

WINGNUT WINGS



AMC DH.2

1/32 Scale

The prototype AMC DH.2 (Aircraft Manufacturing Company de Havilland 2) first flew in June 1915 and was sent to the front for evaluation in late July where it was promptly captured by the Germans in early August. Undeterred by this not insignificant setback, development continued and full scale production began in November. This allowed 24 Sqn to be fully equipped with the DH.2 when they arrived in France during February 1916 where they, along with squadrons equipped with the FE.2b and French Nieuport 11, began putting an end to the 6 month long "Fokker scourge". Although powered by essentially the same engine as the Fokker E.II & E.III the DH.2 was designed from the outset with maneuverability in mind and the wing warping Eindeckers proved no match in combat. It would take until July-August 1916 before the twin IMG 08 'Spandau' armed Halberstadt, Fokker and Albatros D type biplanes would regain air supremacy for the Germans. By June-July 1917 the DH.2 had been replaced in front line service by the Nieuport 17 and DH.5, although they continued to serve in the Middle East well into 1918.

Early production DH.2 arrived with an impracticable flexible 'wobbly' Lewis gun mount, 2 bladed propeller, bungee or spring type aileron returns and had the 5 gallon emergency fuel tank fixed under the top wing center section. Other identifying features of early production aircraft are the small fairings at the rear of the nacelle, external magazine storage for 4x 47 round magazines, a single tube pitot head and the rudder control cable pulleys positioned slightly further forward in the nacelle. Like all new aircraft many unofficial and official changes would take place in service, some of which are noted here; the position of the emergency petrol tank directly above the hot engine was not thought to be ideal so it migrated to various positions on the top wing. Problems with the bottom longerons cracking lead to small inspection flaps being added just above the front undercarriage strut, the 'wobbly' Lewis gun mount was fixed to fire straight ahead and the capacity of the main petrol tank was increased. The instrument board layout could vary considerably as did, surprisingly, the front cowling. A 4 bladed propeller developed for another single seat pusher, the FE.8, was introduced in the middle of 1916 and improved performance.

Arriving early in the war at a time when camouflage was only just being introduced the DH.2 features many interesting colour scheme possibilities. Early DH.2 appear to have had their nacelles, metal and wood components and struts painted grey with fabric areas remaining natural CDL. The desire to camouflage aircraft lead to 'emergency' applications of varnish tinted with liquid or ground pigments which were quite transparent, although slightly less so for the ground pigment versions, and ranged in colour from approximately FS14097 to 24098 for green and FS30118 to 20122 for the brown (Ian Huntley writing in Scale Models). While offering some protection from prying eyes these dyed varnishes offered no protection from the sun's harmful rays and a line of opaque Protective Covering (PC) dopes were developed, the most infamous of which, PC10, was slowly introduced from April-May 1916. Prior to the introduction of PC10 it appears that 'experimental khaki' PC8 saw limited use and was, reportedly, a light brown similar to FS10266. Many aircraft exhibit evidence of being camouflaged with tinted green and/or brown varnishes and some may have received a coat of PC8 before PC10 was available in large quantities. All wood and almost all metal parts were painted grey and metal parts which were not grey appear to have initially been finished in black, although many were later overpainted with grey in service.

Richard Alexander 2012

Wingspan:	Length:	Max Weight:	Max Speed:
28.25ft (8.61m)	25.2ft (7.683m)	1441lb (653.8kg)	94mph (150kph)
No. manufactured:	Production:	Engine:	Ceiling:
450 approximately	Sept 1915 - Late 1916	100hp Gnome Monosoupape	14000ft (4270m)
Armament:			
0.303in (7.7mm) Lewis Mk.II machine gun			
References:			
The AMC DH.2 Windsock Datafile 48, BJ Gray, 1994 - WW1 Aero #146 1994 - Cross & Cockade International Journal V20#1 1989 The Vintage Aviator Ltd - 1914-18 Aviation Heritage Trust - Colin Owens - Private Collections			

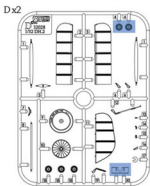
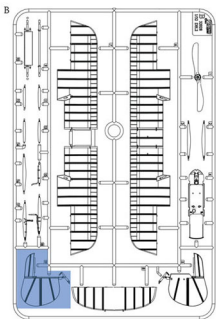
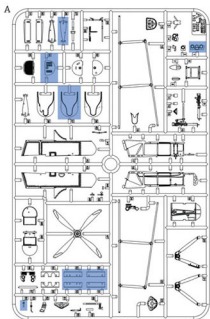
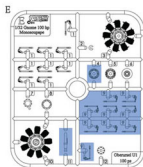
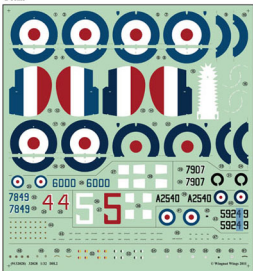


Photo Etch

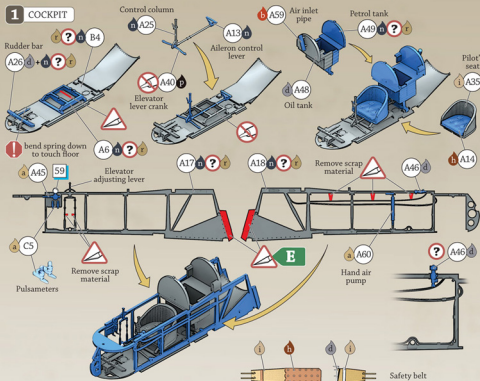


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Decals

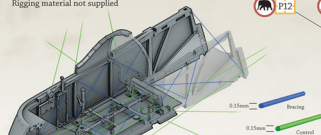


1 COCKPIT

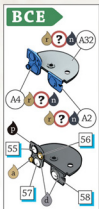
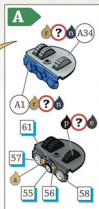
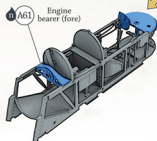


INTERNAL RIGGING GUIDE

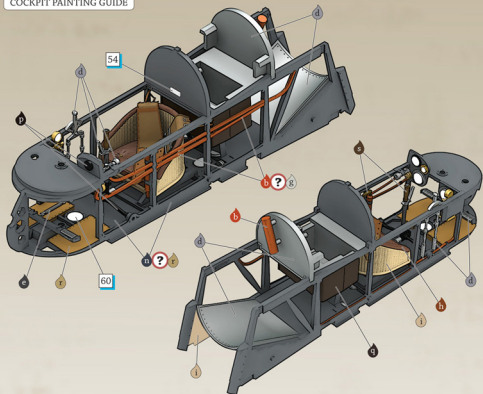
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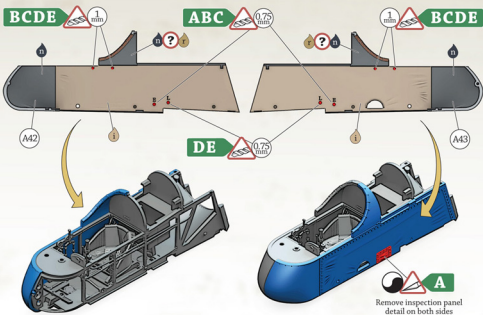
Instrument board options



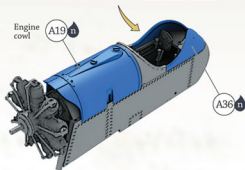
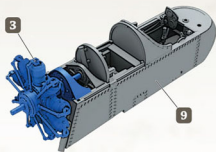
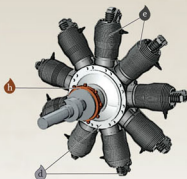
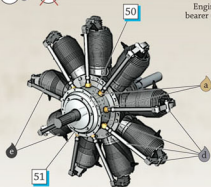
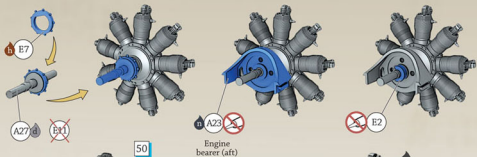
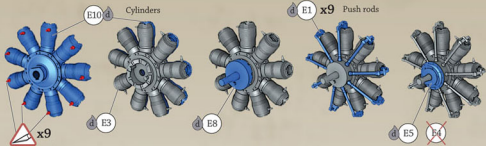
COCKPIT PAINTING GUIDE



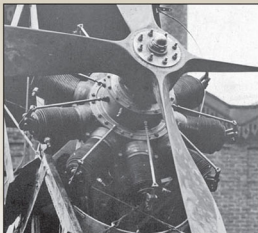
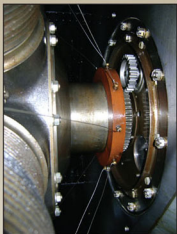
2 NACELLE



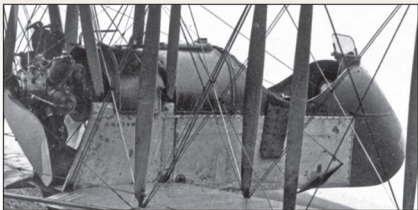
3 100hp GNOME MONOSOUPE ENGINE



A working 100hp Gnome Monosoupape as fitted to The Vintage Aviator LTD's Avro 504. Note the caster oil staining, rocker arm and plug lead details.



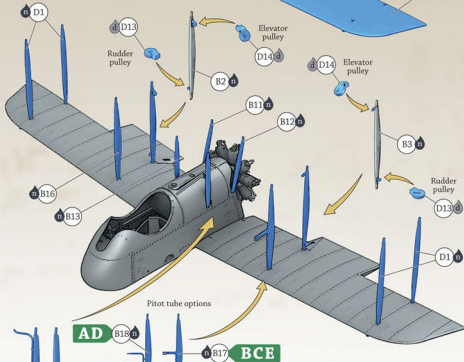
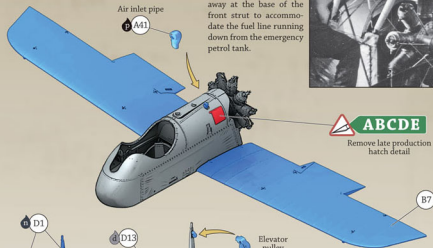
100hp Gnome Monosoupape engine detail from the 24 Sqn DH.2 A2542. Note the engine dataplate and 4 blade propeller (AM7) details.



Nacelle detail from DH.2 5923. Note the AMC stencil on the stained CDL fabric, the pilot's wide safety belt and how dark the grey cowl panels and wing struts appear.

4 BOTTOM WINGS AND STRUTS

Engine and nacelle cowl detail from **E**. Note how the cowl has been cut away at the base of the front strut to accommodate the fuel line running down from the emergency petrol tank.

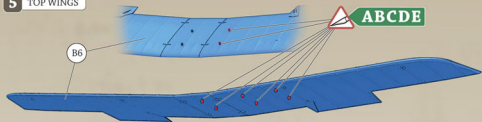


E B15 n n B14 **ABCD**

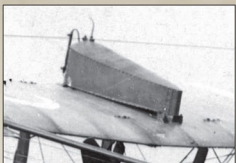
Nacelle and wing detail from DH.2 7851. Note the air intake scoop (A41), pitot tube (B17) and rudder and elevator control cable pulleys (D13 and D14). The pitot tube has been overpainted with the same grey colour as the wing struts indicating they have possibly been repainted in service.



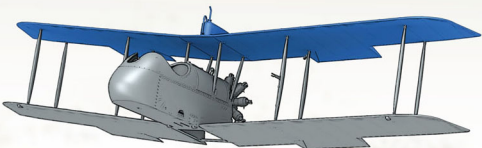
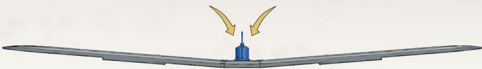
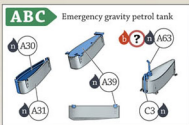
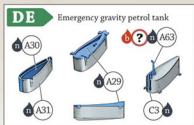
5 TOP WINGS



Streamlined emergency 5 Gal petrol tank detail from **E** which appears to have had (PC10?) camouflage paint dappled over the grey.



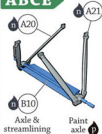
Emergency petrol tank detail from DH.2 7851 showing the breather pipe **A63** and fuel gauge **C3**.



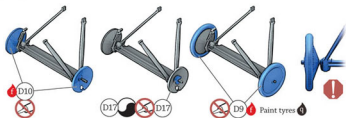
Please visit www.wingnutwings.com hints and tips for a simple wing alignment jig idea.

6 UNDERCARRIAGE

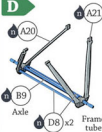
ABCE



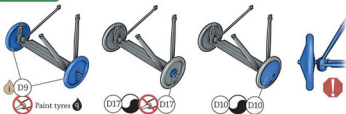
A Wheels 24 Sqn temporary modification



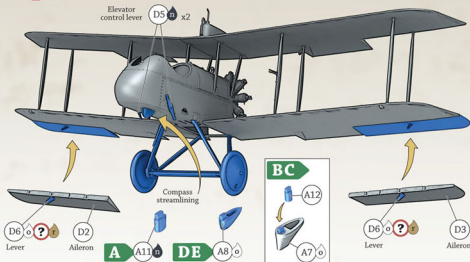
D



BCDE Wheels



It is a good idea to rig the wings before adding the tail booms. See page 13 for rigging guide.



< Undercarriage detail from DH.2 7851 showing 32 Sqn C flight wheel markings, axle streamlining (B10), and small metal covered fairing at the rear of the nacelle.

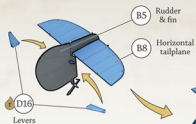
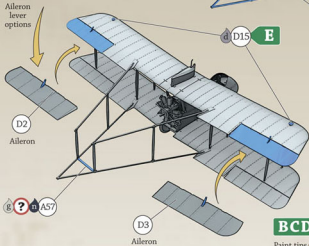
> Another view of the undercarriage from DH.2 7851, note the petrol overflow pipe (e) on the starboard front undercarriage strut.



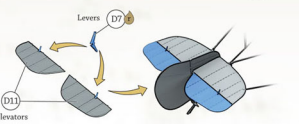
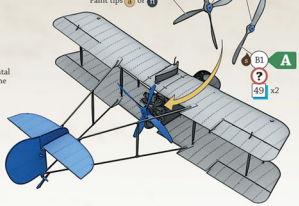
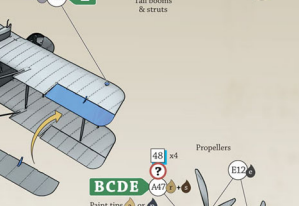
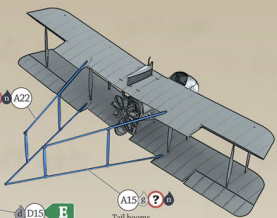
7 TAIL BOOMS AND TAILPLANE



Aileron lever options



Tailplane detail from DH.2 7851. Note the tail booms, tail skid bungee and heavy causter oil staining of the rudder.



TAIL BOOM RIGGING GUIDE

Rigging material not supplied

ABCD

0.15mm



ABCDE

0.15mm



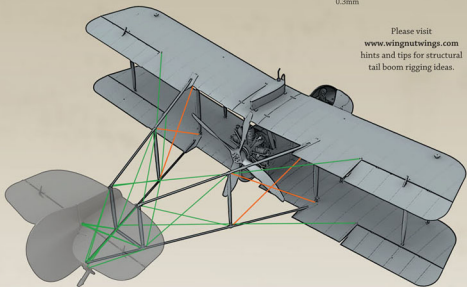
E

0.1mm

0.3mm

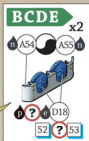
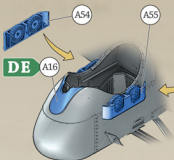


Please visit
www.wingnutwings.com
 hints and tips for structural
 tail boom rigging ideas.



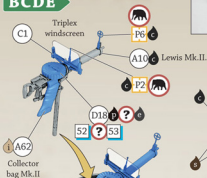
This crashed DH.2, thought to be A2609, reveals many interesting details for the modeller. A2609 appears to have CDL fabric areas, except for the top of the horizontal tailplane which could be PC8, with metal and wood nacelle areas painted grey. The opening for the Lewis gun in the front cowl has been faired over with aluminium and the emergency petrol tank is positioned on the port wing. What appears to be an application of spotty camouflage on the bottom wing is in fact damage to the photograph. Note the bungee cord aileron returns 012, small 'EA' stencils 47 (indicating an 'Emallite A' doping scheme) found on various surfaces and that most metal fittings now appear to be black when on earlier aircraft they would have been grey.

8 FINAL ASSEMBLY

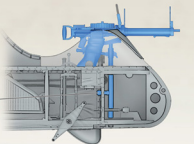


Twin 47 round Lewis gun magazine holder (A54) & (A55) detail from crashed DH.2 5994. In this case the center portion has been further reduced.

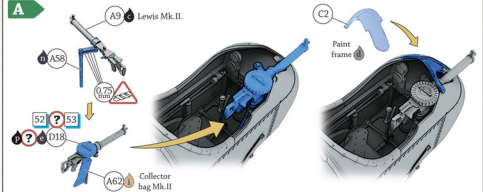
BCDE



Lewis Mk.II with 97 round magazine from DH.2 7851. Note the windscreen (C1), foresight (P6) and leather strap on the magazine.



A



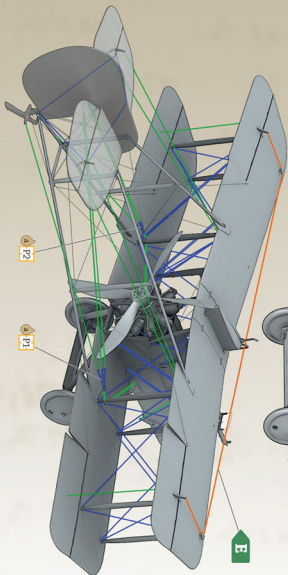
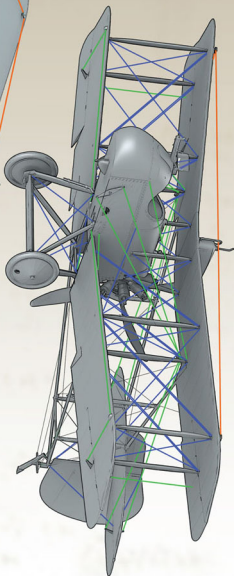
RIGGING DIAGRAM

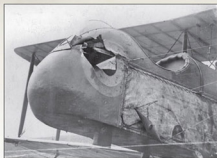
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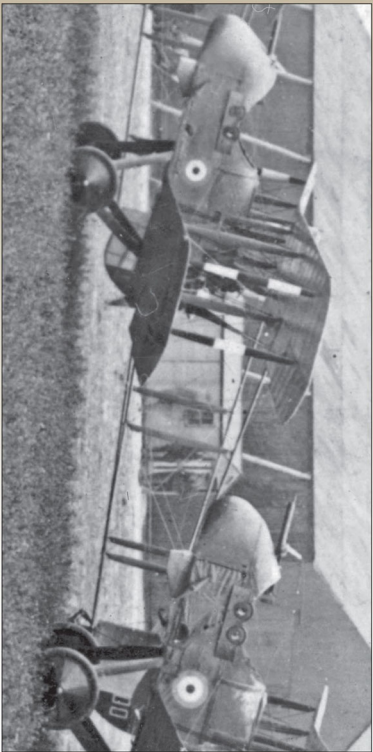
E 0.15mm 

0.1mm 
0.3mm 



A DH.2 5929, DM Tidmarsh (MC), A flight, 24 Sqn, April 1916 (7 victories)

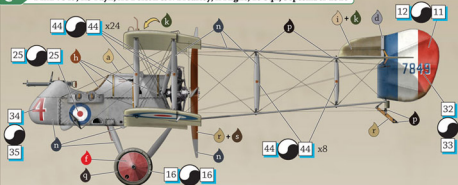
DH.2 5929 is seen here following Tidmarsh's lucky escape on 21 April 1916 when an Anti-Aircraft shell passed through the front cowl and nosing, narrowly missing his feet. 5929 was unusual in that it featured a Lewis gun offset to the right with a modified clear windscreen. The wings are very translucent indicating an overall CDL finish although the nacelle sides (and cockade) show evidence of having been overpainted with an unconfirmed camouflage colour. Note the makers plate [42] fixed to the side of the nosing, a feature seen on 1st production batch DH.2. The distinctive 24sqn 'saw tooth' nacelle marking as seen on [B] and [E] had not been implemented at the time of this incident. The wheels are mounted 'inside out' which was a modification trialed by 24 Sqn for a while in an effort to improve stability on the ground. Born in Limerick, Ireland in 1892, David Mary Tidmarsh served in the Irish Rifles before transferring to the RFC in 1916. He was awarded his 1st victory (shared with SJ Sibley) on 2 April 1916 after destroying an Albatross two-seater in DH.2 5924. Before the end of the year he would be awarded 2 more victories flying DH.2 5965, including an Eindecker 'driven down' and seen to crash (without him firing a shot), and was a flight commander in 48 Sqn flying early Bristol F.2a Fighters when he was shot down by Kurt Wolff and captured on 11 April 1917. DH.2 5929 was being flown by 24 Sqn B flight commander Robert Edward Alymer Werde Hughes-Chamberlain when he was wounded in action in August 1916.



DH.2 6000 is seen here as it appeared in a 24 Sqn line up photo taken in July 1916. The nacelle and undercarriage appear to have been painted with the same (grey?) colour while the outer struts are finished in the red and white A flight markings introduced in June 1916, by which time the 24 Sqn 'inside out' wheel experiment seen on **A** was over. The rudder has been repainted with the serial number most likely being reapplied in blue (reading very pale in the photograph). The opaque wings indicate that they have been doped with a Protective Covering dope, most likely PC8 **B**. The extra large compass fairing **A7** is thought to also house spent .303 cases but the details of how they supposedly got there are not known to us. Sidney Edward Cowan was born in Downpatrick, Ireland and was one of the original members of 24 Sqn when it was formed in September 1915. He was awarded his 3rd victory, over a Roland C.II, while flying DH.2 6000 on 29 July 1916 and had brought his score up to 6 by the time he transferred to 29 Sqn later in the year. He would be awarded 1 more victory before he was killed in a mid-air collision over occupied territory. He was buried by the Germans and his grave inscribed 'In memory of a gallant English officer, Captain S. E. Cowan, killed in air combat, November 17th, 1916'. Sidney was 19.



Rear view of 32 Sqn DH.2 7851 (see *Wingnut Wings* model 32802) showing the late style cable return (36) & (37). On many DH.2 the alternators were tried to droop 1" (25mm) for port and 2" (50mm) for starboard (measured at the trailing edge) to counteract the torque of the rotating engine. Note that while most wing and tailplane rigging is RAF section wire, many earlier DH.2 had their tail booms rigged with round cable. On later airframes with RAF section wired tail booms the bay closest to the engine remained rigged with round cable, which was more resilient to debris thrown up by the propeller.

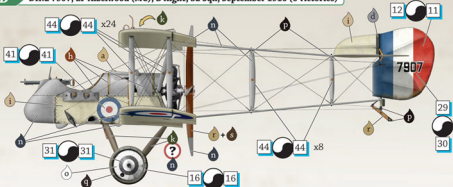
C DH.2 7849, HJ Payn, AC Bolton & N Brearley, A Flight, 29 Sqn, September 1916

Apply decals **5**, **6**, **7** & **8** and paint undersides of wings and tailplane as per **B**.

Apply decals **1**, **2**, **3** & **4** and paint top of wings and tailplane as per **E**.

Apply decals **45**, **46** & **47** as per **E**.

From the 2nd production batch ordered in March 1916, DH.2 7849 is shown here as it appeared with A Flight 29 Squadron around September 1916. The wheels and number 4 on the nacelle are finished in the red of a flight. The upper surfaces of the wings and tailplane are PC10 **h** while the nacelle, struts and tail booms are grey **n**. Photos in Windsock Datafile 48 show the PC10 wrapping around the leading edges of the wings (but not elevators) by about 1' (25mm). The rudder has been repainted with the serial number finished in blue. Other interpretations of 7849 show a white border on the fin but we believe that this is caused by a trick of the light. Pilots known to have flown DH.2 7849 include HJ Payn, AC Bolton & N Brearley.

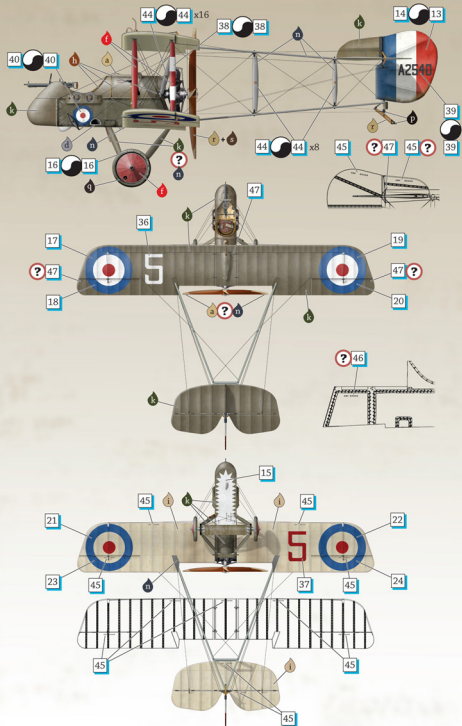
D DH.2 7907, LP Aizelwood (MC), B flight, 32 Sqn, September 1916 (6 victories)

Apply decals **5**, **6**, **7** & **8** and paint undersides of wings and tailplane as per **B**.

Apply decals **1**, **2**, **3** & **4** and paint top of wings and tailplane as per **E**.

Apply decals **45**, **46** & **47** as per **E**.

DH.2 7907 is from the 2nd production batch ordered in March 1916 and is pictured here in the markings of B Flight 32 Squadron RFC. When 7907 was delivered to 32 Sqn it would have been finished in CDL fabric areas with grey struts, tail booms and nacelle panels. By September 1916 it appears to have received an opaque coat of PC10 on the upper surfaces of the wings and tailplane, although the fin remains in CDL. A photo in Windsock Datafile 48 shows very dark undercarriage struts which could be PC10 as illustrated here or perhaps grey. Leslie Peech Aizelwood served in the York & Lancaster Rgt until May 1916 when he transferred to the RFC and flew to France 2 months later (he had been learning to fly for several months prior to May). Eventually posted to 32 Sqn he cheated death while flying DH.2 7907 on 9 September 1916 when he collided with an out of control LVG two-seater, one of 5 aircraft he was attacking, and for this action he was awarded the Military Cross. In February 1917 he was shot down and wounded by Werner Voss but landed safely behind the lines. Following his recovery he was posted back to England as a flying instructor. His luck would hold out until 29 September 1918 when, performing for an instructional film, his Sopwith Camel E1456 spun into the sea from 1000ft killing him instantly. He was 23.





Although the full serial number is not visible in any of the photos available to us, a process of elimination has led us to the conclusion that this is the 24 Sqn DH.2A2540 of Norman Middlebrook who was shot down and captured by Max Ritter von Müller on 10 October 1916. All upper surfaces have received a coat of opaque camouflage, most likely PC10, although this appears to have almost completely worn away from the fin. The emergency gravity tank has also received the camouflage treatment but with a mottled effect. The outer wing struts have been painted white and "A flight" red, along with the wheel covers and number 5 under the bottom wing. Norman was at school when war broke out and was commissioned into the Rifle Brigade before transferring to the RFC.

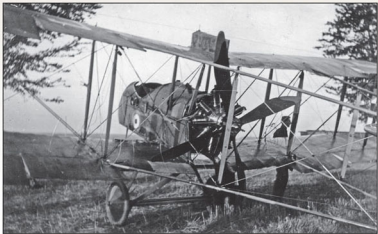


DH.2 A2540 undercarriage struts appear very dark and could be PC10 as illustrated or possibly ¹¹. Note the white 24 Sqn "saw tooth" marking under the nacelle and that the bottom wing cockades do not have the white areas painted. The dark patch under the top wing appears to be PC10 applied to protect the wing from the cauter oil exhaust spewed out by the spinning engine.



^ German mechanics disassemble A2540 for transport. The mottled camouflage applied to the emergency gravity tank is quite evident while sunlight has almost completely washed out the port outer strut markings.

> Note the CDL (?) repair patch at the rear of the port bottom wing, brass tipped 4 blade propeller, AMC decals ⁴⁴ applied to the tail boom struts and the black strut brackets.





Although the DH.2 had been completely withdrawn from front line service in France by June-July 1917 they fought on in the middle east well after that. This photo is thought to show DH.2 A4788 and Vickers FB.19 A5231 (on left) of 111 Sqn in Palestine. Both these aircraft had previously served with 14 Sqn before being transferred to 111 Sqn in August 1917 and the DH.2 on the right could be A2623 which was transferred on the same date.



3-D Modelling by Jason McAdam

From a very early age Jason has embraced his creative side, whether it be through drawing or modelling. This creative nature was strongly grafted with a passion for transportation design, whether it be by land, air or sea.

Having graduated with an honours degree in Industrial Design Jason has gone on to develop his skills further in his design work with Weta Digital. While at Weta, Jason has continued to push the boundaries of software technologies and applications, with a keen eye for detail. This passion for design comes hand in hand with a love of sport and recreation, with motorbike riding being among the more popular of past times.



Box Art by Steve Anderson

Steve Anderson is an avid historian of military aviation, with a special interest in the many beautiful biplanes and triplanes of World War I. The aircraft and battles of famous World War I aces such as Baron Manfred von Richthofen (better known as the "Red Baron"), James McCudden, Raoul Lufbery, Ernst Udet, Werner Voss, and other pioneers of dogfighting are among Steve's favorite subjects.

An Artist Fellow of the American Society of Aviation Artists, Steve creates works that reflect scrupulous attention to historically accurate detail, from the colorful markings on the fuselages to the time of day of an actual battle.

Visit Steve's website at: www.anderson-art.com.



Profile Art by Ronny Bar

Ronny Bar developed a keen interest in airplanes from an early age, living close at the El Palomar Air Force Base in Buenos Aires. He first flew in the back seat of a T-34 Mentor trainer at the age of ten, and was soon drawing airplanes and building models: Spitfires and Messerschmitt first... Camels and Fokkers later.

He became a successful bass player with a career lasting over 35 years in several Rock bands, recording ten albums (one of them being a National hit selling more than 100,000 copies) and performing countless concerts, TV shows and tours all over Argentina.

Now retired from the R'n'R scene, his interest returned to his early passion: Aviation Artwork. Visiting the WW1 aircraft collection at Hendon focused his already growing interest for that historic period. His artwork is regularly appearing in journals and publications like Windsock Worldwide, Windsock Datafiles, Cross & Cockade and Over the Front.

Visit Ronny's website at: www.ronnybarprofiles.com



Project Co-ordinator, Richard Alexander

A native of Wellington New Zealand, Richard Alexander has a long term interest in military history, race cars & local drivers from motor sports golden era of the '60's. Other interests include mountain biking, scotch and cigars.

An accomplished modeller Richard's models have twice been awarded Best Overall in Show at IPMS(NZ) National Conventions and earned him the inaugural TamiyaCon(NZ) Master Modeller award (along with the associated trip to Japan) in 2001. Many of his works are in private collections around the world, though he no longer accepts commissions.

Richard has been in the model and hobby industry since 1991 and brings with him a keen eye for detail and a passion for ensuring our models are enjoyable to build. So if there is anything you don't like about this model, you can blame him.

If you do have comments, requests or suggestions, Richard is contactable at richard@wingnutswings.com



32028	1/32 AMC DH.2	Qty
0132028A	A parts DH.2	1
0132028B	B parts DH.2	1
0132028C	C parts DH.2	1
0132028D	D parts DH.2	2
132E0011	100hp Gnome Monosoupape engine	1
0132028P	Photo-etched metal parts	1
7132028	Instructions	1
9132028	Decals	1

If you have any damaged or missing parts please contact help@wingnutwings.com for assistance.



32014 - 1/32 FE.2b Early



32018 - 1/32 Fokker E.II/III Early



32013 - 1/32 Sopwith Pup RFC

Also available from
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