Super Stearman

ElectriFly by Great Planes

INSTRUCTION MANUAL

SPECIFICATIONS

Wingspan: 36 in [915 mm]

Wing Area: 365 in^2 [23.5 dm^2]

Wing Loading: 14–17 oz/ft^2 [43–52 g/dm^2]

Length: 29.5 in [750 mm]

Weight: 2.25–2.75 lb [1020–1250 g]

Radio: Minimum 4-channel with 4 micro servos

Power System: Rimfire™ .10 [35–30–1250], SS35, 2200 mAh 3S LiPo, APC 10×7E, 35A ESC

WARRANTY

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

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

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

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

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

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

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

GREAT PLANES®
MODEL MANUFACTURING COMPANY

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

GPMA1150 Mnl

TABLE OF CONTENTS

INTRODUCTION

For the latest technical updates or manual corrections to the Great Planes Super Stearman EP visit the Great Planes web site at www.greatplanes.com. Open the "Airplanes" link, then select the Great Planes Super Stearman 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.

Academy of Model Aeronautics

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

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252

Tele. (800) 435-9262
Fax (765) 741-0057

   Or via the Internet at: http://www.modelaircraft.org

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

SAFETY PRECAUTIONS

Protect Your Model, Yourself & Others…
Follow These Important Safety Precautions

1. Your Super Stearman EP 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 Super Stearman EP, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

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

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

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

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

6. While this 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 a motor larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

7. Carefully read and follow all the instructions included with your LiPo battery and battery charger. LiPo batteries are not forgiving like NiCd or NiMH batteries. Overcharging or charging the LiPo battery at too high a current will damage the battery and could damage property.

8. **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 (wheel pant, cowl) 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 Great Planes Super Stearman EP that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Motor / Battery Recommendations

❍ Motor: RimFire .10 [35-30-1250] (GPMG4595)

❍ ElectriFly SS35 Speed Control (GPMM1830)

❍ ElectriFly LiPo 3S 11.1V 2200mAh 25C (GPMP0520)

❍ APC 10x7E Propellor (APCQ4123)

Radio Equipment

The Super Stearman EP requires a 4 channel radio, 4 channel receiver and four micro servos min. 20 oz-in torque. We used

Futaba® S3114 servos (FUTM0414). In addition you will need:

❍ 3 - 6" [150mm] servo extension (HCAM2701 for Futaba)

❍ 1 - 6" Y-harness (FUTM4135)

ADDITIONAL ITEMS REQUIRED

Required Hardware & Accessories

This is the list of hardware and accessories required to finish the Great Planes Super Stearman EP. Order numbers are provided in parentheses.

Adhesive & Building Supplies

❍ 1/2 oz. [15g] Thin Pro™ CA (GPMR6001)
❍ Pro 30-minute epoxy (GPMR6047)
❍ 1/2 oz. [15g] Medium Pro CA+ (GPMR6007)
❍ R/C-56 canopy glue (JOZR5007)
❍ #1 Hobby knife (HCAR0105)
❍ 2 oz. [57g] spray CA activator (GPMR6035)
❍ Drill bits: 1/16" [1.6mm] 1/32" [0.8mm]

Optional Supplies & Tools

❍ #11 blades (5-pack, HCAR0211)
❍ Small T-pins (100, HCAR5100)
❍ Top Flite® MonoKote® sealing iron (TOPR2100)
❍ Top Flite Hot Sock™ iron cover (TOPR2175)
❍ Top Flite MonoKote trim seal iron (TOPR2200)
❍ 2 oz. [57g] spray CA activator (GPMR6035)
❍ CA applicator tips (HCAR3780)
❍ CA debonder (GPMR6039)
❍ Mixing sticks (50, GPMR8055)
❍ Mixing cups (GPMR8056)

IMPORTANT BUILDING NOTES

● There are three types of screws used in this kit:

Sheet Metal Screws are designated by a number and a length. For example #6 × 3/4" [19mm].

This is a number six screw that is 3/4" [19mm] long.

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

This is a number four screw that is 3/4" [19mm] long with forty threads per inch.

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

This is a 4-40 SHCS that is 3/4" [19mm] long with forty threads per inch

- 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.

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   Ph: (217) 398-8970, ext. 5
Champaign, IL 61822   Fax: (217) 398-7721

E-mail: airsupport@greatplanes.com

ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Super Stearman 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. Select "Where to Buy" in the menu across the top of the page and follow the instructions provided 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 **Hobby Services**
and payments by 3002 N Apollo Drive, Suite 1
personal check to: Champaign IL 61822

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

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

REPLACEMENT PARTS LIST	
Order No.	**Description**
GPMA4500	**Top Wing Stearman EP ARF**
GPMA4501	**Bottom Wing Stearman EP ARF**
GPMA4502	**Fuselage Stearman EP ARF**
GPMA4503	**Tail Set Stearman EP ARF**
GPMA4504	**Cowl Stearman EP ARF**
GPMA4505	**Landing Gear Stearman EP ARF**
GPMA4506	**Gear Fairings Stearman EP ARF**
GPMA4507	**Struts Stearman EP ARF**
GPMA4508	**Cabanes Stearman EP ARF**
GPMA4509	**Wheelpants Stearman EP ARF**
GPMA4510	**Decals Stearman EP ARF**
GPMA4511	**Hatch Stearman EP ARF**

|		
1. Fuselage	8. Landing Gear	15. "N" Struts
2. Cowl	9. Wheel Pants	16. Bottom Wing & Ailerons
3. Fin & Rudder	10. Wheels	17. Top Wing & Ailerons
4. Tail Cone	11. Axles	18. Cabanes
5. Tail Wheel Assembly	12. Landing Gear Fairings	19. Turtledeck
6. Pushrod Wires	13. Stab & Elevator	
7. Belly Pan	14. Strut Mounting Tabs	

Tighten the Covering

Refer to the separate instruction sheet titled *How To Tighten Covering On ARF Models*. Follow the instructions to tighten the covering. If you prefer to get started on assembly right away, the tightening process could be done later (but it is usually easiest to do while the model is still in separate pieces).

ASSEMBLE THE WINGS

Install the Aileron Servos & Pushrods

Do the right wing first so your work matches the photos the first time through.
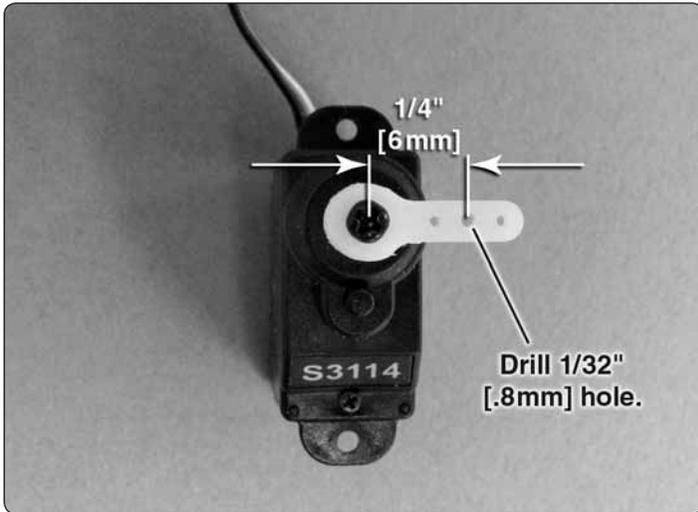
❏ ❏ 1. Cut three arms from your servo horn so you have a single arm horn. Depending on your brand of servo the length of the arms may vary. Choose an arm with a hole that measures approximately 1/4" [6mm] from the center of the servo to the hole. Enlarge the hole with a 1/32" [.8mm] drill bit.
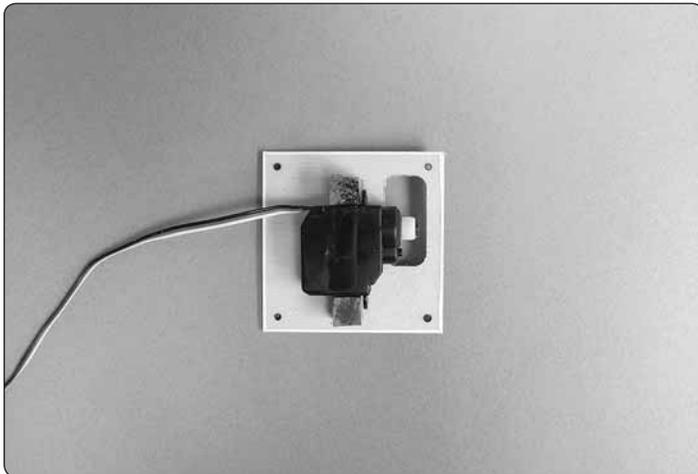

❏ ❏ 2. Remove the aileron servo cover from the wing. Place the servo onto the inside of the cover, making sure the servo arm is centered in the slot. Glue a 1/4" x 1/4" x 3/8" [6mm x6mm x 9.5mm] hardwood block to the servo cover on each side of the servo.
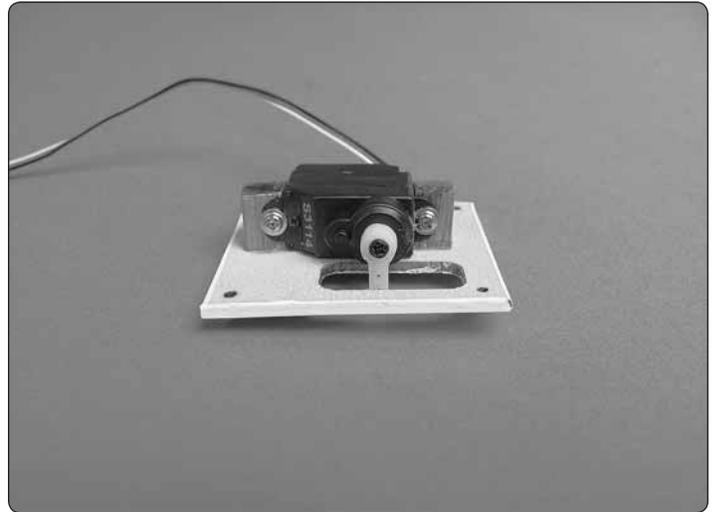

❏ ❏ 3. Place the servo between the mounting blocks. Drill a 1/16" [1.6mm] hole into each of the mounting blocks. *(This is the correct hole for Futaba mounting screws. Check your screws and determine the size drill that is correct for it.)* Secure the servo to the blocks with the servo mounting screws.
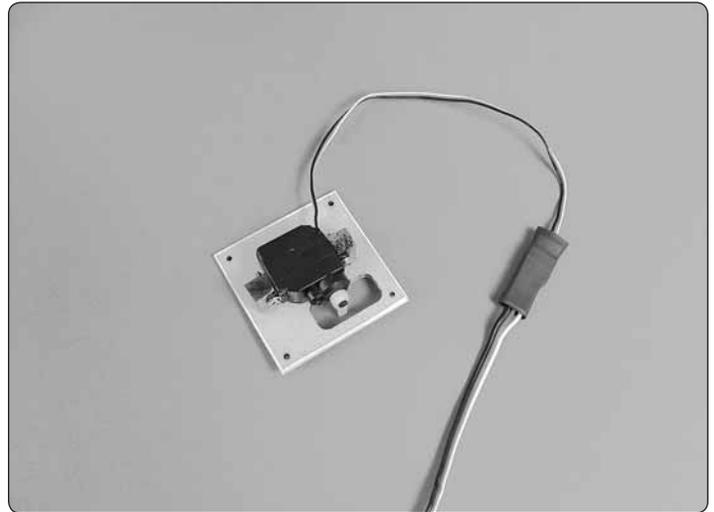
❏ ❏ 4. Install a 6" [152mm] servo extension onto the servo. Secure the connectors with heat shrink tubing included in the kit. *Do not skip this step.* The holes that the lead goes through in the wing are only slightly larger than the servo connector. Not securing the connector could lead to the leads unplugging when you pull the leads through the wing in the next step.
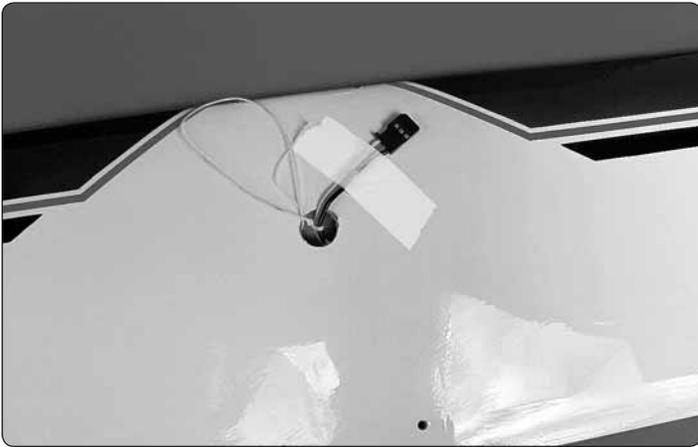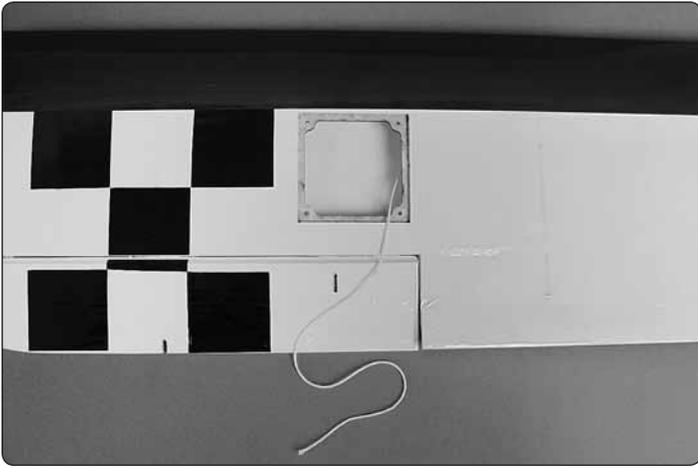
❏ ❏ 5. Inside of the servo bay you will find a string taped. Pull the string out and tie the string to the servo extension connector. Locate the hole in the top center of the wing. Carefully pull the string with the lead attached to it through the wing. Tape the servo lead to the wing to prevent it from falling back into the wing. **Important!** The string is a single string that extends to both of the servo openings. Be careful not to pull the string loose from the other servo opening.


❏ ❏ 6. Secure the servo cover with four #2 x 5/16" [8mm] washer head screws. Before installing the cover, insert and then remove a screw into the mounting holes in the servo bay. Apply a drop of thin CA glue to harden the threads. After the glue hardens install the servo cover.

❏ ❏ 7. Install the z-bend end of a 5/64" x 6" [2mm x 152mm] aileron pushrod wire into the hole you drilled in the nylon servo arm.
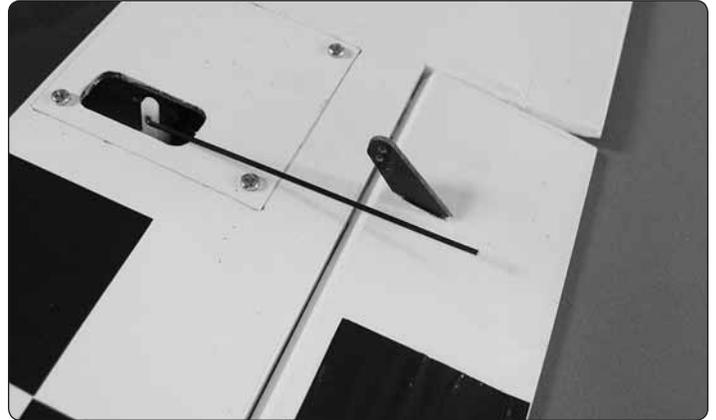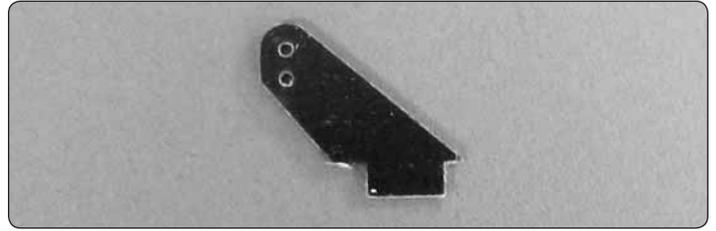

❏ ❏ 8. Locate a black control horn. **Important!** *The hardware includes two different style horns. Be sure you use the horn pictured here.* Glue it into the slot in the aileron.
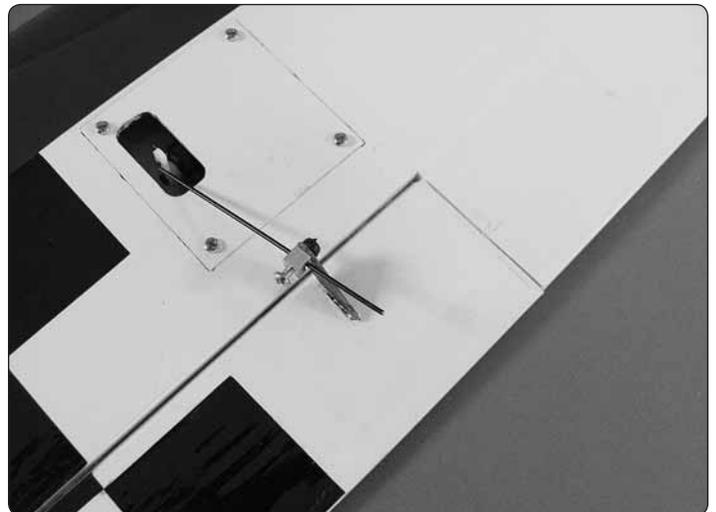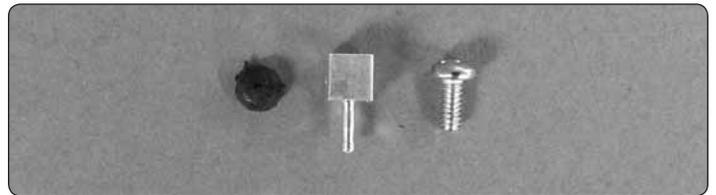

❏ ❏ 9. Locate the aluminum screw-lock connector, black nylon retainer and the 2-56 x 3/16" [4.8mm] set screw. Test fit the screw lock connector into the outer most hole in the aileron control horn. If it is too tight, enlarge the hole slightly with the blade of a hobby knife. Be sure not to make the hole too large. Remove the screw-lock connector from the control horn. Slide the aluminum screw-lock connector onto the aileron

pushrod wire and then insert the screw-lock connector into the aileron control horn. Secure the connector with the black nylon retainer. Center the aileron servo and the aileron. Apply a drop of thread locker to the 2-56 x 3/16" [4.8mm] set screw and then tighten the screw against the pushrod wire. Cut off the excess pushrod wire, leaving 1/4" beyond the connector.

❏ ❏ 10. Glue one of the 1/2" [13mm] long aileron linkage rods into the slot in the aileron.

❏ 11. Repeat steps 1-10 for the left wing panel.
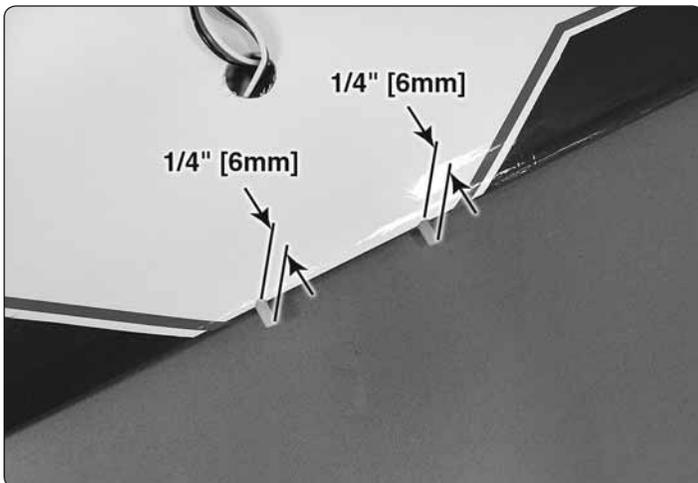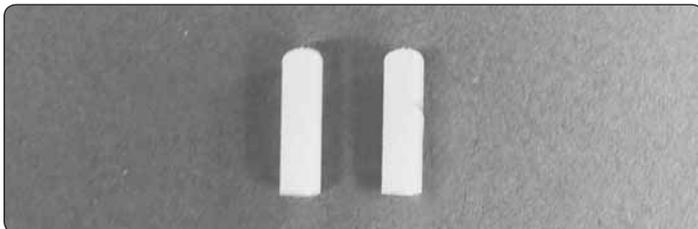
❏ 12. Locate two 1/8" x 3/8" [3mm x 10mm] nylon pins. Glue them into the holes in the leading edge of the bottom wing leaving 1/4" [6mm] extending from the leading edge of the wing.

❏ 13. Connect the aileron to a Y-connector. Be sure to secure the connection with heat shrink tubing, tape or some other method.


❏ 14. Glue the remaining 1/2" [13mm] long aileron linkage rods into the slot in the ailerons on the top wing.

Install Stab, Elevators, Fin & Rudder

❏ 1. On the bottom wing, glue two plywood wing bolt doubler rings to the top center of the wing, centering them over the wing bolt holes.

❏ 2. Temporarily bolt the wing to the fuselage with two 4-40 x 1" [25mm] bolts and #4 flat washers.
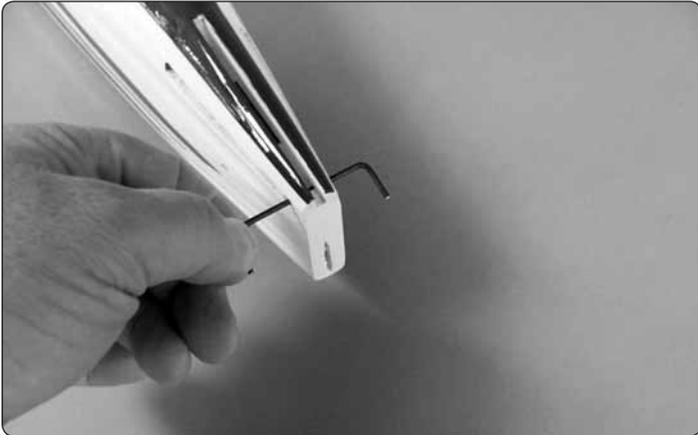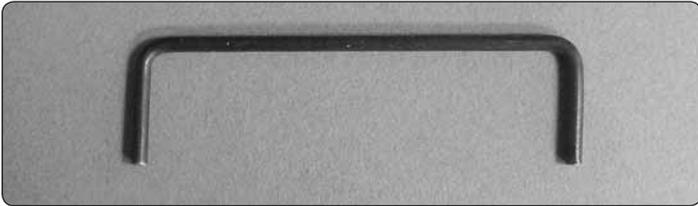
❏ 3. Slide the wire elevator joiner into the stab opening

❏ 4. Slide the stab into the stab opening making sure the wire stays in the opening.

❏ 5. Make sure the stab aligns with the wing. If it does not, lightly sand the stab saddle.

❏ 6. Temporarily install the rudder into the opening in the stab.

A = A'
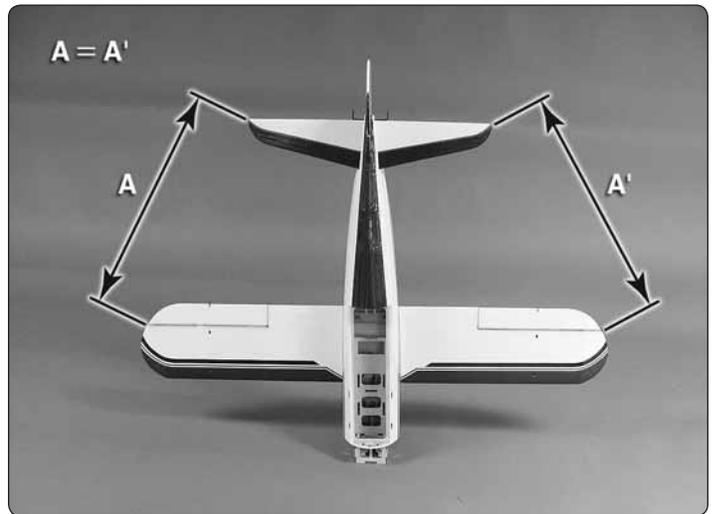
❏ 7. Measure the distance from the tips of the stab to the tips of the wing. Adjust the stab until they are equal.
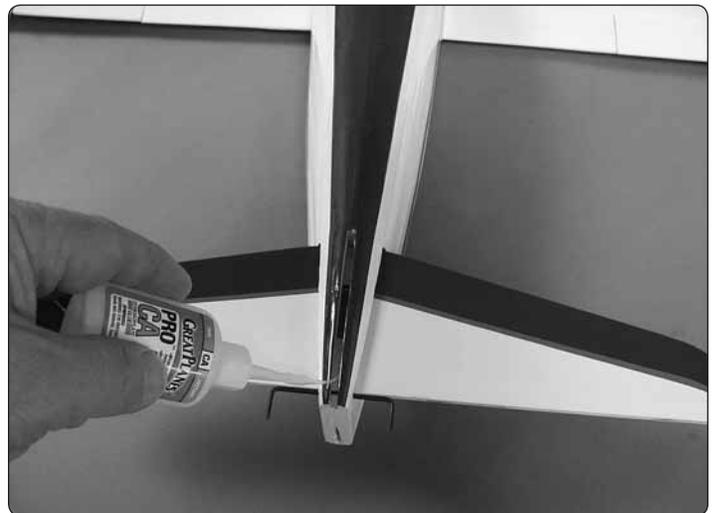
❏ 8. Carefully remove the fin and rudder, making sure you do not disturb the stab. Wick CA glue into the joint, securing the stab to the fuselage. Allow the glue to cure.
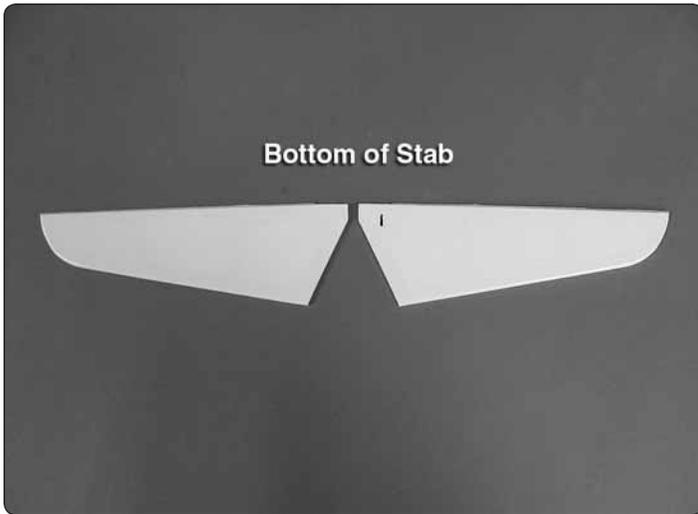
Bottom of Stab

❑ 9, Look at both elevator halves. You will see a slot in the left elevator. When installing the elevators in the next step, be sure the elevator half with the slot is installed on the left half of the stab and the slot is on the bottom of the elevator.
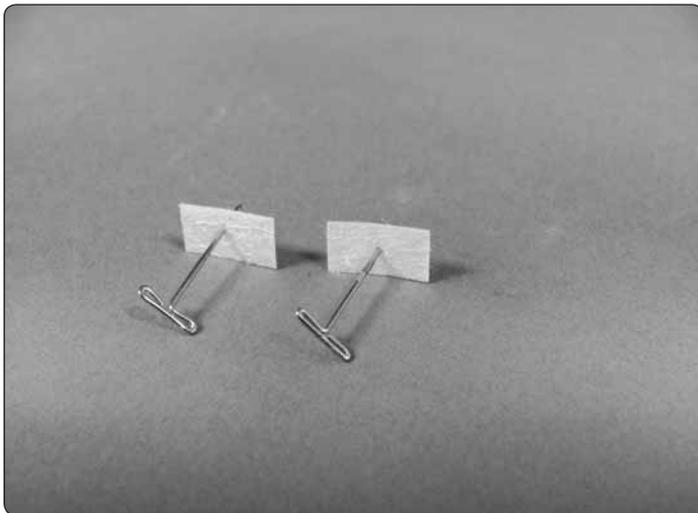
❑ 10. Locate four 3/8" x 5/8" [9mmx15mm] hinges. Insert a pin through the center of each hinge.

❑ 11. Insert a hinge into each of the hinge slots in the elevators.
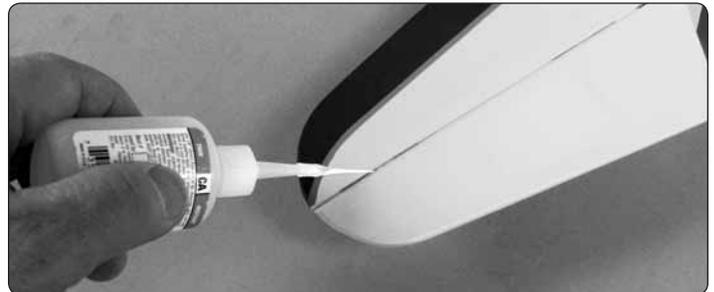
❑ 12. Test fit the elevator to the stab, making sure to guide the elevator joiner wire into the hole in the leading edge of the elevator. Check the alignment of both elevator halves. If they are not in alignment remove the elevators and slightly bend the joiner wire until the elevators are in line with each other. Once satisfied with the fit, remove the elevator half and apply a small amount of epoxy to the end of the joiner wire. Re-install the elevator and hinges to the stab. Apply a couple of drops of thin CA to the top and bottom of each hinge. Repeat this step for the other elevator half.
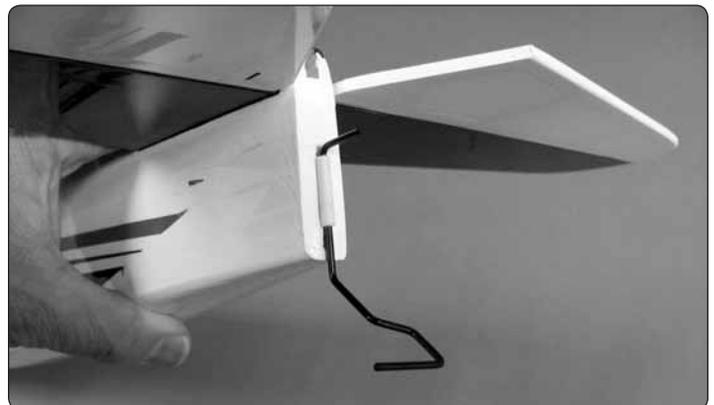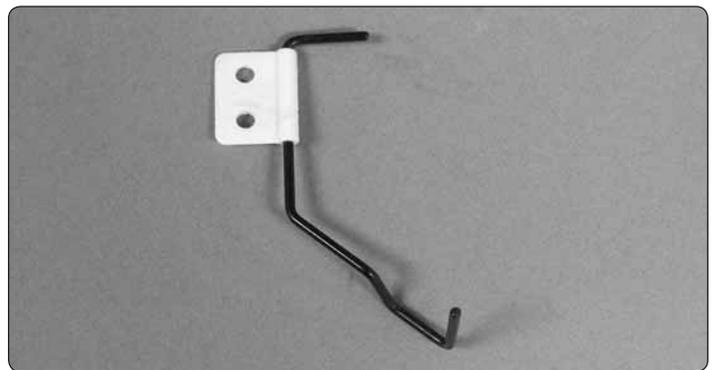
❑ 13. Locate the wire tail assembly. Test fit the nylon bearing into the slot in the end of the fuselage. When you are satisfied

with the fit, apply a couple of drops of oil to the wire where it passes through the bearing. This will prevent any glue from getting into the nylon bearing. Apply a small amount of 30-minute epoxy to both sides of the nylon bearing and into the slot in the fuselage. Install the bearing into the slot. Wipe away excess epoxy with a paper towel and alcohol. ***Quickly move on to the next step as it must be completed before the epoxy on the tail wheel hardens.***
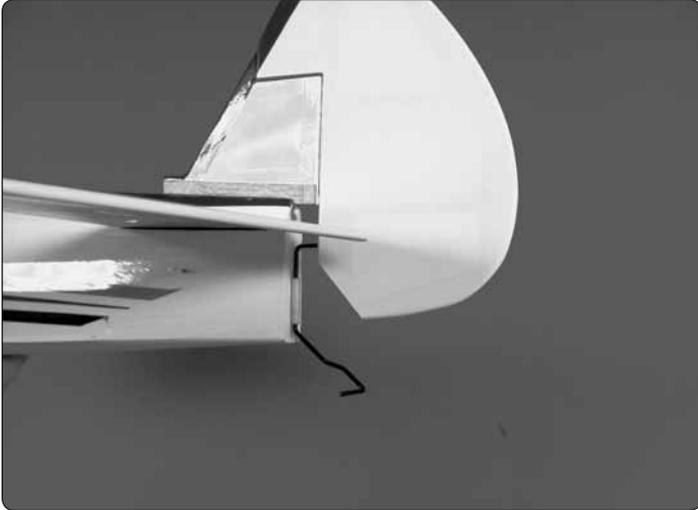
❏ 14. Test fit the rudder to the rudder tail wheel wire and slide the fin into the slot in the fuselage. When satisfied with the fit remove the fin and rudder. Apply a small amount of epoxy to the uncovered portion of the fin, into the slot in the fuselage and to the tail wheel wire. Then, re-install the fin and rudder. Wipe any epoxy away with a paper towel and alcohol.
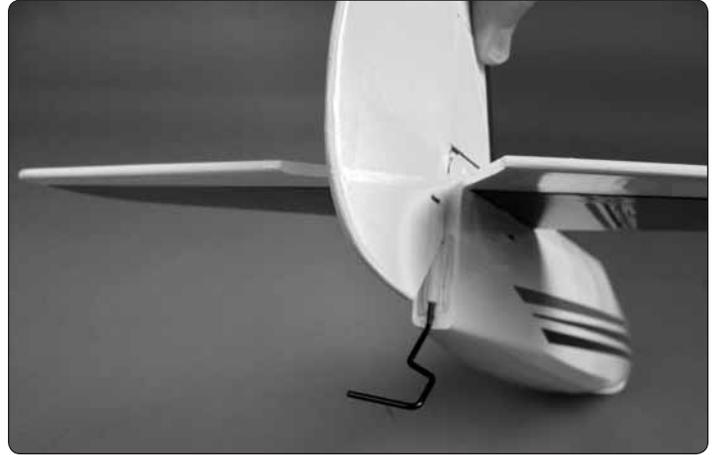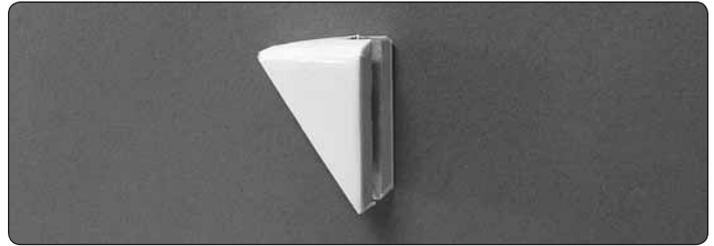
❏ 15. Test fit the tail wheel wire cone to the back of the fuselage. Using the tail cone as a reference, cut away a small amount of covering from the back of the fuselage to create a wood gluing surface for the tail cone.
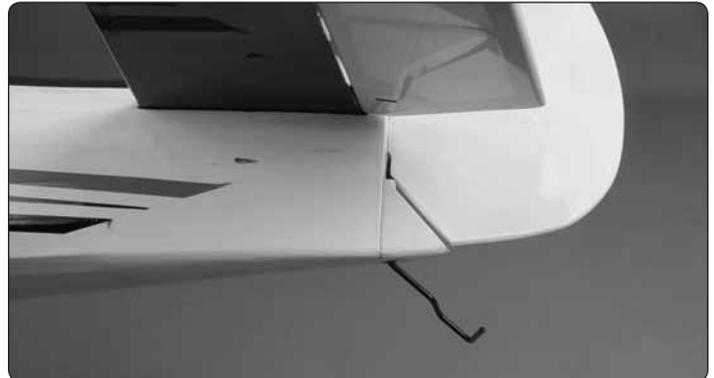
❏ 16. Glue the tail cone in place to the back of the fuselage.
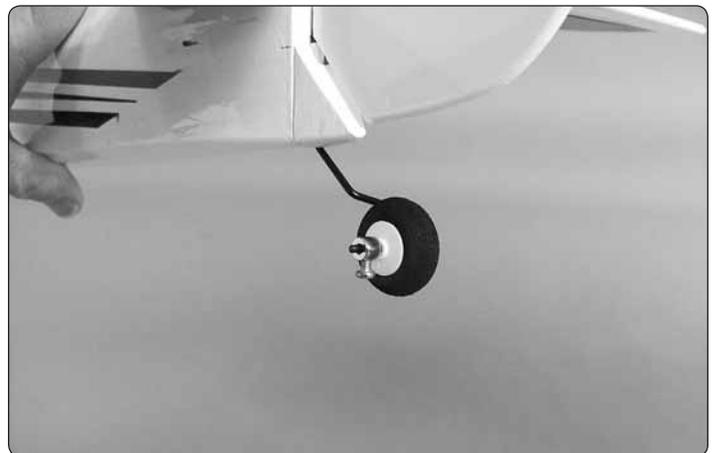
❏ 17. Slide the tail wheel onto the tail wheel wire. Secure it with the 1/8" [3mm] wheel collar and the 1/8" x 3/16" [3x 5mm] Phillips head screw.
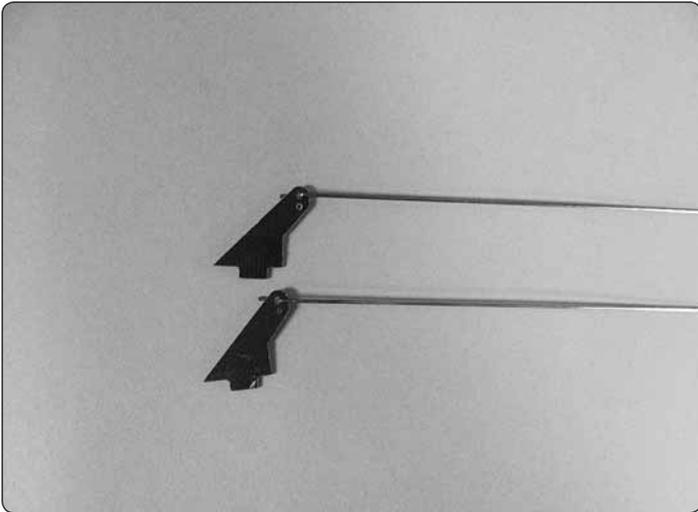
❏ 18. Included in the kit are two 15-3/4" [400mm] pushrod wires with a Z-bend on one end. The wires most likely have some glue residue on them from the masking tape that held them together. Clean off any residue with lighter fluid, alcohol, etc. Install the end of the wire with the Z-bend into the outer hole of both control horns.

❏ 19. Slide the wire into the hole on the side of the fuselage. Test fit the control horn into the slot in the elevator. When you are satisfied with the fit, securely glue the horn into the slot in the elevator.

❏ 20. Repeat this for the rudder pushrod and control horn.

Install Landing Gear, Wheels, Wheel Pants & Turtledeck
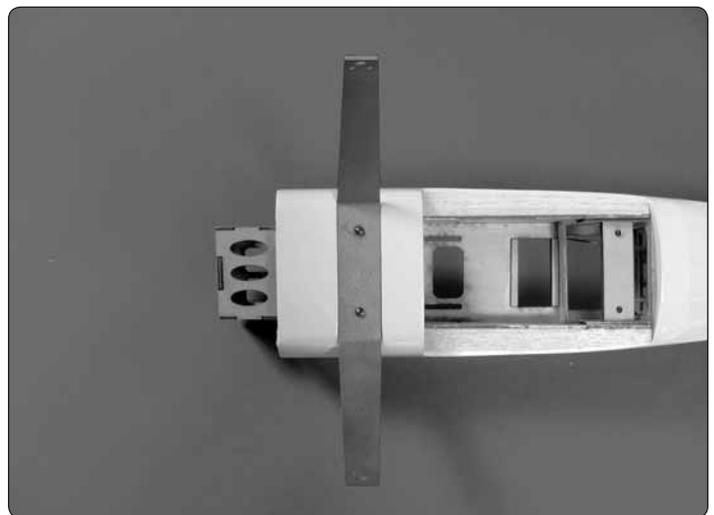
❏ 1. Mount the landing gear to the bottom of the fuselage. Secure it to the fuselage with two 2-56 x 3/8" [9.5mm] machine screws, #2 flat washers and #2 lock washers. Be sure to apply a couple drops of thread locker to each of the screws before installing them into the fuselage.
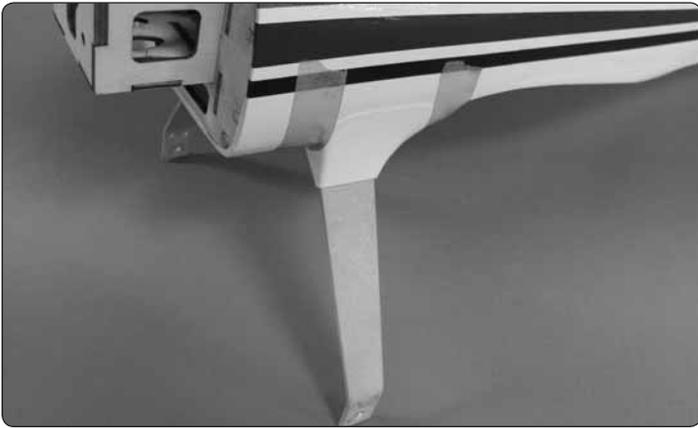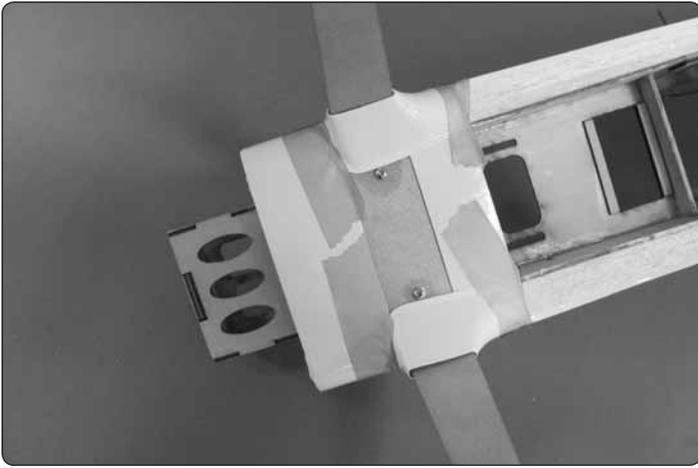
❏ 2. Test fit the landing gear fairings to the landing gear. *(There is a right and left fairing. When properly installed you will have access to the landing gear mounting screws. If they are mounted incorrectly the fairing will cover the screw).* After determining the proper side of the landing gear to mount them on, apply a bead of RC Z 56 glue along the inside bottom edge of the fairing. Position the fairing on the fuselage and tape it in place until the glue has dried. Do this for both fairings.

❏ 3. Locate the plastic turtle deck. Apply a bead of RC Z 56 glue along the inside bottom edge of the turtle deck. Position the turtle deck onto the fuselage as shown and tape it in place until the glue dries. Set the airplane aside to allow the glue to dry on the fairings and the turtle deck.
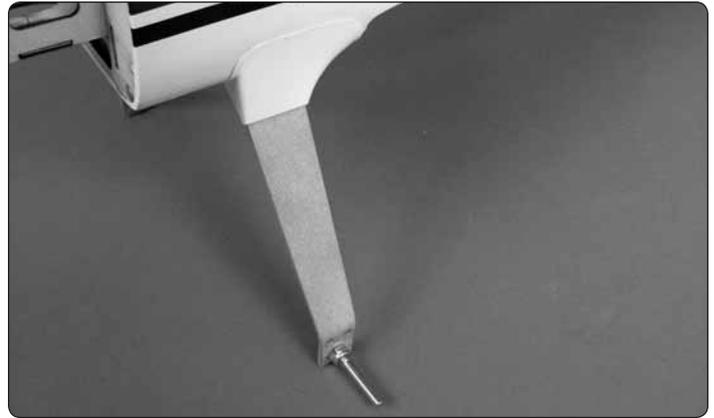
❏ 4. Install an axle into each of the landing gear legs and secure them with the 3/16" [5mm] axle lock nuts.
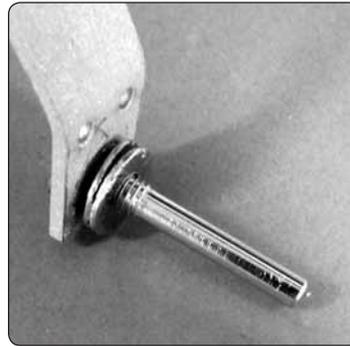
❏ 5. Slide two 3/16" [5mm] washers onto each axle followed by the wheel. Install a 6-32 x 1/8" [3mm] set screw into the 3/16" [5mm] wheel collars. Secure the wheel to the axles with the wheel collar. Be sure to apply a couple of drops of thread locker on the set screws.
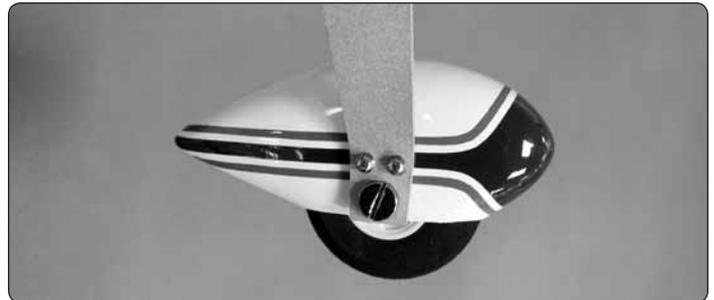
❏ 6. Mount the wheel pants to the landing gear with two 2-56 x 3/8" [9.5mm] machine screws, #2 lock washers and #2 flat washers. Be sure to apply a couple of drops of thread locker onto each of the screws. Do this for both wheel pants.

Install the Motor Speed Control, Receiver & Servos

If you have the bottom wing installed, remove it. This will make the following installation easier.
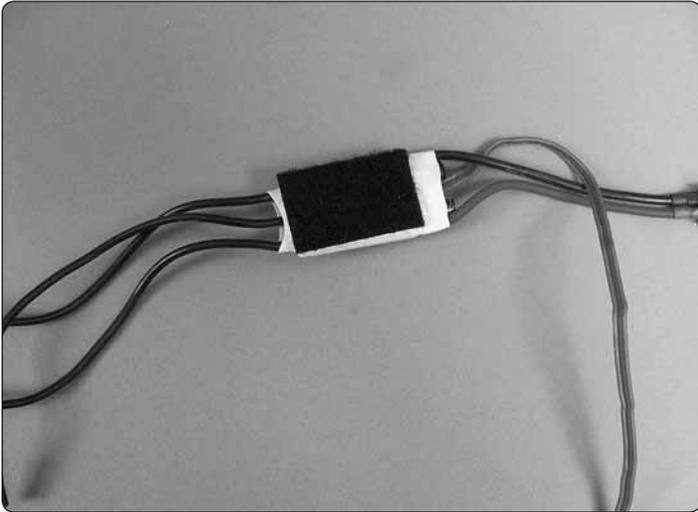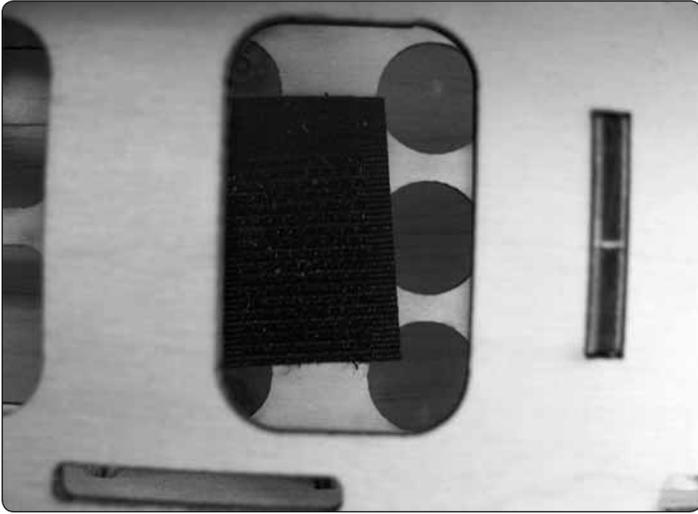
❏ 1. Included with your kit is self-adhesive Velcro®. Cut it into two equally sized pieces. Apply one half to the inside of the fuselage as shown in the picture. Apply the other half to the speed control.
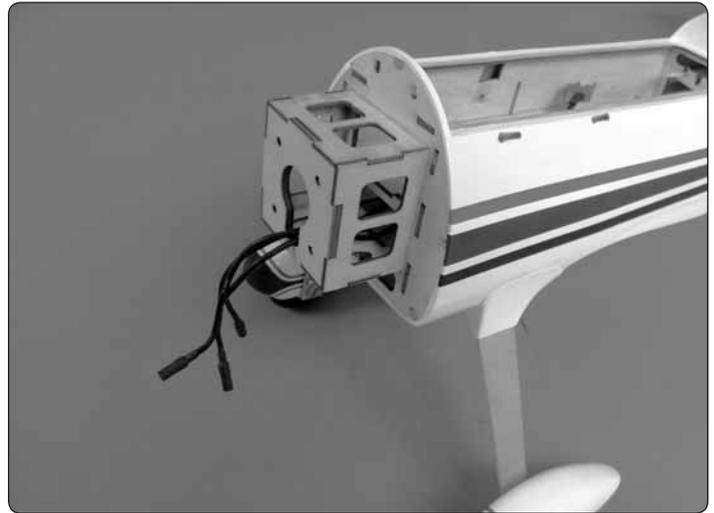
❏ 2. Install the speed control onto the Velcro® you installed inside the fuselage. The motor leads should be fed through the front of the fuselage.
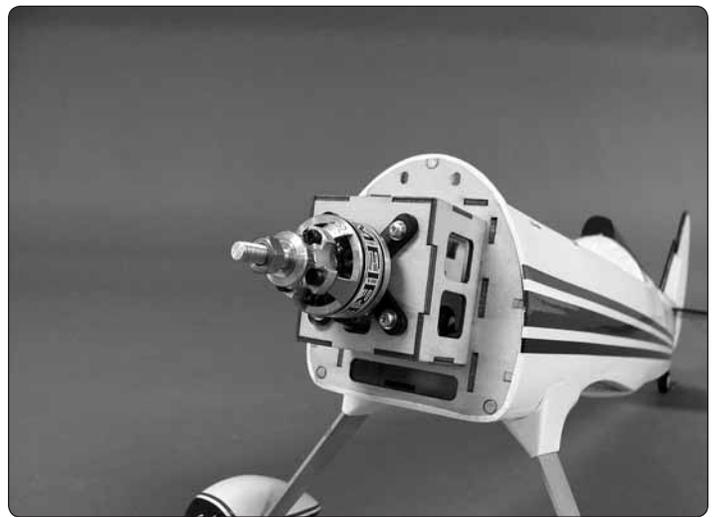
❏ 3. Mount the motor to the fuselage with four 4-40 x 3/8" [9.5mm] machine screws, #4 lock washers and #4 flat washers. Be sure to apply a couple of drops of thread locker to the screws.
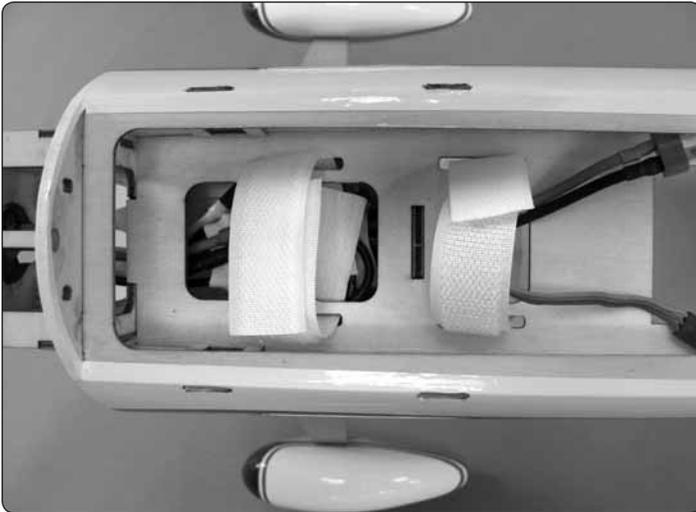
❑ 4. Two lengths of Velcro® are included with the kit to secure the battery. If you are using the recomended battery you will only need to install Velcro® in the forward slots. Other size and shaped batteries may require the use of the second piece. Install the Velcro® as needed.
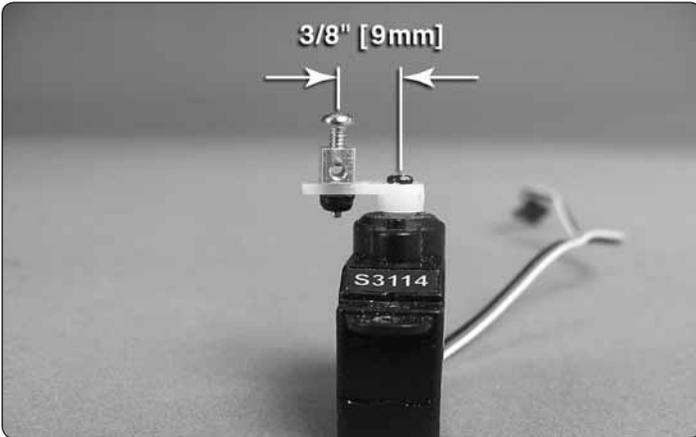
❑ 5. Center the servo and then install a screw lock connector, nylon retainer and 2-56 x 3/16" [2mmx 4.8mm] screw into the center hole on the servo arm.
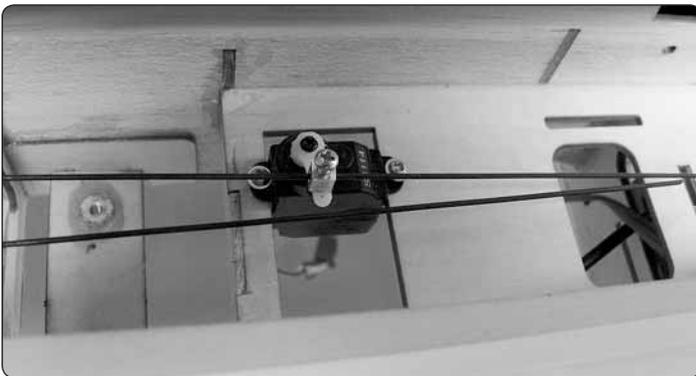
❑ 6. Install the elevator servo into the servo tray, sliding the pushrod wire into the screw lock connector. Drill a 1/16" [1.6mm] hole through each of the servo mounting tab holes. Install and remove the servo mounting screw. Apply a couple drops of thin CA in the screw hole to harden the threads. Once the glue has hardened, secure the servo with the mounting screws that came with the servo.
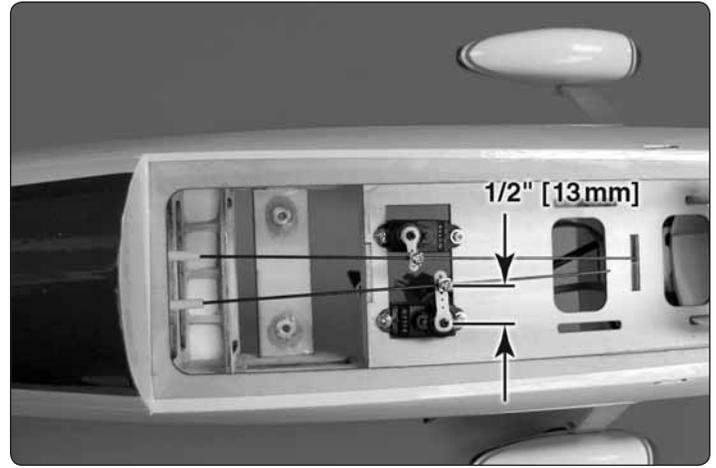
❑ 7. Install a longer servo arm on the rudder servo. The arm must be long enough so that you can install the screw lock connector into a hole approximately 1/2" [13mm] from the center of the servo spline. Install the screw lock connector, retainer and 2-56 x 3/16" [2mmx 4.8mm] screw and then install the rudder servo into the tray using the same technique used for the elevator servo.
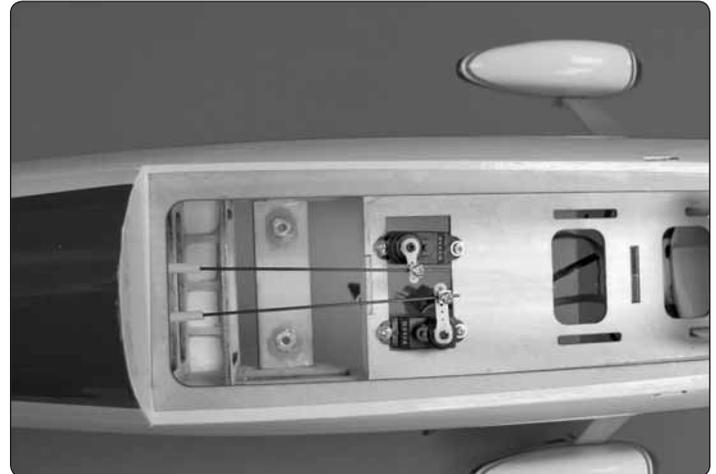
❑ 8. Cut off the excess pushrod wire, leaving 1/4" beyond the connector.
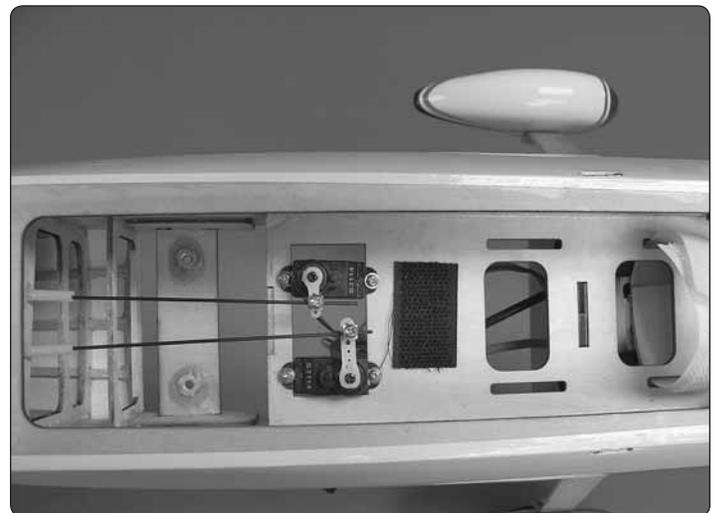
❑ 9. Install the remaining self adhesive Velcro to the back of your receiver and the plywood tray as shown.

❏ 10. Plug the servo and ESC leads into the appropriate channels of the receiver and then install the servo to the tray. Route the antenna wire following the instructions with the receiver.

❏ 11. Install the battery onto the tray, sliding the battery as far forward as possible. Secure the battery with the Velcro strap.

If you plugged the battery into the ESC, unplug it before proceeding.

Install Cabanes, Wings & Struts

The shorter cabane installs into the forward slots.
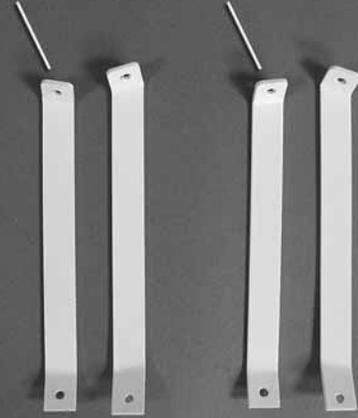
❏ 1. Locate the four wing cabanes and lay them out as shown in the photo. It is important that you install the correct cabane in the correct position in the fuselage. The shorter cabane installs into the forward slots and the longer cabane installs in the rear slots. Mark each of the cabanes to eliminate any confusion while installing them.
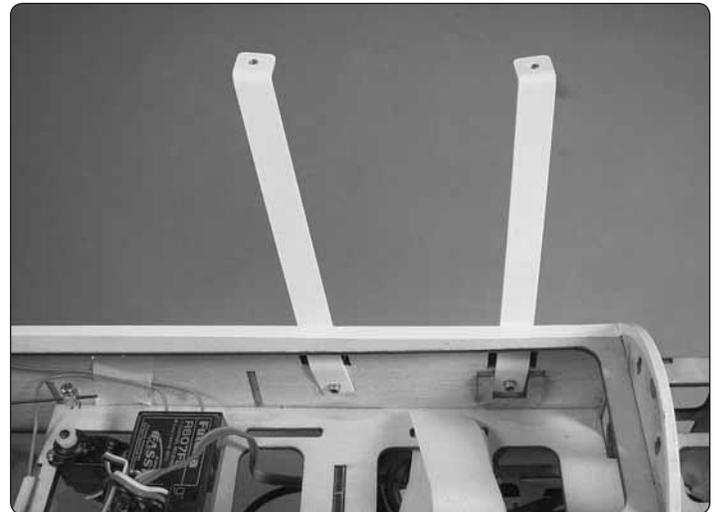
❏ 2. Slide the left side cabanes into the proper slots in the left side of the fuselage. Use the included allen wrench to install a 2-56 x 1/4" [6mm] socket head cap screw into each cabane. Be sure to use a couple of drops of thread locker on each of the screws. When tightening the screws, tighten them enough that they compress the balsa wood. This allows the cabanes to be tight to the plywood on the opposite side of the balsa. Repeat this for the right side of the fuselage.
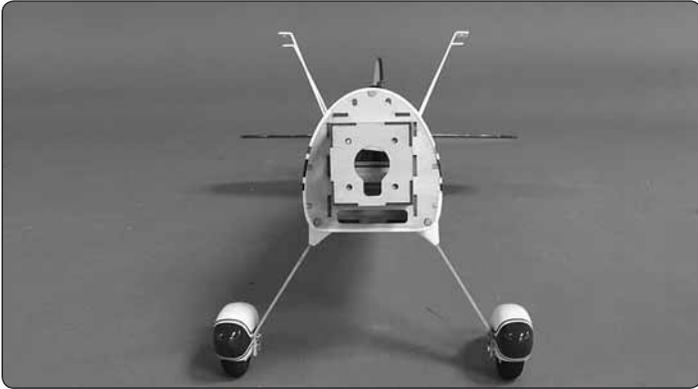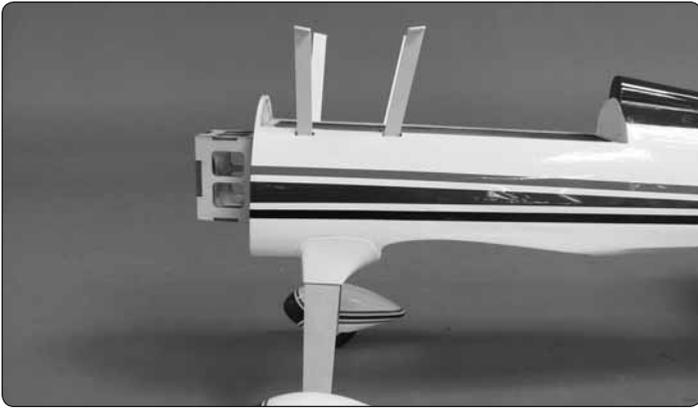
❏ 3. These pictures show how the cabanes look when they have been properly installed.
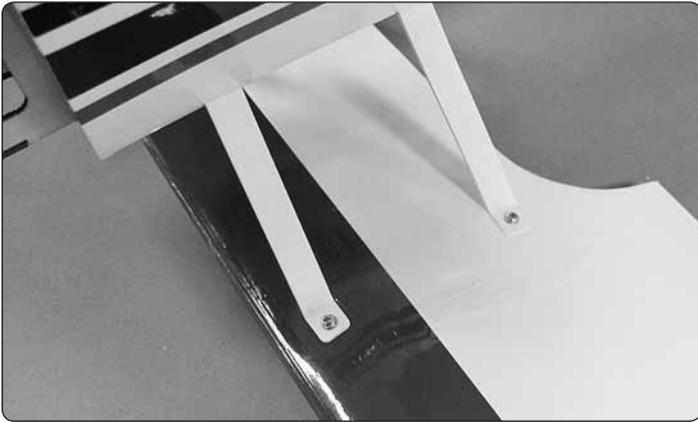
❏ 4. Attach the top wing to the cabanes with four 2-56 x 3/8" [9.5mm] machine screws. Be sure to use a couple of drops of thread locker on each of the screws before installing them.
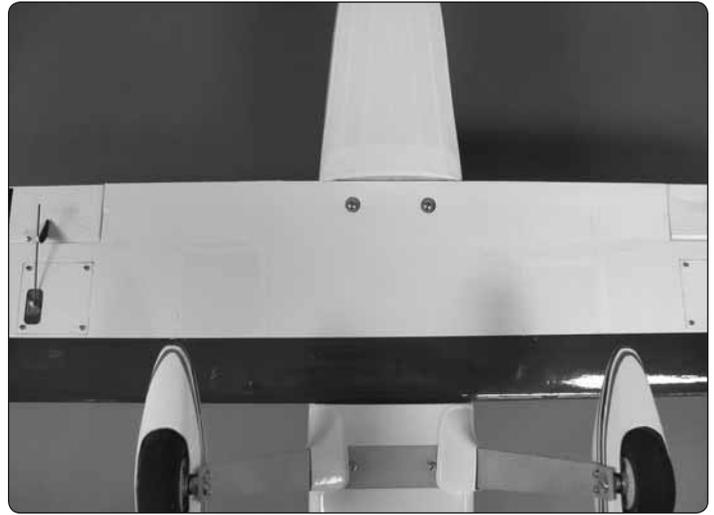
❏ 5, Bolt the bottom wing to the fuselage with two 4-40 x 1" wing bolts and #4 flat washers.
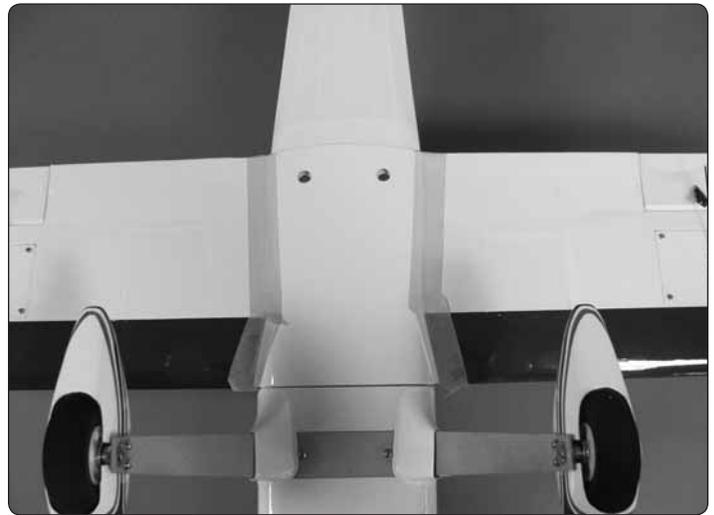
❏ 6. Apply RC Z 56 glue to the bottom edge of the wing fairing. Position the fairing on the wing. Wipe away any excess glue and then tape the fairing in place.
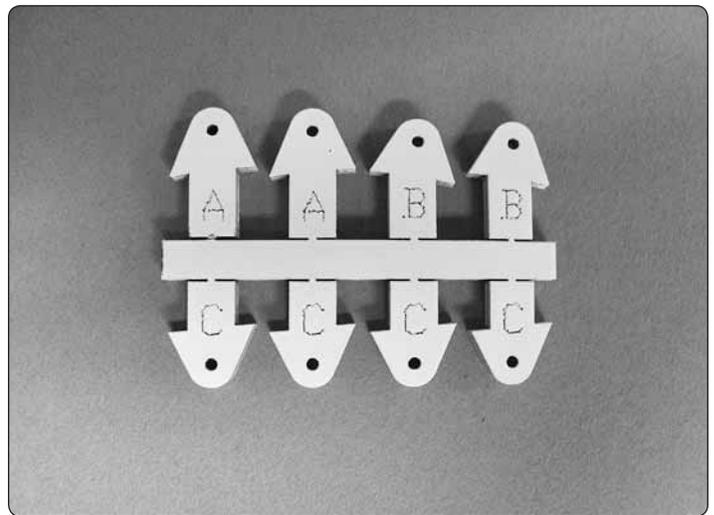
❏ 7. Locate the plywood strut attachment tabs. Cut all eight tabs from the tree.
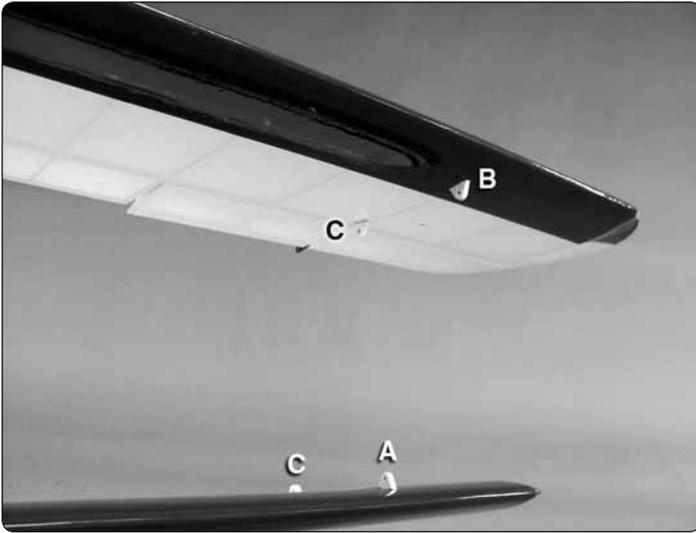
❏ 8. Each of the tabs is lettered "A", "B" and "C". Test fit two "A" tabs into the forward slots in each side of the bottom wing and two of the "C" tabs in the rear slots.

IMPORTANT: When you insert the tabs into the right side of the wing, the letters that are stamped on the tabs must face towards the fuselage. When you install the tabs on the left side of the wing the letters on the tabs must face towards the wing tip. **Do not glue the tabs to the wing yet.**

❏ 9. Test fit two "B" tabs into the forward slots in the bottom of the top wing and two of the "C" tabs in the rear slots.

IMPORTANT: When you insert the tabs into the right side of the wing, the letters that are stamped on the tabs must face towards the fuselage. When you install the tabs on the left side of the wing the letters on the tabs must face towards the wing tip. **Do not glue the tabs to the wing yet.**

❏ 10. The tabs fit snug enough that they should remain in place without any glue. Secure the wing struts to the tabs with four #2 x 5/16" [8mm] washer head screws. Once you are satisfied everything fits well, remove the struts and then glue the tabs into the slots. Once the glue has hardened reinstall the struts.
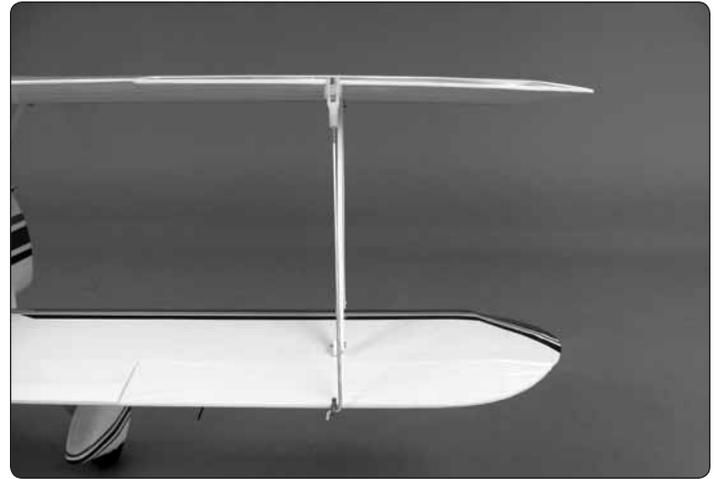
❏ 11. Locate one of the 5/64" x 6" [2mm x 150mm] wires with a Z-bend on one end and threads on the other. Thread a nylon clevis onto the threaded end of the wire approximately 25 turns. Slide a silicone clevis keeper retainer onto the wire and over the clevis. Install the end of the wire with the Z-bend into the connector on the trailing edge of one of the ailerons on the bottom wing. Center the bottom wing aileron and the aileron on the top wing. Adjust the clevis on the wire until it aligns with the hole in the connector in the top aileron. Once aligned, snap the clevis onto the connector and secure it by sliding the silicone clevis retainer over the clevis. Repeat this for the other wing.

Final Assembly

❏ 1. Slide the cockpit into place on the fuselage. Slide it back allowing the magnets to lock it into place.

❏ 2. Slide the cowl into place, adjusting it as needed until the magnets lock it into place

❏ 3. Install the prop onto the motor shaft. Secure it in place with the washer and nut that came with the motor.

Apply the Decals

❏ 1. Be certain the model is clean and free from oily fingerprints and dust. Prepare a dishpan or small bucket with a mixture of liquid dish soap and warm water—about one teaspoon of soap per gallon of water. Submerse the decal in the soap and water and peel off the paper backing. **Note:** Even though the decals have a "sticky-back" and are not the water transfer type,

submersing them in soap & water allows accurate positioning and reduces air bubbles underneath.

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

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

GET THE MODEL READY TO FLY

Install & Connect the Motor Battery

Before you can power the radio system and set up the controls, the motor batteries will need to be charged. Charge the batteries following the instructions with your battery and charger.

Check the Control Directions

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

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

4-CHANNEL RADIO SETUP (STANDARD MODE 2)

RUDDER
MOVES
RIGHT

RIGHT AILERON
MOVES UP
LEFT AILERON
MOVES DOWN

FULL
THROTTLE

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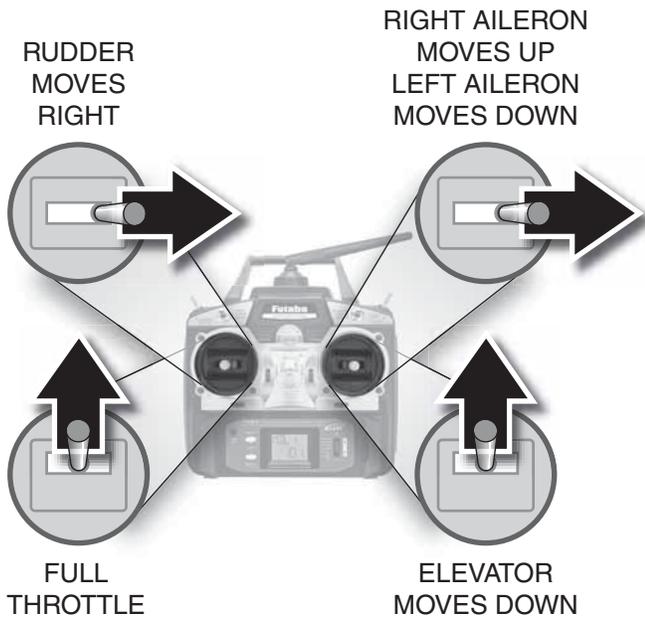
❏ 3. Make certain that the control surfaces respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered.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

❏ 4. If the prop is on the airplane remove it, the nut and washer. Arm the speed control and slowly start the motor. Be sure the motor is turning in a counter clockwise direction as observed from the front of the airplane. If it is not turning the correct direction unplug two of the motor wires and reverse them. Re-check that the motor is turning the correct direction.

Set the Control Throws

To ensure a successful first flight, set up your Super Stearman EP according to the control throws specified in this manual. The throws have been determined through actual flight testing and accurate record-keeping, allowing the model to perform in the manner in which it was intended. If, after you have become accustomed to the way the Super Stearman EP flies, you would like to change the throws to suit your taste, that is fine. However, too much control throw could make the model too responsive and difficult to control, so remember, "more is not always better."

❏ 1. Use a box or something similar to prop up the bottom of the fuselage so the horizontal stabilizer and wing will be level.

*Measure the **high rate** elevator throw first…*

❏ 2. Hold a ruler vertically on your workbench against the widest part (front to back) of the trailing edge of the elevator. Note the measurement on the ruler.
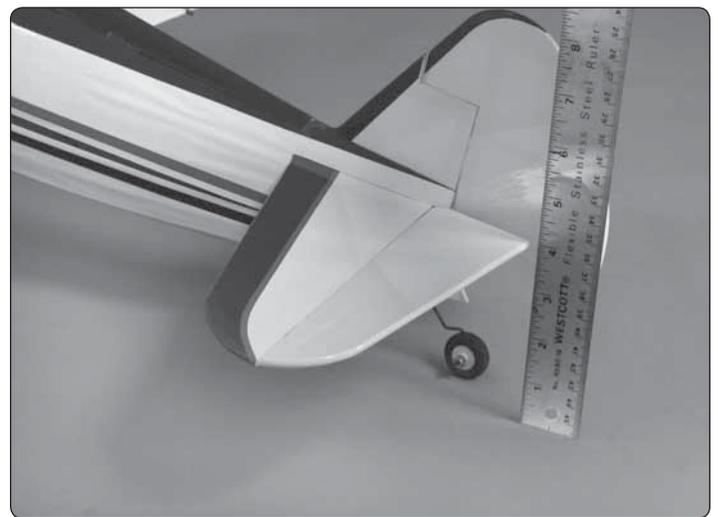
❏ 3. Move the elevator up with your transmitter and move the ruler forward so it will remain contacting the trailing edge. The distance the elevator moves up from center is the "up" elevator throw. Measure the down elevator throw the same way.

These are the recommended control surface throws:		
	LOW RATE ▼	**HIGH RATE** ▼
ELEVATOR	**Up & Down** 1/4" [6mm] 6°	**Up & Down** 1/2" [13mm] 12°
RUDDER	**Right & Left** 7/8" [22mm] 15°	**Right & Left** 1-1/8" [29mm] 19°
AILERONS	**Up & Down** 1/4" [6mm] 10°	**Up & Down** 3/8" [10mm] 14°

If your radio does not have dual rates, we recommend setting the throws at the low rate settings.

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

Balance the Model (C.G.)

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

At this stage the model should be in ready-to-fly condition with **all** of the components in place including the complete radio system, motor, battery and propeller.

❏ 1. If using a Great Planes C.G. Machine™, set the rulers to 2-5/8" [67mm]. If not using a C.G. Machine, use a fine-point felt tip pen to mark lines on the top of wing on both sides of the fuselage 2-5/8" [67mm] back from the leading edge. Apply narrow (1/16" [2mm]) strips of tape over the lines so you will be able to feel them when lifting the model with your fingers.

This is where your model should balance for the first flights. Later, you may experiment by shifting the C.G. 3/8" [9.5mm] forward or 1/4" [6mm] back to change the flying characteristics. Moving the C.G. forward will improve the smoothness and stability, but the model will then be less aerobatic (which may be fine for less-experienced pilots). Moving the C.G. aft makes the model more maneuverable and aerobatic for experienced pilots. 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 and all parts of the model installed (ready to fly), place the model on a Great Planes CG Machine, or lift it at the balance point you marked.

❏ 3. If the tail drops, the model is "tail heavy." If possible, move the battery pack and/or receiver forward to get the model to balance. If the nose drops, the model is "nose heavy." If possible, move the battery pack and/or receiver aft. If the receiver and/or battery cannot be moved, or if additional weight is still required, nose weight may be easily added by using use Great Planes "stick-on" lead (GPMQ4485). To find out how much weight is required, place incrementally increasing amounts of weight on the top of the fuselage over the location where it would be mounted inside until the model balances. A good place to add stick-on nose weight is to the firewall. Do not attach weight to the cowl. Once you have determined the amount of weight required, it can be permanently attached.

❏ 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 fuse under the TE of the fin. Do this several times.

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

PREFLIGHT

Identify Your Model

No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 23 and place it on or 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 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
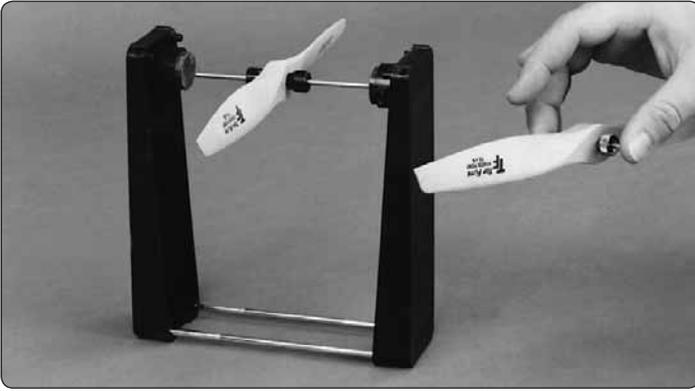
Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only will engine mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver 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 & Range Check

Always ground check the operational range of your radio before the first flight of the day following the manufacturer's instructions that came with your radio. This should be done once with the motor off and once with the motor running at various speeds. If the control surfaces do not respond correctly, **do not fly!** Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires on old servo connectors, poor solder joints in your battery pack or a defective cell, or a damaged receiver crystal from a previous crash.

MOTOR SAFETY PRECAUTIONS

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

● Get help from an experienced pilot when learning to operate motors.

● Use safety glasses when starting or running engines.

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

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

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

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 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.**

End of AMA Safety Code excerpts

CHECK LIST

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

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

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

❏ 3. If you use 72 MHz, extend your receiver antenna and make sure it has a strain relief inside the fuselage to keep tension off the solder joint inside the receiver.

❏ 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. Balance your propeller (and spare propellers).

❏ 14. Tighten the propeller nut and spinner.

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

❏ 16. If you wish to photograph your model, do so before your first flight.

❏ 17. Range check your radio when you get to the flying field.

FLYING

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

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 motor 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, 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 Stearman 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 she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your fuel level, but use this first flight to become familiar with your model before landing.

Landing

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

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

**Have a ball! But always stay in control
and fly in a safe manner.**

GOOD LUCK AND GREAT FLYING!

This model belongs to:

Name

Address

City, State, Zip

Phone Number

AMA Number

Super Stearman