



*Fly First Class™*

# **Fokker D.VII**

## **ASSEMBLY MANUAL**



### Specifications

Wingspan.....64.6 in (1641mm)  
 Length.....49.8 in (1265mm)  
 Wing Area (Total).....1114 sq in (72 sq dm)  
 Wing Area (Top Wing).....689 sq in (44 sq dm)  
 Wing Area (Bottom Wing).....425 sq in (27 sq dm)  
 Wing Loading .....17.5 oz/sq ft

Flying Weight.....8.5–9.5 lb (3.9–4.3 kg)  
 Engine Size ..... .61 2-stroke, .82 4-stroke  
 Motor Size .....Power 60  
 Radio.....4-channel  
 Servos.....5 servos (4 electric) required

# Table of Contents

---

Using the Manual . . . . .	3
Required Tools and Adhesives . . . . .	3
Radio and Power Systems Requirements . . . . .	3
UltraCote Covering Colors . . . . .	3
Recommended JR, JR SPORT and Spektrum Systems . . . . .	4
Recommended Setup—2-Stroke Glow . . . . .	4
Recommended Setup—4-Stroke Glow . . . . .	4
Recommended Setup—Electric . . . . .	4
Before Starting Assembly . . . . .	5
FS One . . . . .	5
Instructions for Disposal of WEEE by Users in the European Union . . . . .	5
Warranty Information . . . . .	6
Contents of Kit . . . . .	8
Section 1: Radio Installation . . . . .	9
Section 2: Aileron Servo Installation . . . . .	11
Section 3: Joining the Wing Panels . . . . .	16
Section 4: Wing Installation . . . . .	19
Section 5: Tail installation . . . . .	22
Section 6: Rudder and Elevator Linkage Installation . . . . .	25
Section 7: Landing Gear Installation . . . . .	27
Section 8a: 4-Stroke Engine Installation . . . . .	31
Section 8b: 2-Stroke Engine Installation . . . . .	36
Section 9: Electric Motor Installation . . . . .	41
Section 10: Cowling and Cockpit Installation . . . . .	44
Section 11: Control Throws . . . . .	49
Section 12: Recommended Center of Gravity (CG) . . . . .	50
Section 13: Pre-Flight . . . . .	51
Section 14: Adjusting the Engine . . . . .	51
Section 15: Range Testing Your Radio . . . . .	52
Safety, Precautions, and Warnings . . . . .	52
Building and Flying Notes: . . . . .	53
2008 Official AMA National Model Aircraft Safety Code . . . . .	54–55

# 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 box () are performed once, while steps with two boxes ( ) indicate that the step will require repeating, such as for a right or left wing panel, two servos, etc. Remember to take your time and follow the directions.

## Required Tools and Adhesives

---

### Tools

- Adjustable wrench
- Felt-tipped pen
- Hex wrench: 1.5mm
- Hobby scissors
- Mixing cups
- Pencil
- Pin drill
- Rubbing alcohol
- Sandpaper
- Side cutters
- Threadlock
- Rotary tool w/sanding drum
- Drill bit: 1/16-inch (1.5mm), 5/64-inch (2mm), 3/32-inch (2.5mm), 1/8-inch (3mm), 3/16-inch (5mm)
- Epoxy brush
- File
- Hobby knife
- Masking tape
- Paper towels
- Phillips screwdriver: #1, #2
- Pliers
- Ruler
- Sealing Iron (HAN101)
- Square
- Ball driver: 3/32-inch, 2.5mm

### Adhesives

- 30-minute Epoxy (HAN8002)
- Thin CA (MEUM5T10Z)
- Medium CA (MEUM300M10Z)

## Radio and Power Systems Requirements

---

- 7-channel computer radio system (minimum) w/receiver
- 6-Inch Servo Extension (JRPA095) (2)
- 12-Inch Servo Lead Extension (JRPA098) (2)
- JR 821 Digital Sport Hi-Torque Servo (5) or equivalent (4 for EP version)
- JR Charge Jack Switch (JRPA004)

## UltraCote Covering Colors

---

- Sky Blue (HANU875)
- White (HANU870)
- Lozenge (HAN4695)
- True Red (HANU866)
- Black (HANU874)

# Recommended JR, JR SPORT and Spektrum Systems

---

- JR 12X
- JR 10X
- JR XP9303
- JR X9303 2.4
- JR XP7202
- Spektrum DX-7



JR XP9303



Spektrum DX7



JR 12X

## Recommended Setup–2-Stroke Glow

---

- Evolution® .61NT with Muffler (EVOE0610)
- Evolution Propeller: 11 x 7, 12 x 6 (EVO11070, EVO12060))
- Remote Glow Plug Adapter (HAN3025)
- Evolution .61 In-Cowl Compact Muffler (EVO061602)



Evolution .61NT  
EVOE0610

## Recommended Setup–4-Stroke Glow

---

- Saito™ .82 AAC w/Muffler (SAIE082A or SAIE082AGK)
- Saito 90-Degree Adapter (SAI65140)
- Evolution Propeller: 14 x 8 (EVO14080)
- Remote Glow Plug Adapter (HAN3025)
- Exhaust Deflector: .35 to .91 Engines (DUB697)



Saito .82 AAC  
SAIE082A

## Recommended Setup–Electric

---

- E-flite® Power 60 BL Outrunner Motor (EFLM4060A)
- 60-Amp Pro Switch-Mode BEC Brushless ESC (EFLA1060)
- Thunder Power 6S 3850–5000mAh Li-Po battery pack
- APC Propeller: 16 x 8 (APC16080E)



Power 60 Brushless  
Outrunner Motor, 400Kv  
EFLM4060A

## Before Starting Assembly

---

Before beginning the assembly of the Fokker D.VII, remove each part from its bag for inspection. Closely inspect the fuselage, wing panels, rudder, and stabilizer for damage. If you find any damaged or missing parts, contact the place of purchase.

If you find any wrinkles in the covering, use a heat gun or sealing iron to remove them. Use caution while working around areas where the colors overlap to prevent separating the colors.



**HAN101 – Sealing Iron**

**HAN141 – Sealing Iron  
Sock**



**HAN100 – Heat Gun**

**HAN150 – Covering Glove**

## FS One

---

With FS One® you get more than photorealistic fields, gorgeous skies and realistic-looking aircraft. You get incredibly advanced aerodynamic modeling that simulates every possible aspect of real-world flight.

The first Hangar Pack™ will add even more aircraft to FS One. This latest edition includes ten new planes and helis from your favorite brands, including Hangar 9, E-flite and Align. You'll be able to fly aircraft that are only available on FS One such as the T-REX, Blade CX2, Blade CP Pro, Hangar 9 P-51 and F-22 PTS. And, as always, with the Hangar Pack you still get all the same great features that you did with the original aircraft.



**HANS2000**



**HANS4010**

## Instructions for Disposal of WEEE by Users in the European Union

---

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.



# Warranty Information

---

## Warranty Period

---

Exclusive Warranty- 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](mailto: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](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

---

**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.**

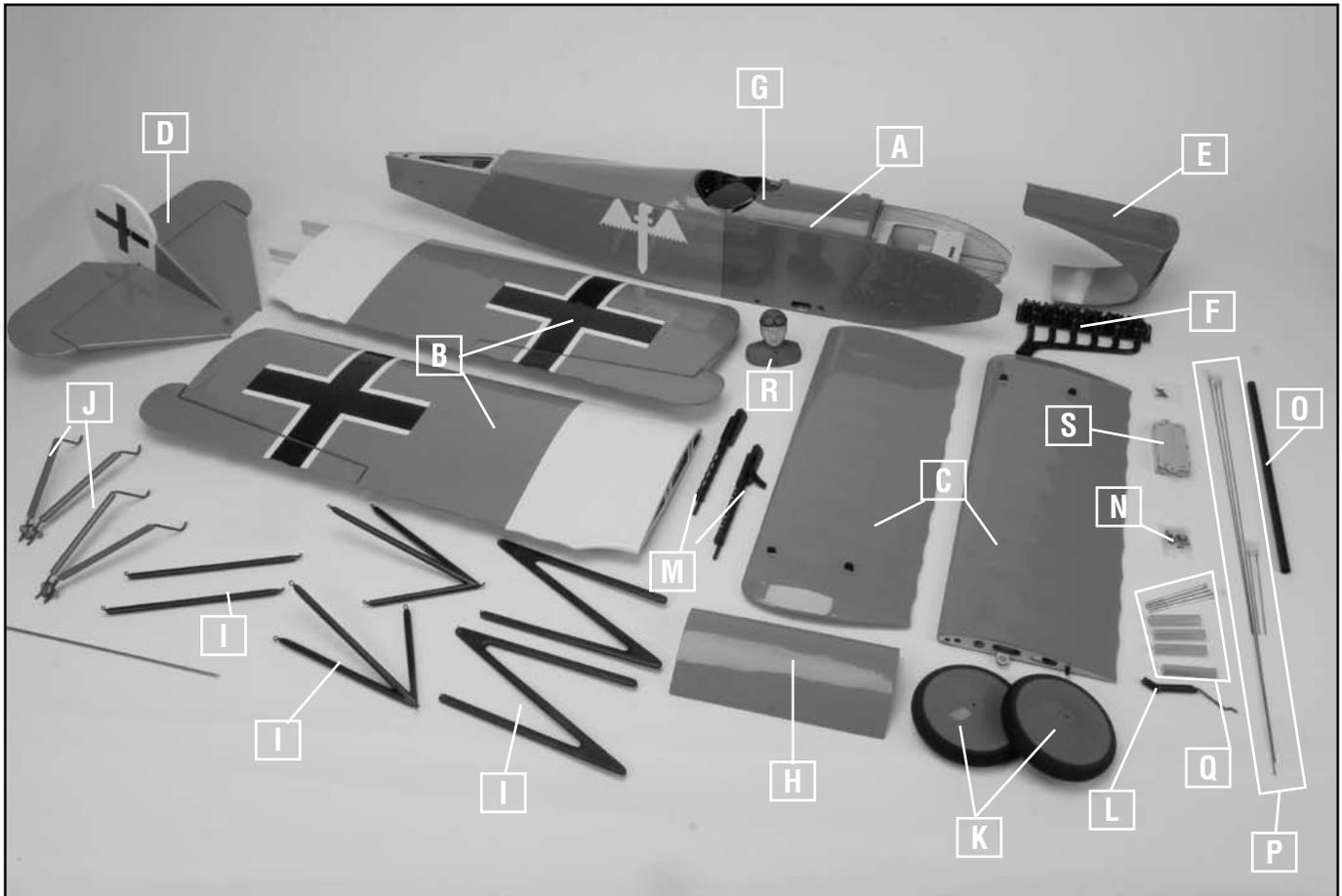
# Contents of Kit

- A. HAN4676 Fuselage w/Hatch
- B. HAN4677 Top Wing Set w/Ailerons
- C. HAN4678 Bottom Wing Set
- D. HAN4679 ARF Tail Set
- E. HAN4680 Fiberglass Cowl w/Plastic Baffles
- F. HAN4681 Dummy Engine
- G. HAN4682 Cockpit Hatch
- H. HAN4683 Fiberglass Gear Spreader
- I. HAN4684 Wing Strut Set w/Hardware
- J. HAN4685 Landing Gear Legs
- K. HAN4686 WWI ARF Wheels
- L. HAN4687 Tail Skid
- M. HAN4688 Spandau Machine Guns (Pair)

- N. HAN4689 Cowl screws (12 pcs)
- O. HAN4690 Anodized Aluminum Wing Tube
- P. HAN4692 Pushrod Set
- Q. HAN4693 EP Standoffs (48mm) (4Pcs)
- R. HAN8303 German Pilot Bust w/Scarf
- S. HAN4696 Weight Box

## Items available separately:

- HAN4694 EP Battery Tray and Fuel Tank Support
- HAN4695 Lozenge Covering 1 Meter
- HAN1987 17 oz Fuel Tank(500cc)
- HAN2033 Ultra Motor Mount: .61-2.2
- EVO061602 Evolution .61 In-Cowl Compact muffler
- HAN4240 Landing Gear O-ring Set



# Section 1: Radio Installation

## Required Parts

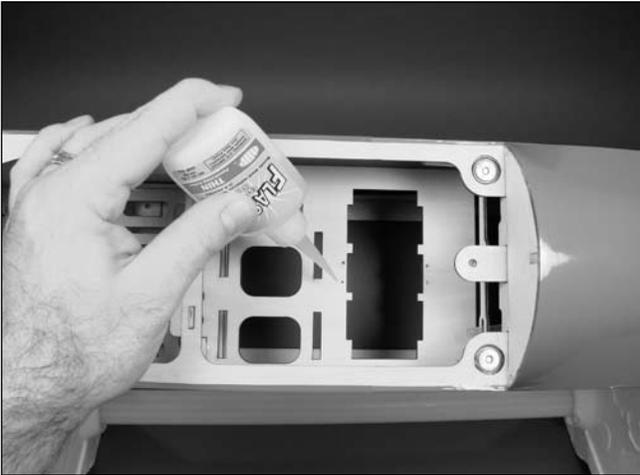
- Fuselage
- Receiver
- Receiver battery
- Hook and loop strap (2 required))
- 12-inch (305mm) servo extension (2)
- Servo w/hardware (2)
- Switch harness

## Required Tools and Adhesives

- Thin CA
- Hobby knife
- Phillips screwdriver: #1

### □ Step 1

Place 2–3 drops of thin CA into each hole to harden the surrounding wood. This provides a harder surface for the screws to thread into, preventing them from vibrating loose.



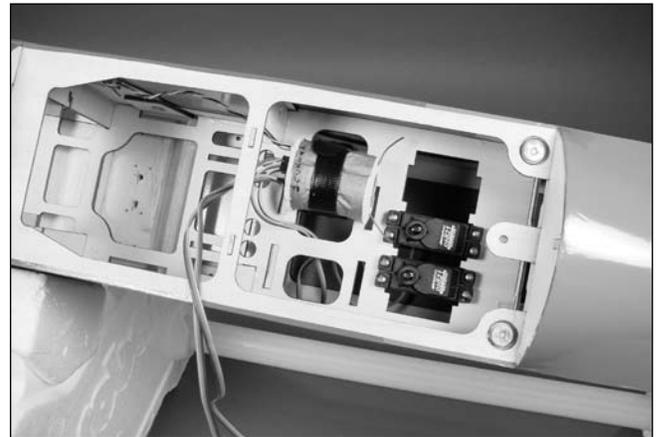
### □ Step 2

Secure the elevator servo in the fuselage using the hardware provided with the servo.



### □ Step 3

Repeat Steps 1 and 2 to install the rudder servo as shown. Wrap the receiver in foam and secure it to the radio tray with a hook and loop strap. Plug the rudder and elevator servos into the receiver, as well as two 12-inch (302mm) servo extensions for the aileron servos.



**Note:** When installing a 72MHz receiver, route the antenna through the bottom of the fuselage and secure it to a location at the tail with rubber bands. Do not cut or shorten the antenna as this will greatly reduce the range of your radio system.

### When installing a 2.4GHz remote receiver:

Use double-sided foam tape or self-adhesive hook and loop material to mount the remote receiver as shown. Keep the remote antenna(s) at least 2 inches away from the primary antenna of the main receiver.

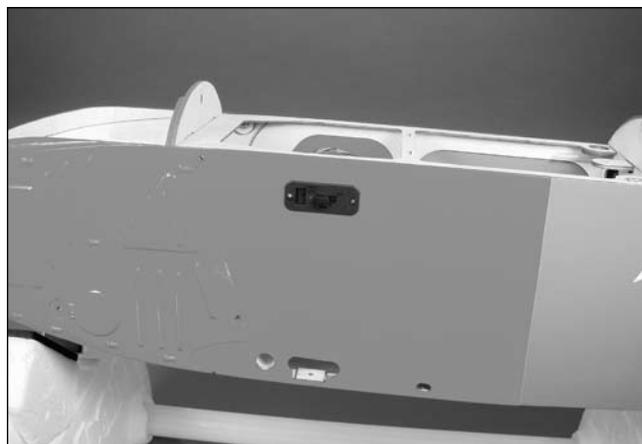


**Hint:** We used hook and loop material to install the remote receiver. Use thin CA to seal the wood to help the velcro adhere better to the fuselage side.

**Important:** When using a remote receiver, mount so the antenna from the remote receiver are perpendicular to the antenna of the main receiver. Refer to the owners manual for the radio. This gives tremendous improvements in signal reception. Essentially each receiver sees a different RF environment and this is the key to maintaining a solid RF link.

### □ Step 4

Remove the covering for the switch opening using a hobby knife and #11 blade. Mount the switch to the side of the fuselage.



**Note:** Locations for smaller and larger switches have been provided in the fuselage side.

## Section 2: Aileron Servo Installation

### Required Parts

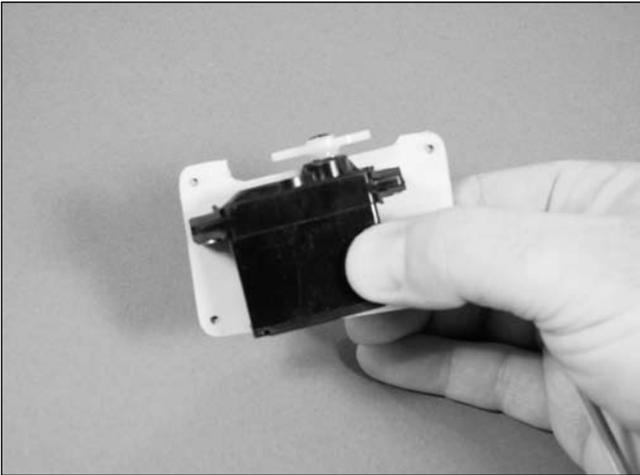
- Pushrod snap keeper (2)
- Servo w/hardware (2)
- Top wing panel (right and left)
- Servo hatch cover (right and left)
- 6-inch (152mm) servo extension (2)
- Hardwood servo mounting block (4)
- 2mm x 12mm self-tapping screw (8)
- 6-inch (152mm) pushrod w/clevis (2)

### Required Tools and Adhesives

- 30-minute epoxy
- Thin CA
- Felt-tipped pen
- Hobby knife
- Pin drill
- Side cutter
- Drill bit: 1/16-inch (1.5mm), 5/64-inch (2mm)

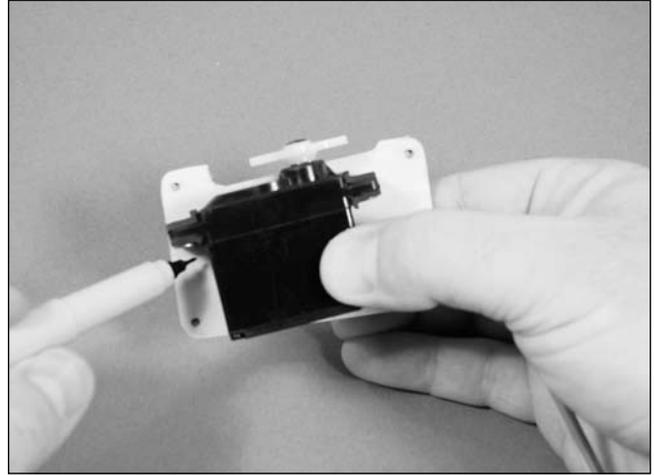
### □□ Step 1

Position the aileron servo on the servo hatch as shown. Note that the servo will rest parallel to the opening for the servo arm, not to the edge of the hatch itself.



### □□ Step 2

Use a felt-tipped pen to mark the locations for the servo mounting blocks on the hatch.



**Note:** Make sure the blocks will not hang over the outside edges of the hatch when installed. If so, reposition the servo as necessary and correct the marking on the hatch.

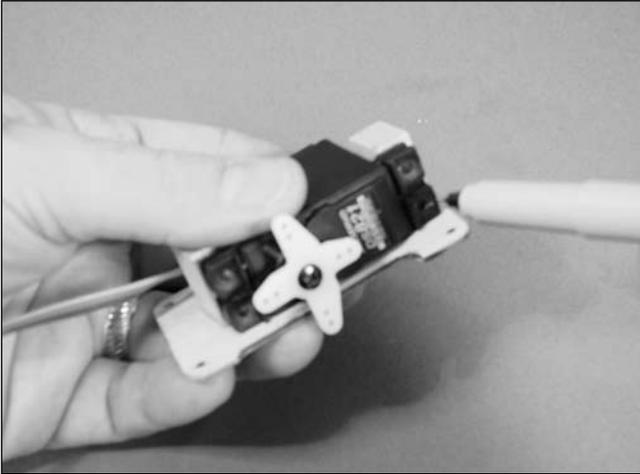
### □□ Step 3

Use 30-minute epoxy to glue the two servo mounting blocks to the hatch. Allow the epoxy to fully cure before proceeding.



#### □□ Step 4

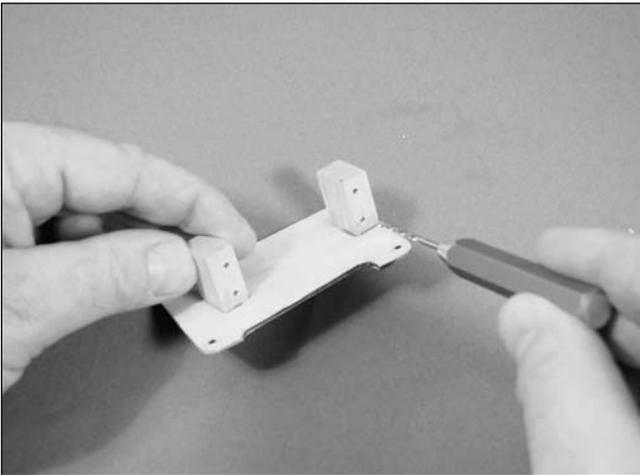
Position the servo between the blocks. Use a felt-tipped pen to transfer the locations for the servo mounting screws onto the servo mounting blocks.



**Note:** Allow a slight gap between the servo and hatch to prevent the transfer of vibrations through the hatch and into the servo.

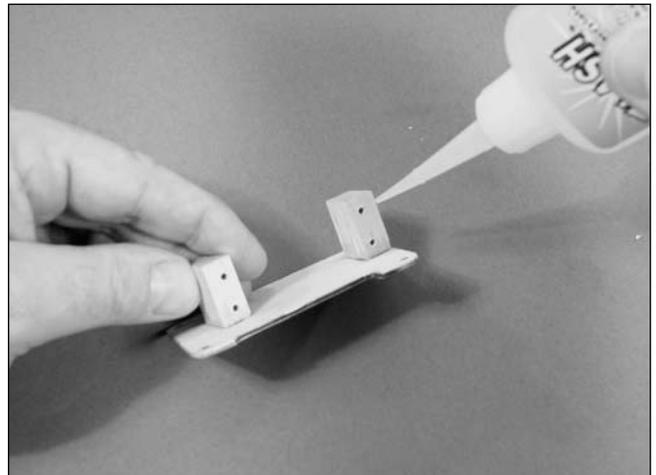
#### □□ Step 5

Use a pin drill and 1/16-inch (1.5mm) drill bit to drill the locations for the servo mounting screws.



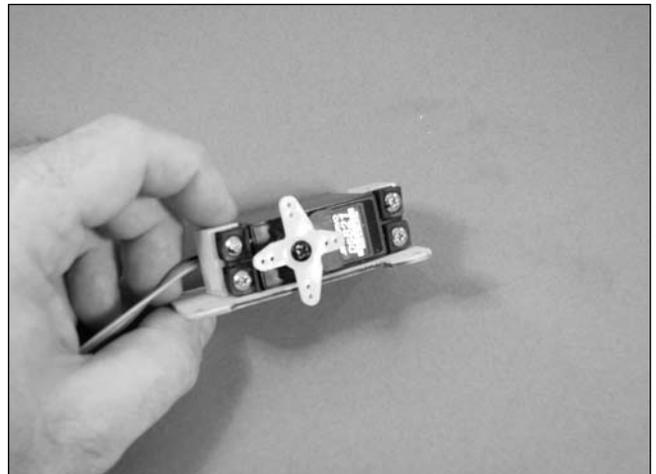
#### □□ Step 6

Place 2–3 drops of thin CA into each hole to harden the surrounding wood. This provides a harder surface for the screws to thread into, preventing them from vibrating loose.



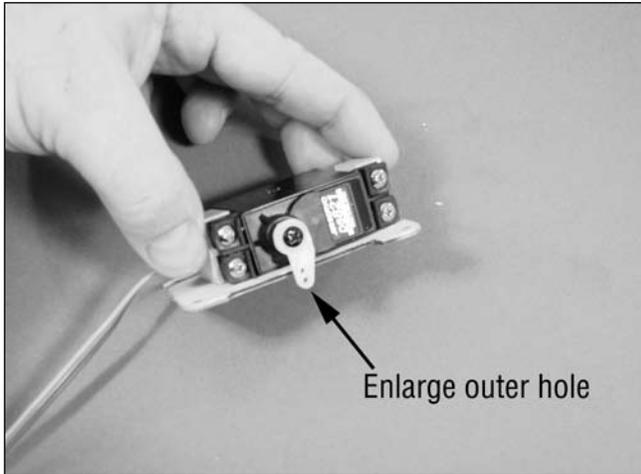
#### □□ Step 7

Secure the servo to the mounting block using the screws provided with the servo.



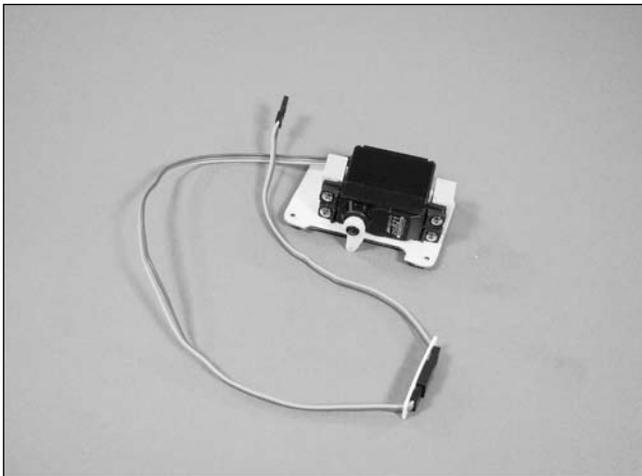
### □□ Step 8

Enlarge the hole 1/2-inch (13mm) from the center of the servo horn using a 5/64-inch (2mm) drill bit. Use side cutters to remove any unused arms from the horn.



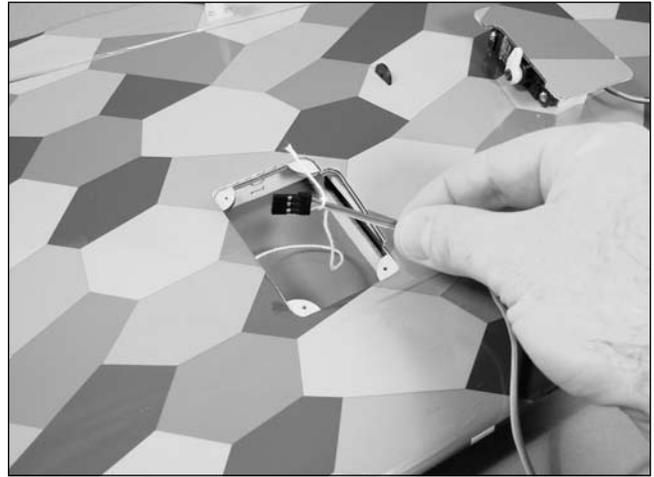
### □□ Step 9

Secure a 6-inch (152mm) servo extension to the aileron servo using string, unwaxed dental floss or a commercially available connector.



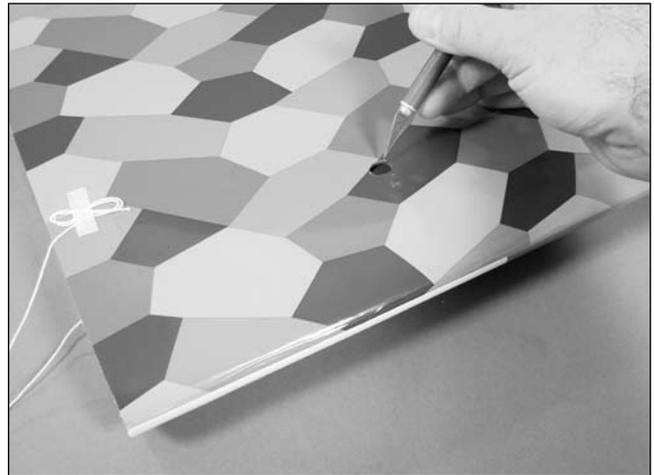
### □□ Step 10

Tie the string located inside the wing to the aileron servo extension.



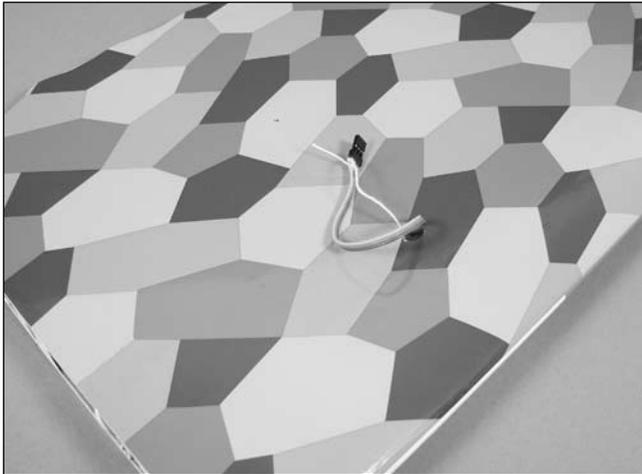
### □□ Step 11

Use a hobby knife with a #11 blade to remove the covering from the wing where the servo extension will exit.



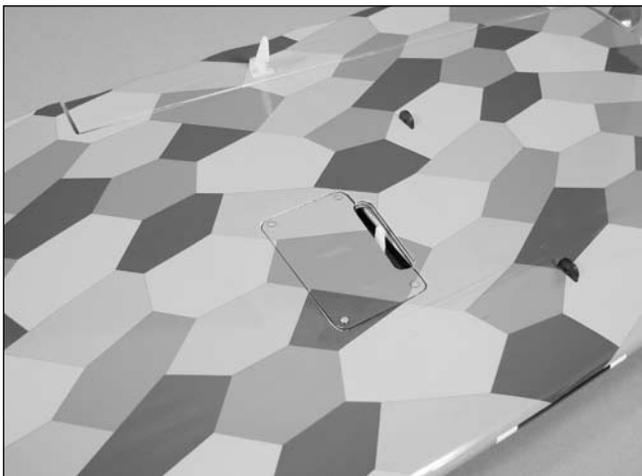
### □□ Step 12

Use the string to pull the servo extension through the wing, exiting the opening uncovered in the previous step.



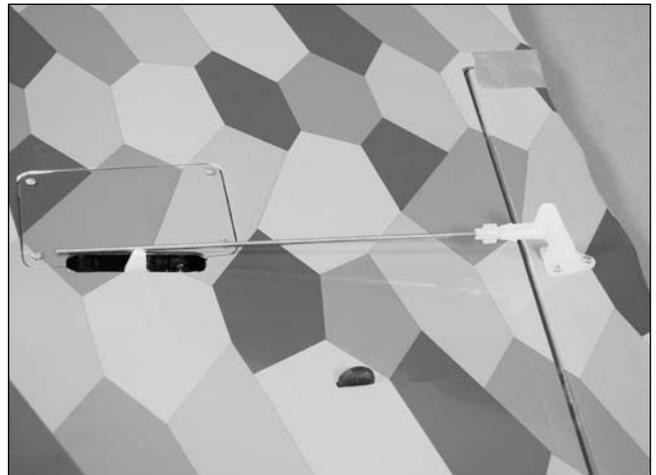
### □□ Step 13

Position the servo hatch in the wing and secure it using four 2mm x 12mm self-tapping screws and a #1 Phillips screwdriver.



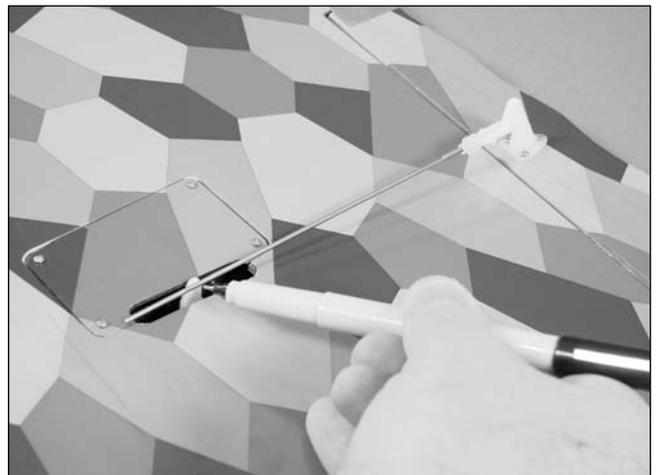
### □□ Step 14

Attach the clevis from the 6-inch (152mm) pushrod to the inside hole of the aileron control horn. A piece of safety tubing has been installed on the clevis. This will be placed over the clevis once the control throws are set.



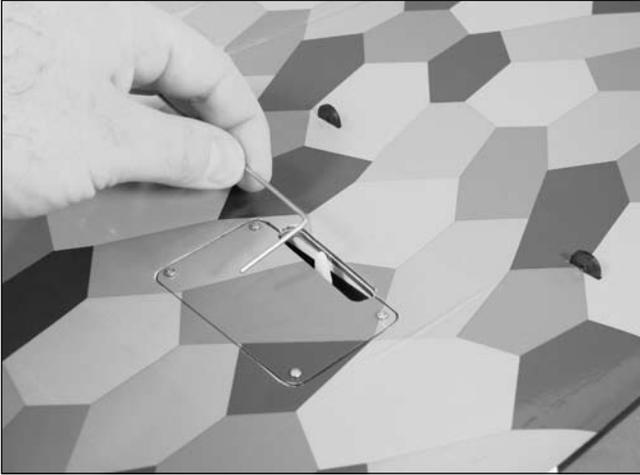
### □□ Step 15

With the servo and aileron centered, mark the pushrod where it crosses the outer hole of the servo arm using a felt-tipped pen.



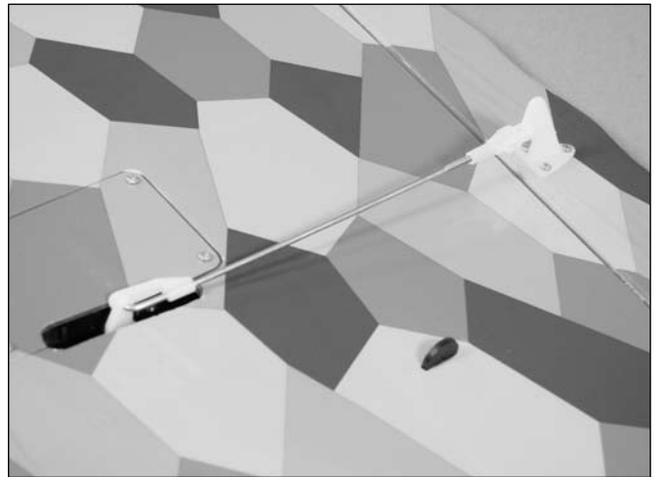
### □□ Step 16

Use pliers to make a 90-degree bend in the pushrod at the mark made in the previous step.



### □□ Step 17

Slide the pushrod through the outer hole of the servo arm. Use a pushrod snap keeper to secure the connection between the pushrod and servo arm. Use side cutters to trim any excess wire that extends beyond the keeper.



### □ Step 18

Repeat Steps 1 through 17 to install and connect the remaining aileron servo.

# Section 3: Joining the Wing Panels

## Required Parts

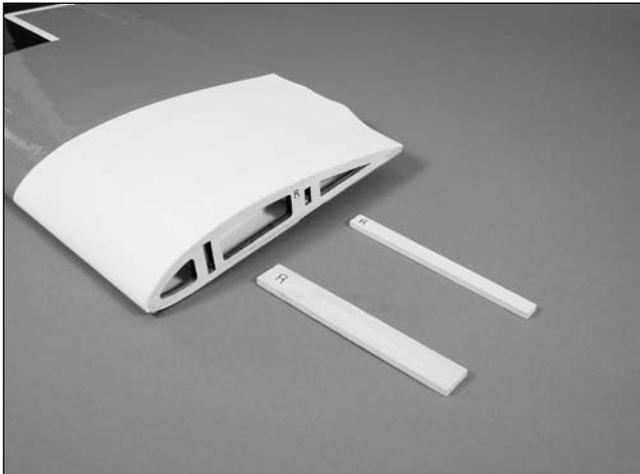
- 15/16 x 1/4 x 6<sup>3</sup>/<sub>16</sub>-inch (24mm x 6mm x 157mm) front spar
- 1/2 x 1/4 x 6<sup>3</sup>/<sub>16</sub>-inch (13mm x 6mm x 157mm) rear spar
- 1 x 12-inch (25mm x 305mm) covering, white

## Required Tools and Adhesives

- Low-tack masking tape
- 30-minute epoxy
- Paper towel
- Mixing cup
- Covering iron
- Ruler
- Mixing stick
- Rubbing alcohol
- Felt-tipped pen
- Epoxy brush

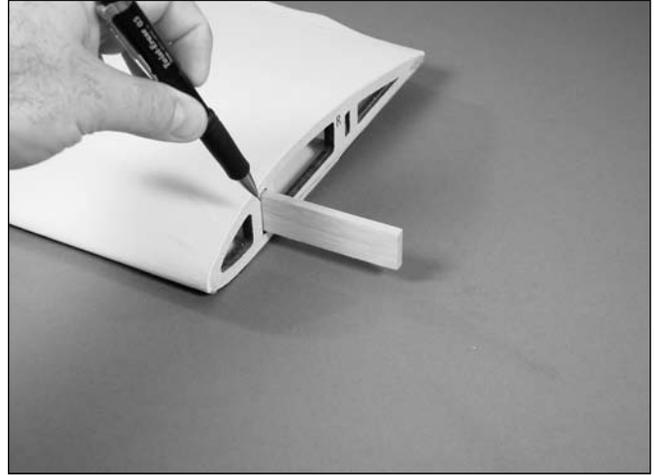
### □ Step 1

Locate the front and rear wing spars. Mark the spars and one wing panel so the spars can be repositioned as they are fit to the wing panels.



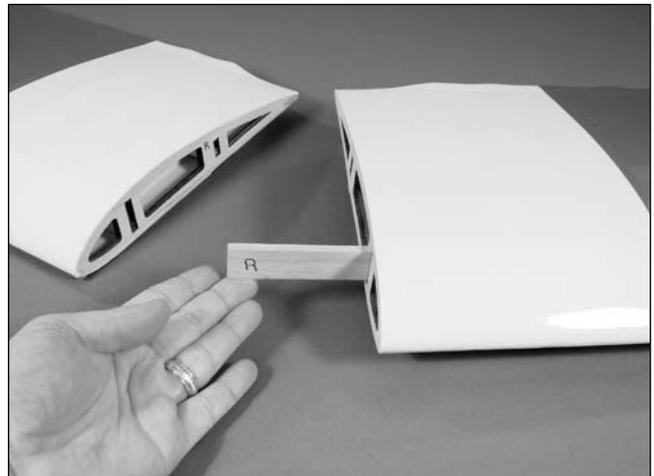
### □ Step 2

Slide the front wing spar in to the pocket in the wing. Use a pencil to draw a line on the spar flush against the wing.



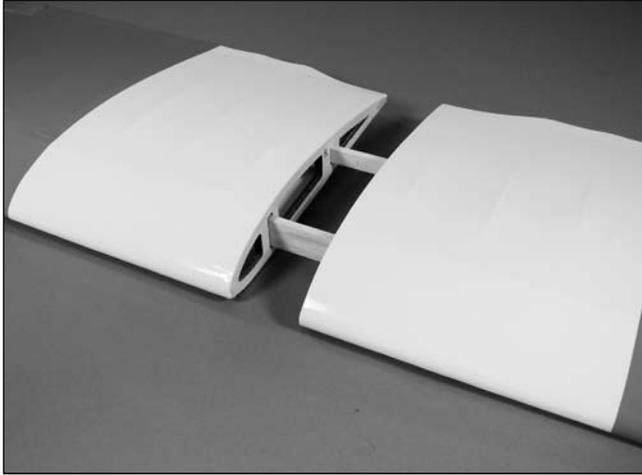
### □ Step 3

Slide the spar into the opposite wing panel. It should fit into the panel up to or beyond the line drawn in the previous step. If not, lightly sand the end of the spar so it fits up to the line.



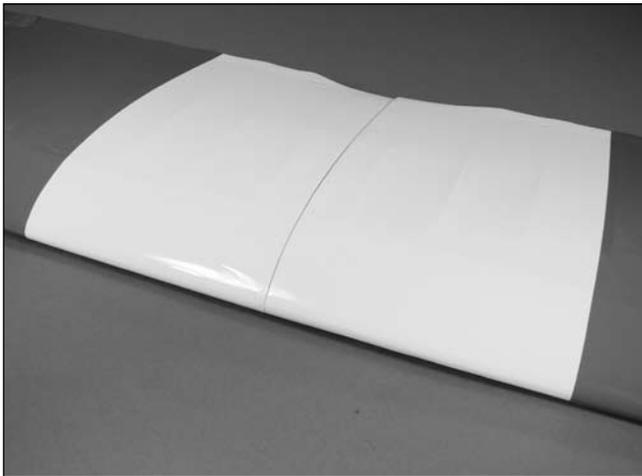
#### □ Step 4

Repeat Steps 1 through 3 for the rear wing spar. Slide the two wing panels together.



#### □ Step 5

The two wing panels should fit tightly together when slid together. If not, determine the reason they do not fit and correct it.



**Hint:** Keep paper towels and rubbing alcohol handy to clean up any excess epoxy during the joining of the wing panels.

**Important:** The following steps require you to work quickly in order to complete them before the epoxy has a chance to begin the curing cycle. Please read through these steps and familiarize yourself with the procedure before proceeding.

#### □ Step 6

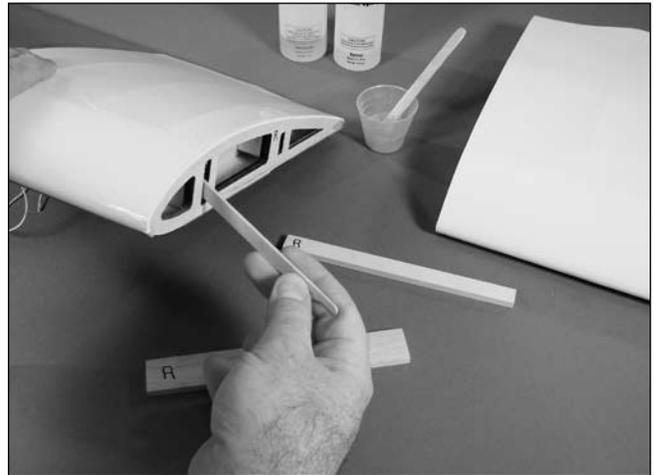
Mix a batch of 30-minute epoxy. Use an epoxy brush to apply the epoxy to ALL SIDES of the joiner.



**Hint:** You can apply epoxy to the side that will be fit into the first wing panel. The remaining epoxy can be applied after the spar is in position in the first wing panel.

#### □ Step 7

Use an epoxy mixing stick to apply epoxy to the inside of the wing spar pocket in both wing panels.



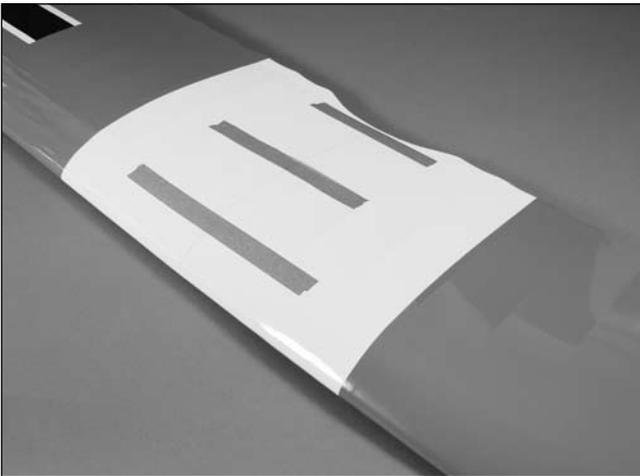
### □ Step 8

Use an epoxy brush to apply epoxy to the mating surfaces of the wing ribs of both wing panels.



### □ Step 9

After everything has been coated with epoxy, slide the two wing panels together. Use low-tack tape to keep the two panels held tightly together until the epoxy cures.

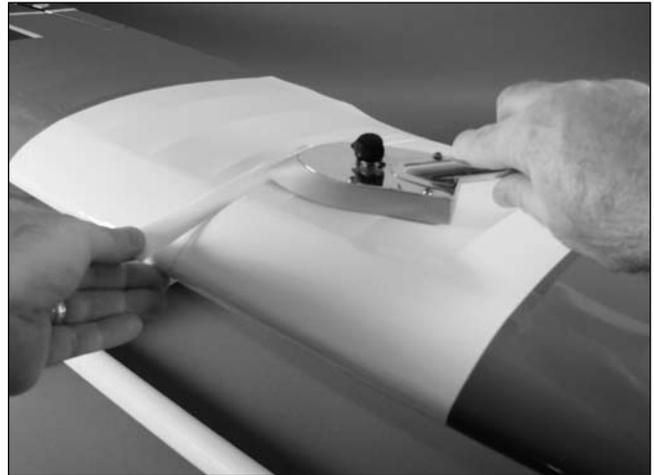


**Important:** There should be an excess of epoxy that will ooze from between the two wing panels. If not, you have not used enough epoxy to join the wing panels.

**Hint:** You can use paper towels soaked in rubbing alcohol to remove the excess epoxy from the wing before it can cure.

### □ Step 10

Once the epoxy has fully cured, apply the 1 x 12-inch (25mm x 305mm) white covering to the joint made by the two wing panels. You will need to use a covering iron to apply the material. Trim this strip to match where the center section color meets the Lozenge.



# Section 4: Wing Installation

## Required Parts

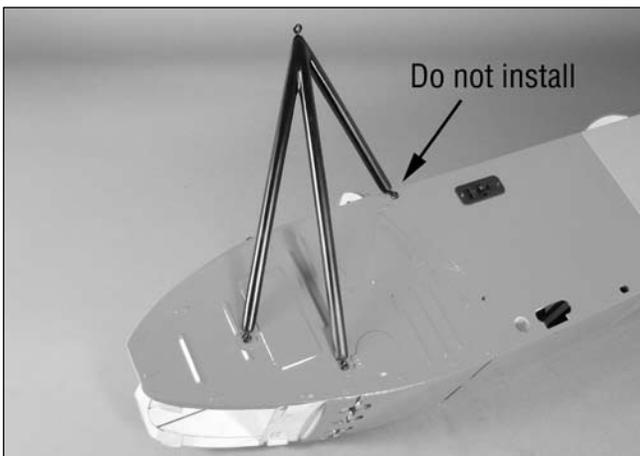
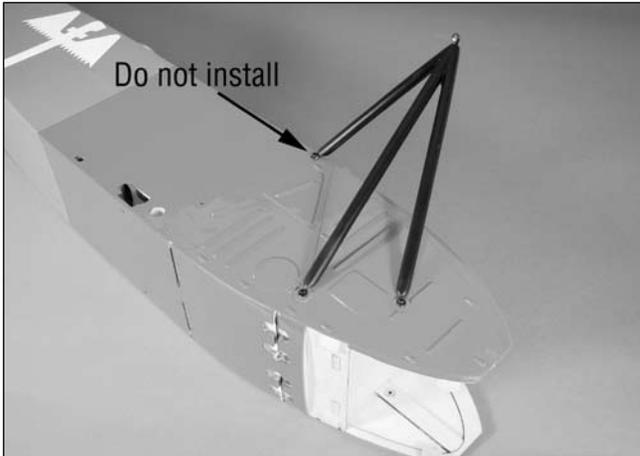
- N-strut (right and left)
- #4 washer (2)
- Heat shrink (2)
- Forward wing cabane (right and left)
- Rear wing cabane (right and left)
- 1/16-inch (1.5mm) wheel collar (4)
- 3mm x 5mm socket head screw (4)
- 4-40 x 1/2-inch socket head screw (14)
- 15 x 1/2-inch wing tube

## Required Tools and Adhesives

- Low-tack masking tape
- Ruler
- Threadlock
- Ball driver: 3/32-inch, 2.5mm

### □ Step 1

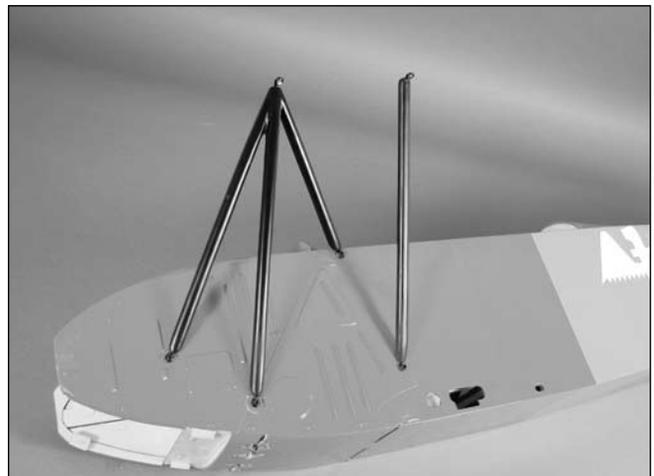
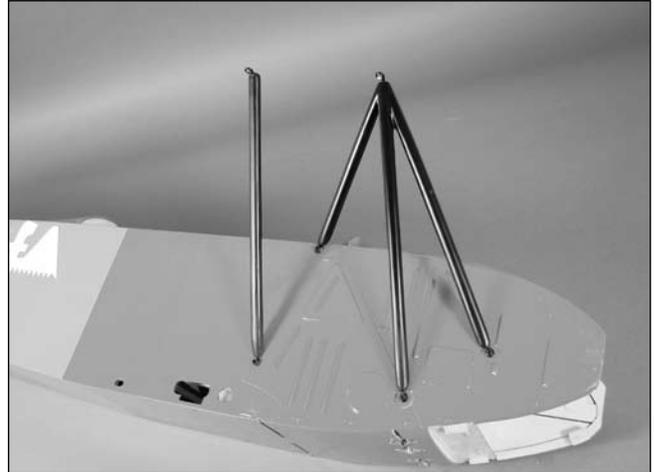
Attach the forward cabanes using six 4-40 x 1/2-inch socket head screws and a 3/32-inch ball driver. Note there is a right and left cabane as shown in the images. Do not install the upper rear screw at this time.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

### □ Step 2

Attach the rear wing cabanes to the fuselage using two 4-40 x 1/2-inch socket head screws and a 3/32-inch ball driver. Leave the screws slightly loose at this time so the position of the struts can be adjusted later.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

### □ Step 3

Route the 12-inch servo leads from the receiver through the holes in the fuselage and along the front cabanes as shown. Slide a piece of heat shrink tubing over the servo lead and front cabane support as shown. Once the heat shrink is in position, shrink the tubing to the cabane and install the final 4-40 x 1/2-inch socket head screw to secure the forward cabanes to the fuselage.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

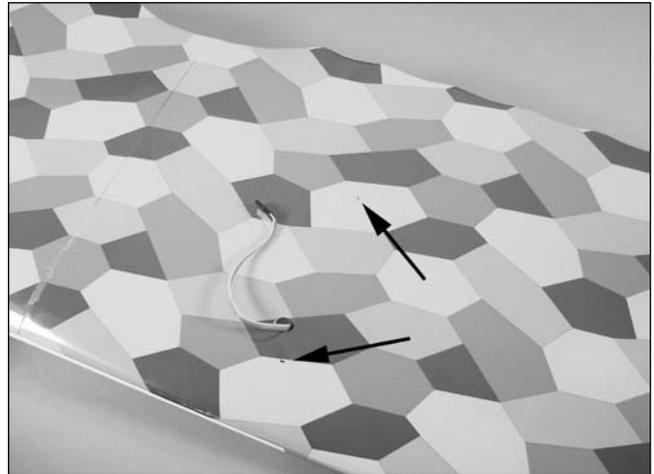
### □ Step 4

Locate the correct N-strut for installation. The strut will hook onto the tabs on the top wing. The hooks from the strut enter from the side nearest the servo and face the wing tip.



### □ Step 5

Use a hobby knife to remove the covering from the wing, exposing the 4-40 blind nuts that have been installed inside the wing. There are four total blind nuts to expose.



### □ Step 6

Attach the top wing to the cabane struts using four 4-40 x 1/2-inch socket head screws and a 3/32-inch ball driver. Tighten the screw holding the rear cabane strut to the fuselage at this time.



**Important:** Make sure to support the fuselage when installing the top wing. If the fuselage is not supported, the struts could accidentally make a hole in the covering on the bottom of the top wing.

**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

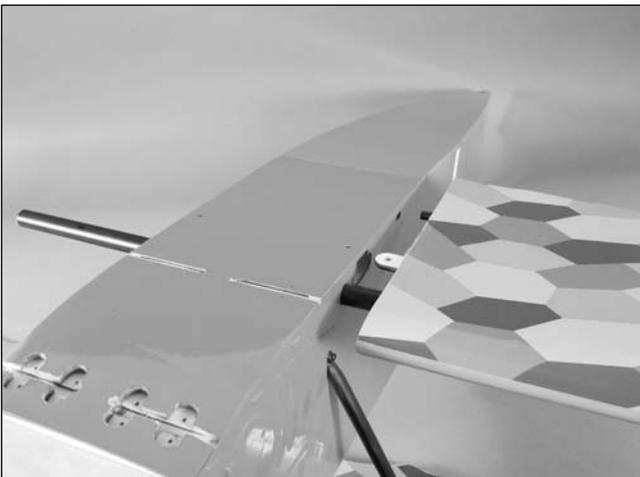
### ☐ Step 7

Slide the wing tube for the bottom wing into position in the fuselage.



### ☐☐ Step 8

Slide the bottom wing panel onto the wing tube.



**Note:** Make sure the wing N-struts will not come in contact with the bottom wing during its installation, damaging the covering.

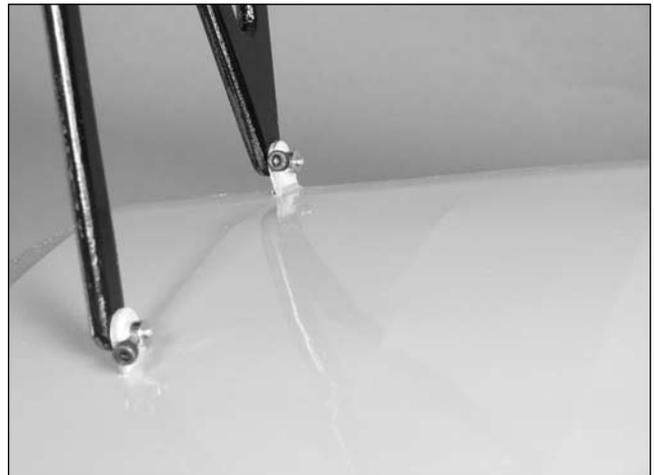
### ☐☐ Step 9

Secure the bottom wing to the fuselage using a 4-40 x 1/2-inch socket head screw and #4 washer. Use a 3/32-inch ball driver to tighten the screw.



### ☐☐ Step 10

Slide the wires from the N-strut into the tabs of the bottom wing. Use two 1/16-inch (1.5mm) wheel collars and two 3mm x 5mm socket head screws to secure the struts in position. You will need to use a 2.5mm ball driver to tighten the screws.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

### ☐ Step 11

Repeat Steps 8 through 10 to attach the remaining bottom wing panel.

# Section 5: Tail installation

## Required Parts

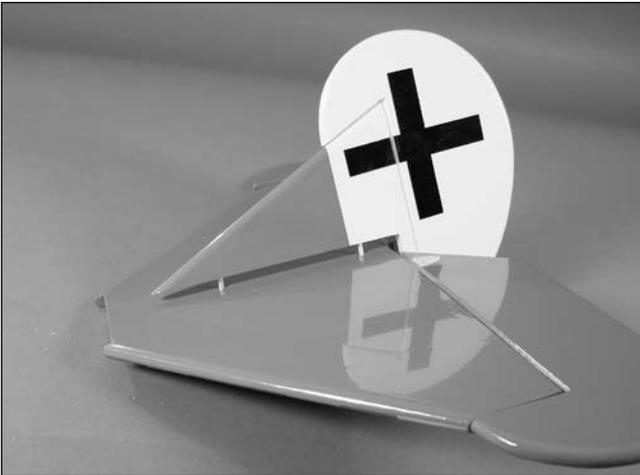
- Stabilizer/elevator
- Rudder/fin

## Required Tools and Adhesives

- 30-minute epoxy
- Mixing stick
- Paper towel
- Rubbing alcohol
- Mixing cup
- Felt-tipped pen
- Hobby knife
- Square
- Epoxy brush

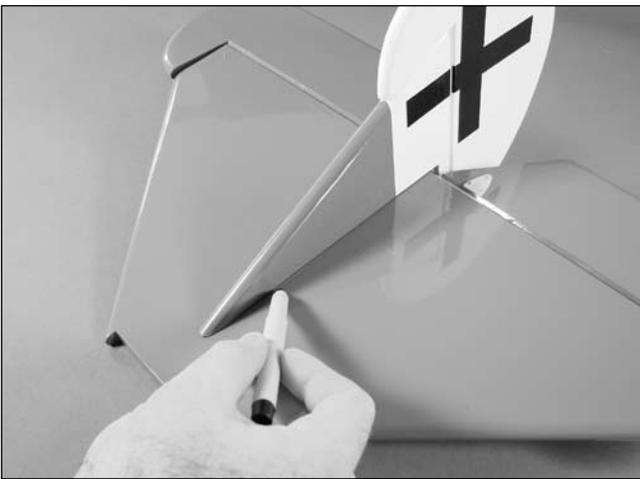
### □ Step 1

Fit the vertical fin to the stabilizer. The pins from the fin will align it with the fuselage center line.



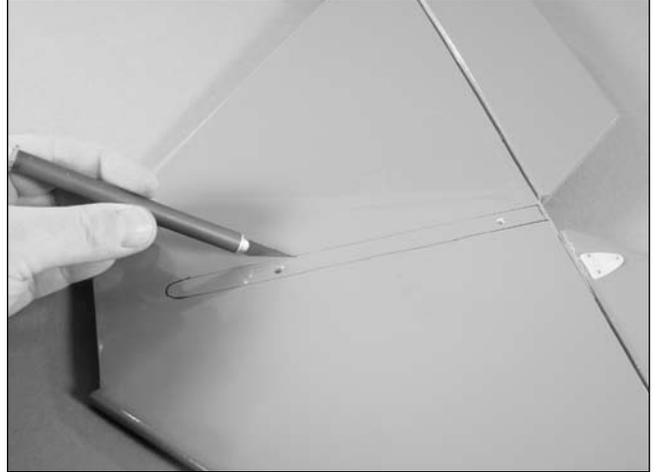
### □ Step 2

Use a felt-tipped pen to trace the outline of the fin onto the top of the stabilizer.



### □ Step 3

Use a hobby knife with a new #11 blade to trim the covering slightly inside the lines drawn in the previous step.

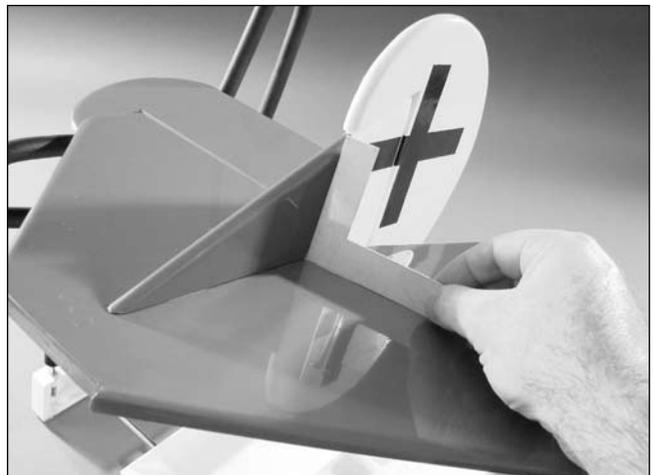


**Important:** Cutting into the underlying wood will weaken the stabilizer and it could fail in flight.

**Hint:** Use a soldering iron or hot knife to cut the covering, as they will melt it and require less pressure, reducing the chances of cutting into the underlying wood.

### □ Step 4

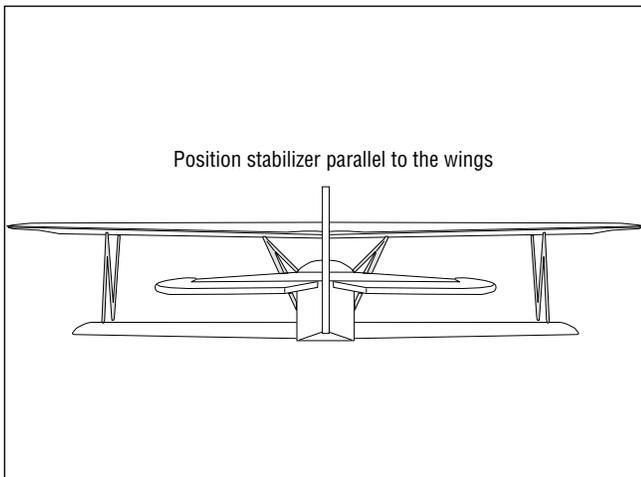
Use 30-minute epoxy to glue the fin to the stabilizer. Use a square to check that the fin is perpendicular to the stabilizer while the epoxy cures.



**Hint:** Use a paper towel and rubbing alcohol to remove the lines made by the felt-tipped pen before the fin installation.

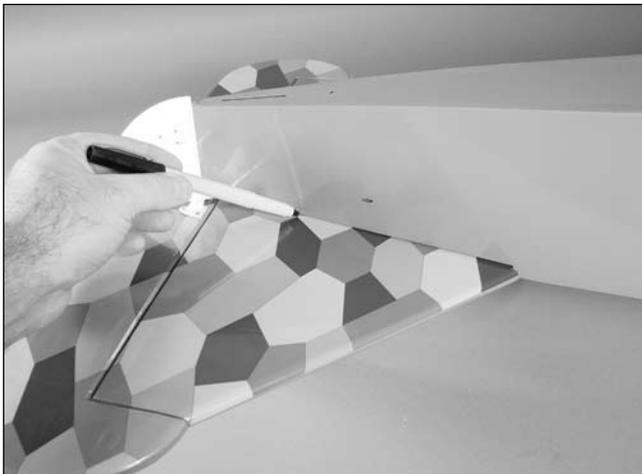
### □ Step 5

Place the stabilizer onto the fuselage. The front of the stabilizer will align the front, and the fin post will align the rear. Check that the stabilizer is parallel to the wings. If not, lightly sand the stabilizer saddle of the fuselage to correct for any alignment problems.



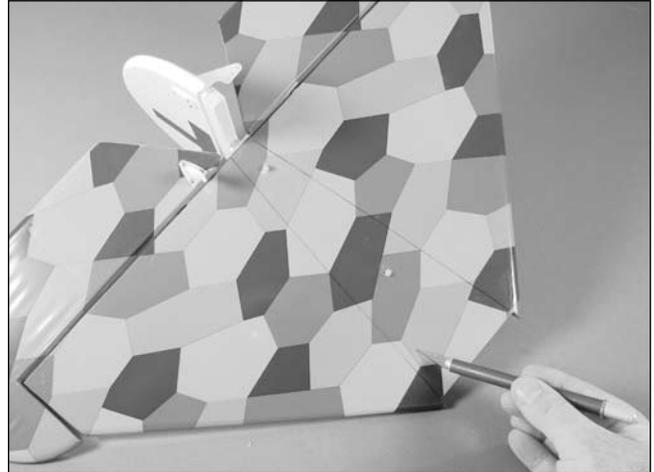
### □ Step 6

Turn the fuselage over and trace the outline of the fuselage onto the bottom of the stabilizer.



### □ Step 7

Use a hobby knife with a new #11 blade to trim the covering slightly inside the lines drawn in the previous step.



**Important:** Cutting into the underlying wood will weaken the stabilizer and it could fail in flight.

**Hint:** Use a soldering iron or hot knife to cut the covering, as either will melt it and require less pressure, reducing the chances of cutting into the underlying wood.

### □ Step 8

Mix a batch of 30-minute epoxy and apply it to the exposed wood of the stabilizer.



## □ Step 9

Apply epoxy to the stabilizer saddle of the fuselage as well. Position the stabilizer and double-check the alignment to the wings. Allow the epoxy to fully cure before proceeding.



**Hint:** Use a paper towel and rubbing alcohol to remove the lines made by the felt-tipped pen before the fin installation.

**Important:** There should be an excess of epoxy that will ooze from between the fuselage and stabilizer. If not, you have not used enough epoxy to attach the stabilizer.

**Hint:** You can use paper towels soaked in rubbing alcohol to remove the excess epoxy from the fuselage and stabilizer before it can cure.

# Section 6: Rudder and Elevator Linkage Installation

## Required Parts

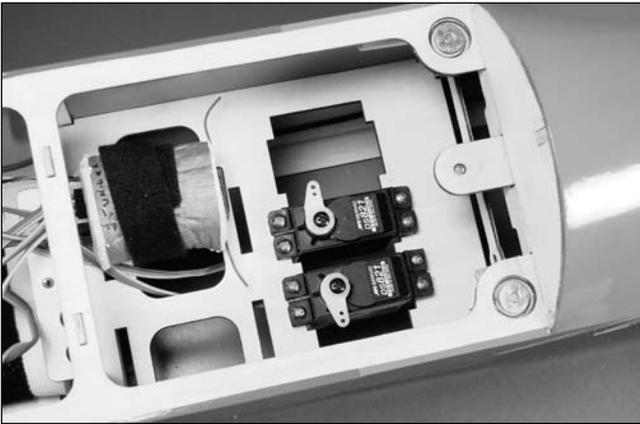
- 27 <sup>1</sup>/<sub>8</sub>-inch (690mm) pushrod, rudder
- 26 <sup>3</sup>/<sub>4</sub>-inch (680mm) pushrod, elevator
- Pushrod snap keeper (2)

## Required Tools and Adhesives

- Felt-tipped pen
- Pliers
- Side cutters
- Pin drill
- Drill bit: 5/64-inch (2mm)

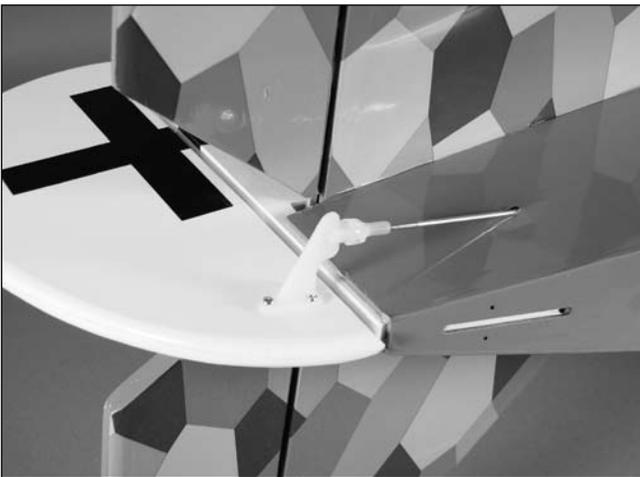
### □ □ Step 1

Enlarge the hole 1/2-inch (13mm) from the center of the servo horn using a 5/64-inch (2mm) drill bit. Use side cutters to remove any unused arms from the horn.



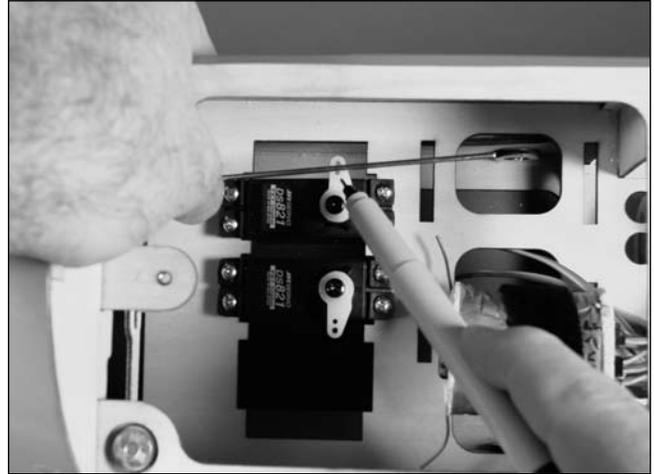
### □ □ Step 2

Slide the rudder pushrod into the tube inside the fuselage. Attach the clevis to the center hole of the rudder control horn as shown.



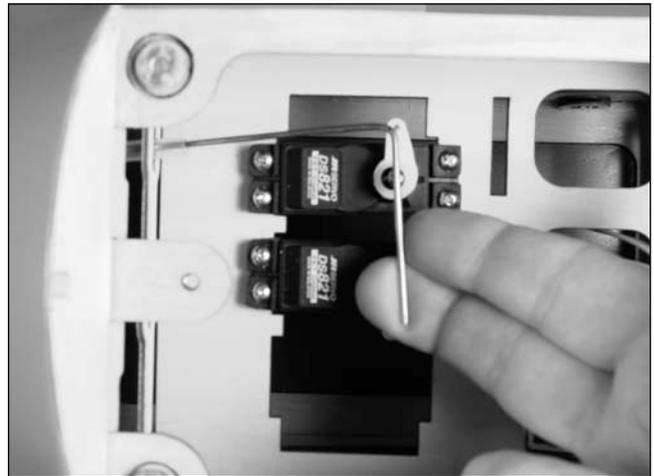
### □ □ Step 3

Center the rudder transmitter trim and rudder servo. Use a felt-tipped pen to mark the pushrod where it crosses the outer hole of the rudder servo horn.



### □ □ Step 4

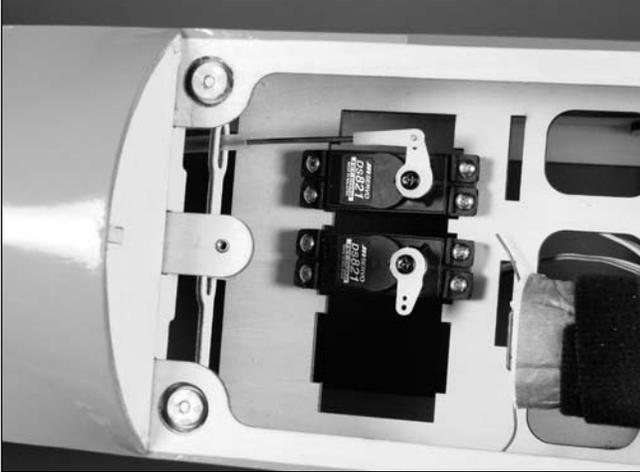
Use pliers to make a 90-degree bend in the rudder pushrod as shown.



**Note:** A piece of safety tubing has been installed on the clevis. This will be placed over the clevis once the control throws are set.

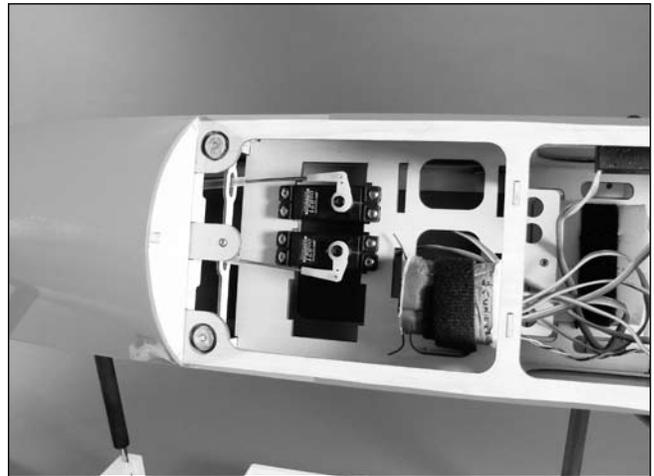
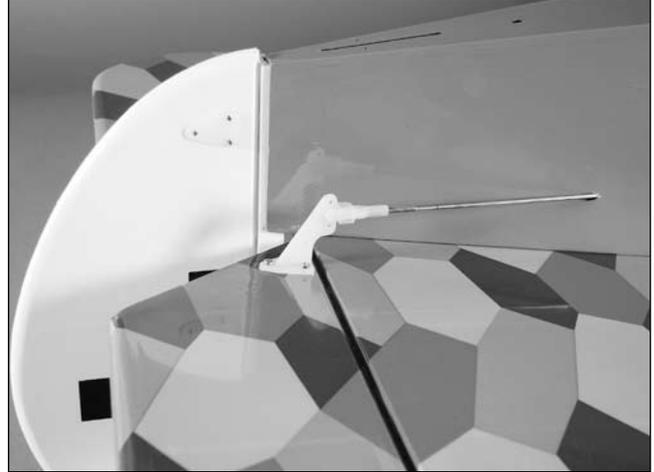
### □□ Step 5

Secure the pushrod to the rudder servo horn using a pushrod snap keeper. Remove any excess wire extending beyond the keeper with side cutters.



### □ Step 6

Repeat Steps 2 through 5 to install the elevator pushrod. Connect the clevis to the center hole of the elevator control horn as shown.



# Section 7: Landing Gear Installation

## Required Parts

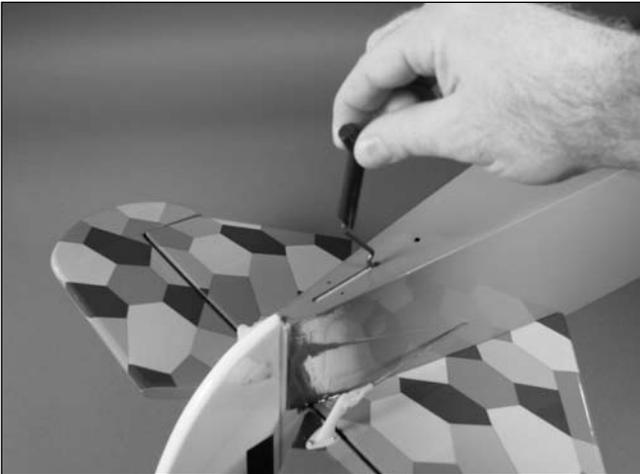
- Tail skid
- Landing gear legs (2)
- 3mm x 5mm setscrew (2)
- Landing gear spreader wing
- 5/32-inch (4mm) wheel collar (2)
- #4 x 1/2-inch self-tapping screw (22)
- 14<sup>5</sup>/<sub>8</sub> x 5/32-inch (373mm x 4mm) axle
- Wheel (2)
- O-ring (4)
- Landing gear strap (9)

## Required Tools and Adhesives

- Drill
- Hex wrench: 1.5mm
- Drill bit: 3/32-inch (2.5mm)
- Phillips screwdriver: #1, #2
- File

### □ Step 1

Fit the end of the tail skid into the hole in the fuselage.



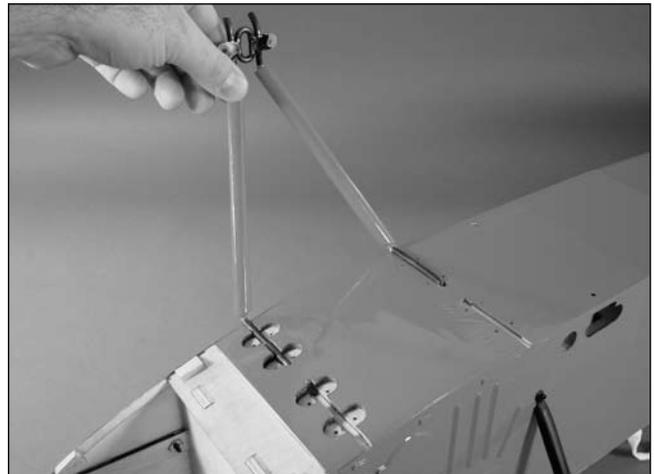
### □ Step 2

Rotate the skid down and secure it using a landing gear strap and two #4 x 1/2-inch self-tapping screws. Tighten the two screws with a #2 Phillips screwdriver.



### □ Step 3

Position one of the main landing gear legs on the fuselage as shown.



#### □□ Step 4

Secure the landing gear leg to the fuselage using four landing gear straps and eight #4 x 1/2-inch self-tapping screws. Use a #2 Phillips screwdriver to tighten the screws.



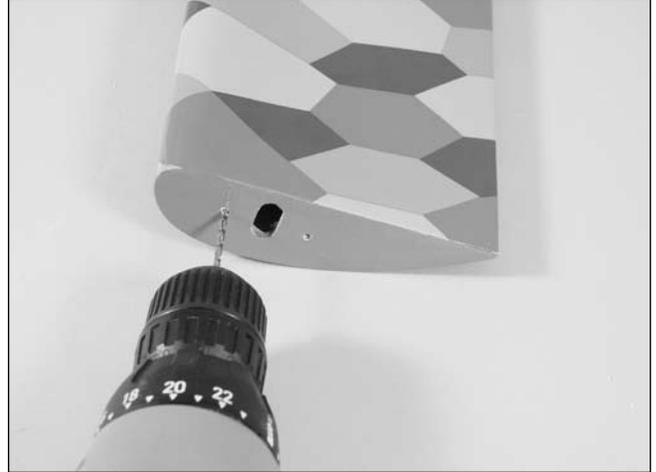
#### □ Step 5

Repeat Step 4 to attach the remaining landing gear leg to the fuselage as shown.



#### □ Step 6

Use a drill and 3/32-inch drill bit to drill the four holes for the screws that secure the landing gear spreader wing to the legs. Dimples have been molded into the landing gear wing to locate these holes.



#### □ Step 7

Use four #4 x 1/2-inch self-tapping screws and a #2 Phillips screwdriver to attach the wing to the legs.



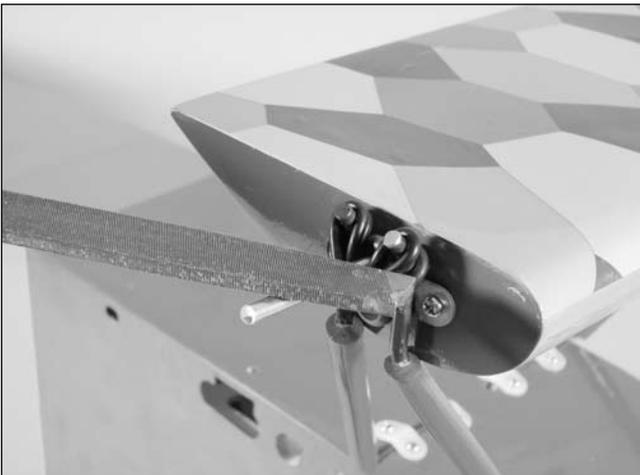
**□ Step 8**

Slide the main axle through the legs and wing. Center the axle so an equal amount protrudes on each side of the landing gear legs. Place four of the O-rings (two on the left, two on the right) over the axle as shown.



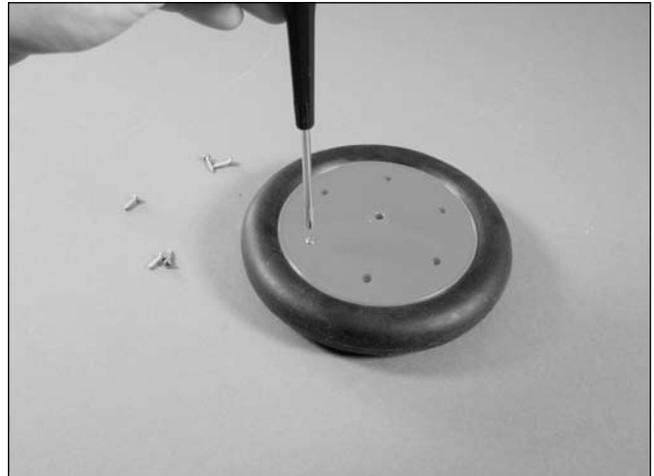
**□ Step 9**

Use a flat file to create a flat area on the axle so the setscrews from the wheel collar have a place to bite. Refer to the diagram in Step 11 for proper place to make this notch



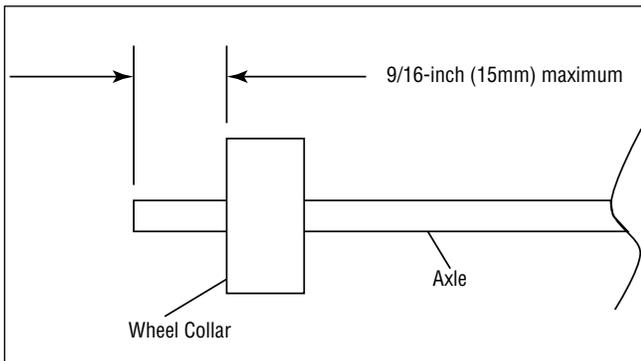
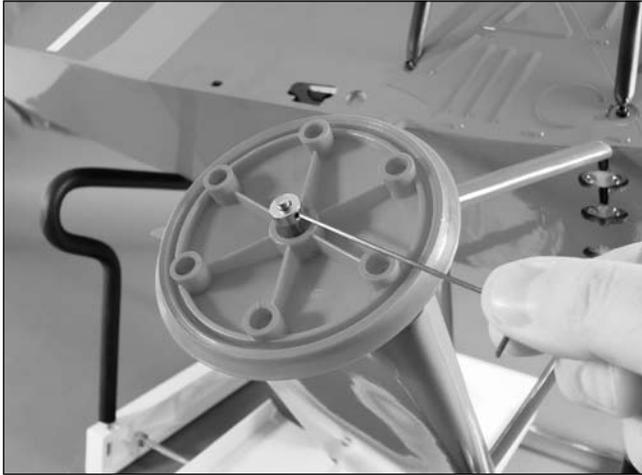
**□□ Step 10**

Remove the screws holding the wheel together using a #1 Phillips screwdriver. Place the screws in a safe location so they do not get lost.



### □□ Step 11

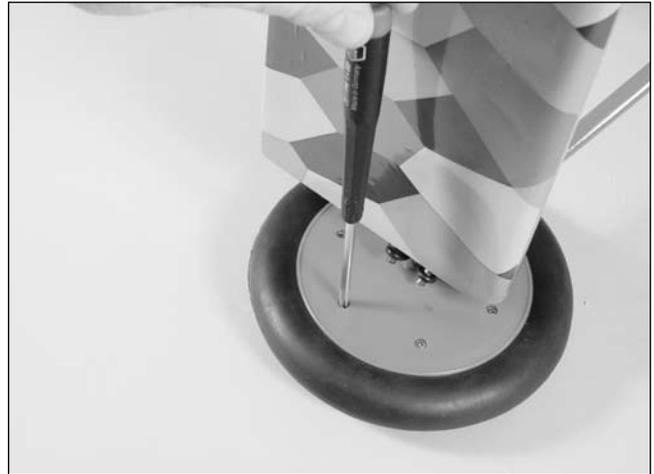
Slide the wheel backplate onto the landing gear wire. Slide a wheel collar over the axle. Make sure the wheel collar is no more than 9/16-inch (15mm) from the end of the axle or the wheel may not rotate freely due to the axle hitting against the wall of the outside rim half. Use a 1.5mm hex wrench to tighten the setscrew.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

### □□ Step 12

Replace the tire and wheel front plate. Use the screws remove from Step 10 to rebuild the wheel.



### □ Step 13

Repeat Steps 10 through 12 to install the remaining wheel.

# Section 8a: 4-Stroke Engine Installation

## Required Parts

- Fuel tank support
- 8-32 nylon lock nut (4)
- 7-inch (178mm) pushrod
- Motor mount drill template
- 90 degree adapter
- Exhaust deflector
- 8mm x 8mm balsa tank brace
- Pushrod connector w/backplate
- 8-32 x 1-inch machine screw (4)
- Metal motor mount (right and left)
- 8-32 x 1 1/4-inch machine screw (4)
- 3mm x 5mm socket head machine screw
- 4-40 x 1 1/4-inch socket head machine screw (2)
- 8-32 blind nut (4)
- Servo w/hardware
- Fuel tank
- #4 washer (2)

## Required Tools and Adhesives

- Low-tack masking tape
- Pencil
- Drill
- Thin CA
- Phillips screwdriver: #1, #2
- Drill bit: 1/16-inch, (1.5mm), 1/8-inch (3mm), 3/16-inch (5mm)
- Ruler
- Adjustable wrench
- Pin drill
- Medium CA

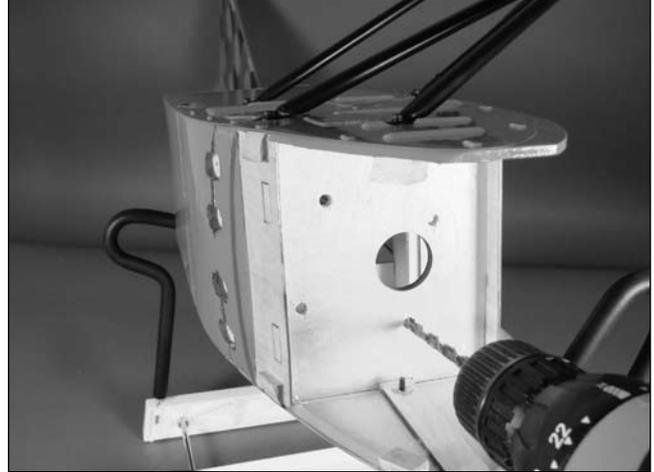
### □ Step 1

Slide the engine drill template into position on the firewall. Use a drill and 1/16-inch (1.5mm) drill bit to drill pilot holes for your particular engine selection.



### □ Step 2

Use a drill and 3/16-inch (5mm) drill bit to enlarge the holes so the blind nuts can be installed behind the firewall.



### □ Step 3

Install four 8-32 blind nuts into the holes drilled in the previous step from behind the firewall. Attach the mount to the firewall using four 8-32 x 1-inch machine screws and four #8 washers.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

#### □ Step 4

Check the position of the carburetor throttle arm when installing a 4-stroke. It must match the positioning shown. The throttle arm must be on the left side of the model and be facing up. On a Saito the carburetor arm can be moved. Please see engine instruction manual.



#### □ Step 5

Slide the engine between the mounts. Use a pencil to mark the firewall for the location of the throttle pushrod.



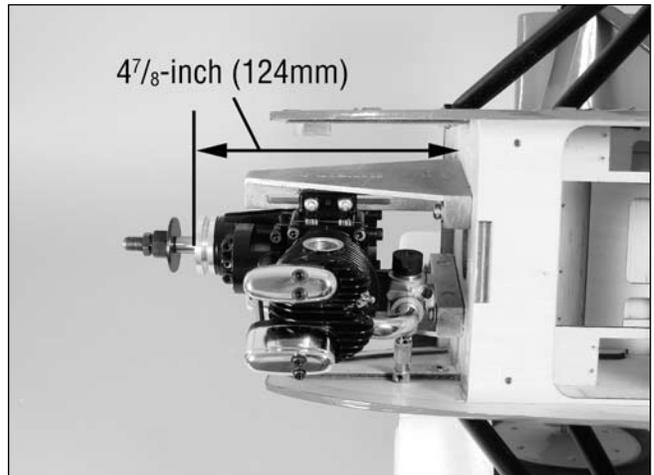
#### □ Step 6

Remove the engine from the mounts and drill the location marked in the previous step using a drill and 1/8-inch (3mm) drill bit.



#### □ Step 7

Position the engine back between the mounts. Adjust it so the distance from the firewall to the front of the driver washer is  $4\frac{7}{8}$ -inch (124mm). Secure the engine using four 8-32 x  $1\frac{1}{4}$ -inch machine screws, four 8-32 lock nuts and four #8 washers. Use an adjustable wrench and #2 Phillips screwdriver to tighten the screws.



### □ Step 8

Place 2–3 drops of thin CA into each servo mounting screw hole to harden the surrounding wood. This provides a harder surface for the screws to thread into, preventing them from vibrating loose.



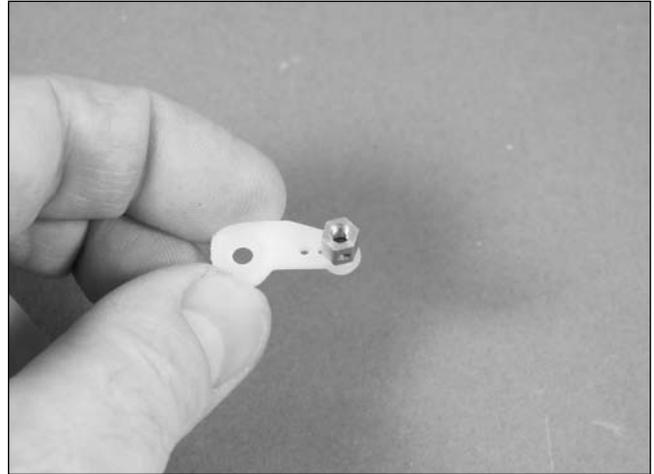
### □ Step 9

Secure the throttle servo in the fuselage using the hardware provided with the servo.



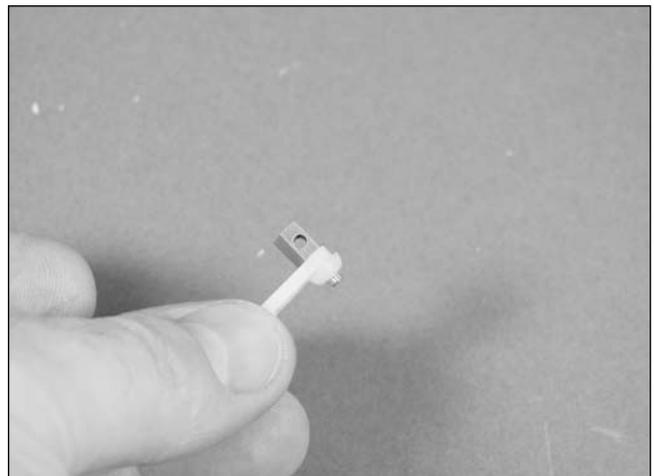
### □ Step 10

Enlarge the hole 1/2-inch (13mm) from the center of the servo horn using a 5/64-inch (2mm) drill bit. Use side cutters to remove any unused arms from the horn. Slide the pushrod connector into the hole.



### □ Step 11

Secure the connector using the connector backplate.



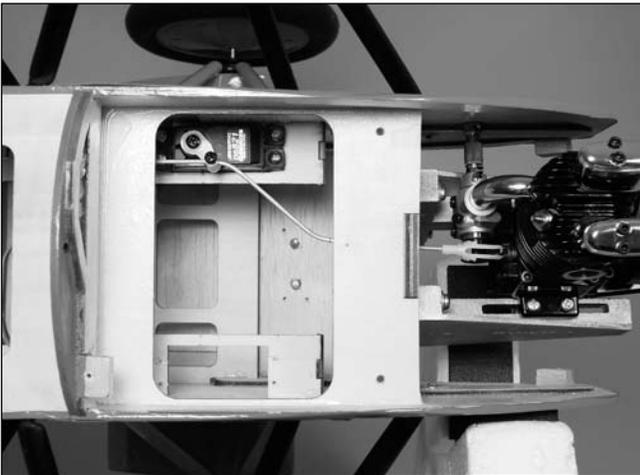
### □ Step 12

Center the throttle servo using the radio system. Install the arm perpendicular to the servo center line.



### □ Step 13

Slide the throttle pushrod through the hole in the firewall. Attach the clevis to the carburetor arm.



### □ Step 14

Move the throttle servo to the low throttle position. Close the carburetor manually. Use a 3mm x 5mm machine screw and #1 Phillips screwdriver to secure the pushrod in the connector as shown. Check throttle operation to confirm the throttle opens and closes without binding.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

### □ Step 15

Wrap the receiver battery in foam and use the hook and loop tape to install the battery under the unused throttle servo tray. This places as much weight forward to allow for less lead to be added when setting the Center of Gravity.



### □ Step 16

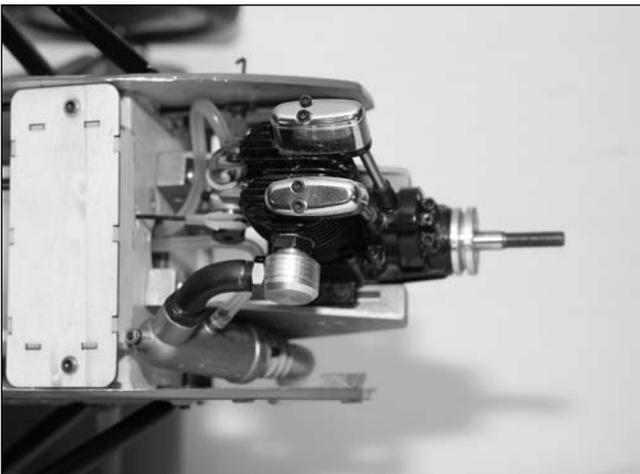
Slide the fuel tank into the fuselage. Position the fuel tank brace in the fuselage as shown and secure with medium CA.



**Important:** Make sure clunk line inside the fuel tank is not looped around the vent line which can occur during shipping. If the clunk does not move freely, you will have fuel delivery issues in flight.

### □ Step 17

Attach a 90-degree adapter to the engine, then attach the muffler to the adapter. Connect the lines from the fuel tank to the carburetor and muffler. Use an exhaust deflector to direct the exhaust out the bottom of the fuselage.



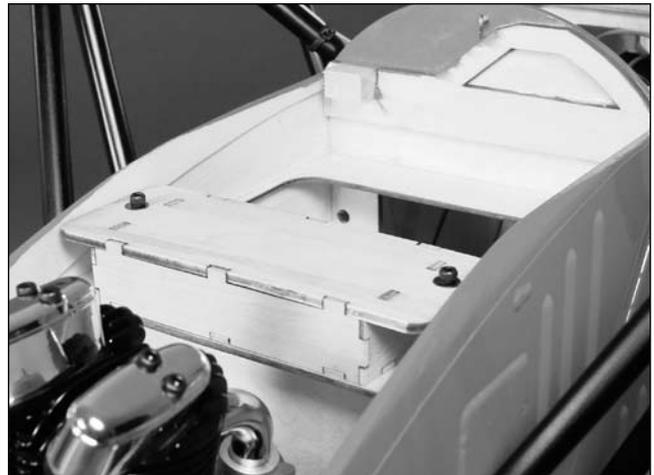
**Note:** The red tube from the fuel tank attaches to the muffler, and the blue to the carburetor.

**Note:** We used a fuel dot (HAN115) to allow fueling the tank from outside the cowling.

**Hint:** Use a Remote Glow Plug Adapter (HAN3025) to allow starting the engine without cutting a hole in the dummy motor for the glow igniter.

### □ Step 18

The weight box is attached to the fuselage using two 4-40 x 1 1/4-inch socket head screws and two #4 washers. It will be necessary to add weight when balancing your model.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

# Section 8b: 2-Stroke Engine Installation

## Required Parts

- Fuel tank support
- #4 washer (2)
- 8-32 nylon lock nut (4)
- 8-32 blind nut (4)
- 7-inch (178mm) pushrod
- Servo w/hardware
- Motor mount drill template
- Fuel tank
- Muffler
- 8mm x 8mm balsa tank brace
- Pushrod connector w/backplate
- 8-32 x 1-inch machine screw (4)
- Metal motor mount (right and left)
- 8-32 x 1 1/4-inch machine screw (4)
- 3mm x 5mm socket head machine screw
- 4-40 x 1/2-inch socket head machine screw (2)

## Required Tools and Adhesives

- Low-tack masking tape
- Ruler
- Pencil
- Adjustable wrench
- Drill
- Pin drill
- Thin CA
- Phillips screwdriver: #1, #2
- Drill bit: 1/16-inch (1.5mm), 1/8-inch (3mm), 3/16-inch (5mm)

### □ Step 1

Slide the engine drill template into position on the firewall. Use a drill and 1/16-inch (1.5mm) drill bit to drill pilot holes for your particular engine selection.



### □ Step 2

Use a drill and 3/16-inch (5mm) drill bit to enlarge the holes so the blind nuts can be installed behind the firewall.



### □ Step 3

Install four 8-32 blind nuts into the holes drilled in the previous step from behind the firewall. Attach the mount to the firewall using four 8-32 x 1-inch machine screws and four #8 washers.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

#### □ Step 4

Slide the engine between the mounts. Use a pencil to mark the firewall for the location of the throttle pushrod.



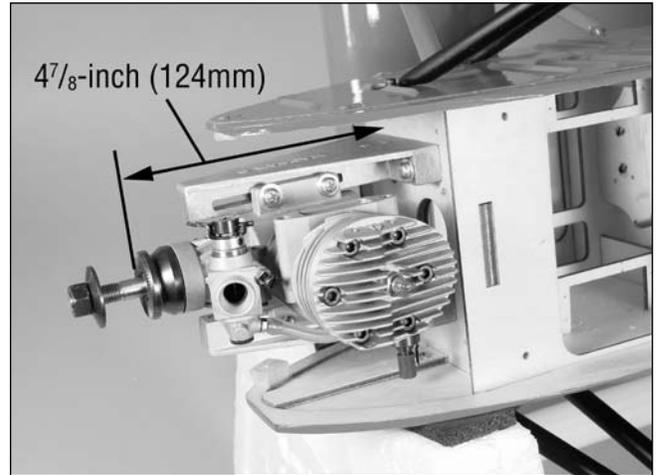
#### □ Step 5

Remove the engine from the mounts and drill the location marked in the previous step using a drill and 1/8-inch (3mm) drill bit.



#### □ Step 6

Position the engine back between the mounts. Adjust it so the distance from the firewall to the front of the driver washer is  $4\frac{7}{8}$ -inch (124mm). Secure the engine using four 8-32 x  $1\frac{1}{4}$ -inch machine screws, four 8-32 lock nuts and four #8 washers. Use an adjustable wrench and #2 Phillips screwdriver to tighten the screws.



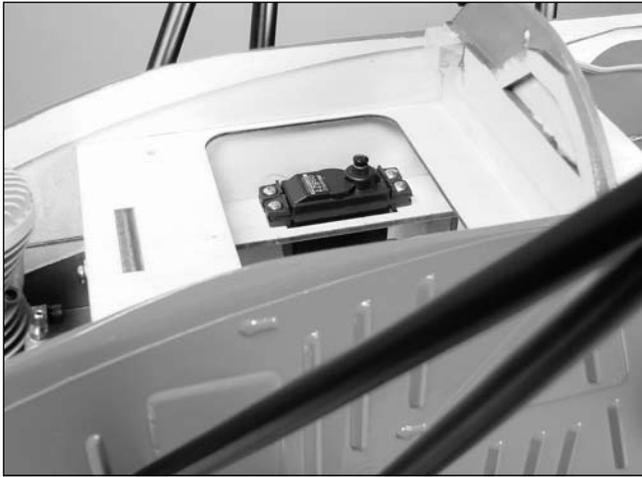
#### □ Step 7

Place 2–3 drops of thin CA into each servo mounting hole to harden the surrounding wood. This provides a harder surface for the screws to thread into, preventing them from vibrating loose.



**Step 8**

Secure the throttle servo in the fuselage using the hardware provided with the servo.



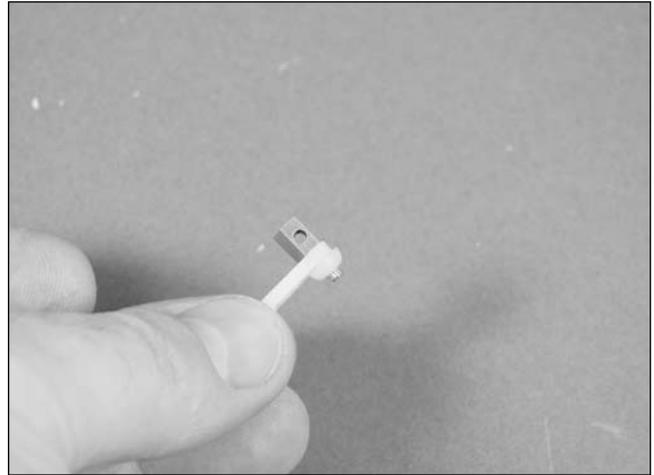
**Step 9**

Enlarge the hole 1/2-inch (13mm) from the center of the servo horn using a 5/64-inch (2mm) drill bit. Use side cutters to remove any unused arms from the horn. Slide the pushrod connector into the hole.



**Step 10**

Secure the connector using the connector backplate.



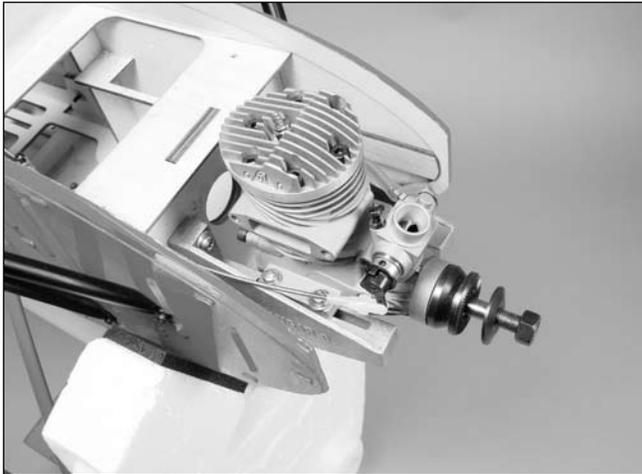
**Step 11**

Center the throttle servo using the radio system. Install the arm perpendicular to the servo center line.



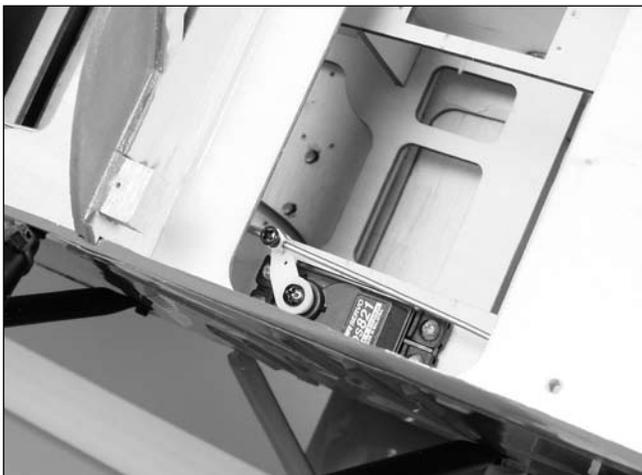
### □ Step 12

Slide the throttle pushrod through the hole in the firewall. Attach the clevis to the carburetor arm.



### □ Step 13

Move the throttle servo to the low throttle position. Close the carburetor manually. Use a 3mm x 5mm machine screw and #1 Phillips screwdriver to secure the pushrod in the connector as shown. Check throttle operation to confirm the throttle opens and closes without binding.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

### □ Step 14

Wrap the receiver battery in foam and use the hook and loop tape to install the battery under the unused throttle servo tray. This places as much weight forward to allow for less lead to be added when setting the Center of Gravity.



### □ Step 15

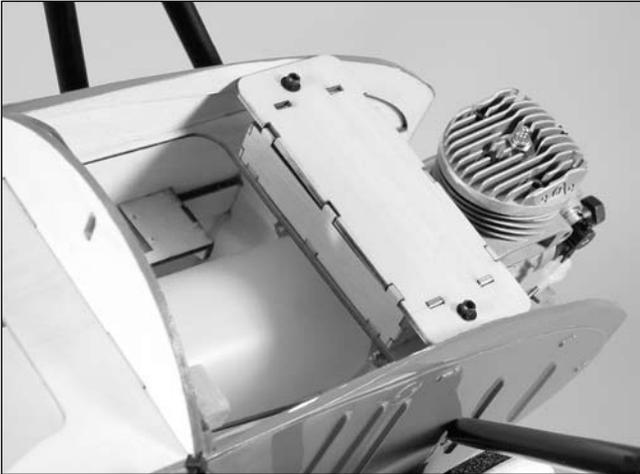
Slide the fuel tank into the fuselage. Position the fuel tank brace in the fuselage as shown and secure with medium CA.



**Important:** Make sure clunk line inside the fuel tank is not looped around the vent line which can occur during shipping. If the clunk does not move freely, you will have fuel delivery issues in flight.

### □ Step 18

The weight box is attached to the fuselage using two 4-40 x 1 1/4-inch socket head screws and two #4 washers. It will be necessary to add weight when balancing your model.



### □ Step 19

Attach the muffler to the engine. Connect the lines from the fuel tank to the carburetor and muffler. Note that the red tube attaches to the muffler, and the blue to the carburetor.



**Note:** We used a fuel dot (HAN115) to allow fueling the tank from outside the cowling.

**Hint:** Use a Remote Glow Plug Adapter (HAN3025) to allow starting the engine without cutting a hole in the dummy motor for the glow igniter.

# Section 9: Electric Motor Installation

## Required Parts

- Motor w/hardware and mount
- Motor mount drill template
- Electronic speed control
- Hook and loop strap
- Hook and loop tape
- 4-40 x 1 1/4-inch socket head screw (2)
- 4-40 x 1/2-inch socket head screw
- 1 7/8-inch (48mm) standoff (4)
- 8-32 x 2 1/2-inch machine screw (4)
- Battery tray
- Motor battery
- #4 washer (black) (3)
- Weight box

## Required Tools and Adhesives

- Drill
- Phillips screwdriver: #2
- Drill bit: 1/16-inch (1.5mm), 5/32-inch (4mm), 3/16-inch (5mm)
- Threadlock

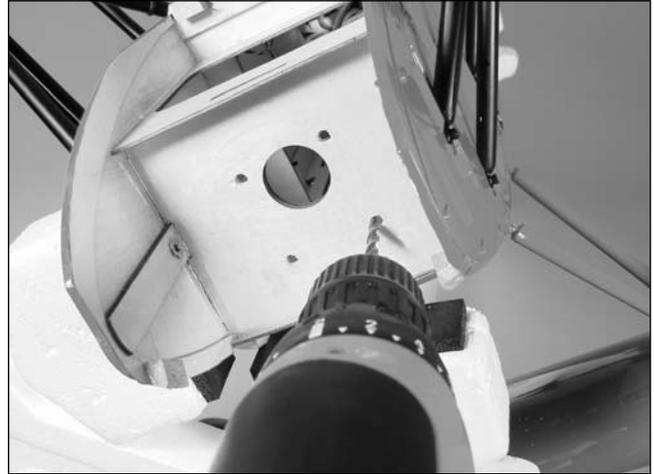
### □ Step 1

Slide the engine drill template into position on the firewall. Use a drill and 1/16-inch (1.5mm) drill bit to drill pilot holes for your particular motor selection.



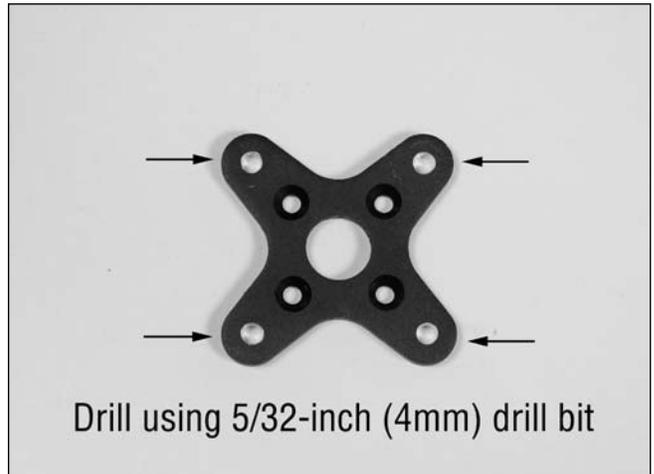
### □ Step 2

Use a drill and 3/16-inch (5mm) drill bit to enlarge the holes so the blind nuts can be installed behind the firewall.



### □ Step 3

Use a drill and 5/32-inch (4mm) drill bit to enlarge the mounting holes in the X-mount.



#### □ Step 4

Attach the X-mount to the motor using the screws provided with the motor and a #2 Phillips screwdriver.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

#### □ Step 5

Install four 8-32 blind nuts into the holes drilled in the previous step from behind the firewall. Attach the motor to the firewall using the four motor standoffs and four 8-32 x 2 1/2-inch machine screws. Use a #2 Phillips screwdriver to tighten the screws.



**Important:** Make sure to use threadlock on the screws to prevent them from vibrating loose.

#### □ Step 6

The weight box is attached to the fuselage using two 4-40 x 1 1/4-inch socket head screws and two #4 washers. It will be necessary to add weight when balancing your model.



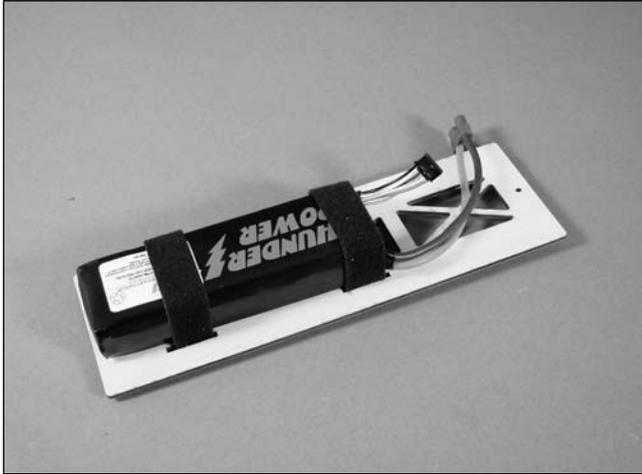
#### □ Step 7

Use hook and loop tape to attach the speed control to the side of the fuselage above the throttle servo tray. You will need to cut an opening in the side of the fuselage to install the switch from the speed controller if necessary.



### □ Step 8

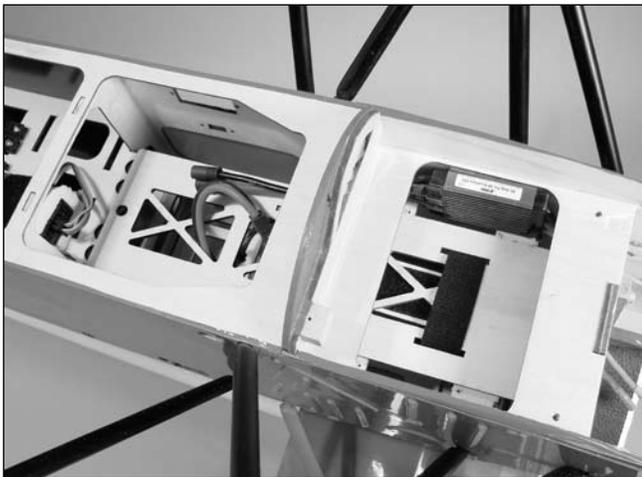
Use hook and loop straps and tape to attach the battery to the battery tray. The battery will need to be as far forward on the tray as possible to properly balance your model.



**Note:** The battery is installed on the bottom of the tray to allow for insertion.

### □ Step 9

Slide the battery tray into the fuselage, with the battery facing down into the fuselage.



### □ Step 10

Use a 4-40 x 1/2-inch socket head screw and 3/32-inch ball driver to secure the position of the battery tray.



# Section 10: Cowling and Cockpit Installation

## Required Parts

- Fuselage assembly
- Dummy engine
- Exhaust stack
- Propeller
- Propeller adapter (electric)
- 2mm x 8mm self-tapping screw (9)
- Cowling
- Machine gun (2)
- Pilot

## Required Tools and Adhesives

- Low-tack masking tape
- Phillips screwdriver: #1
- Drill bit: 1/16-inch (1.5mm)
- Medium CA
- Thin CA
- Drill
- Felt-tipped pen
- Adjustable wrench
- Sandpaper

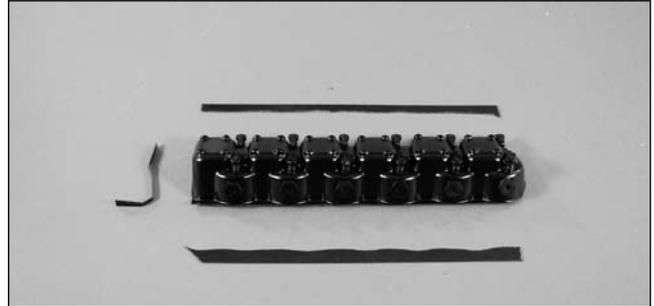
### □ Step 1

Place low-tack tape on the fuselage in the locations of the cowl mounting blocks. Use a felt-tipped pen to draw lines on the tape indicating the center of the blocks.



### □ Step 2

Use hobby scissors to remove the excess material from the dummy engine. Lines have been molded into the engine to guide the trimming process.



### □ Step 3

Use medium CA to attach the exhaust stack to the dummy engine.



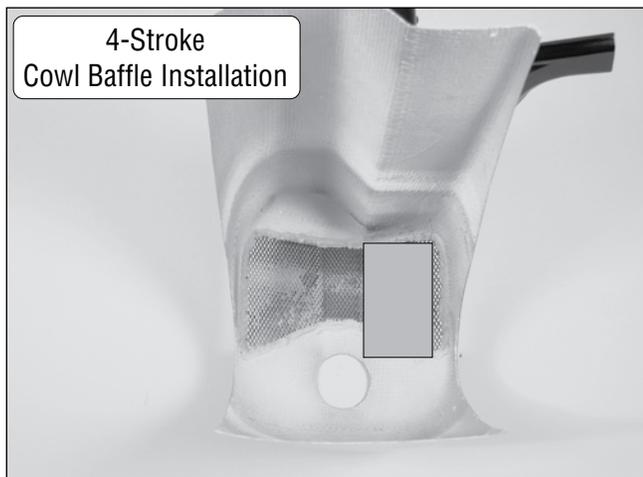
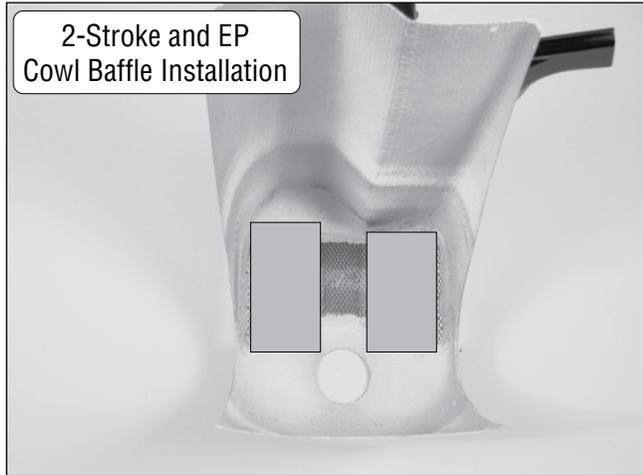
### □ Step 4

Use medium CA to glue the dummy engine to the cowling.



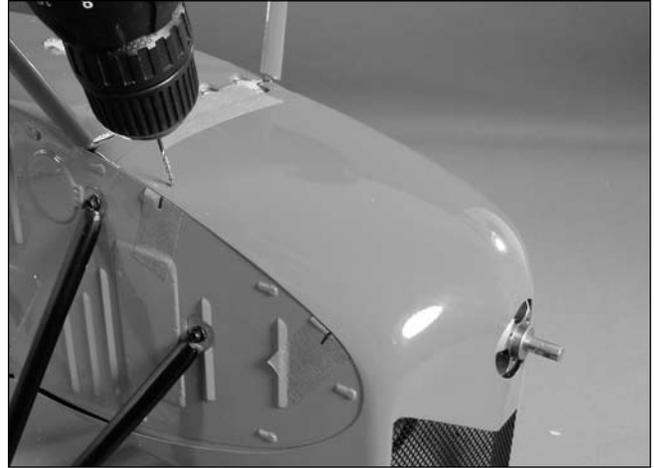
### □ Step 5

Use the two clear pieces of material to direct the air flow through the cowling over the engine (or motor). The 2-stroke and EP version use the same baffle configuration, while the 4-stroke uses a different baffle configuration. Each is shown below.



### □ Step 6

Use a drill and 1/16-inch (1.5mm) drill bit to drill holes 1/8-inch (3mm) from the edge of the cowling through the cowling and into the mounting blocks.

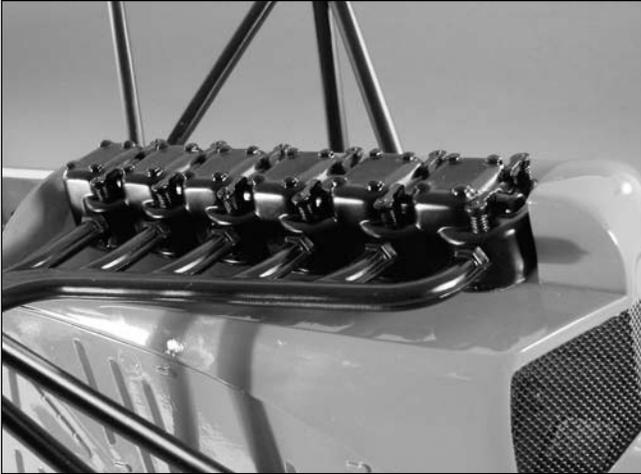


**Note:** Place 2–3 drops of thin CA into each hole to harden the surrounding wood. This provides a harder surface for the screws to thread into, preventing them from vibrating loose.

### □ Step 7

Use a #1 Phillips screwdriver to install the nine 2mm x 8mm self-tapping screws that secure the cowling to the fuselage.





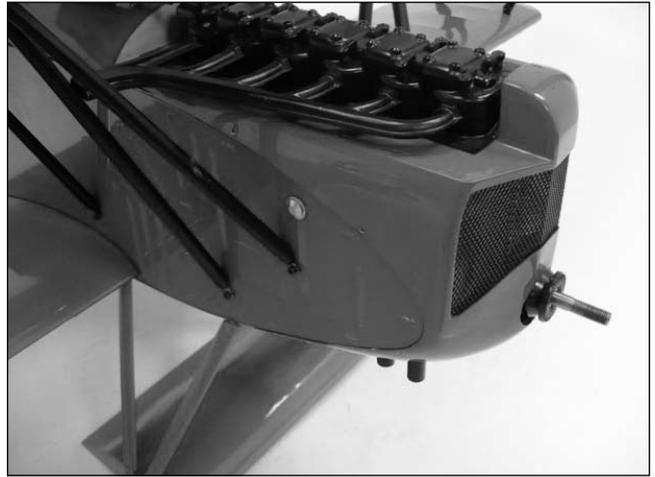
### □ Step 8

Use a rotary tool and sanding drum to create openings in the bottom of the cowling to allow air to exit. The exit area should be 3 times the size of the intake area to allow air to pass properly over the engine.



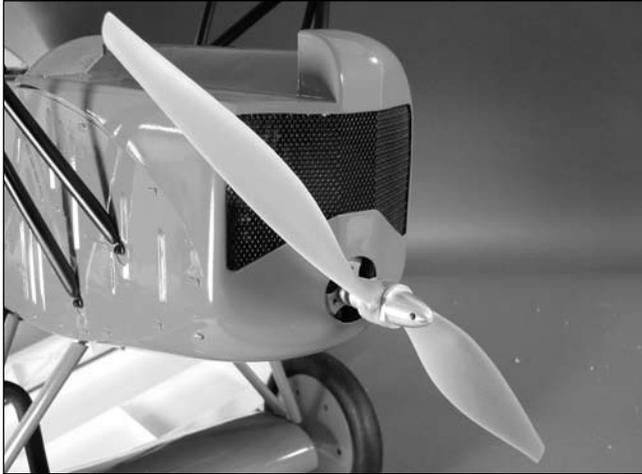
### □ Step 9

Make any necessary openings to allow for adjusting the needle valve and to mount the fuel dot.



### □ Step 10

Follow the instructions provided with your engine (or motor) to attach the propeller. Make sure to balance the propeller before its installation.



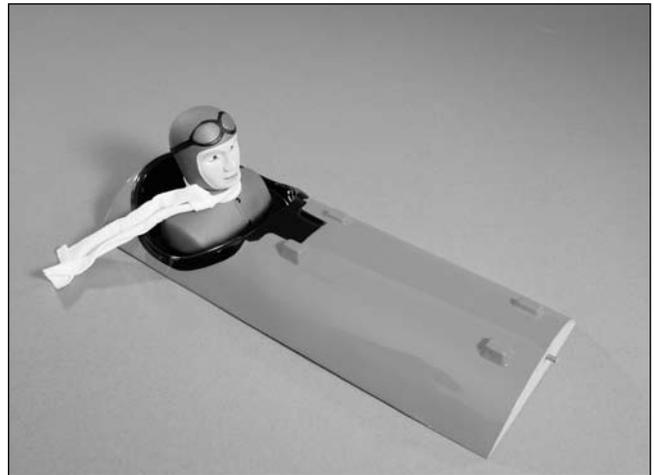
### □ Step 11

Make a small 1/2-inch (13mm) hole in the cockpit cover as shown using a rotary tool and sanding bit. This hole is optional, but will assist in the removal of the top hatch.



### □ Step 12

Use medium CA to glue the pilot figure into the cockpit.



### □ Step 13

Use sandpaper to remove the paint from the cockpit cover where the machine guns will be attached.



**Step 14**

Use medium CA to glue the machine guns to the cockpit cover.



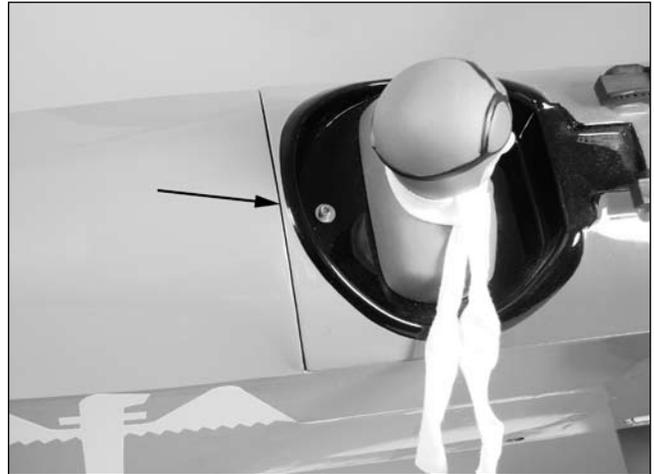
**Step 15**

Install the cockpit cover onto the fuselage.



**Step 16 (Optional)**

Use a 4-40 x 1/2-inch socket head screw and #4 washer behind the pilot to secure the cockpit cover at the rear.



**Note:** The screw and washer supplied to secure the cockpit cover will be black in color. A silver screw and washer were used to contrast against the cockpit so their location could be seen in the photo.

# Section 11: Control Throws

The amount of control throw should be adjusted as closely as possible using mechanical means, rather than making large changes electronically at the radio. By moving the position of the clevis at the control horn toward the outermost hole, you will decrease the amount of control throw of the control surface. Moving it toward the control surface will increase the amount of throw. Moving the pushrod wire at the servo arm will have the opposite effect, moving it closer to center will decrease throw, and away from center will increase throw. Work with a combination of the two to achieve the closest or exact control throws listed.

## Aileron Low Rate

- 1/4-inch (6.5mm) up, 10% expo
- 3/16-inch (5mm) down, 10% expo

## Aileron High Rate

- 7/16-inch (11mm) up, 20% expo
- 3/8-inch (10mm) down, 20% expo

## Elevator Low Rate

- 1/2-inch (13mm) up/down, 9% expo

## Elevator High Rate

- 7/8-inch (22mm) up/down, 20% expo

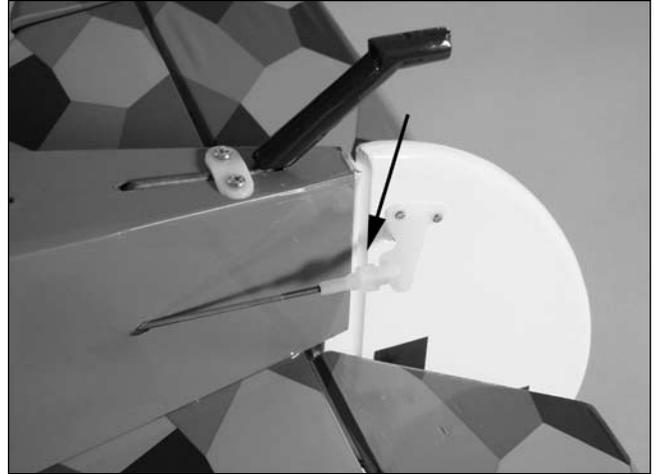
## Rudder Low Rate

- 1 1/2-inch (38mm) right/left, 10% expo

## Rudder High Rate

- 2-inch (51mm) right/left, 20% expo

**Note:** All control throws are measured at the widest point of the control surface.



Once the control throws have been set, be sure and slide the clevis retainers over the clevis to prevent them from opening during flight.

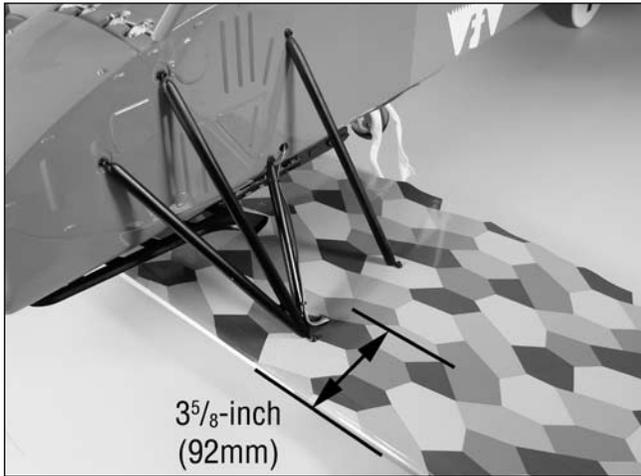
# Section 12: Recommended Center of Gravity (CG)

An important part of preparing the aircraft for flight is properly balancing the model. This is especially important when various engines are mounted.

**Caution:** Do not inadvertently skip this step!

### □ Step 1

The recommended Center of Gravity (CG) location for the Fokker D.VII is  $3\frac{5}{8}$  inches (92mm) behind the leading edge of the top wing near the cabane struts or at the wing tips. Mark the location of the Center of Gravity on the bottom of the top wing.



**Note:** The Center of Gravity can also be measured at the wing tips using the above measurements.

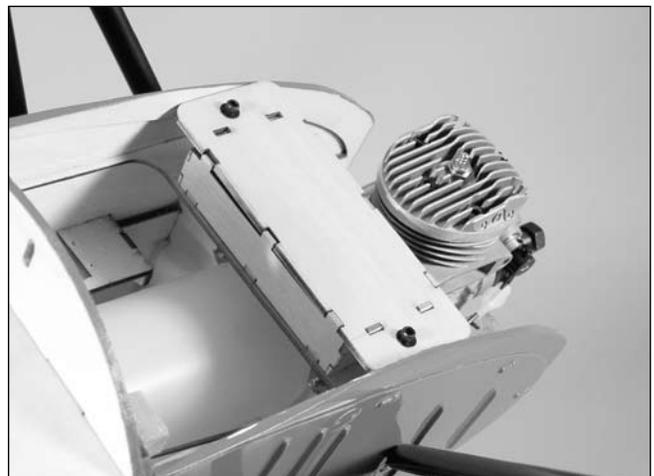
**Note:** If your balancer hits the bottom wing, it is best to balance your model with your fingertips at the wing tips.

**Note:** The range for the Center of Gravity is  $3\frac{3}{8}$ – $3\frac{3}{4}$  inches (86mm–95mm). You can change the Center of Gravity within this range based on your personal flight preference.

### □ Step 2

When balancing a biplane aircraft, it is best to balance it upright as shown in the photo.

Place your aircraft on a balancing stand, or lift the model with your fingertips, at the marks made in the previous step. The aircraft should rest level or slightly nose down when balanced correctly. If necessary, move the battery pack or add weight to either the nose or the tail until the correct balance is achieved. Stick-on weights are available at your local hobby store and work well for this purpose.



A weight box has been provided for the weight that is required to achieve the correct Center of Gravity. Because of the scale nature of the Fokker D.VII and the short nose forward of the CG, weight will be necessary to balance this type of model. Use the supplied weight box to place this additional weight.

## Section 13: Pre-Flight

---

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.

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 engine and make sure it transitions smoothly from idle to full throttle and back. Also ensure the engine is tuned according to the manufacturer's instructions, and it will run consistently and constantly at full throttle when adjusted.

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.

## Section 14: Adjusting the Engine

---

### Step 1

Completely read the instructions included with your engine and follow the recommended break-in procedure.

### Step 2

At the field, adjust the engine to a slightly rich setting at full throttle and adjust the idle and low-speed needle so that a consistent idle is achieved.

### Step 3

Before you fly, be sure that your engine idles reliably, transitions and runs at all throttle settings. Only when this is achieved should any plane be considered ready for flight.

## Section 15: Range Testing Your Radio

---

Range check your radio system before each flying session. This is accomplished by turning on your transmitter with the antenna collapsed. Turn on the radio in your airplane. With your airplane on the ground, you should be able to walk 30 paces 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.

## Safety, Precautions, and Warnings

---

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 advisable 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 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.



# 2008 Official AMA National Model Aircraft Safety Code

---

## GENERAL

1. A model aircraft shall be defined as a non-human-carrying device capable of sustained flight in the atmosphere. It shall not exceed limitations established in this code and is intended to be used exclusively for recreational or competition activity.
2. The maximum takeoff weight of a model aircraft, including fuel, is 55 pounds, except for those flown under the AMA Experimental Aircraft Rules.
3. I will abide by this Safety Code and all rules established for the flying site I use. I will not willfully fly my model aircraft in a reckless and/or dangerous manner.
4. I will not fly my model aircraft in sanctioned events, air shows, or model demonstrations until it has been proven airworthy.
5. I will not fly my model aircraft higher than approximately 400 feet above ground level, when within three (3) miles of an airport without notifying the airport operator. I will yield the right-of-way and avoid flying in the proximity of full-scale aircraft, utilizing a spotter when appropriate.
6. I will not fly my model aircraft unless it is identified with my name and address, or AMA number, inside or affixed to the outside of the model aircraft. This does not apply to model aircraft flown indoors.
7. I will not operate model aircraft with metal-blade propellers or with gaseous boosts (other than air), nor will I operate model aircraft with fuels containing tetranitromethane or hydrazine.
8. I will not operate model aircraft carrying pyrotechnic devices which explode burn, or propel a projectile of any kind. Exceptions include Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight. Rocket motors up to a G-series size may be used, provided they remain firmly attached to the model aircraft during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code; however, they may not be launched from model aircraft. Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Air Show Advisory Committee Document.
9. I will not operate my model aircraft while under the influence of alcohol or within eight (8) hours of having consumed alcohol.
10. I will not operate my model aircraft while using any drug which could adversely affect my ability to safely control my model aircraft.
11. Children under six (6) years old are only allowed on a flightline or in a flight area as a pilot or while under flight instruction.
12. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

# 2008 Official AMA National Model Aircraft Safety Code

---

## Radio Control

1. All model flying shall be conducted in a manner to avoid over flight of unprotected people.
2. I will have completed a successful radio equipment ground-range check before the first flight of a new or repaired model aircraft.
3. I will not fly my model aircraft in the presence of spectators until I become a proficient flier, unless I am assisted by an experienced pilot.
4. At all flying sites a line must be established, in front of which all flying takes place. Only personnel associated with flying the model aircraft are allowed at or in front of the line. In the case of airshows demonstrations straight line must be established. An area away from the line must be maintained for spectators. Intentional flying behind the line is prohibited.
5. I will operate my model aircraft using only radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
6. I will not knowingly operate my model aircraft within three (3) miles of any preexisting flying site without a frequency-management agreement. A frequency-management agreement may be an allocation of frequencies for each site, a day-use agreement between sites, or testing which determines that no interference exists. A frequency-management agreement may exist between two or more AMA chartered clubs, AMA clubs and individual AMA members, or individual AMA members. Frequency-management agreements, including an interference test report if the agreement indicates no interference exists, will be signed by all parties and copies provided to AMA Headquarters.
7. With the exception of events flown under official AMA rules, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and located at the flight line.
8. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual.
9. Radio-controlled night flying is limited to low-performance model aircraft (less than 100 mph). The model aircraft must be equipped with a lighting system which clearly defines the aircraft's attitude and direction at all times.
10. The operator of a radio-controlled model aircraft shall control it during the entire flight, maintaining visual contact without enhancement other than by corrective lenses that are prescribed for the pilot. No model aircraft shall be equipped with devices which allow it to be flown to a selected location which is beyond the visual range of the pilot.



*Fly First Class™*



© 2008 Horizon Hobby, Inc.  
4105 Fieldstone Road  
Champaign, Illinois 61822  
(877) 504-0233  
[horizonhobby.com](http://horizonhobby.com)