

EDGE 540T EXP V2

60 inch electric ARF assembly manual



EXTREME FLIGHT 

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Greetings and congratulations on your purchase of the Extreme Flight RC 60 inch Edge 540T EXP V2 ARF! Long regarded as the best aircraft to learn the basics of 3D flying, the Edge 540T is very forgiving for novice 3D pilots yet fully capable as your skills progress. The Edge incorporates carbon fiber and G10 composites into the structure of the airframe, resulting in a lightweight, yet twist free structure capable of handling extreme aerodynamic loads. Carbon and G10 are used in high stress areas such as the landing gear mounting structure and fuselage longerons to provide enormous strength and durability. The removable wing panels are mounted on a carbon fiber wing tube and are fastened to the fuselage with our new quick mount wing latch system.

All control surfaces are pushrod driven with short linkages and use ball links for slop free actuation with no binding. Optional Side Force Generators are included and add to the already generous side area, increasing yaw axis authority and adding stability in all angles of sideslip. Expertly painted fiberglass cowl and wheel pants and 2 gorgeous high visibility Ultracote color schemes add the finishing touches and make this an airplane that you will be proud to show up at the flying field with. The combination of these unique elements add up to an aircraft that pushes the boundaries of modern aerobatic flight.

If repairs become necessary, the Ultracote colors used on the Edge 540T EXP V2 are as follows:

White/Red/Black/Charcoal/Silver color scheme: True Red-#HANU866, White-# HANU870, Pearl Charcoal-#HANU846, Silver-#HANU881, Black-#HANU874

**Bright Yellow/Deep Blue/Silver/Midnight Blue/Cub Yellow color scheme: Cub Yellow-#HANU884
Midnight Blue- # HANU885, Silver-#HANU881, Bright Yellow-#HANU872, Deep Blue-#HANU873**

Extreme Flight R/C reserves the right to alter the assembly process at any time. While we do our best to update the manuals, sometimes there are minor changes in the process of the build. Check the online version of the manual on the product page for the most recent version. If you have any questions regarding assembly please contact us before moving forward. 770-887-1794.

Tips for Success:

- 1. Before starting assembly, take a few minutes to read the entire instruction manual to familiarize yourself with the assembly process.**
- 2. Please take a few minutes and go over all the seams on the aircraft with a covering iron on a medium heat setting.**
- 3. Use a fresh bottle of thin CA with a fine glue tip when attaching the CA hinges. This will ensure that the proper amount of CA wicks into the hinge and surrounding balsa wood and creates a proper bond between the wood and hinges. We are big fans of the Mercury line of adhesives as well as the glue tips provided by them.**
- 4. Apply a couple drops of CA to high stress areas such as anti-rotation pins, landing gear mounts, servo trays and motor box joints .**
- 5. All of the G10 control horns are the same with the exception of the elevator horn. Its base has been shortened to fit the depth of the elevator.**
- 6. When applying decals, first clean the area where the decal will be applied with alcohol. Mist the area lightly with Windex or Rapid Tack before applying the decal which will allow you to properly position it, then use a rubber squeegee to push all of the liquid from under the decal. This will result in very few air pockets trapped under the decal.**
- 7. Take the time to properly balance and trim your aircraft and set up rates and exponential values. Your flying experience will be greatly enhanced by doing this.**

Recommended components for completion

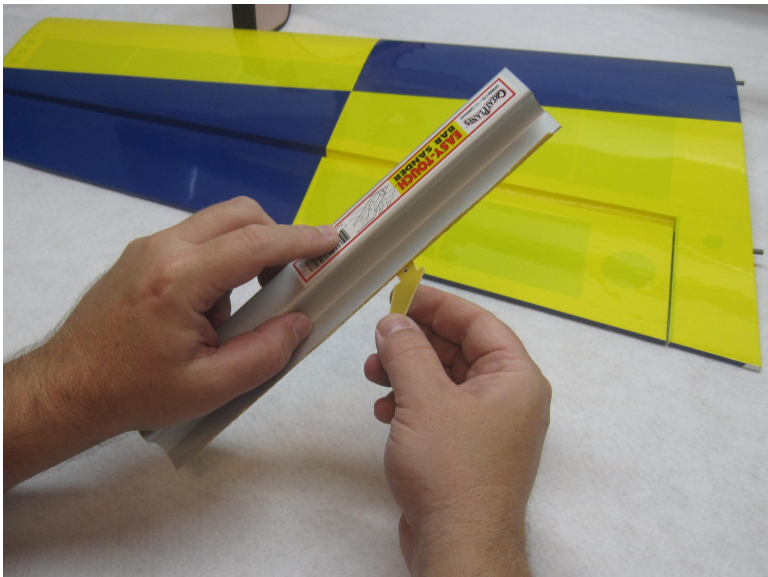
- 4 mini metal geared servos. All flight testing was performed with Hitec HS-7245MGs and Savox 1260s.**
- Extreme Flight 1.25" lightweight anodized servo arms for all control surfaces (quantity of 4).**
- Torque 4016T/500 Brushless Outrunner.**
- Airboss Elite 80 Amp ESC.**
- 6S 3300-4000 mah LiPo battery.**
- 16x7 Xoar PJN Electric wood prop.**
- 2-24" extensions for the 2 rear servos and 2-6" extensions to go between the receiver and the aileron servo leads. 1-6" extension for the ESC lead.**
- Adhesive backed Velcro and Velcro strap for battery retention.**

Let's begin!

1. Locate the 2 wing panels with ailerons as well as the 2 G10 aileron control horns and base plates. Insert the horn into the base plate and into the slot in the aileron. Use a fine tipped felt marker to trace the base plate.



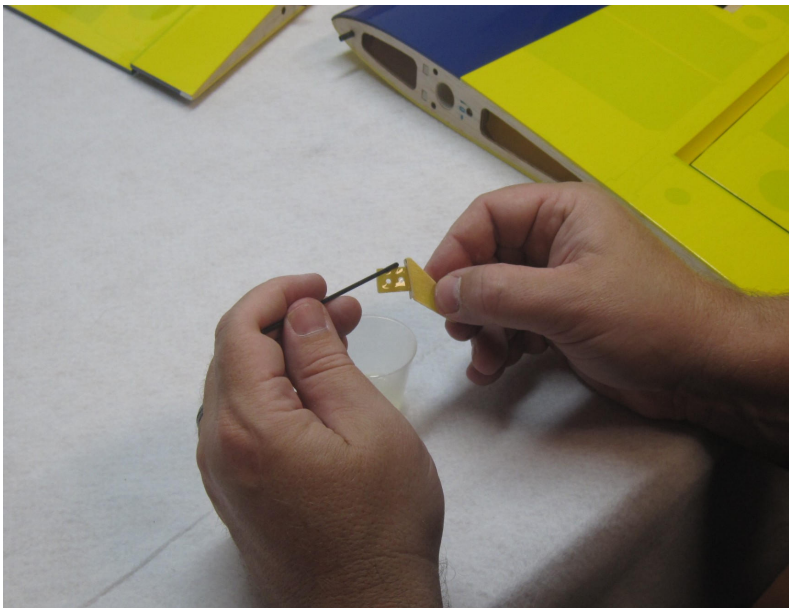
2. Remove the control horn and scuff the portion that will be glued into the aileron with sandpaper.

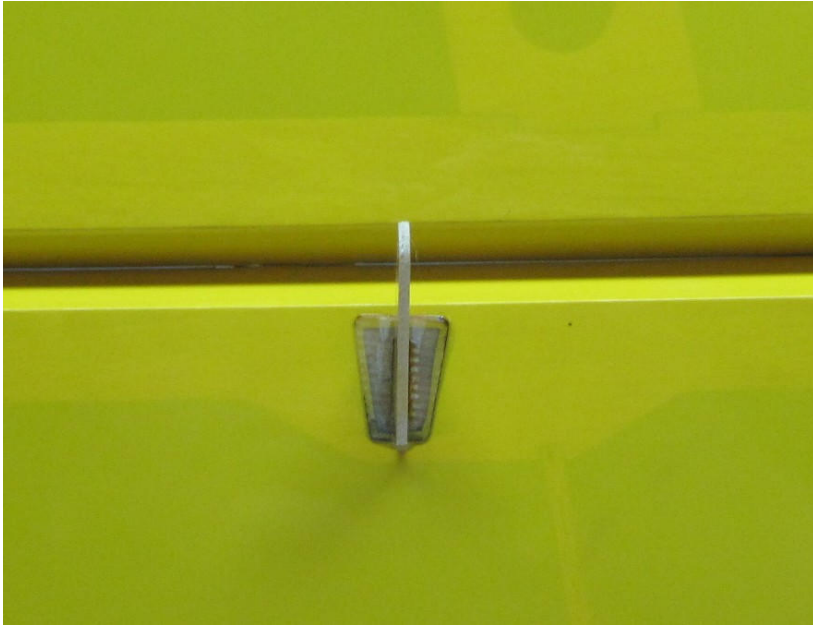


3. Use a sharp hobby blade to remove the covering 1/16 of an inch inside the line you traced around the control horn base.

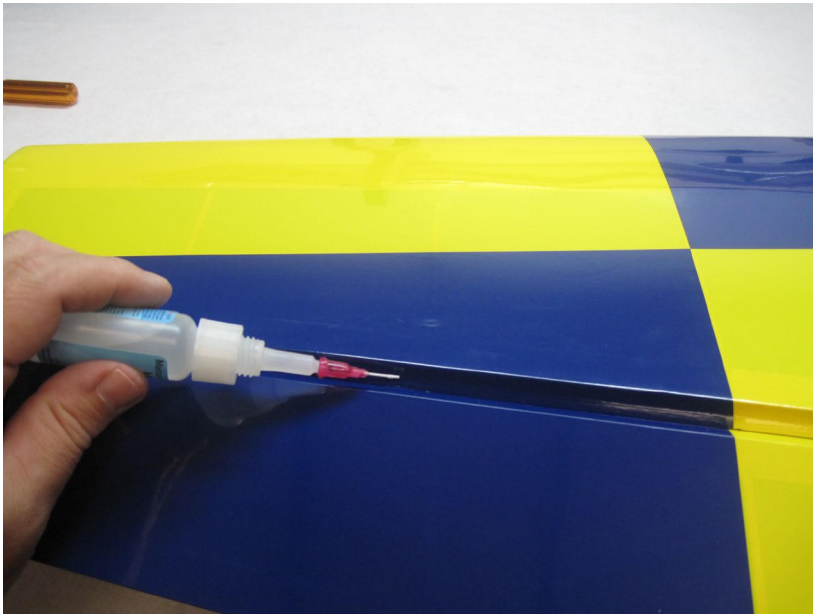


4. Mix up a batch of 30 minute epoxy and apply liberally to the slot in the aileron and to the scuffed portion of the control horn that will insert into the aileron. Install the aileron horn and base plate onto the aileron and wipe away any excess epoxy with a paper towel soaked in denatured alcohol.





5. Make sure the hinges are centered in their slots. Slide the aileron into position making sure the outer tip of the aileron is flush with the wing tip. Apply a drop of CA at each hinge location on both the top and bottom side of the wing. Use a fresh bottle of thin CA and a fine glue tip for best results.

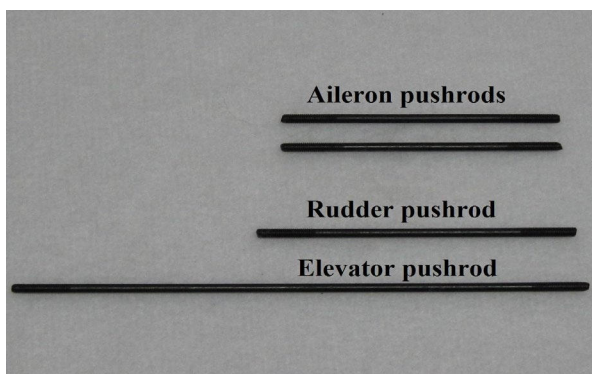


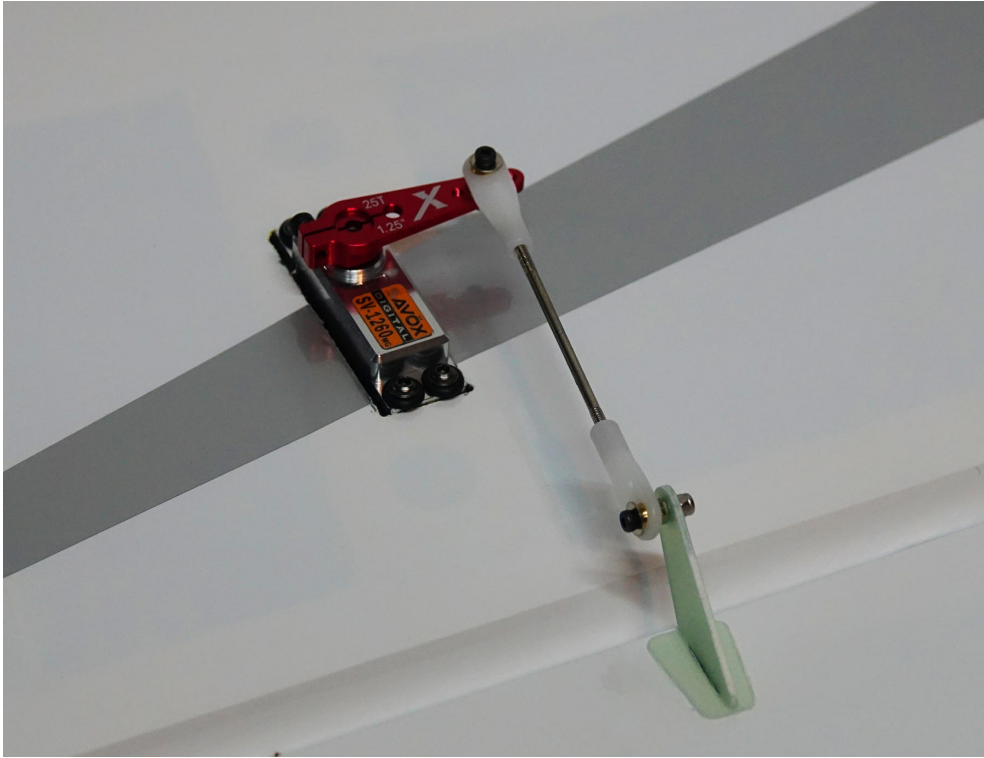
6. Before installing the aileron servo take a minute and apply some CA to the servo tray and the anti-rotation pins.



7. Use the screws provided by the servo manufacturer to secure the aileron servo in the designated location with the output spline oriented toward the leading edge of the wing.

8. Locate the 2 threaded aileron pushrods and 4 ball links along with 4-2mm bolts, nuts and washers. Thread the ball links onto each end of the pushrods and secure to the servo arm and control horn using the supplied hardware as shown in the picture. Use the 2nd hole from the end of the 1.25" servo arm.





9. Repeat this process for the other wing half. When finished take a few minutes to go over all of the seams in the covering with a sealing iron on a medium heat setting paying special attention to stripe edges and ends. Clean the wing panels with a soft cloth and put them away in their wing bags.

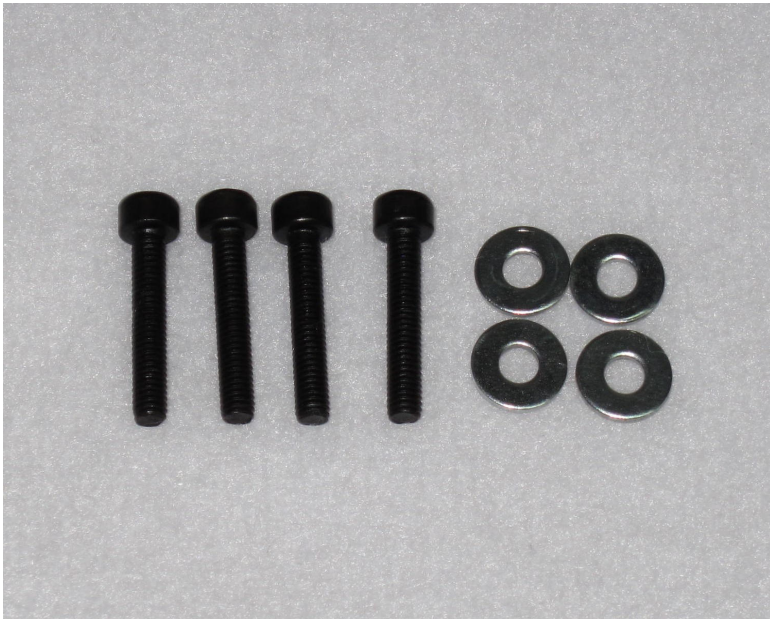
Fuselage assembly

10. First lets assemble the landing gear unit and bolt it to the fuselage. Locate the main wheels, wheel pants, one piece carbon fiber landing gear, 4-3mm socket head cap bolts with 4 washers, 2 axles, 2 wheel collars, 2 large washers to fit the threaded portion of the axles, and 2 nylon insert locknuts. Place the wheel onto the axle and secure with a wheel collar. Place the threaded portion of the axle through the hole in the carbon gear leg. Place a washer on the threaded portion of the axle and screw the lock nut onto the axle, but do not tighten completely. There is a slot pre-cut in the wheel pant to allow it to fit over the axle. Slide the wheel pant into position over the axle and tighten the nut on the axle, taking care to make sure the wheel pant is positioned properly. Repeat this process for the remaining wheel pant. Again this is probably better explained in the following series of pictures.



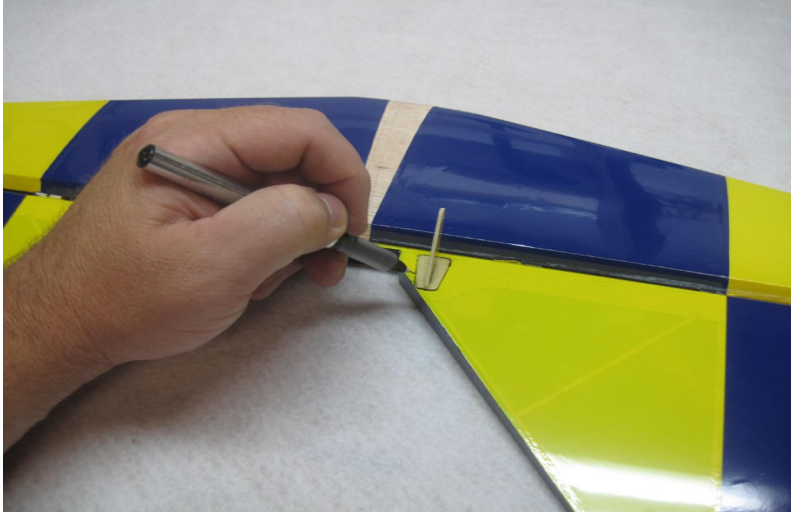


11. Secure the landing gear to the fuselage by inserting a 3mm bolt into a washer, through the carbon fiber gear and into the pre-installed blind nuts in the fuselage. Make sure to use a drop of blue Loctite on each bolt to prevent them from backing out. Glue the landing gear cover to the carbon gear with Goop silicon glue or medium CA





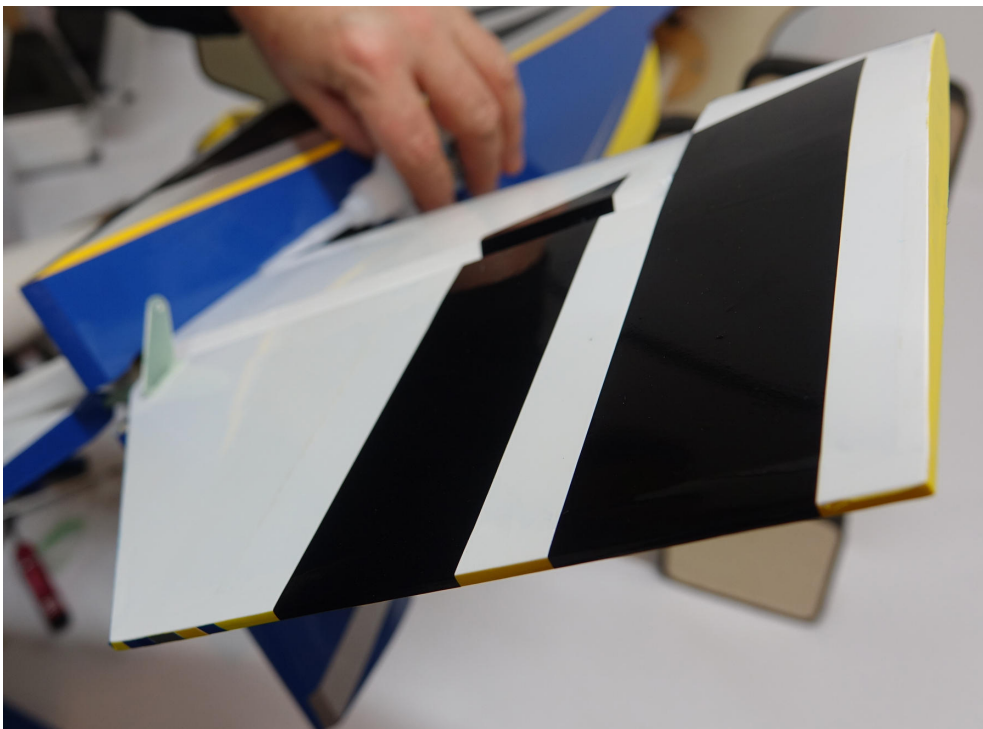
12. Locate the horizontal stabilizer/elevator assembly. Turn it upside down on your building table and remove the covering over the right slot on the bottom of the elevator where the elevator control horn will be installed. You may need to sand the bottom of the horn so that it does not protrude through the top surface of the elevator. Insert the horn into the base plate and into the slot. Trace around the base plate with a fine tipped marker. Remove the horn and use a sharp hobby knife to remove the covering 1/16" inside the line you traced. Scuff the portion of the control horn that will insert into the elevator with sandpaper. Secure the control horn with epoxy just as you did with the aileron horns.



13. Slide the elevator onto the hinges in the stabilizer and secure with thin CA. Again a fresh bottle of CA and a fine glue tip work best here



14. Insert the stabilizer into its slot and the carbon fiber wing tube into the fiberglass sleeve. Use a ruler to insure that the stabilizer is centered in its slot and compare the stabilizer to the wing tube to make sure it is properly aligned. The self-aligning feature makes this step much easier. Sand or shim the slot if necessary to ensure proper alignment. Secure the stabilizer with CA. Glue the Ultracote covered block into position behind the stab to complete this step.



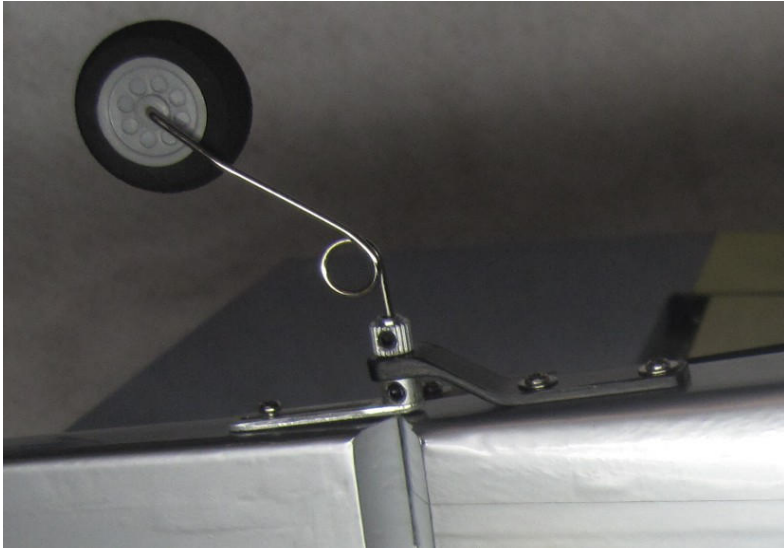
15. Remove the covering over the slot in the lower right side of the rudder where the rudder control horn will be installed as shown in the picture. Scuff the portion of the control horn that will glue into the surface and secure the rudder control horn and base plate with epoxy.



16. Using the same process as with the ailerons and elevator, slide the rudder onto the hinges and secure to the vertical stabilizer with thin CA.

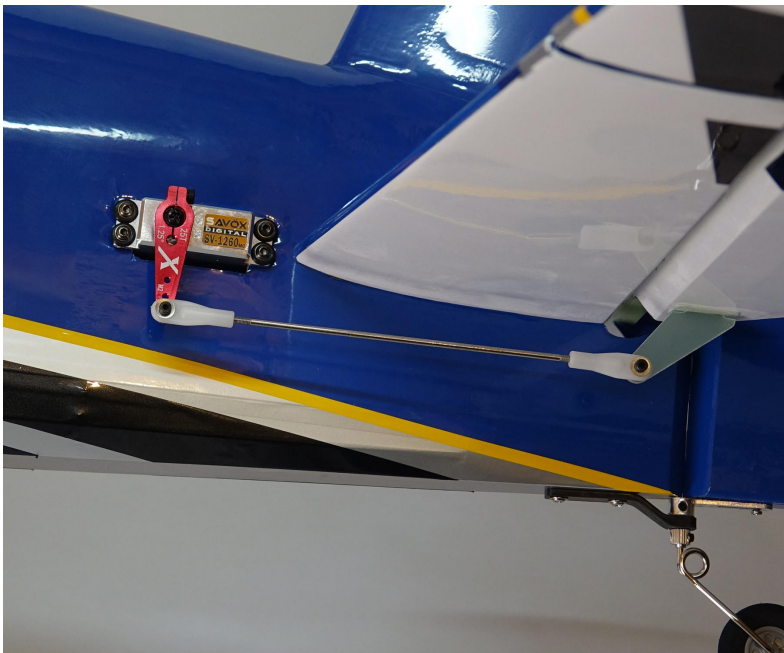
17. Locate the carbon fiber tailwheel assembly in the hardware package. Secure the tailwheel bracket to the bottom rear of the fuselage with the provided wood screws. Make sure the pivot point of the assembly is over the hinge line of the rudder for best results. Secure the tiller using the provided screw, but do not over tighten as the tiller should be able to move on the screw as the rudder is deflected.

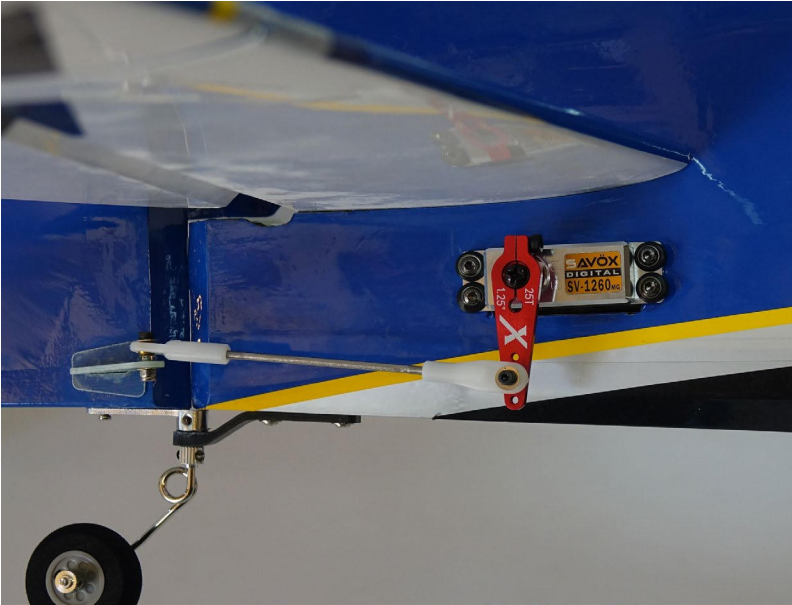




18. Place the tailwheel wire in the proper position, aligned with the rudder and lock into place with the 2 set screws.

19. Use the hardware provided with the servos to install the rudder and elevator servos in their respective location in the rear of the aircraft. From the pilot's perspective the rudder servo mounts on the right side of the fuselage and the elevator servo mounts on the left side. The elevator servo should have the output shaft toward the front of the aircraft while the rudder servo output shaft should be toward the rear of the aircraft. The rudder and elevator servo linkages assemble and are installed just like the aileron linkages. For maximum control surface travel we highly recommend using the Extreme Flight 1.25" lightweight anodized servo arms.





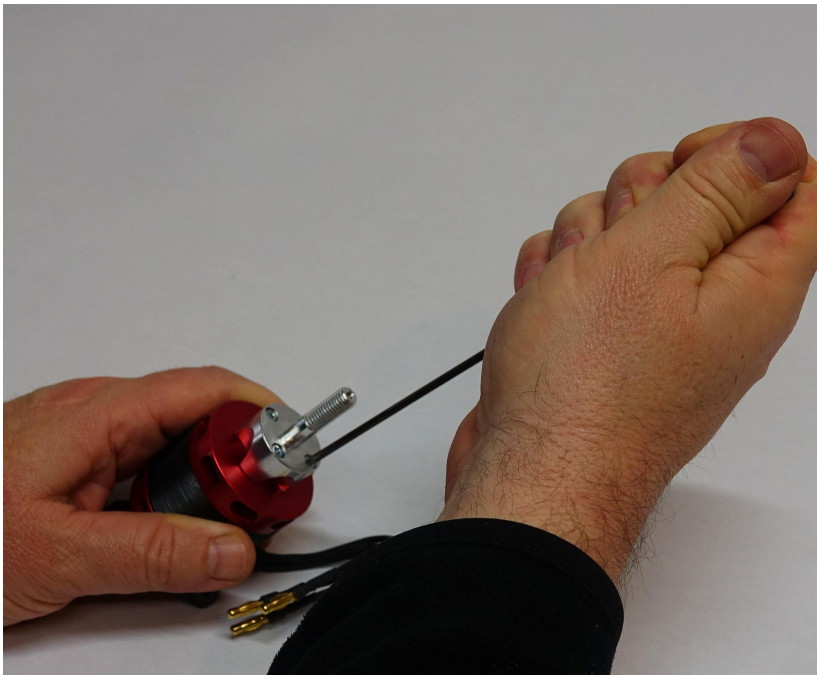
20. Lets prepare the Torque out-runner motor for mounting. First slide the provided collar over the motor shaft and secure in place with the set screw. Place a drop of blue Loctite on the threads of the set screw so that it will not back out.



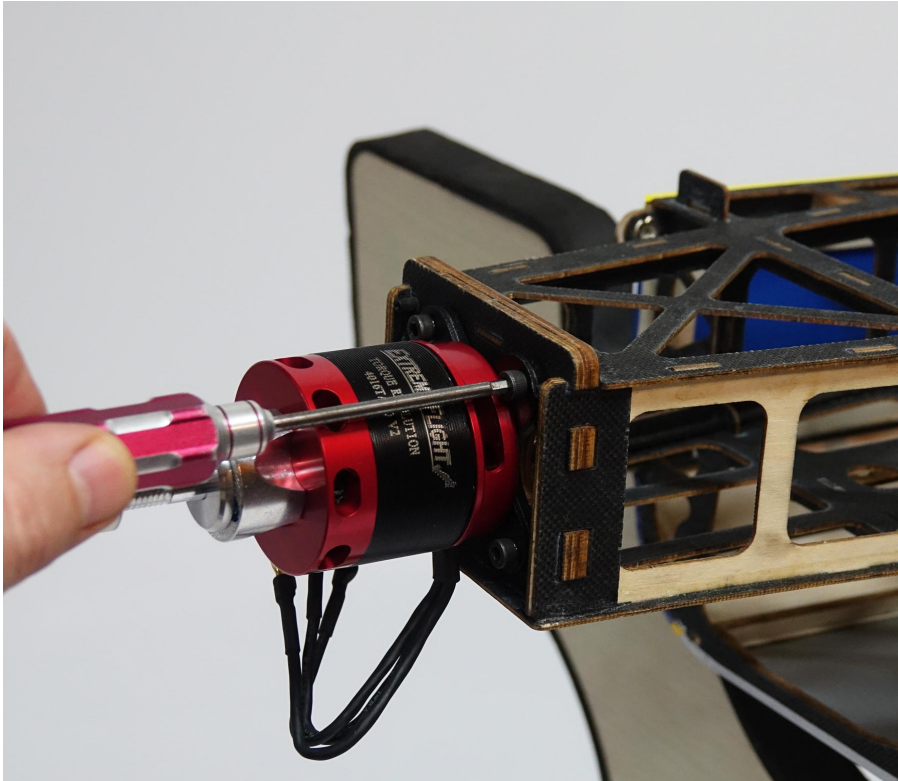
21. Next secure the radial mount to the motor using the provided short Phillip's head machine screws. Again be sure to use a drop of blue Loctite on each screw.



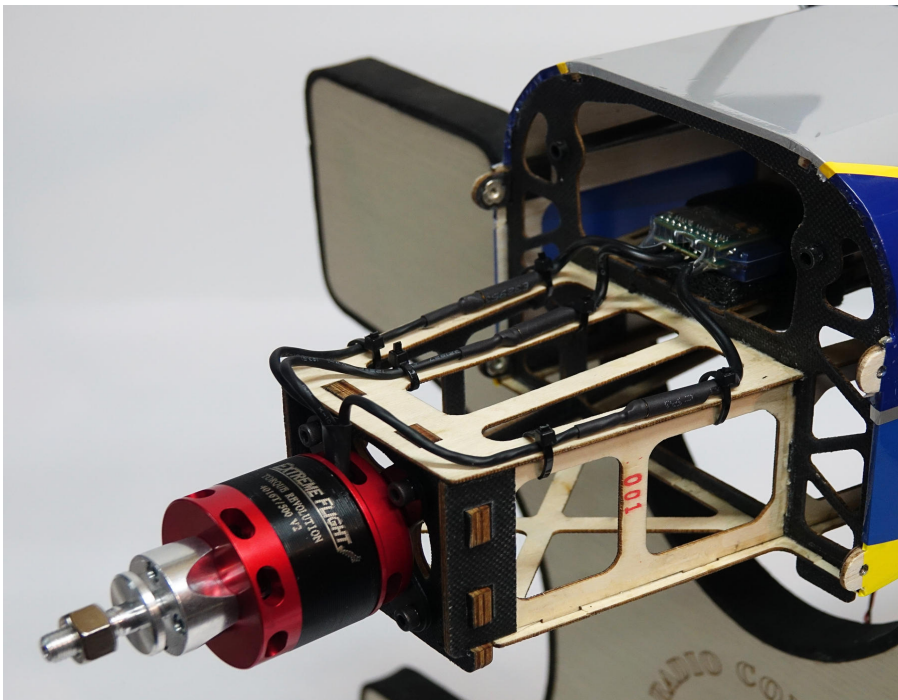
22. Secure the prop adapter using the 4 socket head cap bolts. Again, blue Loctite should be applied to each bolt.



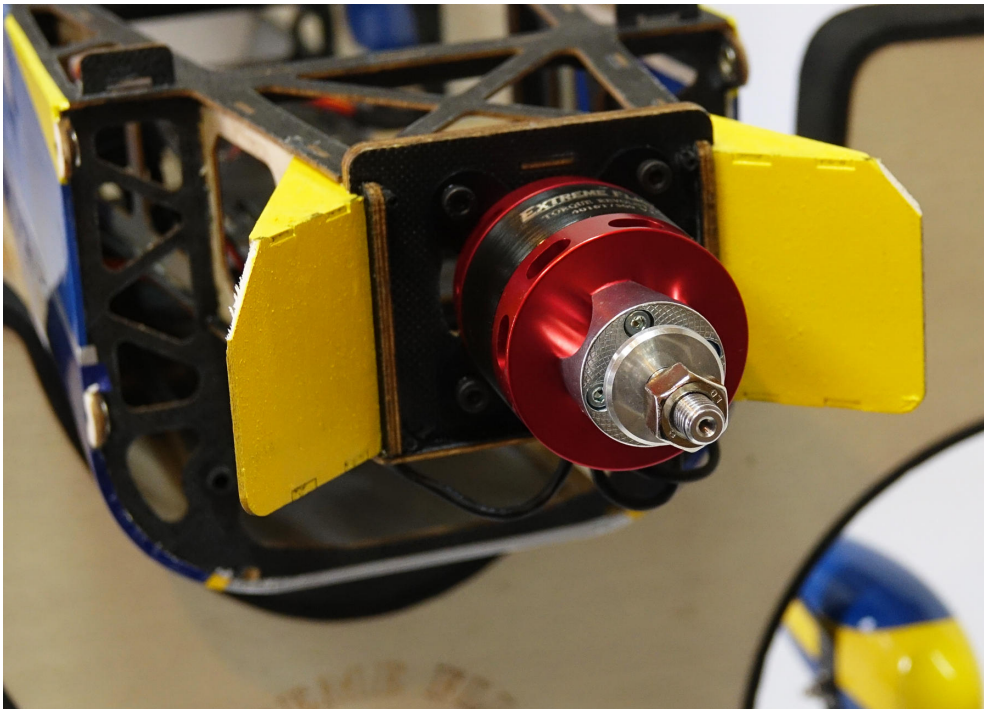
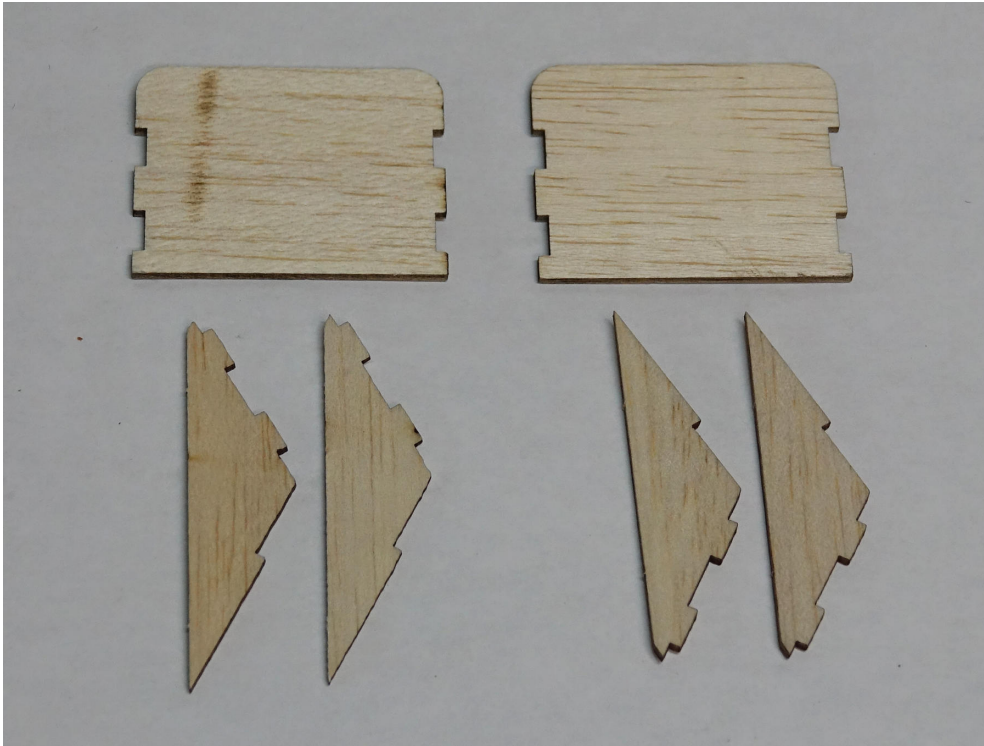
23. Mount the Torque motor using the supplied 4mm black socket head cap bolts and washers. The bolts are to be inserted into the blind nuts which are pre-installed in the motor mount plate. Be sure to put a drop of blue Loctite onto each bolt to prevent them from backing out.



24. Mount the ESC to the bottom of the battery tray and secure the motor/ESC wires as shown.



25. Assemble the balsa air ducts and install with medium CA as shown. You may need to trim the installed ducts for proper cowl clearance.



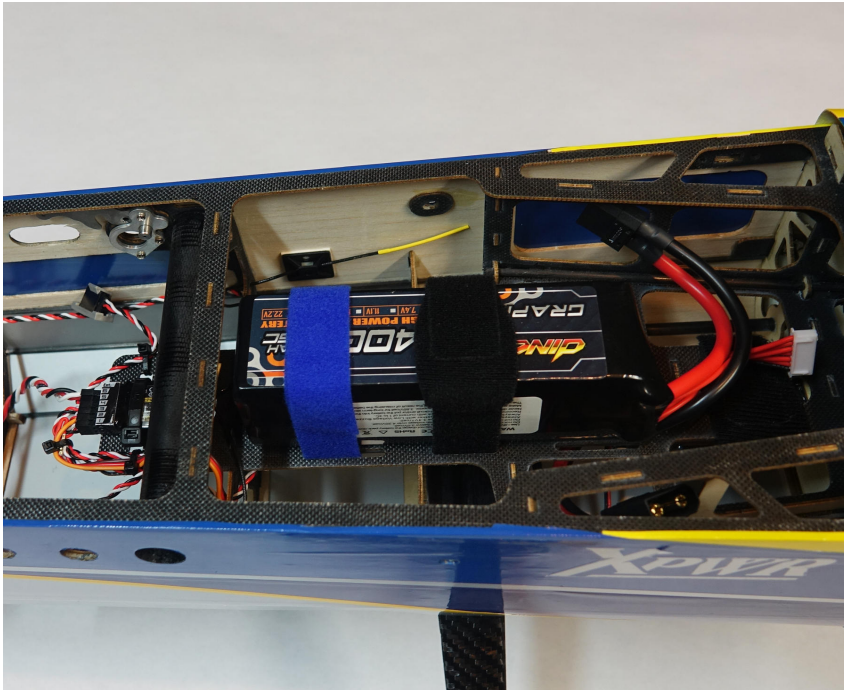
26. Install the pre-drilled cowl using the supplied 3mm socket head cap bolts.



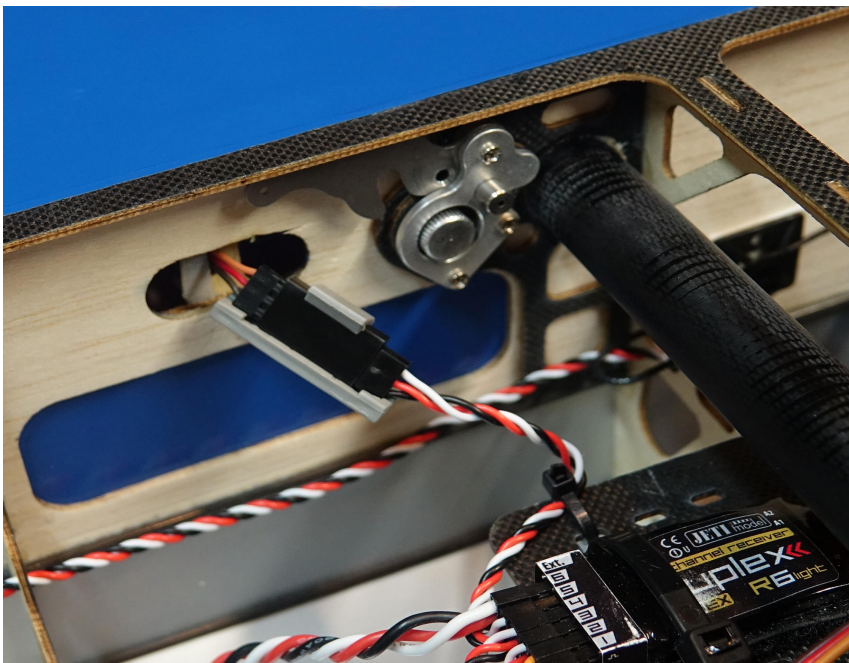
27. Install your choice of prop and the included Cyclone spinner.

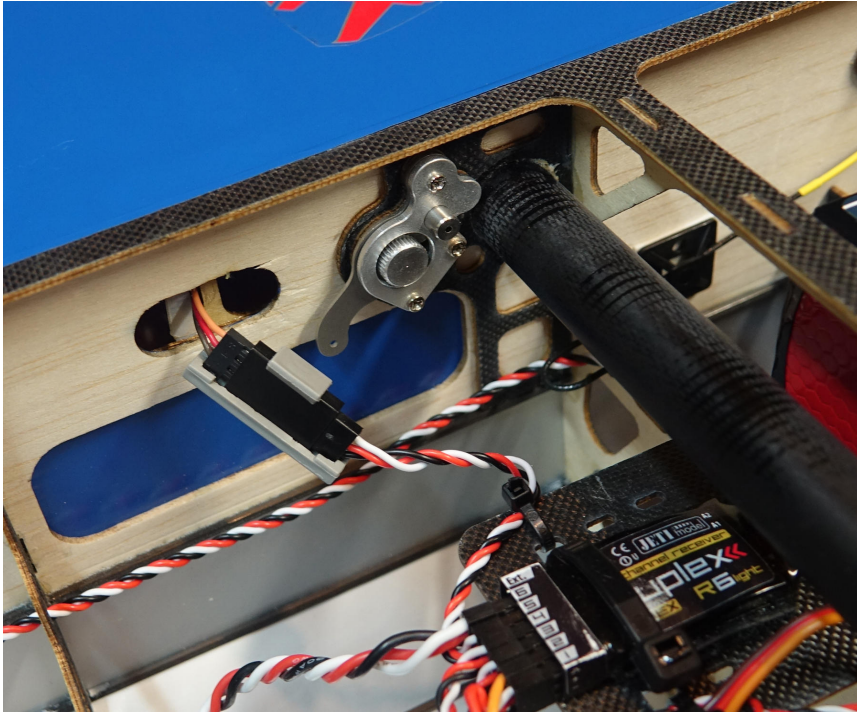


28. Place a strip of Velcro onto the battery tray and onto your battery and use a Velcro strap around the battery and tray to prevent the battery from being ejected during high G maneuvers. Mount your receiver on the portion of the battery tray that extends behind the wing tube with Velcro or nylon cable ties.



29. Insert the carbon fiber wing tube into the fuselage receptacle and slide the wings into position. Connect the aileron servo leads to the receiver and secure the wings with the quick mount latches. Make sure the latches are completely closed around the metal stud.





30. If using the included Side Force Generators now is the time to mount them. There are 2 clear spacers the shape of the wing tip that are to be placed between the wing tip and SFG to prevent them from rubbing against the aileron. Each SFG mounts using 2 3mm thumb screws and 2 rubber O-rings. There are 2 laser cut holes in each SFG which correspond with 2 laser cut holes in the tip of each wing. Insert the bolts into the plastic washers and through the laser cut holes in the SFG and clear plastic spacer. Mount the SFG onto the wing tip by inserting the 2 bolts into the pre-installed blind nuts in the tip of the wing.



Set-up and flying tips

The CG range for the Edge 540T EXP starts at 4 1/8 inches from the leading edge of the wing (measured at the wing root) and extends back to 4.75 inches. There is plenty of room on the battery tray to move your battery to achieve this CG location. This is a safe place to start and depending on your flying style you can adjust the position of the battery to alter the CG to accommodate your preferences. For this type of aircraft where I am going to predominantly fly aggressive 3D I typically set the airplane up with a close to neutral CG, meaning that when the aircraft is flown inverted straight and level it requires minimal down elevator to maintain altitude. If your flying style leans more toward precision aerobatics then I recommend setting your CG using the 45 degree line test. Fly the aircraft from left to right or right to left, whichever direction you are more comfortable with at 3/4 to full throttle. Pull the aircraft to a 45 degree up line and establish this line and immediately roll the aircraft inverted. Establish this line and let go of the elevator stick. Ideally the aircraft will continue to track on that 45 degree line for several hundred feet before slowly starting to level off. Adjust the position of your battery to achieve this flight condition. Once satisfied with the location of your CG scribe a mark on the battery tray so that you can position the battery in the same location each flight and achieve the same feel and flight characteristics each flight.

I also highly recommend taking the time to properly set up your rates and exponential settings. Setting up low rates for precision maneuvers and high rates for aggressive aerobatics and 3D flight will allow you to experience the best attributes of the Edge 540T EXP or any aircraft for that matter. The recommended elevator set up will allow for close to 70 degrees of throw! While this is great for really aggressive tumbling maneuvers, positive and negative waterfalls and straight down dropping elevators, it can wreak havoc on stable harriers, especially if you are just learning the maneuver. If your radio will allow I suggest setting up 3 elevator rates or a flight condition that will allow you a rate for precision flying, another for harriers and the majority of 3D maneuvers and a final rate with as much travel as you can get for the crazy tumbles and flips.

Here are some suggested rates to get started with. These are the rates and exponential values I feel comfortable with. They may feel awkward to you and if so please adjust to your taste.

Elevator: Low rate-8-10 degrees; 15-20% Exponential

3D rate-45-50 degrees; 60-65% Exponential

Insane tumble rate: As much as possible! 65-70% Exponential

Rudder: Low rate-20 degrees; 45-50% Exponential

3D rate- As much as possible; 70-75% Exponential

Aileron: Low rate-15-20%; 40-45% Exponential

3D rate- As much as possible; 70-75% Exponential

Again, these are my preferences, adjust to suit your flying style and preferred feel.