

## Product Review

### Multiplex Funjet ARF EP

by  
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The Multiplex Funjet is the latest in an evolutionary series of small jet styled electric powered aircraft. The wingspan is 795mm and the fuselage is 750mm in length and this moulded foam flying wing requires three channels for elevons and throttle. If your transmitter does not feature elevon mixing discreet vtail mixers are available that plug in between the servos and receiver.

I consider Multiplex to be a premium brand and one of my expectations of top quality product is no modifications should be required during assembly. The Funjet easily met this criterion. I didn't know that a moulded foam product could be so well made. It went together exactly as stated and the parts fit was incredibly accurate. There is nothing to say about assembling this model, just follow the instruction book. The Elapor foam is very strong and quite flexible, not at all like conventional polystyrene.

Design improvements from the previous model have primarily been targeted towards better launch performance. The engine mount features an adjustable thrust line and I went with the recommended setting of zero degrees of downthrust for the initial test flight. The instructions also recommend setting the elevon trim position

at two mm of up elevator up and these two settings are all about achieving a successful launch. After a few launches and you have become comfortable with that process you can then set about fine tuning by adding downthrust. That subject is covered in sufficient detail but summarising very briefly the object is to reduce the amount of pitch trim change between power on and power off.

The battery installation was not covered at all in the instructions and this is the only negative I found with this product. Mounting it flat which is the way I chose as it is a tight fit plus there is more surface contact area for the velcro attachments. One must cut or melt the foam away to allow for the power lead if you go this way. Pilot error made me realise if I had my time again I would mount the battery on its edge. I did manage to crack the nose on the first landing and this leads me onto the battery pack installation.

If the battery pack been mounted on its edge my feeling is the foam would have absorbed the impact and sprung back into shape but it cracked right around the end of the battery pack where the foam was cut for the power lead. On its side also allows

more cooling airflow around both sides.

The first landing I tried to show off in front of my mates and catch it and I hauled the nose up expecting the Funjet to mush and bleed off speed and fly into my left hand. Too much energy for that manoeuvre and it zoomed up over my head. I gave it a blip at the top of the zoom which was the correct thing to do but the split second sight and sound of a whirring prop was too much for the slip cord. The waiting hands in the were hastily hidden away and it flopped in on the nose from two metres up. The crack was easily fixed with medium CA and kicker.

The recommended electric components are all Multiplex, a Permax BL-480 5D motor, BL37 ESC and an M15-7034 LiPo battery pack. The speed controller (ESC) is rated at thirty five amps continuous for five minutes and the motor is a 2,175 rpm per volt, five turn neodym direct drive brushless inrunner. The battery pack is a 3,200 mAh three cell 11.1 volt LiPo with a twenty C rating. One of the reasons I did this review was to improve my knowledge of electric setups and this combination draws twenty five amps at full power which turns an APC 5.5x 4.5 propeller at 22,500 rpm.

The battery provides seven minutes of flying at full throttle. Prior to the first flight those figures meant nothing to me but I can now report the combination delivers high performance indeed. With two Hitec HS 55 servos and a seven channel pcm receiver it weighed in at 460 grams plus the battery pack. With two sections of velcro and a two pin Deans type connector which is already soldered in place by the factory the battery pack weighs 277 grams giving an all up weight of 737 gm.

The battery pack represents 35% of the all up weight and the specifications state an all up weight of 630 grams but they do not specify which battery pack. The lighter



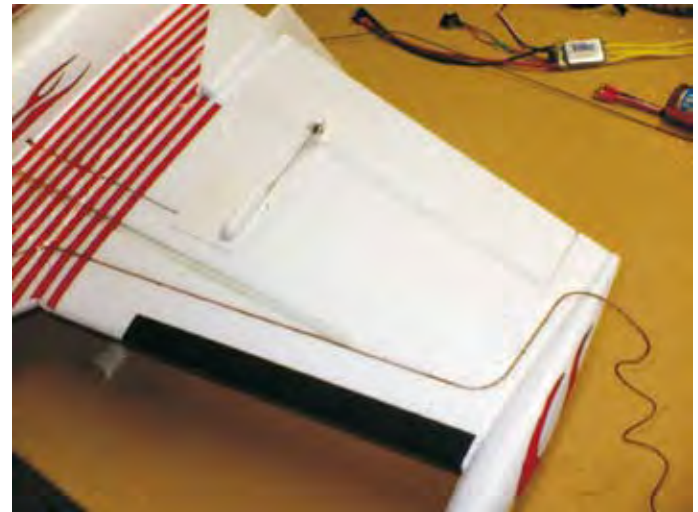
The motor is screwed to a back plate which mounts into the cooling shroud. On the bottom is the variable thrustline adjustment screw and indicator.



To avoid cracking the glue joint support the control horn with your other hand before you tighten the grub screw.

attitude and a good heave-ho the Funjet accelerates quickly and climbs away. If you have never hand launched a model for the first few flights get someone who has if you can. Any one with a little gliding time will know what to do.

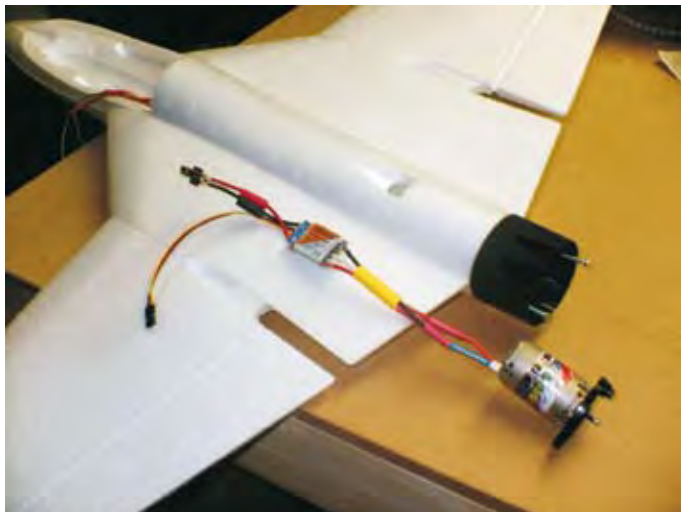
If you opt for the lighter pack the battery will have to be placed as far forward as possible so that would be in front the



To keep it way from the rear propeller the antenna slots into a special recess in the right wing panel.

2,200 mAh battery at 190 grams reduced the all up weight to 650 grams so my guess is the manual quoted that option. The extra twenty grams is neither here nor there and could be accounted for a lighter receiver as I used a seven channel pcm unit. Either that or I put on too many decals.

Awesome Power also have available a more economical range of batteries with a 3s LiPo in either 2,200 or 3,20 mAh capacity with a fifteen C rating. A little



The motor wires need to be soldered to the ESC. If soldering is not your thing ask your local hobby shop for a hand.

receiver. It is very important not to have the CofG any further aft than the recommended thirty millimetres as the aeroplane does become unstable in pitch. If a few coins or lead weights are required to attain the correct position, do it.

The test flight was in on a very windy day and it handles those conditions fine. The Funjet is fast, my guess is 160-180 k.p.h. and the vertical performance even after zoom inertia has fallen away is fantastic. You don't waste any time labouring up hill getting ready for the next beat up with this ship. With a bit of throttle use flights are usually about ten minutes duration and the battery pack hardly gets warm. An electronics or electric flight layman like myself could assume this indicates current-load factors of this combination are on

more money can be saved by substituting a Himark A2815 which is a 2,000 R.P.M per volt brushless motor which still provides very good performance. I find it is quite easy to become confused when people start talking of different combinations and the Himark option works well but doesn't quite have the blistering performance of the Multiplex motor.

The Funjet is a doddle to fly and hand launch performance is very good but I would like to qualify that by saying you still have to give the model a healthy heave. Quite a few electric ducted fan products have gained poor reputations (undeserved in most cases) because the initial climb performance required highly skilled piloting. With the up trim, a slight nose up

The 3,200 mAh battery mounts behind the receiver. The lighter 2,200 mAh unit should be mounted in front.





Mount the battery pack on it's edge.

way after twenty plus landings the original prop is still in good condition. Right out of the box both electronic combinations work very well and the Funjet would be an interesting and worthwhile addition to any experienced modellers stable of aircraft. It can be ready to go in a few seconds and



the money and the cooling vents are also working well.

One thing I felt had to be tested was the structural integrity of a high speed foam airframe and I must admit to expecting control surface flutter would be imminent

It flies well off the launch with a slight nose up attitude, two mm of up elevator trim and a healthy heave.

this one of the appeals of this product. We know that drag increases at the square of the speed so to go twice as fast the horsepower must be doubled.

The Multiplex motor does not put out four times the output over the Himark



but after repeatedly diving this model vertically at full power from a great height and all is okay in that department.

Belly landing is the order of the day and my recommendation is shooting a flat faster approach is preferable and grease it on rather than a slower nose up with power on. By the way a fast approach doesn't mean Mach 3 and chop the power as many fast aeroplanes have good low speed manners and you can fly this one around at quite low airspeeds. Conventional wisdom would have it that lower speed means less impact damage should a cartwheel occur but my experience has always proven to me that type of approach increases the risk of cart wheeling. The best way to land is line up low and fly in with a little power, slightly nose up and cut just before touchdown.

If your radio has a flight mode switch, around half a millimetre of up trim gives a good attitude-speed setup. That figure

Fats or slow it is fast, it is fun.

is half a millimetre above the flying trim position, it has nothing to do with the relationship between the elevator the trailing edge of the wing. Anyway back to landing, one trick with a slippery high performance aeroplane is not to lower the nose that when in doubt about overshooting. If you are too high ease the nose up a bit and slow it down some more. Lower the nose and the Funjet will pick up speed and just scoot past waiting for the command to go round.

If you aren't sure about this try it a bit higher first. If you haven't experienced this type of model don't incorrectly read between the lines here, the Funjet is easy to land if the correct technique is used. By the

motor but it is also not four times the price, just a little more and I think it's worth it. I would also opt for the 2,200 mAh battery pack as the climb performance is even better. Another advantage of the lighter weight is with faster initial acceleration after launch and you can still blast around for nearly five minutes flat out. Either way the model is fast and quite groovy and really consumes airspace. Each time I have flown it people seem to be impressed by the performance.

The Multiplex Funjet, Mutliplex and Himark motors are distributed to hobby shops by Model Engines Australia Tel 03 8793 5555 [www.modelengines.com.au](http://www.modelengines.com.au)

