

Merlin F3F – the build

After I managed to write off my Willow F3F due to a faulty battery that encouraged it into a vertical dive into Roy's field at Edge Top, I decided that, in the same way as losing a dog, an immediate replacement was the answer. After a chat with Richard at T9 Hobby Sport, I narrowed the choice between Willow 2, and a Merlin. I could reuse my wiring loom, servos, and ballast slugs. As stock was limited the choice was easy.

Days later a large box arrived with the usual parts for a mouldie namely a perfectly formed red fuselage, 2 tailplanes, 2 wings, and a bag of bits, but a complete set. Each mouldie seems to omit certain random bits that you have to source yourself, and rarely do you ever get any instructions. I have never quite understood why, when you are buying something at a price of nearly £500.



First job was to reinforce the nose section because there was no sign of any strengthening with carbon or the like. But how to make sure it stuck to the sides of the inner fuselage? Answer – balloons inflated. I used a combination of carbon tape, toes, and tissue.

Next job was the servo tray. Some kits come with a tray pre-cut, but making a cardboard template was quite easy. To fit a ballast tube, I needed some 20mm carbon, which was cut to length to take 10 x 35mm long x 19mm diameter slugs, which I had made out of shower rail filled with lead. I had to work out where the tube should sit in order to position the centre of gravity in line with the c of g of the tube, when full of lead. I cut a slot to take the tube, which would sit on a cradle of fibreglass cloth



The fuselage comes pre-fitted with control snakes made out of 3mm carbon rod inside plastic tubes. One of them was remarkably stiff, so the build quality was not what it could have been. To make it fit round the ballast tube made it even stiffer. Good job I was using some high torque Savox 255 servos with their metal gears. Thankfully the servos from the Willow survived as did the Receiver, and wiring loom. I threw the battery away.

It would be very difficult to thread the wiring loom past a fixed ballast tube, so the next decision was how to fix the male Multiplex plugs into the fuselage. I decide to use plastic holders sourced from Gliders UK. To ensure there would be no gap, I dremmed a recess but not too deep into the side to take the socket. The wires in the wing, however, would remain loose.

A lot of manoeuvring was needed to ensure that once the wires were in followed by the servo tray, it would be possible to slide in the receiver and battery in front of the tray.



The wings have a system of link rods which are entirely internal and is a definite improvement over the Willow, in that there is no turbulence where the flap and aileron rods leave the wing to connect with the moving parts.

There are several other blogs on building the Willow, which I used for tips, mostly that authored by the designer and F3F competitor Ian Mason – he recommends gluing pieces of blue foam between the wing skins to prevent flexing.

I decided to use Hitec slim wing 125mg analogue servos, which work out at about £21 each. I must say that I have not found them as reliable as I would have liked, and have moved over to KST digital for the same price in the Jart. I used them in the Merlin largely because one can get servo frames, so as to make removal easier. Already one of the servos has failed, and removal was much easier.

I used a long thin piece of lead to thread the wiring loom past the blue foam supports to the hole in the wing root.



A very good tip from Pierre Rondel's blog was to use 2 pieces of Aluminium and Hot Glue to seal the wires into the Multiplex Plugs, which have to withstand constant tugging to prise them apart each time you finish flying. It has now been made into a product which makes a mould for this purpose.



Don't pour the glue over the rubber sleeves as I did, but over the actual wires which is far more secure.

Finally the V-Tail. Not supplied are the metal connectors which fix to the tail plane, and provide support for the ball link clevises. No instructions are given for the dimensions. Ian Mason's blog helps as do other methods of using mylar sheet so as to stop a mixture of microballoons and epoxy from getting onto the tail surfaces. Getting the position and length of the rods accurate so that the ends line up with the snakes is a fiddle, and there is very little margin for error.

One must also to glue the supplied 4mm carbon rod tailplane supports into the holes already drilled into the tail boom.



Once assembled, the recommended balance point is between 98 and 100mm from the Leading Edge of the Wing. Once one has worked out how much lead is needed to balance the c of g, I used an old tin can and a plant pot full of sand into which I insert the nose in order to form a mould. One then heats up the lead and pours it into the sand. This then slips into the inside of the nose snugly.

I also decided to make my own decals. First of all I looked on the Internet for a medieval font, and downloaded it. I created "Merlin F3F", then printed it out on clear decal paper, which I then stuck onto the wings.

Flying

I maiden'd the Merlin up the Orme. It flew well but slowly, and obviously needed more weight in the nose. It also lost signal when going downwind due to the extra carbon I put into the nose. I have now fitted ears to put the receiver aerials outside the fuselage.

Now properly balanced it flies faster than the Willow, but definitely needs ballast. I fly it permanently with 4 slugs or an extra 400 grams of lead.

It rolls much faster than the Willow. I think this is because of extra Aileron tabs which extend further towards the wing tips and are taped up to attach them to the ailerons.

It turns extremely quickly when banked to 180 degrees, and will fly in the merest whiff of wind as well as in the strongest of gales, so is the sort of plane you can always take to the slope. The only downside is that there is very little fuselage to grab hold of in a launch, hence I don't take it, when I am alone in a strong wind. It has blown out of my grip more than once when up the Orme.



For more detail of this build, please read my full building blog on the RCM&E forum - <http://www.modelflying.co.uk/forums/postings.asp?th=107682&p=1> . I have also posted my photographs on the LMMGA Website here - <http://www.lmmga.co.uk/index.php/photographs/model-build-pictures-2/category/110-merlin-f3f>

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