JTM 90mm EDF Viper Jet

Installation Manual

Provided by ERJets www.erjets.com

Disclaimer:

Welcome onboard!

This radio controlled jet is not a toy. It has the capability of flying in high speed and therefore flying a badly assembled or badly adjusted aircraft can lead to serious damages.
This model jet is designed to be powered by electric ducted fan. Installing an over powered setup might lead to serious damages or accident. JTM and distributors are not responsible in any way for any damages that may occur.

No doubt this is an ARF kit (almost ready to fly) and this jet is very stable in terms of flying, however, Radio controlled jet do requires certain experiences in either assembly or flying.
Novice flyer should always be assisted by experienced flyer and should never fly alone.

Please perform a pre-flight check before each flight to ensure all parts are in good working order.
Never fly this model aircraft near buildings, airport or any area which may be dangerous to the public.

Fly safe and happy building!

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Setting

Recommended factory C.O.G. is located 150mm from the LE (Leading edge) of the wing.

Control surfaces throw set up.

Ailerons : 9-13mm

Elevator : 10-17mm

Rudder: 20mm

Flaps: 20mm(Half) , 40mm(Full)

Let's start.

Please check all the contents are included and group them based on your build.

Checklist as follow,

Contents of this box:
☐ Fuselage
☐ Wing
☐ Tail section
☐ Canopy
☐ Hinges
☐ Hardwares

Components needed to complete the build:
☐ Landing gears
☐ Door hinges
☐ 8x 3.6-4.3kg torque Servos (HS-5085MG Digital Micro Servo)
☐ Receiver
☐ 90mm Electric Ducted Fan Unit
☐ Battery pack
☐ Servo extension wire
☐ Festo parts and tubing (For air operated retracts / brake)

Recommended adhesives needed to complete this kit:
☐ Loctite Hysol 9462 or 30min. epoxy

Hinging the rudder

The only control surface which needs to be hinged is the rudder.
All other control surfaces are "hinged" using so called “live hinge” method.

Dry fit the hinges in the rudder and check if they go in deep enough.
If not, gently make the hole a little deeper to sit in the hinges properly.

Apply a thin layer of Vaseline or a tiny drop of oil on the centre point of each hinge where the moving joint is.

The layer of coating will helps to prevent the moving joint from glued together accidentally during installation.

Apply Hysol or 30 minute epoxy in the hinge holes and hinge to bond the control surface in position.

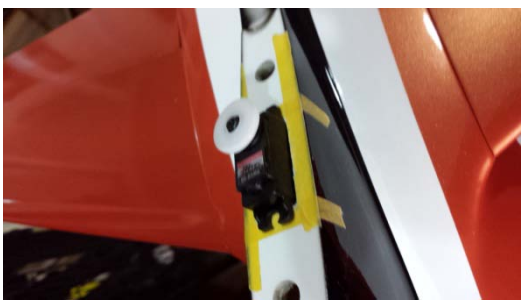
Ensure all hinges are being aligned and are able to turn in the desired direction without any restriction.

Cutting Servo access for rudder on rear fuselage

We are using the Hitec servo (HS-5085MG Digital Micro Servo) for this application.

I have placed the servo on the rudder and marked out the outline where I am going to cut for the access hole (Please see attached)

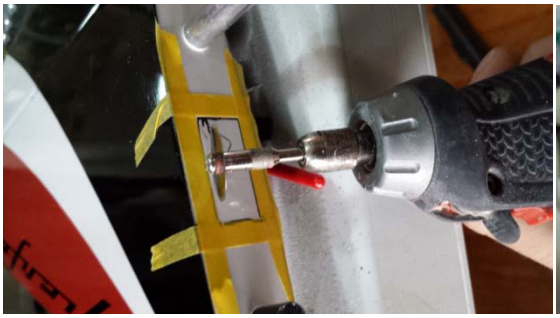
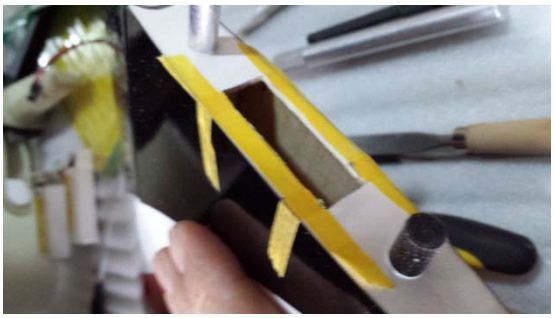


Cutting servo access hole on the rudder fin

Once the access hole has being cut out, insert the rudder fin in position.
Draw an outline from the inside of the rear fuse using a marker pen.
Next, remove the rudder fin and use a masking tape to tape it along the outline.
This will helps to locate the outline during cutting.
Once done, install the servo in place and secure it with self tapping screws.
(Please see attached)




The location of the servo needs to be precise for the servo to fit inside the fin and the fuselage.

Elevator servos access hole on the rear fuselage

The Elevator servos are designed to be fitted inside the fuselage.

Please note that you have to cut out the access on the rear fuselage before moving on to the horizontal stabilizers because it has to be precise if not it will not fit into the horizontal stabilizers properly.

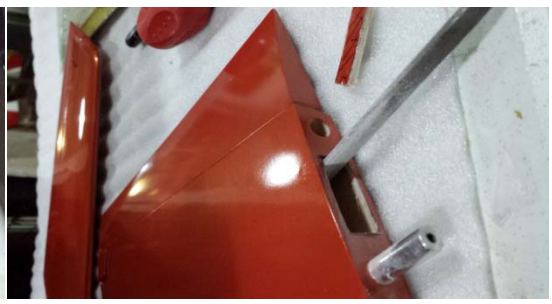
Same procedure like the rudder installation,
Mark an outline for the servo on the rear fuselage and cut out using a power tool.

Once done, dry fit the servo to see if it fits. If not, some sanding might be needed.


Elevator servos access hole on the horizontal stabilizers

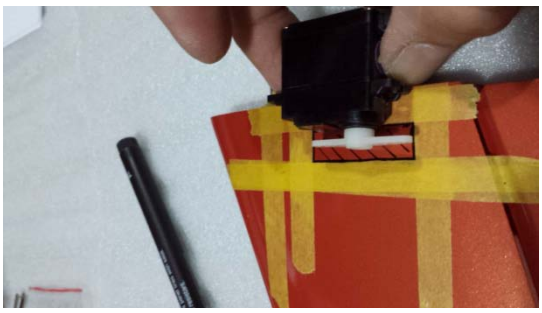
Next, insert the horizontal stabilizer into the fuselage, mark out an outline from the inside.
Once you have the outline drew on the stabilizer, you can proceed with cutting the access hole.



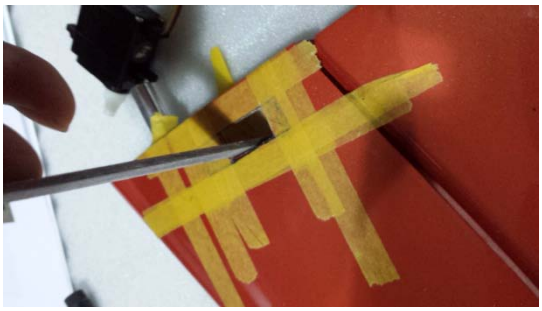
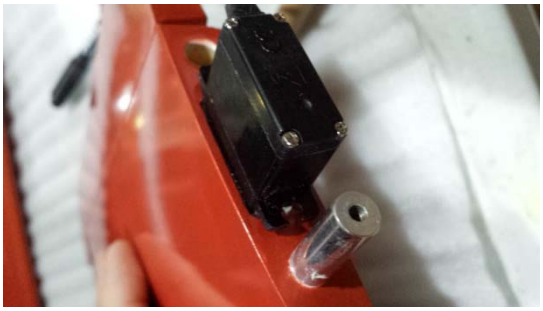
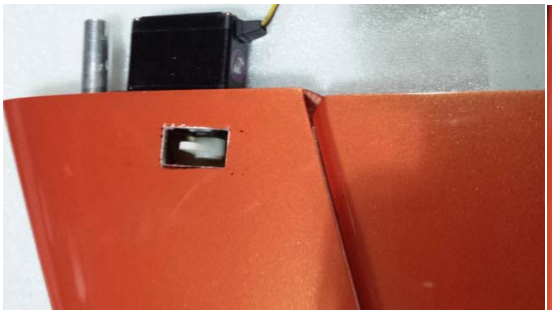



Cutting servo horns access hole on the horizontal stabilizers

Once you are done with the servo access hole, next thing you will need to cut out is the servo's horn access.
The easier way to mark out the servo's horn access is by placing the servo as shown in the attached picture.
Same procedures as above mentioned.



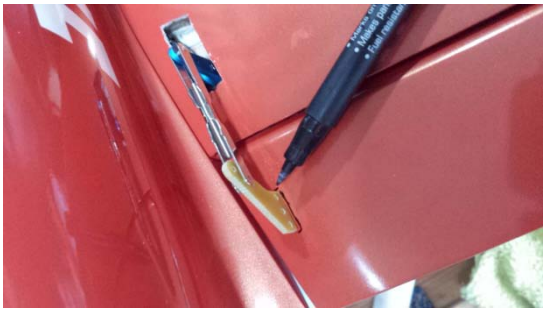

Once the servo's horn access has been done, dry fit the servo into the access With servo's horn to ensure it fits properly and no restriction on the horns movement.
Next remove the servo and install it on to the fuselage side servo access hole and secure it with self-tapping screws.

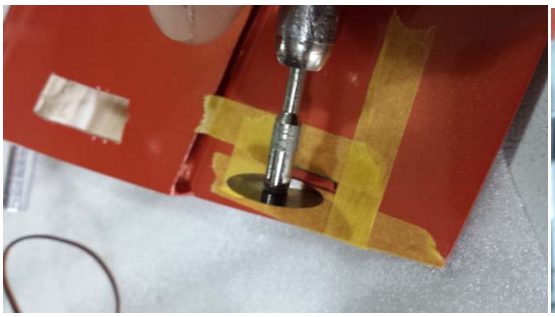





For my case, I have replaced my plastic servo horns with Alu horns.

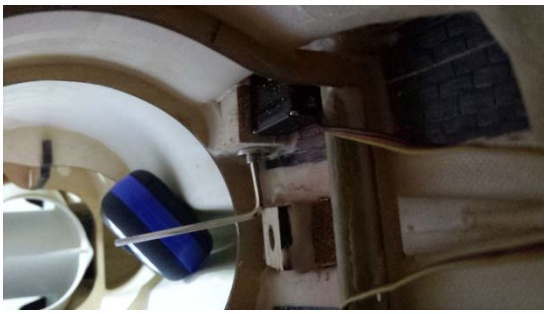

Once the elevator servo has been installed, let's move on to the control surface Horn. (Servo's rods and horns are provided)
Install the rod to the horn and mark out the area to be cut as per attached pictures.
Please ensure the alignment of the rod and the horn is straight with no restriction on the movement before cutting out the slot.
For a better bonding, once you have cut out the slot, use a sandpaper to roughen the surface on the horn's area where is going to be epoxy.
Next, use either aeropoxy or 30mins epoxy for the bonding.
Finally, tighten the horizontal stabilizers with screw provided.

Do the same for both side.



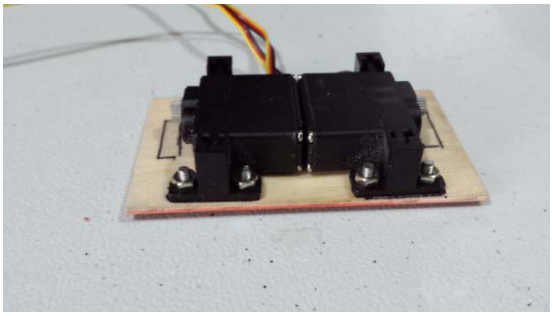
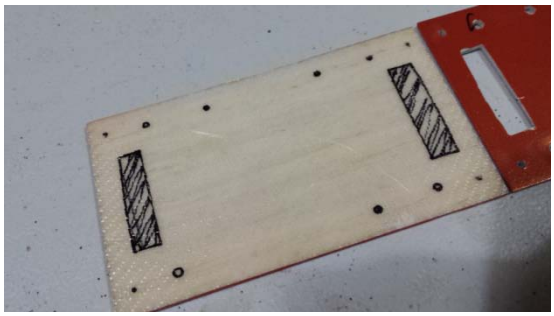






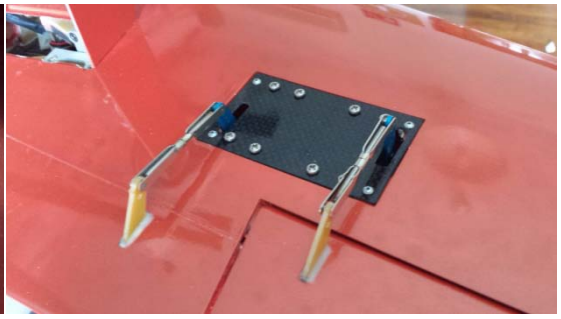
Aileron and Flap servos

The Aileron and Flap servos are mounted under the servo cover.
We have used both Hitech servos for this application.
Position both servos properly and cut out the marked servo's horn slots.
Please make sure there is enough for the throw movement.

Take out 4 square shape plywood provided, cut some fine lines on all the surfaces which you are going to epoxy for a better bonding.
Epoxy them under the servo access hole locate on the wing and let them to cure.

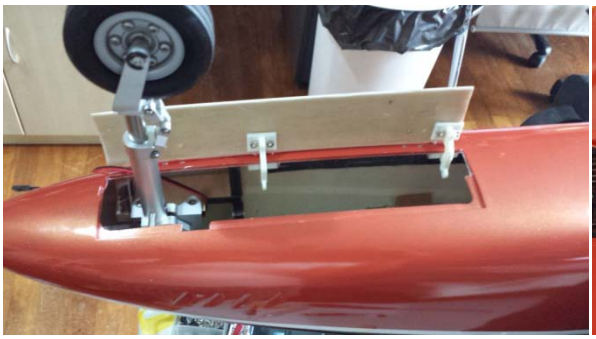

Next, trail fit the servo's plate, align the rod and horns to mark out the serv's horn slot. Cut the marked area and epoxy the horn into the slot.
Apply the same procedure for the surface preparation as the elevator.
Once done, secure the servo plate with self tapping screws.
Btw, I have replaced my servo's plate with carbon fibre plate.

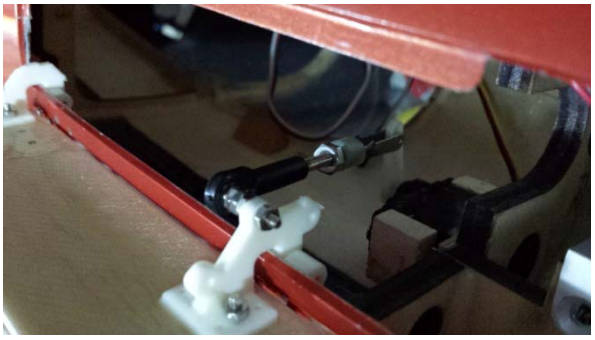
Retracts & Gear doors

It is about time to install retracts. We are using the JTM new E-retract and Oleo struts For this viper. I personally like electric retract because it is hassle free and easy to install compare to air retract which has lots of messy air tubes to be laid and tidy up.

Unlike most retract the JTM e-retract is designed to be retracted outwards, therefore to install the JTM e-retract, you have to cut away some plywood on the retract bracket for it to sit in properly. Not to worry, it will not affect the structure strength in any way.
If you are going for the gear doors, please note that you have to purchase the door hinges separately.
We are using the Jet-teng CNC electric actuator for the main gear door operation and servo for the nose door.

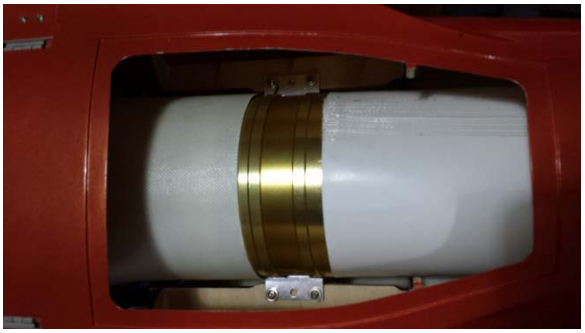



We are using the Jet-teng CNC electric actuator for the main gear door operation and servo for the nose door.

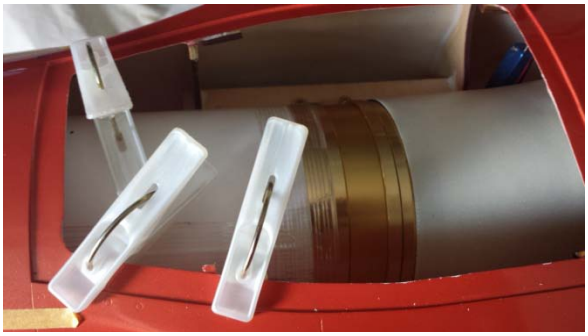



EDF Unit installation

We are using the JTM new 12 blades metal fan to power up this viperjet.
It comes with different motor KV Combo starting from 6S-10S set up.
To keep the AUW low, we have chosen the 6S 1900KV fan, static thrust is about 3.5Kg and Amp draw is about 130A.
Please see the attached pictures for the layout of the power plant.
(Inlet cone and outlet thrust tube plastic sheet are provided.)

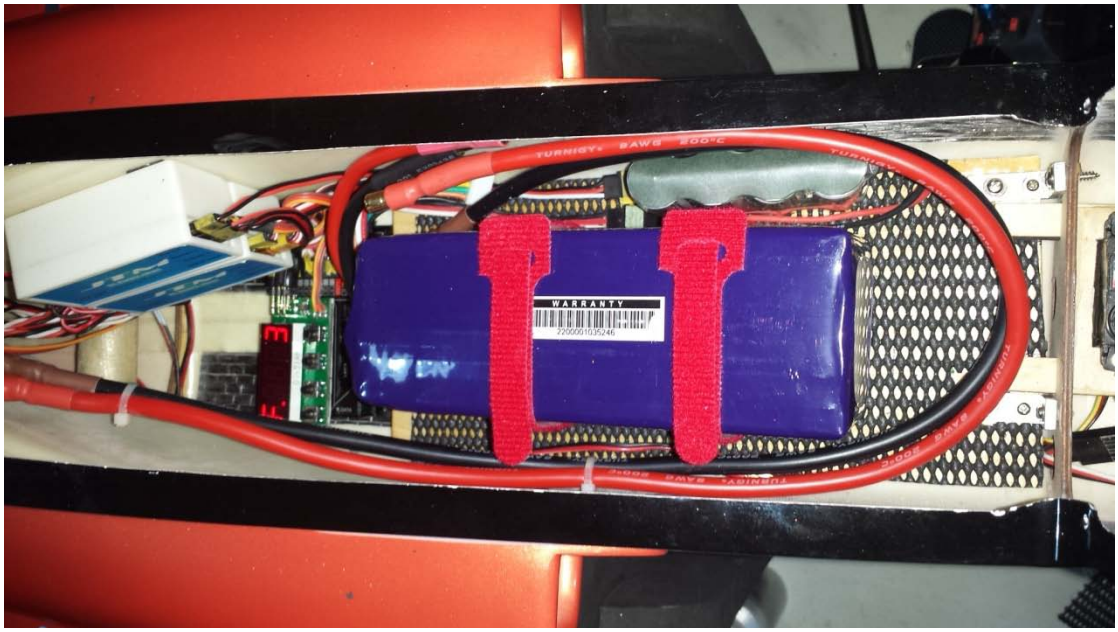


Once you are done with the power plant, epoxy six pcs of square plywoods provided under power plant access as shown and secure the cover with self tapping screws provided.



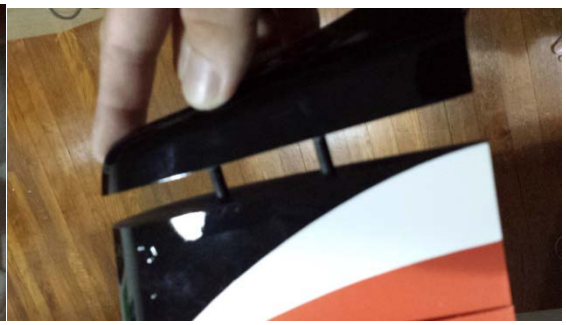
Equipment Tray layout

There are plenty of room for up to 12S setup. Please see attached pictures of 6S6000mah lipo setup.



Wing Tips and bottom stabilizers

Cut out the slot for the stabilizers, do some surface preparation before epoxy them together. Same procedure is applied to the wing tips.



That's about it, do some fine adjustment and you are good to go.
Please make sure you have balanced the jet correctly before maiden.

Hope you enjoy and have a nice flight!