Z-526 ZLIN Akrobat

SPECIFICATIONS

Wingspan:	58 in [1475mm]	**Weight:**	6 – 6.75 lb [2695-3005 g]	**Radio:**	4-5 channel system w/ 4 std servos (electric), or 5 std servos (glow)
Wing Area:	633 sq in [40.9 dm^2]	**Wing Loading:**	22 – 24 oz/sq ft [66 – 74 g/dm^2]	**Engine:**	.46 – .55 cu in [7.5 – 9cc] two-stroke, .52 – .70 cu in [8.5 – 11.5cc] four-stroke
		Length:	52 in [1320mm]	**Motor:**	RimFire .55 (42-60-480) w/ APC 13 x 10 E-Prop

WARRANTY

Great Planes® Model Manufacturing Co. guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Great Planes' liability exceed the original cost of the purchased kit.** Further, Great Planes reserves the right to change or modify this warranty without notice.

In that Great Planes has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

To make a warranty claim send the defective part or item to Hobby Services at the address below:

Hobby Services
3002 N. Apollo Dr. Suite 1
Champaign IL 61822 USA

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.

READ THROUGH THIS MANUAL BEFORE STARTING CONSTRUCTION. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

GREAT PLANES® MODEL MANUFACTURING COMPANY

Champaign, Illinois
(217) 398-8970, Ext 5
airsupport@greatplanes.com

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INTRODUCTION

Thank you for purchasing the Great Planes Zlin 526 Akrobat ARF! This sport scale model is patterned after the original Zlin 526 Akrobat which was first seen at airshows in the 1960's. The Zlin, along with the famous de Havilland Chipmunk, paved the road to the modern CAP, Extra, and Edge aircraft era of today. Like its full-scale counterpart, the Great Planes Zlin 526 is a good aerobatics trainer and is a great 3rd airplane choice for a sport pilot who has mastered the high-wing trainer and the low-wing sport plane.

If you're a beginner who is a fan of scale airplanes, we recommend starting with the Hobbico® NexStar™ 46 ARF trainer (HCAA2025) and then moving on to the Great Planes Cherokee GP/EP ARF (GPMA1033) sport scale low-wing airplane before you try the Great Planes Zlin 526. When you're ready for another airplane, consider trying a kit. The Great Planes CAP 232 40 Kit (GPMA0232) is an easy and enjoyable build that will reward you with excellent flight characteristics and the ability to perform high-performance aerobatic maneuvers.

For the latest technical updates or manual corrections to the Zlin 526 Akrobat visit the Great Planes web site at www.greatplanes.com. Open the "Airplanes" link, and then select the Zlin 526 Akrobat ARF. If there is new technical information or changes to this model a "tech notice" box will appear in the upper left corner of the page.

AMA

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

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Tele. (800) 435-9262
Fax (765) 741-0057
Or via the Internet at:
http://www.modelaircraft.org

IMPORTANT!!! Two of the most important things you can do to preserve the radio controlled aircraft hobby are to avoid flying near full-scale aircraft and avoid flying near or over groups of people.

PROTECT YOUR MODEL, YOURSELF & OTHERS… FOLLOW THESE IMPORTANT SAFETY PRECAUTIONS

1. Your Zlin 526 Akrobat should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, the Zlin 526 Akrobat, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

2. You must assemble the model **according to the instructions**. Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases the instructions may differ slightly from the photos. In those instances the written instructions should be considered as correct.

3. You must take time to **build straight, true** and **strong**.

4. You must use an R/C radio system that is in good condition, a correctly sized engine or motor, and other components as specified in this instruction manual. All components must be correctly installed so that the model operates correctly on the ground and in the air. You must check the operation of the model and all components before **every** flight.

5. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.

6. While this ARF has been flight tested to exceed normal use, if the plane will be used for extremely high stress flying, such as racing, or if an engine larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

7. **WARNING:** The cowl is made of fiberglass, the fibers of which may cause eye, skin and respiratory tract irritation. Never blow into or on a part to remove fiberglass dust, as the dust will blow back into your eyes. Always wear safety goggles, a particle mask and rubber gloves when grinding, drilling and sanding fiberglass parts. Vacuum the parts and the work area thoroughly after working with fiberglass parts.

We, as the kit manufacturer, provide you with a top quality, thoroughly tested kit and instructions, but ultimately the quality and flyability of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expressed or implied as to the performance or safety of your completed model.

Remember: Take your time and follow the instructions to end up with a well-built model that is straight and true.

LITHIUM BATTERY HANDLING & USAGE

WARNING!! Read the entire instruction sheet included with the battery. Failure to follow all instructions could cause permanent damage to the battery and its surroundings, and cause bodily harm!

- ONLY use a LiPo approved charger.
- NEVER charge in excess of 4.20V per cell.
- ONLY charge through the "charge" lead. NEVER charge through the "discharge" lead.
- NEVER charge at currents greater than 1C.
- ALWAYS set charger's output volts to match battery volts.
- ALWAYS charge in a fireproof location.
- NEVER trickle charge.
- NEVER allow battery temperature to exceed 150° F (65° C).
- NEVER disassemble or modify pack wiring in any way or puncture cells.
- NEVER discharge below 3.0V per cell
- NEVER place on combustible materials or leave unattended during charge or discharge.
- ALWAYS KEEP OUT OF REACH OF CHILDREN.

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the Zlin 526 Akrobat that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Glow Engine Option & Required Parts

If you choose to equip your model with a glow engine, you will need to purchase the items listed below. Either a two-stroke or a four-stroke engine can be used. The glow engine is mounted inverted.

- ❏ 3' [900mm] standard silicone fuel tubing (GPMQ4131)
- ❏ a suitable propeller per engine manufacturer's recommendation
- ❏ O.S.® Needle Valve Extension kit (optional) (OSMG7290)

Two-Stroke Option

- ❏ O.S. 46 AX two-stroke engine (OSMG0547)
- ❏ O.S. Muffler Extension #873 (for 46AX engine using a standard muffler) (OSMG2578)

OR

- ❏ J'Tec JT-601 In-Cowl universal inverted muffler (scale muffler) (JTCG7015)

Four-Stroke Option

- ❏ O.S. FL-70 RC four-stroke engine (OSMG0876)

Electric Motor Option & Required Parts

- ❏ ElectriFly™ RimFire™ .55 (42-60-480) Brushless Outrunner motor (GPMG4715)
- ❏ ElectriFly Medium Motor Mount (GPMG1255)
- ❏ ElectriFly Silver Series 60A Brushless ESC (GPMM1850)
- ❏ APC 13 x 10 E-Prop (APCQ4140)
- ❏ (2) Great Planes ElectriFly 11.1V, 3200mAh 20C LiPo BP Series (GPMP0727)

OR

- ❏ (2) Great Planes ElectriFly 11.1V, 3350mAh 25C LiPo Power Series (GPMP0541)
- ❏ Deans® Series 2 Male Ultra® adapter (GPMM3143)
- ❏ 6" [150mm] servo extension (for ESC signal lead) (HCAM2701)
- ❏ PolyCharge4™ LiPo battery charger (GPMM3015)
- ❏ Equinox™ 1-5 cell LiPo cell balancer (GPMM3160)
- ❏ 12 Volt DC power supply (HCAP0250) (optional)
- ❏ RC Electronics Watt's Up Watt Meter (RELP0100) (optional)

Radio System Recommendations

- ❏ 4 channel radio system
- ❏ (4) Futaba® S3004 Standard Ball Bearing Servo (FUTM0004)
- ❏ Futaba NR4J 4.8V 600mAh Receiver Battery (FUTM1280)
- ❏ (2) 12" [300mm] servo extension (HCAM2711 for Futaba)
- ❏ 6" Y-harness (FUTM4130)
- ❏ J-Series Switch w/ Charge Plug (FUTM4370)
- ❏ Switch & Charge Jack Mounting Set (GPMM1000)
- ❏ Servo Mounting Screws (Set of 10) (FUTM2550)

ADDITIONAL ITEMS REQUIRED

To finish this airplane you will need the following items.

Adhesives and Building Supplies

- ❏ 3/8" x 3" Heat Shrink Tubing (GPMM1060)
- ❏ R/C foam rubber 1/4" [6mm] thick (HCAQ1000)
- ❏ Drill bits: 1/16" [1.6mm], 5/64" [2mm], #48
- ❏ 1 oz. [30g] Medium Pro™ CA+ (GPMR6008)
- ❏ 1 oz. [30g] Thin Pro CA (GPMR6002)
- ❏ 1 oz. [30g] Thin Foam-Safe CA (HOTR1040)
- ❏ CA applicator tips (HCAR3780)
- ❏ CA debonder (GPMR6039)
- ❏ Pro 30-minute epoxy (GPMR6047)
- ❏ Epoxy brushes (6, GPMR8060)
- ❏ Mixing sticks (50, GPMR8055)
- ❏ Mixing cups (GPMR8056)
- ❏ Threadlocker™ thread-locking compound (GPMR6060)
- ❏ Panel Line Pen (TOPQ2510)
- ❏ #64 rubber bands (1/4 lb [113g] box, HCAQ2020)
- ❏ 18" flexible steel rule (HCAR0460)
- ❏ Hobbico Retractable Fabric Tape Measure (HCAR0478)
- ❏ 6-32 tap and drill set (GPMR8102)
- ❏ Tap handle (GPMR8120)
- ❏ Pliers with wire cutter (HCAR0625)
- ❏ Hobbico Heavy Duty Diagonal Cutter 7" (HCAR0627)
- ❏ electric drill
- ❏ Hobbico ball-end hex wrench set – metric (HCAR0521)
- ❏ Hobbico ball-end hex wrench set – SAE (HCAR0520)
- ❏ (2) 1" [25mm] C-Clamps
- ❏ Excel Small Clamp (EXLR5663)
- ❏ Zona L-Square (ZONR3734)
- ❏ Medium T-pins (100, HCAR5150)
- ❏ Easy-Touch™ Bar Sander 5.5" (GPMR6169)
- ❏ Sandpaper assortment
- ❏ Masking tape (TOPR8018)
- ❏ Electrical tape
- ❏ Toothpicks, round
- ❏ Denatured alcohol (for epoxy clean up)

Optional Supplies and Tools

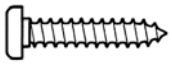
- ❏ 21st Century® sealing iron (COVR2700)
- ❏ 21st Century iron cover (COVR2702)
- ❏ Rotary tool such as Dremel®
- ❏ Rotary tool reinforced cut-off wheel (GPMR8200)
- ❏ Hobbico Z-bend pliers (HCAR2000)

- ❏ Hobby Heat™ micro torch (HCAR0755)
- ❏ Dead Center™ Engine Mount Hole Locator (GPMR8130)
- ❏ AccuThrow™ Deflection Gauge (GPMR2405)
- ❏ CG Machine™ (GPMR2400)
- ❏ Precision Magnetic Prop Balancer (TOPQ5700)
- ❏ Robart Super Stand II (ROBP1402)
- ❏ Great Planes 1/5th scale Civilian Pilot (red) (GPMQ9062), blue (GPMQ9063), or yellow (GPMQ9064)

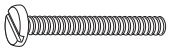
IMPORTANT BUILDING NOTES

- There are several types of screws used in this kit:

Self-tapping or sheet metal screws are designated by a number and a length. For example, #6 x 3/4" [19mm].



Machine screws are designated by a number, threads per inch, and a length. For example, 4-40 x 3/4" [19mm].



Socket Head Cap Screws (SHCS) are designated by a number, threads per inch, and a length. For example, 4-40 x 3/4" [19mm]

- When you see the term ***test fit*** in the instructions, it means that you should first position the part on the assembly **without using any glue**, then slightly modify or *custom fit* the part as necessary for the best fit.

- Whenever the term ***glue*** is written you should rely upon your experience to decide what type of glue to use. When a specific type of adhesive works best for that step, the instructions will make a recommendation.

- Whenever just ***epoxy*** is specified you may use ***either*** 30-minute (or 45-minute) epoxy ***or*** 6-minute epoxy. When 30-minute epoxy is specified it is **highly** recommended that you use only 30-minute (or 45-minute) epoxy, because you will need the working time and/or the additional strength.

- **Photos** and **sketches** are placed **before** the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.

- The Zlin 526 Akrobat is factory-covered with Top Flite® MonoKote® film. Should repairs ever be required, MonoKote can be patched with additional MonoKote purchased separately. MonoKote is packaged in six-foot rolls, but some hobby shops also sell it by the foot. If only a small piece of MonoKote is needed for a minor patch, perhaps a fellow modeler would give you some. MonoKote is applied with a model airplane covering iron, but in an emergency a regular iron could be used. A roll of MonoKote includes full instructions for application. Following are the colors used on this model and order numbers for six foot rolls.

Jet White (TOPQ0204)
Royal Blue (TOPQ0221)
True Red (TOPQ0227)
Charcoal Metallic (TOPQ0407)

- The stabilizer and wing incidences and engine thrust angles have been factory-built into this model. However, some technically-minded modelers may wish to check these measurements anyway. To view this information visit the web site at www.greatplanes.com and click on "Technical Data." Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.

COMMON ABBREVIATIONS

Stab	= Horizontal Stabilizer
Fin	= Vertical Stabilizer
LE	= Leading Edge
TE	= Trailing Edge
LG	= Landing Gear
Ply	= Plywood
"	= Inches
mm	= Millimeters
SHCS	= Socket Head Cap Screw
ESC	= Electronic Speed Control
LiPo	= Lithium Polymer battery
3S	= Three cells in series
mAh	= Milliamp Hours (refers to the usable capacity of a battery)

To convert inches to millimeters, multiply inches by 25.4 (25.4mm = 1")

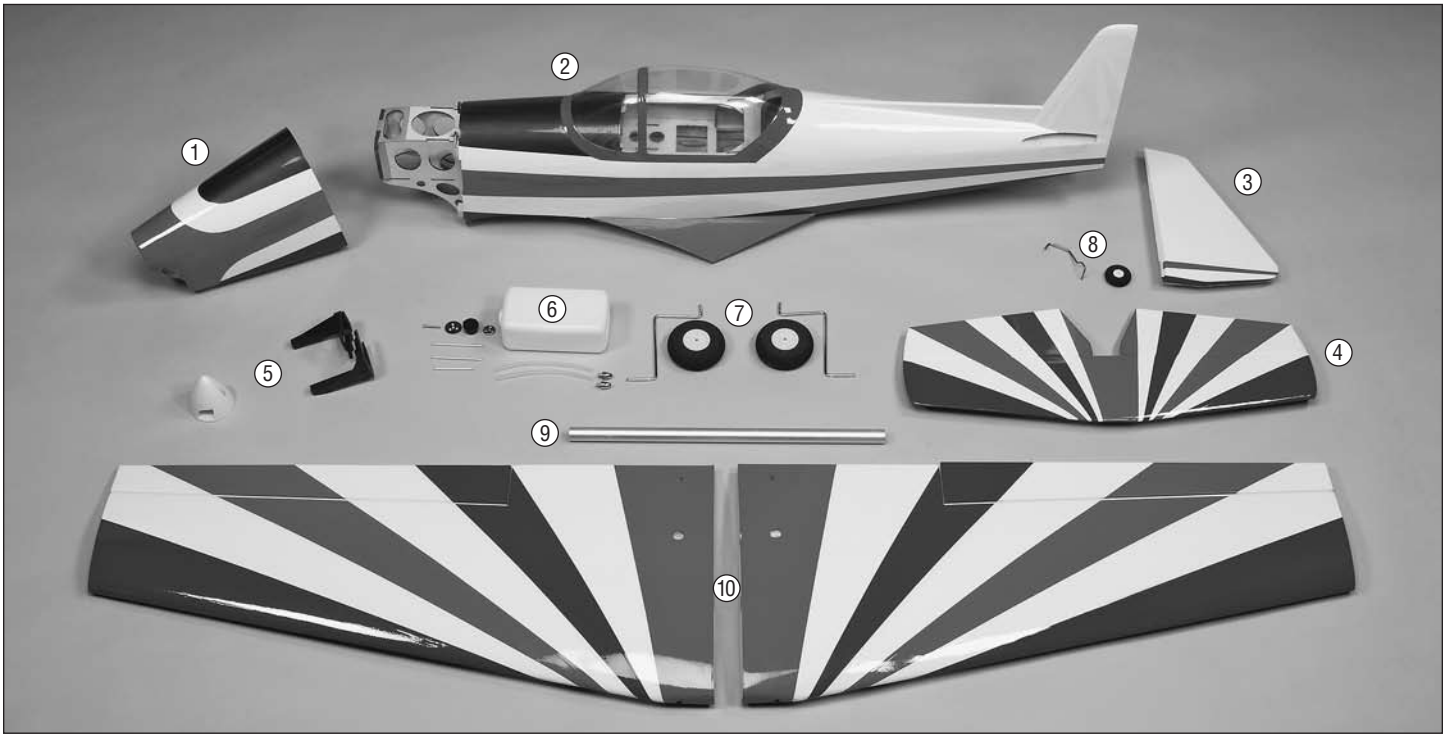
KIT INSPECTION

Before starting to build, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact **Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list.

Great Planes Product Support
3002 N Apollo Drive, Suite 1
Champaign, IL 61822

Telephone: (217) 398-8970, ext. 5
Fax: (217) 398-7721
E-mail: airsupport@greatplanes.com

KIT CONTENTS



1 - Cowl
2 - Fuselage & Canopy/Hatch
3 - Rudder
4 - Horizontal Stabilizer w/Elevators
5 - Engine Mount & Spinner
6 - Fuel Tank
7 - Main Landing Gear
8 - Tail Gear
9 - Wing Tube
10 - Wing Set

ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Zlin 526 Akrobat ARF are available using the order numbers in the **Replacement Parts List** that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company.

To locate a hobby dealer, visit the Hobbico web site at www.hobbico.com. Choose “Where to Buy” at the bottom of the menu on the left side of the page. Follow the instructions provided on the page to locate a U.S., Canadian or International dealer.

Parts may also be ordered directly from Hobby Services by calling (217) 398-0007, or via facsimile at (217) 398-7721, but full retail prices and shipping and handling charges will apply. Illinois and Nevada residents will also be charged sales tax. If ordering via fax, include a Visa or MasterCard number and expiration date for payment.

Mail parts orders and payments by personal check to:

Hobby Services
3002 N Apollo Drive, Suite 1
Champaign IL 61822

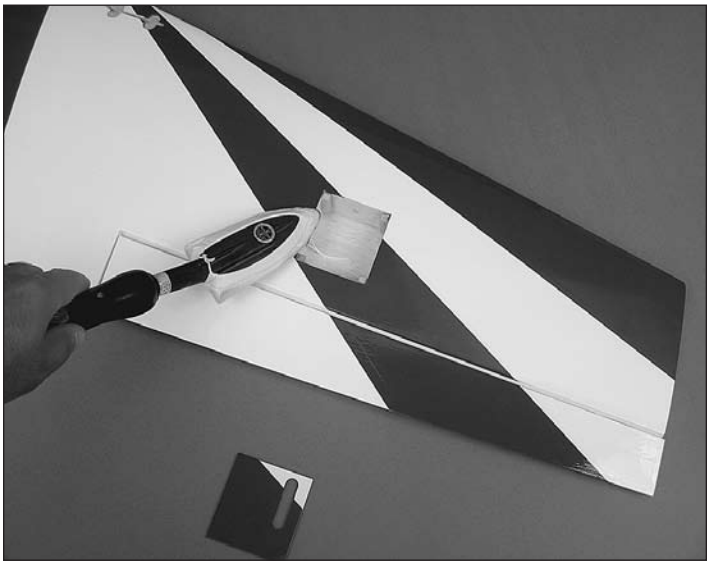
Be certain to specify the order number exactly as listed in the **Replacement Parts List**. Payment by credit card or personal check only; no C.O.D.

If additional assistance is required for any reason contact Product Support by e-mail at productsupport@greatplanes.com, or by telephone at (217) 398-8970.

REPLACEMENT PARTS LIST

Order Number	Description	How to purchase
	Missing pieces	Contact Product Support
	Instruction manual	
	Full-size plans	Not available
GPMA3379	Wing Set Zlin Akrobat	Contact your hobby supplier to purchase these items
GPMA3380	Fuselage Zlin Akrobat	
GPMA3381	Tail Set Zlin Akrobat	
GPMA3382	Landing Gear Zlin Akrobat	
GPMA3383	Cowl Zlin Akrobat	
GPMA3384	Canopy Hatch Zlin Akrobat	
GPMA3385	Decals Zlin Akrobat	
GPMA3386	Wing Tube Zlin Akrobat	

PREPARE FOR ASSEMBLY

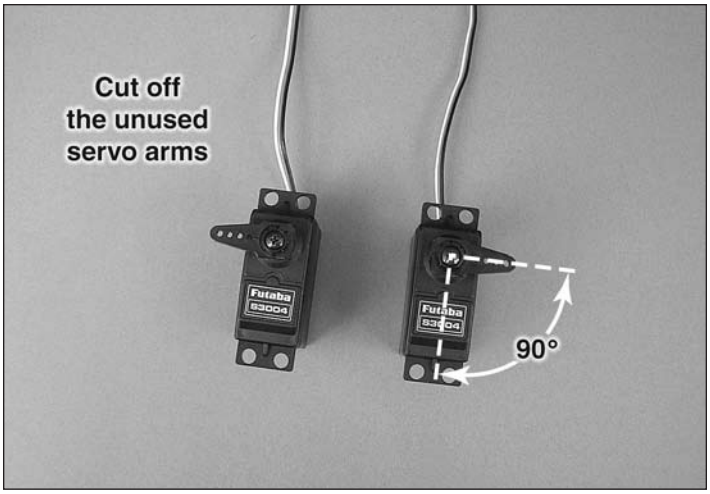


❏ 1. Before you begin assembling your model, use a covering iron set to a medium temperature (about 250° F [121° C]) to tack down any loose or wrinkled covering. Securely tack down the edges of trim and where seams are present and around the aileron servo hatch covers. We recommend using a Coverite™ (COVR2700) covering iron with a sock (COVR2702).

❏ 2. Check the pre-hinged ailerons for secure attachment. If necessary, add several drops of thin foam-safe CA to each side of the hinges. Clean up any excess glue that runs out of the hinge line using a paper towel. Allow the glue to fully cure.

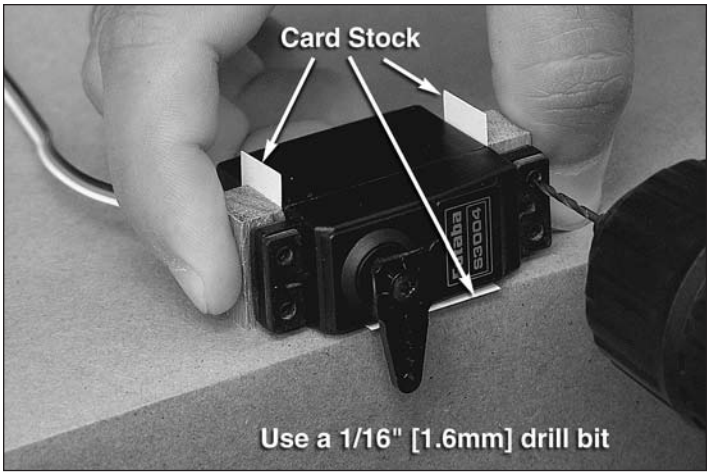
ASSEMBLE THE WINGS

Aileron Servos & Control Horn Installation

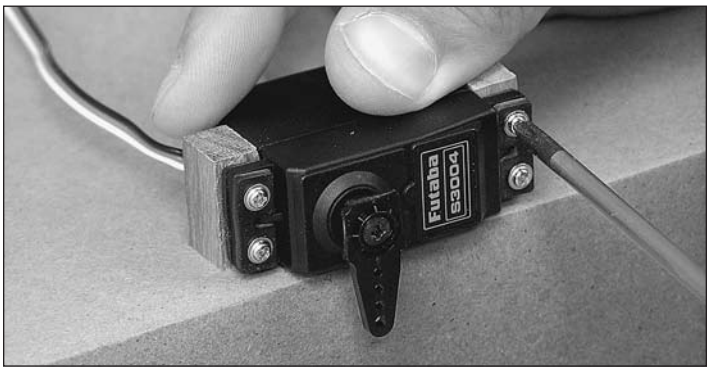


❏ 1. Locate the long servo arm that came with your servo. For Futaba standard servos this is the arm that is already installed on the servo. For other radio systems, please use the arm that is at least 5/8" [15.9mm] long from the center of the shaft to the outermost hole. Center two servos using your radio. Remove the servo arm screw and reposition the servo arm on the splined output shaft so that the arm is 90° (perpendicular) to the servo case side. Clip off the unused servo arms so that your servos look like those in the photo. Install the servo arm screw.

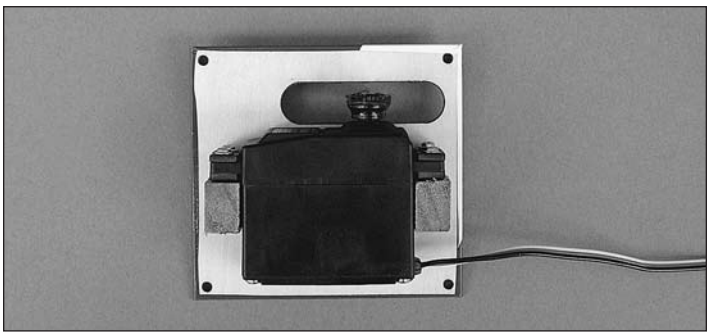
❏ 2. Use a #48 drill bit to drill the outermost servo arm hole on both aileron servos. Install the servo mounting grommets. Note: If you don't have a numbered drill bit set, you may use a hobby knife to carefully enlarge the servo arm hole. Work slowly and keep checking the fit using the unthreaded end of one of the 2-56 pushrods. Minimizing control slop now can prevent poor flying characteristics (or even flutter) later.



❏ ❏ 3. Cut out three 1/2" x 1" [13mm x 25mm] pieces of thin card stock (not supplied). You may use construction paper, an old cereal box, or a manila folder for this purpose. Lay the servo on a flat surface with the arm hanging down over the edge of your table. Locate two **12 x 8 x 20mm hardwood blocks**. Position the blocks under the servo mounting tabs and place a piece of card stock in the locations shown. Holding the blocks and servo in position, use a 1/16" [1.6mm] drill to drill four holes for the servo mounting screws.

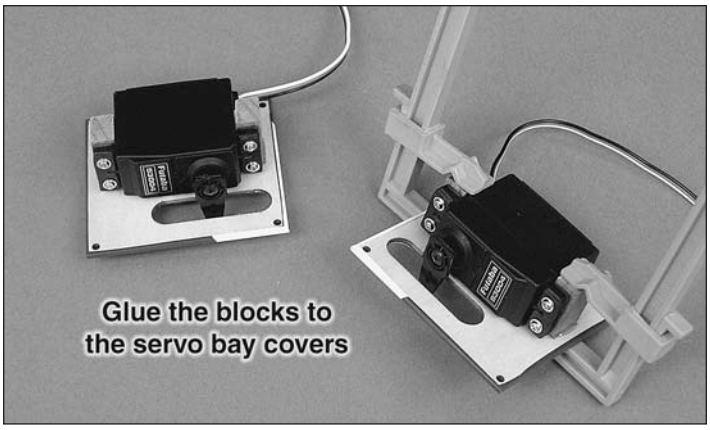


❏ ❏ 4. Install the four servo mounting screws that came with your servo. Remove the screws and harden each of the screw holes with thin CA. This will create a durable screw thread in the wood. Let the CA cure and reinstall the screws.

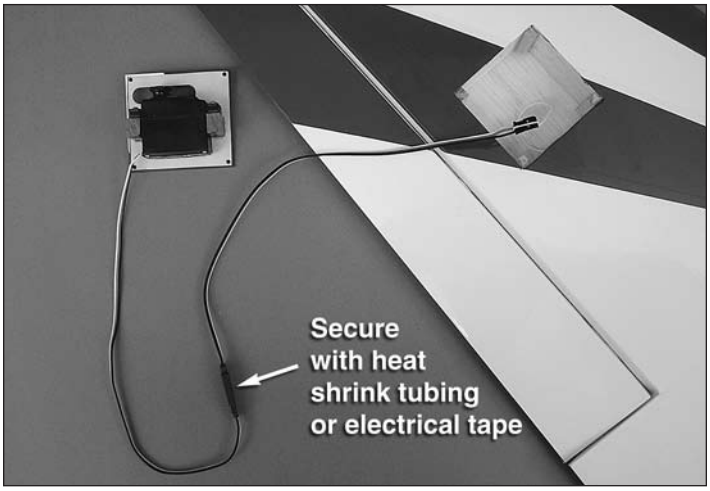


❏ ❏ 5. With the hardwood blocks attached and each servo arm still centered, position your servo on an **aileron servo bay cover** so that the servo arm is centered in the opening and exiting the opening. Please note: If you are using Futaba servos, there are two laser-etched rectangles on each servo bay cover which will help you position your servo.

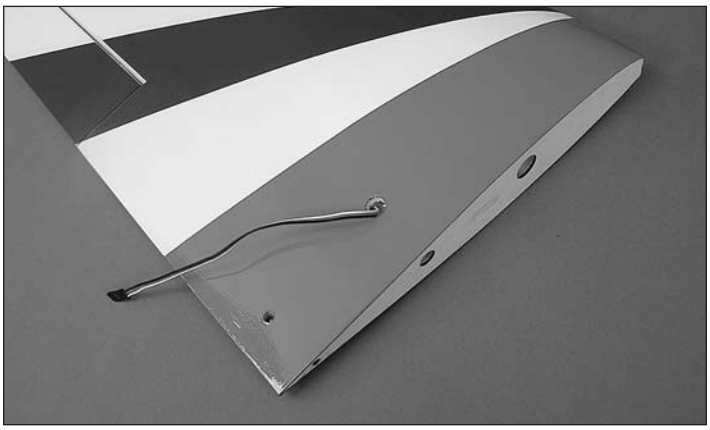
6. Repeat steps 3 through 5 for the other aileron servo.



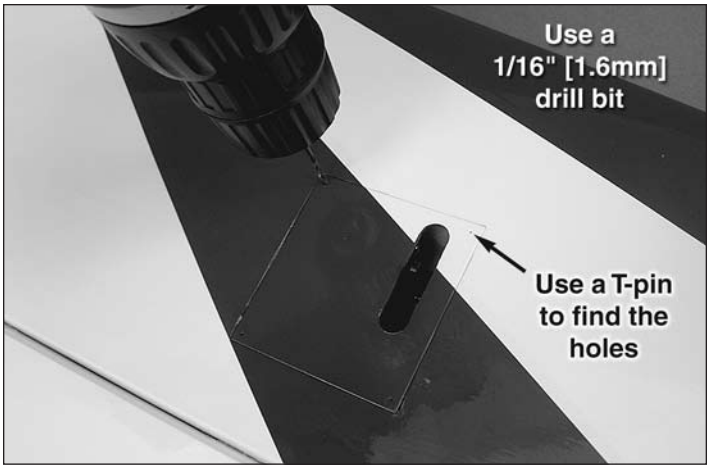
❏ 7. Mix up a small batch of 30-minute epoxy and apply it to the hardwood blocks. Glue each servo block to its servo bay cover. Use small clamps to hold the hardwood blocks tightly in position. Position the clamps so that they are clamping the hardwood directly. The clamps shown here are Excel 3-1/2" [89mm] plastic clamps (EXLR5663).



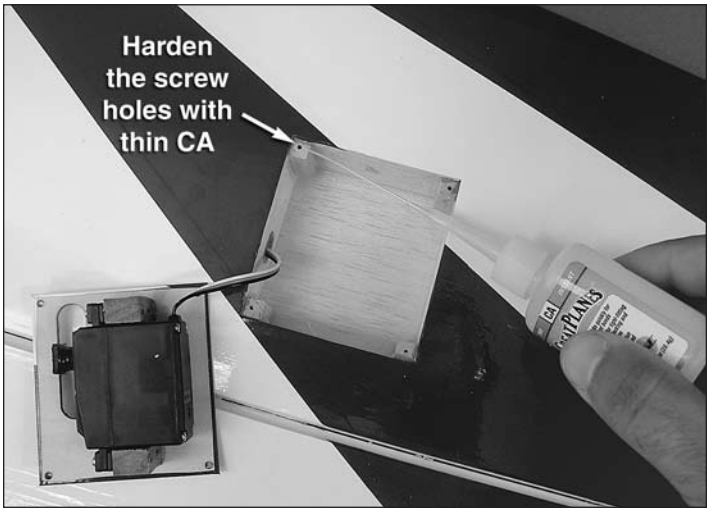
❏ 8. Attach a 12" [305mm] servo lead extension to each aileron servo. Use a piece of 3/8" [9.5mm] diameter heat shrink tubing (not supplied) to secure the connection. Route the servo lead through each wing using the supplied guide string.



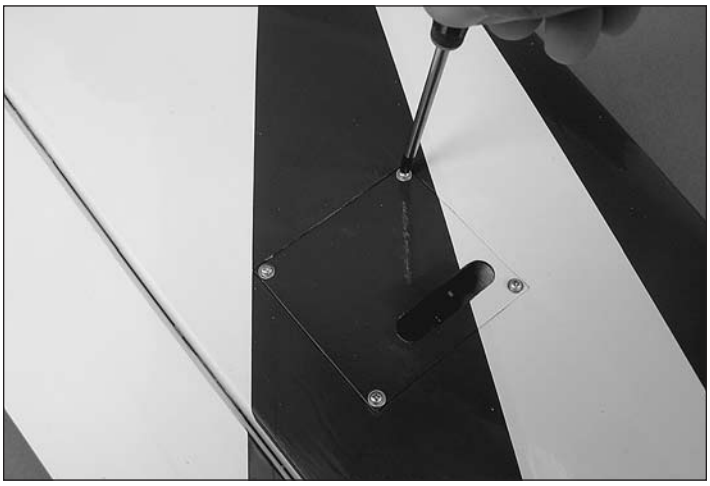
❏ 9. Route the other end of the servo lead through the hole in the top of each wing.



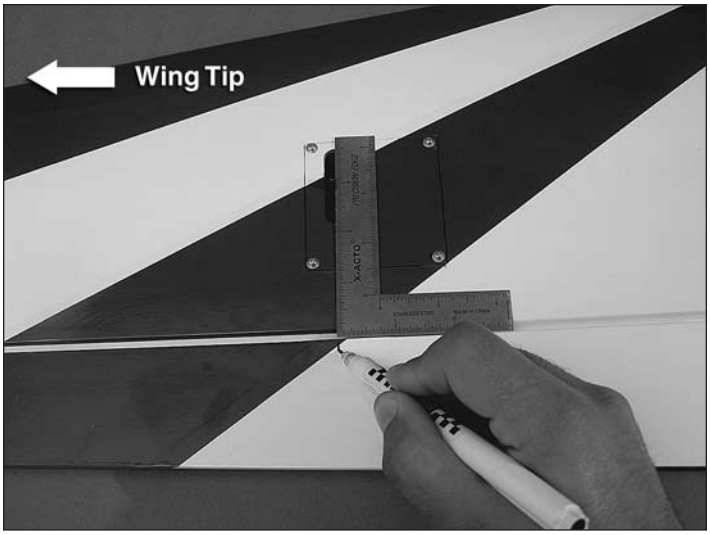
❏ 10. Find the pre-drilled holes at each corner of each servo bay cover. Use a T-pin to poke holes though the covering and fit each servo bay cover to its wing. Use a 1/16" [1.6mm] drill bit to drill four holes to attach the aileron servo bay covers to the wing.



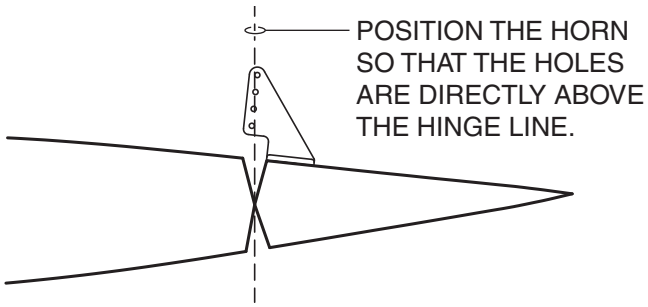
❏ 11. Locate eight #2 x 3/8" [9.5mm] sheet-metal screws and eight #2 flat washers. Thread these into the holes you drilled. Remove the screws and the servo bay covers and harden the screw holes with thin CA.

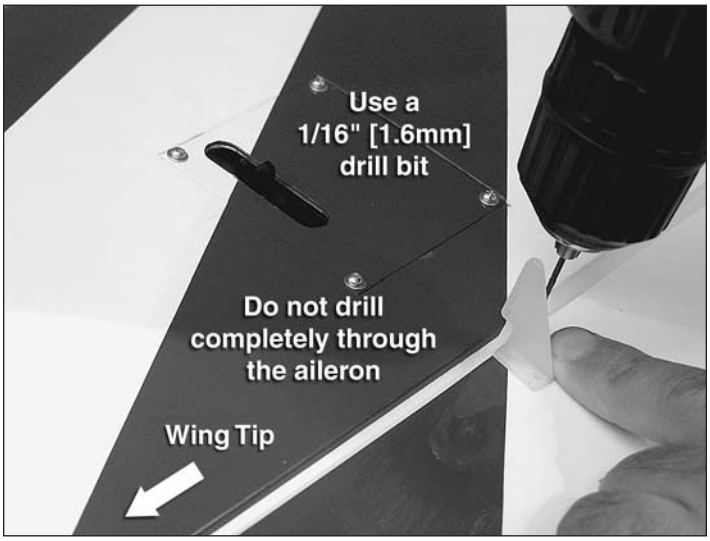


❏ 12. Reinstall the aileron servo bay covers using the #2 screws and washers.

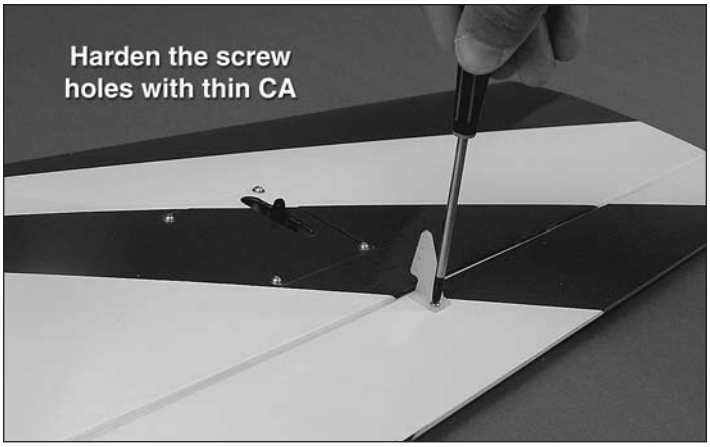


❏ ❏ 13. Working with one wing now, make a mark using a felt-tip pen directly behind the aileron servo arm. Use a builder's triangle or builder's square to ensure that you mark directly behind the servo arm.



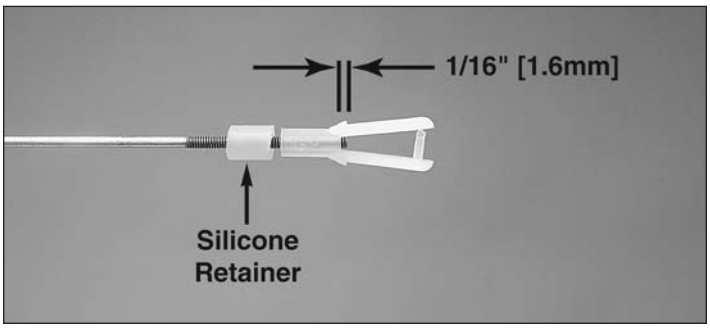


❏ ❏ 14. Locate one **nylon control horn**. Discard the backing plate that is attached to it. Center the horn along the line you made. Center the horn fore and aft so that the holes are directly above the hinge line (see sketch above). Use a 1/16" [1.6mm] drill to drill two 1/2" [13mm] deep holes for the control horn. **Note:** Do not drill through the aileron completely. You may wrap a piece of masking tape around the drill bit 1/2" [13mm] from the tip to act as a drill stop.

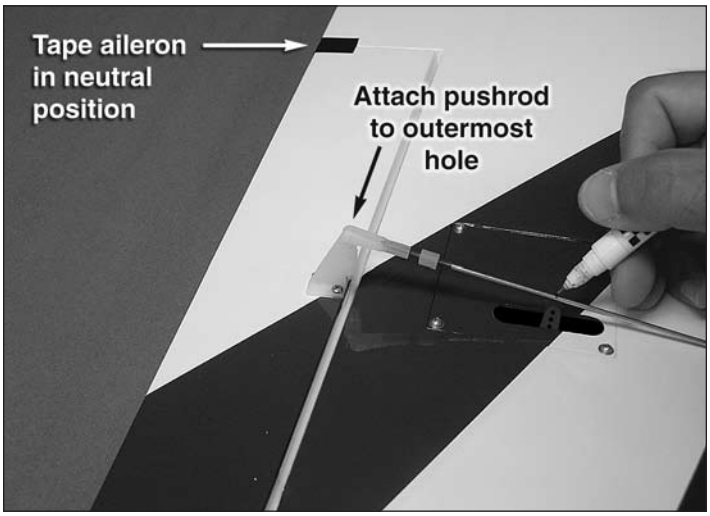


❏ ❏ 15. Use two #2 x 1/2" [13mm] sheet-metal screws to attach the control horn to the aileron. **Important:** Remove the screws and harden the holes with thin CA. Reinstall the screws.

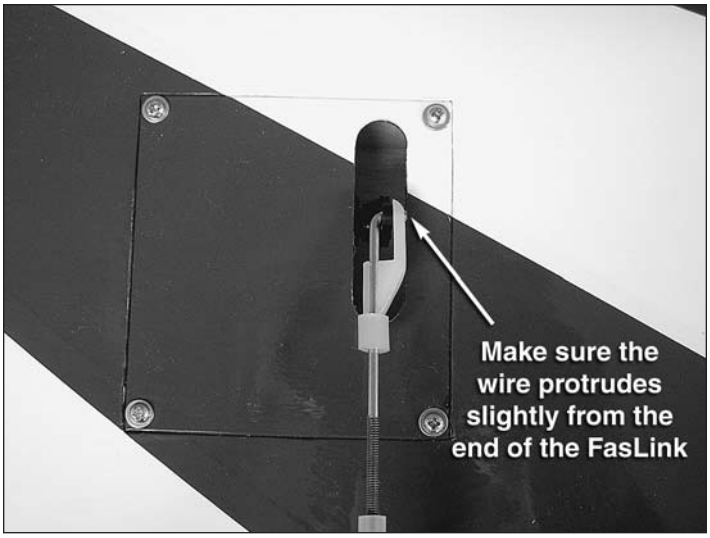
❏ 16. Repeat steps 13 through 15 for the other wing.



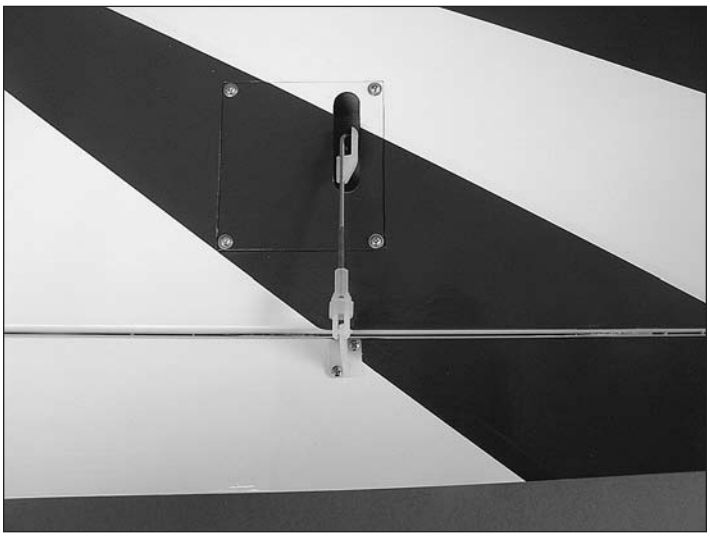
❏ 17. Locate the two 2-56 x 12" [305mm] threaded aileron pushrods, two nylon clevises, and two silicone clevis retainers. Slide a silicone retainer on each pushrod and thread each clevis on so that at least 1/16" [1.6mm] of thread protrudes past the clevis barrel.



❏ 18. Center your aileron servos using your radio. Place a piece of tape across the inboard edge of the ailerons to hold them in the neutral position during this step. Attach each pushrod to the outermost hole of each aileron control horn. Extend the pushrod forward and line it up with the servo arm hole. Mark the pushrod at the hole.



❏ 19. Bend the pushrod 90° at the mark that you made. Connect the pushrod to the outermost hole in the servo arm. Install a **nylon FasLink**™ and cut the excess end of the pushrod. If you use a Dremel tool with a cutoff wheel, remove the nylon FasLink™ before cutting the wire to avoid melting the plastic. Do this for both wings.

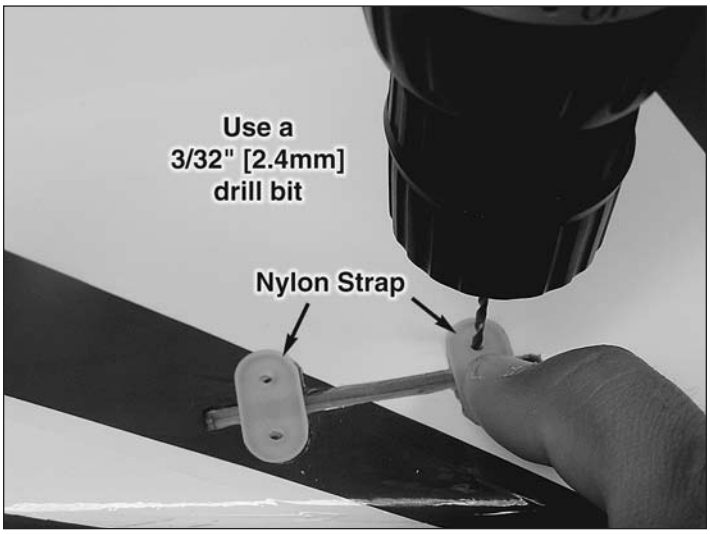


❏ 20. With your radio still on, adjust the length of each pushrod until the control surface is neutral (zero control throw). You may do this by removing the clevis from the control horn and rotating it to adjust the length of the pushrod. Move the ailerons through their full rate of travel and check for any interference between the linkages and the servo bay covers. If necessary, trim away the opening in the servo bay cover. When you're done, slide the silicone clevis retainer into position.

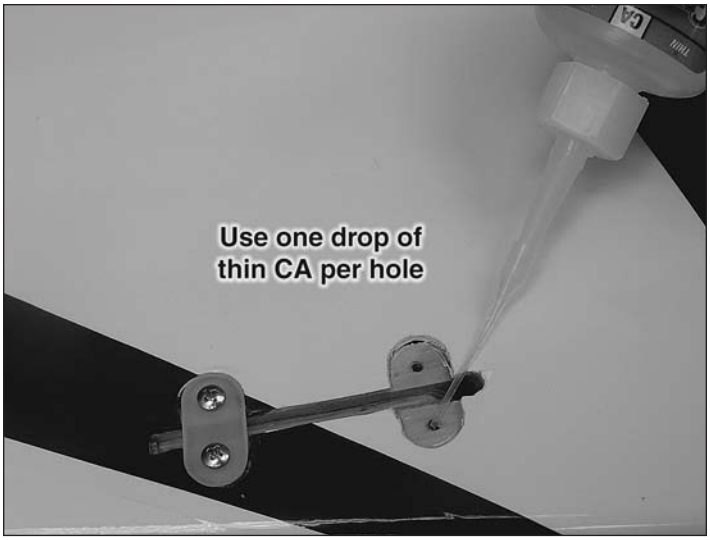
Main Landing Gear Installation

❏ 1. Locate the four 4mm wheel collars. Fit two wheel collars and a wheel onto the axles as shown. For each axle, mark the position of the wheel collars on the axle. Use a fine-point felt-tip pen and make the mark on the axle though the set screw hole as shown. Remove the collars and the wheel.

❏ 2. File a 1/8" [3.2mm] wide flat on each axle for each wheel collar's set screw. A metal file or a Dremel® tool with a fiber-reinforced cutoff wheel attachment are recommended. Install the wheels and wheel collars using a drop of thread-locking compound on the set screws. Apply a few drops of light machine oil to the axles when you're done.



❏ 3. Locate four flat nylon straps. Place these in the cutouts provided on the wing and use a 3/32" [2.4mm] drill to make two holes for each strap using the strap as a guide.

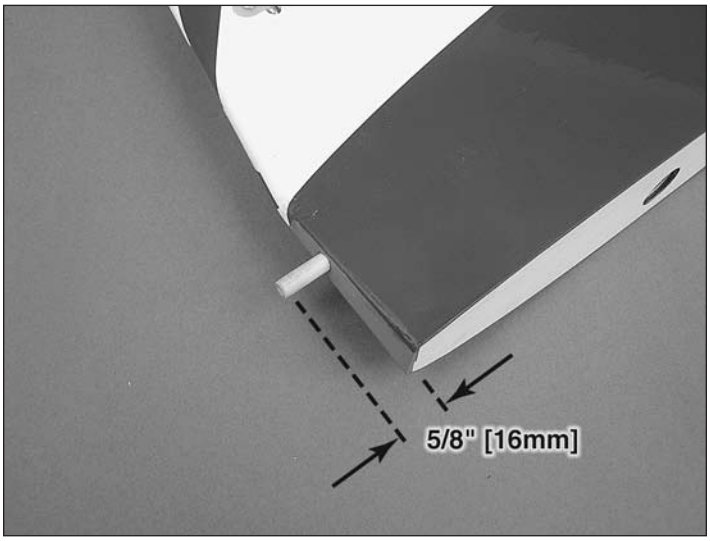


❏ 4. Locate eight #4 x 1/2" [13mm] sheet-metal screws. Temporarily install the landing gear hold-down straps using these screws. Remove the screws and the straps and harden the holes with **one drop** thin CA per hole. **Note:** Using more than one drop can melt the foam core of the wing, so be careful.

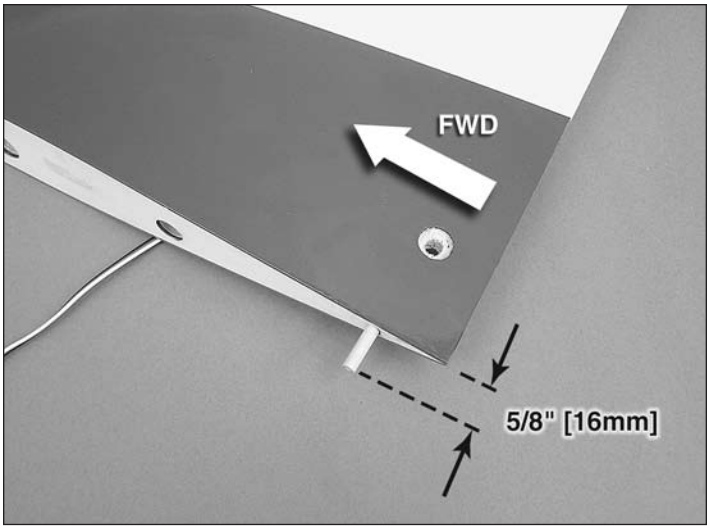
❏ 5. Install a completed landing gear leg into each wing as shown. Install the landing gear hold-down straps and screws.

Finish the Wings

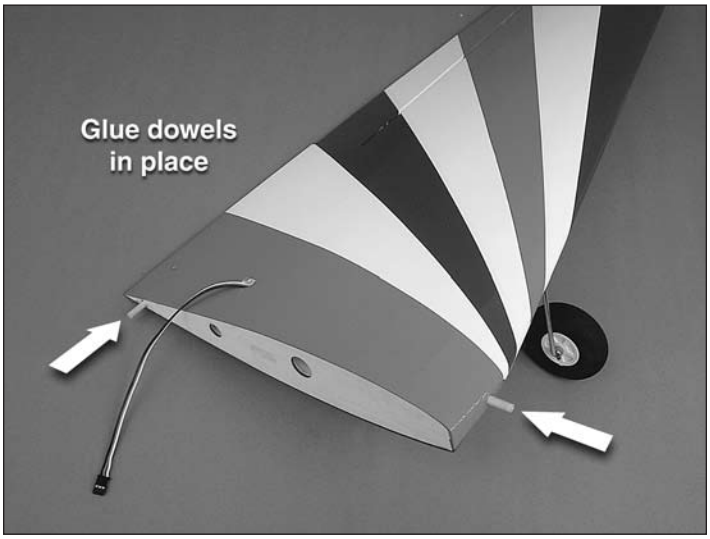
❏ 1. For this section you will be working with epoxy. It is a good idea to have some denatured alcohol and paper towels on hand to help you clean up. Keep in mind that epoxy must be cleaned up **before** it cures. We also recommend that you have your epoxy brushes, mixing sticks (or toothpicks), and mixing cups on hand. You can mix small amounts of epoxy on a scrap sheet of paper.



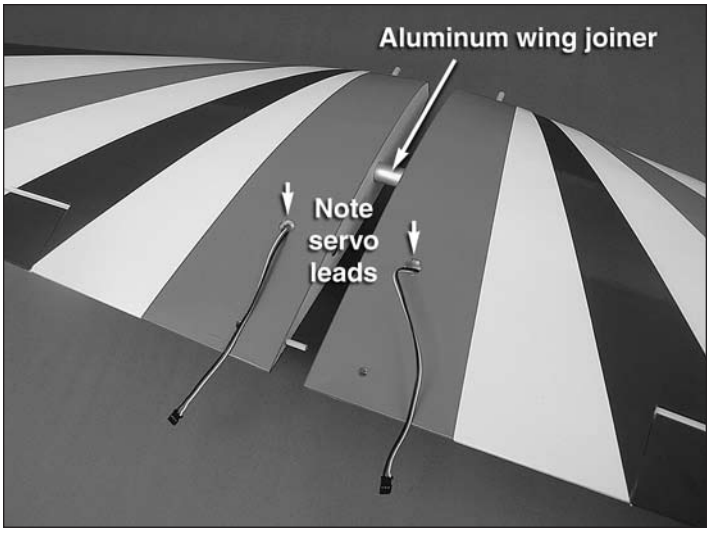
❏ 2. Locate the two 1-3/16" [30mm] **long hardwood dowels**. Test fit these into the holes provided in the leading edge of each wing. Each dowel should protrude 5/8" [16mm] from the LE of the wing. If a dowel is too tight, wrap a piece of 150-grit sandpaper around it and rotate the dowel to sand off material. Sand off a little at a time and recheck the fit.



❏ 3. Locate the one 1-3/8" [35mm] **long hardwood dowel**. Test fit this in the root wing rib of each wing. If necessary, sand the dowel until it fits. The dowel should protrude 5/8" [16mm] from each root rib.

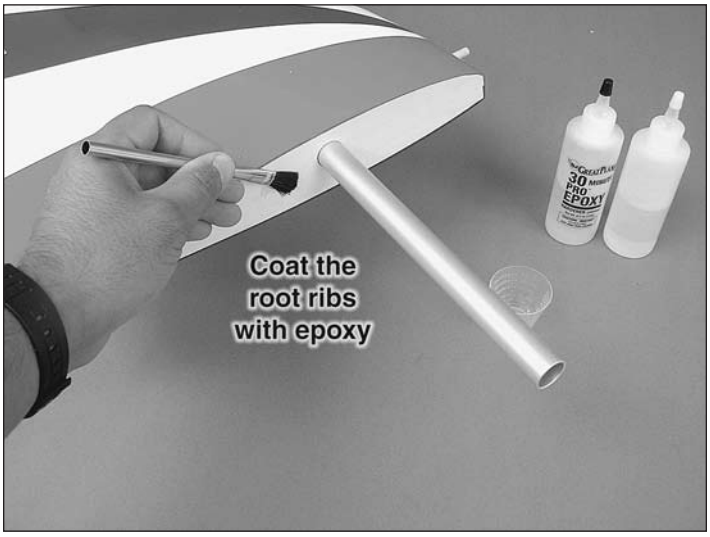


❏ 4. Mix up a batch of 30-minute epoxy. Coat the inside of the two LE dowel holes and the inside of the **left wing** anti rotation dowel hole. Coat each dowel with a thin layer of epoxy. Install the dowels in their proper location. Make sure that each dowel protrudes 5/8" [16mm]. Wipe up any excess epoxy with some denatured alcohol and a paper towel. Also, you may want to apply a thin coat of epoxy on the outer portion of each LE dowel. Coat the dowel and wipe it off with a dry paper towel. This leaves an ultra thin coat of epoxy and makes the dowel more durable.

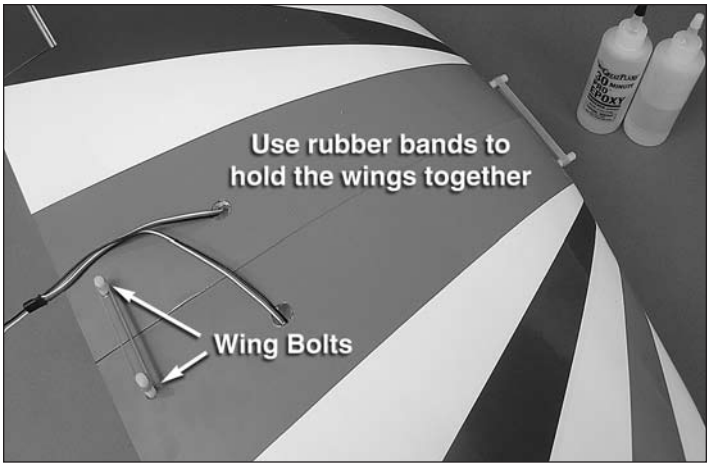


❏ 5. With the epoxy fully cured, fit the aluminum wing tube into one wing. Fit the other wing to the tube and join the wings. If you have not done so already, please be sure to route the servo leads through the hole in the top of the wing. Note: While it is not necessary, some people may prefer to permanently join the two wings.

If you want to be able to separate your wings, please skip the next two steps and proceed to the next section, ***Assemble the Fuselage****.*



❏ 6. Mix up a generous-sized batch (about 1/4oz [7cc]) of 30-minute epoxy. Remove the wing tube and apply a thin coat of epoxy to the outer surface of the tube. Fit the tube to one wing. Apply a generous layer of epoxy to each wing root rib and join the wings. Clean up any excess epoxy using denatured alcohol and a paper towel.



❏ 7. Locate the two supplied nylon wing bolts and three #64 rubber bands (not supplied). Fit the wing bolts in the wing so that each bolt is centered in the hole. Use two rubber bands on the wing bolts (one on the top side and one on the bottom) to draw the wing together. Fit a rubber band between the LE wing dowels and let the epoxy cure.

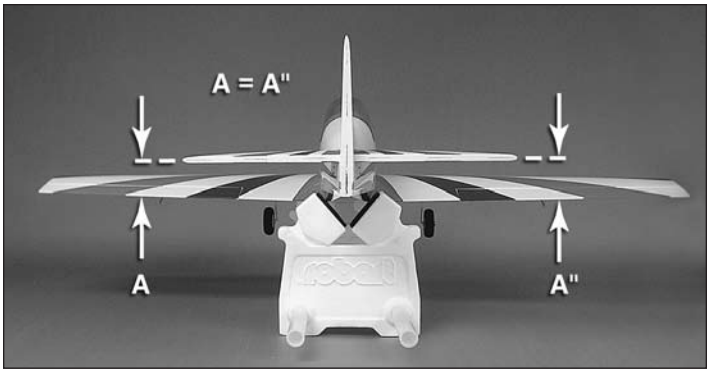
ASSEMBLE THE FUSELAGE

Horizontal Stabilizer Installation

Once again, you'll need to have your epoxy supplies nearby and ready. You'll also need a fabric measuring tape or a piece of Kevlar thread to help you align the horizontal stab. Do not use a regular string or thread. This will not allow you to obtain an accurate alignment.

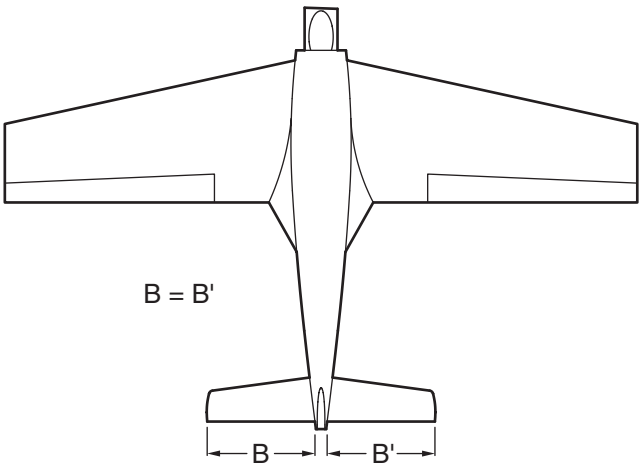
Note: If you are not familiar with the process of installing a horizontal stabilizer through a slotted fuselage, please read through the following steps and make sure you understand what to do. A dry-run may be helpful, as steps 3 through 6 must be accomplished before the epoxy cures.

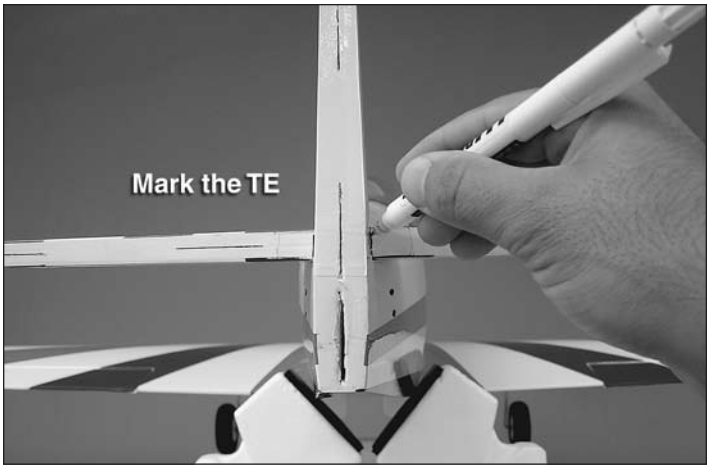
❏ 1. Now that the wing is ready, install it onto the fuselage using the two 1/4-20 nylon wing bolts.



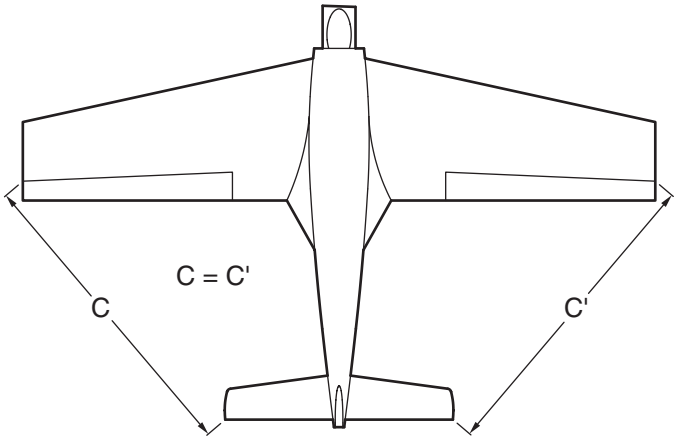
❏ 2. Test fit the horizontal stabilizer in the fuselage. Be careful to install it so that the red, white and blue trim is facing up. Check to see that the stab is parallel with the wings. Distance A must equal distance A". If one side of the stab is slightly higher than the other, try adding a few ounces of weight to the high side to see if this will make the stab parallel. If this does not work, gently sand the stabilizer slot in the fuse using 150-grit sandpaper. Sticking the sandpaper to a 1/2" [13mm] wide stick is helpful.

❏ 3. Mix up a generous-sized batch of epoxy (about the same amount you used when you joined your wings). Thoroughly coat the uncovered center section of the stabilizer with epoxy. Paying attention to the trim scheme, carefully slide the stabilizer into the slot in the fuselage. Slide the stab past center and re-coat the top and bottom of the stab center section. Proceed immediately to the next step.





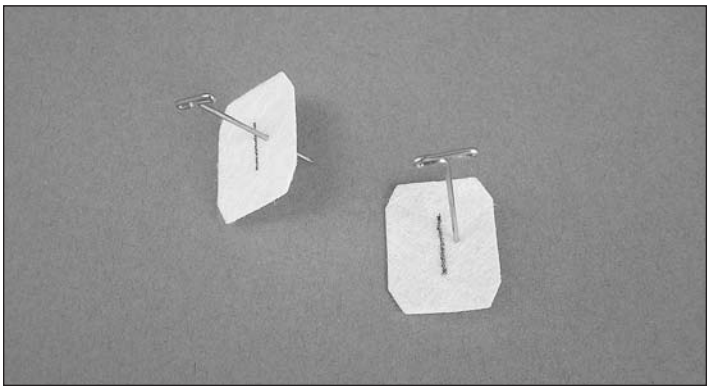
❏ 4. Re-center the stab by measuring the distance along the TE from the tip of the stab to the fuselage side. Do this for both sides of the stab, making B = B'. With the stab centered, use a felt-tip pen to mark the TE of the stab on both sides. Proceed to the next step.



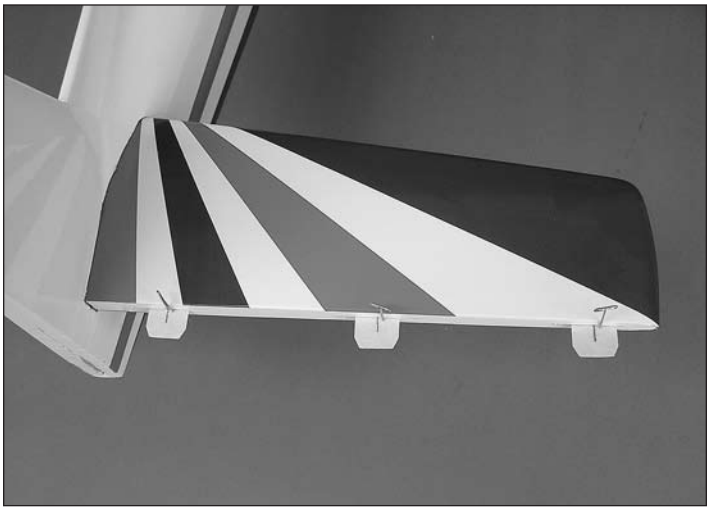
❏ 5. Using the marks you made to keep the TE of the stab centered, measure from the tip of the stab to the TE of the wing (not the aileron). Adjust the position of the stab until distance C = C'. Check to see that your stab is properly leveled and parallel with the wing, adding weight to the high side (see step 4 above).

❏ 6. Clean up the excess epoxy using denatured alcohol and paper towels. Set the airplane aside and allow the epoxy to fully cure.

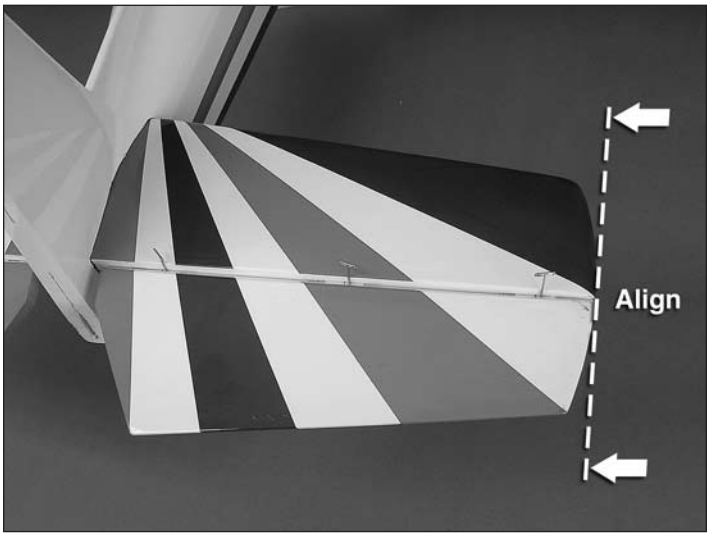
Hinge the Elevator & Rudder



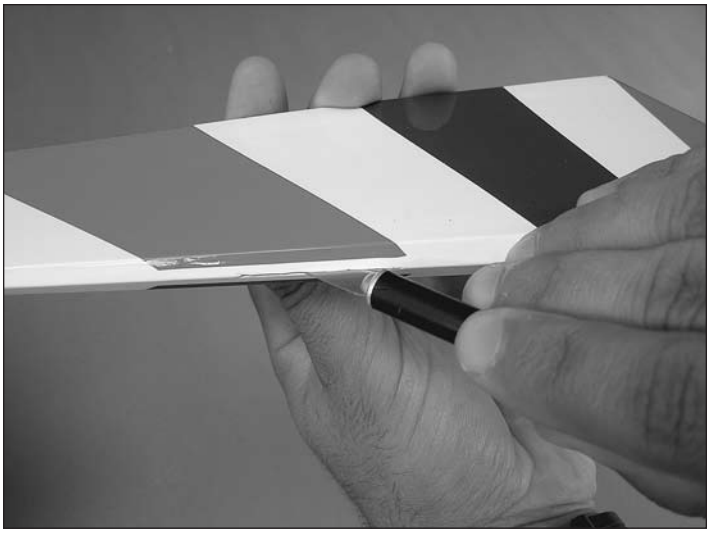
❏ 1. Locate six **CA hinges**. The hinges have a slit to help the CA wick into them better. Push a T-pin into the center of the hinge, just slightly away from the slit.



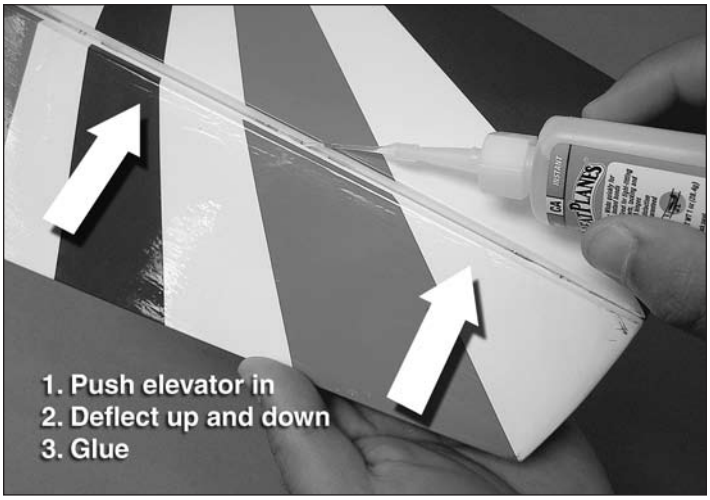
❏ 2. Test fit the six hinges in the horizontal stabilizer so that the slit is perpendicular to the hinge line. The T-pin will keep the hinge from going any deeper into the stab when you fit the elevators.



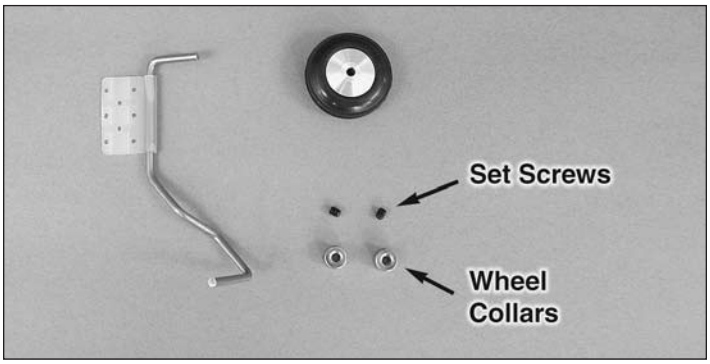
❏ 3. Test fit the two elevators onto the horizontal stab. Align the tip of each elevator with the tip of the stab.



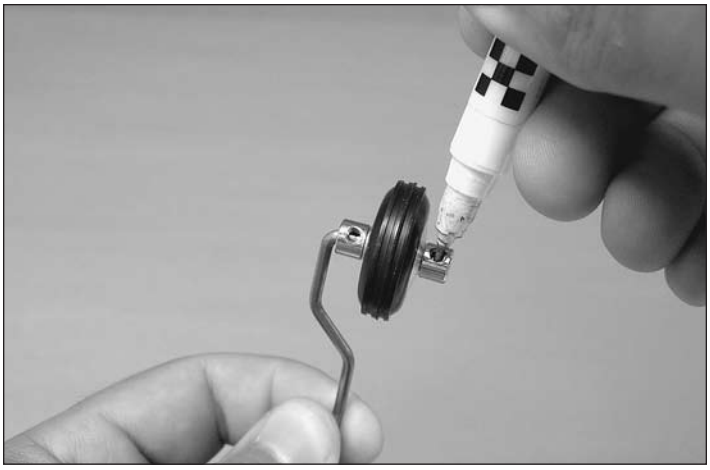
❏ 4. Check to see that the LE of each elevator can touch the TE of the stab. If you are having trouble fitting the hinges, run your hobby knife through the slot backwards so that the dull side of the knife blade digs out the slot.



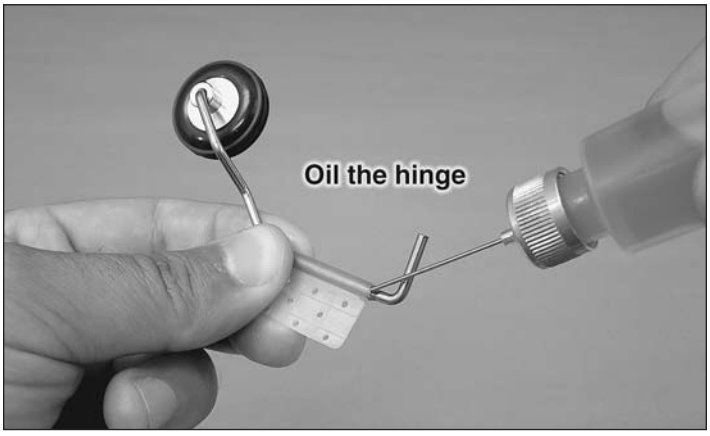
❏ 5. When you're satisfied with the fit of the elevators, remove the T-pins. Deflect each elevator up and down a few times while pushing the elevator up against the hinge line. Apply at least five drops of thin CA to the top and bottom side of each hinge while you hold the control surface at full deflection. Use CA debonder applied to a paper towel to clean up any excess CA. Allow the CA to cure.



❏ 6. Locate the tailwheel wire assembly, two 3/32" [2.4mm] wheel collars, two 4-40 set screws, and the tailwheel.



❏ 7. Fit the wheel collars (without the set screws) and the wheel as shown. Mark the position of the wheel collars on the axle using a felt-tip pen. Remove the wheel collars and the tailwheel and grind flat spots on the axle.

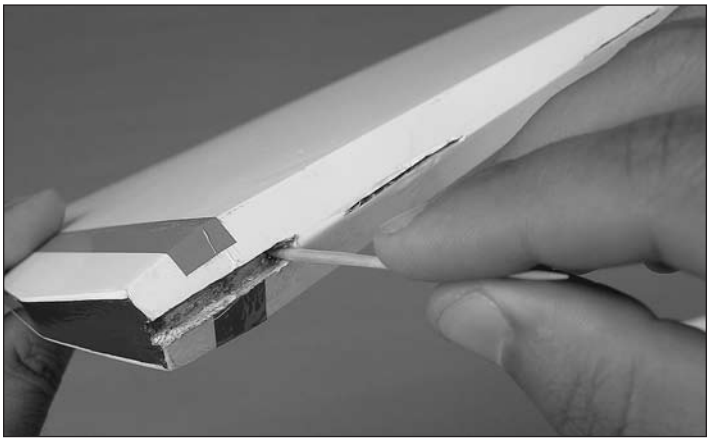


❏ 8. Install the tailwheel using the wheel collars and the 4-40 set screws. Apply thread-locking compound to the set screw threads. Apply a few drops of household oil to the hinge and to the wheel.

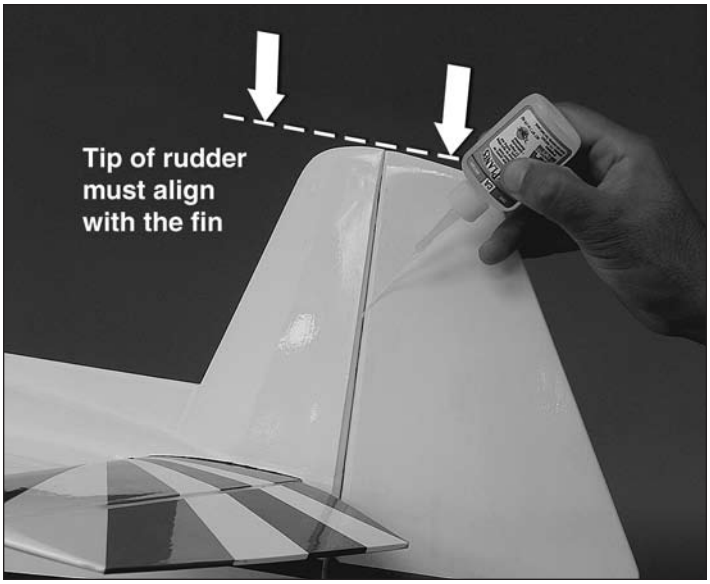
❏ 9. Prepare the three remaining CA hinges with T-pins and fit them to the vertical stabilizer (fin). Fit the tailwheel wire assembly to the base of the fin by sliding the large nylon hinge into the slot in the fin.

❏ 10. With the tailwheel facing aft, test fit the rudder. Check to see that the tailwheel is aligned with the rudder. If the tailwheel needs adjustment, remove the tailwheel assembly and bend the tailwheel wire into position. Remove the rudder and tailwheel assembly. You may leave the hinges in place.

❏ 11. Clean the surface of the nylon hinge strap on the tailwheel assembly with alcohol. Mix up a small batch of 30-minute epoxy. Use a toothpick to apply epoxy into the tailwheel hinge slot on the fuselage. Apply some epoxy to the nylon hinge strap. Fit the tailwheel assembly to the fuselage as in step 9.

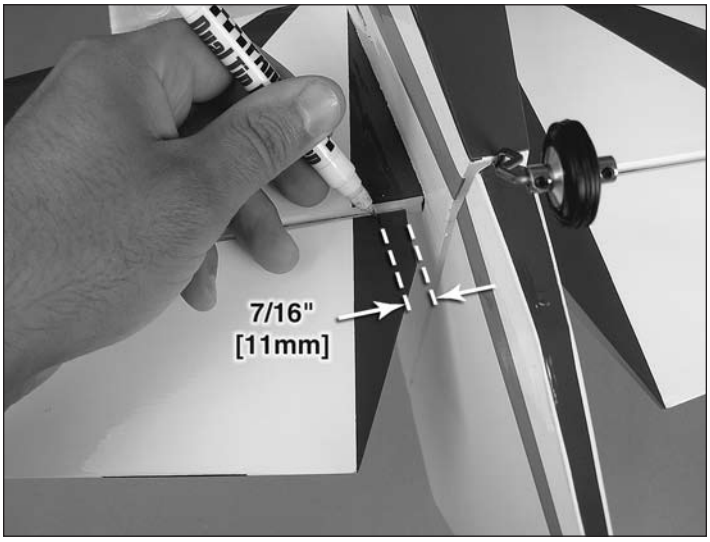


❏ 12. Use a toothpick to apply epoxy in the tailwheel wire hole in the rudder. Fit the rudder first onto the tailwheel wire and then onto the CA hinges.



❏ 13. Align the tip of the rudder with the tip of the vertical stab. Deflect the rudder both directions a few times while pushing the rudder forward into the TE of the vertical stab. Remove the T-pins and apply five drops of thin CA to both sides of each hinge. Clean up any mess with CA debonder and allow the CA to cure.

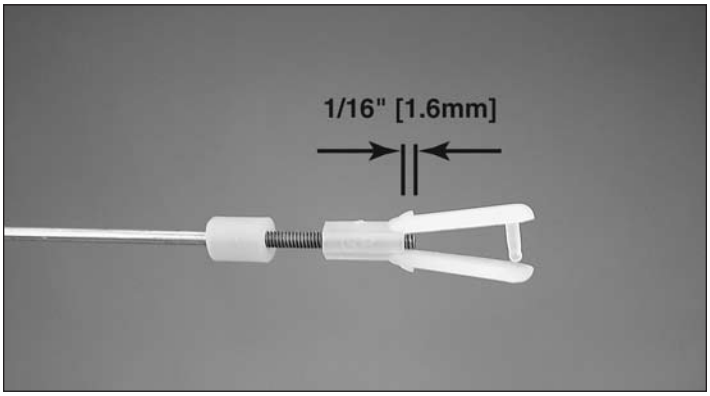
Servo, Pushrod & Control Horn Installation



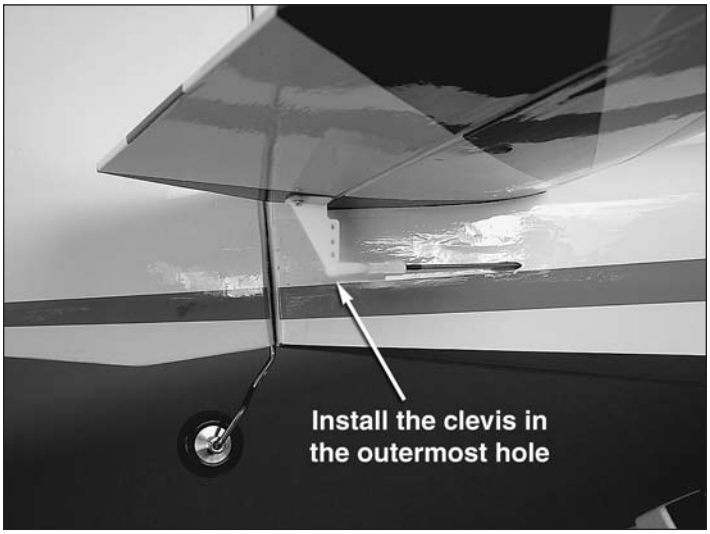
❏ 1. Remove the wings and support the model using your building stand. Measure 7/16" [11mm] from the inboard edge of each elevator and make a mark using a felt-tip pen.

❏ 2. Locate two nylon control horns. Center a horn directly over the mark you made, being careful to position the clevis holes directly above the hinge line. Hold the horn in this position and drill two 3/8" [9.5mm] deep holes using a 1/16" [1.6mm] drill. Be careful not to drill through the elevator completely. Do this for both elevators.

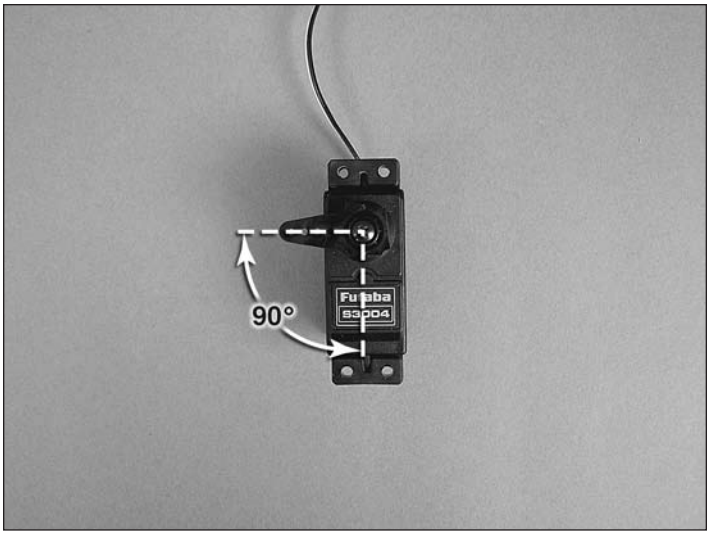
❏ 3. Use four #2 x 3/8" [9.5mm] sheet-metal screws to install the elevator control horns. Remove the horns and carefully wick one drop of thin CA into the screw holes. Allow the CA to cure and then reinstall the horns.



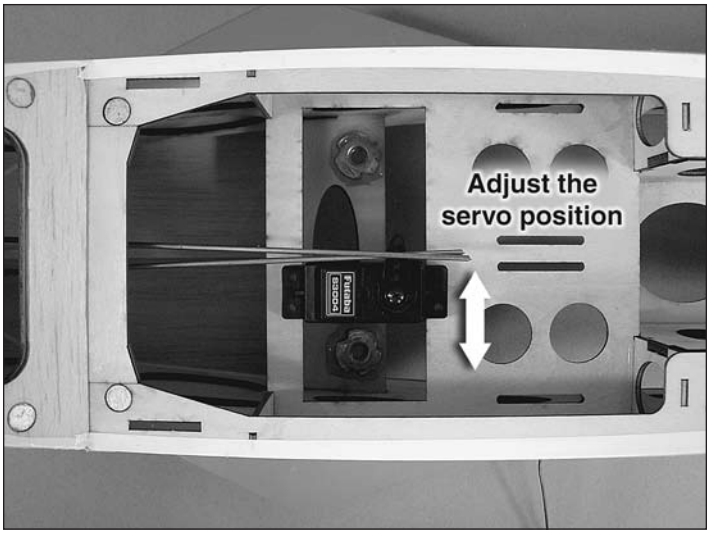
❏ 4. Locate two 2-56 x 36" [914mm] one-end threaded pushrods. Slide a silicone clevis retainer onto each pushrod and thread a nylon clevis on so that at least 1/16" [1.6mm] of thread protrudes past the clevis barrel.



❏ 5. Insert the pushrods into the fuselage through the upper pushrod guide tubes at the aft fuselage and connect them to the outermost hole of each elevator control horn.

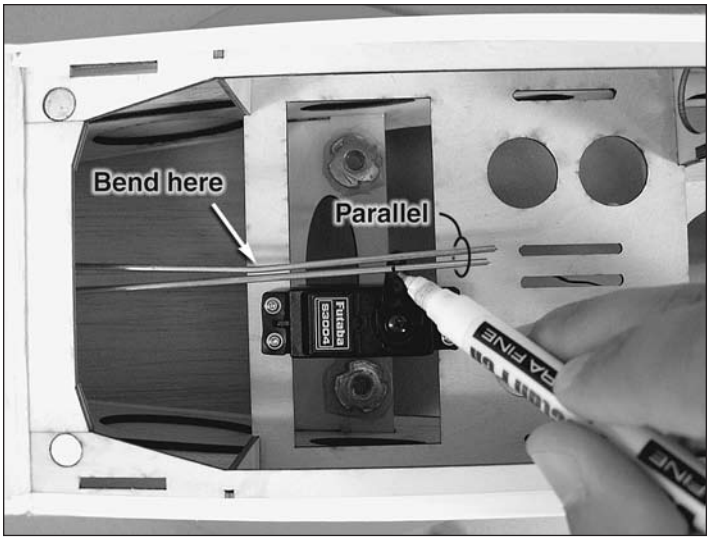


❏ 6. Use your radio to center two servos. Remove the servo arms and set one servo aside for now. Fit a long servo arm to your elevator servo. Choose the spline position that allows one arm to extend from the left side of the servo case perpendicular to the case body. Clip off the remaining three servo arms. Use a #48 drill bit to drill the second to the last hole outboard on the servo arm (about 1/2" [13mm] from the center of the output shaft).

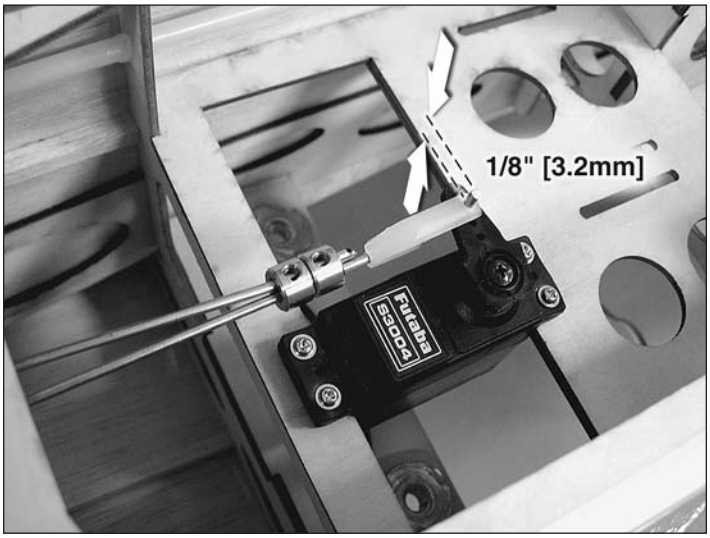


❏ 7. Fit the elevator servo to the fuselage servo tray as shown. Align the servo with the two elevator pushrods so that the pushrods naturally lie over the second to the last outboard hole on the servo arm. Move the servo left or right in the tray to achieve this.

❏ 8. Use a 1/16" [1.6mm] drill bit to drill four holes to mount the elevator servo. Install the elevator servo using the mounting screws that came with your servo. Remove the servo and harden the screw holes with thin CA. Reinstall the servo.

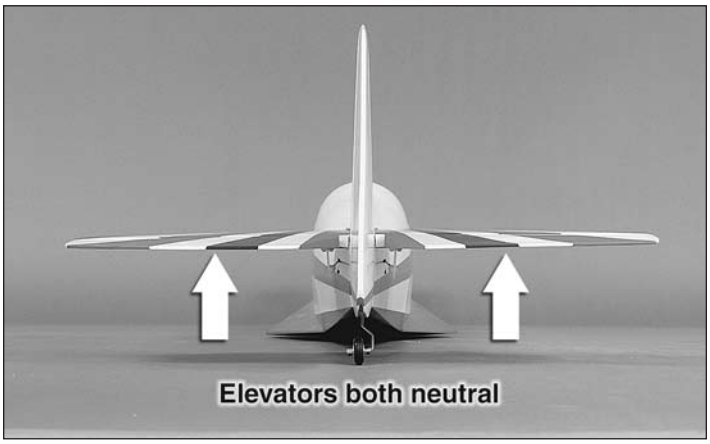


❏ 9. Identify the **left elevator** pushrod and make a gentle bend in it at the point shown so that it is parallel with the other elevator pushrod. Set the **right elevator** at its neutral position (zero degrees deflection) and use a felt-tip pen to mark the point where the pushrod passes over the hole in the servo arm.

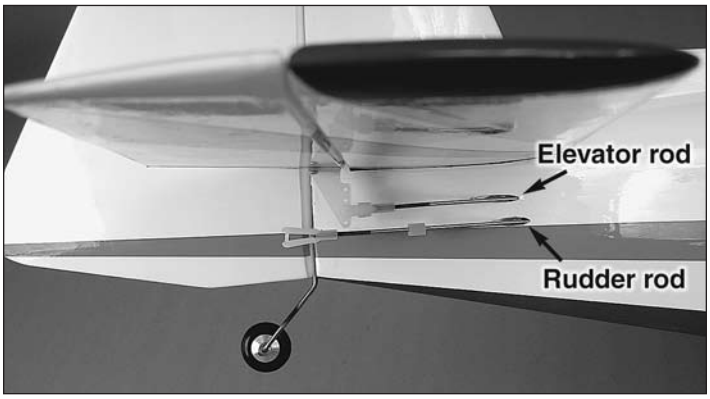


❏ 10. Slide two 5/32" [4mm] wheel collars over both elevator pushrods. Cut the **left elevator** pushrod 1" [25mm] from shallow bend you made in the last step. Use a pair of pliers to bend the other pushrod 90° straight up at the mark that you made at the servo arm. Install the pushrod onto the elevator servo using a nylon **FasLink**™ retainer. Cut off the excess pushrod wire. Cut the wire about 1/8" [3.2mm] from the surface of the nylon finger to ensure that the FasLink stays securely connected. Note: If you removed your servo arm to install the pushrod and FasLink™, make sure you reinstall the servo arm retaining screw.

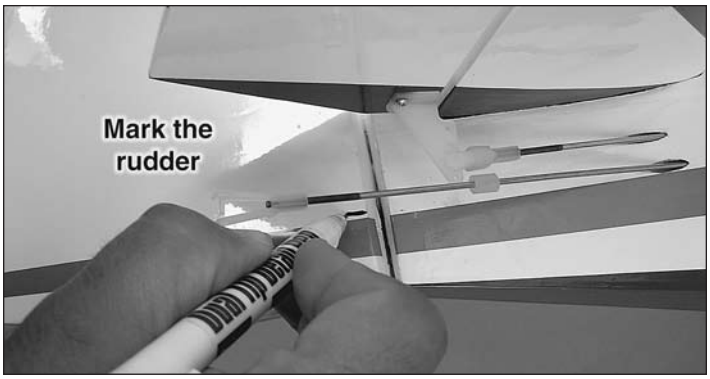
❏ 11. Apply a drop of thread-locking compound to the screws and thread the screws into the wheel collars. Set both elevators at neutral and tighten the wheel collars securely using a hex wrench. Don't worry too much about getting the left and right elevators perfectly aligned to each other at this point. Adjusting the elevators at the clevises will give you a more precise balance.



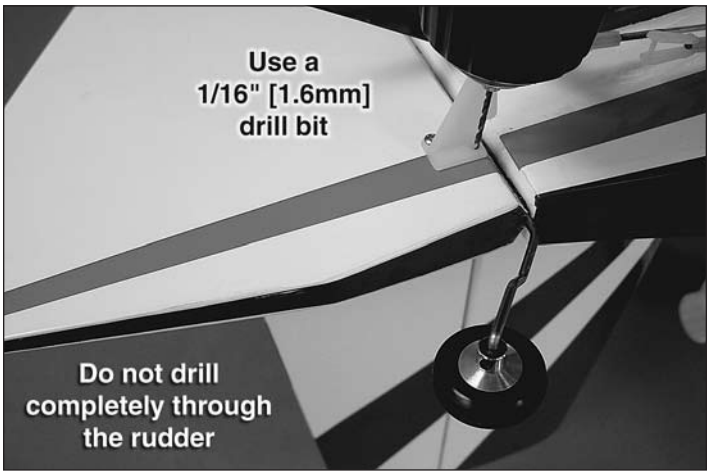
❏ 12. Use your radio to center the elevator servo. Adjust both elevators at the clevises until they are both at neutral throw. Set the fuselage on a table and take a few steps back. As viewed from the rear, both elevators should appear equal. If they're not, adjust the left elevator to match the right elevator.



❏ 13. Locate a 2-56 x 36" [914mm] pushrod. Measure 24" [610mm] from the threaded end and cut off the unthreaded side. Fit a silicone clevis retainer onto the pushrod and thread a clevis onto it so that at least 1/16" [1.6mm] of threads are visible past the clevis barrel. Slide the pushrod into the rudder pushrod guide tube. This is located on the right fuselage side just below the elevator pushrod guide tube.

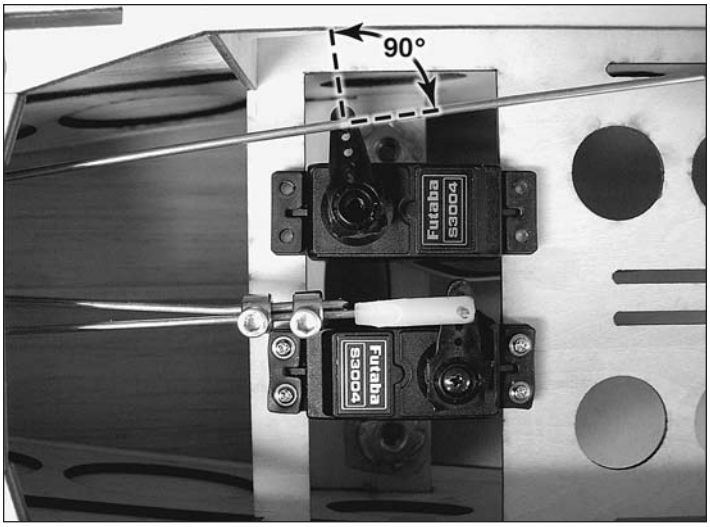


❏ 14. Using the rudder pushrod as a guide, make a mark with a felt-tip pen on the right side of the rudder directly under the pushrod.

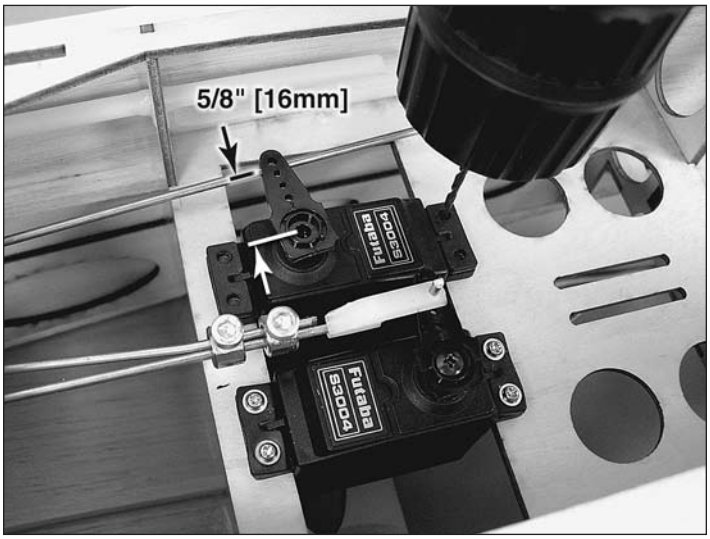


❏ 15. Center a nylon control horn over the mark you made and position it so the clevis holes are directly above the hinge line. Use a 1/16" [1.6mm] drill bit to drill two 1/2" [13mm] deep holes for the control horn. Do not drill completely through the rudder.

❏ 16. Use two #2 x 1/2" [12.7mm] sheet-metal screws to attach the control horn to the rudder. Remove the horn and harden the screw holes with thin CA. Reinstall the control horn and attach the pushrod clevis to the horn.

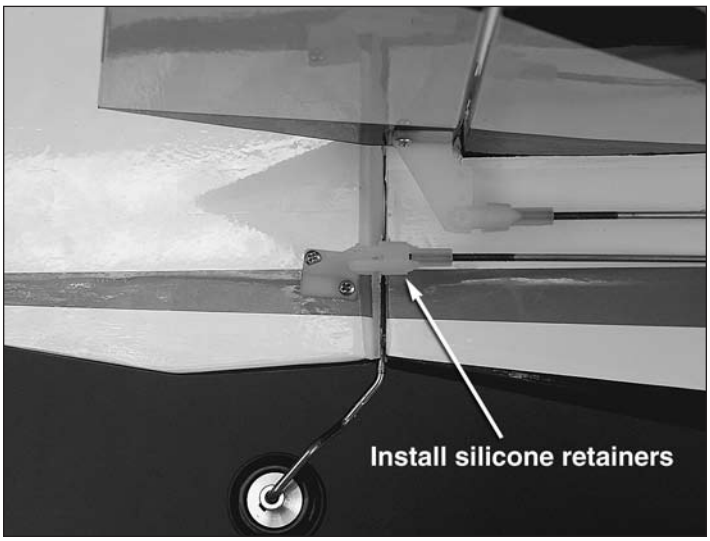


❏ 17. Locate your rudder servo and servo arm that you set aside earlier. If you didn't do so already, center the servo and remove the arm. Set the servo in the servo bay with the output shaft facing aft as shown. Fit the servo arm so that you choose the arm that is 90° to the **pushrod**. Use a #48 drill bit to drill the outermost hole of the servo arm. Cut off the unused servo arms.



❏ 18. Hold the servo in position so that the rudder pushrod is directly in line with the outermost hole of the servo arm or about 5/8" [16mm] from the center of the servo output shaft. Drill four mounting holes using a 1/16" [1.6mm] drill bit. Install the servo using the screws provided with your servo. Remove the servo and harden the holes with thin CA.

❏ 19. Set the rudder at neutral. Mark the rudder pushrod at the servo arm and bend the rod straight up 90°. Attach the pushrod to the servo arm using a nylon FasLink. Secure the servo arm using the attachment screw provided with your servo.

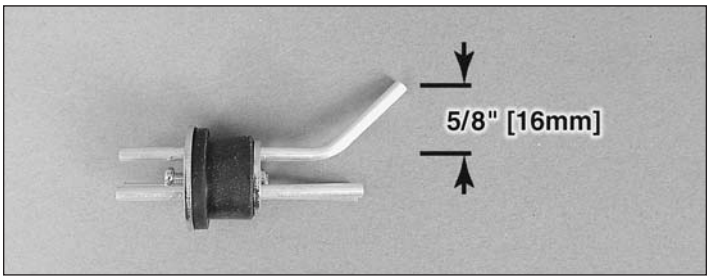


❏ 20. With your rudder servo still centered, adjust the rudder clevis so that the rudder is at neutral throw. When you're satisfied, slide the silicone retainers into position over the clevises for the rudder, elevator, ailerons, and throttle.

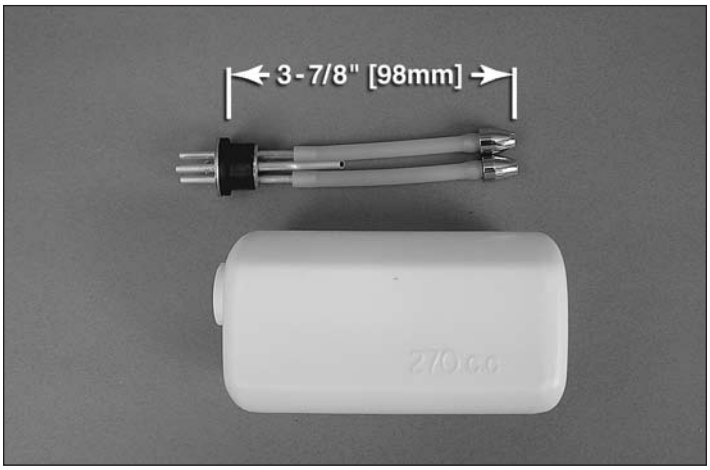
GLOW ENGINE INSTALLATION

This section describes how to install an O.S. FL-70 four-stroke glow engine. Two and four-stroke engine installations are similar with the exception of throttle pushrod location. If you choose to use a two-stroke engine, we recommend using either the O.S. .46 AX or the O.S. .55 AX. When installing an engine other than the ones recommended, choose the throttle pushrod hole in the firewall that best suits your application.

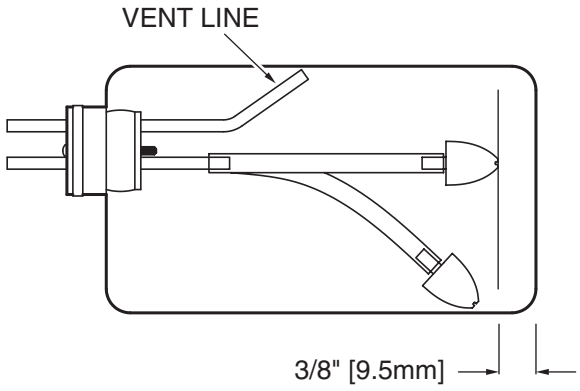
Fuel Tank Installation



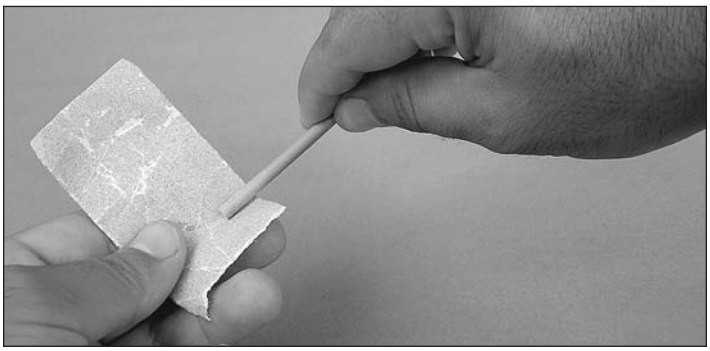
❏ 1. Locate the parts shown for the fuel tank. Assemble the stopper as shown. Install the two shorter aluminum tubes on the bottom and the longer tube on the top. Bend the longer tube up as shown. This will be used as a vent line, so you'll need to bend it up far enough to reach the top of the tank. Install the forward and rear plates and the included screw. Do not tighten the screw yet.



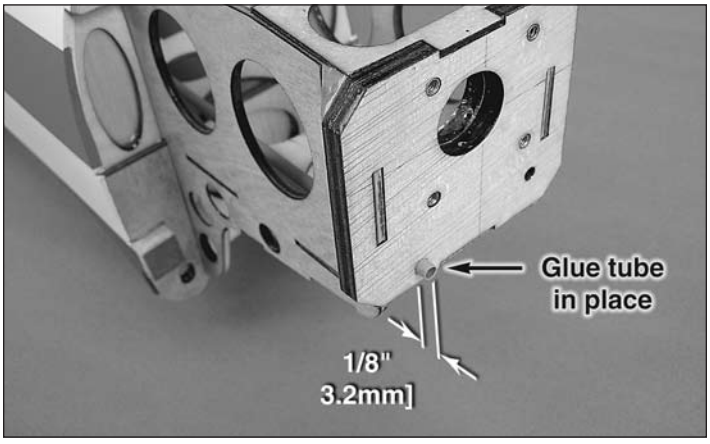
❏ 2. Cut two pieces of fuel line (GPMQ4131) long enough to achieve the length shown in the photo above. This will position the two fuel clunks so that they are 3/8" [9.5mm] from the back of the tank. Note: It is important to allow enough space for the clunk to move freely. If the clunk binds it can get stuck and draw air, so please be careful.



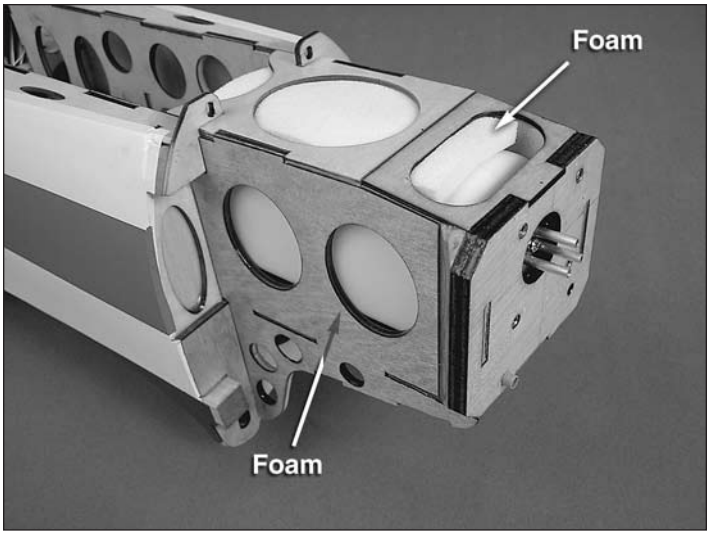
❏ 3. Carefully install the stopper into the tank so that the vent line points up to the top of the tank. You may need to adjust the bend of the line so it reaches the top of the tank. A small amount of clearance is desirable. When the stopper is fully installed, tighten the screw to seal the stopper. Note: Be careful when installing the stopper. Putting too much pressure on the fuel line can cause the aluminum tube to cut a pinhole in the silicone line inside the tank. This will result in a poor running engine and possibly a dead-stick landing.



❏ 4. Locate the plastic pushrod tube supplied with this kit. Cut a section 8" [203mm] long. Sand the last 1/2" [13mm] of the tube's outer surface. This helps it to stick to the firewall.

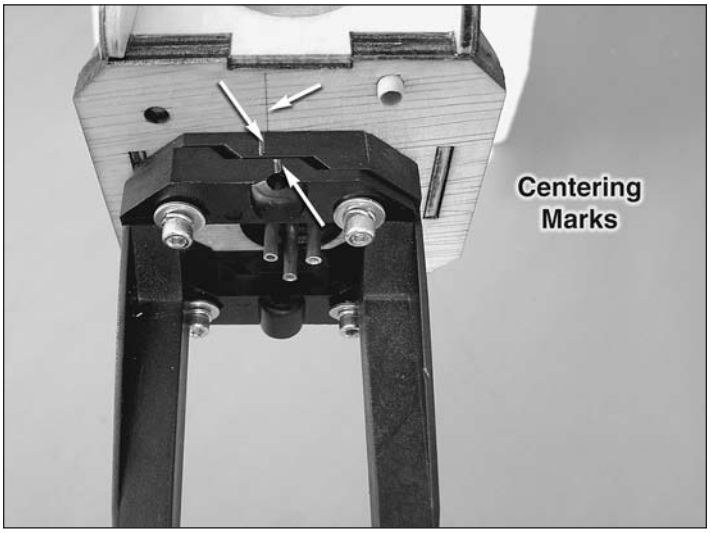


❏ 5. Based on the location of the throttle arm on your particular engine, choose a throttle pushrod hole. Fit this in the firewall hole you chose and slide it back until 1/8" [3.2mm] of the tube protrudes out past the front of the firewall. Don't worry about an exact fit inside the fuselage at this time. You will trim the tube to the proper length after the throttle servo is installed. Use 5-minute epoxy to glue the tube to the firewall.

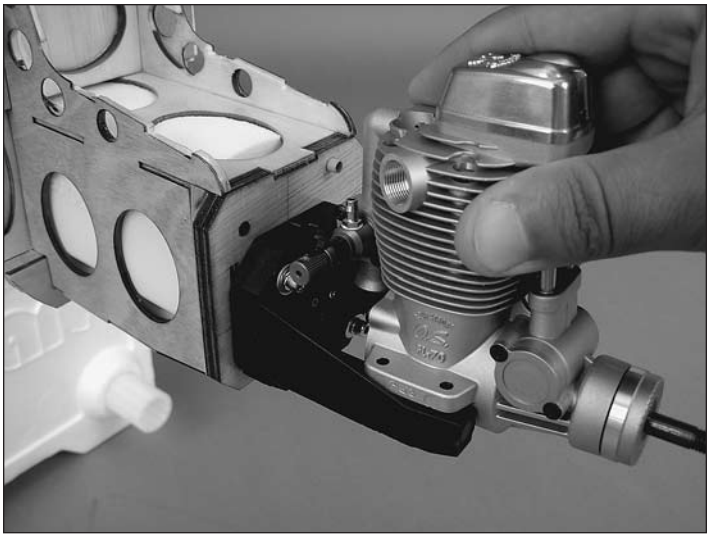


❏ 6. Cut out two 1-3/4" x 4" [44mm x 102mm] pieces of 1/4" [6.4mm] thick latex foam rubber. Install the fuel tank with one piece above the tank and one below the tank. Make sure that the tank is fully forward and that the foam rubber is positioned correctly and not bunched up. Note: A specially cut piece of wood will retain the fuel tank, but we will install that after the throttle servo is installed.

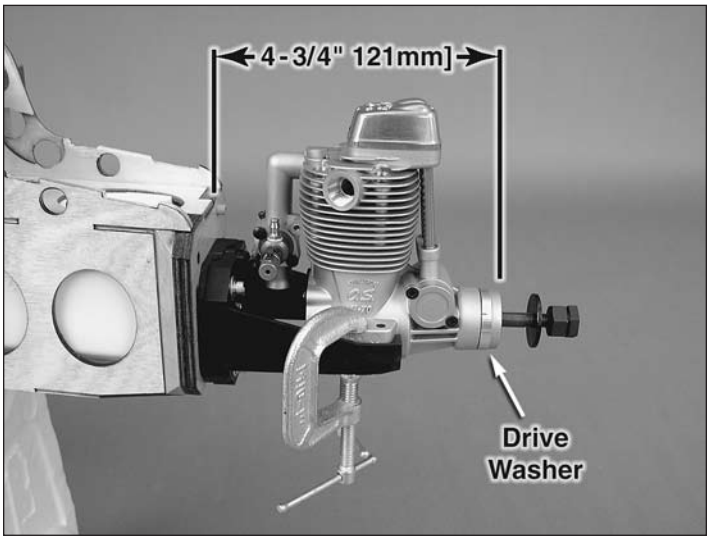
Mount the Engine



❏ 1. Locate four 6-32 x 1" [25.4mm] socket head cap screws, four #6 flat washers, and four #6 lock washers. Turn the fuselage over and loosely fit the engine mount to the firewall using this hardware. Notice that there are centering marks molded into each half of the engine mount and that there are centering marks also on the firewall. Use thread-locking compound on the screw threads.

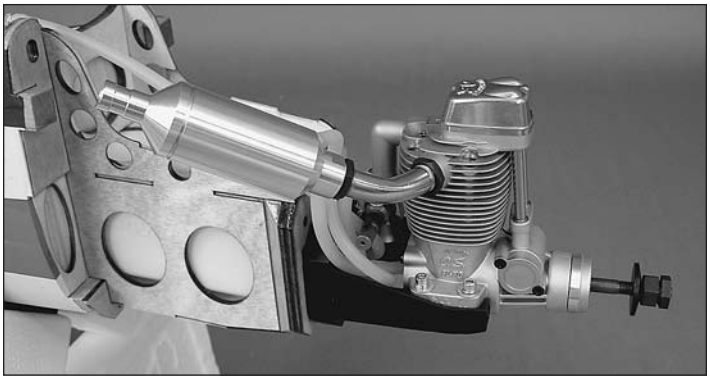


❏ 2. Fit the engine to the mount and adjust the width of the engine mount halves. Set the engine aside and center the engine mount to the vertical firewall centering marks. When you're satisfied with the position of the mount, tighten the four engine mount screws.



❏ 3. Fit the engine to the mount and measure the distance from the face of the firewall to the engine's drive washer. Adjust the position of the engine fore and aft until the drive washer is 4-3/4" [121mm] from the firewall. Clamp the engine to the mount in this position using a pair of steel 1" [25mm] C-clamps.

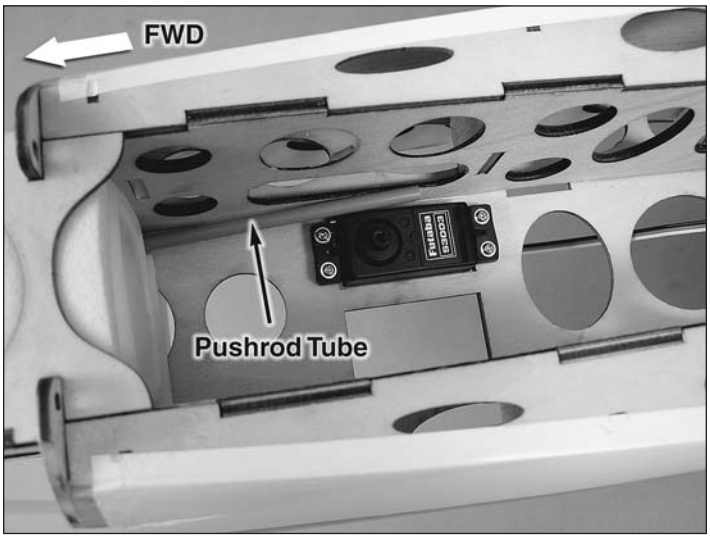
❑ 4. With the engine still in place, mark the four mounting holes using a pencil or a Great Planes Dead Center™ Engine Mount Hole Locator (GPMR8130) to find the center of each hole. Remove the engine from the mount and use a #36 drill bit to drill four holes completely through the mount. Tap the holes using a Great Planes 6-32 tap and drill set (GPMR8102).



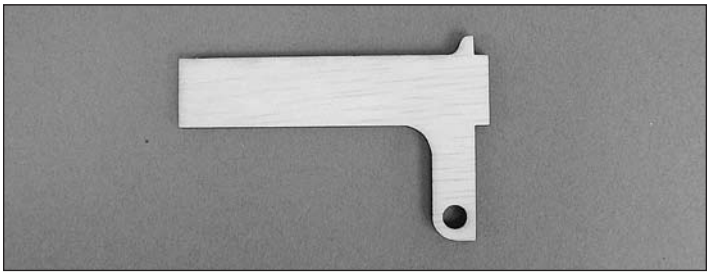
❑ 5. Install three pieces of medium-sized (standard) silicone fuel line to your fuel tank lines (GPMQ4131). Install the engine to the mount using four 6-32 x 3/4" [19.1mm] SHCS, four #6 flat washers, and four #6 lock washers. Connect your fuel feed line to the carburetor and the tank's pressure line to the muffler. Trim the fuel lines to the proper length, but leave the tank pressure line a little long until you position the muffler later.

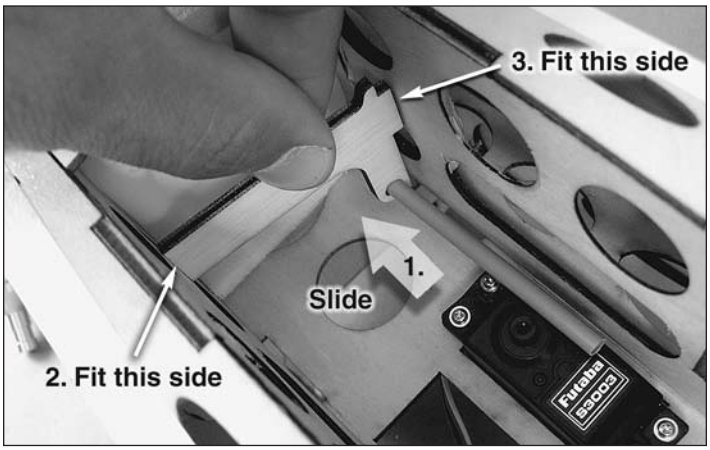
❑ 6. Connect a fuel line plug (fuel dot) to the fill line. Leave this line about 9" [229mm] long. It will need to exit the cowl out of the cooling air hole in the bottom of the cowl.

Rig the Throttle

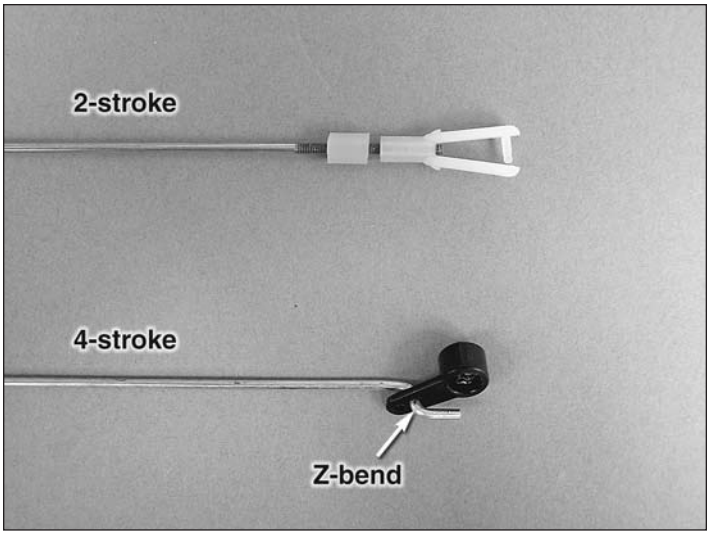


❑ 1. Depending on the side you installed the throttle pushrod tube on, fit your throttle servo in the forward tray as shown. Drill four holes using a 1/16" [1.6mm] drill bit. Screw the servo to the tray with the servo's output shaft facing forward as shown. Harden the screw holes with thin CA.

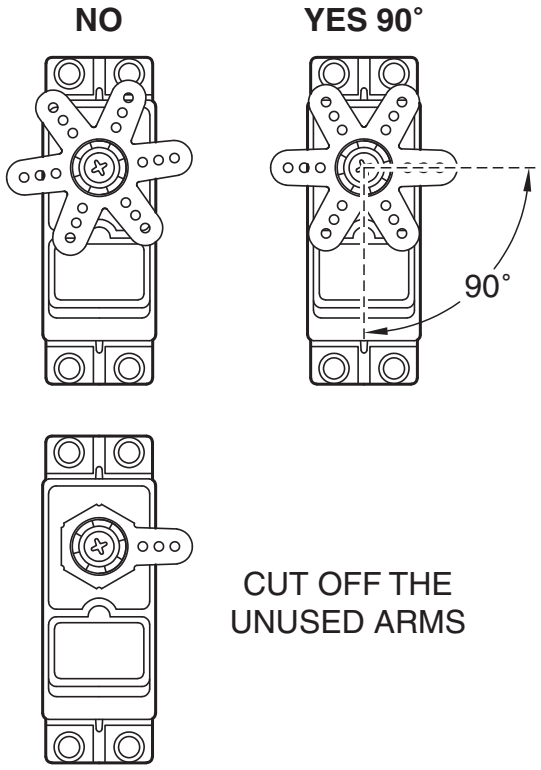




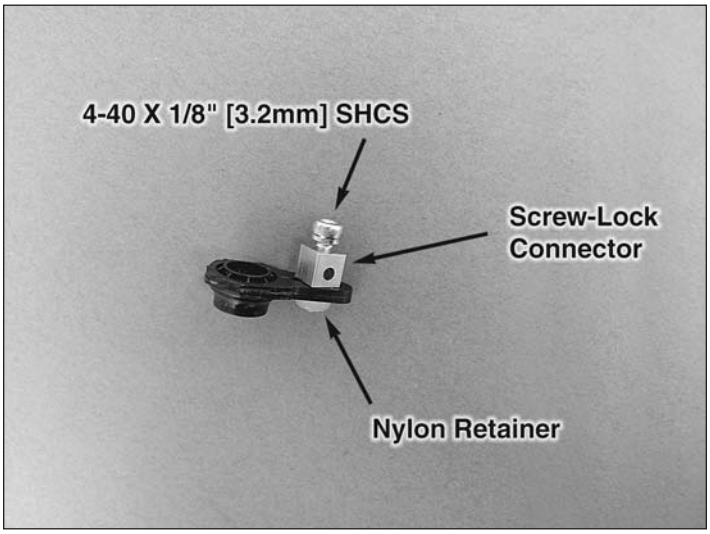
❑ 2. Dry-fit the fuel tank mounting stick. Slide the mounting stick onto the throttle pushrod tube first and then into the slots in the fuselage. The side of the stick opposite the pushrod support goes in first. Place a small piece of foam rubber between the stick and the fuel tank if you wish. Cut the plastic pushrod support tube about 1/2" [13mm] aft of the mounting stick. Glue the fuel tank mounting stick in place with a drop of medium CA on each side of the stick. If you need to remove the fuel tank later, use CA debonder (GPMR6039) to dissolve the glue and remove the stick.



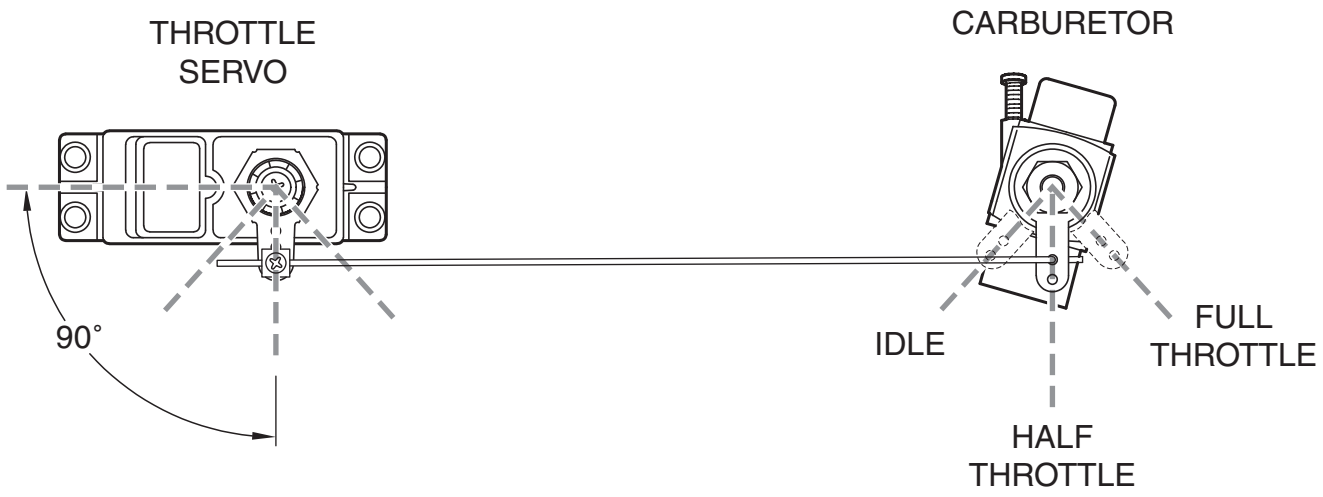
❏ 3. Locate a 2-56 x 36" threaded pushrod, one nylon clevis, and one silicone retainer. If you are using a two-stroke engine, position the silicone retainer on the pushrod and thread the clevis onto the pushrod so that at least 1/16" [1.6mm] of thread is visible past the barrel of the clevis. If you are using a four-stroke engine with the carburetor mounted near the firewall, you will need to make a Z-bend in the unthreaded end of the wire. Use a pair of pliers or a set of Hobbico Z-bend pliers (HCAR2000) to do this. Remove the engine's throttle arm and fit it to the pushrod.



❏ 4. Apply thread-locking compound to the throttle arm screw and install the throttle arm. Slide the pushrod into the pushrod tube and attach the throttle arm to the carburetor. If your throttle arm included a lock washer, don't forget to install it too. Note: You may have to bend the pushrod slightly to get it to line up with the throttle arm.



❏ 5. Fit a short servo arm to your throttle servo. Use your radio to determine where to position the arm on the splined output shaft. Pick the arm that will be 90° to the servo case side when your throttle stick is exactly centered (half-throttle). Cut off the remaining arms. Fit a screw-lock pushrod connector to the arm and use a nylon retainer to secure it. Partially thread a 4-40 x 1/8" [3.2mm] SHCS into the pushrod connector.



❏ 6. Use your radio to set the servo to full throttle (you may have to reverse the travel direction of your servo). Install the servo arm onto the pushrod and then onto the splined servo shaft. Position the throttle arm (on the carb) to full throttle and then tighten the set screw at the servo arm. Test the operation of your throttle linkage. With the throttle at half throttle, the throttle arm should be 90° to the thrust line and the servo arm should be 90° to the servo case. You may need to set your radio's sub-trim and end-points to fine-tune the idle and full-throttle positions. Don't forget to install the servo arm retaining screw and be sure to use thread-locking compound on the screw-lock pushrod connector set screw.

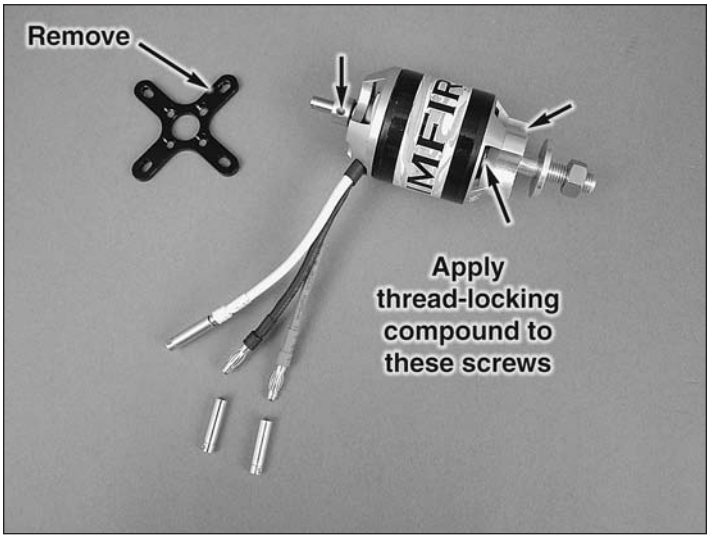
Double check your engine and throttle installation. When you're satisfied, proceed to the section titled: *Final Assembly*.

ELECTRIC MOTOR INSTALLATION

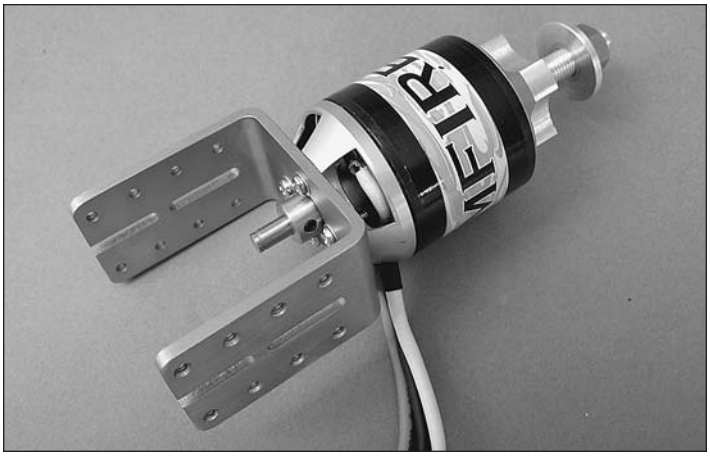
This section will cover the installation of the ElectriFly RimFire .55 (42-60-480) motor. The motor, prop, ESC, and battery combination listed was tested extensively and performs very well. You can expect a brisk flying pace and better than average aerobatic performance as well as flight times of about 8 to 10 minutes depending on your flying style. Other motors may be used, but some modifications may be necessary.

This setup uses a 6S LiPo battery setup. That means that you will have to use two 3-cell LiPo packs to make a 6S or 6 cells in series. The Great Planes series connector (GPMM3143) is used to connect the two batteries in series. Please refer to the **Battery Precautions** on page 33 and the **Electric Motor Option & Required Parts** section on page 4 for the power system parts required.

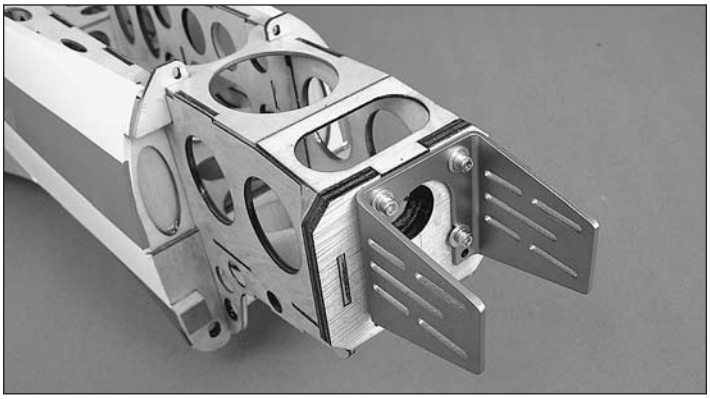
Mount the Motor & ESC



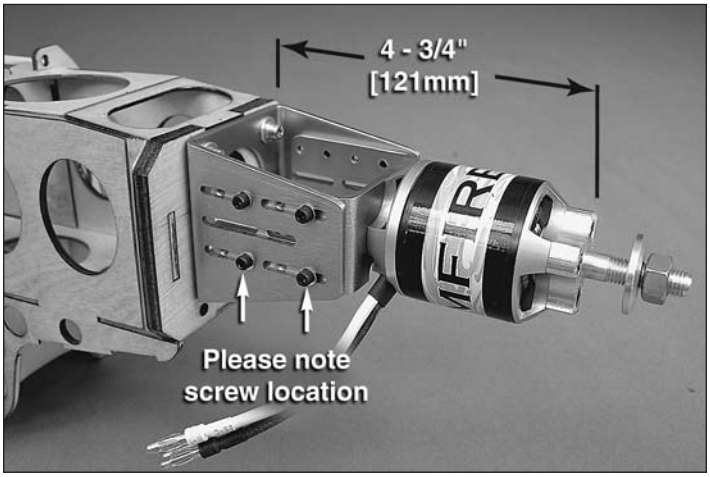
❏ 1. Remove the x-mount from the back of your motor. Remove the set screws from the locations shown in the picture and reinstall them using a drop of thread-locking compound on the screw threads. Install the prop adapter using thread-locking compound on the four screws. If you have a new motor, remove the female bullet connectors.



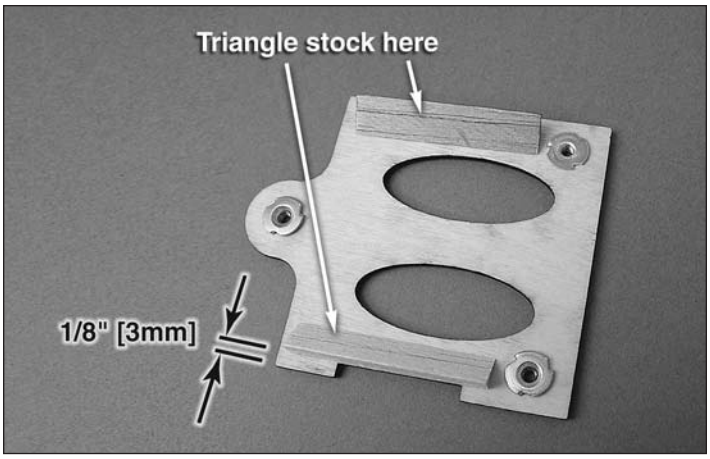
❏ 2. To mount the required RimFire brushless motor, you will need to purchase a Great Planes medium motor mount (GPMG1255). Disassemble your motor mount and set aside the pieces. Attach your motor to the forward frame of the mount using the four 3mm x 10mm pan-head screws supplied with the motor mount set. Apply thread-locking compound to all screws.



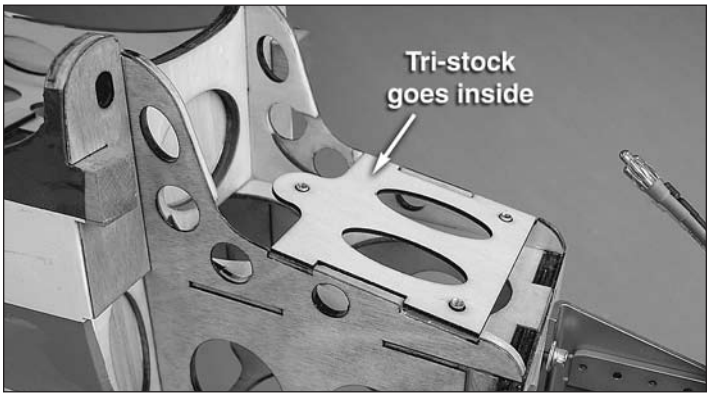
❏ 3. Bolt the rear frame of the motor mount to the firewall as shown using four 6-32 x 3/4" [19.1mm] SHCS bolts, four #6 lock washers, and four #6 washers. Use a drop of thread locking compound on the screw threads.



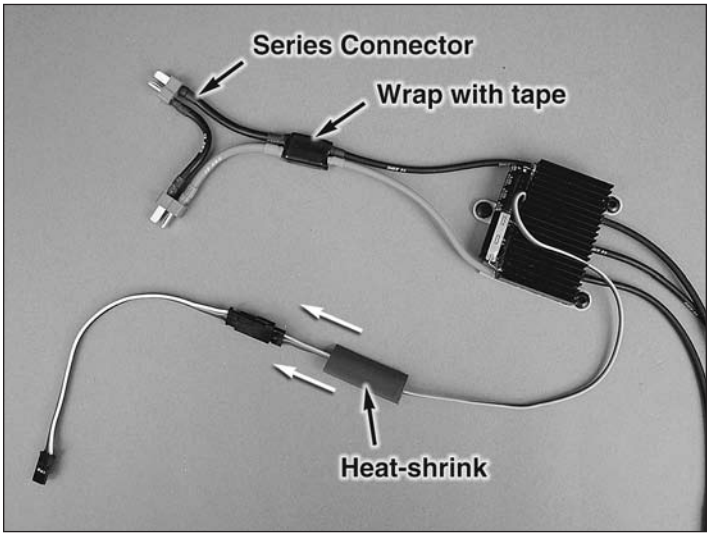
❏ 4. Install the front frame and motor assembly as shown. Position the motor and frame so that the motor measures 4-3/4" [121mm] from the knurled drive washer portion of the motor to the firewall. Install the eight bolts in the locations shown. Be sure to use washers under the heads of the bolts and a drop of thread-locking compound on all screw threads.



❏ 5. Locate the wood ESC tray. Press three 4-40 blind nuts into the holes as shown. Locate the two 40mm pieces of triangle stock. Mix up some 5-minute epoxy and glue the triangle stock to the ESC tray as shown. Proceed immediately to the next step before the epoxy sets.

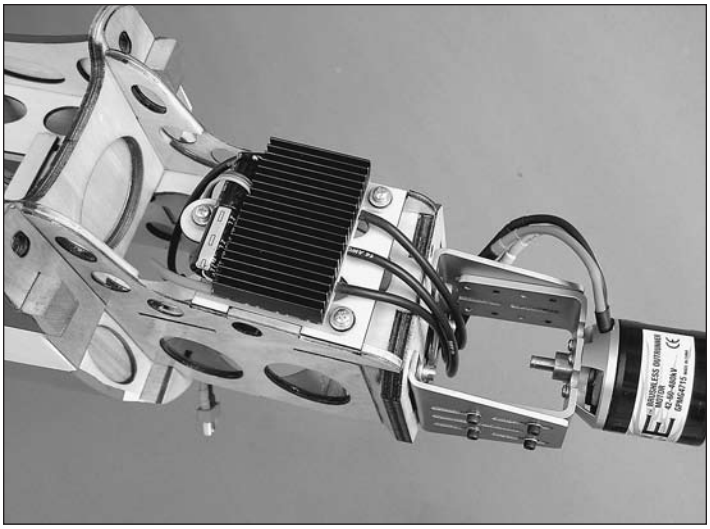


❏ 6. Turn the fuselage over and glue the ESC tray in place as shown.



❏ 7. Plug a Great Planes series connector into your ESC. Wrap the connection with electrical tape. Connect a 6" [152mm] servo lead extension (HCAM2701) to the ESC

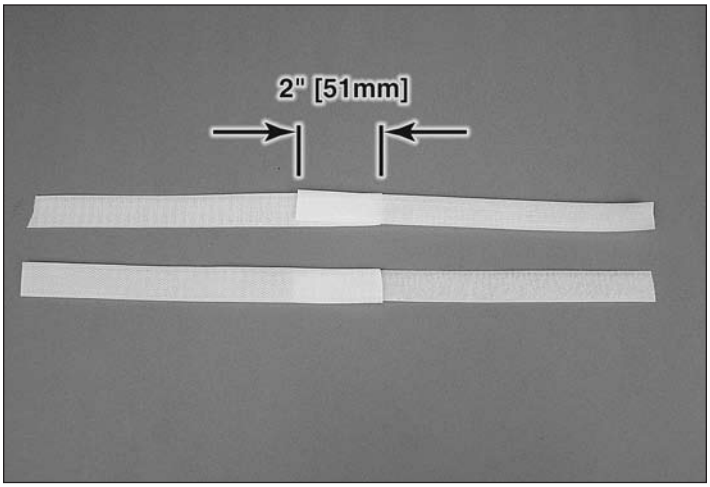
signal lead. Be sure to match the orange wire on the ESC lead to the white wire on the extension. Use a piece of 3/8" [9.5mm] heat shrink tubing (not included) to secure the extension to the ESC lead.



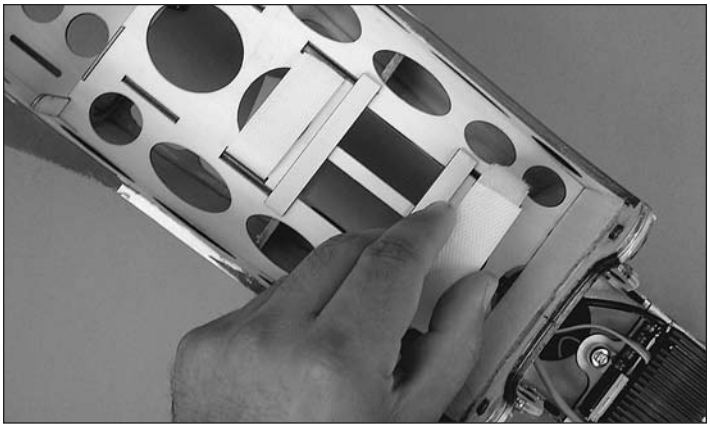
❏ 8. Install the ESC using three 4-40 x 3/8" [9.5mm] machine screws with three #4 flat washers. Apply a drop of thread-locking compound to the screw threads. Route the battery leads and the ESC signal lead into the fuselage. Connect the motor leads to the ESC.

Mount the Batteries

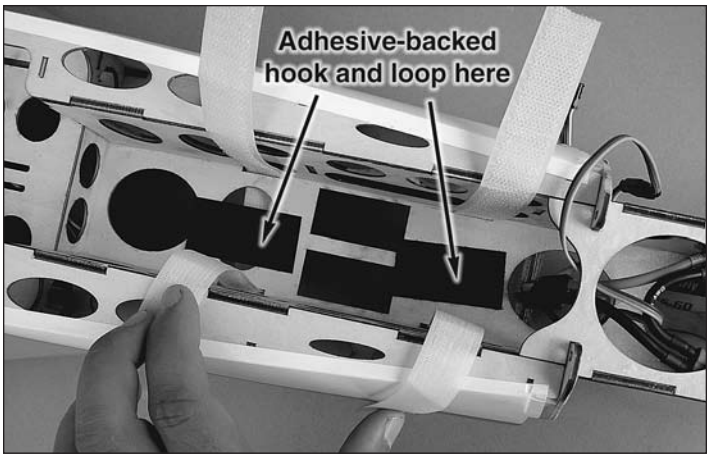
IMPORTANT: Before experimenting with different battery combinations and connecting multiple battery packs with adapter plugs, refer to the **Battery Precautions** on page 33.



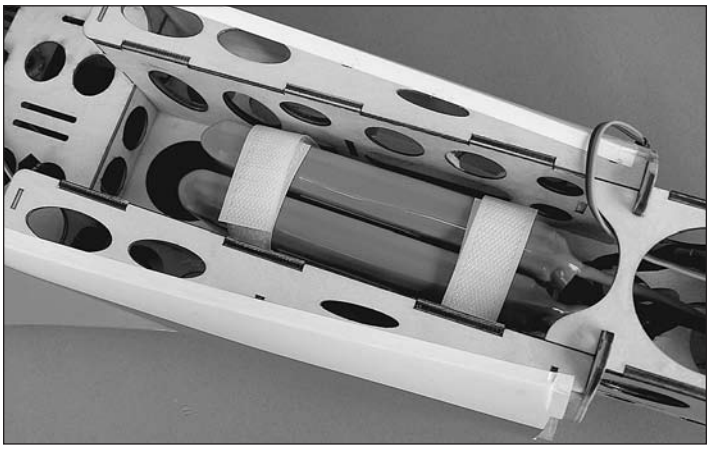
❏ 1. Locate the two 8" [203mm] strips of non-adhesive backed hook-and-loop material. Separate the hook side from the loop side. Join the hook side to the loop side so that there is a 2" [51mm] overlap. Make two straps like this.



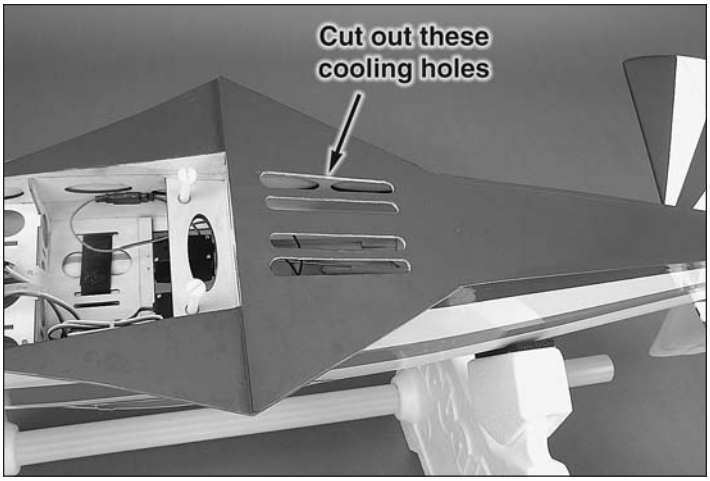
❏ 2. Install the strap from the bottom of the fuselage. If you want, you can use medium CA to glue these to the underside of the battery tray.



❏ 3. Turn the model over. Mix up a small batch of 5-minute epoxy and brush a thin coat onto the battery tray floor to help the hook-and-loop material stick. Allow the epoxy to cure. Locate the 4" [102mm] piece of adhesive backed hook-and-loop material and cut it in half so that you have two 2" [51mm] pieces. Separate the hook side from the loop side and stick the hook side (coarse side) to your battery tray as shown. The loop side (fuzzy side) will be used later on your battery packs later when you balance (C.G.) the airplane. This will keep them from sliding fore and aft when you're flying.



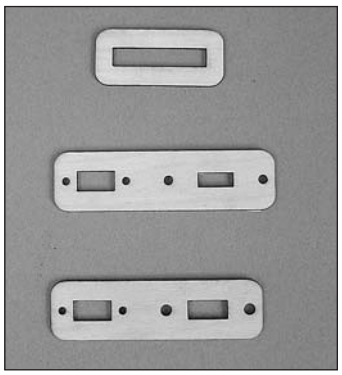
❏ 4. Test fit your LiPo battery packs and trim the straps down to size.



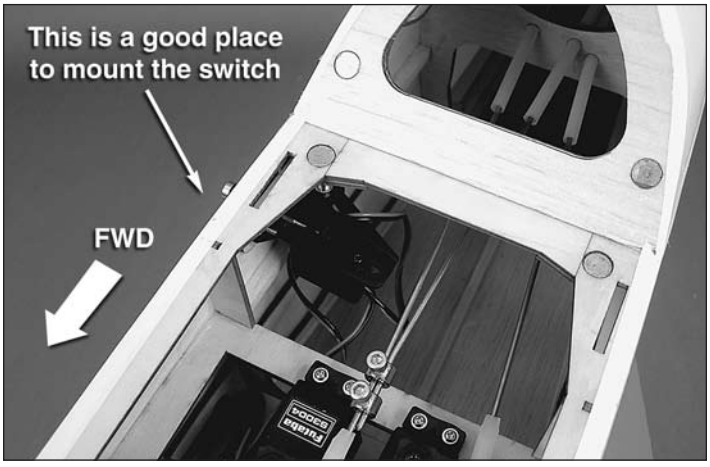
❏ 5. The electric setup requires additional cooling through the battery compartment. Turn your model over and trim away the covering from the cooling holes in the sheeting of the fuselage just behind the trailing edge of the wing. There are four holes.

FINAL ASSEMBLY

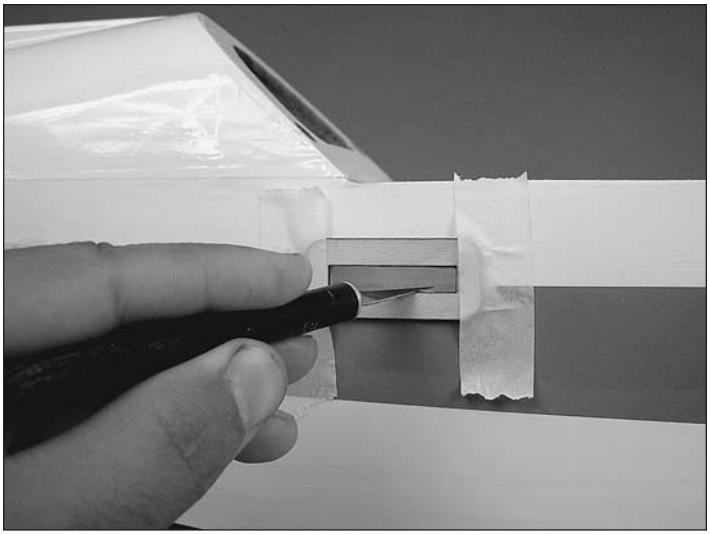
Radio Installation



❏ 1. Locate the switch and charge jack plates shown here. Three options are provided for you depending on the type of switch and charge jack you choose.

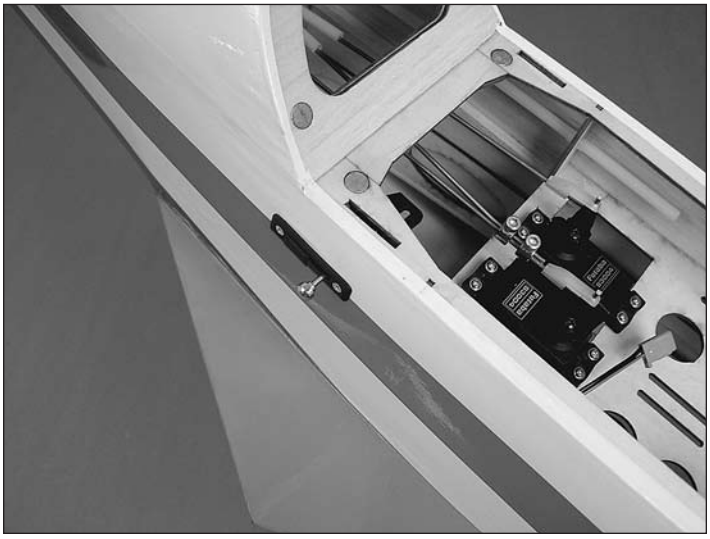


❏ 2. Choose a place to mount your switch and charge jack that will not interfere with the servos or radio gear. We chose to use the Great Planes Switch & Charge Jack Mounting Set (GPMM1000). A good place to mount this is on the right hand side of the fuselage to the right of the elevator servo.

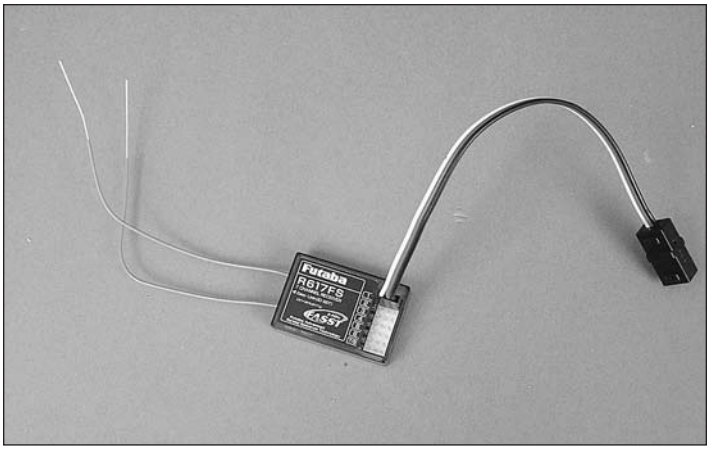


❏ 3. Tape the mounting plate to the fuselage side and use it as a template to cut the holes with your hobby knife.

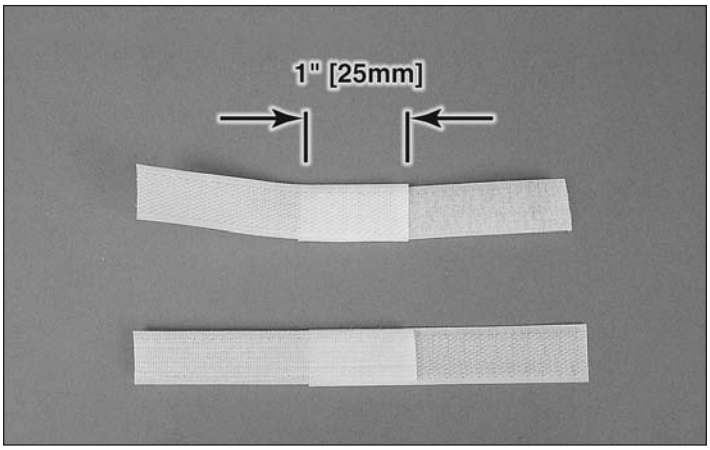
❏ 4. Glue the wooden mounting plate to the inside of the fuselage aligning it with the holes you just made.



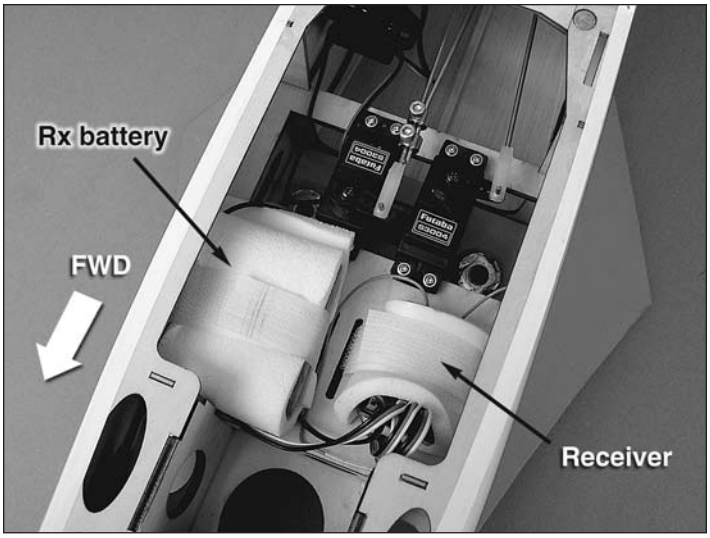
❏ 5. Install the switch and the charge connector to the mount and install the mount to the fuselage.



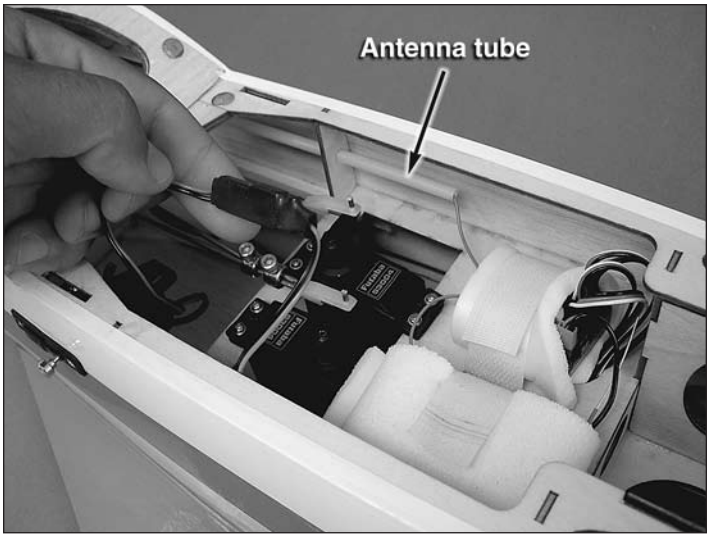
❏ 6. Plug a 6" [152mm] Y-harness (FUTM4130) into the aileron channel on your receiver.



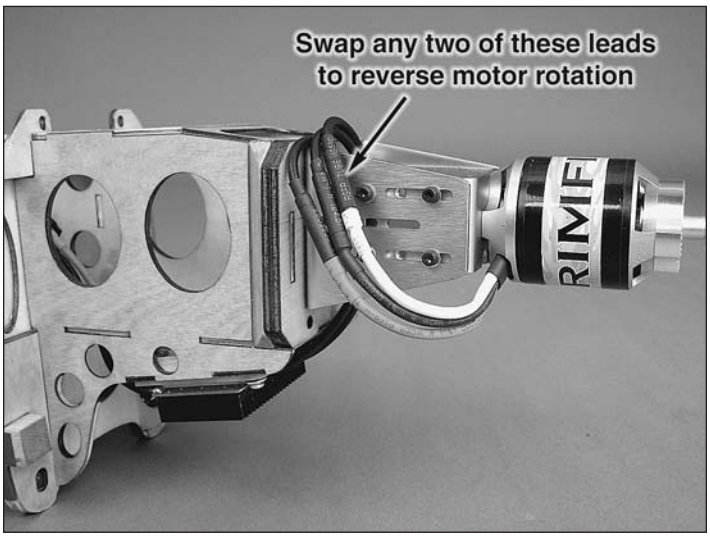
❏ 7. Locate the two 4-1/2" [114mm] strips of non-adhesive backed hook-and-loop material. Separate the hook side from the loop side and make two straps to hold down your receiver and battery. Overlap the two sides by 1" [25mm] as shown.



❏ 8. Plug your elevator, throttle (or ESC if electric), and rudder servos into the receiver in their appropriate channels. Plug in the battery switch lead. Wrap the receiver and battery in 1/4" [6.4mm] thick latex foam rubber (not included) to protect them from shock and vibration. Strap them to the radio tray as shown.



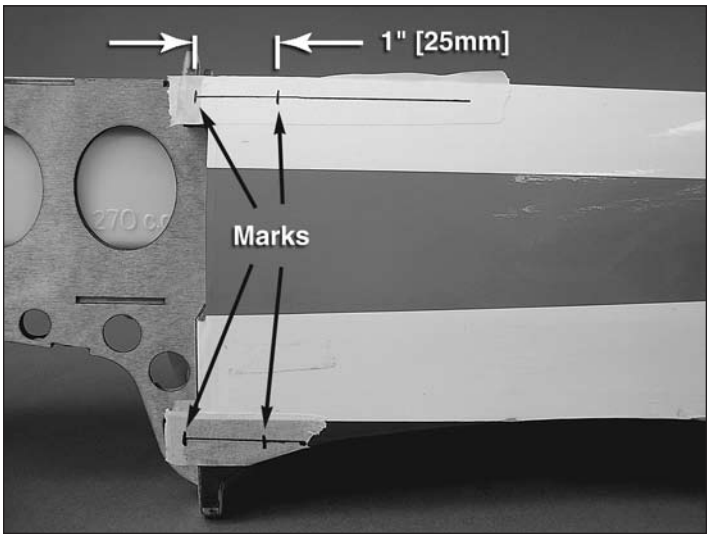
❏ 9. Connect the receiver battery to the switch harness and the harness to the receiver. Use a piece of heat shrink tubing to secure the receiver battery to the switch harness. If you are using a 72MHz receiver, route the antenna through the antenna tube shown. You may have to trim the covering at the rear left fuselage side to fully extend your antenna.



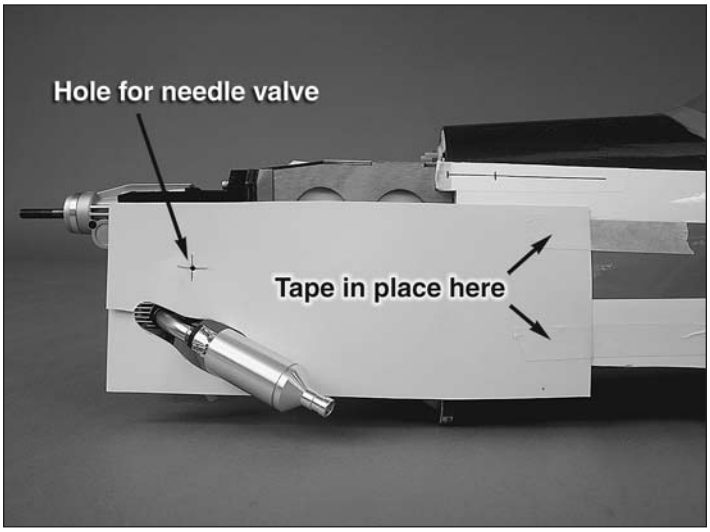
❏ 10. If you have set up your model with an electric motor, please follow this step. Read the *Lithium Battery Handling & Usage* section and the *Battery Precautions* section in this manual before proceeding with this step. If you are using a Futaba radio system, use the servo reversing feature to reverse your throttle channel (channel 3) in your transmitter. With your radio system on, plug in your LiPo batteries and test the motor. If the motor rotates backwards (clockwise), reverse any two of the motor leads.

Cowl Installation

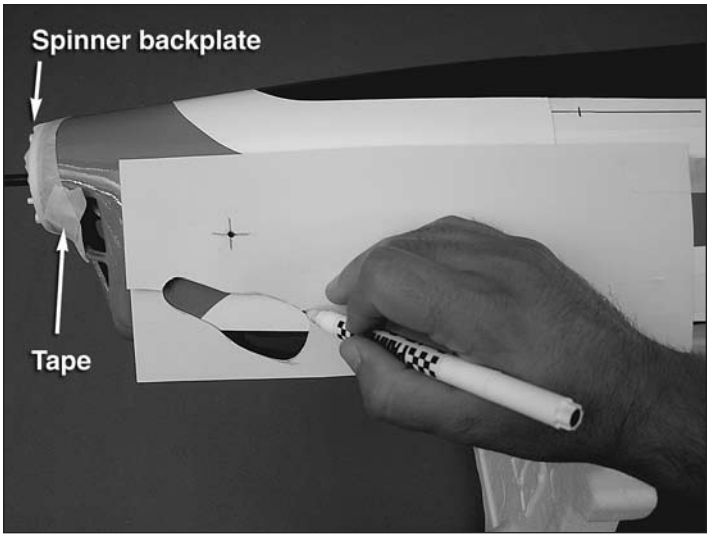
Several spots must be trimmed out on the cowl if using a glow engine. If you're using the electric motor, no trimming is necessary.



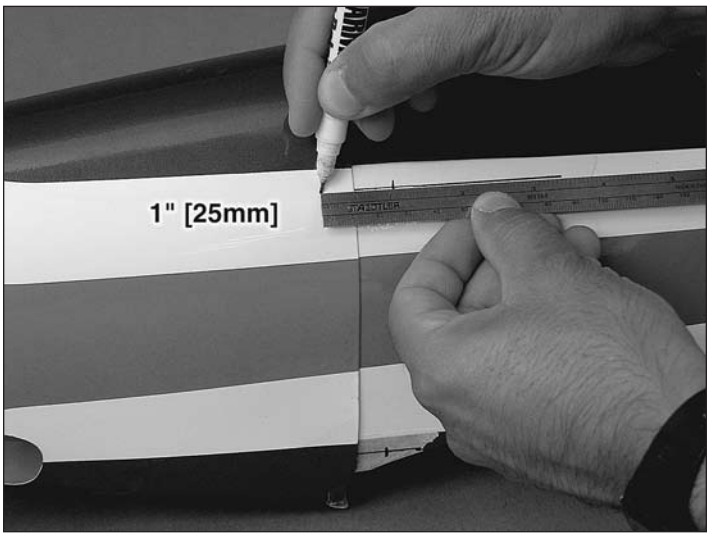
❏ 1. Cut four pieces of masking tape about 4" [102mm] long. Apply the tape to the fuselage in the locations shown (two per side) so that they are centered with the hardwood cowl mounting blocks. Using a ruler, draw a line from the center of the block back as far as you can. Make a vertical mark at the center of each cowl mounting block. Measure 1" [25mm] back and make a second vertical mark.



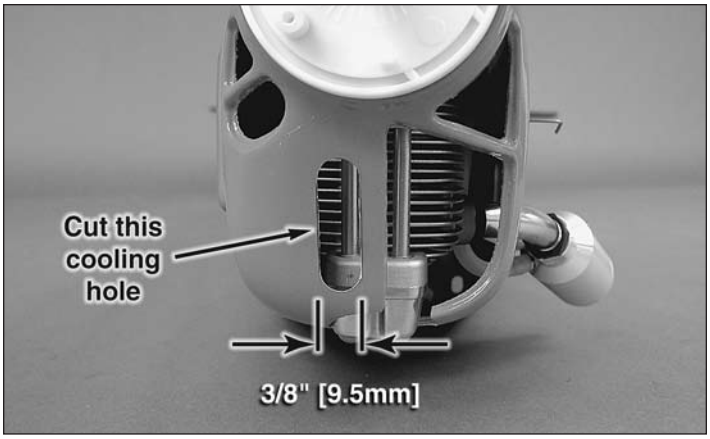
❏ 2. Cut several pieces of card stock to shape to use as cowl trimming templates for the cylinder head, needle valve, glow plug, and muffler. Tape each piece to the fuselage aft of where the edge of the cowl will be. Trim holes in the card stock to clear any parts that will interfere with the cowl.



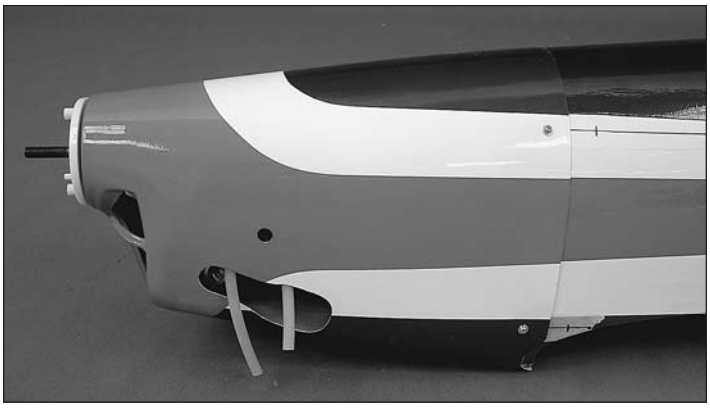
❏ 3. Fit the canopy and hatch assembly to the fuselage. Remove your muffler or anything that will interfere with the cowl. Fit the cowl. Fit the backplate of the spinner to the crankshaft of the engine. Slide the cowl back so that there is at least 1/8" [3.2mm] of clearance between the cowl ring and the spinner backplate. Wrap tape around the backplate and the front of the cowl ring so that the cowl stays aligned with the backplate. Trace the outline of the templates onto the cowl using a felt-tip pen.



❏ 4. With the cowl still in position, align the ruler with the lines you drew and make marks on the cowl that are 1" [25mm] forward of the vertical marks you drew. Use a 1/16" [1.6mm] drill bit to drill four holes to mount the cowl. Remove the cowl and cut out the clearance holes. Refit the cowl and check your work. Re-trim if necessary.

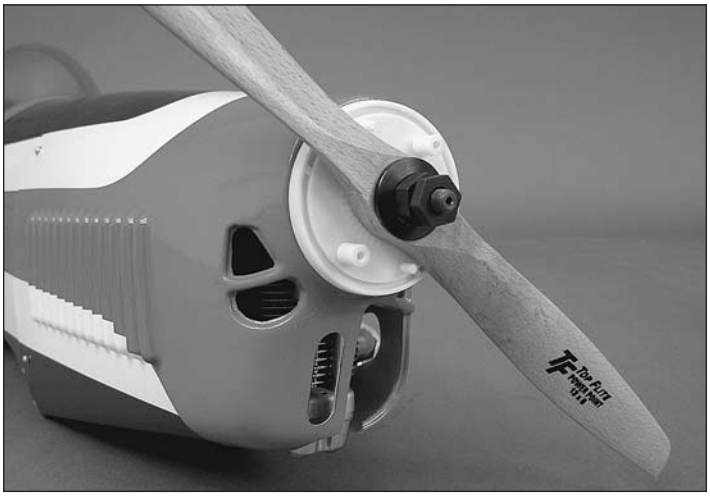


❏ 5. If you are using a glow engine, an additional cooling hole for the cylinder head is recommended. Cut out a 3/8" [9.5mm] wide hole.

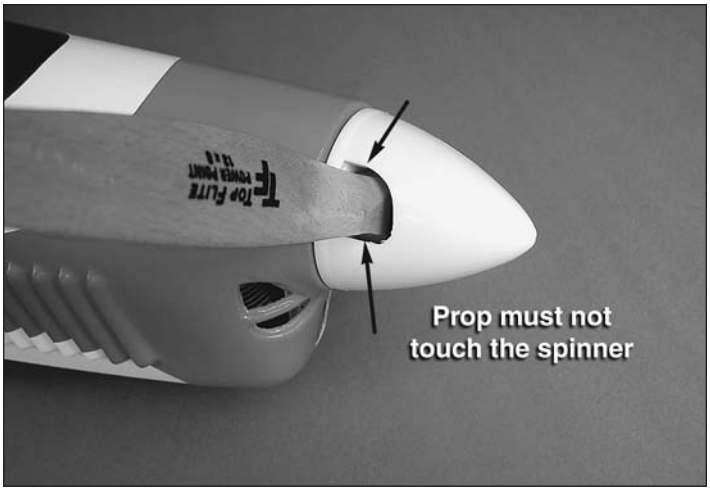


❏ 6. Use four #2 x 3/8" [9.5mm] sheet-metal screws with four #2 flat washers to attach the cowl. Depending on your particular engine, you may need to install the muffler and needle valve extension before the cowl is installed. In our case, we needed to install the cowl first. Don't forget to hook up your fuel lines correctly.

Propeller & Spinner Installation



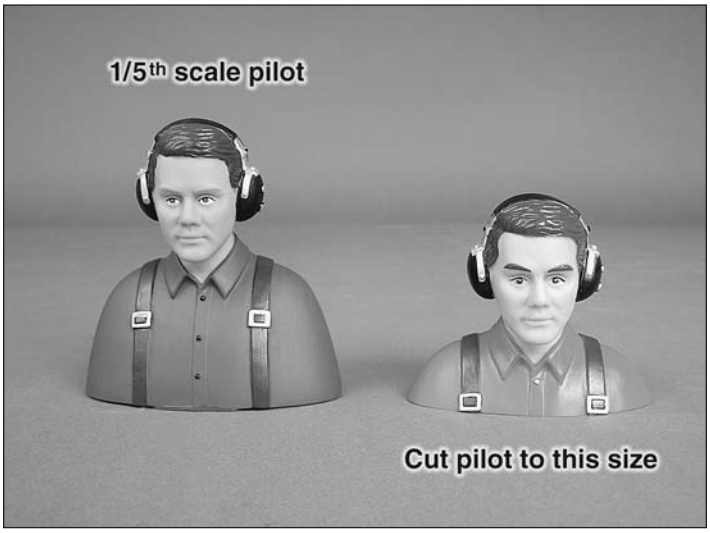
❏ 1. Fit the spinner backplate to the engine. Use a prop reamer to enlarge the hole if necessary. Install the propeller recommended for your engine, making sure to align the prop correctly on the spinner backplate so that the spinner cone fits without touching the cone. Use the prop washer that came with your engine / motor. Install the prop nut and any lock nut included with your engine securely.



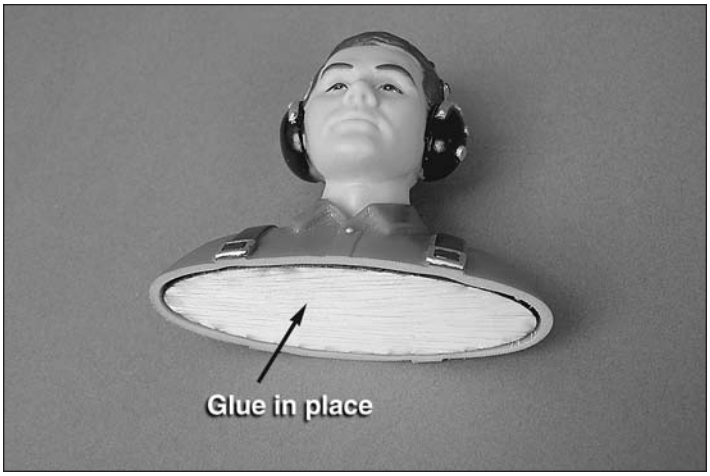
❏ 2. Test fit the spinner cone to the backplate. Trim the blade openings in the cone at any points that interfere with the propeller. Attach the cone to the backplate using the screws supplied with the spinner. **Important:** The cone must not touch the propeller.

Pilot Installation (Optional)

A pilot is not included with this ARF but we have made provisions for you to install one if you wish. The Great Planes 1/5th scale Civilian Pilot fits well and can be ordered in red (GPMQ9062), blue (GPMQ9063), or yellow (GPMQ9064).

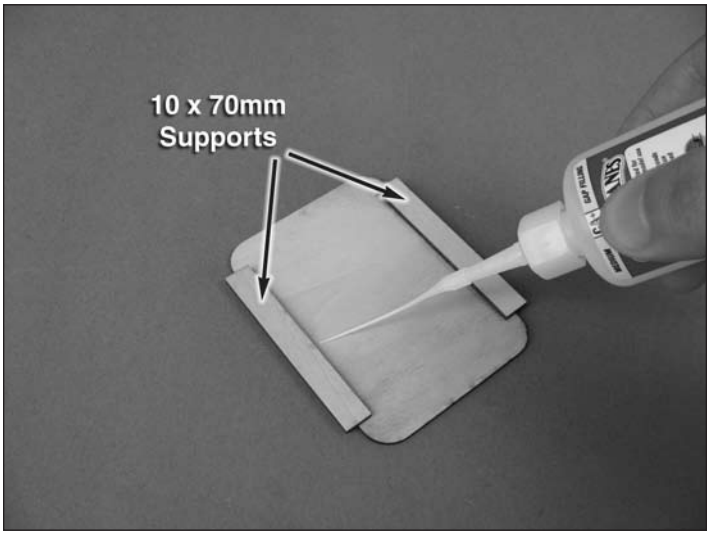


❏ 1. If you are going to install a pilot figure, you'll have to modify the figure to make it fit the cockpit. The Great Planes 1/5th scale Civilian Pilot shown is fairly tall and needs to be cut down to fit properly. Cut the figure using a hobby knife or hobby saw just below the harness buckles. Use a belt sander or a sanding bar to sand the base of the figure so that it is flat.



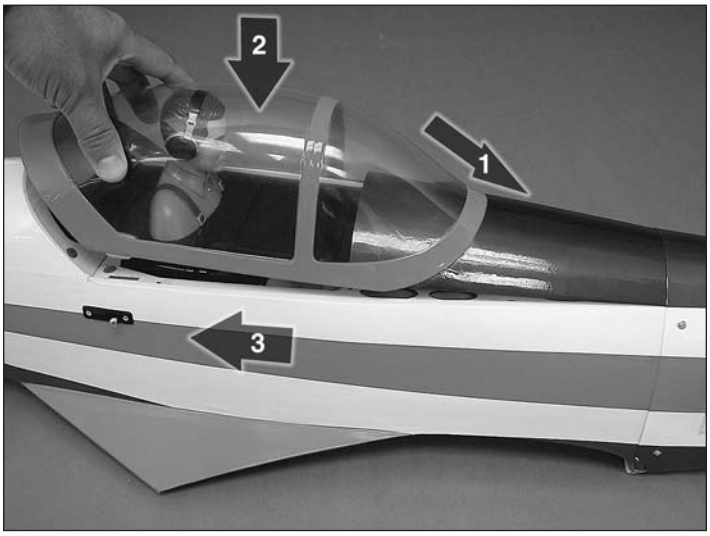
❏ 2. Locate the oval shaped piece of wood supplied in this kit. Use epoxy to glue this into the base of the pilot figure.

❏ 3. Position the pilot figure under the canopy and drill at least two holes through the canopy floor and pilot figure base using a 1/16" [1.6mm] drill bit. Use sheet-metal screws or servo screws (not included) to attach the pilot figure.



❏ 4. Glue the two 10 x 70mm plywood support pieces to the bottom of the cockpit floor filler plate as shown.

❏ 5. Turn over the hatch and glue the filler plate in place.



❏ 6. Install the canopy / hatch to the fuse first by sliding the two dowels into the holes in the forward former and then dropping down and sliding back the canopy. The two hooks under the canopy should engage in the fuselage. Magnets will keep the hatch back and locked.

Apply the Decals

1. Use scissors or a sharp hobby knife to cut the decals from the sheet.

2. Be certain the model is clean and free from oily fingerprints and dust. Prepare a dishpan or small bucket with a mixture of liquid dish soap and warm water—about one teaspoon of soap per gallon of water. Submerse the decal in the soap and water and peel off the paper backing. Note: Even though the decals have a “sticky-back” and are not the water transfer type, submersing them in soap & water allows accurate positioning and reduces air bubbles underneath.

3. Position decal on the model where desired. Holding the decal down, use a paper towel to wipe most of the water away.

4. Use a piece of soft balsa or something similar to squeegee remaining water from under the decal. Apply the rest of the decals the same way.

GET THE MODEL READY TO FLY

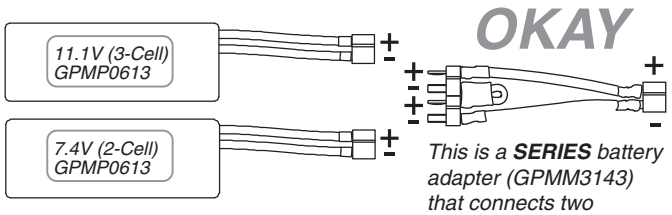
Install & Connect the Motor Battery

Before you can power the radio system and set up the controls, the motor batteries will need to be charged. **IMPORTANT:** If using multiple battery packs that are connected with an adapter, never charge the batteries together through the adapter. Always charge each battery pack separately. Charge the batteries, then read the following precautions on how to connect multiple packs for flying the model:

Battery Precautions:

There are two ways to connect multiple battery packs: In **Series** and in **Parallel**.

*These are two 3200mAh batteries (one 11.1V and the other 7.4V). When joined in **SERIES**, the result will be a 18.5V, 3200 mAh battery.*

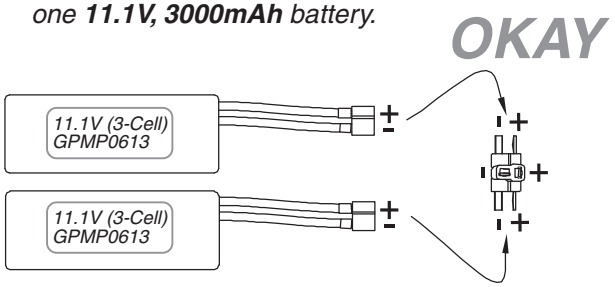


*This is a **SERIES** battery adapter (GPMM3143) that connects two batteries in series.*

It's okay to connect batteries with different voltages in series to achieve the new, desired voltage.

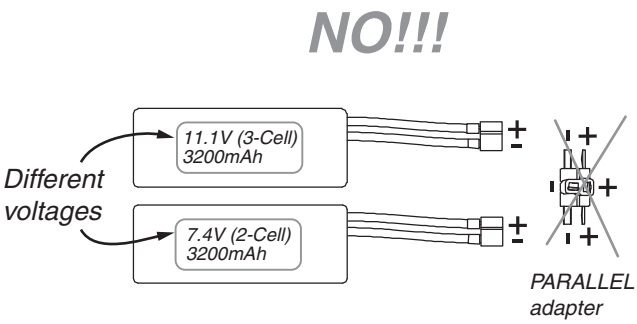
1. Connecting batteries in **"Series"** means to connect the +'s to the –'s and the –'s to the +'s. This combines the batteries' Voltages, but the capacity remains the same.

*These two 1500mAh batteries (both 11.1V) are being joined in **PARALLEL**. The result will be one **11.1V, 3000mAh** battery.*

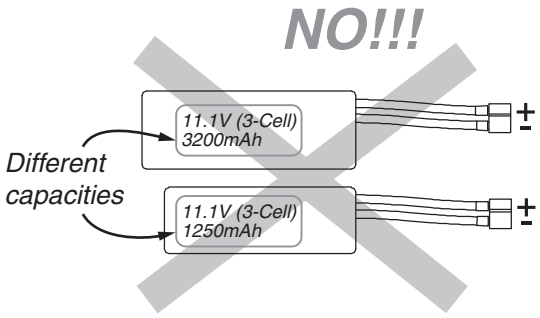


*This is a **PARALLEL** battery adapter (GPMM3142) that connects two batteries in parallel.*

2. Connecting batteries in **"Parallel"** means to connect the +'s to the +'s and the -'s to the -'s. This combines the batteries' capacities, but the Voltage remains the same.



NEVER connect battery packs with different Voltages in Parallel–only combine in Series. Otherwise, the batteries will try to "equalize" with the larger one trying to "charge" the smaller one, thus causing heat and likely a fire.



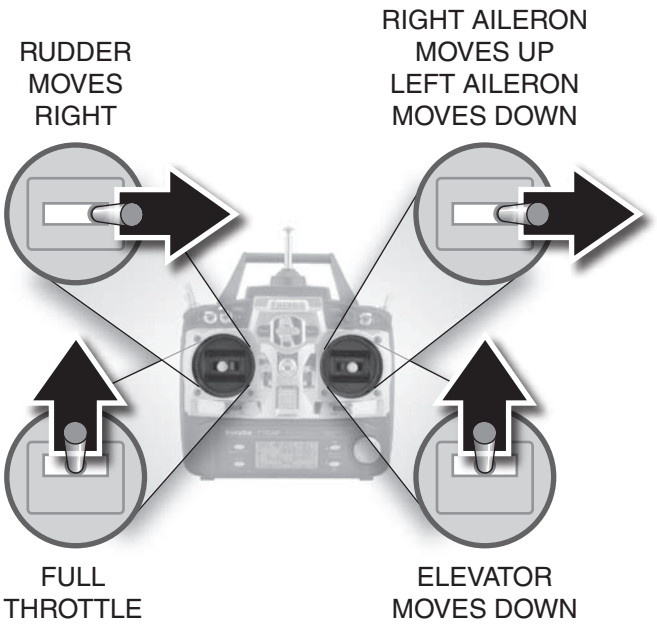
Also **NEVER** connect battery packs with different capacities in Series or in Parallel.

Check the Control Directions

❏ 1. Turn on the transmitter and receiver and center the trims. If necessary, remove the servo arms from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo arms.

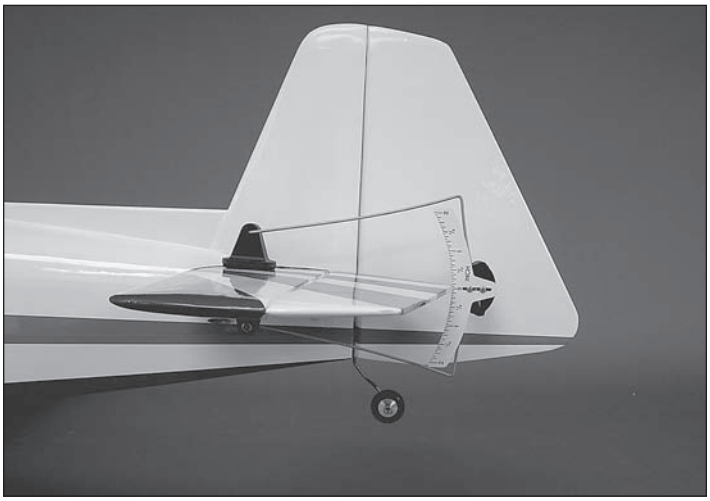
❏ 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, adjust the clevises on the pushrods to center the control surfaces.

4-CHANNEL RADIO SETUP (STANDARD MODE 2)



❏ 3. Make certain that the control surfaces and the carburetor / motor respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.

Set the Control Throws



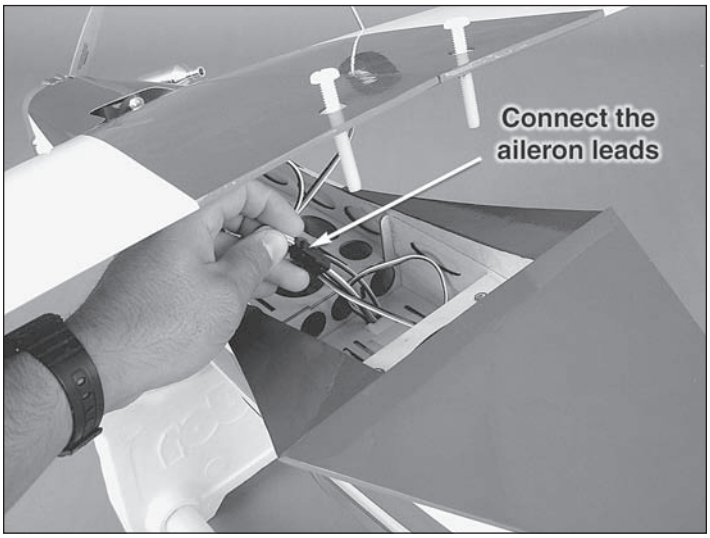
Use a Great Planes AccuThrow, a ruler, or an inclinometer to accurately measure and set the control throw of each control surface as indicated in the chart that follows. While more control throw is possible and may seem necessary, this model reacts well to very little throw. For this particular airplane, we recommend using the high rate rudder only on the ground when taxiing. Switch to low rate rudder before initiating your takeoff roll.

NOTE: The throws are measured at the **widest part** of the elevators, rudder and ailerons.

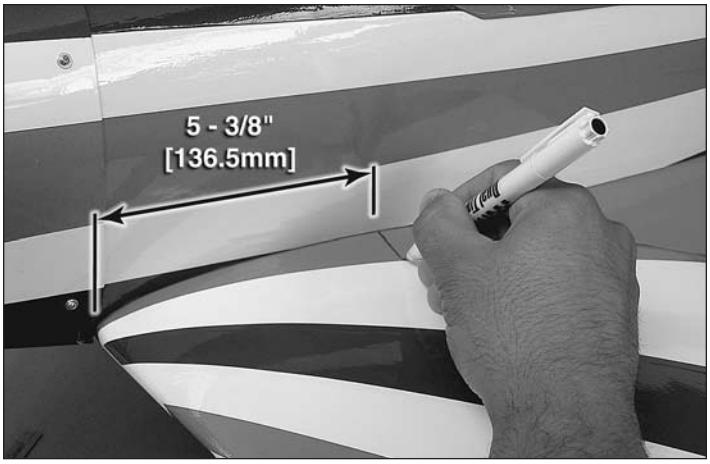
These are the recommended control surface throws:				
	HIGH RATE		**LOW RATE**	
ELEVATOR	Up	Down	Up	Down
	1/2" [12.7mm] 8 deg	1/2" [12.7mm] 8 deg	7/16" [11.1mm] 7 deg	7/16" [11.1mm] 7 deg
RUDDER	Right	Left	Right	Left
	2-3/4" [69.9mm] 23 deg	2-3/4" [69.9mm] 23 deg	2" [51mm] 17 deg	2" [51mm] 17 deg
AILERONS	Up	Down	Up	Down
	7/16" [11.1mm] 10 deg	7/16" [11.1mm] 10 deg	3/8" [9.5mm] 8 deg	3/8" [9.5mm] 8 deg

Balance the Model (C.G.)

At this stage the model should be in ready-to-fly condition with all of the systems in place including the engine, landing gear, covering and paint, and the radio system.

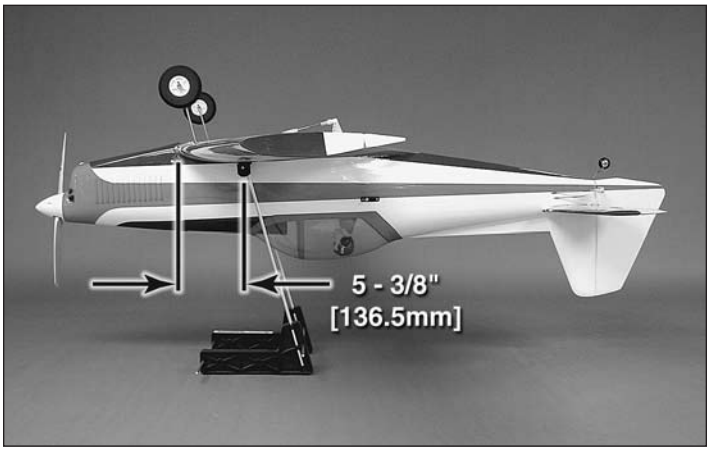


❏ 1. Locate the two 1/4-20 wing bolts. Connect your aileron servo leads and install the wing. Make sure that the servo wires do not get caught between the wing saddle and the wing.



❏ 2. Use a felt-tip pen or 1/8" [3mm]-wide tape to accurately mark the C.G. on the top of the wing on both sides of the fuselage. The C.G. is located **5-3/8" [136.5mm]** back from the leading edge of the wing at the wing root. Note: It is permissible to fly the airplane with the C.G. up to 1/2" [12.7mm] forward or 3/8" [9.5mm] aft of this mark, but for the first flights set the C.G. for the recommended location. Do not fly outside of the listed C.G. range!

To ensure a successful first flight, fly your Zlin 526 Akrobat set up only according to the C.G. and control surface throws specified in this manual. The throws and C.G. are not arbitrary, but have been determined through extensive testing and accurate record-keeping. This provides you with the best chance for success and enjoyable first flights that should be surprise-free. Additionally, the throws and C.G. shown are true, real data which will allow the model to perform in the manner in which it was intended when flown by a pilot of the skill level for which it was intended. **DO NOT OVERLOOK THESE IMPORTANT PROCEDURES.** A model that is not properly setup will be dangerous, unstable, and possibly unflyable.



❏ 3. With the wing attached to the fuselage, all parts of the model installed (ready to fly), all batteries (electric), and an empty fuel tank (glow), place the model upside-down on a Great Planes CG Machine, or lift it upside-down at the balance point you marked.

❏ 4. If the tail drops, the model is "tail heavy" and the battery pack and/or receiver must be shifted forward or weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and the battery pack and/or receiver must be shifted aft or weight must be added to the tail to balance. If possible, relocate the battery pack and receiver to minimize or eliminate any additional ballast required. If additional weight is required, nose weight may be easily added by using a "spinner weight" (GPMQ4645 for the 1 oz. [28g] weight, or GPMQ4646 for the 2 oz. [57g] weight). If spinner weight is not practical or is not enough, use Great Planes (GPMQ4485) "stick-on" lead. A good place to add stick-on nose weight is to the structure around the firewall (don't attach weight to the cowl—it is not intended to support weight). Begin by placing incrementally increasing amounts of weight on the bottom of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, tail weight may be added by cutting open the bottom of the fuse and gluing it permanently inside.

Note: Do not rely upon the adhesive on the back of the lead weight to permanently hold it in place. Over time, fuel and exhaust residue may soften the adhesive and cause the weight to fall off. Use #2 sheet-metal screws or epoxy to permanently hold the weight in place.

❏ 5. **IMPORTANT:** If you found it necessary to add any weight, recheck the C.G. after the weight has been installed.

Balance the Model Laterally

❏ 1. With the wings level, have an assistant help you lift the model by the engine propeller shaft and the bottom of the fuse under the TE of the fin. Do this several times.

❏ 2. If one wing always drops when you lift the model, it means that side is heavy. Balance the airplane by adding weight to the other wing tip. **An airplane that has been laterally balanced will track better in loops and other maneuvers.**

PREFLIGHT

Identify Your Model

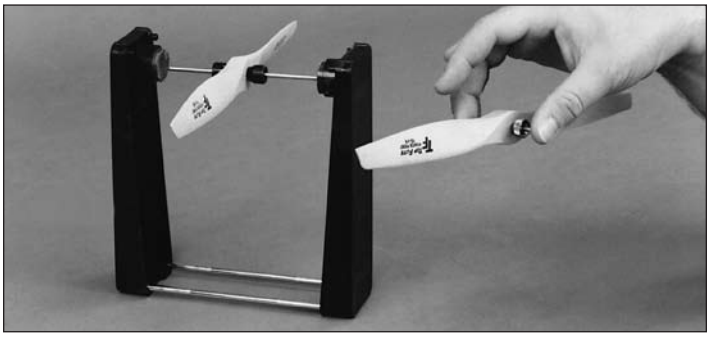
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 39 and place it on or inside your model.

Charge the Radio Batteries

Follow the battery charging instructions that came with your radio control system to charge the batteries. You should always charge your transmitter and receiver batteries the night before you go flying, and at other times as recommended by the radio manufacturer.

CAUTION: Unless the instructions that came with your radio system state differently, the **initial** charge on **new** transmitter and receiver batteries should be done for 15 hours **using the slow-charger that came with the radio system**. This will "condition" the batteries so that the next charge may be done using the fast-charger of your choice. If the initial charge is done with a fast-charger the batteries may not reach their full capacity and you may be flying with batteries that are only partially charged.

Balance Propellers



Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only will engine mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver and battery. Vibration can also cause your fuel to foam, which will, in turn, cause your engine to run hot or quit.

We use a Top Flite Precision Magnetic Prop Balancer (TOPQ5700) in the workshop and keep a Great Planes Fingertip Prop Balancer (GPMQ5000) in our flight box.

Ground Check and Range Check

Run the engine for a few minutes to make sure it idles reliably, transitions smoothly and maintains full power continuously. Afterward, shut the engine off and inspect the model closely, making sure all fasteners, pushrods and connections have remained tight and the hinges are secure. Always ground check the operational range of your radio before the first flight of the day following the manufacturer's instructions that came with your radio. This should be done once with the engine / motor off and once with the engine / motor running at various speeds. If the control surfaces do not respond correctly, **do not fly!** Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires on old servo connectors, poor solder joints in your battery pack or a defective cell, or a damaged receiver crystal from a previous crash.

ENGINE & MOTOR SAFETY PRECAUTIONS

Failure to follow these safety precautions may result in severe injury to yourself and others.

Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; and remember that engine exhaust gives off a great deal of deadly carbon monoxide. Therefore **do not run the engine in a closed room or garage**.

Get help from an experienced pilot when learning to operate engines.

Use safety glasses when starting or running engines and motors.

Do not run the engine or motor in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.

Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine or motor.

Keep these items away from the prop: loose clothing, shirt sleeves, sweater strings, ties, scarves, long hair or loose objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets into the prop.

Use a "chicken stick" or electric starter to start the engine. Do not use your fingers to flip the propeller. Make certain the glow plug clip or connector is secure so that it will not pop off or otherwise get into the running propeller.

Make all engine adjustments from behind the rotating propeller.

The engine gets hot! Do not touch it during or right after operation. Make sure fuel lines are in good condition so fuel will not leak onto a hot engine, causing a fire.

To stop a glow engine, cut off the fuel supply by closing off the fuel line or following the engine manufacturer's recommendations. Do not use hands, fingers or any other body part to try to stop the engine. To stop a gasoline powered engine an on/off switch should be connected to the engine coil or igniter unit. Do not throw anything into the propeller of a running engine or motor.

Always keep your radio on when plugging the motor batteries into the ESC. Stay clear of the propeller at all times: Some ESC units do not have safety arming features, so any movement of the throttle stick may cause the propeller to turn.

Always check your motor and battery setup using a watt meter. We recommend the RC Electronics Watt's Up meter (RELP0101). Make sure that your setup does not exceed the capabilities of the battery, speed control, or motor.

Make sure that all electrical connections are soldered properly. Run the motor for a few minutes and then check the wires and connections for excessive heat. Hot connections may indicate poor solder joints.

AMA SAFETY CODE (EXCERPTS)

Read and abide by the following excerpts from the Academy of Model Aeronautics Safety Code. For the complete Safety Code refer to *Model Aviation* magazine, the AMA web site or the Code that came with your AMA license.

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 aircraft 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 and deliberately fly my models in a careless, reckless and/or dangerous manner.

5) I will not fly my model unless it is identified with my name and address or AMA number, on or in the model. Note: This does not apply to models while being flown indoors.

7) I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

Radio Control

1) I will have completed a successful radio equipment ground 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 the 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.

5) **I will not knowingly operate my model within three miles of any pre-existing flying site except in accordance with the frequency sharing agreement listed** [in the complete AMA Safety Code].

9) Under no circumstances may a pilot or other person touch a powered model in flight; **nor should any part of the model other than the landing gear, intentionally touch the ground, except while landing.**

CHECK LIST

During the last few moments of preparation your mind may be elsewhere anticipating the excitement of the first flight. Because of this, you may be more likely to overlook certain checks and procedures that should be performed before the model is flown. To help avoid this, a check list is provided to make sure these important areas are not overlooked. Many are covered in the instruction manual, so where appropriate, refer to the manual for complete instructions. Be sure to check the items off as they are completed (that's why it's called a *check list!*).

❏ 1. Fuelproof all areas exposed to fuel or exhaust residue.

❏ 2. Check the C.G. according to the measurements provided in the manual.

❏ 3. Be certain the battery and receiver are securely mounted in the fuse. Simply stuffing them into place with foam rubber is not sufficient.

❏ 4. Extend your receiver antenna and make sure it has a strain relief inside the fuselage to keep tension off the solder joint inside the receiver.

❏ 5. Balance your model *laterally* as explained in the instructions.

❏ 6. Use thread-locking compound to secure critical fasteners such as the set screws that hold the wheel axles to the struts, screws that hold the carburetor arm (if applicable), screw-lock pushrod connectors, etc.

❏ 7. Add a drop of oil to the axles so the wheels will turn freely.

❏ 8. Make sure all hinges are **securely** glued in place.

❏ 9. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, cowl mounting screws, etc.).

❏ 10. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.

❏ 11. Set up and check a throttle cutoff on your radio.

❏ 12. Make sure there are silicone retainers on all the clevises and that all servo arms are secured to the servos with the screws included with your radio.

❏ 13. Tighten all jam nuts against the threaded clevises on your control surfaces.

❏ 14. Secure connections between servo wires and Y-connectors or servo extensions, and the connection between your battery pack(s) and the on/off switch with vinyl tape, heat shrink tubing or special clips suitable for that purpose.

❏ 15. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).

❏ 16. Secure the pressure tap (if used) to the muffler with high temp RTV silicone, thread-locking compound or J.B. Weld.

❏ 17. Make sure the fuel lines are connected and are not kinked.

❏ 18. Balance your propeller (and spare propellers).

❏ 19. Tighten the propeller nut and spinner.

❏ 20. Place your name, address, AMA number and telephone number on or inside your model.

❏ 21. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.

❏ 22. Range-check your radio at the field at the start of each flying day. Check it with the engine/motor operating.

FLYING

The Zlin 526 Akrobat is a great-flying model that flies smoothly and predictably. The Zlin 526 Akrobat does not, however, possess the self-recovery characteristics of a primary R/C trainer and should be flown only by experienced R/C pilots.

Fuel Mixture Adjustments

A fully cowled engine may run at a higher temperature than an un-cowled engine. For this reason, the fuel mixture should be richened so the engine runs at about 200 rpm below peak speed. By running the engine slightly rich, you will help prevent dead-stick landings caused by overheating. Keep in mind also that an engine runs more rich on the ground. Leaning to peak rpm on the ground can cause overheating in the air.

CAUTION (THIS APPLIES TO ALL R/C AIRPLANES): If, while flying, you notice an alarming or unusual sound such as a low-pitched "buzz," this may indicate control surface *flutter.* Flutter occurs when a control surface (such as an aileron or elevator) or a flying surface (such as a wing or stab) rapidly vibrates up and down (thus causing the noise). In extreme cases, if not detected immediately, flutter can actually cause the control surface to detach or the flying surface to fail, thus causing loss of control followed by an impending crash. The best thing to do when flutter is detected is to slow the model **immediately** by reducing power, then land as soon as safely possible. Identify which surface fluttered (so the problem may be resolved) by checking all the servo grommets for deterioration or signs of vibration. Make certain all pushrod linkages are secure and free of play. If it fluttered once, under similar circumstances it will probably flutter again unless the problem is fixed. Some things which can cause flutter are; Excessive hinge gap; Not mounting control horns solidly; Poor fit of clevis pin in horn; Side-play of wire pushrods caused by large bends; Excessive free play in servo gears; Insecure servo mounting; and one of the most prevalent causes of flutter; Flying an over-powered model at excessive speeds.

Takeoff

Before you get ready to take off, see how the model handles on the ground by doing a few practice runs at **low speeds** on the runway. Hold "up" elevator to keep the tail wheel on the ground. If necessary, adjust the tail wheel so the model will roll straight down the runway. If you need to calm your nerves before the maiden flight, shut the engine down and bring the model back into the pits. Top off the fuel, then check all fasteners and control linkages.

Remember to takeoff into the wind. When you're ready, point the model straight down the runway, hold a bit of up elevator to keep the tail on the ground to maintain tail wheel steering, and then gradually advance the throttle. As the model gains speed, decrease up elevator, allowing the tail to come off the ground naturally. One of the most important things to remember with a tail dragger is to always be ready to apply **right** rudder to counteract engine torque. Gain as much speed as your runway and flying site will practically allow before gently applying up elevator, lifting the model into the air. At this moment it is likely that you will need to apply more right rudder to counteract engine torque. Be smooth on the elevator stick, allowing the model to establish a **gentle** climb to a safe altitude before turning into the traffic pattern.

Flight

For reassurance and to keep an eye on other traffic, it is a good idea to have an assistant on the flight line with you. Tell him to remind you to throttle back once the plane gets to a comfortable altitude. While full throttle is usually desirable for takeoff, most models fly more smoothly at reduced speeds.

Take it easy with your airplane for the first few flights, gradually getting acquainted with it as you gain confidence. Adjust the trims to maintain straight and level flight. After flying around for a while, and while still at a safe altitude with plenty of fuel, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Make a few more runs minding your field's current traffic pattern and try executing a few straight-ahead stalls. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your fuel level or batteries, but use this first flight to become familiar with your model before landing.

Landing

To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward the runway (into the wind) keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the runway threshold, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and climb out to make another attempt. When you're ready to make your landing flare and the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down. Once the model is on the runway and has lost flying speed, hold up elevator to place the tail on the ground, regaining tail wheel control.

One final note about flying your model. Have a goal or flight plan in mind for **every** flight. This can be learning a new maneuver(s), improving a maneuver(s) you already know, or learning how the model behaves in certain conditions (such as on high or low rates). This is not necessarily to improve your skills (*though it is never a bad idea!)*, but more importantly so you do not surprise yourself by impulsively attempting a maneuver and suddenly finding that you've run out of time, altitude, or airspeed. Every maneuver should be deliberate, not impulsive. For example, if you're going to do a loop, check your altitude, mind the wind direction (anticipating rudder corrections that will be required to maintain heading), remember to throttle back at the top, and make certain you are on the desired rates (high/low rates). A flight plan greatly reduces the chances of crashing your model just because of poor planning and impulsive moves. **Remember to think.**

HAVE A BALL!
But always stay in control and fly in a safe manner.

GOOD LUCK AND GREAT FLYING!

This model belongs to:

Name

Address

City, State, Zip

Phone number

AMA number


GREAT PLANES®
MODEL MANUFACTURING COMPANY