

# Hawker Typhoon

## Hawker Typhoon



Rare wartime colour photograph

**Type** Fighter-bomber

**Manufacturer** Hawker Aircraft/Gloster

**Designed by** Sidney Camm

**Maiden flight** 24 February 1940

**Introduced** 1941

**Primary users** RAF  
RCAF

**Number built** 3,330

The **Typhoon** was a [British](#) single-seat [fighter-bomber](#), produced by [Hawker Aircraft](#) starting in 1941. Although it was intended to be a replacement for the [Hawker Hurricane](#) in the [interceptor](#) role, the Typhoon underwent a long gestation period, eventually evolving into one of the [Second World War](#)'s most successful [ground-attack aircraft](#). In RAF slang, the Typhoon was [nicknamed](#) the *Tiffy*.

## Design and development

Even before the new Hurricane was rolling off the production lines in March 1937, [Sidney Camm](#) had moved on to designing its future replacement as a private project. This was to be a massive plane designed around the equally massive [Napier Sabre](#) engine. The work proved useful when Hawker received [specification F.18/37](#) in January 1938 from the [Air Ministry](#), which asked for a fighter based around either the Napier Sabre or the [Rolls-Royce Vulture](#) engine. The engines were similar in that they were both 24 cylinder designs that were designed to deliver over 2,000 hp (1.5 MW), and different primarily in the arrangement of the cylinders—an H-block in the Sabre and an X-block in the Vulture.



RAF Typhoon at RAF Hendon Museum clearly showing the large "beard" radiator beneath the nose

The two resulting models became known as the "R" and "N" (based on the engine manufacturer) and were very similar—the Vulture-powered R plane had a rounder nose profile and a ventral radiator, whereas the Sabre-powered N had a flatter deck and a chin mounted radiator. The basic design of both continued the Hawker tradition of using "older" construction techniques; the front fuselage was welded steel just like the Hurricane, and the design used a massive 40 foot (12 m) wing that was much thicker than those on designs like the [Spitfire](#). Camm did give in to the times for much of the rest of the plane though; it was semi-[monocoque](#) from the cockpit rearward, flush riveted, and had wide set gear. Instead of sliding or lifting canopy the Typhoon came with a side door.

### Operational service

The R version first flew in October 1939, and the RAF was so impressed they ordered 1,000 as the [Tornado](#). Various problems, notably compression effects which were previously unknown to Hawker, slowed down its service entry. In addition, the plane had rather disappointing climb performance, which meant it would not be replacing the [Spitfire](#) as an interceptor. In February 1940, the first N model, now known as the **Typhoon**, was delivered. The RAF placed a large order for it as well, but moved production to [Gloster Aircraft](#) who had no designs to produce at the time. Like the Tornado, the Typhoon was soon demonstrating its own problems, including vibrations from the engine causing the wing skinning to peel.

Eventually the RAF cancelled all work on both models in May 1940 so that Hawker could concentrate solely on the Hurricane during the [Battle of Britain](#). This was the design's first brush with cancellation. Some small-scale work continued with changes to streamline the fuselage and incorporating a much thinner wing were looked at, as well as alternate engines in the form of large radials. In October, pressure on the RAF eased and work was allowed to continue on the two original designs.

The first full production version Tornado was delivered in early 1941 and demonstrated the then unheard-of speed of 425 mph, fully armed. This was also the last Tornado. While production lines were being drawn up, the Vulture engine project was suddenly terminated by Rolls-Royce and the Tornado was left without an engine. However the Typhoon had "good enough" performance to warrant production. The first production **Mk IA** was delivered in May 1941 with 12 [Browning .303](#) guns, but this was followed quickly with the **Mk IB** with four [Hispano 20 mm cannons](#).

By this time the Spitfire Vs were encountering the superior [Focke-Wulf Fw 190](#) in combat and suffering heavy losses, with the inevitable result that the Typhoon was rushed into squadron service (with Nos. 56 and 609 Squadrons) to counter the new German plane. Sadly, this decision proved to be a disaster, and several Typhoons were lost for mysterious reasons. Once again there was talk of killing the Typhoon.

The cause of the tail failures was eventually identified only because one pilot managed to survive and return to tell his story. The problem was found to be caused by [fatigue](#) failure of the elevator mass-

balance, allowing elevator-flutter to occur which was at its greatest when pulling out of a dive. Diving out of combat was the favourite escape manoeuvre for the Fw 190, which had a distinct speed advantage over the Spitfire. Against the Typhoon this manoeuvre should have proved deadly for the Fw pilots, but flutter problems turned the tables.

As a "temporary" measure, rectangular strengthening "fishplates" were riveted around the [fuselage/empennage](#) joint, the site of the failures. These fishplates remained a feature on all subsequent Typhoons. Problems with leakage of exhaust fumes into the cockpit and subsequent high [carbon monoxide](#) levels also meant Typhoon pilots had to use oxygen for even low level operations. The Sabre engine was also a constant source of problems, notably in colder weather where it was very difficult to start. Due to the efforts of operational pilots like [S/L Roland Beamont](#) (609 Squadron), the Typhoon continued under development despite these design drawbacks.

During late 1942 and early 1943, the Typhoon Squadrons on the South Coast were finally effective in countering the Luftwaffe's "tip and run" low-level nuisance raids, shooting down a score or more fighter-bomber Fw 190s. The first two [Messerschmitt Me 210](#) fighter-bombers to be destroyed over the British Isles fell to the guns of Typhoons in late 1942, and during a daylight raid by the Luftwaffe on London on [20 January 1943](#), five Fw 190s were destroyed by Typhoons.

As soon as the aircraft entered service it was immediately apparent the profile of the Typhoon resembled a Fw190 from some angles, and this similarity caused more than one "friendly fire" incident with Allied anti-aircraft units and other planes. This led to Typhoons being marked up with high visibility black and white stripes under the wings; a precursor of the marking applied to all Allied aircraft on D-Day.

It was not until 1943 that the various problems with the airframe and engine had finally started to be worked out of the system. By this time the need for a pure fighter was no longer important and the design was converted into a fighter-bomber, much like the Hurricane had before it. The powerful engine allowed the plane to carry a massive load of up to two 1,000 lb (450 kg) bombs, equal to the [light bombers](#) of only a few years earlier. The bomb-equipped aircraft were nicknamed "*Bombphoons*", and entered service with No. 181 Squadron, formed in September 1942.

The Typhoon would however become much more famous armed with four "60 lb" [RP-3](#) rockets under each wing—the so-called "*Rocketphoons*." In October 1943, No. 181 Squadron made the first Typhoon rocket strikes. Although the rocket projectiles were inaccurate and took some considerable skill to aim properly and allow for the drop after firing, the sheer firepower of just one Typhoon was equivalent to a destroyer's broadside. The top speed of the Typhoon was reduced by some 15 mph by the non-jettisonable rocket rails. By the end of 1943, 18 rocket-equipped Typhoon squadrons formed the basis of the RAF's [Second Tactical Air Force](#) ground attack arm in Europe.

Inaccuracy notwithstanding, the rockets (backed by the Typhoon's four 20 mm cannon) proved highly effective against many targets, such as unarmoured "soft-skinned" vehicles, road transport, trains and small sea craft. Although great things were expected against the heavily armoured tanks of the [Wehrmacht](#), the rockets needed to hit the thin-walled engine compartment or the tank's tracks to really have any destructive effect. Analysis of destroyed tanks after the Normandy battle showed a 'hit-rate' for the air-fired rockets of only 4%.

The Mk IB (by late 1943 modified with a four-blade propeller and teardrop [perspex](#) canopy) nevertheless distinguished itself during 1944 and in the [Battle of Normandy](#).

By D-Day, in June 1944, the RAF had 26 operational squadrons of Typhoon IBs. The aircraft proved itself to be the most effective RAF tactical strike aircraft, both on interdiction raids against communications and transport targets deep in North Western Europe prior to the invasion, and in direct support of the Allied ground forces after [D-Day](#).

On [7 August](#), the German counter-attack at [Mortain](#), threatening [Patton](#)'s breakout from the beachhead, was repulsed by 2nd TAF Typhoons, some 81 vehicles destroyed or damaged. In the [Vire](#) area, where the [British Army](#) was under attack, Typhoons flew 294 sorties on one day, with 2,088 rockets and 80 tons of bombs dispatched. On [24 October 1944](#), No. 146 Wing of Typhoons attacked a building in [Dordrecht](#) where senior German 15th Army staff were meeting; 17 [staff officers](#) and 55 other officers were killed.

For use in the tactical [reconnaissance](#) role, the **Typhoon FR IB** was developed early in 1945. In this version the two inboard cannon were removed and three F.24 cameras were carried in their place. One Typhoon was also converted as a prototype night fighter, the **NF.Mk IB** was fitted with A.I. (*Airborne Interception*, i.e., [radar](#)) equipment, special night-flying cockpit and other modifications.

On [3 May 1945](#), the [Cap Arcona](#), the [Thielbek](#) and the [Deutschland](#) were sunk in four separate attacks by RAF Hawker **Typhoon 1Bs** of [83 Group](#), [2nd Tactical Air Force](#): the first by [No. 184 Squadron RAF](#) based in Hustedt, the second by [No. 198 Squadron RAF](#) based in Plantlünne led by [Wing Commander John Robert Baldwin](#), the third by [No. 263 Squadron RAF](#) based in Ahlhorn ([Großenkneten](#)) led by [Squadron Leader Martin T. S. Rumbold](#) and the fourth by [No. 197 Squadron RAF](#) led by [Squadron Leader K.J. Harding](#) based in Ahlhorn.

Top scoring fighter ace flying Typhoons was [Wing Commander John Robert Baldwin](#), who claimed 15 aircraft shot down during 1942–44.

Production of the Typhoon, entirely by [Gloster](#), was 3,330 machines.

Hawker developed an improved version of the Typhoon, the **Typhoon II** but the differences between it and the Mk I were so great that it was effectively a different plane, the [Hawker Tempest](#).

## Survivors



Hawker Typhoon (replica) at Memorial de la Paix, Caen

Only one complete Hawker Typhoon still survives - MN235 - and it is on display at the [RAF Museum](#) in [Hendon](#), North [London](#). It was previously on display at the [National Air and Space Museum \(NASM\)](#) (Smithsonian Institute) before being presented to the museum in commemoration of the RAF's 50th Anniversary in exchange for a Hawker Hurricane. The Hawker Typhoon replica at the [Memorial de la Paix, Caen \(France\)](#) had been reconstructed from some original components.

## Squadron use

### [\[edit\]](#) RAF – United Kingdom

- [No. 1 Squadron RAF](#)
- [No. 3 Squadron RAF](#)
- [No. 4 Squadron RAF](#)
- [No. 56 Squadron RAF](#)
- [No. 137 Squadron RAF](#)
- [No. 164 Squadron RAF](#)
- [No. 168 Squadron RAF](#)
- [No. 174 Squadron RAF](#)
- [No. 175 Squadron RAF](#)
- [No. 181 Squadron RAF](#)
- [No. 182 Squadron RAF](#)
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- [No. 198 Squadron RAF](#)
- [No. 245 Squadron RAF](#)
- [No. 247 Squadron RAF](#)
- [No. 257 Squadron RAF](#)
- [No. 263 Squadron RAF](#)
- [No. 266 Squadron RAF](#)
- [No. 268 Squadron RAF](#)
- [No. 609 Squadron RAF](#)

### [\[edit\]](#) RCAF – Canada

- [No. 438 Squadron RCAF](#)
- [No. 439 Squadron RCAF](#)
- [No. 440 Squadron RCAF](#)

### [\[edit\]](#) RNZAF – New Zealand



Typhoon of 486 Squadron [RNZAF](#)

- [No. 486 Squadron RNZAF](#)

### [\[edit\]](#) Specifications (Typhoon Mk Ib)

#### General characteristics

- **Crew:** One
- **Length:** 31 ft 11.5 in (9.73 m)
- **Wingspan:** 41 ft 7 in (12.67 m)
- **Height:** 15 ft 4 in (4.66 m)
- **Wing area:** 249 ft<sup>2</sup> (23.13 m<sup>2</sup>)
- **Empty weight:** 9,800 lb (4,445 kg)
- **Loaded weight:** 11,400 lb (5,170 kg)
- **Max takeoff weight:** 13,980 lb (6,340 kg)
- **Powerplant:** 1× [Napier Sabre](#) IIC liquid-cooled H-24, 2,260 hp (1,685 kW)

## Performance

- **Maximum speed:** 405 mph at 18,000 ft (650 km/h at 5,485 m)
- **Range:** 610 mi (980 km)
- **Service ceiling:** 34,000 ft (10,400 m)
- **Rate of climb:** 2,630 ft/min (13.4 m/s)
- **Wing loading:** 45.8 lb/ft<sup>2</sup> (223.5 kg/m<sup>2</sup>)
- **Power/mass:** 0.20 hp/lb (0.33 kW/kg)

## Armament

- 4x 20 mm [Hispano-Suiza HS.404](#) cannons
- 2x 1,000 lb (454 kg) bombs
- 8x 3 in (75 mm) [RP-3](#) ("60 lb) unguided rockets
  
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- [The Unofficial Homepage of 439 Tiger Squadron](#)

## External links

- [Video at youtube of Hawker Typhoons firing 60lb rockets in combat](#)
- [Video at youtube of Hawker Typhoons in combat and "bombing up"](#)

## Related content

### Related development

[Hawker Tempest](#) - [Hawker Fury](#) - [Hawker Sea Fury](#) - [Hawker Tornado](#)

### Comparable aircraft

[Hawker Tornado](#)

### Designation sequence

[Hurricane](#) - [Henley](#) - Typhoon - [Tornado](#) - [Tempest](#)

### Related lists

[List of aircraft of the RAF](#)