

# **ASSEMBLY MANUAL AND USER GUIDE**



## **DH-100 VAMPIRE 30mm EDF**

By 3D AEROWORKS

## OVERVIEW:

This scale replica of the De-Havilland Vampire is designed for quick and easy construction and printed using light weight PLA (LW-PLA). For best results the canopy should be printed with clear PLA. Designed to suit the QX-MOTOR(7000kv) 30mm edf unit. Utilising 3 channel controls; aileron, elevator and throttle, this model performs extremely well given its small size and lightweight. Links to components used can be found on the last page of the user guide.

This model has taken many hours of hard work and testing in order to provide a nice flying aircraft. Please do not share it. Please show your appreciation by directing interested parties to the link below.

[https://cults3d.com/en/3d-model/various/DH-100-Vampire-700mm-\(30mm-edf\)](https://cults3d.com/en/3d-model/various/DH-100-Vampire-700mm-(30mm-edf))

## GENERAL SPECIFICATIONS

WINGSPAN:	700mm
PRINT TIME:	60 hrs
PRINT WEIGHT:	165g
FLYING WEIGHT:	350g
CENTER OF GRAVITY	62mm aft of L.E at wing root. (Marked with indentation)

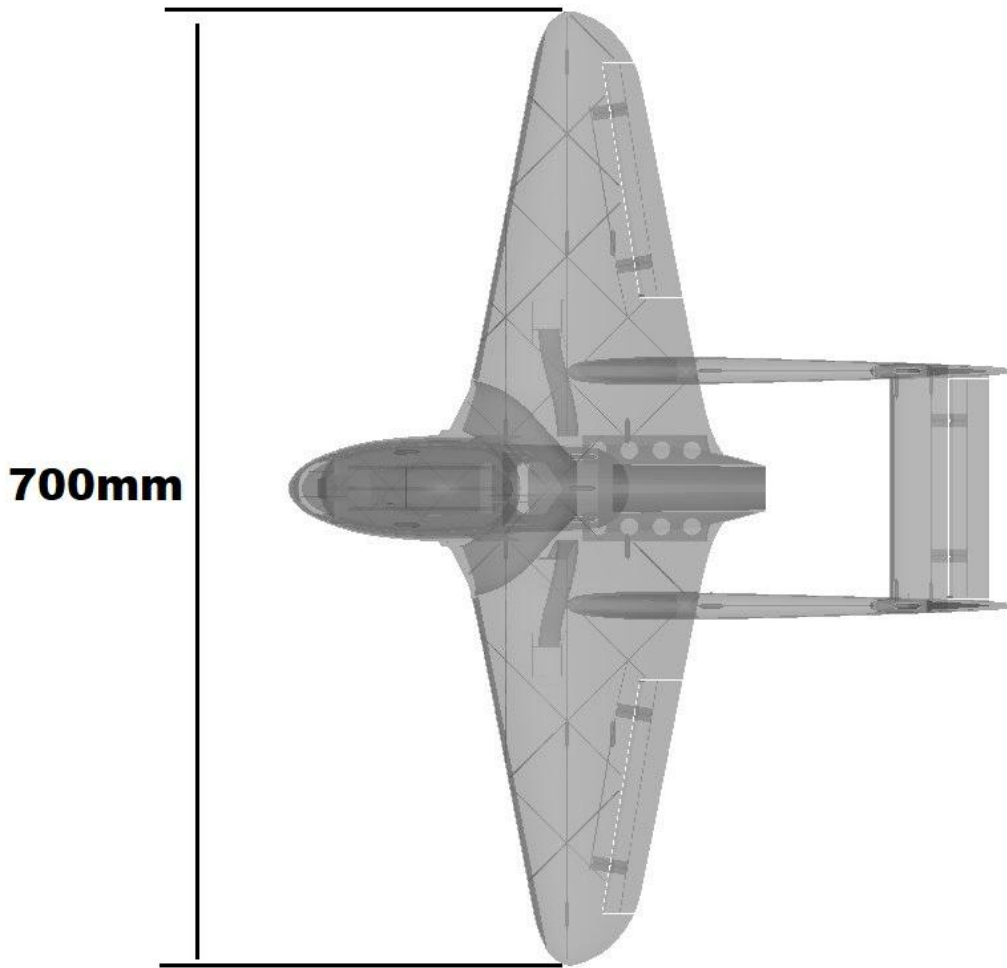
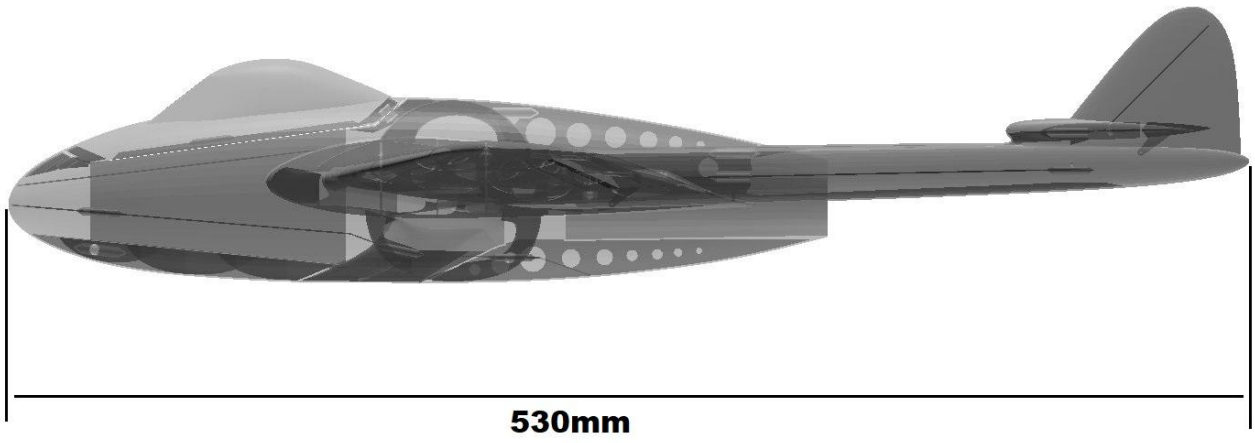
## ELECTRICS

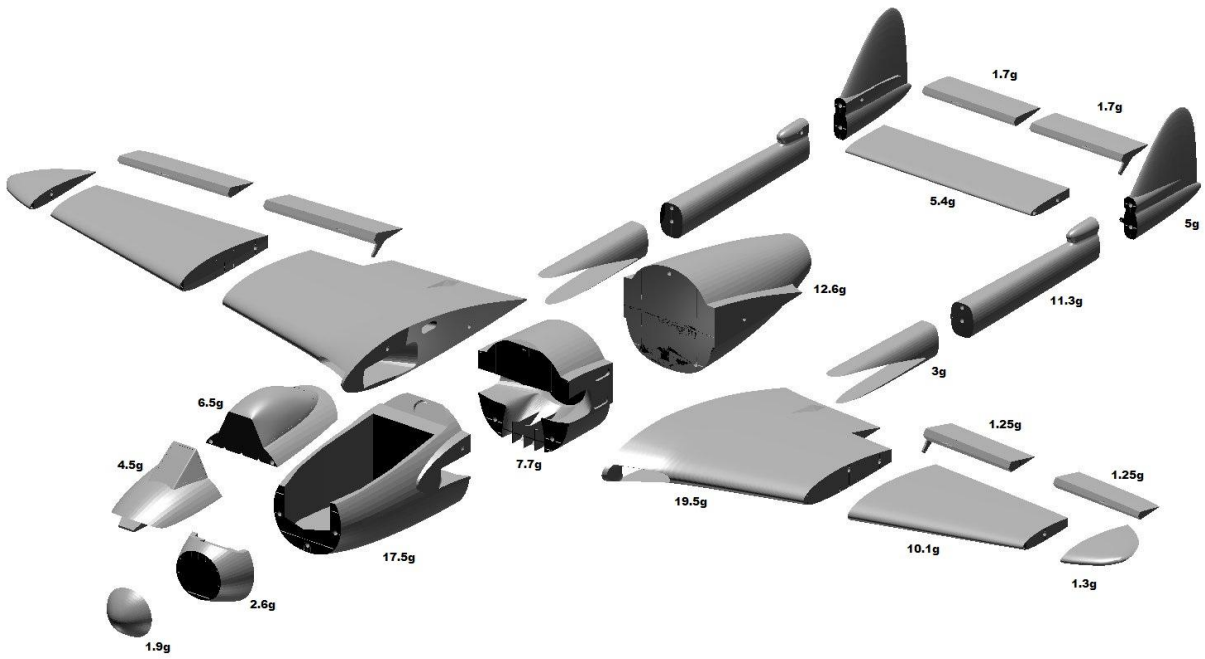
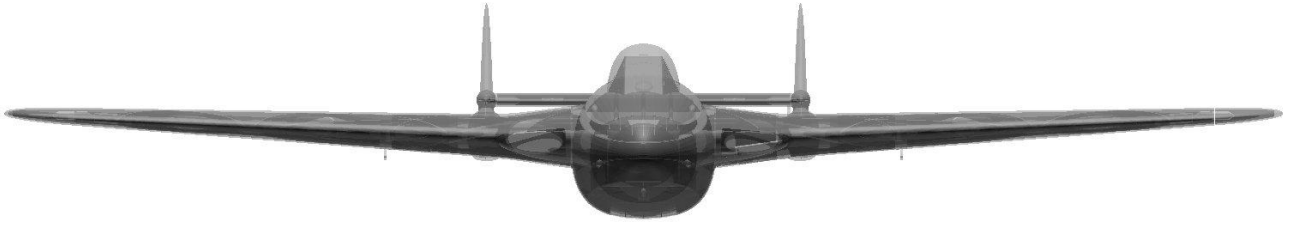
MOTOR:	QX-motor 30mm edf 7000kv
ESC:	15amp (min) 20amp (recommended)
SERVOS:	3.7g MICRO
BATTERY:	1000mah 3s ( <b>30C MIN</b> ) (115 gram or similar)

## INCLUDED:

STL FILES OF ALL COMPONENTS (**scale to 1000% if not using S3D**)

FACTORY FILES FOR (S3D) SIMPLIFY 3D FOR PRINTERS: 200X200X200





## **REQUIRED TOOLS:**

KNIFE

LIGHTER

SANDPAPER (MEDIUM GRIT)

PLIERS

CA GLUE

SCREW DRIVERS

FILE OR RASP

DRILL

HOT GLUE GUN

## **REQUIRED COMPONENTS:**

QX-MOTOR 30MM EDF 7000KV

X1 15AMP or 20AMP ESC

X1 1000MAH 3S LIPO OR SIMILAR

X3 3.7G MICRO SERVO

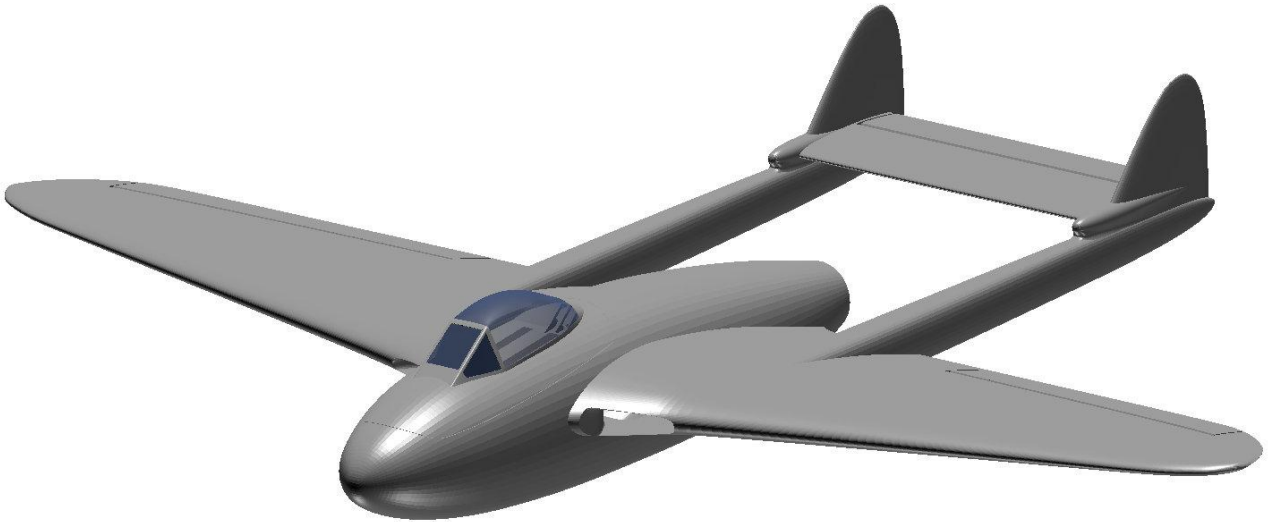
BAMBOO SKEWERS 3MM

X2 10mm X 10mm X 2mm MAGNET (ROUND)

X10 MICRO HINGES (OPTIONAL)

VELCRO

1mm PIANO WIRE



## ASSEMBLY INSTRUCTIONS

1

After all parts have been printed, some may require to be cleaned/trimmed as LW-PLA is prone to stringing. Do this by gently sanding back the rough sections with a file, sandpaper or blade until the surface is smooth.

2

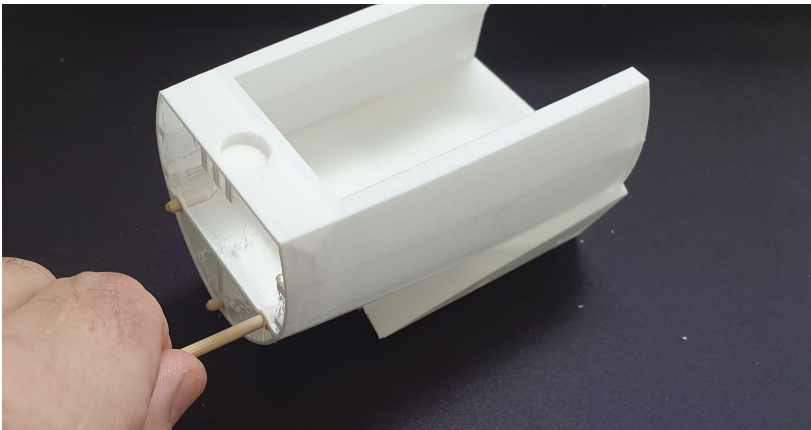
All faces which are to be glued to other parts need to be given a light sanding (scuff the surface) to assist with glue adhesion.

3

Cut 15mm sections of skewer and place into alignment holes in joining sections.

**NOTE** - It may be required to open up the holes a small amount if the fit is too tight. Do this by using a 3mm drill bit. Gently spin it in reverse as you insert it into the hole. This will ensure the bit does not tear the print.

Test fit the sections of the fuse before gluing to ensure a clean fit.



4

Glue sections 1,2,3 and 4 of the fuse and together.

5

Connect the esc to the edf

6

Test fit the edf in its slot in fuse 5. Make sure any excess from the printing process on the mount arms is removed or it will cause the fuse section to deform once the edf is installed.

7

Install the edf using hot glue. The back of the edf should rest on the start of the thrust tube.

8

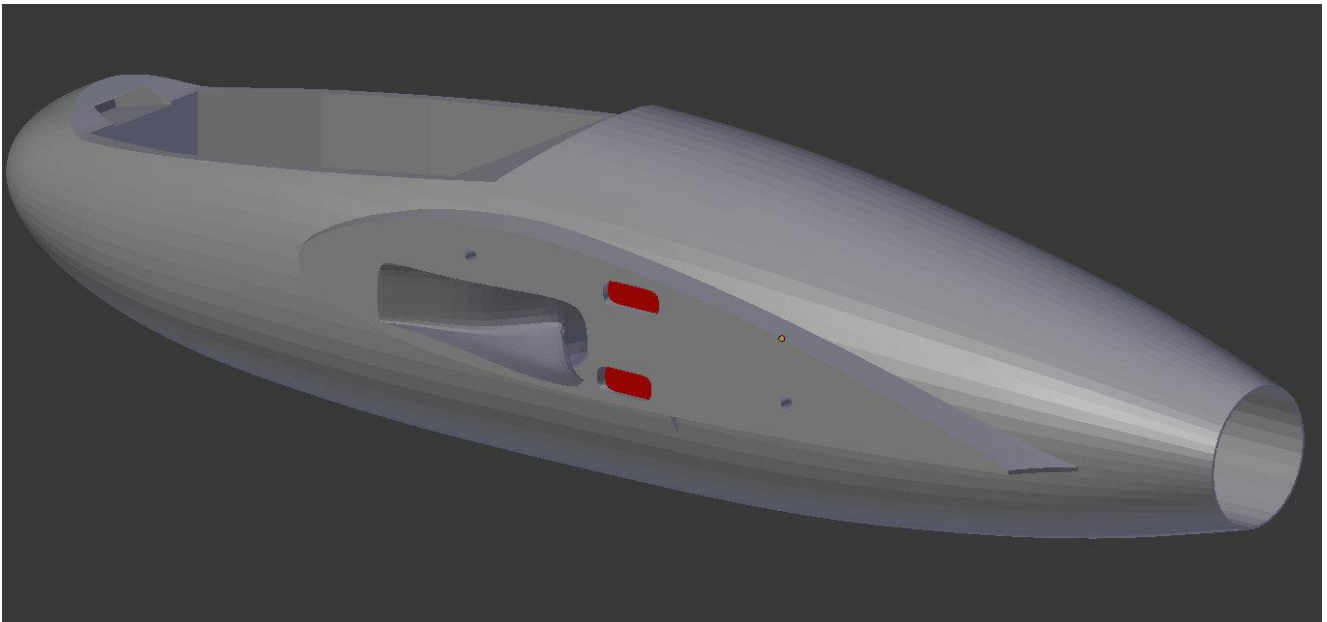
Feed the esc and wiring through the gap in the top of the front fuse assembly between the upper skin and the intake tunnel

9

Glue fuse 5 to the front fuse assembly.

10

From fuse assembly, remove the indents of the servo lead tunnels from both sides with a knife or heated metal rod to allow the servo lead for the aileron to pass through. (marked red)

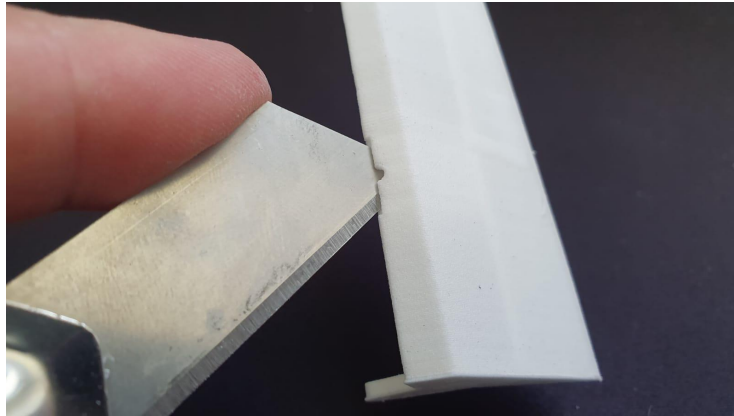


11

Glue the sections of the wings together.

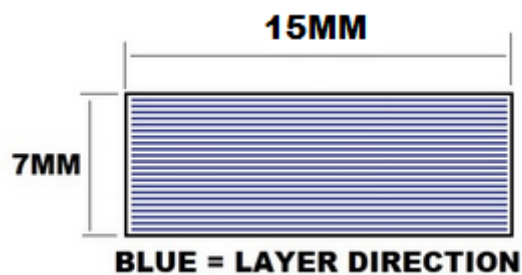
12

Assemble each control surface and test fit the hinges in the hinge slots for each control surface and its parent part, this will make gluing the control surface easier when the time comes. **NOTE**- Do not force the hinge if it is too tight. Loosen the slot by gently inserting a stanley knife.



Using the LW-PLA as a hinge:

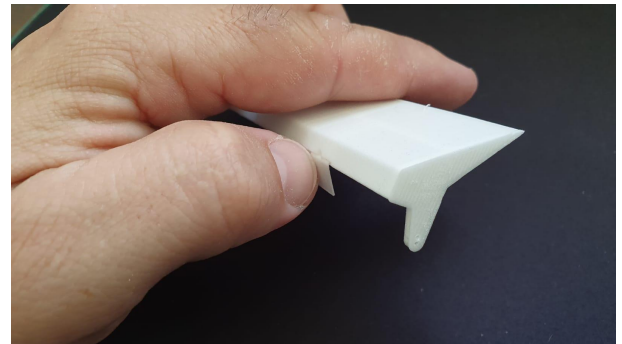
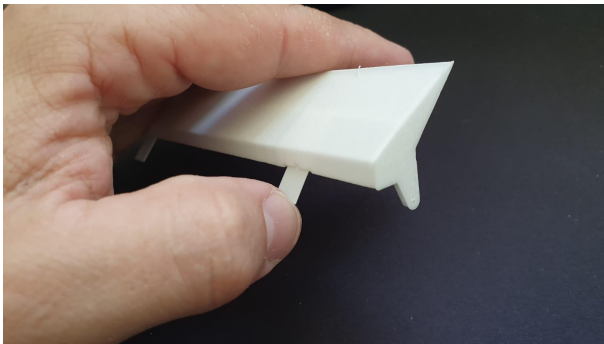
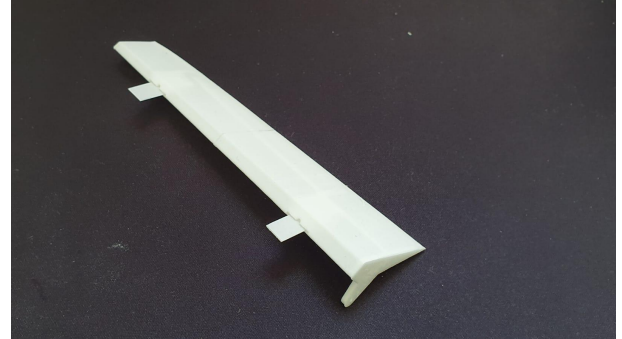
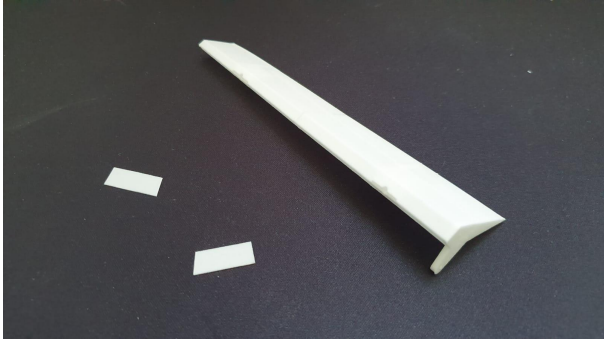
From the hinge box, cut sections of 20mm x 7mm with the 7mm side being against the grain of the layers. Test fit the pieces into the hinge slots of the control surface and stabiliser or wing.





13

Place a drop of CA in the hinge slot of the control surface and insert the hinge. Be sure that the hinge is perpendicular to the control surface. Then bend the hinges to 90deg back and forward a few times to make sure they are appropriately loose. (the outer aileron and elevator hinge may need to be trimmed). **See below**



14

Install the ailerons to the wings.

15

Glue the wings to the fuselage.

16

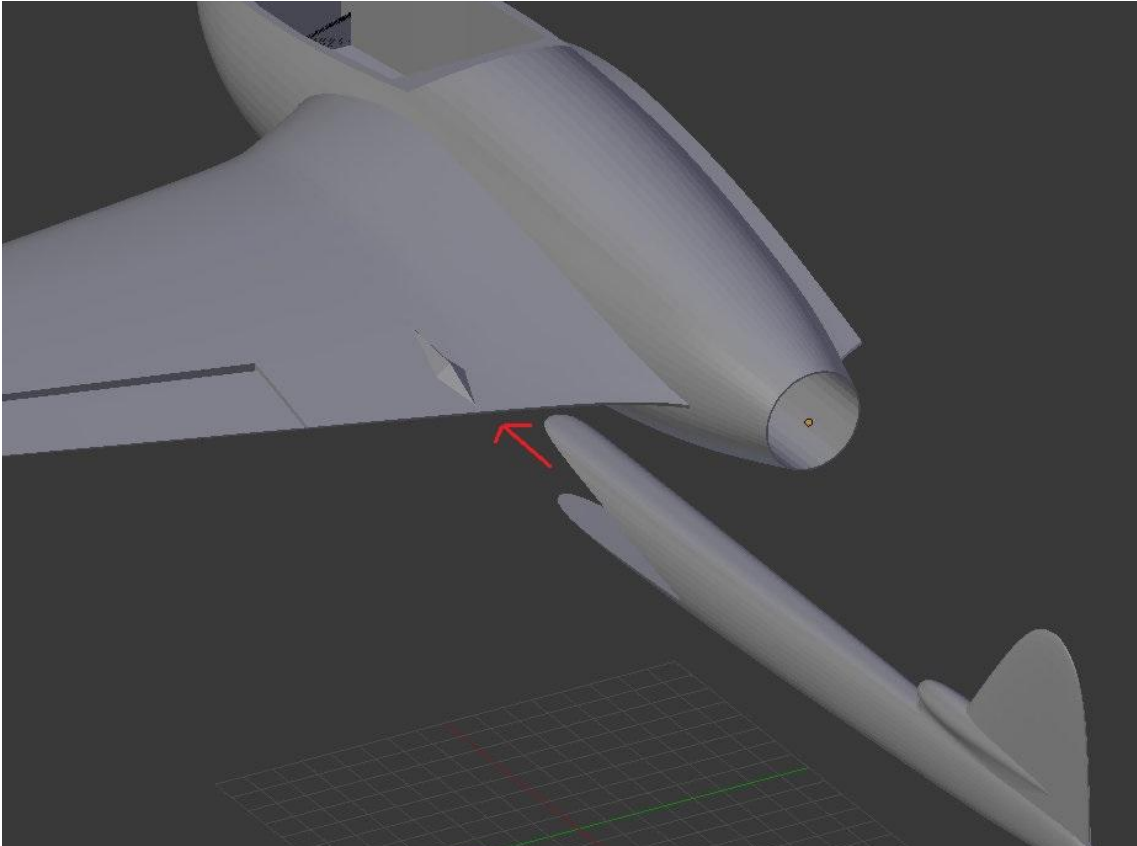
Run a 1mm drill bit through the wire runners of the left boom to make sure the elevator push rod will have easy travel through the hole.

17

Glue each side of the tail boom assembly together. Leave the horizontal stabiliser out for now.

18

Aligning the tail boom assembly with the raised diamond on the trailing edge of the wings, glue the tail boom assembly in place.



19

Test fit the horizontal stabiliser to the tail boom section, then glue in place.

20

Glue the elevator to the horizontal stabiliser making sure that the control horn is closest to the left boom.

21

Install the servos and wire up the controls with 1mm push rods.

22

Glue the sections of the canopy together.

23

Glue magnets to the canopy and fuselage.

24

Install the velcro to the floor of the fuselage.

## BALANCING AND CG

Fit the battery using Velcro as required and balance the aircraft inverted on the CG marking points located **62mm aft of the leading edge at the wing root**. Indents are located near the root of the wing to assist balancing.

### RANGE OF TRAVEL:

#### MAIDEN / NORMAL FLIGHT:

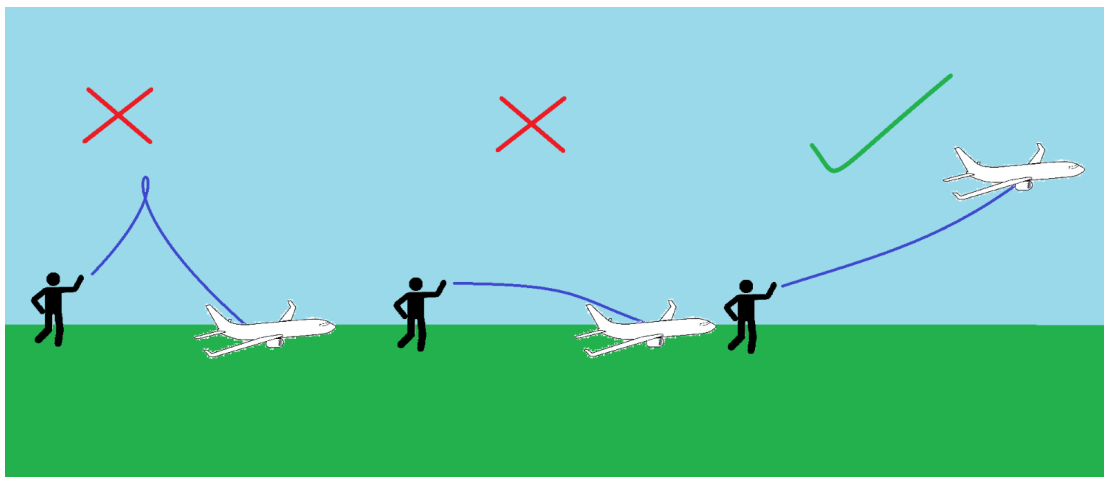
Elevator     +/- 5mm  
Aileron       +/- 6mm

#### AEROBATIC:

Elevator     +/- 10mm  
Aileron       +/- 12mm

### LAUNCHING:

It was found that the safest and most successful launch technique for this model was the over-arm style gripping the model by the base near the CG. The aircraft should be launched at approximately 10deg nose up at 60% power. Too steep and the aircraft will stall, too shallow and it will contact the ground.



## **PARTS LINKS:**

QX-MOTOR 30MM EDF 7000KV

<https://de.aliexpress.com/item/4000366589347.html?spm=a2g0s.8937460.0.0.63a72e0epETMZR>

15AMP ESC

<https://de.aliexpress.com/item/4000366589347.html?spm=a2g0s.8937460.0.0.63a72e0epETMZR>

1000MAH 3S LIPO OR SIMILAR

[https://hobbyking.com/de\\_de/graphene-1000mah-3s-45c-w-xt60.html?queryID=7ae1d607e11caef971a38911dc1e9fa1&objectID=45434&indexName=hbk\\_live\\_products\\_analytics](https://hobbyking.com/de_de/graphene-1000mah-3s-45c-w-xt60.html?queryID=7ae1d607e11caef971a38911dc1e9fa1&objectID=45434&indexName=hbk_live_products_analytics)

X3 3.7G MICRO SERVO

[https://www.aliexpress.com/item/32965734270.html?spm=a2g0o.productlist.0.0.57d95e97aWNNAJ&algo\\_pvid=4824ea1c-06ed-43e8-b6c7-9737d1226dbe&algo\\_expid=4824ea1c-06ed-43e8-b6c7-9737d1226dbe-0&btsid=0bb0623415991458444523660eb7bd&ws\\_ab\\_test=searchweb0\\_0,searchweb201602\\_,searchweb201603\\_](https://www.aliexpress.com/item/32965734270.html?spm=a2g0o.productlist.0.0.57d95e97aWNNAJ&algo_pvid=4824ea1c-06ed-43e8-b6c7-9737d1226dbe&algo_expid=4824ea1c-06ed-43e8-b6c7-9737d1226dbe-0&btsid=0bb0623415991458444523660eb7bd&ws_ab_test=searchweb0_0,searchweb201602_,searchweb201603_)

BAMBOO FOOD SKEWERS (3mm diameter)

[https://hobbyking.com/en\\_us/turnigy-3mm-heat-shrink-tube-black-1mtr-1.html?queryID=c16c094bb26b18e39fabcb12a93a96cb&objectID=46911&indexName=hbk\\_live\\_magento\\_en\\_us\\_products](https://hobbyking.com/en_us/turnigy-3mm-heat-shrink-tube-black-1mtr-1.html?queryID=c16c094bb26b18e39fabcb12a93a96cb&objectID=46911&indexName=hbk_live_magento_en_us_products)

X2 10mm X 10mm X 2mm MAGNET (ROUND)

[https://www.aliexpress.com/item/1005001362617359.html?spm=a2g0o.productlist.0.0.5da3607dAATH5j&algo\\_pvid=b9e32b8a-0d4f-469a-b838-b478442dda50&algo\\_expid=b9e32b8a-0d4f-469a-b838-b478442dda50-0&btsid=0bb0623a15991797178681785e1811&ws\\_ab\\_test=searchweb0\\_0,searchweb201602\\_,searchweb201603\\_](https://www.aliexpress.com/item/1005001362617359.html?spm=a2g0o.productlist.0.0.5da3607dAATH5j&algo_pvid=b9e32b8a-0d4f-469a-b838-b478442dda50&algo_expid=b9e32b8a-0d4f-469a-b838-b478442dda50-0&btsid=0bb0623a15991797178681785e1811&ws_ab_test=searchweb0_0,searchweb201602_,searchweb201603_)

X10 MICRO HINGES

[https://hobbyking.com/en\\_us/super-light-pivot-round-hinges-d2xw8xl24mm-12pcs.html](https://hobbyking.com/en_us/super-light-pivot-round-hinges-d2xw8xl24mm-12pcs.html)

VELCRO – (local hardware store)

Thank you for supporting us! We hope you enjoy many hours of flying your DH-100 Vampire. If you have any questions regarding the build process or set-up of your model, please contact us at:

[Aeroworks3d@outlook.com](mailto:Aeroworks3d@outlook.com)