

# FOKKER DR-1

## INSTRUCTION MANUAL

**ElectriFly™**



Wingspan: 29.5 in [745mm]  
Wing Area: 300 sq in [19dm<sup>2</sup>]  
Weight: 20 – 24 oz [567 – 680g]  
Wing Loading: 10 – 12 oz/sq ft [31 – 37g/dm<sup>2</sup>]  
Length: 23.5 in [600mm]  
Required (not included):  
Radio: 4-channel with four micro servos  
Motor: ElectriFly™ Rimfire™ 28-30-950 brushless  
ESC: ElectriFly SS-25  
Battery: 11.1V 1250mAh LiPo

### WARRANTY

Great Planes® Model Manufacturing Co. guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Great Planes' liability exceed the original cost of the purchased kit.** Further, Great Planes reserves the right to change or modify this warranty without notice.

In that Great Planes has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

**If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.**

To make a warranty claim send the defective part or item to Hobby Services at the address below:

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

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.

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



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

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## INTRODUCTION

High in the skies over war-torn Europe during WW1 lurked a man and machine combination that struck terror in the hearts and minds of the allied forces. The man—Baron Manfred Von Richtofen; the machine—the Fokker DR-1. Together they forged the legend of the bloody “Red Baron”!

The Fokker DR-1 is to this day, nearly a century after the record-setting exploits of the “Red Baron,” one of the most highly recognized airplanes in the world. Now you can have this great looking and flying model as an electric, without the mess and fuss of a glow-powered engine.

With today's LiPo (Lithium-Polymer) batteries and micro servos, small electrics have become very popular. Now Great Planes brings you the Fokker DR-1 in a small, easy to fly, ARF electric. So if you want to impress your glow-flying buddies with an electric, the Great Planes Fokker DR-1 EP ARF is just what you need.

For the latest technical updates to the Fokker DR-1 EP ARF, visit the Great Planes web site at [www.greatplanes.com](http://www.greatplanes.com). Open the “Airplanes” link and select the Fokker DR-1 EP ARF. IF there is new technical information or changes to this model, a “tech notice” box will appear in the upper left corner of the page.

## AMA

We urge you to join the AMA (Academy of Model Aeronautics) and a local R/C club. The AMA is the governing body of model aviation and membership is required to fly at all AMA clubs. Though joining the AMA provides many benefits, one of the primary reasons to join is liability protection. Coverage is not limited to flying at contests or on the club field. It even applies to flying at public demonstrations and air shows. Failure to comply with the Safety Code (excerpts printed in the back of the manual) may endanger insurance coverage. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. There are over 2,500 AMA chartered clubs across the country. Contact the AMA at the address or toll-free phone number below.



### Academy of Model Aeronautics

5151 East Memorial Drive  
Muncie, IN 47302-9252  
Tele. (800) 435-9262  
Fax (765) 741-0057  
Or via the Internet at:  
<http://www.modelaircraft.org>

**IMPORTANT!!** Two of the most important things you can do to preserve the radio controlled aircraft hobby are to avoid flying near full-scale aircraft and avoid flying near or over groups of people.

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

1. Your Fokker DR-1 EP ARF should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, the Fokker DR-1 EP ARF, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

2. You must assemble the model **according to the instructions**. Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases the instructions may differ slightly from the photos. In those instances, the written instructions should be considered as correct.

3. Take your time to **build straight, true and strong**.

4. You must use an R/C radio system that is in first-class condition.

5. You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air.

6. You must check the operation of the model before **every** flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.

7. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your local 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.

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

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

**BATTERY CHARGER OPTIONS**

The Great Planes Fokker DR-1 EP ARF is designed for use with LiPo (Lithium-Polymer) batteries only. All LiPo batteries require a charger specifically designed for charging LiPo batteries. The use of a charger not designed for charging LiPo batteries will result in damage to the batteries and possibly a fire.

We recommend the use of the Great Planes Triton™2 DC Peak Charger (GPMM3153), the ElectriFly DC PolyCharge™ (GPMM3010), or for charging more than one battery at a time, the ElectriFly PolyCharge4™ (GPMM3015).

**ADDITIONAL ITEMS REQUIRED**

**Hardware & Accessories**

In addition to the items listed in the “**BATTERY CHARGER OPTIONS**” section, the following is the list of hardware and accessories required to finish the Fokker DR-1 EP ARF. Order numbers are provided in parentheses.

- 4-Channel radio with four micro servos with a minimum 17 oz/in each such as the Futaba® S3107 (FUTM0025)
- ElectriFly SS-25 25 amp brushless ESC (GPMM1820)
- ElectriFly 3.5mm Bullet™ (male) to 2mm Bullet (female) connector adapter (GPMM3122)
- ElectriFly 1250mAh LiPo 3-cell battery (GPMP0823)
- Futaba R114F 4-channel FM receiver (low band – FUTL0443, high band – FUTL0442)
- Futaba “Y-harness” (FUTM4130)
- ElectriFly RimFire™ C28-30-950 brushless motor (GPMG4560)
- 10" x 4.5" Prop (GPMQ6660)
- 3mm Prop adapter (GPMQ4959)

**Accessories & 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-1 EP ARF. **Great Planes Pro™ CA and Epoxy glue are recommended.**

- 1 oz. [28g] Thin Pro CA (GPMR6002)
- 1 oz. [28g] Medium Pro CA (GPMR6008)
- Hook & Loop material (GPMQ4480)
- #1 Hobby knife (HCAR0105)
- #11 Blades (5-pack, HCAR0211)
- Medium T-pins (100, HCAR5150)
- Builder's Triangle Set (HCAR0480)
- K & S #801 Kevlar® thread or string (for stab alignment)
- Pliers (HCAR0625)
- Wire cutter (HCAR0627)
- Clear tape

## Optional Supplies & Tools

Here is a list of optional tools mentioned in the manual that will help you build the Fokker DR-1 EP ARF.

- Stick-on segmented lead weights (GPMQ4485)
- Top Flite® MonoKote® sealing iron (TOPR2100)
- Top Flite Hot Sock™ iron cover (TOPR2175)
- Top Flite MonoKote heat gun (TOPR2000)
- 2 oz. [57g] Spray CA activator (GPMR6035)
- CA applicator tips (HCAR3780)
- CA debonder (GPMR6039)
- Robart Super Stand II (ROBP1402)
- CG Machine™ (GPMR2400)
- Precision Magnetic Prop Balancer™ (TOPQ5700)

## IMPORTANT BUILDING NOTES

- When you see the term **test fit** in the instructions, it means that you should first position the part on the assembly **without using any glue**, and then slightly modify or *custom fit* the part as necessary for the best fit.
- This kit contains primarily metric hardware with just a couple of exceptions.
- **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 stab and wing incidences and motor thrust angles have been factory-built into this model. However, some technically-minded modelers may wish to check these measurements anyway. To view this information visit the web site at [www.greatplanes.com](http://www.greatplanes.com) and click on "Technical Data." Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.

## COMMON ABBREVIATIONS

Fuse = Fuselage  
Stab = Horizontal Stabilizer  
Fin = Vertical Fin  
LE = Leading Edge  
TE = Trailing Edge  
LG = Landing Gear  
Ply = Plywood  
" = Inches  
mm = Millimeters  
ESC = Electronic Speed Control

## ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Fokker DR-1 EP ARF are available using the order numbers in the **Replacement Parts List** that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company.

To locate a hobby dealer, visit the Hobbico® web site at [www.hobbico.com](http://www.hobbico.com). Choose "Where to Buy" at the bottom of the menu on the left side of the page. Follow the instructions provided on the page to locate a U.S., Canadian or International dealer.

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

Mail parts orders and payments by personal check to:

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

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

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

### Replacement Parts List

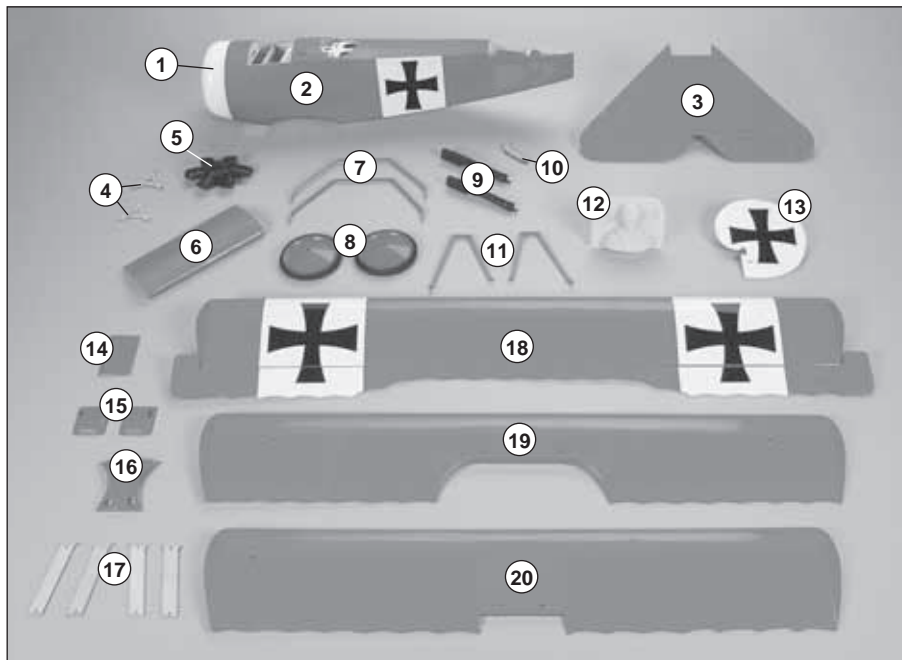
GPMA2985	Top Wing
GPMA2986	Middle Wing
GPMA2987	Lower Wing
GPMA2988	Fuse Kit
GPMA2989	Tail Surfaces
GPMA2990	Cabanes Set
GPMA2991	Interplane Set
GPMA2992	Wheel (2)
GPMA2993	Landing Gear
GPMA2994	Machine Gun Set
GPMA2995	Cowl Set
GPMA2996	Dummy Engine
GPMA2997	Pilot

## KIT INSPECTION

Before starting to build, take an inventory of this kit to make sure it is complete and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact **Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list.

**Great Planes Product Support:**  
**3002 N Apollo Drive, Suite 1**  
**Champaign, IL 61822**  
**Telephone: (217) 398-8970, ext. 5**  
**Fax: (217) 398-7721**  
**E-mail: [airsupport@greatplanes.com](mailto:airsupport@greatplanes.com)**

## KIT CONTENTS

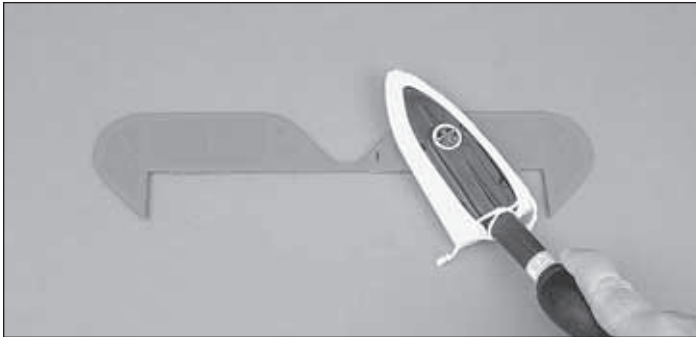


### Kit Contents

1	Cowl	12	Pilot Halves (2)
2	Fuse	13	Rudder
3	Stab with Elevator	14	Battery Cover
4	Motor Mount (2)	15	Aileron Servo Hatch (L&R)
5	Dummy Engine	16	ABS Wing Fairing
6	Sub-Wing	17	Wing Struts (4)
7	Landing Gear (2)	18	Top Wing Panel with Ailerons
8	Main Wheels (2)	19	Middle Wing Panel
9	Machine Guns (2)	20	Bottom Wing Panel
10	Tail Skid		
11	Cabanes (2)		

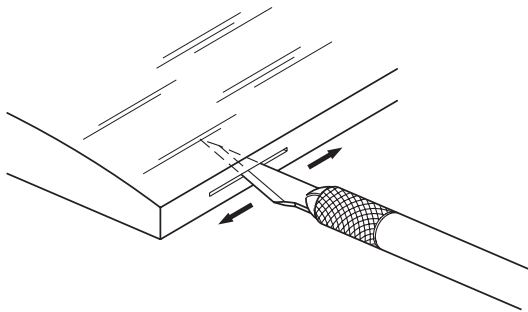
## PREPARATIONS

❑ 1. If you have not done so already, carefully remove the major parts of the kit from the box (wing, fuselage (fuse), tail parts, etc.) and inspect them for damage. If any parts are damaged or missing, contact **Product Support** at the address or telephone number listed on page 5.



❑ 2. Carefully separate the ailerons from the wing, the rudder from the fin and the elevator from the stabilizer (stab). If necessary, use a covering iron set on medium/high to **carefully** tighten the covering. Lay the control surface on a flat surface and apply pressure over sheeted areas to **thoroughly** bond the covering to the wood. **Hint:** Poke three or four pin holes in the covering over the open structure in the tail surfaces. This will allow the hot air to escape while tightening the covering.

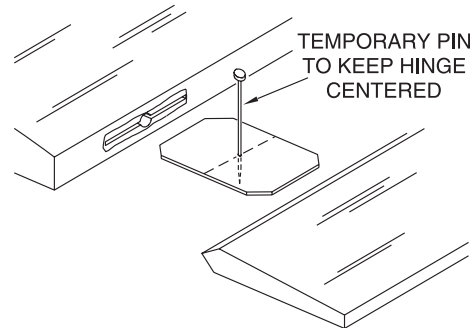
**WARNING: DO NOT OVER-SHRINK THE COVERING OR IT WILL CAUSE THE CONTROL SURFACES TO TWIST.**



❑ 3. Check the pre-cut hinge slots of all control surfaces using a hobby knife with a #11 blade. This will help when installing the hinges.

## ASSEMBLE THE WING

### Install the Ailerons



❑ 1. Test fit the right aileron to the top wing with three 5mm x 10mm [13/64" x 3/8"] hinges. If the hinges don't stay centered, stick a pin through the middle of the hinges to hold them in position while fitting the aileron to the wing.



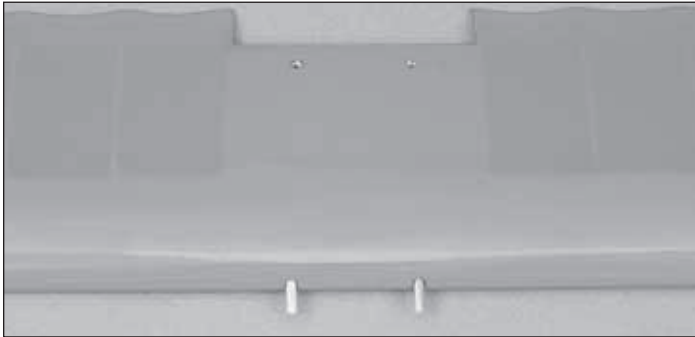
❑ 2. Remove any pins you may have inserted into the hinges. Install the aileron so there is a very small gap between the LE of the aileron and the wing. The gap should be small – just enough to see light through or to slip a piece of paper through.

❑ 3. Apply three drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has cured, test the hinges by pulling on the ailerons.

❑ 4. Repeat steps 1 to 3 for the left aileron.

## ASSEMBLE THE FUSE

### Mount the Bottom Wing



❑ 1. Locate two of the 3mm x 24mm [1/8" x 15/16"] dowel rods and insert them into the bottom wing as shown, so that only about 9mm [11/32"] sticks out. Secure them with medium CA.

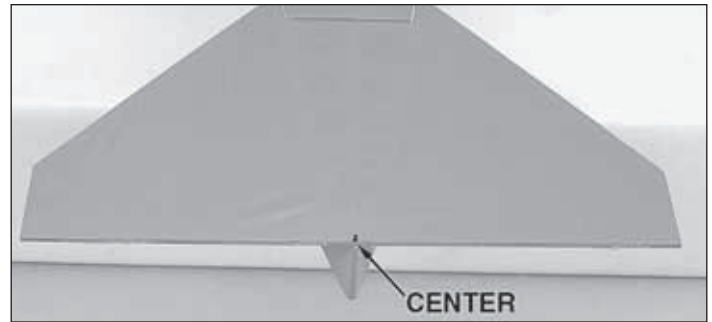


❑ 2. Test fit the bottom wing to the fuse and secure it with two 3mm x 24mm [1/8" x 15/16"] machine screws and 3mm [1/8"] washers. The flat side of the wing is the bottom.

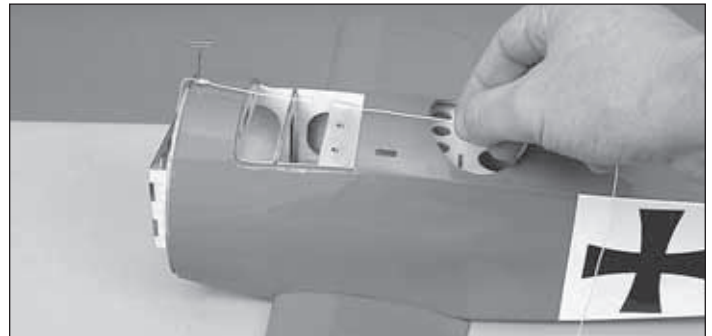
### Mount the Stab & Fin



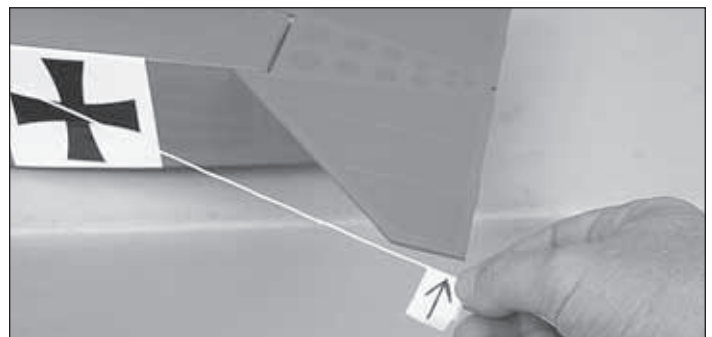
❑ 1. Using a sharp hobby knife, remove the covering from the stab cut-out at the aft end of the fuse.



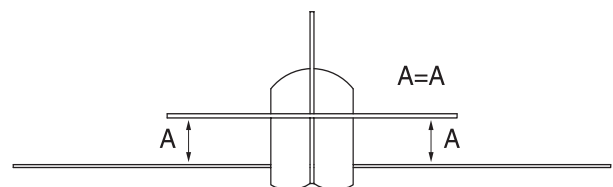
❑ 2. Mark the center of the TE of the stab. Place the stab onto the stab saddle.



❑ 3. Stick a T-pin into the center of the top of the firewall. Tie a small loop in one end of a 900mm [35"] piece of non-elastic string such as K&S #801 Kevlar thread. Slip the loop in the string over the T-pin.




❑ 4. Fold a piece of masking tape over the other end of the string and draw an arrow on it. With the stab centered on the fuse and the TE of the stab flush with the aft end of the fuse, slide the tape along the string and align the arrow with one tip of the stab. Swing the string over to the same position at the other end of the stab. If the arrow doesn't align with the tip, adjust the stab and the arrow slightly and check both tips again. Adjust the stab until the stab tips and the TE are centered.



❑ 5. View the stab from approximately 3m [10'] behind the plane. Check that the stab is parallel with the wing. If it is not, lightly sand the stab saddle until the stab is parallel with the wing.

❑ 6. Use a fine-point felt-tip pen to mark the outline of the fuse onto the bottom of the stab.

❑ 7. Remove the stab from the fuse. Use a sharp #11 hobby knife or the “*Expert Tip*” that follows to cut the covering from the stab just inside the lines you marked. Use care to cut only the covering and not the wood. Cutting the wood will weaken the stab and it may break in flight.



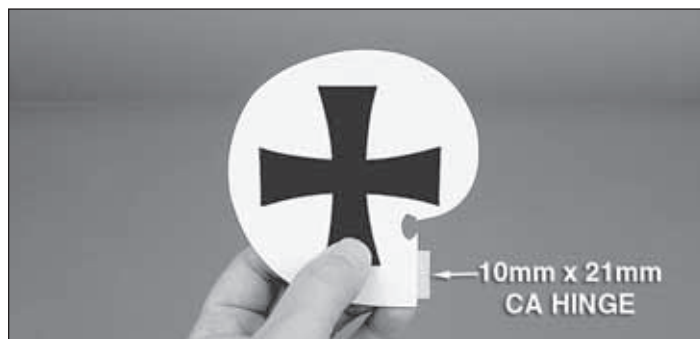
**HOW TO CUT COVERING FROM Balsa**

Use a 25-watt soldering iron to cut the covering from the stab. The tip of the soldering iron doesn't have to be sharp, but a fine-tip does work best. Allow the iron to heat fully. Use a metal straightedge to guide the soldering iron at a rate that will just melt the covering and not burn into the wood. The hotter the soldering iron, the faster it must travel to melt a fine cut. Allow the heat to melt the covering. Do not apply much pressure or the wood may be damaged. Peel off the covering.

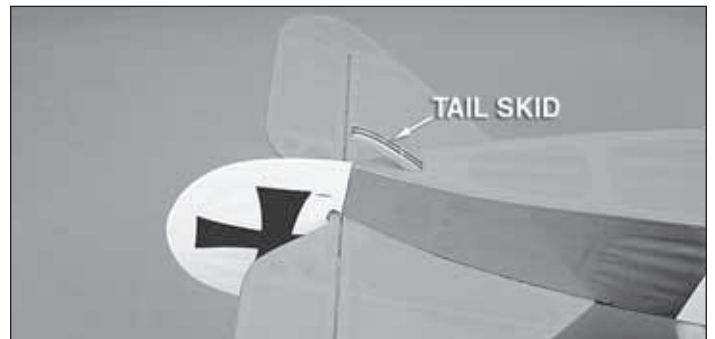
❑ 8. Reinstall the stab onto the fuse. Use the string method to align the stab and glue it in place with thin CA.



❑ 9. Temporarily attach the elevator to the stab with four CA hinges. **IMPORTANT:** There is a left and right side to the elevator. The bottom, right side of the elevator has a small slot for the elevator control horn. **Be sure the elevator half with the slot is on the bottom, right side of the fuse.** Use T-pins to hold the CA hinges centered in the elevator as you did when installing the ailerons on the Top wing. Apply 3 drops of thin CA on the top and bottom of each hinge.



❑ 10. Install the 10mm x 21mm [3/8" x 13/16"] CA hinge in the rudder and test fit it into the rear of the fuse. Adjust the rudder so that the bottom is even with the bottom of the fuse. Use a small modeling square to make sure that it is perpendicular to the stab. Apply 3 drops of thin CA on each side of the hinge.



❑ 11. Test fit the tail skid at the rear of the fuse. When satisfied with the fit, attach the tail skid to the bottom of the fuse using medium CA.

## RADIO INSTALLATION

### Install the Motor & ESC

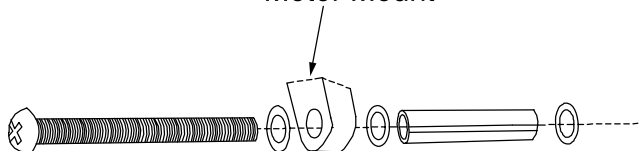
**Note:** You will need to have your motor battery charged later in this section. We recommend that you start charging it now so you do not have to wait for it to charge later. Make sure to closely follow the charging instructions for charging LiPo batteries. We also recommend that you remove the bottom wing for this procedure for better access to the inside of the fuse.



❑ 1. Use epoxy to join the two piece motor mount. Make sure all openings align.



### Motor Mount



❑ 2. Attach the RimFire motor to the back of the plywood motor mount with three 3mm x 6mm [1/8" x 15/64"] machine screws. Apply a drop of threadlocker on the threads of the machine screws. Insert each of three 3mm x 30mm [1/8" x 1-3/16"] machine screws through a 3mm [1/8"] washer, the outer holes of the motor mount, another 3mm [1/8"] washer, a 17mm [21/32"] tube, and another 3mm [1/8"] washer as shown in the drawing. Apply a drop of threadlocker on the threads of each screw and install the motor mount to the firewall.



❑ 3. Cut a 20mm [3/4"] long piece of hook and loop material (not included). Glue the 20mm [3/4"] soft piece (loop side) to the back of the ESC. Glue the rough piece (hook side) to the side of the fuse, next to the battery tray. Insert the ESC into the battery door and through the cut-out just to the rear of the firewall and secure it in place by joining the hook and loop material. Route the servo lead into the wing opening area and the three motor leads out the front of the firewall.

❑ 4. Install a 3.5mm [9/64"] Bullet (male) to 2mm [5/64"] Bullet (female) connector adapter (GPMM3122) on each of the motor leads. Connect the motor leads to the ESC. Push the wires up into the fuse to prevent them from contacting the rotating motor case. Check the motor for proper rotation.



❑ 5. Cut another 20mm [3/4"] long piece of hook and loop material (not included) and glue the 20mm [3/4"] soft piece (loop side) to the back of the receiver. Glue the rough piece (hook side) to the top of the inside of the fuse on the ledge by the cockpit opening. Insert the receiver and secure it in place by joining the hook and loop material.

## Install the Linkages



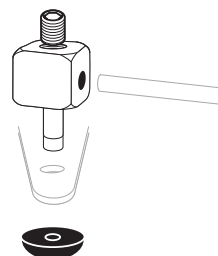
❑ 1. Insert a control horn into the rudder slot and elevator slot as shown. Use a hobby knife to enlarge the hole if necessary. Once satisfied with the fit, use CA to secure the control horns in place.

❑ 2. Insert the two 460mm [18"] wire pushrods into the pushrod exits at the rear of the fuse as shown below.



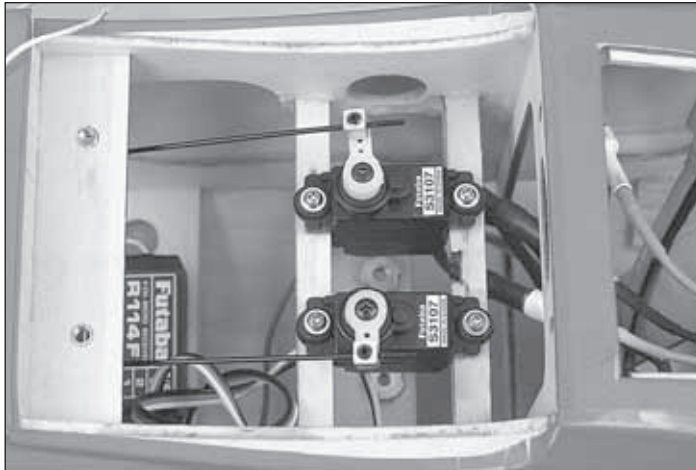
❑ 3. Insert the 90° bends of the 460mm [18"] pushrods into the outer hole of the control horns and secure them with the plastic retainers as shown. Place a drop of CA on the outer surface of the plastic retainers.

## Install the Servos



❑ 1. Install the servo mounting hardware and servo arms on the rudder and elevator servos. Trim off the unused servo

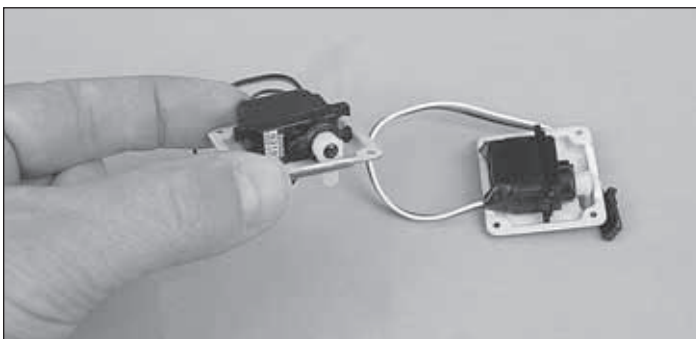
arms. Insert a screw-lock pushrod connector in the hole of each servo arm approximately 9mm [11/32"] from the center of the servo. Secure the screw-lock pushrod connector to the servo arm with a nylon retainer.



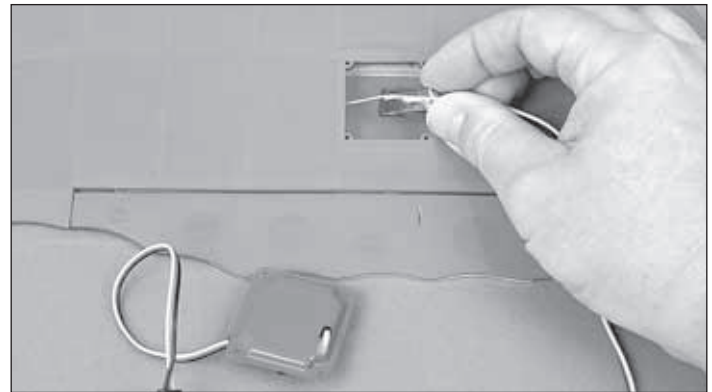
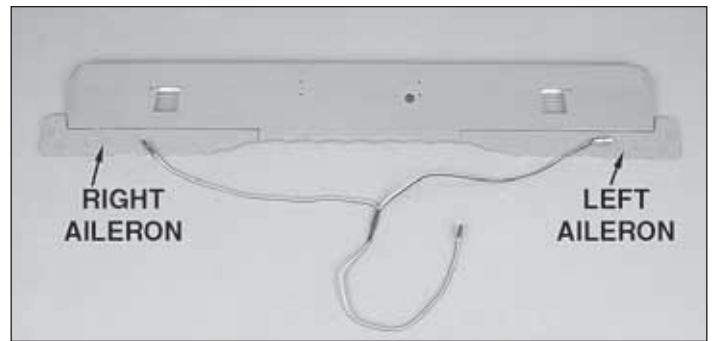
2. Position the servos on the servo rails, aligning them with the pushrod wires. Drill a 1.6mm [1/16"] hole through each of the mounting holes in the servo. Install and then remove a servo mounting screw into each of the holes you drilled. Apply thin CA into each hole to harden the threads. After the glue has hardened, plug the ESC, rudder and elevator servos into the receiver. Switch on the transmitter and then plug a battery pack into the ESC. Center the trims on the transmitter and re-center the servo arms on the servos if necessary so that the arm is perpendicular to the centerline of the servo. Insert the rudder and elevator pushrod wires into the screw-lock pushrod connectors and install the rudder and elevator servos on the servo rails. Use the hardware included with the servos to mount the servos to the rails.

3. Center the elevator control surface and tighten the set screw in the screw-lock pushrod connector against the elevator pushrod.

4. Follow the same procedure to secure the rudder pushrod.



5. Clean the cases of both aileron servos with denatured alcohol. Use CA to glue the aileron servos on the bottom of the aileron servo hatches so that the servo arm is centered in the opening. Cut off all of the unused servo arms as you did in Step 1. If you prefer, wrap electrical tape or heat-shrink tubing around the servos before gluing them to the servo hatch. This will allow the servos to be removed easily.



6. Inside the aileron servo bays of the top wing, there is a string that runs from one bay to the other. Plug the left aileron servo into a 610mm [24"] Y-harness and tie the string around the right aileron servo plug. Be sure to secure the left aileron servo connection with heat-shrink tubing.

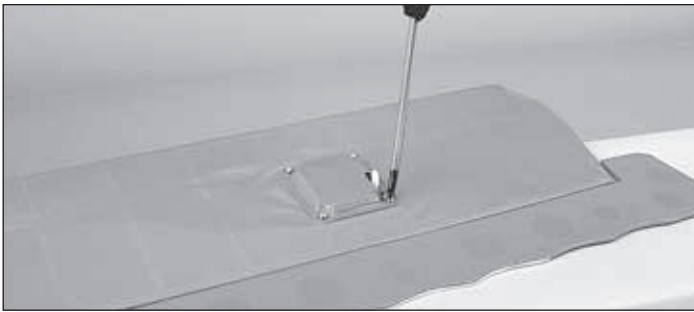


**TIP:** After tying the string to the right aileron servo plug, use tape to keep the string and plug headed in the same direction. This accomplishes two things; it keeps the plug from doubling back over itself and keeps the string securely fastened to the plug.

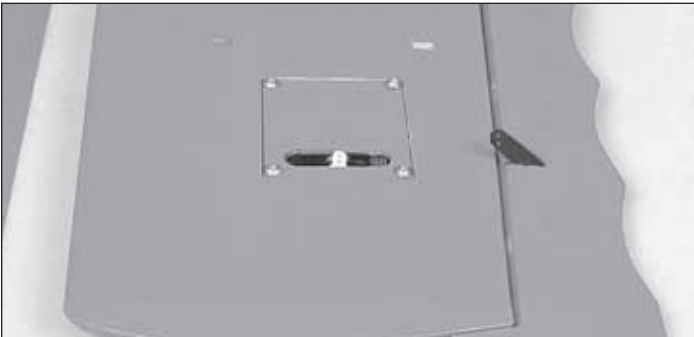
7. Carefully pull the other end of the string until the Y-harness is near the small opening near the center of the top wing. **Note:** Standard size servo connectors have to be worked through the wing slowly and carefully so as not to damage the structure of the wing. Be patient. This can be a rather long step.

8. Carefully use a bent paper clip or some type of grasping device to carefully pull out the connector for the receiver. Leave the right aileron servo connector tied to the string.

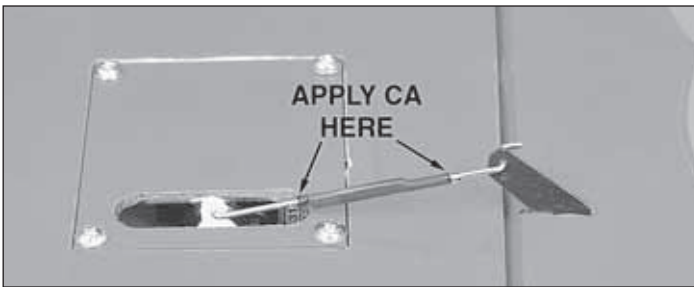
9. Continue pulling the string until the right aileron connector enters the right aileron bay. Disconnect the string and plug in the right aileron servo. Secure the connection with heat-shrink tubing.



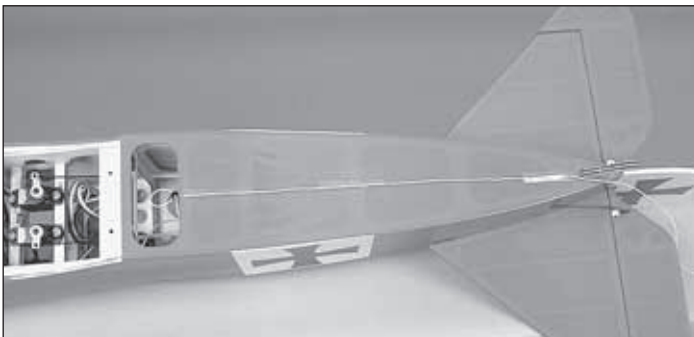
❑ 10. Secure each aileron servo hatch to the wing with four 2mm x 6mm [5/64" x 15/64"] self-tapping washer head screws.



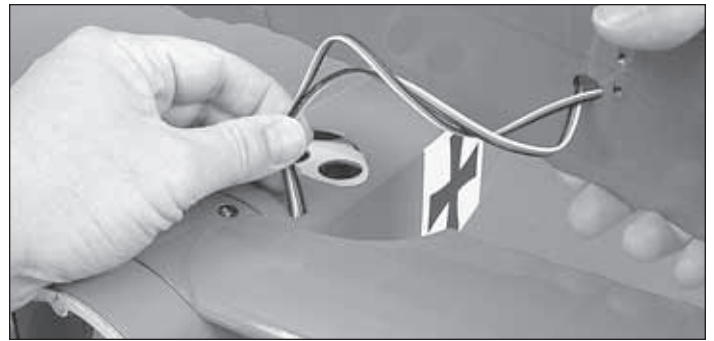
❑ 11. Test fit the control horns into the small rectangular holes along the LE of the bottom of each aileron as shown. When satisfied with their fit, CA them in place as shown.



❑ 12. Install one 35mm [1-3/8"] aileron pushrod in the outer hole of the aileron servo arm and another in the outer hole of the aileron control horn. Slide one of the included pieces of heat-shrink tubing over the pushrods. With the radio system on and the aileron servo trim lever centered, shrink the heat-shrink tubing over the pushrods and apply a couple of drops of thin CA to the tubing. **Note:** A hot soldering iron works great for shrinking the heat-shrink tubing. Place the top wing aside for the time being.



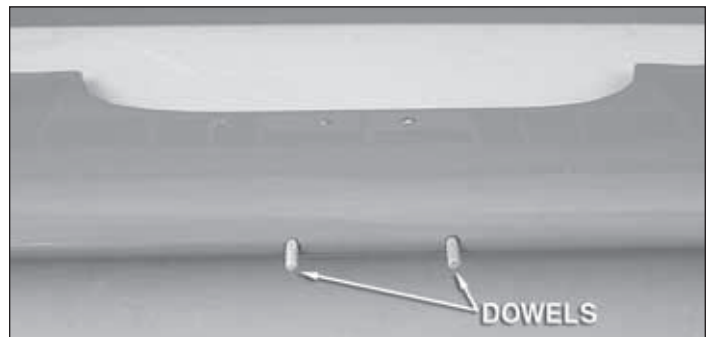
❑ 13. Make a small hole in the bottom sheeting. Route the antenna out of the hole and tape it to the bottom of the fuse with clear tape.



❑ 14. Run the Y-harness receiver plug from the top wing through the slot on the top of the fuse and plug it into the appropriate receiver channel. Re-install the bottom wing.

## FINISH THE MODEL

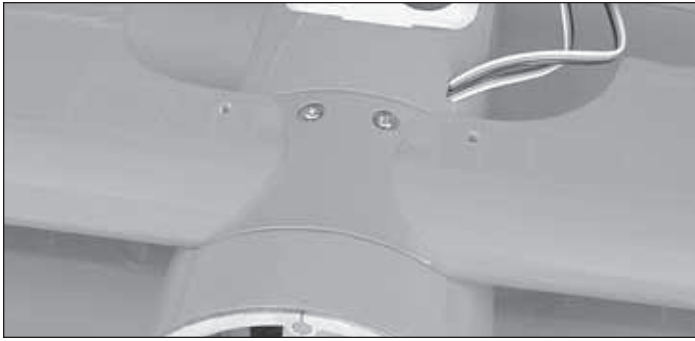
### Install the Middle Wing



❑ 1. Locate the two remaining 3mm x 24mm [1/8" x 15/16"] dowel rods and insert them into the middle wing as shown, so that only about 9mm [11/32"] sticks out. Secure them with medium CA.

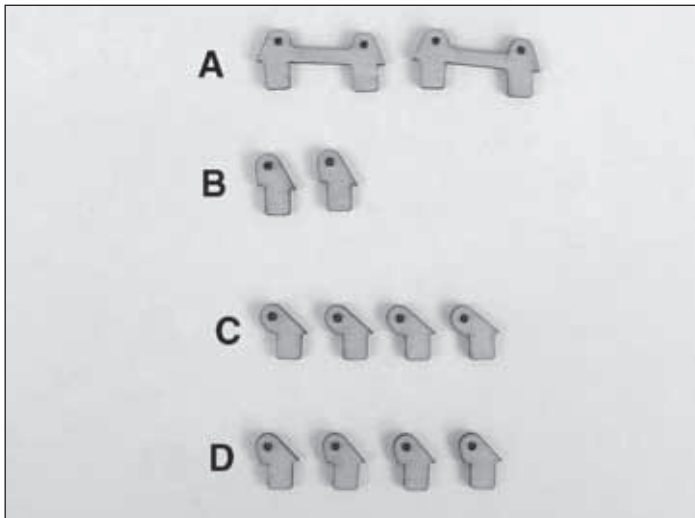


❑ 2. Place the middle wing on the wing saddle as shown and secure it with two 3mm x 24mm [1/8" x 15/16"] machine screws and 3mm [1/8"] washers. The flat side of the wing is the bottom.



❑ 3. Locate the ABS wing fairing. Trim the front and back as needed for a good fit. Use medium CA to secure it in place as shown.

**Install the Top Wing**



❑ 1. Gather the 12 strut mounts together and carefully study the photo above. The differences are fairly obvious but to avoid confusion, arrange them as they are in the photograph and mark the tab of each set according to the photo.



❑ 2. Grab the two strut mounts that you marked "A" and insert them into the pockets on the top wing as shown. They are designed to fit only one way. If you observe a large gap between the wing and strut mount, remove it and try it the other way. **DO NOT** glue them into place at this time.



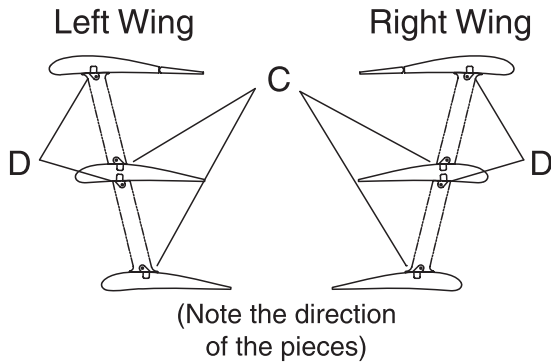
❑ 3. Grab the two strut mounts that you marked "B" and insert them into the pockets on top of the middle wing as shown. **DO NOT** glue them into place at this time.



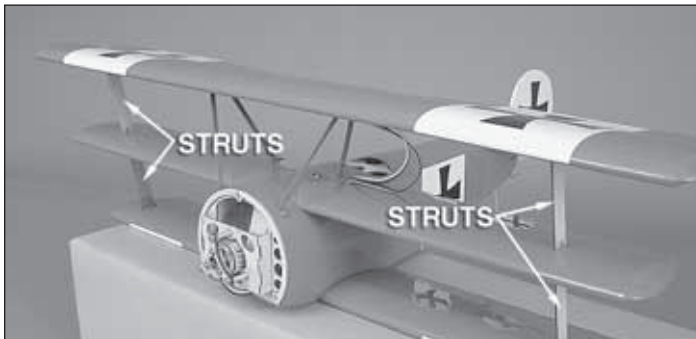
❑ 4. Locate the two cabanes and install them as shown using four 2mm x 6mm [5/64" x 15/64"] self-tapping screws as shown. Remove the screws and apply a couple of drops of thin CA into each hole to harden the threads. Re-install the cabanes.



❑ 5. Put the top wing in place atop the cabanes and secure it with four 2mm x 6mm [5/64" x 15/64"] self-tapping screws. Remove the screws and apply a couple of drops of thin CA into each hole to harden the threads. Re-install the top wing.

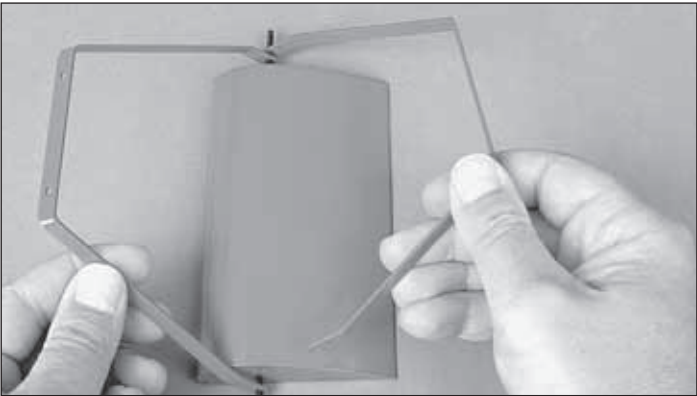


❑ 6. Study the above drawing carefully. It shows the direction and placement of the remaining 8 strut mounts and the four struts. Be sure to insert and remove a 2mm x 6mm [5/64" x 15/64"] self-tapping screw through each one and apply thin CA into each hole to harden the threads.

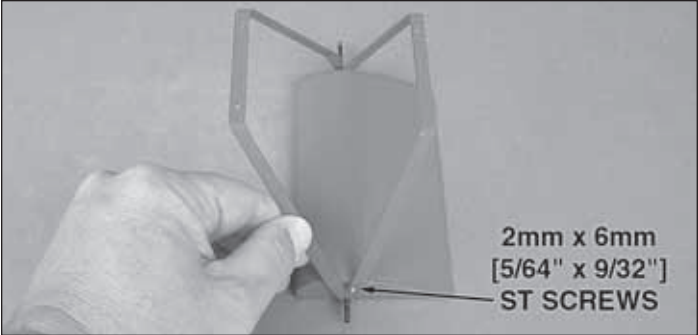


❑ 7. Use 2mm x 6mm [5/64" x 15/64"] self-tapping screws to secure the struts as shown.

**Install the Sub-Wing & Landing Gear**



❑ 1. Carefully thread the axle through the sub-wing and attach the rear landing gear strut followed by the front landing gear strut as shown. The rear strut is identified by a second hole near the axle hole.



❑ 2. Secure the sub-wing to the landing gear with two 2mm x 6mm [5/64" x 15/64"] self-tapping screws as shown. Remove the screws and harden the holes with thin CA. Then, reinstall the screws.



❑ 3. Attach the landing gear to the bottom of the fuse with four 2mm x 7mm [5/64" x 9/32"] self-tapping washer head screws. Remove the screws and harden the holes with thin CA. Then, reinstall the screws.



❑ 4. On each end of the axle, place a 3mm [1/8"] washer and 3mm [1/8"] nut with threadlocker, followed by another 3mm [1/8"] washer and the wheel. Secure the wheel in place with a 3mm [1/8"] washer and 3mm [1/8"] nut. Apply a drop of threadlocker to the nut.

## ***Install the Machine Gun & Dummy Engine***



❑ 1. Remove a 13mm x 13mm [1/2" x 1/2"] square of covering from the top of the fuse in front of the cockpit and use CA to attach the machine gun mount. Glue the machine guns in place as shown.



❑ 2. Use Medium CA to glue the dummy engine in place on the cowl as shown.

## ***Install the Cowl & Propeller***



❑ 1. The cowl is held on with three small but powerful magnets. Put the cowl in place so that the motor shaft is centered in the opening as shown.



❑ 2. Slide the prop shaft and collet onto the motor shaft. The collet has a tapered hole through it.



❑ 3. Install a 10" x 4.5" propeller. Install the prop washer and prop nut and tighten the nut securely.

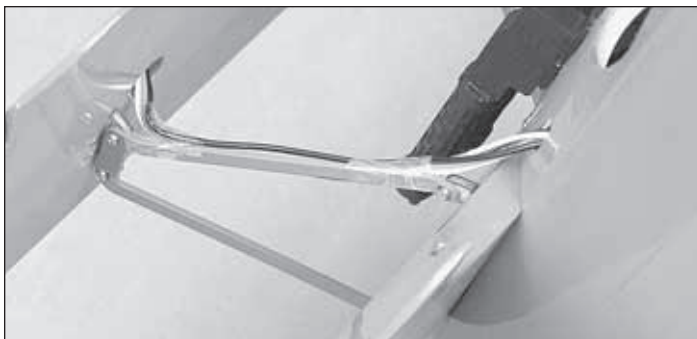
## ***Install the Battery***



❑ 1. Cut a 20mm [3/4"] long piece of hook and loop material (not included). Glue the rough piece (hook side) to the battery tray. Glue the 20mm [3/4"] soft piece (loop side) to the back of the battery pack. Insert the battery into the battery compartment and secure it in place by joining the hook and loop material.



❑ 2. Put the battery cover in place. Note that the lip slides into the fuse and the aft end is held on with two magnets.



❑ 3. Use clear tape to secure the aileron wire to the cabanes as shown and hide the wire with the included segment of red covering material.

### Assemble the Pilot Figure



❑ 1. Carefully trim the perimeter of the parts using a sharp hobby knife.



❑ 2. Sand each half using 150- or 220-grit sandpaper and a Great Planes Easy-Touch™ bar sander.



❑ 3. Carefully join the halves with thick CA and lightly sand the seam.

❑ 4. Paint to suit your taste.



❑ 5. A small piece of fabric has been provided as “scarf” material for the pilot. After the paint has dried, tie it in place as shown for a nice scale touch.

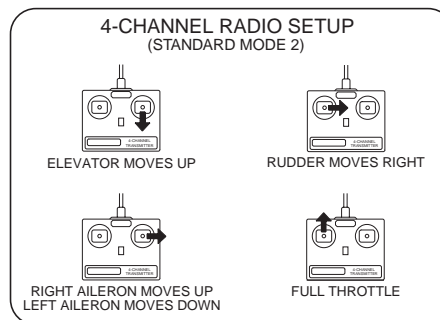
❑ 6. The pilot can be attached to the former at the back of the cockpit using medium CA. Before gluing, scrape the paint from the pilot where it will attach to the former.

## GET THE MODEL READY TO FLY

### Check the Control Directions

**Warning: Once the motor battery is connected to the ESC, stay clear of the propeller.**

❑ 1. Switch on the transmitter and connect the motor battery to the ESC. Move the throttle stick down to the off position. Switch on the ESC and center the trims.



❑ 2. Make certain that the control surfaces respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.

❑ 3. Follow the instructions included with your ESC to arm the motor. Make sure the propeller is turning in the correct direction. If not, refer to the ESC instructions to change the direction of rotation.

**Warning!** Once the battery is connected to the ESC, stay clear of the propeller even if the ESC has not been armed.

**Set the Control Throws**

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

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

These are the recommended control surface throws:

	High Rate	Low Rate
<b>ELEVATOR:</b>	3/8" [10mm] up 3/8" [10mm] down	1/4" [6.4mm] up 1/4" [6.4mm] down
<b>RUDDER:</b>	1" [25mm] right 1" [25mm] left	5/8" [16mm] right 5/8" [16mm] left
<b>AILERONS:</b>	3/8" [10mm] up 3/8" [10mm] down	1/4" [6.4mm] up 1/4" [6.4mm] down

**IMPORTANT:** The Fokker DR-1 EP 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-1 EP 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."

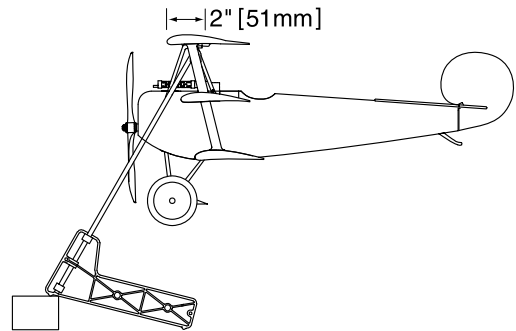
**Balance the Model (C.G.)**

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 motor, landing gear, motor battery, and the radio system.

❑ 1. Use a felt-tip pen or 3mm-wide [1/8"] tape to accurately mark the C.G. on the bottom of the top wing on both sides of the fuse. The C.G. is located 51mm [2"] back from the LE of the top wing.

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



❑ 2. If you are balancing the Fokker DR-1 EP ARF on the Great Planes CG Machine, you will find that the angle of the supports does not allow you to rest the plane forward enough to reach the balance point. To remedy this, simply place the front of the CG Machine on a raised surface (approx. 2" [51mm]). This will allow the plane to be placed further forward on the balancer.

❑ 3. If the tail drops, the model is "tail heavy" and the motor battery 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 motor battery and/or receiver must be shifted aft or weight must be added to the tail to balance. If possible, move the receiver forward or aft to minimize or eliminate any additional ballast required. If additional weight is required, use Great Planes "stick-on" lead (GPMQ4485). A good place to add stick-on nose weight is under the battery cover (don't attach weight to the cowl—it is not intended to support weight). Begin by placing incrementally increasing amounts of weight on the bottom of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, tail weight may be added by cutting open the bottom of the fuse and gluing it permanently inside.

**IMPORTANT:** If you found it necessary to add any weight, recheck the C.G. after the weight has been installed.



## ***Balance the Model Laterally***

- ❑ 1. With the wing level, lift the model by the prop shaft and the bottom of the fuse under the TE of the fuse. Do this several times.
- ❑ 2. If one wing always drops when you lift the model, it means that side is heavy. Balance the airplane by adding weight to the other wing tip. An airplane that has been laterally balanced will track better in loops and other maneuvers.

## **PREFLIGHT**

### ***Identify Your Model***

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

### ***Charge the Transmitter Batteries***

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

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

### ***Balance the Propellers***

Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only will motor mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver and servos.

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.

## ***Proper Care of Your Motor***

Using multiple battery packs to run the motor for successive flights may cause the motor to become excessively hot. We recommend at least a 10-minute motor cool-down period between flights.

### ***Ground Check***

Before the first flight, 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 30m [100'] 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 motor 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.

## **MOTOR & BATTERY SAFETY PRECAUTIONS**

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

Use safety glasses when running the motor.

Do not run the motor 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 run the motor.

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.

Always remove the LiPo (Lithium-Polymer) battery from the plane before charging.

Always use a charger designed to charge LiPo batteries for charging the LiPo flight battery.

Never leave the LiPo battery unattended while charging. If the battery becomes more than just warm, discontinue charging.

## AMA SAFETY CODE (excerpts)

Read and abide by the following excerpts from the Academy of Model Aeronautics Safety Code. For the complete Safety Code refer to *Model Aviation* magazine, the AMA web site or the Code that came with your AMA license.

### General

- 1) I will not fly my model aircraft in sanctioned events, air shows, or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight tested.
- 2) I will not fly my model aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.
- 3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.
- 5) I will not fly my model unless it is identified with my name and address or AMA number, on or in the model. **Note:** This does not apply to models while being flown indoors.
- 7) I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

### Radio Control

- 1) I will have completed a successful radio equipment ground check before the first flight of a new or repaired model.
- 2) I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.
- 3) At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in the front of the flight line. Intentional flying behind the flight line is prohibited.
- 4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.
- 5) **I will not knowingly operate my model within three miles of any pre-existing flying site except in accordance with the frequency sharing agreement listed** (in the complete AMA Safety Code).

- 9) Under no circumstances may a pilot or other person touch a powered model in flight; **nor should any part of the model other than the landing gear, intentionally touch the ground, except while landing.**

## CHECK LIST

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

- 1. Check the C.G. according to the measurements provided in the manual.
- 2. Be certain the motor battery and receiver are securely mounted in the fuse.
- 3. Extend your receiver antenna and make sure it has a strain relief inside the fuse to keep tension off the solder joint inside the receiver.
- 4. Balance your model *laterally* as explained in the instructions.
- 5. Make sure all hinges are **securely** glued in place.
- 6. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, cabane mounting screws, etc.).
- 7. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
- 8. Make sure that all servo arms are secured to the servos with the screws included with your radio.
- 9. Secure connections between servo wires and Y-connectors or servo extensions with vinyl tape, heat-shrink tubing or special clips suitable for that purpose.
- 10. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
- 11. Balance your propeller (and spare propellers).
- 12. Tighten the propeller nut.
- 13. Place your name, address, AMA number and telephone number on or inside your model.
- 14. If you wish to photograph your model, do so before your first flight.
- 15. Range check your radio when you get to the flying field.

## FLYING

The Fokker DR-1 EP ARF is a great-flying model that flies smoothly and predictably. The Fokker DR-1 EP 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.

**CAUTION (THIS APPLIES TO ALL R/C AIRPLANES):** If, while flying, you notice an alarming or unusual sound such as a low pitched “buzz,” this may indicate control surface *flutter*. Flutter occurs when a control surface (such as an aileron or elevator) or a flying surface (such as a wing or stab) rapidly vibrates up and down (thus causing the noise). In extreme cases, if not detected immediately, flutter can actually cause the control surface to detach or the flying surface to fail, thus causing loss of control followed by an impending crash. The best thing to do when flutter is detected is to slow the model **immediately** by reducing power, then land as soon as safely possible. Identify which surface fluttered (so the problem may be resolved) by checking all the servo grommets for deterioration or signs of vibration. Make certain all pushrod linkages are secure and free of play. If it fluttered once, under similar circumstances it will probably flutter again unless the problem is fixed. Some things which can cause flutter are; Excessive hinge gap; Not mounting control horns solidly; Poor fit of clevis pin in horn; Side-play of wire pushrods caused by large bends; Excessive free play in servo gears; Insecure servo mounting; and one of the most prevalent causes of flutter; Flying an over-powered model at excessive speeds.

## Takeoff

The Fokker DR-1 EP ARF has a tail skid rather than a conventional tailwheel. This prevents you from having complete control while trying to taxi. If your field has short grass or is paved, it is recommended that you set the airplane on the runway pointed into the wind to ready the plane for takeoff. If your field has very thick or tall grass you should consider hand-launching the airplane.

With the plane pointed into the wind, arm the motor as per the ESC instructions and slowly advance the throttle. Apply full power and launch the model into the wind with the wings level with the horizon. Gradually add “up elevator” when the plane picks up speed to begin a gentle climb. At this moment it is likely that you will need to apply more right rudder to counteract motor torque. Be smooth on the elevator stick, allowing the model to establish a gentle climb to a safe altitude before turning into the traffic pattern.

## Flight

For reassurance and to keep an eye on other traffic, it is a good idea to have an assistant on the flight line with you. Tell him to remind you to throttle back once the plane gets to a comfortable altitude. Take it easy with the Fokker DR-1 EP 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 battery power remaining, 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. The Fokker DR-1 EP ARF will perform loops, hammerheads, inverted flight and rolls.

When performing rolls you will find that the rolls are more of a barrel roll. It is recommended you are at a safe altitude before attempting the roll until you have become familiar with the characteristics of the airplane. Mind your battery power but use this first flight to become familiar with your model before landing.

## Landing

WWI planes like the Fokker DR-1 are notorious for their poor ground handling. Your model has been designed for maximum control without excessively deviating from scale lines. This said, the airplane is a little trickier on the ground than other models you may have flown. We have specified a high and low rate for the elevator. For normal flying you will find the low rate elevator is more than adequate. You might want to switch to the high rate for landing. The airplane has a tendency to nose over. The additional throw provided by the high rate elevator will help to minimize nose-overs when landing. The Fokker DR-1 EP ARF has lots of drag and slows down quickly when power is reduced. Practice the landing procedure with more altitude first, then try landing! To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward the runway (into the wind) keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the runway threshold. At this point it is best to keep up the air speed and the RPM of the motor, flying the plane to the ground. The plane will land best if you fly it to the ground landing first on the main wheels and allowing the tail to naturally settle as the speed decreases. Three point stall landings will also work but are trickier to do on a consistent

basis. 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. But, if your battery power is low, do not attempt to go around again. It is better to land long than risk stalling the plane by flying too slow because the motor battery is low on power.

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

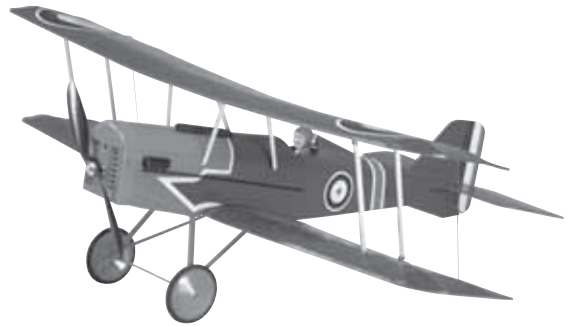
***Have a ball! But always stay in control and fly in a safe manner.***

**GOOD LUCK AND GREAT FLYING!**

This model belongs to:	_____
	Name
	_____
	Address
	_____
	City, State Zip
_____	
Phone number	
_____	
AMA number	

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

## OTHER ITEMS AVAILABLE FROM GREAT PLANES



### **ElectriFly S.E. 5a WWI Park Flyer EP ARF by Great Planes**

On your next trip to the park or flying field, give chase to the Red Baron's Flying Circus – behind the sticks of ElectriFly's all-wood S.E. 5a biplane! This prebuilt version of the famous RAF fighter comes ready to take advantage of the latest breakthroughs in electric power for long flight times and dogfight-winning maneuverability. It assembles quickly from prebuilt structures of laser-cut, film-covered balsa/ply, and includes easy-to-install cabanes, struts, and molded details for vintage warbird looks. Spanning just 34", the S.E. 5a can stay in one piece for transport in most vehicles. With its ability to turn sharply and change directions quickly, any open area can easily become the stage for exciting sport flying and mock combat! **GPMA1140**



### **ElectriFly Fokker D.VII EP ARF by Great Planes**

Like the full-size Fokker D.VII that challenged Allied air forces in WWI, this prebuilt park flyer is a spirited performer. And because the Fokker D.VII park flyer is an ARF, the high-quality, laser-cut wood parts assemble quickly and easily. Its prebuilt balsa/ply structures are precovered in a high-quality film. Lots of impressive details are included, from the vacuum-formed cowl and realistic machine guns to the scale-shaped landing gear and scale wheels. The cabanes and interplane struts come already painted and are shaped for easy installation and proper alignment. An out-runner brushless motor gives this model a great power-to-weight ratio and long flight times. The ElectriFly RimFire 28-30-950 motor (GPMG4560) was found to be ideal for the Fokker D.VII. **GPMA1141**