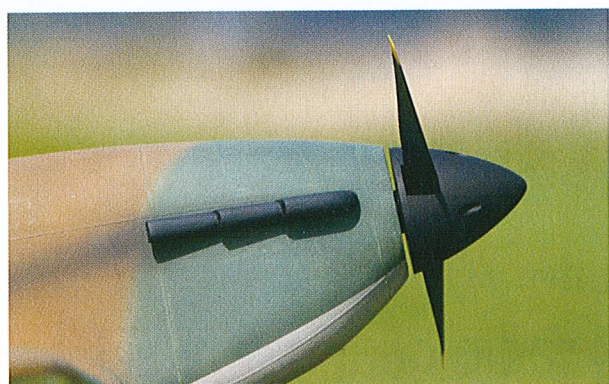


Hurricane

TONY NIJHUIS PRESENTS YOUR CHOICE
FOR 2008 - A TRULY TIMELESS CLASSIC



I've used a 14 x 7" APC-E prop for the Hurricane, with no regrets.

So here we are, one year on from the last *RCM&E Special* and another warbird with which to whet your appetite. It doesn't seem twelve months since the Typhoon was the people's choice for the 2007 Special, and it must be said that the amazing success of the model took both me and the chaps at *RCM&E* by surprise.

So, how do you top that? Well, the only way to get close was to carry out another vote to choose this year's favourite. Accordingly, the challenge was set and voting on *RCM&E's* website at www.modelflying.co.uk was brisk, with votes coming from all corners of the world.

Now, I'm always a bit wary of agreeing to design the winning subject, just in case it isn't a favourite of mine - thus bringing my enthusiasm into question! As

the voting on the website came in thick and fast, then, I was please to see two of my favourites heading the leader board: the Bristol Beaufighter and the Westland Whirlwind. However, by the time the winning post was in sight the Hawker Hurricane was making a late dash, closely followed by the Westland Lysander (not an easy model to design and build in the timescale available!). Fortunately for me, the Hurricane turned out to be the clear winner.

CONSIDERATIONS

With the subject known, consideration needed to be given to the model's size, power and colour scheme. Asking for the opinion of the masses via the Modelflying forum yielded

a tremendous response, with the majority wanting a .60-size model and for the prototype to be electric-powered, but with i.c. power as an option.

My experience with the 62" span Typhoon had successfully endorsed the concept of a .60-size model, meaning the weight of the Hurricane could be guessed at around the 7 - 8 lb (3.2 - 3.6kg) mark. With this information to hand I contacted George Worley at 4-Max to provide an electric set-up that would deliver good performance and duration.

Two other important factors centred on finding a suitable canopy and, if lucky, a cowl. A call to Roly at Sarik VAC-Form soon turned up a suitable canopy, and as for the cowl, it seemed

It was surprising how many readers held the Hurricane in such high regard in our readers poll. For those of you who voted in favour - enjoy!





There are plenty of colour schemes to choose from but I liked this Mk.1 livery.

The Hurricane is more of a builder's model compared to my previous Typhoon and Spitfire.

just as easy to make this out of wood, similar to that of my 62" Spitfire from a few years ago. Retracts were to be commercial .60-size mechanical units (Ripmax), operated via a standard hi-torque 6kg servo. That said, .60-size spring / air retracts (again Ripmax) would be easier to install, especially as far as servo linkages are concerned.

All that was left now was to draw the plan. Using CAD it took about a week to get the bare bones to a printable state, which included the data required by SLEC to cut the CNC parts.

With all the parts to hand I had to crack on with the build as deadlines were looming. Mind you, burning the midnight oil was well worth it and I hope you agree that the model looks a treat. Rest assured, she flies as good as she looks! More on that later, but let's get her built first.

FUSELAGE

Start by gluing the fuselage sides S1 to S2, and S3 to S4 (if you're not using the CNC pack, these parts are outlined on the plan). Note that S3 and S4 form a shorter, right-hand fuselage side. Now



glue the wing seat doublers WS1 in place, followed by two small lengths of 18mm triangular section to the inside face of S2 and S4 as indicated on the plan. Attach F2, F2A, F3 and F4 to their respective positions on one fuselage side and then glue the opposite side in place, noting the very slight curvature of F3. (My advice is to use a jig to build the fuselage from here onwards).

Cut out and glue in the bottom fuselage decking piece that fits just behind the wing t.e., noting that the fuselage needs to be pulled in slightly, before gluing. Now fit F1; this should angle slightly right, and the centre hole for the engine / motor mount alignment should be left of centre (looking from the rear). Add the three upper forward

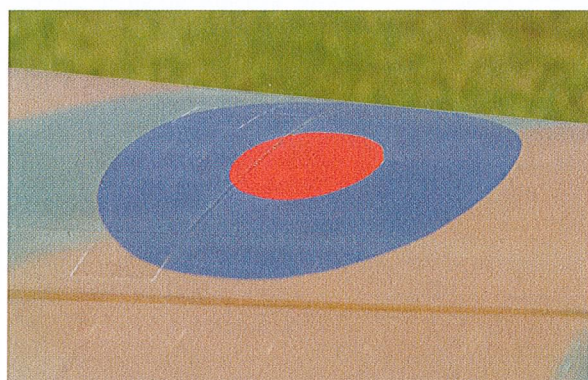
fuselage longerons and glue F4A into position.

Time to cut the top fuselage sheeting that stretches from behind the cockpit area as far as F1 (as per the plan), ensuring there's enough sheeting to cover one side up to the top centre longeron (100mm wide sheet will do it). Wet the outer surface of the balsa to aid bending around the formers, and glue into position when happy. Trim the cockpit area using the canopy as a guide, including any overhang above F4A and fit a piece of 12mm balsa sheet between F4 and F4A.

To make up the inner tail post, build the spine and tail post arrangement over the plan and mark the positions of the remaining formers. Fit this to the jugged / constructed part of the fuselage and add the remaining formers F5, F6 and F7 to the spine.

The rear fuselage stringers can now be added in sequential order (working from left to right to left). Study the plan and you'll see that the stringers are numbered on all the formers. Where the numbers

It's the little touches like these panel lines that make all the difference to a scale model.



I airbrushed the camouflage using Humbrol enamels, whilst the lettering is hand-painted.

There's no doubt that the roundels look better painted onto the wing surface.

When it comes to landing and ground handling the Hurricane is a real peach. Taxiing is easy and there's absolutely no tendency to nose over.



Weighing in at some 8.5 lbs, the model is big enough to convince, yet light enough for an inexpensive electric power system or good .61 four-stroke engine.

don't appear on the next former, the stringer should be tapered to the closing gap. Start with stringer 13 and work down the fuselage sides noting that the stringers only butt against the front section of fuselage, and glue against the inner tail post.

Now make up the tailplane fairing using soft 4.5mm balsa, wetted to achieve the tight curve near the base of the fin, and then continue to add the stringers to the top of the fuselage. To complete the underside, remove the fuselage from the jig, add the stringers and position the front lower sheeting.

COWL

Fit the engine mount and engine (without carb and silencer) or electric motor. Make up the cowl cheeks (sides) and glue these into position, at the angles shown on the plan (you may have to hollow-out the inside of the cowl cheeks to achieve these angles). If you intend to make the cowl detachable, then only tack-glue the parts to F1 so they can be easily removed later. Now temporarily fit the nose ring, centralising it around the engine crankshaft / motor shaft. Mark around the nose ring using a pen, and remove it.



Cut and fit the four lengths of 18mm triangular and trim flush at the ends. Add the top and bottom sheeting to enclose the cowl, making any holes necessary to allow access to the engine cylinder head etc. Trim the nose and glue the nose ring into position. Using a razor plane, shape the cowl to the profile shown, blending it smoothly into the fuselage.

TAIL FEATHERS

The fin is constructed from soft 12mm sheet balsa, whilst the rudder is made from a 3mm sheet balsa core fitted with a centrally-glued 9mm sheet leading edge; wedge-shape riblets are applied

either side of the core as shown, then top and bottom tips shaped and fixed into position.

The stabiliser is made in one piece, built over the plan. Pin the spar down and glue the ribs in place, using a set square on rib T1. Now cut the sheet trailing edge and inner leading edge and glue these into position. Fit the top spar and remove the panel from the plan. Note that the tailplane is built upside-down, so when mounted correctly it will have a very slight dihedral.

Using 1.5mm ($\frac{1}{16}$ ") balsa, sheet the top and bottom of the tailplane. Finally, add the 6mm sheet outer leading edge.

I used mechanical retracts for the model, employing sprung oleos. Don't fit wheels that are too small, it's an easy way to spoil the appearance. These are 4" Robart scale jobs.





Looks the part, doesn't she? Every bit Sidney Camm's 'working class hero'.

The pilot figure is one of the moulded latex chaps from the JP range - just the job!



All those stringers are well worth the effort in retrospect and give the model that essential 'Hurricane' feel.

Constructed in similar fashion to the rudder, the elevators are tack-glued to the stabiliser. Tailplane tips are from a laminate of 6mm and 9mm balsa, which are then glued to both stabiliser and elevators and subsequently razor planed / sanded to profile. When happy, cut through the tips where shown and release the elevators.

WING

The wing is built in three sections; a centre and two outer panels. Constructing the centre-section first, pin the lower middle spar over the plan. This will have to be chocked up slightly. Fit ribs W1 - W4 noting that W4 should be angled using the dihedral brace. Locate the upper forward, middle and rear spars, cutting a small notch in the forward and middle dittos at W1. Next, fit the inner 6mm sheet leading edge.

Remove the section from the plan, then fit the remaining lower spars and install the retract mounting bearers. It's a good idea to install the retracts now (including servo and linkages and get the mechanism working correctly with the legs and wheels attached. Remove the u/c legs

and wheels when happy with the operation, but leave the servo and pushrods in situ. Infill at the rear between W1 and W2, and use 12mm triangular to strengthen the rib joint to the inner leading edge of W1, W2 and W4.

To build the two outer wing panels, start by pinning the lower forward and middle spars over the plan. Again, the middle spar will require chocking up slightly. Add W5 - W13 and fit the upper forward, middle and rear spars, followed by the inner l.e. and the aileron inset t.e. between W8 and W13. Using the dihedral brace, trim the top spar overhang at W4 to take the wing's dihedral into account. Remove the panel from the board and fit the remaining lower spars. When dry, add the aileron servo bearers or, if you wish, commercial servo mounts.

Glue the braces B1 and B2 to the centre panel only and, when dry, offer the outer wing panels into position, taking account of the dihedral. When happy, glue the braces to the outer panel spars. At this point either install the aileron servo extension leads or, failing that, draw strings, to aid the process later on.

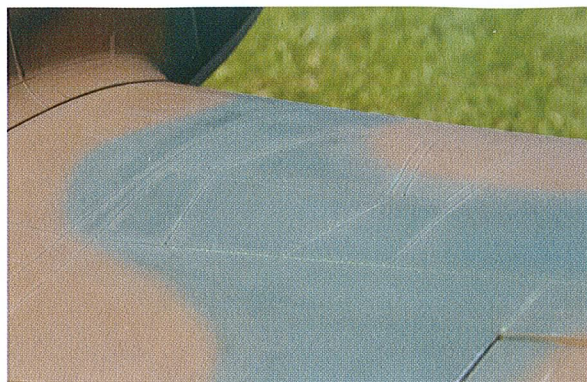
Insert the shear webbing between the forward upper and lower main spars and sand the inner l.e., spars and t.e.'s flush with the ribs. Commence sheeting the top side of the wing using 2.5mm medium (or 1.5mm hard) balsa, starting with the centre section. Make sure you keep the wing sections flat on the building board with all the jig tabs touching the surface as you progress.

Now skin the wing underside, in sections, as before (the jig



Little details such as the exhaust stacks and panel lines combine to reward the effort with a convincing facsimile.

I use small strips of 1.5mm 'snake tape' (from MFA) to simulate panel lines. Note that it's rubbed back ever so slightly to produce the weathered effect.



The colourful rudder brightens up the overall scheme to very good effect.



Such is the general performance and handling of this aeroplane, you'll be wanting to fly her on a very regular basis.

tabs need removing in order to complete the skinning). Mark and cut the openings for the wheels, u/c legs and aileron servos, and trim the top and bottom wing skins flush with the l.e. Cut and fit the 12mm sheet outer l.e., splicing it across the inner joint to strengthen the inner l.e. at the dihedral joint.

Having shaped the l.e. to the profile shown on the plan, cut out the 1" balsa wing tips and secure to W13. Roughly shape the tips using a razor plane and sand to a smooth, flowing profile to match the wing. The ailerons are built in similar fashion to the elevators and rudder.

FUSELAGE... AGAIN!

To fashion the wing-to-fuselage fixing, first fit the wing 'T' nut mounting plate where shown. Back on the wing, drill a hole for the retaining dowel in the l.e., then cut a short piece of dowel that protrudes only very slightly beyond the l.e. Don't glue this in! Tape scrap strips of 0.8mm ($1/32$ ") birch ply to the upper surface of the aerofoil directly under the wing seat to act as supplementary fairing pieces, which are yet to be installed. Paint the end of the dowel stub and sit the wings centrally onto the fuselage,



pushing the wing against F2. By doing this the dowel will mark the exact position of the hole needed through F2 and F2A.

Okay, replace the short dowel for one that extends at least 12mm beyond the wing l.e., and glue this into the wing. Drill through F2 / F2A on the painted mark to accept the dowel. Re-fit the wings and centralise before drilling two 6mm holes for the wing bolts to pass through both the wing and the mounting plate. Remove the wing and remove the scrap 0.8mm birch ply taped to it. Open up the hole in the mounting plate to accept the 'T' nuts, and secure these with epoxy.

Cut the 0.8mm birch ply wing fairing pieces and the rearward 3mm liteply chaps. Fit the wing then slide the 0.8mm fairings in place, gluing into position along the fuselage edge. When dry, remove the wing / fairing and locate and glue the 3mm liteply rear part of the fairing. Using soft 1.5mm balsa, cut the fairing profile as shown on the plan. This piece should be soaked with water, rolled and glued against the fuselage before being glued to the ply fairing. Note that the forward piece of the fairing infill is made

from solid balsa, shaped to blend with the rear sheeting.

Refit the wings then fashion the front and rear under-wing fairing from solid balsa, blended into the fuselage underside. Incidentally, the radiator is also made from solid balsa.

Trim the slots for the tailplane and secure the latter to the fuselage using epoxy. The rudder simply slots into the tailplane, after which the outer tail post is fitted and trimmed flush against the stringers.

FITTING OUT

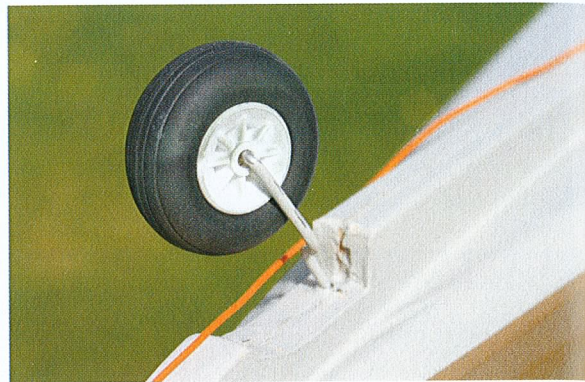
It's up to you when to fit the canopy, personally I prefer to execute the cockpit detailing and fitting before covering. For this, then, J. Perkins supply a good $1/7$ scale W.W.II pilot that's just the right size and finishes the model off a treat.

The prototype was covered in silver Easycoat (Profilm) with the ailerons, elevator and rudder being covered separately prior to fitting. Oh, and remember to add the elevator torque rod before fitting the rudder! Secure all the control surfaces using Mylar hinges, pegged with pins, then install the servos and control horns, control

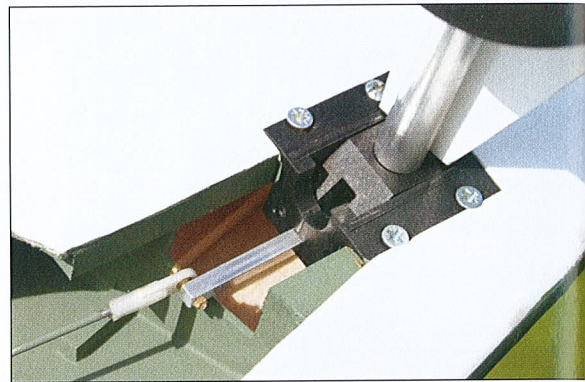
Mini servos have served well for ailerons while standard units can be used for rudder and elevator.



I employed a fixed 1.5" diameter tail wheel in order to get the 'look' about right.



A detachable aerial is a sensible measure as you can almost guarantee it'll be broken off if fixed in place.



Any commercial mechanical retract unit should be fine, with or without oleos. Note the forward rake which helps ground handling.

rods and the remainder of the on-board radio gear. Both versions (i.e. and electric) will need ballast in the cowl, which should be placed as far forward as possible. The prototype needed just over 10oz (283g) of lead to balance at the C of G, providing the model with an AUW of 8 lb 4oz (3.7kg).

MAKING ANGELS

In its covered but unpainted state, the Hurricane sat patiently on the Hastings 1066 club strip in the teeth of a 20 knot wind, ready for its maiden flight. The first few take-off attempts ended with the model nosing over, the fault being traced to the tyres rubbing against the u/c legs. Not a field fix, this, but I was desperate to see her fly... One more try, then. Holding full 'up' elevator with the motor at full revs the Hurricane raced down the strip, just balancing on the main wheels before lifting off. Climbing away at speed this was a very un-scale affair, but hey - she was airborne! Flicking the retract switch saw the wheels smartly tucked away, and she was into her first circuit, throttled back and with quite a few clicks of down



and left trim for straight and level flight. The following few circuits revealed the model to be very stable, with no surprises, she just went where I pointed her.

This is one of those models that really instils confidence - with more than adequate power from the 4-Max set-up she's agile yet stable - a real pussy cat. What about landing? Well, I've flown other Hurricane's in the past and one such always filled me with dread, mainly because the model would pitch and porpoise on approach, usually resulting in it losing its undercarriage and breaking the prop. So, being somewhat wary, I lined the model up for a landing approach and held my breath. With the

wheels rubbing on the legs I was expecting the model to end up on its back, but no - she descended beautifully to a fast touch-down, although she did bounce on the undulating ground. Nevertheless she remained controllable, and on the second touch-down the wheels stayed on the ground and she rolled to a halt, nosing over at the last. Phew! That landing certainly put a few demons to bed!

Having flown my similar size Spitfire and Typhoon recently, it was nice to compare the three. The Hurricane doesn't have the crispness of the Spitfire but is certainly more nimble than the Typhoon. Don't be tempted to increase the elevator and aileron throws more than suggested

CONTACTS

4-Max: www.4-Max.co.uk Tel. 01256 320733



Early Hurricanes flew with two-blade props so it's one aeroplane that seems to be able to get away with a normal model flying two-blader.

I normally add the cockpit detail and pilot before covering and painting.

because she can get a bit lively. Likewise, if you wish to move the C of G position, move it only very slightly forward, not back. There are no real vices with this model, it goes where you point it and does what you ask of it. You really couldn't ask for more.

FINISHING

With the model passed as airworthy, it was time to add some war paint. Now, I always like to incorporate an interesting colour scheme that has some traceable history and in this case decided to go for a scheme based on P3351, an early Mk.1 Hurricane that was recovered from Russia in 1991. The surface of the prototype's Easycoat covering had to be 'keyed' before painting, which I achieved using 400 grade wet and dry paper, applied wet with a little soapy water. The upper surfaces were painted with Humbrol dark earth and dark green, with the lower surfaces light sea grey. The contrasting black and white on the wing undersides is by way of black and white Solarfilm. You can use Solartrim for the roundels, or they



Trust me, you'll love this aeroplane and fly it regularly.

can be painted on, along with the squadron markings. Balsa exhaust stacks, painted black, add a touch more realism.

GOOD 'UN

Build this Hurricane and you won't be disappointed, I promise. And, of course, being a scale warbird, she deserves to be flown in scale fashion. Barrel rolls and loops are a delight, but where she really excels is in low, fast passes, pulling up into a half roll and reversal... Brilliant! Keep the manoeuvres smooth and fast, using the model's momentum rather than brute engine power.



ORDER LIST

Item	Code	Price
Canopy	CANRC2050	£6.99 + p&p
Hurricane plan pack (CNC wood selection, plus canopy)	SETRC2050	£64.95 + p&p

To order, email: customer.services@myhobbystore.com or telephone 01689 899200.

DATAFILE

Name:	Hawker Hurricane
Model type:	Scale W.W.II warbird
Designed by:	Tony Nijhuis
Wingspan:	62" (1575mm)
Fuselage length:	49.5" (1257mm)
All-up weight:	8.5 lb (3.7kg)
Wing area:	593 sq. in.
Wing loading:	32oz / sq. ft. (9.8kg / sq. m)
Rec'd powertrain:	Electric version - 4-max PPO-5055-580 with 70 amp brushless ESC and UBEC, 5S 5000mAh Li-Po battery Glow version - .61 4-stroke
Functions (servos):	Aileron (2); elevator (1); rudder (1); throttle / ESC (1 / 0); retracts (1)
Deflections:	Aileron ±10mm; elevator ±9mm; rudder ±25mm