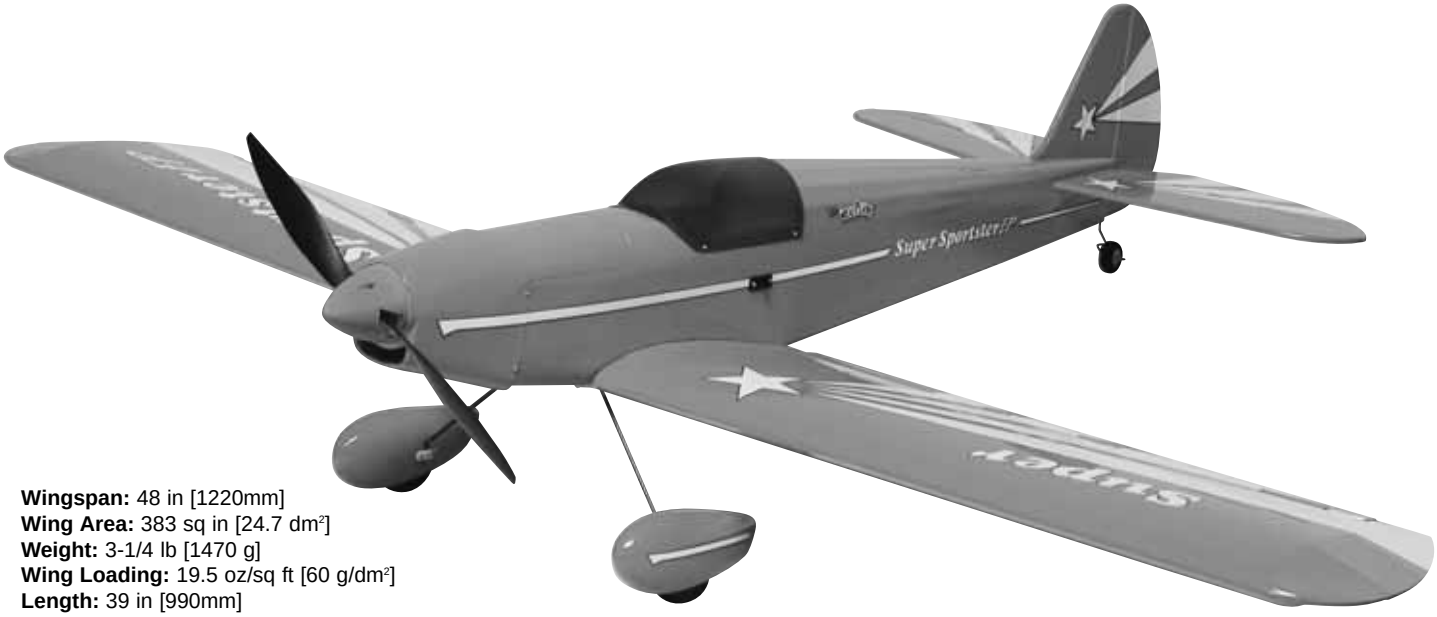
Super Sportster EP™ ARF

INSTRUCTION MANUAL



Wingspan: 48 in [1220mm]
Wing Area: 383 sq in [24.7 dm²]
Weight: 3-1/4 lb [1470 g]
Wing Loading: 19.5 oz/sq ft [60 g/dm²]
Length: 39 in [990mm]
Radio: 4-channel with three mini servos
Motor: 550 size
Electronic Speed Control: 30 amp

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 WARNINGS AND INSTRUCTIONS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

GREAT PLANES® MODEL MANUFACTURING COMPANY
Champaign, Illinois
(217) 398-8970, Ext 5
airsupport@greatplanes.com

GPMZ0201 for GPMA1160 V1.0

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INTRODUCTION

The Great Planes Super Sportster kits have been a favorite among pilots since 1984. For many pilots the Super Sportster was their first low wing plane. Now, Great Planes brings you the Super Sportster tradition in an electric version. Following the lines of the Super Sportster 20, the Super Sportster EP has been lightened to accommodate electric power without sacrificing performance. If you're ready to continue the Super Sportster tradition without the fuss and mess of a glow engine, the Super Sportster EP is just what you need.

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

AMA

We urge you to join the AMA (Academy of Model Aeronautics) and a local R/C club. The AMA is the governing body of model aviation and membership is required to fly at AMA clubs. Though joining the AMA provides many benefits, one of the primary reasons to join is liability protection. Coverage is not limited to flying at contests or on the club field. It even applies to flying at public demonstrations and air shows. Failure to comply with the Safety Code (excerpts printed in the back of the manual) may endanger insurance coverage. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. There are over 2,500 AMA chartered clubs across the country. 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*

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

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

1. Your Super Sportster EP should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, the Super Sportster 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 first-class condition.

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

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

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

8. **WARNING:** The cowl and wheel pants included in this kit are made of fiberglass, the fibers of which may cause eye, skin and respiratory tract irritation. Never blow into a part (wheel pant, cowl) to remove fiberglass dust, as the dust will blow back into your eyes. Always wear safety goggles, a particle mask and rubber gloves when grinding, drilling and sanding fiberglass parts. Vacuum the parts and the work area thoroughly after working with fiberglass parts.

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

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

BATTERY CHARGER OPTIONS

A fully charged battery pack will provide an initial "surge" of power during the first 15 to 30 seconds of the motor run. Then the power output stays fairly steady for the next several minutes before dropping off quickly. If you do not "peak-charge" your battery, it will not deliver that initial surge necessary for a good takeoff and climb-out. There are three easy ways to peak-charge your battery pack.

1. The easiest way is with a "peak-detecting" battery charger. This type of charger will charge your battery until it is fully charged, then automatically shut off. Using a peak-detecting charger reduces the chances of damaging the batteries from over-charging. We recommend the Great Planes Triton™ DC Peak Charger (GPMM3150) to keep your batteries in good condition.

2. The second method of charging your motor batteries is to monitor the voltage of your battery pack with a voltmeter while charging. **This method is only recommended for NiCd batteries.** Your charger may have sockets into which you may plug a voltmeter. If not, you may insert the probes from the voltmeter into the rear of the battery plug, making contact with the metal contacts. As your battery charges, the voltage will gradually increase. When the battery is fully charged, the voltage will start to **drop**. At this point your battery is fully charged. We recommend the Hobbico® 905 AC/DC Multi-Charger (HCAP0150).

3. The third (and least reliable) method of peak-charging your battery pack is by checking its temperature. **This method is only recommended for NiCd batteries.** As the battery charges it will remain cool until it is fully charged. When it reaches the fully charged state, it will rapidly build up heat. You can feel this heat with your hand. As soon as the pack starts to noticeably warm up, disconnect it from the charger. **Do not continue charging if the battery pack is hot!** Overcharging will damage your battery pack and can result in an explosion.

ADDITIONAL ITEMS REQUIRED

Hardware and Accessories

In addition to the items listed in the **"BATTERY CHARGER OPTIONS"** section, the following is the list of hardware and accessories required to finish the Super Sportster EP ARF. Order numbers are provided in parentheses.

- ❏ 4-channel radio with three mini servos
- ❏ 6" [150mm] servo extension (HCAM2701 for Futaba®)

Adhesives and Building Supplies

In addition to common household tools and hobby tools, this is the "short list" of the most important items required to build the Super Sportster EP. ***Great Planes Pro***™ *CA and Epoxy glue are recommended.*

- ❏ 1/2 oz. [15g] Thin Pro CA (GPMR6001)
- ❏ Pro 30-minute epoxy (GPMR6047)
- ❏ Drill bits: 1/32" [.8mm], 1/16" [1.6mm], 5/64" [2mm], 3/32" [2.4mm], 1/8" [3.2mm]
- ❏ #1 Hobby knife (HCAR0105)

❏ #11 blades (5-pack, HCAR0211)
❏ Medium T-pins (100, HCAR5150)
❏ Builder's Triangle Set (HCAR0480)
❏ 36" metal ruler (HCAR0475)
❏ Denatured alcohol (for epoxy clean up)

Adhesives and Building Supplies

Here is a list of optional tools mentioned in the manual that will help you build the Super Sportster EP.

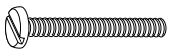
❏ Stick-on segmented lead weights (GPMQ4485)
❏ Top Flite® MonoKote® sealing iron (TOPR2100)
❏ Top Flite Hot Sock™ iron cover (TOPR2175)
❏ Top Flite MonoKote heat gun (TOPR2000)
❏ Pro 6-minute epoxy (GPMR6045)
❏ 2 oz. [57g] spray CA activator (GPMR6035)
❏ R/C-56 canopy glue (JOZR5007)
❏ CA applicator tips (HCAR3780)
❏ CA debonder (GPMR6039)
❏ Epoxy brushes (6, GPMR8060)
❏ Mixing sticks (50, GPMR8055)
❏ Mixing cups (GPMR8056)
❏ Curved-tip canopy scissors for trimming plastic parts (HCAR0667)
❏ Robart Super Stand II (ROBP1402)
❏ Masking tape (TOPR8018)
❏ K & S #801 Kevlar thread (for stab alignment)
❏ CG Machine™ (GPMR2400)
❏ Precision Magnetic Prop Balancer™ (TOPQ5700)
❏ AccuThrow™ Deflection Gauge (GPMR2405)

IMPORTANT BUILDING NOTES

• There are two types of screws used in this kit:

Sheet metal screws are pointed and have a coarse thread.

Machine screws have a squared off end and a fine thread.



Both screws are designated by a number, the diameter, and the length. For example a 3 x 8mm screw has a diameter of 3mm and a length of 8mm.

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

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

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

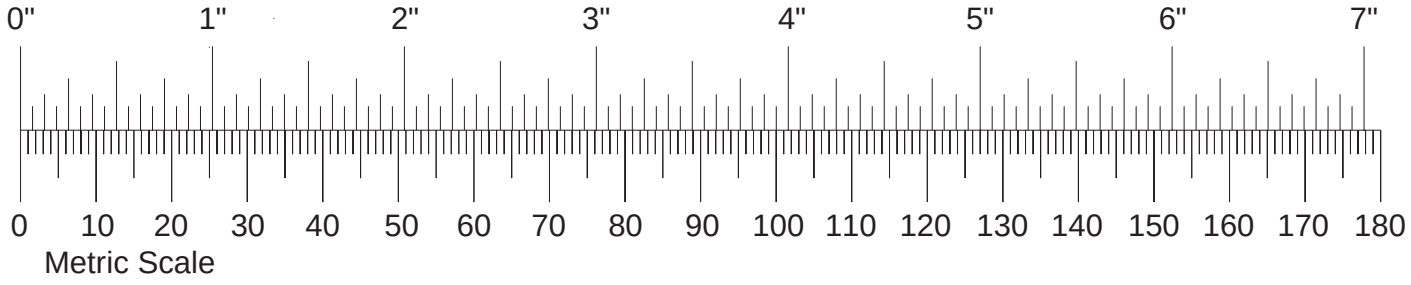
• **Photos** and **sketches** are placed **before** the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.

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

COMMON ABBREVIATIONS

Fuse = Fuselage
Stab = Horizontal Stabilizer
Fin = Vertical Fin
LE = Leading Edge
TE = Trailing Edge
LG = Landing Gear
Ply = Plywood
" = Inches
mm = Millimeters
SHCS = Socket Head Cap Screw

To convert inches to millimeters, multiply inches by 25.4

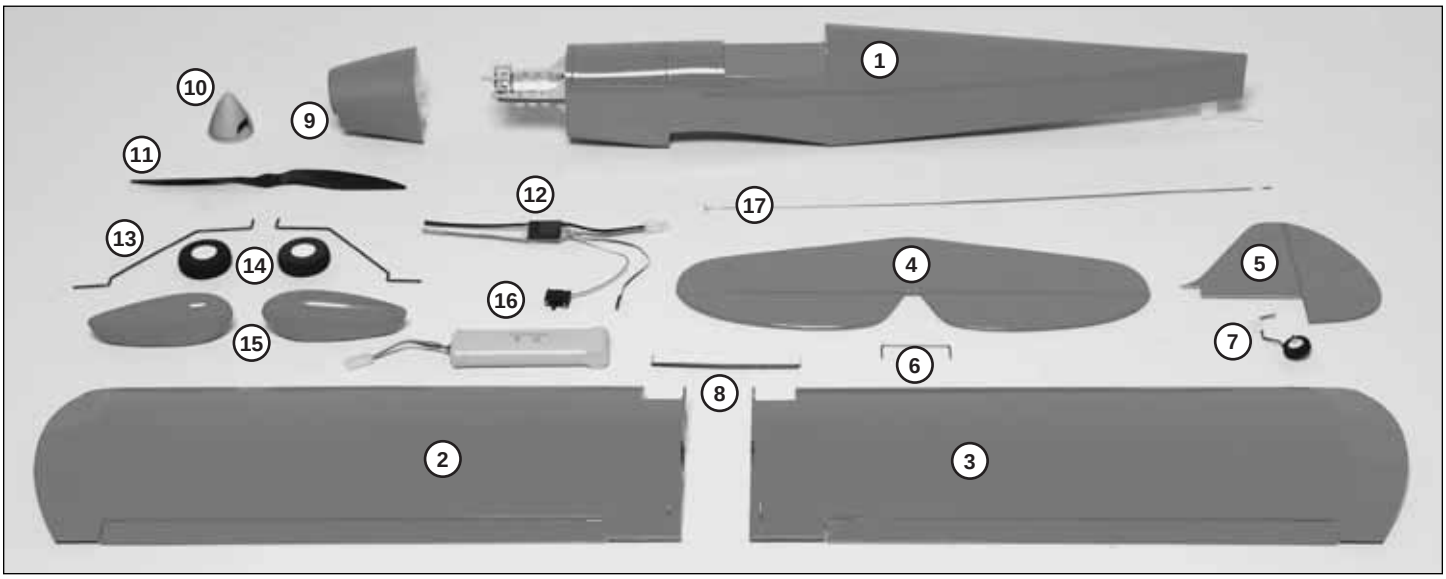


KIT INSPECTION

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

Great Planes Product Support:
3002 N Apollo Drive, Suite 1
Champaign, IL 61822
Telephone: (217) 398-8970, ext. 5
Fax: (217) 398-7721
E-mail: *airsupport@greatplanes.com*

KIT CONTENTS



Kit Contents (Photographed)

1 Fuselage
2 Left Wing Panel
3 Right Wing Panel
4 Stabilizer and Elevator
5 Fin and Rudder
6 Elevator Joiner Wire
7 Tail Gear Assembly
8 Wing Joiners (2)
9 Cowl
10 Spinner
11 Prop
12 Electronic Speed Control
13 Main Landing Gear
14 Wheels (2)
15 Wheel Pants (2)
16 Motor Battery
17 Pushrods (2)

Kit Contents (Not Photographed)

Canopy (1)
Control Horn (2)
Collet Wire (1)
3x10mm Sheet Metal Screw (4)
Nylon Landing Gear Strap (2)
Plywood Wheel Pant Mounting Plate (2)
Plywood Wheel Pant Retainer (2)
2.5x8mm Sheet Metal Screw (8)
3mm Wheel Collar (4)
3x4mm Machine Screw (4)
3x30mm Machine Screw (2)
3mm Washer (2)
Plywood Aileron Servo Tray (1)
Hook & Loop Material (1)
Nylon Torque Rod Horns (2)
Nylon Clevis (2)
2-56x4" [100mm] Aileron Pushrods (2)
Hinge Strap (1)
2x10mm Machine Screw (4)
1.7mm Wheel Collar (2)
2.5mm Set Screw (2)
Hex Wrench (1)
Rubber Bands (2)

ORDERING REPLACEMENT PARTS

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

To locate a hobby dealer, visit the Great Planes web site at www.greatplanes.com. Choose "Where to Buy" at the bottom of the menu on the left side of the page. Follow the instructions provided on the page to locate a U.S., Canadian or International dealer. If a hobby shop is not available, replacement parts may also be ordered from Tower Hobbies at www.towerhobbies.com, or by calling toll free (800) 637-6050.

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

Mail parts orders and payments by personal check to:

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

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

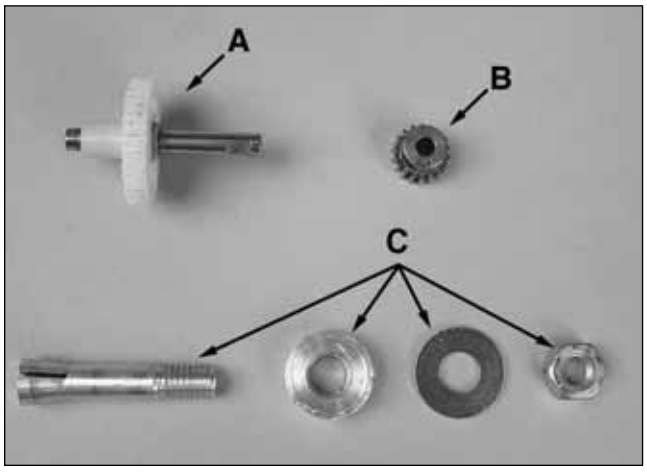
If additional assistance is required for any reason contact Product Support by e-mail at productsupport@greatplanes.com, or by telephone at (217) 398-8970.

Replacement Parts List

Order Number	Description	How to Purchase
	Missing pieces	Contact Product Support
	Instruction manual	Contact Product Support
	Full-size plans	Not available
	Kit parts listed below	Hobby Supplier

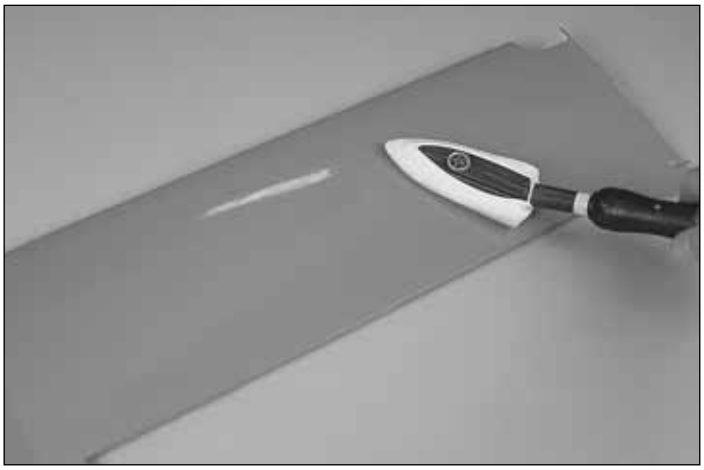
GPMA2750.....Wing Kit
GPMA2751.....Fuselage Kit
GPMA2752.....Tail Set
GPMA2753.....Landing Gear
GPMA2754.....Cowl
GPMA2755.....Canopy
GPMA2756.....Wheel Pants
GPMA2759.....Decal Sheet
GPMA2344.....SC2100 7-Cell Battery
GPMQ4790 .....Spinner
GPMQ1681 .....Propeller

GPMG0234 .....Gearbox
GPMG0706 .....Motor
GPMG0862 .....Spur Gear/Shaft (A)
GPMG0239 .....Pinion Gear (B)
GPMQ4622 .....Prop Adapter (C)



PREPARATIONS

❑ 1. If you have not done so already, remove the major parts of the kit from the box (wing, fuselage, tail parts, etc.) and inspect them for damage. If any parts are damaged or missing, contact Product Support at the address or telephone number on the front cover.

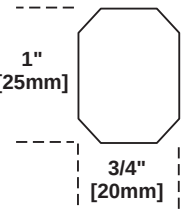


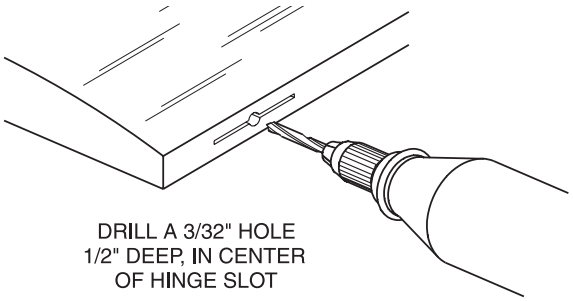
❑ 2. Remove the masking tape and separate the ailerons from the wing, the rudder from the fin and the elevator from the stabilizer. If necessary, use a covering iron set on medium/high to tighten the covering. Apply pressure over sheeted areas to **thoroughly** bond the covering to the wood.

ASSEMBLE THE WING

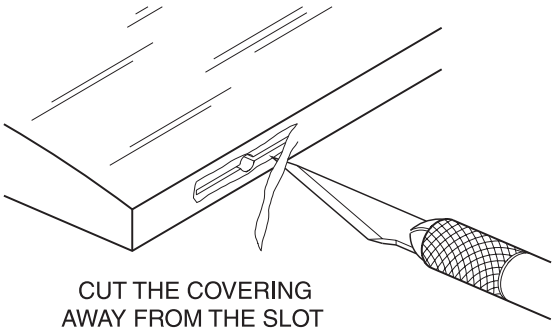
Install the Ailerons

❑ 1. From the 2" x 9" [50mm x 230mm] CA hinge strip, cut six 3/4" x 1" [19mm x 25mm] hinges. Cut off the corners to make insertion easier.

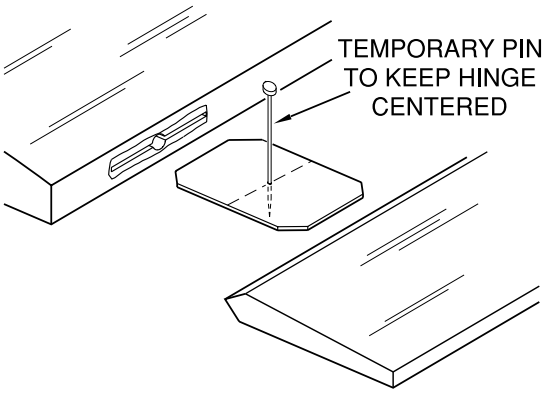




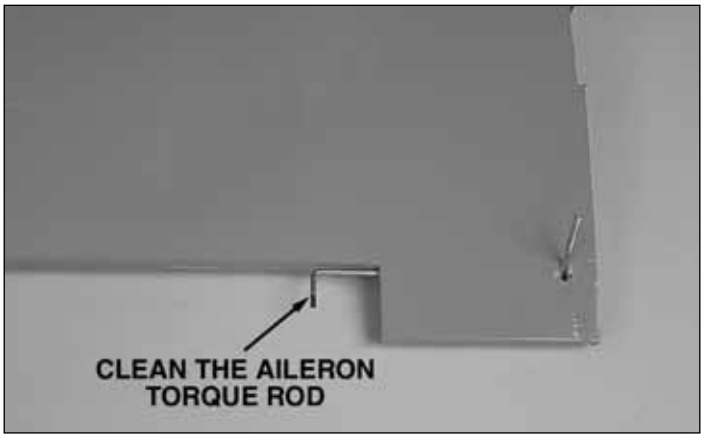
❑ ❑ 2. Drill a 3/32" [2.4mm] hole, 1/2" [13mm] deep in the center of each hinge slot to allow the CA to "wick" in. Follow-up with a #11 blade to clean out the slots. **Hint:** If you have one, use a high-speed rotary tool to drill the holes.



❑ ❑ 3. Use a sharp #11 blade to cut a strip of covering from all the hinge slots in the wing half and aileron.

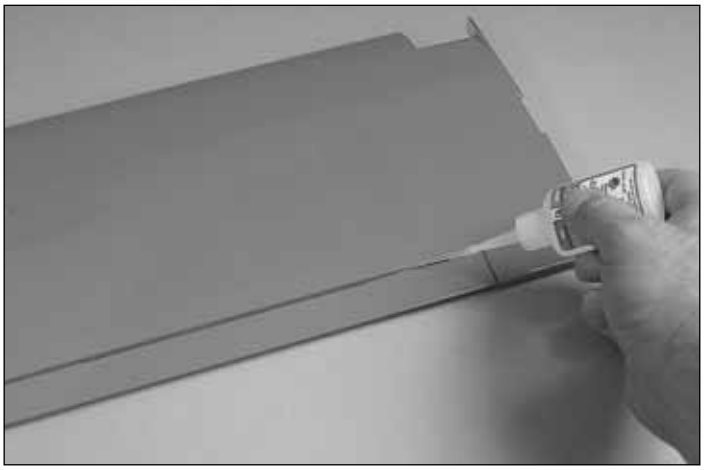


❑ ❑ 4. Test fit the ailerons to the wing with the hinges. If the hinges don't stay centered, stick a pin through the middle of the hinges to hold them in position.



❑ ❑ 5. Clean the aileron torque rod with denatured alcohol to remove any contaminants.

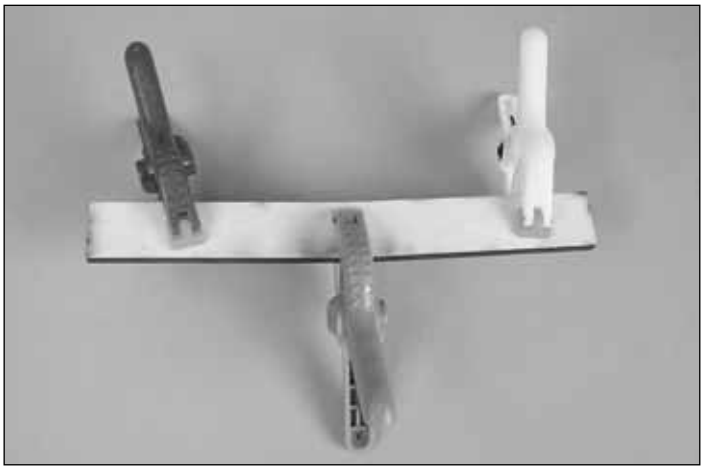
❑ ❑ 6. Mix up a small amount of epoxy. Using a tooth pick, apply epoxy in the aileron torque rod hole and along the groove in the leading edge of the aileron. Before the epoxy cures, join the aileron to the wing. Remove any pins you may have inserted into the hinges. Adjust the aileron so there is a very small gap between the LE of the aileron and the wing. The gap should be small – just enough to see light through or to slip a piece of paper through. Clean up any excess epoxy using a paper towel dampened with denatured alcohol.



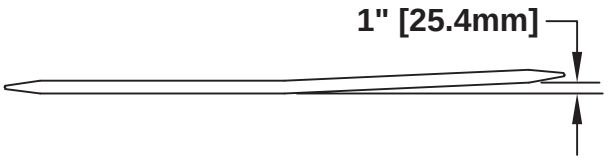
❏ ❏ 7. Apply six drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA and epoxy have fully hardened, test the hinges by pulling on the ailerons.

❏ 8. Now join the other aileron and wing half using the same procedure.

Join the Wing Halves

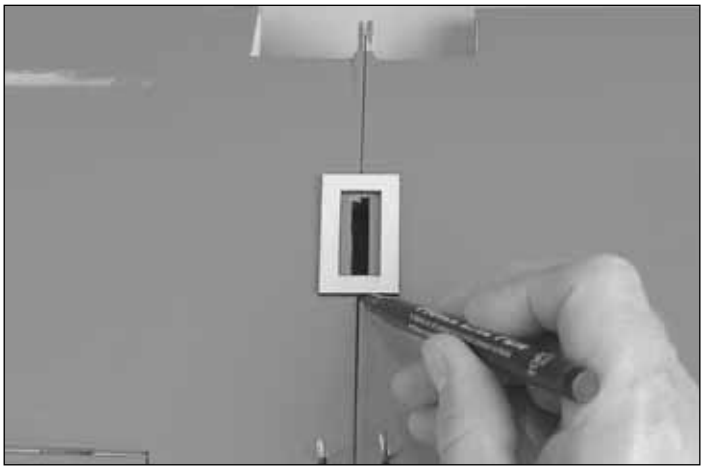


❏ 1. Use epoxy to glue the two plywood wing joiners together. Wipe off the excess epoxy with a paper towel dampened with denatured alcohol. Use clamps to hold the two joiners together until the epoxy cures.

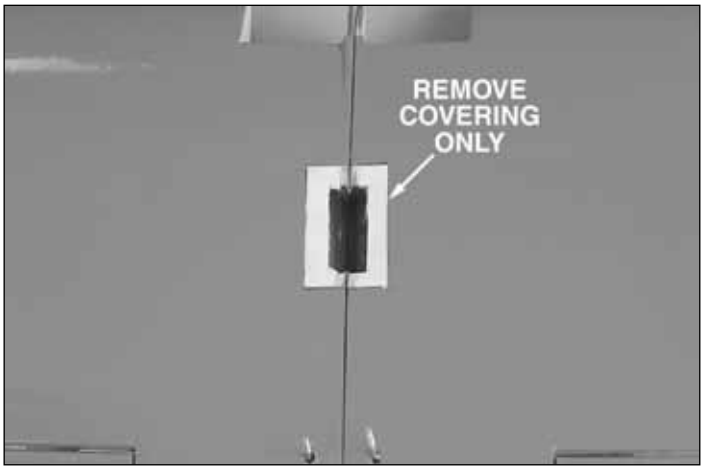


❏ 2. Use a bar sander with coarse sandpaper to true the edges and remove any excess hardened epoxy from the wing joiner. **Without using any glue**, temporarily join the wings with the joiner. Make adjustments as necessary for a good fit. **Note:** The dihedral angle is factory-set and determined by the angle of the joiner and the joining ribs on the ends of the wing halves. However, you may confirm the dihedral by placing one wing panel flat on the workbench and measuring the distance between the bottom of the rib on the end of the other panel and the bench. The distance should be 1" [25mm], but a small variance is acceptable. If the wing doesn't fit well or if you can't get close enough to the dihedral specified, there may be excess glue inside the wing or irregularities on the joiner. Use coarse sandpaper to true the edges and bevel the corners of the joiner and/or use a hobby knife to remove any glue from the joiner openings in the ribs on the end of the wing halves.

❏ 3. Prepare 1/2 oz. of 30-minute epoxy. Working quickly, thoroughly coat the inside of both wing halves where the joiner fits and one half of the joiner with epoxy. Making certain the joiner is upright, insert the coated end into one of the wing halves. Coat the other end of the joiner and the root ribs with the remainder of the epoxy. Join the wing halves tightly, holding them together. Use a paper towel dampened with denatured alcohol to wipe away the excess epoxy that comes out of the wing. Tightly hold the wing together with several strips of masking tape, making certain both halves are in full contact and the leading and trailing edges are aligned. Let the wing set until the epoxy has cured.



❏ 4. Position the plywood aileron servo tray, centered over the opening in the top of the wing. Use a fine-tip marker to trace around the inside and outside of the tray.



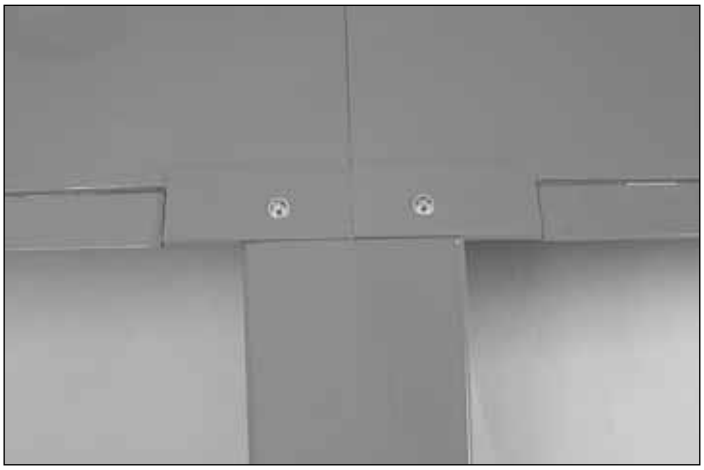
❏ 5. Using a sharp hobby knife, cut the covering and balsa sheeting from the inside of the aileron servo tray area. Trim only the covering from the outer aileron servo tray area.

❏ 6. Use CA to glue the aileron servo tray to the top of the wing centered over the servo opening.

ASSEMBLE THE FUSELAGE

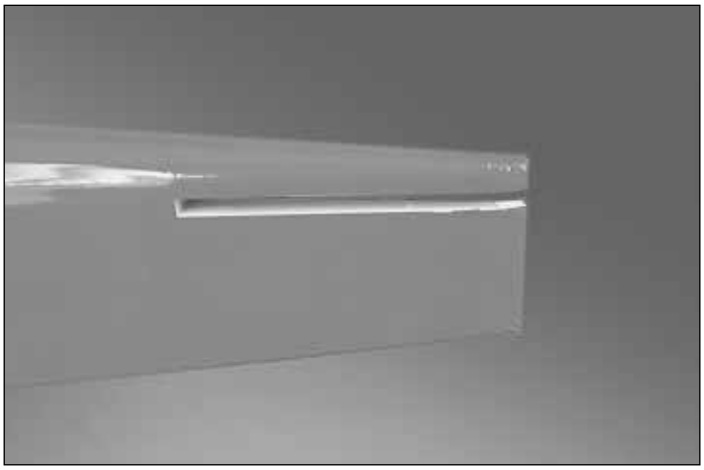
Mount the Wing

❏ 1. Trim the covering from the two bolt holes at the trailing edge of the wing.

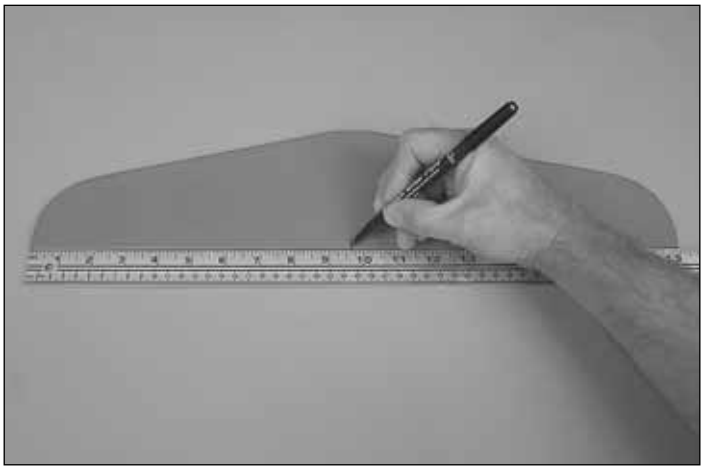


❏ 2. Test fit the wing to the fuselage and bolt it into position with two 3x30mm machine screws and 3mm washers.

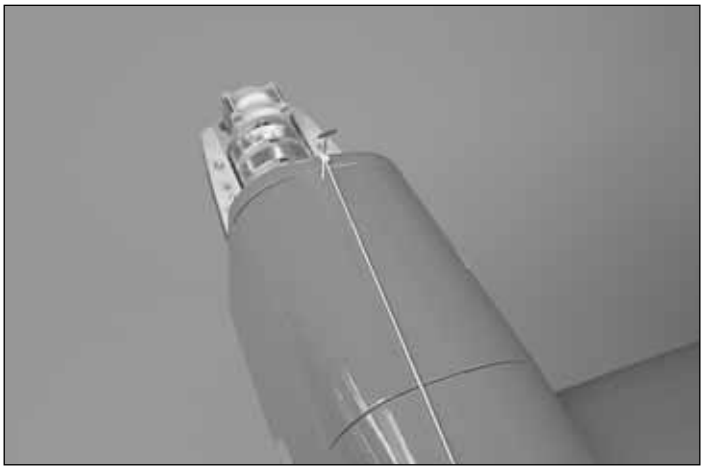
Mount the Stabilizer and Fin



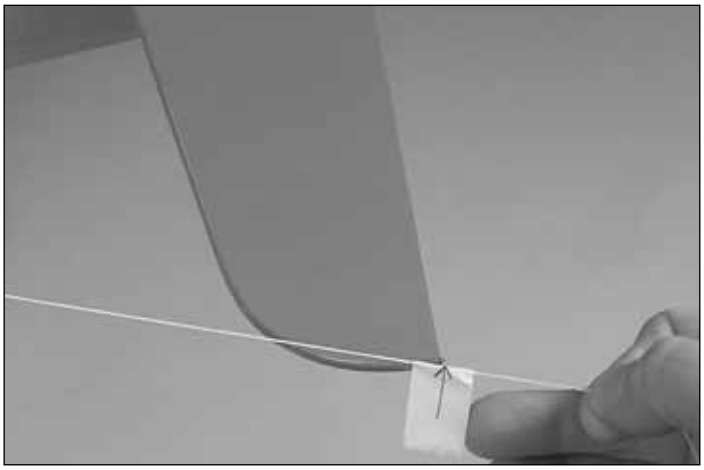
❏ 1. Using a sharp hobby knife, remove the covering from the stabilizer slot at the aft end of the fuselage. Also remove the temporary balsa block.

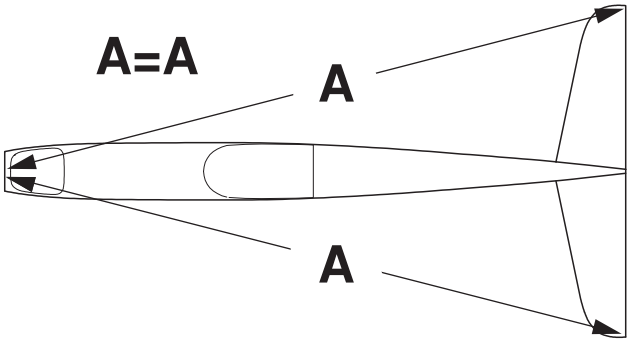


❏ 2. Mark the center of the trailing edge of the stabilizer. Insert the stabilizer into the slot.

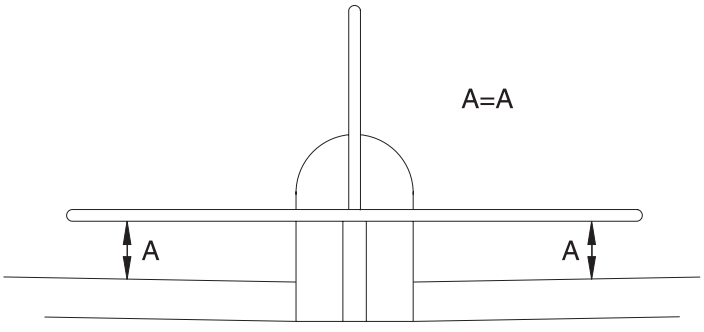


❏ 3. Stick a T-pin into the center of the top of the firewall. Tie a small loop in one end of a 36" [910mm] piece of non-elastic string such as K&S #801 Kevlar thread. Slip the loop in the string over the T-pin.

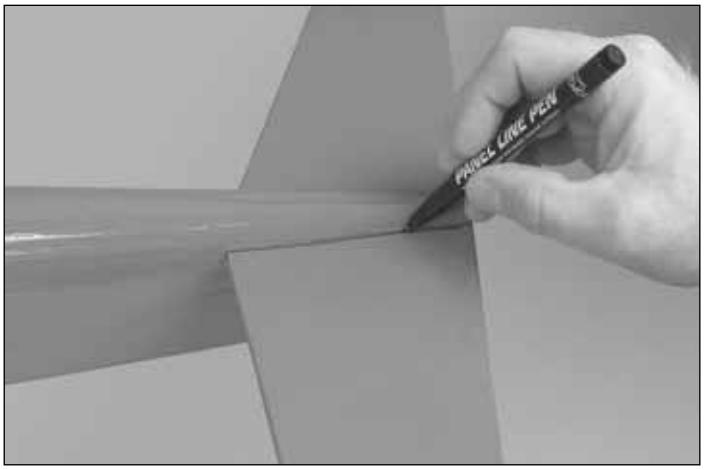




❑ 4. Fold a piece of masking tape over the other end of the string and draw an arrow on it. With the stab centered on the fuselage, slide the tape along the string and align the arrow with one tip of the stab. Swing the string over to the same position at the other end of the stab. If the arrow doesn't align with the tip, adjust the stab and the arrow slightly and check both tips again. Adjust the stab until the stabilizer tips and the trailing edge are centered.

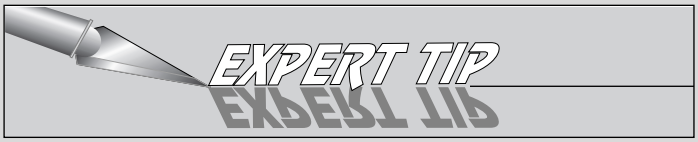


❑ 5. View the stab from approximately 10' [3m] behind the plane. Check that the stab is parallel with the wing. If it is not, lightly sand the stab saddle until the stab is parallel with the wing.

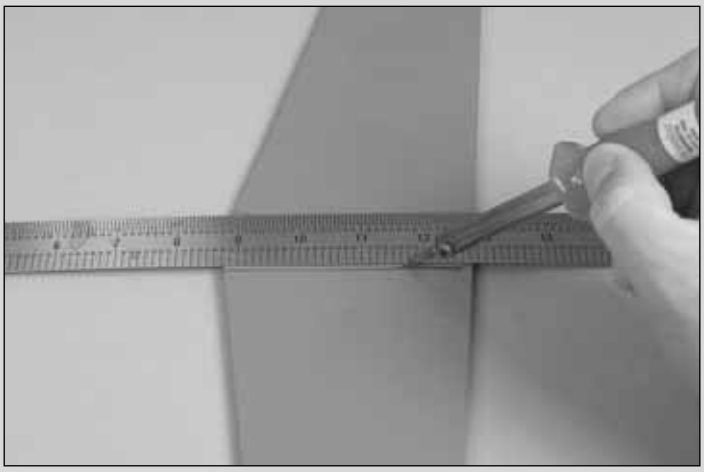


❑ 6. Use a fine-point felt-tip pen to mark the outline of the fuselage onto the bottom and top of the stab.

❑ 7. Remove the stab from the fuselage. Use a sharp #11 hobby knife or the **Expert Tip** that follows to cut the covering from the stab just inside the lines you marked. Use care to cut **only the covering** and not the wood. Cutting the wood will weaken the stab and it may break in flight.



HOW TO CUT COVERING FROM BALSA

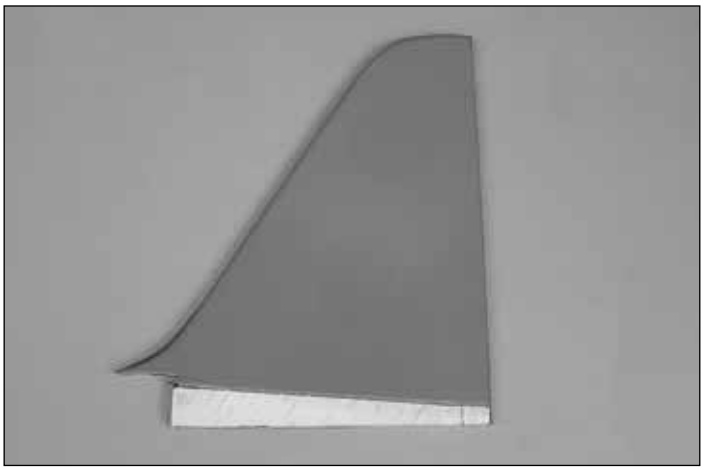


Use a 25 watt soldering iron to cut the covering from the stab. The tip of the soldering iron doesn't have to be sharp, but a fine tip does work best. Allow the iron to heat fully. Use a metal straightedge to guide the soldering iron at a rate that will just melt the covering and not burn into the wood. The hotter the soldering iron, the faster it must travel to melt a fine cut. Allow the heat to melt the covering. Do not apply much pressure or the wood may be damaged. Peel off the covering.

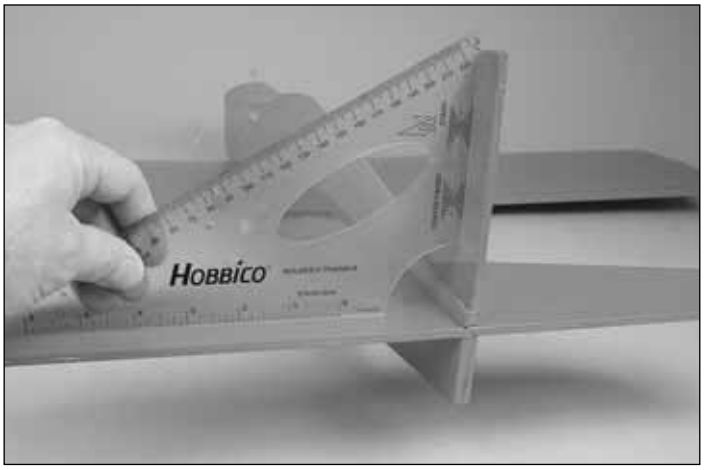
❑ 8. The same as you did for the wing and aileron, cut the covering from the hinge slots in the stab and elevator halves. There are four hinge slots in the stab/elevator and two in the fin/rudder. Drill a 3/32" [2.4mm] hole through the center of each hinge slot.

❏ 9. Cut the covering from the rudder slot in the top of the fuselage.

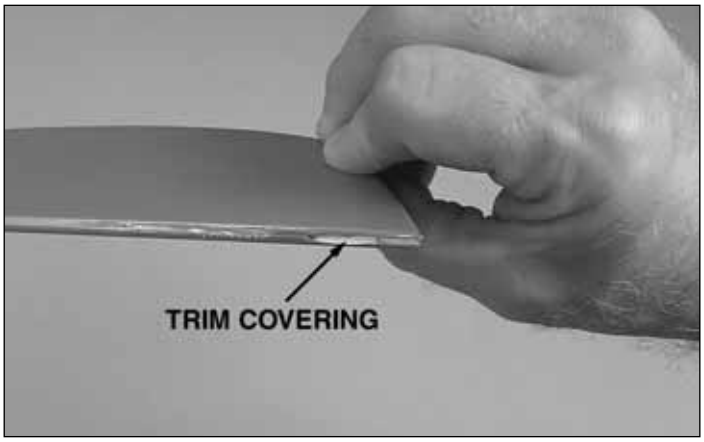
❏ 10. Apply a light coat of 30-minute epoxy in the stabilizer slot and the top and bottom of the stabilizer. Slide the stabilizer into position. Make sure the stabilizer is centered. Use the string method to re-align the stab with the fuselage. Insert the fin into the fin slot. Do not insert it completely. The fin is used to space the fin slot correctly while the epoxy cures on the stab. Wipe off the excess epoxy with a paper towel dampened with denatured alcohol. Allow the epoxy to cure fully before installing the fin.



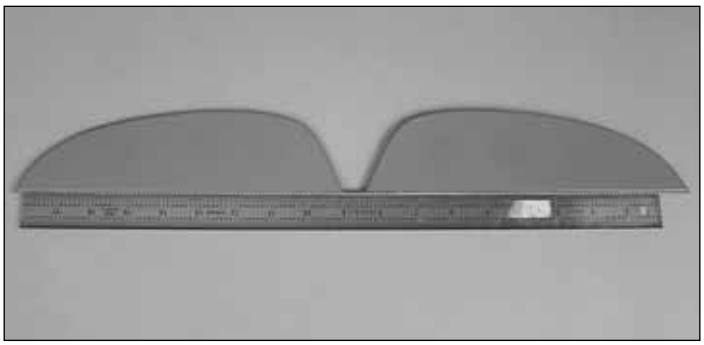
❏ 11. Fit the fin all the way into the fin slot. Again, use a felt-tip pen to mark the fuselage onto the fin. Remove the fin from the fuselage and remove the covering from the fin.



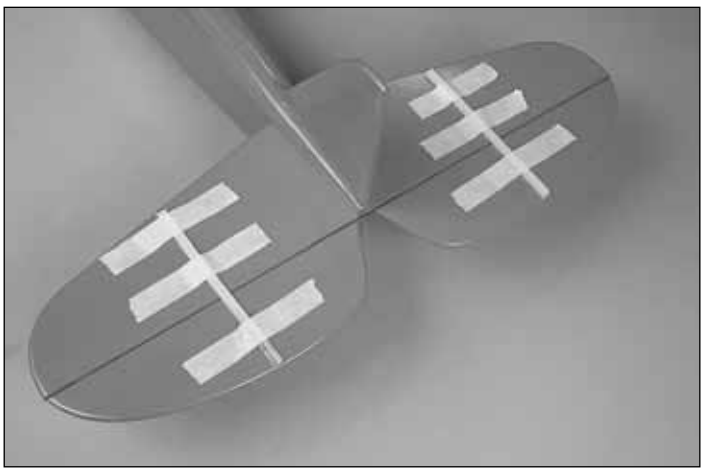
❏ 12. Glue the fin into position using epoxy. Use a builders square to make sure the fin is perpendicular to the stab. Wipe off the excess epoxy with a paper towel dampened with denatured alcohol. Masking tape can be used to hold the fin in position until the epoxy cures.



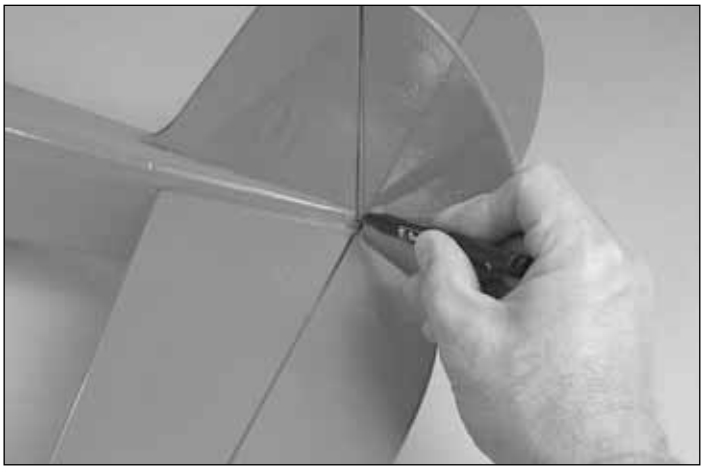
❏ 13. Trim the covering from the elevator joiner wire slot in the leading edge of both elevator halves.



❏ 14. Test fit the elevator joiner wire in both of the elevator halves. Lay the elevator on a flat surface and check that both halves lay flat and that the leading edge is straight. If they are not, use pliers to make slight adjustments to the joiner wire.

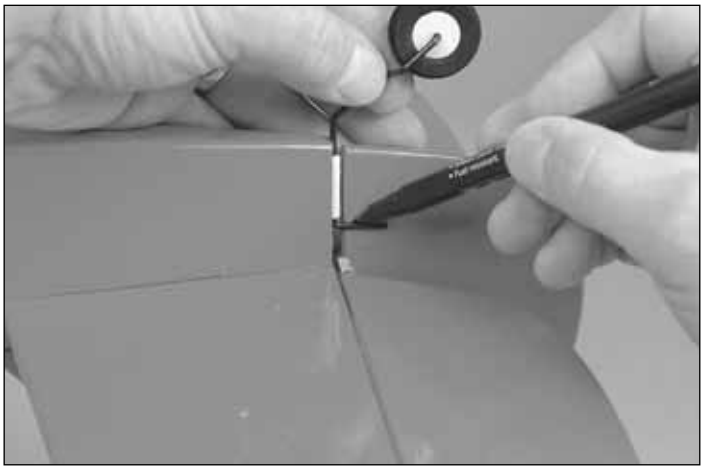


❏ 15. Once you are satisfied with the fit of the elevator joiner wire in the elevator halves, temporarily attach the elevator to the stabilizer with four CA hinges. Make sure the stabilizer and elevator halves are aligned. Remove the elevator from the stab and clean the elevator joiner wire with denatured alcohol. You will need two straight sticks to hold the elevator aligned with the stabilizer. Apply epoxy to the slots and in the elevator joiner wire holes in the leading edge of the elevator halves. Install the elevators to the stabilizer using four CA hinges. Tape the two straight sticks to the top of the elevator and the stabilizer. Before the epoxy cures, use thin CA to glue in the hinges.

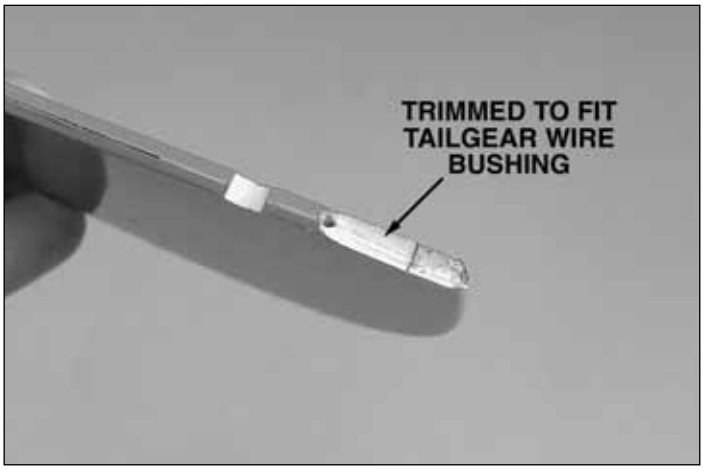


❑ 16. Position the rudder at the trailing edge and mark the location where the elevator joiner wire passes through the leading edge of the rudder.

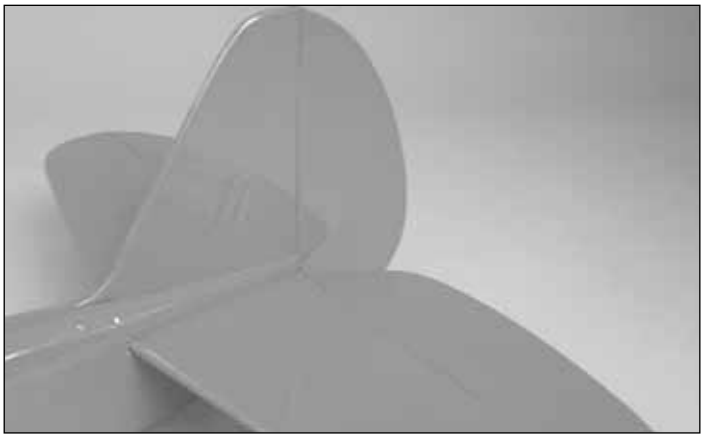
❑ 17. Use a sharp hobby knife to cut a notch in the leading edge of the rudder to clear the elevator joiner wire.



❑ 18. Use epoxy to glue the tail gear wire bushing in the lower slot at the aft end of the fuselage. Temporarily install two CA hinges in the rudder and install the rudder on the fin. Mark the bend in the tail gear wire on the rudder.



❑ 19. Drill a 3/32" [2.4mm] hole into the leading edge of the rudder at the mark. Cut a slot in the leading edge of the rudder to clear the tail gear wire bushing.

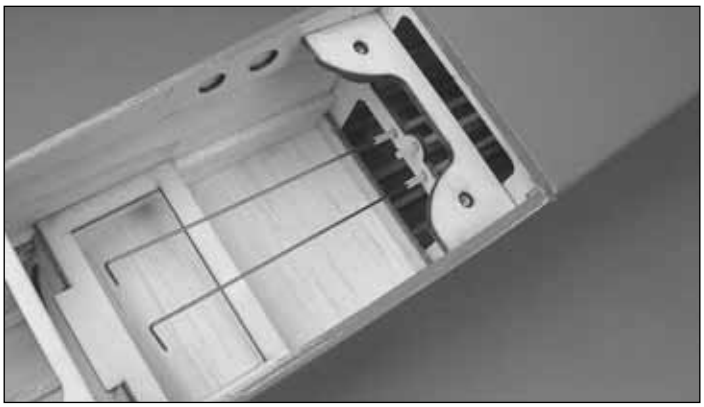


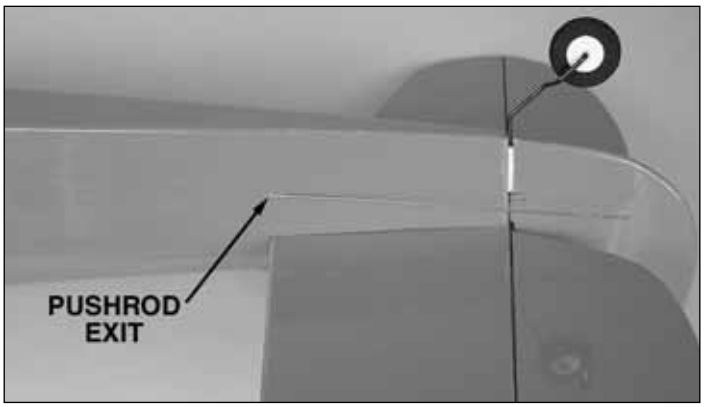
❑ 20. Once satisfied with the fit of the tail gear wire in the rudder, apply epoxy in the tail gear wire hole in the leading edge of the rudder. Join the rudder to the fin using two CA hinges. Before the epoxy cures, use thin CA to glue the CA hinges in the rudder and fin following the same procedure used for the ailerons.

RADIO INSTALLATION

Install the Control Horns

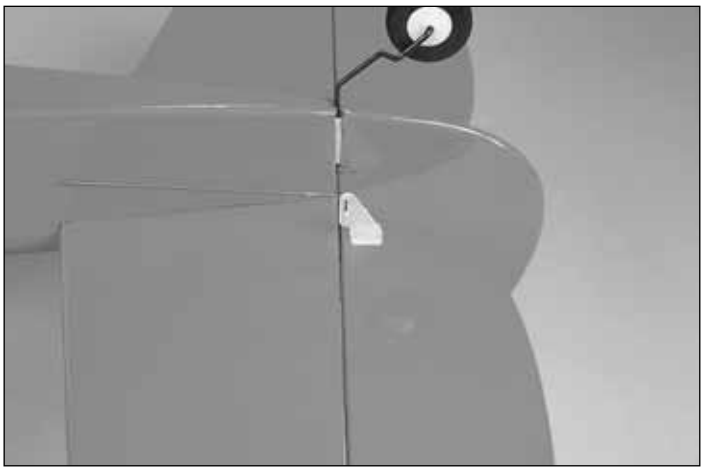
NOTE: *You will need to have your 7-cell motor battery charged later in this section. We recommend that you start charging it now so you do not have to wait for it to charge later.*

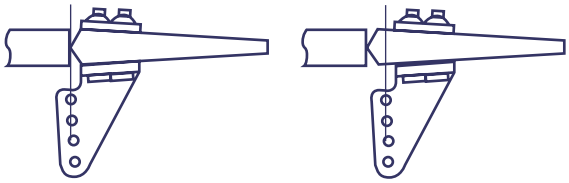




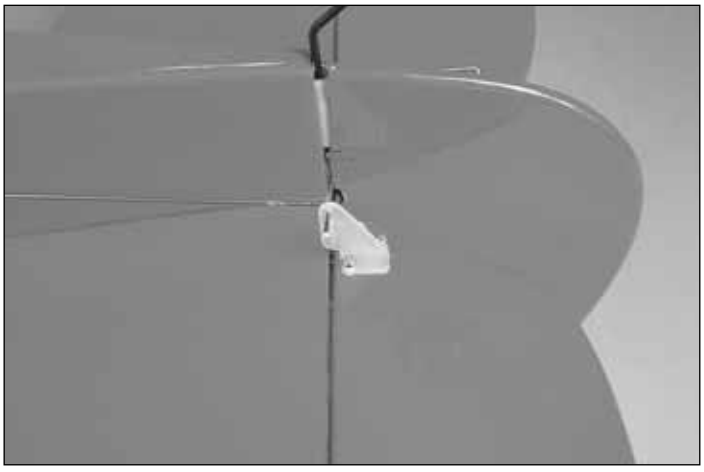
❑ 1. Insert the two wire pushrods into the outer pushrod tubes inside the fuselage. Notice at the aft end of the fuselage

where the pushrods press against the covering. Using a sharp hobby knife, cut a small slot in the covering to allow the pushrod to exit the fuselage.

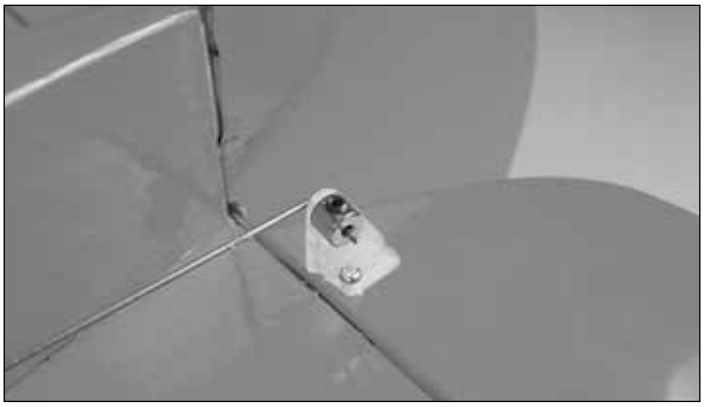




❏ 2. Remove and reinstall the pushrods so that the L-bends are at the aft end of the fuselage. Install a nylon control horn on the end of each pushrod. Position the control horn so that the attachment holes are aligned with the hinge line of the elevator.



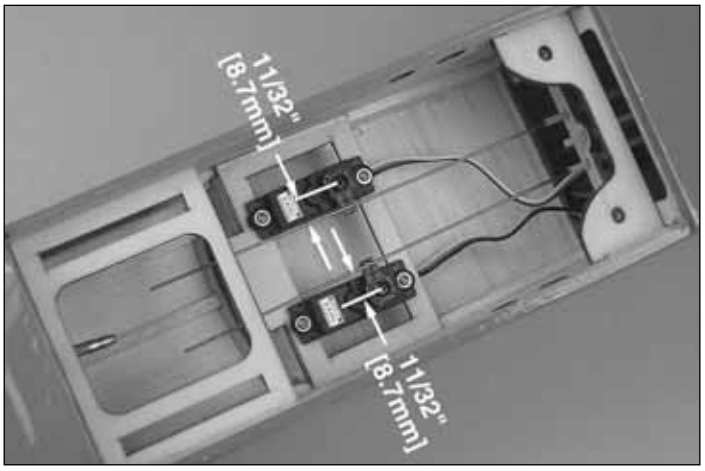
❏ 3. Mark the two control horn mounting holes on the elevator. Remove the control horn and drill 5/64" [2mm] holes through the elevator at the marks. Mount the control horn with two 2x10mm machine screws and the nylon mounting plate on the top side of the elevator.



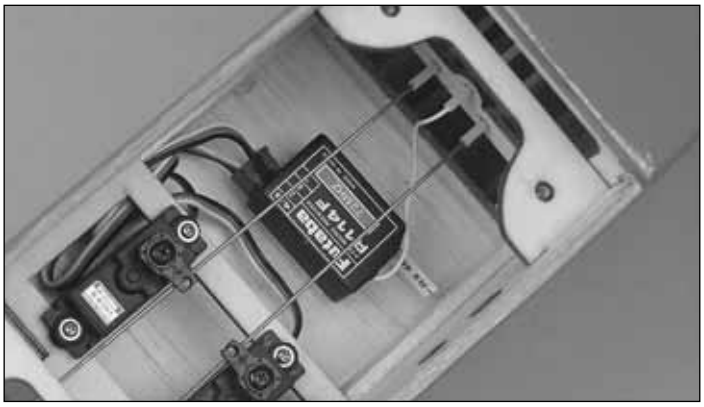
❏ 4. Connect the pushrod wire to the control horn with a 1.7mm wheel collar and 2.5mm set screw.

❏ 5. Install the rudder control horn following the same procedure. Make sure that the control horn does not interfere with the elevator.

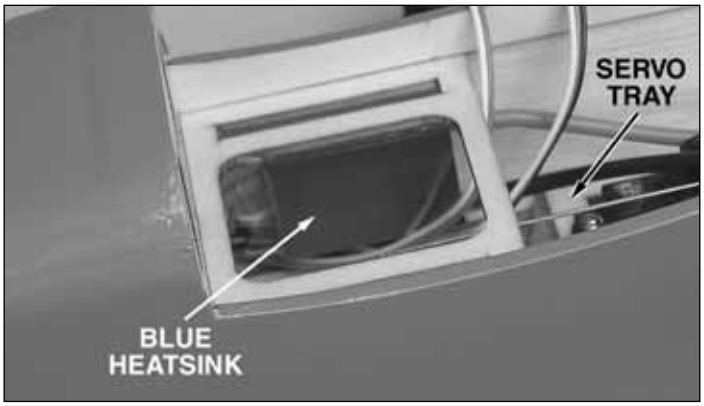
Install the Servos



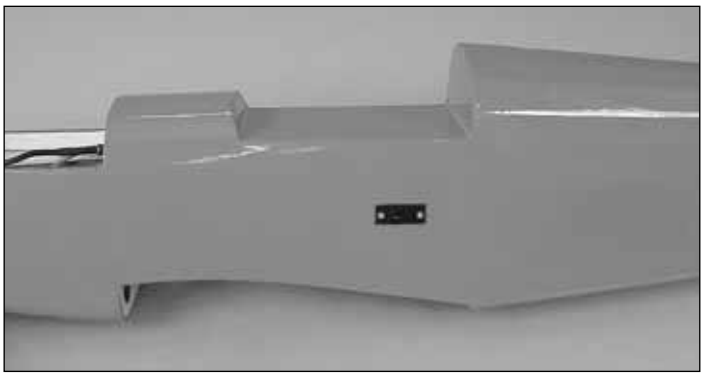
❏ 1. Install servo arms on the rudder and elevator servos. The pushrod mounting holes should be approximately 11/32" [8.7mm] from the center of the servo arm. Install the rudder and elevator servos in the servo tray, aligning the hole in the servo arm with the pushrod wire. Use the hardware included with the servos to mount the servos to the tray. After installing the servo mounting screws, remove them, apply a drop of CA to each hole to harden the threads, then reinstall the screws.



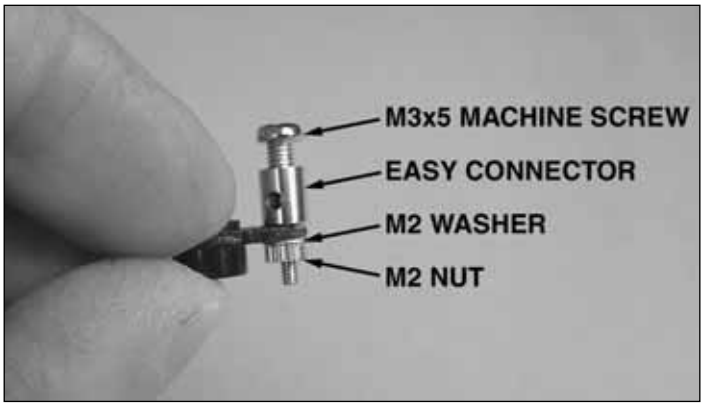
❏ 2. Cut a piece of soft hook-and-loop material and use CA to glue it to the bottom of your receiver. Cut an opposite piece of the hook-and-loop material and glue it in the fuselage behind the servo tray. Insert the receiver antenna into the third pushrod tube and route it out the bottom of the fuselage. You will need to cut a slit in the covering material where the antenna exits the bottom of the fuselage. Plug the rudder and elevator servos into the receiver.



❏ 3. Use CA to glue a 1-1/2" [40mm] piece of the “soft” hook-and-loop material to the top of the ESC. The bottom of the ESC has the blue heat sink on it. The blue heat sink must not be covered so that it can dissipate the heat from the ESC. Glue a 1-1/2" [40mm] piece of the “hard” hook-and-loop material between the stringers on the side of the fuselage in front of the servo tray. Install the ESC in the fuselage.

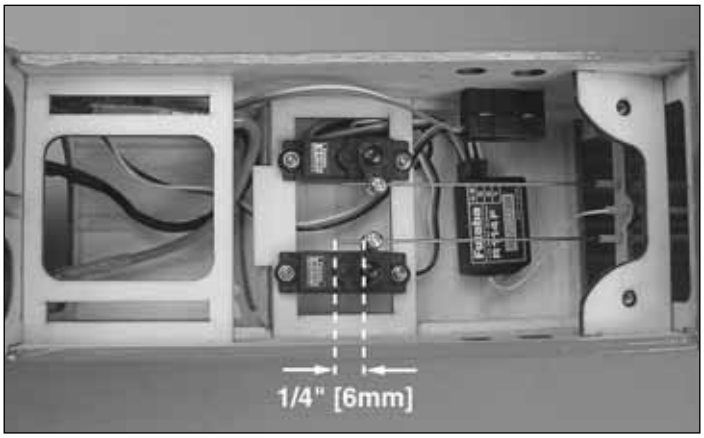


❏ 4. Plug the ESC into the throttle channel in the receiver. Connect the red and black “bullet” connectors from the ESC to the connectors from the motor. Remove the cover from the on/off switch. Mount the on/off switch on the fuselage just behind the servo tray.



❏ 5. Install the two pushrod connectors on the rudder and elevator servo horns by first inserting the connector through the horn, then install a 2mm washer and an 2mm nut on the connector. Apply a drop of threadlock to the 3x5mm machine screw and install in the top of the pushrod connector.

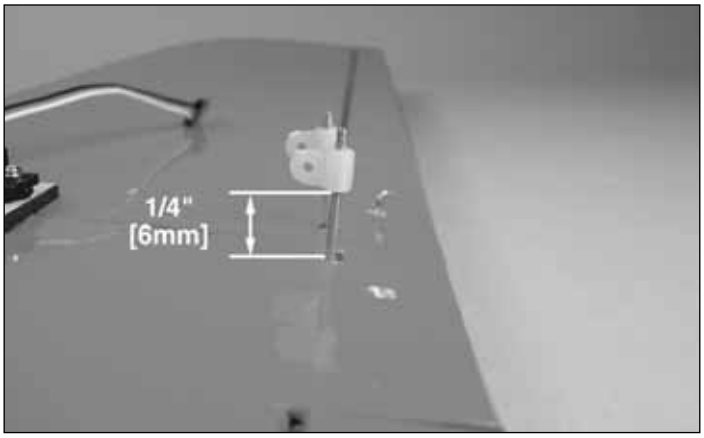
❏ 6. Slide the pushrod connectors over the pushrods. Switch on the transmitter, connect the motor battery and switch on the ESC. Center the rudder and elevator trims. Install the servo horns on the servos.



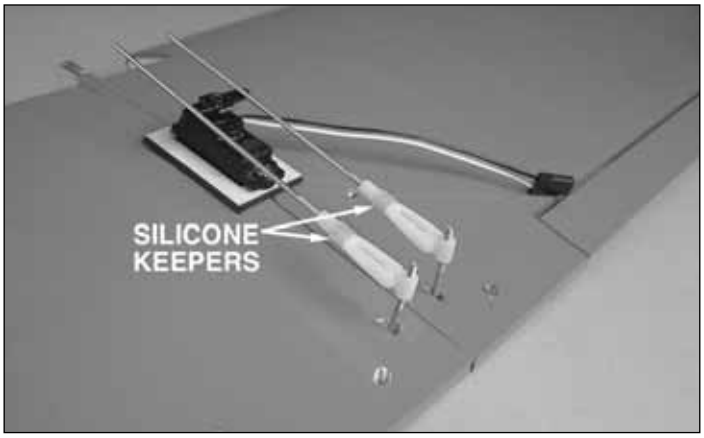
❏ 7. Center the elevator and rudder, then tighten the 3mm screws in the pushrod connectors. Trim off the excess pushrod wires 1/4" [6mm] past the pushrod connectors.

❏ 8. Mount the aileron servo in the wing. Use CA to harden the threads. Plug a 6" [150mm] aileron servo extension into the receiver. Connect the aileron servo to the servo extension and switch on the transmitter and ESC. Center the aileron servo trim.

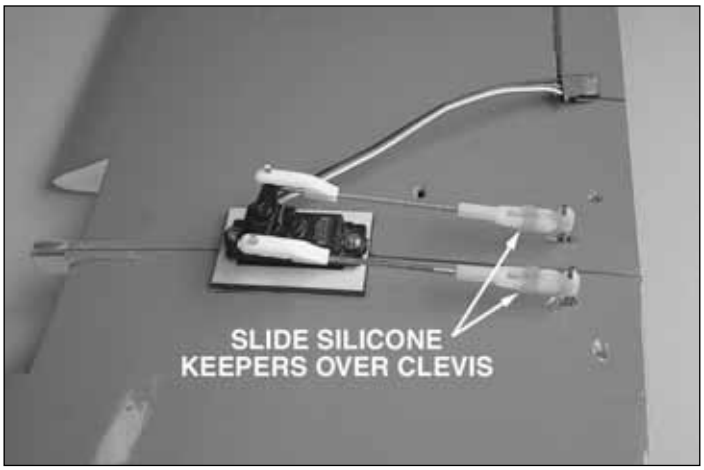
❑ 9. Install a two-arm servo arm with holes 7/16" [11mm] from the center of the arm.



❑ 10. Thread the two nylon torque rod horns onto the aileron torque rods. The bottom of the horn should be approximately 1/4" [6mm] from the wing.



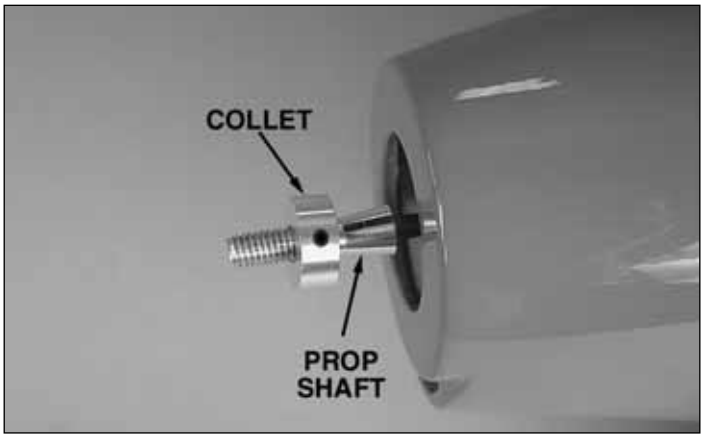
❑ 11. Thread a nylon clevis 14 turns onto the end of the two 2-56 x 4" [100mm] aileron pushrods. Attach the clevises to the torque rod horns. Slide a silicone clevis keeper on each clevis.



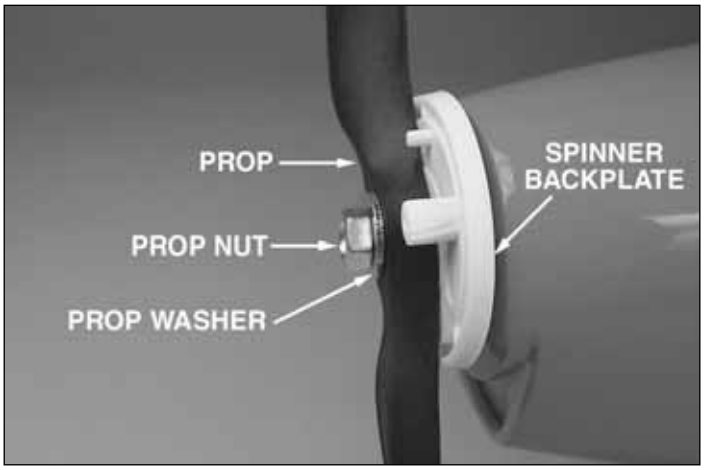
❑ 12. With the aileron servo and ailerons centered, mark the aileron pushrods where they cross the aileron servo arm. Make a 90° bend at the marks and cut the pushrods 3/8" [10mm] past the bend. Attach the pushrods to the aileron servo arm with nylon snap keepers. Cut off the excess threads on the aileron torque rods.

MOUNT THE COWL AND PROP

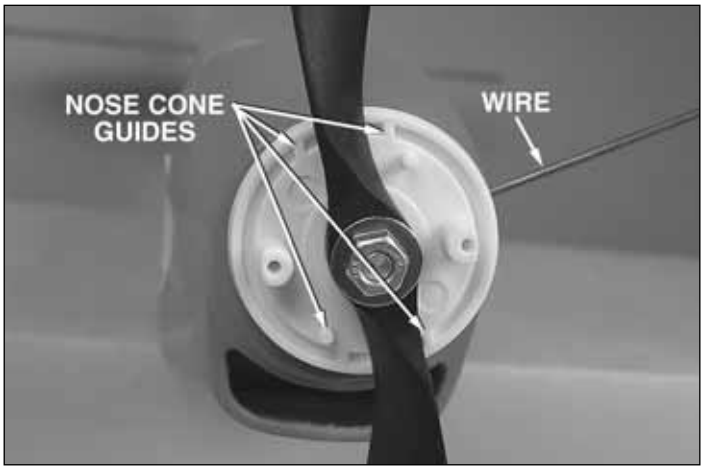
❑ 1. Slide the cowl over the front of the fuselage.



❑ 2. Slide the prop shaft and collet onto the output shaft of the gear drive. The collet has a tapered hole through it. The side with the larger hole goes on first.

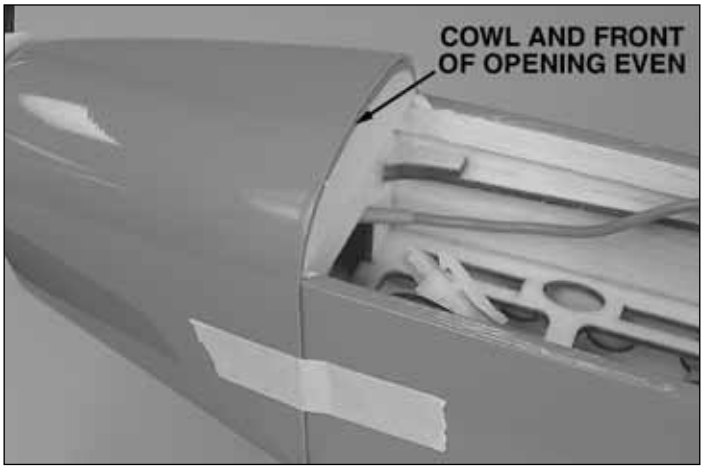


❑ 3. Install the spinner backplate, prop, prop washer and prop nut on the prop shaft. The back of the prop has two indentations in the hub.

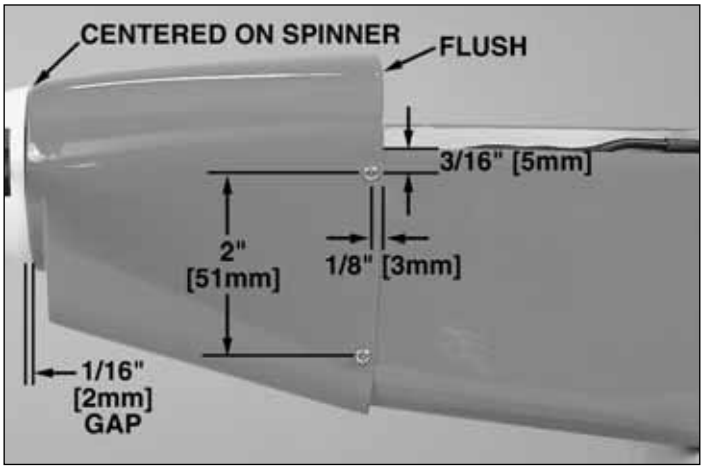


❑ 4. In the side of the collet is a small hole. Insert the provided wire in the hole and tighten the prop nut. Make sure that the prop is centered between the two spinner nose cone guides.

❑ 5. Attach the spinner cone to the spinner backplate with two 3x10mm self-tapping screws.



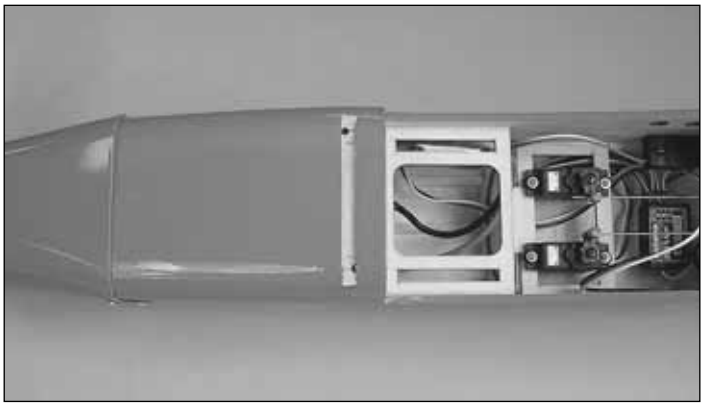
❑ 6. Tape the cowl to the fuselage so that the aft edge is flush with the front of the battery hatch. Make certain there is an approximately 1/16" [2mm] gap between the spinner and cowl and the cowl is centered on the spinner.



❑ 7. Drill four 1/16" [1.6mm] holes through both sides of the cowl and the fuselage where shown in the photo. Remove the cowl and enlarge the holes in the cowl only with a 3/32" [2.4mm] drill. Mount the cowl with four 3x10mm screws.

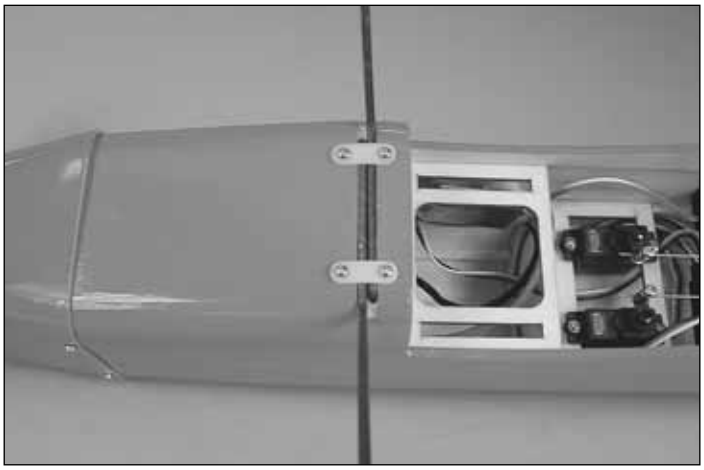
❑ 8. Remove the cowl once more. Add a few drops of thin CA to the screw holes in the fuselage to “harden” the threads. Allow the CA to fully harden, then mount the cowl.

MOUNT THE LANDING GEAR

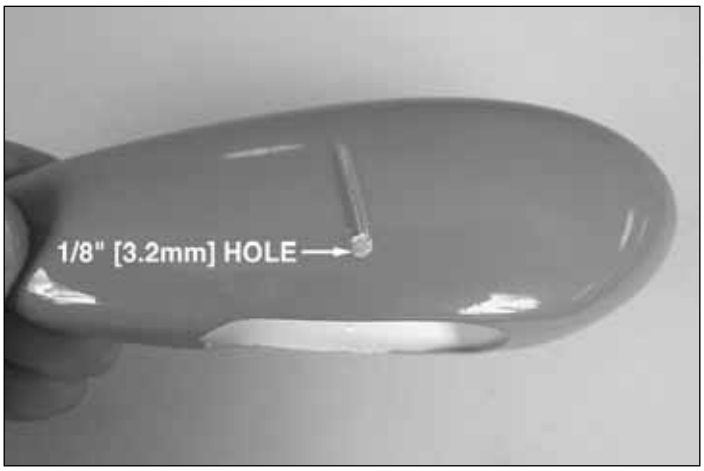


❑ 1. Trim the covering from the main landing gear slot in the bottom of the fuselage.

❑ 2. Insert the two main landing gear wires in the holes in the slot.



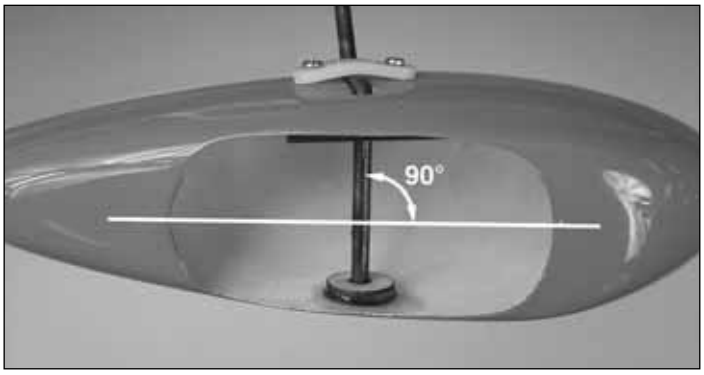
❑ 3. Position two nylon landing gear straps over the landing gear. Drill a 1/16" [1.6mm] hole through each mounting hole in the landing gear strap and into the fuselage. Attach the landing gear straps to the fuselage with four 3x10mm self-tapping screws. Harden the holes with thin CA.



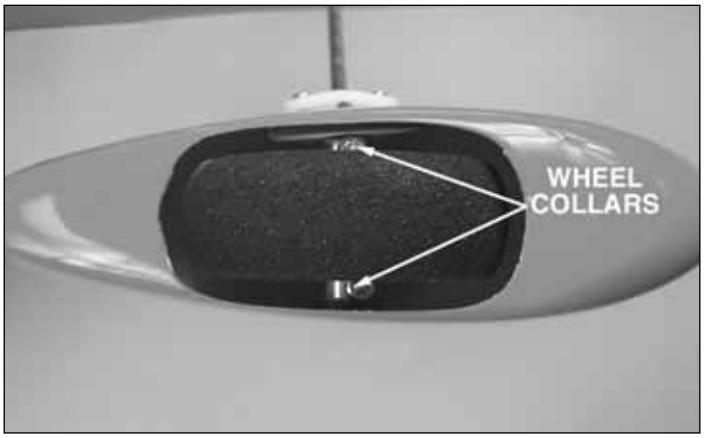
❑ ❑ 4. Starting with the left wheel pant, drill a 1/8" [3.2mm] hole in the wheel pant at the bottom of the mounting slot.

❏ ❏ 5. Use sandpaper to roughen the inside of the wheel pant in the area around the mounting slot. Clean the area with denatured alcohol. Trial fit the plywood wheel pant mounting plate inside the wheel pant. The top edge of the mounting plate may need to be rounded to match the curve of the wheel pant. Once satisfied with the fit, use epoxy to glue the mounting plate in the wheel pant.

❏ ❏ 6. Once the epoxy has cured, slide the wheel pant onto the main landing gear. Position a nylon landing gear strap over the main landing gear and drill 1/32" [.8mm] holes through the strap and the plywood mounting plate. Attach the landing gear strap to the wheel pant with two 2.5x8mm self-tapping screws. Harden the holes with thin CA.



❏ ❏ 7. Remove one of the screws from the landing gear strap and slide a round plywood wheel pant retainer onto the landing gear. Re-attach the landing gear strap. Align the axle of the landing gear so that it is perpendicular to the centerline of the wheel pant. Apply a thin coat of oil or petroleum jelly on the axle to prevent the epoxy from adhering. Roughen the inside of the wheel pant and glue the wheel pant retainer to the wheel pant with epoxy.



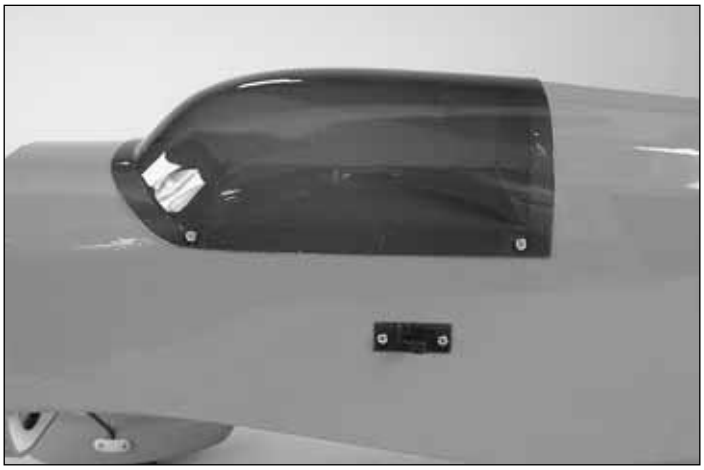
❏ ❏ 8. Install a 3x4mm machine screw in two 3mm wheel collars. Remove one of the screws from the landing gear strap and install on the landing gear a wheel collar, wheel and a second wheel collar. Insert the landing gear in the wheel pant retainer and reinstall the landing gear strap. Tighten the 3x4mm machine screws in the two wheel collars. Make sure that the wheel rotates freely.

❏ 9. Return to step 4 and install the right wheel pant.

FINISH THE MODEL

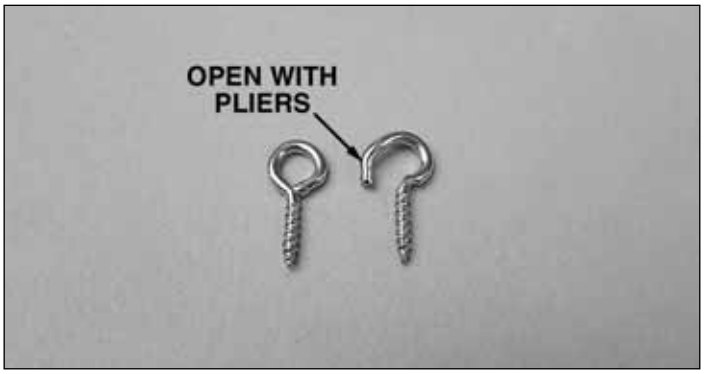
Mount the Canopy

❏ 1. Use a scissors, designed to cut plastic, to trim the canopy along the molded cut lines.

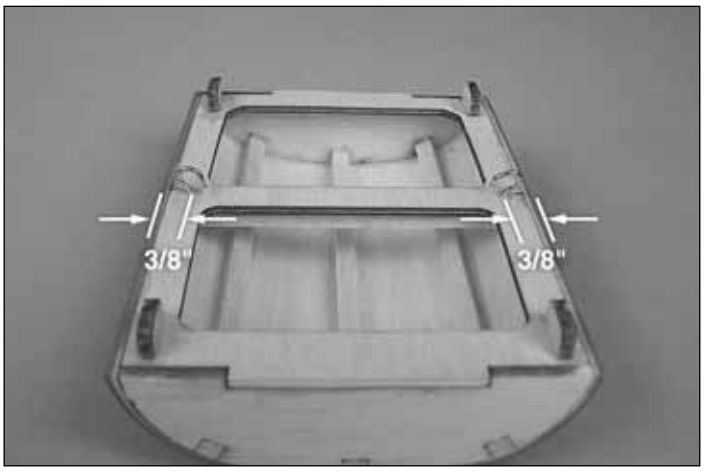


❏ 2. Center the canopy on the fuselage. The canopy can be glued on using canopy glue or it can be installed using four 2.5x8mm self-tapping screws. If you are gluing the canopy on, use masking tape to hold the canopy in position until the glue dries. If you are using screws, use masking tape to hold the canopy in position and drill four 1/32" [.8mm] holes through the canopy and into the fuselage. Enlarge the holes in the canopy to 1/16" [1.6mm]. Attach the canopy to the fuselage with four 2.5x8mm self-tapping screws. Remove the screws and harden the screw holes with thin CA. After the CA has hardened, reinstall the canopy and screws.

Mount the Battery Hatch



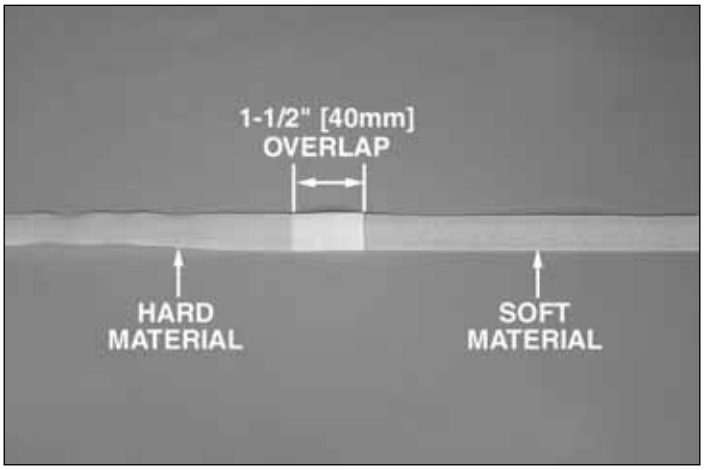
❑ 1. Use a needle-nose pliers to open the two eye hooks.



❑ 2. Using a T-pin, make two small pilot holes in the base of the battery hatch cover 3/8" [9.5mm] from the edge. Screw the two eye hooks into the holes leaving enough space to attach rubber bands to the eye hooks.

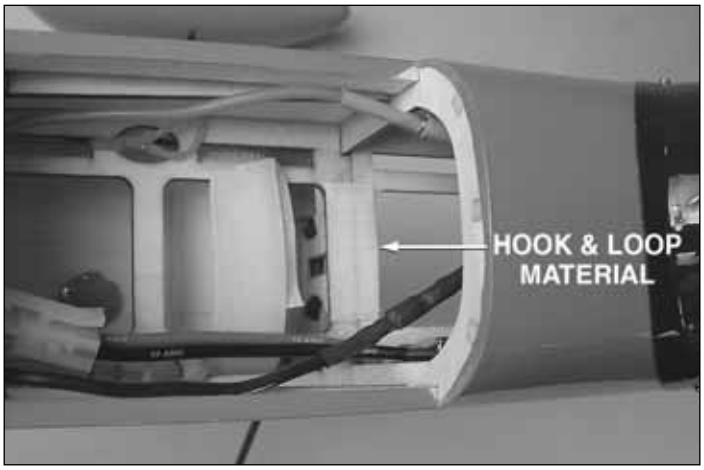
❑ 3. Tie two rubber bands, one on each side of the battery tray. Making a hook from a paper clip will help in pulling the rubber band through the tray.

❑ 4. Attach the rubber bands to the eye hooks on the base of the battery hatch cover and install the cover on the fuselage. Note that it fits only one way. The front is slightly narrower than the aft end.

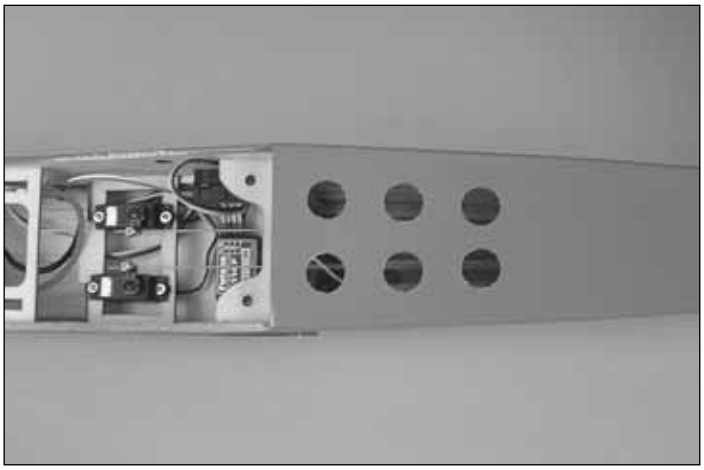


❑ 5. To make the battery strap, overlap the two pieces of hook-and-loop material as shown.

❑ 6. Insert the hook-and-loop strap through the slot in one side of the battery tray and bring it out the slot in the other side of the tray. Adjust it so that the overlap is under the tray. Install the battery in the battery compartment and secure it with the hook-and-loop strap. Trim off the excess hook-and-loop material.



❑ 7. To prevent the battery from sliding around, glue a piece of hook-and-loop material to the battery tray between the former. Glue a corresponding piece of hook-and-loop material to the battery.



❏ 8. To provide an exit for the cooling air, trim the covering from the six holes in the bottom of the fuselage, behind the wing saddle.

Apply the Decals

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

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

3. Position decal on the model where desired. 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.

5. When applying the starburst decals to the stabilizer, fin and wing, let the decal hang off the trailing edge slightly. Then, use a sharp hobby knife to trim it flush with the trailing edge. Also, on the wing we cut out each ray of the starburst and applied them separate. Remember to trim the decal along the hinge line so that the control surfaces are able to move, but be careful not to cut the hinges.

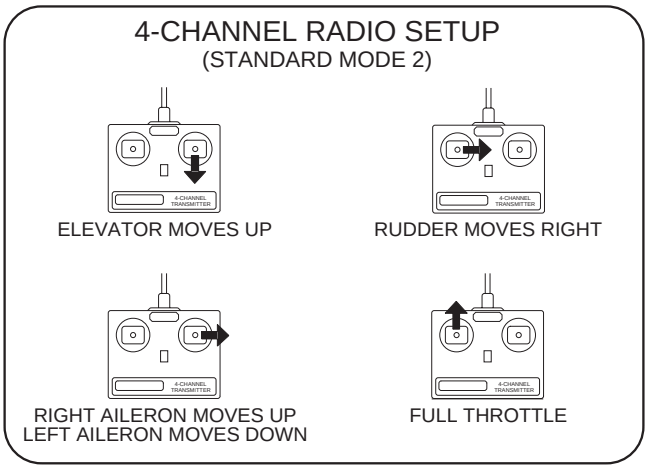
GET THE MODEL READY TO FLY

Check the Control Directions

Warning: *Once the motor battery is connected to the electronic speed control, stay clear of the propeller.*

❏ 1. Switch on the transmitter and connect the motor battery to the electronic speed control. Move the throttle stick down to the off position. Switch on the speed control 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 pushrods at the pushrod connectors to center the control surfaces.



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

❏ 4. To operate or "arm" the motor, the throttle stick must be in the down or off position when the speed control is switched on. Then, move the throttle stick to full power for 5 seconds, then back down to off. The motor will now run when the throttle stick is advanced. If it does not, the throttle reversing switch may be set incorrectly. Disconnect the motor battery, change the throttle reversing switch and retry the throttle arming procedure. If the prop is turning the wrong direction, no air blowing back towards the fuselage, disconnect and switch the red and black wires between motor and speed control.

Set the Control Throws

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

These are the recommended control surface throws:

	High Rate	Low Rate
ELEVATOR:	1/2" [13mm] up	3/8" [9mm] up
	1/2" [13mm] down	3/8" [9mm] down
RUDDER:	1" [25mm] right	3/4" [19mm] right
	1" [25mm] left	3/4" [19mm] left
AILERONS:	3/8" [9mm] up	1/4" [6mm] up
	3/8" [9mm] down	1/4" [6mm] down

IMPORTANT: The Super Sportster EP has been **extensively** flown and tested to arrive at the throws at which it flies best. Flying your model at these throws will provide you with the greatest chance for successful first flights. If, after you have become accustomed to the way the Super Sportster 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 difficult to control, so remember, "more is not always better."

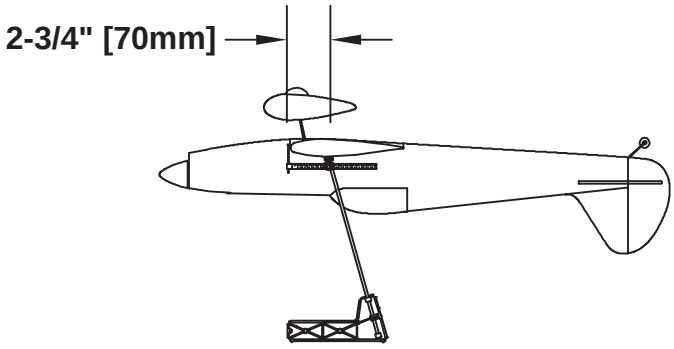
Balance the Model (C.G.)

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

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

❏ 1. Use a felt-tip pen or 1/8" [3mm]-wide tape to accurately mark the C.G. on the top of the wing on both sides of the fuselage. The C.G. is located 2-3/4" [70mm] back from the leading edge of the wing.

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



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

❏ 3. If the tail drops, the model is "tail heavy" and the motor battery and/or receiver must be shifted forward or weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and the motor battery and/or receiver must be shifted aft or weight must be added to the tail to balance. If possible, move the motor battery and receiver forward or aft

to minimize or eliminate any additional ballast required. If additional weight is required, use Great Planes [GPMQ4485] "stick on" lead. A good place to add stick-on nose weight is to the firewall (don't attach weight to the cowl-it is not intended to support weight). Begin by placing incrementally increasing amounts of weight on the bottom of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, tail weight may be added by cutting open the bottom of the fuse and gluing it permanently inside.

If moving the motor battery forward or aft will balance the plane without adding additional weight, mark the battery tray or the fuselage inside where the forward end of the battery should be placed. This will allow you to position the battery correctly before each flight.

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

Balance the Model Laterally

❑ 1. With the wing level, have an assistant help you lift the model by the prop shaft and the bottom of the fuse under the TE of the fin. Do this several times.

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

PREFLIGHT

Identify Your Model

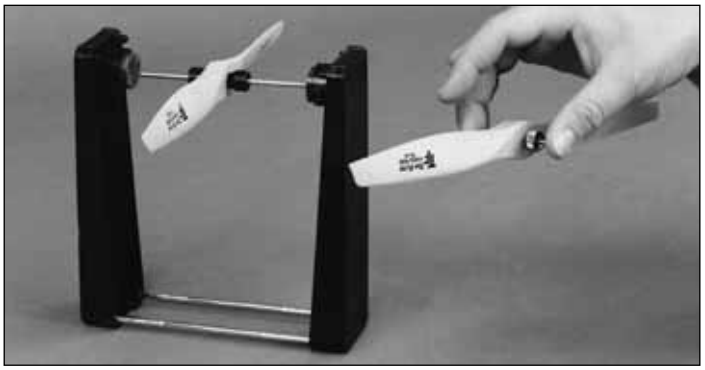
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification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

Charge the Batteries

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

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

Balance Propellers



Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only will motor mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver and battery.

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.

PROPER CARE OF YOUR MOTOR

1. The included motor will benefit from a short "break-in" by running the motor at full throttle without the propeller for at least 15 minutes. It is best to run the motor in 5 minute intervals, allowing the motor to cool between runs. This will seat the motor brushes on the commutator, insuring that the motor will provide full power for your first flight and extend the life of your motor. If you notice a decrease in motor power after several flights, it may be due to carbon build-up on the brushes or commutator. To remove this build-up, repeat the above break-in procedure.

2. The bronze bushings in the motors are self lubricating, but their life may be extended by applying a very small amount of light machine oil to the point where the motor shaft contacts the bushings after every hour or two of run time. **Note:** A drop of oil is far too much. You should apply the oil with a toothpick. **Never oil the inside of the motor.**

3. Using multiple battery packs to run the motor for successive flights may cause the motor to become excessively hot. We recommend at least a 10-minute motor cool-down period between flights.

PERFORMANCE TIPS

1. A new battery pack should be "cycled" for best results. You should peak charge the battery, then discharge it almost completely by actually running your motor with the propeller attached until the auto cut-off stops the motor. **Do this 2 or 3 times on the ground before actually flying.** Be sure you remove the battery from the airplane between each cycle and allow it and the motor to cool before recharging.

2. The standard Tamiya battery connectors supplied with your electronic speed control and motor battery are adequate. However, if you are looking for maximum performance, you may want to consider installing high-performance battery connectors such as DuraTrax® Powerpole™ connectors [DTXC2300].

3. Examine your propeller for irregularities caused by the injection molding process. Carefully remove the imperfections with fine sandpaper.

Ground Check

After you break-in the motor on the model, inspect the model closely to make sure all screws remained tight, the hinges are secure, the prop is secure and all pushrods and connectors are secure.

Range Check

Ground check the operational range of your radio before the first flight of the day. With the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet [30m] away from the model and still have control. Have an assistant stand by your model and, while you work the controls, tell you what the control surfaces are doing. Repeat this test **with the motor running** at various speeds with an assistant holding the model, using hand signals to show you what is happening. If the control surfaces do not respond correctly, **do not fly!** Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires on old servo connectors, poor solder joints in your battery pack or a defective cell, or a damaged receiver crystal from a previous crash.

MOTOR SAFETY PRECAUTIONS

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

Use safety glasses when running the motor.

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**.

End of AMA Safety Code excerpts

CHECK LIST

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

- ❑ 1. Check the C.G. according to the measurements provided in the manual.
- ❑ 2. Be certain the motor battery and receiver are securely mounted in the fuse.
- ❑ 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. Add a drop of oil to the axles so the wheels will turn freely.
- ❑ 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 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 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 Super Sportster EP is a great-flying model that flies smoothly and predictably. The Super Sportster EP does not, however, possess the self-recovery characteristics of a primary R/C trainer and should be flown only by experienced R/C pilots.

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

Takeoff

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

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

Flight

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

Take it easy with the Super Sportster EP 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 battery power remaining, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your battery power but use this first flight to become familiar with your model before landing.

Landing

To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward the runway (into the wind) keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the runway threshold, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and climb out to make another attempt. But, if your battery power is low, do not attempt to go around again. It is better to land long than risk stalling the plane by flying too slow because the motor battery is low on power. When you're ready to make your landing flare and the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down. Once the model is on the runway and has lost flying speed, hold up elevator to place the tail on the ground, regaining tail wheel control.

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

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

GOOD LUCK AND GREAT FLYING!

This model belongs to:

Name

Address

City, State Zip

Phone number

AMA number