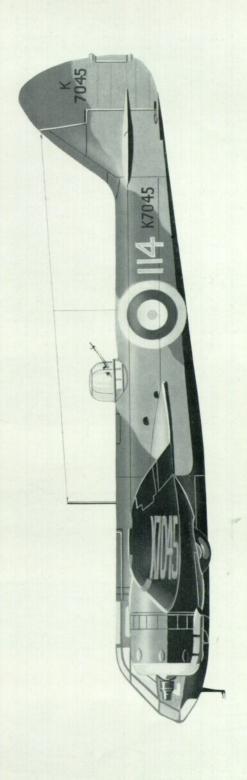
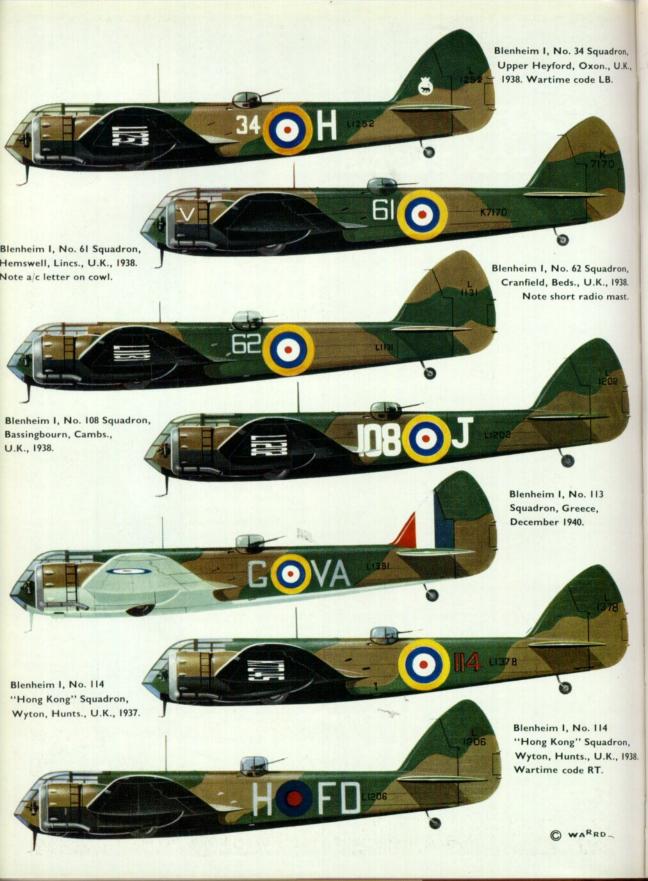
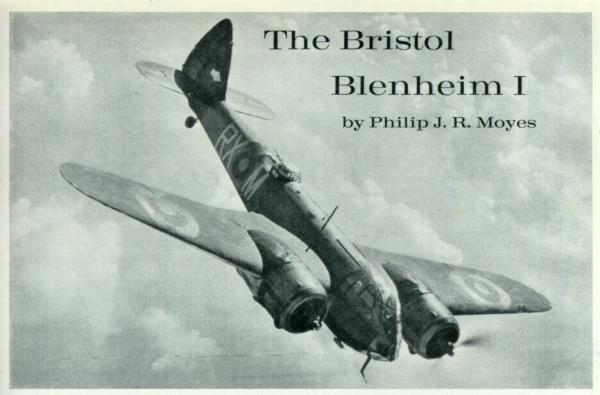
PROFILE PUBLICATIONS

The Bristol Blenheim I

NUMBER 93
TWO SHILLINGS







Blenheim IF L1426 of No. 25 Squadron in 1939 before the outbreak of war.

In July, 1933, Frank Barnwell, the Bristol Aeroplane Company's chief designer, drafted a small twinengined low-wing cabin monoplane (Type 135) for six passengers and two pilots, intended for Bristol Aquila sleeve-valve air-cooled radial engines. The design was brought to the attention of Lord Rothermere, the newspaper proprietor, who had previously declared his intention of having built for him "the fastest commercial aeroplane in Europe, if not the world". He wanted this for his private use, to encourage prominent firms and businessmen to make proper use of civil aviation and, not least, to show the Air Ministry how their existing fighters might be no match for a fast transport used as a bomber.

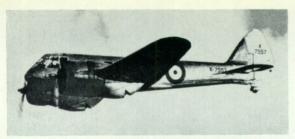
Lord Rothermere asked Bristols for full particulars

of the Type 135 within one week, and on 3rd March 1934, Barnwell quoted an estimated top speed for a version with Mercury engines instead of Aquilas of 240 m.p.h. at 6,500 ft. with moderate supercharging. At the end of March, Lord Rothermere placed an order for the Mercury-powered aircraft stating that he would pay the estimated cost of £18,500 in two instalments, half immediately and half in a year's time provided the aircraft was flying by then. The first instalment was not in fact paid until June which gave Bristols two months longer in which to have the machine flying.

The prototype of Lord Rothermere's aircraft, Type 142, made its first flight on 12th April 1935 at Filton, and by the following June it had aroused such great

Type 142 at Filton. It first flew with four-bladed fixed-pitch wooden airscrews but is here seen after being fitted with three-blader Hamilton-Standards.





"Britain First" photographed in 1936 and serialled K7557 after presentation to the Air Council. (Photo: "Flight")

interest in Air Ministry circles on account of its high performance—top speed of 307 m.p.h. was faster than that of any contemporary R.A.F. fighter in service—that Lord Rothermere generously presented it to the nation for full evaluation as a potential bomber, having already named it "Britain First"; in July it received the serial number *K7557*.

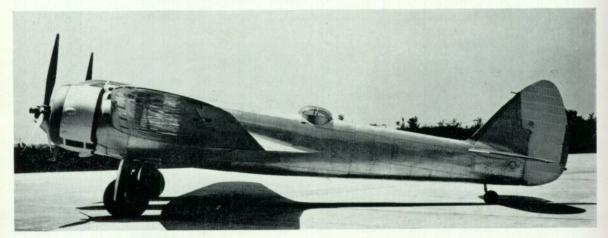
As early as 9th July a design conference was held at the Air Ministry's request and the question of converting the Type 142 into a medium bomber discussed with Bristols. The outcome of this conference was the issue of Specification 28/35 which Bristols met with the Type 142M Blenheim I. One of the alterations on the bomber (which did not officially

become the Blenheim Mark I until about May 1936) was the raising of the wing to mid position to make room for a bomb bay in the fuselage below the wing spars. A Browning gun and a bomb-aimer's position were provided in the nose and provision made for a semi-retractable gun turret in the dorsal position.

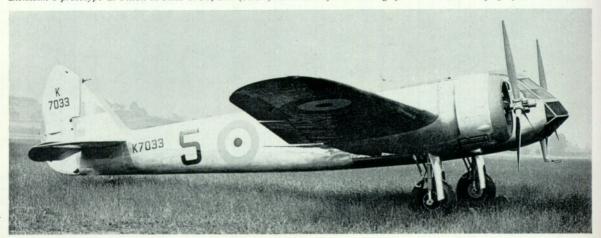
INTO R.A.F. SERVICE

The Air Ministry ordered Blenheims "straight off the drawing board" as part of the Expansion Programme. The initial contract for 150 was placed in September, 1935, and the first of these, K7033, did in fact serve as the prototype, making its maiden flight at Filton on 25th June 1936. Deliveries of production aircraft to squadrons began in March, 1937, the first going to No. 114 Squadron, Wyton. The unit's first machine (K7036) apparently suffered a landing mishap immediately on arrival at Wyton and was a complete write-off. From July 1936 onwards additional contracts were signed for Blenheim Is (including some for export) and before production switched to the Mark IV in 1939, a total of 1,280 Mk. Is had been built including 250 by A. V. Roe at Chadderton and 336 by Rootes Securities at Speke.

At the time of "Munich" the Blenheim I equipped

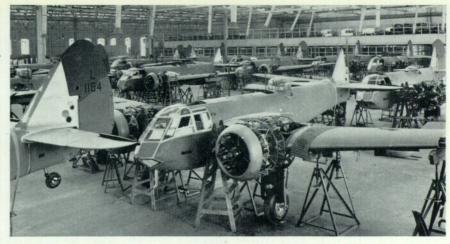


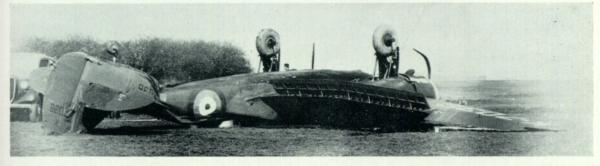
Blenheim I prototype at Filton in June 1936, and (below) same aircraft in markings for the Hendon Display of late June 1936.



Right: Blenheims in production at Filton in 1938. A total of 694 Mk. Is was built by Bristol, including some for export.

Below: No. 114 Squadron's first Blenheim (K7036, fourth production aircraft) wrecked on delivery to the squadron at Wyton when the pilot applied brakes too hard, causing it to turn over on to its back, 10th March 1937.





sixteen R.A.F. bomber squadrons at home and for the record these were disposed as follows:

Squadron 21 34 57 90 101 107	Station Eastchurch Upper Heyford Upper Heyford Bicester Bicester Harwell
All in No. 2 Group $\begin{cases} 62\\82\\104\\108\\114\\139 \end{cases}$	Cranfield Cranfield Bassingbourn Bassingbourn Wyton Wyton
All in No. 5 Group $\begin{cases} 44 \\ 110 \\ 61 \\ 144 \end{cases}$	Waddington Waddington Hemswell Hemswell



Blenheims of No. 114 Squadron in 1937. (Photo: "Flight") Third production Blenheim, K7035, of No. 114 Squadron (code letters "FD") at Wyton, early 1939.





Blenheims K7078 "J" and K7070 "G" of No. 139 Squadron at Wyton, October 1937.

On 13th January 1938, the Blenheim I entered squadron service overseas—with No. 30 Squadron at Habbaniya, Iraq—and early in 1939 the first Blenheim Is reached India.

When war came in September, 1939, Blenheim Is equipped only two bomber squadrons at home (having been superseded by the Mk. IV) but overseas it equipped eleven squadrons in Egypt, Aden, Iraq, India and Singapore. Seven home-based fighter squadrons, previously equipped with biplanes, had converted—or were in the process of converting—to Blenheim IF fighters, adapted from the standard bomber by the addition of four Brownings in a gun-pack under the bomb cell; the gun-packs were made by the Southern Railway workshops.

The Blenheim IF soon proved itself by costly experience totally inadequate as a day-fighter over western Europe, but because its fuselage was roomy enough to take an extra operator and new scientific apparatus it was chosen to pioneer the technique of airborne radar-guided night interception. The claim of having made the first "kill" by means of airborne radar equipment (A.I. Mk. III) was chalked up by a Blenheim IF of the Fighter Interception Unit at Ford on 2nd/3rd July, 1940. Blenheim IFs served through-



K7133 of No. 44 Squadron, May 1938.

(Photo: "Flight")



A Blenheim of No. 60 Squadron in the Far East.





Above: Blenheim L1131 o, No. 62 Squadron, early 1938. (Photo: "The Aeroplane")

Left: K7037 of No. 90 Squadron pictured at Bicester during the Annual Air Exercises, August 1938. (Photo: "The Aeroplane")



Mk. IF L8372 of No. 29 Squadron during a pre-war air exercise.

(Photo: "The Aeroplane")

out the "blitz" of 1940–41 and some details of their activities about this time were given in Roderick Chisholm's book *Cover of Darkness*, C. F. Rawnsley and Robert Wright's book *Night Fighter*, and Bob Braham's book *Scramble*.

In 1940 one Blenheim I (*L1348*) underwent a series of modifications in an attempt to improve its performance for photographic reconnaissance. Its dorsal turret was removed, nose and wingtips specially faired, Rotol constant-speed airscrews fitted, bomb doors and other joints carefully taped over, and its standard camouflage finish replaced by a well-primed low-drag finish. However, the results (which reportedly included an increase in speed at 8,000 ft. from 274 m.p.h. to 296 m.p.h.) did not warrant further development.

To get back to the Blenheim I bomber squadrons. As already stated, two of these were based in the U.K. at the outbreak of war—Nos. 18 and 57 Squadrons. Both were then in No. 1 (Bomber) Group but soon afterwards they were transferred to No. 6 (Training) Group and thence to the Air Component of the British Expeditionary Force in France for strategical reconnaissance duties. In France they operated with their Blenheim Is until the spring of 1940 but by the

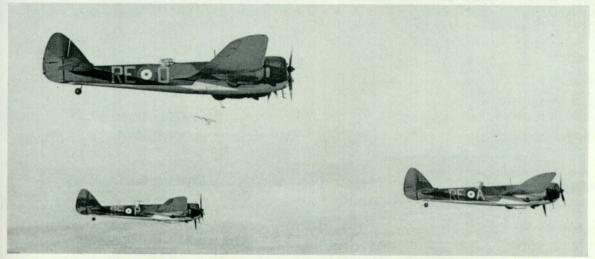
time of the German break-through in May they had re-equipped with Blenheim IVs.

Following Italy's entry into the war at midnight on 10th June 1940, Blenheim Is struck the R.A.F.'s first blow against the Italians in North Africa: twenty-six aircraft of Nos. 45, 55 and 113 Squadrons from Egypt made a bombing and strafing attack at dawn on El Adem airfield, No. 55 apparently leading; three Blenheims failed to return. A second attack was delivered later in the day and in all eighteen enemy aircraft were destroyed or damaged on the ground. Total tonnage of bombs dropped in these two attacks was 416 forty-pounders, 524 twenty-pounders and 2,080 four-pound incendiaries. Blenheim Is continued to operate in the Middle East until 1941, and during the ill-starred campaign in Greece one of the squad-



Mk. IF L1233 ZK-I of No. 25 Sqdn. during the "phoney war". (Photo: "The Aeroplane")

Fighter Blenheims of No. 29 Squadron, Digby, photographed on 11th January 1940.









Mk. IFs of No. 604 (County of Middlesex) Squadron (L6788 and L6762 nearest camera) at Northolt 6th April, 1940.



Mk. IF L1336 WR-E of No. 248 Sqdn. at Northolt in 1940. (Photo: Imperial War Museum)



Mk. IF of No. 614 (County of Glamorgan) Sqdn. with A.I. Mk. III radar.



Blenheim I L6670 of No. 211 Sqdn. landing at a Greek airfield after a raid on Italian positions in Albania, late 1940. (Photo: Imperial War Museum)

rons (No. 30) operated as a "mixed" unit with bomber and fighter versions. Blenheim Is were subsequently involved in another bitter struggle against appalling odds—the defence of Malaya and Singapore, at the time of the Japanese invasion. Again both bomber and fighter versions were used and, as was the case in Greece, the squadrons were decimated.

For the record, here is the Order of Battle of the Blenheim I Squadrons in (i) Middle East Command at the time of Italy's entry into the war, and (ii) Far East Command at the time of Pearl Harbour:

MIDDLE EAST COMMAND

10th June, 1940

No.	30 (B) S	Sqdn.	Ismailia (Egypt))	
No.	55 (B) S	Sqdn.	Fuka (Egypt)	No. 2	50 Wing of
No.	113 (B) S	Sqdn.	Ma'aten Bagush	(No. 2	02 Group

No. 45 (B) Sqdn. Fuka (Egypt) No. 253 Wing of No. 211 (B) Sqdn. Daba (Egypt) No. 202 Group

No. 8 (B) Sqdn. Khormaksar (Aden) (2 Flts. Blenheims and 1 Flt. Vincents) No. 11 (B) Sqdn. Sheikh Othman (Aden) No. 39 (B) Sqdn. Sheikh Othman (Aden) No. 84 (B) Sqdn. Shaibah (Iraq)

1----

FAR EAST COMMAND

7th December, 1941

No. 27 (F) Sqdn. Sungei Patani (Malaya) 12 a/c on charge.

No. 60 (B) Sqdn. Mingaladon (Burma) 4 a/c. Detachment, including 8 a/c, at Kuantan (Malaya) for bombing practice. Sqdn. was retained in Malaya on start of war

with Japan. No. 62 (B) Sqdn. Alor Star (Malaya), 11 a/c on charge.

Blenheim Is—including L6667—of No. 62 Squadron on an airfield in Singapore, late 1940. Note Buffalo a/c. (Photo: Imp. War Mus.)





Above: Some Finnish Air Force Blenheims at Filton in 1937 prior to delivery.

Right: First Finnish Air Force Blenheim (BL104) on skis in 1938.



BLENHEIMS IN FOREIGN COLOURS

Several batches of Blenheim Is were exported, the first foreign customer being Finland who, between June, 1937, and July, 1938, took delivery of eighteen aircraft modified to carry Swedish and American bombs. Early in 1940 during the Russo-Finnish "Winter War" these aircraft were reinforced by twenty-four Blenheim IVs from R.A.F. stocks but too late to prevent Finland's capitulation. Meanwhile Finland had acquired, in April, 1938, a licence to manufacture the Blenheim I in the new Government Aircraft Factory at Tampere, but none were completed until 1941. Production at Tampere continued until the final armistice in September, 1944, by which time a total of 55 Blenheim Is had been built.

The Yugoslav Government bought two Blenheim Is (delivered in November, 1937, with British civil registrations *G-AFCE* and *G-AFCF*) and also acquired a licence to manufacture fifty more. Yugoslav Blenheims were built by Ikarus A.D. at Zemun and the "first-off" flew in March, 1939, just ten months after receiving drawings; sixteen had been completed and twenty-four more were well advanced in the spring of

1941 when Germany invaded the Balkans and Yugoslav patriots sabotaged the Zemun factory to prevent its use against the Allies. Shortly before this twenty Blenheim Is (bearing civil markings YU-BAA to YU-BAT) were diverted from the R.A.F. to Yugoslavia to supplement those being built locally, some being equipped as fighters with two 20-mm. cannon firing forwards. Royal Yugoslav Air Force Blenheims, serving with the 1st and 8th Bomber regiments fought valiantly during the German onslaught and those few that survived were incorporated in the Croat Air Force.

Another country that purchased Blenheim Is was



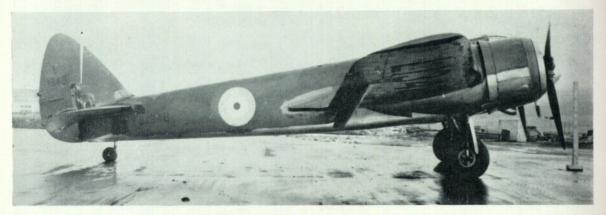
One of the two Blenheims supplied to Yugoslavia in the spring of 1938.

Part of the initial batch of twelve Turkish Blenheims, photographed in 1938.





Two views of Blenheim I L1348 unarmed, lightened and cleaned-up for high-speed P.R. rôle; Staverton, 1940. Note clipped wing.



Turkey; but, unlike Finland and Yugoslavia she did not undertake licence production of the type. Turkey was actually the second foreign country to order Blenheims and her first two machines were despatched by sea in October, 1937, being joined between March and June, 1938, by ten more flown out with British civil registrations *G-AFFP* to *G-AFFZ*; a second batch of twelve already ordered was increased to eighteen (*G-AFLA* to *G-AFLS*) and were flown out between November, 1938, and February, 1939.

In November, 1939, thirteen Avro-built Blenheim Is were supplied to Rumania in a diplomatic gamble to persuade her to join the Allies, but a year later she joined the Axis, her Blenheims—like those of Finland—subsequently being used against the Russians.

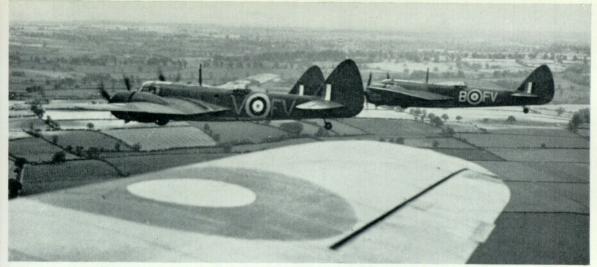
COCKPIT AND HANDLING NOTES

The Blenheim held the distinction of being the aircraft for which the Central Flying School first developed its "twin technique" and probably the verbal "cockpit drill" system as well. With the former, C.F.S. taught the novice to hold a twin low down after take-off, to gain single-engine safety speed quickly, and to disregard initial gain of height. Likewise the trainee was taught to recite the mnemonic "H.T.M.P.F.G." before take-off—or, more explicitly, "Hydraulics, Trim, Mixture, Pitch, Flaps and Gills", to save himself from fatal absent-mindedness.

Not only had the pilot to select hydraulic power, but the plunger could be operated incorrectly—with the result that subsequent "wheels-up" selection by the pilot was of no avail for his previous error had simply provided a perhaps non-existent rear-gunner with plenty of hydraulic power!

The "office" of the Blenheim I.





A gaggle of Blenheims from No. 13 O.T.U.

Being a contortionist would have helped any Blenheim pilot—some knobs and switches were behind his left elbow and the hydraulic service controls (appropriately resembling Victorian lavatory handles) were below and on the right. The addition of a safety catch to the undercarriage lever resulted in some pilots, used only to the previous type, just about pulling the floor out of the cabin in their abortive attempts to move the lever.

According to "Indicator" of Flight, in an article published in that magazine in 1945, the Mark I was the nicest of all the Blenheims, with its low all-up weight and its vast expanse of forward and downward view. "Getting into the Blenheim", he wrote, "was always something of an affair and one soon learned not to attempt to do it while weighed down with a parachute. An assistant put this in the seat while the driver, hatted, gloved and inter-commed, clambered on to the port wing—slippery if wet—and through the roof hatch, letting himself down gently so that, even if the direction was poor, he did not damage his nether garments on the various pointed items surrounding the seat. It was peculiar at first, too, to find that the wings and ailerons were more or less invisible behind the engine cowlings-a disadvantage which was handsomely outweighed in the sight of the *Pseudonym of H. A. Taylor, wartime ferry and test pilot and currently Air Transport Editor of Flight International.

amateur by the most unusual way in which the landscape could be seen crawling along through the transparent floor of the nose. . . .

"As for flying characteristics, the Blenheim must have been very easy, since in the early days of the war we were poured more or less straight in from the cockpits of our Moths and found no particular difficulties facing us at all."

BLENHEIM MK. I PRODUCTION FOR R.A.F. Bristol-built

K7033-K7182 (150 a/c), (K7034-K7036, K7041-K7042 and K7167 fitted with dual control. K7072 variously modified). L1097-L1546 (450 a/c), (L1483, L1485, L1488, L1489 and L1497 sold to Turkey in 1939. L1222 modified to become sole example of Mk. II. L1242 experimentally fitted with tricycle (fixed nosewheel) undercarriage. L1348 eventually lightened and cleaned-up for high-speed P.R. rôle. L1424 was prototype Mk. IF). L4817-L4834, L4903-L4934 (50 a/c), (L4821, L4824, L4826 and L4828 sold to Turkey in 1939. L4822 had dual control).

Avro-built

L6594-L6843 (250 a/c), (L6594 sometime fitted experimentally with downward-firing 37-mm. C.O.W gun, L6764-L6773 to Finland; L6696-L6708 to Rumania; L6813, L6814, L6817-L6834 to Yugoslavia).

Rootes-built

L8362-L8407, L8433-L8482, L8500-L8549, L8597-L8632, L8652-L8701, L8714-L8731 (250 a/c). (L8384-L8385 to Royal Hellenic Air Force, L8603-L8608, L8619-L8620, L8622-L8630, L8632, L8652-L8654 to Rumanian Air Force).

L8652-L8654 to Rumanian Air Force).
L9170-19218, L9237-L9273. (86 a/c, built as Mk. I and then modified to Mk. IV standard). L9195-L9203 sold direct to Finland in January 1940.

Blenheim L1222 modified to Mk. II with long-range tanks and external bomb-load, at Filton, September 1938.



BLENHEIM MK. I PRODUCTION FOR EXPORT (All Bristol-built)

Finland: BL104-BL121 (12 a/c).

Turkey: 2501–2512 (2+G-AFFP-G-AFFZ) (12 a/c) and G-AFLA-G-AFLS later 397–408, 385–390 (18 a/c). Yugoslavia: G-AFCE and G-AFCF (2 a/c).

SQUADRON ALLOCATIONS

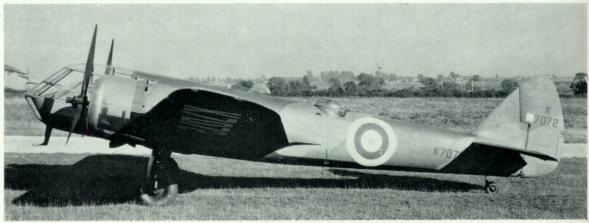
Home Bomber: Nos. 18, 21, 34, 44, 57, 61, 62, 82, 90, 101, 104, 107, 108, 110, 114, 139 and 144. Home Fighter: Nos. 17, 23, 25, 29, 64, 68, 92, 145, 222, 248, 600, 601 and 604. Overseas Bomber: Nos. 8, 11, 30, 34, 39, 45, 55, 60 (also had some Blenheim IFs), 62, 84, 113 and 211. Overseas Fighter: Nos. 27, 30 and 203.



Mk. I L6655 believed photographed in Aden before the war. Potted Service history of this aircraft was as follows: initially to No. 9 M.U.; to Thorney Island, March 1939; to Aden, July 1939; struck off charge in Middle East, September 1943.

Below: Two views of Blenheim I K7072 after modification to Type 149 Bolingbroke I prototype by lengthening of nose, Filton, October 1937. Nose was subsequently re-designed.







SPECIFICATION OF BLENHEIM MK. I

Type: Twin-engined high-performance medium bomber. Wings: Mid-wing cantilever monoplane. In three sections. Centre-section bolted and riveted to fuselage. Outer sections tapered in chord and thickness. Spars built up of two heavy high-tensile steel flanges and a light single-plate Alclad web between them. Web reinforced with vertical stringers. Ribs made from Alclad sheet, with flanged edges and lipped lightening holes. Alclad stressed-skin covering riveted to flanges of spars and ribs. Bristol-Frise mass-balanced ailerons and split trailing-edge flaps. Flaps of Alclad sheet, with flanged ribs. Ailerons metal-framed and covered with fabric. Small trimming-tabs in ailerons adjustable on the ground.

Fuselage: In three sections. Light alloy monocoque, built up of formers and open-section stringers, with Alclad skin riveted to the flanges of the formers and stringers. Tail Unit: Cantilever monoplane type. Tail-plane and fin of all-metal construction, similar to the wings. Elevators and rudder metal-framed and covered with fabric. Fixed tail-plane, with servo-strips for fore-and-aft trimming. Servo-tab in rudder. Elevators and rudder aerodynamicaly and

statically balanced.

Undercarriage: Retractable type. Each unit retracted backward by a Bristol hydraulic-jack, which broke the knee-jointed radius-rods. Auxiliary hand-pump for emergency operation. Full indication and warning devices, comprising visible, audible and mechanical signals. Intermediate-pressure tyres and pneumatic differentially-controlled

wheel-brakes.

Powerplant: Two 840-h.p. Bristol "Mercury" VIII ninecylinder radial air-cooled engines. Mountings of steel-tube, with standard Bristol duralumin mounting ring with split segment at the bottom to facilitate rapid removal of engines without disturbing carburettors. Long-chord cowling rings with leading-edge exhaust-collectors and trailing-edge controllable gills. Three-bladed controllablepitch airscrews. Two fuel tanks (140 lmp. gallons each) in centre-section. Oil tanks (9½ Imp. gallons each) in engine nacelles. Hand and electric engine-starters.

Accommodation: Pilot's seat in nose, on port side, with navigator's seat alongside. A sliding and folding seat ahead of the navigator's seat for use when bomb-aiming. Dual controls could be fitted. Fixed and sliding window panels and transparent sliding roof. In centre-section of fuselage was the internal bomb stowage, with side panels and spring-loaded doors. Aft of the wing was the rear gun-turret mounted midway along the top of the fuselage. Normal crew consisted of pilot, bomb-aimer-navigator and wireless-operator-gunner.

Armament: One forward-firing '303-in. Browning machine gun in the port wing and one '303-in. Vickers 'K'' gasoperated gun in a Bristol semi-retractable hydraulically-operated gun-turret. A 1,000-lb. bomb load carried internally in a bomb-cell under the centre-section. A handwinch for loading was operated from inside the fuselage. Equipment: Lighting, radio, photographic and navigation equipment, oxygen apparatus, stowage for parachutes,

clothing, etc.

Dimensions: Span 56 ft. 4 in. Length 39 ft. 9 in. Clearance height (tail down) 9 ft. 10 in. Span of tailplane 16 ft. 8 in. Maximum depth of fuselage 5 ft. 6 in. Maximum width of fuselage 4 ft. 4 in. Diameter of airscrews 10 ft. 6 in. Wing area 469 sq. ft.

Weights: Weight empty 8,100 lb. Full load (including 278 gallons of fuel and 17 gallons of oil) 4,400 lb. Weight

loaded 12,500 lb.

Performance: Maximum speed at sea level 240 m.p.h. Speed at 5,000 ft. 254 m.p.h. Speed at 10,000 ft. 269 m.p.h. Speed at 15,000 ft. 285 m.p.h. Speed at 20,000 ft. 277 m.p.h. Climb to 5,000 ft. 37 min. Climb to 10,000 ft. 7:2 min. Climb to 15,000 ft. 11:5 min. Climb to 20,000 ft. 17:5 min. Service ceiling 27,280 ft. Estimated range at 220 m.p.h. with full load 1,125 miles. Take-off run 296 yd. Landing run (with brakes) 364 yd. Landing speed 50 m.p.h.

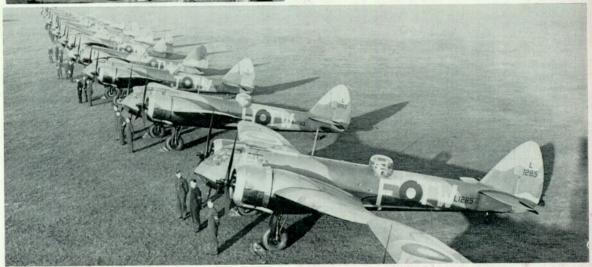


The writer acknowledges his indebtedness to the researches of C. H. (Chris) Barnes, author of Bristol Aircraft Since 1910 (Putnam).

© Philip J. R. Moyes, 1966.

Left: A Blenheim which was used at Shoeburyness for statistical investigation of effect of shell bursts on an aircraft. (As this goes to press, a Bristol design of recent times, Type 188, is also at Shoeburyness and suffering a similar fate.)

Below: Blenheims of No. 90 Squadron at Bicester, November 1938. (Photo: "Flight")



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