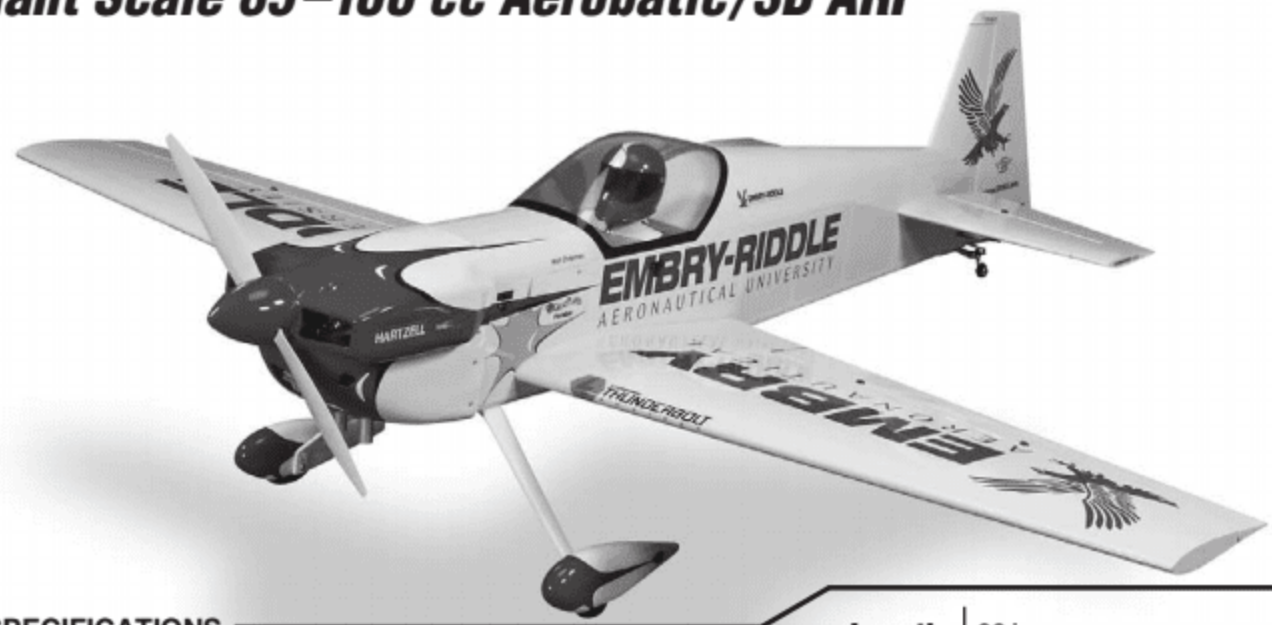
Matt Chapman

EAGLE 580

Giant Scale 85–100 cc Aerobatic/3D ARF



SPECIFICATIONS

Wingspan:	100 in [2540mm]	**Weight:**	24 – 28 lb [10880-12700 g]	**Length:**	96 in [2440mm]
Wing Area:	1892 sq in [122 dm²]	**Wing Loading:**	29 – 34 oz/ft² [88 – 104 g/dm²]	**Radio:**	4-5 channel with 9 standard size servos
				Engine:	85 – 100cc gasoline

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

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INTRODUCTION

For the latest technical updates or manual corrections to the Great Planes Giant Matt Chapman Eagle 580 ARF visit the Great Planes web site at www.greatplanes.com. Open the "Airplanes" link, then select the Great Planes Giant Matt Chapman Eagle 580 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 – Academy of Model Aeronautics

If you are not already a member of the AMA, please join! The AMA is the governing body of model aviation and membership provides liability insurance coverage, protects modelers' rights and interests and is required to fly at most R/C sites.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252

Tele. (800) 435-9262
Fax (765) 741-0057

AMA SINCE 1936

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.

IMAA

The Great Planes Eagle 580 ARF is an excellent sport-scale model and is eligible to fly in IMAA events. The IMAA (International Miniature Aircraft Association) is an organization that promotes non-competitive flying of giant-scale models. If you plan to attend an IMAA event, obtain a copy of the **IMAA Safety Code** by contacting the IMAA at the address or telephone number below.

IMAA
205 S. Hilldale Road
Salina, KS 67401

(913) 823-5569

International Miniature Aircraft Association Inc.
© World Wide

Or via the Internet at:
http://www.fly-imaa.org/imaa/sanction.html

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

1. Your Great Planes Giant Matt Chapman Eagle 580 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 Great Planes Giant Matt Chapman Eagle 580 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 good condition, a correctly sized engine, and other components as specified in this instruction manual. All components must be correctly installed so that the model operates correctly on the ground and in the air. You must check the operation of the model and all components before **every** flight. Inspect for signs of wear in the flight controls and engine controls. You should also cycle your radio batteries regularly and check to see that they fulfill their current and capacity ratings.

5. If you are not an experienced pilot or have not flown this size and 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.

6. While this kit has been flight tested to exceed normal use, it is important that the modeler understand that aerobatic designs are not race planes, and should not be flown like them. In addition, "more is better" is the WRONG philosophy when powering an aerobatic plane. This model has been professionally designed and tested, and the engine range carefully selected for great performance. We strongly recommend NOT exceeding the recommended engine range. This is unsafe and will void the warranty of this model.

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

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

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

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the Great Planes Giant Matt Chapman Eagle 580 ARF that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Radio Equipment

❑ ***4–5 channel radio*** with:

- 1–2 ***Standard size servos*** (throttle and optional choke servo)
- 8 - ***Standard size high torque metal geared (150 oz/in) servos*** (2 for elevator, 4 for ailerons, 2 for rudder)
- 2 - ***36" heavy duty servo extensions*** (HCAM2726 for Futaba®) (outer aileron servos)
- 2 - ***24" heavy duty servo extensions*** (HCAM2721 for Futaba) (inner aileron servos)
- 2 - ***40" heavy duty servo extensions*** (FUTM4148 for Futaba) (elevator servos)
- 3 - ***Y-harnesses*** (HCAM2751 for Futaba) (aileron servos and rudder servos)
- 2 - ***12" [300mm] servo extensions*** (HCAM2711 for Futaba) (receiver to each wing)
- 1 - ***24" [610mm] servo extension*** (HCAM2721 for Futaba) (rudder servos)
- 1 - ***36" [914mm] servo extension*** (HCAM2726 for Futaba) (elevator servos)
- 1 - ***Receiver battery, 4200mAh 4.8V NiMH*** (HCAM6335)
- 1 - ***Ignition battery, 2000mAh NiMH*** (HCAM6321)
- 2 - ***Heavy duty switch harnesses*** (FUTM4385) (Rx and ignition)
- 2 - ***Charge jacks*** (ERNM3001 for Futaba)

If you're not using a computer radio with mixing functions or one with less than 6 channels, please consider purchasing the following items:

- 1 - ***Servo reverser lead***
  (FUTM4150 to reverse one elevator servo)
- 1 - ***Servo synchronizer***
  (FUTM4155 to synchronize inboard and outboard aileron servos) (Note: If you're using this, you won't need to order 2 of the Y-harnesses above)

Engine Recommendations

The recommended engine size range for the Great Planes Giant Matt Chapman Eagle 580 ARF is 85 – 100cc. This manual will detail the installation of the DA-100 engine with twin canister style exhaust. A mounting template and special wooden standoff shims are provided for you if you choose to install the DA-85 engine.

The following items should be ordered from Desert Aircraft or your favorite hobby supplier if you choose the ***DA-100***:

- DA-100 engine
- Standard DA-100 muffler set

OR

- MTW canister exhaust (short version) (DA model number TD 75K)
- MTW headers

The following items should be ordered from Desert Aircraft or your favorite hobby supplier if you choose the ***DA-85***:

- DA-85 engine
- Slimline Pitts muffler for DA-85

OR

- JTEC large wrap around Pitts muffler for DA-85 (JTCG7985) (standard option)

OR

- JTEC X-large wrap around Pitts muffler for DA-85 (JTCG2085) (quiet option)

ADDITIONAL ITEMS REQUIRED

Required Hardware and Accessories

In addition to the items listed in the "Decisions You Must Make" section, the following is a list of hardware and accessories required to finish the Great Planes Giant Matt Chapman Eagle 580 ARF. Order numbers are provided in parentheses.

- Propeller (per the engine manufacturer's suggestion)
- R/C foam rubber 1/4" [6.4mm] – (HCAQ1000)
- Two packs of 3' [914mm] Tygon® gasoline fuel tubing (DUBQ0427)

Adhesives and Building Supplies

In addition to common household tools and hobby tools, this is the "short list" of the most important items required to build the Great Planes Giant Matt Chapman Eagle 580 ARF. Great Planes Pro™ CA and Epoxy glue are recommended.

- 1 oz. [30g] Thin Pro CA (GPMR6002)
- 1 oz. [30g] Medium Pro CA+ (GPMR6008)
- Pro 30-minute epoxy (GPMR6047)
- Pro 6-minute epoxy (GPMR6045)
- Threadlocker thread locking cement (threadlocker) (GPMR6060)
- R/C-56 glue 4oz (JOZR5007)
- Drill bits: 1/16" [1.6mm], 5/16" [7.9mm], 1/8" [3.2mm], 3/16" [4.8mm]
- X-long (jobber length) drill bit: 3/16" [4.8mm]
- 10-piece standard tap and drill set (GPMR8108)
- Tap handle (GPMR8120)
- Small metal file
- Velcro® hook & loop (1" x 6" [25 x 150mm], (GPMQ4480)
- 3/8" Heat shrink tubing (GPMM1060)
- Stick-on segmented lead weights (GPMQ4485)
- #1 Hobby knife (HCAR0105)
- #11 blades (5-pack, HCAR0211)
- Single-edge razor blades (10-pack, HCAR0212)
- Medium T-pins (100, HCAR5150)
- Sandpaper assortment
- Petroleum jelly
- Hobby torch (HCAR0765)
- Silver solder kit (STAR2000)

Optional Supplies and Tools

Here is a list of optional tools mentioned in the manual that will help you build the Great Planes Giant Matt Chapman Eagle 580 ARF.

- 4 oz. [113g] aerosol CA activator (GPMR634)
- CA applicator tips (HCAR3780)
- CA debonder (GPMR6039)
- Epoxy brushes (6, GPMR8060)
- Mixing sticks (50, GPMR8055)
- Mixing cups (GPMR8056)
- Pliers with wire cutter (HCAR0630)
- Robart Super Stand II (ROBP1402)
- Masking tape (TOPR8018)
- Denatured alcohol (for epoxy clean up)
- Rotary tool such as Dremel®
- Rotary tool reinforced cut-off wheel (GPMR8200)
- Quick drill set (HCAR0699)
- 3M ScotchBrite® green abrasive pad
- Top Flite® MonoKote® sealing iron (TOPR2100)
- Top Flite MonoKote trim seal iron (TOPR2200)
- Top Flite MonoKote heat gun (TOPR2000)

IMPORTANT BUILDING NOTES

- There are several types of screws used in this kit:

  Self-tapping or sheet metal screws are designated by a number and a length. For example, #6 x 3/4" [19mm].

  Machine screws are designated by a number, threads per inch, and a length. For example, 4-40 x 3/4" [19mm].

  Socket Head Cap Screws (SHCS) are designated by a number, threads per inch, and a length. For example, 4-40 x 3/4" [19mm]

- When you see the term ***test fit*** in the instructions, it means that you should first position the part on the assembly **without using any glue**. Then, slightly modify or *custom fit* the part as necessary for the best fit.
- Whenever the term ***glue*** is written you should rely upon your experience to decide what type of glue to use. When a specific type of adhesive works best for that step, the instructions will make a recommendation.
- Whenever just ***epoxy*** is specified you may use ***either*** 30-minute (or 45-minute) epoxy ***or*** 6-minute epoxy. When 30-minute epoxy is specified it is **highly** recommended that you use only 30-minute (or 45-minute) epoxy, because you will need the working time and/or the additional strength.
- **Photos** and **sketches** are placed **before** the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.
- The Great Planes Giant Matt Chapman Eagle 580 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.

Cub Yellow	TOPQ0220
Sapphire Blue	TOPQ0227
Missile Red	TOPQ0201
Orange	TOPQ0202
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.

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 (217) 398-8970, ext. 5
3002 N Apollo Drive, Suite 1 Fax: (217) 398-7721
Champaign, IL 61822

E-mail: airsupport@greatplanes.com

ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Giant Matt Chapman Eagle 580 ARF are available using the order numbers in the **Replacement Parts List** that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company.

To locate a hobby dealer, visit the Great Planes web site at www.greatplanes.com. Choose "Where to Buy" from 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

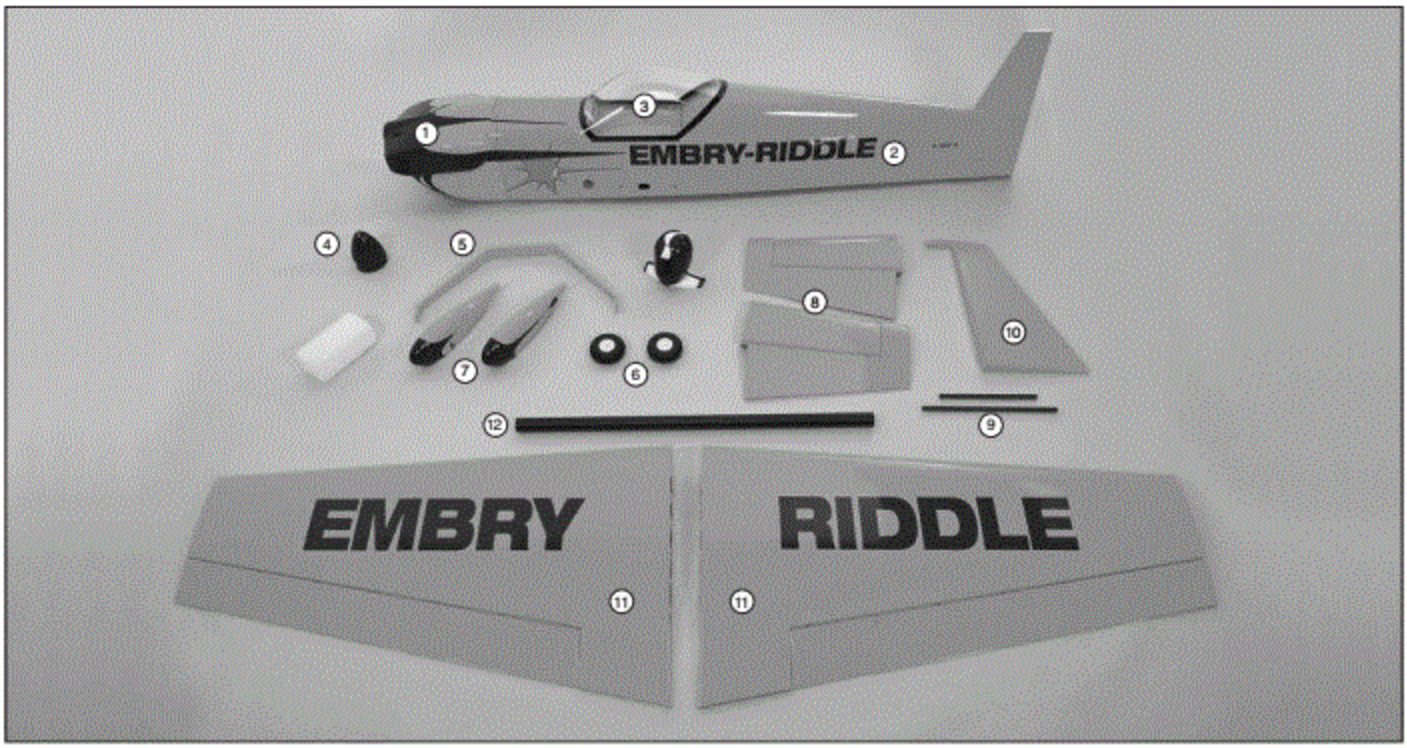
Be certain to specify the order number exactly as listed in the Replacement Parts List. Payment by credit card or personal check only; no C.O.D.

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.

Giant Eagle 580 ARF Replacement Parts List

GPMA3355	Fuselage	GPMA3362	Decals
GPMA3356	Wing Set	GPMA3363	Wing Tube
GPMA3357	Hor. Stab. Set	GPMA3364	Stabilizer Tubes
GPMA3358	Rudder	GPMA3365	Hatch/Canopy
GPMA3359	Cowl	GPMA3367	Pilot
GPMA3360	Landing Gear	GPMA3368	Fuel Tank
GPMA3361	Wheelpants		

KIT CONTENTS

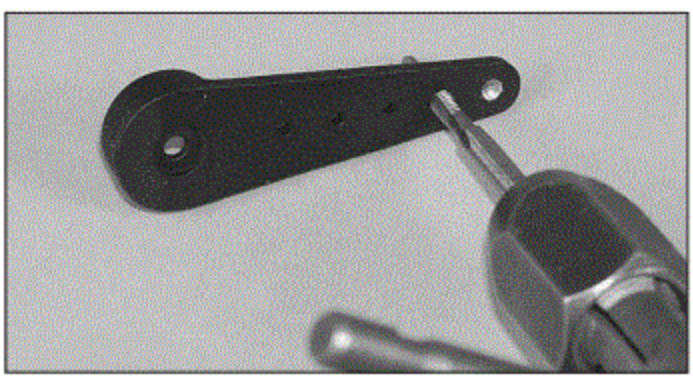


1. Cowl
2. Fuselage
3. Canopy/Hatch
4. Aluminum Spinner
5. Main Gear
6. Wheels
7. Wheel Pants
8. Stab and Elevators
9. Stab Tubes
10. Rudder
11. Wings and Ailerons
12. Wing Tube

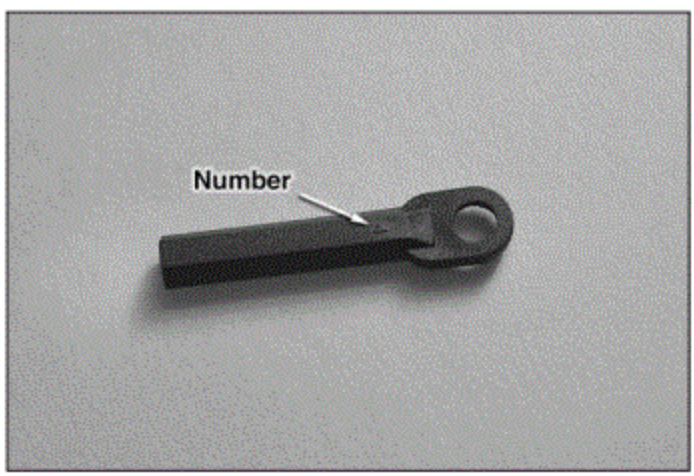
ASSEMBLE THE STAB

Prepare the Servo Arms

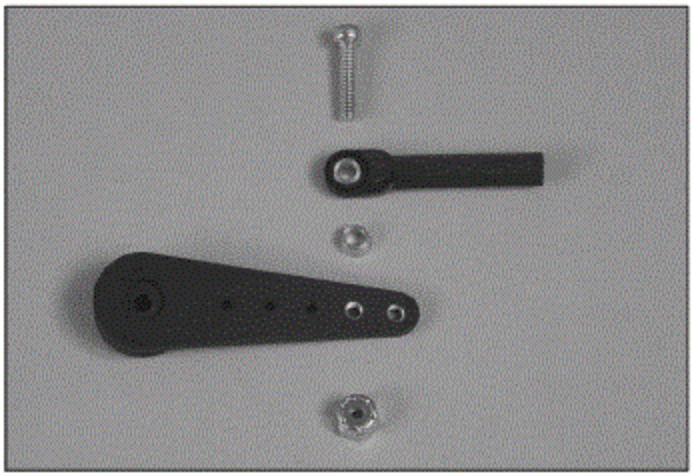
Note: The included aluminum servo arms are designed with plastic inserts, allowing the arms to work with all current Futaba, Hitec, Airtronics and JR servos. The inserts are also designed so that the centering of the arm can be adjusted by rotating the insert and then re-attaching the arm.

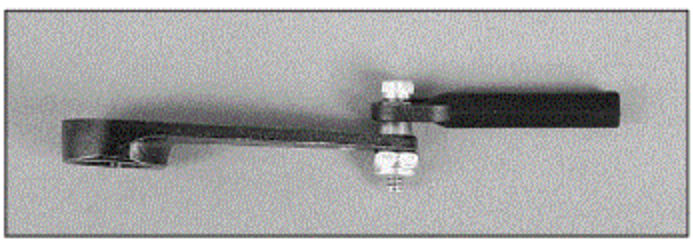


❑ 1. Drill and tap 4-40 threads in the two outermost holes of each of the six single-sided servo arms.



❑ 2. The nylon ball links have a number on one side of them. With the number facing up, press the brass ball into each of the nylon balls link from the bottom, opposite the number.

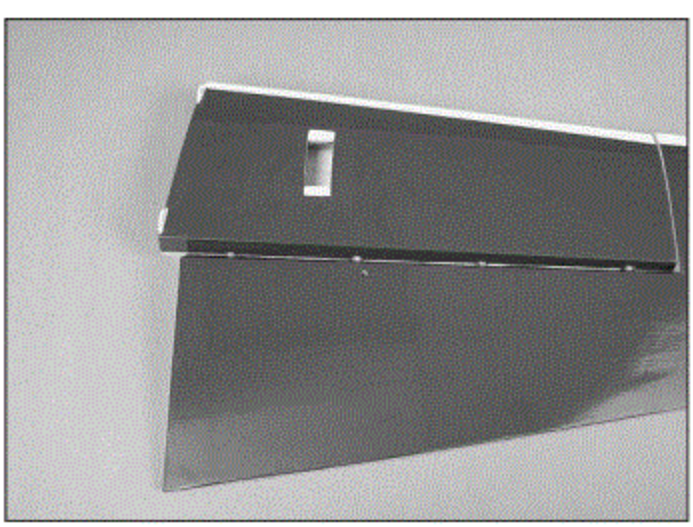




❑ 3. Attach the ball link to the outer tapped hole of one of the one-sided servo arms with 4-40 x 1/2" [13mm] Socket Head Cap Screw [SHCS] brass stand off and 4-40 lock nut. **Note: The number goes down toward the servo arm.**

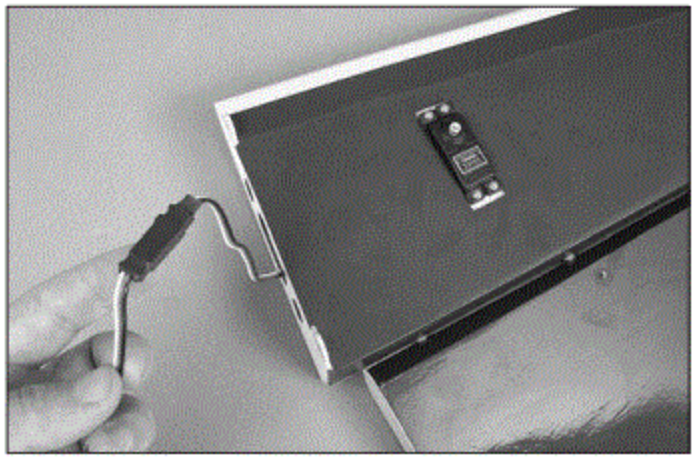
❑ 4. Attach the ball links to one other single-sided servo arm.

Mount the Elevator Servos

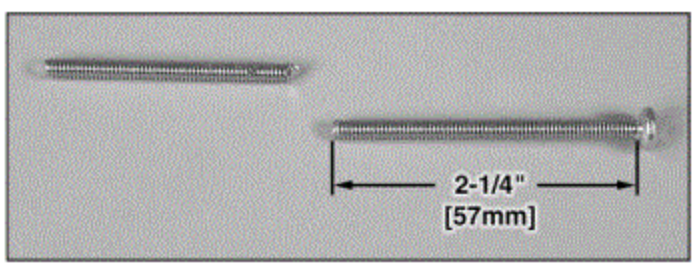


❑ ❑ 1. Trim the covering from the servo bay in the stab.

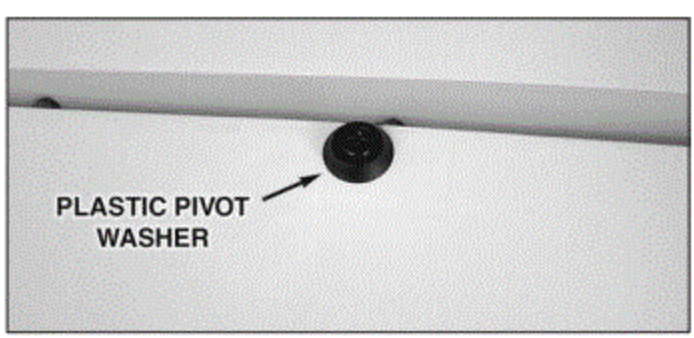
❑ ❑ 2. Use a 1/16" [1.6mm] drill bit to make the holes and install the elevator servo to a stab half using the hardware provided with your servo. Remove the screws and harden the screw holes you created in the wood with thin CA. You should do this each time you thread into wood.



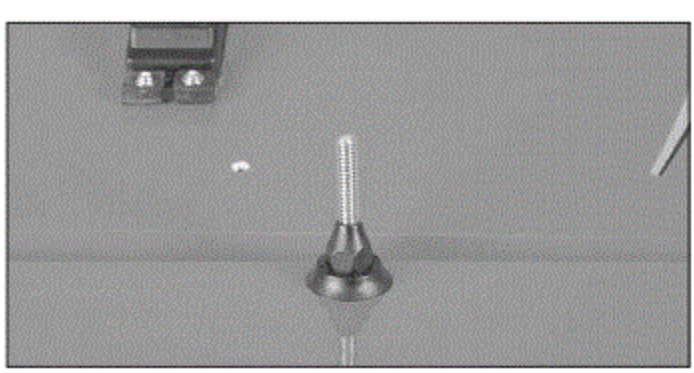
❑ ❑ 3. Attach a 40" [1016mm] heavy duty servo lead extension and secure it using 3/8" [9.5mm] diameter heat shrink tubing.



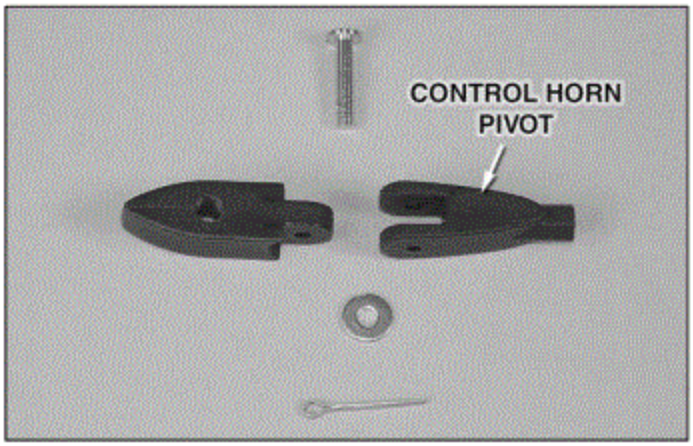
❑ ❑ 4. Cut the 4" [102mm] control horn bolt to a length of 2-1/4" [57mm].



❑ ❑ 5. Place a pivot washer on the control horn bolt. Install the control horn bolt through the top of the elevator.

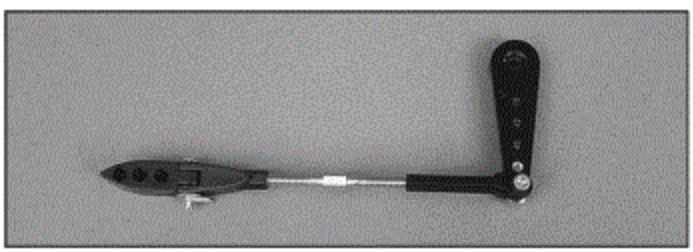


❑ ❑ 6. Install a pivot washer to the other side and screw the nylon nut onto the control horn bolt.

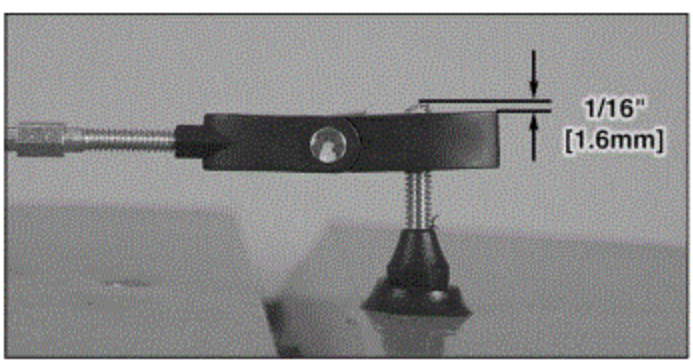


❑ ❑ 7. Assemble the control horn parts as shown. Note: Eight total control horn pivots are supplied. **Two are standard thread and six are reverse thread**. Identify the two standard thread pivots and set them aside for use on the rudder system. Do not assemble those now.

❑ ❑ 8. Screw the reverse threaded end of the 2-1/2" [64mm] pushrod 15 full turns into the control horn. (To tighten, turn counterclockwise.)



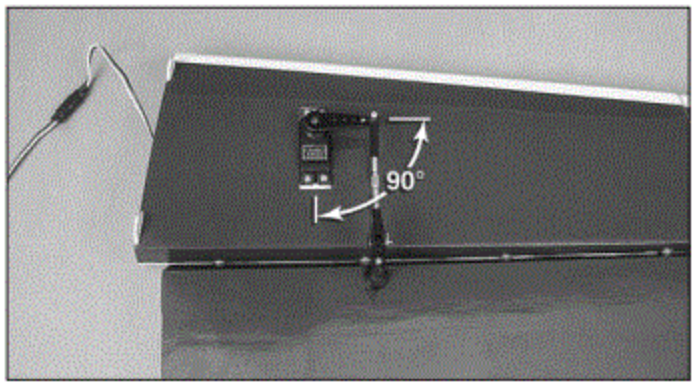
❑ ❑ 9. Screw the "normal" threaded end of the pushrod 15 turns into the ball link that is connected to one of the single-sided servo arms.



❑ ❑ 10. Screw the control horn onto the control horn bolt, leaving 1/16" [1.6mm] extending from the top of the control horn.

❑ ❑ 11. Plug the servo into the receiver and turn the radio on.

❑ ❑ 12. Place the appropriate servo arm adapter on the servo. The inserts have letters stamped on the bottom of them (A=Airtronics/JR, F=Futaba, H=Hitec).



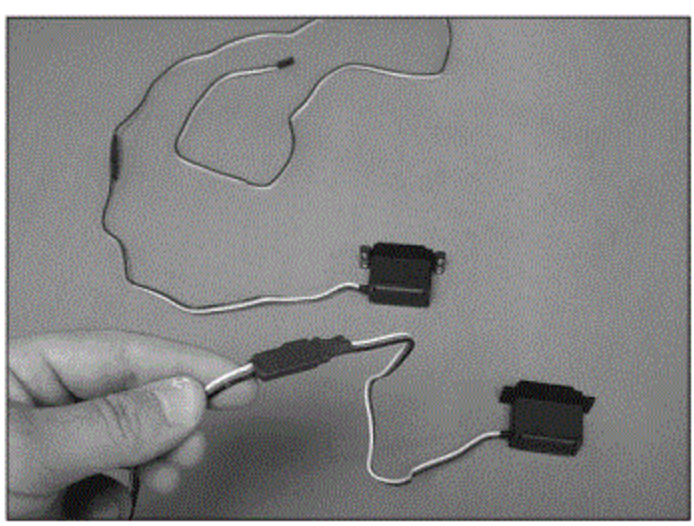
❑ ❑ 13. Attach the aluminum servo arm to the servo so that it is 90 degrees to the long side of the servo case. If it is not, remove the servo arm, rotate the insert 90 degrees and attach the servo arm again. Use the insert position that makes the servo arm fit closest to 90 degrees. Be sure to secure the servo arm with the screw.

❑ ❑ 14. Adjust the pushrod by turning it until the elevator is centered on the stab.

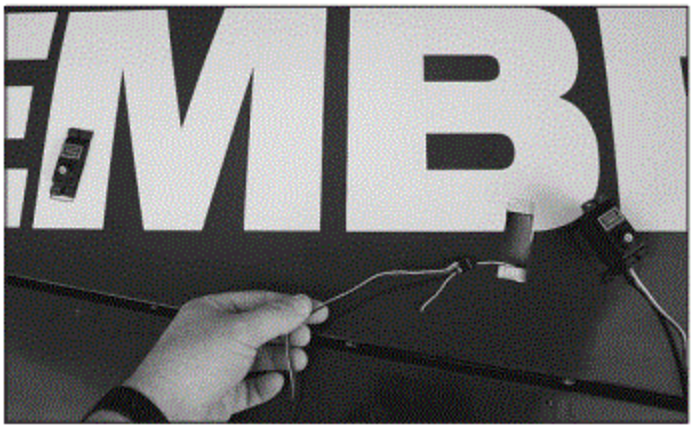
❑ 15. Repeat steps 1-14 for the other stab half.

ASSEMBLE THE WING

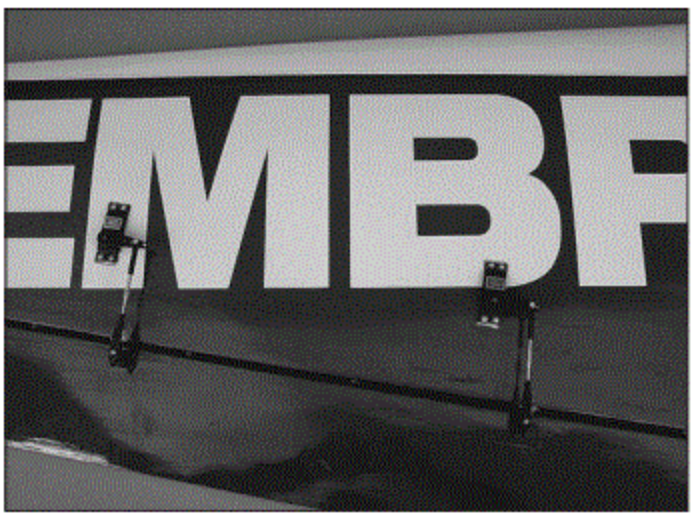
❑ ❑ 1. Remove the covering from the two servo openings in the bottom of the wing.



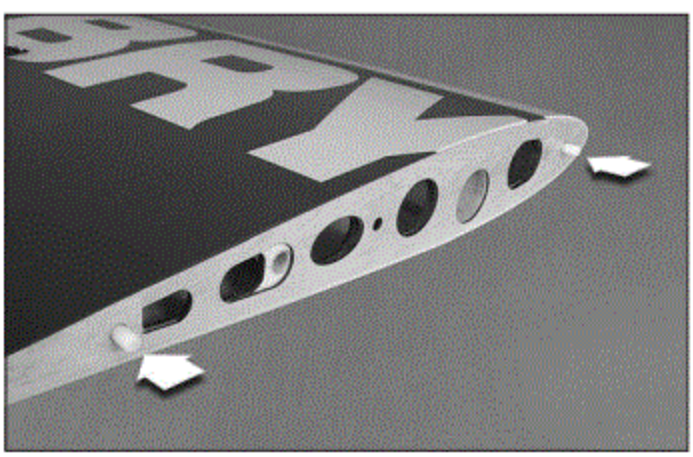
❑ ❑ 2. Connect a 24" [610mm] heavy duty servo lead extension to the inboard aileron servo and a 36" [914mm] extension to the outboard aileron servo. Secure the connections with heat shrink tubing.



❑ ❑ 3. Use the string in the wing to route each servo lead through the wing. Mount the servos, noting that the servo arms go toward the trailing edge of the wing.



❑ ❑ 4. Mount the control horns and servo arms following the same steps used with the stab. Mount the ball link to the inner tapped hole on the aileron servo arms. Cut the 4" [102mm] control horn bolts down to a length of 2-1/4" [57mm].

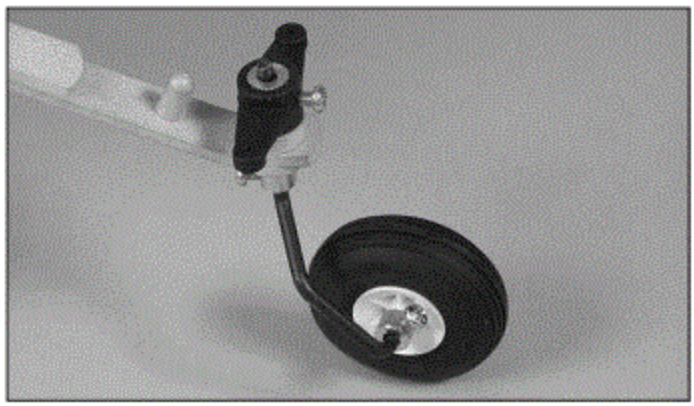


❑ ❑ 5. Glue the white nylon anti-rotation dowels in the wing with epoxy.

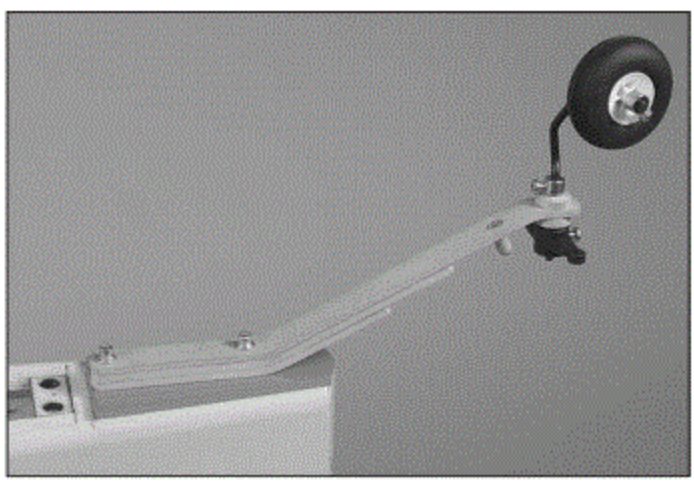
❑ ❑ 6. Repeat steps 1-5 for the other wing.

ASSEMBLE THE FUSE

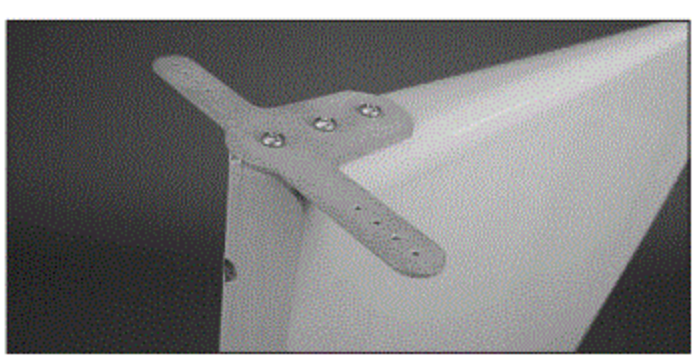
Install the Tail Gear



❑ 1. Grind flat spots on the tail gear wire for the set screws. Assemble the tail gear as shown in the photo with threadlocker. Use three 3mm wheel collars, three 3mm x 5mm phillips head screws and one 3mm x 8mm phillips head screw to assemble it.

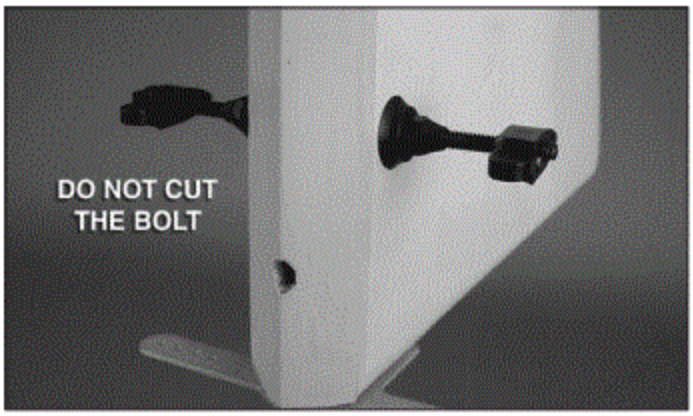


❑ 2. Remove the covering for the tail gear mounting bolts. Attach the tail gear with threadlocker, two 4-40 x 3/4" [19mm] phillips head screws, two #4 flat washers, and two #4 lock washers.

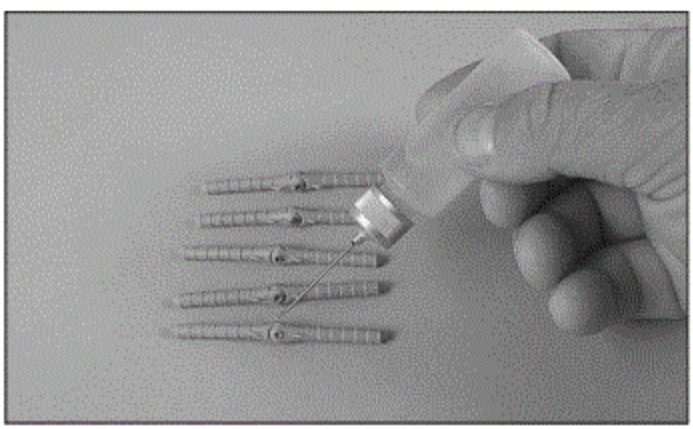


❑ 3. Attach the tail gear steering arm to the bottom of the rudder with three #4 x 5/8" [15.9mm] sheetmetal screws.

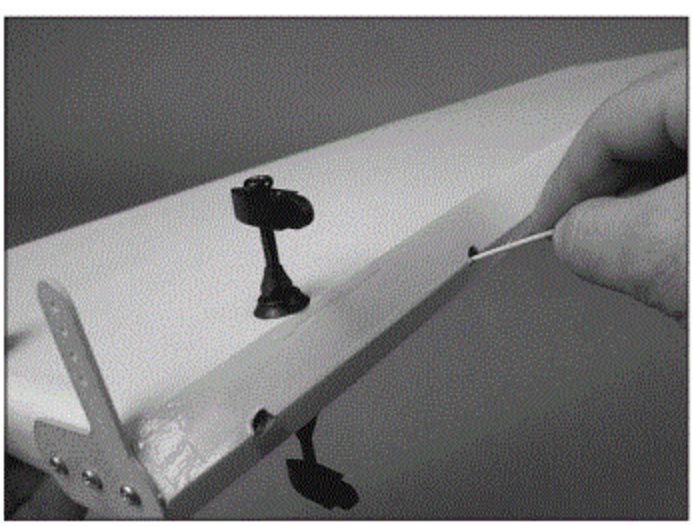
Attach the Rudder



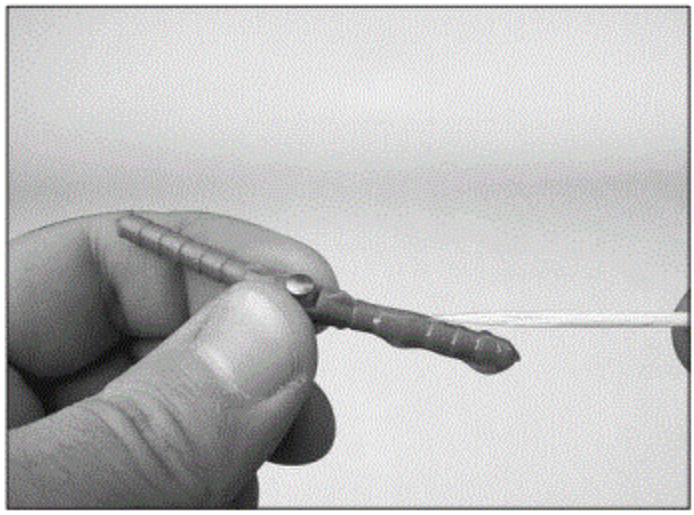
❑ 1. Mount the rudder control horns as shown, using the remaining uncut 4" [102mm] bolt.



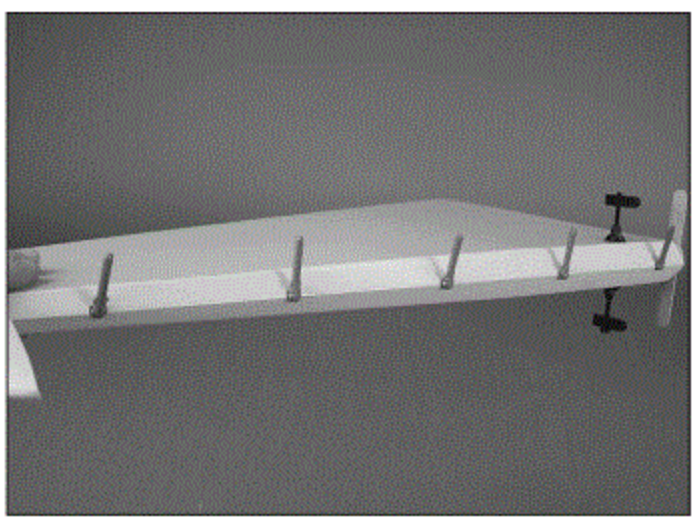
❑ 2. Prepare the five hinges by cleaning the barbs with denatured alcohol and applying household oil or petroleum jelly to the hinge pins.

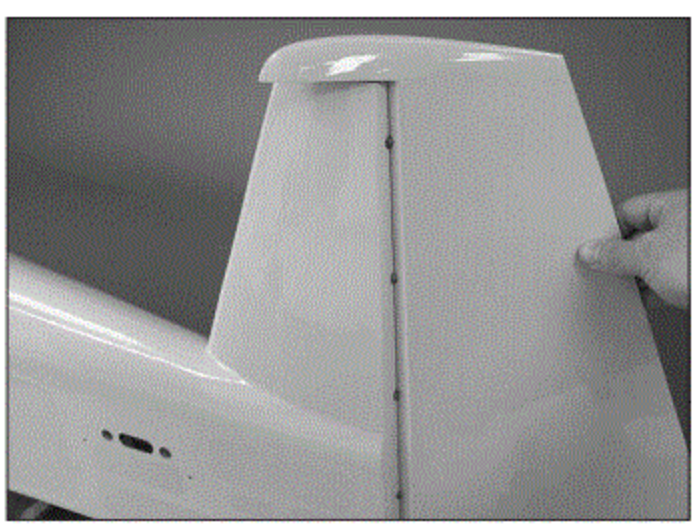


❑ 3. Mix up a batch of 30-minute epoxy (or your preferred hinge glue) and use a toothpick to fill the pre-drilled hinge pockets with glue. Fill the rudder and the fin pockets with glue.

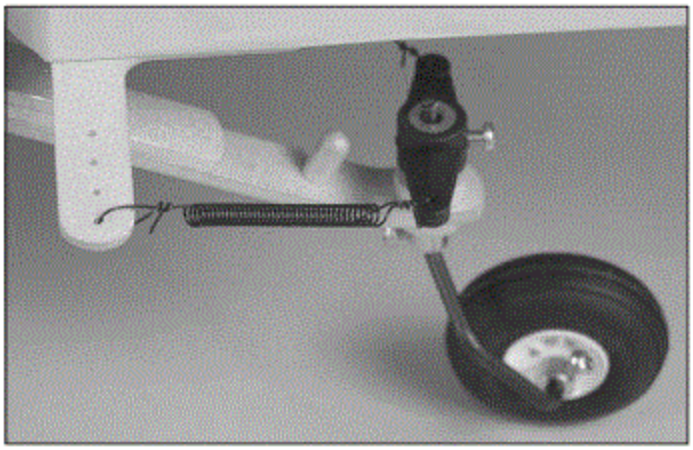


❑ 4. Coat the hinge barbs with glue.





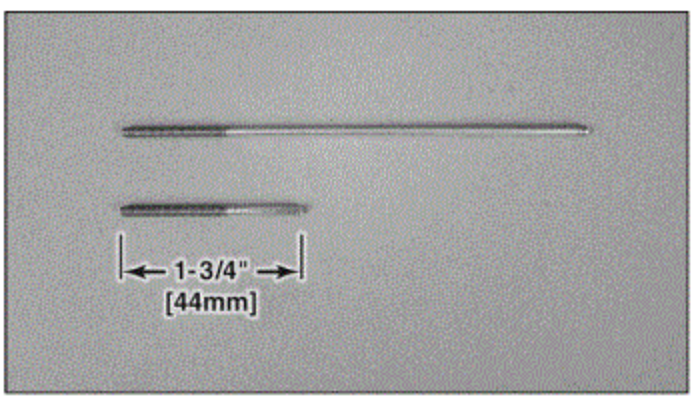
❑ 5. Install the hinges and the rudder with the hinge pins aligned vertically. Rotating the hinges 90° when you fit them to the rudder will help you do this. Deflect the rudder left and right several times as you slide the rudder onto the hinges.



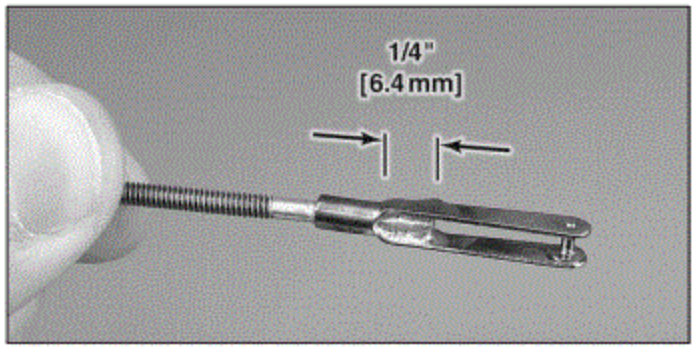
❑ 6. When the rudder hinges are fully cured, attach the tail gear arm to the tail gear with the two springs.

Install the Rudder Servos

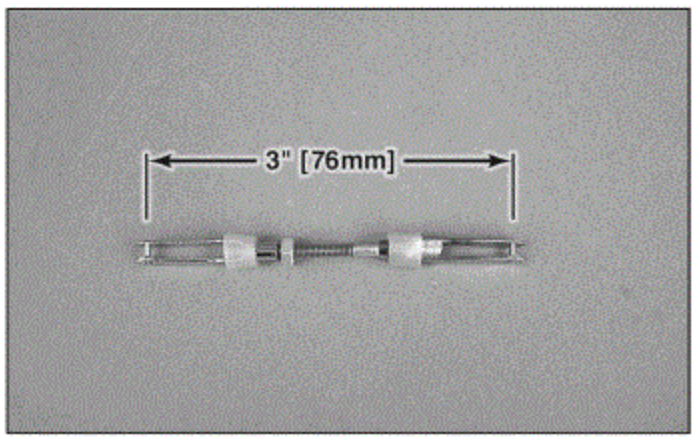
❑ 1. Install two servos in the rudder tray so that the servo output shafts are positioned aft.



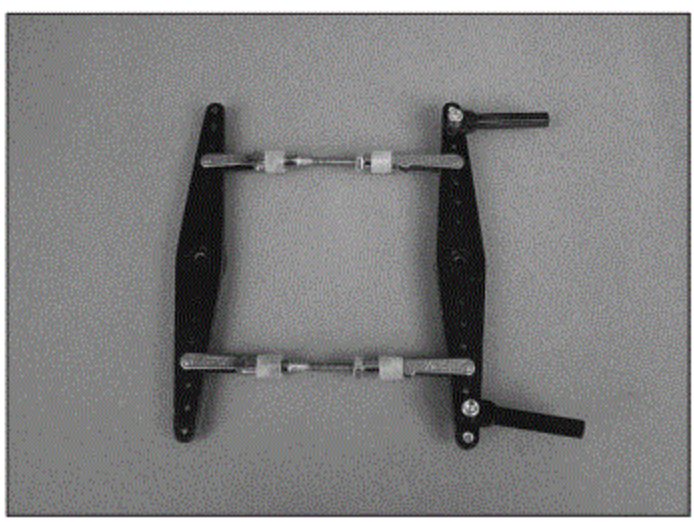
❑ 2. Cut the two 4-40 x 4-1/2" [114mm] one-end threaded rods down so that they each measure 1-3/4" [44mm]. Roughen the end of the rod with a green ScotchBrite pad or sandpaper. Clean the rod with denatured alcohol and a clean cloth.



❑ 3. Using silver solder, flux and your hobby torch, solder an unthreaded steel clevis onto the unthreaded end of each pushrod so that 1/4" [6.4mm] of rod protrudes past the barrel of the clevis. Wipe away the remaining flux with a damp cloth while the joint is still warm to prevent corrosion. Apply a thin film of household oil to the surface of the joint.



❑ 4. Fit a 4-40 hex nut, two silicone retainers and a 4-40 ***threaded*** clevis onto the threaded end of each rod. Adjust the length of the rods so that they measure 3" [76mm] from pin to pin.



❑ 5. Drill and tap one of the two 4" [102mm] servo arms and install two nylon ball links as shown. Link the two servo arms together by installing the pushrods in the fourth holes out from the center of each arm.