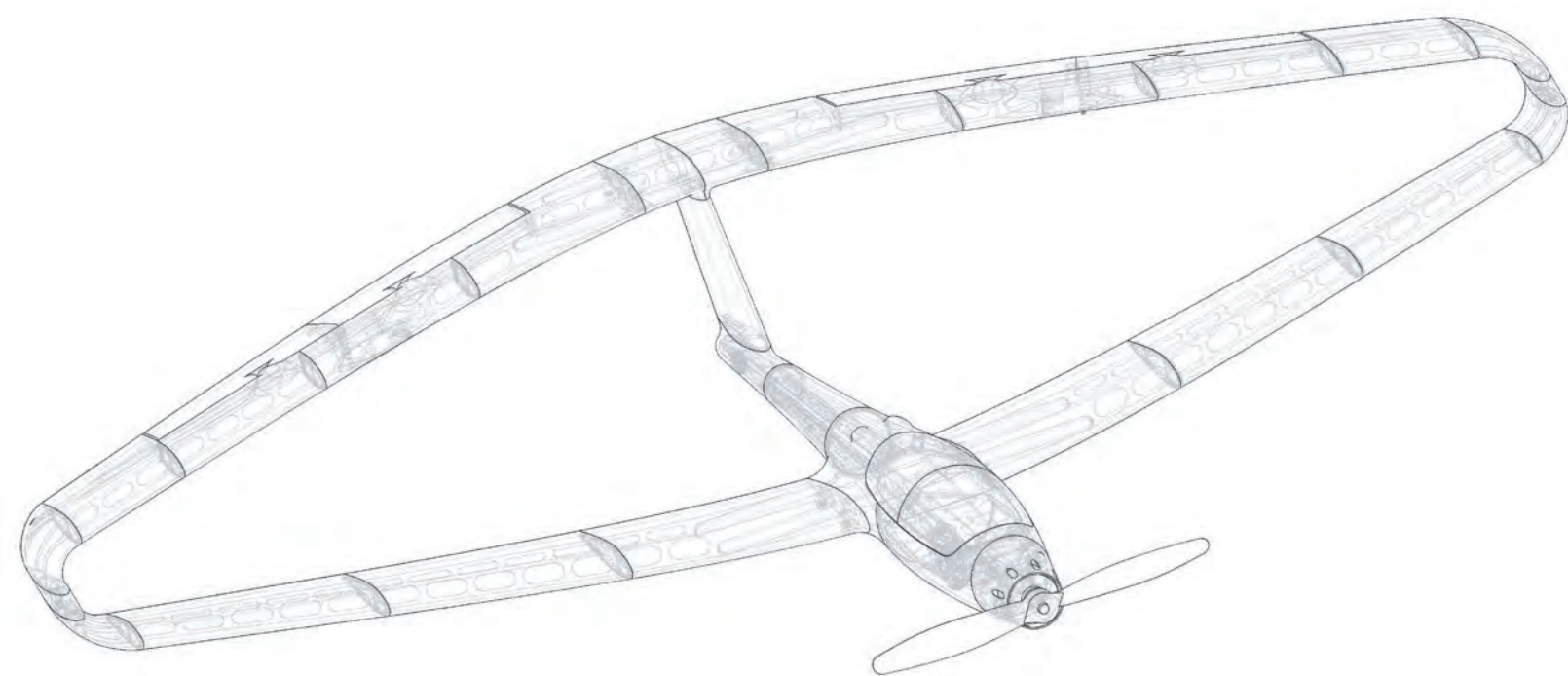


Mini X-100 Infinity Wing

3D Printed R/C Aircraft

Build Guide

Wingspan: 845mm (33.25")



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Included in Your Download:

1. STL Files
2. Simplify3D Factory Files (for the recommended materials)
3. Cura and PrusaSlicer Profiles and Recommended Slicer Settings for different materials
4. Generic Gcode for i3 style printers (for the recommended materials)
5. PDF Build Guide

Please Read A Note from the Designer:

First of all, thank you so much for your interest and support of 3DAeroventures. I can't tell you how much joy I get out of designing and testing these aircraft, and the fact that you can now get joy out of my creations just makes this calling that much more special. I dove into the R/C aircraft hobby as a 12 year old kid with my dad and it's a passion I've maintained into adulthood. Part of 3DAeroventures mission is to encourage people to not let go of the thing they were most passionate about growing up. That's why our motto is "Never Stop Exploring. Never Stop Questioning. Never Stop Playing." I hope the building and flying of this model keeps your passion for model aviation ignited. More importantly, I encourage you to share your build and flying process with young people, hopefully igniting a fire in them and helping to maintain and grow this wonderful hobby.

Now, on to the technical stuff. The Mini X-100 Infinity Wing has the same flying characteristics as its bigger brother, with one exception: it is fast! With the recommended motor setup and the speed prop you can reach speeds in excess of 80mph. Given it's small size and it's "sandwich-structure" design style, I highly recommended using lightweight materials in this build. A full PLA build will be too heavy for this size aircraft and it has not been tested. If you do choose to experiment with other materials, I recommend at least printing the back wing parts in LW-PLA to keep the weight as low as possible and for the ideal weight distribution. The recommended hybrid version balances well at the recommended CG position with a 3S 1000 or 1300mah battery located in the middle of the battery compartment. But a model printed from a heavier plastic will need added nose weight for proper balance.

Your fellow Aeroventurers would love to hear about your build and flight experience with this aircraft. Post your experiences on the [3DAeroventures Pilots Alliance Facebook Group](#) or in the [RCGroups forums](#).

Thanks again and enjoy your flight!

Eric Haddad

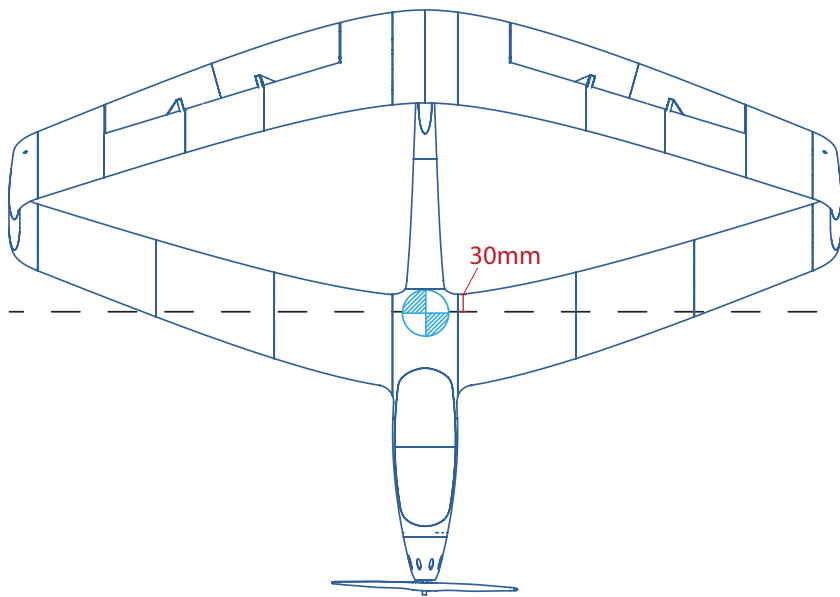
Pilot in Command



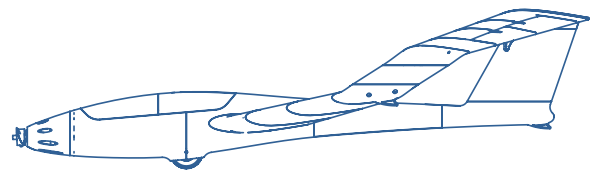
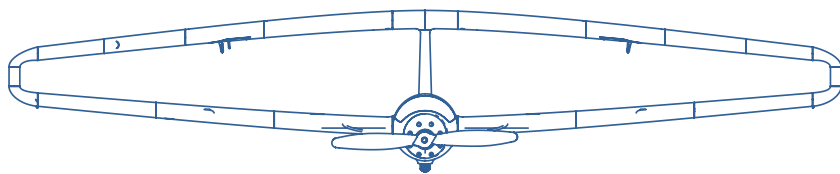
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Specs:

Wingspan:	845mm / 33.25"
Length:	586mm / 23.1"
Height:	161.7mm / 6.4"
Wing Area:	194.5 in²
Wing Loading (LW-PLA Hybrid):	12.51 oz/ft²
Wing Cube Loading (LW-PLA Hybrid):	10.8
Flight Performance Category:	General Sport and Scale Aerobatics
Center of Gravity Location:	30mm in Front of Trailing Edge at the Wing Root
Weight of Printed Parts(LW-PLA Hybrid):	289g / 10.2 oz
Flying Weight (3S 1000 mAh):	480g to 500g / 16.9 - 17.6 oz
Recommended Max Flying Weight:	670g / 23.5 oz
No. of Channels:	3 - Throttle, Aileron, Elevator (Elevons)



CG Location 30mm in front of the Trailing Edge of the Wing Root



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Recommended Setup:

- Motor Options:** [Leopard 2826-14T 1250kV](#)
[Turnigy Aerodrive SK3 - 2826 - 1130kV](#)
or motor with equivalent mounting pattern
- ESC Options:** 20A Esc like [HobbyWing Skywalker Series 20A ESC](#)
- Rec. Prop:** Standard Performance: [APC 9x5 Folding Propeller](#) + [Folding Prop Hub 45mm](#)
High Speed Performance: [APC 8x8E](#)
- Battery:** [3S 1000mAh - 1300mah LiPo](#)
- Radio:** [Radio with Elexon Mixing Capability + 4 Channel Receiver](#)
- Servos:** [EMAX ES9251 \(4g\) Nylon Gear Servo](#) or equivalent 18 x 7.9 x 16.8mm size servo (x2)
[20" Servo Extensions \(x2\)](#)

Tools and Materials Needed:

- Min 150mm x 150mm x 150mm desktop 3D Printer
- 3D Printing Material (LW-PLA and PLA hybrid)
 - ColorFabb LW-PLA and standard PLA for the airframe parts
 - PETG, ABS, ASA, or PC for motor mount
 - TPU or TPE for Tires
- Medium Bodied CA/Super Glue
- Accelerator for CA
- Sandpaper and/or Small Files
- Soldering Iron (for heat set threaded inserts)
- Screwdriver and/or allen wrench for chosen screws/bolts

Hardware Needed:

Fuselage:

- [M2 x 0.4mm Thread Heat-set Threaded Inserts](#) for motor and wing bolts
- [M3 x 0.5mm Thread x 12mm Long Flat Head Screws](#) for motor mount
- [M2 x 0.5mm Thread x 12mm Long Socket Head Screws](#) for motor mount
- [5mm O.D x 3mm Thick Rare Earth Magnets](#) for Removable Canopy
- [2mm O.D. Carbon Fiber rod](#) or equivalent O.D. wood or plastic dowel for wheel axles
- M1.6 or #0 x 1/4" Thread Forming or Tapping Screws for mounting cowl
(spare servo mounting screws will work)

Quantity:

Wings:

- [M2 x 0.4mm Thread Heat-set Threaded Inserts](#) for wing tip bolts 4
- [M2 x 0.5mm Thread x 8mm Long Socket Head Screws](#) for removable wings 12
- M1.6 or #0 x 1/4" Long Thread Forming or Tapping Screws for mounting servo covers 8
- [4mm O.D. x 2mm I.D. Carbon Fiber Hollow Tubes](#) for wing spars cut to these lengths:
 - 200mm Long (x3) 3x 200mm long
 - 165mm Long (x1) 1x 165mm long
- [1mm - 1.5mm O.D. x 400mm Long Carbon fiber rod](#) or Steel Wire for Elexon Hinges
- [1.2 mm steel wire for servo control rods](#) 2



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Estimated Part Weights (Grams):

Part Name	Hybrid PLA/LW-PLA	Recommended Material for Hybrid
Fuse 1	16	LW-PLA
Fuse 2	20	LW-PLA
Fuse 3	11	LW-PLA
Fuse 4	5	LW-PLA
Fuse Tray 1	4	PLA
Fuse Tray 2	3	PLA
Fuse Tray 3	2	PLA
Canopy 1	4	LW-PLA
Canopy 2	3	LW-PLA
Vert Stab	8	LW-PLA
Back Wing R1	6	LW-PLA
Back Wing R2	10	LW-PLA
Back Wing R3	6	LW-PLA
Back Wing R4	6	LW-PLA
Back Wing R5	6	LW-PLA
Back Wing L1	6	LW-PLA
Back Wing L2	10	LW-PLA
Back Wing L3	6	LW-PLA
Back Wing L4	6	LW-PLA
Back Wing L5	6	LW-PLA
Front Wing R1	17	LW-PLA
Front Wing R2	13	LW-PLA
Front Wing R3	11	LW-PLA
Front Wing L1	17	LW-PLA
Front Wing L2	13	LW-PLA
Front Wing L3	11	LW-PLA
Back Wing Tip R	4	LW-PLA
Back Wing Tip L	4	LW-PLA
Front Wing Tip R	4	LW-PLA
Front Wing Tip L	4	LW-PLA
Middle Wing Tip R	2	LW-PLA
Middle Wing Tip L	2	LW-PLA
Elevon R1	7	LW-PLA
Elevon R2	5	LW-PLA
Elevon L1	7	LW-PLA
Elevon L2	5	LW-PLA
Cowl	5	PLA
Servo Cover R	2	PLA
Servo Cover L	2	PLA
Motor Mount	4	PETG
Tire	3	TPU/TPE
Tire Hub 1	1	PLA
Tire Hub 2	1	PLA
Tailwheel	1	TPU/TPE
Printed Part Weight	289	



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Step-by-Step Build Guide

Step 1. 3D Printing the Included Parts

Minimum Requirements:

200mm x 200mm x 200mm Print Bed Size

0.4mm Nozzle

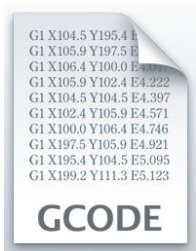
Heated Bed (recommended)

Any Slicer Software

Your Options for Printing the Parts:

Option 1: G-Code

Transfer the included G-Code to an SD Card and run directly on your i3 style printer using the materials we recommend. The provided G-Code is for our recommended PLA / LW-PLA Hybrid build. We've had good results with LW-PLA at 250° Celcius and standard PLA at 225° Celcius but experiment with your printer to make sure you achieve strong layer adhesion. If you wish to print this aircraft from a different material, reference the included Slicer Settings PDF and use your preferred slicer.



Option 2: Simplify 3D Factory Files

If you prefer to use Simplify3D as your slicer, open the included Factory Files and edit the preset profiles for your printer/material to ensure nice outer surfaces and excellent layer bonding.



Option 3: STL + Your Preferred Slicer

If you prefer to use another slicer or create your own profiles in Simplify3D, use the included STL files and reference the included Recommended Slicer Settings PDF. Cura and PrusaSlicer profiles for LW-PLA are also provided



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Step-by-Step Build Guide (cont'd)

3D Printing Tips



ColorFabb LW-PLA

ColorFabb LW-PLA is an interesting material that uses foaming technology to achieve lightweight, low density PLA parts. This material is printed at a higher temperature (which causes it to expand) and a much lower extrusion multiplier than standard PLA. In order to determine the proper nozzle temperature and extrusion multiplier for your particular printer you can follow ColorFabb's instructions: <https://learn.colorfabb.com/print-lw-pla/>

We had good results printing LW-PLA at 250°C at an Extrusion Multiplier of 0.4 and a bed temp of 60°C. You will also likely combat quite a bit of stringing with LW-PLA. We increase X/Y Axis Movement Speed to 200mm/s and run the cooling fan at 25% to help combat stringing.

Standard PLA Temperatures:

We see good results printing Paramount3D PLA at 225°C with a bed temperature of 70°C. Experiment with your particular printer and brand of material to ensure proper layer bonding but you will likely land somewhere between 210 and 240°C.



Cooling Fan:

Typically, PLA is printed with the fan set to 100%. However, this can cause layer bonding issues when printing thin walled aircraft. We have experienced nice, clean outer surfaces when keeping the fan speed up to 20% without negatively affecting layer bonding. Experiment with fan speeds set between 0 - 20%.



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Step-by-Step Build Guide (cont'd)

3D Printing Tips (cont'd)

Standard Materials Extrusion Multiplier (Flow):

You will need to experiment with extrusion multiplier for your particular printer and material. You will likely land somewhere between 0.95 and 1.05 extrusion multiplier.

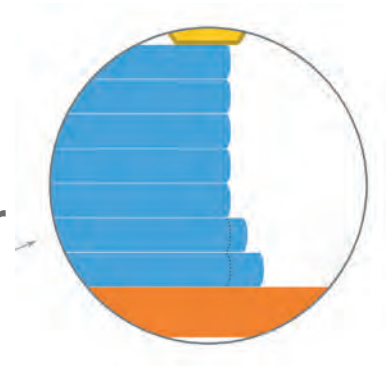


Support Structures:

A few parts of this aircraft require support structures and it's recommended to use your slicer's auto-generated support structures. The GCode and the Simplify3D Factory Files already have the support structures in place.

Elephant's Foot:

Try to avoid the first few layers of each print from squishing too far outside the designed wall dimensions, also known as "elephant's foot". This can be caused by your nozzle being too close to the print bed or first layer width set too high in your slicer. A small amount of elephant's foot is okay but too much will interfere with the designed alignment aids.



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Step-by-Step Build Guide (cont'd)

Step 2. Fuselage + Vertical Stabilizer Assembly

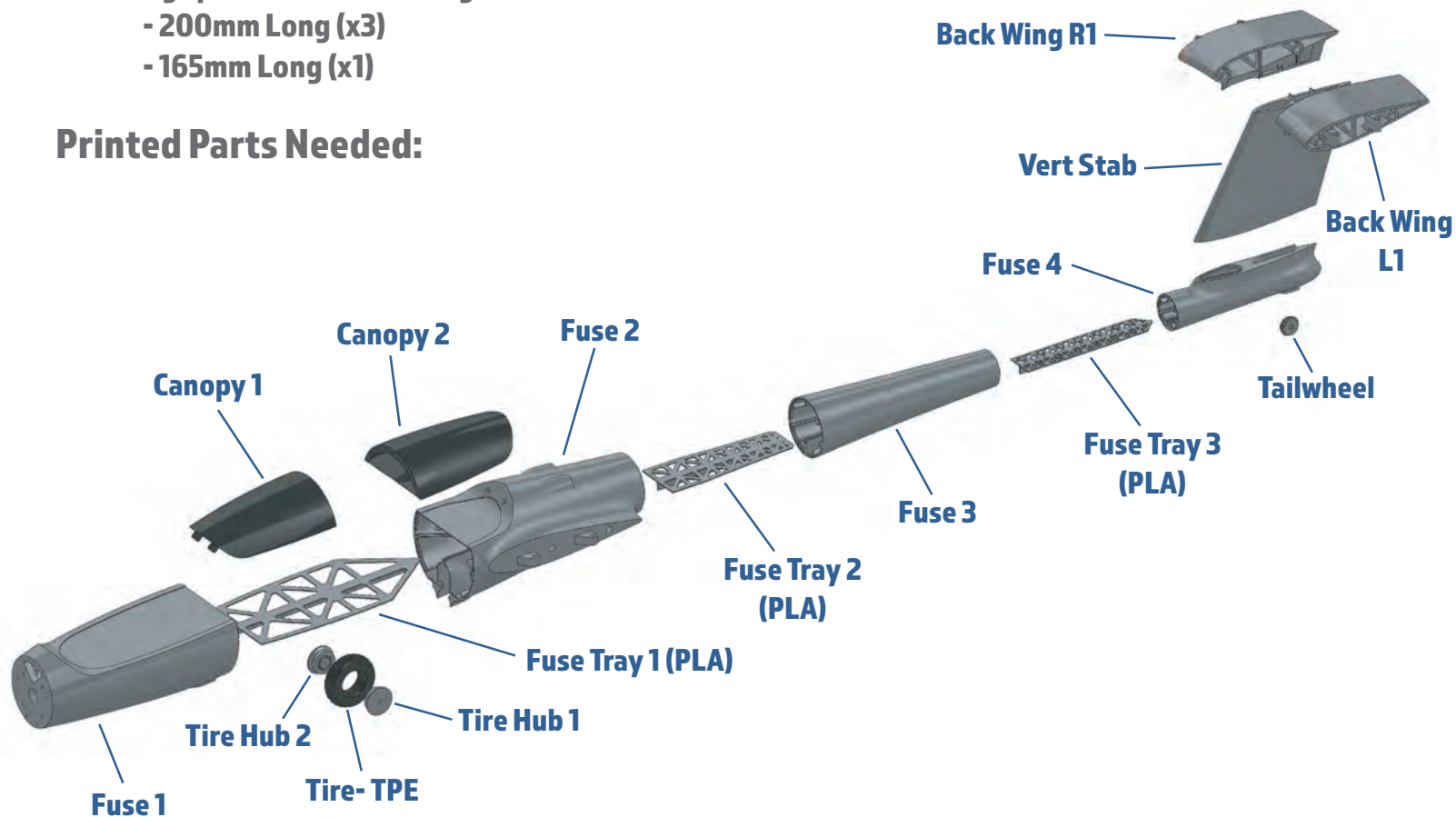
Tools and Materials Needed:

- Medium Bodied CA/Super Glue
- Accelerator for CA
- Sandpaper and/or Small Files
- Soldering Iron (for heat set threaded inserts)

Hardware Needed (links to recommended hardware on pg 4):

- M2 x 0.4mm Thread Heat-set Threaded Inserts for motor and wing bolts (x12)
 - 2mm O.D. Carbon Fiber rod or equivalent O.D. wood or plastic dowel for wheel axle and canopy
 - 5mm O.D x 3mm Thick Rare Earth Magnets for Removable Canopy
 - 4mm O.D. x 2mm I.D. Long Carbon Fiber Hollow Tubes
- for wing spars cut to these lengths:
- 200mm Long (x3)
 - 165mm Long (x1)

Printed Parts Needed:

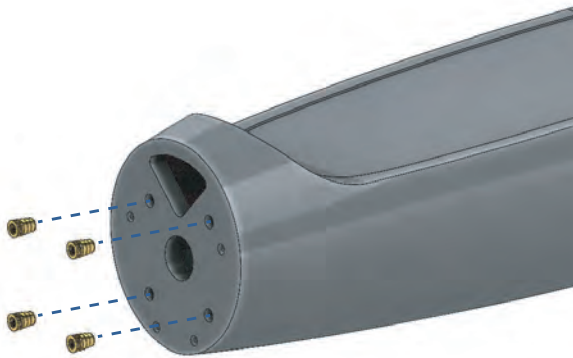


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Step-by-Step Build Guide (cont'd)

Step 2.1 Heat Set Inserts

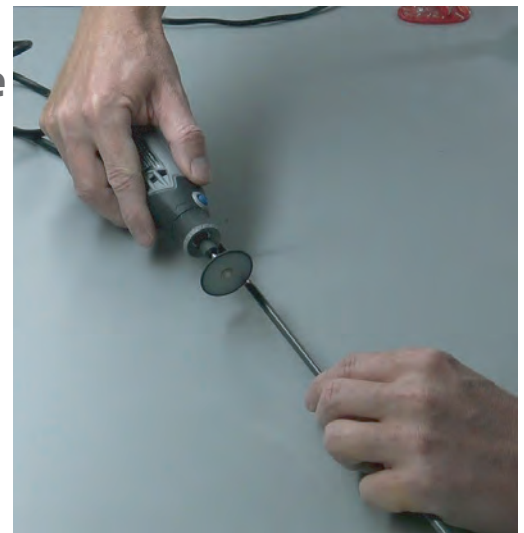
Before gluing parts together. Find parts Fuse 1, Fuse 2, Back Wing R1, and Back Wing L1 and use a soldering iron to insert the M2x0.4mm thread heat set threaded inserts. You will insert a total of twelve heat set threaded inserts, four in the motor mount area in part Fuse 1, four in part Fuse 2, two in part Back Wing R1, and two in part Back Wing L1.



Step 2.2 Cut 4mm O.D. Carbon Fiber Tubes to Length

Using a rotary tool (Dremel), miter saw, or hand saw, cut your 4mm carbon fiber wing tubes to the proper lengths. You will need:

- Qty. 3 200mm long
- Qty. 1 165mm long



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Step-by-Step Build Guide (cont'd)

Step 2.3 Glue Fuselage and Fuse Tray Parts Together

ATTENTION: The fuselage is designed with separate Fuse Tray parts. This was done in case you choose to print the Fuse parts in LW-PLA or LW-ASA. The Fuse Tray parts should be printed in a more rigid plastic like standard PLA, ABS, PETG, or PC.

The Fuse parts must be assembled with the Fuse Tray parts in a certain order. You will notice the Fuse Tray parts slide into rails located in the Fuse parts. The Trays overlap the seams of the Fuse parts and make for a very strong, rigid fuselage.

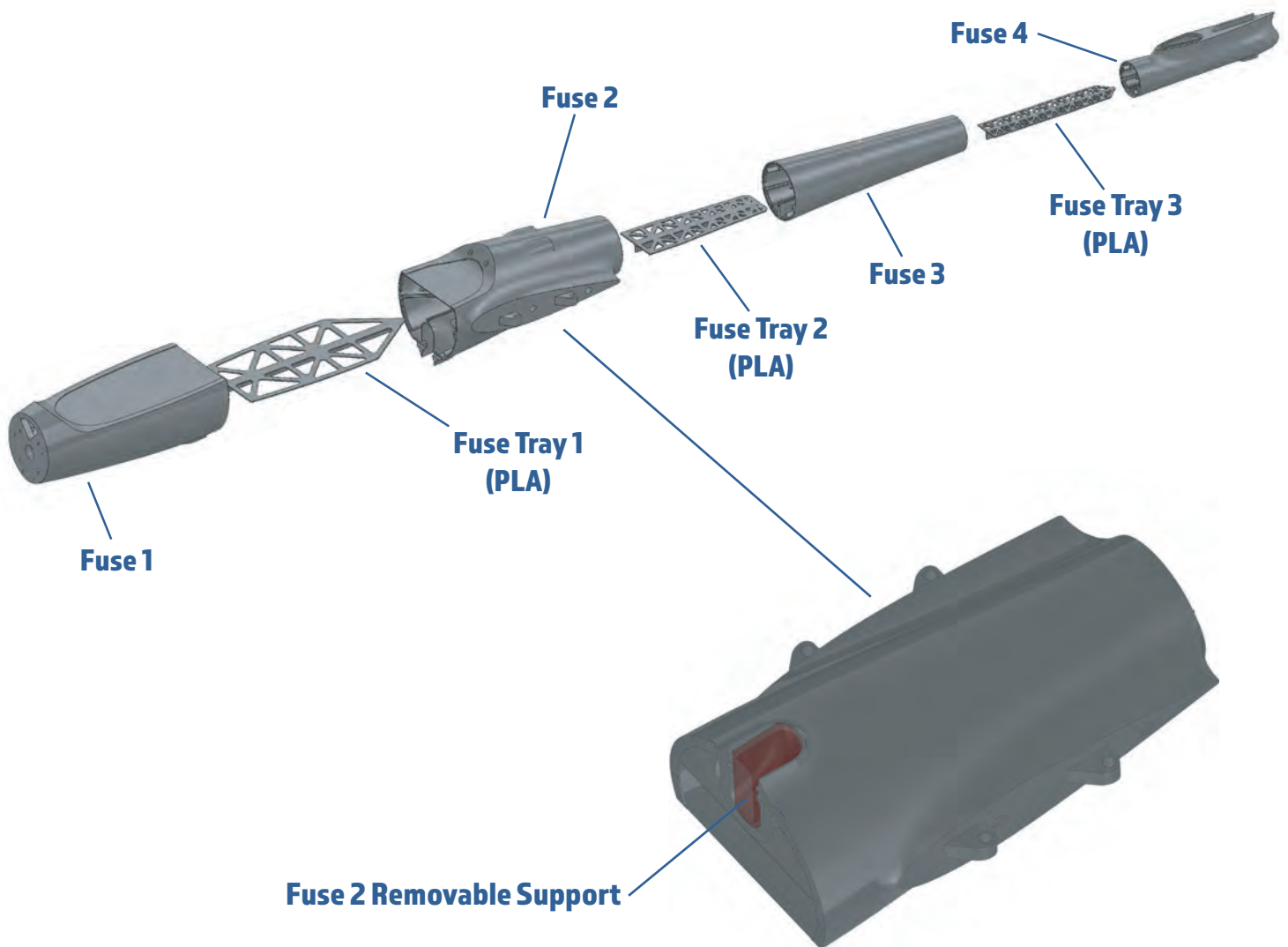
**DO NOT GLUE ALL OF THE FUSE PARTS TOGETHER
WITHOUT THE FUSE TRAY PARTS IN PLACE!**



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Step-by-Step Build Guide (cont'd)

- 2.3.1 Starting with Fuse 1, apply CA adhesive to the rails where Fuse Tray 1 slides into place. **Ensure Fuse Tray 1 is fully seated into place in the rail behind the firewall and wipe off any residual glue from the Fuse 1 surface that mates with Fuse 2 before applying CA Accelerator to secure the bond.**
- 2.3.2 Continue Gluing the Fuse and Fuse Tray parts, together, following the order shown in the image below. **NOTE: Part Fuse 2 contains a sacrificial support structure in the wheel bay area. this can be pulled away with slight force.**



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Step-by-Step Build Guide (cont'd)

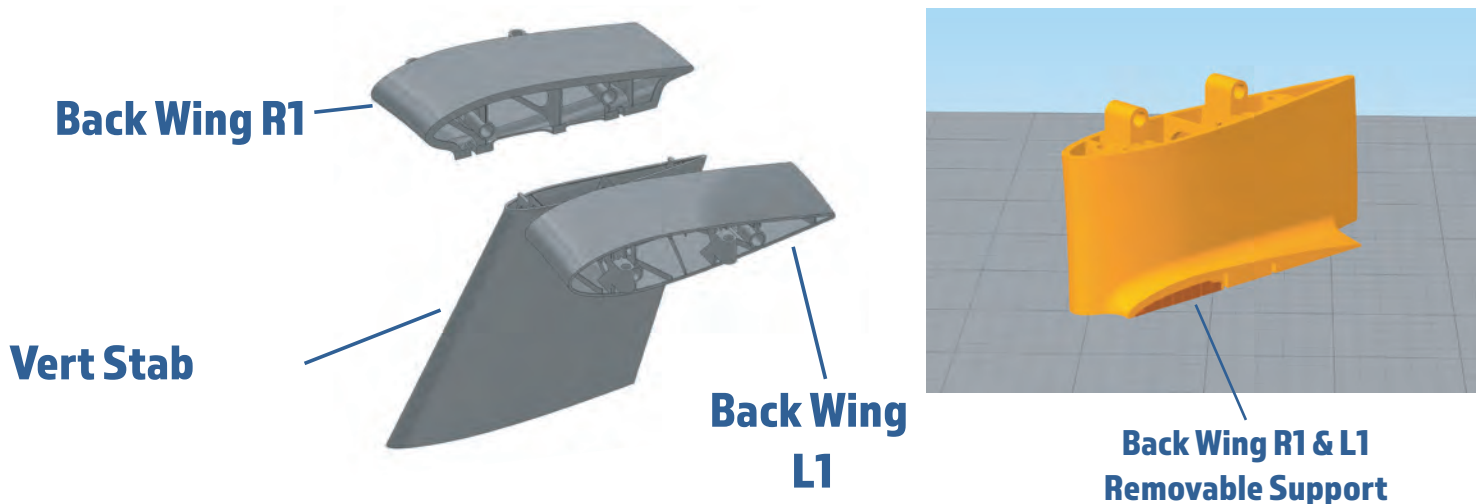
Note: Given the Mini Infinity Wing's smaller size, it is highly recommended to route the 20" servo extensions through the fuselage at this point, before gluing on the Vert Stab, Back Wing R1, and Back Wing L1. Routing these extensions after these parts are glued in place is very difficult.

ALWAYS TEST YOUR EXTENSIONS AND SERVOS PRIOR TO INSTALLATION

2.3.3 With your servo extensions in place Glue parts Back Wing R1 and Back Wing L1 together using CA glue. Use the 4mm carbon fiber tubes to ensure good alignment between the two parts, being careful not to permanently glue the carbon fiber tubes to the printed parts.

NOTE: Parts Back Wing R1 and Back Wing L1 each contain a sacrificial support this can be pulled away with slight force.

2.3.4 Glue the Back WingR1/L1 sub-assembly to the top of the part Vert Stab



2.3.5 Glue the Vert Stab/Back Wing R1/Back Wing L1 sub-assembly to your Fuselage assembly using CA glue. The built in alignment tabs will keep all parts well aligned.



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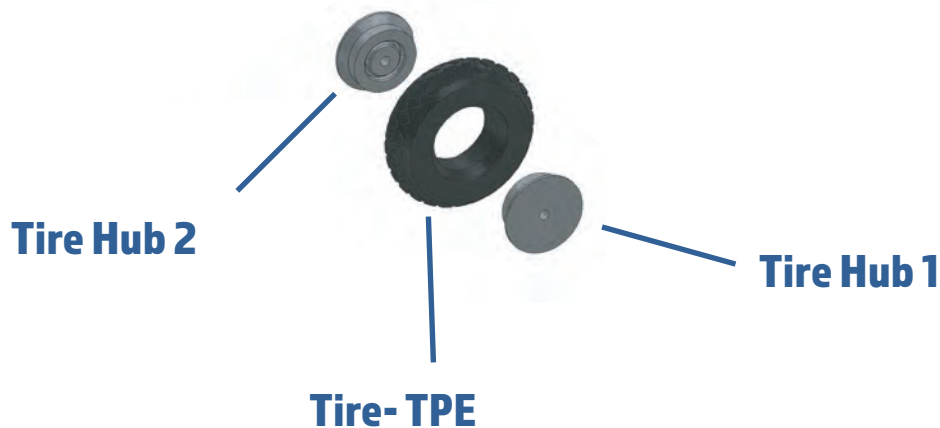
Step-by-Step Build Guide (cont'd)

2.3.6 Use a very sharp hobby knife, Soldering Iron or a hot knife to remove the support panel in the canopy area of parts Fuse 1 and Fuse 2. Cleanup the edge with sandpaper.



Step 2.4 Assemble the Wheels

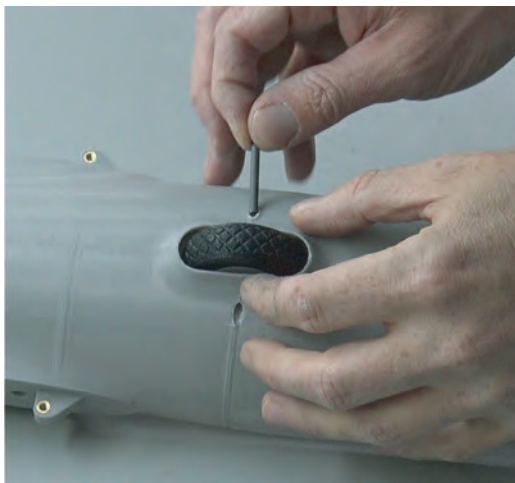
2.4.1 Tire Hub 1 and Tire Hub 2 are designed to be inserted into each open side of the Tire-TPE component. Insert Tire Hub 1 into one side of the TPE Tire, apply a small amount of CA glue to the mating face of the hub and insert Tire Hub 2 into the other side of the TPE Tire.



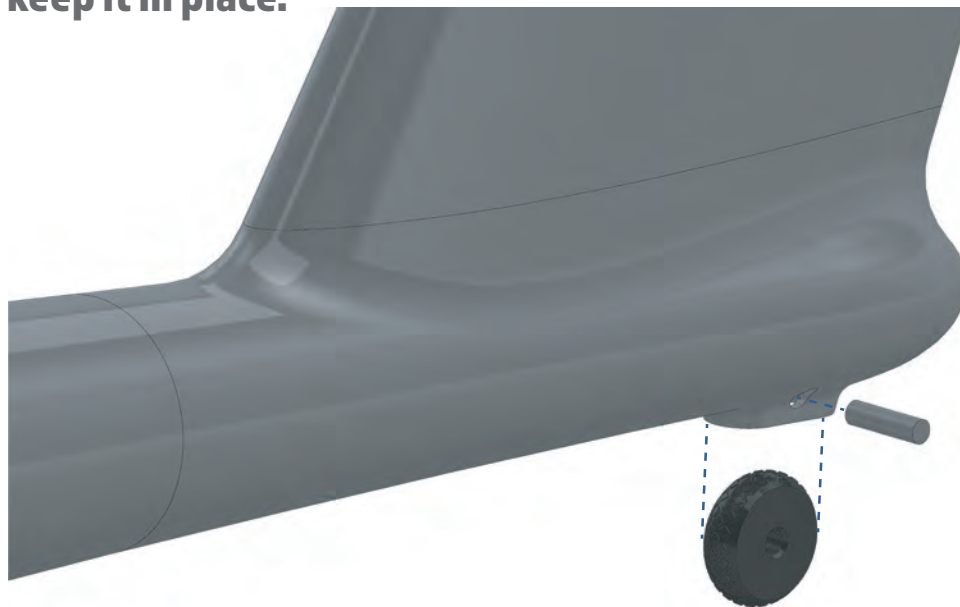
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Step-by-Step Build Guide (cont'd)

2.4.2 Use a 2mm carbon fiber rod, wooden dowel or plastic dowel as your wheel axle. Cut the axle to length so it is fully recessed in the belly wheel axle hole. Insert your wheel into the wheel bay, insert your wheel axle and apply a small drop of CA glue into both sides of the axle hole to keep it in place.



2.4.3 Use a 1 mm carbon fiber rod, wooden dowel or plastic dowel as your tailwheel axle. Cut the axle to length so it is fully recessed in the tailwheel axle hole located at the bottom of Fuse 4. Insert your tailwheel into the wheel bay, insert your wheel axle and apply a small drop of CA glue into both sides of the axle hole to keep it in place.



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Step-by-Step Build Guide (cont'd)

Step 2.5 Assemble the Canopy

2.5.1 Use a sharp hobby knife, Soldering Iron or a hot knife to remove the support panel on both Canopy 1 and Canopy 2. Cleanup the edge with sandpaper.



2.5.2 Cut a 2mm diameter carbon rod, wooden dowel, or plastic dowels into qty. 3, 6mm long pieces. These small dowel pins will be used to align parts Canopy 1 and Canopy 2 for gluing.

2.5.3 Insert your 2mm diameter pins into part Canopy 1, apply glue to the mating face and mate to part Canopy 2.



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Step-by-Step Build Guide (cont'd)

2.5.4 The canopy is held in place with 5mm O.D. x 3mm thick rare earth magnets. Apply a drop of glue into each magnet recess in part Canopy 2 and pop in your magnet. The mating magnets can then be glued into the magnet recesses in part Fuse 2. BE EXTRA CAREFUL TO GLUE THESE MAGNETS IN THE PROPER ORIENTATION SO AS TO ATTRACT AND NOT REPEL THE MATING MAGNET.



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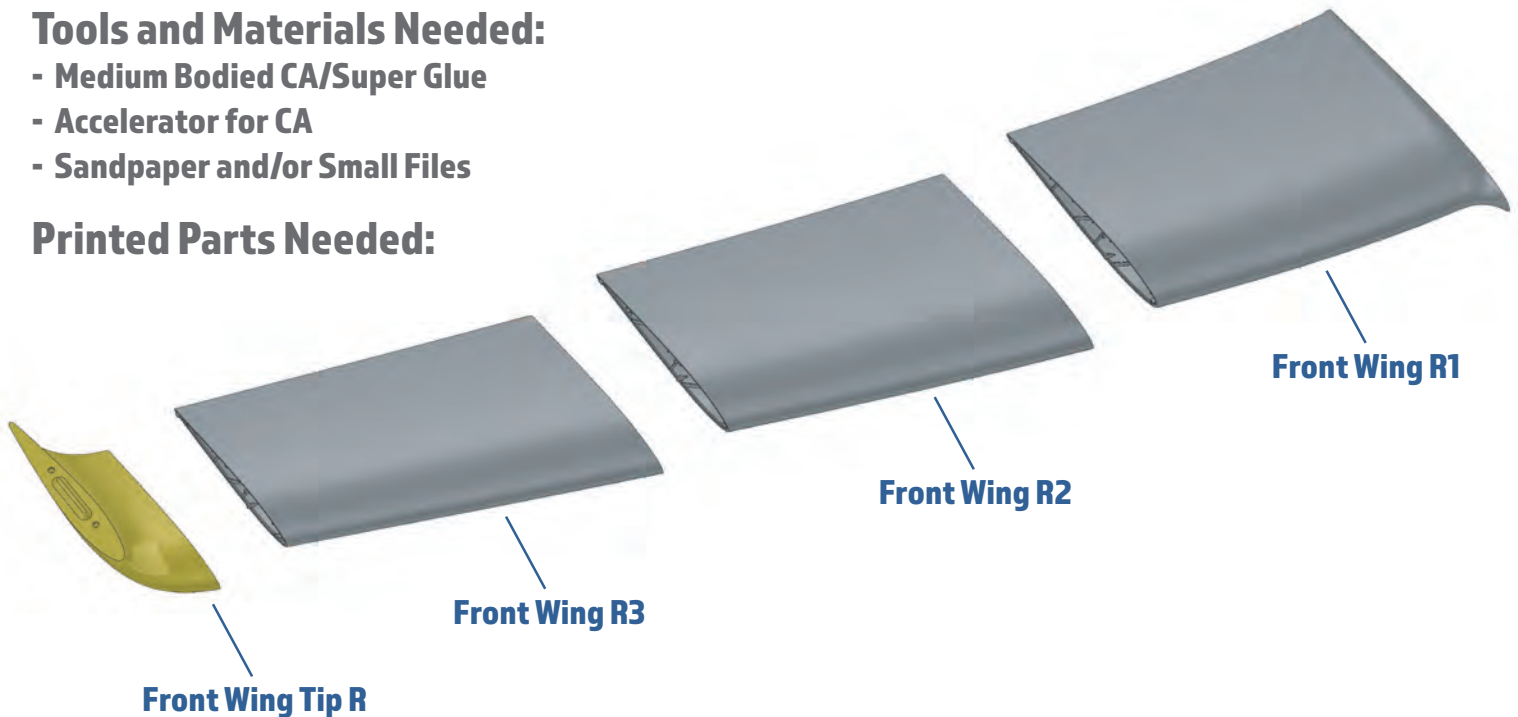
Step-by-Step Build Guide (cont'd)

Step 3. Front Wing Assembly

Tools and Materials Needed:

- Medium Bodied CA/Super Glue
- Accelerator for CA
- Sandpaper and/or Small Files

Printed Parts Needed:



Step 3.1 Glue The Front Wing Parts Together

3.1.1 Glue parts Front Wing R1 - Front Wing R3 together using CA glue. Spray accelerator on the joint to speed curing of the CA glue. The built in alignment tabs will keep all parts well aligned. You can then glue on part Front Wing Tip R.

3.1.2 Repeat the previous step for the front left wing, using parts Front Wing L1 - Front Wing L3 and Front Wing Tip L.



NOTE: Parts Front Wing Tip R and Front Wing Tip L contain a sacrificial support structure that was generated in Simplify3D.



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Step-by-Step Build Guide (cont'd)

Step 4. Back Wing Assembly + Servo Installation

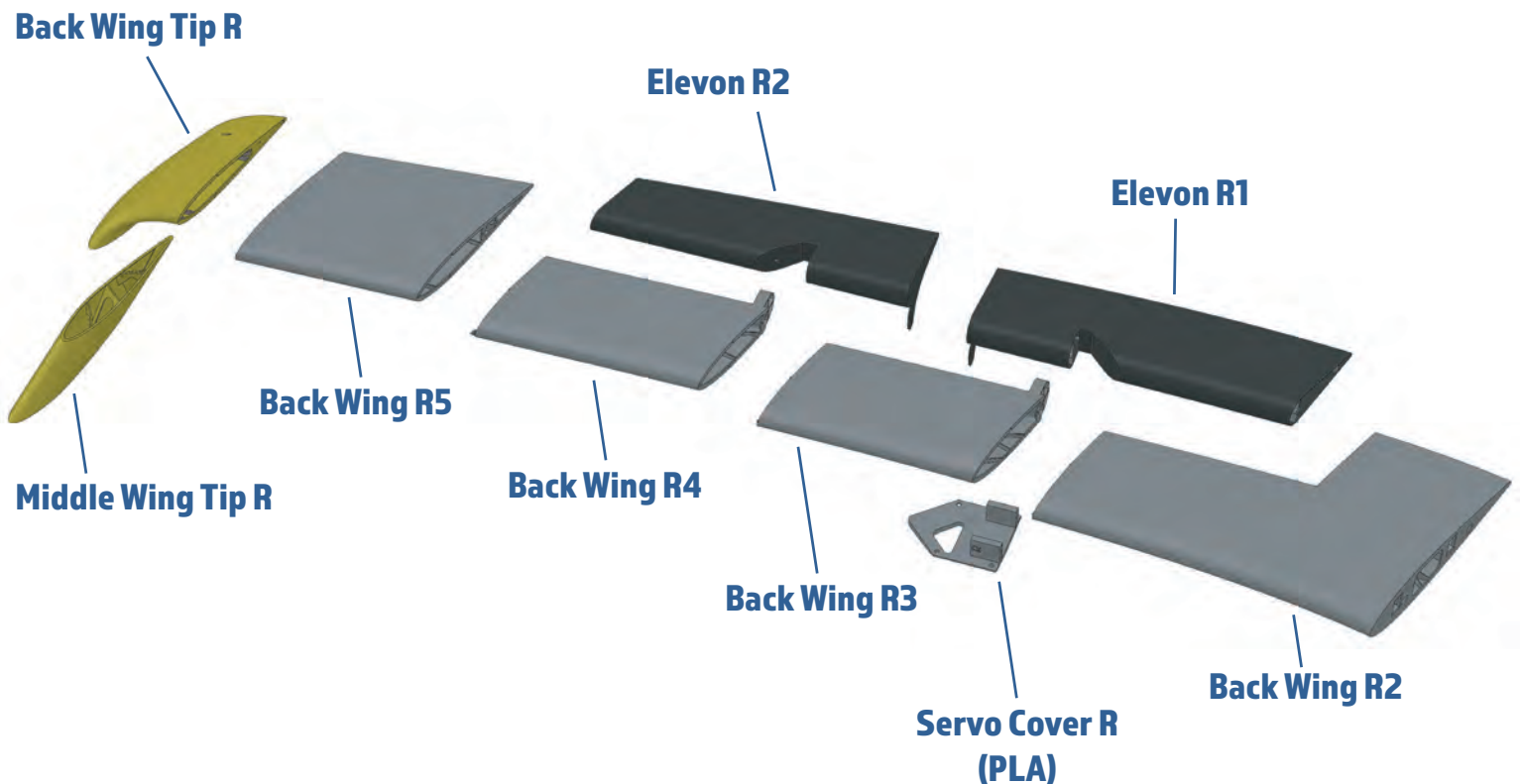
Tools and Materials Needed:

- Medium Bodied CA/Super Glue
- Accelerator for CA
- Sandpaper and/or Small Files
- Soldering Iron (for heat set threaded inserts)

Hardware/Electronics Needed (links to recommended hardware on pg 4):

- M2 x 0.4mm Thread Heat-set Threaded Inserts for wing tip bolts (x4)
- Wing servos (x2) + mounting screws included with servos
- M1.6 or #0 x 1/4" Long Thread Forming or Tapping Screws for mounting servo covers
- 1mm O.D. x 250 mm Long Carbon fiber rod or Steel Wire for Elevon Hinges
- 2mm O.D. Carbon Fiber rod or equivalent O.D. wood or plastic dowel for elevon alignment
- 1.2mm O.D. Steel Wire for servo control linkages 1893

Printed Parts Needed:

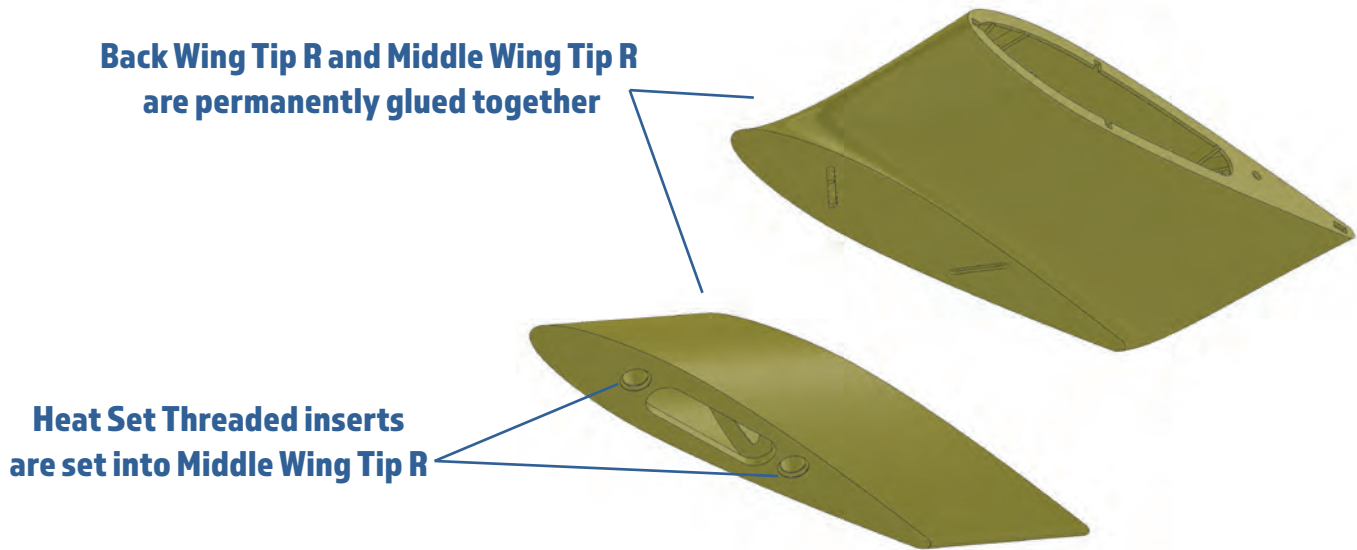


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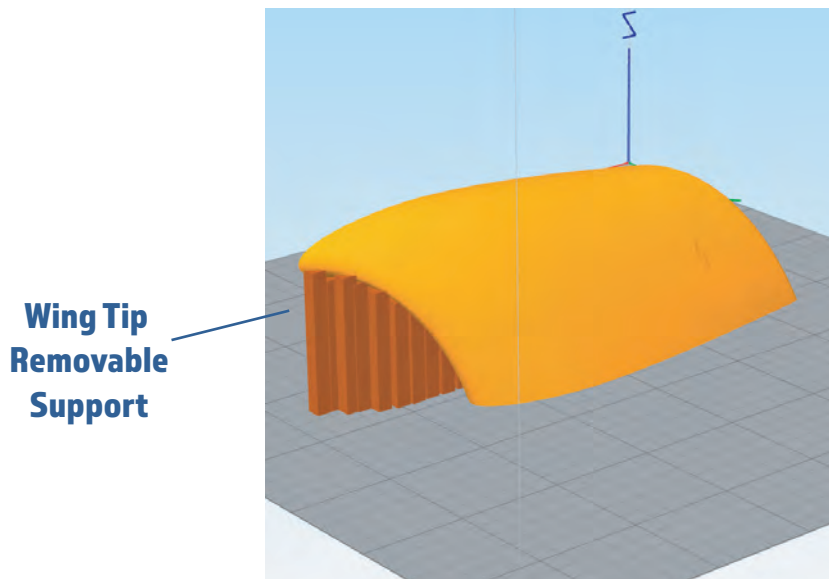
Step-by-Step Build Guide (cont'd)

Step 4.1 Heat Set Inserts

Before gluing parts together. Find parts Middle Wing Tip R and Middle Wing Tip L use a soldering iron to insert the M2x0.4mm thread heat set threaded inserts. You will insert a total of four heat set threaded inserts, two in each wing tip.



NOTE: Parts Back Wing Tip R and Back Wing Tip L contain a sacrificial support that was generated in Simplify3D. Use slight force to remove these support structures. Sand this area with sandpaper or a small file to clean it up.



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Step-by-Step Build Guide (cont'd)

Step 4.2 Glue The Back Wing Parts Together

4.2.1 Glue parts Back Wing R2 - Back Wing R5 together using CA glue. Spray accelerator on the joints to speed curing of the CA glue. The built in alignment tabs will keep all parts well aligned. You can then glue on parts Back Wing Tip R and Middle Wing Tip R



4.2.2 Prior to gluing parts Elevon R1 and Elevon R2 together, use the 1mm - 1.5mm O.D. carbon fiber rod or steel rod to make sure it slides freely in the hinge hole. Then glue the two elevon parts together using the carbon fiber rod and 6mm length 2mm dowel pins to keep the two parts aligned.

BE VERY CARFEUL NOT TO GLUE THE CARBON FIBER ROD PERMANENTLY IN PLACE



4.2.1 Repeat steps 4.2.1 and 4.2.2 for the Back Left Wing, using parts Back Wing L1 - Back Wing L5, Back Wing Tip L, and Middle Wing Tip L for the wing. Use parts Elevon L1 and Elevon L2 for the elevon.

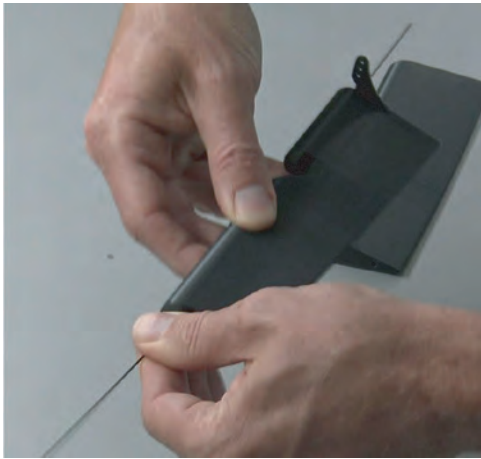


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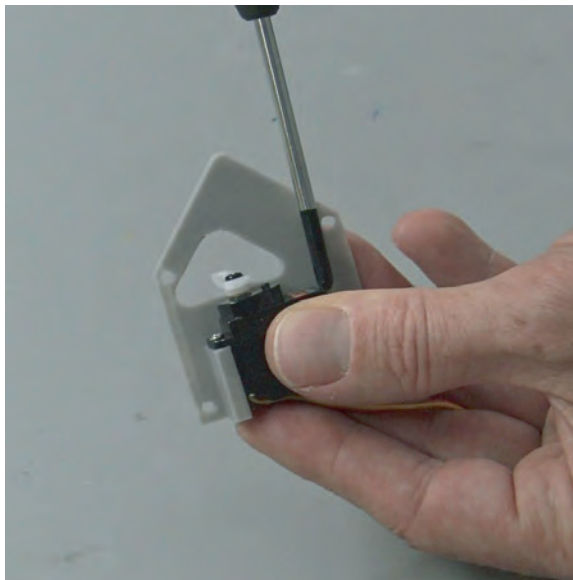
Step-by-Step Build Guide (cont'd)

Step 4.3 Install the Elevons and Servos

4.3.1 Holding Elevon R1/R2 in place in the wing, route the 1mm O.D. carbon fiber rod through the entry hole in Back Wing Tip R, through the elevon and wing hinge holes, until the rod exits the other side of the elevon and is fully inserted. You may use a 1mm steel rod to clear out any debris in the hinge holes or drill out the hinge holes in the wing with a 1.2mm drill bit if needed.



4.3.2 Using the mounting screws that came with your servo, mount the servo to part Servo Cover R. **Note: It is recommended to test and center the servos and install the servo control horn prior to installation.**



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Step-by-Step Build Guide (cont'd)

4.3.3 Route the servo wire through the wing and screw the Servo Cover R to the wing using M1.6 or #0 thread forming screws.

4.3.4 Install your preferred servo control linkages. We used a 1.2mm O.D. steel wire with a Z bend on the servo control horn and a connector linkage on the elevon control horn. You can also use a Z bend on both ends.



4.3.5 Repeat Steps 4.3.1 - 4.3.5 for the Back Left Wing



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Step-by-Step Build Guide (cont'd)

Step 5. Motor Installation

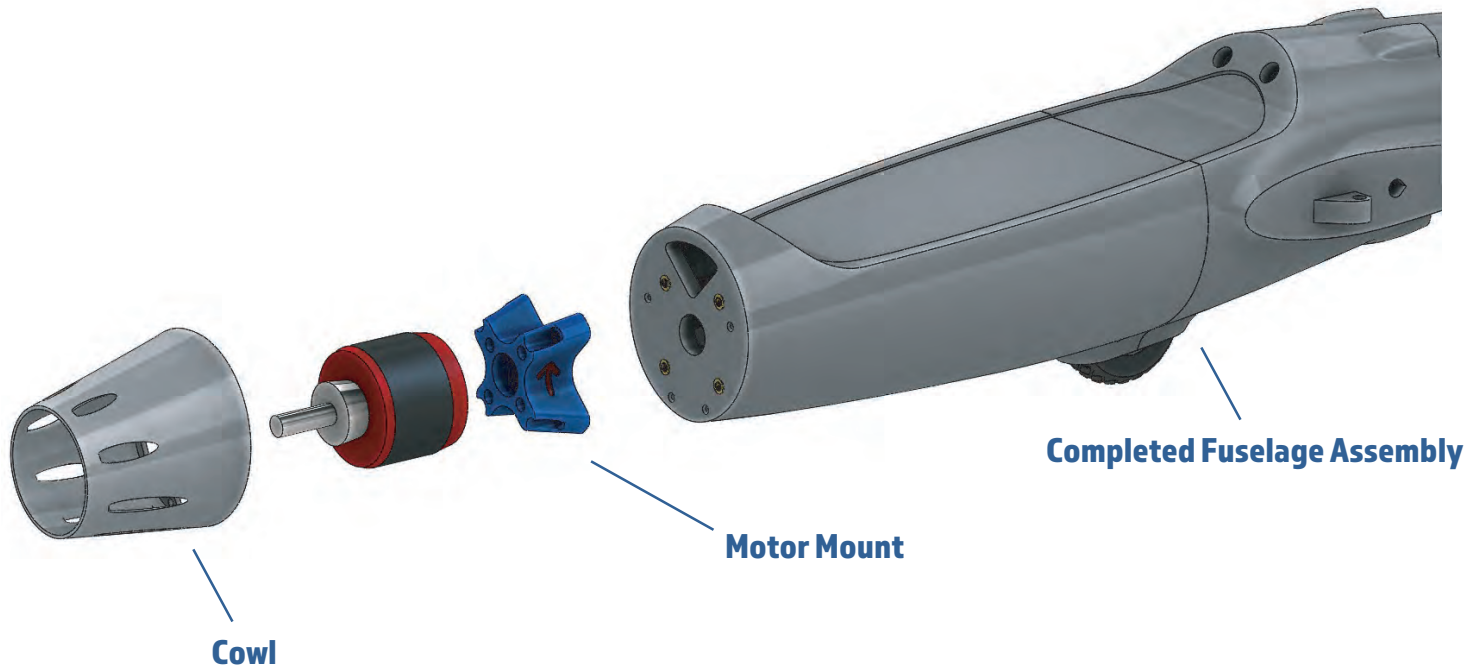
Tools and Materials Needed:

- Medium Bodied CA/Super Glue
- Accelerator for CA
- Tweezers or Needle Nose Pliers
- Allen Wrench and/or Screwdriver for M3 Screws

Hardware/Electronics Needed (links to recommended hardware on pg 4):

- M3 x 0.5mm Thread x 12mm Long Flat Head Screws for motor mount
- M2 x 0.4mm Thread x 12mm Long Socket Head Screws for motor mount
- M1.6 or #0 x 1/4" Long Thread Forming or Tapping Screws for mounting cowl
- Leopard 2826-14T 1250 kV
- Turnigy Aerodrive SK3 - 2826 - 1130kV
or motor with equivalent mounting pattern on the back of the motor

Printed Parts Needed:

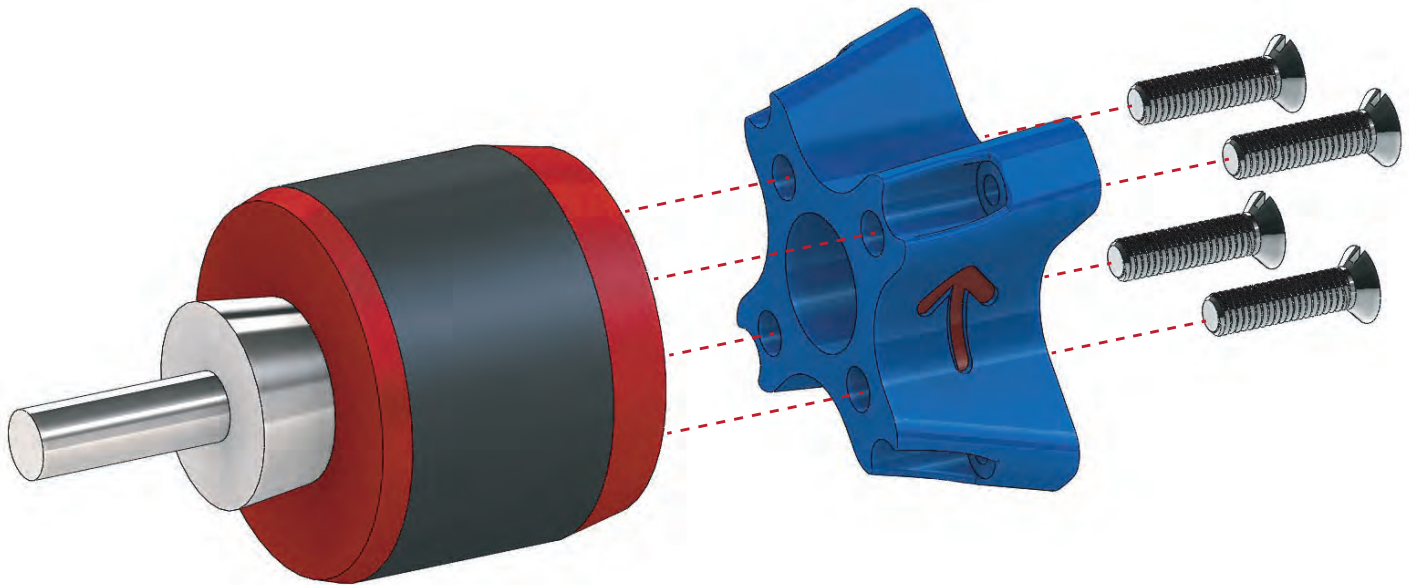


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Step-by-Step Build Guide (cont'd)

Step 5.1 Install Motor Mount + Motor

5.1.1 You will not be using the metal X-Mount provided with your motor. Instead, the provided 3D printed motor mount is designed to be screwed directly onto the back of the motor where the metal X-Mount would normally go, using the M3 x 0.5mm x 12mm Long Flat Head screws. This must be done **BEFORE** screwing the motor mount onto the firewall of the aircraft.



CAUTION!

Do not skip the next step.

The provided motor mount is designed to give your motor the proper down thrust and right thrust for optimal flight performance.

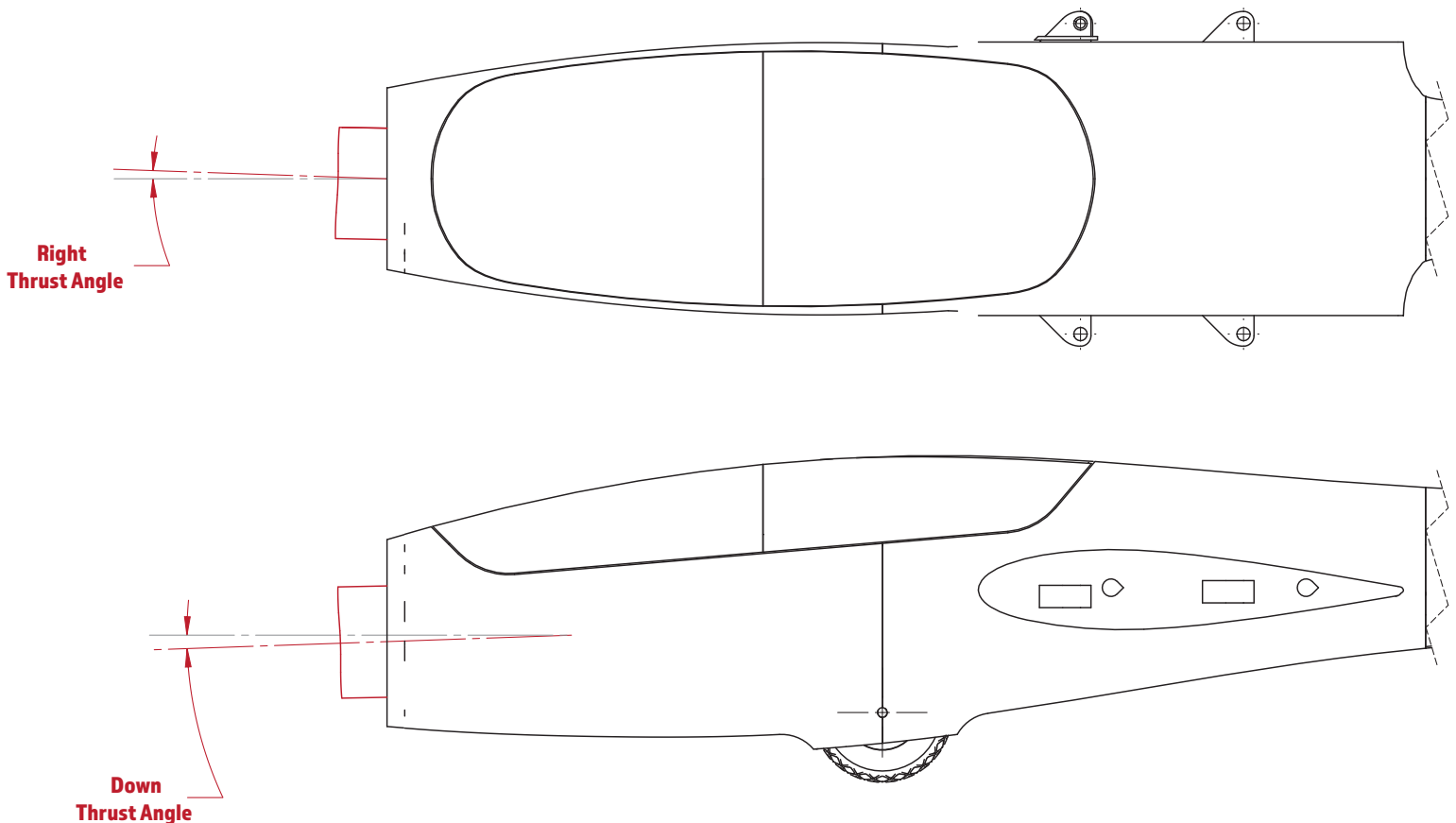


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Step-by-Step Build Guide (cont'd)

5.1.2 The included Motor Mount part will work for both of the recommended motors. If you choose a different motor, ensure that it has the same screw mounting pattern on the back of the motor, and the length of the motor is very close to one of the recommended motors to ensure the propeller clears the front of the cowling.

NOTE: It is recommended to print the motor mount from PETG, ABS, ASA, or other rigid plastic with higher temperature resistance than PLA.

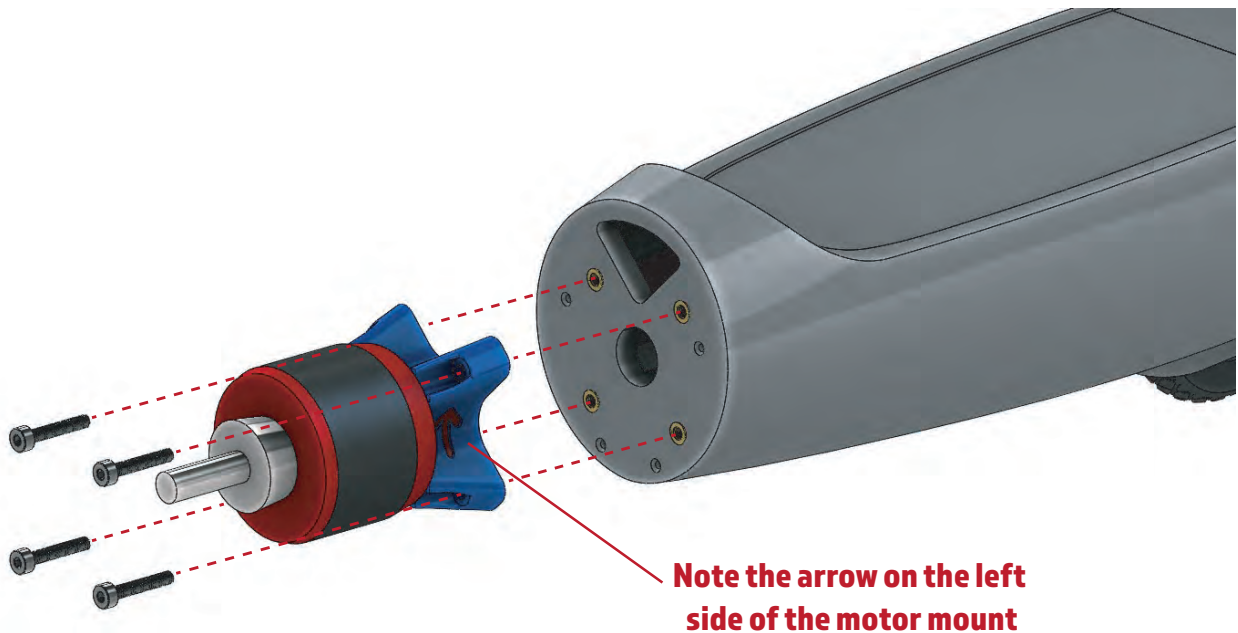


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Step-by-Step Build Guide (cont'd)

5.1.3 Use qty. 4 M2 x 0.4mm to mount the motor/motor mount assembly to the firewall of Fuse 1.

CAUTION! You will see an arrow printed on the left side of the motor mount. Make sure the arrow is pointing UP when you mount the motor this will give your motor the proper down thrust and right thrust.



5.1.4 Use qty. 4 M1.6 or #0 self tapping screws to mount the cowl. Extra servo mounting screws will also work.



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Step-by-Step Build Guide (cont'd)

Step 6. Final Electronics Installation and Assembly

Tools and Materials Needed:

- Velcro strips with adhesive backing
- Allen Wrench for M3 Wing Bolts

Hardware/Electronics Needed (links to recommended hardware on pg 4):

- Min. 4 channel Receiver
- 20A Esc like HobbyWing Skywalker Series 20A ESC
- 3S 1000 - 1300 mAh Lipo Battery
- 4mm O.D. Carbon Fiber Wing Tubes you cut to length in step 2.2
- M2 x 8mm Long Wing Bolts (x12)

Step 6.1 Install Receiver, ESC, and Battery

- 6.1.1 Install a long piece of velcro strip on the battery tray to give you room to adjust the battery position for CG/balance adjustments.
- 6.1.2 Use adhesive backed velcro strips to install your ESC and receiver toward the front of the fuselage canopy opening.
- 6.1.3 Install the battery behind the receiver for now (you may need to adjust this later to achieve the proper balance). **It is recommended to use an additional velcro strap to wrap around the battery to securely hold it in place.**



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Step-by-Step Build Guide (cont'd)

Step 6.2 Final Assembly, Radio Programming, and Balance

6.2.1 Assemble the whole aircraft together using the 4mm O.D. carbon fiber wing tubes. The 165mm length tube fits in the back hole of the back wing and the 200mm length tubes fit in the other three wing holes.

6.2.2 Connect your wing servo leads to the extensions and screw the wings together using the M2 x 8mm long wing bolts. 2 bolts for each wing root and 2 bolts for each wing tip (12 bolts total).



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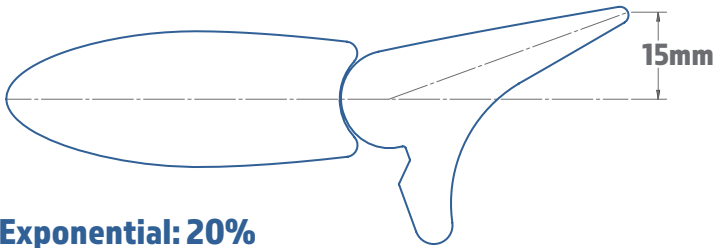
Step-by-Step Build Guide (cont'd)

6.2.3 Connect the battery, bind your radio, and follow the instructions included with your radio for mixing ailerons and elevator (elevons).

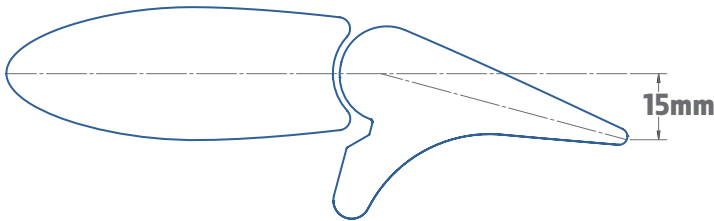
Recommended Rates and Exponential:

Elevator

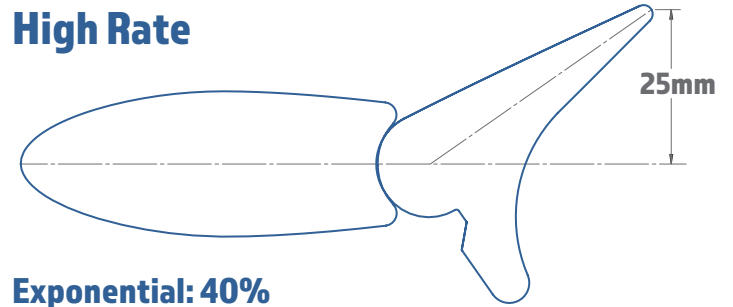
Low Rate



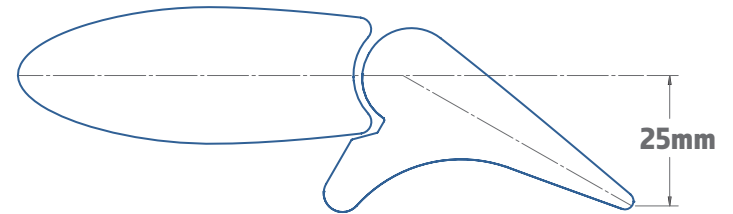
Exponential: 20%



High Rate

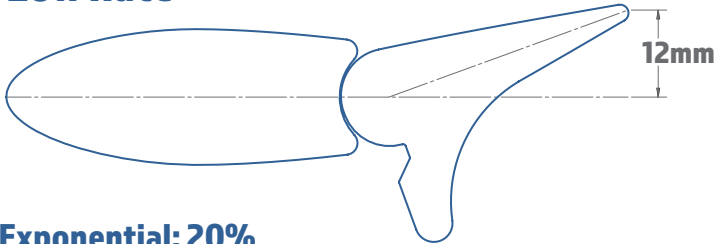


Exponential: 40%

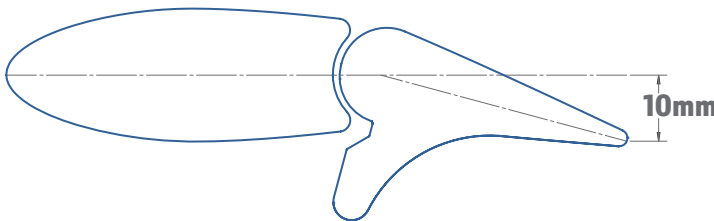


Aileron

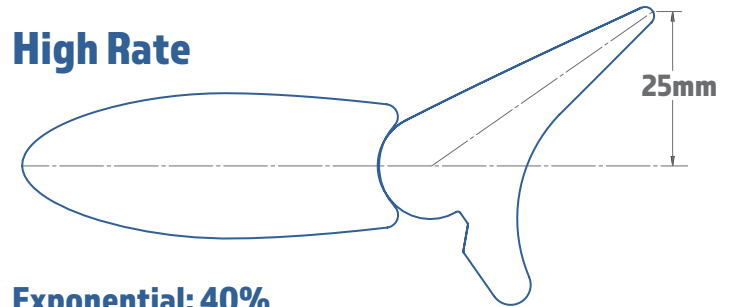
Low Rate



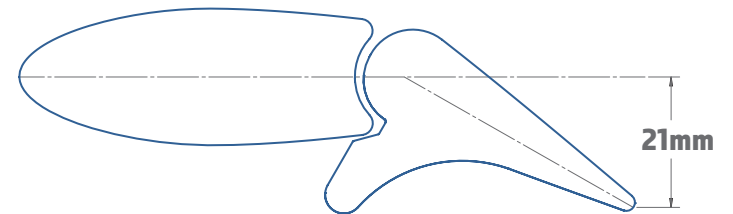
Exponential: 20%



High Rate



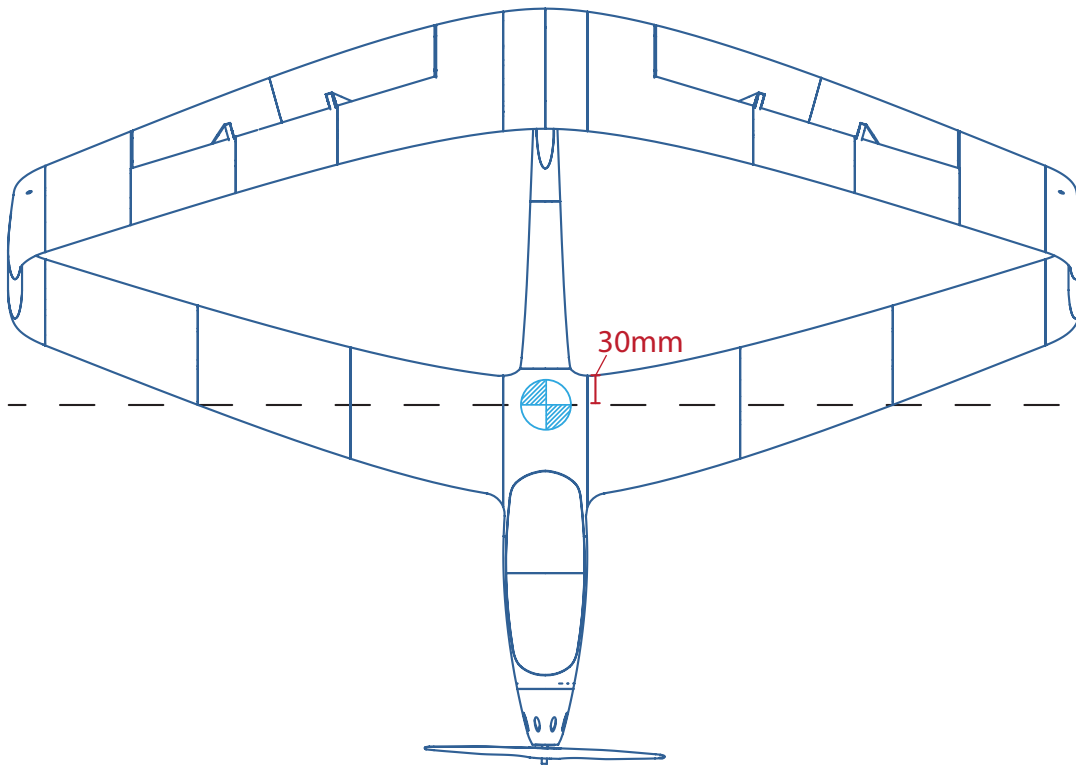
Exponential: 40%



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Step-by-Step Build Guide (cont'd)

6.2.4 Finally, install your propeller, attach the canopy, and balance the aircraft along the recommended Center of Gravity position. The Center of Gravity position for the aircraft is located on the trailing edge of the front wing at the wing root, as shown in the image below. Shift the battery forward or aft to achieve the proper balance. Remember to err on the side of slightly nose heavy.



**CG Location 30mm
in front of the
Trailing Edge of the
Wing Root**



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Tips For Your First Flight

Weather:

For your first flight it is recommended to launch on a very calm day, with winds between 0 - 5 mph. Once you become proficient with the Mini X-100 Infinity Wing know that it has been tested on blustery days and it handles 10 - 15 mph winds very well.



Pre-Flight Checks:

1. Double check all screws to ensure they are tight, including servos, control horns, motor mount, cowling, prop, and wing bolts.
2. Ensure servo extensions and all electronics are fully plugged in
3. Radio and onboard LiPo batteries are fully charged
4. It is recommended to test your radio from long range (30 or more paces away from the aircraft) to ensure your radio signal is strong and you don't experience servo flutter.
5. Double check all controls are moving the proper direction!



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Tips For Your First Flight

Hand Launching:

If you've never hand launched an aircraft, don't be afraid. The recommended power setup provides plenty of power for hand launching, but it does require a stronger throw than you may be used to with lighter foam aircraft. Embrace your inner athlete and follow these steps:

1. Hold the aircraft's fuselage right behind the front wing with your dominant/throwing hand.
2. With the radio in your other hand, advance to full throttle
3. Hold the aircraft with the wings level and the nose pointed up very slightly, 5 to 10 degrees, and give the aircraft a strong throw.
4. Get your throwing hand back on the radio as quickly as possible and enjoy your flight!



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About 3DAeroventures

3DAeroventures is a YouTube channel and eCommerce store where content creator and Pilot in Command, Eric Haddad, uses engineering technology and model aviation to encourage his viewers, customers, and team members to never stop exploring, never stop questioning, and never stop playing.



3DAeroventures' fully 3D-printable, functional RC aircraft designs can be fabricated on hobbyist level desktop 3D printers out of common materials. The digital files of 3DAeroventures' aircraft are available online. If you'd like to stay up to date on 3DAeroventures' latest content and designs, visit www.3daeroventures.com and sign up for our email list.

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Never Stop Exploring. Never Stop Questioning. Never Stop Playing.

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