

Blériot XI (1909) *Aviation Pioneer* 85, 65 and 13 Inches Wing Span Plan



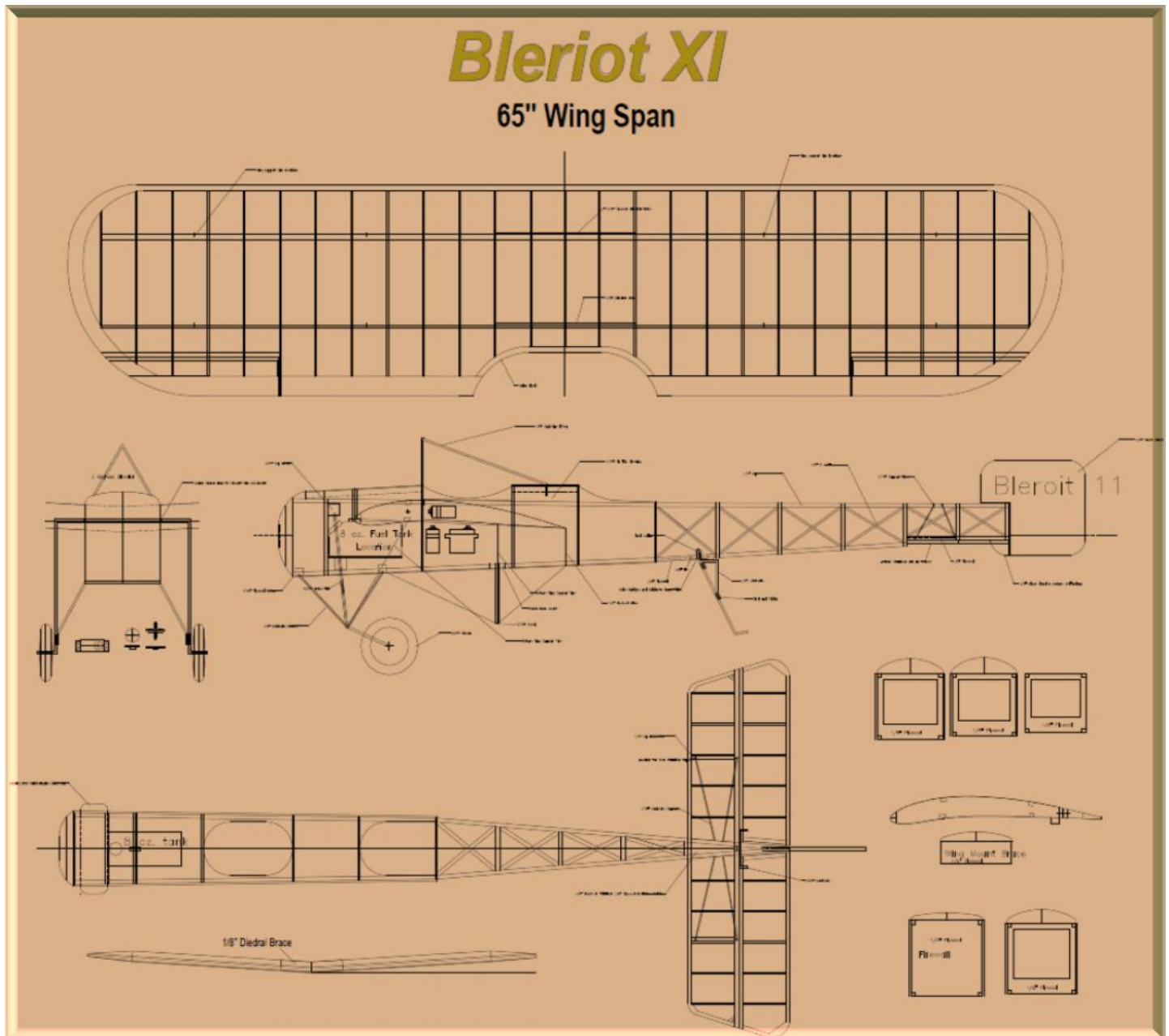
The **Blériot XI** is the aircraft that was used by [Louis Blériot](#) on 25 July 1909 to make the first flight across the [English Channel](#) made in a heavier-than-air aircraft. This achievement is one of the most famous accomplishments of the early years of aviation, and not only won Blériot a lasting place in history but also assured the future of his aircraft manufacturing business. The event caused a major reappraisal of the importance of aviation; the English newspaper, [The Daily Express](#), led its story of the flight with the headline, "Britain is no longer an Island". It was produced in both single and two-seat versions, powered by a number of different engines and was widely used for competition and training purposes. Military versions were bought by many countries, continuing in service until after the outbreak of the [First World War](#) in 1914.

Design

The **Blériot XI**, largely designed by Raymond Saulnier,^[2] was a development of the [Blériot VIII](#) which Blériot had flown successfully in 1908. Like its predecessor, it was a [tractor configuration monoplane](#), with a partially covered box-girder [fuselage](#) built from [ash](#) with wire cross bracing. The principal differences were the use of [wing-warping](#) for lateral control, and the tail plane, which had a small balanced rudder and a single rectangular horizontal tail plane with tip-mounted [elevators](#) mounted under the lower [longerons](#) of the fuselage. Like its predecessor, the engine was mounted directly in front of the [leading edge](#) of the wing and the bracing and warping wires were attached to a [cabane](#) structure made of steel tubing above the fuselage and an inverted pyramid, also of steel tubing, below it. When first built, it had a [wingspan](#) of 7 m (23 ft) and a small teardrop-shaped fin was mounted on the cabane,^[3] but this was later removed. The main undercarriage was also like that of the Type VIII, the wheels being mounted in castering trailing arms which could slide up and down steel tubes, the movement being sprung by [bungee](#) cords. This simple and ingenuous design allowed [crosswind landings](#) with less risk of damage. A sprung tail wheel was fitted to the rear fuselage in front of the tail plane.

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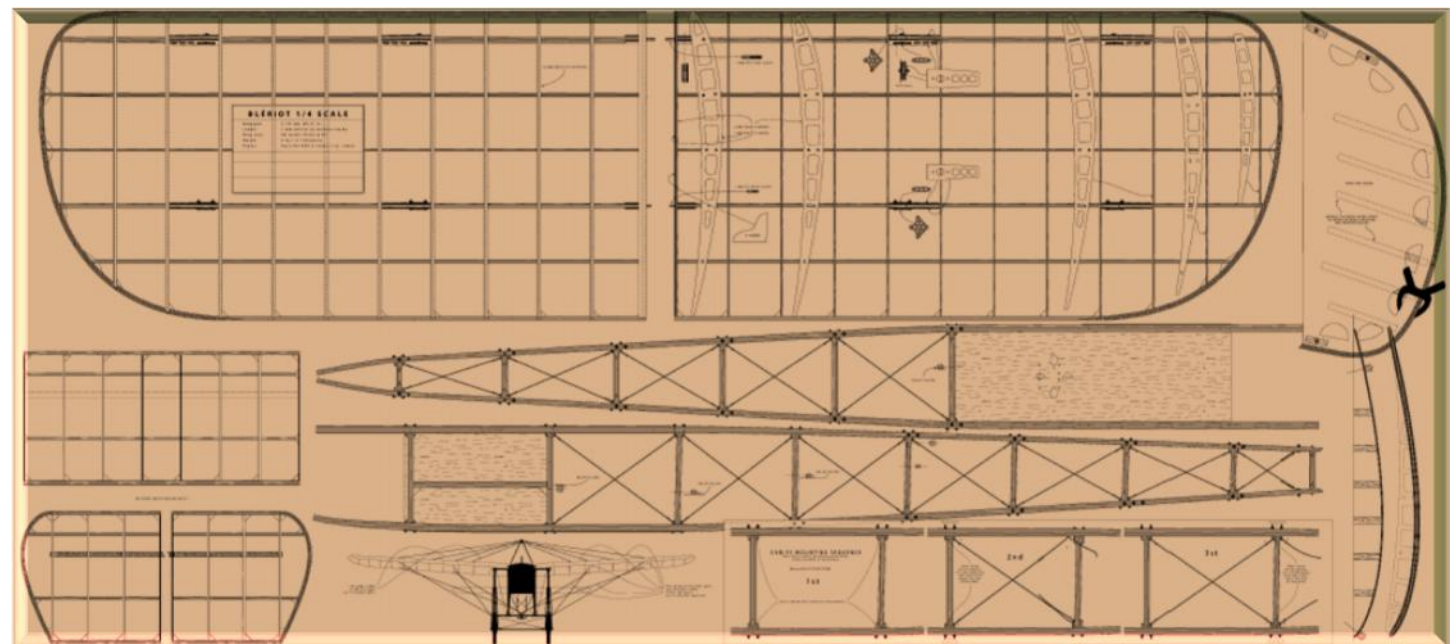
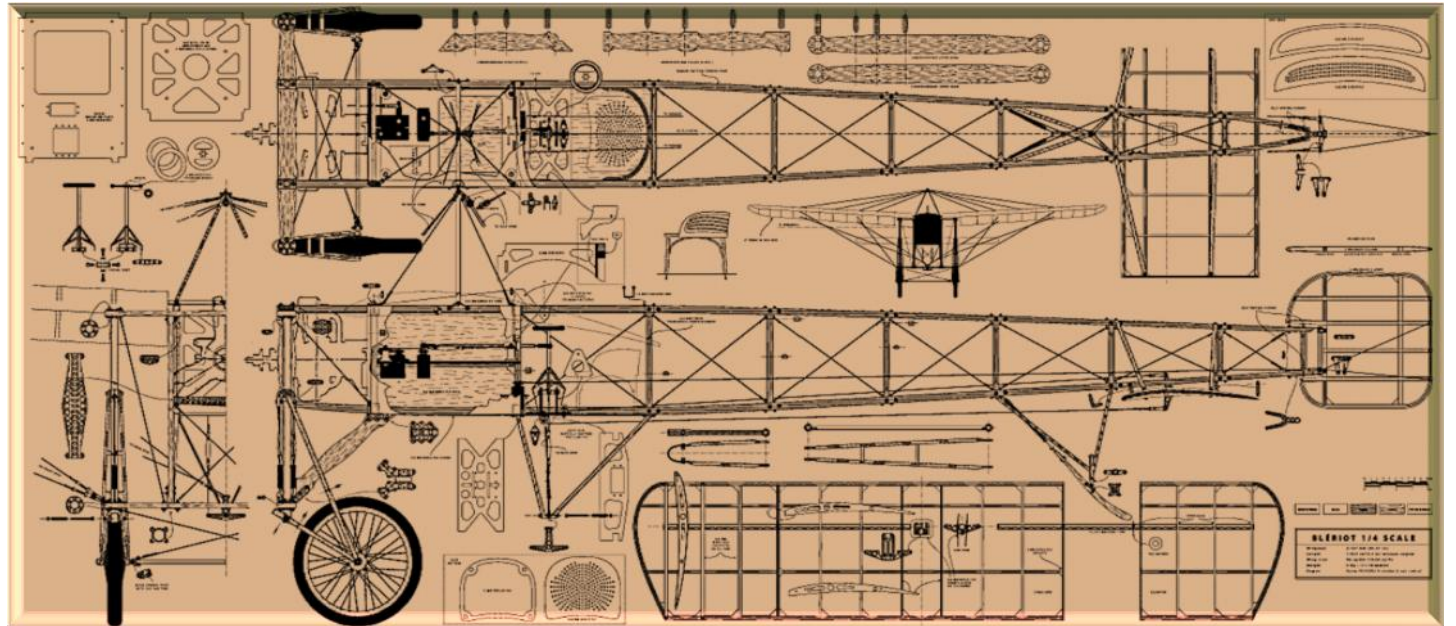
65 inches Wing Span Plan



When shown at the Paris Aero Salon in December 1908, the aircraft was powered by a 35 hp (26 kW) 7-cylinder [R.E.P.](#) engine driving a four-bladed paddle type propeller. The aircraft was first flown at [Issy-les-Moulineaux](#) on 23 January 1909^[4] but although the aircraft handled well the engine proved extremely unreliable and, at the suggestion of his mechanic Ferdinand Collin, Blériot made contact with Alexandre Anzani, a famous motorcycle racer whose successes were due to the engines which he made, and who had recently entered the field of aero-engine manufacture. On 27 May 1909, a 25 horsepower (19 kW) [Anzani 3-cylinder](#) fan (or semi-radial) configuration engine was fitted.^[5] The propeller was also replaced with a Chauvière two-bladed propeller made from laminated [walnut wood](#). This propeller design was a major advance in French aircraft technology, and was the first European propeller to rival the efficiency of the propellers used by the [Wright Brothers](#).^[6]

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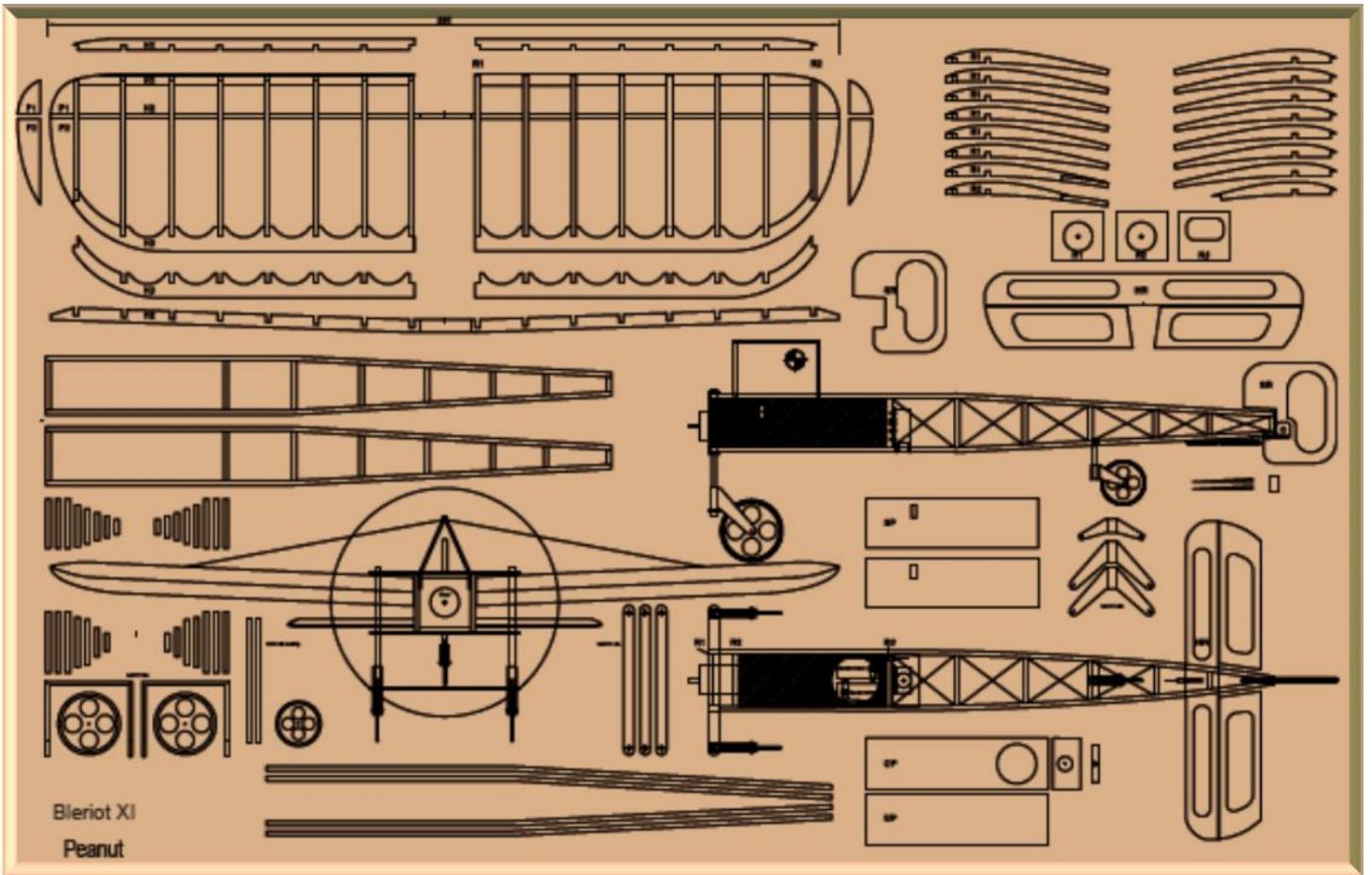
85 Inches Wing Span Plan



The Blériot XI gained lasting fame on 25 July 1909 when Blériot crossed the [English Channel](#) from [Calais](#) to [Dover](#), winning a £1,000 prize awarded by the [Daily Mail](#). For several days, high winds had grounded Blériot and his rivals: [Hubert Latham](#), who flew an [Antoinette](#) monoplane, and [Count de Lambert](#), who brought two [Wright biplanes](#). On 25 July, when the wind had dropped in the morning and the skies had cleared, Blériot took off at sunrise. Flying without the aid of a compass, he deviated to the east of his intended course, but, nonetheless, spotted the English coast to his left. Battling turbulent wind conditions, Blériot

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13 Inches (peanut) Wing Span Plan



Blériot XI as first built: note small fin on cabane.

During early July, Blériot was occupied with flight trials of a new aircraft, the two-seater [Type XII](#), but resumed flying the Type XI on 18 July. By then, the small cabane fin had been removed and the wingspan increased by 79 cm (31 in). On 26 June, he

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managed a flight lasting 36 m, 55 seconds, and on 13 July, Blériot won the Aero Club de France's first *Prix du Voyage* with a 42 km (26 mi) flight between [Etampes](#) and [Orléans](#).^[7]

The Channel crossing



The original Blériot XI on which [Louis Blériot](#) crossed the Channel in 1909 in the Musée des Arts et Métiers, Paris.

made a heavy landing, damaging the undercarriage and shattering one blade of the propeller, but he was unhurt. The flight had taken 36.5 minutes and had made Blériot a celebrity, instantly resulting in many orders for copies of his aircraft.

The aircraft, which never flew again, was hurriedly repaired and put on display at [Selfridges](#) department store in London. It was later displayed outside the offices of the French newspaper [Le Matin](#), and eventually bought by the [Musée des Arts et Métiers](#) in Paris.

Operational history

After the successful crossing of the English Channel, there was a great demand for Blériot XIs. By the end of September 1909, orders had been received for 103 aircraft.^[8] After an accident at an aviation meeting in [Istanbul](#) in December 1909, Blériot gave up competition flying, and the company's entries for competitions were flown by other pilots, including [Alfred Leblanc](#), who had managed the logistics of the cross-channel flight, and subsequently bought the first production Type XI, going on to become one of the chief instructors at the flying schools established by Blériot.

In February 1912 the future of the Type XI was threatened by the French army placing a ban on the use of all monoplanes. This was the result of a series of accidents in which Blériot aircraft had suffered wing failure

in flight. The first of these incidents had occurred on 4 January 1910, killing [Léon Delagrangé](#), and was generally attributed to the fact that Delagrangé had fitted an over-powerful engine, so overstressing the airframe. A similar accident had killed [Jorge Chavez](#) at the end of 1910, and in response to this the wing spars of the Blériot had been strengthened. A subsequent accident led to a further strengthening of the spars.^[9] Blériot, understandably, took this matter very seriously, and produced a report for the French government which came to the conclusion that the problem was not the strength of the wing spars but a failure to take into account the amount of downward force to which aircraft wings could be subject to, and that the problem could be

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solved by increasing the strength of the upper bracing wires. This analysis was accepted, and Blériot's prompt and thorough response to the problem enhanced rather than damaged his reputation.

Further development

The Type XI remained in production until the outbreak of the First World War, and a number of variations were produced. Various types of engine were fitted, including the Y-configuration Anzani and the 50 hp (37 kW) and 70 hp (52 kW) [Gnome rotary engines](#). Both single and two-seat versions were built, and there were variations in wingspan and fuselage length. In later aircraft the tip elevators were replaced by a more conventional trailing edge elevator and the tailwheel was replaced by a skid. Blériot marketed the aircraft in four categories: trainers, sport or touring models, military aircraft, and racing or exhibition aircraft.

Civil use

The Type XI took part in many competitions and races. In August 1910 Leblanc won the 805 km (500 mi) *Circuit de l'Est* race, and another Blériot flown by [Emile Aubrun](#) was the only other aircraft to finish the course.^[10] In October 1910, [Claude Grahame-White](#) won the second competition for the [Gordon Bennett Trophy](#) narrowly beating a Type XI fitted with a 100 hp (75 kW) Gnome flown by Leblanc. In 1911, [Andre Beaumont](#) won the Circuit of Europe in a Type XI and another, flown by [Roland Garros](#), came second.



Anzani engined Blériot XI similar to the aircraft used for the Channel flight.



Detail of replica Blériot XI wing, Hamburg Airport Days, 2007

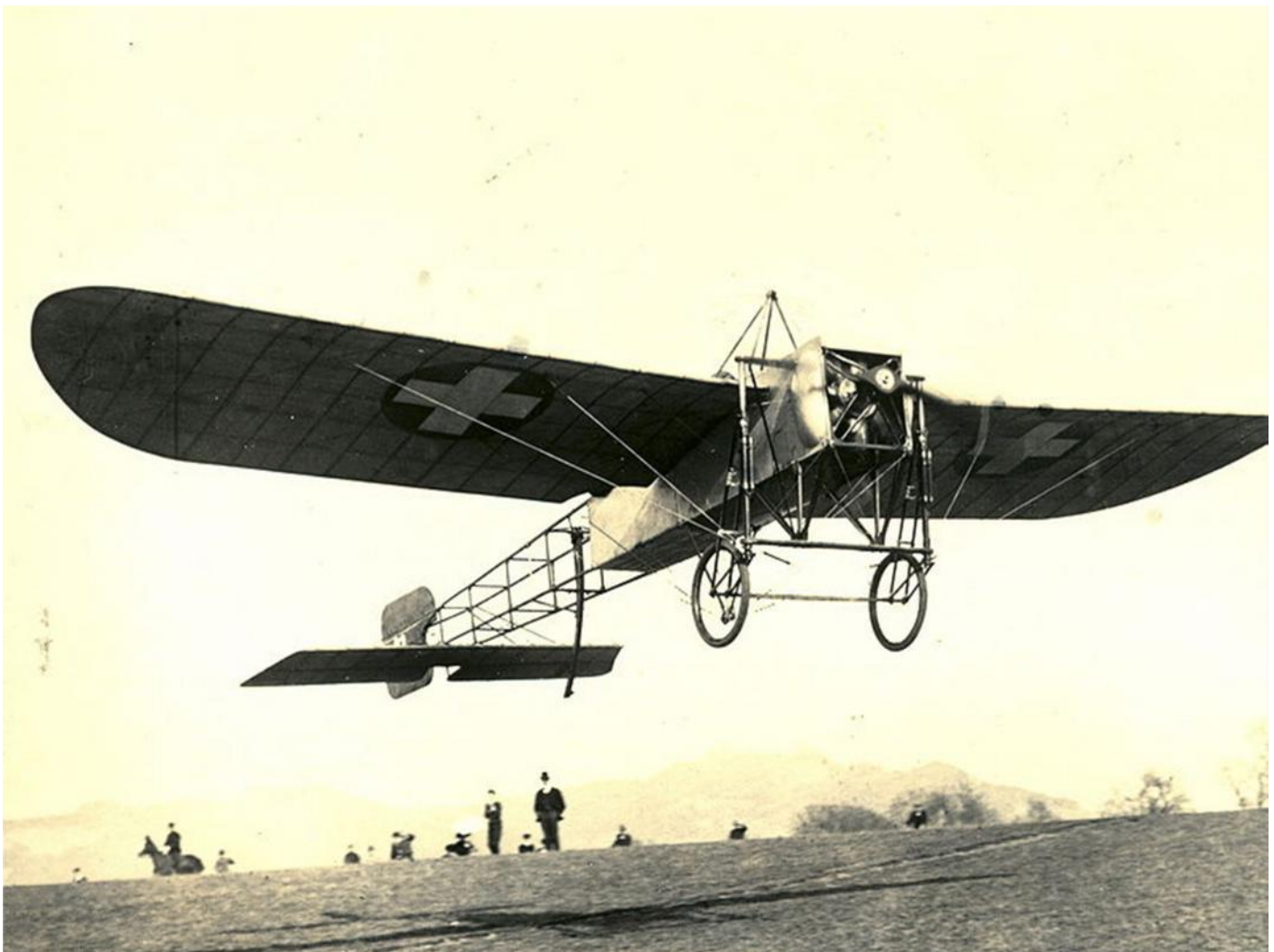
Louis Blériot established his first flying school at [Etampes](#) near [Rouen](#) in 1909. Another was started at [Pau](#), where the climate made year-round flying more practical, in early 1910 and in September 1910 a third was established at [Hendon Aerodrome](#) near [London](#). A considerable number of pilots were trained: by 1914 nearly 1,000 pilots had gained their *Aero Club de France* license at the Blériot schools, around half the total number of licences issued.^[11] Flight training was offered free to those who had bought a Blériot aircraft: for others it initially cost 2,000 francs, this being reduced to 800 francs in 1912. A gifted pupil favored by good weather could gain his license in as little as eight days, although for some it took as long as six weeks. There were no dual control aircraft in these early days, training simply consisting of basic instruction on the use of the controls followed by solo taxiing exercises, progressing to short straight-line flights and then to circuits. To gain a license a pilot had to make three circular flights of more than 5 km (3 mi), landing within 150 m (490 ft) of a designated point.^[12]

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Military use

The first Blériot XIs entered military service in Italy and France in 1910, and a year later, some of those were used in action by Italy in North Africa (the first use of aircraft in a war) and in Mexico.^[13] The [Royal Flying Corps](#) received its first Blériots in 1912. During the early stages of the [First World War](#), eight French, six British and six Italian squadrons operated various military versions of the aircraft, mainly in [observation](#) duties but also as trainers, and in the case of single-seaters, as light bombers with a bomb load of up to 25 kg.

Famous Blériot Monoplane pilots

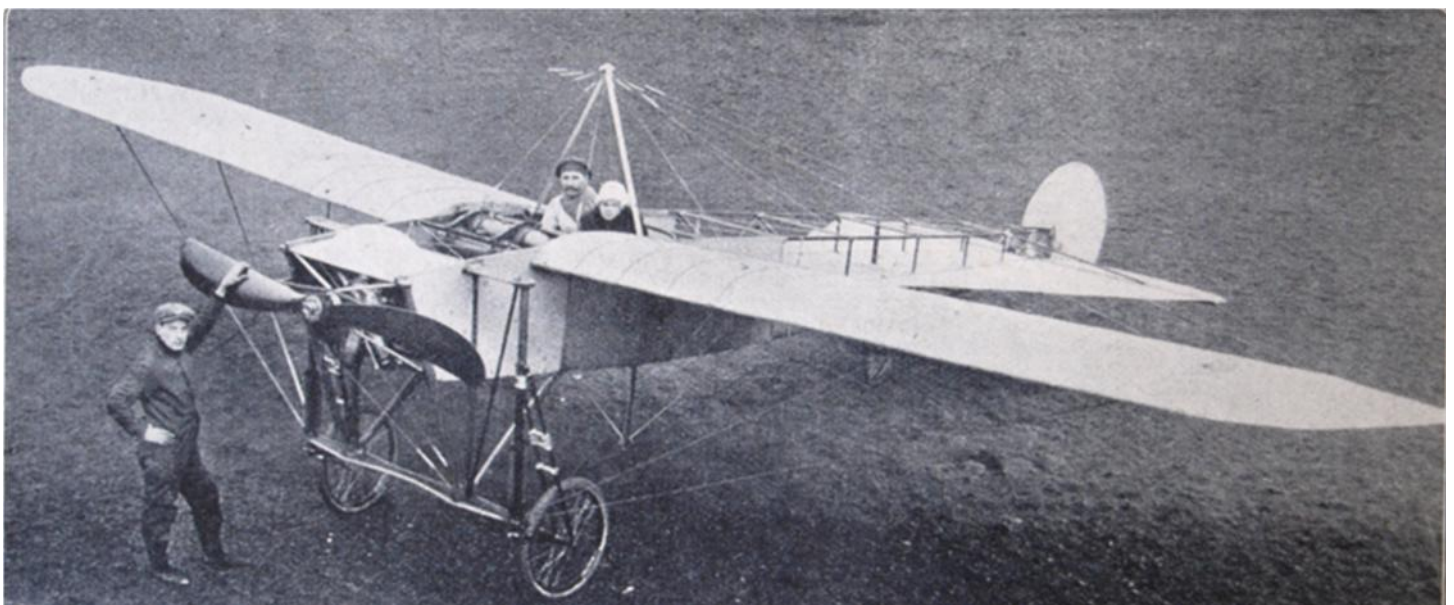


[Oskar Bider](#) starting from [Bern](#) to his flight over the Alps

- [Oskar Bider](#) – Swiss aviator who flew over the Pyrenees and the Alps in 1913.^[14]
- Baron [Carl Calle Cederström](#), who made the first flight of a heavier-than-air craft in Norway on 14 October 1910. He made a flight of 23 minutes and reached a height of 300 metres (983.9 feet).^[15]
- [Jean Conneau](#) (André Beaumont) In 1911 won the Paris-Rome race, the *Circuit d'Europe* (Tour of Europe) on 7 July and the [Daily Mail Circuit of Britain Race](#) on 26 July 1911.
- [Jorge Chavez](#) – French-Peruvian aviator who crossed the Alps in 1910, but crashed on arrival and was killed.^[16]
- [Denys Corbett-Wilson](#) – Anglo-Irish aviator who made the first successful flight from Britain to Ireland in April 1912.^[17]

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- [Leon Delagrangé](#) – One of the first people to fly an aircraft in France, killed on 4 January 1910 flying a Blériot XI when a wing failed.^[18]
- [John Domenjoz](#) (1886–1952) – Performed aerobatics in South, Central and North America in 1914–1918. His Gnome rotary-powered Blériot-XI is displayed at the National Air & Space Museum, Washington.^{[19][20]}
- [Roland Garros](#) - Won second place in the 1911 Circuit of Europe race, and set two world altitude records in 1912 in an adapted Type XI, flying to 5,000 m (16,000 ft) on 6 September 1912^[21]
- [Claude Grahame-White](#) Won the 1910 [Gordon Bennett Trophy](#) race held in New York flying a Blériot^[22]
- [Eugene Gilbert](#) – Went to the Blériot school in 1910 after having built his own small unsuccessful aircraft in 1909. During a flight across the [Pyrenees Mountains](#) in the [1911 Paris to Madrid air race](#) he and his Blériot XI were attacked by a large eagle, which Gilbert drove off by firing a pistol.^[23]
- [Tryggve Gran](#) – Norwegian aviator, first to cross the North Sea from Scotland to Norway in 1914.^[24]
- [Gustav Hamel](#) – Flew the world's first regular airmail service between Hendon and Windsor in September 1911.^[25]
- [Vasily Kamensky](#) – a famous [Russian Futurist](#) poet, one of the pioneering aviators of Russia.^[26]
- [Jan Kašpar](#) – Czech aviator, first person to fly in [Czech lands](#) on 16 April 1910.^[27]
- [Alfred Leblanc](#) – Broke the [flight airspeed record](#) on 29 October 1910 while flying a Blériot XI. His speed was calculated at 68.20 mph (109.76 km/h): on 11 April 1911 he raised the record to 111.8 kph^[28]
- [Jan Olieslagers](#) (1883–1942) – Lieutenant in the Belgian Army during the First World War.^[29]
- [Earle Ovington](#) – First airmail pilot in the United States, used a Blériot XI to carry a sack of mail from [Garden City, New York](#) to [Mineo, Long Island](#)^[30]
- [Adolphe Pégoud](#) – First man to demonstrate the full aerobatic potential of the Blériot XI, flying a loop with it in 1913. Together with John Domenjoz and Edmond Perreyon, he successfully created what is considered the first [air show](#).^[31]
- [Harriet Quimby](#) – First licensed female pilot in the United States; first female to fly the English Channel solo.^[32]
- Rene Simon (1885-192?) – In February 1911, the Mexican government engaged Rene Simon, a member of an aerial circus touring the southwestern United States, to reconnoiter rebel positions near the border city of Juarez.^[33]
- [Emile Taddéoli](#) – Swiss aviator who first flew on 22 March 1910, in his newly bought Blériot XI, and flew about 150,000 kilometres (93,000 mi) during the next five years, using various aircraft, among them, the Blériot XI, [Morane-Borel monoplane](#), [Dufaux 4](#), [Dufaux 5](#) and [SIAI S.13](#) seaplane.^[34]



Blériot XI-2 bis

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Survivors

In addition to the aircraft used by Louis Blériot to make his cross-channel flight in 1909, on display in the [Musée des Arts et Métiers](#) in Paris, a number of examples have been preserved.

Airworthy aircraft



Maiden public flight by a Blériot XI, manufactured 1918 under license by Thulinverken in Landskrona, Sweden as type Thulin A.

Photo: Bengt Oberger.

- A 1909-built Blériot XI, with British civil registration *G-AANG*, is on display at the [Shuttleworth Collection](#), Old Warden, England. It is the world's oldest airworthy aircraft, powered by a three-cylinder "W form" Anzani engine, identical to Blériot's original cross-Channel aircraft engine.
- A restored and flyable Blériot XI, powered by a 120°-angle regular "radial" Anzani three-cylinder engine and identified by factory serial number 56 and bearing U.S. civil registration *N60094*, is at the [Old Rhinebeck Aerodrome](#) (ORA). It is believed to have been built only three weeks after the Shuttleworth example, and is the oldest known flyable aircraft in the [Western Hemisphere](#).
- A Blériot XI, the oldest airworthy museum aircraft in Sweden, manufactured in 1918 under licence by AETA, Enoch Thulins Aeroplane Works, in [Landskrona](#), Sweden, as type **Thulin A**, has been owned by The Museum of Science and Technology in Stockholm, Sweden since 1928. Following a two-year restoration by Mikael Carlson, the Blériot XI made what was probably its maiden flight to celebrate the Centenary of Flight in Sweden, at the Stockholm Festival of Flight on 20–22 August 2010. Registered with the Swedish Civil Air Traffic Authority in 2010 as SE-AEC, the Blériot uses its

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original rotary engine, a [Thulin](#)-built copy of the [Gnome Omega](#). At the Stockholm Festival of Flight, the Blériot took off and landed no less than six times from a grass strip at The Royal Park, and was finally rolled 200 meters back to the Museum Exhibition Hall

Display aircraft

- [Museo Nacional de Aeronáutica](#) in [Morón](#), [Buenos Aires Province](#), Argentina: The aircraft has replica wings and is powered by a "W" three-cylinder Anzani 25 hp engine.^[38]
- [Smithsonian National Air and Space Museum](#), [Washington D.C.](#), United States of America: manufactured in 1914 and powered by a 50-horsepower Gnome. Owned by the Swiss aviator [John Domenjoz](#), a Blériot company flight instructor and later a celebrated stunt pilot.^[39]
- [RAF Museum](#), Hendon, England: Factory Serial Number: 164 and powered by a six-cylinder Anzani.^[40]
- [Army Aviation Museum](#), [Fort Rucker](#), [Alabama](#), United States of America.^[41]
- [Canada Aviation and Space Museum](#), [Ottawa](#), Canada: License built by the California Aeroplane Manufacturing and Supply Company, United States in 1911 and powered by a Elbridge Aero Special 60 hp, 4-cylinder, water-cooled engine.^[42]
- [Cradle of Aviation Museum](#), New York: Originally purchased by [Rodman Wanamaker](#), the first aircraft to be imported into America.^[43]
- [Powerhouse Museum](#), Sydney, Australia: The aircraft flown by Maurice Guillaux with first Australian airmail from Melbourne to Sydney in 1914.^[44]

Specifications (Blériot XI)

General characteristics

- **Crew:** 1
- **Length:** 7.62 m (25 ft 0 in)
- **Wingspan:** 7.79 m (25 ft 7 in)
- **Height:** 2.69 m (8 ft 10 in)
- **Wing area:** 14 m² (150 sq ft)
- **Empty weight:** 230 kg (507 lb)
- **Powerplant:** 1 × [Anzani 3-cyl. Fan 25-30 hp](#) 3-cyl. air-cooled fan style radial piston engine, 19 kW (25 hp)
- **Propellers:** 2-bladed [Chauvière Intégrale](#), 2.08 m (6 ft 10 in) diameter

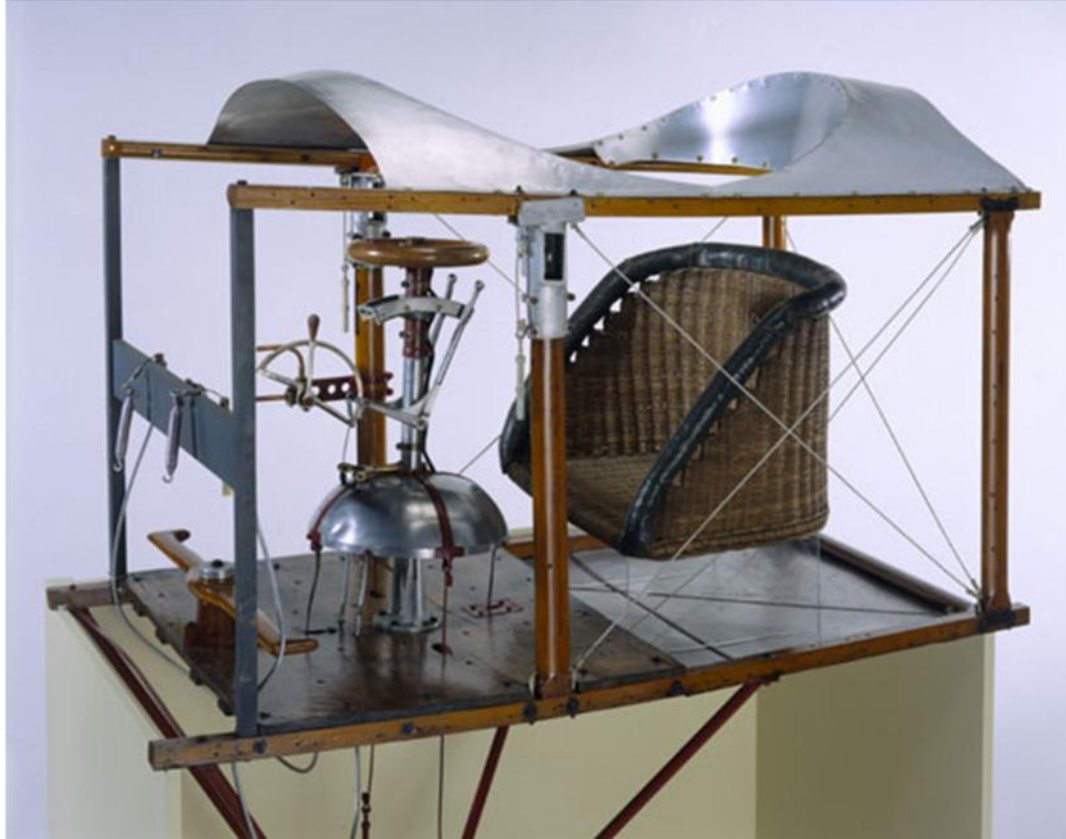
Performance

- **Maximum speed:** 75.6 km/h (47 mph; 41 kn)
- **Service ceiling:** 1,000 m (3,281 ft)

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BLERIOT XI
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