



Vjet OWL

User Guide



Rev. 1.3

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OWLplane 3D Printed Models

Thank you for your interest/support/purchase of our RC Flying Models. It is all started in 2108 with the introduction of 3D Printer Technology (becoming our hobby). After having understand much with the technology, we continued creating and developing RC Flying Models. Once we feel that the designed Models are fun to fly, easy to assembly, acceptable strength and weight, it is time to share and introduce the Models to the market.

We believe that 3D printing technology will continue to grow supporting and becoming part of aeromodelling hobby. Certainly, it is not merely without challenges. Printing single perimeter on a CAD design to come up with a strong and light 3D printed object is not easy since most available filaments in the market still having too high in their density (comparing to the final result of airplane model in traditional aeromodelling hobby). Fortunately, there is filament manufacturer that producing a lightweight filament. It is called LW-PLA. Comparing to final printed PLA density, it is very promising to 3D printed aeromodelling hobbyist. Unfortunately, it is still not widely available yet in the market to purchase and also relatively having high price tag.

Another issue in 3D printed aeromodelling is that it is also quite challenges when assembling the parts. It really depends on how the designer come up with his/her 3D model creation. The designer also needs to consider the total weight produced when designing the plane without sacrificing simplicity and easiness when assembling the parts. Here is the list of challenges but not limited to when designing a 3D printed plane:

- Material Density and Other Characteristics (Filament types and its characteristics)
- Printer Capability Delivering Printed Object (Printer and its technology used)
- Single Parameter Printing Technique (Slicer capability)
- Design Factor (CAD Model itself)

We understand the challenges but will always try to improve and find the best solution. It is understood that this new hobby still have much room of improvement. It will be never end since the hobby itself always seeks for improvement and new things anyway. So far, we are very happy with our design after we feel finding the optimal result printing with available widely used filaments such as PLA, ABS, ASA and HIPS. It does not mean that OWLplane does not support LW-PLA. For sure, printing with LW-PLA always deliver less weight but to go down reducing weight up to 30%, we do not need LW-PLA, replace your Nozzle to 0.3mm and it will rock the results ! The following are what would you expect to have in downloadable file emailed to you:

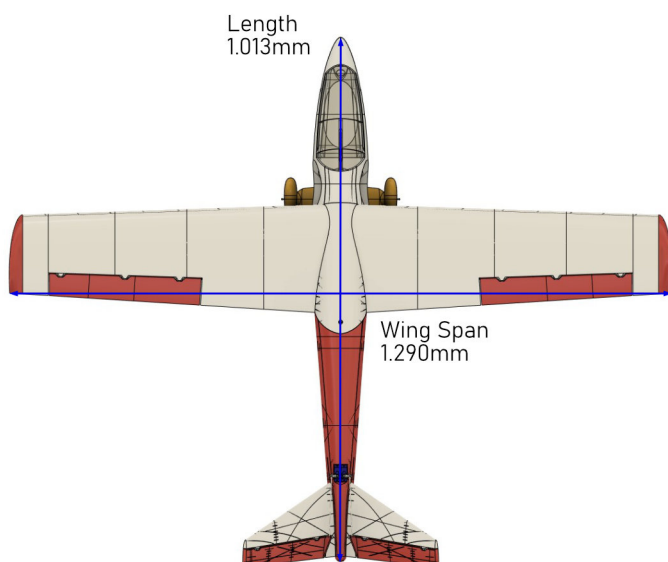
1. STL files.
2. G-code using PLA type filaments with Prusa i3 Direct Driver and/or Bowden type Printer.
3. ideaMaker, Cura and S3D OWLplane Profile files for 0.3mm and 0.4mm Nozzle.
4. Instruction Manual Documents.
5. Motor Mount, Servo Cover and/or Servo Bridge STEP files for you to customize whenever necessary (subject to the plane model).

HAPPY AND SAFE FLYING

Vjet OWL



Specification



Wing Loading : 65.9 - 70.5 gr/dm².

AUW/Flying Weight : 1450 - 1550 gr (with battery 2200mah 4s).

Wing Area : 22 dm².

Wing Cube Loading (WCL) : 14 - 15.

Flight Performance Category : Racer.

Radio Channels : Throttle, Aileron, Elevator and Rudder.

Length : 1.013mm.

Wing Span : 1.290mm.

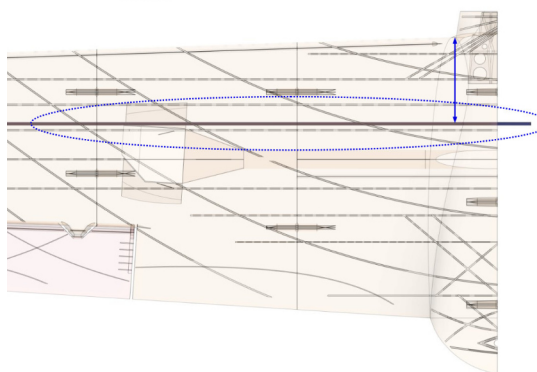
Special Note for 0.30mm Nozzle ! when Printing with 0.3x extrusion width , please use Profile files under "-07 special case" for some Profile files.

[Click here if you would like to know about WCL \(comparing how easy to fly the plane best described by utilizing WCL instead of Wing Loading. The plane with the same Wing Loading is easier to fly with higher Wing Area than smaller one\). It can be best described by WCL value.](#)

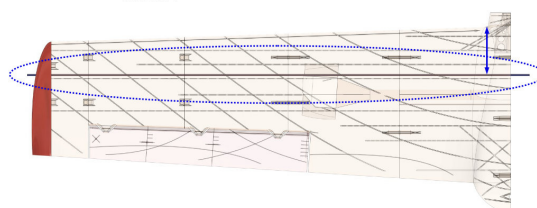
Center of Gravity (CoG)

CoG : 130mm from Wing Root Leading Edge. During maiden, please allow 3 - 4mm toward the nose (forward), start with more solid flying and adjust gradually during the next flight.

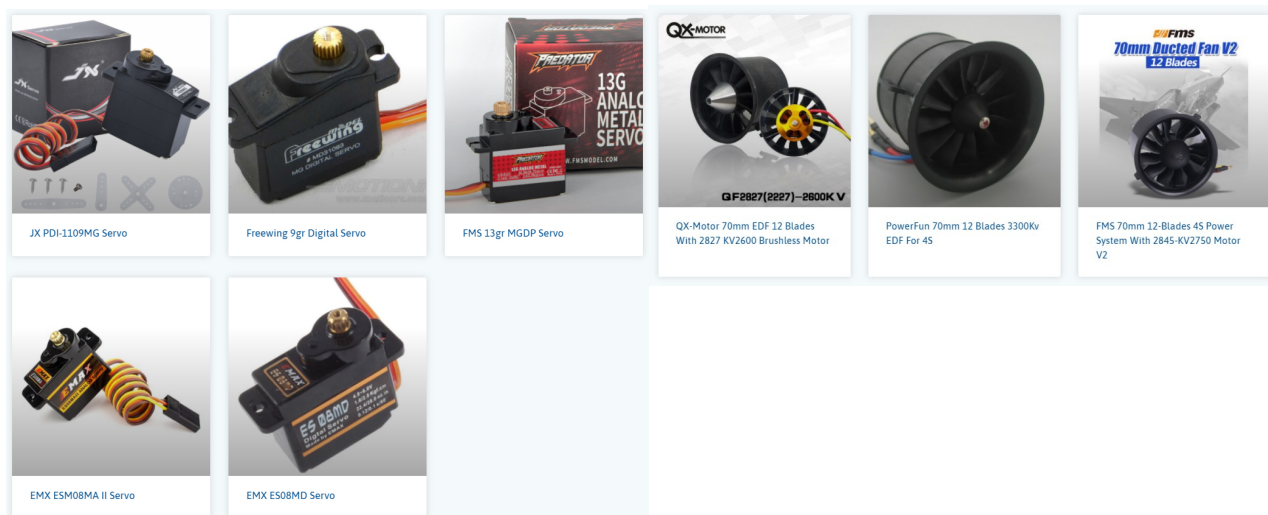
CoG Length from the Wing Root Leading Edge
65mm



CoG Length from the Wing Root Leading Edge
65mm



Recommended Setup



Motor Options : EDF 70mm, see above for some options but not limited to.

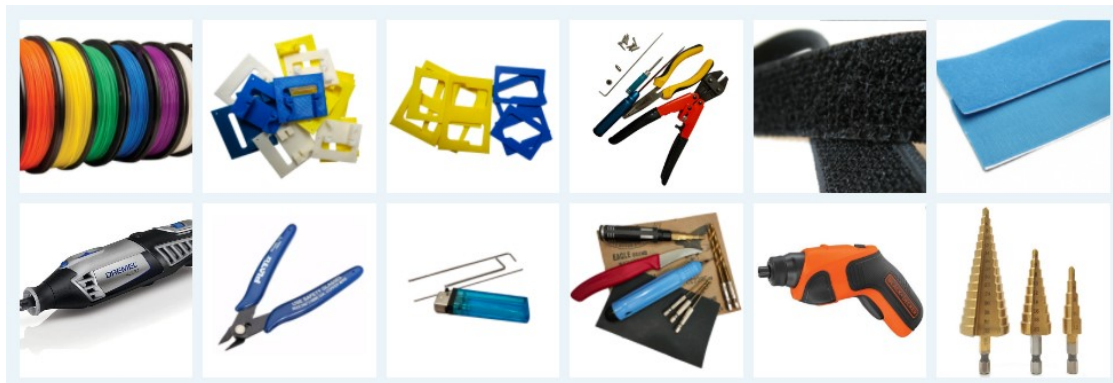
Servo Options : 12gr Servos, see above for some options but not limited to.

ESC Options : ESC with 80A, just pick your favorite ESC but make sure that rated at least 80A.

Battery Size : LiPo 4s 2200ma - 2700mah.

Tools and Materials

- ▷ **Printer, in general** 200mm x 200mm x 200mm (W x L x H) for all OWLplane Models.
- ▷ **Filament such as** PLA, ABS, HIPS and ASA (do not use silk PLA, it tends to be very weak in layer to layer adhesion).
- ▷ **CA glue with** accelerator. Use thick glue to join surface to surface. Use thin CA glue for coating the joint surface areas.
- ▷ **Velcro sticker/polyester hook** and loop peel-n-stick self-adhesive for positioning and locking the battery.
- ▷ **Fine sandpaper.**
- ▷ **Sharp knife.**
- ▷ **Screwdriver and/or allen** wrench for chosen screws/bolts.
- ▷ **Pliers, Needle-Nose Pliers, Nippers.**
- ▷ **Steel bolt cutter.**
- ▷ **Dremel/Rotary Tool** for cutting carbon fiber tubes and rod with more than 2.5mm.
- ▷ **Electric drill, its** drill-bit size from 1.5mm - 5mm and step cone drill.



Hardware Needed

For Fuselage, Canopy :

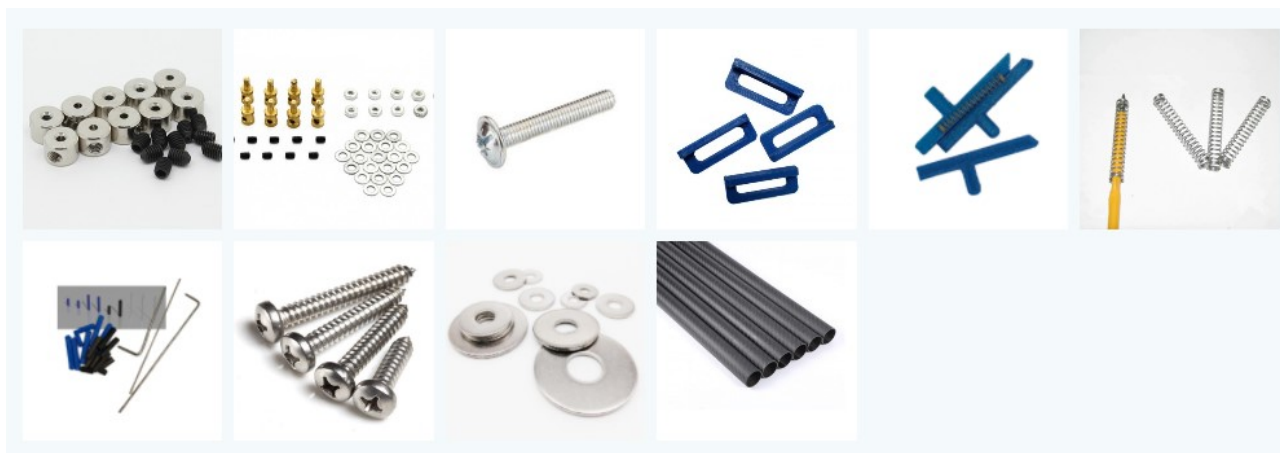
- ▷ M4 x 0.5mm thread x 30mm screws with their nuts and washers for attaching wings - 1x.
- ▷ Self tapping screw M3x15mm or M2.5x15mm with their washers for mounting EDF into the fuselage - 2x/4x (depending on EDF brand).
- ▷ 3mm OD and 46mm steel shaft for main wheel axles - 2x.
- ▷ Landing gear wheel stop set collar 8x3.1mm for main wheel axles - 2x (with L shape on one side) or 4x.
- ▷ 2.0mm OD and 32mm long shaft for tail wheel axle - 1x.
- ▷ Landing gear wheel stop set collar 9x2.1mm for tail wheel axles - 1x (with L shape on the other side).
- ▷ Self tapping screw M2x15mm or M2.5x15mm with their washers for locking EDF canopy 2x.
- ▷ Ballpoint pen springs for canopy - 1x.
- ▷ Fiber carbon tube pins (length 15mm), can be replaced with 3D printed pins.

For Wings (excluded control surface):

- ▷ Fiber carbon tube pins (length 30mm), can be replaced with 3D printed pins.

For Elevon, Stabilizer and Elevon Servos:

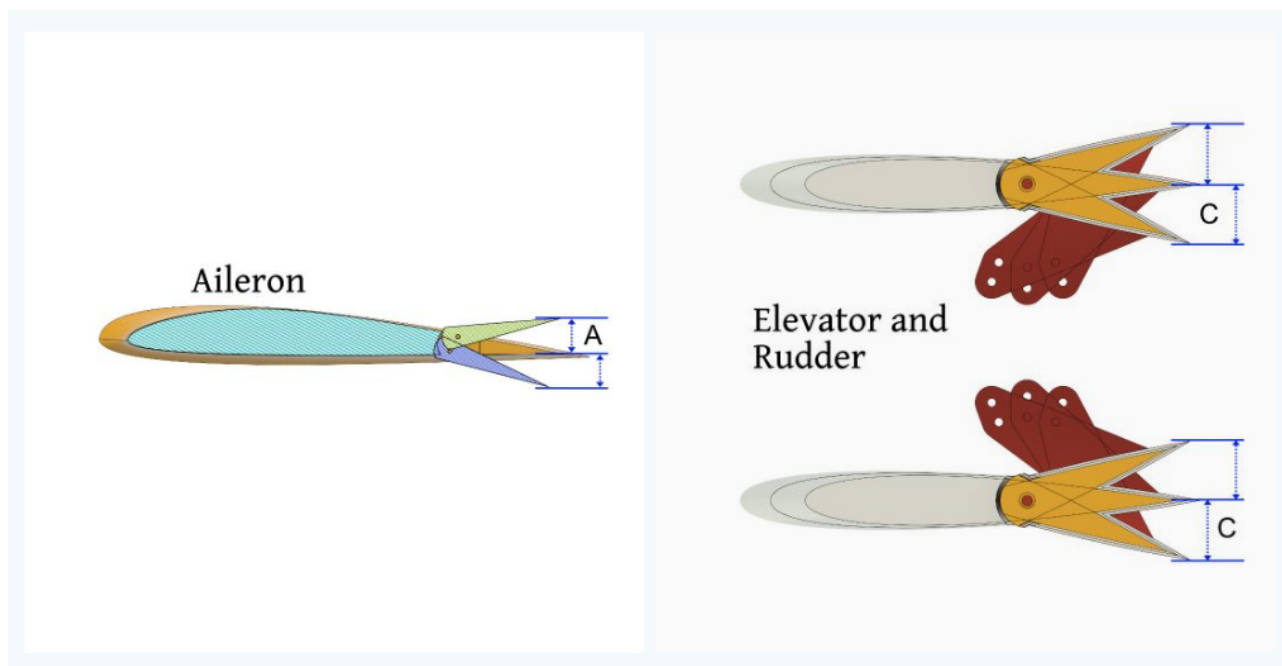
- ▷ 1.5mm - 2mm rod and for aileron (ER308L - TIG Stainless Steel Rod).
- ▷ 1.5mm - 2mm rod and for v-tail control surface (ER308L - TIG Stainless Steel Rod).
- ▷ Linkage stopper D2.1mm for aileron, v-tail control surface - 4x.
- ▷ Landing gear wheel stop set collar 9x2.1mm for elevon pushrod - 4x.
- ▷ 1.5mm-2.5mm OD shaft for creating pins connecting two parts for aileron and v-tail stabilizer.



Setup for Servo Travel/Throw

Suggested setup for medium travel/throw are depicted below and you may adjust the setup according to your need.

- ▷ Aileron A = 12 - 15mm.
- ▷ Elevator and Rudder = 10mm - 12.5mm.



Update from version 1.0 (Released as Version 1.1)

Feel free to use 5mm OD carbon tube to strengthen Fuselage-4 to Fuselage 7.

STLs and G-code are already updated into VJet purchased repository and ready to download.

Updated STLs:

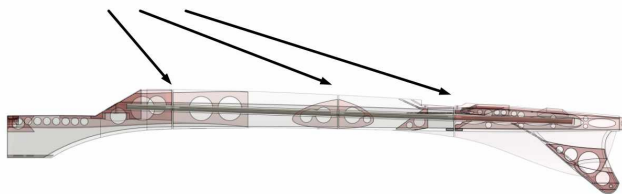
- Update FUSELAGE-4 # P3_H15
- Update FUSELAGE-5 # P3_H15
- Update FUSELAGE-6 # P3_H15
- Update FUSELAGE-7 # P3_H15



How to Assembly Fuselage-4 to 7 Version 1.1 as Follow

Assembly Option #1

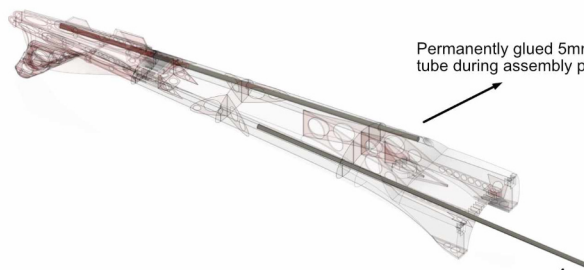
Pull one by one the parts to drop CA glue and press the parts right after.



Assembly Option #2

Permanently glued 5mm OD carbon tube during assembly process.

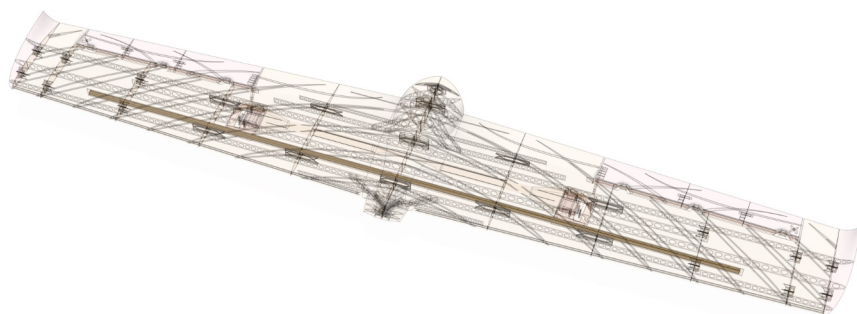
Free 5mm OD carbon tube as alignment tool before permanently glued into the parts after Fuselage-4 to 7 completed assembly/glued.



Update from version 1.1 (Released as Version 1.2)

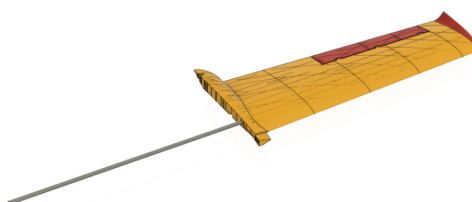
Updated STLs:

- Update WING-L-1 # P3_H15
- Update WING-L-2 # P3_H15
- Update WING-L-3 # P3_H15
- Update WING-L-4 # P3_H15
- Update WING-R-1 # P3_H15
- Update WING-R-2 # P3_H15
- Update WING-R-3 # P3_H15
- Update WING-R-4 # P3_H15



Changes:

Introducing 8mm OD carbon tube to strengthen the wing parts (used as spar).



How to Assembly Wing-1 to 4 Version 1.2 as Follow

Prepare:

- a. carbon tube 8mm OD 1 meter long or
- b. 2x carbon tube 8mm OD 500mm long.

When using (a), all the wing parts can be printed using LW-PLA.

When using (b), suggest to print "WING-L-1 # P3_H15 and WING-R-1 # P3_H15" parts in PLA and remaining in LW-PLA.

Remaining instruction, please refer to the manuals or OWLplane website pages.

Note: avoid to glue the spar/carbon tubes so that it can be easily removed later when trying to reuse it.



AGE RECOMMENDATION 14+

NOT FOR CHILDREN UNDER 14 YEARS.
THIS IS NOT A TOY!

By using our download files, an RC Model Airplane can be manufactured using a 3D Printer from our Model Design.

By purchasing our Model Design, you are responsible for safe operation that does not endanger you or others, or that does not damage property of others.

OWLplane assumes no responsibility for any damage to persons and property caused by related the usage of our Model Design.

Filaments, printing supplies, hardware or consumables that can not be used after faulty 3D printing will not be replaced by OWLplane in any way.

When operating, always keep a safe distance from your model in all directions to avoid collisions and injuries.

The RC Model Airplane is controlled by a radio signal. Radio signals can be disturbed from outside without being able to influence it. Interference can lead to a temporary loss of control.

Always operate your model on open terrains, far from cars, traffic and people to minimize risk.

Always follow the instructions and warnings for this product and any optional accessories (servos, receivers, motors, propellers, chargers, rechargeable batteries, etc.) carefully.

Keep all chemicals, small parts and electrical components out of the children reach.

Avoid water contact with all components that are not specially designed and protected. Moisture can damage the electronics.

Never take an item of the model or accessory in your mouth as this can lead to severe injuries or even death.

Never operate your model with low batteries in the transmitter or RC Model Airplane.

Always keep the RC Model Airplane in view and under control.

Always keep the transmitter switched on when the RC Model Airplane is switched on.

Always remove the battery before disassembling the RC Model Airplane.

Keep moving parts clean and dry at all times.

Always allow the parts to cool before touching them.

Always remove the battery after use.

Make sure that the Failsafe is properly set before the flight.

Never operate the model with damaged wiring.

Never touch moving parts.

Contact Us:

FB - <https://www.facebook.com/OWLplanePilot>

Instagram - <https://www.instagram.com/owlplanepilot>

Youtube - <https://www.youtube.com/channel/UCdmaSQaqYB1TcjpIqmr1FA>

E-mail - dolly.siregar@OWLplane.com

Please note that the models have potential risks although we create our models to our best of knowledge and belief. We accept no liability for consequential damage and injuries caused by improper use. Be careful when handling motors, batteries, EDF, propellers, etc. and make sure you play in under safe environment.

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We believe you will respect and support our work, please do not share the STL files.