

Velox Revolution II Specs:

	Metric	Imperial
Wingspan :	1730 mm	68 in
Wing Area :	62 dm ²	965 in ²
Length :	1460 mm	57.5 in
Recommended Engine :	2C - .91 to 1.0	4C - .91 to 1.1
Radio :	4 Channels – 6 servos (Hi-torque recommended)	
Weight :	3.7 to 4 kg	8.1 to 8.8 lbs

Maxair Model Products
<https://www.maxairrc.com>



Introduction

The **MAXAIR Velox Revolution II** was designed with nothing but performance in mind. You name it, it can do it. Whether your thing is down on the deck 3D, or the precision required while performing scale aerobatic, the **MAXAIR Velox Revolution II** is for you! The **MAXAIR Velox Revolution II** tracks as straight as an arrow but will tumble with the best of them. Its super light weight makes for an extremely low wing loading and extreme performance.

Let's start building!

Using the Assembly Manual

The assembly of the **MAXAIR Velox Revolution II** is **very straightforward**. Follow these instructions and your **MAXAIR Velox Revolution II** should be ready to fly in 4 to 6 hours.



← Be extra careful when you encounter items marked with the red alert icon.



← Items denoted with the green tip icon offer suggestions that may be helpful in assembling your model.



Read through the entire manual before starting the assembly of your model

MAXAIR Model Products Warrantee

MAXAIR **Model Products** guarantees this product to be free from defects in both material and workmanship at the time of purchase. The warranty does not cover any component damaged by use or modification. **MAXAIR Model Products** shall in no case be liable for more than the original cost of this product. **MAXAIR Model Products** reserves the right to modify this warrantee without notice.

No liability shall be assumed or accepted by **MAXAIR Model Products** for any damage caused or resulting from the use by the user of the final assembled product. By using this product, the user accepts all resulting liability. If the buyer is not ready to accept the liability associated with the purchase and use of this product, the buyer is advised to return the product in new and unused condition to the place of purchase.

To make a warrantee claim, send the defective part to:

MAXAIR Model Products
105 Barrington Cr.,
Moncton, NB
Canada
E1G 4V4

You may contact **MAXAIR Model Products** through their support website at: <http://maxairrc.com>



WARNING

Radio Controlled Model Aircraft are not toys! This model is a high performance model and can cause harm if misused. This plane is not for beginners. Only experienced pilots should fly it. Fly in open spaces away from structures and people. Always do a pre-flight check of the aircraft before flying it. Always follow all safety precautions set forward by MAAC and the AMA.

Have fun and be safe!

Required Items to complete
(The following items are not included in the kit and must be purchased separately)



- | | |
|----------------------------------|----------------------------------|
| 1. CA (thin and medium or thick) | 7. Needle nose pliers |
| 2. Thread Locking Compound | 8. Plug wrench or other wrenches |
| 3. Hex head screw drivers | 9. 4mm drill bit |
| 4. Vernier Callipers | 10. 1.5mm drill bit |
| 5. Flat head screw driver | 11. Hobby knife |
| 6. Phillips head screw driver | 12. Drill |

Items required but not shown above:

- 30 min Epoxy
- Covering Iron
- Servo Extensions
- Foam rubber padding
- Double sided padded tape

Parts included in the kit

Package	Part	Description	Quantity	Condition
1	Fuselage	Fuselage	1pc	Finished
		Rudder servo mount	1pc	Included
		Cockpit hatch/cover	1pc	Included
		Fix screw M3x8	4pcs	Included
		Belly pan	1pc	Included
		Screws - M3x15	2pcs	Included
2	Main wing	Main wing	1set	Finished
		Ailerons	1set	Included
		CA hinges	8pcs	Included
		Nylon screw M6x25	4pcs	Finished
		Wingnuts - M6	4pcs	Included
		Carbon wing tubing - 22x750mm	1pc	Included
3	Horizontal stabilizers and rudder	Horizontal stabilizers & Elevators	1set	Finished
		Rudder	1pc	Finished
		CA hinges	4pcs	Included
4	Cowling	Cowl	1pc	Finished
		Blind nuts - M3	4pcs	Finished
		Screws - M3x10	4pcs	Included
5	Wheel	Wheels D=70mm	2pcs	Included
		Wheel pants	1set	Included
		Blind nuts - M4	3pcs	Finished
		Aluminum landing gear	1pc	Included
		Screws M4x20	3pcs	Included
		Washers - D4	4pcs	Included
		Screws - M4x40	2pcs	Included
		Lock Nuts - M4	4pcs	Included
		Tail wheel	1set	Finished
6	Engine mount	Engine mount	1set	Included
		Blind nuts - M4	4pcs	Included
		Screws - M4x25	4pcs	Included
		Washers - D4	4pcs	Included
		Screws for engine - M4x25	4pcs	Included
		Nuts for engine - M4	4pcs	Included
7	PVC Canopy	Canopy	1pc	Finished
		Canopy screws - M3x8	4pcs	Included
8	Aileron hardware	Control horns	2sets	Included
		Fix screw M3x8	6pcs	Included
		Carbon/steel control rods -120mm	2sets	Finished


9	Elevator and vertical stabilizer hardware	Carbon tube - D8x128	1pc	Included
		Carbon tube - D8x213	1pc	Included
		Screws - M3x20	2pcs	Included
		Control horns	2sets	Included
		Screws - M3x8	6pcs	Included
		Carbon/steel control rods -200mm	1set	Finished
		Carbon/steel control rods 260mm	1set	Finished
10	Fuel tank	Fuel tank -550cc	1set	Included
		Nylon bind tape 300mm	1pc	Included
		Foam tape - 120mm	2pcs	Included
11	Rudder hardware	Metal clevis - M3	4pcs	Included
		Metal control rod - M3	4pcs	Included
		Pull-pull wire - D1x1800mm	1pc	Included
		Pull-pull aluminum control horn	2sets	Included
		Screws - M3x18	1pc	Included
		Crimp metal tubing	4pcs	Included
12	Manual	Manual	1pc	Included
		Heat shrink tubing 300mm	1pc	Included
		Double sided foam tape	2pcs	Included
		Nylon tape 200mm	4pcs	Included
		Nylon tape 250mm	2pcs	Included

Main Wing Assembly

Step 1 – Install the ailerons

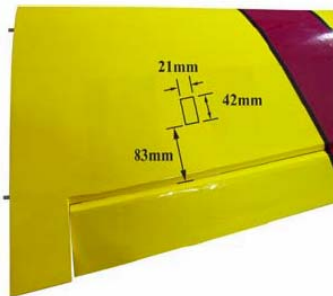
- Remove the aileron from the wing.
- Adjust the CA hinges so that they are aligned properly in the hinge slots.
- A pin can be inserted through the center of the hinge to make sure it stays centered.
- Slide the aileron onto the hinges and butt the aileron up against the wing.
- Make sure there is no gap between the aileron and the wing.
- Drip some CA onto the CA hinges from the top and the bottom of the wing.
- Repeat for the opposite wing.




 Be careful not to drip any CA onto the wing covering.

Step 2 – Prepare the servo cutout

- Locate the servo cutout on the bottom of the wing. The dimensions can be seen in the picture below.



Aileron servo cutout dimensions

-  When cutting the covering to install the servo, make sure to leave a 3mm (1/8in) wide strip of covering that can be ironed down in the servo cutout.
- Cut the covering.



Leave a 3mm (1/8in) strip around the cutout

- Iron down the overlapping covering and around the servo cutout to make sure the covering is secure.
- The cutout allows for a standard size servo. A high-torque servo is recommended.




Iron down the overlapping covering

- Repeat for the opposite wing.

Step 3 – Install the aileron servos



Items required

- a. One servo is required for each aileron. (High-torque servos are required due to the large size ailerons.)
- b. Prepare the servos by installing the rubber grommets.
- c.  It is important to note that the copper inserts that are fit into the rubber servo grommet must be installed with the flange facing downwards. See image below.




Flange on copper inserts facing downwards

- d. A servo extension is required. It is always a good idea to secure the servo connector to the extension. We like to use heat shrink tubing to ensure a secure installation. See image below.



Secure servo connector to servo extension

- e. Run the servo extension through the servo cutout and out to the root of the wing panel.
- f. Insert the servo into the cutout. Make sure the servo goes in freely.
- g. Mark and drill 1.5mm holes for the servo screws by using the servo as a guide.

- h.  Do not try to screw servo screws without drilling pilot holes first as this will crack the servo mount.



Mark and drill 1.5mm pilot holes

- i. A drop of thin CA in the pilot hole will harden it and make for a strong servo installation.



Strengthen pilot holes with CA

- j. Once the CA is dry, screw the servo in place.
- k. Repeat for the opposite wing.

Step 4 – Install aileron linkage

It is very important that the aileron control linkage be installed at a 90° angle to the aileron hinge line.

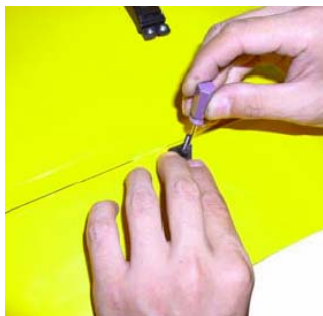
- Place a servo horn onto the servo output shaft. The distance between the center of the servo output shaft and the control rod will vary depending on your flying style. For 3D flying, a distance of 25mm (1in) is required.
- Using a square, determine the mounting location of the aileron control horn.
- Line A must be parallel to line B (hinge line) to ensure a square installation.



How to square aileron linkage

- Once you have determined where the aileron control horn must be installed, use a control horn to mark where the pilot holes must be drilled.

Note: The control horn must be at the very edge of the aileron.



Mark pilot holes for control horn

- Drill the pilot holes and strengthen holes with thin CA. Once dry, screw the control horn to the aileron.
- The control horns supplied with the kit are infinitely adjustable which allow for maximum adjustment to your flying style.
- Adjust the length of the control rod so that the aileron is at neutral position when the aileron servo is at neutral,



Aileron control Horns

- Repeat for the opposite wing.



Completed aileron linkage assembly

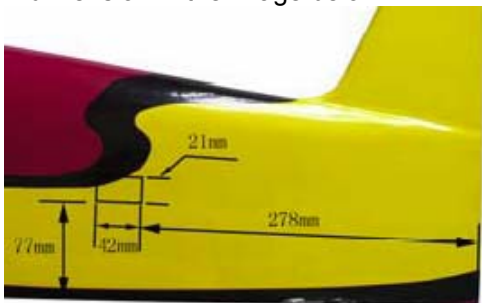
Fuselage Assembly

Step 5 – Prepare the servo cutouts

The first step in assembling the fuselage is to prepare the servo cutouts. The MAXAIR Velox RII was designed to allow for multiple servo configurations. Pull-pull hardware is included with the kit, but if required, the rudder servo can be installed in the tail.

If you opt to put the rudder servo in the tail, the rudder servo cutout can be found on the left side of the fuselage below and behind the elevator servo cutout as seen in the picture below. The pull-pull wire exit is also shown in the picture below.

- a. Cut the covering off of the left side elevator servo cutout. Don't forget to leave a 3mm (1/8) wide strip around the inside of the cutout that you will iron down to the sides of the cutouts. The cutout can be found using the dimension in the image below.



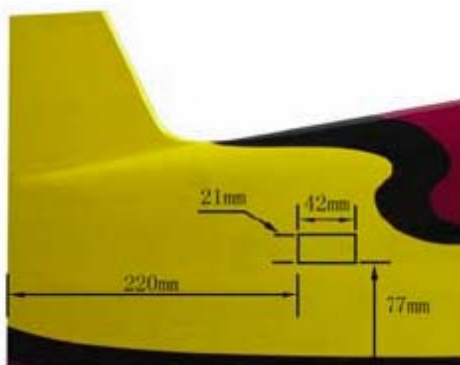
Left side elevator servo cutout location



Elev., rudder and pull-pull cutouts

⚠ Do not remove covering from all servo cutouts and exit holes. Only remove the covering from the servo cutouts and exit holes required.

- b. Repeat with the right side servo cutout using the dimensions in the image below.



Right side elevator servo cutout location

Step 6 – Install the rudder

- The rudder is installed exactly like the ailerons were installed. Start by adjusting the CA hinges so that the line properly in the hinge slots.
- A pin can be inserted through the center of the hinge to make sure it stays centered.
- Slide the rudder onto the hinges and butt the rudder up against the vertical stabilizer.
- Make sure there is no gap between the rudder and the vertical stabilizer.
- Drip some CA onto the CA hinges from each side of the rudder.



Be careful not to drip any CA onto the covering. The rudder must be able to move freely without any binding.



Install the rudder to the fuselage

Step 7 – Install the landing gear, wheels and wheel pants

- Remove the belly pan from the fuselage.
- Install the landing gear with the supplied screws. Use some removable thread locking compound to secure the screws to the blind-nuts.



Install the landing gear



Wheel assembly

- Slide the wheel into the wheel pant and fix the wheel pant assembly to the landing gear using the remaining locknut.



- Next, prepare the wheels. Insert the screw included with the wheels through the wheel hub. Screw a locknut onto the screw. The wheel must be free to rotate.



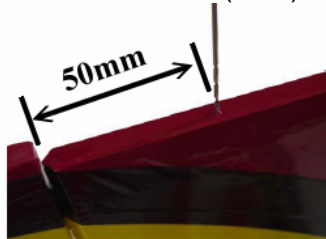
Double sided padded tape placed between the landing gear and the wheel pant assembly makes for an even stronger assembly.

Step 8 – Install the tailwheel assembly

- a. Insert the tail wheel axle wire through the tail wheel mount. Bend the tail wheel axle wire as shown in picture below. Make sure that the tail wheel axle wire rotates freely in the bracket.



- b. Drill a 1.5mm hole at a distance of 50mm (2in) from the leading edge of the rudder as shown in picture below. The hole should be about 10mm (0.4in) deep.



Drill 1.5mm hole 50mm (0.4in) from rudder leading edge

- c. Drip some thin CA into the hole to strengthen it.
- d. Once dry, fix the tail wheel axle wire retainer into the 1.5mm hole. This will turn the tail wheel when the rudder turns.



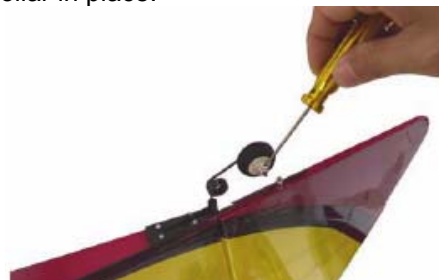
Tail wheel axle wire bracket

- e. Place the tail wheel bracket on the bottom rear of the fuselage and mark the where you will need to drill the pilot holes.
- f. Drill 1.5mm holes and drip some thin CA into the holes to strengthen.
- g. Once dried, mount the tail wheel bracket to the fuselage with the included screws.



Mount the tail wheel bracket to the fuse

- h. The portion of the tail wheel axle wire that goes through the axle wire retainer should be allowed to free float.
- i. Mount the tail wheel and secure the wheel collar in place.



Mount the tail wheel

- j. Make sure that the rudder assembly can move freely in both directions.



Rudder must move freely in both directions



Be careful not to drip any CA onto the covering when strengthening the pilot holes.

Step 9 – Install the elevator

- The elevator halves are installed exactly like the ailerons and the rudder. Start by adjusting the CA hinges so that they line up properly in the hinge slots.
- A pin can be inserted through the center of the hinge to make sure it stays centered.
- Slide the elevator half onto the hinges and butt it up against the horizontal stabilizer.
- Make sure there is no gap between the elevator and the horizontal stabilizer.
- Drip some CA onto the CA hinges from each side of the elevator.
- Repeat for the opposite elevator half.



Install the elevator halves



Be careful not to drip any CA onto the covering.

Step 10 – Install the elevator control horns

To install the elevator control horns, we will temporarily mount the horizontal stabilizers so we can get proper alignment with the elevator servos.

- Locate the holes in the rear of the fuselage where the 8mm (0.31in) carbon fiber support tubes are slid through the fuse. Remove the covering from these holes and slide the horizontal stabilizer 8mm carbon fiber support tubes through them. The shorter of the two goes in the front hole.
- Slide one of the elevator halves onto the 8mm (0.31in) carbon support tubes.
- Place a servo in the elevator servo cutout so you can align the control horn with the servo horn.
- Once aligned, mark and drill the holes for the elevator control horn. Drip some thin CA into the holes to strengthen.
- Once dried, mount the elevator control horn to the elevator.



Locate the horizontal stab. support tube holes



Mount the elevator control horn

- Repeat for the opposite elevator half.



Be careful not to drip any CA onto the covering.

Step 11 – Install the horizontal stabilizers

- a. The horizontal stabilizers are mounted onto the 8mm (0.31in) carbon fiber tubes as described earlier.
- b. Mark around the horizontal stabilizer on the side of the fuselage.
- c. Cut the covering inside of the marked off area. Make sure to leave a 3mm (1/8in) strip inside of the marked off area as shown below. Do both sides.



Make sure to only cut the covering and not cut into the wood.



Remove the covering inside of the marked off area

- d. Test fit the horizontal stabilizers onto the 8mm (0.31in) carbon fiber tubes. Once you are happy with the fit, you are ready to glue the horizontal stabilizer to the fuselage.

- e. The next step is very important. You must prepare your epoxy, coat the 8mm (0.31in) carbon fiber tubes and the size of both horizontal stabilizers with epoxy and assemble them. 30 minute epoxy is recommended for this step. Make sure all your parts are in place and you have a rag and some alcohol or acetone to wipe up the excess epoxy before it cures.

- Mix the epoxy.
- Coat the outside of the carbon fiber tubes with epoxy and slide into the fuselage support holes.
- Coat the sides of each horizontal stabilizer with epoxy.
- Slide the horizontal stabilizers in place.
- Wipe off the excess epoxy that squeezes out when horizontal stabilizers are slid into place.
- Secure horizontal stabilizers to fuselage while epoxy cures.

Step 12 – Install the rudder servo and pull-pull control horn

- a. Align the rudder pull-pull control horn with the exit cutout in the fuselage and the rudder servo so that the pull-pull wire makes a straight line out of the fuselage.
- b. The distance from the pull-pull control horn and the leading edge of the rudder should be such that hole in the plastic part of the pull-pull control horn is aligned with the hinge line.
- c. When satisfied with the placement of the control horn, drill a 3mm hole through the rudder.



The hole must be drilled perfectly straight so that the control horn is at the same position on both sides of the rudder.

- d. Drip some thin CA into the hole to strengthen it.



Drill pull-pull control horn hole

Continued...

Step 12 (Continued...) – Install the rudder servo and pull-pull control horn



Pull-pull control horn hardware

- e. Once the CA has dried, unscrew the aluminum support pieces from the pull-pull control horns and screw the threaded rod through hole in the rudder.
- f. Replace the aluminum support pieces on each side of the threaded rod making sure the same amount of rod sticks out of each side of the rudder.
- g. Screw the plastic end pieces onto the threaded rod. These can be infinitely adjusted to suit your flying style.



Completed pull-pull control horn assembly

- h. Place the rudder servo in the rudder servo cutout in the main area of the fuselage.



Rudder servo in place

- i. Mark and drill the holes with a 1.5mm drill bit. Drip some thin CA into the holes to strengthen them.
- j. When dry, screw the rudder servo to its mount.
- k. Prepare the pull-pull clevises by screwing them onto the threaded end pieces.



Pull-pull clevises

- l. Run the pull-pull wires through the fuselage and out the exit cutouts to adjust the length.
- m. Once the length of wire is determined, run the wire through the threaded end pieces.



Run the pull-pull wire through the fuselage

- n. When the proper length has been set, crimp metal tubing over the pull-pull wire to secure.

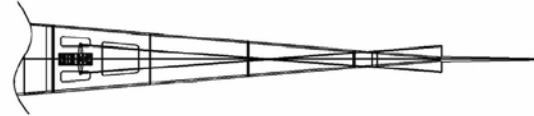
Continued...

Step 12 (Continued...) – Install the rudder servo and pull-pull control horn

- o. Adjust the pull-pull wire tension by screwing the threaded end rod in or out of the clevises.



Final pull-pull assembly



Pull-pull cables must cross over

Note: If you opted to mount your rudder servo in the tail of your Velox, you will need to mount a conventional control horn as described in the earlier steps.

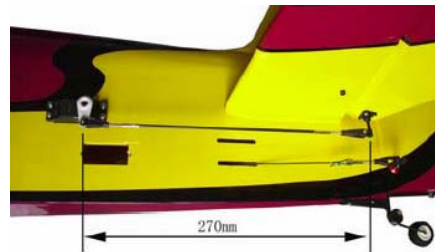
Step 13 – Install the elevator servos and linkages

- a. Since the elevator servos are in the tail, you will need servo extensions. As in the aileron step, it is a good idea to secure the servo connector to the servo extensions. We like to use heat shrink tubing to secure the two connectors together.
- e. Center the elevator servos and place a servo horn on the servo output shaft.
- f. Adjust the elevator control rod on the left side to 270mm (10.6in) and the elevator control rod on the right side to 212mm (8.35in).

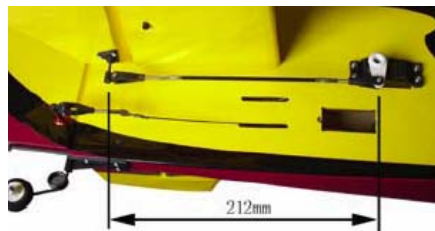


Secure the servo connector to the servo extension

- b. Place the elevator servos in the elevator servo cutouts that you prepared earlier.
- c. Mark and drill the holes with a 1.5mm drill bit. Drip some thin CA into the holes to strengthen them.
- d. When the CA has dried, screw the elevator servos to the fuselage.



Left elevator half control rod (270mm / 10.6in)



Right elevator half control rod (212mm / 8.35in)

- g. Install the control rods.

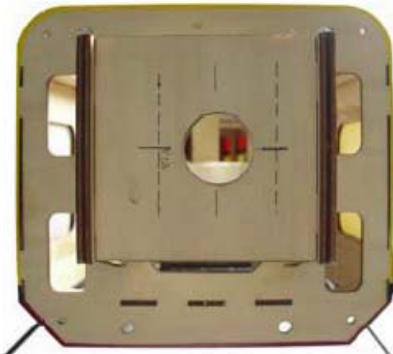
Engine Mounting

Step 14 – Mount the engine

Mounting the engine may be a little different depending on the engine size you choose to install in you Velox Revolution II.

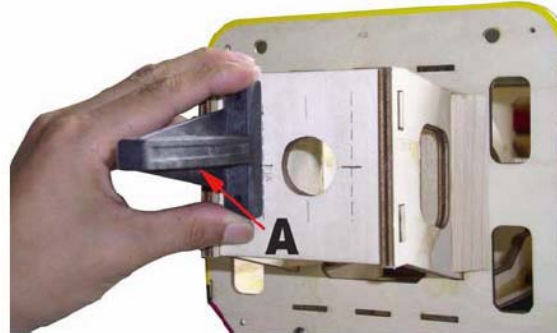
The engine installation we will describe in this section is for an inverted engine.

- a. The center of the hole in the front of the motor box indicates the thrust line for the aircraft. Locate the top, bottom and each side of the hole as shown in the picture below.



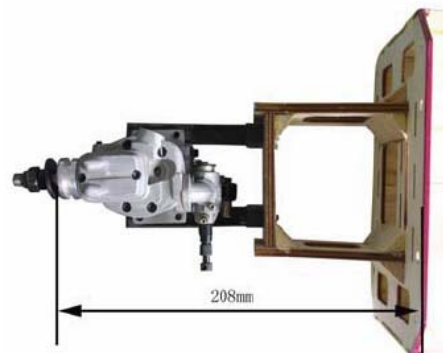
Locate thrust line based on hole center

- b. Once you have marked the center of the hole as indicated, mark the distance for the engine mount holes. This distance will vary depending on the width of the engine you choose. See picture above.
- c. Now that your motor box is marked as described, you need to locate the engine mount holes.
- d. Place one side of the engine mount on the engine mount line you just drew on the motor box. The surface of the engine mount that the motor will sit on, in this case it's the bottom since it's an inverted installation, needs to line up perfectly with the horizontal mark from the center hole. Confused yet? Look at the picture below. In this case, the surface 'A' needs to be aligned with the aircraft thrust line.



Align the engine mount surface with the aircraft thrust line

- e. Now that the engine mount has been properly located, mark the engine mount holes.
- f. Check the alignment of the engine with the cowl to make sure the engine is properly aligned.
- g. When satisfied, drill and mount the engine mount.
- h. The next step is to locate the engine on the mount and adjust it so that it will be set at the proper distance from the firewall so that the engine is sitting in the proper position in relation to the cowl.
- i. Sit the engine on the mount and measure 208mm (8.2in) from the firewall to the front of the engine's propeller hub.
- j. Test fit the cowl at this position. If you are happy with this position, mark the engine mount holes, drill the engine mount and secure the engine to the mount.



Proper engine position from the firewall (208mm / 8.2in)

Continued...

Step 14 (continued...) – Mount the engine

The next step to complete the engine installation is to mount the throttle servo. The Velox Revolution II was designed to allow for the throttle servo to be mounted on the right or left hand side of the fuselage.

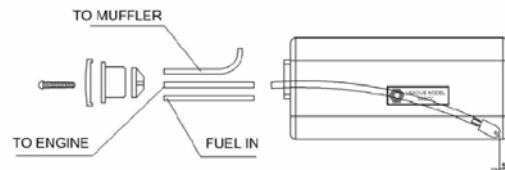
- k. Place the throttle servo in the throttle servo mount on the side of the fuselage where the throttle assembly on your engine is located.
- l. Align the throttle so that the control rod to the engine is able to move freely with no binding.
- m. Mark the holes and drill with a 1.5mm drill bit. Drip some thin CA in the holes to strengthen the hole.
- n. When the CA has dried screw the throttle servo to the mount and finish installing the throttle control rod.



Install the throttle servo

Step 15 - Assemble and mount the fuel tank

- a. The first step in assembling the fuel tank is to slide plastic cover onto the supplied screw. Then slide the rubber stopper onto the screw and sandwich the rubber stopper with the metal base plate. Screw the assembly together, but do not tighten yet.
- b. Slide the copper tubes into the stopper assembly. You may use a 2 or 3 line setup as per your needs.
- c. Make sure that the vent tube is bent upwards into the tank.
- d. Slide the silicone fuel tubing onto the fuel feed tube. Place the clunk on the other end of the silicone fuel tubing and make sure the length of the silicone tubing allows it to move freely in the tank when assembled.



Fuel Tank Assembly

- e. Insert the stopper assembly in the tank and tighten the screw to seal the tank.
- f. Once the tank is assembled, place the fuel tank on the fuel tank shelf in the front of the fuselage as shown below. Place some foam rubber under the tank and secure to the shelf. We like to use zip ties to secure the tank.



Fuel tank components

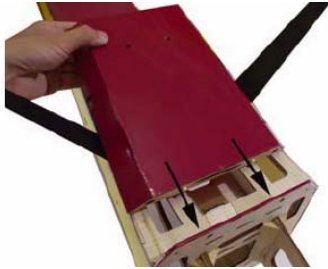


Fuel tank secured to the fuselage

Step 16 - Final Assembly

Belly pan

- a. Replace the belly pan and screw into place. Use a little bit of removable thread locking compound on the screws.



Replace the belly pan



Fasten the belly pan with included screws

Prepare fuselage wing holes

- b. Remove the covering from the holes on the side of the fuselage where the wing tube, wing support nylon bolts and servo extension pass through. It's always a good idea to iron down the covering once the hole has been cut.
- c. Slide the wing tube onto the fuselage.
- d. Remove the wingnuts from the wing nylon support bolts and trial fit the wing on the plane.



Trial fit the wings

Prepare the canopy/hatch hold downs

- e. Place the top hatch on the fuselage. Find the screw holes on the side of the fuselage. There are two on each side.
- f. Cut the covering off of the screw holes.
- g. Drill the top hatch support tab through the screw hole to ensure perfect alignment.
- h. Once drilled, drip some thin CA into the screw holes in the side of the fuselage as well as the ones on the top hatch support tabs to strengthen them.



Mark and drill a 2mm hole for the



Strengthen the holes with thin ca



Be careful not to drip any CA onto the covering.

- i. Fix the top hatch to the fuselage using M2.5 x 8 self-tapping screws.



Fix the top hatch to the fuselage

Continued...

Step 16 (Continued...) - Final Assembly

Attach the canopy

- j. Prepare the canopy as illustrated below. Test fit the canopy before cutting.



Prepare the canopy for installation



Mark and drill pilot holes

- k. Place the canopy on the fuselage and temporarily hold down with tape. Once satisfied with the position, mark and drill the pilot holes for the screws that will hold down the canopy.
- l. Drip some CA into the pilot holes to strengthen.
- m. Once dry, attach the canopy with the included screws.



Canopy glue can be used to help strengthen the canopy installation, but this makes it a permanent installation.

Step 17 Final adjustments

Your MAXAIR Velox Revolution II is almost ready to fly. A few more adjustments and a final pre-flight check and you're ready to go!

- **Center of Gravity:** A good starting point for the balance of the plane is 145mm (5.7in) from the leading edge at the root of the wing.
- **Lateral balance:** Do not forget to balance your model laterally (side to side). This is very important.
- **Control throws:** Adjust your control thrown as per the table below:

	Recommended Control Throws	
	Low rates	High rates
Rudder	20°	35°
Aileron	15°	25°
Elevator	15°	40°

- **Surface Deflection:** The elevator uses split surfaces. It is very important that each half moves the same amount as the other half to fly properly. Measure and adjust the deflection as necessary.
- Perform your final check to make sure everything is secured properly and go flying!
- After your first flight, check everything to make sure none of the screws have vibrated loose.

Be safe and have fun!