
25" HAWKER HUNTER

So this is the third model in the Mini Jet series and if I'm honest, this is probably the best flyer out of the three so far. The full-size Hawker Hunter was indeed a superb and well-mannered aircraft and operated in both strike, bomber and reconnaissance roles. It entered service in 1954 with the RAF but also became the frontline choice for many other air forces throughout the world. Amazingly it was still in service with the Lebanese Air force until 2014, an incredible 60years service span!....

It's therefore not surprising that modelling a subject of such great pedigree, it will perform better than the rest....

The Jet Provost and the recently featured Gnat in the November 2019 issues of RCM&E, really did hit the sweet spot. Not to put too finer point on it, they have been a resounding success and both have sold like hot cakes.....

I think the reason for this and hopefully will transpire for the Hunter too, was I think down to the small handy size and the frugal cost to build one of these models. With a cheap EDF unit, economy servos, 30C lipos and 40amp speed controller, it really was maximum fun for minimal bucks.

All of these new mini jets have been tested using the 3S FMS 50mm fan unit which gives around 600g of thrust. A few builders of the Provost and Gnat, have gone with the 4S FMS and the 4S PowerFun fan unit (available from 4-max.co.uk).....these units will give another 100g or so thrust over the 3S versions. There really isn't a down side to installing a 4S fan unit except the ESC may be a little bigger and the batteries will not be the ubiquitous 3S 2200mah, which most modellers will have kicking around their workshop in their drovesFor the 4S fan units, you will need an 1800mah 4S lipo pack or something similar. These models are quite small so the key here is to avoid adding too much weight when moving up to a 4S setup....

One final point regarding EDF units. If you have an old 50mm fan unit kicking around in a box of bits from a couple of years ago, please don't use it in this model.....it won't work and you will be disappointed.

So after the Provost and Gnat, we now have the Hawker Hunter. The last remaining models we have lined up for you is the F4 Phantom which will appear in the March 2020 RCM&E magazine.

You may have noticed a theme amongst the colour scheme here and the fact they are highly visible. These models are small so having a strong colour, especially Yellow is great help especially if the eyes are not as good as they use to be! I also wanted to use a standard Solarfilm type covering rather than a painted camouflage finish. The Gnat Yellow jacket was a great scheme and so easy to see in the air so I decided to see if there was a scale yellow scheme for the Hunter. Sure enough there was 'Yello Summer' out of Thunder City USA. In fact there are so many vibrant Hunter colour schemes to choose from, the difficulty will be which one to choose.

As we have already launched the Hunter on the TonyNijhuisDesigns website, I have a good feeling this model is going to be just as successful as the Jet Provost and the Gnat.

To assist the builder, I have once again made available a canopy and to complete the package, a CNC/wood pack is also available for those who wish to make the building process a little easier and quicker. These parts will ONLY be available through Tony Nijhuis Designs Ltd (TND) and not Myhobbystores. The plan itself will only be available in this edition of the magazine with future copies again only being available through TND Ltd.

A few other points to note, the FMS fan units can be sourced from either Banggood (in China) or from 4-MAX.co.uk in the UK. The battery was a 3s-2200mah 30c Lipo and servos were cheap and cheerfully 6g 0.85kg/cm torque nano servos. For the ESC, buy a cheap 40amp 4S units as it will be lighter and hopefully have none of the unnecessary programming feature.....you want a simple switch on and go.

Lastly and possibly most importantly, a photographic build log is available as a free download to print out from www.tonymijhuisdesigns.co.uk. These photos will be invaluable and I would suggest downloading these so you can familiarise yourself with the build before you start.

Wings

The wing parts are made from 6.5mm (¼") medium density balsa sheet and each wing panel is made of 3 parts. Weigh the individual parts and interchange them in order to achieve an equal balanced wing. Now glue the wing parts together to form a left and right hand panel.

Where indicated on the plan highlight, using a pen, the location of the area of balsa to be profiled. An indicative guide to shaping the wing is shown on the plan. With the wing panels flat on the building board use a razor plane to profile the wing panels to the first stage of completion as shown on the plan. Now either continue with a plane or with a sanding block, begin the second stage of profiling the wing into a smooth flowing section. Now turn the wing over and repeat the process exactly so the wing is fully symmetrical. Use one of the fuselage sides to make sure the profile is correct at the wing root. When happy, use a medium grade abrasive paper to finish both wings panels to a smooth flowing profile.

Now cut out the ailerons remembering to mark which one fits to which wing. You may have gathered that as the wings are shaped fully symmetrical, it doesn't matter which one is the left or right.

The wings can now be joints together and the 3mm birch ply wing spar fitted.

To finish use fine abrasive paper to round off the leading edge and the wing tips and the wings are done!

Fuselage

Begin cutting out the mid fuselage side pieces 5 and all formers 6 through to 10. Note that the elevator tubes and the wiring holes, should be drilled into former 6 as shown on the plan.

Mark the location of the formers onto the left and right hand side of each fuselage side.

Tack glue 6A to 6 in order to make a complete former. This former is made in two parts just in case the fan should ever need replacing.

Check that the fan fits correctly through the hole in 6/6A. For the 50mm FUNjet EDF unit, the opening in the former will have to be slightly larger than that of the FMS unit..

Now fit the formers 6/6A & 7 to one side of the fuselage. Now add the other fuselage side.

Now add the remaining formers 8, 9 and 10.

Now make up the thrust tube while the fan unit is out of the model..... I have shown on the plan a cut outline of the thrust tube, before it is rolled. The tube is made from 140micron (0.14mm) thick acetate. You will be able to source A4 sheet of this on EBAY or from a stationary's....it's basically the thin clear plastic used on report covers. The easiest way to make the tube is to roll the end of the acetate around the fan unit as tight as you can, making it as a straight tube. Then secure with a small piece of scotch tape across the joint, at the fan.

The fan should now be installed. As suggested on the plan, I used a couple of dabs of hot glue and silicone to secure the fan casing to 6/6A.

Now slide the rolled thrust tube in from the rear of former 9. You will have to fold the tube in on itself but as it slides through, it should pop round again. Gently ease the tube over the fan unit by 12mm or so making sure the motor wires are exiting smoothly through the slot you have made in the tube. Position the wiring slot in the tube edge so the tube seam runs along the top of the open fuselage.

Finally run a piece of tape along the joint length, making sure the tube is pressed hard against the inside edge of former 9. Use a couple of dabs of hot glue; one on the top and one on the bottom to secure the thrust tube to the fan casing and two 'dabs' against former 9..... it doesn't need any more glue than that!

I would suggest at this point you loosely fit the ESC and check the fan motor rotation is okay.

The 5mm square fuselage stringers can now be fitted.

Now sheet the top and bottom sides of the fuselage with 2.4mm soft balsa sheet. You may need to wet the outer surface of the sheeting to assist with bending.

When finished, trim the top and bottom fuselage edge sheeting flush with the top and bottom stringers

Now sheet the top and bottom of the fuselage with 5mm sheet balsa.

Now make up the nose cowl using laminates of 6.5mm balsa from the sheet wing stock or 12.5mm balsa. The cowl corners are lined with 9.5mm triangle.

The nose block is made from laminates of 12.5mm sheet. Make sure you cut to the side profile as shown on the plan. Position and glue this on to the front of the cowl.

Now for the 'shaping' exercise so make sure your razor plane has a new blade in it...

Please remember that there is a lot of shaping around the nose and the triangular balsa is there to be cut into to create the smooth radius curves of the Hunter, so don't scrimp on the shaping. So use a razor plane to profile the square edges of the fuselage and then progress on to using a sanding block along the complete length of the fuselage.

Now install the elevator control cable outers. I would suggest using the 3mm orange tubes from SLEC ltd and used 20swg piano wire for the pushrod.

Mark out the fin slot and cut this out in the top fuselage sheeting.

Fin & Tailplane

To make up the fin, use parts 16 to 17 and glue them together. Profile the fin leading edge. Put the fin aside and only glue into position once the model is nearing completion.

Now make up the tailplane using parts 13 & 14. Round off the tailplane leading edge and chamfer the elevator 15 leading edge ready for the hinges to be fitted.

Finishing off

The wings can now be glued into position. They will need to be slid through from one side. A little fettling maybe needed to get them to fit properly.

The tailplane can now be glued into fin making sure they are parallel. Finally glue the fin into position.

The razor back pieces, 12 can be made using 3 laminates of 6.5mm balsa. This should be shaped to feather into the fin and the front, to match the profile of the rear of the canopy.

Glue this into position

Now cut out the intake openings in the fuselage sides, above and below the wing.

The distinct Hunter wing fairings can now be made by cutting out triangles from 1.6mm sheet balsa. You will need to make a top and bottom pairs of these. The bottom pair will be slightly shorter than the top pair to take account of the aileron servos. Glue these into

position and line the intake edge with 3mm sq scraps of lite ply. This will strengthen the intake lip.

The fuselage access hatch can now be marked and cut out. Use a small hacksaw blade to cut through the top sheeting to the depth shown on the plans. Then, using a straight edge, cut through the side sheeting on each side to release the hatch.

To retain this hatch I used one of the small brass spring catches from SLEC at the rear of the hatch, just to the side of 12. Use a retaining tongue glued to the front of the hatch to keep the front of the hatch secure.....as shown on the plans.

Now mark out the locations of the aileron servos and 'sink' these into the fuselage sides, under the wing.

The finally and most important of all is the large cheat air intake hole in the underside of the fuselage. Make sure you chamfer and smooth the entry leading edge of the opening and don't be tempted to reduce the size of the opening. It needs to be the size shown on the plan as a minimum.

I have also shown two finger holes on the sides of the fuselage at the C of G position to give a hand grip for launching.

Covering

The prototype was covered using Cub yellow Oracover from J Perkins. The lettering/danger signs decals were supplied by www.becc.co.uk (found on Ebay) and the roundels were made from blue, white and red Oratrim.

Fit all the control surfaces with flat flock hinges (from SLEC) and secured with glue. Fit all the servos and the all the control horns. For the control horns, I made these out of 1mm birch ply and slotted these into the control surfaces.

The C of G position should be achieved with just the positioning of a 3S 2200mah lipo. Do not be tempted to move the C of G back from the stated position! You will have to chamfer the wing leading edge, inside the fuselage, to allow the battery to slide past and into the front of the fuselage.

The battery is secure using self-adhesive Velcro..

The canopy can either be fitted before or after covering. I prefer to detail the cock pit, fit the canopy and then cover the model around the canopy, but it's up to you. Finding a couple of small 1/15th scale pilots will be difficult, so if you are not having any luck, ask Real Pilots to make you some 3D printed ones. The ones I used were an ultra light park flyer sport pilot from Hobbyking.

Flying

The first thing to note with these mini jets, is the wing loading is quite low; only 21oz/sq' so hand launching them is very easy. You will need a firm throw and make sure it is straight and level. I suggest for its maiden flight you get a trusted helper to launch the

model for you. The model is remarkable strong and if you don't get it away first time, she'll survive.

Once the hand launch is mastered and trimmed for flight, the model will get away with little fuss and very little control input. On calmer days, expect to hold in some up elevator for a second or so after hand launching.

When you get the model airborne and assuming you have cut in the fan breather holes, you will notice how nippy the model is. Once the initial climb out has been executed and the model is fully trimmed out, you can easily pull back the throttle to half stick position and enjoy what is a very scale flying performance.

You'll find the model simply groves and flies on rails especially on a calm day. However if you fly on a windy day, the model will be thrown around a little so be prepared to fly with more throttle.

All the classic jet manoeuvres can be done with this model, but you will need full throttle and speed on some as the model doesn't have the momentum to carry through manoeuvre such as big loops etc.....just remember to keep the routine smooth and keep what little momentum it has going.

Landings are very straightforward and generally you will run out of elevator control before the model will stall.

Don't be tempted to adjust the C of G. both models have been thoroughly tested and where it is shown on the plan is exactly where it needs to be!

The little 3S 11 bladed FMS fan units do give an amazing punch but if you want more power, the 4S FMS and PowerFun EDF versions, should satisfy those speed freaks amongst you.

Flight times are surprisingly good so expect a good 5-7min depending on throttle use.

So all in all the Hunter is a cracking little models and flies very well. The ethos was to put the fun back into aero modelling at a budget that hopefully all will be able to afford...so a cheap model that could be made from what you have in the scrap box, a £30 fan unit, a £15 ESC, a £20 battery and a few £4 servos, and you instantly have big fun for small bucks

Enjoy!

Specification:

Hawker Hunter

Wing span- 25" (634mm)

Length- 28" (710mm)

Wing loading- 21.oz/sq'(6.3kg/m²)

Target Weight- 22oz (0.625kg)

Wing area- 0.1 m²