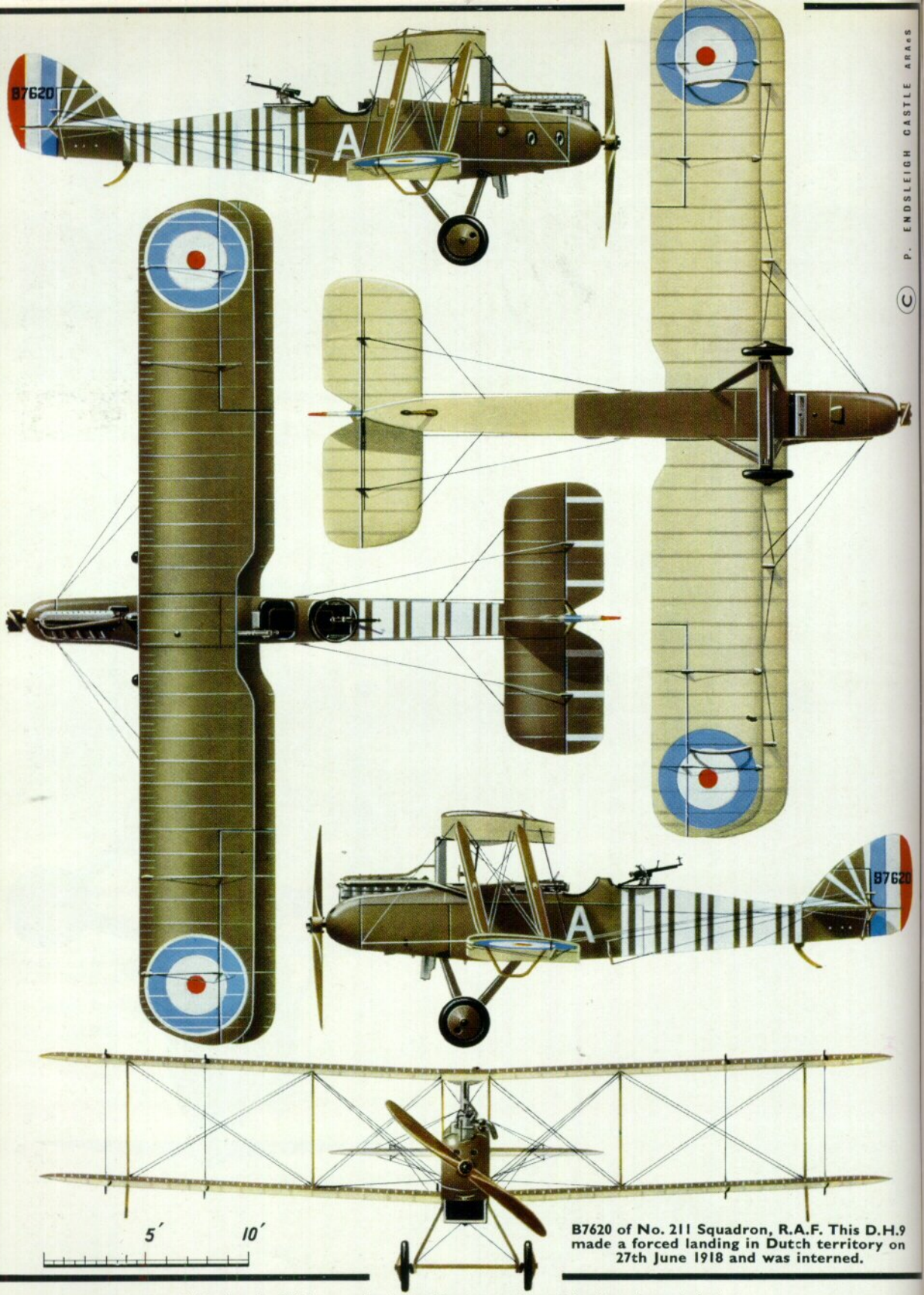
PROFILE
PUBLICATIONS

The de Havilland D.H.9

NUMBER 62
TWO SHILLINGS



B7620 of No. 211 Squadron, R.A.F. This D.H.9 made a forced landing in Dutch territory on 27th June 1918 and was interned.

In Dutch service B7620 was numbered de H 433 and retained most of the white stripes on its fuselage.

The de Havilland D.H.9

by J. M. Bruce

G-EBEN was originally H5688. *It was modified as a single-seater for the 1922 King's Cup race, in which it came fourth. Restored to two-seat form, it was used by the British and Egyptian Tea Co. Ltd.* (Photo: Flight International 2102)

> I do not know who is responsible for deciding upon the D.H.9, but I should have thought that no one would imagine we should be able to carry out long distance bombing raids by day next year with machines inferior in performance to those we use for this purpose at present. I consider the situation critical and I think every endeavour should be made at once to produce a machine with a performance equal at least to the existing D.H.4 (275 Rolls-Royce) and to press on with the output with the utmost energy . . . I am strongly of opinion that unless something is done at once we shall be in a very serious situation next year with regard to this long-distance day bombing.

Thus, on 16th November 1917, wrote Major-General H. M. Trenchard, General Officer Commanding the R.F.C. in France, to Major-General J. M. Salmond, director-general of military aeronautics. Trenchard had heard unofficially from Captain Geoffrey de Havilland that the D.H.9 would have a poorer performance than the D.H.4 with the 275-h.p. Rolls-Royce, and would be unable to fly at 15,000 ft. to 16,000 ft. with a full load of bombs. Major-General Salmond immediately told the Air Board of Trenchard's views but production of the D.H.9 was too far advanced for there to be any going back. Sir William Weir stated bluntly "that it was a choice of having the D.H.9 with the B.H.P. engine, or of having nothing at all". Trenchard attended a meeting of the Air Board on 28th November to press his objections personally, but apparently to no avail.

In that same month the prototype D.H.9, *A7559*, and the first production aircraft, *C6051*, were tested at Martlesham Heath. The former was a modified D.H.4 airframe and was powered by a 230-h.p. Galloway Adriatic (No. 11/W.D.15434 at first, No. 20 later); *C6051* had a 230-h.p. Siddeley Puma (No. 5019/W.D.22693). *A7559* was tested without bomb load, consequently the results obtained with *C6051* were the more significant, for the production aircraft was flown with two 230-lb. bombs in the internal bomb bay in the fuselage. In this condition the maximum speed at 15,000 ft. was 97·5 m.p.h., the service ceiling no more than 15,500 ft. This performance was, if anything, a little better than that of the D.H.4 with Puma engine but inferior to that of the Eagle-powered D.H.4.

The D.H.9 owed its existence to a War Office recommendation, conceived at a meeting held on 21st June 1917, that the total number of R.F.C. service squadrons should be increased to 200; this recommendation was accepted by the Cabinet on 2nd July. Sir Douglas Haig was told of this decision on 13th July and was given to understand that most of the new squadrons would be bomber units. A new type of aircraft with a longer range than that of the D.H.4 was to be developed; meanwhile,

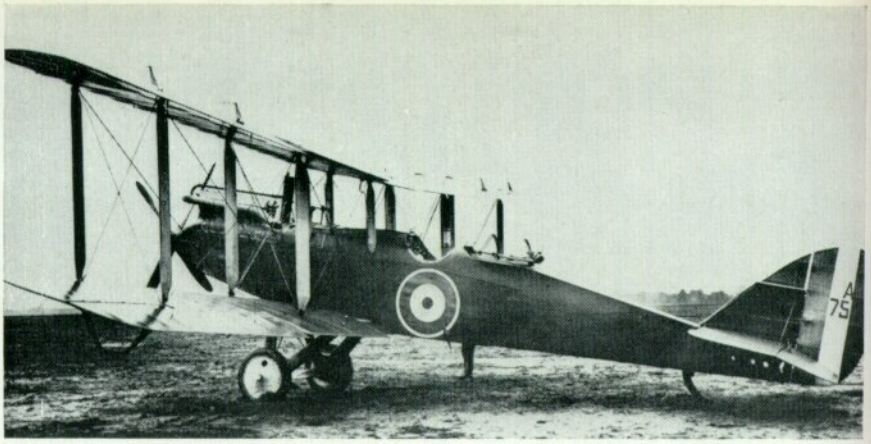
> Because it was immediately available for production on a large scale, orders had been given, it was said, for the fighter-reconnaissance aeroplane, the D.H.4, but with such minor modifications as might appear necessary, subject to the overriding condition that production was not to be delayed.*

Seven hundred D.H.4s were ordered on 28th June 1917 for the new bomber squadrons. On 23rd July the controller of technical design laid before the Air Board drawings of an extensively modified D.H.4 for which a speed of 112 m.p.h. at 10,000 ft. was promised, together with a greater range than the D.H.4. The revised design had been given a new type number, D.H.9. The Air Board pursued their discussion of the new bomber on 26th July when, on being assured that its adoption would mean an initial production delay of no more than three or four weeks, they decided to adopt the D.H.9 instead of the D.H.4. The D.H.4 production contracts dated 28th June 1917 were amended: these seem to have been AS 17569 for *C6051–C6350*† (Aircraft Manufacturing Co.), AS 17570 for *C1151–C1450* (Weir) and AS 17994 for *D1651–D1750* (Mann, Egerton). There can be little doubt that two other contracts, dated 29th June and for a further 200 aircraft, had also been similarly amended: these were 87/A/1413 for *B9331–B9430* (Vulcan) and AS 19174 for *B7581–B7680* (Westland).

At this remove from the event, the decision to adopt the D.H.9 seems to have been taken in a spirit of

*The War in the Air, *Vol. VI, p. 165.*

†C6122 *and* C6350 *became D.H.9A prototypes and were replaced by* E5435–E5436.



The prototype D.H.9, A7559, at Martlesham Heath. (Photo: Imperial War Museum Q67538)

optimism or blind faith, for its chosen engine was, in July 1917, experiencing serious manufacturing difficulties and was clearly a very long way from developing the output of 300 h.p. that was apparently hoped for.

Some of the history of the B.H.P., Galloway Adriatic and Siddeley Puma engines has been related in *Profile* No. 26, *The de Havilland D.H.4*. By July 1917, when the drawings of the D.H.9 were laid before the Air Board, it was found that over 90 per cent of the aluminium cylinder blocks for Puma engines were defective for one reason or another; even some of those with no visible flaw failed on test. Months later, when the aluminium castings difficulties had been partly alleviated, there was further trouble, this time with exhaust valves, which burnt out. Production did not really get into its stride until the spring of 1918, by which time the Puma and Adriatic were obsolete.

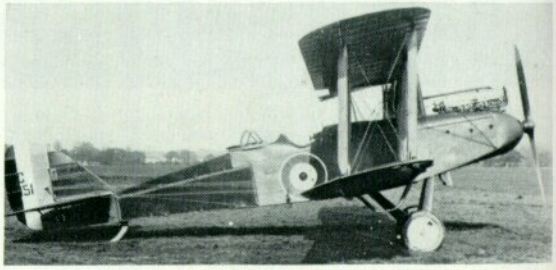
It was not intended that the Siddeley Puma should be the only engine fitted to the D.H.9. At the end of August 1917 an order for 2,000 Fiat A-12 engines was placed; deliveries were to be made between January and June 1918; half of the engines were to go to the U.S.A., the other 1,000 were for installation in D.H.9s. The Italian Fiat A-12 was a logical choice, for it was of the same configuration as the Puma. It was rated at 260 h.p. and had a maximum output at ground level of 285 h.p. at 1,750 r.p.m.

The second Airco-built production D.H.9, *C6052*, was fitted with a Fiat engine and was tested at Martlesham Heath in January and February 1918. Performance figures were generally comparable with those of the Puma-powered D.H.9.

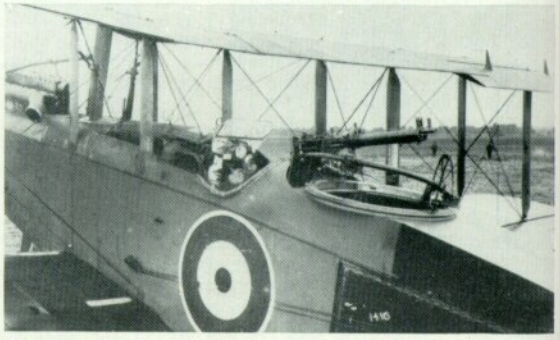
Only one of the D.H.9 production contracts specified the Fiat engine. This was AS 34886, dated 19th November 1917, for 100 aircraft (*D2776–D2875*) to be built by Short Brothers. Few of the Short-built D.H.9s had the Fiat engine, almost certainly because deliveries of the engine fell far short of expectations. In the last three months of 1917 a total of 253 Fiats were accepted for the British flying services; but between January and June 1918, when the thousand engines ordered in August 1917 were due to be delivered, only 58 were in fact accepted. In the third quarter of 1918 a further 299 passed British acceptance tests, but by then it was too late to consider their use in D.H.9s. One or two Fiat-powered D.H.9s found their way to France: *D2860* was used by No. 99 Squadron.

The Fiat installation in the D.H.9 was very similar to that of the Puma and Adriatic engines. The Italian engine could be distinguished by the fact that its exhaust manifold was on the starboard side. The radiator was in the ventral position but had shutters instead of being retractable, as it was with the Puma.

What the D.H.9 might have done if it had been fitted with a better power unit than the Puma is a matter for conjecture. Certainly there was little wrong



The first production D.H.9 built by the Aircraft Manufacturing Co. Ltd., C6051, photographed at Hendon.

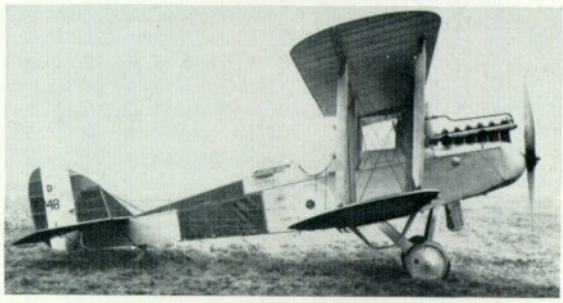


The cockpits of a standard production D.H.9, photographed at Martlesham Heath. (Photo: Imperial War Museum Q67315)

C6052 *with Fiat A-12 engine.* (Photo: Musée de l'Air)

with the aircraft itself. It embodied all the standard flight surfaces of the D.H.4, and the re-design of the fuselage included the very sensible transfer of the pilot's cockpit to a position behind the wings and immediately in front of the observer's cockpit. This affected adversely the pilot's forward and downward view, but it put him back-to-back with his observer,

C6078 *at Farnborough, fitted with the first Napier Lion engine. When this photograph was taken hot-air pipes and muffs had been added in order to heat the carburettor air intakes.* (Photo: Imperial War Museum MH3514)



Left: C6078 *at Martlesham Heath with enlarged radiator.* (Photo: Imperial War Museum Q68133.) Right: *A later installation of the Fiat A-12 engine was made in* D5748, *which also had an experimental tailplane with duplicated bracing wires. The plywood covering of the tail of the fuselage was extended forward.* (Photo: Imperial War Museum MH3532)

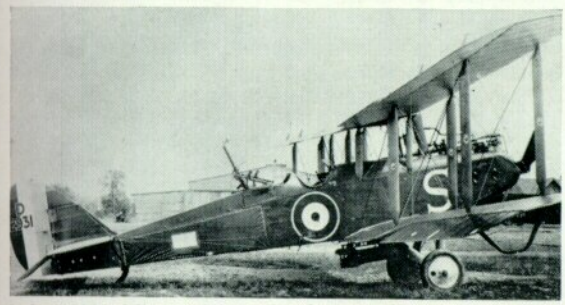
the ideal fighting arrangement. With a view to improving performance, internal stowage for two 230-lb. or four 112-lb. bombs was provided in the fuselage, but little operational use seems to have been made of this bomb bay.

Structurally the D.H.9 fuselage was similar to that of the D.H.4. The forward portion was clad with plywood and had no internal cross bracing; behind the cockpits the structure was a conventional wire-braced box girder; and the bays under the tailplane had plywood covering in lieu of cross bracing.

The testing squadron at Martlesham Heath did not enthuse over *A7559* when it was tested in November 1917. The narrative portion of the report is as follows:

> This machine is fairly suitable for day bombing, the sighting being by negative lens. The effectiveness of the lens is reduced by the fairing, the hole in which is the same size as lens and 5 inches below it. Not suitable for night bombing, as the lower plane shuts out the most important part of pilot's view, and the lens is practically useless at night. The pilot's view for fighting is better than in the D.H.4, and it is a great advantage to have pilot and observer close together. But for all reconnaissance work the pilot's bad view of the ground will be a very serious disadvantage. The machine is now fitted for carrying camera or wireless. The main tanks are enclosed in cover of doped fabric to drain away petrol if tanks are hit. The manœuvrability is good. Actual landing very easy, but approach difficult, owing to bad view and flat glide. Length of run to unstick, 112 yards; to pull up (engine stopped), 160 yards.

By that time production was well under way. More orders for D.H.9s had been placed, starting on 19th



Left: D2931 *fell into German hands intact during August 1918. It is here seen on the aerodrome of* Jasta *78, with a 230-lb. bomb still in place on the rack under the fuselage. Although squadron markings for bomber squadrons were officially discontinued after March 1918 this aircraft still had a small white rectangle painted on the rear fuselage.* (Photo: Egon Krueger.) Right: D2825 *with frontal radiator, overwing gravity tank and arrester gear clips on the undercarriage spreader bar. The aircraft is here seen aboard H.M.S.* Eagle *in the course of deck-landing trials conducted during 1921.*

July 1917 when *D5551–D5850* were ordered from Waring & Gillow under Contract No. AS 20391. A further thousand were ordered on 30th October, 500 (*D451–D950*) from Cubitt's of Croydon under Contract No. AS 26928, the remainder from the Crossley-managed National Aircraft Factory No. 1 at Heaton Chapel. These last were ordered under Contract No. AS 32754 and were to be numbered *D1001–D1500*.

By the end of 1917 five D.H.9s had passed their final inspection, and 331 were similarly approved in the first three months of 1918. It seems that some of the first deliveries were made to No. 103 Squadron, R.F.C., in December 1917 while that unit was working up at Old Sarum. No. 103 did not take its D.H.9s to France until 12th May 1918, however, by which time four other squadrons were using the type operationally.

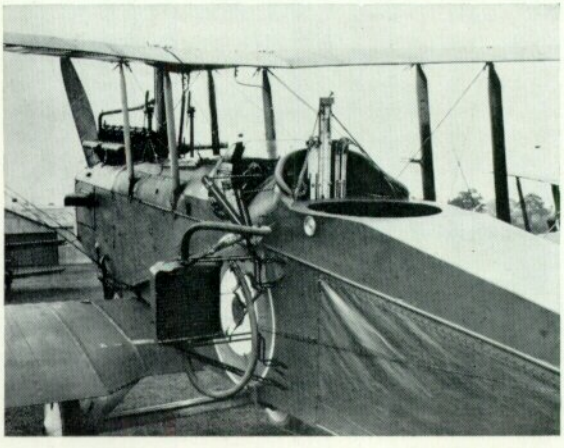
In an earlier existence, Squadrons Nos. 6 and 11 of the R.N.A.S. had been fighter units but were re-formed early in 1918 as bomber squadrons. No. 6 began to receive D.H.9s in February 1918, No. 11 in the following month; and it seems that the former squadron was the first unit to take the D.H.9 into action. This was on 9th March 1918, when the target was St. Pierre Cappelle. No. 11 Naval Squadron shared the aerodrome at Petite Synthe with No. 6, but until 27th September 1918 it worked with the Navy, most of its bombing raids being on targets at Bruges, Ostend and Zeebrugge.

On 3rd April 1918 No. 98 Squadron, R.A.F., arrived in France equipped with Puma-powered D.H.9s. No. 99 Squadron followed on the 25th, No. 103 on 12th May, No. 104 on 19th May, No. 107 on 9th June, and No. 108 on 22nd July. The Battle of the Lys brought Nos. 98 and 206 into strenuous action: on 12th April nineteen pilots of No. 206 Squadron flew a total of 76 hours bombing enemy communications and troop concentrations.

The D.H.9 participated in tests of the Mears parachute in 1918. In normal flight the parachute pack rested on a shelf immediately behind the cockpit, under the fuselage decking.

One of the experimental silencers tested on D.H.9s at the R.A.E., Farnborough. (Photo: Imperial War Museum Q67633)

Radiator test rig fitted to the Fiat-powered D.H.9 C1393 *at the R.A.E., Farnborough, 8th December 1920.*
(Photo: Crown copyright)



Geoffrey de Havilland's warning about the D.H.9's shortcomings was soon proved right, but a bad situation was aggravated greatly by the unreliability of the Puma engine. The history of No. 99 Squadron reflects the frustration the aircrew must have felt as raid after raid was rendered largely ineffective by engine troubles. On 29th May only six of the fourteen D.H.9s that had taken off to attack Thionville got to the target; on 1st June only six out of thirteen reached their objective; on 6th June, of the eleven aircraft of "A" and "B" Flights that managed to take off, only five crossed the lines.

Much hard work by the mechanics of the D.H.9 squadrons helped to improve matters somewhat. Home-made modifications were introduced: in No. 99 Squadron *C6202* was fitted with enlarged carburettor air-intake pipes, *C6210* with modified mixture controls; in both cases performance was improved a little.

That the D.H.9 had its successes speaks volumes for the courage and determination of the pilots and observers who flew in them. Their vulnerability is hinted at by the historian of No. 99 Squadron, who wrote of the end-June 1918 period:

> At this time the average true air speed, flying level at 13,000 ft. for formations of No. 99 Squadron, was about 76 m.p.h. with bombs and 85 m.p.h. without bombs.

When obliged to fight, the D.H.9. could give quite a good account of itself. The back-to-back positions

D.H.9 fitted with an early version of the Birger Ad Astra *silencer, here seen at Farnborough on 24th April 1921. The Birger silencer that was demonstrated on a D.H.9C at Stag Lane late in 1921 was of an improved type and was mounted on the port side of the nose, below the level of the top longeron.* (Photo: Crown copyright)

of pilot and observer ensured maximum co-operation, and the aircraft's handling qualities were good. Wing Commander R. W. Jackson, a former member of Squadrons Nos. 206 and 103, wrote in 1956:*

> I found that after shedding the bomb load the 9, with a good gunner, was capable of quite a lot of fighting. It was possible to tight-turn a Fokker D.VII into a full power stall, also the 9 could be looped quite well—and tightly.

One of the best examples of what could be done was provided by 2nd Lt. E. A. Simpson, the observer of one of No. 49 Squadron's D.H.9s. On 9th August 1918 the squadron was ordered to bomb the bridges at Falvy and Bethencourt. A large number of enemy fighters made persistent and repeated attacks on the bombers, and in this fighting Simpson shot down four of the enemy, two of them in flames.

On the broad view, of course, the D.H.9 could only be regarded as an unsatisfactory military aircraft. In his report for October 1918 on the work of the R.A.F. on the western front, Major-General J. M. Salmond wrote of the D.H.9:

> . . . although this type of aeroplane has sufficient petrol, and oil, to enable it to reach objectives 100 miles from the lines, its low ceiling, and inferior performance, oblige it to accept battle when, and where, the defending forces choose, with the practical result that raids tend to become restricted to those areas within which protection can be afforded by the daily offensive patrols of scout squadrons.

Doubtless because so many D.H.9s were built, the type was in service in most theatres of war by the time of the Armistice. Despite the unreliability of its engine it was used for oversea patrol duties from several coastal aerodromes in the United Kingdom.

*Flight, *18th May 1956, p. 623.*

Eighteen D.H.9s were supplied to Belgium in 1918. These aircraft retained their British serial numbers while wearing Belgian colours, and it is not clear whether there was any connection between them and the eighteen D.H.9s reported to have been supplied to Belgium in 1920.

The D.H.9 was used as a test vehicle for several purposes. On 15th February 1918, at the Royal Aircraft Factory, Farnborough, *C6078* was submitted for pre-flight inspection. Its power unit was a new 12-cylinder water-cooled Napier engine with its cylinders arranged, broad-arrow fashion, in three blocks of four; the airframe had been strengthened in several places. Designed in 1917 by A. J. Rowledge, this engine was at first known as the Napier Triple-Four; by the time engine No. 1/13080/W.D.23259 was installed in *C6078* it had been named Lion. The Lion D.H.9 made its first flight on 16th February and remained at Farnborough for some weeks while the new engine's teething troubles were explored. By 9th March hot-air pipes and muffs had been fitted to the carburettor air intakes but these were subsequently removed and by the time *C6078* went to Martlesham Heath its only visible modification was an enlarged radiator. While at Martlesham this aircraft climbed to 30,500 ft. in 66 min. 15 sec., a record performance. The pilot was Captain Andrew Lang, the observer Lieutenant Blowes, the date 2nd January 1919.

Performance with the Lion was excellent and the engine went into production in 1918. By 31st October in that year the R.A.F. had 22 Lions on charge, but none was with an operational unit.

By October 1918 a high-compression version of the Siddeley Puma had been developed. This engine gave 290 h.p. at 1,600 r.p.m. at ground level but did not make a really significant improvement in the performance of the D.H.9 aircraft tested at Martlesham in October and November 1918. A D.H.9 known to have had the high-compression Puma was *C2207*.

Farnborough used D.H.9s for several experimental purposes, mainly with engines. In October 1918 *D5748* was fitted with a Fiat A-12 (No. 3167); this aircraft also had a special tailplane with duplicated bracing wires, and the plywood covering of the rear of the fuselage was extended forward. The R.A.E. continued to use *D5748* throughout 1918 to test petrol systems, engine controls and water systems.

Similarly employed were *E8903* and *D2825*. The latter D.H.9 was tested with various radiators and may have been the subject of R.A.E. Report No. B.A.411, *Tests on five radiators fitted to D.H.9 with Puma engine*. The five radiators included a German tube radiator 2·96 sq. ft. in area mounted on the centre section; the other four were honeycomb surfaces mounted underslung (2·51 sq. ft.), pivoted on the centre section (2·39 sq. ft.), and in the nose (4·34 sq. ft.) first in square form, later oval. When

The ambulance conversion of the D.H.9, D3117, *in service in Somaliland early in 1920.* (Photo: Ministry of Defence)

D2825 took part in deck-landing trials aboard H M.S. *Eagle* in 1921 it had an oval frontal radiator like that of the Puma-powered D.H.4.

Other radiator tests were made in a rather different manner on *C1393* in 1920, as the illustration shows. This aircraft had a Fiat engine and the extended rear-fuselage plywood covering.

On 9th January 1919 *E630* was submitted for inspection at the R.A.E., fitted with a new type of engine, the R.H.A. Supercharger (No. 8001/W.D. 48036). The initials R.H.A. signified Ricardo-Halford-Armstrong. The engine itself had doubtless been designed in the light of experience gained with the Ricardo-Halford "supercharged" B.H.P. engine (see *Profile* No. 26), but was a V-12 unit with an unusually small angle between the two banks of cylinders. *E630* was flown throughout 1919 with the R.H.A. engine but apparently development of the power unit was abandoned: although illustrated in the 1919 volume of Jane's *All the World's Aircraft* it is not mentioned in the 1920 volume.

In common with several other standard types of aircraft a D.H.9 was tested with parachutes for its crew in 1918. Experiments were conducted with two Calthrop A.1 (Guardian Angel) parachutes, one for each member of the crew. As an alternative a Mears parachute was tested; this was for the pilot only and was stowed in the short top-decking behind his cockpit.

Experiments with various kinds of engine silencers had been carried out during 1917 and 1918 and continued after the war. The R.A.E. was active in this field and at least two types of silencers were fitted to D.H.9s at Farnborough. One of these was a much extended exhaust pipe that ran as far aft as the tail-plane leading edge. The aircraft to which this was fitted had the rear fuselage plywood sides extended forward as on *D5748*.

Farnborough also tested, in 1921, the Birger *Ad Astra* silencer on a D.H.9. This curious device was the invention of M. J. Birger, a Swiss engineer, and was claimed to make conversation between pilot and passenger easily possible with the engine running at full throttle. At the end of 1921 a revised Birger silencer was demonstrated at Stag Lane on a D.H.9C, when it was claimed that a saving of 4½%–5% in fuel consumption was made with the early version, and 8% was hoped for with the refined type. Nevertheless the device was not developed.

Late in the war some American pilots flew D.H.9s; most of these gained their experience of the type on attachment to R.A.F. squadrons. It has been said that

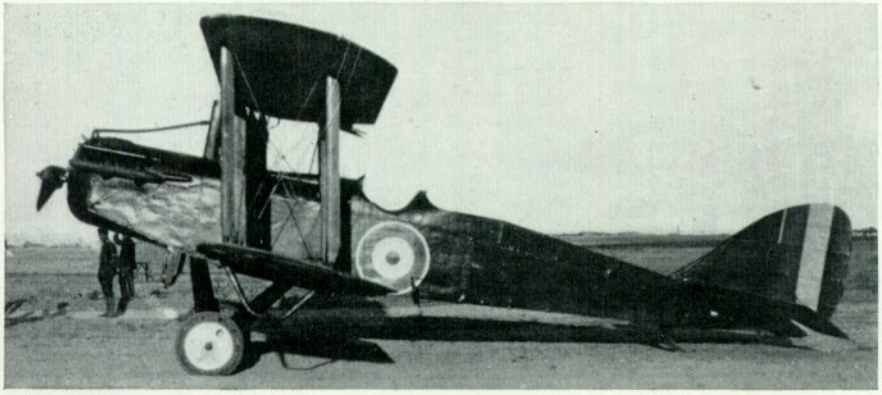
One of the D.H.9s used by Holland, fitted with a Wright Whirlwind engine.

D.H.9s of the South African Air Force. (Photo: S.A.A.F.)

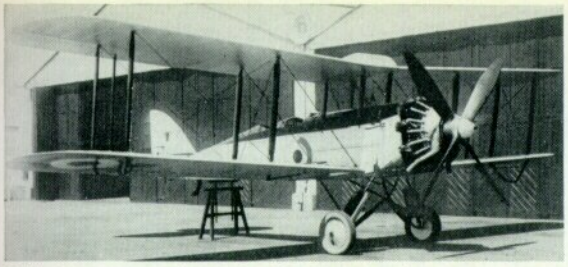
the U.S. Naval Northern Bombing Group had four D.H.9s on its strength in October 1918, but this may be a confusion with the D.H.9As that were in service with the Group at that time. American production of the D.H.9 was intended, to which end two specimen aircraft had been bought without engines in July 1918. These may have been the D.H.9s that had gone to the U.S.A. at an earlier date and bore the McCook Field project numbers P-17 and P-18; the former was *C6058*; the latter crashed on 10th June owing to engine failure on take-off. It seems possible that *C6058* was used in flight tests of the Liberty 12A engine. Production in the U.S.A. of a Liberty-powered version of the D.H.9 was planned on a vast scale: eight contracts cancelled after the Armistice were for a total of 14,000 aircraft.

Some D.H.9s remained in service with the R.A.F. after the war. In Russia the D.H.9s that formed part of the mixed equipment of Squadrons No. 47 and 221 remained on an operational footing in 1919, serving with Denikin's White Army in appalling conditions.

In January and February 1920 some D.H.9s were used in Somaliland in the action against the "Mad Mullah". One of these, *D3117*, had been modified at Farnborough in October 1919 to act as a flying ambulance. A stretcher case was carried on the upper longerons behind the pilot's cockpit; a deep fairing with hinged top provided cover for the patient. A new tailplane-



The so-called Mantis was a S.A.A.F. D.H.9 fitted with a 200-h.p. Wolseley W.4A Viper engine. The conversion was made at the Artillery and Aircraft Depot, Roberts Heights.



Following comparative trials of D.H.9s fitted with the A.D.C. Nimbus, Armstrong-Siddeley Jaguar and Bristol Jupiter engines, the S.A.A.F. selected the Jupiter for its rebuilt D.H.9s. With the Jupiter VI the aircraft was designated Mpala I; the Mpala II, exemplified here by No. 157, had the Bristol Jupiter VIII and a divided-axle oleo undercarriage.

One of the D.H.9s that went to New Zealand, H5627, *was modified in much the same way as the British D.H.9C conversions to have an enclosed two-seat cabin. It is here seen at Nelson, New Zealand, on 13th November 1921, in the service of the Canterbury (N.N.Z.) Aviation Co. Ltd. Its registration in the N.Z. civil register was G-NZAE.*
(Photo: via Derek P. Woodhall)

adjusting screw with twice the travel of the standard component was fitted, giving the tailplane a range of incidence from 1° 30′ to 8° 30′; the fin was suitably modified. A short ladder was fitted to the port side to facilitate loading of the stretcher case, and larger wheels (800 × 150 mm.) were fitted. Thus modified, *D3117* left Farnborough for Ascot on 28th October 1919.

In the post-Armistice years D.H.9s and their Puma engines were plentiful and cheap, consequently many foreign nations bought some for their air forces. Afghanistan, Belgium, Chile, Estonia, Greece, Holland, Iran, the Irish Free State, Latvia, the Nejd, Peru, Poland, Rumania, Spain and Switzerland all had some D.H.9s. In Belgium the S.A.B.C.A. built 30 D.H.9s in 1922–23; in Spain the Hispano-Suiza company put the type into production in 1925 and built some hundreds powered by the 300-h.p. Hispano-Suiza. A few were still in active use in Spain as late as 1940.

Apart from Belgium, only neutral Holland operated D.H.9s before the Armistice. These were aircraft that had made forced landings in Holland, and at one time the *Luchtvaart Afdeling* had as many as nine interned D.H.9s in use. These aircraft were returned to the R.A.F. after the Armistice, and in January 1923 the *Luchtvaart Afdeling* acquired ten D.H.9s; others were assembled in Holland. The air arm of the Royal Netherlands Indies Army also received thirty-six D.H.9s, numbered *H101–H136*. Twelve D.H.9s built in the workshops of the Royal Netherlands Indies Army air arm were numbered *HL137–HL148;* these had frontal radiators and horn-balanced ailerons and elevators. As late as 1934 some Dutch aircraft were given Wright Whirlwind radial engines. An ambulance version of the standard D.H.9 saw service in the Netherlands East Indies; this was a local conversion, of which two were made. They were somewhat similar to the earlier *D3117*. A few D.H.9s remained in Dutch service until 1937.

Under the Imperial Gift Scheme 48 D.H.9s were given to South Africa and nine to New Zealand; six were presented to Canada by the Overseas Club and Patriotic League. The South African D.H.9s gave long and faithful service, some of them ending their careers as Mpalas, fitted with Bristol Jupiter engines, and latterly with oleo undercarriages. At least thirty D.H.9s were supplied to the Royal Australian Air Force in 1923 and served until about 1930.

A D.H.9, *H9140*, was used in 1920 and 1921 by Handley Page Ltd. as a demonstration vehicle for the Handley Page slot. Fixed slots were fitted along the full length of both the upper and lower wings, and the aircraft was later fitted with a taller undercarriage to permit adequate demonstration of the large angle of attack permitted by the slots. This D.H.9 was given the Handley Page type number H.P.17.

D.H.9s saw widespread commercial service in many forms. The D.H.9B was a hurriedly-produced three-seater, the additional cockpit being made in front of the pilot's cockpit. The designation D.H.9C was applied to a conversion in which the rear cockpit was extended to accommodate freight or two passengers; later D.H.9Cs had a roof structure over the rear cockpit and their wings were given slight sweepback. Various refinements and developments of the D.H.9C appeared in many countries.

A floatplane version of the basic design also existed. D.H.9s with Short-built single-step wooden floats were used by the Air Survey Co. Ltd. for their surveys of the Irrawaddy, Sarawak and India in 1924–25; some examples were also supplied to Bolivia. Two

*The only D.H.9 on the Canadian civil register was G-CAEU, which had originally been G-EBDL (ex-*H5678*), one of the aircraft that Major W. T. Blake intended to use during his round-the-world flight of 1922. The flight was abandoned in India, whereupon G-EBDL, which was then at Vancouver, was sold to the Laurentide Air Service Ltd. Thereafter it was operated as a three-seater with a hinged cover to the rear cockpit, and was flown on skis and floats.* (Photo: R.C.A.F.)

D.H.9 in Australian service. (Photo: via R. Waugh)

special D.H.9s, G-EBPE and G-EBPF were fitted with Short-built metal floats; these aircraft, which were used on survey work in Northern Rhodesia, had the 300-h.p. A.D.C. Nimbus engine.

In 1926 a number of ageing D.H.9s used as trainers were given a new lease of life by fitting them with the 385-h.p. Armstrong-Siddeley Jaguar radial engine and rubber-in-compression undercarriages. At least one (G-ABPG) had a 500-h.p. Jaguar IVC; and G-AARS had a 340-h.p. Armstrong Siddeley Serval IV. The last D.H.9Js were scrapped in 1936.

Survivors of the type are to be found in France and Australia. The Musée de l'Air houses *F1258*, still in its original wartime markings but showing signs of its age; another specimen is preserved in the Australian War Memorial at Canberra.

PRODUCTION

At least 4,880 D.H.9s were ordered under wartime contracts. By the end of 1918 a total of 3,204 had passed final inspection, and in all more than 4,000 were built by British contractors.

Aircraft Manufacturing Co., Ltd., Hendon, London, N.W.: A7559, C6051–C6121, C6123–C6349, D2876–D3274, E5435–E5436, E8857–E9056, H9113–H9412.

Alliance Aeroplane Co., Ltd., Cambridge Road, Hammersmith, London: H5541–H5890.

F. W. Berwick & Co., Ltd., Park Royal, London, N.W.10: C2151–C2230, D7301–D7400.

Crossley Motors Ltd., Manchester: H7913–H8112.

Cubitt Ltd., Croydon: D451–D950.

Mann, Egerton & Co., Ltd., Aircraft Works, Norwich: D1651–D1750.

National Aircraft Factory No. 1, Waddon: F1–F300.

National Aircraft Factory No. 2, Heaton Chapel, near Stockport: D1001–D1500.

Short Brothers, Rochester, Kent: D2776–D2875.

Vulcan Motor & Engineering Co. (1906) Ltd., Crossens, Southport: B9331–B9430.

Waring & Gillow, Ltd., Cambridge Road, Hammersmith, London (and *Wells Aviation Co., Ltd., 30 Whitehead's Grove, Chelsea, London, S.W.8*, under sub-contract): *D5551–D5850, F1101–F1300.*

G. & J. Weir, Ltd., Cathcart, Glasgow: C1151–C1450, D9800–D9899, H7563–H7612.

Westland Aircraft Works, Yeovil, Somerset: B7581–B7680, D7201–D7300, F1767–F1866.

Whitehead Aircraft Co., Ltd., Old Drill Hall, Townshend Road, Richmond: E601–E700.

A.R.D. rebuilds: F6066, F6073.

Société Anonyme Belge de Constructions Aeronautiques, 13 rue de Bréderode, Brussels: Thirty D.H.9s for l'Aeronautique Militaire Belge, 1922–23.

SPECIFICATION

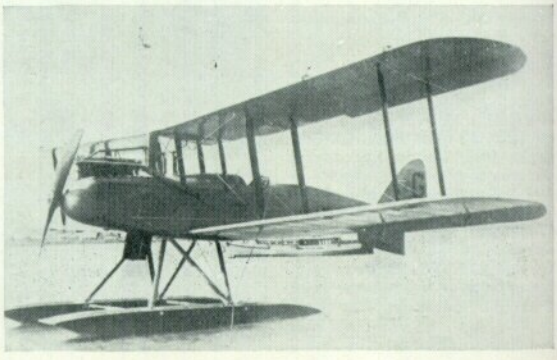
Power: 230-h.p. Siddeley Puma; 230-h.p. Galloway Adriatic; 290-h.p. (high-compression) Siddeley Puma; 260-h.p. Fiat A-12; 430-h.p. Napier Lion; 400-h.p. Liberty 12A; 200-h.p. Wolseley W.4A Viper; 300-h.p. Hispano-Suiza 8Fb; 385-h.p. Armstrong-Siddeley Jaguar III; 500-h.p. Armstrong-Siddeley Jaguar IVC; 345-h.p. Armstrong-Siddeley Serval IV; 420-h.p. Bristol Jupiter VI; 460-h.p. Bristol Jupiter VIII; 300-h.p. A.D.C. Nimbus; 465-h.p. Wright Whirlwind R-975.

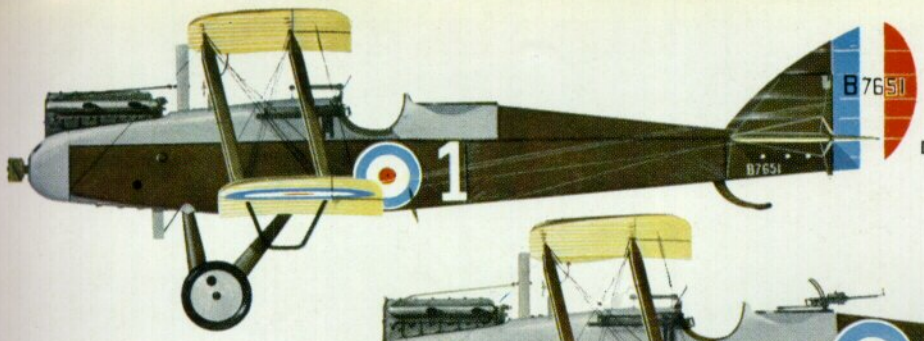
Dimensions: Span 42 ft. 4⅜ in.; length (Puma, Adriatic and Fiat) 30 ft. 6 in., (Lion) 30 ft. 9½ in., (Liberty) 30 ft.; height 11 ft. 2 in. (11 ft. 7¾ in. with Lion); chord 5 ft. 6 in.; gap 6 ft.; stagger 12 in.; dihedral 3 deg.; incidence 3 deg.; span of tail 14 ft.; wheel track 6 ft.; tyres 750 × 125 mm.; airscrew diameter (Integral 1329, 4-blade) 8 ft. 9 in., (Airco B2627, 2-blade) 9 ft. 6½ in., (A.M.5012, Lion engine) 10 ft. 11·9 in.

Areas: Wings 434 sq. ft.; ailerons, each 20·5 sq. ft., total 82 sq. ft.; tailplane 38 sq. ft.; elevators 24 sq. ft.; fin 5·4 sq. ft.; rudder 13·7 sq. ft.

Armament: One fixed 0·303-in. Vickers machine gun with Constantinesco C.C. synchronising mechanism, Hyland Type B loading handle, and Aldis and ring-and-bead sights. One 0·303-in. Lewis machine gun on Scarff No. 2 ring mounting with Norman sight. Two 230-lb. bombs stowed vertically within the fuselage or (more usually) on racks under the fuselage or lower wings; alternatively, an equivalent weight of bombs of other types could be carried. Gledhill bomb gear; Negative Lens bomb sight.

Floatplane version of the D.H.9.



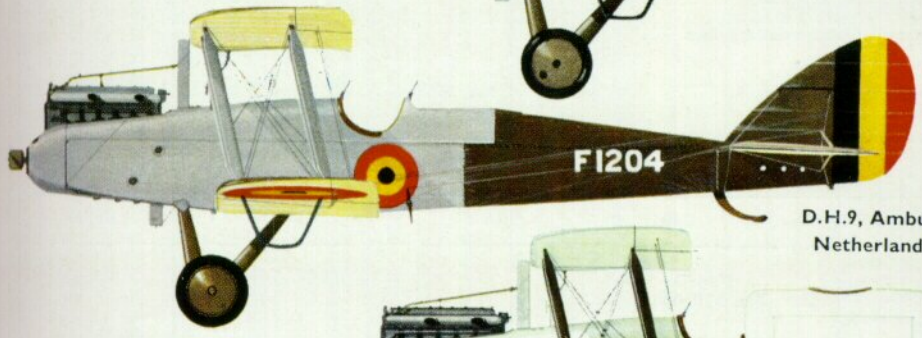


D.H.9, No. 99 Squadron, R.F.C.,
Azelot, France, 1918.

D.H.9, No. 221 Squadron, R.F.C., Petrovsk, Russia, 1918.

D.H.9, No. 49 Squadron, R.F.C.,
Conteville, France, 1918.

D.H.9, A6-21, R.A.A.F. This a/c
later became VH-UML.



D.H.9, Belgian Air Force.

D.H.9, Ambulance conversion by the
Netherlands East Indies Air Force.

D.H.9, Netherlands East Indies Air Force.

NEI rudder marking.

The D.H.9J was a 1926 conversion of the D.H.9 for training purposes, powered by the 350-h.p. Armstrong-Siddeley Jaguar III engine. An improved undercarriage incorporating rubber-in-compression shock-absorbing struts was fitted, together with D.H. differential ailerons. The D.H.9J illustrated here did not have Handley Page slots, but these were fitted to most aircraft of this sub-type.

Sociedad Anonima Hispano-Suiza, Guadalajara: Built a substantial number of D.H.9s from 1925 onwards.
Royal Netherlands Indies Army workshops, Andir, near Bandoeng: Built twelve modified D.H.9s.

SERVICE USE

Wartime

Western Front: R.A.F. Squadrons No. 27, 49, 98, 99, 103, 104, 107, 108, 202, 206, 211 and 218; units of l'Aviation Militaire Belge. Possibly used temporarily by the U.S. Naval Northern Bombing Group.
Oversea patrol: R.A.F. Squadrons No. 212 (Great Yarmouth), 250 (Padstow) and 273 (Covehithe and Westgate).
Palestine: No. 144 Squadron, R.A.F.
Macedonia: R.A.F. Squadrons No. 17 and 47.
Mediterranean: R.A.F. Squadrons No. 224 and 226.
Aegean: R.A.F. Squadrons No. 220, 221, 222 and 223.
Russia: R.A.F. Squadrons No. 47 (Ekaterinodar) and 221 (Petrovsk).

Post-war, Royal Air Force

Squadrons No. 55 and 206; Z Force, Somaliland.

Examples of D.H.9s used by operational squadrons.
No. 49 Sqn.: B7637, C1173, C6093, D1715, D5576, E623.
No. 98 Sqn.: B9332, C6079, D1717, D3060, D7202, E692.
No. 99 Sqn.: B7651 (Aircraft 1), *B9366* (Y), *C6202, C6210, D544, D5568.*
No. 103 Sqn.: C6150, C6253, D2877, D7234, E8884, E9038.
No. 104 Sqn.: B7588, C6264, D487, D2917, D5650, E8972.
No. 107 Sqn.: B9331, C1179, C6343, D2856, E666, F6066.
No. 108 Sqn.: B9417, C6314, D602, D5798, E9028, F1118.
No. 144 Sqn.: C6228, C6293, C6300, C6310, D3100, D3143.
No. 206 Sqn.: B7617, C1181, C6136, C6240, D5609, H5551 (in 1920).
No. 211 Sqn.: B7623 (L), *B7661, C2210, D1733* (C), *D3233, E8880.*
No. 218 Sqn.: B7677, C1211 ("VI"), *D1085, D5654, E8883, E8958.*
No. 221 Sqn.: D2854.
No. 224 Sqn.: C2161, D2794, D2795, D2796.
No. 226 Sqn.: B7667, C6224, D1657, D1658, D1662, D2798.
No. 186 Development Sqn., Gosport, 1919: D3010, D3015, D5806, E8888.
Z Force, Somaliland, 1920: D3117 ambulance conversion.
L'Aviation Militaire Belge: F1201, F1204.
Irish Air Corps: H5774, H5797, H5823, H5862, H5869, H9310.

WEIGHTS AND PERFORMANCE

Aircraft	A7559	C6051		C6052	—		C6078
Engine	Galloway Adriatic No. 11/W.D. 15434	Siddeley Puma No. 5019/W.D. 22693		Fiat	High-compression Puma		Lion
Bomb load	Nil	Two 230-lb.	Three 112-lb.	Nil	Nil	Two 112-lb.	Nil
Weights (lb.):							
Empty	2,193	2,203	2,203	2,460	2,232	2,232	2,602
Military load	185	571	487	185	185	361	185
Crew	360	360	360	360	360	360	360
Fuel and oil	549	535	535	595	550	550	578
Loaded	3,283	3,669	3,585	3,600	3,327	3,503	3,725
Max. speed (m.p.h.):							
at 10,000 ft.	110·5	111·5	104·5	117·5	116	114	140
at 15,000 ft.	102	97·5	95·5	107·5	106	103	135
Climb to:	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.
6,500 ft.	11 5	11 0	12 30	9 0	7 50	9 30	4 55
10,000 ft.	19 55	20 5	23 20	16 0	13 55	16 35	8 10
15,000 ft.	42 25	45 0	62 0	32 20	28 0	34 25	14 35
Service ceiling (ft.) ...	16,000	15,500	14,000	17,500	17,500	17,000	24,000

D.H.9 with Liberty engine is reported to have weighed 4,645 lb. loaded and to have had a maximum speed of 114 m.p.h. These figures are of doubtful accuracy.