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masterpiece reviewed in depth

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Top Gun Winner

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THE ISSUE AHEAD...

FORMATION...

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



10



18



30



ON THE COVER

For those who really enjoy a traditional-build, Graham Smith's Miles M.38 Messenger is a challenge worth accepting. David Toyer build this example and has used it in National and International competitions, including 5th at the 2012 World Scale Champs.

(Photo: Alex Whittaker)

JANUARY 2013 NO.158

4 CONTACT

Scale Model News

10 WESTLAND WESSEX

Alex Whittaker takes a look at Richard Crapp's stunning Westland Wessex tri-motor 1930s airliner

FULL SIZE FREE PLAN

18 PIETENPOL AIR CAMPER

A simple-to-build, electric powered, scale model of a popular light aircraft. Designed by Peter Rake with the prototype model built and described by Tim New (Part 1).

24 MILES MESSENGER

Looking for a traditional-build scale modelling challenge? Well, consider this 100" (2,540mm) wingspan, quarter-scale model for engines that include 1.20 cu.in. four-strokes. The airframe gets close to replicating the full size. (Part 1).

30 MESSENGER TYPE HISTORY

Designed initially for military use, the Miles Messenger enjoyed a further life in civilian colours

34 TECHNOSCALE

More Scale-related web sites worth a click

38 WAIRBIRDS OVER REDNAL

A brief window of unexpected fine autumn weather delivered a bumper turnout

44 SCALE SOARING

Last of the 2012 Aerotow events fared well with the weather

50 LOOK BACK AT TOP GUN 2012

The ultimate annual International scale gathering

56 MOULDED RUBBER EXHAUST STACKS

... in fact, anything from tyres to exhaust manifolds can be created this way

62 THE QUIET ZONE

Peter Rakes reviews some stunning indoor R/C profile-scale kits.

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CONTACT

**FOR DEDICATED
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In this month's FSM, we commence a multi-part construction feature for Graham Smith's 100" wingspan 1/4-scale Miles Messenger. The pictures of the uncovered airframe will be enough to confirm that this really is one for those who enjoy the challenge of traditional scratch-build aeromodelling- and surely these are pictures, which draw that reaction "*... it's a pity to have to cover it!*"

Some aeroplanes were built in thousands, yet nowadays, not a single example exists for posterity. Conversely there are cases where few, (maybe only one), were ever built, but of which examples still exist and are still airworthy. The Miles Messenger is one such example - of which only a total of 72 were built, back in the mid-to-late 1940s, but there are still eight on the British civil aircraft register.

Even if the Messenger presented here is not one for you, it is nonetheless a tour de force of traditional aeromodelling techniques from which we can learn something, which is one of the reasons why we present such features in FSM.

THREE DAYS AT WESTON PARK 2013

The annual Weston Park International Model Air Show, organised by Wrekin MFC will, for 2013, be extended for a full three days and is now scheduled for the June 14/15/16th weekend, at Weston Park, Weston under Lizard, South Staffordshire.

This major and long-established model flying event in the UK summer calendar will, as previously, feature model flying of all kinds, with top pilots performing, full size aircraft display, a major trade presence, on-site camping, family attractions, and evening entertainment.

For general enquiries, contact Steve Bishop on 01952 587298/07758 895068; email stevebishop@blueyonder.co.uk

Trade enquires to Peter Whitehead; 01952 684169.

More information at: www.westonparkmodelairshow.co.uk

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The final version of the Spitfire, the Mk24, first flew in 1946. Sixty six years later Duraflly have re-created the classic lines of this majestic weapon. Adorned in the classic RAF 80 squadron livery, the Spitfire has risen to protect the skies once more.



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ESC	35A	Propeller	10 x 8 4 blades
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Servo	9g x 6	Flying weight	1200g
Tx	6 CH	Wing area	21.9dm ²
Landing gear	EL-retract	Wing load	54.5g/dm ²

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FREE FLIGHT IN NEW YORK

BMFA Free Flight Scale Tech. Committee PRP Andy Sephton writes:-

The weather in UK this year has been appalling. I built three new rubber powered free flight scale models (32" Taylorcraft, 28.5" Grumman F4F Wildcat and a 20" Aeronca Champ) and modified a fourth (an own design profile Hawker Hunter from Rapier to catapult jet) for the Flying Aces Club Free Flight Scale Nats at Geneseo, New York State in the USA (July 19-21st) and ended up with them all being untrimmed for the event, owing to a month of bad weather in the UK prior to departure.

Nevertheless, three of us, representing the UK, did have some success with a 1st by Mike Stuart, a 2nd from myself and a 3rd and 4th place by Derek Knight. The competitions ran over four

days. I've attached a picture of the fleet I took with me - the other three aircraft are a 36" Westland Lysander, my old Peanut Lacey M-10 and a Supermarine Spitfire by Peter Smart (he wanted it flown in the USA, which it was). The three large models broke down into component parts and all fitted into a hard Delsey suitcase with suitable support and appropriate packing.



FOR LAND OR WATER

The full size Glassair GS-2 is an American light aircraft, which, as the name infers, has a high content of what can be loosely described as glass fibre and composite materials in its construction.

With attractive lines, this high wing monoplane has been replicated in model form by Seagull Models. The wingspan of 70.9" makes it a 1/6th scale model - a quite handy size - and is supplied in ARTF format, fully covered and decorated in Oracover film.

Intended for a power range of .90 size two stroke engines, or .90-1.20 for strokers, the kit is supplied with ready shaped metal main undercarriage for landplane operation, and there's also an optional float kit for rise-off-water operation.

The Seagull Glassair GS-2 Sportsman 90 is available through J.Perkins Ltd stockist; the standard landplane version costs £234.00 in landplane configuration.



DH 88 COMET

THE DH 88 Comet was designed specifically for the pioneering 1934 London-to-Melbourne Air Race and three were built by De Havilland Aircraft Company, all of which participated in the 11,300-mile epic dash.

The sleek elegance of the aircraft is well captured in the Duraflly ARTF kit, which is electric powered and spans 43.3" (1100mm). To a scale of approximately 1/12th full size, the Duraflly DH88 comes finished in the red/white finish of G-ACSS, the race winner, and

comes with all servos installed, together with the two brushless motors that power the model, plus retracting main undercarriage (that folds away slowly for realism), plus ESC motor speed controller.

The engine nacelles are moulded items and the power for the motors is derived from a 3S/2200mAh lipo battery (not included). Another nice practical touch is the opposite-direction propellers that counterbalance torque effect to minimise take-off swing.

The Duraflly DH 88 Comet is priced at £99.06 from Hobbyking (www.hobbyking.com).



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AN F4U CORSAIR FOR BUILDERS

TopFlite Models' Gold Edition kits are just THAT - kits for those who like to build the airframes in full, while those around go the 'assembly route of ARTFs.

Now, TopFlite have updated their 1/6th scale Chance Vought F4U Corsair kit, using computer technology to apply revisions that produces an interlocking-component build sequence.

The kit is designed to accept TopFlite's optional cockpit furniture set that can be applied for added realism, while the kit is supplied with moulded ABS radial cowl and vac-formed wing root oil coolers that are a prominent surface detail feature of the type.

TopFlite's F4U Corsair is to 1/6th scale, spanning 62" and is intended for a .60-.80 size two-stroke engine, or -.91-1.20 four strokes. The engine cowl will accommodate a 'Pitts-Style' muffler and the kit is supplied with pushrods, hardware, control surface hinges and engine mount capable of accommodating a wide range of engine. Retracing main undercarriage is a prominent feature if the Corsair and an optional twist-and-turn, reward folding main undercarriage set is available too.

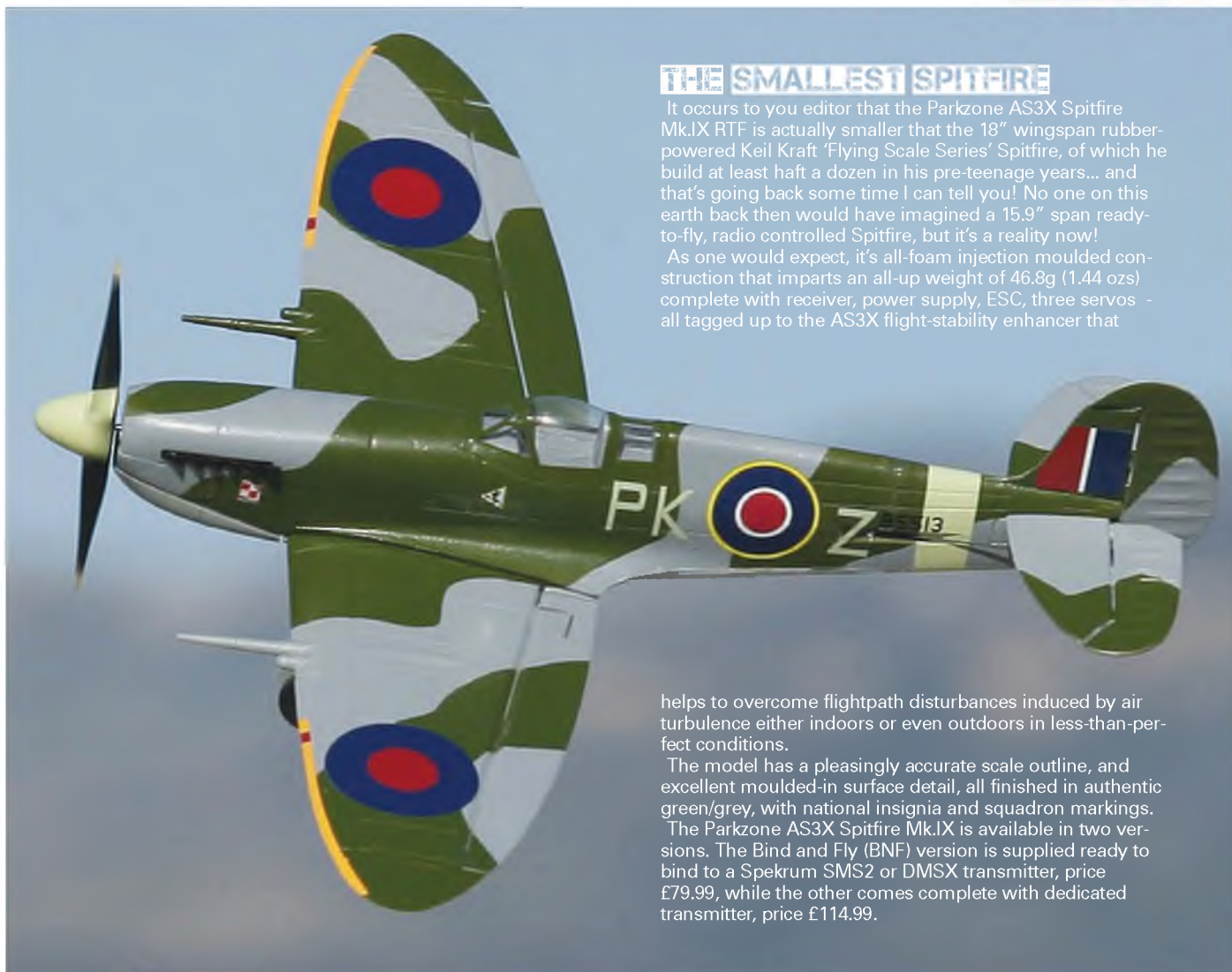
Price, via RipMax Stockists is £239.99.



ONBOARD POWER ANALYSER

How much 'juice' does your scale model lap up? If it's a large one, and/or with a considerable servo count, then this is information worth having for safety's sake.

The Safety Master Power Analyser is intended to be installed in a model and linked to the airborne control system to monitor what power the system is drawing, so that the actual current drain, voltage and power draw can be looked at after each flight. It's a handy little information provider, available from J.Perkins Distribution stockists, price £21.99.



THE SMALLEST SPITFIRE

It occurs to you editor that the Parkzone AS3X Spitfire Mk.IX RTF is actually smaller than the 18" wingspan rubber-powered Keil Kraft 'Flying Scale Series' Spitfire, of which he built at least half a dozen in his pre-teenage years... and that's going back some time I can tell you! No one on this earth back then would have imagined a 15.9" span ready-to-fly, radio controlled Spitfire, but it's a reality now!

As one would expect, it's all-foam injection moulded construction that imparts an all-up weight of 46.8g (1.44 ozs) complete with receiver, power supply, ESC, three servos - all tagged up to the AS3X flight-stability enhancer that

helps to overcome flightpath disturbances induced by air turbulence either indoors or even outdoors in less-than-perfect conditions.

The model has a pleasingly accurate scale outline, and excellent moulded-in surface detail, all finished in authentic green/grey, with national insignia and squadron markings.

The Parkzone AS3X Spitfire Mk.IX is available in two versions. The Bind and Fly (BNF) version is supplied ready to bind to a Spektrum SMS2 or DMSX transmitter, price £79.99, while the other comes complete with dedicated transmitter, price £114.99.

ARMED WITH STUNNING DETAIL



E-flite® Platinum Series Albatros D.Va 25e ARF

During WW I, Allies on patrol confronted the lethal Albatros more than any other German fighter. E-flite has faithfully replicated the sleek and manoeuvrable D.Va with Platinum Series scale features inside and out to deliver a warbird any discerning modeler can appreciate. Besides over-the-top engine and gun detail, you get authentic pull-pull control options, wing rigging, a painted aluminium spinner plus Lozenge camouflage covering so that your warbird experience is genuine and out-of-the-box easy. When equipped with the recommended accessories, modern engineering and E-flite innovation combine to deliver a scale flight experience of heroic proportions that's sport plane friendly.

For more details and to find a dealer nearest you, visit horizonhobby.co.uk.



Push the scale presentation envelope by installing the optional cockpit detail kit (EFL460515).



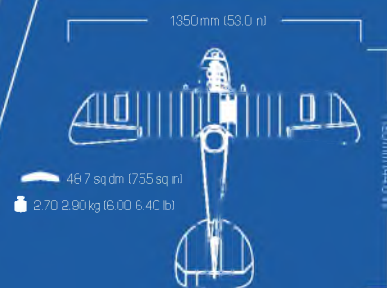
The E-flite Power 25 delivers sport performance, and the Power 32 is recommended for a high-power setup.



The scale landing gear and tail skid are shock absorbent to make ground handling smoother.

PLATINUM SERIES

Albatros D.Va 25e ARF (EFL4605)



Motor: E-flite Power 32 Brushless Motor, 770Kv (recommended)

Speed Control: E-flite 60-Amp Pro (recommended)

Receiver: Spektrum™ AR6210 6-Channel DSMX® (recommended)

Servos: (2) Spektrum A4010 Micro Digital, (2) A5030 Mini Digital (recommended)

Battery: E-flite 3200mAh 4S 14.8V 30C LiPo (recommended)

Charger: E-flite Celebra™ 80W AC/DC Multi-Chemistry (recommended)

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Westland We

Alex Whittaker takes a look at Richard Cra

“Richard’s Wessex is based on photographs gathered from the Didcot Railway Museum.”



Wessex
pp's stunning Westland Wessex

Most scale modellers are familiar with the Ford / Stout 'Tin Goose' and Fokker F.VII trimotors. However, Britain had its own three-engined airliner in 1930s, the Westland Wessex. The Wessex first flew on the 21st February 1929, and was originally fitted with the Cirrus engine of 95hp. It was designed for two crew and four passengers and proved to be a reliable design that impressed prospective operators with its economy and comparatively short take-off run. The Wessex was just the ticket when Sir Alan Cobham set up his air service between Guernsey and the UK mainland.

Ten examples were built. Re-equipped with the Armstrong Siddeley Genet engine of 140hp, providing the Wessex with a

maximum speed of 122mph, and a range of 420 miles. For those who collect obscure facts of aviation, as a stop-gap, the Wessex prototype was first flown with an off-the-shelf Westland Wapiti rudder. It functioned so well, the design was retained for all ten production airframes.

In service there were problems. One Wessex was lost four miles off the English coast. The pilot was killed, but the sole passenger, a Mr. FJ Grainger, was plucked from the water, and lived to tell the tale. During WWII, the Westland Wessex served as a platform for air navigation and radio training and the final Wessex in service survived a mid-air collision over Blackpool with an Avro 504N, crash landing in Cedar Square. Sadly, the crewmembers of the Avro were lost, but amazingly, all the

Wessex complement survived. The airframe was rebuilt, and it later withdrawn for service in 1946.

The Model

Famed UK scale modeller Richard Crapp drew his own plan based on a three-view Drawing by a certain Mr. Grainger; perhaps a relation of the one who got his feet wet? The model is built to 1/5th scale, delivering a wingspan of 136" and the scale was chosen to accommodate the projected 3xLaser 100 glow engines.

Documentation

Besides the three-view, Richard's research amassed over 100 contemporary photographs which included some taken by Richard's Dad in the 1930s, plus a





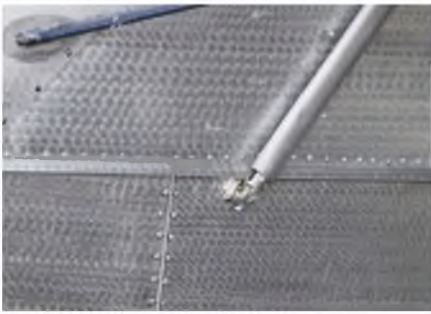
One of the three dummy engines moulded by Richard especially for the Wessex. This is the flying prop.



Closely observed glazing and rivetry.



The Laser really is hiding inside the dummy engine.



Note strut ends and tiny brackets.



Meticulous engine-turned panels, plus varieties of rivets and fasteners.



Lots of detailing around the undercarriage and outboard engine nacelles.



The Wessex rudder was taken unaltered from the earlier Westland Wapiti.

unexpected cache from the Didcot Railway Centre. In fact, this is the Wessex Richard modelled, since it was the only example with sufficient photographic detail.

Construction

The Wessex is mostly of traditional construction. Balsa, light ply, and cyparis woods are all used. The Wessex employs glass fibre and carbon composite additions in high stress areas, plus areas of scale detail.

Fuselage

This employs cyparis stringers, balsa diagonals, and 1/64" inch ply gussets,

completed with carbon bracing. The light ply formers are stiffened with carbon.

Wings

These are of traditional structure using laminated balsa and cyparis wood.

Tail

The tail assemblies are all balsa, with a carbon spar.

Engines

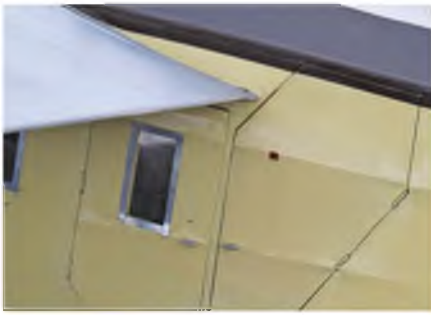
One Laser 120, with two Laser 75s.

Prop

The nose motor uses a 17"x8" Xore, and the two Laser 75s are fitted with 16" x 8" props.







Lots of casual detail with the door hinges and handles, the fabric taping, and the general careworn appearance.

Exhaust

Richard fabricated his own design for the 120, and used dummy Laser silencers on the two 75s.

Dummy Engines

The impressive dummy engines are cast from resin. Litho sheet and Mick Reeves Models metallic foil were used for the engine-turned cowlings.

Undercarriage

This employs carbon struts, faired with balsa, and wrapped with strips of Solartex. There are functioning elastic bungees for shock absorption. The wheels are Len Gardner



Wonderfully "busy" nose section with convincing panel work, and dummy engine detailing.

items, modified with covers and lettering.

Covering

Diatex, a full size commercial material, as used for light aircraft.

Painting and Finishing

Nitrate dope, KlassKote, Precision Paints, De-Luxe Flexicoat Clear sealer.

Legending / Decals

All the paint masks were supplied by Flight line Graphics.

Pilot's Notes

Richard's scale models are always built for



Note the tyres and the warning label.

extensive Club flying, as well as for UK and foreign Competitions. Therefore this is a very practical airframe. She has exemplary ground handling and the necessary power in hand to handle the notorious RAF Barkston weather. In the air she is a majestic sight, and Richard reports that she handles well. The pilot just has to anticipate the turns and apply opposite rudder. Shallow approaches with three Lasers on song are wonderfully atmospheric.

The Wessex was the popular choice at the 2012 Nationals. As you can see from the photographs, she is a stunning radio-controlled model aircraft. ■

“**Richard cast the dummy engine crankcases and cylinders.**”

MODEL SPECIFICATION

Westland Wessex

Scale:	1/5
Wingspan:	136"
Weight:	33lb
Engines:	2X Laser 75 and 1 Laser 120



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Pietenpol **AIR CAMPER**

A simple-to-build, electric powered, scale model of a popular light aircraft. Designed by Peter Rake with the prototype model built and described by Tim New

The full size aircraft

The Pietenpol Air Camper, a two-seat parasol wing monoplane, is a famous home-built that has been around for over 80 years. It has a wingspan of 29 feet and a length of 17 feet 8 inches. Bernard Pietenpol designed the Air Camper in 1929

to be 'easily and cheaply' built. The plans first appeared in the 1932 issue of *Popular Mechanics Flying and Glider Manual*.

The Air Camper is made of mostly spruce and plywood and can be powered by a Ford Model A, a Ford V8, a Chevy Corvair, a Lycoming or other

readily available engine. Bernard's son and grandson continue to sell the plans and Air Campers are still being built. They claim that for \$9,111 (2008 dollars) and a lot of scrounging, plus 1,000 hours of free love construction time, a pilot can be in the air. Tempting isn't it?





Tim makes last minute preparations before another flight with the Air camper.

The model

Peter's Air Camper is to 1/6th scale with a wingspan of 58 inches and a length of 37 inches. To make it easier to transport, Pete designed it with removable wings. My model weighs 51 oz and uses a Turnigy TR35-42D 1000Kv motor with an 11x6 propeller, a 40 amp ESC and UBEC. I used four servos; two regular size for the elevator and rudder and two minis for the ailerons. This setup, with a 3S1p 2150 LiPo battery, gave me over 240 watts and 22 amps at full throttle and provides plenty of power. Throttle management results in over 10 minute flight times.

Because the Air Camper has been around for so long, an image search of the internet will result in hundreds of full size examples to model. It seemed like I spent as much time finding the 'right'

scheme as I did building the model. I found a full-size based in Brazil that matched my criteria; red with a model 'A' engine and spoked wheels.

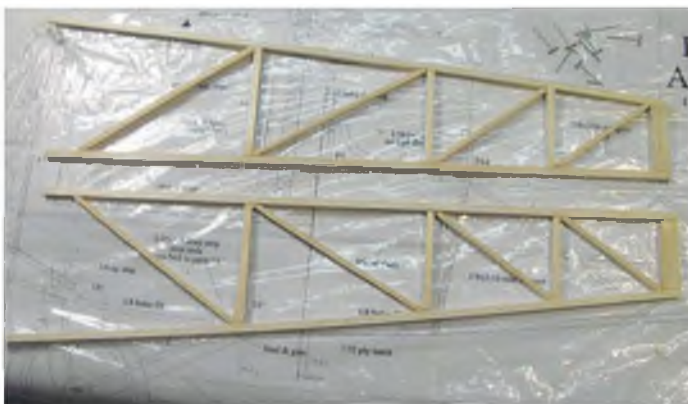
The build

Even though the Air Camper is the fifth Peter Rake model I've built, it did involve a few firsts for me. The Air Camper is my first model where the engine is the prominent visual focal point and I really wanted to do a decent job on its construction. The Model 'A' engine and radiator are an integral part of the look of this home-built plane and both are part of Pete's design as well. The removable wing was a new building method for me also and this airframe component required some contemplation. This is also the first under-cambered wing I've built.

And finally; because of the spoked wheels and bungee axle, the landing gear also added some complexity and that too required extra attention.

To save time and effort, I acquired a set of laser cut parts from which to build the model. In addition to this parts set, 4" wheels, covering and glue I needed 10 swg wire for the landing gear, 6mm carbon fibre and aluminium tubes for the removable wings, 3/16" basswood for the wing spars, 3/16" hardwood for the inner and outer wing struts, 3/16" stripped balsa for the tail plane, 1/4" balsa for the leading edges and 1/32" brass for the strut connectors.

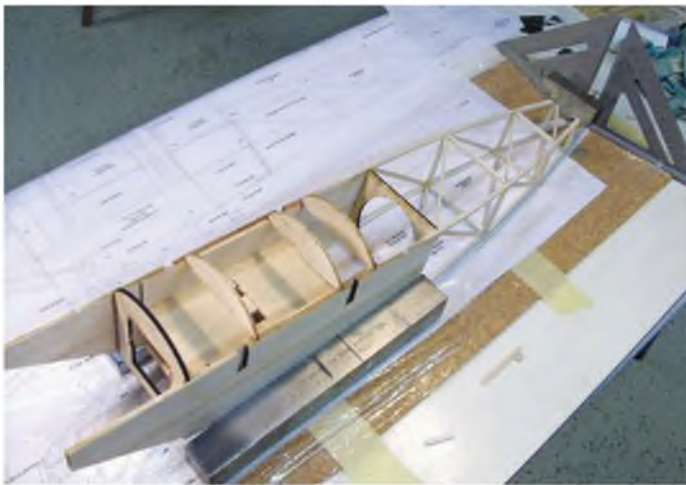
The plans occupy four full sheets and part two, the remaining plan sheets, will appear next month together with the finalisation of the construction text. The



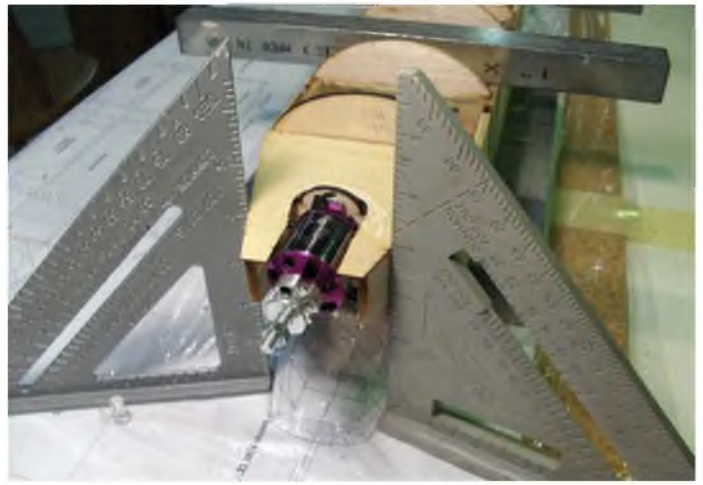
The rear fuselage frames are all very basic modelling. The fuselage can be built in two sections, or as a complete unit.



The sheet side parts joined and the c/s strut doubler glued in place. This enables you to fit the c/s struts after the basic fuselage is complete.



Whichever way you choose to build your fuselage it is important to align it accurately over the plan as you pull in the tail.



Tim temporarily used the hatch base to assist in pulling in the nose correctly.



Ply plates on Tim's model keep the sprung axle in place. See text for an alternative method.



Once you've determined where you control cables will exit the fuselage scrap balsa supports the nylon tube exits.

built-up fuselage is longer than a single sheet so the two fuselage sheets have to be joined together when building the fuselage.

The wing

As I've mentioned, the wing is designed to be removable which meant that I couldn't just jump in and start building, I actually had to stop and think for a moment. But after discussing it with Peter, what initially looked daunting, was actually simple. The wing is comprised of three sections, left, centre and right, and the centre section is permanently attached to the fuselage via hardwood struts. Aluminium joiner tubes are glued into all three wing sections in line with the fore and aft spars. When assembling the wing, the two carbon fibre tubes slide through the aluminium joiner tubes and connect the three sections together. This may be quite obvious to most builders, but it was new to me.

The wing is a typical spar-and-rib construction. Even though the wing is under-cambered, it is still built flat on the building board. The wing plan shows both the left and right outer wing sections, so there's no chance of building two left sections! The wing sections are almost 27" long and the longest basswood stock I could find was 24". I attached another 3" to each spar using epoxy and 1/16" ply joiner. (Fortunately metre long bass is quite easy to find in the UK, but not much help to Tim. PR) The ribs slide onto the two spars and are glued in place. Before attaching

the outermost rib (R10) I traced the wing tip airfoil onto it. Later the balsa wing tip piece is bowed and glued to R10 to complete the under-camber. As in other P. Rake designs, the trailing edge pieces are slotted which helps immensely with rib alignment. (The rib section is designed so that both front and rear are flat and sit directly on the board during assembly, avoiding the need to pack up either leading or trailing edge. PR). The 1/4" square balsa leading edge is glued into place and shaped. The aileron servos are in the outer wing panels so their mounting plates need to be glued in. The R8s are slotted for the servo mounting plates. The outer wing struts plates are also glued in place as shown on the plan. I used blind nuts on these strut plates and the strut attachment points on the fuselage. The centre section is built the same way but also given a 1/16" balsa skin on the top. Give it all a good going over with a sanding block, cut the ailerons loose and the wing is done.

The tail

The rudder, elevator and horizontal and vertical tail surfaces are built from 1/2"x3/16" stripped balsa, assembled over the plans and glued together. The laser cut parts set includes the oddly shaped pieces. A U-shaped piece of 16 SWG wire joins the elevator halves. Everything is sanded smooth but like the home built, the tail pieces are left flat with no airfoil, just having the edges rounded. To capture the gapped look of the full-size I used

medium pinned hinges on the elevator and rudder.

The undercarriage

The undercarriage struts are made of size 10 SWG wire. The two wire sections are bent as per the plans and then soldered together at the leg ends. Taking the extra time to build a jig makes this step a lot easier.

I epoxied the grooved ply fairings to the wire struts and then wrapped the legs in tissue and cyanoed the tissue to stiffen it. Because I wanted a sprung axle I added an additional piece of ply that connects the low-end of the undercarriage struts and forms a 'hard loop' that keeps the axle connected to the under-carriage in case the elastic cord breaks. The elastic cord secures an aluminium tube to the soldered ends. The axle is a 10 SWG wire that is inserted into the tube and then the wheels are attached to either end. It is a lot easier to build than describe.

(A simple way to obtain a sprung undercarriage is to replace the axle shown in the side view with a length of 10 SWG wire soldered in its place. The axle, which now moves up very slightly to sit on top of this extra wire, is bound and soldered at the centre only. Now elastic cord can be attached around the u/c leg stubs and the axle to provide springing. Because the axle is soldered to the centre of the spreader, even if one elastic cord fails you will still have a functional u/c upon which to land the model. PR).

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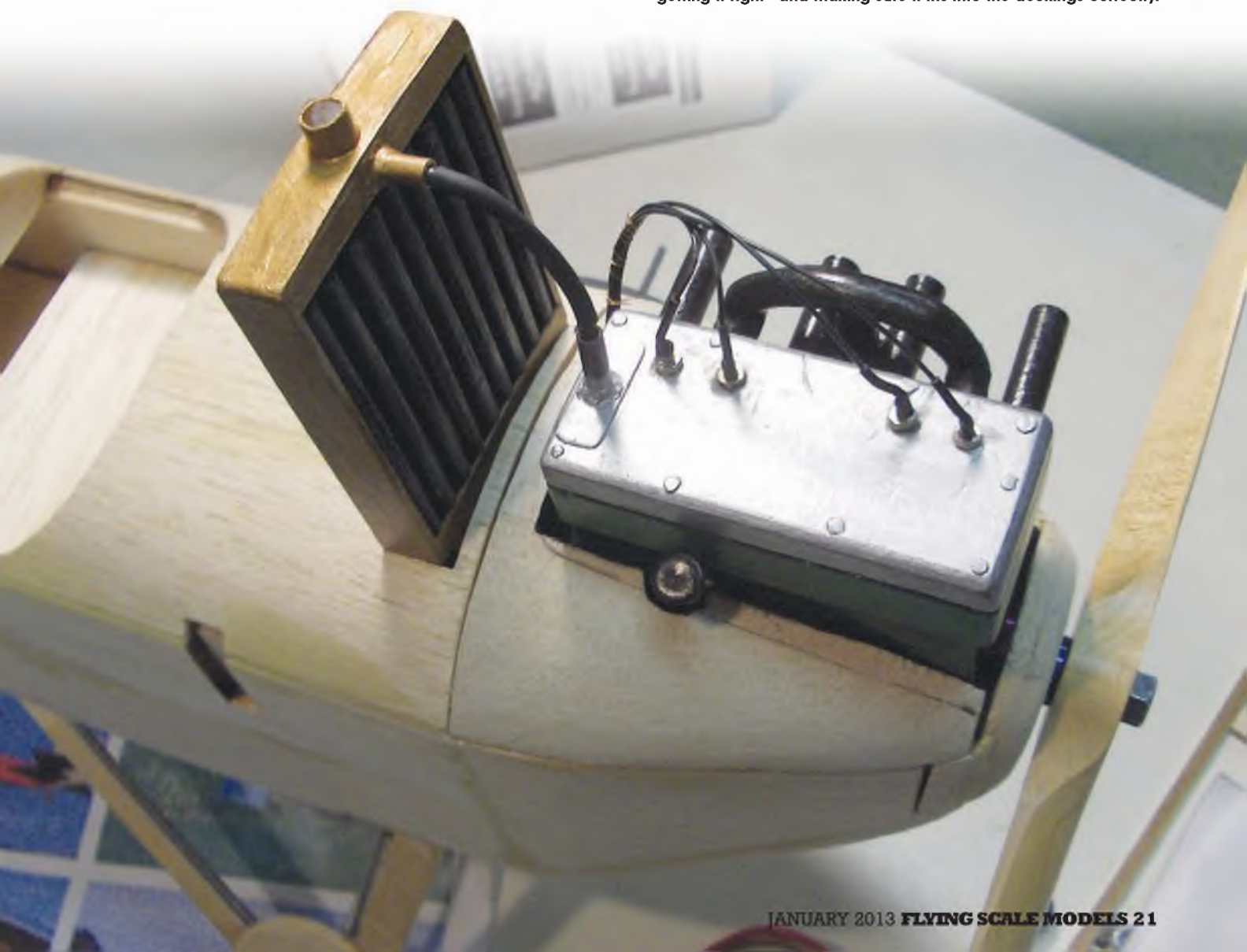
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Since the dummy engine is such a prominent feature of the model it's worth getting it right - and making sure it fits into the decking correctly.





Because it is a home-built, the full-size Pietenpols are equipped with many different wheel types. My Brazilian example had spoked wheels so mine needed spoked wheels too. Luckily Pete had previously designed and kitted the appropriate size spoked wheels for his Ponnier so I was all set.

Fuselage

The fuselage is comprised of two sections, the front 'box' section and the rear 'wire cage' section. These sections are built separately, then joined. Each side of the front section is made of two balsa pieces glued together. The sides are then laid over the plans and the former locations are marked. Since the forward part of the side assembly is pinched in to form the nose, they are scored on the inside. After gluing the strut doublers in, one side is laid flat and the formers and the 1/4" ply u/c mounting plates are glued on using

set-squares to ensure everything is straight. I added a balsa plate at this point for the elevator and rudder servos. The other side is glued on top. The assembly is rotated top side up and squares are again used to make certain that everything lines up. The basic P. Rake box is complete.

The aft section is made up of two sides formed from 3/16" sq. longerons/uprights and 3/16"x1/8" balsa diagonals built over the plan. The aft sides are then glued to the front box section. After carefully aligning it all up, the tail tips are joined together with the ply Tail Skid mount and the top and bottom stringers and diagonals are added. Again the assembly is checked over the plans and verified that I'm not in fact building a banana.

(If building the fuselage this way, there is no need to join the plan sections. They are separated in such a way that you have one sheet with a complete forward section and another with a complete rear

section. PR).

The three-piece ply motor mount is designed with the side and down thrust built in. The motor I used was a bit longer than the AXI 2814 Pete drew on the plans, so I had to modify the motor mount by shortening the side pieces. After the motor was in place, I pinched in the front sides and aligned them over the plans. The front sides should crack nicely along the score lines. Part 'C', made of 1/32" ply is tack glued in place and used to verify that everything is aligned correctly. 'C' makes up the bottom of the battery hatch so I made sure I could easily remove it later. The motor ring and cowl blocks are temporarily glued to the front and are rough sanded to shape.

With all the sanding going on up front, I kept 'almost' breaking the top formers and side stringers. So I went to work on the back end, adding the aft formers and the 7.1/8" x 3/16" top stringers. Because I often break stringers during normal handling, I cheated and used a couple of sized pieces of basswood I had at hand.

Moving on to the turtle deck, two pieces of 1/16" balsa are glued together, soaked in water and then secured to the fuselage top with rubber bands. After drying, the turtle deck was trimmed to size and glued. I drew the cockpit cut-outs on card stock and transferred the outlines to the deck and carefully cut them out with a sharp blade.

I could now safely sand the front end. I taped off what I didn't want sanded away and got down to business, using card stock patterns as reference guides. ■

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CONSTRUCTION FEATURE

MILES MESSENGER

Looking for a traditional-build scale modelling challenge? Well, consider this 100" (2,540mm) wingspan, quarter-scale model for engines that include 1.20 cu.in. four-strokes. The airframe gets close to replicating the full size.

Graham Smith's 100" span Miles Messenger was originally designed in 1986 and thereafter took five years to complete.

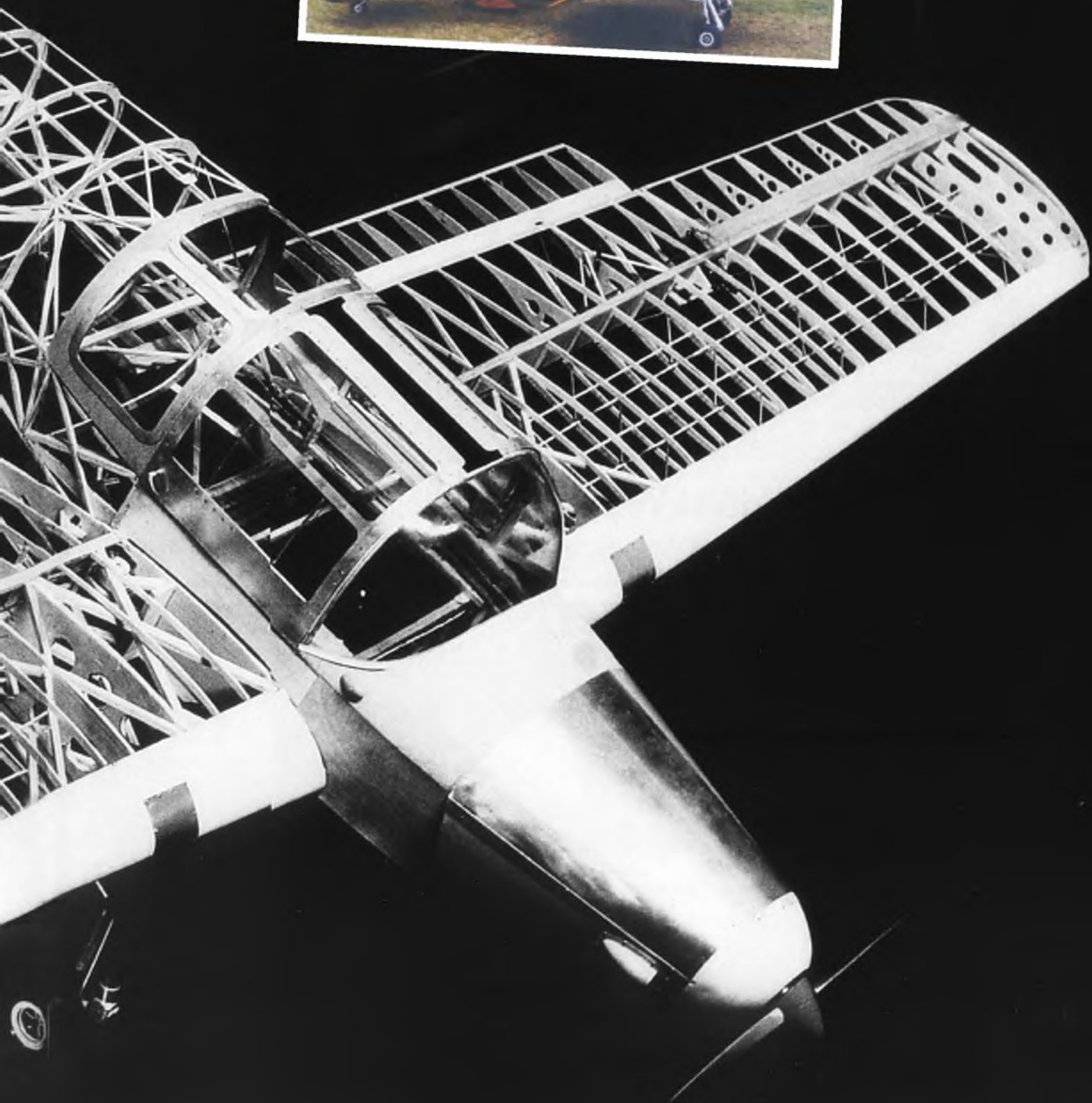
Graham's design is a real 'builders dream' and, with the benefit of present day engine power, radio sophistication

and covering technology, should be well within experienced scratch-building modellers' capabilities.

The model encompasses the need to use pretty well all the 'flying model' making techniques - moulding, laminating, tin-bashing (lithoplate work),

PART 1

Designer Graham Smith with the original prototype model, a Messenger Mk.1 finished in the military colour scheme of Field Marshal Bernard Montgomery's personal aircraft.





vac-forming and lathe turning, etc - as well as the traditional balsa, ply and hardwood airframe structure work.

Among those who obtained the published plans for Graham Smith's original was Peter Shaw of Croydon Airport MFC, a dedicated and very competent scale builder, who decided to take on the challenge of the Messenger, with a few revisions like changes to control linkages to make full use of the modern radio improvements i.e. individual use of servos, trims and servo mixing on ailerons and flaps. He also substituted glassfibre mouldings in place of of vac-form ones, as well as upgrading the power from the original Veco 61 two-stroke engine (that will take a few of us back, eh?) to an O.S. 1.20 Surpass four-stroke unit.

In the construction feature, we will draw heavily on Peter's build and hope that FSM readers will be inspired to follow his journey with the Messenger.

Also of assistance with this feature has been long-time R/C scale contest flier David Toyer who was also drawn to Graham's design and has campaigned his example regularly in National and International competitions over the past ... years, culminating with a 5th place at the 2012 World R/C Scale Championships in Spain. David kindly made available his archive of close-up detail photos, used in the construction of his example and also sanctioned publication of the scale three-views he commissioned and which are endorsed for authenticity by the BMFA Scale Tech Committee.

Initially, let's look, at how Graham Smith built the prototype model, to give you a feel of what the project entails, after which, we will move on to Peter Shaw's experience.

Structural notes

Fuselage: The rear section of the fuselage has a straight taper, which allowed Graham to cut formers 4 to 10 (seven formers) from just two laminated pieces of balsa sheet. For the top former halves, 1/16" sheet was laminated on both sides with 1/32" sheet, whilst the bottom halves were laminated from 3/32" sheet, with 1/16" sheet on both sides - in both cases, the laminations were at 90 degrees to each other. The cabin hoops (F3a and F3b) that support the top-hinged cockpit doors were laminated round a former, using 9/32" x 1/16" strips and the fuselage longerons running aft of the cabin from F3b were 3/16" square balsa, whilst the longerons running forward to the engine firewall were 1/4" x 11/16" balsa faced top and bottom with 1/32" ply.

To mount the engine, Graham used a flanged aluminium plate supported by aluminium tubes, bolted to the firewall, F1a.

To facilitate the full depth cockpit, the wing mounting bolts (two front and two rear) pass through the main wing spars and through formers F2 and F3.

Wings: The heart of the wing is the twin box spars, made from 3/8" square hardwood, tapered in thickness to 1/8" at the tips. Balsa strips were placed at each rib position and the entire spar faced with 1/64" ply. The two wing panels were joined using two 1/8" ply dihedral braces with large lightening holes in them. The ribs are curved strips cut from sheet with diagonal compression strips every fourth rib. There is no front leading edge spar and the leading edge is covered as per the full-size, with thin balsa sheet wrapped around the leading edge, between top and bottom spars. The sheet used was 1/32" thick, faced with thin paper, glued to it using sanding sealer, with the paper on the outside. When fully dried out, the skin provides a reasonably stiff 'D' box section, needing just a coat of dope to prepare the surface for painting.

On Graham's prototype, the ailerons are linked mechanically to the flaps, so that when the flaps are dropped, the ailerons droop as well, increasing the lift via the full-span cambered airfoil.

Tail: To keep weight to a minimum (the first law of scratch-build-ing), Graham decided to build the tail and fins almost entirely from 1/16" sheet, with lots of diagonal bracing to keep the units stiff enough to prevent warping when the covering was applied. As for the wings, the leading edge is sheathed using the 'wrap around' method already described.

The fin/rudder outlines are laminated entirely from 1/4" x 1/16" sheet strips.

In Graham's own words: "I find that the basic airframe construction takes shape pretty quickly, even with a fairly complicated structure. It's when we move on to the more 'fiddly' detailed items that things start to slow down, but also satisfaction increases as everything starts to look like a real aeroplane."

Building the Miles Messenger - By Peter Shaw

The Miles Messenger is my all-time favourite aeroplane, one with lots of interest for model builders. The features are three fins and rudders, large flaps external to the wing, gullwing cockpit doors, long undercarriage giving STOL potential and a construction of wood and fabric ... what more could a scale modeller need?

The availability of plans for Graham Smith's 1/4 scale model, first presented in *Model Flyer* magazine, became the touchstone for this project. I had promised myself that I would build a similar model at some time and hoped that a plan would be published. I was fascinated by Graham's approach to the building of such a model. He copied full-size practice and his approach was dictated by getting the weight under thirteen pounds, to enable the prototype model to fly on a Merco 61 two-stroke engine - which he accomplished - winning the Nationals and other scale competitions to boot.

Before we get into the project, a few words on my background may be appropriate.

I have been model flying for about 35 years and fly mostly scale. I like building and detailing, getting a lot of pleasure from balsa-bashing and researching the prototype, which for me, is half the fun. An engineer by training, I enjoy putting the knowledge gained over the years into practice. I certainly don't profess to be in the expert class, but have been known to produce reasonably detailed models that fly well when my knees are not knocking.

This month I will concentrate on the

fuselage, tail plane and fins and have included some pictures of the build and how the model goes together. This is not intended to be a 'stick-A-to-B' exercise, as it is presumed that a certain level of building from plans has been reached.

As previously stated, the plans are of excellent quality, very accurate and there are copious notes to help the builder proceed in a logical fashion.

Building the fuselage

The changes I made were in the selection of powerplant. My engine of choice was the Saito 120, but in fact, any similarly-sized four-stroke would easily fit into the engine bay. I used the method shown on the plan and the aluminium tubing and all plate make a sturdy mount, almost replicating the full-size. Some pictures are included to give the general idea.

I installed the throttle servo on the engine plate, but moved the elevator and rudder servos to the rear cabin area and operated the controls by pushrods, as per the full size.

There is ample space in a compartment at the front of the fuselage to install onboard glow, batteries and receiver, with access to it all being gained by taking out a few screws - in fact, everything on the model is very roomy, so there are lots of opportunities to do your own thing.

The model construction is from balsa and ply and is made basically in three parts - front, centre section and rear. All the formers are laminations of balsa and 1/32" ply and makes a very light, but strong structure and as the fuselage is a

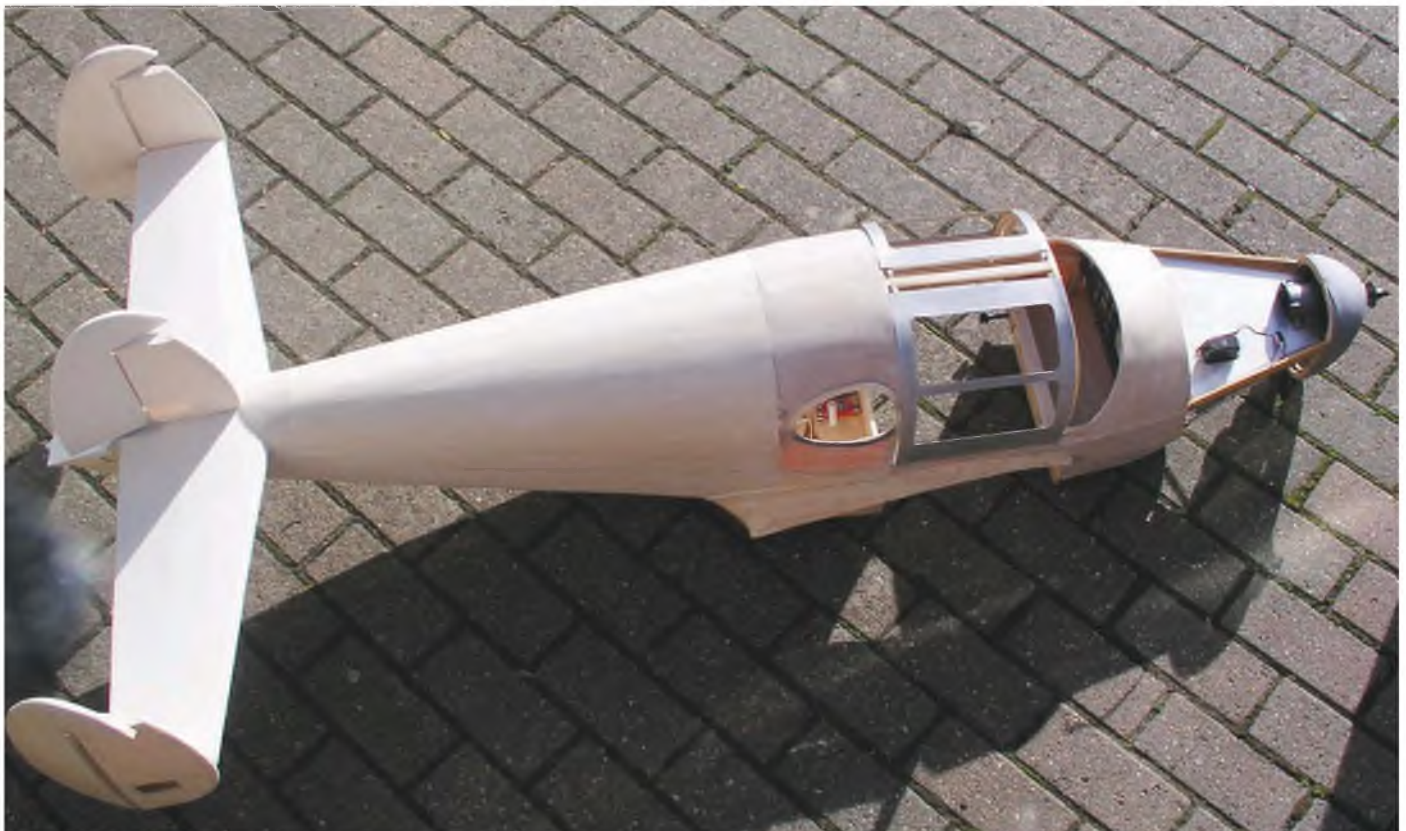
big ice cream-cone shaped structure, all formers can be fretted out of a single 18" square lamination. For the cabin and gull-wing cockpit door structure, strips of balsa are laminated over a cardboard former using watered-down PVA adhesive and left overnight to dry, leaving you with very strong, but lightweight, contours.

From experience, I can tell you that care has to be taken to get this part right so that the doors will be fully operational, allowing access to the wing mounting bolts. There are four bolts, two at the front (see photo) and two in the rear cabin area - a very sturdy way of attaching the wing to the fuselage, with no unsightly wing bolts showing on the fuselage undersides. A tip for prospective builders would be to ensure you get the type of bolts that have knurling on the head, or similar, so finger pressure can tighten the bolts sufficiently.

I made the cowl front from fibreglass, making a mould first and then a female mould from Plaster of Paris. For fixing the cowling, two bolts are screwed to the aluminium engine plate, which supports two fixing brackets.

The rest of the cowling is made from litho plate and the patterns given on the plan are accurate, so if the build, so far, is accurate, all fits well. As a precaution, I always first make templates from old cereal packets, it helps with getting the shapes spot on.

As previously mentioned, the building of the fuselage is done in three separate assemblies which are then joined together to make a very sturdy and light





construction - this is a big model and when I weighed the basic structure, I was amazed at the low weight.

Sheeting and glazing

The bare framework of the fuselage is covered in 3/32" balsa sheet (it's one of those models for which it seems a pity to cover the basic construction). I made some cardboard templates, joined some sheet balsa and formed this around the fuselage to get a good fit, and then wet the balsa sheet with diluted ammonia to assist the shaping, leaving it overnight to thoroughly dry out. The result was a lovely formed shell that fitted well. I should say that, as with any model I build from a plan, I always make templates of formers, ribs, etc, as I find that it gives a better idea of how things will fit - cardboard is a lot cheaper than balsa and ply and comes free with your morning Rice Krispies!

The doors are glazed with acetate sheet and the side windows are fully operative, sliding in strips of Plasticard channel sections. The front of the canopy has to be formed from plastic/acetate sheet and required a mould to be made from balsa so that the part could be vacuum-formed. I do not know of any commercial canopies that could be

modified, so if you want it to be, accurate then a mould just has to be made. With block balsa and a razor plane, it really doesn't take long, so don't be put off by these little challenges. Once you have a mould, there are several vac-form companies who will pull the windshield for you, if you don't have the facilities to do it yourself.

Tailcone

The tailplane, fins and rudders are of similar construction to the fuselage - lots of balsa ribs with centre cut-outs for lightness. Again, the tailplane is big and I built it to plan using the technique of constructing a D-box for the leading edge from 1/32" balsa, laminated with a heavy weight paper. This makes it very strong and follows the full-size in construction principles. In fact, at this point, you really get the feeling that you are making a miniature aeroplane, not just a model!

The tricky part of the tailplane is to get the mechanism for working the three rudders accurate, so that it will operate without any snagging or binding. I used carbon fibre tube and aluminium end pieces in order to be able to adjust movement at the fin end. This is the clever part of this model, as inspection hatches are shown on the plan, replicating the

full-size, so all the linkages can be made accessible. For the majority of hatches, I used *Plasticard*, or similar.

The fuselage was sheeted along with the tailplane, fins and rudders and I used *Sig Coverall* and *'Stix It'* glue for the fabric over-finish - yes, the REAL Messenger was fabric covered over wood. The whole fuselage was given a couple of coats of banana oil so as to prevent too much shrinking - the covering is heat-applied and the banana oil just seals the fabric. Unlike cellulose shrinking-dope, this does not give the 'starved horse' look.

Once the fuselage and tailplane, rudder, fins and elevators are complete, these are laid to one side ready for the wing construction.

Finally a note on hinging - there are no commercial hinges in the model - all are constructed from ply, or Tufnol-type material, and are scale.

The elevator is in two parts and joined with an adjustable aluminium, or carbon fibre, tube and the hinges are 16swg wire slotted into scale female hinge parts - very effective and as per full-size. ■

Next Month:

In the next instalment I will cover the wing, flaps and ailerons - and fitting it all together...



MILES MESSENGER

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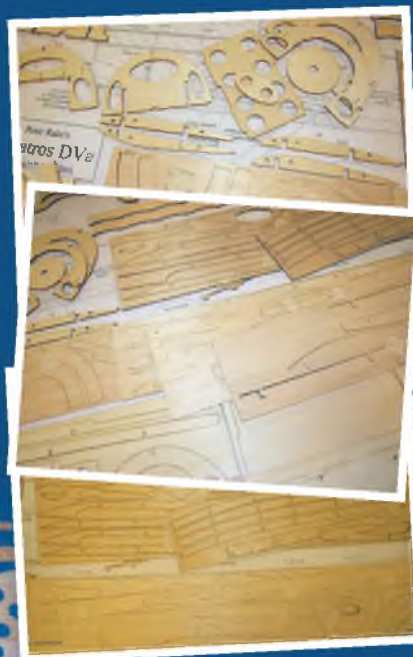
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RIGHT: Field Marshal Bernard Montgomery (on left) with his personal Miles Messenger seen sometime after the invasion of northern Europe during 1944.

MILES M.38 MESSENGER

The Miles Messenger has its origins in a private request from British army officers in June 1942, for an air observation post (AOP) aircraft. It was required to carry a crew of two, radio, armour protection and other military

equipment, and to be able to operate out of and into small tree-surrounded fields in all weathers.

The resulting Miles M.38 prototype was a development of the earlier M.28 Mercury, which had been planned, pre-WW2 as a replacement for two

earlier Miles productions, the *Whitney Straight* and *Monarch*, but the M.28 was shelved at the at the drawing-board stage upon the commencement of WW2 in September 1939. That project was then revived in 1941 in response to a requirement for a training and





communications aircraft, featuring wing trailing edge flaps and retracting undercarriage. The Mercury prototype first flew in July 1941, but with the Miles company heavily committed to other military trainer types - the Miles Magister and Master advanced trainer, little further progress was made, and only six examples were produced between 1941 and '46

However, the Mercury did represent an easy and obvious basis for what the British Army were then defining as a low maintenance, slow-speed, Air Observation Post (AOP) and liaison aircraft in what became the M.38 Messenger, powered by de Havilland Gipsy Major inline engine, incorporating the same trailing-edge flaps.

As an aside here, one might wonder

how a low wing monoplane should be considered a good layout for military air-to-ground observation, but never mind!

The prototype Messenger first flew on 12 September 1942 and was found to provide the requisite STOL performance. Great enthusiasm for its capability was shown by pilots of an AOP squadron whom designer George



The few Miles MM.38 Messengers built during WW2 were all allocated for VIP transport. This pastoral scene in Northern Germany during July 1945 demonstrates the rough-field capability of the Miles Messenger as Air Chief Marshal Sir Sholto Douglas and Lord Beatty take-off to overfly the city of Hannover.

MILES MESSENGER VARIANTS

MESSENGER 1: Military production aircraft for the Royal Air Force powered by a Gipsy Major 1D, 23 built.

MESSENGER 2A: Civil production aircraft powered by the Blackburn Cirrus Major 3, 65 built.

MESSENGER 2B: Three-seat variant of the 2A powered by the Blackburn Cirrus Major 3, one built.

MESSENGER 2C: Same as the 2A but powered by the de Havilland Gipsy Major 1D, one built.

MESSENGER 3: Dual-control variant of the 2A powered by a Blackburn Cirrus Major 3, one built later re-designated the M.48.

MESSENGER 4: Same as the 2A but powered by the de Havilland Gipsy Major 10, three built.

MESSENGER 4A: Civil version powered by the de Havilland Gipsy Major 1D, one built and 19 converted from Mk 1.

MESSENGER 4B: One 4A modified with a de Havilland Gipsy Major 10 engine.

MESSENGER 5: One , modified with a Blackburn Bombardier 702 engine.

M.38A MARINER: The prototype Messenger was fitted with an arrester hook for trials as a carrier-based anti-submarine aircraft. Handley Page HP.93: One Messenger was used by Handley Page (Reading) for test flights using Dufaylite wings at Woodley.



Miles allowed to flight-test the aircraft. Bureaucracy then reared its head, for wartime Britain existed in a centralised 'command economy' environment. Thus, the British Ministry of Aircraft Production took a dim view of the design, construction and testing of a military aeroplane without its knowledge, (yer musn't upset the 'Neddies' y'know!) and refused to order this prototype into production for the

AOP role. In late 1943 though, a small order was placed for the aircraft for use in a VIP transport and eventually a total of 21 was built to the military specification. Among VIP operators allocated Messengers as personal transport were Field Marshal Sir Bernard Montgomery and Marshal of the RAF Lord Tedder. Subsequently, a requirement for a total of 250 examples of this original version

of the Messenger was issued, but this was cancelled at war's end in 1945. This curtailment however was no great blow to the Miles organisation, since the layout of the aircraft in its military guise offered features that other contemporary light aircraft lacked. It offered a very roomy cabin capable of accommodating up to four occupants including the pilot and good visibility from the cockpit. Its STOL (short takeoff and landing) characteristics and low landing speed was also considerable attractions that gave the manufacturer a product for the civil market after a speedy revision to Mk.2 specification.

To meet this anticipated demand, production of the Messenger Mk.2A was moved from the Miles factory at Woodley airfield, near Reading in Berkshire, to a 'new' factory at Bandridge, County Down in Northern Ireland - although 'new' in this case implies only a change of location, since the 'new' facility was actually an abandoned linen mill, from which all the weaving machinery had to be removed.

Many of those taken on to do the hands-on production work were female workers previously employed on the weaving machines, retrained in the very different skills of woodworking to construction the Messenger's largely

SPECIFICATION (MESSENGER 2A)

General characteristics

Crew:	One, pilot
Capacity:	Three passengers
Length:	24 ft 0 in (7.32 m)
Wingspan:	36 ft 2 in (11.03 m)
Height:	7 ft 6 in (2.29 m)
Wing area:	191 ft ² (17.75 m ²)
Powerplant:	1 x Blackburn Cirrus Major 3 four-cylinder air-cooled inline engine, 155 hp
Maximum speed:	135 mph (219 km/h)
Service ceiling:	16,000 ft (4,878 m)
Rate of climb:	950 ft/min (290 m/min)



4

- 1: The prominent 'P' on the fuselage, behind the cockpit denotes this as the prototype Miles Messenger Mk.1 during mid-1944.
- 2: Note the cockpit shape of this Messenger Mk.1. The later civil Mk.2 had a more rounded windscreen.
- 3: One of the late civil Mk.2 aircraft with the oval shaped rear cockpit windows.
- 4: The sole Miles M.28 Mercury was cannibalised to produce the prototype M.38 Messenger.
- 5: G-AKIN is one of the aircraft still on the British civil register and is based at Sywell, Northhamptonshire. This is a Mk.2 with the the more rounded cockpit windscreen.



5

wooden airframe!

In early post-war cash-strapped Britain, the national watchword was very much 'export or die' and the Miles Company's worldwide network of dealers led to sales in many countries including Argentina, Belgium, Chile, Egypt, Iran, Iraq, South Africa, Spain and Switzerland.

Such success however was not

enough and in early 1947, creditors forced the Miles Company into bankruptcy and Miles Messenger production ceased after completion of 72 examples, the assets of the Company being acquired by the Handley Page Company, which briefly used one Messenger as a test and development aircraft under the designation Handley Page HP 93.

Still active!

Of the 72 examples of the Messenger produced, despite the largely wooden construction, eight examples of the type remain on the United Kingdom civil aircraft register and, as with classic cars of that age, are no doubt loved and cherished by their owners and operators. ■



Techno Scale Mike Evatt

Logging on to <http://waynes-freeflightmodels.wordpress.com> will take you to, unsurprisingly, **Wayne's Free Flight Models**. Wayne has been fascinated with airplanes for as long as he can remember and he now spends a significant amount of his free time researching aeroplanes and building free flight rubber-powered models. His main interests are WWI subjects, particularly Austro-Hungarian and German aircraft. The Albatros D.III shown in the screen-shot was built from a *DPC Models/Aero-Werkes* 'pseudo dimescale' kit. The tissue is a inkjet-printed and he designed the printed "sworl" fabric patterns in Adobe Illustrator.

The **Parkzone Ultra Micro Mk IX Spitfire** is the first ultra-micro warbird to feature pre-installed AS3X technology which, in addition to making the aircraft very stable for a low-wing fighter, also allows it to be flown outdoors in less than perfect conditions. This all foam rendition of the WWII RAF icon has a wealth of scale detail for such a small airframe. An accurate World War 2 grey-green colour scheme is

the base for authentic Mk IX decals; while further scale details include moulded panel lines, a crystal clear canopy and dummy cannons. Check it out at <http://hobby-hangar.co.uk>

A new kit-cutter on the block? Point your browser at <http://www.camdencustomcutters.com> and find out. **Camden Custom Cutters and Kit Construction** have quite a range of kits 'ready to buy' as well as doing custom work. The basic premise of the company is to serve the aeromodelling community with laser-cut short and full wood kits from commercially available plans. They also offer their own original plans and kits for scale model aircraft that are unique to the modelling world. The company owns and operates a 50-watt laser cutter/engraver and their newest acquisition, a 130/150-watt laser, utilizing the latest version of AutoCAD for layout work.

Hangar 9(r) which maintains a web presence at <http://www.hangar-9.com> can usually be relied upon to offer something different. Perfect for the sport scale enthusiast, the Christen Eagle II 90 not only replicates the unique scale looks

and trim of the famous full-scale aerobatic plane, but delivers the great flying qualities one expects from Hangar 9(r). Introduced in 1977, the Christen Eagle II was the brainchild of avid aerobatic pilot and entrepreneur, Frank Christensen. The Hangar 9(r) Christen Eagle II 90 ARF brilliantly captures the spirit of this remarkable airplane.

R/C Scale Products Inc. at <http://rcscaleproducts.info> offer the highest quality radio control scale items that they have found 'out there' for you. Along with their high quality products they focus on customer satisfaction and service. R/C Scale Products was the brainchild of two long time scale modelers, Jim Weems and Tommy McClellan. These guys got tired of inferior accessories so they started seeking out the finest accessories. They had the idea that other modellers were going through the same thing so why not offer them for sale? I particularly like the scale seat harness shown in the screen-shot.

Vogelsang Aeroscale at <http://www.vogelsang-aeroscale.com> is the official Valach dealer for the US market



This Albatros D.III was built from a *DPC Models/Aero-Werkes* "pseudo dimescale" kit.



The Parkzone Ultra Micro Mk IX Spitfire.



A new kit-cutter on the block?



The Laird DW-500 Super Solution Biplane from Jack Devine.



A Fokker Dr1 Triplane. A 60inch span delight from Texas RC Planes.



Yellow Jacket's AT-6 Texan - designed to win in scale contests as well as in race circuits.

probes cyberspace for more TechnoScale Topics...

and is working closely with the manufacturer in order to protect your best interest as well as to offer you the best service possible based on their many years of Valach experience and service. Valach gas model engines are designed from the ground up as power plants for model aircraft use and are optimized for this purpose. The VM R9-1250 is a 9 cylinder radial, 1250ccm 4-stroke gasoline powered model engine - Diameter - 630 mm Horsepower - 60 HP

The Golden Age of Racing once thrilled America and captured hearts and imaginations, and for many of us, it still does today! Everything that aviation is today we owe to these racers and the courageous men who flew in the 1930's - era Nationals. The Warbirds of WWII borrowed many of their advanced features from those Racers. **Jack Devine's** line of meticulously hand-crafted Giant Sport-Scale racer kits feature light wing-loading and strength, with the added advantage of the foam-core technology frame that absorbs engine vibrations! These are TOUGH, light, Giant-Scale Golden-Age models with superb flight characteristics.

Check out his Laird DW-500 Super Solution Biplane at

<http://www.jackdevinemodels.com>

Texas RC Planes have a website at <http://www.texasrcplanes.com> They are in their sixth year of business selling RC aircraft and are dedicated to R/C flying. They stock thousands of airplanes, ship on a daily basis and are a factory distributor for one of the world's leading mfg. companies. They don't have a middle man to deal with and pass the savings to their customers. I particularly like their Fokker Dr1 Triplane. A 60inch span delight!

Yellow Aircraft at <http://www.yellowair-craft.com> is proud to have manufactured scale model jets and propeller airplanes since 1988. Their highly experienced engineers and skilled craftsmen are committed to creating the highest quality models possible. Because they select the finest materials and properly handcraft their products, they guarantee superior quality and consistency. The screen-shot shows not just another AT-6 Texan, this superlative model is designed to win in scale contests as well as in race circuits.

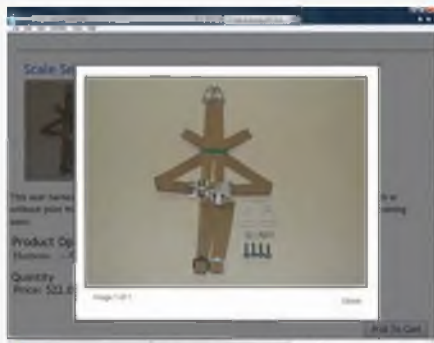
The Lockheed Super Constellation was a four engine propeller-driven aircraft built by

Lockheed between 1943, and 1958, at its Burbank, California, facility. 856 aircraft were produced in four model variations. The Super Connie was used as both a civilian airliner and U.S. military air transport plane, seeing service in the Berlin Airlift and as the presidential aircraft for President Eisenhower. As the first pressurized aircraft in widespread use, it helped to usher in affordable and comfortable air travel for the masses. An excellent model replica is available from **World Hobbies** at <http://www.worldhobbies.com>

Flight-8.com is the marketing label of Cross Over (BJ) Trad.Tech Co. Ltd, based in Beijing, China. Their primary business is designing and manufacturing ARTF Radio Control Model Aircraft. They do not sell to individual customers on the retail market however you can get a taster of their products from their website at <http://www.flight-8.com> My favourite is Art Chester's 'The Jeep' from the Golden Age of Racing. The completed model is an eye-catching crowd-pleaser, both on the ground and in the air, where, just like the full size version, it performs flawlessly! ■



The Hangar 9(r) Christen Eagle II 90 ARF captures the spirit of this remarkable airplane.



An excellent scale seat harness from R/C Scale Products Inc.



The VM R9-1250 is a 9 cylinder radial, 1250ccm 4-stroke gasoline powered model engine.



An excellent version of the 'Super Connie'.



Art Chester's 'The Jeep' from the Golden Age of Racing.



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

mikeevatt@hotmail.com

PLANS and PARTS

BE READY TO START BUILDING AS SOON AS YOU UNFOLD THE PLANS WITH THESE LASER-CUT PARTS SETS



ELECTRIC CANBERRA B(I)8

Plan price £29.50 Plan No.262

Component Pack £175.00

From the building board of electric ducted fan scale expert Chris Golds, this 84" (2,134mm) span model is the 'Interdictor' version of the famous jet bomber. Prototype used two Hacker B50-16L motors and two ten-cell 3300 NiMH power packs. Four sheet plan shows retracts and flaps. Plans are supplied complete with step-by-step written construction sequence.



PIPER SUPER CUB

Plan price £16.50 Plan No.146

Component Pack £95.00

G/F Cowl price £17.50

A great first-time scale model for novices and sport fliers who want real scale accuracy. 79 ins span 1:5.33 scale model suits a range of engines .40-.60. Two sheet plan. Glass fibre cowl available.



CORBEN SUPER ACE

PLAN PRICE £19.50 PLAN NO.275

COMPONENT PACK £65.00

A 50" (1270mm) wing span sport-scale model of the delightful American homebuilt aircraft, this design is an excellent introduction to the world of radio control scale modelling, featuring simple airframe structure that will result in a scale replica ideally suited to regular club-field flying on a regular week-upon-week basis. 1/6th scale replica suits .26-.30 four stroke engines, or .20-.25 cu.in. two strokes. Four function radio systems required.



HEINKEL HE 51

PLAN PRICE £17.50 PLAN NO.80

COMPONENT PACK £125.00

A 68" (1727mm) wingspan 1:6.4 scale model of the pre-WW2 German biplane fighter for 4-function radio control and .70-.90 cu.in. four-stroke motors. Can be built without recourse to glass fibre mouldings for items like engine cowl and wheel spats. Two sheet plan.



RUMPLER C.IV TAUBE

PLAN PRICE: £19.50

PLAN NO. 269

COMPONENT PACK: £110.00

A 1/7th scale 80" (2032mm) wing span sport-scale model of the early German WW1 aircraft designed for .60 cu.in. size four stroke engines and four function radio control operating rudder, elevators, ailerons and throttle.



De HAVILLAND DH 82a TIGER MOTH

PLAN PRICE £26.50 PLAN NO.051.

COMPONENT PACK £115.00

An 80 inch (2032mm.) wingspan, 1:4.33 scale model for 1.20 cu.in. motors and four function radio control systems. No moulded cowl required - all wood construction. Three sheet plan.



FE8

PLAN PRICE £19.50

PLAN NO.267

COMPONENT PACK £88.00

Accurate 1/5th scale 75.6" (1920mm) wing span replica of the British early WW1 pusher fighter. Requires .78-.91 four stroke engines and four function radio control system. Excellent for electric conversion.



FELIXSTOWE F2A

PLAN PRICE £19.50 PLAN NO.276

COMPONENT PACK £110.00

An amazing 1/6th scale fully flyable replica of the British WW1 maritime patrol flying boat. Model spans 100.5" (2553mm) and suits two .25-.30 cu.in. two stroke engines. Can be flown from water or from land using a take-off dolly to safely landing on its hull. Prototype model won "Best of Show" at the prestigious Toledo R/C Expo in USA. All the detail is there on the plans for an impressive model.



FOKKER D.VII
1/4 PLAN NO.241, 1/5 PLAN NO.242
PLAN PRICE (EITHER SCALE) £26.50
COMPONENT PACK 1/4 £125.00
COMPONENT PACK 1/5 £120.00
 1/4 scale spans 82.5" (2095mm) for 30cc (1.8 cu.in.) two stroke engines. 1/5th scale spans 65.7/8" (1673mm) and suits 15cc (90 cu.in.) four stroke engines. BE SURE TO QUOTE SCALE REQUIRED WHEN ORDERING!



HAWKER FURY
PLAN PRICE £17.50 PLAN NO.091
COMPONENT PACK £125.00
 A 1/6th scale replica of the RAF's most elegant 1930's biplane fighter: 60" (1524mm) wing span model requires four function R/C gear and .60 cu.in. motor.



D.H. 103 HORNET
PLAN PRICE £22.50 PLAN NO.052
COMPONENT PACK £130.00
 80" wingspan sport-scale replica of the hottest production piston engined fighter ever. Suits engines .40-.53. Original retracting undercarriage unit included with the plans.



BOEING PT-13 STEARMAN
PLAN PRICE £19.50 PLAN NO.243
COMPONENT PACK £99.50
 A 58" (1473mm) wingspan replica of the famous bi-plane radical engined trainer aircraft of the WW2 era. Designed for 700 size electric motors, but with option of i.c. engine power using a .52-.60 four stroke engine, with modifications shown on a separate plan sheet. (Ready-cut wing ribs and fuselage formers available - see below) Three sheet plan.



TIPSY JUNIOR
PLAN PRICE £19.50 PLAN NO.286
COMPONENT PACK £95.00
 A 1:3.44 scale, 79" (2006mm) wingspan replica of the late 1940s Belgian light aircraft, designed to suit .90-1.20 cu.in engines. Designed by Philip S.Kent, the model features all built-up balsa/ply construction throughout and makes an excellent entry into R/C scale modelling. Rudder, elevator, aileron and throttle controls.



AVRO AVIAN MONOPLANE
PLAN PRICE £19.50 PLAN NO.278
COMPONENT PACK £110.00
 Designed by respected R/C scale expert Philip S.Kent, this quarter scale replica of the radial engined version of the 1930s air racer spans 96" (2438mm) is an ideal/introduction to the world of large scale. The model suits 1.50 cu. in. size four stroke engines and requires four function radio control operating the basic control functions of rudder, elevator, ailerons and throttle. Conventional wood airframe structure throughout.



SOPWITH CAMEL
PLAN PRICE £14.50 PLAN NO.188
COMPONENT PACK £79.50
 1/6th scale replica of the famous RFC WW1 fighter biplane, for .24-.40 size motors and four function R/C. 56" (1422mm) wing span.



SOPWITH PUP
PLAN PRICE £16.50 G/F COWL PRICE £17.50
PLAN NO.177 COMPONENT PACK £135.00
 Superb, true-to-scale 1/5th scale replica, features accurate outlines and rib-for-rib reproduction of the full size wing structure. 63 ins. (1600mm) span model is of manageable size for transport and offers realistic flight performance. For .60 size motors and 4 function radio. Glass fibre engine cowl available.



BUCKER BUI 180 STUDENT
PLAN PRICE £26.50 PLAN NO.015
COMPONENT PACK £120.00
 The R.A.F. maritime recce/ anti-submarine patrol aircraft, modelled by renowned electric scale expert Chris Golds. 86" (2185mm) span model flies on four Speed 400 electric motors, driving pusher props. Full step-by-step written building instructions.

030/12

WHAT DO THE CUT-PARTS SETS CONTAIN?

The components, in balsa and ply that you would otherwise have to trace off the plan onto the wood and then tediously cut out prior to commencing building! Basic strip and sheet wood not included. Be ready to start building as soon as you unfold the plans!

WE CAN ARRANGE A CUT PARTS SET FOR ANY MODEL IN THE PLANS SERVICE RANGE. SO IF YOU ARE ABOUT TO EMBARK ON A NEW SCALE MODELLING PROJECT FOR OUR PLANS RANGE AND WANT TO GET A HEADSTART ON THE BUILDING PROCESS, JUST CALL TO ENQUIRE AND WE'LL DO THE REST!

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FIGHTERS OVER

A BRIEF WINDOW OF UNEXPECTEDLY FINE AUTUMN WE

North-West Warbirds, master-minded by Ozyray Peters and Linsey Todd, are an energetic and active organisation. Now, NW Warbirders are as clannish

as hillbillies, and they have close kin at Langar, Sleaf, and across North Wales, all the way to Greater Merseyside, too. This autumn they got together for a fine old hootenanny at Rednal Airfield in

Shropshire. The weather gods smiled, and we had a whole day's Indian Summer. The day was made up of light winds, blue skies, and continuous flying. We all were in shock after our dreadful summer.



Ozyray Peters and the North-West Warbirds Clan, which includes their closely related Langar kin.



ER REDNAL

AT HER DELIVERED A BUMPER TURNOUT

Enter Limey Rice

Be advised: Paul 'Limey' Rice will figure prominently in these columns in the coming months. This is because he is a superb scale builder, whose shed output is

prodigious. At Rednal he flew two truly outstanding models, a Douglas Dauntless and Hawker Tempest Mk.V. Either must have taken over a thousand hours too build. Luckily, I was able to get full photo

walkarounds of both models, so stay tuned. Meanwhile, I have included a few shots of each to whet your appetite. Trust me build quality really is 'Nats Standard'.



1: Tristan Jackson's Mustang being jumped by Andrew Peers' Me 109E. **2:** Warbirding encompasses scale and ARTF flyers, plus yet another Black Horse T-28 Trojan! **3:** Dead Parrot Sketch: Chris Peers discusses a dead petrol engine with Paul Rice, right. **4:** Don't you hate it when the retracts rip out? John Jackson examines the damage as Steve Foxon (right) carries the stricken Mitsubishi Zero. **5:** Back from bombing a Yankee battlewagon, John Jackson's Aichi Val from the YT International kit. **6:** Steve Foxon's Nick Zirolli A6M Zero catches a gust on landing. 93" span, 3W petrol power, 24x8 prop. Weighs 28 lbs.



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Tristan Jackson

Long-time observers of the British scale scene will remember Fred Jackson with affection. His brother John, a distinguished scale modeller in his own right, often graces these pages. Then there is ace show pilot George Shone, whose Mum happens to be a Jackson, so he is part of the same scale dynasty. Well, we now have young Tristan Jackson to add to the list. Tristan was flying a number of models, including a nifty Black Horse Hawker Sea Fury. This was powered by a truly magical prime mover: a Saito FA 250 three-cylinder radial. This produced a musical sound. Needless to say Tristan flew all his scale models appropriately and well.

Steve Foxon

Steve Foxon was flying a fine Bud Nosen

Mitsubishi A6M Zero, which unfortunately caught a crab on landing. It looked to be just a common-or-garden bumpy landing, but, we were all dismayed to see the undercarriage had pulled out by the roots. Undiminished, Steve kindly showed me his winter's labours, not one new model, but two. And what quality! The first was a Mick Reeves Spitfire powered by a 3W 75 petrol engine, driving a Menz 26x8 prop. This has a superb fit-and-finish, and positively gleamed in the autumn sunshine. The next was his almost completed Bud Nosen 1/4 scale bubble-top P-47D Thunderbolt. This is also powered by a 3W 75 petrol engine, driving a 26x8 Menz prop. There is just a bit of painting, legending and fine detailing required to complete the model. Her convincing silver finish shimmered in the sun too. I shot a full walkaround of both

models. I am awaiting a flying date, and I will bring these models to you. Stay tuned, gentle reader. Lots of scale goodies in the pipeline.

Scale electric foamie

ARTF Foamies are not my thing, but even I was surprised at the amazingly low price of the scale Douglas Skyraider being flown by Andy Johnson. It looked about the size of these larger Yankee Revell plastic kits of yore, but of course it could fly! Childhood dreams are now coming true: Airfix-style models that actually fly. The model comes from HobbyKing, and costs a mere £81. It just needs a battery and receiver to go flying. It spans 1.1 metres and trust me, it flew absolutely superbly. It even had lights! Great for wage-slaves, for the back of the car, for some lunchtime flying-cum-skiving.



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Late Mark Spit

Andy Wynn was campaigning quite a few fine models, but his Spitfire MK XXIV really

looked aggressive on fast strafing runs. This is from the Century Jets kit, extensively rebuilt by Andy, with an entirely

re-built fuselage. She is 88" in span, and weighs 34 lbs. The power plant is a Zenoah Z 62, driving a Menz 22x10 prop. I thought

7: Mark Finneran and John Jackson leaving the pits with John's P-47 Thunderbolt. **8 & 9:** Phil Robertshaw's 'Day's Pay', Boeing B-17G recently re-certified (ANO Exempted) for show flying. **10:** Steve Foxon's Spitfire is powered by a 3W 75 petrol engine driving a Menz 26x8 prop. **11:** Steve Foxon has also almost completed this wonderful Bud Nosen 1/4 scale Thunderbolt. Full walkaround as soon as he files it! Stay tuned. **12:** The Flyin' Brothers Peers, Chris left with Andrew checking his new Me 109E.

FEROCIOUS FRANKIE BEATS UP THE FLIGHT LINE!





Tristan Jackson's Sea Fury crackling by on its 3 Cylinder FA 250 Saito radial. (Shame about the stunted main undercarriage).



Tristan Jackson with his Black Horse Horse Sea Fury.

the invasion stripes looked great, too.

Reworking

Reworking a shop-bought scale ARTF is a modern take on the venerable old modelling play of winter refurbishment.



Lindsay's refurbishment of his 80" span WM Zero also stretched to a re-rivet and re-scheme.

Canny Lindsay Todd had spent part of last winter refurbishing and re-scheming his well-used World Models A6M Zero. Out went the old drab, and in came a fully riveted, 'weathered white' scheme. She looked great in her new livery. This is a

useful autumnal thought, especially if your current scale steed is looking a bit down in the mouth. Good economy, ecologically sound, and satisfying, too.

Killer chilly

Man can not live by warbirding alone. Between you and me, there is a bit of a power struggle going on between the Langar Kin and the NW Kin, as to who might breed the best hot chilly beef for lunch. I say breed advisedly, because the stuff that Ozyray Peters dished up to us all was certainly undead. It positively writhed. It was so hot that, although I drank a whole bottle of water afterwards, I could not kill the 'taste'. It felt like third degree burns. However, the lovely Sandra Todd stepped in and fed me two or three of her award winning cakes, and all was well. I decided not to sue Peters after all.



Paul Rice builds impressive and superbly detailed models as his Douglass SBD Dauntless attests. Brilliant cockpit detailing (left) and dummy radial engine seen bottom right.





JOHN JACKSON'S BLACK HURRICANE JUST TUCKING AWAY HER GEAR. BUILT TO THE RICHARD RAWLE PLAN. BRYSON 70CC POWER.

The verdict

I hate to mention it for fear of a jinx. However, such unseasonably good autumn weather at these NW West Warbirds events is becoming regular. We

enjoyed about the best flying day of the year so far. Warbirding is now firmly established in the the North West, and the close Midlands, so all in all, there was lot to feel happy about. Check out the NW West

Warbirds website to track down their next meeting:

<http://northwestwarbirds.webs.com/> ■



Andy Jackson with a little 1.1 m span Hobby King electric Skyraider he flew over lunchtime.



Paul Rice brings this Hawker Tempest Mk.V down the line.



Andy Wynn's well-known and well flown Ferocious Frankie P-51D Mustang. Zenoah 62 power on a 22"x10" prop.

On Silent Wings by Chris Williams

SCALE SOARING

TVSA Aerotow, Siege Cross Farm, Thatcham 19th August 2012

Nobody will need me to remind them that 2012 was the wettest summer on record, so it was with a certain amount of relief to all concerned when the day

of the TVSA crew's third scheduled event of the season dawned dry, sunny and warm. Those positive feelings were tempered somewhat when we arrived to find the airfield covered with bales of hay, only the area of the main runway being free of obstruction. Obviously, our

flying was going to have to be more accurate than that to which we were accustomed!

Having chronicled the maiden flight of Geoff Crew's Minimoa before, this was to be the occasion of its first aerotow, an event that passed without



Phil Huddleston brings Chris Strong's Paritech DG 1000M in for a low pass at Siege Cross.

any problem, although one landing did require some hasty obstacle avoidance manoeuvres at the end of the landing run. The Minima is an ideal candidate for Aerotow, largely because the gull wing keeps the wing tips well above the ground during the crucial first moments of acceleration when there isn't quite enough air flowing over the ailerons to keep the wings level.

South African resident Dave Connelly has found the ideal solution the problem of getting a large glider through the rigours of airline travel by keeping a couple of his models permanently in the UK. One of these is his very pretty Hall Cherokee, built to

1/4 scale from the Dave Smith's plan, and he was making the most of the opportunity to fly her on this very pleasant day.

Chris Strong's mighty near-half scale DG 1000M from the Paritech concern always impresses, not just because of its size, but also for beauty of its shape and immaculate all-moulded glass construction. Fitted with an electric up-and-go, this is not a model for those who are faint-of-wallet, as all the gizmos that go to make it all work don't come all that cheap, either. The usual procedure with this type of model is to opt for an initial aerotow take-off, because, although capable of R.o.G.

(rise off ground), it would deplete the available battery power quite significantly. Once airborne, the efficiency bestowed by the sheer size and accurate wing construction, which is true to profile throughout, it can stay up almost indefinitely on a good day, with an occasional powered low fly-by to wake up the ground troops.

I made mention of Dave Stokes' new 1:3.5 scale Slingsby Type 13 Petrel last time around; well, courtesy of the good weather, he was able to turn up briefly with the model on this occasion, before disappearing for some long-term medical maintenance. This gave me the opportunity to photograph his and

Aerial scene of the Middle Wallop event from author's Slingsby Petrel.



Two representations of the same full-size glider: Author's Type 13 Petrel in the foreground, Dave Stokes' behind.



Dave Connelly's 1/4 scale Cherokee at the TVSA event.



Geoff Crew's 3rd scale Minimoa flew well on its first aerotow.



Darren Maple's 3rd scale Slingsby King Kite in action at the Middle Wallop event#.



Ghost Squadron's John Greenfield flew his half scale Musger MG12a.



Making the trip down from 1'North, Chas Andrews' 1:3.5 scale Minimoa.

my own version together; something I thought might have to wait until next year. The two models represent BGA 651 during two phases of its lifetime: Dave's being in its 1960s state showing off acres of varnished plywood panels, and mine in its current livery after a painstaking restoration thanks to its current owner, Graham Saw.

Once again, the tug pilots applied themselves with their usual assiduity, and the low-key organisation of the TVSA lads ensured that an enjoyable time was had by all.

Ghost Squadron Aerotow, Middle Wallop, 8-9th September 2012

It has been quite a long time since a Middle Wallop Aerotow was supported by a decent weather forecast but, to general feelings of disbelief, this is exactly what happened for the Ghost Squadron's last event of the season at this venue. As a consequence, there was a large turnout of flight-starved



pilots just rarin' to go! True to the promise, the sun shone, the wind disappeared and there was an all-round dispensing of sun block on pale arms, faces and legs.

Darren Maple was back with his scratch-built 1/3rd scale Slingsby Type 9 King Kite, a model which reveled in the conditions, being of a size that, in the smooth conditions, flew in a convincingly scale-like manner. Terry Holland was displaying the fruits of his winter labours in the form of a third scale Hall Cherokee from the Dave Smith plan. This was up for its maiden flight, and as Terry builds, but does not fly, the honours went to event organiser John Greenfield. As it turned out, the model flew well, both Terry and John pronouncing themselves well satisfied, and no doubt the Cherokee will be finding a new home before too long.

Gary Parker's 1/4-scale Wien had a good outing, but on one occasion fell foul of a take-off incident that befell many models over the weekend. This involves a wing tip catching the ground during the initial take off phase when the tug is starting to accelerate, but when there is insufficient speed to give any effect to the glider's ailerons. Gary manage to hit the abort button before the model flipped over, but there were plenty who left it just a little bit too late and suffered the consequences. The Wien went on to fly more flights thanks to its pilot's quick reaction.

Chris Garrod's 10.4m, 1:2.5 scale ASH 25 was stuffed with enough gear to equip the Space Shuttle. As well as the by-now-standard retract, electric up-and-go, tow release, and Variometer, without which no self-respecting glass ship driver would be seen, this model is also fitted out for the new Triangle Racing events, with GPS down-linking and the like. To top things off, Chris also has a GoPro camera strapped to one wing as well.

In order to preserve the flight battery for the up-and-go, the procedure is to first gain altitude from an aerotow launch, and then use the motor as a sustainer when the lift evaporates. By this method, Chris was putting up some very impressive flight duration time during the weekend, and the long, bendy wings of the ASH25 certainly look the part as they curve upwards quite alarmingly during the climb out after a low, fast pass. It was good to see the

fellows from the Sandhays club who had made the journey from the frozen wastes of Lincolnshire, and with a bit of gentle persuasion I managed to get Chas Andrews to disembark his Minimoa and put her in the air.

Event Director John Greenfield managed to find time to fly his beautiful half scale Musger MG12a, and it's quite remarkable to see behemoths such as these being towed up by tugs a fraction their size. The MG really looked the part

in the air as it lazily circled in the elusive lift that was a feature of the weekend.

The LET Reiher is a beautiful bit of kit, and unusual in that it is mostly of composite construction, but represents a historic wooden glider. The scale drop-off dolly was, however, causing some complication in that it was making the model directionally unstable during take-off. Against the usual best practice, it turned out that the only way to get her in the air was for not just one,



Happy, sunny scene that the TVSA aerotow at Siege Cross Farm.



Terry Holland with his new 3rd scale Hall Cherokee from the Dave Smith plan.



Gary Parker's Wien, built by Terry Holland.



Ian Davis's 1/4 scale Schweizer 2-22 at MW.



Chris Garrod's ASH 25 preserving the on-board batteries by means of an aerotow launch.



Chris Garrod's 10.4m, 1:2.5 scale ASH 25, bulging with hi-tech equipment.



The LET Reheir gets two sets of helping hands on take off.



Drop-off dolly from the LET Reheir.

but two wing-men running alongside and only letting go when their knees failed!

After the event, it was generally agreed that there were two reasons that would account for the unusually high rate of take-off accidents. One could be blamed on the recession and

general government cutbacks, in that the grass at Middle Wallop was unusually long, and the other was that the lack of wind was such a rare event these days that nobody could remember how to cope with it. Given the clement conditions over the two days, this aerotow meet gave much

satisfaction all round and thanks must go to John Greenfield and the Ghost Squadron for their organisation and the tug pilots who consumed gallons of petrol over the weekend to keep the whole thing humming...

c_williams30@sky.com

John Greenfield's 1/2 scale Musger MG12a (Certain unkind persons refer to her as the 'Stove').



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 in 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 its 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 Po-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 cowd. 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 link with the achievements of British aviator Alex Henshaw. (35 images)

North American T28 CD80

The advanced trainer aircraft that served in many 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 'Feneec'. (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)

Monocoupe CD108

The Monocoupes were side-by-side two-seat light planes of mixed wood and steel-tube basic construction with fabric covering. A braced high-wing monoplane with fixed tailskid landing gear, and the reverse curve rear fuselage lines that were to become one of the signature identifier features of the Monocoupes. 55 photos

Miles Magister CD73

A firm favourite with scale modellers, this extensive collection of images depicts two examples in different Royal Air Force training colour schemes. (100 images)

Messerschmitt ME109G CD72

The 'Gustav' saw Luftwaffe service from late 1942 onwards. Subject version of this collection is a tropicalised G-6. (110 images)

Messerschmitt Bf109E CD71

The 'Emil' was the version of this WW2 fighter that was the mainstay of the Luftwaffe's fighter force during the Battle of Britain in 1940. (150 images)

Me 410A - 1/U2 CD107

For those who fancy a twin, but something outside the 'normal' favourites, consider the Luftwaffe's final 'destroyer' heavy fighter that packed a powerful punch 79 photos

Martin B-26 Marauder CD70

The Fantasy of Flight Museum's example, photographed pre-restoration, soon after it was flown into the Museum site, thus in original, unrestored condition. (100 images)

LVG C.VI CD69

The sole survivor of its type from the WW1 era, photographed in extensive detail. This is the machine house at and flown from the Shuttleworth Collection airfield, Old Warden and now in storage, awaiting display at the RAF Museum. (110 images)

Luton Minor CD68

Just one example of this light aircraft, to which the owner has added many mods and variations. (32 images)

Luscombe Silvaire CD67

The elegant late 1940s U.S. light aircraft. Several examples provided, with much close-up detail for modellers. (74 images)

Kawasaki Ki100 CD66

A study of the late WW2 radial engined 'emergency' development of the Japanese Ki 61 Hien (Tony) that provided an unexpectedly superior performance for the squadrons of the Imperial Japanese Air Force during the closing stages of the Pacific war. (60 images)

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A really nice realism touch was the smoke system added to represent contrails on this B-17. 4 x Saito 100's, 137"WS, 52 lbs., Don Smith Design.



A look back at **TOP GUN 2012**

We're closer now to TG '13 than the 2012 event, the report of which took time to get here, but it's worth reflecting on the outstanding models that make TG what it always is! Warbirds predominated. Sean Curry was FSM's man on spot.

The competition was the toughest ever for Top Gun 2012! I can say this with some authority because I had the pleasure of personally mixing it

up with some of the best builders and pilots in the world. No excuses due to the weather either, as this year was the best in recent memory with no rain, moderate temperatures and light winds

right down the runway. Perhaps this contributed to the highest flight averages ever posted in Top Gun's 24-year history.

This is the second year for Top Gun at

PJ Ash puts a lot of heart into the now famous warbird gaggle! It is really something to see 20-25 big gas burning warbirds buzzing around the pattern all at once!





Mike Selby, hailing all the way from Thailand, brought along this beautiful Grumman A-6 Intruder. Entered in Team Scale, with Ray Johns as the pilot, the plane managed to help take home 2nd place. 120" WS, 54 lbs, B300F turbine.



Mike Gross made his triumphant return to Top Gun this year with this immaculate Mick Reeves 1/3 scale Sopwith Camel. Mike worked his magic when it came to weathering this beauty and really pulled it off well. 112" WS, 41 lbs, DLE 111 twin for power.



Dino Digeogio jumped ship from Team Scale this year to participate in Team Unlimited. Their CARF Corsair, expertly built by Gary Prince, won a second place finish. Moki 250, 65 lbs, 110" WS.



Steve Thomas was entered in Pro-Am Sportsman. His Balsa USA Nieuport 11 in Italian livery always catches my attention with all of it's guns!

its newest location, Paradise Field, located in Lakeland Florida. The grass is filling in nicely and has been smoothed over since last year with numerous rollings. A project like this takes some time to mature as the grass sews itself into the existing ground and Frank Tiano is doing his best to rush the process. After the event, he accepted feedback and based on this, the elves have been working away since for further

improvement, including a vertical cutting session, which took out no less than 50 truckloads of thatch! The field is beginning to feel like a putting green, which has been the hope since its installation.

The classes for Top Gun have now expanded from five classes to six with the addition of the unlimited class beyond the well known: Pro-am pro, Pro-am Sportsman, Expert, Team and

Masters. This new Class was created last year to accommodate teams that have more participants than just a builder and a pilot. The team must consist of at least three people who must wear uniform outfits. Frank took a gamble on this one, not being sure how the idea would pan out, but the Class has grown from last year and the guys (and gals in some cases) are really having fun with the team effort! This new Class was won



I had heard a rumor that Brian was bringing his GIANT Republic P-47 to Top Gun but didn't believe it until I saw it! This behemoth flew superbly with a monster 420cc 4 cylinder ZDZ up front! A very respectable 4th place finish in Prop Am Pro considering Brian has only had the plane for a few months! 123 lbs, 143" WS.



Gustavo is an artiste! The artwork on Gustavo Campana's Mirage 2000 was hand painted to represent the famous Tiger Meet markings. Aviation Design, 72" WS, 44 lbs, Jetcat P200.



David Hart, who provided many of the brilliant photos for this article, got this shot of my North American OV-10 Bronco coming by for a pass. Rich Uravitch design, 109"WS, 52 lbs, 2 X Hacker A60's on 12S.



Rei Gonzales is back in full force! A full turnaround from Turbine power to Electric power for Rei and his full fleet of EVF powered scale airplanes. This beautiful BVM McDonnell F-4 Phantom is a masterpiece.



Talk about GIANT. This WWI Gotha Bomber was flown by Jim Suchy in Pro- Am Sportsman. At 192", I believe it holds the record for largest wingspan ever at Top Gun! 2 x Zenoah G-38, 52 lbs.



Hailing all the way from Down Under, the Team Allied Scale Squadron entry Hawker Hurricane was piloted by Greg Tracey. Sachs 75, 110"WS, 40 lbs.



JC has returned, no not that one! John Christensen blew the dust off of his Airworld Grumman F9F Cougar to sneak into third place in Pro-Am!.



Lou Centralango is part of the Long Island gang who make the trek each year down the East Coast for Top Gun. Lou's SPAD XIII, a Balsa USA kit, weighed in at a mere 18 lbs. Brison 4.2, 80" WS.

this year by Team Bihle with David Hayes piloting his Thrush cropduster. This familiar plane has helped David reach all the way to the top, Mr. Top Gun, in the past and was pulled out of retirement thanks to the new category.

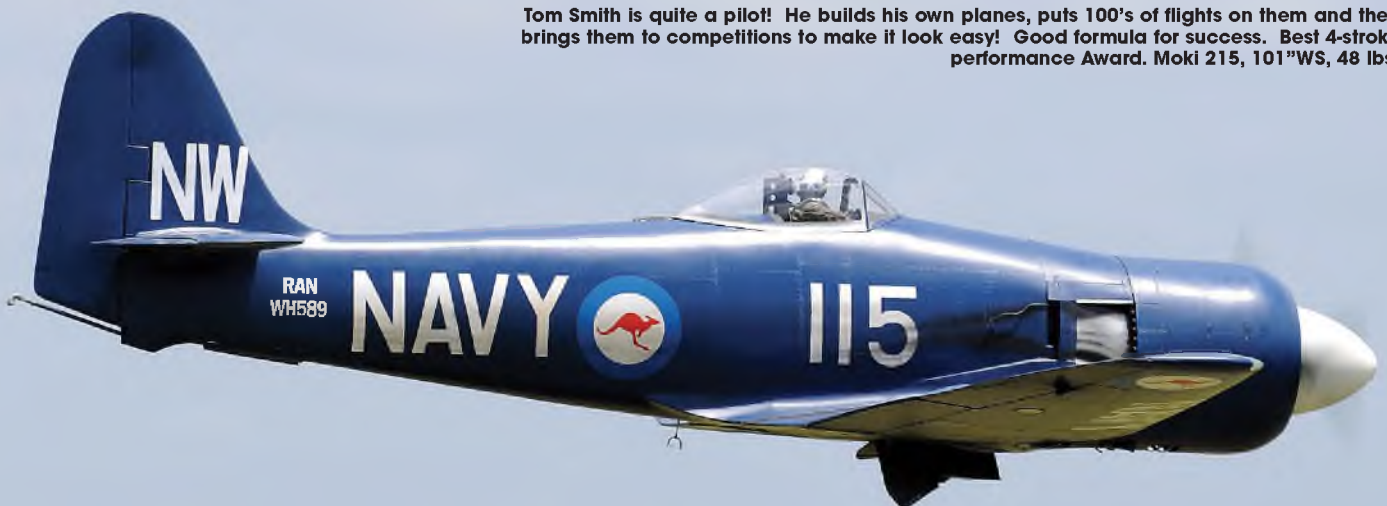
As has always been the case, the event drew an International field, calling in from all corners of the globe. Never a disappointment, our furthest

traveled competitor was Mike Selby all the way from Thailand with his immaculate Grumman A-6 Intruder. Mike is a true enthusiast and is always pushing the envelope with his projects. Every single piece on most of his models is a hand fabricated one-off. It's models like these that make Top Gun worth attending; this one was purpose built for the event and Mike nailed it. His scratch

built entry was entered in the Team Scale class with Ray Johns as the pilot. They were able to cinch up 2nd place overall and tied for highest static score of the event, 98.46 points.

With flying scores bouncing off of the 100-point ceiling, the Pro-Am classes have proven again that these are the toughest Classes in which to place. These two Classes, Pro-am Pro and

Tom Smith is quite a pilot! He builds his own planes, puts 100's of flights on them and then brings them to competitions to make it look easy! Good formula for success. Best 4-stroke performance Award. Moki 215, 101"WS, 48 lbs.





This little Fokker Dr.1 Triplane was a real sleeper, diminutive in size, the builder really took his time in making it look like a shrunk down full scale airplane. Rudy Vinalet, builder. Chip Koenig, pilot. 76" WS, OS 1.60 twin, 21 lbs.



PJ Ash's unique Martin Baker MB-5 was a good example of the types of things you see at events like Top Gun. PJ did a total make over to this plane and the results were impressive! ZDZ80, 87", 40 lbs.



Greg Foushi flies his Skymaster Fairchild-Republic A-10 like it should be flown - low and slow! Jetcat P80 x 2, 110"WS, 55 lbs.

Pro-am Sportsman are strictly a flying competition provided you have simple documentation (a photo or drawing will do) to show the scheme on your plane is representative of a full-scale aircraft. If you didn't have a few '97s or '98s on the board at the end of the day, it was just that, the END of your day! I must say, after watching some of these flights the guys were putting in, they deserved

the points!

As with any event that spans a few decades, Top Gun has become quite a social event. Many competitors, due to geographic challenges, only get to hang out with this group once a year. Walking through the tents is like being at a fraternity party at times, cocktails and 'fish that got away' tales are shared and of course there are the

airplane stories! Scale building techniques are discovered and sometimes practiced on site, depending on how that last flight ended up! Another thing worth noting is the camaraderie and sportsmanship. Top Gun is not one of those stuffy 'I am here to win and not have fun' type of competition. In fact, some are there for just the opposite, fun first, competition if time allows! If you



We need more guys like this! Roy Vaillancourt entered his own designed FW190 in the Master's Class. A class built for the full house modeller who designs, builds and flies their own airplane. Zenoh GT-80, 41 lbs, 91"WS.



The Mirandes name was entered in three classes when you count both father and son. Here, father Frankie shows how it is done with his Miester FW190. Moki 150, 100" WS, 38 lbs.



Win for Wigley! David Wigley, proudly holds his Westland Wyvern up for us to see. This is David's 3rd Mr. Top Gun award with this plane and he has deserved every one. From the winning design, to masterful flying, this Masters Class entry has it all. 100" Wingspan, 51 lbs, BME-102 twin.



Pedro Sanchez is new on the scene at Top Gun, but certainly not new to the hobby. A warbird nut, Pedro seems to have something new up his sleeve every time I see him. He cruised into second place in Pro Am Sportsman with his Meister P-47 Thunderbolt.



I sensed, when I saw Dustin fly his Skymaster Grumman F9F Cougar at Florida Jets that he would be unstoppable and I was right. With an AVERAGE flight score of over 97 points!, Dustin Buscher took home First place in Pro Am Pro. Jetcat P180RX, 85"WS, 41#s.

have a problem, fellow competitors will go out of their way to make sure you are ready for the next round. Parts and time are donated and having some of the most skilled craftsmen in the world on site helps also. I have seen some amazing rebuilds happen under the tents at Top Gun, from wing

reconstructions to complete engine teardowns and rebuilds.

Saturday night has always been reserved for what has been affectionately dubbed the 'Franquet'. This is a dinner held at the Eaglebrooke Country Club and is MC'd by the event organizer Frank Tiano, together with the

event announcer Sam Wright. It is a must-see if you have not been; these guys really know how to have a good time and get a few things accomplished at the same time.

After the dinner has been served, the special recognition awards are handed out, followed by an auction with Frank



John Boyko had a lot of heart in his Cessna Skymaster 337 and fought a few obstacles to get it to the flight line. A few gremlins are still being sorted on this completely scratch built, own designed Master Class entry. Not surprising considering the complexity of the subject, I am sure John is busily sorting the gremlins out now for Top Gun 2013! 2 x Moki 1.50's, 120"WS, 40#s.



Frank Tiano chose to fly this Boeing Stearman, he bought from Kevin Kneibel, in Team scale this year. Perfectly legal, given that the builder and the pilot were both present at the event. 102"WS, 28"WS, Evolution 50GX, Flair kit.



Not too many half scale models on the competition circuit and I am willing to bet this is the smallest of them! 96" WS, 24#s, AXI 4120-18 x 2.

Visting us from Great Planes Manufacturing, David Johnson tells us this is the last year for his Albatros D.V entered in the Masters class, next year Project X! 118"WS, 33#s, Fuji 64.



as the auctioneer. There are some great deals handed out with merchandise generously donated by the Sponsors, who go a long way in supporting the event (Thanks Sponsors!). Without this type of support, sadly, these types of events would vanish so please support them if at all possible. This request pertains to all events you attend, worldwide!

Another year in the bag, and a great one at that. Next year (2013) will be the Silver Anniversary (25th year)! Frank has a few treats up his sleeve for us, including a special class for a few veterans who were with him from the beginning. We are going to see some old names rejuvenated like David Platt, Nick Zirol, etc., so come out and see these legends if you can make it, see you then! ■

Speaking of BVM MiG 15s!, Ali Machinchy and Pablo Fernandez wowed the crowd with an awesome formation flight. Great power management skills from both of them as the quietness adds a dynamic to 'tuning' your maneuvers to one another! EVF-3 power.



Kyle Goodwine flew this Grumman F4F Wildcat for the Unlimited Team Goodwine. Built from Bates plans and powered by a Moki 150, this plane weighted in at 42#'s, 92"WS.



Eddie Newman is getting his Macchi C.200 dialed in and with Mike Barbee as the pilot, took home 3rd place in Team this year! 105" WS, 44#'s, Fuji 86 twin.



The rockets on Gary Mills Chance Vought AU-1 Corsair just look cool! 100"WS, 53#'s, Moki 150.



Curtis with his Curtis B2. Curtis Switzer flies this plane like a pattern plane! A great big, twin engine, WWI bomber biplane pattern plane! 168" WS, Saito 1.80 x 2.



Jeff Foley flew his Master Class entry to 3rd place. A scratch built, Messerschmitt Bf109E, Jeff made a few extra tweaks to a, highest in class, 98.492! 86"WS, 26#'s, DA-50.



Patrick Ash is coming on strong as a newcomer! 4th place in Pro-Am is not too shabby for a new model like his Miester FW190. DA-100, 102"WS. 46#'s.



Our buddy from New Zealand, Gwyn Avenell, brought his master-piece back to Top Gun. One of the best built examples of the Douglas SBD Dauntless I have ever seen! Incredible craftsmanship. 85" WS, 26#'s. O.S.300 twin.



Make-up your own exhaust pipe

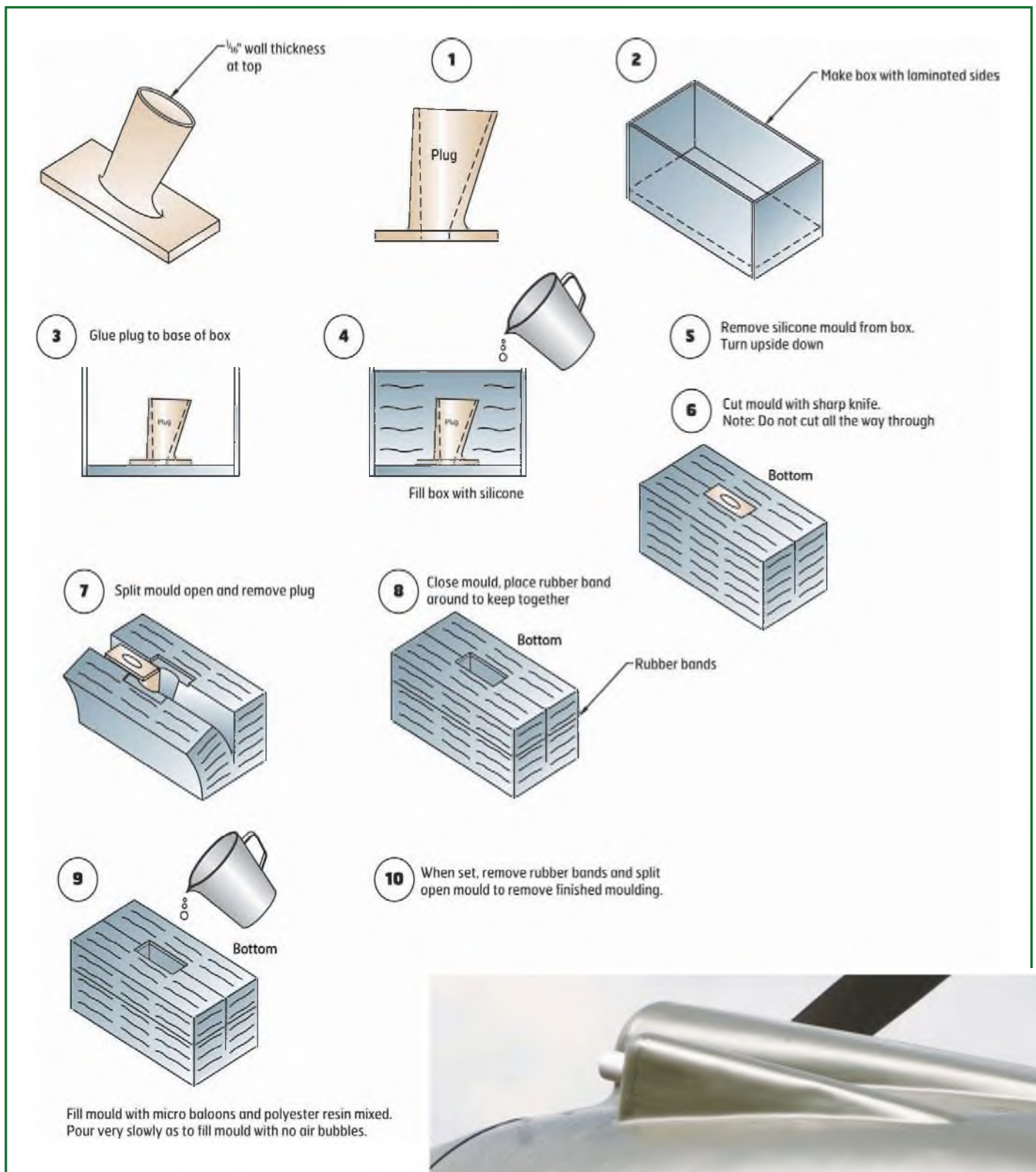
David Toyer gets into rubber wear to mould exhaust stacks for his Fairey Firefly



Early Rolls Royce Merlin engines weren't too bad, they only had three exhaust stacks on each side, but later marks sport six-a-side. Having gone through the traumas of carving a dozen exhaust pipes on a Spitfire some years ago, I didn't fancy going through this long-winded exercise again. Then I hit upon the idea of making a plug of a single stack, making a silicone rubber mould from the plug and then moulding the exhausts from polyester resin.

The sequence of carving, moulding and casting is shown in the sketches

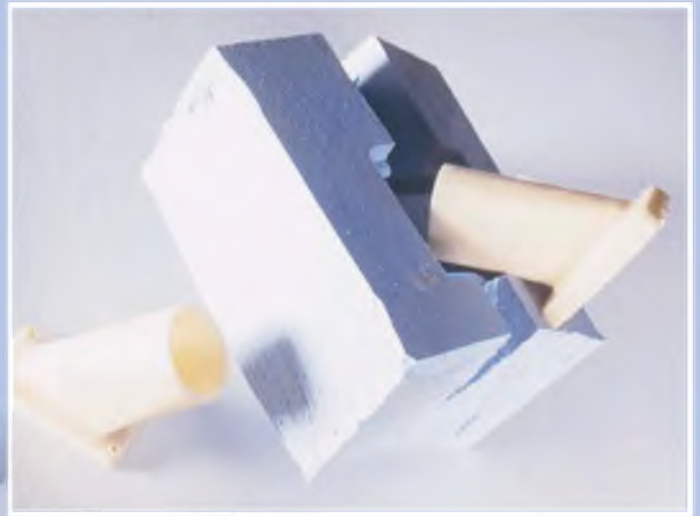
and photos. It starts by carving (hard balsawood, or a fruit wood e.g. apple) the plug's external shape. Hollow-out the middle, leaving a top run of about 1/16" and getting to a greater wall thickness at the base. Make sure that the internal wall finish is really smooth, the external surface can be rougher, to represent the cast metal finish of the full-size stacks. You can also add the weld seam for further scale detail, see photos of the full-size Spitfire, note that the exhaust shapes differ from model to model. Glue on a 1/16" plywood base plate and you are ready for making the



mould.

Liquid silicone, for moulding, is expensive, so keep the size of the mould box to reasonable dimensions. The bane of moulding is getting air trapped during the curing process. Both with pouring the silicone and when moulding with the polyester/microballoons mix, take it slowly and constantly tap the mould base onto the workbench to help remove air bubbles. The reason for using silicone is that it is flexible and the mould can be 'peeled' away from the moulding. To that extent you could save money by initially making a silicone mould only slightly larger than the plug and then casting another, split, mould around it from Plaster of







Paris. The outer mould is to stabilise the silicone implant (if you'll excuse the expression) and hold it in shape during the moulding process. To remove the moulding you split the plaster outer, remove the silicone, complete with polyester casting and then take out the casting from the silicone.

There are numerous items that can be moulded in this way, you may have to experiment a little with getting the

polyester resin and microballoons mix correct, you are looking for lightweight, commensurate with strength, but maintaining a good pouring consistency.

For the more adventurous, it may be possible to connect the dummy exhaust stacks to the silencer outlet. Do, however, check that there is not an excessive back pressure and that the mouldings will cope with the temperatures of the exhaust gasses. ■

WHERE TO GET THE MATERIAL?

Trylon Ltd., Unit J, Higham Business Park, Bury Close, Higham Ferrers, Northants, NN10 8HQ
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SS10228 - B-24 Liberator in Action (Soft cover) SS50228 - B-24 Liberator in Action (Hard cover)

The B-24 Liberator, produced by four different firms, in five different plants, was built in greater quantities than any other WWII bomber. Operated by the U.S. Army Air Force, and U.S. Navy on all fronts during the Second World War, and supplied to the British Commonwealth nations, the 18,482 Liberators took the war to the Axis doorstep. Lavishly illustrated with almost 250 authentic wartime photos, including over 80 in vintage color, with supplemental drawings and color profiles, this 88-page totally new edition of this classic In Action title brings to life no less than 20 variants these famed aircraft, as well as their crews. Experimental versions, classic bombers, freighters, tankers, reconnaissance birds - even the rare gunship version - are shown.



SS25071 - B-25 Mitchell Walk Around (Soft cover) SS65071 - B-25 Mitchell Walk Around (Hard cover)

Soaring into the pages of history with Jimmy Doolittle's famed Tokyo Raiders, the North American B-25 Mitchell was the most-produced American medium bomber of World War II. Profusely illustrated with 200 stunning color photographs, this 80-page volume examines the nuances of the external features and explores the inner workings of the B-25D model, the scarce hard-hitting, cannon-armed B-25H, and also the most abundantly-produced Mitchell, the B-25J. Enhancing the color photographs, taken both on the ground and in the air, four vintage black-and-white images and 14 line drawings further illustrate details, while five color renderings of aircraft and markings provide a glimpse at the nature of the crews. Illustrated with over 200 photographs. 80 pages.



SS25070 - Heinkel He 111 Walk Around (Soft cover) SS65070 - Heinkel He 111 Walk Around (Hard cover)

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SS36003 - OH-6 AEROSCOOT COMBAT CHRONICLES (Soft cover) SS76003 - OH-6 AEROSCOOT COMBAT CHRONICLES (Hard cover)

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THE QUIET ZONE

R/C SCALE ELECTRICS BY PETER RAKE

ONE OF THE TWO P-51 MODELS IN THE RANGE, THE FAMOUS 'OLD CROW'.



Okay, here we go again; another thrilling instalment of your favourite electric flight column. What do you mean, it isn't your favourite? Well tough luck, it's the one you're getting. Personally, I think we have something lined up for you this time around that will prove quite interesting. It certainly interested me at any rate.

As you may have noticed over the months (years), WW2 war birds aren't really what do it for me. However, when I saw these particular examples, my interest was piqued. They may only be profile scale models, but they are about the nicest profile scale models I've seen. Because of the way they are finished, they simply don't look like profile models at all. You actually have to view them end on to notice what they really are because the graphics that come with each kit form a 3D image, giving the impression of depth that isn't really there. Add to that the fact that they are actually produced in the UK and, given my predilection for micro models, I just had to find out more.

As I said, this isn't my personal area of interest, so I wasn't about to shell out my hard earned cash to try one. Also, of course, if I had, then I would have to write all this myself. As you know by now, if I can get someone else to write it for me I feel I've done a good job. With this in mind, I started asking around for anyone with first hand experience of these models. As luck would have it Kevin Waite, of *Totem Models* in Plymouth, willingly agreed to give me the low-down on what may prove to be a very exciting new product.

Since I occasionally like to feature the products of an individual designer or company, this seemed like an ideal opportunity to do just that. I don't do the, "Give me some samples and I'll rave about them" thing. I leave that to others and concentrate on passing on genuine information. Mind you, when they start listing WW1 types, they may find me hammering on their door. After all, there have to be some perks to this column writing lark. I just have yet to discover what they are. No, e-mails from the editor reminding me that copy date is due don't count as perks.

Anyway, I've rambled on enough for now, let's have a look at what Kevin had to say about these nice looking new models.



Typical of what comes in the box; sheets of cut Depron, the all important stickers and a myriad of bits in plastic bags.



Kevin's finished model posed next to a very up-market transmitter. Even my humble DX5i would be sufficient for these models.



When you see the model up close you see how the stickers add 'depth'. I was almost convinced there were actually oleo legs there.



Here you see how the stickers and various other parts work together to virtually hide the unsightly linkages and servo lead. It also reveals some of that instruction manual.

Over to Kevin

Discovering something new and different in this hobby market always brings out the boy in me. That gut-churning excitement I used to feel at Christmas, knowing there was a toy I'd been longing for, or a new kit to build wrapped up under that tree. *Microaces Ltd*, a company based in the UK who have recently brought out several attractive looking 1/24th scale aircraft, has done exactly that and I found myself genuinely excited at the prospect of the arrival of the Fw190 kit I'd chosen.

On the face of it the aircraft *Microaces* have released are nothing more than micro scale profile kits that require a Spektrum(r) AR6400 micro receiver/servo combo (or its bigger brother - the AR6400L) to take up the control duties. This is the electronic wizardry that almost every Parkzone RTF ultra micro has glued inside its foamy airframe and I can imagine there will be a fair few worn out craft just waiting to donate.

But there is something about these kits that is very different. Whilst waiting for the kit to arrive, I frequented the *Microaces* website to look and read about everything from the building requirements and kit specification to the history of the aircraft and pilot of the kit was based around. There are currently four kits available, two Fw190s and two P-51D Mustangs including Bud Anderson's famous 'Old Crow'.

I digress; for me the difference with these *Microaces* kits is definitely in the detail. From the photos and videos I'd seen, these aircraft displayed detail unlike any other small scale aircraft. They look less like kid's toys and more like a serious piece of scale design. In addition, I like the challenge of a kit. No skill is required in charging up a readymade, out-of-the-box foam wonder. I wanted to be tested, just a little, so the reward of flying would be greater.

The build

When I opened up the box I was not disappointed. For a kit,

this isn't the cheapest out there but it is quite obvious that you are getting what you pay for.

My *Microaces* Fw190 A8 'Black 8' kit comprised several sheets of pre-cut Depron, an array of good quality injection moulded plastic components, a handful of preformed wire parts, a GWS 5030 prop and adaptor, scale foam spinner, a quality-looking brushless motor, pre-wired ESC, a miniature servo for the ailerons and five sheets of self adhesive graphics that are so artfully detailed that they pop out of the page. The images I've seen of the finished kits on the web don't do them justice in my opinion.

The pilot, one Willi Maximowitz, even has his Luftwaffe rank illustrated on his epaulettes!

There's a small poster of the aircraft's side profile included in the box too. The other essential ingredient is the 24 page illustrated assembly manual that takes you through every step of the build. It reminds me of the kind of instruction booklet that comes with the quality plastic model kits. I'd also ordered several of the recommended 300mAh single cell batteries with the kit and was happy to see they had the standard UM connector, so my existing single cell E-Flite charger would do the job.

Studying the instruction plus a quick review of the construction guides on the *Microaces* Youtube Channel; *MicroacesTV* helped to bolster my confidence to start the build. It definitely requires some new skills and I reckon a newbie to kit building will have as good a chance of completing this as a seasoned veteran, as long as the instructions are followed.

You start with the rudder, horizontal stabilizer and elevator and in these first few steps you pretty much experience everything this kit has to throw at you, but on parts that are small enough to manage. Whether it's a happy accident or intentional, it's definitely a great way to kick things off for the



Thanks to a Monogram model built many years ago, if I were into WW2 types this is the one I would go for. I think it's gorgeous.

inexperienced Microaces modeller.

Basically the build involves applying the graphic-laden self adhesive stickers to the Depron parts as they assemble into the aircraft. It's a relatively straightforward process that's peppered with new ideas, materials and innovative thinking.

It's not all plain sailing though and there are areas that require more attention than others. It took me over half an hour to apply the four wing fillet stickers as I couldn't get the position of them quite right and ended up taking them on and off several times before I was happy.

The other points I really scratched my head over were the fitting of my receiver into the clip and hooking up the rudder and elevator rods. The

manual is not too detailed on this and I was also becoming impatient as I got near to the end of the build and keen to get the maiden flight underway. I ended up contacting Microaces directly and they supplied me with some images of an installed receiver that made things a lot clearer. There is a definite knack to installing and extracting the AR6400, but with a bit of practice it's something I can now do without too much difficulty.

Trimming and flying

All-up flying weight for the Fw190 is 67g (2.4 oz), with the motor supposedly generating 90g of thrust using the propeller supplied. Combine that with a 406mm (16") span of flat profile wing and it should have some interesting

flying characteristics!

After binding my transmitter and trimming all the control surfaces to neutral, I tested out the side thrust angle by taxiing the aircraft. With a few more turns of the screw, it was tracking straight. As per the instructions I had already dialled in a degree or two of down thrust required for this relatively short nosed aircraft.

For the first flight I took the undercarriage and external fuel tank off and hand launched it under arm. It took to the air under full power with a little torque roll, but I was able to get my hands to controls before anything untoward happened. With a bit of aileron and elevator trim, the 'Butcher Bird' was tracking straight and boy did this aircraft come to life. That motor definitely delivers what it says. I flew a few circuits to work out the flight envelope and was immediately struck by the control surface sensitivity and low stall speed. Those ailerons really work well. I've since added 60% expo to them to improve the scale flight characteristic of the model.

The aircraft looks incredible in the air. I know some believe that detail is lost at over 20ft away, but that plays into this aircraft's hands because, for the most part, you forget its profile scale completely. Slow and low is definitely a favoured way of admiring those graphics, but take it skywards and scale-like barrel and aileron rolls, big loops, stall turns and a whole host of other combat aerobatics are well within its capabilities. Pop the undercarriage and tank back on, a click up on the elevator trim and even take offs can be scale-like too. I was able to keep it tracking straight on the deck with a little rudder input for a nice long take off at about 80% throttle.

Landing is a little trickier and takes practice. You definitely need to come in under power and flare right at the last second to reduce the bounce from those long legs.



The receiver hides under a hinged cover. Those are some serious looking pushrod ends. I hope they are supplied ready bent.

Durability

The aircraft feels beautifully solid even though it's only a few ounces. It's a combination of the stiffness of the carbon fibre used in the wings and fuselage, combined with the fact that the whole model is essentially wrapped in sticky tape, nicely printed lightweight sticky tape, but sticky tape nonetheless.

The motor is also attached to a very solid mounting bracket that becomes integrated into the fuselage during the build and the prop adapter and foam spinner are also made from shock absorbing materials.

During my time flying this aircraft I have nosed in from 20 feet, hit the ground hard while pulling out of a loop too late and had a number of cartwheels and nose-overs on landing attempts. All have resulted in NO damage to the aircraft whatsoever.

In conclusion

To my mind, Microaces have produced a compelling and novel kit building experience that is a refreshing antidote to the RTF virus. It translates into a flying scale model with great presence for such a small aircraft and equally scale-like handling characteristics. It will

be very interesting to see how the range of aircraft kits from this manufacturer will develop. (Albatros D.V, Fokker D.VII and Sopwith Pup please. PR)

Pricing

The kits come as Deluxe or Standard. The Deluxe includes the brushless motor and plug-and-play ESC and is £63.95 plus £3.95 postage for delivery within the UK. The Standard kit is £42.95 plus P&P and is worth considering since, if you buy a second kit you can swap the electronics from your first build and save a few pounds.

There are also spares and accessories available from Microaces such as batteries and foam safe glue that can be included in the one order. It states on the Microaces web site that up to four kits can be sent for the one delivery charge which seems a pretty reasonable deal to me.

For more information visit www.microaces.com
Kevin Waite, Totem Models.

Moving on

I hope you'll agree that these models

sound a really interesting addition to a market currently dominated by ARTF models from an American distributor. I wonder how they would perform with that company's AS3X equipped receivers. Maybe even a duffer like me could fly one then. No, you know I'm an old tightwad who considers any model costing more than £25 as extortionately expensive. I'll probably stick to designing my own models so that they cost what I want them to.

As I'm sure you're used to by now, I've run out of space before I'd finished. Oh well, such is life. Rather than trying to cram in something that deserves more space than I have available I'll leave it at that for this month.

Since this should be landing on your doorstep around mid December, I'll take this opportunity to wish all my loyal readers, you three know who you are, a Merry Christmas. May the big chap in red bring you all the modelling goodies you wished for. I'm expecting socks again.

If you need to contact me, you'll find me at PETERRAKE@aol.com ■



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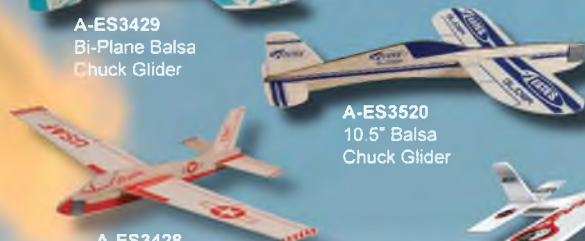


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