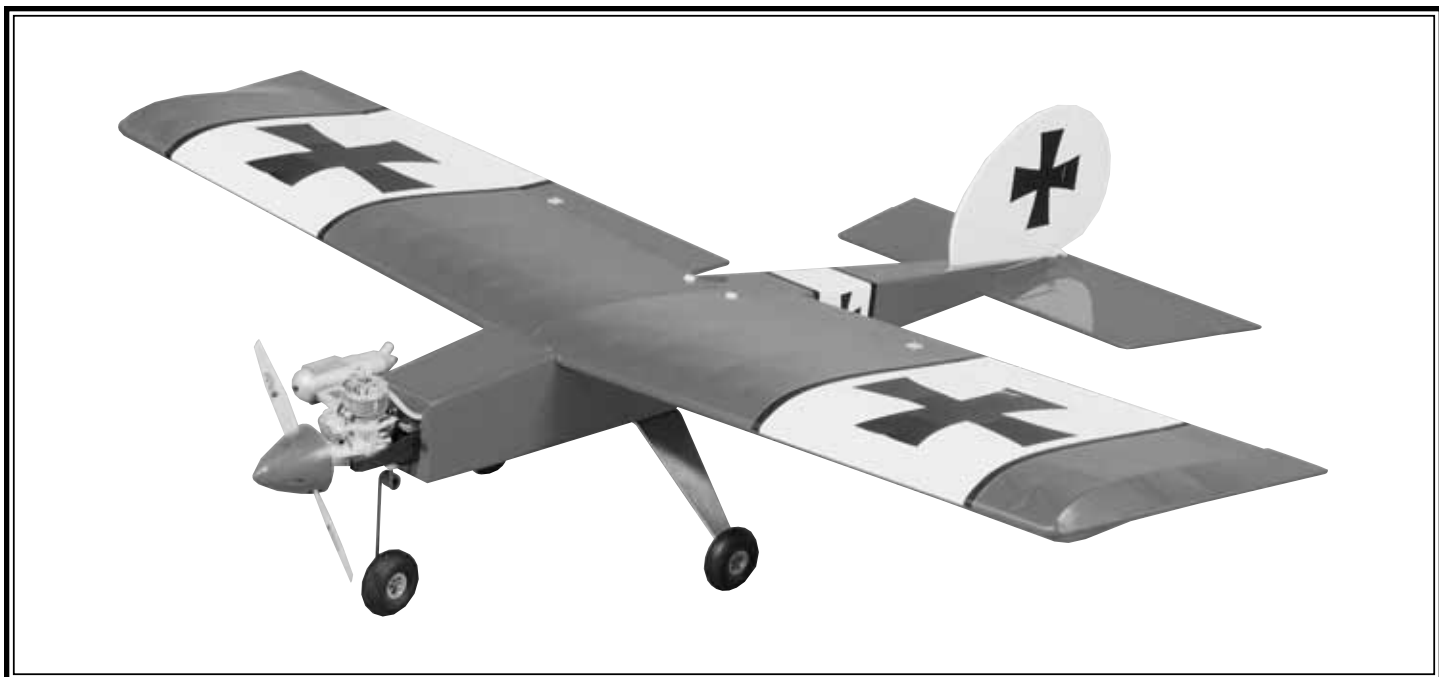


BIG STIK 40

BIG STIK 60

A. R. F.
Almost Ready to Fly

INSTRUCTION MANUAL



WARRANTY

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

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

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

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, the modeler is responsible for taking steps to reinforce the high stress points.

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



P.O. Box 788 Urbana, IL 61803 (217) 398-8970

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PROTECT YOUR MODEL, YOURSELF & OTHERS...FOLLOW THIS IMPORTANT SAFETY PRECAUTION

Your Big Stik ARF is not a toy, but rather a very sophisticated, working model that functions very much like a full-size airplane. Because of its realistic performance, the Big Stik, if not assembled and operated properly, could possibly cause injury to yourself or spectators and damage property.

To make your R/C modeling experience totally enjoyable, we recommend that you get experienced, knowledgeable help from an instructor with assembly and during your first flights. You'll learn faster and avoid risking your model before you're truly ready to solo. Your local hobby shop has information about flying clubs in your area whose members include qualified instructors.

You can also contact the national Academy of Model Aeronautics (AMA) which has more than 2,500 chartered clubs across the country. Through any one of them, instructor training programs and insured newcomer training are available. Contact the AMA at the address or toll-free phone number below.

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>



INTRODUCTION

The Great Planes Big Stik ARF is an aircraft that lets you progress from your trainer aircraft into a model that is not only a good choice for improving your flying skills but is also a great high performance, aerobatic model.

This plane is a good choice for a second airplane or as an aerobatic trainer. We are sure that you will enjoy building and flying the Big Stik ARF.

PRECAUTIONS

1. You must assemble the model according to the instructions. Do not modify or alter 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 instruction should be considered as correct.
2. Take time to build straight, true and strong.
3. Use an R/C radio system that is in first-class condition and a correctly sized engine and components throughout the building process.
4. You must properly install the R/C radio system and other components so that the model operates properly on the ground and in the air.
5. You must test the operation of the model before every flight to insure that all equipment is operating and you must make certain that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show signs of wear or fatigue.

Note: We as the kit manufacturer, provide you with a top quality kit and great instructions, but ultimately the quality 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 of your completed model.

Please inspect all parts carefully before starting to build! If any parts are missing, broken or defective, or if you have any questions about building or flying this airplane, please contact us at (217) 398-8970. You can also check our web site at www.greatplanes.com or e-mail your questions to productsupport@greatplanes.com. If you are calling for replacement parts, please have your kit information on hand before calling.

DECISIONS YOU MUST MAKE

Engine Selection

There are several engines that will work well in your Big Stik ARF.

For the .40 Big Stik we recommend a 2-stroke engine such as the **O.S.® LA .40**, **O.S. .40 FX**, **O.S. .46 FS** or the **SuperTigre® G40**. For unsurpassed power and realistic sound, an **O.S. FS-52** can't be beat.

For the .60 Big Stik we recommend a 2-stroke engine such as the **O.S. LA .65**, **O.S. .61 FX** or the **SuperTigre G61**. If you prefer a four stroke engine the **O.S.FS-70** or **O.S. FS-91** are both good choices.

PREPARATIONS

Required Accessories

Items in parentheses (GPMQ4243) are suggested part numbers recognized by distributors and hobby shops and are listed for your ordering convenience. **GPM** is the Great Planes® brand, **TOP** is the Top Flite® brand, and **HCA** is the Hobbico® brand.

- Four channel radio with five servos
- Engine - See Engine Selection above
- Propeller (Top Flite® Power Point®—Refer To Your Engine's Instructions For Proper Size)
- 6" servo extension (2)
- "Y" connector (1) when using a basic 4 channel radio

Building Supplies & Tools

These are the building tools that are required. We recommend **Great Planes Pro™ CA and Epoxy glue**.

- 2 oz. Pro CA (Thin, GPMR6003)
- 2 oz. Pro CA+ (Medium, GPMR6009)
- 6-Minute Pro Epoxy (GPMR6045)
- 30-Minute Pro Epoxy (GPMR6047)
- Epoxy Brushes (GPMR8060)
- Mixing Sticks (GPMR8055)
- Hobby Knife (TOWR1010), #11 blades (TOWR1015)
- String
- Builders Triangle Set (HCAR0480)
- Masking Tape (TOPR8018)
- 1/4" Latex Foam Rubber Padding (HCAQ1000)
- Paper Towels
- Felt tip pen
- Drill Bits: 1/16" (1.5mm), 5/64" (2mm), 3/32" (2.4mm), 5/32" (4mm), 11/64" (4.4mm), 1/8" (3mm), 1/4" (6mm), #8 (5.2mm), #36 (2.8mm)

Optional Supplies & Tools

- Sealing Iron (TOPR2100)
- Heat Gun (TOPR2000)
- Switch and Charge Jack (GPMQ1000)
- Fuel Filler Valve (GPMQ4160)

General Inspection

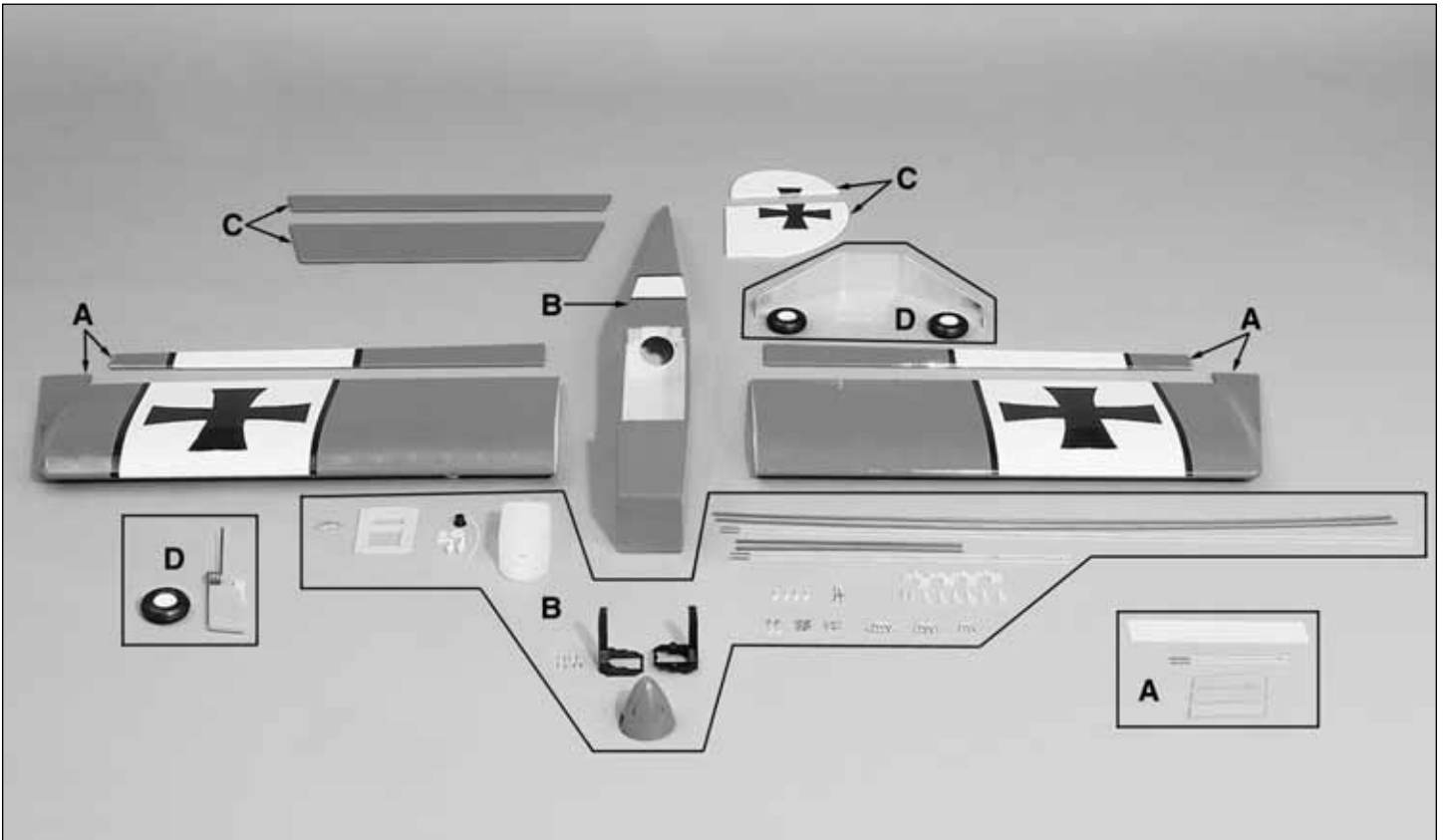
Remove the fuselage, wing panels, rudder assembly and stabilizer assembly from their bags. Inspect all items closely to check for any damage.

Your Big Stik ARF is covered with high quality Top Flite MonoKote® covering. If any of the covering has loosened, use a heat gun or sealing iron to tighten it.

Building Notes

During the construction we often refer to the "top" or "bottom" of the model or a part of the model. It is understood that the "top" or "bottom" of the model is as it would be when the airplane is right side up and will be referred to as the "top" even if the model is being worked on upside-down.

Parts List



Big Stik .40 (GPMA1225) Replacement Parts

If needed, replacement parts for your Big Stik .40 ARF are available through your hobby supplier.

Wing Kit (A)	GPMA2187
Fuselage Kit (B)	GPMA2188
Tail Set (C)	GPMA2189
Landing Gear Set (D)	GPMA2190

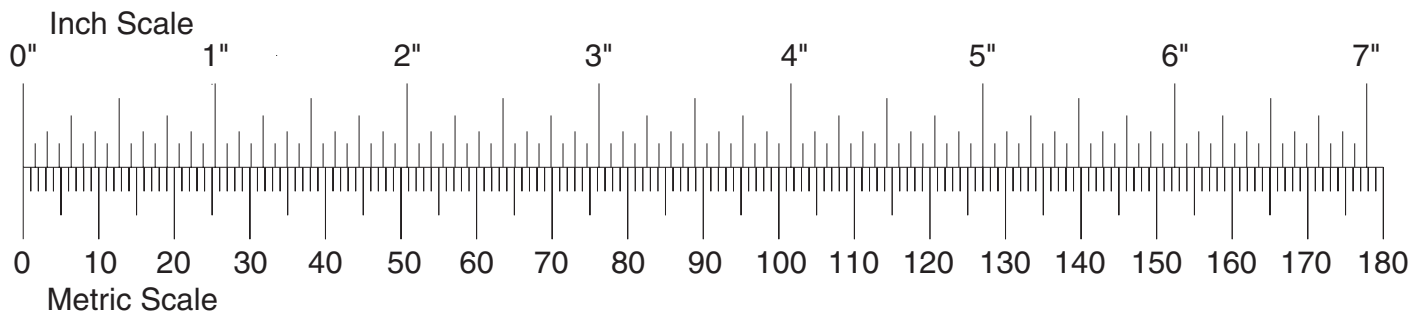
Big Stik .60 (GPMA1226) Replacement Parts

If needed, replacement parts for your Big Stik .60 ARF are available through your hobby supplier.

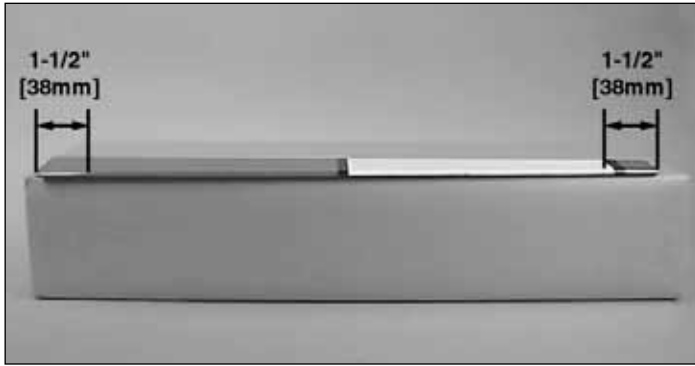
Wing Kit (A)	GPMA2191
Fuselage Kit (B)	GPMA2192
Tail Set (C)	GPMA2193
Landing Gear Set (D)	GPMA2194

Metric Conversions

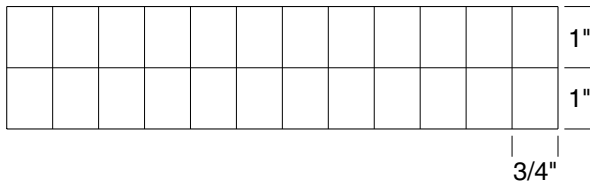
1/64" = .4mm	3/16" = 4.8mm	1" = 25.4mm	18" = 457.2mm
1/32" = .8mm	1/4" = 6.4mm	2" = 50.8mm	21" = 533.4mm
1/16" = 1.6mm	3/8" = 9.5mm	3" = 76.2mm	24" = 609.6mm
3/32" = 2.4mm	1/2" = 12.7mm	6" = 152.4mm	30" = 762mm
1/8" = 3.2mm	5/8" = 15.9mm	12" = 304.8mm	36" = 914.4mm
5/32" = 4mm	3/4" = 19mm	15" = 381mm	



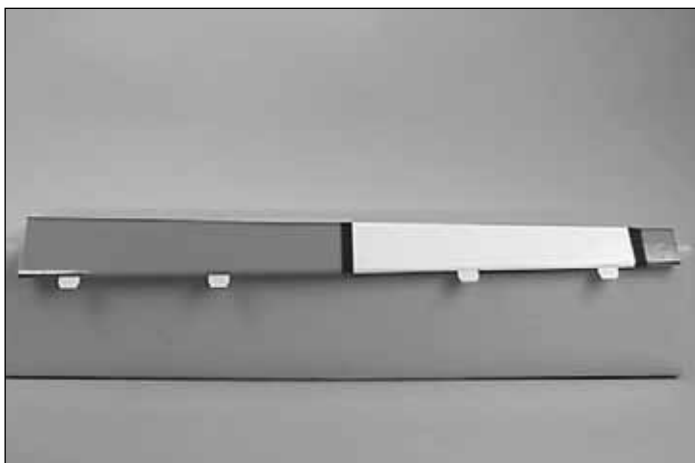
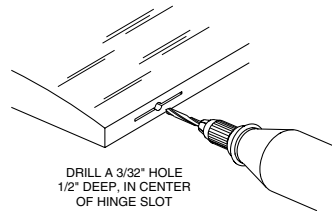
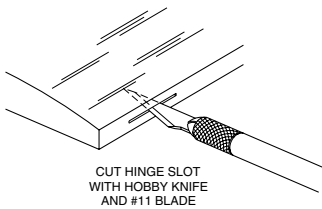
WING ASSEMBLY



1. Locate the left and right **aileron**. Make a line 3/4" (19mm) long on the leading edge of the aileron 1-1/2" (38mm) from each end of the aileron. Make two additional 3/4" (19mm) lines, spacing them equally between the first two lines.

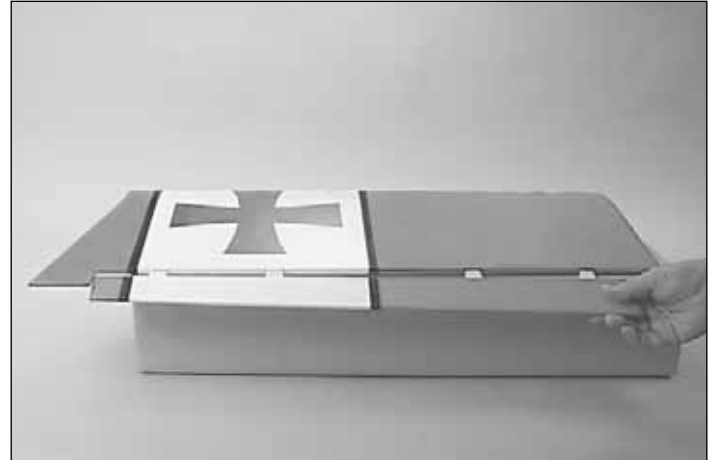


2. From the 2" x 9" (50mm x 230mm) **hinge material**, cut out your hinges. A total of 16 hinges will be needed for the entire airplane. The hinges need to be cut to 3/4" x 1" (19mm x 25mm).

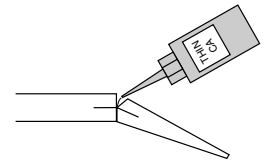
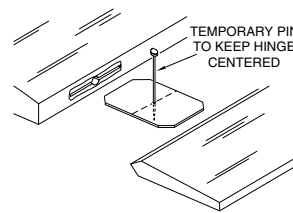


3. Cut a 3/4" (19mm) slot in the leading edge of the aileron at the previously marked locations. Trial fit the hinge

to make sure it goes in 1/2" (13mm). The slot can be done with a hobby knife or the Great Planes Slot Machine™. The Slot Machine is a real time saver when cutting slots for hinges. If you are an avid modeler you will find this to be a great tool to add to you shop!



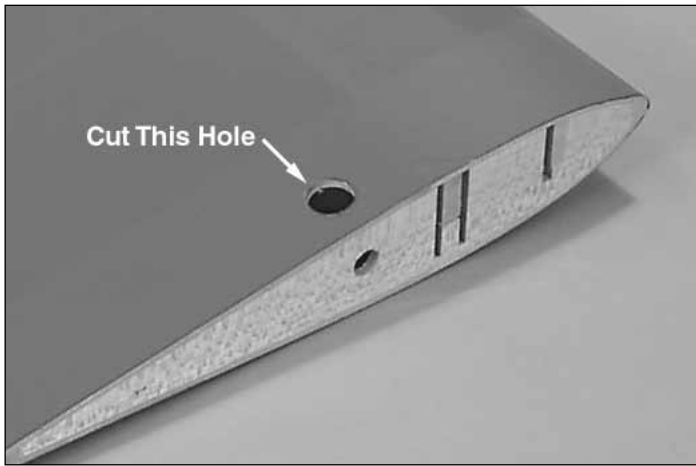
4. Align the aileron in position at the trailing edge of the wing. Be sure to leave at least a 1/6" (1.6mm) spacing between the aileron and the outboard trailing edge of the wing. When you are satisfied with the fit, mark the location for the hinges on the trailing edge of the wing. Do this for the left and right wing.



5. Install the aileron to the wing by applying 6 drops of thin CA to the hinge. After the glue has cured, flex the aileron back and forth a few times to loosen up the hinge. Pull on the aileron to make sure that the aileron is firmly attached to the wing. Repeat this step for the other wing.



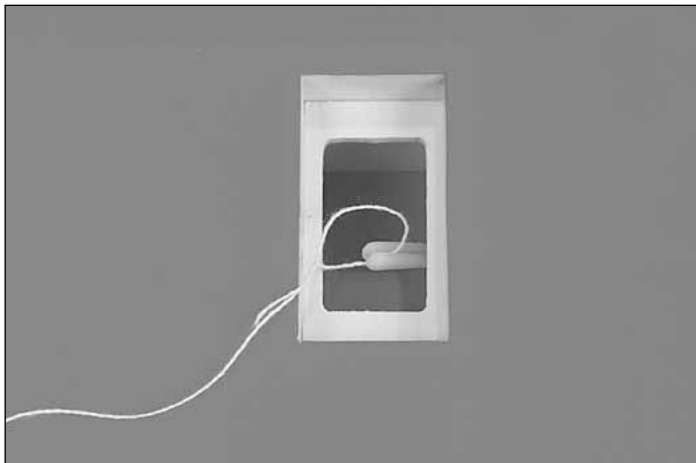
6. Locate the servo bay in the bottom of each wing and cut away the MonoKote to reveal the servo tray. Repeat for the other wing.



7. On the root rib there is a small hole. This is the hole that the aileron servo wire will be fed through. Directly above this hole make a 1/2" opening through the wing skin. This is easily done with a Dremel® sanding drum.



8. Attach a clevis to one of the included pushrods. Tie a loop onto a piece of string long enough to reach from the servo bay to the hole you made in the wing skin. This string will be used to assist pulling the servo wire through when we get to the installation of the servos.

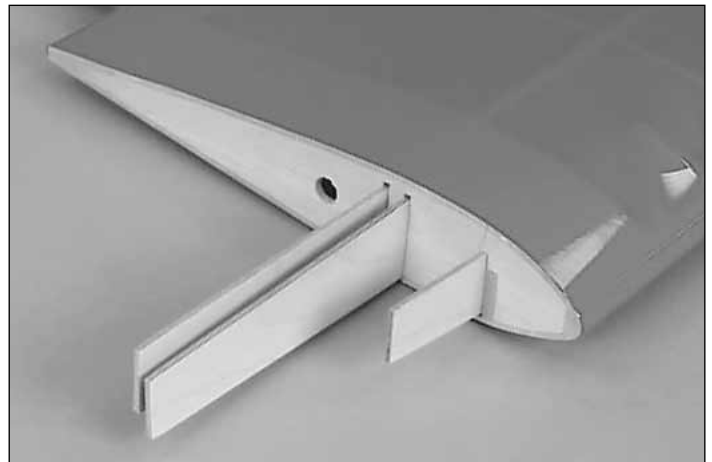
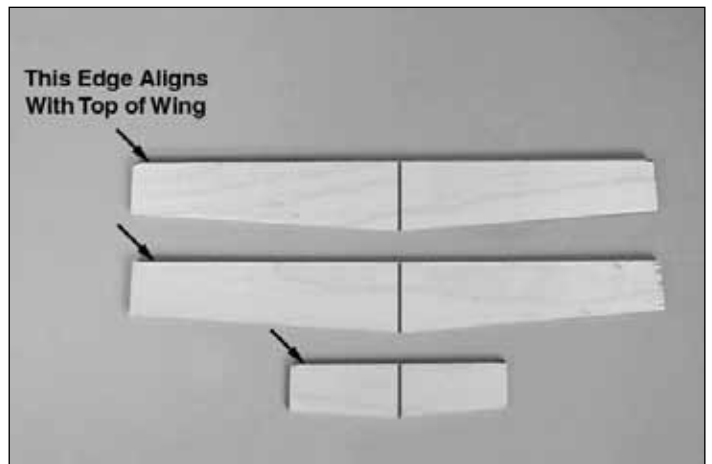


9. Insert the pushrod through the hole in the root rib until the clevis shows in the servo bay. Put the string onto the clevis and pull the string back through the hole.

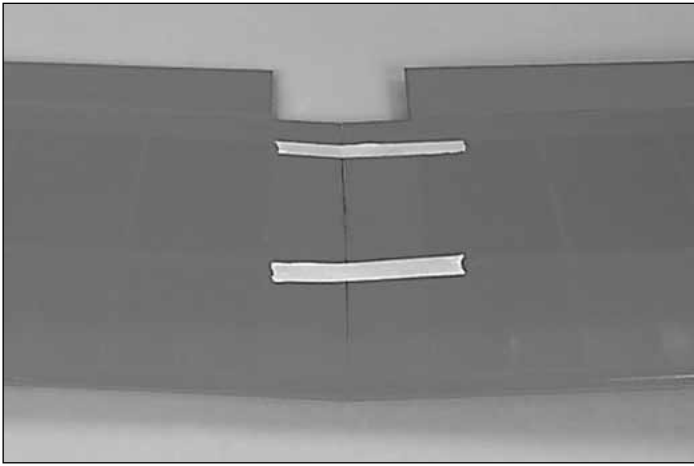


10. Pull the string out through the opening in the bottom of the wing skin. Using masking tape, tape the string to the wing at the servo bay and the hole you pulled the string through. Taping the string in place will prevent it from falling back into the wing.

11. Repeat steps 7 - 10 for the other wing.

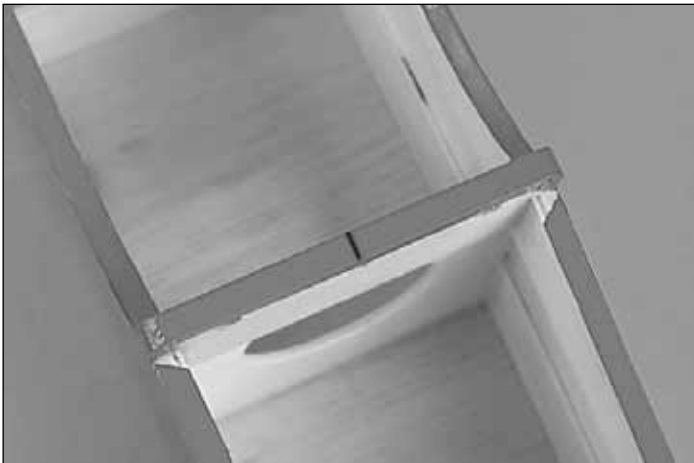


12. Locate the three **wood joiners**. Draw a center line on each of them. Trial fit them into both wing halves making sure that the straight edge of the joiner is aligned with the top of the wing. Once you are satisfied with the fit, apply 6-minute epoxy to 1/2 of the joiner and one pocket of one of the wing.



13. After the 6-minute epoxy has cured, apply 30-minute epoxy to the joiner and wing joiner pocket in the wing as well as the root rib. Use masking tape to hold the two wing halves together while the glue is drying.

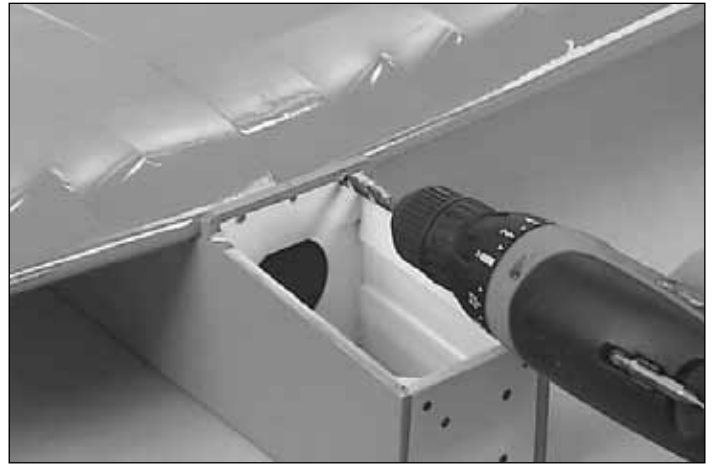
WING INSTALLATION



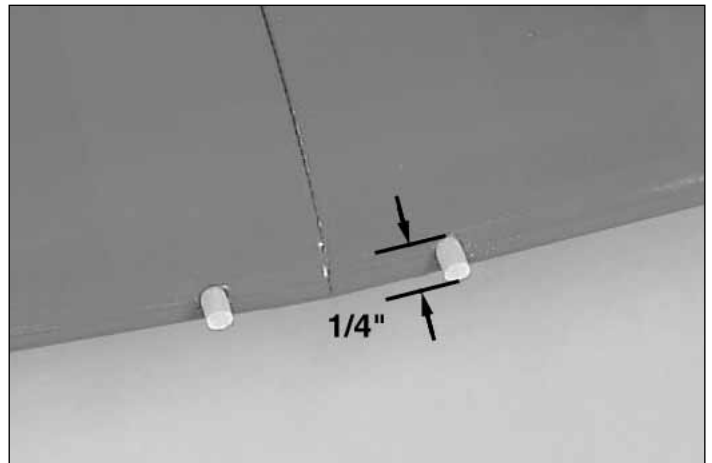
1. Mark the center of the forward bulkhead that the leading edge of the wing will attach to.



2. Place the wing in the wing saddle and align the center of the wing on the mark you just made.



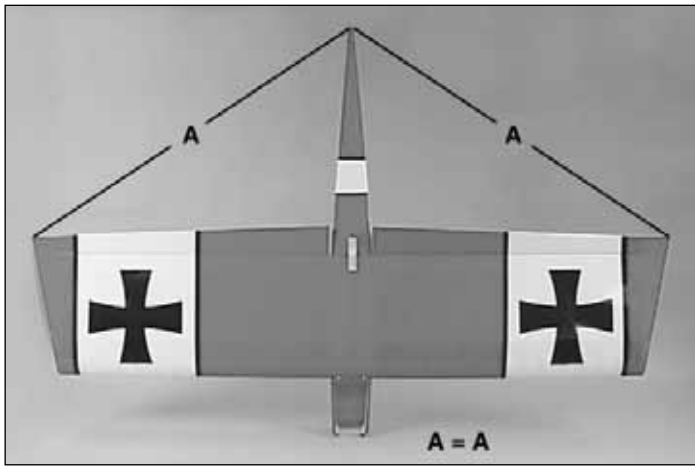
3. With the wing in the saddle and the center of the wing aligned with the mark on the bulk head, drill two 1/4" (6mm) holes into the wing. Drill the holes through the pre-drilled holes that are in the bulk head.



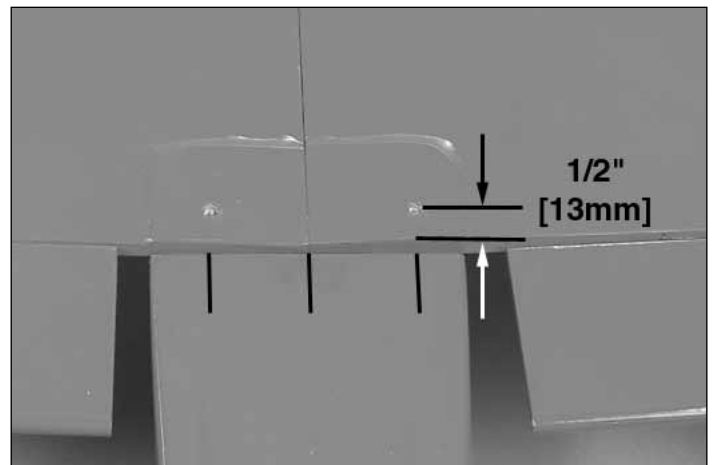
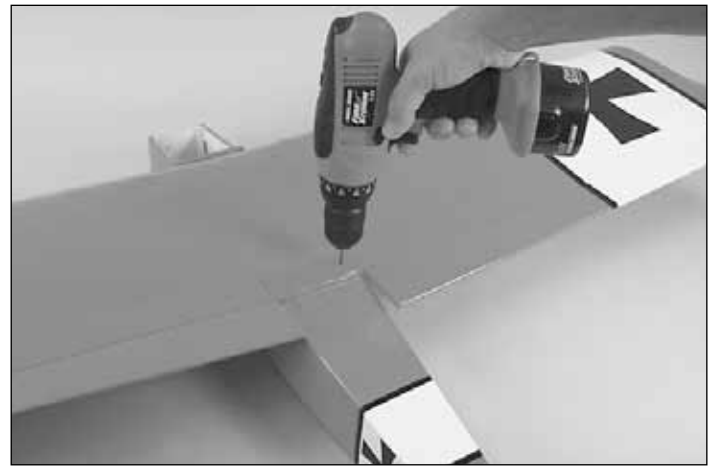
4. Insert the 1/4" (6mm) **wooden dowel** into the leading edge of the wing. The dowel should extend 1/4" (6mm) beyond the LE of the wing. Trial fit the wing to the fuselage. When you are satisfied with the fit, glue the dowels in place in the wing with 6-minute epoxy.



5. When the dowels are secured to the wing they should be flush with the bulkhead. If they are not, trim them flush. Slightly round the tip of the dowels for easy installation of the wing to the fuselage.



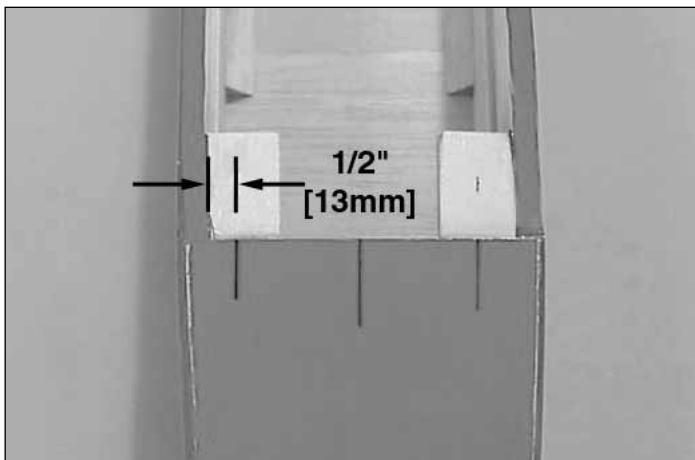
❑ 6. Place the wing on the **fuselage**. Measure from the aft center of the fuselage to one wing tip and record the distance. Measure from the same point to the opposite wing tip and compare it to the first measurement. If the measurements are not the same, adjust the wing and re-measure until they are equal. Place a mark on the wing and the fuselage so it can be repositioned accurately for the following steps.



❑ 8. With a 1/8" (3mm) drill bit, drill two pilot holes through the wing and the wing bolt block. Use the reference marks you made on the fuselage as a guide and center the drill on the wing plate.

❑ 9. Remove the wing. Use a #8 (5.2mm) or 13/64" drill bit and drill through the pilot holes in the wing bolt blocks. Use a 1/4 - 20 tap to thread the wing bolt blocks. After you have the blocks tapped, wick some thin CA into the threads. After the glue has dried, run the tap through the blocks once more to clean out any excess glue.

❑ 10. Drill a 1/4" (6mm) hole through each of the pilot holes in the wing. This will provide clearance for the wing bolts to pass through the wing.

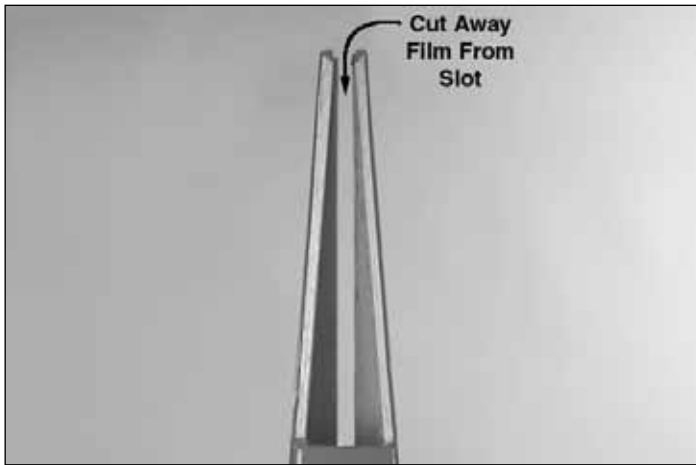
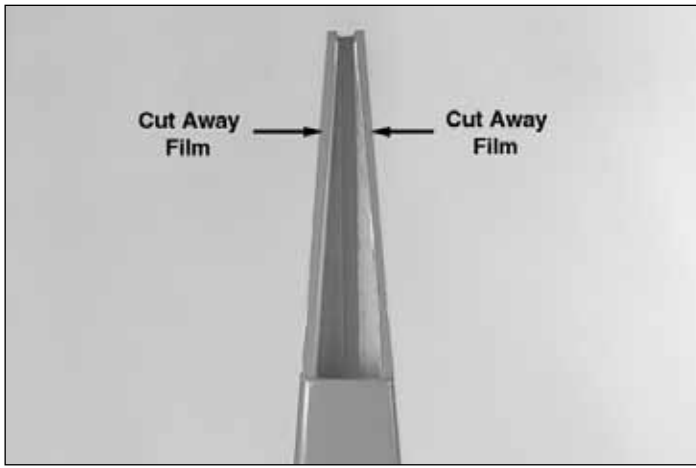


❑ 7. Make two additional reference marks on the fuselage, aligning them with the center of the wing bolt blocks in the fuselage.

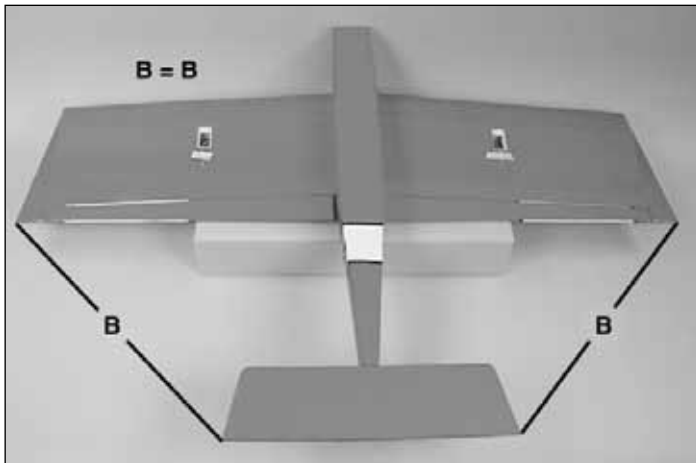
INSTALL THE TAIL COMPONENTS

❑ 1. Cut 5 hinge slots in the **horizontal stabilizer** and the **elevator** the same way you did for the ailerons. Test fit the elevator to the horizontal stabilizer but do not glue them in place yet.

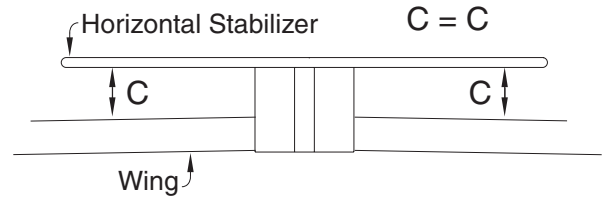
❑ 2. Cut 3 hinge slots in the **fin** and the **rudder** the same way you did for the ailerons. Test fit the fin to the elevator but do not glue them in place yet.



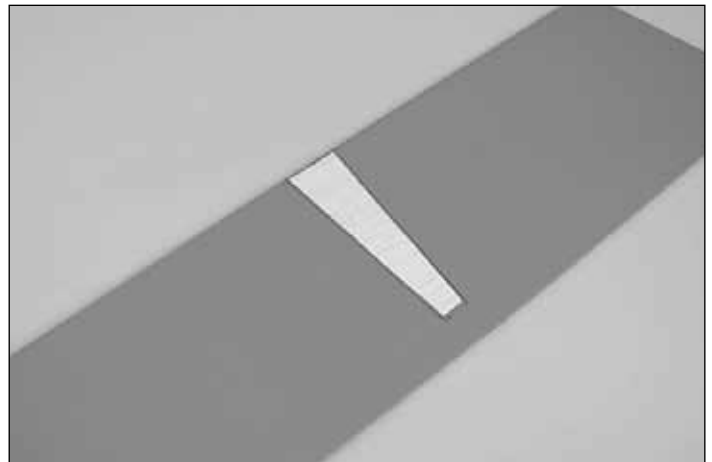
3. Carefully cut away the covering from the bottom of the fuselage in the stab saddle.



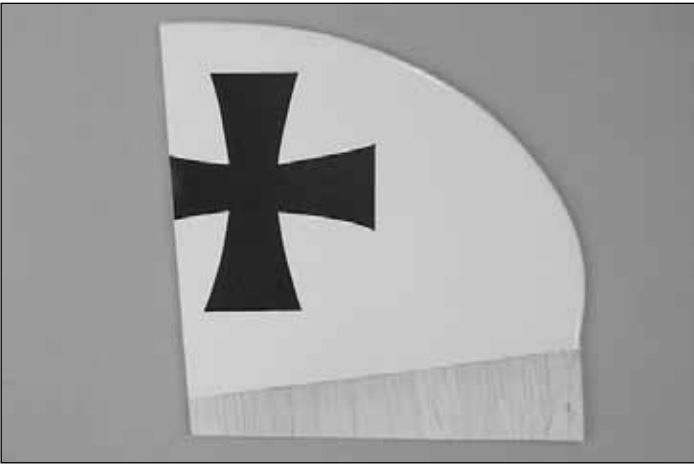
4. Mount the wing to the fuselage using the **nylon bolts**. Lay the plane upside down and place the horizontal stabilizer into position. Check the alignment as shown in the photo.



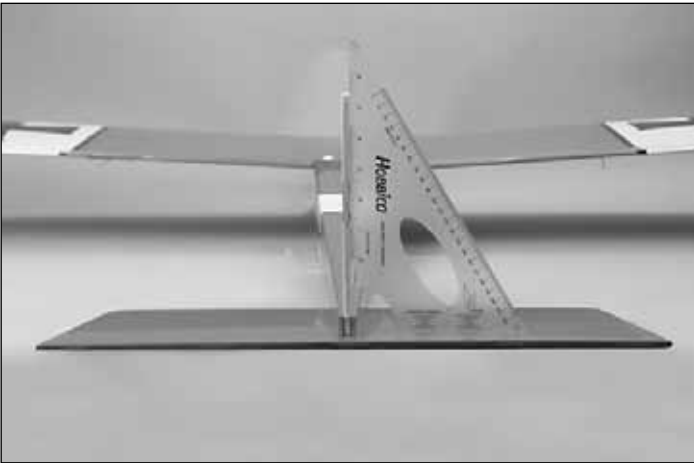
5. Stand back 8 to 10 feet (2.5 to 3 meters) and view the model from the front and rear. The stabilizer tips should be equally spaced in relation to the wing. If not, lightly sand the high side of the stabilizer saddle to correct the problem. Work slowly and check the alignment often.



6. When the alignment looks good, mark the outline of the fuselage onto the stabilizer. Remove the stabilizer and trim the covering $1/32"$ (.8mm) inside of the lines, **being careful not to cut into the underlying wood**. Re-check your alignment and glue the stabilizer to the fuselage with 6-minute epoxy.



7. Test fit the fin in the slot in the fuselage. When you are satisfied with the fit, mark a line on both sides of the fin where the top of the fuselage contacts the fin. Trim the covering 1/32" (.8mm) inside of the lines.



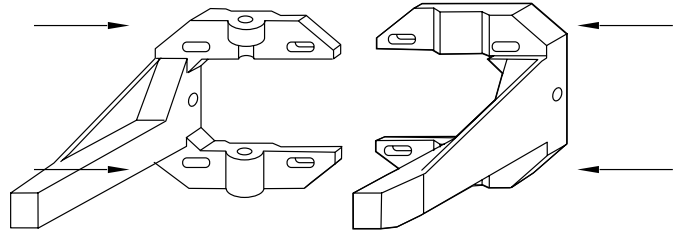
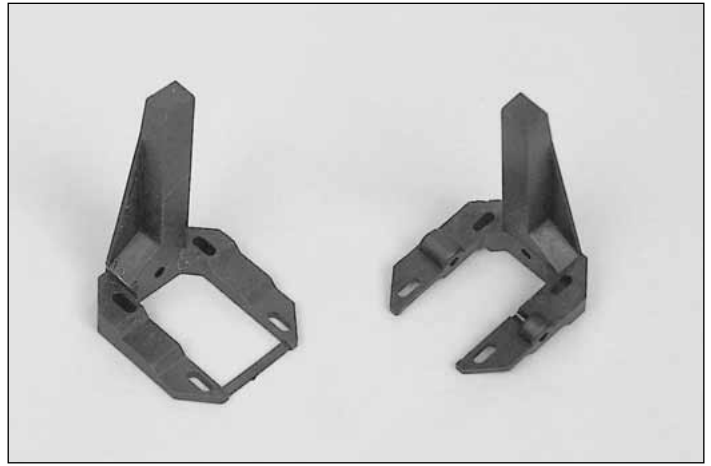
8. When you are satisfied with the fit, use 6-minute epoxy to glue the fin in position. Check the alignment of the fin to the stabilizer with a triangle, then secure it in position with masking tape until the epoxy has cured. Double-check the alignment of the fin with the stabilizer while the epoxy cures.

9. Install the hinges in the stabilizer and elevator. Glue the hinges to the elevator the same way you did with the ailerons. Repeat this step for the rudder.

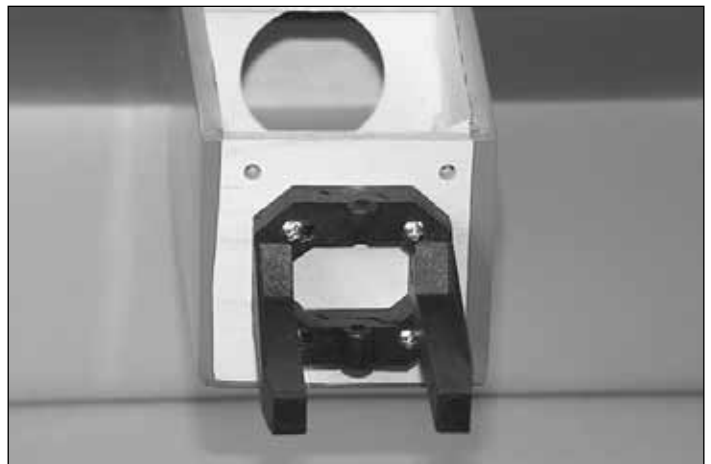
ENGINE INSTALLATION

1. The top left and right corners of the firewall have pre-drilled holes. These holes are for the fuel and pressure line to pass through. Check to be sure that the holes are large enough for your fuel line. If not, drill the holes to fit the fuel tubing.

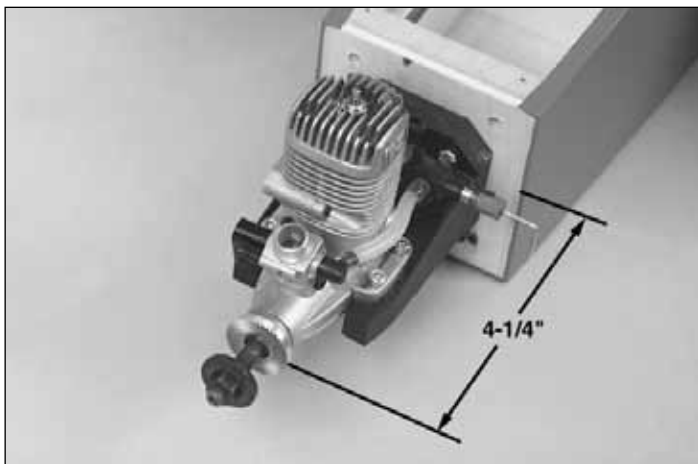
2. Mix a small amount of 6-minute epoxy. Brush the epoxy on the front of the firewall and let it cure. This will fuelproof the firewall.



3. Cut the "spreader bar" from each **Engine Mount** half. Carefully trim any extra material left by the spreader from each mount half. The surfaces where the spreader bars were attached must be smooth to allow the mount halves to fit together. Trim the flashing off any rough edges if necessary.



4. Locate four 6-32 blind nuts and four 6-32 x 3/4" pan head screws. Install the blind nuts onto the back side of the firewall. Use the screws to attach the engine mount to the firewall and to set the blind nuts.



❑ 5. Position the engine on the engine mount. Adjust the mount as needed for your engine. Position the engine 4-1/4" (106mm) from the front of the thrust washer to the firewall.

❑ 6. Use a #36 (2.8mm) drill bit and drill the four mounting holes for the engine into the engine mount. After the holes have been drilled, tap them with a 6-32 tap. The Great Planes Dead Center™ (GPMR8130) Engine Mount Hole Locator works really well for this task.

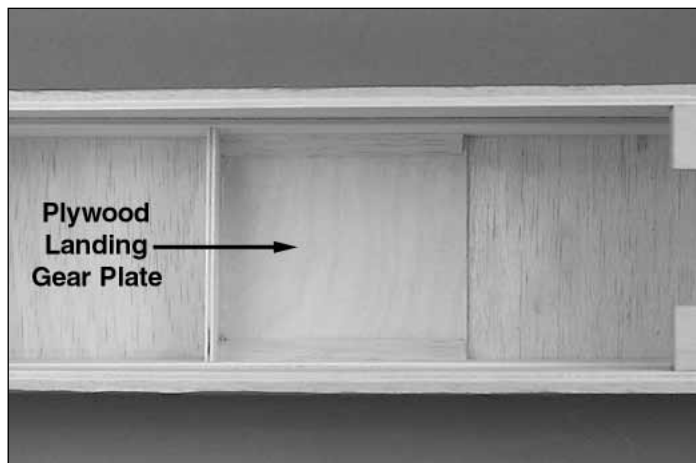


❑ 2. Drill four 5/32" (4mm) holes in the landing gear on the four marks you just made.

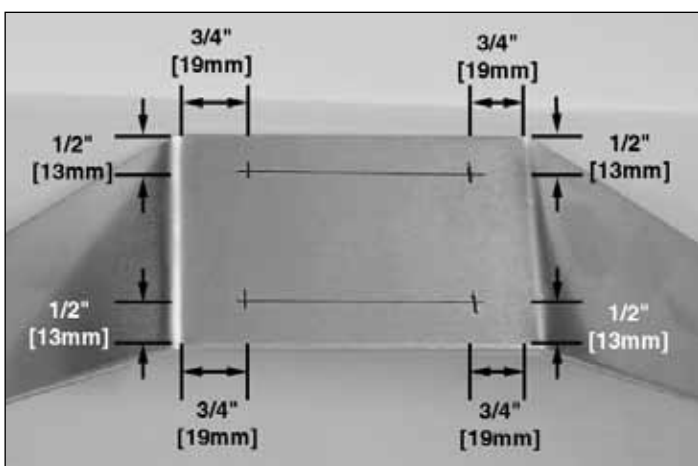
PROP AND SPINNER INSTALLATION

❑ 1. Install the back plate, prop and prop washer onto the engine crankshaft. Tighten the nut to hold everything in place.

❑ 2. Screw the spinner onto the backplate.



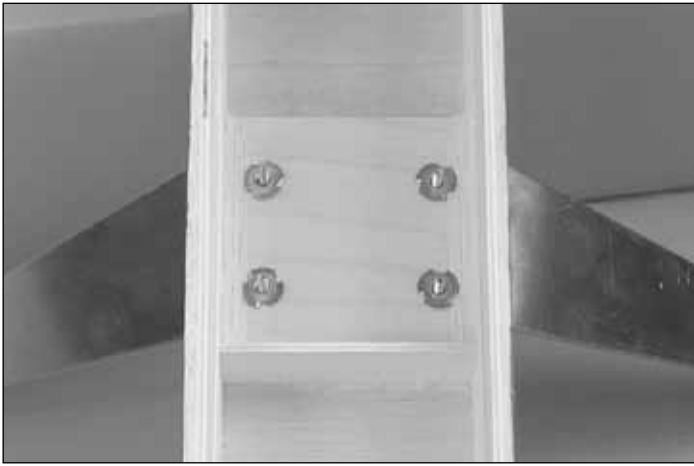
MOUNT THE LANDING GEAR



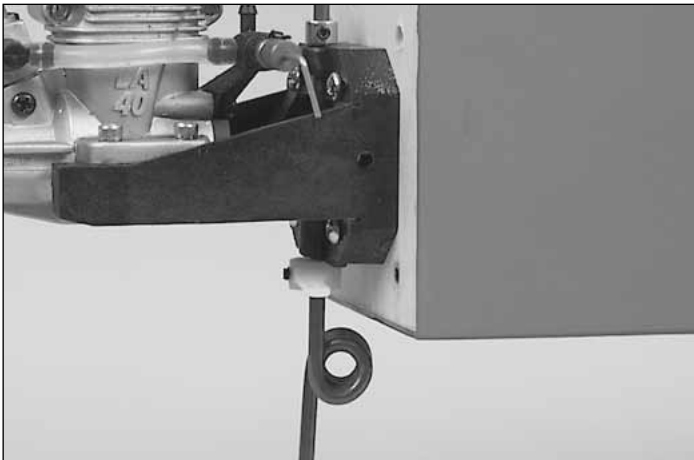
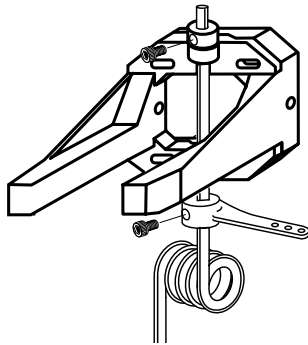
❑ 1. Locate the aluminum landing gear. Make a line 1/2" (13mm) from the leading and trailing edge of the center portion of the landing gear. Make four marks 3/4" (19mm) from the bend of the gear. Where the lines intersect is the point where you are going to drill the hole for the mounting bolts.



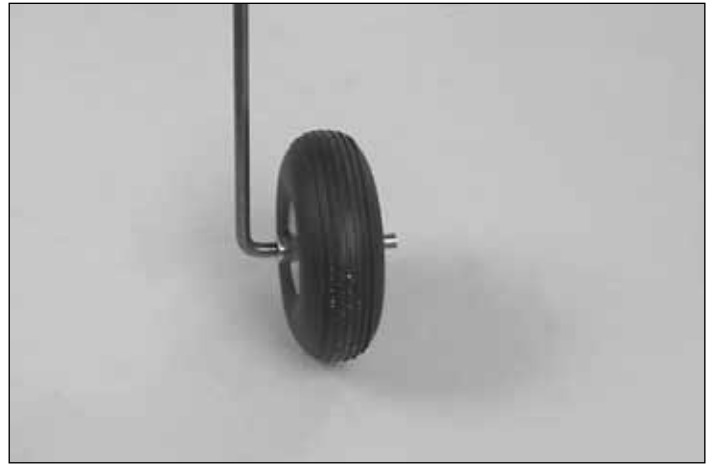
❑ 3. Locate the aluminum landing gear under the plywood landing gear plate. Center the landing gear over the plywood plate. Then, using the landing gear as a template, drill a 5/32" (4mm) hole through the fuselage in each of the four holes in the landing gear.



4. Re-drill the four holes in the fuselage to 11/64" (4.4mm). Install four 6-32 blind nuts inside the fuselage in the holes you drilled. Mount the landing gear to the fuselage with four 6-32 x 3/4" (19mm) pan head screws.



5. Locate the **wire nose gear**, **plastic steering arm**, two 5/32" (4mm) wheel collars, one 6-32 x 1/4" (6mm) socket head screw and one 6-32 x 1/2" (13mm) socket head screw. Place one of the 5/32" (4mm) wheel collars into the center of the plastic steering arm and hold it in place with the 6-32 x 1/2" (13mm) socket head screw. Insert the 6-32 x 1/4" (6mm) socket head screw into the remaining wheel collar. Place the steering arm onto the wire nose wheel wire and insert the nose gear into the holes in the landing gear mount. The steering arm should line up with the hole in the firewall for the steering pushrod. Place the other wheel collar on the top of the wire. Tighten the set screws. This will hold the wire in place.

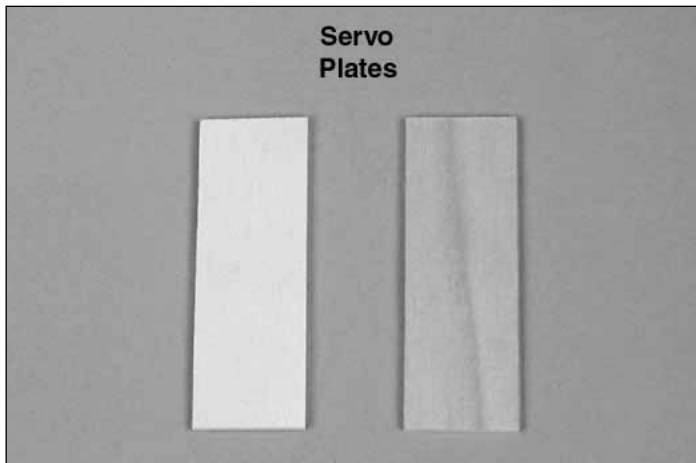


6. Locate two 5/32" (4mm) wheel collars and two 6-32 x 1/4" (6mm) set screws. Put the screws into the wheel collar. Slide one collar onto the nose wheel axle, then your nose wheel, and then the remaining collar. File a flat spot on the nose gear wire where the wheel collar will be. Tighten the set screws to hold the wheel on the center of the axle.

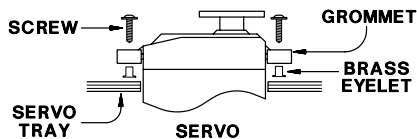


7. Locate four 8-32 nuts and two 8-32 x 1-1/4" (32mm) socket head cap screws. These components are the **axle for the main gear**. Install the 8-32 socket head cap screw through the wheel. Install a nut on the screw and tighten it close to the tire but not enough to prevent it from spinning freely on the bolt. Insert the bolt through the hole in the landing gear. Place the remaining 8-32 nut onto the bolt and tighten it against the landing gear. Do the same for the other axle.

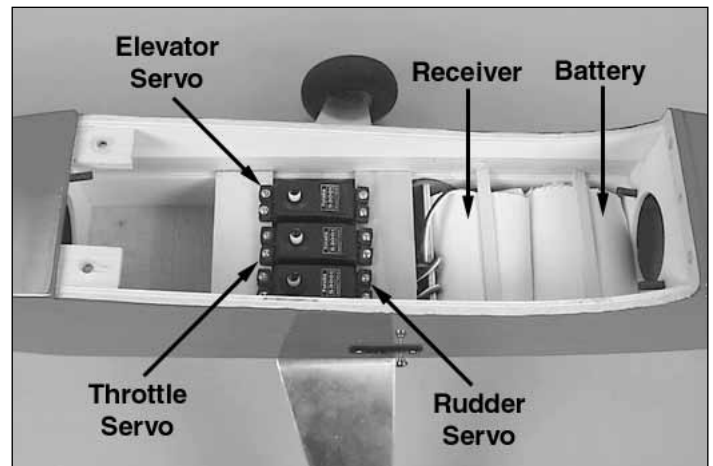
RADIO INSTALLATION



1. Locate the two **plywood servo plates**. Position them as shown in the photograph so that the forward plate is slightly behind the former. The rear plate should be positioned behind the forward plate the distance required for your servos. Leave a 1/32" (.8mm) gap between the servos and the mounting plates. When you are satisfied with the fit, use 6-minute epoxy to glue the plates in position on the fuselage.



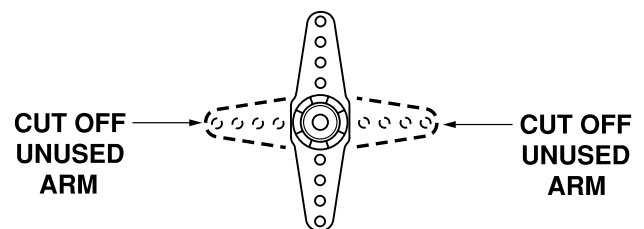
2. Use the following sequence for mounting the servos into the servo tray.
- A. Install rubber grommets and brass eyelets in the servos using the provided sketch.
 - B. Test fit the servos in the tray.
 - C. Mark servo hole locations on the tray, then drill 1/16" (1.5mm) pilot holes through each mark.
 - D. Mount the servos with the screws provided with your radio system. Notice the orientation when installing.



3. Following the manufacturer's recommendations, install and hook up the three servos, the receiver, switch and battery as shown in the photograph. Wrap the receiver and the battery in foam and hold them in place by gluing small balsa sticks (not included) above them. We added a Great Planes Switch Mount and Charge Jack (GPMM1000, not included) for convenience and ease of use at the field, installed on the side of the fuselage.

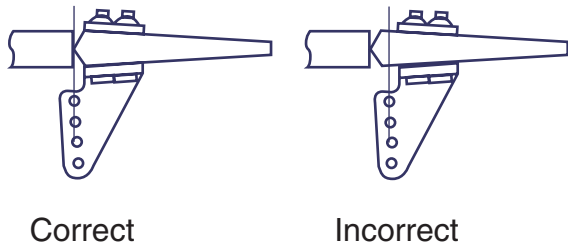
4. Prepare a **two arm** style servo horn as follows but don't install it on the servo until instructed to do so.

Note: The size and shape of servo horns varies from manufacturer to manufacturer. The sketches and photos show a typical radio installation with standard horns. All standard servo horns should fit the Big Stik.

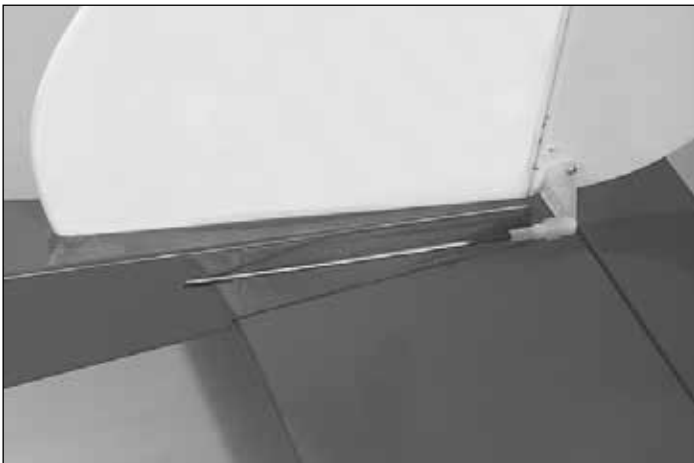


- A. Cut off **two** servo arms from **four** servo horns included with your radio control set to make them into "one arm" servo horns. Use your bar sander to remove the remaining jagged edges left from the cut off arms.
 - B. Enlarge the holes in the horns with a 5/64" (2mm) drill.
 - C. Turn on your transmitter and receiver, then position the aileron, rudder, elevator and throttle trim tabs on your transmitter to the center. This is called "centering" the servos and will allow you to place the servo horns on the servos in a neutral position. Attach the arms to the servos as shown in the following photos.
5. Prepare three **one arm** style servo horns following the same step just done except cut off three unused arms.

❑ 6. At the rear of the fuselage on both sides, cut away the covering where the pushrod tubes exit the fuselage.

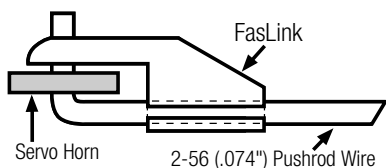


❑ 7. Install the rudder and elevator **nylon control horn** in line with the servo pushrod. The rudder horn should be mounted on the left side of the fuselage and the elevator should be mounted on the right side of the fuselage. Hold the horn in position and mark the location of the mounting holes. Drill $3/32$ " (2.4mm) mounting holes through the marks. Wick two to three drops of thin CA into the holes to harden the underlying balsa, then re-drill the holes. Attach the horns using **#2 x 1/2" (13mm) Screws** and **Nylon Nut Plates**. Do not over-tighten the screws, crushing the underlying balsa.



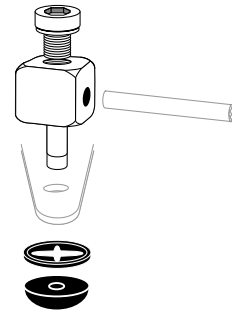
❑ 8. Locate the two longest threaded wire **pushrods** and screw a **nylon clevis** on each one approximately 14 turns. Place a **silicone retainer** over each of the clevises. Insert the pushrod into the plastic tube. Attach the clevis to the control horn.

❑ 9. Mark the pushrod where it crosses the servo arm. Enlarge the servo horn hole with a $5/64$ " (2mm) drill bit.

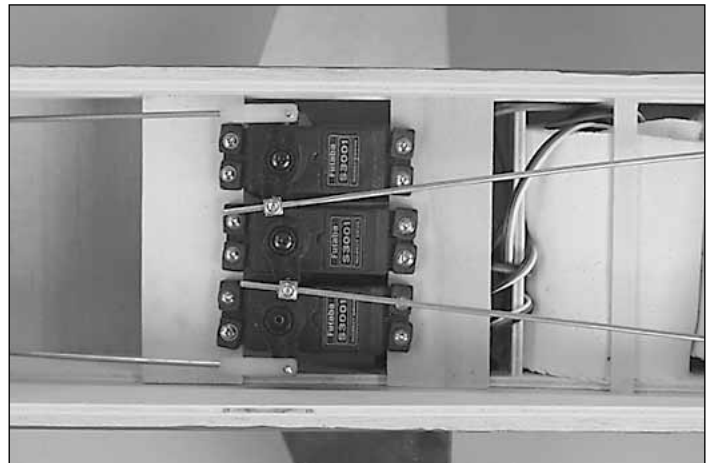


❑ 10. Make a 90-degree bend in the pushrod on your mark, then insert it through the enlarged hole in the servo arm. Cut off the excess wire $3/8$ " (9.5mm) above the bend. Secure the wire in place with a nylon **FasLink**.

❑ 11. Follow the same steps for the rudder except you will need to use the two arm type control arm on the servo. Attach the rudder pushrod to the outside arm and the nosewheel to the inside arm.

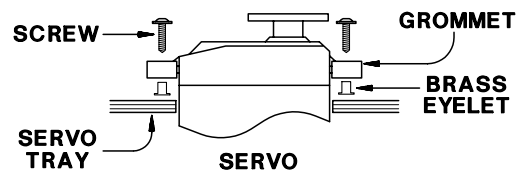


❑ 12. Install a Brass **Screw-Lock Pushrod Connector** with the **4-40 x 1/8" (3mm) Cap Screw** on the servo arm with the rudder. Snap the **Nylon Retainer** onto the screw-lock pushrod connector post beneath the servo horn.



❑ 13. Assemble the **Nose Gear Pushrod Wire** by installing a nylon clevis about 14 turns and a silicone retainer onto the threaded end. Slide the nose wheel steering pushrod into the outer tube located on the lower left side of the firewall.

❑ 14. Insert the wire into the connector, adjust the nose wheel and tighten the cap screw. Minor adjustments to the steering can be done either at the clevis on the nose wheel or by adjusting the wire position at the screw-lock pushrod connector.



❑ 15. Use the following sequence for mounting the servos into the wings.

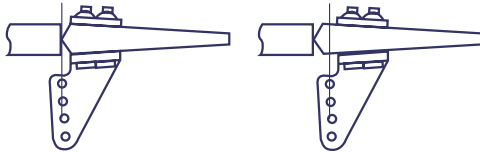
❑ A. Install rubber grommets and brass eyelets in the servos using the provided sketch.

❑ B. Test fit the servos in the tray in each half of the wing.

❑ C. Mark servo hole locations on the tray, then drill 1/16" (1.5mm) pilot holes through each mark.

❑ D. Mount the servos in both sides of the wing with the screws provided with your radio system. Notice the orientation when installing.

❑ E. Attach a 6" (150mm) servo extension lead (not included with the kit) to each of the aileron servos. Tape the extension to prevent it from pulling loose. Use the string you installed earlier to pull the wire through the wing and out the hole.

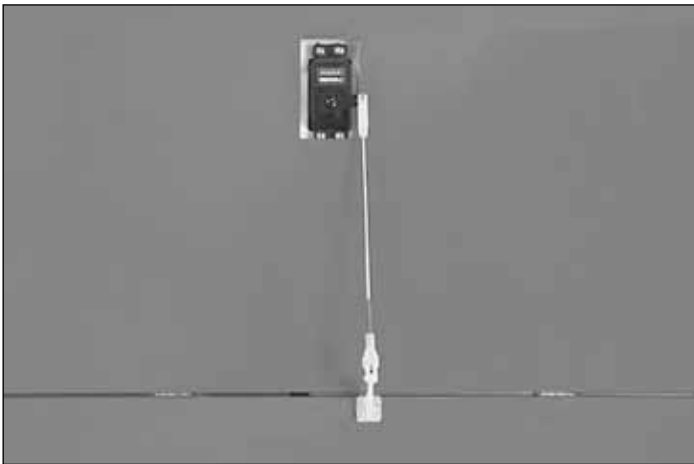
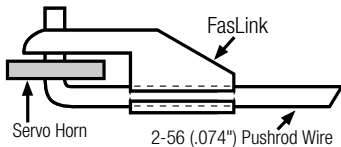


Correct

Incorrect

❑ 16. Install the aileron nylon control horn in line with the servo arm. Hold the horn in position and mark the location of the mounting holes. Drill 3/32" (2.4mm) mounting holes through the marks. Wick two to three drops of thin CA into the holes to harden the underlying balsa, then re-drill the holes. Attach the horns using #2 x 1/2" Screws and Nylon Nut Plates. Do not overtighten the screws, crushing the underlying balsa.

❑ 17. Center the aileron trim and aileron servo by turning the transmitter and receiver on. Mark the **pushrod** where it crosses the servo arm. Enlarge the servo horn hole with a 5/64" (2mm) drill bit.



❑ 18. Screw on a clevis and the silicone retainer to the pushrod. Make a 90-degree bend in the pushrod on your mark, then insert it through the enlarged hole in the servo arm. Cut off the excess wire 3/8" (9.5mm) above the bend. Secure the wire in place with a nylon FasLink.

THROTTLE PUSHROD INSTALLATION

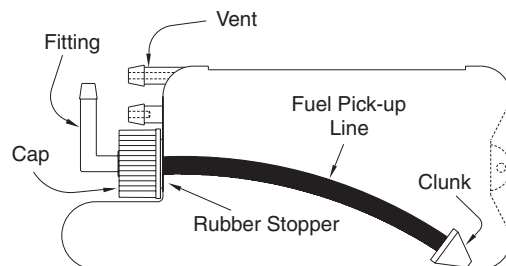
❑ 1. Install a Brass Screw-lock Pushrod Connector with the 4-40 x 1/8" Cap Screw on the servo arm. Snap the Nylon Retainer onto the screw-lock pushrod connector post beneath the servo horn.

❑ 2. Assemble the **Throttle Pushrod Wire** by installing a nylon clevis about 14 turns and a silicone retainer onto the threaded end. Slide the throttle pushrod into the outer tube located on the right side of the firewall.

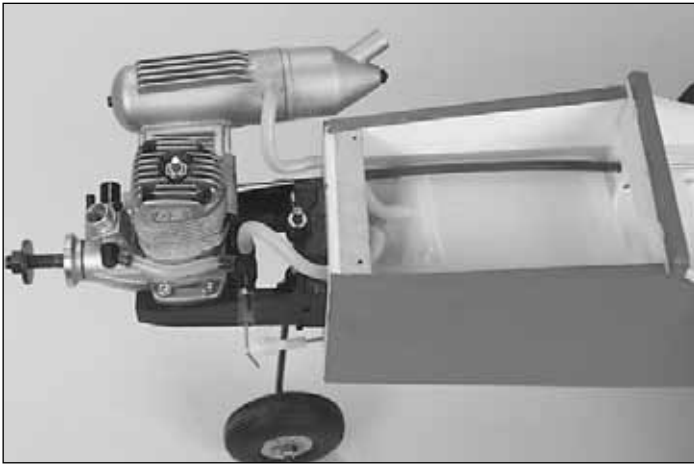
❑ 3. Bend the throttle pushrod as necessary to reach the throttle arm without binding. When satisfied with the fit, insert the pushrod through the screw-lock pushrod connector on the servo. Connect the throttle on the engine, snap the clevis closed, then slide the retainer in place.

❑ 4. With the radio switched on, move the throttle and control stick to the fully closed position. Manually close the throttle on the carburetor completely. Tighten the cap screw on the screw-lock connector. Check throttle operation with the radio and make adjustments to the linkages as necessary for smooth operation. Use the appropriate holes in the servo and throttle arms to provide the correct amount of throttle movement and to prevent the servo from binding at its end point.

FUEL TANK ASSEMBLY AND INSTALLATION



❑ 1. Assemble the **fuel tank** as shown in this sketch.



❑ 2. Place a piece of 1/4" (6mm) foam in the compartment for the fuel tank to rest on and install the fuel tank as shown with the line for the carburetor and pressure line passing through the firewall. Attach the vent line to the muffler and the line from the fuel clunk to the carburetor.

❑ 3. Place another piece of 1/4" (6mm) foam on top of the fuel tank. Secure the tank in place by attaching the fuel compartment cover to the fuselage with a #2 x 1/2" (13mm) screw.

DECAL APPLICATION

The Big Stik includes decals for the Iron Cross. The two large decals are applied in the center of the white portion on the top of each wing panel.

The two medium sized crosses go on the left and right side of the fin and rudder.

The two remaining smaller crosses are applied to the white portion of the fuselage.

CONTROL THROW ADJUSTMENTS

By moving the position of the clevis at the control horn toward the outermost hole, you will decrease the amount of throw of the control surface. Moving it toward the control surface will increase the amount of throw. If these adjustments do not accomplish the job, you may need to work with a combination of adjustments by also repositioning the pushrod at the servo end. Moving the pushrod towards the center of the servo horn will decrease the control surface throw - outward will increase it.

Note: Throws are measured at the widest part of the elevators, rudder and ailerons. We recommend the following control surface throws as a starting point.

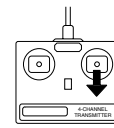
Big Stik .40 ARF

Elevator - 1/2" (13mm) up and down
Rudder - 1-1/4" (32mm) left, 1-1/4" (32mm) right
Ailerons - 5/16" (8mm) up and down

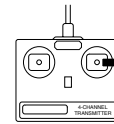
Big Stik .60 ARF

Elevator - 9/16" (14mm) up and down
Rudder - 1-1/2" (38mm) left, 1-1/2" (38mm) right
Ailerons - 3/8" (9.5mm) up and down

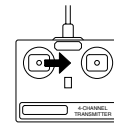
4-CHANNEL RADIO SETUP (STANDARD MODE 2)



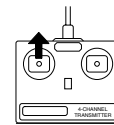
ELEVATOR MOVES UP



RIGHT AILERON MOVES UP
 LEFT AILERON MOVES DOWN



RUDDER MOVES RIGHT
 NOSE WHEEL TURNS RIGHT



CARBURETOR WIDE OPEN

BALANCE YOUR MODEL Laterally

Important: Do not confuse this procedure with "checking the C.G." or "balancing the airplane fore and aft".

Now that the plane is basically completed, this is a good time to balance the model laterally (side to side). A plane that is balanced laterally tracks better through maneuvers, especially loops.

❑ 1. Assemble the model in as in preparation for flight. (No fuel is needed for this procedure.)

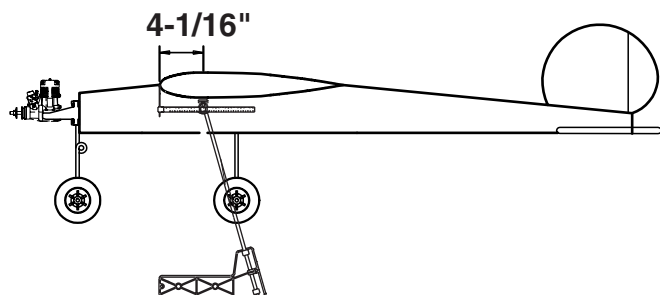
❑ 2. With the wing level, lift the model by the engine propeller shaft and the bottom of the rudder (this may require two people). Do this several times.

❑ 3. If one wing always drops when you lift the model, it means that side is heavy. Balance the plane by adding weight to the opposite, lighter wing tip.

BALANCE YOUR MODEL (C.G.)

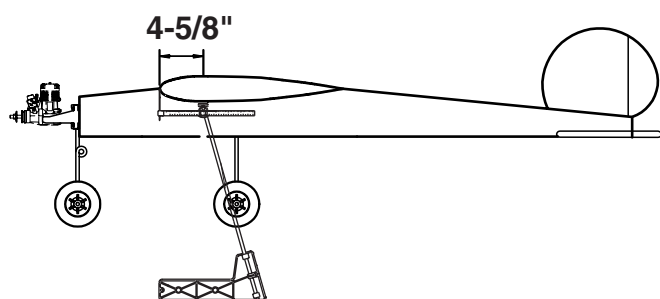
Note: This section is VERY important and must NOT be omitted! A model that is unbalanced will be unstable and possibly unflyable.

Big Stik .40 ARF



1. The balance point is located **4-1/16" back from the leading edge of the wing**. Mark this location on the bottom of both sides of the wing at the fuselage. This is the balance point that should be used for your first flights. After you have become familiar with the plane you may wish to experiment by moving the C.G. forward or aft up to 3/8" to change its flight characteristics. Do not at any time balance your model outside the recommended range.

Big Stik .60 ARF



The balance point is located **4-5/8" back from the leading edge of the wing**. Mark this location on the bottom of both sides of the wing at the fuselage. This is the balance point that should be used for your first flights. After you have become familiar with the plane you may wish to experiment by moving the C.G. forward or aft up to 3/8" to change its flight characteristics. Do not at any time balance your model outside the recommended range.

2. With all of the parts of the model installed (ready to fly) and an empty fuel tank, lift the model at the balance point. If the tail drops the plane is "tail heavy" and you must add weight to the nose to balance the model. If the nose drops, it is "nose heavy" and you must add weight to the tail to balance the model.

3. If possible try to balance the model by changing the position of the receiver battery. If you are unable to obtain good balance by doing so, then it will be necessary to add weight to the nose or tail to achieve a proper balance point.

PREFLIGHT

At this time check all connections including servo horn screws, clevises, servo cords and extensions. Make sure you have installed the nylon retainer on the Screw-Lock Pushrod Connector and the silicon retainers on all clevises. Be sure that you have followed all of the instructions of the radio manufacturer including running the antenna out the fuselage to the tail.

Charge the Batteries

Follow the battery charging procedure in your radio instruction manual. You should always charge your transmitter and receiver batteries the night before you go flying and at other times as recommended by the radio manufacturer.

Balance the Propeller

Carefully balance your propellers before flying. An unbalanced prop is the single most significant cause of vibration. We recommend the Top Flite Precision Magnetic Balancer™ (TOPQ5700) and the Top Flite Fingertip Balancer (GPMQ5000).

Find a Safe Place to Fly

The best place to fly your R/C model is an AMA (Academy of Model Aeronautics) chartered club field. Ask your hobby shop dealer if there is such a club and join. Club fields are set up for R/C flying which usually makes your outing more enjoyable. The AMA can also tell you the name of a club in your area. We recommend that you join AMA and a local club so you can have a safe place to fly and also have insurance to cover you in case of a flying accident.

Ground Check the Model

Inspect your radio installation and confirm that all of the control surfaces respond correctly to the transmitter inputs. The engine operation must also be checked by confirming that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power indefinitely. The engine must be "broken-in" on the ground by running it for at least one full tank of fuel. Follow the engine manufacturer's instructions for "break-in". Make sure that all screws remain tight and that the prop is on tight.

Range Check Your Radio

Wherever you do fly, you need to check the operation of the radio every time you fly. Check your radio manufacturer's recommendation for your particular radio system. When range testing your model have someone help you. Have them stand by your model and while you work the controls, tell you what the various control surfaces are doing. If the control surfaces are not acting correctly, do not fly. Correct the problem first. Repeat the procedure with the engine running to be sure there is no radio noise being created by the engine.

Engine Safety Precautions

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

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

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

Use safety glasses when starting or running engines.

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

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

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

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

Make all engine adjustments from behind the rotating propeller.

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

To stop a glow engine, cut off the fuel supply by closing off the fuel line or following the engine manufacturer's recommendations. Do not use hands, fingers or any other body part to try to stop the engine. To stop a gasoline

powered engine an on/off switch should be connected to the engine coil. Do not throw anything into the propeller of a running engine.

AMA SAFETY CODE (Excerpt)

Read and abide by the following Academy of Model Aeronautics Official Safety Code:

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 to, and avoid flying in the proximity of full scale aircraft. Where necessary an observer shall be used 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.
7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.
9. 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. I will perform my initial turn after takeoff away from the pit or spectator areas, and I will not thereafter fly over pit or spectator areas, unless beyond my control.
4. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.

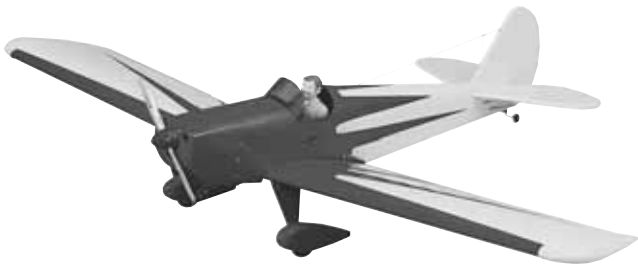
FLYING

The Big Stik is a great flying sport plane that flies smoothly and predictably, yet is highly maneuverable. It does not, however, have the self recovery characteristics of a primary trainer; therefore, you must have mastered the basics of R/C flying before attempting to fly this plane or be sure to get the assistance of an experienced modeler to help you through the first few flights.

We recommend you take it easy for your first few flights to get familiar with the aircraft. Add and practice one maneuver at a time and learn how the plane does each maneuver. We especially like the way the Big Stik flies inverted, with very little down elevator required.

When it's time to land, cut the throttle and bleed off some speed by raising the nose. After slowing down, lower the nose and assume a normal glide angle, flaring to touchdown. Have a ball, but always stay in control and fly in a safe manner.

OTHER ITEMS AVAILABLE FROM GREAT PLANES



SpaceWalker ARF GPMA1300

Based on Jesse Anglin's '86 tribute to '30s homebuilts, the SpaceWalker takes only a few hours to assemble. It has a strong, wood frame; welded, steel landing gear; side plates; ABS wheel pants; windshield; and a cowl color-matched to the MonoKote covering. Smooth in flight, it blends the muscle of dual aileron servos with the aerobatic potential of a symmetrical airfoil. **Note:** Pilot figure not included.



Piper J-3 Cub ARF GPMA1310

This sport-scale model is all-wood, impressively detailed, and flight-ready in as little as 15-20 hours! Surrounding the CAD-engineered framework is real woven Coverite™ 21st Century® fabric. With its dual aileron servos the Cub maneuvers well. It also lands gently and includes a pre-painted fiberglass cowl, replica cylinder heads, adjustable engine mount and Great Planes-brand hardware.

Note: Pilot figure not included.



AT-6 Texan ARF GPMA1245

Enjoy smooth flight and easy aerobatics with this kit-quality ARF. Precision-molded, painted parts include a glass-reinforced cowl. Plus, the AT-6 offers the strength of wood...the dependability of Great Planes hardware...and the fine finish of Top Flite MonoKote film. Fixed landing gear is supplied, though wheel wells and mounting rails are built-in for retracts. **Note:** Pilot figure not included.



Giles G-202 GPMA1315

Designed to convince "kitters" that ARFs can be outstanding! Parts interlock for strength, and are all-wood except for fiberglass parts factory-painted to match the preapplied MonoKote covering. Competition mounted servos (2 each for ailerons and elevators, 1 for the rudder) plus double-beveled rudder and elevator control surfaces open the way for wild, 3D stunts. **Note:** Pilot figure not included.

