Super Sportster™ 40

A.R.F.

Almost Ready to Fly

INSTRUCTION MANUAL

Wing Span - 55.5 in
Wing Area - 550 sq in
Weight - 5.5 lbs
Wing Loading - 23 oz/sq ft
Fuse Length - 46-3/4 in

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, 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.

GREAT PLANES® MODEL MANUFACTURING COMPANY

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 Super Sportster ARF is not a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its realistic performance, the Super Sportster ARF, if not assembled and operated correctly, 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 membership includes 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 Super Sportster ARF is an easy to fly sport scale airplane that closely resembles the full-size Super Sportster both in appearance and performance. The Super Sportster ARF is very stable and predictable, allowing even novice skill level pilots to enjoy it.

Because of its docile flight characteristics, this airplane could be used as a first airplane for learning to fly, but only with the assistance and close supervision of a competent instructor. This airplane lacks the self-recovery characteristics of a true "basic trainer" such as the Great Planes PT™ series, which is the model of choice for learning to fly.

PRECAUTIONS

1. 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.

2. Take time to align the components straight, true and strong.

3. Use an R/C radio system that is in first-class condition, and a correctly sized engine and components (fuel tank, wheels, etc.) throughout your assembly 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 and other connectors often and replace them if they show signs of wear or fatigue.

Note: We, as the manufacturer, provide you with a top quality kit and great instructions, but ultimately the quality of your finished model depends on how you assemble 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.

R**emember: Take your time and follow directions to end up with a well-built model that is straight and true. Please inspect all parts carefully before starting to build! If any parts are missing, broken or defective, or if you have any questions about assembling or flying this airplane, please call us at (217) 398-8970. If you are calling for replacement parts, please reference the part names and numbers on page 5 and have them ready when calling.**

We can also be reached by e-mail at:

productsupport@greatplanes.com

DECISIONS YOU MUST MAKE

Engine Selection

There are several engines that will work well in your Super Sportster ARF. We recommend a mild 2-stroke such as an **O.S.® .40FX** or **SuperTigre® G40.** If you prefer a 4-stroke, an **O.S. FS-52** is an ideal choice. Your choice of 2-stroke or 4-stroke will determine the location of the throttle servo and throttle pushrod exit on the firewall, so plan ahead.

PREPARATIONS

Required Accessories

Items in parentheses such as (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 w/Four Servos
- ❑ One 6" Servo Extensions For Aileron Servos
- ❑ Engine – See Engine Selection
- ❑ Spare Glow Plugs (O.S. #8 For Most 2-Stroke Engines–OSMG2691, or O.S. Type F for most 4-stroke engines–OSMG2692)
- ❑ Propeller (Top Flite Power Point® – Refer To Your Engine's Instructions For Proper Size)
- ❑ 3' Medium 3/32" Fuel Tubing (GPMQ4131)
- ❑ 1/4" Latex Foam Rubber Padding (HCAQ1000)

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)
- ❑ CA Accelerator (GPMR6035)
- ❑ 6-Minute Pro Epoxy (GPMR6045)
- ❑ 30-Minute Pro Epoxy (GPMR6047)
- ❑ #1 Hobby Knife Handle (HCAR0105)
- ❑ #11 Blades (HCAR0311, 100 Qty)
- ❑ Builders Triangle Set (HCAR0480)
- ❑ Masking Tape (TOPR8018)
- ❑ Electric Power Drill
- ❑ Slip-Joint & Needle Nose Pliers
- ❑ Monofilament String For Stabilizer Alignment
- ❑ Screwdrivers (Flat Blade & Phillips)
- ❑ Pro Thread Locking Compound (GPMR6060)
- ❑ Isopropyl Alcohol (70%)
- ❑ Drill Bits: 1/16" [1.5mm], 5/64" [2mm], 3/32" [2.5mm], 3/16" [5mm], 7/32" [5.5mm], 1/4" [6mm], #29
- ❑ Top Flite Trim Seal Tool™ (TOPR2200)
- ❑ Panel Line Pen (TOPQ2510)
- ❑ Sandpaper (80, 220 & 320-grit)
- ❑ Metal File
- ❑ Paper Towels
- ❑ T-Pins (HCAR5100)
- ❑ Razor Saw
- ❑ Petroleum Jelly

Optional Supplies & Tools

- ❑ CA Applicator Tips (HCAR3780)
- ❑ Epoxy Brushes (GPMR8060)
- ❑ Epoxy Mixing Sticks (GPMR8055, Qty. 50)
- ❑ CA Debonder (GPMR6039)
- ❑ Dremel® Moto-Tool™ or Similar w/Cut-Off Wheel
- ❑ Hot Sock™ (TOPR2175)
- ❑ Switch and Charge Jack (GPMM1000)
- ❑ Sealing Iron (TOPR2100)
- ❑ 6 oz. Segmented Lead Weight (GPMQ4485)
- ❑ C.G. Machine™ (GPMR2400)
- ❑ Power Point® Balancer (TOPQ5700)
- ❑ Fingertip Prop Balancer (GPMQ5000)
- ❑ Accu-Throw™ Deflection Gauge (GPMR2504)

General Inspection

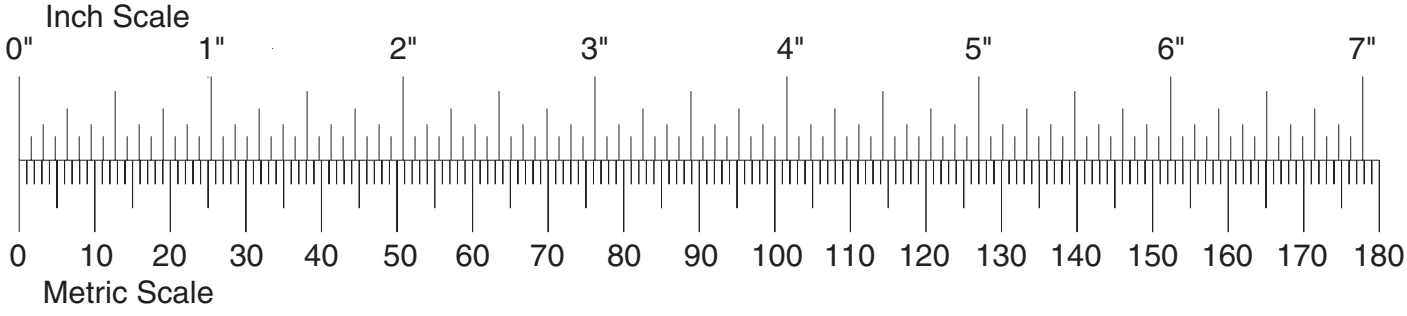
Eliminate any wrinkles you find in the covering by shrinking them away with a low temperature setting on a heat gun, then apply pressure to the area with a covering iron and a hot sock. This will securely bond the covering to the wood so the wrinkles will be less likely to reappear in the future.

Building Notes

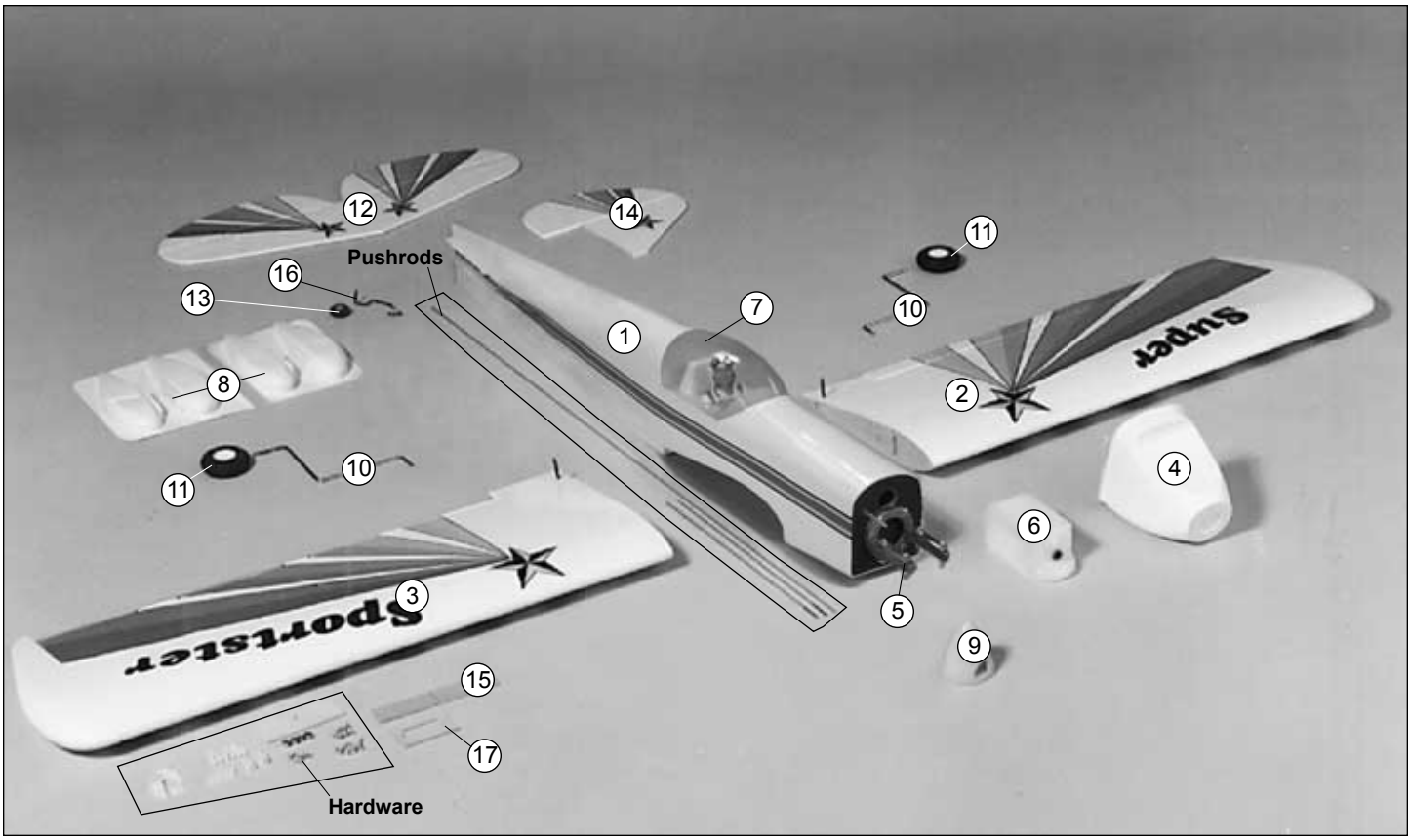
Several times during construction we refer to the “top” or “bottom” of the model or a part of the model. It is understood that the “top” or “bottom” of the model is as it would be when the airplane is right side up and will be referred to as the “top” even if the model is being worked on upside-down.

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	



Parts List



Key#	Description	Qty
1	Fuselage	1
2	Left Wing Panel w/Aileron	1
3	Right Wing Panel w/Aileron	1
4	Cowl	1
5	Adjustable Engine Mount	1
6	Fuel Tank	1
7	Canopy	1
8	Left & Right Wheel Pant Halves	1
9	Spinner	1
10	Landing Gear	2
11	Main Wheels	2
12	Stabilizer & Elevator Assembly	1
13	Tail Wheel	1
14	Rudder & Vertical Fin	1
15	Wing Joiner	1
16	Tail Wheel Wire	1
17	Aileron Servo Tray	1
*	Pushrods	3
*	Hardware Bag	1

* – Shown but not numbered

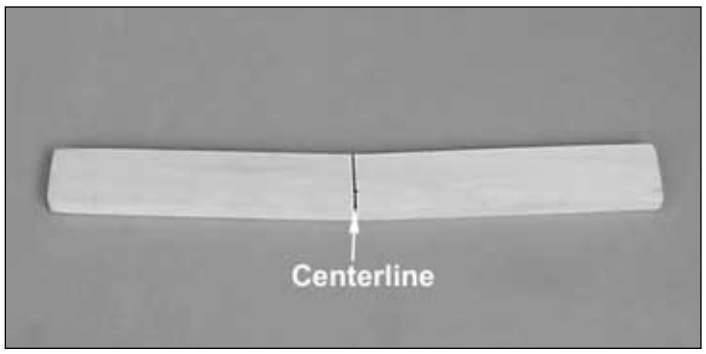
Replacement Parts

If needed, replacement parts for Super Sportster ARF are available through your hobby supplier.

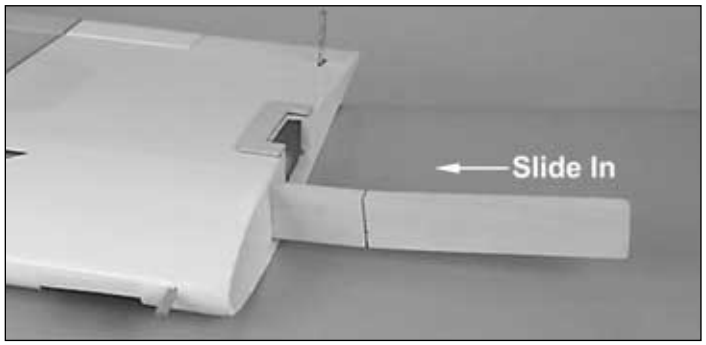
Wing Set GPMA2125
Fuselage Kit GPMA2126
Tail Fin Set GPMA2127
Canopy GPMA2124
Cowl GPMA2129
Landing Gear Set GPMA2128
Wheel Pants GPMA2123

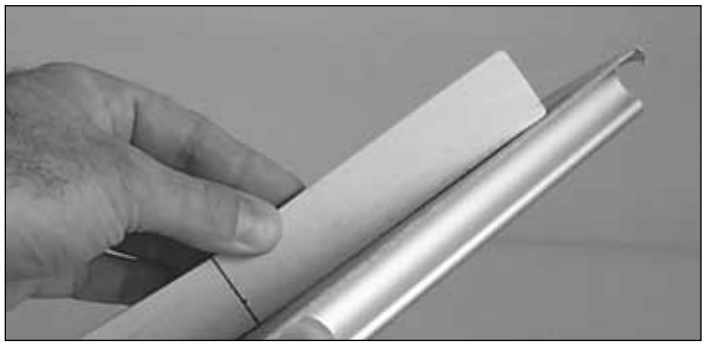
BEGIN CONSTRUCTION

Wing Assembly

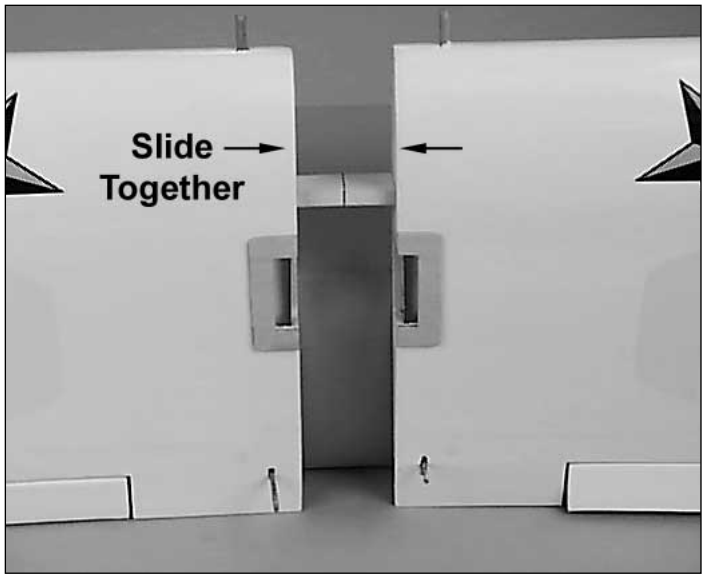


❏ 1. Draw a centerline on both sides of the wing joiner as shown.





❏ ❏ 2. Test fit the wing joiner in **both** wing panels by sliding the joiner into the joiner cavity in the wing. The joiner must slide in with little resistance up to the centerline drawn on the joiner. Lightly sand the joiner edges, sides or ends if the joiner will not fit in the cavity. **Caution: A snug fit of the joiner in the joiner cavity is desired. Do not sand the joiner excessively.**



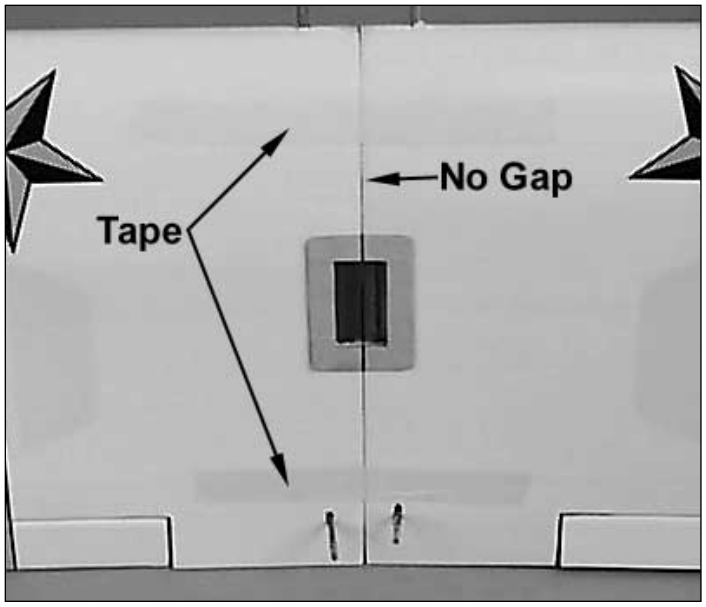
❏ 3. Test fit the wing panels together with the joiner in position. They must fit flush against each other without any gaps. If the panels will not fit together tightly, lightly sand the joiner edges, sides or ends. **Caution: The wing panels should fit together without any gaps.**

N**ote:** When performing the following steps, be sure to use a sufficient amount of epoxy to form a complete and solid bond between the wing joiner and the wing halves. **This is the most important glue joint in the entire airplane.**

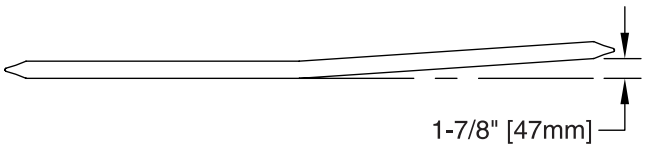
Please read the following three steps before mixing any epoxy. You must complete these steps within 20 minutes from the time you mix the epoxy.

❏ 4. Mix 1/2 oz. [14ml] of 30-minute epoxy. Use a mixing stick or epoxy brush to apply epoxy to all four sides of the joiner cavity. Coat all surfaces of **one half** of the wing joiner with 30-minute epoxy and place it in its corresponding joiner cavity. Insert the joiner into the cavity up to the centerline marked on the wing joiner. Be sure you are installing the joiner to obtain the correct direction for the dihedral. Quickly proceed to the next step.

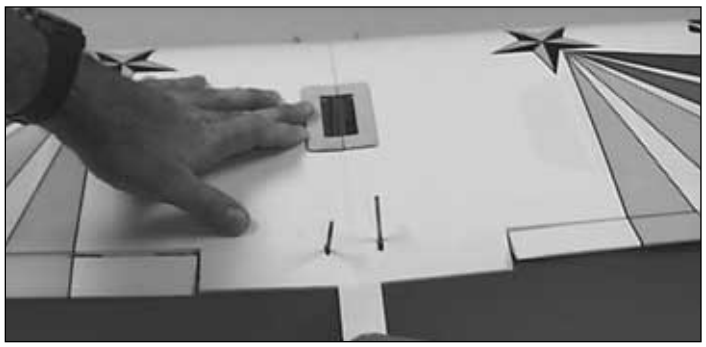
❏ 5. Apply epoxy inside the joiner cavity of the remaining wing panel. Next, coat the wing root ribs on **both** panels. Coat the other half of the joiner with 30-minute epoxy and join the other wing. Quickly proceed to the next step.



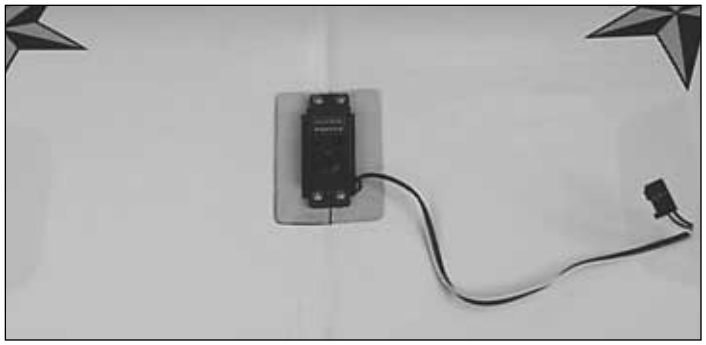
❑ 6. Assemble the two wing halves with the tightest seam possible. **No gaps** should be showing between the two halves. Use a paper towel dampened with alcohol to wipe away any more epoxy that oozes out of the wing Use several strips of masking tape on both sides of the wing to hold them securely together. Let the epoxy fully cure before continuing.

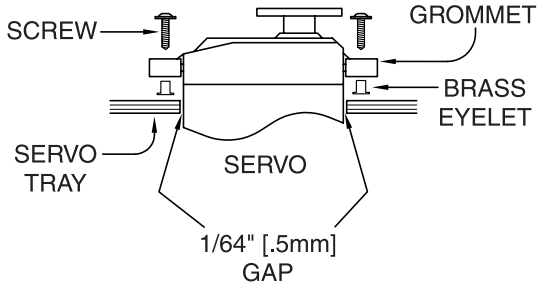


❑ **Note:** The exact dihedral angle (the angle at which the wings are "bent up") is not considered critical. This angle is established by the angle of the root ribs and the dihedral brace. As long as the wing halves fit together tightly, the dihedral angle will be correct. If you wish to check the dihedral angle, place one wing panel flat on your work surface. The opposite wing panel should measure approximately 1-7/8" [77mm] between the work surface and the bottom of the wing.



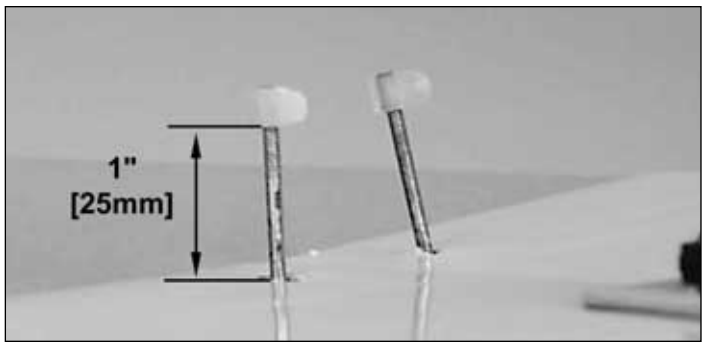
❑ 7. Starting at the aft edge of the aileron servo tray, apply the 1/2" [13mm] white wing center-section tape completely around the wing over the joint. A small amount of pressure should be applied to make a smooth seam.



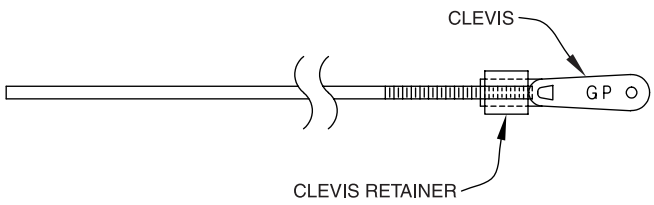


❑ 8. Prepare the aileron servo with grommets and bushings as shown in the sketch. Test fit the aileron servo into the servo tray. Note that the notch in the tray corresponds to the location of the servo lead wire. Enlarge the opening in the servo tray, if needed, using a sharp hobby knife or fine toothed file if needed. There should be a gap of about 1/64" [.5mm] between the servo and the servo tray when installed properly.

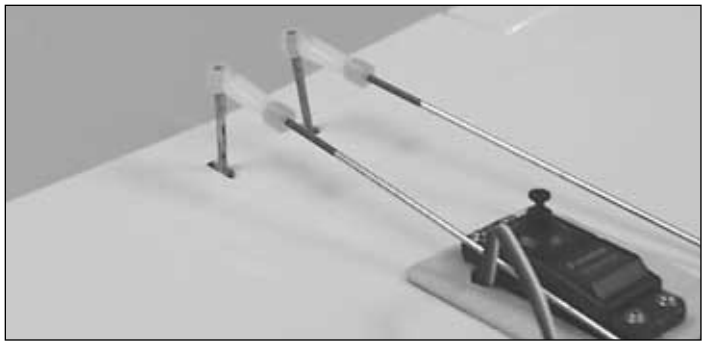
❑ 9. Drill 1/16" [1.5mm] pilot holes for the servo mounting screws. Mount the servos with the screws provided with your radio system. With the servo centered, trim and install the servo horn as shown in the photo.



❑ 10. Thread the aileron control horns onto the torque rods until they are positioned 1" [25mm] above the wing.



❑ 11. Locate two plastic clevises, two 6" [152mm] aileron pushrods and clevis retainer. Thread the clevises 14-turns onto the rods. Slide the clevis retainer down the rod and partially over the clevis.

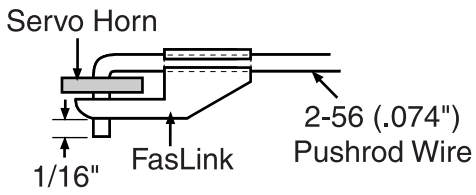


❑ 12. Attach the clevises to the aileron control horns. Press the forks of the clevises together until the pin snaps into the opposite fork. Slide the clevis retainer into position over the clevis forks.

❑ ❑ 13. Hold an aileron in its neutral position, and mark the pushrod wire where it crosses the outer hole on the servo arm using a felt-tip pen.

❑ ❑ 14. Cut off the aileron pushrod approximately 3/8" [10mm] past the mark.

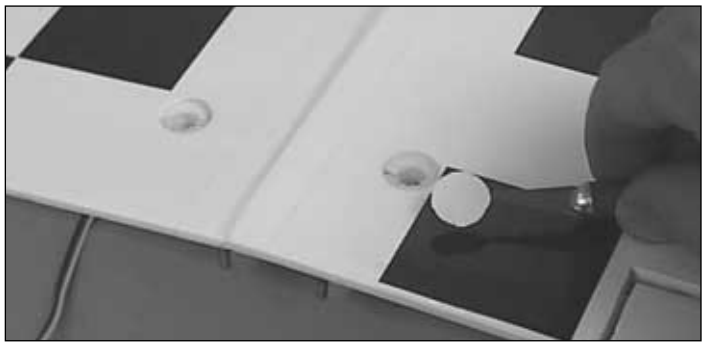
❑ ❑ 15. Make a 90º “L” bend at the mark that crosses the servo arm.



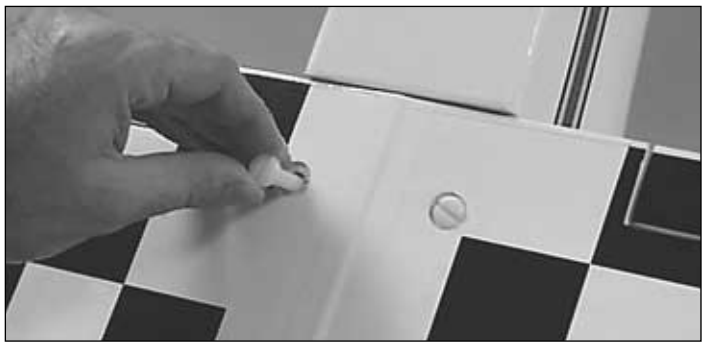
❑ ❑ 16. Attach the rod to the servo arm. Use a plastic FasLink to secure the wire to the servo arm. You may need to enlarge the holes in the servo arms slightly to allow the wire to pass through the arm. (The Hobbico Quick Drill™ set HCAR0699 works well for this purpose.)

❑ 17. Repeat steps 13 to 16 for the opposite aileron.

Wing Installation



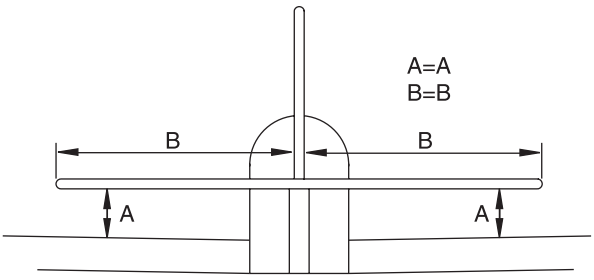
❑ 1. Locate the holes for the wing bolts and remove the covering from the top and bottom of the wing using a sharp hobby knife.



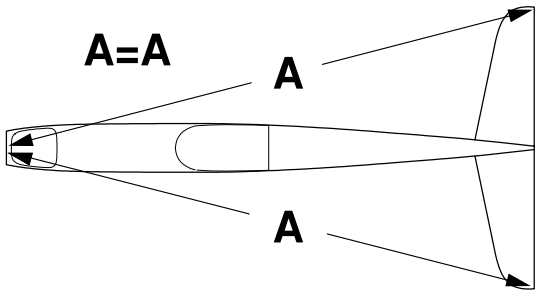
❑ 2. Attach the wing to the fuselage using two 1/4-20 x 2" nylon wing bolts.

Tail Installation

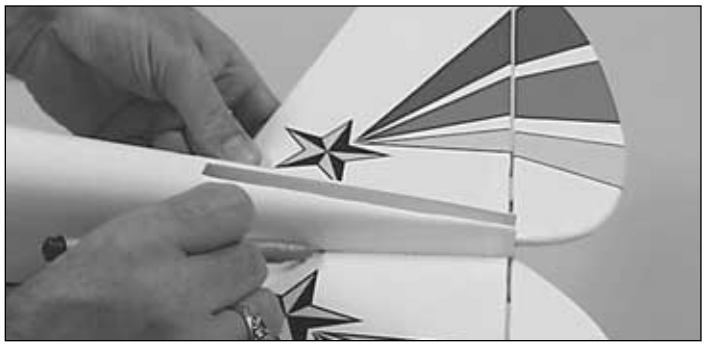
❑ 1. Locate the slot for the horizontal stabilizer and vertical fin under the covering on the tail section of the fuselage by gently pressing the covering with your finger. The elevator slot is located on both sides of the fuselage. Using a sharp hobby knife, carefully remove the covering, exposing the slots. **Note: Do not cut into the wood around the slot.**



❑ 2. Insert the stabilizer into the horizontal stabilizer slot so it is centered in the fuselage (A). Place the wing onto the fuselage and secure it with the 1/4-20 x 2" nylon bolts. View the plane from behind at a distance of about 8 feet [2.4m] to check the alignment of the stabilizer to the wing (B). If the stabilizer is not parallel to the wing, remove the stabilizer and sand the stabilizer base **slightly** on the **high side.** Replace the stabilizer and check the alignment. Continue this process until the wing and stabilizer are parallel.



❑ 3. Attach a piece of string with a T-pin to the center of the fuselage as shown. Hold the string to one corner of the horizontal stabilizer. Mark the position on the line, and then swing the line over to the opposite tip on the stabilizer. If the mark does not line up, adjust the positioning of the stabilizer and repeat the “mark and swing” procedure until the stabilizer is in proper alignment.



❑ 4. With the stabilizer properly aligned, use a felt-tip pen to trace around the tail of the airplane on the top and bottom of the horizontal stabilizer.

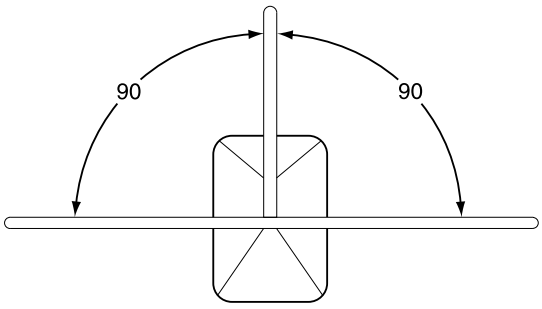
❑ 5. Remove the stabilizer and draw two additional lines on the top and two on the bottom, 1/16" [1.5mm] **inside** the lines drawn in the previous step. Next, carefully cut through the covering using a NEW #11 knife blade or soldering iron at the inside lines and remove the covering from the center on the top and bottom. **If you are using a hobby knife, do not cut the wood under the covering! This will seriously weaken the stabilizer and could easily cause the stabilizer to break in flight.** If the stab breaks, the plane has a very good chance of crashing. It is best to be **very** careful when making this cut not to cut into the wood. The covering must be removed from the center of the stab, or the bond between the fuselage and stabilizer will be insufficient and the stab may simply come off in flight.

❑ 6. Mix 1/4 oz. [7ml] of 30-minute epoxy. Using a mixing stick, apply a good layer of epoxy in the stabilizer opening in the fuselage. Place a thin layer of epoxy on the stabilizer in the area where the covering was removed. Insert the stabilizer into the slot from the rear and check the alignment. Wipe off any epoxy that squeezes out using a paper towel and rubbing alcohol. Recheck the alignment several times while the epoxy cures. Allow the epoxy to fully cure before continuing to the next step.

❑ 7. Test fit the fin into the slot in the top of the fuselage. Slide the fin forward until the leading edge of the rudder is against the fuselage. Align the hinge on the bottom of the rudder with the slot in the aft edge of the fuselage. Check the alignment of the fin with the centerline of the fuselage. A straightedge against one side of the fin can be used to check alignment. Make adjustments to the slot if necessary.

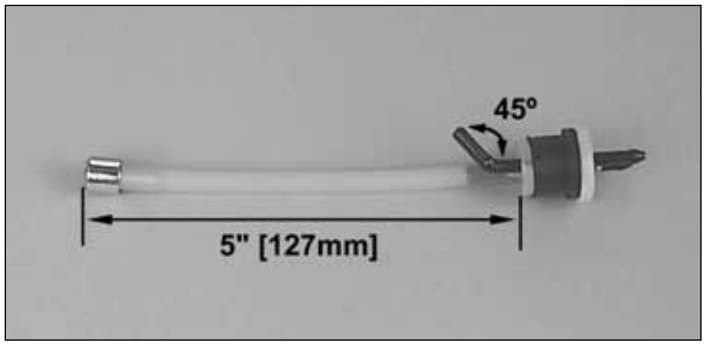
❑ 8. With the fin properly aligned, use a felt-tip pen to trace a line along both sides of the bottom of the fin as was done with the stabilizer. Remove the fin and draw an additional line 1/16" [1.5mm] **below** the lines drawn in the previous step. Next, carefully cut through the covering using a new #11 knife blade or soldering iron at the inside lines and remove the covering from the center on the top and bottom.

If you are using a hobby knife, do not cut the wood under the covering! This will seriously weaken the stabilizer and could easily cause the stabilizer to break in flight. If the fin breaks, the plane has a very good chance of crashing. It is best to be **very careful** when making this cut not to cut into the wood. The covering must be removed from the bottom of the fin, or the bond between the fuselage and fin will be insufficient and the fin may simply come off in flight.



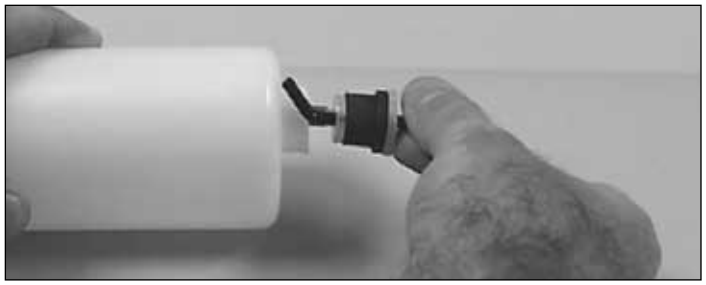
❑ 9. Remove the fin and mix up 1/4 oz. [7ml] of 30-minute epoxy. Using a mixing stick, apply epoxy to the fuselage. Apply epoxy to the bottom of the fin where the balsa wood is exposed. Place the fin into the fuselage. Check to make sure the fin is perpendicular to the stabilizer when viewed from the rear of the airplane. (Use the sketch as a guide for checking the alignment.) Check this alignment with the fuselage (previous step) and stabilizer several times as the epoxy cures. You may find it beneficial to hold the fin in place using masking tape and T-pins until the epoxy has cured.

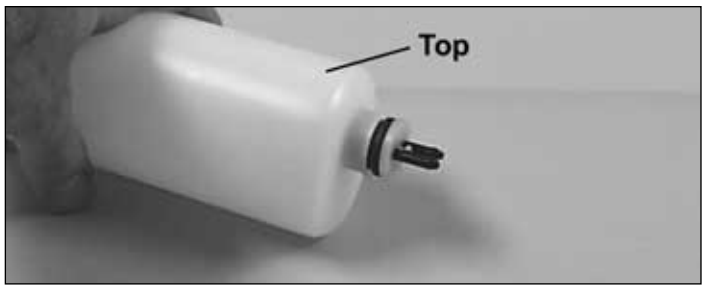
Fuel Tank Installation



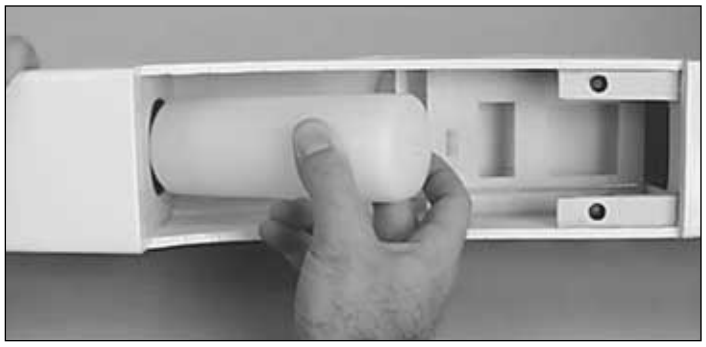
❑ 1. Bend one of the tubes (referred to as the vent tube) upwards at a 45º angle. Heating the tube will make the bending process much easier. Be **very** careful not to melt the tube during the bending process. ***Note:*** *When the stopper assembly is installed into the fuel tank, the vent tube should be 1/16" [1.5mm] from the top of the tank.*

❑ 2. Locate the metal fuel pick-up weight (often referred to as the "clunk") and cut a 4" [102mm] piece of silicone fuel tubing (not included). Install the clunk onto the tubing. Slide the other end of the tubing onto the unbent tube. Measure the distance from the end of the clunk to the back of the stopper. Position the fuel tube so the distance measures 5" [127mm].

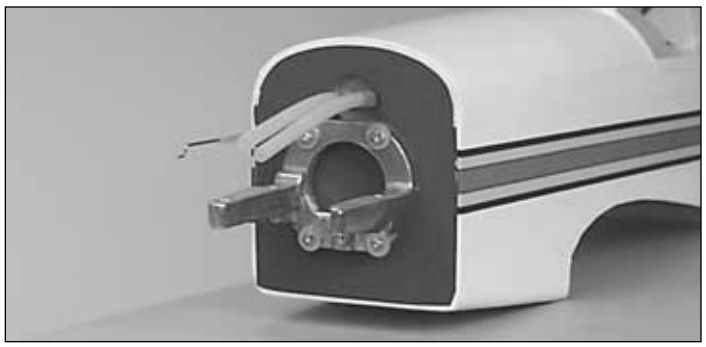




❑ 3. The stopper assembly can now be inserted into the tank. The vent tube should be adjusted so the vent tube is pointed up towards the top of the tank. The rubber stopper must seat against the lip of the tank. Make sure the tubes are positioned side-to-side. Check to make sure the vent tube is 1/16" [1.5mm] from the top of the tank. Also, check to make sure the clunk can move freely inside the tank, without catching on the end of the tank. (It should clunk around in the tank!) Once everything checks out, tighten the screw to secure the stopper into the tank. **Don't overtighten the screw and strip out the rear compression disk!** It would be a good idea to mark which tube is the vent tube at this time.

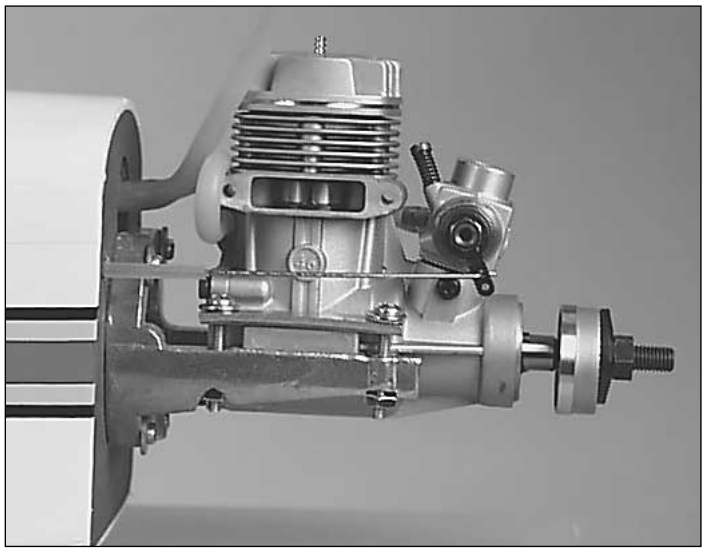


❑ 4. Insert the fuel tank into the fuselage. The vent tube will face towards the top of the fuselage.



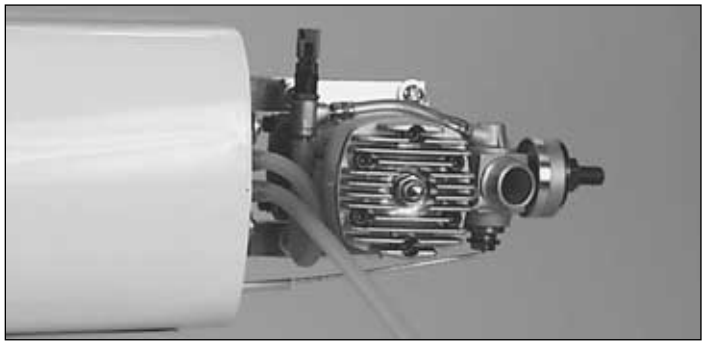
❑ 5. Cut two pieces of fuel tubing (not included) 5" [127mm] in length. Attach these to the tubes on the fuel tank. You may need to hold the tank in position with one hand while installing the tubes with the other.

Engine Installation



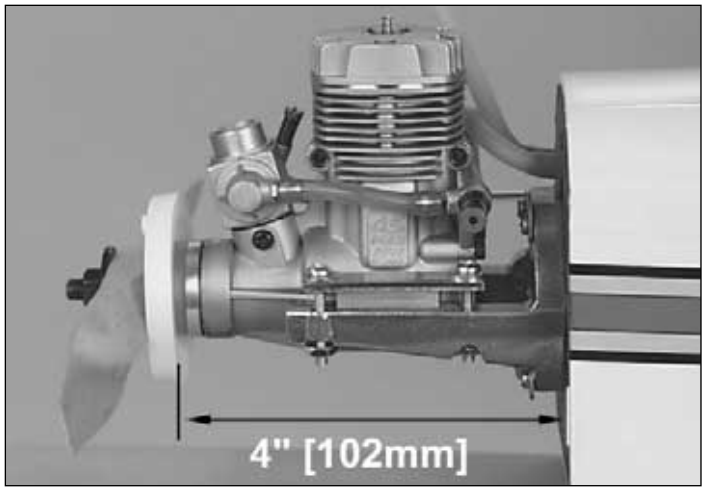
❑ 1. Locate the 19-5/8" [498mm] throttle pushrod wire. Attach the “Z-bend” into the inside hole of the carburetor control arm. Make sure the “Z-bend” does not interfere with any parts of the engine.

The engine in your aircraft is mounted slightly different from those in most R/C aircraft. This is done to allow the use of many different types of engines. It also allows a “no-drill” approach to ease the installation. Read through the procedure and understand all the steps before actually performing them.



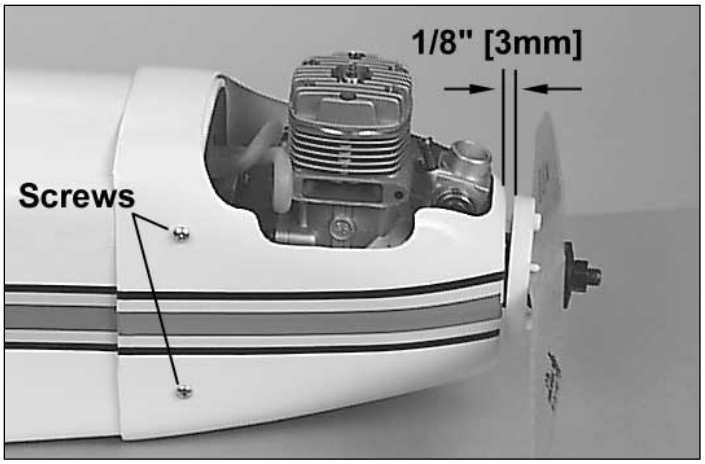
❑ 2. The engine is “sandwiched” between the engine mount and the engine mount plates. Slide the throttle pushrod into the pushrod housing and rest the engine on the mount. Slide a #6 washer onto a 6-32 x 1" machine screw. Repeat this process for all four screws and washers. Pass the screws through the engine mount plates. The screws then go through the mount, passing in front of and behind the engine mounting flange. The plates will be resting on the top of the engine’s mounting flanges. The 6-32 nuts are then placed into the recesses on the bottom of the engine mount. Start the screws, but do not tighten them at this time. We still need to align the engine!

❑ 3. Install the spinner backplate, propeller, propeller washer and the propeller nut onto the engine. Turn the propeller counterclockwise until it is against the smallest pins on the backplate. Keep the propeller horizontal when the engine is against its compression (the point at which you feel resistance when you turn the crankshaft counterclockwise). This is a good habit to get into when installing propellers onto model airplanes. If the engine quits during flight, the propeller will stop horizontally, therefore reducing the chance of propeller breakage if you are forced to land on rough terrain. Use an adjustable wrench (not a pliers) to securely tighten the propeller nut.



❑ 4. Measure the distance from the back of the spinner backplate to the firewall. It should be 4-1/8" [105mm] on both sides. Adjust the engine if needed and tighten the screws evenly to secure the engine to the mount. Use thread-lock on the nuts to prevent loosening.

❑ 5. Attach the fuel line (with the clunk) to the carburetor.



❏ 6. Remove the propeller, spinner backplate and muffler from the engine. Slide the cowling into position. Temporarily attach the propeller and spinner to the engine. Position the cowling to have 1/8" [3mm] clearance between the back of the spinner backplate and the front of the cowling. Drill 1/16" [1.5mm] pilot holes for the cowl screws through the cowl and into the fuselage at the marks on the cowl. Remove the cowling, and drill the locations for the cowl mounting screws into the cowl using a 1/8" [3mm] drill bit. Wick thin CA into the 1/16" [1.5mm] holes on the fuselage to harden the wood, which will prevent the screws from stripping out. Attach the cowling to the fuselage using four #4 x 3/8" sheet metal screws and four #4 washers.

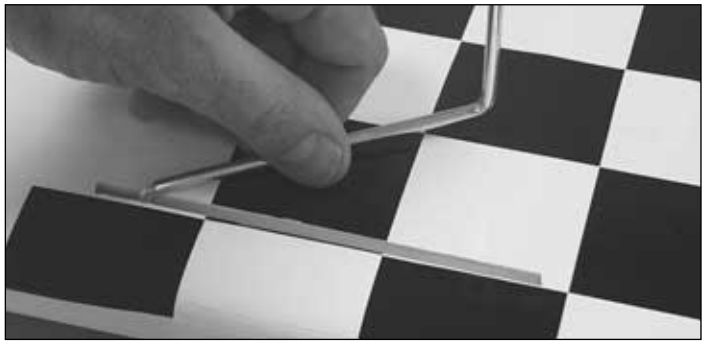
❏ 7. Apply the decals onto the cowl as shown.

❏ 8. Attach the muffler to the engine. Carefully trim the cowl, removing small amounts of material as you progress to allow for a 1/4" [6mm] clearance gap between the cowl and the muffler. Attach the vent line to the muffler. Trim the cowl so the vent line will not contact the cowl. If the vent line does contact the cowl, it may break, which may cause the engine to quit running during flight. Apply the supplied decals onto the left and right sides of the cowl.

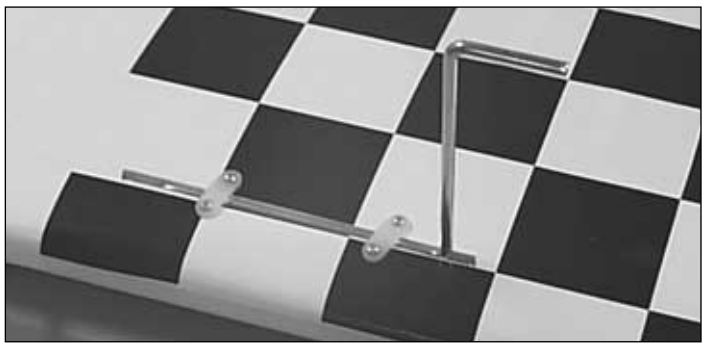
❏ 9. Install the spinner backplate, propeller, propeller washer and the propeller nut onto the engine. Trim the spinner cone propeller slots if necessary so there is at least a 1/16" [1.5mm] gap between the slots and the propeller. Once satisfied with the fit, attach the cone with the screws provided. Be careful not to overtighten these screws. They are threaded into plastic, which can strip out easily if they are overtightened.

Landing Gear Installation

❏ ❏ 1. On the bottom of the wing, there are two channels for the main landing gear. Locate these channels by running your finger over the covering on the bottom of the wing. Use a hobby knife to remove the covering from the channels.



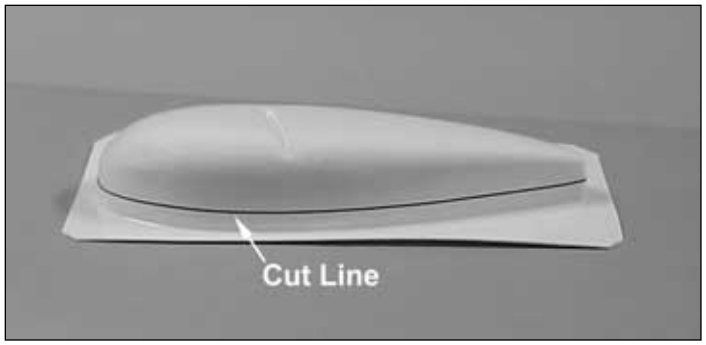
❏ ❏ 2. Test fit the main landing gear wires into the holes. If they will not go in easily, drill out the two holes using a 5/32" [4mm] drill bit. Next, use a drill bit or hobby knife to bevel the inside corners of the holes so the bend in the wire will seat fully into the holes and the wire will be flush with the bottom of the wing.

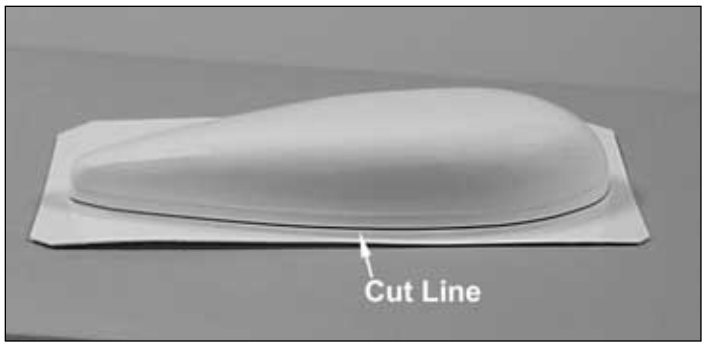


❏ ❏ 3. Position the main landing gear in the hole inside the channel. Center the two nylon landing gear straps over the struts so they are approximately 3/4" [19mm] from the ends of the channel. Mark the holes using a felt-tip marker.

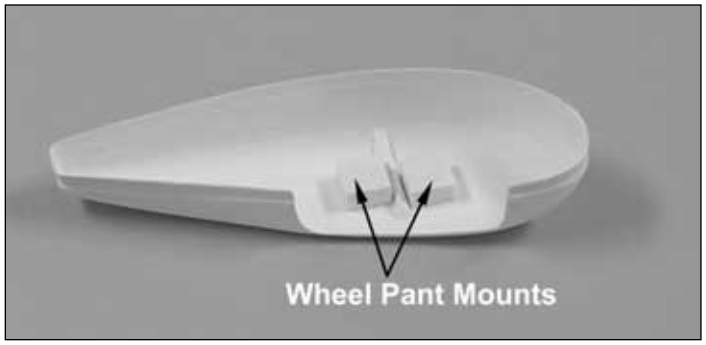
❏ ❏ 4. Drill eight holes for the landing gear straps using a 1/16" [1.5mm] drill bit.

❏ ❏ 5. Attach the nylon landing gear straps to the fuselage using eight #2 x 1/2" sheet metal screws.





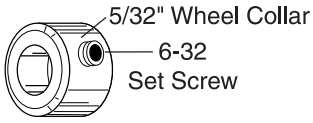
❏ ❏ 6. Trim one matching set of wheel pant halves along the molded in cut lines. Notice the inner and outer halves interlock with each other. You can use a hobby knife to **carefully** score along the cut lines and flex the plastic until the excess breaks free, or use small scissors to cut along the lines. Kyosho curved plastic cutting scissors (KYOR1010) work extremely well for this and make the job a cinch. For now, don't worry about accurately cutting out the opening in each wheel pant half – just cut an approximate opening for the wheels.



❏ ❏ 7. Make two wheel pant mounts by cutting pieces of scrap wood to a length of 1/2" [13mm]. Use medium CA to glue two wheel pant mounts to the inside of each wheel pant as shown.

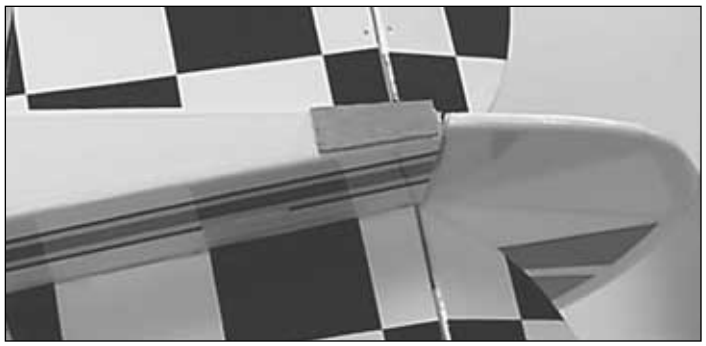
❏ ❏ 8. Join two wheel pant halves and carefully spot glue them together in just a few places with thin CA. Start by spot gluing the top, then the front and rear where the two halves just butt together. After the halves are joined, securely glue them together along all the seams with medium CA. **Note:** Do not use CA accelerator on the ABS plastic as it may develop cracks and/or keep the paint from adhering.

❏ ❏ 9. Test fit the wheel pant halves and make adjustments where necessary for the best possible fit.

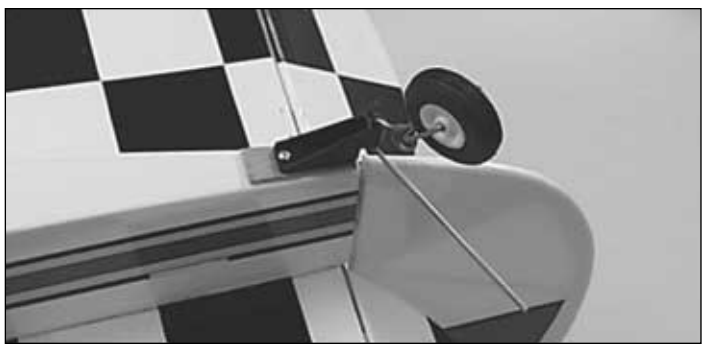


❏ ❏ 10. File a flat spot along the bottom of the axle. This provides a better area for the set screw to bite and helps keep the wheel in place. Install the wheel pants by placing these items onto the landing gear wire in this order: Wheel pant, 5/32" wheel collar, wheel, 5/32" wheel collar. Thread a 6-32 set screw into each of the wheel collars. Check to make sure the wheels rotate without binding on the wheel pant. If not, loosen the set screws on the wheel collars and adjust the position of the wheel.

Tail Gear Installation

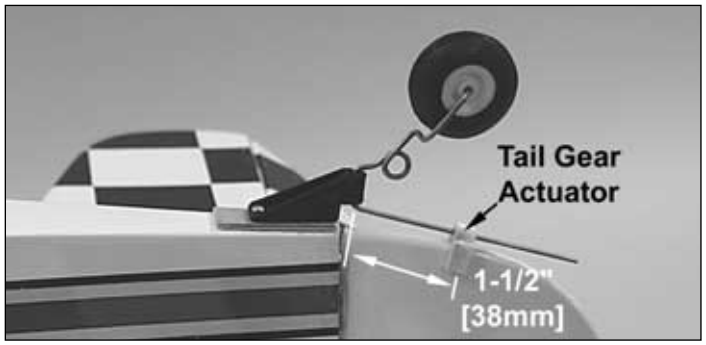


❏ 1. Locate the plywood tail gear plate. Position the plate onto the rear of the fuselage. Trace around the plate using a felt-tip marker. Remove the plate, and carefully remove the covering from the fuselage in the position of the plate using a hobby knife. Glue the plate onto the fuselage using 6-minute epoxy. Allow the epoxy to fully cure before continuing to the next step.



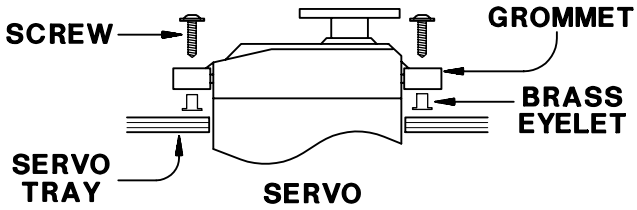
❏ 2. Position the tail gear assembly onto the plywood plate and mark the locations for the mounting screws. Use a 1/16" [1.5mm] drill to drill the locations for the screws. Attach the

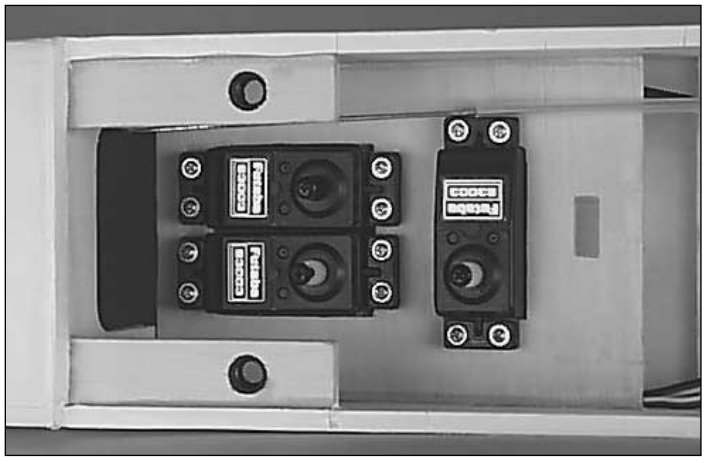
tail gear assembly to the plate using two #2 x 1/2" sheet metal screws.



❑ 3. Slide the tail gear actuator onto the tail gear wire. Mark the location of the actuator on the rudder and remove the covering inside those marks. Use 6-minute epoxy to attach the actuator to the rudder.

Radio Installation





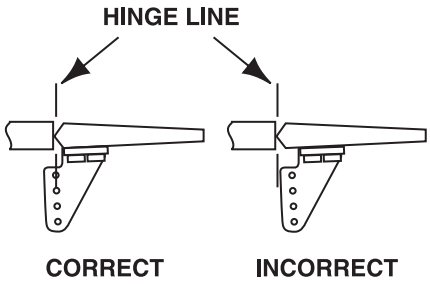
❑ 1. Mount the rudder, elevator and throttle servos in the fuselage. Use the following sequence for mounting the servos into the servo tray:

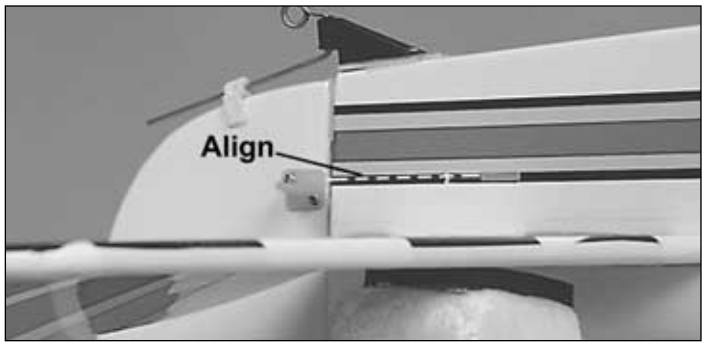
❑ A. Install rubber grommets and brass eyelets in the servos using the provided sketch.

❑ B. Test fit the servos in the tray. Enlarge the openings if needed to create a 1/32" [.8mm] gap around the servo.

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

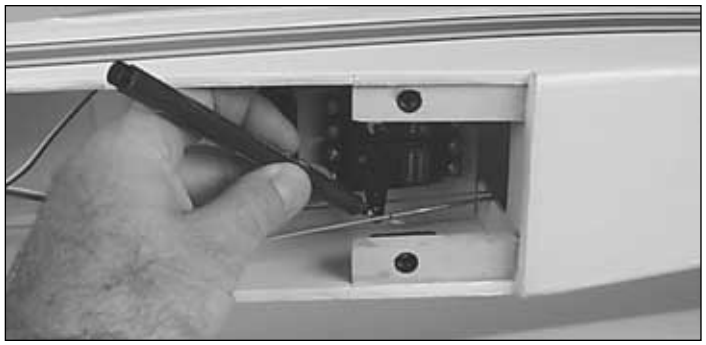
❑ D. Mount the servos with the screws provided with your radio system.



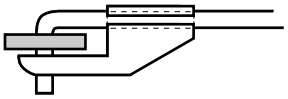


❑ 2. Install the rudder nylon control horn in line with the pushrod exit. Hold the horn in position and mark the location of the mounting holes. Drill 3/32" [2.5mm] mounting holes through the marks. Wick two to three drops of thin CA into the holes to harden the underlying balsa, and then re-drill the holes. Attach the horn using two 2-56 x 5/8" machine screws and a nylon nut plate. **Do not overtighten the screws, crushing the underlying balsa.**

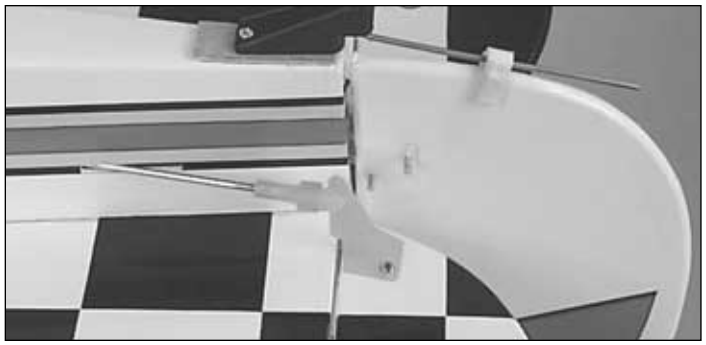
❑ 3. Install the rudder pushrod. Place a clevis retainer onto a clevis. Thread the clevis 14-turns onto the pushrod. Attach the clevis to the outside hole on the control horn. Slightly bend the pushrod as necessary to allow free movement.



❑ 4. Center the rudder and rudder servo and mark the pushrod where it crosses the servo arm. Enlarge the servo horn hole with a 5/64" [2mm] drill bit. (The Hobbico Quick Drill set (HCAR0699) works well for this purpose.)

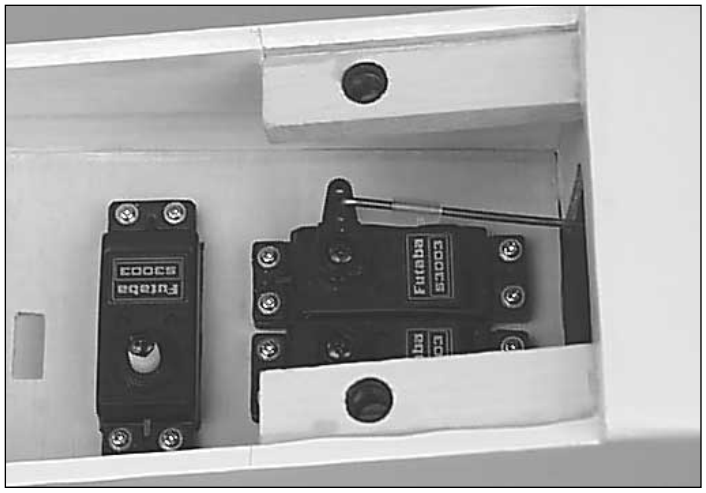


❏ 5. Make a 90º bend in the pushrod on your mark, then insert it through the enlarged hole in the servo arm. Secure the wire in place with a nylon FasLink. Trim the excess wire 1/16" [1.5mm] above the FasLink.



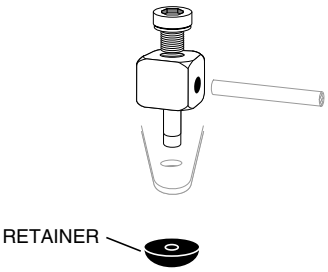
❏ 6. Install the elevator control horn by positioning the horn as close to the inboard edge of the elevator as possible and mark the location of the mounting hole. Drill 3/32" [2.5mm] mounting holes through the marks. Wick two to three drops of thin CA into the holes to harden the underlying balsa, then re-drill the holes. Attach the horns using two 2-56 x 5/8" machine screws and a nylon nut plate. **Do not overtighten the screws, crushing the underlying balsa.**

❏ 7. Install the elevator pushrod. Place a clevis retainer onto the clevis. Thread the clevis 14-turns onto the pushrod. Attach the clevis to the outer hole of the control horn. Slightly bend the pushrod wire as necessary to allow for free movement.



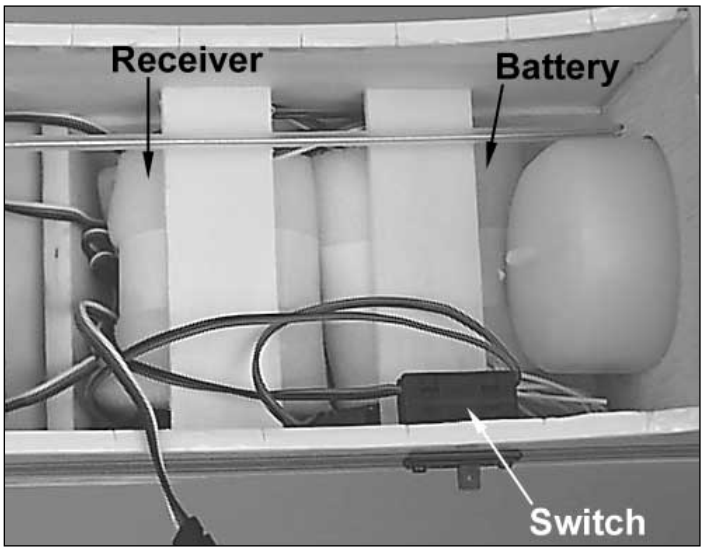
❏ 8. Center the elevator and elevator servo and mark the pushrod where it crosses the servo arm. Enlarge the servo horn hole with a 5/64" [2mm] drill bit.

❏ 9. Make a 90º bend in the pushrod on your mark, then insert it through the enlarged hole in the servo arm. Secure the wire in place with a nylon FasLink. Trim the excess wire 1/16" [1.6mm] above the FasLink.



❏ 10. Install a brass screw-lock pushrod connector with the 4-40 x 1/8" cap screw on the throttle servo horn. Snap the nylon retainer onto the screw-lock pushrod connector post beneath the servo horn.

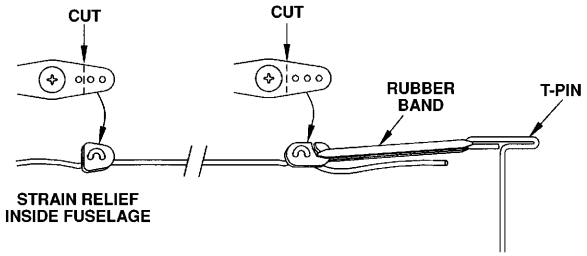
Battery & Receiver Installation



❏ 1. Wrap the receiver and battery as shown in the sketch.

❏ 2. Install the switch on the side of the fuselage opposite the muffler as shown. Use the switch plate as a template when drilling and cutting the fuselage.

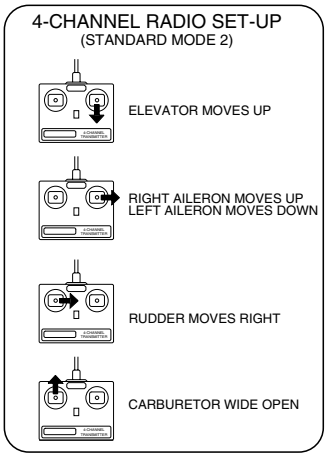
❏ 3. Hook up – following the manufacturer's recommendations – the receiver, switch harness and battery as shown in the photo. At this time, it is suggested to allow the receiver and battery the option of being moved until after the aircraft has been balanced. Once balanced, the receiver and battery must be secured into the aircraft to prevent them from moving during flight. Once your model has been balance, secure the location of the receiver and battery using the wood supplied in the kit.



❏ 4. Route the antenna to the tail of the model. You may use your preferred method or the method we use in the Great Planes model shop. Drill a 1/4" [6mm] hole through the fuse side in the proximity of the receiver. Cut a 1/2" [13mm] long piece of fuel tubing and install it in the hole. Install a strain relief (as shown in the sketch), then route the antenna through the fuel tubing to the bottom of the fuse at the tail. Use a rubber band to attach the antenna to a T-pin at the aft end of the fuselage. Do not cut or shorten the antenna wire. Leave any excess to hang free.

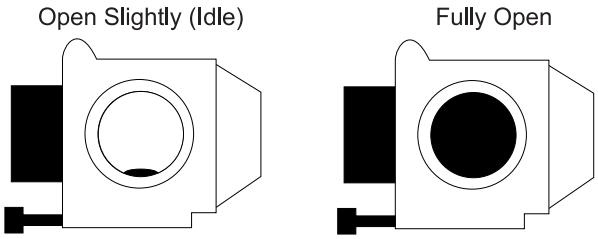
Radio System Set-up

❏ 1. Turn on the transmitter and then the receiver. Standing behind the plane, make the following movements with the transmitter and observe the control surfaces:



If any of the servo movements are wrong, reverse the servo direction with the servo reversing switches on the transmitter.

❏ 2. For added **safety** and **convenience,** the throttle should be set up so the engine can be stopped using the throttle trim. To do this, loosen the screw on the pushrod connector, move the throttle pushrod so the carburetor is completely closed with the throttle stick, and trim lever on the transmitter fully **back.** (**Note:** If the carburetor does not fully close, adjust the **idle stop screw** on the carburetor until it will.) Next, tighten the screw on the pushrod connector. Test the trim lever by advancing it to full. This will be a **fast idle position** with the carburetor barrel open slightly (about 1/32" or .8mm).



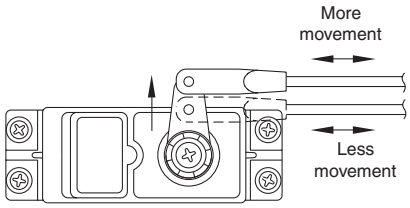
Now move the throttle stick forward to full. Make sure the carburetor barrel opens **all the way.** (See sketch.) If it doesn't open far enough or opens too far (bending the rod) move the pushrod connector in or out on the servo arm and/or the carburetor arm to gain or reduce movement. Apply a **small** amount of thin CA onto the threads of the pushrod connector. The throw will be correct when the carburetor barrel will stop fully open at the same time the throttle stick reaches full. With the throttle set up properly, you should be able to run the engine with the trim lever set midway to the full position (adjusted for a smooth but slow idle). Then when it is time to stop the engine, simply pull back the trim to close the carburetor and the engine will stop running.

❏ 3. Check the movement of the control surfaces. Use a ruler to match our measurements listed below. If your radio features dual rates, set up both the high and low rates following the radio system's instructions. If your radio does not have dual rates, set up the plane using low rates first and increase the throws as you get familiar with the plane.

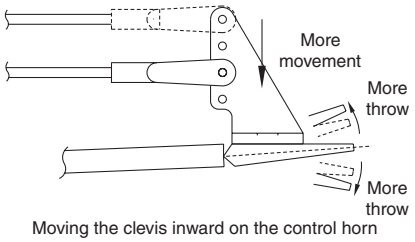
	Low Rate	High Rate
Aileron	3/16" [5mm] up 3/16" [5mm] down	3/8" [9.5mm] up 3/8" [9.5mm] down
Elevator	7/16" [11mm] up 7/16" [11mm] down	5/8" [16mm] up 5/8" [16mm] down
Rudder	1" [25mm] left 1" [25mm] right	1-3/16" [30mm] left 1-3/16" [30mm] right

These are the suggested deflection from center of the control surface.

If you need more control movement, you should move the clevis to a hole closer to the control surface or you can move the rod at the servo away from the center of the servo. If you have too much movement, do the opposite. See the following sketches:



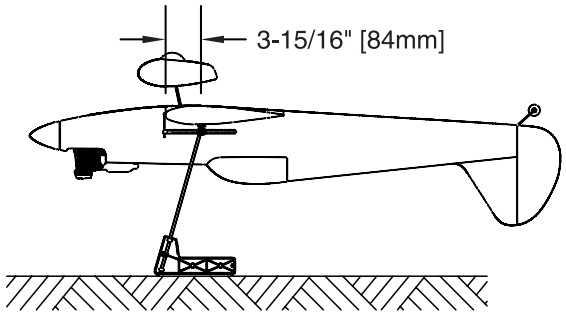
Moving the clevis outward on the servo arm results in more pushrod movement.



Moving the clevis inward on the control horn results in more throw.

Balance Your Model

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



❑ 1. The balance point (C.G.) is located 3-5/16" [84mm] back from the leading edge of the wing against the fuselage. Balance your Super Sportster using a Great Planes C.G. Machine™ Airplane Balancer (GPMR2400) for the most accurate results. This is the balance point at which your model should balance for your first flights. After initial trim flights and when you become more acquainted with your Super Sportster, you may wish to experiment by shifting the balance up to 1/4" [6mm] forward or backward to change its flying characteristics. Moving the balance forward may improve the smoothness and stability, but the model may then require more speed for takeoff and may become more difficult to slow for landing. Moving the balance aft makes the model more agile with a lighter, snappier "feel" and often improves knife-edge capabilities. In any case, please start at the location we recommend. Do not at any time balance your model outside the recommended range.

❑ 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly), and an empty fuel tank, block up the tail as necessary to level the stab. Lift the model at the desired balance point, and observe the tail of the aircraft. If the tail drops, the model 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.

Note: Nose weight may be easily installed by using a "spinner weight." Tail weight may be added by using Great Planes (GPMQ4485) "stick-on" weights.

*If possible, first attempt 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 the proper balance point. Remember to secure the receiver and battery after your model has been balanced.

Balance Your Model Laterally

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

Now that you have the basic airplane nearly completed, this is a good time to balance the airplane laterally (side-to-side). Here is how to do it:

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

❑ 2. With the wing level, lift the model by the engine propeller shaft and the fin post (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 airplane by adding weight to the opposite, lighter wing tip.

Note: An airplane that has been laterally balanced will track better in loops and other maneuvers.

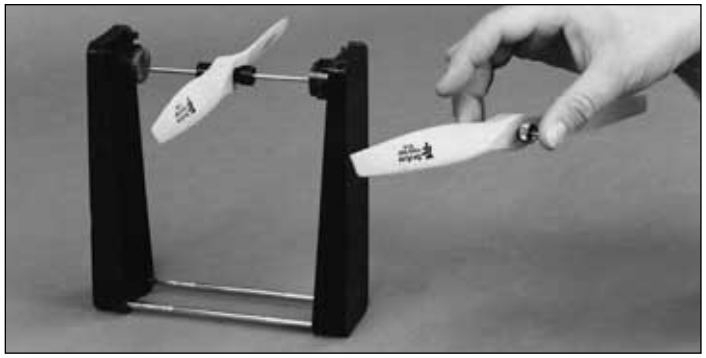
PREPARING TO FLY YOUR SUPER SPORTSTER ARF

Charge the Batteries

Follow the battery charging procedures 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

Balance your propellers carefully before flying. An unbalanced prop is the single most significant cause of damaging vibration. Not only will engine mounting screws and bolts vibrate out, possibly with disastrous effect, but vibration will also damage your radio receiver and battery. Vibration will cause your fuel to foam, which will, in turn, cause your engine to run rough or quit.



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

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 in your area and join. Club fields are set up for R/C flying and that makes your outing safer and more enjoyable. The AMA also can tell you the name of a club in your area. We recommend that you join the AMA and a local club so you can have a safe place to fly and have insurance to cover you in case of a flying accident. (The AMA address and phone numbers are listed on page 2 of this instruction manual).

If a club and its flying site are not available, you need to find a large, grassy area at least 6 miles away from any other R/C radio operation like R/C boats and R/C cars and away from houses, buildings and streets. A schoolyard may look inviting but it is too close to people, power lines and possible radio interference.

Ground Check the Model

If you are not thoroughly familiar with the operation of R/C models, ask an experienced modeler to check to see that you have the radio installed correctly and that all the control surfaces do what they are supposed to. The engine operation also must be checked and the engine “broken-in” on the ground by running the engine for at least two tanks of fuel. Follow the engine manufacturer’s recommendations for break-in. Check to make sure all screws remain tight, that the hinges are secure and that the prop is on tight.

Range Check Your Radio

Wherever you do fly, you need to check the operation of the radio before every time you fly. First, make sure no one else is on your frequency (channel). With the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet away from the model and still have control. Have someone help you. Have them stand by your model and, while you work the controls, tell you what the various control surfaces are doing.

Repeat this test with the engine running at various speeds with an assistant holding the model. If the control surfaces are not always acting correctly, do not fly! Find and correct the problem first.

Engine Safety Precautions

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

Use a “chicken stick” device or electric starter; follow the instructions supplied with the starter or stick. 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 after operation. Make sure fuel lines are in good condition so fuel will not leak onto a hot engine, causing a fire.

To stop the engine, cut off the fuel supply by closing off the fuel line or follow the engine manufacturer's recommendations. Do not use hands, fingers or any body part to try to stop the engine. Do not throw anything into the prop of a running engine.

AMA SAFETY CODE (excerpt)

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

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 YOUR SUPER SPORTSTER ARF

The Super Sportster ARF is a great flying sport airplane that flies smoothly and predictably, yet is highly maneuverable. It does not have the self-recovery characteristics of a primary trainer, therefore you must either have mastered the basics of R/C flying or seek the assistance of a competent R/C pilot to help you with your first flights.

Takeoff

If you have dual rates on your transmitter, set the switches to "high rate" for takeoff, especially when taking off in a crosswind. Although Super Sportster ARF has great low speed characteristics, you should always build up as much speed as your runway will permit before lifting off, as this will give you a safety margin in case of a "flame-out." When the plane has sufficient flying speed, lift off by smoothly applying a **little** up elevator (don't "force" it off to a vertical climb!), and climb out gradually.

Flying

We recommend that you take it easy with your Super Sportster ARF for the first several flights and gradually "get acquainted" with this fantastic ship. Add and practice one maneuver at a time, learning how she behaves in each one. We particularly enjoy the ease with which the Super Sportster ARF flies inverted, with very little down elevator required! Spins and inverted spins are also performed with ease. Knife edge and point rolls are possible, but they require some aileron and elevator correction.

Landing

When it's time to land and you cut the throttle, you'll notice a very slight climbing tendency at first, which bleeds off some speed; then it assumes the normal glide angle, slightly nose down.

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

GOOD LUCK AND GREAT FLYING!

GREAT PLANES®
MODEL MANUFACTURING COMPANY

BUILDING NOTES

Kit Purchased Date: _____

Where Purchased:_____

Date Construction Started: _____

Date Construction Finished: _____

Finished Weight: _____

Date of First Flight: _____

FLIGHT LOG