

# FlyLite™



## INSTRUCTION MANUAL

### SPECIFICATIONS

<b>Wingspan:</b>	35 in [890mm]	<b>Weight:</b>	7.2–8.0 oz [205–225 g]
<b>Wing Area:</b>	261 in <sup>2</sup> [16.8 dm <sup>2</sup> ]	<b>Wing Loading:</b>	4.0–4.4 oz/ft <sup>2</sup> [12–13 g/dm <sup>2</sup> ]

<b>Length:</b>	29.5 in [750mm]
<b>Radio:</b>	3-Channel, two ES40 Pico Servos, micro Rx
<b>Motor, Battery and ESC</b>	RimFire™ 250 (28-13-1750kV) 7.4V 300mAh LiPo and 8A brushless ESC

### WARRANTY

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

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

**If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return**

**this kit immediately in new and unused condition to the place of purchase.**

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

#### Hobby Services

3002 N. Apollo Dr. Suite 1  
Champaign IL 61822 USA

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

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



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

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## INTRODUCTION

Thank you for purchasing the Great Planes *ElectriFly* FlyLite ARF. The original concept for the FlyLite was to develop a slow-flying indoor trainer for beginners or pilots with little R/C experience. This goal was achieved, but then we found out how much fun it was to fly the FlyLite outdoors too! Outdoors in calm conditions, beginners will have all the space they need to detect what the FlyLite is doing, process the information, then make the necessary control inputs. Experienced pilots will find ways to challenge themselves by flying low, high, close, far and figuring out what aerobatic tricks they can get the FlyLite to do. And if thermals are present the FlyLite can easily achieve twenty-minute (or longer) flights!

For the latest technical updates or manual corrections to the FlyLite visit the Great Planes web site at [www.greatplanes.com](http://www.greatplanes.com). Open the "Airplanes" link, then select "FlyLite ARF". If there is new technical information or changes to this model a "tech notice" box will appear in the upper left corner of the page.

## AMA

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.

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

1. Your FlyLite 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 FlyLite, 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 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.

4. 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.

5. While the FlyLite has been flight tested to exceed normal use, if it will be used for high-stress flying the modeler is responsible for taking steps to reinforce the plane as necessary.

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.

## ADDITIONAL ITEMS REQUIRED

### Spare Prop-Saver O-Rings

The included Great Planes 8 x 6 Power Flow™ Slow-Flyer propeller is secured to the motor with a rubber O-ring. In a crash, the O-ring prevents damage by allowing the propeller to flex on the motor shaft (see page 16). The RimFire 250 motor includes two O-rings, but you should have spares in case one becomes damaged or lost, so be certain to purchase a package of spare O-rings soon (GPMG1405).



### Motor, ESC and Radio Gear

*This is a list of motor-related items and radio gear required to finish the FlyLite. Order numbers are provided in parentheses.*

- Great Planes ElectriFly RimFire 250 electric motor (GPMG4502)
- Great Planes Silver Series SS-8 8A brushless electronic speed control (ESC) (GPMM1800)
- The balsa servo tray in the FlyLite is fitted for Great Planes ES40 Pico servos (GPMM1200). Other micro servos (such as the Futaba® S3114, FUTM0414) are also suitable, but the servo tray may require slight trimming to fit them.
- Any small 3- or 4-channel receiver is suitable for the FlyLite. Futaba R607FS and R617FS 2.4GHz receivers work perfectly well, but for the lightest weight and best performance the Futaba R6004FF receiver (FUTL7624) is recommended. Note: Although the FlyLite has been flown at great distances outdoors with the R6004FF receiver, technically, this is an "indoor" receiver, so if you plan to fly your FlyLite far away or

maybe even catch thermals, a regular receiver such as the R607FS or R617FS may be more suitable.

- If you do not already have a transmitter, the Futaba 6EX 6-channel 2.4GHz radio system (FUTK6900) is a suitable option. This system includes the R617FS receiver, so if the smaller R6004FF receiver is preferred it will have to be purchased separately. The 6EX has six-model memory, so even if it seems as though this system is more complicated than necessary, up to six different models can be flown with this transmitter without having to reprogram as you evolve in the hobby and accumulate more models. Additionally, the R617FS receiver is perfect for other larger planes that you will grow into.

## Batteries and Charging Equipment

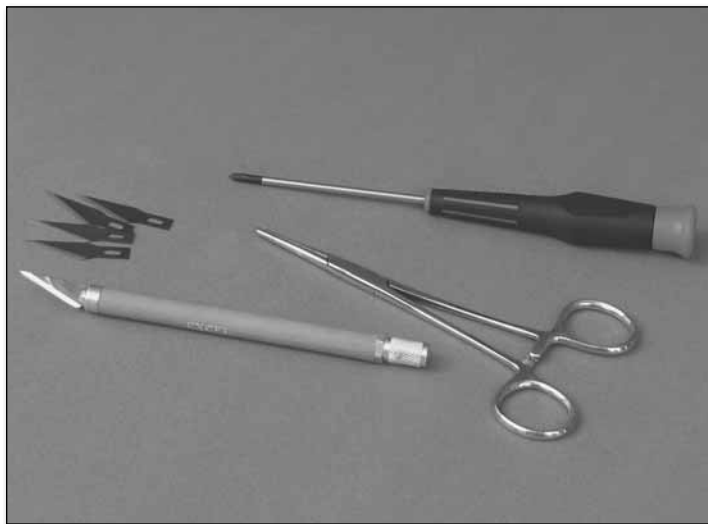
- The FlyLite requires one Great Planes 7.4V 300mAh BP LiPo (Lithium Polymer) battery (GPMP0700). This battery powers the motor, receiver and servos. But when the battery drops below a certain voltage the ESC cuts power to the motor, leaving reserve power for the servos and receiver so you can maintain control for a landing. Although only one battery is needed, most pilots bring at least three or four charged batteries to the flying field so they do not have to wait for charging between flights.

Indoors or in absolutely calm conditions outdoors (where low throttle settings are used), the FlyLite may fly for as long as fifteen minutes. However, in breezy conditions higher throttle settings are typically used, shortening average flying times to around five minutes.

- A LiPo-capable battery charger and a power source for the battery charger is required. Virtually all suitable battery chargers can be powered by a 12V battery, but it is more convenient to use a charger that can be connected either to a 12V battery (for charging at the flying field) or to a 110V wall outlet (for charging at home). One suitable LiPo charger is the Great Planes ElectriFly Triton™ EQ AC/DC Charger (GPMM3155). And in addition to its LiPo capability, the Triton EQ also features one more critical component which is a built-in LiPo cell balancer. For the best LiPo performance, longevity and safety, a LiPo cell balancer must be used so each individual cell in the LiPo battery can be charged evenly.
- Another suitable LiPo battery charger is the Great Planes PolyCharge4™ DC LiPo charger (GPMM3015). The advantage of the PolyCharge4 is that it can charge up to four LiPo batteries at the same time. But unlike the Triton EQ, the PolyCharge4 does not have an internal LiPo cell balancer, so for each LiPo battery you wish to charge simultaneously (up to 4), one Great Planes Equinox™ LiPo Cell Balancer (GPMM3160) will be required. Finally, the PolyCharge4 does not have AC capability, so if wall-charging from home is a priority a separate A/C 12-Volt power source must be purchased separately. A suitable power supply then for the PolyCharge4 is the Great Planes 12V 12A DC power supply (GPMP0901).

## Assembly Tools

Few tools are required to assemble your FlyLite, so if you have these on-hand before you begin you'll be in the air in no time.



- Small needle-nose pliers (HCAR0625) or hemostats (BRUR1302)
- #0 magnetized (if possible) Phillips screwdriver (DTXR0170) (A screwdriver can be magnetized by rubbing a magnet against it.)
- Hobby knife (EXLR6018) with #11 blade (XACR3121)
- Segmented lead weights (GPMQ4485) for beginners and outdoor flying (see page 18).

## Glue for Repairs

If repairs to your FlyLite are ever required, note that there are certain types of glues that should be used. Usually, **foam-safe CA** (super glue) is required to repair foam models and many modelers keep some in their flight box so they can make repairs at the field. While only foam-safe CA can be used on the wing, tail surfaces and on the battery plate in the fuselage, the fuselage may be glued with either regular CA or foam-safe CA. Sometimes though, you accidentally reach for the wrong bottle on your workbench or forget which kind of CA can be used on which parts, so it's easiest just to forget about regular CA and use only foam-safe CA when making repairs to any part of the model. And when making repairs, simply gluing the parts back together with CA alone usually doesn't work. Without a catalyst, CA can take a long time to harden. To speed drying time, apply CA, hold the parts together, and then have an assistant apply a light mist of CA accelerator causing the CA to harden within seconds.

*If you want to assemble a repair kit, following are some recommended items:*



- UFO Thin foam-safe CA (HOTR1040)
- Great Planes Pro™ CA activator (GPMR6035)
- Hobbico® CA applicator tips (HCAR3780)
- Du Bro® electric flyer hinge tape (DUBQ0916)
- #1 knife blade knife (EXLR6018)
- #11 hobby blades (XACR3121)

## ORDERING REPLACEMENT PARTS

Replacement parts for the FlyLite are available using the order numbers in the Replacement Parts List that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company.

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

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

Mail parts orders and payments by personal check to:

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

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

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

**REPLACEMENT PARTS LIST**

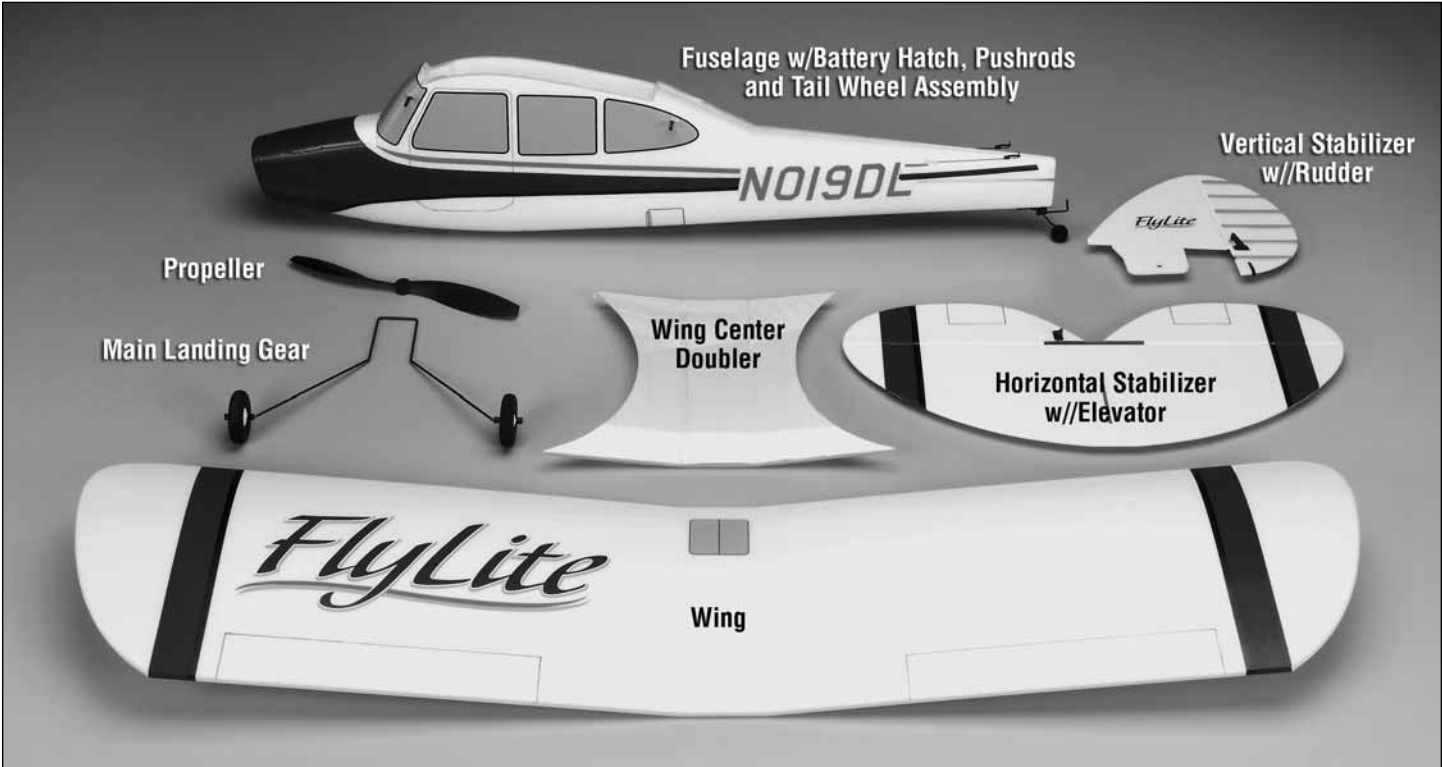
Order No.	Description
GPMA2581	Wing
GPMA2582	Fuselage Set
GPMA2583	Tail Surface Set
GPMA2584	Landing Gear Set
GPMA2585	Battery Hatch
GPMA2586	Faslink Pushrod Connector (6)
GPMA2587	Wing Mounting Rubber Bands (6)
GPMA6610	8x6 Power Flow Propeller (2)
<b>NOTE</b> ▶	Full-size plans are not available. You can download a copy of this manual at <a href="http://www.greatplanes.com">www.greatplanes.com</a> .

**KIT INSPECTION**

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

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

**KIT CONTENTS**



## ASSEMBLY

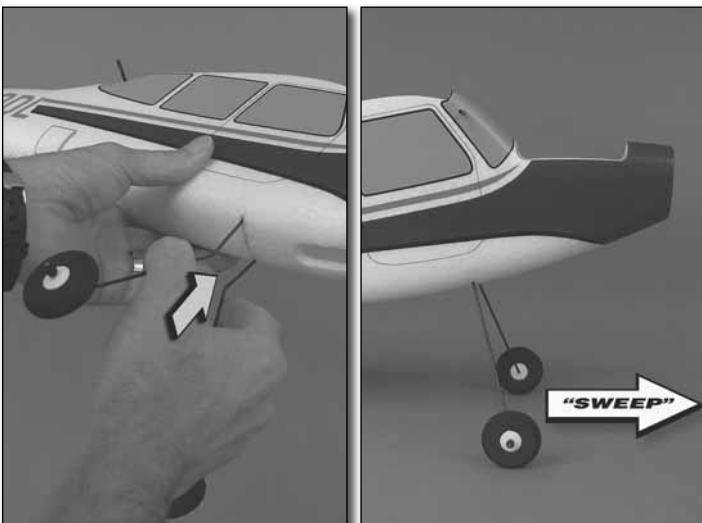
### Prepare the Fuselage

Your transmitter and a charged battery will be required soon for setting up the radio. If you plan to fly your FlyLite immediately, charge your battery now so you will not have to wait later.

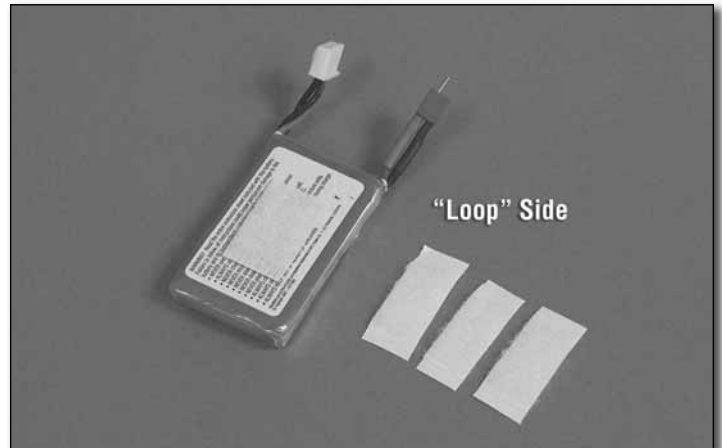
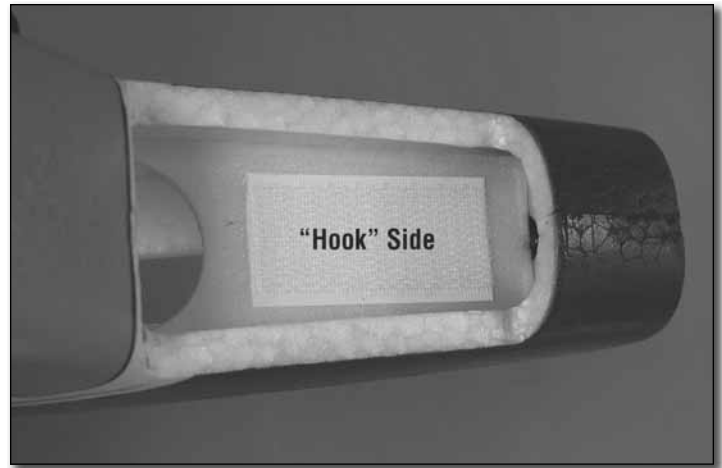


❑ 1. Lift the back of the **battery hatch** to remove it from the fuselage—a little more force than usual may be required for the first time as there may be some residual glue sticking the parts together. Use care.

❑ 2. There may be a small piece of tape temporarily stuck to the magnet on the hatch or to the magnet in the fuselage. Remove the tape and throw it away. Set the hatch aside.

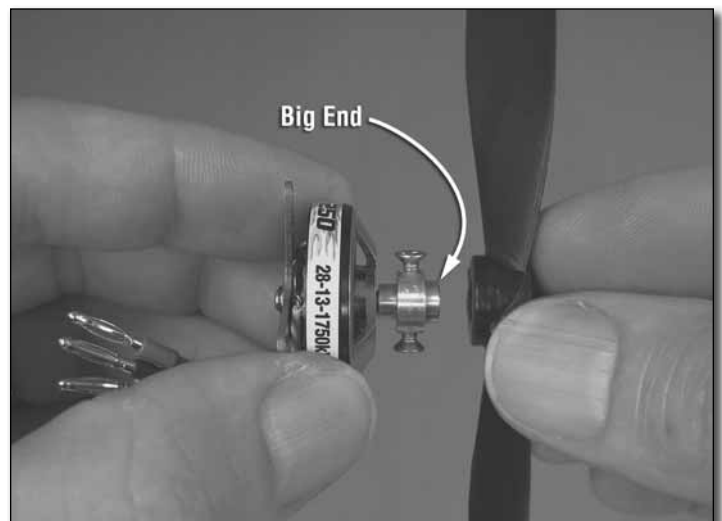


❑ 3. Lightly squeeze the main landing gear wire together and fit it all the way up into the fuselage with the bent-in “sweep” in the wire facing forward.



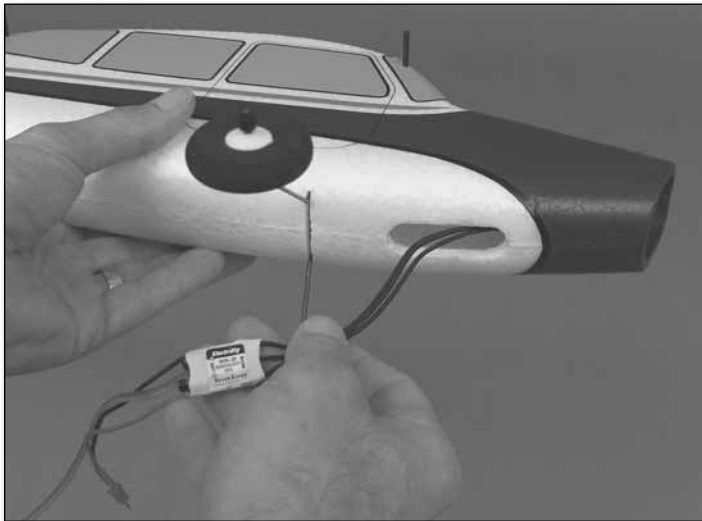
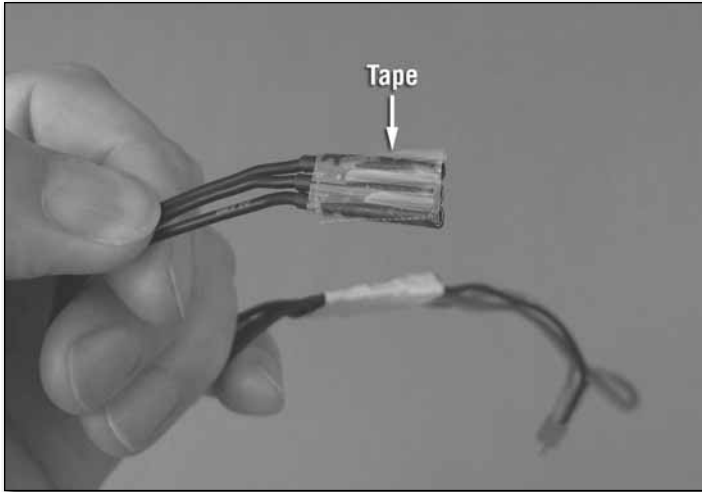
❑ 4. Apply the rougher, “hook” side of the included Velcro hook-and-loop strip to the battery mounting plate in the fuselage. Cut the softer, “loop” side of the Velcro strip into four pieces and attach one of the strips to your battery. If you already have more batteries you can apply the other strips to the batteries now. If you ever need more Velcro later, it can also be purchased separately (GPMQ4480).

### Mount the Motor

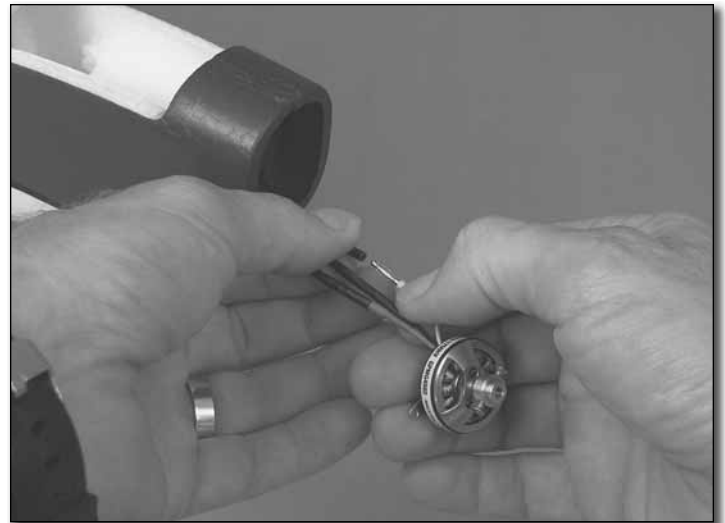


❑ 1. Test fit the included 8 x 6 Slow Flyer propeller onto the prop-saver propeller adapter on the RimFire 250 motor. If the propeller fits loosely, use a #0 or #1 Phillips screwdriver to

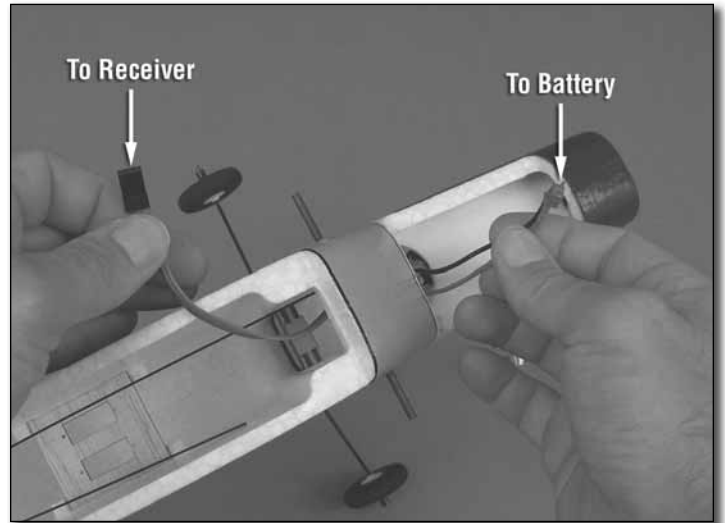
remove the adapter. Flip it over so the big end is forward, and then reattach the adapter to the propeller shaft. Make certain the screws settle onto the flat spots on the motor shaft and tighten them securely.



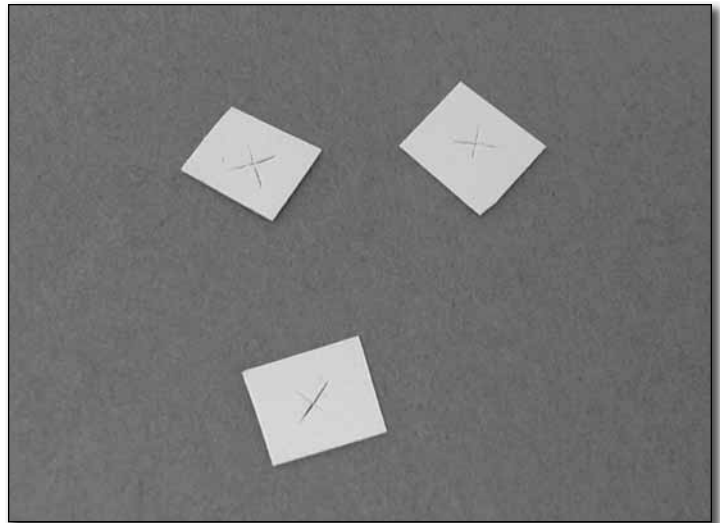
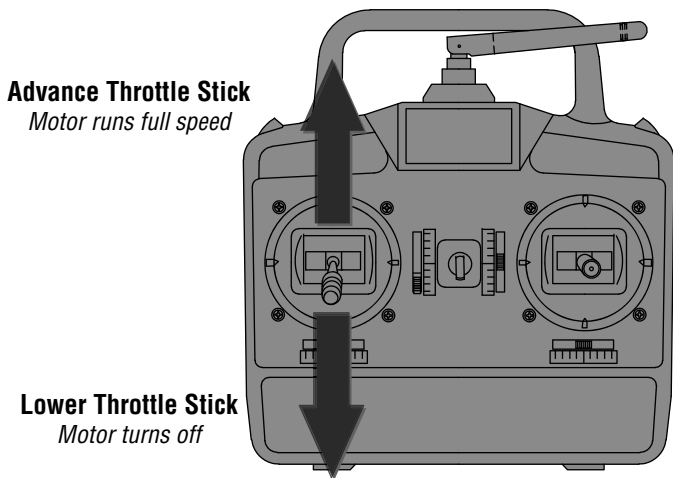
□ 2. Temporarily tape together the end of the three motor wires from the ESC (electronic speed control). Feed the wires up through the hole in the bottom of the fuselage and out the hole in the bottom of the firewall—this may require a little finagling by holding the fuselage vertically or using a toothpick or something similar to coax the wires out through the hole.



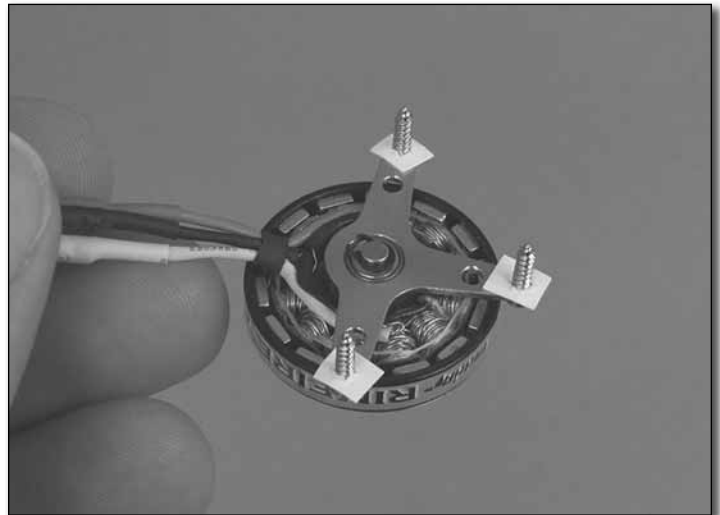
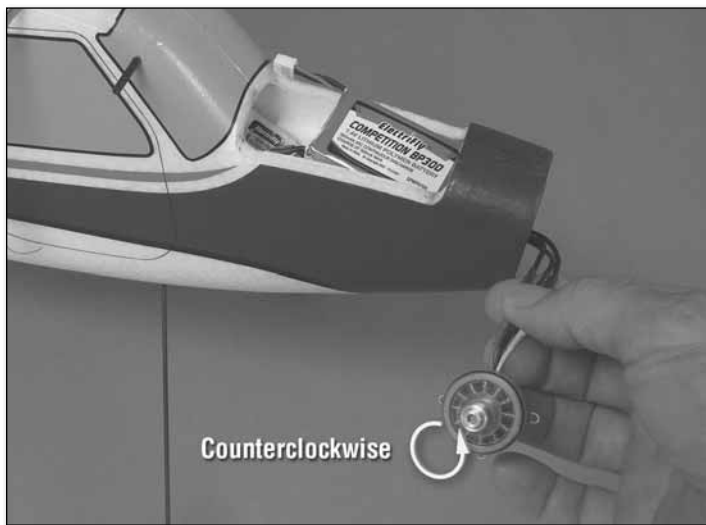
□ 3. Remove the tape from the ESC wires and connect the motor to the ESC. It doesn't matter which way the wires go for now because it's just a guess anyway—we'll make sure the wires are properly connected later.



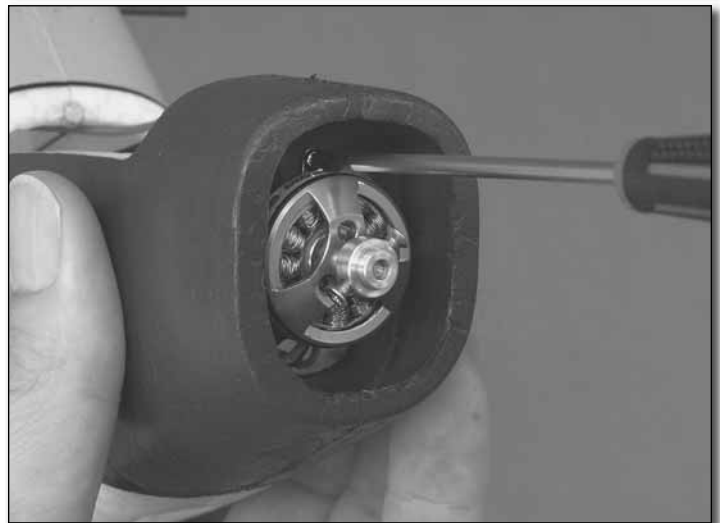
□ 4. Place the ESC in the fuselage by guiding it up into the hole in the bottom. From the top of the fuselage, pull the ESC wire that goes to the receiver up and over the landing gear mount into the radio compartment and pull the battery wire into the battery compartment.



❑ 5. If using the ElectriFly SS-8 ESC and a Futaba radio, set the throttle channel in your transmitter to “reverse” so the motor will turn when you advance the throttle.



❑ 6. Connect the ESC to **channel 3** in your receiver. Turn on your transmitter. Connect the battery to the battery wire coming from the ESC. Holding the motor in your hand, advance the throttle stick on your transmitter to see if the motor is turning in the correct direction—it should be turning counter-clockwise if viewing the motor from the front. If the motor is not turning the correct direction, swap any two motor/ESC wires with each other. Confirm that the motor is now turning in the correct direction by advancing the throttle stick again.

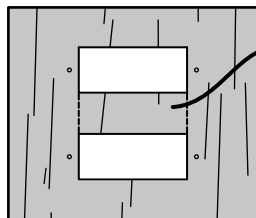


❑ 7. If your #0 Phillips screwdriver is not magnetic, rub a magnet against it several times to get it magnetized.

❑ 8. Hold the motor to the firewall, aligning the screw holes in the motor with the holes in the firewall. Mount the motor with three 2mm x 8mm Phillips screws included with this kit (six screws are included, but three are for spares). You should be able to pick up the screws with your magnetic screwdriver and just screw them in. If your screwdriver is not magnetic, make small washers from thin cardstock or construction paper to hold the screws to the motor, and then mount the motor. **DO NOT** mount the propeller to the motor at this time.



## Mount the Servos

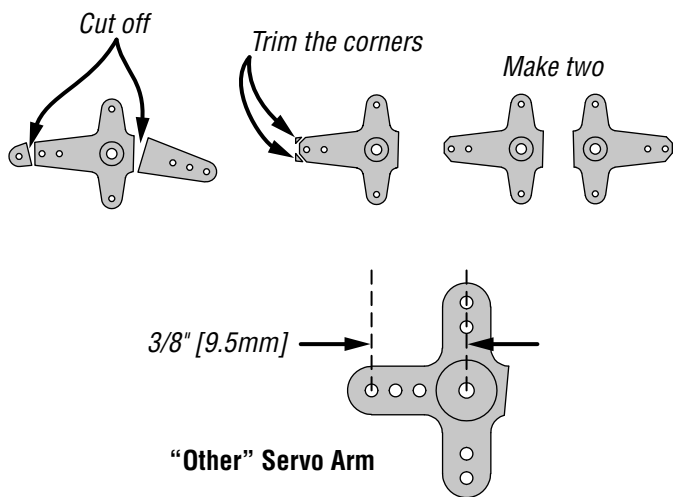


Servo Tray

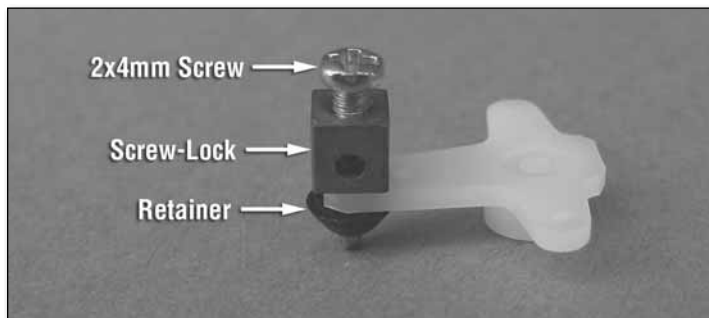
It's okay to cut out this part to make it easier to fit larger servos.

- ❑ 1. If **not** using the recommended ES40 Pico servos, test fit the servos you will be using in the servo tray in the fuselage. If your servos don't fit, use a hobby knife to carefully trim the tray as necessary—if it makes the trimming job easier you can cut out the center part of the tray.

### ES40 Pico Servos

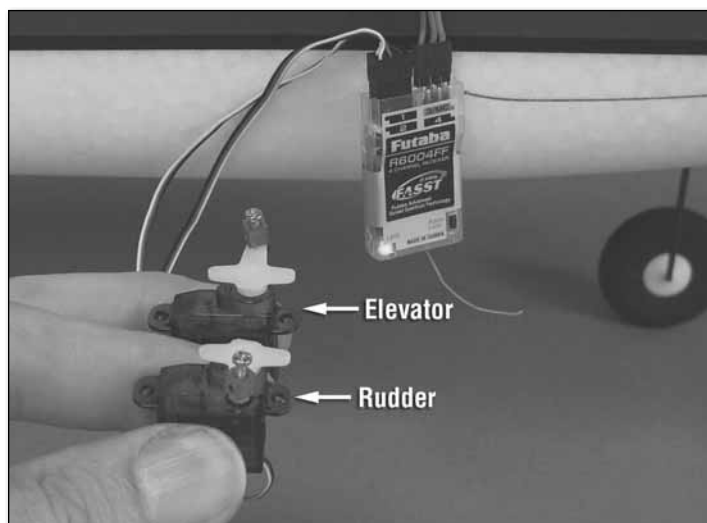


- ❑ 2. If you are using the recommended ElectricFly ES40 Pico servos, prepare the servo arms that came with the servos by cutting them as illustrated. If *not* using Pico servos, prepare two servo arms so the pushrod mounting holes will be 3/8" [9.5mm] from the arm mounting screw.

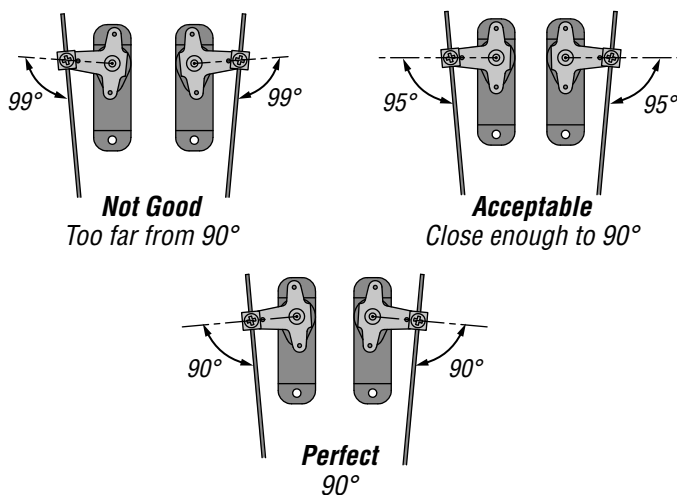


- ❑ 3. Mount a screw-lock connector to each servo arm using the small, black nylon retainer—if the screw-lock connectors don't fit in the servo arm holes use a #55 drill or a hobby knife to carefully enlarge the holes **just enough** to fit the micro screw-lock connector. Thread a 2mm x 4mm Phillips machine screw into each screw-lock connector.

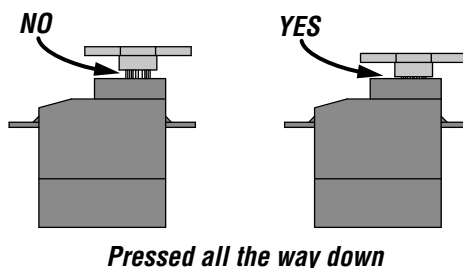
Use this photo for the next two steps:



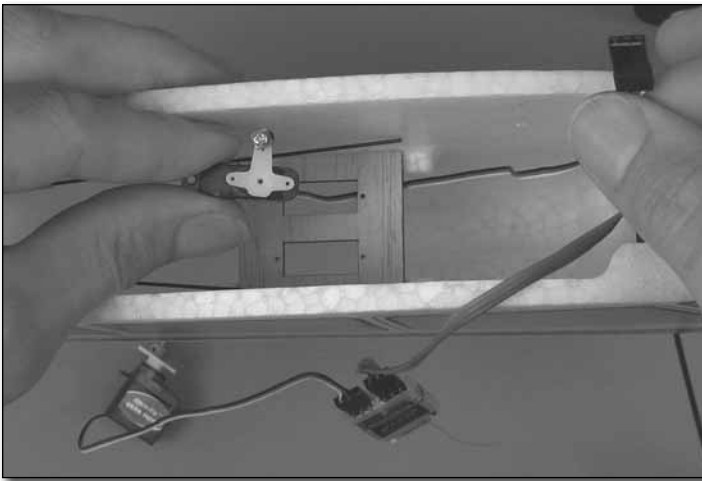
- ❑ 4. Connect the rudder and elevator servos to the receiver—the servo on the right is the rudder servo and goes to **channel 1** in the receiver and the servo on the left is the elevator servo and goes to **channel 2** in the receiver.



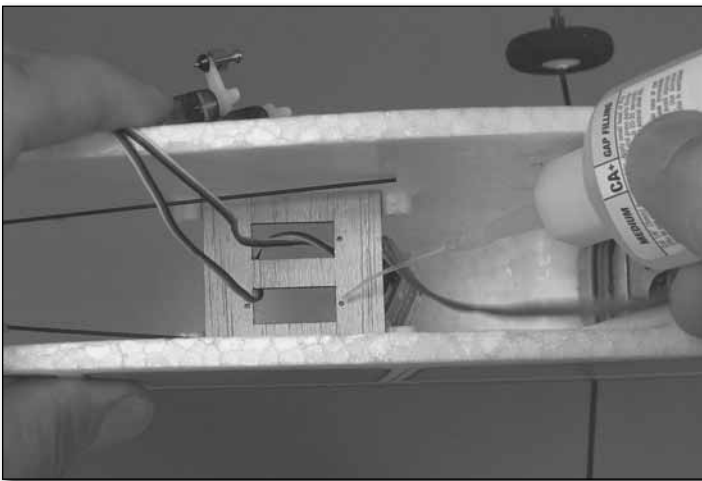
- ❑ 5. Turn on your transmitter and make sure the trims are centered. Connect the battery to the ESC. This will "center" the servos. Fit the servo arms onto the servos so they will be as close as you can get them to 90° to the pushrods—it may not be possible to get the servo arms **precisely** 90°, so just get them as close as you can. This will provide symmetrical control surface throw (discussed on page 14).



- ❑ 6. Make sure the servo arms are firmly pressed **all the way down** onto the splined shafts and install the screws that hold on the arms.



❑ 7. Unplug the elevator servo from the receiver. Guide the elevator servo wire down through the servo tray and reconnect the servo wire to the receiver. Do the same with the rudder servo, and then just let the servos hang by the wires over the side of the fuselage for now.



❑ 8. Add a drop of glue to the four screw holes in the servo tray (or, simply glue the servos into position)—just about any kind of glue is suitable as long as it will stick to wood. This will help the servo mounting screws stay secure in the balsa. Proceed immediately to the next step before the glue hardens.

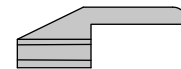


❑ 9. Fit the servos in the tray and carefully screw them down with the included 1.6mm x 4mm Phillips screws (or you may

use the longer wood screws that came with the ES40 Pico servos)—use care not to over tighten the screws because it is easy to strip out the balsa. If you do strip out the balsa the glue you added will hold the screws. **Hint:** If the servo arm is in the way of one of the screws, turn on your radio and use the transmitter to rotate the servo arm to accommodate your screwdriver.

❑ 10. Install the receiver in the fuselage. If preferred, the receiver could be mounted to the inside of the fuselage using the included double-sided foam mounting tape. But on an electric-powered model this small, it's okay to just drop the receiver down in there without mounting it to anything. The same applies to the ESC. **NOTE:** If you're using a 72mHz receiver that has a long antenna, you can guide the antenna out the hole in the bottom of the fuselage and tape the end under the tail.

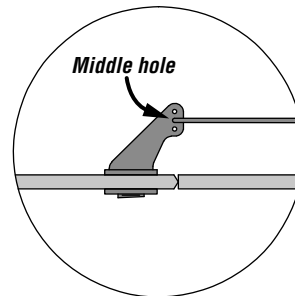
### Mount the Horizontal and Vertical Stabilizers



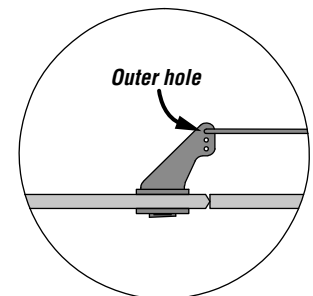
90° Pushrod connector

❑ 1. Remove the 90° pushrod connectors from the pushrods in the fuselage and set the connectors aside.

Rudder horn

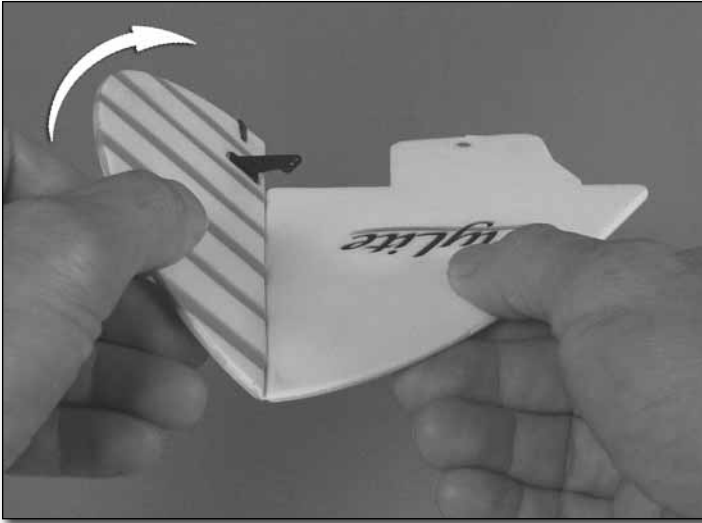


Elevator horn

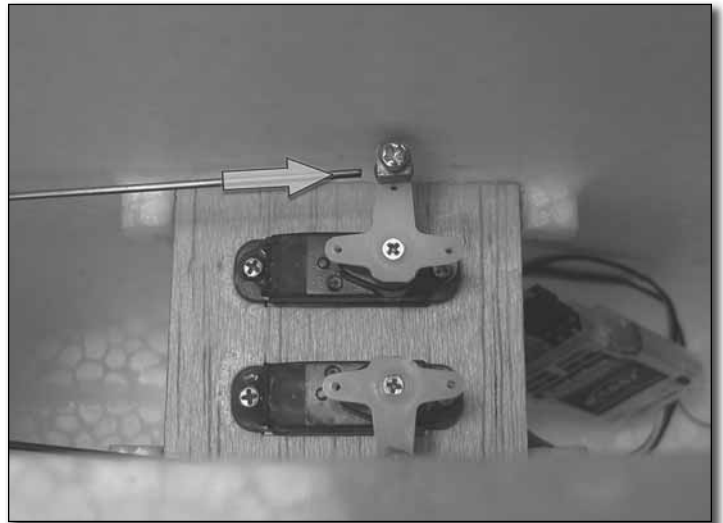
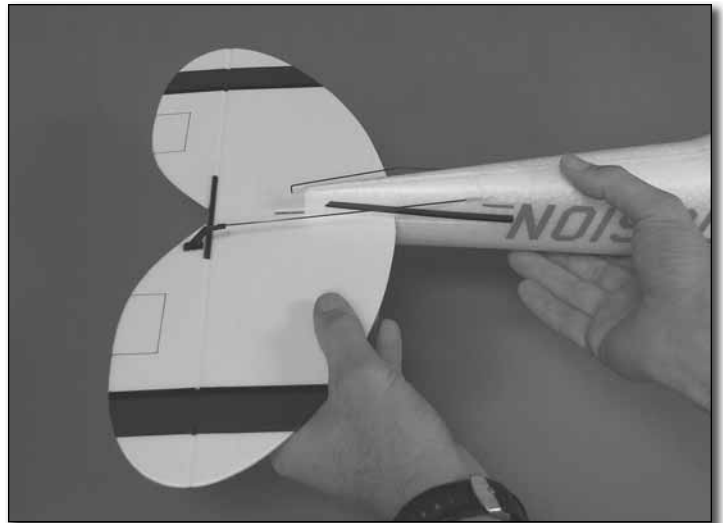
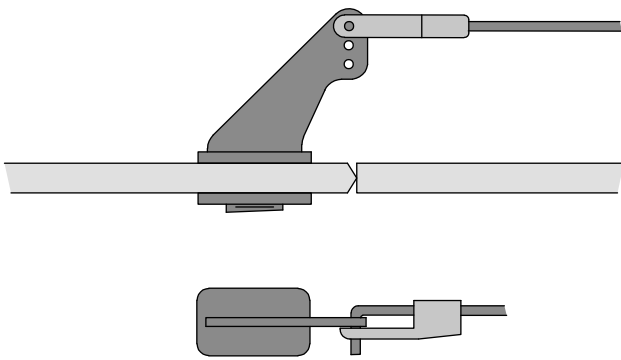


❑ 2. Slide one of the pushrods out of the fuselage and test fit it into the **middle** hole in the rudder control horn and into

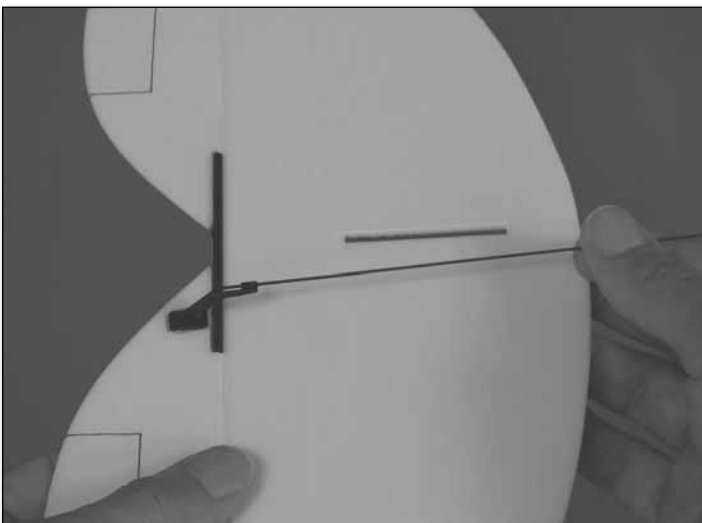
the **outer** hole in the elevator control horn. If necessary, use a hobby knife to carefully enlarge the holes in the horns just until the pushrods will go in.



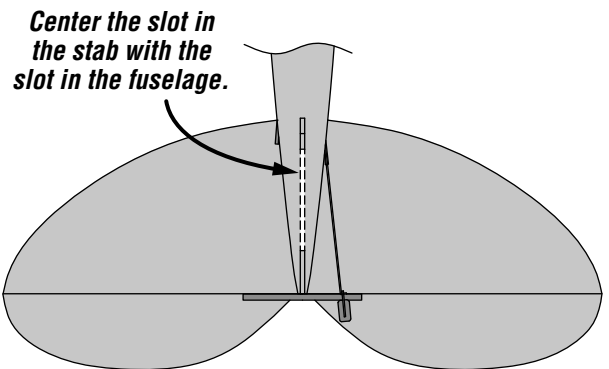
❑ 3. **Carefully** flex the elevator and rudder back and forth a few times to about a 45° angle to loosen the hinge line.



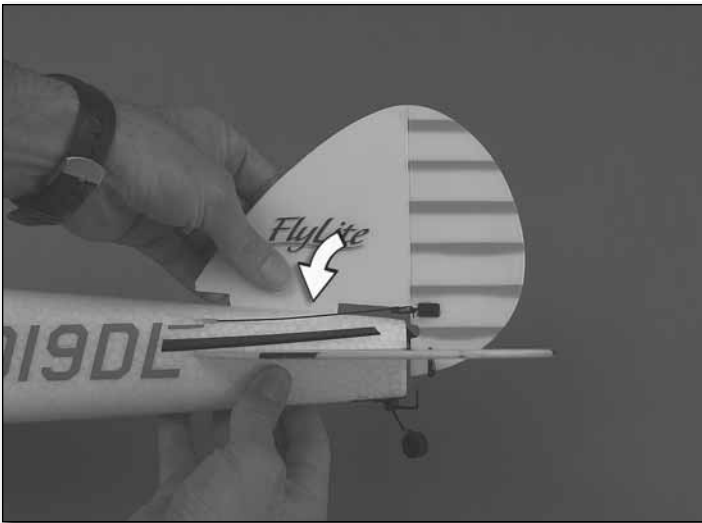
❑ 5. Guide the pushrod wire up through the pushrod tube in the fuselage as you slide the horizontal stabilizer (stab) into position. Insert the wire into the screw-lock connector on the elevator servo and slide the stab the rest of the way in.



❑ 4. Fit the elevator pushrod into the outer hole in the elevator horn and snap a 90° pushrod connector over the wire so it won't come off. (The connectors can also be installed/removed after the plane is together, but it's easier to do it now.)



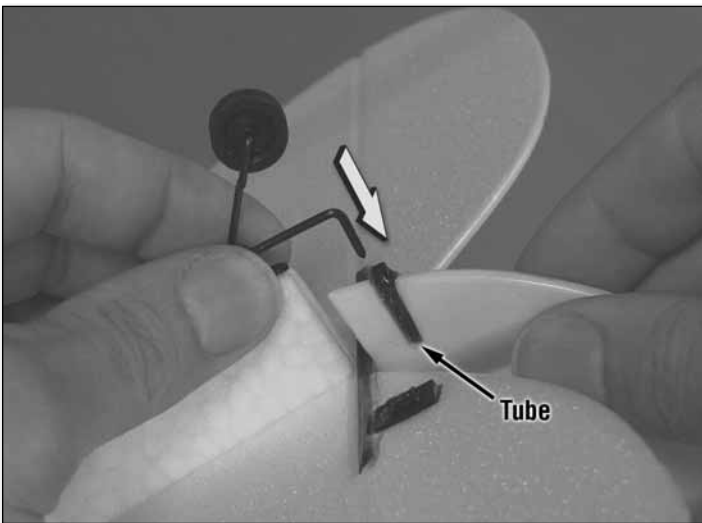
❑ 6. Center the slot in the stab with the slot in the fuselage for the vertical stabilizer (fin).



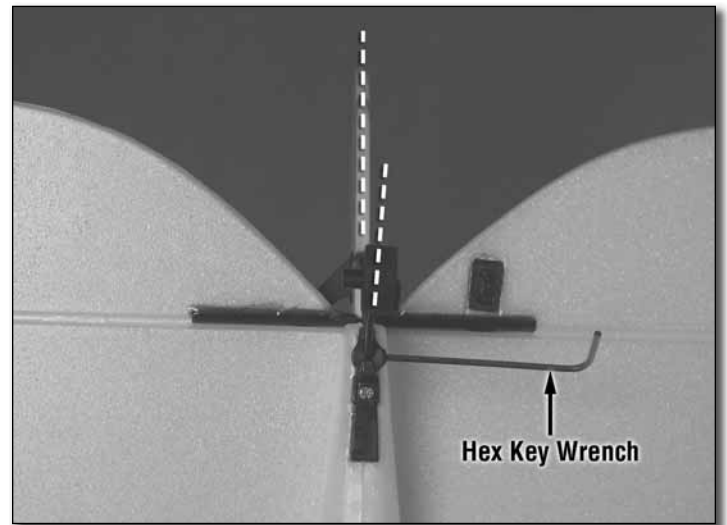
□ 7. Same as was done with the stab, connect the rudder pushrod to the **middle** hole in the rudder horn and install the 90-degree pushrod connector. Fit the rudder pushrod and fin into position holding the fuselage by the bottom under the stab and holding the fin at its base as shown. Carefully work the fin into position until it is almost, but not quite, all the way in.



This is what the rudder/pushrod/tail wheel assembly looks like when properly installed.



□ 8. Fit the tail gear wire into the tube in the bottom of the rudder, then install the fin the rest of the way into the fuselage until it is snug and secure. **Note:** The fin is held into position with built-in magnets (which also lock in the stab), so no glue is required.

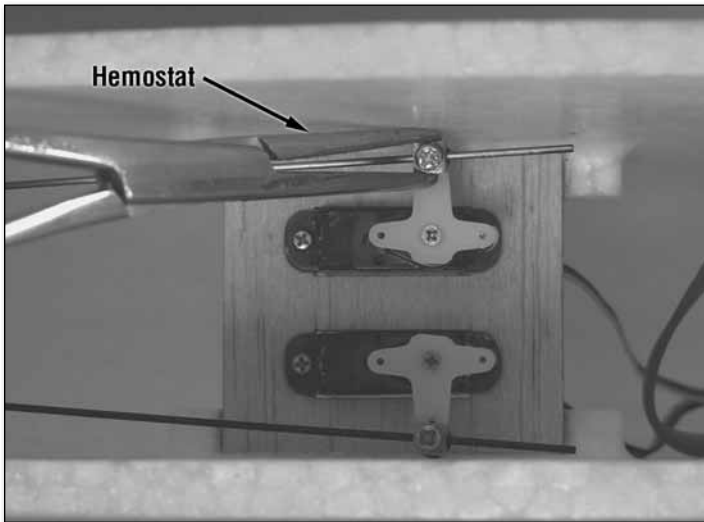
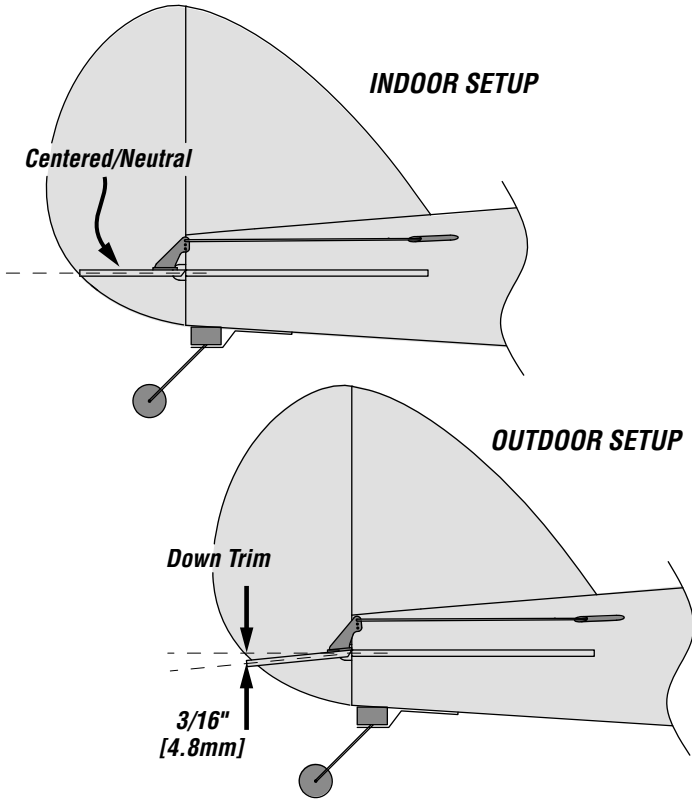


□ 9. View the bottom of the FlyLite looking at the alignment between the rudder and the tail wheel—the two should be centered (or very nearly centered) with each other so the plane will roll straight. If necessary, use the included hex key wrench to loosen the set screw in the collar. Center the tail wheel with the rudder, and then tighten the screw. Use care to tighten the screw **just enough** to lock the tail wire into place. Otherwise, you may strip out the plastic.

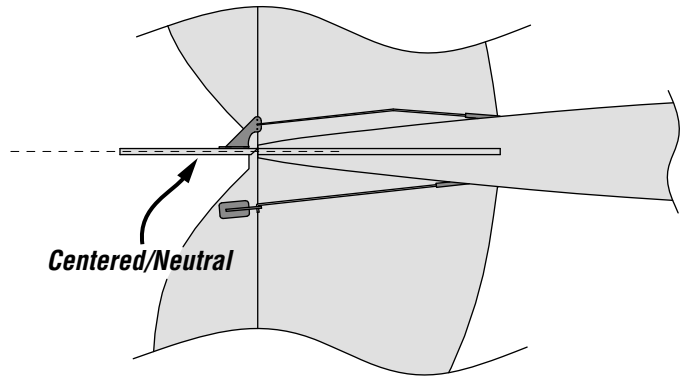
## FINAL CONTROL SET UP

Your FlyLite is nearly complete, but first there a few last-minute procedures.

### Center the Control Surfaces

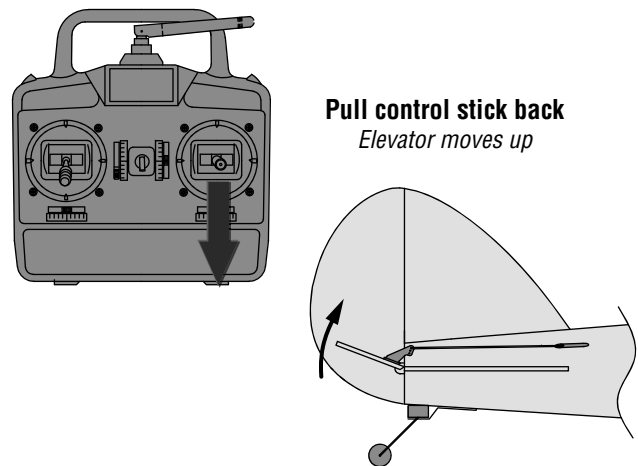
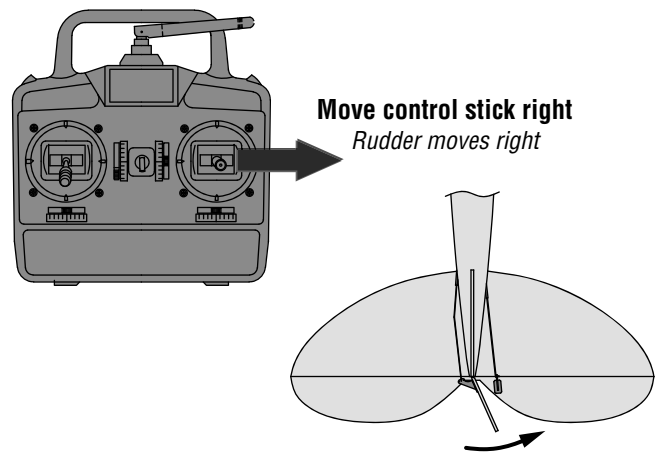


❑ 1. Turn on your transmitter and connect the battery to the ESC in the plane. Being certain the trims on your transmitter are still centered, center the elevator. Then use needle-nose pliers or hemostats to hold the screw-lock connector while tightening the screw to lock the pushrod down. **Note:** If flying your FlyLite outdoors, rather than having the elevator centered, it should have approximately 3/16" [5mm] of down trim. This will allow your FlyLite to fly level when flying at faster speeds typically used outdoors.



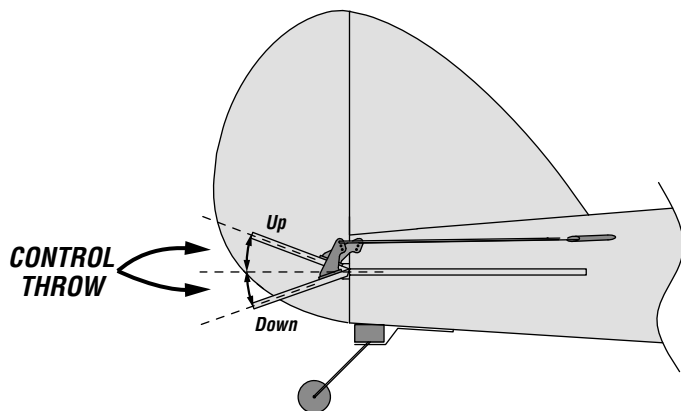
❑ 2. Same as was done in the previous step for the elevator, center the rudder and tighten the screw in the screw-lock connector to lock the pushrod down.

### Check the Control Direction



❑ Operate the controls on the transmitter to make certain the elevator and rudder respond in the correct direction. If necessary, reverse the servo reversing in your transmitter to get the controls to respond the right way.

## Check the Control Throws



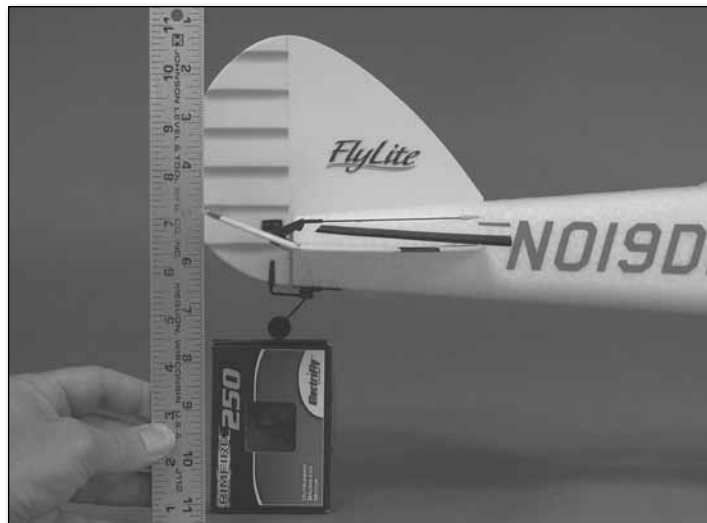
One of the most important factors in determining how a plane flies—and your ability to control it—is the control throw, or how far each control surface moves up and down or left and right. If the throw is too much the plane will respond too quickly and you will end up over controlling it. If the throw is too little the plane will respond too slowly and there may not be enough to maneuver or change direction. Follow the procedure below to make sure the control throws are set properly.

### Measure the elevator throw first:

❑ 1. Use a small box or something similar to prop up the aft end of the fuselage so the stab will be level (or nearly level).



❑ 2. Still without the propeller mounted to the motor, turn on your transmitter and connect the battery. Place a ruler to the trailing edge of the elevator at the widest part (from front-to-back).



❑ 3. Use your transmitter to move the elevator up and measure the distance it moved from center. This is your “up” control throw. Measure the down elevator control throw the same way.

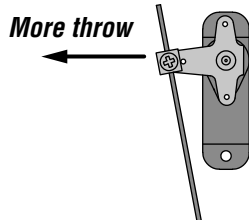
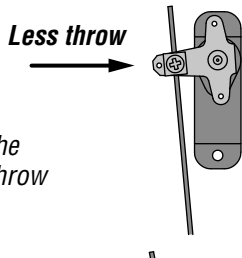
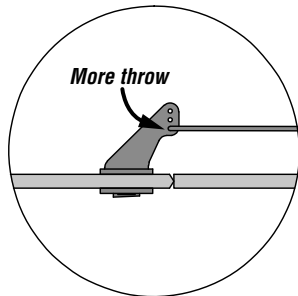
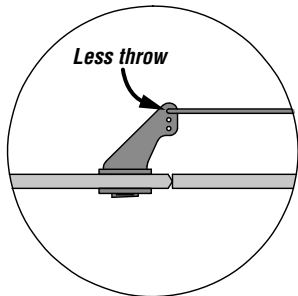
Compare the measured up and down elevator throw to the recommended control throws below:

These are the recommended control surface throws:				
	HIGH RATE		LOW RATE	
	Up	Down	Up	Down
ELEVATOR	3/4" [19mm]	3/4" [19mm]	1/2" [13mm]	1/2" [13mm]
	21°	21°	14°	14°
RUDDER	Right	Left	Right	Left
	1-1/4" [32mm]	1-1/4" [32mm]	3/4" [19mm]	3/4" [19mm]
	29°	29°	17°	17°

❑ 4. As long as your elevator throw is within 1/8" [3.2mm] of the recommended throws above, your elevator throw is acceptable. If your elevator throw is **not** within 1/8" [3.2mm], use the end point adjustments in your transmitter (if yours has this feature) to tune the throw. If your radio does **not** have end point adjustments, change the location of the pushrod in the elevator horn or in the servo arm as illustrated below:

Move the pushrod out on the control surface to reduce control throw.

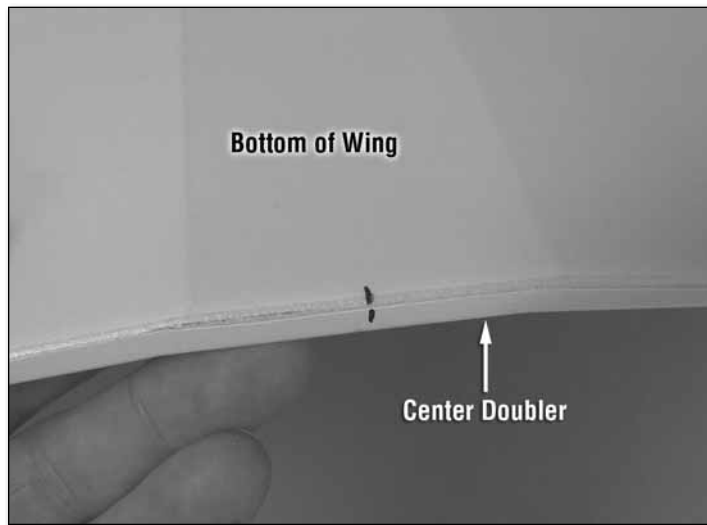
Move the pushrod in on the control surface to increase control throw.



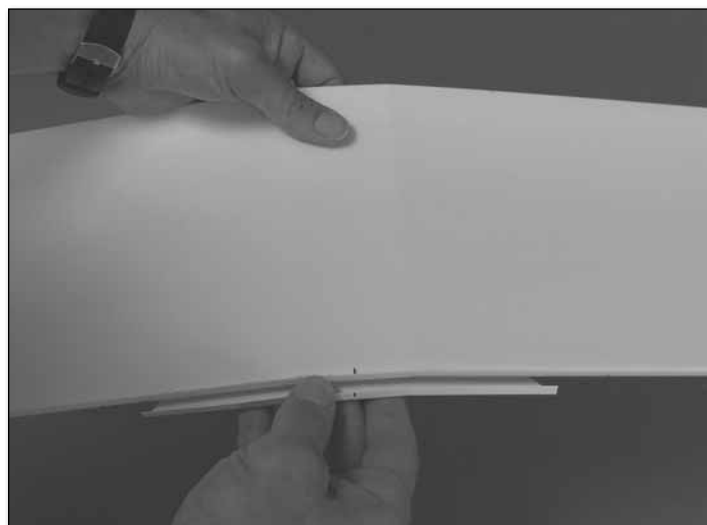
On the servo end, move the pushrod out to increase throw or in to decrease throw.

- 5. Check and if necessary, adjust the rudder throw the same way so it is within 1/8" [3.2mm] of the specified throw.

**Optional: Add the Wing Center Doubler.** If flying the FlyLite *outdoors*, or if flying more aggressively in large indoor sites where higher throttle settings may be used more often, do not use the rubber band protectors. Instead, the formed **wing center doubler** and fiber-reinforced tape must be added to the wing as they increase strength. The center doubler is adhered to the top of the wing with aggressive double-sided adhesive tape, so once installed it is permanent. Follow these instructions to apply the center wing doubler and fiber-reinforced tape.



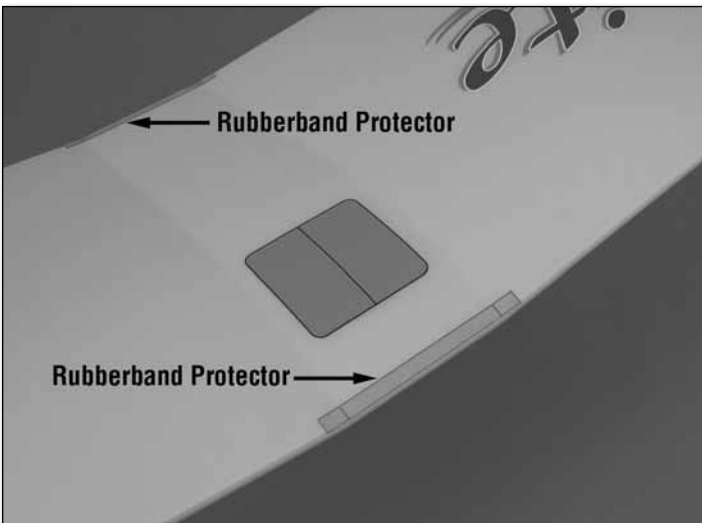
- 2. Before removing the protective backing over the double-sided tape on the bottom of the center doubler, test fit it onto the wing. Use a fine-point felt-tip pen to mark the center of the doubler and the wing at the trailing edge. This will be a reference mark for aligning the doubler in the next step.



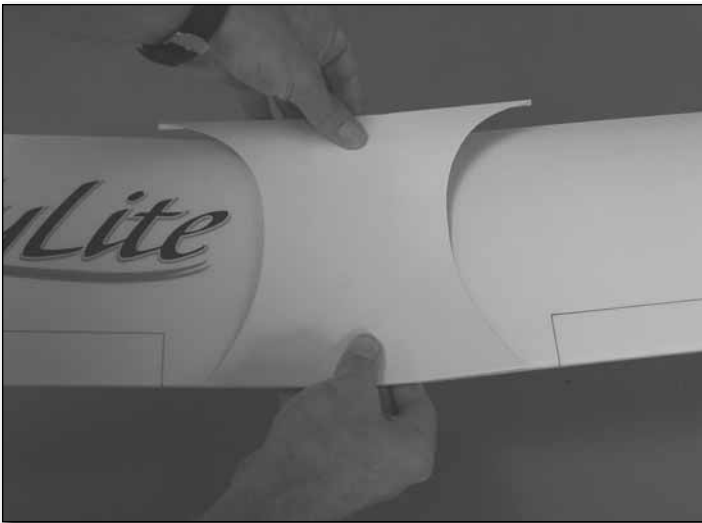
- 3. Peel off the protective covering from the tape on the back of the center doubler. Then join **only the back edge** of the doubler to the top of the wing by holding them upside down and aligning the marks.

**GET THE MODEL READY TO FLY**

**Prepare the Wing**

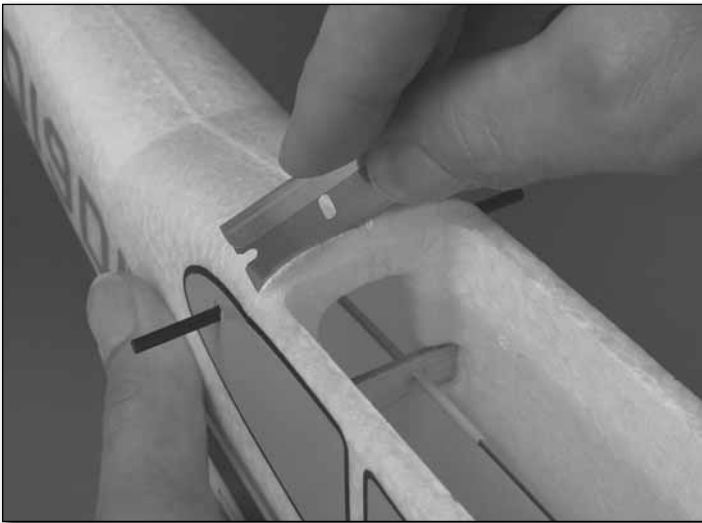


- 1. If flying the FlyLite *indoors*, remove the protective backing from the adhesive on the **rubber band protectors** and apply them to the top of the wing centered over the leading and trailing edges. Proceed to "Balance the Model (C.G.)" on the next page.



❑ 4. Keeping the rest of the center doubler from contacting the wing by holding the two apart, flip the assembly over. Then starting at the back and working forward, press the doubler all the way into position.

❑ 5. Supporting the bottom of the wing under the doubler, make certain the doubler is securely bonded to the top of the wing by carefully but thoroughly pressing it down.

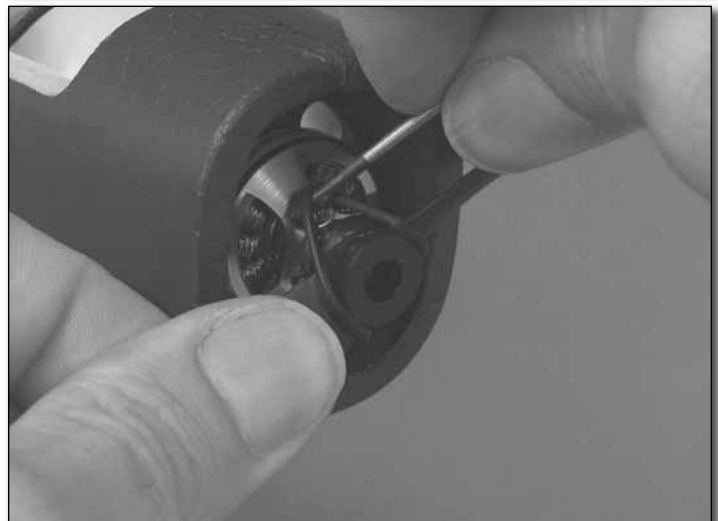


❑ 6. If necessary, use a single-edge razor blade or a hobby knife to trim a thin film of material (1/32" [.8mm]) from where the trailing edge of the wing contacts the fuselage. This will allow the wing to fit properly with the center doubler installed.

***The fiber-reinforced tape must also be added to the bottom of the wing, but this will be done after marking the C.G. lines in following steps.***

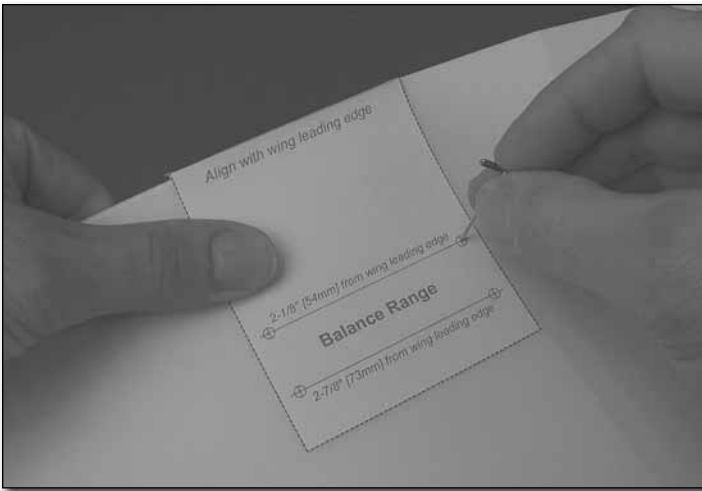
## ***Balance the Model (C.G.)***

Another critical factor in determining how a plane flies (and again your ability to control it) is the center of gravity (C.G.), or the *balance point*. If the balance point is too far aft the plane will be unstable and react too quickly to your control inputs. If the balance point is too far forward the plane will be too stable and not react enough to your control inputs. Beginners should never fly the FlyLite if it is balanced outside of the balance range specified on the next page.

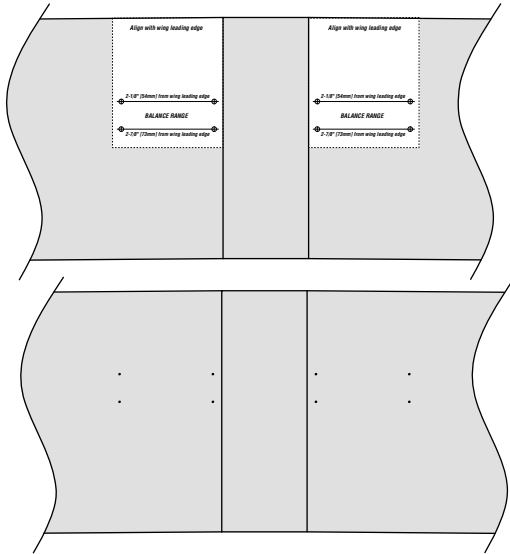


❑ 1. To balance the model, all components must be installed including the propeller. Mount the propeller to the motor using the rubber prop-saver O-ring that came with the motor. The best way is to hook the O-ring around one of the screws, and then fit the propeller and use a small Phillips screwdriver or something similar to hook the other end of the O-ring up and around the other screw.



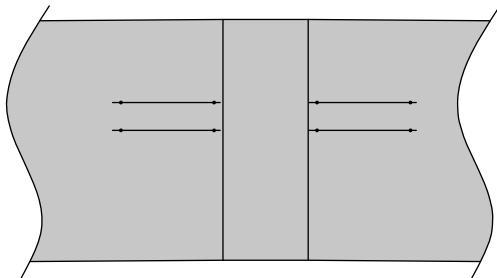


### BOTTOM OF WING

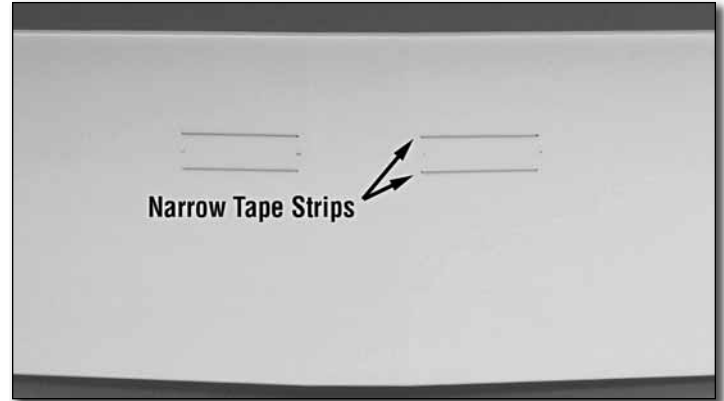
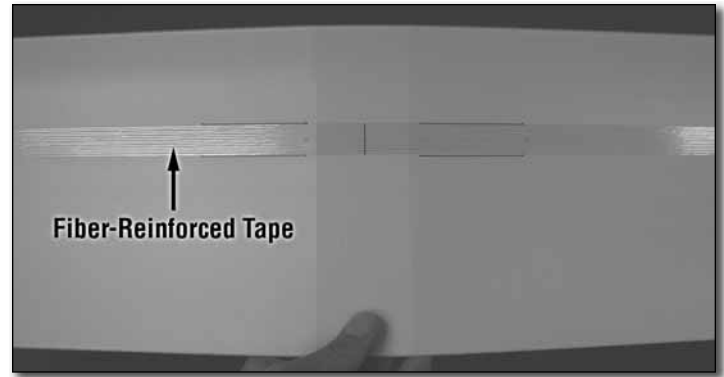


❑ 2. Cut the **C.G. Marking Guide** from the back of the manual along the dashed lines. Then fold the guide along the solid line at the front where shown. Place the guide on the **bottom** of one half of the wing next to the bend over the fuselage. Align the front of the template with the leading edge of the wing. Use a fine-point ballpoint pen or a pin to poke small dimples through the four cross marks into the wing. **Note:** The C.G. range is 2-1/8" [54mm] to 2-7/8" [73mm] from the leading edge of the wing and can also be marked with a ruler if the templates get misplaced.

❑ 3. Move the marking guide to the other half of the wing and make another set of marks.

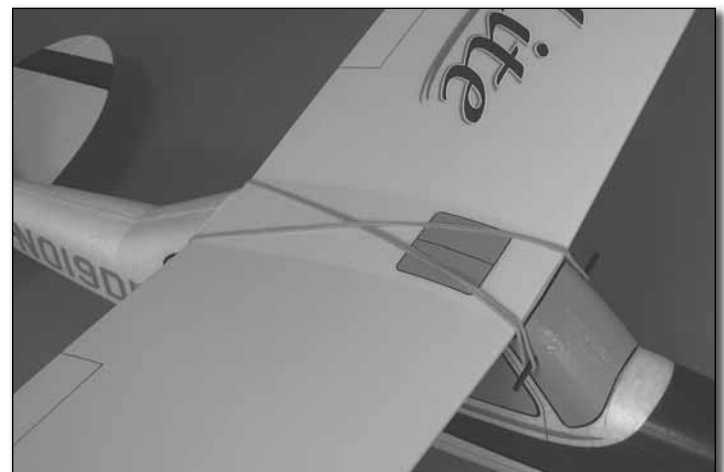


❑ 4. Use a straightedge and a fine-point felt-tip pen to draw the **C.G. range lines** on the bottom of the wing connecting the sets of marks.



❑ 5. If you still need to add the fiber-reinforced tape to the bottom of the wing for outdoor flying or aggressive indoor flying, cut a 24" [610mm] strip of the included fiber-reinforced tape and add it to the bottom of the wing centered between the lines marked in the previous step. If not adding the fiber-reinforced tape, instead apply narrow strips of pin striping tape or masking tape over the lines so you will be able to feel them with your fingers when balancing the plane later. **Note:** If you are an experienced pilot and will be **intentionally** abusing your FlyLite by flying it as aggressively as you can, cut the remaining piece of reinforced tape in half. Apply these strips to the bottom of the wing 1" [25mm] **ahead of** and 1" [25mm] **behind** the first strip.

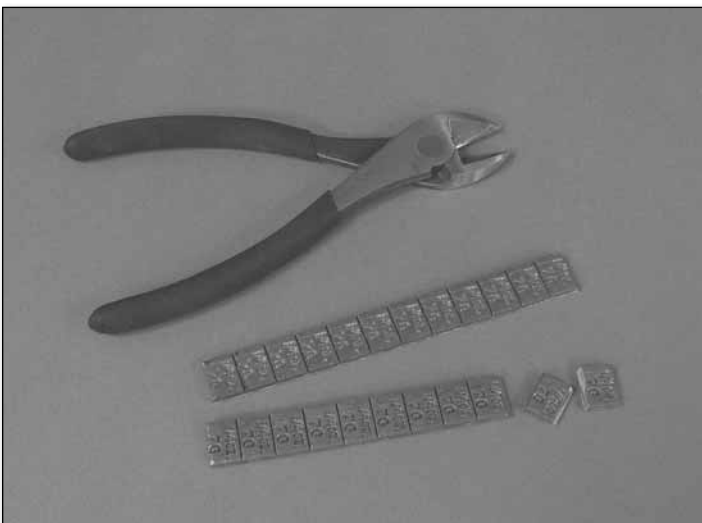
**Now your FlyLite should be ready-to-fly with everything in place including the servos, pushrods, receiver, ESC and propeller.**



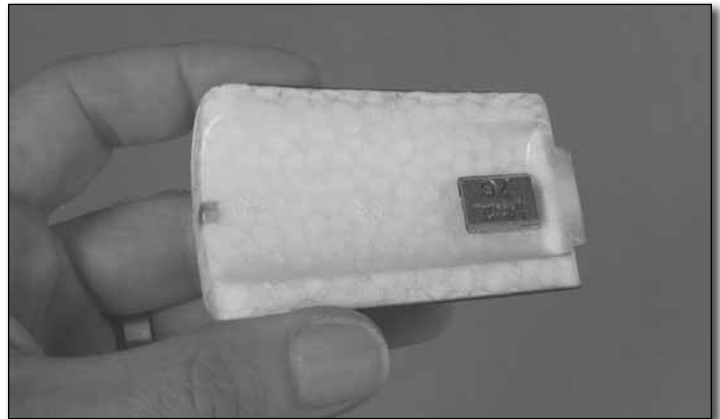
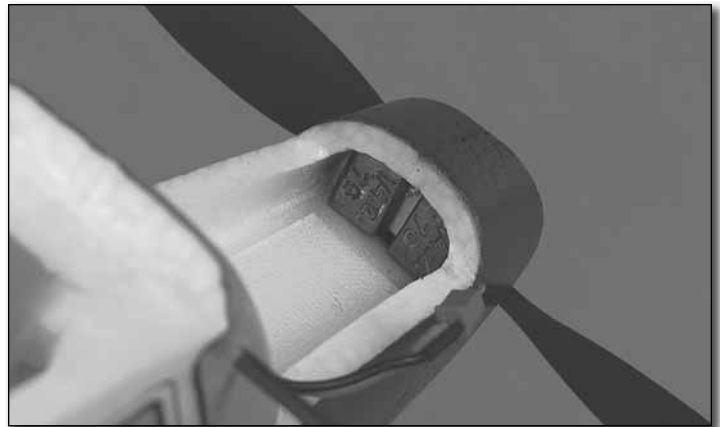
❑ 6. Install the battery (no need to connect it to the ESC) and the battery hatch. Mount the wing with two rubber bands.



❑ 7. Lift the plane with one finger of each hand between the C.G. range lines on both sides of the wing—you should be able to feel the forward and aft limits because of the tape. Position your fingers **between the lines** as necessary to get the plane to sit level. As long as you can get the plane level with your fingers anywhere between the lines, the FlyLite is balanced within the recommended range. Note that the farther **back** the FlyLite balances the more maneuverable it will be and the slower you should be able to get it to fly. But this may be too maneuverable for beginners. The farther **forward** your FlyLite balances, the more stable it will be which is better for beginners and flying outdoors. Note that a forward C.G. (nose weight) is strongly recommended for beginners. If you want to change the balance point perform the following steps.



❑ 8. To shift the balance point forward, nose weight will be required. To shift the balance point aft tail weight will be required. Add segments of Great Planes Stick-on lead weight (GPMQ4485) where necessary. To find out how much lead is required before attaching it to the plane, simply place segments of weight over the nose or on the tail to see how much is required. Typically, 1/4 oz. to 1/2 oz. [7g to 14g] may be required on the nose while much less (if any) weight will be required on the tail.



❑ 9. Attach the lead where required—in the nose, segments can be attached to the back of the firewall or to the hatch. If using tail weight, it can be attached to the side of the fuselage under the stab.

If you added any weight, double-check the balance point to make sure it is still within the specified range.

## PREFLIGHT

❑ 1. It is a good idea to write your name, address and telephone number on or in the model. This can be done with a fine-point felt-tip pen. If you fly your FlyLite at an AMA R/C club flying site this is required.

❑ 2. If you haven't yet done so, charge all of your motor batteries and make sure your transmitter battery is fully charged as well.

### **FINAL CHECK LIST:**

- ❑ A. Check to see that the controls respond in the correct direction according to your inputs from the transmitter.
- ❑ B. Set the control throws according to the recommendations on page 14.
- ❑ C. Check to make sure the plane balances within the recommended range.
- ❑ D. Make sure the propeller is secure and that the prop-saver O-ring is in good condition.
- ❑ E. Make sure the servos are securely mounted and the pushrods are connected.

## FLYING

### Find a Suitable Flying Site

Experienced flyers already know their capabilities and the precautions that should be used with flying even the lightest, smallest R/C models, so they will be able to identify a suitable flying site. But beginners often underestimate the skill and space required, so they should err on the side of caution by making sure they find the ideal flying site—especially for the very first time. The FlyLite is designed to fly indoors even in a regular-size gymnasium. But for beginners a large gymnasium or a sports field house would be better until you know your and your FlyLite's capabilities. If flying outdoors, beginners should find a large, open area at least the size of a football field that is clear of obstructions such as light poles, buildings, antennas, trees, roads and people. Finding a suitable first-time flying site will be well worth it even if you have to travel far out of your way.

Later, when you become a pro with your FlyLite, you should be able to turn it within approximately 20' [6m] diameter circles.

Finally, if flying outdoors beginners **MUST** wait for calm weather. Experienced pilots can have a blast flying the FlyLite in winds up to around 10mph, but even a light breeze (more than 2 or 3mph) can present too many problems for an inexperienced pilot.

### Get Ready to Fly

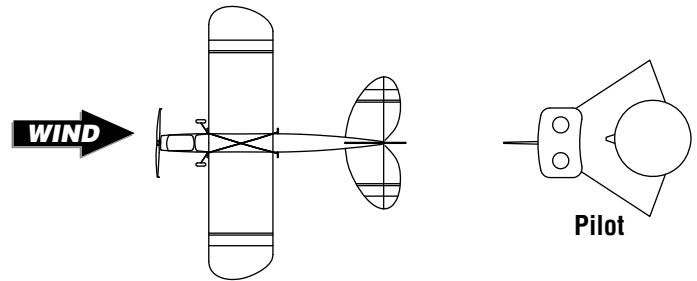
Mount the wing to the fuselage with two rubber bands. (Experienced pilots who will be flying the FlyLite aggressively, or intermediate pilots flying in breezy conditions, may use four rubber bands.) Always turn on the transmitter first, then connect the battery and install the hatch. Do not arm the motor until you are actually ready to takeoff.

**Always, always, always before each and every flight** operate the controls on the transmitter to make sure the control surfaces (rudder and elevator) are responding in the correct direction.

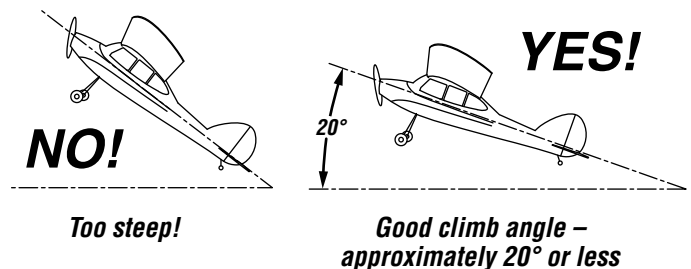
Perform an operational ground range test as specified in the instructions that come with your radio control system.

Beginners should set the dual rates to the low-rate position (consult the instruction manual that came with your radio system to set up your dual rates).

## Takeoff



The FlyLite may takeoff from smooth surfaces on the ground or be hand-launched if a suitable runway is not available. If taking off from the ground, set the FlyLite down pointing directly into any prevailing breeze. If hand-launching, hold the plane by the bottom of the fuselage under the wing. "Arm" the motor by advancing the throttle stick all the way. Listen for the beeps coming from the motor. Then, return the throttle stick to idle. Advance the throttle—no more than approximately half-power is all that will be required. In fact, it is usually **not** a good idea to use any more than half-throttle for takeoff. Otherwise the FlyLite may "jump" into the air too quickly and establish too much of a climb—this applies both to hand-launching and taking off from the ground. If hand-launching, simply release the FlyLite or give it a gentle toss into the air.

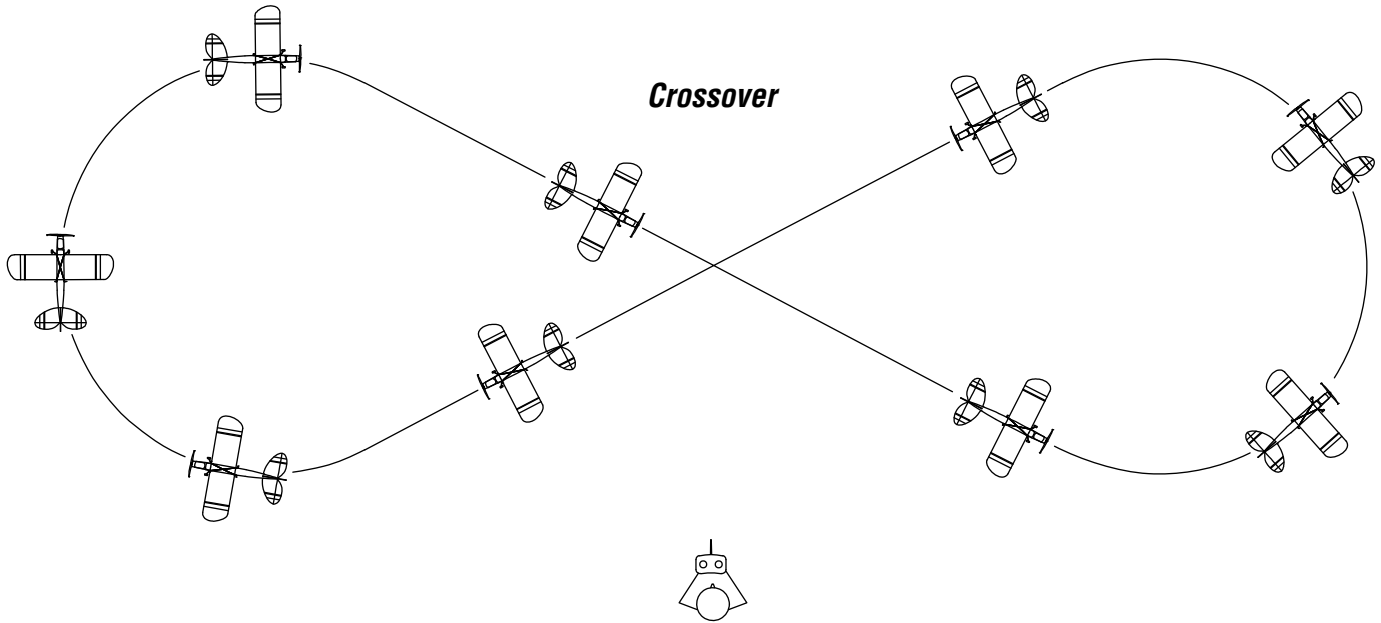


Allow the FlyLite to establish a shallow climb. Resist the urge to angle too steeply or turn too early.

## Flying

Once the FlyLite is in the air think **gentle**. Remember, the FlyLite is primarily an indoor flyer designed to fly slowly and gracefully. Make your turns wide (or as wide as your flying area will permit) and slow with control inputs early and gentle—the earlier you make corrections the less drastic they will have to be. Refrain from “racing” your FlyLite around the air like a regular sport model—most of the time it will probably be “happiest” (easiest to fly) at approximately 1/8 or 1/4-throttle.

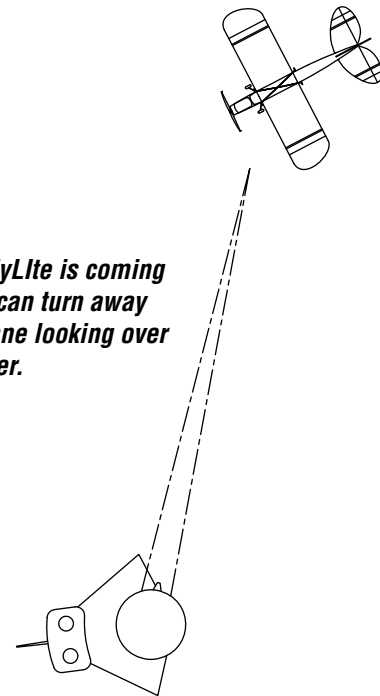
Once you have the FlyLite under control adjust the trims to get it to fly straight-and-level. You should be able to find equilibrium with your FlyLite where it cruises slowly without climbing or descending.

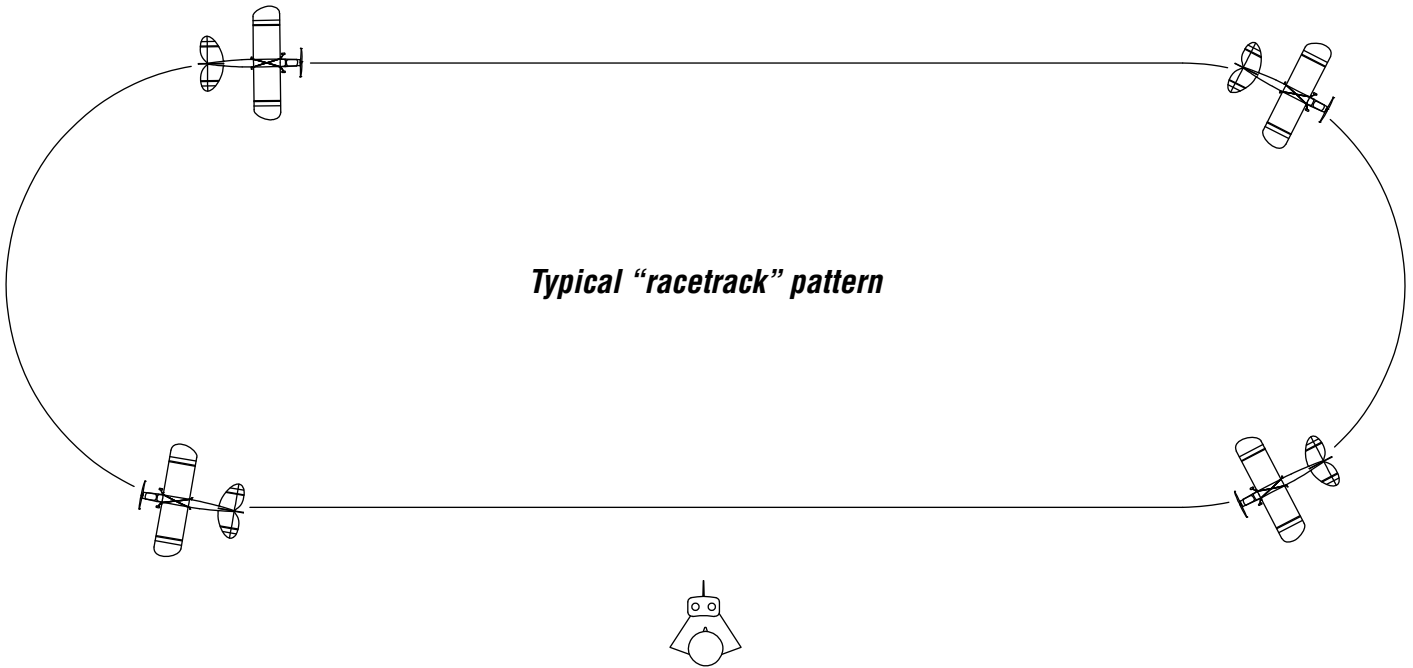


If you're a beginner, it might be best to start with a **crossover** pattern to avoid turning the plane toward yourself and having to look at it directly “head-on.” This is because when the plane is coming at you, you will have to move the rudder stick to the right to make the plane to turn to your left. This seeming “control reversal” is one of the primary situations that cause beginners to crash.

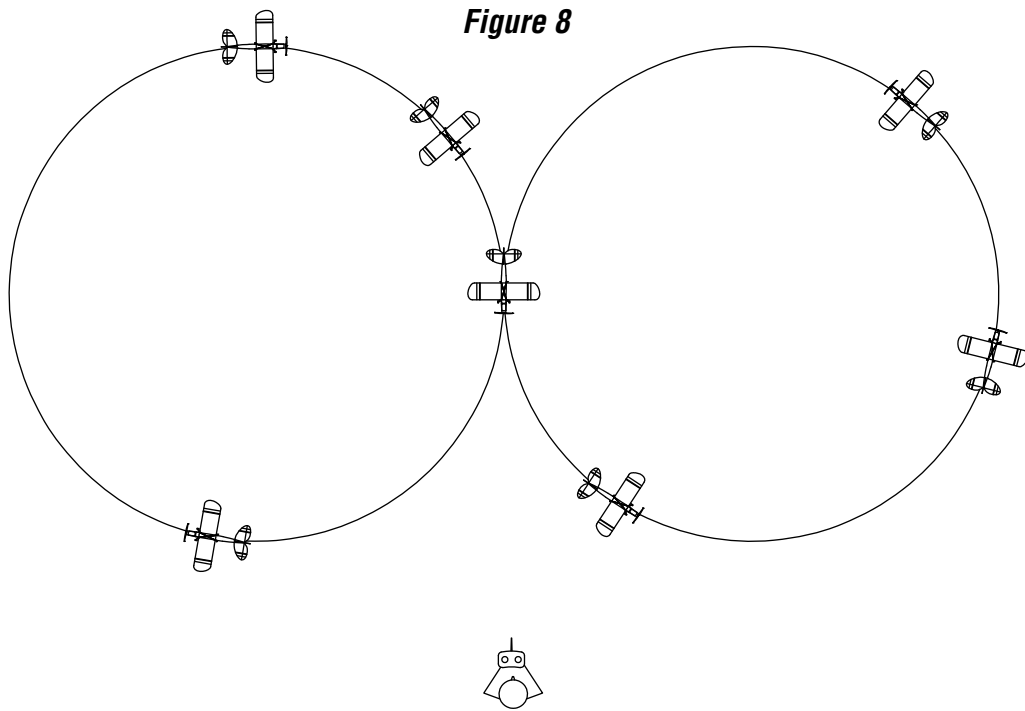
One way to avoid having to look at the model head-on is to turn away from it while looking over your shoulder. Then, your FlyLite will be traveling the same general direction you are holding the transmitter.

**When the FlyLite is coming at you, you can turn away from the plane looking over your shoulder.**





*Typical "racetrack" pattern*



*Figure 8*

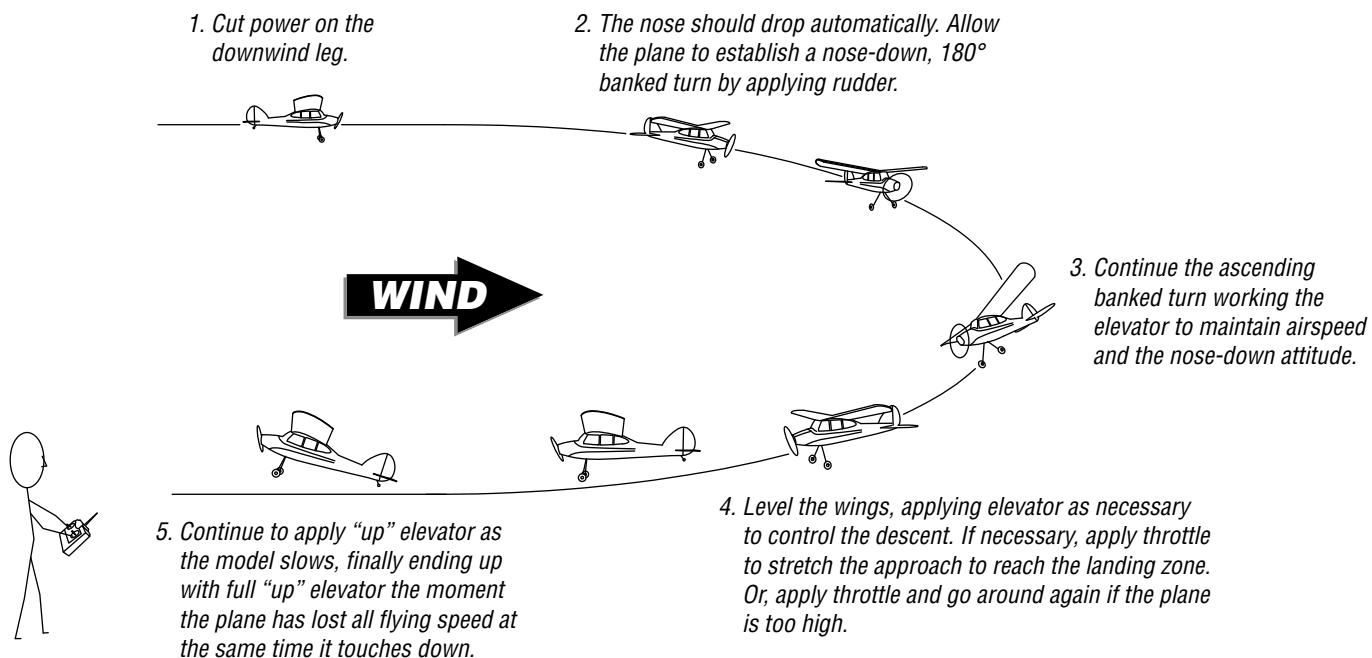
Later, when you have more experience, you can fly the standard **racetrack** pattern and even fly figure 8's. In both of these patterns there will be instances when the plane is heading directly toward you.

Having the ability to fly these different patterns and control the model in all orientations requires a little practice and dedication—it's almost like homework! But the rewards are that you will be able to fly the model in more places (with less space and more obstacles) and have better control to avoid crashes and in the end, have more fun!

## Landing

Always be ready to land your FlyLite at any time. After a few flights you will be able to predict when the motor is going to quit (within a minute or so), but even then one can never be precisely certain when this will happen. Run time depends on many variables such as battery condition, the type of flying being done and how much throttle is being used. When you notice that motor power just doesn't seem to be what it was before, this is usually an indication that the battery is getting low. If you can predict when this is going to happen, you can give yourself extra time to try more than one landing pass if the first one doesn't work out. Most of the time though, when the motor does quit unexpectedly it is no problem because the FlyLite glides extremely well and all you have to do is glide it in for a landing.

### LANDING PROCEDURE



Always land into the wind if you can—sometimes this is not possible if the motor quits unexpectedly. Landing into the wind will reduce the FlyLite’s ground speed for the slowest, softest possible touchdown. All you have to do is cut the power and circle around to the landing zone. While the plane is descending use the elevator to control the rate of descent. In general, the lower and slower the plane becomes the more “up” elevator you should be holding until you “run out” of elevator the moment the plane cannot remain airborne and touches down. Of course, if the motor has quit you will have only one chance and will have to land the plane wherever it is. But if you still have battery power and the plane is too far away, just apply throttle to fly it closer or even fly past and try another landing. Eventually you will be able to land your FlyLite right at your feet!

## ALSO AVAILABLE FROM GREAT PLANES



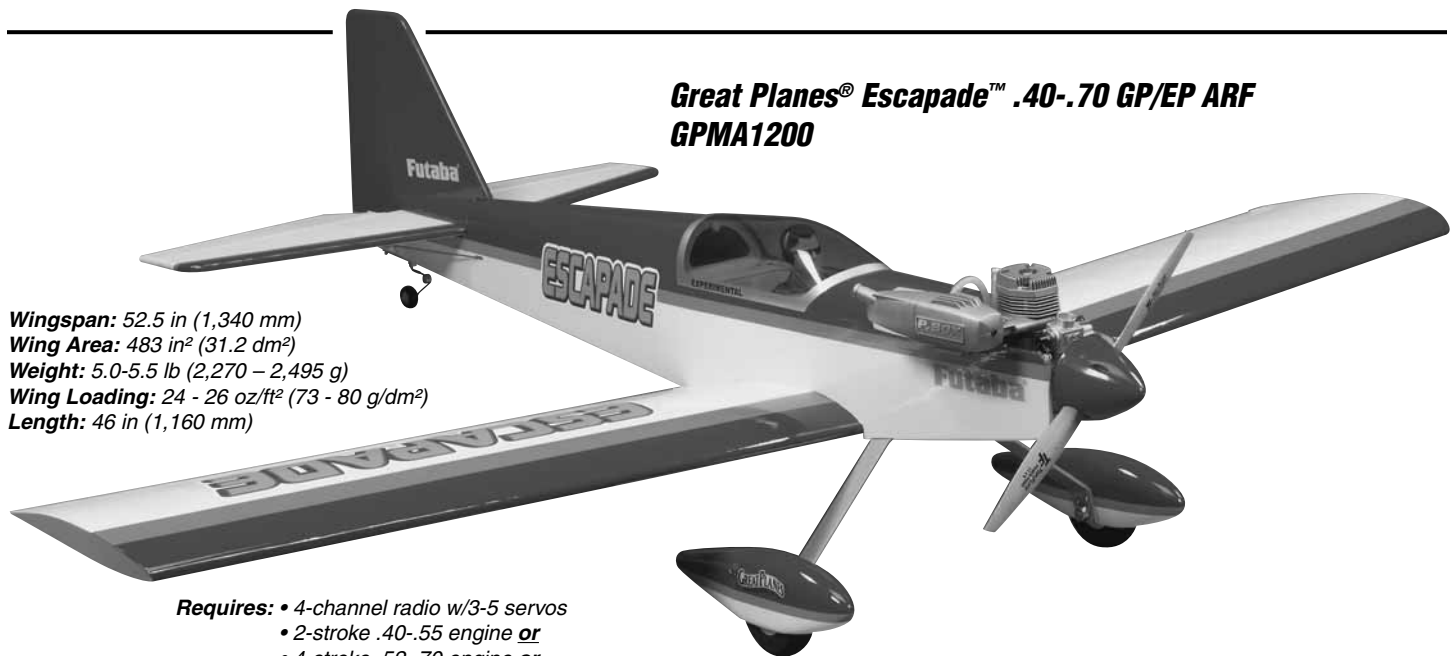
### Great Planes® PT-19 Parkflier EP ARF 41.5" GPMA1149

**Wingspan:** 41.5 in (1055mm)  
**Wing Area:** 270 in<sup>2</sup> (17.4dm<sup>2</sup>)  
**Weight:** 23 – 29 oz (650 – 820g)  
**Wing Loading:** 12.3 - 15.5 oz/ft<sup>2</sup> (38 – 47 g/dm<sup>2</sup>)  
**Length:** 31.5 in (800mm)

**Requires:**

- 4-channel radio w/3 micro servos
- 28-30-950 outrunner brushless motor
- 25A brushless ESC (min.)
- 11.1V, 1600mAh LiPo battery

The reason the PT-19 stands out is because ElectriFly put so much into it. It's compact for easier carrying. There's a steerable tail wheel for smooth, superior ground handling. The all-wood airframe is strong, lightweight and already assembled. The motor box is prebuilt, too, and magnets in the battery make the hatch and cowl easy to remove...and reattach...in seconds. Scale details — including instrument panels and formed windscreens for the dual cockpits, a rollover pylon, and formed wire gear and strut covers — offer noteworthy detail with minimal effort. An authentic trim scheme done in genuine MonoKote® film make it as easy to look at as it is to fly.



### Great Planes® Escapade™ .40-.70 GP/EP ARF GPMA1200

**Wingspan:** 52.5 in (1,340 mm)  
**Wing Area:** 483 in<sup>2</sup> (31.2 dm<sup>2</sup>)  
**Weight:** 5.0-5.5 lb (2,270 – 2,495 g)  
**Wing Loading:** 24 - 26 oz/ft<sup>2</sup> (73 - 80 g/dm<sup>2</sup>)  
**Length:** 46 in (1,160 mm)

**Requires:**

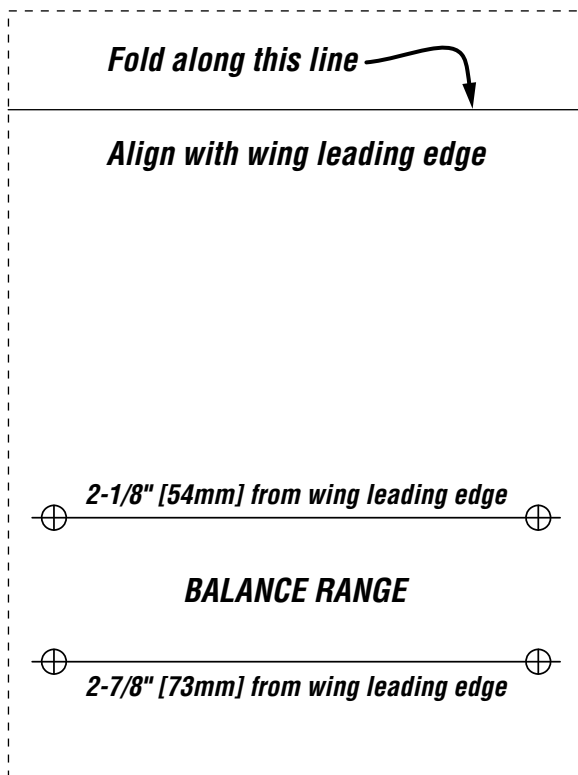
- 4-channel radio w/3-5 servos
- 2-stroke .40-.55 engine **or**
- 4-stroke .52-.70 engine **or**
- 800kV outrunner brushless motor,  
60A brushless ESC (min) &  
a 14.8V, 3200mAh LiPo battery pack

The Escapade is destined to become the plane you can't put down, the model that stands out as your all-time favorite. Easy handling and aerobatic performance are just two of the reasons you'll want to fly this ARF again and again. It flies great with either glow or electric power. With its built-up airframe, bolt-together construction, pre-hinged control surfaces and striking MonoKote® trim scheme already applied, assembling the Escapade requires just 4-6 hours. And ailerons can be set up for single-servo simplicity or dual-servo authority with no modification.

# **ElectriFLY™**

*by Great Planes*

## **C.G. MARKING GUIDE**



## **SPARE C.G. MARKING GUIDE**

