

THE WORLD'S ONLY RC SCALE MODEL MAGAZINE

SCALE AT WESTON PARK

Flying Scale Models

FREE FULL SIZE PLANS

WEYMANN LEPERE WEL-10

36" WINGSPAN FOR
ELECTRIC POWER

www.flyingscalemodels.com



FULL CONSTRUCTION FEATURE

DRAGON TAMED!

DH 89 RAPIDE - 60" WINGSPAN 1:10 SCALE FOR ELECTRIC POWER WITH SCALE THREE-VIEWS

FINAL FOKKER - TONY FOKKER AND HIS E.5/D.VIII MONOPLANE

FELINE FANTASTIC!

GRUMMAN HELLCAT
MASTER MODEL

PLUS: SUPER DETAILED SCALE THREE-VIEWS ● COLOUR SCHEMES ● FULL SIZE ● CLOSE-UP STUDY

October 2016
No. 203 £4.99

9 771368 900059 10

GET YOUR HANDS ON ULTRA **POWER**



CHARGE ...your passion



OptiFUEL™ is one of the fastest growing brands in Europe with competition winning Nitro fuel products for the RC Model sector, now OptiFUEL™ is delighted to add a new brand OptiPOWER™ which will be the flagship brand for the new range of RC Chargers and LIPO cells.



> **ORDER NOW** FROM YOUR LOCAL RETAILER
FIND YOUR SPEC @ www.optipower.co.uk

OptiPOWER™
...your passion

THE ISSUE AHEAD...

FORMATION...

FLYING SCALE MODELS - THE WORLD'S ONLY MAGAZINE FOR SCALE MODEL FLYERS



6



22



46



ON THE COVER

During the 1920s and early '30s, airliners looked like biplane flying rockeries. Rigging wire was a good business to be in! But at de Havilland, their designers had a real sense of shape and style that ran through their series of biplane twin and four engine airliners that culminated in the DH 89 Drago Rapide. All of the series had that unique DH 'trade mark fin and rudder shape

OCTOBER 2016 NO.203

4 CONTACT

Just for starters

6 FULL SIZE FREE PLANE FEATURE WEYMANN LEPERE WEL-10

A 36" span, simple scale model of the French military observation aircraft designed by Peter Rake for electric power

12 DE HAVILLAND DH 89 DRAGON RAPIDE

A 60" (1524mm) wing span approx 1:9.6 scale replica of the famous biplane light airliner, for R/C electrics

20 RAPIDE SCALE DRAWING

1:40 scale three views

22 GRUMMAN F6F-5 HELLCAT

Alex Whittaker reviews Richard Dalgleish's superb model, build from the Jerry Bates plans

28 HELLCAT TYPE HISTORY

Rightly regarded as a major contributor to Pacific combat theatre victory in WW2., this Grumman naval fighter was simply the right fighter aircraft, at the right time

34 HELLCAT SCALE DRAWING

Super detailed 1:50 scale drawings by Arthur L. Bentley

38 HELLCAT IN DETAIL

Close-up detail study aid for replicating surface detail

41 HELLCAT FLYING COLOURS

Warpaint as applied to both U.S.Navy and Royal Navy Fleet Air Arm F6F-3 and F6F-5

46 SCALE SOARING

Chris Williams, slope side

50 SCALE OVER WESTON

Alex Whittaker takes in the dominant scale element of this major annual show

56 FOKKER MONOPLANES PART 2

Gary Sunderland traces the short career of the Fokker E.5/D.VIII and the personality of its famous designer

60 TECHNO SCALE

Scale Web site review

62 QUIET ZONE

Peter Rake goes deeper into the construction of his Weymann Lepere WEL-10, reviewing construction techniques that apply right across the board of electric power scale modelling

Editor: Tony Dowdeswell
Publisher: Alan Harman
Design: Peter Hutchinson
Website: ADH Webteam
Advertising Manager: Sean Leslie
Admin Manager: Hannah McLaurie
Office Manager: Paula Gray

FLYING SCALE MODELS is published monthly by ADH Publishing, Doolittle Mill, Doolittle Lane, Totternhoe, Beds, LU6 1QX. Reproduction in part or whole of any text, photograph or illustration without written permission from the publisher is strictly prohibited. While due care is taken to ensure the contents of Flying Scale Models is accurate, the publishers and printers cannot accept liability for errors and omissions. Advertisements are accepted for publication in FLYING SCALE MODELS only upon ADH Publishing's standard terms of acceptance of advertising, copies of which are available from the advertising sales department of FLYING SCALE MODELS.

EDITORIAL ADVERTISEMENT

& CIRCULATION: Doolittle Mill, Doolittle Lane, Totternhoe, Beds, LU6 1QX.
Tel. 01525 222573 Fax. 01525 222574.
Email: enquiries@adhpublishing.com

CIRCULATION TRADE ENQUIRIES:

Seymour Distribution, 2 East Poultry Avenue, London, EC1A 9PT
020 7429 4000.

NEWSTRADE: Select Publisher Services, 3 East Avenue, Bournemouth, BH3 7BW.
01202 586848
Email: tim@selectps.com

SUBSCRIPTIONS: Doolittle Mill, Doolittle Lane, Totternhoe, Beds, LU6 1QX.
Tel. 01525 222573. Fax. 01525 222574.

PRINTING: Henry Stone Ltd., Oxfordshire

(c) Copyright Flying Scale Models 2016 ADH Publishing.

The paper used on this title is from sustainable forestry

CONTACT

In the commercial world, Trade Marks, the ones that successfully become immediately associated with a particular product, or product line, are worth their weight in gold. The longer such associations are perpetuated, the greater is their value.

In the aviation world, although never the subject of copyright or patent, the de Havilland fin and rudder shape is one that stands out probably more than any other in aviation history, commencing with the DH 4 of 1916, right through to the WW2 period with the DH Mosquito and into the early jet age with the Vampire and Venom, and finally showing the last vestiges in the de Havilland DH 104 Dove.

In the period between, whatever the shapes, de Havilland designs took in meeting any kind of aircraft requirement specification, that back-end shape shouted 'de Havilland' to stratospheric heights beyond the capabilities of any of the DH designs that carried the 'badge'.

That elegant tail end, added class to the study in biplane airliner elegance which is the de Havilland DH 89 Dragon Rapide and which is our lead scale model construction feature in this issue. Electric power minimises the risk associated with scale model twins and there's a cut-parts set to further assist anyone who would like to take up the challenge.

Sadly these days, the revered de Havilland name has long since disappeared from the aircraft industry, swallowed up during the late 1960s when UK Government aviation policy said "... consolidate or die..." in a world where the cost of aircraft manufacturing was becoming beyond the wherewithal of stand-alone 'brands'. DH was lost in the Hawker Siddeley Group, while others were subsumed into the British Aircraft Corp. (B.A.C.).

Nowadays the required industrial muscle has overtaken even revered historical names in U.S. aviation. Boeing absorbed McDonnell and Douglas, and later North American Aviation (of P-51 Mustang fame), while Grumman (so long the major US naval fighter supplier - see F6F Hellcat features in this issue) combined in Northrop Grumman.

Republic (P-47 Thunderbolt) combined with Fairchild and, more lately, Lockheed absorbed Martin (B-26 Marauder).

All very necessary no doubt, but at the cost of individuality that we scale modellers tend to associate with those revered names from the past.

... and in the case of the name de Havilland, the sight of that oh so distinctive fin-and-rudder shape remains the height of individuality, which the creativity of scale modellers will no doubt help to perpetuate for as long a balsa bashing continues.

CREDIT WHERE DUE...

Brain fade again! In last month's issue, we completely failed to acknowledge Steve Outram as the man behind the camera, that made possible the really excellent close-up detail photo study of Robert Fleming's (there got the name right this time!) lovely Dart Kitten that was the subject of our 'Subjects for Scale' feature in that issue.

So apologies to Steve and, once again, our thanks to both Robert and Steve, for making that feature possible.

De Havilland from nose to tail post, that fin and rudder shape says it all.



Buying direct from Tony Nijhuis Designs Ltd you can be assured of a quality service, backed-up by a knowledgeable team of passionate aero modellers.

www.TonyNijhuisDesigns.co.uk

Phone Orders- 07563 518159



Plans	£22.00
VAC Set	£33.00
CNC Pack	£75.00
Wood Pack	£60.00
Complete Pack	£180.00

62" Span Typhoon
Electric or 0.65 IC

What's NEW

Our new 72" MOSQUITO designed for twin electric and 4S batteries. See web site for further details

Complete Pack -Plans, CNC Pack Wood Pack and VAC set	£259.00
--	---------



Plans	£22.00
VAC Set	£31.00
CNC Pack	£73.00
Wood Pack	£75.00
Complete Pack	£191.00

72" Span Lancaster
4x 200w Electric



Plans	£22.00
VAC Set	£58.00
CNC Pack	£77.00
Wood Pack	£40.00
Complete Pack	£187.00

66" Span Lysander
0.52 IC or Electric



Plans	£20.00
VAC Set	£35.00
CNC Pack	£55.00
Wood Pack	£34.00
Complete Pack	£139.00

42" Span BAE Hawk
68-70mm Electric DF



Plans	£15.00
VAC Set	£10.00
CNC Pack	£75.00
Wood Pack	£38.00
Complete Pack	£132.00

46" Span MK9 Spitfire
0.25 IC or Electric




Plans	£45.00
VAC Set	£58.00
CNC Pack	£162.00
Wood Pack	£121.00
Complete Pack	£371.00

104" Span HP Halifax
4x.32-40 IC or Electric



Plans	£22.00
Canopy	£12.00
CNC Pack	£84.00
Wood Pack	£58.00
Complete Pack	£169.00

63" Span MK9 Spitfire
0.65 IC or Electric




Plans	£39.00
Nose cone	£16.00
CNC Pack	£154.00
Wood Pack	£67.00
Complete Pack	£266.00

86" RetroJet Turbine
Trainer (80 size)



Plans	£22.00
VAC Set	£28.00
CNC Pack	£109.00
Wood Pack	£61.00
Complete Pack	£210.00

72" Span Avro York
4x 200w Electric




Plans	£55.00
VAC Set	£65.00
CNC Pack	£144.00
Wood Pack	£163.00
Complete Pack	£427.00

134" Span Lancaster
Electric or 4x0.52IC



Plans	£28.00
VAC Set	£32.00
CNC Pack	£104.00
Wood Pack	£71.00
Complete Pack	£225.00

72" Span MK 5 Spitfire
1.20 IC or Electric




Plans	£50.00
VAC Set	£30.00
CNC Pack	£175.00
Wood Pack	£97.00
Complete Pack	£342.00

78" Span Turbine
Vampire (80 size)



Plans	£52.00
Can / cowl	£80.00
CNC Pack	£167.00
Wood Pack	£149.00
Complete Pack	£428.00

103" Span Hurricane
62cc Petrol




Plans	£22.00
VAC Set	£33.00
CNC Pack	£77.00
Wood Pack	£62.00
Complete Pack	£184.00

72" Span Boeing B-17
4x 200w Electric



Plans	£25.00
VAC Set	£42.00
CNC Pack	£73.00
Wood Pack	£57.00
Complete Pack	£187.00

60" Span FW-190A
Electric or 0.75 IC



Plans	£89.00
VAC set	£95.00
CNC Pack	£200.00
Wood Pack	£200.00
Complete Pack	£544.00

98" Span Turbine
Vulcan (80-120 size)




Plans	£22.00
VAC Set	£32.00
CNC Pack	£75.00
Wood Pack	£47.00
Complete Pack	£166.00

57" Miles Aerovan
2x 400w Electric



Plans	£25.00
VAC Set	£29.00
CNC Pack	£76.00
Wood Pack	£91.00
Complete Pack	£211.00

72" Span Sunderland
4x 200w Electric



Plans	£22.00
Canopy	£13.00
CNC Pack	£75.00
Wood Pack	£80.00
Complete Pack	£180.00

62" Span Hurricane
Electric or 0.65 IC




Plans	£22.00
VAC Set	£37.00
CNC Pack	£71.00
Wood Pack	£58.00
Complete Pack	£178.00

72" Span DC3 Dakota
2x 600w Electric



Plans	£28.00
VAC Set	£43.00
CNC Pack	£94.00
Wood Pack	£76.00
Complete Pack	£231.00

76" Span A400M
4x 500w Electric



Plans	£22.00
VAC Set	£32.00
CNC Pack	£76.00
Wood Pack	£61.00
Complete Pack	£181.00

66" Span Harvard
0.65 IC or Electric



Plans	£22.00
VAC set	£32.00
CNC Pack	£72.00
Wood Pack	£61.00
Complete Pack	£177.00

61" Span P-51B & D
900w Electric

Other Models In Our Range

	Plan Price		Plan Price
40" BAC Hawk	£13.00	40" Cosmic Wind	£13.00
40" Vampire	£13.00	30" Fokker D7	£13.00
58" Aerovan	£15.00	32" Corsair	£13.00
38" Mosquito	£13.00	32" Mitsubishi Zero	£13.00
38" Moskito TA154	£13.00	40" Cosmic Wind	£13.00
47" Mosquito	£15.00	40" Midget Mustang	£13.00
46" Spitfire	£15.00	24" EE Lightning	£13.00
30" SE5a	£13.00	24" MIG 25 Fox Bat	£13.00



Plans	£22.00
VAC Set	£29.00
CNC Pack	£79.00
Wood Pack	£54.00
Complete Pack	£174.00

49" Span Vulcan
DF or pusher



New 'ACE' range of half-bodied pilots for WW2 British, German, US and modern Jet style, ranging from 1/10th to 1/15th Scale



Building your very own model from plan is one of the most satisfying achievement any modeller can experience..... so go on, give it a try and don't miss out on this wonderfully therapeutic side to this great hobby...Tony Nijhuis

All major Debit & Credit Cards accepted

For more information on all our products, including free downloads of build articles and construction photos, please visit our web site- www.tonymijhuisdesigns.co.uk

Tony Nijhuis Designs Ltd
47 Baldslow Down, St Leonards, TN37 7NJ
Email- Sales@TonyNijhuisDesigns.co.uk

WEYMANNN LEPERE WEL-10

A 36" span, simple scale model designed by Peter Rake and with the prototype model built and flown by Pat Lynch

This is another of those models on which I was attempting, to some extent, to get back to my modelling 'roots'. Its inspiration came from a small rubber power model and I have tried to retain the

simplicity of that model as much as I can.

For those not aware of what I mean by my modelling roots; when I first got into electric powered flight it was with relatively simple models of around 36 inches wingspan and powered by geared

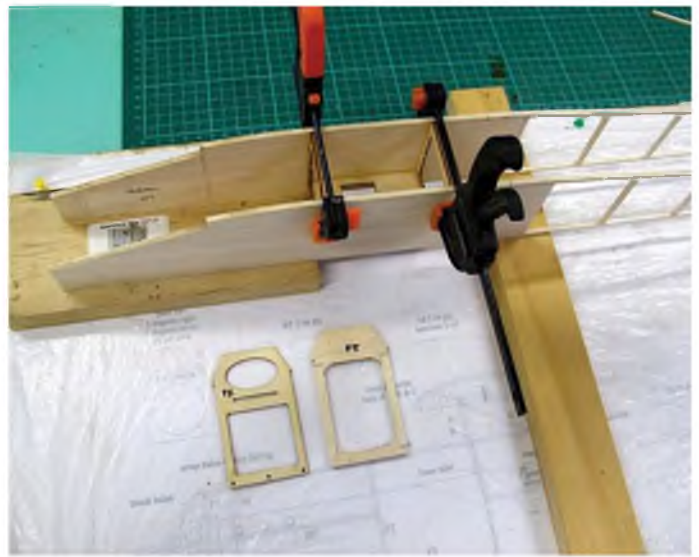
400 size motors. These days my models seem to have become increasingly more complex because I know laser cut parts sets will be made available from the publisher, but it does tend to make life hard for those wishing to cut their own set

Yes, there should be something covering the lower fuselage and there are a couple of struts missing but the little WEL-10 climbs out on test, regardless.





The totally traditional build begins with the usual two fuselage side frames.



Note the way the fuselage is packed up so the straight top edge can be used to aid alignment of the sides without the formers getting in the way.



Aligned over the plan and with the tail packed up the tail is pulled in and the rear formers fitted.



Once the balsa decking is in place the model begins to show her boxy nature.

of parts.

The idea of these models was to ease that cutting burden and once again make them more suitable for cutting by hand. Yes, there are still one or two parts that need cutting carefully if they are to key together as intended, but these are kept to a minimum. Let's face it, if you can't accurately cut out a simple rectangle in a 1/16" ply former there's very little chance of you being able to cut the rest of the former with any degree of accuracy.

So, here is a model simple enough that any reasonably competent builder can cut out the parts, but backed up by the availability of laser cut parts for those with better things to do than butcher balsa and ply. Personally, I find myself slipping increasingly into the latter group. If I'm going to build a model I want to get straight to it. Time for cutting out parts can be much better spent drawing the plan for the next model.

Although the basic model is quite simple, there are lots of aspects to this build that there simply aren't room for in this construction article; little detail points and how-to ideas. So, perhaps it's fortunate that I had nothing in particular

in mind for my column this month because it means I can include all those points there.

THE MODEL

As intimated, construction of the basic airframe has been kept as simple as I could make it and still end up with the appearance I was seeking. However, the wire work and struts do get quite complicated and can use a detailed description of their own. That is just one of the items that you'll find in the column elsewhere in this issue.

Power is designed to be a 300 size outrunner motor running on a 2S LiPo. Pat had his model set up (suitably propped) for 3S, but had to make the test flight using a 2S pack. Although this meant the model was flying at less than optimum power, it still acquitted itself well enough for Pat to consider the build complete - as complete as it's likely to get.

THE BUILDER

I need to explain a few things about this model that are directly related to the builder himself. As I'm sure you'll notice the model isn't quite finished - no hatch and the battery held in with a block of

foam. Following the loss of his wife, Pat is in the process of moving back to New Zealand and all his modelling gear is either discarded or safely packed away.

Apart from this change of circumstance, you can well imagine that modelling was the last thing on Pat's mind. So, I'm extremely grateful that he took time out from his preparations to fit in a test flight and get me some shots of the model in flight. Now, seeing what I've done with them, I just have to hope he feels it was worth the effort.

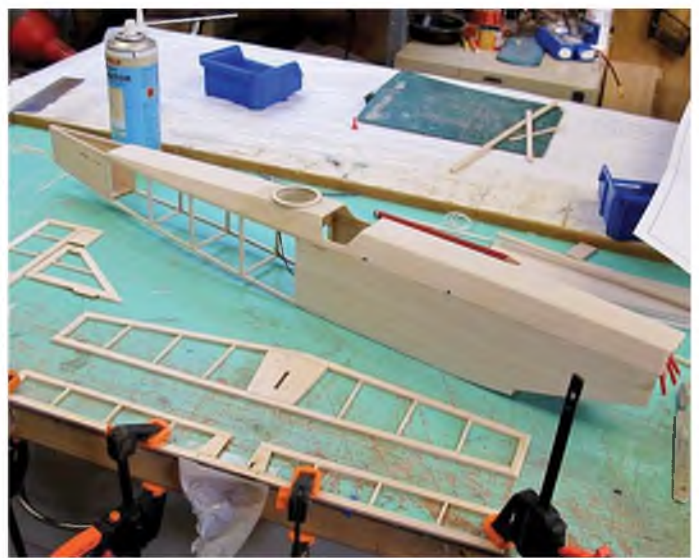
FUSELAGE

With the exception of the wire work, the fuselage itself is a very straightforward building job. You start off with the two fuselage side frames built over the plan and progress from there in a totally traditional manner.

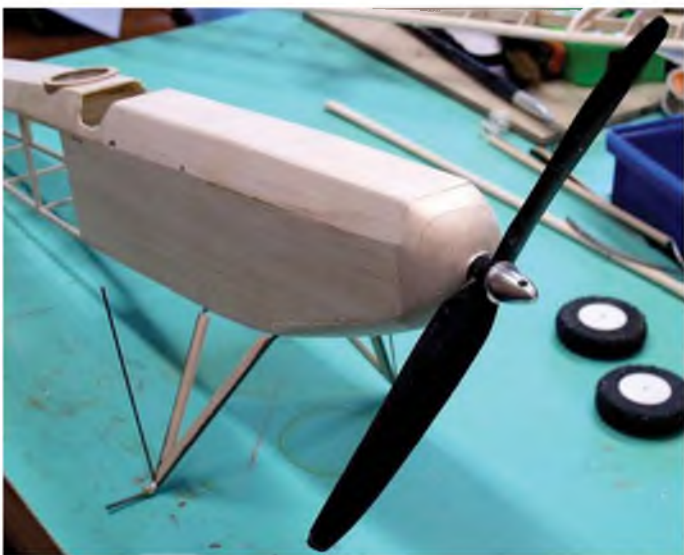
When building the side frames I like to build one over the plan, allow it to dry completely, turn it over and build the second side over that. The reason being that although wood is supposed to be a given size, very often it's only approximately that size. If you build straight on top of the existing side frame those slight differences will be multiplied



How the cockpit is cut out and the tube that forms the basis of the gunner's position is fitted.



Here you see the continuous elevator leading edge aligned with the edge of the board while the joiner is fitted. Then the spare leading edge is removed.



With the nose shaped the u/c is fitted and the lower part of the flexible strut. More details of this in the column.



There's absolutely nothing complicated about building these wings, all totally straightforward modelling.

as you build the second side. By turning over the first side you now should have a perfectly flat surface on which to build the second side. Any irregularities will be on opposite sides, which will be the outer faces of the assembled fuselage, and can be sanded smooth during the finishing process.

So, with two side frames to hand, mark the former positions on the inside of each, lightly score where the nose pulls in and join them using formers F2, F3, F4 and F5, making sure you fit plate RT as you proceed. It's worth checking that your servos actually fit the openings in RT before it is firmly glued into the fuselage. Cut cross braces to match the remaining rear formers and pull the tail together and glue them in place. Now pull in the nose and fit M and BT, gluing the sides to BT. Fit the motor before installing F1. Pat fitted an E-flite Park 300 motor and, because it only has two mounting points, also fitted a tapered ply mount plate to provide down and side thrust. Details of this are shown in the column.

Bind and glue the c/s strut tubes in place before adding the sheet balsa top decking. Add the 1/16 balsa exit plates at the tail flush with the outer surface of the

fuselage frame. It doesn't matter that they won't quite follow the curve of the side frames because they will do after the finish sanding is complete. They aren't a stressed component and really only serve to provide somewhere for the covering to attach around the pushrod exit points.

Before finish-sanding the fuselage tack glue in place the nose block and the block balsa battery hatch. Hollow the nose block as required to fit around the motor. It's worth noting that Pat protected his motor from sanding dust during the sanding stage, which is why I suggest only tack gluing the nose block in place at this time. Being able to remove it will greatly ease getting the masking off your motor before gluing the nose block permanently in place. What ever route you take, it's now time to shape the block balsa sections and give the fuselage a good overall sanding.

You'll notice that there are no u/c wires in place at this stage. Why make life difficult for yourself by having to sand around them and add the risk of sanding through some of your bindings. Personally, I would cover the lower fuselage in this area before binding the u/c in place. Although none is shown on the plan you

may also like to fill this area with 1/16 balsa sheet. It's still possible to get to the bindings through the radio bay and via the battery hatch. Not easy, but definitely possible. No radio hatch is shown because once it's in there you shouldn't need to access it but, as the photos show, Pat appears to have planned for a hatch even if he didn't get as far as fitting one. Then again, it could just be that he cut away the covering to allow the battery to be moved back to assist with balancing a nose heavy model. So, be warned, don't make the tail end too light. Pat is very good at building light but it isn't needed on a model with a nose this long. A 450 mAH pack is ample on a model of this type so there's no need to shoehorn in the biggest pack you can cram in there.

TAIL SURFACES

Well, what can I say about them? They are such basic shapes that building the tail surfaces couldn't be much easier. There are none of those nasty laminated outlines to worry about so it's just a case of gluing together some strip balsa and a few cut parts. You did buy the laser cut parts, didn't you?

The only point worth making is that it's

easier to produce accurately joined elevators if you make the leading edge (elevator leading edge) a single continuous piece rather than two separate pieces and leave it that way until AFTER the wire joiner is fitted. Then just cut out the unwanted piece of leading edge. No risk of the elevators coming out twisted and the assembly should still perfectly match the span of the tailplane.

Bearing in mind what I said about not making the tail end too light, don't be afraid to use fairly hard balsa for the main, span-wise strips.

Fit the control horns after the surfaces are covered, it makes life so much easier if you don't have to cover around them.

WINGS

At first glance the wings might appear a little strange with their balsa capped ply ribs at the c/s strut positions. The reason behind this is that it makes bending those struts that much easier because each one is such a simple shape. Once in place on the fuselage and the top ends of A, B and C soldered together the ply ribs provide nice little sockets for the struts to glue into. As for the balsa capping on those ribs, I just thought it would make sanding a lot easier if you weren't trying to sand balsa and ply at the same time. That seemed like a recipe for imperfectly sanded ply ribs, or well sanded ply but balsa ribs that were no longer quite the shape they were supposed to be because they sanded a lot faster than the ply ribs.

Anyway, now you know why it's done that way I suppose actually building the wings would be in order. Starting with the centre section, the first tasks are to laminate the parts CS and to glue some pieces of hard 1/8x1/4 balsa to ribs R3 to form the inner face of those sockets I mentioned and cap ribs R3. Also glue the spar centrally to the dihedral brace (DH). Make sure the lower edges of both align accurately or you'll have trouble fitting the ribs.

Next, pin down the leading edge, spar/brace, CS and parts TE1 over the plan, gluing the laminated CS securely to the trailing edge parts. Use a couple of ribs to get the spacing exactly right and then glue in all the c/s ribs, ensuring they are all exactly vertical. Once dry, parts CS and TE1 are shaped to follow the curve of the ribs. Round off the leading edge, sand overall and set to one side ready to have the wing panels added.

As you can see, the wing panels themselves are about as simple as it's possible to make wings. Begin by notching the spars to fit over parts WT and taper them to meet the tip from the position of the outermost R5. A straight taper or a curved one doesn't matter, just so long as they won't get in the way of the covering where it slopes from the rib to the wing tip. Now pin down the leading edge, TE2, WT and the spar over the plan, gluing as required. Use the angle guide to lean in rib R4 to allow for dihedral, but fit all other ribs vertical. R4 will also form the outer wall of the c/s strut sockets, so it's important to get the angle correct. Glue in pieces SP and allow everything to dry completely. Repeat for the other wing panel, follow that with some shaping and sanding and the wings are ready



The uncovered airframe begins to show that although boxy and slightly ungainly the WEL-10 is still curiously attractive.

CUT PARTS SET FOR THE

WEYMANN LEPERE WEL-10

Get straight down to construction without delay! This month's full size free plan feature is supported by a laser-cut set of ready-to-use balsa and plywood components. This provides the parts that, otherwise, you would need to trace out onto the wood before cutting out and includes wing ribs and tips, tail centre parts, fuselage doublers, top deck, formers etc.

**IT DOES NOT INCLUDE STRIP
AND SHEET MATERIAL OR
SHAPED WIRE PARTS**

Price £25.00

plus carriage: £11.50 (UK); Europe £26.00

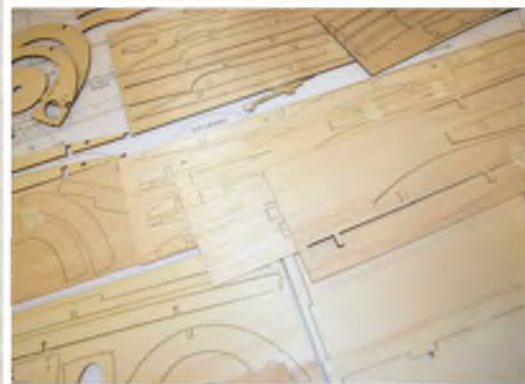
Order set CUT/FSM 522

Shipping Note: For shipping to destinations outside the UK and Europe, you will be charged our standard flat-rate price of £49. This covers most destinations and secures your order with us. However, we will contact you accordingly with an accurate total shipping charge prior to dispatch and either issue a refund or a PayPal money request for the balance.

Visit our secure website:

www.flyingscalemodels.com

to order yours



Order direct from:- ADH Publishing, Doolittle Mill, Doolittle Lane,
Totterhoe, Bedfordshire, LU6 1QX, UK. Tel: 01525 222573/
enquiries@adhpublishing.com.

to be glued to the c/s at the dihedral angle stated on the plan.

That's it, you now have all the major components for a miniature WEL-10. Assembly is quite involved, so that will be covered in more detail in the column, along with how Pat finished his model. Now I suppose you'd like the 'interesting bit'.

FLYING

As I said earlier, Pat hadn't really intended to fly this model and had packed away most of his modelling equipment, including any other battery packs and all his spare props. This meant that when, knowing I needed the project finished, he did test fly it it wasn't set up as well as it might have been. Despite moving the battery rearwards the model was still nose heavy and it was being flown with a 2S pack on a prop intended for 3S. So, it was nose heavy and had a lot less puff than might otherwise have been the case.

Nonetheless, when the opportunity, combined with the inclination to do so,

grose Pat put the little model to the test. This is what he had to say about it:-

"With most of my modelling equipment packed, I espied the little WEL-10 lurking in the corner of the shop and the day was calm, cold and sort of sunny, so what did it need to fly? The battery connector needed replacing, some way of restraining the battery was required, and a lot of nerve needed to commit aviacide. Get to it Pat!

First thing I remembered was the model was VERY nose heavy with any battery in the proper location. So the 2S 1000 (Why I suggest a much smaller pack. PR) I had was moved to a spot between the servos and the designed battery spot and held in place temporarily with a block of foam. It balanced slightly nose-down supported under the wing spar. Seemed good enough so off to the local unused sports field.

Taxing was a nightmare in the longish wet grass and a lightweight model so

some up elevator and a fair bit of throttle and she trundled along, picked up speed and was soon airborne. Very slow to climb on 2S but was completely stable and was gently coaxed into the air. A bit sluggish in response to the rudder/elevator but she was quite nose heavy but flew fine needing a fair bit of elevator trim to hold level flight.

I had propped it for a 3S LiPo but all my props and other batteries are packed away so I brought her down to a gentle landing which promptly finished upside down after digging a wingtip in. Broke one wing strut off the wing so I called it a day. I wanted to dismantle it for packing anyway!"

So, there you go, if it flies well like that, properly balanced and with the correct battery/prop combination it should prove a very stable and gentle little model. Many thanks to Pat for taking the time out from his busy schedule to prove yet another model for me. ■



THE EVOLUTION OF PERFORMANCE

DON'T SETTLE FOR 2ND BEST

TURNIGY, the name synonymous with performance, reliability and innovation is excited to release a powerful new battery chemistry in the Turnigy Graphene.

Turnigy Graphene packs utilize carbon in the battery structure to form a single layer of graphene just 0.335nm thick, making that type of battery substrate the thinnest known to mankind. The graphene particles form a highly dense compound allowing electrons to flow with less resistance compared to traditional Lipoly battery technologies.

The result is a battery capable of maintaining greater power output whilst remaining much cooler under load. Since heat and resistance are the natural enemy of batteries Graphene chemistry has significantly reduced these problems and the result is an incredible boost in cycle life.

Turnigy Graphene batteries are the new standard for serious hobbyists who require POWER ON DEMAND.



Available at hobbyking.com

De Havilland D.H.89 Rapide

A 60" (1524mm) wing span approx 1:9.6 scale replica of the famous biplane light airliner for two 400-size electric motors. Model features all-wood conventional airframe, with blue foam for double-curvature fairings on the engine nacelles.

Designed by CHRIS GOLDS



In 1931, Edward Hillman, the 'boss' of Hillman Airways, asked De Havilland for a ten-passenger aircraft with twin-engined reliability and so was borne the DH 84 Dragon. The aircraft was an immediate success and additional orders began to come in, but for a greater number of passengers than the original six-seater. Military operators followed the civil ones and production rose into the sixty-plus bracket with further orders from Australia.

By 1933, it was considered feasible to link the United Kingdom with Australia by an air route and the Australian Government set out a requirement for a four-engined machine to safely fly the Java and Timor seas. In the incredibly short time of just four months, De Havillands designed, built and tested the four-engined version of the DH Dragon, the DH 86, an aircraft which never had a real name. It featured new, faired, trousered main wheels and new high-aspect ratio outer wing panels to improve cruising speeds. Some sixty-two of the marque were built and it, too, was a successful mini-airliner, although some losses were sustained.

Requests for a smaller twin-engined version of the '86' caused designs to finalise in the DH 89 Dragon Rapide which could carry up to eight passengers and capable of being operated

by only one pilot. Over seven hundred of these handsome and economical 'twins' were produced and some are still flying today.

My own connection with the Rapide (by my time it was no longer called Dragon Rapide) was only two flights. The first was at the Herts & Essex Aero Club's field at Broxbourne where I was a cadet completing a much sought-after Flying Scholarship on Tiger Moths. I was living-in at the club (a great idea, as it was aeroplanes from wake-up to sleep) and in the evenings I drank my lemonade/shandy and listened to the assembled gods who owned their own aircraft (and thus could be begged for a ride!) or operated commercial services, as did Eric who regularly flew the club Rapide 'YY' on Army co-operation sorties around London at night. He always preceded a night trip with a short daylight air-test and I managed to wangle my way onto one of these.

Before take-off, he briefed me that I was to stay close to the cockpit bulkhead - at all times! Off we went and, after levelling at about three thousand feet, Eric stumbled his way backwards through the cockpit entrance opening and shouted at me to go forward and take control! Ye gods! I had all of a 'C' licence at gliding and half of a PPL on Tiger Moths as my total hands-on





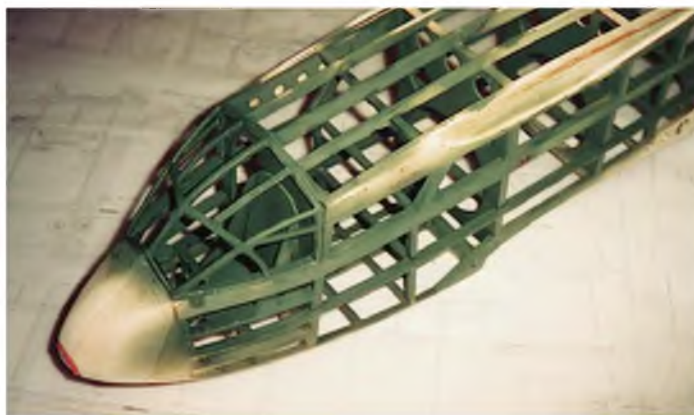
A kit of fuselage parts - really just a Keil Kraft structure, brought forward by about 50 years...



Basic fuselage box structure awaiting nose block and cockpit framing.



Finished fuselage with nose block and cockpit framing now in place.



The entire fuselage interior sprayed cockpit green.

“ By 1933, it was considered feasible to link the United Kingdom with Australia by an air route and the Australian Government set out a requirement for a four-engined machine to safely fly the Java and Timor seas ”

flying experience but - he shouted - so forward I went.

She was lovely, just like a big 'Tiggie' and light on the controls except for the ailerons which were much heavier than those of the Moth. After fifteen minutes which seemed like fifteen seconds, he motioned me back into the cabin, took over and we returned for a creamy wheeler landing using the lower wing flaps.

"NEVER, but NEVER..." said Eric, "...try to three-point a Rapide or it will become a seven pointer - tail wheel, left wheel, right wheel, right lower wing-tip, nose, rudder-tip, coffin". I listened!

My other trip was during my time as a trainee fighter pilot in the RAF some two years later based at Pembrey in South Wales doing my O.C.U. During our conversion course from De Havilland Vampires to Hawker Hunters (thrilling in the extreme), a Summer Exercise was called and we students were scattered across the land. My chums and I were sent to RAF Valley in Anglesey, where the five of us went by Morris 8 and a motor-bike, on an alcoholic night-time journey. When we arrived they said "Who? - Where? - Here? - No way! - Go and wait in the officers' mess".

This we did and, after a much-needed breakfast, we drank coffee and waited. By about 11.30 a.m., the Flying Wing

Adjutant rang to say that we were supposed to be at RAF Turnhouse in Edinburgh - not at Valley! I explained that our Morris might not - and our Douglas flat 500 WOULD NOT - get us there, but he explained that a 'Dominie' (military Rapide) was leaving at 1400 hours for Turnhouse - just for us! At 2 p.m. our pilot (a Royal Navy Lieutenant Commander and thus VERY experienced) eyed our pile of luggage with dismay but after we had told him that it had traversed to Wales in the Morris 8 - he agreed to us hauling it aboard.

We took off and headed north up the Irish Sea, in steadily worsening conditions of low cloud and rain. The driver leaned back to his right and shouted - "Anyone of you a navigator, by any chance?" I have a distinct memory of being passed his half-mil map and trying to make out where we were, as he turned starboard into a sea-loch with hills shrouded on both sides. He pressed on and, amazingly, the weather improved to about 1,000 feet base as we flew across the neck of Scotland and found Turnhouse. We climbed out, shouted our thanks and off he trundled again. I wonder whether he ever got back to Valley?

The model

So this time, for a first twin brushless model (I am not a brave soul and I generally go

step-by-step), I thought I would like to continue my biplane experience (Curtiss P-6E, Hawker Demon, Hawker Fury) with a biplane with two motors - and there are many to choose from. But a little voice said "Never, never..." and so the DH Rapide became the obvious choice.

But not just ANY Rapide, because I wanted the beautiful King's Flight (Royal Flight) colours of red/blue/silver and white. Unfortunately, my initials 'C.G.' were on a Royal Dragon 84 (G-ACGC), so my next choice was to locate the rarely photographed Rapide which served King Edward VIII, G-ADDD, of which I could find nothing in my personal aviation library: after all, his reign was particularly short! And it was in the year of my birth - 1936!

Peter Elliot, at that time Curator in the Library at RAF Hendon Museum managed to unearth and photo-copy for me some obscure photos of G-ADDD - just the spur I needed to put pencil to paper, so away we went on yet another electric scale model designed for most of us to build and fly. However, this model is not for beginners, so save it for after your next aerobatic trainer. You will need quite a bit of experience of building from plans AND building light into the bargain. Complete step-by-step building instructions will be supplied with the very detailed plan, so this article is broad in coverage and is not 'tab A into slot B'.

The character of the Rapide lies in the nose contours, the nacelles with their distinct trousered main undercarriage legs, the high aspect ratio wing with an almost elliptical plan form and the trademark DH tail surfaces. So I began building with the nacelles, simply made from light ply sides and laminated half-inch balsa sheet nose contour. The curved top and rear panels were carved and sanded from foam for lightness with simplicity, but if you are a 'planker' you could easily go that way. I just do not like planking!

I wanted the main gear to be quite soft but simple, so I designed twin piano wire coiled legs, bolted to the bulkhead and carrying the 16 s.w.g. axle via soldered-on brass collets. This allows the wheel to deflect up and back upon landing and supplies the second landing load deflection - the first is the soft tyre. The top blue foam also serves as hatches to give access to the electronic speed controllers and battery packs. The ESC-to-Rx cable is extended to yoke into the Rx, but remember, with brushless, KEEP THE POWERPACK-TO-ESC CABLE AS SHORT AS POSSIBLE. otherwise, you may get voltage spikes and a dead ESC.

Next, I tackled the tail feathers and worked hard to achieve an authentic fin and rudder shape - I wonder if DH had a special set of French curves, because the right shape is very difficult to achieve...



Then I was into the fuselage, which had to carry lots of stringers to show off the many facets of the original shape and the on-on finish. But it was really just a Keil Kraft structure brought forward by about fifty years and, with the advantage of cyano, I soon had a 3D box that just had to be stringered. Although they were originally intended to simply curve out the box-shape, the stringers added tremendous

stiffness to the model structure. A fun-day was spent making the cockpit framing from laminated 2 mm light ply and the pilot's seat was added with all the cockpit 'furniture'.

Strange, isn't it? I HATE building wings because they go on and on in the cutting stage. And with a biplane they do so twice as long as normal! But eventually they were built and it slowly dawned on



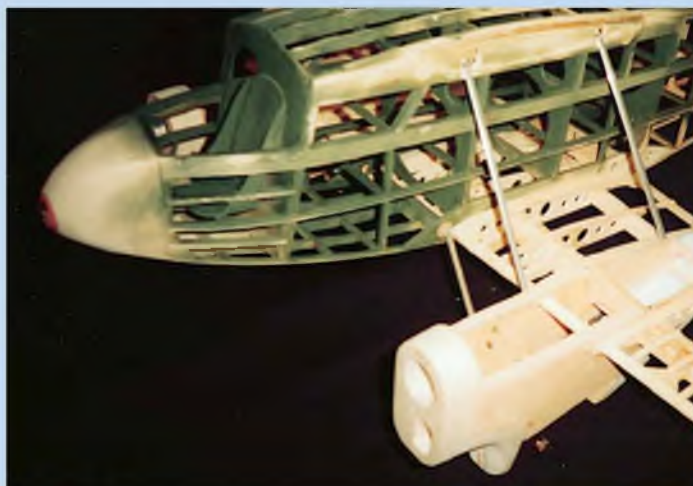
Kit of bits for one of the two engine nacelles.



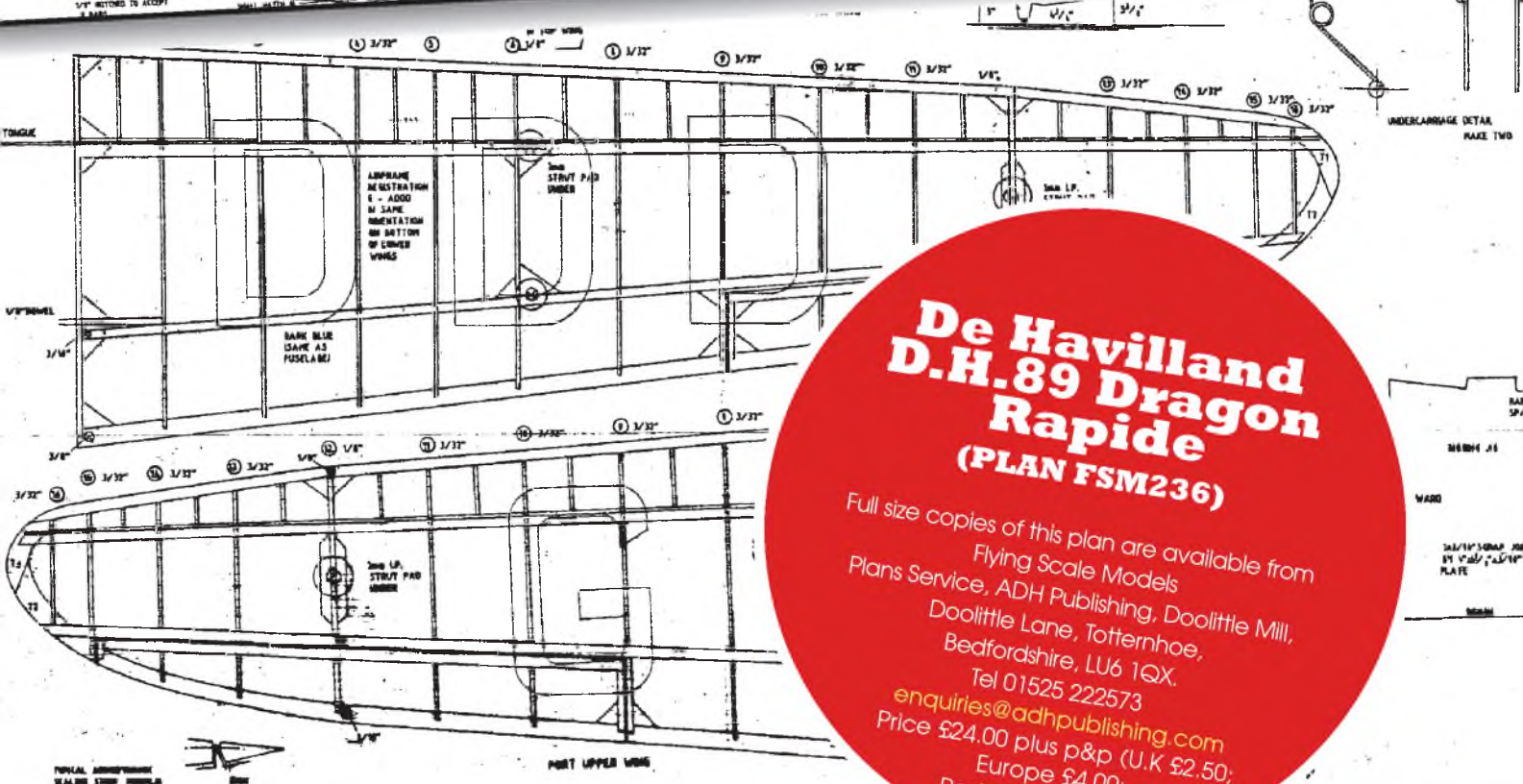
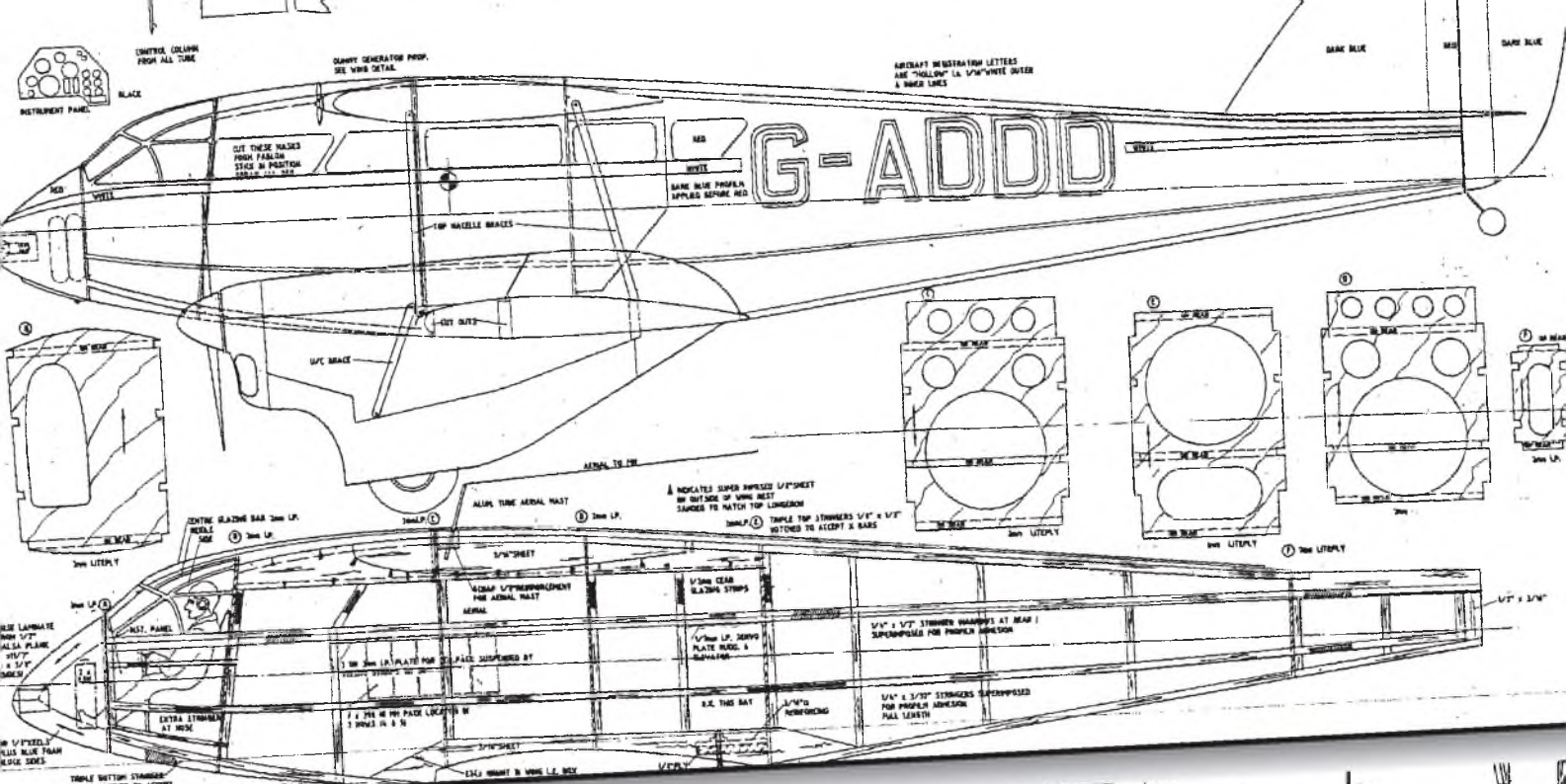
Both nacelles, now blocked and with blue foam added.



The nacelles, finally shaped and filled.

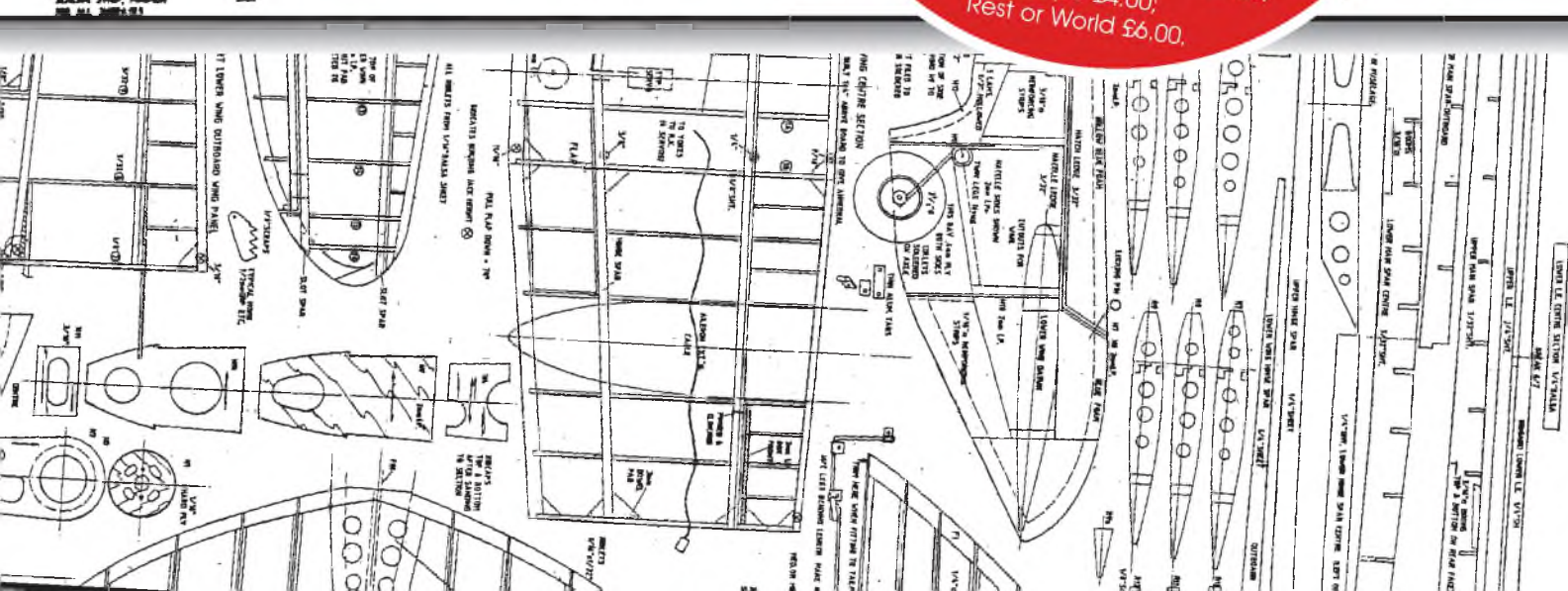


Lower wing centre-section fitted to fuselage.

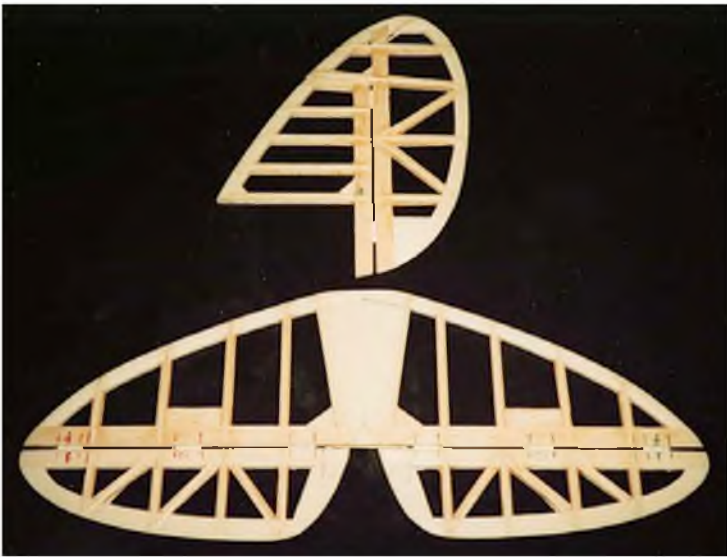


De Havilland
D.H.89 Dragon
Rapide
(PLAN FSM236)

Full size copies of this plan are available from
 Flying Scale Models
 Plans Service, ADH Publishing, Doolittle Mill,
 Doolittle Lane, Totterhoe,
 Bedfordshire, LU6 1QX.
 Tel 01525 222573
enquiries@adhpublishing.com
 Price £24.00 plus p&p (U.K £2.50;
 Europe £4.00;
 Rest or World £6.00.



CUT PARTS SET FOR THE



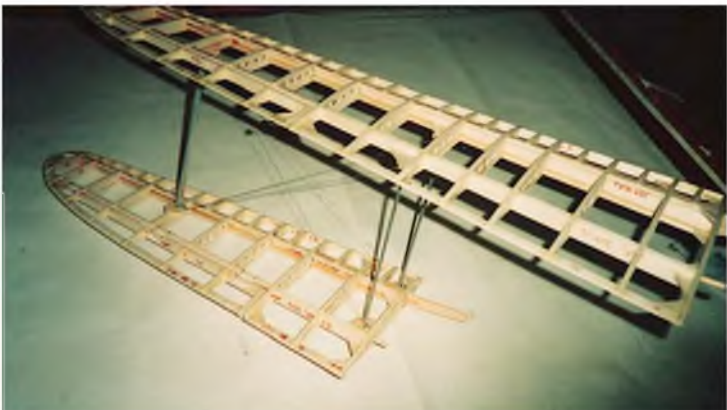
The tail surfaces, sanded to section and with capstrips fitted.



Upper wings under construction.



Jigging assembly begins - see text.



Finished port wing cell unit, fully rigged.

DE HAVILLAND D.H.89 RAPIDE

Get straight down to construction without delay!
This month's full size free plan feature is supported
by a laser-cut set of ready-to-use balsa and
plywood components.

THESE PARTS SETS PROVIDE: All the components, in
balsa and ply that you would otherwise have to
trace off the plan onto the wood and then
tediously cut them out prior to commencing
building!.
Does NOT include strip wood and plain balsa
sheet material

Price £135.00

plus carriage: \$11.50 (UK); Europe £26.00

(Order FSM/Cut 236)

Shipping Note: For shipping to destinations outside the UK and
Europe, you will be charged our standard flat-rate price of \$49.
This covers most destinations and secures your order with us.
However, we will contact you accordingly with an accurate
total shipping charge prior to dispatch and either issue a refund
or a PayPal money request for the balance.

Visit our secure website:

www.flyingscalemodels.com

to order yours



Order direct from:- ADH Publishing, Doolittle Mill, Doolittle Lane,
Totterhoe, Bedfordshire, LU6 1QX, UK. Tel: 01525 222573/
enquiries@adhpublishing.com.



RED WHITE & BLUE LETTER DAY!

LEFT: Starting the decoration; the hollow lettering outlines. **CENTRE:** Strips of Protrim make up the straight outlines of the characters... **RIGHT:** ...while the round corners are hand-painted.

me that this was becoming quite a complicated model.

With the wings made, tongued and boxed to join the fuselage and the lower wing inboard sections, I had my first look at the beautiful shape of my Rapide. I love model flying (as I can no longer pole about for real) but I suspect that I love model building just that little bit more! Now for the difficult bit - the struts and rigging. I had worked out on paper how to do it, but it remained to be seen whether it would work in practice. Thank goodness - it did! The struts are all made from aerofoil section aluminium tubes; they are strong enough, lightweight and very quick and convenient to use with bent-over tabs at their end being screwed onto appropriate laminated light ply pads in the airframe.

The rigging proved to be rather more time-consuming. I had not built a 'live rigging' model since my first Hawker Demon of many years earlier and vast weight. So I used the thinnest piano wire that I could get - about 1/2 mm thickness - and went about the task with the model 'jigged-up' to prevent things from moving. Eventually she was complete, with everything square and rigid and just yelling "...finish me and let's go flying...!"

But you know scale models! There is always a list of small jobs to do as long as your arm. The generator propeller, tail bracing, aerials, radio fit, power train fit, bench runs, skinning, decorating, etc.,

etc., etc. But eventually all was ready for finishing.

Film finishing

The model is finished in the 'Guards Colours' of the King's Flight with red and blue fuselage and fin/rudder, red nacelles and all struts, white fuselage lettering in outline style, silver wings and tailplane, and dark blue lettering above and below the wings of G-ADDD. The complete airframe had taken me just 28 days to build and the finishing looked like taking another seven full days to complete. But scale models take their time and there are myriad small jobs to do before we release the brakes and go smoothly to full throttle!

Eventually, she was ready to go at a total weight of 79 ounces and wing loading of 14.1/2 ounces per square foot. So now it was time to clear up the workshop (well, almost) and wait for good first-flight weather. What with bad weather and National Trust volunteer service days, this took quite a time!

Flying

Finally, we gathered and completed the all-important ground range checks and top-up charge. I started my Tx clock and slowly applied full power. A touch of right rudder was needed to keep straight and then I eased her off the ground: up-trim was required to counter the deliberate nose-heaviness and establish a smooth

climb away.

Her bright colour scheme definitely helped against a dull grey sky and I levelled-off to try turns both ways. Positive, but too powerful, so I down-rated the ailerons, which reduced the coupled rudder a little too much. (The correct settings appear on the plan). Plenty of power available and cruising setting was about 60 percent of throttle movement. Next, I tried the flaps and these gave the expected nose-up trim change at cruising speed, which will reduce to zero at touch-down speed. And very effective they are too, so apart from flight testing, they will be reserved for use only on calm days.

I remembered to keep power on down finals and through the landing flare in order to complete a wheeler landing. Remember, you do not three-point a Rapide! And there she was, nearly eight minutes of nervous pleasure and plenty of time to complete the initial handling checks. Almost as lovely to fly as she is to look at, so if you are tempted to build this model, think seriously about using this colour scheme: it is, admittedly, a lot of work but the end result is a really beautiful Royal Rapide! ■

NEXT ISSUE...

Will feature the real thing with Type History and In Detail features plus Flying Colours



**FROM 1ST SEPT
BMFA REDUCED FEES....**

SENIOR £17

JUNIOR £9

FAMILY PARTNER £11

FAMILY JUNIOR £7



To join visit: www.bmfa.org/join

or send a cheque/postal order with this advert to the BMFA Office

BMFA
Chacksfield House
31 St Andrew's Rd
Leicester
LE2 8RE
0116 2440028
admin@bmfa.org
www.bmfa.org

***NB Membership year runs to 31st Dec 2016**

Fill in the application and send to the BMFA office or pay over the phone with a debit/credit card.

Mr/Mrs/Miss..... D.O.B.....

Address.....

Postcode..... Tel:.....

E-mail..... Make Cheques payable to BMFA



Solarfilm

IRON-ON COVERING MATERIAL FOR FLYING MODELS

TO RECEIVE A SAMPLE PACK CONTAINING ALL PRODUCTS
& AVAILABLE COLOURS SEND FOUR FIRST CLASS STAMPS TO:-

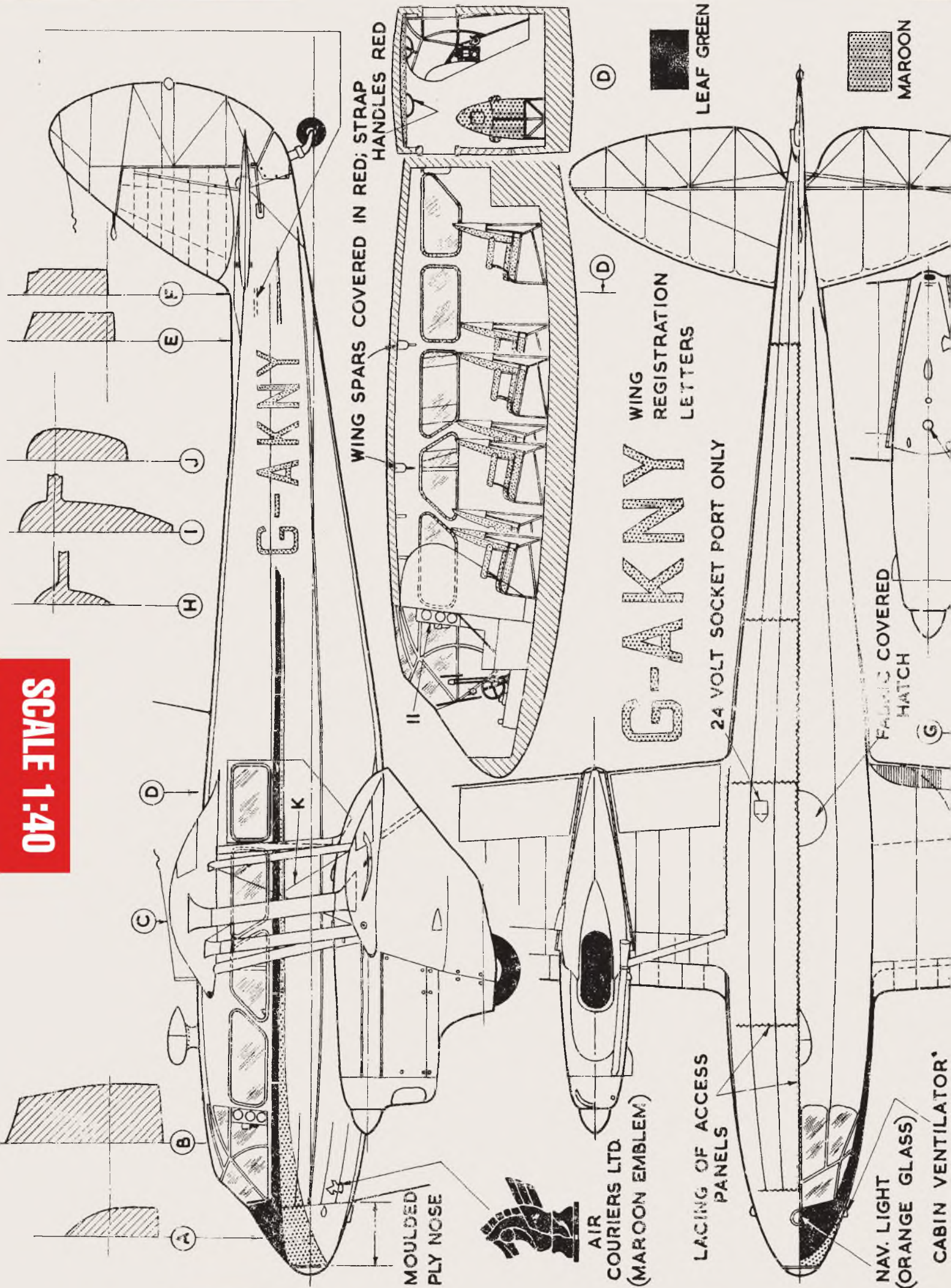


Solarfilm Sales Ltd. Ackhurst Rd, Chorley, Lancs. PR7 1NH England

Website www.Solarfilm.co.uk

Tel 01257267418 Fax 01257276203

SCALE 1:40



G-AKNY

G-AKNY

WING SPARS COVERED IN RED; STRAP HANDLES RED

WING REGISTRATION LETTERS

24 VOLT SOCKET PORT ONLY

NAV. LIGHT (ORANGE GLASS)

CABIN VENTILATOR

FABRIC COVERED HATCH

LEAF GREEN

MAROON

AIR COURIERS LTD. (MAROON EMBLEM)

LACING OF ACCESS PANELS

A

B

C

D

H

I

J

E

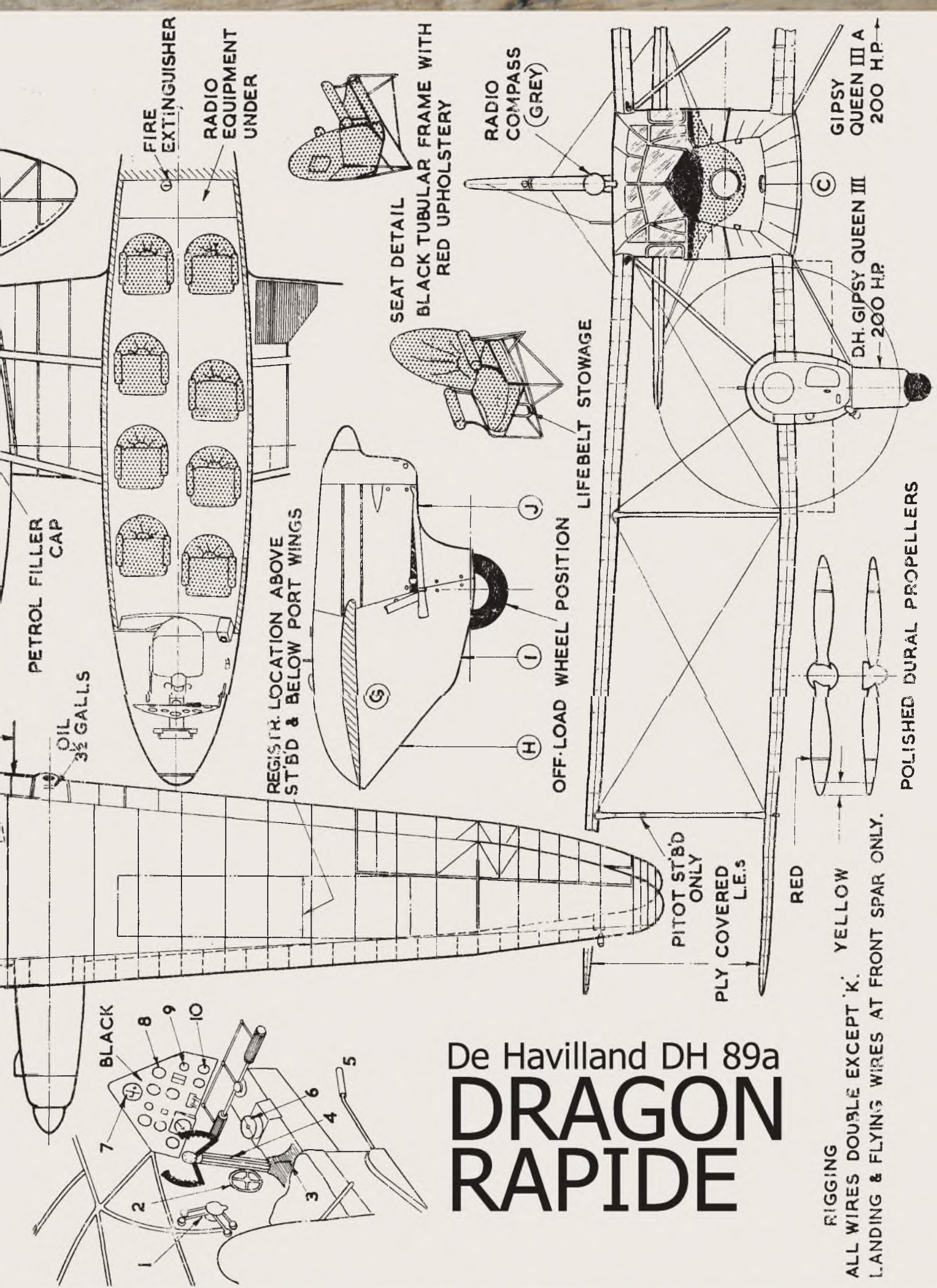
F

D

D

G

MOULDED PLY NOSE



De Havilland DH 89a
DRAGON RAPIDE

RIGGING
 ALL WIRES DOUBLE EXCEPT 'K'.
 LANDING & FLYING WIRES AT FRONT SPAR ONLY.

Grumman F6F-3

Alex Whittaker examines this famous carrier aircraft

Richard Dagleish is well known on the UK Warbird and Scale circuits for his fastidiously built models. He has constructed two previous Hellcats to a very high standard, but I would say that this one exceeds them in quality.

Richard's latest Hellcat is built to the Jerry Bates (USA) plan, and matches his usual meticulous methods. This is most apparent in the quality of the construction and the final surface finish he is able to

achieve. Richard bought the plan from Phil Clark at *FighterAces UK* and works out at 1/6th scale, delivering a wingspan of 80". The finished model, ready to fly, weighs in at 24lbs., and is powered by a Zenoh 45 petrol engine, driving a Menz 20"x10" wooden prop. Richard has fitted electronic ignition to the Zenoh.

Construction

The model is of traditional construction, mostly built from balsa and plywood.

Richard cut out all the wooden parts by hand, it was not an out-sourced CNC 'part kit'. However, he did buy in the moulded fibreglass cowl and the cockpit canopy, which came directly from Bob Holman in the United States.

Fuselage

This is constructed in two halves. The top half is built flat on the bench, with the lower half built onto the top half shell. The top half is fully sheeted with 3/32" balsa,



Hellcat

while the lower half, rear of the wing area, was planked with 3/32" x 5/8" wide balsa strips.

Wings

The one-piece wing is built around two 1/8" ply braces, with 3/32" light ply ribs. It is then all sheeted with 3/32" balsa. The mainspar was strengthened around the retract area, due to the large cut out required for the rearward retracting oleos. The retract mounting area was also strengthened with additional ply and

triangular stock.

Ailerons and flaps were built as shown on the plan, but with a few changes to the method of operation. The plan shows snakes to operate the ailerons from two centrally mounted servos but this was changed to a servo mounted well outboard, close to each aileron, with a short 3mm pushrod for operation.

Flaps

On the Hellcat, the flaps on each of the Port and Starboard wing panels are each

in two parts, (inner and outer) dictated by the dihedral brake on each wing half. The plan shows a bellcrank arrangement for their operation, but Richard revised this, applying a flap servo for each of the Port and Starboard wing panels mounted close to the flap line, directly driving the outer flap. The inner flap on each side is then slaved from the outer one, with a short piece of sliding bowden cable. All

The Hellcat is traditionally built: balsa and ply.



1 & 2: Pilot is 1/6th scale full body. Canopy is from Bob Holman (USA).



3: Richard used a Paasche airbrush to achieve this level of subtlety.



4: The steerable retractable tailwheel replicates the full size.

the servos and linkages are hidden and access to linkages is via small hatches on the underside of the wing.

Tail

The tailplane and fin are built in two halves (top and bottom) and then joined after adding the hinge blocks. Another change Richard made was to the tailplane itself. At 36" in span, he decided to make the tailplane removable for ease of storage and transport, with the centre section permanently attached. A 3/8"

diameter aluminium wing joiner and tube were used. This was supplied by Mick Reeves, and two M3 bolts secure each side to the centre section.

The rudder and elevators are built on a central 1/16" ply core, with balsa riblets.

Engine

The chosen Zenoh 45 is fitted with a standard silencer all fitting within the cowl with no projections. The engine has been converted to electronic ignition, with the ignition module being mounted on a

support plate above the engine. A 90 deg carb elbow and intake trumpet are used, drawing air from inside the fuselage. A 60mm long propshaft extension is fitted to allow a dummy engine and baffle plate to be applied. As you might expect, the Zenoh has been very reliable, with easy starting and a good tick-over. This engine delivers smooth throttling and is a good match for the airframe.

Undercarriage / Retract

The main retracts and oleos are made by



BUILD

Richard Dagleish with his Hellcat hand-crafted from the Jerry Bates plan.



Sierra Retracts in the United States. These are used complete with the door mounting collars. The retracts are pneumatically operated and rotate 90 degrees as they retract. The gear doors are a simple glass fibre lay-up over the wing sheeting and to get the curvature for the oleo, a blue foam block was carved to shape and glued to the wing sheeting prior to laying up the glass cloth.

Fabricated Tailwheel

Richard wanted a scale looking tailwheel. He decided to design his own using a simple over-centre locking mechanism, and operated by a *Robart* 3/8" air cylinder. The retract unit itself is made up from some mild steel plate, brass tube, and a balsa and glass fibre moulding.

Covering

Fibreglass tissue and resin were used for the main airframe. Two coats of resin were used, the first one to wet out the cloth, and the second coat as a flow coat. Several rounds of rubbing down and priming were required to get the surface ready for detailing and painting.

Painting

The paint used was *Humbrol* enamel, thinned 50/50 with white spirit, and sprayed on with a *Paasche* air brush. Weathering was done with *Humbrol* enamel, using a mixture of dry brushing and airbrushing. A final overspray of *Klass Kote* Epoxy Satin fuel proofer was used just to seal the finish.



A: Basic fuselage construction.

B & C: The basic wing centre section layout prior to surface skinning, with retracts trial-fitted, also showing the installation of the Sierra retracting undercarriage units.

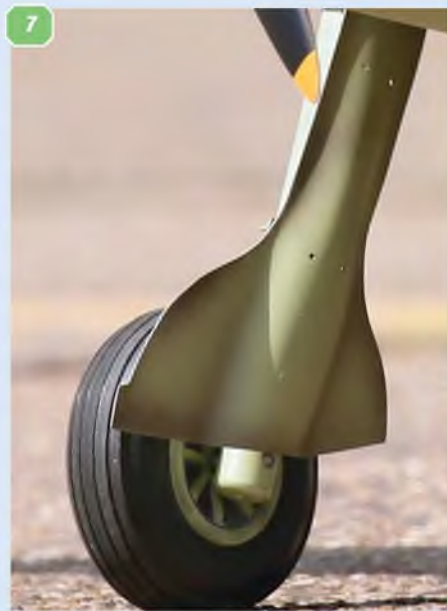
D: Skinned wing underside, with undercarriage door positions marked out. Note upper surface 'cuffs' to the flaps.

E: Undercarriage door positions cut away from underside skin. Flaps are hinged; note the link between the inner and outer flap panels.

F: The fully skinned wing, showing the flaps in the fully extended position.

G: Hand fabricated tailwheel assembly.





5, 6 & 7: Richard fitted Sierra Retracts. These twist 90 degrees as they retract as per the full size. Note the home made fibreglass undercarriage doors, the accurately follow the curvature of the wing underside surface skin when in the retracted position

Legending / Decals

Flightline Graphics supplied all the masks for the lettering, but the roundels and white bands, were all done by Richard himself, using some low tack masking film.

Scale Details

Panel lines were added using 1/64" *Chartpak* tape oversprayed with

primer. Once the tape is removed a nice raised edge is left to replicate the overlapped fuselage surface skin panels. For the rivets Richard used the rivet tape which *Mick Reeves Models* can supply. Scale hatches and panels were replicated with aluminum tape

Flying Notes

Having built and flown two smaller

With only six flights on the clock at the time of the RAFMAA 2016 Warbirds Event, Richard was still exploring her flying habits. He reckons that this initial learning process takes perhaps 20 flights before one become fully use to a models flying characteristics



The Hellcat undercarriage track is wide enough for comfort. Note toe-in.



LANDING...

A vicious side-gust does not upset her... Richard corrects and she settled onto the tarmac... A stable scale model, even in poor conditions.

Hellcats before, Richard knew that the type made for a stable scale model. In addition, the large wing and tail areas, together with a wide undercarriage track, all made for a good flyer. With only six flights on the clock at the time of the RAFMAA 2016 Warbirds Event, he was still

exploring her flying habits. He reckons that this initial learning process takes perhaps 20 flights before one become fully use to a models flying characteristics. Richard reports that the Zenoh provides more than enough power for an easy take-off. In addition, the Hellcat will easily cruise at

SPECIFICATIONS:

Grumman Hellcat F6F

Scale: 1:6

Wingspan: 80"

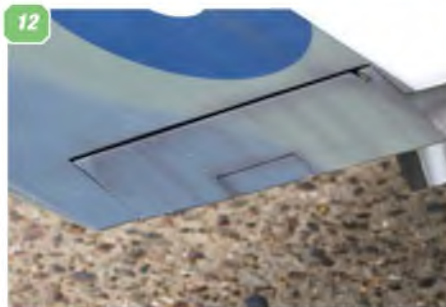
Weight: 24lbs approx

Engine: Zenoh 45 (electronic ignition)

Prop type and size: Menz 20"x10"

1/3 throttle, with full power not really needed. Landings are very easy and scale like with the flaps slowing the plane up very nicely. Some rudder is needed on the roll out to keep her straight. Apart from that, Richard reckons that she does her job exactly as requested. ■

8: Fine dummy engine detail is vital on such a scale subject. **Menz 20"x10"** wooden prop. **9:** & **10:** Engine cowl cooling gills and exhaust channel **11:** Cuffed hinge lines on elevator and rudder are a vital part of the true-scale effect. **12:** Careful 'weathering' to replicate the rib positions on the fabric overed ailerons of the full size. **13:** Impressive armament! **14,15:** & **16:** The wing flaps extend in a manner very close to true scale.





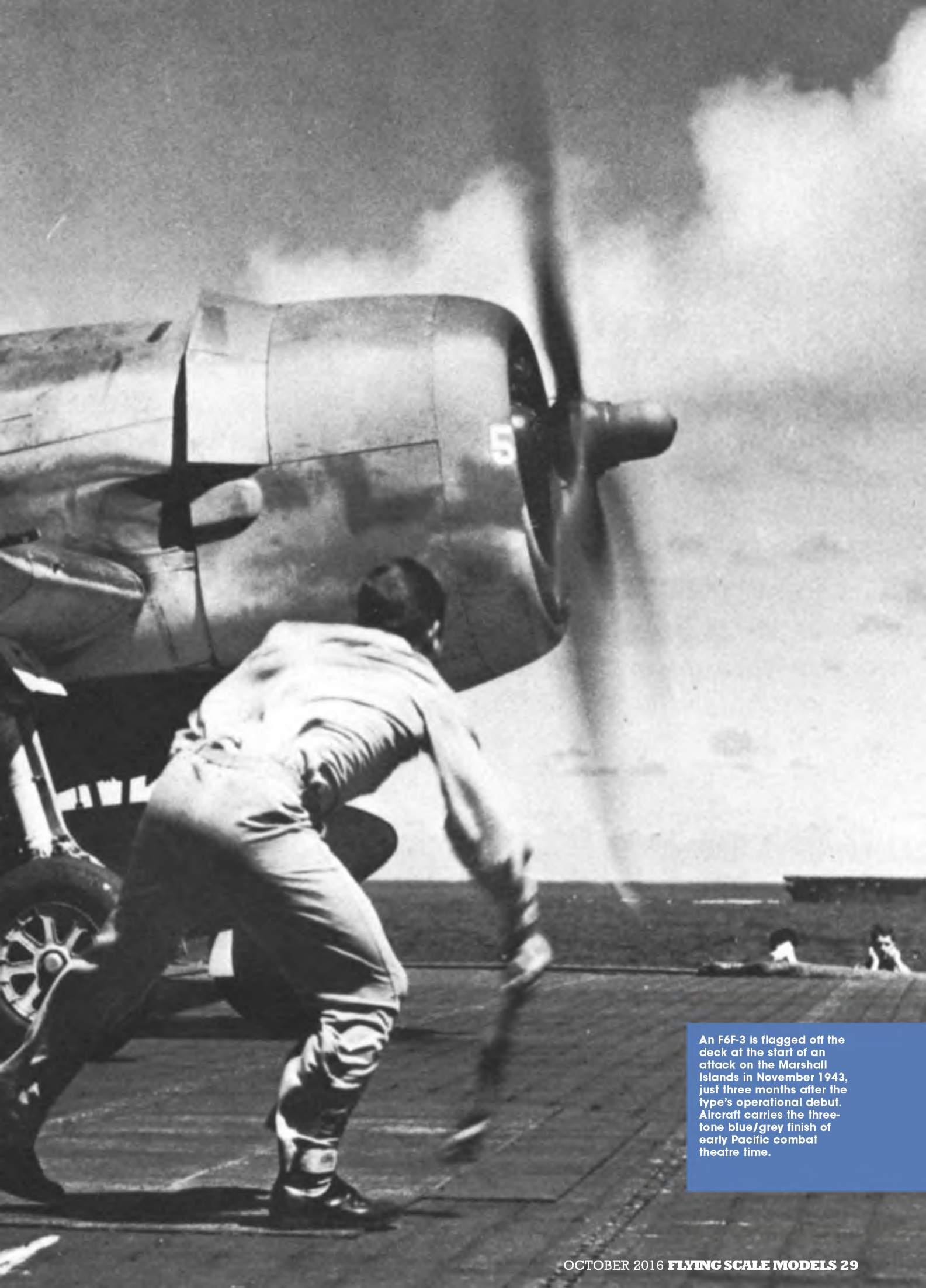
GRUMMAN HELLCAT

The Grumman name has been synonymous with US Naval aviation since the early 1930s and their F6F Hellcat can be rightly regarded as their major contribution to Pacific combat theatre victory in WW2. It was simply the right fighter aircraft, at the right time

If there was ever a successful military combat aircraft that went from success to obscurity in short order, then the Grumman Hellcat must be the one. Mainstay of the US Navy's

offensive thrust westward across the mid-Pacific ocean during WW2, Hellcat pilots were responsible for 75% of the enemy aircraft shot down by naval aircraft in the Pacific theatre of combat.

Conceived initially as a bigger, more powerful extrapolation of Grumman's F4F Wildcat, those preliminary design studies were quickly swept aside as early combat experience after the Imperial Japanese



An F6F-3 is flagged off the deck at the start of an attack on the Marshall Islands in November 1943, just three months after the type's operational debut. Aircraft carries the three-tone blue/grey finish of early Pacific combat theatre time.

Recovery after a mission was always a matter of urgency as returning aircraft were often low on fuel or with battle damage and had to be moved forward beyond the 'safety barrier' as quickly as possible after 'taking the wire'. Here, deck crews hurry to get an aircraft forward as quickly as possible, while another aircraft is 'waived off' for a go-around.

Navy's Pearl Harbour strike in December 1941 began to demonstrate what was needed in a new carrier-borne fighter aircraft to counter Japanese aerial ascendancy.

By then, the Hellcat was already six months into the design stage and the prototype XF6F-1 first flew in mid-1942, powered by a 1,600 h.p. Wright R-2600 radial engine. However, moves were already afoot to provide even greater power and only a month later, the second prototype flew with the power of a Pratt & Whitney R-2800, under the designation XF6F-3 - the definitive Hellcat was almost there.

Design-right

The ease and speed with which the Hellcat

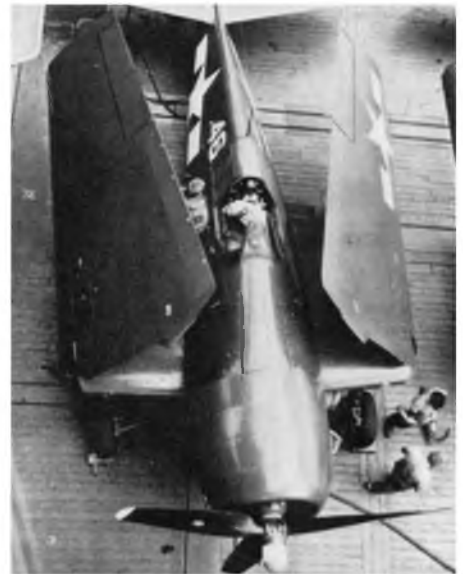
moved from prototype to production model was in sharp contrast to the Chance Vought F4U Corsair, on which the US Navy's fighter expectations had hitherto been focused. Conceived in 1939 and first test flown in 1940, the Corsair suffered a lengthy development period while the US Navy redefined its requirement, including much increased internal fuel tank capacity that dictated moving the cockpit position well aft.

That particular change severely reduced forward vision when the aircraft was in a nose-high attitude, particularly during the landing approach - not a good characteristic for carrier deck landings and this, coupled with a pronounced 'bounce' at touch-down and an





Lined up and ready to go. VF-80 Hellcats line up to launch for a strike against Japanese positions in the Philippines during late 1944. The two front aircraft are F6F-5N night fighters.



Know when to fold 'em! The wing-fold system for the Hellcat was basically similar to that used for the earlier F4F Wildcat. Folded rearward, along side the fuselage, there was no issue with hangar deck roof clearance.



unpredictable localised wing stall at the kink in the Corsair's wing, produced an aircraft that required real experience to safely master.

For the Navy therefore, the Hellcat was the right aeroplane at the right time in every way. Newly qualified fighter pilots were coming off the training groups in droves and what was needed was a sturdy, easy-to-fly fighter with benign landing characteristics and a really good view over the nose during the critical deck landing approach. The Hellcat was just the machine required.

Into action

Combat blooded with a strike on Marcus Island in August 1943, the Hellcat was there at the beginning of the US Navy's offensive thrust through the central Pacific toward the Japanese home islands that ended almost exactly two years later. During that period, the Hellcat was involved in every one of the major island-hopping actions right through to fighter sweeps over the Japanese home islands.

The correctness of the basic design is demonstrated in the fact that only two major versions were produced, the F6F-3 and then the F6F-5, which differed little except in terms of engine power. A night fighter version F6F-3N was produced in small numbers, while some 1,435 F6F-5Ns entered service. A photo reconnaissance type F6F-5P also served in small numbers.

By contrast, the US Navy struggled with the Hellcat's main 'rival', the mighty Corsair and initially passed it to the US Marines for land-based operations. Possessed of greater performance than the Hellcat, the Marines made maximum



The shark-like three-tone blue-fading-to-grey colour scheme carried during the early days of the F6F-3 Hellcat operations.



Tight formation of Fleet Air Arm F6F-3 Hellcats. The pilots are all Dutch, during training with the Royal Navy.



A ground crew checks the rear catapult attachment ready to launch this F6F-5 of VF-29 from the deck of U.S.S. Cabot in October 1944. All-over dark blue finish.



With wing leading edge radar pod prominently visible, this F6F-5N night fighter prepares to launch from U.S.S. San Jacinto in the summer of 1945. Note the two 20mm cannon also visible, in lieu of the three 0.5" machine guns as used on the night fighter variant.

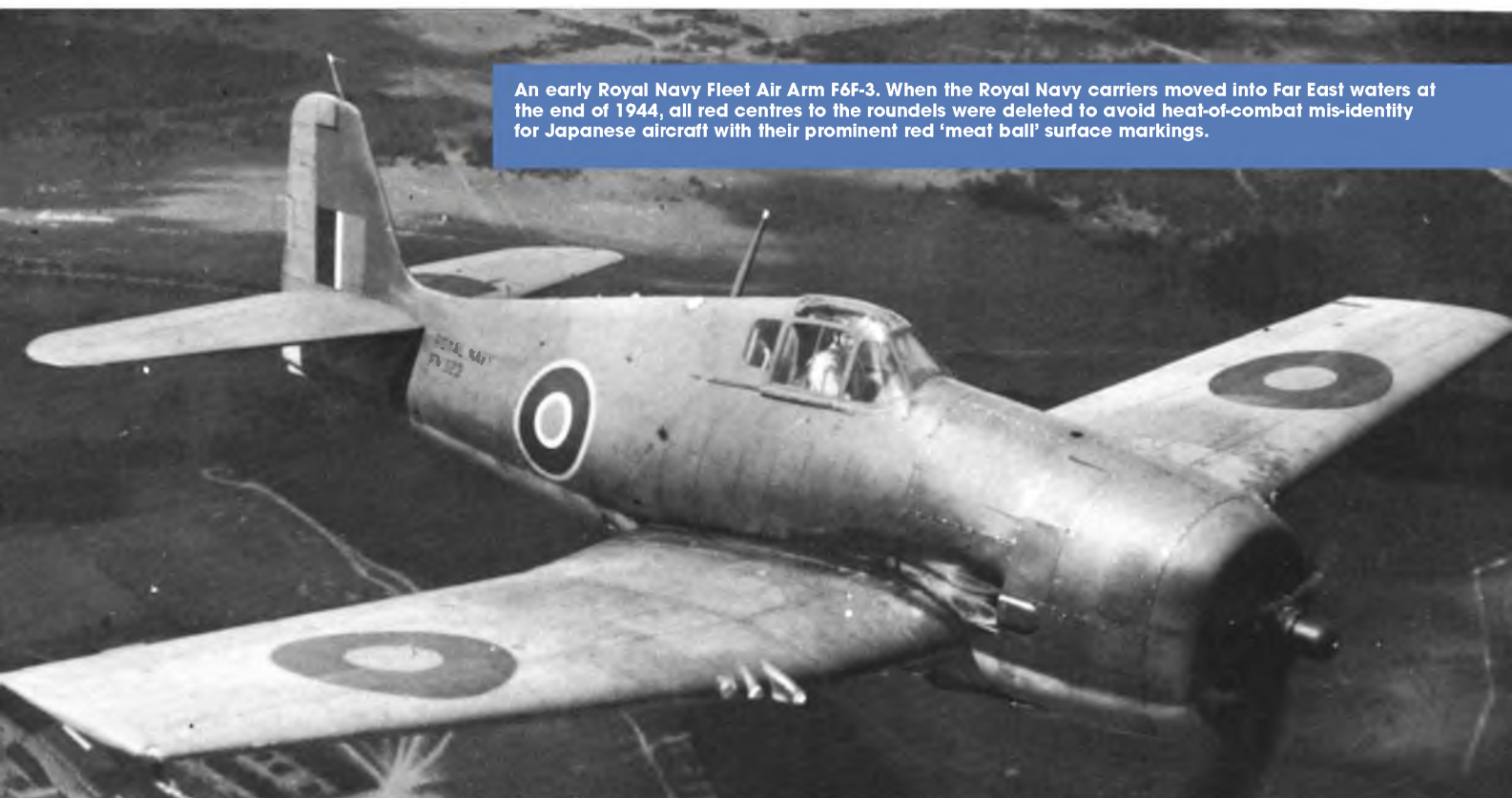
use of their windfall. So it fell to the Royal Navy to take the Corsair to war aboard aircraft carriers, until the US Navy took the Corsair aboard their own Carriers at the end of 1944.

The Royal Navy also operated the

Hellcat in substantial numbers for fleet action, taking delivery of 250 F6F-3s and 900 F6F-5s. One of the latter is still on view at the Fleet Air Arm Museum Yeovilton, Somerset.

Finished with engines

When Japan surrendered in Tokyo Bay in August 1945, it marked the end for Grumman's so-successful fighter. For post-war service, the US Navy understandably standardised on the better performing F4U



An early Royal Navy Fleet Air Arm F6F-3. When the Royal Navy carriers moved into Far East waters at the end of 1944, all red centres to the roundels were deleted to avoid heat-of-combat mis-identity for Japanese aircraft with their prominent red 'meat ball' surface markings.



Post WW2, the Hellcat continued to serve with reserve units until the late 1940s.



Perfect arrival! With flaps and tail hook fully deployed, this F6F-3 Hellcat passes the rear deck round-down and settles into the arrestor wires.



Brother in Arms. The Fighter Collection's F6F-5 Hellcat in action with TFC's Grumman/General Motors FM-2 Wildcat during the annual Flying Legends Air Show at Duxford.

SPECIFICATION

Length: 33 ft 7 in (10.24 m)

Wingspan: 42 ft 10 in (13.06 m)

Height: 13 ft 1 in (3.99 m)

Wing area: 334 ft² (31 m²)

Powerplant: Pratt & Whitney R-2800-10W "Double Wasp" two-row radial engine with a two-speed two-stage supercharger.

Propellers: 3-blade Hamilton Standard

Propeller diameter: 13 ft 1 in (4.0 m)

PERFORMANCE

Maximum speed: 330 knots (391 mph, 629 km/h)

Stall speed: 73 kn (84 mph, 135 km/h)

Service ceiling: 37,300 ft (11,370 m)

ARMAMENT

Guns: Six 0.50 in. (12.7 mm) M2 Browning machine guns, with 400 rounds per gun, (All F6F-3, and most F6F-5) or two x 0.79 in (20 mm) An/M2 cannon, with 225 rounds per gun and four x 0.50 in (12.7 mm) Browning machine guns with 400 rounds per gun (F6F-5N only)

Rockets: Six 5 in (127 mm) HVARs or two 113/4 in (298 mm) Tiny Tim unguided rockets

Bombs: up to 4,000 lb (1,814 kg) full load, including:

Bombs or Torpedoes: (Fuselage mounted on centreline rack)

One 2,000 lb (907 kg) bomb or

One Mk.13-3 torpedo;

Underwing bomb options: (F6F-5 had two additional weapons racks either side of fuselage on wing centre-section)

Two 1,000 lb (450 kg); Four 500 lb (227 kg); Eight 250 lb (110 kg)

Corsair for the immediate future - and by then, they had the experienced aircrew to handle its tricky landing characteristics. In any case, Grumman were already about to produce their next higher-performing fighter aircraft - the twin-engine F7F Tigercat and the F8F Bearcat.

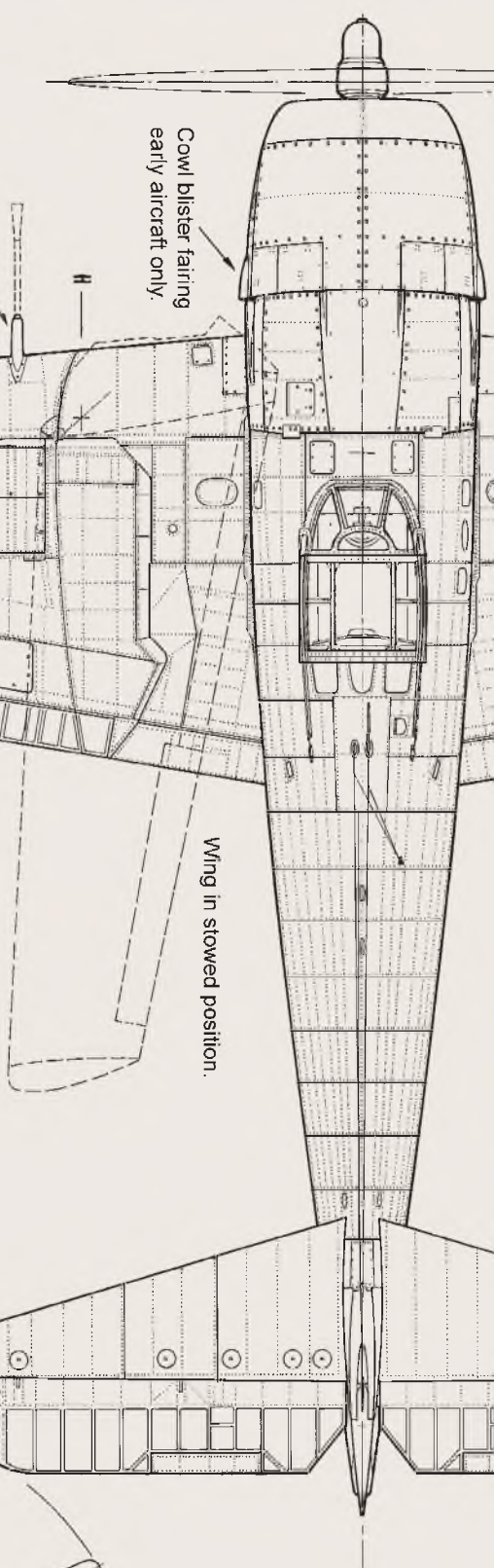
Hellcats still continued to serve, in Naval Air Reserve units and were also utilised as pilotless drone target aircraft, the latter right up until the early 1960s.

And so, in spite of the obscurity into which it fell, Grumman's Hellcat was, truly, the right aircraft at the right time ... and that's what really counts. ■

WHERE TO SEE ONE NOW

As one might expect, most surviving Hellcats are in USA, where the Warbird and historic aircraft movement is so strong, and where there is a very healthy market for airworthy examples in a manner that parallels the classic car movement. Records currently indicate there are six airworthy examples held by various Warbird collections there, all but one of which are F6F-5s. On static display in various air museums are four F6F-3s and seven F6F-5s, plus a further four F6Fs undergoing restoration.

In UK, the Fleet Air Arm Museum at Yeovilleton in Somerset has an F6F-5 on static display, while at the Imperial War Museum airfield at Duxford, The Fighter Collection has a fully airworthy F6F-5 that is regularly flown during summer air shows at Duxford and other venues.



Detail of radar installation on night fighters.

Wing in stowed position.

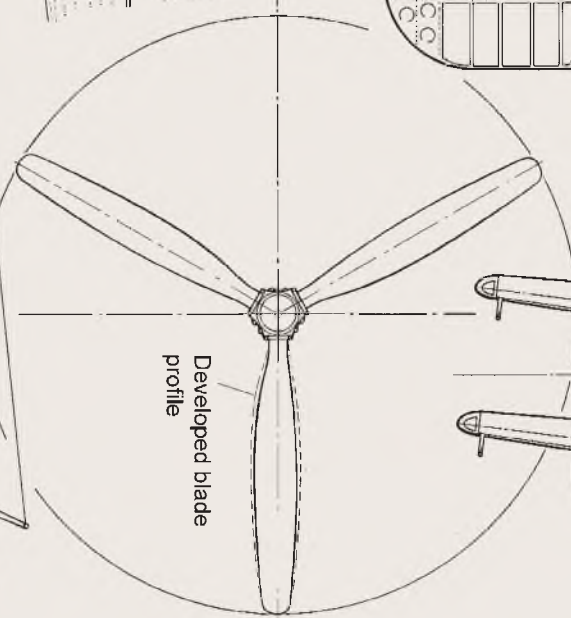
Cowl blister fairing early aircraft only.

Gun fairings fitted to early aircraft only.

Plan View. Typical for early production F6F-3 aircraft.

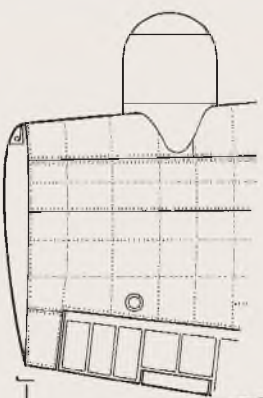
Top view on late style canopy showing integral windscreen armour and rear cockpit without side windows.

Canopy rails curved in plan view. Canopy distorts as it slides.

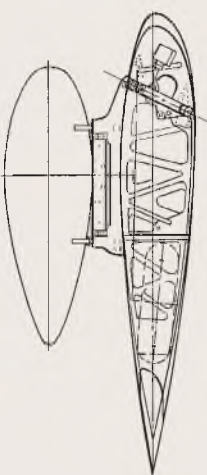


Developed blade profile

Detail of searchlight used for anti-submarine trials.

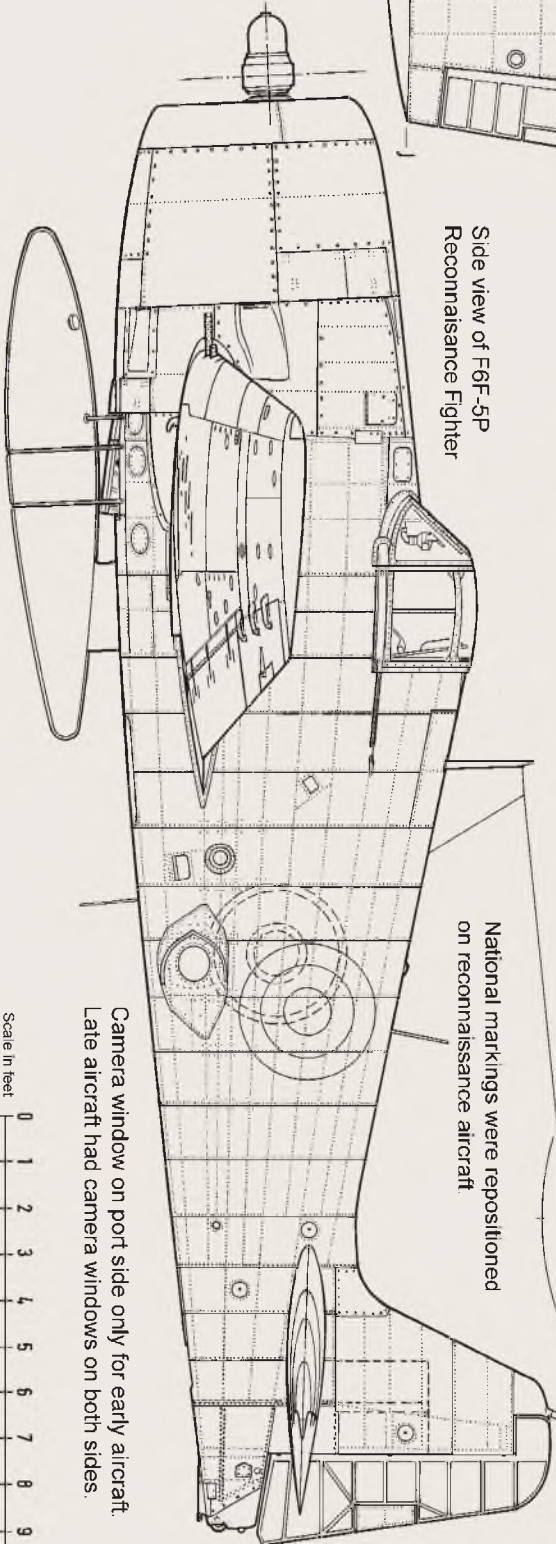


Wing fold axis



Detail of wing root bomb rack.

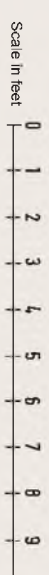
Side view of F6F-5P Reconnaissance Fighter



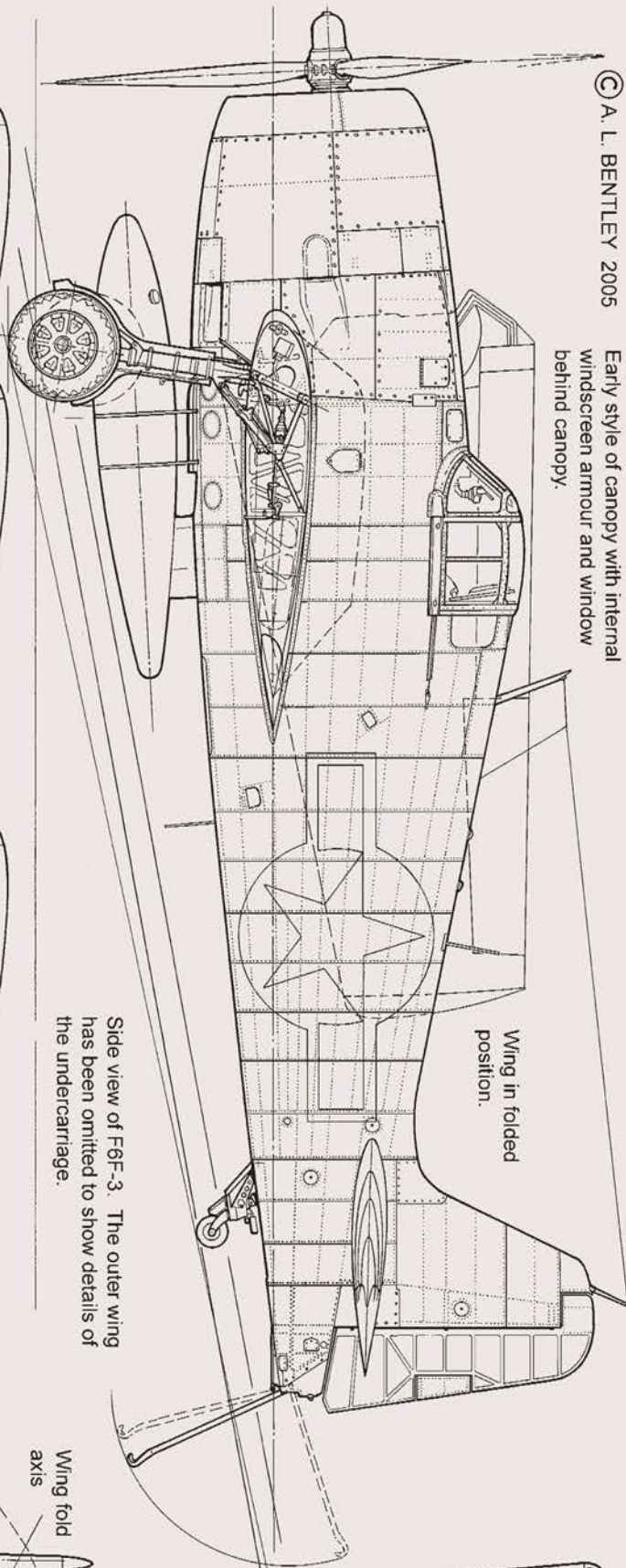
National markings were repositioned on reconnaissance aircraft

Camera window on port side only for early aircraft. Late aircraft had camera windows on both sides.

SCALE 1:50

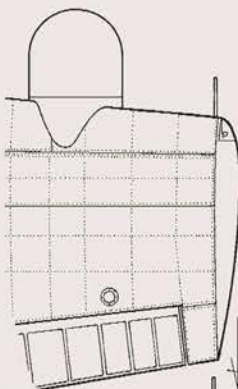


Early style of canopy with internal
windscreen armour and window
behind canopy.



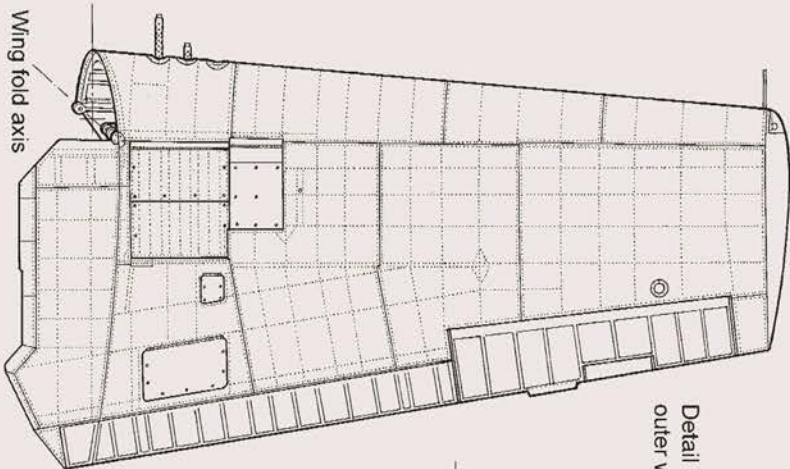
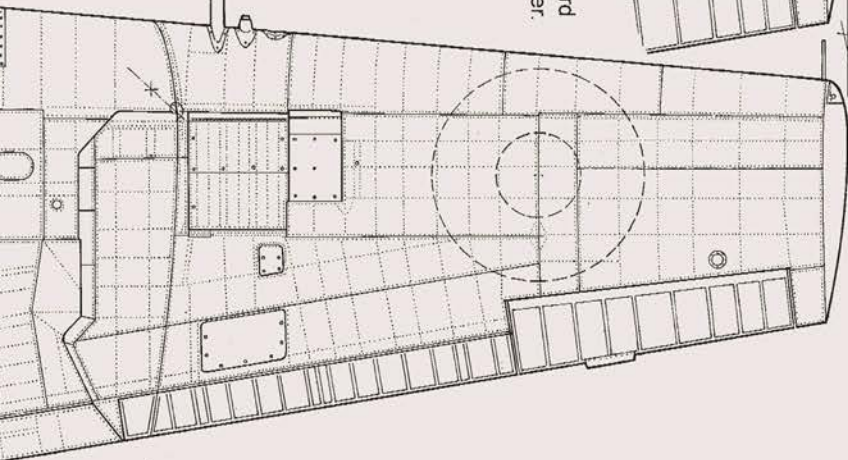
Wing in folded
position.

Side view of F6F-3. The outer wing
has been omitted to show details of
the undercarriage.

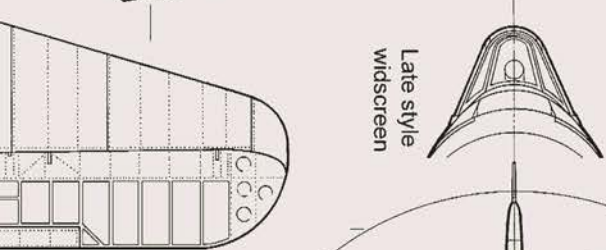


Radar installation on starboard
wing on F6F-5N/E night fighter.

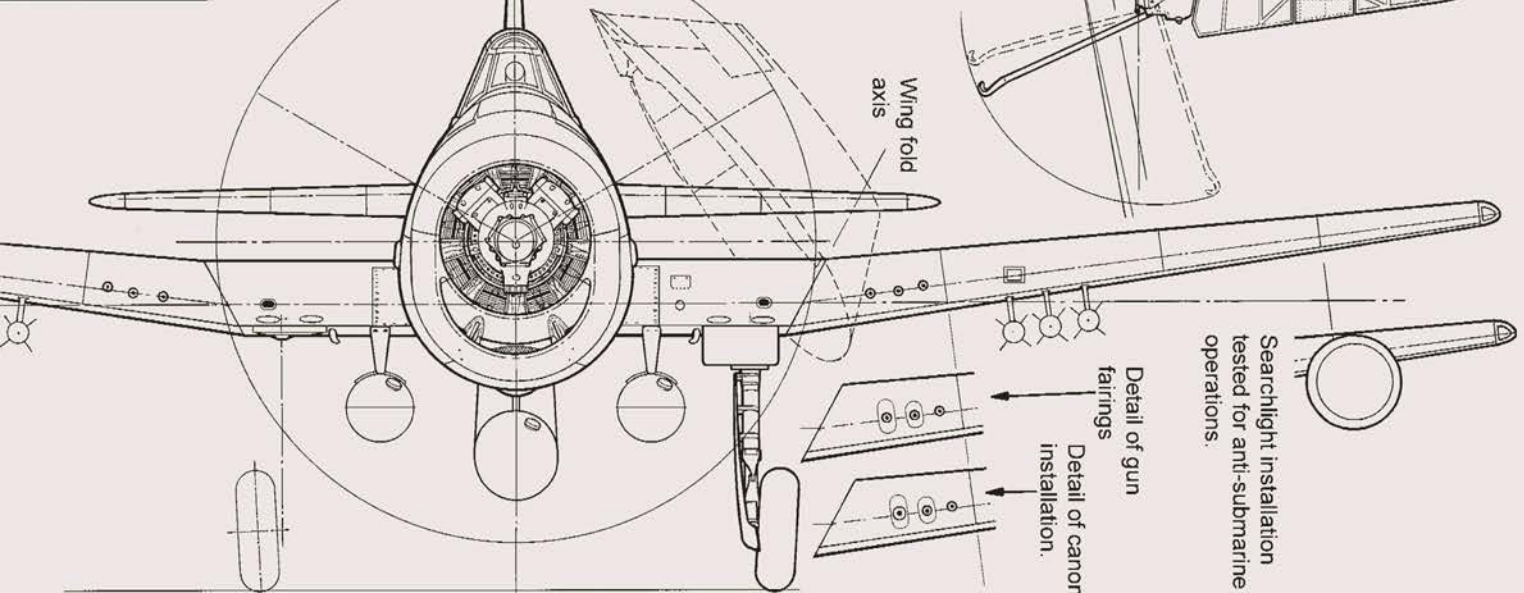
20mm canons fitted to many
of the night fighters in the
inboard gun location.



Detail of upper surface of
outer wing of F6F-5



Late style
windscreen



Searchlight installation
tested for anti-submarine
operations.

Detail of gun
fairings

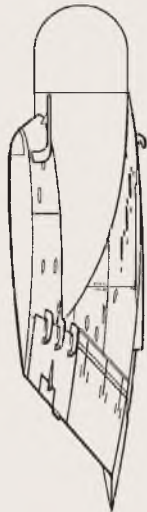
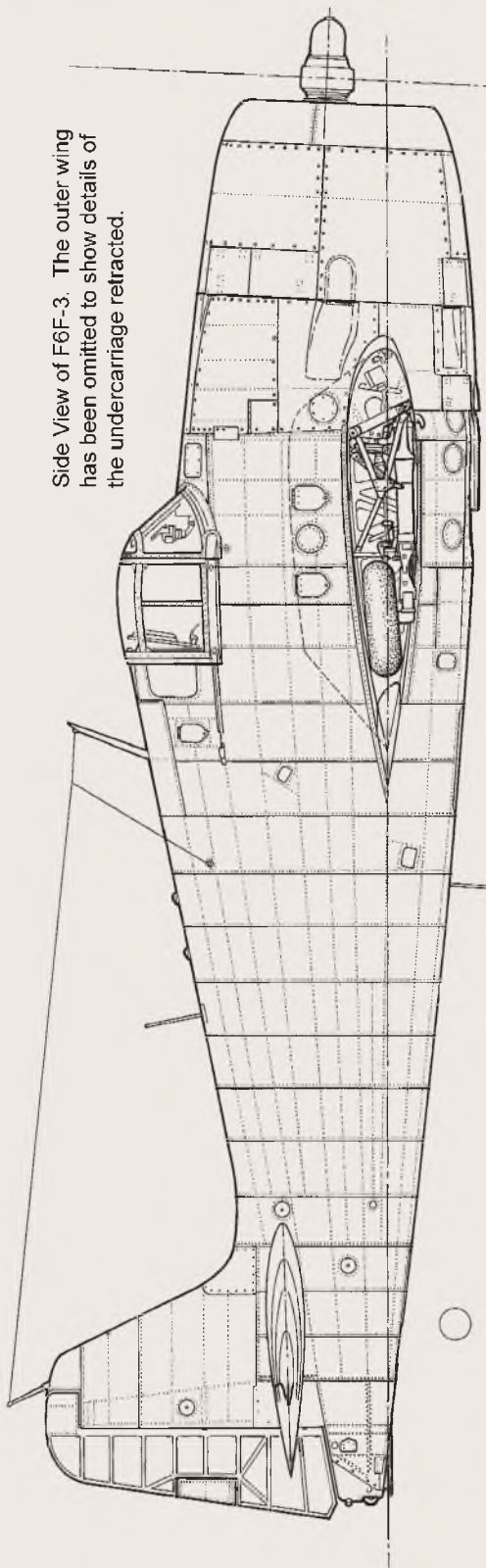
Detail of canon
installation.

Wing fold
axis

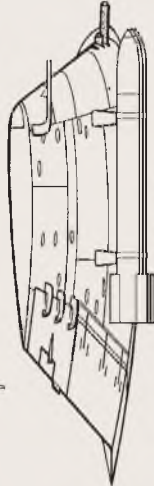
SCALE 1:50

GRUMMAN F6F-3 & F6F-

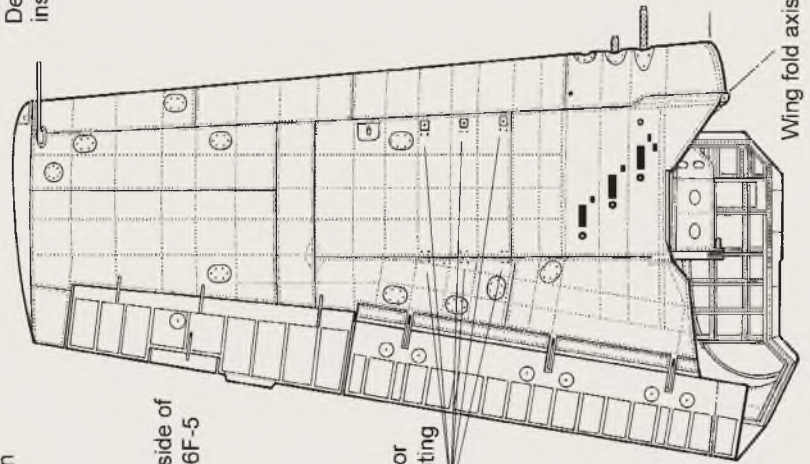
Side View of F6F-3. The outer wing has been omitted to show details of the undercarriage retracted.



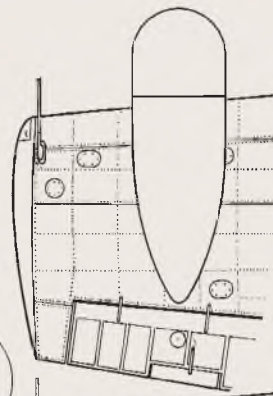
Detail of Radar installation on night fighters.



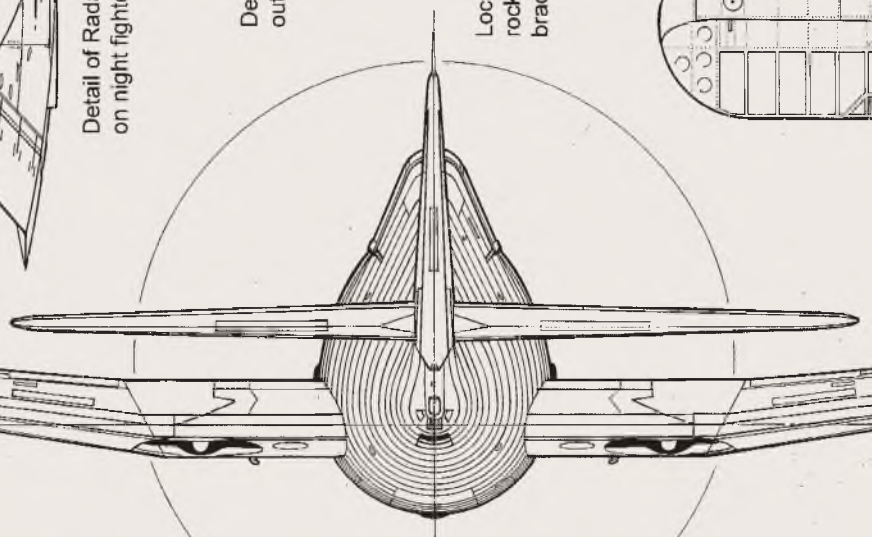
Detail of rocket installation.



Detail of underside of outer wing of F6F-5



Detail of Radar installation for night fighters.

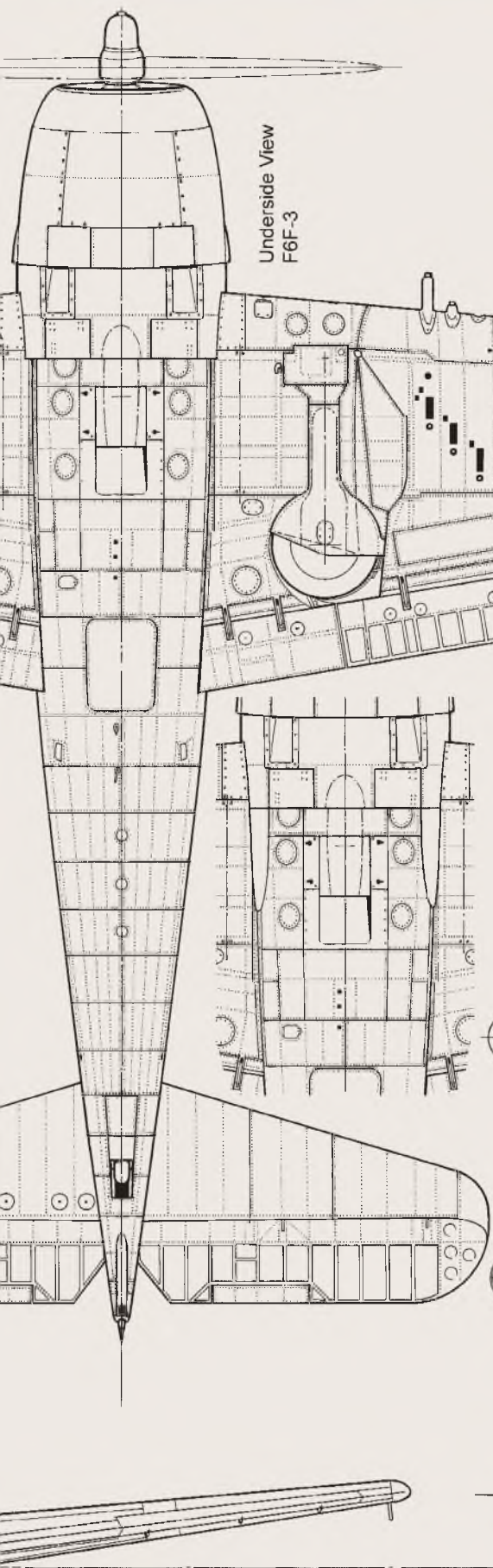


Locating holes for rocket rail mounting brackets.

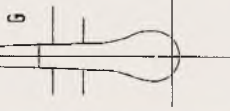
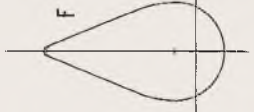
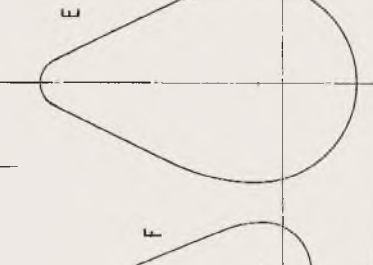
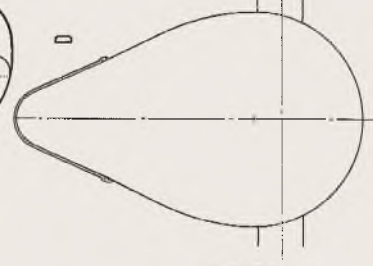
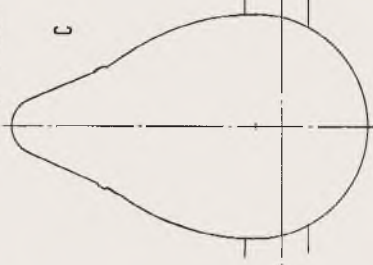
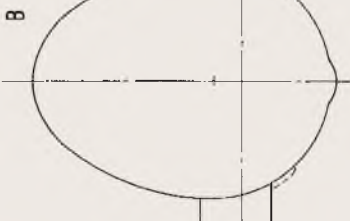
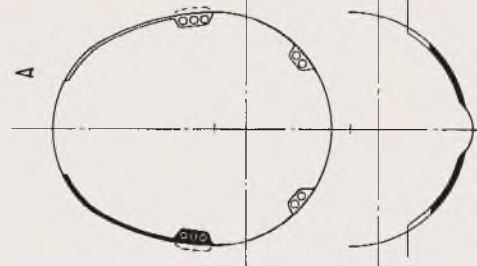
Wing fold axis

Bomb rack mounting points

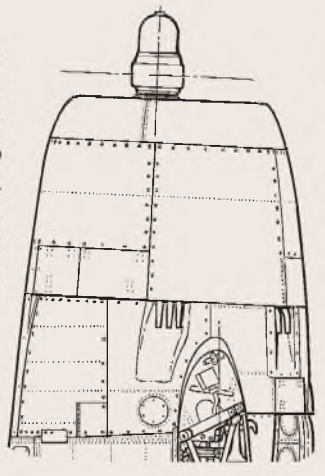
5 HELLCAT



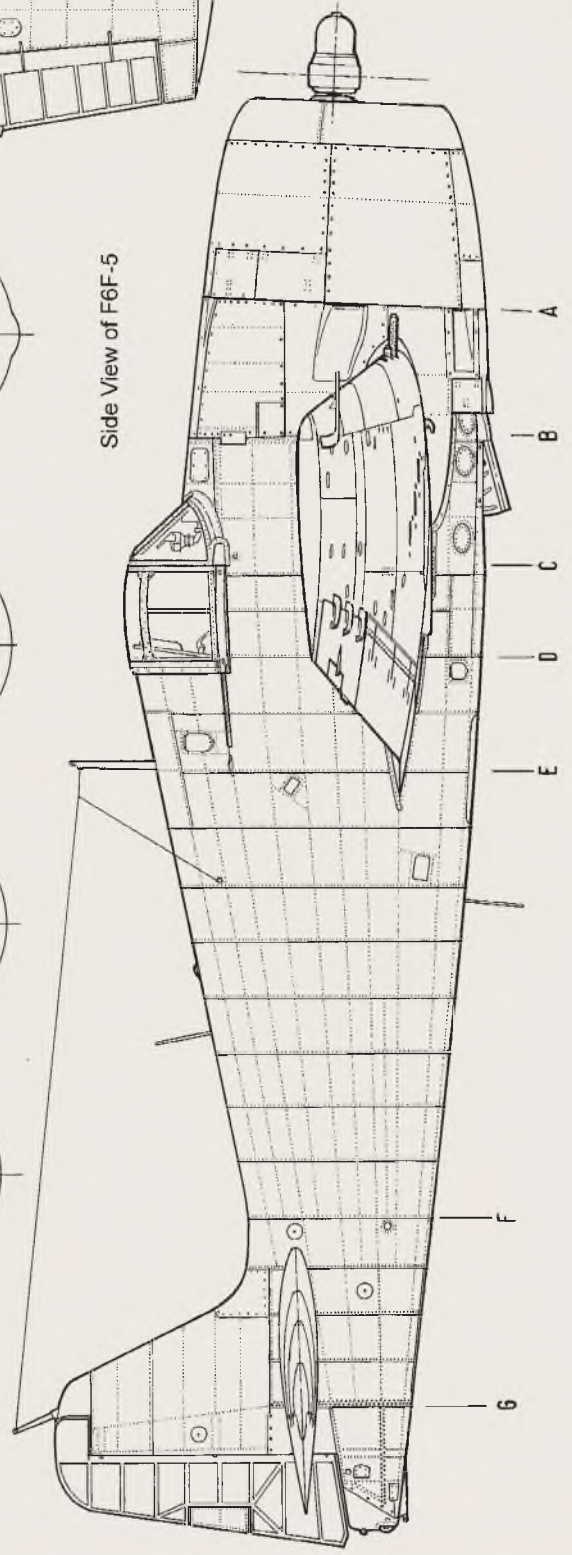
Underside View
F6F-3



Night Fighter Nose showing
flame damping exhausts



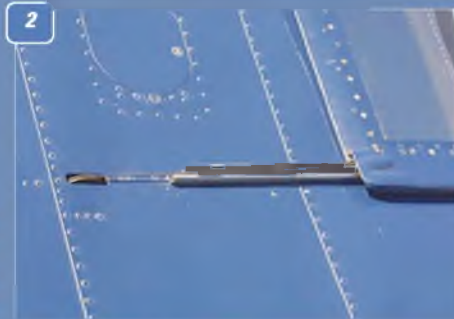
Side View of F6F-5



Scale in feet 0 1 2 3 4 5 6 7 8 9

GRUMMAN F6F-5 HELLCAT

CLOSE-UP PHOTO STUDY FOR
THOSE WHO LIKE TO PILE ON
THE DETAIL



1: The full cockpit canopy. Note the rivetted frame. 2: Close-up of the sliding canopy guide rail. Note wire and pulley. 3: Further close-up, exposing the guide rail at the front. 4: It's a long way up to that cockpit, but you can see the shape of the windscreen.

4

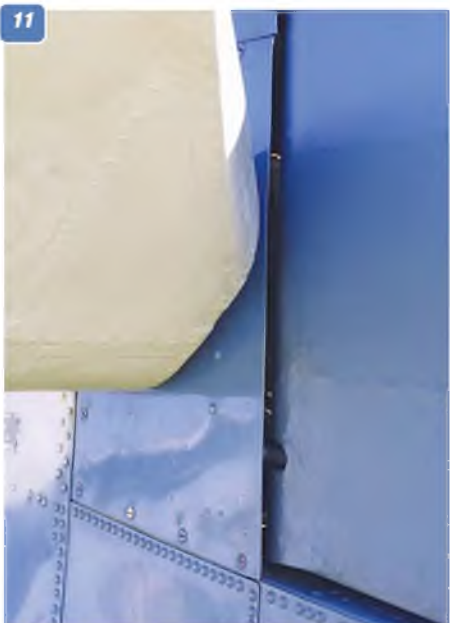




5: View of the rear upper fuselage. The rivet lines define the panels which do not have concave curves - just overlapped flat sheets wrapped around the fuselage formers. 6: The arrestor hook has been removed on this example, but the position at the extreme rear of the fuselage is clear. 7: View of the rear fuselage underside, Beneath the tailplane position.



8: The complete tailcone, showing the rudder shape. 9: The rudder trim tab is hinged on the right hand skin surface. 10: Further close up of the rudder trim tab, showing the hinge. 11: Close-up of the cuff fairing over the rudder hinge line. 12: The rudder aerodynamic balance at the top of the fin/rudder assembly. 13 & 14: Two views of the fuselage front underside, just behind the engine cowl, showing the adjustable cooling channel.





15: Exhaust pipes at the rear of the engine cowl side. 16: View of the exhaust outlet on the right hand side, viewed from the front. Left side similar. 17: Close-up of the prop. boss. An important item to replicate in a model for realism. 18: A view inside the cowl of the Pratt & Whitney R-2800 engine. 19: Air intakes in the lower engine cowl. 20: Main undercarriage Leg viewed from rear. 21: Catapult launch hook. One is positioned on each wing just outboard of the main undercarriage wheel well. 22: Main undercarriage wheel.



23: View of a main undercarriage leg. Wheel covers are rigidly fixed to the legs, inboard and turn with the leg during retract sequence. Front auxiliary door folds backwards. 24: Close-up of the top of the main undercarriage leg. Note the link from the leg to the front auxiliary door. 25: Bottom of the main undercarriage leg and fairing, viewed from the rear. 26: View of the main undercarriage, viewed from inboard, showing the shape of the main undercarriage fairing. 27: View of the top of the main leg, viewed from the rear.

HELLCAT FLYING COLOURS



Grumman F6F-3 Hellcat, 'White 31', flown by Wilbur B. 'Spider' Webb, VF-12, USS Hornet (CV-12), Guam, June 1944. Three-tone scheme; fuselage non-specular Intermediate Blue with Non-Specular Sea Blue on top decking, upper wing and tailplane surfaces. Undersurfaces non-specular Insignia White. Star markings on fuselage sides, above Port and below Starboard wings, National insignia on fuselage sides, above Port and below OStarboard wings, white '31' on fuselage sides and fin.

DOUGLAS A-20 BOSTON/HAVOC FLYING COLOURS

Grumman F6F-3 'White 6' of VF-1 aboard USS Yorktown (CV-10), March 1943. Non-Specular Blue/Grey (FS35042) upper surfaces, undersides in Light Grey (FS36440); white code '6' on fuselage sides, National star insignia in six positions.



Grumman F6F-3 Hellcat, 'F-36' of VF-4, Naval Air Station Alameda, California, May 1943. Non-Specular Blue/Grey upper surfaces, with National insignia in six positions



Grumman F6F-3 Hellcat, 'White 13', VF-16 aboard USS Lexington, Pacific, late 1943. Three-tone scheme with US star insignia (outlines in red) on fuselage, top of Port wing and under starboard wing. '13' white on fuselage and fin.



Grumman F6F-3 Hellcat, 'White 67', flown by Lt. Richard 'Red' Devine, VF-10, USS Enterprise, February 1944. Three-tone scheme; National Insignia on fuselage sides, above port and below starboard wings. White '67' on fuselage sides and fin.



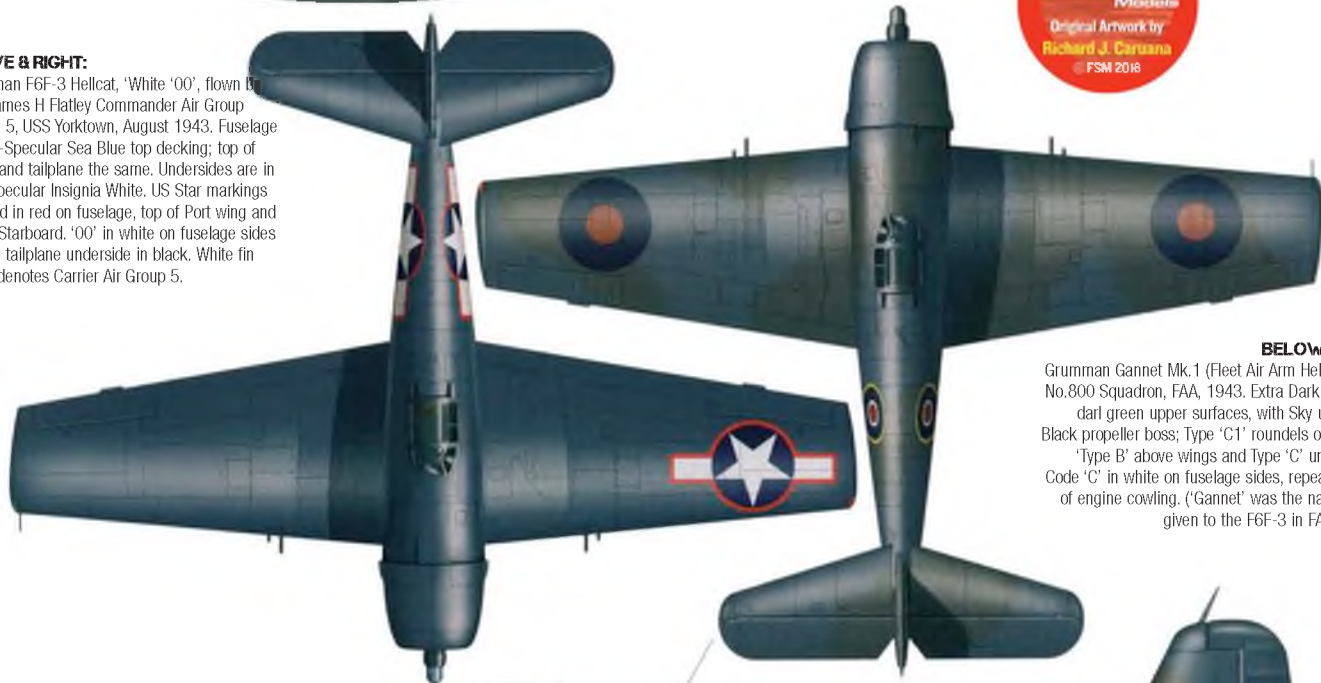
Grumman F6F-3 Hellcat, 'White 13', flown by Lt. William E. Lamb, VF-27, USS Princetown, October 1944. Three-tone scheme; fuselage non-specular Intermediate Blue with Non-Specular Sea Blue top decking, upper wing and tailplane surfaces; undersurfaces non-specular Insignia White. Star markings on fuselage sides, above Port and below Starboard wings, Mouth & Eye' motif on nose in white, red and black. Five 'kill' below cockpit.





ABOVE & RIGHT:

Grumman F6F-3 Hellcat, 'White '00', flown by Cdr. James H Flatley Commander Air Group (CVAG) 5, USS Yorktown, August 1943. Fuselage in Non-Specular Sea Blue top decking; top of wings and tailplane the same. Undersides are in Non-Specular Insignia White. US Star markings outlined in red on fuselage, top of Port wing and under Starboard. '00' in white on fuselage sides and on tailplane underside in black. White fin stripe denotes Carrier Air Group 5.



BELOW & LEFT:

Grumman Gannet Mk.1 (Fleet Air Arm Hellcat F6F-3) No.800 Squadron, FAA, 1943. Extra Dark Sea Grey / dark green upper surfaces, with Sky undersides. Black propeller boss; Type 'C1' roundels on fuselage, 'Type B' above wings and Type 'C' under wings. Code 'C' in white on fuselage sides, repeated on rim of engine cowling. ('Gannet' was the name initially given to the F6F-3 in FAA service).



Grumman Hellcat Mk.1 (Fleet Air Arm Hellcat F6F-3) No.800 Squadron, Naval Air Squadron, Fleet Air Arm, HMS Emperor, late summer 1944. Finish and markings as caption above right, except for red propeller boss and front of cowling. Black/white 'Operation Overlord' stripes above and below wings and around rear fuselage. Codes in red, with white outline.

www.flyingsca



NEVER MISS AN ISSUE
SUBSCRIBE TODAY!

www.adhpublishing.com

£42

Get your copy delivered to your doorstep before it reaches the newsagents by subscribing



www.adhpublishing.com



01525 222573



enquiries@adhpublishing.com



JOIN THE ELECTRONIC REVOLUTION

Enjoy FSM on your iPhone, iPad, Android phone or tablet PC.

Visit the App Store or Google Play and search for "Flying Scale Models" or visit PocketMags.com to purchase single issues and subscriptions to read on your device or PC.



Available on the iPhone

App Store



Google play

lemodels.com

Follow us on Facebook
facebook.com/pages/Flying-
Scale-Models/495012097186048

Follow us on Twitter
@ScaleModelFlyer



- MASTER MODELS
- TYPE HISTORY
- IN DETAIL
- SCALE DRAWINGS
- FREE PLANS
- CONSTRUCTION
- TECHNIQUE
- SHOW REPORTS
- FLYING COLOURS
- HOW TO'S
- GLIDERS
- ELECTRIC
- SCALE INDOOR
- SCALE REVIEWS
- SCRATCH BUILD

ALSO
AVAILABLE
FROM ADH
PUBLISHING...



www.adhpublishing.com/shop



SUBSCRIBE FOR ONLY **£44**



SUBSCRIBE FOR ONLY **£55**

SEE THE ADH
WEBSITE FOR MORE...



On Silent Wings by Chris Williams

SCALE SOARING



The Ventus in action.

In due course, as Motley and I clattered up the hill at White Sheet, just opposite the stately home of Stourhead, visible in the near distance from the top of the hill, and the old jalopy laden with gliders, we came to rest and took stock. Sun shining? Check. Light breeze...? Check. Blowing on the slope...? Check. No dark shower clouds anywhere to be seen...? Check. Wing joiners, fuselages wings, coffee, ginger biscuits...?

Check, check, check, check... As you read this, we will most likely be in the depths of winter, and you will probably have forgotten that back in June and early July, not a single day went by without rain of some sort, so what we were looking at here was some sort of miracle! Arriving before us we beheld the previous scale secretary incumbent, Steve Fraquet. After exchanging the usual pleasantries, we all started

unloading the vehicles and passing the bits and bobs over the fence so that rigging could take place without the hassle of taking fully rigged gliders through the 'kissing gate', that fiendish device designed to let people through, and animals where they belong. Talking of animals, for some time now the cattle up on the hill have been supervised by an enormous bull, known to one and all as Ferdinand.

Steve was halfway through rigging his K8 when Ferdinand, normally a good-natured friendly beast, suddenly came over all frisky and charged at Steve and his glider. They say that a lioness in defence of her cub is a fearsome sight to behold, but it pales in comparison to that of a glider pilot defending his model. With a mighty roar and a manic waving of the arms Steve frightened Ferdinand out of ten year's worth of growth, and now we no longer call



Chris Dunning launches his trusty Slingsby Kite.



The prototype Orlice kit, flown by Chris Dunning.



El Stevo the Magnificent flying his K8 at the White Sheet event.

him Steve, but *El Stevo the Magnificent*. Pretty soon we were off and the sky started to fill with gliders. Up from the Meon Valley was Chris Dunning, sporting an unusual V-tailed model. This was the Orlice, a prototype for a kit to be imported to the UK by Phil Hoegger of Glidermania. He was also flying his 1/4 scale Slingsby Kite 1 from the John Watkins plan, a real treat for the eyes in its elegant outlines and yellow and white livery.

This was also the first public outing for my pal Motley's new E-assist version of the Bergfalke 4, resplendent in its black and silver livery. As I have explained before, these models were built purely for the purpose of avoiding the possibility of landing out, should the lift go AWOL, and with the light winds forecast for the day, the possibility often loomed. As it turned out, only one model succumbed to this fate, and that was Pat Teakle's Moswey, although it was fortunate the a flier much less stricken in years offered to go and retrieve it for him. This Good Samaritan was Simon Newman, who was flying a couple of models, the first of which being the miniature Minimoa from the *Replikit*

concern. I first saw this design on an *RC Groups* build log a few years back, thinking it might be a handful at that size, but this was the first example I had seen of it. In the event, it seemed to fly very well, it's diminutive size making it ideal for plopping down on the side of the hill when the lift went on holiday. Simon's second model was an altogether more serious Ventus, from the *Topmodel* company, awaiting its maiden flight.

In the sometime light conditions, he was dubious about flying it at all, but the constant barracking from the other geezers finally motivated him to give it a go. It was a shame, then, that a sudden lack of lift and a seemingly rearward CG, sent the lad all a twitter, but he got her safely down on the side of the hill, much to his relief.

At the end of the day, with only Motley and myself left on the hill, de-rigging and packing up, a gasp of displeasure rent the silence. "Look at this" gurgled Mott, "what's happened to my wing!" He held up the offending item, which, now he mentioned it, was even more bent than an EU mandated banana.



Simon Newman contemplate the maiden flight of his Ventus.





Antonia Gigg, regular WS fly-in supporter.



Simon Newman with his Replikit Minimoa.



Motley Crew's Bent-Wing Bergfalke gets a launch from Steve Fraquet.



Author with the 1/4 scale E-Assist Bergfalke 4.

Our minds roved over the possibilities: a bent building board; duff wing jig supports; a seriously over-packed car? When he dared to look again the next day, the wings were both straight again, and the truth dawned. It has started to become common practice to paint the E-assist propeller to match the colour of the fuselage, but Mott had gone one step further and painted the model to match the propeller. It seems that the black upper surface of the wings, in comparison the silver undersides had collected so much heat in the strong sunshine that the wings had acted like the famous bi-metallic strip that turns your kettle off when it boils. Now we know why gliders are predominantly white!

“ Slope soaring is my favourite of the flying options open to glider enthusiasts, the least pleasant part of which is the long slog up from the bottom of the hill should Lady Lift turn her back on you ”



By general consensus it was decided that this event would be one long to treasure in the memory, and it was a shame that, as usual, the iffy forecast put off all but the hardiest of slope fliers. The last word must go to White Sheet member Chris Wynn who explained on the forum the next day that he had consulted his Maplin weather station in the garden throughout the day which told him there was no wind, after which he decided to stay at home. It was only later that he found out the darned thing was jammed...!

Only one more scale event left in the White Sheet calendar, let's hope it's as good as its predecessors...

A NEW WAY TO FLY...?

After the success of the electrified Slingsby Dart 17R, my thoughts naturally turned to a successor, and my recently designed Bergfalke 4 soon became the obvious candidate. With the lessons learned from the Dart, the model soon came together, and proved, without surprise, to be equal in performance to its un-powered stablemate. Tests on the slope followed, and then it was time to try her out on the flat, even though this wasn't part of the original mission profile.

The venue was the County Model Flying Club's site at Keysley Down, near Warminster, and the conditions were warm, sunny and with little or nothing in the way of wind. This was the ultimate test: could a fairly large model such as this be hand-launched safely on the flat, with no wind into which it could be launched?



The E-Bergfalke in action at White Sheet.

The answer turned out to be yes, and on its first flight, the Bergfalke hooked into a thermal and went on to a twenty minute flight. So, after two or three months of testing, what has been learned?

First of all, the downside. A scale glider is diminished in appearance once it sports a 'moustache', especially a vintage machine, few of which have been thus modified full-size. Having said that, once it is a more than a short distance away, the excrescence is far from noticeable, until it is fired up, of course.

The up-sides are far more numerous.

Slope flying is my favourite of the flying options open to glider enthusiasts, the least pleasant part of which is the long slog up from the bottom of the hill should Lady Liff turn her back on you. Knowing that should such conditions exist, slogging will know longer be an option, flying in light winds can now be confidence-based. The upshot of this is that over the three month period, Motley and I have easily doubled the number of times we have set off to fly, iffy conditions no longer being a deterrent. ■



Happy scene at the White Sheet club's scale fly-in.

SCALE OVER WESTON

Alex Whittaker explores the scale dimension to this famous summer show

The thing about the famed Weston Park Show is that it is held inside a tree museum ...erm ... which also doubles as a fullsize airfield. Now, flying large scale models between specimen trees in an Arboretum does sound mad, but in practice it is often spectacular.

The Crossover Show

Weston is also a great 'crossover show'. Every year it attracts pilots from the various UK scale disciplines to fly together. Thus, we had doughty F4C Scale men shoulder-to-shoulder with Warbirders, LMA large scalers, Dawn Patrol, some scale glider guiders, and some noted jet jockeys, all sharing the flightline in scale harmony. It was also very gratifying to spot Neil Tidey (designer of the famed

Laser engine) flying his Paper Aviation Eagle. Even the great Paul Heckles returned after an absence of some years.

Flying conditions

Conditions were variable on the day I attended. The wind was not a significant issue, but at times the light was very dull indeed. This was troubling for the pilots, making their models often appear as dark silhouettes against a grey sky. However, there were a goodly number of brighter intervals, and in the usual Weston fashion, the show carried on at cracking pace.

Euro Scale

The Austrian WWII Fighters gave us an absorbing scale display. Mind you, I am not sure how they got so much scale hardware all the way to deepest

Shropshire! Their Messerschmitt Me 109G was a delight to watch and to hear, and overall, the team provided a number of excellent flying slots over the weekend.

Full-Size

The full-size light aviation movements throughout the day gave the show another fascinating dimension. It is always instructive to remind ourselves as scale modellers just how purposefully real aircraft fly, make an approach, and land. We were treated to a fine Cessna Cropduster with smoke on, and Richard Goodwin gave us a really impressive full-size display with his modded Pitts S3. Prop hanging, too.

There was even an immaculate Robinson R44 helicopter, which flew in and flew out. DB Sound always gives the

Mark Hinton's Grumman Cougar taking off into the smoke of war.





Fine 1/4 scale Fieseler Storch in the TJD Display Team.



Glenn Veasey's Mitsubishi A6M Zero on a gear-down pass.



TJD Models Team Douglas A-1 Skyraider back-tracking.



Richard Goodwin gave us a superb full-size display with his modded Pitts S3. Prop hanging, too.



The Austrian Duo, Herman and Alex, flew a brace of Fokker Eindekkers.



Dawn Patrol (UK) were out in force. Superb display.



Jez Harris's 1/3rd scale Nieuport 28 about to touch down.



Dawn Patrol Team's 1/3rd scale Sopwith Pup on close fly-by.



Matt Harrowven's fine 1/3rd scale Fokker D.VII in Herman Goering's colours.



'Dawn Patrol's Chris Poyser demonstrating his 'Power Flick'!



The Austrian WWII Fighter's Team Spitfire IX on a low pass over the bombed city.



The Austrian WWII Fighter's Team Me 109G had an amazing engine, with the sound to go with it.



Paul Heckles flew this imposing 1/3rd scale AVRO 504K.



Pilots: if you wanna get ahead, get a hat!



Show organiser Steve Bishop and his son Matt flew their matching Hawks as 'The Reds Duo'.



Florian flew this scale Eurocopter BK117. 6.5 kW turbine power. German TV series scheme.

“ You could feel the bang in your abdomen, and the flash on your cheek ”

crowd the air band frequencies for the day. This meant that I was able to tune into the full-size R/T chit-chat on my hand-held VHF/UHF radio scanner, as I took my snaps on the flight line. Great fun.

Trade presence

The Trade Show aspect of Weston is always excellent. It is ideal if you want a summer bargain, or need to top-up on your bench goodies after a hard winter's shed bashing.

Weston also keeps faith with the traditional UK summer show concept of letting the punters see commercial models flying before we buy. TJD models as usual ran their whole 'show within a show'. Not content with flying scores of warbirds they also took part in the mass Cambria Models Funfighters raid. Now that was hairy! Scale funfighters everywhere, and maybe twenty pilots jockeying for some clear air. Great fun to watch.



The "Weston War" pyrotechnics produced a perfect smoke ring.





Weston Park is 'The Friendly Show' and is always well attended.



Daren Graham brought the prototype of the new Cambrian Models Funfighters' Zero.

This year Horizon Hobbies turned out in force with scores of slick and toothsome commercial scale models. You could see a model demo'd by Azza Stephens and his mates from Team Horizon on the flight line, get enthused, then step back five paces and buy one.

The Verdict

A wonderful day out, with lots of interesting scale models. We certainly saw a broader range of scale aircraft than one might get at say a warbirds bash, or a F4C scale meeting. DB Sound was present over the Public Address System. Dave Bishop handled the whole occasion with his usual aplomb. He is definitely a huge part of the perceived friendliness of this show. Other show commentators could learn a lot from his relaxed, knowledgeable, and utterly professional style. The Weston trade presence was once again impressive and provided an ideal opportunity to make that "feel good" summer scale purchase.

Stop Press

The Weston Team are putting on a brand new autumn show at Ragley Hall in Warwickshire this year. It will be called the Festival Of Flight Spectacular. 1st and 2nd October, 2016. You can camp there for the weekend too. I very much like the idea of a big R/C show in the autumn. Just before we all retire to our sheds for the Winter Project! ■

Scale as far as the eye can see!





A very exact scale model right down to the wing walker! One of the famed Rawle / Holland / Stiles Breifing Boeing Wingwalkers Duo.



The TJD Models team always turn in an excellent performance. Nigel l'Anson on right.



The TJD Team's Hellcat returning to base.



Nigel l'Anson's P-51D Mustang on short finals.



Paul Crawshaw flew his (Dawn Patrol UK) 1/3rd scale / 103" span Morane Saulnier A1.



Scale Maestro, and Dawn Patroller, Pat Cuss flew his new and outstanding Albatros D.Va. 1/3rd scale / 118" span / 36 lbs.



Azza Stephens directs the other Team Horizon Scale lads towards the enemy.



Team Horizon's P-51D in USAAF Ace Chuck Yeager 'Glamorous Glennis' colours, climbing out with flap selected.

THE FOKKER MONOPLANES

Part 2: E.5 History

GARY SUNDERLAND CONTINUES TO WORK HIS WAY THROUGH
THE MYRIAD RANGE OF EARLY AND WW1 AVIATION TYPES

This replica, on display at the Avalon Air Show is owned and operated by the Omaka Aviation Heritage Centre at Blenheim, in South Island of New Zealand. For the Avalon Show, a whole flight (or Jasta!) of aeroplanes travelled from New Zealand in containers to Australia and were assembled there for exhibition and flying displays. Full marks to the Kiwis! They really made it an Avalon to remember.



A lot of rubbish has been written about Fokker aeroplanes, starting with Tony Fokker himself. Tony was a great test pilot and designer, but he had a vivid imagination and a scant regard for facts.

For the true history of the Fokker E.5 and the D.VIII, I recommend the *Windsock Datafile No.25* by Peter M. Grosz.

To avoid confusion, I choose to refer to these early 'parasols', as E.5, rather than 'E.V', the latter of which is the correct German Army type designation. My reason is due to my own experiences when flying my old Albatros D.V at air shows where commentators and announcers would invariably refer to it as a "...Dee Vee...! Ugh! Irritatingly, the same people have no problem with a Mk.V Spitfire - definitely a 'five' and NOT a 'vee', so I avoided using the Latin

numeral thereafter.

Briefly, Fokker built a while series of rotary engine monoplanes, with low, mid and high (parasol) mounted wings. The parasol prototype won the second fighter competition and went into production as the Fokker E.5 early in 1918.

Despite the low power 110 HP rotary engine, the E.5 was fast and manoeuvrable at low altitudes and the Germans had great expectations for this radical new design. Then, two German pilots were killed when the wings of their new E.5 aeroplanes folded in flight.

Investigation of the type disclosed that the structural design was sound, as proved by tests-to-failure, but the quality of the production airframes from one of the Fokker factories was unacceptably low, with many defective wings being discovered. As Technical Director, Tony Fokker was certainly

responsible for these defective aircraft and liable for prosecution. Only the end of WW1 saved him.

In the meantime, all of the few Fokker E.5 aeroplanes at the Front were grounded. The only unit to be equipped with a number of E.5s was Jasta 6, which whiled away the time by painting their grounded machines in elaborate versions of their black-and-white markings. It should be noted that all the production E.5 aircraft had wings with 'rounded' wing tips, and data plates were marked *Fok. E V ___/18*.

The type was then put back into production as the Fokker D.VIII, with an identical airframe, except that the wing tips were squared off, to a shape used on the original, type tested prototype. Needless say, the Fokker works and the Army inspectors took great care to ensure that the new wings were correctly manufactured. The squared-





DETAIL....

- 1:** A general view of the TAVAS Fokker shows the wooden wing and propeller to advantage. For more information, go to www.tavas.com.au
- 2:** Nose detail shows the cable and tensioner holding the nose cowl in place. This kits into a groove in the nose cowl rear, which, in turn rests into a corresponding groove in the underside nose ring.
- 3:** Mid-view detail shows the weight table and the rigging instruction pasted into the side. Note also the black line (Port side only) used to indicate level for weighing. Also, the production number '001' on the fuselage and strut!
- 4:** Tail detail includes the spurious identification 'Fok. D.VIII 730/18' and national markings in the correct location.

off wing tips were obviously introduced to differentiate them from the unsafe E.5 wings.

The D.VIII was not delivered until October 1918 and it is doubtful if any of them saw action at the Front. The original E.5 also saw very little action before they were grounded, so the Allies were probably not aware of this new Scout until after the Armistice on November 11th 1918. So the appellation 'flying razor' was likely bestowed by some 1930s journalist - a bit like 'whispering death' awarded to the Bristol Beaufighter by Australian journalists - and the same title bestowed by American war correspondents to the Vought F4U Corsair during WW2!

When the Allies demanded that the Germans surrender Scout aircraft after the Armistice, they were quite happy to provide all their E5 airframes at once. Someone might care to research whether these were subsequently flown - and what the accident rate proved to be!

The D.VIII aeroplanes were held back, for sale to potential customers. The Fokker factory, by then, located in the Netherlands could also build D.VIII aircraft for sale and in that way a

handful saw service in Italy, Poland and Japan.

WHAT WAS IT LIKE TO FLY?

It was obviously faster than the Fokker Dr.1 and the D.VI biplanes which were still in service in early 1918. Lt.z.Sea Theo Ostercamp reported his E.5 was noticeably slower than the Fokker D.VII. The E.5 and D.III were obviously underpowered and there were plans to install the larger U.III engine, which required the engine cowl to be bulged to accommodate it. None of the more powerful version of the D.VIII made it to the Front.

As to flight handling, the pilots of the several 'replica, newly built examples have few complaints about its flight characteristics, as one would expect. The E.5 was the first production high wing, strut-braced monoplane - a layout that is still with us today in modern light aeroplanes. In addition to the flat-undersurface high lift wing profile, Fokker tapered the outer panels, which efficient planform to the wing decreased drag and improved aileron efficiency.

At a recent Avalon Airshow in Australia, there were two replicas for me

to drool over and examine closely. The first was marked 'Fok D.VIII 730/18' and was built by an expert in Germany. It is now owned and operated by the Australian Vintage Aviation Society in Queensland. (See photo 1). It is notable for having a varnished and unpainted plywood covered wing; not quite authentic, but it does show the superb workmanship that went into building this replica.

The other Fokker parasol at that Air Show was the equally superb replica made in New Zealand. This was marked in the authentic scheme of a Jasta 6 machine, including the standard olive green painted wing with printed fabric fuselage (photo 5). After a very close inspection, the only 'issue' I discovered was the number '156/18' on the rudder. The *Windsock Datafile* proved this was the number of a Marine Feld Jasta E.5, so the identity of the original aeroplane is yet to be confirmed. Anyway, I chose this scheme for my model! ■

NEXT MONTH...

In November issue we present a full construction feature for Gary Sunderland's quarter-scale Fokker E.V/D.VIII

AeroDetail series

Making a scale model?

Finding the detail needed to finish a scale model can be difficult and getting full size images is not always practical. Our range of detail photo collections provides extensive close ups of a wide range of popular aircraft all on CD in J-peg format



Whitman Tailwind CD106

Two examples shown of this U.S. homebuilt lightplane, with boxy shape ideal for modellers. Complete close-up detail. (62 images)

Westland Lysander CD105

The Shuttleworth Museum's airworthy example shown in both camouflage and Special Operations black finishes. Full close-up detail. (62 images)

Waco Ymf-5 CD104

Beautiful and graceful spatted undercarriage biplane of the 1930s 'golden aviation era'. Example photographed is an accurate-in-every-detail modern replica. (130 images)

Vickers Supermarine Walrus CD103

The famous 'Shagbag' biplane seaplane, used during WW2 as an air-sea rescue craft and fleet gunnery spotter. (80 images)

Tipsy Belfair CD102

Highly attractive Belgian low wing light aircraft from the era of simple, open cockpit private flying. Machine offers scale modellers pleasant lines and simple shape. (35 images)

Thulin Tummelisa CD101

Swedish 1919-era fighter trainer that served the Swedish air arm for many years. Example depicted is a faithful reproduction. (55 images)

Supermarine Spitfire MK.XVI CD100

Last of the Merlin-engined Spitfires. This collection depicts the cut-down fuselage, bubble cockpit canopy later version. (116 images)

Supermarine Spitfire MK.IX CD99

The most numerous version of the classic Spitfire that turned the tables on the Luftwaffe's Focke Wulf Fw 190. (90 images)

Supermarine Spitfire MK XIV CD98

2nd of the Griffon-engined Spits (Mk.XII was

first), the bigger engine forced a change of the classic Spitfire shape. (58 images)

Supermarine Spitfire MK Vc CD97

Shuttleworth Museum's airworthy example presented in it's latest form with classic rounded wingtip planform. (160 plus images)

Supermarine Seafire Mk17 CD96

The Seafire 17 was no navalised Spit. A true ground-up naval fighter. (64 images)

Stinson 105 CD95

Light, private aircraft of the 1940-50s era, with lots of character. (75 images)

Steen Skybolt CD94

Attractive U.S. aerobatic biplane, presented in full detail. (89 images)

Sopwith Triplane CD93

The last example of the 'Tripehound' is the one built (in 1980!) from original Sopwith drawings by Northern Aero Works and given sequential manufacturer's number by Sir Thomas Sopwith himself in recognition of the outstanding workmanship. Extensive detail. (120 images)

Sopwith Pup CD92

The charismatic Sopwith Scout (to give its correct designation) is a great scale modellers' favourite. Example depicted is the one preserved and regularly flown at the Shuttleworth Collection, Old Warden. (50 images)

S.E.5A CD91

Shuttleworth Museum's airworthy example presented in full detail. (100 plus images)

Ryan Pt-22 CD90

US military primary trainer aircraft that served with both US Army and Navy, thus providing ab-initio flight training for the majority of US airmen of the WW2 period. A highly attractive aircraft. 90 images of the preserved, airworthy aircraft, hangared at the Shuttleworth Collection, Old Warden.

Republic P-47D CD89

Bubble-canopy version of the much loved 'Jug', photographed in fine detail. (105 images)

Polikarpov Po-2 CD88

The world's most numerous produced aircraft of all time, the P0-2 was a great maid-of-all-work used by both military and civil groups in the old Soviet Union and its satellite states. Example depicted is pristine, and now in storage at Old Warden. (170 images)

Polikarpov I-15 CD87

The ultra agile Russian biplane fighter aircraft that saw widespread service prior to and in the early years of WW2 and during the Spanish civil war. Example illustrated is a superbly restored machine. (100 images)

Pitts S.1 CD86

Homebuilt example by Bob Millinchip, as seen at 2002 PFA Rally. Complete detail study (36 images)

Piper Tomahawk CD85

Cranfield Flying School example of this civil ab-initio trainer aircraft. (54 images)

Piper Super Cub CD84

The later, 'cleaned-up' version of the famous Piper J-3, with more elegant engine cowl. Two examples shown. (80 images)

Piper L-4 Grasshopper CD83

Military version of the famous Piper J-3 Cub used during WW2 and close reconnaissance and spotter aircraft and for many other tasks. (80 images)

Percival Provost CD82

Airworthy, preserved example of the RAF piston engined basic trainer used in the 1950s. Full detail. (30 images)

Percival Mew Gull CD81

Famous 1930s racing and record setting aircraft that will forever be linked with the achievements of British aviator Alex Henshaw. (35 images)

North American T28 CD80

The advanced trainer aircraft that served in many air arms worldwide and also became a counter-insurgency ground attack aircraft. Examples illustrated are from France, where the type served for many years as the 'Fenec'. (100 plus images)

North American P51D Mustang CD79

The definitive bubble canopy Merlin Mustang. In detail, showing several restored examples. This is the Fantasy of Flight Museum's overpolished example, but the close-up detail is all there. (102 images)

North American P51B/C CD78

First of the Rolls Royce Merlin engined Mustangs, this collection depicts the Fantasy of Flight Museum's restored example, with overly polished plain metal surfaces. Much detail. (102 images) Also, 41 images of The Fighter Collection's P-51C in bare metal restoration, showing much surface and internal airframe detail. A real bumper bundle! (over 140 images)

North American B25 Mitchell CD77

Fantasy of Flight Museum's example. Photographed soon after superb restoration. Full nose to tail detail. (74 images)

North American AT6 Harvard CD76

AT-6, SNJ, Texan, Harvard - call it what you will. 55,000 were built - this example is in U.S. Army colours, with comprehensive close-up detail, nose to tail. (76 images)

North American A36 Invader CD75

The ground attack variant of the Allison engined P-51A. Photos, in detail, of the world's only airworthy example. (69 images)

Morane Saulnier MS406 CD74

French WW2 fighter that fought in the Battle of France, 1940. Swiss restored example (92 images)

ORDER FORM - Aerodetail CDs

Please send me the following CDs:

Name:

Address:

Postcode:

Daytime Tel No:

I enclose a cheque for £

(Made payable to ADH Publishing)

Please debit my credit card for £

(VISA / Mastercard - please delete non-applicable)

Card No:

Expiry date:

CCV:

SIGNATURE:

DATE:

Order on line at

www.flyingscalemodels.com or aero-modeller.com



£12.99 (including p+p)* per CD *UK only
Postage: (Europe); £2.50 (World); £3.50

Send to:

ADH Publishing Ltd,
Doolittle Mill, Doolittle Lane, Totterhoe,
Bedfordshire, LU6 1QX. Great Britain.
Tel: 01525 222573 Fax: 01525 222574
Email: enquiries@adhpublishing.com/shop
Allow 21 days for delivery

Techno Scale Mike Evatt sear

DCPM at <http://dpcmodels.homestead.com> provides excellent Laser-Cut Scale Flying Balsa Model kits. It's now been 18 years since Dave Cowell opened his doors in 1998 to the modelling community and he is proud to say that it has been great serving all his customers from around the world. Looking around the site, you may have noticed that perhaps it seems that his interest in WW-1 aircraft has declined. He can honestly tell you that it hasn't. Right now there is a major push for kit restorations. Those old and tattered kits and plans from yesteryear are going fast and will soon be gone for good if someone doesn't step in and attempt to do something about it. His original goals haven't changed over the years. He still tries to provide the best possible service and offer quality kits at the lowest price possible, only now the field of production is a little bit wider.

Gatwick Aviation Museum near Charlwood in Surrey is well worth a visit. Their website at www.gatwick-aviation-museum.co.uk shows what delights are in

store for the visitor. This Aviation Museum has a unique collection of British aircraft from the 'golden age' of British aircraft manufacture. From the end of WWII until the 1970's British aircraft designers produced some of the most innovative and advanced aircraft of the day. From post war to cold war, this museum clearly shows that timeline in aviation terms. Their Avro Shackleton Mk3 PH3 is well worth a visit.

Logging on to <http://westwings.co.uk> takes you to the world of **West Wings** model aeroplanes! They are probably the largest manufacturer of small, balsa model aircraft kits in the UK. They manufacture all of the West Wings kits in their factory in West Cornwall and their aim is to provide you, the modeller, with a range of kits that will excite you and keep you coming back for more, either from your model shop or if you no longer have a local shop, direct from their online shop or from one of their many stockists, from their online shops. Check out their Dornier 335 - as twin with no apparent vices.

To date, the Fox is the only dual glider which is suitable for flying the full spectrum

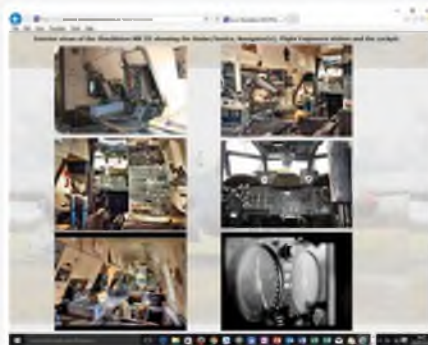
of aerobatic manoeuvres. It was designed by Edward Margaski, who also developed the Swift. In an attempt to improve the aerodynamics, the Fox prototype was rebuilt as a single-seater in 2001/2002, the retractable wheel occupying the space of the rear seat. The gliding performance of the 'Solo-Fox' is clearly superior compared to the two-seater. Eventually, only one example of the Solo-Fox was produced. A scale replica is available from **Modellbau-Schueler** at www.modellbau-schueler.de

Let Model at www.letmodel.cz has one of the most extensive of websites dedicated to Scale Soaring. Here you will find quite amazing scale gliders and accessories including hydraulic landing gear for their 1:3 gliders as ASH 26, Ventus, Discus, DG 600 etc.

John Cooper's Rubber Powered Free Flight Page may be accessed from <http://scaleflight.net> John flies his indoor models with the Ottawa Indoor Model Flyers, in Ottawa, Canada. His Comper Swift, shown is the screen-shot apparently flies quite well in spite of its lack of dihedral. Occasionally the rubber motor seems to rub



DCPM provides excellent Laser-Cut Scale Flying Balsa Model kits.



Gatwick Aviation Museum near Charlwood in Surrey is well worth a visit.



The world of West Wings model aeroplanes.



The gliding performance of the "Solo-Fox" is superior to the two-seater version.



Let Model has one of the most extensive of websites dedicated to Scale Soaring.



John Cooper's Rubber Powered Free Flight Page.

atches the webspace for more TechnoScale Topics...

against the nose, near the front hook, and the model loses power. He has added a piece of heat shrink tube to help prevent this.

The **Eynsford R/C Helicopter Flying Club** is located near to Eynsford Village, with stunning views of the Kent countryside. They are a small club of around 100 members which varies from beginners in the hobby to the more advanced flyer and maintain a web presence at <http://eynsfordrc.co.uk> Scale flying is once again becoming more popular. If you are more of a model builder, and like to put effort into creating a flying masterpiece, then why not try to replicate your favourite helicopter.

Despite the name, **Gliders** at www.glanders.uk.com do have the odd scale helicopter or two such as the Boeing AH-64 Apache. Whenever the United States military is called upon to settle a skirmish or major conflict, the Boeing AH-64 Apache attack helicopter is sure to lead the fight. That's because few VTOL capable aircraft are as well equipped, heavily armed or self-reliant. Some RC models of the Apache are large, expensive, require significant talent to

assemble and even more skill to fly. The Blade(r) Micro AH-64 Apache captures the pride of the U.S. Army and is officially licensed by the Boeing Aircraft Company. Standout details like a functional four-blade head, collective pitch mechanics and brushless power make it enticing to the experts, while innovative SAFE(tm) technology makes it easy to fly, even for less-experienced pilots.

R/C Scale Products, Inc. at <http://rcscaleproducts.com> offer the highest quality radio control scale items. Together with their high quality products they focus on customer satisfaction and service. R/C Scale Products was the brainchild of two long time scale modellers, Jim Weems and Tommy McClellan. These guys got tired of inferior components so they started seeking out the finest accessories. Their seat harness is very simple but effective for enhancing cockpit appearance. Whether with or without pilot. They currently stock USA and British belts in 1/5th and 1/4 scale. German belts will be available soon.

Since 2008, **RC Aerodyne** has provided

customers around the globe with top quality scale RC aircraft, helicopter kits and an incredible selection of hobby parts and upgrades. Located in Kent, Washington just south of Seattle, they offer a wide variety of great products from many excellent brands selected by their seasoned RC experts to guarantee you both top performance and top value. Many of their scale products are officially licensed replicas produced with input and approval from major aircraft manufacturers such as Boeing, Bell Helicopter and Hawker Beechcraft. Their Super Scale version of the B-25 (Apache Princess) is shown on their website at www.scaleflying.com

Machine-cut true pitch balsa wood blanks are made in the USA and are available in five styles. 2-blade freewheeling, 3-blade freewheeling, four-blade freewheeling, Old Timer Specific freewheeling, and Old Timer folders (specific to model) all are available from **Volare Products**. Their website at <http://volareproducts.com> has many other items of interest to the rubber powered scale modeller. ■



The Eynsford R/C Helicopter flying club is located near to Eynsford Village, Kent.



'Gliders' do stock the odd scale helicopter or two, such as the Boeing AH-64 Apache.



R/C Scale Products, Inc. currently stock USA and British belts in 1/5th and 1/4 scale.



Aerodyne's Super Scale version of the B-25 (Apache Princess).



Machine cut true pitch balsa wood blanks.



That's all there is time for from me this month so tap that keyboard and if you find something out there of interest that might be good to share, email me at:

mikeevatt@hotmail.com

THE QUIET ZONE

R/C SCALE ELECTRICS WITH
PETER RAKE

Okay, it's time for another edition of *The Quiet Zone*, but this month it's a bit different. Rather than me rambling on about assorted electric flight topics, this time there is a purpose to the column. I'll still ramble, but at least there will be some point to it this time.

As you'll see in this month's full size free plan feature I'm devoting this column to further details of that model. Although the model itself is pretty simple, there are some interesting features that might well apply to other models too. True, many of the assembly details are specific to the WEL-10, but other items will have a much wider scope of possibility. Anyway, since there's a fair bit to get through I'll get on with what I'm supposed to be writing about.

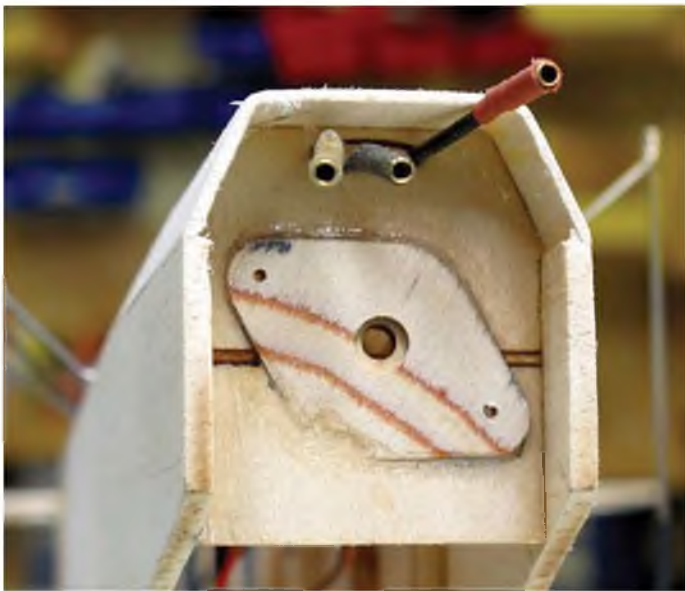
THRUST LINES

No doubt many of us have our own way of setting thrust lines, usually in the form of washers under the mount lugs, but options are a bit limited when using a motor like the *E-flite Park 300*. The main limiting factor is that the actual mount is roughly diamond shaped and only has two mounting points. You could pack one lug with washers, but that presupposes that you have enough space to mount the motor at a 45 degree angle and that you'll be happy with the somewhat less-than-stable mounting this will provide. No, I didn't think you'd be keen on a motor that is inclined to wobble at the least provocation.

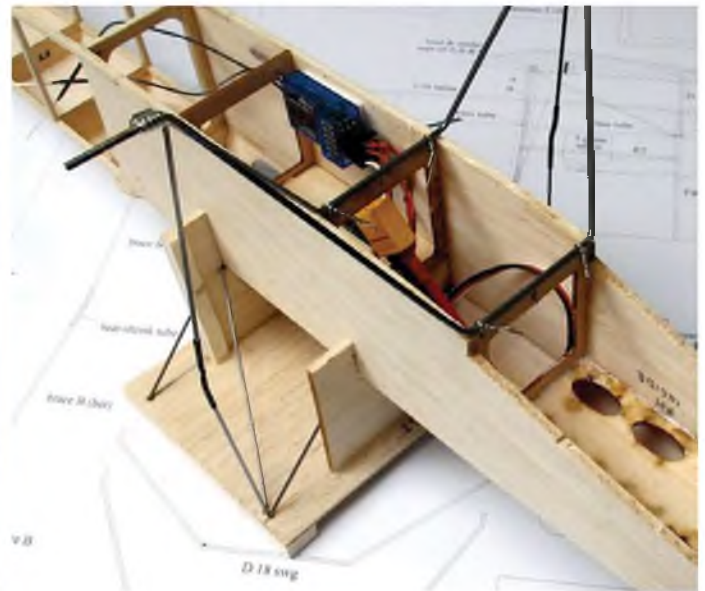
So, the solution that Pat Lynch adopted for his model is a perfect alternative. If

There's no hiding how long the nose is on this model, so watch the weight up the front.





The tapered wedge Pat used to set down and right thrust. Note how it centres on the hole in M, not on the centre of M itself.



The simple jig Pat used for setting up the c/s struts accurately.

you have the room on the firewall, a circular wedge is the simplest to arrange. Just cut a disc of the required thickness to provide the thrust angles you need and taper it into a wedge shape. Glue that to the firewall at said 45 degrees (to provide both down and right thrust) and bolt your motor to it. Because the required angles are incorporated into the wedge (piece of sanded ply) it won't matter how many mounting points your motor uses. Bolt it flat against the wedge and it can't but be at the right angle to provide both down and right thrust.

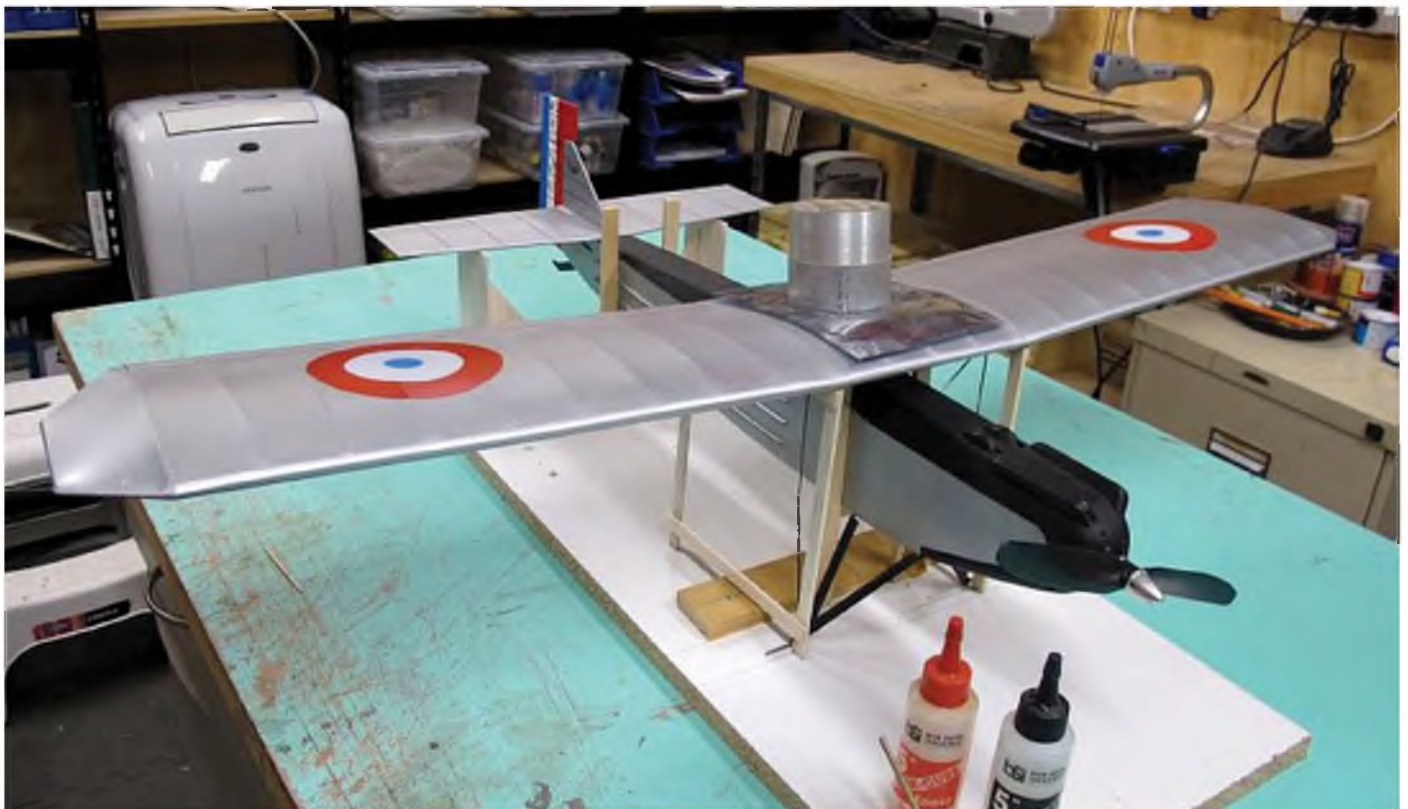
However, (you knew there had to be a 'however'), on the WEL-10 there isn't room for a circular wedge, so Pat used one that replicates the shape of the actual motor mount. It complicates things slightly, but the principles remain the same. You just

have to adjust the angle you mount it to the firewall to provide the correct thrust angle for the motor. On the subject model you'll notice that the hole in component 'M' isn't central in the former. That's because it is off-set by the correct amount to indicate where the centre of the motor should be if the shaft is to exit centrally in the nose. Sneaky, or what?

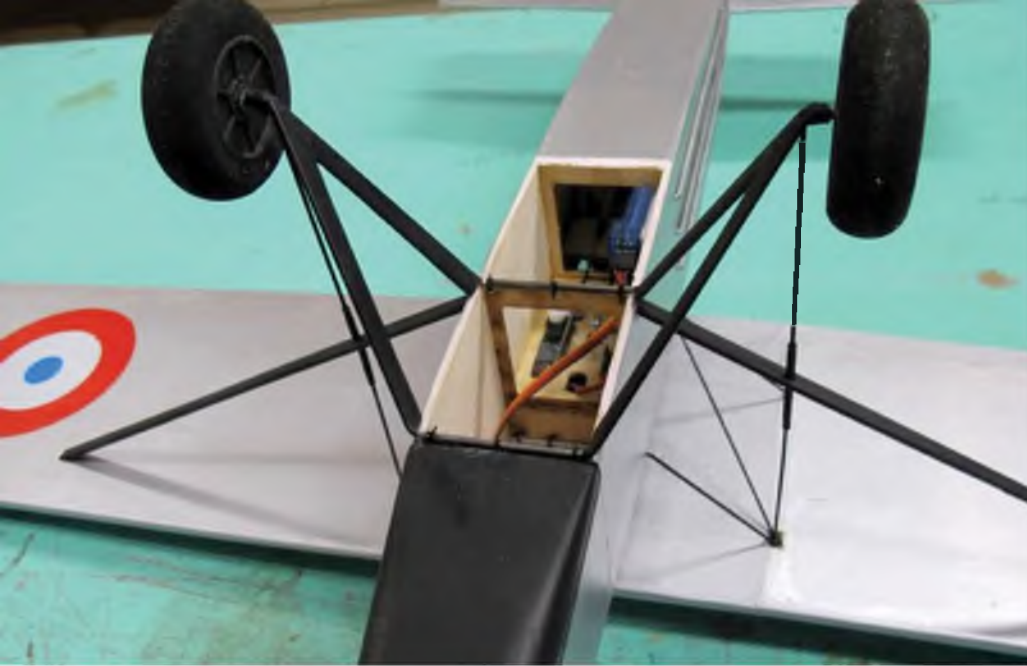
STRUTS & THINGS

As you can see, the struttery on this model is somewhat more intricate than is the norm. Intricate, but because of the way it's done, not actually that complicated. What does complicate matters slightly is that one of the undercarriage brace struts actually passes through the main wing strut. As you can perhaps imagine, a solid wire strut attached to the undercarriage,

but passing through a glued-in-place wooden strut could be a potential problem in anything but a perfect landing. Picture the situation; you've had a successful flight, but your landing is somewhat heavier than you would have liked. As the model hits the ground, the u/c wires spring slightly outwards, taking that rigid brace strut with them. If that strut, the one passing through the wooden strut, moves outwards, the wooden strut has no option but to move with it - ripping it and some of your covering away from the fuselage. Now perhaps you can see why I've made that brace strut in two parts, with a flexible joiner passing through the wooden strut. If the u/c flexes in a heavy landing, the heat-shrink tube allows the bottom part of the strut to move with it, but without ripping the wooden strut



This slightly more complicated jig ensures that the top longeron is parallel to the board and that the wings and tail go on at the correct angles.



Here you clearly see how that brace strut passes through the wooden wing strut and the flexible tube joiner.

away from the fuselage. So, that's the theory behind it all, now lets take a closer look at the mechanics of getting it all together. If you study the plan you'll see that only the actual load bearing struts (and that silly u/c brace) are made from wire and that they have been broken down into easy-to-shape components. Easy to bend they may be, but they still need to be accurately shaped pairs. Once you have all the wire parts, then it gets a little technical.

Looking at the plan you'll see that the top section of the brace strut is vertical and that the lower part (the part attached to the u/c legs) leans back slightly. It's important for the top section to be truly vertical, so that in intersects the wooden strut it's supposed to pass through. That being so, that's the part we need to get accurately aligned. Once that's done, everything else will fall into place.

Pat appears to have installed all the wire parts before any wooden struts were fitted, but that's not necessarily how I would suggest going about things. The choice is entirely yours, of course, but I'd be inclined not to fit any of the struts until the model, complete with u/c wires, is covered and painted. Then I'd fit the centre section struts into their tubes and bind and solder the top section of brace between A and C. A simple jig (a strip of wood with two holes in it) attached to the fuselage bottom will help with aligning the B parts as they should be, and stop them moving while you do the soldering.

With the important parts accurately soldered in place there's nothing to prevent you fitting the wing and gluing the wooden struts in place before slipping on the flexible tube and adding the lower part of B. Because everything else is where it should be, that part can't do anything other than go on at the correct angle. Since it's only soldered where it attaches to the u/c there shouldn't be any risk of melting the tube it's plugged into at its' top end.

Yes, that did take rather longer than I'd intended to describe but you can't have everything.



With the nose smoothed the rocker cover mouldings are fitted and the whole given an undercoat of matt grey.



The fuselage detail in all its' glory. Stiffening ribs, gun humps and rocker covers add detail while the holes provide cooling for the motor.

JIGS

Since I've already mentioned one simple jig, it's worth noting that other jigs, almost as simple, might not be a bad idea while assembling the model. It will go together without them but I think Pat must have been influenced by Darren Covington who jigs just about everything imaginable. If I were going to use a jig, rather than just throw the model together in my usual manner, the one jig I'd use would be to set up the wing angle as it's glued onto the ends of the c/s struts. Pat did just that, but also used several others, including one to ensure the tailplane went on straight. Whilst some might consider it overkill, there's no denying that accurately assembled models definitely fly better. There's nothing worse when test flying a model than having to constantly fight inaccurate assembly.

COVERING

Bearing in mind that this is a small, lightweight model our choices in covering are somewhat limited. Also bearing in mind that the original aircraft was all metal rather rules out Solartex. Tissue would work well, as did the Lifespan that Pat used. Not metal, perhaps, but close enough once painted.

To increase the impression of a metal finish, Pat actually went so far as to glass the forward fuselage and sand it really smooth using a combination of automotive filler putty and high build primer - and then had the cheek to complain about a nose heavy model. There's just no fathoming some people. (Sorry mate, couldn't resist that one.)

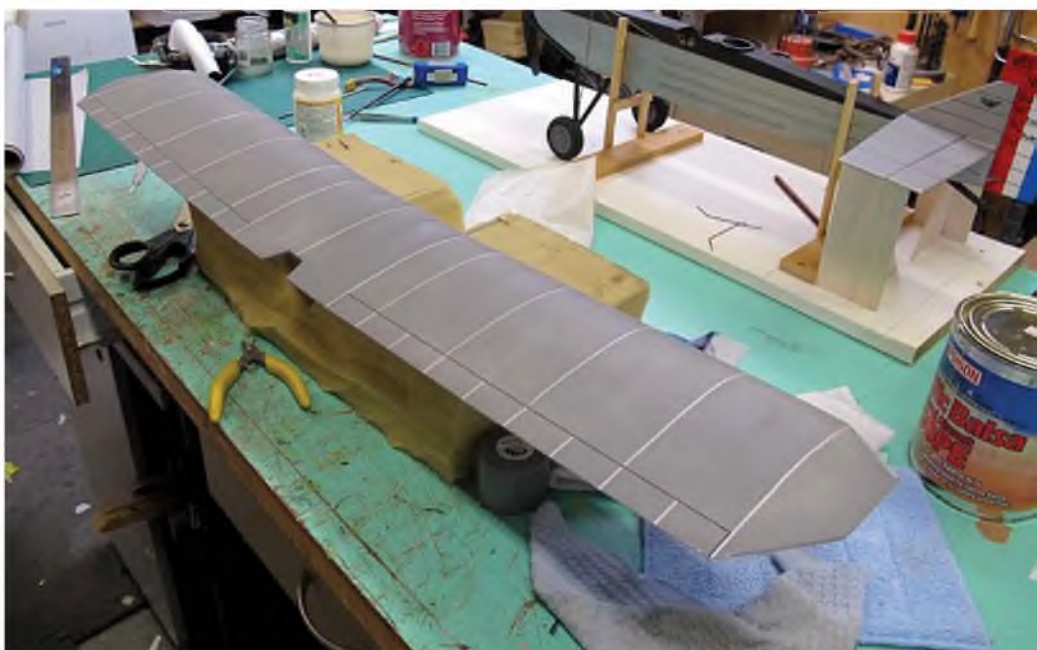
Seriously though, it was all sanded back so often that not too much excess weight was added. In all probability just sanded coats of the high build primer would have been enough. I've used that technique on cowlings and it works well to hide any hint of wood grain. However, in this particular instance I feel just covering with Lifespan and then painting would probably have worked just as well.

Anyway, using what was available to him, Pat covered the bulk of the model in white Lifespan, while the decking areas were covered with green. The whole model, albeit still in its' individual components, was then given a light dusted on coat of matt grey spray paint (Tamiya) and carefully rubbed down with 2000 grade wet or dry. Once wiped down with a tack cloth it was ready to receive its' top coat. Once again this was Tamiya spray, but gloss silver this time. The deckings and nose were masked off and painted black. The only point I would emphasise here is that, since silver shows every little imperfection in the surface it's applied to, take care to get as good a finish as you can before starting the painting stage.

Whilst other colours may help hide the little lumps and bumps, slight gaps in sheeting, etc.. Silver will make them stand out like a sore thumb. Needless to say, any details were added prior to the painting, so let's take a bit of a look at those.

THE DEVIL'S IN THE DETAILS

Without at least some detailing this was going to be a very plain looking model; very plain indeed. Obviously the size of



You can see how effective the simulated ribbing looks on the wings and tail surfaces. The model would look naked without at least something there.

the model precludes anything too heavy by way of detailing but it really does need something to take away the plainness.

Probably the most 'in your face' detail of the full size aircraft are the stiffening ribs that run along the fuselage sides. The way Pat approached these was very simple, but really rather clever. Rather than struggle trying to shape and sand thin strips of balsa (a task fraught with peril) Pat shaped and primed them while the 'strips' were still attached to a sheet of 1/16 balsa. This way he was able to do all the shaping, priming and smoothing before slicing the strip away from the sheet.

To attach the strips to the fuselage he used thin CA, applied using a very thin tube. Spots were applied at intervals along the strips, allowed to 'wick' in and any excess immediately wiped off. Any minor imperfections would be covered by the primer and top coat of silver. Not that the silver would hide much, but the sanded primer will hide very minor imperfect areas.

Being an all metal aircraft, those ribs on the fuselage weren't the only stiffening areas on the plane. There were also 'ribs' on the wings and tail surfaces. Obviously the model isn't big enough to replicate them in all their glory so Pat came up with a rather nice compromise solution to the problem. To simulate these raised areas he applied narrow strips of Lightex prior to spraying on the silver paint. This provides just enough definition to give the impression that there is more detail than there actually is.

In order to retain the 'rubber power' image of the model I've kept the nose very simple, and not really that accurate. In reality it should be much more like the nose of an He-51, but that would cause problems with motor clearance at this scale. The rubber power plan I used as inspiration, and the plan presented in this issue, show nothing more technical than carved balsa 'bumps' to simulate the rocker covers. Pat, however, felt they should be more prominent than that and whilst what he did is no more accurate

I'm inclined to agree that it is a better option. He moulded some simple plastic parts and glued them in place. You'll notice that there are cooling air holes in them, so perhaps he also drilled through the decking to allow the through-flow of air to draw warm air (from motor heat) out of the cowling. As you'll notice, he also opened up several cooling holes in the nose to allow air to the motor.

In retrospect, and from looking at Pat's mouldings, more the correct shape would have been achieved if those mouldings had been wedge shape rather than as rectangular as they are. If they were tapered away to nothing at the rear that might have given more the impression that the centre of the nose was cut away like on the Heinkel He51.

The final detail that Pat added was the gun positions. These are fairly vague on both reference material and the rubber power plan but, since that plan shows them, Pat decided they would help take off some of the plainness in that area. Afterall, if you can't have real detail, make it look as if the model has detail - even if it isn't particularly accurate. That's the thing with these fairly small models, whilst you can't afford lots of heavy detail, there's nothing to prevent you giving the impression of detail. It's a fine line between too much weight and too little detail, but simple things can make all the difference to the finished model. Yes, it is a bit of an art form determining just what should be included to add realism (even if only imaginary realism) but a little time spent on such things will greatly improve the appearance and lead the onlooker to believe there is much more accuracy involved than there really is. As I've said before, it's all a case of 'smoke and mirrors'. You add what detail you feel absolutely has to be there in order to draw the eye away from what hasn't been included. You sort of go for the impression of realism, rather than fretting over working to precise realism.

Should you wish to contact me for any reason, you'll find me at the usual place - PETERRAKE@aol.com ■

Classifieds



DB SPORT & SCALE LTD

RADIO CONTROLLED MODEL AIRCRAFT KITS AND ACCESSORIES



NEW CLICK & BUY WEBSITE WWW.DBSPORTANDSCALE.COM
TEL: +44 (0) 1792 897501 EMAIL: SALES@DBSPORTANDSCALE.COM

The RC Hotel Corfu Greece

English speaking instructors. No more travelling for an hours tuition every weekend. Everything is at your doorstep.

FLYING SCHOOL

Learn to fly fixed wing and helicopter while on a holiday. Tuition from English speaking instructors. No more travelling for an hours tuition every weekend. Everything is at your doorstep.

Visit our web site for more information. www.rchotel.com

Tel 00302661099322 Mob 00306932420044

Email spiro@rchotel.com or rchotel@ker.tortbnet.gr

The RC Hotel, PO Box 1567, Pulades, 49083, Corfu, Greece

**START SATURDAY
5TH NOVEMBER
WITH A**

BANG

**GILDINGS ANNUAL
AERO ENGINES AUCTION**

Sale starts at 11am
Viewing Fri 4th Nov 10am-4pm and Sat 9am-9.45
Enquiries Dick Roberts (consultant)
01858 410414 sales@gildings.co.uk

GILDINGS.CO.UK
Q f t i

gildings
auctioneers

MARKET HARBOROUGH SALEROOM
THE MILL GREAT BOWDEN ROAD LE16 7DE
T: 01858 410414 SALES@GILDINGS.CO.UK

MANTUA MODELS UK LTD

Tel: 01753 856321 Fax: 01753 857444

179 Dedworth Road, Windsor, Berkshire, SL4 4JN

Open Mon-Sat 9.00 - 6.00pm

MANTUA AND AVIOMODELLI AIRCRAFT AND ACCESSORIES

Trade enquiries welcome for
our full range of aircraft

MASTERCARD/VISA

STEVE WEBB MODELS & HOBBIES

Tel: 01928 735225 80 Church Street, Frodsham,
Fax: 01928 735410 Cheshire, WA6 6QU

Mon-Sat 9.30am - 5.30pm Closed Wednesdays

MASTERCARD & VISA ACCEPTED

email: stevewebb@steve-web.demon.co.uk

Vintage Limited Edition Prints



visit: www.aeromodeller.com for the full range

NEW FROM ADH PUBLISHING

The Modeller's Guide

Superdetailing, Painting and Weathering

Aircraft of WWII, with airfield accessories, ordnance and diorama

The Modeller's Guide



SCALE MODELLING:
A LOVE STORY READY
TO ASSEMBLE

TOOLS AND MATERIALS

TECHNIQUES

BUILDING THE AIRCRAFT

- SPITFIRE MK. IXC
- P-47D THUNDERBOLT
- JU-87D 'STUKA'

MAKING A DIORAMA



Aleksandar Počuč

Modeller's guide to superdetailing, painting and weathering aircraft of WWII' book is intended for both beginners and advanced modellers as it covers wide variety of modelling tasks ranging from basic detailing, scratch-building, painting, weathering, machining custom parts using resin as well as scratch-building part from brass and aluminium and of course, diorama making. Basics about tools, paints and modelling materials have been covered as well. The book revolves around three subjects, P-47D Razorback, Spitfire Mk.IXc and Junkers Ju-87D Stuka, all in 32nd scale. Step by step concept will provide a good reference and ideas to all WWII aircraft modellers regardless of their experience.

ORDER NOW:



www.adhpublishing.com



01525 222573



enquiries@adhpublishing.com

FOR ONLY

£18.95

PLUS P&P



ADH PUBLISHING, Doolittle Mill, Doolittle Lane, Iotternhoe, Bedfordshire, LU6 1QX, United Kingdom.
TEL: +44(0)1525 222573. FAX: +44(0)1525 222574. ONLINE: www.adhbooks.com

DURAFLY[®]

Duraflly 1100mm Supermarine

Spitfire Mk5



Join the offensive

Two schemes and four decal options to choose from

Specifications

Wingspan: 1100mm (43.3")

Flying Weight: 1200-1250g (45-49oz)

ESC: Aerostar 50A Brushless ESC

Motor: Aerostar 3636 770Kv Outrunner

Prop: 11.25 x 7 3 Blade

Servos: 6 x 9g



Available at hobbyking.com