

ASSEMBLY MANUAL AND USER GUIDE



The “Streak” 800mm

By 3D AEROWORKS

OVERVIEW:

This custom design of a high speed futuristic fighter is designed for quick and easy construction printed in PLA. Designed to suit the 2826 2200kv outrunner on a 5x5 propeller. Utilizing only elevons, this model performs high speed and aerobatic flight extremely well. The forward swept wings and long nose provides interesting opportunities for FPV setups or simply a nice scale space-fighter style look. 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/the-streak>

GENERAL SPECIFICATIONS

WINGSPAN:	800mm
PRINT TIME:	45-50 hrs approx
PRINT COST:	\$7 USD
PRINT WEIGHT:	460g
FLYING WEIGHT:	790g

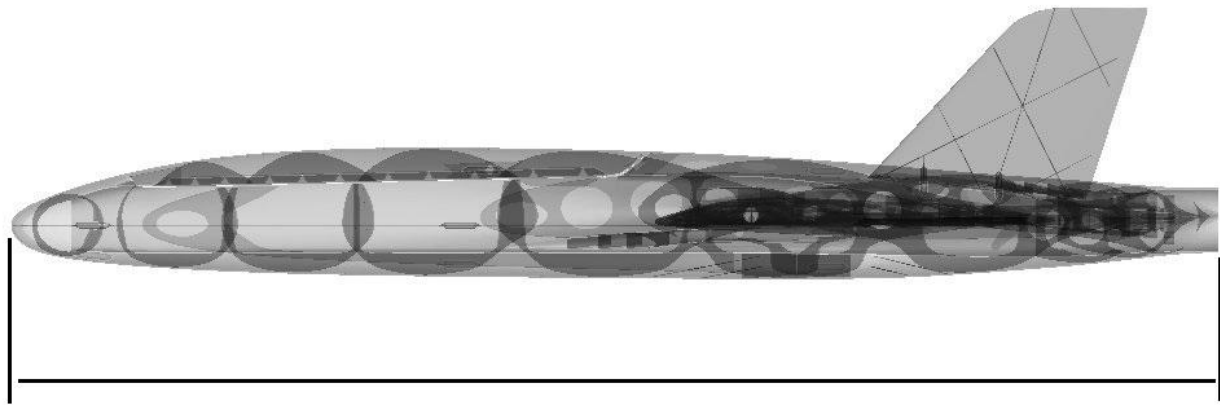
ELECTRICS

MOTOR:	2826 2200KV or (2836 2500kv high power)
ESC:	30amp (min) recommend 40amp
SERVOs:	x2 9g MICRO
BATTERY:	2200mah 3s (or similar)

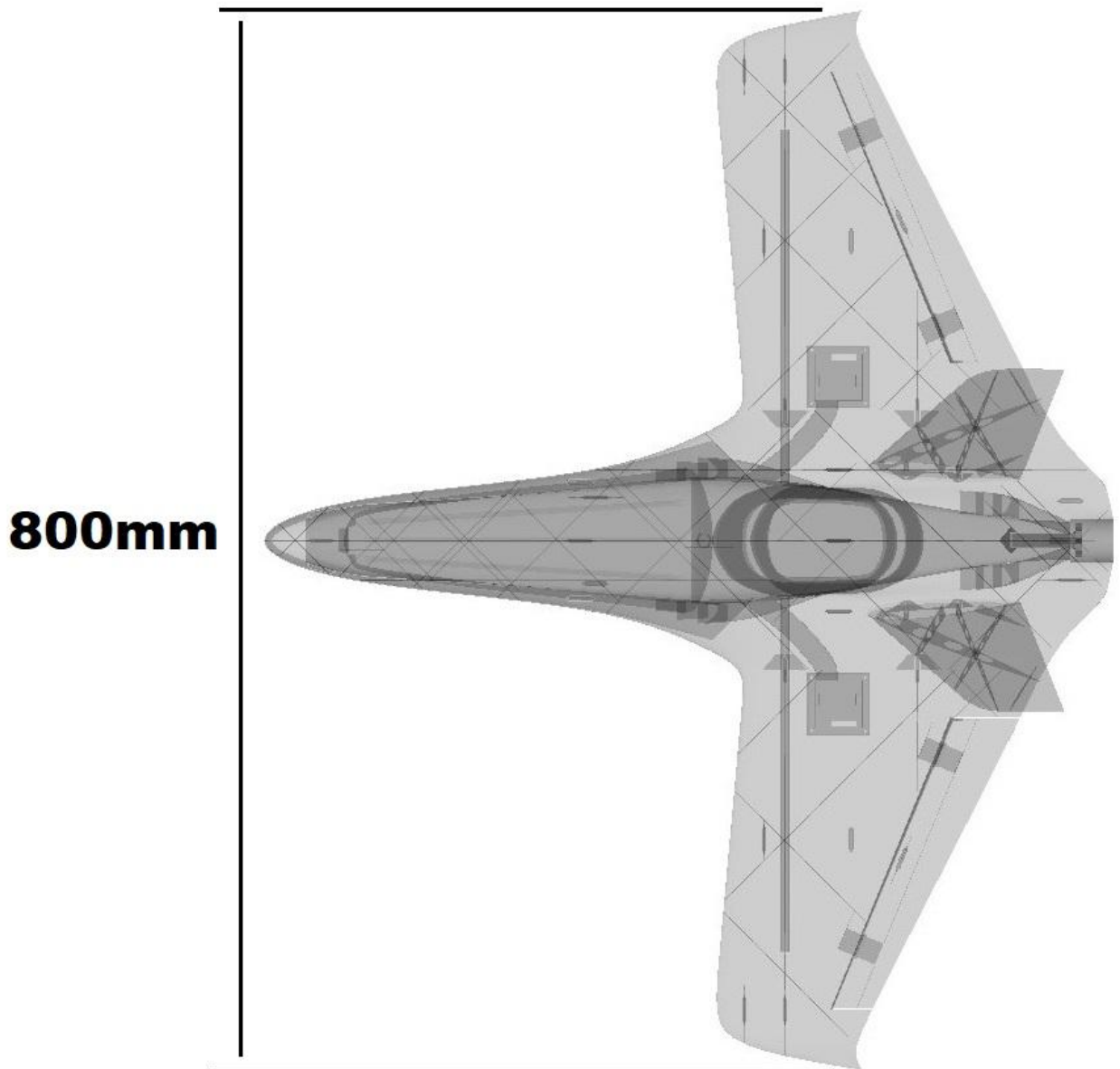
INCLUDED:

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

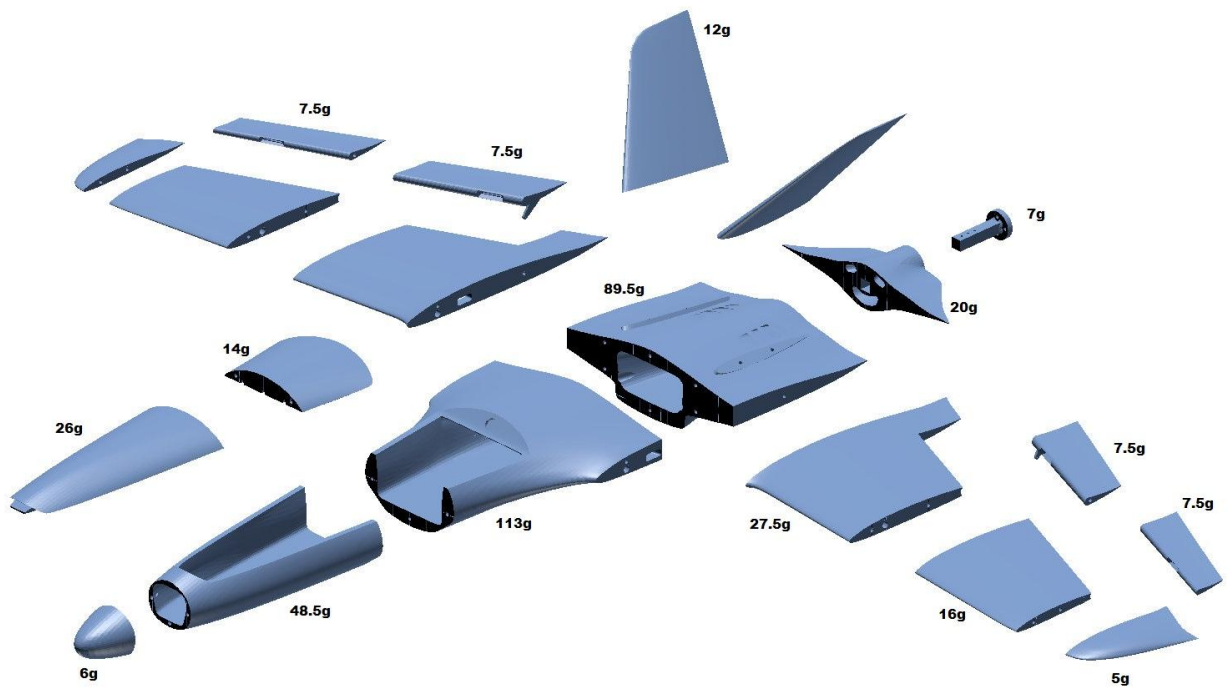
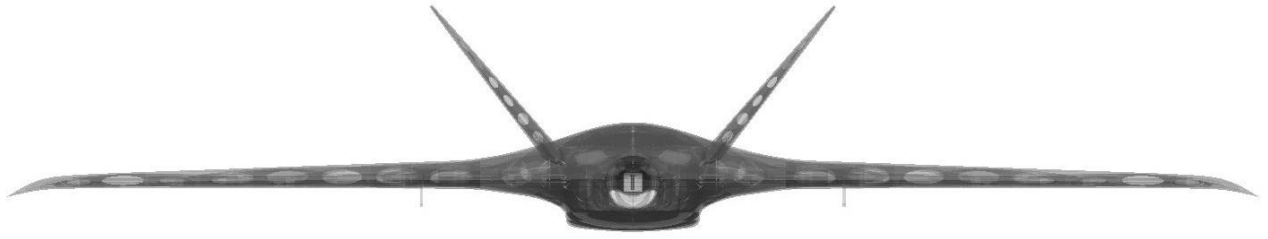
FACTORY FILES FOR (S3D) SIMPLIFY 3D FOR PRINTERS: 200x200200



640mm



800mm



REQUIRED TOOLS:

KNIFE

LIGHTER

SANDPAPER (MEDIUM GRIT 320 recommended)

PLIERS

CA GLUE

SCREW DRIVERS

FILE OR RASP

DRILL

REQUIRED COMPONENTS:

X1 2826 2200kv Motor (or similar)

X1 30 amp ESC

X1 2200MAH 3S LIPO or similar

X2 9g sero

3mm Bamboo food skewers

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

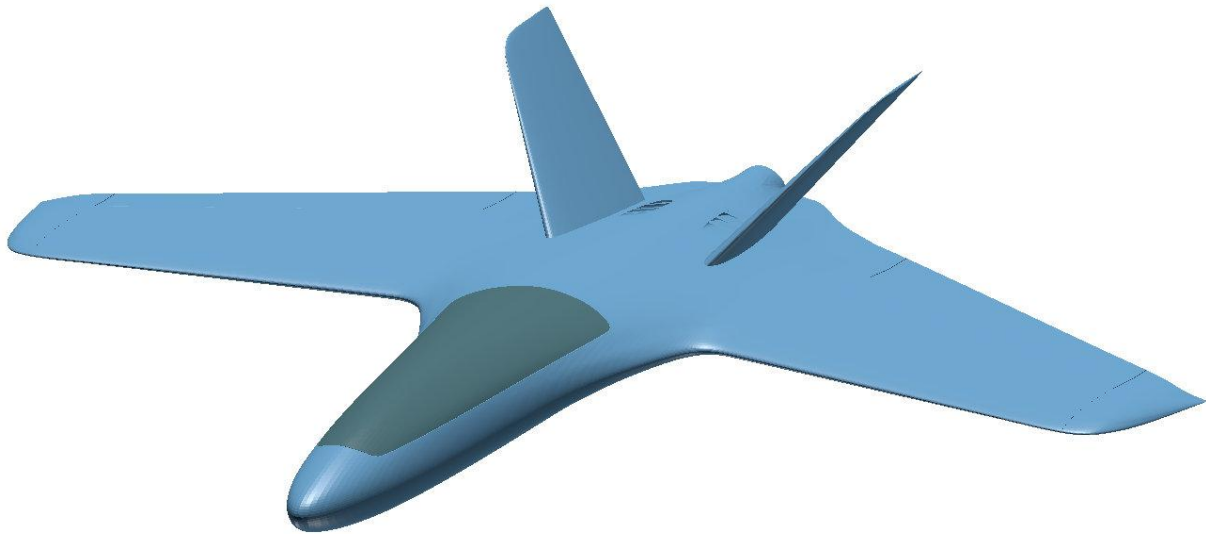
X4 16mm x 29mm hinges

X1 6mm Carbon tube or pine rod (OPTIONAL)

M2 x10mm screws

1mm piano wire

Velcro



ASSEMBLY INSTRUCTIONS

1 PART TRIMMING AND PREPARATION

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.

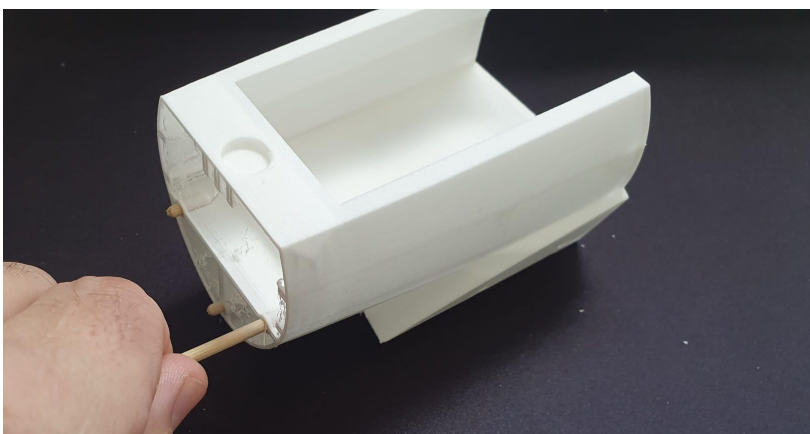
2

Check the fitment of all parts before gluing to make sure a good bond takes place. There should not be any gaps visible in the joins.

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

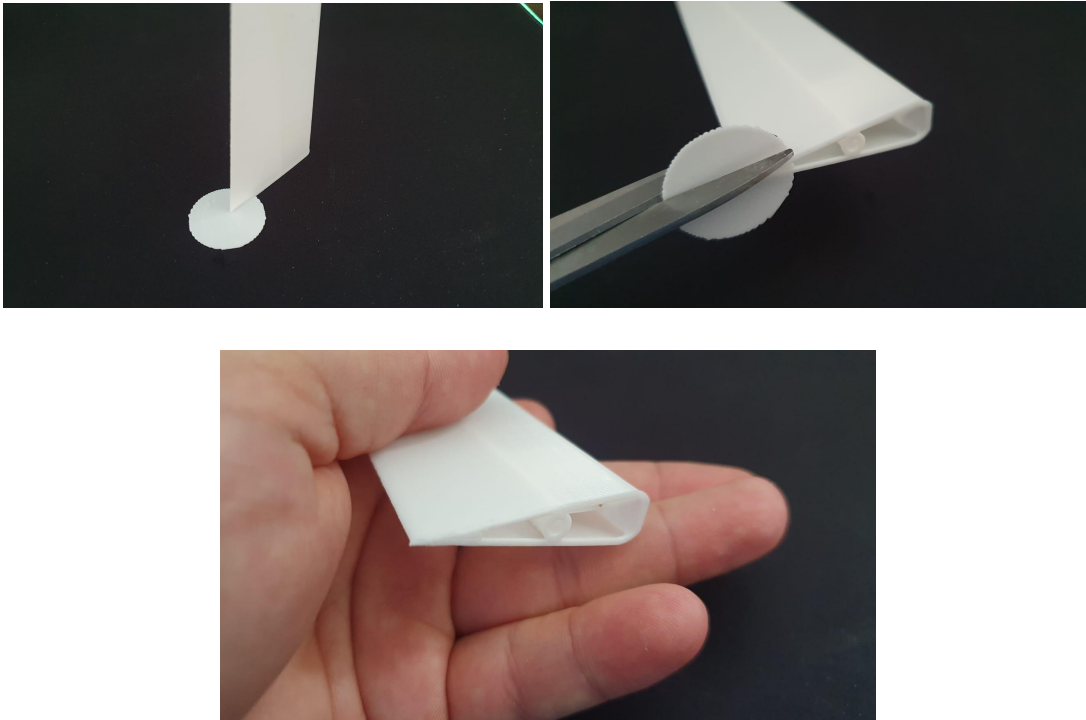
NOTE - It may be required to open up the holes a small amount if the fit is too tight. Do this by using a 3mm drill bit. Gently spin it in reverse as you insert it into the hole. This will ensure the bit does not tear the print.

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



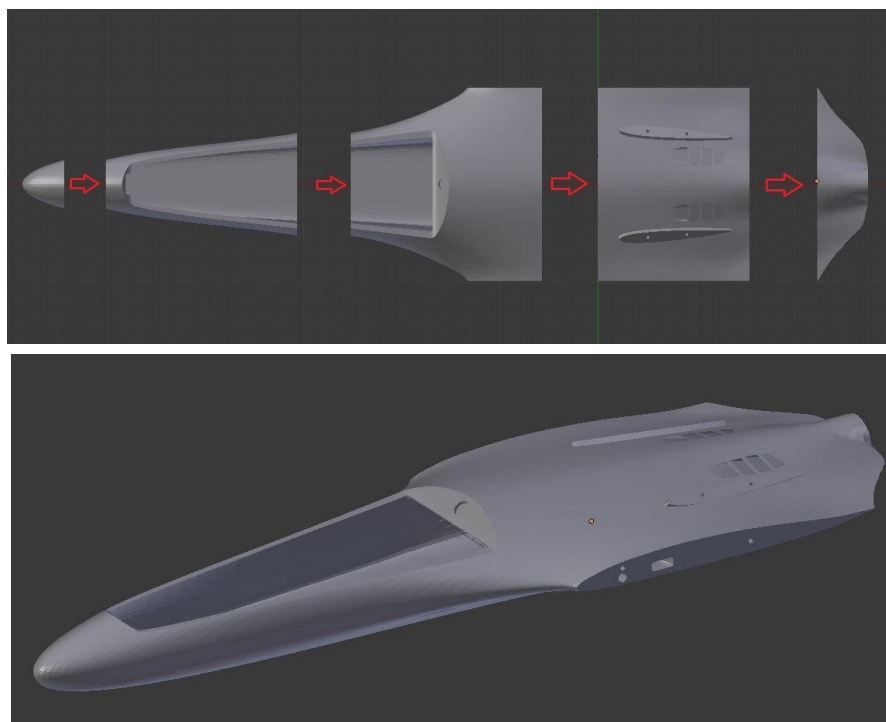
3

Parts which were printed with the “bed disk” need to be trimmed back.



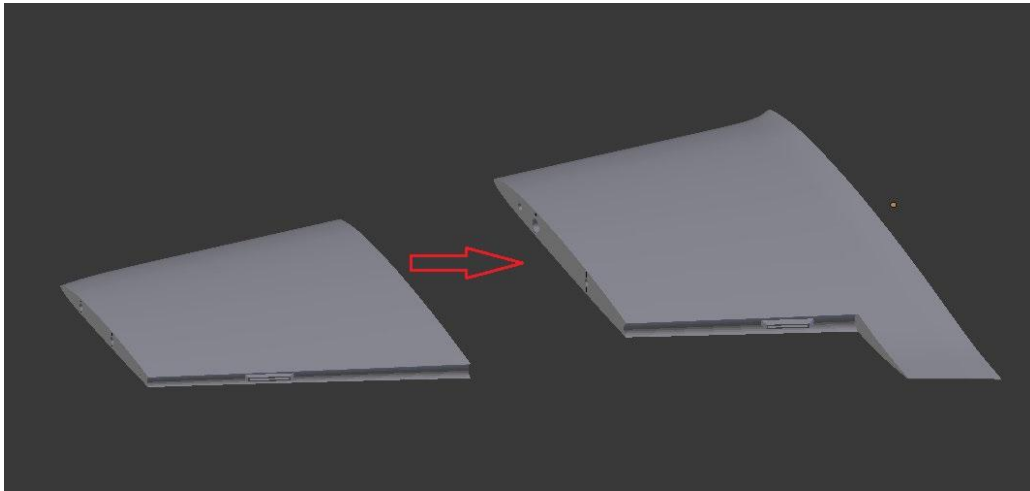
4 ASSEMBLY OF THE FUSELAGE

Glue sections of the fuselage together using CA glue. (see images)



5 ASSEMBLY OF THE WINGS

Glue the sections of the inner wings together.

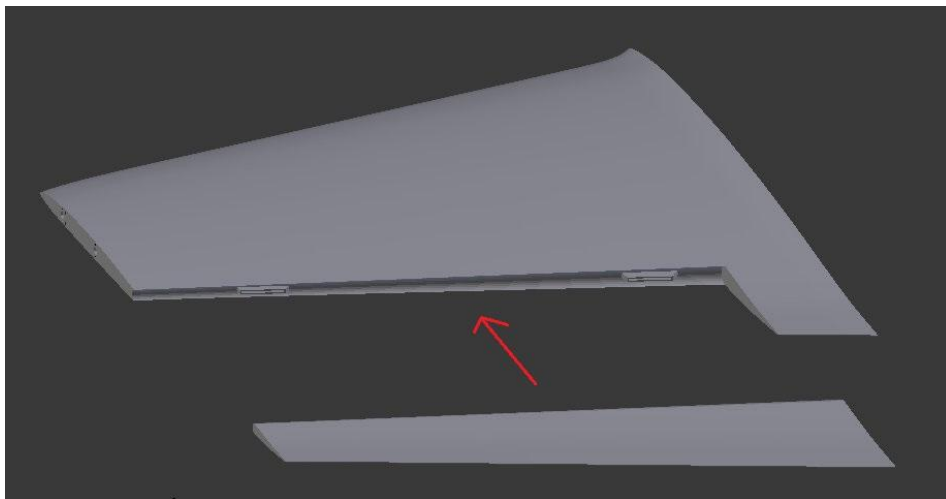


6

Assemble the ailerons and glue the hinges into the ailerons.

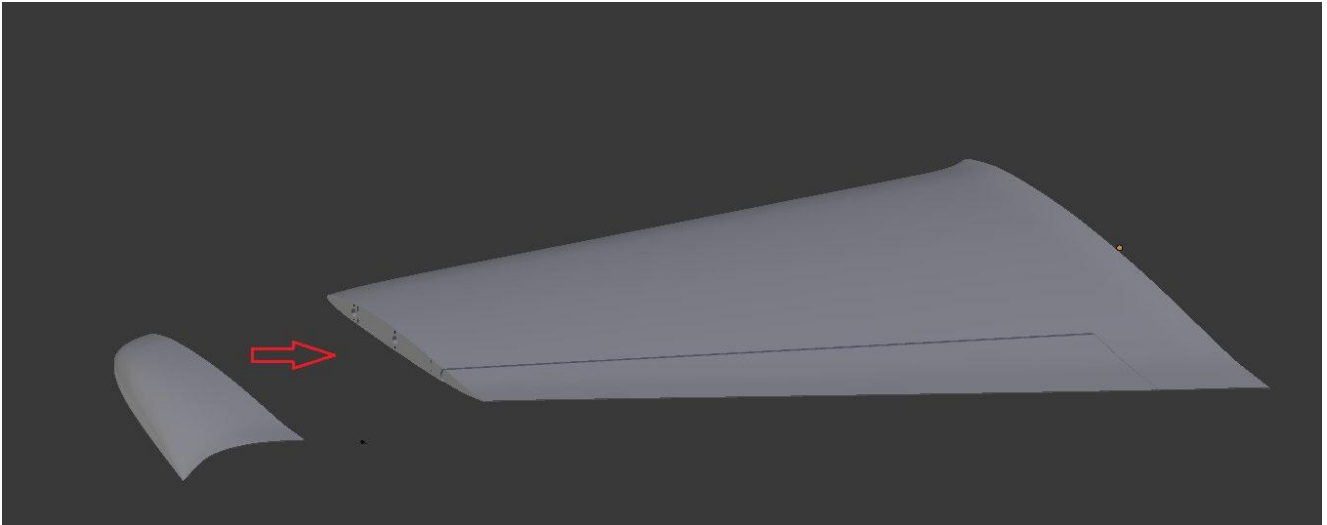
7

Glue the aileron to the inner wing section.



8

Glue the wingtips to the outer wing sections. Be sure to match up the correct wingtip with each wing. The wingtip outer edges should point down. (refer pic below)



9

Glue the wing to the fuselage using 3mm dowels and the spar (610mm) to align the wings with the fuselage. **The carbon or pine main spar should be test fitted before gluing.**

10 ASSEMBLY OF THE CANOPY

Glue the sections of the canopy together.

11

Glue the magnets into the canopy and fuselage.

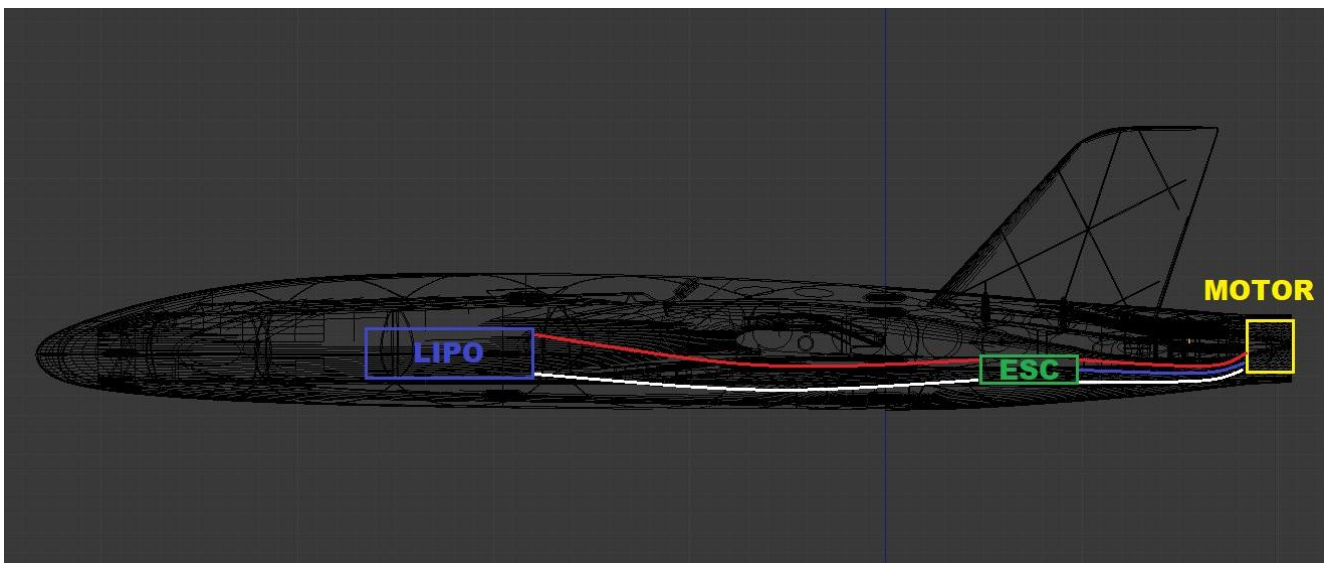
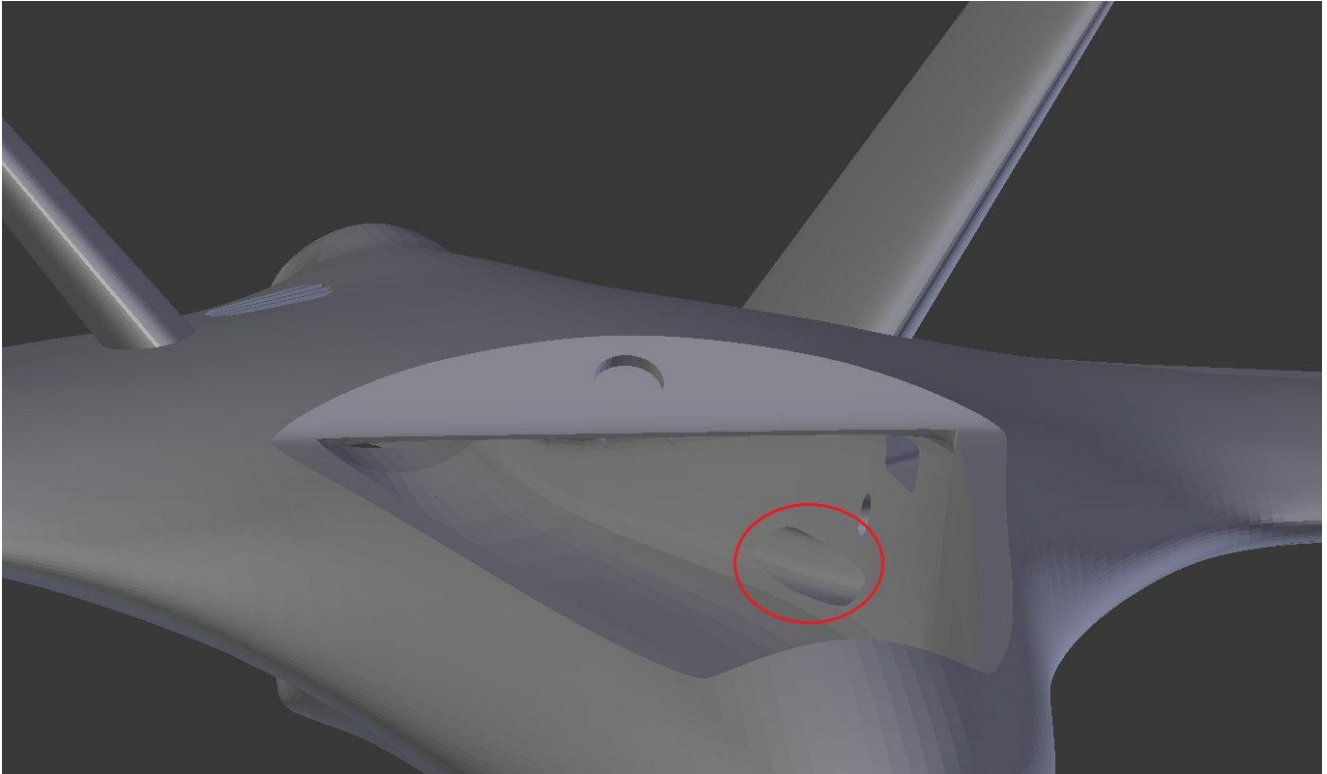
12 FITTING THE VERTICAL STABILIZERS

Glue the vertical stabilizers to the fuselage using 3mm dowels to align the parts.

13 FITTING THE MOTOR

Fit the motor to the motor mount and connect to the esc. The motor mount is designed to be a relatively firm fit. Do not glue it in place, as designed as a pusher it should not fall out during flight and should be able to be removed for servicing if required.

Install the ESC aft of the forward vent tube exits to ensure cooling to the esc during flight. Essentially installing the ESC anywhere aft of the main spar will ensure the ESC receives sufficient cooling. (refer pic for location of vent tube exit)



15 INSTALLING THE SERVOS

Hot glue or screw the servos to the servo covers and install the aileron servo wires through the wing into the fuselage. The servo covers can be screwed to the insert of the wing with m2 screws.

16

Install all servos using a small amount of hot glue to secure it in place.

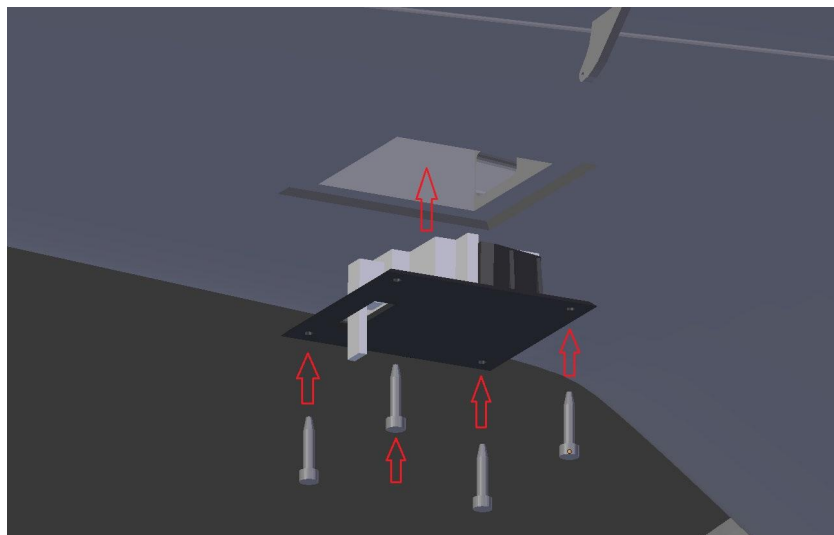


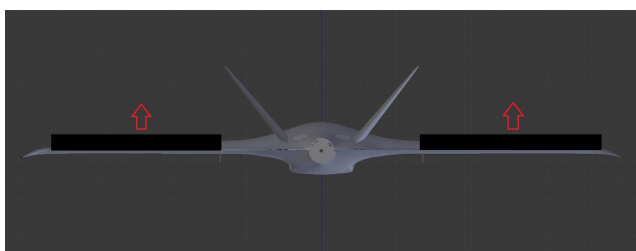
Image of left wing

17 PROGRAMMING FLIGHT CONTROLS

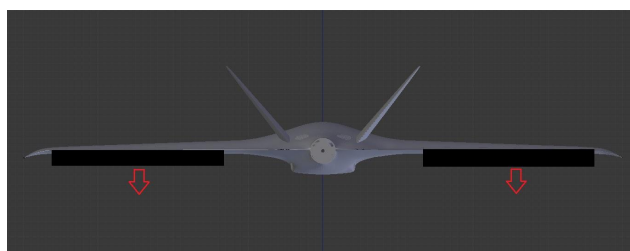
Connect up the control surfaces with 1mm piano wire and check the movements.

(ARROWS INDICATE DIRECTION CONTROL SURFACE DEFLECTION)

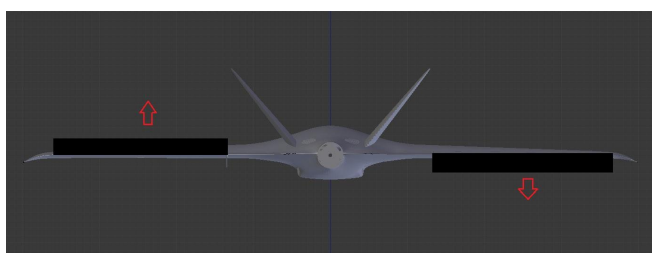
CLIMB



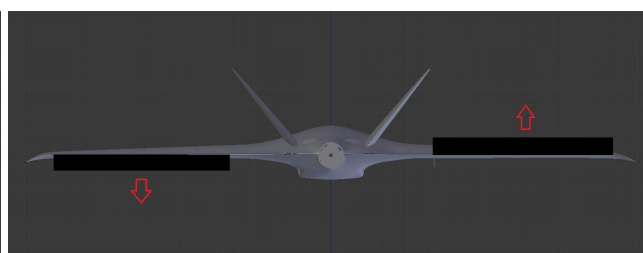
DESCEND



LEFT TURN



RIGHT TURN



BALANCING AND CG

Fit the battery using Velcro as required and balance the aircraft on the Center of Gravity located **5mm aft of the leading edge at the wing root.**

It is advisable on the first flight for the aircraft to be balanced on the cg markings, then move forward or aft as desired.

The design of the wing incorporates “up-trim” into the trailing edge, Resulting in the neutral position of the elevons to be in line with the trailing edge of the wing.

RANGE OF TRAVEL:

NORMAL / MAIDEN FLIGHT:

Elevator +/- 15mm

Aileron +/- 15mm

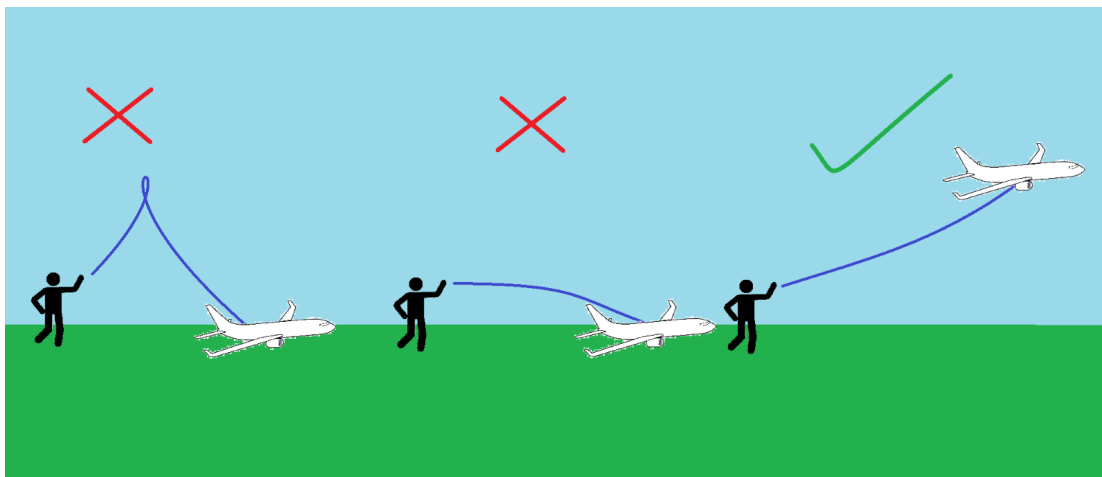
AEROBATIC:

Elevator +/- 25mm

Aileron +/- 25mm

LAUNCHING:

It was found that the safest and most successful launch technique for this model was the over-arm style. The aircraft should be launched at approximately 10deg nose up at 50% to 75% power. Too steep and the aircraft will stall, too shallow and it will contact the ground.



PARTS LINKS:

2826 2200KV (medium power option)

https://de.aliexpress.com/item/1005002196959683.html?spm=a2g0o.productlist.0.0.686554692gBgqu&algo_pvid=2a35bba8-713a-4d82-be03-7d09757fa32e&algo_expid=2a35bba8-713a-4d82-be03-7d09757fa32e-0&btsid=2100bdf016211821631778504e2ed8&ws_ab_test=searchweb0_0.searchweb201602_.searchweb201603_

2836 2500kv (high power option)

https://hobbyking.com/en_us/turnigy-aerodrive-sk3-2836-2500kv-brushless-outrunner-motor.html?store=en_us

30AMP ESC

https://de.aliexpress.com/item/32905648461.html?spm=a2g0o.productlist.0.0.edb7519evyB8Nr&algo_pvid=52adfa0e-b4fe-41e1-8092-1d356607a5ba&algo_expid=52adfa0e-b4fe-41e1-8092-1d356607a5ba-0&btsid=2100bdf016211822080491111e2ed8&ws_ab_test=searchweb0_0.searchweb201602_.searchweb201603_

2200mah 3s LIPO

https://de.aliexpress.com/item/32833411481.html?spm=a2g0o.productlist.0.0.64ef480aYCzI2n&algo_pvid=f86fc7a0-0324-4584-9081-c8b4b1a543a2&algo_expid=f86fc7a0-0324-4584-9081-c8b4b1a543a2-1&btsid=2100bdf016211822705142563e2ed8&ws_ab_test=searchweb0_0.searchweb201602_.searchweb201603_

9g servo

https://de.aliexpress.com/item/32898059654.html?spm=a2g0o.productlist.0.0.7d394771z9xfZq&algo_pvid=26dd1d90-4d3b-4f94-955c-e26a127ba26c&algo_expid=26dd1d90-4d3b-4f94-955c-e26a127ba26c-3&btsid=2100bdf016211823001362964e2ed8&ws_ab_test=searchweb0_0.searchweb201602_.searchweb201603_

X2 BAMBOO FOOD SKEWERS (3mm diameter)

HEAT SHRINK TUBE 3mm

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_

X4 16x29 HINGES

https://de.aliexpress.com/item/32659926010.html?spm=a2g0o.productlist.0.0.5e7f7ef2zlc3qX&algo_pvid=478c4573-19ad-4939-ba11-475e3dc6139e&algo_expid=478c4573-19ad-4939-ba11-475e3dc6139e-0&btsid=2100bdf016211823370763498e2ed8&ws_ab_test=searchweb0_0,searchweb201602_,searchweb201603_

VELCRO – (local hardware store)

6mm carbon tube or pine spar

https://de.aliexpress.com/item/4000390835692.html?spm=a2g0o.productlist.0.0.63ab4e77kVW2VnK&algo_pvid=3877bd8c-0e1c-46e8-8888-d99e4a90ccd2&algo_expid=3877bd8c-0e1c-46e8-8888-d99e4a90ccd2-2&btsid=2100bdf016211824187545230e2ed8&ws_ab_test=searchweb0_0,searchweb201602_,searchweb201603_

m2 x10mm screws

<https://www.ebay.com.au/itm/400PCS-M2-M2-6-Pan-Head-Self-Tapping-Screws-Assorted-Kit-Stainless-Steel-Black/254399626404?hash=item3b3b663ca4:g:CLEAAOSwQLZdsqkd&frcectupt=true>

1mm Piano wire

<https://de.aliexpress.com/item/32975279180.html?spm=a2g0s.9042311.0.0.2e0f4c4d0HE2dZ>

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

Aeroworks3d@outlook.com