Adam Strong STRONG DESIGNS

Redwing RC

EDGE 540v3

--Specifications--

Wing span: 78” w/tips

Wing area: 1145 sq. in

Length: 70.5"

All up flying weight: 11.5lbs

FLY STRONG

Needed to complete:

Engine- 30cc-40cc 2-stroke *(DLE 35ra / PTE 36 or VVRC 40 w/ ¼-32 plugs)*
19x8-20x9 prop
Servos- (6) Standard size servos *(min 250oz/in)*
Batteries- (2) 1100-2000mah 6v min
Radio System *(Min 5ch)*
Optical Kill switch
(2) power switches
3" spinner
Tygon fuel line
Adhesive backed Velcro
Velcro strap
Zip ties
Servo Extensions

Tools and adhesives needed:

Hobby knife
Sealing iron
Allen driver set
Phillips head driver
Adjustable wrench
Forceps
Pen
Low tack Painter's Tape
5 min and 15 or 30 min epoxy
Petroleum Jelly
Thin and medium CA
Medium thread locker
Drill with bits
Denatured Alcohol

•Begin by removing everything from the box and inspecting for damage or any missing parts. If there are any damaged or missing parts please contact RedwingRC immediately.

•Before any assembly begins, read over the manual and make sure you have everything you need on hand, this will make the assembly go much faster. It is a good idea to go over all the seams and shrink any sags in the covering with a sealing iron set to a moderate temperature (280 - 300 degrees). - This will be much easier before assembly and will ensure the seams are locked down to avoid separation.

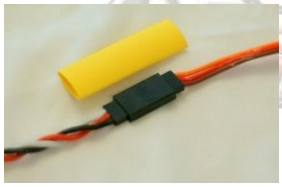
From the Pro: *Go over all the edges of the color scheme with trim solvent using a cotton ball. This will lock the edges into place.*

Wing Assembly

•The ailerons arrive pre-hinged. Firmly pull on the aileron to ensure all hinge points are secured properly.

From the Pro: *Some pilots prefer to seal the hinge gap. If you wish to do this, it is best to do it now before anything is installed to the wing.*

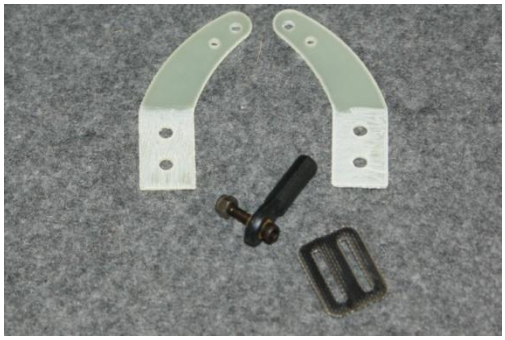
•Prepare the aileron servos by installing the grommets and inserts. Also, secure the extension to the lead at this time.



From the Pro: *Use heat shrink tube to secure the servo lead to the extension.*

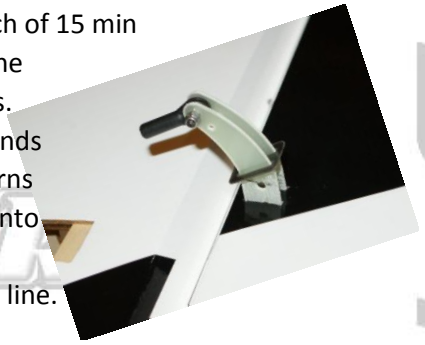
•Next, install the dual control horns into the pre-cut slots of the ailerons.

•Lightly scuff the glue surface of the horns using coarse grit sand paper or a rotary sanding tool.



•Using the included linkage hardware, join the two horns as shown.

•Mix a small batch of 15 min epoxy and coat the inside of the slots. Lightly coat the ends of the control horns and insert them into the slots, angled toward the hinge line.

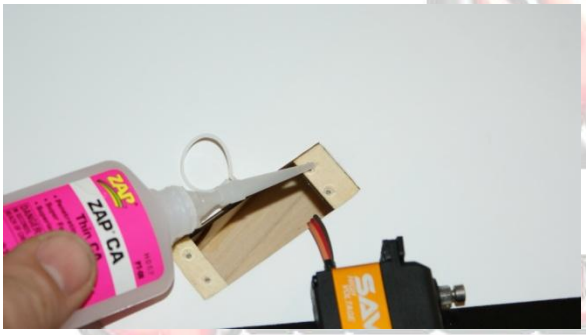


•You should have minimal squeeze out and a small fillet will form at the base of the horns. Clean up any excess with denatured alcohol.

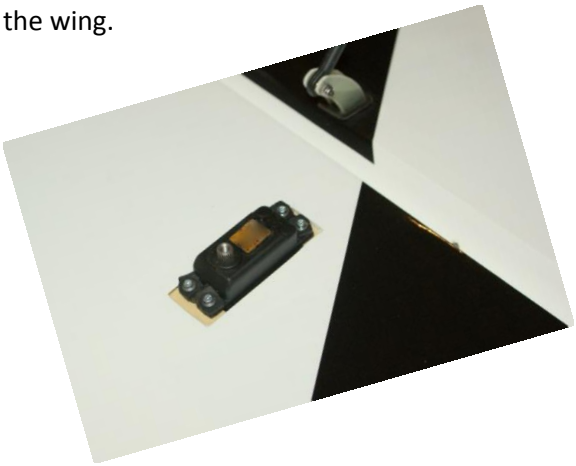
•Locate the servo pocket and remove the covering. Then drop the servo into place and drill for the servo screws with a 1/16” drill bit.

From the Pro: *When removing the covering leave 1/8-1/4” of covering to be ironed down into the servo pocket. This makes for a much cleaner and more fuel-proof servo cut-out.*

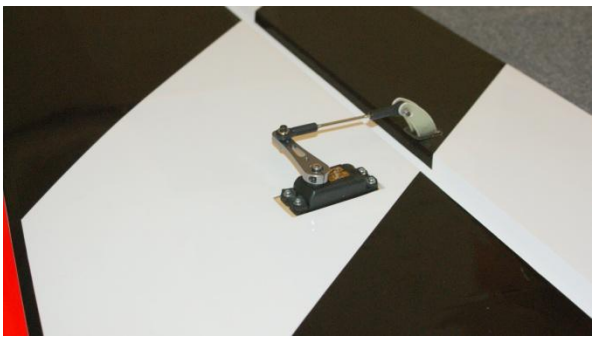
•Remove the servo and thread a servo screw in and out of each hole. Then apply 2 drops of thin CA to each and allow the CA to soak in and fully cure.



•Install the servo with the output to the leading edge, pulling the wire lead out to the root of the wing.



•Center the servo and install the servo horn pointing toward the wingtip, aligning with the control horn.



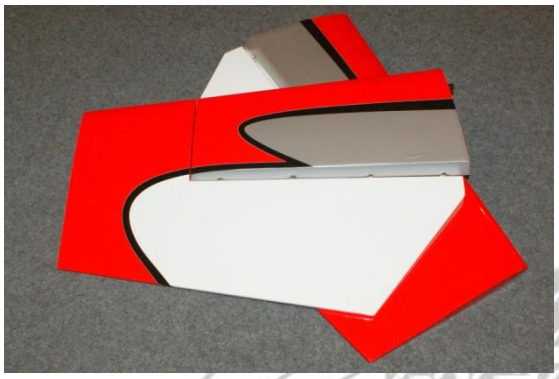
•Assemble the control rods to 3.25” length making sure the turnbuckle is centered with room to adjust both ends.

• Install the pushrod using the included hardware.

From the Pro: *It is best practice to use a small washer on the outside of the ball link on the servo. This will prevent the ball joint from slipping off under load.*

Horizontal Stabilizer and Elevator

•The elevators arrive pre-hinged. Firmly pull on them to ensure all hinge points are secured properly.

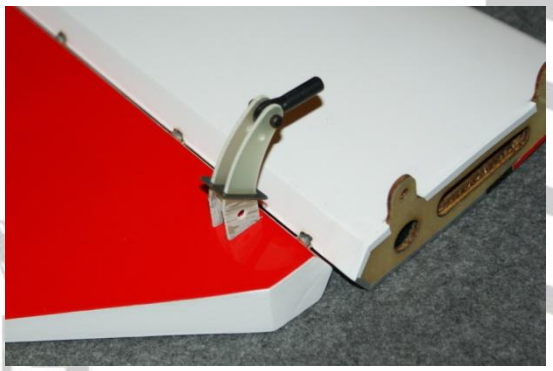


From the Pro: *Some pilots prefer to seal the hinge gap. If you wish to do this, it is best to do it now before anything is installed to the elevator.*

•Locate the slots for the elevator control horns and open them using a hobby knife.

•Scuff the glue surface of the control horns using coarse grit sand paper or a rotary sanding tool.

•Using the included linkage hardware, join the two horns as shown. Then mix a small batch of 15 min epoxy and coat the inside of the slots. Lightly coat the ends of the control horns and insert them into the slots, angled toward the hinge line.



•You should have minimal squeeze out and a small fillet will form at the base of the horns. Clean up any excess with denatured alcohol.

•While the control horn cures, locate the servo pockets on the fuselage sides and remove the covering with a hobby knife.

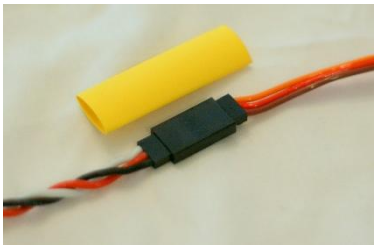
From the Pro: *When removing the covering leave 1/8-1/4" of covering to be ironed down into the servo pocket. This makes for a much cleaner and more fuel-proof servo cut-out.*

•Next drop the servo into place and drill for the servo screws with a 1/16” drill bit.

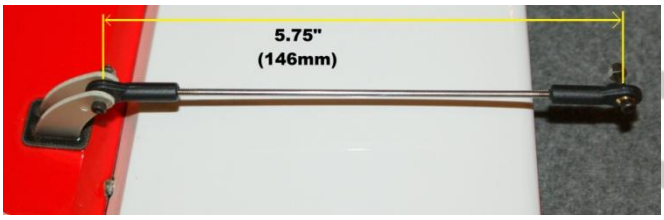
•Remove the servo and thread a servo screw in and out of each hole. Then apply 2 drops of thin CA to each and allow the CA to soak in and fully cure.

•Next, install the servo with the output to the rear, pulling the wire lead into the fuselage from the radio tray. Then center the servo and install the servo horn.

From the Pro: *Use heat shrink tube to secure the servo lead to the extension*



•Assemble the control rods to 5.75” length making sure the turnbuckle is centered with room to adjust both ends, and secure the elevator end.



NOTE: It is easier to install the rudder, tailwheel, and pull-pull linkage before mounting the Horizontal stabs to the fuselage.

•Next, insert the carbon fiber stabilizer tube to the fuselage. **DO NOT GLUE!**
Then locate the stabilizer hardware.

•Install the stabilizer halves onto the carbon fiber tube, and secure using the screws with a drop of thread locking compound on each.

• Once the horizontal stabilizer is installed to the fuselage, center the servo and connect the servo end with the included hardware.

From the Pro: *It is best practice to use a small washer on the outside of the ball link on the servo. This will prevent the ball joint from slipping off under load.*

.

Rudder and Tail Wheel

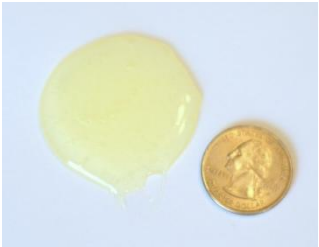
•Start by removing all the hinge points from the rudder.

•Coat the pivot of each hinge with petroleum jelly all the way around working the hinge back and forth to ensure full coverage into the pivot.

NOTE:
Keep clear of the ribbed portion as this will prevent adhesion.

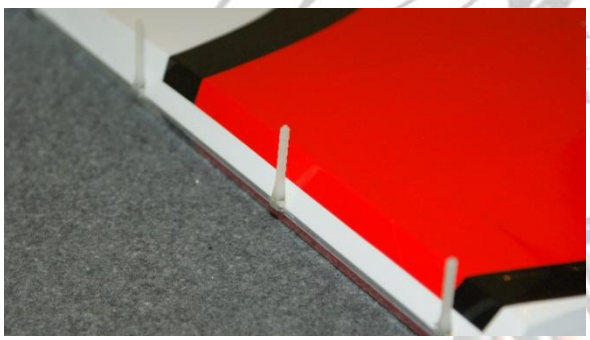
You will install the point hinges into the fuselage side first.

•Mix a small batch of 30 minute epoxy (about 1 to 2 quarter's size)



•Using a toothpick, apply epoxy into each hinge point bore. Then coat one end of the point hinge with epoxy to install.

NOTE: Make sure to align the hinges by flexing them to the side 90 degrees and fully inserting.



You should have some epoxy squeeze-out as the pin is inserted. Be careful to pull the excess epoxy away from the hinge point and not work it into the pivot.

NOTE: Excess Epoxy is easily removed with denatured alcohol before it cures.

From the Pro: *To make things easy, use a Q-tip to clear epoxy from around each hinge point as it is installed.*

•Install all the hinge points and set aside to cure.

From the Pro: *While the epoxy is curing, it is a great time to skip ahead and start installing the control horns.*

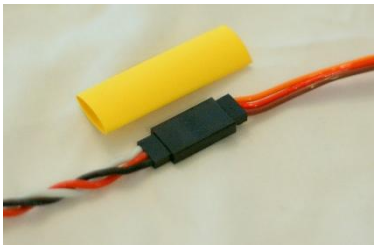
•Once cured, mix another batch of epoxy and coat the inside of each hinge point bore as before. Then stand out the hinge points, and coat the end of each.

•Carefully align the hinge pins to the bores as you install to the fuselage and remove any excess epoxy with denatured alcohol.

•Ensure the rudder moves freely bevel to bevel to allow maximum deflection and set aside to cure.

From the Pro: *Use a few pieces of painters tape to secure across the hinge line as it cures to ensure a tight hinge line.*

•Prepare the rudder servo while the epoxy is curing. Install the grommets and inserts and secure the extension to the lead at this time and set aside.



From the Pro: *Use heat shrink tube to secure the servo lead to the extension.*

•Once the epoxy is cured, locate the control horn slots on the rudder and open them using a hobby knife.

•Scuff the glue surface of the horns using coarse grit sand paper or a rotary sanding tool.

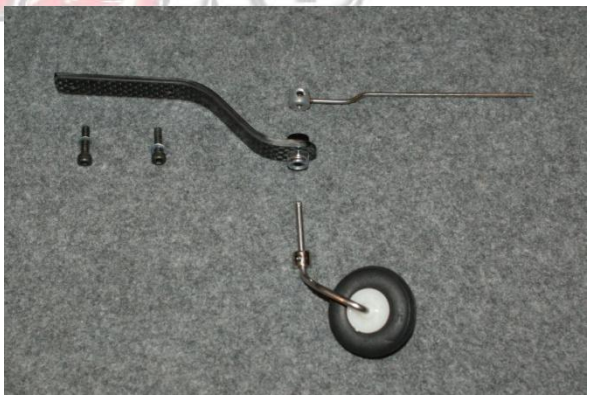
•Using the linkage hardware, join the two horns as shown and test fit to make sure they fully seat in the slots of the rudder.

•Then mix a small batch of 15 min epoxy and coat the inside of the slots. Lightly coat the rudder control horns and insert them into the slots, angled toward the hinge line as shown.

•Clean up any squeeze out with denatured alcohol.

•Next, locate the tail wheel hardware.

•The parts will assemble as laid out below - -



•Install the tailwheel bushing to the carbon fiber mount. Then install the wheel to the wire using the wheel collar and then secure the assembly using the upper retainer.

From the Pro: *File a flat spot for the wheel collar on the wire and use medium thread locking compound to install the setscrews.*

•Next install the tiller pin into the rudder. Drill a 1/8" hole in the bottom of the rudder 3.5" back from hinge line. Clean the tiller pin with alcohol and coat inside of the hole in the rudder 15 min epoxy and insert the end of the pin.

•There are blind nuts preinstalled for the tailwheel bracket. Locate the blind nuts, align the tailwheel assembly and install the screws using a thread locking compound.

NOTE: You may need to bend the tiller wire a bit for alignment.

Rudder Servo and Pull-Pull

•Locate the pull-pull hardware - - one set of links should already be installed to the rudder.

•Route the pull-pull cables from the slots in the rear of the fuselage to the rudder servo tray. At the rudder, slide a crimp onto the wire and loop the cable thru the link and back into the crimp with a loop as shown to hold the end in place for each side.

DO NOT CRIMP YET!

NOTE: Make sure the ball link is threaded in the center of the adjustment range (about ¾ of the thread) to allow even adjustment.

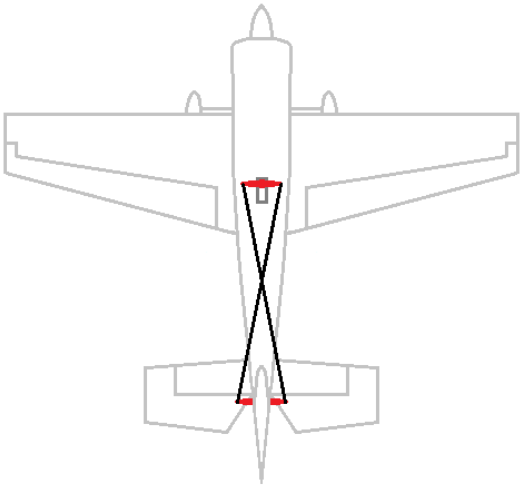
•Drop the servo into place and drill for the servo screws with a 1/16" drill bit.

•Remove the servo and thread a servo screw in and out of each hole. Then apply 2 drops of thin CA to each and allow the CA to soak in and fully cure.

•Install the servo with the output to the front of the fuselage and center using the radio.

• Install the links to your servo horn using the included hardware. Then, install and crimp the cables in place on the servo end as shown - -be sure to leave the excess on the rudder end.

NOTE: The cables should cross inside the fuselage as shown when installed to the servo horn.



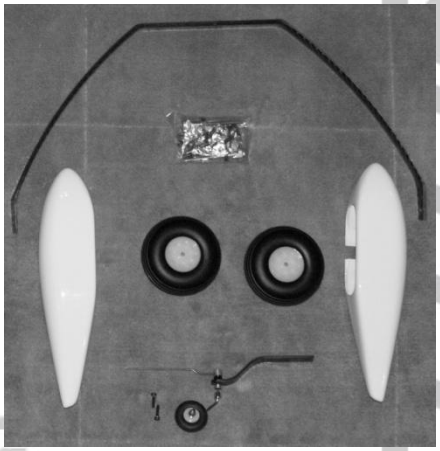
•Next, place a piece of masking tape at the rudder counter balance to lock the rudder in the centered position. Then power on the radio to lock the rudder servo in the center position and install the servo horn.

•With the links already secured to the servo horn, tighten the cables at the rudder. Make sure the cable loop at the servo is pulled straight and the cable is reasonably tight then crimp the rudder end of each cable.

From the Pro: *If you make a mistake on the pull-pull setup and ruin a cable, you can use 60lb-test fishing leader line and crimps found at your local outdoor sports retailer as a replacement.*

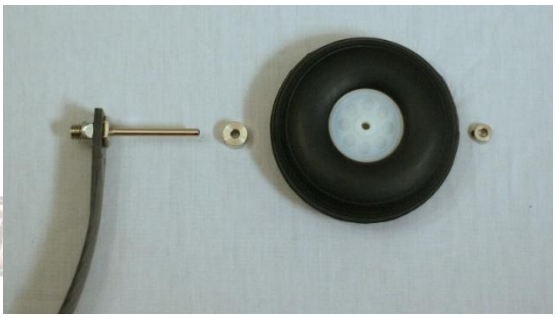
Main Landing Gear

•Locate the landing gear hardware and assemble the main gear as follows.



•First, install the axles using the provided lock nut.

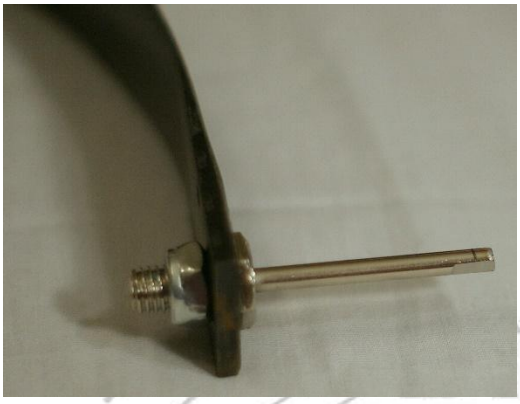
•Then, assemble the wheel and collars to the axle in the order shown.



NOTE: The inner wheel collar will properly space the wheel for the wheel pant.

•Next, mark the axle at the outside of the wheel collar.

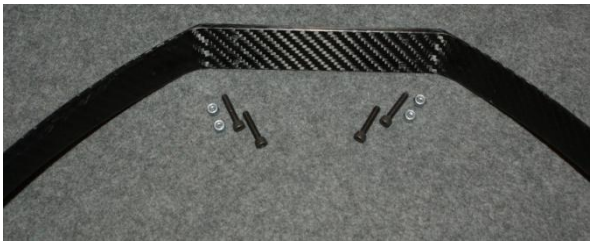
•Trim the axle, leaving the mark visible allowing 1-2mm excess to remain and file a flat as shown for the wheel collar.



From the Pro: *Locating the flat on the bottom of the axle will allow easy access once the wheel pant is installed.*

•Install the wheel to the axle for the final time using medium thread lock compound on the setscrews.

•Locate the landing gear hardware and secure the gear to the fuselage.



From the Pro: *install the rear-most nut and bolt first on each side to avoid the front nut from being in the way of tightening the rear.*

•Locate the wheel pants and screws.

•The blind nuts are preinstalled, simply align the holes and mount the wheel pants using the supplied bolts and washers with medium thread lock compound.

Engine Installation

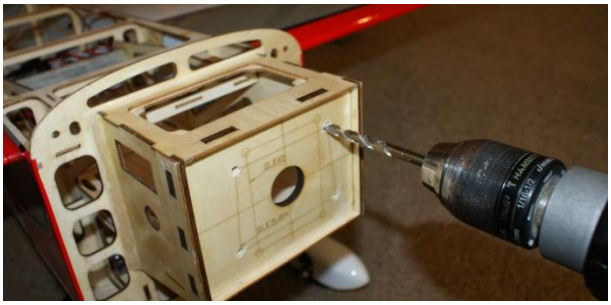
•The firewall comes marked for the DLE 35RA and DLE 40 twin.

NOTE: The DLE40 Twin will NOT fit inside the cowl without the plug caps showing. A better choice is the VVRC 40cc Twin with the ¼-32 plugs.

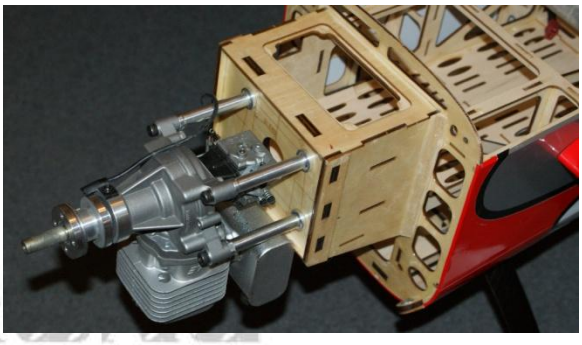
•If using a different engine, align your motor's mounting template with the centering marks on the firewall and secure in place with tape if needed.

From the Pro: *Cutting toward the center of the template as shown will make alignment easier and more precise.*

•Once aligned, drill the mounting holes with the proper size bit for the mounting bolts and remove the template.



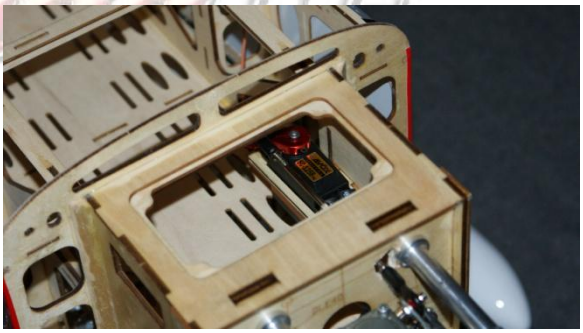
•Next, temporarily mount the motor in place to mark for the throttle linkage, fuel lines, and any ignition cable routing.

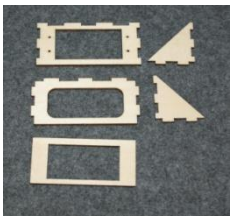


•Check the engine's spacing by measuring from the firewall to the front of the engine's prop hub. Proper spacing is 6 3/8" (162mm) from the firewall.

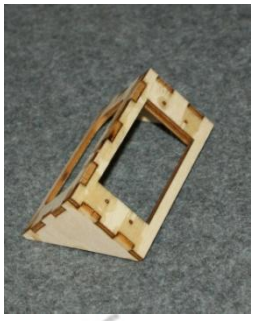
--The DLE stock standoffs work perfectly.

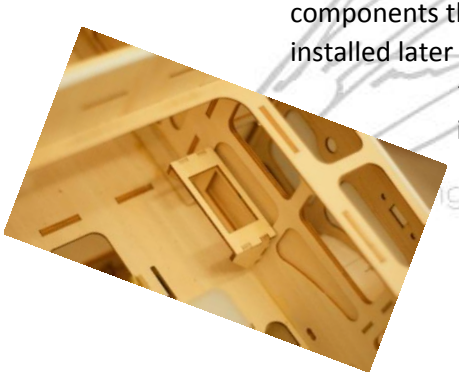
•Next determine where you will need to mount the throttle servo to properly align with the carburetor. You may find you need to rotate the carb or modify the throttle arm for proper geometry.





NOTE: A gusseted mount is included and can be mounted anywhere in the forward fuselage using 15 min epoxy. Ensure you do not interfere with the position of the other components that will be installed later such as the fuel tank and ignition.

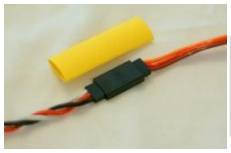




--For a Twin, the low carb position requires a lower mounting of the throttle servo as shown in the floor of the motor box.

•Determine the mounting position and prepare the servo. Install the grommets, inserts, and secure the extension to the lead at this time.

From the Pro: *Use heat shrink tube to secure the servo lead to the extension.*



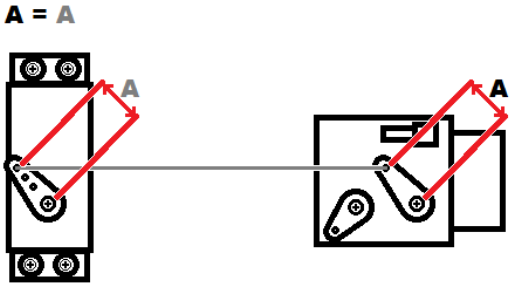
•Drop the servo into place and drill for the servo screws with a 1/16" drill bit. Then, remove the servo and thread a servo screw in and out of each hole. Then apply 2 drops of thin CA to each and allow the CA to soak in and fully cure.

•Before installing the throttle linkage, determine the position of the ignition module, fuel line routing thru the firewall, and choke linkage so that you may remove the engine and drill all holes needed at the same time.

•Once all holes have been drilled, you may reinstall the engine for final assembly using thread lock compound.

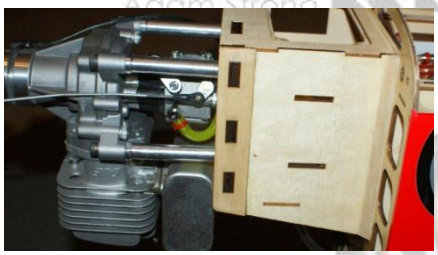
•Install the throttle servo and the linkage to the carburetor.

From the Pro: *The throttle arm on the carb and the servo horn should be of the same length to allow full servo resolution and better/finer throttle control.*

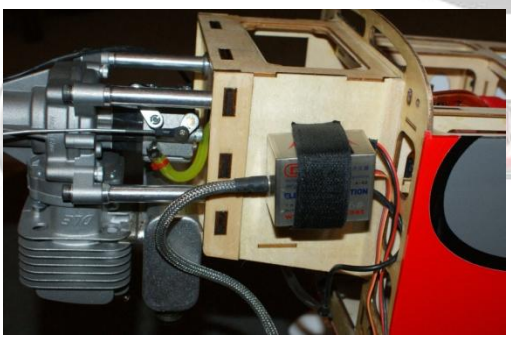


Ignition Module

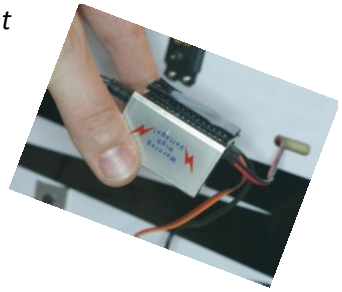
•Choose a location for the ignition model a few inches or more away from the throttle servo if possible. There are precut slots on the motor box to secure the ignition module on the side.



•Secure into position using sticky backed Velcro and secure with the included Velcro strapping.



From the Pro: *Layer the Velcro to create a soft mount and do not over tighten the straps. A loose but secure mount will lessen vibration to ensure long life of the module.*



•Route the leads to the plug and hall sensor using the wire loom supplied with the engine as needed.

NOTE: While not required the use of an electronic kill switch is strongly recommended.

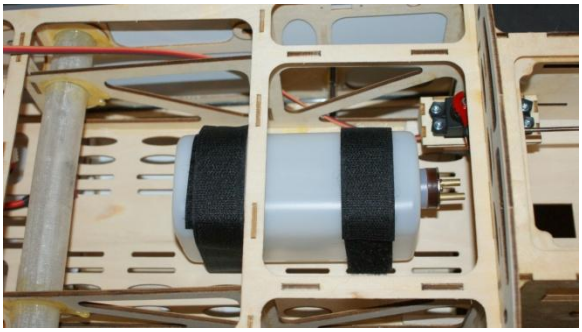
Fuel Tank

•The fuel tank comes pre-assembled, remove the stopper and verify everything is correct.

•The fuel tank utilizes a 3-line setup and is configured as shown above inside the tank.

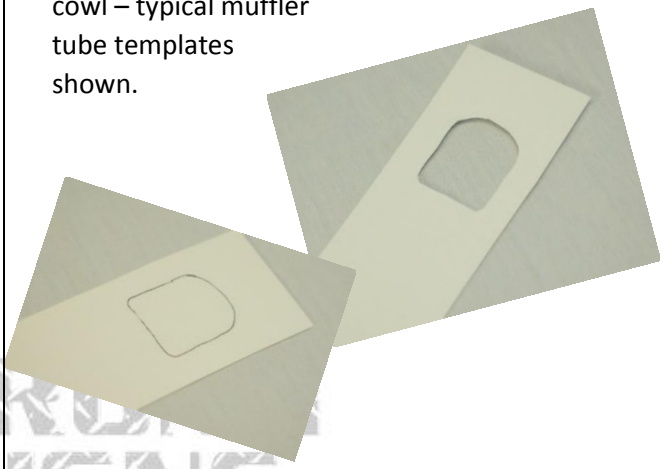
From the Pro: *Mark the top of the fuel tank and label or color code the lines to avoid confusion after you secure the assembly into the fuel tank.*

•Tighten the stopper into the tank. Then secure into the fuselage using the straps provided and route the fuel lines.

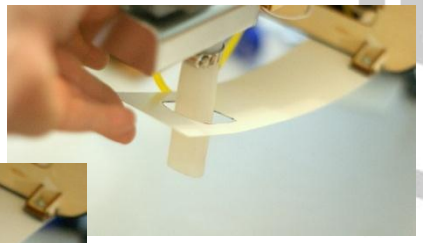


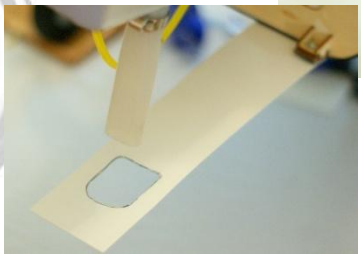
Cowl Installation

•First make templates for each cut-out of the cowl – typical muffler tube templates shown.



•Once you have templates made for each of the cutouts, tape them in place on the fuse to properly locate the cowl cutout.





•Next, remove all items that require a cutout and install the cowl. – this may mean removing the engine or muffler(s) again.

NOTE: The cowl ring should be fully seated on the fuselage and will properly align the cowl.

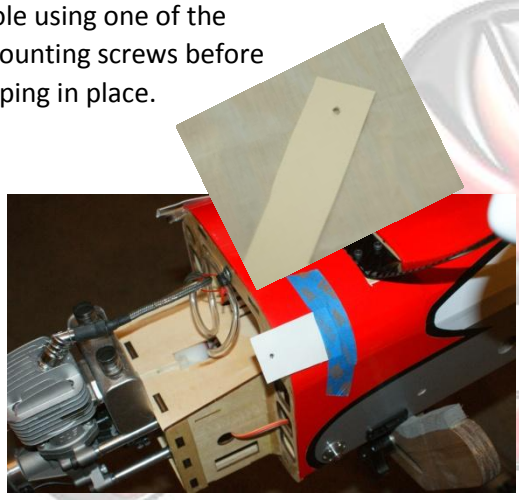
From the Pro: *Use masking tape on all areas to be marked on the cowl. This allows you to easily see the lines making for a cleaner cutout.*

•Mark all the cutouts on the cowl. Then, remove the cowl and trim using a rotary tool.

•After the initial cutouts are complete, test fit and adjust as needed until the cowl fits without any rubbing and a minimum 1/8" clearance .

From the Pro: *Make only small adjustments at a time as you can quickly remove too much material.*

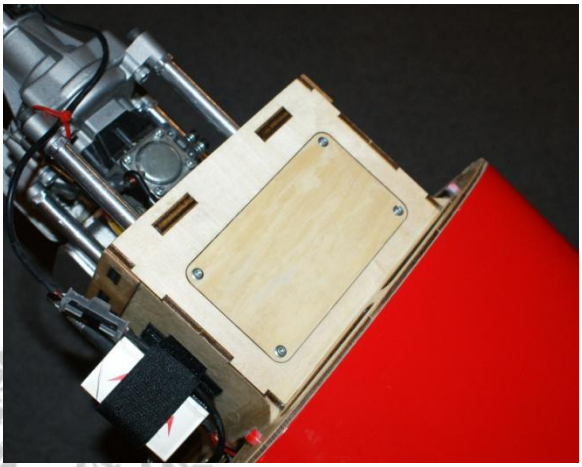
•With the cutouts finished, make a template for the lower cowl screws. Align with the screw hole using one of the mounting screws before taping in place.



•Install the cowl, mark the mounting locations, and remove to drill. Drill a 1/8" hole in each location.

•Before installing the cowl the final time, install the top cover for the motor box. Harden the screw threads with thin CA as you have done for the servos throughout assembly.

•Install the cowl for the final time using thread lock compound and bonded washers on all the screws .



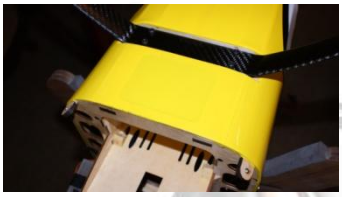
•Finally, you can install the prop and spinner to finish up the nose.

OPTIONAL:

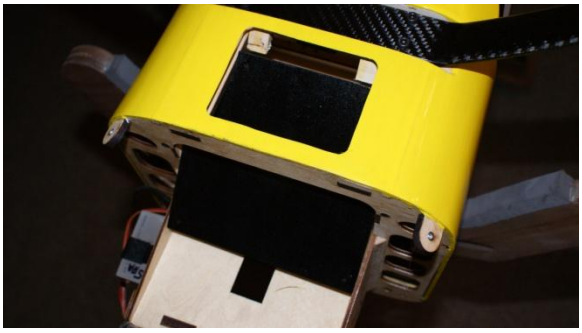
Air Dam

•Included in the kit is an air dam to divert the air from the cowl thru a cutout in the forward fuselage ahead of the landing gear.

•Remove the covering from the outlet.

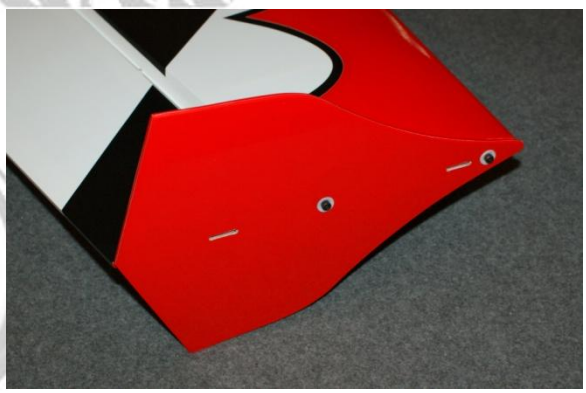


•Predrill the holes for the plate and thread them using the include mounting screws. Harden the threads with thin CA before final installation.



SFG's and Wing Tips

•Install the side force generators (SFG's) and wing tips to the wing. The SFGs are installed using the screws provided with a drop of thread locking compound on each screw. There are blind nuts preinstalled in each wing tip.



•The wing tips are easily secured with magnets and tabs which lock them in place.

NOTE: If using the tips, make certain the SFG is installed facing correctly to maintain proper polarity of the magnets to the tips.

Receiver and Setup

The receiver will typically be located behind the wing tube support or on the rudder servo tray with the batteries placed to achieve the proper balance of the model. Make all connections and use a soft mounting to help isolate from vibration.

Center of Gravity

For your first flights set the CG 5.25” from the leading edge at the root of the wing. This is near the front of the wing tube and will be close to neutral. After checking the CG in flight you can adjust for your personal flying style.

Control throws: -- DR/Expo --

	LOW	MED	HIGH
AIL	1.75”/30%	2.75”/40%	4”/60%
ELE	2.5”/30%	3.25”/ 40%	4”/55%
RUD	2.5”/20%	3”/ 30%	4.25”/40%

NOTES: