STORM

Assembly Manual

AVIATION DESIGN

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INTRODUCTION

STORM is our new jet trainer. It is fully composite, delivered assembled and painted.
It is designed for jet beginner with following objective :

- Easy to fly.
- Very fast assembly
- Easy access to engine
- Easy access to fuel tank , ECU and radio with a large fuselage hatch
- Easy radio installation with big fuselage hatch

The STORM is fully molded in composite material.

The model comes to you finished, fully molded in composite material and painted in mold. All bulkeads are glued. All control surfaces are hinged. No gluing are required. This model has plug in wings and fin for an easier transport.
All necessary hardware are included in the parcel
Assembly require only few hours to fit engine and radio.

STORM ARF model includes :

- High quality epoxy-glass fuselage painted.
- All plywood and wood parts premounted.
- Fully molded wings with winglets and fin painted
- High tensile aluminum wing joining tube.
- Access hatch pre-cutted and canopy requiring no additional framework.
- All hardware (screws, servo cover, ...)
- Instructions in English.

Parts required to complete the kit :

- 2 liters kevlar fuel cell
- or 2 liters tank + UBT
- Deluxe retractable landing gear with special CNC oleo legs and wheels set on bearing + brakes
- Or Deluxe gear + electovalve fro gear and brakes

DISCLAIMER

AVIATION DESIGN assumes no liability for the operation and use of these products.
The owner and operator of these products should have the necessary experience and exercise common sense. Said owner and operator must have a valid Model Airplane licence and insurance as required.

Assembly Instructions

Installation of the radio equipment

Components need:
Elevons: 2 servos 8 kg torque
Rudder: 1 servo 3 kg torque
Steering nose wheels: 1 servo 3 kg torque
Air brake: 1 servo 8 kg torque

Receiver and switch

Ailevon servos :

If necessary increase the hole for the servo location in the wings with a permagrit rotating tool for the aileron and flaps
Screw the servo in the servo cover (we recommand to glue it with silicon glue for more security)
Put in position the servo cover on the wings
Drill 4 x 1 mm hole in the wings for the screws

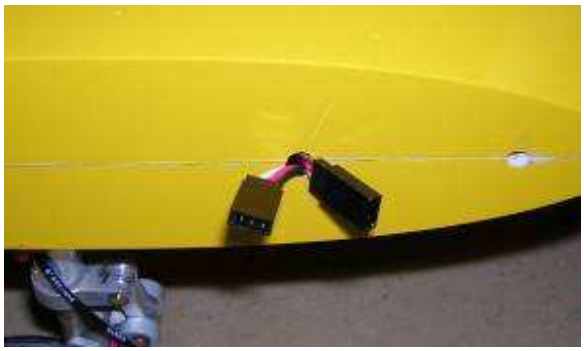
Aileron control horn

Cut a slot in the control surface for the fiber control horn
Glue with fast epoxy the control horn
Connect two 3 mm link with M3 threaded rod
Screw the servo cover with the 4 parker screws
Connect the servo with the control horn
Apply thread lock.

Make a 15 mm hole in the wing root for the servo electric wire

Sold electric wire for the ailevon servo

Make a 5 mm corresponding hole in the fuselage for the electric wire
Don't make the hole too big so that the conector can't fall in the fuselage



Secure the wings :

Fit the wing joiner tube through the fuselage.
Take care to put it at the center (same lenght left and right .
Install the left and right wings.

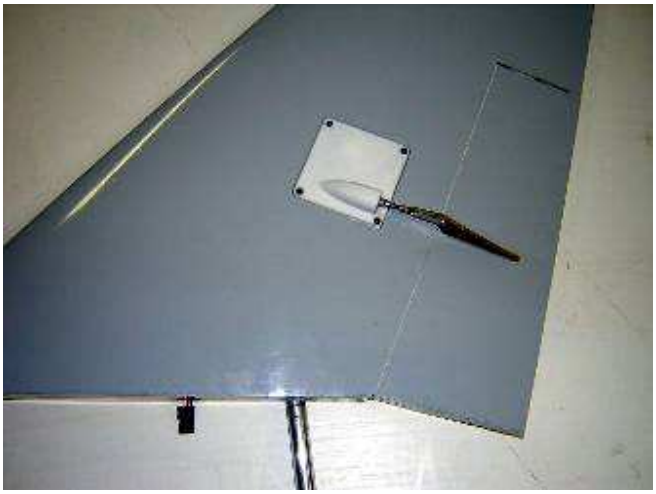
Make a 2.5 mm hole at 50 mm from the wing root throught the wing and aluminium tube to secure the wings
Threated the wing tube and wing at M3 mm and secure wings with a M3x25 screw

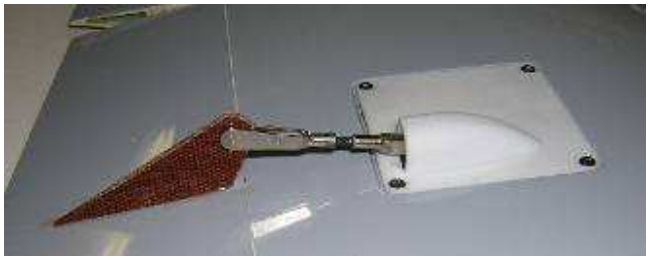
Secure also the tube in the fuselage.
Make a 2.5 mm hole in the center of the fuselage from the engine hatch. Drill the hole throught the plywood frame and aluminium tube to secure the tube.
Screw a 3 x 16 mm parker screw through the plywood and aluminium tube, so the tube will not move during assembling and desassembling.

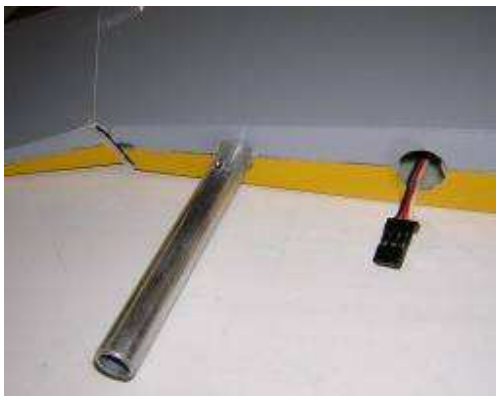
Rudder servos :

Process as the wing servo :
Increase the hole for the servo location in the booms with a permagrit rotating tool for the rudder
Screw the servo in the servo cover (we recommand to glue it with silicon glue for more security)
Put in place the servo cover on the fin

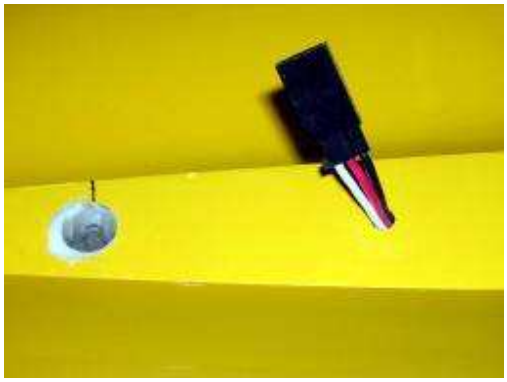
Drill 4 x 1 mm hole in the wings for the screws







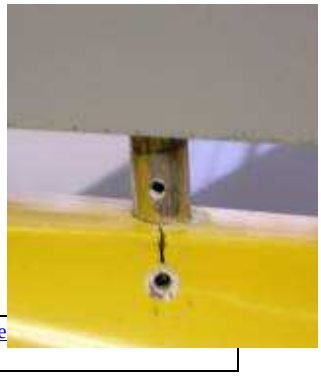
Cut a slot in the control surface for the fiber control horn
Glue with fast epoxy the control horn
Connect two 2 mm link with M2 threaded rod
Screw the servo cover with the 4 parker screws
Connect the servo with the control horn
Apply thread lock.



Make a 20 mm hole in the fin root for the servo electric wire.

Make a 5 mm corresponding hole in the fuselage for the electric wire.
Don't make the hole too big so that the conector can't fall in the fuselage.

Secure the fins :



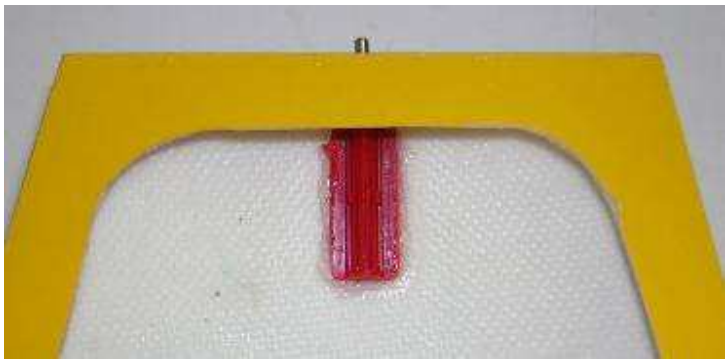
Fit the fin on the fuselage.
Make a 2.5 mm hole at 15 mm from the fin root throught the fuselage and aluminium tube to secure the fins
Threated the tube and fuselage at M3 mm and secure fin with a M3x15 screw

Canopy hatch:

Make 2 X 6 mm hole in the back of the canopy for the wood pin following the plywood template.

Glue the wood pin with CA in the canopy
Drill the corresponding hole in the front fuselage

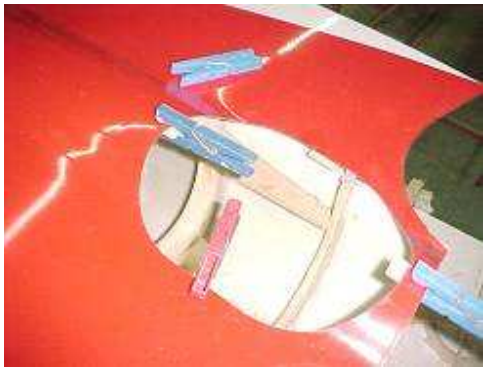
Cut a slot and make a 3 mm hole in the front of the canopy for the hatch latch

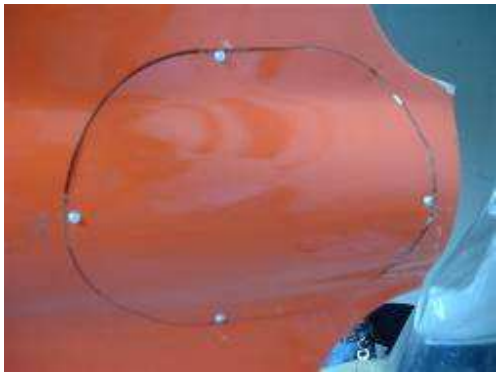


Glue the hatch latch with CA. Take care to not glue the metalic part
Fit the hatch on the fuselage and draw the corresponding hole
Drill the 3 mm hole in the fuselage

Engine hatch:

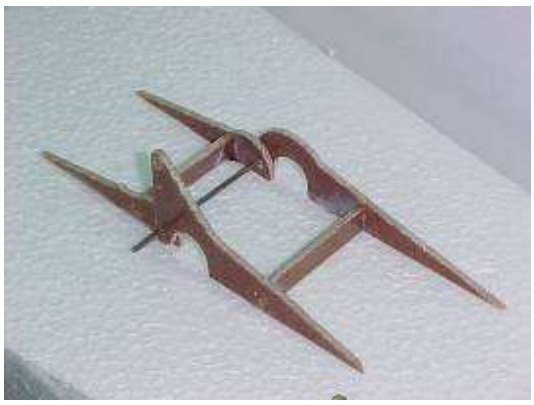
Finish to cut the engine hatch.
Glue 4 plywood reinforcements in the fuselage to fit the engine hatch
Screw the hatch with 4 parker screw

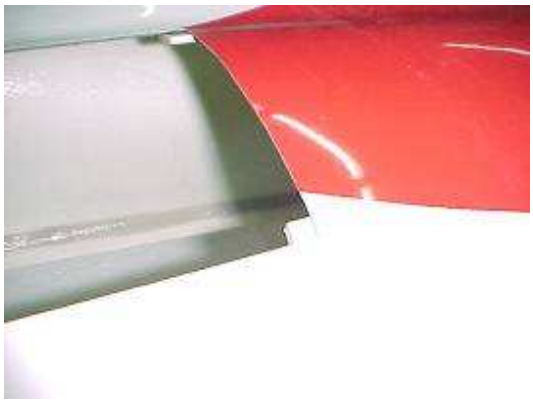


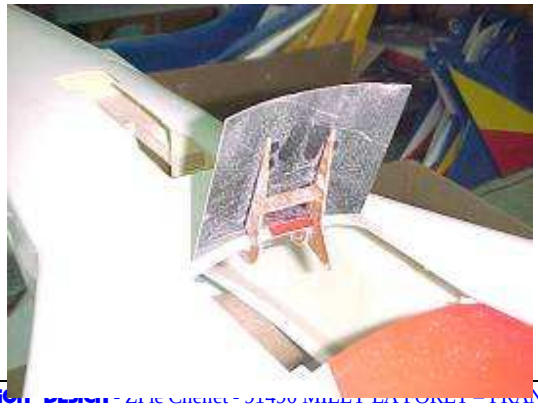


Fitting the air brake

Finish to cut the air brake
Assemble the fiber hinges as the photos
Glue 2 plywood reinforcements in the fuselage for the air brake end
Put the air brake in position and hold it with tape
Glue the fiber hinges on position with CA.
Verify that the airbrake can move without problem
Secure the gluing with epoxy. You can use a strong servo to move the airbrake or use a air cylinder.

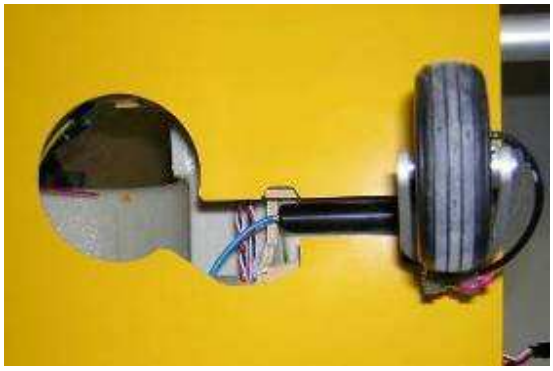






Gear :

Please, use only the oleo legs supply by Aviation Design.
If you use standard oleo, you will have to modify the gear position and gear door position



Fit the main gear on the plywood mount a drill four 2 mm hole
Screw each gear with four 3x20 mm parker screws

Connect all gear tubing as described in the gear manual
Fit the brake tubings and attach them with T rap

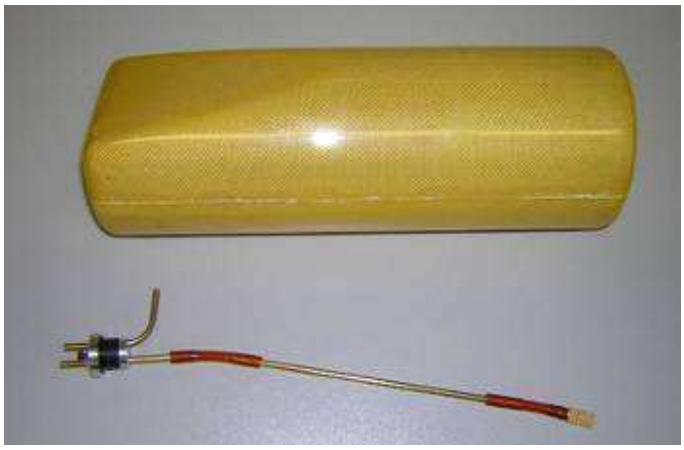
Fit the front gear on the plywood mount
Drill 4 x 2 mm hole
Screw the front gear with four 3x20 mm parker screws
Screw the steering servo on the plywood frame
Make a hole in the plywood frame for the steering steel wire.

Connect servo to steering arm with 2 mm link + steel wire .

Check that the nose gear retract and extand without problem witht he steering wire.

If necessary, add 2 soft springs or rubber bands to extand the wire when the front gear retract

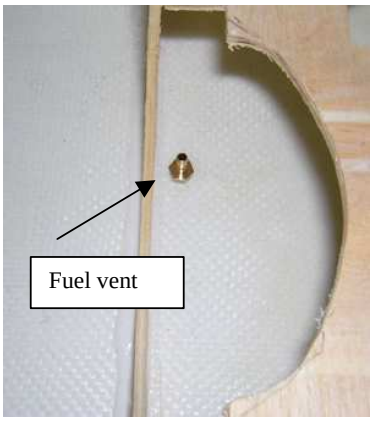
Fuel tank



Connect the fuel tank to the clunk as the photo.
Check that there is no leak before to fit it in fuselage.

Drill a 3 mm hole in the bottom of the fuselage for the fuel vent

The fuel tank is connected to a UAT catch tank (optional) to be sure that there is no bubble in the fuel line.
The tubing from the main tank to the catch tank and to the catch tank to the fuel pump must be gasoline tubing (no silicone tubing). Also for the air vent tube.
The catch tank is glue with double face tape or with rubber band on the top of the main tank.
Hold the fuel tank with rubber bands or silicon glue



Filling the fuel tanks :
Connect your pump and fill the system in direction of the tank. It will first fill the catch tank and after the main tank. The main tank will be full when fuel come from the air vent tube.
When tanks are ful, close the filling tubing. Do not close the air vent tube after.
The system is ready for starting.

Engine installation :

The engine must be screw with 4 times 3x20 mm parker screw on the plywood spare.
Secure all electric wire and fuel tubing in front of the engine in the fuselage

ECU installation :

Fit the ECU in one side of the plane.
Fit the fuel pump and valves just rear to the ECU and hold them with T rap.

Gear valves, air tank, batterie, antenae

Radio installation :

Fit the radio in the nose section with batterie.
Adjust batterie position to have to correct CG position.
Don't put the received and aerial antenae too close the the ECU
Retract valve and brake valve can be fitted as the pics

Recommended surface throws

Ailevons

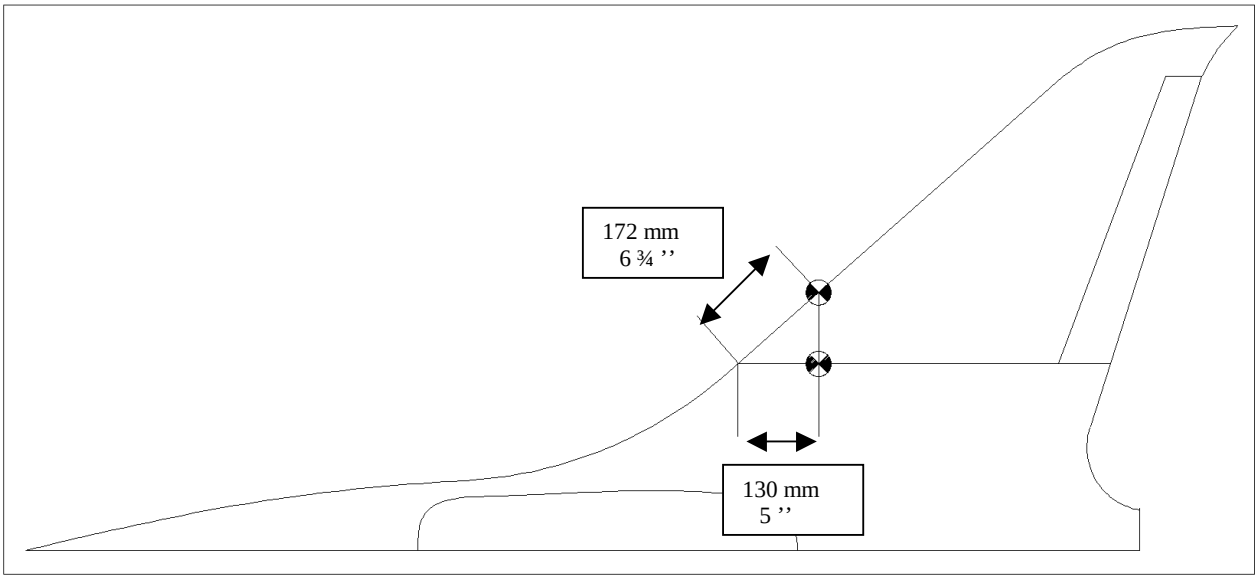
Up : 20mm Down : 20mm

Rudder

12 mm left and 12 mm right

Center of gravity

You normally need a 1700 Mah battery + ECU battery in the nose to have a correct Centre of Gravity.



Note : balance the model with the gear down and the tanks empty.
The center of gravity (CG) must be located at 130mm rear of the wing leading edge (wing root)
You must check it before the first flight, to do this with the aircraft in flight condition but without fuel lift the aircraft in this point, the aircraft must adopt a slightly nose down attitude. If it is horizontal or the tail drops move the baterie forward or add weight in the nose.
In other hand if the nose drops considerably add weight in the tail.

Total weight

The total weight of the STORM is 7.5 kg tanks empty.

Important note : Pay very careful attention to structural integrity. This jet can reach speeds of over 400 KPH - 250 MPH. It is your responsibility to operate it safely.

Specifications may change without notice.