SOPMITH FACAMEL



The ultimate dogfighter of WWI. By R L Rimell

"T is indicative of the international fame of the Sopwith Camel, and its pre-eminence in aviation history, that even today, sixty years after that stubby little fighter was in its heyday, its name remains synonymous with the world's first aerial struggle in 1914–18..."

So wrote historian Chaz Bowyer in the introduction to his book, Sopwith Camel – King of Combat, published by Glasney Press in 1978. Few would argue with the author's opinions for the Camel was the kind of aeroplane that legends are made of. The current release of Hasegawa's second Museum Series model to \$\frac{1}{8}\$th scale makes another look at this classic appropriate and timely.

The Camel has always been a popular choice with model kit manufacturers (for static and flying), while model plans and factual references are legion. The writer is indebted to J M Bruce, historian, author, and keeper of records at the RAF Museum, for reminding him of some finer aspects of the Camel, rarely appreciated by modellers and illustrators.

On operational Camels in RFC service on the Western Front (and on the majority of RNAS F1 Camels) the decking ahead of the cockpit was cut away, adjacent to the starboard Vickers gun breech mechanism, to produce the asymmetric outline as correctly portrayed in the Hasegawa kit. Beware though, the cut-outs were accomplished in a variety of ways - some Camel pilots also had the decking cut away about the port gun as depicted on our painting of Camel B6313. This modification may have had something to do with windscreen design for it was quite unnecessary as far as access was concerned. Modellers of Hasegawa's kit will have to decide to either reproduce a machine known positively to have the decking cut away, or to convert the kit in order to conform to the exact individual Camel being modelled. This may prove difficult as that particular area of the cockpit is rarely seen clearly in period photographs.

The actual cutting away of the starboard ply decking was usually undertaken by the issuing aircraft depot as standard practice as devised by No. 2 AD and officially designated on July 28, 1917. When night-fighter Camels went to France in 1918 it was agreed that, in the interests of pilot comfort, the cockpits of their standard F1 Camels

would not be cut down. Presumably, the official view was that since it was practically impossible to rectify a stoppage of the starboard gun in the dark anyway, there was little point in providing access to guns on such aircraft.

Obviously, with the cutting away of the decking, it became necessary to modify the windscreen and innumerable attempts were made to produce a satisfactory design in the field. Needless to say, these assorted efforts were to produce correspondingly assorted styles of windscreens so it would be wise to check photos before finalising the particular subject.

Another feature worth mentioning is the size of the upperwing centre-section cut-out. Here again, individual modifications produced various shapes, but the standard wide-pattern cut-out was officially introduced on July 3, 1918. Modellers should also take note of the fact that many Camels went on to the Armistice with the basic factory-sized (and quite useless, vision-wise) cut-out.

One other minor point concerns the position of the Rotherham pump. This could be fitted either on the starboard rear centre-section strut or on one or other of the forward undercarriage legs.

Eminent aero historians claim the Camel was the closest designers of the time ever got to the ideal aerobatic machine produced for fighting service in World War One. The Camel could be looped under control from a low air speed and flick-rolled at near-zero altitude without fear of losing precious height. Undoubtedly its greatest characteristic was its ability to be turned left or right in a matter of seconds due to the close forward concentration of weight masses, combined with the tremendous torque created by the rotary engine. In the combats of WW1 this was a tremendous advantage and, in the hands of a competent pilot, the Camel was a force to be reckoned with.

Yet these 'dog-fighting' qualities had their drawbacks. There were traps for the unwary and many a student pilot was killed flying Camels for the first time. It had to be appreciated that unless swift turns were handled correctly the nose would drop and a rapid spin resulted. If the machine was at an insufficient height, the Camel would keep on spinning until it struck the ground, with usually fatal results. The Camel was a true fighting aircraft, it suffered 'foolish' pilots badly, but once its

22. The RAF Museum's, ex-Nash Collection, Sopwith F1 Camel after painstaking restoration. This superb example of the famous Camel is one of the stars of Hendon's WW1 display. Modellers planning a Camel as their next project are strongly urged to make a close study of this machine.

idiosyncrasies were mastered, it proved a most formidable fighting machine.

Camel colour schemes are legion as far as markings are concerned but generally, in RFC/RNAS/RAF service, a standard arrangement was adopted which varied very little. Uppersurfaces were doped in PC10 which, dependent on mix, could result in a brown-to-khaki-to-dark green range (Methuen 4E8-4F2). Roundels were, typically, Ultramarine (21C8), Zinc White and Vermilion (9A8). Metal cowling and panels were either left natural metal, or could be seen in Light Battleship Grey (B1-C1). Plywood panels around the cockpit area were usually plain varnished but could also be in grey or PC10.

On many British WW1 aircraft the underwing roundels carried a white outer ring despite the clear-doped (4A3) finish. This feature is not as rare as many people seem to imagine and it would be imprudent to assume that only roundels on camouflaged surfaces bore a white outer

ring.

SOPWITH CAMEL

Available models (non-flying)

Model	Manufacturer	Scale
Sopwith F1 Camel	Hasegawa	1/8th
Sopwith F1 Camel	Monogram	1/48th
Sopwith F1 Camel	Revell	1/28th
Sopwith F1 Camel	ESCI (ex-Eldon/	
	Match)	1/72nd
Sopwith F1 Camel	Revell	1/72nd

Available models (flying)

Sopwith F1 Camel VK

Sopwith F1 Camel Keilkraft

56½ in. span

18 in. span

Plans for flying scale models (MAP Plans Service)

Sopwith Camel FSP/441 (Free-

Flight Power) 42 in. span

Sopwith Camel FSP/1143 (Free-

Flight Power) 28 in. span

Sopwith Camel RC/1099 (R/C -

Power) 56½ in. span

CONSULTED REFERENCES

Books

As listed with the BE2c references with the exception of Reconnaissance and Bomber aircraft of the First World War.

Fighter Aircraft of the First World War by W M Lamberton. Harleyford Publications.

Sopwith Camel – King of Combat by C Bowyer, Glasney Press.

Sopwith - The Man and his Aircraft by B Robertson. Harleyford Publications.

Winged Victory by V M Yeates. Jonathan Cape, 1934. (This is a novel, but the best. If ever you wanted to know what flying wartime Camels was really like, this is the only way to find out . . .)

Magazines

Aeromodeller. March 1958.

Aeroplane Monthly. March 1973.

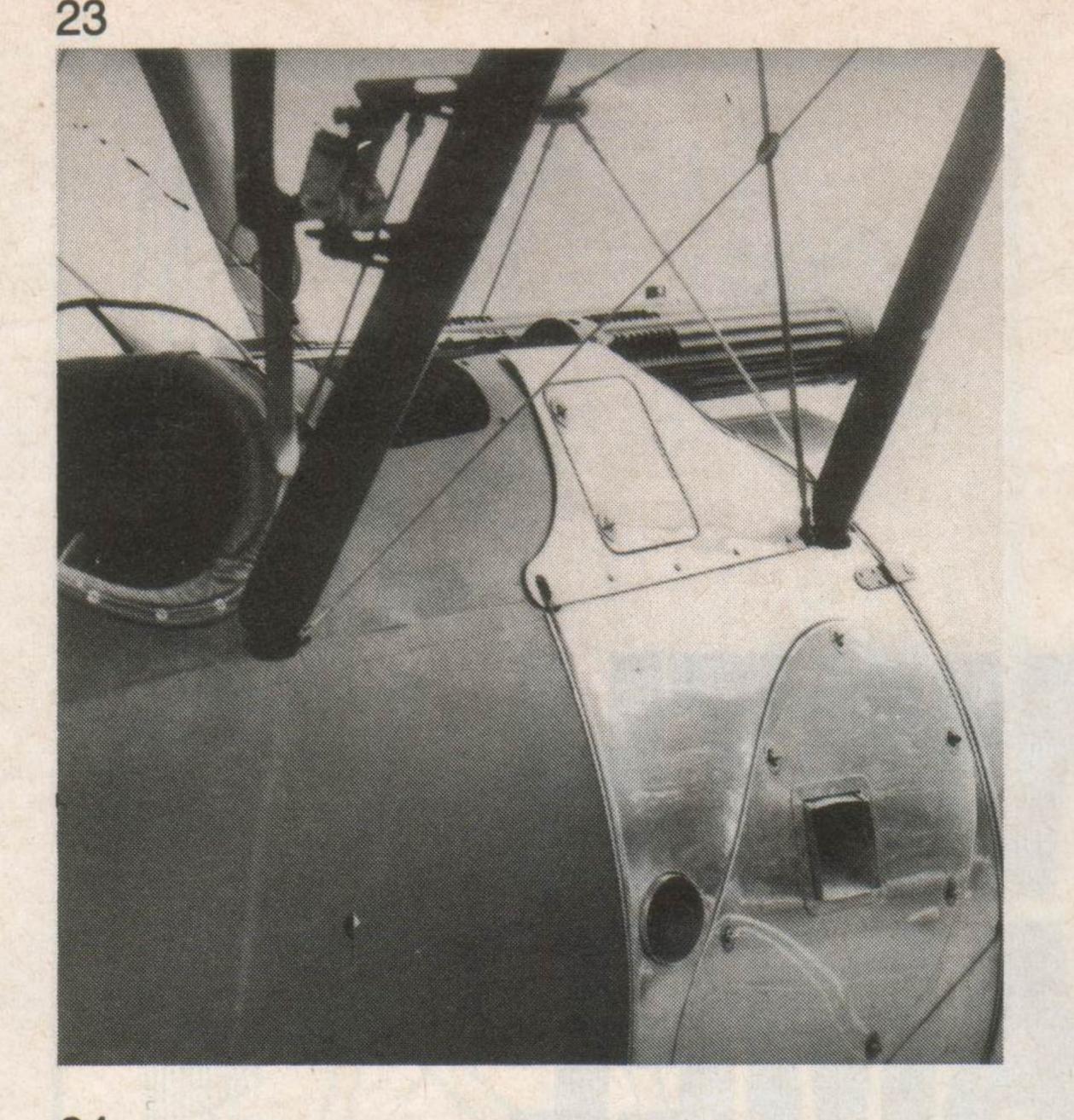
Airfix Magazine. May and December 1969, April 1971.

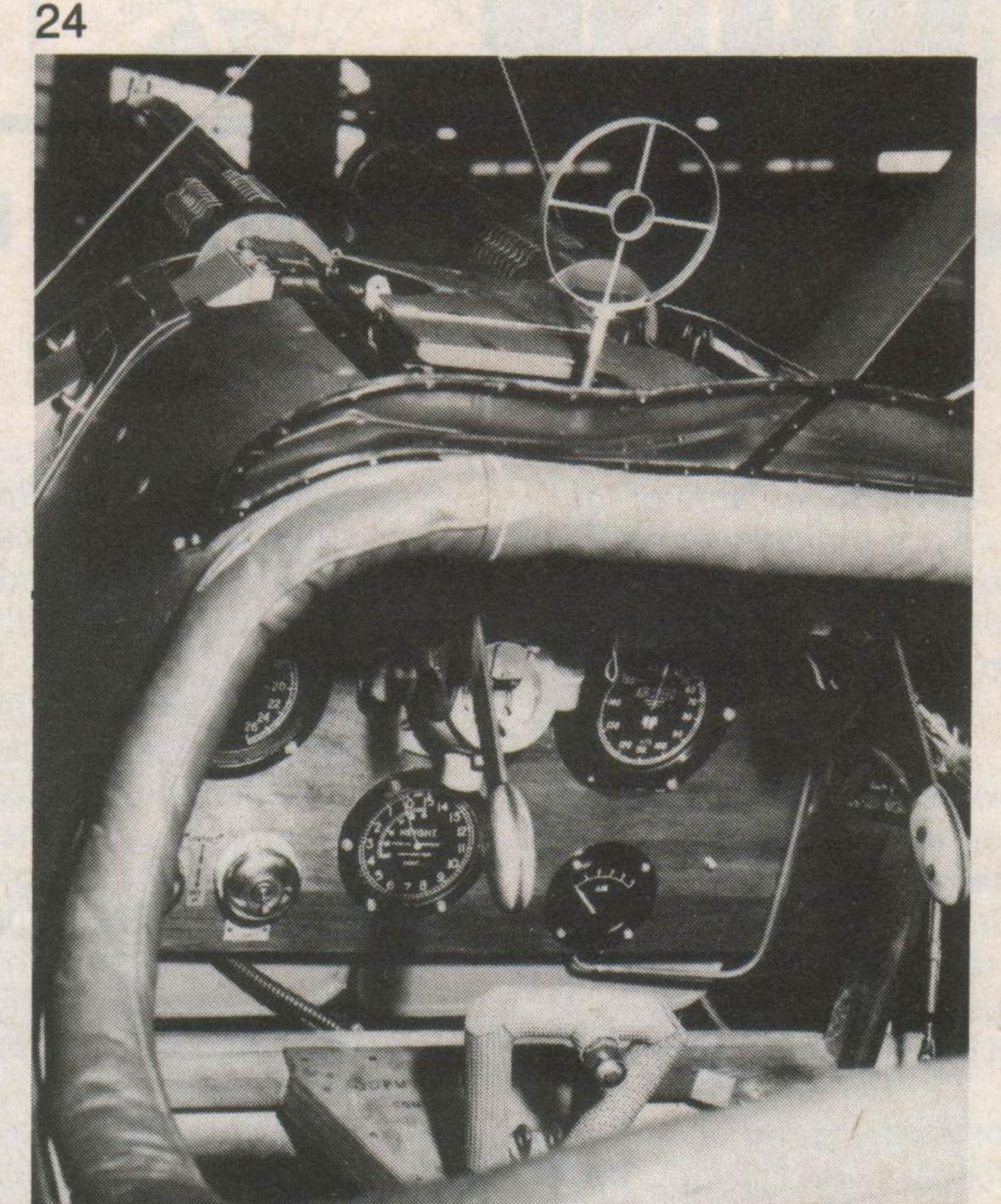
Cross and Cockade (US) Journal. Vol. 7, No. 1 (Scale drawings).

Profile Publications No. 31. (By J M Bruce.)
RAF Flying Review. April 1958, August 1960.
SCALE MODELS. April 1970; May 1974; October 1978.

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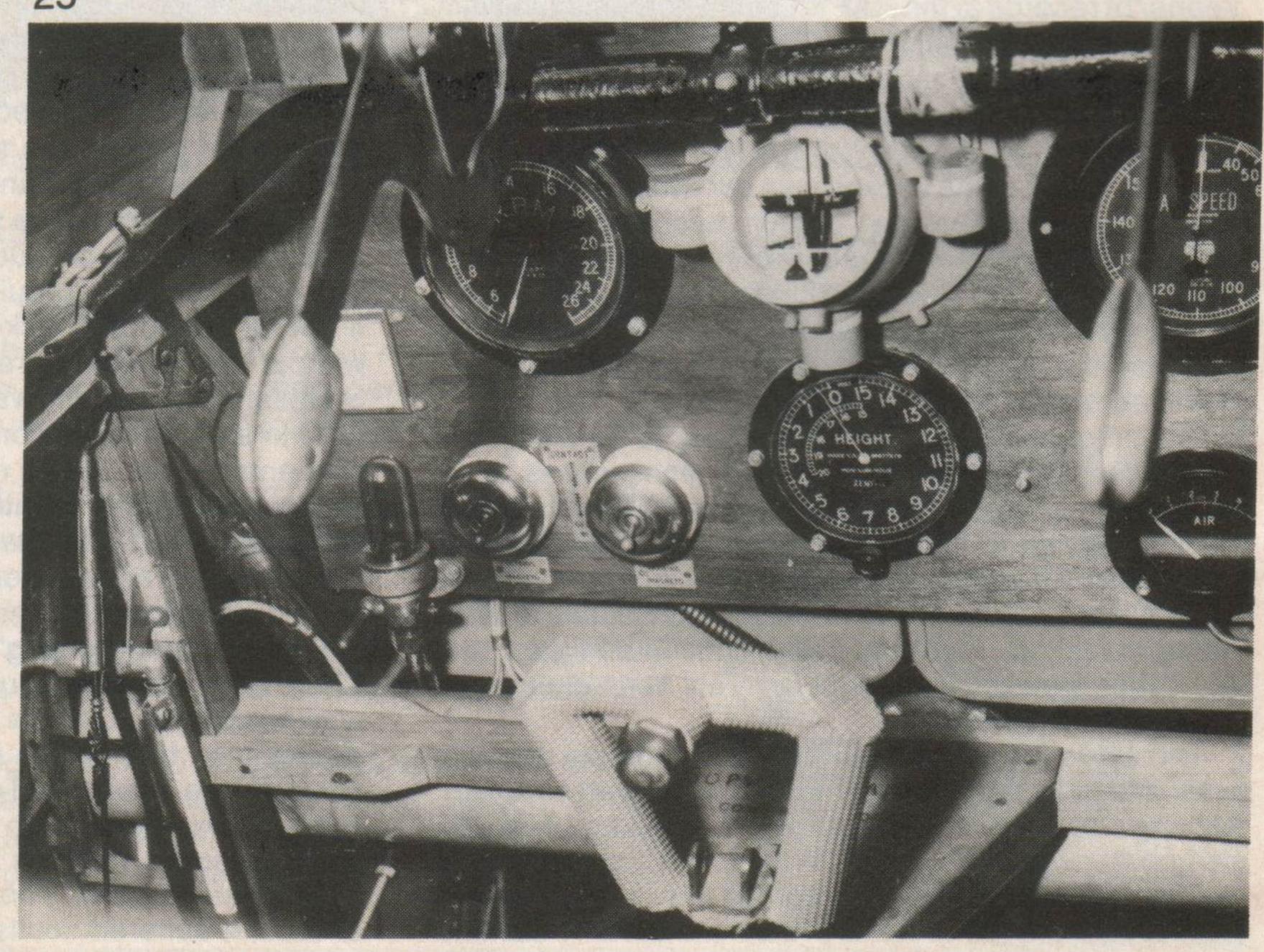
Study of the preserved example in the RAF Museum, Hendon.

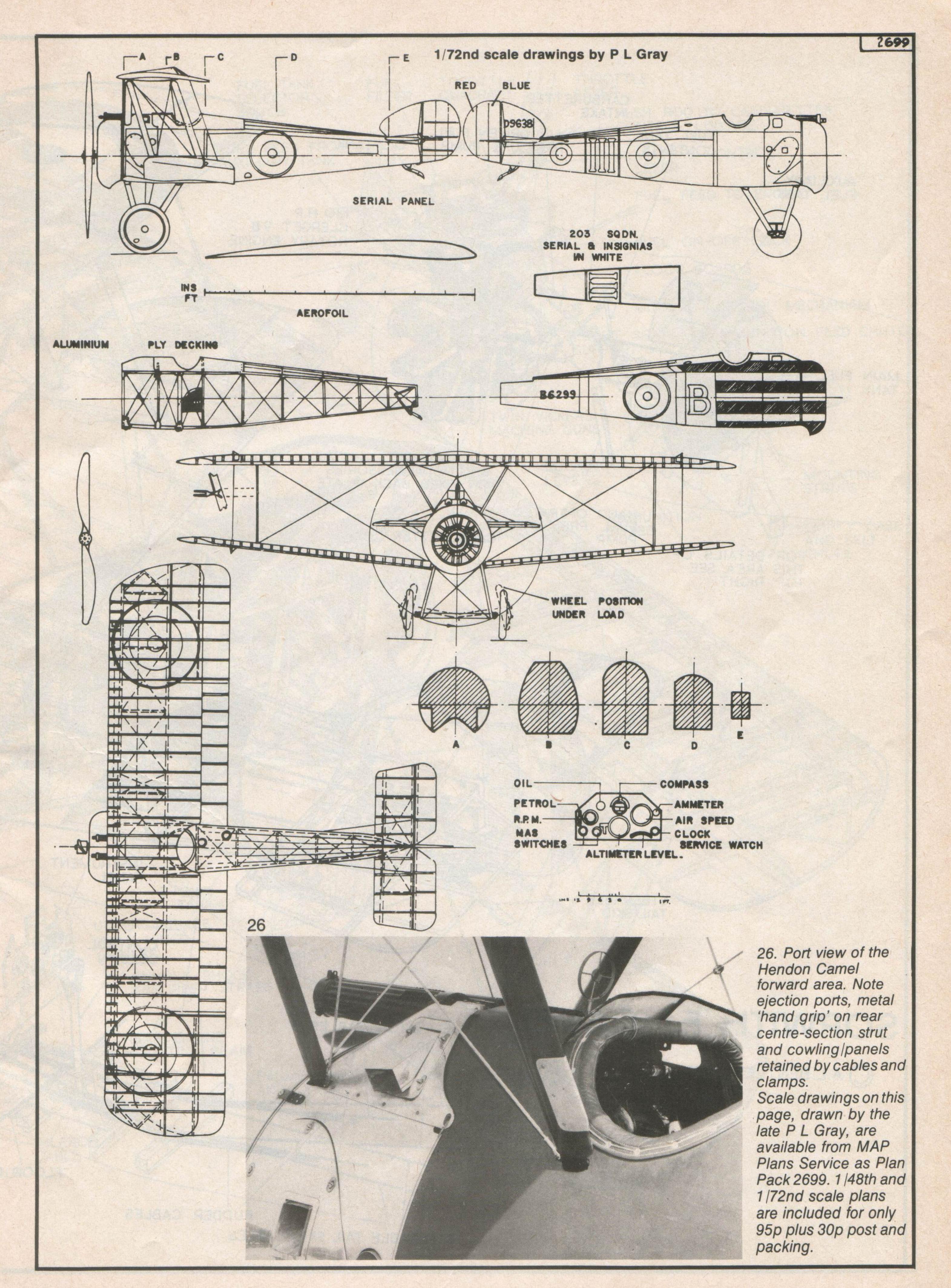


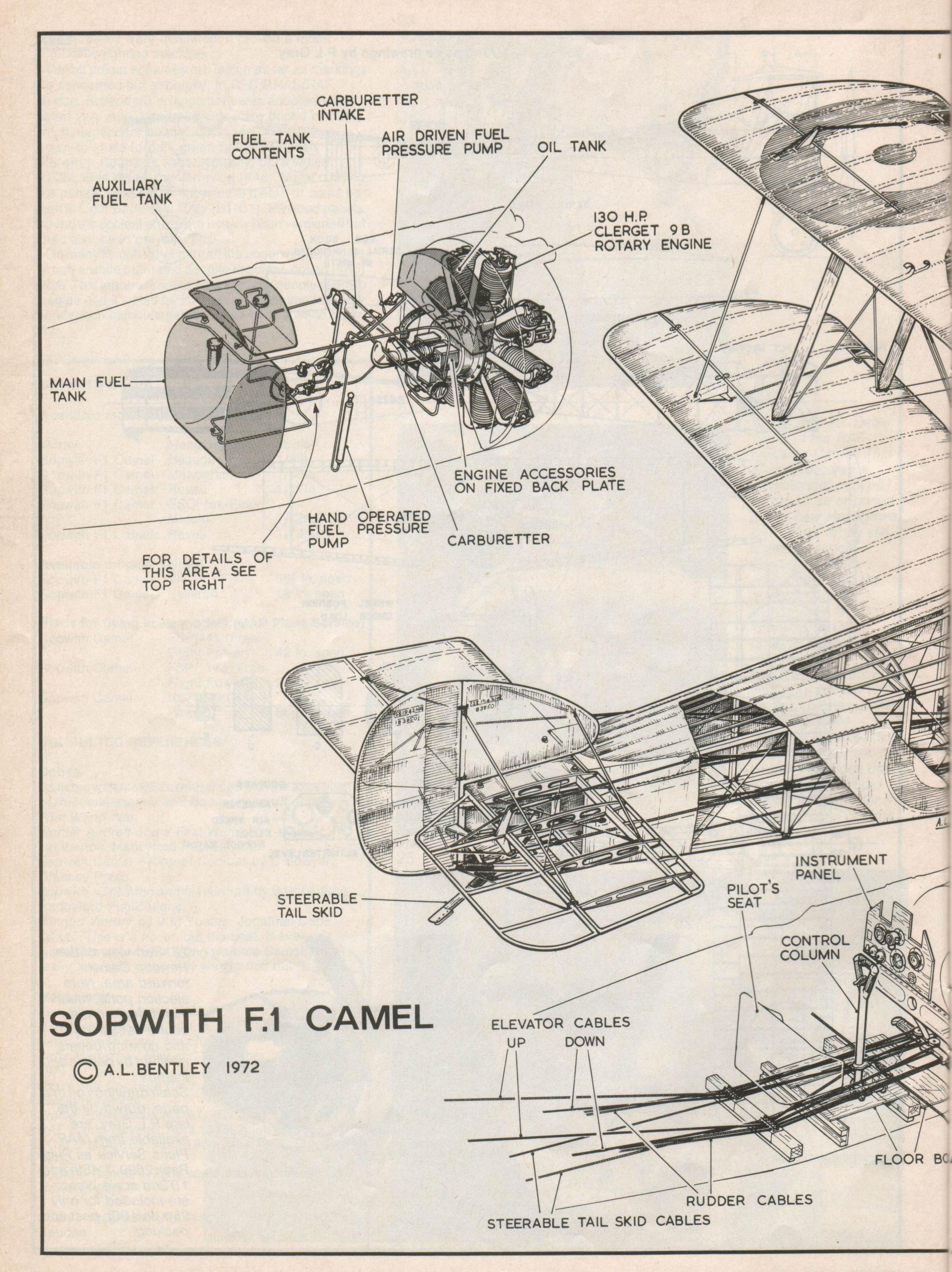


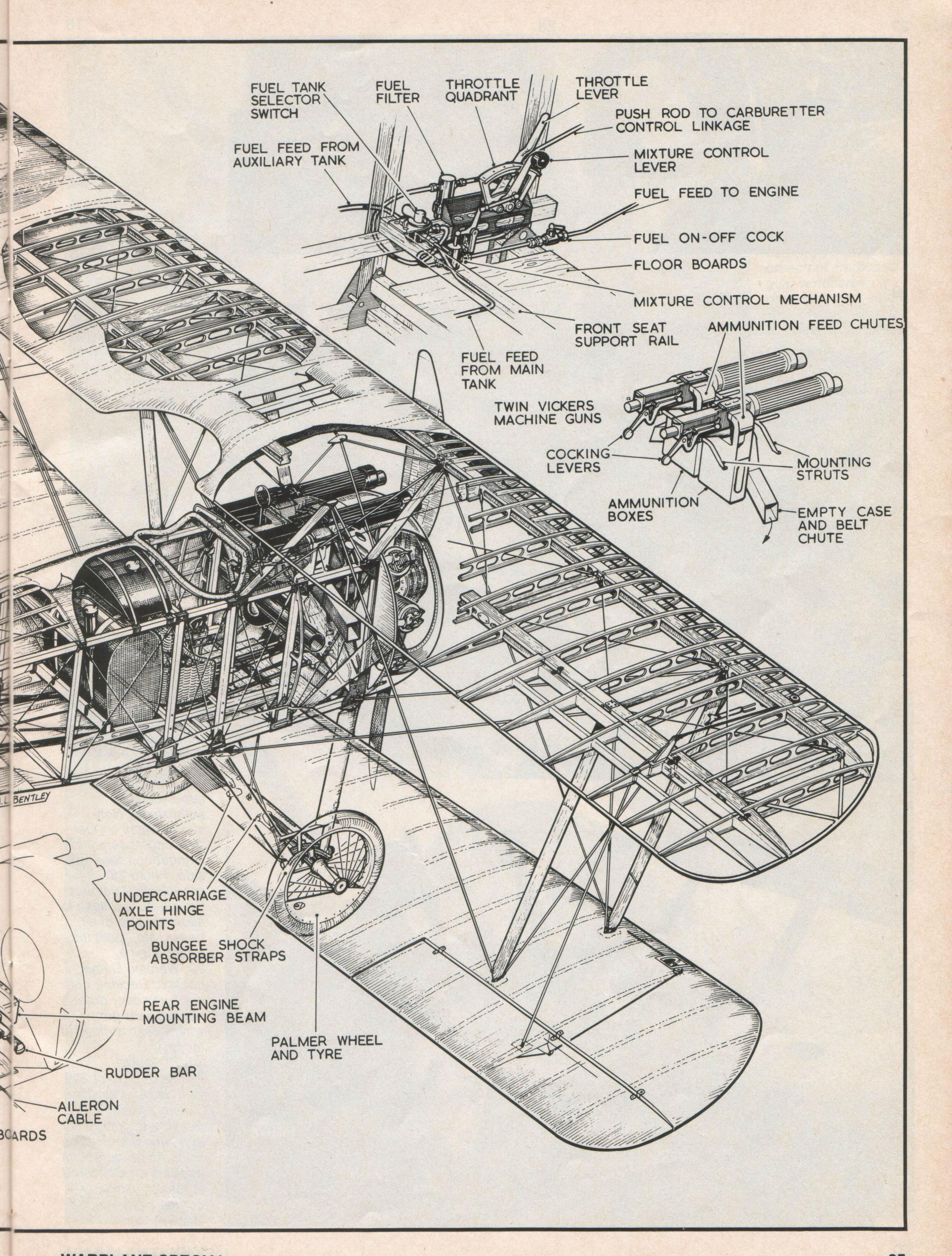
23, 24 and 25. Detail views of the RAF Museum Camel. This aircraft features a symmetrical cockpit surround as opposed to the new Hasegawa kit's offset, albeit still correct, version. Cockpit panel is uncluttered and the stylised control column grip is noteworthy. Dash panel is varnished wood whilst instrument bezels are semi gloss black with the rear bodies of the brass magneto switches in white. That large beam across the cockpit is to lock the controls and should not be mistaken for a typical Camel cockpit fitting!

25



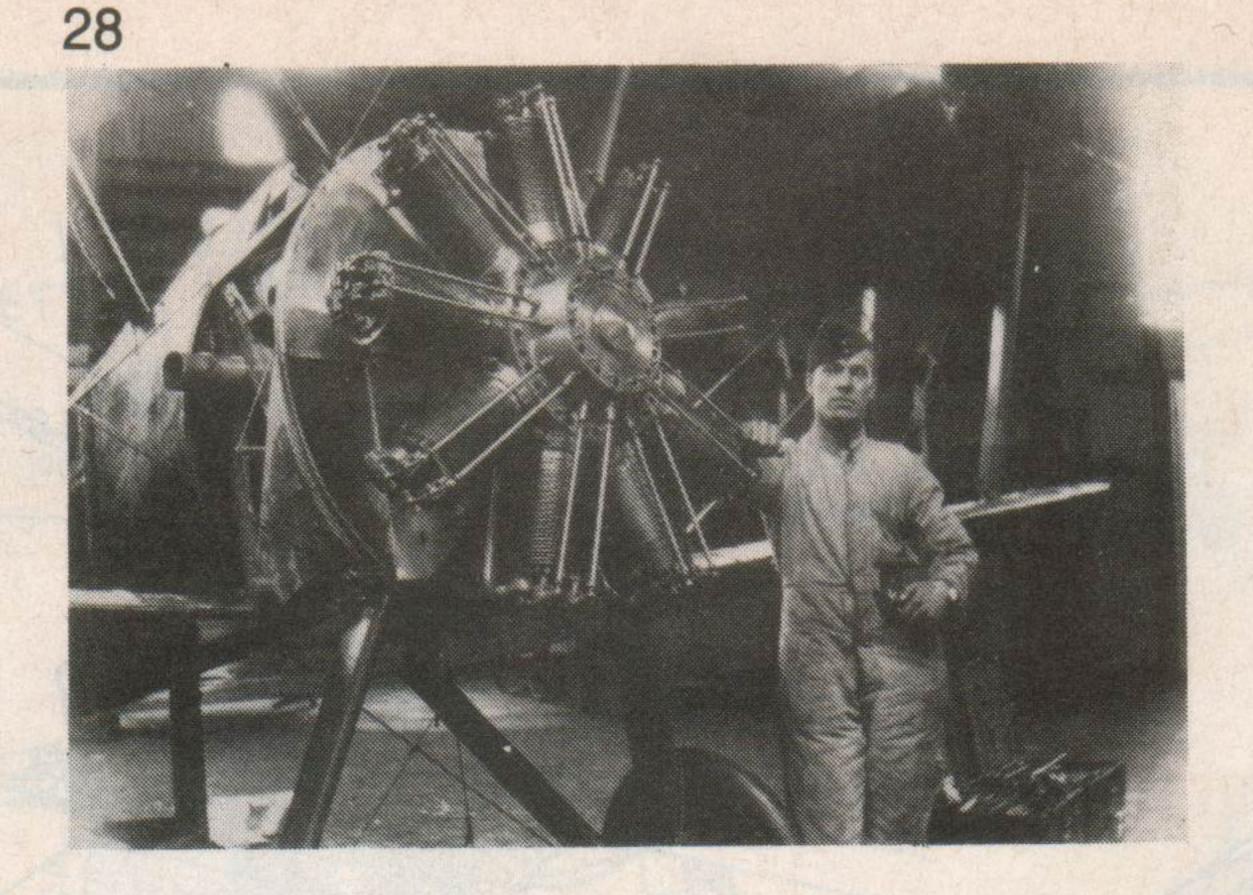




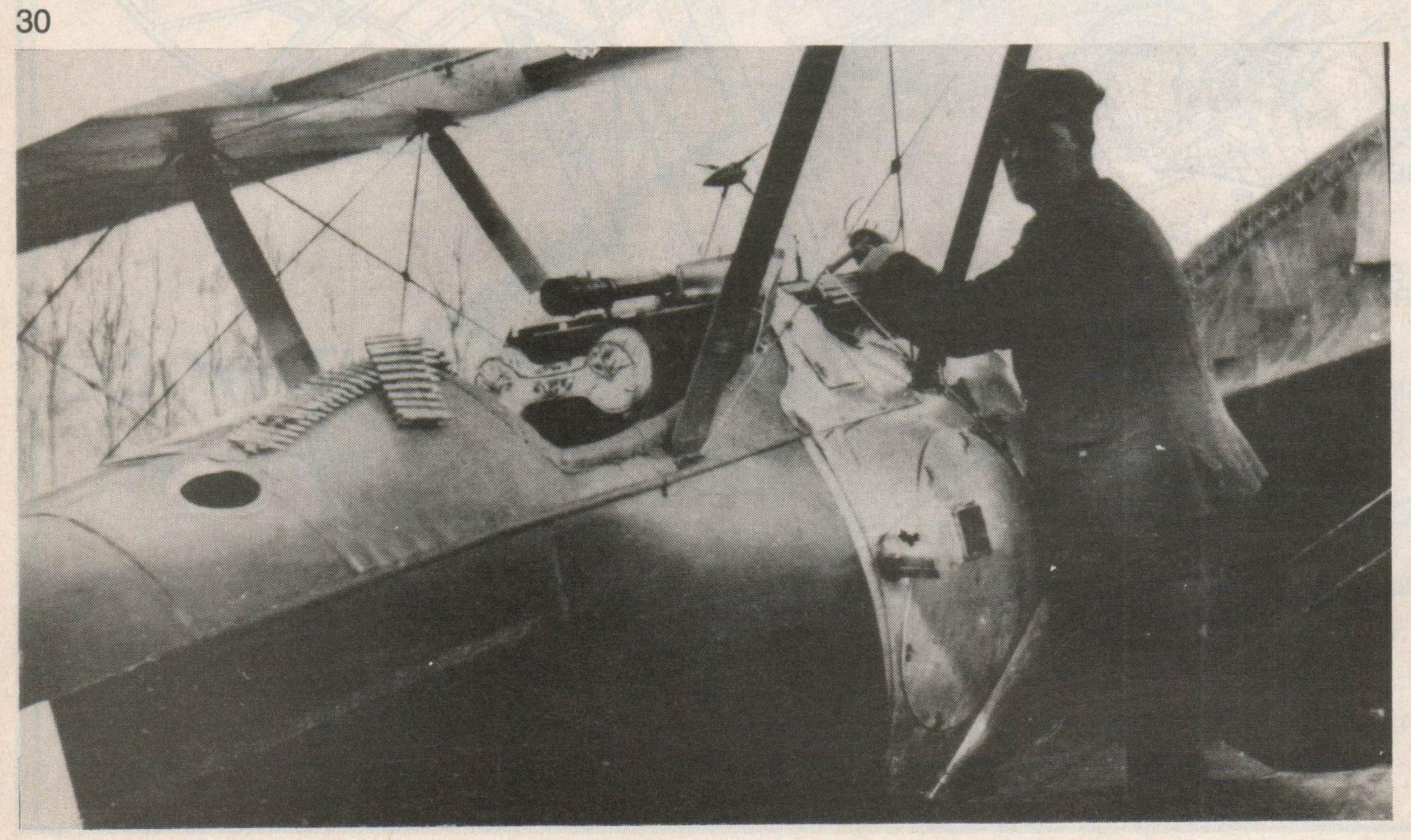


WARPLANE SPECIAL 25

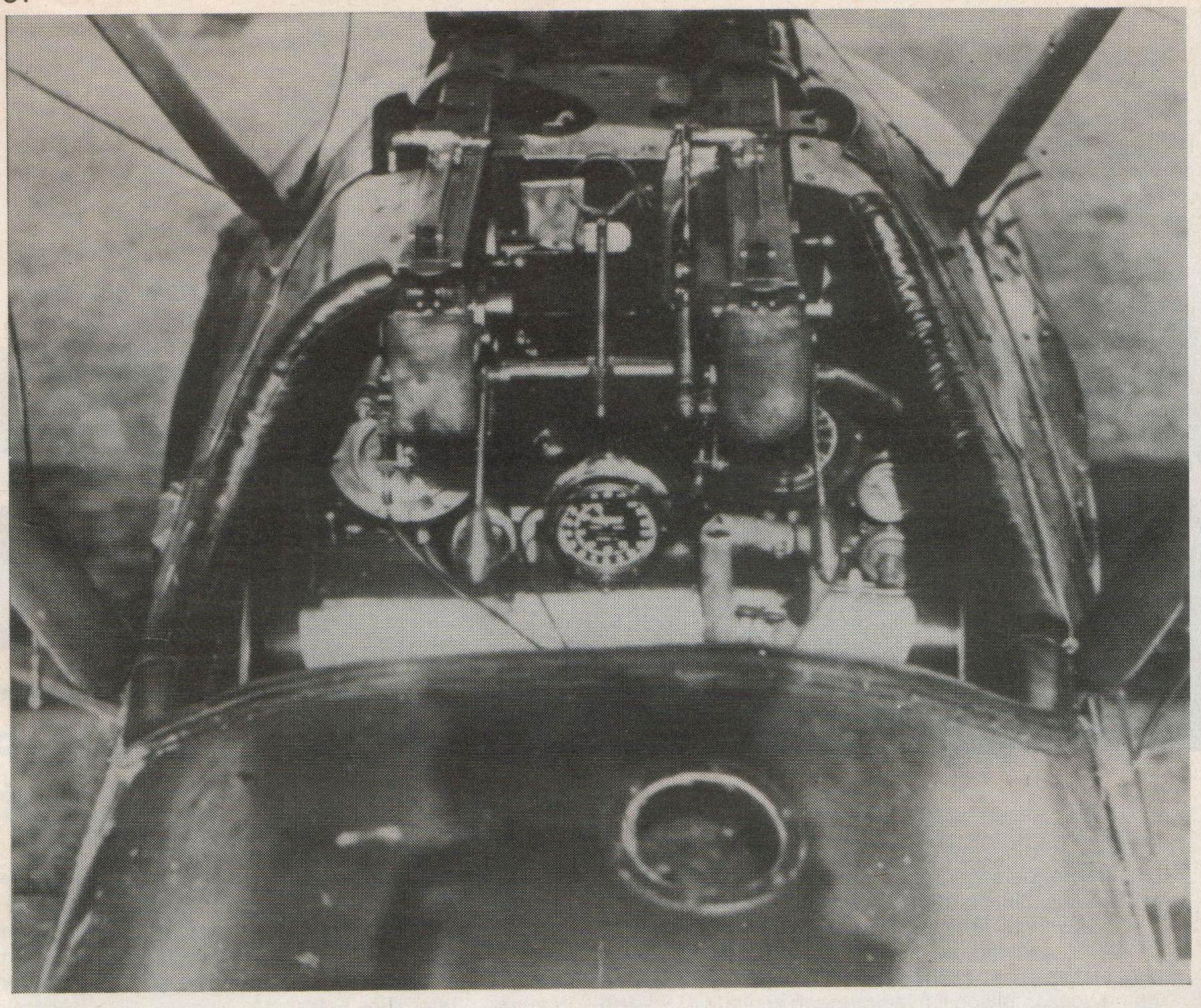




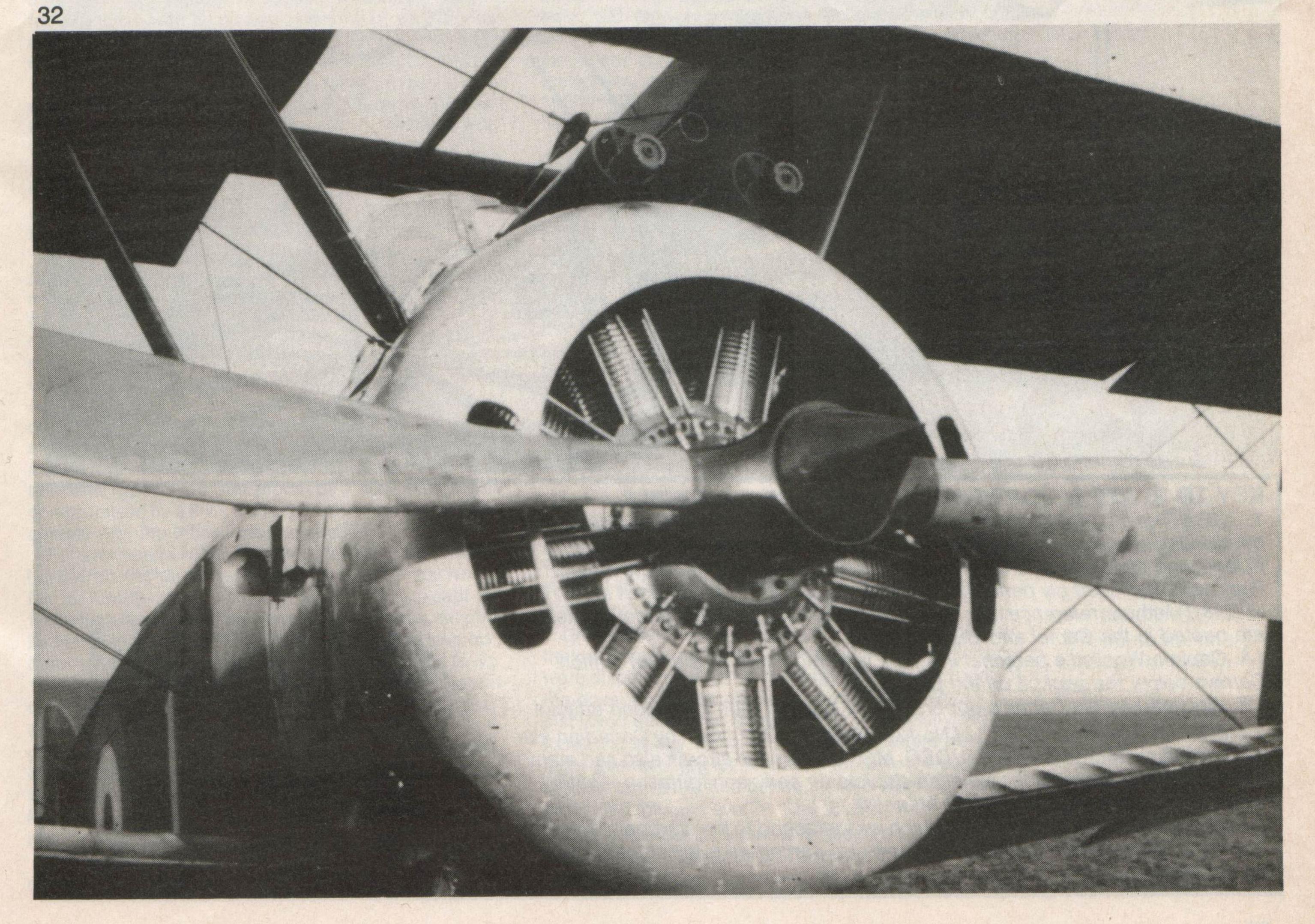




27 and 28. Extremely rare photographs of a 201 Squadron, RAF, Camel undergoing maintenance with plenty of model reference for super-detail enthusiasts. Note stencil detail on fuel tank and absence of stringers on fuselage side. Photo 28 graphically illustrates the cut-out sections to allow escape of air, gases, etc., past the rotary engine.
29. Wartime Camel cockpit. Decking not cut away over breech of starboard gun; windscreen as fitted at factory. 30. F1 Camel, believed to be of 209 Sqn. Note extensive cutting away of decking about guns, and windscreen style. Padding on gun butts appears to be covered in fancy cushion or curtain cloth – model that in 1/8th!

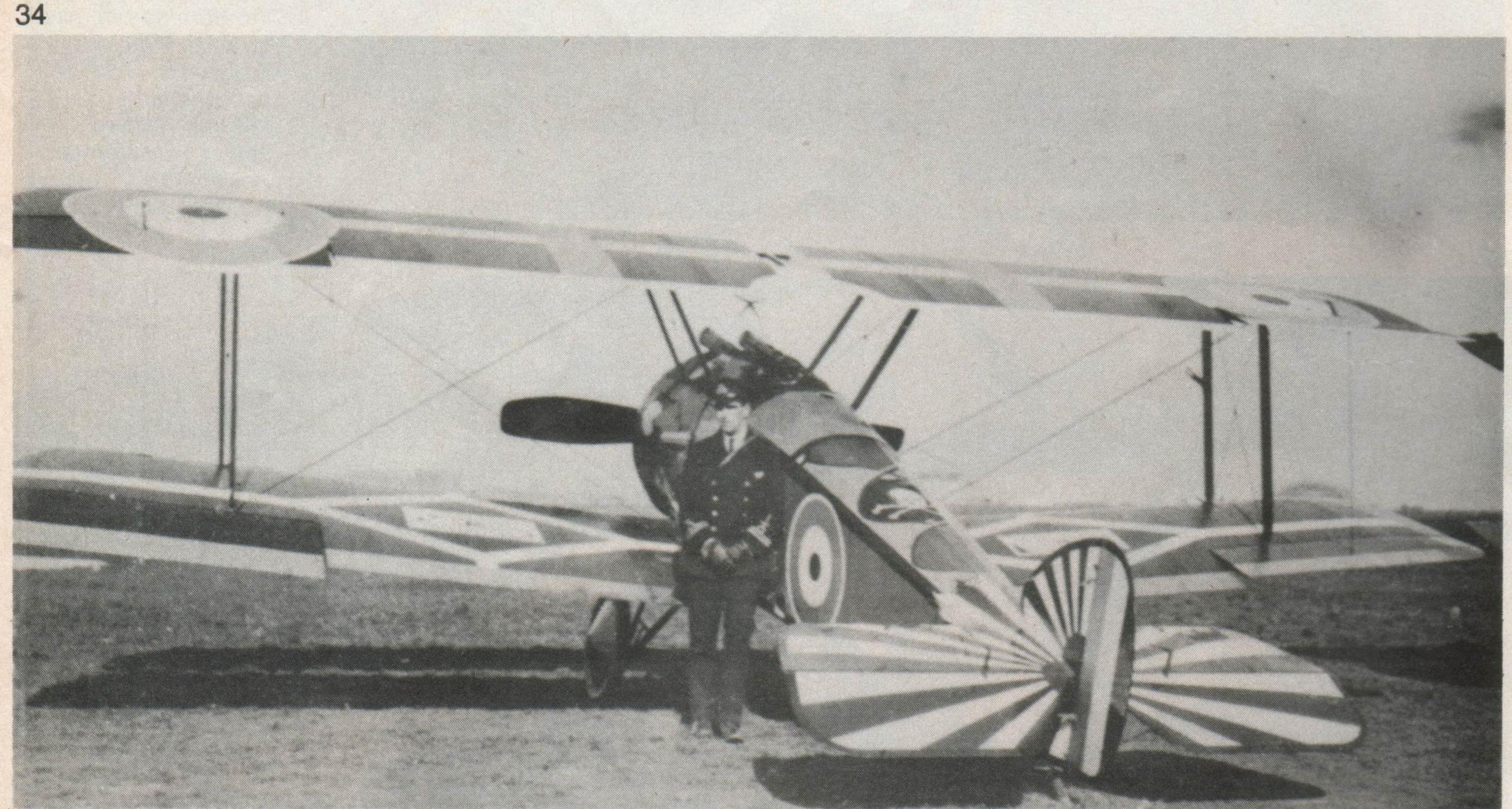


31. F1 Camel with decking cut away over breech of starboard gun; windscreen is presumably mounted well forward. Clamp for telescopic sight can be seen between the Vickers guns.
32. Camel of No. 201 Sqn. with 150 hp Bentley BR1 rotary. Extra slots in cowling were for cooling purposes when ground-strafing during the Somme offensive of 1918. Note increased centre-section cut-out, pointed spinner and forward position of windscreen.





33. B6289 of A Flight, No. 10 (Naval) Sqn. Nose striping is black and white so it is thought that wheel stripe colours are the same. Yet another windscreen design is apparent. 34. B3926 'Happy Hawkins' of No. 3 (Naval) Sqn. in bizarre decor, colours for which are, regrettably, unconfirmed. This colourful machine was usually flown by Lt. D M Galbraith.



KEY TO PLATE 3. SOPWITH F1 CAMELS BY R L RIMELL

1. SOPWITH F1 CAMEL, D6402 of No 43 Squadron, RAF, 1918. It is believed that the painting accurately portrays this aircraft, flown by Captain Henry Woollett, for at least one period in its long and varied career. Cowling panels are Battleship Grey, with varnished ply panels around cockpit and all uppersurfaces in PC10 4F(2-8) (Methuen reference numbers for all these colours, and roundel shades, are quoted in the Camel and BE2c texts.)

1A. Captain Woollett's personal insignia, later modified, of a green Griffon.

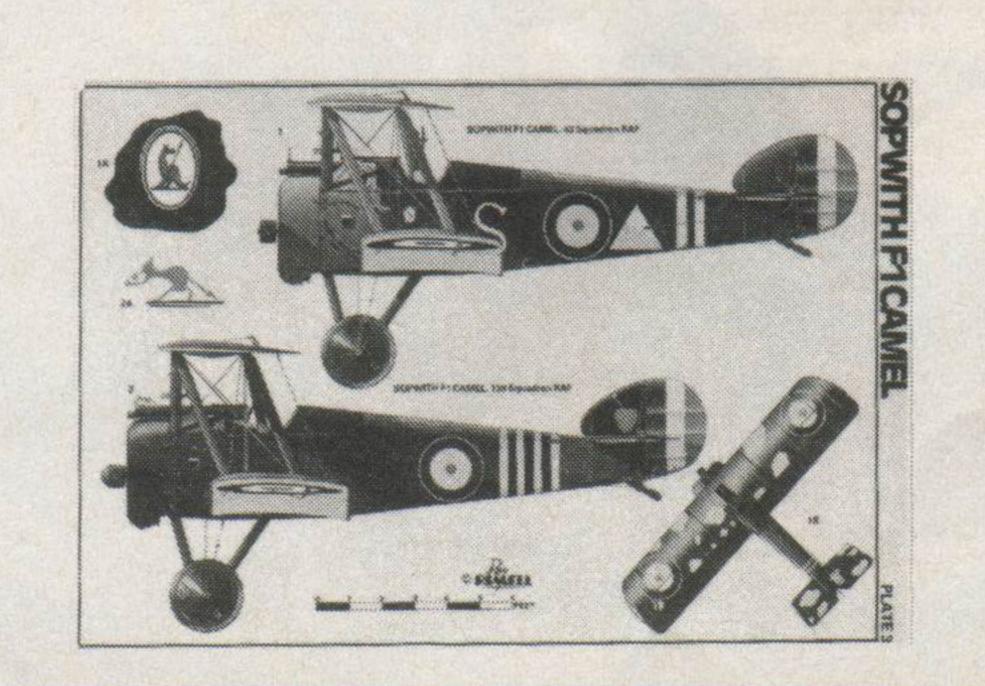
Carried below the cockpit on the port side.

1B. Woollett had his Camel's uppersurfaces painted thus for balloon attacks.

2.SOPWITH F1 CAMEL B6313 of No 139 Squadron RAF flown by Canadian ace Major William George Barker VC, DSO, MC. This famous aircraft also had many changes made to it and the painting depicts an early configuration – note

extensive cutting away of cockpit area.

2A. Red devil of light gauge metal which was attached to the starboard Vickers gun as a rudimentary mascot. Whether it also served as a gunsight is pure conjecture.



HANDLEY FORD PAGENFORD



Radlett's second-generation heavy bomber described by B Robertson

The last of a long line of Handley Page biplane bombers, and the last such aircraft to enter RAF service, the 75 feet span HP38 Heyford was designed to meet Air Ministry Specification B19/27. This called for a twin-engined night-bomber with a maximum speed of over 120 mph, capable of cruising with safety margins for 920 miles with bomb combinations up to 2000 lbs. and landing at under 55 mph. The firm's chief designer, GR Volkert, produced an unorthodox design in that the fuselage was attached to the upperwing, so that no other service aircraft had such a marked difference in datum line and ground sit. A crew of four was specified with frontal, dorsal and ventral defensive positions; a requirement met with Lewis machine-gun-armed ring mountings in the nose and in the fuselage decking amidships, with a retractable 'dustbin-type' turret beneath.

The prototype, J9130, first flew on June 12, 1930, powered by 525 hp Rolls-Royce Kestrel II engines. It was finished overall in the matt Nivo (Methuen 27F3), a protective scheme that became standard for night-bombers, until the introduction of disruptive patterned camouflage in 1937, and remaining the unvarying overall finish for production Heyfords. Associated with this finish was the night roundel in matt colours of red centre and blue outer, although the rudder striping of the period did not apply to Heyfords. (But by its attendance at the 1932 RAF Air Display at Hendon in the New Types Park, the prototype's camouflage was compromised by a thick white '12' on its fuselage side to comply with the official programme listing.)

For production HP50 Heyfords, to AM Spec B23/32, the 600 hp Kestrel IIIS was adopted. The first batch of 15 Mk Is, K3489–3503, served in No. 99 Sqn. except the first which remained a trials aircraft and the last, retained by Handley Page for modifying to Mk II. The second batch of 23 Heyfords, K4021–4043, mainly going to No. 10 Sqn., were to a new Mk 1A standard, with a different type of engine mounting to save 200 lbs. weight per aircraft and with motor, instead of wind-driven, generators. This applied to all except the first, K4021, built as a Mk I, converted to Mk II and becoming a trials aircraft at Farnborough. K4029 was modified partly to Mk II standard and given an enclosed cockpit, a modification not adopted for service.

Changes to Mk II came with the adoption of the 640 hp de-rated Kestrel VI for a further batch of 16,

K4863–4878, enabling No. 7 Sqn. to be armed with the type. These were to AM Spec B28/34 but the bulk of the Heyfords were to Mk III standard (AM Spec B27/35), appearing from August 1935 in two batches, K5180–5199 (20) and K6857–6906 (50). These had their Kestrel VI engines operating at full power giving 695 hp each, with four-blade airscrews replacing the two-blade types of earlier versions. There were also modified air intake and steam condensers in the leading edge tip of the outer planes. The prototype K3503 appeared at the 1934 RAF Display with a temporarily enclosed cockpit bearing Park No. 14, this time marked on the nose.

Serial numbers appeared inconspicuously in black 8 in. high characters on the rear fuselage and rudders. But compromising camouflage was the display of large numbers in white, to contrast, under the lower wings to comply with flying control regulations concerned with identifying culprits in breaches of flying discipline. For air exercises, and in the Munich crisis, these were covered by a green washable distemper. Later the numbers were painted black.

It was Air Ministry policy to equip No. 3 (Night Bomber) Group of the Wessex Bombing Area solely with Heyfords. By mid-July 1936, when the Group came under the new Bomber Command, Nos. 7, 9, 10, 38, 97, 99 and 102 Squadrons were fully armed with this bomber. Later that year Nos 78 and 166 Sqns re-formed with Heyfords, but No. 38 discarded theirs for the Fairey Hendon giving a backing for re-forming No. 149 Sqn. with the type. No. 99 Sqn., the first to arm with Heyfords in November 1933, was the first squadron to introduce the Wellington, releasing its aircraft in November 1938 to No. 148 Sqn., also at Mildenhall, whose former Wellesleys were required in the Middle East.

Unlike day-bombers, night-bombers did not display their squadron numbers, but individual aircraft letters were displayed, either on fuselage sides or each side of the nose, and, in some cases, both. These were displayed quite large as a functional necessity for formating in day-flying exercises. The letters were in flight colours of red for 'A', yellow for 'B' and blue for 'C' flights – but heavy bomber squadrons were normally organised into just two, 'A' and 'B', flights.

Just one embellishment was adopted by some squadrons, that of spat trim. The pattern had been set by Vickers Vildebeest squadrons, flying an aircraft also

35. The Heyford remains a classic even though it never dropped a bomb in anger. Modellers of the 'MATCHBOX' 1/72nd scale kit are referred to the 'in depth' kit review published in the October 1980 issue of SCALE MODELS. Photostat copies of the feature are available from SM offices at £2.00 (including postage).

featuring wheel spats which were given a band of colour, appropriate to their flight. On Heyfords these bands were thinly outlined in white as shown on our drawings.

In August 1939 the remaining 20 Heyfords of Mks I, IA and II were declared obsolete and 10 Mk IIIs were also condemned. Only No. 97 then retained Heyford IIIs in squadron service and these were soon replaced. The remaining 36 serviceable Mk IIIs had been allotted to Nos 3 and 4 Air Observer Schools, renamed as Bombing and Gunnery Schools in November 1939. Their squadron markings and identification letters were obliterated and a school identification number substituted. The majority were retired in August 1940 and the rest declared obsolete during April 1941. Only a single Mk I became an instructional airframe, when K3499 was renumbered 1009M on grounding in late 1937.

1/72nd scale drawings of the Heyford Mk 1, by G A G Cox, are available from MAP Plans Service, as Plan 2677, at 75p plus 30p post and packing. Export orders may be obtained from agents at the same price or by post. (Add 50% to order value for airmail, or 30p for surface mail overseas.)

HANDLEY PAGE HEYFORD

Available models (non-flying)

Model Manufacturer Scale Handley Page Heyford

'MATCHBOX' 1/72nd

CONSULTED REFERENCES

Books

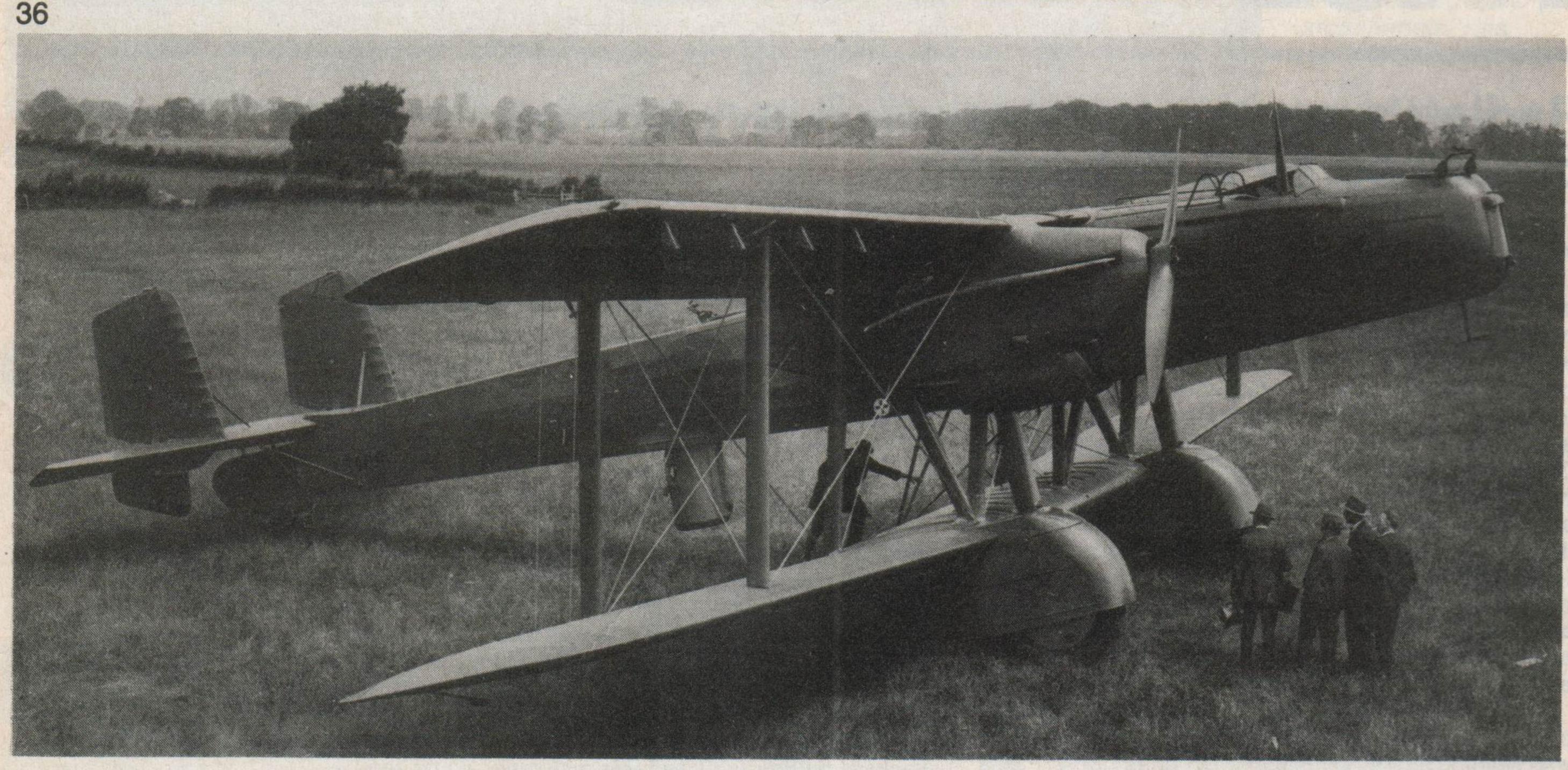
Bombing Colours 1914-1937 by B Robertson. Patrick Stephens Ltd. Handley Page Aircraft Since 1907 by C H Barnes. Putnam.

Magazines

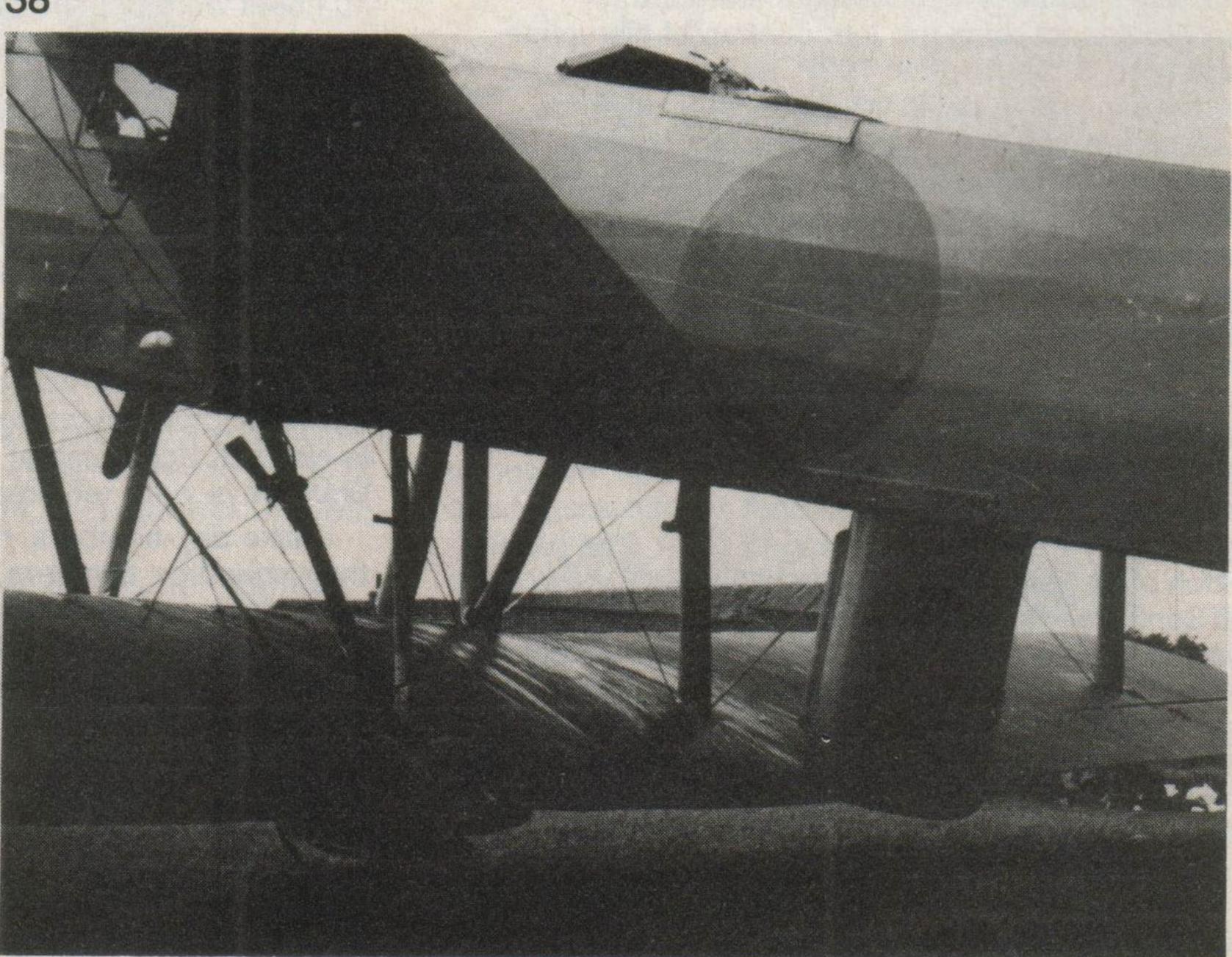
Handley Page Heyford. Scale drawings by I R Stair, Aviation News (2/8). Profile Publications No. 182. (By P J R Moyes.) SCALE MODELS. October 1980.

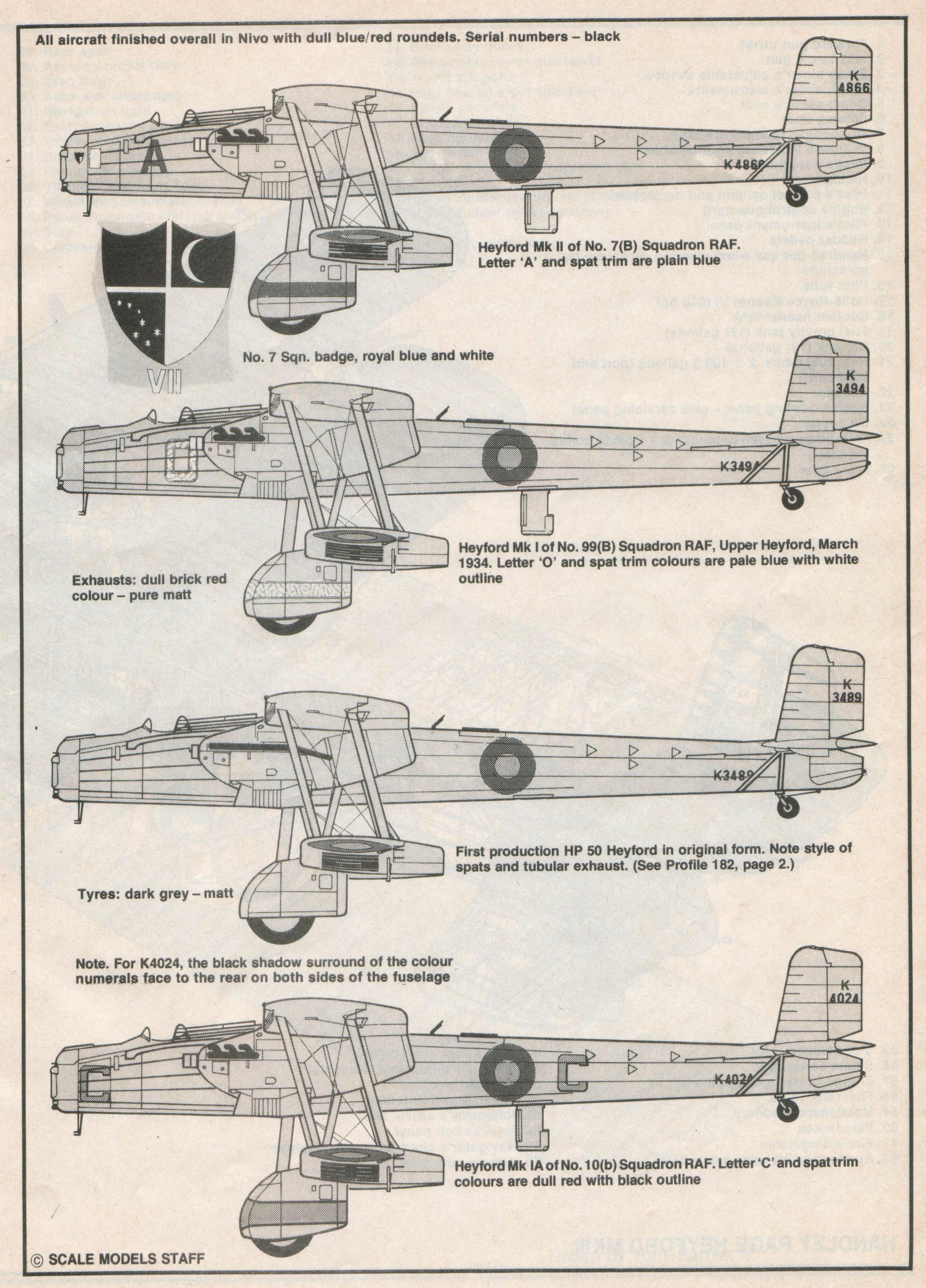
Contemporary copies of The Aeroplane and Flight for photographs and drawings.

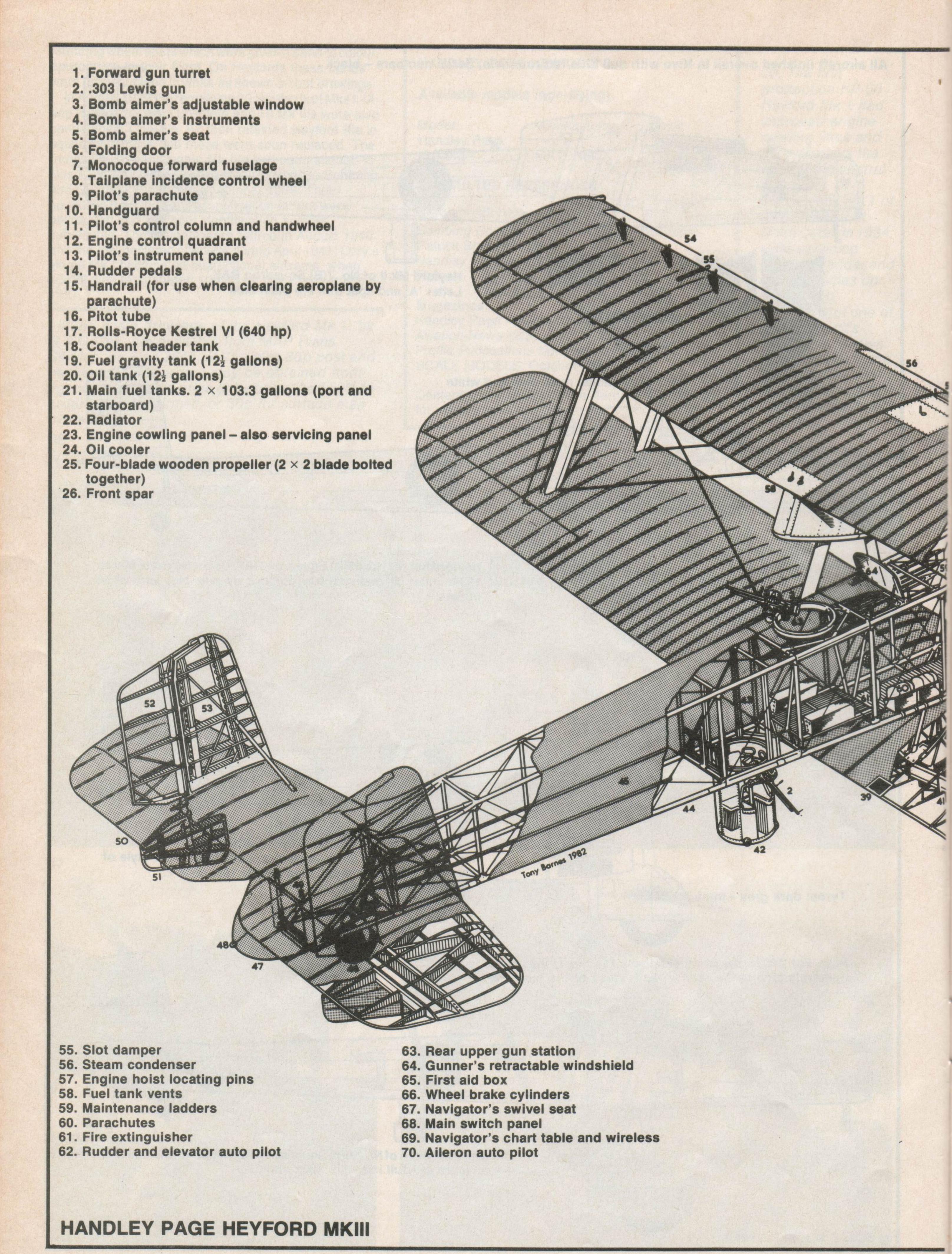
36. The first production HP 50 Heyford Mk 1 had improved engine cowling lines and here displays the retractable ventral gun turret. 37. Heyford Mk 1 of 99 Sqn. RAF at North Cotes in 1934. Note servicing platform, ladder and crank handles on wheel spat. 38. A view of one of the same unit's Heyford 1s. Shown to advantage is the ventral turret and fuselage stringers under the taut fabric covering.











27. Rear spar

28. Aileron control tube

29. Drag strut

30. Auto-slot (extended)

31. Navigation light

32. Fabric-covered wing

33. Fabric-covered aileron

34. Duralumin ribs

35. Pneumatic oleo leg

36. 'Palmer Cord Aero Tyre'

37. Wheel with pneumatic brakes

38. Panel for engine starting and oil fuel filling

39. Step

40. Centre-section bomb bay

41. Bomb-bay doors

42. Retractable lower gun turret

43. Turret supports

44. Wire-braced steel structure

45. Fabric covering

46. Dunlop tailwheel

47. Hinging tail fairing

48. Navigation light

49. Tailplane incidence adjusting gear

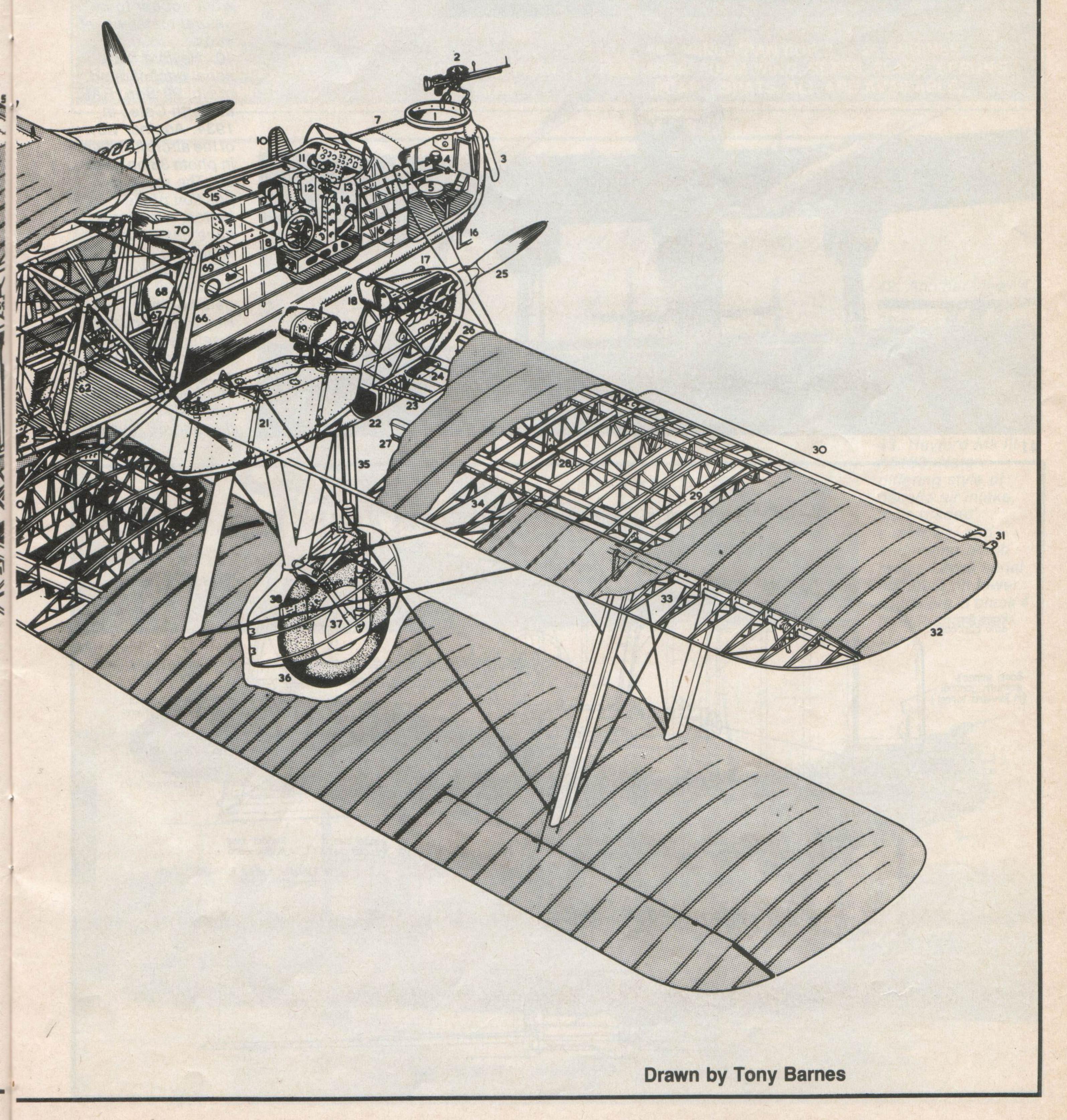
50. Elevator

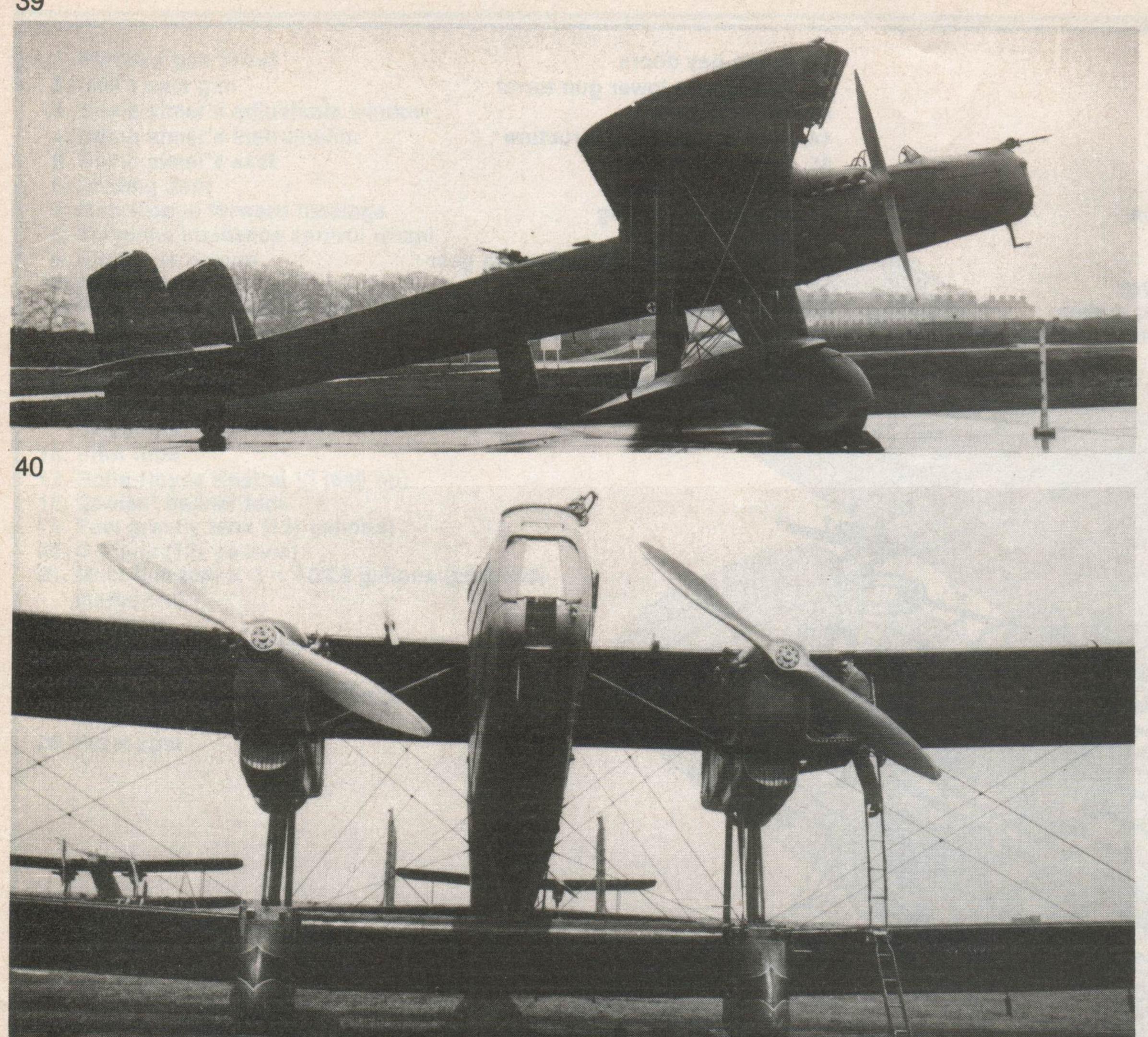
51. Lower rudder (aerodynamic balance)

52. Upper rudder (mass balance)

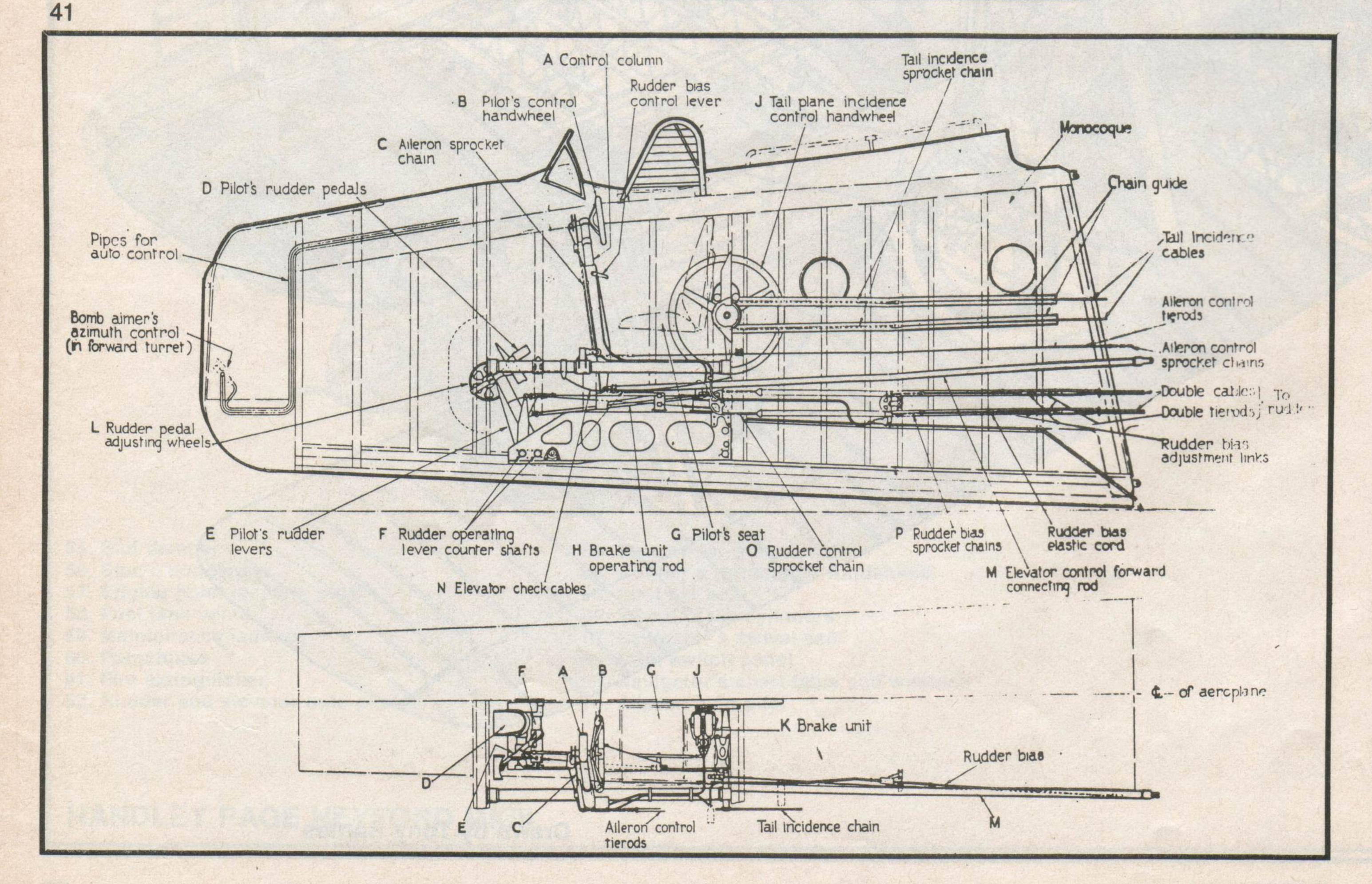
53. Fin

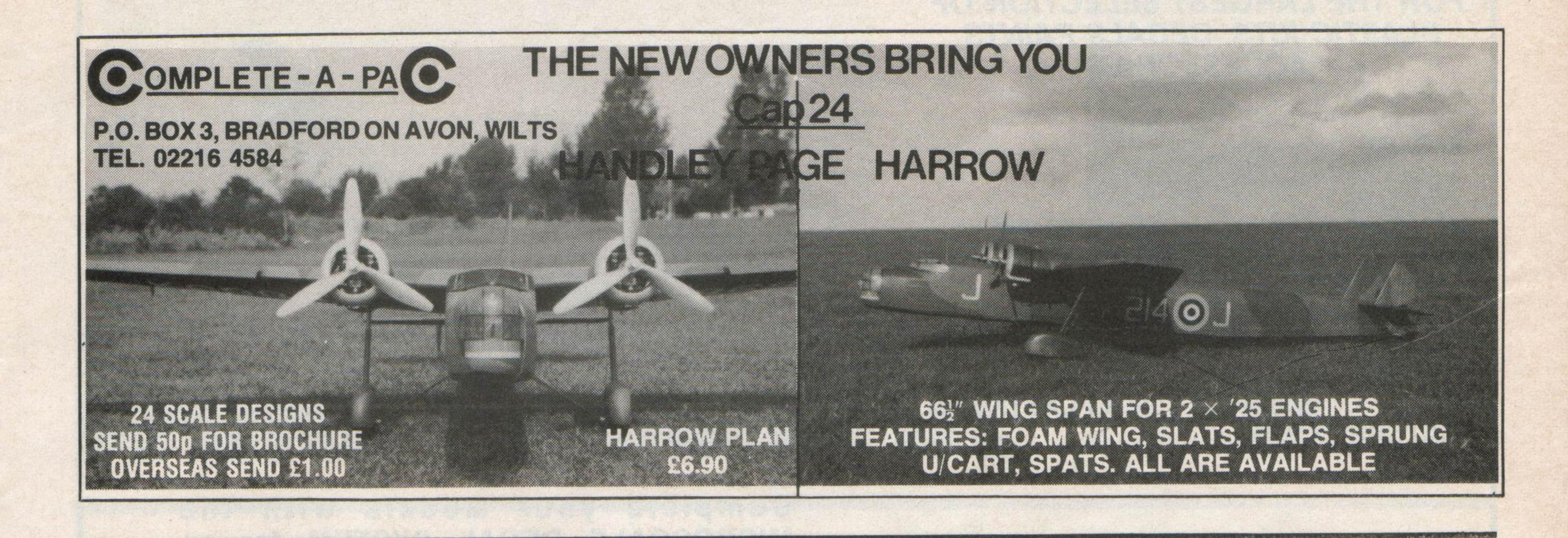
54. Auto-slot (retracted)





39. Heyford Mk I K3489 in factory-fresh Nivo finish - two bladed airscrews. Note first-aid cross starkly contrasted against the dark green finish and what appear to be natural metal wheel hubs. 40. Heyford Mk1, serial unconfirmed, of No. 99 Sqn. RAF at North Cotes in 1934. Another view of the aircraft shown in photo 38 on page 30. The really low position of the bottom wing must have eased bomb shackling considerably! 41. Useful internal detail of the Heyford's forward fuselage reveals the enormous tailplane incidence control handwheel, and relatively uncluttered layout.







42. Another view of K3489 - see photo 39 opposite. Aileron mass balances and upperwing leading edge slats are seen to advantage as are the flare holders under lower wings. 43. Heyford Mk III K5188. Note differing style of nacelle air intake, 'four-bladed' airscrews, and underwing bomb racks. Large serial numbers on lower wings are in black 4 ft high characters.



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The Fleet Air Arm's forgotten fighter. By I D Huntley. Drawings by Brian Taylor

When the Air Ministry issued two design proposals for consideration by contractors for a pair of cumbersome monoplane two-seat Fleet Fighters in 1937, the Fairey Aviation Co. Ltd. were not impressed. One study was for an eight fixed-gun fighter, the other for a turret-fighter; having produced some layouts in response the company was somewhat taken aback at the long lists of changes and alterations to the designs.

Fairey were against all proposals for the turret fighter and stopped all further work on that project and, having attempted to submit an eight-gun design little larger than the 'Hurricane' which was fitted out with entirely new equipment proposals, were quickly told that existing equipment would have to be fitted and nothing else could be accepted. After nearly a year had elapsed with little progress Fairey found that, with some modification, their mock-up of the P4/34 design could take all the available naval equipment without too much difficulty, and that folding wings could also be successfully incorporated.

It was only then that Specification 08/38 was issued to cover the modification of the P4/34 design to naval requirements and, in March 1938, the second prototype P4/34, K7555 (F 2266) was aerodynamically modified and subsequently passed its acceptance tests. Even so, the production design emerged with many built-in weight penalties and Fairey had to accept a much lower-rated Rolls-Royce 'Merlin' engine than was originally planned; as a hybrid design it was obviously not going to have the performance that was originally anticipated. Fortunately, the 1080 hp Rolls-Royce 'Merlin' VIII was replaced, as from the 251st production machine, with the 1300 hp 'Merlin' 30 which enabled tropicalisation and other modifications to be incorporated without too much loss in performance.

A total of 600 Fulmars were built, and the aircraft served on most of the Royal Navy aircraft carriers of its day as well as equipping many CAMS vessels. It also carried out valuable service in the Mediterranean theatre, largely from shore bases.

On entry into Fleet Air Arm service, Fairey Fulmar Mk 1s were delivered to units in the standard naval scheme for carrier-borne aircraft. Uppersurfaces were painted in a disruptive pattern of Dark Slate Grey (Methuen 29F2)/Extra Dark Sea Grey (21F3) and undersides painted in 'Sky' (30(B-C)2). Spinners were normally black but frequently repainted in flight colours once in squadron service.

Interior of cockpit, walls, floor, bulkheads, wheel wells, etc., were usually in *Aircraft Grey Green* (27D3) although the latter could also be seen in Sky. In accordance with AMO:DTD No. 83, and amendments in

August 1940, upperwing roundels were specified as Type B (Red/Blue) and Type A (Red/White/Blue) for the lower surfaces.

Some Fulmars in the Mediterranean theatre had their codes painted in white – rear fuselage serials were black as was the Royal Navy legend. From June 1942, fuselage roundels were changed to type C1 (36 in. diameter Red/White/Blue/Yellow) and underwing roundels converted to Type C (32 in. diameter Red/White/Blue). The Fulmar retained the basic temperate sea scheme throughout its career but in late 1943 some Mk IIs were converted to NF IIs and fitted with A1 radar. These particular machines were camouflaged in the standard night-fighter finish for land-based machines – overall Medium Sea Grey (22D3) with a disruptive pattern of Dark Green (30(F-G)4) applied over the upper surfaces.

Initially, codes were painted black but after the full camouflage scheme was adopted they were changed to white. Several aircraft in the Med. carried dull red codes and spinners providing even further variations for modellers.

FAIREY FULMAR

Available models (non-flying)

Model Manufacturer
Fairey Fulmar RAREplanes

Scale 1/72nd

CONSULTED REFERENCES

(Vacform)

Books

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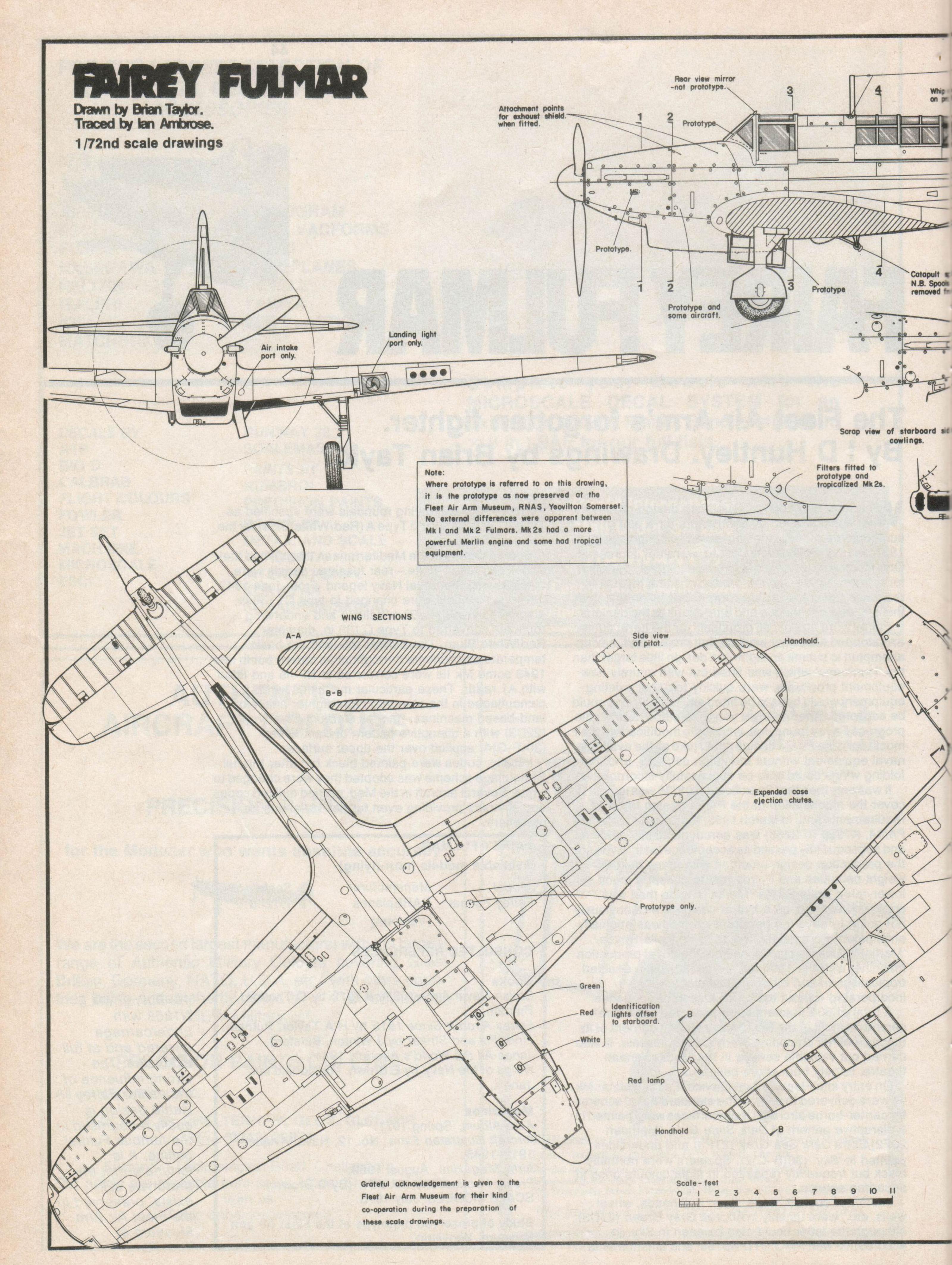
Airfix Magazine. August 1969.

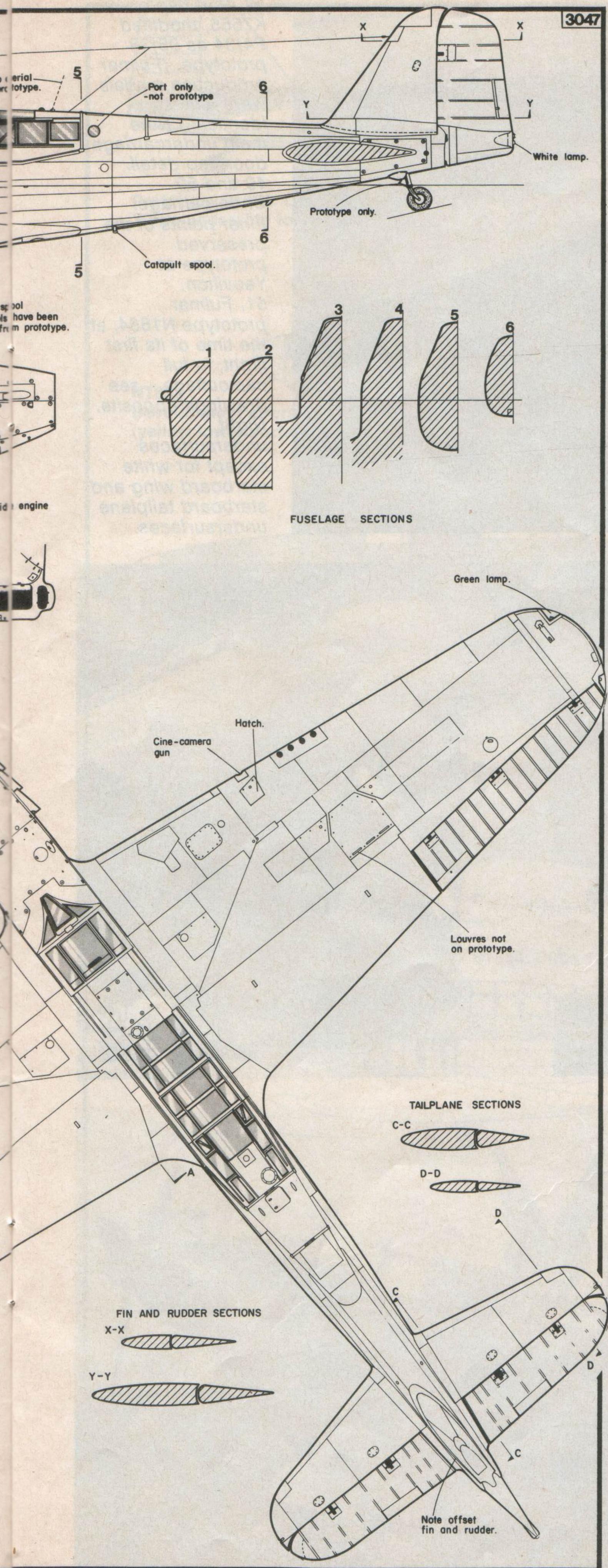
Profile Publications No. 254. (By D Brown.)

SCALE MODELS. July 1975.

Study of preserved prototype at the Fleet Air arm Museum, Yeovilton.

44. Fulmar Mk I, N1858 with undercarriage lowered and at full extension. The strong influence of the earlier Fairey Battle design is easily recognised in the famous Fulmar outline. It is fortunate that the prototype still exists, preserved in the Fleet Air Arm Museum at Yeovilton.





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45. A Fairey Fulmar clears the flight deck of HMS Victorious in August 1942. Although of poor quality, this wartime photo illustrates the asymmetrically-retracting undercarriage to advantage.

46 and 47. Views of the prototype Fulmar preserved at the Fleet Air Arm Museum at Yeovilton. Particularly noteworthy is the fuselage shape beyond the air intake aperture (below) and its bulged cheeks (Photo 47). See drawing opposite.

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