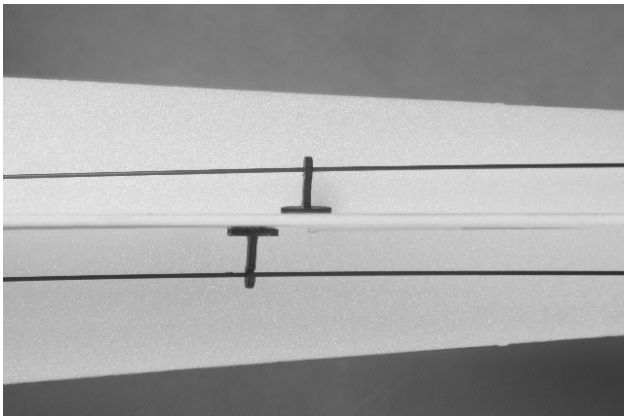


Step 4.
Secure one piece of wire to one end of the carbon fiber rod, using one piece of heat-shrink material. The piece of wire should overlap the carbon fiber rod at least 1" (25mm). Heat the heat-shrink material with a heat gun to shrink it into place. PRO TIP For extra security,apply a few drops of foam-friendly thin C/A to the end of the pushrod and allow it to "wick" into the joint.



Step5.

Slide one plywood pushrod supports over the end of the carbon fiberrod and temporarily push the plywood pushrod supports into the one precut slots in the fuselage. IMPORTANTDon't glue the plywood pushrod supports into place yet.

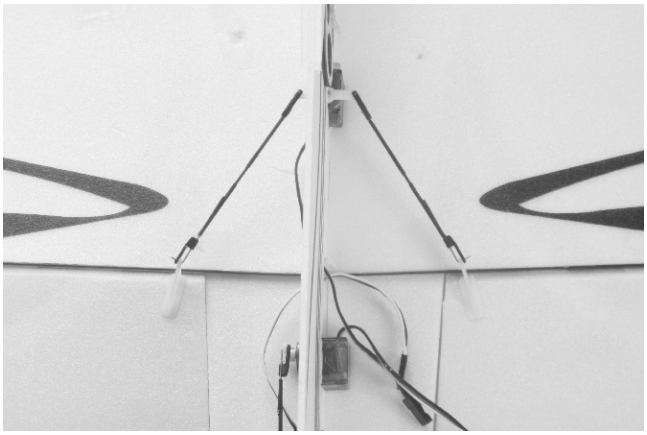


Step6.

Center the elevator and rudder servo,then attach the servo arm to the servo.

Step7.

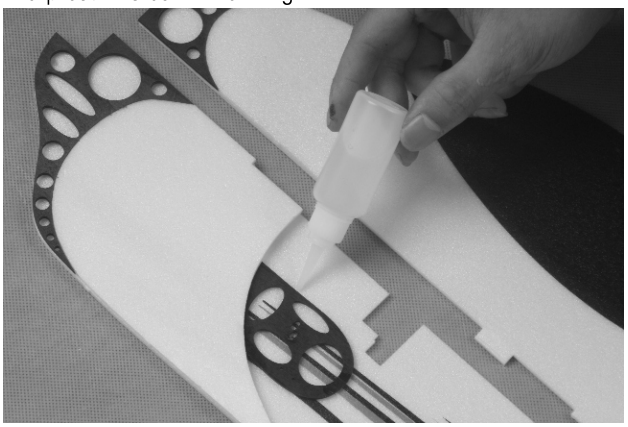
Install the horn of aileron same as the horn of stabilizer.



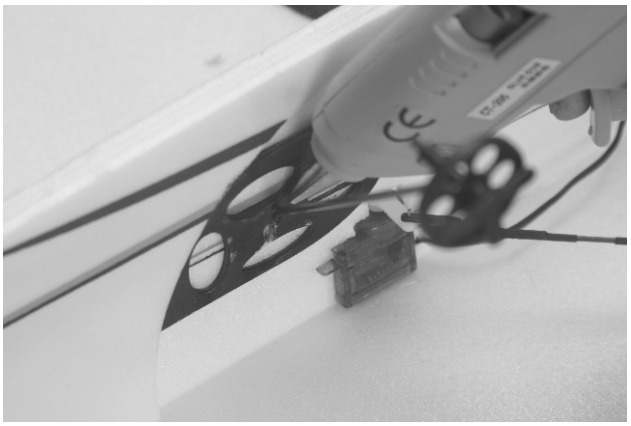
Section 5: Landing Gear Installation

Parts Needed
Landing Gear Struts
Doublers with Round Hole
Wheel Covers
Main Gear Wheels
Tools and Adhesives Needed
Foam-Friendly Thick C/A
Aerosol Zip-Kicker
Straight Edge Ruler
220 Grit Sandpaper with Sanding Block

Step1.
installing the landing gear struts.
Glue two doublers with hole to the bottom of the wing, making surethat the hole in each doubler is centered over the precut holes in the wing.

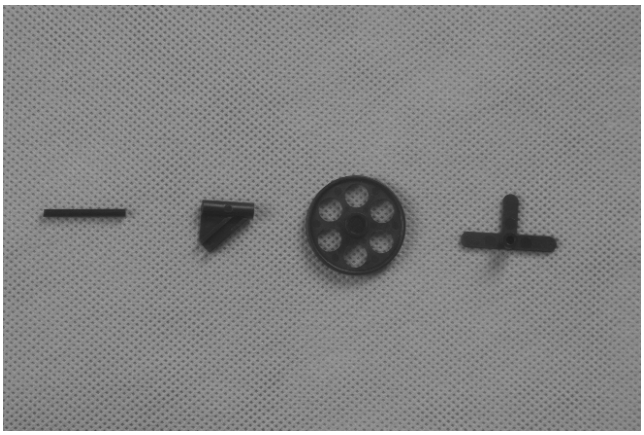


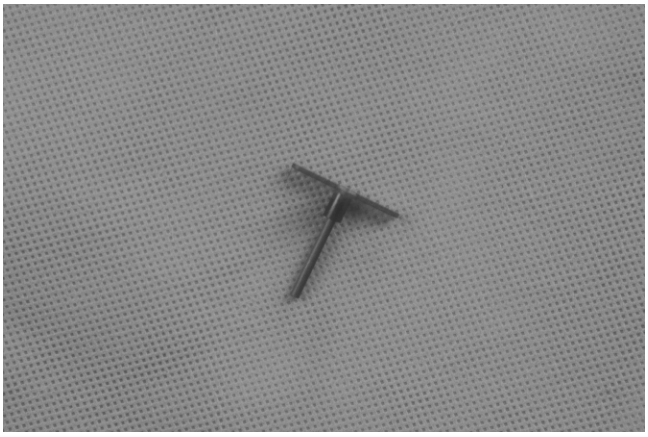
Step2.
Push one landing gear strut up through the Fuselage and slide a second doubler over the end of the landing gear strut.

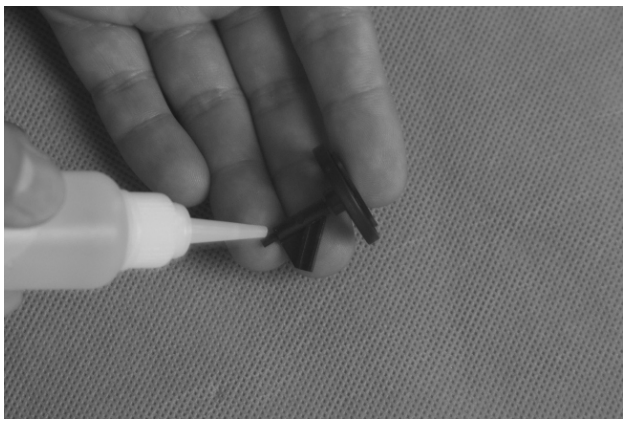


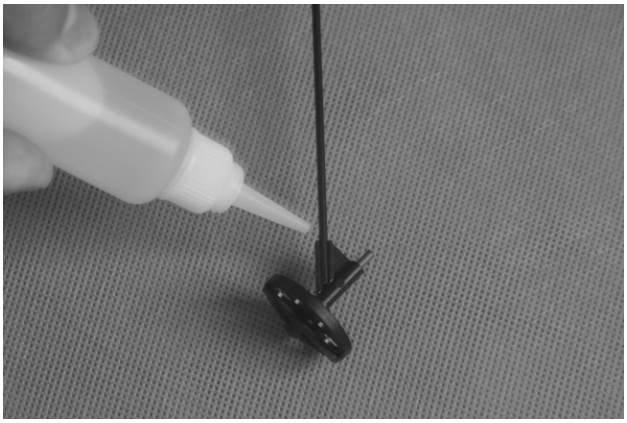
Step3.
Repeat the previous procedures to align and install the second landing gear strut. IMPORTANT Make sure that both landing gear strut are even with each other or else the airplane won't sit level on the ground.

Step4.
Insert the landing gear into the slot in the bottom of fuselage. Install the two wheels and wheel chocks. Keep 1mm distance between wheel and its chock. Apply some foam-friendly thick C/A to glue the chocks.









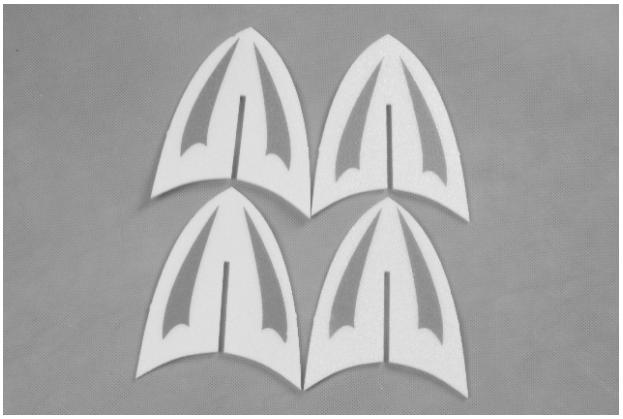
Step5.

Install wheel covers on the chock beside the wheel. Screw one more chock outside of the cover,glue it.

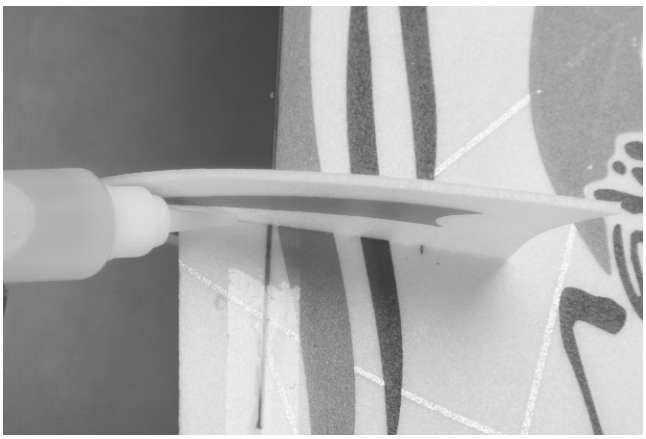
Section 6: Final Assembly

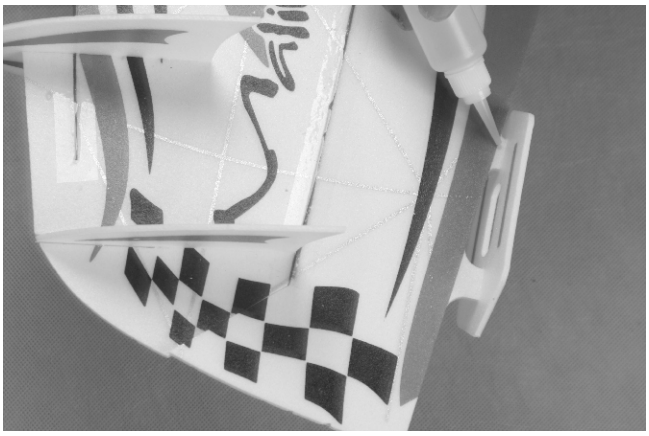
Parts Needed
Wing Fences
Hook and Loop Material -1
Tools and Adhesives Needed
Foam-Friendly C/A
Aerosol Zip-Kicker
Wire Cutters
Scissors
Solder
Heat-Shrink Tubing (Assorted Sizes)

To make your plan in better performance, install the wing fence.

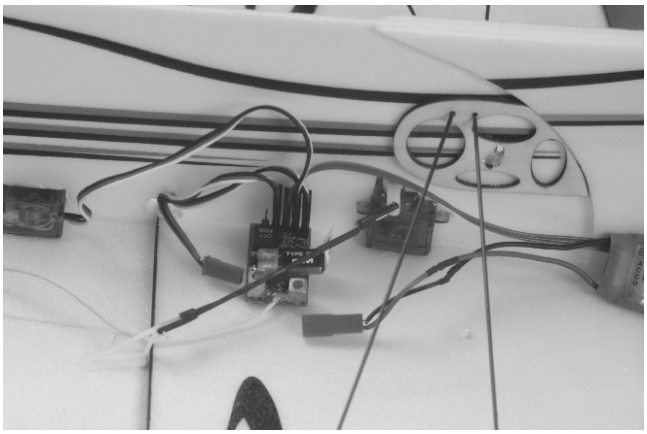


Step1.
Glue four wing fences to the wing,making sure that the back edge of each wing fence is even with the aileron hinge line. Use a builder's triangle to make sure that the wing fences are perpendicular to the wing.



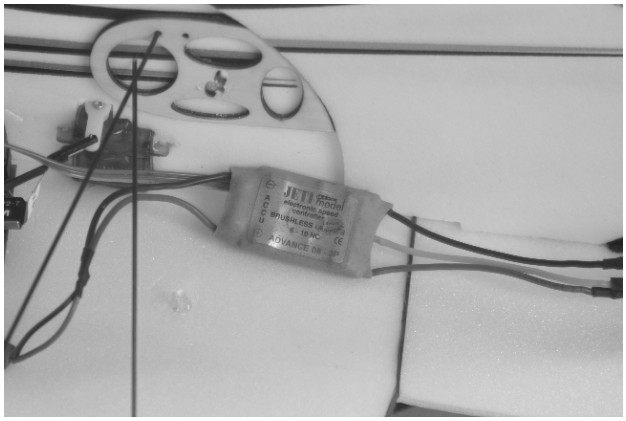


Step2.
Mount your ESC to the fuselage side,using a piece of double-side foam tape (not included).



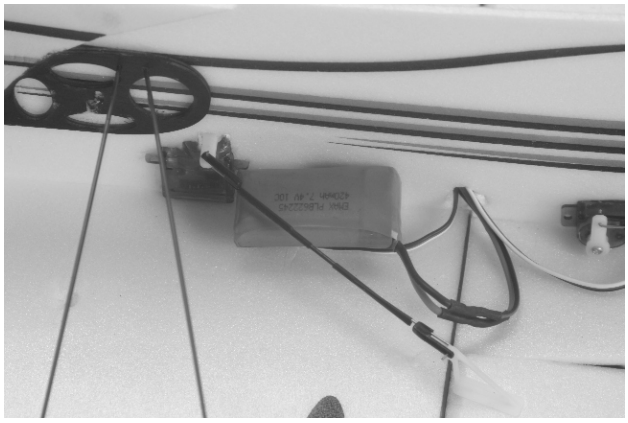
Step3.

Plug the servo and ESC leads into their proper slots in your receiver, then mount your receiver to the side of the fuselage, opposite the ESC,using a piece of double-sided foam tape (not included). Run the antenna out the bottom of the fuselage and secure it along its length,using pieces of clear tape (not included). Do not cut the antenna shorter. Allow the excess to hang beyond the back of the fuselage.



Step4.

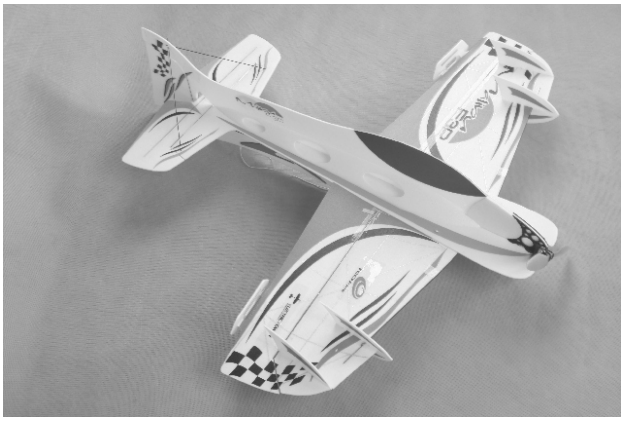
Install your battery into the battery compartment,using a Piece of hook and loop material.



Step5.

installing the propeller and decals. Balance your propeller,then install it onto your motor.Using a clean cloth,wipe the airframe down completely to remove any dust,debris and oil.Cut out each of the decals and apply them using the box cover photos for reference. If any air bubbles form under the decals when you apply them,use a T-Pin to puncture the bubble and release the trapped air,then press the decal down.

Section 7: Balance Point And Control Throws



BALANCE POINT
The Center of Gravity (C/G or Balance Point) is 3" (77mm) back from the leading edge of the TOP wing,measured at the center of the wing.
WARNING For test flying and general sport flying,we suggest you balance the airplane at the C/G recommended above. For 3D flying,you may want to experiment moving the C/G back in small increments until you're satisfied with the result.
control throws
Sport Flying
Ailerons: 3/8" (10mm) Up and Down
Elevator: 1" (25mm) Up and Down
Rudder: 1-1/4" (30mm) Right and Left
3D Flying
Ailerons: 1" (25mm) Up and Down
Elevator: 2.5" (64mm) Up and Down
R udder: 3" (76mm) Right and Left
The control throws are measured from the widest point of the control surfaces

Exponential
Sport Flying
Ailerons: 20%
Elevator: 20%
Rudder: 20%
3D Flying
Ailerons: 35% - 50%
Elevator: 35% - 50%
R udder: 35% - 50%
Exponential softens the response of the control surfaces around neutral stick. This makes the airplane easier to control while using such large control throws. The Exponential values shown are given as a percent. Please note that different brands of radio control systems may call for + or - Expo. Please check your transmitter's owners manual for more info.

MOTOR THRUST
To ensure great flight performance and to be able to trim your airplane properly,it is critical that you adjust the motor thrust as described. We suggest that you add 2 degrees of down-thrust and 1 degrees of right-thrust. This can be achieved by adding a washer or two behind the top and right side of the motor (between the motor and the firewall). When set properly, the trim for the elevator and the rudder should be neutral. Fine-tune the down-thrust and right-thrust until this trim is achieved.

Notes

Notes

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