

## Sopwith Camel

### Sopwith 2F.1 Camel



A Sopwith Camel at the [Imperial War Museum, London](#)

**Type** [Biplane fighter](#)

**Manufacturer** [Sopwith Aviation Company](#)

**Maiden flight** December 1916

**Introduction** June 1917

**Primary users** RFC (RAF)  
RNAS, AAF

The **Sopwith Camel Scout** is a [British First World War](#) single-seat [fighter aircraft](#) that was famous for its maneuverability.

### Design and development

Intended as a replacement for the [Sopwith Pup](#), the Camel prototype first flew in December [1916](#), powered by a 110 hp Clerget 9Z. Known as the "Big Pup" early on in its development, the aircraft was armed with two [.303 in \(7.7 mm\) Vickers machine guns](#) mounted in the [cowl](#), firing forward through the propeller disc. A fairing surrounding the gun installation created a hump that led to the name [Camel](#). The type entered squadron service in June 1917 with No. 4 Squadron of the [Royal Naval Air Service](#), near [Dunkirk](#). The following month, it became operational with No. 70 Squadron of the [Royal Flying Corps](#). By February 1918, 13 squadrons were fully equipped with the Camel. Approximately 5,500 were ultimately produced.

### Operational history



Replica of Camel F.I flown by Lt. George A. Vaughn Jr., 17th Aero Squadron



This aircraft is currently displayed at the [National Museum of the United States Air Force](#)



Sopwith Camel, 1930s magazine illustration with the iconic British WWI fighter in a dogfight with a Fokker triplane

Unlike the preceding [Pup](#) and [Triplane](#), the Camel was not considered pleasant to fly. The Camel owed its difficult handling characteristics to the grouping of the engine, pilot, guns, and fuel tank within the first seven feet of the aircraft, coupled with the strong [gyroscopic](#) effect of the [rotary engine](#).

The Camel soon gained an unfortunate reputation with student pilots. The [Clerget](#) engine was particularly sensitive to fuel mixture control, and incorrect settings often caused the engine to choke and cut out during takeoff. Many crashed due to mishandling on takeoff when a full fuel tank affected the center of gravity. In level flight, the Camel was markedly tail-heavy. Unlike the preceding Triplane, the Camel lacked a variable incidence tailplane. The pilot was therefore required to apply constant forward pressure on the control stick to maintain a level attitude at low altitude. However the machine could also be rigged in such a way that at higher altitudes it could be flown "hands off." A stall immediately resulted in a spin and the Camel was particularly noted for its vicious spinning characteristics.

The Camel was nevertheless successful in combat. It offered heavier armament and better performance than the preceding Pup and Triplane. Its controls were light and sensitive. The Camel turned slowly to the left with a nose-up attitude, but turned very sharply to the right with a nose-down attitude. Because it was tail heavy, the plane also looped quickly. Agility in combat made the Camel one of the best remembered [Allied](#) aircraft of the [First World War](#). It was said to offer a choice between a "wooden cross, red cross and [Victoria Cross](#)."<sup>[1]</sup> Together with the [S.E.5a](#), the Camel helped to wrest aerial superiority away from the German [Albatros](#) scouts. The Camel was credited with shooting down 1,294 enemy aircraft, more than any other Allied scout.

Major [William Barker](#)'s Sopwith Camel (serial no. *B6313*, the only aircraft the Canadian ace scored any victories in<sup>[2]</sup>) became the most successful fighter aircraft in the history of the RAF, shooting down 46 aircraft & balloons from September 1917 to September 1918 in 404 operational hours flying. It was dismantled in October 1918. Barker kept the clock as a memento, although he was asked to return it the following day.

By mid-1918, the Camel was approaching obsolescence as a fighter, limited by its slow speed and comparatively poor performance over 12,000 feet (3650 m). It found a new lease of life as a ground-

attack aircraft and infantry support weapon. During the German Offensive of March 1918, flights of Camels harassed the advancing German Army, inflicting high losses (and suffering high losses in turn) through the dropping of 25lb (11 kg) Cooper bombs and ultra-low-level strafing. The protracted development of the Camel's replacement, the [Sopwith Snipe](#), meant that the Camel remained in service until the Armistice.

In summer 1918, a 2F.1 Camel (N6814) was used in trials as a [parasite fighter](#) under [Airship R23](#)

## Variants

The Camel was powered by a variety of rotary engines during the production period.

- 130 hp [Clerget 9B](#) Rotary (standard powerplant)
- 140 hp Clerget 9Bf Rotary
- 110 hp [Le Rhone 9J](#) Rotary
- 150 hp [Bentley BR1](#) Rotary (gave best performance - standard for R.N.A.S. machines)
- 100 hp Gnome Monosoupape 9B-2 Rotary
- 150 hp Gnome Monosoupape 9N Rotary

## Engine variants

- With the Clerget engine, the [crankshaft](#) remained fixed while the cylinders and attached propellor rotated around it. The result of this [torque](#) was a significant "pull" to the right. In the hands of an experienced pilot, this characteristic could be exploited to give exceptional manoeuvrability in a dog-fight. The rate of turn to the right was twice that of a turn to the left.
- The Gnome engines differed from the others in that a selector switch could cut the ignition to all but one of the cylinders to reduce power for landing. (This was because rotary engines did not have throttles and were at full 'throttle' all the while the ignition was on) On the others the engine had to be "blipped" (turned off and on) using a control column-mounted ignition switch, (blip switch) to reduce power sufficiently for a safe landing.

## Sopwith Camel F.1

- Single-seat fighter scout aircraft.
- The main production version.

## Sopwith Camel 2F.1

- Shipboard fighter scout aircraft.
- Slightly shorter wingspan
- One Vickers gun replaced by an overwing Lewis
- Bentley BR1 as standard

## Sopwith Camel "Comic" Nightfighter

Pilot seat moved to rear. The twin Vickers guns were replaced with two Lewis guns firing forward over the top wing on [Foster mountings](#). Served with Home Defence Squadrons against German air raids. The "Comic" nickname was of course unofficial, and was shared with the night fighter version of the [Sopwith 1½ Strutter](#).

## F.1/1

- Version with tapered wings.

### (Trench Fighter) T.F.1

- Experimental trench fighter.
- Downward angled machine guns
- Armour plating for protection

(See also [Sopwith Salamander](#))

### Operators



Belgian Camel preserved at the Musée Royal de l'Armée et de l'Histoire Militaire in Brussels

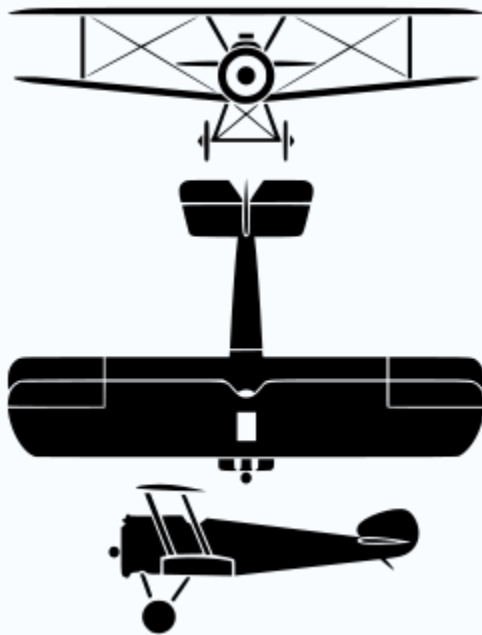
-  [Australia](#): [Australian Flying Corps](#)
-  [Belgium](#)
-  [Canada](#)
-  [Estonia](#)
-  [Greece](#)
-  [Latvia](#)
-  [Netherlands](#)
-  [Poland](#) (post-war)
-  [United Kingdom](#): (RAF, RFC, RNAS)
-  [United States](#)
-  [Sweden](#)

### Survivors

There are only seven authentic Sopwith Camels left in the world with one in the United States. It can be found at the Aerospace Education Center in [Little Rock, Arkansas](#). Another, beautifully restored to near-flying condition is at the Brussels air-museum in Belgium. An example of a model F.1 can be found at the [Polish Aviation Museum](#).

A replica Sopwith Camel can be found at the [National Museum of the United States Air Force](#) in Dayton, Ohio. Another replica is currently under construction by the Northern Aeroplane Workshops for the [Shuttleworth Collection](#)<sup>[3]</sup>.

## Specifications (F.1 Camel)



Data from Quest for Performance<sup>[4]</sup>

## General characteristics

- **Crew:** 1
- **Length:** 18 ft 9 in (5.71 m)
- **Wingspan:** 26 ft 11 in (8.53 m)
- **Height:** 8 ft 6 in (2.59 m)
- **Wing area:** 231 ft<sup>2</sup> (21.46 m<sup>2</sup>)
- **Empty weight:** 930 lb (420 kg)
- **Loaded weight:** 1,455 lb (660 kg)
- **Powerplant:** 1× [Clerget](#) 9B 9-cylinder [Rotary engine](#), 130 hp (97 kW)
- **Zero-lift drag coefficient:** 0.0378
  
- **Drag area:** 8.73 ft<sup>2</sup> (0.81 m<sup>2</sup>)
- **Aspect ratio:** 4.11

## Performance

- **Maximum speed:** 115 mph (185 km/h)
- **Stall speed:** 48 mph (77 km/h)
- **Range:** 300 mi ferry (485 km)
- **Service ceiling:** 21,000 ft (6,400 m)
- **Rate of climb:** 1,085 ft/min (5.5 m/s)
- **Wing loading:** 6.3 lb/ft<sup>2</sup> (30.8 kg/m<sup>2</sup>)
- **Power/mass:** 0.09 hp/lb (150 W/kg)

- **Lift-to-drag ratio**: 7.7

## Armament

- **Guns**: 2x 0.303 in (7.7 mm) [Vickers machine guns](#)

## The Camel in popular culture

The Camel appears in literature and popular media as:

- The single-seater scout plane flown by the Royal Flying Corps Squadron in the great First World War, semi-autobiographical, air combat book [Winged Victory](#) written by [Victor Maslin Yeates](#).
- The fighter flown by [Biggles](#) in the novels by [W. E. Johns](#) during the character's spell in 266 squadron during the [First World War](#).
- The "plane" of [Snoopy](#) in the [Peanuts](#) comic strip, when he imagines himself as a First World War flying ace and the nemesis of the [Red Baron](#). The "Sopwith Camel" is actually his doghouse.
- A [1960s](#) American music group was called "[The Sopwith Camel](#)".
- An early name of the [The J. Geils Band](#) was "Snoopy and the Sopwith Camels".
- Featured in the novel [The Razor's Edge](#), by British playwright and author [W. Somerset Maugham](#)
- The type of aircraft flown in the First World War by John and Bayard Sartoris in William Faulkner's [Flags in the Dust](#). Under fire from a pupil of Richthofen (the Red Baron), John's Camel caught fire over occupied France. Bayard's last sight of his twin brother was of John jumping out of his fighter feet first.
- Private [Baldrick](#) in the [British](#) TV series [Blackadder Goes Forth](#) wished to become a pilot. In the episode "Private Plane," at one point he began making a shrill noise and flapping his hands. When asked what he was doing, he responded "I'm a Sopwith Camel, Sir" to which Captain Blackadder replied "I always confuse the sound of a Sopwith Camel with that of a malodorous runt who is wasting everybody's time."
- The Camel also appears in numerous videogames.
- The Camel is used by the American rock band [The Royal Guardsmen](#) in several of their songs. In *The Story of The Return of The Red Baron* which precedes the song, *The Return of The Red Baron* on their *Snoopy And His Friends* album (a follow up to their *Snoopy Vs. The Red Baron*) it is mentioned in a mock radio broadcast that the Red Baron "went down like a shot through the clouds, with a Camel on his tail giving it to him proper." The Camel also is mentioned as the plane the unfortunate Allied pilot is flying in *Down Behind the Lines*. The Camel also lends its name to their *Sopwith Camel Time* and appears in the song, *Snoopy for President*.
- Bartholmew Bandy flies a Camel in the first "Bandy Papers" book by [Donald Jack](#), *Three Cheers for Me*.

## External links



## Sopwith Camel

The Sopwith Aviation Company produced the Sopwith F.1 Camel, a famous biplane of World War I and well known to readers of the "Peanuts" cartoons. The Camel was the most successful fighter plane of the war and very difficult to defeat when flown by a skilled pilot. For more than 70 years, it was credited with shooting down 1,294 aircraft, but later research by a British writer showed that British units could account for more than 2,800 downed aircraft with an overall total of more than 3,000. Although highly maneuverable, the aircraft was tricky to fly, and more men lost their lives while learning to fly it than did during combat.



*The Sopwith Camel was the most successful fighter plane of World War I. It shot down more enemy aircraft than any other fighter of any of the warring nations.*

The Camel was the first British aircraft to carry twin Vickers guns, which were enclosed in a "hump," giving the Camel its nickname. It was 18 feet 9 inches (5.7 meters) long; 8 feet, 6 inches (2.6 meters) high; had a wingspan of 28 feet (8.5 meters); and weighed about 1,450 pounds (658 kilograms) fully loaded. It was usually powered by a 130-horsepower (97-kilowatt) Clerget rotary engine but sometimes used a Bentley, Gnome, or Le Rhône engine. It could attain a top speed of 112 miles per hour (180 kilometers per hour) and could fly 300 miles (483 kilometers) (about 2-1/2 hours) without refueling. The Camel could climb to an altitude of 19,000 feet (5,790 meters) although its best combat altitude was in the range of 12,000 feet (3,658 meters).

The Camel first went into action in June 1917 with the 70 Squadron, Royal Flying Corps and 4 Squadron, Royal Naval Air Service. Two U.S. Air Service squadrons, the 17<sup>th</sup> and 148<sup>th</sup>, used the Camel in combat while assigned to British forces during the summer and fall of 1918. The 185<sup>th</sup> Aero Squadron used the Camel as a night fighter on the American Front during the last month of the war.