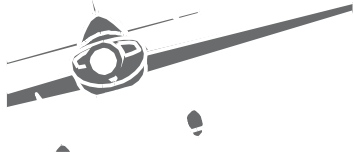


*George Hicks*



**DESIGN**

# Tribute Fx 3D ARF



## Specifications

Wingspan:	39 in (990mm)
Length:	44 in (1120mm)
Wing Area:	345 sq in (22.3 sq dm)
Weight w/Battery:	17.5–19 oz (495–540 g)
Radio:	6-Channel with 4 sub-micro servos

Assembly Manual

**E-flite**<sup>®</sup>  
ADVANCING ELECTRIC FLIGHT

Available from [www.modelflight.com.au](http://www.modelflight.com.au)

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## Introduction

Designed by ETOC champ George Hicks, the Tribute Fx 3D combines the lightweight, fly-anywhere freedom of a profile foamie with full-fuselage rigidity on par with balsa planes. It also features a full-form symmetrical airfoil wing that lets you fly 3D maneuvers in the kind of wind that would ground most profile foamies. In short, this is a fantastic-flying freestyle 3D machine that is just as at home at the flying field as it is at the park. For freestyle fun that knows no bounds, this is the plane.

## 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.

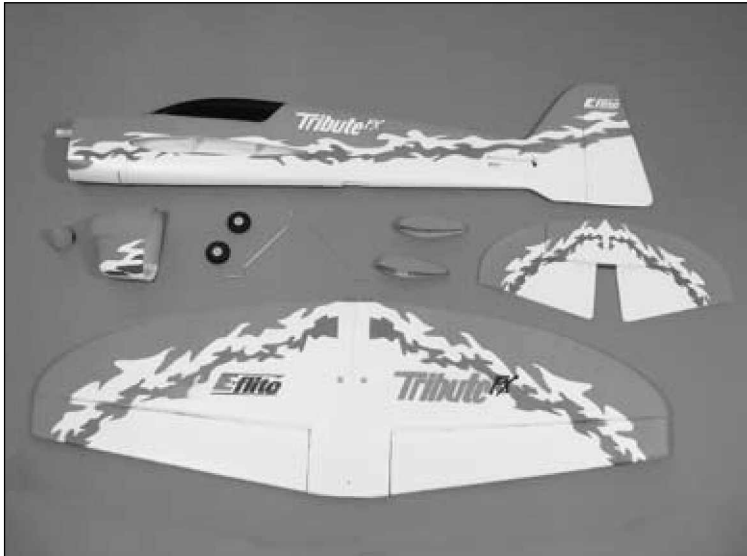
## Contents of Kit/Parts Layout

### Large Replacement Parts

EFL2151	Main Wing
EFL2152	Fuselage w/Rudder
EFL2153	Horizontal Tail Assembly
EFL2154	Canopy Hatch
EFL2155	Cowl
EFL2156	Wheel Pants
EFL2158	Landing Gear Wire

### Small Replacement Parts

EFL2157	Pushrods
EFLA213	E-flite/JR/Horizon Decals



## Required Radio Equipment

You will need a minimum 6-channel transmitter, crystals, micro receiver, and four 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.

### Complete Radio System

SPM2460	DX6 DSM® 6CH Park Flyer w/4-S75 Servos
---------	--

Note: We recommend the crystal-free, interference-free Spektrum® DX6 2.4GHz DSM 6-Channel System, which includes a micro receiver and 4 sub-micro servos.

### Or Purchase Separately

SPM6000	AR6000 DSM DualLink™ 6-Channel Park Flyer Rx
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Or

JSP30610	6-Channel UltraLite Rx w/o Crystal, Positive Shift JR/AIR (72MHz)
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Or

JSP30615	6-Channel UltraLite Rx w/o Crystal, Negative Shift FUT/HRC (72MHz)
JRPXFR**	FM Receiver Crystal
EFLRS75	7.5-Gram Sub-Micro Servo (4)

And

JSP98100	3" (76mm) Servo Extension (2)
JSP98120	18" (457mm) Servo Extension (2)

## Important Information About Motor Selection

We recommend the E-flite® Park 450 Brushless Outrunner, 890Kv (EFLM1400) to provide you with excellent high-power motor system, or the Park 400 Brushless Outrunner 920Kv (EFLM1305) for sport power and a worry-free outrunner motor. The Tribute Fx 3D does not include a propeller.

### Lightweight Outrunner Setup

EFLM1305	Park 400 BL Outrunner, 920Kv
EFLA311B	20-Amp Brushless ESC
THP9103SJPL	910mAh 3-Cell 11.1V Li-Po
APC11038SF	11 x 3.8 Slow Flyer Prop
EFLAEC303	EC3 Device & Battery Connector, Male/Female
EFLC3005	Celectra 1- to 3-Cell Li-Po Charger

This is a lightweight sport setup with adequate power for 3D flights.

### High Power Outrunner Setup

EFLM1400	Park 450 BL Outrunner, 890Kv
EFLA311B	20-Amp Brushless ESC
THP13203SPL	1320mAh 3-Cell 11.1V Li-Po
APC12060E	12 x 6 Electric Prop
EFLAEC303	EC3 Device & Battery Connector, Male/Female
EFLC3005	Celectra 1- to 3-Cell Li-Po Charger

This is a high-power performance setup for strong 3D flights.

## Optional Accessories

EFLA110

Power Meter

### 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 instructions for the use of Lithium Polymer batteries.

### Required Tools and Adhesives

#### Tools & Equipment

EFLA250

Park Flyer Tool Assortment, 5-piece

#### Or Purchase Separately

EFLA257

Screwdriver, #0 Phillips (or included with EFLA250)

EFLA251

Hex Wrench: 3/32" (or included with EFLA250)

6-minute epoxy  
Cardstock  
Drill  
Drill bit: 1/16 in (1.5mm)  
Felt-tipped pen  
Foam-safe accelerator  
Foam-safe CA  
Hobby knife (#11 blade)  
Hot glue  
Low-tack tape  
Paper towels  
Ruler  
Side cutters  
String  
T-pins  
Threadlock

*E-flite Tribute Fx 3D ARF Assembly Manual*

## Warning

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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

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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

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(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

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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

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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

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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](mailto:productsupport@horizonhobby.com), or call 877.504.0233 toll free to speak to a service technician.

## Inspection or Repairs

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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](http://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

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*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 0% 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 8 - 0 -0 33 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.

# Aileron Servo Installation

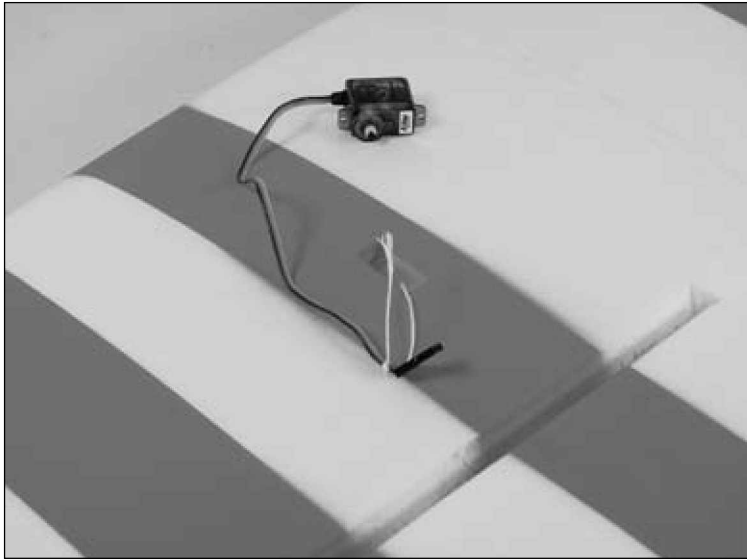
## Required Parts

Wing	Servo w/long servo arm (2)
Control horn (2)	Control connector
Connector backplate	Linkage wire, 4 1/8 in (108mm) (2)
2mm x 4mm machine screw (2)	

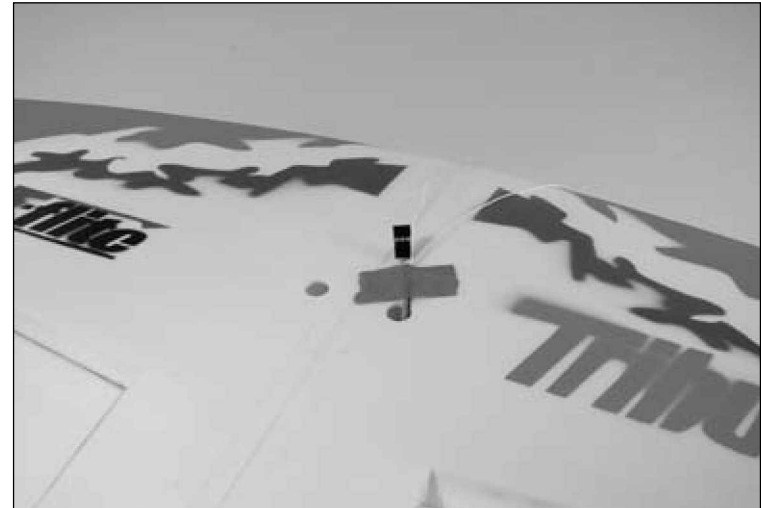
## Required Tools and Adhesives

Hot glue	6-minute epoxy
Drill	Drill bit: 1/16 in (1.5mm)
Side cutters	Low-tack tape
Threadlock	

1. Remove the tape holding the string inside the wing. Pull enough of the string out of the wing to tie it to the servo lead.



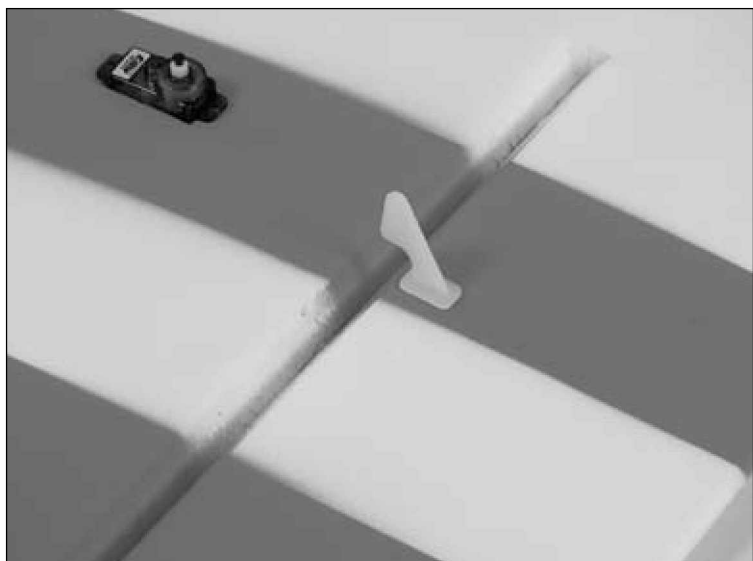
2. Use the string to pull the servo lead through the wing and out the opening at the center section. Use tape to secure the servo lead so it won't fall back into the opening.



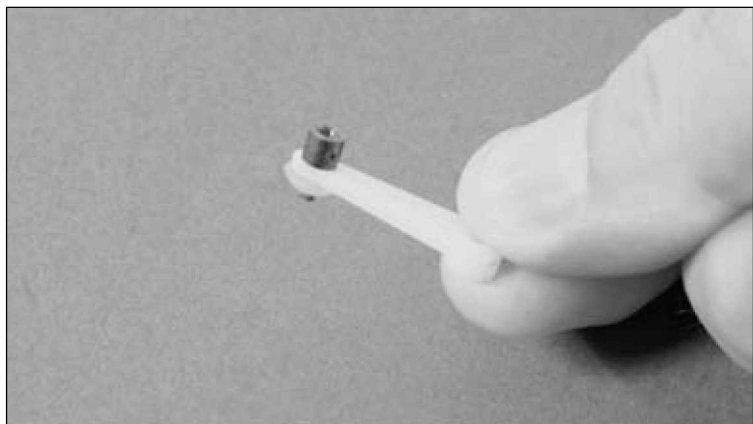
3. Use hot glue to secure the servo in the wing. The output of the servo faces toward the aileron.



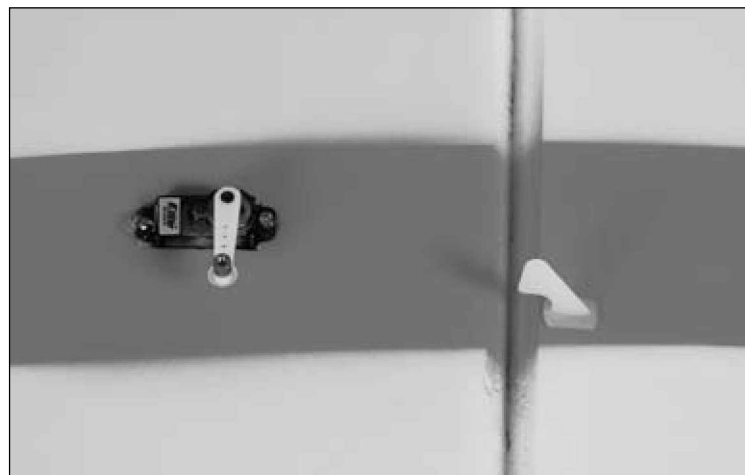
4. Install the control horn in the aileron using 6-minute epoxy. Allow the epoxy to fully cure before continuing to the next step.



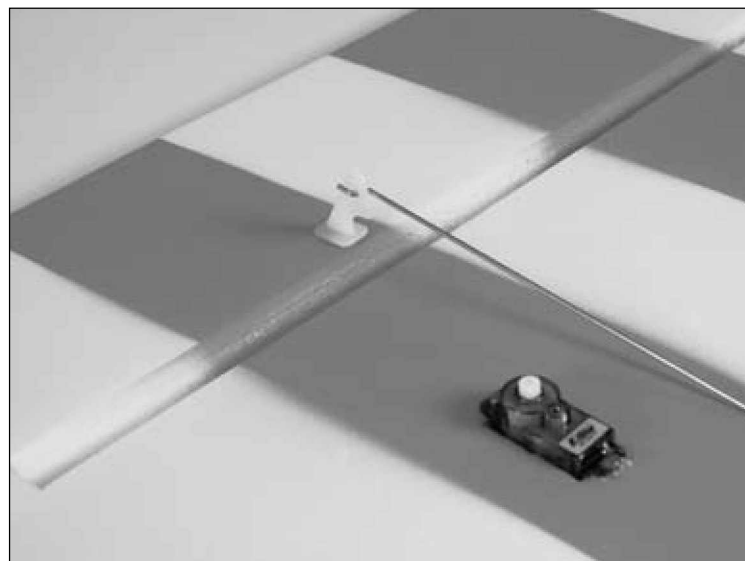
5. Drill a 1/16 in (1.5mm) hole through the outside hole in the servo arm. Slide the control connector through the hole and secure it using the connector backplate.



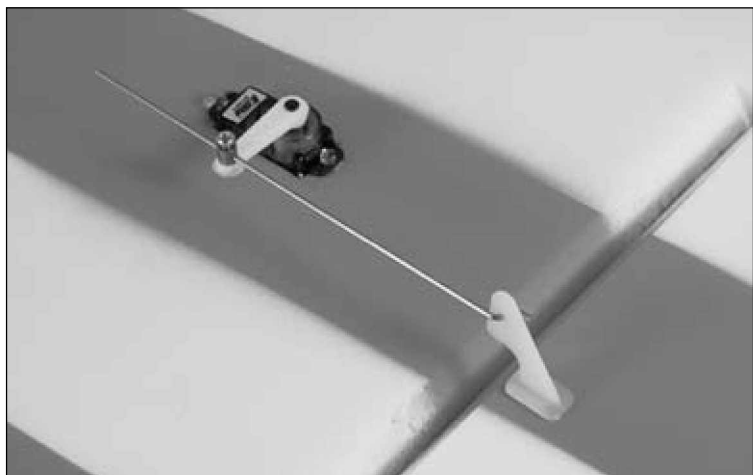
6. Plug the aileron servo into the receiver. Power up the transmitter and receiver. Center the aileron stick, trim, and any programmed sub-trim values. Install the arm on the servo so it is parallel to the aileron hinge line.



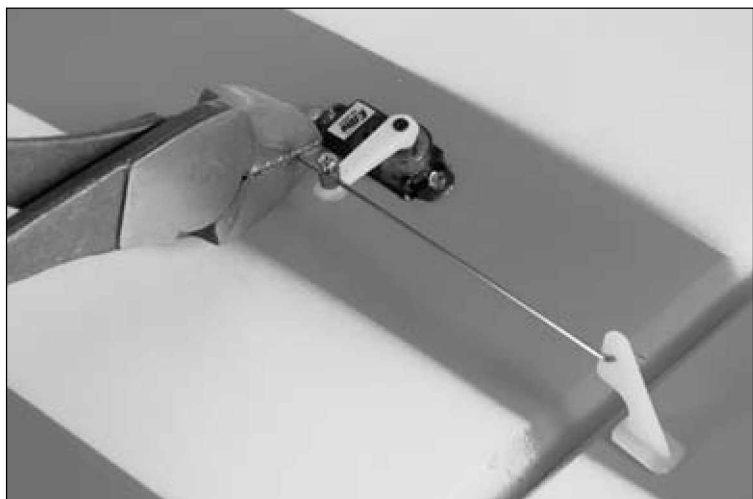
7. Attach the Z-bend of the 4 1/8 in (108mm) linkage wire to the control horn.



8. Slide the linkage wire through the control connector. Center the aileron and use a 2mm x 4mm machine screw to secure the linkage. Use threadlock on the screw to prevent it from loosening during flight.



9. Use side cutters to remove any excess wire extending beyond the connector.



10. Repeat Steps 1 through 9 for the remaining aileron servo and linkage.

## Wing and Stabilizer Installation

### Required Parts

Wing	Fuselage
Belly pan	Stabilizer assembly

### Required Tools and Adhesives

3 in (76mm) servo extension (2)	String	Low-tack tape
T-pin		Foam-safe CA (thick)
Foam safe accelerator		

1. Remove the canopy by lifting from the rear. A magnet holds the canopy in position at the rear.



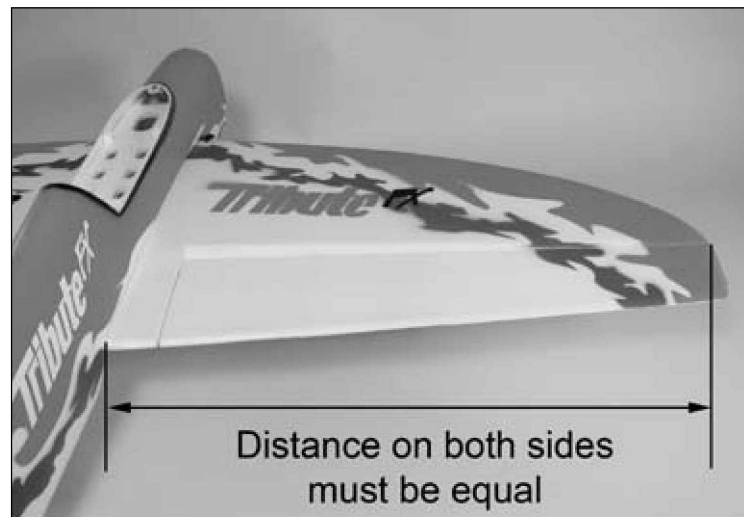
2. Attach the 3 in (76mm) servo extensions to the aileron servo leads. Secure the extensions to the leads using tape or string so they don't come unplugged.



3. Rest the fuselage on the wing. Guide the servo extensions above the former as shown.



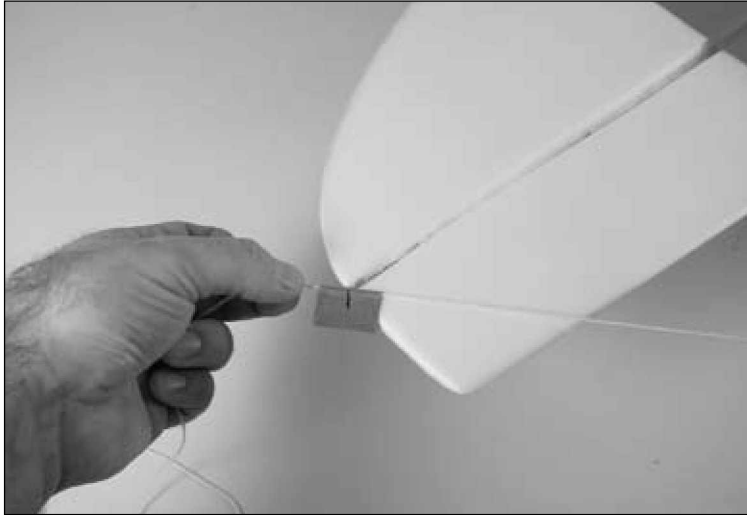
4. Position the fuselage on the wing. Measure the distance from the fuselage to the wing tip on both sides. The measurements must be equal. If not, adjust the position of the fuselage on the wing.



5. Place a T-pin at the rear of the fuselage as shown. Tie a string to the T-pin that is long enough to reach beyond the wing tip.



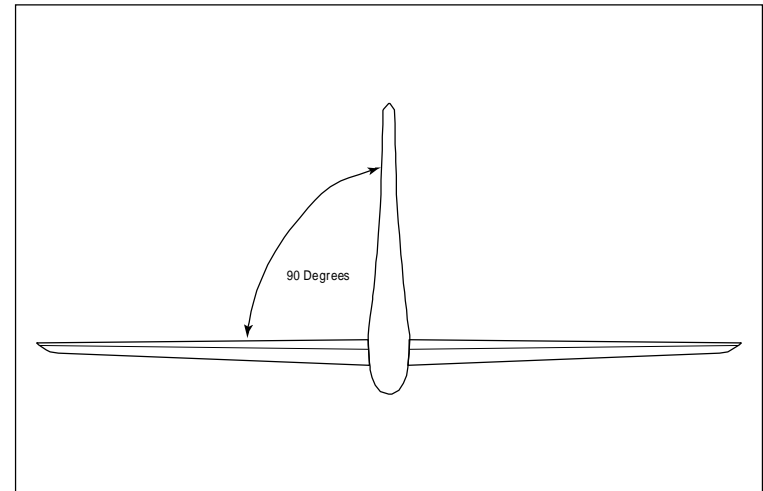
6. Wrap a small piece of tape on the string where it crosses the wing tip. Mark the tape to indicate the exact location of the wing tip. Swing the tape over check the position of the opposite wing tip. If these are not equal, reposition the wing and tape and repeat until the mark on the tape aligns with both wing tips.



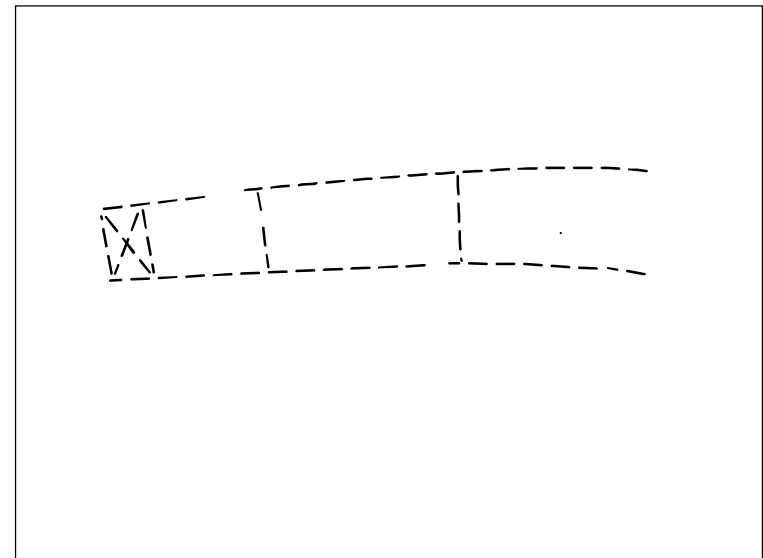
7. Place low-tack tape on the wing against the fuselage as an indicator for the wing alignment.



8. Check the alignment of the wing to the vertical stabilizer to make sure the wing is perpendicular to the fuselage. Lightly sand the fuselage wing saddle if there is an alignment correction to be made.



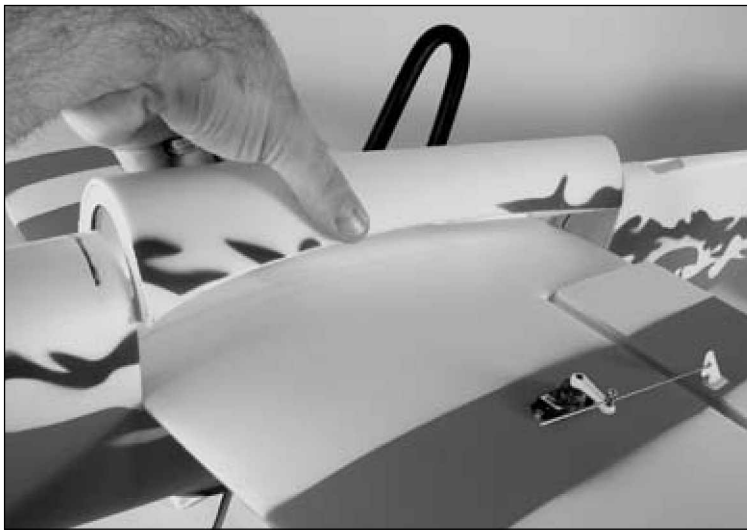
9. Apply thick foam-safe CA to the fuselage where it contacts the wing. Position the wing back onto the fuselage.



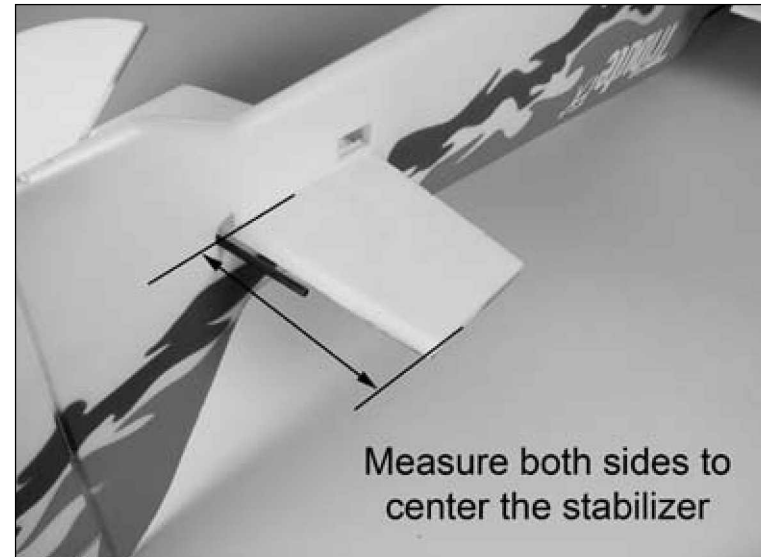
10. Place a support under the wing so the fuselage is not touching the work surface. Use weights to hold the fuselage tight against the wing while the CA cures.



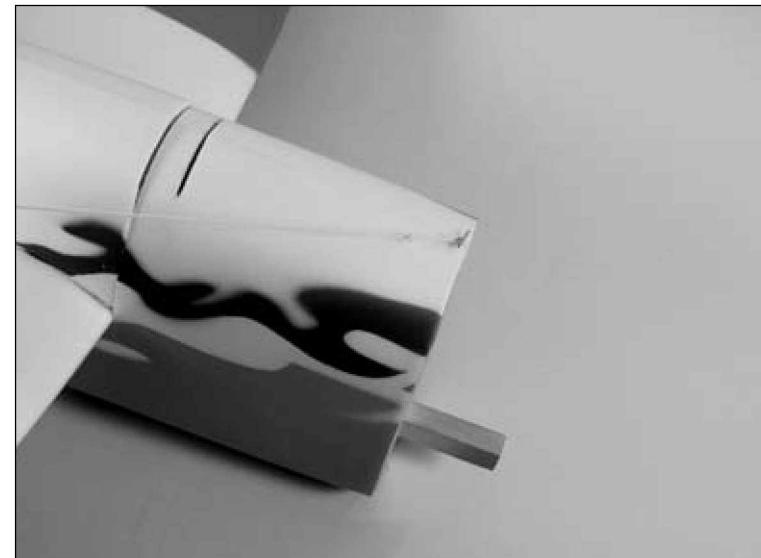
11. Use thick foam-safe CA to glue the belly pan to the wing. It may be necessary to lightly sand the belly pan to fit perfectly to the contour of the wing.



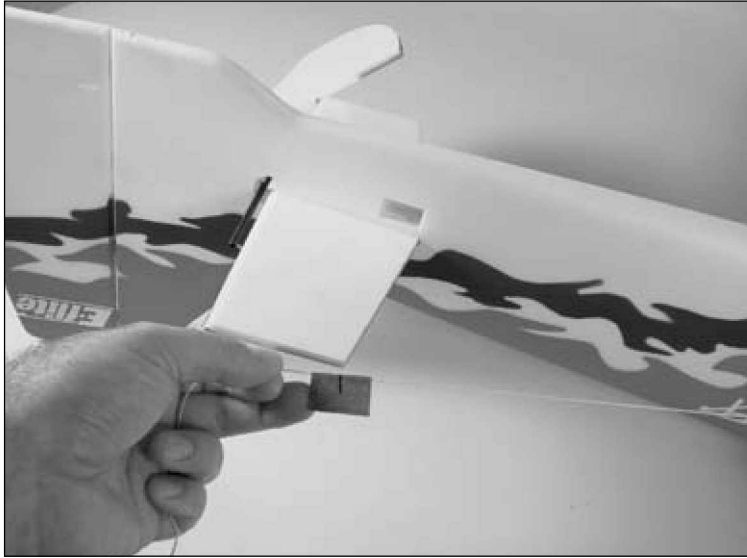
12. Slide the stabilizer through the slot in the fuselage. Measure each side of the stabilizer to make sure it is centered.



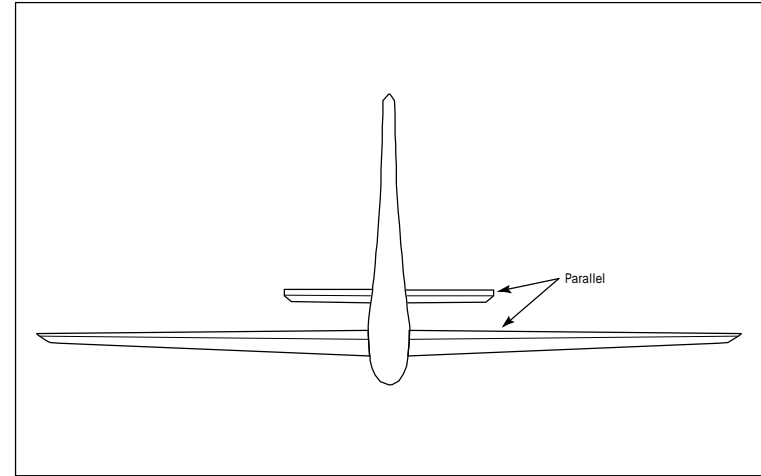
13. Place a T-pin at the front of the fuselage as shown. Tie a string to the T-pin that is long enough to reach beyond the stabilizer tip.



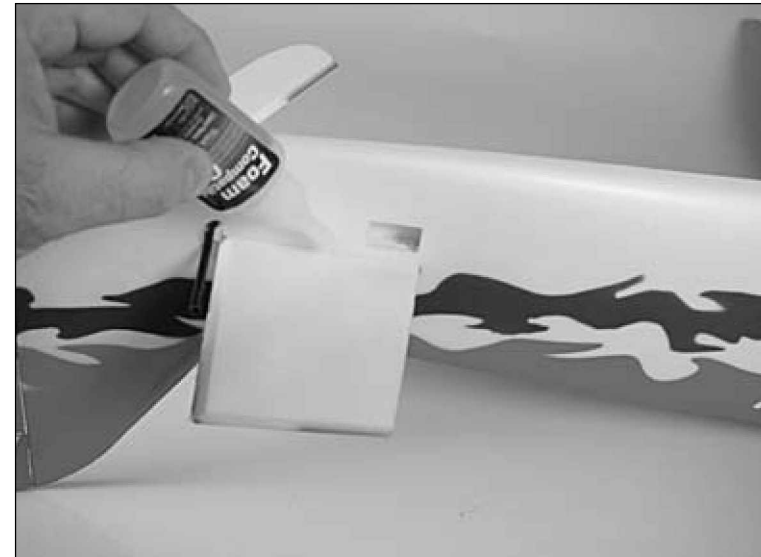
14. Wrap a small piece of tape on the string where it crosses the stabilizer tip. Mark the tape to indicate the exact location of the stabilizer tip. Swing the tape over check the position of the opposite stabilizer tip. If these are not equal, reposition the stabilizer and tape and repeat until the mark on the tape aligns with both stabilizer tips.



15. Check the alignment of the stabilizer to the wing. The stabilizer must be parallel to the wing. If not, lightly sand the opening in the fuselage to correct any alignment issues.



16. Use foam-safe CA to glue the stabilizer to the fuselage.



# Rudder and Elevator Servo Installation

## Required Parts

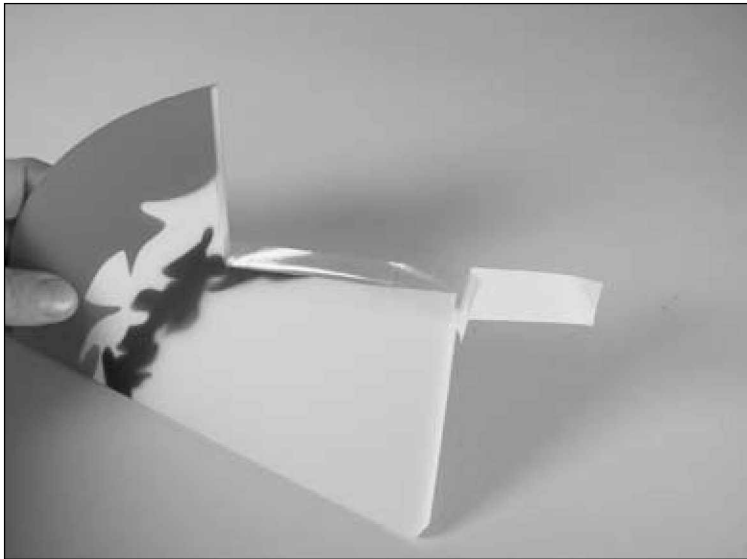
Airframe	Elevator (left)
Hinge tape	Servo w/long servo arm (2)
Control connector (2)	Control connector backplate (2)
Control horn (2)	Control horn backplate (2)
18 in (457mm) servo extension (2)	
Linkage wire, 6 <sup>7</sup> / <sub>8</sub> in (175mm)	

Linkage wire, 5 in (127mm)

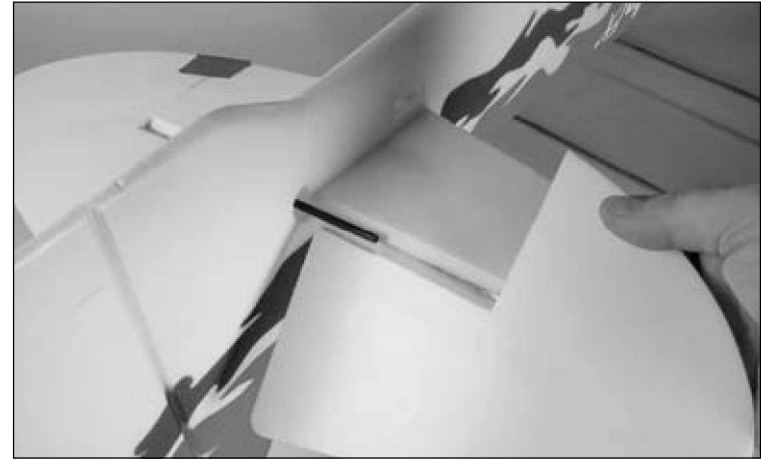
## Required Tools and Adhesives

Foam-safe CA	Threadlock
Hot glue	Drill

1. Apply a piece of the hinge tape to the top of the left elevator. Center the tape width-wise on the hinge line of the elevator.



2. Position the elevator against the stabilizer. Check to make sure the elevator can move without any binding before securing the tape. Use the remaining piece of hinge tape on the bottom of the elevator to complete the hinging process.

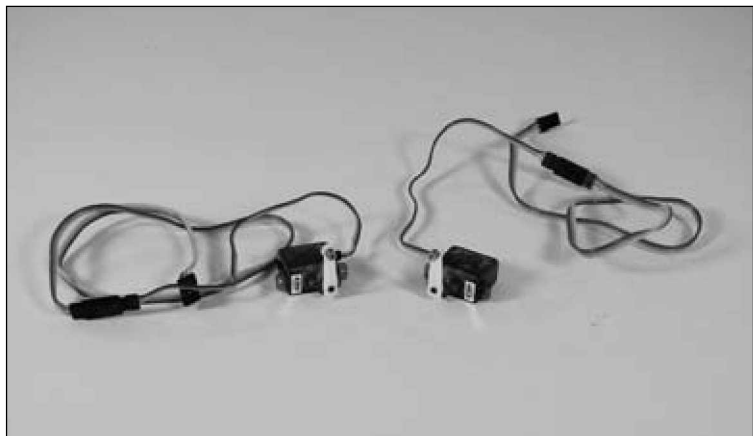


3. Use foam-safe CA to glue the elevator joiner rod to the left elevator half. Allow the CA to fully cure before continuing with your assembly of the Tribute.

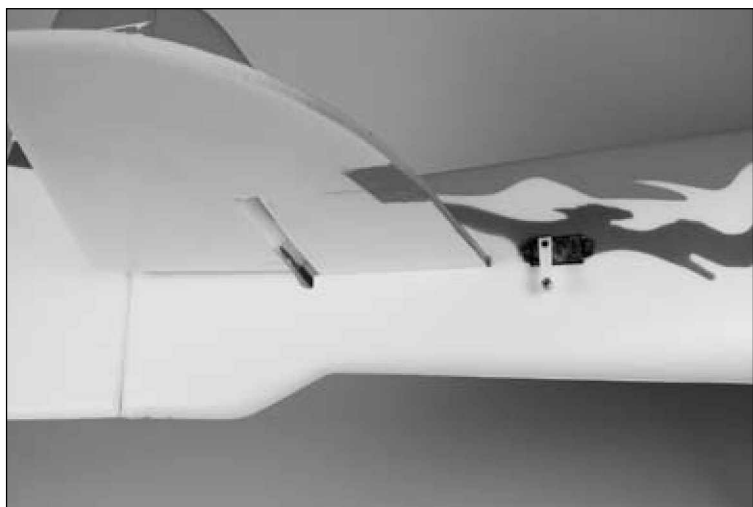


*Hint:* Use low-tack tape to hold the two elevator halves in neutral while the CA fully cures to ensure they are in alignment with each other.

4. Prepare the elevator and rudder servos by attaching 18 in (457mm) servo extensions to each servo. Drill a 1/16 in (1.5mm) hole in the outer hole in the servo arm. Install a control connector in the long servo arms and secure them using the control connector backplates. Use the radio system to center the servos before attaching the servo arms to the servo.



5. Install the elevator servo in the fuselage using hot glue. Make sure the output of the servo faces toward the rear of the fuselage.



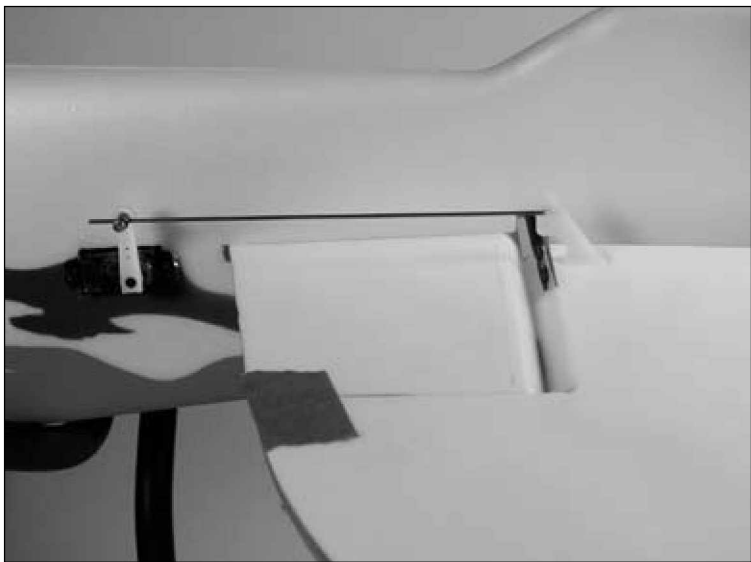
6. Slide the control horn through the pre-cut slot in the elevator. The shoulder on the horn rests tight against the elevator.



7. Slide the control horn backplate down on the control horn from the top side of the elevator. The backplate rests tight against the elevator. Use foam-safe CA on the backplate to complete the control horn installation.

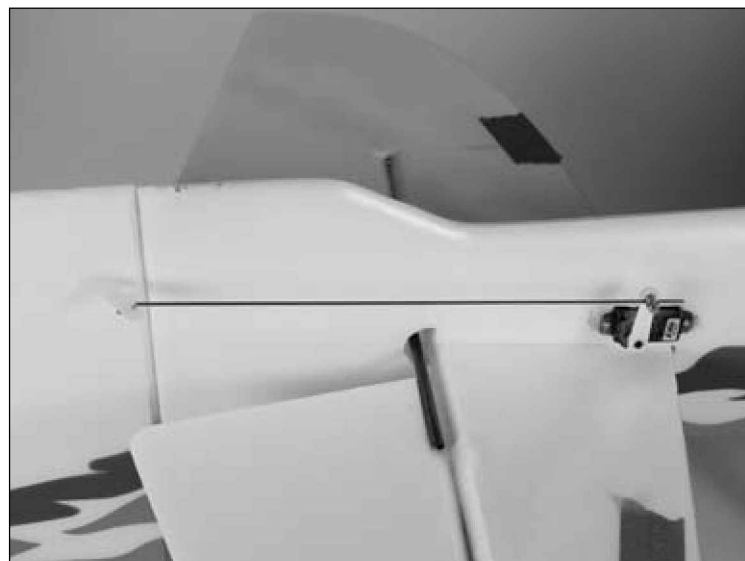


8. Attach the Z-bend of the 5 in (127mm) linkage wire to the control horn. Slide the linkage wire through the control connector. Center the elevator and use a 2mm x 4mm machine screw to secure the linkage. Use side cutters to remove any excess wire that extends beyond the connector. Use threadlock on the screw to prevent it from vibrating loose in flight



9. Install the rudder servo using hot glue. Make sure the output of the servo faces toward the rear of the fuselage. Slide the control horn through the pre-cut slot in the rudder. The shoulder on the horn rests tight against the rudder. Slide the control horn backplate down on the control horn on the opposite side of the rudder. The backplate rests tight against the rudder. Use foam-safe CA on the backplate to complete the control horn installation. Attach the Z-bend of the 6 7/8

in (175mm) linkage wire to the control horn. Slide the linkage wire through the control connector. Center the rudder and use a 2mm x 4mm machine screw to secure the linkage. Use threadlock on the screw so it won't vibrate



# Motor Installation

## Required Parts

Airframe	Cowling
Brushless motor	Outrunner stick mount w/hardware
Electronic speed control	1.5mm x 10mm sheet metal screw
Hook and loop tape	2mm x 6mm sheet metal screw (4)
Spinner	Spinner backplate
Motor adapter	1/2 in (13mm) washer

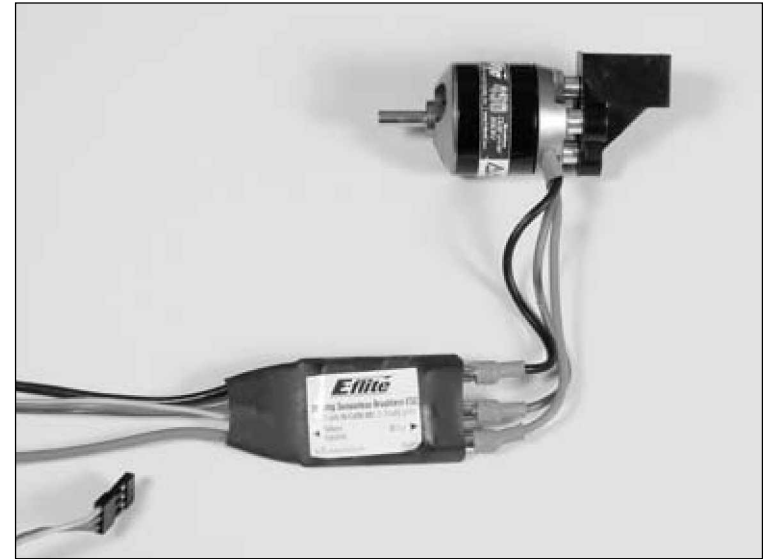
## Required Tools and Adhesives

Phillips screwdriver	Drill
Drill bit: 1/16 in (1.5mm)	Cardstock
Low-tack tape	

1. Mount your particular motor to the outrunner stick mount using the hardware provided with the mount. There are spacers provided with the mount to use with the E-flite Park 450 Outrunner, which has the collar on the back of the motor.



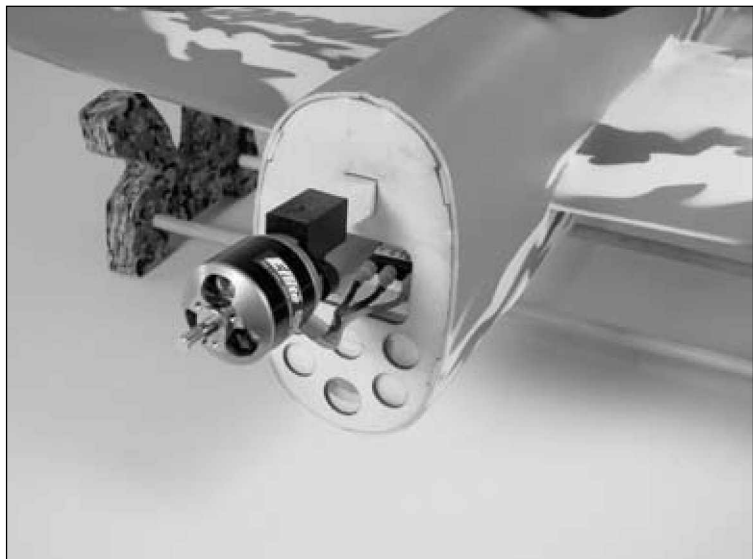
2. Plug the motor leads into the electronic speed control.



## Important Information About Your Brushless ESC

Make sure your 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.

3. Slide the electronic speed control into the fuselage. Slide the stick mount on the motor mount stick.



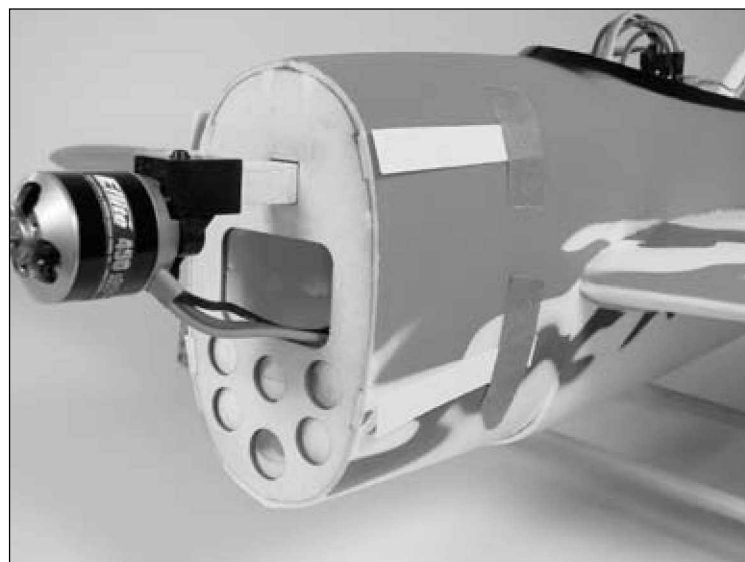
4. Use a drill and 1/16 in (1.5mm) drill bit to drill a pilot hole for the screw into the motor stick. Use the 1.5mm x 10mm sheet metal screw to secure the mount to the stick.



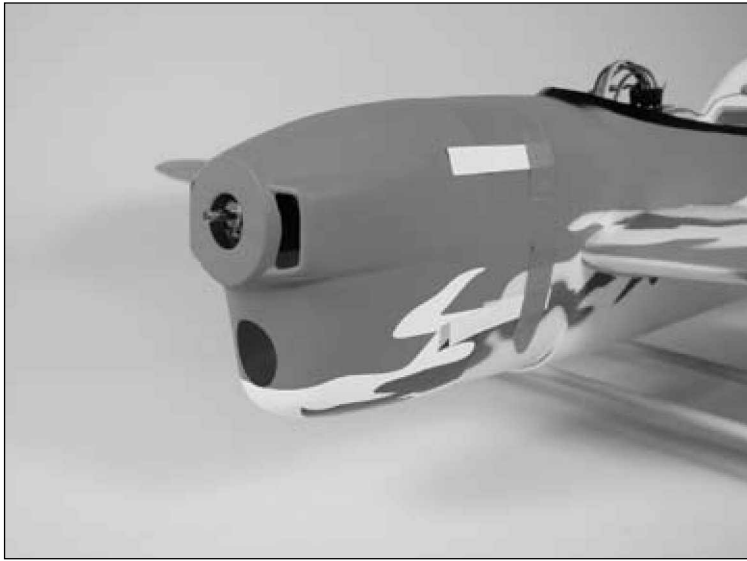
5. Check the operation of the motor using the radio system. The motor should rotate counterclockwise when viewed from the front. Follow the instructions included with the speed control if necessary to reverse the direction of rotation of the motor. Secure the speed control inside the fuselage using hook and loop tape.

*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.

6. Tape four pieces of cardstock onto the fuselage (two on each side of the fuselage) to indicate the locations of the hard points inside the fuselage for mounting the cowling.



7. Slide the cowling onto the fuselage.



8. Slide the propeller adapter through the hole in the propeller.



### *Important Information About Your Propeller*

It is 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.

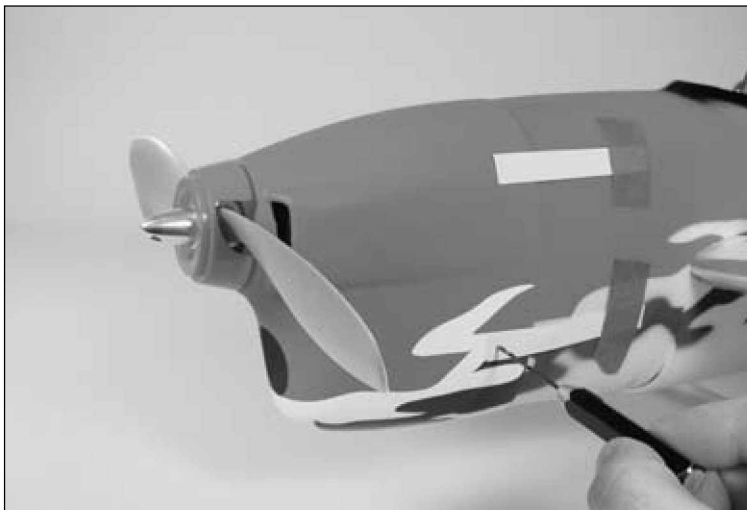
9. Slide the 1/2 in (13mm) washer onto the adapter.



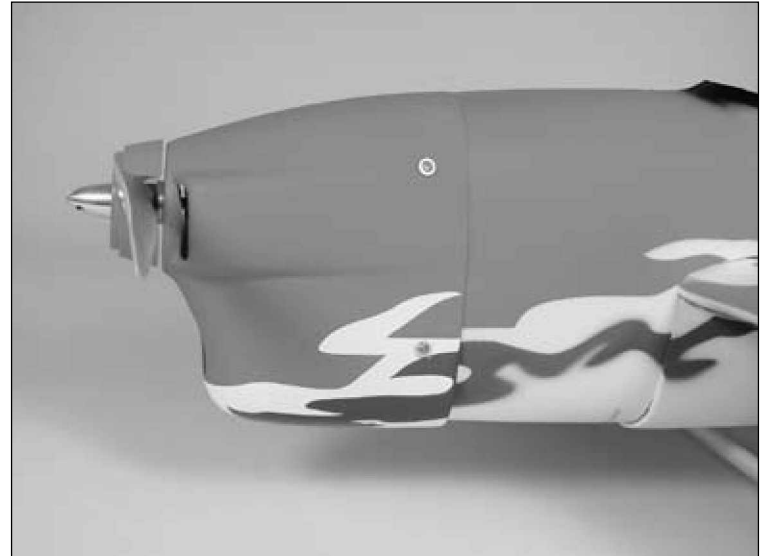
10. Slide the spinner backplate on the adapter. Thread the propeller nut onto the adapter, but do not tighten it at this time.



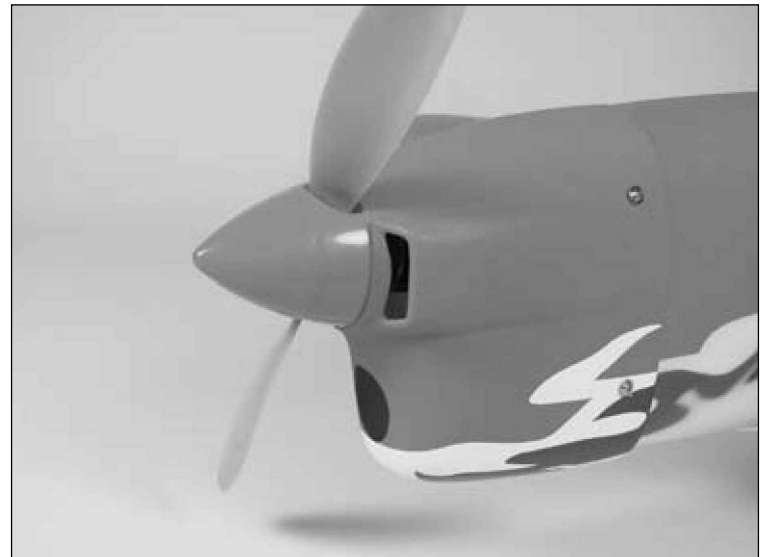
11. Slide the spinner assembly onto the motor shaft. Align the cowling with the spinner backplate, leaving a 1/8 in (3mm) gap between the spinner and cowl. Use a 1/16 in (1.5mm) drill bit to drill four holes through the cowling and into the hard points in the fuselage.



12. Secure the cowling to the fuselage using four 2mm x 6mm sheet metal screws.



13. Snap the spinner in place on the spinner backplate.



## Receiver and Battery Installation

### Required Parts

Airframe Receiver  
Motor battery Canopy

### Required Tools and Adhesives

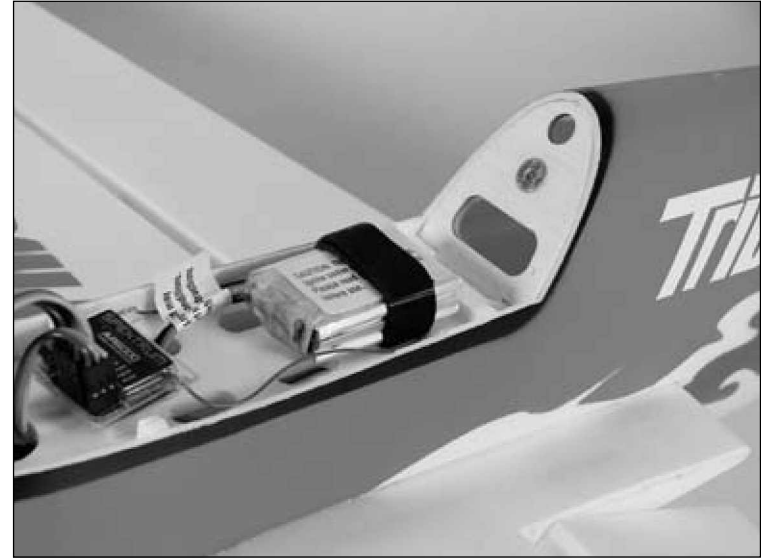
Hook and loop tape Hook and loop strap

1. Mount your receiver inside the fuselage using hook and loop tape. Route the receiver antenna following the instructions provided with your radio system.



*Note:* Never cut the receiver antenna as this will greatly reduce the range of your radio system.

2. Secure the battery inside the fuselage using the hook and loop tape, then use a hook and loop strap to secure.



3. Position the canopy back in position on the fuselage.



# Landing Gear Installation

## Required Parts

Airframe	Tail skid
Main landing gear	Plywood landing gear retainer
Wheel retainer (4)	Wheel pant (2)
Wheel pant strap (2)	2mm x 4mm sheet metal screw (2)

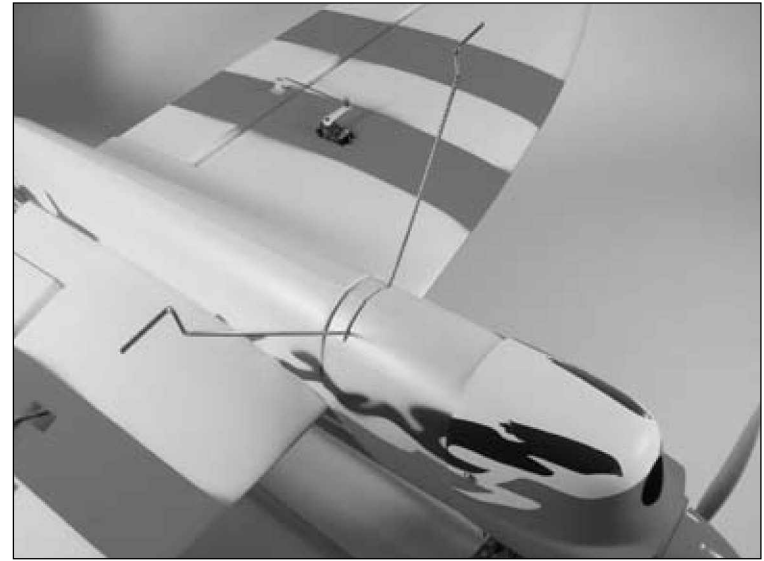
## Required Tools and Adhesives

Foam-safe CA	Drill
Drill bit: 1/16 in (1.5mm)	

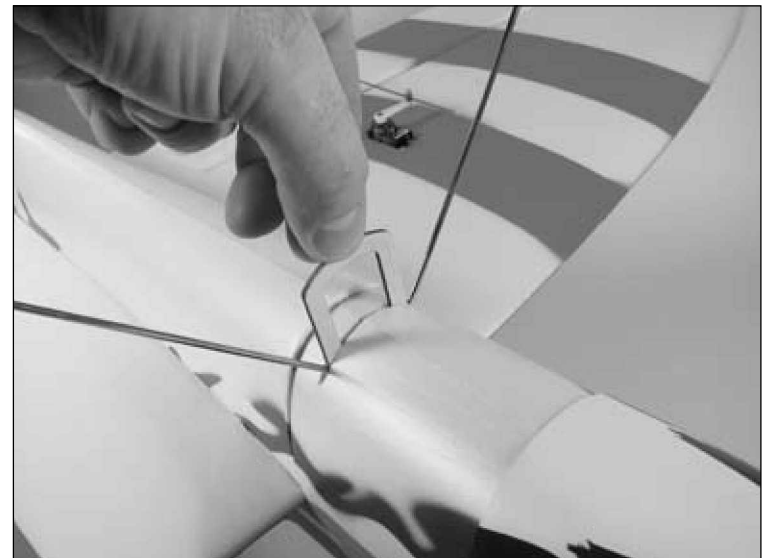
1. Use foam-safe CA to glue the tail skid into the pre-drilled holes near the rudder.



2. Slide the main landing gear in the slot in the fuselage.



3. If the landing gear is loose, or you choose to permanently attach the gear, use foam compatible CA to glue the plywood landing gear retainer into the slot.



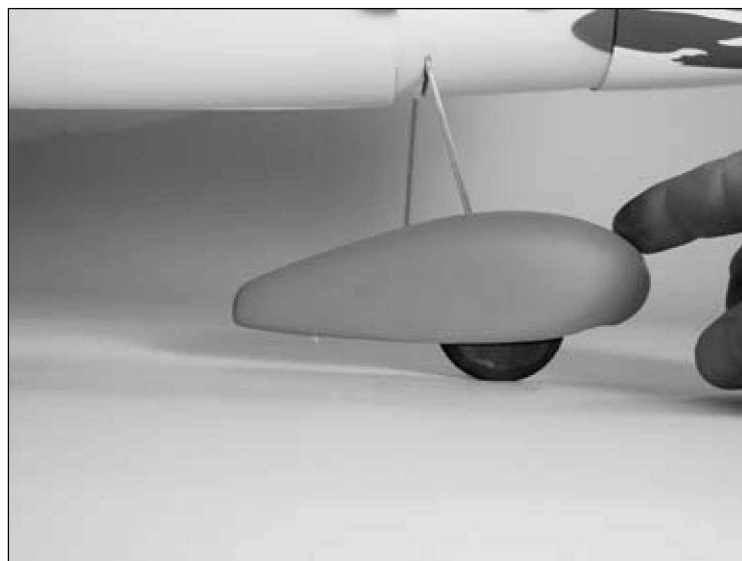
4. If you choose not to use the wheel pants, you can secure the wheels on the landing gear using the wheel retainers. Use hot glue or foam compatible CA to glue the retainers onto the landing gear. Use care not to glue the wheel to the landing gear.



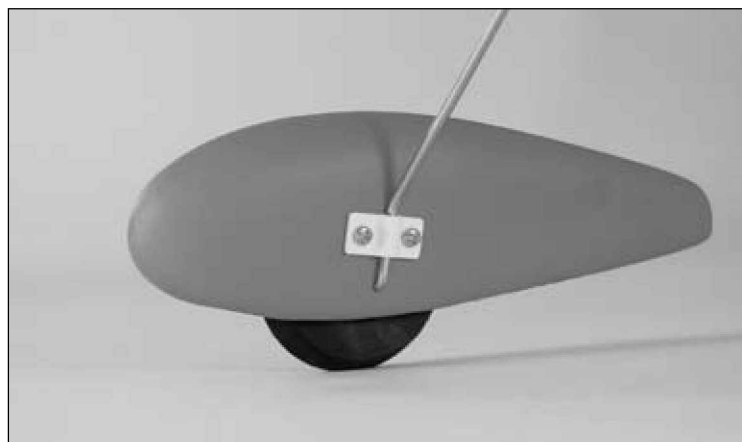
5. Install the wheel pants and wheels. Use needle-nose pliers to insert the wheel retainers on the ends of each of the axle portions of the landing gear inside of the wheel pant.



6. Position the wheel pant so it is not touching the work surface when the plane is resting on the tail skid and wheels.



7. Each wheel pant is secured using two 2mm x 6mm sheet metal screws and a wheel pant strap. Drill the holes for the screws into the wheel pants using a drill and 1/16 in (1.5mm) drill bit.



## Control Throws

1. Turn on the transmitter and receiver of your aircraft. 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 ailerons using the transmitter. When the stick is moved right, the right aileron will move up and the left aileron will move down. Reverse the direction of the servo at the transmitter if necessary.
3. Check the movement of the elevator with the radio system. Moving the elevator stick down will make the airplane elevator move up.
4. Use a throw gauge to adjust the throw of the elevator, ailerons and rudder. Adjust the position of the pushrod at the control horn, or the travel/endpoint adjustments of your computer transmitter, to achieve the following measurements when moving the sticks to their endpoints.

### Ailerons:

High/3D Rate:  $2\frac{1}{2}$  in (63mm) up and down.

### Elevator:

High/3D Rate:  $3\frac{1}{2}$  in (89mm) up and down.

Low/Sport Rate:  $1\frac{1}{2}$  in (38mm) up and down.

### Rudder:

High/3D Rate:  $3\frac{1}{2}$  in (89mm) left and right.

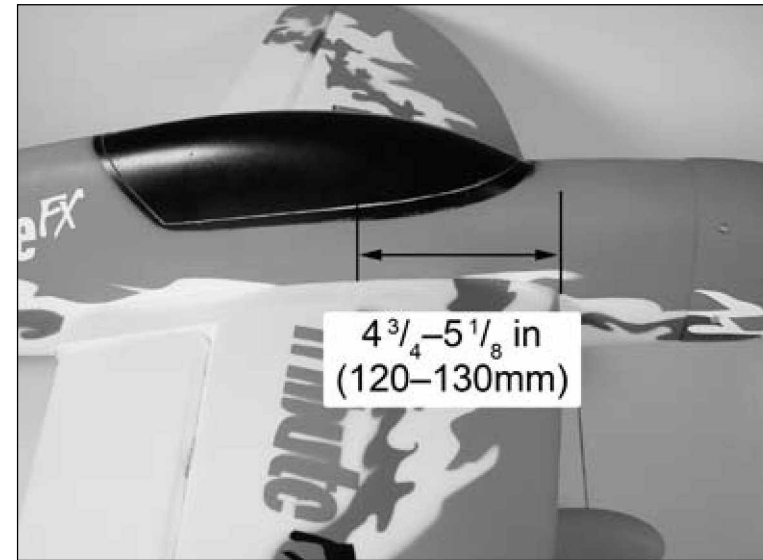
Low/Sport Rate:  $1\frac{1}{2}$  in (38mm) left and right.

## 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 is  $4\frac{3}{4}$ " (120mm) for Precision to  $5\frac{1}{8}$ " (130mm) for 3D behind the leading edge of the wing against the fuse.



## Range Test Your Radio

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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

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### *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.

# 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.



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