

## Handley page Halifax



Le Handley Page Halifax fut conçu en 1936 à la demande de la Royal Air Force qui désirait posséder un bombardier bimoteur (Rolls-Royce). Les premières études de la motorisation amenèrent les concepteurs, dès 1937, à faire du Halifax un quadrimoteur (Rolls Royce). Le premier vol eut lieu en 1939 et le Halifax entra en service actif en 1941. Rapidement, des versions incorporèrent des tourelles de défense disposées sur le dessus de la queue, sous le ventre et dans le nez de l'appareil. De qualité inférieure au bombardier principalement utilisé par la RAF : le Lancaster, le Halifax se vit souvent utilisé dans des rôles autres que le bombardement : reconnaissance maritime, traction de planeurs, transport de troupes aéroportées ou de matériels. Plus de 6000 Halifax furent construits avant que la production ne cesse en 1946. Le Halifax entre en service avec l'escadron no. 35 Squadron RAF à la base RAF Linton on Ouse en novembre 1940 et son premier raid opérationnel est contre la ville du Havre en France dans la nuit du 11 au 12 mars 1941. En service avec la RAF Bomber Command, les Halifax réalisent 82 773 opérations, en larguant un total de 224 207 tonnes de bombes, en perdant 1 833 unités...En plus des missions de bombardements, les Halifax servent pour le remorquage des planeurs, pour les patrouilles anti-sous-marines avec le no. 100 Group RAF et pour des missions spéciales comme le parachutage d'agents et d'armes à travers l'Europe occupée. Les Halifax ont également opérés avec la RAF Coastal Command pour la lutte anti-sous-marine, pour la reconnaissance et la météorologie. Après-guerre, les Halifax restent en service avec la RAF Coastal Command et la RAF Transport Command, ainsi que dans l'Armée de l'Air française jusqu'en 1952. La Pakistan Air Force hérite des avions de la RAF et continue de les utiliser jusqu'en 1961.



## **Handley Page Halifax :**

- 4 Moteurs Bristol Hercule XVI
- 4 X 1620 Ch
- 455 Km/h
- 9 Mitrailleuses 7.62 mm 5897 Kg de bombes
- 24640 Kg en charge
- 6000 m de plafond pratique
- 1733 Km en distance franchissable
- 7 Equipiers



Version anglaise Wikipédia

The **Handley Page Halifax** is a British [Royal Air Force](#) (RAF) four-engined [heavy bomber](#) of the [Second World War](#). It was developed by [Handley Page](#) to the same specification as the contemporary twin-engine [Avro Manchester](#). The Halifax has its origins in the twin-engine *HP56* proposal of the late 1930s, produced in response to the British [Air Ministry's Specification P.13/36](#) for a capable [medium bomber](#) for "world-wide use." The HP56 was ordered as a backup to the Avro 679, both aircraft being designed to use the underperforming [Rolls-Royce Vulture](#) engine. The Handley Page design was altered at the Ministry to a four-engine arrangement powered by the [Rolls-Royce Merlin](#) engine; the rival Avro 679 was produced as the twin-engine [Avro Manchester](#) which, while regarded as unsuccessful mainly due to the Vulture engine, was a direct predecessor of the famed [Avro Lancaster](#). Both the Lancaster and the Halifax emerged as capable four-engined [strategic bombers](#), thousands of which were built and operated by the RAF and several other services during the War. On 25 October 1939, the Halifax performed its [maiden flight](#), and it entered service with the RAF on 13 November 1940. It quickly became a major component of [Bomber Command](#), performing routine strategic bombing missions against the [Axis Powers](#), many of them at [night](#). [Arthur Harris](#), the [Air Officer Commanding-in-Chief](#) of Bomber Command, described the Halifax as inferior to the rival Lancaster (in part due to its smaller payload) though this opinion was not shared by many of the crews that flew it, particularly for the MkIII variant.<sup>[2]</sup> Nevertheless, production of the Halifax continued until April 1945. During their service with Bomber Command, Halifaxes flew a total of 82,773 operations and dropped 224,207 tons of bombs, while 1,833 aircraft were lost. The Halifax was also flown in large numbers by other [Allied](#) and [Commonwealth](#) nations, such as the [Royal Canadian Air Force](#) (RCAF), [Royal Australian Air Force](#) (RAAF), [Free French Air Force](#) and [Polish forces](#). Various improved versions of the Halifax were introduced, incorporating more powerful engines, a revised [defensive turret](#) layout and increased payload. It remained in service with Bomber Command until the end of the war, performing a variety of duties in addition to bombing. Specialised versions of the Halifax were developed for troop transport and [paradrop](#) operations. After the Second World War, the RAF quickly retired the Halifax, the type being succeeded as a strategic bomber by the [Avro Lincoln](#), an advanced derivative of the Lancaster. During the post-war years, the Halifax was operated by the [Royal Egyptian Air Force](#), the [French Air Force](#) and the [Royal Pakistan Air Force](#). The type also entered commercial service for a number of years, used mainly as a [freighter](#). A dedicated civil transport variant, the Handley Page Halton, was also developed and entered airline service; 41 civil Halifax freighters were used during the [Berlin Airlift](#). In 1961, the last remaining Halifax bombers were retired from operational use.

## Development

### Origins



Personnel in the Handley Page drawing office working on the Halifax bomber



A row of Halifax bombers under assembly at the Handley Page factory at [Cricklewood](#), 1942

In the 1930s, the [Royal Air Force](#) (RAF) was primarily interested in twin-engine [bombers](#).<sup>[3]</sup> These designs put significant demands on engine production and maintenance, both of which were already stretched with the introduction of many new types of aircraft into service. Power limitations were so serious that the British invested heavily in the development of huge engines in the 2,000 [horsepower](#) (1,500 kW) class in an effort to improve performance. However, during the late 1930s, none of these engines was ready for production. Meanwhile, both the United States and the Soviet Union were developing bombers powered by arrangements of four smaller engines with favorable results, including excellent range and fair lifting capacity. Accordingly, in 1936, the RAF decided to investigate the feasibility of a four-engined bomber.<sup>[3]</sup> During the mid-1930s, the British [Air Ministry](#) released [Specification P.13/36](#), seeking a twin-engine [heavy-medium bomber](#) suitable for "world-wide use".<sup>[4]</sup> Further requirements of the specification included the use of a mid-mounted [cantilever monoplane](#) wing and all-metal construction, and encouraged use of the [Rolls-Royce Vulture](#) engine then in development.<sup>[4]</sup> In response, [Handley Page](#) produced the twin-engine *HP56* design to meet Specification P.13/36.<sup>[5]</sup> Handley Page aircraft designer [George Volkert](#) had responsibility for the design. Other candidates were submitted for the same specification, including the [Avro 679](#), and designs from [Fairey](#), [Boulton Paul](#) and [Shorts](#); all submissions were designed around two-engine configurations, using the Rolls-Royce Vulture, [Napier Sabre](#), [Fairey P.24](#) or [Bristol Hercules](#) engines. The majority of these engines were under development at this point; while four-engined bomber designs were considered for specification B.12/36 for a heavy bomber, wings mounting two pairs of engines were still in the experimental stage and required additional testing at the [Royal Aircraft Establishment](#) (RAE). Adopting a stronger wing also required additional strengthening of the overall aircraft structure, resulting in an increase in overall weight.<sup>[6]</sup> In February 1937, following consideration of the designs, the Air Ministry selected Avro's submission, with Handley Page's bid chosen as "second string". Accordingly, during April 1937, the Air Ministry ordered two prototypes of each design.<sup>[7][4]</sup> The introduction of the successful P.13/36 candidates was delayed by the necessity of ordering additional [Armstrong-Whitworth Whitley](#) and [Vickers Wellington](#) bombers first. In mid-1937, it was decided to order both the Avro 679 and HP56 designs "off the drawing board" in order to speed up delivery timetables.

During July 1937, Handley Page was instructed to redesign the HP56 to use a four-engine arrangement, instead of the original twin-engine configuration; by this point, the Vulture had already been suffering from reliability and performance problems.<sup>[4]</sup> The rival Avro 679 proceeded into service as the [Avro Manchester](#) powered by a pair of Vulture engines, but was only built in limited quantities after suffering substantially from engine-related difficulties. The four-engine redesign increased its wingspan from 88 ft (27 m) to 99 ft (30 m) and added 13,000 pounds (5,900 kg) of weight.<sup>[4]</sup> In September 1937, the Ministry specified the use of four [Rolls-Royce Merlin](#) engines; according to aviation author Phillip J. R. Moyes, this redesign to four Merlin engines had been done "much against the company's wishes".<sup>[4]</sup> Towards the end of the year, a full mock-up of the design was assessed; production of a pair of *HP57* prototypes commenced in March 1938.<sup>[8]</sup> Further design modifications resulted in the definitive aircraft, now considerably enlarged and powered by four 1,280 hp (950 kW) [Rolls-Royce Merlin X](#) engines. Such was the promise of the new model that, in January 1938, the RAF chose to place their first production order for the type, ordering 100 Mk.I Halifaxes "off the drawing board", at which point the serials which had already been assigned to HP56 were switched to HP57.<sup>[4]</sup>

### Prototypes



Aerodynamic model of the Halifax undergoing [wind tunnel](#) testing, 1942

The first prototype was built at Handley Page's facility in [Cricklewood, London](#). It was then dismantled and transported by road to [RAF Bicester](#) (the nearest non-operational RAF airfield with suitable facilities) for reassembly. On 25 October 1939, the [maiden flight](#) of the first prototype Halifax, serial number *L7244*, was performed by chief test pilot Jim Cordes with E A 'Ginger' Wright as flight test observer; during this flight, the undercarriage remained locked down as an extra safety precaution.<sup>[9][4]</sup> On 17 August 1940, the first flight of the second prototype, *L7245*, now complete with full armament and operationally-representative equipment, was performed by Cordes from [Radlett Aerodrome](#).<sup>[4]</sup> The HP57 was given the service name *Halifax* upon its acceptance. This name followed the practice of naming heavy bombers after major towns – in this case, [Halifax](#) in the [West Riding of Yorkshire](#). In September 1941, a production Halifax Mk.I participated in an official naming ceremony of the type, officiated by [Lord Halifax](#) and Lady Halifax.<sup>[4]</sup>

## Production



Spray painters at work in the paint shop of the Handley Page's Cricklewood factory, 1942

Series production of the Halifax began at Handley Page's factory at Cricklewood and at [English Electric](#)'s site in [Samlesbury, Lancashire](#). In order to speed up production, Handley Page implemented several new manufacturing techniques, including two pioneering approaches: photo-[lofting](#) and split construction. In the latter capacity, each Halifax was built from various sub-assemblies.<sup>[10]</sup> Surface panels were flush-[riveted](#), although the application of the matt black night bomber camouflage probably negated its benefit.<sup>[11]</sup> Handley Page built the assemblies and components at Cricklewood and the aircraft were assembled and flown from [Radlett Aerodrome](#); the first production aircraft flew from Radlett on 11 October 1940. The sizeable production run envisioned required the involvement of several external parties in addition to Handley Page.<sup>[10]</sup> The resulting *Halifax Group* was established to oversee the manufacturing programme, comprising English Electric (who had previously been a valued contributor in the production of the [Handley Page Hampden](#)), various firms within the [London Aircraft Production Group](#), [Fairey Aviation](#), and [Rootes Motors](#).<sup>[10]</sup> Because of this scheme and other initiatives, the Halifax was manufactured by a variety of aviation companies at sites across the British isles. The Halifax was produced in large numbers during the war: of the 10,018 heavy bombers produced in Britain between 1940 and 1944, 4,046 were various models of the Halifax – in excess of 40%.<sup>[10]</sup> In all, 6,178 Halifaxes were built, the last delivered in April 1945.<sup>[12][10]</sup> At the peak, 41 separate factories and dispersed units were involved in production, along with 600 [subcontractors](#) and 51,000 employees, with one Halifax completed every hour.<sup>[10]</sup> The first English Electric-built aircraft was flown from Samlesbury on 15 August 1941. The first production standard Halifax, the Mk.I, had a 22 ft (6.7 m) long bomb bay as well as six bomb cells in the wings, providing a bomb capacity of 13,000 lb (5,900 kg). Defensive armament consisted of two .303 in (7.7 mm) [Browning machine guns](#) in a [Boulton Paul Type C nose turret](#), with an additional four in a Boulton Paul Type E [tail turret](#). Some aircraft included two additional .303 in (7.7 mm) [Vickers K machine guns](#) in beam (side, or "waist") positions. Subtle modifications distinguished the Mk I aircraft. Aircraft of the first batch of fifty Mk I Halifaxes were designated Mk I Series

