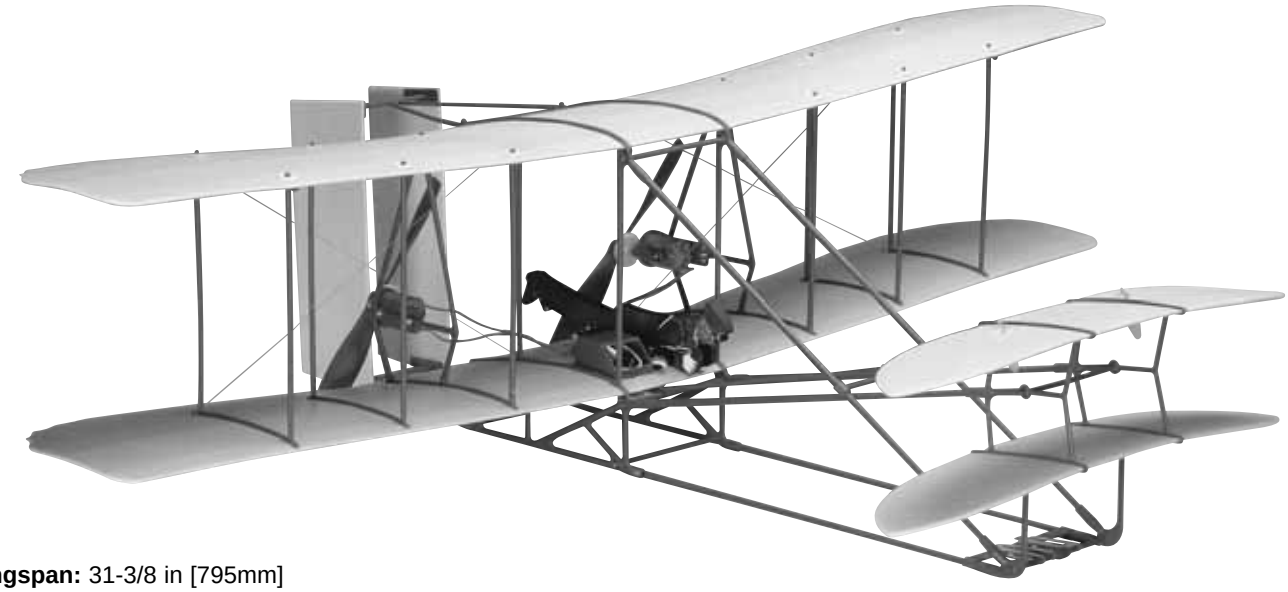
Wright Flyer

ALMOST READY TO FLY ELECTRIC POWERED R/C AIRPLANE

INSTRUCTION MANUAL

Park Flyers



Wingspan: 31-3/8 in [795mm]
Wing Area: 312 sq in [20.1 dm²]
Canard Area: 64 sq in [4.1 dm²]
Weight: 11.6 oz [330 g]
Wing Loading: 4.5 oz/sq ft [13.7 g/dm²]
Length: 24.5 in [622mm]
Radio: 3-channel with 2 micro servos

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 INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

GREAT PLANES® MODEL MANUFACTURING COMPANY

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

GPMZ0208 for GPMA1110 V1.0

TABLE OF CONTENTS

INTRODUCTION

Thank you for purchasing the Great Planes Wright Flyer ARF. The Wright Flyer ARF is a lightweight, fun scale model of the historic Wright Flyer, the first successful powered aircraft.

While the original Wright Flyer first flew in 1903, it was not until 1905 that the Wright brothers developed an improved version of the aircraft. This improved aircraft solved many of the problems found on the 1903 Flyer. This model is based on the 1905 Wright Flyer.

The Wright Flyer ARF is a slow flying model that is ideal for park flying. It is stable and easily maneuvered. The original Wright Flyer was not aerobatic and this model isn't either.

For the latest technical updates or manual corrections to the Wright Flyer visit the Great Planes web site at *www.greatplanes.com*. Open the "Airplanes" link, then select the Wright Flyer 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.

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

Attention: The product you have purchased is powered by a rechargeable battery. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste system. Check with your local waste officials for details in your area for recycling options or proper disposal.

This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

1. Although the Great Planes Wright Flyer is a light weight electric powered model, just the same as any R/C plane, it should still be flown with care. The Wright Flyer should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. If not assembled and operated correctly, the Wright Flyer could possibly cause injury to yourself or spectators and damage property.

2. You must assemble the Wright Flyer **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 the 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 already an experienced R/C pilot, you should fly the model only with the help of a competent, experienced R/C pilot.

Note: 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.

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 that follows:

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

ADDITIONAL ITEMS REQUIRED

Flight Equipment

The Wright Flyer requires a three-channel radio with two micro servos and a small receiver. Radio equipment designed for park flyer models can be used. The servos should have a minimum of 8 oz-in torque.

Suggested Servos:
(HCAM0090) CS-5, 16.7 oz-in torque
(HCAM0100) CS-15, 15 oz-in torque
(FUTM0037) S3103, 17.3 oz-in torque
(FUTM0041) S3106, 16.7 oz-in torque
(HRCM0984) HS-50J, 8.4 oz-in torque
(HRCM0981) HS-55J, 15 oz-in torque

Suggested Receivers:
(GPML0044) 4-channel FM, low band
(GPML0045) 4-channel FM, high band
(FUTL0442) 4-channel FM, low band
(FUTL0443) 4-channel FM, high band

low band - channels 11-35
high band - channels 36-60

Receiver Crystal:
(FUTL62**) for GPM low band
(FUTL63**) for GPM high band
(FUTL62**) for FUT low band
(FUTL63**) for FUT high band
**= desired channel

A 7-cell (8.4 volt) 300 mAh NiMH battery pack and speed control are included.

For charging the battery at the flying field, the Great Planes ElectriFly™ Peak Charger (GPMM3000) is recommended. The Great Planes ElectriFly Triton™ Computerized Charger (GPMM3150) is recommended for shop charging and discharging.

Building Supplies

In addition to common household tools and hobby tools, this is the list of items used to build the Wright Flyer. ***Great Planes Pro***™ *CA and Epoxy glue are recommended.*

- ❏ 6-minute Epoxy (GPMR6042)
- ❏ Hobby knife (HCAR0105)
- ❏ #11 Blades (HCAR0211)
- ❏ Double-sided foam tape (GPMQ4440, for mounting receiver)
- ❏ Sandpaper and sanding block
- ❏ Small Phillips screwdriver (#1)

IMPORTANT BUILDING NOTES

• Since the Wright Flyer is made mostly of foam, and CA adhesives commonly used to build R/C model airplanes dissolve foam, CA should not be used when gluing foam parts. Therefore, 6-minute epoxy, which is compatible with foam, is used for construction. Unless otherwise specified in the instructions, 6-minute epoxy is to be used for gluing all parts of the model together.

• For the strongest bond apply epoxy to **both** parts being joined.

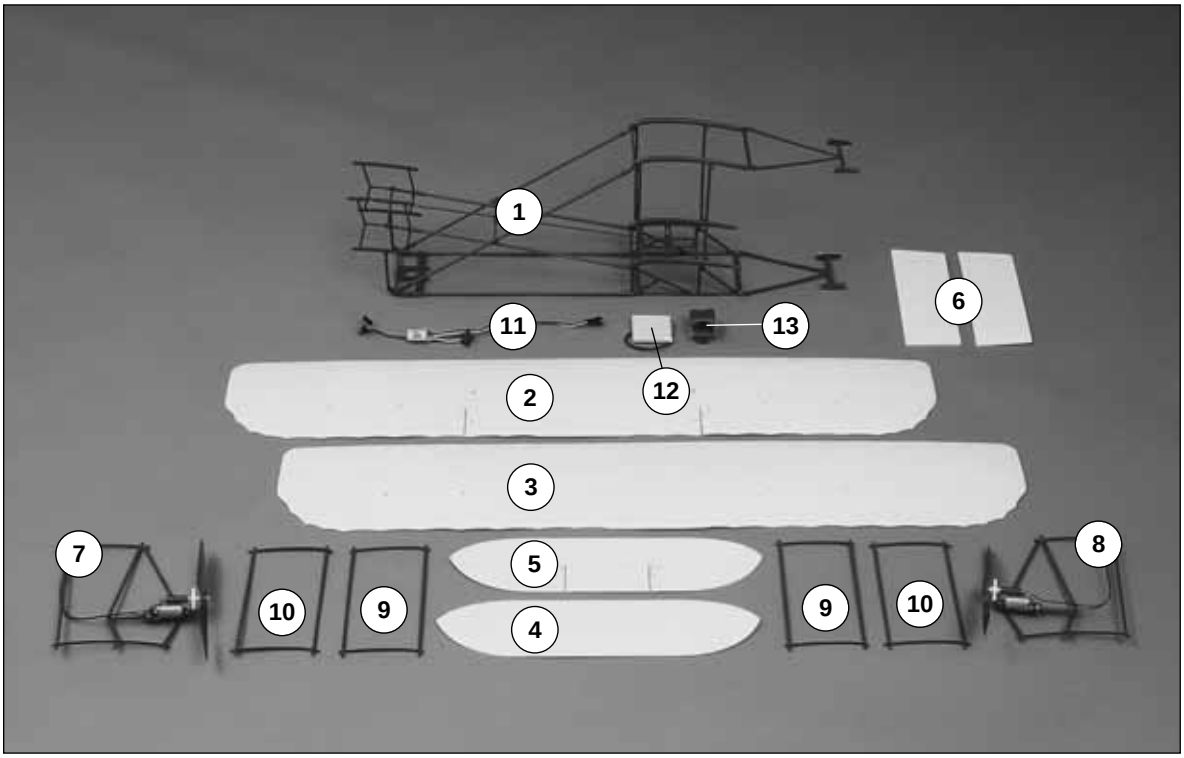
• **Photos** and **sketches** are placed **before** the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.

• The canard and wing incidence angles have been factory-built into this model and cannot be changed.

KIT CONTENTS

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 on this page.

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



Kit Contents (shown above)

1 Fuselage	8 Right Motor and Wing Support
2 Bottom Wing	9 Center Struts (2)
3 Top Wing	10 Outer Struts (2) with Notch
4 Bottom Canard	11 Speed Control
5 Top Canard	12 Battery Pack 300 mAh
6 Rudders (2)	13 Receiver Box
7 Left Motor and Wing Support	

Kit Contents (not shown)

(2) Long String	(1) 2-56 Hex Nut	(2) Plastic Bellcrank
(2) Short String	(1) 2-56 Clevis	(2) Plastic Bellcrank Standoff
(4) Nylon Control Horn	(1) 4-3/8" [111mm] Elevator Horn Wire	(1) Pilot Figure
(1) Nylon Torque Rod Horn	(2) 1-3/4" [44.5mm] Plastic Spacer	
(8) 2-56 x 3/8" [9.6mm] Screw	(2) Short Pushrod	
(1) Plastic Servo Cover	(2) Long Pushrod	
(2) #2 x 1/4" [6.4mm] Screw	(24) Plastic Strut Clips	

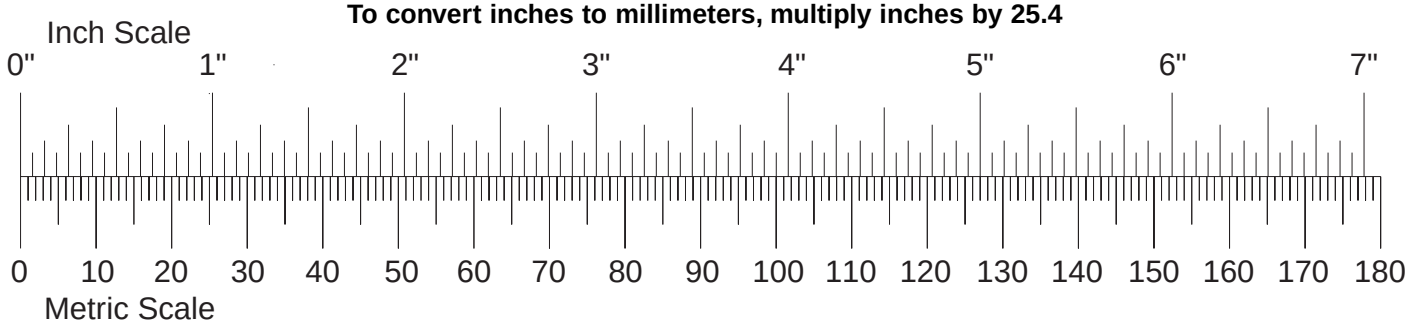
ORDERING REPLACEMENT PARTS

To order replacement parts for the Great Planes Wright Flyer 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. 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 **Product Support**.

Replacement Parts List

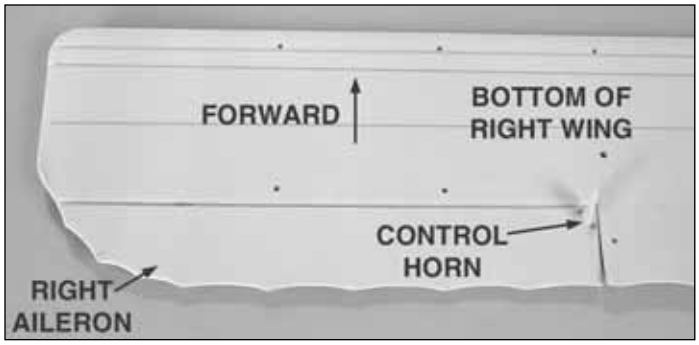
Order Number	Description	How to Purchase
	Missing pieces	Contact Product Support
	Instruction manual	Contact Product Support
	Full-size plans	Not available
GPMA2560	Wing Set (2)	Contact Your Hobby Supplier to Purchase These Items
GPMA2561	Fuselage	
GPMA2569	Stabilizer Set (2)	
GPMA2562	Rudder Support (2)	
GPMA2563	Rudder Set (2)	
GPMA2564	Outer & Center Wing Struts (4)	
GPMA2565	Inner Wing Struts w/Motor Mounts (2)	
GPMA2566	Motor Mounts (2)	
GPMG0293	Motor	
GPMA2567	Propeller	
GPMA2568	Strut Clip (24)	
GPMP1980	Speed Control	
GPMP0064	Battery Pack 300 mAh (8.4 volt) NiMH	

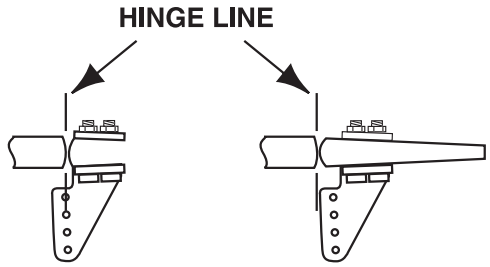
To convert inches to millimeters, multiply inches by 25.4



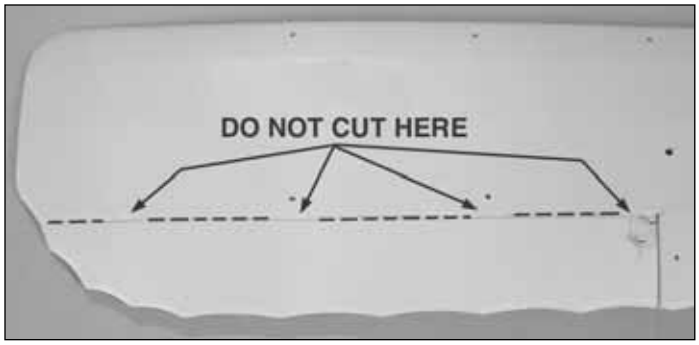
BUILDING INSTRUCTIONS

Install the Bottom Wing

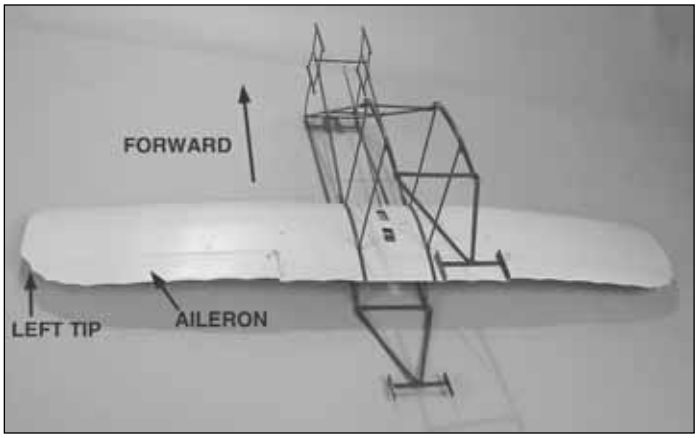




❏ 1. The above photo shows the bottom of the **bottom wing**. Install a nylon **control horn** on the bottom of the right aileron with two 2-56 x 3/8" [9.6mm] **machine screws** and the nylon **backplate**. Do not tighten the screws too much. The holes in the control horn for the clevis should face forward. Do not install a control horn on the left aileron until instructed to do so.



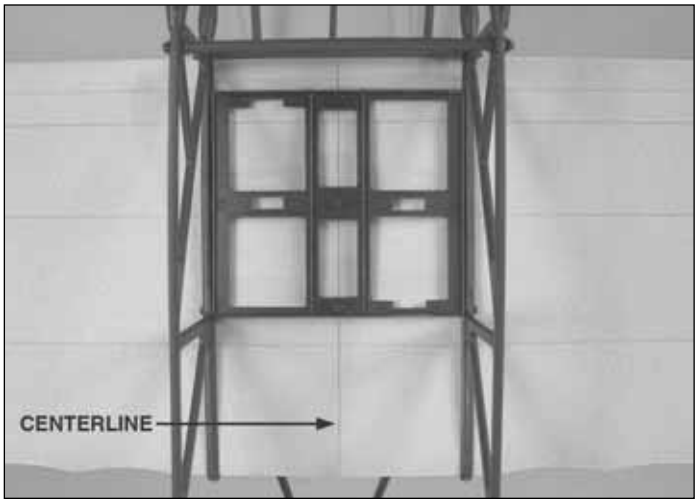
❏ 2. The aileron is self-hinged to the wing. Cut the foam material along the lines shown in the photo to allow the ailerons to move more freely. Cut the other aileron hinge in the same manner. **Note:** Only the bottom wing surface has operating ailerons.



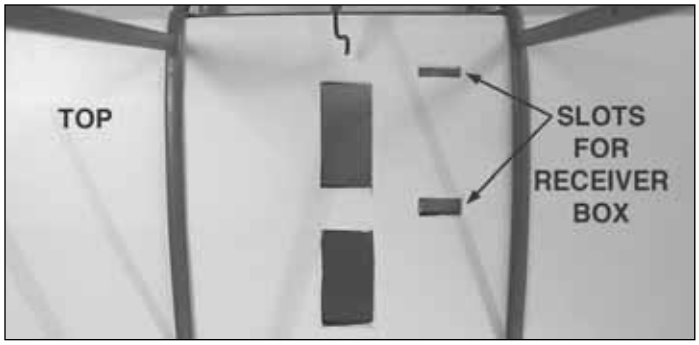
❏ 3. Starting with the left tip of the bottom wing, insert the wing into the **fuselage frame**. Note that the bottom of the fuselage structure is flat along the length of the fuselage. Remember that this is a canard model with the ailerons facing the rear of the model.

Caution: Be careful not to damage the foam wing as it is inserted into the fuselage.

❏ 4. Install a control horn on the bottom of the left aileron.



❏ 5. Make sure the wing is centered in the fuselage frame. Note in the photo that the centerline of the wing is aligned with the center of the servo openings.



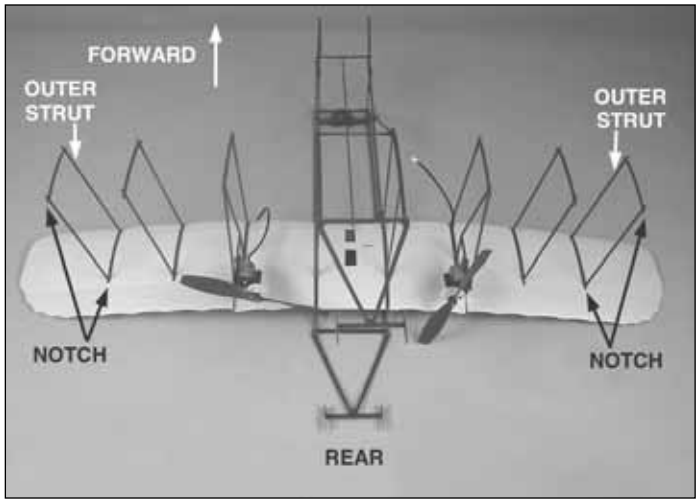
❑ 6. Cut the holes for the servos into the bottom wing. Use the fuselage frame as a guide. The photos above show the top and bottom of the wing.

❑ 7. Cut slots for mounting the receiver box, if you will be using it. These holes can be seen to the right of the servo holes in the top photo. (See page 11, step 1.)

Note: If your receiver is too large for the receiver box, use double-sided tape to hold the receiver in place.

Install the Top Wing

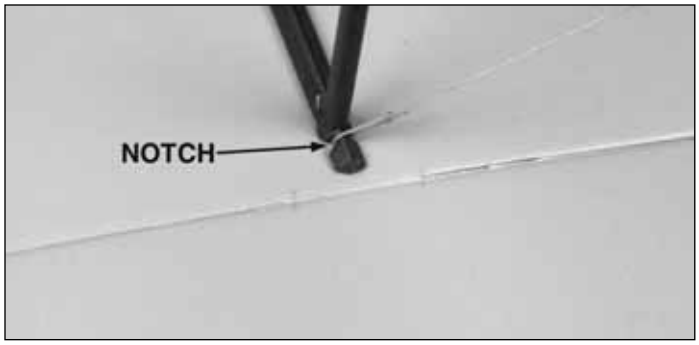
In the following steps the top wing will be installed with six struts that hold the two wings in position. There are three types of struts; one with a motor attached, one with notches in the rear end and one with no notches. In addition, the top and bottom of each strut has a curved airfoil shape. The more curved end of this airfoil faces the front of the model. It is important that these struts are installed correctly in the following steps.



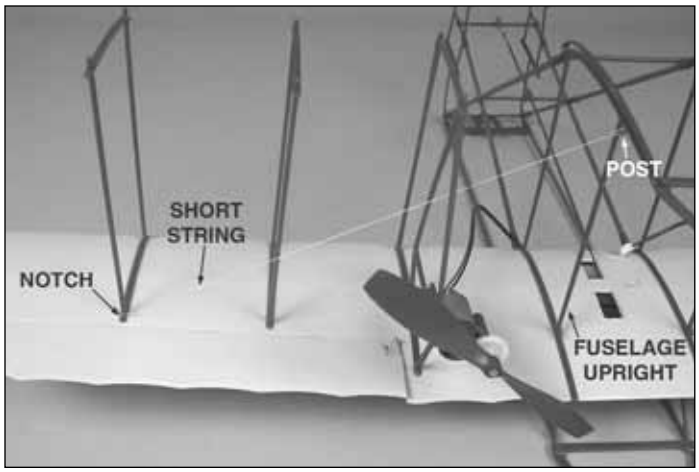
❑ 1. Install the struts in the bottom wing as shown in the photo above. Notice that the motors on the inner struts face the inside of the model. The outer struts have a notch in the rear edge at the top and bottom of the strut. This notch is used to attach a string in a later step. This notch can be seen in the photo for step 3.

❑ 2. Before completing this step refer to steps 3, 4 and 5 to be sure that the struts are installed correctly and that the **notches** in the outer struts are aligned so that the strings will align with the **posts** on the fuselage. Once you are certain the struts are installed correctly, **use a white plastic strut clip** to hold the ends of the struts to the wing. Two clips are required for each strut.

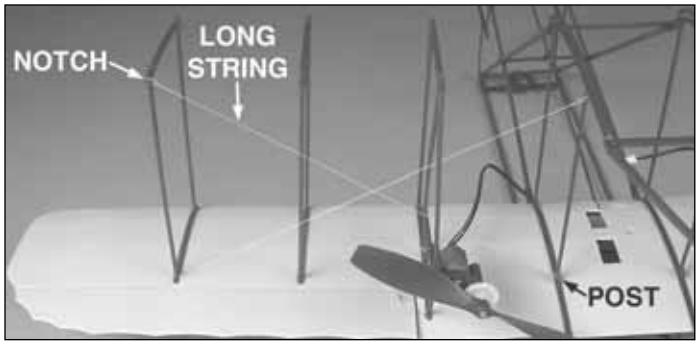
Note: The clips can be hard to install. Hold the strut carefully with one hand while pressing the clip onto the end of the strut with the other hand. Use the tips of two fingers near the center of the clip and push the clip while rocking it into place. Do not use a tool. If you slip you could poke a hole in the wing.



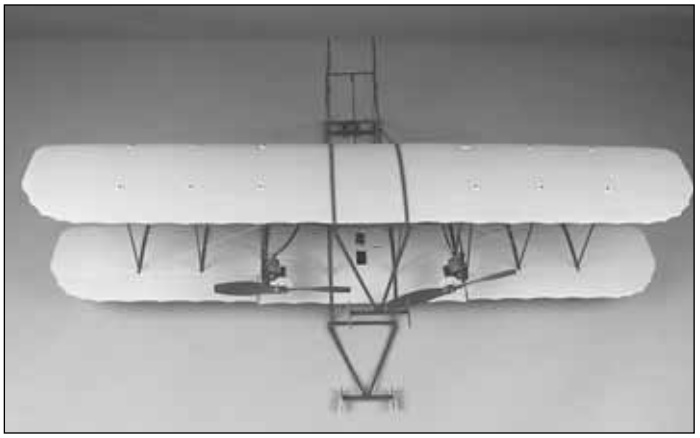
❏ ❏ 3. The above photo shows the outer strut on the left bottom wing where it attaches to the wing at the trailing edge. Notice the notch in the strut. Locate a **short string** and slide one end under the rear edge of the strut and onto the notch. The other end of the string will be attached in the next step.



❏ ❏ 4. Guide the other end of the string through the motor strut and onto the post at the top of the **fuselage upright**. In the same manner, attach the other short string to the right side of the wing.



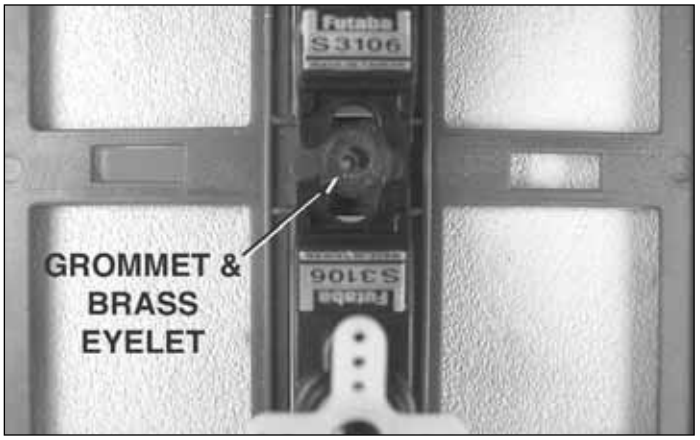
❏ ❏ 5. Using the same technique, install a **long string** from the notch at the top of each outer strut to the post at the bottom of the fuselage uprights on the left and right sides of the wing.



❏ 6. Install the top wing by sliding it into the slots in the top of the fuselage uprights. Be careful to guide it along the top of the wing struts. When the top wing is in place, check that it is centered in the fuselage. The bottom of the wing has the centerline marked on it.

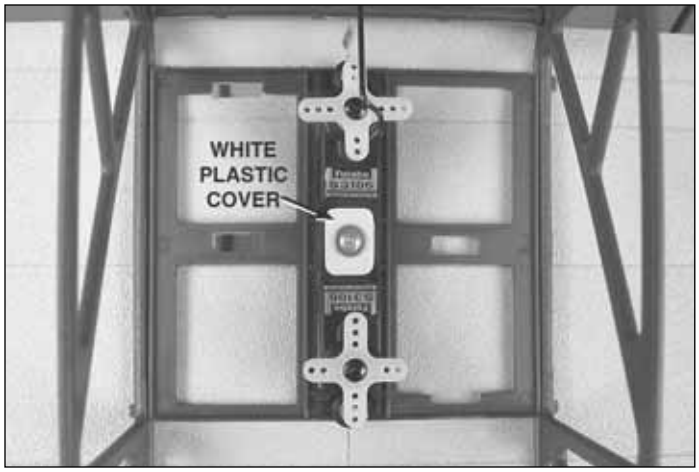
❏ 7. Insert the tops of the wing struts in the proper holes in the top wing. Once certain the top wing is installed correctly, use white plastic strut clips to hold the ends of the struts to the wing. Two clips are required for each strut.

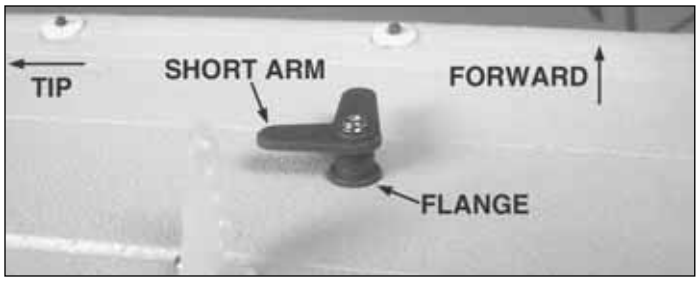
Install the Servos



❏ 1. Install the servos in the fuselage frame from the bottom of the bottom wing using the grommets, brass eyelets and screws supplied with your servos.

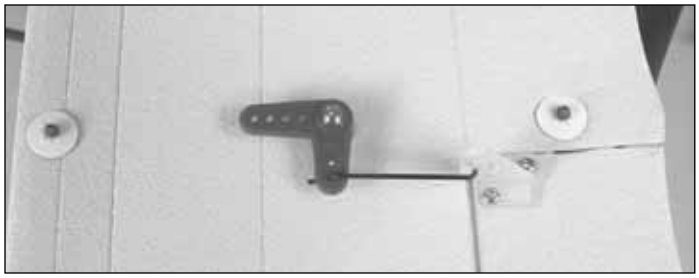
Note: Where the two servos meet, you will be able to use only one grommet, brass eyelet and screw. A white plastic **cover** is included to hold the grommet and servos in place (as shown in the photo that follows).



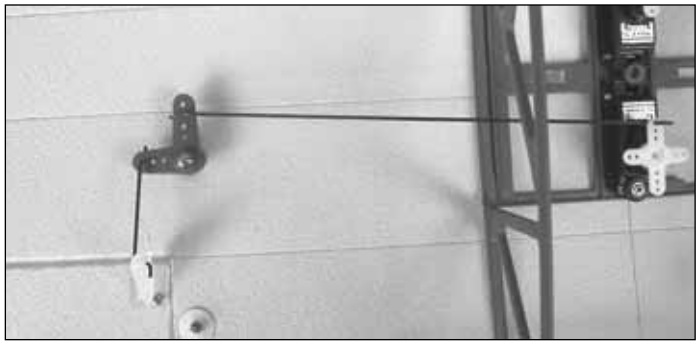


❏ 2. Install a plastic **bellcrank** on the **right** motor strut post extending below the bottom of the bottom wing, using a plastic **standoff** and 2mm x 8mm **wood screw**. If required, enlarge the hole in the bellcrank with a 5/64" [2mm] drill bit so that the screw slides freely into the hole.

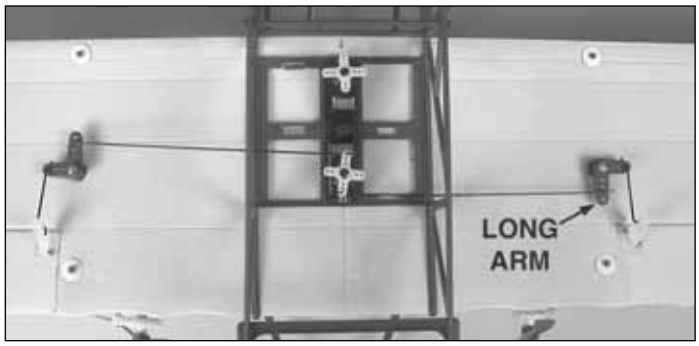
Install the bellcrank with the flange on the plastic standoff against the wing. The long arm of the bellcrank should face forward and the short arm should face the wing tip. Do not install the screw until the next step.



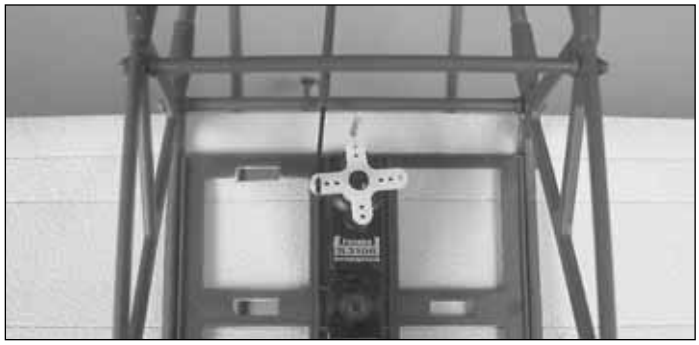
❏ 3. Install a short **aileron pushrod wire** connecting the short arm of the bellcrank to the aileron control horn. The wire should be inserted in the outer hole on the bellcrank and the second hole closest to the wing on the control horn. Install the 2mm x 8mm screw on the bellcrank. Do not overtighten the screw.



❏ 4. Install a long **aileron pushrod wire** connecting the long arm of the bellcrank to the servo arm. The wire should be inserted in the second hole from the end on the bellcrank and the outer hole on the longest arm of the servo horn. Do not install the screw holding the servo horn to the servo until the next step.

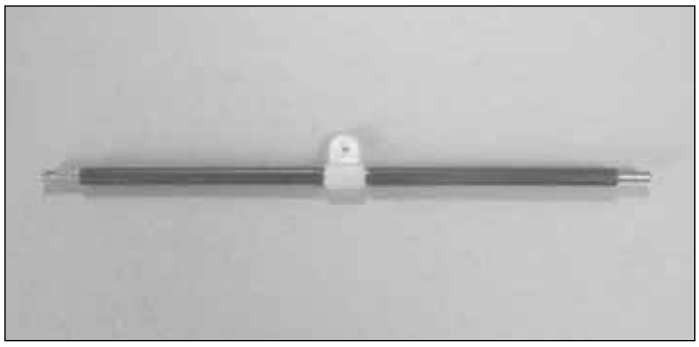


❏ 5. In the same manner, install the left aileron bellcrank, plastic standoff, 2mm x 8mm wood screw and pushrods to the left aileron. The long arm of the bellcrank should face aft as shown in the photo above. Install the servo horn on the servo and secure it with the horn screw supplied with the servo.

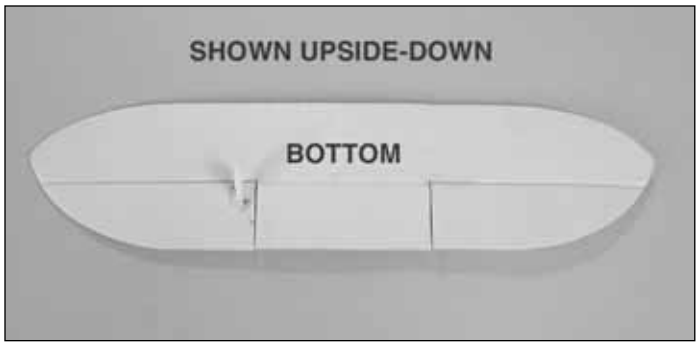


❏ 6. Insert the **elevator pushrod** into the outer hole on the longest arm of the elevator servo horn. Install the servo horn on the servo and secure it with the horn screw supplied with the servo.

Install the Canards

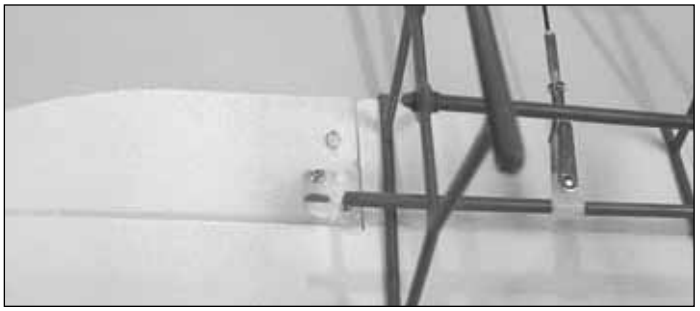


❏ 1. Assemble the elevator horn linkage. Slide a nylon **torque rod horn** onto the 1/16" x 4-3/8" [1.6 x 111mm] **unthreaded wire**. Slide a 1-3/4" [44mm] brown **plastic tube** onto the wire on each side of the torque rod horn.

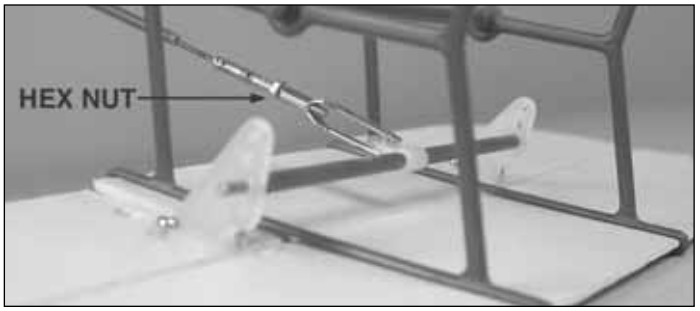


❏ 2. The **top canard** has the **elevators** molded into it. Install a nylon **control horn** on the bottom of the right elevator with two 2-56 x 3/8" [9.5mm] **machine screws** and the nylon **backplate**. Do not tighten the screws too much. The holes in the control horn for the clevis should face forward. **Do not** install a control horn on the left elevator. **Note:** Before mounting the horn, drill out the two middle clevis holes in the control horn with a 5/64" [2mm] drill bit.

❏ 3. Insert the top canard into the fuselage frame. The photo shown above and the following photo have been taken from the bottom of the model. The elevator faces the rear of the model.



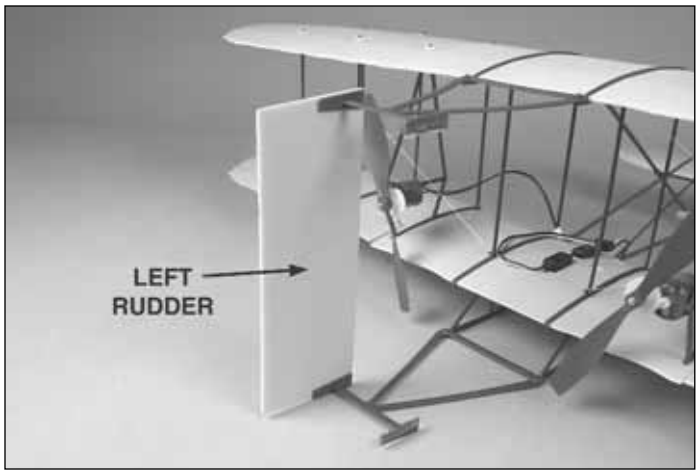
❏ 4. Insert one end of the elevator horn linkage into the right elevator horn already mounted on the elevator. It should be inserted into the second hole closest to the elevator. Insert the other end of the elevator horn linkage into the same hole of another nylon control horn. Install this control horn on the left elevator with two 2-56 x 3/8" [9.5mm] machine screws and a nylon backplate.



❏ 5. Thread a 2-56 **hex nut** and 2-56 metal **clevis** onto the elevator pushrod already installed in the fuselage frame. Connect the clevis to the elevator control horn. Be sure to tighten the hex nut against the clevis after it has been adjusted properly.

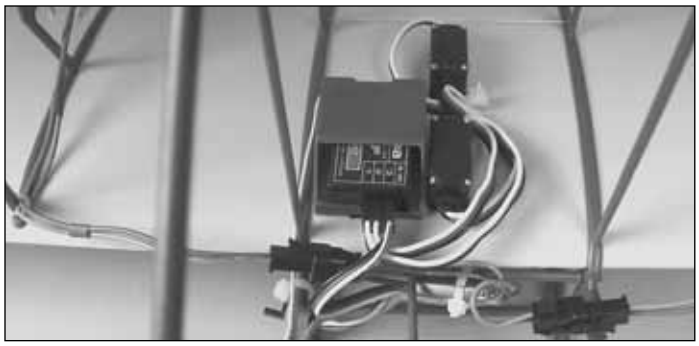
❏ 6. Insert the bottom canard into the fuselage frame. Before installing it, check that the shape and alignment will match the top canard. **Note:** Only the top stabilizer has operating elevators.

Install the Rudders



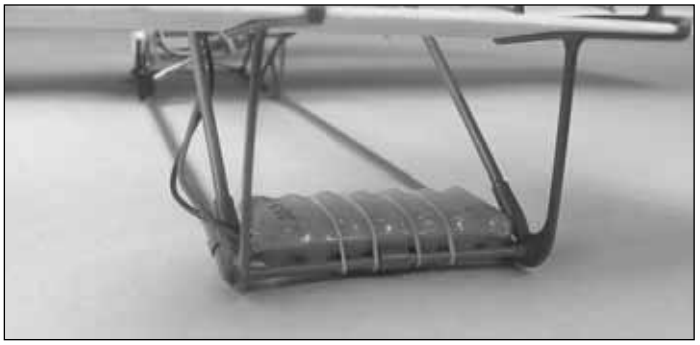
❏ 1. The rudders can be attached with the included double-sided tape or with 6-minute epoxy. Do not use CA adhesive as it will damage the foam rudder. The double-sided tape will allow the rudder to pop off if it hits an object. The above photo shows only the left rudder in place.

Final Assembly

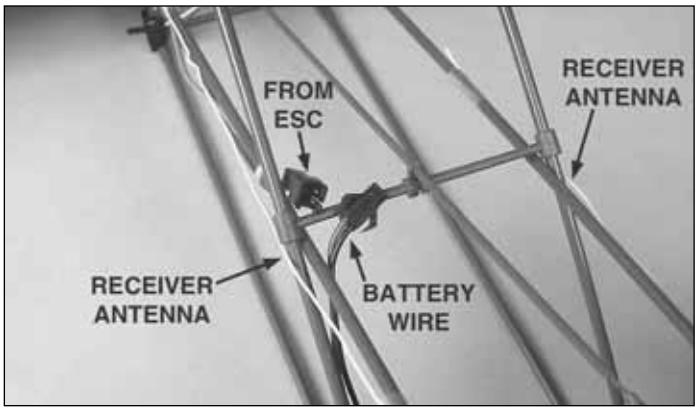


1. Install the **receiver box** on the top of the bottom wing. Install your receiver in the receiver box. The above photo shows a Futaba® R114F receiver. For this installation it was necessary to trim some of the plastic to clear the servo leads.

❏ 2. The Electronic Speed Control (ESC) can be secured to one of the fuselage cross braces with a small nylon tie-wrap. Plug the motor wires into the ESC. Note that the motor wires have also been secured with tie-wraps. The switch can be held in place with 6-minute epoxy or thick CA.



❏ 3. Secure the battery in the battery holder under the canards with the rubber bands provided.



❏ 4. Route the battery wire to the wire from the ESC, which has been secured with a tie-wrap.

❏ 5. The receiver antenna can be routed along the sides of the fuselage, around the front and secured with clear tape.

GET THE MODEL READY TO FLY

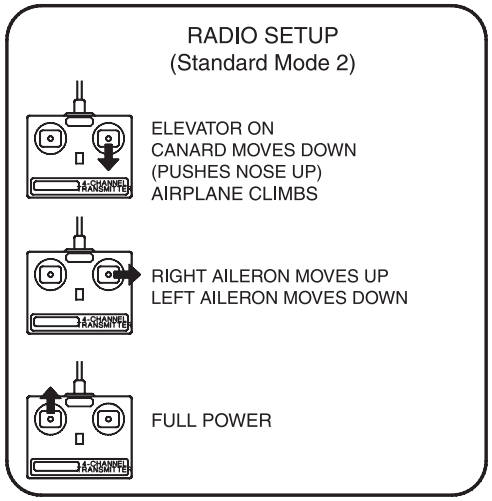
Check the Control Directions

IMPORTANT: Whenever connecting the battery, always hold onto the fuselage incase the motors accidentally receive power and the propellers turn.

❏ 1. Turn on the transmitter, connect the battery to the speed control and turn the receiver on. Center the trims on the transmitter. If necessary, remove the servo horns from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo horns.

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

❏ 3. Be certain the ailerons, elevator and motors respond in the correct direction as shown in the diagram that follows. If any of the controls respond in the wrong direction, use the reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.



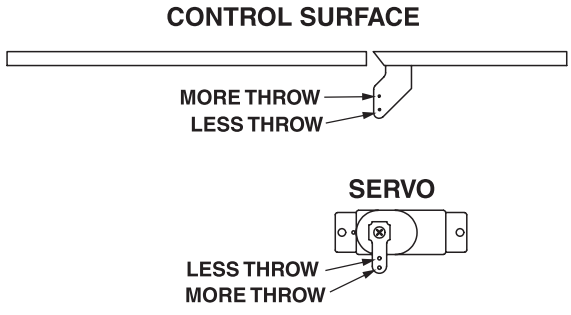
IMPORTANT: Remember that this model is equipped with canards. When the elevator stick is pulled back toward you, the canard elevator will deflect downwards.

Note: Unless you are specifically checking the operation of the motor, for safety remove the propellers from the model while setting it up on your workbench.

Set the Control Throws

Use a ruler to accurately measure and set the control throws 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 **high** rate setting.

Use the ATV function in the transmitter or adjust the position of the pushrods on the servo arms or the control horns on the elevators and ailerons to get the control surface throws shown in the chart that follows. The throws are measured at the widest part of the control surface.



To **increase** the control surface throw, move the pushrod to the hole that is closer-in on the control horn on the control surface, or move the pushrod to the hole that is farther out on the servo arm. To decrease the control surface throw, do the opposite.

Set up the Wright Flyer so it has the following control surface throws:

ELEVATOR:

High Rate	5/8" [16mm] up and down
Low Rate	1/4" [6.4mm] up and down

AILERONS:

High Rate	5/8" [16mm] up and down
Low Rate	3/8" [10mm] up and down

IMPORTANT: The Wright Flyer 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 Wright Flyer 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."

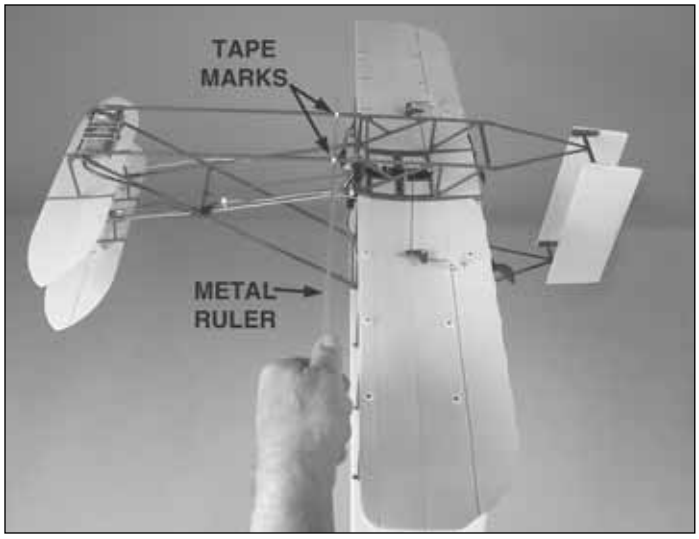
Balance the Model (C.G.)

IMPORTANT: The C.G. (center of gravity), or balance point has the greatest effect on how a model flies. Do not overlook this important procedure. Modelers who do so often find that the airplane is difficult to control, or out of control after it is too late. Preserve your model and insure that the first flight won't be the last by balancing the model according to the following instructions.

The C.G. (center of gravity) must be checked with the model in ready-to-fly condition with all of the systems in place and the battery installed.

❑ 1. Use a felt-tip pen or narrow strips of tape to accurately mark the C.G. on the **bottom** of the lower fuselage rails. The C.G. is located 1-1/8" [28.6mm] in front of the bottom wing. Remember, this is a model with lifting canards, so the balance point will be in front of the wings.

IMPORTANT: This model is very sensitive to the proper C.G. It must be balanced exactly as shown or the model may not fly well. The C.G. range of this model is very limited and only very minor changes should be made.



❏ 2. Lift the model, upside-down, at the balance point you marked on fuselage rails. This is easiest to do with a piece of wire or the edge of a ruler.

❏ 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. If weight is required in the tail, it can be stuck to the bottom of the rudder support. If weight is required in the nose it can be attached to the battery holder.

❏ 4. **IMPORTANT:** If you found it necessary to add any weight, recheck the C.G. after the weight has been added to confirm that it is correct.

Our prototype model required 1/8 ounce [3.5 grams] on the front of the model.

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 and place it on or inside your model.

Charge the Transmitter Batteries

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

Ground Inspection

Before you fly you should perform one last overall inspection to make sure the model is truly ready to fly and that you haven't overlooked anything. If you are not thoroughly familiar with the operation of R/C models, ask an experienced modeler to perform the inspection. Check to see that you have the radio installed correctly and that all the controls are connected properly. The motors must also be checked by confirming that the props are rotating in the correct direction and the motors sound like they are reaching full power. Make certain the ailerons and elevators are secure, the pushrods are connected, the controls respond in the correct direction, radio components are securely mounted, and the C.G. is correct.

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 motors 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.

Performance Tips

- Use fine sandpaper to remove imperfections along the edges of the propeller. For the best performance, use a Top Flite® Precision Magnetic Prop Balancer™ (TOPQ5700) to balance the propellers (this is a necessity on glow-powered engines, but less critical on small electric models).

- Using multiple battery packs for successive flights may cause the motors to become excessively hot, thus causing damage. Allow the motors to cool for at least 10 minutes between flights.

Motor Safety Precautions

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

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

Use safety glasses when running motors.

Do not run the motors in an area of loose gravel or sand; the propellers 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 propellers as you start and run the motors.

Keep these items away from the props: 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 props.

The electric motors and motor battery used in the Wright Flyer are powerful and the spinning propellers have a lot of momentum; therefore, if you touch a propeller while it is spinning it may inflict severe injury. Respect the motors and propellers for the damage they are capable of and take whatever precautions are necessary to avoid injury. Always disconnect and remove the motor battery until you are ready to fly again and always make sure the switches are turned off before connecting the battery.

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 flyer, 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.

FIND A SAFE PLACE TO FLY

Though the Wright Flyer is a “Park Flyer,” the **best** place to fly **any** model is at an AMA chartered club field. Club fields are set up for R/C flying, making your outing safer and more enjoyable. We recommend that you join the AMA and a local club so you can have a safe place to fly and have insurance to cover you in case of a flying accident. The AMA address and telephone number are in the front of this manual.

If there is no club or R/C flying field in your area, find a suitable site that is clear of trees, telephone poles, buildings, towers, busy streets and other obstacles. Since you are not flying at a sanctioned AMA site, be aware that there may be others like yourself who could be flying nearby. If both of your models happen to be on the same frequency, interference will likely cause one or both of the models to crash. An acceptable minimum distance between flying models is five miles, so keep this in mind when searching for a flying site.

In addition to obstacles, it is important to be aware of people who may wander into the area once you begin flying. At AMA club flying sites it is a severe rule infraction to fly over others, and this is a good practice if flying elsewhere. R/C models tend to attract onlookers whose numbers can soon multiply, forming small, uncontrolled crowds. Onlookers pose two main problems. First is the danger of actually crashing your model into a person, causing injury. Second is the distraction from those who ask you questions while you are trying to concentrate on flying. To minimize or avoid this problem, have an assistant standing by who can spot people who wander into your flying site (so you can avoid flying over them) and who can perform “crowd control” if people start to gather.

FLYING

IMPORTANT: If you are an inexperienced modeler we strongly urge you to seek the assistance of a competent, experienced R/C pilot to check your model for airworthiness AND to teach you how to fly. No matter how stable or "forgiving" the Wright Flyer is, attempting to learn to fly on your own is dangerous and may result in destruction of your model or even injury to yourself and others. Therefore, find an instructor and fly only under his or her guidance and supervision until you have acquired the skills necessary for safe and fully controlled operation of your model.

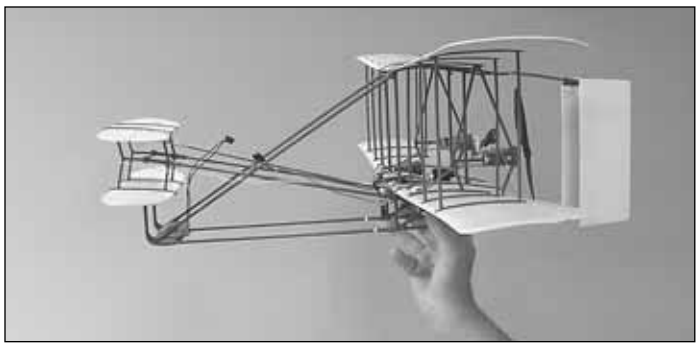
Takeoff

We recommend flying the Wright Flyer when the wind is no greater than ten miles per hour. Less experienced flyers should fly the Wright Flyer only in calm (less than one mile per hour) conditions. Frequently, winds are calmest in the early morning and early evening. Often these are the most enjoyable times to fly anyway!

Until you have the Wright Flyer properly trimmed for level flight, we recommend having an assistant hand-launch the model instead of launching it yourself.

Turn on the transmitter and plug the battery into the speed control. Turn on the receiver.

IMPORTANT: Confirm that the transmitter operates the controls by moving the sticks and watching the surfaces respond. Occasionally, electric models have been launched with the transmitter turned off or the battery disconnected from the speed control!



When ready to launch, your assistant should hold the Wright Flyer by the fuselage bottom rails, with the model in front of him and pointed **into the wind**. With the pilot *(that would be you!)* standing behind the plane, fully advance the throttle to start the motors. As soon as the motors are at full power, the hand launcher should gently push the plane into the air at a **level** or **slightly** nose-up attitude. Be certain the model is being launched **into** the wind and be immediately ready to make corrections to keep the airplane flying straight, level and into the wind.

When the model has gained adequate flying speed under its own power, **gently** pull the elevator stick back until the airplane starts a gradual climb. Many beginners tend to pull too hard causing the model to stall, so be gentle on the elevator and don't panic. If you do pull too hard and you notice the model losing speed, release the elevator stick and allow the model to regain airspeed.

Continue a **gradual** climb and establish a gentle turn (away from yourself) until the airplane reaches an altitude of 75 to 100 feet.

Flight

The main purpose of the first few flights is to learn how the model behaves and to adjust the trims for level flight. After the model has climbed to a safe altitude reduce the throttle slightly to slow the model, yet maintain altitude. The Wright Flyer should fly well and maintain adequate airspeed at about 3/4 throttle.

Adjust the elevator trim so the model flies level at the throttle setting you are using. Adjust the aileron trim to level the wings. It may take a few minutes to get the trims adjusted, but this should be your first priority once at a comfortable altitude. Continue to fly around, executing turns and making mental notes (or having your assistant take notes for you) of what additional adjustments or C.G. changes may be required to fine tune the model so it flies the way you like.

This model is a sport scale model of the Wright Flyer and is not intended to be an aerobatic model.

Landing

Begin the landing approach by flying downwind at an altitude of approximately 20 feet [6 meters]. When the airplane is approximately 50 to 100 feet [15 to 30 meters] past you, gradually reduce power and make the "final" 180° turn into the wind aligning the airplane with the runway or landing area. Do not dive the airplane, as it will pick up too much speed. Instead, allow the airplane to establish a gradual descent. Concentrate on keeping it heading into the wind toward the runway. When the plane reaches an altitude of about 3 feet [1 meter], gently apply a little "up elevator" to level the plane, but be careful as too much up elevator will cause it to stall. While holding a slight amount of up elevator the airplane will slow and descend as it loses flying speed, thus touching down on the runway.

This model has a considerable amount of drag and you can expect to need some power on the model until just before touchdown.

Until you are able to accurately judge how far the Wright Flyer can glide, it may be helpful to reserve some battery power to run the motor so the plane can be flown back to the runway.

Best of luck and happy flying!

BUILDING NOTES

Kit Purchased Date: _____

Where Purchased: _____

Date Construction Started: _____

Date Construction Finished: _____

Finished Weight: _____

Date of First Flight: _____

FLIGHT LOG

This model belongs to:

Name _____

Address _____

City, State Zip _____

Phone number _____

AMA number _____