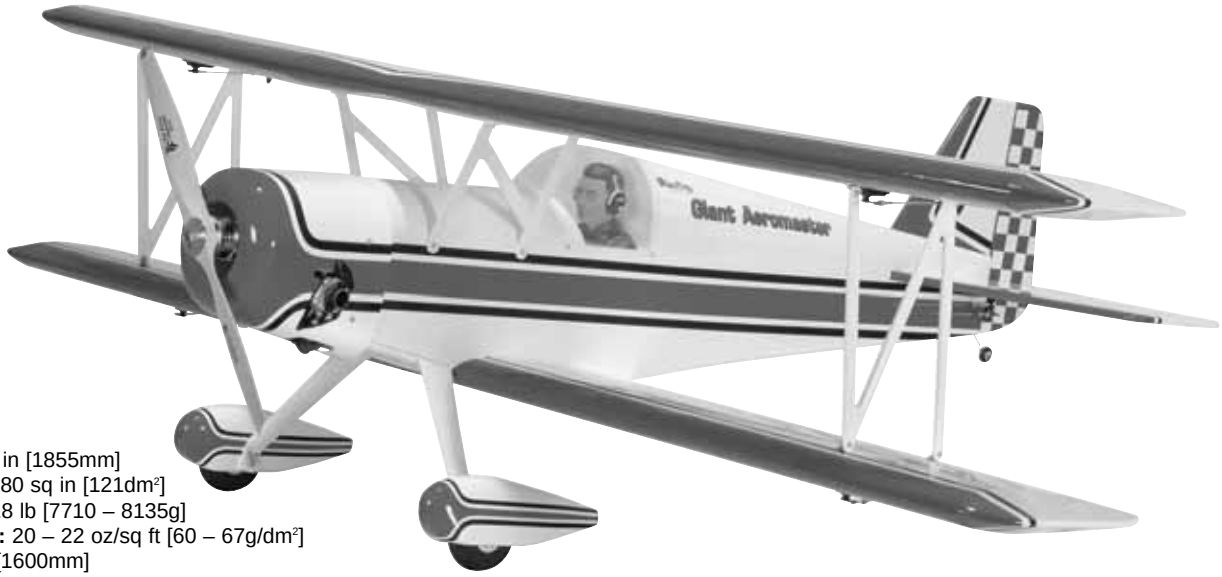
Giant Aeromaster ARF

INSTRUCTION MANUAL



Wingspan: 73 in [1855mm]
Wing Area: 1880 sq in [121dm²]
Weight: 16 – 18 lb [7710 – 8135g]
Wing Loading: 20 – 22 oz/sq ft [60 – 67g/dm²]
Length: 63 in [1600mm]
Radio: Minimum required 6-channel radio,
6 standard servos with 70+ oz-in of torque
Engine: 1.6 – 2.13 cu in [26 – 35cc] two-stroke (Glow)
1.8 – 3.7 cu in [30 – 60cc] (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 INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

GREAT PLANES® MODEL MANUFACTURING COMPANY

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

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INTRODUCTION

Congratulations on your purchase of the Great Planes Giant Aeromaster™ ARF! This classic Great Planes kit is now brought to life in Giant-Scale in an easy to build ARF form! For the latest technical updates or manual corrections to the Giant Aeromaster ARF visit the Great Planes web site at **www.greatplanes.com**. Open the "Airplanes" link, and then select the Giant Aeromaster 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 Aeromaster 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 Giant Aeromaster ARF, 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, wheel pants and wing struts 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 Aeromaster ARF that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Radio Equipment

The Giant Aeromaster ARF has different setup options for the ailerons and elevator functions that will alter the radio gear required for completion. Below is a quick reference of the BASIC radio gear needed for each setup. There may be many other options depending on your radio of choice.

Note: If you are using a gas engine instead of glow powered for this model, we recommend using a PCM dual conversion receiver to help alleviate interference.

Option 1: Two wing servos. This option will require the following:

- ❑ 4-channel radio
- ❑ Six standard size servos capable of at least 70 oz-in of torque, such as Futaba® S9202 (FUTM0090) or S3050 Digital servos (FUTM0300)
- ❑ Reversing Y-harness for elevator servos (FUTM4150) for elevators
- ❑ Dual servo extension for bottom wing aileron servos (FUTM4130)
- ❑ Two 20" [508mm] minimum length servo extensions (FUTM4147 for bottom wing servos)
- ❑ FM or PCM Dual Conversion receiver

Option 2: Four Wing Servos. This option will require the following in addition to or upgraded from the above items:

- ❑ 6-channel computerized radio (mixing features will be required)
- ❑ Two additional servos, standard size capable of at least 50 oz-in of torque for top wing servos, such as Futaba S9001 (FUTM0075)
- ❑ Two 20" [508mm] minimum length servo extensions (FUTM4147 for top wing servos)
- ❑ Y-Harness for the top wing aileron servos (HCAM2751 for Futaba)
- ❑ Minimum 6-channel FM or PCM receiver for basic setup

Option 3: All-Out Computerized Option. This is for those with advanced mixing function radio setups.

- ❑ 9-channel computerized radio with 9-channel dual conversion FM or PCM RX
- ❑ Eight servos total, (4-aileron, 2-elevators, 1-rudder, 1-throttle)
- ❑ Six 20" [508mm] minimum length servo extensions for top and bottom wing servos (FUTM4147)
  - two connected to top wing aileron servo leads to exit wing

- two connected to separate channels on RX to connect to top wing servo leads
- two connected to bottom wing aileron servo leads to exit wing

❏ Two 6" [153mm] servo extensions for connecting the bottom aileron servos to the RX

Whichever option you choose, a battery pack with a **minimum** of 1,000mAh should also be used for the RX! For a gas model, a battery pack with a minimum 600mAh rating should be used for the ignition. When flying giant-scale models such as this, you should ALWAYS check the battery condition before each flight.

Engine Recommendations

The recommended engine size range for the Giant Aeromaster ARF is specified on the cover of this manual. All engines within the specified range will power this model well. Never fly the Giant Aeromaster ARF 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.® BGX-1 3500 (OSMG0352), the Giant Aeromaster ARF performs like any 60-size sport plane with the added stability and durability of any well-designed giant plane. If flying the Giant Aeromaster ARF with a glow engine, the kit includes a plywood engine mount plate to facilitate the use of a 1.20 to 1.60 adjustable engine mount.

If you haven't yet built a model with a gas engine, but are considering using one, two of the benefits are fuel economy (not only is gas cheaper than glow fuel, but gas engines typically burn less fuel as well) and considerably cleaner exhaust residue. Most gas engines, however, are heavier than glow engines and require premixing gas and oil.

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

- O.S. 1.60 FX 1.60 cu in 2-Stroke Glow Engine (OSMG0661)
- SuperTigre G-3250 1.98 cu in 2-Stroke Glow Engine (SUPG0268)
- O.S. BGX-1 3500 2.13 cu in 2-Stroke Glow Engine (OSMG0352)
- Fuji-Imvac BT-43EI Electric Ignition Gas Engine (FJIG0143)

Per the IMAA Safety Code, magneto spark-ignition engines must have a coil-grounding switch on the aircraft 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 .3 Amp slide switch, 16-gauge wire and a covered, crimp-on connector purchased at the local Radio Shack®. Slightly different hardware may be required if using a different spark-ignition engine. All of the components required are available at any hardware or home-improvement store.

ADDITIONAL ITEMS REQUIRED

Hardware & Accessories

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

❏ Propeller and spare propellers suitable for your engine
❏ R/C foam rubber (1/4" [6mm] – HCAQ1000, or 1/2" [13mm] – HCAQ1050)
❏ Stick-on segmented lead weights (GPMQ4485)

Adhesives & Building Supplies

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

❏ Great Planes Pro 1/2 oz. [14g] Thin Pro CA (GPMR6001)
❏ Great Planes Pro 1/2 oz. [14g] Medium Pro CA+ (GPMR6007)
❏ Great Planes Pro 30-minute epoxy (GPMR6047)
❏ Denatured alcohol (for epoxy clean up)
❏ Hobbico® CA applicator tips (HCAR3780)
❏ Great Planes Threadlocker™ thread-locking compound (GPMR6060)
❏ Drill bits: 1/16" [1.6mm], 3/32" [2.4mm], 1/8" [3.2mm], 3/16" [4.8mm], 13/64" [5.2mm], 15/64 [6mm], 1/4" [6.4mm], 9/32" [7.1mm]
❏ Great Planes 8-32 tap and drill set (GPMR8103)

-or-

❏ 8-32 tap and #29 drill
❏ Great Planes tap handle (GPMR8120)
❏ Small metal file
❏ Great Planes Silver Solder w/flux (GPMR8070)
❏ Hobbico #1 hobby knife (HCAR0105)
❏ Hobbico #11 blades (5-pack, HCAR0211)
❏ 21st Century® sealing iron (COVR2700)
❏ 21st Century iron covers (COVR2702)

Optional Supplies & Tools

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

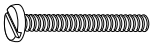
- ❏ Great Planes Pro 6-minute epoxy (GPMR6045)
- ❏ Great Planes Pro 2 oz. [57g] spray CA activator (GPMR6035)
- ❏ Great Planes Pro 4 oz. [113g] aerosol CA activator (GPMR634)
- ❏ Great Planes Pro CA debonder (GPMR6039)
- ❏ 3M 75 repositionable spray adhesive (MMMR1900)
- ❏ Great Planes epoxy brushes (6, GPMR8060)
- ❏ Great Planes mixing sticks (50, GPMR8055)
- ❏ Great Planes mixing cups (GPMR8056)
- ❏ Hobbico Builder's Triangle Set (HCAR0480)
- ❏ Hobbico 36" metal ruler (HCAR0475)
- ❏ Hobbico large T-pins (100, HCAR5200)
- ❏ Robart Super Stand II (ROBP1402)
- ❏ Rotary tool such as Dremel®
- ❏ Great Planes rotary tool reinforced cut-off wheel (GPMR8200)
- ❏ Hobbico Hobby Heat™ Micro Torch II (HCAR0755)
- ❏ Great Planes Dead Center™ Hole Locator (GPMR8130)
- ❏ Great Planes AccuThrow™ Deflection Gauge (GPMR2405)
- ❏ Great Planes CG Machine™ (GPMR2400)
- ❏ Precision Magnetic Prop Balancer™ (TOPQ5700)
- ❏ 3/8" [9.5mm] Heat-shrink tubing (GPMM1060)

IMPORTANT BUILDING NOTES

• **Sheet Metal Screws (SMS)** are designated by a number and a length. For example #6 x 3/4" [19mm].

This is a number six screw that is 3/4" [19mm] long.

• **Machine Screws (MS)** are designated by a number, **threads per inch**, and a length. For example 4-40 x 3/4" [19mm].



This is a number four screw that is 3/4" [19mm] long with forty threads per inch.

Socket Head Cap Screws (SHCS) are designated by a number, **threads per inch**, and a length. For example 4-40 x 1-1/2" [38mm].

This is a number four screw that is 1-1/2" [38mm] long with forty threads per inch.

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

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

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

• Harden all holes with thin CA after drilling and inserting screws.

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

• The Giant Aeromaster ARF is factory-covered with Top Flite® MonoKote® film. Should repairs ever be required, MonoKote can be patched with additional MonoKote purchased separately. MonoKote is packaged in six-foot rolls, but some hobby shops also sell it by the foot. If only a small piece of MonoKote is needed for a minor patch, perhaps a fellow modeler would give you some. MonoKote is applied with a model airplane covering iron, but in an emergency a regular iron could be used. A roll of MonoKote includes full instructions for application. Following are the colors used on this model and order numbers for six foot rolls.

True Red – TOPQ0227
Jet White – TOPQ0204
Black – TOPQ0208

• 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 Aeromaster 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.

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

Mail parts orders and payments by personal check to:

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

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

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

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

Replacement Parts List

GPMA2665 .....Fuselage
GPMA2666 .....Top Wing
GPMA2667 .....Bottom Wing
GPMA2668 .....Tail Set
GPMA2669 .....Cabanes
GPMA2670 .....Interplane ("N") Struts
GPMA2671 ....."N" Strut Brackets
GPMA2672 .....Cowl
GPMA2673 .....Landing Gear
GPMA2674 .....Wheel Pants
GPMA2675 .....Canopy
GPMA2676 .....Decal

COMMON ABBREVIATIONS

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

METRIC CONVERSIONS

1" = 25.4mm (conversion factor)

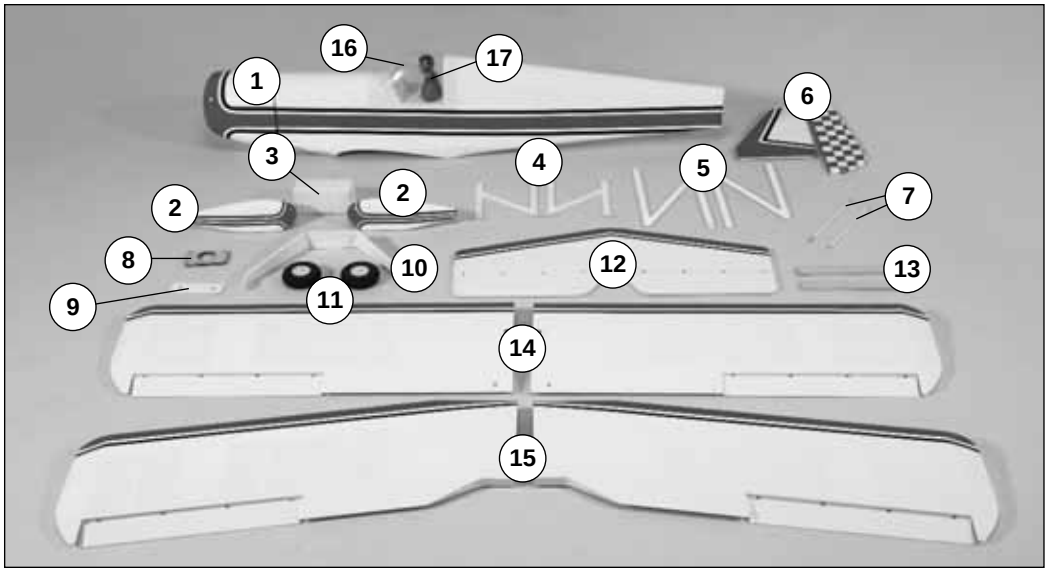
1/64"	=	.4mm	3/4"	=	19.0mm
1/32"	=	.8mm	1"	=	25.4mm
1/16"	=	1.6mm	2"	=	50.8mm
3/32"	=	2.4mm	3"	=	76.2mm
1/8"	=	3.2mm	6"	=	152.4mm
5/32"	=	4.0mm	12"	=	304.8mm
3/16"	=	4.8mm	18"	=	457.2mm
1/4"	=	6.4mm	21"	=	533.4mm
3/8"	=	9.5mm	24"	=	609.6mm
1/2"	=	12.7mm	30"	=	762.0mm
5/8"	=	15.9mm	36"	=	914.4mm

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

1. Fuselage
2. Wheel Pants (L&R)
3. Fuel Tank
4. Cabanes (2)
5. “N” Struts (2)
6. Fin and Rudder
7. Aileron Joiner Rods (2)
8. Plywood Engine Mount Plate
9. Wing Bolt Plate
10. Main Landing Gear
11. Main Wheels (2)
12. Stabilizer and Elevators
13. Wing Joiners (2)
14. Bottom Wing Panels (L&R)
15. Top Wing Panels (L&R)
16. Canopy
17. Pilot

Kit Contents (Not Photographed)

(1) Brass Threaded Coupler
(11) 4-40 Steel Clevis Threaded
(7) Solder Clevis
(2) 3/16" x 2" [4.8 x 51mm] Bolt-On Axle
(1) Screw-Lock Pushrod Connector
(11) 4-40 Hex Nut
(2) 5/16" [8mm] x 24 Lock Nut
(8) 4-40 Lock Nut
(4) White Nylon Control Horn
(4) Nylon 1/4-20 x 2" [51mm] Bolt
(1) Nylon Clevis
(1) Nylon FasLink
(7) Black Heavy-Duty Control Horn
(1) 24" [610mm] White Plastic Inner Pushrod Tube
(20) Silicone Clevis Retainer
(42) 4 x 1/2" [13mm] SMS

(4) 6-32 x 1/4" [6.4mm] Socket Head Bolt
(2) 4-40 x 1/8" [3.2mm] Set Screw
(8) #2 x 3/8" [9.5mm] Phillips Screw
(4) 8-32 x 3/4" [19mm] SHCS
(8) 4-40 x 3/8" [9.5mm] Round Head Phillips Screw
(16) 4-40 x 1/2" [13mm] SHCS
(8) 8-32 x 1-1/4" [32mm] SHCS
(4) 8-32 x 1" [25.4mm] SHCS
(1) 3/32" [2.4mm] Wheel Collar
(4) 3/16" [4.8mm] Wheel Collar
(1) 2-56 x 36" [914mm] Pushrod – Thread One End
(2) 2-56 x 4" [102mm] Pushrod – Threaded One End
(4) 4-40 x 12" [305mm] Pushrod – Threaded One End
(3) 4-40 x 36" [914mm] Pushrod – Threaded One End
(20) #4 Lock Washer
(34) #4 Flat Washer

(4) #2 Flat Washer
(20) #8 Lock Washer
(20) #8 Flat Washer
(1) Glow Fuel Tank Hardware Bag
(1) Gas Fuel Tank Hardware Bag
(1) Engine Mounts (L&R)
(1) Tailwheel Assembly
(2) 2 x 80mm Rubber Bands
(6) 20 x 120mm Hook & Loop Material
(8) Strut Braces
(1) Nylon Retainer (for Screw-Lock Pushrod Connector)
(4) Hardwood Cowl Mounting Blocks

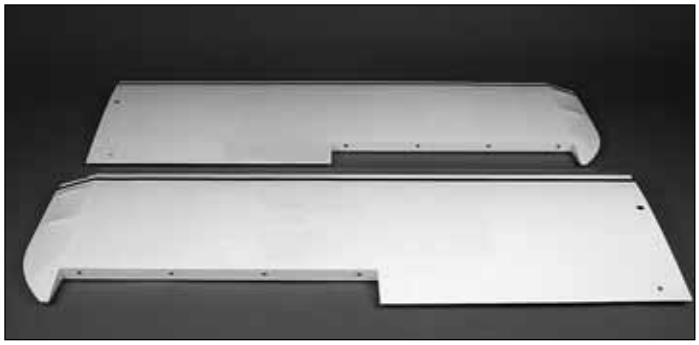
CHECK KIT CONTENTS

❏ 1. If you have not done so already, remove the major parts of the kit from the box (wings, fuselage, cowl, tail parts, etc.) and inspect them for damage. Be sure to label the ailerons in some way to remind you of which wing panel they belong to. If any parts are damaged or missing, contact Product Support at the address or telephone number listed on page 7.

❏ 2. Remove the masking tape and separate the **ailerons** from the **wing**, the **elevators** from the **stab**, and the **rudder** from the **fin**. Use a covering iron with a covering sock on high heat to tighten the model's covering if necessary. Apply pressure over sheeted areas to thoroughly bond the covering to the wood.

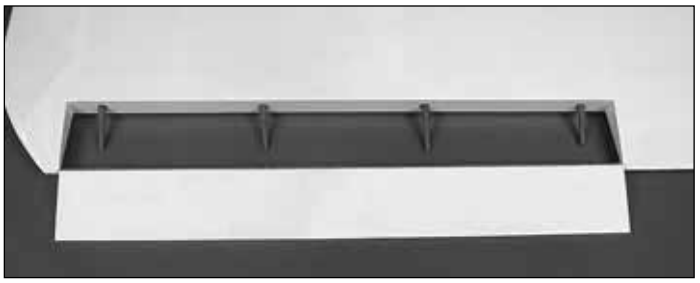
WING ASSEMBLY

Attach the Ailerons



❏ ❏ 1. Locate the two **bottom wing panels**.

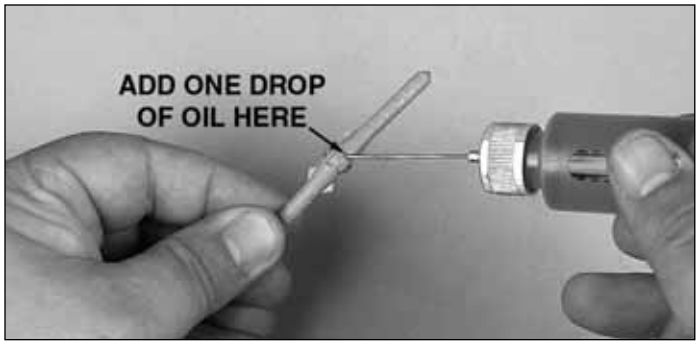
❏ ❏ 2. There are four holes drilled in each wing panel to accept the **hinges**. Test fit each hinge in the wing.



❏ ❏ 3. Test fit the **aileron** to the wing.

❏ ❏ 4. Remove the hinges from the wing and aileron and set them aside.

❏ ❏ 5. Mix up some 30-minute epoxy and Microballoons (if using mixing cups, approximately 1/4 oz. [7g] of Microballoons added to 1/4 oz. [7g] of mixed epoxy is recommended). Use a toothpick to **thoroughly** apply the mixture in the holes in the wing and aileron. Use the toothpick to get the epoxy out of the outer edge of the opening of the holes in the aileron so it doesn't get into the hinge pins. Wipe away any epoxy around the outside of the holes with a paper towel.



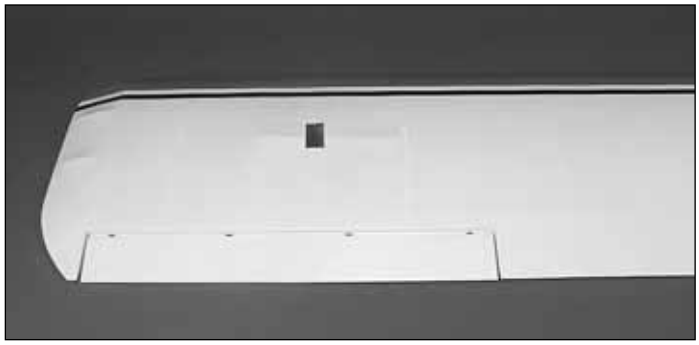
❏ ❏ 6. Before inserting the hinge in the hole, apply a drop of oil to the hinge. This will serve to smooth the operation of the hinge and also help prevent epoxy from binding the hinge.

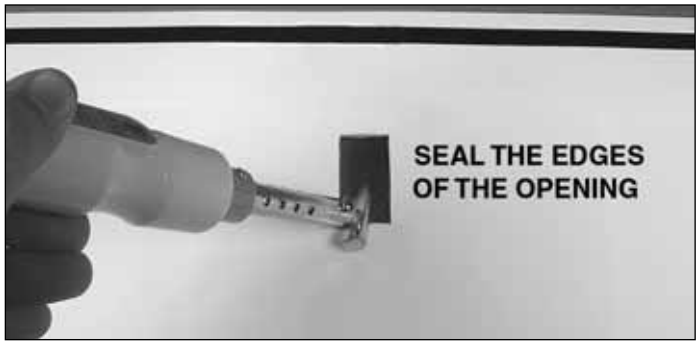
❏ ❏ 7. Reattach the aileron. There should be a gap just small enough to see through when the aileron is properly attached as shown in the second photo. **Caution:** DO NOT move the aileron until the epoxy has cured completely. Doing so may work epoxy into the hinge and cause it to bind! Use masking tape to hold the aileron in place until the epoxy has completely cured.

❏ 8. Repeat steps 2-7 for the other top and bottom wing panels.

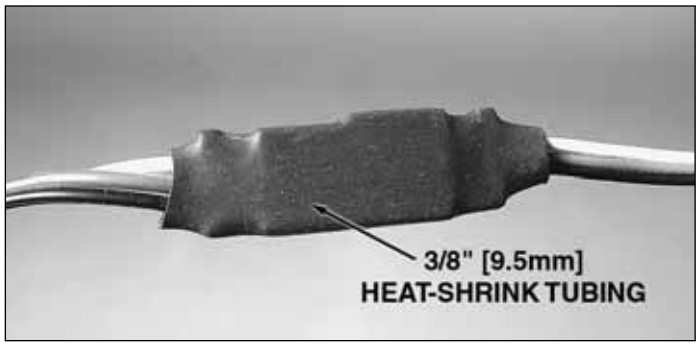
Install the Ailerons Servos

Note: There are two options for aileron installation on the Giant Aeromaster ARF. One option is to use two bottom aileron servos to drive all four ailerons. The second option is to install an aileron servo for each of the four ailerons. You will repeat the following steps for the **top wing** if you choose to use four aileron servos. If you choose to use the two servo option, later in the manual after the wings are mounted, you will join the two ailerons on each side.

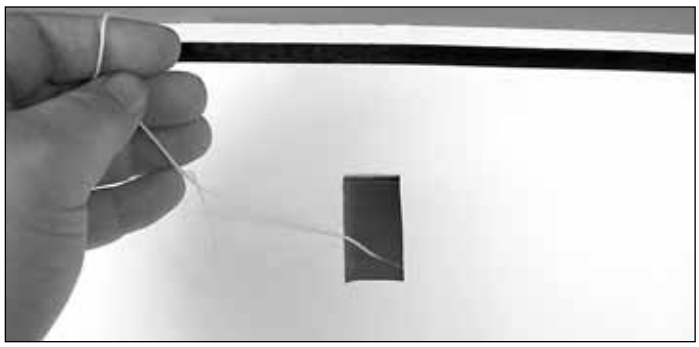




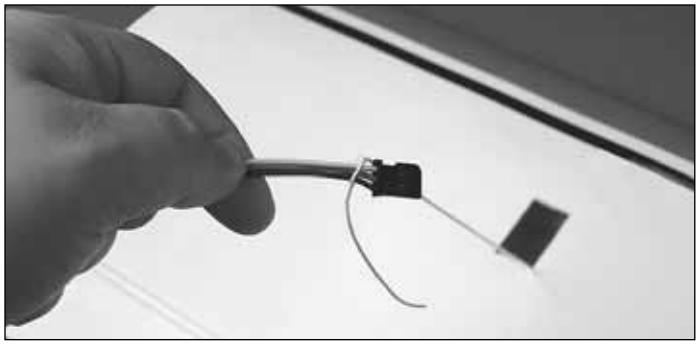
❏ ❏ 1. Locate the **aileron servo bay** in the **bottom** of the wing panel. Remove the covering from the opening using a sharp hobby knife. Seal down the edges of the opening with a sealing iron after cutting.



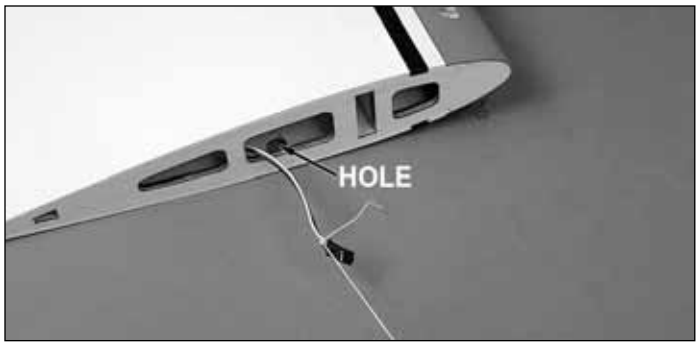
❏ ❏ 2. Attach a 36" [914mm] servo extension to the aileron servo and seal the connection using 3/8" [9.5mm] heat-shrink tubing as shown (not included).



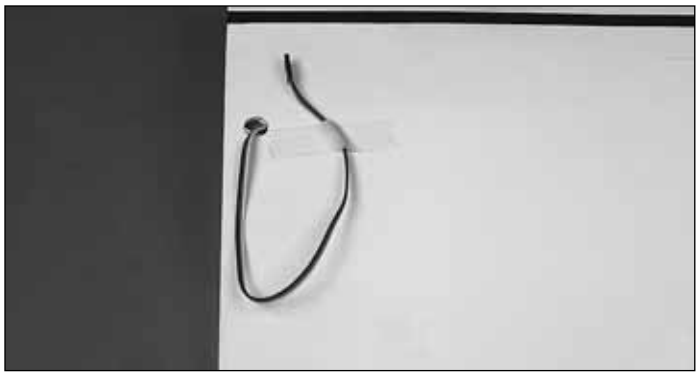
❏ ❏ 3. Inside the cutout for the servo there is a length of string taped to the interior of the wing. Carefully pull this string up and out of the aileron servo bay.



❏ ❏ 4. Securely attach the string to the end of the servo lead. The other end of the string is attached with tape on the inside of the wing near the root. Pull this end of the string up and through the small 1/2" [13mm] hole in the top of the wing panel. You will need to remove the covering from this small hole using a sharp hobby knife.



❏ ❏ 5. Pull the string to route the servo lead through the wing and out the small hole in the top of the wing.



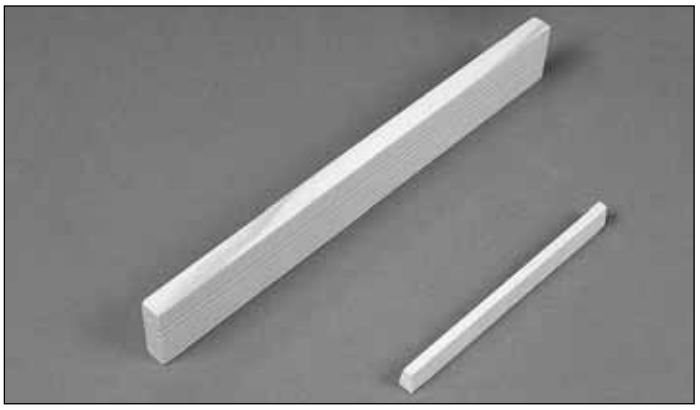
❏ ❏ 6. Attach the servo lead to the wing panel with a small piece of masking tape.

❏ ❏ 7. Mount the servo to the wing using the hardware provided by your manufacturer. The output shaft spline will face the LE of the wing. Remove the servo mounting screws after installing the servo and harden the screw holes by wicking some thin CA into them and allowing it to harden. Then reinstall the servo mounting screws.

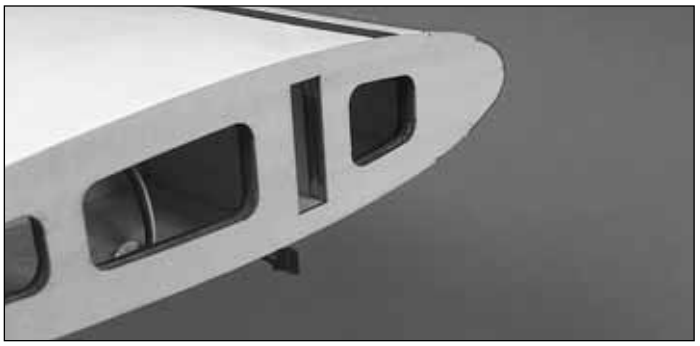
❏ 8. Repeat steps 1 to 7 for the other wing panel.

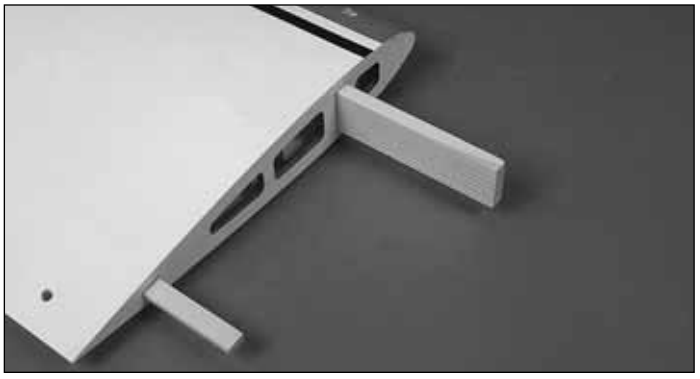
❏ 9. If using a four servo setup, you will repeat steps 1 to 7 above for the **top wing**. The 1/2" [13mm] holes for the servo leads to exit the bottom of the top wing are located further in from the center of the wing than as on the bottom wing. Remove the covering from these holes only if using the aileron servos in the top wing.

Join the Bottom Wing



❏ 1. Locate the large **wing joiners** for the **bottom wing**. These will be the large rectangular joiner and the larger of the two small angled joiners. Measure and mark the centers of the joiners.





❏ 2. Test fit the wing joiners into one wing panel. Sand the wing joiners as needed for a good fit.

❏ 3. Slide the other wing panel onto the wing joiners. Sand the wing joiners as needed for a good fit. The wing roots should be flush with little or no gap present.

❏ 4. Separate the wing panels and remove the wing joiners.

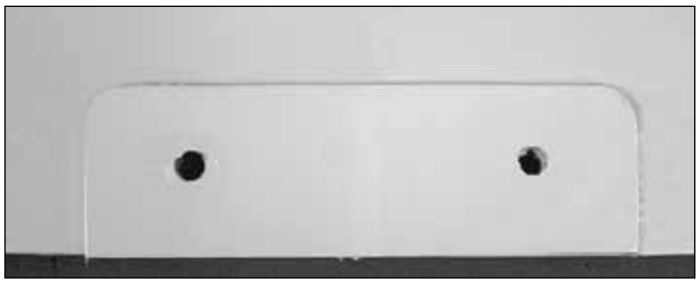
❏ 5. Mix a large batch of 30-minute epoxy (if using mixing cups, 1 oz. [28g] of mixed epoxy is a good amount.)

❏ 6. *Thoroughly* coat the inside of the **wing joiner pockets** and **wing roots** with 30-minute epoxy.

❏ 7. Apply epoxy to each of the wing joiners and insert them into the pockets in one wing panel.

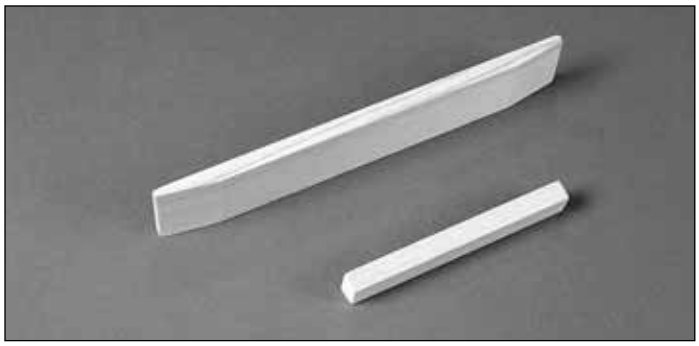
❏ 8. Slide the other wing panel onto the wing joiners and press the two panels together. Clean up any epoxy that squeezes out with a paper towel and alcohol.

❏ 9. Press the wing panels together tightly to eliminate or minimize any gap present and hold them together using several pieces of masking tape. Set the bottom wing aside and allow the epoxy to fully cure before proceeding.

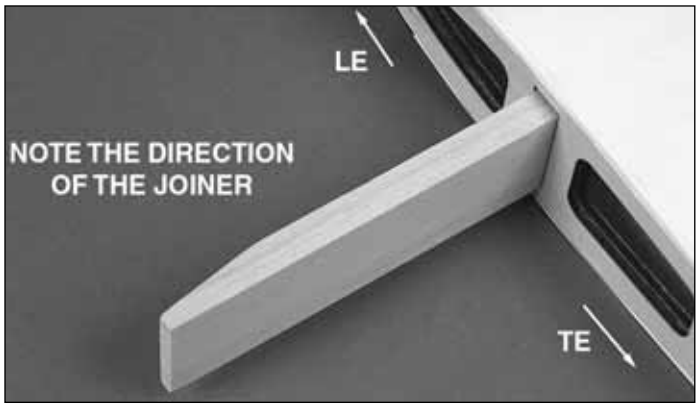


❏ 10. Position the **wing bolt plate** over the wing bolt holes in the wing. Trace the outline of the plate on the wing. Trim away the covering on the plate, about 3/32" [2.4mm] inside of the outline and glue the wing bolt plate in place as shown using medium CA.

Join the Top Wing



❏ 1. Locate the two hardwood **wing joiners** for the **top wing**. The larger wing joiner should have angled ends as shown in the photo. Measure and mark the centerlines on the joiners.

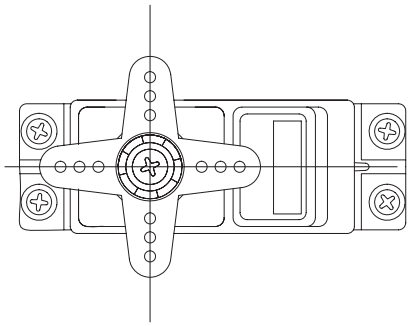


❏ 2. Test fit the wing joiners in the wing joiner pockets. Note the direction of the main wing joiner. Sand the wing joiners as needed for a good fit.

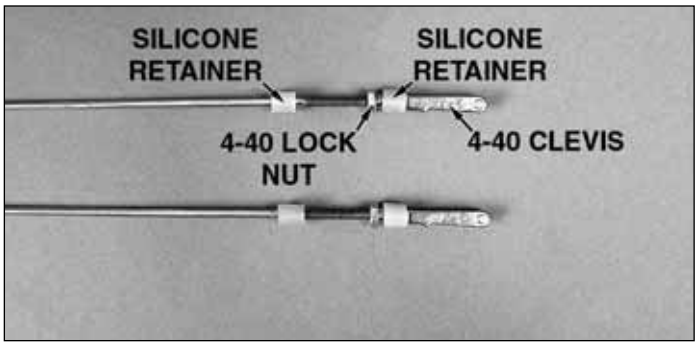
❏ 3. Join the wing following the same technique as done with the bottom wing.

Connect the Ailerons Pushrods

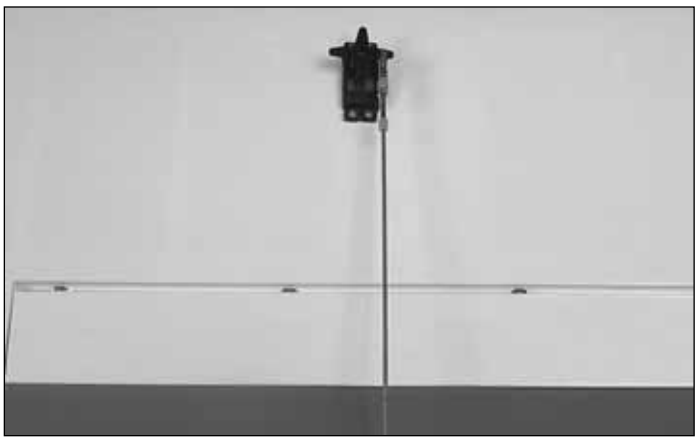
❏ ❏ 1. The following photos and procedures will show the connection of a **bottom wing servo pushrod**. The procedure will be the same for all aileron servos.



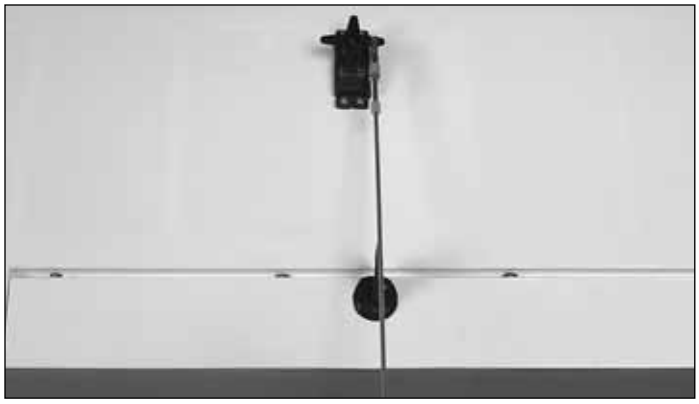
❏ ❏ 2. Make sure all trims and sticks are centered on your radio system. Temporarily connect the aileron servo to the radio system and center it. Attach a servo horn to the servo so that the arms are aligned as shown.

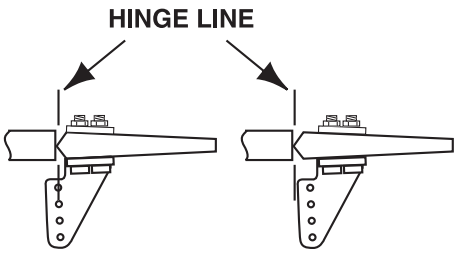


❏ ❏ 3. Locate one 4-40 x 12" [305mm] pushrod. Assemble the pushrod end as shown. The clevis should be threaded 14 turns onto the threaded end of the pushrod.

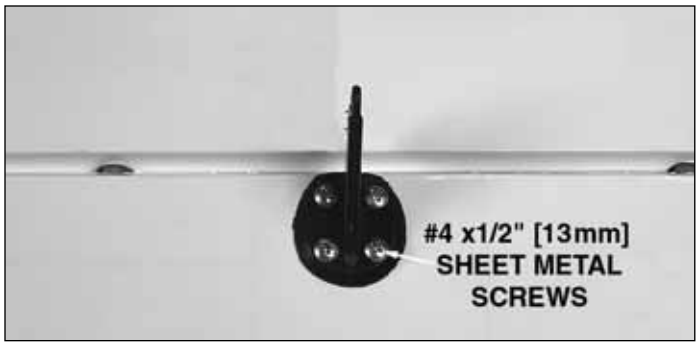


❏ ❏ 4. Attach the clevis to the 3rd hole out on the servo arm. Align the pushrod at a 90° to the arm and aileron as shown.



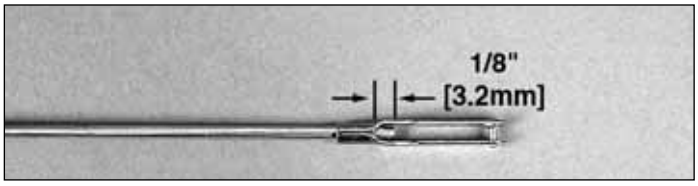


❏ ❏ 5. Using the pushrod as a guide, position a large black control horn in line with the pushrod. Align the holes in the control horn with the hinge line as shown in the above sketch.



❏ ❏ 6. Attach the control horn to the **aileron** using four #4 x 1/2" [13mm] sheet metal screws. Remove the screws and harden the holes with CA. Reattach the control horns.

❏ ❏ 7. Attach one 4-40 solder clevis to the middle hole on the control horn. Use a piece of masking tape to hold the aileron at neutral. Align the pushrod as shown and mark where the clevis will be positioned.



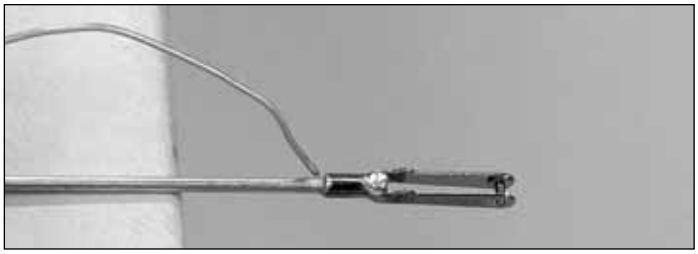
❏ ❏ 8. Trim the pushrod so that 1/8" [3.2mm] extends into the clevis when the clevis is positioned at the mark made in step 7.

❏ ❏ 9. Solder the clevis onto the pushrod using the following ***Expert Tip***.

HOW TO SOLDER

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

B. Apply a few drops of soldering flux to the end of the pushrod. Position the clevis so that 1/8" [3.2mm] of the pushrod protrudes into the open area of the clevis.



C. Simultaneously heat the clevis and pushrod. Apply Silver Solder (GPMR8070) to the joint. The heat of the parts being soldered should melt the solder, thus allowing it to flow.

D. Immediately after the solder has solidified, but while it is still hot, carefully 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 the Silver Solder for electrical soldering.*

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

❏ ❏ 10. Center the servo using your radio system and attach the pushrod to the servo arm and control horn. If the aileron is not at neutral, adjust the clevis to trim the aileron. Tighten the 4-40 hex nut against the back of the screw clevis. Use a drop of Threadlocker to prevent the nut from backing off.

❏ ❏ 11. Trim off any unused servo arms.

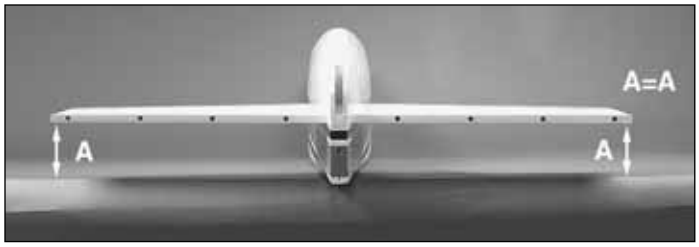
❏ 12. Repeat this process for all remaining aileron pushrods.

ASSEMBLE THE FUSELAGE

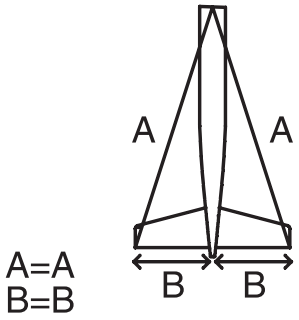
Attach the Tail Surfaces

❏ 1. Using a sharp hobby knife, remove the covering from the **elevator** and **fin mounting slots** in the rear of the **fuselage**. Also, if you have not already done so, remove the elevators from the **horizontal stabilizer**.

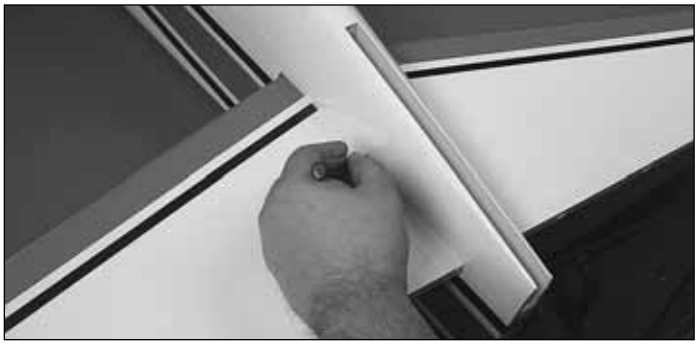
❏ 2. Slide the stabilizer into the fuselage.



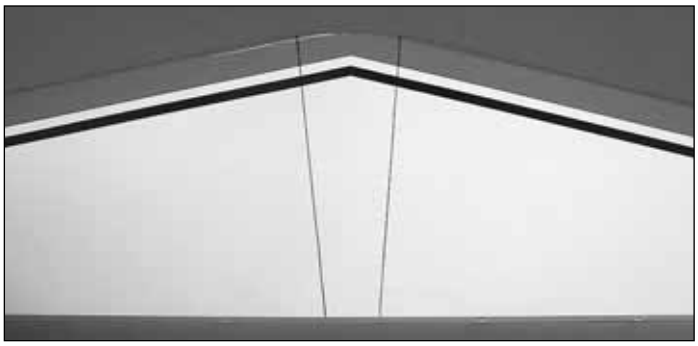
❏ 3. Check the alignment of the stabilizer. The stabilizer should be parallel with the flat surface. If it isn't, sand the slot in the fuselage as needed to make it level.



❏ 4. Insert a T-pin into the fuselage near the nose and along the centerline. Attach a piece of non-elastic string, such as kite string or Kevlar® thread, to the T-pin that is long enough to reach the stabilizer. Measure the distance from the T-pin to the outside TE of the stabilizer as shown in the sketch in step 4 above. Adjust the stabilizer until these distances are equal.



❏ 5. Once the stabilizer is properly aligned, trace the outline where it enters the fuselage on the top and bottom of the stabilizer using a fine-point marker such as a Panel Line Pen (TOPQ2510).



❏ 6. Remove the stabilizer from the fuselage. Use a sharp hobby knife or the following ***Expert Tip*** to remove the covering 3/32" [2.4mm] inside the marks you made on both

sides of the stabilizer. Be careful not to cut into the wood structure as this could weaken the stabilizer.

EXPERT TIP

HOW TO CUT COVERING FROM BALSA

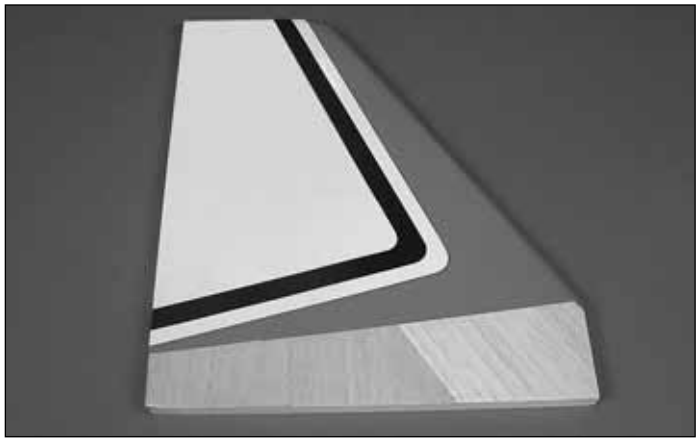
Use a soldering iron to cut the covering from the stab. The tip of the soldering iron doesn't have to be sharp, but a fine-tip does work best. Allow the iron to heat fully. Use a straightedge to guide the soldering iron at a rate that will just melt the covering and not burn into the wood. The hotter the soldering iron, the faster it must travel to melt a fine cut. Seal down the edges of the covering afterward using a covering iron.

❏ 7. Mix approximately 1/2 oz. [14g] of epoxy. Insert the stabilizer until the bare wood where you removed the covering is almost ready to enter the fuselage. Apply epoxy to the bare wood on both sides of the stabilizer and slide it into place.

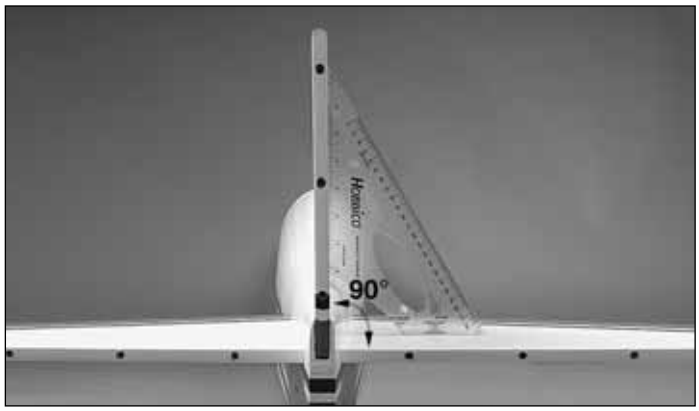
❏ 8. Recheck your measurements to make sure the stabilizer is in position; carefully wipe away any excess epoxy with a paper towel and alcohol. Allow the epoxy to fully cure before proceeding.

❏ 9. Attach the elevators to the stabilizer using point hinges following the same procedure as the ailerons.

❏ 10. Locate the **fin** and **rudder**. Remove the rudder from the fin and set it aside.

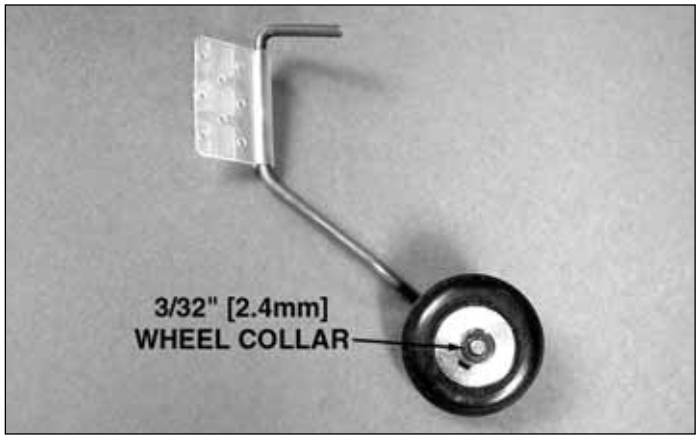


❏ 11. Insert the fin into the fuselage slot above the stabilizer. Trace an outline of where the fin enters the fuselage. Remove the fin and cut away the covering using the same method as the stabilizer.



❏ 12. Glue the fin in place using epoxy. Use a Builder's Triangle to check the alignment of the fin. It should be at a 90° angle to the stabilizer as shown in the photo. If it is not, sand the fin slot as needed.

Attach the Rudder & Tailwheel

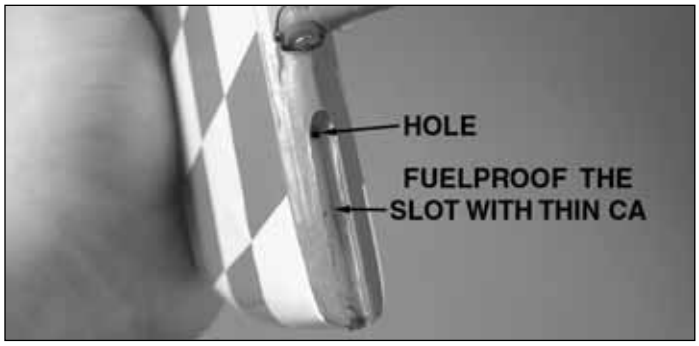


❏ 1. Locate the 3/32" [2.4mm] pre-bent **tail gear wire**, 3/32" [2.4mm] wheel collar, 1" [25mm] **tailwheel**, and 4-40 x 1/8" [3.2mm] set screw. Attach the tailwheel to the tail gear wire as shown, using the 3/32" [2.4mm] wheel collar.

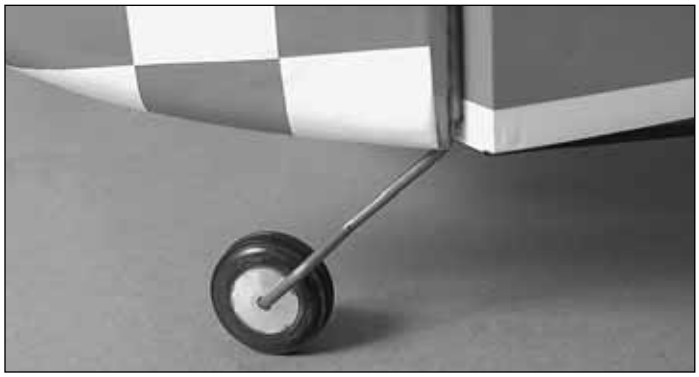
❏ 2. Remove the wheel collar and grind a flat spot where the set screw will seat using a rotary tool such as a Dremel or a

small metal file. Replace the wheel collar and secure it with the set screw. Apply a drop of thread-locking compound to the set screw prior to securing the wheel collar.

❏ 3. Epoxy the **tail gear bearing** into the **tail** of the fuselage as shown. Apply a small dab of Vaseline® or petroleum jelly to the top and bottom of the tail gear bearing where the wire rotates to prevent epoxy from entering the tail gear bearing.



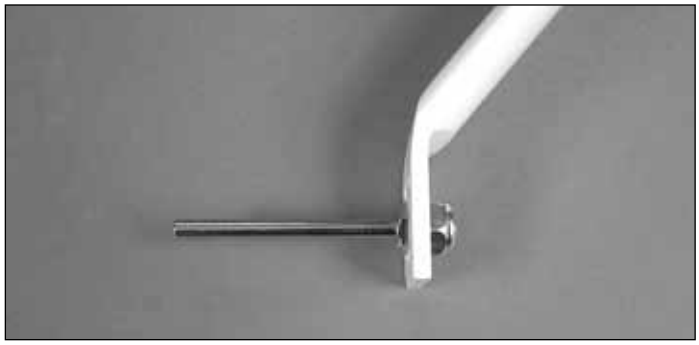
❏ 4. Fuelproof the slot in the rudder for the tail gear wire with thin CA. Insert a small amount of epoxy into the hole in the rudder for the tail gear wire.



❏ 5. Attach the rudder to the fin and fuselage following the same procedure as the ailerons. Be sure the tail gear wire enters the hole in the rudder.

Attach the Main Landing Gear

❏ ❏ 1. Locate the **main landing gear**, two 4" [102mm] **wheels**, four 3/16" [4.8mm] wheel collars with 6-32 x 1/4" [6.4mm] SHCS, fiberglass **wheel pants**, and two 3/16" x 2" [4.8 x 51mm] bolt-on **axles** with 5/16" [8mm] x 24 lock nuts.



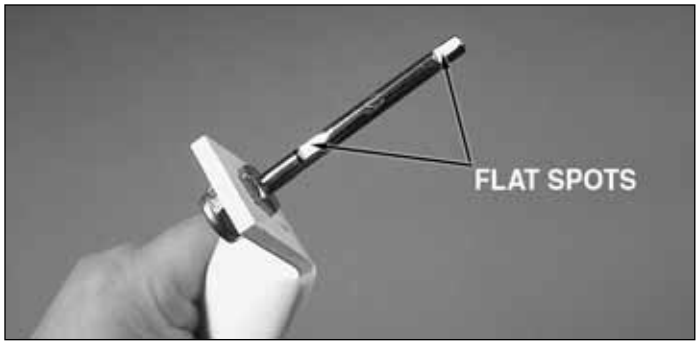
❏ ❏ 2. Insert one bolt-on axle into the hole on the main landing gear leg and secure it using a 5/16" [8mm] x 24 lock nut.

❏ ❏ 3. Slide a 3/16" [4.8mm] wheel collar onto the axle followed by a wheel. Attach the wheel collar with the set screw pointing down, out of the wheel pant.

❏ ❏ 4. Temporarily attach a wheel pant to the main gear using 4-40 x 1/2" [13mm] SHCS, #4 lock washers, and #4 flat washers.

❏ ❏ 5. Center the wheel in the **wheel pant opening**. Slide the wheel collar next to the wheel and gently tighten the set screw to hold it in place.

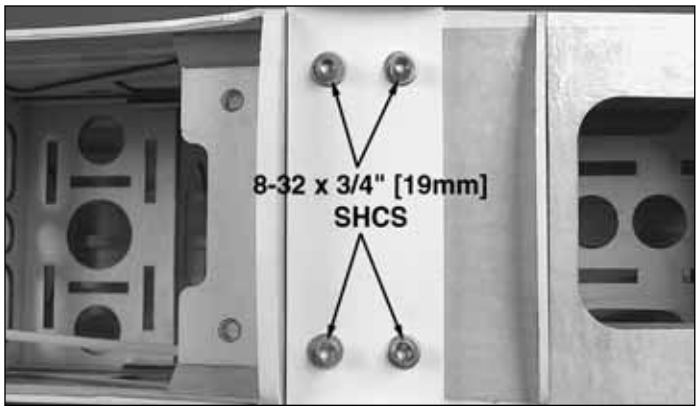
❏ ❏ 6. Remove the wheel pant. Make a mark where the wheel collars will be positioned using a felt-tip or Panel Line Pen.



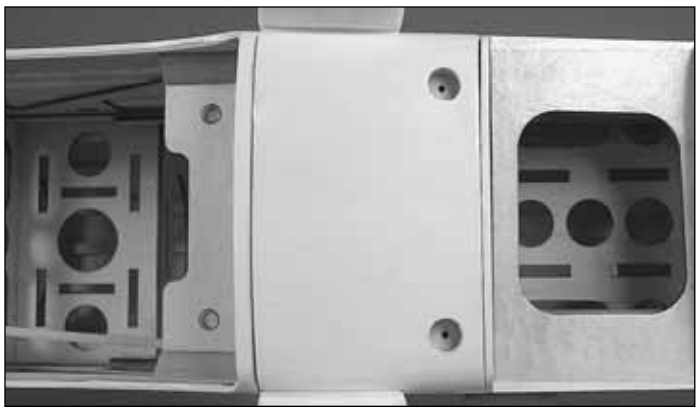
❏ ❏ 7. Grind flat spots on the axle where the set screws in the wheel collar will seat.

❏ ❏ 8. Reattach the wheel collars, wheel, and wheel pant. Apply thread-locking compound to the set screws to prevent them from backing out.

❏ 9. Remove the landing gear hatch covering from the landing gear mounting area, if you have not already done so.



❏ 10. Attach the main landing gear to the fuselage using four 8-32 x 3/4" [19mm] SHCS, four #8 lock washers and four #8 flat washers. Use thread-locking compound to prevent the screws from backing out.



❏ 11. Install the **landing gear hatch** using two #4 x 1/2" [13mm] sheet metal screws and #4 washers. Remove the screws and harden the holes with CA. If you wish, the holes for the screws may be covered using white MonoKote (TOPQ0204), or white MonoKote trim sheet (TOPQ4104).

SERVO INSTALLATION

Elevator Servo Installation

❏ ❏ 1. Locate one 36" [914mm] threaded pushrod. Temporarily insert the pushrod into one of the **elevator pushrod guide tubes** that is preinstalled in the fuselage. As done with the ailerons, use the pushrod to position the large black control horn. Attach the large black control horn with four #4 x 1/2" [13mm] screws.

❏ ❏ 2. Thread a clevis onto the end of the pushrod 14 turns and snap the clevis into the center hole on the control horn.

❏ ❏ 3. Center the elevator control surface and hold it in place with masking tape.

❏ ❏ 4. Use the other end of the pushrod to position the elevator servo. Mount the elevator servo to the **servo mounting rails** using the hardware provided with your servos.

❏ ❏ 5. Center the servo with your radio system and attach a servo arm. Temporarily attach a solder clevis to the servo arm that is at a 90° angle to the pushrod. As you did with the ailerons, make a mark where the clevis will be positioned, leaving 1/8" [3.2mm] inside the clevis.

❏ ❏ 6. After marking the pushrod, remove the pushrod from the fuselage and solder a clevis onto the non-threaded end following the soldering technique described earlier in the manual.

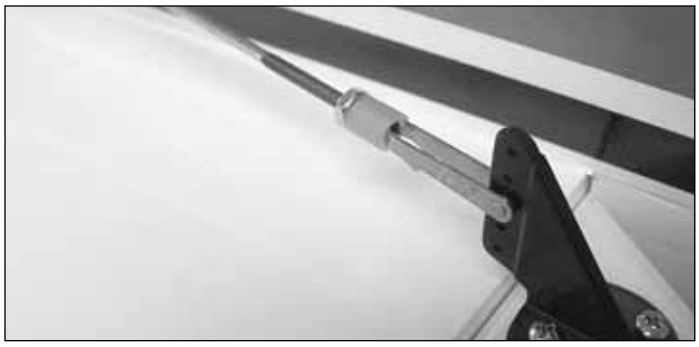
❏ ❏ 7. Remove the threaded clevis. Slide a silicone retainer over the solder clevis.

❏ ❏ 8. Slide the pushrod through the elevator pushrod guide tube from the inside of the fuselage so that the threaded end comes out of the **rear pushrod exit** aligned with the control horn.

❏ ❏ 9. Connect the clevis to the servo arm inside the fuselage. Trim off any unused servo arms.

❏ ❏ 10. Attach the 4-40 hex nut, silicone retainer, and a threaded clevis to the other end of the pushrod and snap the clevis into the middle hole on the large black control

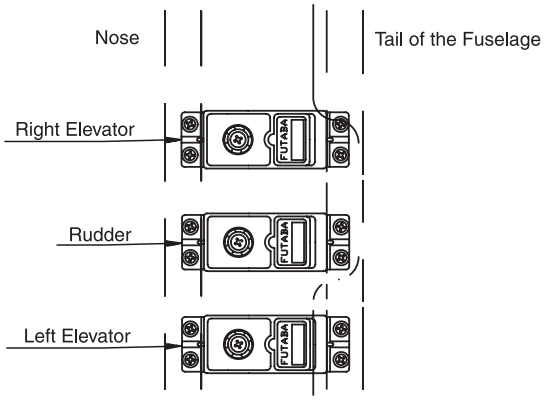
horn. If the control surface is not at neutral, unsnap the clevis and adjust as needed.



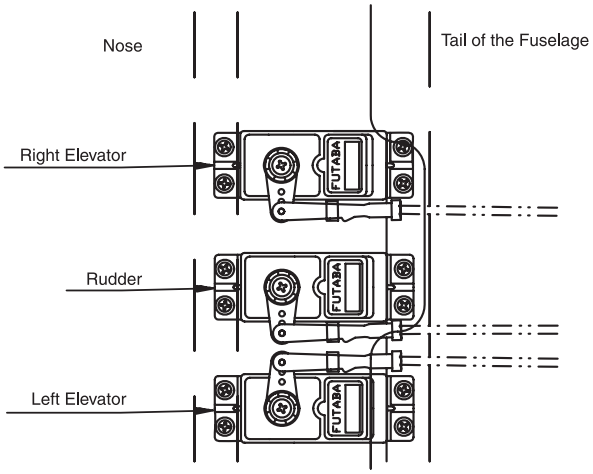
❏ ❏ 11. When done adjusting the clevis, tighten the 4-40 hex nut against the clevis. Be sure to use a drop of Threadlocker to prevent the nut from backing off.

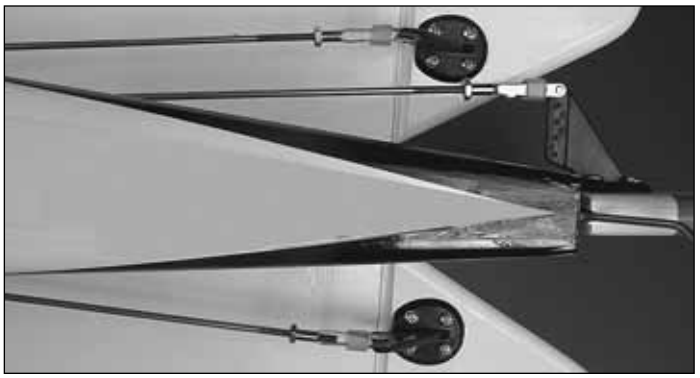
❏ 12. Repeat steps 1 to 11 for the other elevator servo.

Rudder Servo Installation



❏ 1. The rudder servo and pushrod installation is performed following the same procedure as the elevators. The rudder servo is located between the two elevator servos as shown. Be sure that the rudder servo arm and the elevator servo arms do not make contact and that the pushrods do not touch.



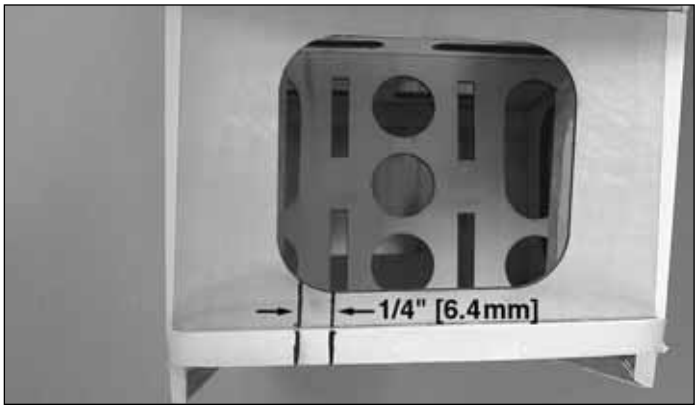


❏ 2. Final installation will resemble the photo and sketch above.

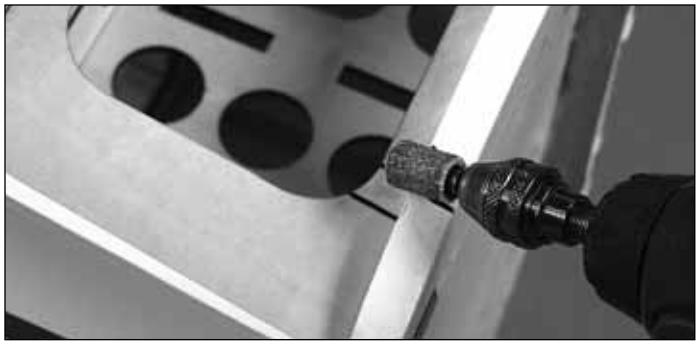
ENGINE INSTALLATION

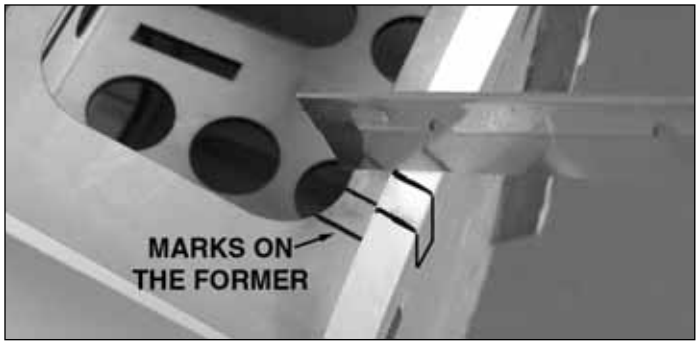
Mount the Gas Engine

Note: The **firewall** has been set up to accept the Fuji-Imvac BT-43EI gas engine and as such the instructions have been written to reflect this. 8-32 Blind nuts have been preinstalled for your convenience for mounting the Fuji-Imvac engine. If you choose to use another manufacturer's gas engine within our specified range, it is up to you as a modeler to determine the best mounting method.

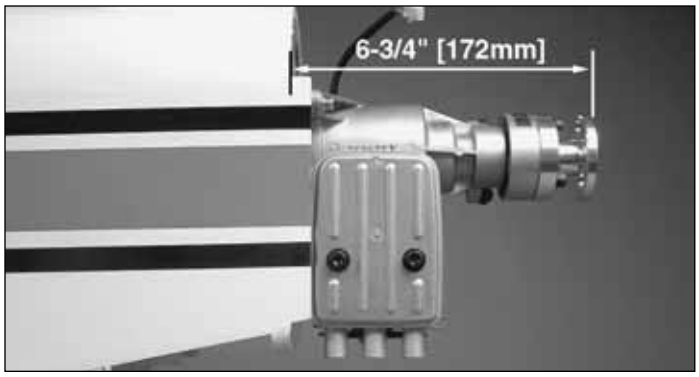


❏ 1. Using a felt-tip or Panel Line Pen, make a 1/4" [6.4mm]-wide mark as shown in the photo.

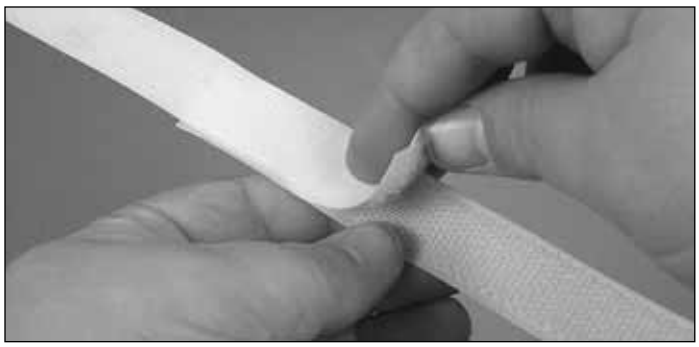




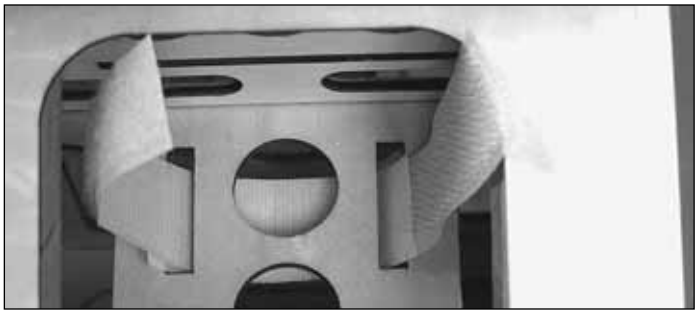
❏ 2. Use a rotary tool such as a Dremel with a small round sanding bit, or a razor saw, to cut away the wood inside the marks you made flush with the marks on the former. Fuelproof the area removed with thin CA or epoxy.



❏ 3. Mount the engine to the firewall using four 8-32 x 1-1/4" [32mm] SHCS, #8 lock washers and #8 flat washers. Do not permanently mount the engine at this time. By this we mean do not use thread-locking compound to retain the SHCS. The engine will be removed later when the **cowl** is installed.

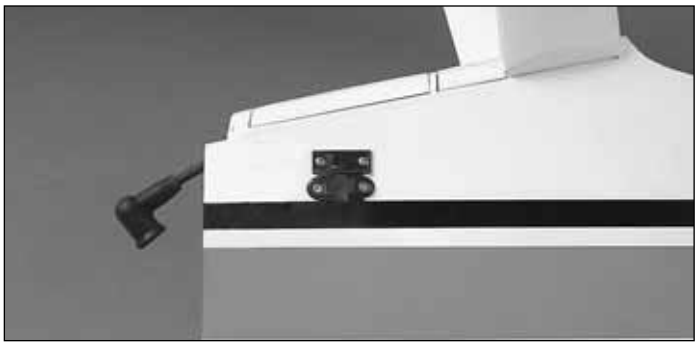


❏ 4. Locate two sets of the 5" [127mm] **hook and loop material**. Separate the two halves and overlap them 2" [51mm] as shown.



❏ 5. Insert the hook and loop material in the front hatch area as shown.

❏ 6. Wrap the electronic ignition unit from the gas engine in 1/4" [6.4mm] foam and strap it in place using the hook and loop material. Route the spark plug wire through the slot you cut in previous steps and the other wires inside the fuselage and out of the small cutout in the top of the firewall. Wrap your ignition battery pack in 1/4" [6.4mm] foam and place it next to the ignition module.

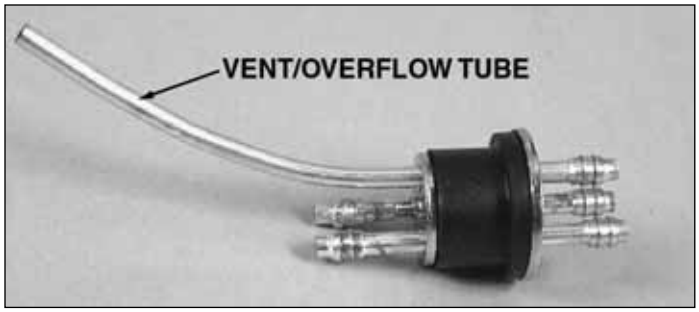


❏ 7. Install a kill switch and charge jack for the ignition system. For our test model, we installed the switch on the opposite side from the ignition battery pack.

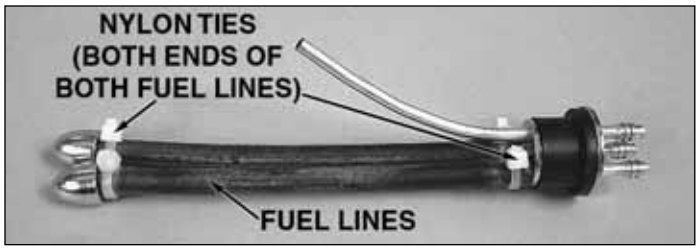
❏ 8. Using two #4 x 1/2" [13mm] screws, attach the **front hatch** to the bottom of the fuselage. Be sure the spark plug wire is not being pinched by the hatch.

❑ 9. Follow your manufacturer's directions for connecting the grounding wire, spark plug wire and ignition to the engine.

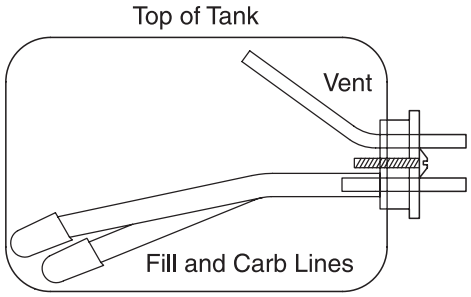
Fuel Tank Assembly (Gas Engine)



❑ 1. Assemble the **stopper**, **tubes** and **metal plates**. Solder the **fuel line barbs** (included) onto the ends of the short tubes. Bend the brass **vent/overflow tube** upward so it will be at the top of the **tank**. Use the stopper that is compatible with gas.

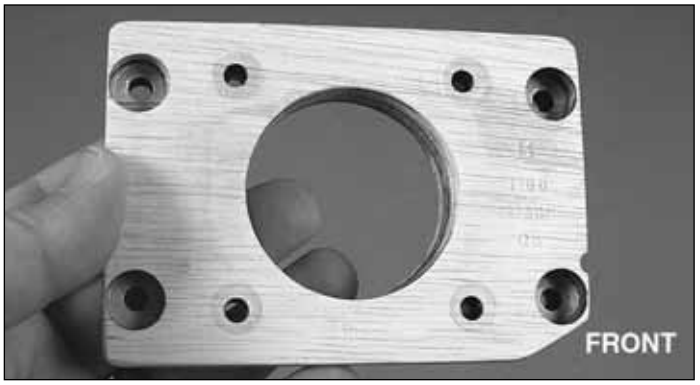


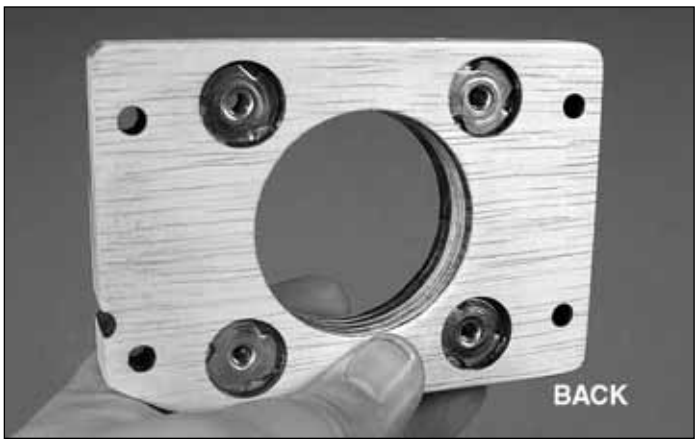
❑ 2. Connect the fuel tubing to the short tubes and the **clunks**–be certain the tubing is cut to a length so that the clunks will not contact the back of the tank–otherwise they may become stuck. Note that one of the lines will be used for fueling and defueling and the other line will be the pickup 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 (not included). This is an important measure that must be taken to be sure the lines remain attached inside the tank.



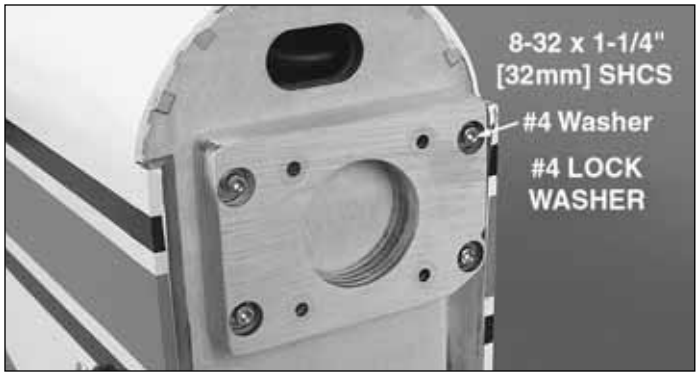
❑ 3. Write **"TOP"** on the back of the tank so you will know which way to install it after you have inserted the stopper assembly. Insert the stopper so the vent line will be at the top of the tank. Then, tighten the screw to squish the stopper and seal the tank. Shake the tank to make sure the clunks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

Mount the Glow Engine

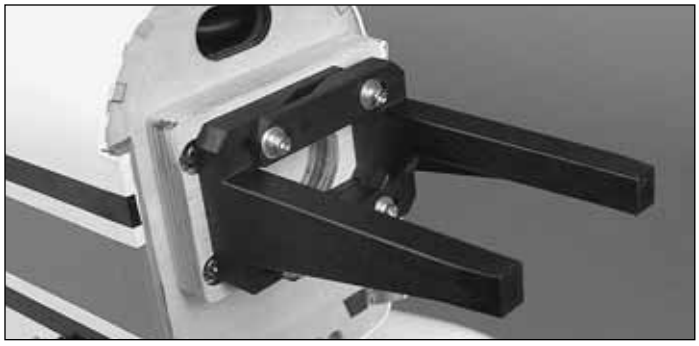




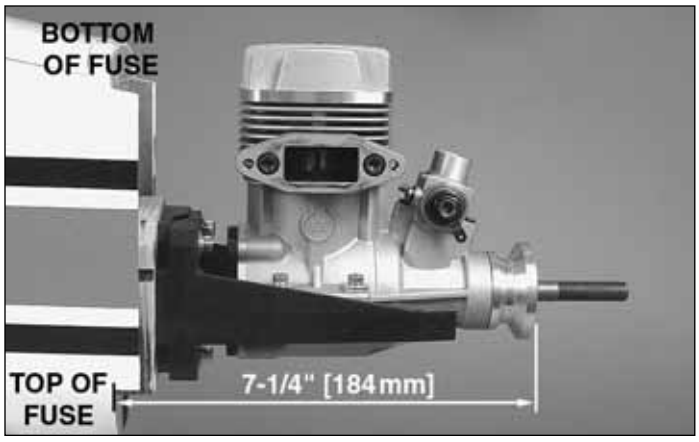
❑ 1. Locate the 5/8" [16mm] plywood **engine mount plate**.



❏ 2. Attach the engine mount plate to the firewall using four 8-32 x 1-1/4" [32mm] SHCS, four #4 lock washers, and four #4 flat washers.



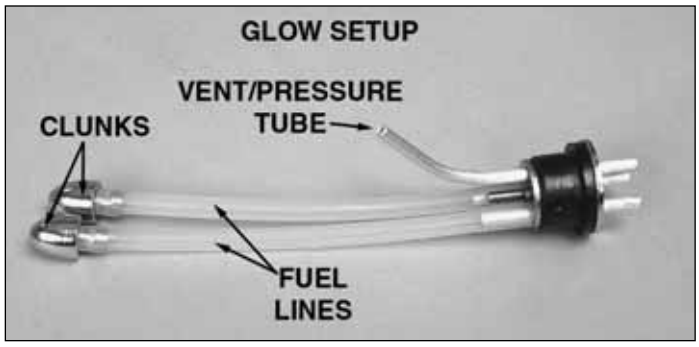
❏ 3. The glow engine will need to be mounted inverted, or upside-down. Attach the black nylon **engine mount** to the engine mount plate using four 8-32 x 1-1/4" [32mm] SHCS, four #4 lock washers, and four #4 flat washers. Leave the SHCS loose enough that you can adjust the width of the mount as needed for your engine.



❏ 4. Position the engine on the mount so the distance from the firewall to the front of the thrust washer measures 7-1/4" [184mm]. Mark the location of the engine on the engine mount. The Great Planes Dead Center™ Hole Locator (GPMR8130) works well for this. Drill through the marks you have made on the engine mount with a #29 or 9/64" [3.6mm] drill bit. Tap each of the holes with an 8-32 tap.

❏ 5. Install the engine onto the mount with four each, 8-32 x 1" [25mm] SHCS, #8 flat washers and #8 lock washers.

Fuel Tank Assembly (Glow Engine)



❏ 1. Assembly of the **glow stopper** is very similar to the gas version. In place of brass tubing, you will use the hardware pack including the silver colored **aluminum tubes**. Assemble the stopper as shown in the photo. For the glow engine setup, the **vent line** is connected to the pressure fitting on your muffler. NO soldering or barbs are required for the glow setup.

Install the Fuel Tank

❏ 1. Cut three 12" [305mm] lengths of the appropriate type of **fuel line** and connect them to the fuel tank.

❏ 2. Insert the fuel tank into the fuselage. Route the fuel lines through the circular cutout in the first former behind the firewall.

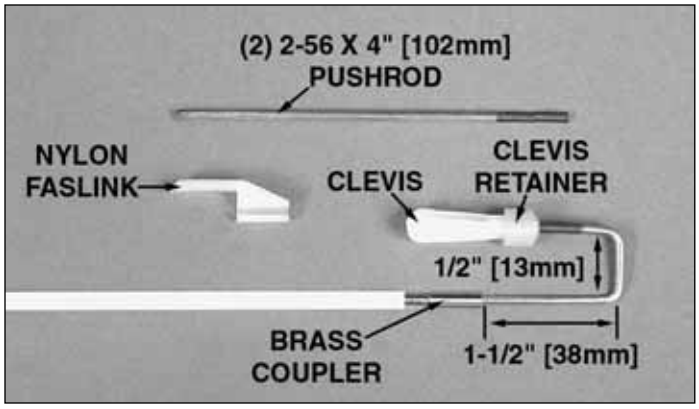
❏ 3. Guide the fuel lines toward the small oval opening in the top of the firewall. Use a pair of long nose pliers to pull the lines out of this opening. Slide the tank into place as you pull the lines.

❏ 4. The stopper assembly will fit into the circular cutout in the former once the tank is fully seated.

❏ 5. Use two rubber bands to hold the fuel tank in place as shown.

❏ 6. Connect the fuel lines to your engine setup as needed.

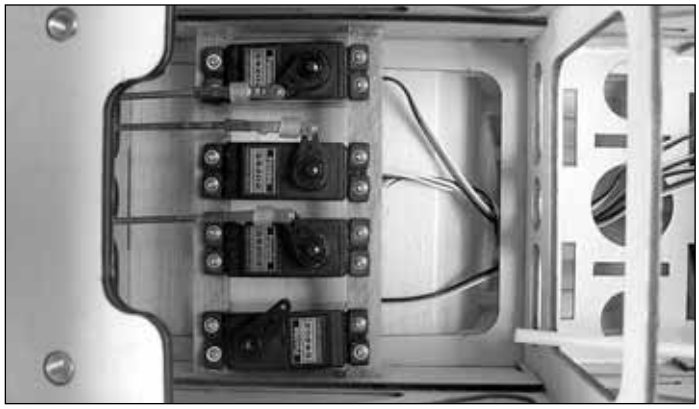
Install the Throttle Servo & Pushrod (Gas Engine)



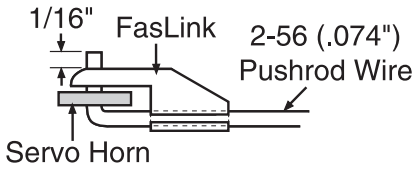
❏ 1. Locate the flexible white nylon pushrod, two 2-56 x 4" [102mm] threaded pushrods, nylon FasLink, nylon clevis, and a clevis retainer.

❏ 2. Solder the 2-56 threaded brass coupler to the non-threaded end of a 4" [102mm] pushrod. Bend the pushrod as shown and thread it into one end of the white nylon flexible pushrod at least 14 turns. Thread a nylon clevis with silicone clevis retainer onto the threaded end of the bent pushrod.

❏ 3. Slide the white pushrod into the **throttle pushrod tube** that is preinstalled in the fuselage and connect the clevis to the throttle arm on the engine.



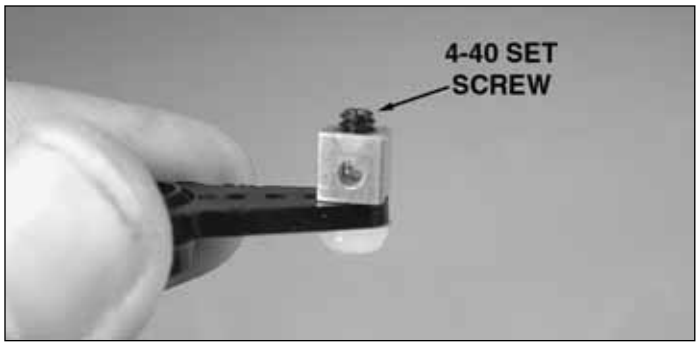
❏ 4. Mount the throttle servo as shown in the photo.



❏ 5. Thread the remaining 4" [102mm] pushrod into the white nylon pushrod 14 turns. Align the pushrod with the servo arm and mark where the pushrod crosses the servo arm. Make a 90° bend in the pushrod at this point and attach it to the servo arm using a nylon FasLink connector. Cut the excess pushrod off leaving 1/16" [1.6mm] extending past the FasLink as shown in the sketch.

Install the Throttle Servo & Pushrod (Glow Engine)

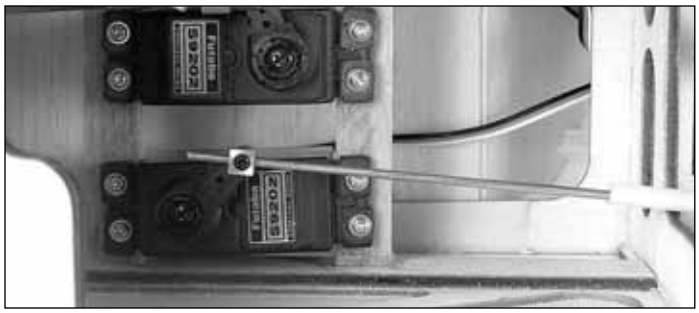
❏ 1. Locate one 2-56 x 36" [914mm] threaded pushrod. Thread the nylon clevis 14 turns onto the threaded end of the pushrod and install a silicone clevis retainer.



❏ 2. Remove the servo arm from the servo and install the screw-lock pushrod connector as shown. Reattach the servo arm to the servo.

❏ 3. From the front of the fuselage slide the pushrod through the **throttle pushrod guide tube** that is preinstalled in the fuselage and through the screw-lock pushrod connector on the servo arm.

❏ 4. Bend the pushrod as needed to clear the muffler and provide smooth throttle operation.



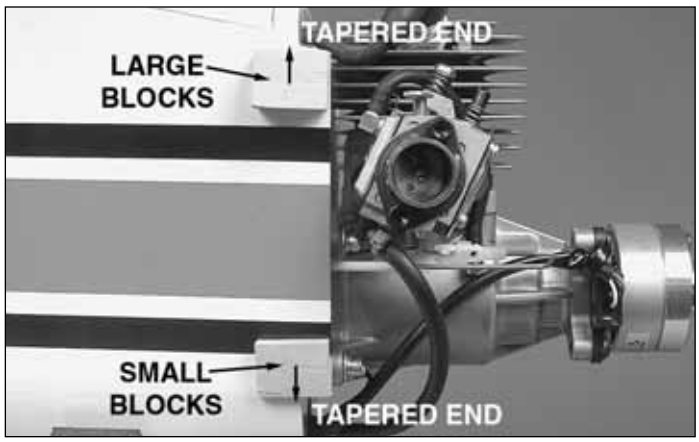
❏ 5. Secure the pushrod to the throttle servo arm with a 4-40 set screw installed in the screw-lock pushrod connector.

❏ 6. Adjust the throttle with your radio as desired. When finished adjusting the throttle, trim the pushrod to 1/2" [13mm] past the screw-lock pushrod connector. Use a drop of thread-locking compound to secure the set screw.

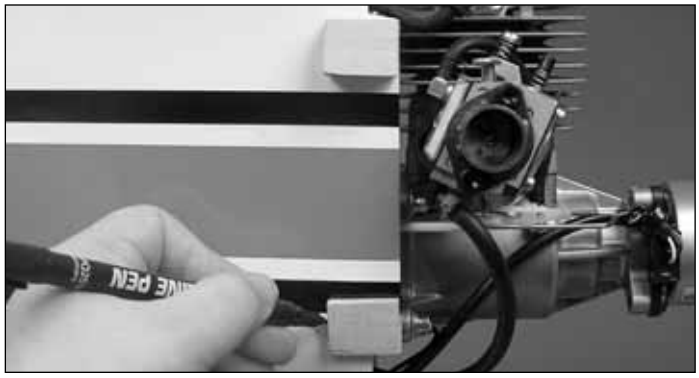
MOUNT THE COWL

Since there are a number of different engines that can be used on the Giant Aeromaster ARF, the following section should be used only as a guide for your installation. The Fuji-Imvac BT-43EI gas engine was used for our model.

❏ 1. Locate the four hardwood **cowl mounting blocks**. There are two large and two smaller blocks.

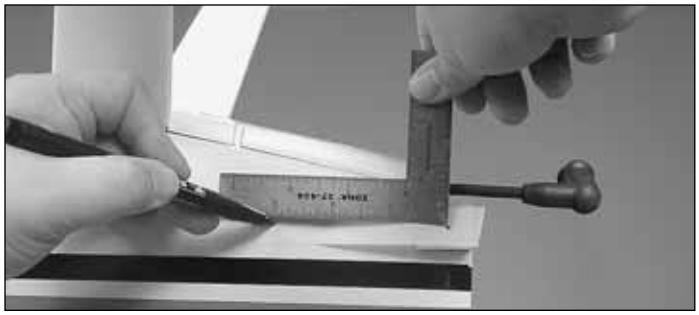


❏ 2. Position the two mounting blocks as shown in the photo. The larger blocks will be mounted towards the top of the fuselage, while the smaller ones are used near the bottom. Also note the wedge shape of the blocks. The tapered ends point outward. Use a very small drop of medium CA to tack glue the blocks in place.



❏ 3. Trace the outline of the blocks using a felt-tip or Panel Line Pen. Carefully remove the blocks and trim the covering from inside the marks you just made using a sharp hobby knife.

❏ 4. Use epoxy and permanently glue the cowl mounting blocks in place.



❏ 5. Apply a piece of masking tape to each block. Measure 3" [76mm] back from the center point of each cowl mounting block and mark that point on the tape.

❏ 6. Tape a piece of paper or cardboard to the side of the fuse. Make a template of the areas to be removed from the **cowl**.

❏ 7. Remove the engine and test fit the cowl. Be sure that the paper template remains taped in place and it is on the outside of the cowl. Align the cowl so that the drive washer is centered in the cowl opening and that the cowl is 1/4" [6.4mm] behind the drive washer.

❏ 8. Trace the cutouts from your paper templates onto the cowl. Remove the cowl from the fuselage and use a rotary tool to remove the areas needed to clear the engine.

❏ 9. Reposition the cowl and measure from the 3" [76mm] mark on the tape forward and drill 5/64" [2mm] holes through the cowl and cowl mounting blocks. Remove the cowl and enlarge the holes in the cowl only to 3/32" [2.4mm] to prevent the cowl from splitting. Harden the holes in the cowl mounting blocks with thin CA and allow it to fully harden before proceeding.

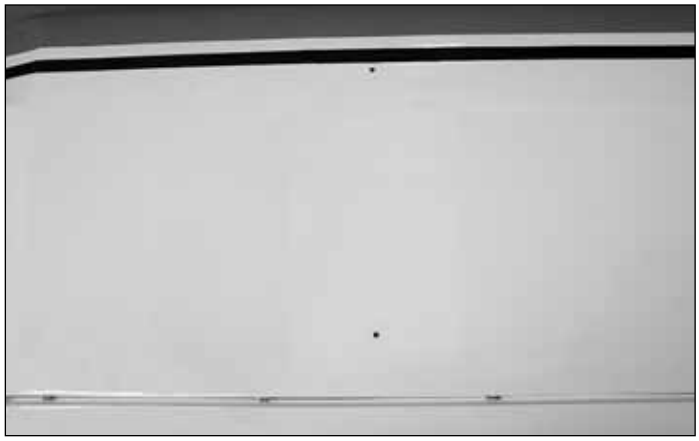
❏ 10. Reinstall the engine and fuel lines. Mount the cowl to the fuselage using four #4 x 1/2" [13mm] screws and #4 flat washers.

ATTACH THE WINGS & CABANES

❏ 1. Attach the bottom wing to the fuselage with the 1/4-20 nylon **wing bolts**.

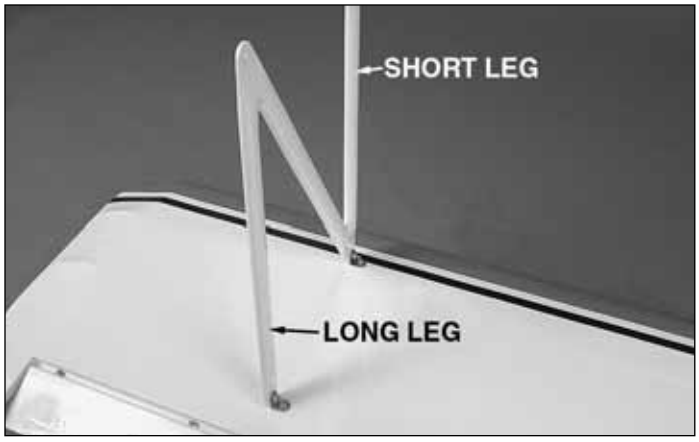
❏ 2. Locate eight metal **interplane or "N" strut mounting brackets**. Set four of the brackets for the top wing aside. We will be installing the brackets on the bottom wing first.

Do the left wing first so your work matches the photos the first time through.



❏ ❏ 3. Look closely on the top of the bottom wing and you will find small holes under the covering locating the blind nuts for the **"N" strut mounting bolts**. Cut the covering from each of the holes. **Note:** 4-40 Blind nuts have been installed in the wing for all of the **"N" struts** and **cabane mounting bolts**. All of the blind nuts are glued into the wing and have a small **wood plate** backing them up. It is possible that a blind nut could have a bit of glue in the threads. In most cases the installation of the bolt should free the glue. If not, run a 4-40 tap through the threads to clear the glue.

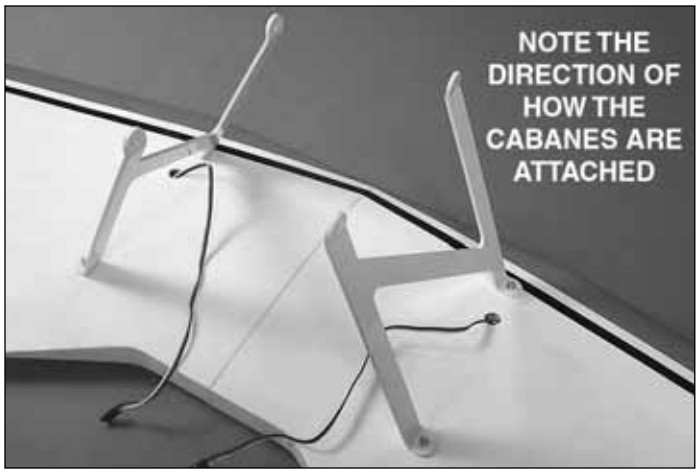
❏ ❏ 4. Mount the bottom wing interplane or "N" strut brackets in each of the holes in the right wing panel with a 4-40 x 1/2" [13mm] SHCS, #4 flat washer and a #4 lock washer. Do not fully tighten the bracket to the wing yet.



❏❏ 5. Note that the “N” strut has one leg that is slightly longer than the other. The shorter leg goes toward the LE of the wing. Attach the “N” strut to the brackets as shown with 4-40 x 3/8" [9.5mm] Phillips head screws, #4 washers and a 4-40 nylon lock nuts. The lock nuts are on the inside of the brackets.

❏ 6. Go back and repeat steps 3 to 5 for the right wing panel.

❏ 7. Locate the holes and cut the covering from the blind nuts in the bottom of the top wing. Four holes are located in the center of the wing and two are located at each end of the wing halves.



❏ 8. Mount the **center cabanes** with 4-40 x 1/2" [13mm] SHCS, #4 flat washers and #4 lock washers in the top wing. Be sure you mount the cabanes as shown.

❏ 9. Install the four remaining brackets in the blind nuts at the **wing tips** of the **top wing** using 4-40 x 1/2" [13mm] SHCS, #4 flat washers and #4 lock washers. Do not fully tighten the screws at this time.

❏ 10. Place the top wing onto the “N” struts. Attach the top wing to the “N” struts with 4-40 x 3/8" [9.5mm] Phillips head screws, #4 washers and 4-40 nylon lock nuts the same way you installed the strut to the lower brackets.

❏ 11. Set the plane on its nose. Look at the relation of the top wing to the bottom wing. Be sure the top wing is aligned with the bottom wing. Adjust the top wing as needed. Then carefully set the fuselage back on the landing gear.

❏ 12. Without disturbing the top wing, verify that the lower cabane mounting holes are positioned over the hardwood blocks located in the fuselage, just under the covering. If they are not, check to see if you have mounted the center cabanes and “N” struts properly. Also look at the top and bottom wings from the side. They should look almost parallel. If it appears that the LE of the top wing is much higher, the “N” struts are possibly backwards.

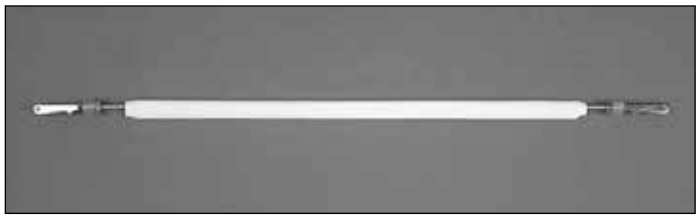
❏ 13. Drill a 5/64" [2mm] hole through each of the four mounting holes in the center cabanes. When you drill these holes you must be drilling into the hardwood blocks located in the fuselage, just under the covering.

❏ 14. Install and then remove a #4 x 1/2" [13mm] sheet metal screw and a #4 flat washer into each of the four holes. Apply a couple drops of thin CA into each of the holes to harden the threads. After the glue has cured, permanently install the screws into the fuselage.

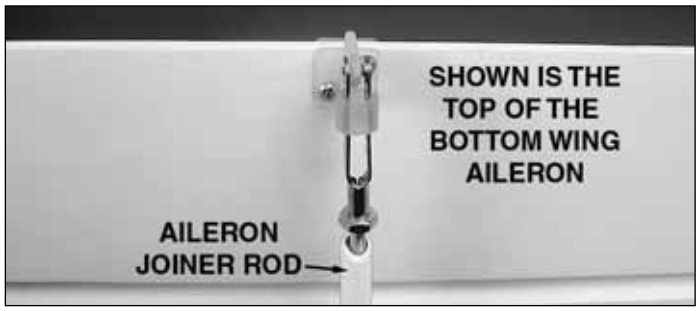
❏ 15. Once you have the center cabanes installed, tighten the socket head cap screws holding all the “N” strut brackets.

Connect the Aileron Joiner Rods

If you chose to utilize the two bottom wing servos to drive all four ailerons, you will need to assemble the **aileron joiner rods** so that the top ailerons can be driven with the bottom ailerons. This can only be aligned correctly with **BOTH** wings attached.



❏ 1. Locate the two aileron joiner rods. Thread a 4-40 hex nut and a 4-40 clevis with a silicone retainer onto each end of the rod. Do not worry about length right now; this will be adjusted when the rod is in place.



❏ 2. Starting with the bottom ailerons, install a large nylon control horn (not black) on the top TE of the aileron centered directly behind the control horn. Use two #2 x 3/8" [9.5mm] screws to secure the control horn. Remove the screws and harden the holes using thin CA. Align the control horn with the holes facing the rear of the plane as shown and attach one end of the joiner rod to the outer hole on the control horn.

❏ 3. With the aileron centered, rotate the joiner rod straight up to meet the bottom of the top wing aileron. Attach a nylon control horn on the bottom of the top wing aileron.

❏ 4. Adjust the clevis on both ends of the rod until both ailerons are centered with the rod connecting them in place. Tighten the 4-40 hex nuts and apply thread-locking compound to prevent the hex nuts from loosening.

FINAL DETAILS

Install the Pilot & Canopy

❏ 1. Use 6-minute epoxy and glue the included pilot figure in the **cockpit** if desired.

❏ 2. Apply the instrument panel decal.

❏ 3. Trim the clear **canopy** along the marked trim lines.

❏ 4. Attach the canopy to the fuselage using four #2 x 3/8" [9.5mm] screws and #2 washers as shown. You may also permanently mount the canopy using R/C Canopy Glue.

Mount the Receiver & Battery

❏ 1. Make all servo connections to the **receiver** as required for your choice of radio setup.

❏ 2. Wrap the receiver and **receiver battery** in 1/4" [6.4mm] foam and secure it to the **servo tray** as shown using the included hook and loop material.

❏ 3. Install a switch and charge jack on the side of the fuselage.

Apply the Decals

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

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

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

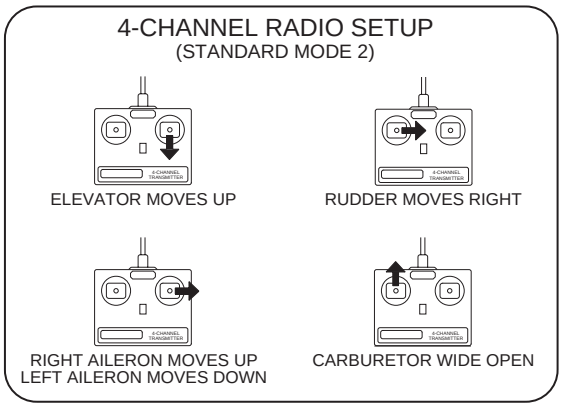
4. Use a piece of soft balsa or something similar to squeegee remaining water from under the decal. Apply the rest of the decals the same way.

GET THE MODEL READY TO FLY

Check the Control Directions

❏ 1. Turn on the transmitter and receiver and center the trims. If necessary, remove the servo arms from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo arms.

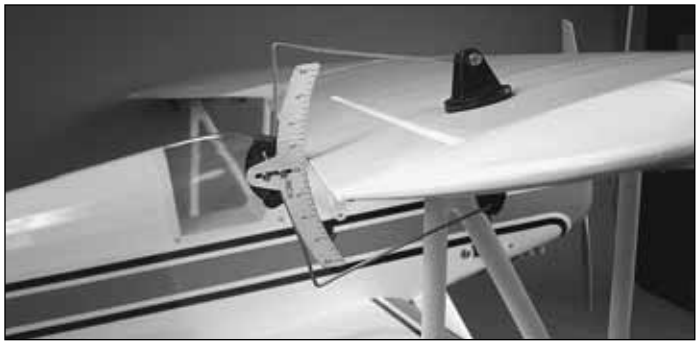
❏ 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, adjust the clevises on the pushrods to center the control surfaces.



❏ 3. Make certain that the control surfaces and the carburetor respond in the correct direction as shown in the diagram. If

any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.

Set the Control Throws



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

Note: The throws are measured at the **widest part** of the elevators, rudder and ailerons.

These are the recommended control surface throws:

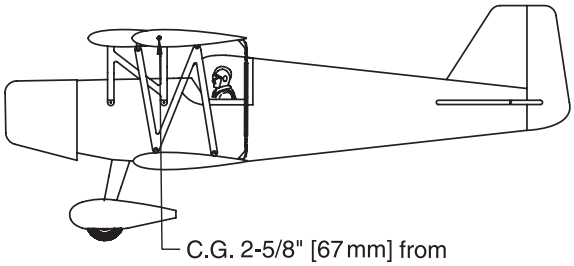
	High Rate	Low Rate
ELEVATOR:	1-1/8" [29mm] up 1-1/8" [29mm] down	9/16" [14mm] up 9/16" [14mm] down
RUDDER:	2-1/8" [54mm] right 2-1/8" [54mm] left	1-5/8" [41mm] right 1-5/8" [41mm] left
AILERONS:	3/4" [19mm] up 3/4" [19mm] down	9/16" [14mm] up 9/16" [14mm] down

IMPORTANT: The Giant Aeromaster 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 Aeromaster 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.

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



❏ 1. Use a felt-tip pen or 1/8" [3.2mm]-wide tape to accurately mark the C.G. on the bottom of the top wing on both wing tips. The C.G. is located 2-5/8" [67mm] back from the LE of the top wing at the tips.

This is where your model should balance for the first flights. Later, you may wish to experiment by shifting the C.G. up to 1/4" [6.4mm] forward or 3/8" [9.5mm] back to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but the model may then require more speed for takeoff and make it more difficult to slow for landing. Moving the C.G. aft makes the model more maneuverable, but could also cause it to become too difficult to control. In any case, **start at the recommended balance point** and do not at any time balance the model outside the specified range.

❏ 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly) and an empty fuel tank, lift the Giant Aeromaster ARF right-side up at the balance point you marked on the bottom of the top wing.

❏ 3. If the tail drops, the model is "tail heavy" and the battery pack and/or receiver must be shifted forward or weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and the battery pack and/or receiver must be shifted aft or 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 required, 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 is not practical or is not enough, use Great Planes (GPMQ4485)

"stick-on" lead. A good place to add stick-on nose weight is to the firewall (don't attach weight to the cowl–it is not intended to support weight). Begin by placing incrementally increasing amounts of weight on the bottom of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, nose weight may be added by removing the forward hatch on the bottom of the fuse and gluing the weight permanently inside.

Note: 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. With the wing level, have an assistant help you lift the model by the engine propeller shaft and the bottom of the fuse under the TE of the fin. Do this several times.

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

PREFLIGHT

Identify Your Model

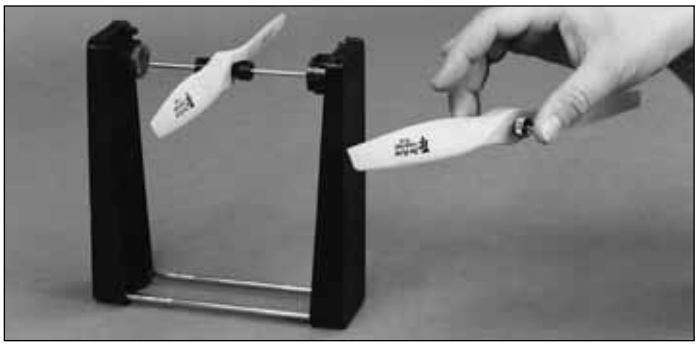
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification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

Always 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 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 gas 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 Aeromaster 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.

What is Giant-Scale?

The concept of large or giant-scale is generally considered to apply to radio controlled model aircraft with minimum wingspans of 80 inches for monoplanes and 60 inches for multi-wing aircraft. Quarter-scale or larger replicas of person-carrying aircraft with proper documentation (minimum 3-view drawing) which do not fit the size requirements will also be permitted.

Section 1.0: SAFETY STANDARD

1.1 Adherence to Code: The purpose of this Safety Code is to provide a structure whereby all participants, including spectators, will be aware of the inherent dangers in the operation of radio controlled aircraft. This code is meant to serve as a minimum guideline to all participants. It is understood that the ultimate responsibility for the safety of any aircraft lies with the owner(s), pilot(s) and spectator(s) involved in any event. It is the responsibility of all participants to exercise caution when operating, or observing the operation of all radio controlled aircraft. The pilot/owner of an aircraft will not be dissuaded from taking whatever steps they deem necessary, in addition to this code, to insure that their aircraft is safe.

1.2 The most current AMA Safety Code in effect is to be observed.

Section 3.0: SAFETY REVIEW

3.4 Flight Testing: All aircraft are to have been flight tested and flight trimmed with a minimum of six (6) 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 Review form (see ***"Section 3.2"***) by the pilot (or owner) shall document, as fact, that the noted aircraft has been successfully flight tested and proven airworthy prior to the IMAA event.

Section 4.0: SPOTTER/HELPER

4.1 Spotter/Helper Definition: An assistant to aid the pilot during start-up, and taxing onto the runway. The spotter/helper will assist the pilot in completing a safe flight. 4.2 Each pilot is required to have a spotter/helper at all IMAA sanctioned events. The event Safety Committee should be prepared to assist those pilots who do not have a spotter/helper to make sure that every registered pilot has the opportunity to fly at a sanctioned event.

Section 5.0: EMERGENCY ENGINE SHUT OFF (Kill Switch)

5.1 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 spotter/helper. This switch is to be operated manually and without the use of the Radio System.

5.2 Engines with battery powered 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 spotter/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 completely close the carburetor throat 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. It is expected that IMAA members will avail themselves of technological advances as such become available, to promote the safety of all aircraft and participants.

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 ounces of torque. 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 stabilizer half is strongly recommended. Use of dual servos is also recommended on larger aircraft.

On-board batteries should be, at a minimum, 1000mAh up to 20 lbs., 1200mAh to 30 lbs., 1800mAh to 40 lbs., and 2000mAh 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 on-board radio components for a minimum of one hour total flying time before recharging.

Dependable, redundant and fail-safe battery systems are recommended.

The use of anti-glitch devices for long leads is 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 selections 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 Sanction competition events such as 511, 512, 515 and 520. All 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 gas engine in which the model aircraft weight would exceed twelve (12) pounds per cubic inch of engine displacement (underpowered), or be less than five (5) pounds per cubic inch of engine displacement (overpowered). **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 control horns 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" [6.4mm] or 5/16" [8mm] O.D. 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" [9.5mm] O.D. Bracing every six (6) to ten (10) inches is highly recommended.

Hinges should be rated heavy-duty and manufactured primarily for use in giant-sized aircraft. 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). Clevises must have lock nuts and sleeve (fuel tubing) or spring keepers.

Propeller tips should be painted or colored in a visible and contrasting manner 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 cowl ring, cowl mounting blocks, wing saddle area, etc.
- ❏ 2. Check the C.G. according to the measurements provided in the manual.
- ❏ 3. Be certain the battery and receiver are securely mounted in the fuse. Simply stuffing them into place with foam rubber is not sufficient.
- ❏ 4. Extend your receiver antenna and make sure it has a strain relief inside the fuselage to keep tension off the solder joint inside the receiver.
- ❏ 5. Balance your model *laterally* as explained in the instructions.
- ❏ 6. Use thread-locking compound to secure critical fasteners such as the set screws that hold the wheel axles to the struts, screws that hold the carburetor arm (if applicable), screw-lock pushrod connectors, etc.
- ❏ 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 any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
- ❏ 14. Secure the pressure tap (if used) to the muffler with high temp RTV silicone, thread-locking compound or J.B. Weld.
- ❏ 15. Make sure the fuel lines are connected and are not kinked.

❏ 16. Balance your propeller (and spare propellers).
❏ 17. Tighten the propeller nut and spinner.
❏ 18. Place your name, address, AMA number and telephone number on or inside your model.
❏ 19. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.
❏ 20. If you wish to photograph your model, do so before your first flight.
❏ 21. Range check your radio when you get to the flying field.

FLYING

The Giant Aeromaster ARF is a great-flying model that flies smoothly and predictably. The Giant Aeromaster ARF 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 overpowered model at excessive speeds.

Takeoff

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

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

Flight

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

Take it easy with the Giant Aeromaster ARF for the first few flights, gradually getting acquainted with it as you gain confidence. Adjust the trims to maintain straight and level flight. After flying around for a while, and while still at a safe altitude with plenty of fuel, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers 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

To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward

the runway (into the wind) keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the runway threshold, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and climb out to make another attempt. When you're ready to make your landing flare and the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down. Once the model is on the runway and has lost flying speed, hold up elevator to place the tail on the ground, regaining tail wheel control.

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

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

GOOD LUCK AND GREAT FLYING!

This model belongs to:

Name

Address

City, State Zip

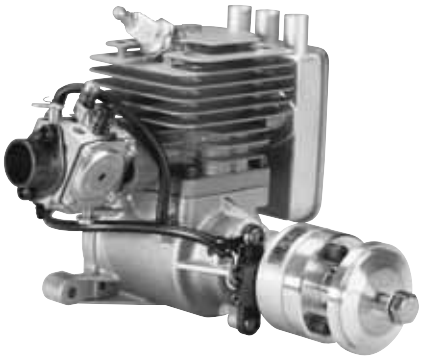
Phone number

AMA number

Make a copy of this identification tag and put it on or inside your model.

OTHER ITEMS AVAILABLE FROM GREAT PLANES

O.S.® BGX-1 3500 Glow Engine
The side-exhaust BGX-1 3500 not only produces more power than a popular 41cc gasoline engine, but weighs well over a pound less! A low-profile design simplifies mounting and increases the chances for completely in-cowl installations. Features include a remote high-speed needle valve, dual bearings and durable ringed piston design. Includes a muffler, mount, glow plug and safety prop nut assembly. **OSMG0352**



Fuji-Imvac™ BT-43EI Gasoline Engine
The Fuji-Imvac EIS (Electronic Ignition System) has few equals in starting ease or in maximizing power, and it's available in the large-scale BT-43EI. This engine gives pilots a powerful (4.2 hp) alternative to 1.60 glow engines, and fits anywhere a 1.60 would. EI starting ease is not the only other plus the BT-43EI offers. Gasoline engine simplicity and economy are right up there, too, as well as a generous 3-year warranty. **FJIG0143**

Fuji-Imvac is not related to the original Fuji Engines sold by Mecoa.

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