

AirPower Models

F-16 Durable Foam EDF JET
68~70 mm Electric Ducted Fan or 'Pusher' JET



WARNING!!

This model is not a toy.

It can be very dangerous and may cause serious damage to people and property. It is intended and designed for the hobby enthusiast who is an experienced flyer. All novice or beginners should seek help from an experienced club member, and it is highly encouraged that you join the BMFA to insure you against damage to others property. Please read all instructions and have an experienced flyer inspect your plane prior to flying.

Model data :

Wing span ----- 75cm (29.5 inches)

Fus length ----- 95cm (37.5 inches)

Flying weight ---- 460/500g

C of G ----- 105 – 120mm from the Leading Edge (L.E.) on the upper wing surface.

Control Throws--- Ailerons 10mm, elevator 15mm

Required to complete :

Motor ----- Airpower OM400 2014/3300Kv

ESC -----AirPower Melody 25A ESC

Power source ---- Airpower 1500/2000 3S Lithium Battery

Charger-----Airpower Lithium Charger and Balancer

Servos ----- 4 x 5g Sub Micro Servos

Receiver ----- 4~6ch micro.

Introduction

Thank you for purchasing the Airpower F16 fighter jet. As you will see this is an extremely easy to build jet but as it's not a beginner's model, we would suggest some flying experience is required. These instructions are a guide and assume you have assembled kits before if you need help ask an experienced person for advice.

The model will come together in no time at all using very simple yet modern building techniques meaning that no special tools or equipment is required. As this model can be used as an EDF (Electric Ducted Fan) or a Pusher (motor mounted at the rear using a propeller) it is up to you depending on your budget what you wish to do.

NOTE: THIS IS NOT A TOY.

Please make sure you have BMFA (British Model Flying Association) insurance and if you are not experienced take a seasoned model pilot with you when flying.

Section one

Parts check:

- | | |
|------------------------|--|
| 1. fuselage top: | 9. canopy |
| 2. fuselage bottom | 10. nose cone |
| 3. right wing | 11. double sided tape sheet |
| 4. left wing | 12. accessories |
| 5. | 13. push rods X 3 |
| 6. right elevator | 14. small bag of screws, washers and bolts |
| 7. left elevator | 15. Ply mount for pusher version. |
| 8. vertical stabiliser | |

NB: please note that the white plastic accessory moulding is for several models and not all of the items will be used with this kit, in fact, only the four control horns are needed.

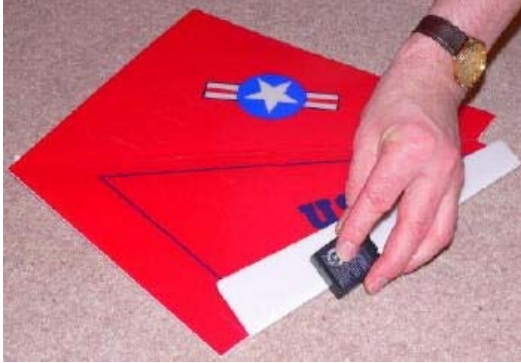
If you are building your F16 as a 'pusher jet refer to details at the very end of these instructions.

Step one:

Wings ailerons and horizontal stabilisers.

1: take one wing section and place on a firm surface with the red finish facing upwards.

1a. hold the wing down with one hand lift and rotate the aileron with the other and totally fold it back on itself. Then using something firm (we used a small battery but you can use anything at all) depresses the internal edges of the depron to allow maximum movement of the aileron in both directions. (Picture 1)



P.1

1b. then do exactly the same for the whole wing and depress both internal edges of the LE (leading edge) Picture 2

P.2

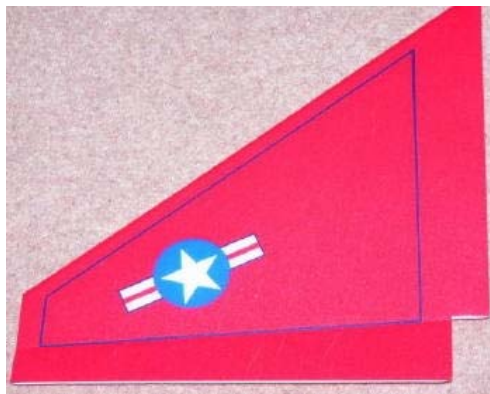


1c. unfold the wing, bringing the red finish to the outside and remove the protective covering from the bonding strip and bring the upper and lower surfaces of the wing together. (Pictures 3&4). Before pressing the two TE together, warm the bonding tape a little with a hair dryer and press down firmly until both surfaces are bonded. This takes about 60 seconds. To make it more secure you can apply clear selotape to the TE.

P3



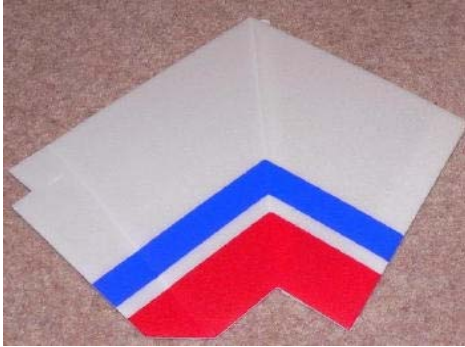
P4



Tip: you may feel that the film covering will split or that both surfaces will not come together. Do not worry, as it is this state of tension that creates the mechanical strength that stiffens the wing.

This completes the wing construction. Move the aileron up and down several times to obtain full movement.

FOLLOW THE EXACT SAME PROCEDURE FOR THE OTHER WING AND HORIZONTAL STABILIZERS. (Picture 6 and 7)



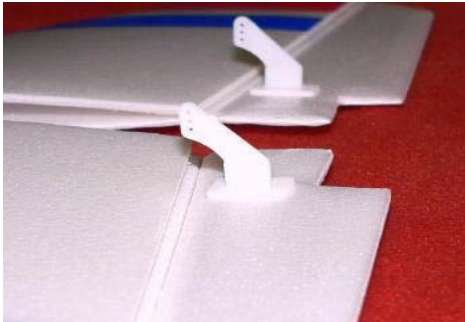
P.6



P.7

By now you should have constructed two wings and two horizontal stabilisers that can be put to one side. Next, insert the four control horns. Their positions are marked on the elevators and ailerons. Simply cut through with a sharp blade (from the top) and push them through securing from underneath with the plastic retaining clips.

See Picture 8 below:



P.8

Step two: Vertical fin.

2. The method of construction for the vertical fin is the same as the wings and horizontal stabilisers. Place on a firm surface with the decals facing up and fold back on itself and using the same implement as you did for the wings compress the inner surfaces of the leading edges. Then fold both sides back on them selves and remove the protective strip and warm the bonding tape with a hair dryer and press the two sides together and hold firmly for about 60 seconds. (Picture 9)

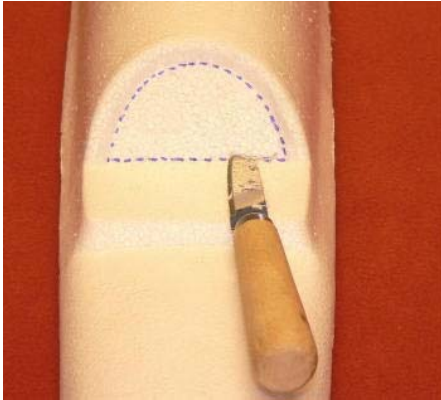
P.9



Step three: Fus Preparation

3. Locate both top and bottom mouldings of the fus and remove the areas indicated with the blue line. (Pictures 10/11. Use a new blade and keep the internal surface as smooth as possible. If opting for the pusher set up this is not required.

P.10



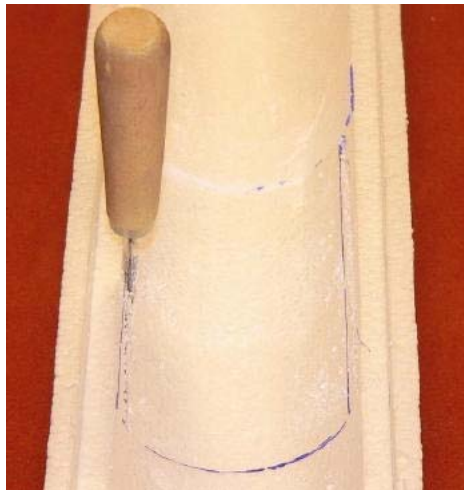
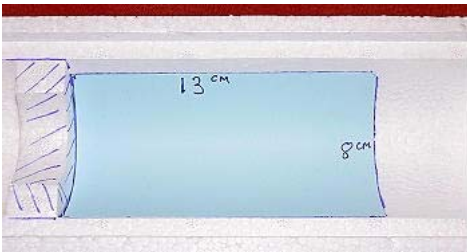
P.11



3a. In order for the fan to breathe a cheater hole is required. The opening has to be in front of the fan and have an area of approx 104cm. The easy way to achieve this is to take a piece of card measuring 13cm X 8cm and cut it out. Then place it into the inside of the bottom fus moulding and draw around it. Remove the card then cut away the foam. (Pictures 12&13) When removing the foam make sure the scalpel blade is kept vertical.

Tip: keep this foam as it is used to cover this hole back up if building a pusher jet.

P.12



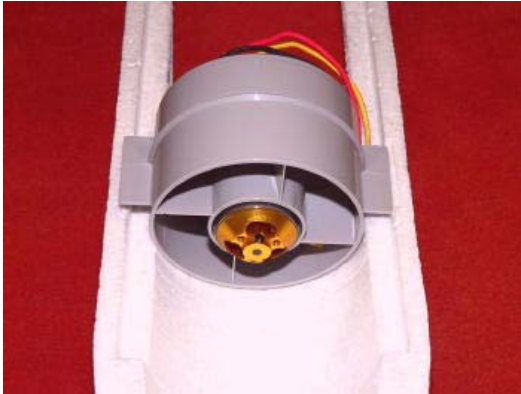
P.13

3b. Remove the foam from the intake at the front of the fus lower section. (Picture 10)
Now remove the foam from under the canopy floor (upper fus moulding) creating a hole for the battery pack. As a guide follow the moulded edge.

Step four:
Fan Installation

4. Install the motor in to the fan unit. Extend the wires from the motor such that they reach the ESC, this can be placed wherever you want on the inside of the fus. Try and keep these wires as short as possible. Then trial fit the assembly in to the lower fus moulding. (Picture 14)

P.14



4a. Fold some sand paper around a bottle and sand smooth the internal surfaces (Picture 15)

P.15



4b. The wires that come from the motor to the ESC can be passed through the space under the fan mounting lugs (pic 13) make a shallow groove, just deep enough to bury the wires. Tack tape them in place until later.

Tip: make sure the mounting lugs correspond to the mounting grooves in the upper fus section on final assembly.

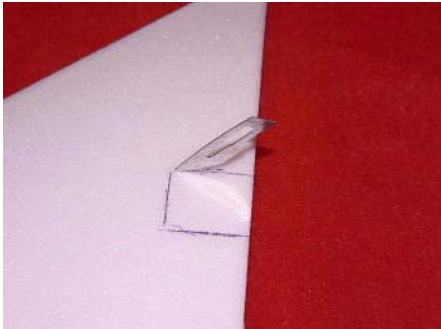
NB: as this is not a beginners model it is assumed that all relevant connectors have been soldered to the wires prior to installing.

4c. Trial fit the two sections of the fuselages together to make sure no fouling is evident and when happy separate them and leave to one side.

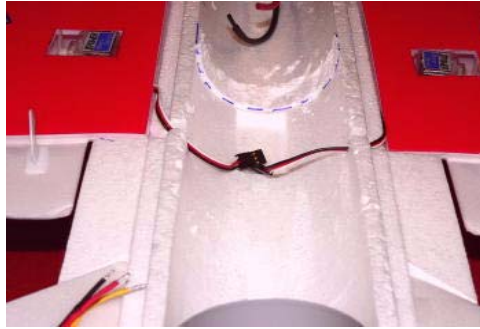
Step five: Servo installation

5. You will need 4 servos one for each moving surface. Simply remove the mounting lugs from the servos and draw around them making sure to align the servo arm with the control horn. When happy, remove the foam leaving a hole for the servo to fit in to. After centring them, secure each servo using double-sided foam tape. (Pictures 16,17,18)

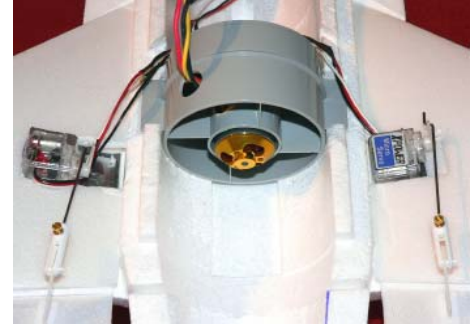
P.16



P.17



P.18



Tip: Tape the wings and tail planes in position at this stage so make sure all lines up prior to fitting the servos.

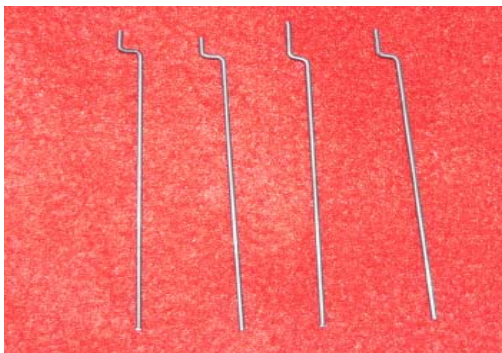
NB: take note of the servo positioning for the elevators. Make sure that they line up with the control horns and that they are not a mirror image of one another. One arm should be near the horn (LHS) and the other away from the horn (RHS). Both horn splines should be pointing either to the right, as above, or to the left.

Tip: you will need to connect both elevator servos together in a Y-lead fashion. This will leave you with a single male end to insert in to the Rx.

Feed the servo wires through the sides of the fus and if required extend the wires to reach the receiver, which will be secured in the moulded recess between the wings on the upper fus. (Picture 17)

Now is a good time to make up four control rods, one for each servo. Cut them about 7cm long. You will need to cut them from the supplies rods in the kit and Z bend the ends. (Picture19)

Control rods: P.19



Step Six

Securing the wings and tail planes power cables.

Locate the double-sided grey sheet and dust off the mating surfaces on the fus. Warm the tape with a hair dryer for a couple of seconds and lay in place on the wing seats on the fus. Press firmly and when stuck remove the backing tape and warm again with some warm air. Place the wings, one at a time, on top of the tape and hold in place for about thirty seconds. Repeat this for the elevators. See pic (17 and 18)

Before you bond the upper and lower fus mouldings together make up the power cables are long enough to reach the canopy and connect to the battery pack. When happy with the lengths make a shallow groove on the inside of the fus and sink them in to it. To retain them simply cover with tape. Do the same for the ESC and the receiver and all other cables and wires. You can use a blade or small soldering iron to make the groves if you wish.

Tip: keep the heat sink of the ESC exposed to the airflow to keep it cool.

Step seven

Joining the upper and lower fus mouldings and fin.

NB: if building the pusher version you can now glue the ply mount in to the grove at the rear end of the fus.

There are several ways of joining the fus together if you don't wish to use glue you can use servo tape or strong bond security tape used by glaziers. If you do use glue use Uhu Por as this dries clear and won't leave unsightly marks at the join. If you wish to paint the model before applying the decals apply "magic tape" to the join or light filler to smooth the join.

Use the pictures below to apply the decals. To assist in positioning them you can use some water to dampen the surface.



Finally, epoxy the fin in place making sure it is vertical and true with the centre of the fus.

Step eight

Canopy fitting

The easiest way to retain the canopy is by using small pieces of 'hook & loop' tape. Place one piece at the rear tip and two pieces either side of the cockpit moulding. When in place simply press both sides of the canopy front to secure. Alternatively you can use small magnets. Finally use Foam Safe adhesive to secure the front nose cone.

Flying the Airpower F-16

Make sure the model balances between 10.5cm and 12cm from the leading edge on the upper wing surface before launching. The flying weight should be around 480g. The power system will produce around 170/200W so there is plenty of power when launching. Keep the wings level and even and do not attempt any turns until you have built up speed, just keep a steady climb out at full power facing in to the wind.

As the model has a high power to weight ratio there is no need to run with it, just launch the model with a firm push level to the ground.

Top Tip: if you are not used to flying ducted fans you will notice a sluggish first few seconds of flight. This is due to not having any prop wash over the wings and elevators to make the control surfaces effective. This is the reason you should not attempt any banking until flying speed has been achieved.

When air speed has built up you will notice how stable the model is in flight due to the anhedral tail surfaces.. Start with the CG at 10cm and work back if you want to induce more agility.

For initial trimming choose a calm day. When you have the model trimmed and balanced you will be amazed at how it will handle very strong winds despite its lightweight.

Congratulations, you are now a jet pilot, well done and thank you for buying the Airpower F-16.

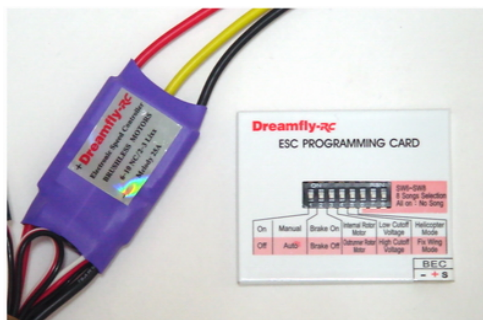
Recommended Power Unit



APM 2014/33

OM-400 / 3300 Specification

- ✚ Max Current: 20 Amps
- ✚ KV: 3300
- ✚ Weight: 51.0g
- ✚ Shaft Diameter: 2.3mm Mount Hole: standard 16
- ✚ Motor size: Dim.26mm, L 29mm Input power: 2-3 Li-xxx
- ✚ Suitable for: All Electric 400 size Helicopter, ducted fan & up to 0.15 engine size airplanes.
- ✚ The recommended speed controller is by using APM"Melody" 25A speed controller.



APM "Melody" 25A ESC

Technical specs:

- ✚ Maximum load (in 10 seconds) 35A, for constant use: 25A
- ✚ Working voltage:
 - Ni-CD / Ni-MH ----- 6 to 12 cell (6-15V)
 - Li-ion / Li-polymer ----- 2 to 4 cell (6-15V)
- ✚ Working temperature: 0 °C - 60 °C
- ✚ Maximum RPM:
 - 2-pole motor / 210,000 rpm
 - 6-pole motor / 70,000 rpm
 - 12-pole motor / 35,000 rpm



APM "HR" Li-Po Battery

- 20C constant and 28C burst capabilities bring more power to all types of model.
- Exceptional voltage held under load (3.5V under 10C load) gives more all round power to weight ratios than ever before.
- Wired for easy connection to AirPower Li-Po Charger for a completely integrated state of the art cell balancing system unlike anything on the market today.



APM "HR" Li-Po Charger

- Parallel Charging, to ensure each cell is fully charged.
- Charges 2-4 cell
- Charge Current Selectable.