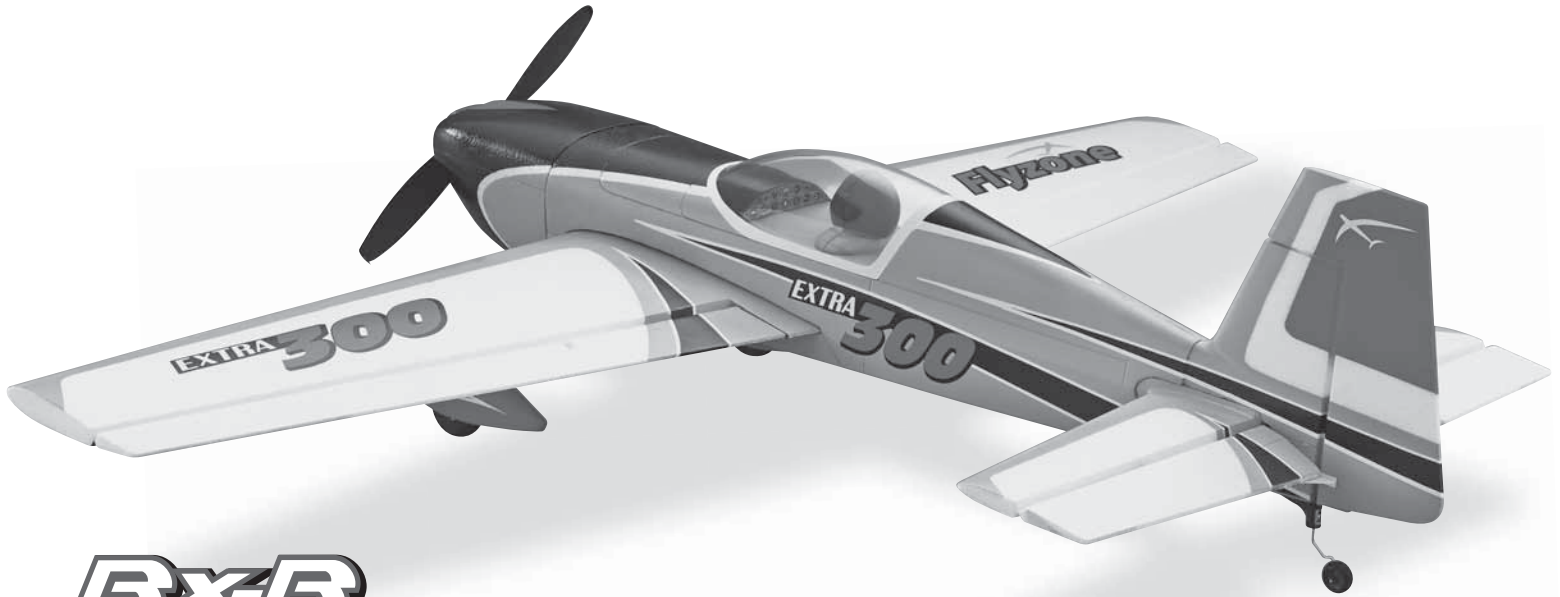


extra 300 sx



RXR
RECEIVER-READY™

SPECIFICATIONS

Wingspan:	41.5 in [1055 mm]	Wing Loading:	13.6 – 15 oz/ft ² [42 – 46 g/dm ²]
Wing Area:	297 in ² [19.2 dm ²]	Length:	34.5 in [875 mm]
Weight:	28 – 31 oz [795 – 880 g]	Radio:	4 – 5-channel (required)

Flyzone®
how high will you soar

INSTRUCTION MANUAL

WARRANTY

Hobbico 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 Hobbico's liability exceed the original cost of the purchased kit.** Further, Hobbico reserves the right to change or modify this warranty without notice.

In that Hobbico 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.

INTRODUCTION

Thank you for purchasing the Flyzone Extra 300SX. The Extra was originally intended as a 3D-capable platform, but because of its power-to-weight ratio and well-mannered flight characteristics, the Extra is also a great sport flyer for average pilots when the control throws are set to low or high rates.

For the latest technical updates or manual corrections scan the QR code, or visit the Flyzone web site at www.flyzoneplanes.com. Click the *airplane* icon at the top of the page, then select the *Extra 300SX* when the airplane page opens. A "Tech Notice" box indicates corrected or updated technical information.



ADDITIONAL ITEMS REQUIRED

Radio System

The Extra 300 can become airborne with any 4-channel radio system, but to take advantage of its sport flying and/or 3D capabilities a modern computer radio with standard features such as a timer, channel mixing, dual rates and exponentials is required. The Tactic TTX650 or TTX850 are both viable options that fit this criteria:

- Tactic TTX 650 6-channel SLT computer transmitter (TACJ2650)
- Tactic TTX 850 8-channel SLT computer transmitter (TACJ2850)
- Tactic TR624 6-Channel SLT Receiver (TACL0624)
- Batteries for transmitter: Hobbico HydriMax NiMH 4-Cell 4.8V 2000mAh Flat AA receiver pack (HCAM6321) **OR** Duratrax Onyx AA Alkaline Battery (4-pack, DTXP4704)

LiPo Battery

The Extra was primarily designed as a 3D-capable aircraft with a 3S 1800mAh LiPo. A 3S 2200mAh LiPo is also suitable, but the additional weight of a heavier battery may detract from its 3D performance slightly. In any case, if you start experimenting with batteries and propellers, be certain you don't exceed the ESC's maximum 30A rating.

- 3S 11.1V 1800mAh 30C LiPo (GPMP0855)
- 3S 11.1V 2200mAh 30C LiPo (GPMP0861)
- For additional batteries, adhesive-back hook-&-loop Velcro is also recommended (GPMQ4480)

LiPo Charger

The bare minimums to look for in a charger are LiPo balancing and the ability to charge at a minimum rate of 1C. An LED readout and AC capability are also convenient features. The Great Planes Triton EQ AC/DC charger meets all the above:

- GPMM3155 Great Planes ElectriFly Triton EQ AC/DC Charger

ORDERING REPLACEMENT PARTS

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**.

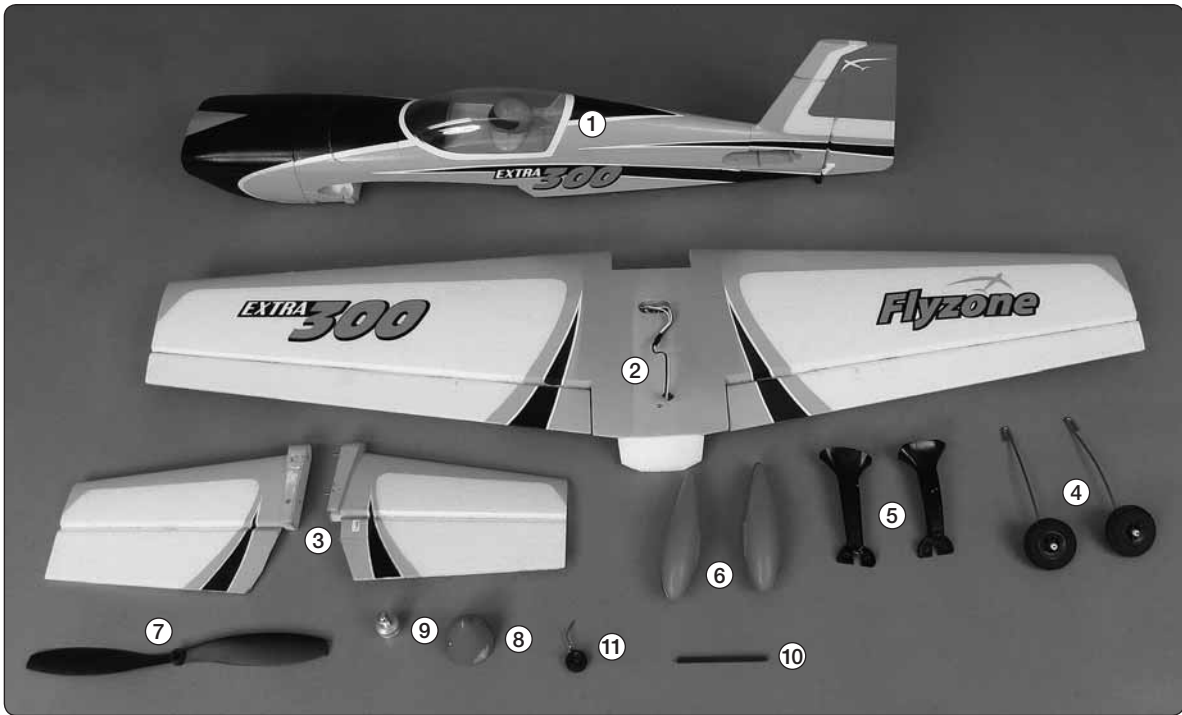
Flyzone Product Support

3002 N. Apollo Drive, Suite 1 Ph: (217) 398-8970, ext. 5
Champaign, IL 61822 Fax: (217) 398-7721

E-mail: airsupport@flyzoneplanes.com

REPLACEMENT PARTS LIST

ORDER NO.	DESCRIPTION
FLZA6214	Propeller Adapter 4mm Shaft
FLZA6620	Fuselage ①
FLZA6621	Wing ②
FLZA6622	Tail Surfaces ③ ⑩
FLZA6623	Cowl
FLZA6624	Landing Gear ④
FLZA6625	Landing Gear Covers ⑤
FLZA6626	Wheel Pants ⑥
FLZA6627	Canopy/Hatch
FLZA6628	Spinner ⑧
FLZA6629	Tail Wheel Assembly ⑪
FLZA6630	Servo
FLZA6631	Wing Bolt
GPMG2005	35mm 1000kV 77g Outrunner Motor
GPMQ6600	10x4.5 Power Flow Propeller (2)



① Fuselage

Foam fuselage
Foam canopy hatch w/pilot
Foam cowl
30A ESC
Motor
Elevator servo
Rudder servo
Control linkage (elevator, rudder pushrods, screw-lock connectors, 90° pushrod connectors)

② Wing

Foam wing
Aileron servos (2)
Servo extensions
Y-harness
Aileron linkage (pushrods, screw-lock connectors, 90° pushrod connectors)

③ R&L horizontal stabilizer halves

④ R&L main landing gear wires w/50mm wheels, retainers

⑤ R&L main landing gear covers

⑥ R&L wheel pants

⑦ 10 x 4.5 propeller

⑧ 1-3/4" spinner

⑨ Propeller adapter assembly

⑩ Elevator joiner rod

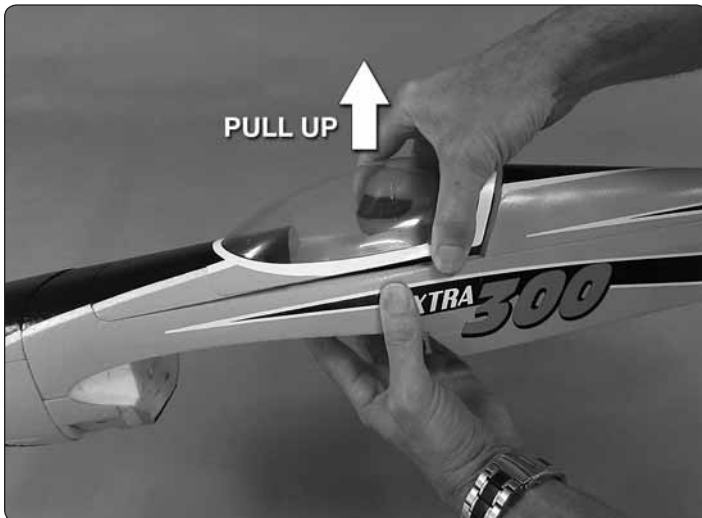
⑪ Tail gear assembly

⚠ NOT PICTURED

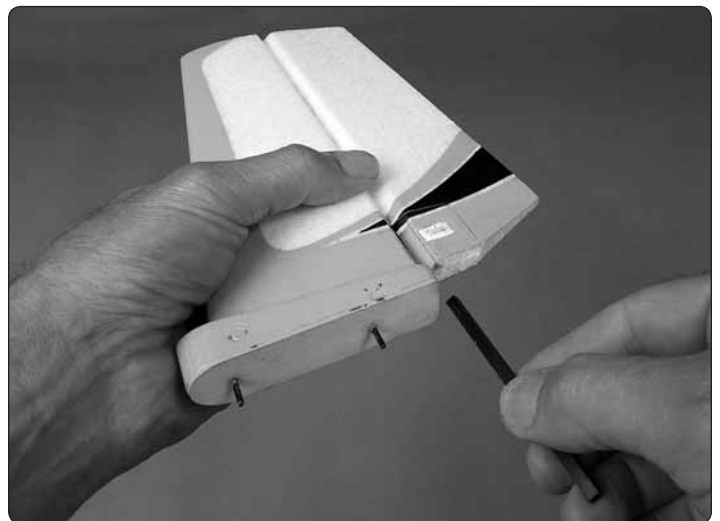
Velcro
1.5mm hex key wrench
M3 set screw
M4 x 40 wing bolt

ASSEMBLY

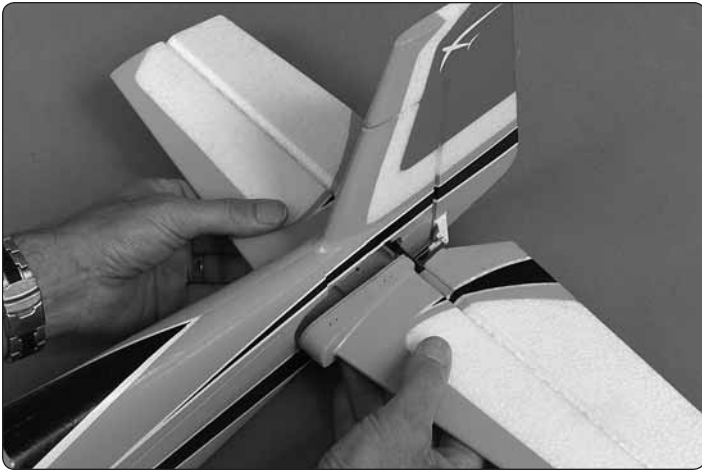
Do not mount the propeller until instructed to do so.



To remove the canopy hatch, grasp the base around the bottom and pull up to disengage the magnets.



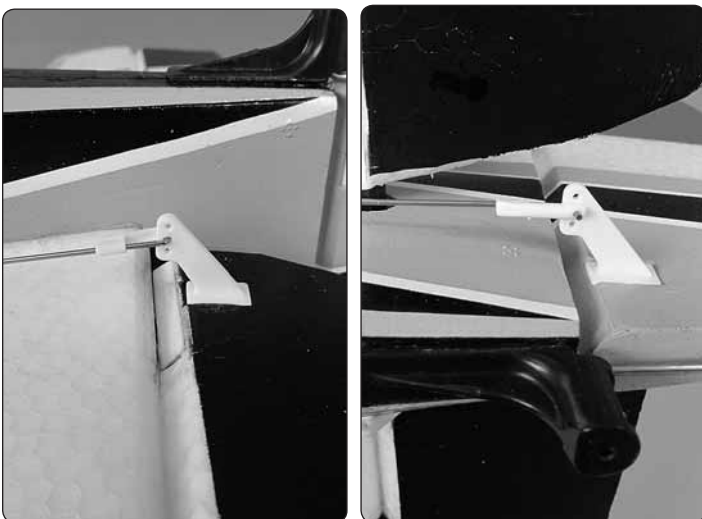
□ 1. Fit the square elevator joiner tube into one of the elevators.



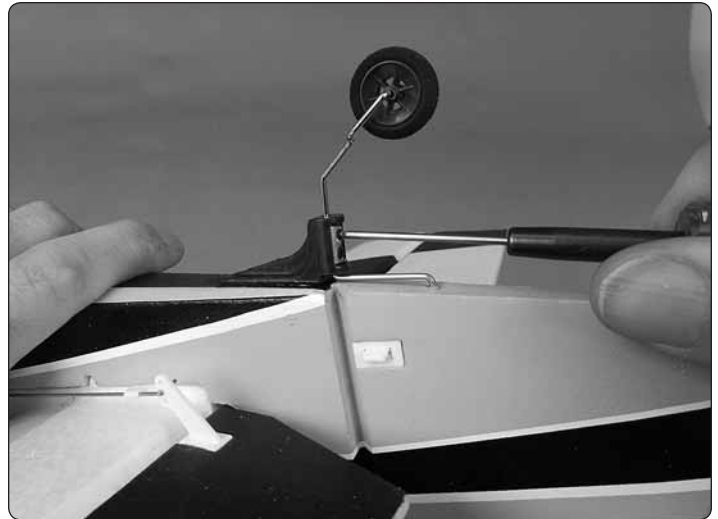
❑ 2. Key in one stab half, then the other simultaneously fitting the other end of the joiner tube into the other elevator. Press both halves firmly together to make sure they are centered in the fuselage and securely keyed all the way into each other.



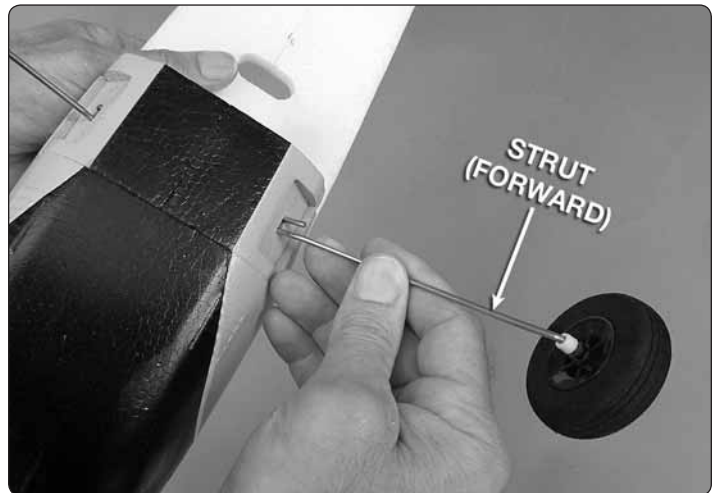
❑ 3. Check that the screws in the screw-lock connectors are not tight so the pushrods can temporarily “float” until the radio is set up later.



❑ 4. Fit the elevator and rudder pushrods into the *middle* hole in their respective control horns and secure with the 90° pushrod keepers.



❑ 5. Fit the tail gear wire into the tail gear assembly and secure with the M3 set screw lightly wetted with thread locker—a 1.5mm machined hex driver is preferred, but the included “L” wrench is sufficient. Be certain the set screw locks onto the *flat spot* in the wire.



❑ 6. Press the main landing gear wires all the way into the receptacles in the fuselage with the longer, “strut” portion of the wires toward the front as shown.

The landing gear covers and wheel pants are magnetic and simply snap into place...



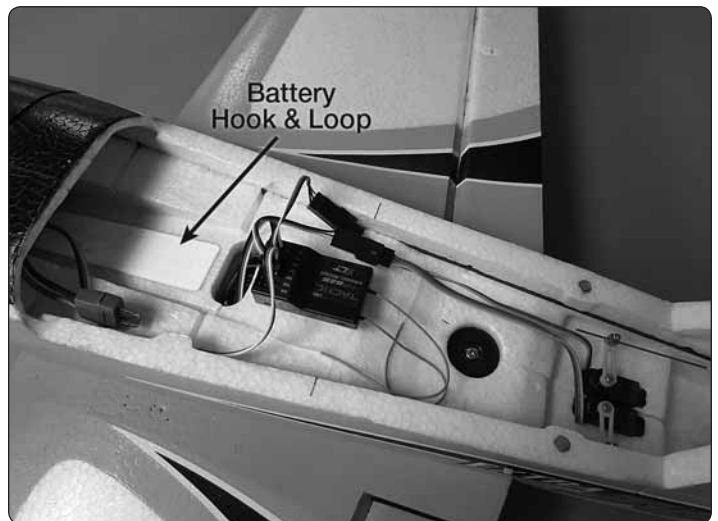
□ 7. Install the landing gear covers, then the wheel pants.



□ 8. Install the wing while guiding the aileron servo wire up through the hole in the fuselage. Tighten the wing with the M4 x 40 screw.



□ 9. Mount your receiver in the fuselage with the included short, adhesive-back hook-and-loop strip—note that the *high end* of the receiver (that has the servo plugs sticking out) must be *ahead* of the instrument panel in the canopy hatch (marked by a line in the photo approximately 2-1/2" [65mm] ahead of the wing bolt).



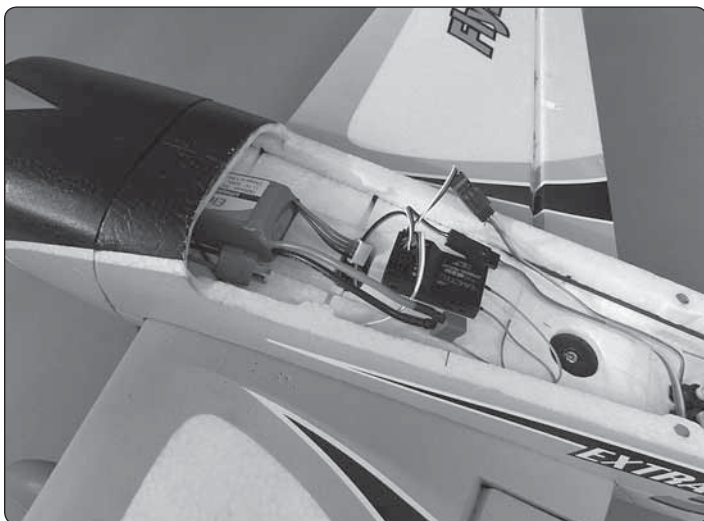
□ 10. Connect the servo and ESC wires to the receiver. If using a dual-diversity receiver with two antennas, use tape to hold the antennas perpendicular to each other as specified in the instruction manual that came with your radio control system. More tape may be used to neatly hold the servo wires out of the way. (The servo wire extensions on the elevator and rudder servos that appear in the image are not needed on your model because the wires have been lengthened since these photos were taken.)

□ 11. Apply the rougher, "hook" side of the included longer hook-and-loop material in the battery mounting location in the fuselage as shown in the previous photo.

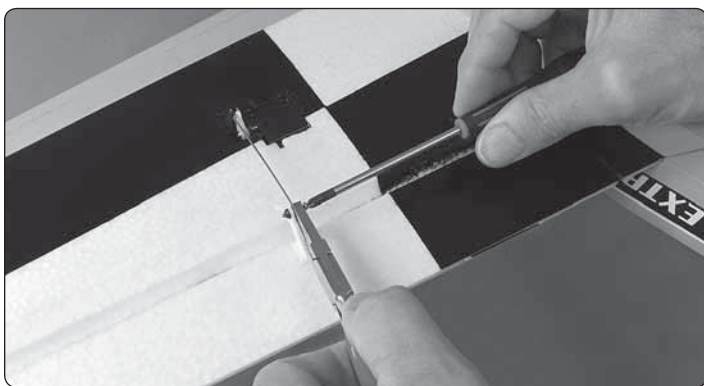
GET THE EXTRA 300SX READY TO FLY

Check/Set the Control Throws

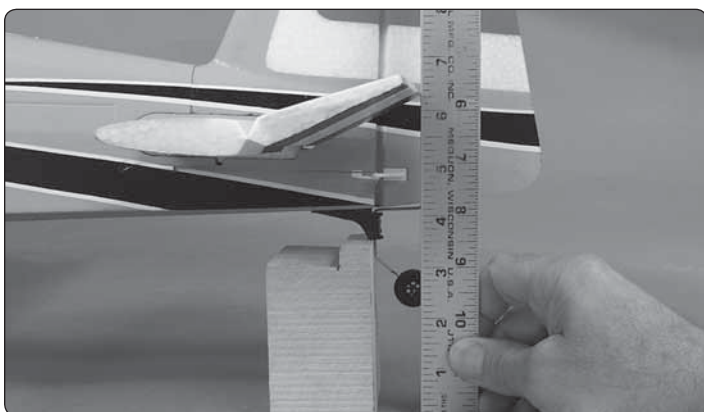
CAUTION: Do not install the propeller until instructed to do so.



❑ 1. Apply the softer, “loop” side of the hook-and-loop strip to the battery and install the battery in the fuselage.



❑ 2. Turn on your transmitter and power the receiver to operate the controls to make sure they are centered and responding in the correct direction. Tighten the screws on the screw-lock connectors on the elevator and rudder servos and double-check to make sure the screws are tight on the screw-locks on the ailerons.



❑ 3. Measure and set the control throws as specified in the following table. Pilots not intending to perform 3D maneuvers may simply program their radio for low and high-rate throws. Most 3D pilots will use the high-rate and 3D throws;

These are the recommended control surface throws:

	LOW RATE		HIGH RATE		3D	
	Up	Down	Up	Down	Up	Down
ELEVATOR	3/8" [10mm] 8°	3/8" [10mm] 8°	5/8" [16mm] 14°	5/8" [16mm] 14°	1-3/4" [44mm] 35°	1-3/4" [44mm] 35°
RUDDER	Left	Right	Left	Right	Left	Right
	1-1/4" [32mm] 20.5°	1-1/4" [32mm] 20.5°	1-3/4" [44mm] 27.5°	1-3/4" [44mm] 27.5°	2-1/4" [57mm] 34°	2-1/4" [57mm] 34°
AILERON	Up	Down	Up	Down	Up	Down
	1/4" [6mm] 7.5°	1/4" [6mm] 7.5°	3/8" [19mm] 11°	3/8" [19mm] 11°	3/4" [19mm] 21°	3/4" [19mm] 21°

NOTE: The control throws are measured at the widest part of each surface—at the root ends of the elevators and ailerons and at the bottom of the rudder.

Set the Fail Safe

Before operating the radio or running the motor for the first time, make sure the **Fail Safe** function in your transmitter is properly set. In the event that the receiver loses signal from the transmitter, **Fail Safe** prevents the motor from running. Most important, in the event that you inadvertently turn off the transmitter before disconnecting the battery, the motor will not run. But if you have not taken a moment to set Fail Safe correctly, the motor could run at full-throttle causing damage and possibly severe injury! Refer to the instructions that came with your radio control system to set the Fail Safe correctly.

For most radio control systems (such as Tactic), the Fail Safe is set by performing the **linking** procedure with the throttle stick all the way down so the motor will be off.

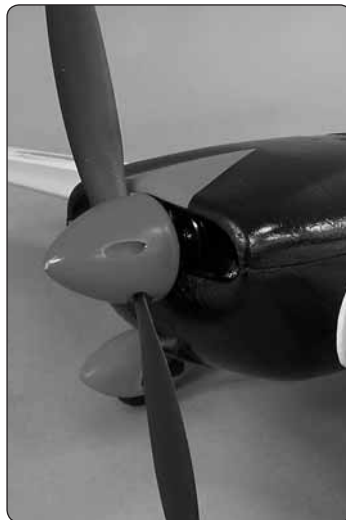
After setting the Fail Safe, perform a test; this **MUST** be done with the propeller removed! With the propeller off the motor, run the motor at reduced throttle, then turn the transmitter off. If the Fail Safe is set correctly the motor will stop. If the motor does not stop, repeat the procedure for setting the Fail Safe until the motor stops when you turn off the transmitter.

Check the C.G. (Center of Gravity)

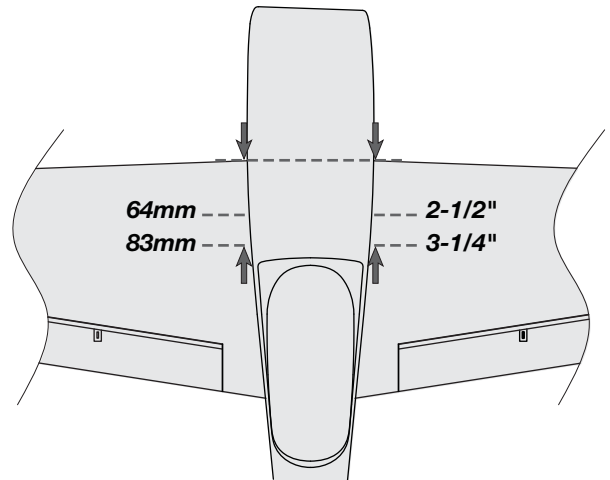
Before checking the C.G. the propeller must be mounted...



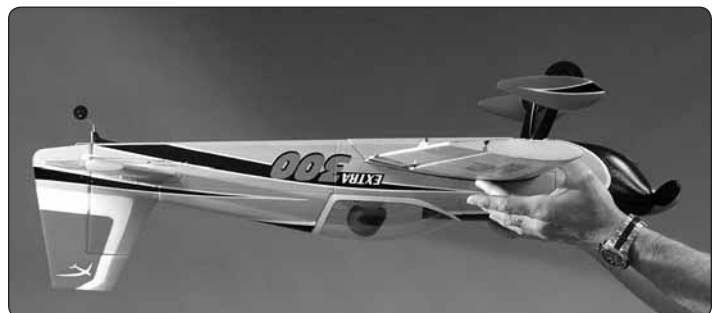
❑ 1. Temporarily pop the cowl off the fuselage just to see how the motor and ESC are mounted and to make sure everything is connected properly. Reinstall the cowl.



❑ 2. We've found it unnecessary to balance the included propeller, but detail-minded pilots who demand ultimate performance may balance the propeller on a precision balancer such as the Top Flite Power Point Propeller Balancer (TOPQ5700). In any case, if unusual noise or vibration from the prop or motor is ever detected land the plane immediately and find the source of the problem.



❑ 3. The Extra is balanced upside-down suspended by the wing with your fingertips. This procedure will be easiest and most accurate if you can feel the C.G. range with your fingertips. A quick way is to temporarily insert T-pins (or regular pins) directly into the wing at the front and back of the C.G. range which is between 2-1/2" and 3-1/4" [64mm and 83mm] back from leading edge of the wing at the fuselage. If you'd rather not insert pins into the wing you can draw lines or use tape to mark the C.G. but if you remove the tape later it will probably pull the paint off the wing under the tape.



❑ 4. With the model in ready-to-fly condition and the battery and propeller installed, lift the model by the wing with your fingertips between the balance range. As long as the Extra balances anywhere within the range the C.G. is okay. If the model doesn't balance, move the battery forward or aft until you can get it to balance.



□ 5. Mark the location in the fuselage where to position the battery to balance. Remove the pins if you used them.

Set a Flight Timer

It's better to limit your flying time with a timer set to a pre-calculated time instead of waiting for the LVC (low voltage cutoff) in your ESC to kick in or until you notice a decrease in flight performance. By then, it may be too late to make more than one landing attempt. And it can be stressful to your batteries, eventually decreasing performance in the long-run.

Typical, average battery consumption with the Flyzone Extra is approximately 200mAh/minute on 3S with the included PowerFlow 10 x 4.5 propeller (but can be as low as 150mAh/min. or as high as 280mAh/min.). Your flying style/throttle use, battery condition and weather conditions may cause the figures to vary, so until you know for sure, start by setting your timer conservatively to 5 minutes. If your transmitter has a timer built in, link the timer to your throttle stick so only motor run time is counted. Fly until the timer sounds then land. Note the time on your transmitter and charge the battery. If your charger has a digital readout (indicating how much capacity it took to recharge which equals the capacity used during the flight), divide the capacity that went back into your battery by the flight time to calculate your **average battery consumption** for that flight. Divide 80% of your battery capacity by that consumption rate to determine your new target flight time.

EXAMPLE: Suppose you are using an 1800mAh battery. And after you landed the motor run time on the timer in your transmitter was 5:30 (that's 5.5 minutes). And say it took 950mAh to recharge your battery.

Divide 950mAh by 5.5 minutes to calculate an average battery consumption rate of about 170mAh-per-minute.

Your **limit** or **target** capacity to use from a LiPo is a maximum of 80% of its capacity. So for a 1800mAh battery it is 1440mAh (1800mAh x .8 = 1440mAh). 1440mAh divided by 170mAh/minute = 8.47 minutes (we'll round down to 8-1/2 minutes).

On your second flight perhaps set your timer to 7 minutes and repeat the procedure to continue to log data for calculating average target flight times.

The more data you log and the more calculations you do the more accurate your calculated flight times will be so you never have an unplanned dead-stick landing or over discharge your batteries. Keep in mind that changing propellers or flying style/throttle use and sometimes even weather conditions can affect current use, so plan accordingly.

On page 10 is a worksheet you can use for recording flight times and recharge capacity to calculate target flight times (as well as average, in-flight current which is also useful data). The second row contains formulas for the calculations for that row. Row #1 is already filled out with figures from the example.



Additionally, or if you don't have a charger with a digital readout to find out how much capacity you used during a flight, use a LiPo cell checker to check individual cell voltage after each flight. The resting, non-loaded, individual cell voltage after a flight should be no less than 3.7 V/cell.

FLYING

The ESC has an "arming" procedure that prevents the motor from running when you connect the motor battery. To start the motor when you are ready to fly, first turn on the transmitter and lower the throttle stick all the way to "off." Connect the battery. Advance the throttle all the way, hear the beeps from the motor, then lower the throttle stick and hear the beeps again. The motor is now "armed" and the propeller will turn the next time the throttle is advanced.

The Extra doesn't exhibit any unexpected flight tendencies that require informing you about ahead of time. It's a mid-wing, aerobatic sport plane, so it is very neutral with no self-righting tendencies intended for intermediate pilots at least. In the event of a rough landing the wheel pants will disengage from the landing gear covers to prevent damage. If landing in rough or tall grass you may as well remove the pants and landing gear covers altogether.

SAFETY PRECAUTIONS

1. Your Extra 300 SX 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 Extra 300 SX, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

2. You must assemble the Extra 300 SX 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. 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 this kit has been flight tested to exceed normal use, if the plane will be used for extremely high stress flying, such as racing, or if a motor or battery larger than ones in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

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.

MOTOR SAFETY PRECAUTIONS

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

- Wear safety glasses whenever running motors.
- Keep your face and body as well as all spectators away from the plane of rotation of the turning propeller.
- Keep loose clothing and objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets away from the prop.

BATTERY CHARGING PRECAUTIONS

- Be careful to avoid overcharging the battery. Only use a LiPo approved charger. Never use a NiCd/NiMH peak charger.
- Remember to check the temperature of the battery during the charge. The battery should not get hot. If it does, unplug the battery from the charger.
- Charge the battery at a maximum charge rate of 2.1 amps. A higher charge rate will cause the battery to get hot.
- Never place the battery on combustible material or leave it unattended while charging.
- Never charge the battery in the plane.
- We recommend that a balancing charger be used to charge the battery. A properly cared for battery will last a long time. If the battery pack is continually charged without balancing the individual cells, the life of the battery pack will be shortened.

ACADEMY OF MODEL AERONAUTICS

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.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Tele. (800) 435-9262
Fax (765) 741-0057
www.modelaircraft.org



	A	B	C	D	E	F	G
	FORMULAS ■■■→			= B/A	= D x 0.8	= E/C	= (B/100)/(A/60)
	Flight Time (.10ths)	Recharge Capacity	mAh/minute	Battery Capacity	Target Capacity to Use In Flight	Recommended Flight Time	Average In-Flight Current
1	5.5 min	950mAh	170 mAh/min	1800mAh	1440mAh	8.5 min	10.4A
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