

Divo 3D Profile

Assembly Manual



Specifications

Wingspan:	28 in (715mm)
Length:	31 in (807mm)
Wing Area:	347 sq in (22.4 sq dm)
Weight w/ Battery:	7.5-8.5 oz (215-241 g)
Weight w/o Battery:	6.1-7.5 oz (173-215 g)

E-flite[®]
ADVANCING ELECTRIC FLIGHT

Table of Contents

Specifications	1
Introduction.....	2
Using the Manual.....	3
Contents of Kit/Parts Layout.....	3
Required Radio Equipment.....	3
Important Information About Motor Selection	4
Outrunner Setup (E-flite)	4
Outrunner Setup (Cyclon)	4
Optional Accessories	4
Required Tools and Adhesives	4
Notes Regarding Servos and ESC	5
Note on Lithium Polymer Batteries	5
Warning	5
Warranty Period	5
Limited Warranty	5
Damage Limits	6
Safety Precautions	6
Questions, Assistance, and Repairs	6
Inspection or Repairs	6
Warranty Inspection and Repairs	6
Non-Warranty Repairs	7
Safety, Precautions, and Warnings	7
Fuselage Assembly	8
Wing Assembly.....	12
Carbon Rod Installation	14
Motor Installation (E-flite)	16
Motor Installation (Cyclon)	18
Servo Installation.....	21
Electronics Installation.....	26
Landing Gear Installation.....	28
Control Throws.....	30
Center of Gravity	31
Range Test Your Radio	31
Preflight	32
Flying Your Divo.....	32
2007 Official AMA National Model Aircraft Safety Code ...	33
Building and Flying Notes:.....	34

Introduction

Thank you for purchasing the E-flite® Divo. Designed by champion 3D pilot, Quique Somenzini, the Divo 3D is engineered to be as adept at slow-speed 3D as it is precision aerobatics. The biplane design not only provides crisp roll response, but it gives the Divo 3D superb slow flight stability so you can fly high-alpha 3D with authority. Its carbon fiber reinforced Depron foam construction provides the solid, precise in-flight feel of a balsa profile plane but without the weight. This makes it possible to fly the Divo 3D inside and excel at precision aerobatics or outside in breezier conditions that would keep most other profile foamies grounded.

Using the Manual

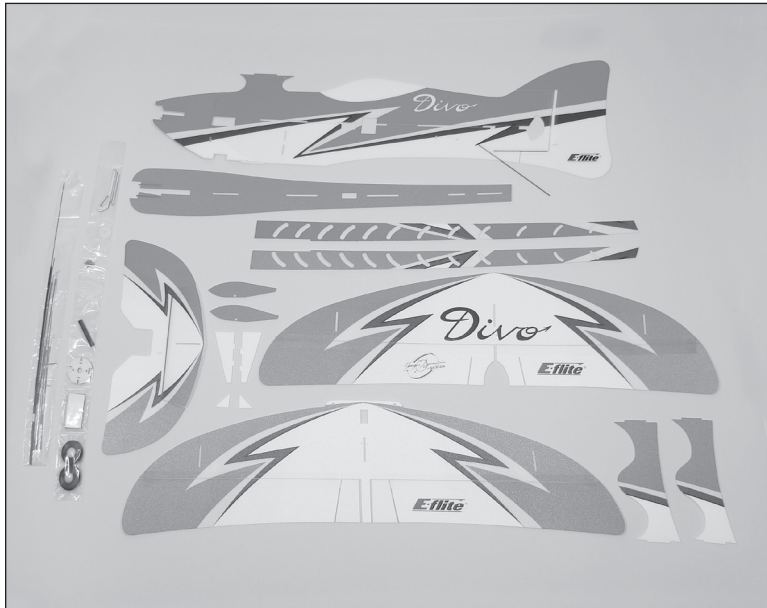
This manual is divided into sections to help make assembly easier to understand, and to provide breaks between each major section. In addition, check boxes have been placed next to each step to keep track of each step completed. Steps with a single circle (○) are performed once, while steps with two circles (○ ○) 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/Parts Layout

Replacement Parts

EFL1126	Motor Mount Set
EFL1127	Carbon Pushrod Set
EFL1128	Carbon Wing Bracing
EFL1129R	Red Wheel Pants
EFL1129B	Blue Wheel Pants
EFL1130	Landing Gear
EFL1131	Micro Control Horns/Wood



Required Radio Equipment

You will need a minimum 6-channel transmitter (for proper mixing and dual rate capabilities), crystals, micro receiver, and three sub-micro servos. You can choose to purchase a complete radio system that includes all of these items or, if you are using an existing transmitter, just purchase the other required equipment separately. We recommend the crystal-free, interference-free Spektrum DX7 2.4GHz DSM2® 7-channel system. If using your own transmitter, we recommend the use of a JR SPORT™ 6-channel UltraLite receiver and E-flite® S60 Super Sub-Micro servos for 72MHz users or the Nanolite 6ch flight pack for Spectrum users.

For Spectrum DX7 users

SPMAR6300F DSM2 6CH Nanolite Flight Pack

For 72MHz users

JSP30610	6-Channel UltraLite Rx w/o Crystal, Positive Shift JR/AIR (72MHz)
JSP30615	6-Channel UltraLite Rx w/o Crystal, Negative Shift Fut/HRC (72MHz)
JRPXFR**	FM Receiver Crystal (JR only, not AR6000)
EFLRS60	6.0-Gram Super Sub-Micro Servo (3)

If you are using a Spectrum DX6

SPM6000	AR6000 DSM 6-Channel Park Flyer Receiver
EFLRS60	6.0-Gram Super Sub-Micro Servo (3)

Important Information About Motor Selection

We recommend the E-flite® Park 300 Brushless Outrunner, 1380Kv (EFLM1150) to provide you with lightweight 3D performance, or the Cyclon Micro Brushless Outrunner, 1480Kv (CYLCPLR05) for slightly more torque and performance.

Outrunner Setup (E-flite)

EFLM1150 Park 300 Brushless Outrunner Motor, 1380Kv
EFLA1010 10-Amp Pro Brushless ESC
APC09038SF 9x3.8 Slow Flyer Prop
THP7303SJPL 730mAh 3-Cell 11.1V Li-Po, JST
EFLC3005 Celectra™ 1–3 Cell Li-Po Charger

Outrunner Setup (Cyclon)

CYLCPLR05 Cyclon Micro Brushless Outrunner Motor, 1480Kv
EFLA1010 10-Amp Pro Brushless ESC
APC09038SF 9x3.8 Slow Flyer Prop
THP7303SJPL 730mAh 3-Cell 11.1V Li-Po, JST
EFLC3005 Celectra™ 1–3 Cell Li-Po Charger

Or

THP4803SJPL 480mAh 3-Cell 11.1V Li-Po, JST

Note: The use of the Thunder Power 480mAh pack and Cyclon motor will offer a lighter weight set up. Use caution as wide open throttle will discharge the battery at a very high rate. Proper throttle management is required to achieve optimum performance and prevent shortened battery life.

Optional Accessories

EFLA110 Power Meter

Required Tools and Adhesives

Tools & Equipment

EFLA250 Park Flyer Tool Assortment, 5-piece

Or Purchase Separately

EFLA257 Screwdriver, #0 Phillips (or included with EFLA250)

Foam-safe CA

Foam-safe CA activator

Pin drill

Drill bit: 1/16-inch (1.5mm)

6-minute epoxy

Hot glue gun

Low-temperature hot glue

Felt-tipped pen

Paper towels

Hobby knife (#11 blade)

Small round file

Ruler

Square

Low-tack masking tape

Notes Regarding Servos and ESC

WARNING: Use of servos other than those we recommend may overload the BEC of the recommended Electronic Speed Control (ESC). We suggest the use of only the servos we recommend when utilizing the recommended ESC's BEC, or the use of a separate BEC (like the UBEC) or receiver battery pack when using other servos.

Note on Lithium Polymer Batteries



Lithium Polymer batteries are significantly more volatile than alkaline or Ni-Cd/Ni-MH batteries used in RC applications. All manufacturer's instructions and warnings must be followed closely. Mishandling of Li-Po batteries can result in fire. Always follow the manufacturer's instructions when disposing of Lithium Polymer batteries.

Warning

An RC aircraft is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly only in open areas, preferably at AMA (Academy of Model Aeronautics) approved flying sites, following all instructions included with your radio.

Keep loose items that can get entangled in the propeller away from the prop, including loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the propeller.

Warranty Period

Horizon Hobby, Inc., (Horizon) warrants that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

Limited Warranty

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

Damage Limits

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

Safety Precautions

This is a sophisticated hobby Product and not a toy. It must be operated with caution and common sense and requires 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. The Product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

Questions, Assistance, and Repairs

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a service technician.

Inspection or Repairs

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as **Horizon is not responsible for merchandise until it arrives and is accepted at our facility**. A Service Repair Request is available at www.horizonhobby.com on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

Non-Warranty Repairs

Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. ***Please note: non-warranty repair is only available on electronics and model engines.***

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822

All other Products requiring warranty inspection or repair should be shipped to the following address:

Horizon Product Support
4105 Fieldstone Road
Champaign, Illinois 61822

Please call 877-504-0233 with any questions or concerns regarding this product or warranty.

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.

Fuselage Assembly

Required Parts

Vertical fuselage	Horizontal fuselage
Stabilizer/elevator	Horizontal fuselage brace (L&R)
Plywood firewall	Fuselage stiffener (R&L)
Triangular fuselage brace	

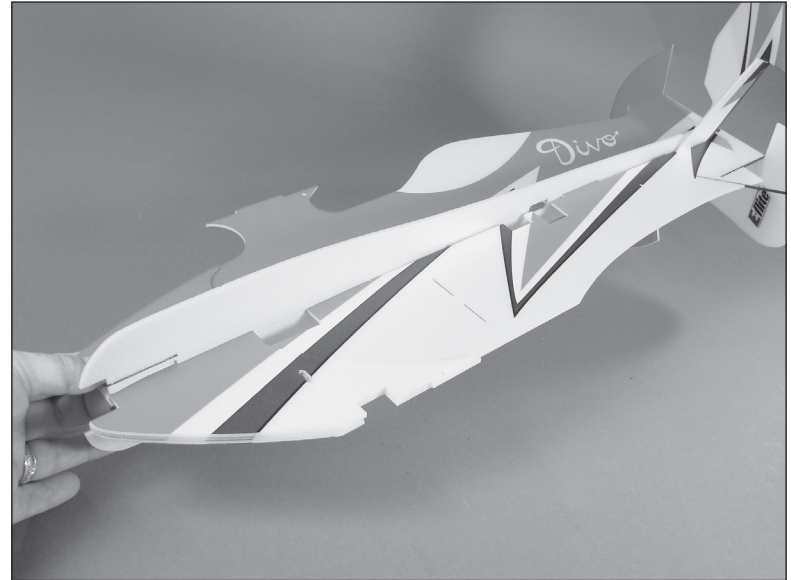
Required Tools and Adhesives

Foam-safe CA	Foam-safe CA activator
Low-tack masking tape	Square

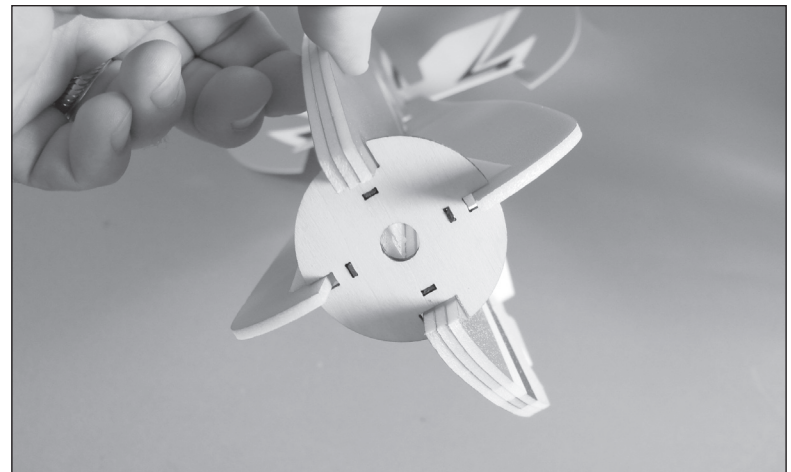
- 1. Slide the stabilizer/elevator into the slot at the rear of the fuselage.



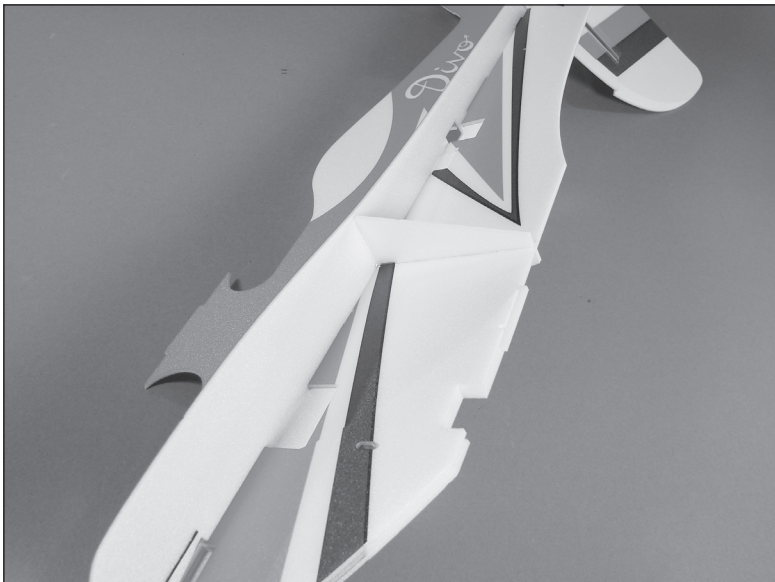
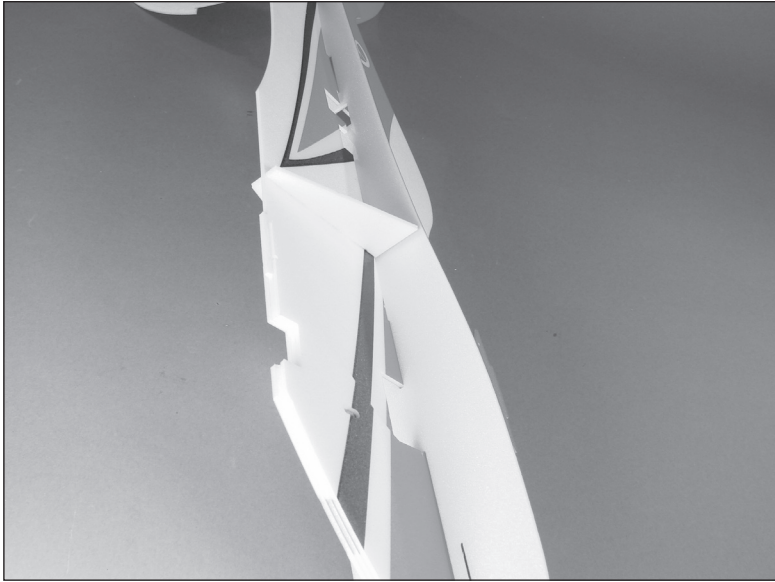
- 2. Slide the horizontal fuselage into the vertical fuselage. The horizontal fuselage will rest on the top of the stabilizer/elevator.



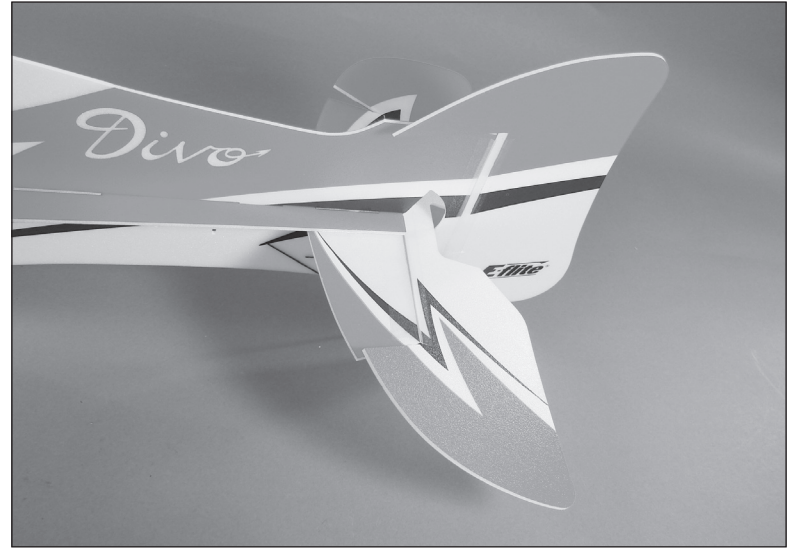
- 3. Position the plywood firewall at the front of the fuselage. DO NOT glue the firewall, it is only to aid in the alignment of the horizontal and vertical fuselage pieces at this time.



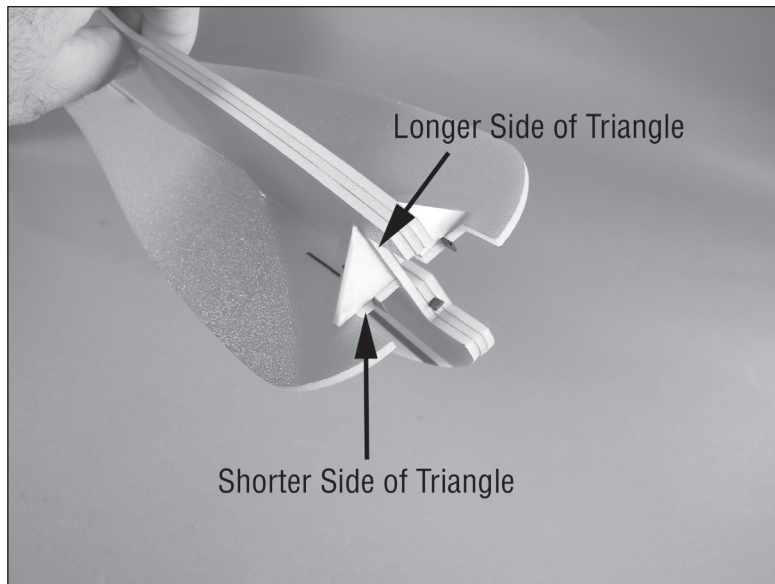
- 4. Use foam-safe CA to glue the horizontal fuselage braces to the vertical fuselage. Make sure the top edge of the brace is aligned with the bottom edge of the slot for the horizontal fuselage, as this will help in keeping the horizontal fuselage square to the vertical fuselage.



- 5. Align the slot in the horizontal fuselage with the stabilizer. Use foam-safe CA to glue the horizontal fuselage to the stabilizer ONLY.



- 6. Apply a couple drops of foam-safe CA near the firewall to tack glue the horizontal and vertical fuselage pieces together. Only glue around a 1/4-inch (4mm) section at this time near the firewall.
- 7. Remove the firewall and glue the two triangular fuselage braces in position. Make sure they are positioned so they will not interfere with the installation of the firewall later in the assembly.



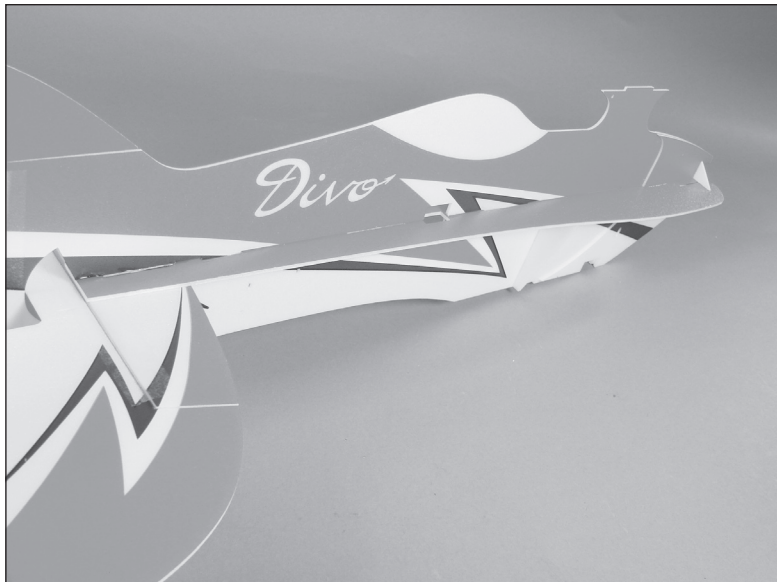
Note: The longer side of the triangular fuselage braces are against the vertical fuselage, and the shorter edge against the horizontal fuselage brace.

- 8. Align the stabilizer square to the vertical fuselage. Apply a few drops of foam-safe CA to glue the stabilizer to the vertical fuselage.

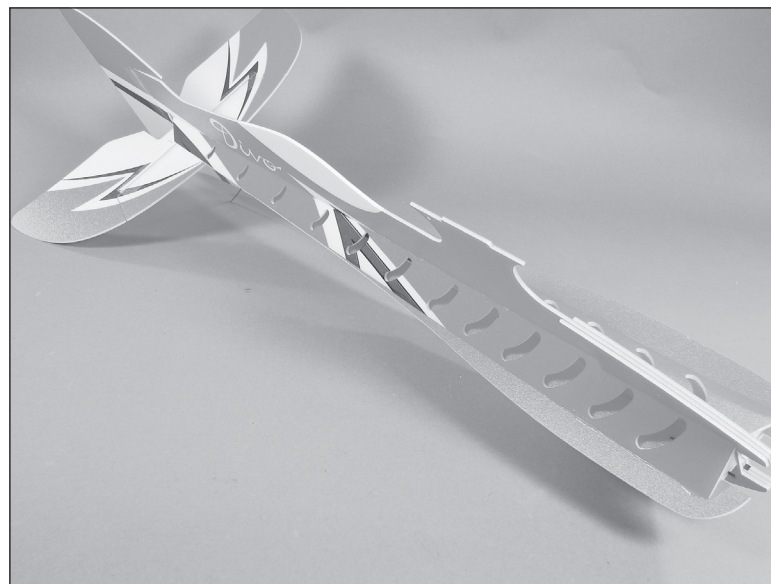
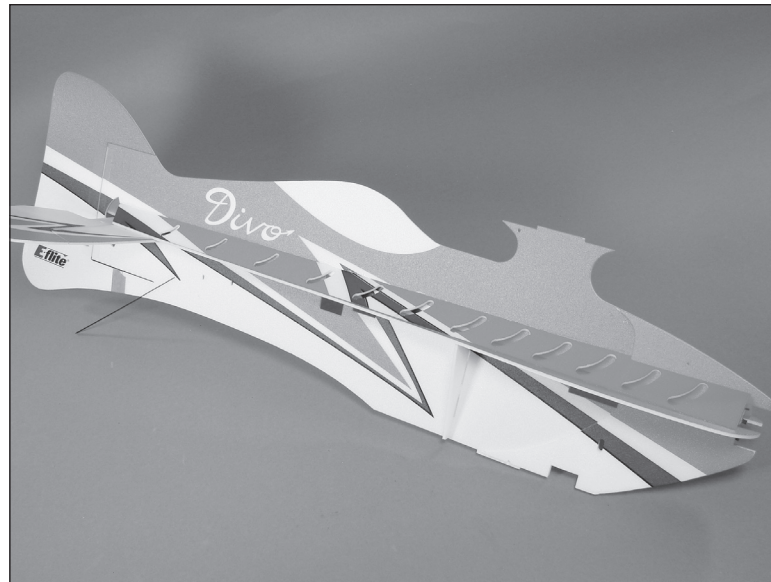


Hint: Use low-tack masking tape to hold the fin/rudder and stabilizer/elevator in neutral. This will make the assembly of your airframe slightly easier than if they are moving about while handling the airframe.

- 9. Carefully work on gluing the horizontal fuselage to the vertical fuselage. Also glue the horizontal fuselage stiffener to the horizontal fuselage. Use a square to make sure the two remain properly aligned to each other while gluing.



- 10. Position the fuselage stiffeners as shown. They will rest on the triangular fuse braces at the front of the fuselage. Again, use foam-safe CA and work slowly while gluing to keep the horizontal and vertical fuselage pieces square to each other.



Wing Assembly

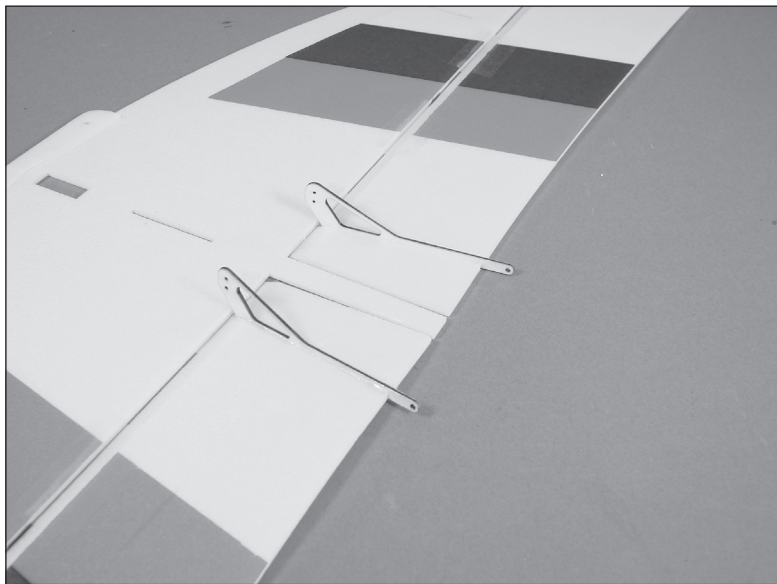
Required Parts

Fuselage assembly	Micro control connector (2)
Top wing	Top wing control horn (2)
Bottom wing	Bottom wing control horn (2)
Cabane strut (2)	
Micro control connector backplate (2)	

Required Tools and Adhesives

Foam-safe CA	Square
Foam-safe CA activator	

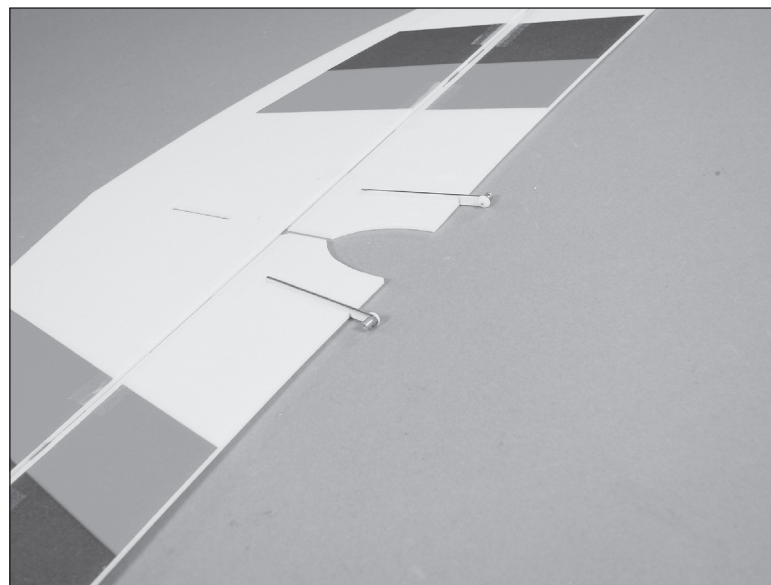
- 1. Place a piece of waxed paper onto your work surface. With the top of the bottom wing resting on the waxed paper, use foam-safe CA to glue the bottom wing control horns to the ailerons. The horns will be flush with the top of the bottom ailerons.



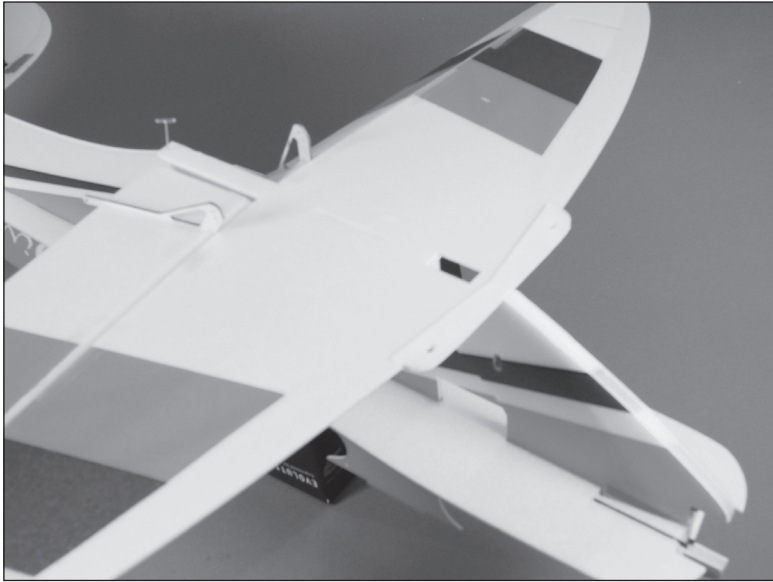
- 2. Install the micro control connectors into the top wing control horns. Secure them using the micro control connector backplates. Prepare both horns at this time.



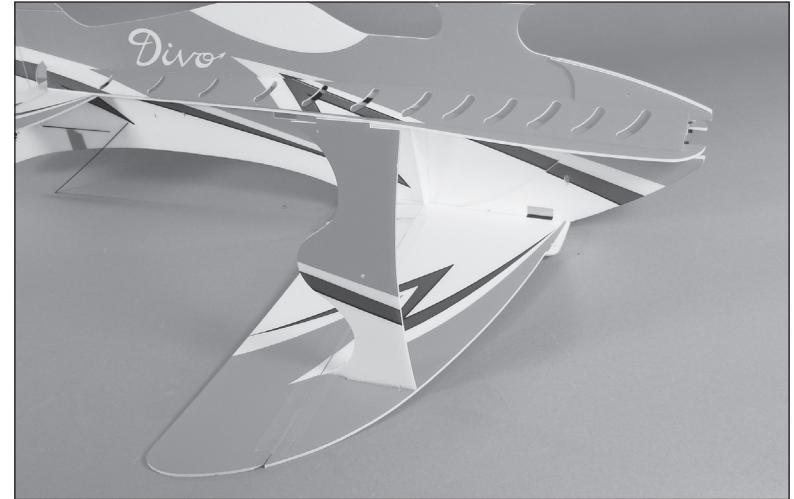
- 3. Place a piece of waxed paper onto your work surface. With the top of the top wing resting on the waxed paper, use foam-safe CA to glue the top wing control horns to the ailerons. The horns will be flush with the top of the top ailerons.



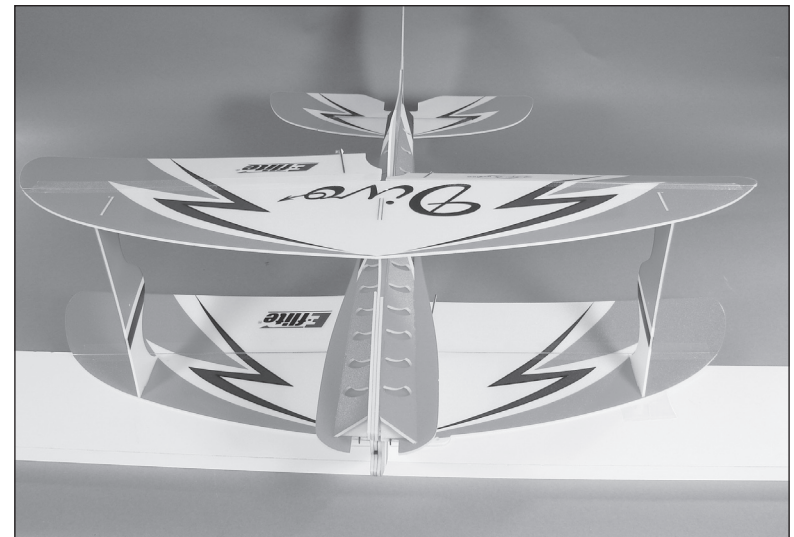
- 4. Use foam-safe CA to glue the bottom wing to the vertical fuselage. Use a square to make sure the wing is aligned to the fuselage while the glue cures.



- 5. Use foam-safe CA to glue the cabane struts to the bottom wing. The struts will be square to the bottom wing when they are glued as well.



- 6. Glue the top wing to the cabane struts and vertical fuselage. A narrow board will keep the bottom wing flat when gluing the top wing and avoid any possibilities of twisting the wings.



Carbon Rod Installation

Required Parts

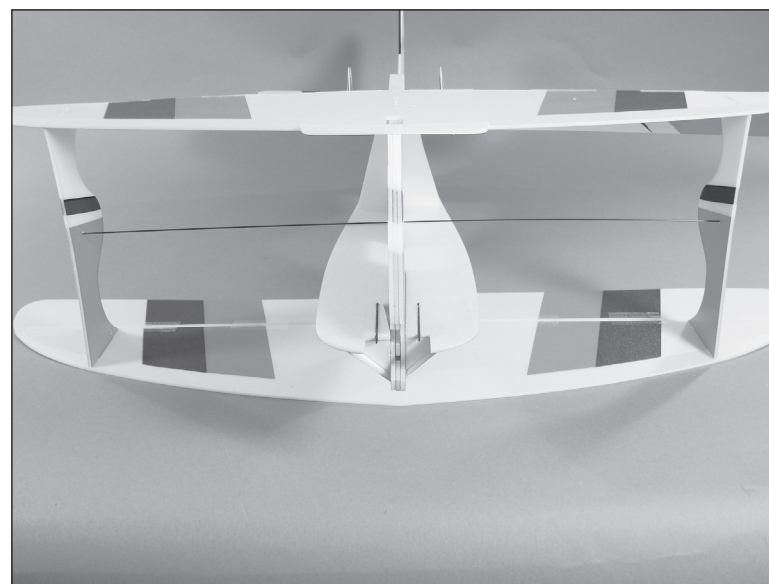
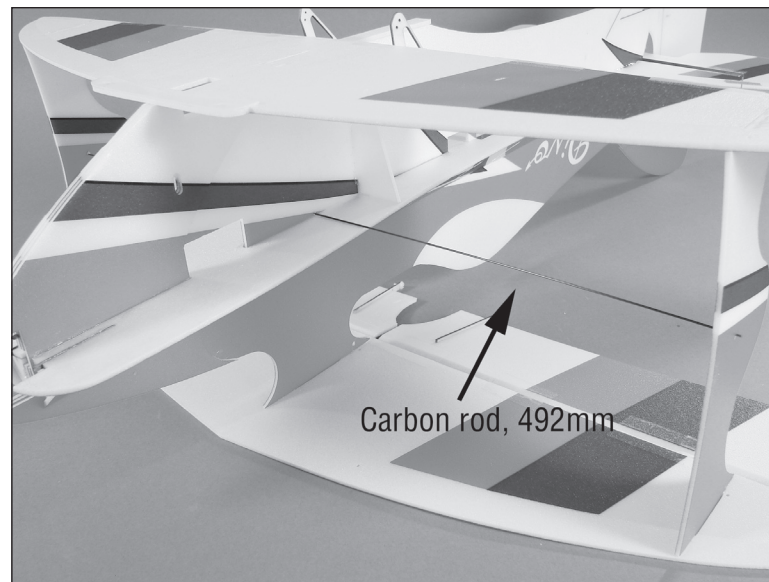
Assembled airframe
Carbon rod, 5.4-inch (137mm) (4)
Carbon rod, 5.1-inch (130mm) (2)
Carbon rod, 19.4-inch (492mm)
Carbon rod, 12.8-inch (325mm) (4)

Required Tools and Adhesives

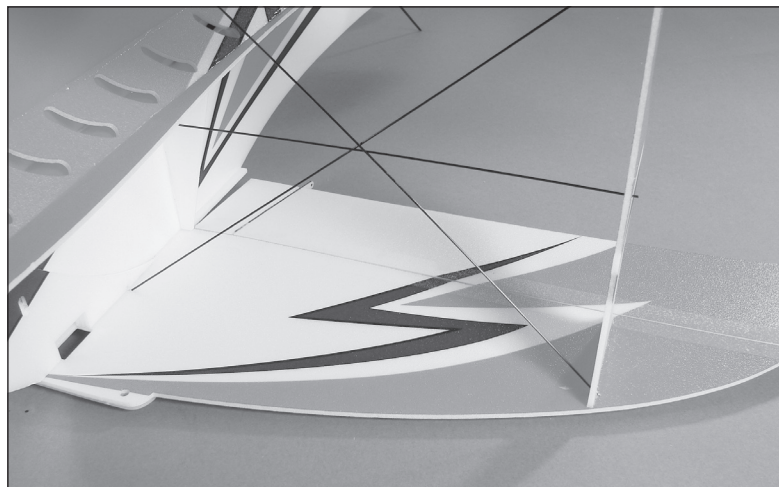
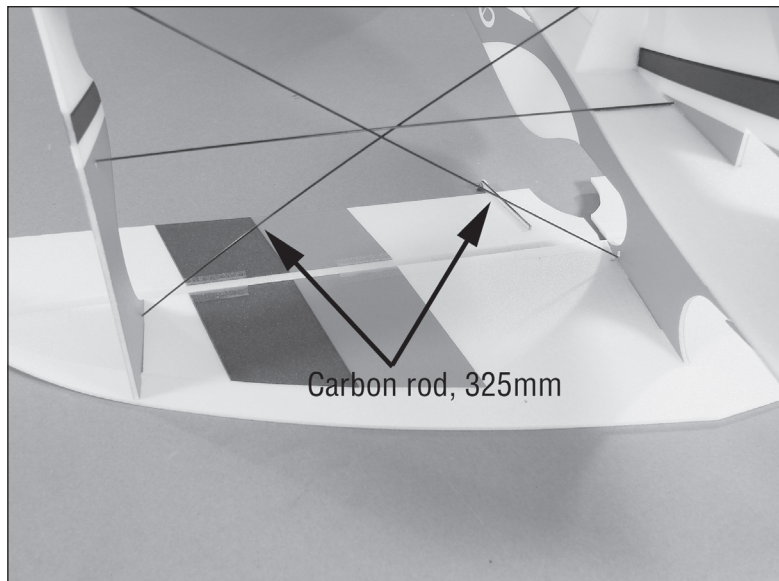
Foam-safe CA
Foam-safe CA activator
Straight edge

Note: You must take extra care in these next few steps to maintain the alignment of your airframe and to not build in any unwanted twists in the airframe. Make sure to keep everything aligned and the wings straight with the fuselage. Also make sure not to induce any twist in the wings, which could adversely affect the flight characteristics of your aircraft.

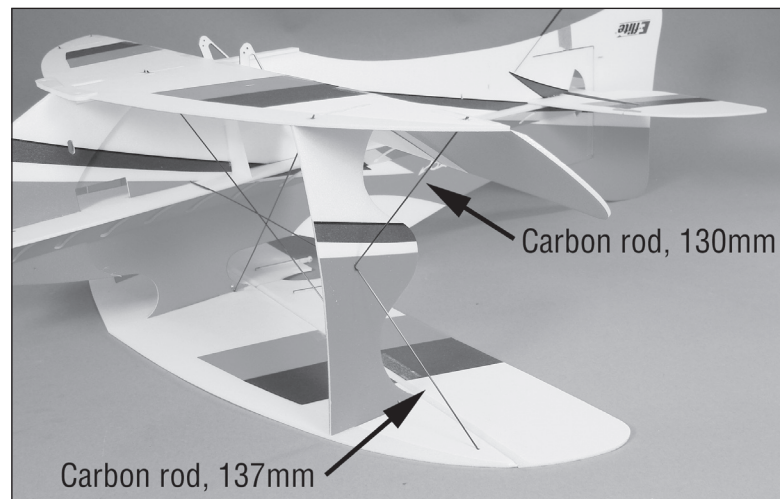
1. Slide the 19.4-inch (492mm) carbon rod through the cabane struts and fuselage. Center the carbon rod and check that both struts are not bent using a straight edge. Use foam-safe CA to glue the carbon rod to both struts and fuselage.



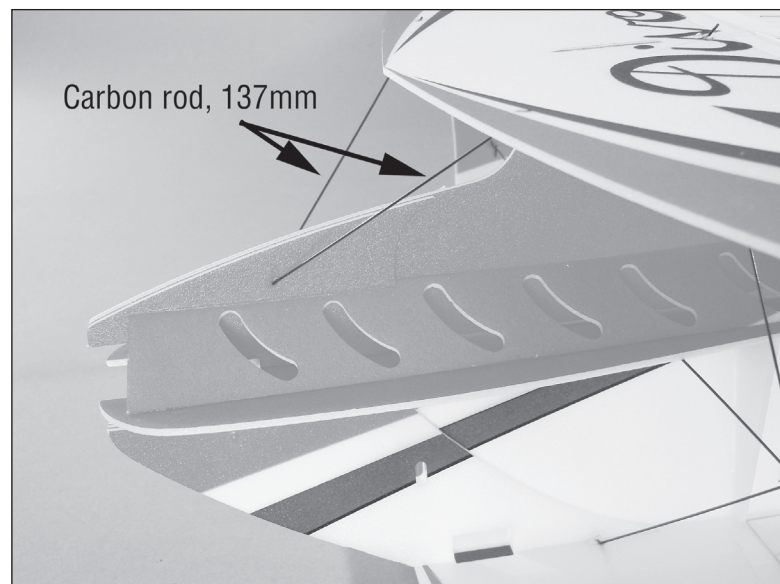
- 2. Use the 12.8-inch (325mm) carbon rods to install the cross bracing between the fuselage, top wing, bottom wing and cabane struts. Position the carbon rods so there is an equal amount of carbon rod extending beyond the top of the top wing and from the bottom of the bottom wing. Use foam-safe CA to glue the carbon rods in position. Glue the three rods together where they cross each other as well.



- 3. Use the 5.1-inch (130mm) carbon rod to go between the cabane strut and bottom wing, and the 5.4-inch (137mm) carbon rod between the cabane strut and top wing.



- 4. Install the final 5.4-inch (137mm) carbon rods between the vertical fuselage and top wing using foam-safe CA.



Motor Installation (E-flite)

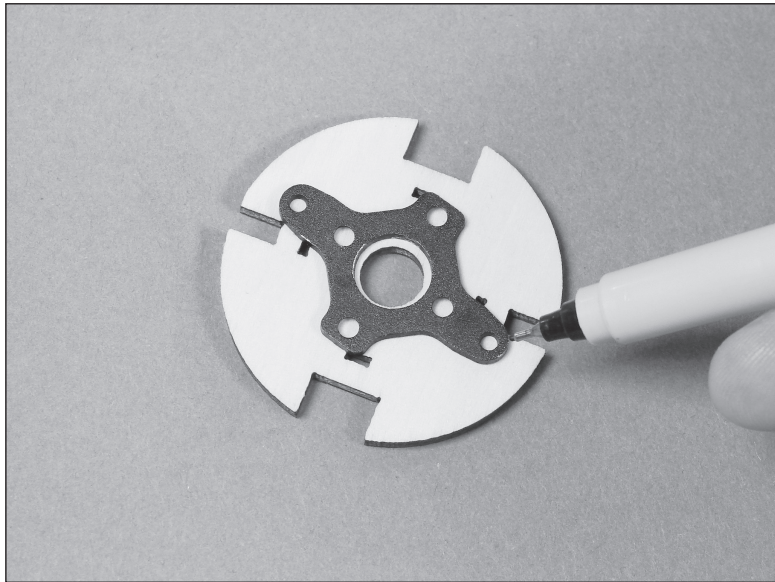
Required Parts

Assembled airframe Plywood firewall
Motor w/hardware

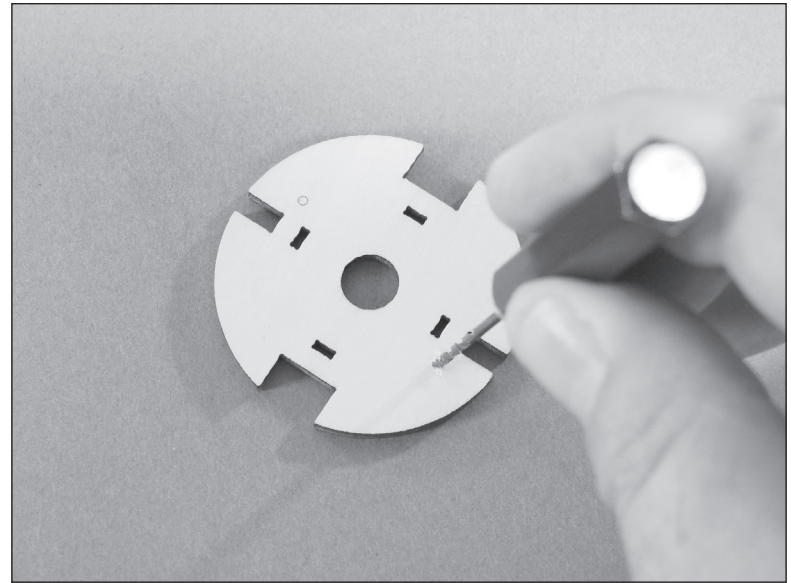
Required Tools and Adhesives

Foam-safe CA Foam-safe CA activator
Felt-tipped pen Pin drill
Drill bit: 1/16-inch (1.5mm) #0 Phillips screwdriver

- 1. Position the mount for your motor centered on the firewall. The edges of the mount will be almost touching the narrow notches in the firewall. Use a felt-tipped pen to mark the locations for the mounting screws through the motor mount.



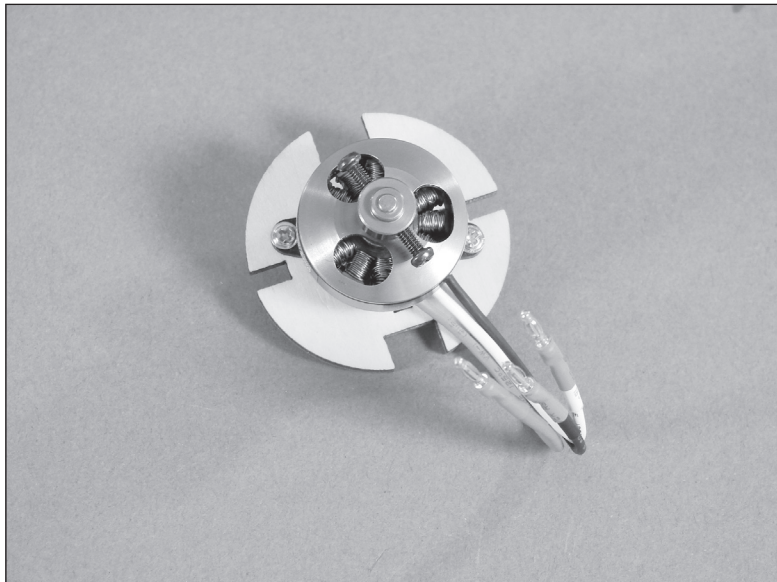
- 2. Drill two 1/16-inch (1.5mm) holes in the firewall at the locations marked in the previous step.



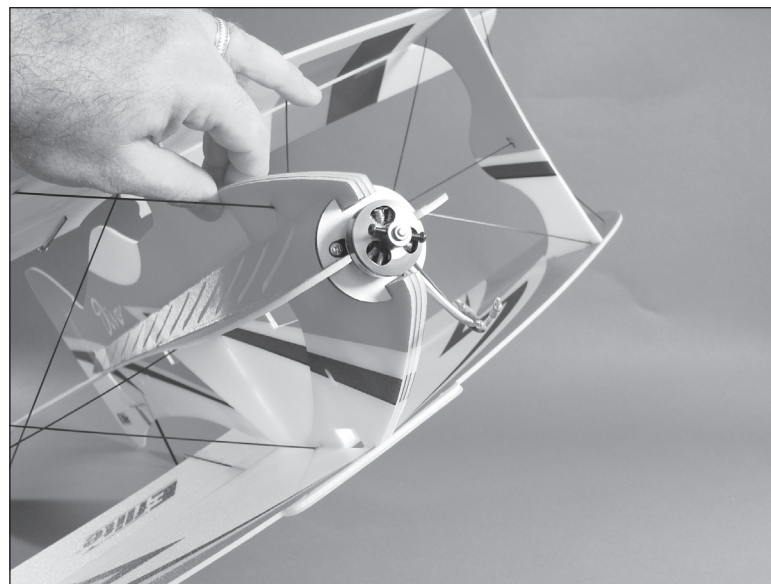
- 3. Attach the motor mount to the motor using the hardware provided with the motor.



- 4. Attach the motor to the firewall using two screws provided with the motor. Apply a couple of drops of thin CA to the screws where they protrude beyond the back of the firewall.

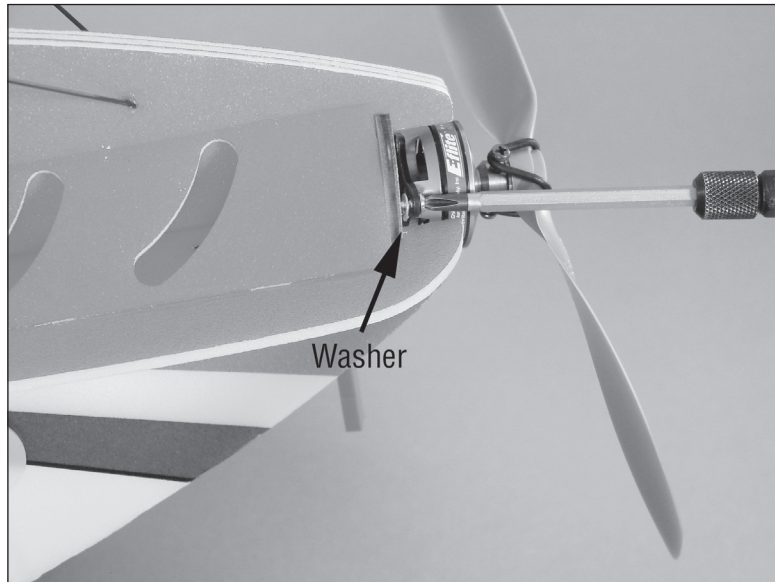


- 5. Use foam-safe CA to attach the firewall to the fuselage.



Note: The firewall must fit tight against the vertical and horizontal fuselage pieces.

Important: The amount of right thrust is specifically designed into the airframe for indoor competition flight. If you will be flying your Divo indoors and out, we recommend that you reduce the amount of thrust to 2 to 3 degrees. To do this with the wooden firewall and Park 300 motor, just add one to two washers to the right side of the motor between the firewall and the motor.



Motor Installation (Cyclon)

Required Parts

Assembled airframe Carbon tube
Motor w/hardware

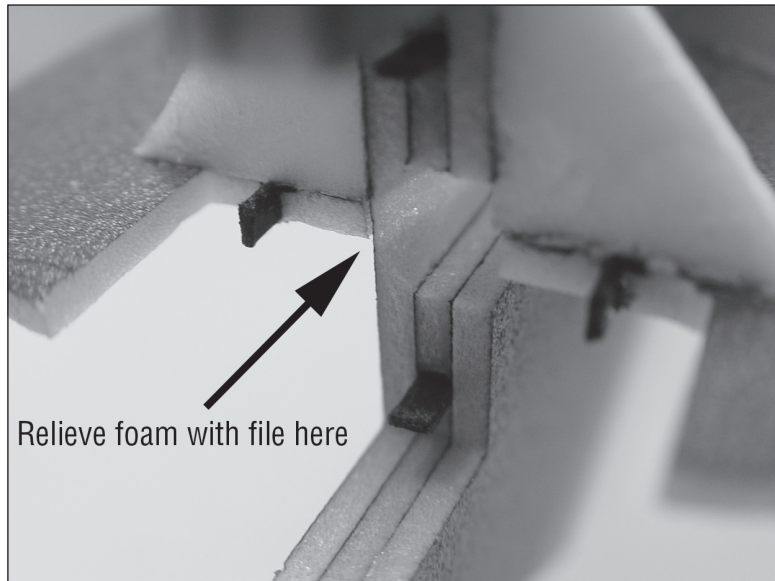
Required Tools and Adhesives

Small round file 6-minute epoxy

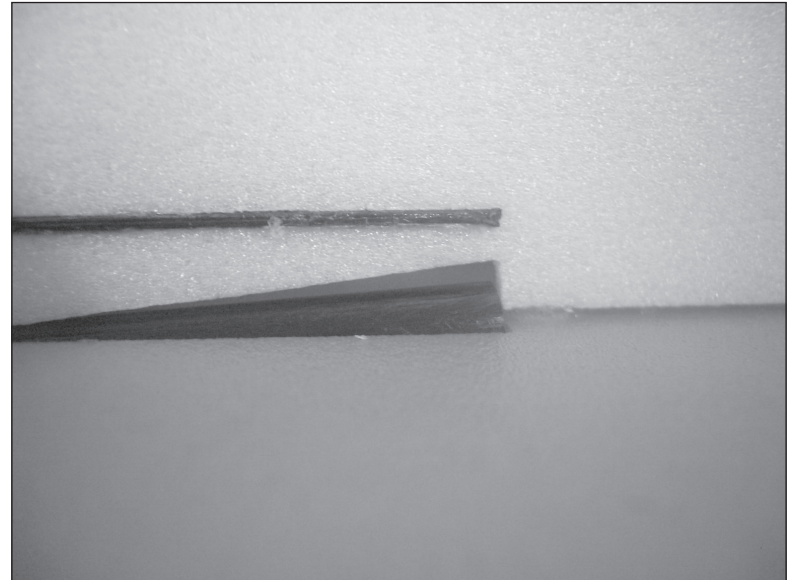
- 1. Sand the carbon tube on the outside. This will give a good bond to the epoxy.

Note: If you plan on flying very aggressive 3D flight, use a small screw to hold the motor to the tube along with the epoxy. We used a spare servo arm screw from an E-flite S60 servo. It will be easier to slide the tube on the motor and pre-drill the hole through both the tube and the motor before you mount it to the fuselage. Use a pin vise to drill the hole. Be careful and drill through the carbon tube slowly or it may split. When you are done drilling through both, remove the motor from the tube and drill the carbon tube out so the hole is slightly bigger than the screw you are using. This will prevent the tube from splitting when you mount the motor.

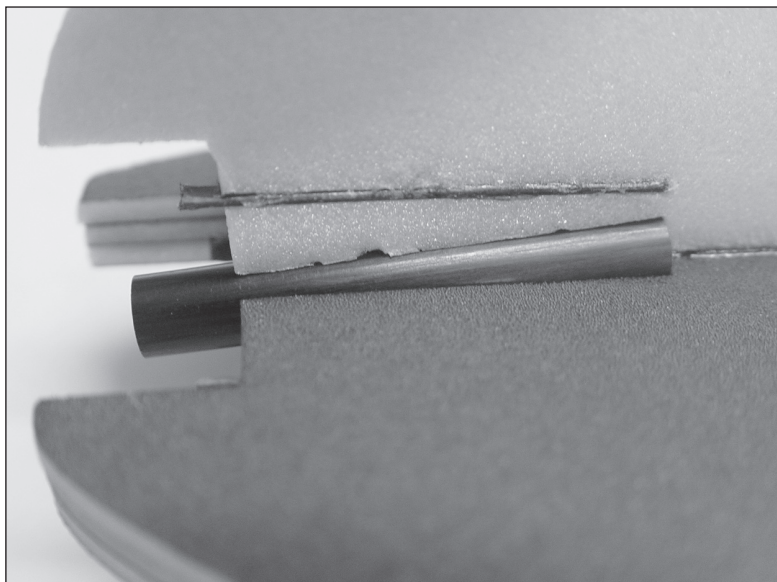
- 2. Use a small round file to relieve the inside of the right fuselage doubler so that the tube will fit in the center of the fuselage at the firewall.



Important: The amount of right thrust is specifically designed into the airframe for indoor flight. If you will be flying your Divo indoors and out, we recommend that you reduce the amount of thrust to 2 to 3 degrees. When using the Carbon tube mount with the Cyclon Micro, use a round file to relieve the inside of the right doubler and glue the tube in with the reduced thrust angle.



- 3. Glue the carbon tube into the fuselage using 6-minute epoxy, making sure the tube is centered at the front of the fuselage and pushed all the way back in the notch. This will be where you will set the thrust line to what you have decided according to the note above. If you want the total 5 degrees of thrust you will want to make sure that the tube is up against the cutout in the horizontal fuselage. If you want to decrease the thrust, then you may have to relieve more of the inside of the right doubler and then glue the tube in with the desired thrust line and fill the void between the foam and the tube with a small amount of epoxy.



- 4. Mount the motor using 6-minute epoxy to glue the motor to the inside of the tube. (Be careful not to get glue into the inside of the motor bearings.)



Servo Installation

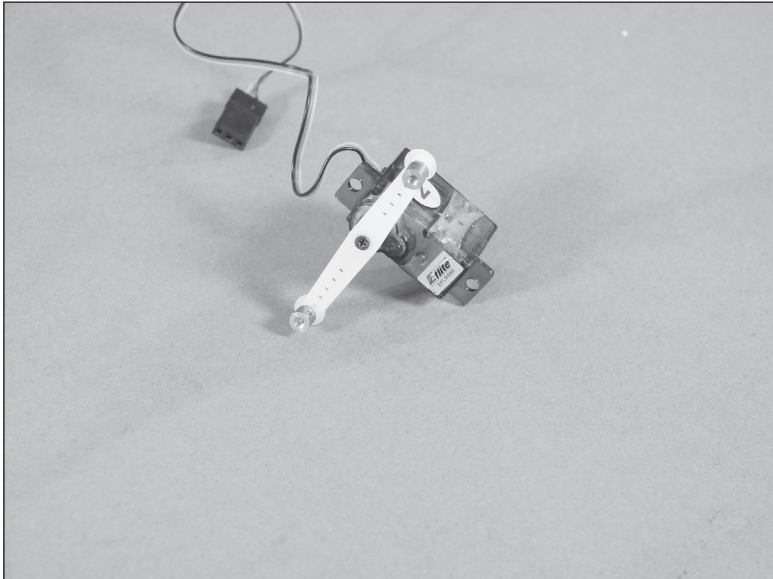
Required Parts

- Airframe assembly
- Servo (3)
- Carbon pushrod, 4.8-inch (123mm) (2)
- Carbon pushrod, 12.4-inch (314mm)
- Carbon pushrod, 7.9-inch (200mm) (2)
- Carbon pushrod, 12.2-inch (311mm)
- 2mm x 4mm screw (6)
- Control horn (2)
- Control horn locking plate (2)
- Micro control connector backplate (4)

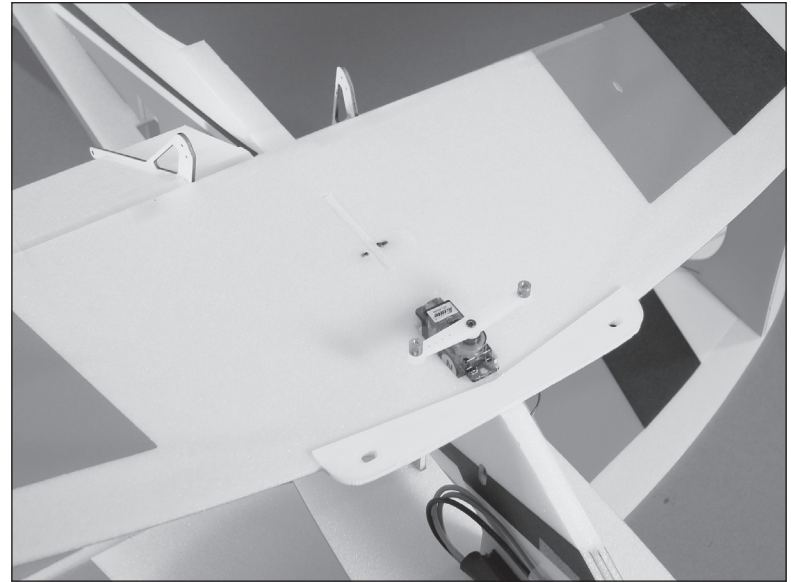
Required Tools and Adhesives

- Foam-safe CA
- Low-temperature hot glue
- Foam-safe CA activator
- Hot glue gun

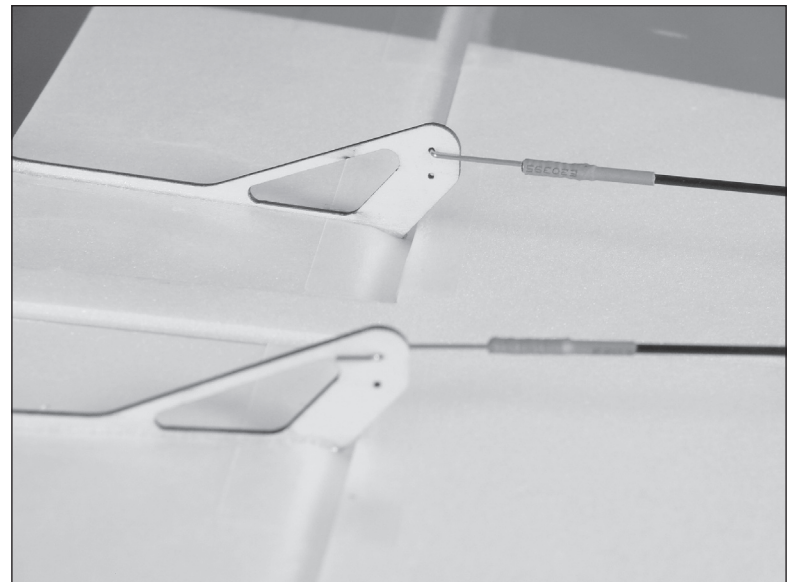
- 1. Attach a long servo arm to the aileron servo after centering the servo using the radio. Install a micro control connector to each end of the servo arm as shown.



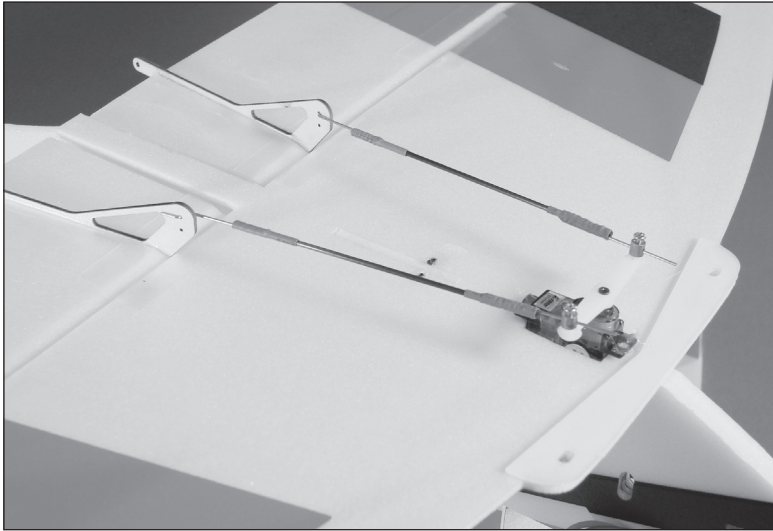
- 2. Use hot glue to secure the aileron servo to the bottom wing as shown.



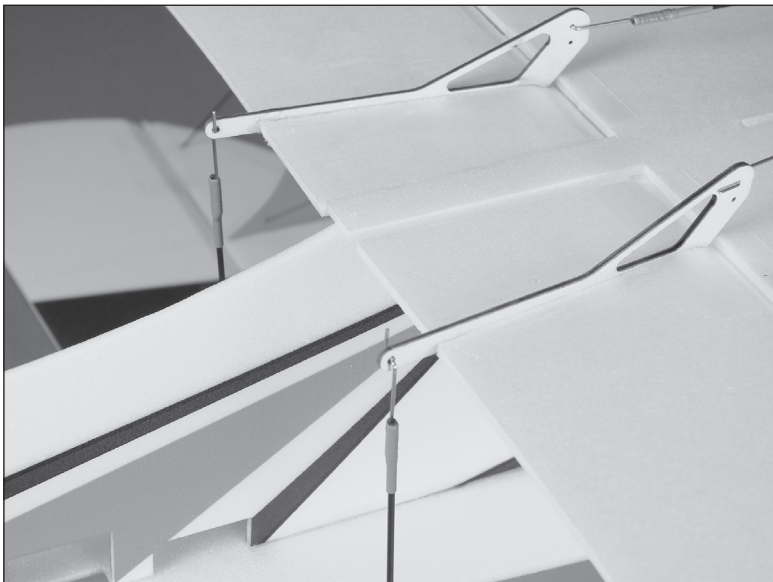
- 3. Attach the bend of each of the 4.8-inch (123mm) carbon pushrods to the control horns on the bottom wing.



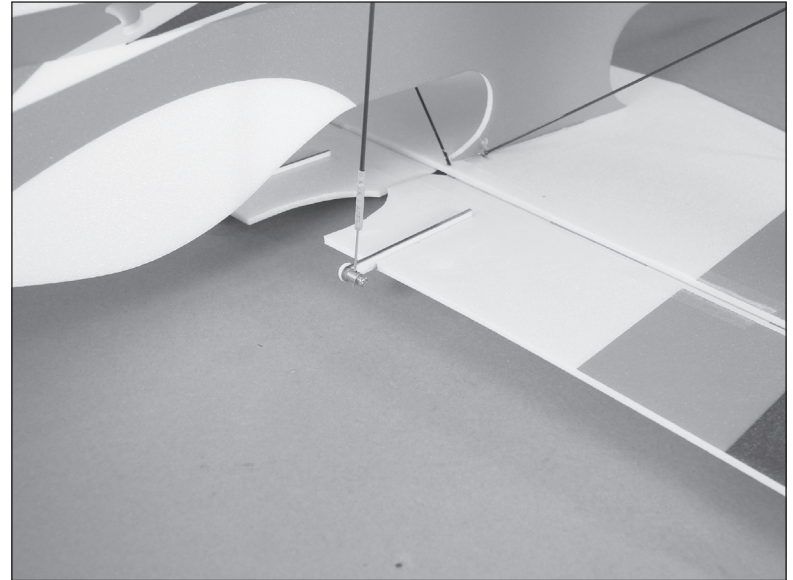
- 4. Slide the pushrod through the holes in the connectors. With the bottom aileron in neutral, secure the pushrods to the connectors using two 2mm x 4mm machine screws.



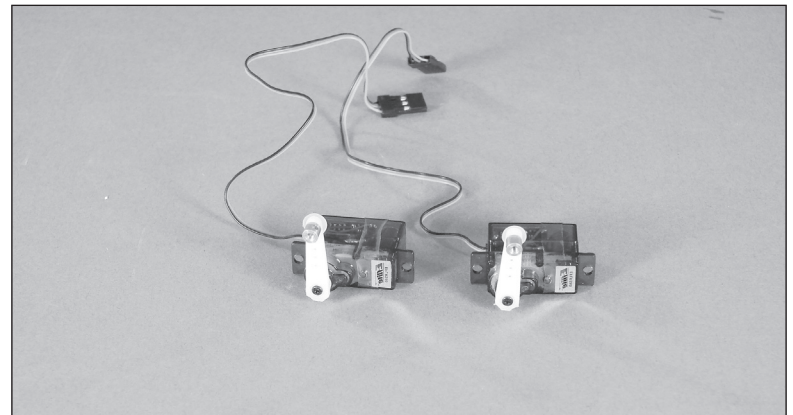
- 5. Attach the bend of each of the 7.9-inch (200mm) pushrods to the control horns on the bottom wing.



- 6. With both the top and bottom ailerons centered, secure the pushrods to the connectors at the top ailerons using 2mm x 4mm machine screws.

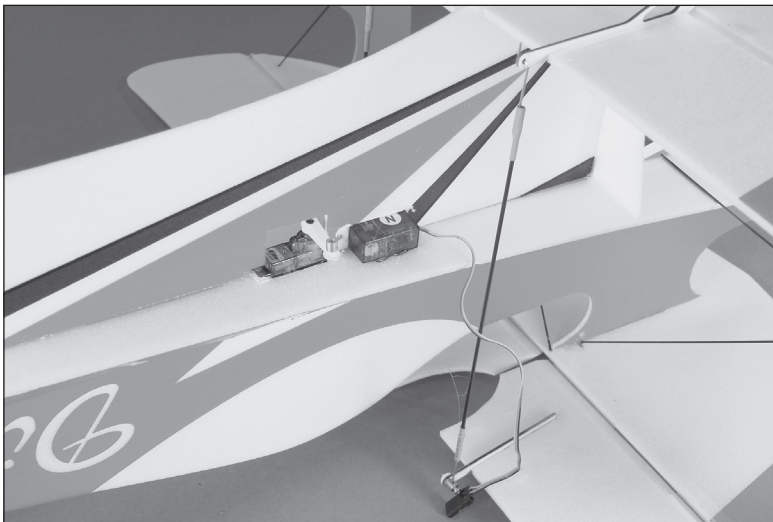
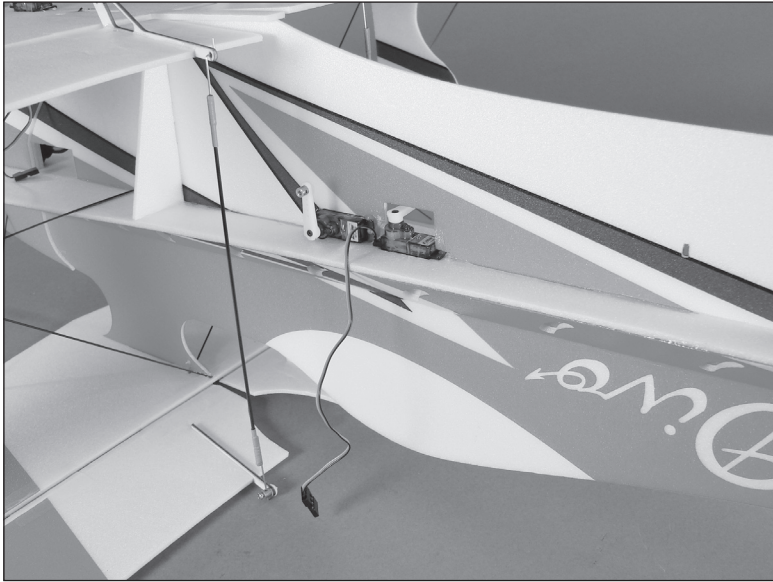


- 7. Attach a long servo arm to the elevator and rudder servos after centering the servo using the radio. Install a micro control connector to the end of the servo arms.

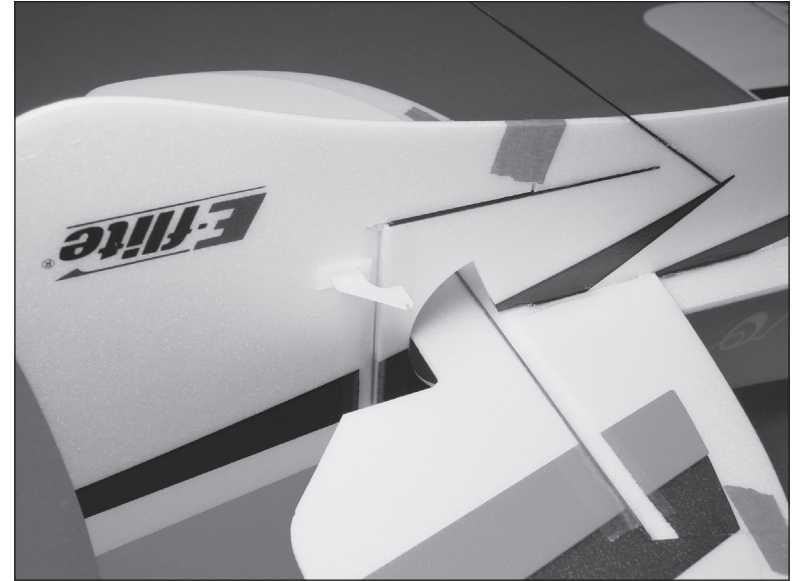


- 8. Use hot glue to secure the rudder and elevator servos in the fuselage.

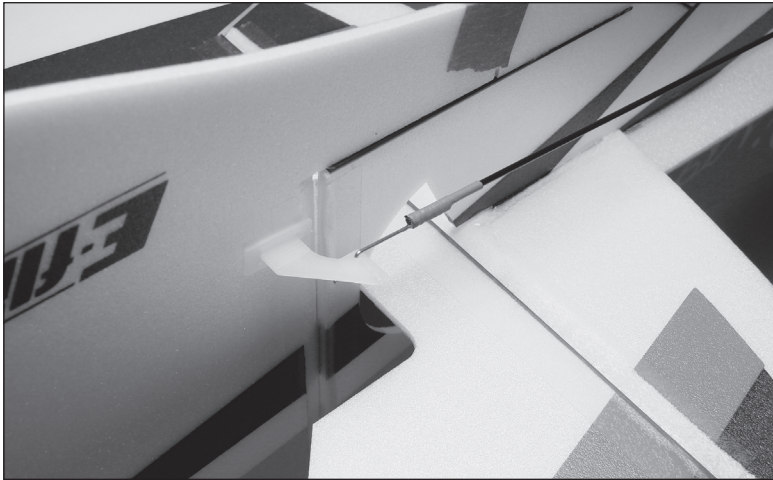
Note: Before mounting the rudder servo. Slot the vertical fuselage for the tabs on the rudder servo or cut the mounting tabs off of the rudder servo.



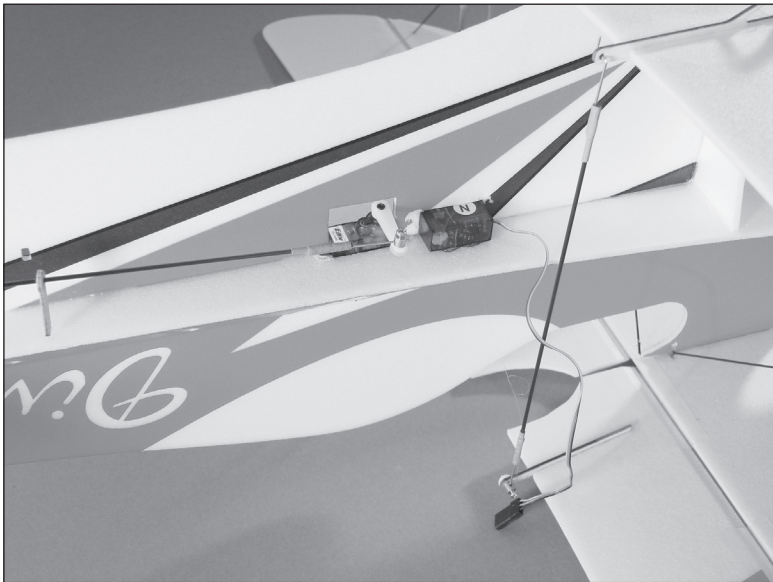
- 9. Slide the control horn through the rudder, then slide the control horn locking plate onto the horn, pressing it tight against the rudder to secure the control horn. Apply a few drops of foam-safe CA to the junction between the horn and locking plate to secure its position.



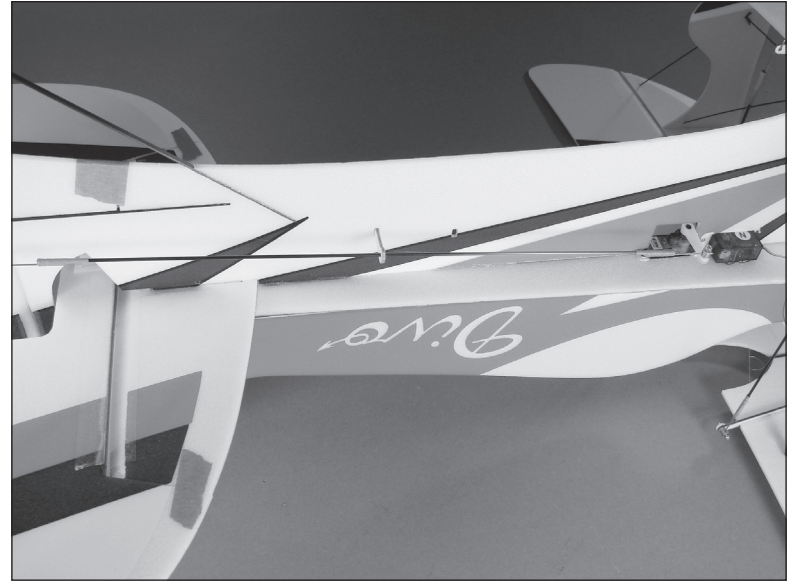
- 10. Attach the bend of the 12.4-inch (314mm) pushrod to the rudder control horn.



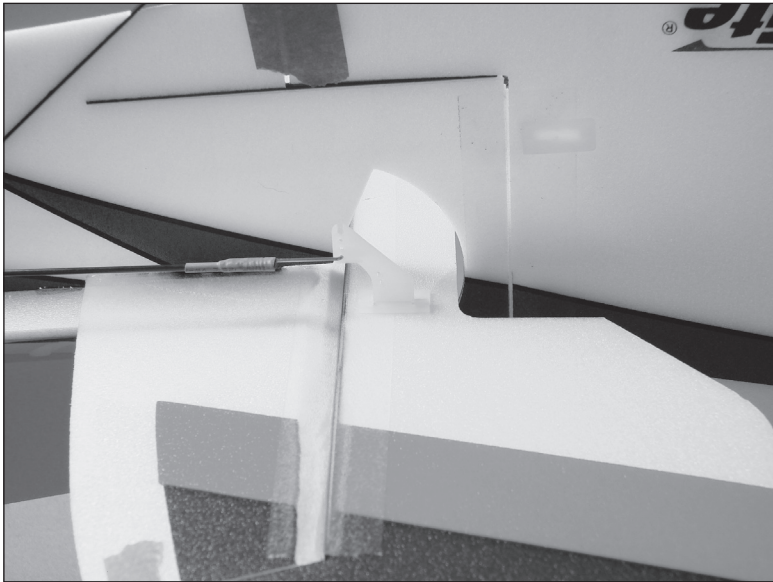
- 11. With rudder centered, secure the pushrod to the connector at the rudder servo using a 2mm x 4mm machine screw.



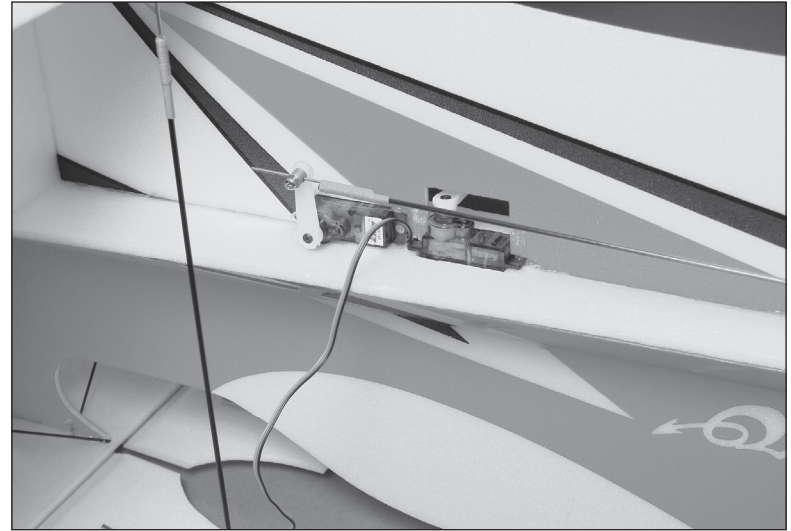
- 12. Use foam-safe CA to glue the pushrod brace to the fuselage in the hole closest to the rudder. Make sure to position the brace so the pushrod will not bind on the brace during flight. The rudder brace will go in the hole closest to the rear.



- 13. Slide the control horn through the elevator, then slide the control horn locking plate onto the horn, pressing it tight against the elevator to secure the control horn. Apply a few drops of foam-safe CA to the junction between the horn and locking plate to secure its position. Attach the bend of the 12.2-inch (311mm) pushrod to the elevator control horn.



- 14. With elevator centered, secure the pushrod to the connector at the elevator servo using a 2mm x 4mm machine screw.



- 15. Use foam-safe CA to glue the pushrod brace to the fuselage in the hole farthest from the elevator. Make sure to position the brace so the pushrod will not bind on the brace during flight.



Electronics Installation

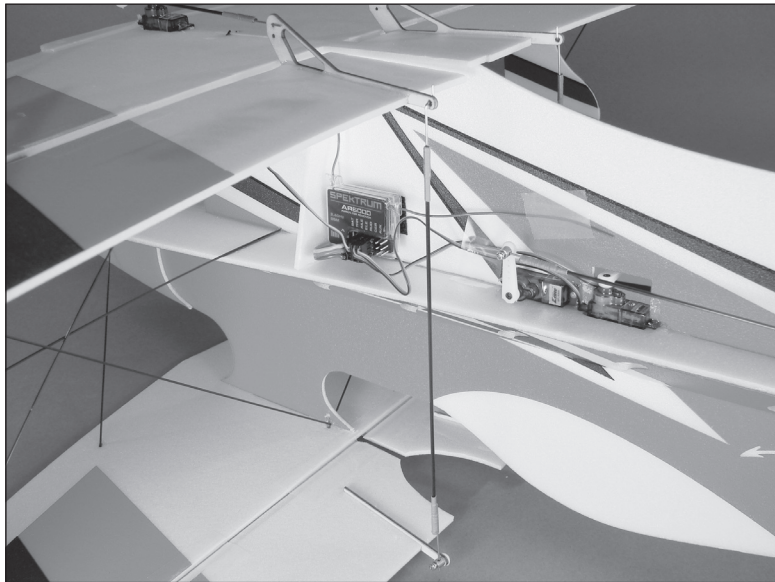
Required Parts

Airframe assembly
Receiver
Motor battery

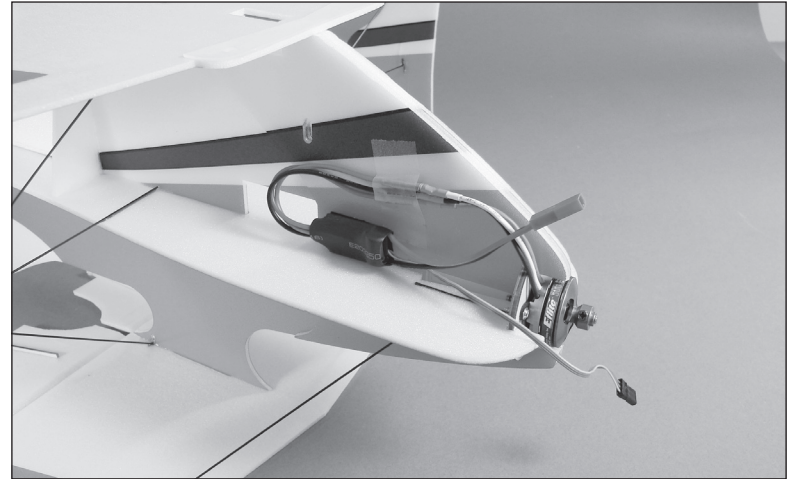
Hook and loop tape
Speed control
Propeller

Required Tools and Adhesives

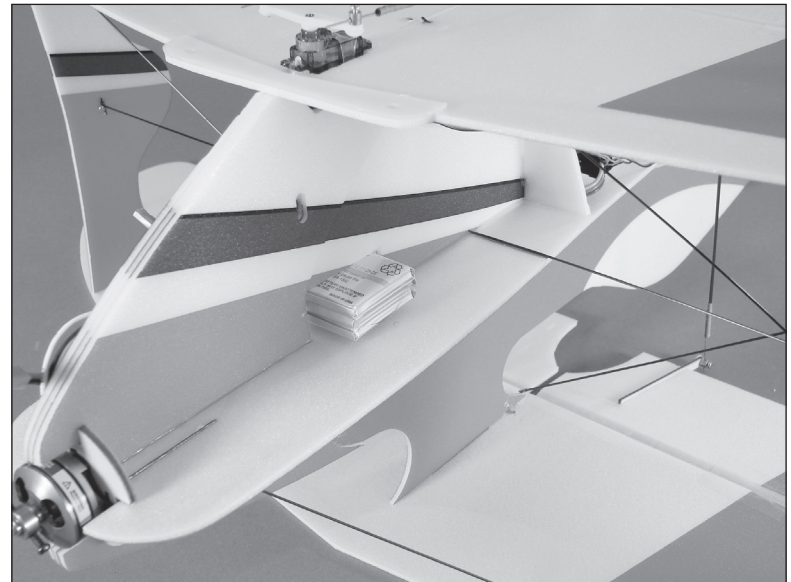
- 1. Use hook and loop tape to mount the receiver to the side of the horizontal fuselage. Route the antenna wire from your receiver according to the instructions provided with your radio system. Plug the servos into the receiver at this time.



- 2. Attach the speed control to the fuselage using hook and loop tape. Secure the wires so they will not interfere with the operation of the motor during flight.



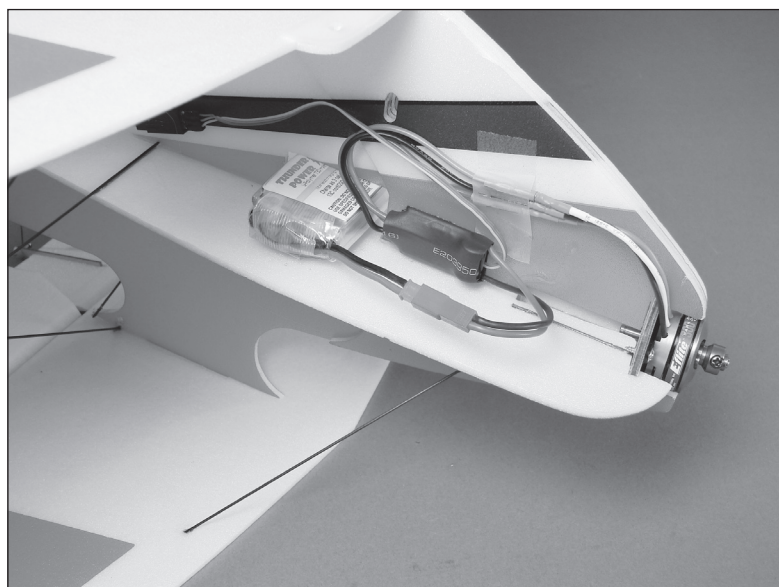
- 3. Apply hook and loop tape to the motor battery and fuselage. Slide the motor battery into position.



Important Information About Your Brushless ESC

Make sure the ESC brake is programmed to Off. Also, be sure to use an ESC with the proper 9V cutoff when using 3-cell Li-Po packs, or 6V cutoff when using 2-cell Li-Po packs.

- 4. Turn on the radio system and plug the battery into the speed control. Use the throttle to check that the motor rotates counterclockwise when viewed from the front. If not, follow the directions included with your speed control to change the direction of the motor rotation.



Note: Never check the motor rotation on the bench with the propeller installed. The plane could move and cause serious injury. Always check the motor without the propeller to avoid injury.

Important Information About Your Propeller

It is also very important to check to be sure the propeller is balanced before installing onto the shaft. An unbalanced propeller may strip the gears or cause poor flight characteristics.

Note: If it is necessary to enlarge the hole in the propeller, make sure to check the balance of the propeller afterwards.

- 5. Attach the propeller to the motor following the instructions provided with the motor.



Landing Gear Installation

Required Parts

- | | |
|-------------------------|--------------------------------|
| Airframe assembly | Wheel pant (2) |
| Wheel retainer (4) | Landing gear strut (2) |
| 1-inch (25mm) wheel (2) | Nylon landing gear doubler (2) |
| Tail skid tubing | |

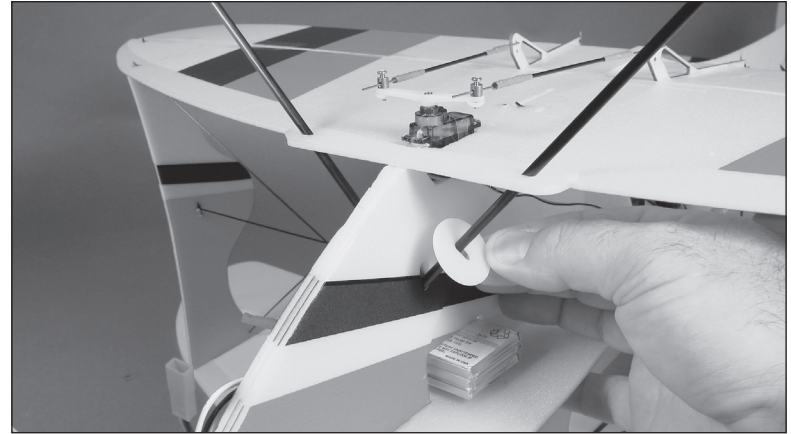
Required Tools and Adhesives

- | | |
|--------------|------------------------|
| Foam-safe CA | Foam-safe CA activator |
| Ruler | |

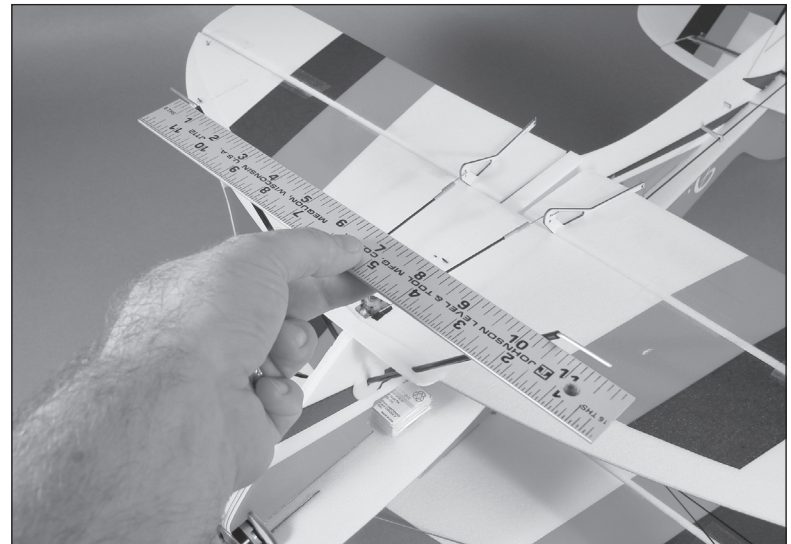
- 1. Use foam-safe CA to glue the tail skid tubing onto the tail skid. Leave about 1/8-inch (3mm) of the tubing extending beyond the skid. The tube helps in quieting the skid on hard surfaces.



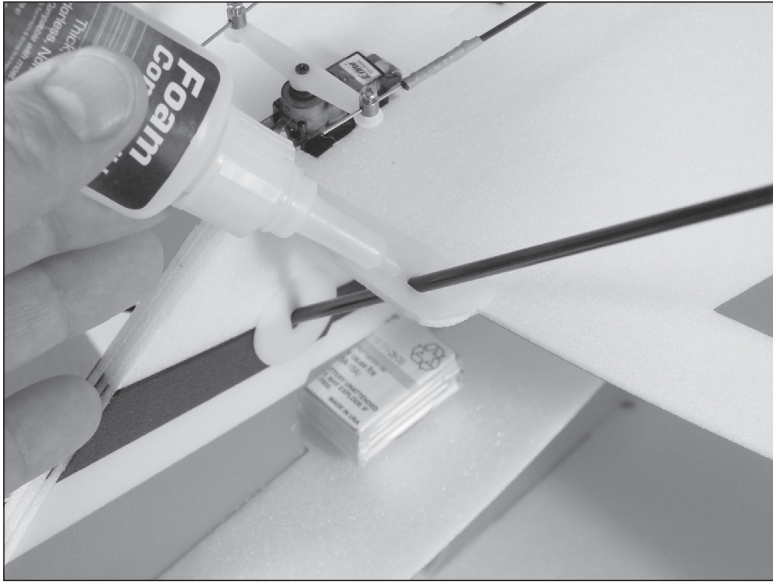
- 2. Slide the landing gear struts through the holes in the bottom wing. Slide a nylon landing gear doubler onto each of the landing gear struts. Insert each of the struts into the opening in the fuselage. The struts will meet each other in the middle of the fuselage.



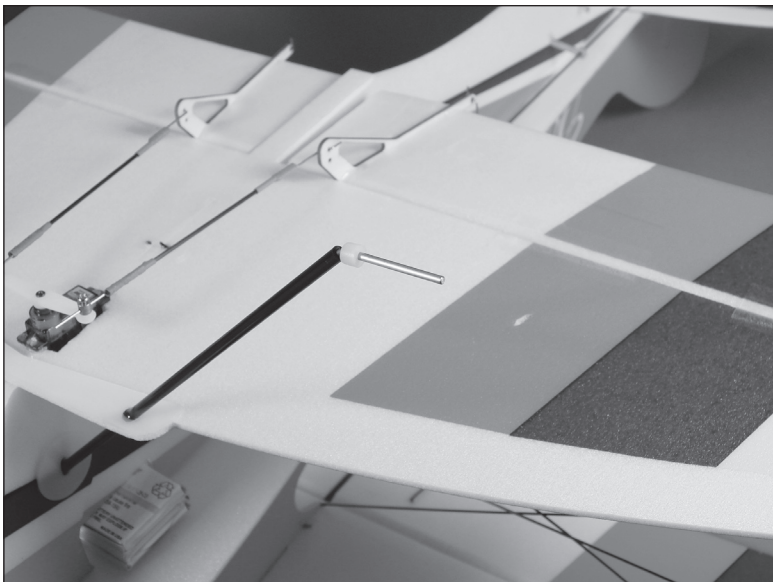
- 3. Check the alignment of the axles using a ruler. They should be parallel or the tips should be slightly forward to provide the best ground tracking.



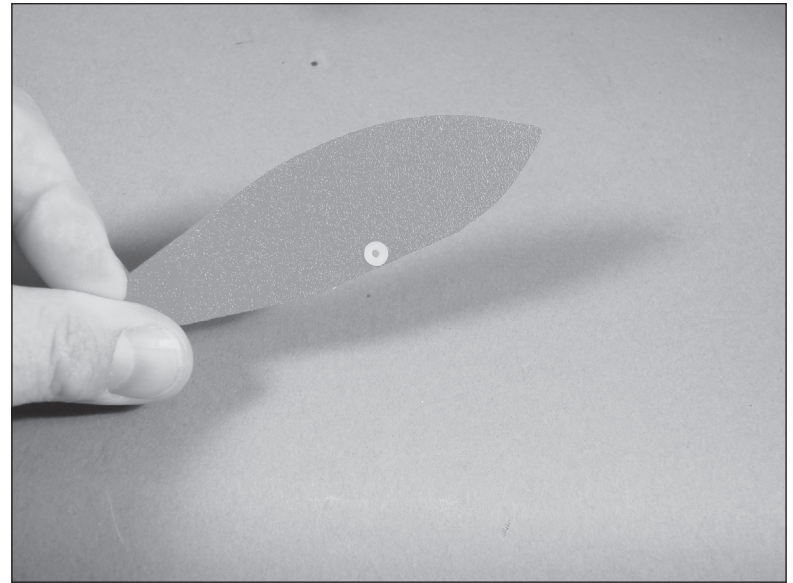
- 4. Use foam-safe CA to glue the landing gear to the fuselage and the nylon doublers. Also glue the landing gear to the bottom wing.



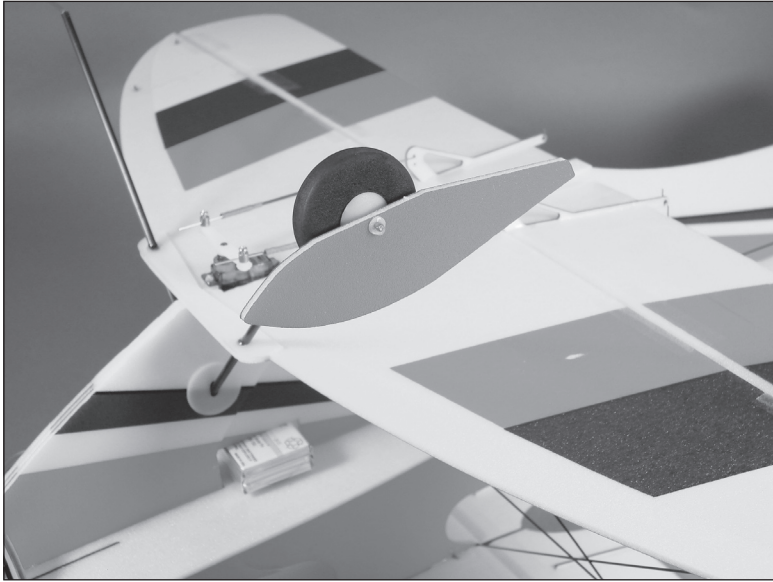
- 5. Slide a wheel retainer onto each landing gear axle.



- 6. Glue one of the wheel retainers in each of the wheel pants using foam-safe CA.



- 7. Slide the wheel onto the landing gear. Use foam-safe CA to glue the wheel pant/retainer to the landing gear. Use care not to get CA where it will inhibit the operation of the wheel.



Control Throws

- 1. Turn on the transmitter and receiver of your Divo. 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 down will make the airplane elevator move up.
- 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.
- 4. Use a ruler to adjust the throw of the elevator, ailerons and rudder. Adjust the position of the pushrod at the control horn to achieve the following measurements when moving the sticks to their endpoints.

Note: Measurements are taken at the widest point on the surface.

Ailerons

Low Rate: 1 1/4-inch (30mm) with 25% Expo (Up/Down)

High Rate: 1 1/2-inch (40mm) with 50% Expo (Up/Down)

Elevator

Low Rate: 1 1/2-inch (40mm) with 25% Expo (Up/Down)

High Rate: 2 1/4-inch (60mm) with 50% Expo (Up/Down)

Rudder

2 3/4-inch (75mm) (Left/Right)

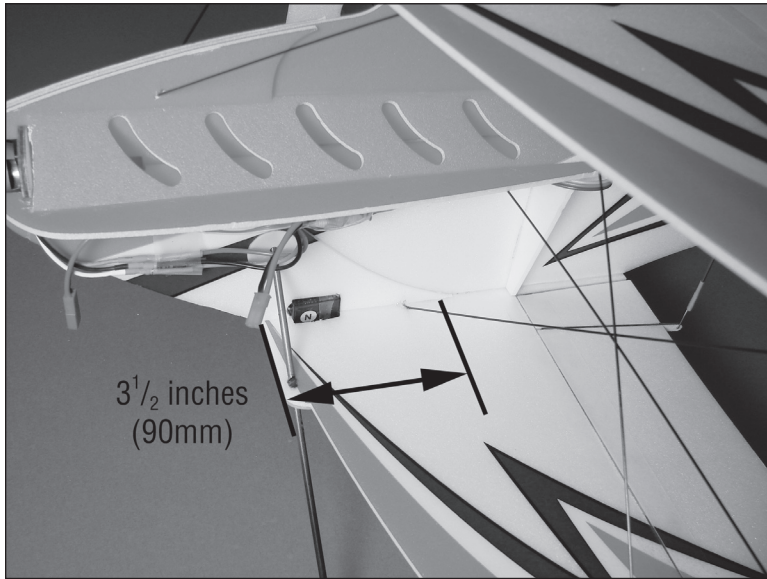
These are general guidelines measured from our own flight tests. You can experiment with higher rates to match your preferred style of flying.

Center of Gravity

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 Divo is 3 1/2 inches (90mm) back from the leading edge of the bottom wing at center.



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

Range Test Your Radio

- 1. Before each flying session, be sure to range check your radio. This is accomplished by turning on your transmitter with the antenna collapsed. Turn on the receiver in your airplane. With your airplane on the ground and the engine running, you should be able to walk 30 paces (approximately 100 feet) away from your airplane and still have complete control of all functions.

If not, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

- 2. Double-check that all controls (aileron, elevator, rudder and throttle) move in the correct direction.
- 3. Be sure that your transmitter batteries are fully charged, per the instructions included with your radio.

Preflight

Check Your Radio

Before going to the field, be sure that your batteries are fully charged per the instructions included with your radio. Charge both the transmitter and receiver pack for your airplane. Use the recommended charger supplied with your particular radio system, following the instructions provided with the radio. In most cases, the radio should be charged the night before going out flying.

Before each flying session, be sure to range check your radio. See your radio manual for the recommended range and instructions for your radio system. Each radio manufacturer specifies different procedures for their radio systems. Next, start the motor. With the model securely anchored, check the range again. The range test should not be significantly affected. If it is, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

Note: Keep loose items that can get entangled in the propeller away from the prop. These include loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the propeller.

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

Check the radio installation and make sure all the control surfaces are moving correctly (i.e. the correct direction and with the recommended throws). Test run the motor and make sure it transitions smoothly from off to full throttle and back. Also ensure the engine is installed according to the manufacturer's instructions, and it will operate consistently.

Check all the control horns, servo horns, and clevises to make sure they are secure and in good condition. Replace any items that would be considered questionable. Failure of any of these components in flight would mean the loss of your aircraft.

Flying Your Divo

Flying the Divo is about as fun as it can get. A very light wing loading and extreme control throws make for some exciting 3D flying. Verify that your CG is at the correct location as per the manual and that you have your rates set up to your liking. Verify all control throws are in the correct direction and the motor spins in the correct direction as well.

Point the model into the wind and add some throttle trim until the motor begins to turn. This will be your flight idle. Now, apply power slowly. You will find the model will become airborne very quickly and at a low speed. This model excels at flying slow and easy as well as fast and extreme. Trim the model for level flight at half throttle. Only use full throttle for maneuvering.

You will find you can adjust the CG to your liking by moving the battery pack fore or aft on the fuselage.

To land the Divo just reduce the throttle to idle and feed in up elevator until the model settles into a slightly nose-high attitude. Gently fly the model down to the landing spot with a final flair at touchdown. You will find the model will have a very short roll out. We hope you enjoy the Divo as much as we do.

Happy landings.

2007 Official AMA National Model Aircraft Safety Code

GENERAL

- 1) I will not fly my model aircraft in sanctioned events, air shows or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight tested.
- 2) I will not fly my model higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.
- 3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully or deliberately fly my models in a careless, reckless and/or dangerous manner.
- 4) The maximum takeoff weight of a model is 55 pounds, except models flown under Experimental Aircraft rules.
- 5) I will not fly my model unless it is identified with my name and address or AMA number on or in the model. (This does not apply to models while being flown indoors.)
- 6) I will not operate models with metal-bladed propellers or with gaseous boosts, in which gases other than air enter their internal combustion engine(s); nor will I operate models with extremely hazardous fuels such as those containing tetranitromethane or hydrazine.

RADIO CONTROL

- 1) I will have completed a successful radio equipment ground range check before the first flight of a new or repaired model.
- 2) I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.
- 3) At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in front of the flight line. Intentional flying behind the flight line is prohibited.

- 4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission. (Only properly licensed Amateurs are authorized to operate equipment on Amateur Band frequencies.)
- 5) Flying sites separated by three miles or more are considered safe from site-to-site interference, even when both sites use the same frequencies. Any circumstances under three miles separation require a frequency management arrangement, which may be either an allocation of specific frequencies for each site or testing to determine that freedom from interference exists. Allocation plans or interference test reports shall be signed by the parties involved and provided to AMA Headquarters.

Documents of agreement and reports may exist between (1) two or more AMA Chartered Clubs, (2) AMA clubs and individual AMA members not associated with AMA Clubs, or (3) two or more individual AMA members.

- 6) For Combat, distance between combat engagement line and spectator line will be 500 feet per cubic inch of engine displacement. (Example: .40 engine = 200 feet.); electric motors will be based on equivalent combustion engine size. Additional safety requirements will be per the RC Combat section of the current Competition Regulations.
- 7) At air shows or model flying demonstrations, a single straight line must be established, one side of which is for flying, with the other side for spectators.
- 8) With the exception of events flown under AMA Competition rules, after launch, except for pilots or helpers being used, no powered model may be flown closer than 25 feet to any person.
- 9) Under no circumstances may a pilot or other person touch a powered model in flight.

Building and Flying Notes:

Building and Flying Notes:



© 2007 Horizon Hobby, Inc.
4105 Fieldstone Road
Champaign, Illinois 61822
(877) 504-0233
horizonhobby.com
E-fliteRC.com