

ARROW ACTIVE SUBJECTS FOR SCALE

STUNNING 1930's AEROBATIC BIPLANE

NEW LOOK

**INCLUDING: Modelling the Arrow ■ In Detail
■ Flying Colours ■ Scale Drawings**

Flying Scale



July 2012, No. 152, £4.20

THE WORLD'S ONLY SCALE MODEL MAGAZINE

Models

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**RAFMAA
WARBIRDS**



**INDOOR
SCALE NATS**

Albatros D.Va

**1/6th scale, 59" span
for electric power**

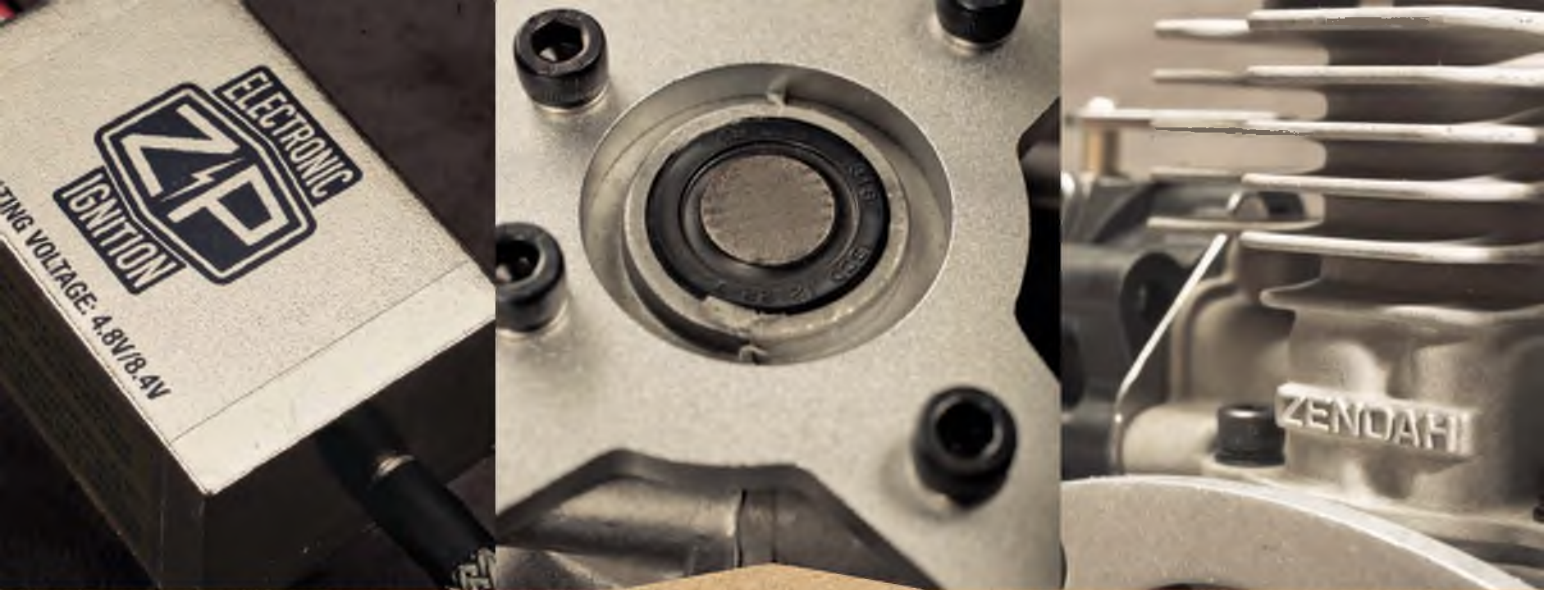
With...

- SCALE DRAWINGS
- COLOUR SCHEMES

■ **SCALE SOARING**
Scale soarers seen in action

■ **THE BOXKITE PROJECT PART 2:**
Modelling a dawn-of-aviation aeroplane





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THE ISSUE AHEAD...

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



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ON THE COVER

Those with a preference of WW1 warbirds are inevitably drawn to the unusual elegance of the Albatros D.5a with its graceful wing shape and elliptical fuselage profile. Peter Rake's 1/6th scale, electric design is this month's full size free plan feature.

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NEWS AND NEW PRODUCTS...

CONTACT

Among the fighter aircraft of the WW1 era, the Albatros D.V and its slightly later D.Va variant must surely be judged as the most elegant in shape. In addition to the gracefully contoured wings and whale-tail shaped tailplane, the type also featured a refined fuselage outline and with elliptical cross section, made possible by the Albatros Werk's fuselage construction technique in which the plywood skin was formed by steaming the plywood sheets and pressing these into shape in heavy concrete moulds. The skins were then glued and tacked over a former-and-stringer structure.

Not surprisingly, this late Albatros WW1 fighter has been a particular draw for scale modellers attracted to the shapely lines of this aircraft. Publication of Peter Rake's 1/6th scale 59" span electric powered design has been on hold here at FSM for some time. That had nothing to do with the viability of Peter's design, there were other reasons to put this one hold ... until now when it features in this issue as our major construction plan offering.

Unfortunately size of the model and the resultant size of the three plan sheets involved dictates that it has not been possible to present the model as a full size free plan feature, but available via FSM Plans Service. Fuselage construction is covered this month, with wings and tailplane will be addressed in next month.

Over the two issues, we'll be backing the construction article with Type History, scale three-view drawings and plenty of colour scheme options, plus the offer of a set of laser-cut parts for those who want to avoid the tedium of knifing and sawing out the parts for themselves.

CLASS ACT... IVE!

Our Subjects for Scale challenge this month presents one of the most attractive little aerobatic and racing biplanes ever designed. Only two were ever built back in 1931-33 and only one now exists, lovingly restored back to flying condition by The Real Aeroplane Company and regularly flown at major air shows in UK.

Together with the story of the creation of this highly attractive machine, we have scale three-views and a five-page close-up photo detail study. Who will rise to the challenge?

Editor
Tony Dowdeswell

tony.dowdeswell@adhpublishing.com

PRESS RELEASE

NEW OWNER FOR FSM

Flying Scale Models and sister title *Aviation Modeller International* have changed ownership to ADH Publishing, the Publishers of *RC Model Flyer*

With this issue *Flying Scale Models* has a new owner, ADH Publishing add the title along with AMI and *Aeromodeller* to their flying titles RC Model Flyer and RC Rotorworld forming the largest group of aviation titles in the hobby magazine arena. *Flying Scale Models* continues with Editor and founder Tony Dowdeswell in charge.

A new website dedicated to all the titles is under construction that will feature a daily updated, newfeed and forums. *Aeromodeller* will also be re-launched as an individual title in late 2012 giving aero modellers their own title. An all new title, *RC Electric Flyer* will also launch in June aimed at the growing electric flying market.

With the pooling of five titles and Editorial teams *Flying Scale Models* will benefit from new contributors and information sources over the coming issues leading to improvements and even more information packed features and articles.

For more details visit the *Flying Scale Models* website at www.flyingscalemodels.com

BIG ARTF TIGER MOTH

Every scale modeller should model the **De Havilland DH 82 Tiger Moth** at least once in a modelling lifetime. It is certainly an aircraft that we modellers never, collectively, seem to tire of. Examples scratch-built or kit form, have been modelled in all sizes from Indoor to as much as half-scale.

So before you yawn, let's say straight away that this new example in ARTF kit format from Hangar 9 is a particularly good example. It spans 88" (2.2m), which makes the scale 1:3.25 and suits 26cc two stroke petrol engines or Power 52 electric motors or equivalent.

Among the features we liked were the cockpit instrument panel and the wing transport racks included with the kit, which enable the left and right biplane wing bays to be held together in fully rigged state so that there is no need to worry about tedious rigging assembly at the flying field.

Price is **£699.99** from Horidon Hobby UK.



MINI GRUMMAN HELLCAT

The Grumman F65 Hellcat is one of those classic WW2 warbirds that have such a pull for scale modellers.

The **FMS Mimi Hellcat** from CML Distribution is an all-foam moulded ARTF that spans just 29.5" (750mm) and so can be kept in the car fully assembled for a bit of casual flying fun whenever the opportunity knocks, and

is available either with, or without transmitter and receiver installed, but in either case with four servos, 20 Amp speed controller out-runner Bell type motor, 7.4v 1000mAh lipo power pack and three blade propeller.

It's fully finished in US Navy colours and is available from all CML stockists. Fully ready to fly, with receiver and transmitter, it costs **£119.99**, and without the Rx/Tx combo, the price goes down to **£95.00**

SOMETHING REALLY 'DIFFERENT'

It's heartening to hear of the creativity of some scale modellers who are prepared to go so way beyond the standard fare of modelling subject choice of typical Spitfires, Mustangs and SE5a.

The *Subjects for Scale* feature in our May 2012 issue promoted the De Havilland DH71 Tiger Moth monoplane, but one of the photos we ran with that article was a tongue-in-cheek add-on from David Jackson of the *AJ Jackson Photo Archive* who dropped in a photo of the DH 77 experimental fighter aircraft.

Frankly, it's a type we had never come across before, but the shape so obviously indicated a line of design development associated with the DH 71 that we could not resist showing it. That rang a bell with FSM reader Gordon Solomon, who clearly likes his scale modelling subjects to be a bit obscure and writes: -

I noticed the photo of the DH77 in the article about the DH71 in the May edition of the mag. This has prompted me to write in with details of my model of the same aircraft. The DH 77 Interceptor was a 1927 aircraft, which attempted to increase speed using aerodynamic design rather than increasing horsepower, hence reducing fuel weight. It eventually lost out to the Hawker Hornet (later re-named Fury), and after that was used as a test bed to develop its engine.

This was the Napier Halford H-Type in-line engine having four banks each of four air-cooled cylinders. This gave a small frontal area as well as an excellent forward view for the pilot. Top speed was over 200 mph, - virtually the same performance as the Fury on only 60% of the power.

This could be the first time the aircraft

has been modelled, - I certainly have not seen one before. I've built it to just less than one sixth scale, giving a span of 60 inches, and power is an RCV 58 CD, which is a perfect match. I've also copied the full size by using an all-moving tailplane, which has proved to be very successful. Covering is Silver Solartex, and with an all-up weight of 6lbs 4 ozs the wing loading comes out at 23 oz/sq ft.

I'm happy to report that flying the model is a delight, - very responsive with no bad habits, - once the elevator trim has been set up, it is only necessary to use the throttle for a perfect landing. I'm really looking forward to flying her this season. I've included a photograph that will give you some idea of the model.

Gordon Solomon.





A NEW EAGLE HAS LANDED!

Few modern aerobatic biplanes capture the imagination more than the Christen Eagle, with its distinctive, flamboyant multi-colour 'feather' colour scheme. The Eagle (full size) is a really neat looking little aeroplane that was designed specifically for advanced aerobatics.

Hangar 9 have come up with a sensi-

ble-sized 54" (1372mm) span ARTF model that is presented with a three-way power option, either .90 size to-stroke, 1.25 four-stroke or for electric power using the E-flite Power 90 brushless motor. If the last option is chosen, the kit includes the hardware and box-mount for the motor and no additional modifications are required for the silent flight

operation.

Practical features include a large fuselage access hatch, and the kit also provides 'transport frames for the wings to easy assembly and disassembly at the flying field.

The Hangar 9 Christen Eagle II 90 is priced at **£299.99**.

WIDE VOLTAGE SERVO RANGE FROM JR

When it comes to really large models, or any where control surfaces require real muscle, there's no substitute for voltage to provide the servo power required.

A nominal 4.8v power pack for the airborne 'business end' of R/C systems has been the 'norm' for so many years that it's difficult to remember exactly how long.

But really big, or very fast models do tend to need a bit more power input. However, if the receiver employed operates at a lower (typically 4.8v) voltage, if it's matched to servos intended to use higher voltages, then some form of voltage regulator is needed to keep all the elements compatible.

The answer from JR comes in their 'Wide Voltage' range of servos, the circuitry of which is designed to safely use power supplies between 4.5 and 8.5 volts, without the need for intermediate electricery.

There are six servos in this range at prices between £134.95 and £149.95. All available from MacGregor Industries stockist.



ONBOARD GLOW DRIVE

Engine flameout has a nasty habit of occurring when a model is in a critical flying situation. For example, who among us can say they've never had engine die on them during a landing approach, which has led to model damage on 'semi-controlled arrival'?

One saviour of such situation as a device like the Expert Onboard Digital Glow Drive from Horizon Hobby UK. This little device offers one-touch setup, reverse polarity pro-

tection, glow-plug output short circuit protection and automatically turns on/off via the receiver switch.

The settings facility allows the energising of the glow plug element to be adjusted to any throttle setting throughout the throttle control range and the unit is compatible with battery packs of up to six cells. It is also adaptable to twin cylinder engines.

From Horizon Hobby UK stockist, the Expert Onboard Digital Glow Driver costs **£81.99**.

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Subjects for Scale **ARROW** **ACTIVE MK**

Designed for a perceived requirement that did not exist, the designers did at least create one of the most attractive little aircraft ever to have flown and one that cries out to be modelled



II



When times are hard, it takes considerable self-belief to abandon employment with an established aircraft producer to set up in business to create a new aircraft for which no likely customer,

either military or civilian, has implied a need. It would take a brave man indeed, particularly so at the start of the 1930s when the world had been plunged into a Depression that showed no sign of easing.

Arthur Thornton had worked at the Blackburn Aeroplane & Motor Company, and designed the all-metal Blackburn Bluebird single engine, twin-seat biplane light trainer/private touring aircraft in 1924 and also the Lincock single seat light-weight fighter aircraft in 1928. Thornton was convinced of a market for an advanced aerobatic aircraft that could

also be used as a fighter trainer and for bombing training. So he left Blackburn in

early 1930 to form *Arrow Aircraft (Leeds) Ltd.* where he set to work with associate Sidney Oddy to produce their first aircraft, a diminutive sesquiplane type, with rearward, manually folding wings and Cirrus-Hermes IIB inverted inline engine.

Named Arrow Active, the first example was finished within the year and early in 1931, after being registered as G-ABIX, the prototype was sent to the Air Ministry's 'Aeroplane Experimental Unit' at Martlesham Heath, Suffolk, where its performance and handling qualities were warmly endorsed, eventually receiving a Certificate of Airworthiness in May 1931.

However, with no immediate order book, the aircraft was pressed into service as an air racer, presumably to demonstrate its performance in public, although there was no immediate success.

The prototype Arrow Active featured slim 'Palmer' wheels typical of the period that dated back to the WW1 era. When a second example appeared in 1932, the resultant Arrow Active II included a taller main undercarriage with 'doughnut'

tyres. At that stage, both

aircraft featured a fairing over the upper wing-to-fuselage attachment struts and the two aircraft were entered in the Kings Cup Air Race that year, a 1,200-plus mile circuit around the British Isles, but neither aircraft had any success then, or the same race a year later.

The Arrow Active I (the prototype) was then acquired by noted racing and aerobatic pilot Alex Henshaw, who much enjoyed the aircraft's flying characteristics, but arranged for it to receive a more powerful engine. During that delivery flight in December 1935, Alex indulged in some practice aerobatics en-route. During an outside loop, the engine exploded and the fuel tank in front of his feet burst into flame. He wasted no time in 'going over the side', taking to the parachute that his father has given to him for his recent birthday and drifted to the ground with the burning aircraft initially circling around him!

That then, was the end for Arrow Aircraft (Leeds) Ltd. as an aircraft manufacturing entity, since the perceived market did not exist, although the Company did remain, as an aircraft components manufacturer for many years, passing through an interim ownership before, in 1957, the assets were acquired by

Slingsby





Sailplanes Ltd. That may explain why the Arrow Active II was subsequently 'discovered' in the loft at the Slingsby factory and thereafter sold to Mr. Norman Jones, the man at the head of the Rollasons Group who did much to promote private flying in UK during the 1950s and 1960s.

At Rollasons, the Arrow Active II underwent extensive restoration

back to airworthy condition, and was put back into service under the auspices of The Tiger Club, in which Norman Jones was a prime mover. Back in the air, it was entered for the 1959 UK National Air Races, but suffered a take off accident when too much throttle was applied during the initial take-off run and the machine nosed over, necessitating another rebuild.

Other 'incidents', including at least one ground loop, required further rebuild work, each time aided by the survival of a

complete set of working drawings for the type.

The final restoration and rebuild took place after the acquisition, (in 2003) by *The Real Aeroplane Company* which specialises in the rebuild and reconstruction of historic aircraft types at their Brighton airfield, near Selby in North Yorkshire. Prepared to a superb standard, the outline now exhibits some subtle changes from the original, and intermediate-period profile including a straight-line fall from the engine cowl upper surface rear, down to the nose cone as reflected in the 1/36th scale drawing presented in this issue.





With hindsight, it is easy to say that Arthur Thornton's perceived need for the aircraft that the Arrow Active represents was misplaced - but one can only appreciate the attractive shape that makes this beautifully proportioned little sesquiplane a highly eligible Subject for Scale.

Who will be the first to give it a go? ■

Specifications (Active 2)

General characteristics

Crew:	one pilot
Length:	18 ft 10 in (5.74 m)
Wingspan:	24 ft 0 in (7.32 m)
Height:	7 ft 3 in (2.21 m)
Wing area:	120 ft ² (11.2 m ²)
Empty weight:	925 lb (420 kg)
Gross weight:	1,325 lb (600 kg)
Powerplant:	1 x de Havilland Gipsy III inverted inline engine, 120 hp (80 kW)

Performance

Maximum speed:	144 mph (230 km/h)
Cruise speed:	128 mph (206 km/h)
Range:	420 miles (676 km)



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NEW Hangar 9® P-47D-40 Thunderbolt

Few subjects are as magnificent in giant-scale as the mighty P-47D Thunderbolt (aka The Jug). Its big, round-cowl nose, stout airframe and wide stance landing gear make for an imposing presence on any flight line. Now you can experience the thrill of flying a giant-scale Jug without having to spend months at a workbench to do so.

The new Hangar 9™ P-47D-40 Thunderbolt 30cc ARF comes covered with an authentic UltraCote™ trim scheme. It also includes a huge list of additional details like functional flaps, wing guns, a dummy radial engine and a painted fibreglass cowl with hidden mounting screws. Three different sets of decals give you your choice of markings. You even have the option of adding extra scale details like a full-depth cockpit, Robart retracts and a retractable tail wheel, all of which are sold separately.

Putting together a big, beautiful scale warbird really doesn't get much easier than this. Get to horizonhobby.co.uk right now for complete details and to find the Hangar 9 retailer near you.



The model's trim scheme is inspired by two P-47Ds from the Tennessee Museum of Aviation that still fly today.

SPECIFICATIONS | HAN4485

Wingspan	2.1 m (81.5 in)
Length	1.8 m (71.0 in)
Wing Area	75.1 sq dm (1165 sq in)
Weight	7.30–8.60 kg (16.0–19.0 lb)
Engine	1.60–2.10 2-stroke glow, 1.80–2.20 4-stroke glow, 26–40cc gas
Electric Motor	Power 160
Transmitter & Servos	6+ channel with 8 servos (7 servos if electric power) (1 extra servo for retracts)

HANGAR 9™

Get to horizonhobby.co.uk right now for complete details
and to find the Hangar 9 retailer near you.

Modelling the ARROW ACTIVE II

Back in the April 1958 issue, *AeroModeller* magazine featured a 36" span 1/8th scale free flight scale model of the Arrow Active II, created by Flt.Lt. E.H.Norman, which collected prizes at both the R.A.F.

Championships and All Britain Rally the previous year.

Flown with a 1cc diesel engine, the prototype model included rearward folding wings as per the full size and featured a glass fibre moulded cowl - a common enough feature these days, but quite an innovation back then.

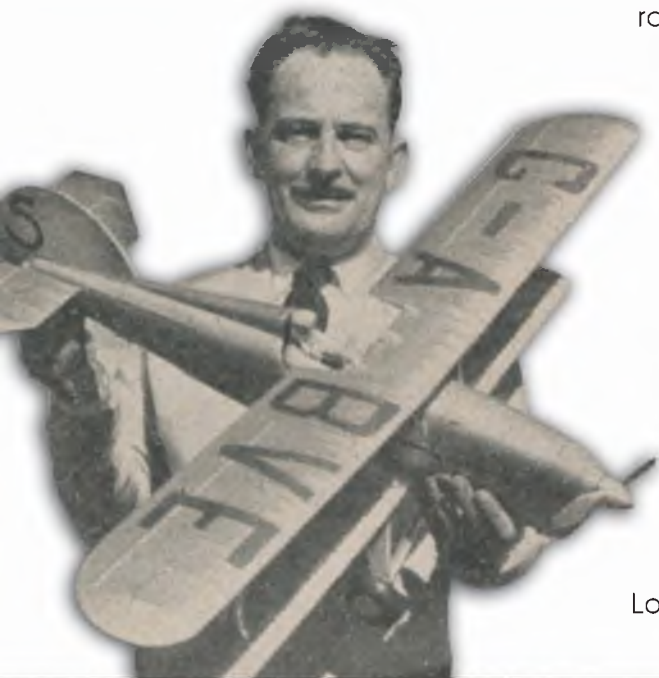
The plan presented with the article, and incorporated into the *AeroModeller Plans Service*, was

excellent, fully detailed and would, even now, make an excellent basis for a larger R/C model, right down to the airfoil section used, although it might benefit from a more semi symmetrical (closer to fully symmetrical) section. A doubling-up of the drawing would produce a very nice example!

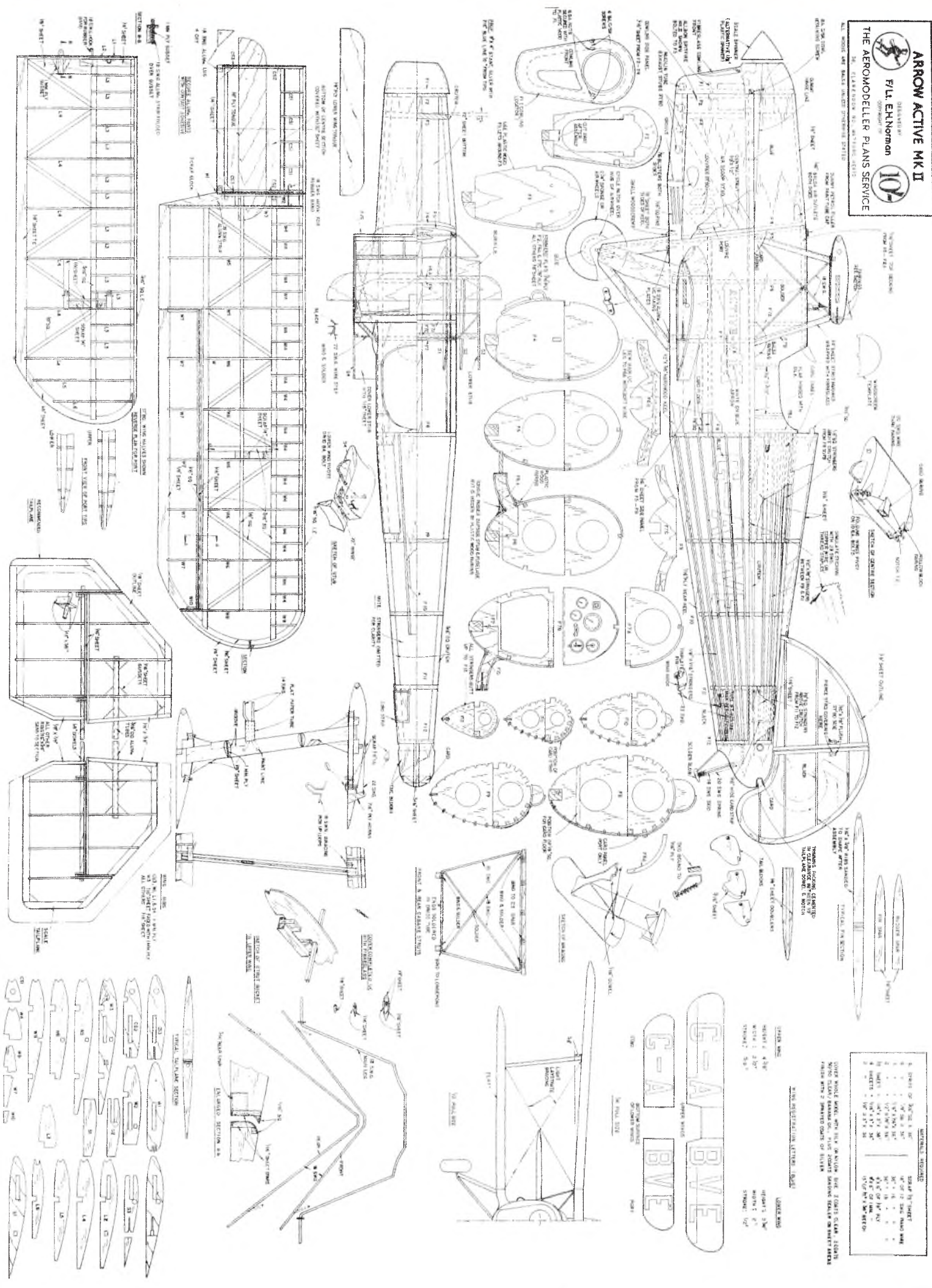
Fortunately the single sheet plan is still available in the MyHobbyStore 'X' List range. It is listed as plan FSP 691 (the original APS coding), but it would also be best to quote product code 26760.

The price is £22.50 plus £1.98 p&p. from MyHobbyStore Ltd, Hadlow House, 9 High Street, Green Street Green, Orpington, BR6 6BG.

Look it up on the web at: www.myhobbystore.co.uk/arrow ■

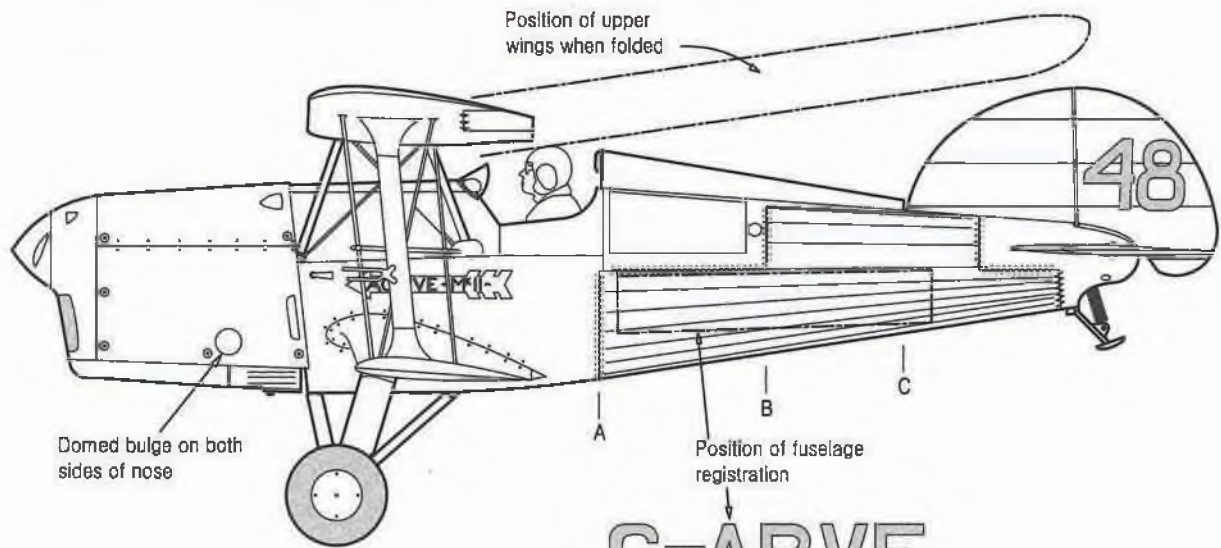


This view shows Flt Lt. Norman's model in foreground, together with the full size at the Rollasons facility at Redhill airfield soon after restoration in the late 1950s.

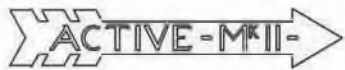


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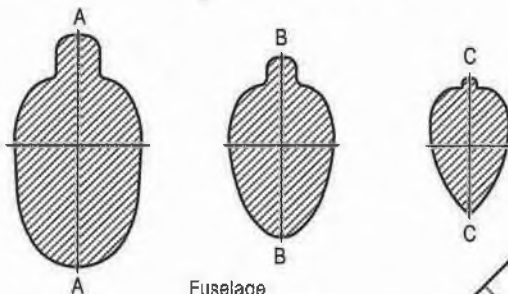
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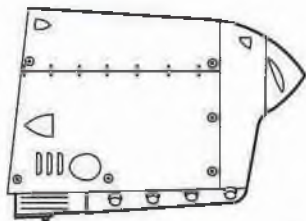
G-ABVE



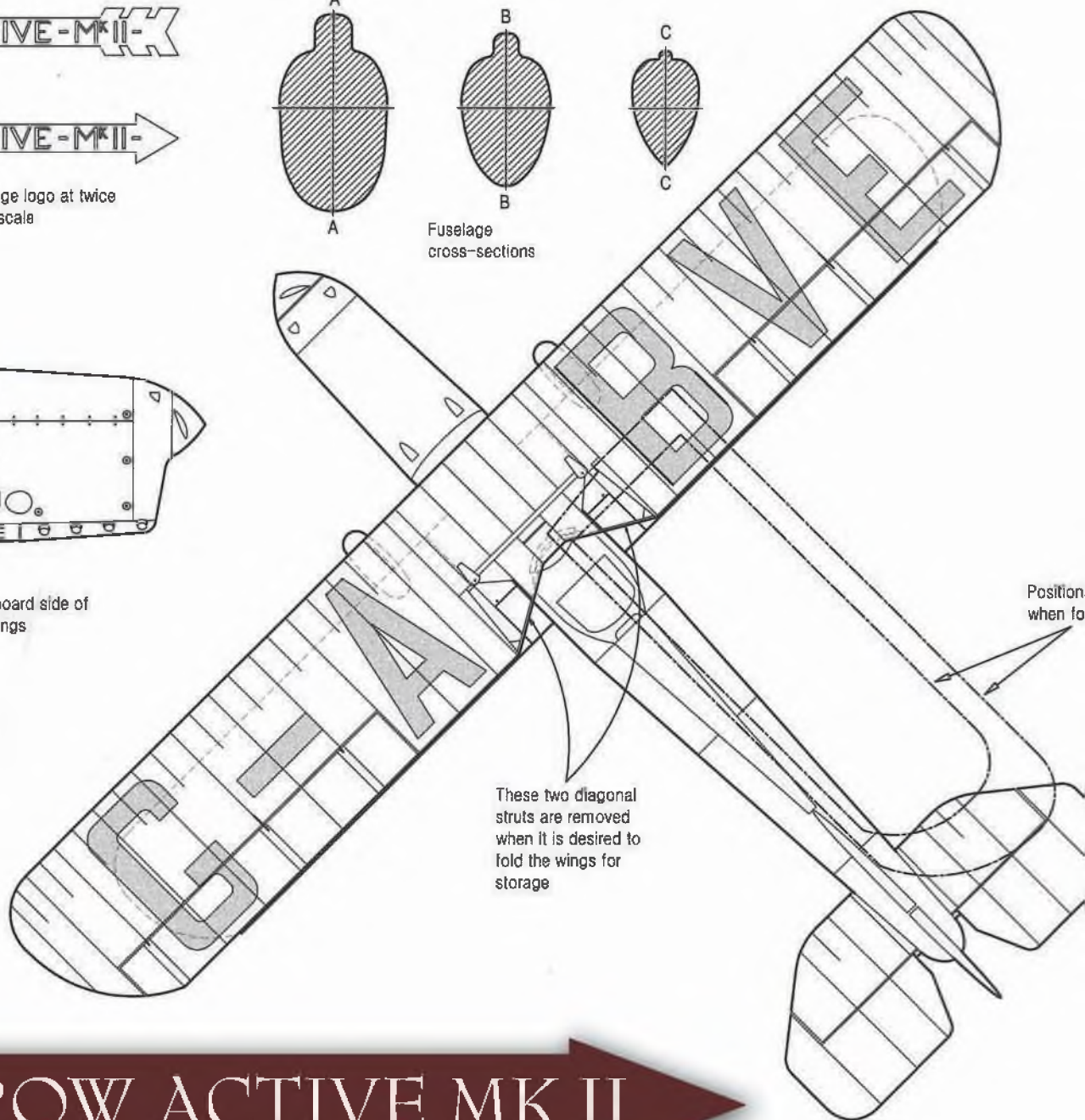
Fuselage logo at twice given scale



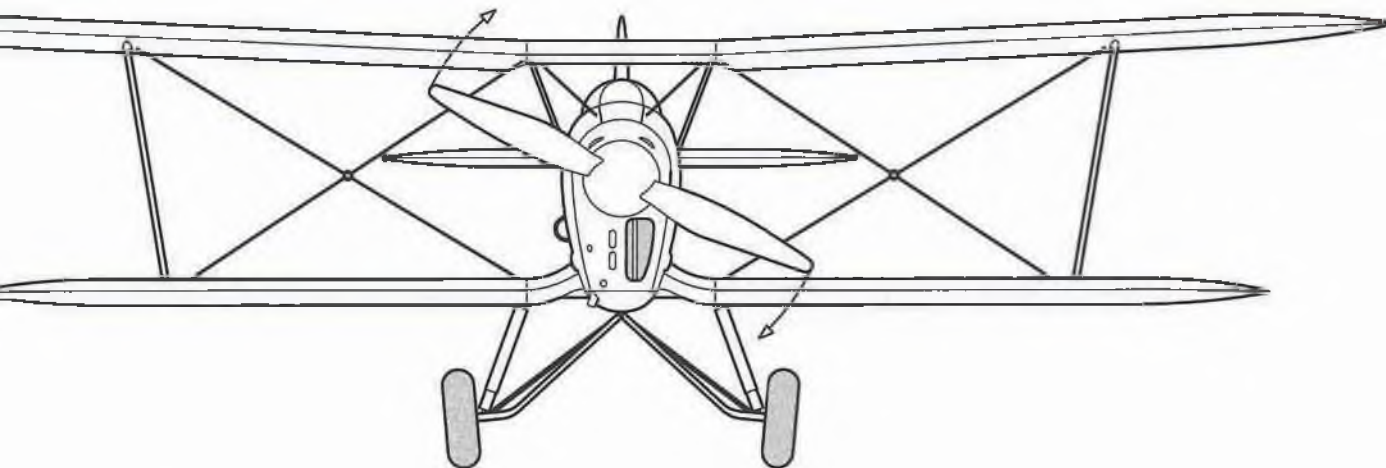
Fuselage cross-sections



Starboard side of cowlings



ARROW ACTIVE MK II

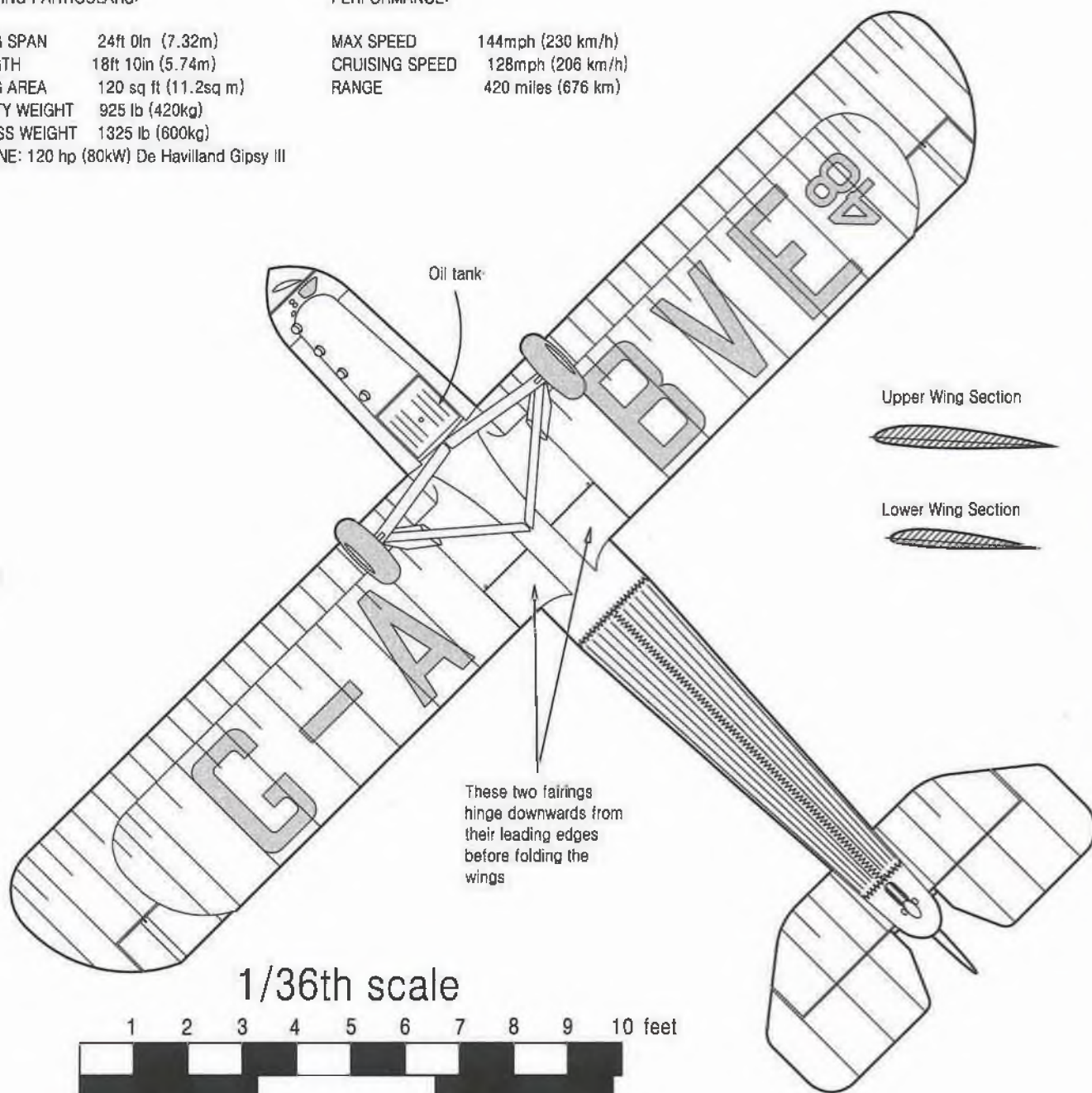


LEADING PARTICULARS:

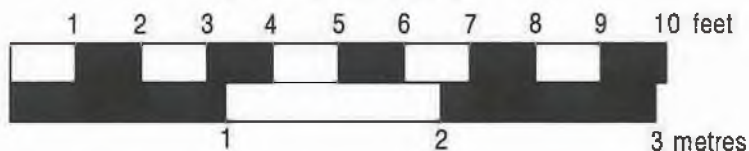
WING SPAN 24ft 0in (7.32m)
 LENGTH 18ft 10in (5.74m)
 WING AREA 120 sq ft (11.2sq m)
 EMPTY WEIGHT 925 lb (420kg)
 GROSS WEIGHT 1325 lb (600kg)
 ENGINE: 120 hp (80kW) De Havilland Gipsy III

PERFORMANCE:

MAX SPEED 144mph (230 km/h)
 CRUISING SPEED 128mph (206 km/h)
 RANGE 420 miles (676 km)



1/36th scale



s of wings
 ded



ZOOM IN ON THE DETAIL



ARROW ACTIVE - M^K II -

A study of the aircraft in its present form
the Real Aeroplane Company based at Br



after restoration to flying condition by the present owner,
Eighton Airfield, Selby, North Yorkshire

COMET II In Detail



1

1: A view down into the cockpit well, showing instrument panel, control column and compass. Note also the hinged cockpit access door down on the left.



2



3



4



5



6

2: Profile of the cockpit rim. 3: Pilot's headrest on the top of the dorsal fuselage fairing. 4: Into the rear of the cockpit well, showing seat and pilot's safety straps. 5: View into the cockpit showing the top of the instrument panel, windscreen and padded head protector. 6: Another view into the cockpit well, showing the pilot's seat. 7-10: Details of the engine cowl, showing louves, air scoops and bulges. Note four-pipe exhaust stack in the bottom of the cowl and the oil coolers, rear of the cowl bottom panel. Centre-section struts, wing fillet and undercarriage attachment also revealed.



7



10



8



9

ACTIVE - M II -



11



12

11: Tailplane, fin and rudder. Note the stitching below the fin.
12: Fuselage centre section showing the wing bracing wires and centre section wing strut anchor points. **13:** Lower wing fillet and detail of wing bracing wire anchor point. **14:** Further view of the lower wing fillet and louvres in the engine cowl. **15:** Upper wing centre section detail. **16:** Interplane wing struts and detail of the streamlined bracing wires.



13



14



15



16

17: Further view of the wing interplane strut.

18: Detail of the spacer bar that steadies the backing wires at their cross-over points.

19: Detail of the 'boot' fairing on the lower end of the interplane strut. Upper point similar. Note also the pitot head.

20: The sprung metal tailskid. Note also the stitching line of the fabric covering.

20



17



18



19



21

21: Full frontal view of the main undercarriage showing the oleo shock struts and main axle members. 22: Side view shows the shape of the struts. 23: Wheels hub and doughnut type tyres. 24: The main undercarriage, viewed from the rear.



22



23



24



25



26



27



28



29

25: Further view of the tailcone.
26: Tallplane and elevator - note the aerodynamic balance.
27: View along the upper wing showing the aileron and its control rod.
28: A full close-up of the wing fairing.
29: Upper wing centre section - top side.
30: Close-up of the aileron control horn and drive rod.
31: Lower wing bracing wing anchor point.
32: Wing strut anchor point showing the streamlined fairing.



30



31



32

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PLANS and PARTS

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



ELECTRIC CANBERRA B(1)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 engine 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 biplane radical engine 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 engine 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 80 STUDENT

PLAN PRICE £26.50 PLAN NO.015
COMPONENT PACK £120.00

The R.A.F. maritime recon/ anti-submarine patrol aircraft, modelled by renowned electric scale expert Chris Golds. 86" (2185mm) span model flies on four Speed 400 electric motors, diving pusher props. Full step-by-step written building instructions.

050/12

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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UK CHARGE £9.50

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Albatros D.Va

A 1/6 scale, electric powered model designed by Peter Rake, with the prototype model built and described by Darrin Covington

Before handing you over to Darrin for all the details of his model I have a confession to make. In an effort to save a little time, while drawing up the design, I was tempted to enlarge the fuselage drawing for my earlier Albatros D.III design, and succumbed to that temptation. Now, as most of you are aware, and I forgot to take into account, the very tail end of the D.Va is a much more conical shape than that of the D.III. Unfortunately for Darrin, who was working with a set of laser cut parts, that meant a certain amount of making good at the rear end. Therefore, what you see in the photos does differ slightly from the plan, which has been updated to show a more accurate shape. These changes have also been carried over to the cutting files, so you will have a much easier time of it than Darrin did.

Now, with that all explained, I'll pass you over to the man himself.

1: The top and bottom fuselage frames drying. The horizontal split means strut and u/c mounts can be fitted before the frames are joined.

2: The laminated area above the lower wing is shaped before the sheeting process begins.

3: With each frame securely attached to MDF there is no risk of distortion as the sheet panels are fitted.

4: Another advantage of the horizontal split, linkage items can be installed while everything is easily accessed. Here you see the internal rudder horn, elevator cable exits and the tailplane joiner tubes.



5: The two fully sheeted fuselage shells await any remaining internal work prior to joining.

6: Looking absolutely stunning, the D.Va is all set for another faultless flight.

I've built several of Peter Rakes' designs with the typical 'stick frame' fuselage used on most WWI aircraft now, but I was ready for something a little different and wanted to challenge myself with some curves. I was also interested in trying my hand at printing lozenge camouflage covering. I didn't want to paint the pattern as is often done when the appropriate scale fabric is unavailable, or just too heavy. I wanted to be able to print it on my home printer, which would give me maximum flexibility to adjust colours precisely and include stitched seams and fabric weave right in the printing process.

I've watched several Albatros builds on the different internet message boards

and though the later D.Va would fit the criteria perfectly. A curvaceous, fully sheeted fuselage and many schemes incorporating the lozenge fabric. It also gave me the chance to apply faux wood-graining to the fuselage. I just don't like the way balsa stains, and I've used faux wood-graining techniques in my work as a cabinetmaker, so didn't see why it wouldn't work here. With this, I asked Peter if he would design me a 1/6 scale Albatros D.Va, and in return I would document the build and provide this article. Seemed like a more than fair trade. Soon I had plans in hand, and a short kit of laser cut parts on its way.

Fuselage

The fuselage is constructed in

two halves, top and bottom, using keels that run full length and half formers. Both halves are built directly over the plans, side by side. The forward section incorporates a box structure that provides a solid mount for the motor, landing gear and wings, and also provides a home for the radio and power system components. Wire for landing gear and centre section struts is bent to shape and soldered together, to fit into tubing lashed to the box structure. Similarly, tubing and cyano glue is also used to locate the lower wings, and horizontal stabiliser.

Once the basic fuselage half structures were built, I carefully removed them from the building board and attached them to boards with double sided tape.





“
Basking in the sun and revealing just how realistic that printed covering looks once applied to the model. Easier and much better than a painted on finish.
 ”

These boards were fabricated from scrap MDF, following the fuselage outline, only about a 1/4" narrower. This allowed me to fit the balsa sheeting that covers the entire fuselage more easily.

The sheeting was fitted for tight fitting vertical seams and allowed to hang over the edge of these boards, then trimmed flush later. It also allowed me to wrap masking

tape around the edge to hold the sheeting in place while the yellow glue dried. It's important that each fuselage half remain flat during the sheeting, otherwise a twist or bend could be built into it. The boards allow full access to all sides while the remainder of the work is done on the fuselage.

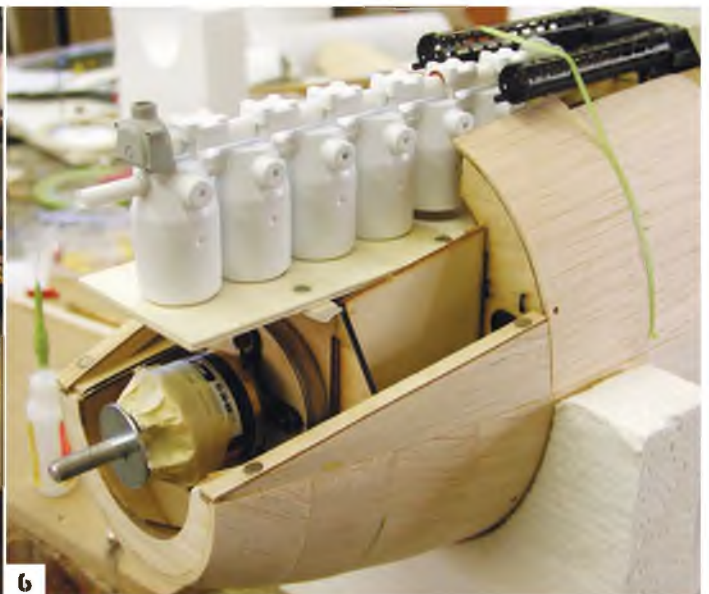
Space is allocated in the centre fuselage for the servos

and linkage to the elevators and rudder. A flexible cable, inside a nylon tube was used for the rudder, connected to a control horn made from piano wire and a ball link, soldered together and rotating in a brass tube. The split elevators are controlled via pull/pull cables routed through nylon tube exits. Building the fuselage in two pieces made installing all of

these components a breeze.

Once the internal layout was worked out, the fuselage halves can be joined. The sheeting was trimmed flush to the keels and these were glued together with yellow glue, held together with masking tape until dry.

Next, cowling pieces were built. These are fabricated from thick balsa sheet and carved to shape, then hol-



OR... Why not drop the 'a' and model it as a D.V?

The differences are quite minor but do include the attractive upper fuselage fairing behind the cockpit as shown on the scale three views of the type that appear on pages 34-35 of this issue.

It also expands the choice of colour schemes.



Sweeping in for the kill, Darrin's Albatros has proved a steady performer.

lowed and attached in any way you please. I went one step further and used the shaped pieces as plugs for vacuum forming plastic skins that were glued over them. Plugs were also made to vacuum

form all of the 'sheet metal' panels found on the full size Albatros. The forward, upper pieces are removable, for access to the battery and motor, and held in place with tiny magnets. This was also a

good time to build and fit the dummy engine and machine guns. After checking the fit of the tail plane components, the fuselage can be sanded and finished however you choose. ■

CUT PARTS SET FOR THE

Albatros D.Va

Get straight down to construction without delay!

This month's full size free plan feature is supported by a laser-cut set of ready-to-use balsa and plywood components. This provides all the parts that, otherwise, you would need to trace out onto the wood before cutting out.

IT DOES NOT INCLUDE STRIP AND SHEET MATERIAL.

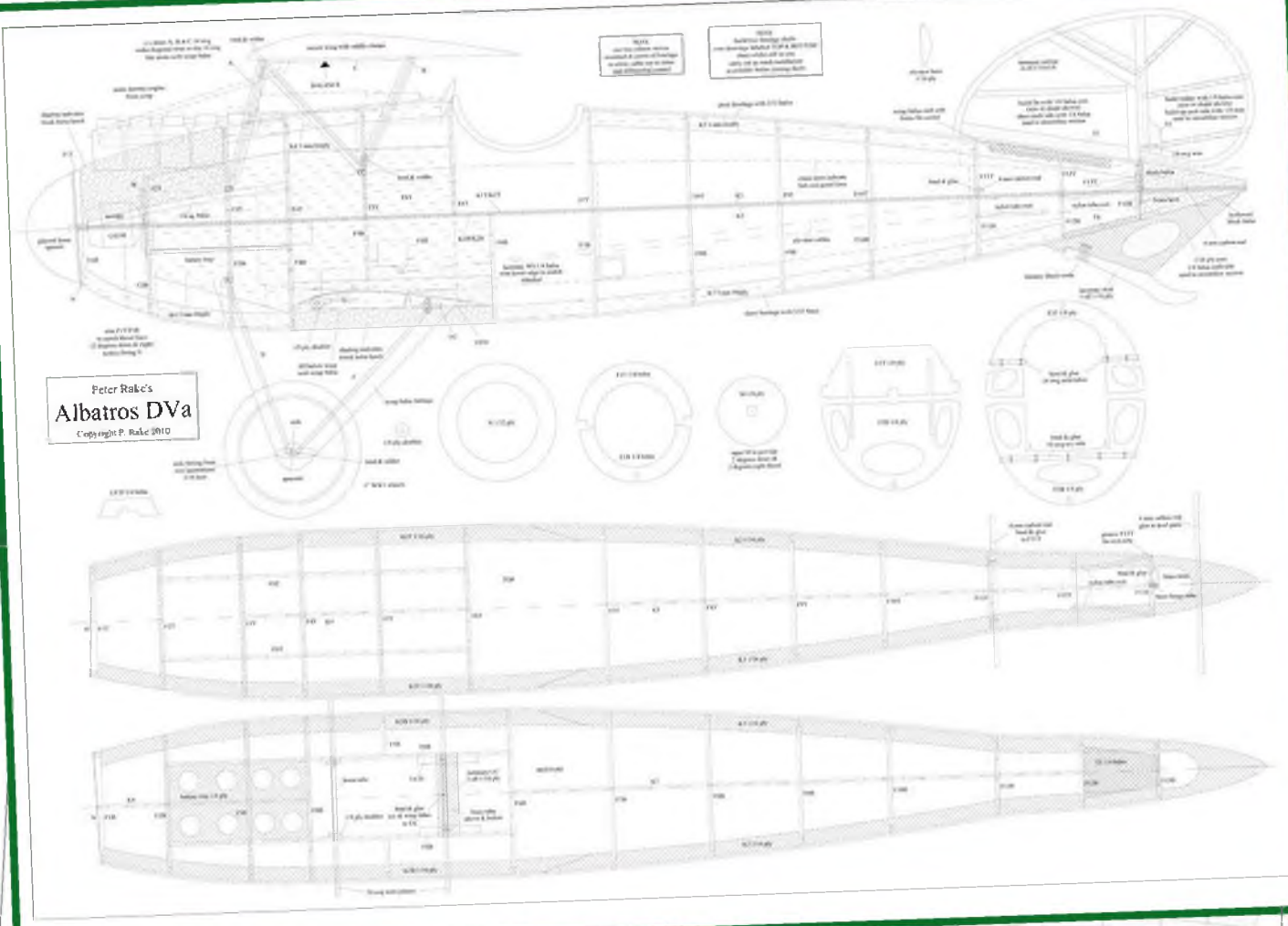
Price £120.00

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(Carriage to overseas destinations can be quite on an individual destination basis.)



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



Peter Rake's
Albatros D.Va
 Copyright P. Rake 2010

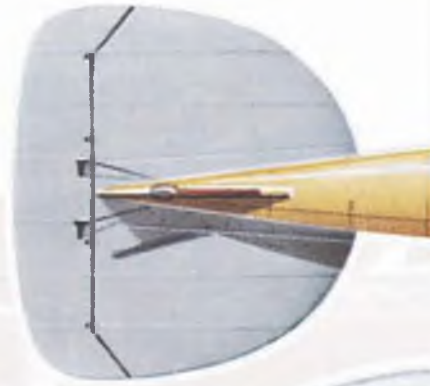
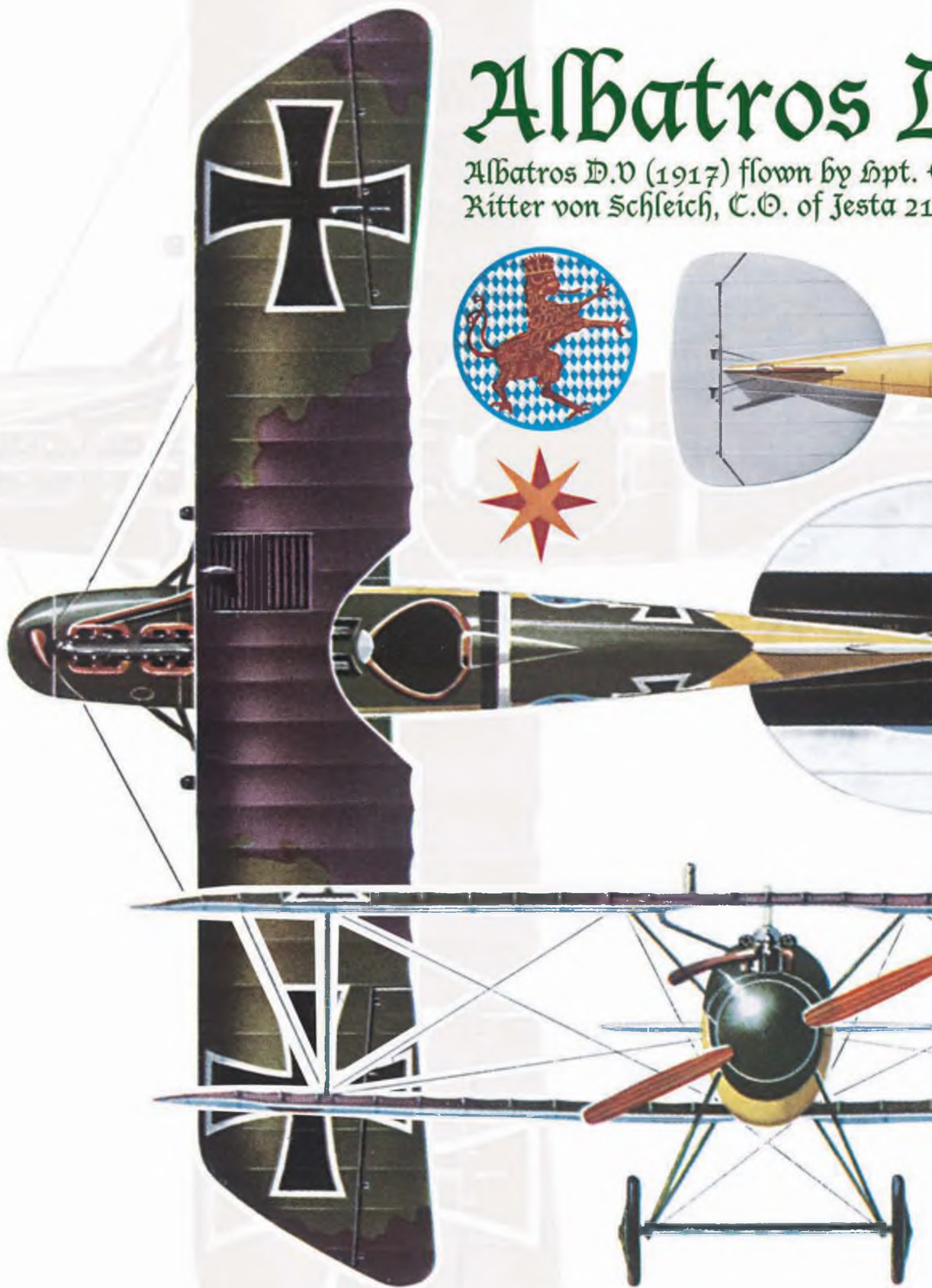
Albatros D.Va Plans

Full size copies of the three-sheet plan for Peter Rake's Albatros D.5a are available from Flying Scale Models Plans Service, ADH Publishing, Doolittle Mill, Doolittle Land, Totternhoe, Bedfordshire, LU6 1QX. Tel 01525 222573 enquires@adhpublishing.com Price £19.50 plus p&p (U.K £5.00; Europe £5.95; Rest or World £9.00. Please quote plan no. 335.

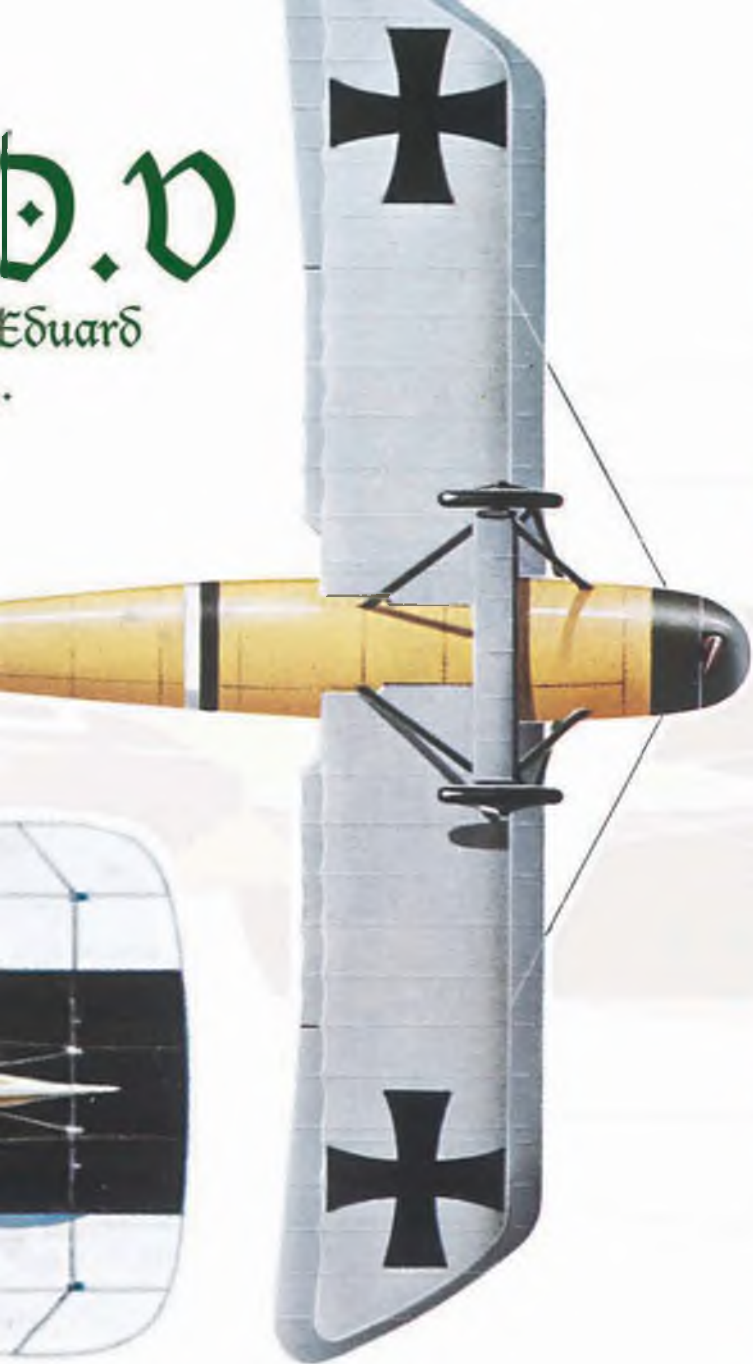


Albatros D.V

Albatros D.V (1917) flown by Spt. 4
Ritter von Schleich, C.O. of Jesta 2



D.V.
Eduard



Albatros D.V, Jasta 5, flown by Lt. Hans Joachim von Hippel. Wings green/mauve camouflage; top wing had white inverted chevron



Albatros D.V, Jasta 27, flown by Lt. Herman Goring. Wings green/mauve camouflage.



Albatros D.Va, Jasta 40, flown by Lt. R. Karl BegeLOW, C/O. Jasta 40. Wings lozenge camouflage.



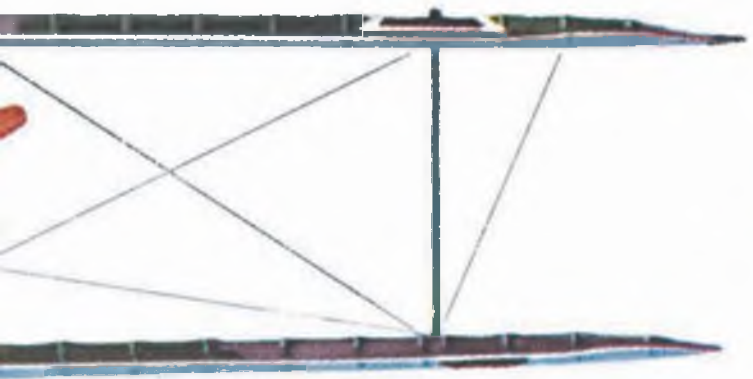
Albatros D.V, Jasta 11, flown by Rittmeister von Richtofen. Red overall.



Albatros D.V, Jasta Boelke, previously Jasta 2. Wings green/mauve camouflage.



Albatros D.V, Coblenz, 1918. Wings faded brown.



flying Colours

D.V. AILERON CONTROL

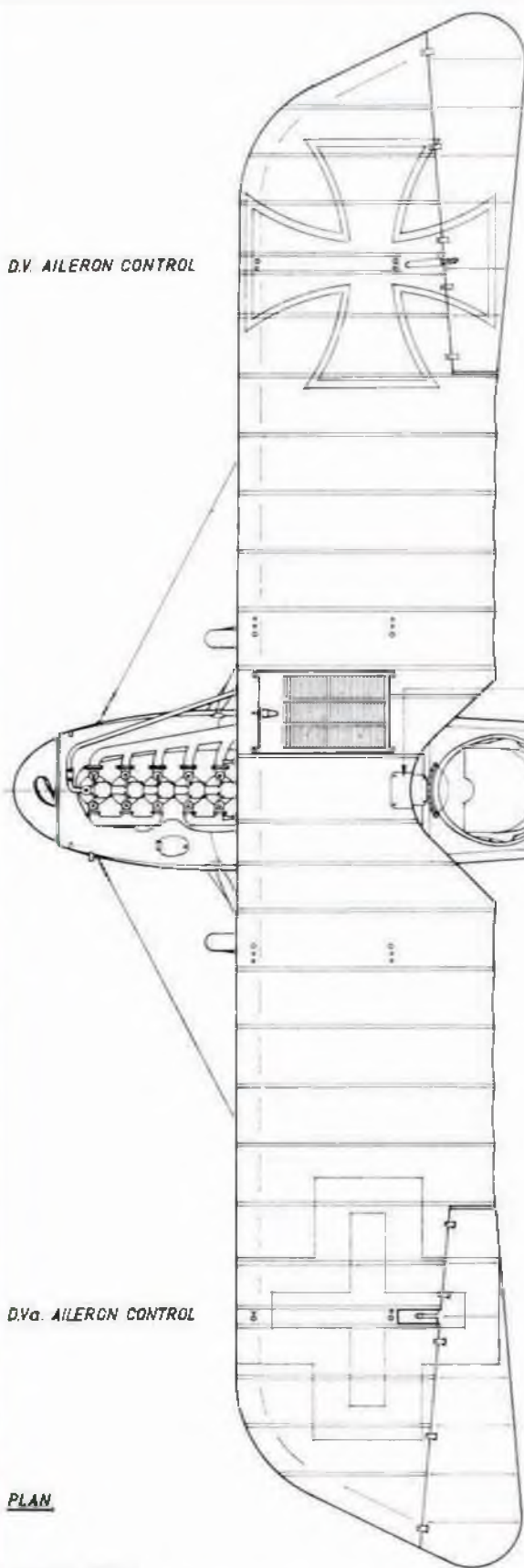
FRONT VIEW.



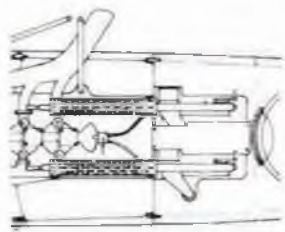
WING SECTIONS.

a = Plywood covering on top surface only.

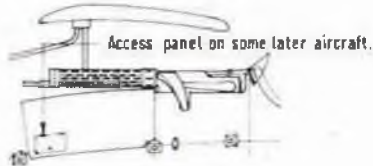
Access panel to aileron cable pulleys. D.V. only.
Tailplane and elevator fabric covered.



D.Va. AILERON CONTROL



DETAIL BELOW TOP WING.



GUN INSTALLATION.



SECTION ST6.

Rear M.G. mounting bar.
Control column locking bar.

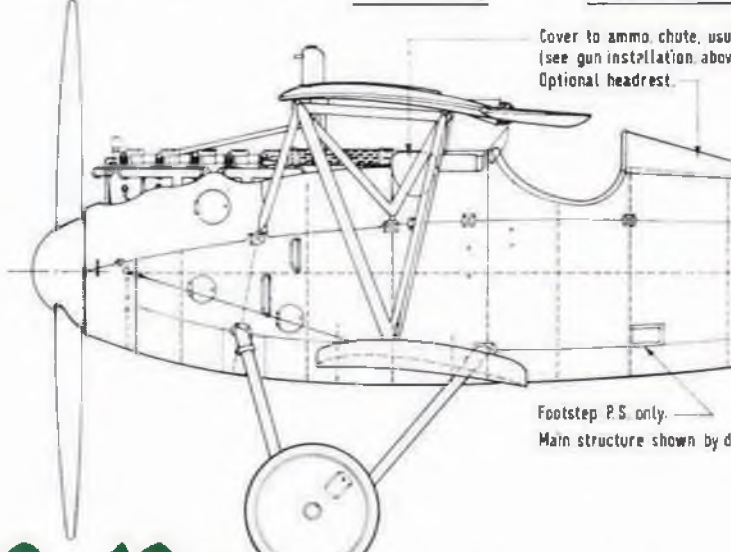


CONTROL DETAILS.

PLAN

COLOUR NOTES.

Factory finish - wings, top surface olive green and mauve in two or three divisions, under surfaces light blue. Later losenge camouflage fabric was used, usually applied spanwise. Fuselage natural birch plywood varnished, metal parts grey. For details of losenge camouflage see articles by P.L. Gray, Scale Models No 3 December 1969 and P. Leaman, Airfix Magazine September and October 1968. For details of individual aeroplanes see - Scale Models November 1971, Aeromodeller December 1957, September and November 1965, Flying Review October 1964. The Albatros D.V. Profile Publications No 9, Albatros Scouts Described, Kookaburra Technical Publications Series 2 No 1.



Cover to ammo chute, usually
(see gun installation above)
Optional headrest.

Footstep P.S. only.
Main structure shown by dots

Albatros D.V & Va

ST 15
ST 16
ST 17
ST 18

Aileron control cables on D.V. only.

Washout on ailerons and outer half of lower wing.

Access panel D.Va. only.

ST.1.

ST.4.

FUSELAGE SECTIONS.

Axle fairing sometimes removed in service.

PLAN - UNDERSIDE

Wire strap to hold down cowling - optional.

Rudder fabric covered
Fin plywood covered, part of fuselage.

ly removed in service.

Control cables.
Extra strut on late model D.Va's.

STARBOARD SIDE D.Va.

ted line

PORT SIDE D.V.

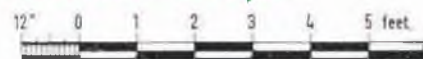
ST.8

ST.10

ST.12

FUSELAGE SECTIONS

Scale 1:40



ST.10

ST.12

DRAWN BY IAN R. STAIR.

A SCALE CHALLENGE BY GARY SUNDERLAND

THE BOXKITE PROJECT

PART 2: FLYING THE FULL SIZE AEROPLANES

GARY SUNDERLAND CONTINUES THE SAGA OF HIS STUDY OF DAWN-OF-AVIATION AEROPLANES THAT LED TO THE SUCCESSFUL COMPLETION AND FLYING OF HIS BRISTOL BOXKITE MODEL.

BELOW: THE PHOTO THAT STARTED THIS PROJECT

Taken by the author in 1996, the Shuttleworth Bristol Boxkite replica was built for the *'Magnificent Men in their Flying Machines'* film. Note the relatively small propeller and the large box nacelle required to house the 100 HP Rolls Royce Continental engine.

Otherwise, the replica follows the original design, including the lack of upper aileron horns and a balancing cable. Consequently, the ailerons hang down when at rest.

Note also, the fore and aft elevators, geared by connecting cables to operate at the same angles of deflection. A non-standard fin and three rudders are installed. The serial number marked on the outer rudders is 'No. 12A' as, evidently, Bristol never allocated work number '13'!

The single fabric covering is on the top of the wing ribs only and for some reason, a second strut has been added to the forward booms.



The extreme flimsiness of the Boxkite airframe is well illustrated in this picture, which also reveals the installation of the Gnome 50 hp rotary engine. The ailerons have drooped to the at-rest position.



There is much seemingly conflicting information available on the flight characteristics of the original Boxkites and the modern Replica. As it turned out, most of the reported variations can be readily explained by the vast difference between a 50 HP rotary engine and a modern high revving 100 HP stationary types. Some of the thinking was rather odd; for example the installation of a third rudder to the *'Magnificent Men'* replica.

Looking further at propeller torque, the effects on a pusher type aeroplane will be opposite to those of a tractor aeroplane. That is for the 'usual' engine rotation, seen from the cockpit of a tractor type, looking forward, the engine and propeller rotate clockwise and a 'right-

handed' airscrew is installed. (Be aware that some tractor aeroplanes/engines may have the opposite 'left-handed' rotation, as in the Tiger Moth, but the 50 HP Gnome and the R.R.Continental are of the 'usual' configuration which simplifies our understanding of the effects). The propeller torque effect will tend to make a tractor aeroplane turn to the LEFT.

When installed in a 'pusher' layout. The engine is now pointing to the rear and a 'left-handed' airscrew is installed to thrust the aeroplane forward. Propeller torque will now tend to make the pusher aeroplane turn to the RIGHT.

The *'Magnificent Men'* replica Boxkite, now

operating from Old Warden in the UK is powered by a Rolls Royce built Continental 100 HP engine. During the flying for the film *'Those Magnificent Men in their Flying Machines'*, test and film pilot Derek Piggot experienced some problems in making the replica Boxkite turn. Following this, a third rudder was installed, which indicates that the problem may have been adverse yaw from the 'barn door' ailerons. This was only a partial solution as Shuttleworth pilot Neil Williams later reported that the





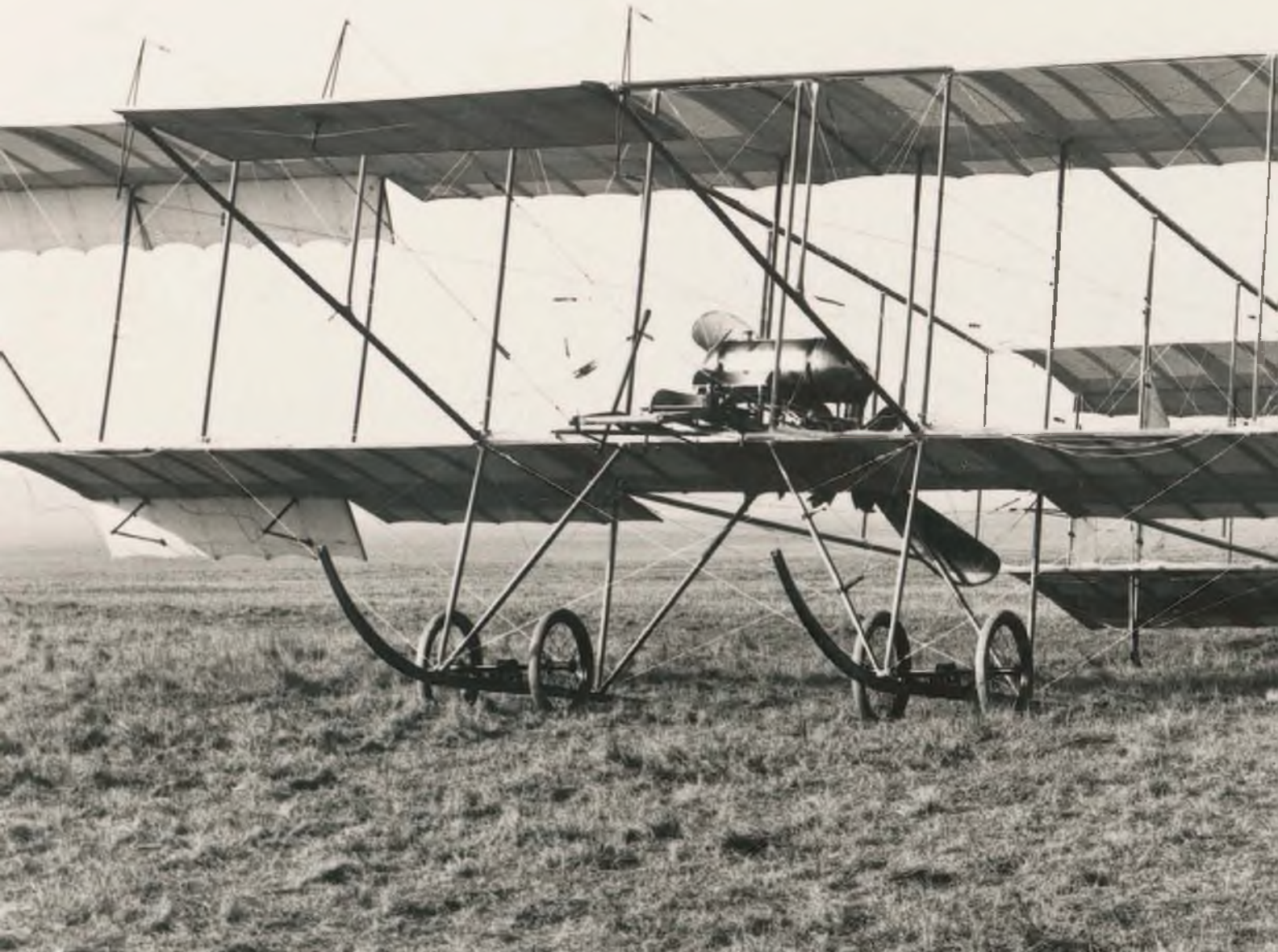
aileron control was "heavy" and the replica was difficult to turn left, but turns to the right were "more satisfactory". (For some reason, no one seems to have thought to install a balance cable prior to gear the ailerons, to reduce the control forces).

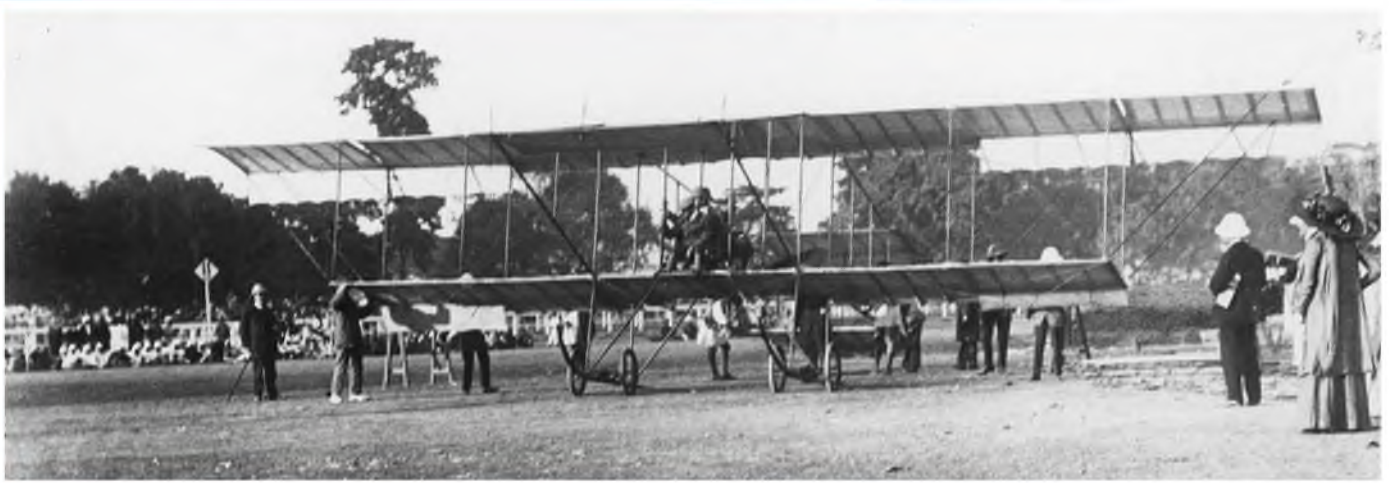
Back in November 1911, W.E. (Bill) Hart

reported that he usually turned his 50 HP Gnome powered Boxkite to the LEFT. This was evidently the preferred direction of turn for all the pioneer aeroplanes of the time, as confirmed from photographs taken at the various flying meetings. Circuits were flown around fixed pylons by all types of aero-

plane, and while the Wrights exhibited quite steep turns close to the ground, Boxkites, such as the Farmans and Bristols, flew more noticeably flat, and presumably wider turns to the left. To perform anti-clockwise circuits of the field.

The Boxkite weighed about 900 lbs, of

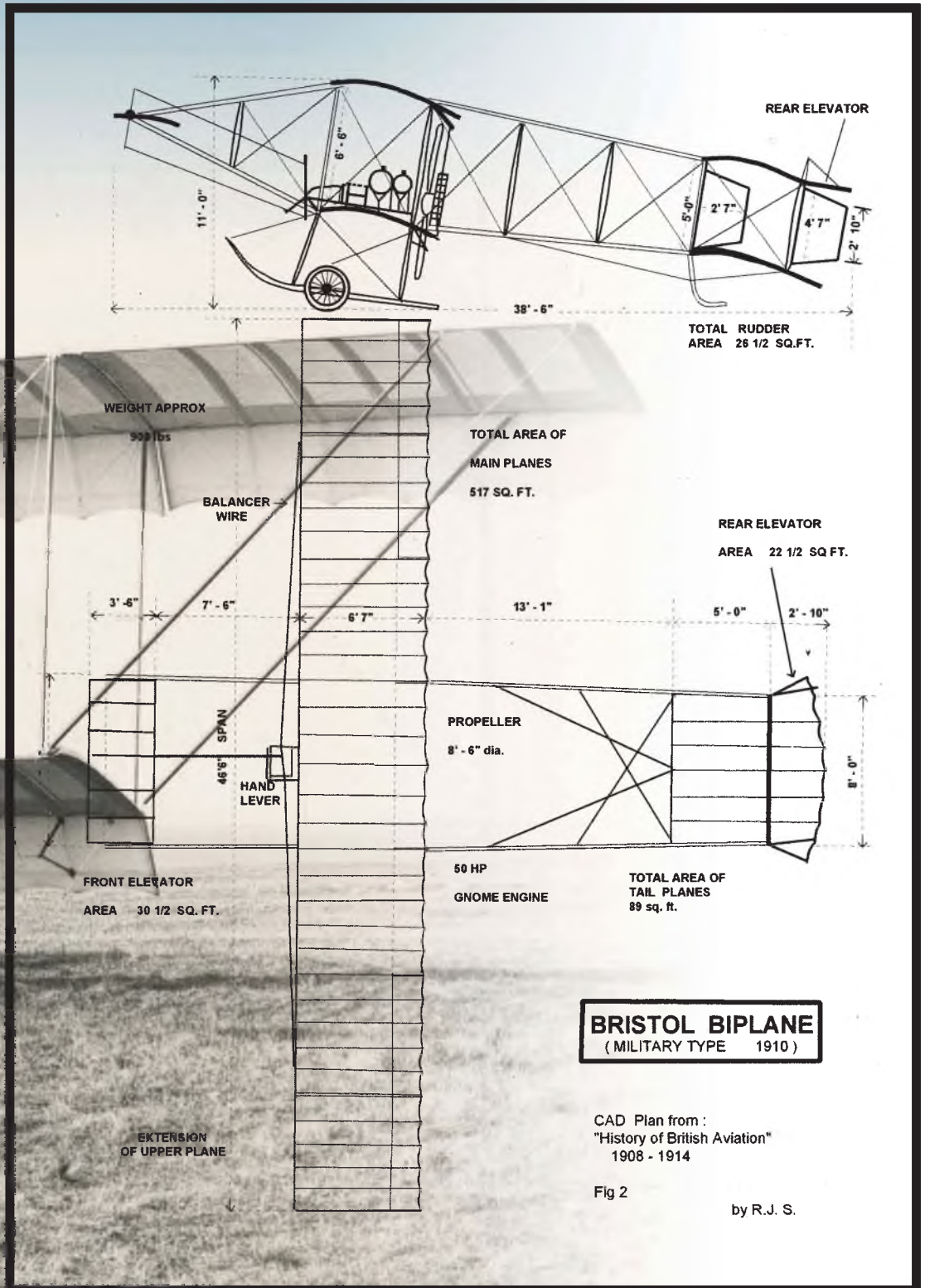




LEFT The caption on the rear of this photograph indicates it was taken during Army Manoeuvres on Salisbury Plain in 1910, but the onlookers seem decidedly non-military!

ABOVE RIGHT: Here the onlookers are far more controlled as this Bristol Boxkite prepared for a take-off run.

BELOW: This view of a Bristol Military Biplane shows that there was never much in front of the pilot except for a stiff breeze!



which a major proportion was the engine. The rotating part of the engine weighed about 150 lbs and the speed of rotation was 1,200 rpm static, possibly 1,500 rpm in the air. Consequently, the gyroscopic forces generated, when the Boxkite was turned left or right, must have created large pitching moments in flight. (The effect of these forces and moments are well known to affect rotary engine scouts such as the Sopwith Camel. The effect on a Boxkite may have been somewhat less, given its size and large wing area, but the Boxkite's pilots were not trained to even the level of a WW1 trainee pilot).

All of the Boxkite type aeroplanes were flying with the centre of gravity balanced at about 50% chord, which resulted in the aircraft being unstable and difficult to control in pitch. Turning the machine to the left will result in a gyroscopic NOSE DOWN pitching moment which would assist in the control of a tail heavy aeroplane, hence the problem for LEFT turns. Turns to the right will have the opposite effect.

On Friday November 3rd, 1911, Bill Hart began a right turn in his Bristol Boxkite, expecting it to respond "normally" as he had experienced previously during many successful left turns. Hart evidently experienced a loss of control, but fortunately had sufficient altitude that the aeroplane recovered itself, so Hart then made a safe landing. His brother was a passenger on this flight and promptly gave up flying, but Bill Hart later took off and made the return flight solo. Bill Hart could not then describe what happened and later, does not seem to have described the correct procedure for flying right turns in a Boxkite.

The following is an explanation of this incident step by step:-

Hart would have applied right aileron travel and a generous amount of rudder to the right, in order to start a shallow turn. The rate of roll was modest by current standards, but due to the propeller torque effect to the right, much faster than he was used to. The gyroscopic forces generated by the rotary engine then caused the front of the aeroplane to pitch up.

If this effect had not previously been demonstrated to Hart during his too-brief training, he may not have responded correctly to this strange behaviour, by swiftly moving the control column forward. In this nose-up attitude, the aeroplane quickly lost flying speed. The wings of the Boxkite probably did not stall at first, but the forward moving elevator, which operates at a higher angle of attack certainly did stall.

Hart describes the separated turbulent airflow "bumping" the airframe severely. With the loss of forward lift, the nose would drop and the aeroplane would enter a dive, during which, the angle of attack would decrease and the normal control response would be restored.

Clearly, Bill Hart and most other pupils in those early years were not properly trained, since systematic instructor training was not introduced until 1917. Previously, any pilot with a 'ticket' (F.A.I. or Aero Club Certificate) was assumed to be able to instruct and most did just that. Shortly afterward, Hart offered to start a flying school, so he obviously had no reservations as to his flying skills. This would have included turns in either direction, which were a requirement for the F.A.I. Flying Demonstration at this time, so he must have learned from experience. (Budding Sopwith Camel pilots should note that LEFT turn in this Scout is more of a problem. The rates of roll and turn are much faster. With increased propeller torque to the left.

The gyroscopic nose pitch UP in a left turn is pronounced due to a heavier engine turning at a faster RPM, with a consequent danger of Stalling and spinning near the ground. Many young pilots were killed as a result. ■

BELOW: It pays to advertise! No doubt about the maker of this Boxkite, in action at Rochester in 1911/12. (Photo from the Harry Woodman Collection).





TAILS

LARGE SCALE BY Alex Whittaker

RAFMAA Warbirds

RAF Scampton, 2012

Whittaker spends the weekend under armed guard, behind barbed wire (which is really where he belongs - Ed!)

You definitely sleep better when camped behind a barbed wire fence. I think security increases with the knowledge that the perimeter is being patrolled by tooled-up soldiers. Having said that,

RAFMAA 2012 really was open to the elements. It was a very cold and wet affair. Don't misunderstand me, it was not wet all of the time - just most of it!

At one point, even the famously weatherproof Command Module sprung a slight leak. Models had to be pulled in and out of vehicles in tune with the periodicity of the showers. The silvery tarmac was awash with puddles, and speeding models thundered through the standing water. Being British and perverse, I admit that I derive deep joy from the melancholia of adverse weather. I loved every single minute.



Mick running up the T-33's jet turbine in the pits.



AAA

**Mick Burrell's
Lavochkin La 7
seconds from
touchdown.**



A trio of Moki 250 radial powered aircraft.



John Jackson scale man and warbird enthusiast concentrates as his Alehi Val settles in to land.



Chris Harle's beautifully finished Fieseler Storch on a typically steep approach. Laser 300 V Twin powering a 22x10 prop.



Frantic activity between the showers as Ian Wylde perfects his English Electric Lightning.



Ian Wylde has found a convincing way of simulating afterburners with these very effective LED arrays on his Lightning.



Overlapping circles

RAFMAA is a great event that falls at the overlap of four great UK modelling circles: Warbirding, Show Flying, Scale Modelling, and Clubman flying. So you will see ordinary clubman scale models flying in the next slot to 1,000 hour scale jobs; all very encouraging. Flying is continuous, so you can usually get as many slots as you like.

Commie killer

Taking just a few models as examples demonstrates the range and variety of scale subject that you can see at RAFMAA. At the all-moulded, radial powered end of the continuum was Mick Burrell's fantastically attractive Lavochkin La7. This Moki 250 powered Iron Curtain killer was utterly superb, both on the ground and in the air. That Moki 5 cylinder engine has a voluptuous sound that is not un-adjacent to sexy. Aye, and I'm being serious too.

Firefly

Another utterly amazing model aircraft was the new Fairey Firefly A.S.1, co-built by Chris Peers and the famously secretive 'Spartacus'. Now, Spartacus is a famed

Midlands scale modeller, renowned for his skills and reticence in equal measure. The own-design Firefly spans 108", weighs 41 lbs, and is built to 1:5.6 scale. It is traditionally built, with a traditional tissue and dope finish. Full details and a full walkaround will appear in FSM soon.

Bristol Beaufighter

Dennis Richardson is a clubman with a national reputation for his scale models,

all built on Mrs Richardson's kitchen table. His new Beaufighter is exquisite, though a bit of its undercart did drop off on its fourth flight! (Don't fret: all OK). It is powered by two Laser 80s, and is 92" in span. We will be covering this ambitious new model in depth shortly, so again, stay tuned.

Stieglitz

Ken Sheppard flew his new plan-built



Mark Roberts' 1/8th scale King Of The Cats Grumman Tigercat F7F. 83" span, 2x DLE 20s, three-bladed props.



Immaculate Spitfire IX by Malc Harle, with pilot AWOL, on full-flap, short finals.



Mick Burrell's lovely Skymaster Lockheed T-33. It spans 105", weighs 10 lbs, Merlin 160 turbine power.



Focke Wulf FW44 Steiglitz (Goldfinch). This satisfyingly large biplane is powered by an amazing new Evolution seven-cylinder radial engine, driving a 27x10 prop. The FW44 is 96" span. The model is Polycote covered.

Dauntless

Paul "Limey" Rice is a truly first class scale modeller, and his almost completed Douglas SBD Dauntless is a delight to

behold. It will be finished by the time you read this, so keep a look out for it on both the show and warbirding circuits.

Lost engine

One of the lads, Malc Harle, was flying his Mustang when all control went limp. There it



Dennis Richardson's 72" span, Laser 150 powered Macchi 202 Folgore.

Stuart Knowle's Gloster Gladiator, from the Phil Ramsay kit of old. 68" span, Zenoh 20c petrol does not overpower it.



Stunning 108" span Fairey Firefly A.S. co-built by Chris Peers and the secretive 'Spartacus'. Watch this space for in-depth review.



Richard Dagleish's Hawker Hurricane from the Brian Taylor plan.



John Jackson's Razorback Jug on short finals.



Dickie Scarborough's well known and colourful P-47D 'Tarheel Jack' bowling in.



Mark Matthias's Douglas C-47 Dakota in striped invasion scheme.



Dennis Richardson's Beaufighter weighs 18.5 lbs. More details soon.

was - engine running flat out, but completely uncontrollable. He battled to get it down in one piece, and succeeded only by dint of very good airmanship. If not, the resultant crash would have been a FOD disaster. (In RAF speak FOD = Foreign Object Damage). It transpires that the heavy steel bolts securing the engine had sheared in flight due to vibration! Makes you think ...

After burner

Canny ex-RAF Lightning pilot Ian Wylde has fitted own-design LED 'afterburners' to his turbine powered scale model Elgish Electric/B.A.E Lightning. The effect is electric. Sorry, couldn't resist that, but the effect truly is very convincing!

The verdict

A great weekend despite the variable weather. It was chilly, but it was fun, with genuine camaraderie all around. Also, those RAF lad worked very hard indeed all weekend to make their guests feel at home.

The burger bar was a lifesaver, too!

RAFMAA

RAFMAA is changing its constitution to reflect the new realities of down-sizing. This is good news to us ordinary punters with no RAF connections. In brief, it means that RAFMAA will soon be accepting non-Service members. There are also plans to increase the number of jet events (Kerosene Over Scampton etc). Check out the RAFMAA website for further details: www.rafmaa.co.uk

Acknowledgements

The event was held courtesy of Wing Commander R G Turner, RAF Scampton's Station Commander. Thanks are also due to RAFMAA's Dempster Hamilton. He points out that the event was organised this year by industrious Sergeants Matthew





LEFT: Moki Inside. The best sounding model engine on the planet. **ABOVE:** Hurri along! Wet tarmac can cause the skitters! **BELOW LEFT:** Paul 'Limey Rice's already amazing, but unfinished Dauntless. Full details soon! **BELOW RIGHT:** Ken Sheppard's Focke Wulf FW44 Steiglitz (Goldfinch). Evolution 7 cylinder radial engine driving a 27x10 prop. 96" span, Polycote covered.



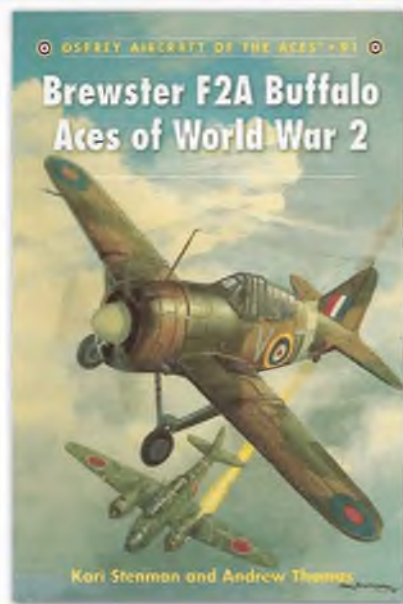
(Matt) Holmes and Kieran Arnold, both from nearby RAF Waddington. This the first time that the event has not been organised from within RAF Scampton, due to Chief Technician Daniel Platt's departure from the RAF last year. As always, this is a not-for-profit event. This year RAFMAA Warbirds raised over £150 for Help the Heroes. ■



Ian Wylde's very crisp Hawker Hunter hopping over the boundary hedge.

Shelflife

**Book
of the
Month**



BREWSTER F2A BUFFALO ACES OF WORLD WAR 2

Osprey Aircraft of the Aces 91

ISBN: 978-1-84603-481-7. Tel: 01933 433863. Price: £12.99.

By Kari Stenman & Andrew Thomas. Softback, 248 x 184mm, 96 pages, b/w & colour illustrations. Published by Osprey Publishing, PO Box 140, Wellingborough, Northants. NN8 2FA.

Although designed and built for the US Navy, the F2A fought in only one major US engagement - the battle of Midway - in which the aircraft shot down two Japanese dive-bombers. Soon replaced as a carrier-borne fighter, the F2A was exported to Britain, where it was given the name 'Buffalo' by the RAF. The British sent most of these aircraft to the Far East, where they were used in the defence of Singapore and Malaya. Although overwhelmed by Japanese fighters, no fewer than nine pilots achieved ace status while flying the Buffalo.

The United States also sold the aeroplane to Finland, and it was in the cold north that the F2A truly found a home. Calling the aeroplane simply the 'Brewster', the

Finns flew it against invading Russians. Overall, 37 Finns achieved ace status flying the Brewster, and it was the Finnish fighter of choice until succeeded by the Bf 109G in mid-1943.

This is far from being 'just a list of Aces', albeit an impressive one of Finnish, Commonwealth, Dutch, as well as non-Commonwealth pilots; there are first hand accounts, many black & white photographs, line drawings and vivid colour artwork and features: the 'Peanut Special' (so called due to its stubby appearance); Brewsters over Karelia; Finnish Stalemate; Over the Gulf of Finland; Malayan Campaign; Defenders of Burma; Finale Over Land and Sea; Appendices; Colour Plates; Commentary; Bibliography; Index.



Fw 200 CONDOR VS ATLANTIC CONVOY 1941-43

Osprey Duel 25

ISBN: 978-1-84603-917-1.
Tel: 01933 443863.
Price: £12.99.

By Robert Forczyk. Softback, 248 x 184mm, 80 pages, b/w & colour illustrations. Published by Osprey Publishing, PO Box 140, Wellingborough, Northants. NN8 2FA.

After the fall of France in 1940, Germany attempted to strangle Britain into submission by attacking the Atlantic Convoys, which brought much-needed supplies and war material from the USA and Canada. While the U-boats attacked from beneath the seas, the Germans converted a civilian airliner design into the Fw 200 Condor and attacked from the skies. By the summer of 1941, Condor attacks had been so successful that Winston Churchill called them 'the scourge of the Atlantic'. This book discusses the development of the Condor, and analyzes the various Allied responses, from arming civilian vessels and providing Royal Navy escorts, to the Grumman Martlets and Sea Hurricanes launched from catapults on modified merchant ships or from specially designed carriers to meet this aerial threat.

Contents include: Introduction; Chronology; Design and Development; Strategic Situation; Technical Specifications; The Combatants; Combat; Statistics and Analysis; Conclusion; Further Reading; Glossary; Index.

DESERT PRELUDE

Early Clashes, June-November 1940
Mushroom Model White Series No. 9107.

ISBN: 978-83-8945-052-4. Tel: 020 7401 2100. Price: £24.99.

By Hakan Gustavsson & Ludovico Slongo. Softback, 297 x 210mm, 224 pages, b/w photographs & colour artwork. Published by Mushroom Model Publications, distributed by Chris Lloyd Sales and Marketing, available from Ian Allan Bookshop, 45/46 Lower Marsh, Waterloo, London. SE1 7RG.

North Africa in 1940 was the stage for the last major biplane versus biplane fighter battles. Italian Fiat CR.32 and CR.42 biplanes fought with Gloster Gladiators of the RAF, RAAF and RSAAF, while the monoplane bombers on each side (SM.79s, Blenheims, Wellingtons), undertook tactical and strategic bombing raids.

This Book tells in great detail the story of these early conflicts over the desert: the day to day missions, first hand accounts of the air war, and the structure and organisation of the competing air forces.

Both sides had successes and failures, the Italians always struggling to maintain their limited resources and saddled with some very unsuitable attack aircraft. On the allied side, this theatre of war (before the Luftwaffe became involved) was always a sideshow, starved of modern aircraft and resources and hence relying on obsolescent aircraft types such as the Gauntlet, Wellesley and Bombay.

The many rare photos, maps and colour profiles bring to life this rarely documented aspect of World War Two aviation history.



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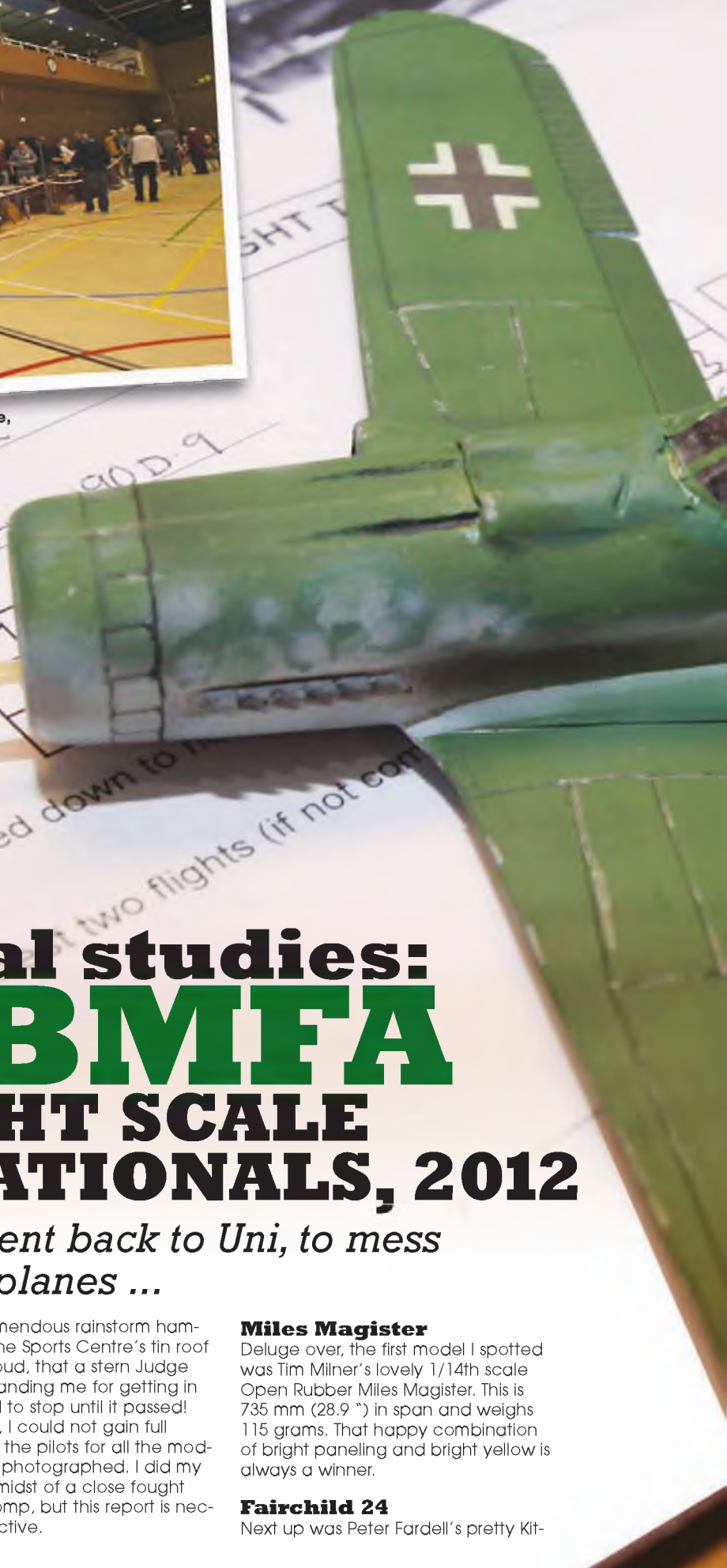
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Nottingham University Sports Centre is a very good venue, though I can't get on with the lack of light!

Name GARRY FLACK
Model Focke-Wulf F 90 D-9
Flight
Time
Sig



Intramural studies: **THE BMFA** **FREE FLIGHT SCALE** **INDOOR NATIONALS, 2012**

Duffer Whittaker gets sent back to Uni, to mess about with model aeroplanes ...

The Notts Nats are upon us. Can it really be that time of year again? Yup, and this year there were some utterly superb new models. I began my intramural Aeronautical Studies in the upstairs Seminar Room. Here, all the Kit Scale entrants were displayed for our delight and delectation. I was just settling in for a feast of Scale,

when a tremendous rainstorm hammered on the Sports Centre's tin roof - it was so loud, that a stern Judge who reprimanding me for getting in his way had to stop until it passed! Incidentally, I could not gain full details from the pilots for all the models I saw, or photographed. I did my best in the midst of a close fought National Comp, but this report is necessarily selective.

Miles Magister

Deluge over, the first model I spotted was Tim Milner's lovely 1/14th scale Open Rubber Miles Magister. This is 735 mm (28.9 ") in span and weighs 115 grams. That happy combination of bright paneling and bright yellow is always a winner.

Fairchild 24

Next up was Peter Fardell's pretty Kit-

Impressive looking little Pistachio FW 190-D from Gary Flack.



The Nolts Nats venue has a useful interior space. Oddly enough, the second hall had few fun-flyers all day. Cost of petrol?



Tim Milner's Miles Magister is 735 mms in span and weighs 115 grams.

Scale Fairchild 24, from the well-known Guillows kit. She's a healthy 25" in span and weighs 36g, without the rubber. I liked the complicated strutter and the cute little spats.

Veron Auster

Andrew Darby entered his Veron Auster AOP 9 in Kit-Scale. It span 22" (559mm) and weighs in at 23.6 grams (0.8 ozs). I remember seeing the *Aeromodeller* ads for Veron kits as a sprog, but as I may have intimated before, they were thin on the ground in my part of Toxteth in

the late Sixties.

Clipped wing Corsair

Chris Blanch's Goodyear FG-1D (clipped wing) version of the Corsair was most interesting. It is from the David Diels rubber kit, which Chris has modded. It is 1/24th scale, 520mm in span, and weighs 63 grams. It is modelled on the full-size, as registered in New Zealand.

Divs' SE5a Shock

Now here is a surprise that will shock you: Divs Masters entered a SE5a in Open

Scale. Surely not! This one was well up to standard.

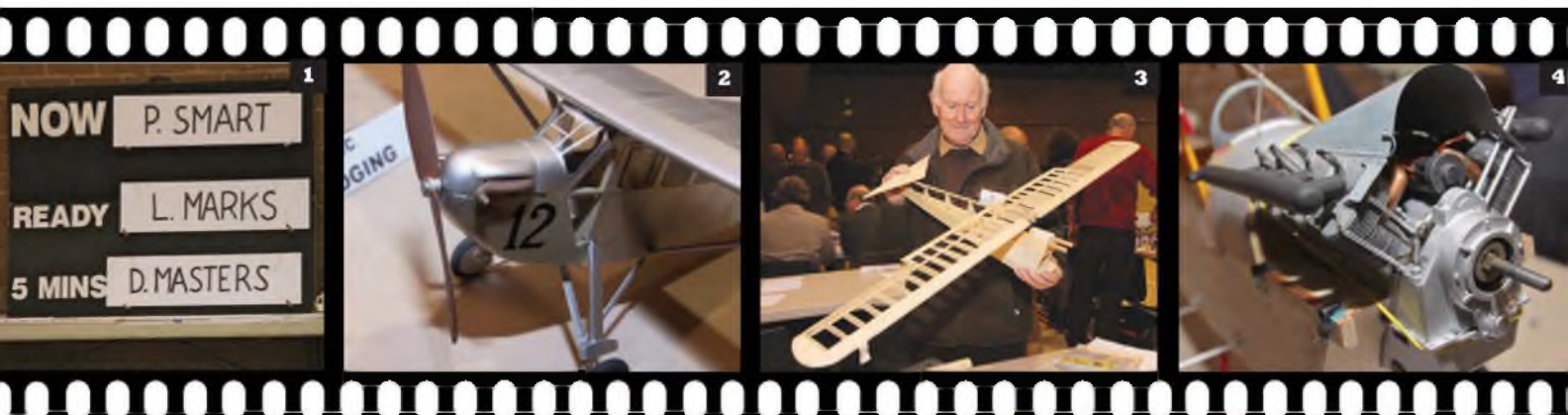
Veron Comper Swift

Another lovely Veron model was Ken Bates' kit-scale Comper Swift. This really is an impressive kit, and Ken always builds 'em right. A very attractive model, redolent of Trad. Brit. provenance.

Keil Kraft Stinson

When I saw John Churchill's Kit-Scale Stinson I knew instantly it was a beloved Keil Kraft design. However, it took me fully

1: No messing about at The BMFA FF Indoor Scale Championships! 2: Fairchild FC 1 by Graham Banham. 3: Scale Maestro Philip Kent with his part-completed Aeronca. 0.3 cc diesel powered: light! 4: Apologies for the harsh flash, but just cop this superbly detailed dummy engine on Andy Hewitt's part-completed "outdoor" DH6. 5: Brain like a planet, hands of surgeon, and he's only 21! Derek Knight with his latest casual masterpiece, a 24" span, twin EDF, Meteor 4. Aye, Derek designed the EDF units, too. 6: Enrique Maltz's very pretty Borel Hydroplane, another superb Lubomir Koutny design. 480mm in span, weighs 23 grams. 7: Peter Fardell's Kit Scale Fairchild 24, from the well-known Guillows kit. 25" in span; weighs 36g without the rubber. 8: Andrew Darby's Veron Auster AOP 9. Spans 22" and weighs 23.6 grams. 9: Divs Masters entered this typically meticulous SE5a in Open Scale. 10: Very nice indeed, a Veron Comper Swift from Ken Bates. 11: Aerographics Luton Minor in red Esaki tissue, by John Bowerman.



five minutes before I could dredge the 'leettle grey cells' and come up with Stinson Flying Station Wagon. I know I'm an anorak, but as a committed KK fancier, seeing this little model made my day.

Aerographics Luton Minor

The Luton Minor is a perennial scale favourite, and John Bowerman's example in scarlet Esaki tissue, from the Aerographics kit, was trimmed with Tamiya acrylic paints.

Jodel Bebe

Dan Mellor entered his Swiss-schemed Kit-Scale Jodel D9 Bebe, modelled on the example that flipped over in a forced landing in a field in 1983, causing the pilot substantial injuries.

Aerographics Velie Monocoupe

A very welcome foreign visitor, Enrique Maltz, brought a number of exquisitely built models. His truly outstanding Kit-Scale Velle Monocoupe, had that bold simplicity that comes from a truly great rubber design. It even had nifty spoked wheels. It is from the Aerographics kit, and spans 23" (584mm). By the way, Enrique is a professional classical musician, a cellist. Unsurprisingly, am I the only one who thinks that Aerographics kits are just amazing, both for the money, and the quality of design?

Sopwith Baby

David Prior's Sopwith Baby Jabberwock was my favourite Open Rubber entrant. She is built to 1/26th scale and I thought her fit and finish were flawless. This is a very appealing design, and she looked good from every angle, so I took snaps from every angle! Enjoy.

Banham Brewster

Graham Banham, the Modest Maestro, was campaigning his Open Rubber Brewster SB2a Buccaneer. This is 23.5 (597mm) inches in span, weighs 63 grams (2.2 ozs), and has a Peck Polymer prop. The vac-formed pilot is to Graham's own design. Most of us punters look longingly at an ambitious scale model of this quality, and weep.

Veron DW1

Yet another Kit Scale model from the Veron stable was Gareth Patterson's very attractive Chilton DW1, complete with trade mark undercarriage trousers. This example was in a fine silver finish, with the original open cockpit, and not the later enclosed, sleeker (but to my eyes) less endearing, version.

Leopard Moth

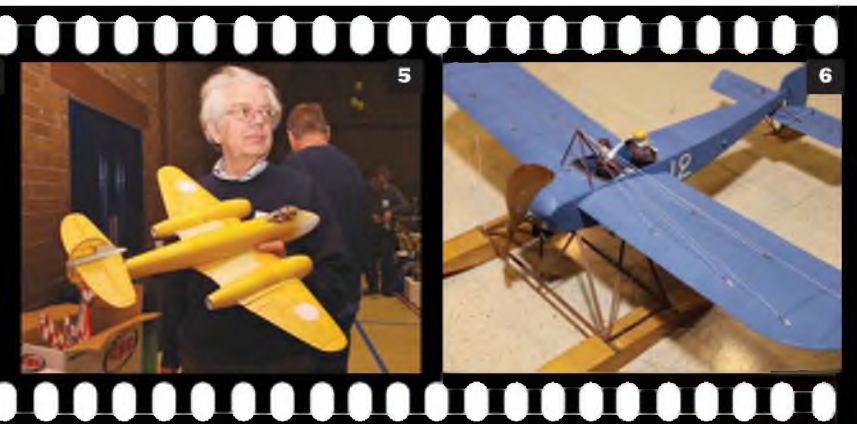
There are so many De Havilland 'Moths' that I often mix them up, but I always try to remember that the Leopard Moth is a monoplane. Tom Rushby's Kit-Scale DH Leopard was very nicely presented.

Sablatnig SF4

This obscure Austrian-designed float triplane really did look the part in her surprisingly modern-looking camouflage scheme. She was built by Chris Blanch to the celebrated Ludomir Koutny's plan. She is 1/20th scale and weighs 30 grams (1.06 ozs) and spans 475 mm (18.7"). Apparently the full-size designer was a certain Dr. Ing. Josef Sablatnig, an Austrian who had the major distinction of learning to fly as early as 1910 - in a Wright Biplane.

Fairchild FC1 1926

Graham Banham's rare FC1 was entered in the Open Rubber class, and weighed 40 grams. I had never seen, or perhaps noticed, this scale subject before. It reminded me a little of the early Bellancas, though with an in-line engine. I really liked its 'silver doped' finish. The original had folding wings and took part in the 1926 US Air Tour.



Enrique Maltz's Velie Monocoupe climbing out nicely, thank you very much.



- 12: Enrique Maltz's truly outstanding Kit Scale Velie Monocoupe.
- 13: Enrique Maltz's Kit Scale Velie Monocoupe is wonderfully well finished.
- 14: Tail and rudder detail on the Maltz Velie Monocoupe.
- 15: Crisp wing glazing on the Maltz Velie Monocoupe.
- 16: David Prior's Sopwith Baby Jabberwock.
- 17: David Prior's Open Rubber Sopwith Baby looks very convincing.
- 18: David Prior's Sopwith Baby Jabberwock is built to 1/26th scale.

Focke Wulf FW190D-9

This was a very impressive looking little Pistacchio model from Gary Flack. The weathered surface finish was particularly noteworthy.

Yakovlev YAK 9D

John Valiant achieves the sort of accuracy, and surface finish that really captures the soul of the prototype. His models always fly well, and his new YAK 9D was definitely up to scratch!

The Goon Racer, 1939

John Valiant also flew his fabulous Art Chester 'The Goon' Racer. It had the sort of proportions you might associate with the Chambers Chambermaid (a similar air racer of that era), and flew very well. The real one had a retractable undercart, so John's model is a faithful tribute. From childhood tea-time TV, I remember Popeye's dad, Pappy was marooned on Goon Island, and those Goons had odd proportions. Maybe that was the joke. (You can watch the original Popeye now on YouTube:

www.youtube.com/watch?v=BPuIjzMIzcK) I reckon a 1939 'Goon' reference is a bit too early for Neddy Seagoon, Bloodnock, and Grytpype Thynne...

Caproni CA 20

The resourceful Enrique Maltz also brought a beautiful Peanut rubber Caproni, all the way from Israel. This is 13" in span, and weighs 9.3 grams, ready to fly. I looked at this model for a long time, marvelling at the crisp detailing.





Phil Kent looks on as Gordon Warburton and Trish Dennis log the scores.

Peanut Judges, engine ace Dave Causer (left), and literary giant, Ken Sheppard.

Borel 1913 Hydroplane

Also from the talented Mr. Maltz, was his very pretty Borel Hydroplane, another superb Lubomir Koutny design. She's 480mm in span, and weighs 23 grams.

Derek Knight Meteor 4

Scale Maestro Derek Knight seems to be effortlessly creative, and his new, almost completed Gloster Meteor 4, is an amazing beast. It has two of his own-design 24mm EDF24 (Electric Ducted Fan) units. It may only spans 24 inches, but it makes an enormous sound. A bit like two turbines being run up in a tin shed. I want to see this flying outside at the F/F Nats. In the meantime, check out: www.kpaero.com/

Outdoor Scale!

Although not Indoor Models, there were two part-completed scale projects at Nottingham that we all appreciated. In fact, and we were all very grateful to their owners to be allowed a sneak preview. The first was Boss Scalista Philip Kent's part completed Aeronca C2. This is

49 1/2" span and was intended for a Russian Mills 0.3cc diesel. Needless to say it was very lightly built. The other almost-completed outdoor Free Flight scale model was Andy Hewitt's superb DH6. This 56" span model is built to 1/8th scale, and weighs 40 ozs. She is powered by an ED Comp Special diesel, and I thought that the scale detailing was utterly peerless. I gawped at this part-completed model for a long while. Andy says she will be ready for the F/F Nats scale do in early June. It will too. See the dummy engine in the pix.

F/F Scale Pylon Race

An Indoor Free Flight Scale Pylon Race is a rare and precious thing. Especially when the Pylons are cords supported by helium balloons, and the ground anchors, are tins of beer. It all sounds mad, but it makes perfect sense when you see it.

This year The Pylon Race attracted the highest number of teams in its history. They started Le Mans style, too. This Race has thrills, spills, heartache, and much room for the exercise of low cunning.

Peter Smart's deliciously sly, beautifully enunciated, 'flow-of-consciousness' commentary was eye-wateringly funny, especially when you really listened, but was delivered with all the mock pomp that the circumstance demanded. He's a class act that, Peter Smart. He should have been an actor, not a Greek scholar and nuclear physicist.

Blog and Pylon Race Video

I ran a live 'Road Blog' on the day, sending photos and live videos directly from the competition hall, via my iPad. I was astounded that the Blog received over 1,500 hits that day, and many more since. You can access my Road Blog via my free, non-aligned, website: www.alexwhittaker.com

Go to the opening page and hit the big 'Blog' button. Also, check out my YouTube video of the BMFA F/F Indoor Scale Nats Pylon Race 2012: <http://youtu.be/gFHGIV4Cn5E>

Or just click the big 'Video' button on my website. ■

Enrique Maltz's beautiful Caproni CA 20; 13" span, and weighs 9.3 grams.



On Silent Wings by Chris Williams

SCALE SOARING

New scale soarers seen in action defy to worst that this year's April in UK could conjure up!

TVSA Aerotow, Siege Cross Farm, Thatcham 15th April

Ah, April: so long in promise, so short in actual delivery. Traditionally the first aerotow event in the scale soaring calendar, the date for this one superseded the first slope event of the season at the White Sheet club, where both the actual and the reserve dates went by without anything in the way of the occurrence of suitable weather. True, the sun was shining magnificently on Siege Cross Farm, situated on the outskirts of Thatcham in Berkshire, the town where all traffic lights come to die, but it was accompanied by a blustery and chill northerly wind, blowing straight from the North Pole!

Nevertheless, a healthy turnout of tugs and gliders were present, although the usual eagerness to fly was somewhat in abeyance. So,

The Petrel from the air.

what was there to see, especially in the way of new models, fresh from their respective winter workshops? The first to catch the eye was the massive half-scale Musger MG 12a, lovingly put together by the Ghost Squadron's John Greenfield. Featuring scale construction methods inside and out and covered in doped *Diatex*, John confided that he had even brushed the dope on rather than spray it to conform to the practices used on that particular full-size example. Weighing at not that far under the critical 20Kg mark, he threatened to bring it to the next White Sheet event on the basis that he built it with slope soaring in mind! This would be an interesting feat on many levels: so far, the largest model I have seen thrown off the hill there was a near half-scale ASW 22, which needed a committee of





John Greenfield's beautifully reproduced Musger MG12a, built to half scale.



Close up of the cockpit area of John's Musger.



Antonia Gigg with her new DG 808C.



Darren Maple proudly displays his new 3rd scale Slingsby King Kite at the TVSA event.

launchers to get it airborne, with three of four practice sessions before actually letting go. It was a shame therefore, that on this day, the MG12a did not fly, as the only assembled tug large enough to get her airborne was John's own tug, the Mega-Mega *Greenley*. (To see the aforementioned launch for yourself, put *ASW22 @ White Sheet* into the YouTube search box)

At the other end of the scale, Antonia Gigg had spent the winter producing another one of her diminutive jewels, this time the DG 808, its tiny interior so packed with hardware it is a wonder there was room for the receiver. The model is actually a *Faltus* full glass DG 600 that has been modified to a DG 808C in the DG prototype markings. The kit has been modified with 250mm electric airbrakes in the wings, with scale DG option winglets on the 18M version. The fuselage has been modified by the fitting of a steerable tailwheel, retractable undercarriage, aeroto-hook, and a modified ST models DG 1000 self-launch system with a *4-Max* pro 2837 4s motor driving a 7 x 6 APC thin prop.

The maiden flight was handled by Mr Greenfield, and the DG seemed to cope well with the difficult conditions, although it seemed that there were some trim issues to sort out. (It later transpired that one of the all-moulded wings was warped).

We had been following Darren Maple's build of the Slingsby King Kite on the SSUK forum over the winter and a treat it was indeed to see this third-scale replica in the flesh (...or wood perhaps). The Type 9 King Kite, from the Slingsby concern at Kirbymoorside in Yorkshire, was built and first flown in 1937, and although, initially, it seemed to fly well, it was soon discovered to have a disconcerting ability to drop a wing and fall into a spin. It was more that twenty years later that the cause was discovered. Due to a jiggling error, the wings had been built with wash-in instead of washout! This was not to be the case with Darren's example, as he had copied the arrangement from my HW-4 Flamingo design and used a *Quabeck* section. After a long wait for the wind to drop, the King Kite finally took to the air for its one flight of the day, and to my practiced eye, seemed to perform very nicely, than you.

Chris Morrison had popped down from the Midlands with his new tug, the *HunkyDory*. This has been his own pet project, and he had been some time making up the moulds for the fibreglass fuselage, the resulting model looking quite stylish in contrast to the workmanlike appearance of most non-scale tugs. When a treacherous gust of wind caught the *HunkyDory* on landing, the resultant cartwheel showed that the airframe was impressively strong, the only casualty being the propeller. For those who like the details, the model is fitted with a 3w70 fitted (Designed for similar to Z62 or DLE 111) engine, the fuselage is epoxy glass, as is the undercarriage; and the wing, tail and rudder are foam/veneered. The wing span is 2.5m, with an approximate AUW of 12 kg.

On a personal note, I had brought along my two Winter creations, the *Topaze* and the *Petrel* for their first aerotow experience. Of the two, the *Topaze* had plenty of slope-based flight time, but the *Petrel* had only a brief slope session under its belt, so I was more than a little relieved to find that she handled the less-than-clement conditions with ease. The *Topaze*, despite its smaller size, continues to delight with its ability to fly in the lightest and strongest of winds.

At one stage of the proceedings I was able to observe John Greenfield flying with all the gear and accoutrements needed for the new-fangled art of GPS triangle flying. Rather in the F3b style where models glide as quickly and as for many laps as possible between two pylons, triangle flying involves flying between three waypoints, delineated and marked by the GPS gear in the glider and on the ground, for as many laps and



The King Kite takes off for its first sortie of the day.



Chris Morrison's new HunkyDory tug.



Clive Learwood's HW-4 Flamingo at Siege Cross Farm.



John Greenfield's Franken Modelbau 3rd scale Ventus flying the triangle.

“

If the grass is billiard table smooth, and also slightly damp, then the Petrel will continue to slide along the ground on her lacquered skid until you run out of space.

”

at as great a speed as possible. John remarked how such a seemingly simple task was in fact quite difficult, and also how performing such a specific flying task was a very satisfying process indeed. Ah, how this took me back...all the way back to the early days of slope scale competition, sadly an art that has all but completely died out. Just the simple task of flying a figure eight in front of the slope was a task mired in complication, for the rules insisted that as far as possible a constant angle of bank should be applied during the manoeuvre. Now, considering that the wind, sometimes a strong wind, was pushing the glider back towards the pilot meant that many trying that manoeuvre for the first time almost always made a complete bog of it, and it was only with practice that anything near the predicated shape could be achieved. I always found that practicing this, and all the other manoeuvres gave the art a flying a whole new and enjoyable dimension, something that those who practice the aerobatic arts must already appreciate.

Ah well, nostalgia ain't what it used to be, as the old saying goes, and now this event is nothing but a memory.

Despite the far from classic conditions, those of us who flew found this particular event to be a memory worth keeping, so well done to the TVSA stalwarts for laying on the event, to the tug pilots for oiling the cogs and, as this was but the first of the aerotows at Siege Cross for this season, we look forward to the next one...

The art of solo snapping

I mentioned previously the flight of my Slingsby Petrel at the TVSA aerotow. Well, the culmination of this project certainly got off to a bumpy start. Firstly, on the occasion of the maiden flight, the fuselage was accidentally knocked off a trestle during the charging process, causing some minor damage; then the maiden flight itself had to be aborted when the CG turned out to be too far aft, the model sustaining some further additional minor damage.

Eventually she was successfully maiden on a somewhat blustery day, followed by the TVSA event, also blustery, so it wasn't until the following week that a break in the constant showery weather allowed for a more leisurely examination of her flight characteristics on my favourite slope. This model features a model-type wing section, suitably thickened up at the root to 17% in order to give a scale appearance, and thinned to 12% at the tip to enhance efficiency. (Contrary to accepted theory, the wings have no washout, as low-speed behaviour is impeccable). The Petrel, my second after building the prototype some 14 years ago, continues to be very pleasant to handle, being heavy (20lbs) and efficient enough to cope with bumpy air and yet still able to proceed smoothly in flight.

The spoilers, inefficient as they are on their own, give excellent glide-path control when mixed with up-going ailerons, so high approaches over the obstacles at the back of this particular slope are perfectly acceptable. It's when touching down that there can be a slight problem: if the grass is billiard table smooth and also slightly damp, then the Petrel will continue to slide along the ground on her lacquered skid until you run out of space, whereupon she takes to the air once again!

The biggest problem on this particular occasion, though, was that, as usual, I was on my own, but in desperate need of some decent photos. So, not for the first time, it was up to me to do the business. (Perhaps my mum is right: I should get out more and make new friends). Successful solo snapping requires the following:

- 1: A slow flying model
- 2: A stable and trimmable model, capable of eight seconds or so of free flight
- 3: A camera with a zoom lens set to around 135mm

The Petrel fulfils the first two requirements, and, as luck would have it, my old camera fulfils the second. Setting



The Petrel in action (Author pics).

the lens to the middle of the range is the best compromise for a situation whereby you cannot predict the path the model will take: too far away and the image is too small to be of any use, and too close you might just give yourself a laundry problem. One thing you can be sure of: if you zoom in it will fly too close, but if you zoom out, too far away. Setting up the model on the approach is critical: if going back up the slope to fly into wind, you will need to go back

far enough to stabilise the speed: if you are going too fast she will zoom up too high, too slow and the ground may become perilously close whilst you are peering through the viewfinder. (On one occasion, the model did actually land itself unaided, slide along on its slippery skid, and take off again). The trick, the real trick though, is simply one of perseverance. One or two passes are unlikely to give you the results you want, instead a scattergun approach is called for: I

spent a good thirty or forty minutes of this, and took over a hundred and ninety photos to get the ten good ones that made all the effort worthwhile.

Needless to say then, I was able to pronounce myself well satisfied with the Petrel, and I continue to wonder at all the enjoyable off-shoots there are to the simple joys of flying a scale sailplane...

c_williams30@sky.com

Author with the newly completed 1:3.5 scale Slingsby Type 13 Petrel.



THE QUIET ZONE

R/C SCALE ELECTRICS BY PETER RAKE

Yes, that flippin' man is back again. Not only that, but he's going to do it to you again, change what he was supposed to be writing about.

As you may recall, I had intended to feature the remainder of the item about Mark Rittinger's models. Well, sorry Mark, that will have to wait until next time. I was all set to write up what I had promised when a couple of e-mails from readers (yes, there are some) prompted me to have a quick rethink about what would appear this time around, because I felt that, nice as it would be to conclude the item about Mark's models, it wouldn't hurt to wait another month, and it might be nice to substitute an item better suited to less experienced modellers, after all, if we only ever include items for experienced 'electrophiles', sooner or later there wouldn't be any less experienced modellers to graduate to that exulted status.

Electric flight is only the future of model flying if we can encourage and guide newcomers to the hobby, thereby ensuring that they are successful enough to want to stay with the hobby long enough to gain sufficient experience to go it alone. Bearing in mind that none of us lives forever, and we of the older generation seem to be dropping off the twig at an alarming rate, the more fresh talent we can encourage, the better it will be for the future of modelling.

Hmm! That all sounds a bit gloomy and doom laden doesn't it. Oh well, what do I care? I repeatedly state that if I can't take my models with me, I point-blank refuse to go! So, you'd better prepare yourself for another fifty or sixty years of my rambling and interminable plan designs. Oh what a bright future you lucky lot have lined up. What do you mean, 'Only another fifty or sixty years'? Don't you think that after that long I might be entitled to take a break from keeping you ungrateful lot entertained?

Okay then, after having totally tempted fate, I suppose you'd like to know what you can expect in



IF BIG BIPLANES DO IT FOR YOU THE RELATIVELY LOW POWER REQUIRED (40-60 WATTS/L3) MEANS THEY DON'T COST A FORTUNE TO POWER. THIS IS THE 67" SPAN BRISFIT BY PAT LYNCH.



Requiring similar power levels to biplanes, the 60" span Air Camper is another reasonably cheap one to set up.

place of the halfway sane item I did have lined up. Well, after having almost guided you through how to design models using CAD, (albeit in a somewhat interrupted manner) the e-mails set me to thinking about what is required before we even get to that stage. It's all very well being able to draw a plan, but absolutely no earthly use if you don't have a clue about what equipment to install in your beautifully designed model. So, for this month only, we are going right back to basics to take a look at what equipment we might need for a successful conclusion to our design and building session. At least then we might have a better idea of what it's all going to cost us BEFORE we draw up that eight feet wingspan, multi-engine monster.

REALLY BASIC STUFF

Okay, just to set the mood for this epistle to the unconverted, you have to remember the pace at which electric flight is developing. The technology we use to power and control our models is developing at such a meteoric rate that any article about specific items is likely to be outdated after just a few months. Also, if I'm to be writing this column fifty years from now, it would be awfully nice if I could simply 'recycle' this article without having to do too much editing.

No, seriously, (sometimes I can actually be serious you know) technology really is improving the modeller's lot so rapidly that it is pointless to refer to specific items. As such, it seems to me to make more sense to discuss what's needed in terms about its abilities, rather than look at who makes what and how much it costs. Manufacturers and specific products are constantly changing, but the basic requirements for making our models fly in a controlled manner never change. As long as the medium in which we fly our models remains unchanged and, short of colonising other worlds, that is likely to remain the case, what's needed to fly them will remain basically the same.

Right then, you've decided you want to have a bash at this model flying lark, but don't want to get involved with all that horrible oily stuff, noise and engine starting. In that case, you have come to the right place. You won't find any of that here, just clean, quiet, electric powered models.

However, since you probably know that already, what you will need to know is what will work for the model you have in mind. Before going into that any more deeply, I'm going to make a few assumptions. Since, in general, scale models make very poor basic trainers, I assume you have already learned to fly using something slightly more expendable than a thousand-hour scale build. This being the case, and depending on how well heeled you are, you will already be in possession of a set of radio gear and a basic

motor/battery/charger set-up.

How up-market all this is will depend on the proviso above, but presumably it will be a useful starting point. Even if it was purchased as part of one of those super cheap, take-out-of-the-box-and-fly style models, it can still be used in many of the more basic types of scale models. Obviously, if a retracting undercarriage, operating flaps, sound equipped warbird is your aim, you're going to have problems if all you have is a basic four channel radio, NIMH battery and geared brushed motor, but you know what I'm getting at. If you have learned to fly, whatever gear you can CAN be used in scale models that are not too dissimilar to your original model. If you intend to change the style of model drastically, always buy the best equipment you can sensibly afford. It doesn't have to be the most expensive, all-singing, all-dancing latest version, just something that is likely to work in what is currently your most ambitious dream model. By the time you get to that you won't need me to tell you what to buy, you'll already be in the exulted ranks of experienced modellers.

LOOKING CLOSER

So, you have your radio gear, have learned to fly well and absolutely must build a scale model of your favourite aircraft. Since I have no experience with ducted fans so wouldn't have a clue what to suggest, I'll assume it's a propeller-driven type. If it isn't, I'm wasting my flipping' time and you don't need to read



Marion Crowder's Lysander needs more power than its style suggests. Lots of drag on small wings makes for a complicated life.



Don't want to build? The Perkins ARTF Tiger Moth converts well. This one had enough power to spare that it barely noticed quite strong winds.



Typical of so many very cheap motors this 'bell' outrunner is great in 40-50 inch, lightly loaded monoplanes and 36-40 inch biplanes.

any further. Now clear off and bother those who are interested in flying blow-lamp type models.

Now, no matter what type of motor you use, what batteries you use to power it, or how technical your radio gear is, there are certain factors that will determine what you are going to have to treat yourself to in order to get your scale model into the air.

Whatever the model's size, or how technical or detailed it may be, there are rules that apply across the range. No, I don't mean rules like 'don't stick your finger into a spinning prop', but rules about how much power you need to have available if your model is to fly in a scale-like fashion.

Although it goes without saying that light models invariably fly better than heavy ones, that is a matter of wing loading rather than the actual pounds and ounces of an individual model.

"What is wing loading?" That's a fairly simple one to answer and is usually expressed as ounces per square foot of wing. So, if your model has a span of fifty inches, has a parallel chord wing (the same width along its entire length), is nine inches chord and the total weight of the model (ready to fly) is sixty ounces, then working out the wing loading will look a bit like this:-

50×9 gives you the square inches of area.

Divide that by 144 to turn it into square feet and then divide the weight in ounces by the number of square feet. That should give you an answer that looks like this; 19.2 ounces/sq. ft., which indicates that it isn't a particularly gentle model, but is far from being as heavy as WW2 fighter models.

Anyway, after you've managed to divert me with daft questions, wing loading isn't what I was referring to. At this point I am more concerned with power-to-weight readings and, in general terms this breaks down into three rough groups. For powered-glider style models, or very lightly loaded calm air fliers, you should be aiming for under 40 Watts/lb. WW1 types, modern light-planes and between-the-wars types work well at 40-60 Watt/lb. and anything more than that is the preserve of WW2 fighters and aerobatic types. In the case of the latter, the sky is the limit, depending on your chosen prototype and how you intend to fly it.

To work out the Watt/lb. rating you need to at least study the specs of the motor you are considering and check its current-draw on a given cell-count and prop size. Once you know how many Amps it draws, and what number of cells you intend to use, working out the rest is easy, Volts x Amps = Watts.

Knowing how many Watts you can expect, then dividing that figure by the weight of the

model (in pounds) tells you how many Watts per pound your power set-up will provide.

So, with your power-to-weight availability calculated and knowing roughly how much power your chosen model is likely to require, you have a pretty good idea that your WW1 fighter, no matter how big it is, doesn't need the 150 Watts/lb. motor that you were contemplating, will provide. Maybe it's time to look for a bit smaller motor? Just make sure it is still capable of turning a prop that is big enough to clear the cowling by a goodly amount.

Just as a point of interest, a reduction of the cell-count means your given motor can swing a bigger prop without releasing its magic smoke. There are limits, of course, but it's worth checking if the motor you fancy is on the borderline for your chosen subject. As you'll see from the motor specs, reducing the number of cells also reduces the current draw (Amps) and increasing the prop size will bring the Amp count back up again.

Yes, I know this is getting complicated, but nobody said it was going to be simple. Besides, if it was too easy, any fool could do it and there would be nothing for me to write about. All right, hand up who said, "If only".

WHAT'S IT ALL MEAN MISTER?

Put into its most basic terms, it means that no

The proof of the pudding. Even on just a 2S pack the 'bell' powered Eastbourne Monoplane needs less than half throttle for scale-like flight. Span is 48" and weight is 20 ounces.



Not actually a scale model, the author's Ryan tanklike is hugely overpowered at almost 100 Watts/lb. It can literally leap into the air.



If all you have is the salvaged gear from a cheap ARTF, something like this 45" Sperry Monoplane makes a good subject.



The 60" Waco YMF of Charlie Bice is weighty and aerobatic. Powered at around 80 Watts/lb it flies in a convincing manner.



Just by contrast, this sub 30" span Brisfit flies nicely on a small brushed motor.

matter what size or style of scale model you envisage building, there is a power system available to suit it. Any model, from a tiny indoor flier converted from a rubber power kit, through to 1/4 and 1/3 scale, are all fair game. Follow the power guidelines laid out above, and build as lightly as practical and you are virtually guaranteed a model capable of flying in the manner you'd expect. Pioneer-era types will waff gently around the sky, WW1 models will dog-fight admirably and aerobatic types will punch holes in the sky with wild abandon. Not quite so guaranteed is your ability to fly them, but you can't have everything.

Don't get me wrong, I'm not suggesting for a moment that you should leap straight from a basic trainer to an all-singing, all-dancing giant of a model, I'm just letting you know what you will need, to power your model correctly, once you are ready for it.

It's never a bad thing to know that, given a good design, the model you've lavished such loving care on will amply repay the small amount of time you spent picking the correct power package.

WHERE'S ALL THIS HEADING?

Ah, now. If I knew that we'd be laughing, I had intended to keep this to a single item, but can now see that it will take a little longer than anticipated to cover it in any meaningful manner. Since it's really aimed at novice electric fliers (electrolytes?), I won't run it as consecutive articles. After all, we have to keep the more experienced fliers happy too. So, in the issue after next, I'll take a closer look at other factors that should be of interest to those of you contemplating a

move into electric powered scale models. I'll attempt to guide you through some of the pitfalls and avoid you spending lots of money on equipment that isn't right for your needs. Goodness knows it's easy enough to do. I'm sure that, stashed away somewhere, I still have some of the first brushless motors I bought, still awaiting for me to find a model for which they are actually be used.

So, rather than cram in something here,

not giving it the attention it deserves, I'll leave it there for the time being. With more than another month before the next part of the article that gives you ample time to contact me about areas you'd like me to touch upon. Questions, suggestions (printable ones) and your thoughts on the subject are all welcome. As regards contacting me, you'll find me at the usual place, PETERRAKE@aol.com



Racers, like Mark Rittinger's Osprey need lots of power. More about this model next month.

Techno Scale Mike Evatt

LET MODEL is based in the Czech Republic and maintains a web presence at <http://www.let-model.cz> Petr Lasovsk manages the enterprise, which is a large-scale sailplane specialist producing models of superb quality and high performance. Their website is packed with exceptional photos of their products that will get you drooling. I particularly liked the range of fold-away electric power units for suitable for those who wish to be independent. The SLS 18 unit shown in the screen-shot includes an APC propeller, a HS 7955 TG servo, a motor controller SPIN 99 and weighs in at 1.13 kg.

A new kit is soon to be released is the high performance and beautiful 'Nemere' sailplane. It was designed by Lajos Rotter in Hungary for the 1936 Olympic Games in Berlin. Rotter intended for the sailplane to be aerobatic as well as a superior cross-country aircraft. The new kit will be 1/4 scale, with a 5 metre wing-span. A second kit will follow of a larger version that will be 7 metre span.

Vintage Scale Sailplanes website at:- <http://www.vintagescalesailplanes.com>

will keep you updated as to progress. Excellent photos of the prototype model under construction have already been posted.

Kempley-Helicopters at <http://www.kempley-helicopters.com> was created to be the number one source for information on the sport of RC helicopter flight. They aim to be as diverse as possible, whilst providing specialist information. At the heart of the site however, is scale flight, and aerial photography; the two main interests of the sites creator. To this end, they will shortly be offering a scale and sport build service. Primarily aimed at the Vario range of scale helicopters, they can order, construct and setup these models for you.

Building a scale helicopter is a great way to display your talents as a builder and as a flyer, but where do you start? Another website well worth a visit is that of the **Bath Model Helicopter Club** at <http://www.bathmhc.co.uk> This is a small friendly helicopter-only club based on the outskirts to the west of Bath. Their members include complete novices to competition standard 3D flyers with all types of helicopters including some very nice

Vario Scale models. Check them out for a wealth of information and a phethora of pictures.

It was well over forty years ago that the '**Hobbys**' founder, Mr. W.F. Crossland, was reluctantly persuaded to try to sell fifty high quality musical box movements by his Swiss brother-in-law. The rest is history! Hobby's have become well known amongst the modelling public for their comprehensive annual catalogues. They now have an on-line presence at <http://hobby.uk.com> Over the years they have expanded their range and now include the flying scale models. The new Escale Waco is a state-of-the-art brushless motor-powered 4-channel scale aircraft available as a fully equipped model including 2.4GHz R/C or without transmitter or receiver.

The ultimate model designed for the ultimate engine! The '**Flying Legends**' **Gipsy Moth** and the O.S. IL-300 Dia Star are the perfect complimentary combination and that is why the Gipsy Moth exists. This model has been designed to show off the IL-300 by choosing a subject that allows a simple yet visible installation and an aeroplane that flies in a way that the



LET MODEL is based in the Czech Republic.



A new kit is soon to be released of the high performance and beautiful "Nemere" sailplane.



Kempley-Helicopters was created to be the No. 1 source for information R/C helicopters.



Bath Model Helicopter Club's excellent website.



The new Escale Waco is a state-of-the-art brushless motor-powered 4 Ch R/C scale aircraft.



The ultimate model designed for the ultimate engine!

walks the webspacE for more TechnoScaLe Topics...

IL-300 can exploit. For those that find the IL-300 a little out of their reach, there is also provision to fit an FS200 Surpass as an alternative. At 2170mm span, this is a big model! Every effort has been made to incorporate as much scale detail as possible. With the designer being none other than scale legendary David Boddington, what else would you expect! Check it out at <http://www.myhobbystore.co.uk>

The **Warbird Replicas** range of kits has been around since 1993, and has built a solid reputation for easy construction combined with relaxed flying qualities. Whether you are a new or experienced builder, Warbird Replicas kits will give you back the unique feeling of building and flying something that you have created. Of all of their designs, the Lavochkin La7 has possibly been the biggest surprise. They could not have guessed how popular this little beauty would become; in fact, they have been working on a slightly larger version due to popular demand. Check them out at <http://www.warbirdreplicas.co.uk>

Historically, small-scale R/C aircraft were considered something exotic that

only a special breed of R/C pilot could build, own and operate. That has all changed today. With the ready availability of high quality ready-to-fly aircraft, scale R/C is available for the everyday R/C pilot. Pre-built aircraft come out of the factory fully tested, and the jig assembly process produces a light-weight, strong and fully aligned scale R/C aircraft. For information on all aspects of indoor electric radio control model aircraft log-on to <http://indoorflyingmodel.com>

By logging on to the **Model Expo** website at

<http://www.modeexpo-online.com> I discovered **Dumas Aircraft Kits** and in particular, their 'Walnut Scale' rubber powered models. They represent amazing fun for all ages and make great projects for learning the art of building and flying model aircraft. These planes feature a wingspan of 17.5 ins - small enough to be practical and big enough to give exciting and rewarding flying. The kit of the Citabria is just one of many selections representing exciting models which captures the best model aviation has to offer.

The team at **Carbonology** have been working in the composites industry for coming up for 15 years and have worked on specific aerospace composites projects back as far as 1989! Between them they have worked in aircraft workshops, boat yards, mast makers and racing car builders - and just about everything in between at some time or other! Their website at <http://www.carbonology.com> shows a vast range of stock from Carbon Fibre tube and sheet to cloth and resins, as well as tools and consumables mostly available in small quantities.

And finally! Ever wondered how the flying sequences in films like *The Aviator* were shot? Then log-on to <http://www.aviatorvfx.com> and be amazed! Radio controlled planes were employed for every major flying sequence and were shot in proper perspective to appear full size. An unusual creative and cost saving procedure was adopted where the motion control photography was done outside under natural light. Besides looking more realistic, the sky background and its natural reflections in the plane were preserved. Fascinating!



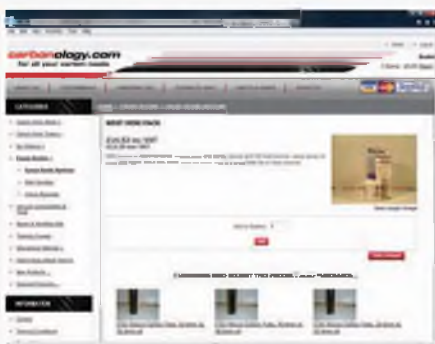
The Warbird Replicas Lavochkin La7.



For information on indoor electric R/C log-on to <http://indoorflyingmodel.com>



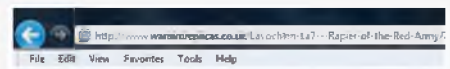
Dumas Aircraft 'Walnut Scale' rubber powered Citabria.



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Ever wondered how the flying sequences in films like Aviator were shot?



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

mikeevatt@hotmail.com

Classifieds



For Sale

Model aircraft, Hi Boy 62.5" wingspan with engine and servos, concept 3D helicopter with engine, servos and gyro. PCM high quality 5 channel radio model Net J35P electric engine starter, purpose made spares tray, control panel, fuel pump used very little and in excellent condition. New batteries needed.

Price: £350 ono.
Contact: 01787 228133.

Futaba Sky Sport 6 trans with battery and R137F reciever. In very good condition.

Price: Offers to include postage or collect.
Contact: 01244 376646.
Evenings.

Vintage Sanwa 'green' 4 channel 27mhz SP41T plus SP41R Rx. Including set X Tails 4 SM391 1/2 servos plus 2 switch

harnesses. Needs new Tx Nicads.

Price: Offers.
Contact: john.sea-combe@wanadoo.fr
0033 545 29 03 56.

Spring air retracts, 1 pair, suit 5mm or 3/16" legs for up to 15lb model. With all air accessories and instructions. Good condition.

Price: £35 plus £1.95 p&p
Contact: 01535 663187.
Yorkshire.

Still have over 40 motors for sale including diesels. contact for a list. Will trade for pre 1945 Aeromodeller mags.

Contact: gray37@sky.com

Miles Hawk Speed 6, Phil Kent design, 86" wing span, airframe only and all servos.

Price : £250 or VNO
Contact: 0151 486 2495.
Liverpool.

Aeromodeller annual 1951, original cost 5 shillings, average wage £7? i purchased two in the same year by mistake.

Price: £19.50
Contact: 01733 553745
marriottsolent@talktalk.net

Wanted

Small diesel engines or broken for spares aircraft kit. Single channel gear. Frequency monitor 27hz or 35hz. Top price paid.

Contact: 01782 317815,
07547 182338. Stoke on Trent.

Looking for complete kit, Vernon Cardinal free flight model.

Contact: 07546 450456.

Gliders large vintage balsa, 100 inch plus, repairs accepted.

Contact: 01769 540490.

Copy of Air Enthusiast quarterly No 3 or Article "Those Benighted Rolands" By P. M. Grosz.

Contact: 01484 711406.

Rusler Tiger Mk3 in excellent condition.

Contact: 07876 447246.
steve@drennan999@btinternet.com

KeilKraff "3/9P" kits particularly JRTs, 1950s, Chevron boxes only. High prices paid. Plan copies would be helpful if kits unavailable.

Contact: 02392 527202.

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SS36002 - B-29 SUPERFORT COMBAT CHRONICLES (Soft Cover) SS76002 - B-29 SUPERFORT COMBAT CHRONICLES (Hard Cover)

With its pressurized cabins for high-altitude operation, its long range, large bomb capacity, and turbo-supercharged engines, the B-29 Superfortress was the epitome of cutting edge American air power during WWII. The author, a photographer with the 40th Bomb Group and a veteran of 83 Superfortress missions, offers a first-hand, eye-witness account and shares his experiences on reconnaissance and bombing missions, flying the 'Hump' and taking off from an advanced base in Sichuan, China, to pummel Japanese occupation forces throughout Asia. Then in early 1945, the 40th BG moved to newly-liberated Tinian from which they took part in the final chapter of WWII - the aerial assault on the Japanese home islands. Introduces you to fellow veterans of the 40th who relate their no-less extraordinary experiences - ditching in the Bay of Bengal, lost in the Siberian Taiga, downed behind enemy lines in China, taken prisoner after bailing out over Tokyo. Personal accounts from the men who served on the front lines of the air war in the Pacific, a unique primary historical source and a truly exciting read. Illustrated with over 100 photographs. 120 pages.



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English text, soft cover, 100 pages, 215 photos, 112 side profiles. Entire book is published in colour.



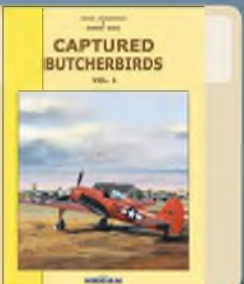
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J. Jackiewicz
Continuation and sequel for the 'Assembly Ships'.
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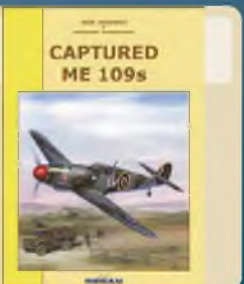
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