G-44 Widgeon

INSTRUCTION MANUAL

ElectriFly®
by Great Planes

WARRANTY

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

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

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

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

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

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

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

GREAT PLANES®
MODEL MANUFACTURING COMPANY

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

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INTRODUCTION

For the latest technical updates or manual corrections to the Great Planes G-44 Widgeon EP visit the Great Planes web site at www.greatplanes.com. Open the "Airplanes" link, then select the Great Planes G-44 Widgeon 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 G-44 Widgeon 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 G-44 Widgeon 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 engine, 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 an engine larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

7. **WARNING:** The fuselage in this kit is 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 Great Planes G-44 Widgeon EP that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Motor Recommendations

The RimFire 400 [28-30-950] (GPMG4560) is the perfect match for the G-44 Widgeon EP. Two are required along with two SS-25 ESCs (GPMM1820) and two Great Planes 8×6 Slow-Fly (GPMQ6610) propellers.

Motor Battery Recommendations

We flew the G-44 Widgeon EP with the ElectriFly "Power Series" Lithium Polymer Battery (GPMP0727). The 3200 mAh 3S, 11.1 V 20C battery pack provided great power and flight times consistently more than 5 minutes. The battery proved to be a good choice to help establish the proper weight and balance. A Great Planes parallel ESC Adapter (GPMM3141) is required to connect the two RimFire motors to the battery.

Radio Equipment

The G-44 Widgeon EP requires a four channel radio system (minimum), four channel receiver (minimum), and four servos. Two servos with a minimum rating of 21 oz-in (1.5 kg-cm) of torque are required for the ailerons and two servos of at least 39 oz-in (2.8 kg-cm) of torque are required for the elevator and rudder. We used the following for our test model.

❍ Futaba® R617FS 2.4 receiver (FUTL7627)
❍ Aileron servos. Futaba 3114 (FUTM0414)
❍ Elevator and rudder servos. Futaba 3115 (FUTM0415)

Additionally you will require the following:

❍ Two - 24" [610mm] servo extensions (HCAM2721)
❍ Two - Servo "Y" connecters (FUTM4135)

ADDITIONAL ITEMS REQUIRED

Required Hardware and Accessories

This is the list of hardware and accessories required to finish the Great Planes G-44 Widgeon EP. Order numbers are provided in parentheses.

❍ 1/2 oz. [15g] Medium Pro™ CA+ (GPMR6007)
❍ 1/2 oz. [15g] Thin Pro CA (GPMR6001)
❍ Pro 6-minute epoxy (GPMR6045)
❍ #1 Hobby knife (HCAR0105)
❍ Drill Bits -1/16" [1.6mm], 5/64" [2mm]
❍ R/C-56 canopy glue (JOZR5007)
❍ CA applicator tips (HCAR3780)

Optional Supplies and Tools

❍ 2 oz. [57g] spray CA activator (GPMR6035)
❍ Mixing sticks (50, GPMR8055)
❍ Mixing cups (GPMR8056)
❍ Masking tape (TOPR8018)
❍ Denatured alcohol (for epoxy clean up)
❍ 21st Century® sealing iron (COVR2700)

Optional Pilot Figure

❍ Williams Brothers 1/8 scale Sportsman Pilot (WBRQ1130)

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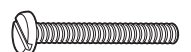
● There are three types of screws used in this kit:

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 G-44 Widgeon 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.
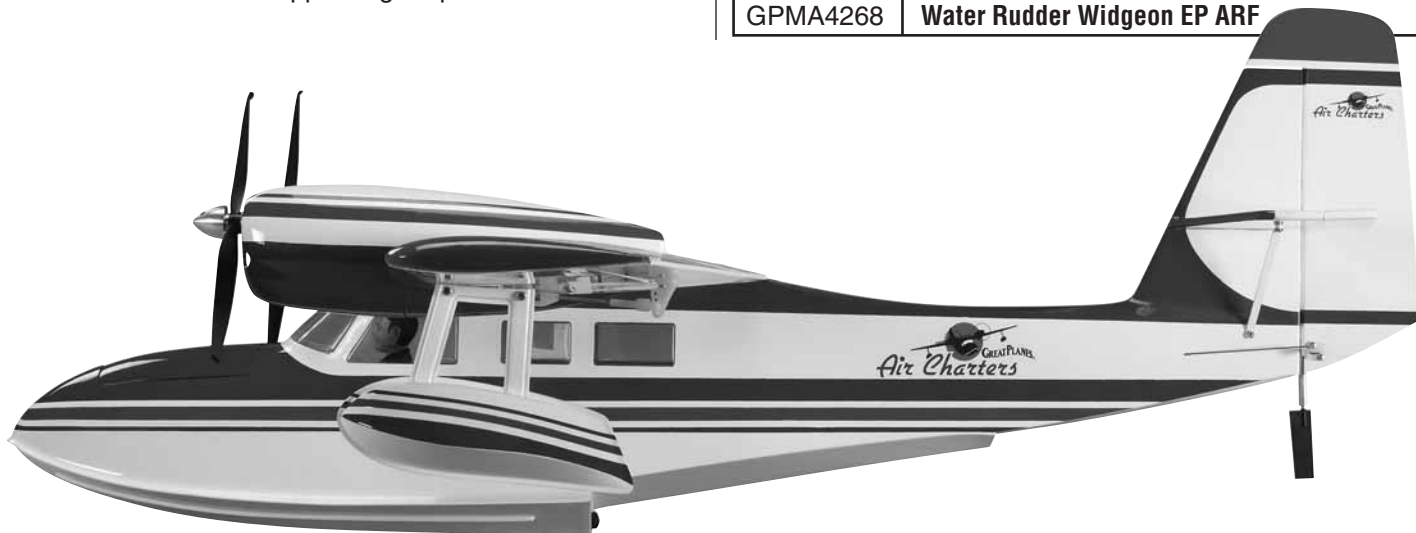
Mail parts orders **Hobby Services**
and payments by 3002 N Apollo Drive, Suite 1
personal check to: Champaign IL 61822

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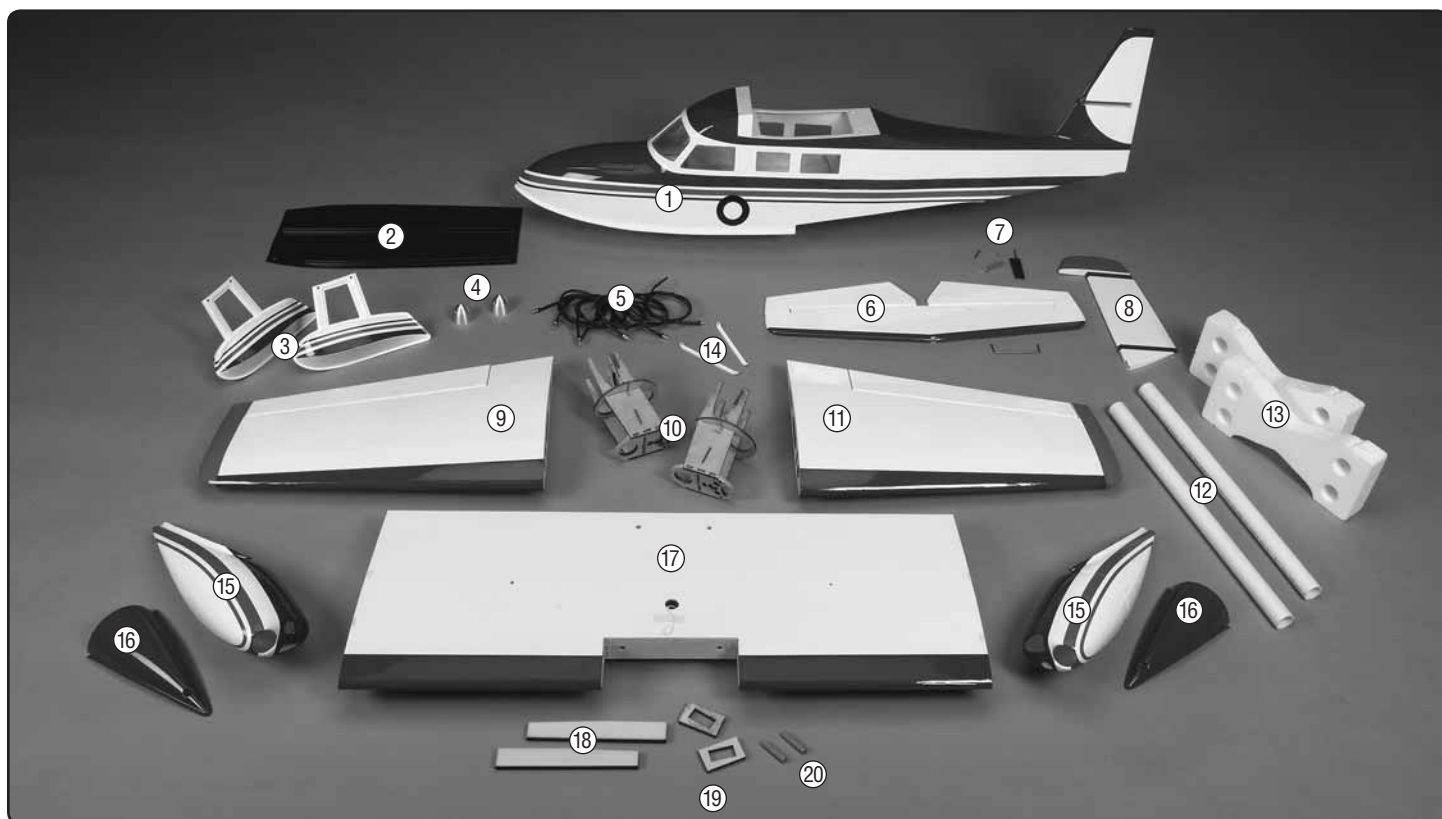
If additional assistance is required for any reason contact Product Support by e-mail at productsupport@greatplanes.com, or by telephone at (217) 398-8970.

REPLACEMENT PARTS LIST	
Order No.	**Description**
GPMA4260	**Fuselage Widgeon EP ARF**
GPMA4261	**Wing Widgeon EP ARF**
GPMA4262	**Tail Set Widgeon EP ARF**
GPMA4263	**Hatch Widgeon EP ARF**
GPMA4264	**Floats Widgeon EP ARF**
GPMA4265	**Nacelles EP Widgeon ARF**
GPMA4266	**Spinner EP Widgeon ARF**
GPMA4267	**Decals Widgeon EP ARF**
GPMA4268	**Water Rudder Widgeon EP ARF**

1. Fuselage
2. Cockpit Floor
3. Sponsons
4. Spinners
5. ESC Extensions
6. Stab and Elevators
7. Water Rudder Assembly

8. Rudder
9. Right Wing and Aileron
10. Motor Mounts
11. Left Wing and Aileron
12. PVC Tubes
13. Fuselage Cradles
14. Horizontal Stabilizer Struts

15. Top Nacelles
16. Bottom Nacelles
17. Wing Center Section
18. Wing Joiners
19. Servo Trays
20. Wing Dowels
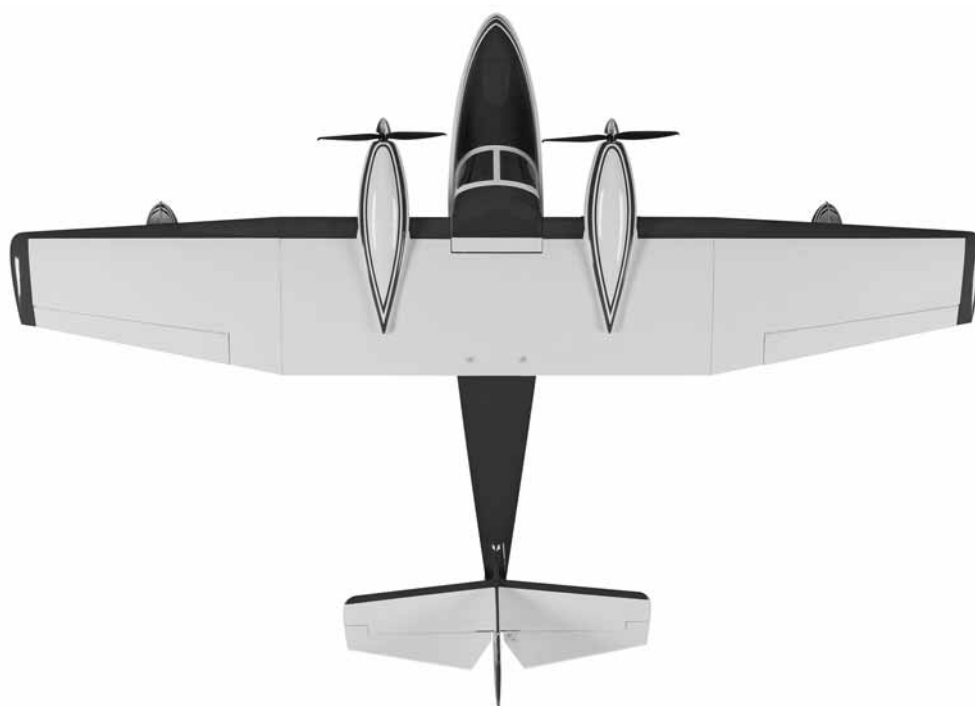
## PREPARATIONS

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).
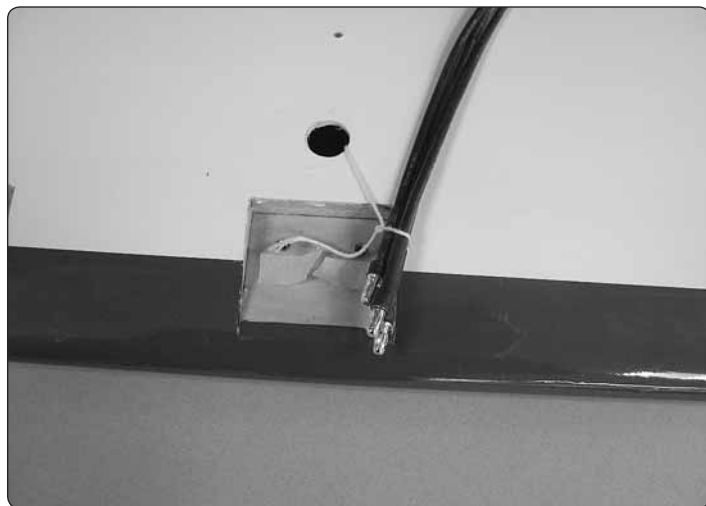
ASSEMBLE THE WINGS

Install the Motors
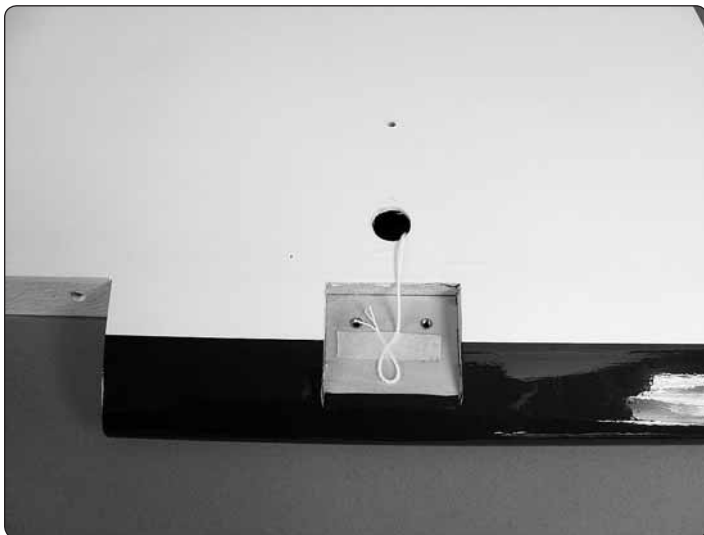
❏ 1. There is a set of strings that are taped to the wing. A string goes from the hole in the top of the wing by each of the motor mount locations and exits out the hole in the bottom center of the wing.
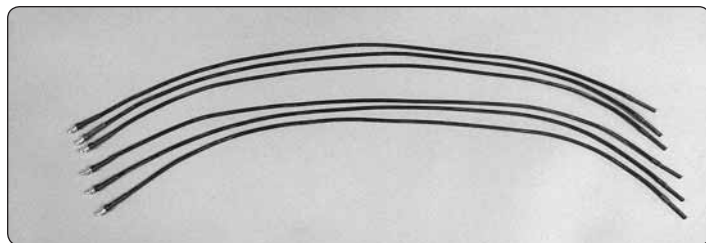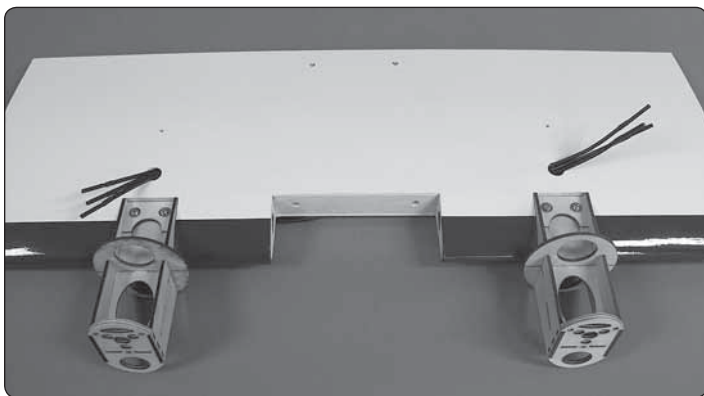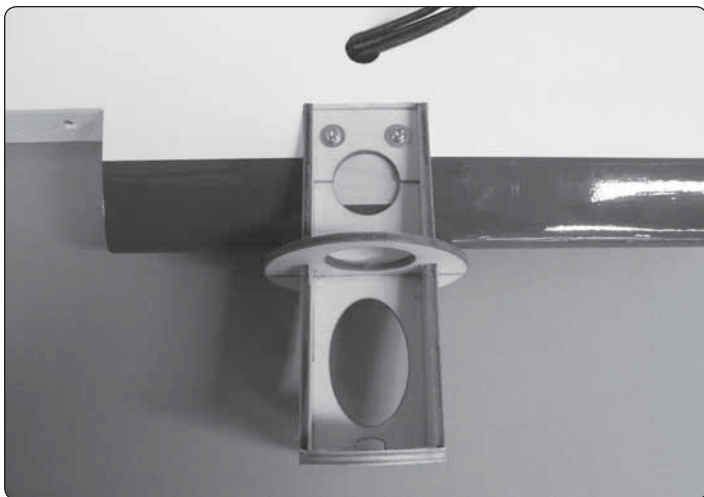

❏ 2. Your kit includes six motor extensions.

Using the string on the top of the wing located by the motor mount, tie the male end of three motor leads together and then pull them through the wing until they exit out the hole in the bottom center of the wing.
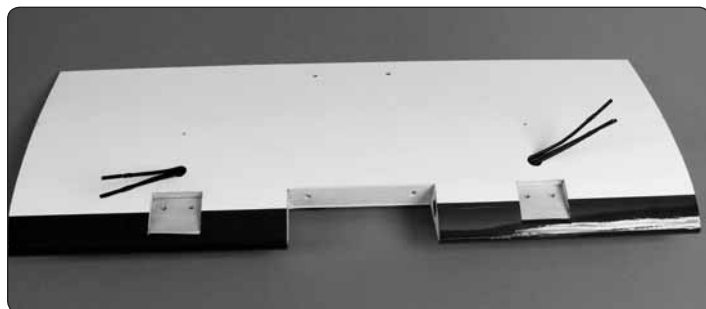
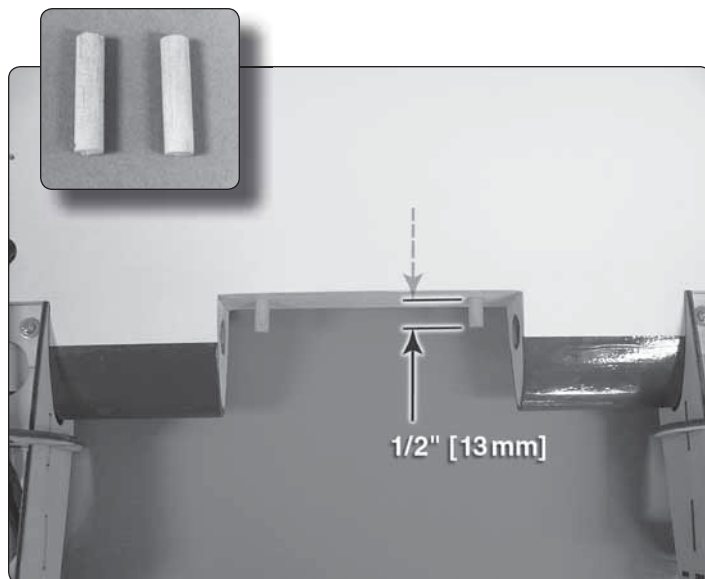Do this for both of the holes by the motor mount.

each motor to the motor mounts with three 4-40 x 1/4" [6mm] screws for each of the motors. Be sure to apply a couple of drops of thread locker to each of the screws before installing them.

1/2" [13mm]

❏ 5. Locate the 1/8" x 3/4" [3mm x 19mm] wood dowels. Glue them into the holes in the leading edge of the wing, making sure that approximately 1/2" [13mm] of each dowel extends from the wing.

Install the Aileron Servos and Join the Wing Panels

❏ ❏ 1. Remove the aileron servo cover from the bottom of the right wing. Locate one of the plywood servo mounting plates and position it between the markings on the servo cover. **DO NOT glue them together yet!**

❏ 3. Slide the wood motor mounts in place on the wing. Secure them to the wing with two 4-40 x 1/2" [13mm] screws and two #4 washers for each motor mount. Be sure to apply a couple of drops of thread locker to each of the screws before installing the screws.
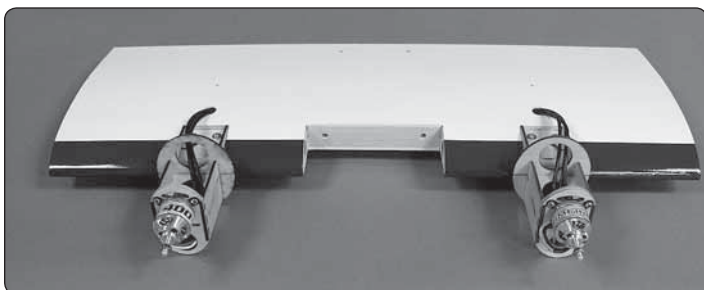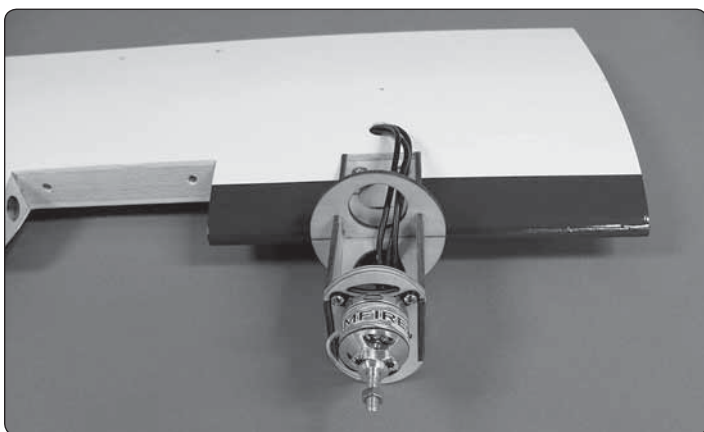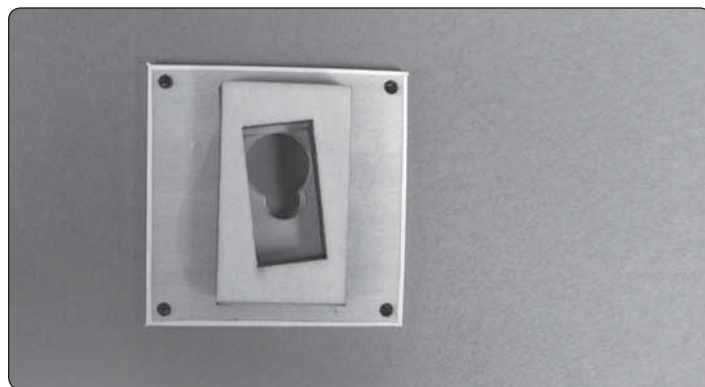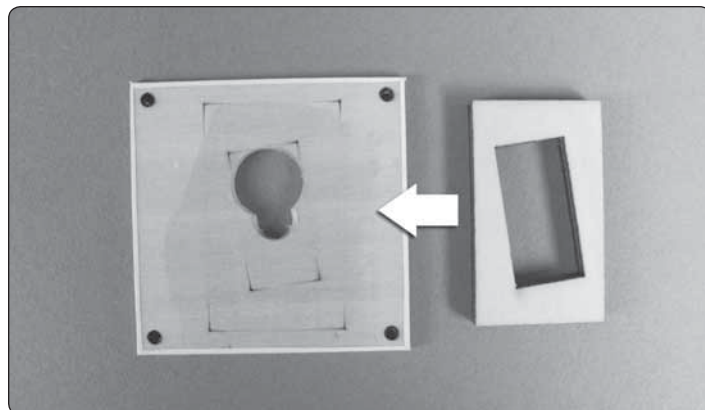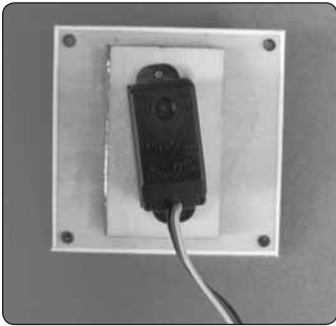
❏ 4. Assemble the motor, prop adapter and motor mount as instructed in the instructions that came with the motor. Mount

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❏ ❏ 2. Place your servo onto the plywood plate, making sure the servo fits through the hole in the aileron cover. Adjust the size of the hole in the servo cover as needed to fit your brand of servo. When you are satisfied with the fit, glue the plywood plate to the servo cover.
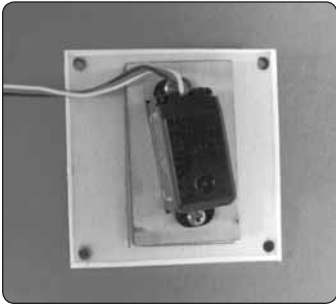
❏ ❏ 3. Drill a 1/16" [1.6mm] hole through the servo mounting holes, into the plywood plate. **Do Not drill through the servo cover.** Mount the servo with two 5/64" x 1/4" [2mm x 6mm] screws included in the kit.
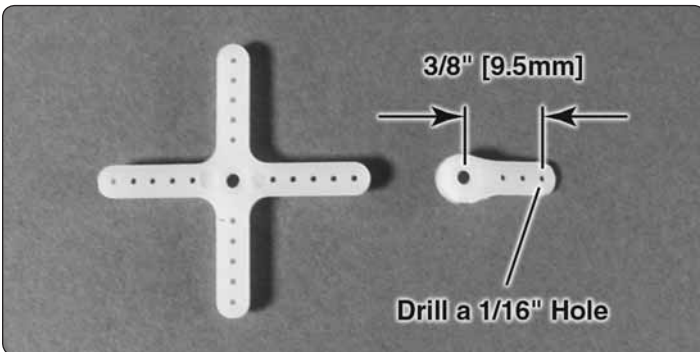
❏ ❏ 4. To continue with the installation you need to have a servo arm that is at least 5/32" [4mm] wide. If you are using the Futaba S3114 servo the standard arm on the servo is not wide enough but the larger arm included with the servo is the correct width. Modify the servo arm by cutting off three arms leaving just one. The servo arm needs to be shortened so that the distance from the center of the arm to the outer hole is 3/8" [9.5mm]. Modify the servo arm to match these specifications. Enlarge the outer hole drilling it with a 1/16" [1.6mm] drill.
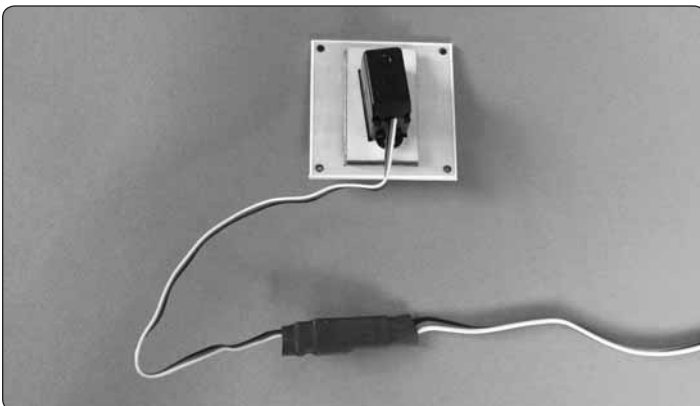
❏ ❏ 5. Install a 24" [610mm] servo extension onto the servo lead. Secure the leads with a piece of heat shrink tubing, tape or some other method to secure the connections.
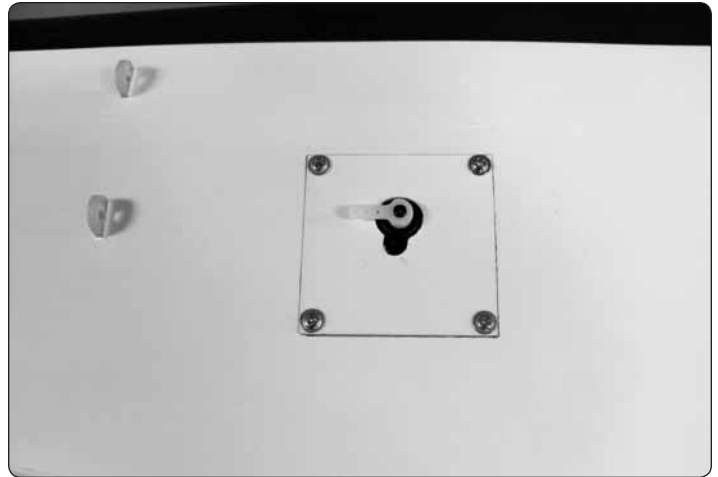
❏ ❏ 6. Center the servo and then install the servo arm onto the servo. Insert and then remove a 5/64 x 3/8" [2mm x 9.5mm] washer head screw into each of the four mounting holes in the wing for the servo cover. Apply a couple of drops of thin CA glue to harden the threads. Once the glue has hardened, secure the servo cover to the wing with four 5/64 x 3/8" [2mm x 9.5mm] washer head screws.
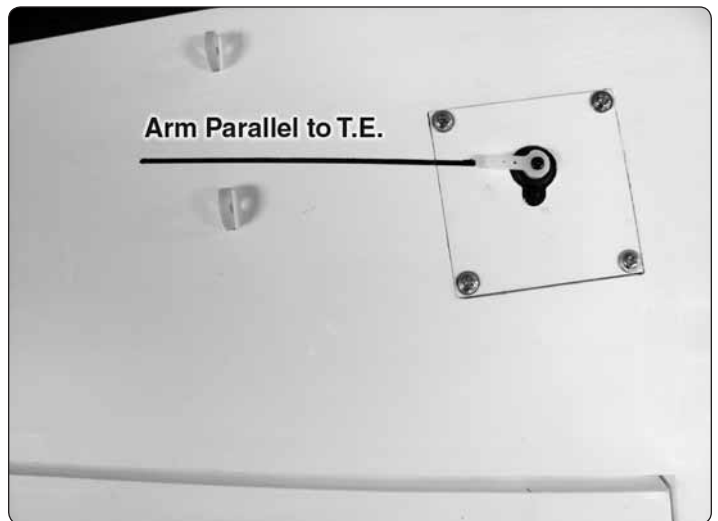
❏ ❏ 7. Adjust the servo arm until it is parallel to the aileron. You may need to remove the servo and re-install the servo arm to get the arm aligned with the servo.
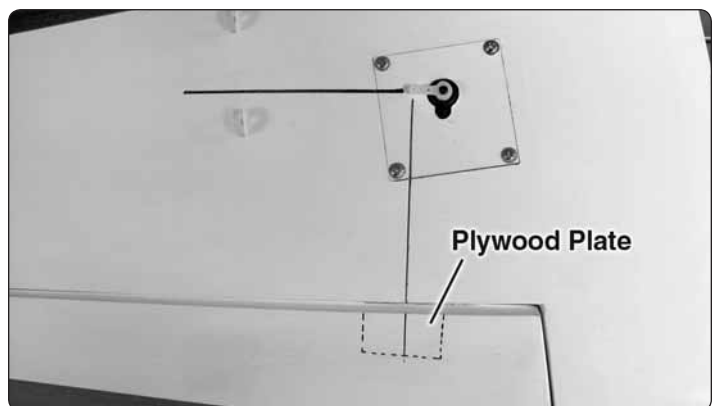
❏ ❏ 8. Look closely at the aileron. Under the covering you will see a hardwood plate.

Hinge Line   Hinge Line

Correct   **Incorrect**
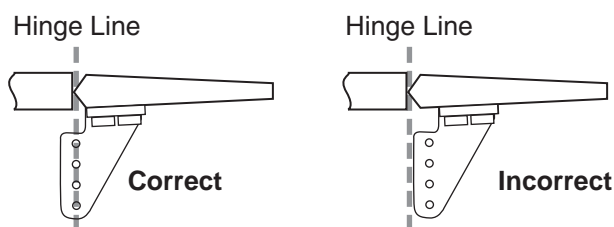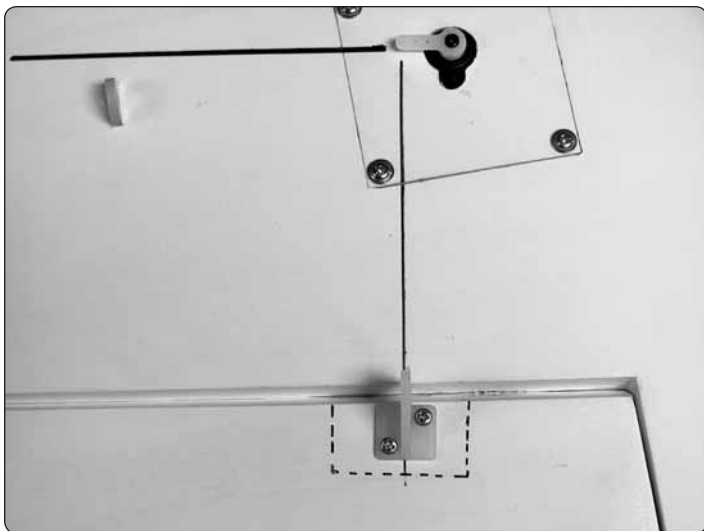
Place the aileron control horn on the hardwood plate in line with the servo arm. Drill a 1/16" [1.6mm] hole through each of the mounting holes, drilling into the hardwood plate. **DO Not** drill through the top of the aileron! Secure the control horn with two 5/64" x 3/8" [2mm x 9.5mm] screws. Remove the screws and add a couple of drops of thin CA glue to the holes to harden the threads. After the glue has dried secure the horn to the aileron.

Servo Horn ___   FasLink
                        Pushrod Wire

Faslink
Clevis Keeper
Clevis

❏ ❏ 9. Thread a nylon clevis 20 turns onto a 4-1/4" [110mm] pushrod. Slide a silicone clevis retainer onto each clevis and connect the clevis in the hole, one hole in from the end of the nylon control horn
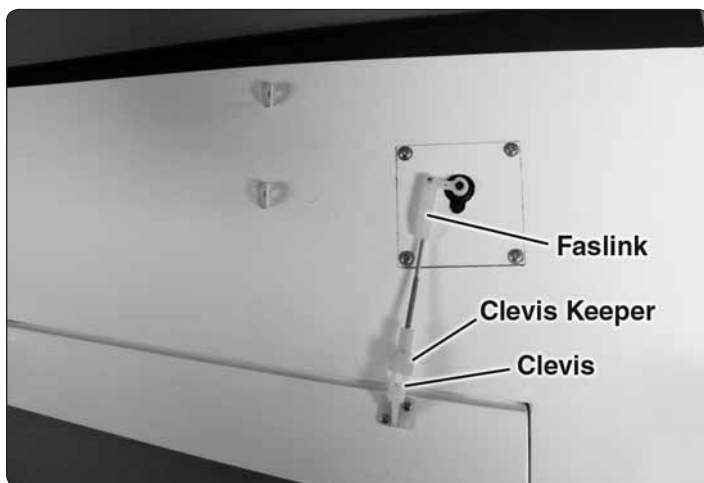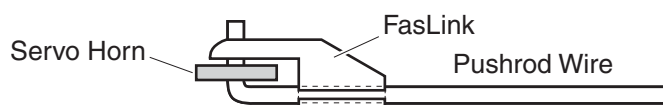
❏ ❏ 10. Use tape to hold the ailerons in the neutral position. Make a mark on the pushrods where they cross the outer holes in the servo arms. Make a 90 degree bend at the mark on the pushrods and cut off the excess pushrod 1/4" [5mm] beyond the bend. Attach the pushrods to the servo arms using nylon Faslinks. Thread the clevis up or down on the pushrod as necessary to center the aileron. When satisfied, slide the silicone clevis retainer to the end of the clevis to secure it.
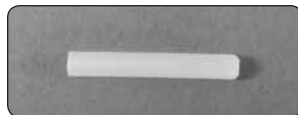
❏❏ 11. Locate one of the 1/8" x 3/4" [3mm x 19mm] nylon dowels.
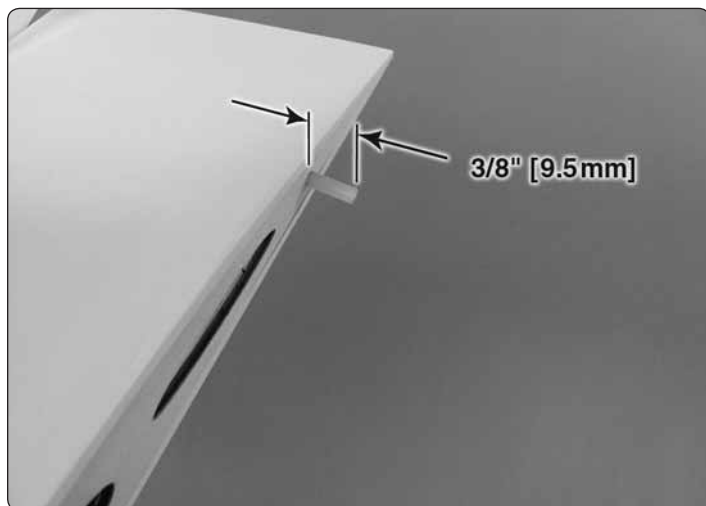
3/8" [9.5mm]

Test fit it into the hole located at the trailing edge of the root rib. Glue the dowel into the hole leaving 3/8" [9.5mm] of the pin extending from the root rib.
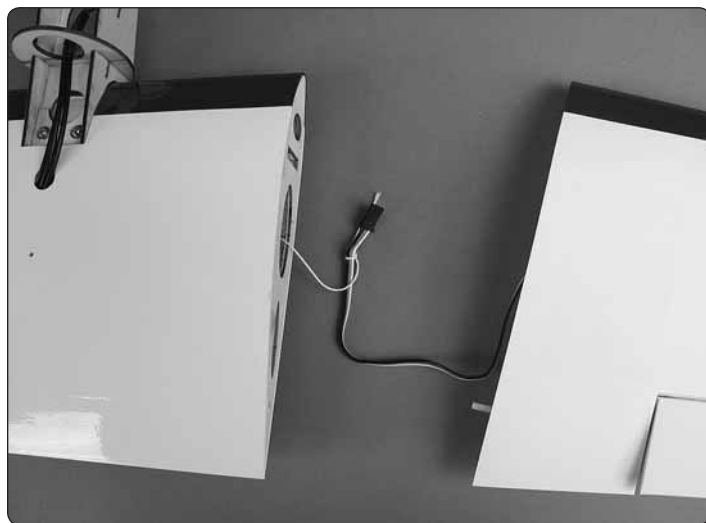
❏ ❏ 12. Attached at the root rib of the wing center section is a string that runs out through the wing out the hole on the bottom center of the wing. Tie the string to the servo lead of the outer wing panel.

To Wing Center Section

To Outer Wing Panel

Bottom of Joiner Straight Section

Bottom of Joiner Tapered Section
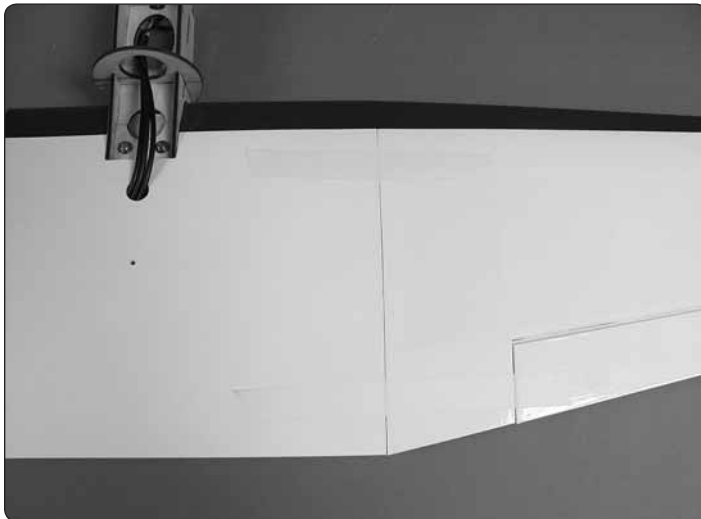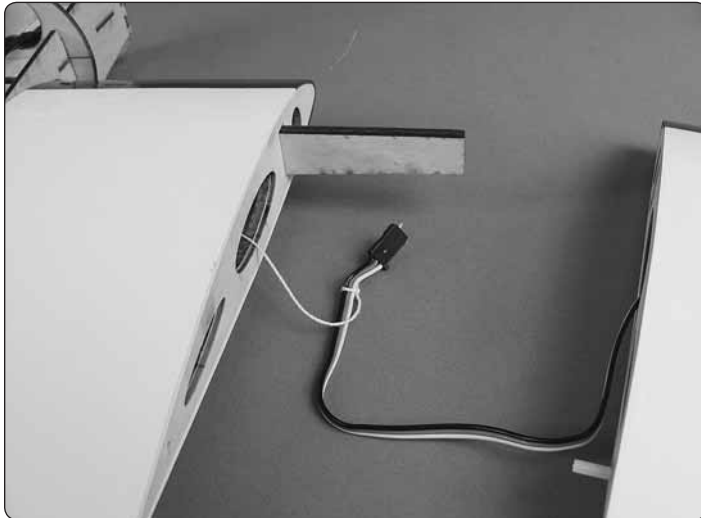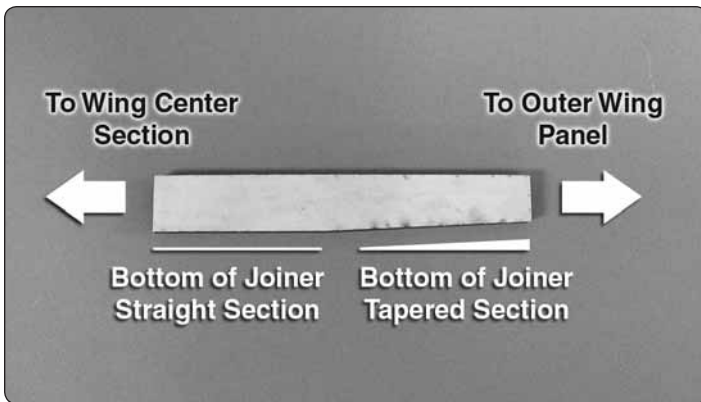
❑ ❑ 13. Locate one of the plywood wing joiners and test fit it into the opening in the wing center section. Slide the outer wing panel onto the joiner to check the fit. When you are satisfied with the fit of the wing panels remove the outer panel from the center section. Pull the servo lead through the wing center section and out the hole in the bottom of the wing center section. Apply epoxy to the joiner, the joiner pocket and the wing root rib. Tape the wing center section and the outer wing panel together and allow the glue to harden. Clean excess glue from the wing with a paper towel and alcohol.

❑ 14. Repeat steps 1-13 for the left wing panel.

Install the Motor Nacelles and Sponsons

Top Nacelles

Glue Bottom Nacelle
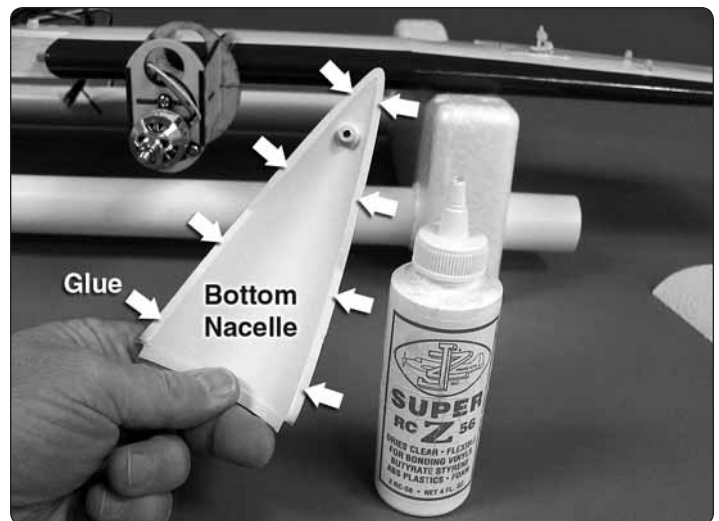
❑ ❑ 1. Each nacelle is composed of a top and bottom half. Apply a bead of R/C Z 56 to the inside flange on the bottom nacelle. Move quickly to the next step.

❑ ❑ 2. Place the bottom nacelle on the bottom wing. Align the hole in the back of the bottom nacelle with the hole in the bottom of the wing. Now install the top nacelle (*Do Not Glue*) onto the wing, making sure that the nacelle slides over the flange on the bottom nacelle.

❏ ❏ 3. Secure the top and bottom nacelle by screwing the 4-40 x 1-3/4" Phillips head screw into the hole in the bottom half of the nacelle, through the wing and into the block inside the top of the nacelle. Tighten the screw until the top and bottom half of the nacelle fit snug to the surface of the wing. Clean away any excess glue from the wing and nacelle. Apply masking tape to the bottom half of the nacelle to hold it tight to the wing. Repeat this for the other nacelle. When you have both nacelles installed set the wing aside to allow it to dry.

❏ ❏ 4. Install two 1/8" x 3/8" [3mm x 9.5mm] screws into the sponson and through the mounting tabs in the wing. Tighten a 1/8" [3mm] nylon lock nut onto the screws to secure the sponson.
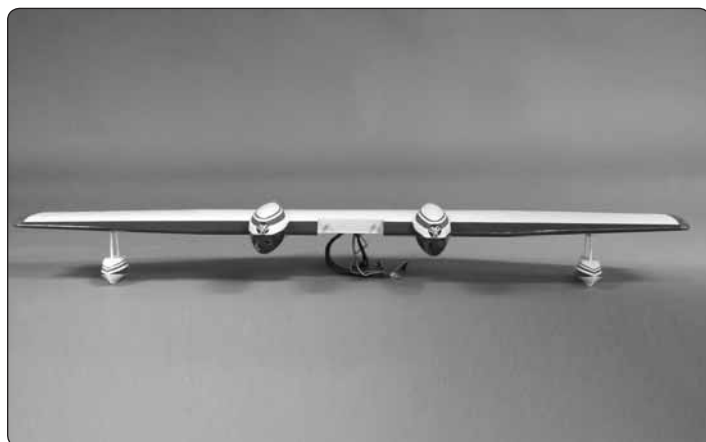
❏ 5. Repeat this to install the other sponson.

ASSEMBLE THE FUSELAGE

Install the Stab, Elevators and Rudder

❏ 1. Assemble the foam stand for the fuselage. This will give a solid platform during the assembly of the fuselage.

$A = A'$ $B = B'$
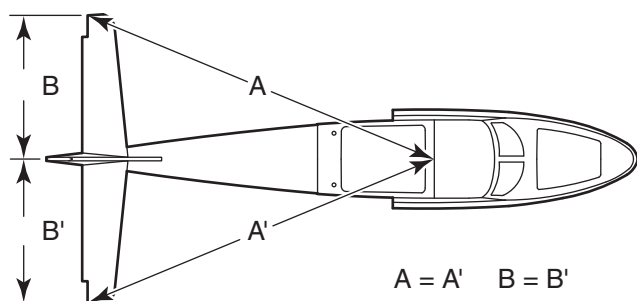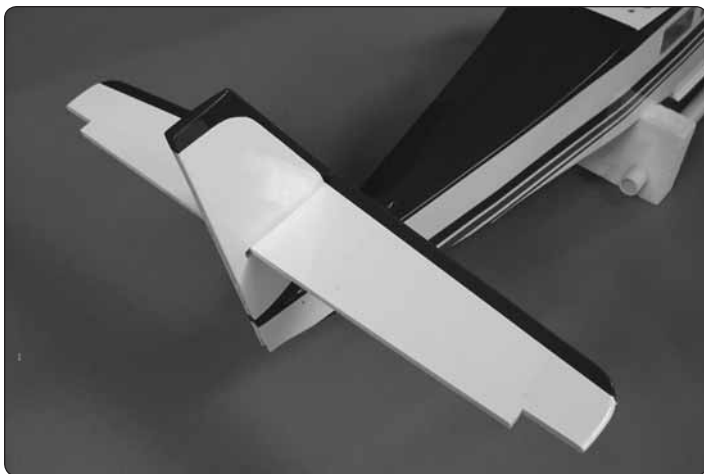
❏ 2. Slide the stab into fuselage. Align the stab as shown in the sketch.

Stab is Parallel to the Top of the Fuselage
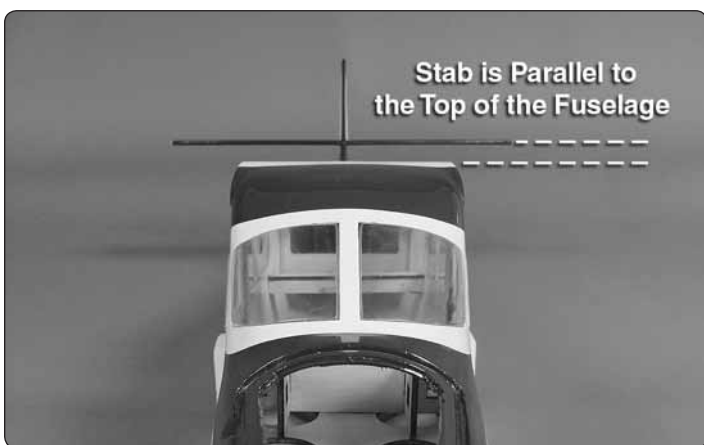
❏ 3. Stand back and look at the stab alignment in relation to the top of the fuselage. Be sure that the stab is parallel to the top of the fuselage. If not, lightly sand the stab saddle to align the stab.
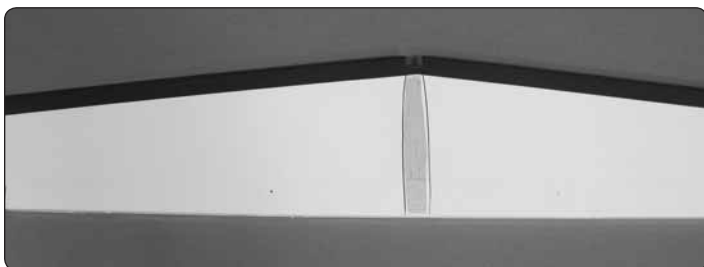
❏ 4. Once you are satisfied with the alignment, mark the shape of the fin onto the top and bottom of the stab with a fine tip felt tip marker. Remove the stab. Use the technique

described below for safely cutting the covering. If you do not have a hot knife use a sharp hobby knife, carefully cutting the covering from the stab. **Important! Be sure you cut only through the covering and not into the stab.**

EXPERT TIP

How to Cut Covering from Balsa
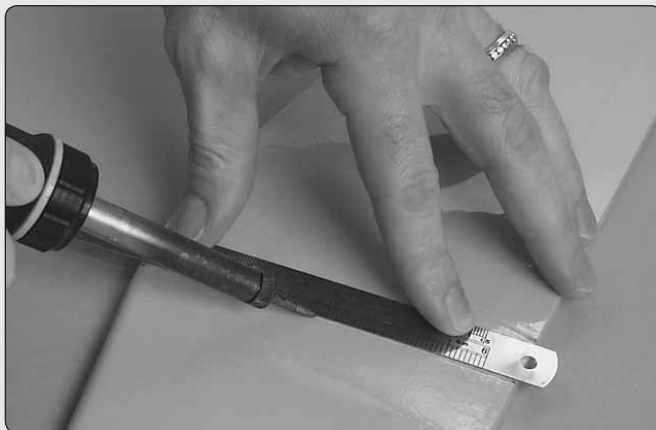
Use a soldering iron to cut the covering from the stab. The tip of the soldering iron doesn't have to be sharp, but a fine tip does work best. Allow the iron to heat fully. Use a straightedge to guide the soldering iron at a rate that will just melt the covering and not burn into the wood. The hotter the soldering iron, the faster it must travel to melt a fine cut. Peel off the covering.

❏ 5. Install the stab back into the fin. Double check the alignment of the stab. When you are satisfied with the fit, wick some thin CA into the joint to secure the stab to the fin. Do this for both the top and the bottom of the stab. Set the model aside to allow the glue to harden.
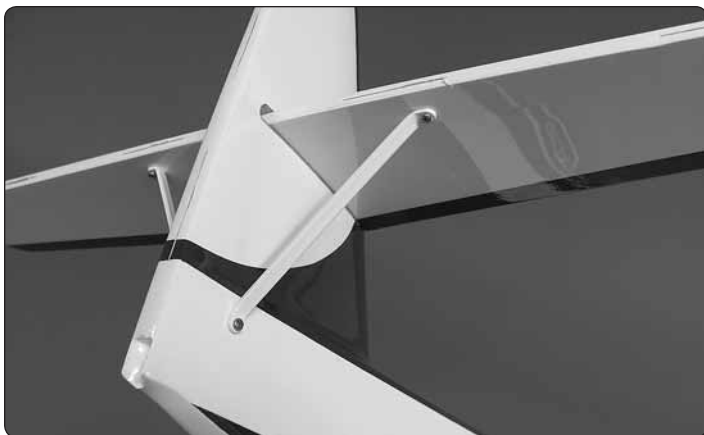
❏ 6. On the bottom of the stab and the side of the fuselage you will find pre-drilled holes for stab supports. Install and then remove a 5/64" x 1/4" [2mm x 6mm] screw into each of the four holes. Apply a couple of drops of thin CA into the holes to harden the threads. After the glue has hardened install the stab supports with 5/64" x 1/4" [2mm x 6mm] screws.

❏ 8. Install a hinge into each of the four hinge slots in the stab. Test fit the elevators to the stab. When sliding the elevator halves onto the hinges be sure that you install the elevator joiner wire into the hole in the trailing edge of the elevator. Check to be sure that the two elevator halves are aligned with each other. If necessary, slightly bend the joiner wire to bring the elevators into alignment. When you are satisfied with the fit remove the elevators from the stab.
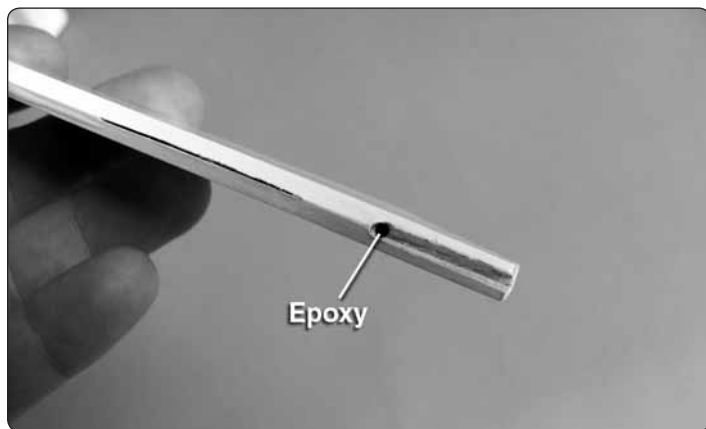
Epoxy

❏ 9. Apply a small amount of epoxy into the hole in the elevator for the elevator joiner wire. Fit the elevator onto the hinges. Do this for both the left and right elevator.

❏ 7. Locate the elevator joiner wire. Slide it through the fin at the trailing edge of the stab.

❏ 10. Apply a couple of drops of thin CA onto the top and the bottom of the four elevator hinges. Make sure the glue saturates the hinges and flows into the hinge slots.
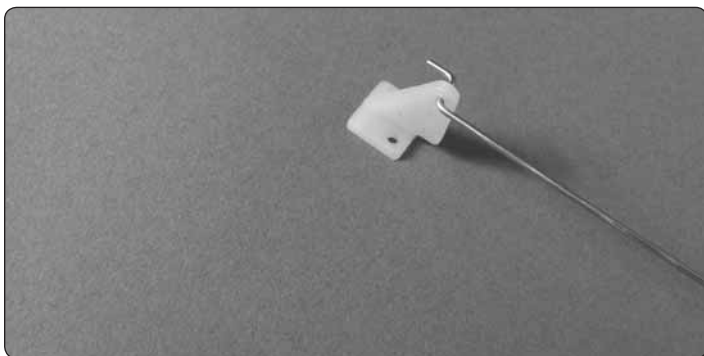
❏ 11. Install the z-bend end of a 3/64" x 20" [1.2mm x 508mm] pushrod wire into the outer hole of a nylon control horn.

❏ 12. Slide the wire into the hole at the back of the fuselage in the top, right side of the fuselage. Place the control horn on the elevator as shown. Mark the location of the clevis mounting holes onto the elevator. Drill a 5/64" [2mm] hole through each of the marks and through the top of the elevator.

❏ 13. Secure the control horn with 5/64" x 3/8" [2mm x 10mm] screws.
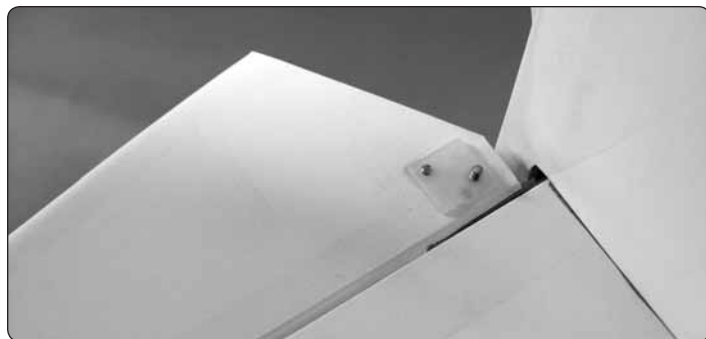
Tighten the screws into the nylon control horn plate on the top of the elevator.

Apply Thin CA to This Area of the Rudder

❏ 14. Apply a couple of drops of thin CA to the exposed balsa trailing edge of the rudder. The application of the glue is to waterproof the balsa. Allow the glue to harden without the use of CA accelerator. You do not want any glue build up in this area.
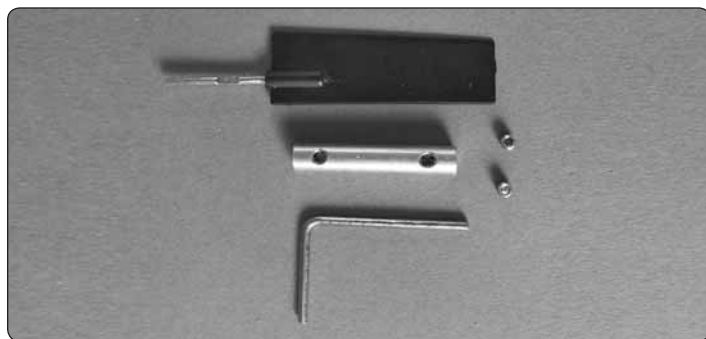
❏ 15. Locate the water rudder, water rudder control wire, aluminum coupler and two 1/8" [3mm] set screws.
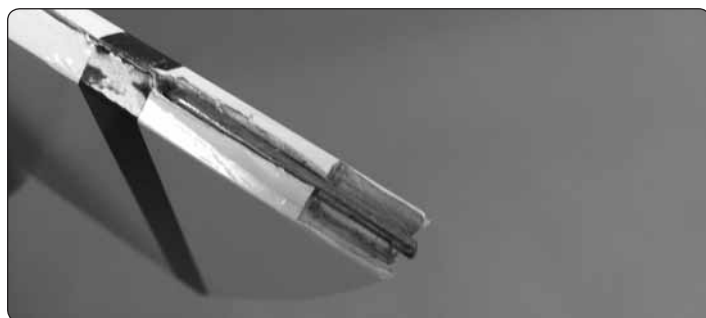
❏ 16. Apply a small amount of epoxy to the trailing edge of the rudder and in the hole. Slide the shortest end of the control wire into the hole. Clean any excess epoxy with a paper towel wetted with alcohol. Allow the glue to harden.

❏ 17. Apply a couple of drops of thread locker onto one of the 1/8" [3mm] set screws and install it into the aluminum coupler. Slide the water rudder into the coupler and tighten the set screw against the flat spot on the water rudder.

❏ 18. Install the remaining set screw into the aluminum coupler. Slide the coupler onto the water rudder wire. After you are satisfied with the fit, remove the coupler from the water rudder wire. For the rest of the assembly process you will find it easier to handle the model without the water rudder attached to the rudder. When the model is complete install the water rudder. Be sure to use thread locker on the set screw.

❏ 19. Install three hinges into the trailing edge of the stab and then test fit the rudder to the hinges. When you are satisfied that everything fits together properly, apply a few drops of thin CA onto the hinges in the same way you installed the elevators.

❏ 20. Install the z-bend end of the remaining 3/64" x 20" [1.2mm x 508mm] pushrod wire into the outer hole of a nylon control horn.

❏ 21. Slide the wire into the hole at the back of the left side of the fuselage. Place the control horn on the rudder using the same technique used on the ailerons. Mark the location of the clevis mounting holes onto the rudder. Drill a 5/64" [2mm] hole through each of the marks and through the opposite side of the rudder.

❏ 22. Secure the control horn with 5/64" x 1/2" [2mm x 10mm] screws and tighten the screws into the nylon control horn plate on the opposite side of the rudder.

Install the Servos, Receiver and Speed Controls in the Fuselage
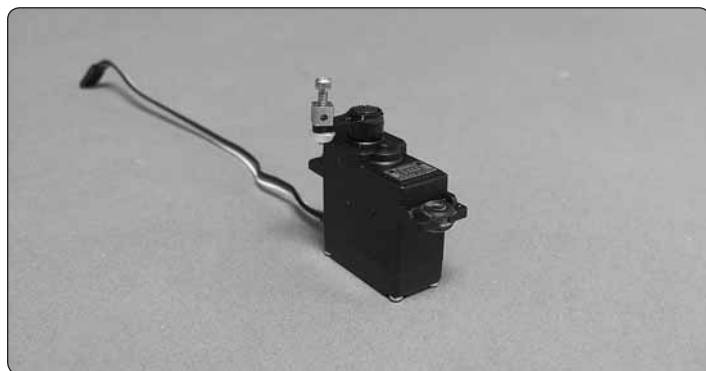
❏ 1. Modify the servo arm included with your servo by cutting off three arms leaving just one. Install a brass screw lock connector into the outer hole of the servo, securing it with the plastic retainer. The outer hole of the servo arm should be approximately 1/2" [13mm] from the center of the servo. Thread the 2-56 x 1/4" (6mm) socket head caps screw into the top of the screw lock connector.
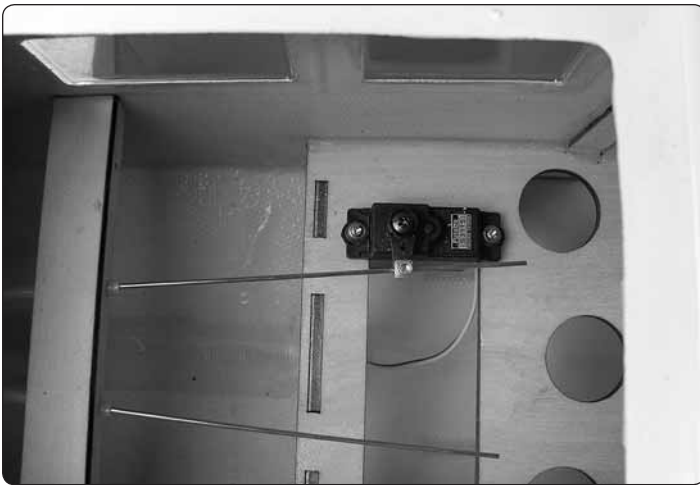
❏ 2. Install the elevator servo into the left side of the servo tray making sure the pushrod wire slides through the screw lock connector. Drill a 1/16" [1.6mm] hole through the mounting holes of the servo. Screw the servo in place with the hardware that came with your servo. Center the servo arm and center the elevator. Apply a couple of drops of thread locker to the socket head cap screw. Then, tighten the screw against the pushrod wire.
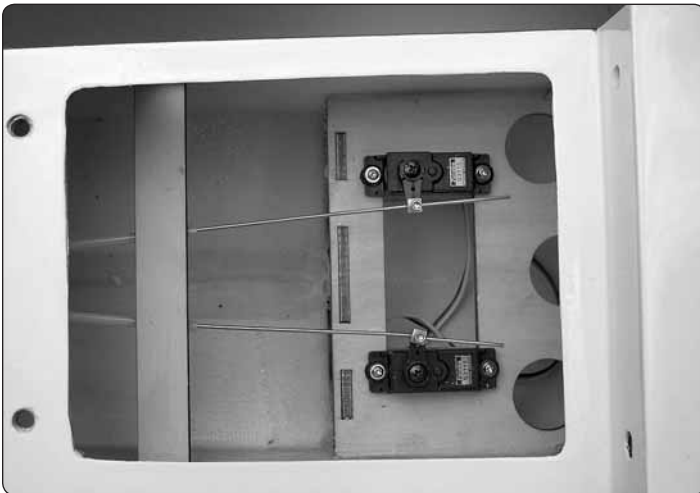
❏ 3. Install the rudder servo using the same installation method used for the elevator.
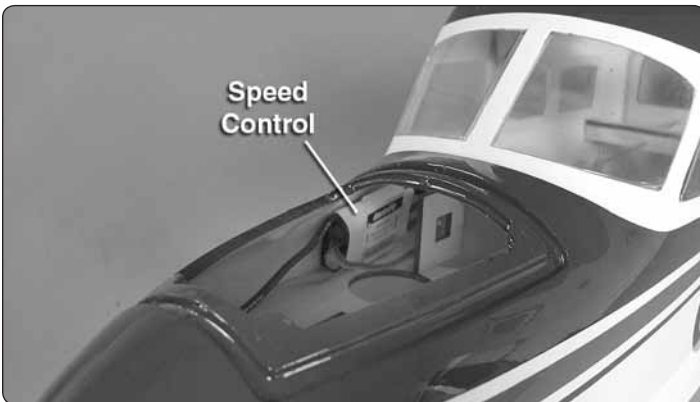
❏ 4. From the 8" [203mm] adhesive backed Velcro® cut a piece approximately 1-1/2" [38mm] long. Apply the softer, fuzzy side to the speed control and place the opposite side on the inside of the fuselage as shown. When positioning the

speed control be sure to feed the three motor leads and the signal lead back through the bulk head and into the area of the servos. Repeat this on the opposite side of the fuselage for the other speed control.

❏ 5. Plug both of the leads from the speed controls into a "Y" connector. Secure the connections with some heat shrink tubing, tape or other method to prevent the connections from becoming unplugged.

❏ 6. Plug the two speed controls into a parallel connector.
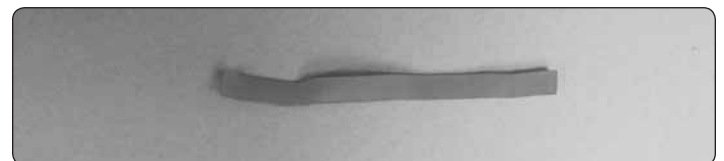
❏ 7. Cut a 3-1/2" [89mm] length from the #64 rubber band included with the kit.

16

Non-Adhesive Velcro

Adhesive Backed Velcro

❏ 9. From the 8" [203mm] adhesive backed Velcro cut a piece approximately 3-1/2" [89mm] long. Place the more rigid half of the Velcro onto the plywood (the fuzzy side of the Velcro will be applied to the battery). Insert the non-adhesive Velcro strip through the slots in the plywood plate.
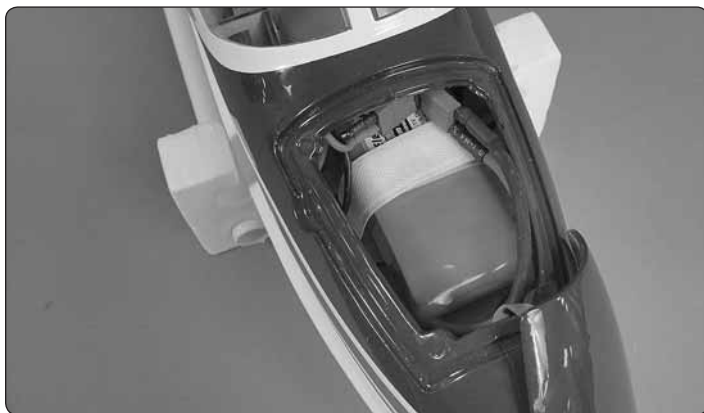
10. Turn the transmitter on and set the throttle stick to idle. Then, install the battery and plug it into the parallel connector that the two speed controls are plugged into.

❏ 8. Glue one end of the rubber band inside the fuselage with CA glue. After the glue has hardened glue the rubber band to the hatch cover. This works as a shock cord and will prevent you from losing the hatch cover in strong choppy water. For added security we have included a 1/4" x 2" x 2" [6mm x 52mm x 52mm] piece of foam. Glue this inside the cover between the formers with Foam Safe CA glue or five minute epoxy. This will allow the cover to float if it should ever become disconnected from the fuselage.

❏ 10. Cut another 1-1/2" length of adhesive Velcro. Apply the softer, fuzzy side to the receiver and place the opposite side on the plywood plate inside of the fuselage as shown. Now is a good time to plug all of the servos into the receiver. Install a Y-connector into the receiver for the ailerons. Place the wing onto the fuselage and plug the ailerons into the

receiver. Make sure the controls are all centered and moving the correct direction. If you have any question about the direction the surfaces should move refer to the instructions on page 20 of this manual. When you are satisfied that the radio system is set up properly, place the receiver on the Velcro®. Next you need to plug in all of the motor leads. Before doing this remove the nut and washer from the motors. Plug the right motor into the leads from the right speed control. Plug the left motor into the remaining leads. Plug the "Y" connector into the appropriate channel for your receiver. Arm the speed control. Looking at the front of the motors, check to be sure that the motors are both turning counter-clockwise. If they do not turn counter clockwise unplug two of the three leads from the motor and reverse them. This will change the direction of the motor rotation. When both motors are turning the correct direction disconnect the battery.

FINAL ASSEMBLY

❏ 1. Install the drain plug into the bottom of the fuselage. Use this plug to drain any water that might get into the fuse during a flight.

Tapered
Leading
Edge Faces
Forward

This is the orientation for proper installaton of the water rudder.
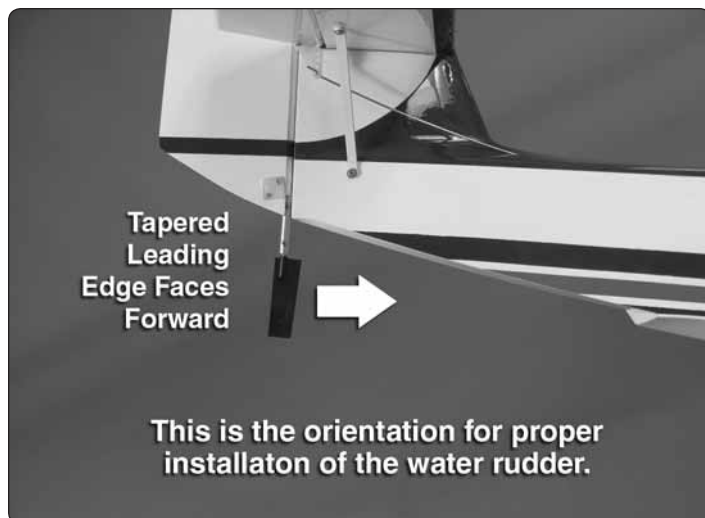
❏ 2. Install the water rudder onto the water rudder control wire. Apply a couple of drops of thread locker to the set screw, align the water rudder with the rudder and tighten the set screw against the wire.
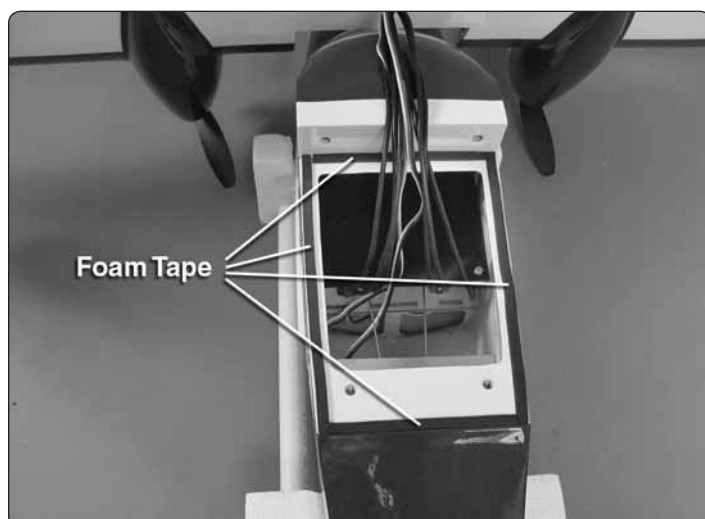
Foam Tape

❏ 3. Apply the self adhesive foam tape to the wing saddle. This will prevent any water from getting into the fuselage.
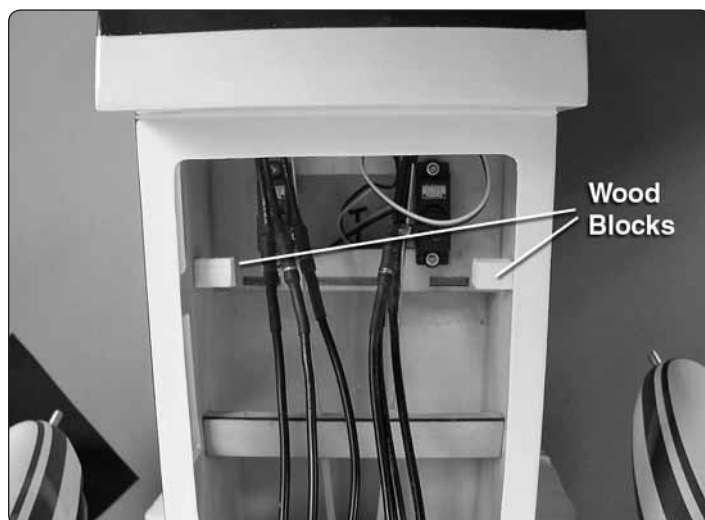
Wood
Blocks

❏ 4. Locate the two 3/8" x 3/8" x 15/32" [10mm x 10mm x 12mm] wood blocks.
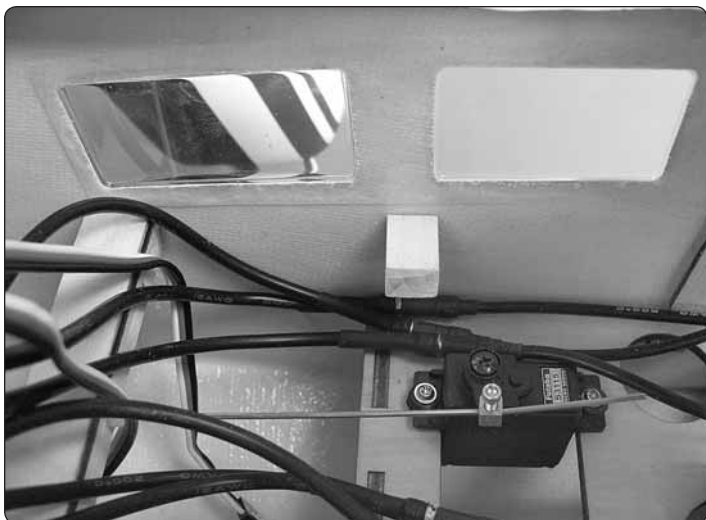
Glue the blocks where shown in the photo. They should be located just below the ABS plastic window insert.
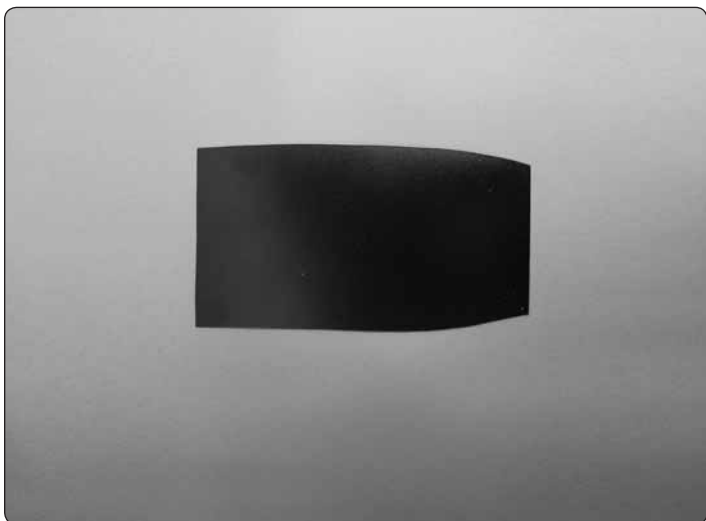
❏ 5. Locate the black plastic floor and insert it into the fuselage. The front of the floor should rest on the wood formers in the front of the fuselage. The back of the floor will rest on the two blocks you glued to the sides of the fuselage. Drill a 1/16" [1.6mm] hole through the floor and into the blocks. Secure the floor with two 5/64 x 3/8" [2mm x 9.5mm] washer head screws.

❏ 6. You may wish to install a pilot. We used a Williams Brothers 1/8 scale Sportsman Pilot (WBRQ1130). Glue the pilot on the plastic floor on the left side.

❏ 7. Mount the wing to the fuselage, securing it with two nylon wing bolts. Install the props onto the motors. Secure the prop with the washer that came with the motor and the 3/4" [19mm] aluminum spinners included with the kit.

Apply the Decals

❏ 1. Peel the decals from the sheet.

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

❏ 3. Using the photos on the box, position the decals on the model where desired. Holding the decal down, use a paper towel to wipe most of the water away.

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

GET THE MODEL READY TO FLY

Before you can power the radio system and set up the controls, the motor batteries will need to be charged. Charge the batteries, and then read the following precautions on how to connect multiple packs for flying the model:

Battery Precautions

We recommend the ElectriFly "Power Series" Lithium Polymer Battery (GPMP0623). The 3200mAh 3S, 11.1 V 20C battery pack provided great power. **IMPORTANT:** 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.

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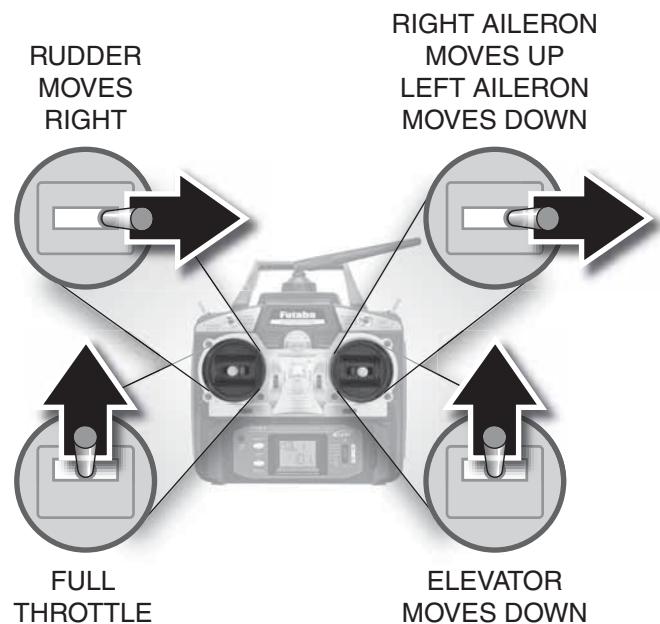
❏ 3. Make certain that the control surfaces and the motor respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have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

Set the Control Throws

To ensure a successful first flight, set up your G-44 Widgeon 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 G-44 Widgeon 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. 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.

At the Servos

The pushrod farther out means **More Throw**
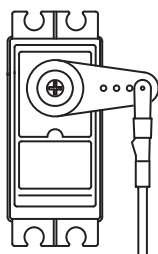
The pushrod closer in means **Less Throw**
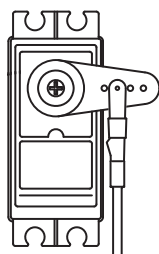
At the Control Surfaces

The pushrod farther out means **Less Throw**
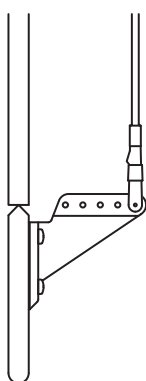
The pushrod closer in means **More Throw**
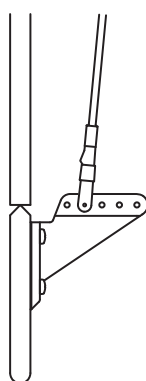
❑ 4. If necessary, adjust the location of the pushrod on the servo arm or on the elevator horn, or program the ATVs in your transmitter to increase or decrease the throw according to the measurements in the control throws chart.

These are the recommended control surface throws:		
	LOW RATE ▼	**HIGH RATE** ▼
ELEVATOR	**Up & Down** 1/4" [6mm] 6°	**Up & Down** 3/8" [10mm] 8°
RUDDER	**Right & Left** 5/8" [16mm] 12°	**Right & Left** 1" [25mm] 19°
AILERONS	**Up & Down** 3/8" [10mm] 12°	**Up & Down** 1/2" [13mm] 17°

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, motors, battery, propeller, spinner and pilot.

❑ 1. If using a Great Planes C.G. Machine,™ set the rulers to 2" [51mm]. If not using a C.G. Machine, use a fine-point felt tip pen to mark lines on the bottom of the wing on both sides of the fuselage 2" [51mm] 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. 1/4" [6mm] 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" [51mm]

❑ 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 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 Great Planes "stick-on" lead (GPMQ4485) and installing it as far forward in the nose of the fuselage as possible. 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.

Once you have determined the amount of weight required, it can be permanently attached. If you need tail weight the best place to apply it would be to the bottom of the horizontal stab.

❏ 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 at the center of the bottom of the fuselage and the bottom of the fuse under 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 24 and place it on or inside your model.

Charge the Batteries

Follow the battery charging instructions that came with your battery to charge the batteries.

IMPORTANT: 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.

Charge your transmitter following the instruction with the transmitter.

Balance Propellers
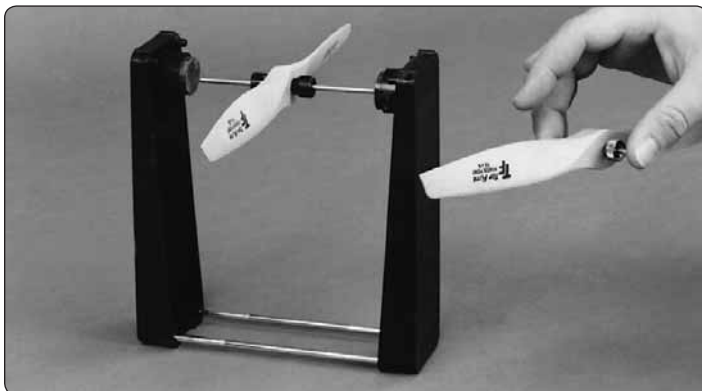
Carefully balance your propellers and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only

will engine mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver and battery. Vibration can also cause your fuel to foam, which will, in turn, cause your engine to run hot or quit.

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

Ground Check and Range Check

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

ENGINE 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 the front of the flight line. Intentional flying behind the flight line is prohibited.

4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.

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

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

CHECK LIST

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

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

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

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

❏ 9. 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.

❏ 10. 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.

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

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

❏ 13. Tighten the propeller nut and spinner.

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

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

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

FLYING

The Great Planes G-44 Widgeon EP is a great-flying model that flies smoothly and predictably. The G-44 Widgeon 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 in the water. Hold "up" elevator to keep the water rudder in the water. It is important that you take off directly into the wind and that you keep the wings level so that you do not accidentally catch a sponson in the water. When you're ready, point the model directly into the wind, hold a bit of up elevator to keep the tail in the water then gradually advance the throttle. As the model gains speed decrease up elevator, allowing the tail to come off the water. Be ready to apply **right** rudder to counteract engine torque. Gain as much speed as is practical before gently applying up elevator, lifting the model into the air. 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 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 Widgeon 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. Though not scale maneuvers, the Widgeon is capable of loops, rolls, inverted flight, etc. Pay attention to your batteries and be sure that you have enough power to land and taxi back to the shoreline.

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 into the wind keeping the nose down to maintain airspeed and control. Level the attitude when the model is a couple of feet off of the water, 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 when the model is a foot or so off the water and smoothly increase up elevator until it gently touches down. Once the model is in the water, hold up elevator and taxi back to shore. **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	