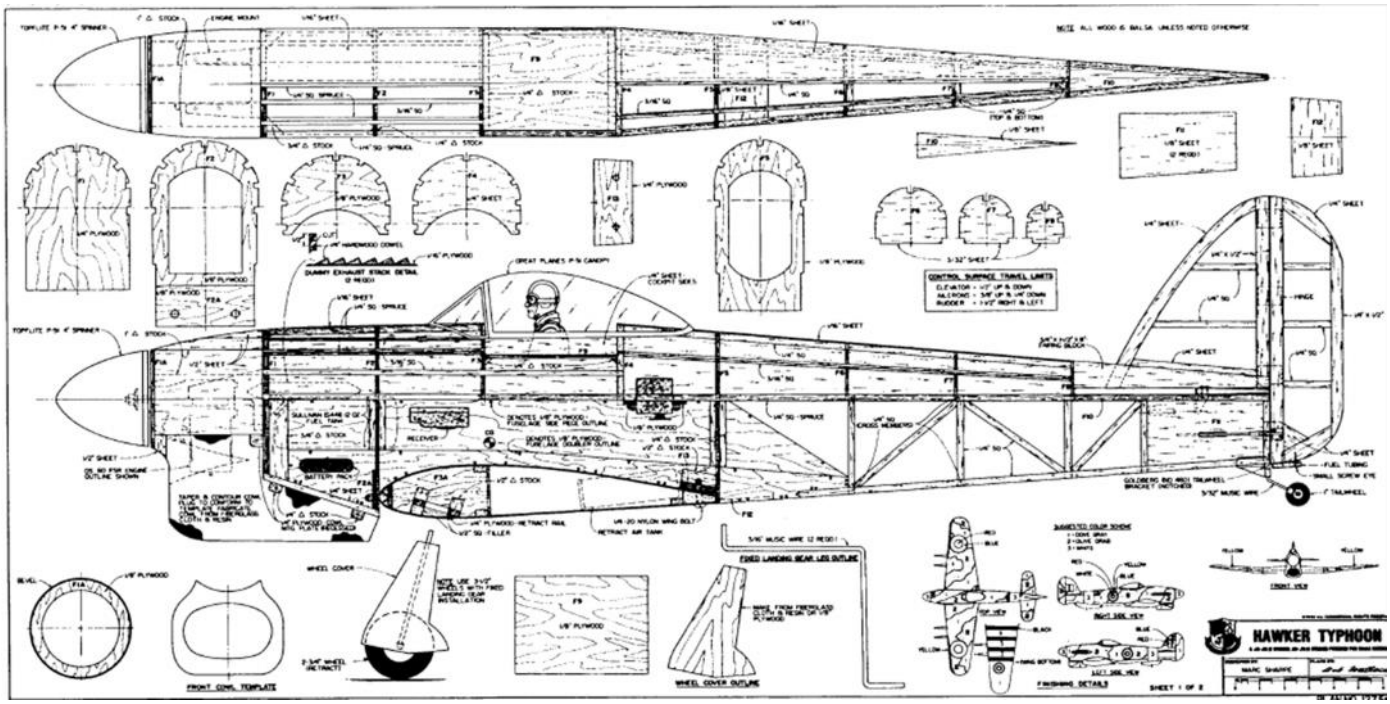
Hawker Typhoon 48” Wing Span (1.20m) Plan.

The **Hawker Typhoon** was a British single-seat fighter-bomber, produced by Hawker Aircraft. While the Typhoon was designed to be a medium-high altitude interceptor, and a direct replacement for the Hawker Hurricane, several design problems were encountered, and the Typhoon never completely satisfied this requirement.[3] Other external events in 1940 prolonged the gestation of the Typhoon.

Nicknamed the **Tiffy** in RAF slang, the Typhoon's service introduction in mid-1941 was also plagued with problems, and for several months the aircraft faced a doubtful future.[3] However, in 1941 the *Luftwaffe* brought the formidable Focke-Wulf Fw 190 into service: the Typhoon was the only fighter in the RAF inventory capable of catching the Fw 190 at low altitudes and, as a result, secured a new role as a low-altitude interceptor.[4] Through the support of pilots such as Roland Beamont the Typhoon also established itself in roles such as night-time intruder[5] and a long-range fighter. From late 1942 the Typhoon was equipped with bombs; from late 1943 ground attack rockets were added to the Typhoon's armoury. Using these two weapons, the Typhoon became one of the Second World War's most successful ground-attack aircraft.[6]

48” Wing Span Plan.



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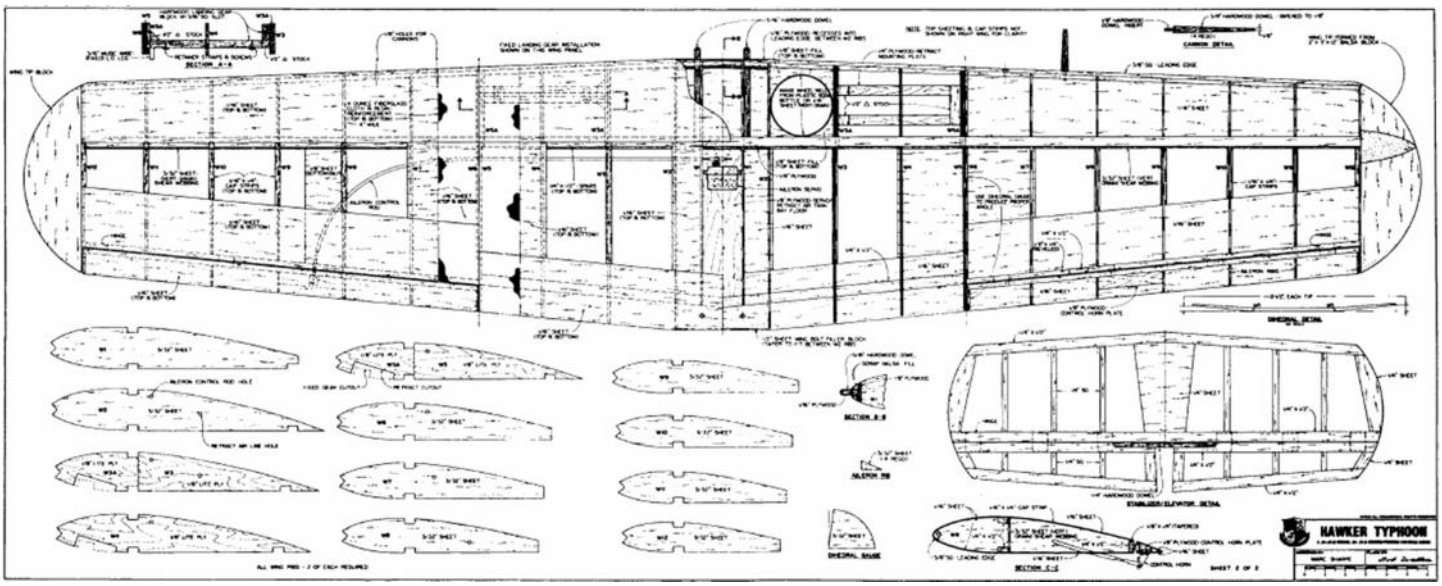

Design and development

Even before the new Hurricane was rolling off the production lines in March 1937, Sydney Camm had moved on to designing its replacement. This was to be a large fighter designed around the large and more powerful 24-cylinder Napier Sabre engine. The work proved useful when Hawker received Specification F.18/37 from the Air Ministry in January 1938 which asked for a fighter based on either the Sabre or the Rolls-Royce Vulture engine.[7] Both engines used 24 cylinders and were designed to be able to deliver over 2,000 hp (1,491 kW); the difference between the two was primarily in the arrangement of the cylinders – an H-block in the Sabre and an X-block in the Vulture.[8]

The two designs became known as the "R" and "N" (from the initial of the engine manufacturer) and were very similar; the Vulture-powered R type (the Tornado) had a rounder nose profile and a ventral radiator, whereas the Sabre-powered N (the Typhoon) had a flatter deck and a chin-mounted radiator. The basic design of both was a combination of traditional Hawker and more modern construction techniques; the front fuselage structure, from the engine mountings to the rear of the cockpit, was made up of bolted and welded duralumin or steel tubes,[nb 1] while the rear fuselage was a flush-riveted, semi-monocoque structure.[8] The forward fuselage and cockpit skinning was made up of large, removable duralumin panels, allowing easy external access to the engine and engine accessories and most of the important hydraulic and electrical equipment.[10][11]

The unarmed first prototype Typhoon P5212 taken just before its first flight. The prototype had a small tail unit and a solid fairing behind the cockpit, no wheel doors were fitted and the Sabre engine used three exhaust stubs either side of the cowling.

The design used a large 41-foot-7-inch (12.67 m) shallow-angle inverted gull wing of NACA 22 wing section, with a thickness to chord ratio of 19.5% at the root tapering to 12% at the tip;[12] this was much thicker than those on designs like the Supermarine Spitfire. This wing had great structural strength, provided plenty of room for fuel tanks and a heavy armament, and helped the aircraft to be a steady weapons platform.[13] Wing area was 279 sq ft (29.6 sq m).[14] The inner wings, outboard of the fuselage had a 1° anhedral, while the outer wings, attached just outboard of the undercarriage legs, had a dihedral of 5½°.[8] Each of the inner wings incorporated two fuel tanks; the "main" tanks, housed in a bay outboard and to the rear of the main undercarriage bays, had a capacity of 40 gallons; while the "nose" tanks, built into the wing leading edges, forward of the main spar,[10]

had a capacity of 37 gallons each.[10][15] Also incorporated into the inner wings was an undercarriage with a track of 13 ft 6¾ in.[16]

Although the Typhoon was expected to achieve 460 mph (740 km/h) in level flight, at just over 400 mph (644 km/h) the thick wings created a large drag rise and prevented higher speeds.[nb 2][17] Tests revealed that the Typhoon was capable of 410 mph at 20,000 feet (6,100 m), although the climb rate and performance above that level was considered disappointing.[18] If the Typhoon was dived at speeds of over 500 mph (805 km/h), the drag rise resulted in buffeting and trim changes. The problems with compressibility led to Camm designing thinner wings with a laminar flow section, leading to the Tempest as a follow on to the Typhoon.[19]

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