Matt Chapman

EAGLE 580

.46-.81/EP ALMOST-READY-TO-FLY SPORT SCALE AIRPLANE

Wingspan: 53 in [1350mm]
Wing Area: 645 in^2 [41.6dm^2]
Weight: 6 – 7 lb [2720 – 3180g]
Wing Loading: 21 – 25 oz/ft^2 [64 – 76g/dm^2]
Length: 57.5 in [1460mm]
Radio: 4-channel minimum with 4 to 5 servos and standard size receiver
Engine: .46 to .61 cu in [7.5 to 10cc] two-stroke,
.52 to .81 cu in [8.5 to 13.5cc] four-stroke
.80 (50-55-500) brushless out-runner motor

INSTRUCTION MANUAL

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:

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

Congratulations on the purchase of the Great Planes Eagle 580 Matt Chapman .46-.81/EP ARF! This latest Matt Chapman version has been designed to give even the most selective pilots the 3D performance they are looking for as well as the smooth, forgiving flight that the sport modeler desires. With so many assembly steps already complete right out of the box, you will be able to spend more time at the flying field and far less time at your workbench! In addition, bolt-on wings and bolt-on stabilizer halves eliminate the time consuming gluing and measuring procedures typically required on a model of this size, as well as make future repairs quick and easy. For the brushless motor users, the canopy hatch is securely held in place with our hook and magnet system for access to flight batteries and can be quickly removed by simply sliding it forward and lifting it off.

For the latest technical updates or manual corrections to the Eagle 580 Matt Chapman .46-.81/EP ARF, visit the Great Planes web site at **www.greatplanes.com**. Open the "Airplanes" link, then select the Eagle 580 Matt Chapman .46-.81/EP 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

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 Eagle 580 Matt Chapman .46-.81/EP ARF 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 Eagle 580 Matt Chapman .46-.81/EP ARF, 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 first-class condition, and a correctly sized engine and components (fuel tank, wheels, etc.) throughout the building process.

5. You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air.

6. You must check the operation of the model before **every** flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.

7. 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.

8. While this kit 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.

9. **WARNING:** The cowl and wheel pants included in this kit are made of fiberglass, the fibers of which may cause eye, skin and respiratory tract irritation. Never blow into 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.

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the Eagle 580 Matt Chapman .46-.81/EP ARF that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Radio Equipment

The Eagle 580 Matt Chapman .46-.81/EP ARF requires a minimum 4-channel radio system with four 44 oz.-in. [3.2 kg-cm] minimum standard servos. If you are installing a glow engine, an additional standard servo is required for the throttle. For maximum performance, we recommend installing Futaba® S9252 servos for the elevators and rudder.

In addition, two 6" [152mm] servo extensions are required for the aileron servos. If you are using a radio system that does not support mixing functions, a Y-harness will also be required to connect the aileron servos to the receiver.

If you plan to install a brushless motor, you will need a 6" [152mm] servo extension for the ESC. If you plan to install a glow engine, you may also need a 12" [305mm] servo extension for the receiver pack depending on where on the model you install the pack. A 16" [406mm] servo extension is needed for an aft mounted rudder servo.

To achieve 3D control throws for the ailerons and elevators, 1" [25mm] servo arms are needed.

A charge jack receptacle is optional, but is useful for recharging and checking voltage of the receiver pack without removing the canopy hatch. Recommended part numbers for the radio components are provided below:

- ❏ Futaba® S3004 Standard Ball Bearing Servo (FUTM0004)
- ❏ Futaba S9252 Servo Digital All Purpose (FUTM0222)
- ❏ Hobbico® Pro™ HD Extension 6" [152mm] Futaba J (HCAM2701)
- ❏ Hobbico Pro HD Y-Harness Futaba J (HCAM2751)
- ❏ Hobbico Pro HD Extension 12" [305mm] Futaba J (HCAM2711)
- ❏ Futaba Servo Extension 16" J (FUTM3955)
- ❏ Great Planes 1" Servo Arm (GPMM1100)
- ❏ Dubro Servo Arms Super Strength Futaba J Long (8) (DUBM6670)
- ❏ Ernst Charge Receptacle Futaba J FM (ERNM3001)

Power System Recommendations

The recommended engine/motor size for the Eagle 580 Matt Chapman .46-.81/EP ARF is a .46 to .61 cu in [7.5 to 10cc] two-stroke engine, .52 to .81 cu in [8.5 to 13.5cc] four-stroke engine, or a RimFire™ .80 (50-55-500) brushless out-runner motor. Recommended engine and motor order numbers are provided below:

- ❏ O.S.® 55 AX ABL w/Muffler (OSMG0556)
- ❏ Bisson O.S. .46 SF/FX .50 SX Pitts Muffler (BISG4046)
- ❏ O.S. 81FS-a (OSMG0981)
- ❏ Great Planes RimFire .80 (50-55-500) Out-Runner Brushless (GPMG4740)
- ❏ Great Planes Brushless Motor Mount Large Motors (GPMG1260)

If using the recommended brushless motor, a 60A brushless ESC is required:

- ❏ Great Planes Silver Series 60A Brushless ESC High Volt (GPMM1850)

Propeller

If you are installing a glow engine, choose a prop based on the engine manufacturer's recommendation. If you are installing the recommended RimFire brushless motor, we suggest a 15 x 7E APC propeller.

- ❏ APC 15 x 7 Electric Propeller (APCQ1830)

Batteries & Charger

For a brushless motor installation, two 3200mAh 11.1V Lithium Polymer battery packs connected in series are recommended. Order numbers for the battery packs and series connector are provided below:

- ❏ Great Planes LiPo 3200mAh 11.1V 20C Discharge w/Balance (GPMP0623)
- ❏ Great Planes Series Deans U 2 to 1 Adapter (GPMM3143)

A cell balancer is required for the LiPo battery pack listed above:

- ❏ Great Planes ElectriFly™ Equinox™ LiPo Cell Balancer 1-5 (GPMM3160)

A suitable charger is also required. The Great Planes PolyCharge4™ is designed for LiPo packs only; however, it is able to charge four LiPo packs simultaneously. The Great Planes Triton2 charger will only charge one pack at a time, however is capable of charging NiCd, NiMH, LiPo, and lead acid batteries. Order numbers for both are provided below:

- ❏ Great Planes PolyCharge4™ DC Only 4 Output LiPo Charger (GPMM3015) **or**
- ❏ Great Planes ElectriFly Triton2™ DC Comp Peak Charger (GPMM3153)

ADDITIONAL ITEMS REQUIRED

Required Hardware and Accessories

This is the list of hardware and accessories required to finish the Matt Chapman Eagle 580 .46-.81/EP ARF. Order numbers are provided in parentheses:

- ❏ R/C foam rubber (1/4" [6mm] - HCAQ1000, or 1/2" [13mm] - HCAQ1050)
- ❏ 3' [900mm] standard silicone fuel tubing (GPMQ4131) (Glow engine installation only)
- ❏ Great Planes Velcro® Hook and Loop Material 1" x 6" (2) (GPMQ4480) (Brushless installation only)

Adhesives and Building Supplies

This is the list of Adhesives and Building Supplies required to finish the Matt Chapman Eagle 580 .46-.81/EP ARF:

- ❏ 1/2 oz. [15g] Thin Pro™ CA (GPMR6001)
- ❏ Pro 30-minute epoxy (GPMR6047)
- ❏ Masking tape (TOPR8018)
- ❏ Threadlocker™ threadlocking cement (GPMR6060)
- ❏ Dead Center™ Engine Mount Hole Locator (GPMR8130)
- ❏ Denatured alcohol (for epoxy clean up)
- ❏ Drill bits: 1/16" [1.6mm], 5/64" [2mm]
- ❏ Harry Higley's 3/16" [4.8mm] Extended Drill Bit (HIGR1020)
- ❏ Great Planes Tap and Drill Set 6-32 (GPMR8102) (Glow engine installation only)
- ❏ Tap handle (GPMR8120) (Glow engine installation only)
- ❏ Small metal file
- ❏ #1 Hobby knife (HCAR0105)
- ❏ #11 Blades (5-pack, HCAR0211)
- ❏ Medium T-pins (100, HCAR5150)
- ❏ Top Flite® MonoKote® sealing iron (TOPR2100)
- ❏ Top Flite Hot Sock™ iron cover (TOPR2175)
- ❏ 220-grit Sandpaper
- ❏ Panel Line Pen (TOPQ2510)

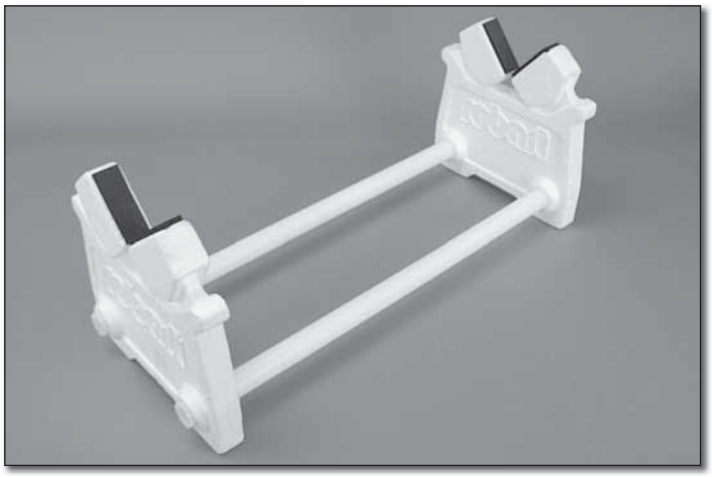
Optional Supplies and Tools

Here is a list of optional tools that will help you build the Matt Chapman Eagle 580 .46-.81/EP ARF:

- ❏ 1/2 oz. [15g] Medium Pro CA+ (GPMR6007)
- ❏ 1/2 oz. [15g] Thick Pro CA- (GPMR6013)
- ❏ 2 oz. [57g] Spray CA activator (GPMR6035)
- ❏ 4 oz. [113g] Aerosol CA activator (GPMR6034)
- ❏ CA applicator tips (HCAR3780)
- ❏ CA debonder (GPMR6039)
- ❏ Pro 6-minute epoxy (GPMR6045)
- ❏ Epoxy brushes 6, (GPMR8060)
- ❏ Mixing sticks (GPMR8055)
- ❏ Mixing cups (GPMR8056)
- ❏ Pliers with wire cutter (HCAR0630)

❏ Can of compressed air (TAEC1060)
❏ Rotary tool such as Dremel®
❏ Rotary tool reinforced cut-off wheel (GPMR8020)
❏ Servo horn drill (HCAR0698)
❏ Hobby Heat™ Micro Torch II (HCAR0755)
❏ Precision Magnetic Prop Balancer (TOPQ5700)
❏ AccuThrow™ Deflection Gauge (GPMR2405)
❏ C.G. Machine™ (GPMR2400)
❏ Hobbico Flexible 18" Ruler Stainless Steel (HCAR0460)
❏ Top Flite MonoKote trim seal iron (TOPR2200)
❏ Top Flite MonoKote heat gun (TOPR2000)
❏ Hobbico Pin Vise 1/16" Collet w/6 Bits (HCAR0696)
❏ Hobbico 8-Piece Ball Tip Hex L Wrench SAE (HCAR0520)
❏ Great Planes Clevis Installation Tool (GPMR8030)

BUILDING STAND



A building stand or cradle comes in handy during the build. We use the Robart Super Stand II (ROBP1402) for all our projects in R&D, and it can be seen in pictures throughout this manual.

IMPORTANT BUILDING NOTES

• 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 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.

ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Eagle 580 Matt Chapman .46-.81/EP 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 Great Planes web site at **www.greatplanes.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 telephone at (217) 398-8970, or by e-mail at **productsupport@greatplanes.com**.

REPLACEMENT PARTS LIST

Missing pieces.....Contact Product Support
Instruction manual.....Contact Product Support
Full-size plans.....Not available

Contact your hobby supplier for the following parts:

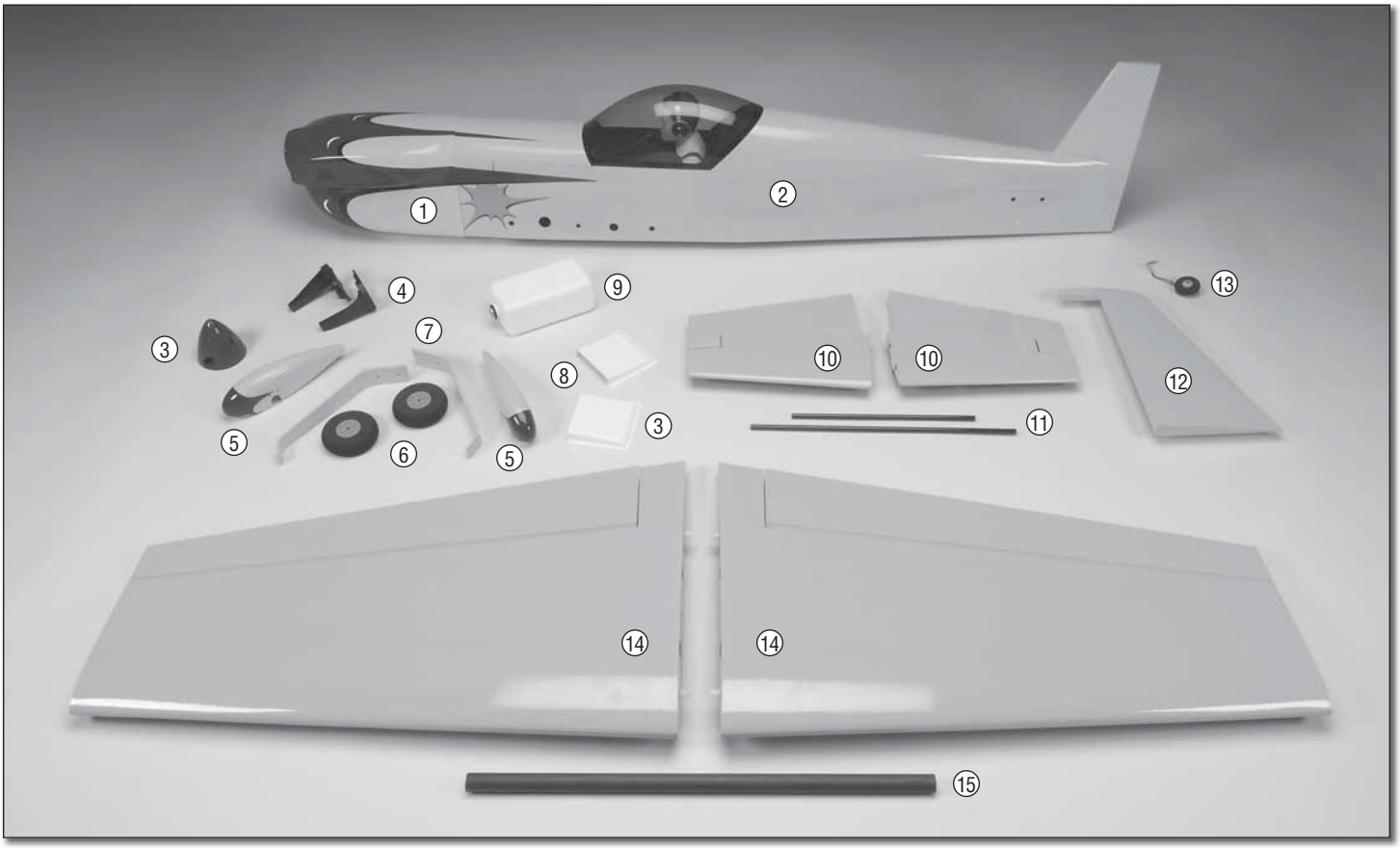
GPMA3260 ... Wing	GPMA3266 ... Decals
GPMA3261 ... Fuselage	GPMA3267 ... Spinner
GPMA3262 ... Tail Set	GPMA3268 ... Canopy/Hatch
GPMA3263 ... Cowl	GPMA3269 ... Wing Tube
GPMA3264 ... Landing Gear	GPMA3270 ... Stab Tubes
GPMA3265 ... Wheel Pants	GPMA3271 ... Rudder

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

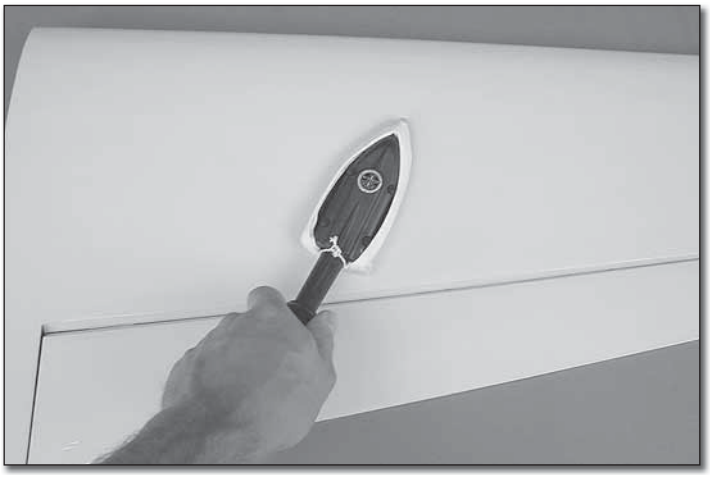


1. Cowl
2. Fuselage
3. Spinner
4. Engine Mount
5. Wheel Pants (2)
6. Main Wheels (2)
7. Main Landing Gear (2)
8. Air Scoops (2)
9. Fuel Tank
10. Stabilizers w/Elevators
11. Stabilizer Tubes
12. Rudder
13. Tailwheel Assembly
14. Wing Halves w/Ailerons
15. Wing Tube

BUILDING INSTRUCTIONS

Preparations

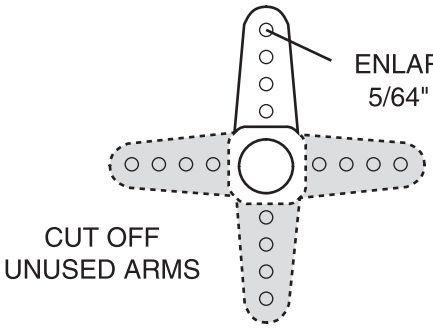
❏ 1. If you have not done so already, remove the major parts of the kit from the box and inspect for damage. If any parts are damaged or missing, contact **Product Support** at the address or telephone number listed in the ***"Kit Inspection"*** section on page 7.



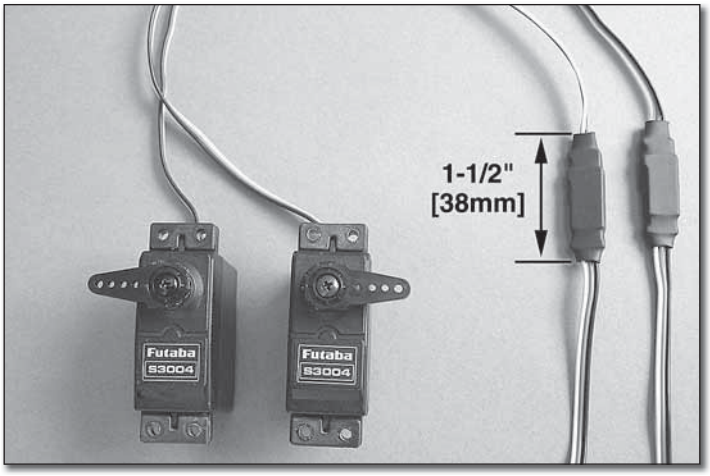
❏ 2. Use a covering iron with a covering sock on medium/high heat to tighten the covering if necessary. Apply pressure over sheeted areas to **thoroughly** bond the covering to the wood.

Assemble the Wings

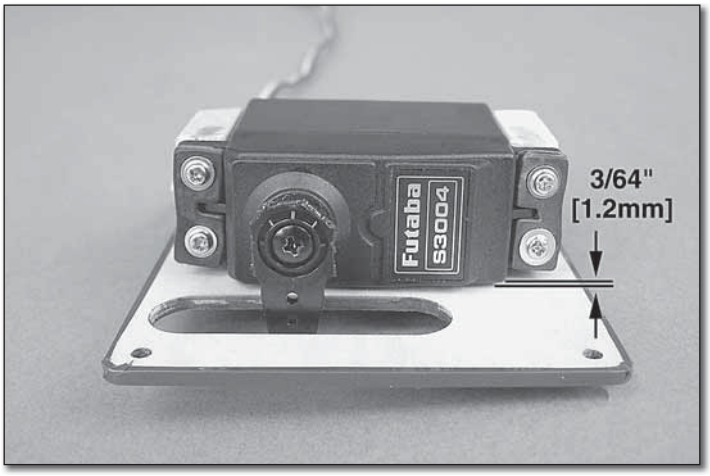
Before completing this section, confirm that the servos that you will be using will properly fit between the servo mounting block locations on the aileron servo hatch covers. Make adjustments with a hobby knife to the blocks as necessary for your brand of servos. The block positions are designed to fit a standard size Futaba brand servo.



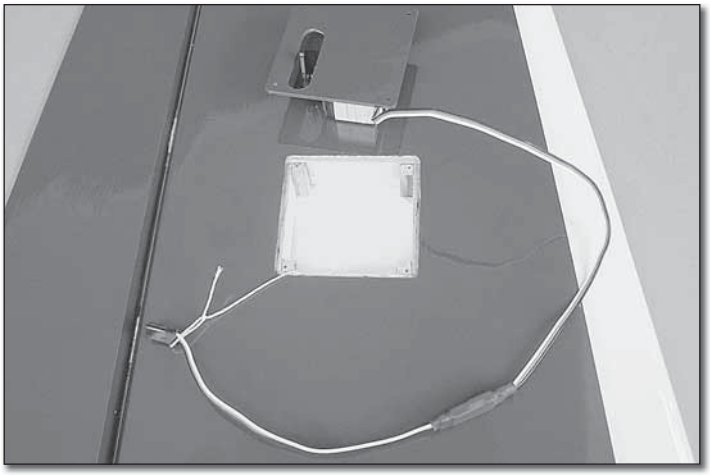
❏ 1. Cut three arms from a four-armed servo arm for each aileron servo. Enlarge the outer hole of the remaining arm with a 5/64" [2mm] drill bit. 3D aileron throws will require 1" [25mm] or longer servo arms.

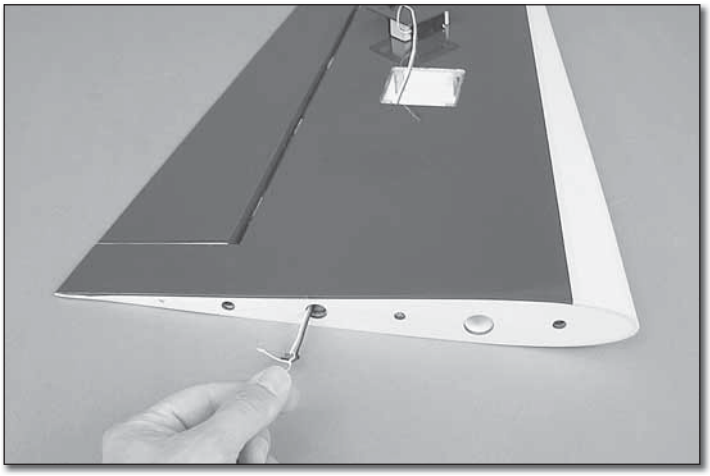


❏ 2. Attach a 6" [152mm] servo extension to each aileron servo and secure the connector using 1-1/2" [38mm] pieces from the included heat shrink tubing. Center the servos with your radio system and install the servo arms to the servos perpendicular to the servo cases as shown. Be sure to reinstall the servo arm screws into the servos.

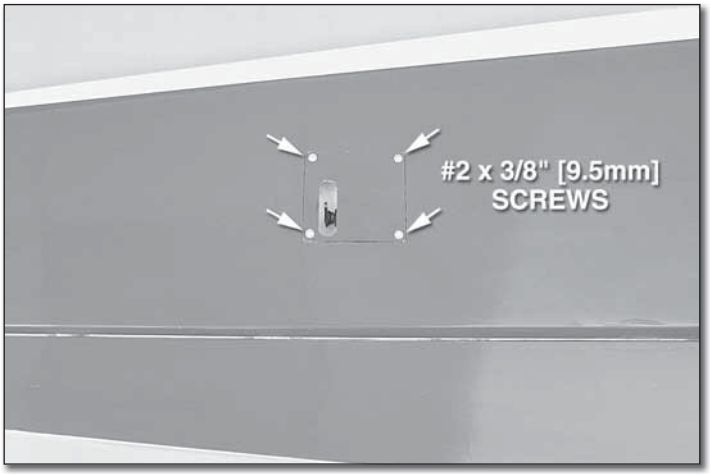


❏ 3. Position each servo against the undersides of the aileron servo hatch covers between the mounting blocks. Shim the aileron servos away from the hatch covers approximately 3/64" [1.2mm] to isolate them from vibration (a business card folded in thirds works well for this). Drill 1/16" [1.6mm] holes through the mounting tabs on the servo case into the blocks. Thread a servo mounting screw (included with the servos) into each hole and back it out. Apply a drop of thin CA to each hole to harden the wood. When the CA has dried, install the servos onto the hatch covers using the hardware supplied with the servos. If the servos you are using don't fit between the blocks, remove material for the wood blocks.

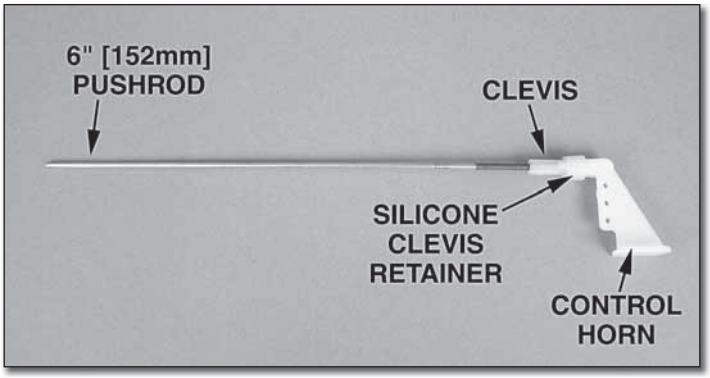




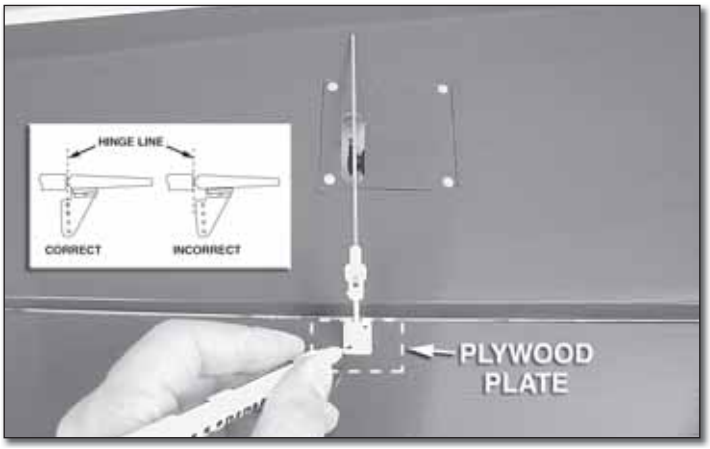
❏ 4. Use the strings taped inside the aileron servo hatches to pull the servo leads through the **wing panels**.



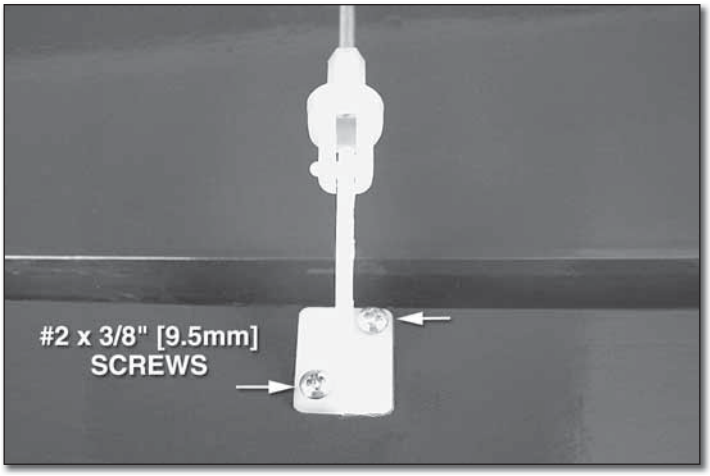
❏ 5. Before fitting the hatches in place, thread a #2 x 3/8" [9.5mm] self-tapping screw into each hatch mounting hole and back it out. Apply a drop of thin CA to each hole to harden the wood. Install the hatch covers to the wings using eight #2 x 3/8" [9.5mm] self-tapping screws and eight #2 flat washers.



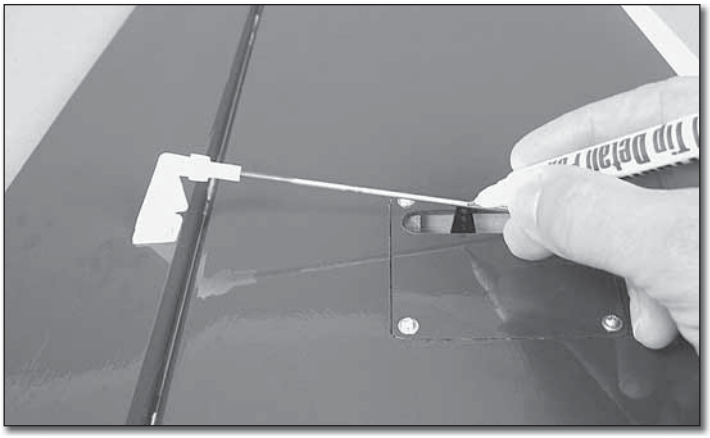
❏ 6. Thread a nylon clevis 20 complete turns onto each 6" [152mm] pushrod. Slide a silicone clevis retainer onto each clevis and connect the clevises to the outer holes of two control horns.

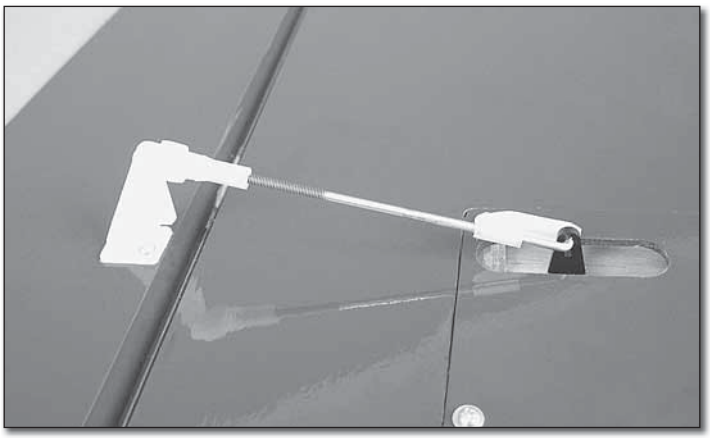


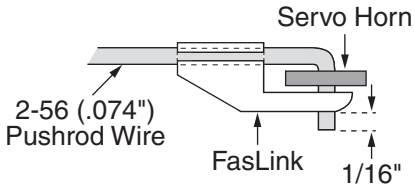
❏ 7. Position the control horns over the plywood plates in the ailerons (if you cannot see them, hold the aileron at a shallow angle in good lighting or use a small pin to puncture the covering) using the position of the servo arms as a guide. Align the holes in the control horns directly over the aileron hinge line and mark the location of the control horn mounting holes.



❏ 8. Drill 1/16" [1.6mm] holes at the marks you made through the plywood plates. Do not drill all the way through the ailerons! Thread a #2 x 3/8" [9.5mm] self-tapping screw through each hole and back it out. Apply a couple drops of thin CA glue to each hole to harden the wood. When the glue has dried, install the control horns onto the ailerons using four #2 x 3/8" [9.5mm] self-tapping screws.



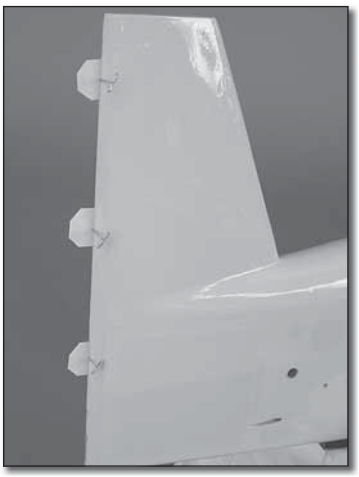




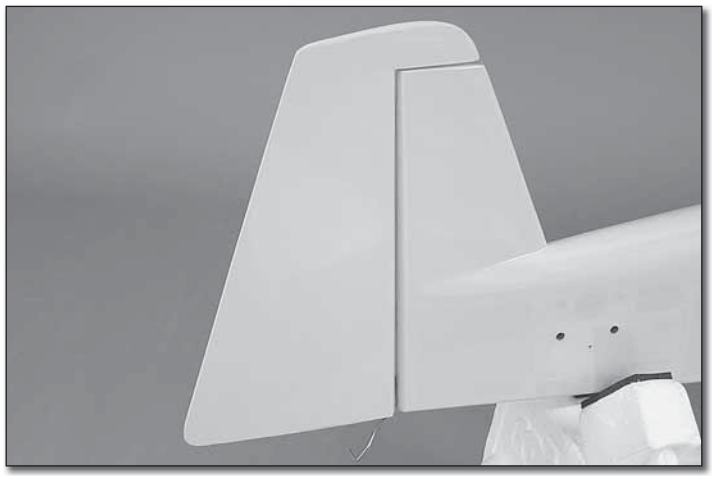
❏ 9. Use tape or a small clamp to hold the ailerons in the neutral position. Make a mark on the pushrods where they cross the outer holes in the servo arms. Make a 90° bend at the mark on the pushrod and cut off the excess pushrod 1/4" [6mm] beyond the bend. Attach the pushrods to the servo arms using nylon FasLinks. Thread the clevises up or down on the pushrods as necessary to center the ailerons with the servo arms centered. When satisfied, slide the silicone clevis retainers to the ends of the clevises to secure them.

Install the Tail Section

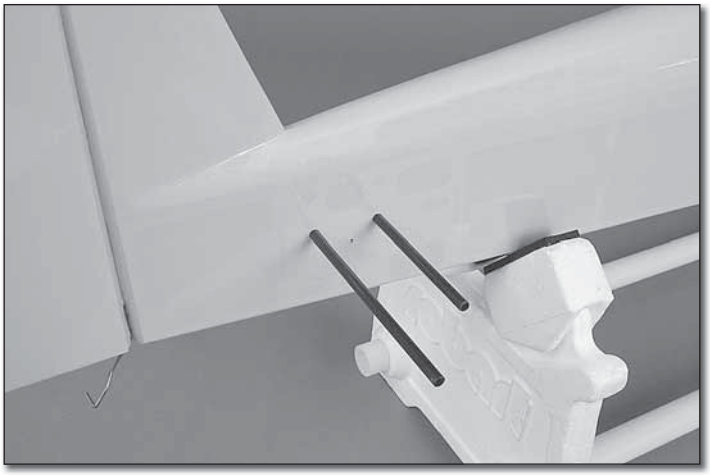
The horizontal stabilizer is a two-piece bolt-on design that can be taken off at any time by simply removing two screws. If, after this section, you decide it is easier to complete the model on your work table with the stab removed, feel free to do so as it will no longer be needed until it is time to set the control throws on the finished model.

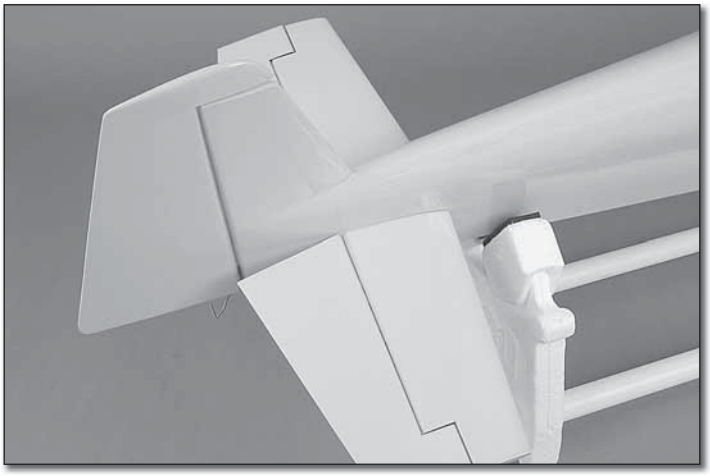


❏ 1. Test fit a CA hinge into each of the hinge slots in the **rudder** and **fuselage**. If necessary, enlarge the slots with a hobby knife. When satisfied with the fit, insert a CA hinge halfway into each hinge slot in the fuselage. Push a pin through the middle of each hinge to keep them centered. Test fit the tail wheel assembly into the slot at the bottom of the fuselage.



❏ 2. Roughen the portion of the tail wheel wire that fits into the rudder with 220-grit sandpaper and clean it off with alcohol. Lightly coat that end of the tail wheel wire with epoxy and fit it into the hole in the LE of the rudder. Be sure not to get epoxy onto the nylon tab where it rotates on the wire. Lightly coat both sides of the nylon tab with epoxy and fit the rudder to the fuselage onto the CA hinges. Wipe away any excess epoxy with denatured alcohol. Remove the pins and adjust the rudder so there is a small gap between the LE of the rudder and the fuselage. The gap should be small, just enough to see light through the gap or to slip a piece of paper through. When satisfied, apply six drops of thin CA to both sides of each hinge without using accelerator. After the CA glue has hardened, confirm that the rudder is secure by pulling on it and deflecting it left and right.

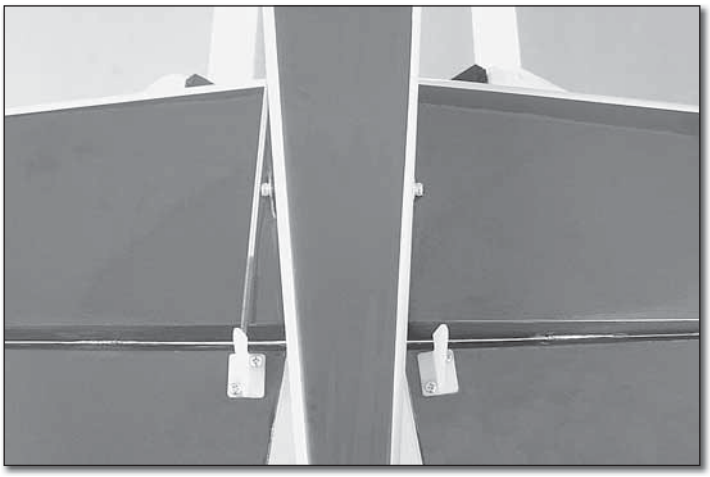




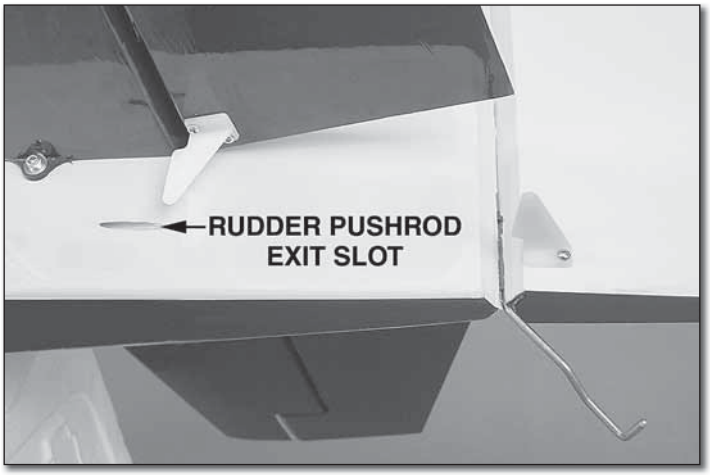
❑ 3. Slide the carbon fiber **horizontal stabilizer tubes** into the fuselage with the shorter tube in the forward position. Fit the stab halves onto the tubes and slide them against the fuselage. Secure the stabs in place using two 4-40 x 1/2" [13mm] SHCS, two #4 flat washers and **threadlocking compound**.

Install the Tail Servos and Pushrods

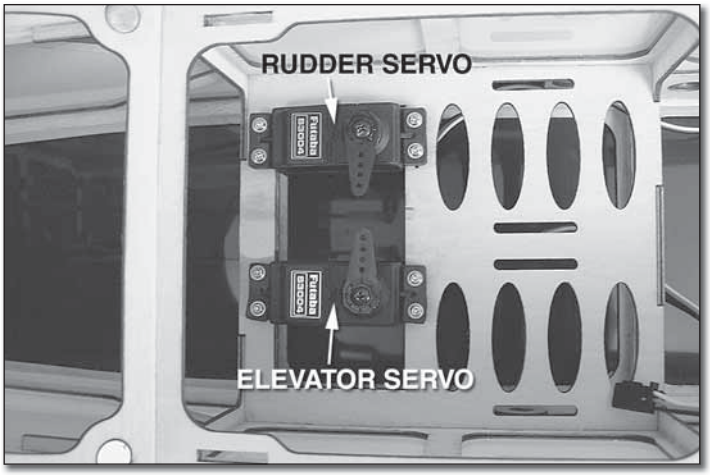
*A servo bay is provided in the tail of the plane for an aft mounted rudder servo. An aft mounted rudder servo will reduce or eliminate any tail weight needed to balance the airplane with a heavier engine installed. An additional 16" [406mm] servo extension is needed for an aft mounted rudder servo. See the **"Expert Tip"** in this section detailing the aft rudder servo installation.*



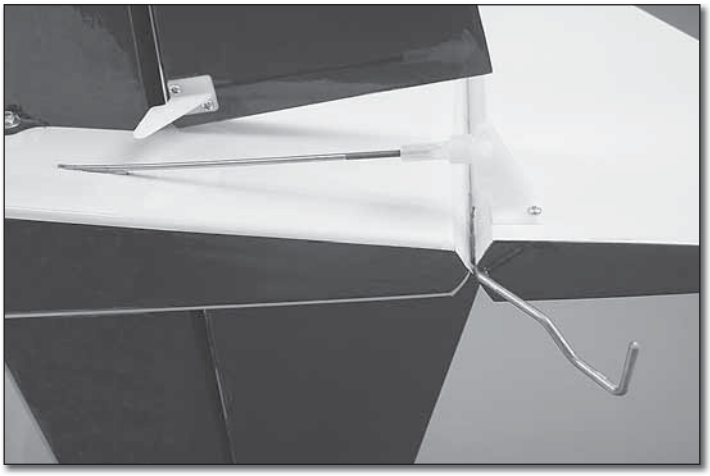
❑ 1. Trim the covering from the elevator and rudder pushrod exit slots in the fuselage. Temporarily insert a 2-56 x 36" [914mm] pushrod into each elevator pushrod exit slot. Use the position of the pushrod to align the elevator control horns onto the undersides of the elevator halves. Mark the locations of the control horn mounting holes onto the elevator halves and drill 1/16" [1.6mm] holes at the marks. Do not drill all the way through the elevator halves! Thread a #2 x 3/8" [9.5mm] self-tapping screw into each hole and back it out. Apply a couple drops of thin CA glue to each hole and let it harden. Attach the elevator control horns to the elevators using four #2 x 3/8" [9.5mm] self-tapping screws.



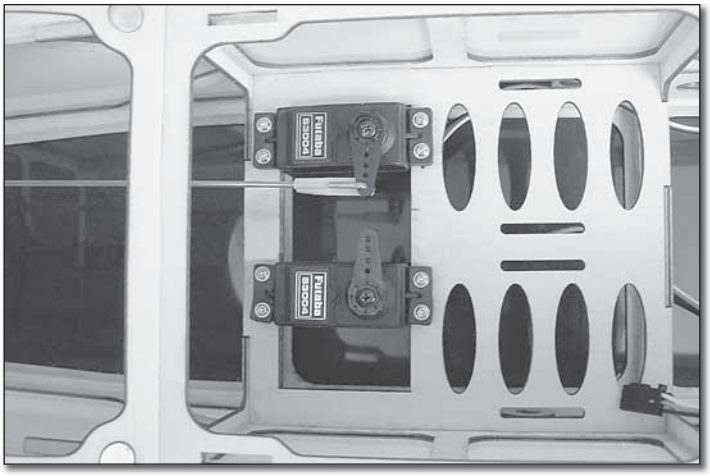
❑ 2. Attach a control horn onto the left side of the rudder in the same fashion.

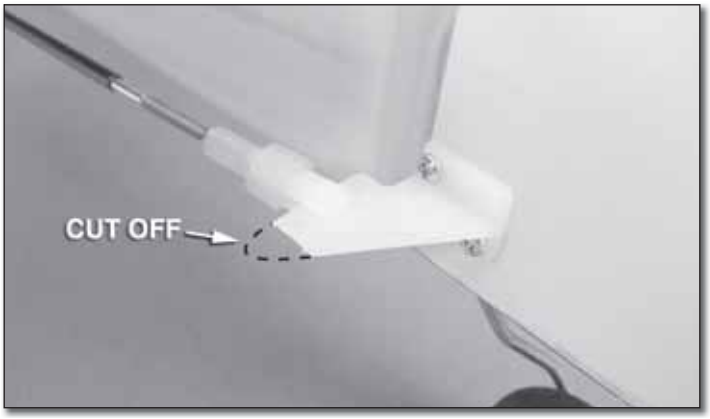


❏ 3. Cut three arms from two four-armed servo arms (a long servo arm will be needed on the elevator servo to achieve 3D control throw). Center the elevator and rudder servos with your radio system and install them onto the servos in the orientation shown with the servo arm screws. Enlarge the outer holes of each servo arm with a 5/64" [2mm] drill bit. Install the elevator and rudder servos into the servo tray as shown using the hardware supplied with the servos. Before drilling the mounting holes, test fit your throttle servo (if applicable) to confirm there is enough space for it next to the elevator servo. Be sure to harden the screw holes with thin CA as was done with the aileron servos.



❏ 4. Thread a nylon clevis and silicone clevis retainer onto a 2-56 x 36" [914mm] pushrod 20 complete turns. Slide the pushrod through the rudder pushrod exit slot in the fuselage and connect it to the second inner hole in the rudder control horn.

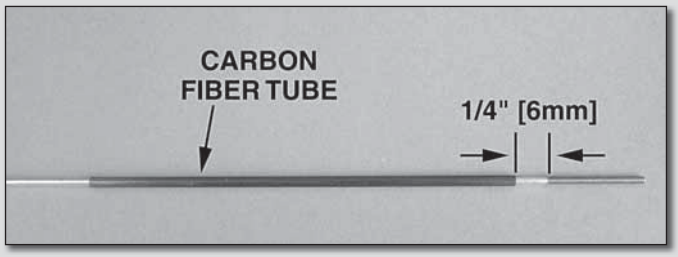




❏ 5. With the rudder in the neutral position and the rudder servo arm perpendicular to the servo case, mark where the pushrod crosses the outer hole of the servo arm. As you did with the aileron pushrods, make a 90° bend at the mark and cut off the excess pushrod 1/4" [6mm] beyond the bend. Secure the pushrod to the servo arm with a nylon FasLink. Make any adjustments necessary to the nylon clevis so that the rudder is properly centered and slide the silicone clevis retainer to the end of the clevis. Cut off the tip of the rudder control horn so it does not interfere with the elevator.

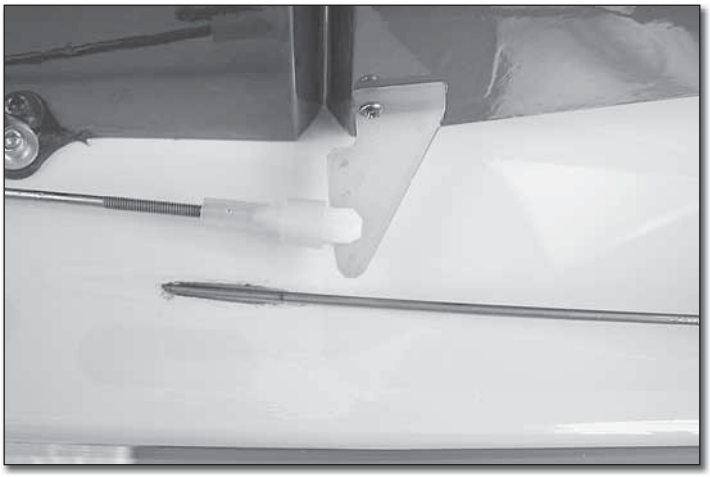
EXPERT TIP

Aft Rudder Servo Installation

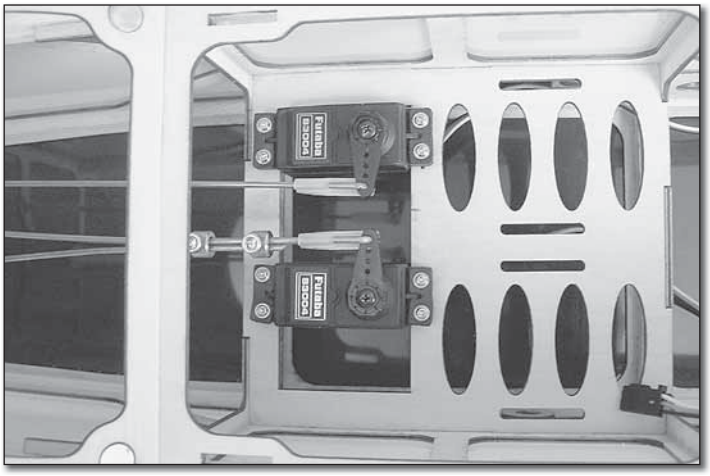


❏ A. Sand and clean a 36" [914mm] pushrod with denatured alcohol. Lightly coat 4" [102mm] of the pushrod beyond the threaded end with epoxy. Slide the included piece of carbon fiber tube over the pushrod, positioning it 1/4" [6mm] beyond the threaded end. Wipe away any excess epoxy with denatured alcohol.

❏ B. Trim the covering from the aft rudder servo bay on the left side of the fuselage in the location shown. Attach a 16" [406mm] servo extension to the rudder servo and secure the connection with a piece of heat shrink tubing. Install the servo using the hardware included with it. As you did with the ailerons, finish the pushrod installation using a nylon clevis, silicone clevis retainer, and a FasLink.

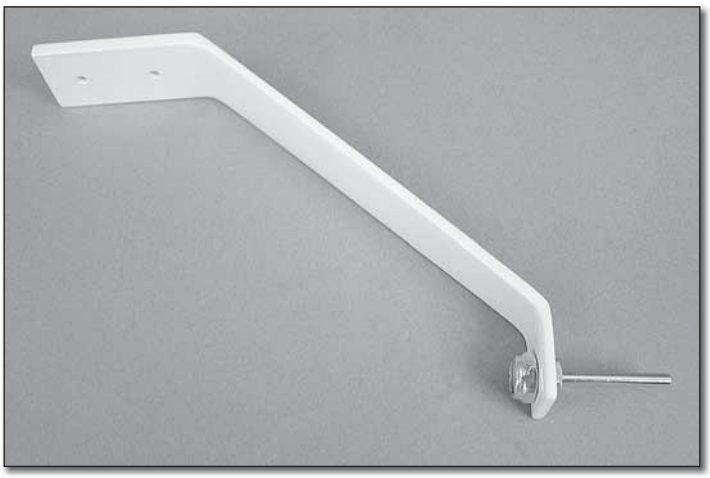


❏ 6. Attach two 2-56 x 36" [914mm] pushrods with nylon clevises and silicone clevis retainers to the second outer holes in the elevator control horns (for 3D elevator throws, use the second **inner** holes in the control horns).

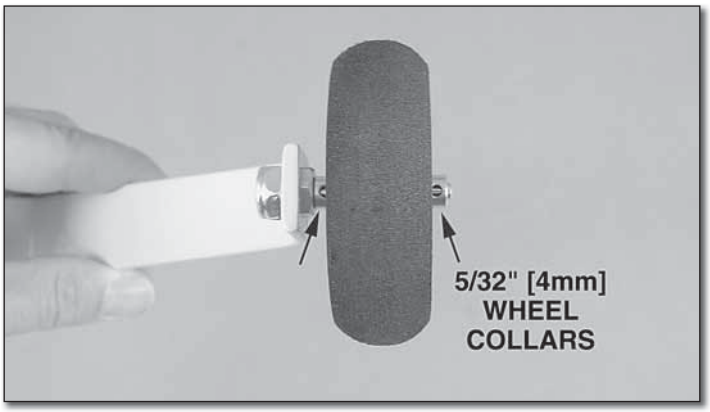


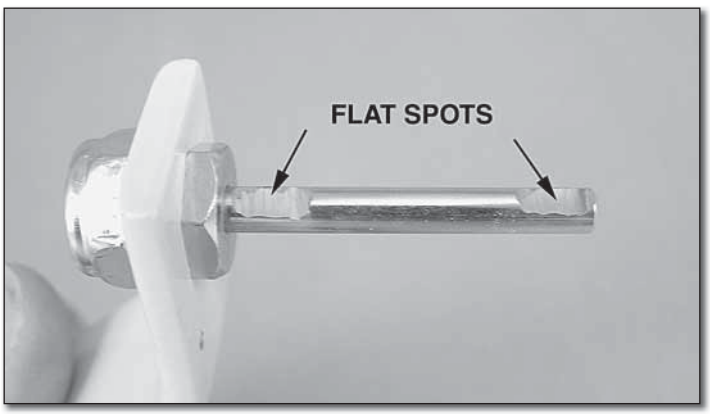
❏ 7. With the left elevator in the neutral position and the elevator servo arm perpendicular to the servo case, mark the location where the left elevator pushrod crosses the outer hole of the elevator servo arm. Make a 90° bend at the mark and cut off the excess pushrod 1/4" [6mm] beyond the bend. Position the right elevator in the neutral position and cut off the excess pushrod 1" [25mm] behind the elevator servo arm. Join the two elevator pushrods together using two 5/32" [4mm] wheel collars, two 6-32 x 1/4" [6mm] SHCS and threadlocking compound. View the model from behind and confirm that the elevator halves are parallel. If not, make any adjustments as necessary to the clevises or wheel collars until they are.

Assemble & Install the Landing Gear



❏ 1. Secure the axles to the landing gear legs using the 5/16"-24 nylon lock nuts.

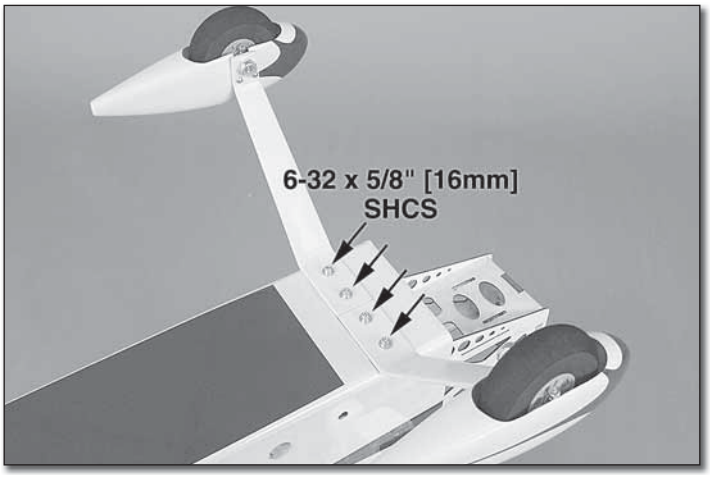




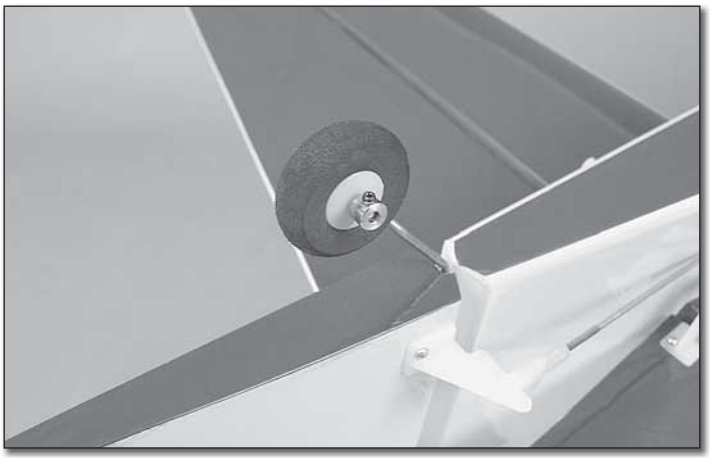
❏ 2. Slide a 5/32" [4mm] wheel collar onto each axle followed by a 2-3/4" [70mm] wheel and then another 5/32" [4mm] wheel collar. Mark the location of the threaded holes in the wheel collars onto the axles. Use a file or rotary tool such as a Dremel to grind flat spots at the marks on the axles.

❏ 3. Reinstall the wheel collars and wheels onto the axles. Thread a 6-32 x 1/4" SHCS into each wheel collar and tighten the screws against the flat spots on the axles. Be sure that the wheel rotates freely on the axle. Oil the axles if necessary.

❏ 4. Attach the wheel pants to the landing gear legs using four 2-56 x 3/8" [9.5mm] machine screws, four #2 flat washers, four #2 lock washers, and threadlocking compound.



❏ 5. Attach the landing gear legs to the fuselage using four 6-32 x 5/8" [16mm] SHCS, four #6 flat washers, four #6 lock washers, and threadlocking compound.

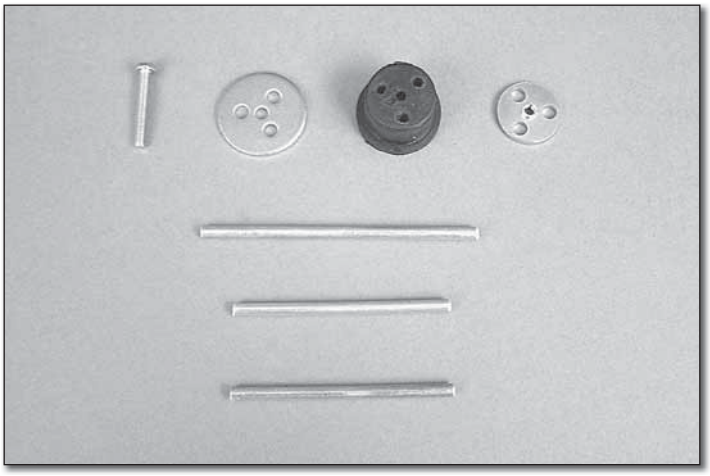


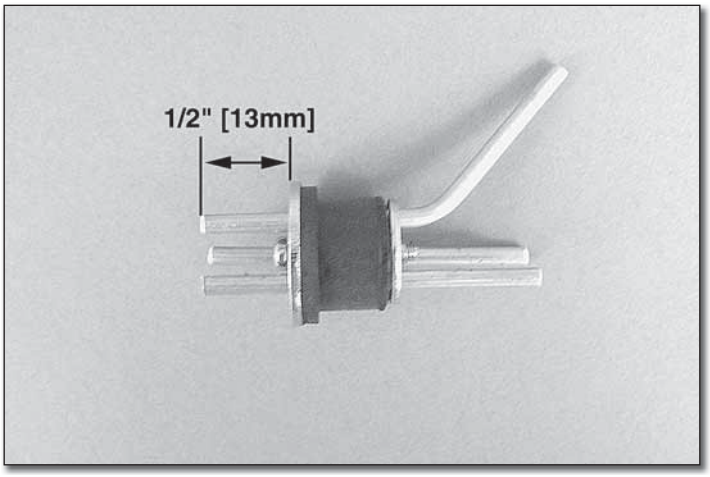
❏ 6. Secure the tail wheel to the tail wheel assembly with a 3/32" [2.4mm] wheel collar and a 4-40 set screw. Be sure that the tail wheel rotates freely on the axle. Oil the axle if necessary.

Glow Engine Installation

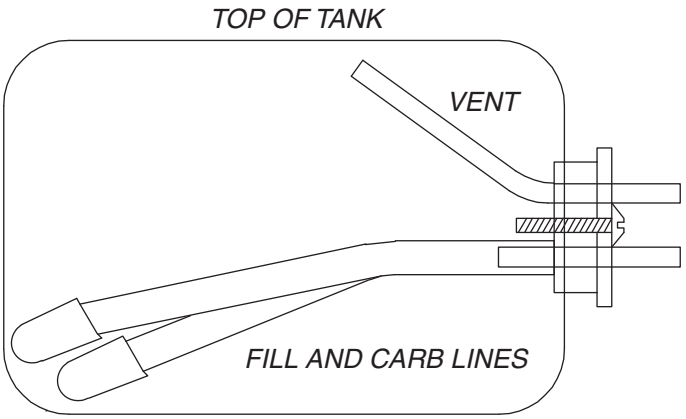
The Matt Chapman Eagle 580 .46 ARF is designed to be flown with a .46 to .61 two-stroke glow engine, .52 to .81 four-stroke glow engine, or a brushless out-runner motor. If you plan to install a brushless motor, skip this section as it only contains information relevant to installing a glow engine.

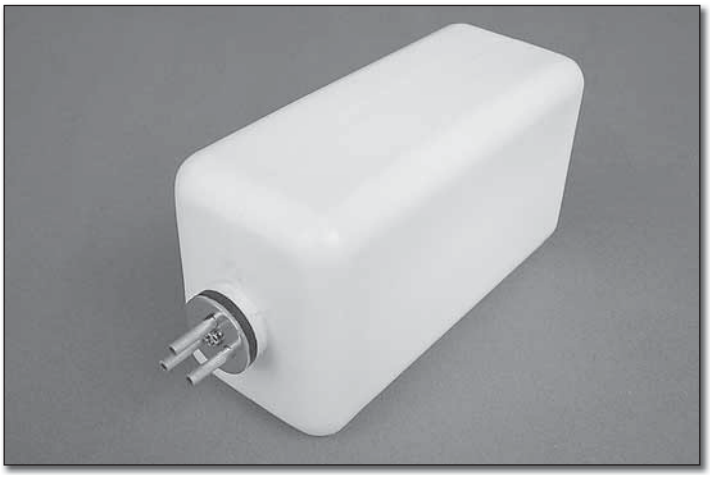
A 4-stroke engine is shown in this section. The installation of a 2-stroke engine will require the same procedure. A Pitts style is recommended to minimize the amount cutting required of the cowl. The stock muffler can be used. However, a section of the cowl will need to be cut away to accommodate the muffler body.



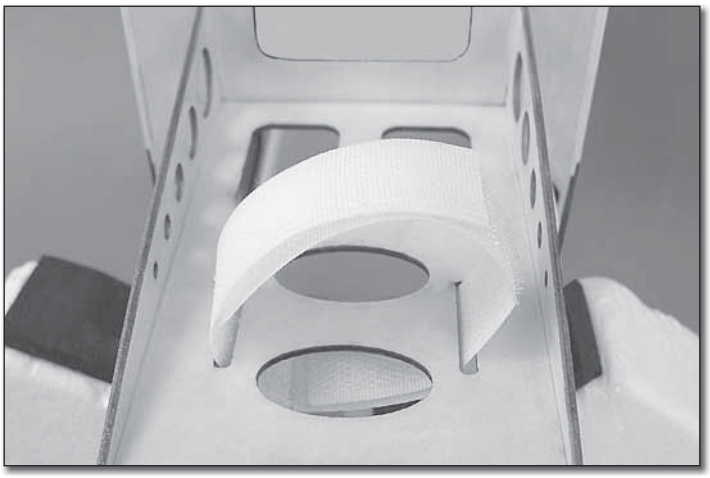


❏ 1. The fuel tank can be assembled as a two line system consisting of a vent (pressure) line to the muffler and a carb line. Filling and emptying of the tank would need to be done through the carb line, or an optional fuel fill valve (not included). The tank can also be assembled as a three line system having a vent line, carb line, and fill line. If installing a fill line, puncture the top of the stopper above the sealed off fuel tube hole. The fill and carb lines should extend out 1/2" [13mm] beyond the stopper and the vent line should be bent upwards and left uncut. With the tubes installed in the stopper, fit the stopper plates loosely in place with the 3 x 25mm Phillips screw to hold the assembly together.

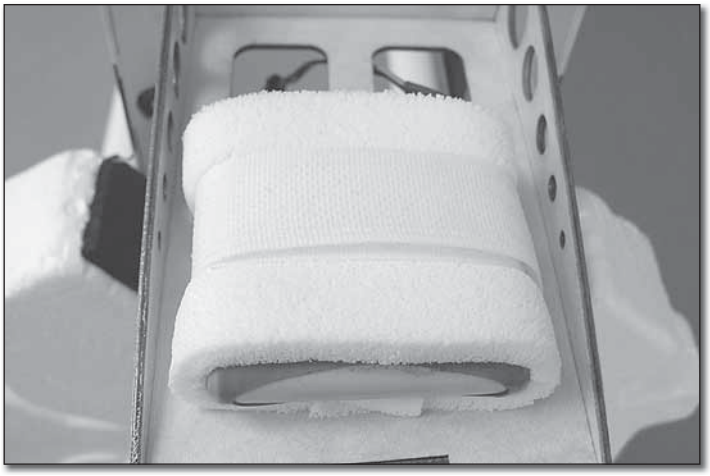




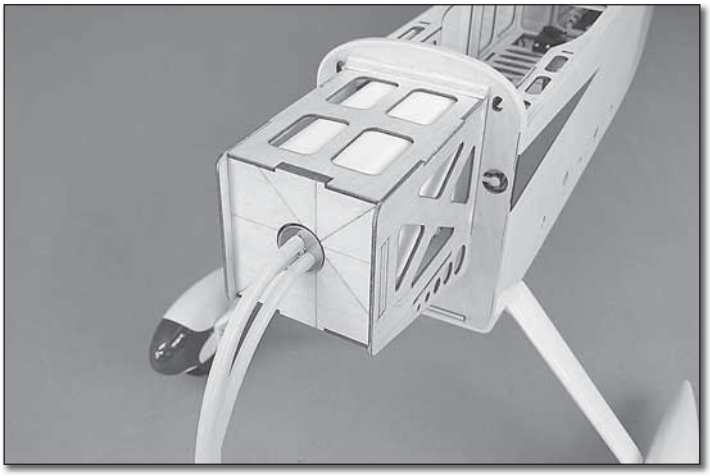
❑ 2. Fit the stopper assembly into the tank with the vent line pointing toward the top of the tank, but not touching. The fuel tubing and clunks (fuel pickup) on the carb and fill lines should almost reach the back of the tank but not touch. The clunks must be able to move freely inside the tank when assembled. Adjust the length of the fuel tubing accordingly. When satisfied, tighten the 3 x 25mm screw in the stopper to secure it in place (do not overtighten). Mark the side of the tank that must face up when installed in the plane, and we also suggest marking the tubes in the stopper.



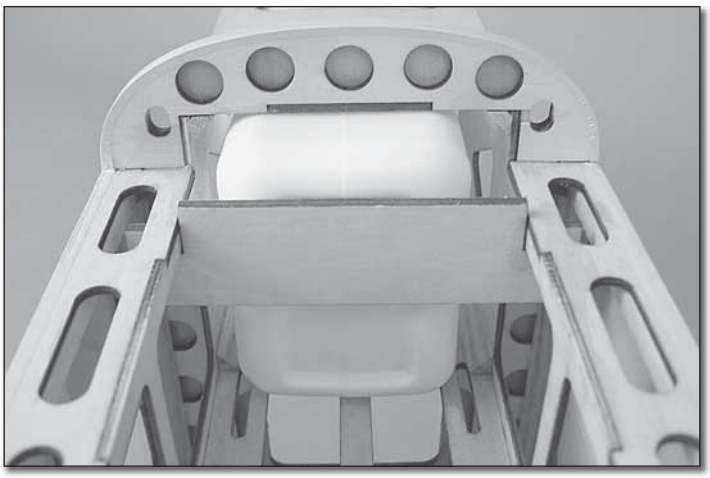
❑ 3. For balancing purposes, a location is provided on the underside of the motor mounting box for the receiver battery when installing a lighter weight engine. The receiver battery can also be installed behind the fuel tank or on the servo tray. Make a strap from the included hook and loop material by overlapping the mating ends by approximately 1" [25mm]. The total length of the strap will be determined by the size of your receiver battery. Fit the strap through the slots in the motor mounting box as shown.



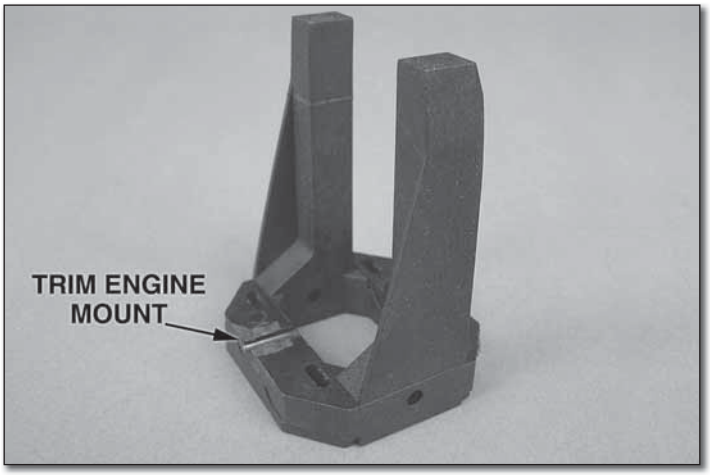
❑ 4. Cut a piece of foam rubber to wrap around the pack and securely strap it to the underside of the motor mounting box. Feed the battery lead up through one of the lightening holes in the mounting box and into the fuselage. We recommend sealing the receiver pack (and foam rubber) in a plastic bag to protect it from exhaust residue. **Securely** strap the receiver pack to the motor mounting box.



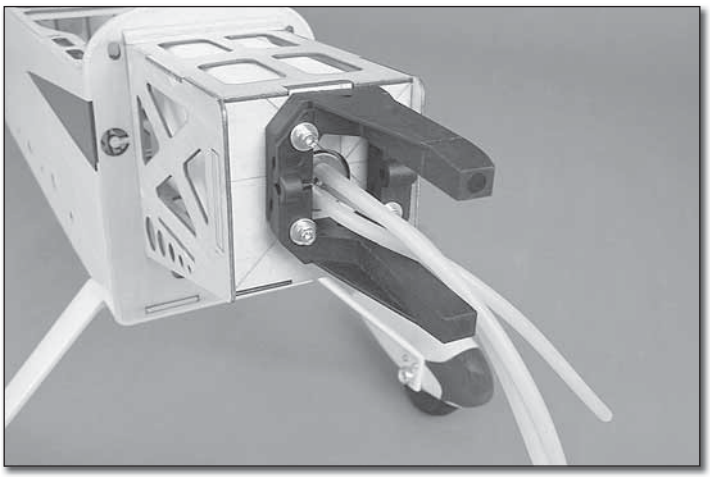
❑ 5. Attach a 6" to 7" [152mm to 178mm] piece of fuel tubing onto each line coming from the tank. Insert the tank into the fuselage with the correct side facing up. Fit the neck of the fuel tank through the hole in the firewall (if the tank neck does not align with the hole in the firewall, rotate the stopper assembly in the tank 180 degrees and flip the tank over).



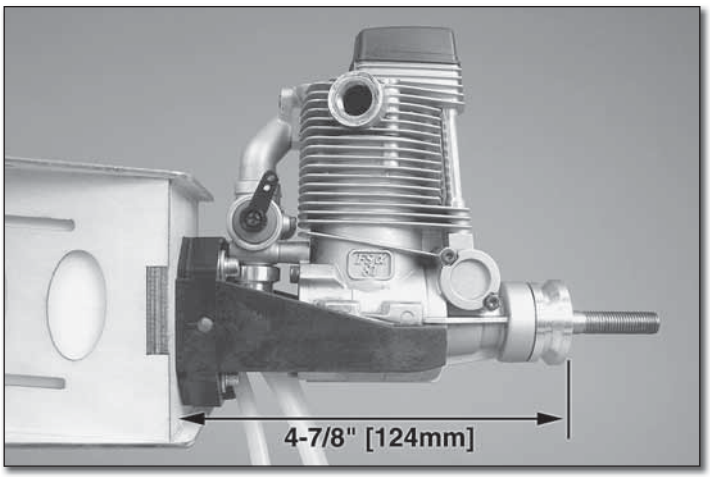
❑ 6. Glue the plywood **fuel tank brace** to the fuselage as shown. The brace should be positioned against the back of the tank.

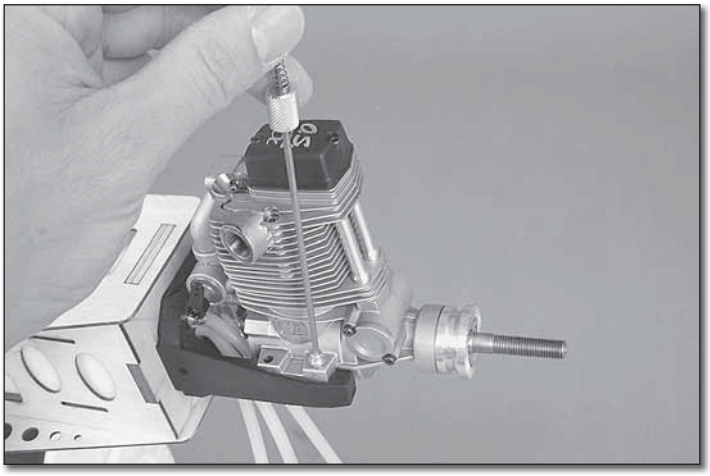


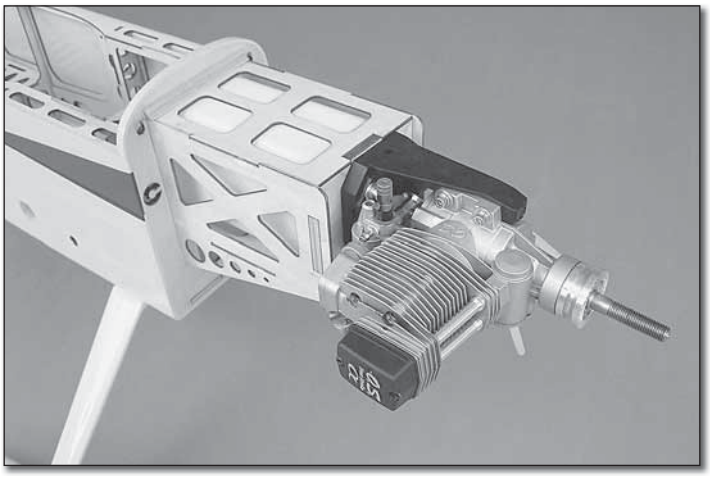
❑ 7. If you are installing the O.S. 81FS-a engine, you will need to trim away the nose gear bearing on the top side of the engine mount as shown. A rotary tool works well for this.



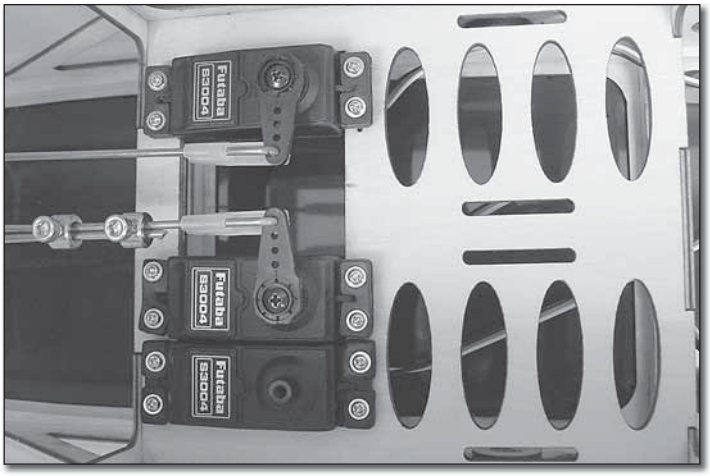
❑ 8. Using four 6-32 x 3/4" [19mm] SHCS, four #6 flat washers, four #6 lock washers, and threadlocking compound, attach the engine mount side-mounted to the firewall so that the engine head will be on the right side. Leave the screws slightly loose. Test fit your engine between the mount halves. Slide the mount halves against the sides of the engine and finish tightening the mount screws.



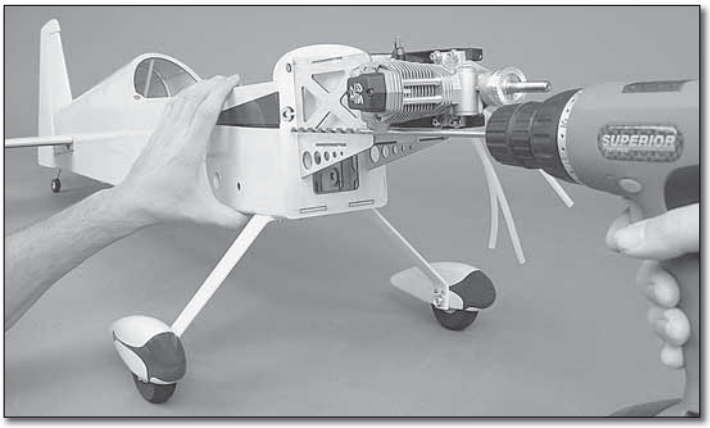


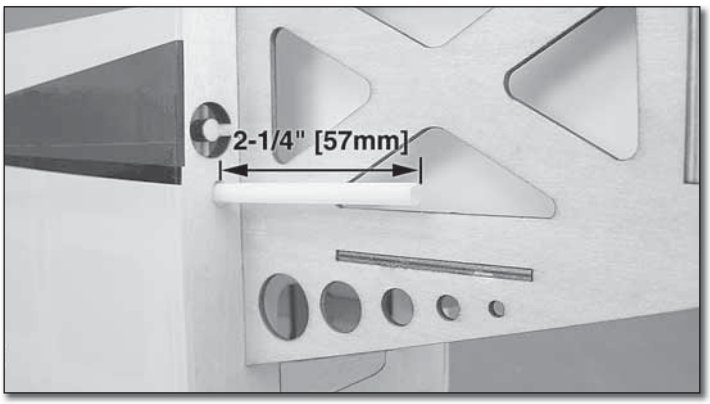


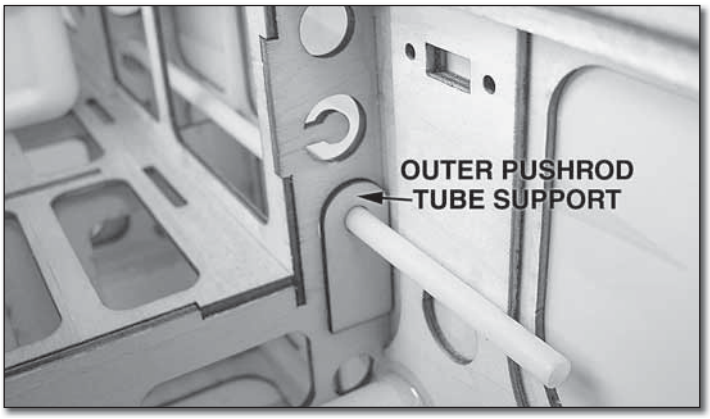
❑ 9. Position the front of the engine drive washer 4-7/8" [124mm] from the front of the engine mounting box. Mark the location of the engine mount holes onto the mount rails using a Dead Center Hole Locator. Remove the engine from the mount and use a 6-32 tap and drill set to create threads in the four mounting holes. Attach the engine to the mount using four 6-32 x 3/4" [19mm] SHCS, four #6 flat washers, and four #6 lock washers.



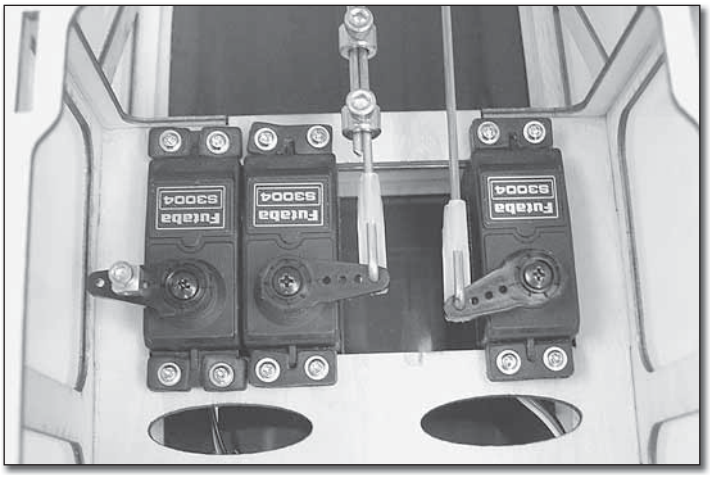
❏ 10. Install the throttle servo onto the throttle servo tray using the hardware supplied with the servo. Be sure that the throttle servo is not touching the elevator servo.



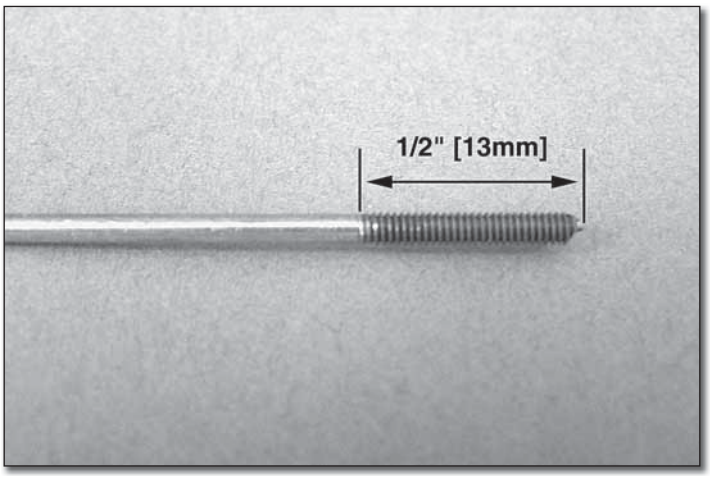




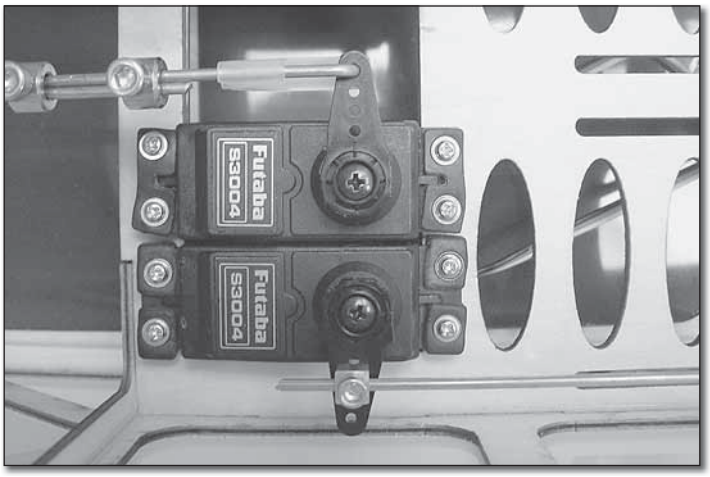
❏ 11. Drill a 3/16" [4.8mm] hole in the firewall inline with the throttle arm on the carburetor (an extra long drill bit is very useful). Roughen the outside of the included outer pushrod tube using 220-grit sandpaper. Slide the outer pushrod tube through the hole you drilled in the firewall and through one of the lightening holes in the second former. Fit the plywood **outer pushrod tube support** over the aft end of the pushrod tube, but do not glue it in place yet. Position the outer pushrod tube so that it protrudes beyond the firewall approximately 2-1/4" [57mm]. Glue the outer pushrod tube to the hole in the firewall.



❏ 12. Install a brass screw-lock connector onto the second inner hole of the throttle servo arm using a nylon retainer. Thread a 4-40 x 1/8" [3mm] SHCS loosely into the screw-lock pushrod connector. Center the throttle servo using your radio system and attach the arm to the servo with the servo arm screw.



❏ 13. To make the throttle pushrod easier to work with inside the fuselage, cut the remaining 36" [914mm] pushrod down to approximately 21" long [533mm] (do not cut off the threaded end). If you are installing an engine with a rear mounted carb, also cut off a portion of the threaded end, leaving 1/2" [13mm]. Thread a nylon clevis onto the pushrod 20 complete turns and install a silicone clevis retainer onto the clevis.



❏ 14. Insert the pushrod through the outer pushrod tube and through the screw-lock pushrod connector on the throttle servo arm. Connect the clevis to the throttle arm on the carburetor. Make any necessary bends in the pushrod so the pushrod can actuate the throttle without contacting the motor mounting box. When satisfied, adjust the pushrod position in the screw-lock pushrod connector so that the throttle servo properly opens and closes the carburetor. Use the radio system to test the operation of the throttle. Tighten the SHCS in the screw-lock pushrod connector and cut off the excess pushrod 1/4" [6mm] behind it. Glue the outer pushrod tube support to the second former and glue the outer pushrod tube to the outer pushrod tube support.

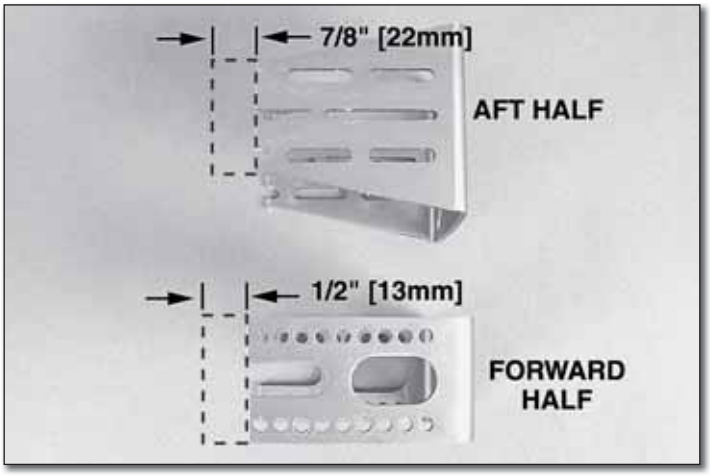
❏ 15. CA glue the plywood fill line clip to the bottom center of the firewall. The clip can be fuelproofed with epoxy. Cut the fuel tubing coming from the tank to the proper length and connect the carb line to the engine. The fill line (if installed) should be plugged with the included aluminum fuel line plug and will conveniently fit into the fill line clip. Be sure to replace the fuel line plug after filling or draining the fuel tank. The pressure line will be installed onto the muffler after the cowl installation section.

❏ 16. Seal up the electric cooling hole cutout with thick CA or epoxy.

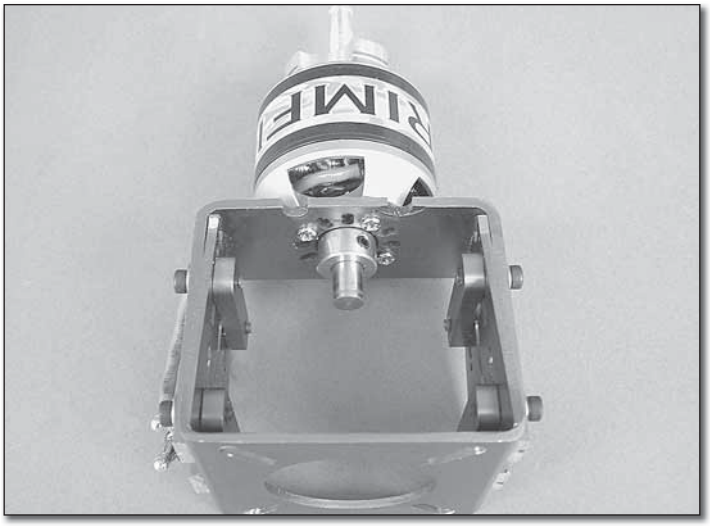
Brushless Motor Installation

The Eagle 580 Matt Chapman .46-.81/EP ARF is designed to be flown with a .46 to .61 two-stroke glow engine, .52 to .81 four-stroke glow engine, or a brushless out-runner motor. If you have installed a glow engine, skip this section as it only contains information relevant to installing a brushless motor.

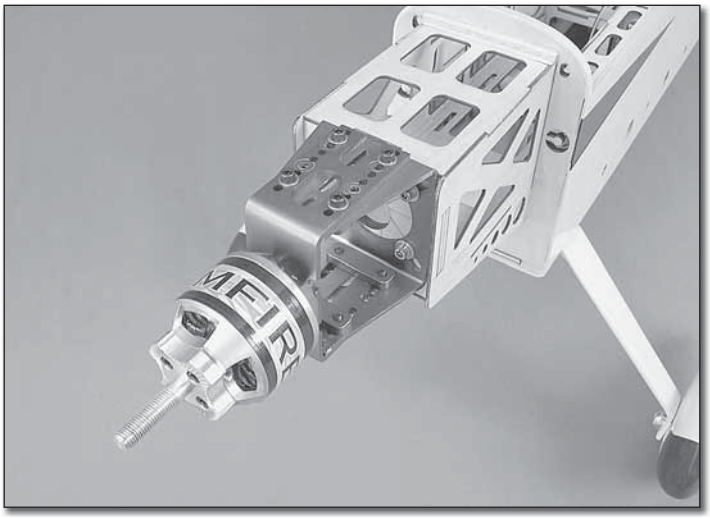
Be sure to read and understand the instructions that come with the ESC and motor before attempting to operate the system. Also read the lithium battery handling and usage warning on page 26 of this manual.



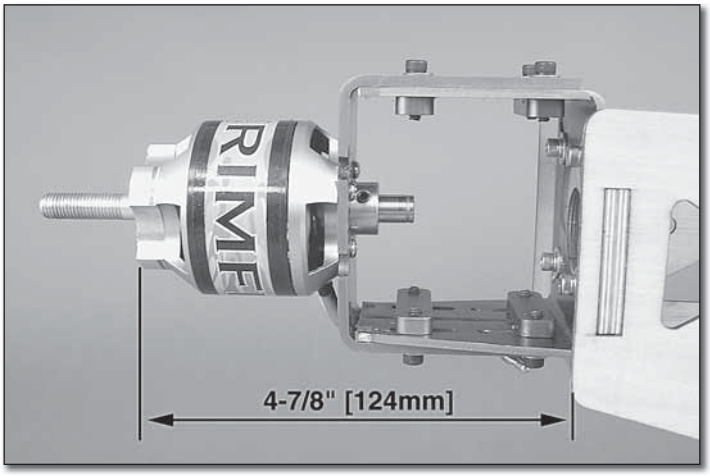
❏ 1. In order to achieve the required distance from the firewall to the face of the bolt-on prop adapter, the ends of the motor mount halves must be cut shorter. A hacksaw or rotary tool with a cutoff wheel work well for this. The aft motor mount half must be shortened by 7/8" [22mm] and the forward motor mount half must be shortened by 1/2" [13mm]. Reassemble the motor mount using **threadlocking compound on the mount screws**.



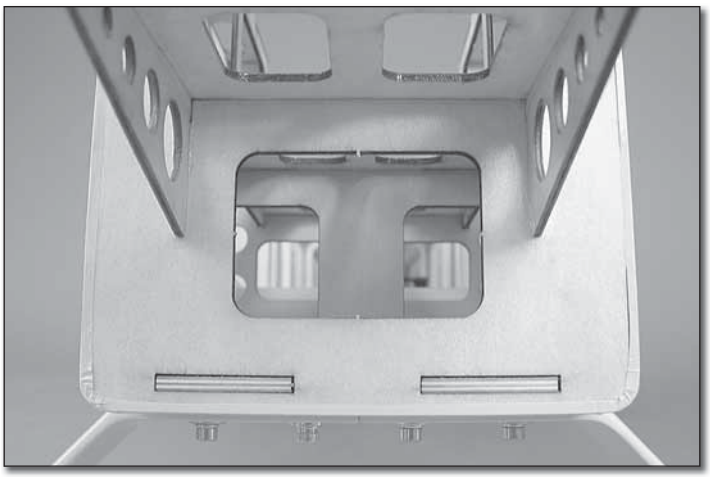
❏ 2. Attach the out-runner motor to the brushless motor mount using the included 3 x 8mm machine screws and threadlocking compound. If you haven't done so yet, install the prop adapter to the motor case with the hardware included with the motor and **threadlocking compound**.



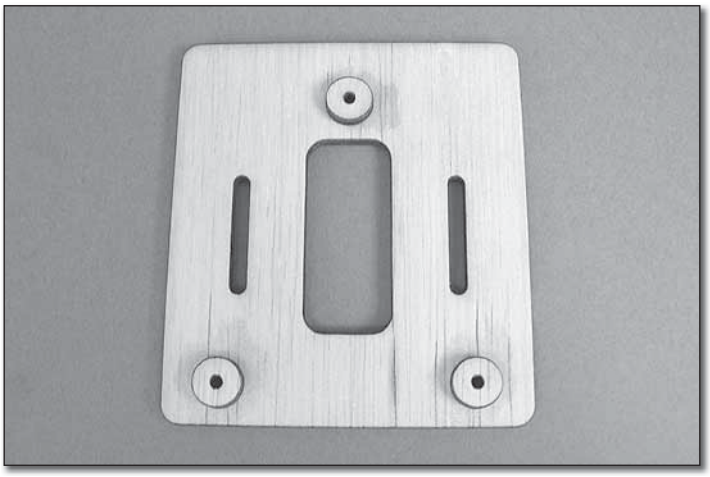
❏ 3. Attach the motor mount to the firewall using four 6-32 x 1/2" [13mm] SHCS, four #6 flat washers, four #6 lock washers, and **threadlocking compound**.



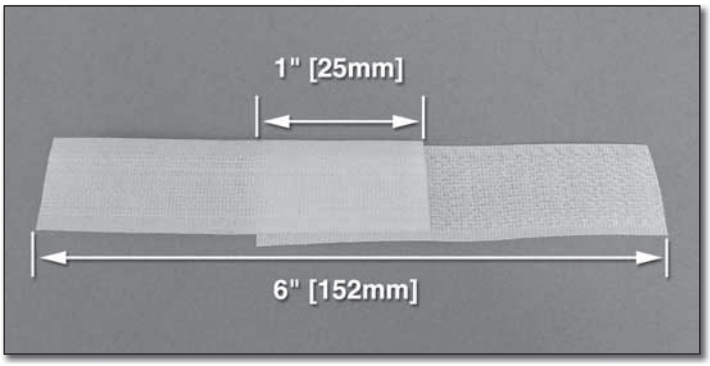
❏ 4. Loosen the screws that join the aluminum motor mount halves and slide them together so that the front of the prop adapter is 4-7/8" [124mm] from the firewall. When adjusting the aluminum motor mount, take care not to inadvertently increase or decrease the amount of right thrust from what is already built into the motor mounting box.



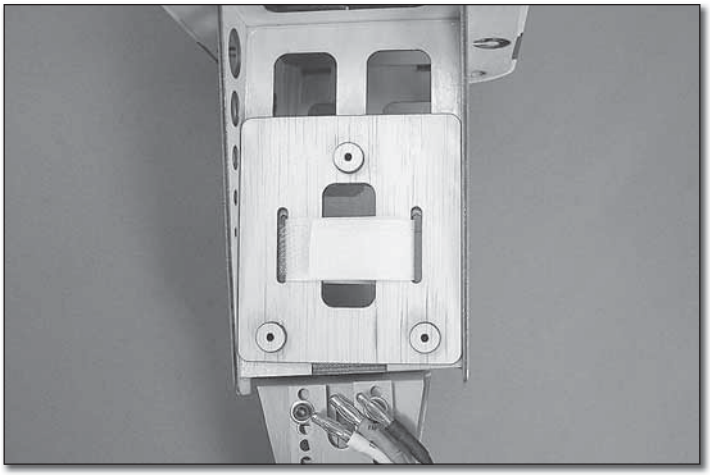
❏ 5. Knock out the cooling hole in the bottom of the firewall.

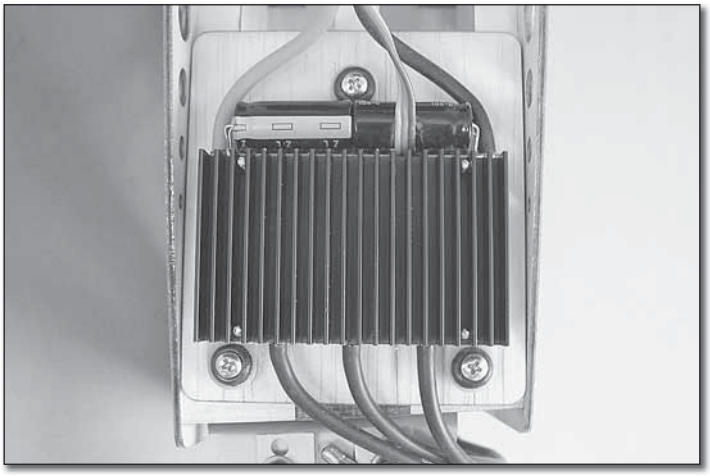


❏ 6. The mounting holes in the included ESC tray match the mounting pattern of the recommended Great Planes brushless ESC. Other brand speed controllers can be secured to the tray with the included hook and loop material.

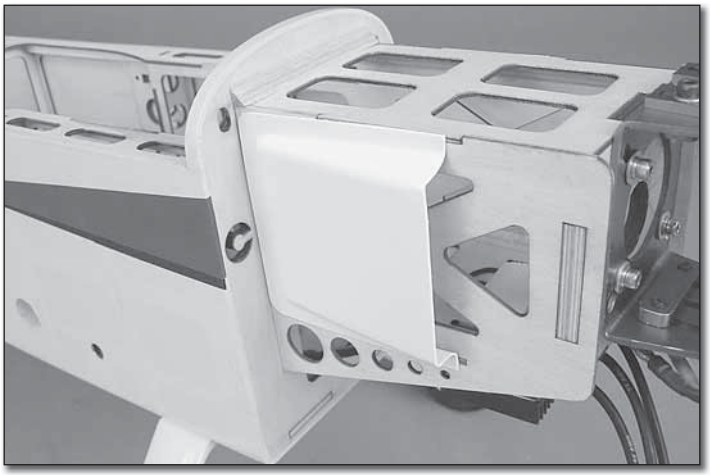


❏ 7. Make a strap from the included hook and loop material by overlapping the mating ends by approximately 1" [25mm]. If you are installing the recommended Great Planes ESC, make the strap 6" [152mm] long. If you are using a different brand ESC, you can use the strap to secure the ESC to the tray. The total length of the strap will be determined by the size of the ESC.

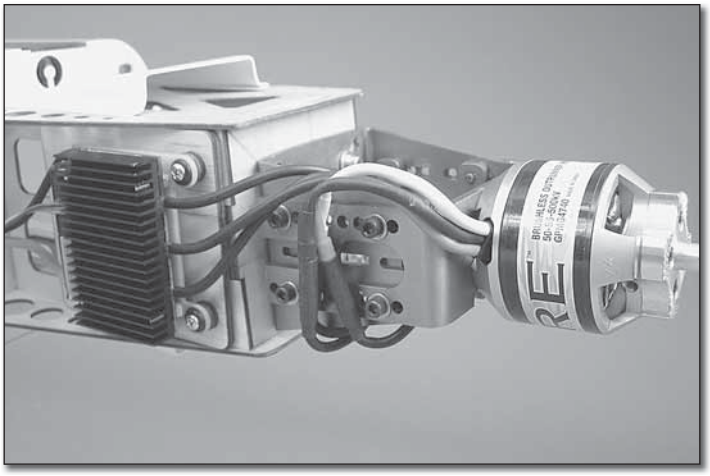




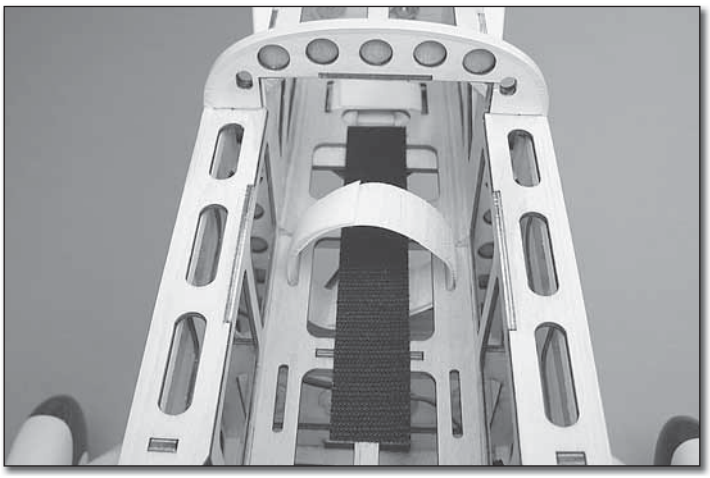
❏ 8. Secure the ESC tray to the underside of motor mounting box using the hook and loop strap. Use three #4 x 3/8" [9.5mm] self-tapping screws to attach the recommended Great Planes ESC to the ESC tray.

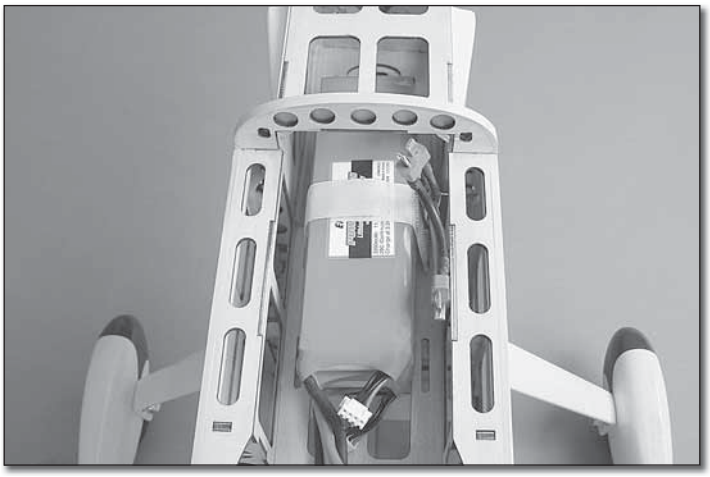


❏ 9. Use CA glue to attach the ABS air scoops to the sides of the motor mounting box as shown.



❏ 10. Connect the motor lead wires to the ESC. Wrapping the wires around the brushless motor mount will keep the excess length neatly out of the way.

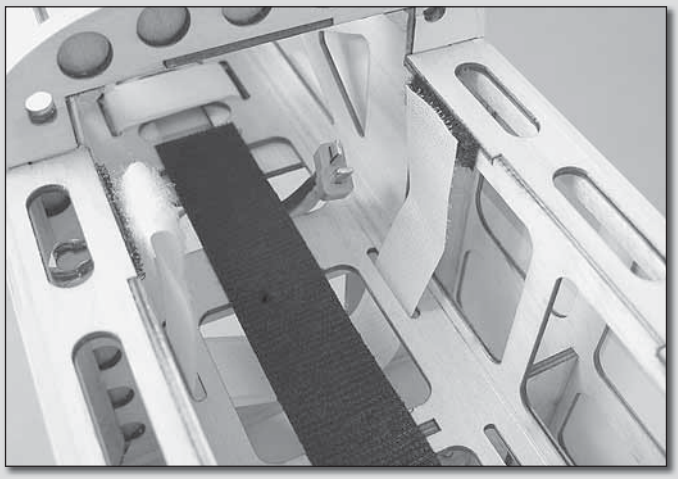




❏ 11. Attach the hook side from a package of self-adhesive hook and loop material (not included) to the center of the battery tray. Cut it to length as needed. As you did for the ESC, make another hook and loop strap from the included material to secure the LiPo batteries to the tray. Fit the strap through the slots in the tray as shown. Apply the loop side from the self-adhesive hook and loop material to the packs (use additional pieces to secure multiple packs together) and test fit it onto the tray. When you balance the airplane after the assembly has been completed, the exact position of the packs on the tray will be determined and you should

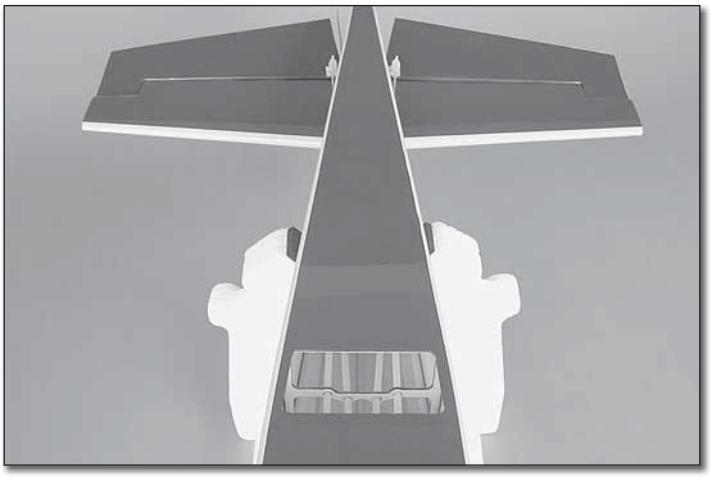
mark this position on the tray for reference. Now would also be a good time to confirm that the motor will rotate the correct direction by temporarily powering up the motor using the ESC and your radio system (do not install a propeller yet!). If the motor rotates the wrong direction (it should rotate counterclockwise when viewing it from the front), disconnect any two of the three motor leads and swap their position.

EXPERT TIP



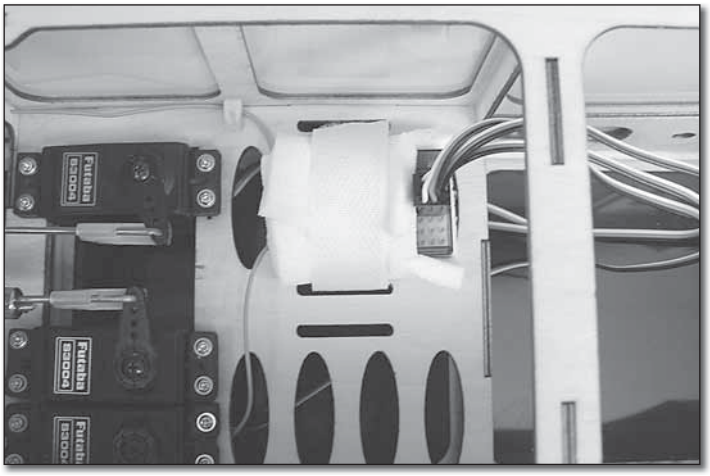
To prevent the battery hook and loop strap ends from ever falling down out of the slots in the tray, cut small pieces of left over self-adhesive hook and loop material and attach them in the locations shown. When you unstrap the batteries from the tray, use the small pieces to hold the strap ends up and out of the way while you remove the batteries.

Although the strap could also be glued in place along the underside of the tray, doing so will prevent you from drawing the strap tightly around the packs. Allowing the strap to fit freely in the slots in the battery tray is the preferred method.



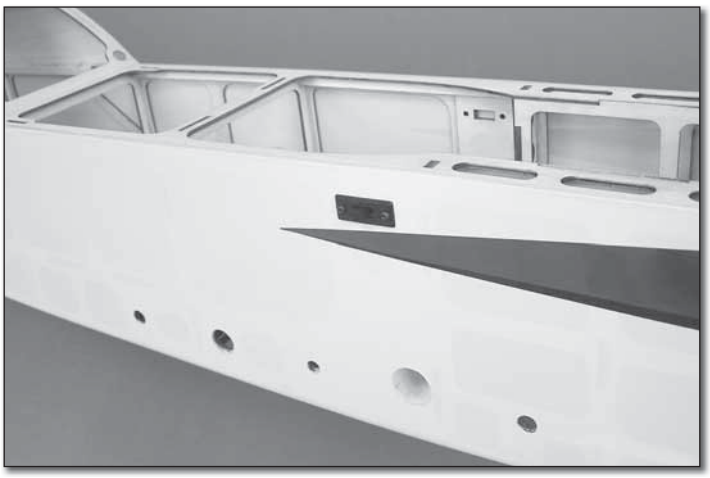
❏ 11. Cut the covering from the cool air exit on the underside of the fuselage in the location shown.

Install the Receiver



❏ 1. Make a strap from the included hook and loop material to fit your receiver. Connect the servos to the receiver, being sure that the leads will not interfere with the tail surface pushrods. Depending on the ESC being used (if applicable), you may need a servo extension to reach the receiver. Cut a piece of foam rubber (not included) to fit your receiver and strap the receiver in front of the tail servos as shown. A receiver antenna tube is provided for FM and PCM receivers. Trim the covering from the antenna tube exit slot if necessary.

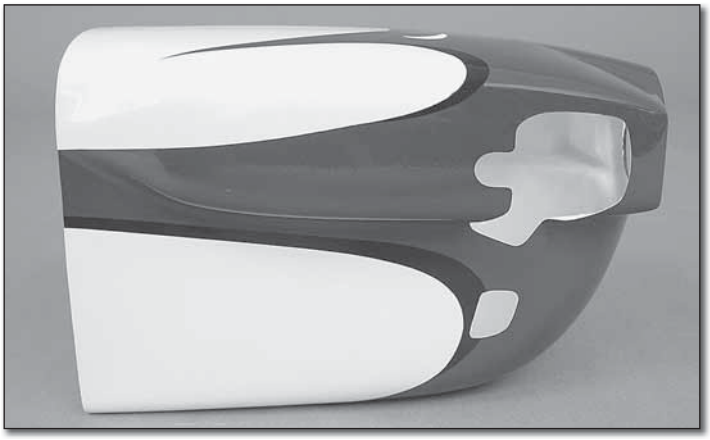
❏ 2. If you installed a brushless motor, make another strap to secure your receiver battery next to the receiver. For balancing purposes, the receiver battery can also be installed in the front of the plane above the ESC location.



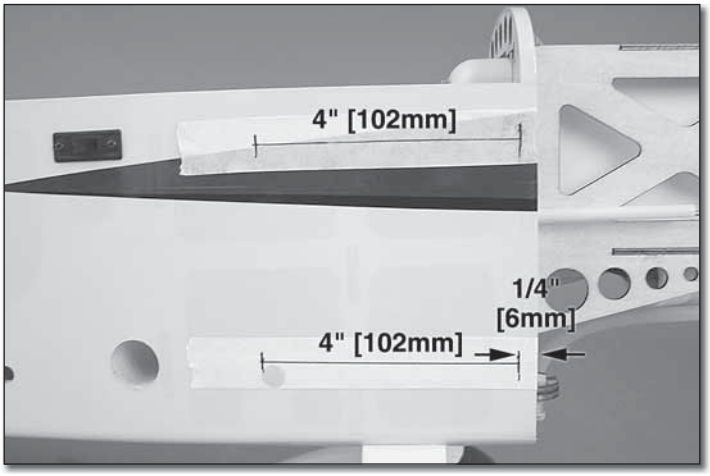
❏ 3. Openings are provided on both sides of the fuselage for mounting an on/off switch. The hole spacing is made for a Futaba mini switch harness. If you are using a different switch, you may need to modify the opening, or mount it in a different location. An optional charge jack receptacle can be mounted below the switch.

❏ 4. Neatly bundle and secure the excess lengths of servo leads out of the way. If you have a radio with mixing capabilities, the aileron servos can be connected directly to two different channels on the receiver when you install the wing panels. If not, a Y-harness will need to be connected to the aileron channel on the receiver.

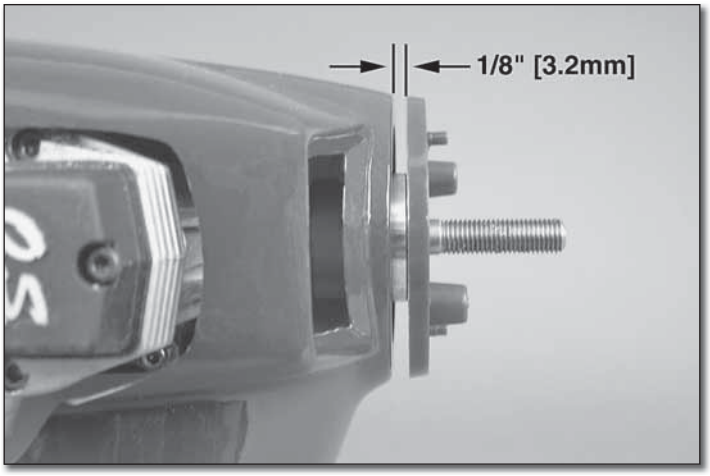
Finish the Model

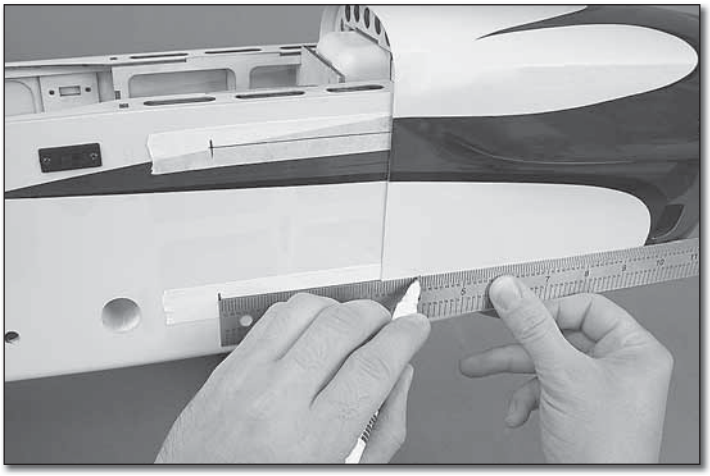


❏ 1. Before fitting the cowl, make any cutouts necessary for your power system. If you are installing a glow engine, a cutout must be made for the engine head, exhaust, needle valve access, and cool air exit. A rotary tool such as a Dremel works very well for cutting holes in fiberglass. We suggest proceeding slowly with this step to achieve a clean, accurate hole around the engine head. Gradually enlarge the hole as needed checking your progress frequently. A paper template of the engine head can be made. However, the cowl cheeks will make a template more difficult to use.

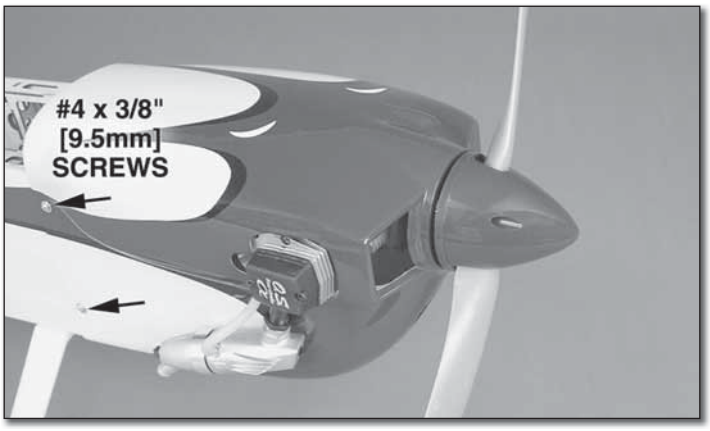


❏ 2. Put 5" [127mm] strips of masking tape on the sides of the fuselage parallel to the fuselage length (two per side) as shown (reference the cowl blocks glued inside the fuselage for placement of the tape). Make a mark 1/4" [6mm] behind the front of the firewall on each piece of tape. Use a ruler to accurately draw a 4" [102mm] line from the mark onto the tape. Make a mark at the aft end of each line.

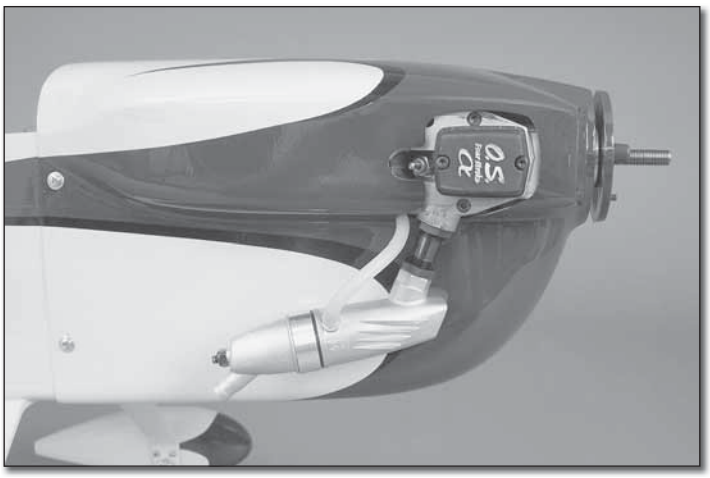




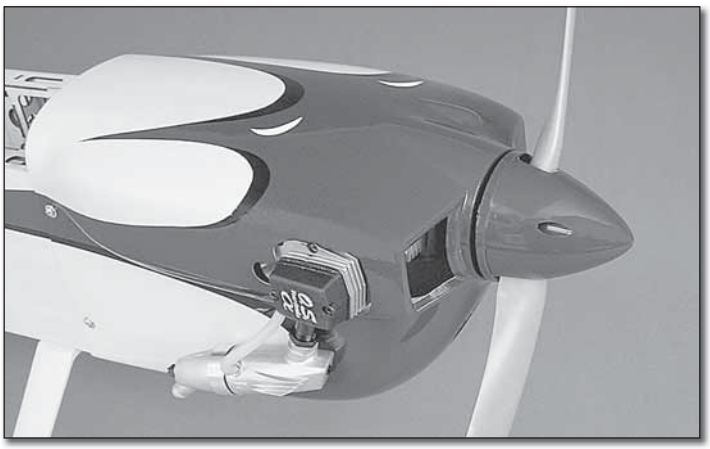
❏ 3. Fit the cowl onto the fuselage. Use the spinner backplate (you may need to enlarge the hole in the backplate to match the size of your motor shaft) to center the position of the front of the cowl 1/8" [3.2mm] behind the backplate. Be sure that the colors on the cowl and fuselage are aligned. Temporarily tape the cowl in place or have a helper hold the cowl. Measure 4" [102mm] along the lines from the aft marks on the tape and mark the cowl where to drill the four cowl mounting holes.



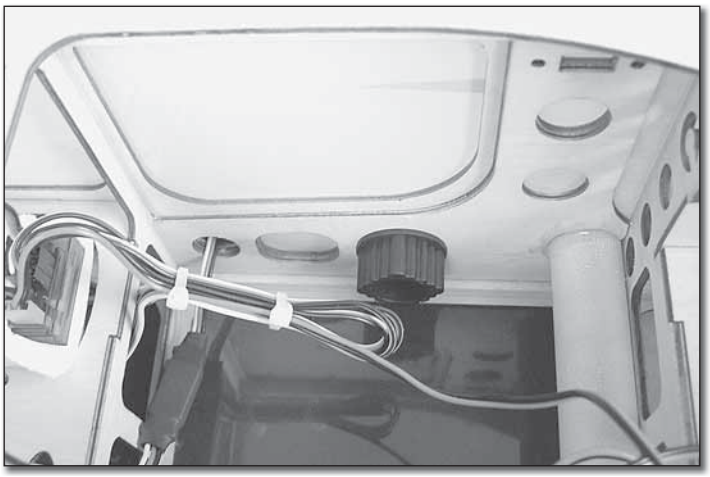
❏ 4. Drill 3/32" [2.4mm] holes at the marks you made on the cowl through the cowl and fuselage (take care not to drill into the fuel tank). Remove the cowl and thread a #4 x 3/8" [9.5mm] self-tapping screw into each hole in the fuselage and back it out. Apply a couple drops of thin CA to each hole. Enlarge the four holes in the cowl with a 1/8" [3.2mm] bit. Install the cowl onto the fuselage using four #4 x 3/8" [9.5mm] self-tapping screws and four #4 flat washers.



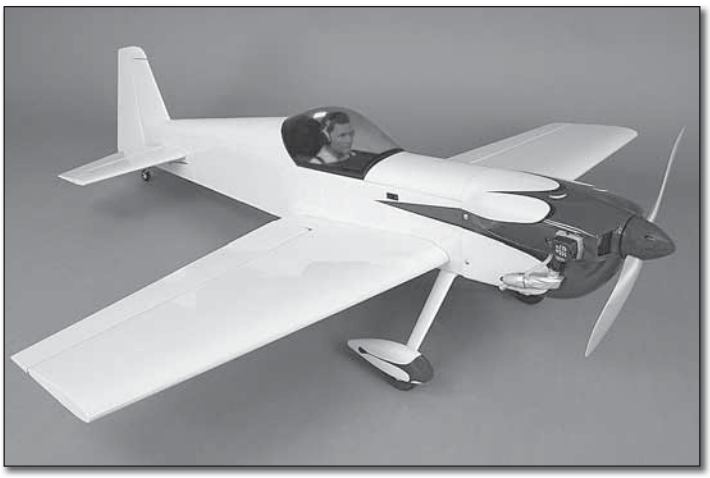
❑ 5. If you haven't done so already, attach the muffler to the engine and connect the vent line from the fuel tank to the muffler. Trim it to length if needed.



❑ 6. Install your propeller using the prop washer and nut that came with the motor. Enlarge the propeller slots in the spinner cone as necessary to fit over the propeller blades. When satisfied, install the spinner cone onto the backplate using the provided screws.



❑ 7. To install the wing panels, insert the carbon fiber wing joiner into the tube in the fuselage. Slide the wing panels onto the tube, feed the aileron servo leads through the openings in the fuselage side, and align the anti-rotation pins with their mating holes. Bolt the wings in place using the 1/4"-20 nylon wing bolts. Connect the aileron servo leads to the receiver.



❑ 8. Install the canopy hatch by fitting the canopy pins into their mating holes in the firewall, pushing the back of the hatch down against the fuselage, then sliding the hatch back to engage the magnets. *You have now completed the assembly!*

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 and water allows accurate positioning and reduces air bubbles underneath.

3. Position decal on the model where desired. Use the pictures on the box and manual cover for reference. 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.

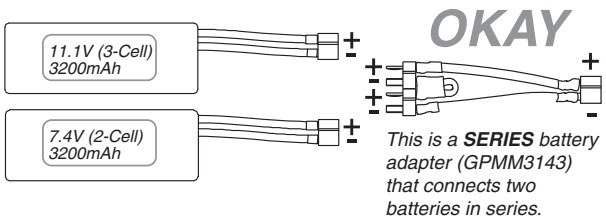
GET THE MODEL READY TO FLY

Install & Operate the Motor Battery (Brushless Only)

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**.

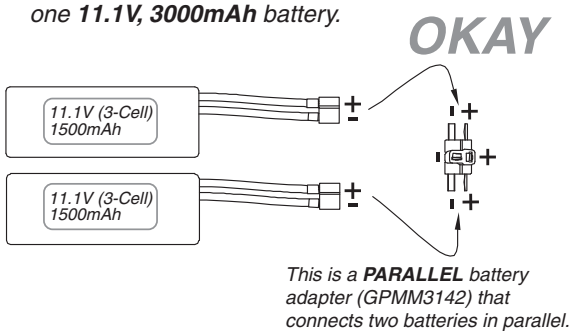
*These are two 3200mAh batteries (one 11.1V and the other 7.4V). When joined in **SERIES**, the result will be a 18.5V, 3200 mAh battery.*



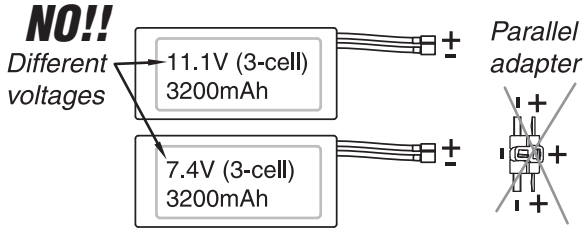
It's okay to connect batteries with different voltages in series to achieve the new, desired voltage.

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

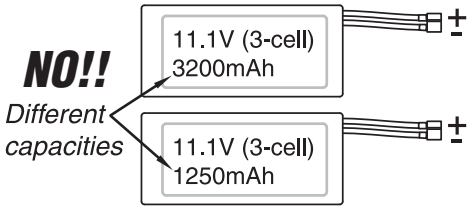
*These two 1500mAh batteries (both 11.1V) are being joined in **PARALLEL**. The result will be one **11.1V, 3000mAh** battery.*



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



NEVER connect battery packs with different voltages in parallel! Only combine them in series. Otherwise, the batteries with lower voltage will try to "equalize" with the batteries that have a higher voltage. Current will flow from the higher voltage battery into the lower one, essentially "charging" the lower voltage battery pack. This situation will likely cause heat and possibly a fire.



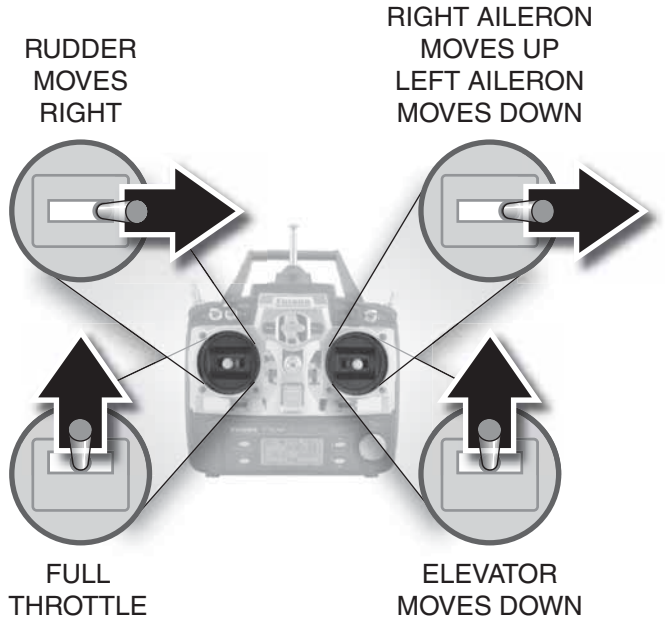
NEVER connect battery packs with different capacities in series or in parallel.

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.

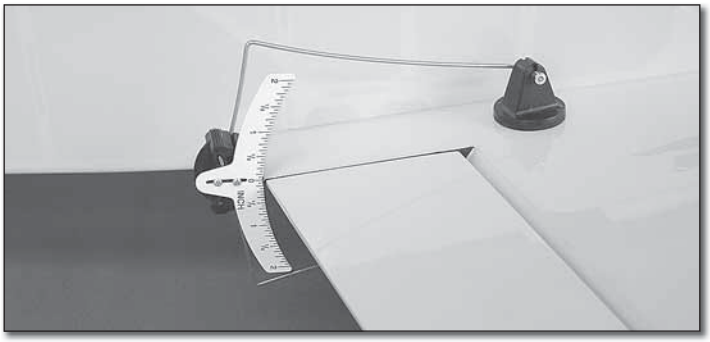
❑ 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, adjust the clevises on the pushrods to center the control surfaces.

4-CHANNEL RADIO SET UP (STANDARD MODE 2)



❑ 3. Make certain that the control surfaces and the throttle 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 (or a ruler) to accurately measure and set the control throw of each control surface as indicated in the chart that follows. If your radio does not have dual rates, we recommend setting the throws at the **low rate** setting. **Note:** The throws are measured at the **widest part** of the elevators, rudder and ailerons.

These are the recommended control surface throws:

	3D RATE		HIGH RATE		LOW RATE	
ELEVATOR	**Up**	**Down**	**Up**	**Down**	**Up**	**Down**
	2-3/8" [60mm] 35°	2-3/8" [60mm] 35°	11/16" [17mm] 10°	11/16" [17mm] 10°	3/8" [10mm] 5°	3/8" [10mm] 5°
RUDDER	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**
	3" [76mm] 28°	3" [76mm] 28°	2-1/4" [57mm] 20°	2-1/4" [57mm] 20°	1-3/4" [44mm] 16°	1-3/4" [44mm] 16°
AILERONS	**Up**	**Down**	**Up**	**Down**	**Up**	**Down**
	1-3/4" [44mm] 26°	1-3/4" [44mm] 26°	15/16" [24mm] 14°	15/16" [24mm] 14°	1/4" [6mm] 4°	1/4" [6mm] 4°

*The suggested control throw rates provided in this section may appear to be small in comparison to other aerobatic models similar in size. We do not suggest increasing the rates until **after** you have made initial flights using the provided high rates. Also, it is recommended to add 40% exponential to all control surfaces. This can be changed to suit your flying preference after you become accustomed to the flight characteristics of the Eagle.*

IMPORTANT: The Eagle 580 Matt Chapman .46-.81/EP ARF has been **extensively** flown and tested to arrive at the throws at which it flies best. Flying your model at these throws will provide you with the greatest chance for successful first flights. If, after you have become accustomed to the way the Eagle 580 Matt Chapman .46-.81/EP ARF flies, you would like to change the throws to suit your taste, that is fine. However, too much control throw could make the model difficult to control, so remember, "more is not always better."

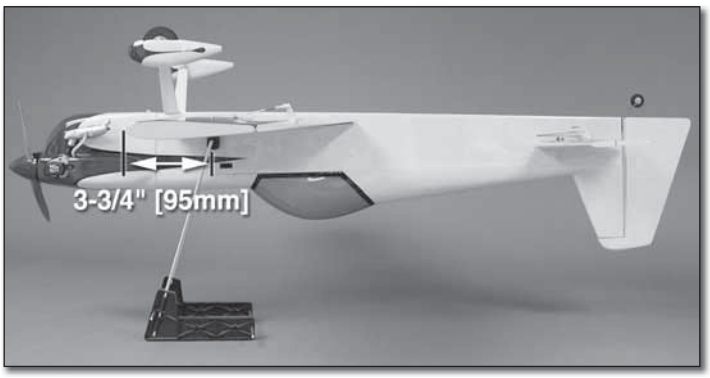
Balance the Model (C.G.)

More than any other factor, the **C.G.** (balance point) can have the **greatest** effect on how a model flies, and may determine whether or not your first flight will be successful. If you value this model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE.** A model that is not properly balanced will be unstable and possibly unflyable.

At this stage the model should be in ready-to-fly condition with all of the systems in place including the engine or brushless motor, landing gear, and the radio system (and battery pack if applicable).

❏ 1. 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 3-3/4" [95mm] back from the leading edge of the wing.

This is where your model should balance for the first flights. Later, you may wish to experiment by shifting the C.G. up to 1/2" [13mm] forward or 1/4" [6mm] back to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but the model may then require more speed for takeoff and make it more difficult to slow for landing. Moving the C.G. aft makes the model more maneuverable, but could also cause it to become too difficult to control. In any case, **start at the recommended balance point** and do not at any time balance the model outside the specified range.



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

❏ 3. 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 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 fuselage 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 fuselage 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, RTV silicone or epoxy to permanently hold the weight in place.

❑ 4. **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 wing level, have an assistant help you lift the model by the engine propeller shaft and the bottom of the fuselage 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 wingtip. **An airplane that has been laterally balanced will track better in loops and other maneuvers.**

PREFLIGHT

Identify Your Model

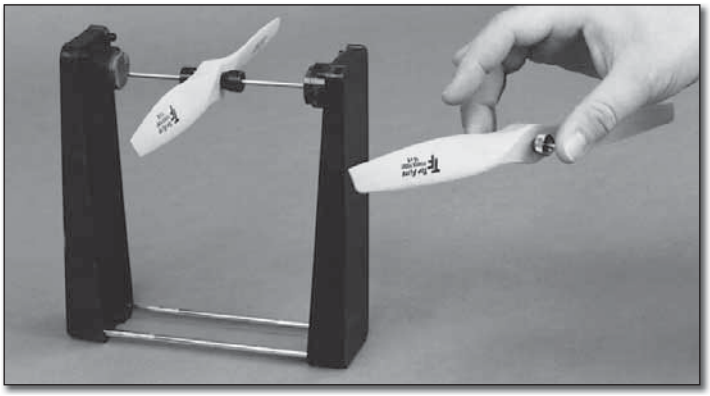
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 31 and place it inside your model.

Charge the 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

I**f the engine is new, follow the engine manufacturer's instructions to break-in the engine.** After break-in, confirm that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power–indefinitely. After you run the engine on the model, inspect the model closely to make sure all screws remained tight, the hinges are secure, the prop is secure and all pushrods and connectors are secure.

Range Check

Ground check the operational range of your radio before the first flight of the day. With the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet away from the model and still have control. Have an assistant stand by your model and, while you work the controls, tell you what the control surfaces are doing. Repeat this test **with the engine running** at various speeds with an assistant holding the model, using hand signals to show you what is happening. 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 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.
- Do not run the engine 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.
- Keep these items away from the prop: loose clothing, shirt sleeves, 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. Do not throw anything into the propeller of a running engine.

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**.

LITHIUM BATTERY HANDLING & USAGE

WARNING!! Read the entire instruction sheet included with your 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 use a NiCd/NiMH peak 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 the 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.

CHECKLIST

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.

❏ 1. Check the C.G. according to the measurements provided in the manual.
❏ 2. Be certain the battery and receiver are securely mounted in the fuselage. Simply stuffing them into place with foam rubber is not sufficient.
❏ 3. Extend your receiver antenna.
❏ 4. Balance your model *laterally* as explained in the instructions.
❏ 5. Use threadlocking 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.
❏ 6. Add a drop of oil to the axles so the wheels will turn freely.
❏ 7. Make sure all hinges are **securely** glued in place.
❏ 8. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, cowl mounting screws, etc.).
❏ 9. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
❏ 10. 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.
❏ 11. Secure connections between servo wires and Y-connectors or servo extensions, and the connection between your battery pack and the on/off switch with vinyl tape, heat shrink tubing or special clips suitable for that purpose.
❏ 12. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
❏ 13. Secure the pressure tap (if used) to the muffler with high temp RTV silicone, threadlocking compound or J.B. Weld.
❏ 14. Make sure the fuel lines are connected and are not kinked.
❏ 15. Balance your propeller (and spare propellers).
❏ 16. Tighten the propeller nut and spinner.
❏ 17. Place your name, address, AMA number and telephone number on or inside your model.
❏ 18. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.
❏ 19. If you wish to photograph your model, do so before your first flight.
❏ 20. Range check your radio when you get to the flying field.

FLYING

The Eagle 580 Matt Chapman .46-.81/EP ARF is a great-flying model that flies smoothly and predictably. The Eagle 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.

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 takeoff, 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 for peace of mind.

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. 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 the Eagle 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. Add power to see how the model 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, 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.

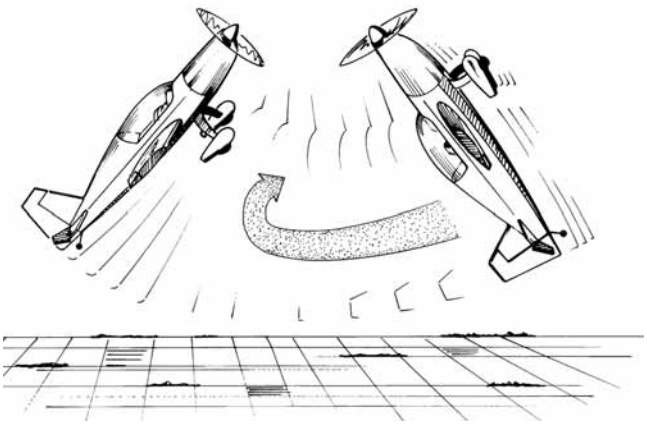
GOOD LUCK AND GREAT FLYING!

3D FLYING

Because of the power-to-weight ratio on 3D planes, straight-and-level flight should be at a reduced throttle and full power should be used only when the airplane is "loaded" during a maneuver. Learn to manage the throttle and experiment while in the maneuver. The power needed will depend on the maneuver being performed. C.G. also plays a large role in the 3D capability of models as well. Experiment, but keep in mind that being tail heavy is not always the best way to go.

Another thing to remember is that maximum control throw is not necessary for all 3D maneuvers. Occasionally, too much throw can place the model too far into a stall, causing it to become uncontrollable. Practice your maneuvers at a higher altitude while you become accustomed to your particular plane's stall characteristics.

WATERFALLS



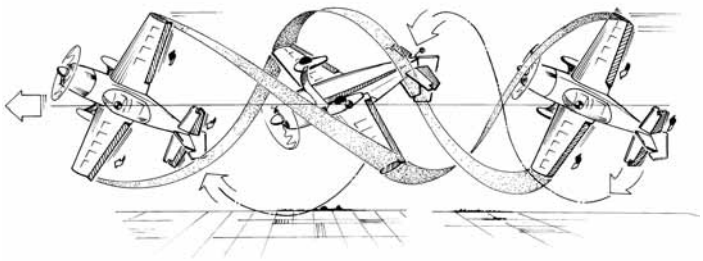
With the model pointing vertically (almost in a hover), push full down elevator and full throttle. As the model rotates and begins to point downwards, reduce the throttle (to keep the model from being pulled downwards). As the model flattens out, add power to pull the model around. Many models will require some rudder correction (usually right rudder) during this maneuver. Some planes will require aileron correction to keep the wings level.

UPRIGHT FLAT SPINS
Pull the nose up slightly and slowly decrease power. As the model slows to a few mph, slowly apply full left rudder and power. Next, start adding up elevator as needed to keep the model flat in the spin. Most airplanes will require some aileron as well to keep the wings level. This is one of the maneuvers to experiment on; try different C.G. positions and different amounts of throw and power to see how flat the spin will go. It is possible to maintain altitude in the flat spin and in some cases it is also possible to climb during the spin.

INVERTED FLAT SPINS
This is the same as the up-right flat spin except most planes like to spin in the opposite direction, for example: right rudder and down elevator.

THE WALL
Fly straight across the field at a moderate speed and simply pull full up until vertical. Adjust the power as necessary to maintain a hover.

KNIFE EDGE TUMBLE

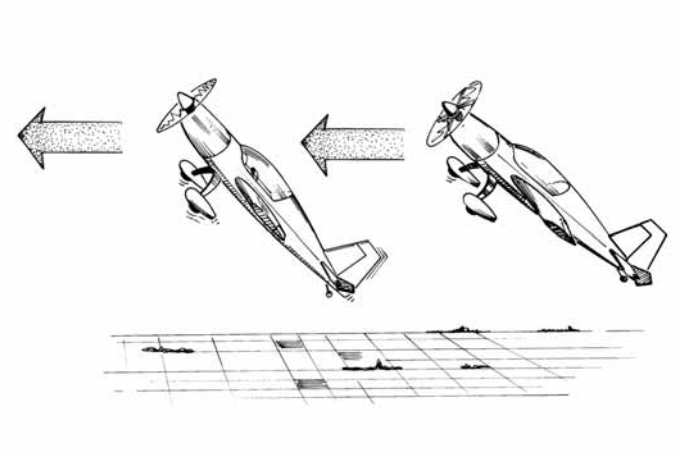


This is an impressive looking maneuver that really isn't as difficult as it looks. (Before learning this maneuver you must be able to confidently Snap and Tumble your plane and stop the aircraft exactly, without over rotating.) Fly the model Knife Edge from the right at a moderate airspeed, using just enough rudder to maintain Knife Edge, not climbing or diving. Perform one full right negative Tumble by maintaining your rudder setting while applying full throttle, full down elevator, and full right aileron, releasing in time to end again flying Knife Edge to the right. Note that you may need to use some positive elevator and/or left aileron to stop the Tumble at exactly Knife Edge. This maneuver is easier to the right because torque helps stop the Tumble and it can be done at varied airspeeds with proper throttle and rudder modulation.

VERTICAL HOVER
Fly a straight pass across the field at 75ft high and 100ft out and pull the model vertical. Roll the model until the top of it is facing you and slowly begin to reduce power. As the model begins to slow down to 10 mph or so, slowly add a little bit of power back in. You will have to adjust the throttle as needed, but make your adjustments smooth. Some right aileron may be needed to keep the model from torque rolling. Use the rudder and elevator to keep the nose pointing straight up. Be patient as this maneuver will take a while to learn.

TORQUE ROLL
This is the same as the vertical hover but without the use of right aileron to keep the model from rolling. If needed, you can use a little left aileron to speed the roll up. As the model rotates around, the controls will appear to be reversed to you but only the orientation of the model has changed.

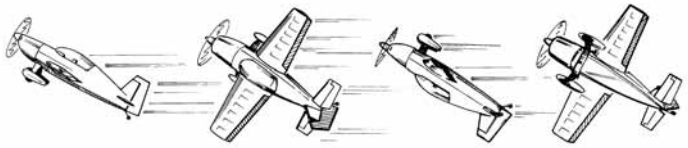
HARRIER



The harrier is nothing more than a high angle of attack flying stall. Check the stall characteristics of your plane before proceeding with this maneuver. Bring your plane across the field at 75ft high and 100ft out away from yourself. Slowly pull back on the elevator while reducing throttle. The nose of the plane should come up. Depending on the plane/setup, you may have to make constant aileron (wing walking) and rudder corrections for this maneuver. As the nose of the plane comes up, start adding in a little bit of power to help maintain airspeed. The rudder is now used to turn the model. This maneuver will take some practice as there are a lot of small corrections made to keep most planes in the maneuver.

This is one maneuver where less control is needed. Too much elevator and the model goes into an uncontrollable stall. The C.G. of the plane will have a large effect on the stability of the model during this maneuver. Some planes perform better with more elevator deflection and a farther forward C.G. while other planes prefer a further aft C.G. and less elevator deflection. Elevator to flap mixing can be used on airplanes with marginal wing area, and some planes won't stall so elevator to spoileron mixing will be needed.

ROLLING HARRIER



Once you get comfortable with the up-right harrier, it's time to work rolls into the mix. From an up-right harrier, add in left aileron and change from up elevator to down elevator when inverted. If you are comfortable with four point rolls and slow rolls, inputting rudder on the knife edges can improve the maneuver considerably. To turn the model, simply input the elevator or rudder a little sooner or later in the rotation. It's all a matter of timing.

PINWHEEL

Climb vertically and bring the model to a vertical hover, but do not stop long enough to let the torque pull the model around (climbing or sliding slightly will not be noticeable to spectators but will keep air flowing over the ailerons and provide you roll authority to stop the torque). When the model is hanging, rock the plane left with rudder, then apply full throttle and full right rudder and hold both, completing 3/4 of a VERY tight Knife Edge Loop and flying out Knife Edge. When done correctly, the plane pivots around the wingtip in a very small area. This maneuver can be done in either direction.

OTHER ITEMS AVAILABLE FROM GREAT PLANES

REACTOR™ PERFORMANCE SERIES
ALMOST READY-TO-FLY .46-.70 / EP SPORT AEROBAT

Wingspan: 50 in (1270 mm)
Wingspan: 58 in (1475 mm)
Wing Area: 745 sq in (48.1 dm2)
Weight: 5.25 - 6.25 lb (2.41 - 2.72 kg)
Wing Loading:16 - 18 oz/sq ft (50-57 g/dm2)
Length: 59 in (1500 mm)
Requires: 4+ channel radio w/5 mini servos (50 oz-in of torque, min.)
Electric Power Option: Brushless out-runner motor,
60A brushless ESC, two 11.1V, 3200mAh LiPo batteries (in series) and charger
Glow Power Option: 2-stroke .46-.51 or 4-stroke .70 engine, 1 additional servo,
glow fuel and support equipment

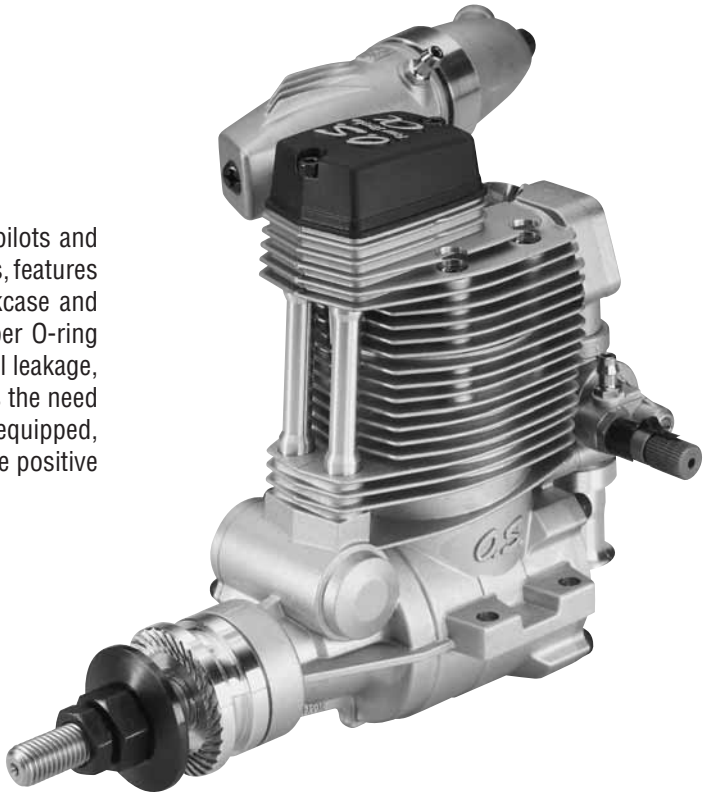
Expertly Covered with MONOKOTE®

Precision pattern plane — or all-out 3D aerobat? You decide. The Reactor excels at both. It doesn't matter whether you go with glow power or equip it with a brushless electric motor — you'll enjoy outstanding performance either way, thanks to its all-wood construction for light, strong structures, and a pure sport design with none of the compromises that scale planes require. The result: a rocket-sleek plane with maxed-out performance potential. The mid-wing design and thin airfoil (9% thick vs.13-14%) offer exceptional precision and a wide performance envelope, plus confidence-inspiring stability at slow speeds. Assembly is anything but slow — prebuilt structures, MonoKote covering and painted fiberglass parts cut it to just 5-6 hours, start to finish. **GPMA1021**

O.S.® ENGINES

O.S.® 81FS-a Ringed 4-Stroke

The 81FS-a delivers more performance power for sport pilots and more realistic flight for scale pilots — and for easy upgrades, features the same mounting bolt pattern, distance between crankcase and prop and throttle lever positions as the FS-70SII! A rubber O-ring on the muffler's multi-positional manifold helps prevent oil leakage, while the specially designed lubrication system eliminates the need for crankcase ventilation. Its 60RA carburetor is venturi-equipped, reducing the chance of fuel leaks, while also creating more positive air/fuel flow. **OSMG0981**



Displacement: 0.809 cu in (13.26 cc)
Bore: 1.091 in (27.7 mm)
Stroke: 0.866 in (22.0 mm)
Weight w/muffler: 21.5 oz (610 g)
Practical RPM Range: 2,200-12,000
Output: 1.3 hp @ 11,000 rpm
Includes: 60RA carburetor, F-5030 muffler & F glow plug

Matt Chapman
EAGLE 580
Almost-Ready-to-Fly 50" Class EP Aerobat

EPERFORMANCE XLC
EXTREME LIGHT CONCEPT

Wingspan: 50 in (1270 mm)
Wing Area: 494 in² (31.9 dm²)
Weight: 3.25-3.5 lb (1475-1590 g)
Wing Loading: 15-16 oz/ft² (46-49 g/dm²)
Length: 47.75 in (1215 mm)
Requires: 4-channel radio w/4 micro servos, receiver,
45A ESC,
out-runner brushless motor,
11.1V 2100mAh LiPo battery

Acclaimed aviator Matt Chapman is famous for thrilling crowds with his jaw-dropping aerobatics at air shows worldwide. Now you can impress your friends at your local flying field with this officially licensed, 50" span reproduction of his Eagle 580! Its ultra-light airframe and airfoiled control surfaces offer precision tracking and incredible agility. State-of-the-art materials – including carbon fiber, hand-selected woods and fiberglass – accelerate assembly time to just 6-8 hours. A factory-applied MonoKote® trim scheme adds eye-catching looks, while die-cut decals let you recreate Matt Chapman's Embry-Riddle-inspired design – or create a custom look of your own. **GPMA1573**

This model belongs to:
Name
Address
City, State Zip
Phone number
AMA number

Make a copy of this identification tag and put it on or inside your model.


GREAT PLANES®
MODEL MANUFACTURING COMPANY