120" Extra 260

EXTREME FLIGHT

Please read the following paragraph before beginning assembly of your aircraft!

THIS IS NOT A TOY! Serious injury, destruction of property, or even death may result from the misuse of this product. Extreme Flight RC is providing you, the consumer with a very high quality model aircraft component kit, from which you, the consumer, will assemble a flying model. It is beyond our control to monitor the finished aircraft you produce. Extreme Flight RC will in no way accept or assume responsibility or liability for damages resulting from the use of this user assembled product. This aircraft should be flown in accordance to the AMA safety code. It is highly recommended that you join the Academy of Model Aeronautics in order to be properly insured, and to operate your model at AMA sanctioned flying fields only. If you are not willing to accept ALL liability for the use of this product, please return it to the place of purchase immediately.

Extreme Flight RC, Ltd. guarantees this kit to be free of defects in materials and workmanship for a period of 30 DAYS from the date of purchase. All warranty claims must be accompanied by the original dated receipt. This warranty is extended to the original purchaser of the aircraft kit only.
Extreme Flight RC in no way warranties its aircraft against flutter. We have put these aircraft through the most grueling flight tests imaginable and have not experienced any control surface flutter. Proper servo selection and linkage set-up is absolutely essential. Inadequate servos or improper linkage set up may result in flutter and possibly the complete destruction of your aircraft. If you are not experienced in this type of linkage set-up or have questions regarding servo choices, please contact us at info@extremeflightrc.com or 770-887-1794. It is your responsibility to ensure the airworthiness of your model.

Please read over the manual completely before beginning. This will give you an overall understanding of the assembly process and familiarize you with the tools and supplies you will need.

Extreme Flight consantly upgrades and improves its products. Hardware and details may change, but the basic process remains the same. If you are confused about a step, please call or email us at the contact information on our website, we will be glad to help.

1.Unpacking and Sealing Covering

Your aircraft has been on a journey around the world since it left our factory. Although the covering material was perfectly smooth when it was boxed up, changes in weather and humidity may have wrinkled the covering material. For certain, wrinkles will appear in the covering once you have unpacked your aircraft and it adjusts to the atmospheric conditions in your region. Learning to remove wrinkles from covering is a necessary skill to maintain your wood aircraft.

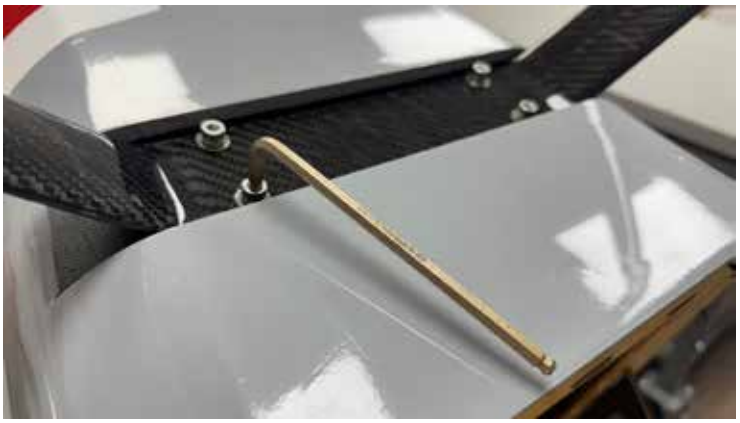
Your Extreme-Flight produced aircraft is covered in Ultracote covering material (US market name), also called Oracover in global markets. If you need replacement covering to repair damage, Ultracote/Oracover is widely available from retail hobby suppliers. Also, each roll of Ultracote/Oracover includes excellent instructions which are also available online. Please refer to them for details about working with and/or repairing your covering.

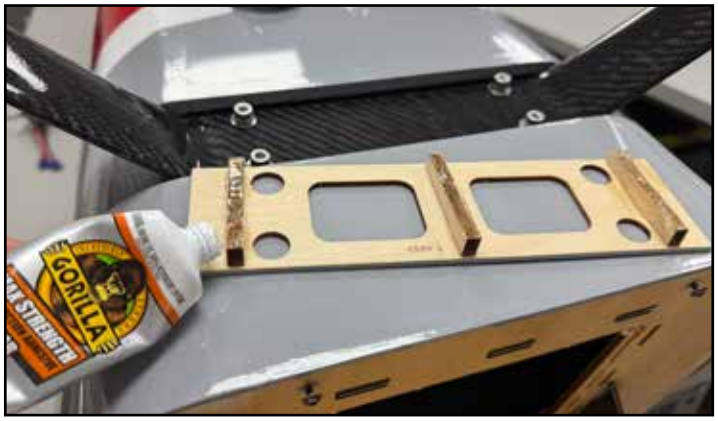
The basic tools are a covering iron and a hobby heat gun. Start by using the iron at 220F (104C) to seal all of the edges on the covering scheme. This is CRITICAL on the leading edges of wings and stabilizers. Then use the iron at 300F (149C) or a heat gun to shrink out any wrinkles in the covering. Remove the plastic canopy from the aircraft when using a heat gun to protect it from heat damage. GO SLOWLY AND CAREFULLY to avoid over-shrinking or burning the covering. This is a skill which takes a bit of practice. There are many tutorial videos online demonstrating shrinking wrinkles from Ultracote. IF YOU ARE INEXPERIENCED WITH COVERING, WE RECOMMEND TO USE ONLY THE IRON AT FIRST. THE HEAT GUN WORKS VERY FAST AND YOU MAY NOT BE ABLE TO REACT QUICKLY ENOUGH.

2.Landing Gear

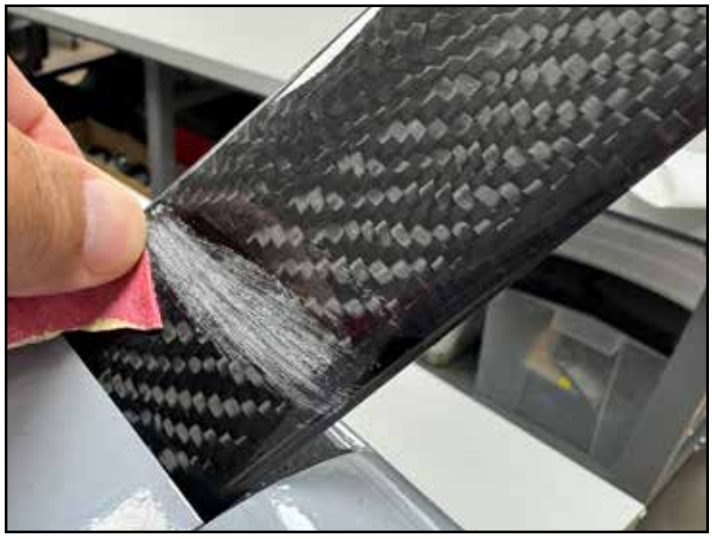
The Extra 260 uses a carbon one-piece landing gear which sweeps *slightly forward* when installed properly.

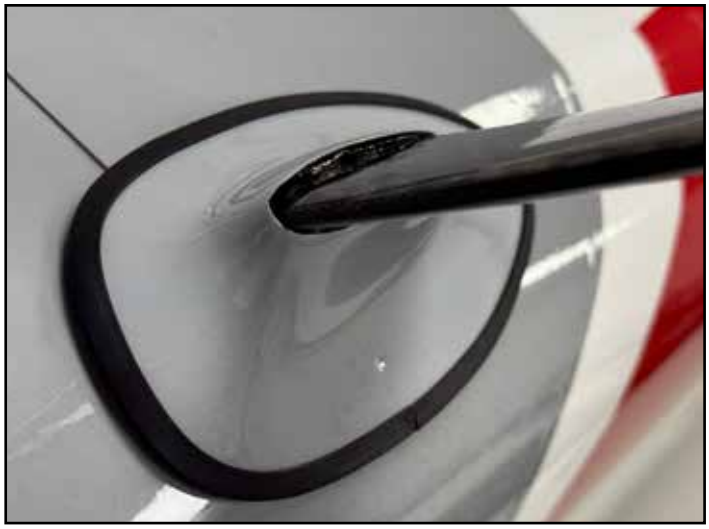
The gear attaches to the fuselage with four screws and washers as shown. Use blue threadlocker here. Install the cosmetic cover plate with ruberized glue as shown. We prefer Gorilla Clear Grip, Goop is an acceptable substitute.

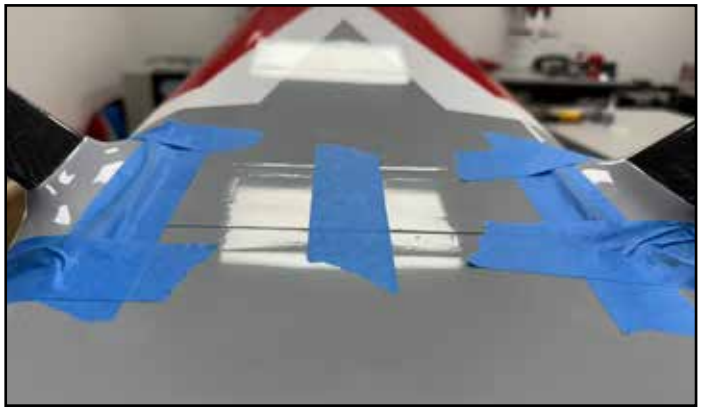




Your kit includes fiberglass landing gear fairings. Test fit them onto the landing gear. Open the slot in the fairing as necessary to fit the gear leg. Test the fairings on both sides to find the best fit. Mark the end of the fairing with a marker as shown. Lightly sand and clean this area with solvent. Add a large dollop of rubberized glue. We prefer Gorilla Clear Grip adhesive. GOOP adhesive is a good substitute. Tape the fairings in place and allow to cure.

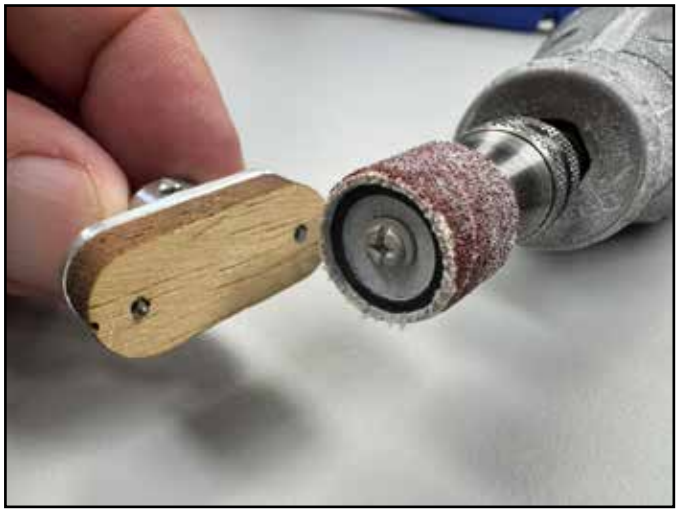


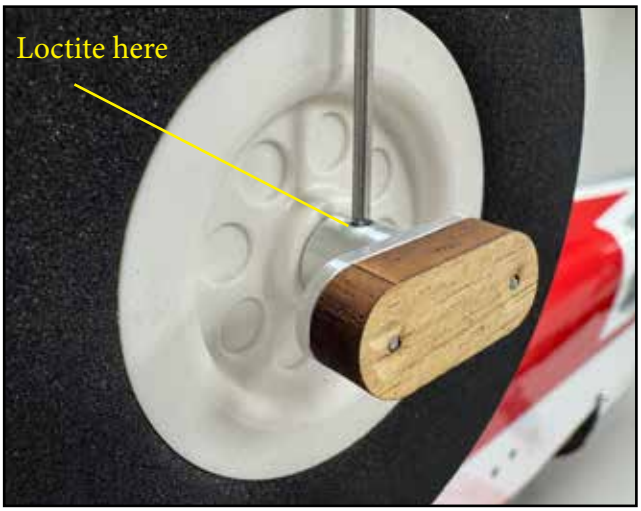




The wheel axles are attached to the landing gear with washers and locknuts. When tightening, make sure the flat spot machined into the axle tip points DOWN, toward the runway.

Assemble and install the wheel-pant-mounts/wheel collars as shown. Two wood screws attach the wooden wedges to the aluminum body as shown. Scuff the face of the wood wedge and remove the tips of the screws if they are poking through. Assemble onto the axle and use blue threadlocker on the set screw. Apply adhesive (we recommend Gorilla Clear Grip or Epoxy) to the face of the wheel pant mount as shown.





Install the wheel pant over the wheel and axle, tighten to the landing gear with screws as shown, using blue loctite. The wheel pant support should sit against the pant as shown. By stabilizing the pant, this design lengthens the life of your wheels pants. Just like on full-size aerobatic aircraft, however, wheel pants take a lot of abuse and over its life your aircraft will probably need a replacement set.

3.Tailwheel

Install the tailwheel onto the fuselage with blue threadlocker. Locate the mounting hole in the bottom of the rudder and install the tiller holder (a plastic ball joint) with epoxy as shown. Attach the tailwheel with loctite. For very best geometry, make a bend in the tiller wire as shown.

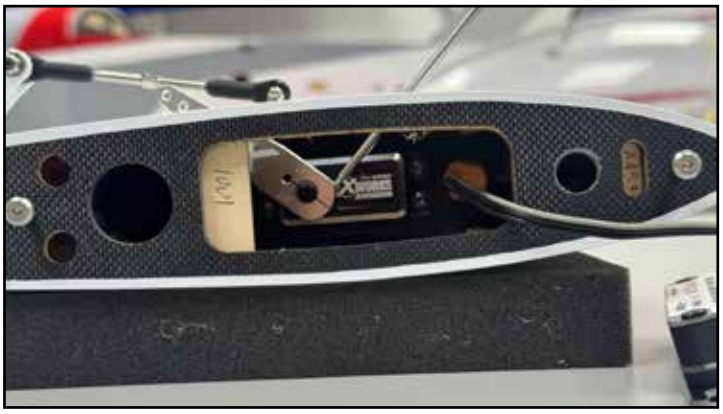
4.Rudder installation

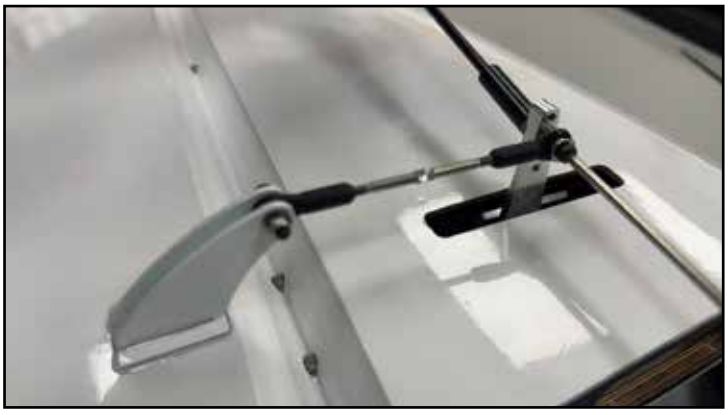
The 120" Extra 260 arrives with control horns installed and with the wings and stabilizers pre-hinged and gap-sealed. The rudder is quick-release type using a wire hinge. Take your time aligning the rudder and fuselage, then insert the hinge wire through the top of the rudder. Carefully feed the wire down through the hinges and screw into the top of the rudder as shown.

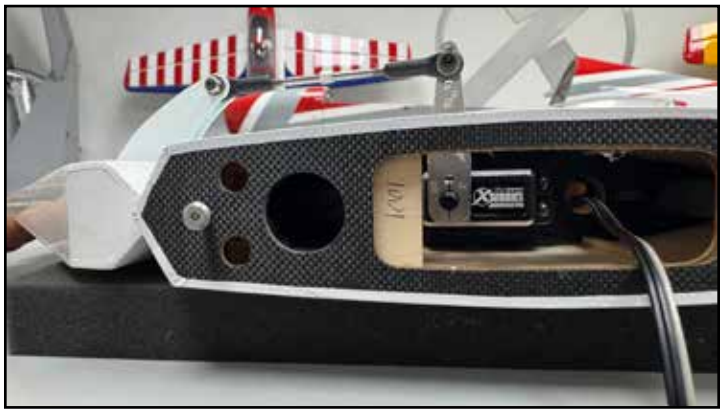
5. Elevator servos

We prefer to add a single drop of thin CA glue to each of the servo screw mounting holes. Begin to install the servo by threading the wire through as shown. The first time you install an elevator servo into an interior mount like this, it can be a challenge. Be patient and you'll succeed. Note that if your servo has an oversized case, you may need to sand or file the opening to match. Install the servo arm, and install the pushrod, using bolts, washers, locknuts, and tapered spacers on the servo-arm end as shown.

For most installations, depending on transmitter/receiver/servo type and brand, you can use the 1.75" location on the 2" arm, and maximize end points to achieve the desired throws. Maximizing endpoints and using the shortest possible arm length maximizes effective servo torque and resolution.



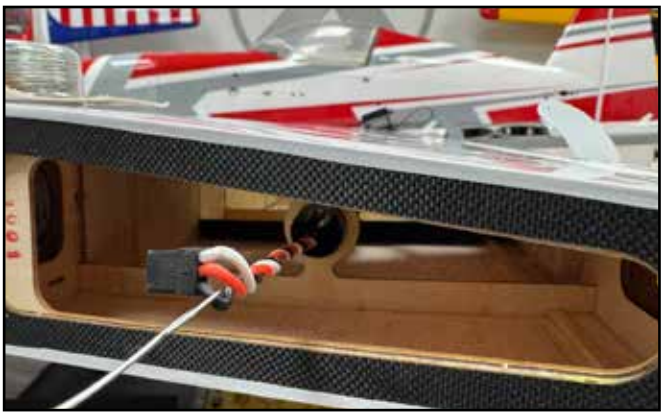


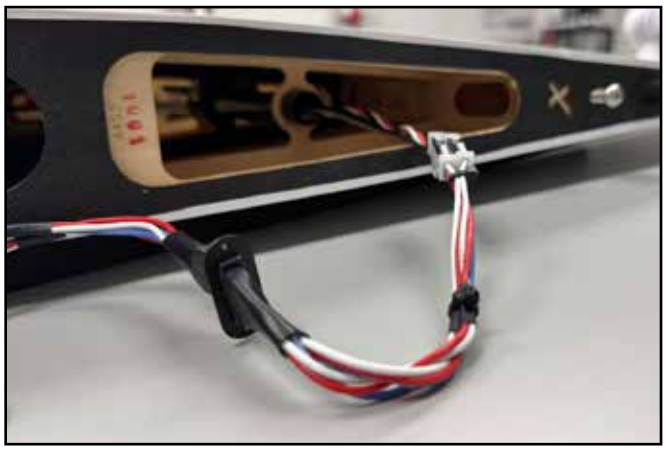


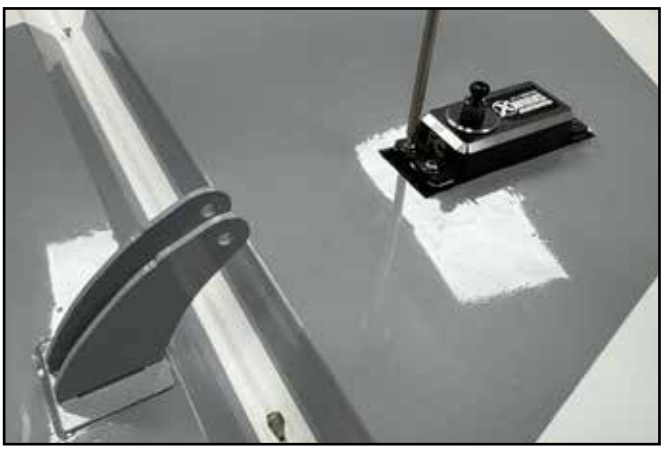
6.Aileron Servos

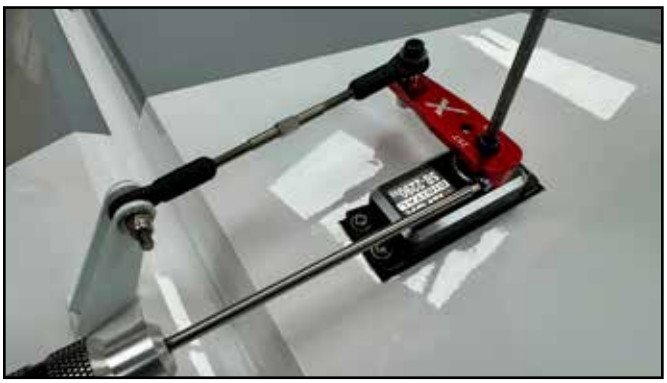
Again, we prefer to add a single drop of thin CA to each servo mounting screw location. Run the servo wire through the tube in the wing interior as shown. Mount the servo as shown, and install the arm and pushrod. Use the cone-shaped spacer between the ball joint and servo arm, as shown. See the photo for the CORRECT orientation of these parts once installed. The servo linkage is "crooked" at the neutral/center position. This is correct, so that the linkage will be aligned within specs when fully deflected. At full deflection is when stresses are highest, that's the important position.

NOTE: As delivered, the 120" has two aileron horns installed per wing, and two servo mount locations opened. We fly and compete on 2 servos per wing with excellent quality servos. If you wish to use 3 servos per wing, another set of horns and pushrods is included and a third servo location is built into the wing, ready to be opened.









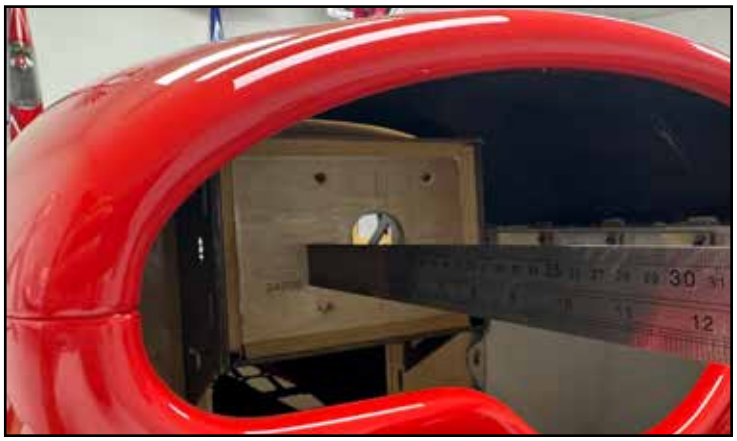
7.Rudder Servo

Install the servos, arms and pushrods as shown.

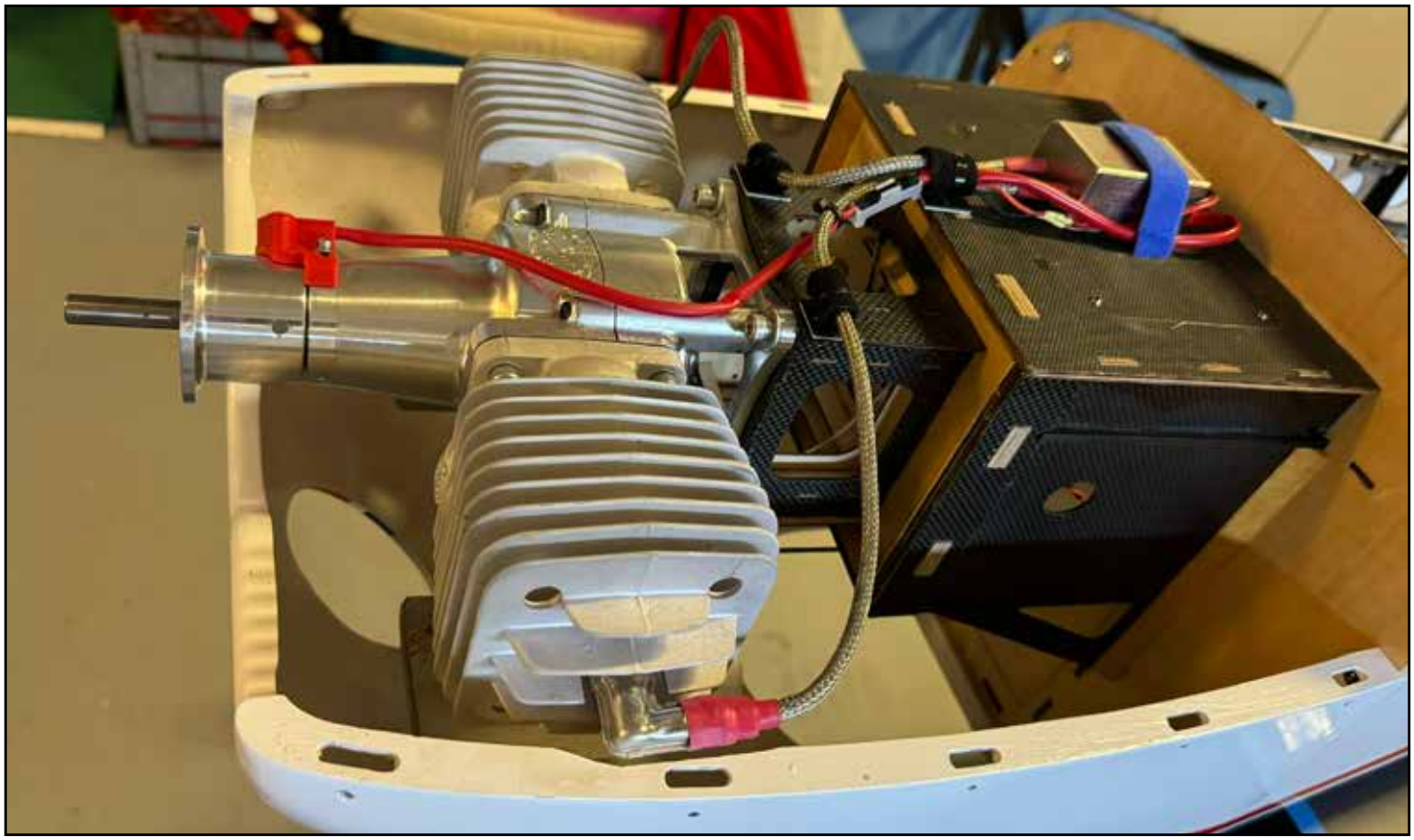
There is a plastic tube installed in the fuselage to contain the extension wires for your rear servos, for the elevators and rudder. Run your extensions through the tube to the receiver in the front. Sometimes it can be helpful to feed a wire or other tool through the tube from the front and pull the extensions through. Electrical solder is an excellent choice for this, with its combination fo stiff and soft, it is easily fed through the tube and strong enough to pull extensions through. You can also now pull your elevator servo extension wires through the tube on the other side of the fuselage. NOTE: as pictured, depending on your radio/servo specifics, you might use either the 2" or 1.75" servo horn positions for the rudder.

8.Engine mounting

The 120" Extra 260 has the typical DA/GP large engine mounting bolt pattern inscribed on the firewall. Drill out using 3-4 successively larger diameter bits to get a clean hole. To determine the exact spacer needed, measure the depth of your cowl as shown and compare to the length of your engine. Use washers on the back side of the firewall to distribute stress. Here a 4-cylinder install is shown.

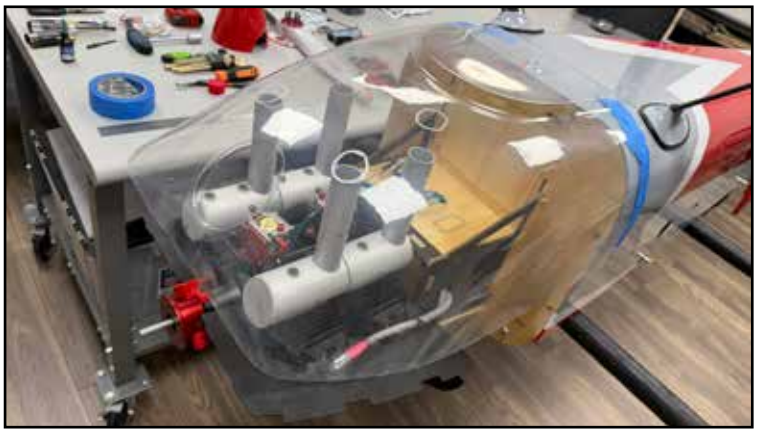


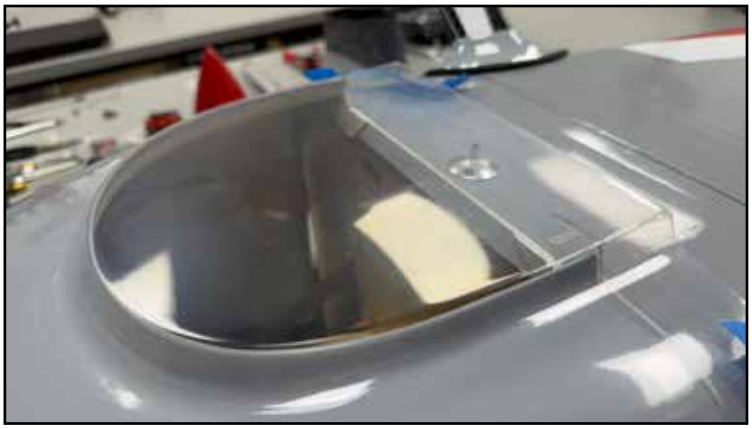
For a 2-cylinder install, your 260 includes a composite/wood spacer box. Install this box onto the firewall as shown and then install the engine onto the front face of the box with any necessary spacers. Note that a very wide twin may need the cowl relieved on the left side as shown.

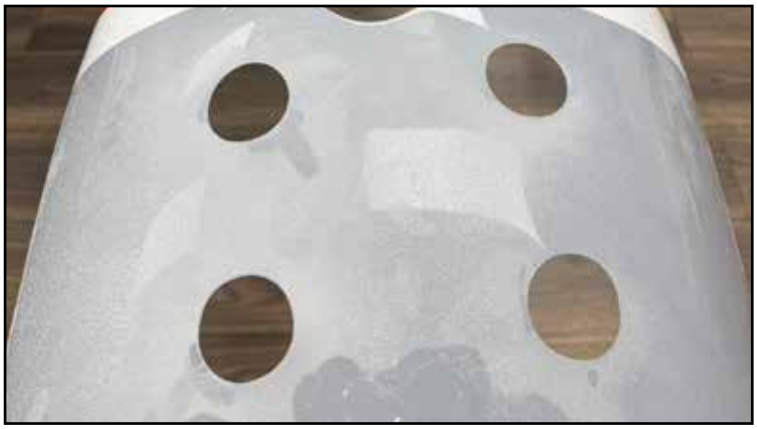


9.Exhaust cutouts

If you are using stock/compact mufflers on either 2 or 4 cylinder, use the included clear plastic cowl tool to locate the neccessary cutouts as shown, and transfer the cuts to the lower cowl. On this DA-200 install, we used carbon pultruded tubes as exhaust extenders, attached to the muffler stacks with hi-temp RTV silicone.

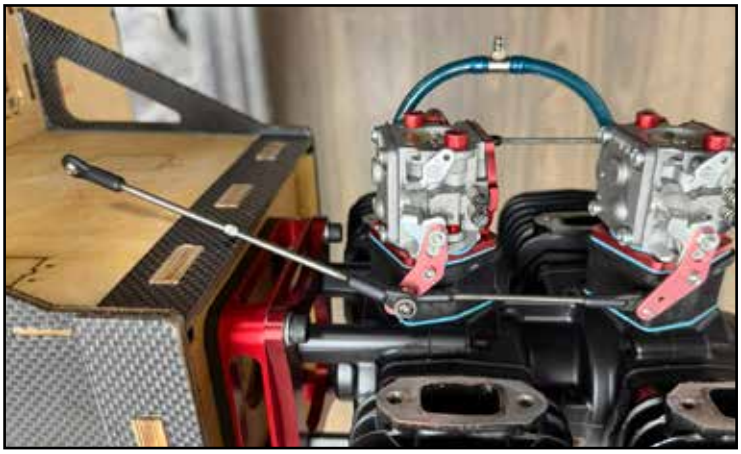


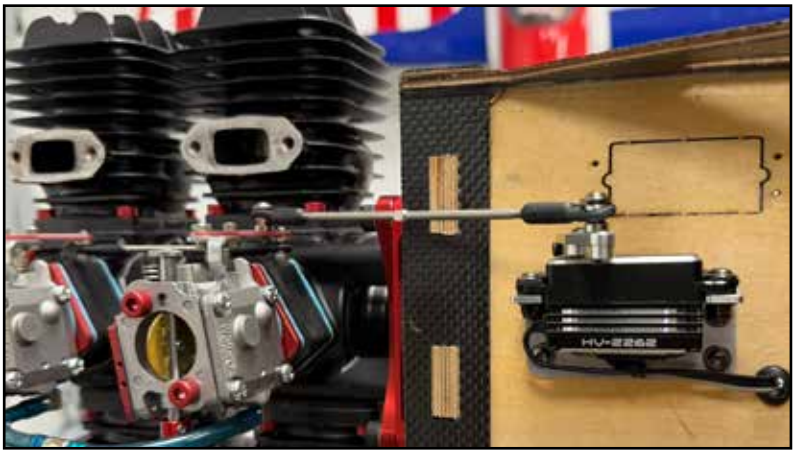




10.Throttle Servo

Your 260 includes our new aluminum servo mount and two pushrods to fit 2cyl and 4cyl installations. Drill your throttle arm for the 3mm ball links and through bolts. Install the servo on the aluminum mount and mount in the proper location. An unasssembled wood choke servo mount is also included if you wish to use a choke servo.

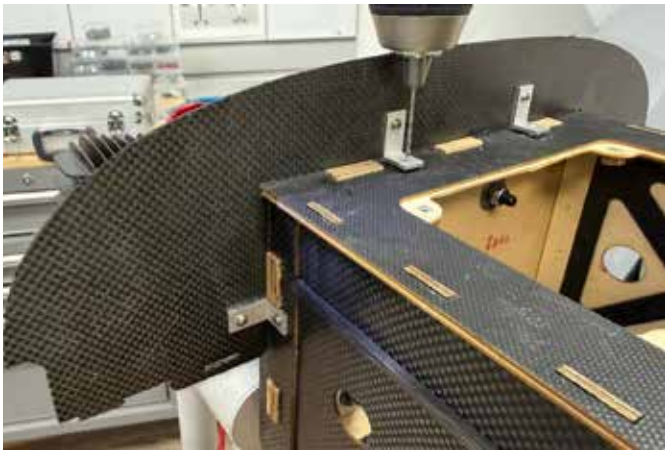




11.Engine Cooling

For a 2-cylinder install, your 260 includes a composite duct. Trim the duct as necessary to fit near (3-10mm clearance is typical) the front cylnder faces of your engine. This is ONLY for 2-cylinder installs. Attach the duct to your cowl with Clear Grip, Goop, or epoxy.

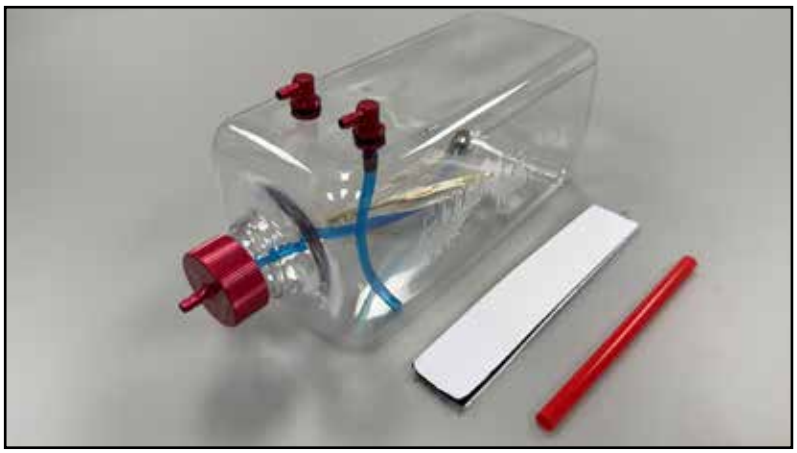
For a 4-cylinder install, your 260 includes a horizontal plate baffle system. This consists of four pieces. Install the aluminum angle brackets onto the rear section as shown and attach to the the motor mounting box with screws as shown.

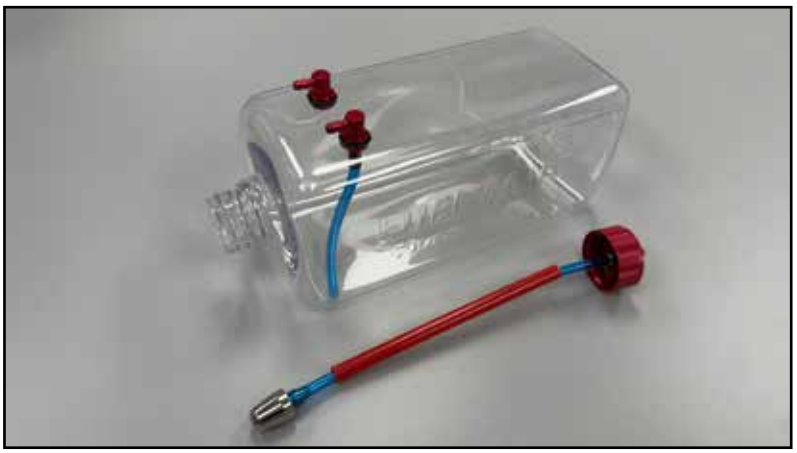


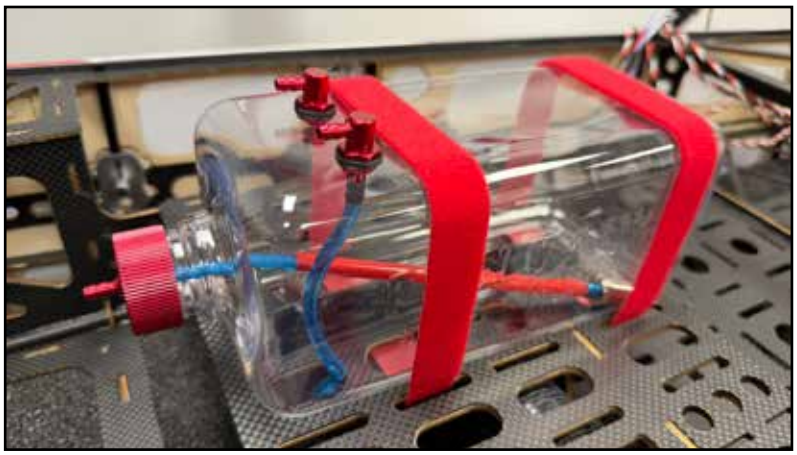
Attach the side pieces, gluing them to the rear part with Clear Grip or Epoxy. Install the lower cowl, gluing the front section onto the side pieces and using wood screws to affix the side pieces to the lower cowl as shown.

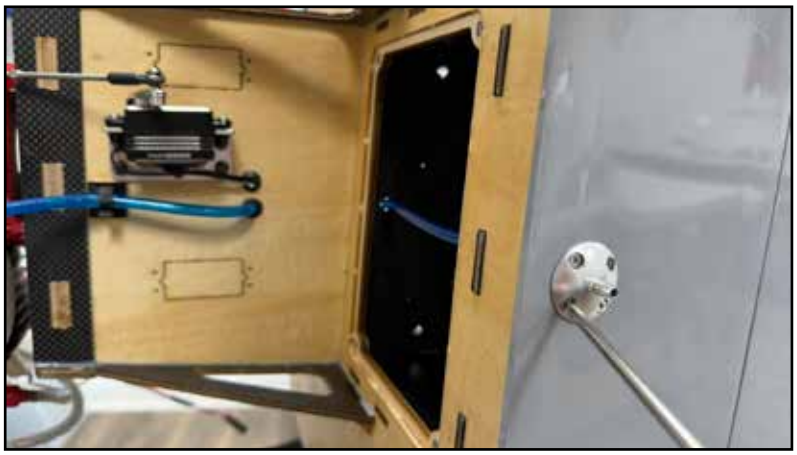
12.Fuel System

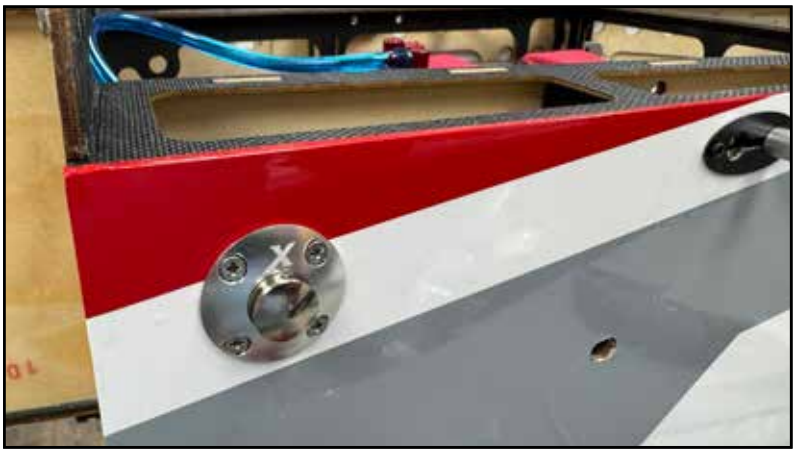
We recommend an Extreme Flight Flowmaster 50oz. fuel tank. For Extreme Aerobatic use, we prefer to sleeve the pickup tube with a section of Fast-Food drinking straw as shown. Install the tank onto the tray with velcro as shown. We do not use foam between the tank and tray on our installations. Wrap the vent line in a loop on top of the tank as shown and terminate to the bottom of the fuselage, here we are using an Extreme Flight vent dot. Install an Extreme Flight fuel filler dot on the side of the fuselage as shown.





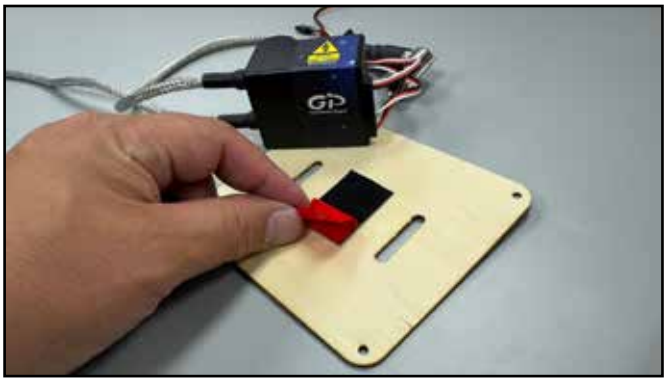


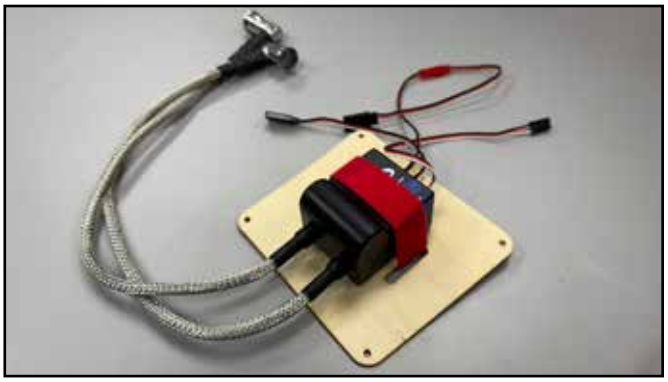




13.Ignition system

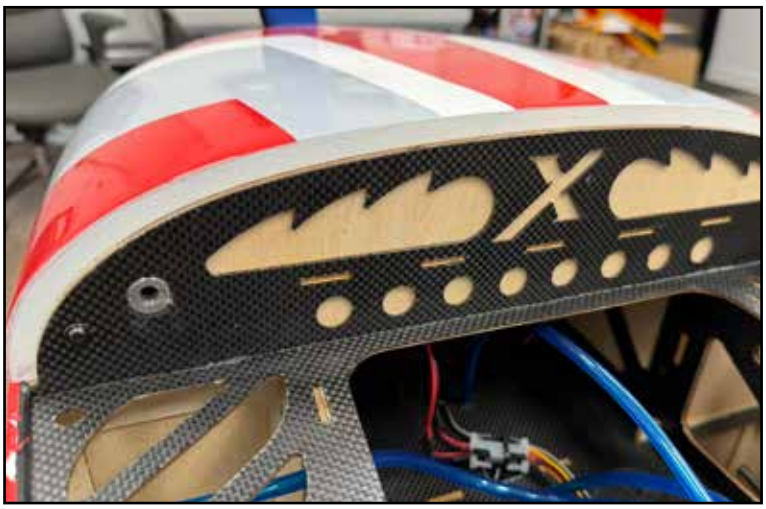
To save weight and complexity, we prefer to use an ignition-battery eliminator circuit (IBEC) such as the Tech-Aero or comparable unit, instead of a separate ignition battery. A good location for your ignition unit is inside the motor box as shown. Remove the two slot pieces in the motor box top plate and attach the ignition with velcro. Use heat-shrink tubing or servo plug locks on all of these critical connections as appropriate. Run the ignition wires as shown, we recommend the use of 3M brand wire anchors for organizing wiring and tubing. Install the top plate using loctite.

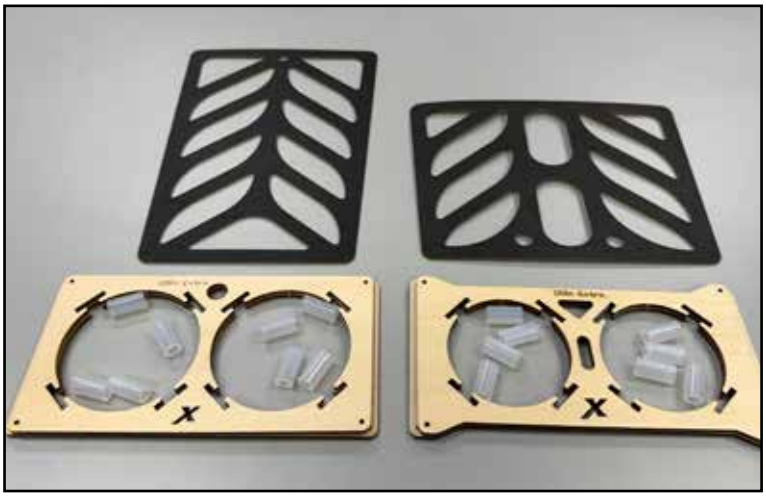




14.Finishing touches

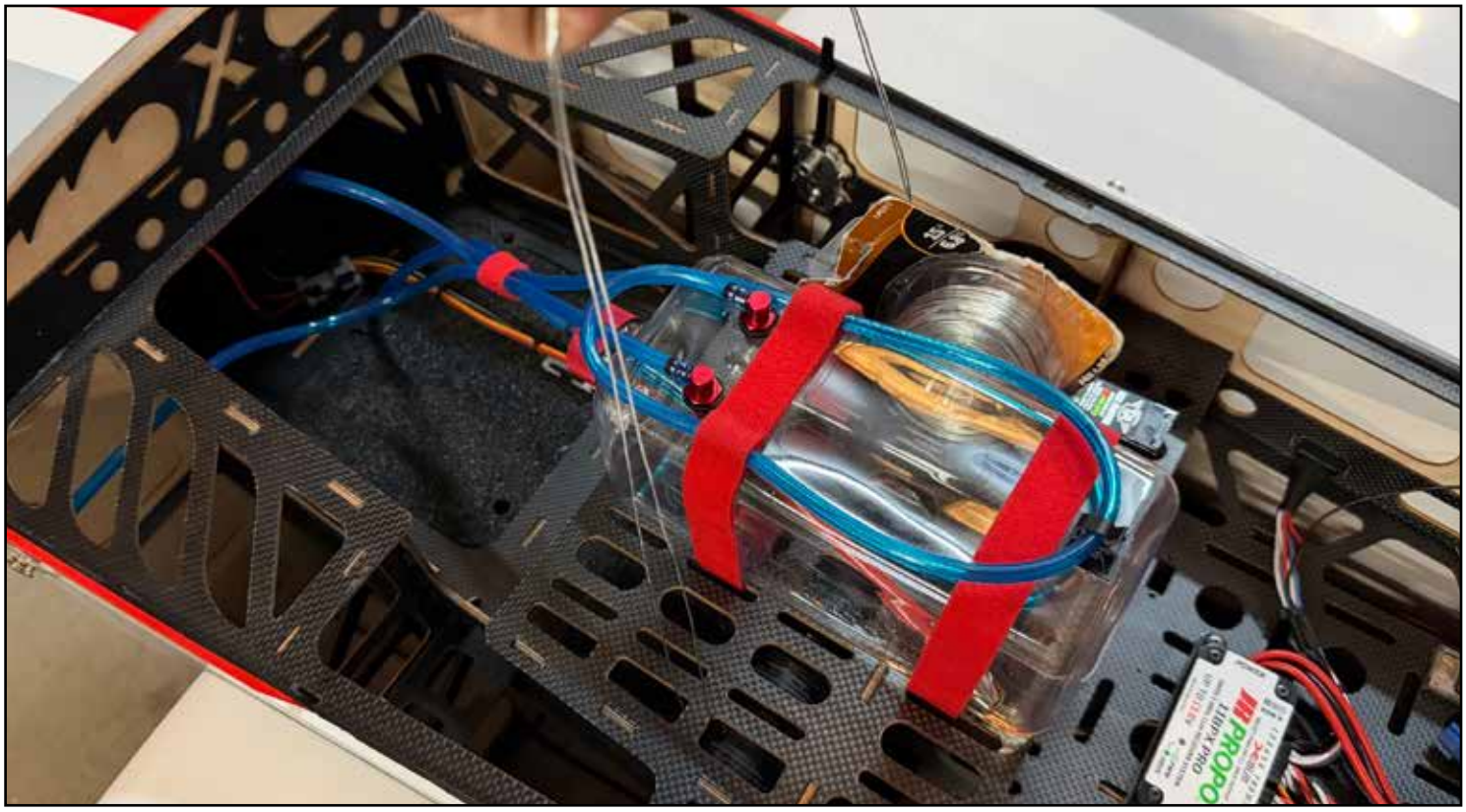
Install the cowl top with bolts into the cowl lower and fuselage front top plate. The 260 includes a foam-lined exhaust tunnel built into the fuselage for canister or tuned pipe installation. Mounts and exit/exhaust plates are included. Remove the covering over the openings on the bottom of the fuselage for access and install the plates with screws. If using stock mufflers, a blockoff plate is included for the lower firewall.



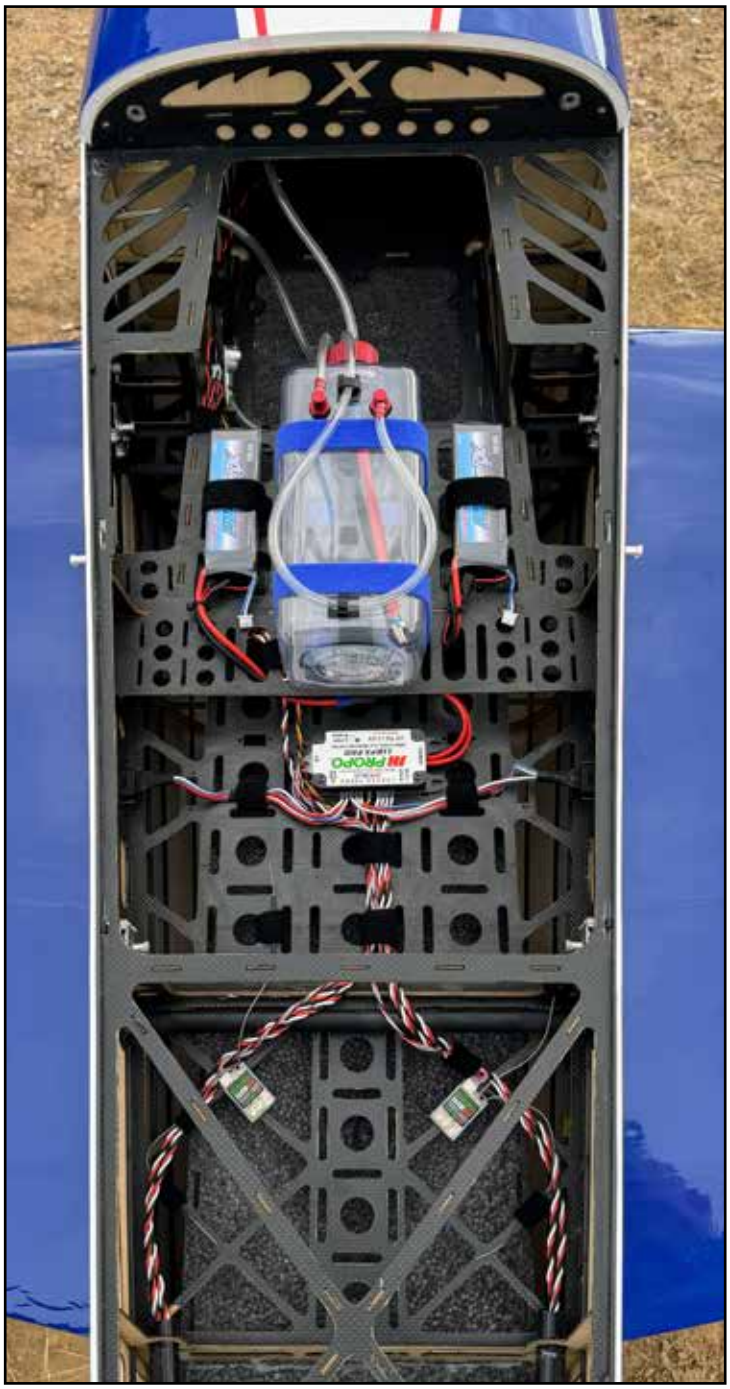


15.Equipment and Balancing

The CG for the 12-" 260 is, basically on the main wing tube. Lift the plane with all equipment installed, using a piece of rope or string around the main wing tube as shown. With the CG on the front edge of the wing tube (hanging slightly nose down when lifted by the tube), you have good precision-flight starting point. On the rear edge of the tube (hanging slightly tail down when lifted by the tube) is a good starting point for 3D flying.



Our equipment locations with 4-cylinder engine.



Our equipment locations with 2-cylinder engine.

16.Precision Stabilizers/Elevators

For high-precision flight/precision compeition, special precision stabs are available from Extreme Flight. Please see our website for availability/ordering information.

17.Control Throws

Set the control throws. Be sure to add adequate EXPO and be sure each surface is moving in the correct direction. There are various kinds of throw-meters available for this purpose, but our favorite is the smart phone most of us carry every day. Use a "level" app (most phones come equipped with one) and hold the phone against the control surface to measure deflection.

Aileron Low:	20 deg up, 20 deg down 18-20% exponential
High:	38 deg up, 37 deg down 50-60% exponential
Elevator Low:	10-12 deg 18-20% exponential
High/3D:	50-55 deg 50-60% exponential
Rudder Low:	20 deg 50-60% exponential
High:	45+ deg 60-80% exponential

18.Repairs

If you need to make repairs, every component of the Extra 260 is available as a replacement part.

If you need to repair the covering, here are the color codes for the material in both the Oracover and Ultracote naming systems:

Oracover colors	Ultracote colors
Red/Grey Scheme	
Ferrari Red #23	True Red-#HANU866
White #10	White-# HANU870
Light Grey #11	Grey #HANU882
Blue/Orange Scheme	
Dark Blue #52	Midnight Blue- # HANU885
Sky Blue #53	Sky Blue- #HANU875
Orange #60	Orange - #HAN877
White #10	White-# HANU870
White/Blue Scheme	
Dark Blue #52	Midnight Blue-#HANU885
White #10	White-# HANU870
Ferrari Red #23	True Red-#HANU866

Check the “Tech Tips” section of the Extreme Flight website for the latest information on matching paint availability.

We recommed to clean your aircraft after flight with a good quality glass cleaner to remove all oils and grease, and to periodically wax your aircraft with a good quality spray wax/detailer.