

Blackburn firebrand



Le Firebrand est le seul avion de combat monomoteur conçu par Blackburn Aircraft. Il est créé autour du moteur Napier Sabre III 24 cylindres de type H, pour la flotte de combat de la Royal Navy. Le travail sur le B37 Firebrand évolua lentement. Un prototype non armé effectua son premier vol le 27 Février 1942. Le moteur Sabre a également été utilisé sur le Hawker Typhoon, un avion de chasse déjà en voie de production, et a été affecté à cet appareil. Un nouveau moteur est nécessaire, car la cellule permet des améliorations, avec ces modifications, il a été jugé approprié de convertir les Firebrand en avion de combat capables de transporter des torpilles, des bombes et des roquettes. Le Firebrand était inhabituel car il avait une jauge de vitesse montée à l'extérieur du poste de pilotage afin que lors de l'atterrissage, le pilote n'ait pas à regarder dans le poste de pilotage pour prendre acte des paramètres de vol, technologie annonciatrice de l'évolution de l'affichage tête haute. La première variante du Firebrand TF Mk II ou B45, a volé le 31 Mars 1943, et est une adaptation du Mk I. Il avait une plus large envergure, ce qui a permis le transport d'une torpille entre le train d'atterrissage principal. À l'instar du Mk I, le TF Mk II, n'a été produit qu'à 12 exemplaires et a été suivi par le Firebrand TF Mk III produit avec le moteur radial le Bristol Centaurus VII. Après le premier vol le 21 Décembre 1943, des problèmes ont surgi: le nouveau moteur produit plus de couple que le Sabre, et le gouvernail de contrôle est insuffisant au décollage. Puis, une nouvelle évolution fut présentée, le Firebrand TF Mk IV équipé du nouveau moteur Centaurus IX et de plus grandes surfaces de queue pour permettre un meilleur contrôle à basse vitesses. Le TF Mk IV a effectué son premier vol le 17 Mai, 1945, et a été la première version du Firebrand en production de masse, avec 102 appareils construits. La production finale est la version Firebrand TF Mk. 5A.

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- Moteur Bristol Centaurus IX
- 2500 Ch
- 570 km/h
- 4 canons de 20 mm et 1 torpille de 1840 Kg
- 7940 Kg en charge
- 8700 m de plafond pratique
- 1600 km en distance franchissable
- 1 pilote





Source : <http://les-avions-de-legende.e-monsite.com/pages/les-chasseurs/les-chasseurs-anglais/blackburn-firebrand.html>

The **Blackburn Firebrand** was a British single-engine [strike fighter](#) for the [Fleet Air Arm](#) of the [Royal Navy](#) designed during World War II by [Blackburn Aircraft](#). Originally intended to serve as a pure [fighter](#), its unimpressive performance and the allocation of its [Napier Sabre](#) piston engine by the [Ministry of Aircraft Production](#) for the [Hawker Typhoon](#) caused it to be redesigned as a strike fighter to take advantage of its load-carrying capability. Development was slow and the first production aircraft was not delivered until after the end of the war. Only a few hundred were built before it was withdrawn from front-line service in 1953.

Development

In general, the Fleet Air Arm had required fighters that were capable of navigating long ranges over sea and speed differential over attackers was not critical. Defence of British naval bases was a RAF commitment but provision had not been made for this and so the Admiralty accepted that it would have to take on the duty. For this it needed an interceptor fighter and experience in the [Norwegian Campaign](#) of early 1940 had also shown a high-performance, carrier-based, single-seat fighter would be an advantage. Blackburn tendered their B-37 design using the [Napier Sabre](#) 24-cylinder [H-type engine](#), and this was accepted by June 1940 with a proposal to order "off the drawing board" (meaning without prototypes). [Air Ministry Specification](#) N.11/40—stating a minimum top speed of 350 [knots](#) (650 km/h; 400 mph)—was raised to cover this design and an order placed in January 1941 for three prototypes.^[2] The B-37, given the service name "Firebrand" on 11 July 1941, was a low-winged, all-metal [monoplane](#). Aft of the [cockpit](#) the fuselage was an oval-shaped stressed-skin [semi-monocoque](#), but forward it had a circular-section, tubular-steel frame that housed the 169-imperial-gallon (770 L; 203 US gal) main fuel tank and the 71-imperial-gallon (320 L; 85 US gal) auxiliary fuel tank behind the engine. The [radiators](#) for the neatly [cowled](#) Sabre engine were housed in [wing-root](#) extensions. The large wing consisted of a two-[spar](#) centre section with manually folded outer panels (with five degrees of [dihedral](#)) to allow more compact storage in the hangar decks of [aircraft carriers](#). To increase [lift](#) and reduce landing speed the wing was fitted with large, hydraulically powered [Fairey-Youngman flaps](#) that extended to the edges of the [Frise ailerons](#). The fixed armament of four 20 mm (0.79 in) [Hispano autocannon](#) was fitted in the outer wing panels with 200 [rounds](#) per gun. The [fin](#) and [rudder](#) were positioned forward of the [elevators](#) to ensure [spin](#) recovery and that the rudder would retain its effectiveness. The mainwheels of the [conventional landing gear](#) were mounted at the ends of the centre wing section and retracted inwards.^[3] The Firebrand was unusual in the fact that there was an airspeed gauge mounted outside of the cockpit so that during landing the pilot would not have to look down into the cockpit to take instrument readings, foreshadowing the modern [heads-up display](#).^[4] The unarmed first prototype [first flew](#) on 27 February 1942 using the Sabre II, the first of two armed prototypes following on 15 July. The initial flight trials were a disappointment as the aircraft could only reach 32 mph (51 km/h) below Blackburn's estimated maximum speed. Replacement of the Sabre II with a Sabre III (an engine built specifically for the Firebrand)^[5] improved its top speed to 358 mph (576 km/h) at 17,000 ft (5,182 m).^[2] The second prototype, DD810, conducted deck-landing trials, with [Commander Dennis Cambell](#) at the controls, aboard the fleet carrier [HMS *Illustrious*](#) in February 1943.^[6] The Sabre engine was also used in the Hawker Typhoon, a fighter already in production and the Ministry of Air Production (MAP) decided that the Typhoon had priority for the Sabre. The Sabre was also experiencing production problems^[2] and so a new engine was needed, along with the necessary airframe adaptations. To use the time and effort invested in the design, the MAP decided to convert the Firebrand into an interim strike fighter, to meet a Fleet Air Arm requirement for a single-seat [torpedo bomber](#) capable of carrying [bombs](#), [rockets](#) and being capable of [air-to-air combat](#). Nine production F. Mk I aircraft were built to the original specifications and were retained for trials and development work.^[7] After it was badly damaged during an [emergency landing](#), DD810 was converted into a prototype of the first strike variant, the Firebrand T.F. Mk II (with the company designation B-45), that flew on 31 March 1943. It was an adaptation of the Mk I with the wing centre section widened by 1 foot 3.5 inches (39.4 cm) to make room for the torpedo on the centreline between the mainwheels. Like the Mk I, the TF Mk II only saw a very limited production run of 12 aircraft and they were also allocated for development work, including those assigned to [708 Naval Air Squadron](#), a shore-based trials unit. Blackburn proposed several versions of the Sabre-powered aircraft including one for the RAF as the B-41, a version with a high-lift wing as the B-42, and the B-43 [floatplane](#), none of which were accepted for further development.^[8]

A new specification was issued as S.8/43 to cover the development of the Firebrand T.F. Mk III (B-45) with the 2,400-horsepower (1,800 kW) [Bristol Centaurus VII radial engine](#). Two prototypes were converted from incomplete F Mk Is and 27 additional aircraft were delivered, completing the first batch of 50 aircraft. The first prototype flew on 21 December 1943, but construction of the new aircraft was very slow with the first flight not being made until November 1944. Most changes were related to the installation of the larger-diameter Centaurus engine, including air intakes for the [carburetor](#) and oil cooler in the wing-root extensions that formerly housed the engine's radiators. Spring-loaded [trim tabs](#) were also fitted to all control surfaces. Production aircraft after the first 10 were fitted with the improved Centaurus IX engine.^[9] The Mk III was found to be unsuitable for carrier operations for a variety of reasons. The new engine produced more [torque](#) than the Sabre, and rudder control was insufficient on takeoff with the full flaps needed for carrier use. Visibility while landing was very poor, the tailhook attachment to the airframe was too weak, and the aircraft had a tendency to drop a wing at the [stall](#) while landing, so development continued to rectify these issues.^[4] The T.F. Mk IV (B-46), as the new development was designated, featured larger [tail surfaces](#) for better low-speed control. The enlarged rudder was [horn balanced](#) and the vertical stabilizer was offset three degrees to port to counteract the four-bladed Rotol propeller's torque. The wings now featured hydraulically operated [dive brakes](#) on both upper and lower surfaces. The aircraft's wings were now stressed to carry one 2,000-pound (910 kg) bomb under each wing or a 45-imperial-gallon (200 L; 54 US gal) [drop tank](#) or eight [RP-3](#) rockets. The frame that held the torpedo was connected to the undercarriage so that it pivoted nose-downward to increase ground clearance with the landing gear extended and pivoted upward to reduce drag while in flight. A 100-imperial-gallon (450 L; 120 US gal) fuel tank could be fitted on the centreline in lieu of the torpedo. The Mk IV first flew on 17 May 1945, and was the first version of the Firebrand to enter [mass production](#),^[10] with 170 built, although 50 more aircraft were cancelled.^[11] The later Firebrand T.F. Mk 5 featured minor aerodynamic improvements and 123 were converted from Mk IVs. The final version was the Firebrand T.F. Mk 5A with hydraulically boosted ailerons to increase the aircraft's rate of [roll](#). Two Mk 5s and five Mk IVs were converted to the Mk 5A standard.^[11]

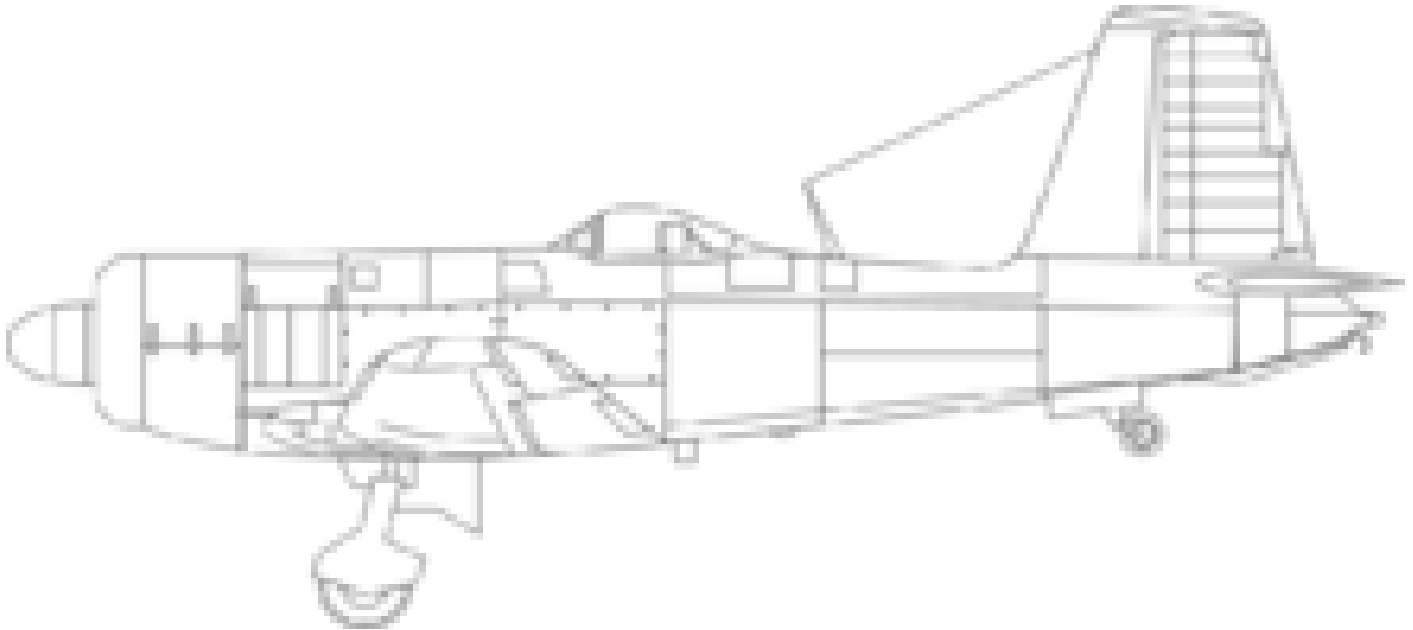
Operational history



A prototype Firebrand TF Mk II taxiing along the flight deck of [HMS Illustrious](#) with its flaps extended during trials

The Firebrand did not see action in World War II, as TF 4s were not issued to [813 Naval Air Squadron](#) until 1 September 1945. The squadron was disbanded 30 September 1946 without deploying to sea. It was reformed with TF 5s on 1 May 1947 and flew them from the carrier [HMS Implacable](#), later [HMS Indomitable](#), until it was re-equipped with turboprop [Westland Wyvern](#) attack aircraft in February 1953. [827 Naval Air Squadron](#) received their TF 5 and 5As on 13 December 1950 and flew them primarily off the carrier [HMS Eagle](#) until it disbanded on 19 November 1952. A variety of second-line squadrons were issued Firebrands of various marks for training or trials at one time or another.^[12] In [test pilot](#) and naval aviator [Captain Eric Brown](#)'s opinion the aircraft was "short of performance, sadly lacking in manoeuvrability, especially in rate of roll".^[13] The position of the cockpit even with the trailing edge of the wing gave the pilot a very poor view over the nose, inhibited his ability to view his target and to land his aircraft aboard a carrier, sufficient for Brown to call it "a disaster as a deck-landing aircraft".^[14]

Specifications (Firebrand T.F. Mk IV)



Blackburn Firebrand Mk.IV side elevation drawing

General characteristics

- **Crew:** 1
- **Length:** 38 ft 9 in (11.81 m)
- **Wingspan:** 51 ft 3.5 in (15.634 m)
- **Height:** 13 ft 3 in (4.04 m)
- **Wing area:** 383 sq ft (35.6 m²)
- **Empty weight:** 11,457 lb (5,197 kg)
- **Gross weight:** 16,700 lb (7,575 kg)
- **Fuel capacity:** 239 imp gal (1,090 L; 287 US gal)
- **Powerplant:** 1 × [Bristol Centaurus](#) IX 18-cylinder [radial engine](#), 2,520 hp (1,880 kW)
- **Propellers:** 4-bladed Rotol, 13 ft 3 in (4.04 m) diameter

Performance

- **Maximum speed:** 342 mph (550 km/h, 297 kn)
- **Cruise speed:** 256 mph (412 km/h, 222 kn)
- **Range:** 745 mi (1,199 km, 647 nmi)
- **Rate of climb:** 2,600 ft/min (13 m/s)

Armament

- **Guns:** 4 × 20 mm (0.79 in) [Hispano autocannon](#)
- **Rockets:** 16 × [RP-3](#)
- **Bombs:** 1 × 1,850 lb (840 kg) [torpedo](#) or 2 × 2,000 lb (910 kg) bombs



Source : https://en.wikipedia.org/wiki/Blackburn_Firebrand