FOKKER Dr.1 ARF

INSTRUCTION MANUAL

Top Wingspan: 60.25 in. [1530mm]
Middle: 51 in. [1295mm]
Bottom: 475 in. [1205mm]
Wing Area: 1367 sq. in. [88.2 sq dm]
Weight: 8.5 lbs [3865g]
Wing Loading: 14.3 oz./sq. ft. [43.8 g/sq dm]
Length: 49.63 in. [1260mm]
Radio: 4-Channel with 5 Servos
Engine: .46 to .60 two-stroke, .52 to .70 four-stroke [7.5 to 10cc two-stroke, 8.5 to 12cc four-stroke]

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.

READ THROUGH THIS MANUAL BEFORE STARTING CONSTRUCTION. IT CONTAINS IMPORTANT WARNINGS AND INSTRUCTIONS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

GREAT PLANES® MODEL MANUFACTURING COMPANY
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airsupport@greatplanes.com

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INTRODUCTION

Thank you for purchasing the Great Planes Fokker Dr. I ARF. The original Fokker Dr. I was designed in 1915 by Anthony Fokker. He wanted an aircraft that could out-maneuver any other fighter of the day and to do so he knew he needed maximum lift with minimum weight. To accomplish this he designed an airplane with three wings and an auxiliary fourth wing on the landing gear with a total empty weight of 827 lb (376 kg). Because of the sturdiness of the three-wing design, flying wires were eliminated with the exception of the aileron control wires that run from the fuselage up to the top wing. The Fokker Dr. I could turn so sharply that if forced, it could cause a blackout to the pilots at the controls. The rate of climb was nearly 2,000 fpm (10.2 m/s) with a service ceiling of 18,000 feet (5,487 m). Top speed was 97 mph (155 kph) while stall speed was 30mph (48 kph).

Perhaps the most famous pilot to fly this aircraft was Manfred Von Richthofen, otherwise known as the Red Baron. He regularly flew at least four different triplanes and while all of them had a dark red base color, they all had slightly different trim schemes. The aircraft Great Planes chose to model was the one with the serial number FI 102/17, which is the one the Red Baron used when he was visiting other wings under his command or when he was visiting the Fokker factory.

The full-size Fokker Dr. I had a total wingspan of 23 ft, 7 in (7.2 m). The Great Planes model has a total wingspan of 60-1/4" (1524 mm). This wingspan makes this model eligible to participate in IMAA events. The scale of the model is 1: 4.7.

For the latest technical updates or manual corrections for the Great Planes Fokker Dr. I ARF, visit the web site listed below and select the Great Planes Fokker Dr. I ARF. If there is new technical information or changes to this kit, a “tech notice” box will appear in the upper left corner of the page.

http://www.greatplanes.com/airplanes/index.html

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

1. Your Fokker Dr. I 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 Fokker Dr. I, 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 already an experienced R/C pilot, you should fly the model only with the help of a competent, experienced R/C pilot.

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 dogfighting, the modeler is responsible for taking steps to reinforce the high stress points.

We, as the kit manufacturer, provide you with a top quality 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.

If you 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.

In addition to joining an R/C club, we strongly recommend you join the AMA (Academy of Model Aeronautics). AMA membership is required to fly at AMA sanctioned clubs. There are over 2,500 AMA chartered clubs across the country. Among other benefits, the AMA provides insurance to its members who fly at sanctioned sites and events. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. 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*

The Great Planes Fokker Dr. I ARF is an excellent sport-scale model. Though it is not particularly large, its 60-1/4" wingspan makes it 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, contact the IMAA for a copy of the **IMAA Safety Code** at the address or telephone number below.

IMAA
205 S. Hilldale Road
Salina, KS 67401
(913) 823-5569

ADDITIONAL ITEMS REQUIRED

Muffler

If you plan to use a 2-stroke .46 or .60 size engine, you will need to use a Pitts style muffler. The B.C.M. (Bisson Custom Mufflers) #04061 (BISG4061) Pitts muffler or the Slimline #3217 (SLIG2217) Pitts Style will work well for the O.S. .61 SF, FP and FX. Use the B.C.M. # 04046 (BISG4046) or the Slimline # 3218 (SLIG2218) for the O.S. 46 SF of FX. To use any of these mufflers, a portion of the included 60-120 engine mount may need to be trimmed.

Hardware and Accessories

This is the list of hardware and accessories required to finish the Fokker Dr. I ARF. Order numbers are provided in parentheses.

- ❑ .46 to .60 2-stroke or .52 to .70 4-stroke
- ❑ 4-Channel radio with five servos (two aileron servos)
- ❑ Propeller (refer to engine manufacturer's recommendations)
- ❑ 3' Medium fuel tubing (GPMQ4131)
- ❑ Y-harness for dual aileron servos (HCAM2500 for Futaba® J)
- ❑ 12" Servo extension cord (HCAM2100)
- ❑ Two 6" Servo extension cords (HCAM2000)
- ❑ Switch and charge jack mounting set (GPMM1000)

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 Fokker Dr. I ARF. ***Great Planes Pro***™ *CA and Epoxy glue are recommended.*

- ❑ 30-Minute Epoxy (GPMR6047)
- ❑ 1/2 oz. Thin Pro CA (GPMR6001)
- ❑ 1/2 oz. Medium Pro CA+ (GPMR6007)
- ❑ Hobby knife (HCAR0105)
- ❑ #11 blades (HCAR0211)
- ❑ Single-Edge razor blades (HCAR0212)
- ❑ Small T-pins (HCAR5100)
- ❑ Builder's triangle (HCAR0480)

- ❏ Electric drill with 1/16" [1.6mm], 3/32" [2.4mm], 5/32" [4mm], 7/32" [5.6mm] drill bits
- ❏ Small Phillips and flat blade screwdrivers
- ❏ Pliers with wire cutter (HCAR0630)
- ❏ Sealing Iron (TOPR2100)
- ❏ Curved Tip Canopy Scissors for trimming plastic parts (HCAR0667)
- ❏ 220-Grit wet sandpaper
- ❏ Panel Line Pen (TOPQ2510)
- ❏ Trim Seal Tool (TOPR2200)
- ❏ Pacer Formula 560™ Canopy Glue (PAAR3300)
- ❏ Small Metal File
- ❏ K & S #801 Kevlar thread (K+SR4575)
- ❏ Fuel Line Plug (GPMQ4166)
- ❏ Pro Thread Locking Compound (GPMR6060)
- ❏ Heat Shrink Tubing
- ❏ 8-32 Tap and Drill Set (GPMR8103)

Optional Supplies and Tools

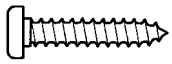
Here is a list of optional tools mentioned in the manual that will help you build the Fokker Dr. I ARF.

- ❏ Charge receptacle for aileron extension cord (ERNM3001)
- ❏ Hobbico® Servo Horn Drill (HCARo698)
- ❏ Top Flite® Precision Magnetic Prop Balancer™ (TOPQ5700)
- ❏ Top Flite Hot Sock™ iron cover (TOPR2175)
- ❏ Robart Superstand II (ROBP1402)
- ❏ Straightedge with scale (HCAR0475)
- ❏ Cutting mat (HCAR0456)
- ❏ Masking Tape (TOPR8018)
- ❏ CA Debonder (GPMR6039)
- ❏ Williams Brothers Standard 1/5 Pilot (WBRQ2477)
- ❏ CA Applicator tips (GPMR6033 or HCAR3780)
- ❏ CA accelerator (GPMR6034)
- ❏ 6-Minute Epoxy (GPMR6045)
- ❏ Epoxy Brushes (GPMR8060)
- ❏ Mixing Sticks (GPMR8055)
- ❏ Denatured Alcohol (for epoxy clean up)
- ❏ Rotary tool such as Dremel (for fiberglass cowl)
- ❏ Dead Center™ Engine Mount Hole Locator (GPMR8130)
- ❏ Great Planes AccuThrow™ Deflection Gauge (for measuring control throws, GPMR2405)
- ❏ Aluminum LustreKote® (TOPR7205)
- ❏ Dark Red LustreKote® (TOPR0218)
- ❏ Devcon™ Silicone glue (DEVR2500)
- ❏ Testors™ 1/2oz Flat Black (TESR2649)

IMPORTANT BUILDING NOTES

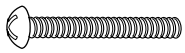
- There are two types of screws used in this kit:

Sheet metal screws are designated by a number and a length. For example #6 x 3/4"



This is a number six screw that is 3/4" long.

Machine screws are designated by a number, threads per inch and a length. (**SHCS** is just an abbreviation for “Socket Head Cap Screw” and that is a michine screw with a socket head.) For example 4-40 x 3/4"



This is a number four screw that is 3/4" 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**, 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.

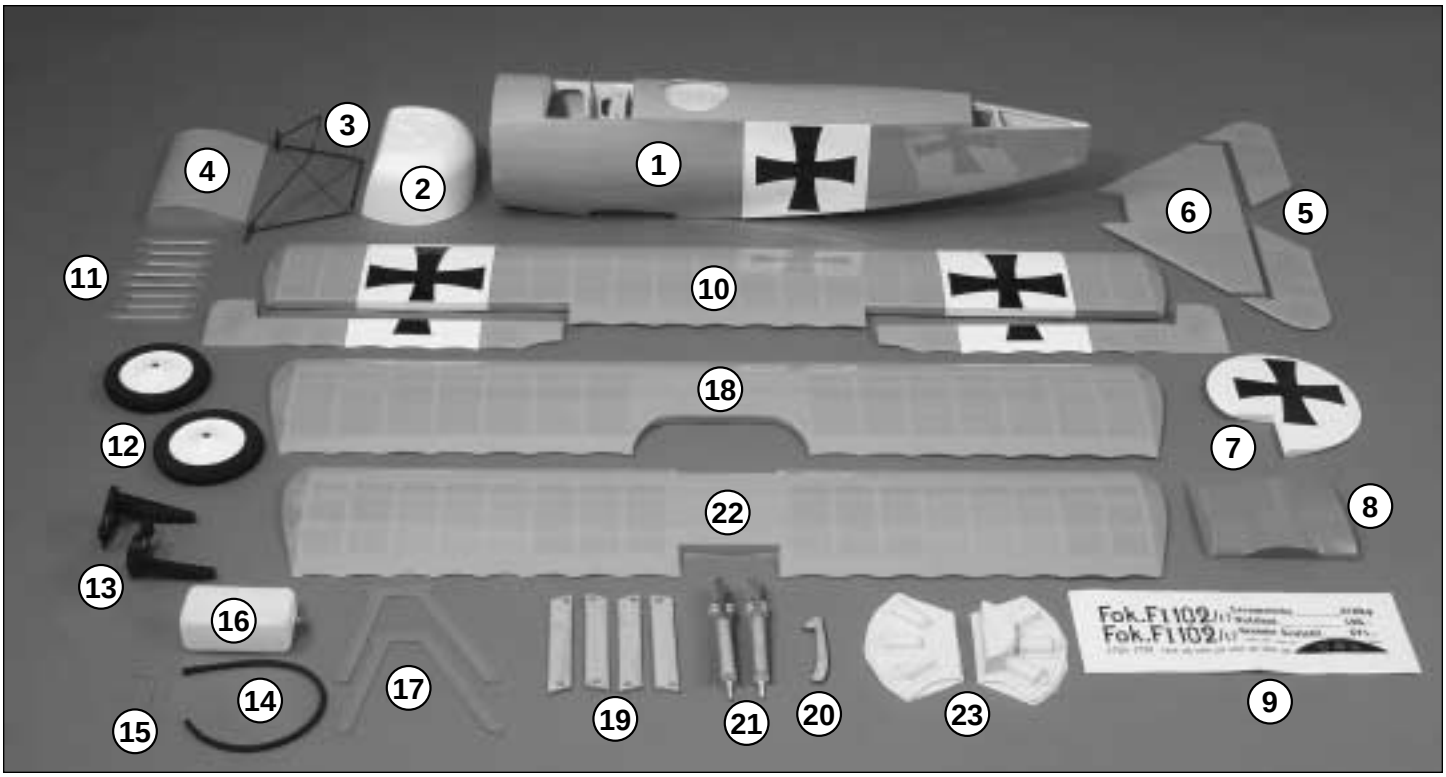
- The Fokker Dr. I ARF is factory-covered with Top Flite MonoKote® film. Should repairs ever be required, MonoKote can be patched with additional MonoKote purchased separately. MonoKote is packaged in six-foot rolls, but some hobby shops also sell it by the foot. If only a small piece of MonoKote is 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)
White (TOPQ0204)
Black (TOPQ0208)

KIT CONTENTS

Before starting to build, use the **Kit Contents** list to take an inventory of your 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 **Great Planes Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list on this page.

Great Planes Product Support:
Phone: (217) 398-8970
Fax: (217) 398-7721
E-mail: airsupport@greatplanes.com



Kit Contents (Photographed)

1 Fuselage	**9** Decal Sheet	**17** Metal Cabane
2 Fiberglass Cowl	**10** Top Wing with Ailerons	**18** Mid Wing
3 Landing Gear	**11** LG Fairings	**19** Wood Struts
4 LG Wing	**12** Scale Wheels	**20** Tail Skid
5 Elevators	**13** Engine mount	**21** Dummy Guns
6 Stabilizer	**14** Cockpit Coaming	**22** Bottom Wing
7 Ruddder	**15** Metal Step	**23** Dummy Engine
8 Mid Wing Cover	**16** Fuel Tank with Hardware	

Kit Contents (Not Photographed)

(4) 1/4-20 x 2" [51 mm] Nylon wing bolts	(32) #2 x 3/8" [9.5 mm] Screws	(8) #8 lock washers
(6) Silicone retainers	(1) Screw-lock connector	(8) 4-40 x 1/4" [6.3 mm] SHCS
(5) Nylon large control horns	(1) Nylon retainer for screw-lock connector	(4) 8-32 x 3/4" [19 mm] SHCS
(6) Nylon clevis	(1) 4-40 x 1/8" [3 mm] SHCS	(4) #2 Flat washers
(4) 8-32 Blind nuts	(2) 2-56 x 6" [152 mm] Threaded one end pushrods	(4) Faslinks
(4) 8-32 x 1" [25 mm] SHCS		(8) 4-40 x 3/8" [9.5 mm] SHCS
(2) 6-32 x 1/4" [6.3 mm] SHCS	(1) 2-56 x 17-1/2" [444 mm] Threaded one end pushrod	(3) 5/32" [4 mm] Nylon landing gear straps
(4) 5/32" [4 mm] Wheel collars		(8) Flat nylon landing gear straps
(2) 6-32 SH set screws	(3) 2-56 x 36" [914 mm] Threaded one end pushrods	(2) Plywood aileron servo covers
(8) #8 Flat washers		(8) Hardwood blocks
(4) 2-56 x 1/2" [12 mm] SHCS	(1) 11-3/4" [298 mm] Outer flexible pushrod	(6) 60 degree, 1/16" [1.8mm] steel brackets
(6) 2-56 x 3/4" [19 mm] SHCS	(12) #4 x 3/8" [9.5 mm] Screws	(10) 90 degree, 1/16" [1.8mm] steel brackets
(8) #4 Flat washers	(4) #4 x 1/2" [12 mm] Screws	(1) 2" x 9" CA hinge material

ORDERING REPLACEMENT PARTS

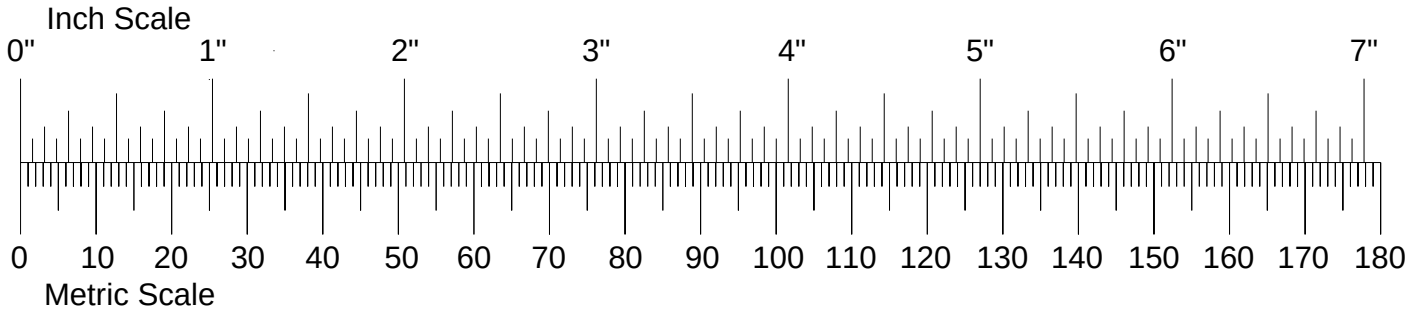
To order replacement parts for the Great Planes Fokker Dr. I ARF, use the order numbers in the **Replacement Parts List** that follows. Replacement parts are available only as listed. Not all parts are available separately (an aileron cannot be purchased separately, but is only available with the wing kit). Replacement parts are not available from Product Support, but can be purchased from hobby shops or mail order/Internet order firms. Hardware items (screws, nuts, bolts) are also available from these outlets. If you need assistance locating a dealer to purchase parts, visit **www.greatplanes.com** and click on "Where to Buy." If this kit is missing parts, contact **Great Planes Product Support**.

Replacement Parts List

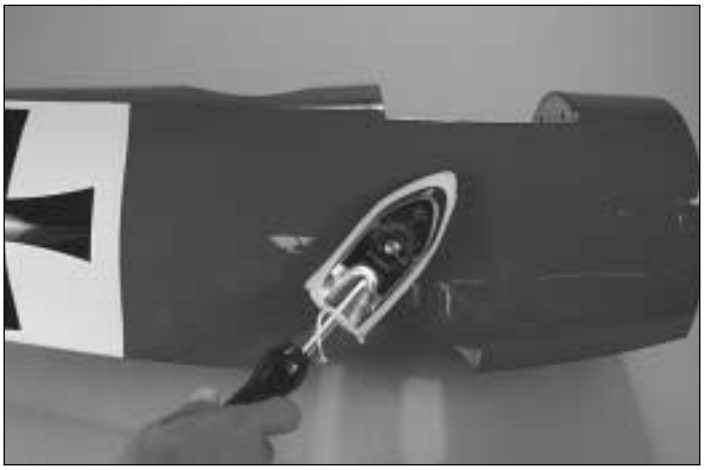
Order Number	Description	How to Purchase
	Missing pieces	Contact Product Support
	Instruction manual	Contact Product Support
	Full-size plans	Not available
GPMA2240	Top Wing Kit	Contact Your Hobby Supplier to Purchase These Items
GPMA2241	Mid Wing Kit	
GPMA2242	Bottom Wing Kit	
GPMA2243	Fuselage Kit	
GPMA2244	Tail Set	
GPMA2245	Cowl	
GPMA2246	Landing Gear	
GPMA2247	Wheels	
GPMA2238	Mid Wing Cover w/ Guns	
GPMA2239	Strut Set	

To convert inches to millimeters, multiply inches by 25.4

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



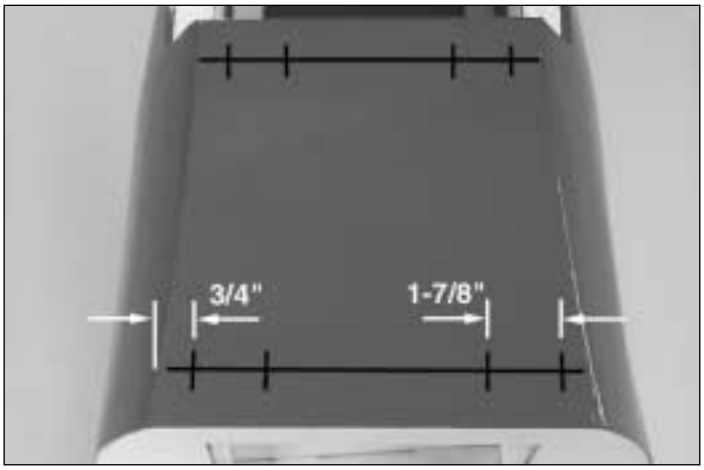
PREPARATIONS



❏ 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. If any parts are damaged or missing, contact Product Support at the address or telephone listed in the front cover.

❏ 2. Remove the masking tape and separate the ailerons from the wing and the elevators from the stab. Use a covering iron with a covering sock on high heat to tighten the model's covering if necessary. It is easy to check the wings for dihedral at this point. Place the wings on a flat surface, bottom side down. Each wing should lay completely flat. If your wing does not sit flat, use a heat gun to shrink the convex side of the wing until the wing flattens. Do not forget to check all three wings.

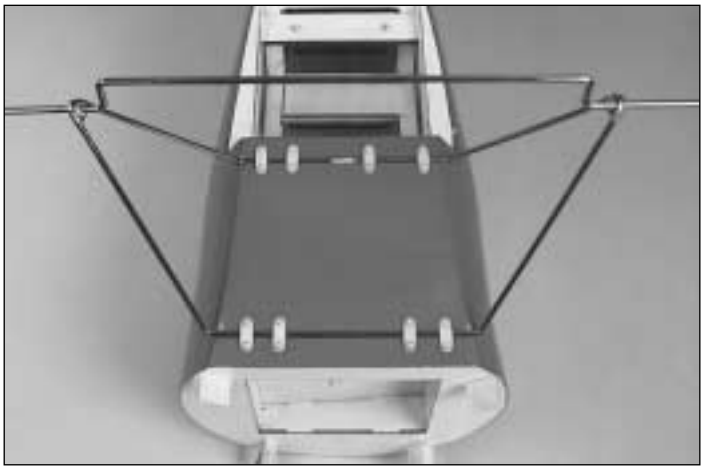
BUILD THE FUSELAGE



❏ 1. Securely hold the Fokker's fuselage up side down. Find the landing gear slots at the bottom of the airplane, in between the firewall and the bottom wing's mounting former. Make a line with a felt-tip marker along the slots as shown in the picture, across the fuselage. Draw a mark on each line 3/4" [19mm] away from the fuselage's edge and then another mark 1-7/8" [48mm] away from the edge.

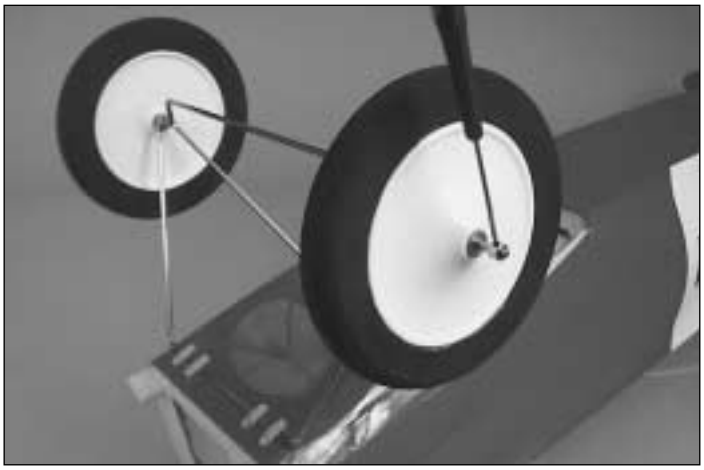
❏ 2. Cut the covering along the slot's centerline as shown above. Iron down the covering into the slot and then fuel proof the wood exposed with epoxy.

❏ 3. Using the lines as a guide, mark and drill with a 1/16" [1.6mm] drill bit the holes for each of the landing gear strap screws. Harden each hole with thin CA.



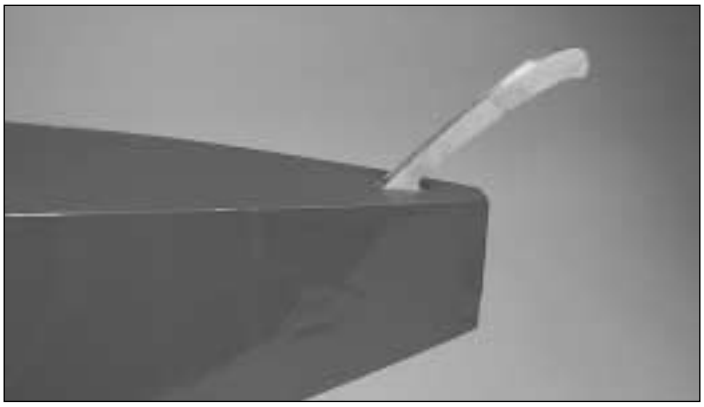
❏ 4. Use sixteen #2 x 3/8" [9.5mm] screws to install all the landing gear straps in place, to hold the main landing gear as shown above. Your Fokker's landing gear has been improved from what you see in this picture. It now has cross-bracing and it is pre-painted.

❑ 5. The scale wheels in this model have been updated and preassembled, so it won't be necessary to glue the metal hub to the wheel cover.



❑ 6. Temporarily mount the main wheels on the landing gear, using two 5/32" [4mm] wheel collars with 6-32 socket head set screws (one wheel collar is used for each wheel). File a flat spot for the wheel collar's set screws.

❑ 7. Feel through the MonoKote to find the tailskid slot on the aft part of the fuselage and cut it away. Use an iron to seal the edges.



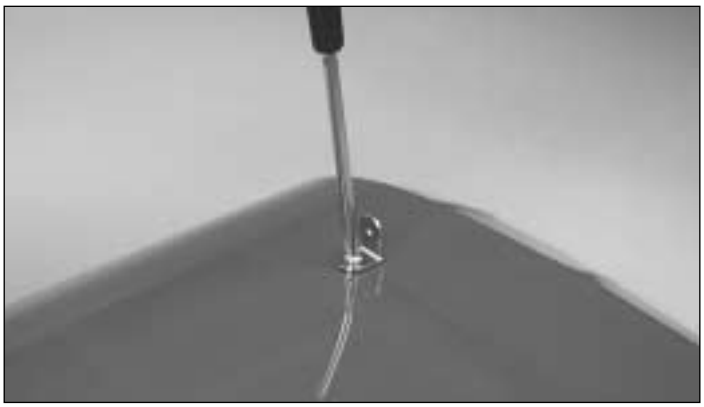
❑ 8. Sand the base of the tailskid to fit the fuselage's tailskid slot. Once you get a good fit, mix a small amount of epoxy and glue the tailskid in place as shown above.

ASSEMBLE THE WINGS

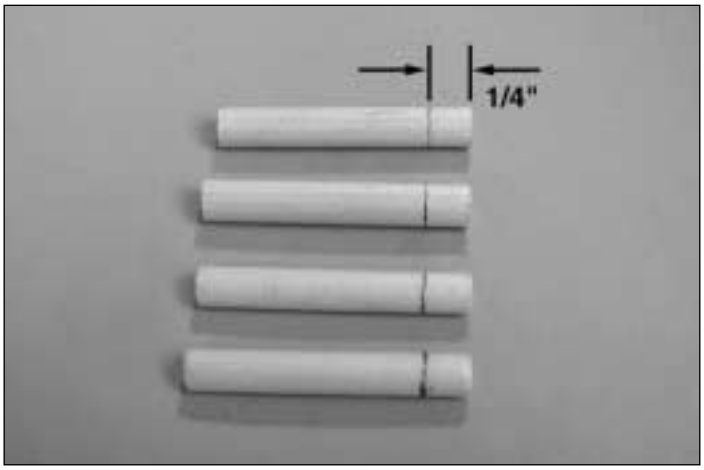
Assemble the Bottom Wing

Note: During the assemby and installation of the wings on the fuselage, we will be referring to 90 degree and 60 degree metal brackets. These brackets are permanently attached to the wings or fuselage with screws and temporarily attached (when the airplane is ready to fly) to the wood struts and to the metal cabanes with socket head cap screws. One of the pre-drilled holes on each of the brackets has 4-40 threads. This threaded hole is to be used for the socket head cap screws that hold the wood struts and metal cabanes. The unthreaded hole is to be used for the permanent sheet metal screws.

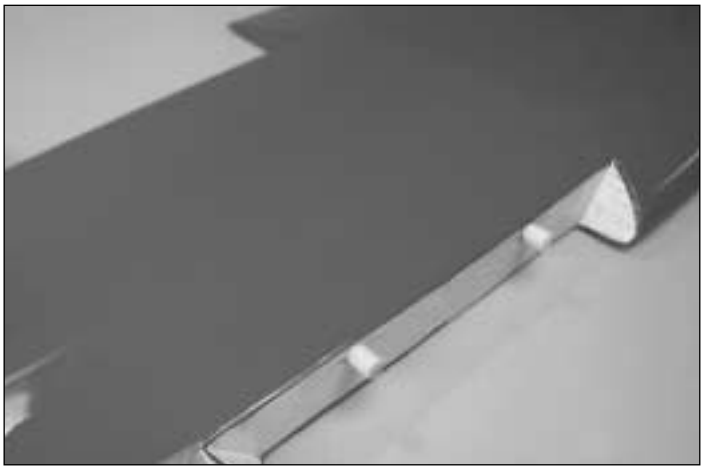
❑ 1. Find the bottom wing (the one that has two Maltese crosses on the bottom surface), two 90 degree brackets and two #4 x 3/8" [9.5mm] screws.



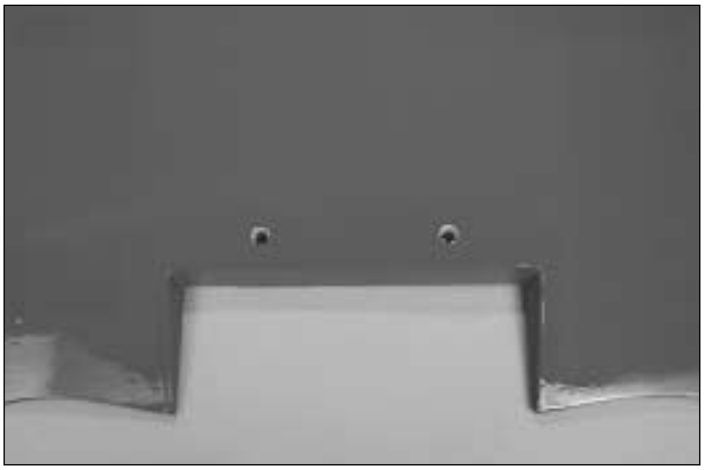
❑ 2. There is one 1/16" [1.6mm] hole drilled out on the top surface of the bottom wing between the tip rib and the second rib at each end. This is where the 90 degree bracket is installed. Harden the hole with thin CA. Check the image shown for bracket orientation. Leave the bracket slightly loose, as it may need to be adjusted when the wing struts are installed. You should install a bracket on the left side and another one on the right side of the wing.



❏ 3. Find four 1/4" x 1-9/16" [6mm x 40mm] wood dowels. Make a mark on the dowels 1/4" [6.3mm] from the end of each as shown above.



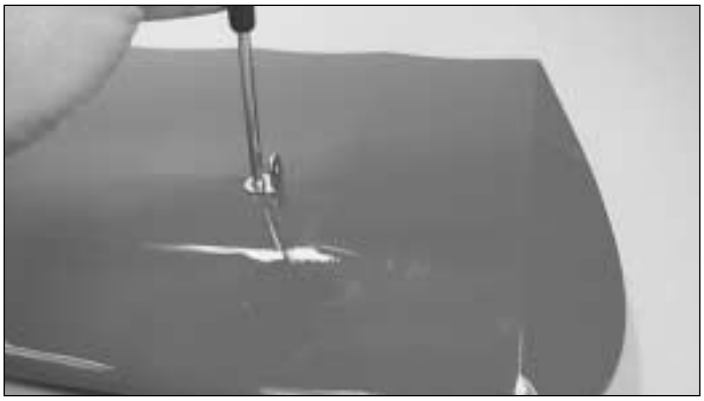
❏ 4. Mix a small amount of epoxy and drop it into the bottom wing's dowel holes. Also apply some epoxy on two of the dowels. Insert the dowels up to the mark you just made, so that just 1/4" [6.3mm] of each dowel protrudes. Clean up any excess epoxy.

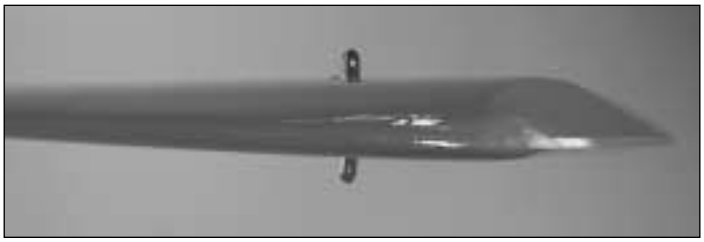


❏ 5. Feel through the MonoKote on the rear center section of the wing for the wing bolt holes. Remember that there are two of them. Remove the MonoKote both at the bottom and top surfaces of the wing.

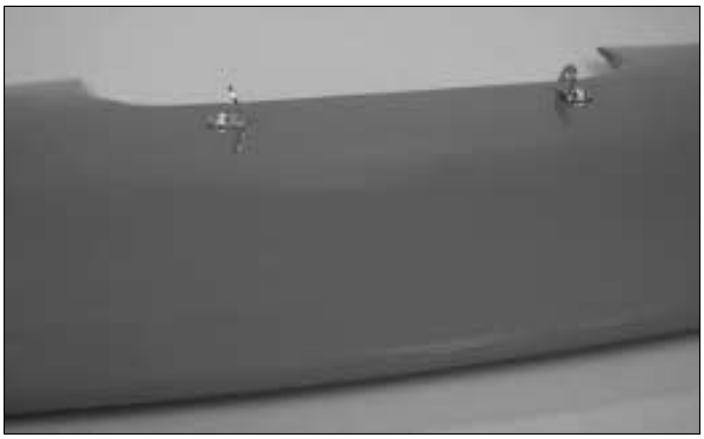
Assemble the Mid Wing

❏ 1. Find the mid wing, the only wing that does not have any markings, four 90° brackets and four #4 x 3/8" [9.5mm] screws.

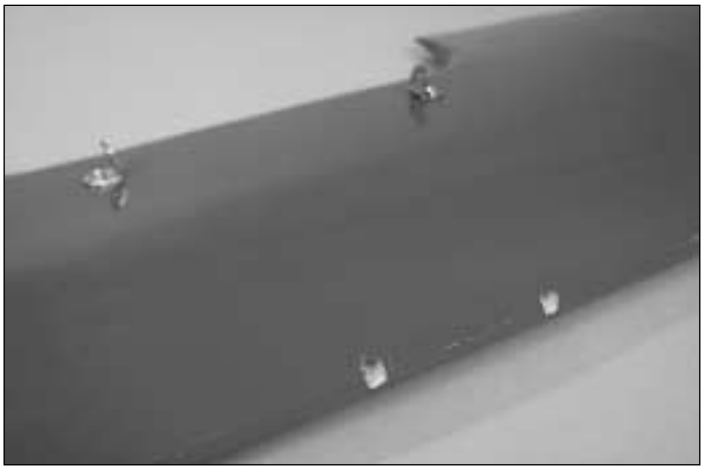




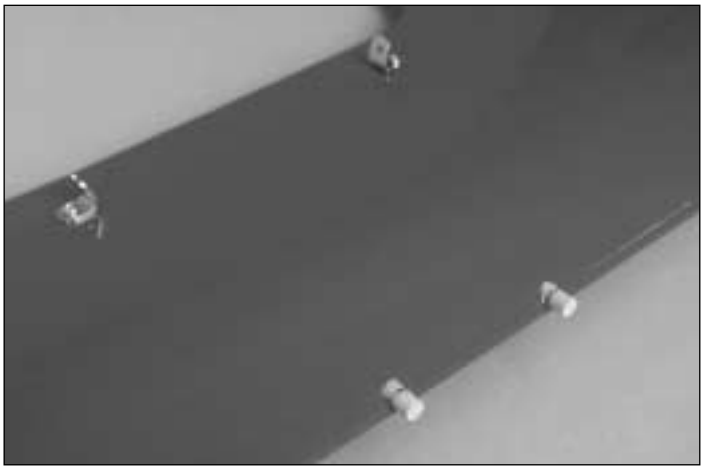
❏ 2. There are two 1/16" holes drilled out on the top and bottom surfaces of the mid wing between the second rib and the third rib in from the tip. This is where the 90 degree brackets are installed. Harden the holes with thin CA. Check the images shown above for the bracket's orientation. Leave the brackets slightly loose, as they may need to be adjusted when the wing struts are installed. You should install a total of four 90 degree brackets, one on the top and one on the bottom of the wing ends.



❏ 3. Find two 60 degree brackets and two #4 x 1/2" [12mm] screws. There are two 1/16" [1.6mm] holes drilled out on the top sheeting of the center section. That is where the 60 degree brackets are to be installed. Harden the holes with thin CA. Check the image shown for the bracket's orientation. Leave the brackets slightly loose as they may need some minor adjustments when the wing struts are installed. Two 60 degree brackets should be installed on the top center section of the mid wing.



❑ 4. Feel through the MonoKote and find the two pre-drilled wing dowel holes on the leading edge of the center section of the mid wing. Cut away the MonoKote.

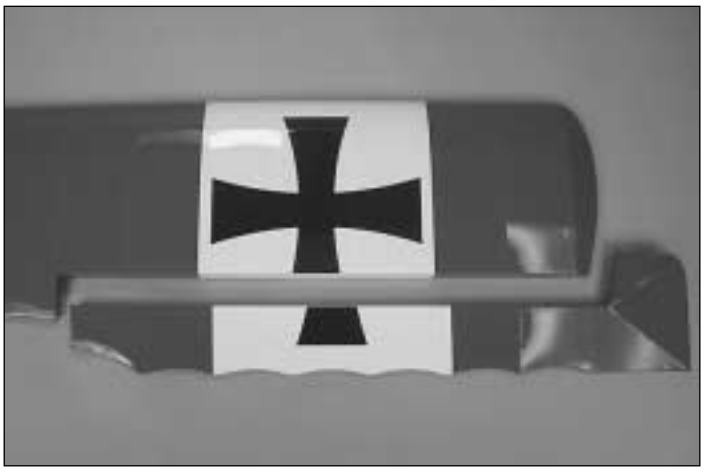


❑ 5. Using the two remaining 1/4" x 1-9/16" [6mm x 40mm] wood dowels you marked on step 3 of the previous section. Mix a small amount of epoxy and drop it into the mid wing's dowel holes. Also apply some epoxy on the dowels. Insert the dowels up to the mark you just made, so that just 1/4" [6.3mm] of each dowel protrudes. Clean up the excess epoxy.

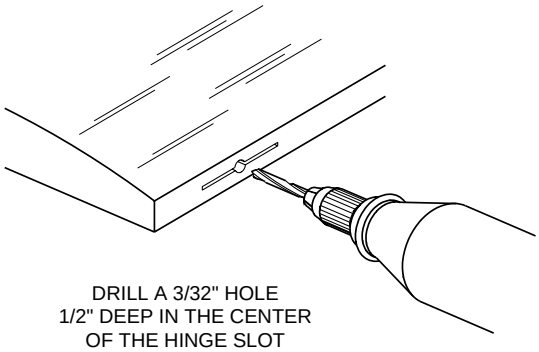
❑ 6. Feel through the MonoKote in the center section of the wing for the wing bolt holes. Remember that there are two of them. Remove the MonoKote both at the bottom and top surface of the wing.

Assemble the Top Wing

❑ 1. The first steps in the construction of this wing will be the installation of the ailerons and the aileron servos. The process described here will explain how to install the right aileron and the right aileron servo. The process has to be repeated again to install the left aileron and the left aileron servo, or you can work on both at the same time.

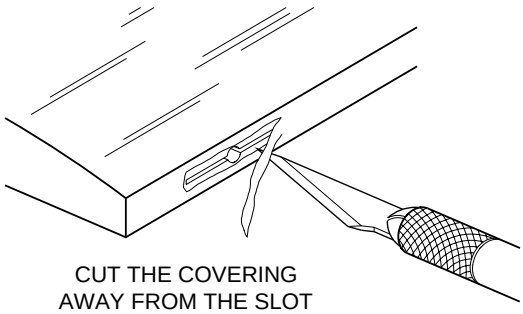


❑ 2. Locate the top wing and the right aileron.



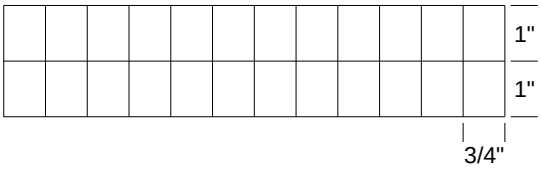
DRILL A 3/32" HOLE
1/2" DEEP IN THE CENTER
OF THE HINGE SLOT

❑ ❑ 3. Locate the pre-cut hinge slots on the top wing's trailing edge and the leading edge of the aileron. Drill a 3/32" [2.4 mm] hole, 1/2" [12mm] deep in the center of each hinge slot to allow the CA to “wick” in. Follow-up with a #11 blade to clean-out the slots. **Hint:** If you have one, use a high-speed rotary tool to drill the holes.

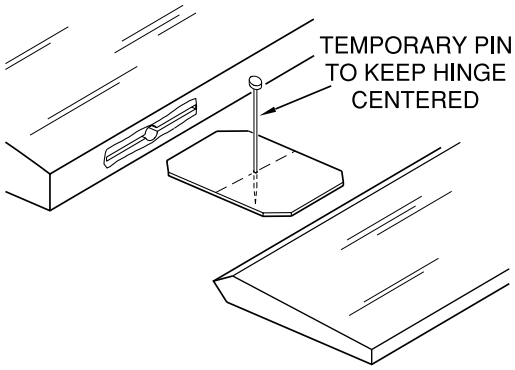


CUT THE COVERING
AWAY FROM THE SLOT

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

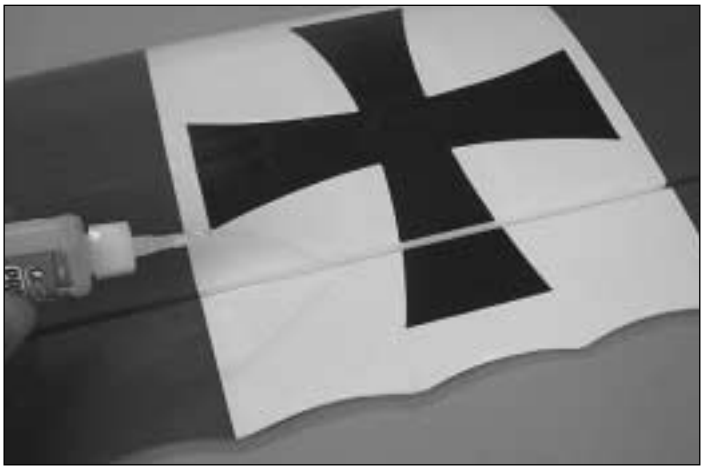


❏ ❏ 5. Cut four 3/4" x 1" [19mm x 25mm] hinges from the CA hinge strip. Snip off the corners so they go in easier.



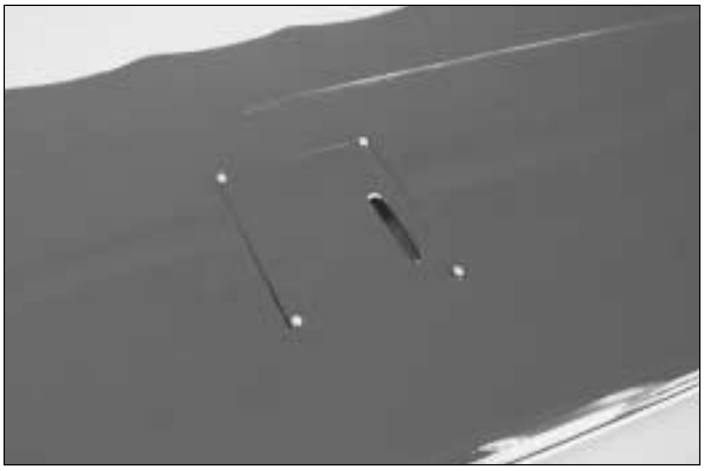
❏ ❏ 6. Test fit the ailerons to the wing with the hinges. If the hinges do not remain centered, stick a pin through the middle of the hinge to hold it in position.

❏ ❏ 7. Remove any pins you may have inserted into the hinges. Adjust the aileron so that there is a small gap between the LE of the aileron and the wing. The gap should be small – just enough to see light through or to slip apiece of paper through.



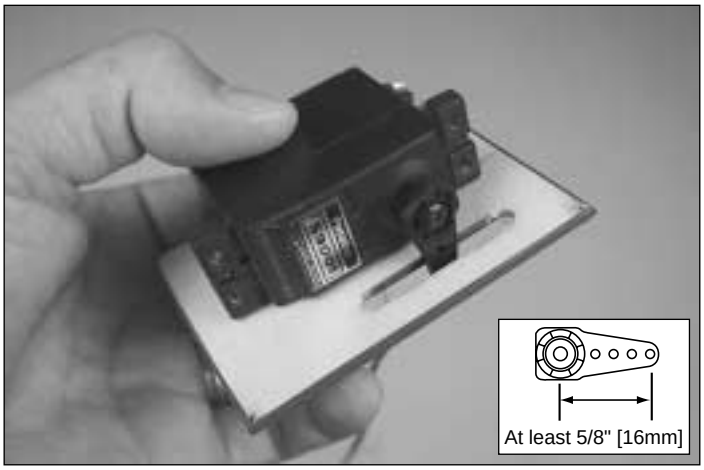
❏ ❏ 8. Apply six drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has fully hardened, test the hinges by pulling on the aileron.

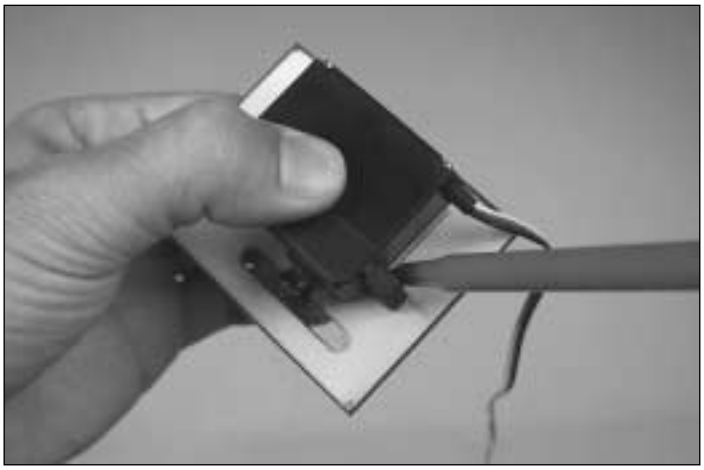
❏ ❏ 9. Locate the right aileron servo's cover. Find the aileron's servo opening on the bottom surface of the wing (fourth bay in from the wing tip). Cut out the covering 1/8" [3mm] inside the opening. Use a trim iron to seal the covering around the edges of the opening.



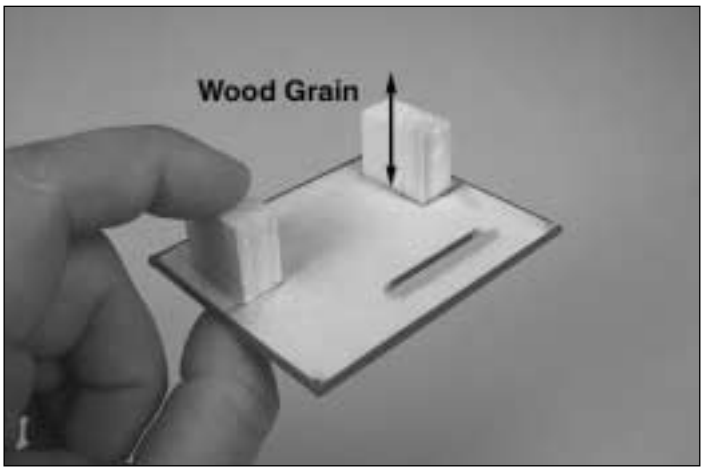
❏ ❏ 10. Trial fit the aileron servo cover. It should fit snugly. Drill four 1/16" [1.6mm] holes on the corners of the aileron servo cover through the wing's structure. Use four #2 x 3/8" [9.5mm] screws to hold the aileron servo cover in place. Make sure the slot for the servo arm is nearest the wing tip.

❏ ❏ 11. Take the aileron servo cover off and wick some thin CA into the screw holes both in the wing's structure and in the servo covers.

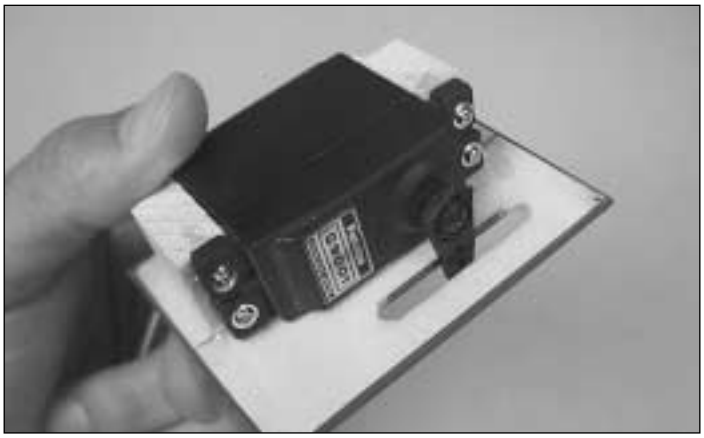




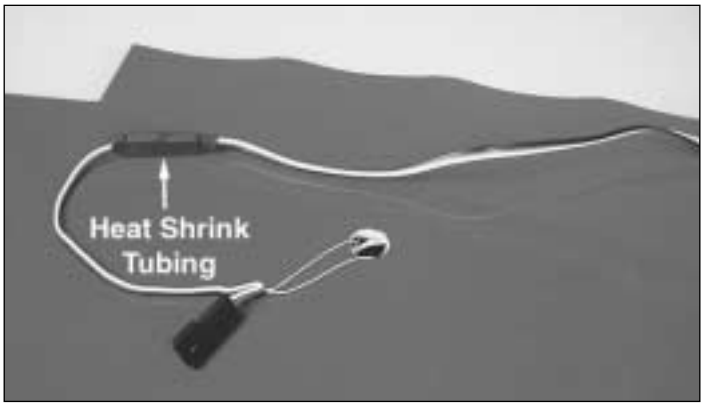
❏ ❏ 12. Find the servo that will be used on the right aileron. Cut down a large servo arm (the distance from theservo arm screw to the outer servo arm hole should be at least 5/8" [16mm]). Install the servo arm at 90 degrees to the servo case. Position the servo on the servo cover so that the servo arm is located in the middle of the slot as shown in the image above. Outline the servo and servo mounting lugs.



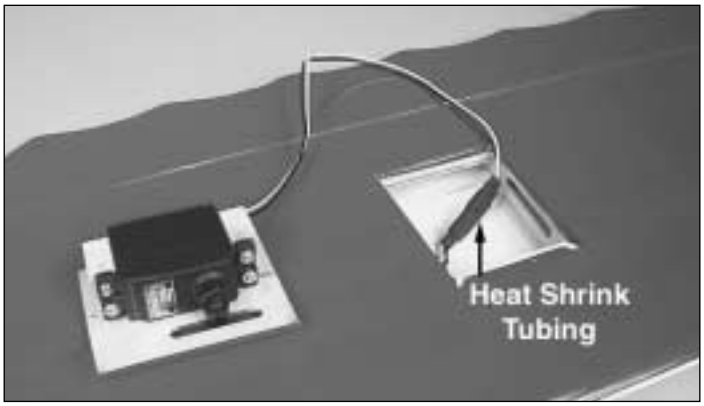
❏ ❏ 13. Locate two 13/16" x 3/4" x 3/8" [20mm x 18mm x 10mm] hardwood blocks. These will be used to mount the servos to the aileron servo cover. Mix a small amount of epoxy. Glue the hardwood blocks along the servo mount outlines. Make sure the grain of the hardwood blocks runs vertical with respect to the servo cover.



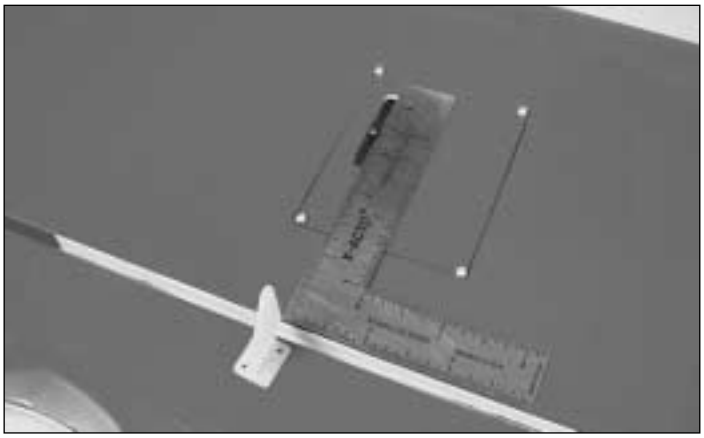
❏ ❏ 14. Position the servo between the hardwood blocks. Mark the holes for the servo screws on the hardwood blocks. Remove the servo and drill the holes with a 1/16" [1.6mm] drill bit. Wick some thin CA into the screw holes. Install the servo.

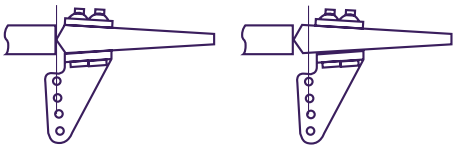


❏ ❏ 15. Feel through the covering the servo lead exit hole at the center section of the bottom sheeting of the top wing. Remove the MonoKote. Connect a 6" [152mm] servo extension cord to one of the ends of the "Y" harness. Use shrink tubing, tape or clips to secure the connection. Tie the end of the 6" [152mm] servo extension to the string and pull the extension and one leg of the "Y" harness through the wing until it reaches the correct aileron's servo bay.



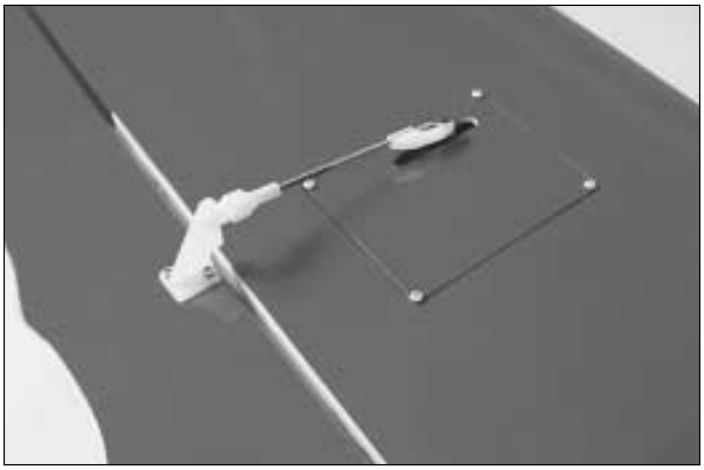
❏ ❏ 16. Connect the servo extension to your servo lead. Use shrink tubing, tape or clips to secure the connection. Gently pull on the "Y" harness until most of the servo wire is hidden in the wing. Mount the servo cover with the servo to the wing. Depending on the size of your servo, you may have to trim one of the wood blocks slightly.

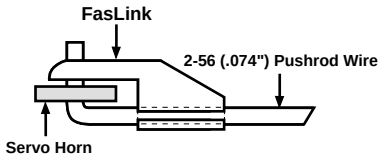




Correct Incorrect

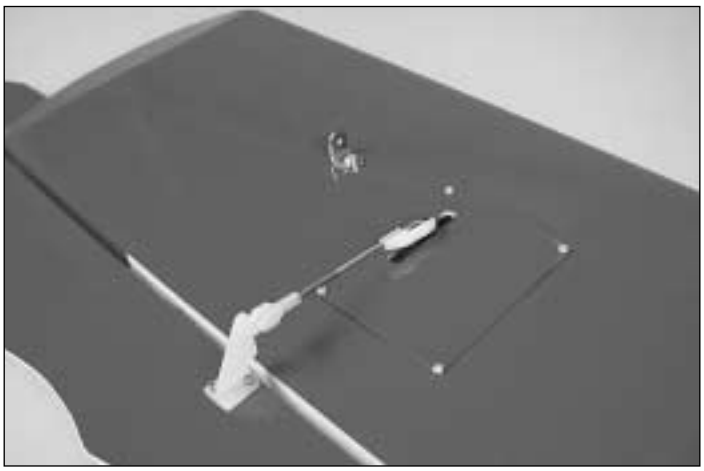
❏ ❏ 17. Use a 90 degree ruler to find the location of the control horn. Mark the holes for the control horn's screws. Drill the holes with a 1/16" [1.6mm] drill bit. Harden the holes with thin CA. Install the control horn using two 2-56 x 3/4" [19mm] socket head cap screws and the nylon mounting plate on the other side of the control surface.



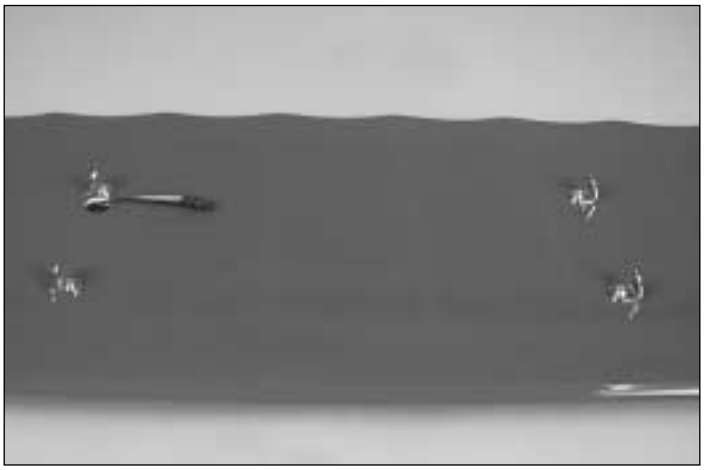


❏ ❏ 18. Enlarge the hole on the servo arm with a Hobbico Servo Horn Drill (or a #48 or 5/64" [2mm] drill bit). Center the servo arm. Thread a clevis approximately 20 turns onto a 0.074" x 6" threaded one end pushrod. Slip a silicone retainer on the clevis and connect the clevis to the aileron's control horn. Center the aileron and make a mark on the pushrod where it meets with the servo arm's hole. Bend the pushrod 90 degrees up and install a Faslink on the pushrod as shown in the sketch. Cut away any excess wire, leaving 1/16" [1.6mm] protruding from the Faslink.

❏ ❏ 19. If you have not done so, go back to step 1 and assemble the other side of the wing the same way. Make sure to connect the left aileron servo lead to the “Y” harness and to pull the servo lead through the wing. Most of the “Y” harness will stay hidden in the wing. Only the servo lead that goes to the receiver should stick out the hole in the center of the wing.

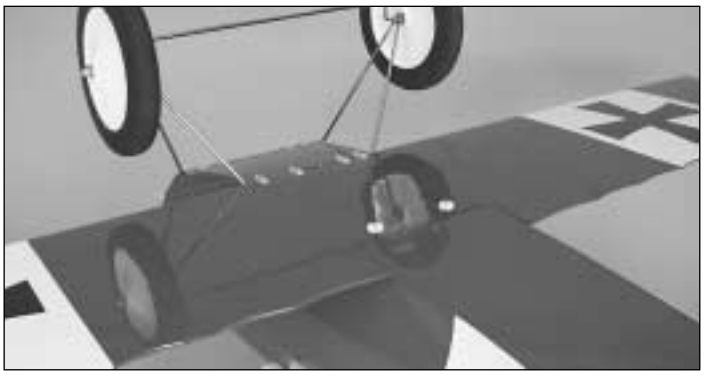


❏ ❏ 20. Find two 90 degree brackets and two #4 x 3/8" [9.5mm] screws. There is one 1/16" [1.6mm] hole pre-drilled on the bottom side of the wing, third bay in from the wing tip on each end. This is where the 90° brackets are to be installed with the #4 x 3/8" [9.5mm] screws. Before you install the brackets, harden the holes with thin CA. Check the image shown for bracket placement and orientation. Leave the brackets slightly loose.



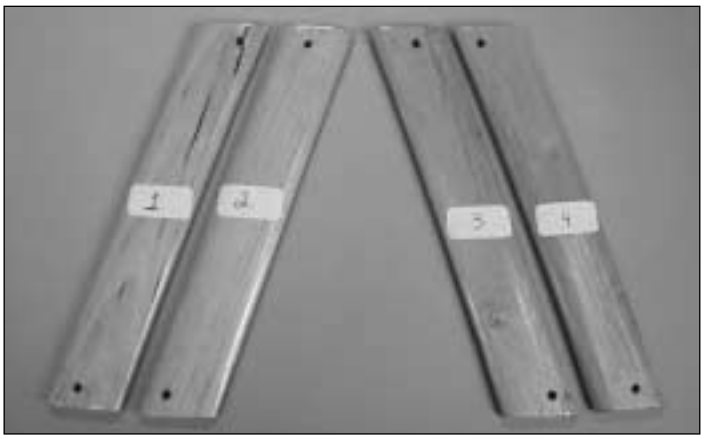
❏ ❏ 21. Find four 60 degree brackets and four #4 x 3/8" [9.5mm] screws. Find four 1/16" [1.6mm] holes at the bottom of the center section of the wing. Harden the holes with thin CA. Install the brackets as shown above. Leave the brackets slightly loose.

INSTALLING THE WINGS ON THE FUSELAGE



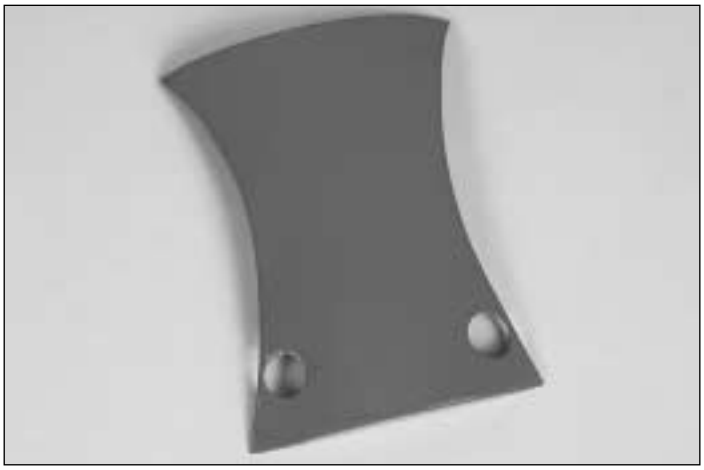
❑ 1. Install the bottom wing onto the fuselage using two 1/4-20 x 2" [51mm] nylon bolts. You may need to slightly sand the wing bolt holes on the bottom and mid wing so that the wing bolt holes line up with the wing blind nuts. If you have to do so, apply some thin CA to the holes to harden them up.

❑ 2. Install the mid wing onto the fuselage using two 1/4-20 x 2" [51mm] nylon bolts.



❑ 3. The struts now come numbered from the factory. You do not need to number them. This is what determines where each strut is installed. If you install your struts correctly, they should line up easily. You may need to slightly sand the ends of the struts so that they sit flush against the top or bottom surfaces of the wings. Before you do so, you should check for wing warps and correct them. Also, be careful not to cross-thread the bracket's threads with the strut bolts. The struts should not deform the wings.

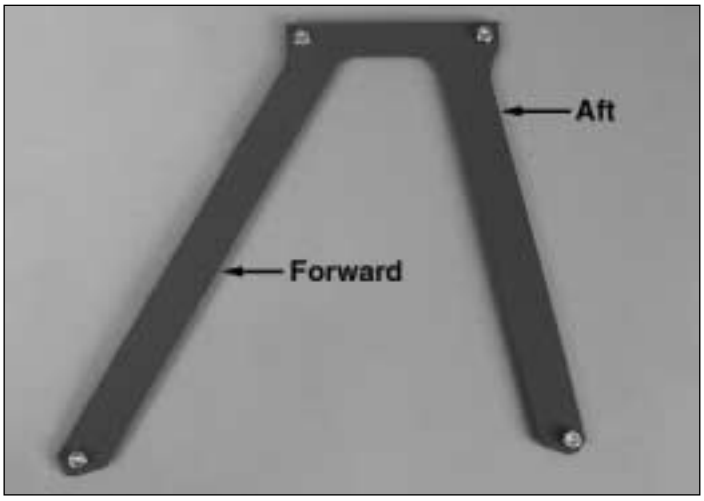
❑ 4. Strut #1 is to be installed between the mid and bottom wing on the right side of the airplane. Use two 4-40 x 3/8" [9.5mm] socket head cap screws and two #4 washers to install it as shown. The SHCS should go through the wood strut and be threaded into the metal bracket. Install Strut #4 the same way between the mid and bottom wings on the left side of the airplane.

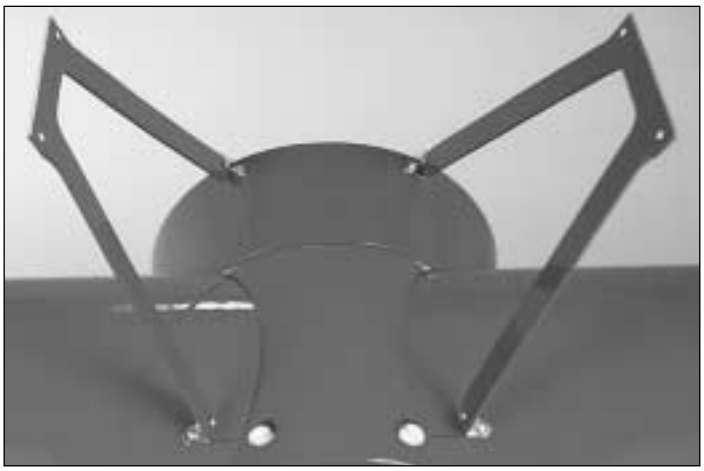


❑ 5. Locate the mid wing ABS cover. Trim the ABS to fit the center section of the mid wing. Cut holes in the ABS to allow access to the wing bolts.

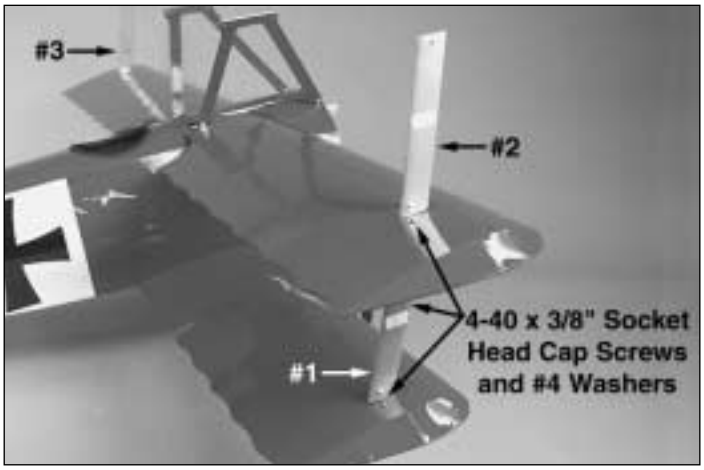
❑ 6. Position the ABS cover in place. Glue the ABS cover to the mid wing using Formula 560 or a similar glue for plastics that dries clear.

❏ 7. Locate the last two 90 degree brackets and two #4 x 1/2" [12mm] screws. There are two 1/16" [1.6mm] holes drilled out on top of the fuselage by the firewall. Harden the holes with thin CA and install the two brackets as shown in the image above.

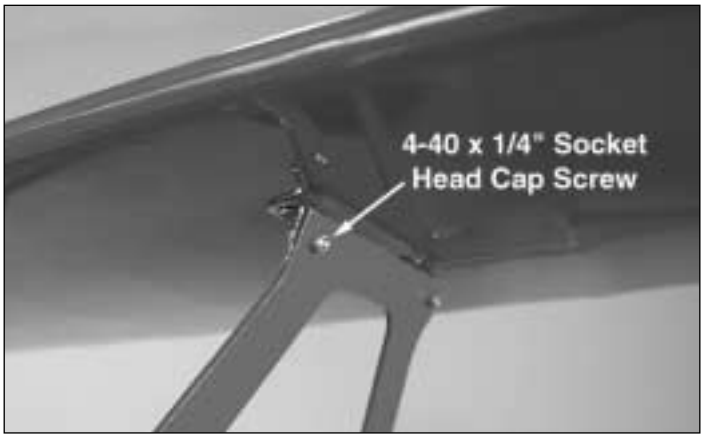




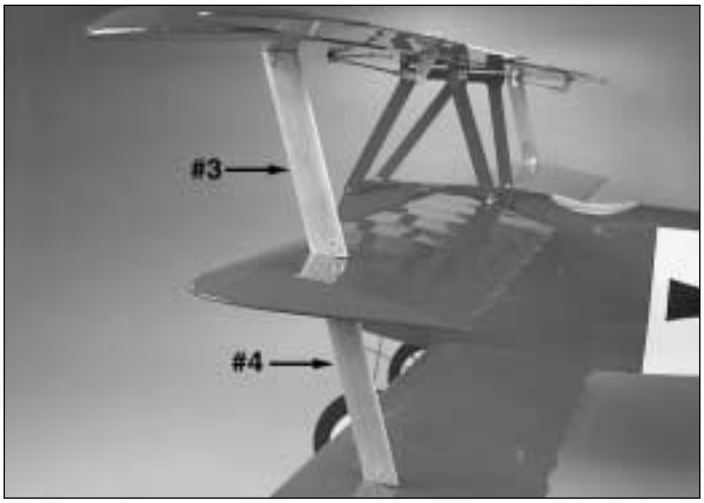
❏ 8. The metal cabanes provided with the kit are slightly different from those pictured on this step, however the installation procedure is the same. Find the metal cabanes and four 4-40 x 1/4" [6.3mm] SHCS. Install both metal cabanes as shown above. The SHCS should go through the metal cabane and thread into the metal brackets.



❏ 9. Install struts #2 and #3 as shown with two 4-40 x 3/8" [6.3mm] SHCS and two #4 flat washers. Strut #2 should be installed on the right side of the airplane and strut #3 on the left side of the airplane.



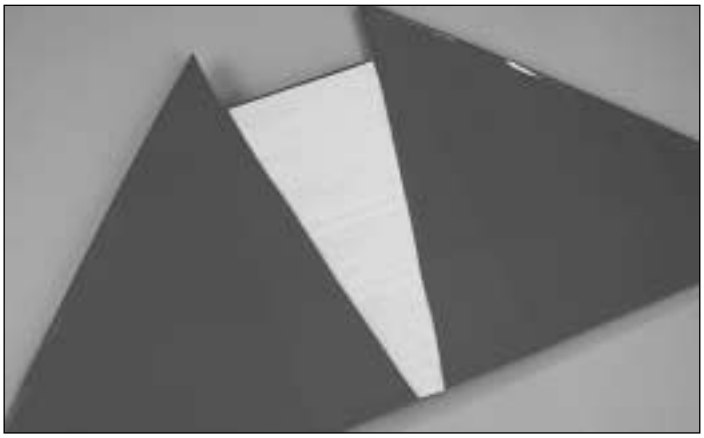
❏ 10. Attach the top wing to the cabane using four 4-40 x 1/4" [6.3mm] SHCS as shown above. Attach the top wing to the wood struts using two 4-40 x 3/8" [9.5mm] SHCS and two #4 washers.



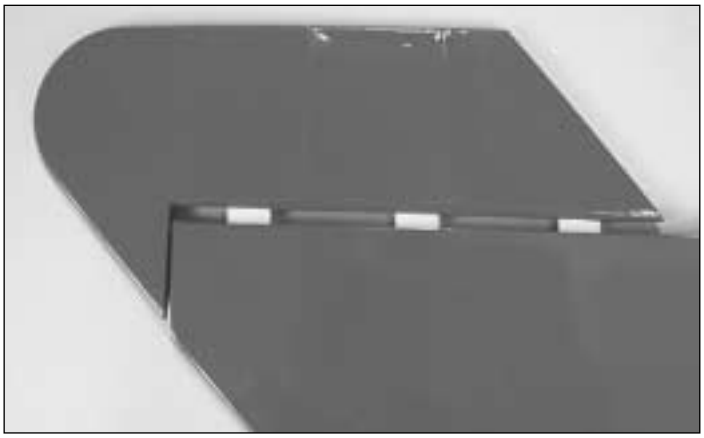
❏ 11. Align all wood struts as shown in the picture above and tighten all the sheet metal screws holding the brackets that go into the wing and fuselage, sixteen screws in all.

INSTALLING THE STAB & RUDDER

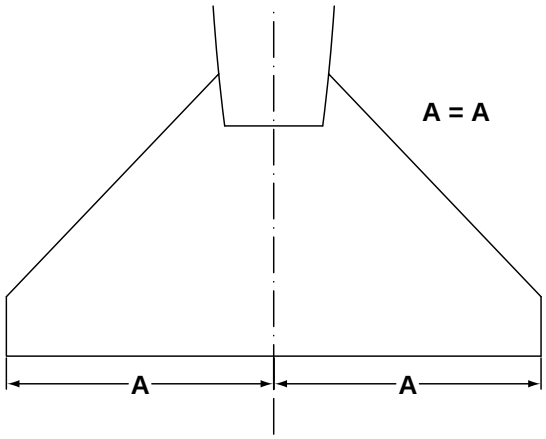
❑ 1. Cut the covering off the top of the stab saddle. **Hint:** cut the covering about 1/32" [0.8mm] away from the stab saddle edge. This will keep the covering in place after the stab has been glued on.



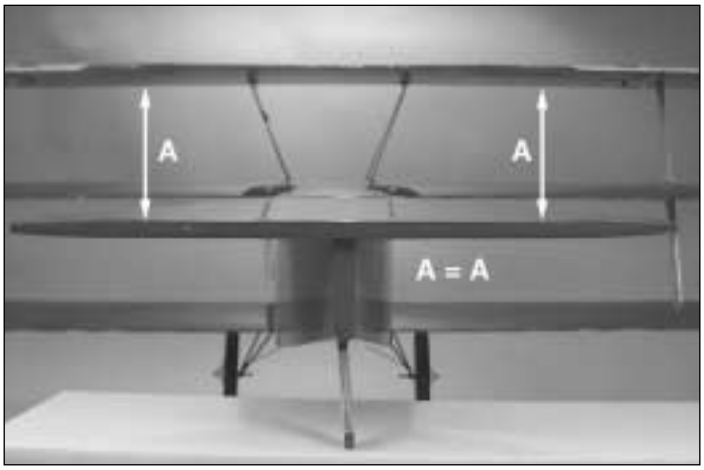
❑ 2. Find the stab. The bottom of the stab has a recessed cut out to help position the stab over the stab saddle. Find the recessed cut-out and cut the covering 1/16" [1.6mm] on the inside of the edge. Make sure you cut the covering, not the wood.



❑ 3. Follow steps 3 to 7 from pages 9 - 10 to install the CA hinges into the elevators, stab, rudder and aft fuse. The elevators are symmetrical so there is no need to differentiate them. **Do not use CA on the hinges yet.**

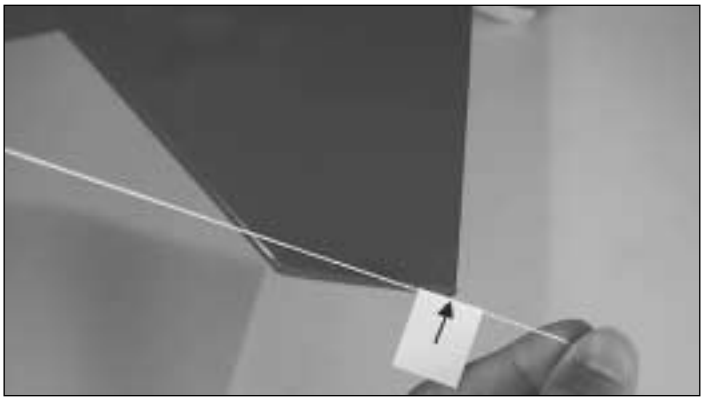


❑ 4. Separate the elevators from the stab. Position the stab on the stab saddle. Center the trailing edge by taking accurate measurements as shown in the sketch above. Draw a line in the center of the stab.



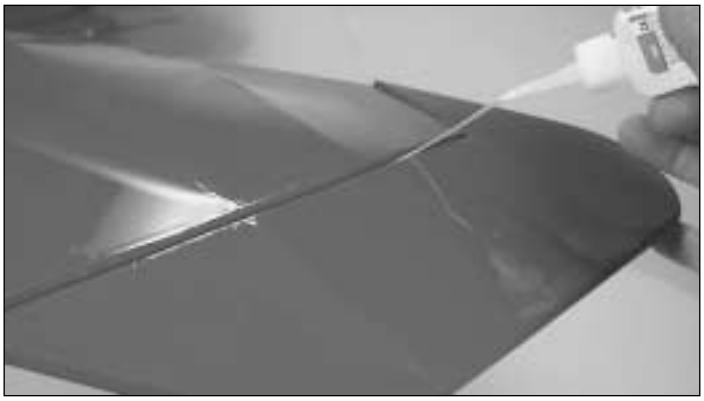
❑ 5. Stand five to ten feet behind the model and view the stab and the mid wing. They should align. If they do not align, carefully sand the “high” side of the saddle until the stab aligns with the wing.

❑ 6. Stick a pin into the top of the fuse near the firewall. Use the markings on the firewall to center it. Tie a small loop in one end of a 45" [1143mm] piece of non-elastic string such as K & S #801 Kevlar thread (K+SR4575). Slip the loop in the string over the T-pin.

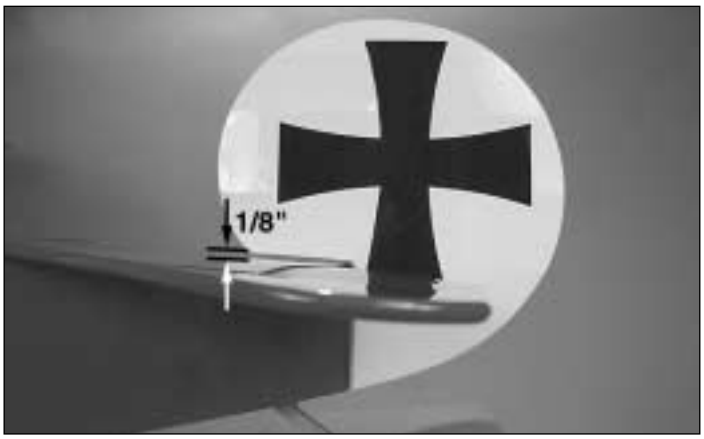


❑ 7. Fold a piece of masking tape over the end of the string and draw an arrow onto it. Slide the tape along the string and align the arrow with one end of the stab. Swing the string over to the same position on the other end of the stab. While keeping the stab centered from side to side, adjust the stab and slide the tape along the string until the arrow aligns with both sides. Be certain the stab remains centered from side to side during this process. You may have to trim the recessed cut out at the bottom of the stab to make it fit.

❑ 8. Once the stab fits well, mix some 30 minute epoxy and glue the stab in place. Make sure to check its alignment again before the epoxy cures. Wipe off the excess epoxy.



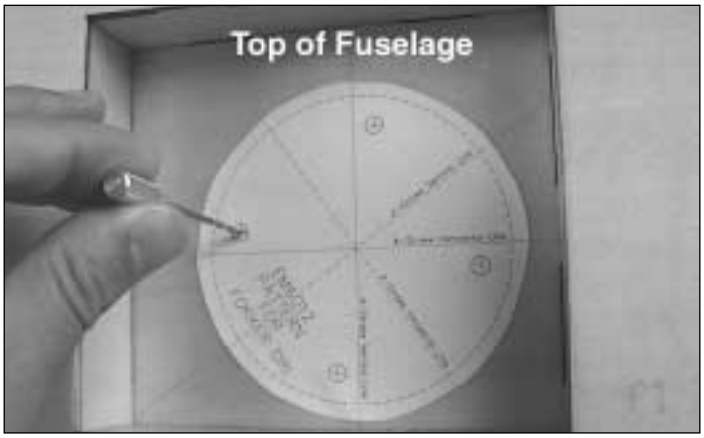
❑ 9. Install the CA hinges again on the elevators and stab and glue them in place with six drops of thin CA on each side.



❑ 10. Install two CA hinges into the rudder and aft fuse and glue them in place with six drops of thin CA on each side. Make sure the bottom of the rudder is aligned with the bottom of the fuse. Also, there should be a 1/8" [3mm] gap between the top of the stab and the bottom of the counter-balanced section of the rudder. The rudder needs to be glued in vertically. Use a builder's square to make sure it is. Modify the fuselage's hinge slots as necessary.

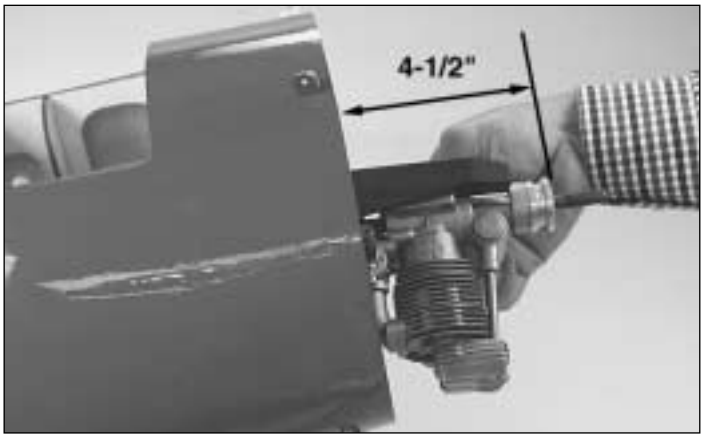
ENGINE INSTALLATION

❑ 1. Remove the wings from the airplane. Cut the **engine mount template** from page 35. Use spray adhesive or tape to temporarily attach the template to the firewall. Align the template using the vertical and horizontal lines of the firewall. Note that the engine mount should be positioned at different angles depending on the engine type and muffler combination being used. The installation shown in the manual is for a 4-stroke engine.



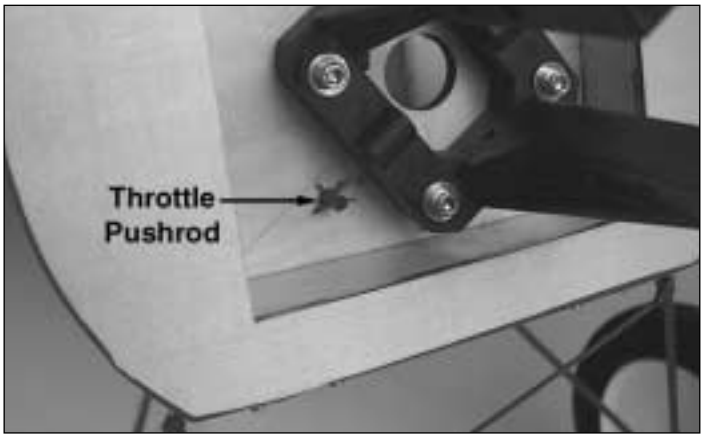
❑ 2. Use a small punch or a wire sharpened on one end to transfer the engine bolt holes to the firewall by making dimples in the wood. Remove the template.

❑ 3. Drill 7/32" [5.5mm] holes through the firewall at the marks. Mount the engine mount to the firewall with four 8-32 x 1" [25mm] socket head cap screws, four #8 flat washers, four #8 lock washers and four 8-32 blind nuts, but do not fully tighten the bolts. Place the engine on the mount and adjust the width of the mount to fit the engine. Center the molded-in “tick” marks on the engine mount and tighten the mounting bolts. It would be a good idea to use some Great Planes Pro Thread Locking Compound on the engine mount bolts.



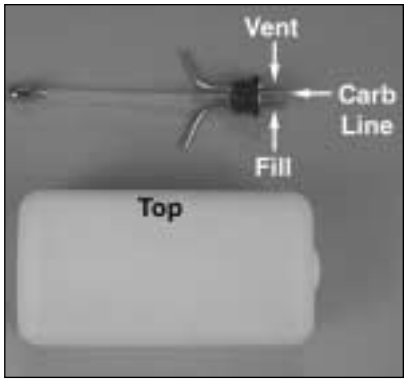
❏ 4. Position the engine so that the face of the drive washer is 4-1/2" [114mm] from the front of the fuse. Use a Great Planes Dead Center™ Engine Mount Hole Locator or your own method to mark the engine mount holes onto the engine mount.

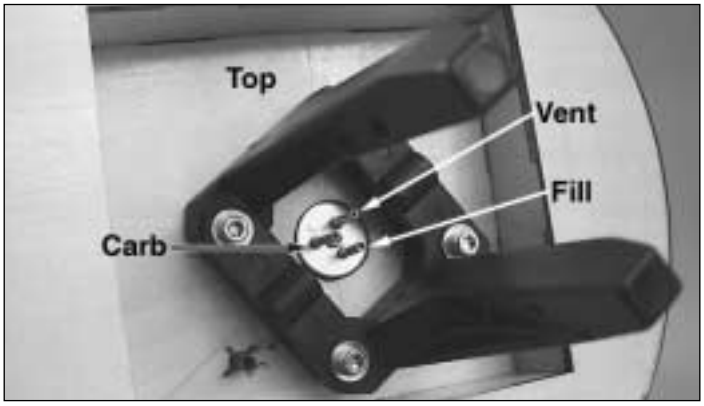
❏ 5. Remove the engine from the mount. Drill #29 (17/128") holes through the mount at the marks you made. Tap 8-32 threads into the mount. Mount the engine to the mount using four 8-32 x 3/4" [19mm] socket head cap screws, #8 flat washers and #8 lock washers.



❏ 6. Mark the position of the throttle pushrod on the firewall. Remove the engine. Drill a 5/32" [4mm] hole through the firewall for the throttle pushrod. Find the 17-1/2" [444mm] plastic outer pushrod, insert it into the hole until only about 1/4" [25mm] shows outside of the firewall as shown above, and glue it in place.

❏ 7. Arrange the stopper and tubes as shown in the photo and then insert them into the tank. Do not tighten the screw to expand the stopper. You will do that in the next step. Be certain the fuel line weight (clunk) at the end of the fuel line inside the tank does not contact the rear of the tank. Otherwise, the line may become stuck above the fuel level and stop the fuel flow. Remember which is the carb line, vent and fill tubes. You can mark the tubes with a Top Flite Panel Line Pen if you wish.





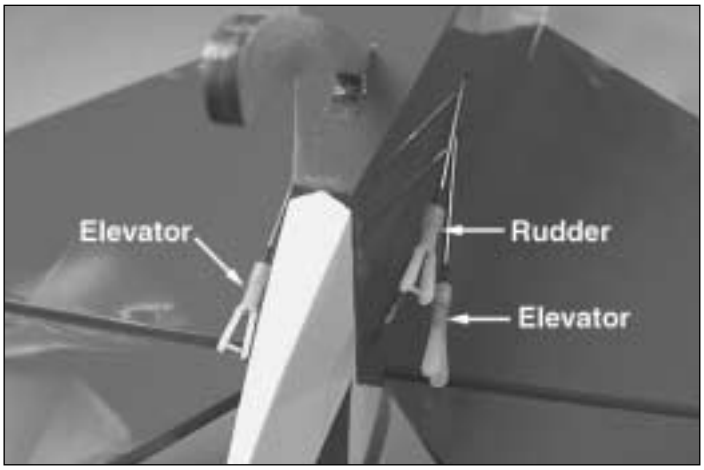
❏ 8. Install the fuel tank in the fuse. Fit the neck through the hole in the firewall. Be certain you install the fuel tank inside the fuselage with the vent tube pointing up and the fill tube down. Tighten the fuel tank screw. Use silicone sealant around the fuel tank neck to prevent fuel or exhaust dirt from spilling into the fuel tank compartment.

❏ 9. Cut the fuel line in three 6" [152mm] length sections. Install the three sections of fuel line on the three fuel tank tubes. Mark the fuel lines so that you know what each one is for.

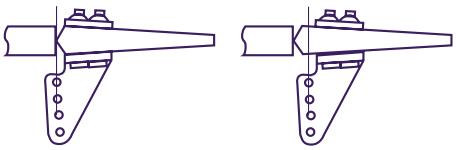
RADIO INSTALLATION

❏ 1. Find the .074" x 17-1/2" [444mm] threaded on end pushrod, a clevis and a silicone retainer. Thread the clevis

onto the rod approximately 20 full turns, slip the retainer on the rod and install the rod in the throttle outer pushrod. Install the engine and attach the clevis on the engine throttle arm. Make sure you have a free moving linkage. Slip the retainer on the clevis.



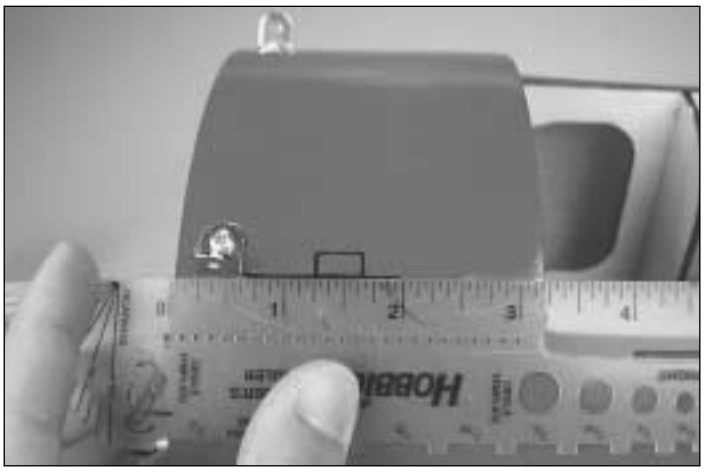
❑ 2. Locate three clevis, three retainers and three 0.074" x 36" [914mm] threaded one end pushrods. Thread a clevis approximately 20 full turns onto each pushrod and slip a retainer onto each clevis. Feel the MonoKote for pushrod exit holes in the aft portion of the fuselage, under the stab. There should be a total of 3 exit holes, one for the rudder and two for the elevators. Cut away the covering in the hole area and insert the pushrods in their guides from the rear.

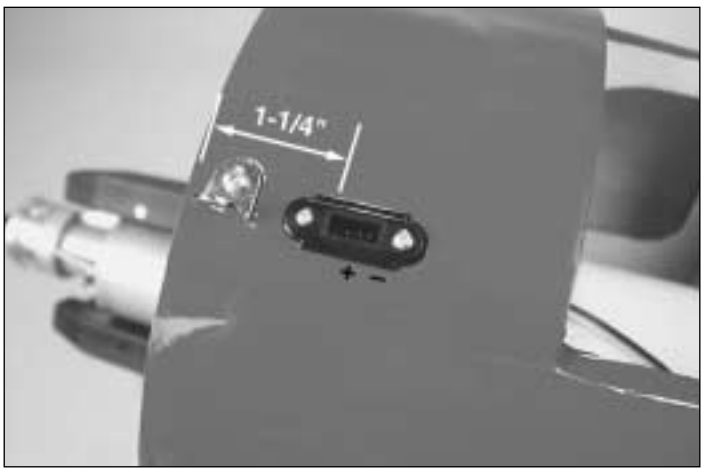


Correct Incorrect

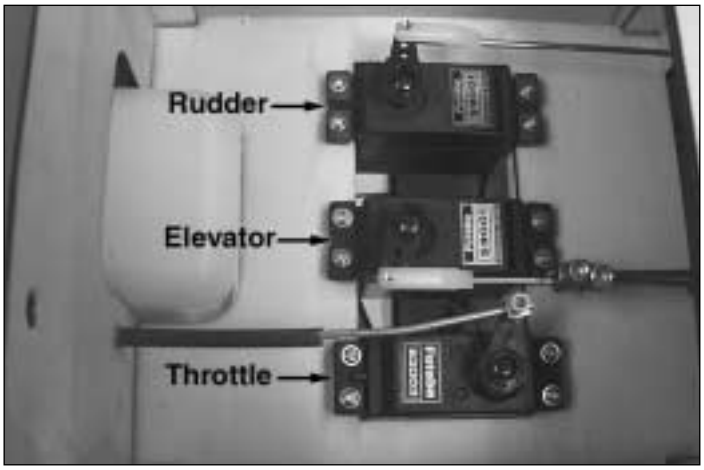
❑ 3. Connect a large nylon control horn on each clevis and position the control horn on each control surface as shown. Drill 3/32" [2.4mm] holes through the elevators and rudder to accommodate the control horn's screws. Wick some thin CA into the holes. Install the elevator control horns with four 2-56 x 1/2" [12mm] machine screws and two nylon back plates. Install the rudder control horn with two 2-56 x 3/4" [19mm] socket head cap screws and a nylon back plate.

Note: If you choose not to install a charge receptacle to connect the aileron servos to the receiver, skip the following step and go on to the next one.

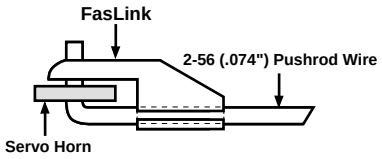




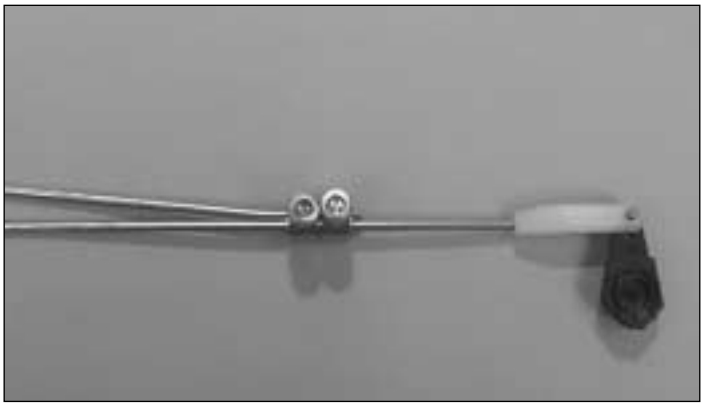
❑ 4. Mark a straight line on the fuselage as shown above. Make a mark 1-1/4" [32mm] from the firewall. Install an Ernst Charge Receptacle as shown above using two #2 x 3/8" [9.5mm] screws (not supplied). Insert the male end of a 6" [152mm] servo extension cord to the charge receptacle. The servo plug should be left about 1/4" [6.3mm] out of the receptacle. Use thin CA to hold it in place. This receptacle will be used as the connector for the aileron servo. Make sure you know the polarity of the plug. Negative (-) is the black wire. Note how we marked the polarity on the instruction's model.



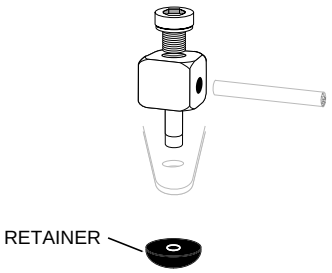
❑ 5. Test fit the rudder, elevator and throttle servos in the 1/8" [3mm] plywood servo tray. Depending on the size of your servos you may have to slightly trim the mount. Place the servos in the tray and mount them with the hardware that came with the servos. Center the rudder servo arm. If necessary bend the rudder pushrod slightly to align it with the servo holes.



❑ 6. Center the rudder and make a mark on the pushrod where it meets with the servo arm's hole you want to use. Bend the pushrod 90 degrees up and install a Faslink on the rudder pushrod as shown in the sketch. Cut away any excess wire.

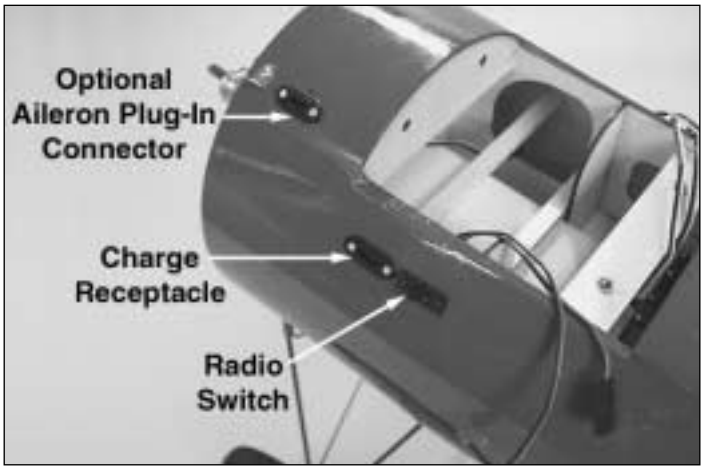


❑ 7. Center the elevator servo arm. Align one of the elevator pushrods with the hole you want to use in the servo arm. Slip two 5/32" [4mm] wheel collars onto the pushrod. Center the elevator that pushrod controls. Bend the pushrod 90 degrees up and install a Faslink. Center the other elevator and bend its pushrod as shown above to mate with the first pushrod. Place the two wheel collars as shown, drop some threadlocker onto the threads and tighten the pushrod screws (6-32 x 1/4" [6.3mm] SHCS). Cut the excess pushrod as shown.

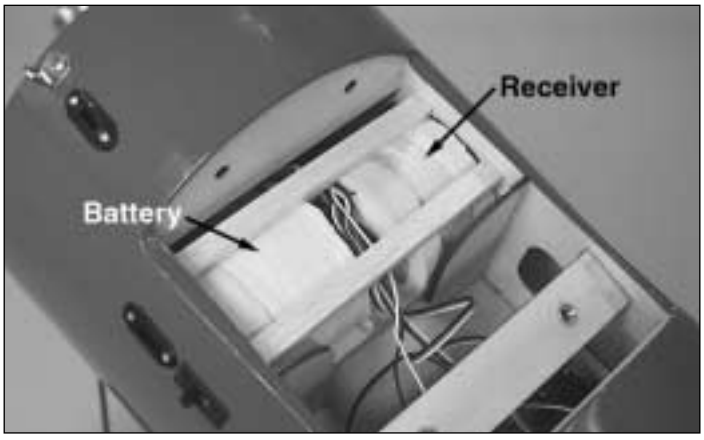


❑ 8. Install a Screw-Lock Pushrod Connector on the throttle servo arm. Insert the throttle pushrod into the connector. Use a 4-40 x 1/8" [3mm] socket head cap screw to secure the pushrod into the connector. Make sure that you can get the full range of carburetor rotation with the servo rotation. Use some Great Planes Pro Thread Locking Compound on the SHCS to prevent it from coming loose with vibration.

❑ 9. Secure all plastic outer pushrod guides in place with thin CA both fore and aft.

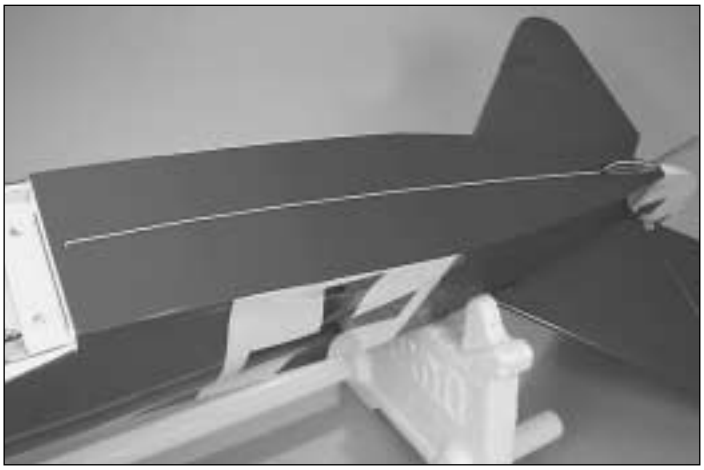


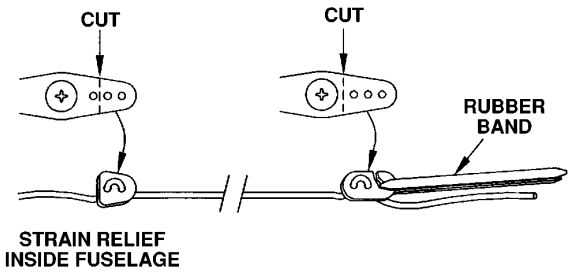
❑ 10. Install a radio switch and a charge receptacle away from the exhaust. Glue two 1/2" x 1/4" [12mm x 6.3mm] balsa sticks (not supplied) across the fuselage on top of the fuel tank as shown above. These sticks will support the radio battery and receiver.



❑ 11. Wrap the battery pack and the receiver in at least 1/4" [6.3mm] of R/C foam rubber and install them in the fuselage. Use shrink tubing to secure the battery to switch connections. Glue two 1/2" x 1/4" [12mm x 6.3mm] balsa sticks to secure the battery and receiver in place.

Note: If you installed the optional charge receptacle for the aileron servo the servo extension coming from it should be plugged into the aileron channel. If no charge receptacle was installed for the aileron, the 6" [152mm] extension should be connected to the aileron channel and the other end should be left loose in the radio compartment.





❏ 12. Make a small hole through the bottom of the fuselage and route the radio antenna to the aft fuselage. Be sure that there is a strain relief on the antenna to keep stress off the solder joint inside the receiver. Use a small rubber band to keep the antenna extended.

Note: If you chose to install a charge receptacle for the aileron servo lead, follow the next step. Otherwise skip it.

❏ 13. A 6" [152mm] servo lead extension is used on this model to connect the aileron servos with the receiver. This servo lead connects the “Y” harness at the bottom of the top wing with the charge receptacle previously installed at the base of the front left cabane strut as shown. The servo extension can be attached with tape or it can be permanently held in place with silicone glue. To make it more difficult to spot, you can use dark red LustreKote to paint the servo lead the same color as the cabane.

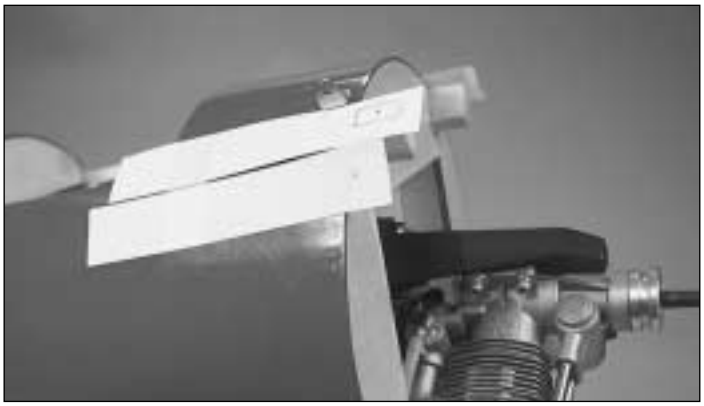
Note: If you chose not to install the charge receptacle for the aileron servo, follow the following step. Otherwise skip it.

❏ 14. Find the mid wing. Feel through the MonoKote and find a hole by the left side of the ABS cover. Cut away the MonoKote both in the top and bottom surface of the mid wing. The aileron's 6" [152mm] servo extension in the radio compartment should come out this hole and another 6" [152mm] servo extension should be used to connect the top wing's “Y” harness to this. The servo extension should be attached to the left's cabane aft leg with tape or silicone glue. You can paint the extension in dark red to make it more difficult to spot.

INSTALLING THE COWL

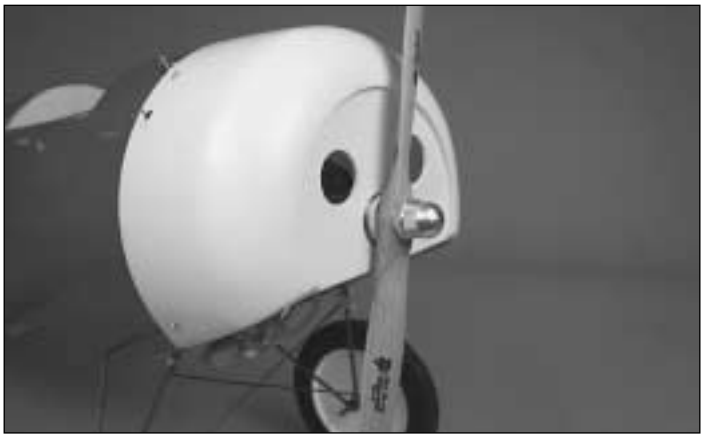
❏ 1. Mix a small amount of epoxy and glue four of the 13/16" x 3/4" x 3/8" [20mm x 18mm x 10mm] hardwood blocks on the firewall flush with the oustide edge of the fuselage as shown. The grain should be horizontal.

❏ 2. Cut the bottom of the fiberglass cowl open. If you use a high speed rotary tool, this job will be much easier. Cut out the openings in the front of the cowl. Test fit the cowl on the fuselage. Temporarily install a prop on the engine and see if there is enough clearance between the prop and the cowl. Trim the cowl until you are satisfied with the fit. Remove the cowl.



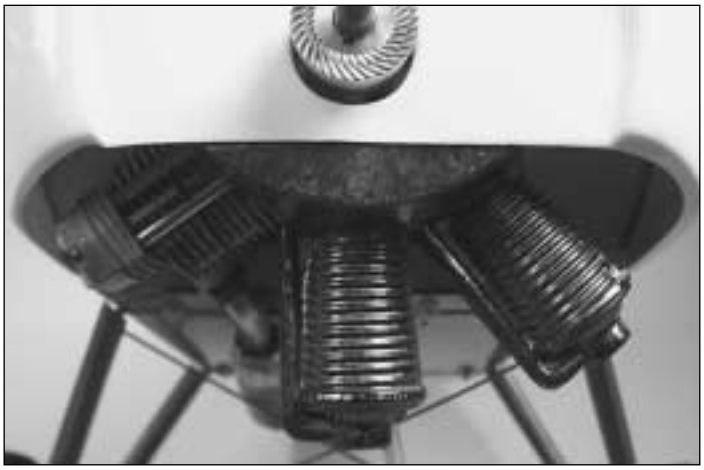
❏ 3. Add an extension to the needle valve. A left-over piece of the metal pushrod from the radio installation will work well for this. Use paper strips to mark the location of the cowl mounting blocks, needle valve and engine glow plug access (if necessary). Remove the needle valve.

❏ 4. Drill 1/16" [1.6mm] holes through the cowl and through the blocks for the cowl screws. Attach the cowl to the fuselage using four #2 x 3/8" [9.5mm] screws and four #2 washers. Use a rotary tool to drill a hole for the extended fuel needle and the engine glow plug access if necessary. Again, make sure you have enough clearance between the prop and the cowl.



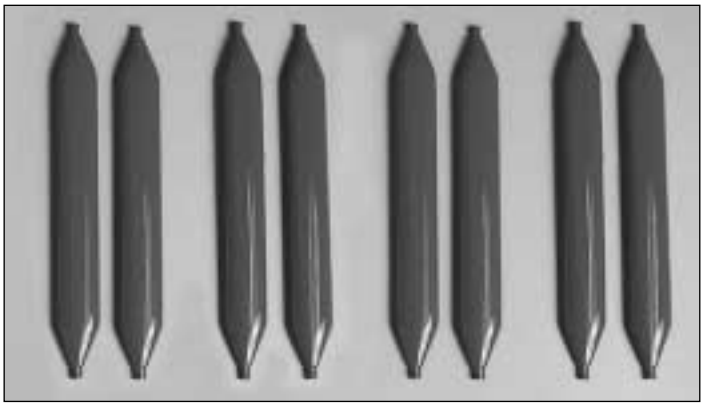
❏ 5. Remove the cowl and wick some thin CA into the holes in the hardwood blocks and let harden. Reinstall the needle valve extension, attach the carburetor fuel line to the carburetor and the vent line to the muffler. Use one of the Great Planes aluminum line plugs to plug the filling line. Reinstall the cowl.

❏ 6. Now it is time to install the dummy engine. Find the two-piece dummy engine. Cut the ABS plastic at the cut lines. Glue the two parts together. **Note:** The dummy engine will be black.

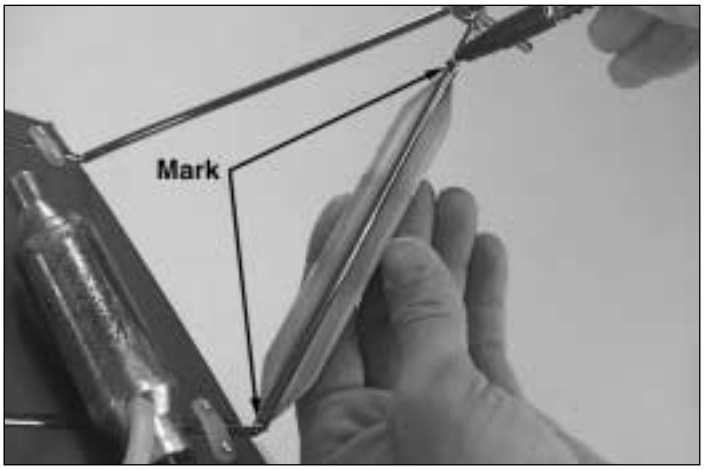


❏ 7. Fit the dummy engine to your airplane. Trim the dummy engine to allow for cooling air to pass over the engine. Glue the dummy engine to the cowl with CA.

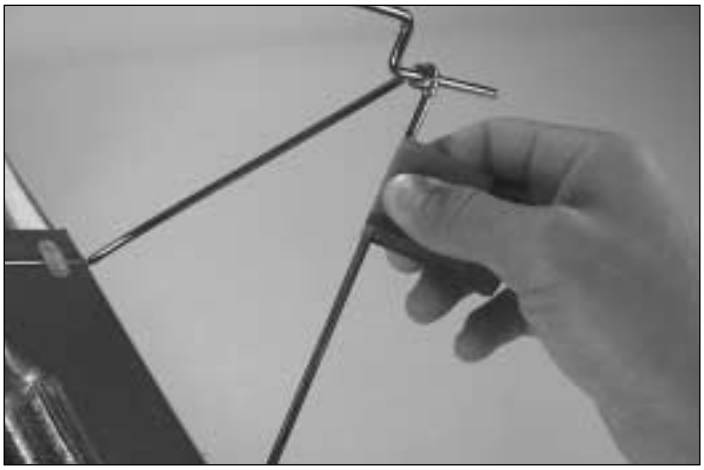
INSTALLING THE LANDING GEAR



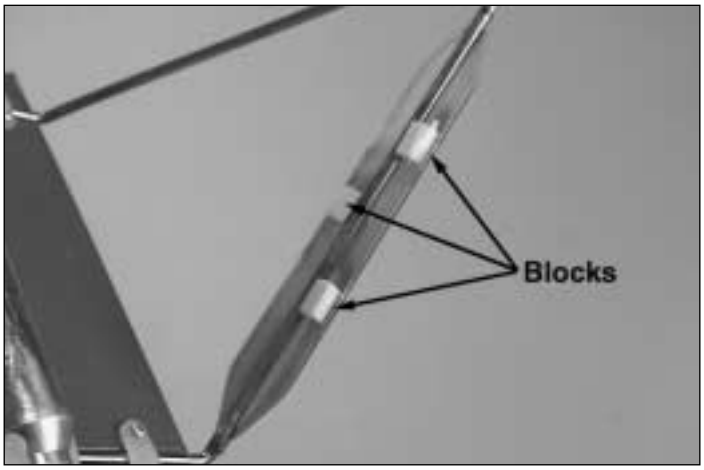
❏ 1. The landing gear strut covers (also called “fairings”) are all the same length and they all fit all landing gear struts.



❏ 2. Install the forward-right covers the following way. First test fit the covers to make sure they fit well on the gear wire. You may have to sand the covers slightly. Position one of the covers as shown and mark the ends of the cover on the landing gear wire with a Top Flite Panel Line Pen. The upper end of the cover should be about 3/32" [2.4mm] away from the fuselage.

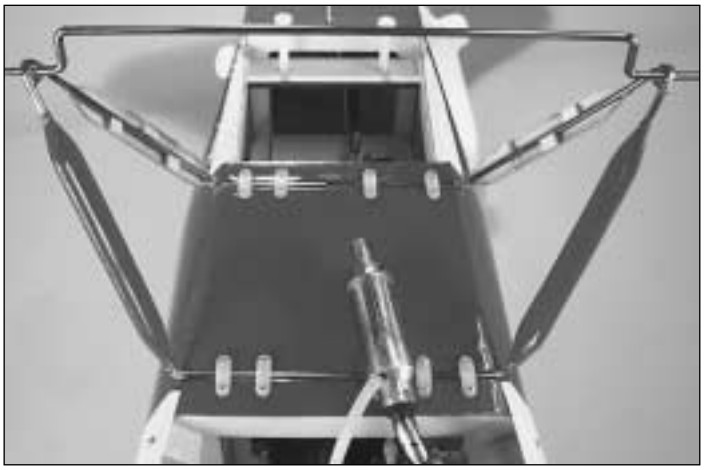


❏ 3. Roughen the surface of the landing gear wire between the marks. Position the cover on the gear wire exactly as it was done the previous step. Use CA to glue the ends of the ABS cover to the landing gear wire.



❏ 4. A 5mm x 8mm x 50mm [3/16" x 5/16" x 2"] balsa stick is included to be cut and serve for gluing blocks for the landing gear covers. Glue several small blocks of balsa along the wire to tie the ABS cover to the landing gear wire to give the covers some support. Sand the blocks so that the other half cover fits well on the wire.

❏ 5. Use CA to glue the other half of the cover on the landing gear. Use dark red LustreKote to touch up the covers and gear if needed.



❏ 6. Install all other covers the same way except for the aft inner covers. These will be installed after the landing gear wing is on.

❏ 7. Find the landing gear wing, two 5/32" [4mm] landing gear straps and four #2 x 3/8" [9.5mm] screws. Fit the landing gear wing onto the landing gear as shown. The fit may be tight. There are two 1/16" [1.6mm] holes on each side of the landing gear wing. This is where the 5/32" [4mm] landing gear straps are to be installed using two #2 x 3/8" [9.5mm] screws on each side. Use thin CA to harden the holes.

❏ 8. Glue the aft inner covers on with CA. Reinstall the main wheels and wheel collars on the main gear. Permanently tighten the wheel collar's set screws. It would be a good idea to use Great Planes Pro Thread Locking Compound on the set screws to prevent them from loosening up with vibration. **NOTE:** If your landing gear axles protrude too much after installing the wheels and wheel collars, you can trim them using a rotary tool. Remember to sand off the edges so that they are not sharp. File a flat spot for the wheel collar's set screws.

FINAL ASSEMBLY

❏ 1. Paint the inside of the cockpit black. **Caution:** Most types of paint will soak through the balsa and show through the covering. To avoid this, first clear-coat the inside of the cockpit before painting it black.

❏ 2. After the black paint fully dries, apply the instrument panel decal. Find the 1/4" x 16" [7mm x 40mm] cockpit coaming and fit it around the cockpit with the ends joining at the rear. You may have to trim it. Glue the coaming in place with thin CA. If you wish to install a pilot, now it is the time to do it. On the instruction manual model we used a Williams Brothers Standard 1/5 Pilot (WBRQ2477).

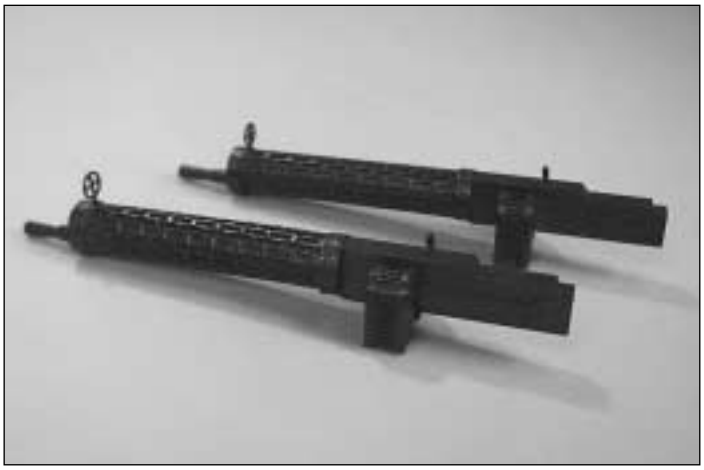
❏ 3. Use scissors or a sharp hobby knife to cut the decals from the sheet.

❏ 4. Be certain the model is clean and free from oily fingerprints and dust. Prepare a dishpan or small bucket with a mixture of liquid dish soap and warm water – about one teaspoon of soap per gallon of water. Submerse the decal in

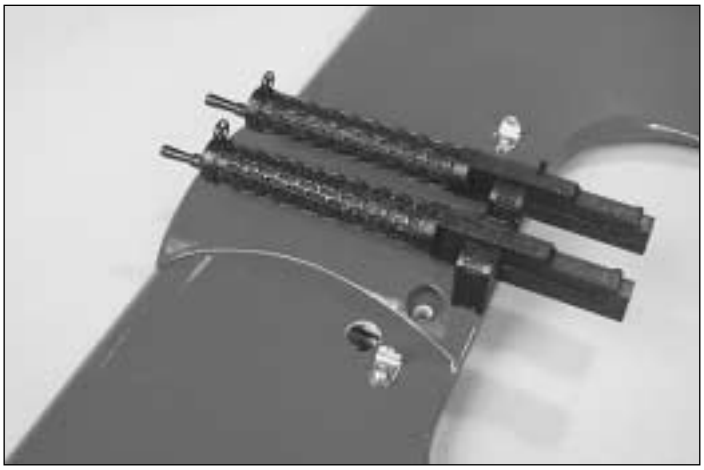
the soap and water and peel off the paper backing. **Note:** Even though the decals have a “sticky-back” and are not the water transfer type, submersing them in soap & water allows accurate positioning and reduces air bubbles underneath.

❑ 5. Position the decals on the model using the box photos as a guide. Hold the decal down and with a paper towel, wipe away all of the excess water.

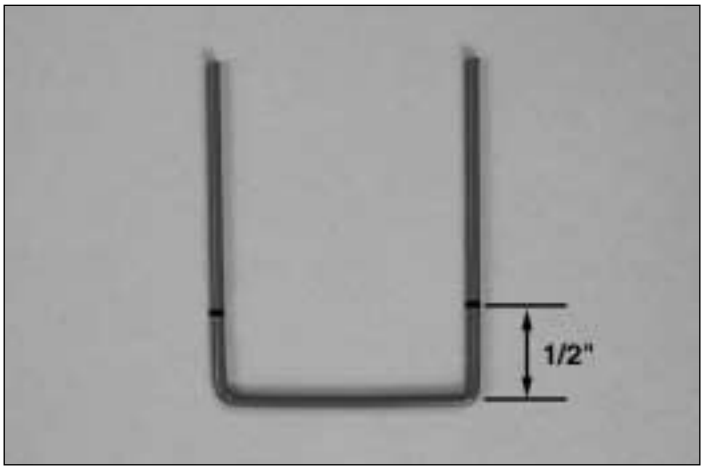
❑ 6. Use a piece of soft balsa or something similar to squeegee remaining water from under the decal. Apply the rest of the decals the same way.



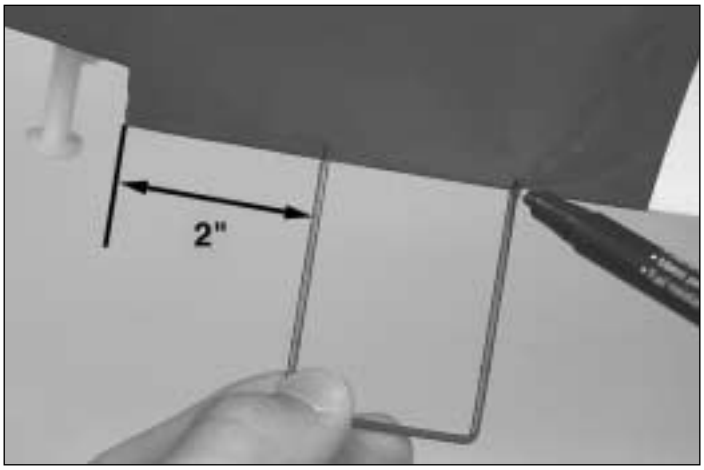
❑ 7. Find the two dummy machine guns and their sights. Glue the sights in place with CA.



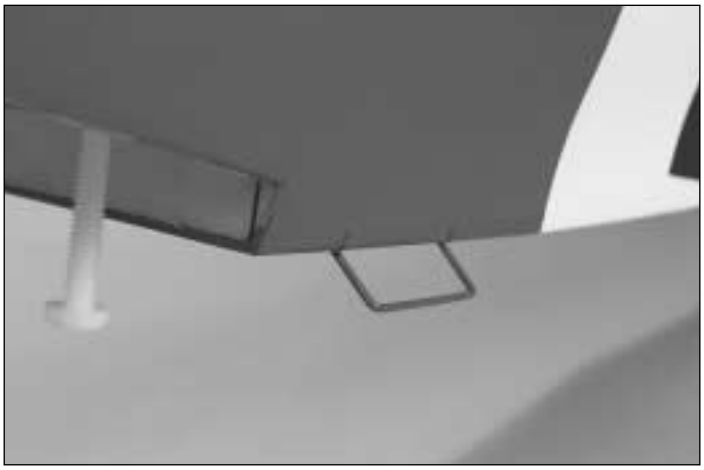
❑ 8. Position the dummy machine guns onto the ABS mid wing cover. Sand off the base of the guns until they sit flat and horizontal. Outline their base onto the ABS mid-wing cover. Roughen up the paint on the mid wing cover and glue the dummy machine guns onto the cover with CA.



❑ 9. Find the 1/16" [1.6mm] wire step. Make a mark 1/2" [12mm] away from the bend.



❑ 10. Position the step on the bottom left side of the fuselage 2" [52mm] away from the trailing edge of the bottom wing and mark the location of the wires.



❑ 11. Use a drill with a 1/16" [1.6mm] drill bit to make holes to accommodate the step as shown. The holes should be at an approximately 45 degree angle from the edge. Insert the step in the holes all the way to the mark and glue it in place with CA. Some thick CA or epoxy should be wicked on the inside of the fuselage to strengthen the step's grip onto the fuselage. Clean up the fuselage with rubbing alcohol.

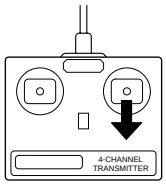
GET THE MODEL READY TO FLY

Check the Control Directions

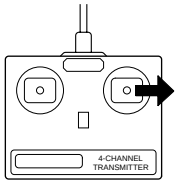
❑ 1. Turn on the transmitter and receiver and center the trims. If necessary, remove the servo arms from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo arms.

❑ 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.

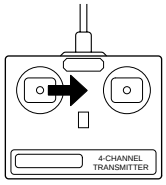
4-CHANNEL RADIO SETUP
(STANDARD MODE 2)



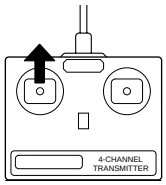
ELEVATORS MOVE UP



RIGHT AILERON MOVES UP
LEFT AILERON MOVES DOWN



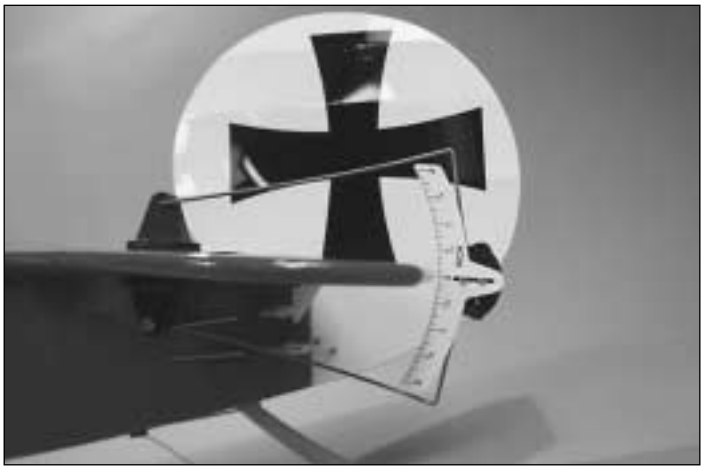
RUDDER MOVES RIGHT



CARBURETOR WIDE OPEN

❑ 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 switches 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 **between** the low rate and the high rate. **NOTE:** The throws are measured at the **widest part** of the elevators, rudder and ailerons.

These are the recommend control surface throws:

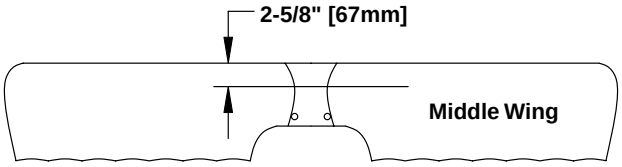
	High Rate	Low Rate
ELEVATOR:	1" [25mm] up 1" [25mm] down	3/4" [19mm] up 3/4" [19mm] down
RUDDER:	1-3/4" [44mm] right 1-3/4" [44mm] left	1-1/4" [32mm] right 1-1/4" [32mm] left
AILERONS:	3/4" [19mm] up 3/4" [19mm] down	1/2" [13mm] up 1/2" [13mm] down

IMPORTANT: The Fokker Dr. I 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 Fokker Dr. I 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.)

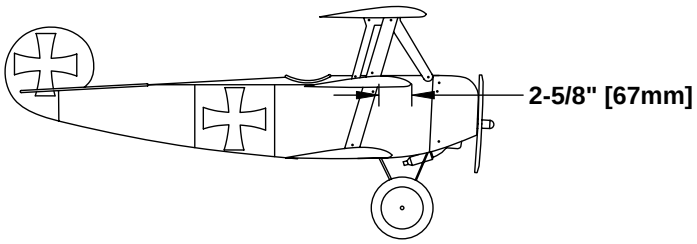
More than any other factor, the **C.G.** (balance point) can have the **greatest** effect on how a model flies and may determine whether or not your first flight will be successful. If you value this model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE.** A model that 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 Top Flite Panel Line Pen or 1/8" wide tape to accurately mark the C.G. on the bottom of the mid wing on both sides of the fuselage. **The C.G. is located 2-5/8" [67mm] back from the leading edge of the mid wing.**

This is where your model should balance for your first flights. Later, you may wish to experiment by shifting the C.G. up to 3/4" [19mm] forward or 5/8" [16mm] back to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but it 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 for you to control. In any case, start at the location we recommend and do not at any time balance your model outside the recommended range.



❏ 2. With the wings attached to the fuselage, all parts of the model installed (ready to fly) and an empty fuel tank, lift the model at the balance point you marked.

❏ 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, 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 top of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, tail weight may be added by cutting open the bottom of the fuse and gluing it permanently inside. **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 wings 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

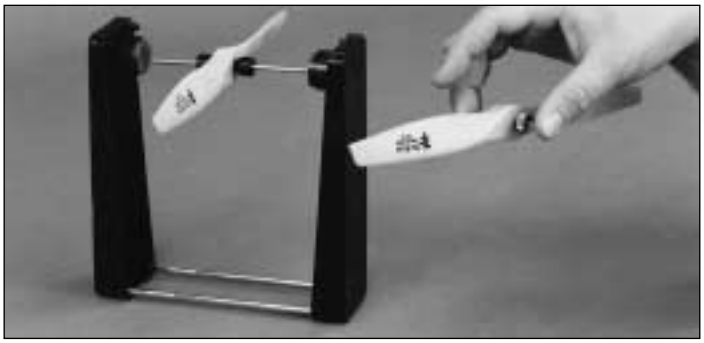
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 35 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.

NOTE: Checking the condition of your receiver battery pack is **highly recommended**. All battery packs, whether it's a trusty pack you've just taken out of another model, or a new battery pack you just purchased, should be cycled, noting the discharge capacity. Oftentimes, a weak battery pack can be identified (and a valuable model saved!) by comparing its actual capacity to its rated capacity. Refer to the instructions and recommendations that come with your cycler. If you don't own a battery cycler, perhaps you can have a friend cycle your pack and note the capacity for you.

Balance Propellers



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

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

Ground Check

If the engine is new, follow the engine manufacturer's instructions to break-in the engine. After break-in, confirm that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power-indefinitely. After you run the engine on the model, inspect the model closely to make sure all screws remained tight, the hinges are secure, the prop is secure and all pushrods and connectors are secure.

Range Check

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

ENGINE SAFETY PRECAUTIONS

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

Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; and remember that engine exhaust gives off a great deal of deadly carbon monoxide. **Therefore do not run the engine in a closed room or garage.**

Get help from an experienced pilot when learning to operate engines.

Use safety glasses when starting or running engines.

Do not run the engine in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.

Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine.

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

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

Make all engine adjustments from behind the rotating propeller. The engine gets hot! Do not touch it during or right after operation. Make sure fuel lines are in good condition so fuel will not leak onto a hot engine, causing a fire.

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

AMA SAFETY CODE (EXCERPT)

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

General

1. I will not fly my model aircraft in sanctioned events, air shows, or model flying demonstrations until it has been proven to be airworthy by having been previously successfully flight tested.

2. I will not fly my model aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right of way to and avoid flying in the proximity of full scale aircraft. Where necessary an observer shall be used to supervise flying to avoid having models fly in the proximity of full scale aircraft.

3. Where established, I will abide by the safety rules for the flying site I use and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.

7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.

9. I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

Radio Control

1. I will have completed a successful radio equipment ground check before the first flight of a new or repaired model.

2. I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.

3. I will perform my initial turn after takeoff away from the pit or spectator areas and I will not thereafter fly over pit or spectator areas, unless beyond my control.

4. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission. ***Since the Fokker Dr. I 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.***

IMAA SAFETY CODE (EXCERPT)

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

Section 1.0: Safety Standard

1.1 Adherence to Code: This safety code is to be strictly followed.

1.2 The most current AMA Safety Code in effect is to be observed. However, the competition sections of the code may be disregarded.

Section 3.0: Safety Check

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

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

Section 5.0: Emergency Engine Shut Off

5.1 All magneto spark ignition engines must have a coil grounding switch on the aircraft to stop the engine. This will also prevent accidental starting of the engine. This switch shall be readily available to both pilot and helper. This switch is to be operated manually and without the use of the radio system.
5.2 Engines with battery power ignition systems must have a switch to turn off the power from the battery pack to disable the engine from firing. This will also prevent accidental starting of the engine. This switch shall be readily available to both pilot and helper. This switch shall be operated manually and without the use of the Radio System.
5.3 There must also be a means to stop the engine from the transmitter. The most common method is to close the carburetor throat completely using throttle trim, however, other methods are acceptable. This requirement applies to all glow/gas ignition engines regardless of size.

Section 6.0: Radio Requirements

6.1 All transmitters must be FCC type certified.

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

Additional IMAA Recommendations

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

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

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

Redundant and fail-safe battery systems are recommended.

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

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

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

Control surfaces linkages are listed in order of preference:

1. Cable system (pull-pull). A tiller bar is highly recommended along with necessary bracing.

2. Arrow Shaft, fiberglass or aluminum, 1/4" or 5/16" 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" O.D. bracing every six (6) to ten (10) inches is highly recommended.

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

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

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

CHECK LIST

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

❏ 1. Fuel proof 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. Use an incidence meter to check the wing for twists and attempt to correct before flying.

❏ 17. Balance your propeller (and spare propellers).

❏ 18. Tighten the propeller nut and spinner.

❏ 19. Place your name, address, AMA number and telephone number on or inside your model.

❏ 20. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.

❏ 21. If you wish to photograph your model, do so before your first flight.

❏ 22. Range check your radio when you get to the flying field.

FLYING

The Fokker Dr. I ARF is a great-flying model that flies smoothly and predictably. The Fokker Dr. I 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.

The Great Planes Fokker Dr. I is easier to fly than it looks. This airplane handles really well on grass and as long as throttle is not applied suddenly it takes off easily. In fact, easier than many tail draggers. In flight, this model is very neutral, meaning that the model will stay in the flying attitude that you put it into. Elevator, aileron and rudder control is very positive at all speeds and the model's stall is so soft it is almost non-existent to the point that the pilot retains full aileron and rudder control during prolonged full elevator stalls. Its slow speed characteristics are excellent and that coupled to the excellent maneuverability of the airplane makes it possible for this airplane to turn on a dime without losing altitude. On landing the Fokker Dr. I requires slightly more attention than any other tail dragger because of the narrow landing gear. Again, landing on grass if possible is the best solution. After several flights you will feel so comfortable with this airplane that you will forget all those things that make you nervous now. Its flying performance will impress you and also everybody else at the field.

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 any unusual sounds, such as a low-pitched “buzz,” this may be an indication of control surface “flutter.” Because flutter can quickly destroy components of your airplane, any time you detect flutter you must immediately cut the throttle and land the airplane! Check all servo grommets for deterioration (this will indicate which surface fluttered) and make sure all pushrod linkages are slop-free. If it fluttered once, it will probably flutter again under similar circumstances unless you can eliminate the slop or flexing in the linkages. Here are some things which can result in flutter: Excessive hinge gap; Not mounting control horns solidly; Sloppy fit of clevis pin in horn; Elasticity present in flexible plastic pushrods; Side-play of pushrod in guide tube caused by tight bends; Sloppy fit of Z-bend in servo arm; Insufficient glue used when gluing in the elevator joiner wire or aileron torque rod; Excessive “play” or “backlash” in servo gears; and Insecure servo mounting.

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 skid on the ground. 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, then check all fasteners and control linkages for peace of mind.

The Fokker Dr. I ARF has a narrow, scale landing gear that requires more attention on take off and on landing runs than wider gears. The Fokker Dr. I ARF does not handle cross winds too well while on the ground, so try to always land and take off into the wind. When you're ready, point the model straight down the wind, hold a bit of up elevator to keep the tail on the ground, then gradually advance the throttle. As the model gains speed decrease up elevator allowing the tail to come off the ground. One of the most important things to remember with a tail dragger is to always be ready to apply **right** rudder to counteract 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. Be prepared because the Fokker will come off the ground very quickly once full power is applied.

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 Fokker Dr. I 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. This airplane is very draggy and it loses speed quickly, so keep a little throttle until the airplane is on the runway. 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.

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

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

GOOD LUCK AND GREAT FLYING!

BUILDING NOTES

Kit Purchased Date: _____

Where Purchased:_____

Date Construction Started: _____

Date Construction Finished: _____

Finished Weight: _____

Date of First Flight: _____

FLIGHT LOG

OTHER ITEMS AVAILABLE FROM GREAT PLANES

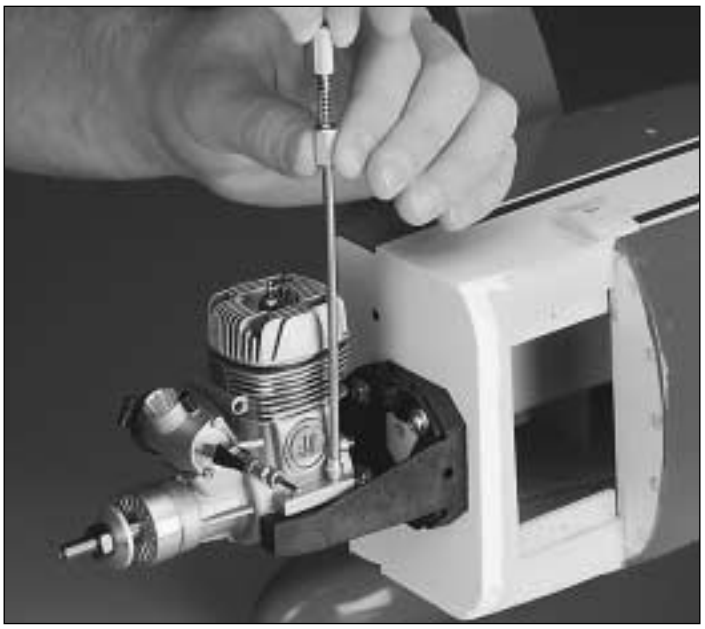
Great Planes® Accu-Throw™
Control Surface Deflection Meter
GPMR2405

One leading cause of crashes is flying an airplane with its control throws set differently from those recommended in the instructions. The Great Planes AccuThrow™ lets you quickly and easily measure actual throws first, so you can make necessary corrections before you fly. Large, no-slip rubber feet provide a firm grip on covered surfaces without denting or marring the finish. Spring tension holds AccuThrow's plastic ruler steady by each control surface. Curved to match control motions, the ruler provides exact readings in both standard or metric measurements.

Top Flite® Power Point® Wood Propellers
(TOPQ5000-5200)

- Swept tip design reduces noise.
- Lighter, quieter, and more efficient than ever!
- More thrust for greater power.

The strict quality control used when manufacturing Power Point props ensures symmetric pitch: at any given point on one blade, the pitch will exactly match the pitch at the same point on the opposite blade. This accuracy reduces prop vibration and boosts thrust at any rpm. Combined with a new airfoil design and the "Power Point" tip, these props are a top choice for modelers of every skill level. Lighter than maple props of the same size, these fuelproofed beechwood props reduce rotational mass, letting your engine produce more power with less work. Wood construction also makes Power Point props stiffer than nylon, so they perform predictably throughout the full rpm range.

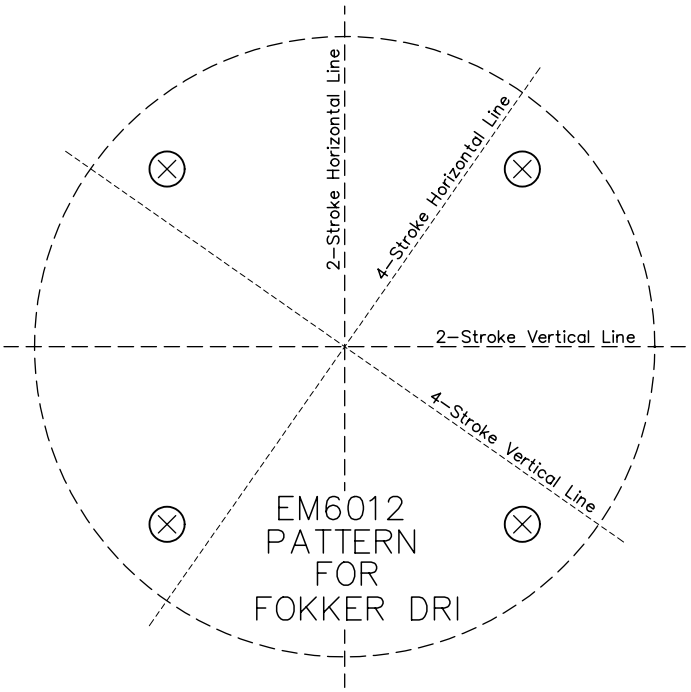


Great Planes® Dead Center™ Engine Mount Hole Locator (GPMR8130)

Improperly drilled mount holes can over-stress the mount, cause bolts to bind, or permit destructive vibration — but that doesn't happen with Great Planes' pen-sized tool. Just position the engine on the mount, and insert the self-centering cone in the mounting hole. Twist the shaft, and the drill bit inside will mark the spot with a small starter hole. It's that fast and easy to use — and stores away in its own protective plastic tube when you're done. A workshop must!

O.S. .70 Surpass Engine
(OSMG0870)

Give a sharper kick to your Fokker Dr. I aerobatic maneuvers with the 1.1 horsepower (at 11,000 rpm) of O.S. Engines' .70 Surpass. Weighing just 20.1 ounces, this high-performance 4-stroke has a helix gear-driven camshaft on the front end and a dependable updraft carburetor in back. It's generous with power, but economical on fuel consumption—and comes with both muffler and glow plug to increase your value. Also included: warranty protection for 5 years!



This model belongs to:

Name

Address

City, State Zip

Phone number

AMA number