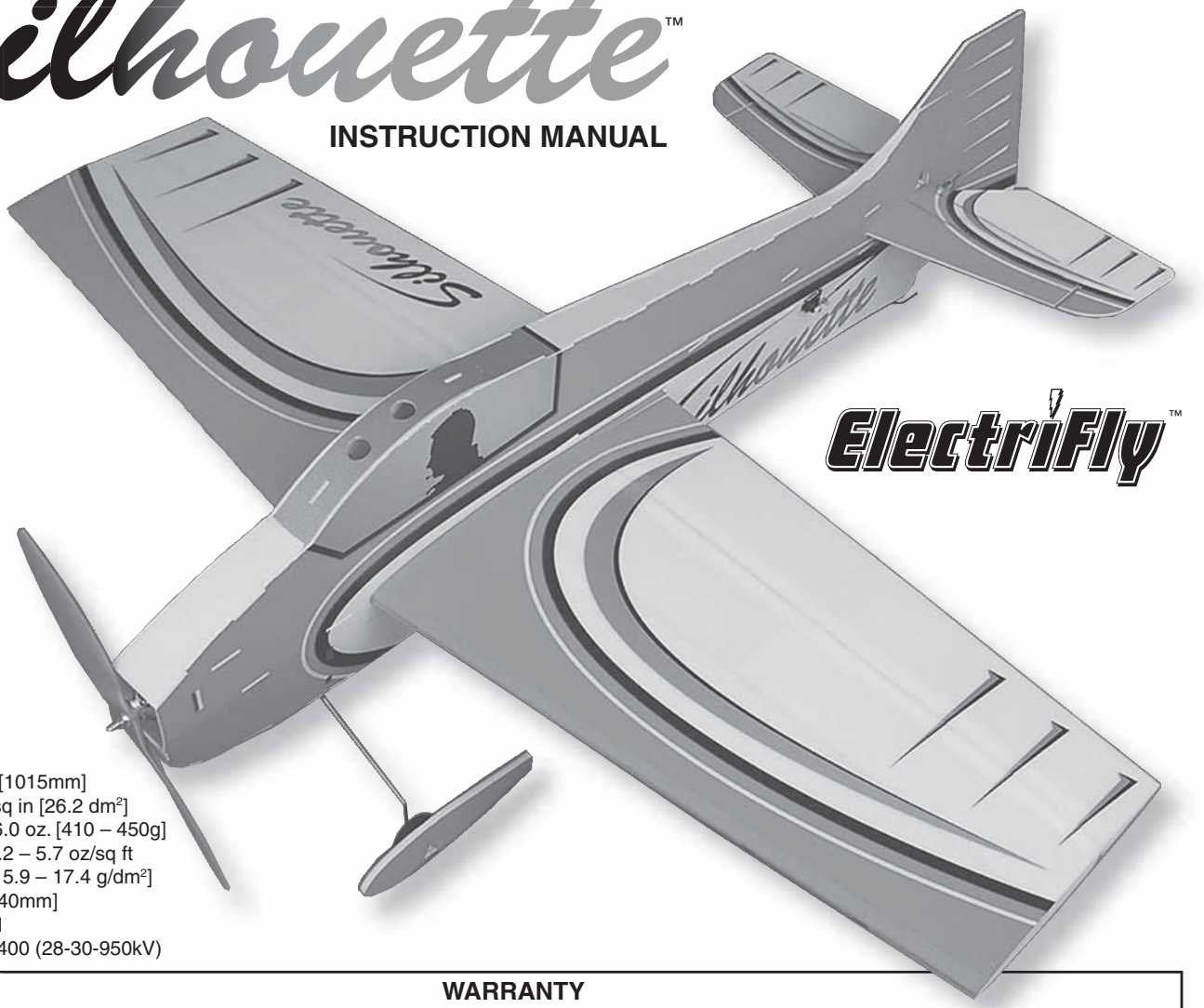
Silhouette™

INSTRUCTION MANUAL



Wingspan: 40 in [1015mm]
Wing Area: 406 sq in [26.2 dm²]
Weight: 14.5 – 16.0 oz. [410 – 450g]
Wing Loading: 5.2 – 5.7 oz/sq ft
[15.9 – 17.4 g/dm²]
Length: 41 in [1040mm]
Radio: 4-Channel
Motor: RimFire™ 400 (28-30-950kV)

WARRANTY

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

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

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

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

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

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

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

GREAT PLANES® MODEL MANUFACTURING COMPANY

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

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AMA

If you are not already a member of the AMA, please join! The AMA is the governing body of model aviation and membership provides liability insurance coverage, protects modelers' rights and interests and is required to fly at most R/C sites. The AMA has two classes of membership available: Open membership or their Park Pilot Program, which this aircraft qualifies for. The Park Pilot Program is for people flying electric aircraft and gliders under two pounds and which fly slower than 60mph. This will enable you to enjoy most AMA benefits and organize clubs and flying sites in more congested areas.

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
http://www.modelaircraft.org/parkflyer.aspx

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.

INTRODUCTION

The indoor 3D flying craze started with flat foamies, which helped get many modelers started in indoor flying. The new trend is larger, airfoil shaped wings with thick, light fuselages. The Silhouette 3D ARF continues to push the boundaries of indoor foam planes. The Silhouette 3D ARF is capable of most 3D maneuvers that a flat foamy can perform, but presents itself much better. Once you have flown the Silhouette 3D ARF you may never go back to a flat foamy.

For the latest technical updates or manual corrections to the Silhouette 3D ARF, visit the Great Planes web site at **www.greatplanes.com**. Open the "Airplanes" link, then select the Silhouette 3D 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

1. Your Silhouette 3D 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 Silhouette 3D ARF, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

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

3. You must take time to build **straight**, **true** and **strong**.

4. You must use an R/C radio system that is in good condition, a correctly sized motor, and other components as specified in this instruction manual. All components must be correctly installed so that the model operates correctly on the ground and in the air. You must check the operation of the model and all components before **every** flight.

5. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.

6. Carefully read and follow all the instructions included with your LiPo battery and battery charger. LiPo batteries are not as forgiving as NiCd or NiMH batteries. Overcharging or charging the LiPo battery at too high a current will damage the battery and could damage property.

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

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

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the Silhouette 3D ARF that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Motor Battery

For best flight performance a lightweight battery is recommended. We recommend the Great Planes Power Series 11.1 volt 640mAh 20C LiPo battery (GPMR0601).

Radio Equipment

❏ 4-channel radio system is required.
❏ (4) Futaba® S3114 Micro High Torque servos (FUTM0414)
❏ (1) 6" Y-harness (FUTM4130)
❏ (2) 150mm Slim Wire Servo Extensions (FUTM4506)
❏ (2) 300mm Slim Wire Servo Extensions (FUTM4507)

Motor

❏ RimFire™ 400 (RimFire 28-30-950 GPMG4560)
❏ 12 amp Brushless ESC is recommended (GPMM1810)
❏ 11x3.8 Slo-Flyer Propeller (APCQ5017)

ADHESIVES & BUILDING SUPPLIES REQUIRED

This is the list of Adhesives and Building Supplies that are required to finish the Silhouette 3D ARF.

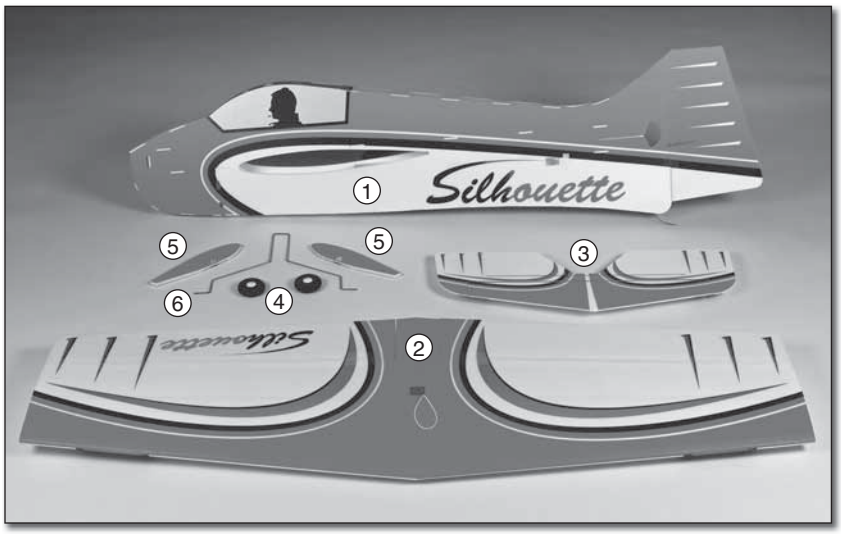
❏ UFO Foam-safe Thin CA 1oz. (HOTR1040)
❏ Great Planes Pro™ Foam-safe Medium CA 1oz. (GPMR6069)
❏ CA Activator Foam-safe 2oz. pump (GPMR6035)
❏ #55 (3/64") drill bit
❏ Drill
❏ 36" (914mm) Ruler (HCAR0475)
❏ Hobby Knife with 5 blades (HCAR0101)
❏ Phillips head screw driver

IMPORTANT BUILDING NOTES

• **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 stabilizer 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 and click on "Technical Data." Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.

KIT INSPECTION



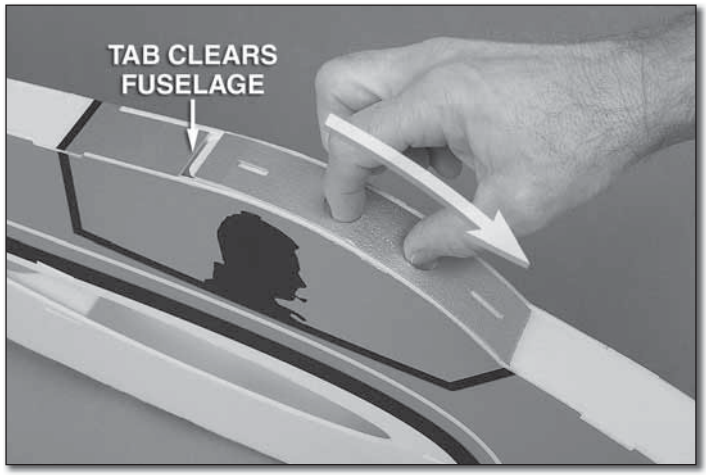
Before starting to build, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact **Product Support.**

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**

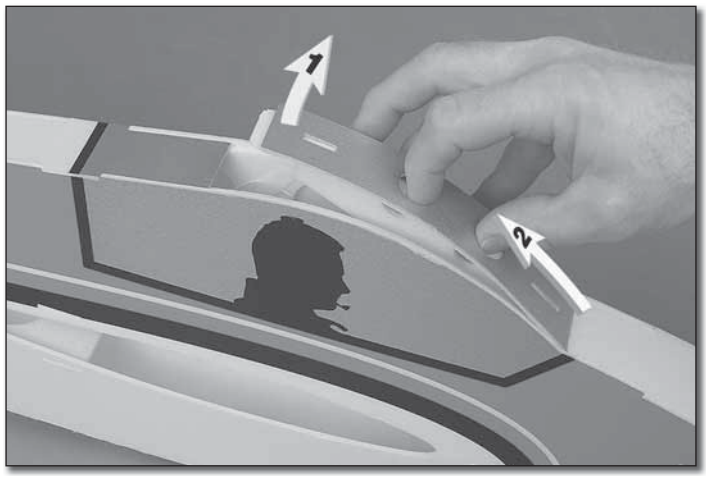
1. Fuselage
2. Wing
3. Horizontal Stab
4. Wheels (2)
5. Wheel Pants (2)
6. Main Landing Gear

INSTALL THE WING

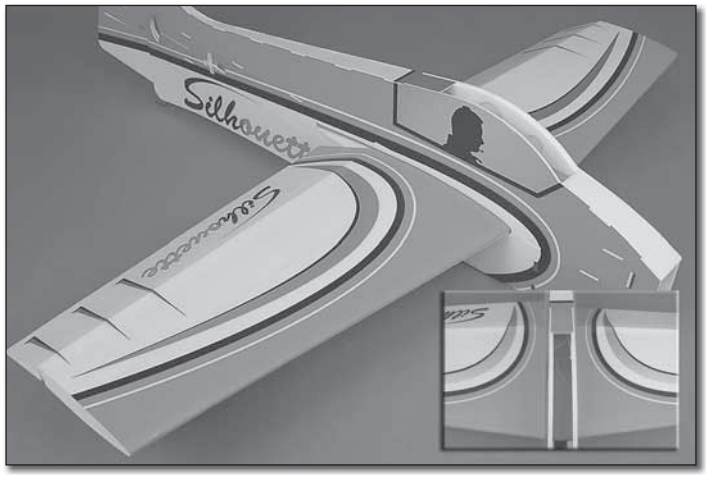
Due to the radius of the leading edge of the wing and the material used in construction of the wing, small cracks are not uncommon and will not cause any undesirable flight characteristics.



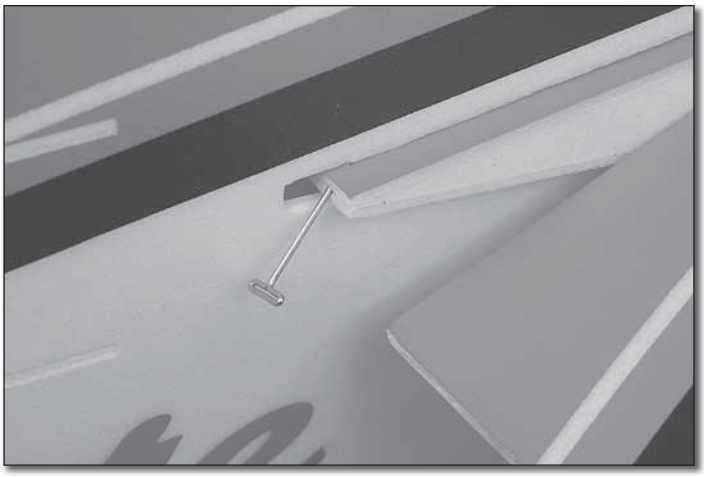
❑ 1. Remove the battery hatch (canopy top) by carefully sliding it forward until the tab at the aft end clears the fuselage top.

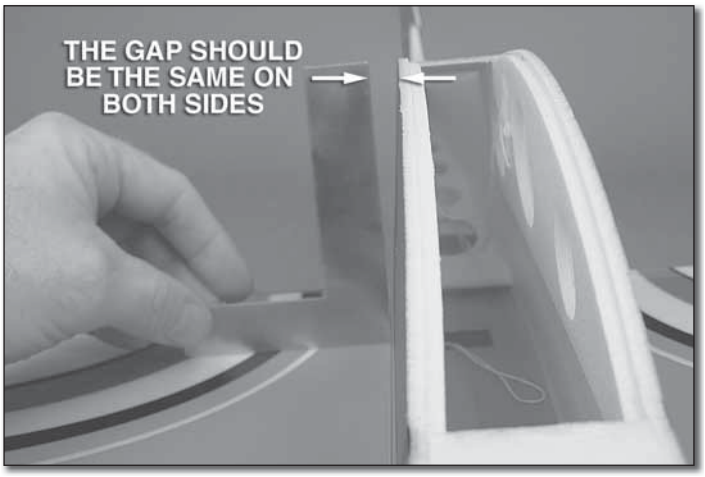


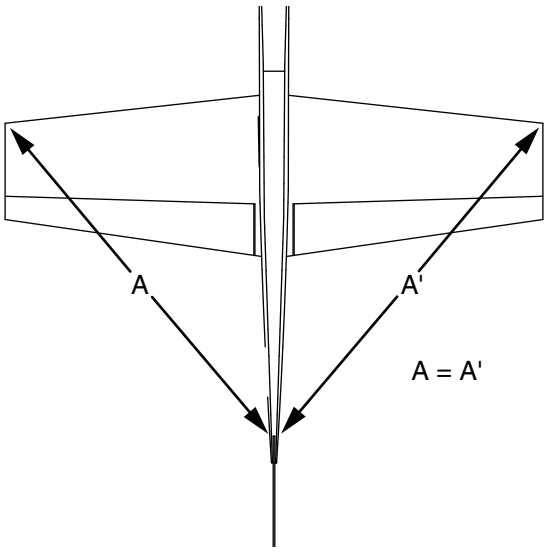
❑ 2. Then lift the battery hatch up and slide it out at the front.



❑ 3. Carefully insert the wing in the fuselage so that the aileron servo openings are on the bottom. Make sure the string coming out of the center of the wing is inside the fuselage. If the wing is tight when sliding through the fuselage, you may have to carefully work it back and forth. If it is still too tight, lightly sanding the opening may be required. The reason the wing slides in tightly is that the wing is tapered and the center of the wing is slightly larger than the section that is glued to the fuselage. So, do not sand the opening too much or the wing will fit loosely in the fuselage, requiring excessive CA to fill the gap.





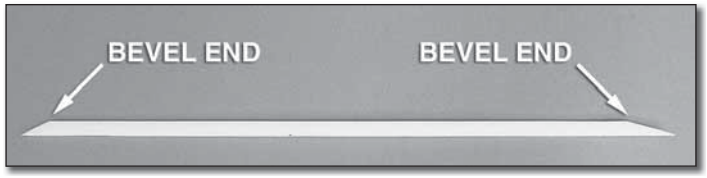


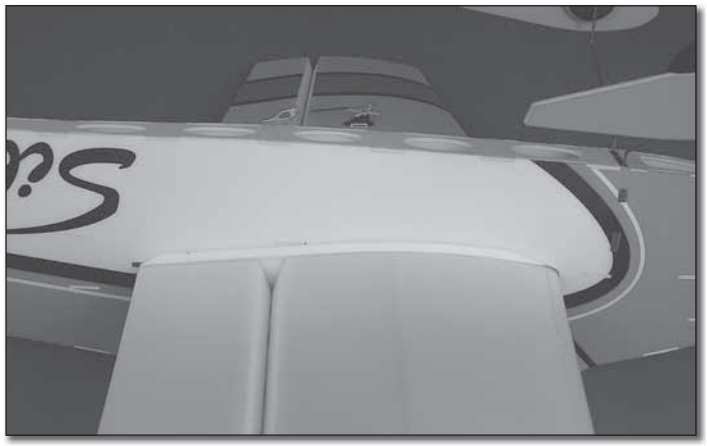
❑ 4. Slide the wing forward and center the wing in the fuselage. Measure the distance from the wing tips to the center of the top of the fin. Adjust the wing so that the distance is the same. T-pins can be inserted in the trailing edge to help hold

the wing in position. Use a square to check that the wing is perpendicular to the fuselage. Since the fuselage is tapered, make sure the gap is the same on both sides.

❏ 5. With the plane setting on your building table, apply a bead of foam-safe thin CA along the top joint between the fuselage and the wing. Once the CA has cured (do not use CA activator yet), turn the plane over and again apply a bead of foam-safe thin CA along the bottom joint.

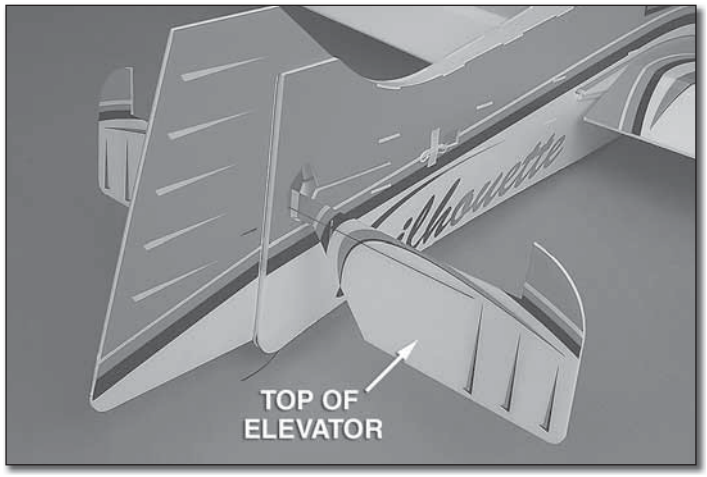
❏ 6. Once the foam-safe thin CA has cured, apply a bead of foam-safe medium CA along the joint where there is a gap between the fuselage and the wing. Now use foam-safe CA activator on the glue joints.



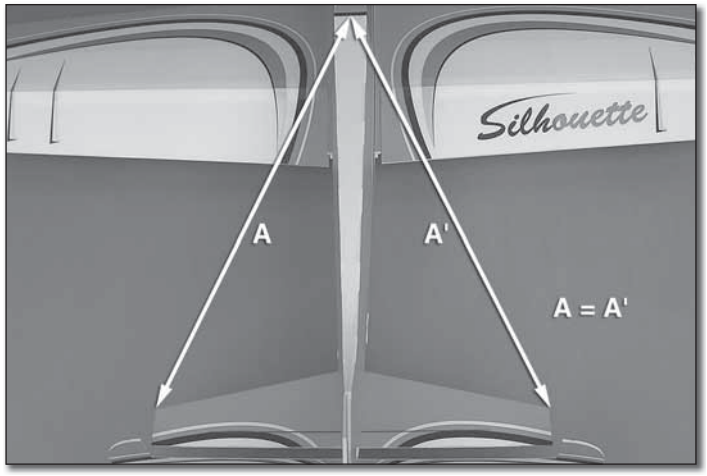


❏ 7. Bevel the ends of the two 3mm x 6mm x 290mm wing reinforcement strips. Glue the strips to the **underside** of the wing and fuselage joint.

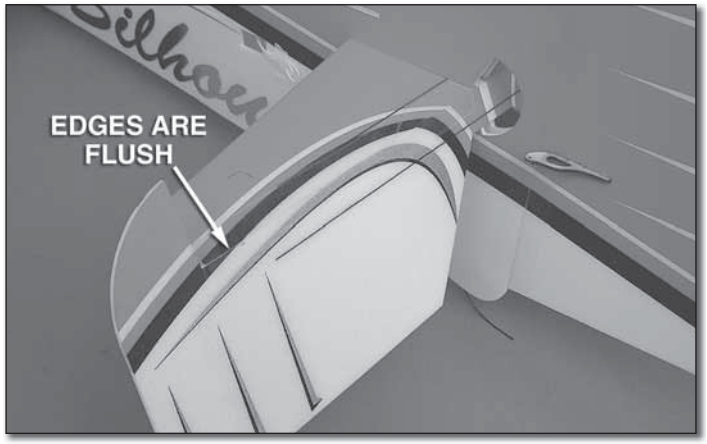
INSTALL THE STABILIZER



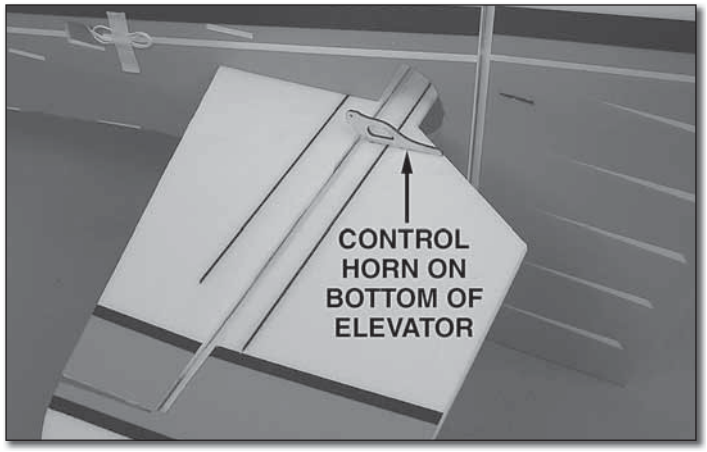
❏ 1. Carefully insert the elevator in the stabilizer slot. Make sure the counter balances are facing forward and the correct side is up.



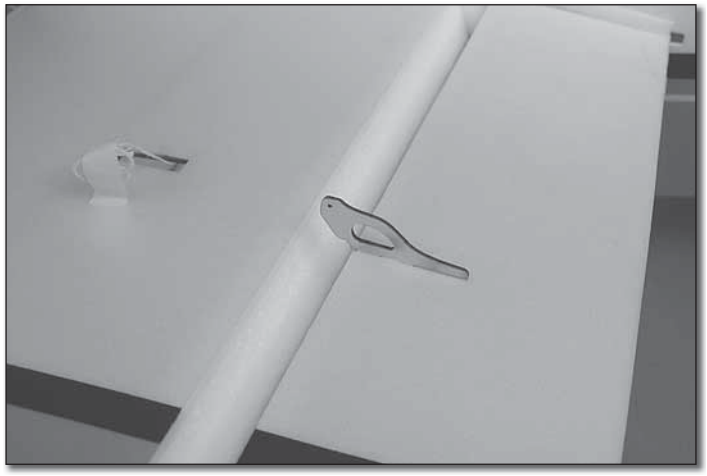
❏ 2. Insert the stab in the stab slot and center it side-to-side. Measure the distance from the tip of the stab to the center of the fuselage. Adjust the position of the stab until they are equal. Also check that the stab is parallel with the wing when viewed from the aft end. Use thin foam-safe CA to glue the stab to the fuselage.



❏ 3. Cut two 170mm long pieces of clear tape for the elevator hinges. Apply one of the pieces of tape to the leading edge of the left elevator half so that half of the tape is on the elevator. Center the elevator on the stabilizer and with the elevator hanging down, press the hinge tape onto the stabilizer. Repeat the process on the right side.

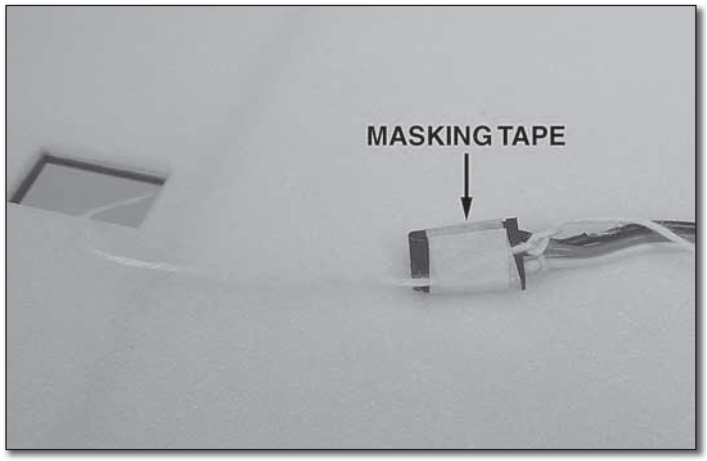


❏ 4. Insert one of the plywood control horns in the slot in the bottom of the elevator. Glue the control horn in the elevator with foam-safe thin CA.



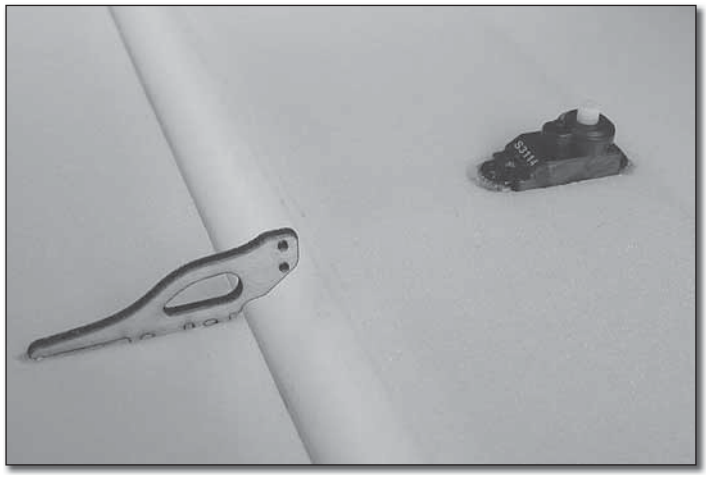
❏ 5. Trial fit the remaining two plywood control horns in the bottom of the ailerons. You may need to use a sharp hobby knife to open the front of the slot to allow the control horns to seat against the bottom of the aileron. Use foam-safe thin CA to glue the control horns in the ailerons.

RADIO INSTALLATION



❏ ❏ 1. Install a 12" [304mm] servo extension on each aileron servo. A piece of electrical tape can be used to secure the extension to the aileron servo lead. Tie the string from one of the aileron servo trays to the end of the aileron servo lead extension. Then use a piece of masking tape to secure the string out the end of the connector.

❏ ❏ 2. From the battery compartment, carefully pull the aileron lead through the wing and out the opening in the center of the wing.

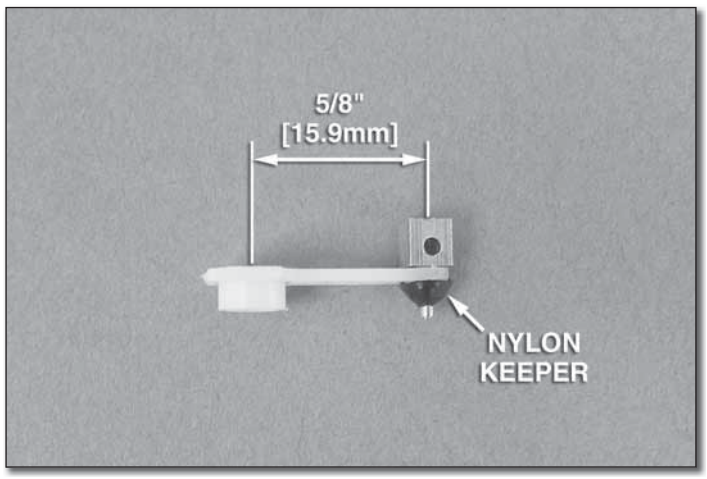


❏ ❏ 3. Use medium foam-safe CA to glue the aileron servo in the aileron servo tray.

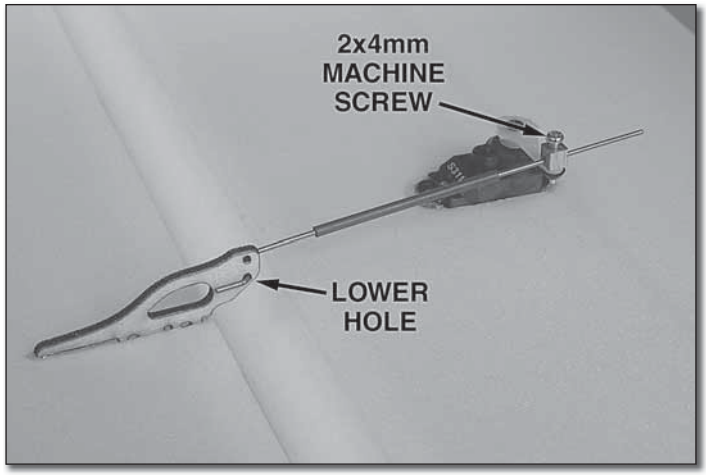
❏ 4. Follow the same procedure to install the second aileron servo in the other wing half.

❏ 5. Use a Y-harness to connect the two aileron servos. Connect the Y-harness to your receiver. A separate receiver battery or the ESC can be connected to the receiver to power the servos for set up.

❏ 6. Switch on your transmitter and center the aileron servo trim.



❏ ❏ 7. Install a servo arm that has a hole approximately 5/8" [16mm] from the center. Enlarge the hole with a #55 (3/64") drill bit. Insert the brass quick connector in the hole and secure it with a nylon keeper.

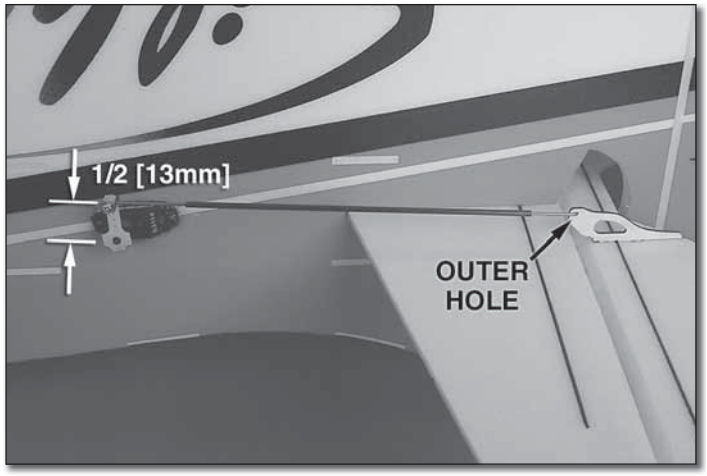


❏ ❏ 8. Install the servo arm on the servo. Insert the Z-bend end of a 3-3/8" [86mm] pushrod in the lower hole in the aileron control horn. Insert the other end of the pushrod in the quick connector. Install a 2 x 4mm machine screw in the quick connector. Center the aileron and tighten the machine screw on the pushrod. Trim the excess wire 1/4" [6mm] from the quick connector.

❏ 9. Return to step 7 and install the pushrod on the other aileron.

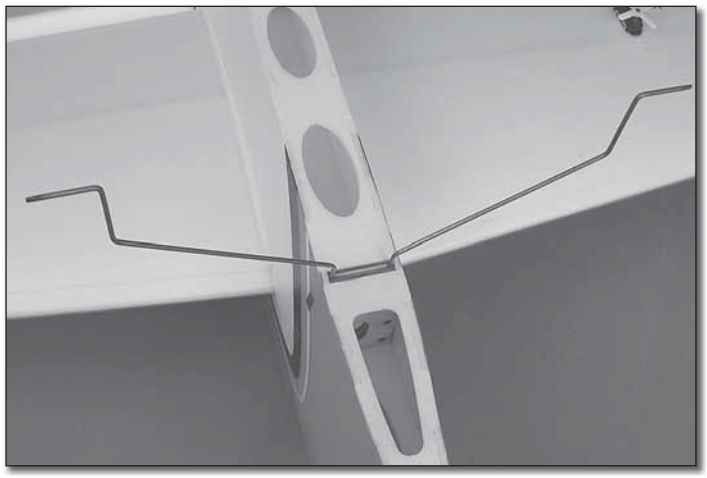
❏ 10. Install the rudder and elevator servos in the servo cutouts in the aft end of the fuselage.

❏ 11. Connect the rudder servo to the receiver and center the servo arm on the servo. Install the 8-3/16" [208mm] pushrod in the outer hole of the rudder control horn. Follow the same method to complete the installation as used for the ailerons except install the brass quick connector in the hole 7/16" [11mm] from the center of the rudder servo arm.

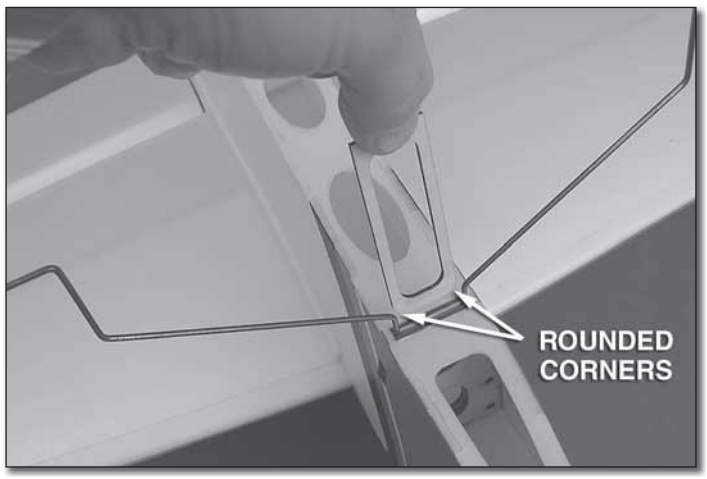


❏ 12. Connect the elevator servo to the receiver and center the servo arm on the servo. Install the 6-1/4" [159mm] pushrod in the outer hole of the rudder control horn. Follow the same method to complete the installation as before except install the brass quick connector in the hole 1/2" [13mm] from the center of the rudder servo arm.

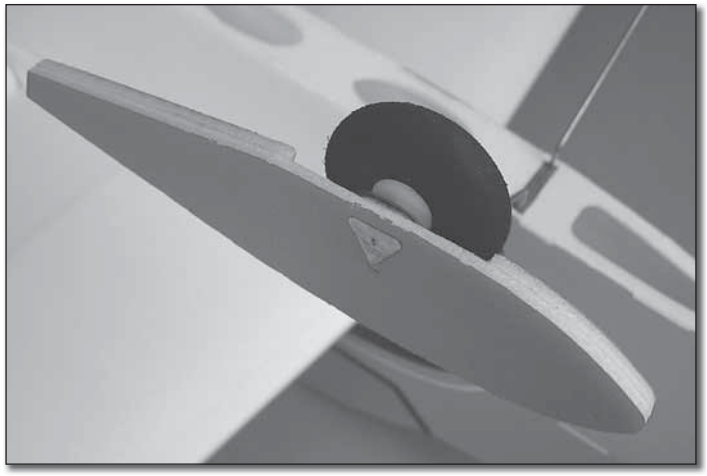
INSTALL THE MAIN LANDING GEAR



❏ 1. Insert the main landing gear wire in the landing gear slot.



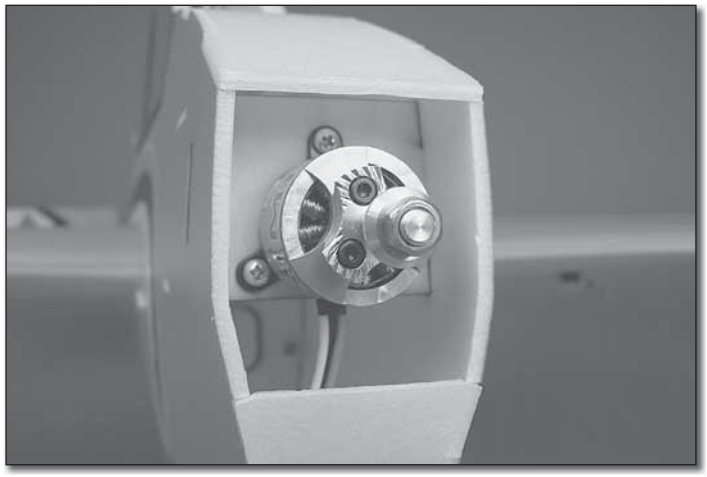
❏ 2. Insert the plywood landing gear retainer in the landing gear slot. The rounded corners are inserted first. If it fits loosely, use a piece of tape (not included) to hold the retainer in position.



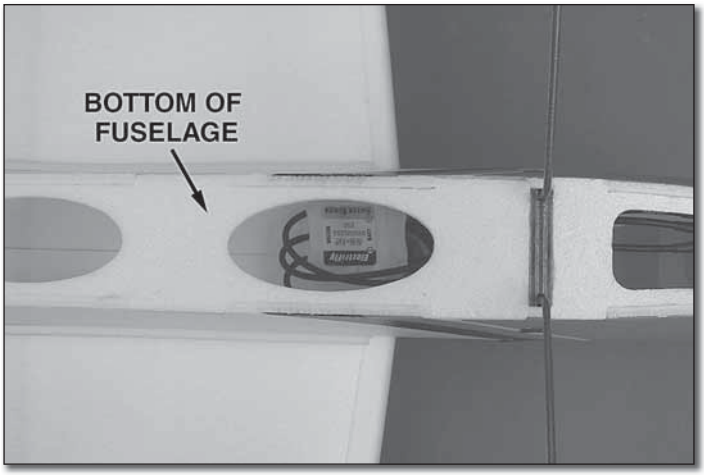
❏ 3. Slide a wheel onto the main landing gear wire. Insert the wheel pant on the wire and apply a drop of foam-safe thin CA to the wheel pant to secure it to the wire. Make sure to not glue the wheel to the wire.

❏ 4. Install the other wheel and wheel pant on the main landing gear.

MOTOR INSTALLATION



❏ 1. Position the RimFire 400 (28-30-950kV) brushless motor on the motor mount with the wires down. Use the three 3 x 10mm sheet metal screws to mount the motor to the motor mount. After tightening the screws, remove the screws and motor and apply a couple of drops of thin CA to the threads to harden the wood. After the CA has cured, reinstall the motor.



❏ 2. Attach a piece of hook and loop material to the back of the SS-12 brushless ESC. Route the motor wires through the hole in the landing gear mount slot and connect the motor wires to the motor. Route the battery and receiver plug up through the opening in front of the wing. Attach an opposite piece of hook and loop material to the bottom of the wing. Attach the ESC to the hook and loop material on the bottom of the wing.

❏ 3. Plug the ESC into the receiver. Use hook and loop material to attach the receiver to the top of the wing, inside the fuselage.

❏ 4. Before installing the propeller, temporarily plug the motor battery into the ESC and check to see if the motor is rotating in the correct direction.

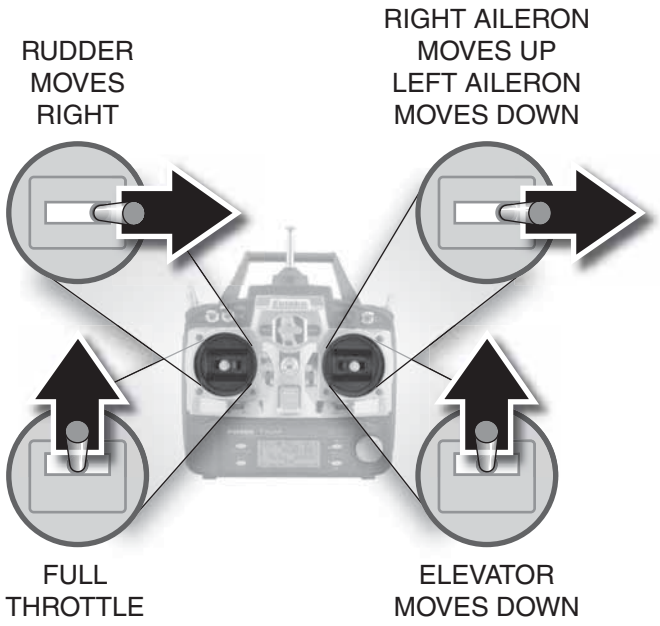
GET THE MODEL READY TO FLY

Check the Control Directions

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

❏ 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, loosen the screw in the quick connector and center the control surfaces.

4-CHANNEL RADIO SET UP (STANDARD MODE 2)

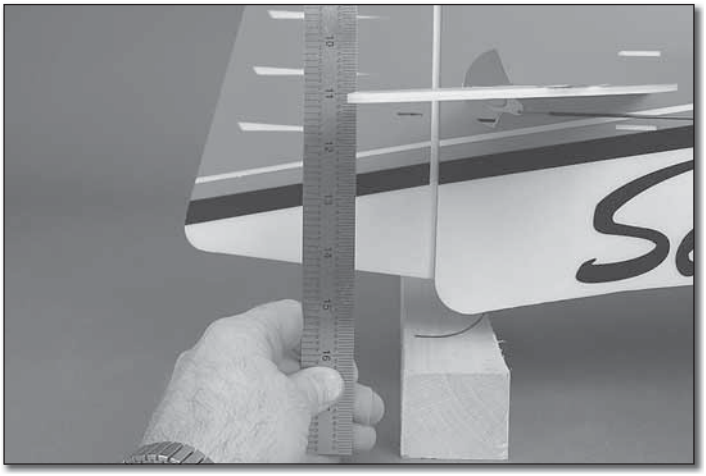


❏ 3. Make certain that the control surfaces respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered.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

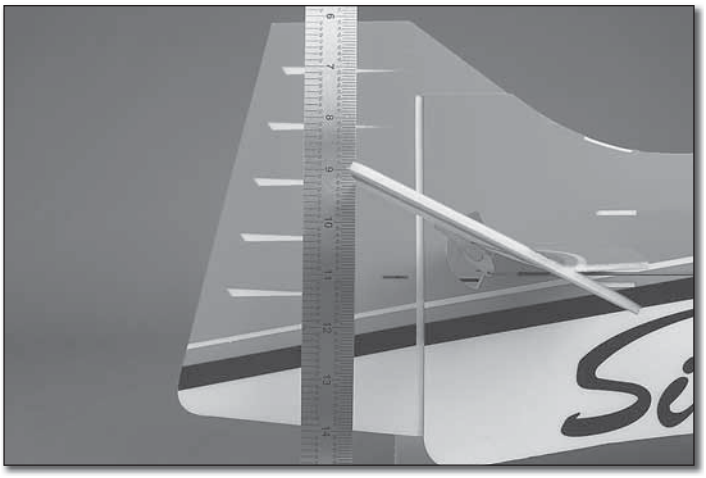
Set the Control Throws

To ensure a successful first flight, set up your Silhouette 3D ARF according to the control throws specified in this manual. The throws have been determined through actual flight testing and accurate record-keeping allowing the model to perform in the manner in which it was intended. If, after you have become accustomed to the way the Silhouette 3D 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 too responsive and difficult to control, so remember, "more is not always better."

❏ 1. Use a box or something similar to prop up the bottom of the fuselage so the horizontal stabilizer and wing will be level.



❏ 2. Measure the 3D elevator throw first. Hold a ruler vertically on your workbench against the widest part (front to back) of the trailing edge of the elevator. Note the measurement on the ruler.



❏ 3. Move the elevator up with your transmitter and move the ruler forward so it will remain contacting the trailing edge. The distance the elevator moves up from center is the "up" elevator throw. Measure the down elevator throw the same way.

❏ 4. Measure and set the low rate elevator throws and the high and low rate throws for the rest of the control surfaces the same way.

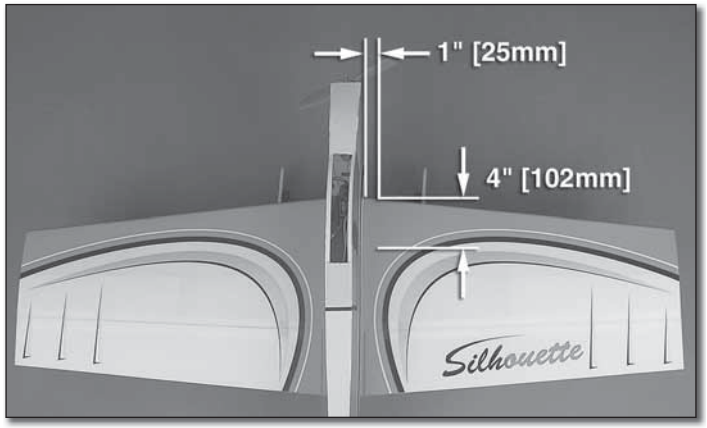
NOTE: The throws are measured at the widest part of the elevators, rudder and ailerons. *If your radio does not have dual rates, we recommend setting the throws at the high rate settings.*

These are the recommended control surface throws:						
	3D RATE		HIGH RATE		LOW RATE	
ELEVATOR	Up	Down	Up	Down	Up	Down
	1-3/4" [44mm] 31°	1-3/4" [44mm] 31°	1-3/8" [35mm] 24°	1-3/8" [35mm] 24°	1" [25mm] 17°	1" [25mm] 17°
RUDDER	Right	Left	Right	Left	Right	Left
	4-1/2" [114mm] 52°	4-1/2" [114mm] 52°	3-1/2" [89mm] 37°	3-1/2" [89mm] 37°	2-3/8" [60mm] 24°	2-3/8" [60mm] 24°
AILERONS	Up	Down	Up	Down	Up	Down
	1-1/4" [32mm] 20°	1-1/4" [32mm] 20°	1" [25mm] 16°	1" [25mm] 16°	3/4" [19mm] 12°	3/4" [19mm] 12°

Balance the Model (C.G.)

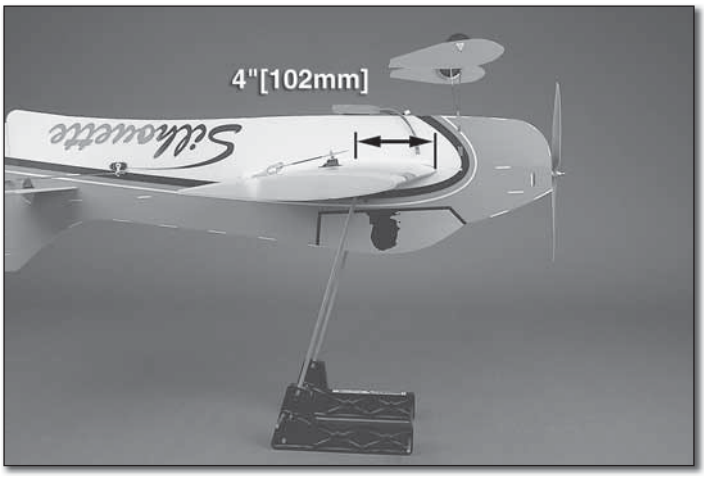
More than any other factor, the C.G. (center of gravity/ balance point) can have the greatest effect on how a model flies and could determine whether or not your first flight will be successful. If you value your model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE**. A model that is not properly balanced may be unstable and possibly unflyable.

Now is the time to install the propeller. At this stage the model should be in ready-to-fly condition with all of the components in place including the complete radio system. The motor battery has not been installed yet. You will move the motor battery forward and aft to balance the plane.



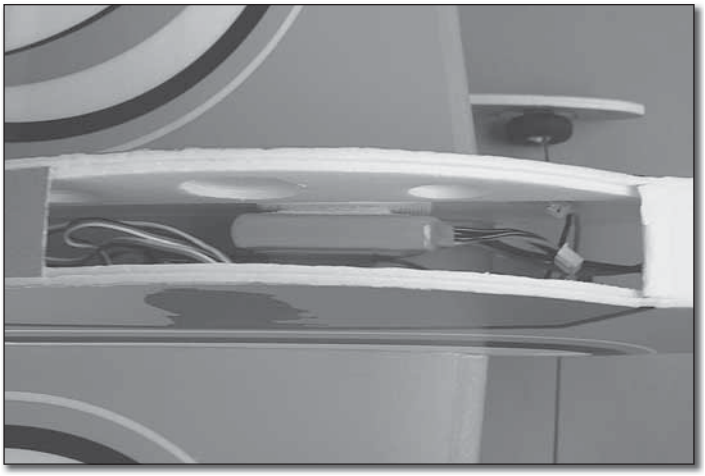
❏ 1. If using a Great Planes C.G. Machine™, set the rulers to 4" [102mm]. If not using a C.G. Machine, use a fine-point felt tip pen to mark lines on the top of wing, 1" [25mm] out from the fuselage sides, on both sides of the fuselage 4" [102mm] back from the leading edge. Apply narrow (1/16" [2mm]) strips of tape over the lines so you will be able to feel them when lifting the model with your fingers.

This is where your model should balance for the first flights. Later, you may experiment by shifting the C.G. 3/8" [9.5mm] forward or 1/4" [6mm] back to change the flying characteristics. Moving the C.G. forward will improve the smoothness and stability, but the model will then be less aerobatic (which may be fine for less-experienced pilots). Moving the C.G. aft makes the model more maneuverable and aerobatic for experienced pilots. In any case, **start at the recommended balance point** and do not at any time balance the model outside the specified range.



❏ 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly), place the model upside-down on a Great Planes CG Machine, or lift it upside down at the balance point you marked. Place the motor battery on the bottom of the fuselage.

❏ 3. If the tail drops, the model is "tail heavy." Move the motor battery forward to get the model to balance. If the nose drops, the model is "nose heavy." Move the motor battery aft. Once you have determined the battery location required to balance the plane note the location and where the battery would need to be attached inside the fuselage, above the wing.



❏ 4. Apply the remaining hook and loop material to the inside of the fuselage at the approximate location for the motor battery. The closer to the top of the wing the better. Attach an opposite piece of hook and loop material to the battery. Trial fit the motor battery in the fuselage and recheck the CG. Once you have determined the correct location for the motor battery, mark the location with a fine tip marker.

Balance the Model Laterally

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

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

PREFLIGHT

Identify Your Model

No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events (except when flown indoors). Fill out the identification tag on page 15 and place it on or inside your model.

Charge the Batteries

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

CAUTION: Unless the instructions that came with your radio system state differently, the **initial** charge on **new** transmitter 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 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. Vibration of props on small models can cause a loss of power, but vibration may also damage your radio receiver, battery and possibly the motor bearings.

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

Ground Check and Range Check

Always ground check the operational range of your radio before the first flight of the day following the manufacturer's instructions that came with your radio. This should be done once with the motor off and once with the motor running at various speeds. 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 AND BATTERY SAFETY

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

- 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 start and 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.
- The motor can get hot! Do not touch it right after operation.
- Once the motor battery is plugged in to the ESC, stay clear of the propeller. The motor could start at any time.
- Do not charge the LiPo motor battery in the plane.
- Never leave a LiPo battery unattended while charging.
- If your plane is in a hard crash, remove the LiPo battery and set it aside in a safe location for at least 20 minutes. If the battery is damaged in the crash it could catch fire.
- If the battery starts to swell, quickly move the battery to a safe location, preferably outside and place it in a bucket covering the battery with sand.

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 previously 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 battery and receiver are securely mounted in the fuse with hook and loop material.
- ❏ 3. Balance your model *laterally* as explained in the instructions.
- ❏ 4. Use threadlocking compound to secure critical fasteners such as the screws that hold the screw-lock pushrod connectors.
- ❏ 5. Add a drop of oil to the axles so the wheels will turn freely.
- ❏ 6. Reinforce holes for wood screws with thin CA where appropriate such as the motor mounting screws.
- ❏ 7. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
- ❏ 8. Make sure all servo arms are secured to the servos with the screws included with your radio.
- ❏ 9. Balance your propeller (and spare propellers).
- ❏ 10. Tighten the propeller nut and spinner.
- ❏ 11. If you wish to photograph your model, do so before your first flight.
- ❏ 12. Range check your radio when you get to the flying field.

FLYING

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. 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; 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 Silhouette 3D ARF can take off from a smooth surface or can be easily hand launched. If for the first flight the plane is to be hand launched, have an assistant hand launch it. This will allow you, the pilot, to have both hands on the control sticks to make any flight corrections if the plane is out of trim. Once the Silhouette 3D ARF has been flown and trimmed out, you will be able to hand launch the plane easily by yourself. If you are flying outdoors, always take off into the wind.

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. While full throttle is usually desirable for takeoff, the Silhouette 3D ARF will fly great at ½ to ¼ throttle indoors.

Take it easy with the Silhouette 3D 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 left, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your battery power. It is best to have a timer set to alert you when it is time to land.

Landing

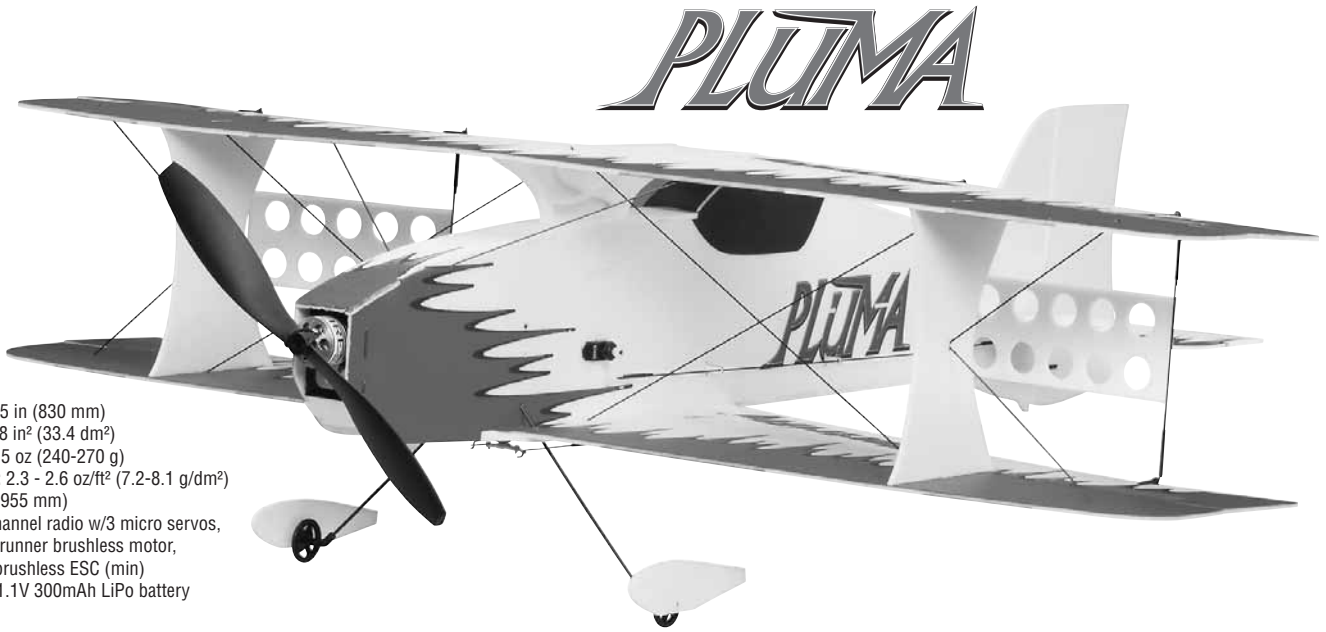
To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward the landing area, keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the edge of the landing area, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and climb out to make another attempt. When you're ready to make your landing flare and the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down.

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, 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!

ALSO AVAILABLE FROM GREAT PLANES



Wingspan: 32.5 in (830 mm)
Wing Area: 518 in² (33.4 dm²)
Weight: 8.4–9.5 oz (240-270 g)
Wing Loading: 2.3 - 2.6 oz/ft² (7.2-8.1 g/dm²)
Length: 38 in (955 mm)
Requires: 4-channel radio w/3 micro servos,
out-runner brushless motor,
8A brushless ESC (min)
& 11.1V 300mAh LiPo battery

The Pluma takes foam construction to a new dimension, with a full fuselage that's more realistic-looking than flat foamies AND stronger by design, without carbon reinforcing. With the trim scheme imprinted and all other parts laser-cut and interlocking, the Pluma can be flight-ready in about an hour. Control surfaces are already beveled and hinged with ultra-light 3M® Blenderm® tape. Even the smallest of RimFire™ out-runner brushless motors will efficiently power the Pluma, and it's sized right for easy transport to the field or an indoor dome.
GPMA1130

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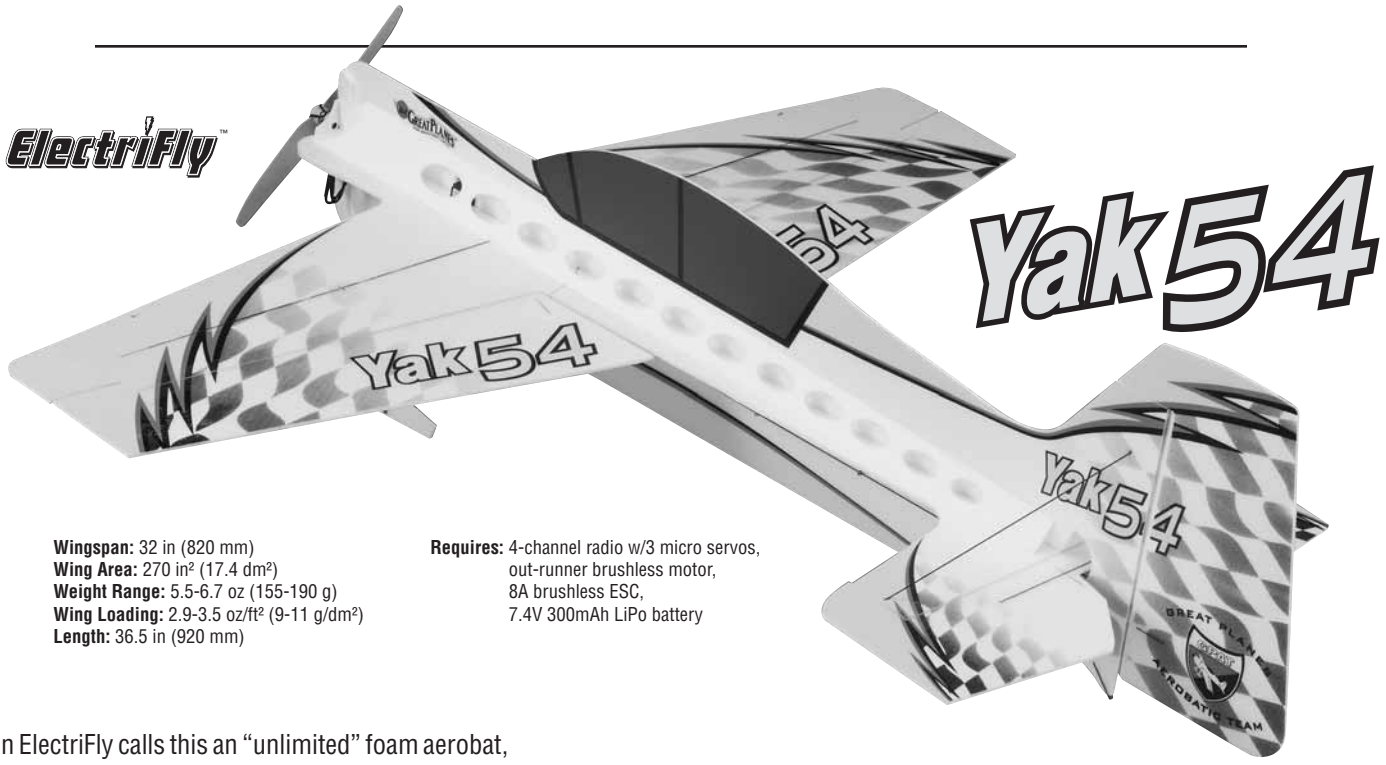

Wingspan: 32 in (820 mm)
Wing Area: 270 in² (17.4 dm²)
Weight Range: 5.5-6.7 oz (155-190 g)
Wing Loading: 2.9-3.5 oz/ft² (9-11 g/dm²)
Length: 36.5 in (920 mm)

Requires: 4-channel radio w/3 micro servos,
out-runner brushless motor,
8A brushless ESC,
7.4V 300mAh LiPo battery

When ElectriFly calls this an "unlimited" foam aerobat,
they're talking about performance. It's a great sport model with ¾ throws. Max
'em, and you'll find a performance envelope that's wide open and a mile long. Assembly time averages about 2-3 hours. All control surfaces are factory-beveled and pre-hinged with proven 3M® Blenderm® tape. Flying surfaces are finished and made from Pro-Formance foam. Total weight is under 7 ounces, and also minimized by carbon-fiber and laser-cut hardware. As always, less weight = more performance!
GPMA1131

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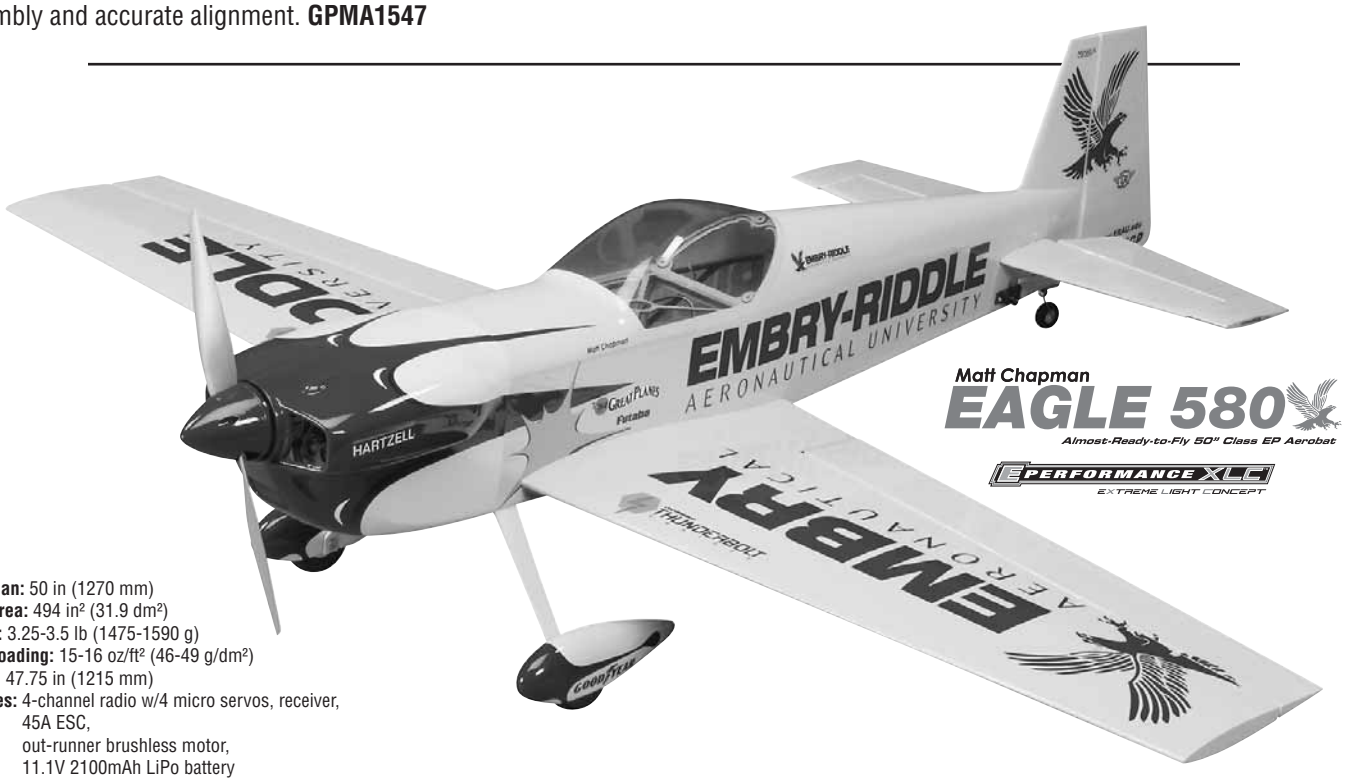
Wingspan: 41 in (1040 mm)
Wing Area: 343 in² (22.1 dm²)
Weight: 27.5 – 31 oz (780-880 g)
Wing Loading: 11.5 – 13 oz/ft² (35-40 g/dm²)
Length: 38 in (965 mm)
Requires: 4-5 channel radio w/4 micro servos, 1250kV out-runner brushless motor, 35A brushless ESC (min.) & 11.1V 1500mAh LiPo battery

The SU-31's cutting-edge maneuvers and astounding aerobatics have made it an air show superstar for almost two decades. An eye-catching MonoKote trim scheme and compact size are sure to do the same for this E-Performance Series ARF. Take it out for a fun day of sport flying or perform pulse-quickening 3D maneuvers! It's compact and easy to take along to the flying field or the local park. The model combines traditional, built-up construction with the benefits of brushless power. Wing halves slide onto a carbon-fiber wing tube for fast assembly and accurate alignment. **GPMA1547**



Wingspan: 50 in (1270 mm)
Wing Area: 494 in² (31.9 dm²)
Weight: 3.25-3.5 lb (1475-1590 g)
Wing Loading: 15-16 oz/ft² (46-49 g/dm²)
Length: 47.75 in (1215 mm)
Requires: 4-channel radio w/4 micro servos, receiver, 45A ESC, out-runner brushless motor, 11.1V 2100mAh LiPo battery

Acclaimed aviator Matt Chapman is famous for thrilling crowds with his jaw-dropping aerobatics at air shows worldwide. Now you can impress your friends at your local flying field with this officially licensed, 50" span reproduction of his Eagle 580! Its ultra-light airframe and airfoiled control surfaces offer precision tracking and incredible agility. State-of-the-art materials – including carbon fiber, hand-selected woods and fiberglass – accelerate assembly time to just 6-8 hours. A factory-applied MonoKote® trim scheme adds eye-catching looks, while die-cut decals let you recreate Matt Chapman's Embry-Riddle-inspired design – or create a custom look of your own. **GPMA1573**

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.


GREAT PLANES®
MODEL MANUFACTURING COMPANY