

PROFILE

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BRISTOL BLENHEIM MK. IV





A "pin-up" photo in more ways than one—a Type 149 Blenheim Mk. IV (coded XD:D) of No. 139 (Jamaica) Squadron, Royal Air Force Station, Wyton, on detachment in northern France in December 1939 as part of the Advanced Air Striking Force. When this photograph appeared in the *London Evening News* for January 5, 1940, few readers could have discerned that the apparent extra window immediately behind the normal "glasshouse" complex was in actual fact a tasteful nude artistically bordered with Service-issue masking tape. This is the earliest known example of "aviation art" adorning any aircraft in World War II.

(Photo: Official C.346, Imperial War Museum)

Bristol Blenheim Mk. IV

by James D. Oughton

OFTEN regarded as an extension of the Blenheim I* day-bomber programme, the Bristol Type 149 Blenheim Mark IV—originally given the name "Bolingbroke" and later produced in Canada under that title—was in fact ordered as an interim general-reconnaissance aircraft to Specification 11/36 to supplant the Avro Anson and bridge the gap until the Bristol Type 152 Beaufort torpedo-bomber became available. In the event, it was intended to support not only the delayed Beaufort programme, but also the collapse of the Blackburn Botha scheme.

With the introduction of the U.S.-built Lockheed Hudson and the eventual emergence of the Beaufort, the Blenheim Mk. IV did follow the Blenheim Mk. I into service with the Royal Air Force Bomber Command, but a considerable number was in fact used by R.A.F. Coastal Command.

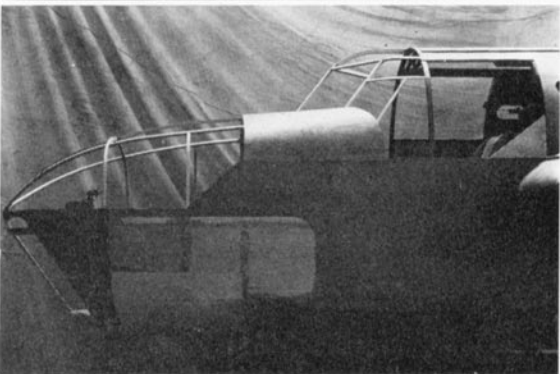
DEVELOPMENT

The navigator's station in the "short-nosed" Blenheim I had come in for a good deal of adverse criticism and the development of the Type 149 hinged

upon extending the operational range, using more powerful aero-engines and lengthening the forward fuselage to provide a more compatible layout. A mock-up was completed in October 1936, which was based on the same basic nose geometry of the Mk. I extended forward some three feet. A Blenheim I production aircraft—K7072—was retained by the Bristol Aeroplane Company as an experimental aircraft and with the new nose section was flight-tested by C. F. Uwins, Chief Test Pilot, at Filton on September 24, 1937. He was far from happy with the field of vision afforded the pilot, and the experimental design team set to work to equate the requirements for the extended fuselage and pilot vision. By December a new mock-up was passed and the nose of K7072 was so modified before the year was out.

Improvement as it was, the new configuration was still deemed not wholly satisfactory, and eventually the definitive shape emerged; this had an asymmetric section, with the frames shallower on the port side in the pilot's line of sight. But by the time K7072 had been flown in this form, it was late June 1938 and the situation at Filton was beset by problems. The Type 149 was late—and the Beaufort for which it

*See *Profile* No. 93.



Above: From mock-up to reality in K7072, the workhorse prototype of the Type 149 Bolingbroke (later renamed Blenheim Mk. IV). These photographs, taken in October 1937, show the original "long-nose" application. The close-up of K7072, originally a Type 142 Blenheim Mk. I, reveals the early "snake's head" type of pitot extension and the subtle twin bulges in the amidships bomb-bay doors, against which the then "big" 500-lb. G.P. bombs would apply their self-opening bulk after carrier release. (Photos: Crown Copyright 9251 and Bristol T149/8)

Left: Three photographs taken in the Experimental Department at Filton showing (top and middle) close-up and general view of the original Type 149 "long-nose" scheme in October 1936, and the revised nose taken in December 1937 following the recommendation by the chief test pilot that the windshield should be brought closer to the pilot.

(Photos: Bristol T149/2, /1 and /13)

was in part intended to act as an interim replacement was almost in completed prototype stage—and this without doubt played a part in the British Government's decision to order the Lockheed Hudson in June 1938. Indeed, subsequent events were to underline the good sense of this controversial decision to buy American equipment, for the Beaufort programme eventually ran into delaying difficulties, primarily centred on the powerplant installation.

Another Blenheim I airframe, L1222, was retained at Filton and modified to incorporate the expanded fuel system; this aircraft made its first flight in September 1938—a full year after the "aerodynamic" prototype had begun trials. But L1222 brought another difficulty in the Type 149 programme, for with the increased weights the maximum landing weight of the airframe became critical. In effect, the aircraft was not acceptable in this form with fully laden tanks and so a fuel jettison system was evolved incorporating two large dump pipes set in the underside of the wing outboard of the engines. Incidentally, the Blenheim IV, throughout its operational life, always had the outer tanks classified as "long-range" tanks, and only straight and level flight and gentle manoeuvres were—officially—allowed at the weights

(14,500 lb. and later 15,000 lb.) associated with full service load.

By now the need for Blenheim IV deliveries had become urgent and this demand led to acceptance of the first batch of aircraft from Filton in the first quarter of 1939 without the outer tanks. Further aircraft were delivered to the required standard and the production output from the Avro and Rootes Securities' factories incorporated the additional tankage and jettison system. Most of the early Filton-built aircraft were modified in the field by the hard-pressed team of Bristol service engineers or by R.A.F. parties working under their direction. Some impression of the work involved can be gleaned from Service Department records for 1940. These show a total of 5,473 modifications fitted during the year to Mk. I and Mk. IV aircraft, of which 64 were long-range fuel tanks mods. to the Mk. IV and another 249 were further modifications to the fuel tanks.

The standard aero-engine for the Blenheim Mk. IV aircraft was the Bristol Mercury XV, generally similar to the Mercury VIII fitted to the Blenheim I, but cleared for operation with 100 octane fuel with which it had a take-off rating of 905 b.h.p. at 2,750 r.p.m. with 9 lb. boost. Initial deliveries of Blenheim IVs

were, however, made with the Mercury VIII, and the aircraft was later fitted in some cases with the Mercury 25. The de Havilland metal propellers were three-blade two-position bracket-type and the Blenheim IV, as standard, was never fitted with feathering propellers.

PRODUCTION

The whole Blenheim production programme was, like so many others in those critical few years before World War 2, bedevilled from the outset by the frequent collisions of intent caused by changing requirement and new-build (production) capacity. Although by the end of 1936 a total of 1,568 Blenheims of both Marks was on order (from Bristol, 718; Avro, 250; and Rootes', 600) and this had increased to 2,088 aircraft by the end of September 1938, deliveries were estimated late into 1942 and already doubts were expressed as to the validity of extending the Blenheim programme with such promising newcomers as the Bristol Beaufighter* in the offing.

To summarise the final results, Bristols completed Blenheim IV production in March 1940, Avro—whose production started (build) in September 1938—finished in November 1941, and Rootes' programme extended from October 1938 into 1942. In fact, the Rootes Group—the biggest producers of the Blenheim—carried the Blenheim programme (Mk. V) on until June 1943.

Canadian production—under the original name "Bolingbroke"—was undertaken by Fairchild Aircraft at Longueuil, P.Q., between 1939 and 1943 and the Finnish concern Valtion Lentokonetehdas began licence manufacture of Blenheim IV aircraft in 1944.

*See Profile No. 137.



Above: Two views of K7072, the Bolingbroke prototype, at Filton on December 28, 1937, with the revised and symmetrical nose permitting stepped-down pilot's windshield—superficially reminiscent of the Bristol Beaufort torpedo-bomber. The use of Orthochromatic film gives false reading of outer yellow ring to fuselage roundel. (Photos: Bristol T149/17 & /16)

Below: Again at Filton, K7072 is photographed on June 22, 1938 with the definitive asymmetric "long-nose" transparency. At this stage the radio mast was not installed. (Photo: Bristol T149/20)



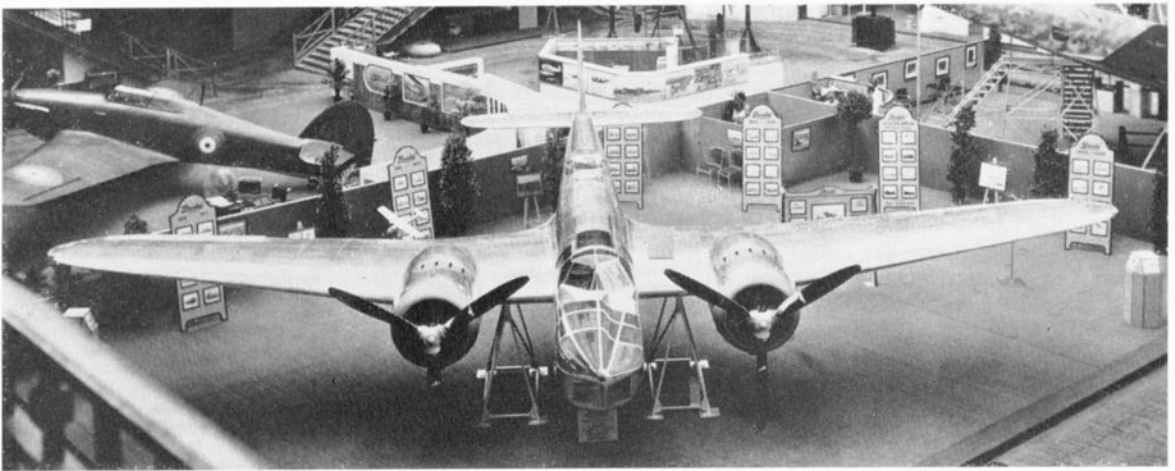
In addition to new-build deliveries to the R.A.F., the Royal Canadian Air Force and the Finnish Air Force, aircraft were delivered new to the Royal Hellenic Air Force (by Bristol) in 1939–40.

OPERATIONS

Production of the Blenheim IV built up rapidly during 1939 and when War was declared on September 3 there was a total of 168 Blenheim IV aircraft on R.A.F. operational strength, disposed as follows with night fighter (NF), army co-operation (AC) and bomber (B) squadrons:

No. 25 (NF) Squadron	3 aircraft
No. 53 (AC) Squadron	17 aircraft
No. 59 (AC) Squadron	16 aircraft
No. 82 (B) Squadron	12 aircraft
No. 90 (B) Squadron	21 aircraft
No. 101 (B) Squadron	19 aircraft
No. 107 (B) Squadron	23 aircraft
No. 110 (B) Squadron	18 aircraft
No. 114 (B) Squadron	19 aircraft
No. 139 (B) Squadron	20 aircraft
10 Squadrons	168 aircraft

On the first day of the War, a No. 139 Squadron Blenheim IV (N6215) took-off just after mid-day on the first R.A.F. operational mission. Piloted by Flying Officer A. McPherson, and with Cpl. Arrowsmith as air gunner, it carried a Royal Navy officer—Cdr. Thompson—as observer, for the task was to find and photograph the German Fleet. The mission was successful, 75 photographs were taken of the Fleet moving out of Wilhelmshaven, but the extreme height of the Blenheim (24,000 feet) with no heating led to acute discomfort and the radio was frozen up. It was not until the aircraft returned at 16.50 hours that the movements of the German war-



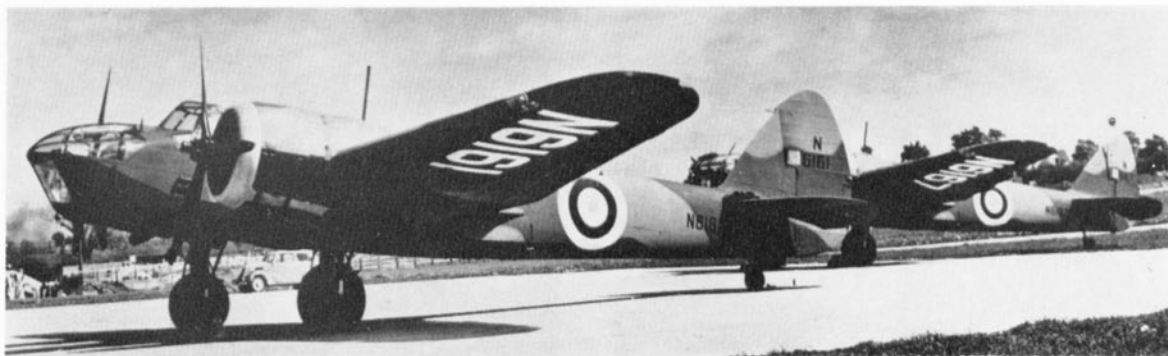
"A glittering spectacle" at the Salon d'Aeronautique, Paris, November 1938, was this highly-polished, bare metal Blenheim Mk. IV with no serial number to identify its position as one of the first production models. This exhibition Mark IV was displayed with the normal de Havilland (Hamilton-licensed) metal propellers replaced by "Salon only", hand-made Rotol propellers, a scaled-down version of those used on the production Bristol Bombay transports. Also in the picture are a production Hawker Hurricane Mk. I (L1707, from the first batch of 600 built) and, (right) the mottle-camouflaged prototype Belgian S.A.B.C.A. S.47 2-seat fighter-bomber-reconnaissance monoplane. (Photo: via C. H. Barnes collection)



Above: Looking extremely drab, with red and blue roundels only, the first (L4835) of the first batch of 68 Blenheim Mk. IVs is seen here photographed at the Aeroplane and Armament Experimental Establishment in September 1939. In 1940 it was evaluated with a D/F loop system. (Photo: Crown Copyright 9649D)

Below: A Blenheim Mk. IV in more characteristic "photo-call" attitude. Bristol's future chief test pilot, Bill Pegg, was flying this first batch 8th production Mk. IV near Filton on May 29, 1939. Underwing fuel jettison dump pipes are absent indicating outer tanks are not fitted whereas A. and A.E.E.'s L4835 in middle photograph has retrospective fitment. Square patch of lighter hue on rudder in line with serial number L4842 is fabric covering over rudder control access point. (Photo: Flight Bristol T149/23)





Two Mark IVs of the second Filton production batch. Neither N6161 nor the trailing N6167 have the long-range wing tanks or dump pipes. Photograph taken at Filton, April 23, 1939, shows the distinctive access patches mentioned previously.

(Photo: Bristol T142M/228)

ships were known and it was then too late to despatch a bombing raid. A second reconnaissance was flown the next morning and then the first R.A.F. bombing raid of the War followed in the afternoon. Five Blenheim IVs from each of three squadrons, No. 139 from Wyton and Nos. 107 and 110 from Wattisham, set off to bomb the German ships, each aircraft carrying two 500 lb. bombs. Although No. 139 Squadron did not locate the enemy, the Blenheims of Nos. 107 and 110 attacked warships in the Schillig Roads. The attack—led by Squadron Leader K. C. Doran of No. 110 Squadron in Blenheim IV N6204—was pressed home in shallow dives from 500 feet but the delayed-action bombs bounced off the “Admiral von Scheer” and other ships. Ironically, the greatest damage caused was by a Blenheim which crashed into the forecastle of the “Emden”, causing many casualties among the German crew. British losses were proportionately high—of the two flights of five aircraft which attacked, four of No. 107 Sqdn. and the flight leader of No. 110 Squadron failed to return.

R.A.F. Coastal Command, very small compared with the other operational Commands, had no Blenheim IV squadrons at the outbreak of War, and anti-shipping and coastal strike operations were carried out by Bomber Command. Later the Blenheim Mk. IVF (the multi-gun suffix), with four 0.303-inch Browning machine-guns mounted in a pack under the centre fuselage, went into service with Coastal and served as escort and strike fighters until supplanted by the Beaufighter and de Havilland Mosquito*. These

were known as “trade protection” squadrons when the first four were formed in October 1939, with the express function of protecting United Kingdom east coast convoys. Soon these units were extended into long-range reconnaissance and escorts for naval forces. Four more Blenheim squadrons were transferred from Fighter to Coastal Command in 1940 for shipping protection.

Fighter Command—in the shape of Nos. 25 and 600 Squadrons (11 Group)—received the Blenheim IV in 1939, specially equipped with early A.I. (Airborne Interception) radar for use in the night-fighting rôle. The Blenheim flights were detached to Martlesham and Manston later in the year and began night patrols over the North Sea but these proved abortive and it was not until September 3, 1940 that the first enemy aircraft fell to the guns of a No. 25 Squadron Blenheim.

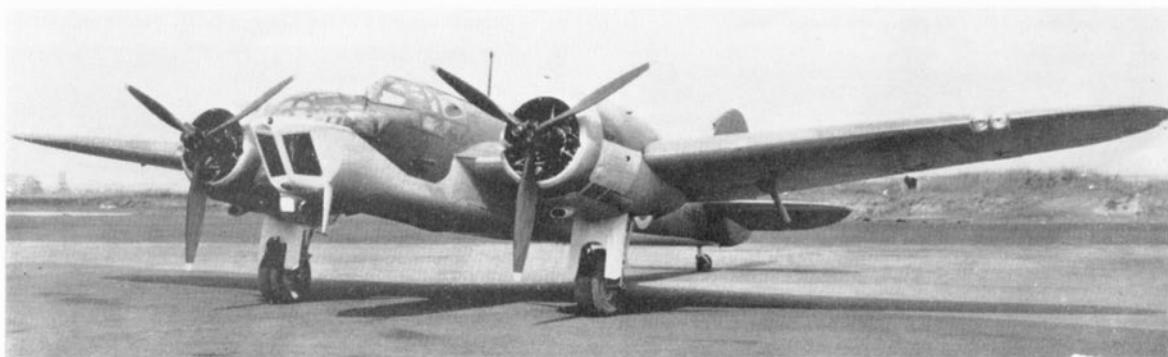
When the R.A.F. moved into France on the outbreak of War, it consisted of two basic elements—the Advanced Air Striking Force (A.A.S.F.), which was intended simply to deploy the shorter-ranged bombers of No. 1 Group within striking distance of German industry, and the Air Component of the Army's British Expeditionary Force (B.E.F.), which contained the army co-operation squadrons of No. 22 Group, whose function it was to support the field force.

The A.A.S.F. in 1939 consisted of 10 squadrons—all initially equipped with the Fairey Battle**—two of

*See Profile Nos. 52 and 209. **See Profile No. 34.

A Rootes-built Blenheim Mk. IV (V6458) at the factory aerodrome of Speke, Liverpool, in April 1941. This Mk. IV has the dump pipes and increased outer wing tankage, the pilot's “photo-reconnaissance”-type side window blisters and the first generation rear-firing under-defence gun—a 0.303-in. Vickers K. Also, the formerly mid-positioned ventral pitot strut has been removed to this port position.

(Photo: via the author's collection)





The cockpit of an early production Mk. IV at Filton, May 29, 1939. Instrumentation is sparse and ring-and-bead sight for the port wing 0.303-in. Browning machine-gun is equally basic. (Photo: Bristol T149/55)



That's how they clambered aboard, using the fuselage foot cavities. This unidentified night fighter squadron's Blenheim is a Mk. IVF—the ventral 4-gun pack is just visible, extreme left. IFF ("Identification—Friend-or-Foe") is fitted as evidenced by aerial wire to position on white circle of roundel. Upper and lower surfaces paint demarcation is unusual. (Photo: Imperial War Museum CH1585)

these, Nos. 15 and 40, were brought back to England at the end of the year, re-equipped with the Blenheim IV and, from Wyton and Alconbury, began operations against targets in France and the Low Countries. They were replaced in the A.A.S.F. by Nos. 114 and 139 Squadrons.

The Air Component had, initially, five squadrons of Westland Lysanders*, four of Hurricanes**, two of Blenheims—the latter were Nos. 53 and 59 with Blenheim IVs, soon reinforced by two more Blenheim IV squadrons, Nos. 18 and 57. The Blenheim units were used for "strategic" reconnaissance as far as the Rhine.

When the German attacks opened on the Western Front in May 1940, the Blenheims of the Air Component were pitched into battle over the enemy forces moving towards Brussels—by noon on May 11 five aircraft had been lost or damaged out of eight despatched to reconnoitre the Maastricht area and another Blenheim was lost in the early afternoon. Support came from 2 Group, when Blenheim IVs of Nos. 21 and 110 Squadrons attacked the area in the afternoon, but although most aircraft returned to their base, three-quarters of No. 21 Squadron's aircraft were severely damaged by ground fire. The A.A.S.F. Blenheims fared no better against the onslaught, for

No. 114 Squadron was practically wiped out on the ground on the same day, and in a dawn attack the next day—May 12—seven out of nine Blenheims of No. 139 Squadron were shot down by enemy fighters in the Maastricht sector. Another attack by Blenheims on the Maastricht bridges in the old town of Maas—made while the Battles were making their desperately heroic attack on the bridges over the Albert Canal—resulted in the loss of 10 out of 24 aircraft despatched. A further raid in the evening was more successful, but the number of bombers available in the A.A.S.F. had fallen from 135 to 72 in two days, and consequently the Blenheims were "rested" for a day.

However, the German breakthrough at Sedan brought a maximum effort on May 14 and the entire available force of Battles and Blenheims was thrown into action in the afternoon against heavy ground fire and swarms of enemy fighters—in this terrible sortie no fewer than 40 aircraft were lost out of 71 which took off. This was the highest rate of loss ever known in the R.A.F. In the evening, Bomber Command Blenheims took up the attack and, although they had strong fighter protection, they suffered 25 per cent. losses.

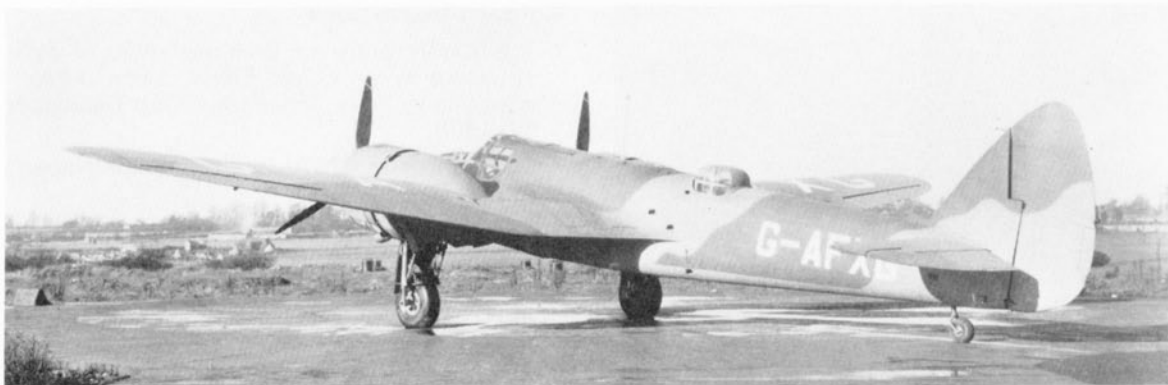
By mid-May the two A.A.S.F. squadrons, Nos. 114 and 139, had nine aircraft left between them and they joined up with the Air Component Blenheims. But the German advance continued unabated and the shattered squadrons were eventually withdrawn to

*See Profile No. 159.

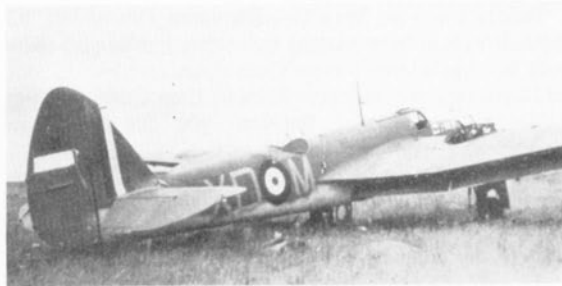
**See Profiles Nos. 24 and 111 for Mk. II and I respectively.

Two of a kind. Left-hand photograph, taken at Filton in April 1939, shows four N-serial Mk. IVs (from Bristol's second production batch). Nearest Blenheim still lacks propellers. Right-hand photograph of nine Mk. IVs was taken in mid-1940 at the Rootes' factory, Speke. Two more Mk. IVs are in the background. (Photos: Bristol T142M/223 and C. H. Barnes collection)





With temporary British civil registration to permit military aircraft to overfly or land in foreign countries, G-AFXG was one of 12 Mark IV—standard Blenheims delivered to the Royal Hellenic Air Force in 1939-40. These Mk. IVs had the extra wing tankage and fuel jettison pipes outboard of the engine nacelles. (Photo: Bristol T149/50)



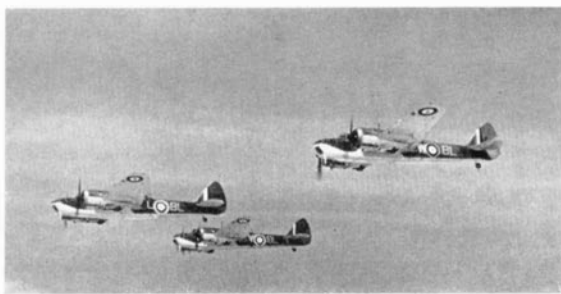
Above and right: Various fates awaited Blenheims. A forced landing and undignified attitude was recorded in early 1939 for a Mk. IV from the initial batch of 68 (L4835-L4902). A sadder sight is the deguttled Mk. IV (coded XD:M) of No. 139 (Jamaica) Squadron abandoned at Plivot in northern France during the German advance in May 1940. Engines, cameras, turret, ailerons, and so on, have been recovered by a retreating ground crew. Even the N-serial has been hacked from the fabric-covered rudder. (Photos: the author's and Martin P. Pegg's collections)



Right: Blenheims of No. 139 Squadron of the A.A.S.F. flying over northern France in early 1940. The formation leader coded XD:E was a Filton-built Mk. IV (L8756). The other two, XD:B in foreground and XD:J also show paint surface signs of in-the-field wear and tear. (Photo: Imperial War Museum C1310)

Mark IV Blenheims of No. 40 Squadron (coded BL and based at Wyton, Huntingdonshire) in formation, early March 1941. No. 40 Squadron returned from duty with the A.A.S.F. in France in December 1939 and re-equipped from Fairey Battle single-engine bombers. All have the under defence gun in the nose but the Blenheim second from the right has an unusually large rear-view mirror above the windshield. (Photo: Imperial War Museum CH786)





Another view of three of No. 40 Squadron's Mk. IVs in March 1941, with BL:L leading BL:V and BL:W, both of which have white-outlined individual letters but all have different thicknesses of red, white and blue fin stripes.

(Photo: Imperial War Museum CH792)

England until, by the evening of May 21, there were only a few Lysanders, belonging to No. 4 Squadron, left in the Air Component in France.

Before this—on May 17—Blenheim IVs of No. 82 Squadron had been caught by enemy fighters on their way to attack troops near Gembloux and lost 11 out of 12 aircraft. Remarkable work by their Commanding Officer—the Earl of Bandon—got the squadron operational again within 48 hours.

As the B.E.F. was eventually forced out of France through Dunkirk, every day some 50 Blenheims, with or without escort, were harrying the enemy forces closing in on the Allied armies.

During the hard-fought campaign in France, much had been learned operationally, and in the cruellest way. As with many other types, the Blenheim was found wanting and throughout 1940 modification teams were increasing the armour and armament in every way possible, battling with shortages and improvising where money or sanction was not forthcoming. A good example of such improvisation was Basil Embry's squadron, No. 107, where—in an effort to give better protection from rear attack—all their Blenheim IVs were converted to carry a 0.303-in. Browning machine-gun in each nacelle and a 0.303-in. Vickers "K" gun under the tail, all three firing to the rear. From this and other innovations, the Blenheim

Blenheim Mk. IVs of Nos. 18 (Burma) and 21 Squadrons took part in a low-level anti-shipping strike at Rotterdam on July 16, 1941. Shown here, from a Blenheim dorsal turret is a No. 18 Squadron Mk. IV (coded WV:H) low over the outskirts of the Dutch port. Note the exhaust flare muzzle-type extensions under the engine nacelles.

(Photo: Crown Copyright SW391)



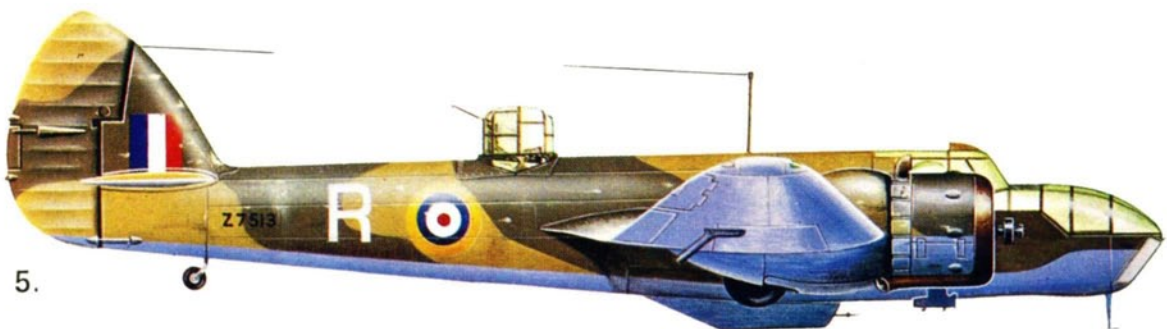
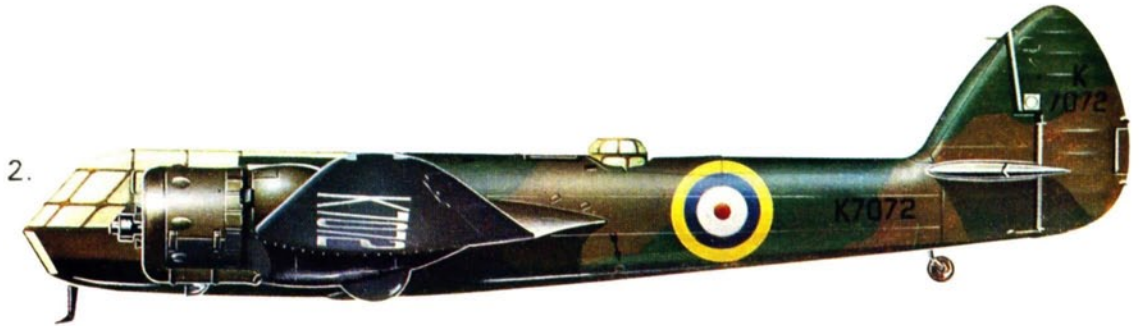
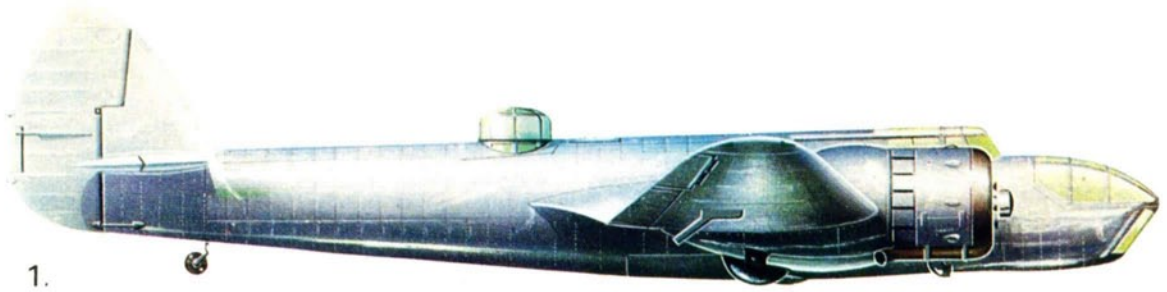
Colour Illustrations

- 1 The highly polished Blenheim Mk. IV as it appeared in the Grand Palais, Salon d'Aéronautique in Paris, November 25 to December 11, 1938.
- 2 The prototype K7072 in its first "long-nose" form in October 1937.
- 3 K7072 in its second nose configuration with stepped-down windshield in December 1937.
- 4 One of the 12 export Mk. IVs in delivery condition, late 1939, for the Royal Hellenic Air Force.
- 5 A Blenheim Mk. IVF of No. 15 Squadron, South African Air Force, summer 1943 in North Africa. Unusual field modification was the mounting of a long-barrel 20-mm cannon in the nose to fire forwards from the starboard side. Z7513 was discovered in the Central Cyrenaican Desert in February 1959.

eventually emerged with increased fuselage and turret armour protection, and more and improved guns including one or two under-defence guns mounted under the forward fuselage on the starboard side. Alterations were also made to the parachute exits and rear bomb racks and barrage-balloon cable cutters were fitted to the wing leading-edges.

Although, as already mentioned, the Blenheim was due to be phased out of production as soon as possible, when Lord Beaverbrook took over the newly-created Ministry of Aircraft Production (M.A.P.) in May 1940 he set up a "super-priority" programme which was eventually tailored to achieving high production rates of aircraft already on the lines—and among the five types selected was the Blenheim IV, then in production by Avro and Rootes. In fact, throughout the first nine months of 1941, Blenheims were being produced at the rate of 100 per month.

The cessation of land fighting in France meant little to the Blenheim squadrons, for they were now





Blenheim Mk. IV fighters of No. 235 Squadron (coded DY) circa 1941. These are mid-production standard with single drum-fed Vickers K in the dorsal turret and a tray of four 0.303-in. Brownings under the bomb compartment.

(Photo: Bristol T142M/275)

Full modification-standard Blenheim Mk. IV (V6083) built by Rootes Securities at Speke and serving with No. 13 Operational Training Unit as FV:B. Points to note are the second generation under gun position with two 0.303-in. Brownings, and the bracket immediately above on the fuselage side for a camera-gun. Wing leading-edge reveals cable-cutters and wing-root additional "wedge" to lessen root stall. An external carrier for flares and light bombs is just to the rear of the vertical camera port behind the "twin bump" bomb doors.

(Photo: The Aeroplane Bristol T142M/279)



plunged into battle in another theatre. This time it was Norway, where weather was almost as much a hazard as enemy opposition. Most of the Blenheim IVs had no heating system at all, or de-icers (other than carburettor de-icing), although later aircraft had boilers fitted on the starboard engine exhausts.

An example of what the bomber squadrons were up against occurred on July 9, 1940, when nine Blenheim IVs of Nos. 21 and 57 Squadrons set off from Lossiemouth to attack the airfield at Stavanger. After bombing the target they were set upon by more than 30 Messerschmitts and by the time they had fought their way back to Scotland only five survived and one of these, with a propeller shot away, belly-landed at Wick. In other sorties in the Norwegian campaign the weather caused many incidents and casualties. On one occasion a Blenheim IV pilot suffered the experience of having both engines ice up and stop and only managed to get them going again a few feet above the sea after losing height from around 10/12,000 feet. Another aircraft similarly afflicted actually struck the sea while recovering from the loss of altitude and returned with bent propeller blades.

Further south, R.A.F. Bomber Command Blenheims were striking at the Channel ports, starting on September 5, 1940, and being joined by the heavier bombers after the "Invasion Imminent" warning later



A Rootes-built Blenheim Mk. IV (V5382) flying over England in the late summer of 1941. The scallop-edging paint line is non-standard. The cockpit side panel blister for better oblique vision shows clearly. (Photo: via the author's collection)

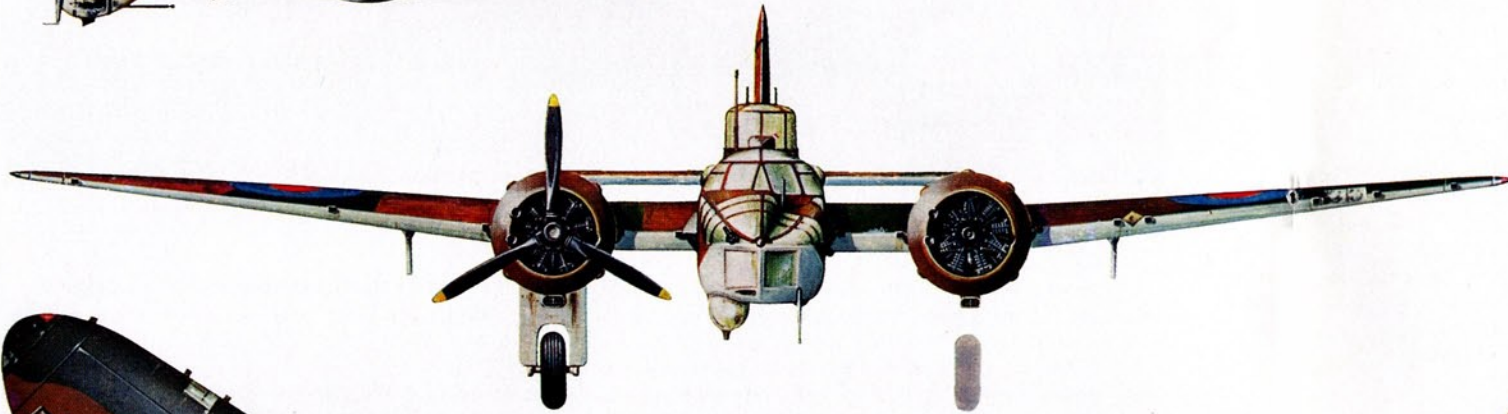
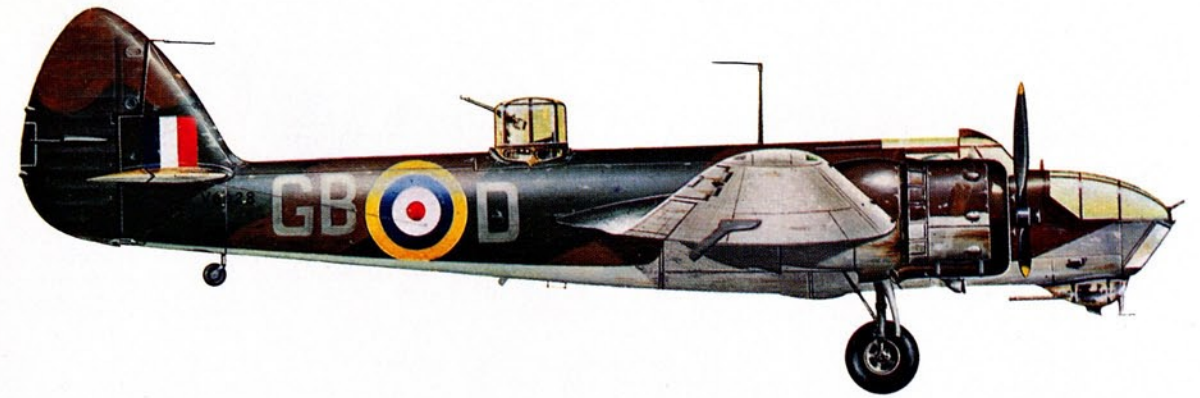
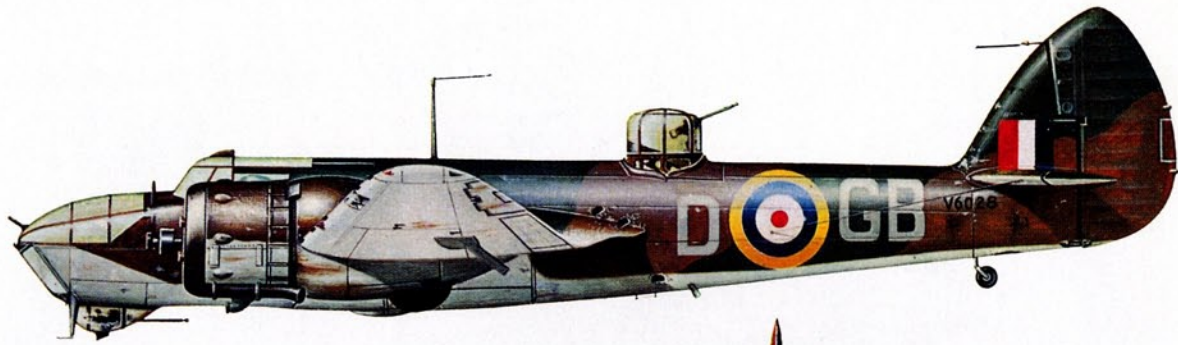
in the month. Coastal Command had little in the way of realistic strike squadrons except No. 22 Squadron with Beauforts, which began operations in October. Thus, Bomber Command squadrons continued to work against shipping during 1940 although much valuable work under the most adverse circumstances had been carried out by Nos. 235, 236 and 248 Squadrons on anti-shipping patrols. No. 248 Squadron had special armoured Mk. IVFs operating from Dyce in 1940.

Yet again, the Blenheim IV was required to operate yet further afield—in the Middle East for the first Desert campaign. Once more, the climate and operational conditions posed extra hazards. The Blenheim IVs of No. 113 Squadron bombed the Italians on

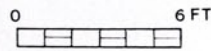
June 11, 1940, a few hours after Italy entered the War; and, before the year was out, two more bomber squadrons, Nos. 14 and 55, were flying the “long-nosed” Blenheim on anti-shipping, bomber and reconnaissance missions in support of the ground forces. To improve deliveries of aircraft to this theatre of operations, reinforcement ferry routes were set up through Africa, the starting point being Takoradi, on the Gold Coast, where the first consignment of aircraft—six Blenheim IVs and six Hawker Hurricanes—docked on September 5, 1940. The first ferry flight, comprising one Blenheim and six Hawker Hurricanes, set off on September 18 and reached Abu Sueir on September 26, flying via Lagos, Kano, Fort Lamy, Khartoum and Wadi Halfa, with intermediate stops.

Another view of FV:B of No. 13 O.T.U. It has flame-damping exhaust stacks and the starboard wing leading-edge shows signs of recent replacement. The twin-Browning installation in the dorsal turret is another late production refinement following successful field mods. by squadrons. (Photo: The Aeroplane Bristol T142M/283)





The only Blenheim Mk. IV squadron accorded the supreme military award of the Victoria Cross ("For Valour") was No. 105 Bomber Squadron, Royal Air Force. Depicted here is the recipient's own aircraft. Wing Commander Hughie I. Edwards, V.C., D.F.C., R.A.F., gained this highest award for a series of daring sorties over enemy-held territory, culminating in a raid on Bremen on July 4, 1941. No. 105 Squadron's "Battleaxe" motto is "Valiant in battles".





A Blenheim Mk. IVF fighter of late-series production, possibly Rootes-built, as used for "trade protection" and by the anti-shipping strike squadrons of R.A.F. Coastal Command. The four-gun pack is well silhouetted.

(Photo: Imperial War Museum CH2898)



Another R.A.F. Coastal Command Blenheim Mk. IVF which, unusually, carries the individual letter K not only on the rear fuselage but also on the nose and even on the port nose transparency.

(Photo: Crown Copyright)

Back in the United Kingdom, the Blenheim IV had further distinction by becoming the first R.A.F. aircraft to sink a U-boat; Blenheim IV P4852 of No. 82 Squadron scored two direct hits on U.31 in the Schillig Roads on March 11, 1940.

Thus, a hard-fought year passed with the "long-nosed" Blenheim in service and action from Norway to North Africa's Western Desert, operating with all R.A.F. Commands. Re-equipment and further extensive operations carried on through 1941, although in January the Air Staff classified the Blenheim as inadequate in performance and armament for current operations.

Throughout 1941 Blenheims of Bomber and Coastal Commands were operating offensive daylight sweeps escorted by fighter against fringe targets—code name "Circus"—designed to pin down German fighter forces and cause attrition in an effort to hinder the Balkan offensive. In addition, anti-shipping "Circus" raids were made on every possible occasion, nearly 20 major attacks being delivered in the 3½ months ending mid-June 1941. By this time the Channel anti-shipping campaign—Exercise "Channel Stop"—was in full swing and the aim was to close off the Channel completely to enemy shipping. This had begun in a modest way in April, when a flight of Blenheims from No. 101 Squadron moved to Manston and began offensive sorties.

In the months of April to June, a total of 297 Blenheims of 2 Group attacked shipping at sea, losing 36 aircraft, and Coastal Command made 143 attacks and lost 52 aircraft. In July, the bombing areas were more clearly defined, with Bomber Command's responsibility stretching from Cherbourg to Wilhelmshaven and the remainder of the seas around Great Britain controlled by Coastal Command. By the end of the year at least 41 enemy ships had been sunk out of 698 attacked, for a total loss of 123 aircraft. But Bomber Command began—belatedly—to realise that the Blenheim was not up to the task; as this change of heart coincided with renewed applications for reinforcement aircraft for the Middle East, Bomber Command was released from the shipping-strike responsibility in November, 1941.

The Coastal Command squadrons fought on. In late December, just after Christmas, the first "combined operation" was carried out against South Vaagso and the neighbouring island of Maaloy in Norway. No. 404 (Canada) Squadron supplied long-range fighter cover for this operation, flying Blenheim

IVFs in their first action with Coastal Command. The Blenheim IVFs with the Vaagso raiders also strafed the wooden runways of the nearest German fighter station at Herdla and another Blenheim action took place off Stavanger in the form of an anti-shipping diversionary raid.

By July 1941, Bomber Command had, out of a total of 49 squadrons, eight squadrons of Blenheims (all Mk. IVs) and these squadrons were now relegated to secondary target areas until they could be re-equipped. Nonetheless they were constantly in action and casualties grew. In addition, there was a great drain on resources in meeting the ever-growing needs of the Middle East campaign.

On August 19, 1941, during one of the daylight raids on Northern France, a Blenheim IV (R3843) of No. 18 Squadron flew low over the German airfield at St. Omer en route to its target and parachuted down a case containing a spare artificial leg for Wing Commander Douglas Bader, who had damaged one of his "tin" legs when baling-out after being shot down 10 days earlier.

In the second half of 1941, the Middle East situation became critical and several squadrons were flown out to Malta. Most of them remained there until the end of the first quarter of 1942, by which time they had been worn down by operational losses or absorbed into the Western Desert air establishment.

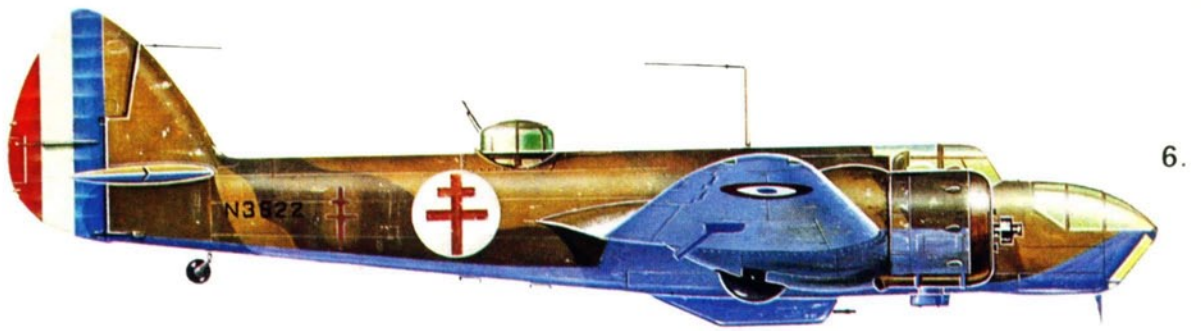
But yet another sphere of operations was to call the Blenheim IV into action in the midst of a desperate struggle. Exemplifying the way in which British air power had to be sent far and spread thin to meet the forces of aggression, No. 84 Squadron was—after fighting in the Desert, Greece, Iraq, Syria and the second battle-round in the Western Desert—posted to the Far East where the Japanese were harrying the ill-prepared and scanty British air forces. No. 84 Squadron left Heliopolis, Egypt, in January 1942 and the first Blenheim IV arrived in Palembang, Sumatra, on January 23. Attacks, with aircraft of the Royal Australian Air Force, began at once on Japanese invasion shipping, but airborne troops attacked the airfield and the aircraft and men who managed to escape being over-run operated into February from a secret airfield until driven back into Java. Here, from Kalidjati, the six remaining Blenheims attacked enemy shipping at Palembang but by February 22 the Japanese had practically wiped out the aircraft available—nonetheless some Blenheims were got into the air and attacked and sank a submarine off the coast the next day.



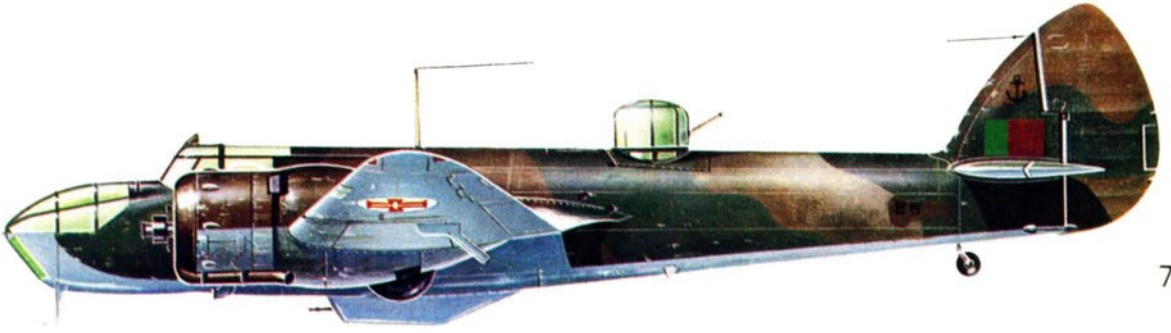
A late-production Blenheim Mk. IV (V6389) of No. 105 Squadron, built by Rootes Securities at Speke. The extra nose armament of a free-mounted Vickers K can be seen, as can the light bomb carrier on the rear fuselage. A small rear-view mirror is above the windshield. (Photo: via the author's collection)

This photograph is worthy of bigger reproduction because of the extraordinary amount of interest detail it offers, particularly the anti-root stall "wedge" (by it, a photographic censor has crudely obliterated the cable cutter device), the hand-operated nose Vickers K, and the bomb door complex. Included in the bomb stores being loaded is a 250-lb. general-purpose (G.P.) bomb and incendiaries. Two sets of external bomb carrier are under the rear fuselage and what appears to be a di-pole aerial under the squadron code letters RH for No. 88 (Hong Kong) Squadron. No rear-defence gun is fitted under the nose but the panel is clearly outlined. The period was April 1942. (Photo: via C. H. Barnes collection)





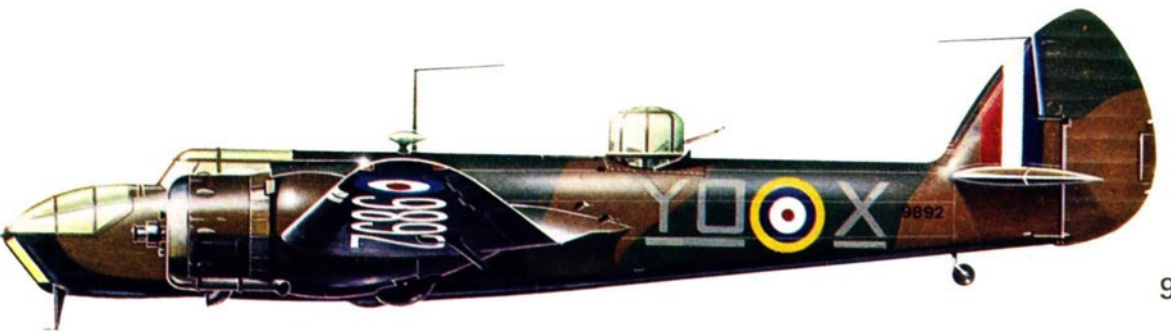
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Colour Illustrations

- 6 N3522, a Blenheim Mk. IVF of the *Forces Francaises Libres* in North Africa wearing the famous Cross of Lorraine over the former R.A.F. roundel.
- 7 A Portuguese Navy Blenheim Mk. IVF. Some doubt exists as to whether the Navy Blenheims were in R.A.F. Coastal grey/green or as the Portuguese Air Force, namely brown and green—with “sky” undersides.
- 8 A Canadian-built Bolingbroke Mk. IV-T of the second production batch of 350 delivered between March 1942 and May 1943.
- 9 The Air Museum Bolingbroke Mk. IV-T which is on show at Ottawa as part of the permanent collection.
- 10 The Finnish Blenheim Mk. IV BL200 is preserved at Luonetjærvi Air Force Base.

But by March 1 Kalidjati had fallen and all the Blenheims were destroyed. On the evening of March 7, the commanding officer of No. 84 Squadron, Wing Commander J. R. Jeudwine, with three other officers and seven R.A.A.F. sergeants, set off in a ship's lifeboat to try to reach Australia. It took 47 days before they were safely ashore and thus ended a gallant fight against insuperable odds.

In February and March 1942, Blenheim IVs of No. 113 Squadron also left the Middle East for the Far East. These aircraft operated from Magwe in Burma with No. 45 Squadron, but initially they had arrived at Mingaladon-Rangoon on January 7 and began attacks the next day, raiding the docks at Bangkok. As the Japanese advanced, the squadrons withdrew to the north, still strafing boats, barges and enemy positions on the Salween River near Kado and bombing shipping near Moulmein. In early March the end came and eventually No. 113 Squadron re-formed at Asansol, Bengal, with fresh Blenheim IVs and, among other activities, sent a detachment to China. The squadron eventually stood down in August 1943 with



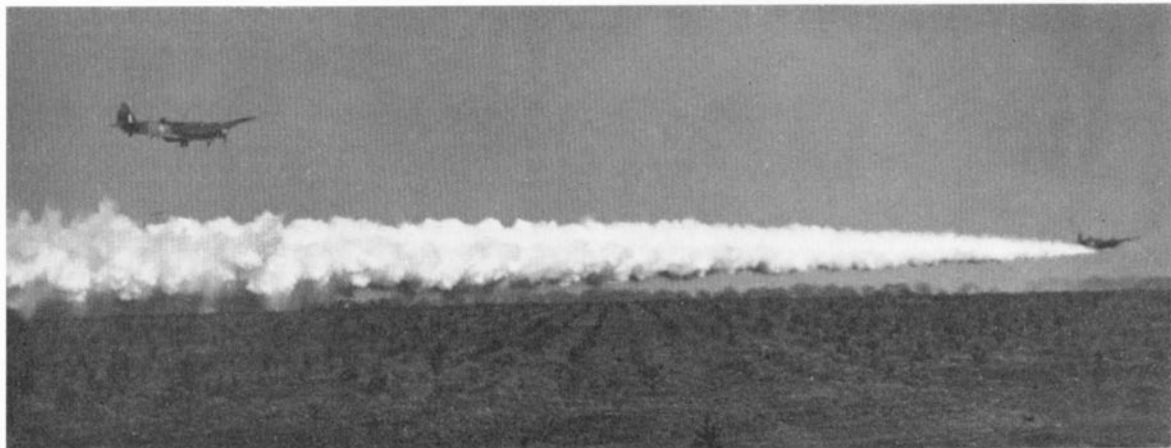
A Blenheim Mk. IV, June 1941, being prepared for an offensive sweep by R.A.F. Bomber Command, as armourers trolley-in a load of 4 x 250-lb. bombs. It appears that the cable-cutting devices on the wing leading-edges have been removed.
(Photo: via C. H. Barnes collection)

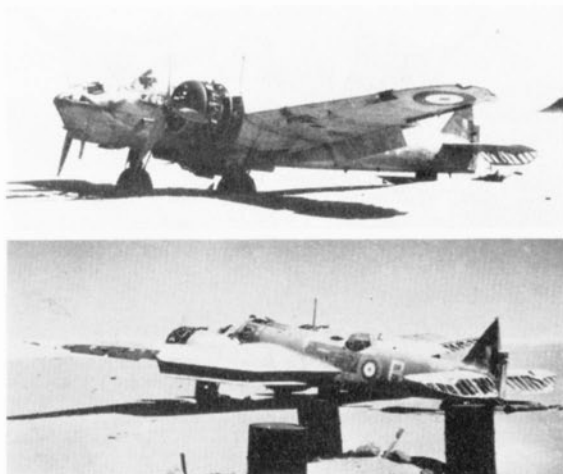
1,300 operational sorties to its credit since the first attack in January.

In Ceylon, another Blenheim IV squadron, No. 11, was involved shortly after its arrival in the Japanese Easter attack during which they sought out and attacked enemy naval forces with mounting casualties. No. 11 carried on through 1943 from Calcutta-Baigachi striking against targets in the Arakan and Akyab until re-formed with Hurricanes at the end of the year.

The situation in Europe was no less demanding in 1942. No. 407 (Canada) Squadron 16 Group Coastal Command, together with Nos. 53, 59 and 320 (Dutch) Squadrons—all with Blenheim IVs—concentrated on shipping targets between the estuary of the Elbe and the Hook of Holland. These attacks were pressed home regardless of risk. On May 28, one of No. 59 Squadron's Blenheims came back with a bent propeller, flying at about 60 m.p.h. IAS (indicated air speed) on one engine after hitting the sea. The next day, one of No. 407's Blenheims left a bomb door on the masts and rigging of an enemy warship. The cost was high—No. 407 Squadron alone lost 27 aircrew in a month and, on each operation, of the aircraft which managed to return to base, at least two or three of them were so badly damaged as to be written-off.

Smokescreen-laying by Blenheim Mk. IVs in March 1942 "Somewhere in England" during a combined army/air force exercise. Five months later, Blenheims carried out this same type of operation during the Dieppe "raid". (Photo: Imperial War Museum BH11733)





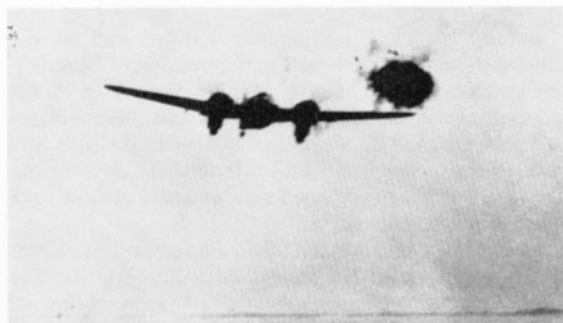
Above: Two views of a Blenheim Mk. IVF of No. 15 Squadron, South African Air Force, which was found some 100 miles from Kufra Oasis in the Central Cyrenaican Desert in February 1959. Z7513 set off from its North African base in July 1943 to patrol the Army's Long Range Desert Group land routes and, with two others, was lost in a sandstorm. Only one member of the three crews survived. (Photos: Bristol via the author)



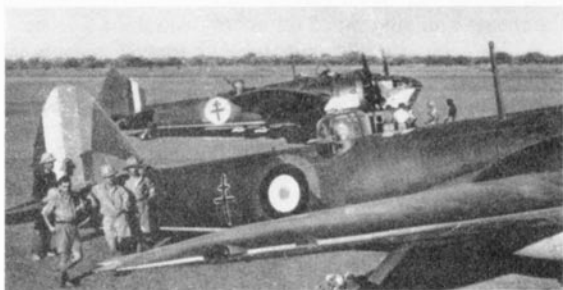
A close-up of the rediscovered Z7513 in 1959. The front panel had been removed because the fuselage contained an extraordinary field mod.—a long-barrel 20-mm. cannon. Eight Mk. IVFs were issued to the squadron. (Photo: Bristol via the author)



Above and below: Two views of Blenheim Mk. IVFs in North Africa operated by the Forces Francaises Libres. N3522 was the first Mk. IV to be built by Avro and is also depicted below prior to the R.A.F. fin stripes being obliterated and the French colours added to the rudder. The F.F.L. base was at Fort Lamy. (Photos: via C. B. Barnes collection and Air-Britain archives)



Dramatic end to a Blenheim Mk. IV in the Western Desert campaign. Hit by flak—a burst can be seen—the bomber crashed. German naval personnel—possibly the gunners defending some North Africa port and responsible for the kill—examine the wreckage. (Photos: via the author)



Below left: Uncrating a Blenheim Mk. IV at Singapore docks circa late-autumn, 1941. Not "factory-fresh"; nothing more is known at this time of the history relating to this Mk. IV. (Photo: via C. H. Barnes collection)



A Blenheim of No. 203 Squadron observed a Luftwaffe Junkers Ju 90 taking off from the aerodrome of Palmyra in Vichy-controlled Syria. The same afternoon, four Mk. IV bombers and a Mk. IVF fighter made the first attack in that short campaign. Shown here are two of the five Blenheims en route. (Photo: Imperial War Museum, CM990)



In Bomber Command, new equipment such as the Douglas Boston* and Lockheed Vega Ventura began to supplant the Blenheim in 1942. The order of battle for February 23, 1942 showed only three Blenheim IV squadrons and, all told, these units could only provide 33 aircraft with crews for operational sorties. The final Bomber Command Blenheim IV mission was flown on the night of August 17/18, 1942. Between March and June, the new Bostons, with the ageing Blenheims, flew about 700 cross-channel sorties by day, losing only 11 aircraft despite the introduction by the German *Luftwaffe* of the rightly-feared FW 190 fighter groups. The final days for the Blenheim IV in Northern Europe included smoke-screen laying at the Dieppe operation on August 19, 1942, by both Bomber and Coastal Command squadrons.

In 1942 also, the Blenheims from Malta struck at Naples and Tripoli and attacked ships in the Mediterranean. From October 1941, the North African-based "Desert" Blenheims kept up with the new American light bombers in attacks on enemy troops and supply lines in "Operation Crusader". Heavy German attacks on Malta finally led to the withdrawal of the Blenheims to Egypt on February 22, 1942.

Order of Battle: Middle East

The order of battle for Middle East Command on November 11, 1941 showed the following Blenheim IV units:

Free French Flight	263 Wing, Palestine/ Trans-Jordan Malta
Nos. 18, 104 and 107 Squadrons	201 Group
No. 203 Squadron (also with Beauforts)	A.H.Q. Western Desert
No. 113 Squadron (Mk. IVF)	A.H.Q. Western Desert,
Nos. 8 (Det.), 14, 45, 55, 84, and the	270 Wing.
Lorraine Squadrons	A.H.Q. Western Desert,
No. 11 Squadron	3 (S.A.A.F.) Wing

By October 27, 1942, the picture had changed:

No. 8 Squadron	A.H.Q. Aden
No. 244 Squadron (also with Vickers Vincent and Consolidated Catalina)	A.H.Q. Iraq
No. 1438 Flight	A.H.Q. Levant
No. 15 (S.A.A.F.) Squadron	201 Group
No. 203 Squadron (also with Baltimore and Maryland)	201 Group
No. 13 (Hellenic) and 47 (Detachment) Squadrons	235 Wing
No. 203 (Detachment—also with Martin Baltimore and Maryland)	247 Wing
No. 15 (S.A.A.F.) (Detachment)	203 Group
No. 35 (S.A.A.F.) Flight	207 Group

And on July 10, 1943, Mediterranean Air Command returns showed:

Nos. 13 and 614 Squadrons	N. African Coastal A.F.
No. 162 Squadron (also with Vickers Wellington)	H.Q., R.A.F. Middle East
No. 13 (Hellenic) Squadron	235 Wing
No. 15 (S.A.A.F.) (also with Baltimore)	245 Wing
No. 8 Squadron	A.H.Q. Aden
No. 244 Squadron	A.H.Q. Iraq and Persia

Already taken off operations by Bomber Command in Northern Europe a year before, the Blenheim was gradually being ousted by the Boston, Baltimore, Ventura, Beaufighter and Mosquito. The Blenheim Mk. IV was in some cases replaced by the Mk. V (Bisley) but there was little development left and the parent company, Bristol, was producing further medium twins which much more adequately met the operational requirements of the day.

Auxiliary rôles of the Blenheim were legion, but a special word needs to be said of the meteorological



Wing Commander H. I. Edwards, V.C., D.F.C., R.A.F.
(Crown Copyright Reserved)

units which flew regular sorties throughout the War in all theatres and frequently in appalling conditions. The Met. patrols over the Atlantic and North Sea began in 1940 and were initially carried out by three Blenheim units, Nos. 403, 404 and 405 Flights.

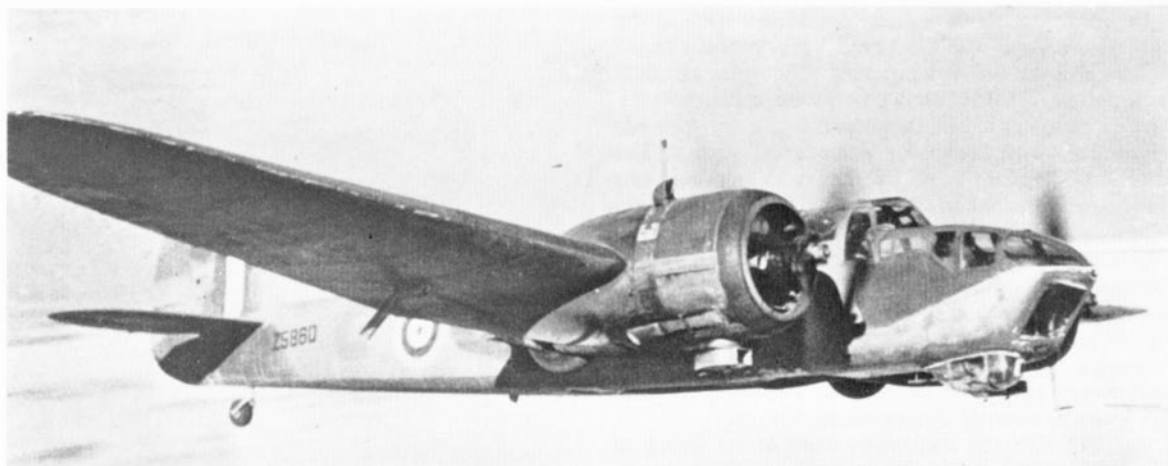
The Far East was the scene of most later Blenheim IV operations. By April 1942, the three light bomber squadrons which had been pulled out of Burma in the retreat had been equipped with Mk. IVs, which also operated reconnaissance patrols over the Bay of Bengal until replaced later in the year by Beauforts.

By October 1943 most of the Mk. IVs and Mk. Vs were demonstrably obsolete and a number of units was re-equipped with the Vultee Vengeance dive-bomber.

And so the combat career of a British light bomber came to an end. Many of them were used in a multitude of rôles for which the aircraft had never been intended or was indeed suited. The Blenheim—particularly the Mk. IV—was plunged into a series of hard-pressed encounters with the enemy on all fronts; it was used by all R.A.F. Commands and despite its limitations and extension of active service long past operational acceptability there have never been signs of rancour in the memories of those who serviced and flew the Blenheim.

Finally, there was one Victoria Cross won by the pilot of a Blenheim IV which typifies not only the courageous devotion to duty of the men, but also the type of operation with which the "long-nosed" Blenheim will always be associated. On July 4, 1941 Wing Commander Hughie Edwards, D.F.C., R.A.F., an Australian with Welsh forebears—handicapped by injuries received in an earlier flying accident—led an attack by No. 105 Squadron on Bremen, bringing the formation 50 miles inland from the coast at an

*See Profile No. 202.



An Avro-built Blenheim Mk. IV bomber (Z5860) flying over the Western Desert in 1941. Note the Vokes air filters and extra dorsal intake to the engine—these also appear on the No. 15 S.A.A.F. Mk. IVF depicted on an earlier page.

(Photo: via the author's collection)

altitude of about 500 ft. to the target. The Blenheims met fierce opposition and had to fly through a strong balloon barrage. Over the target all the aircraft were damaged by enemy fire and Wing Commander Edwards re-grouped the remainder (four had been shot down) of his forces and they fought their way back out without further loss.

THE BOLINGBROKE

Licence-built production of the Blenheim IV under the original name of Bolingbroke was undertaken by Fairchild Aircraft in Canada and the first aircraft, R.C.A.F. serial number 702, was taken on charge by the R.C.A.F. on November 15, 1939. From this initial batch, deliveries were made to No. 8 (Bomber Reconnaissance) Squadron at Sydney, Nova Scotia, for coastal patrol duties, whilst other aircraft were used for development.

The definitive Bolingbroke was to have American equipment and a crashed Mk.I, No. 705, was re-built

to approximate this standard as the prototype Bolingbroke Mk. II. The Mk. III was also from this batch, No. 717, and featured Edo metal twin floats, but there was no production. The final version was the Bolingbroke Mk. IV, which started delivery in January 1941, also to No. 8 (Bomber Reconnaissance) Squadron.

Variants of the Mk. IV included the Bolingbroke IV-W, fitted with two 825 h.p. Pratt & Whitney Twin Wasp Junior engines, intended to substitute for the standard Mercury engines should deliveries be held up. In the event only a few Mk. IV-Ws were produced (14 aircraft, Nos. 9010-9023) as the flow of Mercury engines was maintained. Another experimental engine change resulted in the Mk. IV-C, fitted with two 900 h.p. Wright Cyclones.

In addition to the basic Bolingbroke IV reconnaissance bomber, the last version to enter production was the Mk. IV-T general purpose trainer, delivered between early 1942 and the end of 1943. One of the Bolingbroke IV-T aircraft, No. 10001, was restored for the R.A.F. Museum in 1969 in exchange for Beaufighter RD867.



Above and below: Blenheim Mk. IVFs of the Portuguese Navy. The R.A.F. serial has been obliterated on the rear fuselage and the local Navy serial added—B8. Traditional maritime insigne of anchor is on the fin. Like the Portuguese Air Force Blenheims, these Mk. IVs were acquired when North African ferry flights ended in malfunction and emergency landing en route.

(Photos: via the author's collection)



Above and below: Portuguese Air Force Blenheim Mk. IVs sandwich a Mk. V. The markings are more colourful than those of their Navy compatriots and ZE:B has the serial 262 while ZE:G is designated 267. These are late production Blenheims. The Mk. IV below, unlike those above, does not have a desert Vokes air filter under the cowling.

(Photos: via the author's collection)



The first R.C.A.F. squadron sent to the Aleutian Islands was No. 115, equipped with Bolingbroke IVs, which was despatched at the request of the U.S.A. after the heavy Japanese attack on Dutch Harbor on Unalaska Island. Also, it was a Bolingbroke from this squadron which made the first successful R.C.A.F. attack on an enemy submarine. On July 7, 1942, Flight Sergeant P. M. G. Thomas, pilot of the Bolingbroke, saw and attacked the Japanese submarine Ro32. Thomas's bombs severely damaged Ro32, which was sunk later by U.S.N. warships which Thomas had directed to the scene.

Not without note is the fact that the first R.C.A.F. man to fly over enemy territory in World War 2 was Squadron Leader W. I. Clements, attached to the R.A.F. on an exchange posting; he flew a Blenheim Mk. IV 53 Squadron on a reconnaissance mission over the Hamm/Hannover area on the night of September 29, 1939.



The Canadian Bolingbroke Mk. I, No. 702 was the first to be delivered to the Royal Canadian Air Force—in mid-November 1939—and was similar to the Blenheim Mk. IV in most respects. (Photo: Bristol T149/52)



The Canadian prototype Bolingbroke Mk. IV-C (9074) with apparently oversize cowlings housing the single-row Wright Cyclones. It flew for the first time in June 1942. (Photo: Bristol T149/71)

Series Editor: CHARLES W. CAIN

SPECIFICATION OF BLENHEIM Mk. IV

Note. In general terms, the aircraft is structurally similar to the Blenheim Mk. I as described in Profile No. 93; the following data outline basic differences and apply to the standard Blenheim Mk. IV.

Engines

Two Bristol Mercury XV nine-cylinder air-cooled radial engines with single-speed superchargers. Maximum power output (R.D.E 1A figures, 100-octane fuel): Take-off, 905 b.h.p. at 2,750 r.p.m. Maximum power in flight, 995 b.h.p. at 2,750 r.p.m. at 9,250 ft.

Propellers

de Havilland three-blade metal, variable-pitch bracket-type with two pitch controls.

Fuel System

Two inner wing tanks, each of 140 Imperial gallons capacity, and two outer (long-range) wing tanks, each of 94 Imp. gal. capacity. Total tankage, 468 Imp. gal. This quantity could be augmented by two 50 Imp. gal. auxiliary tanks mounted in the bomb-bay.

Oil System

Two main tanks, one in each nacelle, of 11.5 Imp. gal. capacity and two auxiliary tanks, each holding 2.5 Imp. gal. and mounted on the outboard side of each main tank. Total normal capacity, 23 Imp. gal.; maximum, 28 Imp. gal.

Hydraulic System

Operates the landing gear retraction, flaps and turret. Pump mounted on and driven by the port engine.

Pneumatic System

Operates wheel brakes, fuel jettison valve and gun-firing gear for the wing-mounted Browning machine-gun. Air compressor on and driven by the starboard engine, air bottle on starboard side of fuselage immediately aft of main spar.

Accommodation

Crew of three—pilot, navigator/bomb-aimer and air gunner/wireless-operator. Entry to forward area by sliding hood over pilot's seat, and to rear by inward-opening hatch in fuselage decking forward of the turret. Footrests, handgrips and non-slip walkway on the wing on the port side. Navigator provided with two seats (forward for bomb-aiming) on starboard side of forward fuselage. Wireless aft of turret.

Armament

One fixed 0.303-in. Browning machine-gun in the port wing and fired by the pilot, and one 0.303-in. Vickers machine-gun in the turret. Later and modified aircraft had two Vickers or two Browning guns in the turret. Aircraft modified as fighters have four 0.303-in. Browning machine-guns mounted in a ventral pack.

Main bomb load carried in cells in the centre-plane; these have spring-loaded doors opened by the weight of the falling bomb. Practice bombs or flares can be carried on light bomb-carriers attached to the underside of the rear fuselage.

Maximum bomb-load: two 500 lb. or four 250 lb. bombs, plus 4 flares.

Dimensions

Span 56 ft. 4 in.; length 42 ft. 7 in.; height (tail down, one propeller blade vertical) 12 ft. 9.5 in.; wing area (gross) 469 sq. ft.; track 15 ft. 6 in.

Weights

A.P.S. (aircraft prepared for service) weight 9,823 lb.; Crew (3) 600 lb fuel (468 Imp. gal.) 3,370 lb.; oil (23 Imp. gal.) 207 lb.; all-up weight 14,500 lb.; maximum all-up weight 15,000 lb.

Performance

Maximum level speed 266 m.p.h. at 11,800 ft. Service ceiling 22,000 ft. Range 1,460 st. mls. with 1,000 lb. bomb-load. Stalling speed (12,500 lb.) with gear and flaps down 60 m.p.h.

C for Cyclone and W for Wasp. Shown here are 12 of the total batch of 14 Pratt & Whitney Twin Wasp Junior-powered Bolingbroke Mk. IV-Ws (9010-9023) delivered to the R.C.A.F. in the summer of 1941. The two-row Wasp Juniors had smaller diameter cowlings and Hamilton propellers. The bulge on top of the nacelles was the R.C.A.F. requirement for dinghy pack external accommodation. (Photo: Bristol T149/69)





Almost a Blenheim on floats. This is the Canadian-built Bolingbroke Mk. III (717) which was taken-on-charge in August 1940 but eventually reconverted to landplane configuration. The floats were made by the famous Edo organisation which must have put more aircraft afloat than any other company in the world. (Photo: Bristol T149/60)

BLENHEIM Mk. IV PRODUCTION DETAILS

Bristol Aeroplane Co. Ltd., Filton, Bristol.

K7072 (one aircraft). Construction Number (C/No.) 8025. Converted from Mk. I to become Bolingbroke I/Blenheim Mk. IV prototype. Delivered July 1938. At Royal Aircraft Establishment (R.A.E.) Farnborough, modified 1940 to have rear parachute exit and re-positioned light bomb carriers.

L4835-L4902 (68 aircraft). C/Nos. 8850-8917. Contract No. B527114/38 (Amended). Deliveries began February 1939. L4835 to Aeroplane and Armament Experimental Establishment (A. & A.E.E.), fitted with D/F loop 1940. L4847, first two-gun turret installation. L4857, fitted with first under-defence gun.

Initial deliveries to Nos. 53, 59, 90 and 101 Squadrons (Sqdns.); later also used by Nos. 8, 34, 104, 107 and 108 Sqdns., and Nos. 13 and 17 Operational Training Units (O.T.U.).

N6140-N6174, N6176-N6220, N6223-N6242 (100 aircraft). C/Nos. 9240-9339. Contract No. B774679/38, dated May 12, 1938. Deliveries began April 1939.

N6140-N6143, N6151, N6156, N6166, N6174, N6176, N6190-N6192, N6202, N6207, N6210, N6214, N6217-N6218, N6228, N6236-N6237, fitted with under-defence gun, 1940. N6140, N6143, N6183, fitted with revised under-defence gun, 1940. N6156, special equipment for air-heated clothing. N6141-N6143, N6169, N6182, N6191, N6236, fitted with two-gun turret, 1940. N6194, N6233, N6239, armoured long-range aircraft with ventral guns for No. 248 Squadron, Dyce, 1940.

Initial deliveries to Nos. 25, 59, 82, 101, 107, 110, 114 and 139 Sqdns.; later also used by Nos. 15, 40 and 248 Sqdns. and No. 13 O.T.U.

P4825-P4864, P4898-P4927 (70 aircraft). C/Nos. 9340-9391, 9862-9863, 9394-9396, 9864-9865, 9399-9402, 9866-9867, 9405-9409. Contract B774679/38 (Amended), dated November 23, 1938. P4910-P4911, P4915-P4916, P4921-P4922 (six aircraft), withdrawn from contract and supplied to Greek Government with ferry registrations G-AFXD to G-AFXI. Although replaced by aircraft with C/Nos. 9862-9867, no Blenheim IV aircraft with serials P4910-4911, P4915-P4916 or P4921-P4922 recorded by Service Department as on charge to R.A.F. in 1940. P4828, P4838-P4839, P4843, P4851-P4852, P4854, P4856, P4858, P4860, P4864, P4898, P4903-P4904, P4906, P4908-P4909, P4913, P4917-P4920, P4927, fitted with under-defence gun 1940. P4856, fitted with revised under-defence gun. P4839, P4850, fitted with two-gun turret, 1940. P4825, P4831, P4847, armoured long range aircraft with ventral guns for No. 248 Sqdn., Dyce, 1940. P4856-P4859, intended for conversion to Canadian Bolingbroke standard for delivery to R.C.A.F. but on charge to Nos. 107 and 110 Sqdns. at Wattisham, 1940.

Deliveries to Nos. 40, 59, 82, 101, 107, 110, 139, 235, 236, 248 and 254 Sqdns.

P6885-P6934, P6950-P6961 (62 aircraft). C/Nos. 9410-9415, 9868-9869, 9418-9421, 9870-9871, 9424-9427, 9872-9873, 9430-9471. Contract B774679/38 (Amended), dated February 25, 1939. P6886, P6889-P6890, P6893, P6895, P6905, P6908, P6910-P6915, P6917, P6928, P6931, P6933-P6934, P6953-P6955, fitted with under-defence gun, 1940. P6931, P6933-P6934, P6952, fitted with revised under-defence gun. P6952, fitted with D/F loop. P6952, first armoured turret aircraft, 1940.

P6891-P6892, P6897-P6898, P6903-P6904, (six aircraft) withdrawn from contract and supplied to Greek Government with ferry registrations G-AFXJ to G-AFXO. Although replaced by aircraft with C/Nos. 9868-9873, no Blenheim IV aircraft with serials P6891-P6892, P6897-P6898 or P6903-P6904 recorded by Service Department as on charge to R.A.F. in 1940.

Deliveries to Nos. 15, 18, 21, 40, 82, 101, 110, 139 and 248 Sqdns., and No. 13 O.T.U.

TOTAL BRISTOL DELIVERIES	R.A.F.	1	Prototype
	Greece	300	Production
		12	
		313	aircraft

A.V. Roe & Co. Ltd., Chadderton, Lancs.

N3522-N3545, N3551-N3575, N3578-N3604, N3608-N3631 (100 aircraft), Contract dated May 12, 1938.

N3532, N3544-N3545, N3552, N3591, N3593, N3594, N3613-N3618, fitted with under-defence gun, 1940. N3532, N3544, N3588, N3591, N3613, N3616-N3617, N3620, fitted with revised under-defence gun. N3552, N3553, N3568-N3570, N3584, N3586, N3613, N3615, N3617, N3618, N3625, N3627, fitted with two-gun turret, 1940. N3544, N3600, to Portugal, 1943.

Deliveries to Nos. 15, 18, 21, 40, 59, 82, 101, 107, 114, 139, 235, 236 and 254 Sqdns. and No. 13 O.T.U.

R2770-R2799 (30 aircraft). Original contract, dated August 18, 1939, called up 250 aircraft. Reduced by 220 aircraft on March 12, 1940 (this contract was then transferred to Rootes on March 22, 1940), and remained at 30-off.

R2773, R2784-R2785, R2787, R2791, R2793, fitted with two-gun turret, 1940. R2775, R2781, R2799, to Portugal, 1943.

Deliveries to Nos. 15, 40, 59, 82 and 236 Sqdns.

Z5721-Z5770, Z5794-Z5818, Z5860-Z5909, Z5947-Z5991, Z6021-Z6050, Z6070-Z6104, Z6144-Z6193, Z6239-Z6283, Z6333-Z6382, Z6416-Z6455 (420 aircraft). Contract dated June 6, 1940.

Z5744, Z5761, Z5765, Z5768, Z5770, Z5797, Z5801-Z5802, Z5875, Z5877, Z5879, Z5884-Z5885, Z5889-Z5890, Z5894-Z5895, Z59018 Z5902, fitted with two-gun turret, 1940. Z5727-Z5728, Z576-, Z5795, transferred to Free French forces. Z5736, Z5760, Z5762, Z6030, Z6035, Z6341, to Portugal 1943.

Initial (U.K.) deliveries to Nos. 18, 21, 59, 101, 110, 114, 139 and 236 Sqdns. Later used by Nos. 8, 11, 14, 34, 84, 105, 107 and 203 Sqdns.

Z9533-Z9552, Z9572-Z9621, Z9647-Z9681, Z9706-Z9755, Z9792-Z9836 (200 aircraft). This contract was the end result of a series of negotiations starting with an order for 400 aircraft placed on June 18, 1940. This was increased to 775 aircraft on October 17, but on March 31, 1941 reduced to 153 aircraft. A "bridging" contract was reinstated on August 17, 1941, when an additional 47 aircraft were authorised, bringing the final total—as shown above—to 200 aircraft.

Deliveries to Nos. 11, 14, 18, 34, 45, 52, 55, 60 and 113 Sqdns.

AE449-AE453 (five aircraft). Final batch of replacement aircraft, delivered to store in November, 1941.

TOTAL AVRO DELIVERIES	755	aircraft
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Typical of the general-purpose trainer variant—the Bolingbroke Mk. IV-T—is 9912 which was one of 350 ordered in the second batch delivered between March 1942 and May 1943. (Photo: via the author's collection)

Rootes Securities Ltd., Speke, Liverpool, Lancs.
L8732-L8761, L8776-L8800, L8827-L8876, L9020-L9044 (130 aircraft). Contract placed 1936.

L8732, L8734-L8739, L8742-L8746, L8749, L8751, L8754-L8758, L8761, L8776, L8778, L8780, L8796, L8800, L8827-L8829, L8831, L8833-L8834, L8836, L8847-L8853, L8855-L8856, L8858, L8862, L8864, L8866, L8870, L8872, L9023-L9024, L9029-L9030, L9035, L9038, L9040, fitted with under-defence gun, 1940. L8751, L8756, L8777, L8796, L8800, L8862, L8864, L8866, L9040, fitted with revised under-defence gun. L8732, L8751, L8755, L8758, L8777, L8780, L8787, L8797, L8800, L8850, L8864, L9020, L9029, L9043, fitted with two-gun turret, 1940. L9025, L9026, L9028 to Finland, 1940.

Deliveries to Nos. 8, 15, 18, 21, 40, 59, 82, 88, 105, 107, 108, 110, 114, 139, 203, 218, 236, 254 and 600 Sqdns, and Nos. 1, 13, and 17 O.T.U.s.

L9170-L9218, L9237-L9273, L9294-L9342, L9375-L9422, L9446-L9482 (220 aircraft). Contract placed late 1936.

L9170, L9183, L9192, L9207-L9208, L9210, L9213-L9214, L9217, L9238-L9240, L9242, L9244, L9247, L9251, L9257-L9258, L9269-L9270, L9303-L9304, L9306, L9323, L9326, L9391, L9402, L9403, L9412-L9413, L9422, L9447-L9448, L9461-L9463, L9466, L9468, L9472, fitted with under-defence gun, 1940. L9170, L9183, L9192, L9208, L9238-L9240, L9244, L9247, L9251, L9270, L9303, L9326, L9402, L9413, L9421-L9422, L9461-L9462, L9466, L9472, fitted with revised under-defence gun. L9183, L9192, L9208, L9247, L9267, L9268, L9270, L9305, L9310, L9382, L9386, L9390, L9402, L9413, L9421, L9466, fitted with two-gun turret, 1940. L9392, L9394, L9448-L9457, gun turret armour plate fitted for No. 248 Sqdn, Dyce, 1940.

Deliveries to Nos. 15, 18, 21, 34, 40, 55, 57, 82, 101, 105, 107, 108, 110, 113, 114, 139, 203, and 248 Sqdns and No. 13 O.T.U..

R3590-R3639, R3660-R3709, R3730-R3779, R3800-R3849, R3870-R3919 (250 aircraft). Contract dated June 6, 1939.

R3592, R3598-R3600, R3604-R3606, R3608-R3609, R3611-R3612, R3615, R3617-R3619, R3631, R3662-R3663, R3668-R3669, R3671-R3673, R3675-R3676, T3678-R3680, R3682, R3684, R3687, R3689-R3690, R3698-R3699, R3701, R3704-R3705, R3707-R3709, R3730-R3732, R3736-R3737, R3739-R3740, R3742-R3746, R3748, R3750-R3770, R3772, R3777, R3800, R3802, R3804-R3806, R3809-R3813, R3820-R3821, R3825, R3829-R3830, R3832, R3841-R3844, R3846-R3847, R3875, R3883, R3890-R3892, R3894-R3895, R3897-R3898, R3900-R3908, R3910, R3912-R3915, fitted with under-defence gun, 1940. R3592, R3598-R3599, R3604-R3606, R3608, R3611-R3612, R3615, R3619, R3662, R3663, R3669, R3671-R3673, R3675-R3676, R3678-R3680, R3682, R3684, R3686, R3689, R3699, R3705, R3707-R3708, R3731-R3732, R3741-R3743, R3745, R3750-R3752, R3756-R3758, R3760, R3763, R3764, R3766-R3770, R3777, R3804-R3806, R3809, R3811, R3813-R3816, R3820, R3823-R3825, R3830-R3832, R3841, R3843, R3846-R3847, R3870-R3871, R3873-R3874, R3882-R3883, R3891-R3892, R3894-R3895, R3897-R3898, R3901-R3903, R3905-R3908, R3912, R3916, fitted with revised under-defence gun. R3594, R3600, R3604, R3607, R3611, R3629, R3636, R3638, R3666, R3672-R3673, R3675, R3679, R3681, R3684, R3698, R3704, R3734, R3736, R3737, R3740-R3741, R3743-R3745, R3749, R3752, R3758, R3761, R3766-R3767, R3772, R3801, R3803, R3806-R3808, R3812, R3814, R3816, R3830-R3831, R3841, R3844, R3846, R3871, R3873-R3875, R3884, R3891, R3897,

R3900, R3903, R3905-R3907, fitted with two-gun turret, 1940. R3623, R3830, to Portugal 1943.

Deliveries to Nos. 8, 11, 14, 15, 18, 21, 40, 52, 55, 57, 59, 60, 82, 88, 101, 105, 107, 110, 113, 114, 139, 218, 236 and 248 Sqdns.

T1793-T1832, T1848-T1897, T1921-T1960, T1985-T2004, T2031-T2080, T2112-T2141, T2161-T2190, T2216-T2255, T2273-T2292, T2318-T2357, T2381-T2400, T2425-T2444 (400 aircraft). Contract began as letter of intent for 100 aircraft on July 18, 1939, and increased by 300 aircraft on October 21, 1939.

T1794-T1798, T1813-T1814, T1878, T1884-T1897, T1922, T1924-T1925, T1927, T1930-T1932, T1936, T1987-T1988, T2118, T2132, T2163, T2165, fitted with under-defence gun, 1940. T1794-T1798, T1814, T1881, T1883, T1888, T1921-T1924, T1927-T1928, T1987-T1988, T2132, fitted with revised under-defence gun. T1795-T1800, T1825, T1828-T1830, T1832, T1849, T1853-T1854, T1858, T1860, T1871, T1874, T1881, T1887, T1892, T1921-T1922, T1928, T1939, T1956, T1993, T2004, T2031, T2033, T2038, T2040, T2043, T2047, T2118, T2122, T2125, T2132-T2134, T2138-T2139, T2141, T2161-T2163, T2165, T2217, T2220, T2222-T2225, T2227, T2230, T2232, T2234, T2253, T2275, T2279, T2292, T2320, T2328, T2330-T2332, T2338, T2346, T2356, T2387, T2390, T2392, T2394, T2396-T2398, T2428, T2435, T2437, T2439, T2442, fitted with two-gun turret, 1940. T1872-T1873, T1876, T1879, T1926, T1994-T1995, T2003, T2049, T2080, T2113-T2117, T2164, T2166, T2173, T2175, T2177-T2181, T2184-T2185, T2187, fitted with extra long-range tanks. T2431, T2434, to Portugal 1943. T1996 to Turkey.

Deliveries to Nos. 11, 14, 15, 18, 21, 40, 45, 55, 57, 59, 60, 82, 84, 88, 92, 101, 105, 107, 110, 113, 114, 139, 203, 218, 226 and 236 Sqdns. and No. 13 O.T.U.

V5370-V5399, V5420-V5469, V5490-V5539, V5560-V5599, V5620-V5659, V5680-V5699, V5720-V5769, V5790-V5829, V5850-V5899, V5920-V5969, V5990-V6039, V6060-V6099, V6120-V6149, V6170-V6199, V6220-V6269, V6290-V6339, V6360-V6399, V6420-V6469, V6490-V6529, (800 aircraft). Contract dated January 30, 1940.

V5372-V5375, V5394, V5396-V5399, V5439-V5442, V5460, V5490, V5494, V5496-V5497, V5505-V5506, V5513, V5515, V5518, V5531, V5574-V5575, V5891, fitted with two-gun turret, 1940.

Deliveries to Nos. 8, 11, 14, 18, 21, 34, 45, 55, 60, 82, 84, 88, 101, 105, 107, 110, 113, 114, 139, 203 and 226 Sqdns. and No. 13 O.T.U.

Z7271-Z7320, Z7340-Z7374, Z7406-Z7455, Z7483-Z7522, Z7577-Z7596, Z7610-Z7654, Z7678-Z7712, Z7754-Z7803, Z7841-Z7860, Z7879-Z7928, Z7958-Z7992 (430 aircraft). Contract dated August 1940. Produced to full modification standards.

Deliveries to Nos. 8, 11, 14, 18, 21, 34, 84, 101, 105, 107, 114, 139 and 203 Sqdns.

TOTAL ROOTES DELIVERIES 2,230 aircraft

BLLENHEIM Mk. IV (FINNISH PRODUCTION)

Valtion Lentokonetehdas (State Aircraft Factory), Tampere, Finland.

BL191-BL205 (15 aircraft), Production began in 1944. BL191-BL195 not assembled (production activity ceased September, 1944), BL200 preserved at Luonetjærvi A. F. base.

TOTAL FINNISH PRODUCTION 15 aircraft (10 to final assembly)



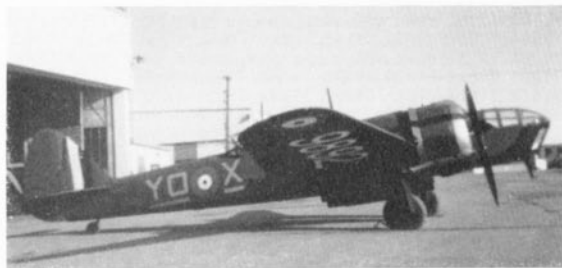
This Bolingbroke Mk. IV-T (10103) was photographed at St. Hubert some time in 1943. The uncharacteristic Blenheim "ground-sit" is caused by the absence of the familiar covers to the main undercarriage legs. (Photo: Bristol T148/82)

BOLINGBROKE (CANADIAN PRODUCTION)

Fairchild Aircraft Ltd., Longueuil, Province of Quebec, Canada.

Bolingbroke Mk. I: R.C.A.F. serial numbers 702-719 (18 aircraft). Contract 1937.

702, accepted November 15, 1939, converted in 1942 to Mk. III standards with Edo twin floats. 705, accepted February 26, 1940, crashed and re-built with American equipment to become Mk. II, prototype of final production Mk. IV. 712, 718, converted to dual control for pilot training. 717, delivered August 8, 1940 as Mk. III with Edo twin floats—subsequently converted to landplane. 719, accepted August 28, 1940.



The Bolingbroke Mk. IV-T 9892 depicted is in its permanent display condition representing the R.C.A.F. maritime reconnaissance bomber squadron colour scheme of World War 2. No. 9892 is now at the National Air Museum, Ottawa. It was purchased as war surplus in 1946 and given to the museum authorities in 1963 for refurbishing and display by Mr George Maude of Fulford, B.C. (Photo: via C. H. Barnes collection)

Finnish Air Force Blenheim Mk. IVs were still in service as late as 1956 undertaking forestry patrol and surveying duties. This Finnish-built Mk. IV (BL200) has been preserved at the Luonetjärvi Air Force Base. The spinners were local mods. to prevent ice accretion.

(Photo: via C. H. Barnes collection)



Bolingbroke Mk. IV: 9001-9151 (151 aircraft). Contract 1939. 9001 accepted January 30, 1941 with float attachment points—no further provision after this aircraft. 9005, converted to Mk. IV-W prototype with Twin Wasp Junior engines, 1941. 9010-9023, Mk. IV-W, delivered July/August 1941. 9071, converted to dual control July 1940. 9073, converted to dual control November 1942. 9074, Mk. IV-C prototype, first flown with Cyclone GR-1820-G3B engines June 29, 1942. 9085, first flown with Mercury XX engines January 1942. 9086, trials with ski landing gear.

Bolingbroke Mk. IV-T: 9152-9201 (50 aircraft). Originally ordered as Mk. IV and cancelled. Re-instated 1942 as Mk. IV-T aircraft.

9350-10199 (350 aircraft). Contract 1941. Delivered between March 1942 and May 1943.

10200-10256 (57 aircraft). Mercury XX-star engine introduced.

Note: In addition to the above, 51 airframes were manufactured at Longueuil but not taken on charge. They were eventually scrapped.

PRODUCTION SUMMARY

Great Britain	Bristol	312 aircraft (Excluding prototype)
	Avro	755 aircraft
	Rootes	2,230 aircraft
	Total	3,297 aircraft
Canada	Fairchild (R.C.A.F.)	626 aircraft
	(Spare airframes)	51
	Total	677 aircraft
Finland	Valtion Lentokonetehdas	
	(Completed)	10 aircraft
	(Not assembled)	5 aircraft
	Total	15 aircraft
Grand Total		3,989 aircraft (3,933 completed)