GIANT Super Sportster™

INSTRUCTION MANUAL

Wingspan: 82 in [2085 mm]
Wing Area: 1293 sq in [83.4 dm²]
Weight: 13-14.5 lb [5850-6575 g]
Wing Loading: 23-25 oz/sq ft [70-79 g/dm²]
Length: 72 in [1820 mm]
Radio: 4-5 channel transmitter, 6-7 servos
Engine: 1.60-2.00 cu in [26-33 cc] 2-stroke,
1.20-2.00 cu in [20-33 cc] 4-stroke,
2 cu in [32 cc] gas

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

TABLE OF CONTENTS

INTRODUCTION

Thank you for purchasing the Great Planes Giant Super Sportster ARF. The Super Sportster is a classic design that has been around for several years, yet its smooth lines and gentle curves make it just as popular now as it was at the start. The Super Sportster is an honest flyer that is relaxing and enjoyable. Its rugged construction makes it a practical plane that is easy to handle, so it should remain in your stable for a long time. Powered by a 1.60 two-stroke, the Super Sportster handles just like a hot .60-size plane with the stability and presence of a giant-scale model. Powered by a Fuji-Imvac 32, the Sportster flies a little "softer." The Fuji-Imvac also fits nicely in the cowl and you can enjoy the economy and "cleanliness" a gas engine provides. For more on engine selection read the "Engine Recommendations" section on the next page.

For the latest technical updates or manual corrections to the Giant Super Sportster ARF, visit the Great Planes web site at www.greatplanes.com. Open the "Airplanes" link, then select the Giant Super Sportster 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 Giant Super Sportster ARF 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 Sportster, 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, and a correctly sized engine and components (fuel tank, wheels, etc.) throughout the building process.

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. While this kit has been flight tested to exceed normal use, if the plane will be used for extremely high stress flying, such as racing, or if an engine larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

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

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

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

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the Giant Super Sportster ARF that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Radio Equipment

Five *medium* torque rating (**minimum** 50 oz-in [3.9 kg-cm]), ball bearing servos are required for the elevator, ailerons and rudder (Futaba® 9001 recommended, FUTM0075). One standard servo is required for the throttle and an additional, optional standard servo may be used for a throttle-operated engine kill switch for spark-ignition engines.

In addition to the servos, the following radio equipment will also be required:

- ❏ (3) 24" [610 mm] servo extensions for rudder and elevator servos (HCAM2721 for Futaba)
- ❏ (2) 12" [300 mm] servo extensions for aileron servos (HCAM2711 for Futaba)
- ❏ (1) 6" [150 mm] servo extension from receiver for aileron connection (HCAM2701 for Futaba)
- ❏ (2) dual servo extensions for aileron and elevator servos (FUTM4130)
- ❏ Minimum 1,000 mAh receiver battery (NR4F 4.8V 1,500 mAh NiCd, FUTM1285, or NR4B 4.8V 1,000 mAh NiCd, FUTM1380)

Engine Recommendations

The recommended engine size range is specified on the cover of this manual. All engines within the specified range will power the Giant Sportster well. Never fly your Giant Super Sportster with an engine larger than one in the specified range because it has not been designed or tested for larger engines. Powered by a two-stroke glow engine such as the O.S.® MAX 1.60 FX, the Sportster performs like a hot .60-size sport plane with the added stability and durability of any well-designed giant plane. Powered by the Fuji-Imvac 32, the giant Sportster is a little more "relaxing" but still plenty capable of all the standard aerobatic maneuvers. This kit comes with engine mounting posts and the rest of the mounting hardware for the Fuji-Imvac 32. If using a different gas engine, different hardware may be required.

If you haven't yet decided whether to use a gas or a glow engine, some of the things to consider are a gas engine's fuel economy–not only is gasoline cheaper than glow fuel, but gas engines typically burn less fuel as well. Gas engines are also a little "cleaner" in that they usually put out less exhaust residue than a glow engine. On the other hand, for the displacement, glow engines are usually more powerful than gas engines and are also lighter and smaller.

Here are the order numbers for O.S. MAX and Fuji-Imvac engines:

- ❏ O.S. 1.60 FX ringed **with** muffler (OSMG0660)
- ❏ O.S. 1.60 FX ringed **without** muffler (OSMG0661)
- ❏ #5010 muffler for O.S. 1.60 FX engine (OSMG2846)
- ❏ Fuji-Imvac BT-32S R/C gas engine (FJIG0033)

NOTE: If installing a glow engine the following drill bits will be required:

- ❏ 13/64" [5.2 mm] (or 3/16" [4.8 mm])
- ❏ #29 drill and 8-32 tap

OR

- ❏ Great Planes 8-32 tap and drill set (GPMR8103)
- ❏ Tap handle (GPMR8120)

If installing a gas engine, a 1/4" [6.4 mm] drill will be required.

Per the IMAA Safety Code, magneto spark-ignition engines must have a coil-grounding switch to stop the engine and prevent accidental starting. The switch must be operated manually (without the use of the transmitter) and be accessible by the pilot and assistant. For use with the Fuji-Imvac engine shown, the manually operated switch was made from a Great Planes Ignition Switch Harness (GPMG2150) as shown in the manual during the engine installation process.

Spinner Information

If using an O.S. Max 1.60 FX engine, replace the jam nut that came on the engine with the jam nut included with this kit (that has a 3/8-24 crankshaft thread). Use the spinner back plate as-is without the collared spacer ring and use the included 5 x 35mm spinner bolt to mount the spinner cone. If using an engine with a different crankshaft thread a spinner adapter kit from Great Planes or TruTurn will have to be purchased separately. If a different spinner adapter kit must be used it will probably require a 10-32 Allen-head spinner bolt, so the appropriate-length spinner bolt may also have to be purchased.

If using a Fuji 32, the propeller bolt that came with the engine will have to be replaced by a propeller bolt that is threaded in the end for a spinner bolt. The TruTurn adapter kit TRUQ4035 may be used, but a 10-32 x 2-1/4" spinner bolt will also have to be purchased. Or, a special Fuji propeller bolt (FJIG8050) may also be used and then the 5 x 55 mm spinner bolt included with this kit will work. In either case, when using the Fuji engine, the collared spacer ring that came with this kit will also have to be used in the spinner back plate.

Note: If the appropriate adapter kit or spinner bolt is not available, a 3-1/4" Great Planes plastic spinner with an aluminum back plate could be used instead of the included aluminum spinner. This setup requires no adapter kit because the cone is mounted to the back plate with four screws. Order numbers are GPMQ4781 for the red spinner and GPMQ4780 for the white spinner.

Fuel Tank Setup

The fuel tank, stopper and hardware included with this kit are suitable for use with glow fuel. If using a gas engine, the stopper and fuel line must be replaced with a gas-compatible stopper and lines and measures must be taken to secure the fuel lines inside the tank. To do the conversion, the following items must be purchased separately:

- ❏ (1) Sullivan #484 Gasoline/Diesel fuel tank conversion kit (SULQ2684)
- ❏ (2) Packages Du-Bro #813 1/8" [3.2 mm] I.D. fuel line barbs (DUBQ0670)
- ❏ At least six small, nylon ties (available from home improvement, automotive or hardware stores)
- ❏ Great Planes gasoline fuel tubing (3', GPMQ4135) ***OR*** #799 3/32" I.D. Tygon Tubing (3', DUBQ0486)

If the Sullivan conversion kit is not available, a Du-Bro #400 gas conversion stopper (DUBQ0675) and one 12" [300 mm] piece of K+S 1/8" [3.2 mm] soft brass tubing (K+SR5128-box of 5) could also be used. Full instructions on how to do the conversion are in the manual.

ADDITIONAL ITEMS REQUIRED

Required Hardware and Accessories

In addition to the items previously listed in the ***"Decisions You Must Make"*** section, following is the list of hardware and accessories required to assemble the Giant Super Sportster ARF. Order numbers are provided in parentheses.

- ❏ Suitable propellers
- ❏ 3' [900 mm] standard silicone fuel tubing (for glow engines, GPMQ4131)
- ❏ R/C foam rubber (1/4" [6 mm], HCAQ1000 ***OR*** 1/2" [13 mm], HCAQ1050)

Adhesives and Building Supplies

In addition to common household tools and hobby tools, following are the most important items required to assemble the Sportster.

- ❏ 1 oz. [30g] Thin Pro™ CA (GPMR6002)
- ❏ 1 oz. [30g] Medium Pro CA+ (GPMR6008)
- ❏ CA applicator tips (HCAR3780)

❏ Pro 30-minute epoxy (GPMR6047)
❏ Threadlocker thread locking cement (GPMR6060)
❏ #1 Hobby knife (HCAR0105)
❏ #11 blades (5-pack, HCAR0211)
❏ #11 blades (100-pack, HCAR0311)
❏ Drill bits: 1/16" [1.6 mm], 3/32" [2.4 mm], 1/8" [3.2 mm], 5/32" [4 mm], 3/16" [4.8 mm]
❏ Small, flat metal file
❏ Stick-on segmented lead weights (GPMQ4485)
❏ Silver solder w/flux (GPMR8070)
❏ 21st Century® sealing iron (COVR2700)
❏ 21st Century iron cover (COVR2702)
❏ 21st Century trim seal iron (COVR2750)

Optional Supplies and Tools

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

❏ 2 oz. [57g] spray CA activator (GPMR6035)
❏ Pro 6-minute epoxy (GPMR6045)
❏ R/C-56 canopy glue (JOZR5007)
❏ CA debonder (GPMR6039)
❏ 3M 75 repositionable spray adhesive (MMMR1900)
❏ Epoxy brushes (6, GPMR8060)
❏ Mixing sticks (50, GPMR8055)
❏ Mixing cups (GPMR8056)
❏ Medium T-pins (100, HCAR5150)
❏ Robart Super Stand II (ROBP1402)
❏ Masking tape (TOPR8018)
❏ Wax paper
❏ Denatured alcohol (for epoxy clean up)
❏ Switch & Charge Jack Mounting Set (GPMM1000)
❏ Panel Line Pen (TOPQ2510)
❏ Rotary tool such as Dremel
❏ Rotary tool reinforced cut-off wheel (GPMR8200)
❏ Hobby Heat™ micro torch (HCAR0750)
❏ Dead Center™ Engine Mount Hole Locator (GPMR8130)
❏ AccuThrow™ Deflection Gauge (GPMR2405)
❏ CG Machine™ (GPMR2400)
❏ Laser incidence meter (GPMR4020)
❏ Precision Magnetic Prop Balancer (TOPQ5700)
❏ Aluminum Fuel Line Plug (GPMQ4166)

IMPORTANT BUILDING NOTES

- The Giant Super Sportster ARF is factory-covered with Top Flite® MonoKote® film. The following colors were used and are available in six foot [1.8m] rolls. If only a small piece of MonoKote is needed, maybe a modeling friend might have some in his work shop. Some hobby shops also sell MonoKote by the foot.

  White (TOPQ0204)
  Black (TOPQ0208)
  True Red (TOPQ0227)

- The stabilizer and wing incidences and engine 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.

ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Giant Super Sportster 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 Hobbico® web site at **www.hobbico.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 at the address on the front cover of this manual.

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
(217) 398-8970

Replacement Parts List

Order #	Description	How to Purchase
	Missing pieces	Contact Product Support
	Instruction manual	Contact Product Support
	Full-size plans	Not available

Contact your hobby supplier to purchase these items:

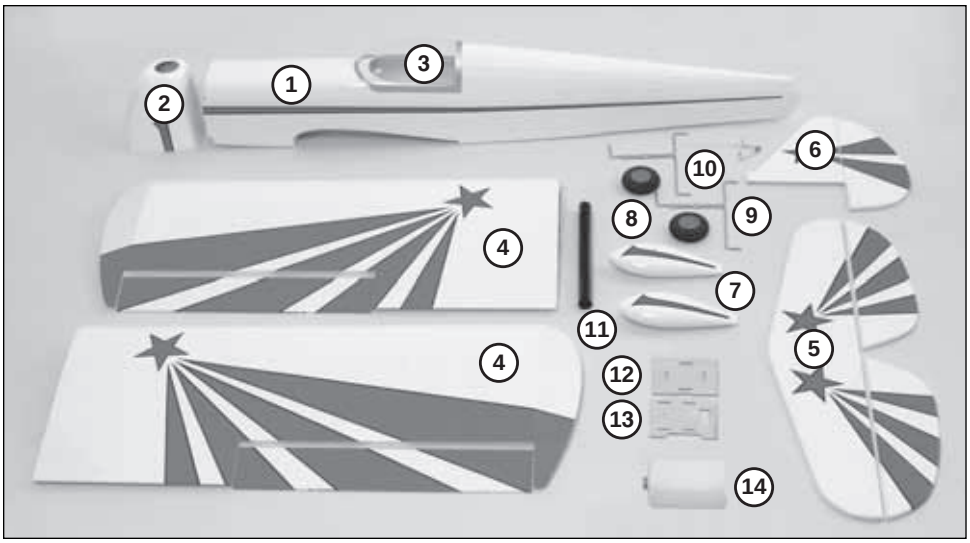
GPMA2900 .....Wing
GPMA2901 .....Fuselage
GPMA2902 .....Tail Surface Set
GPMA2903 .....Landing Gear
GPMA2904 .....Cowl
GPMA2905 .....Wing Joiner Tube
GPMA2906 .....Canopy
GPMA2907 .....Spinner
GPMA2908 .....Decal Sheet

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 Cowl
3 Canopy
4 Wing halves w/ailerons (R&L)
5 Horizontal stabilizer w/elevators
6 Vertical stabilizer (fin) w/rudder
7 (2) wheel pants
8 (2) 3-1/2" [87 mm] main wheels
9 (2) Right and left main landing gear wires
10 Tail gear wire
11 Aluminum wing joiner tube
12 Battery tray
13 Servo tray
14 Fuel tank w/hardware

Wood parts:
Plywood ignition kill switch mount set
Plywood pushrod guide tube mounts (2)
10x45 mm wing dowels (2)
6x30 mm antirotation dowel
Cowl mounting blocks for gas engines (2)
Wing bolt plates (2)

Nuts, bolts, washers:
1/4-20x2" [50 mm] nylon wing bolts (2)
8-32x1-1/4" [32 mm] socket head cap screws (SHCS) (engine mount) (4)
8-32 x 1" [25 mm] SHCS (engine) (4)
#8 flat washers (engine mount) (4)
#8 lock washers (4-engine, 4-engine mount) (8)
8-32 blind nuts (engine mount) (4)
4-40 x 3/4" [19 mm] Phillips screws (control horns on elevators, rudder) (12)
#4x5/8" [16 mm] Phillips screws (16-main landing gear straps, 6-cowl, 8-aileron control horns) (30)
#4 flat washers (cowl) (6)
#4 lock washers (cowl) (6)
4-40 nuts (lock nuts for clevises on pushrods) (5)
2-56 x 3/8" [9.5 mm] Phillips screws (wheel pant mounting) (8)
#2 x 3/8" [3/8 mm] Phillips screws (tail gear mounting) (2)
#2 flat washers (wheel pant mount) (8)
2-56 blind nuts (wheel pant mount) (8)
2-56 ball link ball (gas engine throttle) (1)
2-56 lock nut (gas engine throttle) (1)
Brass screw-lock connector (throttle servo) (1)

Kit Contents (Not Photographed)

4-40x1/8" [3.2 mm] SHCS for screw-lock (1)
Nylon retainer for screw-lock (1)
4-40x12" [300 mm] pushrods (2-elevators, 1-rudder, 2-ailerons) (5)
4-40 metal clevises (2-elevators, 1-rudder, 2-ailerons) (5)
Large solder clevises (2-elevators, 1-rudder, 2-ailerons) (5)
3/32" [2.4 mm] wheel collar (tail wheel) (1)
4-40 set screw for wheel collar (1)
1" [25 mm] tail wheel (1)
2-56 x 1" [25 mm] threaded rod (for gas throttle pushrod) (1)
2-56 x 36" [910 mm] pushrod (glow throttle pushrod) (1)
1/4-20 blind nuts (in fuselage) (2)

Metric fasteners for mounting Fuji-Imvac 32 engine:
(4) 5x60 mm SHCS
(4) 5 mm lock washers
(4) 5 mm blind nuts
(4) 5 mm wheel collars
(4) 3x5 mm Phillips screw
5x12 mm flat washers (4-engine mounting, 8-wheel spacers) (12)

Hardware:
1.20–1.80 R & L engine mount halves
Aluminum Fuji-Imvac 32 engine spacers (4)
Hump straps (4-wheel pant mount, 2-spares) (6)
24" [610 mm] white, plastic pushrod (for gas engine) (1)
24" [610 mm] gray throttle pushrod guide tube (for gas engine) (1)
Giant control horns (5)
Giant control horn mounting plates (1)
Flat landing gear straps (main landing gear mount) (8)
Nylon ball link (for gas throttle pushrod) (1)
Nylon clevis (for glow throttle pushrod) (1)
Clevis retainers (11)
3/8" [9.5 mm] heatshrink tubing (for servo wires) (1)
CA hinge strips (2)
Velcro® strips (2)
Inner, outer fueling line collar (1 glow, 1 gas) (2)
Fuel line plug (2)
Decal sheet

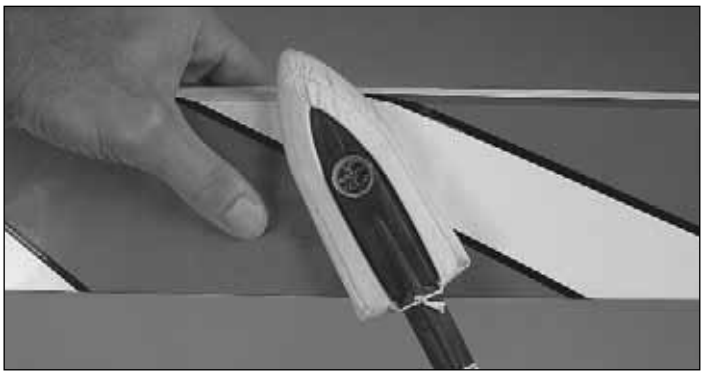
Tail gear assembly:
Tail gear wire
Collar with set screw
Nylon tail gear bearing
Collar w/3mm set screw
Aluminum bracket
Steering post (in rudder)

Spinner assembly:
3-1/4" [83 mm] aluminum spinner
3/8-24 jam nut
Collored spacer ring
5 x 35 mm spinner bolt
5 x 55 mm spinner bolt
5 mm nut

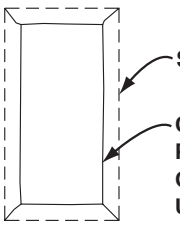
PREPARATIONS

EXPERT TIP

During construction there will be several occasions where epoxy cleanup will be necessary. Instead of wasting whole paper towels, stack three or four paper towels on top of each other and cut them into small squares. This will conserve paper towels and the little squares are easier to use. For epoxy clean up, dampen the squares with denatured alcohol.



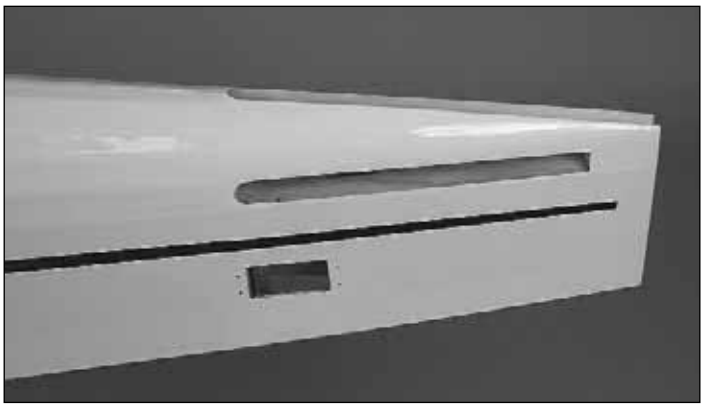
❑ 1. Examine the covering on all parts of the airframe. Where necessary, use a covering iron with a covering sock to remove any wrinkles. Over sheeted areas, first glide the iron over the wrinkle until it shrinks. Then, go over the area again, pressing hard on the iron to thoroughly bond the covering to the wood. **Note:** In some areas where the sheeting is thin or unsupported, less pressure should be used.

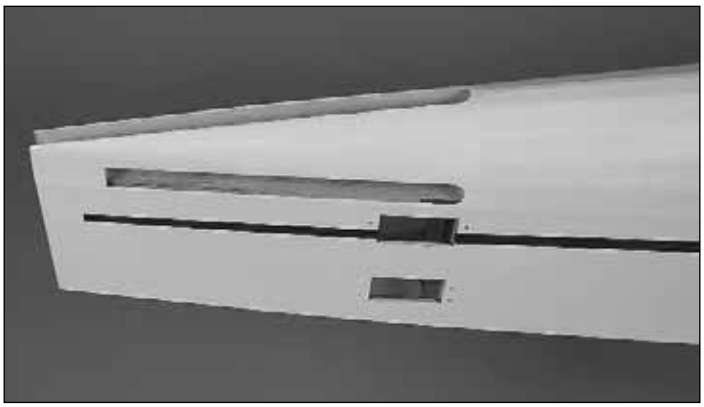


❑ 2. Use a straightedge and a hobby knife to cut the covering 1/8" [3 mm] inside the openings in the bottom of both wings for the aileron servos as shown in the sketch. Also cut the covering from the 1/4" [6.5 mm] wing bolt holes, from the slots for the main landing gear wires, and from the holes for the servo wires in the top of both wings near the root ends.

❑ 3. Slit the covering up to the corners of the aileron servo openings. Use a trim iron to iron the covering down inside the edges of the servo openings.

Refer to the following photos for Steps 4 and 5.



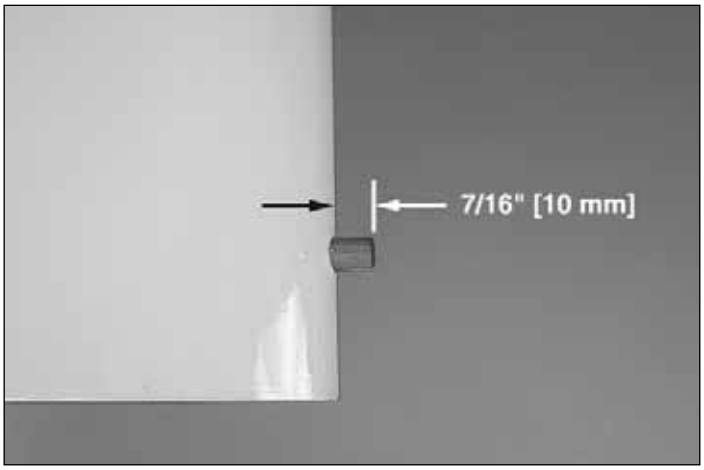


❑ 4. The same as was done for the ailerons, cut and iron down the covering from the servo openings in the fuselage. Also cut the covering from the slots for the stabilizer and fin.

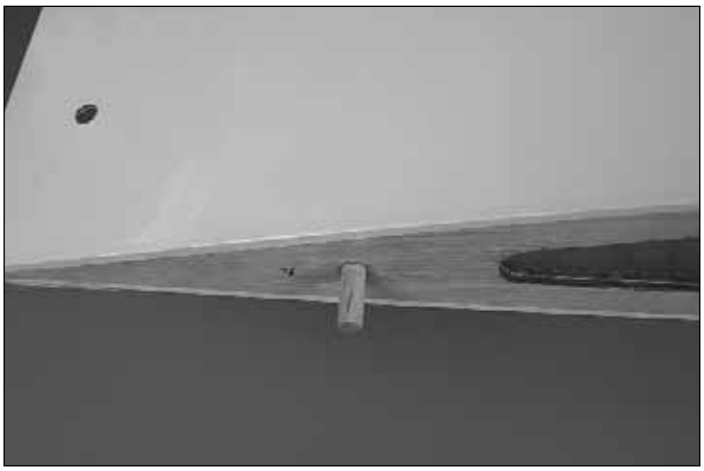
❑ 5. In the fuselage, temporarily place the servos in the servo openings. Drill 1/16" [1.6 mm] holes for the servo screws. Screw in all the servo mounting screws that came with the servos. Remove the screws and servos, and then harden the “threads” in the holes with a few drops of thin CA in each hole. Set the servos aside until after the stabilizer has been mounted.

❑ 6. While your trim iron is out, use it to **thoroughly** seal the covering around the firewall, around the air passage cutout at the firewall under the fuselage, and around the formers at the front and back of the wing saddle.

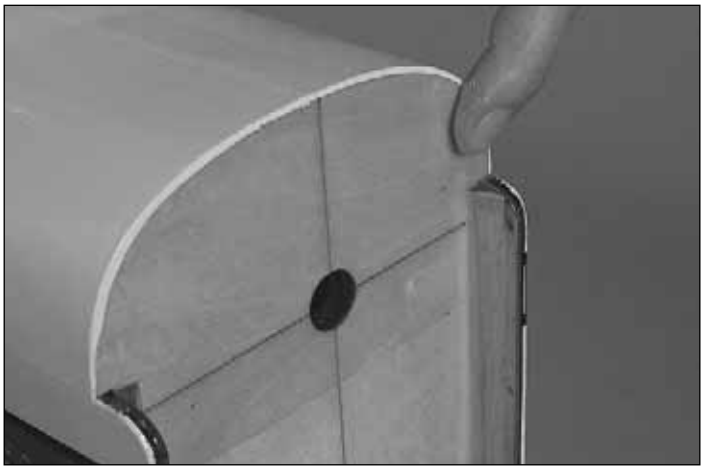
❑ 7. Mix up a medium-size batch (approximately 1/4 oz [7.5cc]) of 30-minute epoxy for the following three steps.

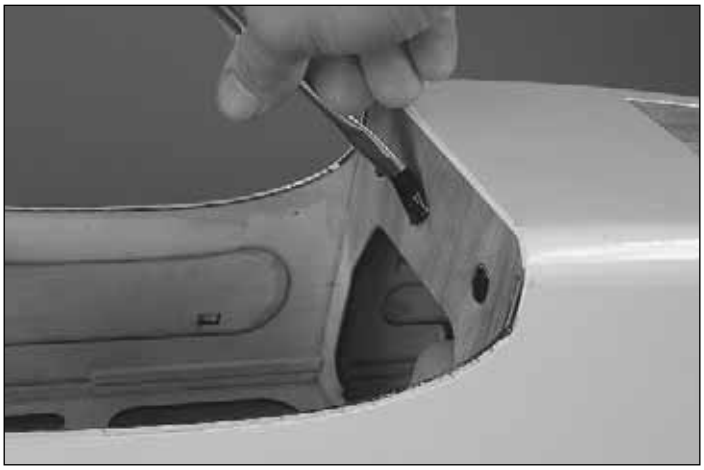


❑ 8. Cut the covering from the holes in the leading edge of both wing halves for the wing dowels. Chamfer one end of both 3/8" x 1-3/4" [10 x 45 mm] hardwood wing dowels. Use epoxy to glue in both dowels so 7/16" [10 mm] of each dowel protrudes.



❑ 9. Use epoxy to glue the 1/4" x 1-1/4" [6 x 30 mm] hardwood **alignment dowel** halfway into one of the wing halves.

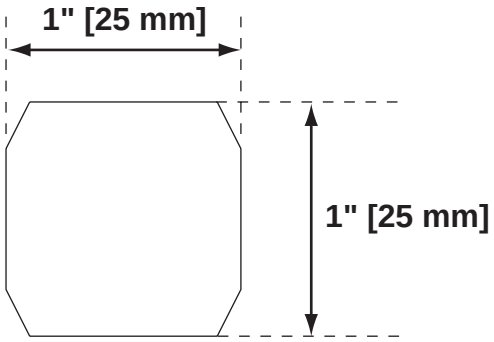




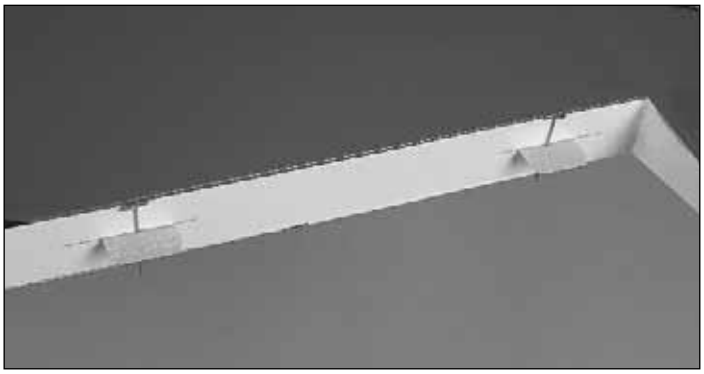
❑ 10. Spread a thin layer of epoxy over the edges of the covering around the firewall–this will ensure that the covering is thoroughly sealed and fuel-proofed. Use an epoxy brush to **lightly** coat the formers at both ends of the wing saddle as well.

ASSEMBLE THE WING

Hinge the Ailerons

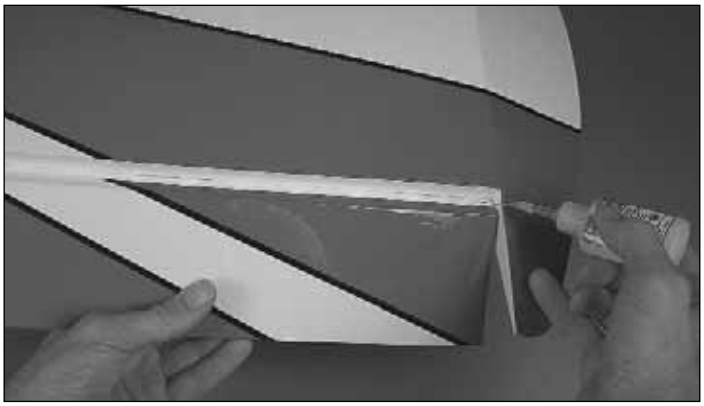


❑ 1. Cut eight 1" x 1" [25 x 25 mm] CA hinges from the 2" x 9" [50 x 230 mm] CA hinge strip. Cut the corners off so the hinges go in easier.



❑ 2. Stick a T-pin through the middle of all the hinges. Insert four hinges into the hinge slots of each wing.

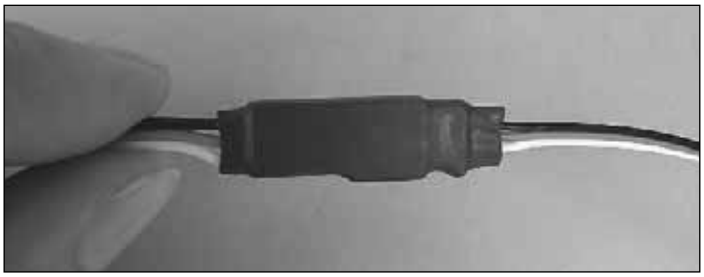
❑ 3. Without using any glue, join the ailerons to the wings and take out the T-pins. Make sure there is a **small** gap between the leading edge of each aileron and the wing-just enough to see light through or to slip a piece of paper through.



❑ 4. Apply at least eight drops of thin CA to the **top** and **bottom** of all the hinges. Allow enough time between each drop so the CA can soak into the hinge rather than running into the hinge gap. **Hint:** CA applicator tips are **highly recommended**. **Do NOT use accelerator!**

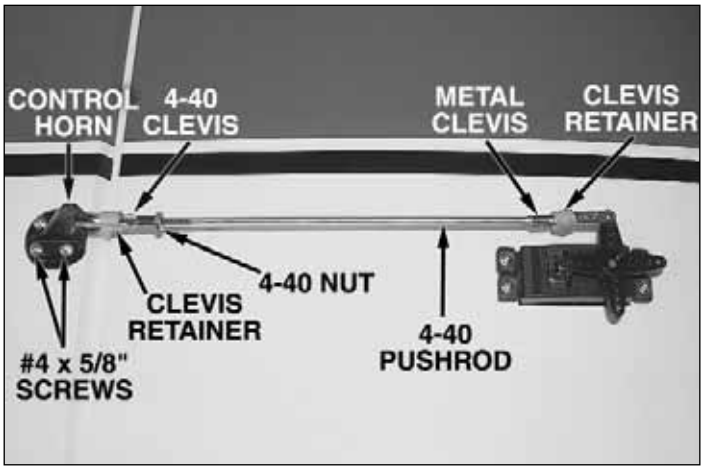
❑ 5. After the CA has hardened for a few minutes, pull hard on each aileron to make sure all the hinges are secure. Add more CA if necessary.

Mount the Servos & Hook Up the Ailerons

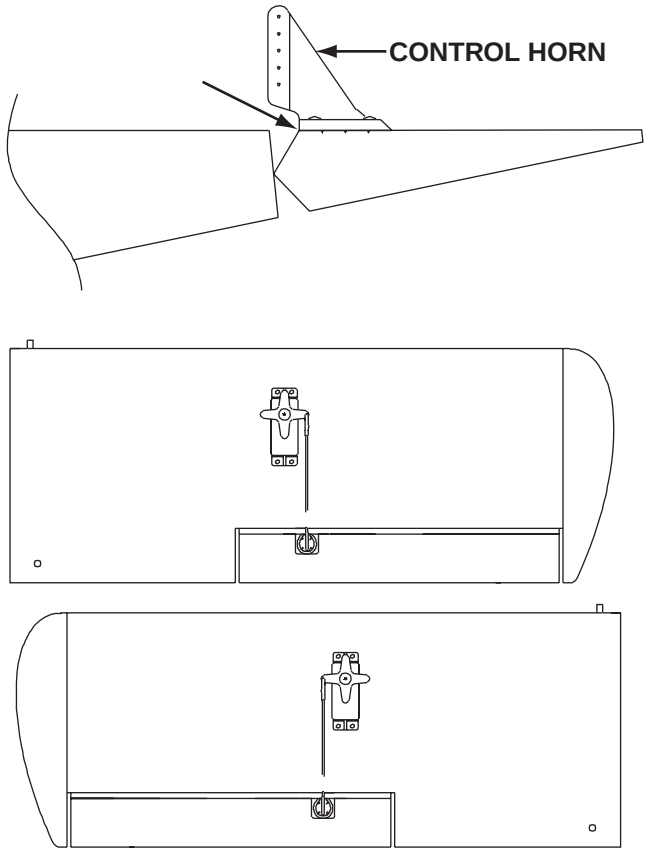


❑ 1. Connect a 12" [300 mm] servo extension wire to each aileron servo. Cut one of the pieces of the supplied heat shrink tubing in half and use each piece to secure each servo connection.

Refer to this photo while mounting the servos and hooking up the ailerons.



❑ 2. Use the string in the wings to pull the servo wires out and place the servos in the openings. With the servos in the wing, drill 1/16" [1.6 mm] holes for all the servo mounting screws. Temporarily mount the servos with the screws that came with the servos.



❑ 3. Read the **Expert Tip** that follows on how to solder. Connect the aileron servos to the ailerons using the hardware shown in the photo. The servo arms should be opposed as shown in the sketches. When mounting the control horns, place the front of the horn at the front of the aileron as indicated by the arrow. Drill 3/32" [2.4 mm] holes into the aileron for the screws. Do not cut the extra arms off the servo arms until instructed to do so when setting up the radio later. **Note:** Screw the 4-40 clevis onto the pushrod twenty full turns.

EXPERT TIP

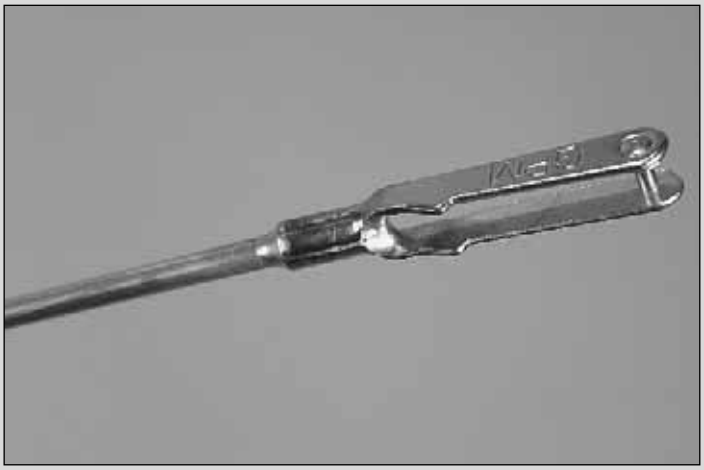
HOW TO SOLDER

❑ A. Use denatured alcohol or other solvent to thoroughly clean the pushrod. Roughen the end of the pushrod with coarse sandpaper where it is to be soldered.

❑ B. Apply a few drops of soldering flux to the end of the pushrod. Then use a soldering iron or a torch to heat it. “Tin” the heated area with **silver solder** (GPMR8070) by applying the solder to the end. The heat of the pushrod should melt the solder–not the flame of the torch or soldering iron–thus allowing the solder to flow. The end of the wire should be coated with solder all the way around.

❑ C. Place the clevis on the end of the pushrod. Add another drop of flux. Then, heat and add solder. The same as before, the heat of the parts being soldered should melt the solder, thus allowing it to flow. Allow the joint to cool naturally without disturbing. Avoid excess blobs, but make certain the joint is thoroughly soldered. The solder should be shiny, not rough. If necessary, reheat the joint and allow to cool.

❑ D. Immediately after the solder has solidified, but while it is still hot, use a cloth to quickly wipe off the flux before it hardens. **Important:** After the joint cools, coat with oil to prevent rust. **Note:** Do not use the acid flux that comes with silver solder for electrical soldering.

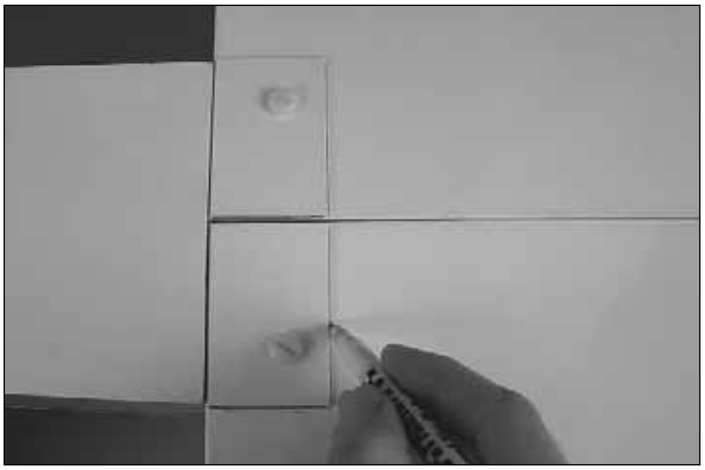


This is what a properly soldered clevis looks like-shiny solder with good flow, no blobs, flux removed.

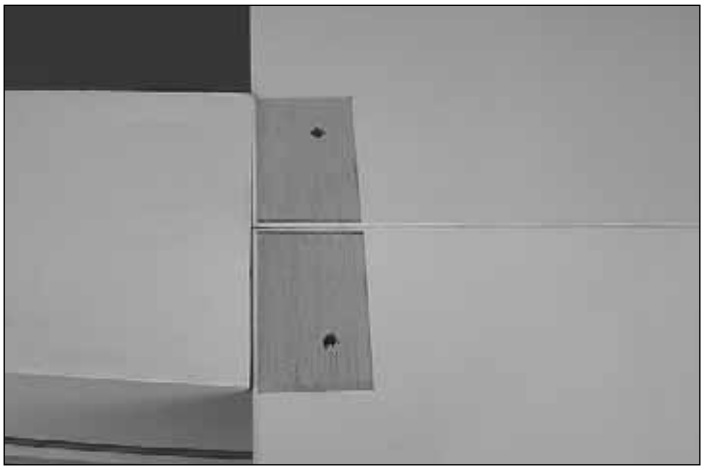
❑ 4. Now that the servos and control horns have been mounted, remove the servo mounting screws and the control horn screws. Add a few drops of thin CA to each screw hole to harden the “threads” in the holes. After the CA has hardened, reinstall all the screws to securely mount the servos and the horns.

Mount the Wing

❑ 1. Fit both wing halves together on the joiner tube. Then, place the wing on the fuselage, keying the dowels into the dowel holes in the former.



❑ 2. Bolt the wing to the fuselage with two 1/4-20 x 2" [50 mm] nylon wing bolts and the plywood **wing bolt plates** underneath. Use a fine-point felt-tip pen to mark the outline of the wing bolt plates onto the wing.

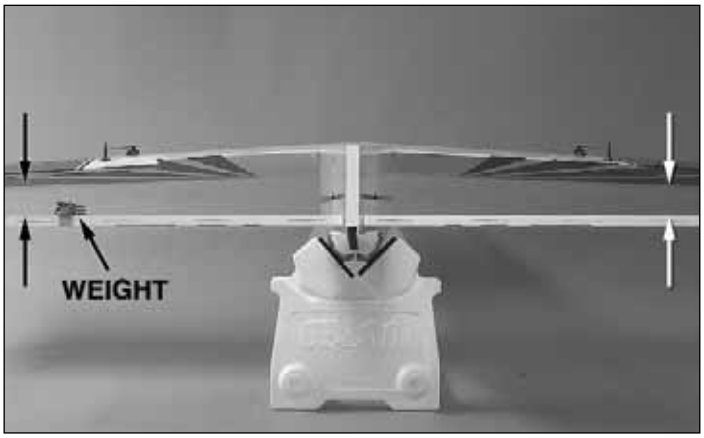


❑ 3. Refer to the **Expert Tip** on page 12. Using care not to cut into the balsa underneath, use the soldering iron technique or a sharp #11 blade to cut the covering 1/16" [1.5 mm] inside the lines you marked around the wing bolt plates. Use one of your small paper towel squares dampened with denatured alcohol to wipe away the ink, and then peel off the covering.

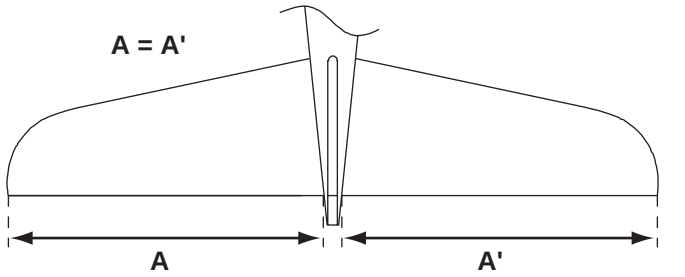
❑ 4. If any of the covering has loosened from the sheeting around the covering you just removed, use a covering iron with a covering sock to reseal the covering back to the wing. Use epoxy to glue the wing bolt plates to the bottom of the wings. This can be done by actually bolting the wings to the fuselage, but care must be taken not to get excess epoxy into the wing bolts or on the fuselage-otherwise it could be difficult to remove the wing after the epoxy has hardened. Another way to glue the wing bolt plates on is with clamps.

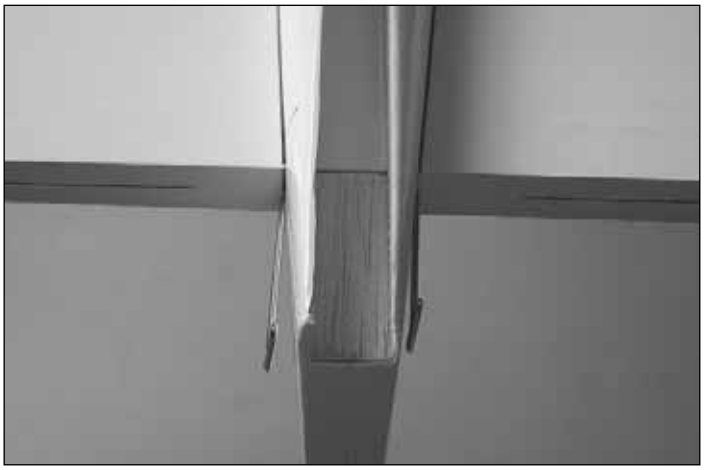
ASSEMBLE THE FUSELAGE

Join the Stabilizer and Fin

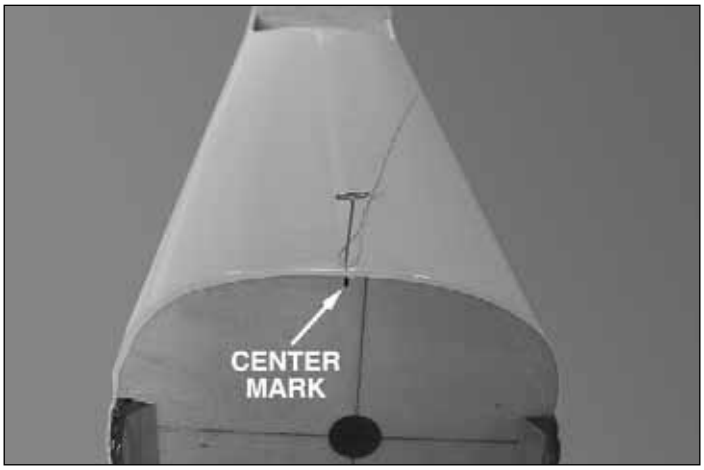


❑ 1. With the wing mounted, temporarily slide the stabilizer into the fuselage. For now, center the stab as best you can by eye. Stand approximately ten feet [3 meters] behind the model and see if the stab aligns horizontally with the wing. If they do align go to the next step. If the stab and wing do not align, first try placing a few ounces of weight on the “high side” of the stab. If that doesn’t do it, remove the stab from the fuselage and lightly sand the slots in the fuselage to get the stab to align with the wing. Reinsert the stab and check the alignment. If necessary, continue to make small adjustments until alignment is achieved.

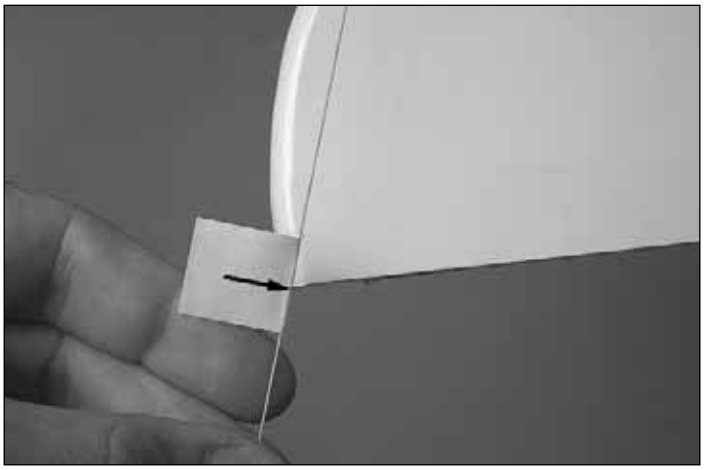


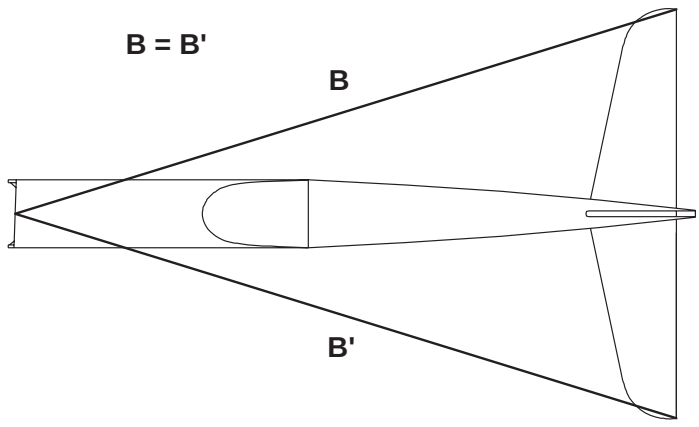


❑ 2. Now that the stab aligns with the wing, turn the fuselage upright. Take accurate measurements to center the **trailing edge** of the stab laterally. Insert T-pins into both sides of the trailing edge next to the fuselage to hold the alignment.

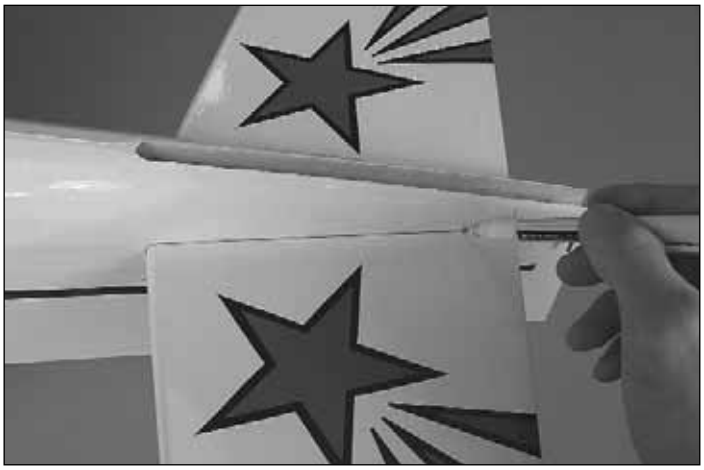


❑ 3. Stick a T-pin into the top of the fuselage centered over the short center mark on the firewall. Tie a loop in an approximately 60" [150 cm] piece of non-elastic string. Slip the loop in the string over the T-pin.





❑ 4. Fold a piece of masking tape over the string near the other end and draw an arrow on it. Slide the tape along the string and align the arrow with one end of the stab as shown. Swing the string over to the same position on the other end of the stab. Rotate the stab about the trailing edge and slide the tape along the string until the stab is centered and the arrow aligns with both ends.

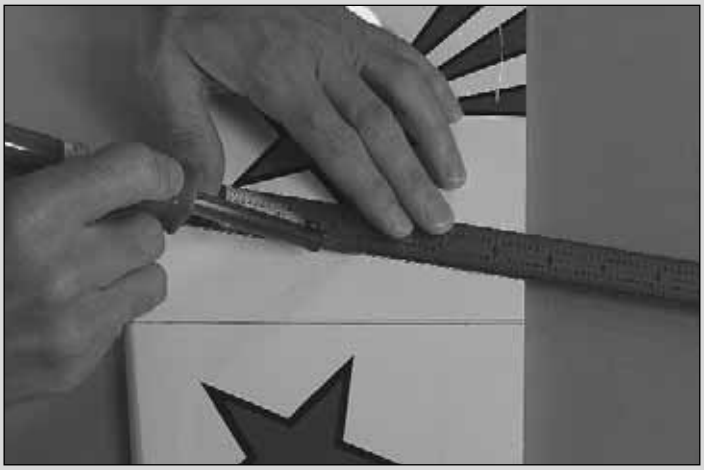


❑ 5. Use a fine-point felt-tip pen to mark the outline of the fuselage around the top and bottom of both sides of the stab.

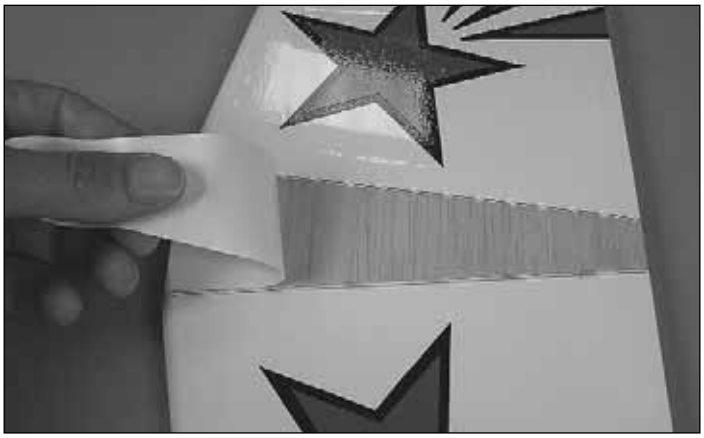
❑ 6. Follow the method in the **Expert Tip** that follows, or use a sharp hobby blade to cut the covering from the stab 1/16" [2 mm] inside the lines you marked. If using a hobby blade, use **great care** not to press too hard and cut into the wood which will weaken the structure.

EXPERT TIP

HOW TO CUT COVERING FROM BALSA.



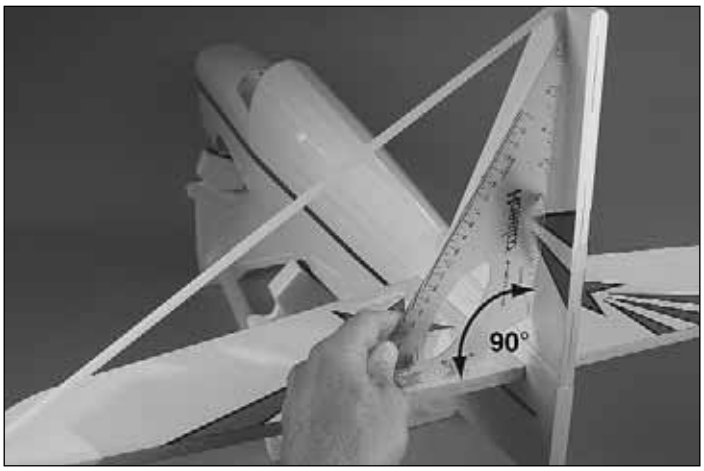
To avoid cutting into the balsa, use a soldering iron instead of a hobby knife to cut the covering. The tip of the soldering iron doesn't have to be sharp, but a fine tip does work best. Allow the iron to heat fully. Use a straightedge to guide the soldering iron at a rate that will just melt the covering and not burn into the wood. The hotter the soldering iron, the faster it must travel to melt a fine cut.



❑ 7. Peel the covering from the middle of the stabilizer. Then wipe away the ink with a few of your paper towel squares dampened with denatured alcohol.

Finally! Time to glue in the stab…

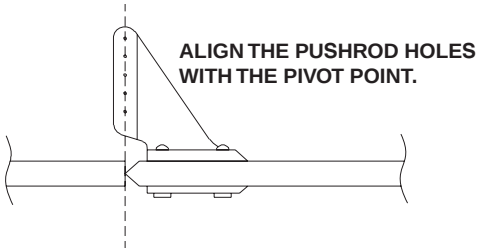
❑ 8. Wrap half of the stabilizer with food storage wrap. **Thoroughly** coat all joining areas of the stabilizer and fuselage with 30-minute epoxy. Then, immediately slide the stab into position. Take the wrapping off the stab. Use paper towel squares and denatured alcohol to wipe off excess epoxy. Reinsert the T-pins through the back of the stab on both sides of the fuselage and use the pin-and-string to permanently center the stab. Position any weight used to align the stab with the wing. Do not disturb the model until the epoxy has hardened.



❑ 9. The same as was done for the stabilizer, slide the fin into position, mark the outline of the fuselage on both sides,

cut and peel off the covering, and then use 30-minute epoxy to glue the fin into position. Use a builder's triangle and if necessary, pull the top of the fin over to one side or the other of the stab.

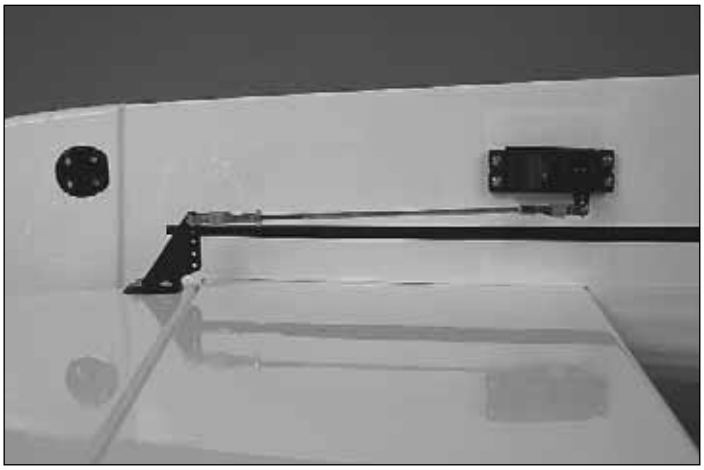
❏ 10. After all the epoxy has hardened, join the elevators to the stab and the rudder to the fin with the CA hinges and thin CA. Don't forget to use T-pins to keep the hinges centered as you fit the elevators and rudder.



❏ 3. Make the pushrods and connect the servos to the control surfaces using the same hardware that was used for the ailerons-except use 4-40 x 3/4" [19 mm] Phillips screws and the mounting plates on the other side of the control surfaces for mounting the horns. When mounting the horns, locate the clevis holes over the pivot point and drill 1/8" [3.2 mm] holes for the screws through the control surfaces.

Mount the Servos & Hook Up the Controls

Refer to these photos while mounting the servos.

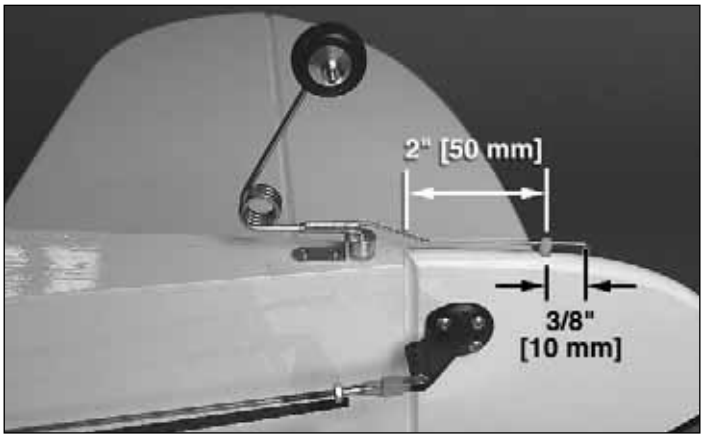


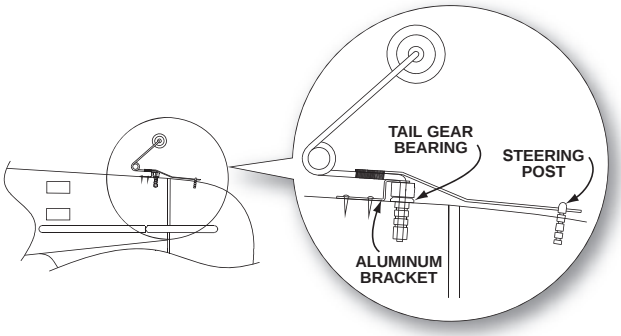
❏ 1. Connect a 24" [610 mm] servo extension to both elevator servos and the rudder servo. The same as with the aileron servo extensions, secure the connections with the heat shrink tubing provided with this kit.

❏ 2. Guide the servo wires through the fuselage up into the radio compartment and mount the servos using the screws that came with them (the screw holes should have been previously drilled and hardened).

Mount the Tail Gear

Refer to the photo and the sketch to mount the tail gear.





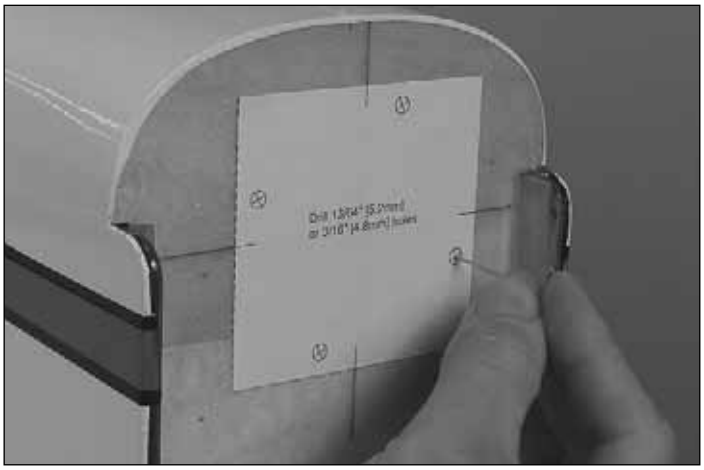
❏ 1. Cut the covering from the 1/4" [6 mm] hole in the bottom of the fuselage for the nylon tail gear bearing. Glue the bearing in place with CA. Use care not to get any glue into the hole in the bearing.

❏ 2. Mount the tail wheel to the tail gear wire with the small wheel collar and the set screw and mount the tail gear to the fuselage with the rest of the hardware shown. Use a 1/16" [1.6 mm] drill to drill the holes in the bottom of the fuselage for the screws. Don't forget to install, then remove, the screws and harden the holes with a few drops of thin CA. Drill a 5/32" [4 mm] hole into the bottom of the rudder for the steering pin. Glue the pin in place with CA. Cut off the excess wire.

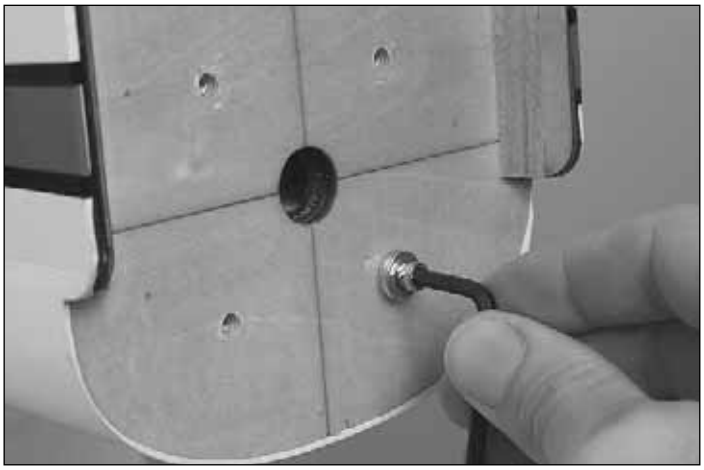
Mount the Engine & Hook Up the Throttle

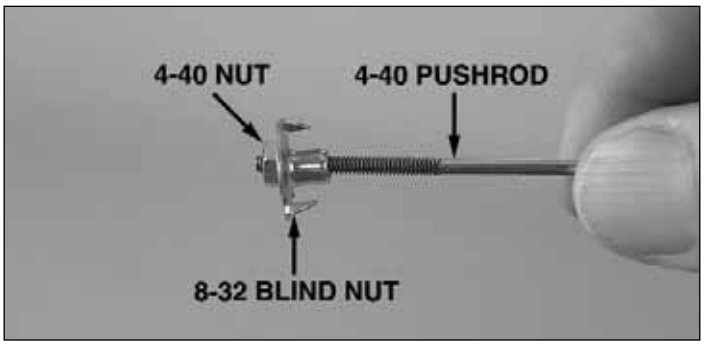
Follow the instructions for the type of engine you are using. (Gas-only instructions are shaded)

GLOW ENGINE



❏ 1. Cut the **Glow Engine Mounting Template** from the back of the manual. Use tape or spray adhesive to hold the template to the firewall with the marks on the template aligned with the cross marks on the firewall. Use a large T-pin or a wire sharpened on the end to transfer the bolt hole marks on the template into the firewall.



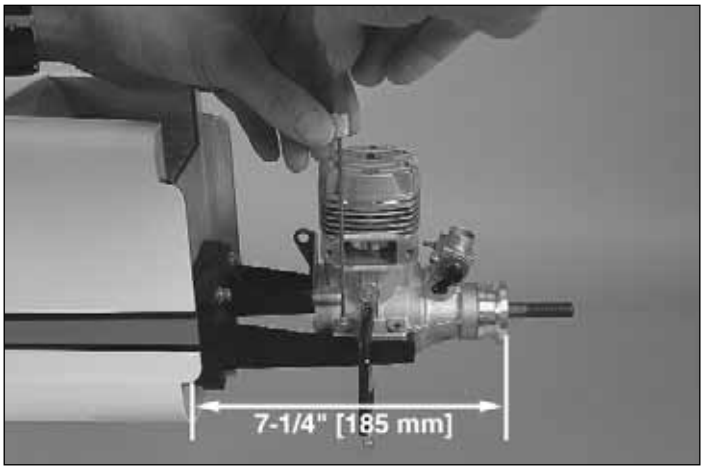


❏ 2. Remove the template. Drill 3/32" [2.4 mm] pilot holes at the marks. Then, enlarge the holes with a 13/64" [5.2 mm] (or 3/16" [4.8 mm]) drill. Apply a few dabs of epoxy to the front of four 8-32 blind nuts and use an 8-32 x 1" [25 mm] screw with three #8 washers to draw each blind nut into the back of the firewall.

Hint: If you have difficulty getting the blind nuts started in the holes, remove one of the aileron pushrods and use it to pull the blind nuts through with a 4-40 nut. Once the blind nuts are partially stuck, use the 8-32 screw and washers to draw it the rest of the way in.

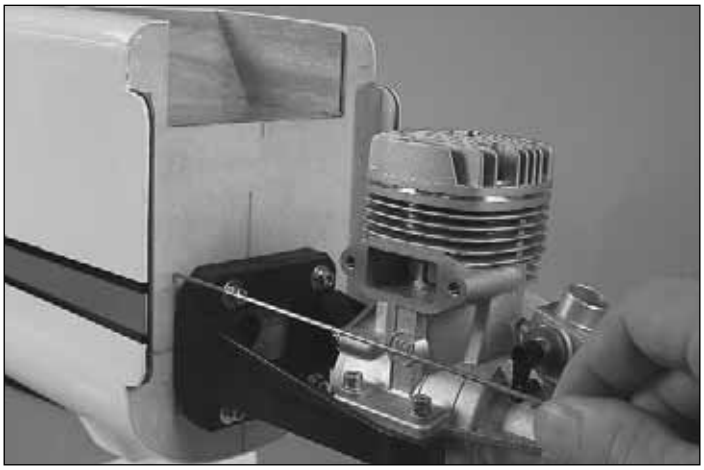
❏ 3. Mount the engine mount to the firewall with four 8-32 x 1-1/4" [32 mm] socket head cap screws (SHCS) and #8 flat washers and lock washers, but do not tighten the screws all the way yet.

❏ 4. Place your engine on the engine mount and adjust the mount to fit the engine. Center the mount from side-to-side on the screws, then tighten.



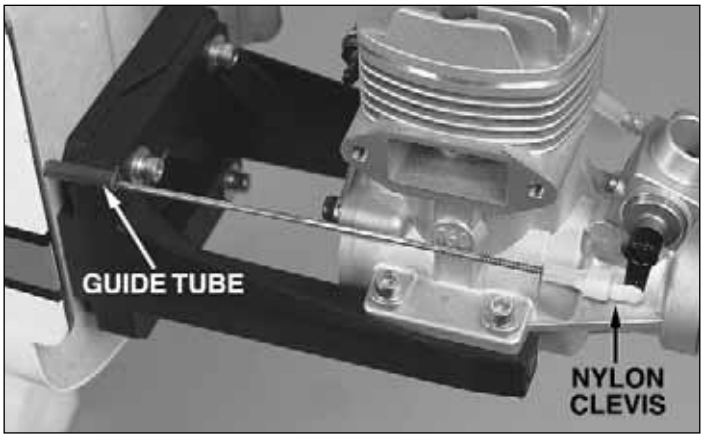
❏ 5. Hold the engine to the mount with one or two small C-clamps so that the front of the drive washer (or the back plate of the spinner) is 7-1/4" [185 mm] from the firewall. Use a Great Planes Engine Hole Locator or a drill bit to mark the engine mounting holes into the engine mounts.

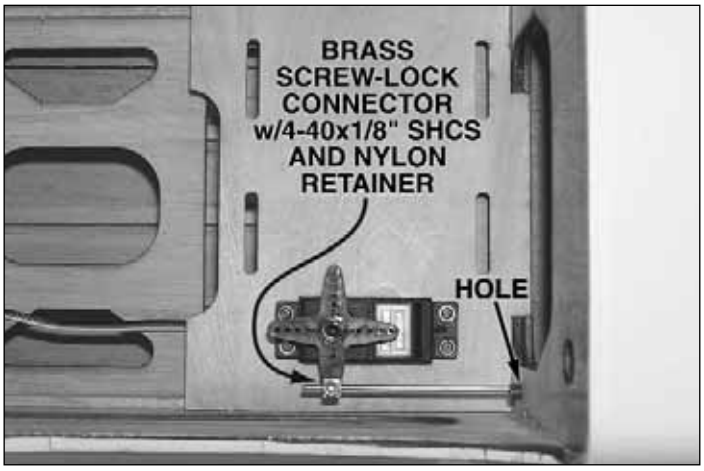
❏ 6. Take the engine off the mount. Drill #29 holes at the marks. Use an 8-32 tap to cut threads into the holes. Mount the engine to the mount with four 8-32 x 1" [25 mm] socket head cap screws and #8 lock washers.



❏ 7. Use a wire sharpened on the end to mark the firewall where the throttle pushrod will come through to align with the carburetor arm. Be certain the throttle pushrod location will not interfere with the fuel tank when in position.

Refer to the following two photos while hooking up the throttle.





❑ 8. If necessary, remove the engine. Drill a 3/16" [4.8 mm] hole through the firewall where you made the mark for the throttle pushrod.

❑ 9. Cut the 3/16" x 24" [4.8 x 610 mm] gray pushrod tube to the correct length to be used for the throttle pushrod guide tube, and then roughen the outside with coarse sandpaper so glue will adhere. Guide the pushrod tube through the firewall and the slotted holes on either side of the former that holds the wing dowels.

Note: A plywood **pushrod guide tube mount** is supplied with this kit. If the throttle does not align with one of the slotted holes in the former, you could position the pushrod tube outside the slots and use the mount to secure the throttle pushrod tube. Just slip the mount over the tube and glue it to the former.

PUSHROD GUIDE TUBE MOUNT

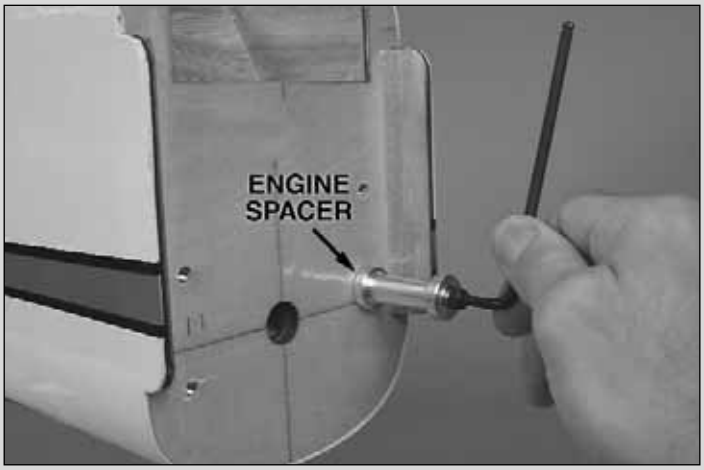
❑ 10. Securely glue the plywood **servo tray** into position so that the cutout for the throttle servo will be on the same side as the throttle pushrod. Drop the throttle servo into the tray.

❑ 11. Hook up the throttle using the hardware shown. Mount the servo to the tray with the screws that came with the servo. Remove the servo and harden the holes with a few drops of thin CA, and then remount the servo. Glue in the throttle pushrod guide tube with CA.

GAS ENGINE (FUJI BT-32)

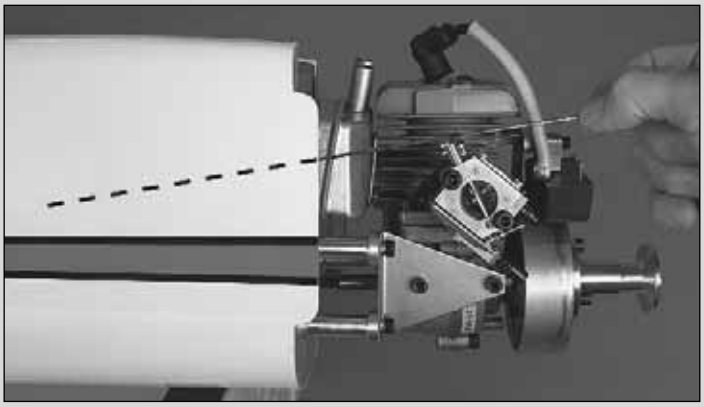
If mounting a gas engine other than the Fuji BT-32, use these instructions as a guide for mounting your engine in a similar manner.

❑ 1. Drill 1/16" [1.6 mm] pilot holes through the firewall at the four marks for the Fuji Engine. Enlarge the holes with a 1/8" [3.2 mm] drill, followed by a 1/4" [6.4 mm] drill. **Note:** The Fuji engine mounting holes are centered over the cross marks on the firewall. If using a different engine, be sure to center the engine mount (or the engine) on the cross marks.



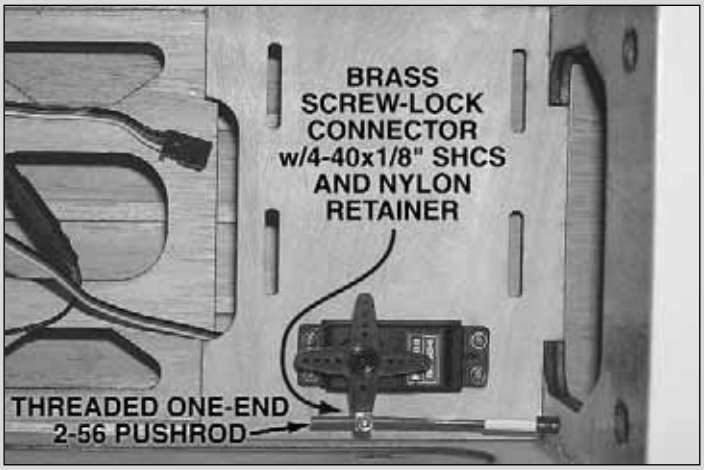
❑ 2. Apply a few dabs of epoxy to the front of the four 5mm blind nuts. Use a 5 x 60mm socket-head cap screw (SHCS) with a few 5mm washers and one of the aluminum engine spacers to draw each blind nut into the back of the firewall. **Hint:** If you have difficulty getting the blind nuts started in the holes, remove one of the aileron pushrods and use it to pull the blind nuts through with a 4-40 nut (as shown for the glow engine mounting in Step 2 on page 14). Once the blind nuts are partially stuck, use the 5mm screw, washers and spacer to draw it the rest of the way in.

❑ 3. Mount the engine with four 5 x 60mm SHCS, 5mm lock washers and flat washers and the engine spacers.



❑ 4. Mount a 2-56 ball link ball to the carburetor arm on the engine with a 2-56 lock nut. Use a piece of wire sharpened on the end to mark the firewall where the throttle pushrod will come through to align with the carburetor arm. Be certain the throttle pushrod location will not interfere with the fuel tank when in position.

Refer to the following two photos while hooking up the throttle.



❑ 5. If necessary, remove the engine. Drill a 3/16" [4.8 mm] hole through the firewall where you made the mark for the throttle pushrod.

❑ 6. Cut the 3/16" x 24" [4.8 x 610 mm] gray pushrod tube to the correct length to be used for the throttle pushrod guide tube. Then, roughen the outside with coarse sandpaper so glue will adhere. Guide the tube through the firewall and the slotted holes on either side of the former that holds the wing dowels.

Note: A plywood **pushrod guide tube mount** is supplied with this kit. If the throttle does not align with one of the slotted holes in the former, you could position the pushrod tube outside the slots and use the mount to secure the throttle pushrod tube. Just slip the mount over the tube and glue it to the former.

PUSHROD GUIDE TUBE MOUNT

❑ 7. Securely glue the plywood **servo tray** into position so that the cutout for the throttle servo will be on the same side as the throttle pushrod. Drop the throttle servo into the tray.

❑ 8. Hook up the throttle using the hardware shown. Mount the servo to the tray with the screws that came with the servo. Remove the servo and harden the holes with a few drops of thin CA. Then, remount the servo. Glue in the guide tube with CA.

MOUNT THE KILL SWITCH (FOR SPARK IGNITION ENGINES ONLY)

As stated in the IMAA Safety Code, all magneto spark-ignition engines must have a manually operated, coil-grounding switch to stop the engine and prevent accidental starting. A home-made switch could be made from a .3 Amp slide switch, terminals and 16 gauge wire purchased from a Radio Shack® or other electronic store, or fashioned from a Great Planes Ignition Switch Harness (GPMG2150). For the model in the manual, the Great Planes switch was used with the lever switch removed from the assembly (the servo-operated cutoff option was not used). If, in addition to the required manually operated switch, you would also like a servo-operated cutoff switch, use a standard servo and actuate the lever switch via hardware purchased separately.

Refer to this photo while mounting the ignition switch.

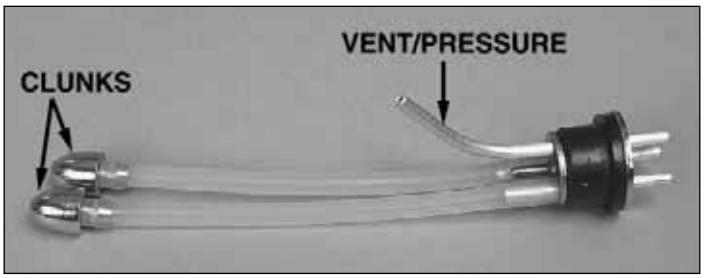
❑ 1. Assemble the ignition switch mount from the plywood parts shown. Fuelproof the mount with fuelproof paint or epoxy, mount the switch to the mount, and then glue the mount to the fuselage where it will be easily accessible from outside the model. (The balsa stick shown in the photo was used to temporarily hold the switch mount in position while the epoxy gluing it was hardening.)

❑ 2. Connect the wires to the engine, making certain they will not contact the engine or muffler. If necessary, the wires could be wrapped with silicone fuel tubing for insulation.

Assemble the Fuel Tank

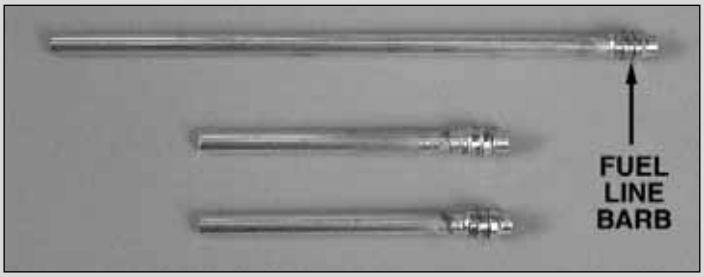
If using a gasoline-powered engine, the fuel tank setup will have to be converted to work with gas using the hardware listed in the front of the manual. Follow these instructions for assembling your fuel tank for the type of engine you are using.

GLOW ENGINES

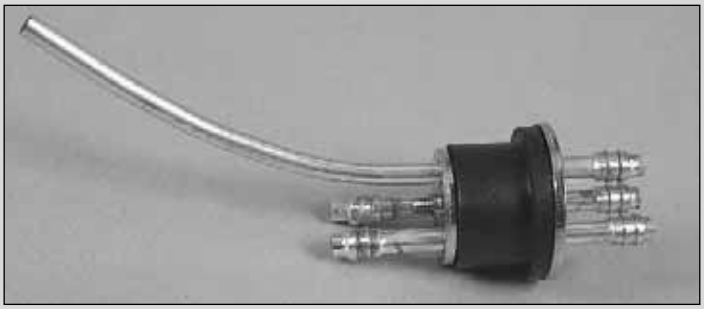


❑ 1. Cut two of the aluminum tubes to a length of 1-1/2" [40 mm]. (This can be done by rolling the tubing on your workbench with a #11 blade.) Assemble the stopper as shown in the photo. Bend the long tube so it will be at the top of the tank. Cut the fuel lines to a length that will not allow the clunks to contact the back of the tank–otherwise they may become stuck. Note that one of the lines will be used for fueling and defueling and the other will be the pickup line that goes to the carburetor. The bent tube will be the vent/pressure line that will be connected to the pressure tap on the muffler. Proceed to step 4 to finish assembling the fuel tank.

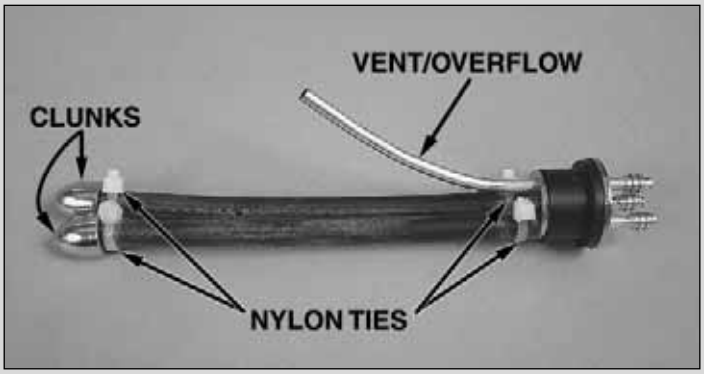
GAS ENGINES



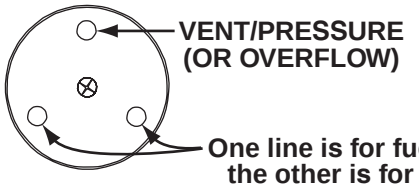
❑ 1. Cut one of the brass tubes included with the Sullivan conversion kit in half (two approximately 1-3/4" [45 mm] pieces). Solder a Du-Bro fuel line barb onto one end of each of the three tubes.



❑ 2. Assemble the stopper, tubes and metal plates. Solder another fuel line barb onto the ends of the short tubes. Bend the brass vent/overflow tube upward so it will be at the top of the tank.

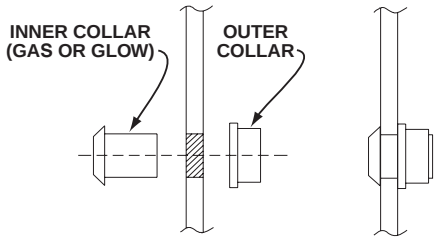


❑ 3. Connect the fuel tubing to the short tubes and the clunks. Be certain tubing is cut to a length so that the clunks will not contact the back of the tank–otherwise they may become stuck. Note that one of the lines line will be used for fueling and defueling and the other line will be the pickup line that goes to the carburetor. The bent tube will be the vent/overflow line that will be connected to a line that exits the bottom of the fuselage. **Important:** Secure both ends of the fuel tubing with small nylon ties. This is an important measure that must be taken to be sure the lines remain attached inside the tank.



❑ 4. Write "TOP" on the back of the tank so you will know which way to install it after you have inserted the stopper assembly. Insert the stopper so the vent tube will be at the top of the tank. Then, tighten the screw to squish the stopper and seal the tank. Shake the tank to make sure the clunks can move and the fuel lines are not too long. If necessary, remove the stopper and shorten the lines.

Install the Fuel Tank



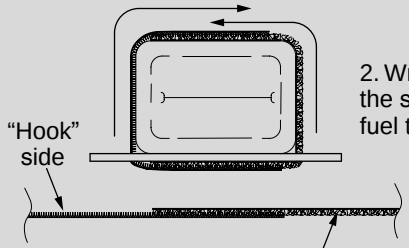
FUELING LINE COLLAR

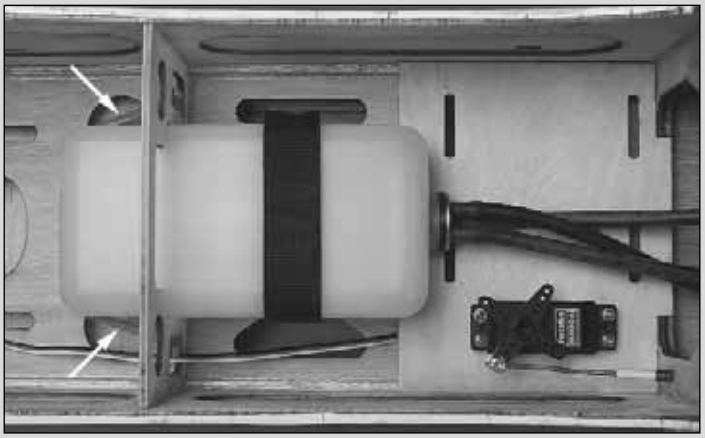
❑ 1. Determine where you want to locate the **fueling line collar** on the side of the fuselage for fueling and defueling the tank. Use a #11 blade or a drill to cut an 11/32" [8.7 mm] hole at that location. Note that there are two different inner collars–one with a smaller I.D. for glow tubing and one with a larger I.D. for gas tubing. Select the correct inner collar for your application. Then, from outside the fuselage, fit the inner collar through the hole. From inside the fuselage, fit the outer collar over the inner collar. Use thin CA to glue the parts together.

If using a gas-powered engine, proceed to step 3.

❑ 2. If using a glow engine, connect the fuel lines to the fuel tubes coming from the tank. Guide the lines through the hole in the firewall and place the tank in the **forward** fuel tank mounting location behind the firewall. Cut the fuel line that goes to the carburetor and the vent line that goes to the pressure tap on the muffler to the correct length, and then connect them to the engine. Cut the fueling/defueling line to a length that will allow you to pull the line from the fuselage through the fueling inlet collar. Guide the line through, and then insert the plastic fueling plug and press the end of the line back into the collar. **Note:** Do not mount the fuel tank in the aft mounting location for glow engine use. Most glow engines will not be able to draw fuel from that far away. Proceed to the next section, ***Mount the Cowl.***

❑ 3. If using a gas engine, connect the fuel lines to the fuel tubes coming from the tank. Drill a 1/4" [6.4 mm] hole through the firewall for the fuel line to the carburetor (the engine will probably have to be removed to drill the hole) and another hole for the vent/overflow line so it can be mounted to the bottom of the fuselage. For the model in the manual, the end of the vent line was mounted in a hardwood block with a 1/4" hole glued to the bottom of the fuselage. **Note:** The fuel line plug should be in place during transportation of the model, but should be removed during fueling/defueling and flight.

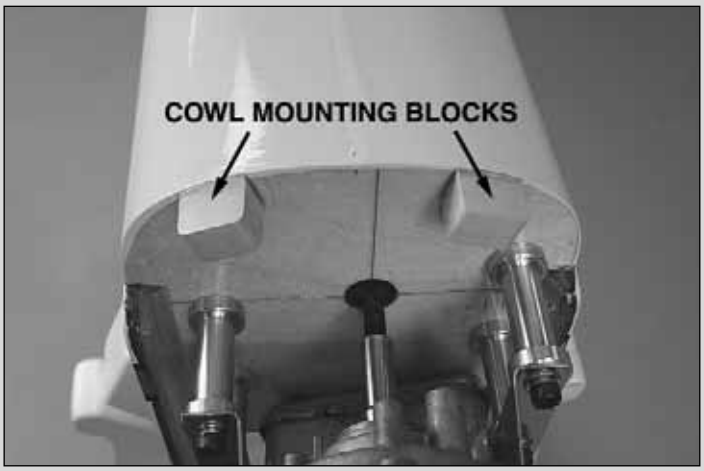




❑ 4. Install the tank in the aft mounting location and hook up the lines. Hold the tank in position with a #64 rubber band (indicated by the arrows in the picture) and two opposing 8" [200 mm] strips of Velcro.

Mount the Cowl

(Remember, "Gas-only" steps are shaded.)



❑ 1. **This step is necessary only if using a gas engine. If using a glow engine, proceed to step 2.** Use coarse sandpaper to roughen the firewall for the cowl mounting blocks. Use 30-minute epoxy to glue both hardwood cowl mounting blocks into position where shown. (The cowl blocks are necessary for gas engine installation because the Fuji 32–and probably most other gas engines–protrude farther than the 7-1/4" [185 mm] specified for glow engines. This means the cowl will also be farther forward, so without the cowl mounting blocks the cowl mounting screws would be too close to the aft edge of the cowl.)

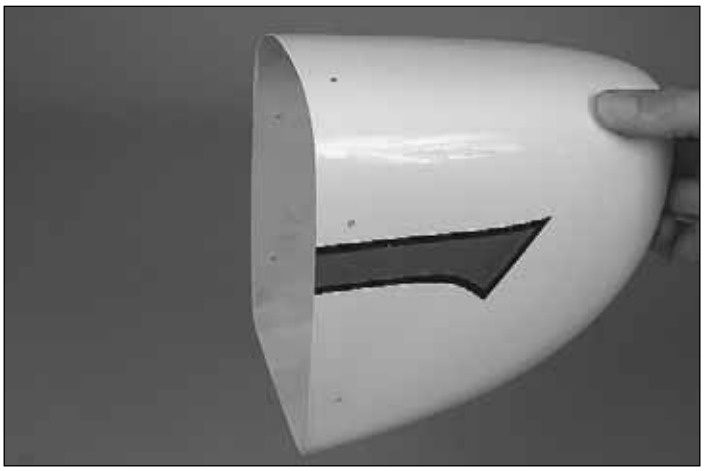
Refer to this photo for Steps 2 and 3.

❑ 2. Place the cowl on the fuselage over the engine and temporarily mount the spinner back plate and prop. Align the front of the cowl with the spinner back plate, with approximately 1/8" [3 mm] spacing between them. **Hint:** If mounting the Fuji 32, temporarily remove the carburetor and spark plug so the cowl will fit.

❑ 3. Holding the cowl in position, use a fine-point felt-tip pen to draw the outline of the cowl directly onto the fuselage. Remove the propeller, back plate and cowl.

Perform step 4A only if you have mounted a glow engine.
Perform step 4B only if you have mounted a gas engine.

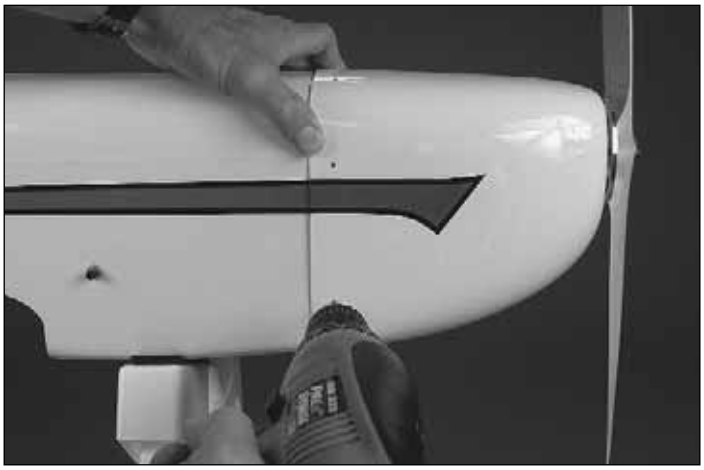
Refer to this photo both for Steps 4A and 4B.



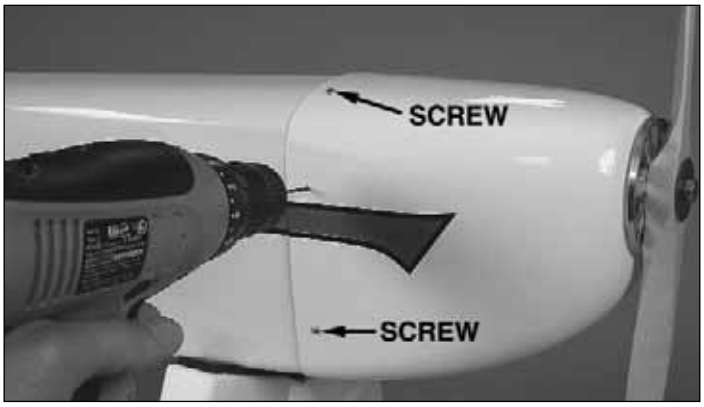
❑ 4A. **Glow Engines:** Using the line around the fuselage as a reference to take measurements from, drill six 1/8" [3.2 mm] holes in the sides and top of the cowl so they will be 3/16" [5 mm] behind the front edge of the firewall–this will center the screws in the firewall.

❑ 4B. **Gas Engines:** Using the line around the fuselage as a reference to take measurements from, drill six 1/8" [3.2 mm] holes in the sides and top of the cowl. The two top holes should be positioned so the screws will be centered in the cowl mounting blocks and the holes in the sides of the cowl should be approximately 3/8" [10 mm] aft of the front edge of the side tabs.

❑ 5. Reposition the cowl on the fuselage. Mount the spinner back plate and prop.

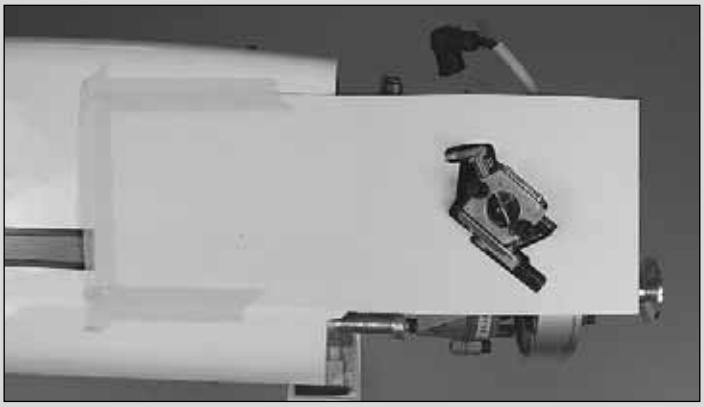


❑ 6. Again holding the cowl in position (it may be helpful to have an assistant), drill a 3/32" [2.4 mm] hole into the fuselage through one of the cowl holes. Mount the cowl to the fuselage with one #4 x 5/8" [16 mm] Phillips screw into the hole you just drilled.

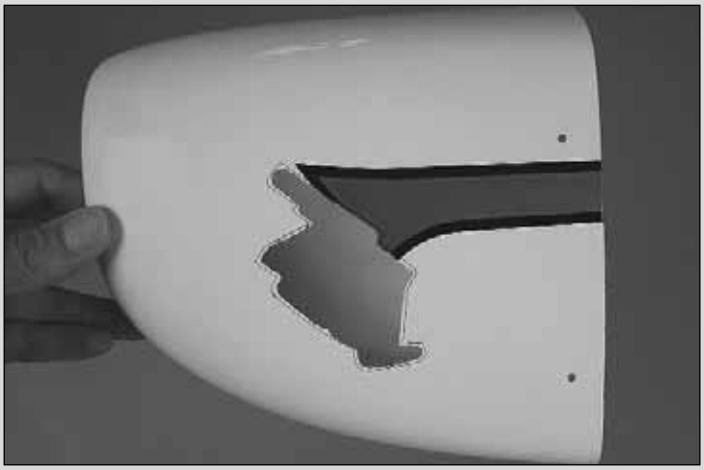


❏ 7. Still holding the cowl, drill another hole into the fuselage through the next cowl screw hole and use another #4 x 5/8" [16 mm] screw to hold the cowl in place. One at a time, drill the remaining four holes and mount the cowl with four more #4 x 5/8" [16 mm] screws. **Note:** When it's time to mount the cowl for flying, use #4 flat washers and #4 lock washers on the screws.

A Dremel carbide cutter and a sanding drum are key tools for cutting out the cowl.



❏ 8. Now that the cowl is mounted, cut any other holes necessary for engine cooling, head/spark plug clearance, carburetor access, etc. For the Fuji 32, a template for the carburetor cutout, air cooling inlet and spark plug clearance has been provided in the back of the manual. Starting with the carburetor, cut out the template, and then transfer the cutout to a piece of thin cardboard or vanilla folder. Align the cardboard template with the carburetor. Next, tape the template to the fuselage. Remove the carburetor from the engine and mount the cowl. Use a fine-point felt-tip pen to draw the carb cutout onto the cowl.

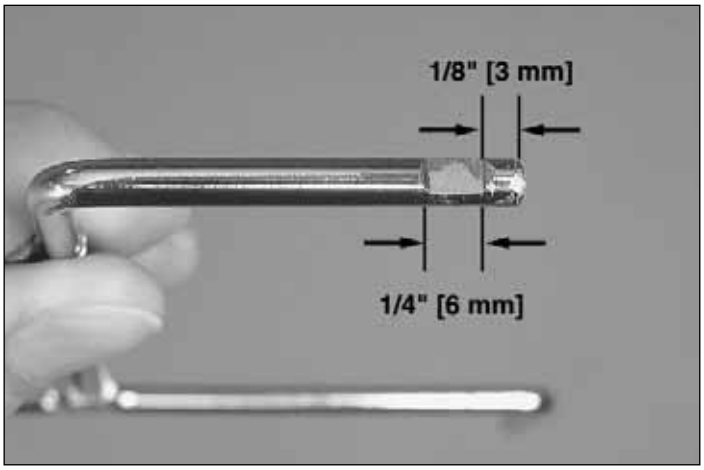


❏ 9. Remove the cowl and rough-cut the hole. Mount the carburetor back onto the engine before test-fitting the cowl. Adjust the cutout as necessary to fit around the carburetor.

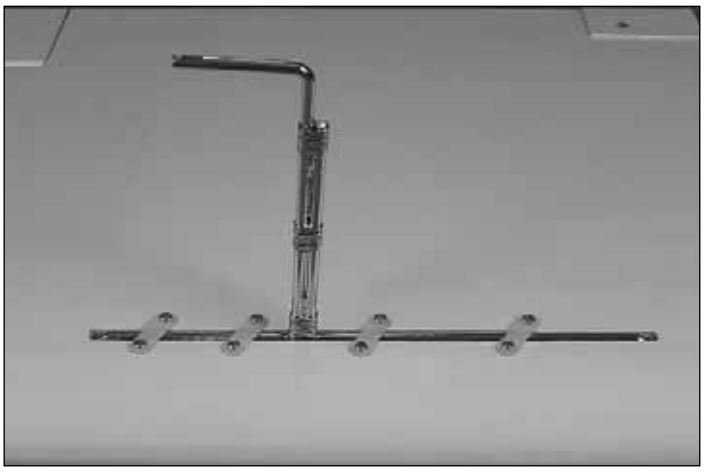
❏ 10. Use the spark plug template and the air inlet template to cut the other holes. If using an engine different than the Fuji 32, make your own templates and use them to cut the holes in the cowl the same way.

FINAL ASSEMBLY

Mount the Main Landing Gear

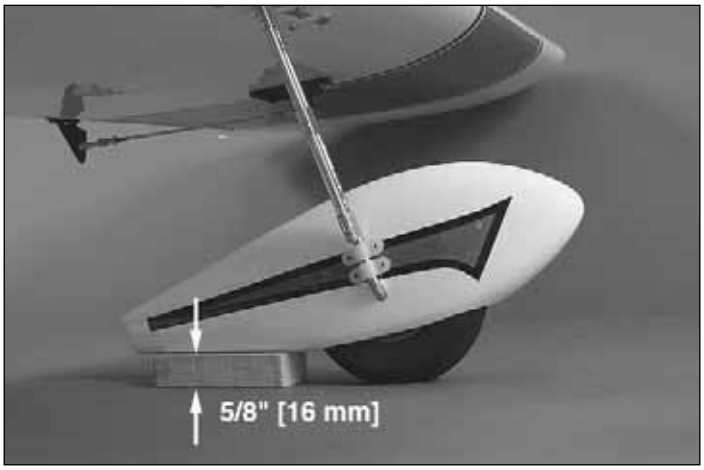


❑ 1. File a flat spot in both main landing gear wires where shown in the photo.



❑ 2. Mount both landing gears to the wings–drill 3/32" [2.4 mm] holes for the #4 x 5/8" [16 mm] screws that hold down the flat straps. Don't forget to harden the holes for the screws with thin CA after installing, then removing the screws.

❑ 3. Temporarily place the wheel pants and the wheels on the landing gear. Then, mount the wings to the fuselage and set the model on its gear. The end of the "axle" portion of the gear should key into the hole in the plywood disc on the other side of the pant.

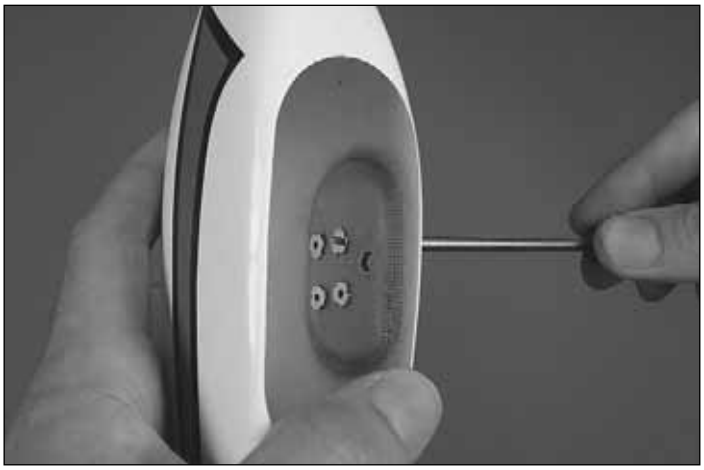


❑ 4. With the plane sitting on its main wheels and tail wheel, use a block of balsa or something similar to prop up one of the wheel pants 5/8" [16 mm].

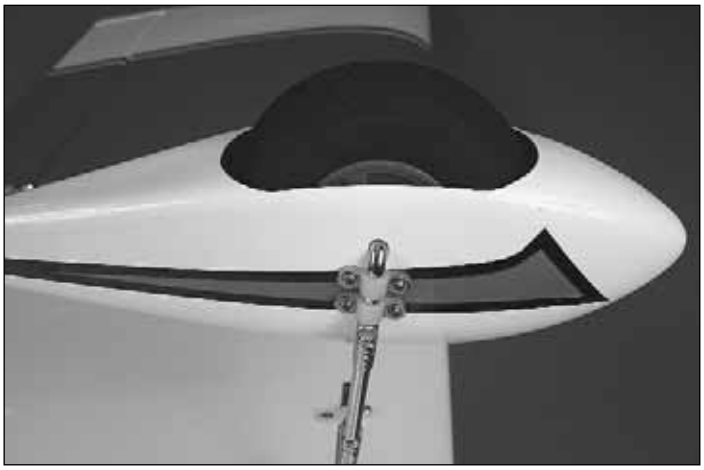
❑ 5. Fit two mounting straps over the gear. Mark the hole locations in the straps into the wheel pant–we used our Great Planes Dead Center™ Engine Mount Hole Locator (GPMR8130) to mark the holes.

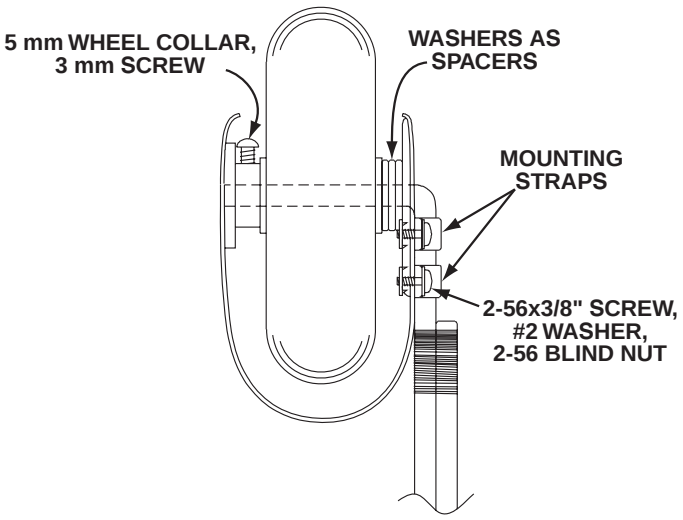
❑ 6. Prop up the other wheel pant and mark the strap hole locations the same way.

❑ 7. Return the plane to your building stand upside-down and remove the wings. Remove the wheel pants and drill 1/8" [3.2 mm] holes through the pants at each of the marks for the screw holes in the straps.



❑ 8. Insert 2-56 blind nuts into each of the four holes in the wheel pants, drawing them down tight with a 2-56 x 3/8" [9.5 mm] screw and two washers. Remove the screws, then glue each blind nut into the pant with two or three drops of medium CA.

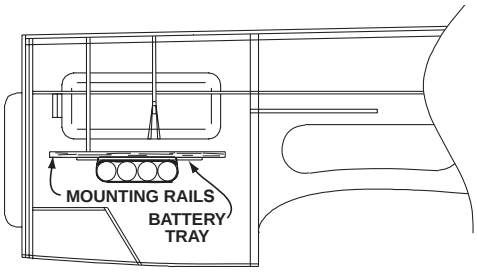




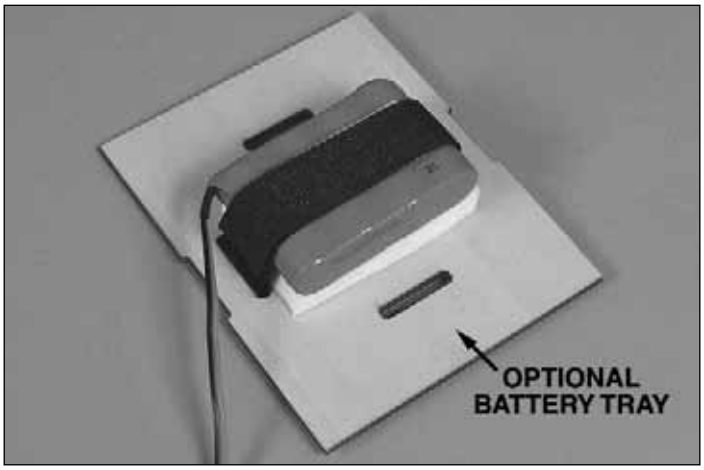
❑ 9. Mount the wheels and pants to the landing gear with the hardware shown. Be certain to use threadlocker on all the screws. Use three or four 5mm washers to center the wheels.

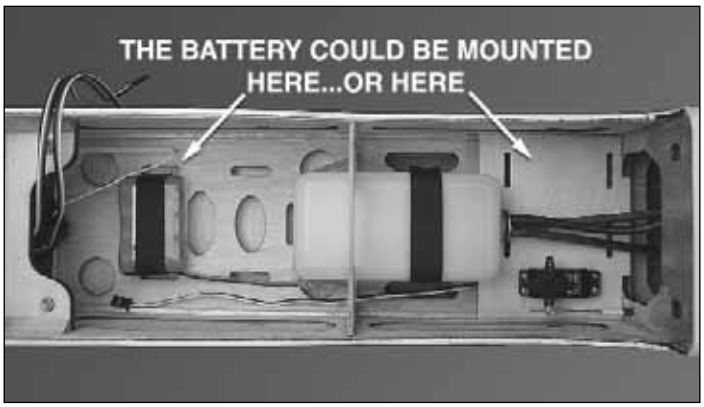
Finish Radio Installation

If using a gas engine, the model will probably require tail weight to get it to balance. If using a glow engine, the model will probably require nose weight to get it to balance. To minimize any additional nose or tail weight that may be required, mount the receiver battery in the aft location for gas engines and in one of the forward locations for glow engines. You could go ahead and mount the battery and receiver now, or do a quick C.G. check first to find out where the battery should be mounted. If you would like to do a quick C.G. check go to page 25.

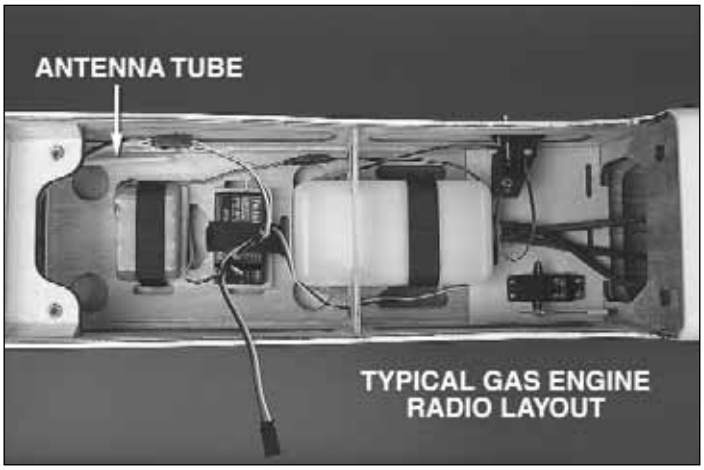


OPTIONAL FORWARD BATTERY MOUNTING LOCATION





❑ 1. Use R/C foam and the supplied Velcro strips to mount the receiver battery. To position the battery as far forward as possible, mount it to the optional plywood battery tray, and then securely glue the tray to the balsa rails on both sides of the fuselage below the fuel tank. (Depending on their size and configuration, not all batteries will be able to be mounted to the tray.) If not using the battery tray, mount the battery on the servo tray next to the throttle servo or to the receiver/battery tray under the cockpit.



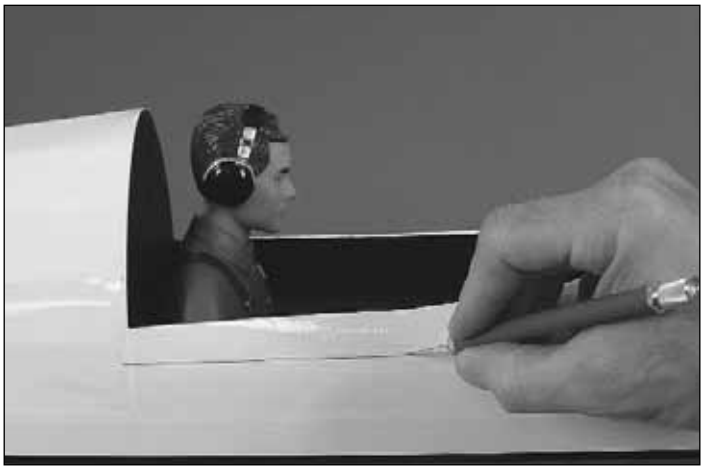
❑ 2. Mount the receiver and on/off switch. Connect the servo wires and switch to the receiver and connect the battery to the switch. Extend and guide the receiver antenna through the antenna tube in the fuselage.

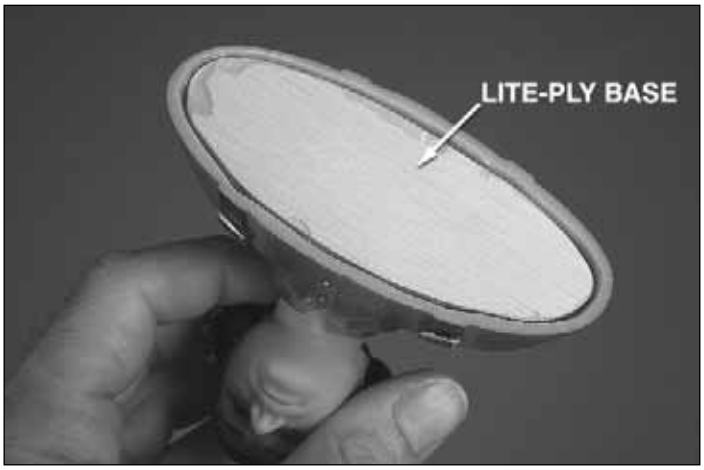
❑ 4. Place the canopy on the fuselage and hold it down. Use a fine-point ballpoint pen to accurately mark the outline of the canopy onto the fuselage-do not mark the aft edge of the canopy as it does not get glued down anyway.

Finish the Cockpit & Mount the Canopy

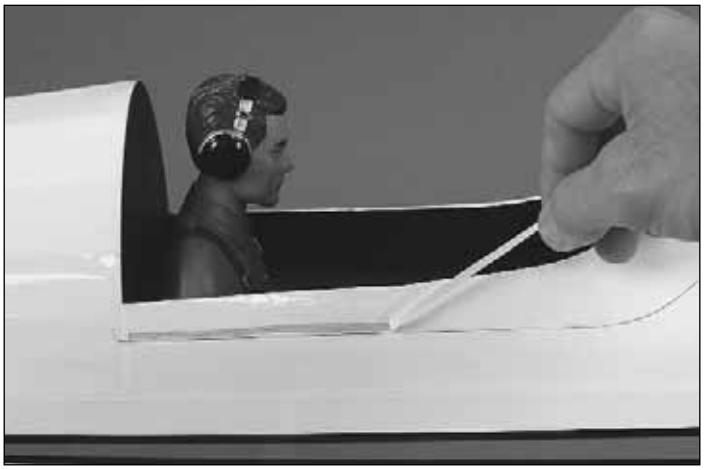
❑ 1. The level of detail that may be achieved is up to you. You could simply glue on the canopy without a pilot, or do a simple interior by painting it black and adding a pilot, or go "all out" and mock up a realistic cockpit interior built from scratch. To finish your model as shown, lightly sand the cockpit with 400-grit sandpaper, and then paint it black.

❑ 2. Cut out the paper instrument panel from the back of this manual. Test fit in the cockpit and trim if necessary. Use spray adhesive or a glue stick to permanently glue the instrument panel into position.





❑ 3. Install a pilot of choice. A 1/4 or 1/3-scale pilot is suitable. The pilot shown is the one included with the Great Planes Super Stearman ARF and is also available separately (GPMA2475). Trim down the base of the pilot so he will fit under the canopy. For the most security, cut a base from lite-ply (not supplied) and glue it inside the pilot. Glue the pilot into position, and then use #4 screws (not included) with washers to screw the pilot to the cockpit floor from inside the radio compartment.



❑ 5. Use a sharp hobby knife to cut a small strip of covering from the fuselage inside the line you marked. Strip off the covering.

❑ 6. Use R/C 56 canopy glue or CA to glue the canopy down. If you elect to use CA, use it **sparingly** and work with precision–it's easy to make a mess of canopies with CA if too much is used and it "kicks off" too fast or runs onto the plastic.

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 & water allows accurate positioning and reduces air bubbles underneath.

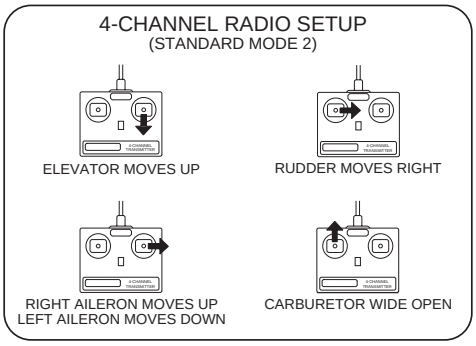
3. Position decal on the model where desired. Holding the decal down, use a paper towel to wipe most of the water away.

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.

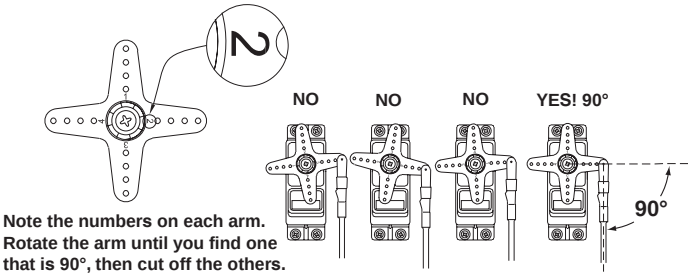
GET THE MODEL READY TO FLY

Check Control Directions & Center Servos

❑ 1. With the radio system connected and operating, turn on the transmitter and receiver.



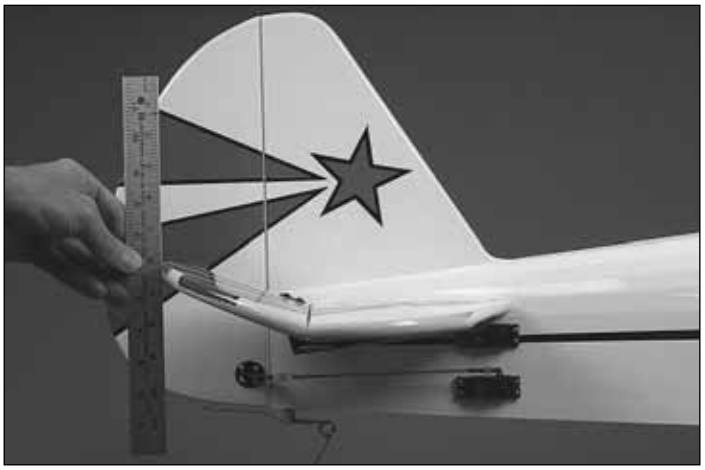
❑ 2. Make certain that the control surfaces and the carburetor respond in the correct direction. If necessary, use the servo reversing to reverse any servos that are going the wrong way.



Note the numbers on each arm. Rotate the arm until you find one that is 90°, then cut off the others.

❑ 3. Center all the trims on the transmitter. Turn on the transmitter and receiver. Starting with one of the aileron servos, test-fit the four-arm servo arm in one of the four positions until you find the one that is 90-degrees. Cut off the remaining arms. Repeat for the rest of the servos.

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, use the low rate settings. **NOTE:** The throws are measured at the **widest part** of the elevators and rudder.

These are the recommended control surface throws:

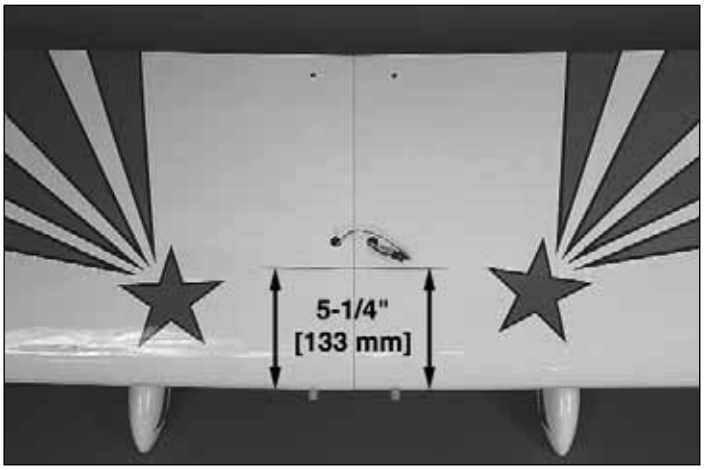
	High Rate	Low Rate
AILERONS:	1-1/4" [32 mm] up	3/4" [19 mm] up
	1-1/4" [32 mm] down	3/4" [19 mm] down
ELEVATOR:	1-1/2" [38 mm] up	1" [25 mm] up
	1-1/2" [38 mm] down	1" [25 mm] down
RUDDER:	3" [76 mm] right	2" [51 mm] right
	3" [76 mm] left	2" [51 mm] left

IMPORTANT: The Giant Super Sportster ARF 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 Giant Super Sportster ARF 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.

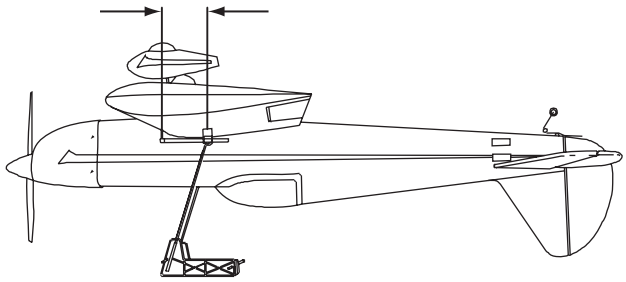
If you haven't done so, mount the spinner using the appropriate adapters as described on page 5. At this stage the model should be in ready-to-fly condition with all of the systems in place including the engine, cowl, propeller, spinner and all components of the radio system.



❏ 1. If using a Great Planes C.G. Machine, set the rulers to 5-1/4" [133 mm]. Mount the wing to the fuselage and proceed to the next step. If not using a C.G. Machine, use a fine-point felt-tip pen to accurately mark the C.G. on the top of the wing 5-1/4" [133 mm] back from the flat part of leading edge at the middle. Lay a piece of narrow (1/8" [2 mm]) tape over the line so you will be able to feel it with your fingers when lifting the model to check the C.G.

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" [25 mm] forward or 1" [25 mm] back to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but the model will then be less aerobatic and may 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.

5-1/4" [133 mm]



❏ 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly) and an empty fuel tank, place the model upside-down on the CG Machine or lift it upside-down at the balance point you marked.

❏ 3. If the tail drops, the model is "tail heavy" and weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and weight must be added to the tail to balance. If possible, relocate the battery pack and receiver to minimize or eliminate any additional ballast required. If additional weight is still required and you are using a glow engine, nose weight may be easily added by using a "spinner weight" (GPMQ4645 for the 1 oz. [28g] weight, or GPMQ4646 for the 2 oz. [57g] weight). If spinner weight cannot be used or is not enough, use Great Planes (GPMQ4485) "stick on" lead. To find out how much weight is needed, begin by placing incrementally increasing amounts of weight on the fuselage where needed until the model balances. Once you have determined the amount of weight required, it can be permanently attached. A good place to add stick-on nose weight is to the firewall or inside the fuel tank compartment as close to the firewall as possible.

Note: If attaching weight to the firewall, do not rely upon the adhesive on the back of the lead weight to permanently hold it in place. Over time, fuel and exhaust residue may soften the adhesive and cause the weight to fall off. Use #2 sheet metal screws, RTV silicone or epoxy to permanently hold the weight in place.

❏ 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. Turn the model upright and set it on your workbench. With the wing level, have an assistant help you lift the model by the engine propeller shaft and the bottom of the fuselage under the trailing edge 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-it may be stuck directly to the covering or permanently glued inside the wing. **An airplane that has been laterally balanced will track better in loops and other maneuvers.**

PREFLIGHT

Identify Your Model

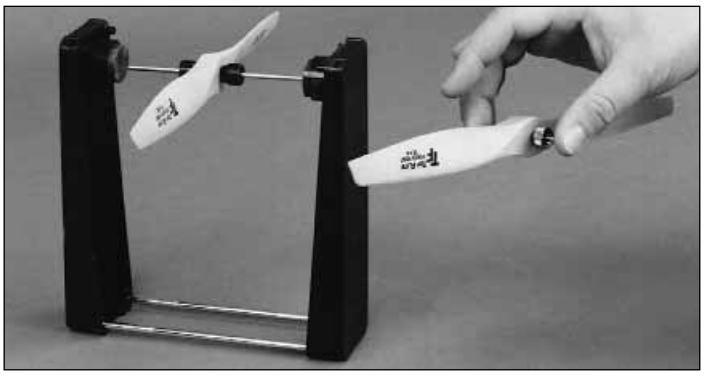
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is required at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 31 and place it on or inside your model.

Charge the Batteries

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

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

Balance Propellers



Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only will engine mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver and battery. Vibration can also cause your fuel to foam, which will, in turn, cause your engine to run hot or quit.

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

Ground Check

If the engine is new, follow the engine manufacturer's instructions to break-in the engine. After break-in, confirm that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power-indefinitely. After you run the engine 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 engine 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.

ENGINE SAFETY PRECAUTIONS

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

- Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; and remember that engine exhaust gives off a great deal of deadly carbon monoxide. Therefore **do not run the engine in a closed room or garage**.
- Get help from an experienced pilot when learning to operate engines.
- Use safety glasses when starting or running engines.
- Do not run the engine in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.
- Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine.
- Keep these items away from the prop: loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets into the prop.

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

- Make all engine adjustments from behind the rotating propeller.

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

- To stop a glow engine, cut off the fuel supply by closing off the fuel line or following the engine manufacturer’s recommendations. Do not use hands, fingers or any other body part to try to stop the engine. To stop a gasoline powered engine an on/off switch should be connected to the engine coil. Do not throw anything into the propeller of a running engine.

AMA SAFETY CODE (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**.

IMAA SAFETY CODE (EXCERPTS)

Since the Giant Super Sportster ARF qualifies as a “giant scale” model and is therefore eligible to fly in IMAA events, we’ve printed excerpts from the IMAA Safety Code which follows.

Definition:
For the purpose of the following IMAA Safety Code, the term Giant Scale shall refer to radio controlled model aircraft, either scale or non-scale, which have a wingspan of 80 inches or more for monoplanes and 60 inches or more for multi-winged model aircraft and have a ramp weight (fueled and ready to fly) of 55 lbs. or less.

Section 1.0: SAFETY STANDARD
1.1 Adherence to Code: This safety code is to be strictly followed.
1.2 The most current AMA Safety Code in effect is to be observed. However, the competition sections of the code may be disregarded.

Section 3.0: SAFETY CHECK
3.4 Flight Testing: All Giant Scale R/C aircraft are to have been flight tested and flight trimmed with a minimum of six flights before the model is allowed to fly at an IMAA Sanctioned event.

3.5 Proof of Flight: The completing and signing of the Declaration section of the Safety Inspection form by the pilot (or owner) shall document as fact that each aircraft has been successfully flight-tested and proven airworthy prior to an IMAA event.

Section 5.0: EMERGENCY ENGINE SHUT OFF (Kill Switch)

5.1 All magneto spark ignition engines must have a coil grounding switch on the aircraft to stop the engine. This will also prevent accidental starting of the engine. This switch shall be readily available to both pilot and helper. This switch is to be operated manually and without the use of the radio system.

5.2 Engines with battery power ignition systems must have a switch to turn off the power from the battery pack to disable the engine from firing. This will also prevent accidental starting of the engine. This switch shall be readily available to both pilot and helper. This switch shall be operated manually and without the use of the Radio System.

5.3 There must also be a means to stop the engine from the transmitter. The most common method is to close the carburetor throat completely using throttle trim, however, other methods are acceptable. This requirement applies to all glow/gas ignition engines regardless of size.

Section 6.0: RADIO REQUIREMENTS

6.1 All transmitters must be FCC type certified.

6.2 FCC Technician or higher-class license required for 6 meter band operation only.

ADDITIONAL IMAA GENERAL RECOMMENDATIONS

The following recommendations are included in the Safety Code not to police such items, but rather to offer basic suggestions for enhanced safety.

- Servos need to be of a rating capable to handle the loads that the control surfaces impose upon the servos. Standard servos are not recommended for control surfaces. Servos should be rated heavy-duty. For flight-critical control functions a minimum of 45 inch/ounces of torque should be considered. This should be considered a minimum for smaller aircraft and higher torque servos are strongly encouraged for larger aircraft. The use of one servo for each aileron and one for each elevator half is strongly recommended. Use of dual servos is also recommended for larger aircraft.

- On-board batteries shall be 1000 mAh up to 20 lbs., 1200 mAh to 30 lbs., 1800 mAh to 40 lbs. and 2000 mAh over 40 lbs. flying weight. The number and size of servos, size and loads on control surfaces, and added features should be considered as an increase to these minimums. Batteries should be able to sustain power to the onboard radio components for a minimum of one hour total flying time before recharging.

- Redundant and fail-safe battery systems are recommended.

- The use of anti-glitch devices for long leads are recommended.

- There is no maximum engine displacement limit, as it is the position of this body that an underpowered aircraft presents a greater danger than an overpowered aircraft. However, the selection of engine size relative to airframe strength and power loading mandates good discretionary judgment by the designer and builder. Current AMA maximums for engine displacement are 6.0 cu. in. for two-stroke and 9.6 cu. in. for four-stroke engines. These maximums apply only to AMA Sanctions concerning competition events (such as 511, 512, 515 and 520) and, as such, the maximums apply. All IMAA (non competition) events should be sanctioned as Class “C” events, in which these engine size maximums do not apply.

- Generally, it is recommended that no attempt should be made to fly a radio controlled model aircraft with a gasoline engine in which the model aircraft weight would exceed twelve (12) pounds (underpowered) per cubic inch of engine displacement, or be less than five (5) pounds (overpowered) per cubic inch of engine displacement. Example: Using a 3 cu. in. engine, a model would likely be underpowered at an aircraft weight greater than 36 pounds. With the same engine, an aircraft weighing less than 15 pounds would likely be overpowered.

- Servo arms and wheels should be rated heavy duty. Glass-filled servo arms and control horns are highly recommended.

- Control surface linkages are listed in order of preference:
  1. Cable system (pull-pull). A tiller bar is highly recommended along with necessary bracing.
  2. Arrow-shaft, fiberglass or aluminum, 1/4" or 5/16" OD. Bracing every six (6) to ten (10) inches is highly recommended.
  3. Tube-in-tube (Nyrod). Bracing every few inches is highly recommended. Inner tube should be totally enclosed in outer tube.
  4. Hardwood dowel, 3/8" OD. Bracing every six (6) to ten (10) inches is highly recommended.

- Hinges should be rated heavy duty and manufactured for Giant Scale use primarily. Homemade and original design hinges are acceptable if determined to be adequate for the intended use.

- Clevis (steel, excluding heavy-duty ball links) and attachment hardware should be heavy duty 4-40 threaded rod type. 2-56 threaded size rod is acceptable for some applications (e.g. throttle). Clevis is to have lock nuts and sleeve or spring keepers.

- Propeller tips should be painted or colored in a visible and contrasting manner so as to increase the visibility of the propeller tip arc.

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.

- ❏ 1. Fuelproof all areas exposed to fuel or exhaust residue such as the wing saddle area, the wing dowels, etc.
- ❏ 2. Check the C.G. according to the measurements provided in the manual.
- ❏ 3. Be certain the battery and receiver are securely mounted. Simply stuffing them into place with foam rubber is not sufficient.
- ❏ 4. Extend your receiver antenna into the antenna tube inside the fuselage.
- ❏ 5. Balance your model *laterally* as explained in the instructions.
- ❏ 6. Use threadlocking compound to secure critical fasteners such as the set screws on the wheel collars, screws that hold the carburetor arm (if applicable), screw-lock pushrod connectors, etc.
- ❏ 7. Add a drop of oil to the axles so the wheels will turn freely.
- ❏ 8. Make sure all hinges are **securely** glued in place.
- ❏ 9. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, cowl mounting screws, etc.).
- ❏ 10. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
- ❏ 11. Make sure there are silicone retainers on all the clevises and that all servo arms are secured to the servos with the screws included with your radio.
- ❏ 12. Secure connections between servo wires and Y-connectors or servo extensions, and the connection between your battery pack and the on/off switch with vinyl tape, heat shrink tubing or special clips suitable for that purpose.
- ❏ 13. Make sure the fuel lines are connected and are not kinked.
- ❏ 14. Balance your propeller (and spare propellers).
- ❏ 15. Tighten the propeller nut and spinner.
- ❏ 16. Place your name, address, AMA number and telephone number on or inside your model.
- ❏ 17. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.
- ❏ 18. If you wish to photograph your model, do so before your first flight.
- ❏ 19. Range check your radio when you get to the flying field.

FLYING

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

Fuel Mixture Adjustments

A fully-cowled engine may run at a higher temperature than an un-cowled engine. For this reason, the fuel mixture should be richened so the engine runs at about 200 rpm below peak speed. By running the engine slightly rich, you will help prevent dead-stick landings caused by overheating.

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 takeoff, see how the model handles on the ground and make sure it tracks straight 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. Top off the fuel, and then check all fasteners and control linkages for peace of mind.

The Giant Sportster is an "honest" flier. Takeoff will be routine straight forward–just remember to hold a bit of up elevator until she gets up-to-speed to keep the tail on the ground. Get ready to apply a little right rudder as the model gains speed and lifts into the air. Be smooth on the controls and make a gentle climbout to a safe altitude before making the first turn.

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. If more time is needed to think and react, remember to throttle back once you get to a comfortable altitude–full throttle is usually desirable for takeoff, but the Sportster flies well at reduced speeds too.

Take it easy for the first few flights, gradually getting acquainted with your Giant Sportster as you learn its tendencies and gain confidence. Adjust the trims to maintain straight-and-level flight. After flying around for a while, and while still at a safe altitude with plenty of fuel, practice slow flight and execute a few stalls to see how the model handles. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your fuel level, but use this first flight to become familiar with your model before landing.

Landing

The same as takeoff, landing is routine and straightforward. Cut the throttle (to idle) on the downwind leg, allow the nose to pitch downward, bleed off altitude and maintain airspeed. Then, make the final turn toward the runway. Level the plane when it reaches the threshold, modulating the throttle as necessary to hold your glide path and airspeed. 3-point landings are done with ease–just continue to increase up elevator, allowing the model to stall at the same time the main gear touches. Once the model is on the runway, hold up elevator to keep the tail wheel on the ground.

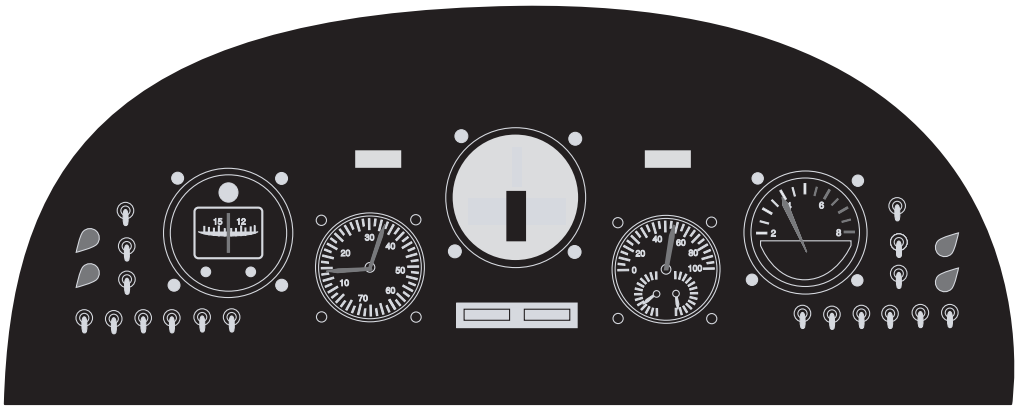
One final note about flying your model. Have a goal or flight plan in mind for **every** flight. This can be learning a new maneuver(s), improving a maneuver(s) you already know, or learning how the model behaves in certain conditions (such as on high or low rates). This is not necessarily to improve 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!

BUILDING NOTES	
Kit Purchased Date: _____	Date Construction Finished: _____
Where Purchased:_____	Finished Weight: _____
Date Construction Started: _____	Date of First Flight: _____
FLIGHT LOG	

TEMPLATES



Instrument Panel