

SPAD S.XIII

S.XIII



SPAD S.XIII in the colors of [Capt. Eddie Rickenbacker](#), U.S. [94th Aero Squadron](#)

Type biplane fighter

Manufacturer [SPAD](#)

Designed by Louis Béchereau

Maiden flight 4 April 1917^[1]

Primary users [Aéronautique Militaire](#)
[Royal Flying Corps](#)
[US Army Air Service](#)

The **SPAD S.XIII** was a [French biplane fighter aircraft](#) of [World War I](#), developed by [Société Pour L'Aviation et ses Dérivés](#) (SPAD) from the earlier highly successful [SPAD S.VII](#). It was one of the most capable fighters of the war, and one of the most-produced, with 8,472 built and orders for around 10,000 more cancelled at the [Armistice](#).

Design and development

The S.VII had entered service in September of [1916](#), but by early [1917](#) it had been surpassed by the latest German scouts, leading French [flying ace](#), [Georges Guynemer](#) to lobby for an improved version. SPAD designer Louis Béchereau initially produced the [S.XII](#), which had limited success, and finally the S.XIII.

The S.XIII differed from its predecessor by incorporating a number of aerodynamic and other refinements, including larger wings and rudder, a more powerful [Hispano-Suiza](#) engine, and a second [Vickers .303-cal. machine gun](#) for added firepower. All these improvements led to greater increases in flight and combat performance. It was faster than its main contemporaries, the British [Sopwith Camel](#) and the German [Fokker D.VII](#), and was renowned for its ruggedness and diving ability. However, its manoeuvrability was inferior, especially at low speeds. Poor gliding characteristics and a very sharp stall made it a difficult aircraft for novice pilots to land safely.

Operational history



A SPAD S.XIII of the [Lafayette Escadrille](#).

It first flew on [April 4, 1917](#), and the following month was already being delivered to the [French Air Service](#). Other Allied forces were quick to adopt the new fighter as well, and nearly half of the 893 purchased for the [United States Army Air Service](#) were still in service in [1920](#). It was also exported to [Japan](#), [Poland](#), and [Czechoslovakia](#) after the war.

The S.XIII was flown by famous fighter pilots such as Italy's [Francesco Baracca](#) and the [United States Army Air Service](#)'s [Eddie Rickenbacker](#), who became leading aces with 34 and 26 confirmed victories, respectively.

[\[edit\]](#) Operators



Spads, 1930s magazine illustration with the French Great War fighter plane flown by all of the Allied airforces

-  [Argentina](#) (two aircraft)
-  [Belgium](#)
-  [Brazil](#)
-  [Czechoslovakia](#) (post-war)
-  [France](#)
-  [Greece](#)
- [Italy](#)
-  [Japan](#)
-  [Poland](#) (post-war)
-  [Russia](#)
-  [Siam \(Thailand\)](#)
-  [Kingdom of Spain](#)
-  [Turkey](#)
-  [United Kingdom](#)
-  [United States](#)
-  [Uruguay](#)

Specifications (SPAD S.XIII)

Data from ^[2]

General characteristics

- **Crew:** 1
- **Length:** 6.25 m (20 ft 6 in)
- **Wingspan:** 8.25 m (27 ft 1 in)
- **Height:** 2.60 m (8 ft 6.5 in)
- **Wing area:** 21.1 m² (227 ft²)
- **Empty weight:** 566 kg (1,245 lb)
- **Loaded weight:** 856 kg (1,888 lb)
- **Max takeoff weight:** 845 kg (1,863 lb)
- **Powerplant:** 1× [Hispano-Suiza 8Be](#) 8 cylinder vee-type, 220 hp (164 kw)

Performance

- **Maximum speed:** 218 km/h (135 mph)
- **Service ceiling:** 6,650 m (21,815 ft)
- **Rate of climb:** 2 m/s (384 ft/min)

Armament

- 2 x .303-cal. (7.7-mm) [Vickers machine guns](#)

References

1. [^] winchester, 23
 2. [^] winchester, 18
- Winchester, Jim. *Fighter - The World's Finest Combat Aircraft - 1913 to the Present Day*. barnes & Noble Publishing, Inc. and Parragon Publishing. [ISBN 0-7607-7957-0](#).

External links

- [Air Force Association Fact Sheet \(pdf\)](#)

Related content

Related development

[S.VII](#) - [S.XI](#) - [S.XII](#) - [S.XVII](#) - [S.XXI](#)

Comparable aircraft

[Fokker D.VII](#) - [Sopwith Camel](#) - [S.E.5a](#) - [Ansaldo Balilla](#)

Hispano-Suiza



Hispano-Suiza badge

Hispano-Suiza was an originally [Spanish](#) and then Spanish-[French](#) automotive and engineering firm (actually, from 1923 on, two different companies) best known for their cars, engines (including world famous aviation engines) and weapons designs in the pre-[World War II](#) period. Today they are part of the French [SAFRAN Group](#), while the Spanish society in 1946 sold all their automotive assets to [Enasa](#), the maker of [Pegaso](#) trucks and sport cars.

History



c.1930 French ad of Hispano-Suiza luxury cars

Early Years

In 1898 a [Spanish](#) artillery captain, Emilio de la Cuadra, started with electric automobile production in [Barcelona](#) under the name of **La Cuadra**. In [Paris](#), De la Cuadra met the talented [Swiss](#) engineer [Marc Birkigt](#) (lived 1878 -1953), and hired him to work for the company in Spain. La Cuadra built their first gas powered engines from Birkigt designs. At some point in 1902 the ownership changed hands to J. Castro and became **Fábrica Hispano-Suiza de Automóviles** (*Spanish-Swiss Car Factory*), but this company also went [bankrupt](#) in December 1903.

Yet another reformation took place in 1904, creating **La Hispano-Suiza Fábrica de Automóviles**, also under Castro's direction. Four new engines were introduced in the next year and a half. A 3.8L and a 7.4L four cylinder engine were produced as well as a pair of big six cylinder powerplants. This version of the company managed to avoid bankruptcy, and in Spain remained in operation, as a car, truck and aviation engine producer, with its main plant located in Barcelona, until 1946. They mass-produced cars, trucks and buses, and a number of hand-built racing and luxury cars, some of which ended up being owned by King [Alfonso XIII of Spain](#).

However by this point in the early years of the century, France was proving to be a much larger market for their luxury cars than Spain. In [1911](#) a new factory, known as **Hispano France**, was set up

in the [Paris](#) suburb of Levallois-Perret'. In [1914](#) they moved to larger factories at Bois-Colombes, and took the name **Hispano-Suiza**.

World War I

With the start of [World War I](#) the company turned to the creation of [aircraft engines](#) under the direction of [Marc Birkigt](#). His solution to building aero engines was unique. Instead of machining separate steel cylinders and then bolting them to a crankcase, he used cast aluminum blocks into which thin steel liners were screwed. This made the engine overall much stiffer, easier to build, and lighter. His design was a V-8 and was the first of what are today known as "cast block" engines, and also sported overhead cams, propeller reduction gearing, and a host of other features that didn't appear on most other engines until the late 1920s. Another major design effort was the use of a hollow propeller shaft to allow a gun to be fired through the propeller spinner, thereby avoiding the need for a [synchronizer gear](#). This design would be a feature of all future Hispano-Suiza military engines.

1918-1936

After World War I, they returned to automobile engine design, and in 1919 introduced the [H6](#), earning them a reputation similar to that of [Rolls-Royce](#) in England. The H6 featured an inline 6 cylinder [overhead camshaft](#) engine based on the features of the V8 aluminium WW1 aero engine. Through the 1920s and into the 1930s they built a series of luxury cars of increasing refinement. In fact the 1930s V-12 car engine reverted to pushrod valve actuation to achieve even less engine noise.

In 1923 the French arm of Hispano-Suiza was incorporated as **Société Française Hispano-Suiza**, the Spanish parent company subscribing for 71% of the share capital. From then on, the French company gained increased degrees of financial independence, while the technical links were always kept strong.



1933 Hispano-suiza "Stork"





1933 Hispano-suiza

The mascot statuette atop the radiator used by this firm after WWI was the [stork](#) of the province of [Alsace](#), taken from the squadron emblem painted on the side of the aircraft of the renowned WWI French ace (and Hispano-Suiza customer) [Georges Guynemer](#), which was powered by an Hispano-Suiza engine. At the time this was an emblem of [revanchism](#).

In fiction at this period the Emsworth family in the P.G. Wodehouse "Blandings Castle" stories drove or rather were driven in an Hispano -Suiza (H6), rather than, say, a Rolls-Royce.

World War II

In 1936 with [another war](#) clearly looming, Hispano-Suiza was told to stop production of cars and turn solely to aircraft engines once again. At the time they had just introduced a new series of water-cooled [V-12](#) engines, and the [Hispano-Suiza 12Y](#) was in huge demand for practically every French aircraft. However Hispano was never able to deliver enough of these engines, and many French fighters sat on the ground, complete but for the engine. Another development of the era was a series of 20 mm [autocannon](#), first the [Hispano-Suiza HS.9](#) and then the more famous [Hispano-Suiza HS.404](#). The 404 was licensed for production in England and equipped almost all [RAF](#) fighter aircraft during the war. Production was also set up in the US, but these versions never matured even though the [USAAC](#) and [US Navy](#) both wanted to use it in place of their existing .50 weapons.

1950s-Today

After the Second World War Hispano-Suiza was primarily an aviation firm. Between 1945 and 1955 they built the [Rolls-Royce Nene](#) under license, began designing [landing gear](#) in 1950, and [Martin-Baker ejection seats](#) in 1955. Their attention turned increasingly to turbine manufacturing, and in 1968 they became a division of [SNECMA](#). In 1999 they moved their turbine operations to a new factory in Bezons, using the original factories for power transmissions and accessory systems for jet engines. In 2005, SNECMA merged with [SAGEM](#) to form [SAFRAN](#).

[v](#) • [d](#) • [e](#)

Lists relating to [aviation](#)[show]

[\[edit\]](#) See also

- [Hispano-Suiza 8](#)
- [Hispano-Suiza 12Y](#)
- [Hispano-Suiza 12Z](#)

- [Hispano-Suiza 14AB](#)

[\[edit\]](#) External links

- [French Hispano-Suiza webpage](#)
- [Spanish Hispano-Suiza webpage](#)
- [Gallery of Hispano-Suiza cars](#)
- [Hispano-Suiza truck&bus history \(in Spanish\)](#)