European Aeronautic
Defence and Space Company

On the Wings of Time

A Chronology of EADS — Edition 2003

EADS

DFW
mtu
B&V
Deutsche Airbus
AEROSPATIALE MATRA
HFB
ATRA MARCONI SPACE
FUS
DORNIER
C.A.S.A.
AEROSPATIALE
MBB
CASA
SAF
EWR
DaimlerChrysler Aerospace
MATRA
ESPACE
SNCASO
TELEFUNKEN SYSTEMTECHNIK
ERNO
M·A·N
TURBO
ATR
CAED
Deutsche Aerospace
SAD
SIEMENS
aerospatiale
BMW
Daimler-Benz
Louis Breguet
CASA

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Defence and Space Company

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European Aeronautic Defence and Space Company

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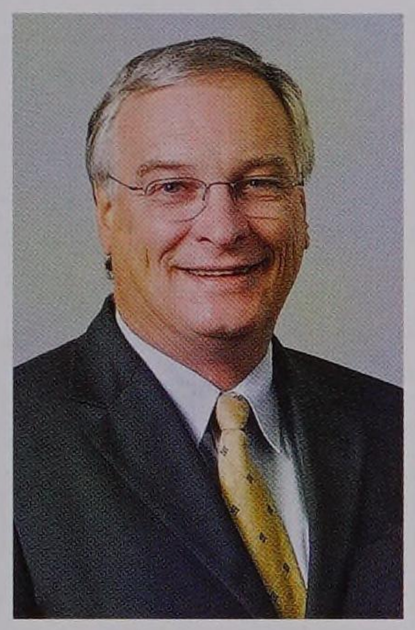
Philippe Camus



Rainer Hertrich

EADS is a young, dynamic and innovative group of companies, but at the same time it can look back on a long and rich tradition that has decisively influenced aerospace history throughout the world.

The roots of the companies Aerospatiale Matra (France), CASA (Construcciones Aeronáuticas S.A., Spain) and DaimlerChrysler Aerospace (Dasa, Germany), which merged on 10 July 2000 to form the European Aeronautic Defence and Space Company (EADS), reached back to the start of the 20th century.

Through their achievements, aviation pioneers such as Clément Ader, Ludwig Bölkow, Emile Dewoitine, Claude Dornier, José Ortiz de Echagüe, Henry Farman, Hugo Junkers and many others have helped to make flying one of the most natural things in the world – like using the satellite communication technology of mobile phones. It is flying that has made trade and leisure more mobile and, through aeronautics, technologies have been developed that now help to make the world a safer place – despite the continuing risks posed by local conflicts and terrorist attacks. After the end of the Second World War, the political developments produced a new basis for peace, especially in Western Europe, where there was a reconciliation of the peoples symbolised by the handshake of Konrad Adenauer and Charles de Gaulle at the signing of the Elysée Treaty in 1963.

The aerospace industry is a motor for technological innovation and, as Europe grows together, has endowed the continent with trailblazing multinational ventures such as Airbus, Ariane, Eurocopter and Eurofighter – lively examples of integrative and profitable transnational programmes. Through the formation of EADS, what were originally joint projects, programmes and products have been opened up to the investment of private capital and set on a solid commercial footing. The company now provides the basis for combined activities, in particular in France, Germany, Great Britain and Spain as well as in Italy, Belgium, the Netherlands, Finland, Poland, Australia, Canada and the USA.

The year 2003 marks the 100th anniversary of what is generally acknowledged as the first engine-powered flight, achieved by the Wright brothers in America. Nevertheless, the roots of aviation lie in Europe and it was here that motorised flight was developed to its maturity, just as space flight and many features of security technology had their beginnings in the Old World. And that innovative strength has not been lost.

This chronicle entitled "On the Wings of Time" brings that tradition of technical progress and the great commitment of the employees in our branch of industry to life. In doing so, it limits itself to the events and milestones relating genuinely to EADS and its founder companies Aerospatiale Matra, CASA and Dasa and their predecessors, therefore primarily concentrating on the developments in France, Germany and Spain. However, the last decade described in this chronicle and the pointers to the future show that both the innovative drive and the markets of our Group now really are global, with EADS becoming the leading aerospace company in Europe and the Number Two worldwide.

In documenting our company's history, "On the Wings of Time" retraces the development of a whole branch of industry. And that development continues. We are convinced that we will be able to extend this chronology by further highlights over the coming years – thanks to the quality of our products, the excellence of our technologies, our closeness to the market and the commitment of our workforce. Their achievements will continue to write company history and add more chapters to the history of technology.

Philippe Camus — *Rainer Hertrich*

Chief Executive Officers
European Aeronautic Defence and Space Company N.V.
(EADS)

Conquest of the Skies

The hops made by Otto Lilienthal in the Rhinow hills near Berlin in 1889 marked the birth of modern aviation.

In every field of knowledge there are pioneers who, through their ideas and inventions, have contributed and still contribute to the progress of mankind. To soar through the air, to emulate the birds and to observe the Earth from above; to bridge rivers, lakes or even seas – this is one of mankind's ancient dreams. The sky awakened the longing to go to the home of the Gods: "up there". In the writings of the ancient world we already find thoughts about flying – even about travelling to the stars. But it was only through the understanding of physical processes, how these take place in aerodynamics or how to make use of thermals, that the first men were able to take to the air in their various devices.

The very first "flying boxes" were the Chinese kites for which we find documented evidence in writings dating from about 200 B.C. After his travels around 1,500 years later, Marco Polo brought back the idea of such flying devices to medieval Europe.

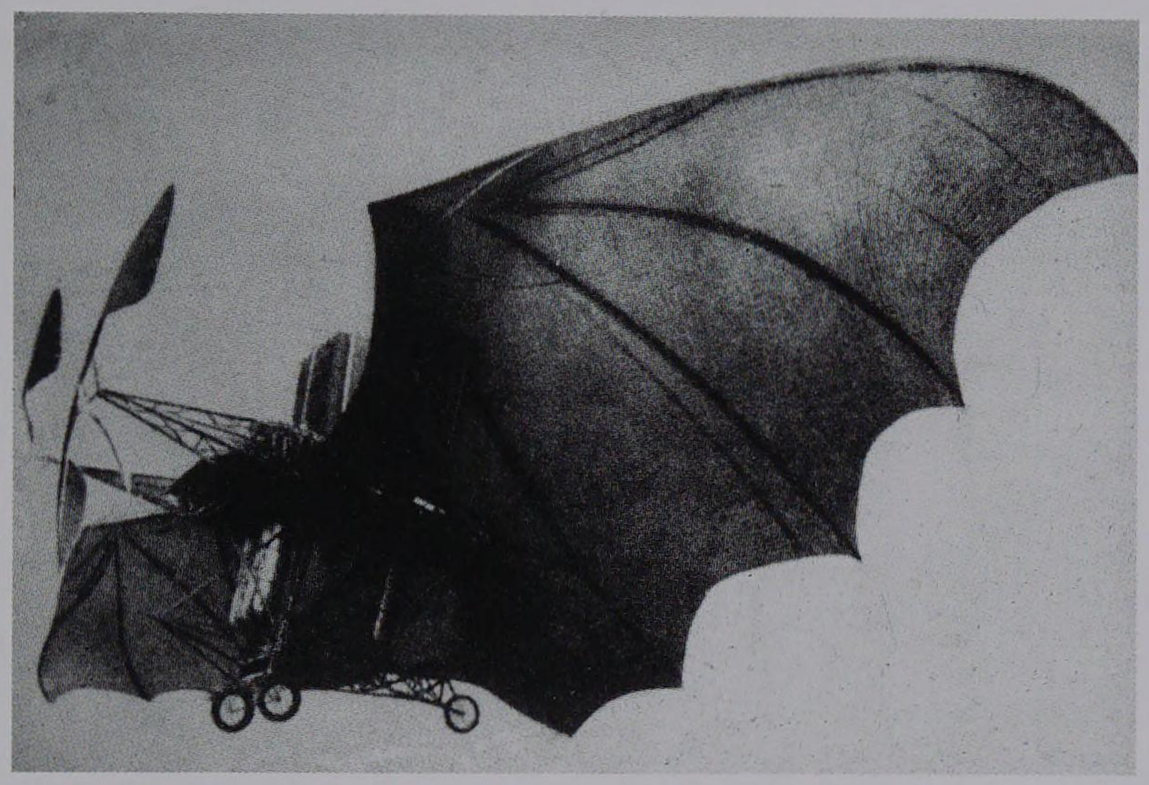
The principle of flying as being "lighter than air" had been known since Archimedes' time, but it was the brothers Joseph-Michel and Jacques-Étienne Montgolfier who first got a balloon to rise by means of hot air. On 15 October 1782, in Paris the first known "flying man" rose on board a so-called tethered balloon – a balloon still held by a rope – to a height of 26 metres and stayed there for four-and-a-half minutes. A new era had begun. Over the following decades, balloon flight developed further: balloons filled with hot air or with hydrogen were used for both research and military purposes.

The first known example of air travel: on 21 November 1782, the hot air balloon of the Montgolfier brothers successfully takes off in Paris with the pilots Pilâtre de Rozier and the Marquis d'Arlandes on board.

A further chapter in aviation history was the development of airships. In the 19th century there were many inventions in this area, but the actual breakthrough was made by Count Ferdinand von Zeppelin on 2 July 1900 with his rigid airship LZ-1.

Nevertheless, all these ideas and inventions were not "heavier than air flying machines" and, above all, they could be steered to only a limited extent or not at all.

But it is only a flying machine, or what we now know as an aeroplane, that can really fly. A German, Otto Lilienthal, experimented with gliders in the Berlin area and succeeded in making the first "hop flights" in the history of mankind. That was in the year 1889 – the birth of modern aviation. In 1903, the American Wright brothers were then the first to accomplish a flight in an engine-powered aircraft.



As early as 1890 the Frenchman Clément Ader had experimented with this flying machine.

since many German, French and Spanish trailblazers and design engineers played their parts in laying the foundations for the largest aerospace and defence technology company in Europe today and the Number Two in its branch worldwide.

The following pictorial chronicle shows how the European aerospace industry has developed since the early days and gives an insight into how the skies were conquered.

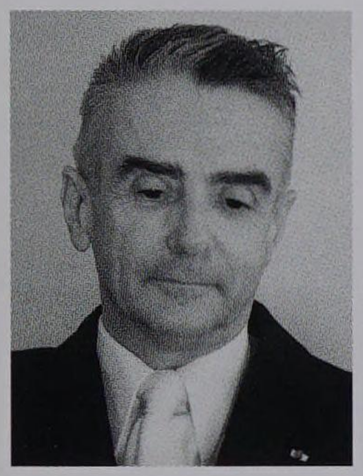
In discussions about aviation history there are, however, two other inventors who are claimed to have successfully completed an engine-powered flight before the Wright brothers: the Frenchman Clément Ader and the German Gustav Weisskopf. Whilst Ader claimed to have made his "jump" in October 1890, Weisskopf allegedly took to the air with his motor-powered aircraft in August 1901. To this day, neither of these "firsts" has been proved beyond doubt and so it is the flights by Lilienthal and the Wright brothers that are considered the really pioneering feats on the way to conquering the skies.

The culmination of ideas developed by daring flight pioneers of previous centuries formed the starting point for many early 20th century enthusiasts to revolutionise the construction of "flying machines" and thus lay the foundation for an aircraft industry. EADS can look back on its roots with pride

The German Gustav Weisskopf claimed to have flown his aircraft design two years before the Wright brothers. In the picture: an airworthy reproduction.

The Pioneers

Roger Béteille



Roger Béteille was born in Vors (Aveyron) on 28 August 1921. After graduating from the École Polytechnique, he studied at the École Sup'Aéro and at the Centre des Hautes Études d'Armement. In 1945 he acquired his pilot's licence. In 1952, he joined SNCASE in Toulouse and became Head of Flight Testing there. During this time, Béteille played a decisive role in the "Armagnac" and "Caravelle" programmes.

From 1957 to 1967, he headed the Rockets and Satellites division of Sud Aviation in Cannes. After that he established and led the French "Galion" project, a predecessor to Airbus. The Airbus A300 and eventually the A300B emerged from this project. He was one of the key players in the formation of the European Airbus consortium and, thanks to his pragmatic decision-making, became the ideal coordinator for the undertaking.

A large part of the initial success of Airbus can be traced back to Béteille. He long served as the company's Chief Operating Officer and may be regarded as one of the founding fathers of the Airbus Industrie GIE economic interest grouping, subsequently to become a division of EADS.

Louis Blériot

Louis Blériot was born in Cambrai (France) on 1 July 1872. He studied at the École Centrale des Arts et Métiers in Paris, receiving a diploma in Art and Commerce. After that, he founded a company for the manufacture of car headlights. When he heard about the Wright Brothers' successful flight, he began to take an interest in aeronautics and initially worked for Gabriel Voison. He decided to make a departure from the construction of biplanes and built a monoplane with forward mounted horizontal stabiliser. Over the next two years, he set up his own aircraft construction company. On 7 January 1909, he acquired pilot's licence No. 1 from the Aéroclub de France and achieved worldwide fame in the same year. On 25 June that year, as an outsider he entered the race for the first flight across the English Channel, for which the "Daily Mail" had offered a prize of £1000. In his Blériot XI. he completed the crossing in 37 minutes. One month previously, he had successfully flown a Blériot XII with two passengers on board.

During the First World War, he built fighter biplanes based on the Goupy II. He retained his links with the aeronautics industry until his death on 2 August 1936.

Walther Blohm

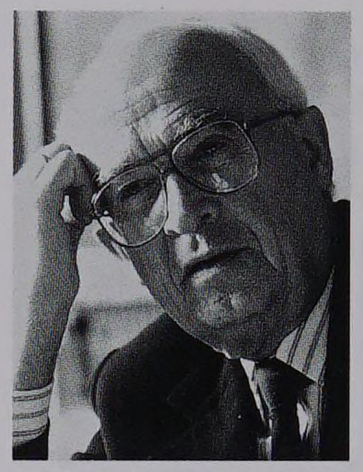
Walther Blohm was born in Hamburg on 25 July 1887. After an apprenticeship in Mechanical Engineering, a degree in Engineering and military service in the First World War, in 1918 Blohm together with his brother took on the management of Blohm & Voss, his family's shipbuilding yard in Hamburg. From autumn 1932, he closely investigated the future potential of air traffic, in particular identifying the trend towards intercontinental air traffic. Thus, upon his initiative, in 1933 the company Hamburger Flugzeugbau GmbH (HFB) was founded.

Soon, in 1934, roll-out of the Ha 135 took place at Fuhlsbüttel and in the same year two all-metal Ha 136 B aircraft underwent their maiden flights. The three-engined seaplane Ha 138 – later renamed the BV 138 – became one of the best-selling seaplanes of its era. The company grew and so a plant with an airfield and seaplane base was established at Hamburg-Finkenwerder. When in 1955 aircraft construction was once again allowed in Germany, Blohm took over in particular the licensed production of the Noratlas.

It was not long before Hamburger Flugzeugbau was able to present the HFB 320 Hansa Jet, the first German business aircraft fitted with jet engines. The experience gathered here was later incorporated into the Airbus programme.

Walther Blohm died on 12 June 1963.

Ludwig Bölkow



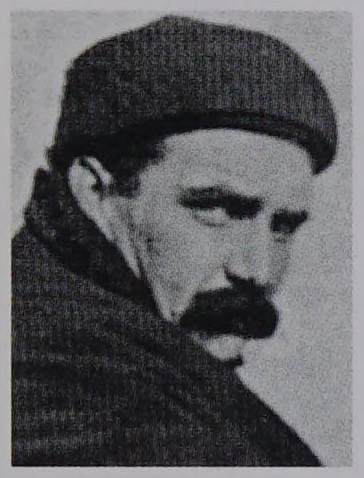
Ludwig Bölkow was born in Schwerin on 30 June 1912. After school, he carried out practical training at Heinkel in Warnemünde before studying Mechanical and Aeronautical Engineering in Berlin Charlottenburg. In 1939, Bölkow took up a position at Messerschmitt AG and worked on a number of projects including the Me 262 jet fighter.

In the summer of 1948, Bölkow set up an engineering office in Stuttgart and in 1956 he founded Bölkow Entwicklungen KG. The company worked on projects in the fields of light aircraft, helicopters and missile systems. On 1 December 1958, the company moved its headquarters to Ottobrunn near Munich.

During the development of the supersonic vertical takeoff aircraft VJ 101, from February 1959 Bölkow worked in the consortium Entwicklungsring Süd in Munich with Heinkel and Messerschmitt. After its merger in 1969 to form Messerschmitt-Bölkow-Blohm GmbH (MBB), under the management of Ludwig Bölkow the company became the largest German systems leader in the fields of aerospace, defence and transport technology. After the foundation of Airbus Industrie in 1970, MBB took on the German share in this European aircraft programme.

Ludwig Bölkow left MBB at the age of 65 and in 1983 founded the Ludwig Bölkow Foundation and the company Ludwig-Bölkow-Systemtechnik, which is active in the areas of environmentally friendly energy and transportation systems.

Louis Breguet



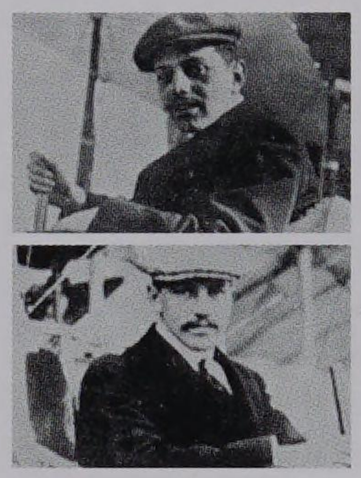
Louis Charles Breguet was born in Paris on 2 January 1880. In keeping with the family tradition, he came into contact with the technical sciences at an early age and graduated from the elite school École Supérieure d'Électricité as the best in his year. From then on, his special interest was in aerodynamics. He was one of the few people of his day to advocate pre-flight testing of important aircraft components such as wings and, in 1905, had the idea of building a wind tunnel. Together with his compatriot Professor Rechet, he built the first helicopter, calling it a Gyroplane. This aircraft first took off on 29 September 1907. Two years later he built his first biplane. During the First World War, he enjoyed success with his Breguet XIV, a reconnaissance aircraft used by allied forces, of which 8,000 models were built before the end of the war.

In cooperation with other French flight pioneers, he founded the air transport company Compagnie des Messageries Aériennes (CMA), the predecessor of Air France.

After the Second World War, Breguet also played a decisive role in the rebuilding of the French aeronautics industry. His various helicopter development projects are especially worthy of mention.

Louis Breguet died in Saint-Germain-en-Laye on 5 May 1955.

Gaston und René Caudron



Gaston and René Caudron were born in Favières (Picardy) on 18 January 1882 respectively 1 July 1884. Being keen on sport and enthusiastic about the achievements of the Wright brothers, in 1908 they built a biplane with wing surfaces totalling 60 m^2 and provisions for fitting two engines, which they however never received. So they harnessed their plane to a horse, which they urged into a fast gallop, and their efforts were crowned with success.

In 1910, they set up workshops and a flying school, the first aircraft they used for pilot instruction being a G3. Then, in 1912, they built a factory in Rue. In the following year they developed a flying boat, in which they achieved the first looping the loop.

Series production of the model G3 for the French Army was started in Lyon in 1914 and then moved to Issy-les-Moulineaux in 1915. The year 1919 saw Caudron aircraft perform several astounding feats:

- Jules Védrines landed on the roof of the Galeries Lafayette store in Paris;
- a landing on the summit of Mont Blanc;
- the flying ace Adrienne Bolland overflew the Andes in her Caudron G3.

In 1933, Louis Renault and René Caudron combined their activities. This resulted in the beautiful racers of the Deutsch Cup, those slim record breakers of Delmotte and the speedy Simoun aircraft in which Saint Exupéry made his famous flights for the Air Bleu postal services. Gaston died in an air accident in 1915. His brother René survived him by well over forty years and died in the Somme district in 1959.

Juan de la Cierva Codorniu

Juan de la Cierva Codorniu was born on 21 September 1895 in Murcia, Spain. At the age of 15, together with two friends he constructed a glider of his own design and began to experiment with it. After receiving his engineering degree, in 1918 he built Spain's first three-engined aircraft. He also started to develop an "autogiro", whose characteristics lay between those of a conventional aircraft and those of a helicopter. The autogiro may be regarded as a forerunner of the helicopter. Cierva made his first successful flight with an autogiro at Getafe, Spain, in 1923 and in 1925 he moved to England to continue his work.

Prior to World War II, Cierva's autogiros saw service in France, Germany, Japan and the USA before finally being supplanted by helicopters.

In 1928, Cierva crossed the English Channel in his C-30 autogiro, thus becoming the first pilot to achieve this feat in a rotorcraft. He died in London on 19 December 1936.

Marcel Chassagny

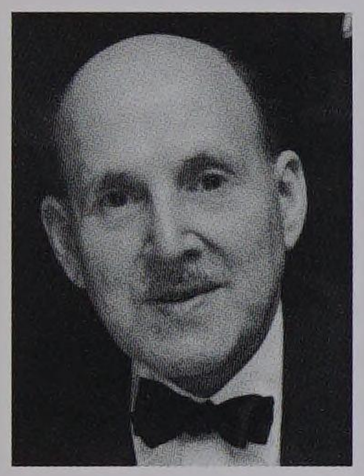
Marcel Chassagny was born in Paris on 4 October 1903. At the age of 20, he graduated from the business school École des Hautes Études Commerciales. In 1937 he founded the company CAPRA (Compagnie Anonyme de Productions Aéronautiques) which supplied the French aircraft and automobile industry.

After the end of the Second World War, he founded Matra (Mécanique Aviation Traction) in Paris. The company designed and built the prototype for a twin-engine, twin-fuselage combat aircraft. With a speed of 800 km/h, it was to become the fastest propeller aircraft in the world. A year later, his company received a contract from the French Ministry of Aviation to develop airborne weapons and by 1950 the first tactical missile, the M 04 No. 1, had already flown.

In the nineteen-fifties, Chassagny developed his activities in the rocket and guided missile sector. In 1961, his company moved into the field of space technology and built the first French experimental satellite, the A 1. From this point onwards, Matra advanced to become one of the leading European companies in the area of satellite and missile technology. The company was also a household name in automobile construction and transport technology.

Chassagny retired from the company in 1977 and died in Paris on 18 September 1988.

Marcel Dassault



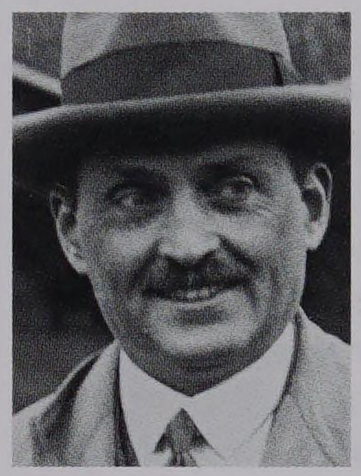
Marcel Dassault was born in Paris on 22 January 1892 as Marcel Bloch. He initially studied Electrical Engineering and graduated in 1914 from the newly-founded elite school for aeronautics, becoming one of the first French aeronautical engineers.

By the First World War he was already producing the propeller for the fighter aircraft Blériot SPAD. Afterwards, Bloch became known as a producer of transporters, bombers and fighter aircraft, and also for the Bloch 152 fighter, which was used in combat against the German invasion of France. In 1944 he was deported to the Buchenwald concentration camp by the Gestapo because of his role in the French Resistance. After the war, he changed his name to Dassault and founded the company of the same name. He revolutionised France's independent defence strategy. His name is closely associated with such aircraft as the Ouragen, the supersonic combat aircraft Mystère and the first European jet to break the Mach 2 barrier, the Mirage. The Dassault company became the leading aircraft producer in France.

Together with Dornier, Dassault/Breguet developed the Alpha Jet trainer in the sixties.

Marcel Dassault died on 22 April 1986.

Emile Dewoitine



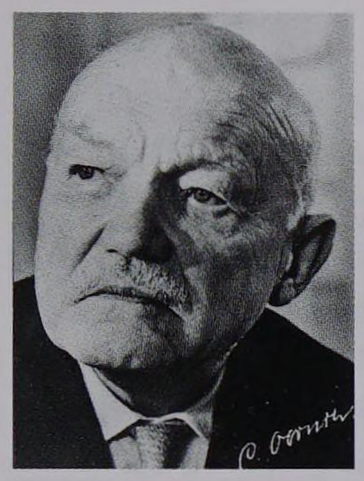
Emile Dewoitine was born in Crépy-en-Laonnais (Aisne) on 26 September 1892. Having graduated from the École Breguet in 1917, he joined Georges Latécoère in Toulouse. Here, he was responsible for the production of 1,000 Salmson A2 aircraft. In 1920, he founded his own company, C.A.E.D. (Construction Aéronautique Emile Dewoitine), in Toulouse. This is where the first aircraft designed by him, the all-metal D-1, was built. In 1936, he produced the legendary D-520 fighter, of which 905 units were built.

In the same year, his company was nationalised to become S.N.C.A.M. (Société Nationale de Construction Aéronautique du Midi).

In 1941, he left the company and produced drafts for a D-600 for Spain and a D-350 for Japan. In 1944, Dewoitine turned his back on France for political reasons and emigrated to Spain and later Argentina. He returned to France in 1953 and worked together with the Fouga company there. The result of this was the C.M. 170 Magister. In all, Dewoitine built 35 different aircraft models. He was the founder of the plants that today form part of EADS.

Dewoitine died in Toulouse on 5 July 1979.

Claude Dornier



Claude Dornier was born in Kempten on 14 May 1884. At the end of 1910 he was taken on as a young graduate engineer at the airship works of Count Zeppelin, where he was entrusted with his own "Department Do" for aircraft design from 1914 on. It was here that the first flying boats were built. Also the company Zeppelin-Werke Lindau GmbH was founded under his management and began to develop all-metal landplanes.

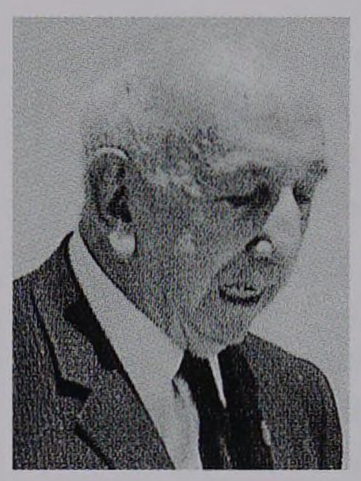
Because of the ban on aircraft construction in Germany following the end of the First World War, he transferred the assembly of some flying boats to Switzerland. In 1923, Dornier acquired the aircraft construction facilities in Friedrichshafen, where by 1925 the first drawings had been completed for a giant flying boat, the Do X. Well into the 1930s the development of flying boats remained an important pillar of the company. A new era began with the fighter aircraft Do 17.

After the end of the Second World War, he founded an engineering office in Madrid. He returned to Germany in 1955. Dornier intensively pursued the idea of aircraft for short, very short and vertical takeoffs.

When Dornier System GmbH was founded in 1962, the company also moved into the field of space, participating in the work on the first German research satellite Azur and other projects.

Claude Dornier died at Zug in Switzerland, where he had finally settled, on 5 December 1969.

José Ortiz de Echagüe



José Ortiz de Echagüe, known as Don José, was born in Guadalajara in Spain on 21 August 1886. At the age of 17, he graduated from the military academy in his home town. He became a balloonist and was one of the first people to take reconnaissance photos from a balloon, doing this in Africa.

In 1911, he was one of the very first to acquire the Spanish pilot's licence, his document bearing the serial number 3. He then made a name for himself by undertaking various spectacular flights.

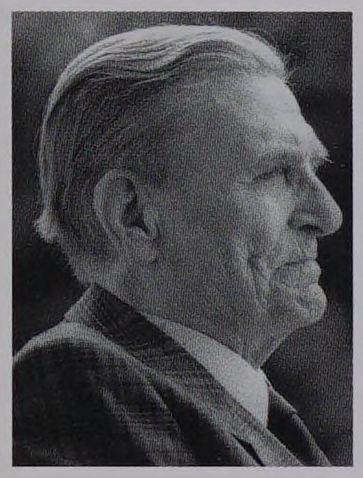
In 1914, he returned to civilian life and worked for a short time in France, then as an engineer in a railway works in Zaragossa. It was here that the first Spanish aircraft was also built. It completed its maiden flight on 3 April 1915. The reproduction of six French "parasol" aircraft also took place at this time.

From 1917, he set up the "Electromecánica de Cataluña" company in Madrid, which manufactured spare parts for the aircraft industry, for bombs and for machine guns.

The year 1923 saw him acting as a founder father of CASA, where he subsequently occupied various top positions until his death. A further task he took on during his career was that of Chairman and Managing Director at the newly founded car builder SEAT. Don José held the position of President and CEO of CASA from 1966 to 1970.

He died in Madrid on 7 September 1980.

Rolf Engel



It was through his fascination for stargazing that Rolf Engel, born in Menz (Brandenburg) on 10 August 1912, came to be interested in space travel. In 1929, he joined a working group headed by Hermann Oberth in Berlin. While studying Mechanical Engineering in Berlin and Danzig, Engel also worked on the development of liquid propellant rocket engines with various research groups in Dessau and at the rocket launching site in Berlin. At Engel's own company, the "Test Establishment for Jet Engines" at Grossendorf (West Prussia), founded in 1939, several different rockets driven by solid propellant were built up to 1944.

After the war, Engel headed the research group of the "Office National d'Études et des Recherches Aéronautiques"(O.N.E.R.A.) near Paris. Here, studies were conducted into the history of German rocketry down to the first calculations for a space station. After 1952, Engel took on assignments in Egypt and Italy.

Returning to Germany in 1962, Engel then coordinated the space technology activities at Bölkow GmbH from 1963 on. Until his retirement in 1972, he was at the head of MBB's Space Systems Division. Afterwards, he devoted his time to studying the space activities of the two superpowers USA and USSR.

Rolf Engel died in Munich on 23 November 1993.

Robert Esnault-Pelterie

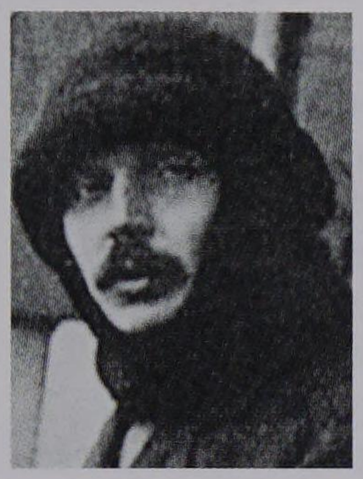
Robert Esnault-Pelterie, known as REP, was born in Paris on 8 November 1881. He studied Botany, Chemistry and Physics at the Sorbonne. From 1904 onwards, he took an interest in aircraft construction, establishing that existing models were unstable. As a consequence, he invented the aileron and in 1907 flew his first aircraft, the REP No. 1. In the same year, he also acquired a pilot's licence, the fourth to be issued. He introduced the control stick and safety belts.

REP also developed his own engines. On the 1911 Tour of Europe, his aircraft was the only one to complete the 1,800 km course without needing repairs.

From 1912, he devoted his time to rocketry and space travel and considered fundamental problems of jet-powered aircraft. His major work "L'exploration par fusées de la très haute atmosphère et la possibilité de voyages interplanétaires" was published in 1928 and discussed atmospheric research and the possibility of interplanetary travel. With the banker André Hirsch he founded the Prix International d'Astronautique, which in 1929 was first awarded to the scientist Hermann Oberth for his research into space travel. In the thirties, Esnault-Pelterie worked with success on liquid-propellant engines powered by liquid oxygen and petrol.

He died in Nice on 6 December 1957.

Henry Farman



Henry Farman was born the son of British parents in Paris on 26 May 1874. Although he studied at the École des Beaux Arts, the technical achievements of the late 19th century, such as the automobile, interested him so much that he became a racing driver. One of his achievements as a driver was to win the Paris-Vienna race of 1902. After an accident he lost his enthusiasm for cars, but his fascination for modern technology remained and he witnessed Voisin's first attempts at flying on the Seine in 1906.

He was also the first person to buy a Voisin aircraft in 1907. Thanks to his natural feel for technology and engines, he managed to remain aloft for longer than others before him. He set to work on improving the aircraft and the result was the Voisin-Farman 1. On 13 January 1908, he flew 1,500 m, the furthest distance achieved at that time. A year later, he set up several speed records. In 1912, he founded the Farman Aeroplane Company with his brother Maurice. They predominantly built biplanes for military and training purposes. Farman aircraft were used for reconnaissance during the First World War.

The Farman Goliath was the first long-distance passenger aircraft. It undertook regular flights between Paris and London from February 1919 on. Farman was one of the founders of the CMA, the predecessor to Air France. His aircraft works were integrated into the state-owned SNCAC in 1936.

Henry Farman died in Paris on 17 July 1958.

Henrich Focke

Henrich Focke was born in Bremen on 8 October 1890. While still a schoolboy, he developed a deep interest in flight technology and in 1908 he flew a small glider. After leaving school with the Abitur, he studied Mechanical Engineering at the Technical University of Hanover from 1910 on. In 1920 he began to design and construct aircraft together with Georg Wulf. The A VII Storch ("Stork") was built. Then they jointly founded the "Bremer Flugzeugbau" company, later renamed "Focke-Wulf Flugzeugbau". Here the legendary "Focke wings" were developed, a form that made the aircraft particularly stable. Focke lost his long-standing partner Georg Wulf through a plane crash in 1927.

In 1933, Focke was removed from his position at the head of his company by the Nazi regime. Nevertheless, he was allowed to continue work on the development of a helicopter. The result was the Fw 61, the world's first airworthy helicopter.

After the Second World War, Focke worked in Paris for a few years. In 1951 he founded an engineering office in Bremen, which was again to work on the development of helicopters. In 1956, he moved to the Borgward company in Bremen to set up a helicopter department.

The imminent bankruptcy of the company then forced him to continue on a self-employed basis from 1961 on.

Henrich Focke died in Bremen on 25 February 1979.

Anthony Fokker

Anthony Fokker was born in Blitar in Java on 6 April 1890. He moved to Europe, where he became so fascinated by aircraft that he started to build a glider. Fokker soon settled in Germany, where he gained basic knowledge in automobile and aircraft design. In 1911 he acquired his pilot's licence and, in the same year, he constructed his famous Spinne ("Spider") aircraft. Shortly after this, he set up his first aircraft company in Berlin-Johannisthal.

With his M.2 monoplane Fokker won a design competition and as a result received his first order for ten aircraft. In 1913, he moved his firm to Schwerin, where it grew to become Germany's largest aircraft manufacturer. In 1917 the Fokker Dr.I triplane achieved particular fame, being the aircraft flown by Manfred von Richthofen, the "Red Baron".

After the First World War, Fokker transferred his company to Amsterdam, where in 1919 he founded the N.V. Nederlandse Vliegtuigenfabriek. Initially, he restarted production of the D.7 fighter biplane, but then turned to the development of commercial aircraft. In 1930, with 172 aircraft Fokker had won a 28 percent share of the European market alone. In 1939, the first all-metal aircraft from Fokker, the twin-engined T.9, was produced.

Anthony Fokker died in New York on 23 December 1939.

René Hanriot

René Hanriot, who originated from the Free County of Burgundy, was an automobile enthusiast and took part in the famous Paris-Madrid Rally. In 1904, he set a new world road speed record by driving 128 km/h. His son Marcel, who at the age of 13 was already driving his father's racing cars at over 100 km/h, acted as co-driver.

René Hanriot showed a very early interest in aviation. He was already a supporter of monoplanes when the majority of aircraft designers at that time were focusing on biplanes.

In 1910, René Hanriot founded a flying school at Reims, where his son Marcel received his pilot's licence at 16.

After the outbreak of the First World War, the Hanriots built warplanes, initially at a factory in Levallois and later in Boulogne-Billancourt by Paris. Production concentrated on the fighter biplane HD1, of which 1,200 were built. In all, the Hanriot works built almost 5,000 aircraft, which included their own developments (HD1, HD2, HD3, etc.) and also licence production.

In the period between the two world wars, the Hanriot works enjoyed a great reputation through their trainer HD14, more than 2,000 of this renowned aircraft being built.

After the death of René Hanriot in 1925, his son Marcel became head of the company.

Ernst Heinkel

Ernst Heinkel was born in Grunbach (Württemberg) on 24 January 1888. A visit to the first International Aviation Exhibition (ILA) at Frankfurt/Main in 1909 shaped the rest of his life. As a result Heinkel, who had been studying Mechanical Engineering in Stuttgart since 1907, built a first aircraft of his own, which he however crashed in 1911. After dropping out of college, he joined the Albatros works in 1913, where he advanced to the position of chief designer.

After the war, Heinkel first ran an automobile repair workshop. In 1920 he then joined the Caspar aircraft works, where he developed anti-submarine reconnaissance aircraft. On 1 December 1922, he founded the Heinkel Flugzeugwerke at Warnemünde, where he developed dozens of different aircraft during the 1920s.

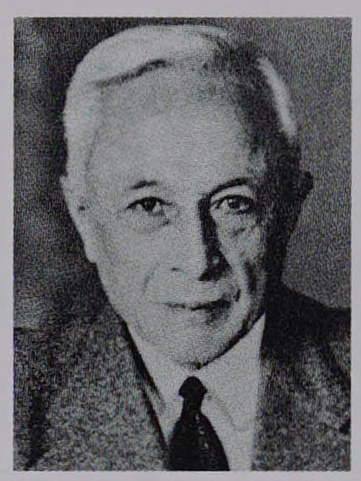
In the 1930s, Heinkel's aircraft constantly set new standards. Heinkel's striving to achieve ever higher speeds led to the development of the jet engine.

After the Second World War, Heinkel initially produced engines and later built motor scooters and bubble cars.

After conducting various development studies into jet engines and fighter aircraft on behalf of Egypt, from the mid fifties he turned to aircraft construction again. Heinkel cooperated with Messerschmitt to found the joint venture Flugzeugunion Süd in 1956.

Ernst Heinkel died on 30 January 1958.

Hugo Junkers



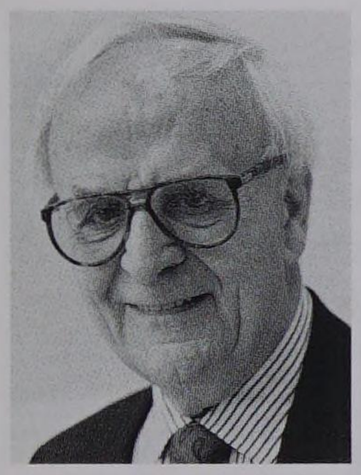
Hugo Junkers was born in Rheydt on the Rhine on 3 February 1859. He studied Mechanical Engineering at the Technical Universities of Berlin, Karlsruhe and Aachen. In 1890, Junkers founded a research institute for gas engines together with Wilhelm von Oechelhaeuser, Director of the Continental-Gasgesellschaft in Dessau. This also formed the financial basis for his further research.

Experiments using his own wind tunnel brought Junkers to the realisation that economic aircraft design of the future depended on the reduction of drag and that only metal was suitable for such constructions. In 1914-15, the J 1, the world's first all-metal aircraft, was built. After the war, he constructed the F 13, the world's first all-metal commercial aircraft. This aircraft acted as the basic model for all subsequent Junkers cargo and passenger aircraft down to the three-engined Ju 52, the aircraft that made the name of Junkers famous throughout the world. It reached the all-time highest production and export quantities of any German cargo and passenger aircraft.

In autumn 1933, the National Socialists banned Junkers from his works. In bitterness he withdrew to Garmisch-Partenkirchen.

On 3 February 1935, his 76th birthday, Hugo Junkers died in Gauting near Munich.

Felix Kracht



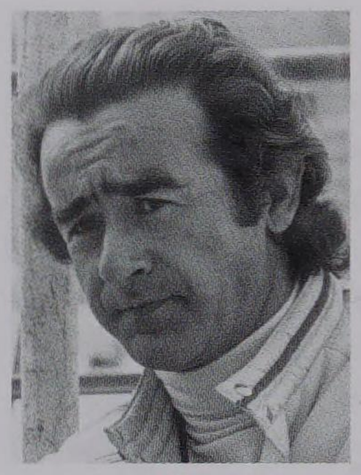
Felix Kracht was born in Krefeld on 13 May 1912. Even as a schoolboy in a Franciscan monastery in the Netherlands he was passionately interested in aviation. After graduating from the Technical University of Aachen, he put his theoretical knowledge into practice at the aeronautical association Flugwissenschaftliche Vereinigung Aachen (FVA) by building the performance glider FVA-10 "Rheinland". Kracht made a name for himself when in 1937 he crossed the Alps in this aircraft. The "Rheinland" went into series production.

His career in industry started after the Second World War as Franco-German co-operation began to take off, above all in the Transall project. Following the foundation of the Airbus consortium, Kracht provided continual support during the development of these European aircraft. It was also his idea to introduce worksharing on the Airbus A310 and A320 amongst the partner countries France, Germany, Britain and Spain.

Up to 1981, Kracht held the position of Senior Vice President and was responsible for production at the Toulouse site. After his retirement, he often acted as an advisor to Airbus Industrie, whose sales of passenger aircraft are now on a level with Boeing.

Felix Kracht died at the age of 90 in Weyhe near Bremen on 3 October 2002.

Jean-Luc Lagardère



Jean-Luc Lagardère, born on 10 February 1928, was Chairman of EADS European Aeronautic Defence and Space Company and General Partner and CEO of Lagardère SCA.

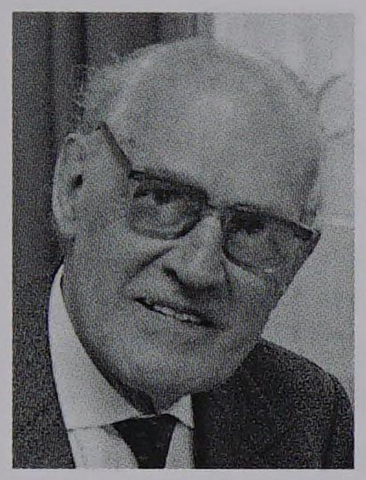
After receiving his degree in Electrical Engineering, he began his professional career in 1952 with Avions Marcel Dassault. He quickly rose through the ranks here, but then moved to Matra to become President in 1963.

In 1982 the French state acquired a 51% share in Matra and Jean-Luc Lagardère remained at the helm. Six years later, Matra was reprivatised, with the Lagardère Group becoming its largest shareholder. After expanding business and restructuring the group's activities, in 1992 Jean-Luc Lagardère became General Partner and CEO of Lagardère SCA, the media and aerospace conglomerate. Here he had founded European companies such as Matra Marconi Space in 1990 and Matra BAe Dynamics in 1996.

In 1999, Matra Hautes Technologies merged with Aerospatiale. The resulting company, Aerospatiale Matra, was one of the three founding partners of EADS, in whose formation Lagardère had also played a leading role. The merger of the Airbus European activities under a single roof was also brought about through his commitment, as was the industrial launch of the A380 programme in 2001.

Jean-Luc Lagardère died on 14 March 2003.

Willy Messerschmitt



Willy Messerschmitt was born in Frankfurt on Main on 26 June 1898. As a 25-year-old Mechanical Engineering student at the Technical University of Munich, he founded his first company, "Flugzeugbau Messerschmitt" in Bamberg. Here, he initially built gliders and light aircraft from wood.

In 1925, he received his first major order, which was for a four-seater feeder-service aircraft of all-metal construction, which completed its maiden flight only a year later. By 1944, Messerschmitt's company had grown and had 45,000 workers on its payroll. His Me 109 reached a production total of roughly 35,000 in numerous versions, which made it the most-built fighter aircraft in aviation history.

The era of jet aircraft received important impulses from Messerschmitt's aircraft. The jet-powered Me 262 of 1942 was Messerschmitt's most significant aircraft. In 1945, Messerschmitt introduced the sweptback wing, a design favourable for high-speed flight.

After the war, he took on work from the Spanish government in 1953. In the Entwicklungsring Süd (EWR), a joint venture formed with the Bölkow and Heinkel companies, he constructed the vertical takeoff aircraft VJ 101. It was through this aircraft that the German aviation industry regained its position in international aircraft construction.

Willy Messerschmitt died on 15 September 1978.

Robert und Léon Morane

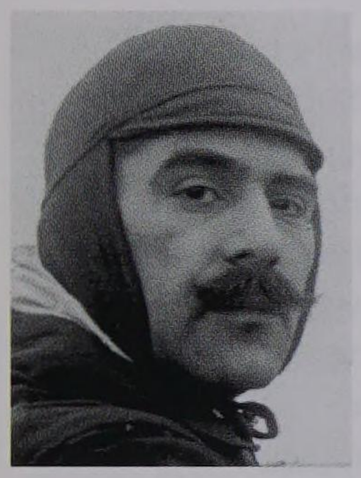
The Morane brothers were both born in Paris, Léon on 11 April 1885 and his younger brother Robert-Charles on 10 March 1886. By 1898, Léon already showed an interest in technology, building a tricycle with a 1.75 hp engine, which he used to tow his little brother around in a small cart. His later fame was earned as a pilot.

On 19 April 1910, he acquired pilot's licence number 54 and only three months later he set up a world speed record of 108 km/h in a Blériot monoplane. The world altitude record followed when on 3 September he flew to a height of 2,584 m at Trouville. On 5 October 1910, the two-seater Blériot carrying both brothers crashed shortly after taking off from the Issy-les-Moulineaux airfield during the Michelin Paris to Puy-de-Dôme trophy race. They survived, but were badly injured. While recovering in hospital, Léon Morane received a visit from Raymond Saulnier, a childhood friend, with whom he founded the Morane-Saulnier company on 10 October 1911.

Robert became the company's first test pilot. Robert also founded the Messageries Aériennes, the famous Morane pilot training school, at Villacoublay.

Whilst Léon died an early death on 9 October 1918, Robert lived until 28 August 1968.

Edouard Nieuport

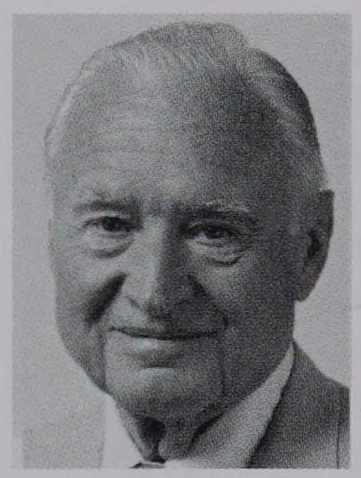


Edouard Nieuport was born at Blida in Algeria on 24 August 1875. Although he was one of the best students at the École Supérieure d'Électricité elite school for electrical engineering, he broke off his studies to become a racing cyclist. At the same time, he followed the experiments of Lilienthal with interest. Nieuport recognised that aerodynamics play a fundamental role in aviation. Also while cycling he carried out aerodynamic tests. Another of his interests was motor sport. Employing his good knowledge of electrics, he replaced the at that time unreliable ignition with a high-voltage magnet. In 1907, he set up a small factory for the production of ignition systems, ignition plugs and other electrical components. Now he had a financial basis for the development of flight hardware of his own design.

He started with a monoplane, which he presented at the Reims competition in 1909. In the same year, the Nieuport 2N was built, in which he set up a world speed record of 119.76 km/h.

He was drafted into the armed forces in 1911 and joined the Pioneers. This gave him the opportunity to demonstrate his aircraft. The officers were impressed and realised the significance of aircraft for military purposes. During one of his demonstrations, his aircraft was caught by a gust of wind and crashed. The emergency doctor arrived too late and Nieuport died at the scene of the accident in Charny on 15 September 1911.

Hans-Joachim Pabst von Ohain



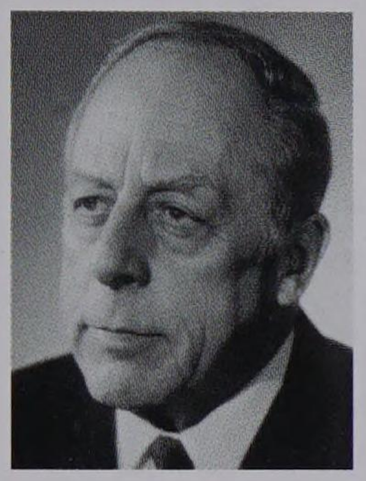
Hans-Joachim Pabst von Ohain was born the son of the army captain Wolf Pabst von Ohain at Dessau (Anhalt) on 14 December 1911. While he was studying Physics from 1930 to 1935, Ohain was already directing his thoughts towards new types of aircraft engines. During his studies at Göttingen he had already begun to conduct independent experiments together with Max Hahn.

On the recommendation of Professor Pohl, who had supervised his doctoral thesis, Pabst von Ohain went into industry after completing his studies. His first position was Head of Jet Engine Development with Heinkel at Warnemünde. Here, within a period of three years and two months the radial jet engine He S3B was completed, Heinkel financing the development from its own company funds. This engine was then installed in the airframe of the He 178 and with this aircraft the first turbojet-propelled flight in aviation history took place on 27 August 1939.

Pabst von Ohain followed this up with further projects and developments. At the end of the Second World War, the He S011, one of the most powerful German engines ever, was about to go into series production.

After the war, Hans Pabst von Ohain moved to the USA, where he continued to work in aeroengine research. He died in Melbourne (Florida) on 13 March 1998.

Henry Potez

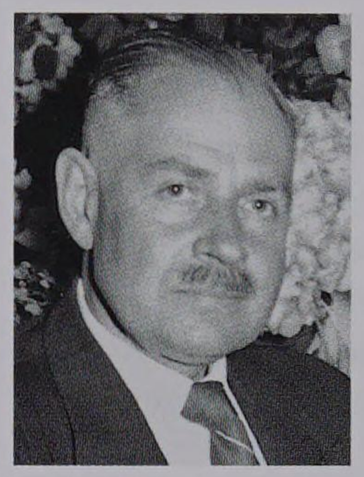


Henry Potez was born in Méaulte (Somme) on 30 September 1891. At the age of 19, he entered the Sup'Aéro school. In 1916, with Marcel Bloch he founded the company SEA, which built the SEA 4, later to be renamed the Potez 7. Potez then set up his own company in Aubervilliers, which later moved to Levallois before being finally located in Méaulte. In all, his company built 7,000 civil and military aircraft. Following nationalisation in 1936, the Potez plants were integrated into SNCAN. Henry Potez became chairman of this company.

In 1933, the Potez 53 with Georges Détré at the controls won the Deutsch de la Meurthe trophy. Potez founded the "Potez Aéro Service" in France for the purposes of marketing his touring and training aircraft. Following the war, he developed the Potez 75 ground attack aircraft and the Potez 840 four-engine turboprop transport aircraft. They were built at the Argenteuil plant, the site where the Potez engines were manufactured. Finally, in 1957, Potez acquired the Fouga company and continued the production of the CM170 "Magister".

Potez died in Paris on 9 November 1981.

Wilhelm Runge



Wilhelm Runge was born in Hanover on 10 June 1895. In 1914, he completed his schooling with the "Wartime Graduation Certificate" and entered the war as a volunteer. During this time, he was assigned to the unit that was preparing the introduction of ground telegraphy. Then he was transferred to the Intelligence Corps, later moving on to the Telegraphic Corps, where he was given responsibility for high-power radio stations.

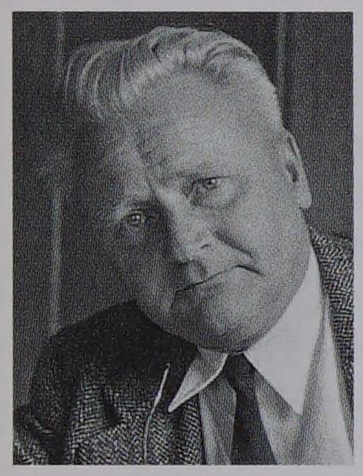
After the war, Runge studied Electrical Engineering at Göttingen and Darmstadt, concentrating on high-frequency technology.

In November 1923, he started work at a Telefunken laboratory and was promoted to head it in autumn 1924. In the following years, Runge developed measuring and calculation methods that placed the construction of receivers on a solid technical basis. From 1930, he devoted his time to the exploitation of decimetre waves, becoming an originator of the radio relay and radar technologies. Particular fame in this connection was achieved by his "Würzburg" radar units. In 1936, Runge was put in charge of all high-frequency laboratories.

In the last year of the Second World War, he headed an establishment of the German Research Institute for Aviation and after the end of the war he returned to Telefunken, where he re-established the development section. In 1955, he took charge of the company's research institute, where he remained until he retired in 1963.

Wilhelm Runge died in Ulm on 9 June 1987.

Eugen Sänger



Eugen Sänger was born in Pressnitz (Bohemia) on 22 September 1905. As a thirteen-year-old he read the science fiction novel "Two Planets" by Kurd Lasswitz, which provided the stimulus for his future study of space travel. He studied Civil Engineering at the Technical University of Graz and this is when his first studies into aerospace took place.

As an assistant at the Technical University in Vienna, he continued his investigations into rocket engines. Sänger thought that aeroplanes would provide the stepping stone to space travel. He therefore closely examined the idea of a rocket plane.

From 1936 on, Sänger was engaged by various German aeronautics research institutes. Among other things, he also constructed ramjet engines, which he tested on a Do 217 in April 1942. At the same time, his ideas on hypersonic aircraft were beginning to take shape.

From 1946 to 1954, Sänger acted as a consultant engineer in France and was also involved in the Griffon project at Châtillon. Subsequently, he acted as consultant to a number of German aerospace companies, assisting for example the Junkers works from 1961 to 1964 in their studies into a space transporter. Work by Sänger also laid the foundation for the Sänger Project, which was put forward by MBB.

Eugen Sänger died in Berlin on 10 February 1964.

Raymond Saulnier

Raymond Saulnier was born in Paris on 27 September 1881. He graduated from the École Centrale. Initially, he worked as an engineer for Blériot from 1908 to 1909. Here, he was in particular responsible for designing and building the Blériot XI. Together with Léon Morane, he founded the Morane-Saulnier company in 1911, of which he remained chairman until 1961. Léon Morane's brother Robert was for a long time the chief pilot until Michel Détroyat took over the position in this illustrious French company.

Raymond Saulnier applied for several patents, his innovations mainly being integrated into aircraft developed and constructed over a 60-year period. Over 80 different aircraft models emerged from the Morane-Saulnier plants.

Raymond Saulnier died in Orléans on 4 March 1964.

Friedrich Wilhelm Siebel

Friedrich Wilhelm Siebel was born in Broich (Westphalia) on 2 March 1891. After leaving school with the Abitur, he attended the College of Mechanical Engineering in Dortmund. In 1912, he built his first motor car and his first aircraft. Siebel became one of the famous "Alte Adler" ("Old Eagles") veteran pilots.

After the war, he was appointed Head of Physical Research at the German Research Institute for Aviation in Berlin and in 1919 he founded his first company, Körner & Siebel. Siebel also invested capital in a light aircraft company founded by Klemm in 1926/27. In 1934, they jointly set up a subsidiary in Halle, which Siebel then took over completely in 1936, when it became the Siebel Flugzeugwerke KG. In 1940, Siebel was drafted into the German Army, where he was tasked with setting up aircraft repair workshops in France.

After the war, in 1948 Siebel founded a company together with Carl August von Schönebeck with the purpose of building foreign light and commercial aircraft under licence and then marketing these. From this emerged the Siebelwerke/ATG GmbH (SIAT), a joint undertaking with the Waggon- und Maschinenbau Donauwörth (WMD). This marked the return to aircraft construction. One of the first orders received was for the production of large components for the Noratlas transport aircraft.

Siebel died in Bonn on 24 April 1954.

The Founding Companies

From Blériot Aéronautique to Aerospatiale Matra: the Emergence of a Giant

The formation of Aerospatiale Matra in 1999 marked the end of an era that began in the early 20th century when Blériot and Voison founded the first aircraft factory in France in 1905. Between 1907 and the years following the First World War, approximately 30 flight pioneers set up companies which formed the foundations of the French aircraft industry. Aerospatiale Matra is the result of a development process that was shaped by five major structural changes: the re-organisation of the French aircraft industry into six large state-owned companies in 1936, an even stronger concentration in 1941, the link-up of these companies to create Sud Aviation and Nord Aviation in 1957 and 1958 and finally, in 1970, their merger along with the integration of SEREB (Société pour l'Etude et la Réalisation d'Engins Balistiques) to form the Société Nationale Industrielle Aérospatiale (SNIAS), which later became known simply as Aerospatiale. The merger with Matra Hautes Technologies was the final step in this process of consolidation.

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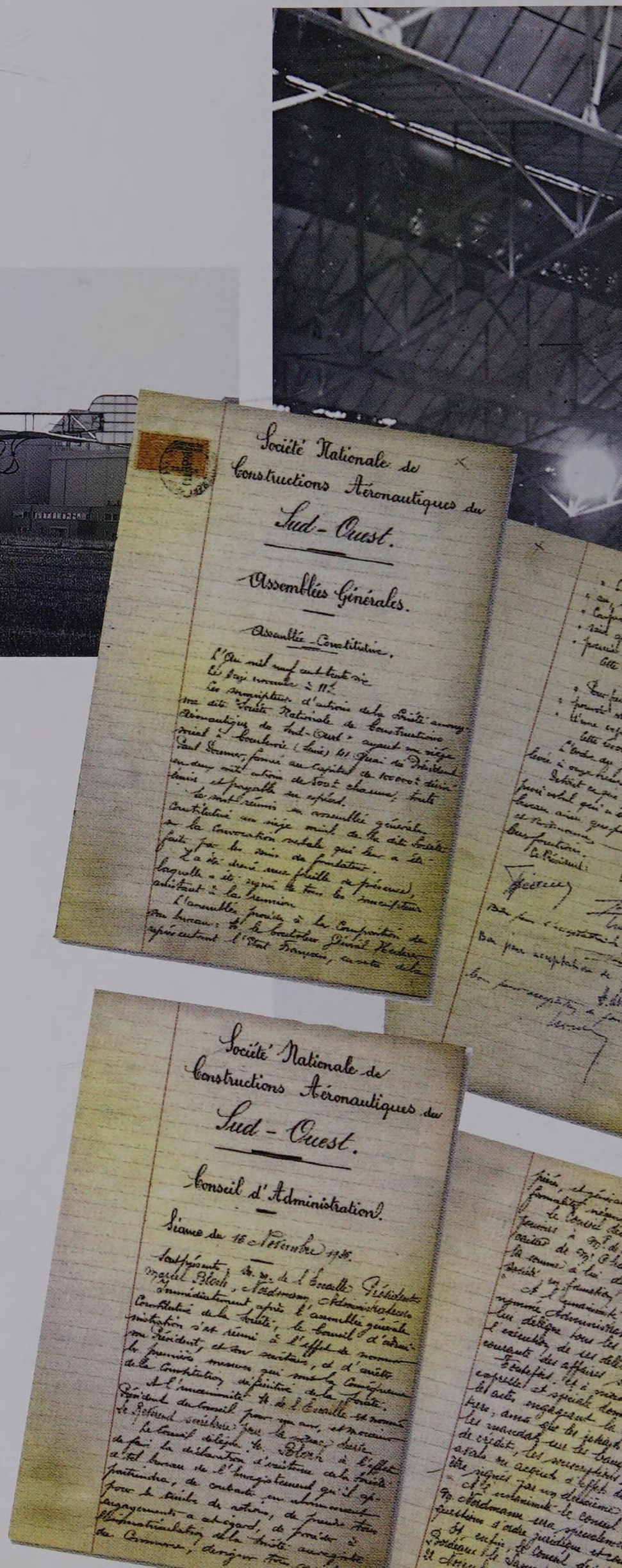
Sud Aviation

The first and largest of the three companies which combined to form Aerospatiale in 1970 was Sud Aviation. This state-owned enterprise emerged from four of the six state companies founded in 1936 through the Armament Industry Nationalisation Act. One of these companies was SNCASO (Société Nationale des Constructions Aéronautiques du Sud-Ouest), which united the Blériot, Bloch and Dyle et Bacalan companies and had factories in Bordeaux, Châteauroux, Courbevoie, Rochefort and Suresnes.



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1 Blériot marked the start of the long pioneering history of French aviation. In the photo: a reconstruction of the legendary Blériot XI during a display at the Airbus centre in Toulouse.

2 The foundation of the Société Nationale Industrielle Aérospatiale in 1970 marks the completion of the concentration process in the French national aerospace industry. The first Aerospatiale logo of 1970 is shown here.

3 Sud Aviation arose from the companies SNCASE, SNCAM, SNCASO and SNCAO, as these documents testify.

4 Production of the LeO 451 twin-engine bomber.

At the turn of the century, the engineer Louis Blériot had discovered his passion for aviation. After building several prototypes, in 1907 he produced the first monoplane in aviation history that had modern aircraft design features: the Blériot VII. But it was with his model No. XI that he earned fame. With this aircraft he became the first person to cross the English Channel. The historic flight took place on 25 July 1909 and the Blériot XI went on to become the first ever aircraft to go into series production. From then on, his aircraft were in great demand and saw service with numerous armed forces. Blériot, who in 1914 had also acquired the former Deperdussin company SPAD, constructed over 16,000 SPAD aircraft, including the SPAD VII and its successor, the SPAD XIII, which was considered the best French fighter aircraft of the First World War. After the war, among other things he built the Blériot 135, a four-engined civil transport biplane (1924) and the long-distance record-breaker Blériot 110 "Joseph Le Brix".

In 1923, Blériot took over Blanchard, a company which had already built several hundred flying boats.

Marcel Bloch, who had developed a new propeller in 1917 and designed the prototype for a twin-seater fighter aircraft, the SEA 4, founded the company Avions Marcel Bloch together with Potez in 1930. In 1934, he designed the Bloch 120, a three-engined passenger aircraft which was used for transportation within the French colonies. He followed this with a family of twin-engine bombers, one of which was the MB-210 (1934), the commercial aircraft MB-220 (1937), the fighter aircraft MB-152 (1939) and the reconnaissance aircraft MB-174 (1940).

SNCAO (Ouest) with plants in Nantes (previously Breguet), Saint-Nazaire and Issy-les-Moulineaux also acquired Loire-Nieuport, the successor to Nieuport Delage and Loire Aviation.

Nieuport Delage, which had taken over Tellier and Astra, earned fame with the Nieuport XI Bébé fighter aircraft, the basic model for a series of fighters. Several thousand of these aircraft were produced and exported throughout the world.

Loire Aviation emerged in 1927, when the Loire company, which was founded in 1926, acquired Gourdou Leseurre (formed in 1917 and renowned for its LGL 32 fighter aircraft). The resulting company produced fighter aircraft such as the Loire 46 and flying boats such as the Loire 130.

SNCASE (Sud-Est), which had plants in Argenteuil, La Courneuve (previously Bernard), Cannes and near Marseille (previously Villiers and Potez CAMS) was made up of Lioré-et-Olivier, Romano and SPCA.

The Lioré-et-Olivier company had been founded in 1907 by Fernand Lioré. In 1926, it produced the LeO 20 bomber, the first in a whole family of aircraft which culminated in the high-performance twin-engine LeO 45 shortly before the Second World War. A derivative of the LeO 20 was the LeO 213, a luxury passenger aircraft with the nickname "Golden Ray". The company also built a whole series of flying boats, such as the giant LeO H 49 (SE-200) at the start of the Second World War.

The Romano company, which was founded in 1921, built above all the R 82, a biplane used for aerobatics training purposes.

SNCAM (Midi) acquired the aircraft manufacturer Avions Dewoitine of Toulouse, which had been founded in 1920. Dewoitine developed numerous series of all-metal, high-wing fighter planes, several hundred of

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1 In 1939, the company Avions Marcel Bloch designed the MB-152 fighter aircraft.

2 The aircraft manufacturer Romano was integrated into SNCASE.

3 Load tests conducted with sandbags at the Dewoitine plant in Toulouse.

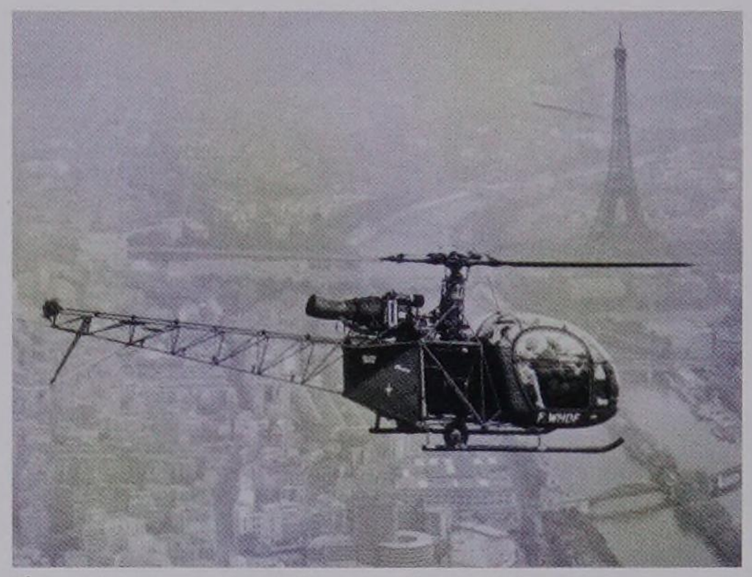
4 The first medium-range passenger jet, the SE 210 Caravelle, in the maintenance hall at Toulouse.

which were produced and exported, such as the D.1, D.9, D.21, D.27. From 1930, he built the most modern aircraft of that time, the D.500 low-wing aircraft, which could reach a speed of almost 400 km/h. Finally, his D.520 fighter aircraft was a great success, seeing service in 1939 and 1940. Dewoitine also produced an elegant series of three-engined, long-distance commercial aircraft, which were derived from the D.33 Trait d'union, the first aircraft with a non-stop range of 10,000 km.

In 1941, the company SNCASO took over SNCAO and the company SNCASE took over SNCAM. In 1956, the two new groups changed their names to Ouest Aviation and Sud-Est Aviation, before they then merged in 1957 to form Sud Aviation.

During the war, SNCASO began developing the first jet-powered planes. The result was the SO 6000 "Triton" in 1946, the SO 6020 "Espadon" in 1953 and the rocket-propelled aircraft SO 9000 "Trident" (world altitude record). The commercial aircraft SO 30P "Bretagne" and the series of twin-jet military aircraft SO 4050 "Vautour", of which 149 units were manufactured, also originate from this period. SNCASO also built the Ariel and Djinn helicopters.

SNCASE, which had taken up Marcel Bloch's pre-war design studies, developed the SE 161 "Languedoc", a four-engined, long-distance commercial aircraft, of which 103 models were built. The four-engined airliner SE 2010 "Armagnac" followed, and then, more prominently, the world's first medium-range jet aircraft, the SE 210 "Caravelle". A total of 282 of these aircraft left the production line. This was followed by the development work for the supersonic aircraft Concorde. Parallel to this, SNCASE had developed a series of prototypes equipped with completely new technology, such as the SE 5000 "Baroudeur" with skid



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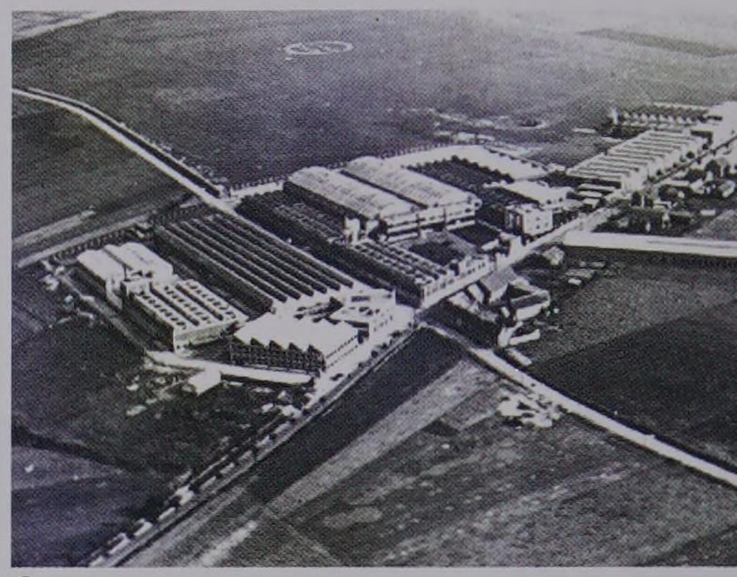

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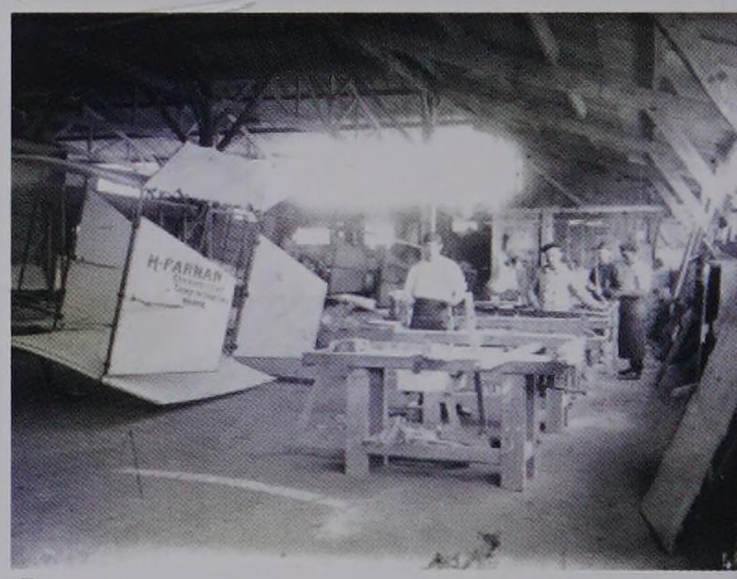

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landing gear. A whole family of turbine helicopters – over 10,000 in total – emerged from the plants at Marignane, amongst them the famous SE 3130 "Alouette II", followed by the SA 321 "Super-Frelon", the SA 342 "Gazelle" and the SA 330 "Puma".

In the fifties, Sud Aviation was the largest missile producer in Europe. Amongst its products were the world's first fully operational ramjet-propelled aerial vehicle (the SE 4200) and the cruise missile X422.

This era also saw the beginning of French space activities, for example the manufacture of the laser reflectors for Lunakhod.

In 1965, the activities of Morane-Saulnier in Tarbes were also integrated into Sud Aviation. The company had been founded in 1911 by Léon Morane and Raymond Saulnier and distinguished itself in 1913, when Roland Garros had been the first to cross the Mediterranean, flying a Morane-Saulnier H from Fréjus to Bizerte – a distance of 730 km – in less than eight hours.

During the First World War, it then built thousands of fighter aircraft such as the successful export models L "Parasol", N and the MS 406, of which over 1,000 units were in service with the French Air Force in 1939. Morane-Saulnier also produced several thousand training aircraft, including the MS 230 in the thirties and also the MS 470 "Vanneau" and MS 733 "Alcyon". The fast jet-powered business aircraft MS 760 "Paris" later came from the Morane-Saulnier company, as did the light aircraft of the "Rallye" family, whose production – the largest post-war production in Europe after the merger with Sud Aviation – was continued at Socata, the light aircraft subsidiary founded in 1966.

In 1967, Sud Aviation acquired the light aircraft and glider manufacturer Potez Air Fouga based in Air sur l'Adour, which had resulted from the merger of Potez and Air Fouga. Air Fouga was successor to the light aircraft and glider manufacturer Castel-Mauboussin and in 1952 had constructed the first jet trainer, the CM 170 "Magister". Over 900 units of this aircraft type, which was at the heart of Franco-German cooperation, were sold worldwide.

1 The famous Alouette series of helicopters came from the Marignane plant, now part of Eurocopter. Here, the Alouette II over Paris

2 The Potez works at Méaulte became an important part of SNCAN.

3 A transport aircraft that is still in service today: the C-160 Transall.

Nord Aviation

Nord Aviation, which formed the second pillar of Aerospatiale in 1970, had also emerged from the nationalisation wave of 1936, in which two further state-owned aircraft manufacturers also had their origins: SNCAN and SNCAC.

SNCAN (Nord), which had plants in Méaulte, Sartrouville, Les Mureaux, Caudebec-en-Caux and Le Havre (a former Breguet factory) had acquired Potez, CAMS (Chantiers Aéro-Maritimes de la Seine), ANF-Les Mureaux and Amiot-SECM.

After first working with Marcel Bloch, Henry Potez founded his own company in 1919. By 1934, 4,000

4 The Morane-Saulnier aircraft works, founded in 1911: part of the French aeronautics tradition

5 Farman-Hanriot was one of the France's first aircraft manufacturers. Here, the production hall at Billancourt on the Seine.

6 The Caudron G 3 biplane was designed as a bomber.

units of the civil and military biplane Potez 25 had been built at his plants. This aircraft was mostly used by Aéropostale in South America on the Andes route between Argentina and Chile. Potez also produced successful light aircraft, such as the Potez 36 and 60, as well as commercial aircraft, such as the Potez 62, and the fastest civil aircraft of that time, the Potez 661. He built the Potez 63, a family of twin-engine multi-role combat aircraft (P630-631) and reconnaissance aircraft (P63/11), of which 1,251 units were manufactured.

The company ANF-Les Mureaux, which was founded in 1921 under the name Pélabon-Les Mureaux, produced the ANF-110 family of military reconnaissance aircraft. In 1930, it acquired the company Marcel Besson.

The company CAMS, which was founded in 1920, built maritime reconnaissance seaplanes (CAMS 37 and 55) and the CAMS 53 flying boat, which was primarily used from 1929 onwards for civil air transport over the Mediterranean. In 1933, CAMS was acquired by Potez and the next product to be developed was a six-engine flying boat, the Potez-CAMS 161.

Between 1945 and 1950, SNCAN acquired further companies, including Amiot-SECM, which had built the twin-engine bombers Amiot 143, 350 and 370 in the thirties.

The company Latham had already been acquired in 1928. Seaplanes and flying boats, amongst them the Latham 47 for the French Navy, were built here.

SNCAC (Centre) with plants in Boulogne-Billancourt, Bourges und Suresnes was formed by the merger of the Farman and Hanriot companies. In 1909, Henry and Maurice Farman, two English brothers living in France, built their first aeroplanes, the HF1 respectively MF1, before founding the company Farman Frères with their brother Dick in 1913. During the war, thousands of fighter and reconnaissance aircraft (HF 20, HF 22, HF 30, MF 7, MF 11 and F 40) were manufactured there. The subsequently developed bomber F 60 "Goliath" was converted into a civil passenger aircraft and in 1919 flew the then first international passenger route from Paris to London with 12 passengers on board. In the thirties, Farman moved on to build light (F 230, F 400, F 450) and commercial aircraft only; these included the twin-engine biplane F 180 "Oiseau Bleu" in 1928, the single-engine high-wing aircraft F 190 and the three-engined aircraft F 300 "Étoile d'Argent". He also manufactured heavy bombers such as the F 221 family and their successors, the F 222 and F 223 with retractable landing gear.

Hanriot produced several thousand aircraft which were exported with great success, such as the outstanding fighter aircraft HD 1 from 1917 onwards, then the trainer HD 14 and the versions derived from this, and finally the light aircraft HD 170.

After the war, SNCAC manufactured roughly 300 of the light aircraft NC 850, before being acquired by SNCAN in June 1949. The latter had already been constructing the very successful, globally exported N 1200 "Norécrin" since 1945.

Franco-German cooperation was continued with the production of further successful aircraft, such as the twin-engine military transport aircraft Nord 2501 Noratlas and, from 1959 onwards, the twin turboprop military transport aircraft C-160 Transall.

The company Caudron Frères, which was headquartered in Issy-les-Moulineaux and later became Caudron-Renault, was also integrated into SCAN in 1945. Founded in 1909, Caudron had manufactured and exported thousands of the bombers G 3, G 4 and R 11.

Aerospatiale Matra

In 1923, a large, three-engined biplane – the C 61 – was built, which could transport eight passengers and primarily flew the east European routes. Racing planes followed, such as the C 360, the C 340 "Rafale" and C 640 "Typhon". Caudron also designed a whole series of long-distance and commercial aircraft, such as the C 500 "Simoun" and the C 440 "Goéland". The trainer aircraft C 27, C 57 and the light aircraft C 270 "Luciole", C 286 "Phalène", C 600 "Aiglon" as well as the glider C 800 are also worthy of mention.

The company Arsenal de l'Aéronautique, with head offices in Châtillon, had become a subsidiary of SNCAN in 1952 under the name SFECMAS and was then merged into SNCAN in 1954. The fighter aircraft Arsenal VG 33 was developed at this company shortly before the war and, from 1949 onwards, the company built jet-powered combat aircraft such as the VG 90 the N 1402 "Gerfaut", which had delta wings and broke the sound barrier in horizontal flight. In 1955, Arsenal made a name for itself with the N 1500 "Griffon", a research and test aircraft with a ramjet propulsion system, which reached a maximum speed of 2,320 km/h.

Whilst continuing the studies begun by SFECMAS, Nord Aviation also gained a leading position in the missile market from 1954 onwards thanks to the world's first wire-guided anti-tank missiles, its SS 10 family, its air-to-air missile AA20, its air-to-ground missile AS30, its target missile CT 20 and its supersonic target drone CT 41.

Nord Aviation emerged from this group of companies, which had been united under the name SNCAN in 1958.

Franco-German cooperation was placed on a solid and long-lasting foundation thanks to the development of the new generation of anti-tank missiles Milan and Hot and the surface-to-air missile Roland.

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1 The ATR series fills a gap in the market for regional aircraft.

2 The "Griffon" was a ramjet-propelled research aircraft and flying testbed.

3 The supersonic missile CT-41 being prepared for launch.

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4 Firing of an M-4 strategic ballistic missile.

5 Aerospatiale, BAe, CASA and Dasa were the participants in the Airbus consortium, which was subsequently transformed into a joint stock company in 2001. Here, the A319, A320 and A321 airliners.

6 Prior to its first commercial flight in 1976, Concorde completed over 4,000 hours of test flights.

7 Aerospatiale was one of the leading space companies. The photo shows the launch of an Ariane 5 in Kourou.

This era also signalled the beginning of space activities at Nord Aviation, which saw the construction of the satellite FR1 and of "Coralie", the second stage of the Europa launcher.

In 1961, Nord Aviation acquired the rights from aircraft constructor Max Holste for construction of his twin-engine high-wing aircraft "Super Broussard", which served as a basis for the Nord 262 "Frégate".

SEREB (Société pour l'Étude et la Réalisation d'Engins Balistiques)

In late 1959, the ballistic missile development company SEREB was founded with Sud Aviation and Nord Aviation as it major shareholders. In the sixties, SEREB undertook a series of launch tests in the Sahara using the missiles Agate, Topaze, Émeraude and Saphir. The test results led to the development of the surface-to-surface strategic ballistic missiles S1 and S2 (Sol-Sol Balistique Stratégique – SSBS) for the weapon silos on the Albion Plateau in Haute-Provence, the sea-to-surface strategic ballistic missiles M1, M2 and M20 (Mer-Sol Balistique Stratégique – MSBS) for the nuclear submarine fleet and the Diamant rocket.

Aerospatiale

Sud Aviation, Nord Aviation and SEREB merged to form Aerospatiale in 1970. This created a company with over 40,000 employees and consisting of four divisions: Aircraft, Helicopters, Tactical Missiles, Ballistic and Space Transport Systems.

From this point on, Aerospatiale expanded its activities in all areas and developed an international cooperation strategy which, among other things, resulted in the formation of the European consortium Airbus

Industrie with partners from Germany, Great Britain and Spain. The first Airbus, the A300, took to the skies in 1972.

During this period, Concorde also entered service (1976) and the Franco-Italian regional passenger aircraft ATR 42 and 72 were developed. In addition, Aerospatiale was still responsible for the ongoing aircraft programmes Caravelle, Corvette, Transall, Nord 262 and Rallye as well as the helicopters Alouette II and III, Super Frelon, Puma and Gazelle. To these were later added the helicopters Dauphin and Ecureuil as well as the TB family of light aircraft. In 1992, Aerospatiale and Dasa merged their helicopter divisions to form Eurocopter.

In the missile sector, Euromissile was founded in cooperation with the German company MBB in 1972 (anti-tank missiles Milan and Hot, surface-to-air missile Roland). The company Eurosam was formed in 1989, together with Thomson and Italy's Alenia, with the aim of developing the missile defence system Aster.

In the meantime, Aerospatiale also continued its independent missile activities – the air-to-ground missiles AS30 Laser and ASMP, the anti-tank missile Eryx and the antiship guided missile Exocet – which were supplied to numerous armed forces. The French ballistic missile programme was also completed successfully (S3, M4, M45 und M51). The Ariane launchers, which were manufactured for the European Space Agency (ESA), helped Arianespace to become Number 1 in the commercial space transport sector.

In the satellite field, Aerospatiale played a successful part in several European space programmes thanks to its series of scientific satellites such as the Infrared Space Observatory ISO or the interplanetary probe Huygens, its complete series of meteorological satel-

1 Matra founder Marcel Chassagny (left) together with Sylvain Floirat.

2. A Crusader armed with the air-to-air missile R-530.

3 The Matra company participates in one of the first post-war trade fairs, exhibiting its range of missiles.

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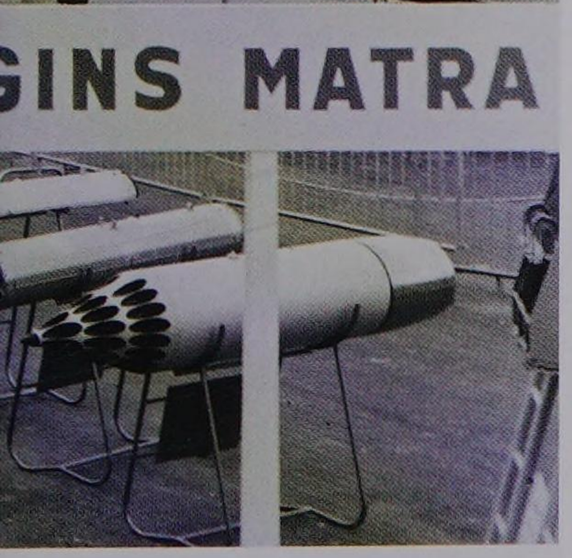


lites Meteosat, its Spacebus family (continuation of the Franco-German Symphonie project), its globally exported telecommunications satellites, its re-entry capsule ARD and its vehicle tracking satellite Eole.

Matra: Matra Défense

Founded in 1945, Matra (Mécanique Aviation Traction) initially worked on the development of a prototype for a twin-engine, twin-fuselage, propeller-driven fighter aircraft (the R100), with a planned maximum speed of 800 km/h. There then followed a study for another fighter aircraft, this time with variable geometry and ramjet propulsion, capable of reaching twice the speed of sound.

However, when these projects came to nothing Matra turned its focus to airborne weapon systems and missiles. This developed at a fast pace – resulting in rocket launchers, and then later retarded bombs and dispensers. In the missile sector, an extensive programme of research was initially required before Matra could begin producing air-to-air and surface-to-air missiles in the early fifties. The surface-to-air supersonic missile M04 was developed in 1950. This was followed by the R422, which was driven by solid propellant, and the R431, which was equipped with a ramjet propulsion system and reached the record speed of Mach 3.3 in 1958.

After abandoning these medium-range missile programmes, Matra continued with the development of air-to-air missiles. Following extensive testing with the experimental missile R05, in the early sixties Matra convinced the French Air Force to order the at that time first air-to-air missile equipped with a magnetic target seeker head. In 1969, Matra was awarded the contract to arm the Mirage III with the air-to-air missile R530, which it had developed itself. This earned the company an international reputation.

In the following years, the company worked on the development of more new missiles: Magic 1, the first air-to-air missile equipped with an infrared target seeker head, with first deliveries in 1971; 530F, a long-range high-altitude missile (entry into service 1979) for the Mirage F1; Magic 2, multipurpose with an even greater range (entry into service 1986); the Super 530D (with pulse-Doppler radar) designed for a large intercept range and all altitudes (entry into service 1987), as armament for the Mirage 2000.

From 1980 onwards, Matra began a development programme for a new short- and long-range air-to-air missile (up to 80 km) to equip the Mirage 2000 and the Rafale combat aircraft. It was called Mica (Missile mixte de combat et d'interception – combined engagement and interception missile). Production began in 1996.

Having combined their missile activities to form the company MBD (Matra BAe Dynamics) in 1996, BAe and Lagardère/Matra began to develop Meteor, a new long-range air-to-air missile which was selected by Great Britain in May 2000 and by further European partners in May 2001.

In the area of air-to-sea missiles, from 1963 on Matra together with the British manufacturer HSD began to develop the anti-radar and TV-guided system Martel (Missile anti-radar télévision). This was then produced from 1972 on. Later, an improved anti-radar version, Armat, was also produced.

Matra also manufactured the runway cratering bomb Durandal predominantly for the U.S. and – together with Aerospatiale – the anti-runway missile

Apache in 1989. Finally in 1996, the joint programme for a Franco-British cruise missile – Scalp/Storm Shadow – began. This missile was derived from the Apache and was destined for the British and French Air Forces. It was the first cruise missile to be developed in Europe and was additionally selected by Italy, the United Arab Emirates and Greece.

The company was also active in the surface-to-air missile segment: between 1972 and 1990, 6,400 units of its short-range surface-to-air missile, Crotale/Cactus Shahine, were produced for the weapon system of the same name from Thomson CSF (navy and army versions). In 1981, the French Army decided in favour of the portable very short-range surface-to-air missile Mistral, developed by Matra. Matra also developed the long-range ship-to-ship or coastal defence missile system Otomat with the Italian company Oto-Melara. This entered service in 1978. As a result of Franco-German cooperation, the drone Brevel was produced.

Matra: Matra Espace

By the early 1960s, Matra was already involved in the French space programme, which was under the leadership of CNES. The company was systems leader for the satellites A1 and D2B and was also responsible for the payload bay and the erection system of the Diamant launcher. In the satellite construction sector, the scientific satellites TD-1A and Hipparcos, the deliveries for Meteosat and ERS-1/-2 and the telecommunications satellites (OTS/ECS series and Marots/Marecs) are particularly worthy of note. Matra's Space Division was responsible for the payload bays for the Ariane launchers, from the first version down to the current Ariane 5. It also supplied the on-board DP system for the Spacelab to ERNO of Germany.

Matra Espace, which was originally founded as a subsidiary in 1986, merged with Marconi Space Systems in 1989 and from 1990 formed the joint venture Matra Marconi Space (MMS), which became the first integrated space company in Europe. After the acquisition of BAe's space activities in 1994, MMS became Europe's largest satellite manufacturer. MMS enjoyed success in the scientific satellite sector through the Soho programme and in the earth observation field through the civil observation satellite Spot and the military satellite Helios, through Envisat and the Metop meteorological satellite; MMS became one of the most important manufacturers of commercial telecommunications satellites worldwide thanks to its Eurostar 2000 and 3000 series. By the end of the 20th century, approximately 30 satellites were in orbit for operators throughout Europe and the whole world. In May 2000, the space company Astrium emerged from the link-up of MMS and Dasa's space activities.

Matra Hautes Technologies

Matra's activities in the field of information technology were an excellent complement to its defence and space programmes. Following initial success in the eighties, in particular through reconnaissance systems, Matra Hautes Technologies gained the Number 1 position in the fields of ground stations for satellite image evaluation (Spot and Helios), mission planning/preparation (Cinna, Centac systems), C3I systems (Sir, Acom), sonar signal processing (Capitan parallel processors) and, finally, the transmission of radar data (Mica, Brevel programmes).

In the early 1990s, Matra merged with Hachette, its various business activities being incorporated into the Lagardère Group, which was the holding company for Matra Hachette.

In this way, Matra Hautes Technologies emerged in 1995 as an affiliate of the Lagardère Group, with the divisions Défense et Systèmes de Commandement (Defence and Command and Control Systems: Matra Défense, later MBDA and MS2I), Espace (Space: MMS, then Astrium) and Télécommunications et CAO (Telecommunications and CAD: Matra Communications, Matra Datavision). The merger of Matra Hautes Technologies and Aerospatiale resulted in the formation of Aerospatiale Matra (ASM).

Aerospatiale Matra

Aerospatiale and Matra Hautes Technologies merged in 1999. With its workforce of 52,000, this thus formed the second largest aerospace company in Europe and the fifth largest in the world. The company achieved revenues of over € 12 billion in 1999 and spent approximately € 1.6 billion on research and development. At the time of its formation, ASM – including its 45.76% shareholding in Dassault-Aviation – achieved 34% of its revenues in the area of commercial aircraft, 34% in missiles, 14% in helicopters, 12% in space activities (launchers and satellites) and 6% in combat aircraft.

Matra played a central role not only in the Ariane programme but also in the construction of satellites such as the Spot satellite seen in the picture.

Tradition and Experience: the History of CASA

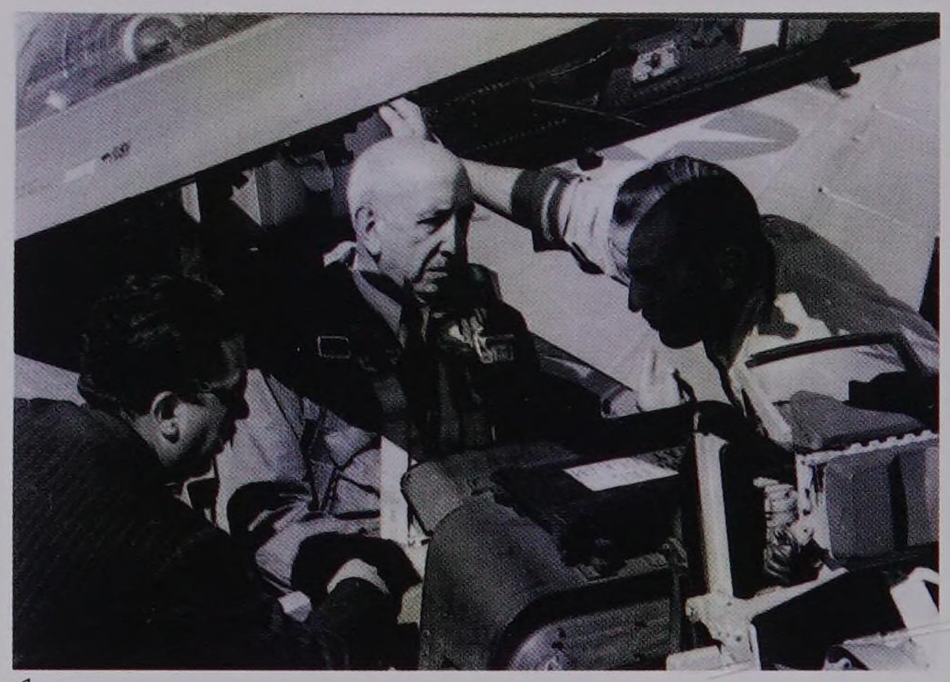
The formation of the Spanish aerospace company CASA (Construcciones Aeronáuticas Sociedad Anónima) is closely linked to the Spanish aviation pioneer José Ortiz de Echagüe, better known by the name of Don José. He was the first Spaniard to fly military aircraft and held the third Spanish pilot's licence to be issued. In the presence of Don José, José María Laviña Berenguer, Ricardo Ruiz Ferry and Francisco Yañez Albert, CASA was founded on 3 March 1923. The memorandum of association carried the signatures of 19 shareholders in all. The headquarters was located in Madrid, as it still is today.

Initial activities within the Spanish aeronautics industry had already begun during the First World War. But it was not until the 1920s that aircraft and engines were produced in larger quantities.

Licensed production of the Breguet XIX began in 1924. For this reason, Louis Breguet became Vice President of CASA. The English company Vickers Ltd. also became a shareholder. A further shareholder, the shipbuilder Sociedad Española de Construcción Naval (SECN), was taken on board in 1927. CASA's corporate objectives, set down in writing, were the construction and repair of all equipment relating to the aviation and automobile industry.

Later, CASA also bought shares in other companies itself: it acquired a share in Concesionaria de Líneas Aéreas Subvencionadas S.A. (CLASSA), an airline formed by the merger of Aero Hispania and Union Aérea Española, and in Compañía Española de Trabajos Fotogrammétricos and took over the rolling mill of Dural Electromecánica de Córdoba.

The first CASA plant was set up at Getafe near Madrid in April 1923. Manufacturing at this site got



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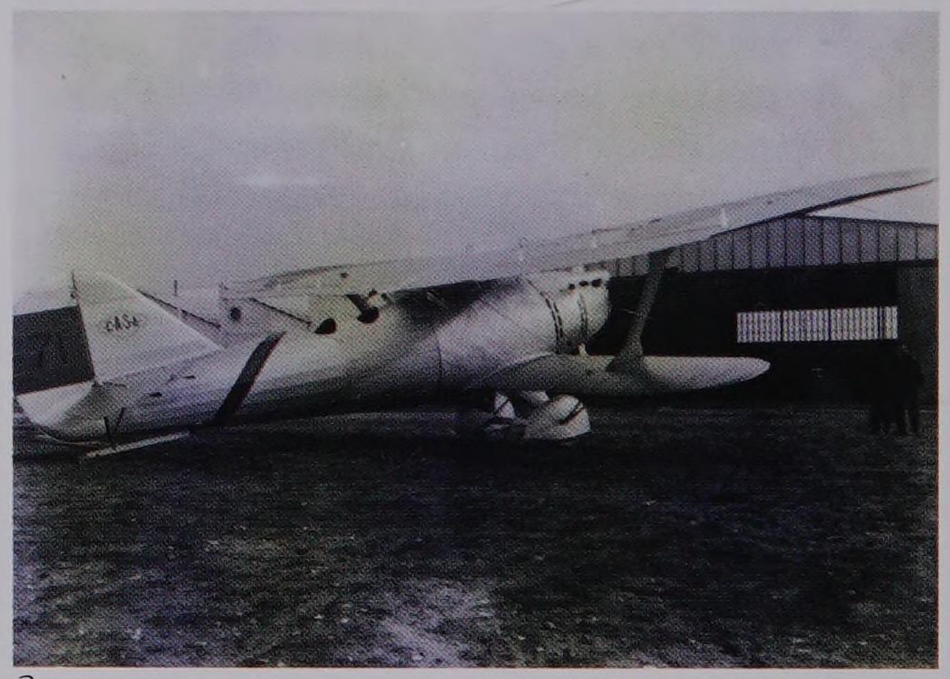

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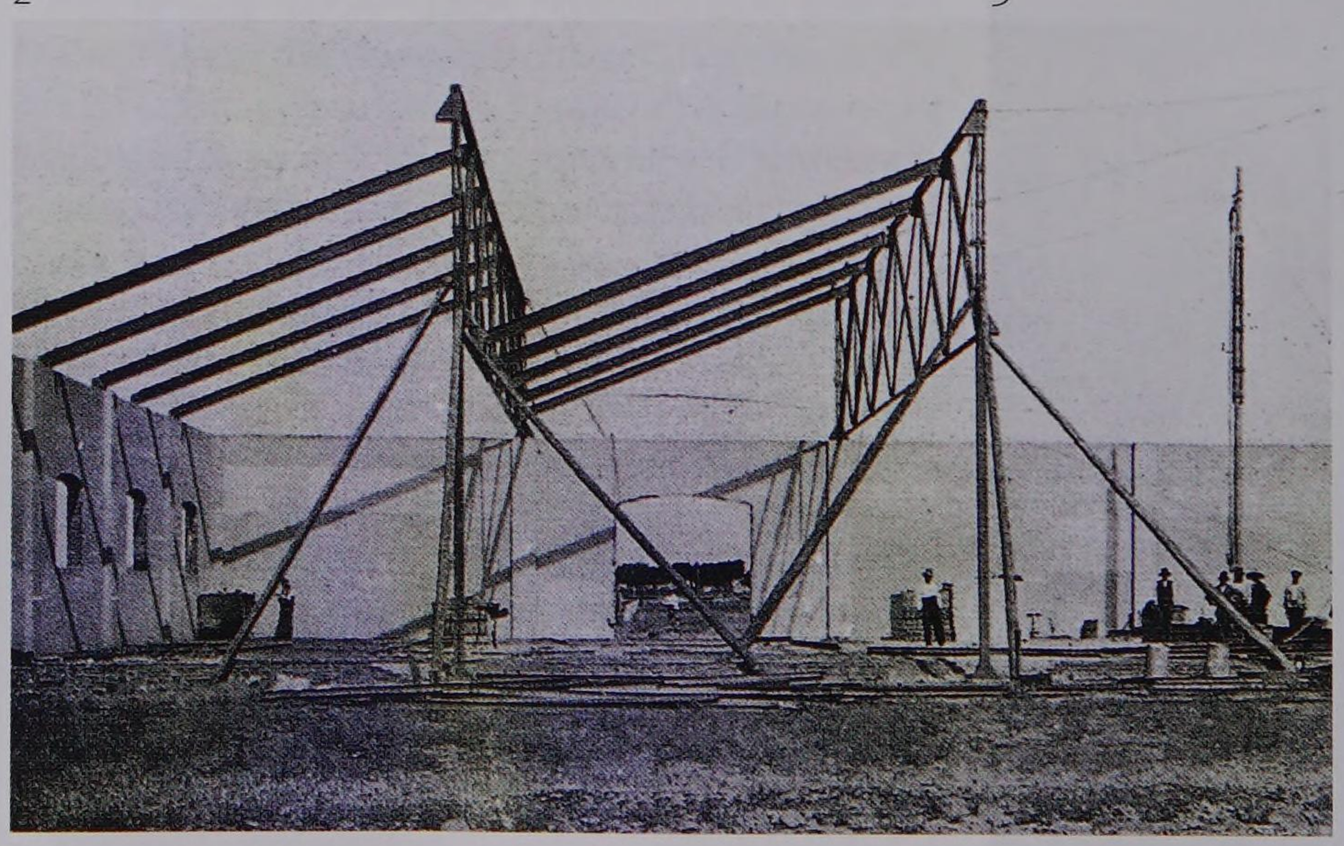

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1 Don José, one of the co-founders of CASA, seen here in an F-100 at the age of 73.

2 The Breguet XIX was built by CASA under licence from 1924 on.

3 27 Dornier Wal aircraft were manufactured under licence.

4 The Getafe plant was CASA's first production facility. The photo shows the skeleton building in the initial construction phase.

5 One of the first aircraft to be developed by the company, the CASA III light aircraft.

under way with the licensed production of 26 French Breguet XIX aircraft, also known as the A-2, for the Spanish Air Force. A follow-on contract in May 1926 secured the production of another 77 A-2 aircraft. In 1929, a third contract was awarded, providing for the delivery of 80 aircraft, and in 1934 there followed the fourth and final order for another 20 units.

In 1926, Dornier acquired a licence for production of the Do-J Wal seaplane (called "Ballena" in Spanish). In the late 1920s and early 1930s, in all 28 of these aircraft were built in Cadiz: 17 for the Air Force, nine for the Navy and two for civil operators.

CASA also built the Vickers Vildebeest under licence, a torpedo-carrying biplane equipped with the powerful Hispano-Suiza HS 600 engine. A total of 27 of these aircraft were built, either at the Cadiz or Getafe sites, depending on how they were to be equipped.

From 1930 onwards, the company started developing its own products. From this emerged the light aircraft CASA Type I to Type III, of which only the Type II was actually flown.

From the 1930s on, four further models were manufactured under licence: the Russian Polikarpov I-15, the German Bücker Bu 131, which became known by the designation C-1.131 in Spain, and the Ju 52 and Heinkel He 111 with the Spanish designations C-352 and C-2111 respectively.

After the Second World War, CASA resumed its own in-house developments. Three types of light transport aircraft were created on the CASA drawing boards: the C-201 "Alcotán", C-202 "Halcón" and C-207 "Azor".

CASA also played a part in the rebuilding of the German aircraft industry since the Do 25 and Do 27 were both manufactured under licence in Spain, the

Do 25 being built exclusively in Spain and the production of the Do 27 starting off there.

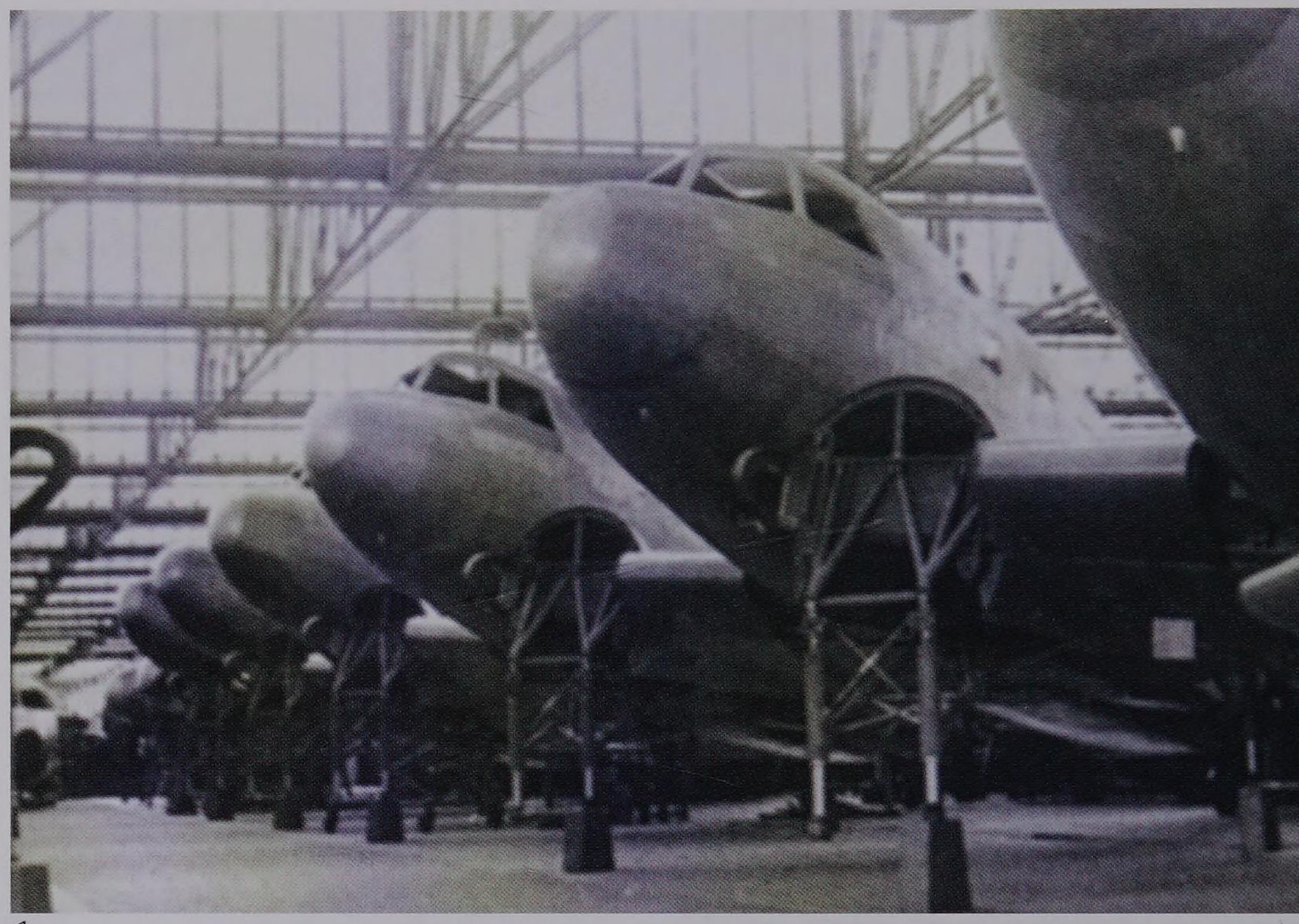
In the fifties, sixties and seventies, CASA acquired extensive competence in the field of transport aircraft. The result of this was to be seen in the military transport aircraft C-212 and CN-235. In the eighties, the C-212 transporter became a best-selling export of the Spanish company and established itself in the fleets of many air forces worldwide.

In 1962, Northrop became a capital shareholder in CASA. The following years saw the start of production on 75 Northrop F-5 aircraft for the Spanish Air Force. The maiden flight of the first F-5 aircraft built in Getafe was in May 1968.

CASA has gathered more than 40 years of experience in the field of maintenance, support and modernisation services for the aircraft of both national and international customers with more than 8,000 aircraft and helicopters leaving the company's maintenance hangars up to the time of the company's merger into EADS. Over the years, CASA also received numerous orders to maintain and provide support for US Air Force aircraft stationed in Europe.

In 1971 the National Industry Institute (INI) became the majority shareholder in CASA. Authorisation was then given for the merger with Hispano Aviación and, a year later, with ENMASA. This led to the consolidation of the entire Spanish aerospace industry under the one roof of CASA.

Through the takeover in 1995 of Aeronáutica Industrial S.A. (AISA), a company whose main business was the maintenance and upgrading of helicopters, CASA was able to increase the capacity of its maintenance section. Although the activities in this business area mainly focus on military aircraft, maintenance work is also carried out on passenger aircraft.



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1 The C-201 was the first in the series of light transport aircraft.

2 The CN-235 transport aircraft is in service with numerous air forces.

3 Loading an Airbus tail unit at Getafe.

4 The Spanish Eurofighter DA-6 was the first twin-seater aircraft in this quadrinational programme.

Spain joined the Airbus consortium in 1971, shortly after its foundation. CASA's share of 4.2% at that time was calculated on the basis of the estimated requirements of the Spanish airlines for Airbus aircraft. Within the Airbus consortium, CASA was given responsibility for the design, development and manufacture of various structural components, in particular the horizontal stabiliser which is produced only in Spain and integrated into every Airbus model.

CASA has therefore become specialised in horizontal tail units and carbon fibre (CFRP) technology. Now as previously, fuselage sections, access doors and landing gear doors are also produced here.

In its role as a supplier, CASA additionally built the horizontal stabilisers and a large part of the fuselage sections for the Airbus super transporter A300-600ST, known as the "Beluga". CASA is also working together with the other Airbus partners on the pre-development of the largest Airbus, the A380.

From the very beginning, CASA has had a 13 percent share in the joint project for a European combat aircraft, the Eurofighter. In the development phase, the Spanish company was involved in the design activities as well as in structural and system tests. During series production, CASA is manufacturing the right wing and all slats for this fighter aircraft. In addition, the company is responsible for final assembly of the Eurofighter aircraft destined for the Spanish Air Force.

For more than 35 years, CASA has also manufactured competitive space products. These include subsystems for launchers, satellites and the International Space Station (ISS) as well as structural components, such as thermal control systems and cable harnesses, reflector antennas, and deployment and separation mechanisms for satellites.

CASA

Like CASA before it, EADS CASA Espacio nowadays plays a role in all major programmes of the European Space Agency (ESA): scientific research, telecommunications, space transporters and carrier systems, earth observation and technological development.

Furthermore, Satellite Navigation is heavily involved in military projects promoted by the Spanish Ministry of Defence.

The quantity and diversity of its products have enabled the company to develop numerous technologies which meet all the requirements of the aerospace industry. Over the last 20 years, CASA has developed the area of CFRP (carbon fibre reinforced plastics) into a focal point of its activities. Nowadays the company has state-of-the-art production equipment at its disposal which can be used to design, manufacture, examine and repair all kinds of aerostructures made of such composites.

As part of the consolidation of the European aerospace industry, the German Dasa and the Spanish CASA agreed on their merger in June 1999. In December of the same year, CASA joined the planned Franco-German company EADS as the third founding member.

In 1999, its final full financial year, CASA continued the positive results it had reported since 1993. In that year, CASA's revenues, including those for the consortia in which it participates, amounted to € 1,214 million. This figure was the highest in the company's history and represented a growth of 20% over the previous year.

91.5% of CASA's total revenues in 1999 derived from exports. 70% of sales were made in the commercial and 30% in the military market.

Profits in this year stood at € 81 million, which also represented the best result in the company's history,

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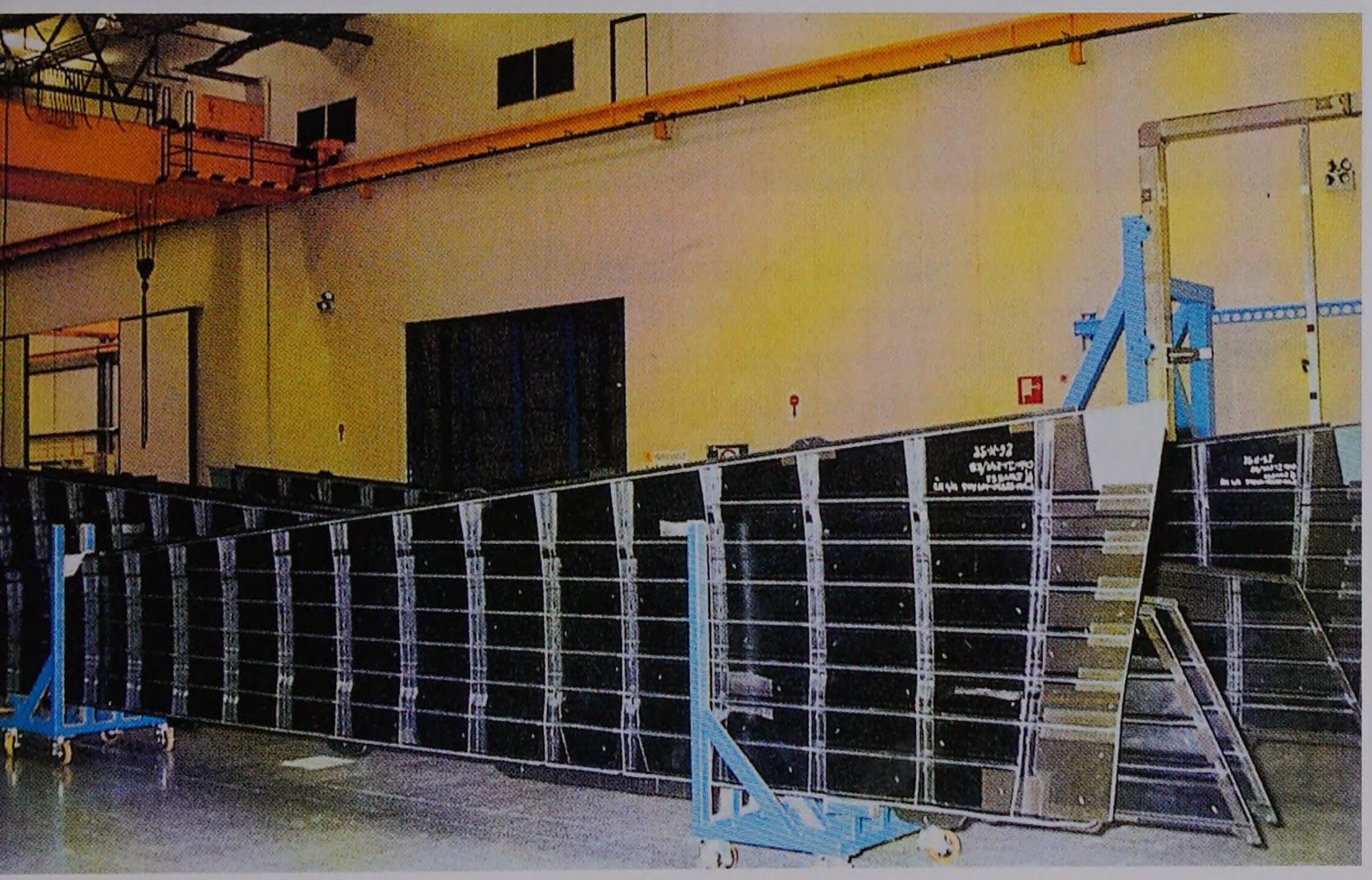
1 CASA plays an important role in the Ariane programme by building the payload adapters.

2 The adapter of an Ariane 4 space launcher.

3 Special capabilities in the field of carbon fibre composites: components for the horizontal tail unit of an Airbus A330/340.



improving on the 1998 figure by 73%. At 31 December 1999, CASA's workforce was 7,430 strong. With the formation of the EADS European Aerospace Defence and Space Company, the Spanish company CASA was merged into this new international company on 10 July 2000.

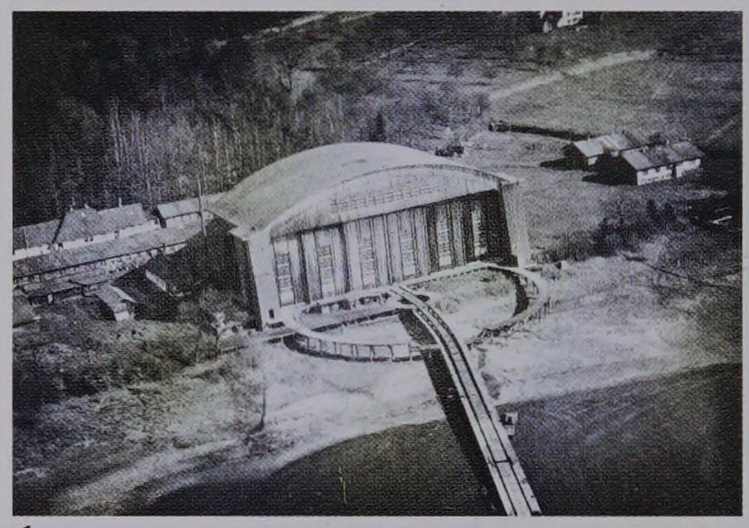
Dasa: a Group of Companies with a Long Tradition

The history of DaimlerChrysler Aerospace AG (Dasa), which was founded in 1989 as Deutsche Aerospace AG, went back to the summer of 1984, when the then Daimler-Benz AG presented a strategy paper for extending its activities into the aerospace industry. The background to this was the company's desire to broaden its basis in the field of high-quality technology. The decision to become engaged in the aerospace industry arose from the conviction that the future of that industry would be marked by outstanding technical achievements that would also affect the traditional products and production methods in the automobile industry.

Dornier GmbH

Dornier GmbH is one of the oldest German aerospace companies. The Dornier aerospace company had its origins in the independent aircraft department "Do" at the Zeppelin airship builders in Friedrichshafen, which had been set up in 1914 and was headed by the engineer Claude Dornier. Here, the focus was on the development of metal flying boats. Then, in 1917, the company Zeppelin-Werke Lindau GmbH was founded, which also began to develop landplanes. Finally, in 1922, the company was renamed Dornier Metallbauten GmbH and, from 1932, came into the complete ownership of its namegiver Dornier.

The history of Dornier GmbH is closely associated with its founder Claude Dornier, who personally controlled the company fortunes until his death in 1969. This is an exception among the German companies in this branch, which increasingly entered into partnerships or mergers, especially after the rebirth of the aircraft industry in Germany from 1955 on.



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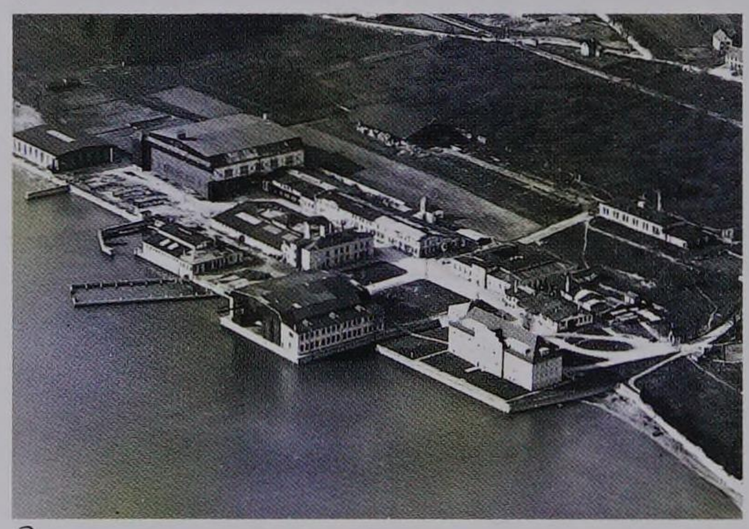

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Up to that time, the company had already developed and built almost 80 different aircraft models. Over those years, the name of Dornier had become famous throughout the world, in particular through the Wal family of flying boats and the twelve-engine seaplane Do X, which was a sensation alone on account of its impressive appearance. At that time the company also had plants in Italy and Switzerland, and in Spain, Holland and Japan its aircraft were built under licence. From 1934 on, the company had also become increasingly involved in the field of high-performance aircraft.

After the Second World War, Dornier had produced – first abroad and later in Germany again – in

1 The hangar at Seemoos on Lake Constance, where the first giant aircraft designed by Dornier were produced.

2 View of the former Dornier production facilities at Friedrichshafen-Manzell.

4

3 Production of the Do 28 D1 at Oberpfaffenhofen with two prototypes of the Do 31 in the background.

4 An aerial photograph of Dornier at Immenstaad taken in the early 1990s

particular successful short takeoff and landing aircraft such as the Do 27 and Do 28 Skyservant, which helped the company regain its footing on the world markets. In the 1960s, Dornier then built the world's first vertical takeoff and landing jet transport aircraft, the Do 31.

With the formation of the subsidiary Dornier System GmbH in 1962, the company entered the field of systems technology. In addition to taking over the space activities of the company, this subsidiary also concentrated on development and production work in the area of new technologies. This diversification led to these technologies finding a wide range of applications in the electronics, information technology, defence technology, logistics and training and planning consultancy branches as well as in the areas of materials, energy, environmental and medical technology. By the early eighties, about 40% of Dornier's revenues were being earned outside the aerospace field.

In this branch, the company entered into numerous international partnerships. At the end of the 1950s, Dornier had already participated in the development and construction of the maritime patrol aircraft Breguet 1150 Atlantic, a product of the company Dassault-Breguet. In the 1970s, the two companies joined forces to build the Alpha Jet training aircraft. In the space field, among other things Dornier worked on the German research satellite Azur, the European research satellite Geos and the American Hubble space telescope.

The headquarters of the Dornier company was moved to Immenstaad near Friedrichshafen on Lake Constance. In 1985, the group consisted of Dornier GmbH and its subsidiaries Dornier Reparaturwerft GmbH based in Oberpfaffenhofen, Dornier System GmbH based in Friedrichshafen and Dornier Medizintechnik based in Germering near Munich. In May 1985, Daimler-Benz acquired a 68% share in Dornier, with Baden-Württemberg taking a 4% share and the remaining shares staying in family ownership.

Messerschmitt-Bölkow-Blohm (MBB)

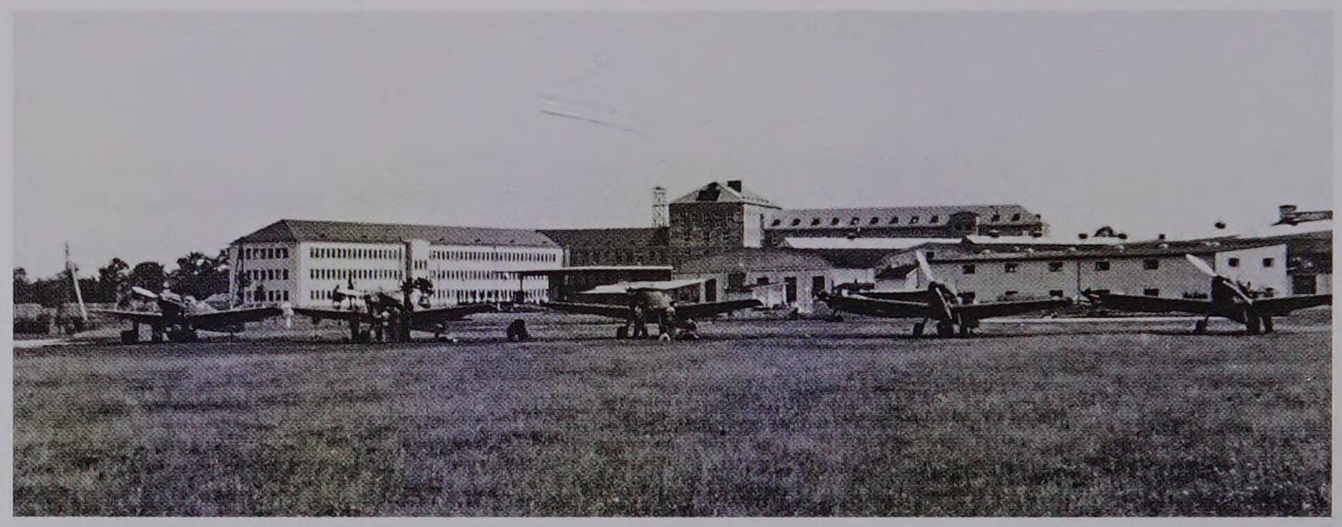
In the 1980s, the names of Messerschmitt, Bölkow and Blohm were synonymous with the largest company in the German aerospace industry. However, behind those three names also stood the names of many other companies of tradition with approximately eighty years of experience in aircraft construction.

MBB arose from the mergers of four different descending lines in the company. The Bayerische Flugzeugwerke of 1926 had again taken over the company

Udet- und Messerschmitt-Flugzeugbau and in 1938 became Messerschmitt AG. After the war, Flugzeug-Union-Süd GmbH, which had been formed by Messerschmitt and Heinkel, took over the Junkers line, which was not continued in the former East Germany. The 1960s saw the start of space activities under the company name of Junkers. The Siebel line and Waggon- und Maschinenbau Donauwörth (WMD-SIAT) were merged into Bölkow-Entwicklungen KG, which had been founded in 1956. The name of Blohm stood for Walther Blohm, owner and operator of one of the most famous German shipyards Blohm und Voss and founder in 1933 of the aircraft manufacturing company Hamburger Flugzeugbau GmbH (HFB). The fourth line, finally, descended from the Vereinigte Flugtechnische Werke (VFW), into which had been integrated such tradition-laden companies as Albatros, Heinkel, Focke-Wulf, Rohrbach and Weserflugzeugbau.

It was the German federal government with its demand that the fragmented German aviation industry should concentrate its capacities that was to no small degree responsible for the mergers that resulted in MBB being founded. A start was made in 1959 when Entwicklungsring Süd (EWR) was set up, through which the Bölkow, Heinkel and Messerschmitt companies developed the experimental vertical takeoff aircraft VJ 101. The north German counterpart to this was the Entwicklungsring Nord (ERNO), in which HFB, Focke-Wulf and Weserflugzeugbau were united from 1961 on. This company gained an international reputation through its space activities.

The first actual merger took place in 1968, when Messerschmitt and Bölkow linked up. The head offices of the company were in Ottobrunn with Ludwig Bölkow becoming President of Corporate Management and Willy Messerschmitt Chairman of the Supervisory Board.



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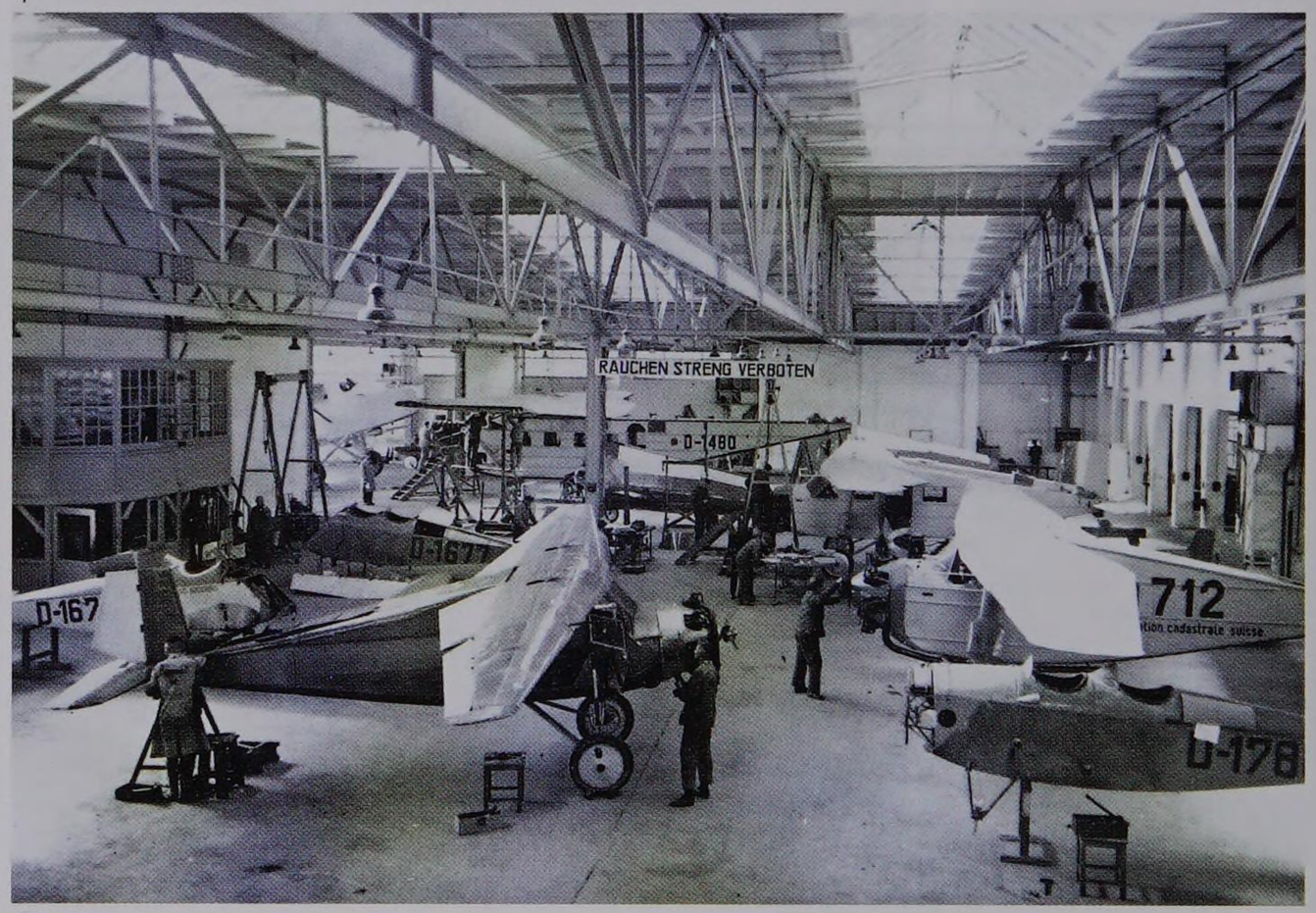

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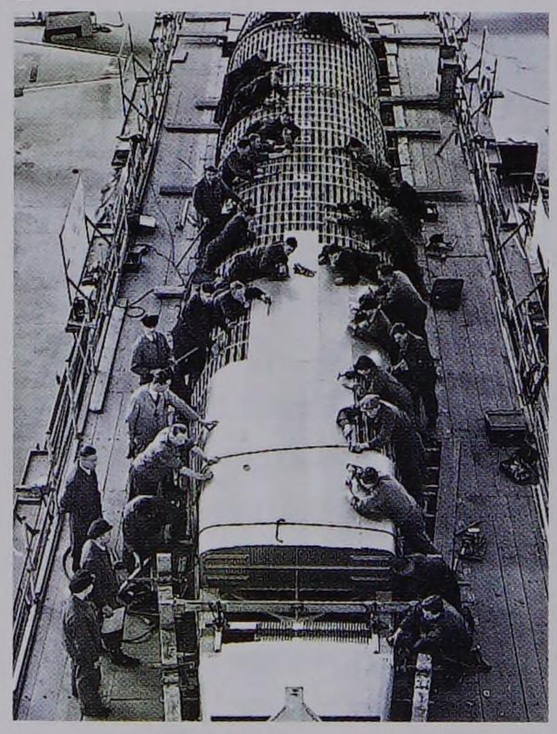

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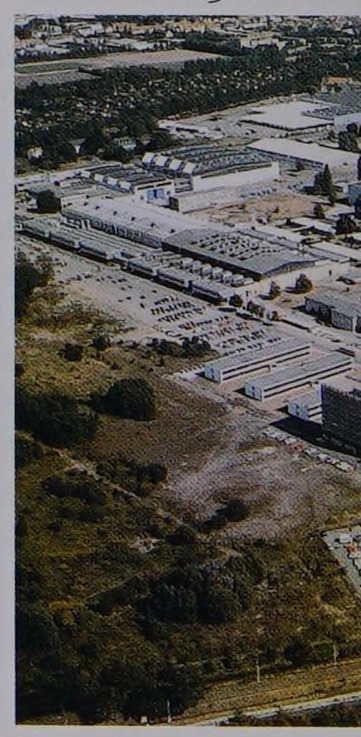

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1 The headquarters of Messerschmitt AG in Augsburg, 1938.

2 The workshops of the Bayerische Flugzeugwerke (BFW) in Augsburg, summer 1930.

3 The Ottobrunn site has become a centre of high technology and today houses one of the two EADS head offices.

4 The fuselage of the Ju 90 being constructed at Dessau in 1938.

5 Ludwig Bölkow signing the merger agreements for the foundation of Messerschmitt- Bölkow GmbH on 1 November 1968.

6 The VFW site at Bremen developed into an important aerospace centre.

7 The Airbus plant Hamburg-Finkenwerder in the 1990s. Nowadays, final assembly of the A318, A319 and A321 takes place here.

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Only one year later, Hamburger Flugzeugbau joined forces with this company, thus creating Messerschmitt-Bölkow-Blohm. The new company MBB GmbH had a total workforce of 20,000 at twelve sites. Revenues amounted to more than DM 900 million. The head of HFB, Werner Blohm, became a member of MBB Corporate Management. Following this merger, MBB also assumed responsibility for the entrepreneurial management of Deutsche Airbus GmbH.

In 1965, the first talks about the development of a European widebody aircraft had already taken place between Ludwig Bölkow and General Puget, president of Sud Aviation. On 2 July 1965, the Bölkow, Dornier, HFB, Messerschmitt and VFW companies had decided to jointly start on the preliminary work for an international project of this type. Then, in September 1967, the German companies laid the foundations for cooperation on a national level by founding Deutsche Airbus GmbH, which took over the German share of this European programme. After the merger of 1969, only three shareholding partners remained: MBB with 60 percent and Dornier and VFW with 20 percent each. The memorandum of association founding the European consortium Airbus Industrie with headquarters in Toulouse was then signed in 1970 by Deutsche Airbus and the French Aerospatiale, the latter in the meantime having emerged from the amalgamation of Nord Aviation, Sud Aviation and SEREB. In 1972, the Spanish CASA then joined the programme, followed in 1979 by British Aerospace. From then on, the German and French partners each had a 37.9 percent share in the Airbus programme, the British partner had 20 percent and the Spanish partner 4.2 percent.

In 1981, VFW was taken over by MBB, having been merged with Fokker to form VFW-Fokker in 1969, but then de-merged to form an independent company again in 1980. In the following years, MBB continued

to increase its lead as the major German systems leader in the fields of aerospace and defence technology. In 1988, MBB had a workforce of 40,000 at 18 sites and occupied position three in the table of European aerospace companies. In December 1989, MBB was taken over by the then Deutsche Aerospace AG.

Motoren- und Turbinen-Union (MTU)

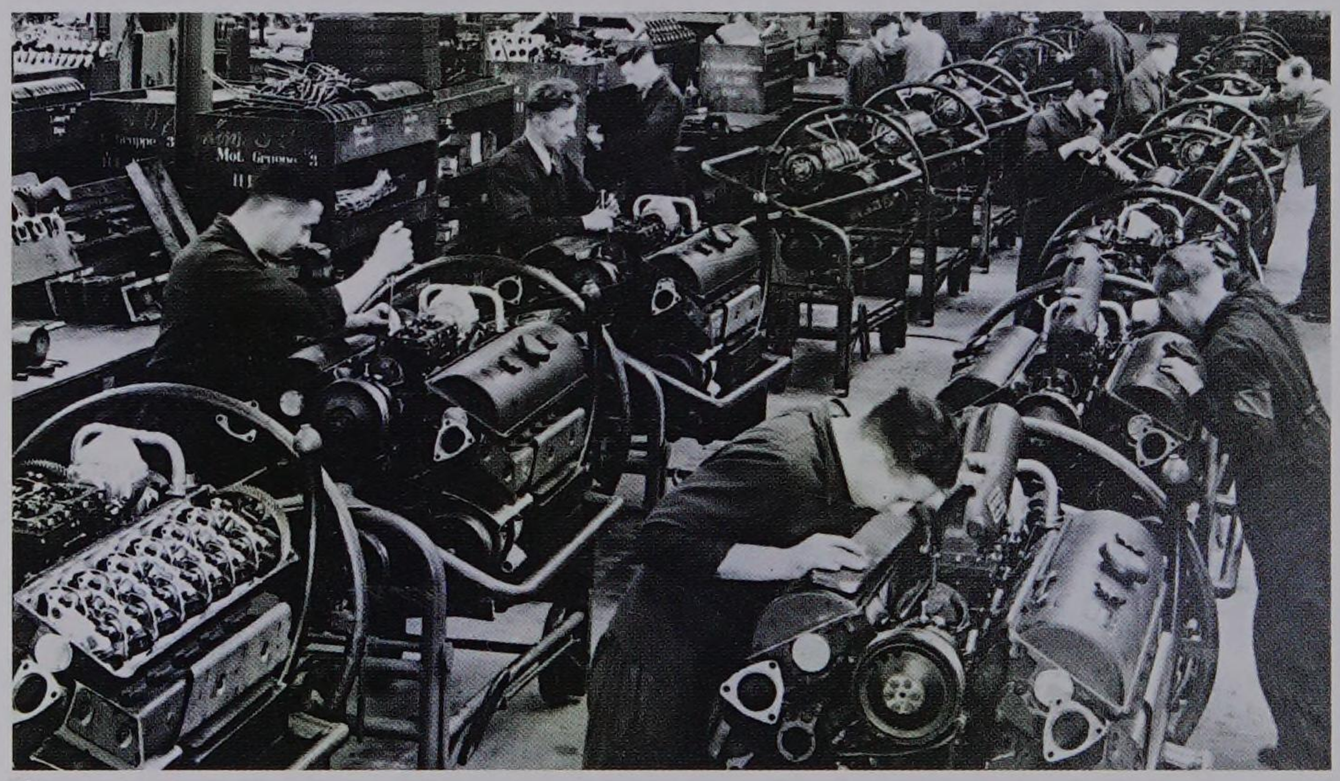
At the point when MTU was taken over by Daimler-Benz AG in 1985, the MTU Group consisted of two divisions: MTU München, the manufacturer of jet and turboshaft engines, including components and parts for the aerospace industry, and MTU Friedrichshafen, the manufacturer of compact high-performance diesel engines for ships, the railways, heavy road vehicles and stationary power supply facilities, power transmission systems and electronic control systems.

MTU München was continuing the tradition of building turboshaft and jet aero engines that had been founded in particular by Daimler-Benz AG, the Bayerische Motorenwerke AG (BMW) and MAN AG.

When Count Zeppelin's first airship took off in the summer of 1900, it was powered by two Daimler engines. Both Gottlieb Daimler and Karl Benz established development sections for aero engines.

By the end of the First World War, Benz had advanced to become a large supplier of engines, second only to Daimler. Then, in 1926, the two most successful German automobile and aircraft engine producers joined forces to become Daimler-Benz AG. It was with the DB 600, which laid the foundation for a whole family of aircraft engines, that a new era began in aero engine construction.

Also Karl Maybach started off by building engines for airships. In 1909, Count Zeppelin entrusted him



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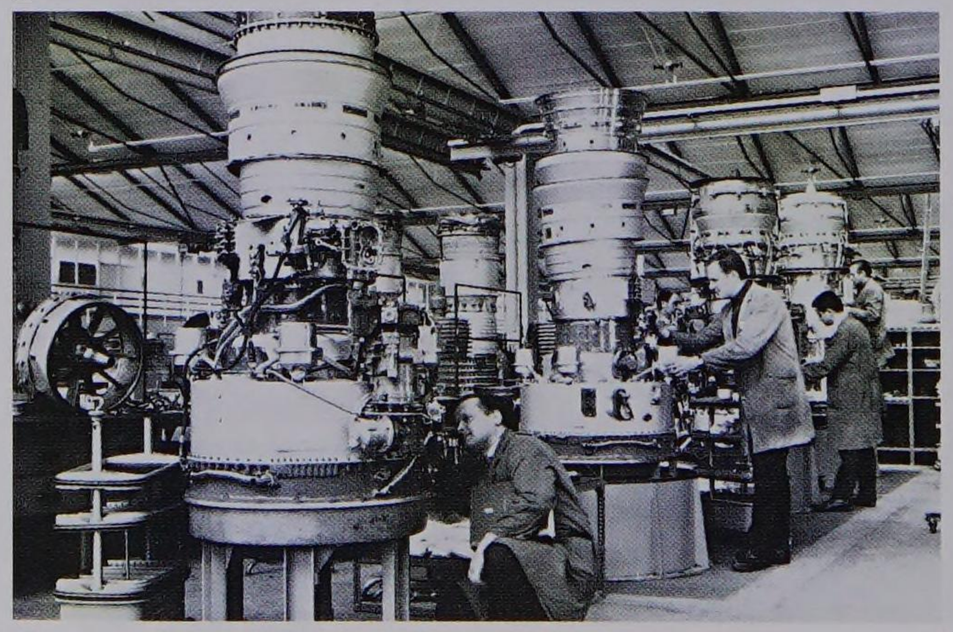

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1 Maybach HL-120 engines under construction at Friedrichshafen in 1942.

2 The plant at Allach by Munich in the post-war years.

3 Engine production at MAN Turbo in the 1960s.

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1 Fokker Aeroplanbau in Berlin-Johannisthal, 1912.

2 The Fokker F.VIIa first flew on 12 March 1925. The prototype was sold to the USA, where it flew under the by-name "Old Glory" and set up a world record for endurance flight.

with the task of setting up Luftfahrzeug-Motorenbau GmbH, which was renamed Maybach Motorenbau in 1918. During the First World War, Maybach also concentrated on the development of aircraft engines, but once the war was over he directed his attention to the construction of automobile and commercial vehicle engines. In addition, he began to develop diesel engines for railcars.

Further companies that contributed to the tradition of MTU were MAN Turbo and, prior to that, the Bayerische Motoren Werke (BMW), which had been founded in 1917 and whose engines powered, for example, the Dornier Wal, the Ju 52 and the fast mailplane He 70.

In 1960, Daimler-Benz took a majority holding in Maybach Motorenbau, which was later integrated into the large engine division of Daimler-Benz. As a last step, Daimler-Benz and MAN merged their aircraft engine activities under the roof of MTU München and their diesel engine activities under the roof of MTU Friedrichshafen.

N.V. Koninklijke Nederlandse Vliegtuigenfabriek Fokker

The Dutchman Anthony Fokker played an important role at several points in German aviation history. In 1912, at Berlin-Johannisthal he founded the company Fokker Aeroplanbau, which soon moved to a larger site at Schwerin in 1913. In the following years, the young company advanced to become Germany's largest aircraft manufacturer. Among Fokker's products were top-performance fighter aircraft, in particular the D.VII biplane, which was considered the supreme aircraft of its day.

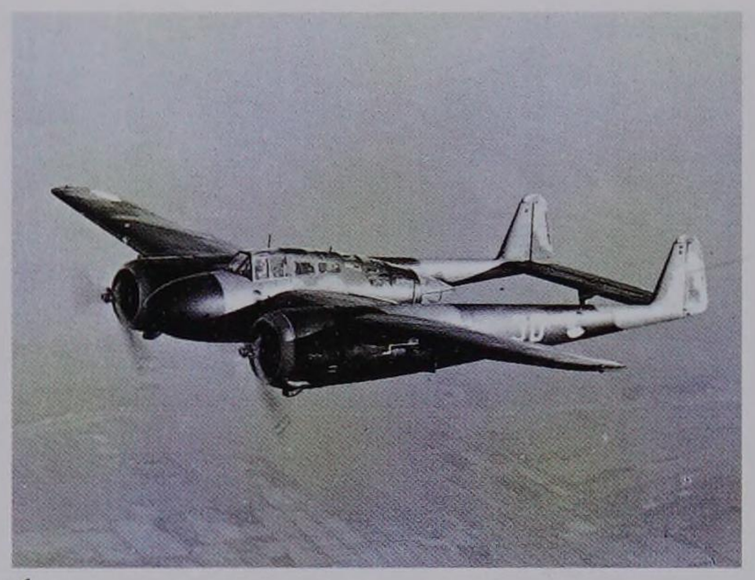
In 1917, on pressure from the German government, there was a temporary amalgamation of Fokker's and Junkers' activities under the roof of the Junkers-Fokker-Werke AG. The reason behind this was to be seen in the efforts to concentrate the resources of the various aircraft manufacturers so as to meet the enormous demand for aircraft caused by the war. However, this forced marriage did not last long since Fokker and Junkers had different ideas about aircraft construction. After the First World War, Anthony Fokker moved his company to Amsterdam, where he founded the Nederlandse Vliegtuigenfabriek in 1919. He quickly

attained global success through the production of three-engined commercial aircraft, some examples of which are the F.IV, which Fokker sold in America, the long-distance eight-seater F.VII, and the F.VII/3m, which had a reputation for being particularly efficient and reliable. Fokker aircraft were built under licence in 22 countries.

In the period following the Second World War, the company concentrated on the construction of light trainers and business aircraft, before turning more to the production of military aircraft once again. 1951, for example, saw the first flight of the Fokker S.14, one of the world's first jet-powered trainers. With the F27, a twin-engine turboprop with 48 seats, Fokker succeeded in repeating his earlier successes. Also the twin-jet Fokker F28 Fellowship, a 60- to 80-seater that enabled smaller airlines to enter the jet class, proved a great success.

The Dutch aircraft industry, too, was marked by numerous mergers in the post-war years. Amongst these were the link-up of Avio-Diepen, Koninklijke Maatschappij De Schelde and Aviolanda with Fokker and, as a final step, the integration of the company Lichtwerk Hoogeveen.

Then, together with the Vereinigte Flugtechnische Werke (VFW), in 1969 Fokker founded the German-Dutch company VFW-Fokker, which was to become part of MBB in 1980. However, this binational joint effort did not produce the desired success and was abandoned in 1981. Instead, Fokker placed its confidence in the further development of the F27 and F28. In 1985, it then launched the Fokker 50, a twin-engined turboprop capable of carrying 50 passengers, and in 1986 the twin-jet Fokker 100 with seating for 100. In 1993, the twin-jet Fokker 70 was added to the product line



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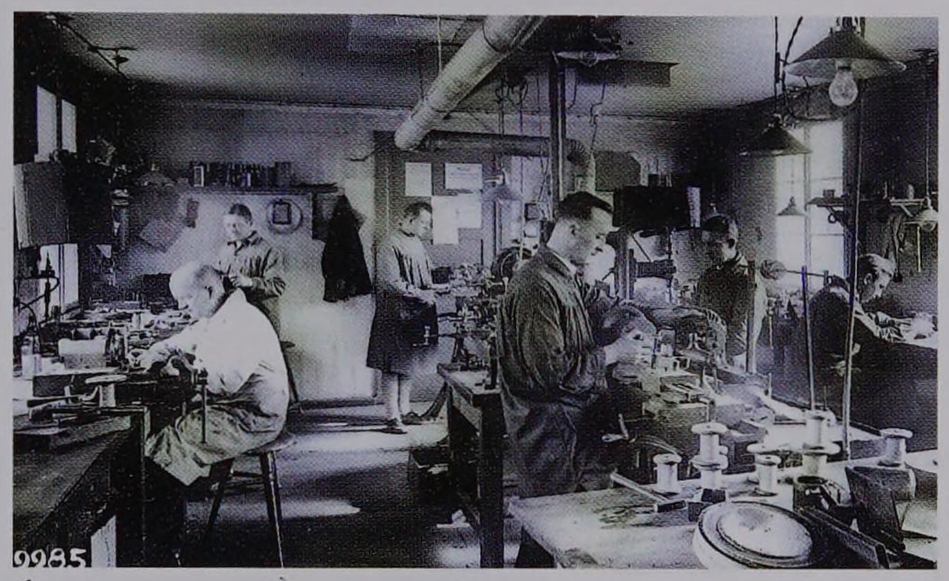
To improve its international competitiveness, the predominantly state-owned Fokker sought an industrial partner, which led to Deutsche Aerospace taking a majority share in Fokker in 1993. However, the company was on the verge of bankruptcy and, following the withdrawal of financial support from first the Dutch state and then the Daimler-Benz Group in early 1996, it went into receivership. Some parts of the undertaking nevertheless survived in partnership with other companies.

1 The Fokker G.I. took off for the first time on 16 March 1937.

2 Maiden flight of the Fokker S.14 on 19 May 1951.

1 Wilhelm Runge's development laboratory, around 1915.

2 Two disincorporated AEG divisions are merged into Dasa to form Telefunken Systemtechnik.



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Telefunken Systemtechnik (TST)

The company history of TST began back in 1903, when the "Gesellschaft für drahtlose Telegraphie m.b.H. (System Telefunken)" was founded as a subsidiary of AEG and Siemens&Halske AG. The company was active in the fields of wireless telegraphy and telephony, building high-power radio transmitters to set up a worldwide radio communications network. Radio technology was revolutionised by the invention of the electron tube. High frequency technology achieved a breakthrough in areas such as navigation, radar, telemetry and remote control. Telefunken's most important achievements included VHF radio communication for controlling railway marshalling yards, direction finding equipment, radar signal measuring equipment and TV technology. The company expanded its range of products to cover radio receivers and gramophone records.

Later, as a 100 percent subsidiary of AEG, the company further extended its activities into the areas of radar and carrier frequencies and radio relay technology.

In 1944, the High Command of the German Wehrmacht ordered that one of the Berlin company's tube production plants be transferred to Ulm. There, the company moved into the Sedan Barracks and within two months a tube production facility had been set up, the main output of which consisted of type RV 12 P 2000 universal receiving tubes. In December 1948, the one millionth tube left the plant, whose workforce in the meantime numbered 1,600. Soon Ulm was to become the company headquarters.

From 1 January 1955 on, the company traded under the name of Telefunken GmbH and on 1 August 1963 was transformed into a limited company. In January 1967, the light-current electrical engineering, appliance and component activities of the company were united with the light-current engineering divisions of AEG to form the Allgemeine Elektrizitäts-Gesellschaft AEG-Telefunken. Transmission engineering now formed a section within the high-frequency engineering division at Ulm. From 1976, the parent company traded under the name of AEG-Telefunken and comprised four joint-stock companies acting as management companies. The transmission engineering section formed part of AEG-Telefunken Anlagentechnik AG, while the high-frequency engineering section in Ulm belonged to the information and transport technology division and the tube production to the tube and component division.

Then, in 1985, the transmission engineering section was allocated to the communications engineering division and the company was also renamed AEG Aktiengesellschaft. Shortly after, in October of the same year, Daimler-Benz acquired a majority share in AEG. On 19 May 1989, Dasa, which also included two divisions of AEG, was founded as a subsidiary of Daimler-Benz. Two months later, those two divisions of AEG – high-frequency engineering with headquarters in Ulm and marine and transmission engineering in Hamburg – were merged to form Telefunken Systemtechnik. Finally, in June 1990, this Dasa subsidiary became part of Telefunken Sendertechnik, Berlin.

The Foundation of Deutsche Aerospace

The major consolidation in the German aerospace industry took place starting from 1985 under the leadership of the Daimler-Benz Group, who completely took over MTU and then, in May of that year, acquired a majority holding in the Dornier Group.

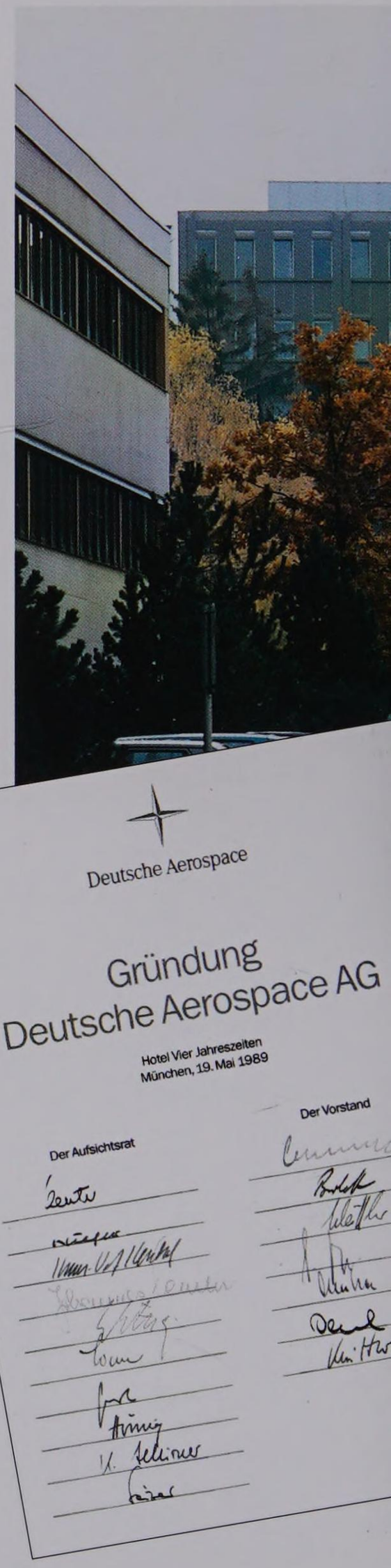
In the year 1987, the German government then urged Daimler-Benz to also take a share in MBB. There had already been considerable moves to create international structures in the aerospace industry and the competition between national companies such as Dornier and MBB was hindering the competitiveness of the German industry in the global markets. The available resources were therefore to be concentrated and overcapacities and duplication avoided through restructuring. Initially the takeover of MBB was refused by the Federal Cartel Office, but then ministerial permission was granted by way of special authorisation – on condition that the Marine and Special Applications division be sold.

On 19 May 1989, Deutsche Aerospace AG (Dasa) was founded as a subsidiary of Daimler-Benz by initially merging Dornier, MTU and two divisions of AEG. The fourth subsidiary, MBB, was integrated into Dasa somewhat later, at the end of 1989. The company's headquarters were in Munich and Jürgen E. Schrempp, who had previously held various positions overseas in the management of Mercedes-Benz, was appointed President and CEO.

Dasa quickly set about restructuring the company. In March 1990, the activities of the previously competing subsidiaries were reorganised into a total of 13 product divisions in the four newly created business fields Aircraft, Space Systems, Defense and Civil Systems and Propulsion, plus a separate area Other Activities. The four subsidiary companies initially continued to exist as legal entities.

However, not only the restructuring of the business activities was of crucial importance to the Dasa board, but also the integration of the company in international structures. The agreement in March 1991 between MTU and the American aero engine manufacturer Pratt & Whitney, which determined that each partner would grant the other favoured partner status in any future projects, and the merger of Dasa's helicopter activities with those of the French company Aerospatiale to form the joint company Eurocopter were merely the first steps in this direction.

At the same time, the company was meeting its contractual obligations by concentrating the resources of the German aerospace industry and taking an active part in the economic reconstruction of the new Laender. After the fall of the Berlin Wall and German reunification, for example, Dasa took over the VEB Elbe Flugzeugwerft in Dresden, a former East German state enterprise with a long tradition, and the former state workshops at Ludwigsfelde. The Elbe Flugzeugwerke of Dresden were allocated to Deutsche



1

2

1 The Memorandum of Association of Deutsche Aerospace AG, dating from 19 May 1989.

2 In September 1992, Ottobrunn near Munich became the main site and company headquarters.

Aerospace Airbus and now in particular produce the floor plating and cargo hold panels for Airbus aircraft. Amongst other tasks, the Dresden plant has taken on support, maintenance and conversion work for east European aircraft. This site has become specialised in the conversion of first generation Airbus passenger aircraft into freighters.

MTU Ludwigsfelde concentrated mainly on the overhaul of civil aircraft engines and repair work for the Bundeswehr. After Jena-Optronik GmbH, a joint venture together with Jenoptik GmbH of Jena, was founded in November 1991, Dasa also had an east German base in the space technology field. The subsidiary focuses on the production of optical sensors and instruments for space systems. In addition, from 1993 on RST Rostock was fully integrated into the Bremen space activities, which today form part of Astrium.

The worldwide collapse of sales in the civil aeronautics industry, the reduced orders in the defence technology field and the drastic cutbacks in public funds for space projects also hit Dasa hard. The company countered this with a further reduction in multiple capacities and by expanding its international base through the foundation of marketing companies in all parts of the world. The re-naming of the company as Daimler-Benz Aerospace AG on 1 January 1995 also gave a boost to the moves into the world markets since Dasa was thus able to present itself also using the name of its globally renowned and respected parent company. By taking a majority holding in the Dutch aircraft manufacturer Fokker in April 1993, Dasa had demonstrated that it was no longer a purely national company. Daimler-Benz Aerospace Airbus, Dornier and MTU operated under their own names as subsidiaries of Dasa while MBB and TST had been fully merged into the parent company in 1992.

After the merger of Daimler-Benz with the American Chrysler Corporation in November of 1998, the aerospace subsidiary Dasa changed its official name to DaimlerChrysler Aerospace AG. Finally, on 10 July 2000, this company then merged with Aerospatiale Matra and CASA to form the European Aerospace Defence and Space Company (EADS), but leaving MTU Aero Engines still under the roof of Daimler-Chrysler.

In its last full business year 1999, Dasa achieved revenues of € 9.2 billion and a 17 percent annual increase in operating profit to € 730 million, the best figures in its company history. At year-end 1999, Dasa had a workforce of 46,107 (without MTU: 39,232). In 1999, Dasa had continued to expand its backlog of orders for the fourth consecutive year. The value of its order book had risen by nine percent to reach € 24 billion.

As has already been indicated in the previous chapters, the road to the formation of EADS was paved with many partnerships and joint projects at Aerospatiale Matra, CASA and Dasa, which date back to the beginning of the 1960s. At the beginning of the nineties, for example, Aerospatiale and Deutsche Aerospace each achieved roughly 60% of their revenues in common programmes and projects – within Airbus and Ariane, through satellites, the Eurocopter "Tiger" or Euromissile. CASA worked together with both companies on Airbus and Ariane, and additionally with Dasa on the Eurofighter programme.

However, a joint company does not necessarily have to be formed from such partnerships, be it a joint venture or ultimately the complete integration of some parts or all of the activities. And, looking back, the formation of EADS – which can be traced through a variety of configurations from the early nineties onwards – did not always follow a direct route from starting point to final destination. At the same time, the workforce of EADS is no longer merely German, French or Spanish, but there are also Belgian, Dutch, Polish, Italian and British colleagues, who work in their home countries for an EADS Group company. With approximately 10,000 employees, the British make up the third largest contingent in the EADS workforce, taking a place even ahead of the Spanish, of whom there are roughly 8,000. But it would be unfair on the part of EADS – though certainly of great interest to all aviation enthusiasts – to here try and lay claim to yet more roots alongside those detailed in the history of the predecessors and tradition-laden companies which made up Aerospatiale Matra in France, CASA in Spain and Dasa in Germany. However, two of the above-mentioned countries do deserve a special mention:

Great Britain

In the history of British aeronautics, by the early 1970s most of the industrial activities had been combined in the company British Aerospace (BAe), which again merged in 1999 with the defence activities of GEC Marconi to form BAE Systems. The tradition of these companies incorporates important milestones in the history of aviation: particularly worthy of note is the maiden flight of the world's first passenger jet, the de Havilland DH.106 "Comet", on 27 July 1949. The British Airbus employees chalk up this event as a milestone in "their" history, and rightfully so!

Thanks to collaborative ventures such as the "Concorde", the "Tornado" and today the Eurofighter "Typhoon", the British aircraft industry has long been linked with the continent. Since 2001, the British Airbus plants at Filton and Broughton have completely belonged to the fully-integrated company Airbus S.A.S., in which BAE Systems holds a 20% share alongside the EADS 80% majority; Matra Marconi Space, which was formed in 1990 and merged into Astrium in 2000, is now fully owned by the Space Division of EADS in the same way that a range of defence electronics activities in Great Britain are now part of the EADS Defence & Security Division. BAE Systems and EADS each hold a 37.5% share in the second largest missile manufacturer in the world, MBDA, which emerged from Matra British Aerospace Dynamics (MBD). The Italian company Finmeccanica holds the other 25%.

Italy

The majority of aerospace and defence activities in Italy are united under the one roof of Finmeccanica

1

2

3

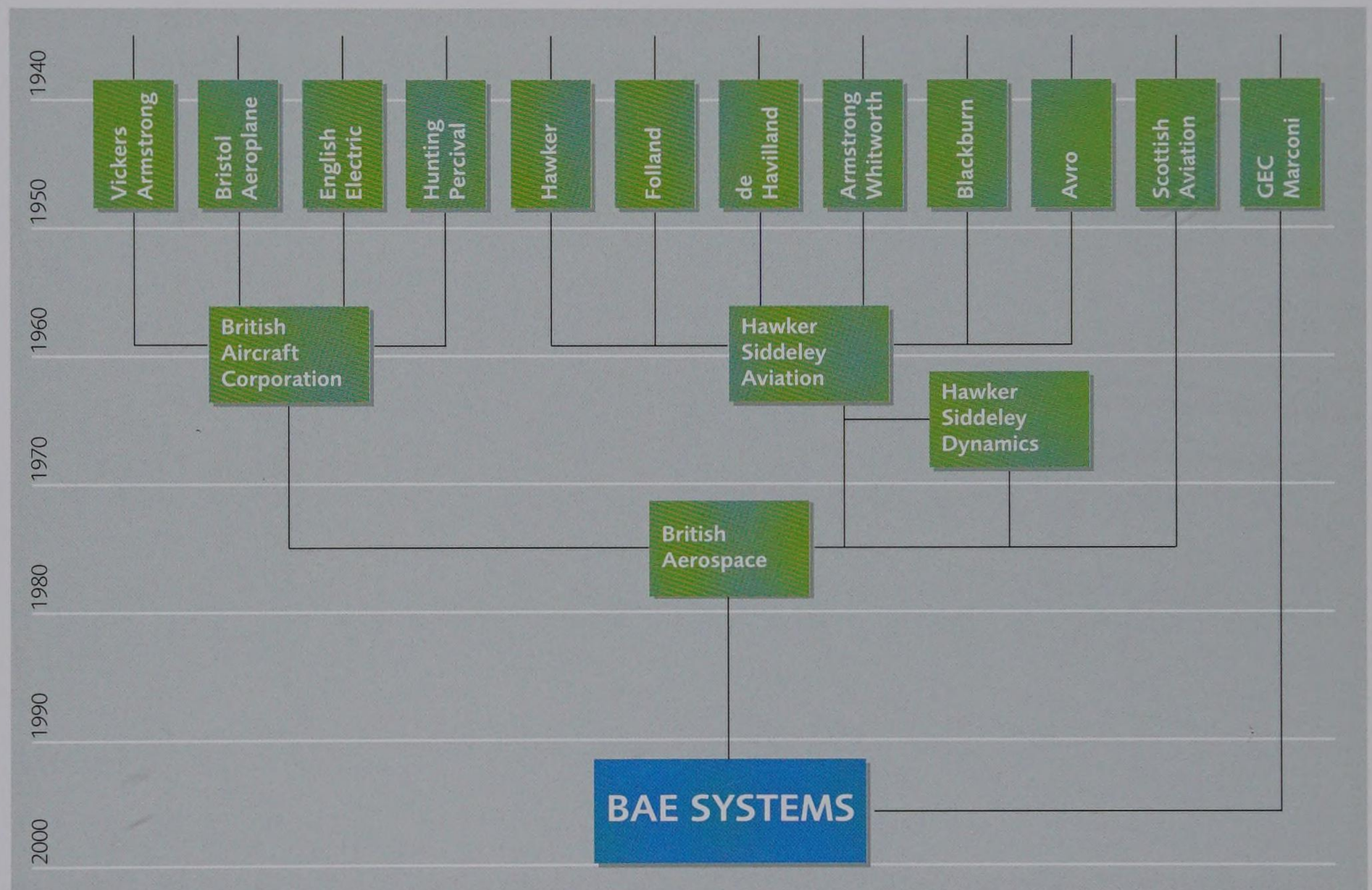
4

1 The world's first passenger jet: the de Havilland DH.106 "Comet" of 1949.

2 The Concorde prototype 002 undertakes its first flight at Filton on 9 April 1969.

3 On 14 April 2000, delivery of the 600th ATR aircraft (an ATR 72-500 to Air Dolomiti) is celebrated.

4 On 5 April 2002, the first instrumented production aircraft from Eurofighter series production, the IPA2 from Turin, takes to the skies for the first time.



5 The concentration process in the British aircraft industry.

5

Alenia. Since December 2001, the guided missile activities of Alenia Difesa have been united within a single integrated European company, MBDA. Regional aircraft activities are being carried out within ATR, a 50:50 joint venture with EADS.

In addition, Italy is linked with EADS in a variety of programme and project partnerships: in the military aircraft field through the "Tornado" and now also the Eurofighter "Typhoon" and in the space field through joint ESA contracts such as the Columbus module for the International Space Station (ISS) under the systems leadership of Astrium's Bremen site, and through numerous satellites. Last but not least, the construction and operation of the "Galileo" navigation satellite will lead to another very close partnership in the future.

Genealogy of the Companies

AEROSPATIALE

MATRA

CASA

1910

1920

1930

1920
Dewoitine

1907
WLD

1912
Lioré et Olivier

Villiers

1930
Potez

1921
C.A. Méditerrannée

1925
SPCA

1929
CAE Romano

1907
Breguet (1)

1926
Wilbault-Penhoët

1934

1908
Nieuport

1909

1911

Tellier

1916

1918

1917
Gourdou-Leseurre

1922
SCA St. Nazaire. P.

1927
Loire Gourdou

1931
Loire Aviation

1933
Loire Nieuport

1921
Nieuport-Astra

1908
ASTRA

1912
Lioré et Olivier (2)

1924
Dyle et Bacalan

1929
SAB

1930
Marcel Bloch

1934

1905
Blériot

1910
Deperdussin

1914
Blériot SPAD

1908
Morane

1911
Morane Saulnier

1928
Mauboussin

1933
Castello

1933
Caudron Renault

1908
Caudron

1920
CAMS (2)

1933
Potez-CAMS

1916
SEA

1919
Potez (2)

1921
Pelabon-Les Mureaux

1930
ANF-Les Mureaux

1908
Hanriot

1911
Marcel Besson

1909
Farman

1916
Amiot

1918
Latham

1933
SECM

1911
Breguet (2)

1917
Bernard

1927
SAB

1934

1911
Schreck

1913
FBA-Schreck

1923
Construcciones Aeronáuticas, S.A. (CASA)

1904
Hispano-Suiza

1925
Elizalde S.A.

1940 1950 1960 1970

SNCASE

1956
Sud Est Aviation

1969
Sud Aviation/Airbus

1965 **1967**

1957
Sud Aviation

SNCASO

1956
Ouest Aviation

1970
SNIAS
Aerospatiale

1966
SOCATA

1944
Air Fouga

1941
Castel Mauboussin

1949
Potez

1958
Potez
Air Fouga

1945
SNCAN

1958
Nord Aviation

1945
SNCAC

1959
SEREB

1952
SFECMAS

1945
Marcel Dassault

1945
Matra

1943
Hispano-Aviacion, S.A. (HASA)

1952
Enmasa

1910 1920 1930

TST

1903
Gesellschaft für drahtlose Telegraphie (founded by Siemens & Halske and AEG)

Dornier

1914
Dept. "DO" at Luftschiffbau Zeppelin

1917
Zeppelin-Werk Lindau GmbH

1922
Dornier Metallbauten GmbH

19
Dornier Werke Gm

1909
Luftfahrzeug Motorenbau GmbH

1918
Maybach Motorenbau GmbH

MTU

1926
Daimler-Benz AG

1936
Bramo Brandenburgische Motorenwerke

1912
Siemens & Halske AG

1922
Bayerische Motorenwerke AG

1934 BMW Flugr

1916
M.A.N. AG

1933
Klemm-Flugzgeug-werke Halle GmbH (KFH)

1911
Deutsche Flugzeugwerke GmbH (DFW)

1919
Allgemeine Transport-Anlagen GmbH (ATG)

1922
Udet-Flugzeug-bau GmbH

1933
Hamburger Flugzeugbau GmbH (HFB)

MBB

1913
ARGE Friedrich Harth - Willy Messerschmitt

1923
Flugzeugbau Messerschmitt

1926
Bayerische Flugzeug-werke AG (BFW)

1908
Research Institute Prof. Junkers

1917
Junkers-Fokker Werke AG

1919
Junkers-Flugzeug-werk AG (IFA)

1923
Junkers-Motorenbau GmbH (JUMO)

1936
Junkers Flugzeug- und Motorenwerke AG (JFM)

1922
Ernst Heinkel Flugzeugwerke GmbH

1909
Albatros AG Berlin

1924
Focke-Wulf Flugzeugbau AG

19
Focke-Wulf F
zeugbau Gm

1922
Rohrbach Metall-Flugzeugbau GmbH

193
Focke, Achgelis & Co Gmb

1934
Weser-Flugzeugba (WFG)

Fokker

1912
Fokker Aeroplanbau, Berlin-Johannisthal

1917
Junkers-Fokker Werke AG

1919
N.V. Nederlandse Vliegtuigenfabriek, Amsterdam

1941
Telefunken Gesellschaft mbH

1955
Telefunken GmbH

1964
Telefunken AG

1967
AEG-Telefunken

1962
Dornier System GmbH

1950
Dornier GmbH

1957
Dornier Reparaturwerft

1966
Maybach Mercedes-Benz GmbH

1963
Mercedes-Benz Motorenbau AG

1955
Daimler-Benz AG
Dept. "Turbomachines"

1968
Entwicklungsgemeinschaft
für Turbomotoren GmbH

1969
MTU

1957
BMW Triebwerkbau GmbH

1957
M.A.N. Turbomotoren GmbH

1965
M.A.N. Turbo GmbH

1946
Waggon- und Maschin enbau GmbH (WMD)

1957
SIAT – WMD

1967
Project company
Deutsche Airbus GmbH

1952
Siebelwerke – ATG GmbH (SIAT)

1948
Ingenieurbüro
Bölkow (IBB)

1956
Bölkow Ent-
wicklungen KG

1958
Bölkow GmbH

1965
Bölkow GmbH

Deutsche
Airbus GmbH

1954
Hamburger
Flugzeugbau
GmbH (HFB)

1959
ARGE Entwicklungs-
ring-Süd (EWR)

1965
Entwicklungsring-
Süd GmbH (EWR)

1969
Messerschmitt-
Bölkow-Blohm GmbH

1966
Messerschmitt-Werke
Flugzeug-Union-Süd GmbH

1968
Messerschmitt-
Bölkow GmbH

1956
Flugzeug-Union-
Süd GmbH (FUS)

1961
Entwicklungsring Nord (ERNO)
(HFB, FW und Weser)

1968
ERNO
Raumfahrttechnik GmbH

1943
Ernst Heinkel AG

1955
Ernst Heinkel Flugzeugbau GmbH

1963
Vereinigte Flugtechnische
Werke GmbH (VFW)

1969
Zentralgesellschaft
VFW-Fokker mbH (D
Fokker-VFW (NL)

1949
Koninklijke Nederlandse
Vliegtuigenfabriek Fokker

1954
Avio-Diepen
DeSchelde

1967
Aviolanda

1969
Lichtwerk Hoogeveen

1970 1980 1990

AEROSPATIALE

Sud Aviation

Nord Aviation

SEREB

1970
SNIAS

1984
Aerospatiale

MATRA

Matra

1971
Hispano Aviacion, S.A. (HASA)

1972
Empresa Nacional de Motores de Aviacion, S.A. (Enmasa)

CASA

Construcciones Aeronáuticas, S.A. (CASA)

Hispano- Aviacion, S.A. (HASA)

Enmasa

TST

AEG-Telefunken

1985
AEG AG

1989
TST

Dornier

Dornier System GmbH

1989
Dornier GmbH

Dornier GmbH

Dornier Reparaturwerft

1989
Dornier Luftfahrt GmbH

1989
Deutsche Aerospace AG

1991

MTU

MTU

SI Sicherungstechnik GmbH

Elbe-Flugzeugwerke GmbH

Luftfahrttechnik Ludwigsfelde GmbH

MBB

Messerschmitt-Bölkow-Blohm GmbH

1980
MBB

1980
(Demerger of Fokker and VFW)

Fokker

Zentralgesellschaft VFW-Fokker mbH (D)
Fokker-VFW (NL)

1980
N.V. Koninklijke Nederlandse Vliegtuigenfabriek Fokker

1999
Aerospatiale Matra

1996
Daimler-Benz
Aerospace AG

1998
Daimler Chrysler
Aerospace AG

1995
MTU
Friedrichshafen

2000
MTU
AERO Engines

1997
Dornier
Luftfahrt GmbH

EADS

On the Wings of Time

The following chronology of EADS and its predecessors from 1900 up to the present day has been divided into precise decades. In this way, historically significant landmarks have been spread over two chapters, for example the Second World War, or the pioneering era of Airbus in the 1960s and 1970s.

The history of the EADS founding companies Aerospatiale Matra, CASA and Dasa, as well as their manifold predecessors (see the preceding genealogies) follows a strict chronological sequence. Concurrent developments in the three countries can therefore be easily identified, in times of both war and peace. The bonds of friendship between the states and peoples strengthened from the sixties onwards, and for the aviation historian this is reflected in the numerous cooperative ventures: a picture showing the maiden flight of an Airbus is, for example, representative of all the participating nations: Germany, France, Great Britain and Spain.

As far as the extensive aviation data in this chronology are concerned, the date given generally – if not otherwise stated – indicates when a particular aircraft model flew for the first time. For some of the photographs up to the 1950s, we were occasionally obliged to use modified reproductions, which we offer as justification for their inferior quality.

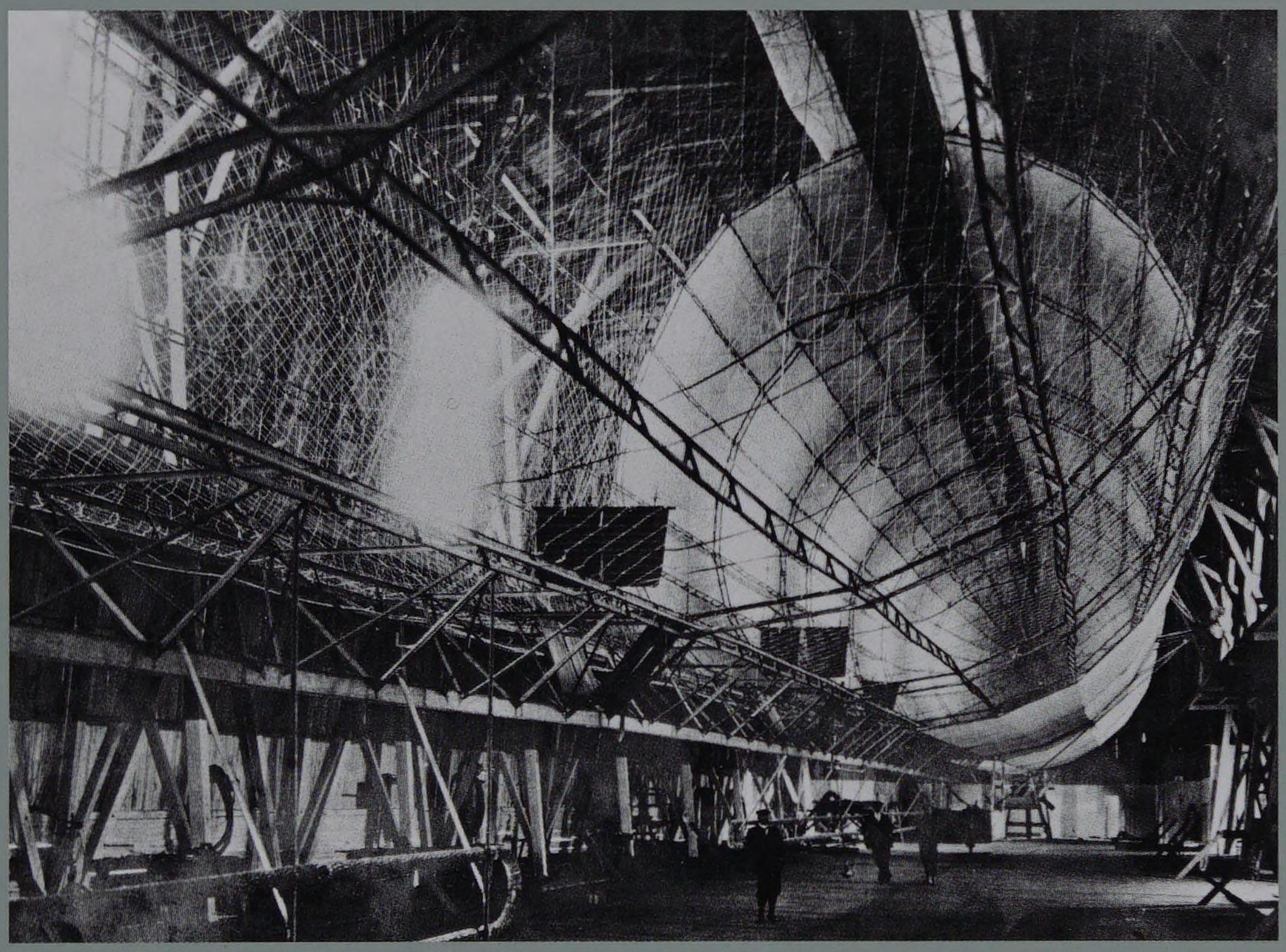
The respective heads of the direct predecessors to EADS (Aerospatiale, Matra, CASA, Dasa) are also represented in the chronology. As a result, the heads of CASA are shown from its year of formation in 1923 (as this EADS founder company can point to the longest uninterrupted history), the heads of Matra are shown from 1945, those of Aerospatiale from 1970 and those of Dasa from 1989.

British aeronautics enthusiasts will notice that the true roots of their aviation history are missing, as events at Airbus in Broughton or Filton, or similarly at MBD (Matra British Aerospace Dynamics) and MMS (Matra Marconi Space) could only be included after such companies had joined the EADS Group. Any other manner of proceeding would not have served our legitimate purpose – although reference to the first passenger jet in the world is of course an imperative for us too (see page 62 in the chapter "European Partnerships")!

"A bird is an instrument that functions according to mathematical laws, and man is capable of imitating this instrument."

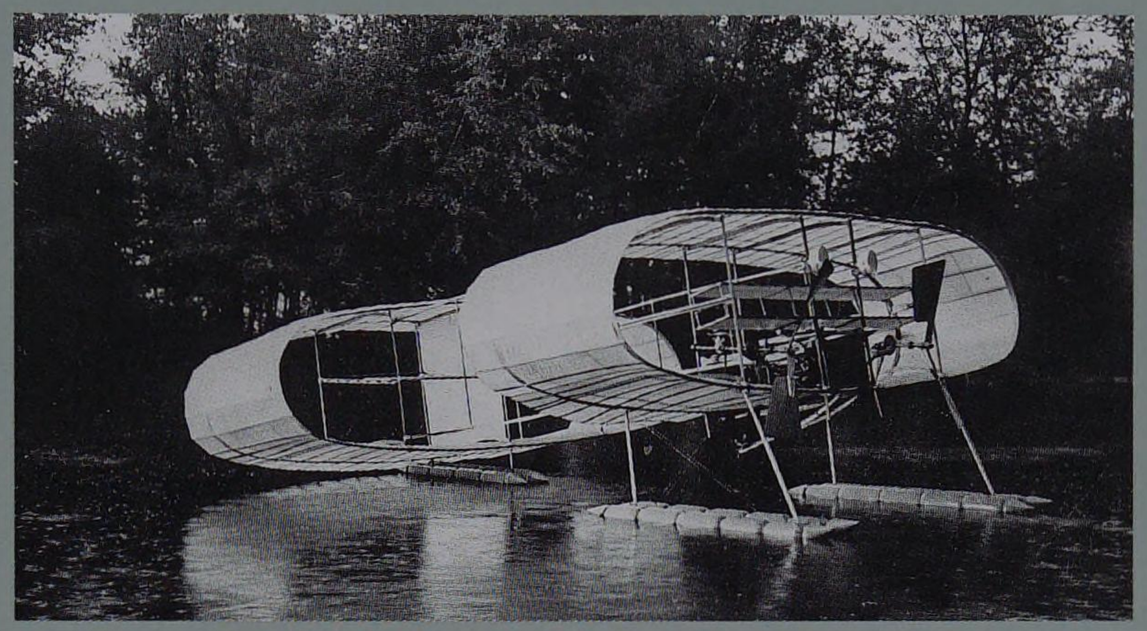
Leonardo da Vinci (1452-1519), scientist and artist

1900–1910



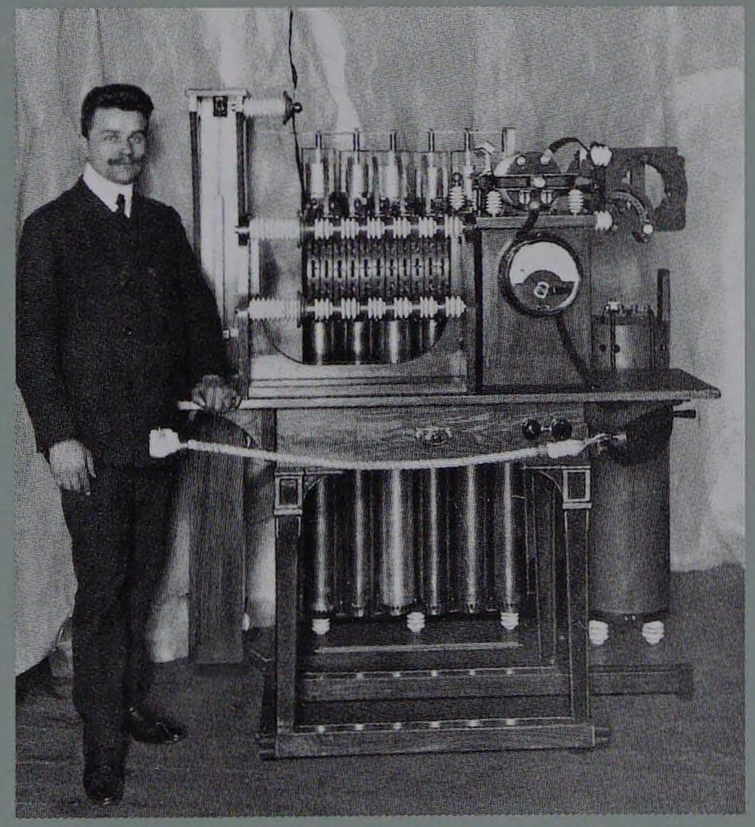
2.7.1900

Equipped with Daimler-Benz engines, the first Zeppelin airship, the LZ-1, completes its maiden flight over Lake Constance. Above, the airship in the production hall; right, its first ascent.



8.6.1905
Named after the aviation patron Archdeacon, who financed its construction, this design by Voisin and Blériot flew 150 metres.

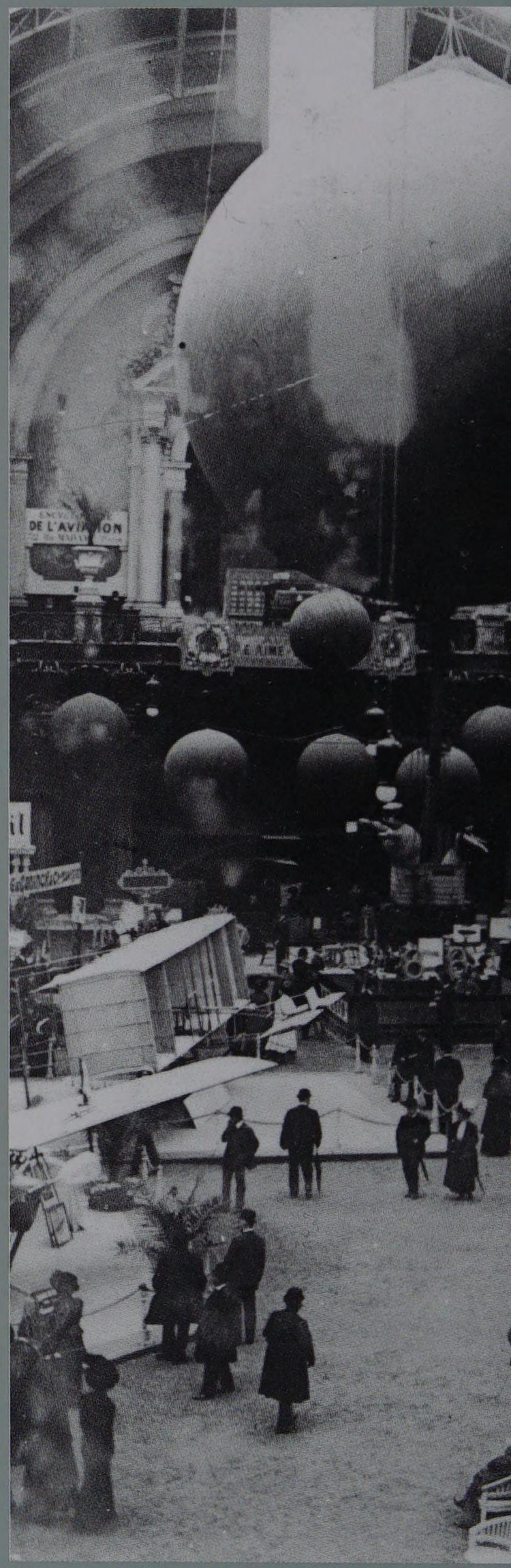
18.7.1905
The first glider built by Louis Blériot – the Blériot II – is tested on the Seine: the pilot was Gabriel Voisin. It was towed out by a motorboat.



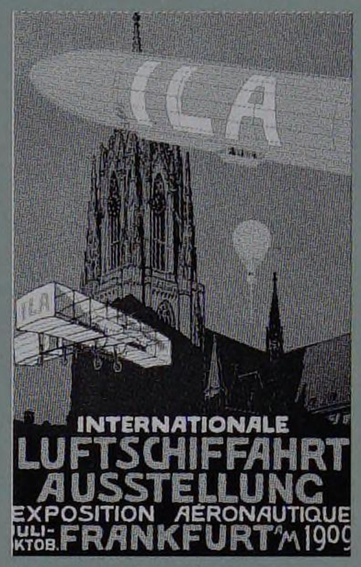
1906
High-frequency technology in its infancy: the 10 kW quenched-spark transmitter built by Telefunken.

16.11.1907
The Blériot VII was an important aircraft for the further development of the aviation industry.

1908
Henry Farman is the first person to fly a one-kilometre circuit in the Voisin-Farman aircraft pictured here. His own construction, the HF1, first took to the skies on 6 April 1909. Exactly two months earlier, his brother Maurice's MF1 aircraft had completed its first flight.

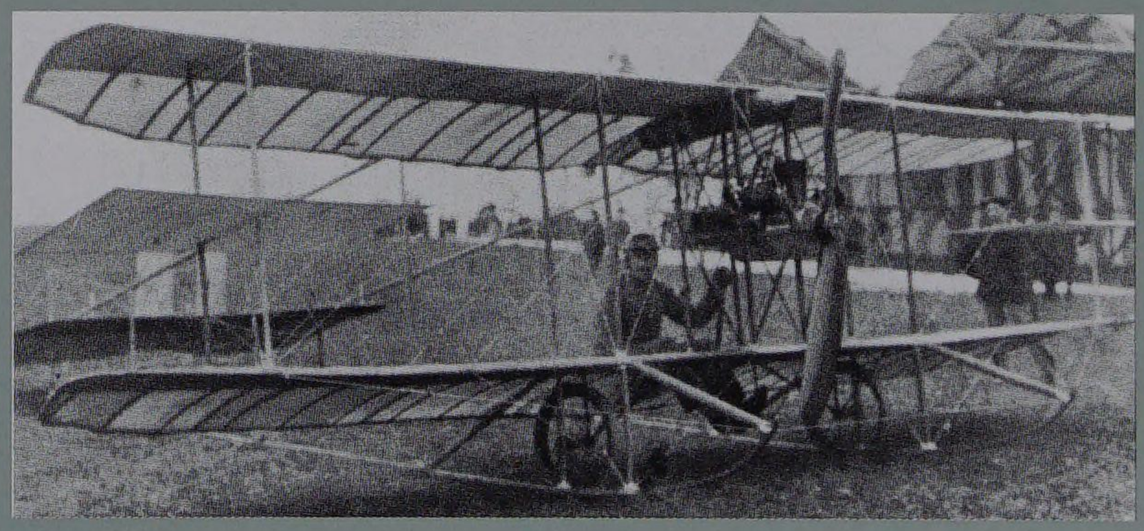


25.6.1909
The Blériot XI "Channel Crosser" monoplane piloted by Louis Blériot becomes the first aircraft to cross the English Channel.



1909
The era of international exhibitions begins: posters for the first ILA in Frankfurt and the first Paris Air Show. In the large photograph a view of the latter, which was held in the Grand Palais.

21.9.1909
The Caudron A was originally a glider drawn by a horse. Equipped with an engine and a propeller from Caudron Frères, the aircraft first flew a straight course on 21 September 1909. In 1910, a modified version started to fly circuits.

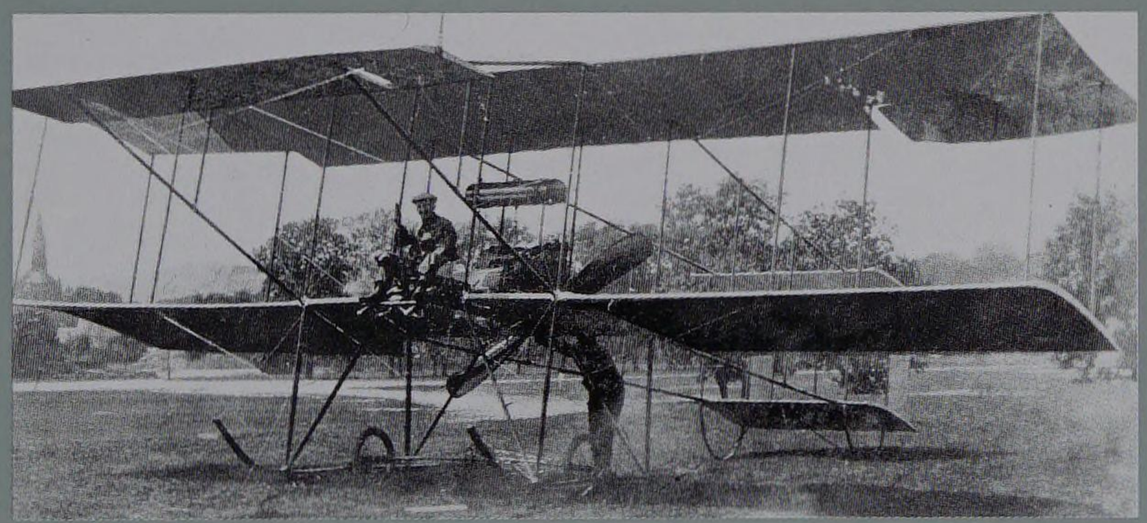


"Whoever masters the skies will also master the world."

Clément Ader (1841-1925), French aviation pioneer

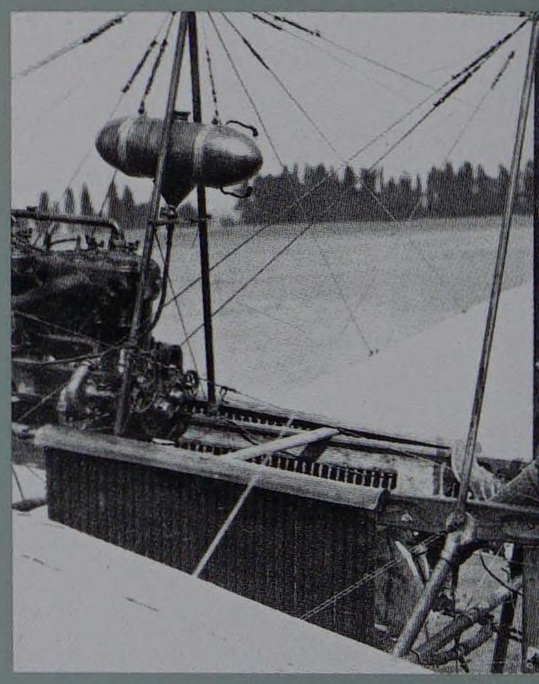
1911–1920

1911
The Nieuport 4 was the first pre-war multi-seater aircraft to set a world speed record. It was exported to Italy, Russia and Great Britain and was also the first aircraft to be used for military reconnaissance.

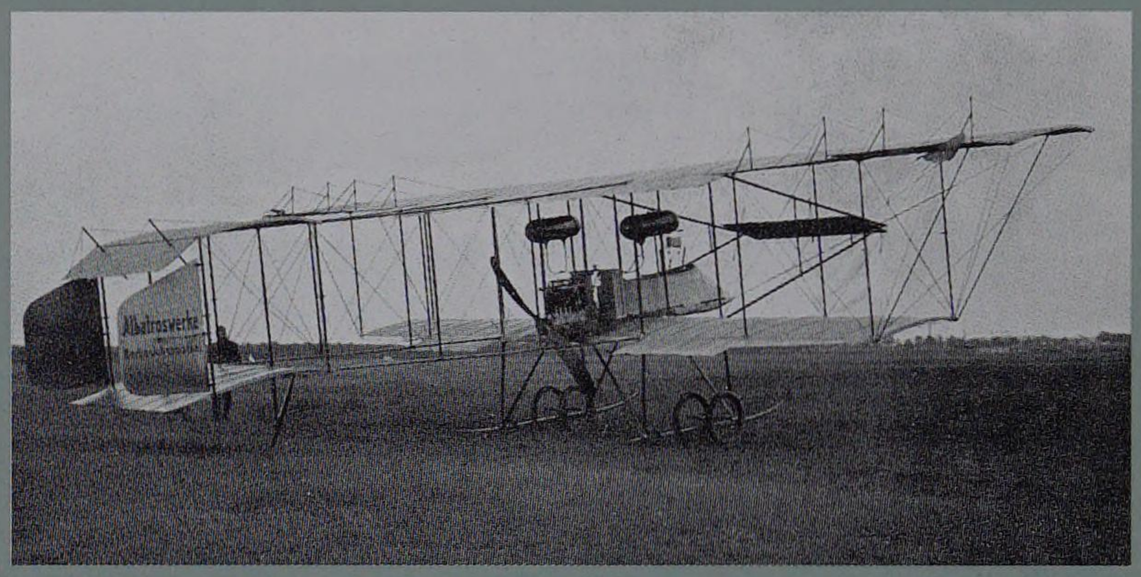


1911
German design engineer Ernst Heinkel in the biplane he constructed himself based on the design of a French Farman.

1911
First flight of the Astra CM, equipped with a 100 hp Renault engine. This aircraft entered service with the earliest French airline, Compagnie Générale Transaérienne, and carried two passengers on the routes between Nice, Cannes and Monte Carlo.



May 1911
Jules Védrines and his Morane Borel win the Paris-Madrid flying contest (21-26 May 1911). This photograph shows the en-route landing at San Sebastian in Spain.

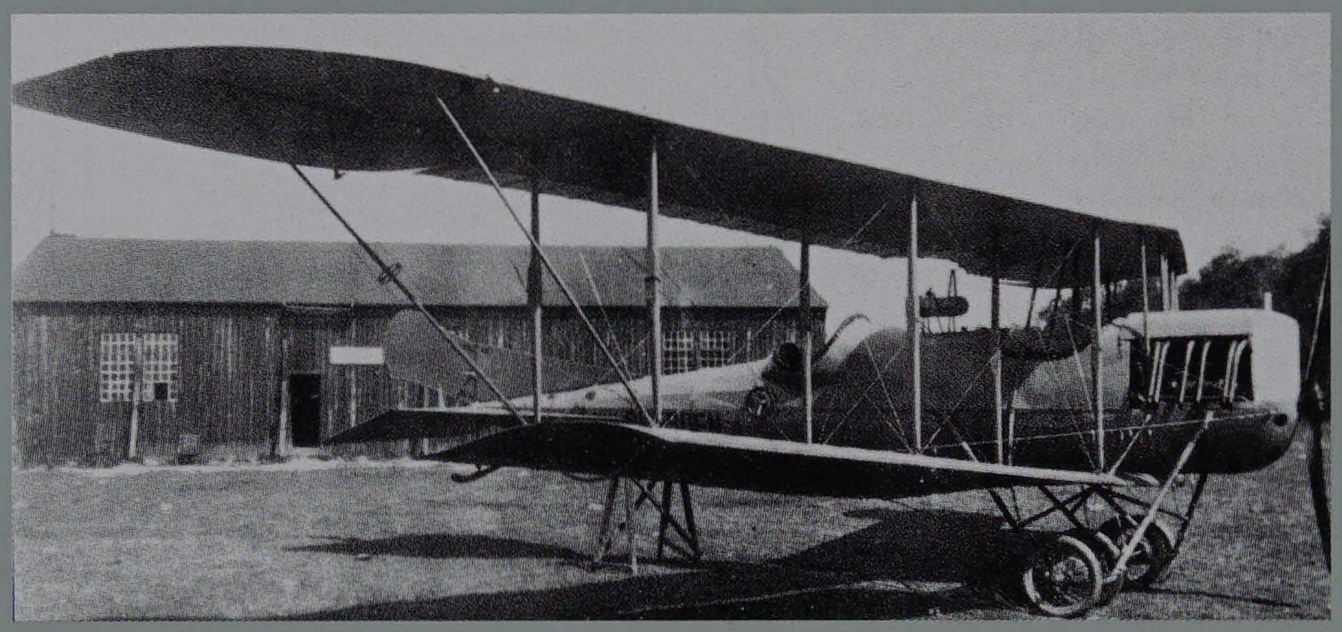


26.8.1911
In Germany, aircraft including models from the Albatros Works are first used during manoeuvres.

5.5.1911
Anthony Fokker flies for the first time in his self-made Spinne ("Spider").

11.10.1911
The illustrious Morane-Saulnier company is founded by Raymond Saulnier and the brothers Robert and Léon Morane. Here, one of the first Morane-Saulnier aircraft, the type H, in front of a hangar in November 1911.

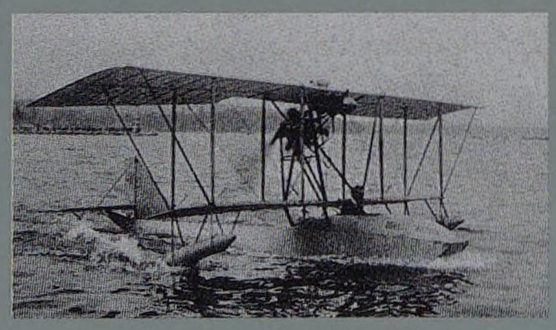
1911/13
The first successful aircraft from DFW (Deutsche Flugzeugwerke) was the "Mars" biplane of 1911, which set several long-distance records for passenger flight in 1913. Upper photo: the DFW "Mars" on one of its first flights in 1911.



2.9.1913
Roland Garros is the first aviator to successfully cross the Mediterranean, flying a Morane-Saulnier H (pictured here before take-off).

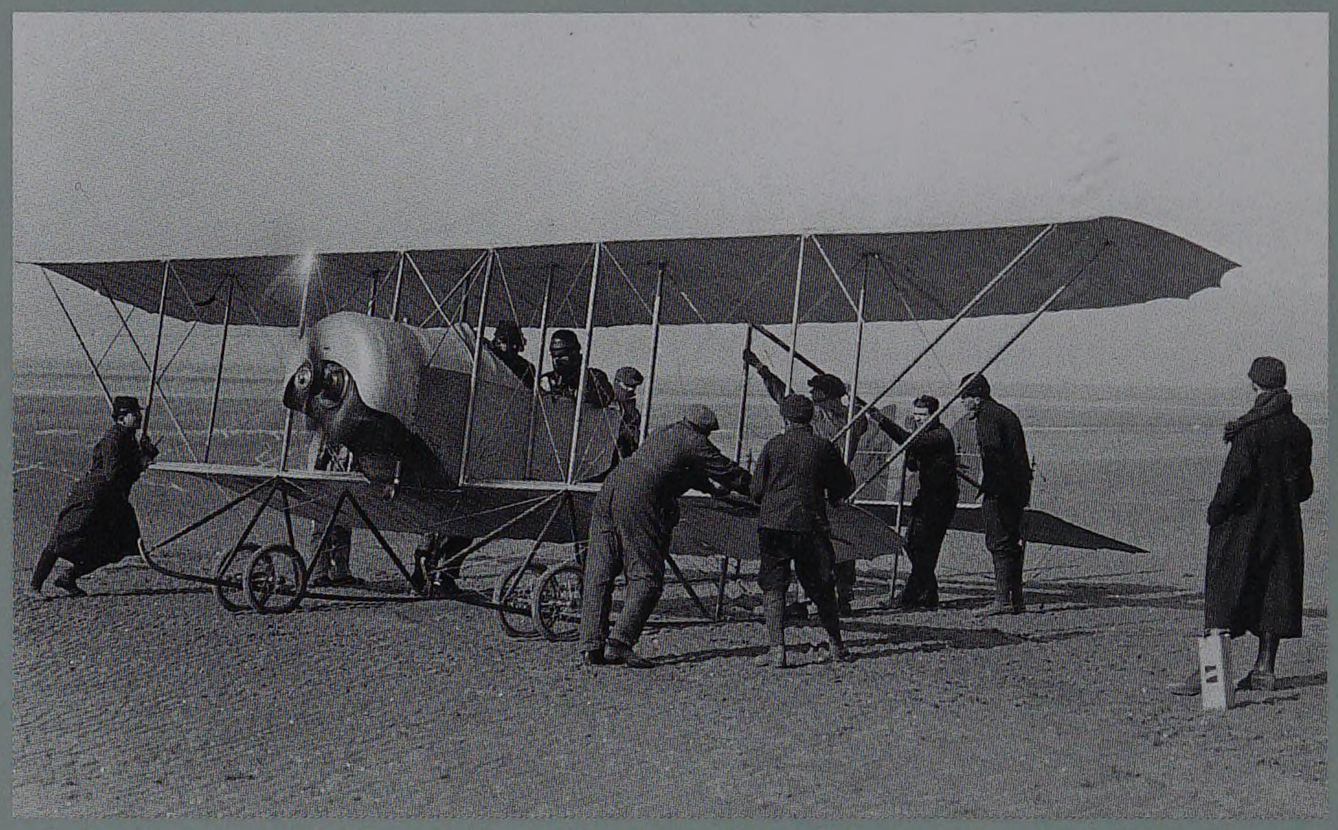
1912
The Gordon Bennet Cup of 1913 sees an aircraft reach a speed of 200 km/h for the first time: the monocoque Deperdussin Racer.

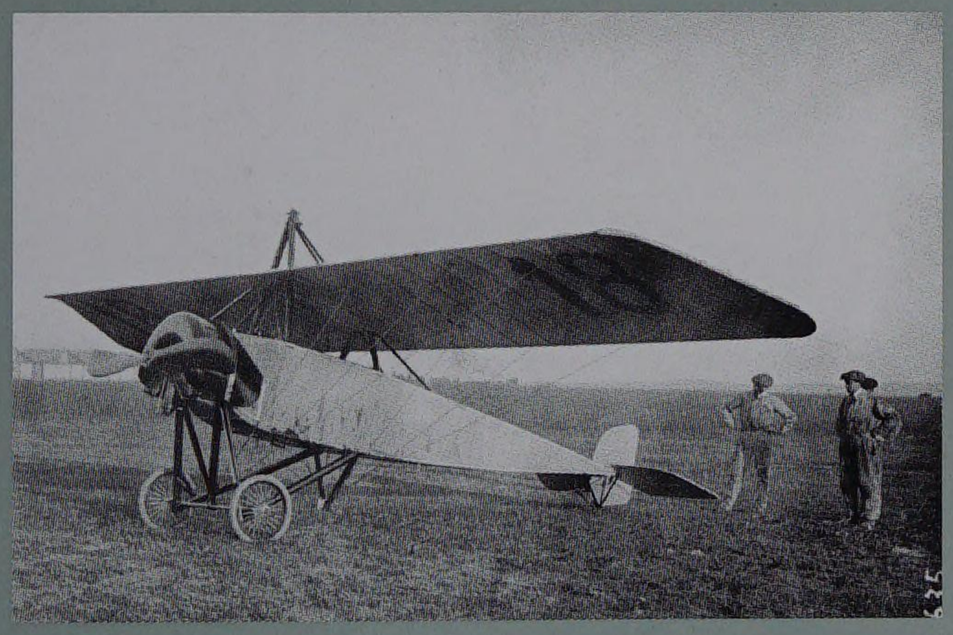
10.3.1912
The Denhaut "hydro-aéroplane" is the first seaplane in the world to have a floating fuselage.



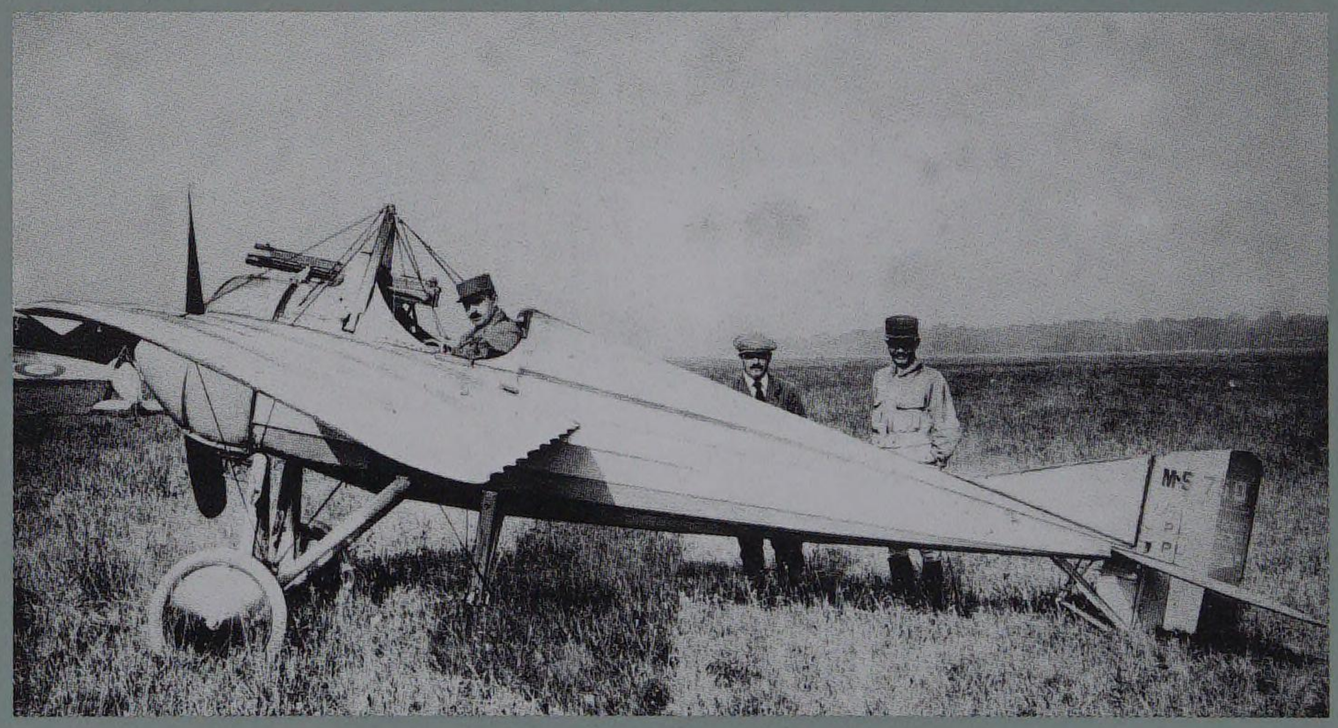
1913
The Farman MF7 reconnaissance aircraft, which was designed by Maurice Farman and went into series production, was a major export success, being sold to nine countries. 1,043 units of this aircraft went into operation. While in Britain it was known by the name "Short Horn", in France it was nicknamed "cage à poules" ("chicken coop").

1913
2,450 models of the Caudron G3, a training and reconnaissance aircraft, were built for the French Air Force and 13 export customers. Production of the G series began in 1913.





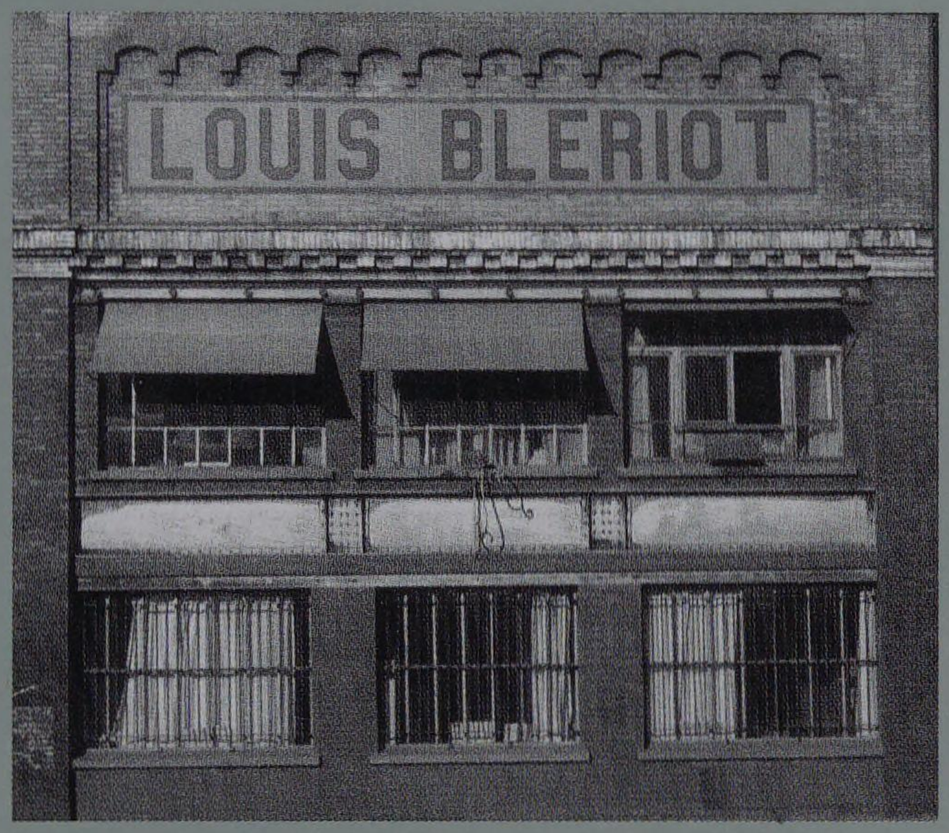
1913
700 of the Morane-Saulnier L parasol-type monoplane are delivered to the French Air Force. This aircraft won its first dogfight in 1915.

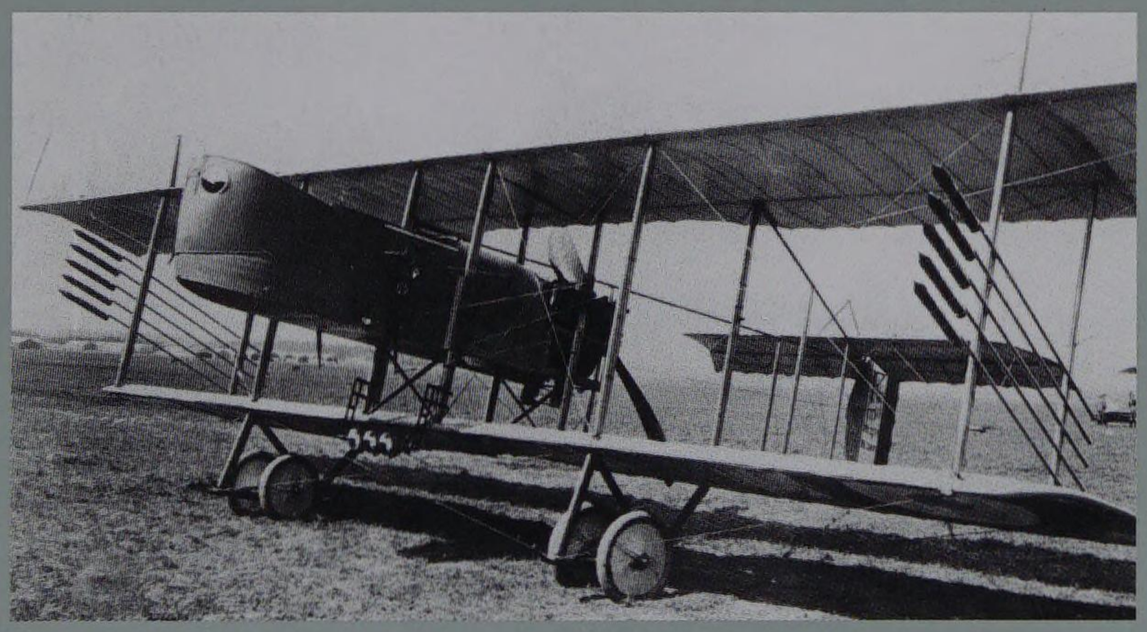


1914
Raymond Saulnier invents firing through the propeller. This is tested for the first time on a Morane-Saulnier N by the famous pilot Roland Garros.

1915
294 units of the Tellier flying boat with the 200 hp Hispano-Suiza engine, seen here in Monte Carlo, were produced and the aircraft was also exported to the U.S.A. The company Alphonse Tellier & Cie, located at Neuilly-sur Seine, was taken over by Nieuport in 1918.

1915
Louis Blériot builds his new aircraft works at Suresnes near Paris. The building in the photograph still exists today and is part of the EADS Corporate Research Centre.

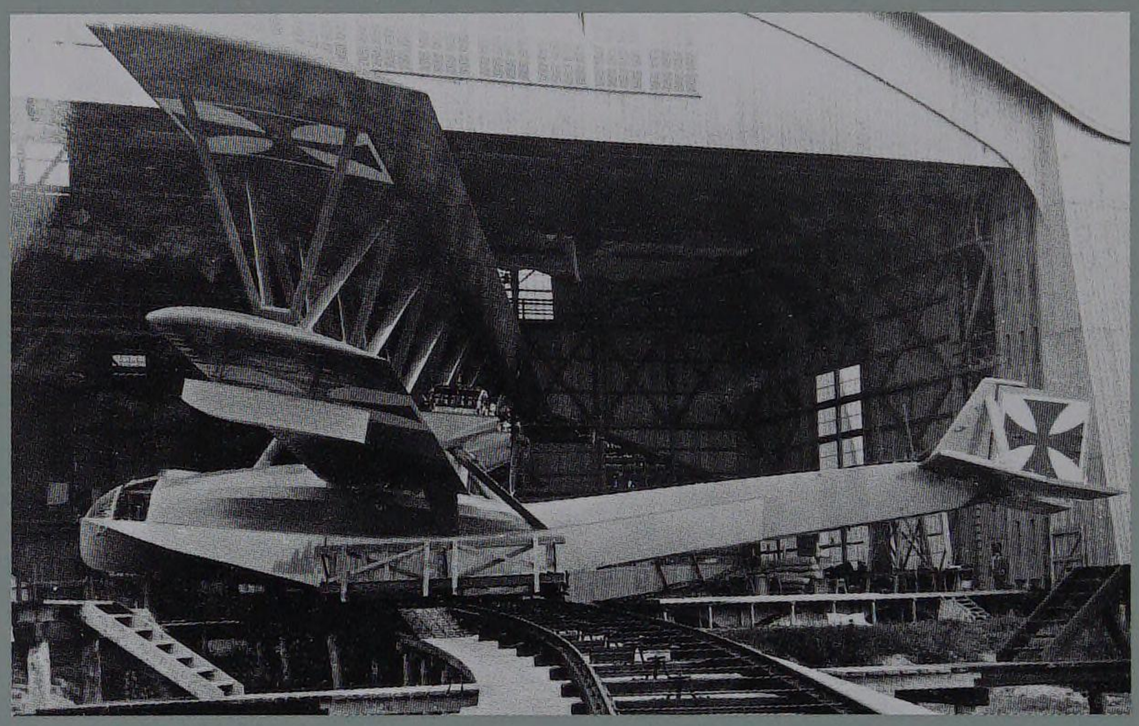


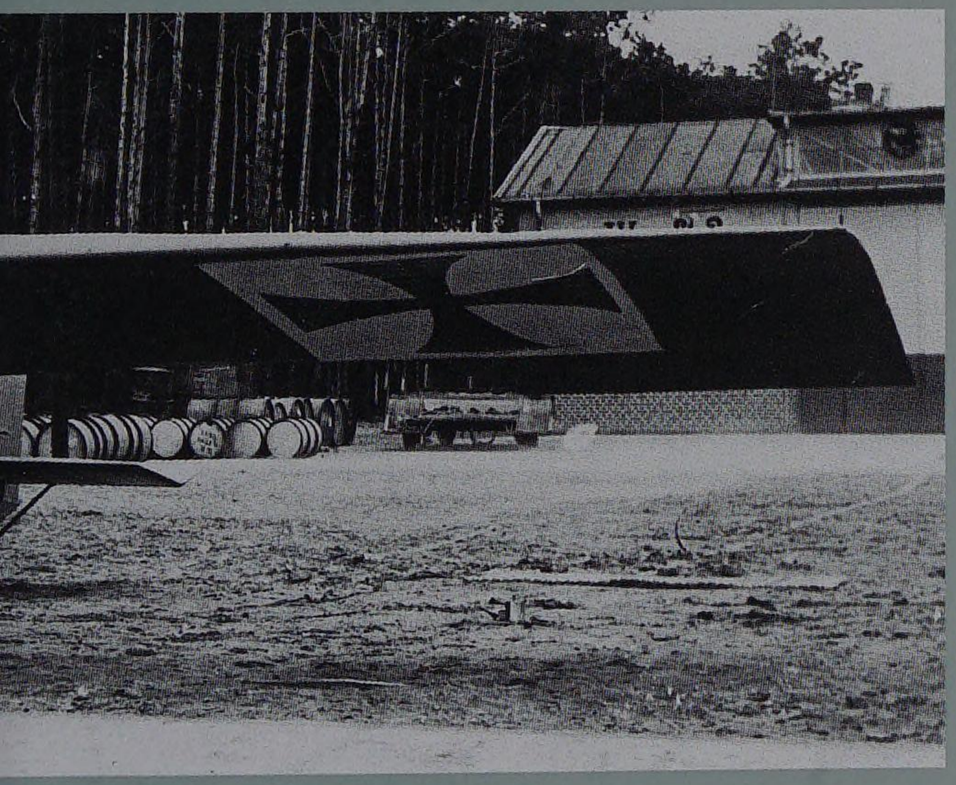


1915
The Farman F40 reconnaissance biplane was exported to twelve countries. The photograph depicts an F40 towards the end of the First World War. Its air-to-air missiles, which have been fitted between the wings on both sides, look more like fireworks than weapons (see also the Nieuport 17 C1 from 1916).

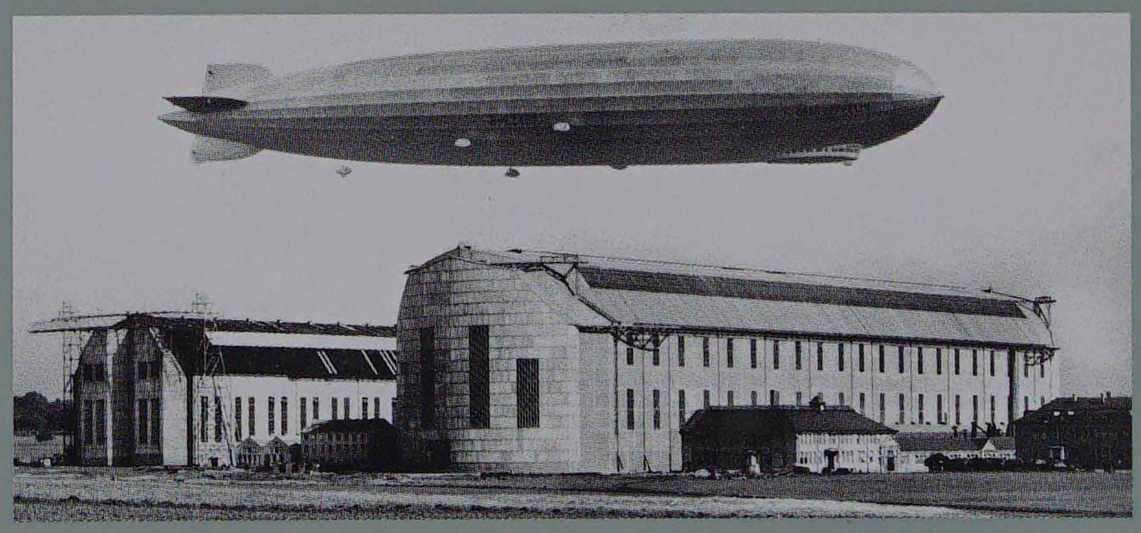
1915
The Nieuport XI "Bébé" was a single-seater fighter plane flown in the First World War. It competed with the better armed but less manoeuvrable Fokker E-III. From 1916 onwards, the numerous customers for this aircraft included the American Escadrille Lafayette, Britain and Russia.

13.10.1915
The German giant flying boat Rs I, which was co-developed by Claude Dornier at the Zeppelin company, awaits launch from the slipway at Seemoos, Lake Constance. It was destroyed by a storm before its first flight.



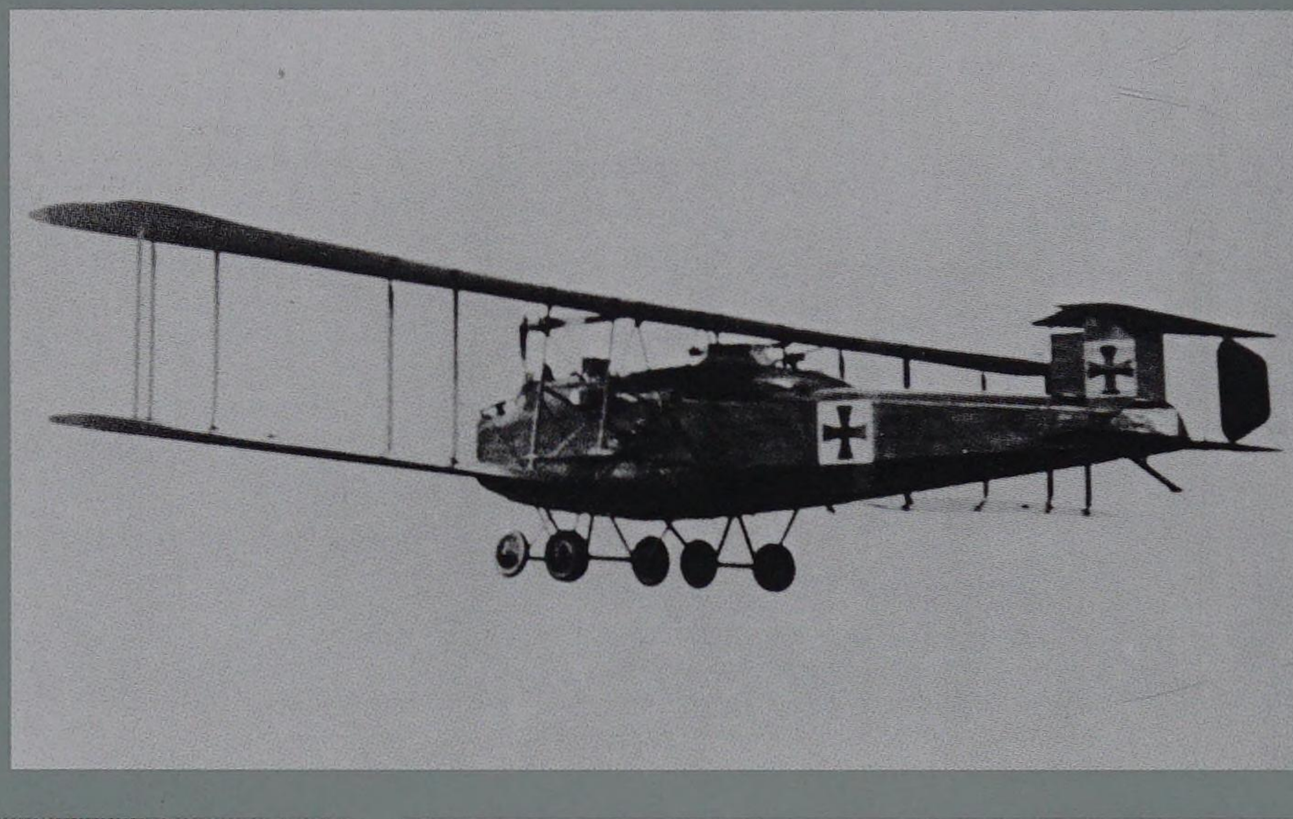


12.12.1915
First flight of the Junkers J 1, the first all-metal monoplane, at Berlin-Adlershof.

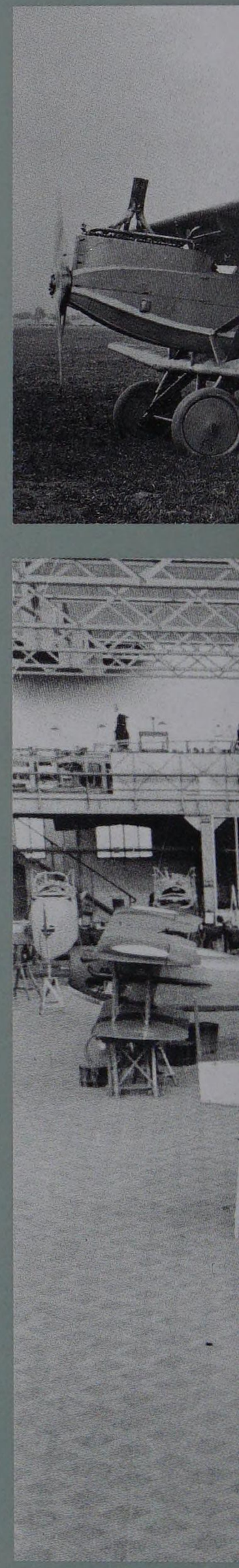


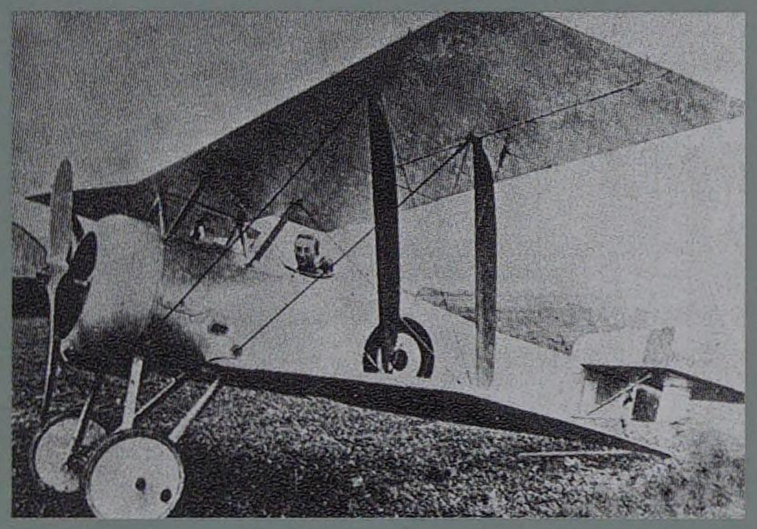
1915
The Zeppelin hangar at Friedrichshafen, also birthplace of the later Dornier works.

1916
Also DFW, located near Leipzig, were involved in the design and construction of "giant" aircraft. Here, the DFW R I.



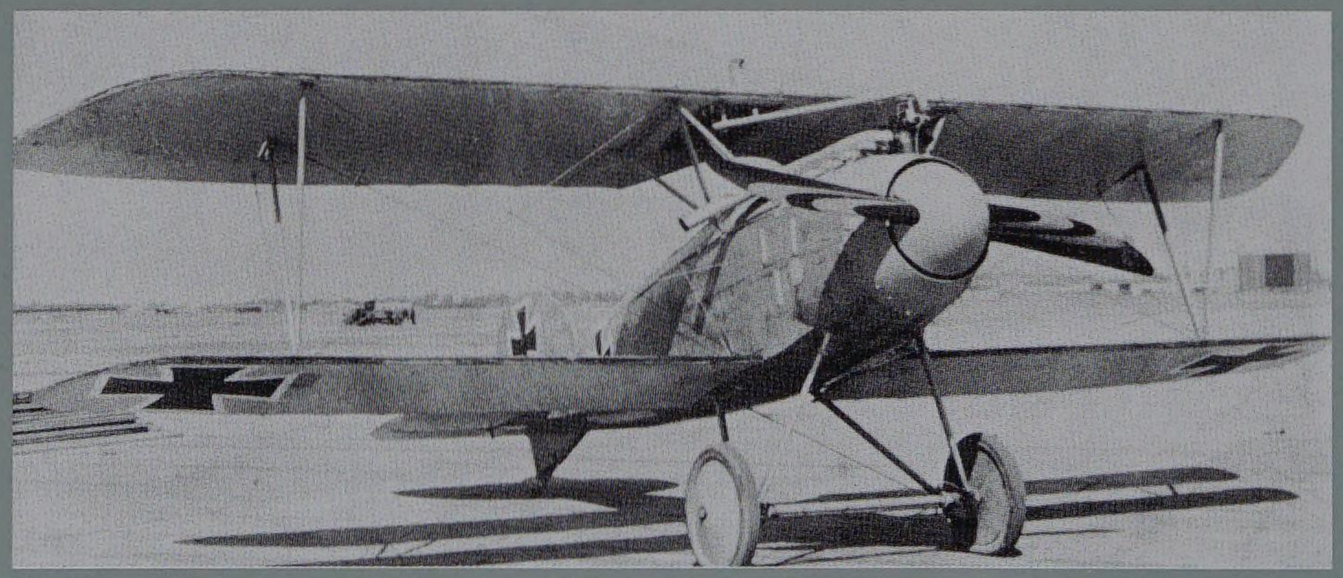
7.1.1917
The Dessau aircraft constructor Junkers presents the J 4, the first all-metal aircraft to go into large-scale production. This aircraft was employed as a so-called infantry support aircraft.



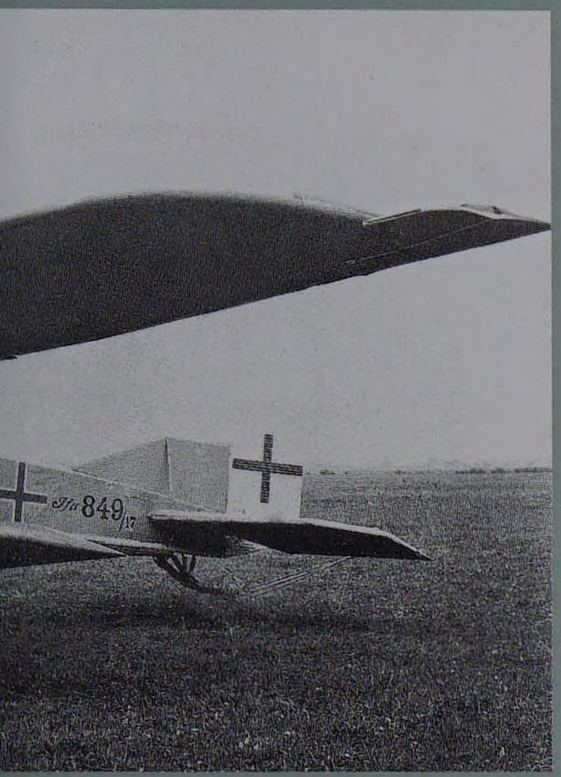


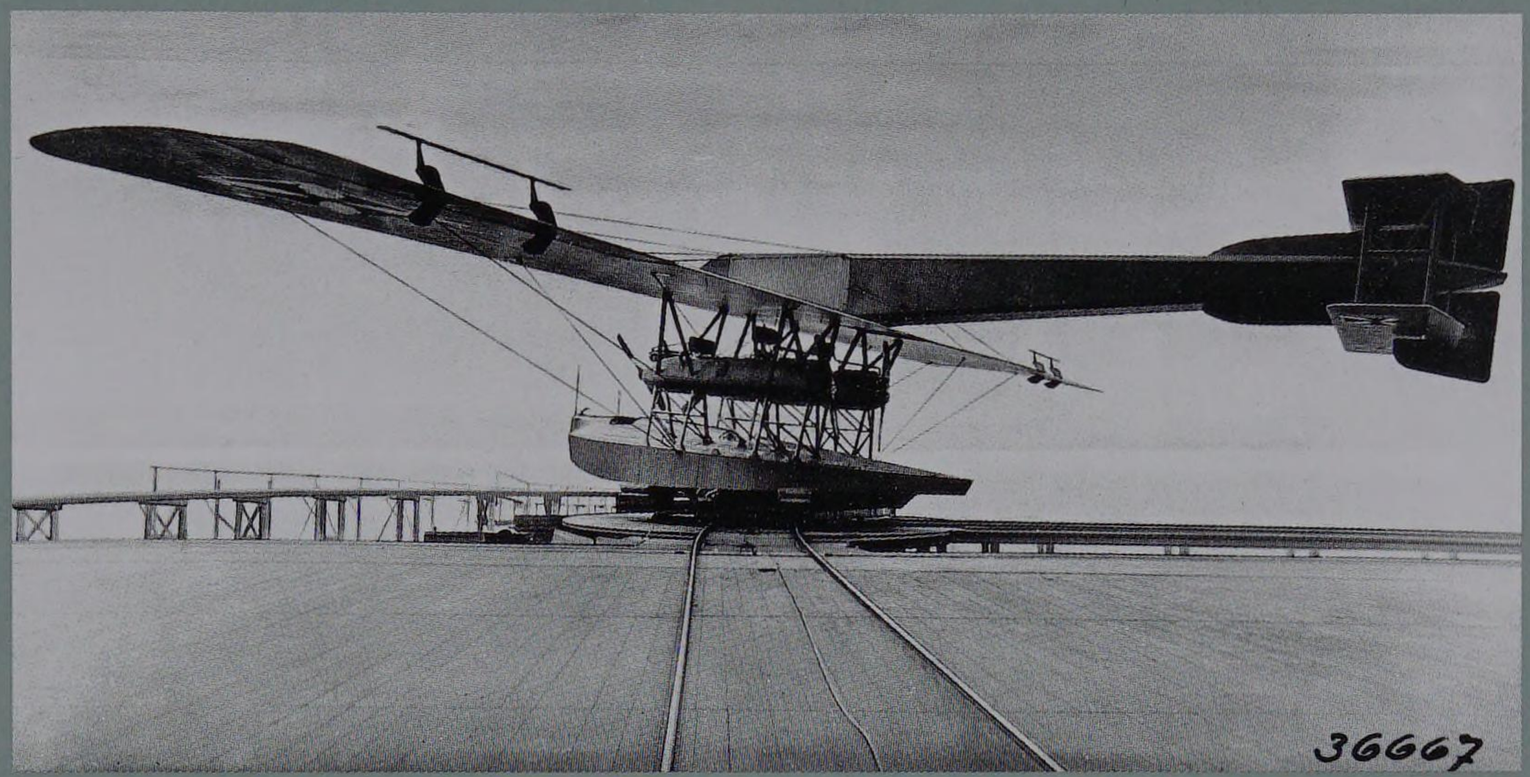
1916
The most successful French combat aircraft of the First World War: the Nieuport 17 C1. During the Battle of Verdun this became the first aircraft from which air-to-air "missiles" (Le Prieur rockets) were deployed.

1916
1,145 units of the Hanriot HD I were built. The biplane was a major export success, being sold to the USA, Japan, Great Britain, Italy, Switzerland and Belgium.



1916
The Albatros D III was one of the most successful German combat aircraft in the First World War.





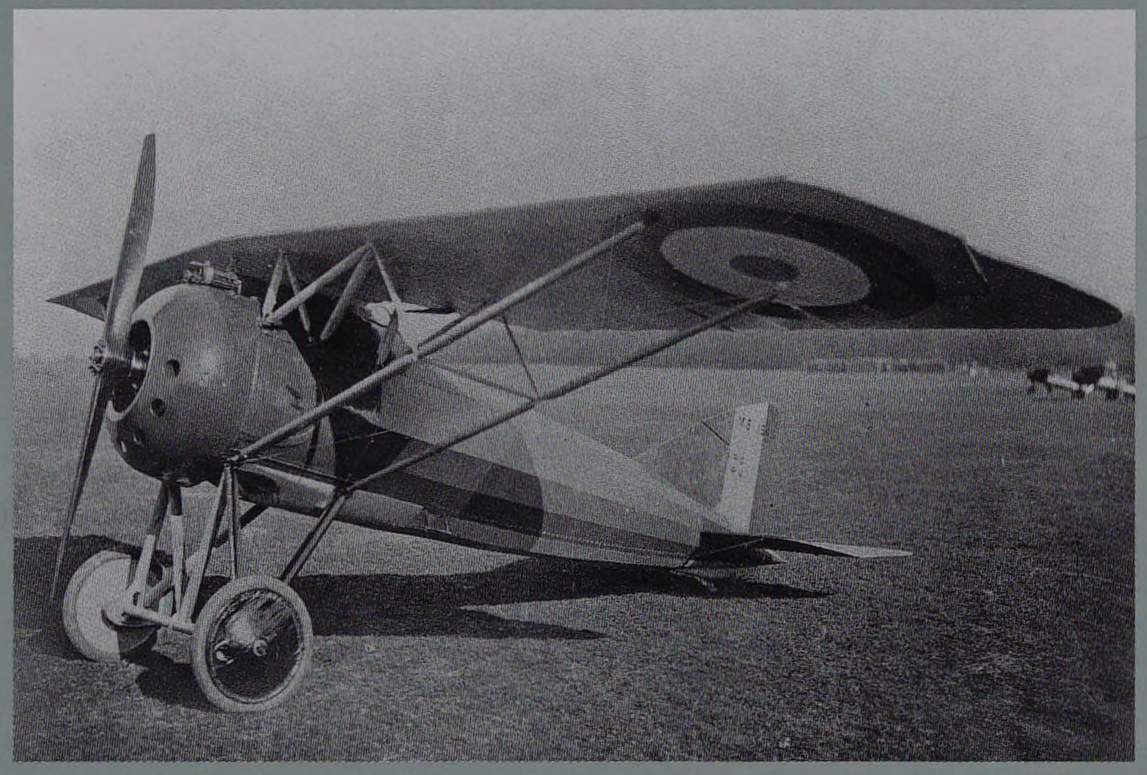
4.11.1917
First flight of the Dornier Rs III, which soon earned the nickname "Flying Iron" on account of its peculiar shape.

◁ **4.4.1917**
The Spad XIII completes its first flight. after the war it was built in a unit quantity of 8,500 and delivered to eleven countries. This fighter was also flown by René Fonck, the French flying ace, during the First World War.

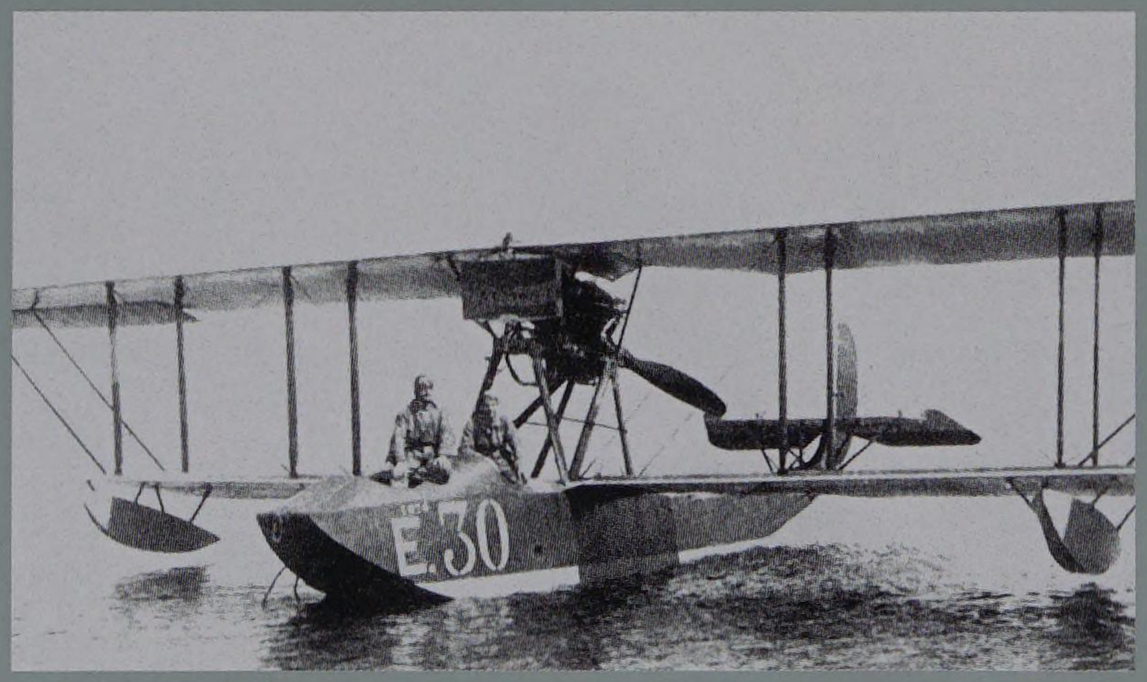
1917
First flight of the Fokker Dr I triplane. Thanks to the feats of Manfred von Richthofen (the "Red Baron"), this became the most famous aircraft in the First World War.

1917
The Albatros D V, successor to the Albatros D III, enters series production (here, a photo of the D Va).

August 1917
Equipped with a 150 hp Gnome engine, the Morane-Saulnier MS AI fighter aircraft sets a new world altitude record of 7,075 m (23,200 ft) during a test flight. The French Air Force ordered 1,200 aircraft of this type.



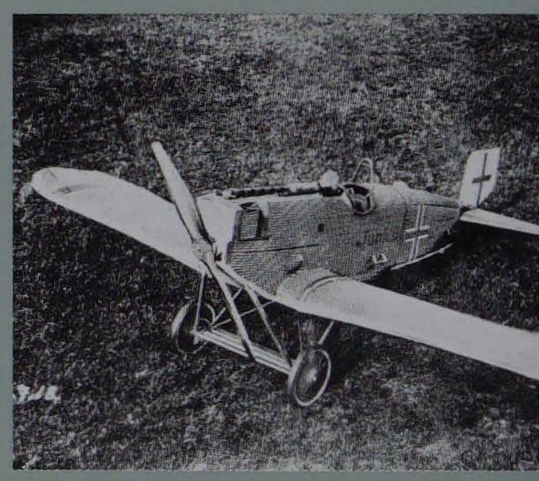
1917
Approximately 600 of the Lévy Le Pen HB2 spotter seaplane were produced.



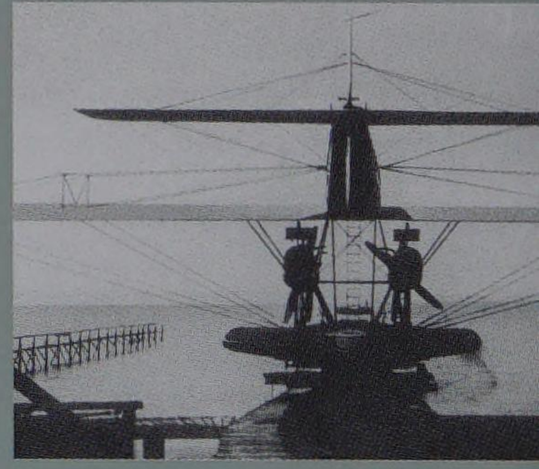
April 1918
From April 1918 onwards, the Fokker D VII saw action at the front line, providing convincing evidence of its agility, fast climb rate and resistance to spin.

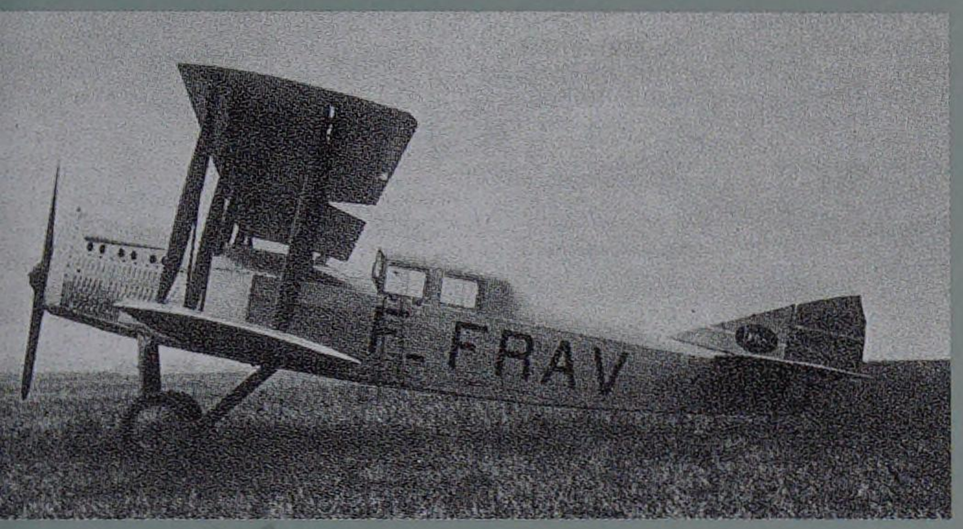
4.6.1918
First flight of the Dornier D I: its cantilever wings were a sensation.

May 1918
The Junkers J 9, a single-seater fighter, successfully completes its first flight. It can reach a top speed of 240 km/h.



12.10.1918
Start of the factory trials for the Dornier Rs IV flying boat. The Dornier stub wing is used for the first time to stabilise an aircraft.



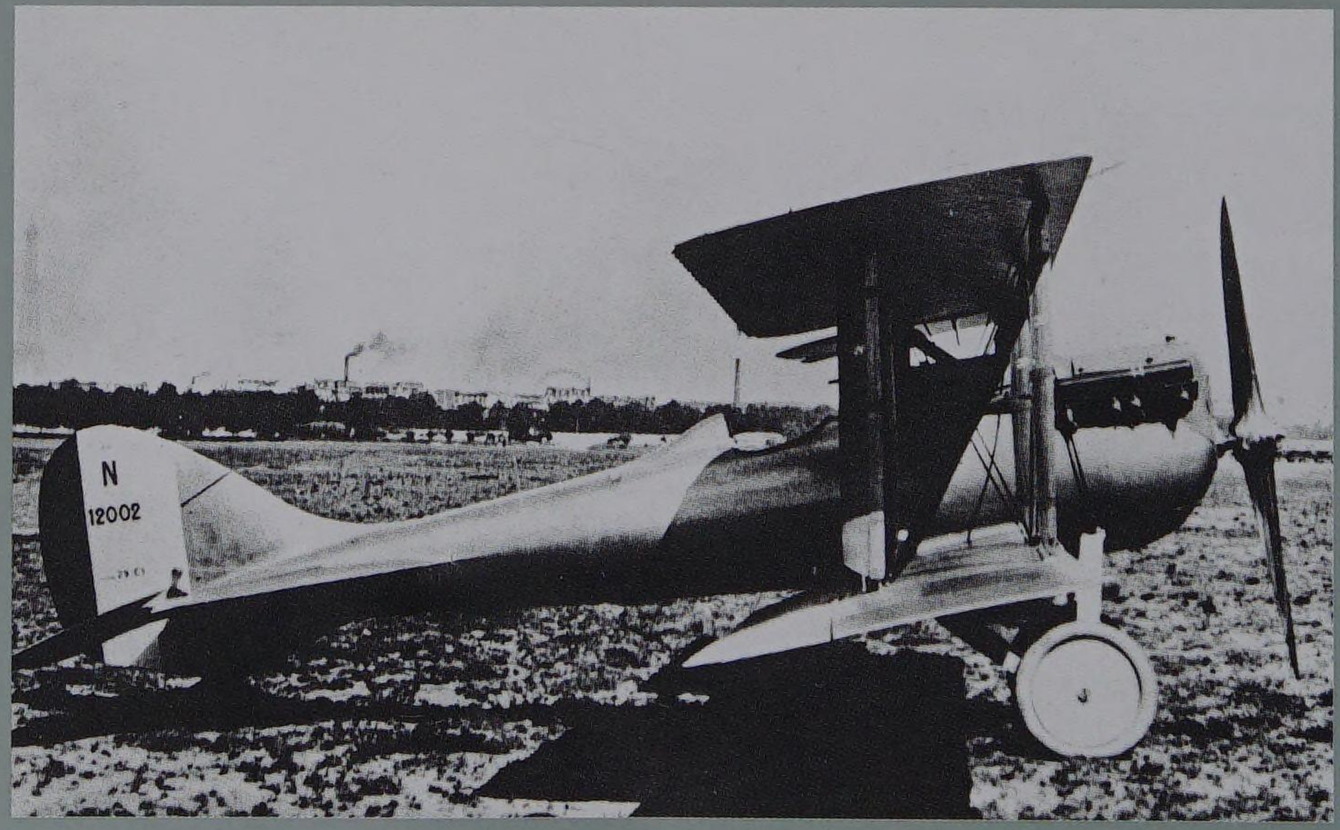


11.11.1918
By 1916, Marcel Bloch, Henry Potez and Louis Coroller had already joined forces to form the aircraft development company SEA (Société d'Études Aéronautique), which developed the models SEA 1 to SEA 4. The first of 1,000 ordered units of the two-seater SEA 4 aircraft, which was originally intended as a bomber and reconnaissance plane, left the production halls on 11 November 1918. It subsequently became known as the Potez VIII and had the reputation of being the "Limousine of the Skies", going on in 1919 to win the contest to serve the Paris-Brussels passenger route.

1918/1919
Henry Farman designs a heavy bomber, the Goliath. However, the Farman F60 Goliath is then used for civil transport and, in 1919, on the first international passenger route from Paris to London. Subsequently, all F60s are used for passenger services.

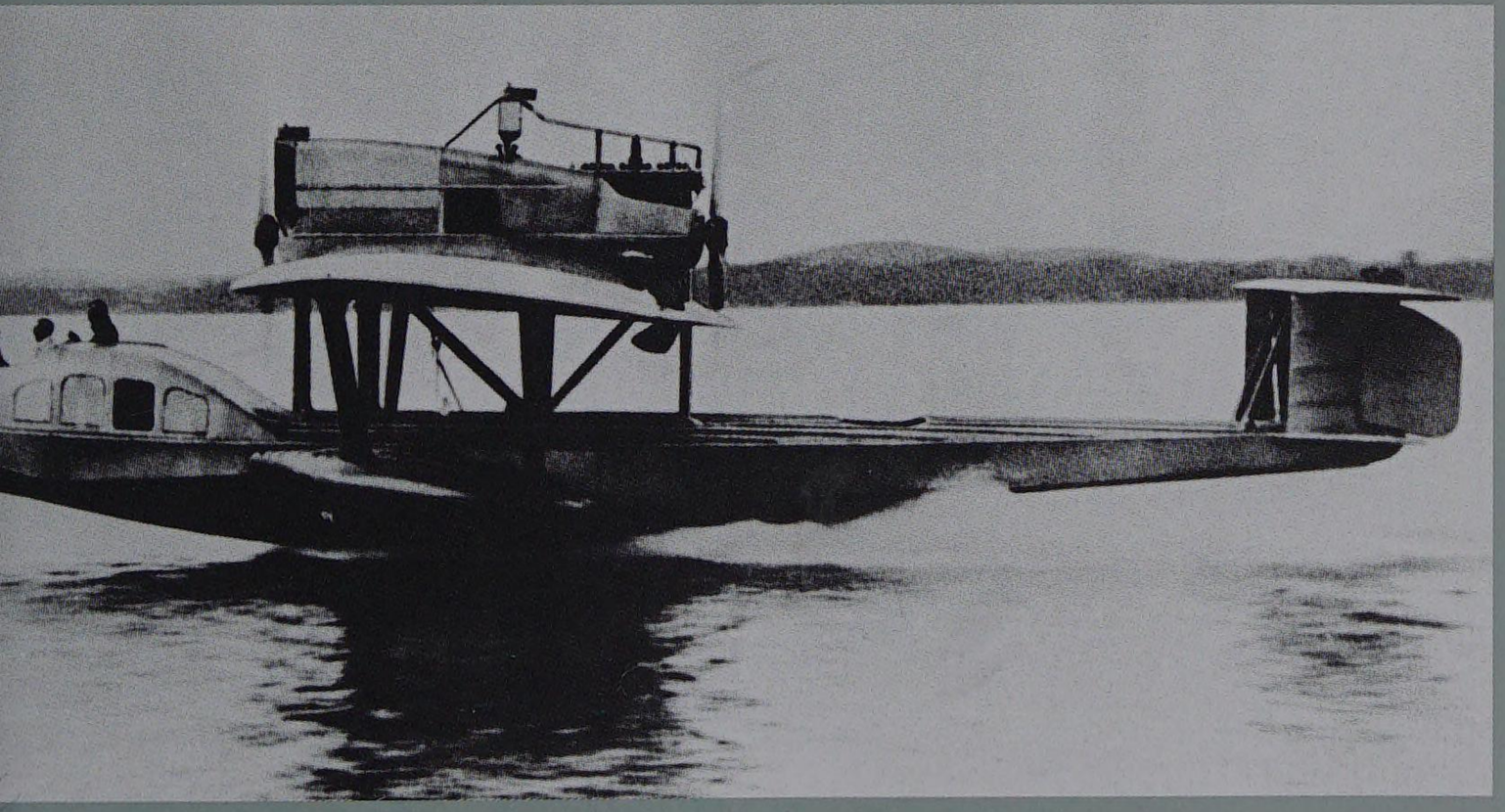
1919
The Morane-Saulnier MS 35 was the first twin-seater monoplane used for training at the French Air Force's flying school in Istres.

14.6.1919
The pilot Jean Casale reaches a height of 9,650 m (31,660 ft) in a Nieuport-Delage 29. On 7 February 1920, the pilot Sadi Lecoint breaks the world speed record in his Ni-D.29 by flying at more than 300 km/h. This record had been held by a Déperdussin since 1912.



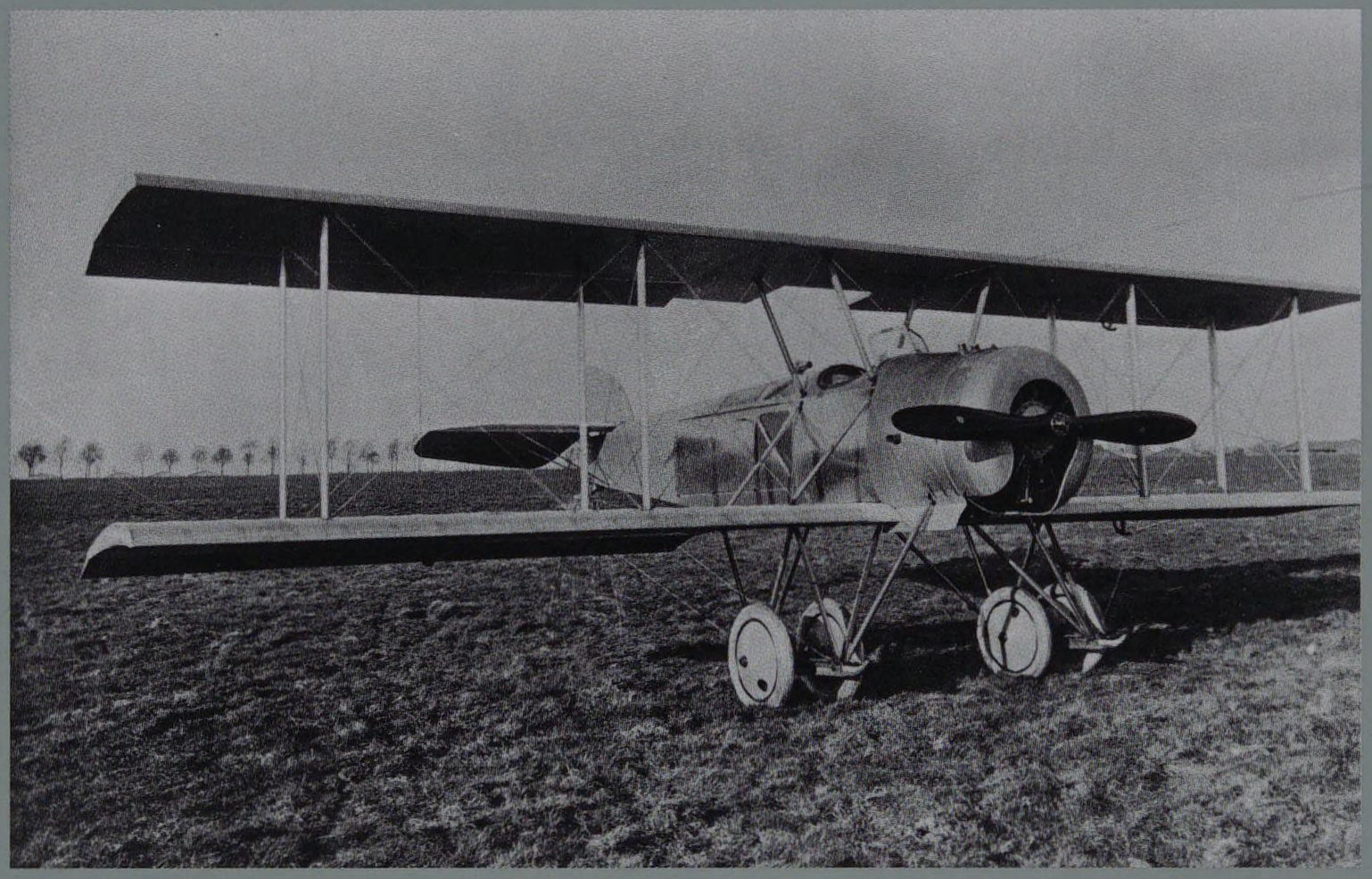
25.6.1919
Maiden flight of the German passenger aircraft Junkers F-13. With a cabin configuration for six, it is now considered to be the archetype of the modern commercial aircraft.

5.10.1919
A scene from the first air day in Augsburg: a Rumpler-Luftverkehr Ru C I preparing to take off. From left to right: Ernst Udet, company director Otto Meyer, flying instructor Steiner, parachutist Toni Fickelscherer. The two mechanics Häfele and Taumann are in the aircraft.

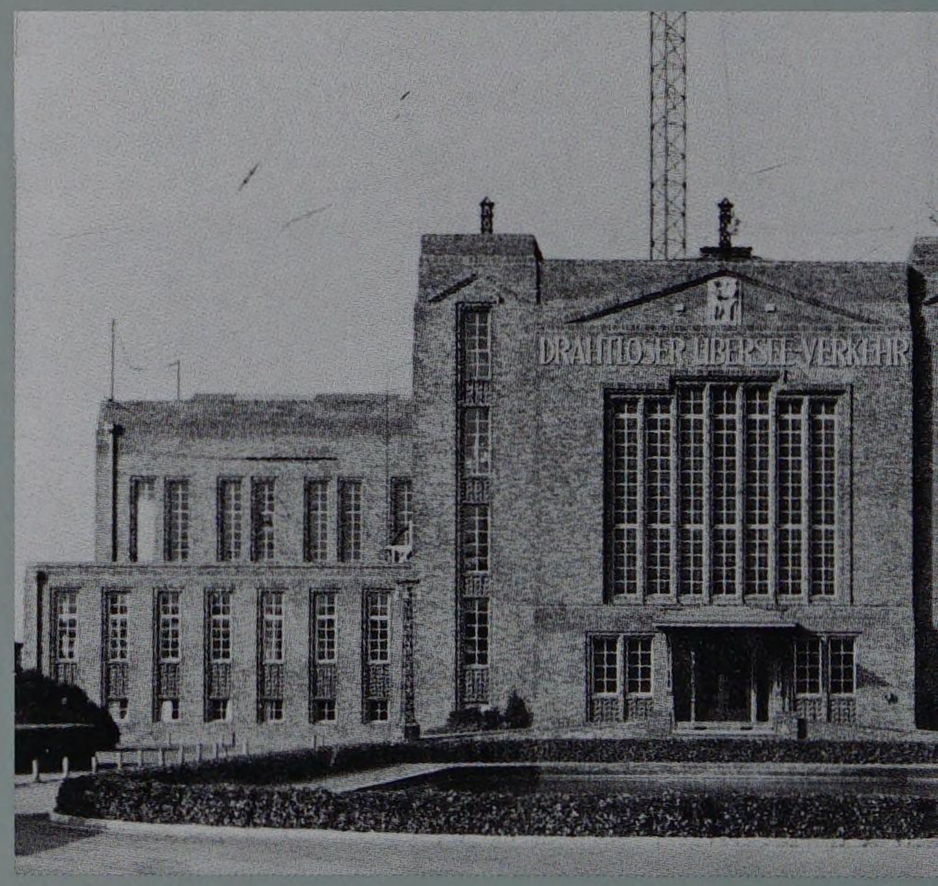


31.7.1919
First takeoff of the civil version of the Dornier Gs I, which is regarded as the predecessor of the legendary Wal ("Whale").

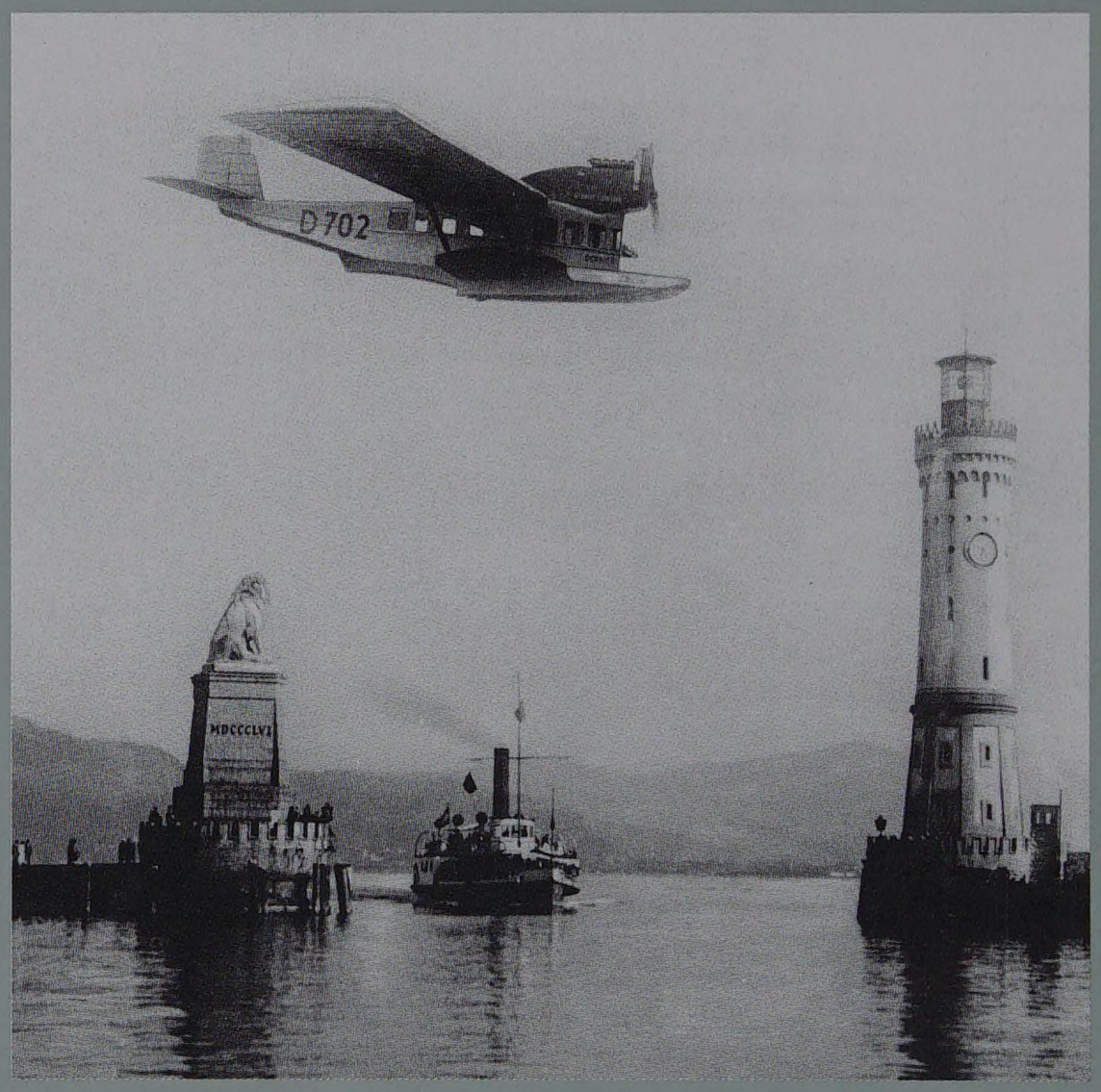
1920
The Hanriot HD14 was designed as training biplane. More than 2,300 units were built in various versions and the aircraft was also exported to 16 countries.



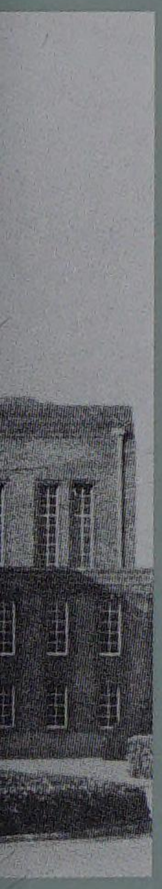
29.9.1920
Inauguration of the Telefunken high-power radio transmitter at Nauen, north of Berlin. It was from here that intercontinental radio communication began in January 1924.



9.4.1920
Henry Potez – pictured here preparing for takeoff in his Potez VIII – was to become one of the most successful French aircraft designers.



24.11.1920
The Dornier Delphin commercial flying boat takes off for the first time. Here, a Delphin over the harbour of Lindau.

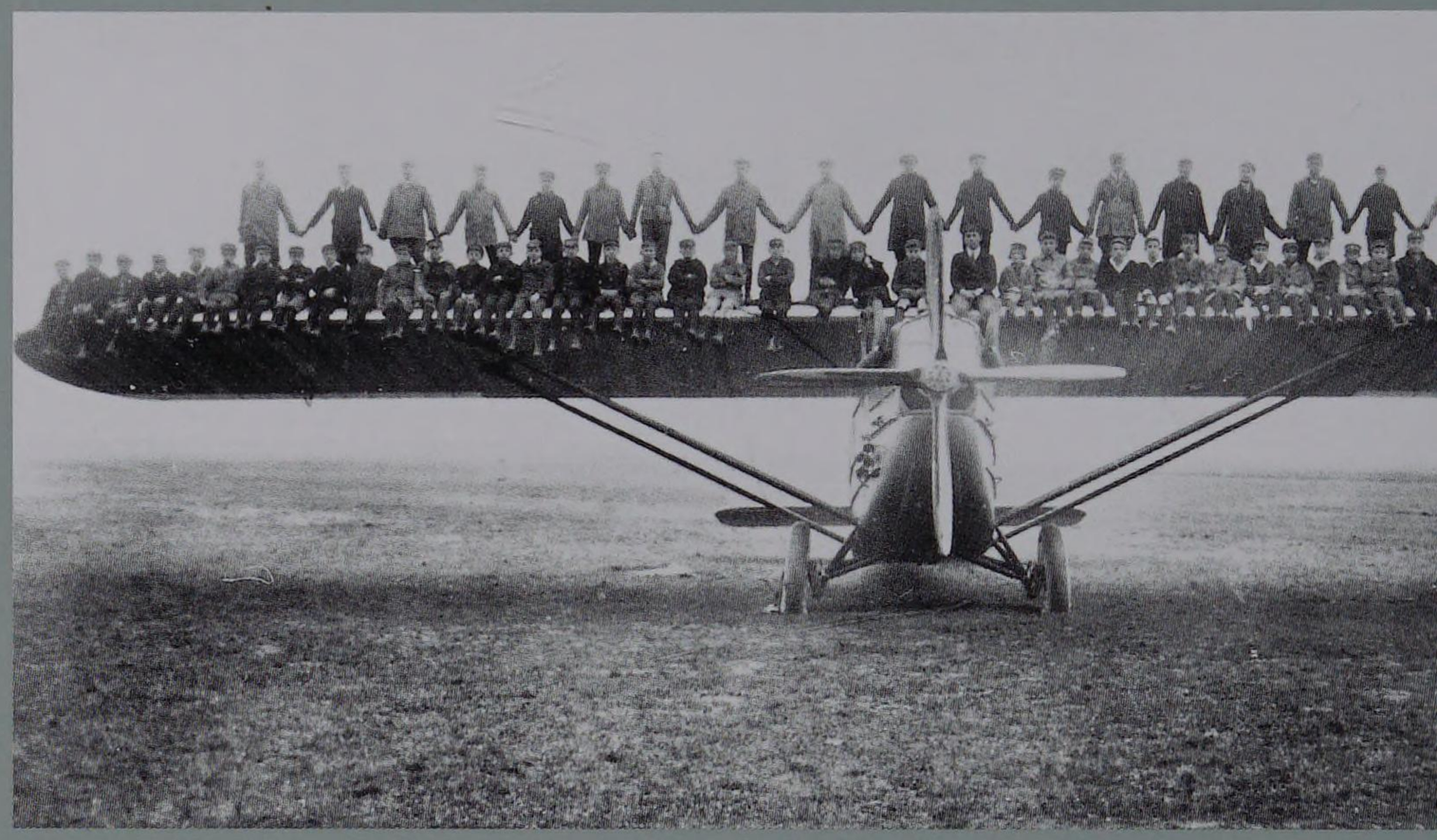


"Those expeditions were not particularly happy ones; we were always accompanied by a doctor and a priest."

José Ortiz de Echagüe (1886-1980),
Spanish flight pioneer and co-founder of CASA

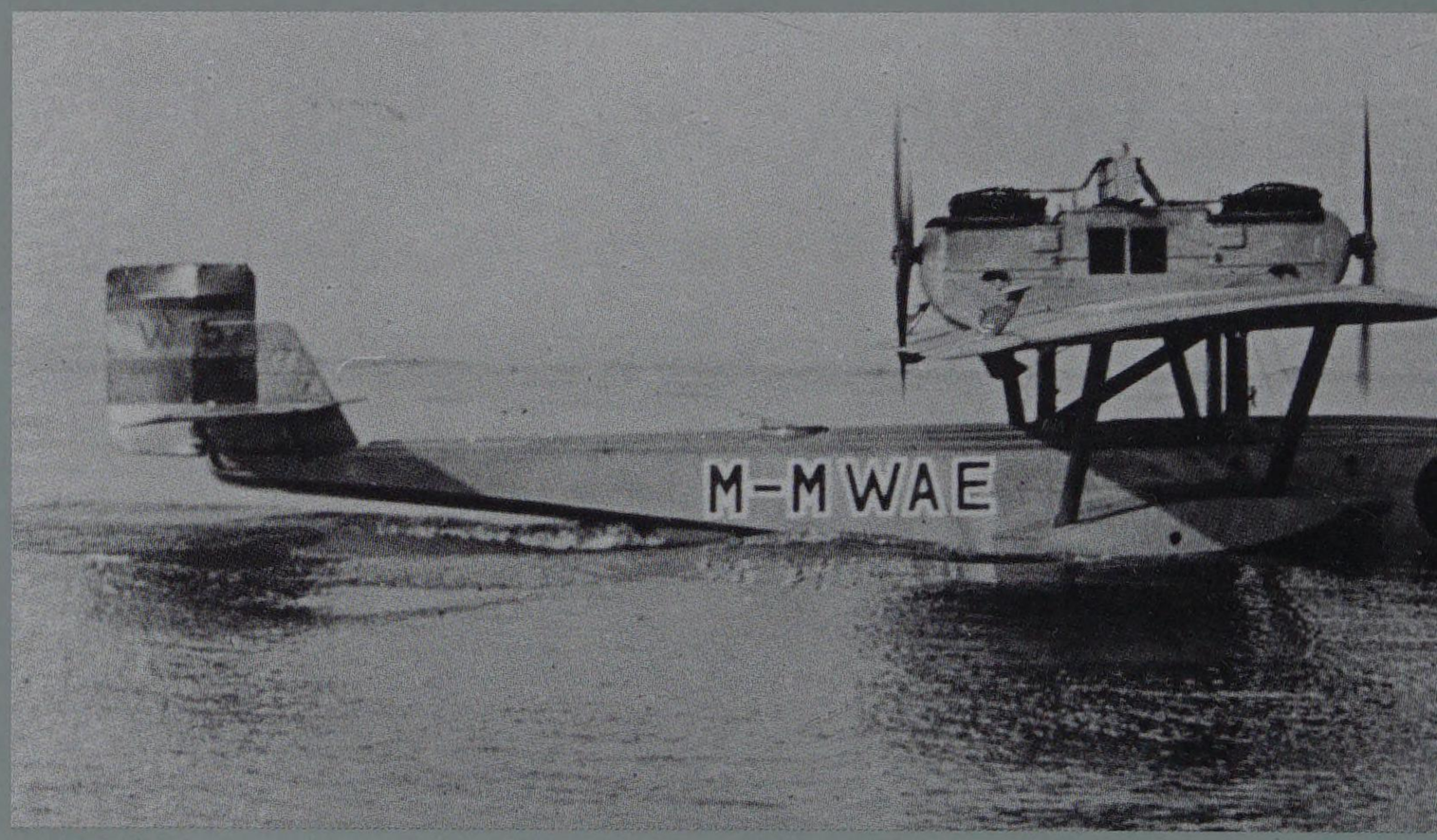
1921–1930

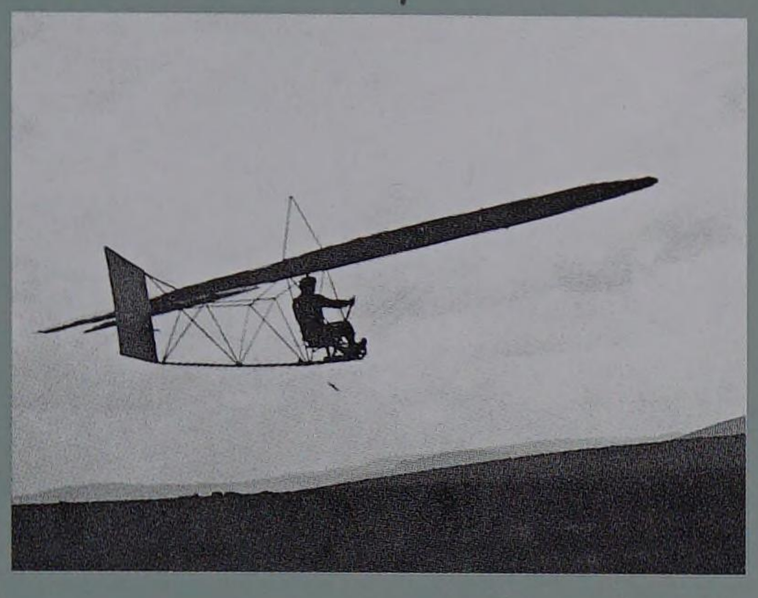
August 1921
The Dornier Komet I completes its first flight. Here, the Komet undergoing a "load test".



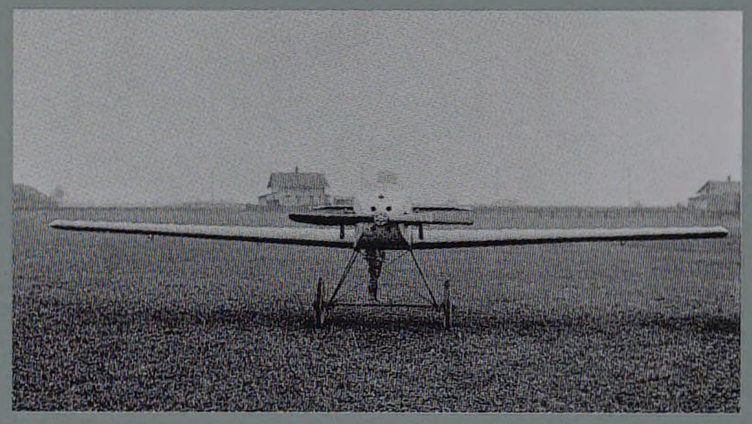
May 1921
Émile Dewoitine founds a design bureau in Toulouse, today the EADS industrial centre for Airbus and ATR production.

16.8.1921
The Dornier baby flying boat Libelle I takes off from Lake Constance (small photo below). Due to the restrictions imposed by the Versailles Treaty, Germany was initially not allowed to produce larger aircraft. For this reason the legendary Dornier Wal was built by Construzioni Meccaniche Aeronautiche SA at Marina di Pisa from 1922 on.

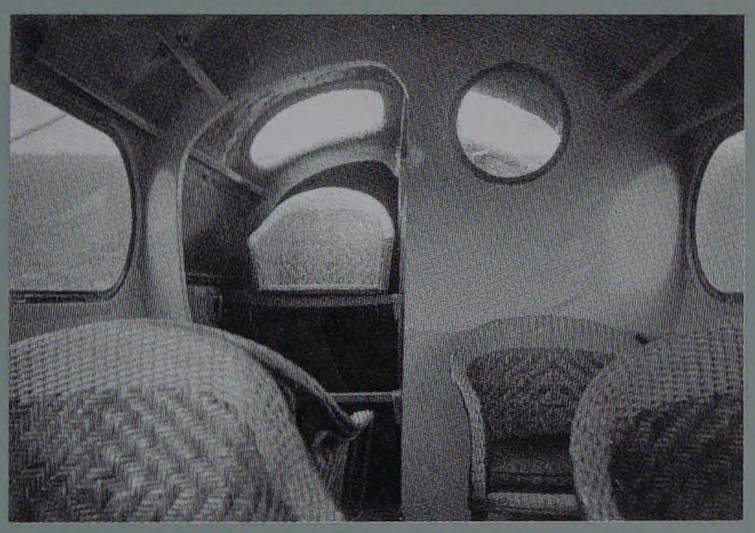




13.9.1921
Friedrich Harth sets up a record for unbroken glider flight by flying the Harth-Messerschmitt S-8 for 21 minutes in the Rhön district.



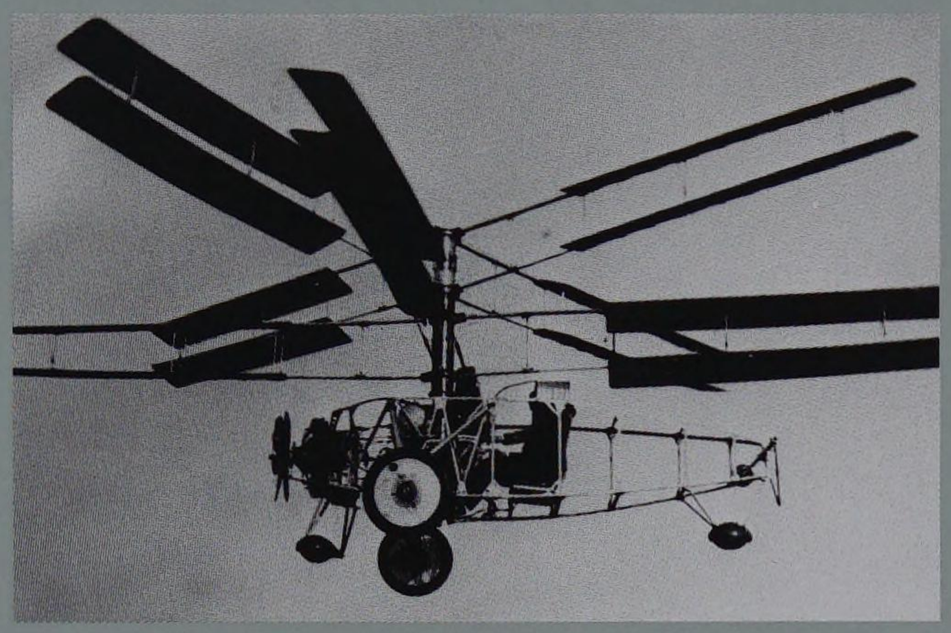
May 1922
First flight of the Udet U 1. As it rose from the ground at the Oberwiesenfeld airfield near Munich, Udet himself was at the controls of this small sports plane.

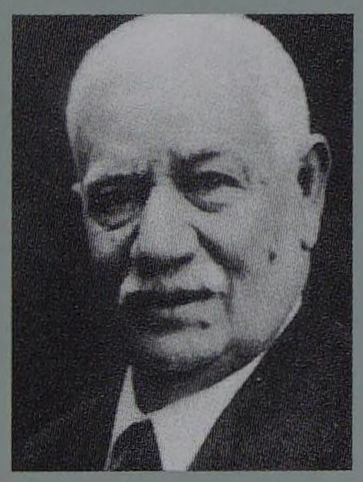


16.6.1921
The Spad 46 "Berline", a further development of the Spad 33, flies for the first time. It was able to transport five passengers, four seated in wicker chairs in the cabin and one in the cockpit next to the pilot.

18.11.1922
The first aircraft built by Dewoitine, the Dewoitine D 1, takes to the skies powered by an engine from Hispano Suiza.

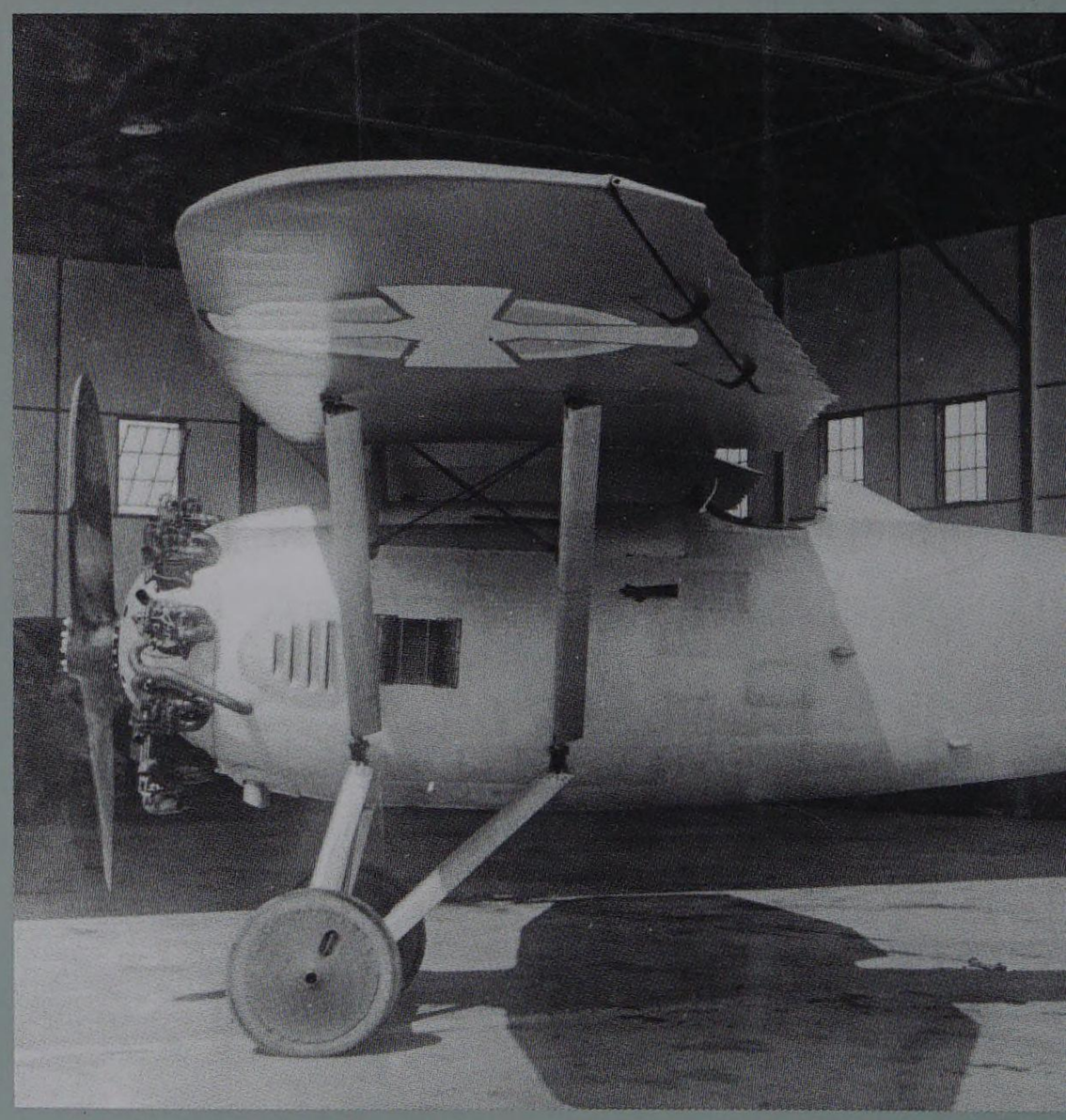
29.1.1923
The Spanish design engineer Pescara achieves a record when his helicopter stays aloft for ten minutes and ten seconds.

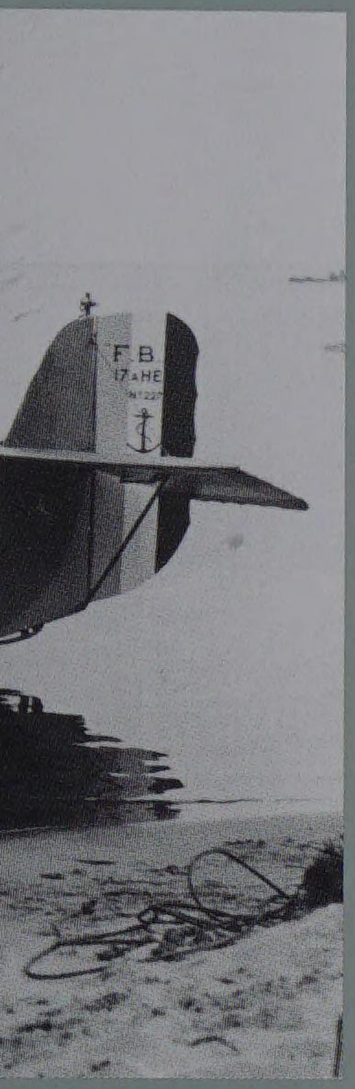




3.3.1923
The Spanish company CASA (Construcciones Aeronáuticas Sociedad Anónima) is founded. One of the founding fathers is José Ortiz de Echagüe, known as Don José, one of Spain's aviation pioneers.

1923
José Tartiere, the first CEO of CASA (1923 to 1926).

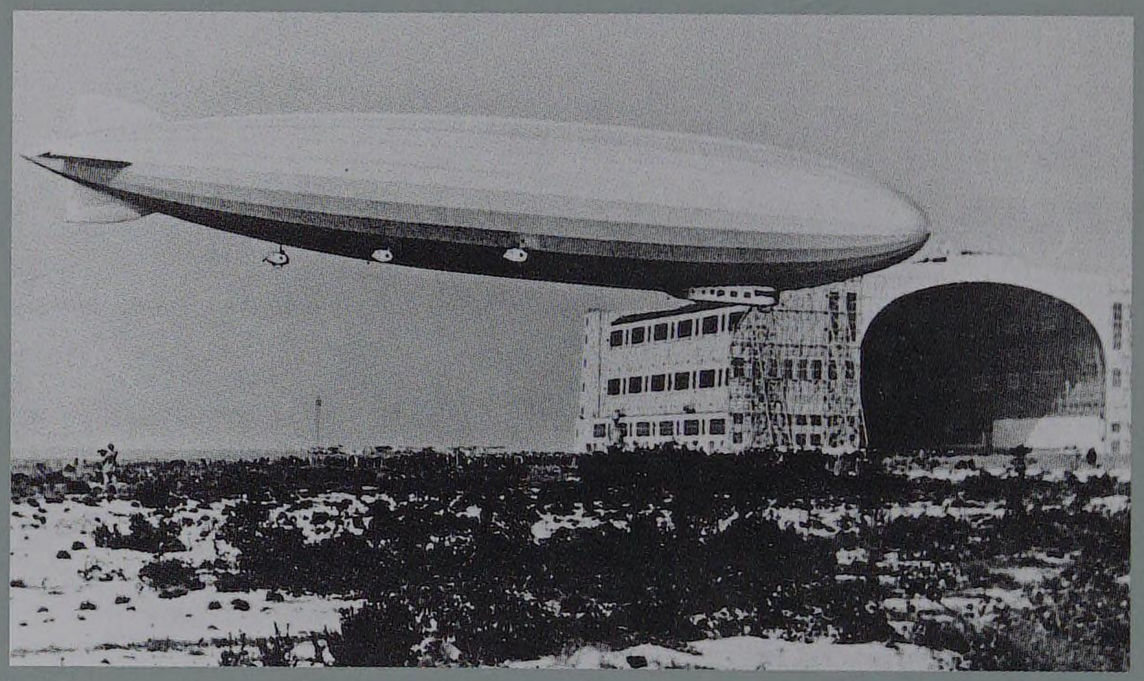


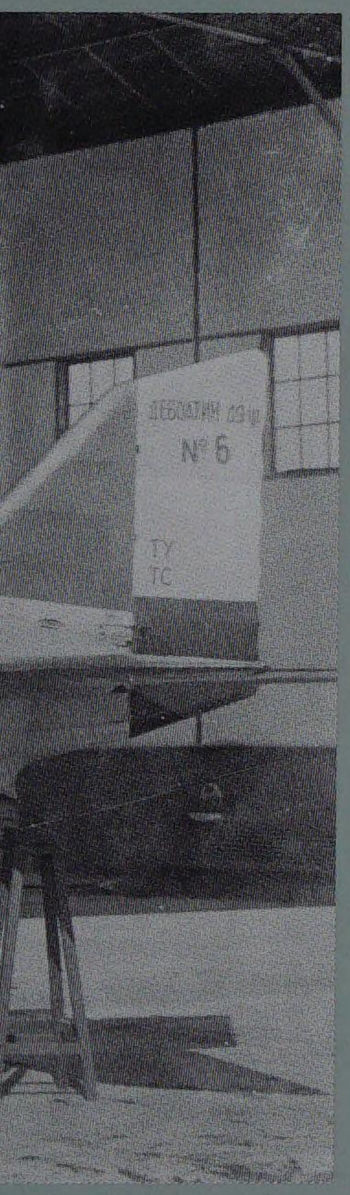


1923
The Schreck FBA 17 was a training and transport flying boat that was sold throughout the world. The brand FBA (Franco British Aviation) was founded in 1913 and taken over by Bernard in 1935.

1924
The Spad 51 – seen here under construction – was the first French aircraft with an adjustable propeller (first flight: 16 June 1924).

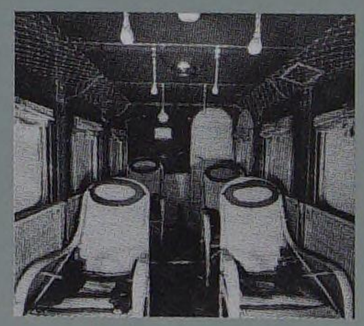
16.10.1924
The airship ZR III "Los Angeles", equipped with Maybach engines, arrives at Lakehurst (USA) after successfully crossing the Atlantic.

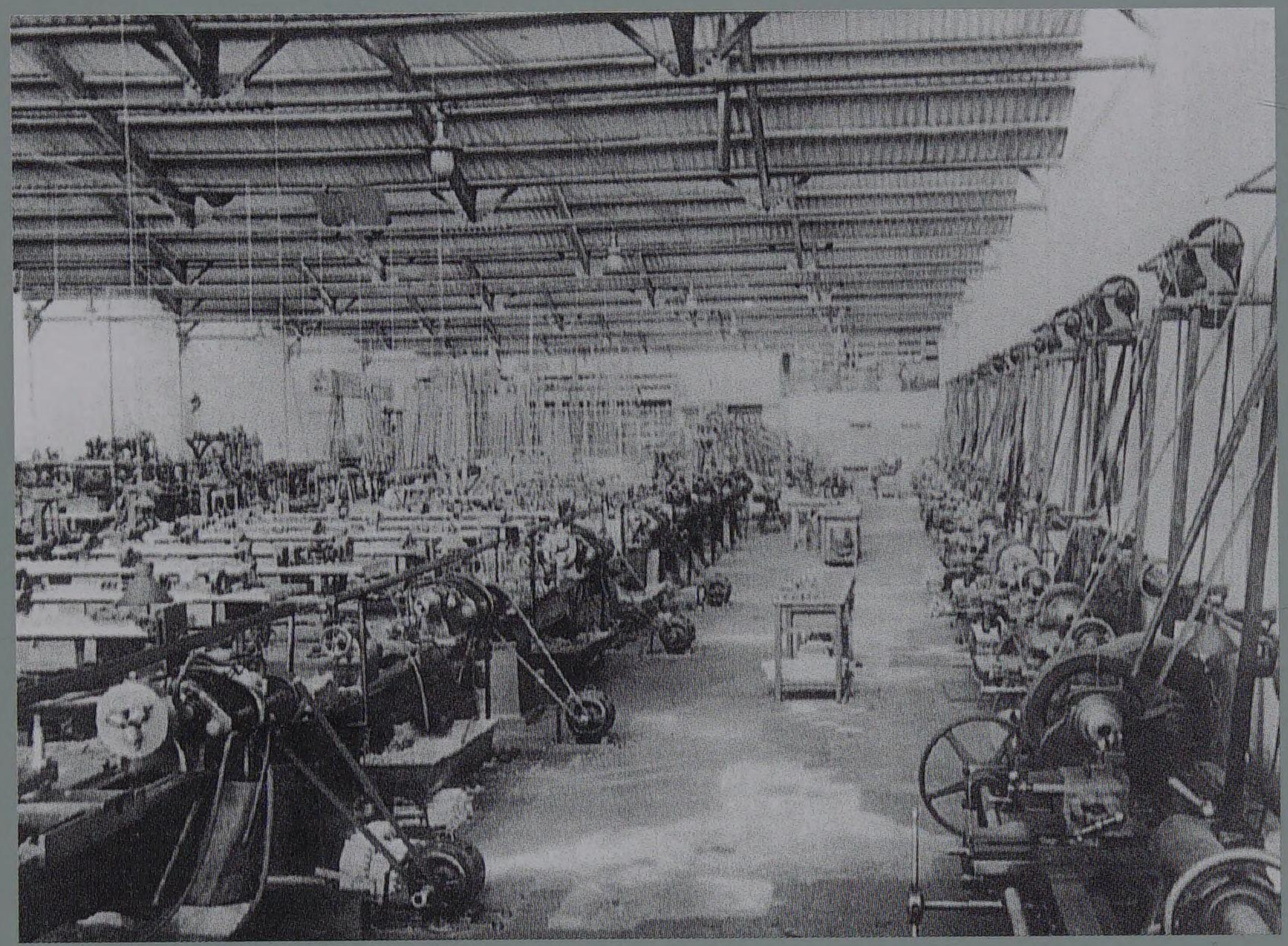


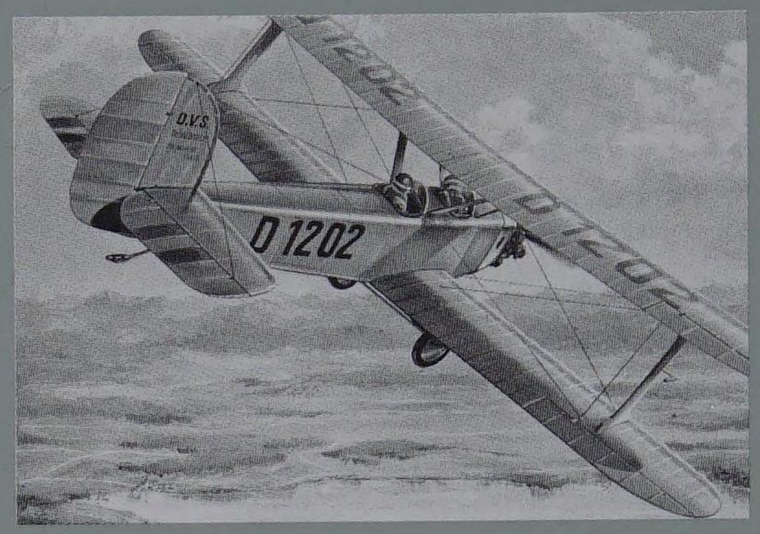


1.6.1924
Dewoitine's design bureau successfully launches the D-9 series. 160 of these aircraft will be built.

7.12.1924
The maiden flight of Dornier's Komet III is a success. To save weight, the cabin fittings of this commercial aircraft are of basketwork (lower picture).





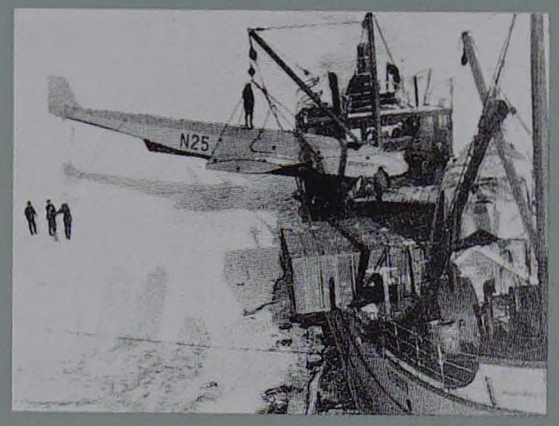


April 1925
First flight by the Udet U-12 Flamingo. This plywood biplane rapidly became Germany's most successful trainer. Licences to build it were issued in the Baltic countries, Hungary and Austria.

1925
CASA brings its first engine production hall into operation at Getafe, south of Madrid.

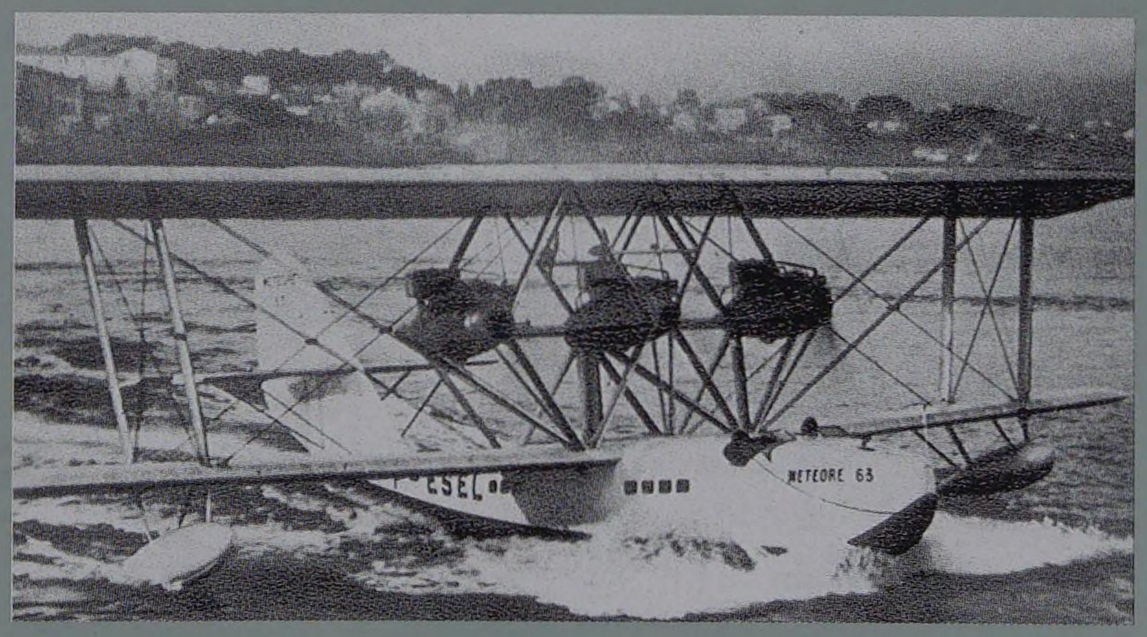
1925
500 of the Loire-Gourdou-Leseurre LGL 32 were built at Saint-Nazaire. It it set a world altitude record in 1932 and was exported particularly to Japan.

1925
The Potez 25 biplane was a reconnaissance plane also capable of carrying out bombing missions. Its production ran to 4,000 units, which made it the most built French aircraft of its day, and it was exported to 22 countries.



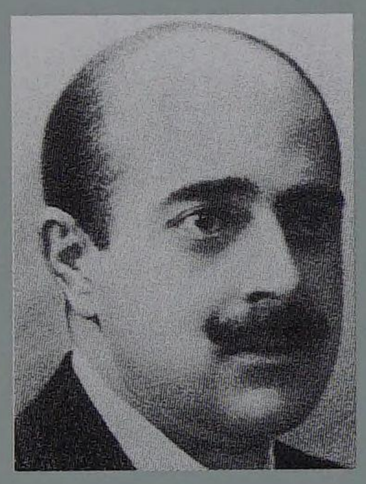
21.5.1925
The polar explorer Amundsen sets off on his expedition to the North Pole in two Dornier Wal flying boats. The aircraft were transported by ship to Kings Bay, Spitzbergen, the departure point for the expedition. In the endless icy wastes, both man and machine had to be protected from the cold. Aircraft fitter Karl Feucht, Roald Amundsen und pilot Hjalmar Riiser-Larsen (l. to r.) also have to wrap up well.

22.7.1925
Bodensee Aerolloyd starts its popular sightseeing flights over Lake Constance.

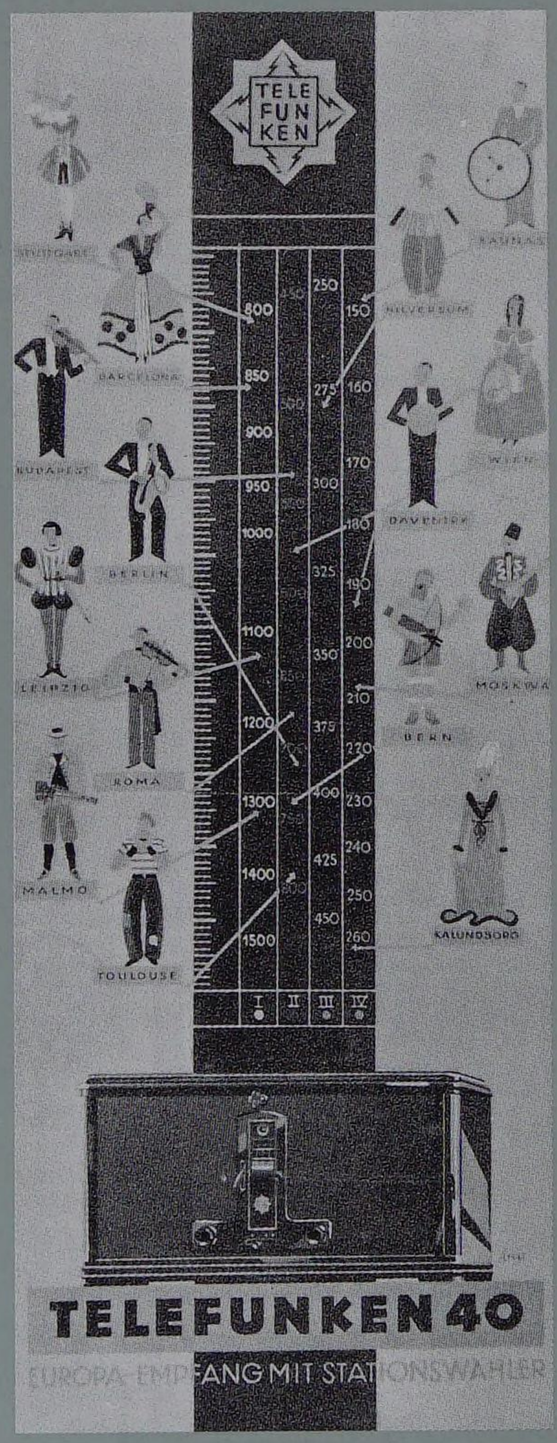


3.9.1925
First flight of the SPCA 63 Météore. This first aircraft to be designed by the Société Provençale de Constructions Aéronautiques received a prize in the flying boat competition of 1926.

19.1.1926
The four-engined Udet Kondor U-11 takes off on its first flight. This aircraft was developed almost concurrently with the mail plane U -13.



9.6.1926
José María Chávarri Aldecoa headed CASA from 1926 to 1928.



9.2.1926
The German company Telefunken brings the first mains-powered radio receiver onto the market. Here, an advertisement for the new product in the Swiss magazine "Schweizer Illustrierte Zeitung".

1926
The heavy twin-engine biplane LeO 20 was an important French military aircraft of the twenties, 367 units being built.

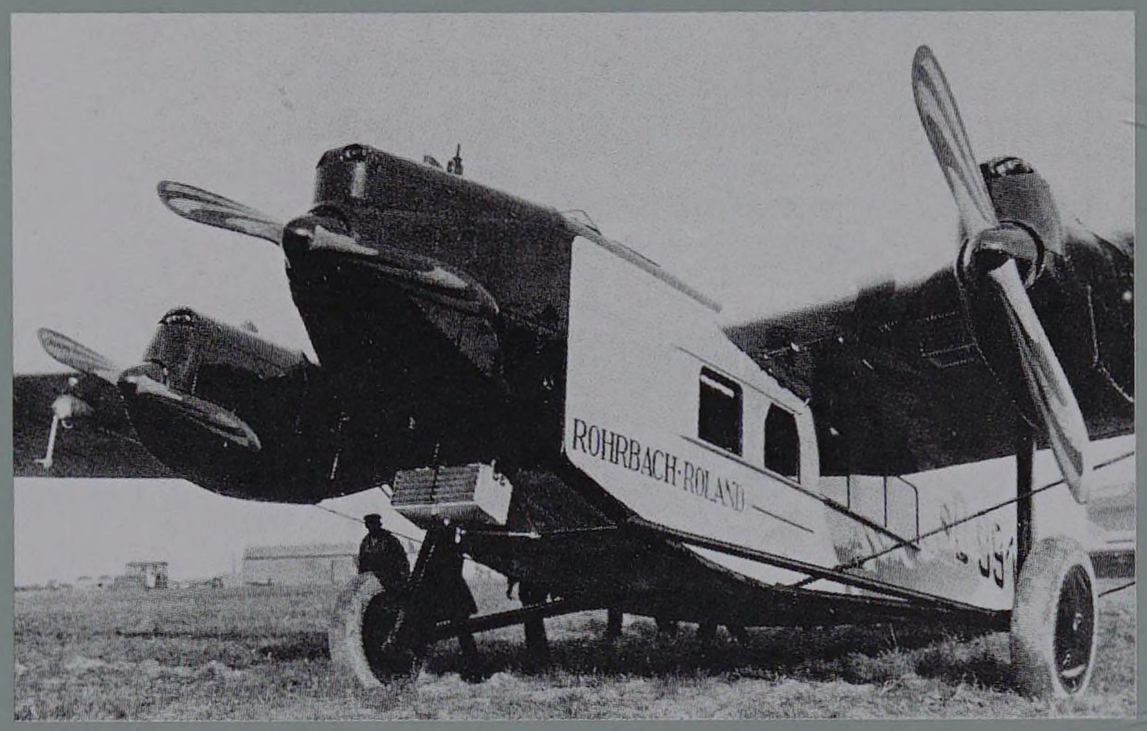
April 1926
Maiden flight of the Junkers W-33 at Dessau. Later, this aircraft was used for a variety of tasks including pest control in forestry, for which it was fitted with sprayers.

15.6.1926
First flight of the Messerschmitt M-18. This four-seater passenger aircraft was soon to earn the reputation of being the most economical aircraft of its day.

April 1926
The aircraft manufacturers Dyle & Bacalan only built a prototype of their DB 10 bomber. A unique feature was the wing-fuselage construction, designed to give more lift.

24. 7.1926
Luft Hansa use two Junkers G 24 aircraft to explore a possible East Asian route, completing the first long-distance flight from Berlin to Beijing via Moscow and Siberia.

5.9.1926
The Roland I, built by the German Rohrbach-Werke, is presented to the public at Berlin-Tempelhof.

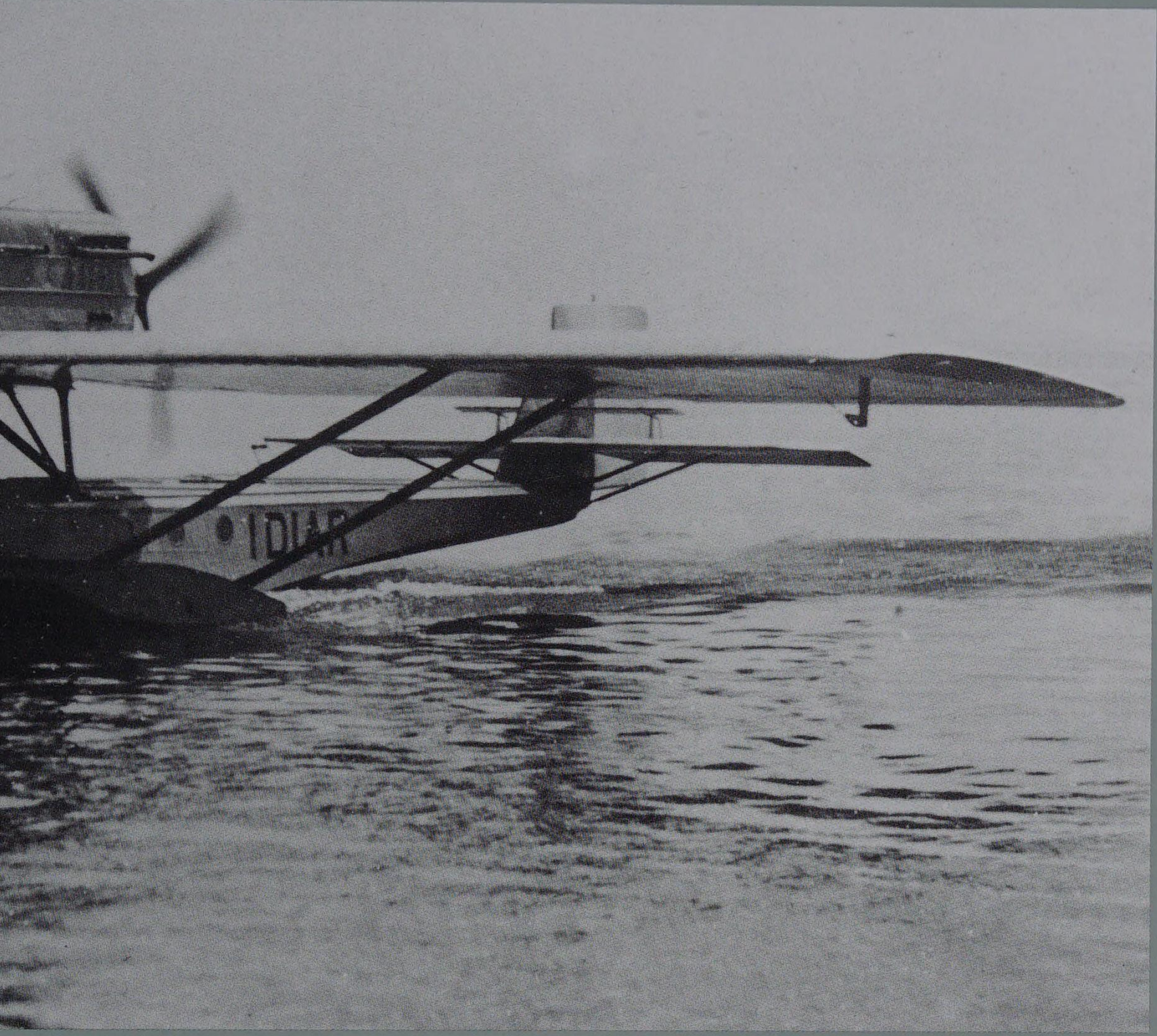


November 1926
The first Breguet XIX built under licence in Spain takes off on its maiden flight. Up to May 1927, a total of 26 aircraft are delivered by CASA.

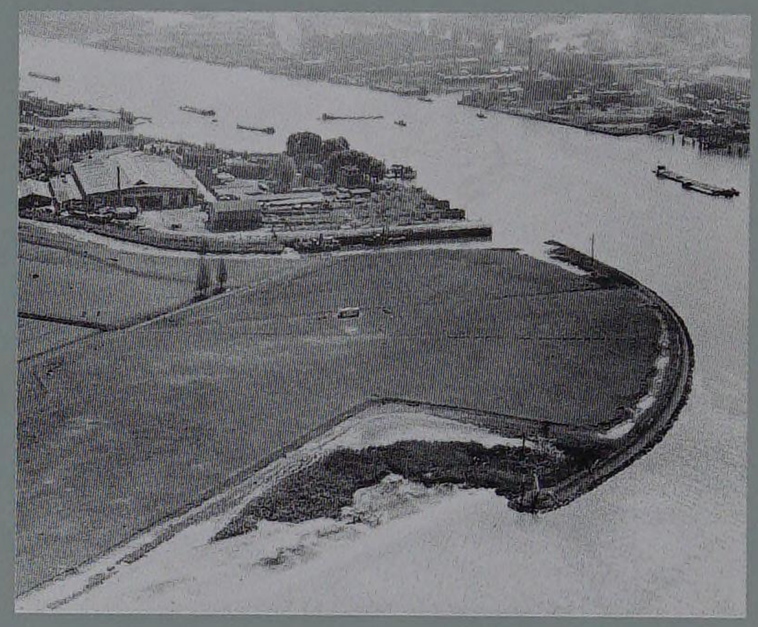
△

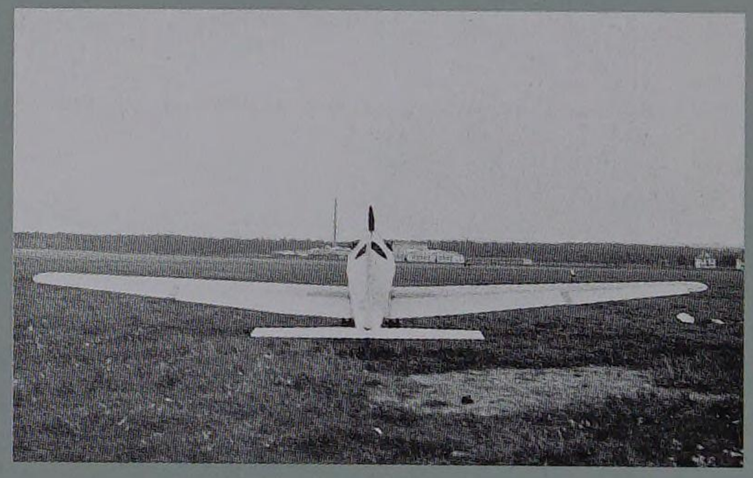
17.12.1926
Walter Mittelholzer sets off in the Dornier Merkur seaplane on his Africa expedition, which is to last 76 days. Later, Mittelholzer was to describe this journey as the finest and most exciting experience of his whole career as an aviator.

March 1927
In a Do J bearing the name "Argos", which was the first Wal to receive an extended nose, a three-man crew headed by Major José Manuel Sarmento de Beires crosses the Atlantic from Portugal. This particular Dornier Wal flying boat later suffered such damage during a takeoff on the return flight that it had to be abandoned (in the photo: a sister plane equipped with a longer nose).



1.3.1927
The Dutch company Aviolanda in Papendrecht starts licensed production of the Dornier Wal.





Summer 1927 ▷
The Dornier pilots Egon Fath, Richard Wagner and Georg Zinsmaier (l. to r.) set up a total of eight world records in the Do D.

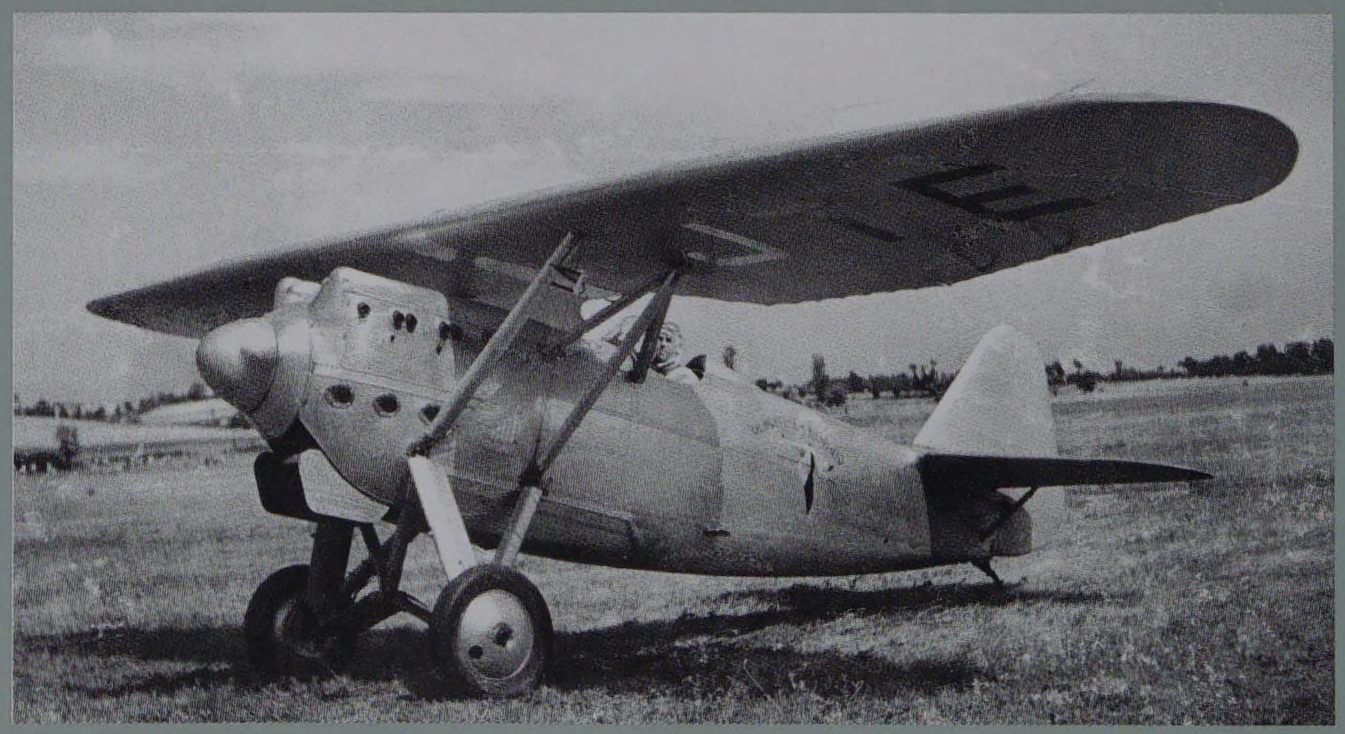
25.8.1927
The Messerschmitt M-19 flies for the first time. Its particular achievement was that this was the first aircraft that could carry a greater load than its net weight.

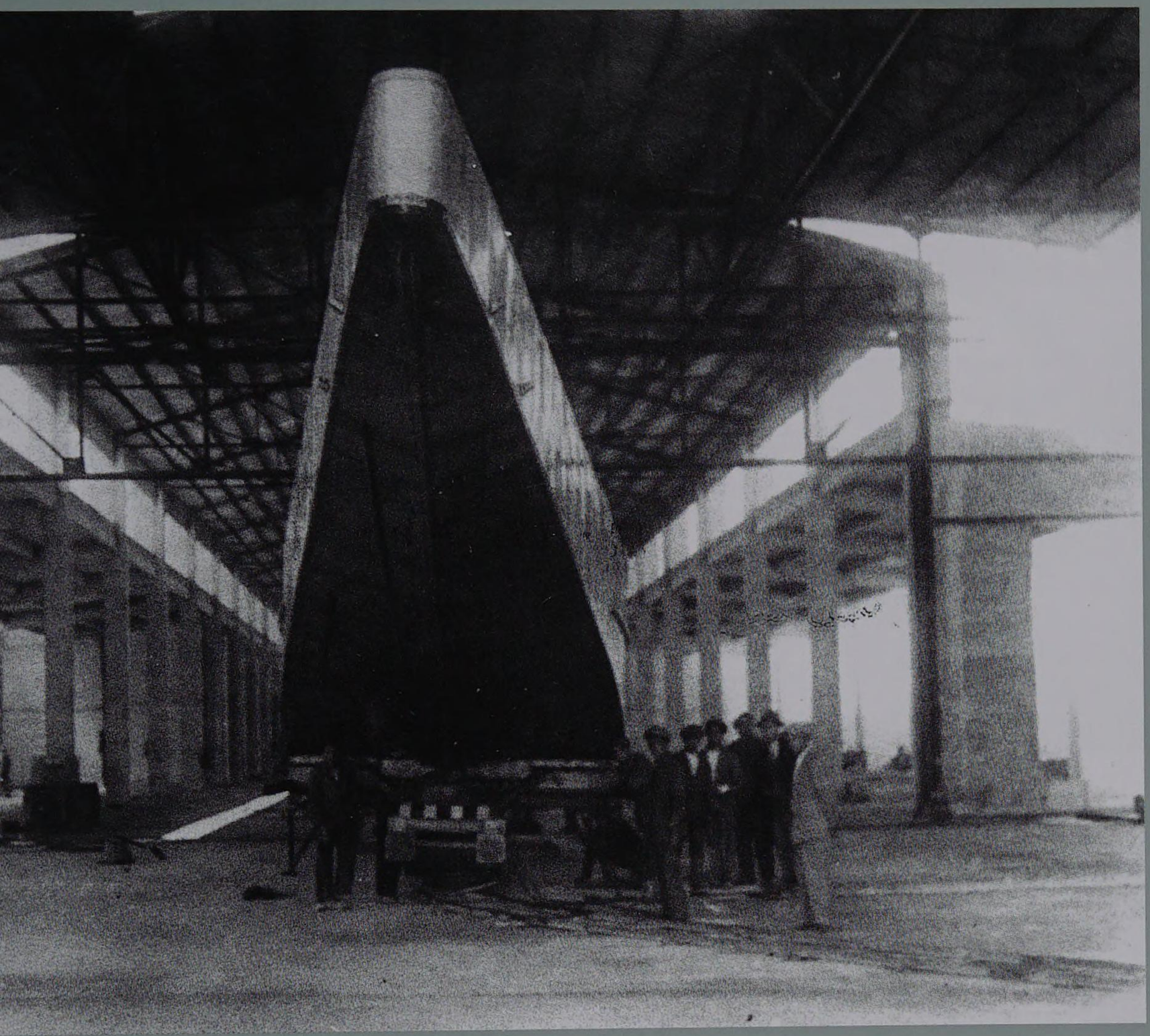
1928
The CAMS 55 was first used for coastal surveillance tasks, but then saw service on passenger routes in the 1930s. 250 of this biplane flying boat were built.

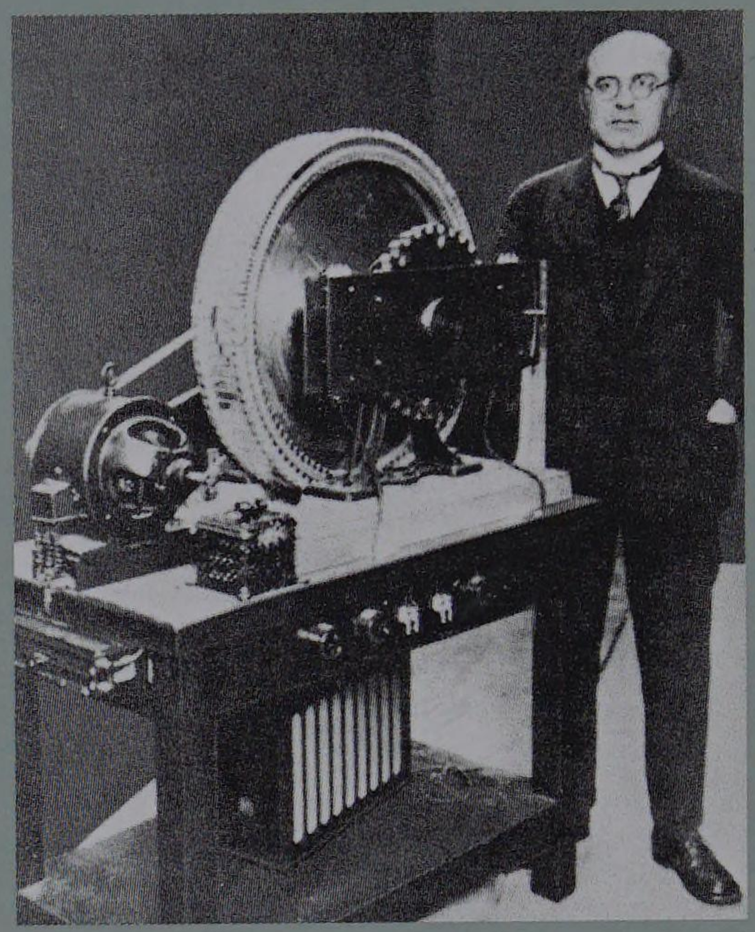
2.7.1928
A contract concluded between Dornier and CASA in April 1927 provided for the construction of two Do J Wal aircraft. The photo shows the start of final assembly at the Cadiz plant. In 1928, the Do Wal named "Numancia" sets off on its maiden flight with a useful load of 10.4 tonnes.

26.2.1928
In Augsburg, the maiden flight of the later so successful Messerschmitt M-20 ends tragically when the pilot Hans Hackmack dies when it crashes.

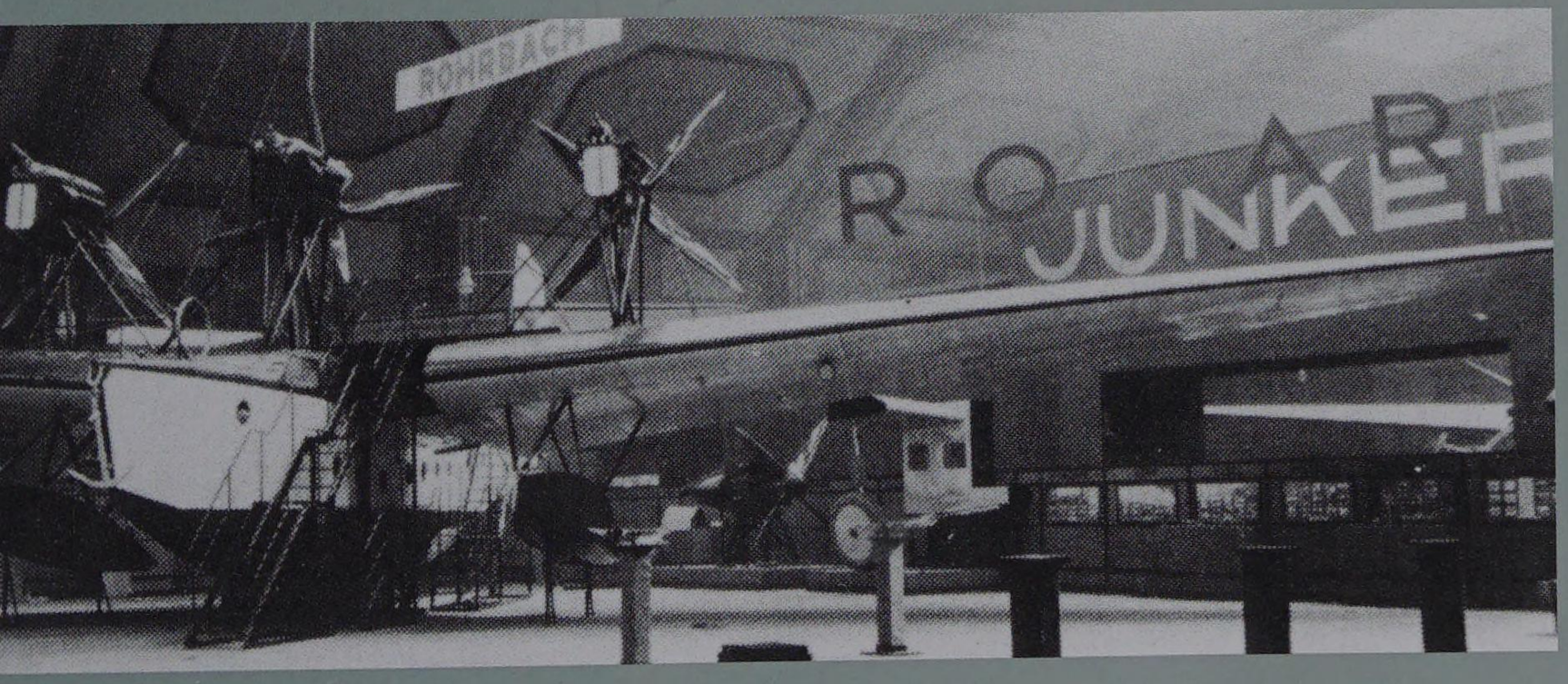
3.6.1928
First flight of the Dewoitine D27, an aircraft that was made world famous by the test pilot Marcel Doret, who performed aerobatics at numerous air shows in a model with a special red-and-white wing design.





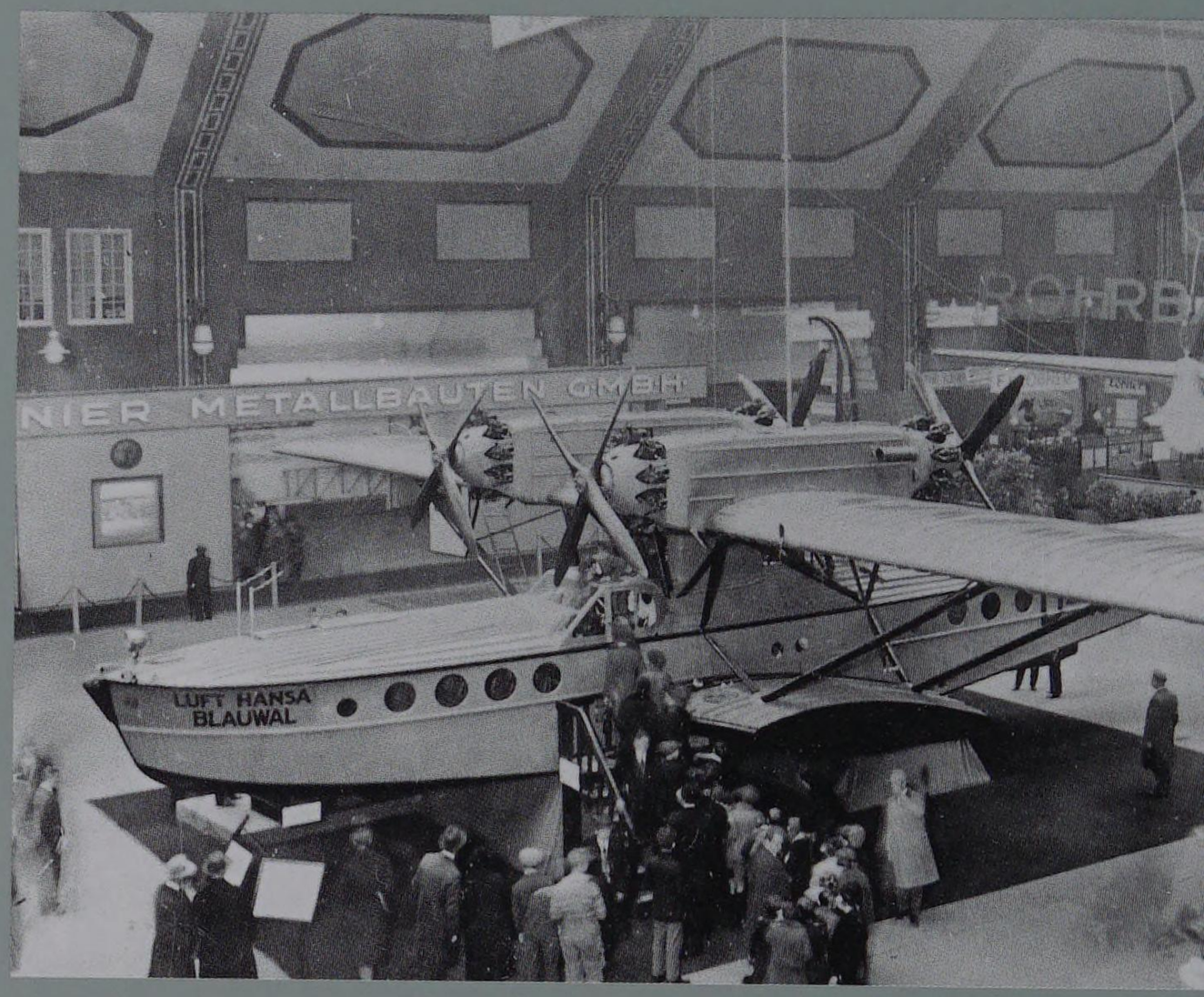


31.8.1928
During the 5th Grand German Radio Exhibition in Berlin, at the Telefunken stand television is demonstrated to the public for the first time using the Karolus-Telefunken System. Here, August Karolus with the mirror wheel for scanning the television images.



7.8.1928
The start of flight testing for the Rohrbach Ro X Romar I. This aircraft was unveiled to the public at the International Aviation Exhibition ILA in Berlin in October 1928.

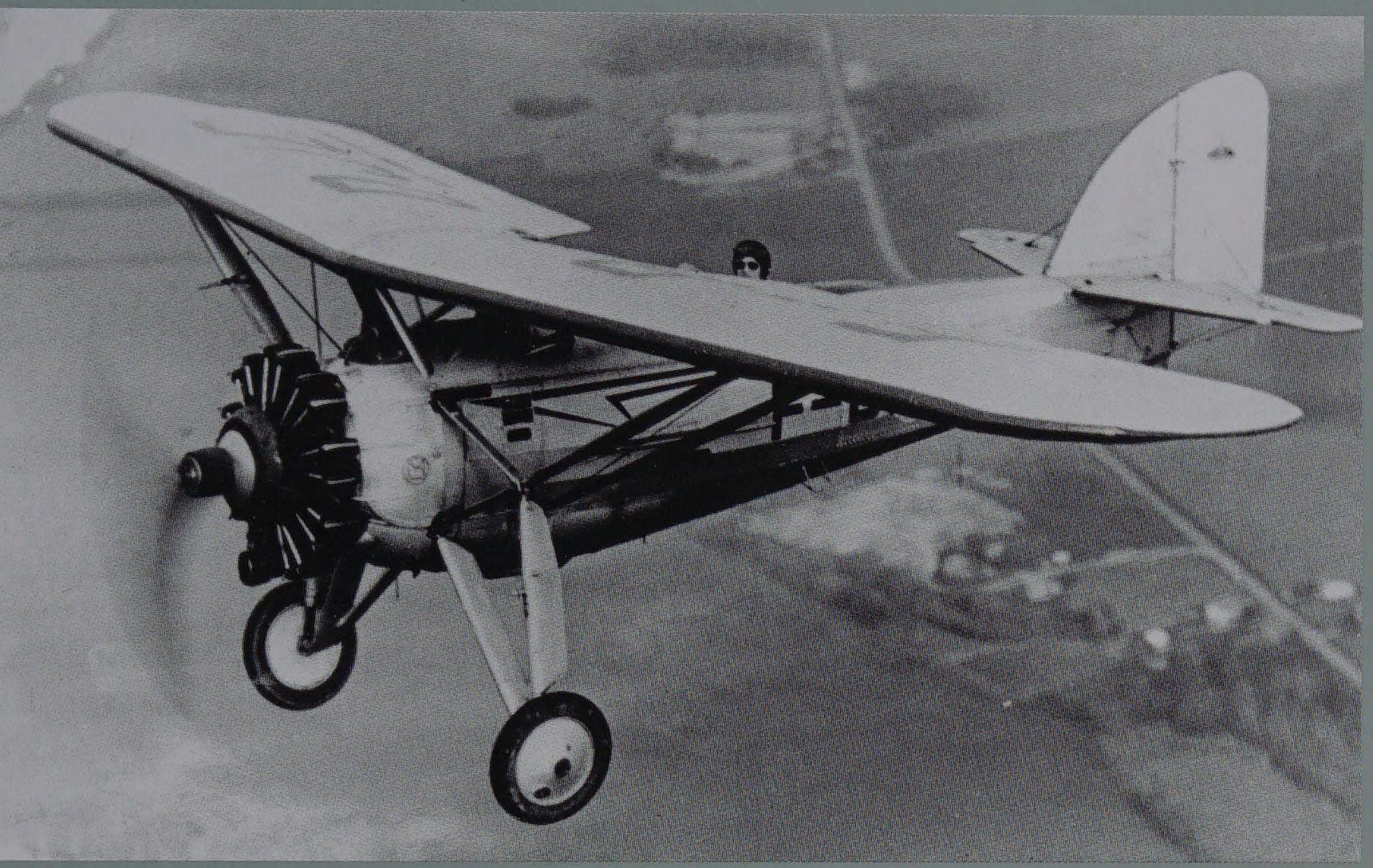
October 1928
Dornier presents the four-engined Superwal at the International Aviation Exhibition in Berlin.



1928
The Farman F190 was a light passenger "Gran Turismo" and transport aircraft, the "business plane" of its day. It enjoyed great success worldwide and its sales figures ran to 156.

1928 ▷
The Hanriot airline selects the Bourges airfield as the location for its flight training school. The site is also to develop into a maintenance centre. The photo right, taken at this historic EADS location, shows the flight mechanics who completed their training in the year 1930 gathered in front of an Hanriot H 14.

1928
The Nieuport-Delage 62 was a further development of the Ni-D 42, which had been a winner of the Coupe Beaumont. In its day, the Ni-D 62 was described as one of the finest-looking aircraft ever to go into series production and a total of 845 were built.



February 1929
The Morane-Saulnier MS 230 was an extremely agile and speedy training aircraft. Because of the excellent vision afforded by its parasol-wing design and its large-dimensioned landing gear, it was a favourite with instructors and trainee pilots alike. 1,200 of these aircraft were built, many of which under licence in a variety of countries.

1929
The prototype of the light aircraft CASA I is developed.

Extrablatt

Sensationeller Bericht, erschienen im 12 UHR Blatt am 9. März 1929

Fernsehen in Berlin geglückt!

Gestern die ersten erfolgreichen Versuche. — Wie das Programm aussehen wird.

Manchem Rundfunkteilnehmer wird es aufgefallen sein, daß gestern im Lautsprecher außerhalb der offiziellen Sendezeiten ein lärmendes Knattern, das in der Tonlage hin und her schwankte und einem Wechselstromgeräusch glich, zu hören war.

Diese geheimnisvollen Zeichen bedeuten die ersten praktischen Versuche des Fernsehens nach dem System Mihaly, die die Reichspost in aller Stille vorgenommen hat.

Die langwierigen Laboratoriumsversuche sind jetzt zu einem gewissen Abschluß gekommen und für die Durchführung im Rundfunkbetrieb reif geworden; die letzte Etappe in der Entwicklung ist erreicht.

Die beweglichen Bilder sind an den verschiedensten Stellen der Stadt empfangen worden, und durchweg sind sie einwandfrei, klar und unverzerrt zum Vorschein gekommen.

Man hat sogar in England jenes charakteristische Geräusch aufgenommen und dasselbe sofort als Fernsehsendungen festgestellt. Jeder, der also im Besitz eines Fernsehapparates ist, kann ohne weiteres die Versuchssendungen des Witzlebener Senders in seinem eigenen Heim sichtbar machen; verschiedene Amateure haben bereits ihre Beobachtungen an provisorischen Gerüsten mitgeteilt.

Damit steht Deutschland an erster Stelle auf dem Gebiete des Fernsehens. In anderen europäischen Ländern sind die Versuche gescheitert, sogar in England, das sich infolgedessen mit feststehenden Bildern begnügt.

Man ist sich bei den augenblicklichen Versuchen auch schon über die Durchführung des Sendeprogramms im klaren. Da die Rundfunkteilnehmer tagsüber im allgemeinen kaum die Zeit dazu aufbringen können, sich Tagesereignisse anzusehen, werden Rundfunkreporter in aller Welt wichtige Begebenheiten filmen und an ihre Sendestation weitertelegraphieren, die dann in einer Abendstunde den Ablauf der Tagesereignisse in gedrängter Reihenfolge dem Hörer übermitteln wird.

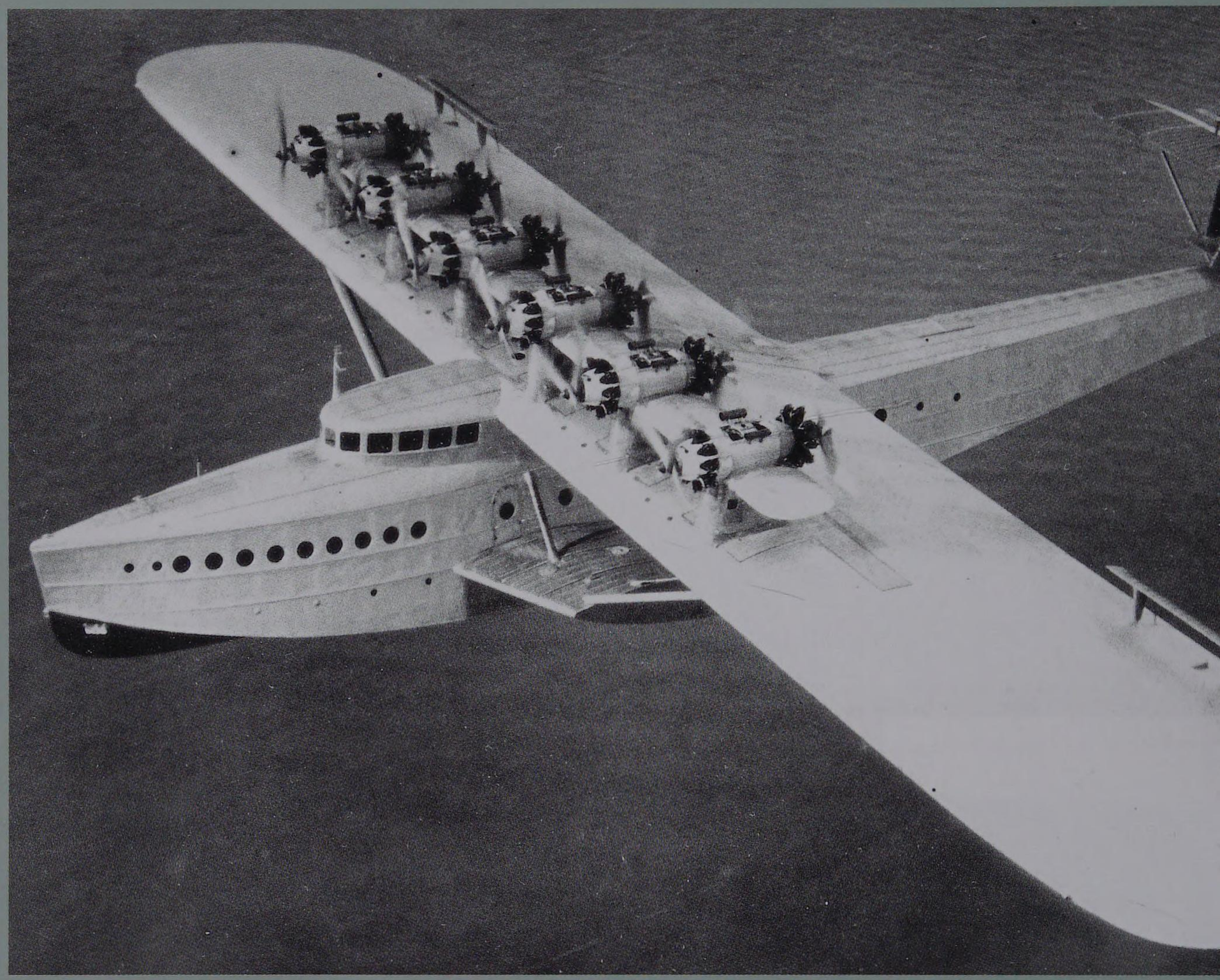
Die direkten Uebertragungen haben, wie man vom Hörfunk her weiß, den Nachteil, daß es neben spannenden Momenten stets „tote Punkte" gibt, die der Sprecher nur mühsam auszufüllen vermag. Der Film gibt die Möglichkeit, langweilige und uninteressante Stellen auszuschneiden und nur Aktuelles und tatsächlich Sehenswertes zur Vorführung zu bringen.

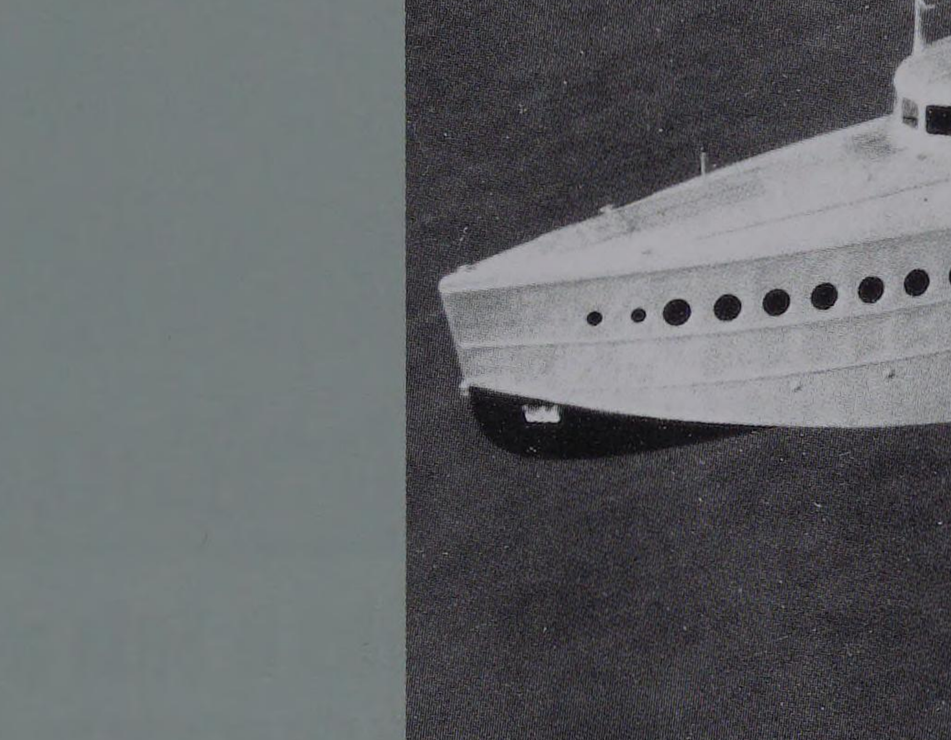
Gleichzeitig ist auch das Problem der Helmkinos gelöst. Jeder Unterhaltungsfilm kann bereits zur Premiere im Studio des Senderaumes abrollen, um dann von Millionen zu Hause im Klubsessel angesehen zu werden.

Auch das Fernsehen auf der gewöhnlichen Telephonleitung ist nunmehr möglich geworden, und so kann man z. B. in München die Opern, die bekanntlich den Fernsprechteilnehmern übermittelt werden, auch durch Telephon sichtbar machen. Welche kulturellen Umwälzungen, Umstellungen im gesamten Gesellschafts- und Wirtschaftsleben die Einführung des Fernsehens zur Folge haben wird, läßt sich heute noch gar nicht übersehen. Fritz Winckel.

9.3.1929
The Reichspost in Berlin transmits the first television images. The special edition of a newspaper hails this success.

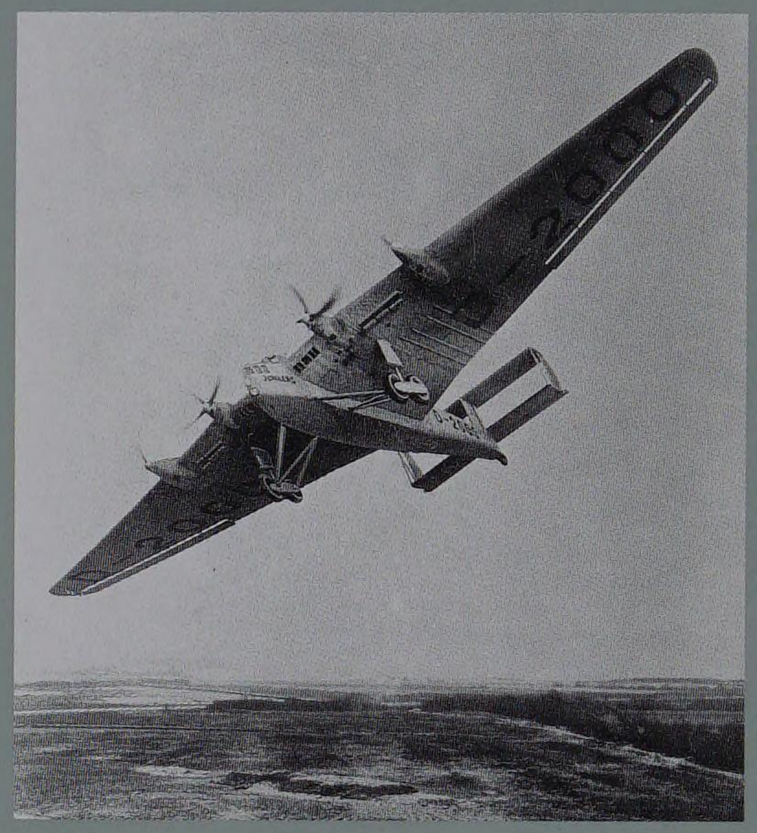
12.7.1929
First flight of the Dornier Do X. The cabin (photo below) has the atmosphere of a hotel lounge and meals are served on porcelain specially designed for the aircraft by Marcel Dornier.



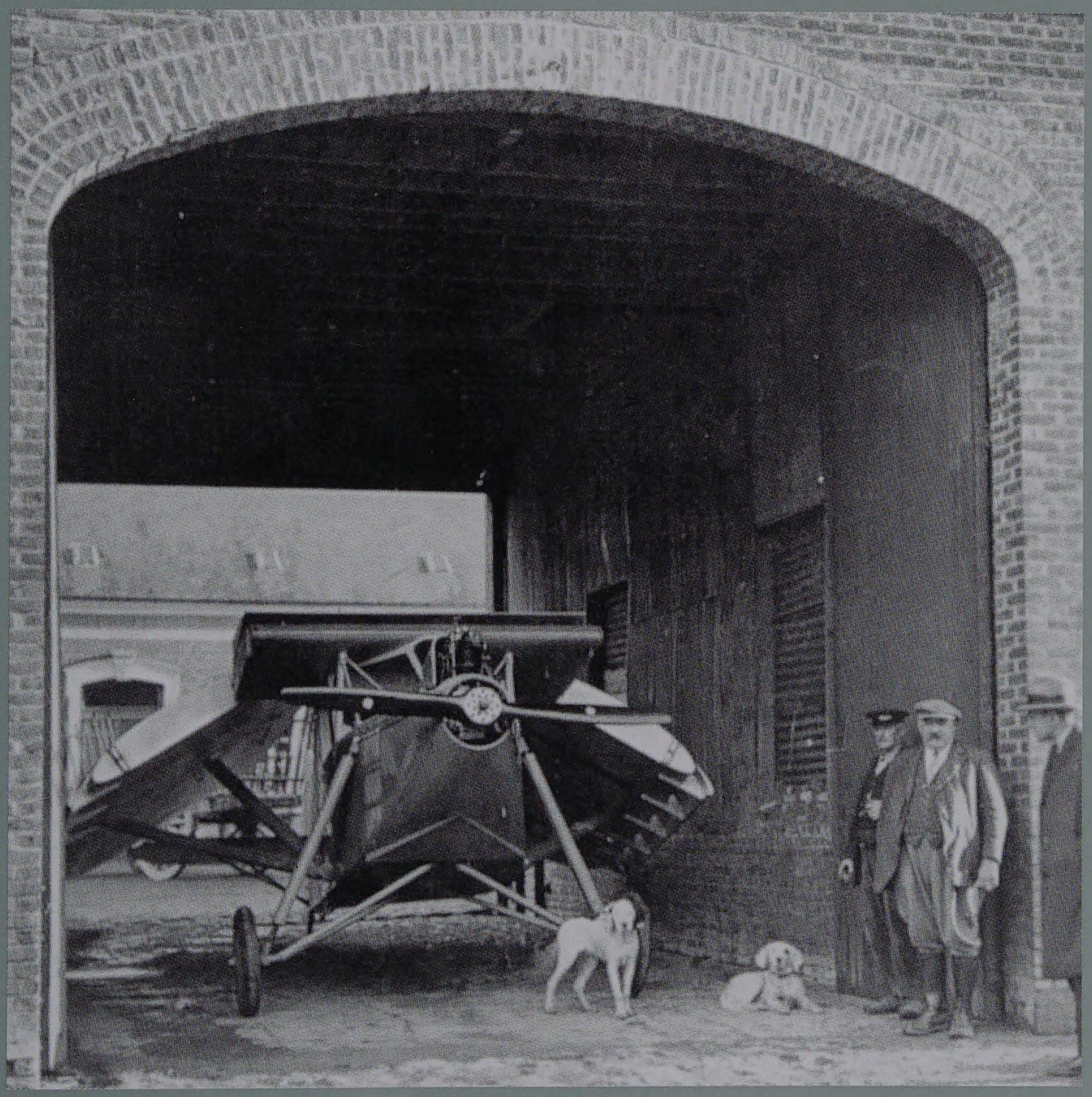


August 1929
CASA equips six Dornier Wal seaplanes with 600 hp Hispano-Suiza engines.

3.8.1929
Start of the Tour of Europe for sports planes, covering a distance of 6,300 km. Fritz Morzik (l.) wins in a Messerschmitt M-23 b.



6.11.1929
The Junkers G-38, the largest landplane of its day, completes its maiden flight at Dessau.



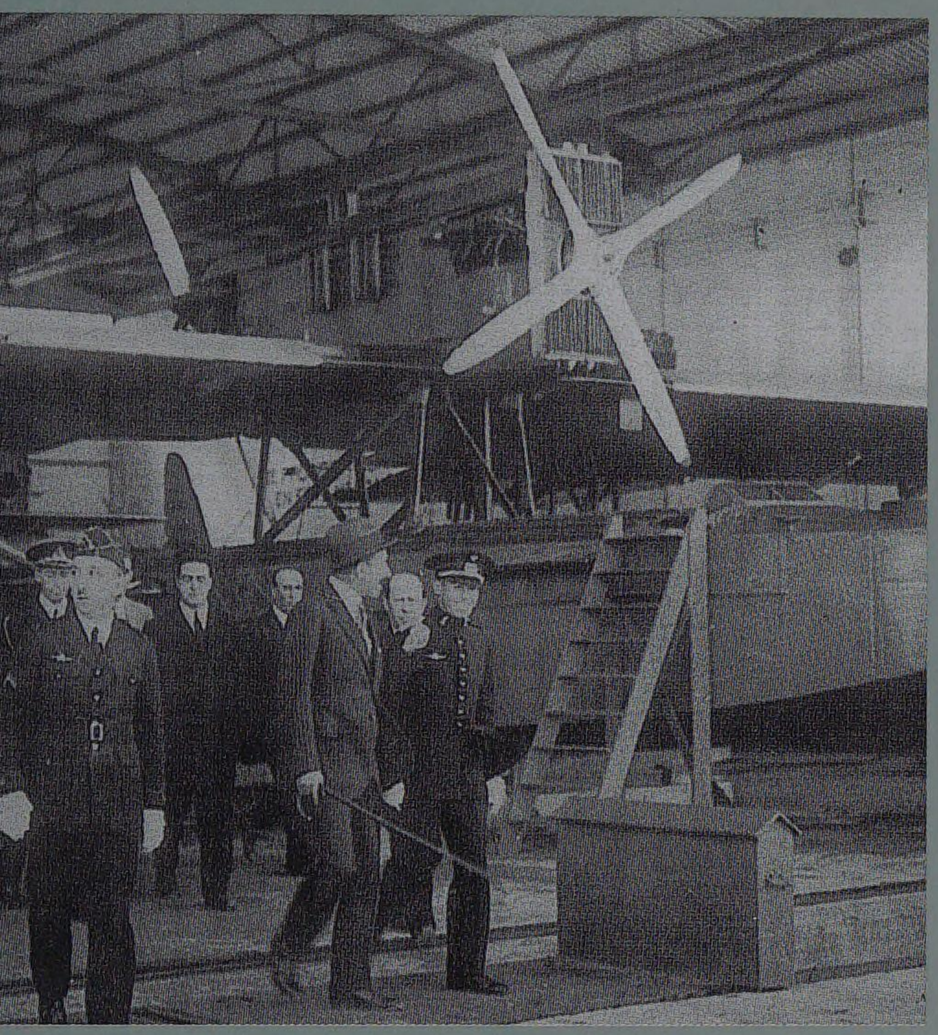
1929
The touring aircraft Potez 36 included significant innovative features in its design: leading edge slats and folding wings. In the photo the latter are to be seen in a special folding configuration.

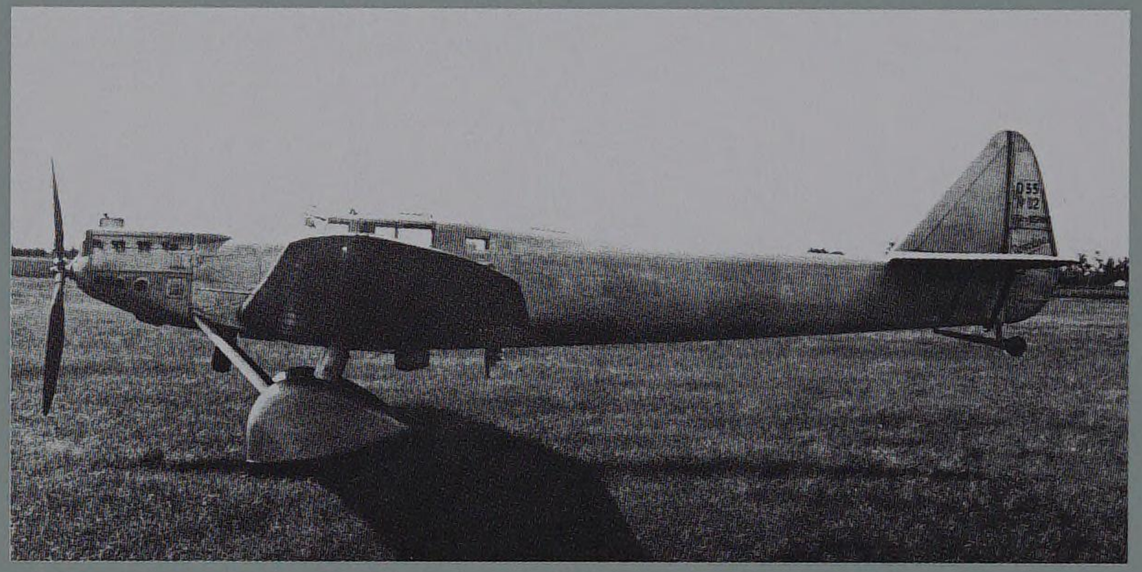
18.8.1930
Wolfgang von Gronau (l.) takes off in the Dornier Wal D-1422 on this aircraft type's first flight to America.

26.8.1930
At 4.45 p.m., Gronau lands on the Hudson River in New York harbour to a storm of enthusiasm.

11.9.1930
First flight at Dessau of the Junkers single-engined air freighter Ju 52/1m with chief pilot Wilhelm Zimmermann at the controls. The aircraft was an economic failure, only five being sold.

1930
The Spanish King, Alfonso XIII, visits the CASA plant in Cadiz.





20.11.1930
The Dewoitine D-33 Trait d'union takes off for the first time. This aircraft is to set a long unbroken world record for non-stop flight of 10,372 km.

1930
The Caudron-Renault C270 Luciole and further developments of this model were highly successful as basic trainers. 450 units were built.

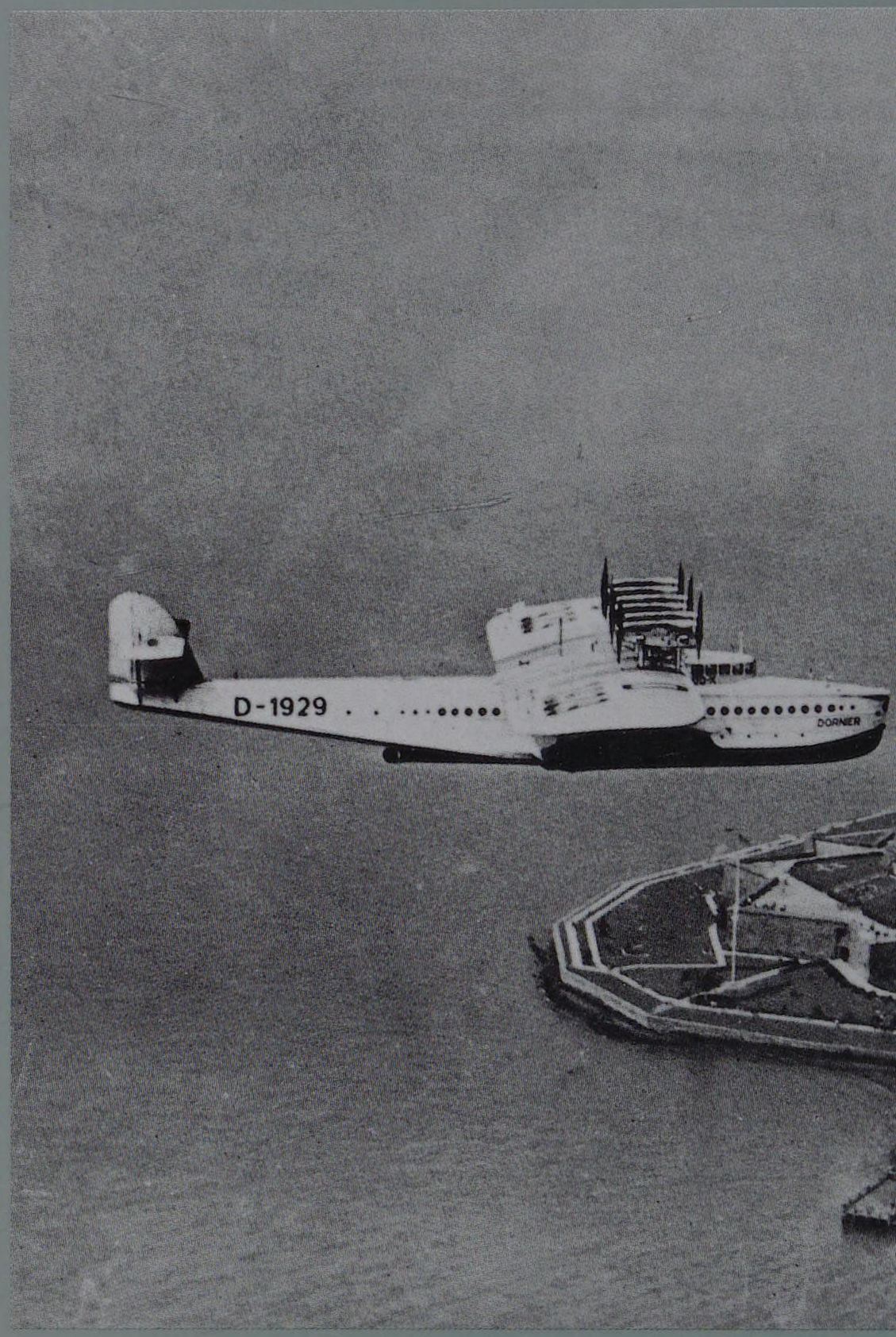
1930
In this year, the Farman 300 wrote aviation history when it completed the first genuine IMC flight, flying under instrument meteorological conditions from Paris to Dortmund. It set up several records for long-distance flight and was mainly used on commercial routes.

"The airplane is, of course, merely a machine, but what an instrument it is all the same! It has shown us the true face of the Earth. ...When we observe man from the skies above, we find ourselves judging him on a cosmic scale, ...reading our own history with new eyes."

Antoine de Saint-Exupéry (1900-1944), French author and aviator

1931–1940

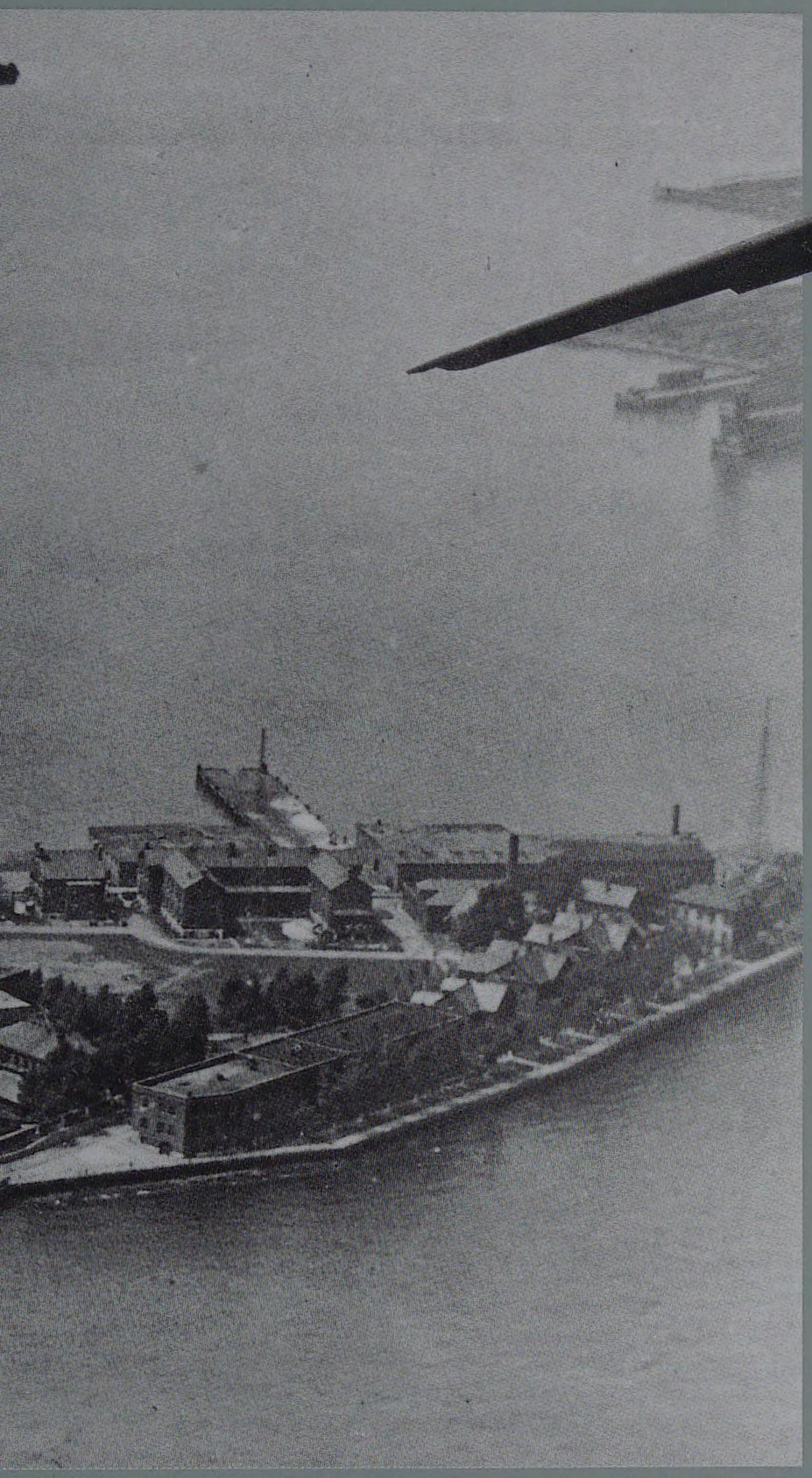
27.8.1931
The Do X lands in New York. President Hoover receives the crew at the White House on September 2.

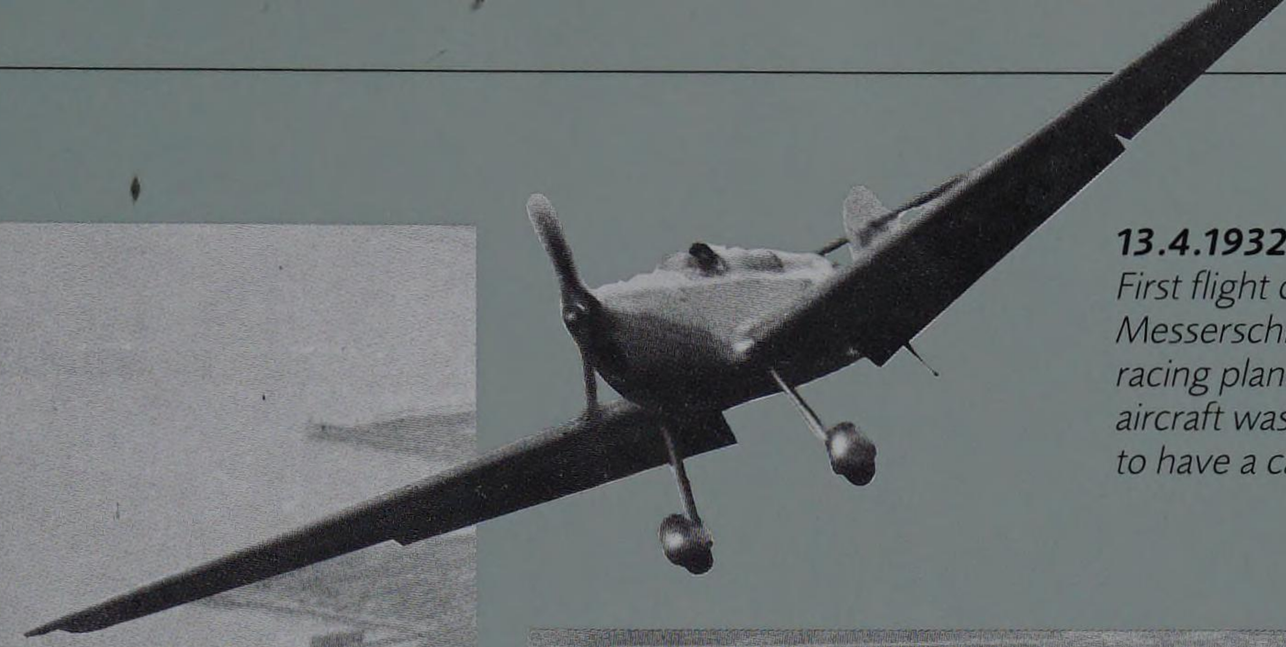


9.3.1931
The Blériot 125 transporter completes its first flight. An unusual feature of the aircraft, here shown on display in the Grand Palais of the Paris Air Salon, was its double fuselage configuration.

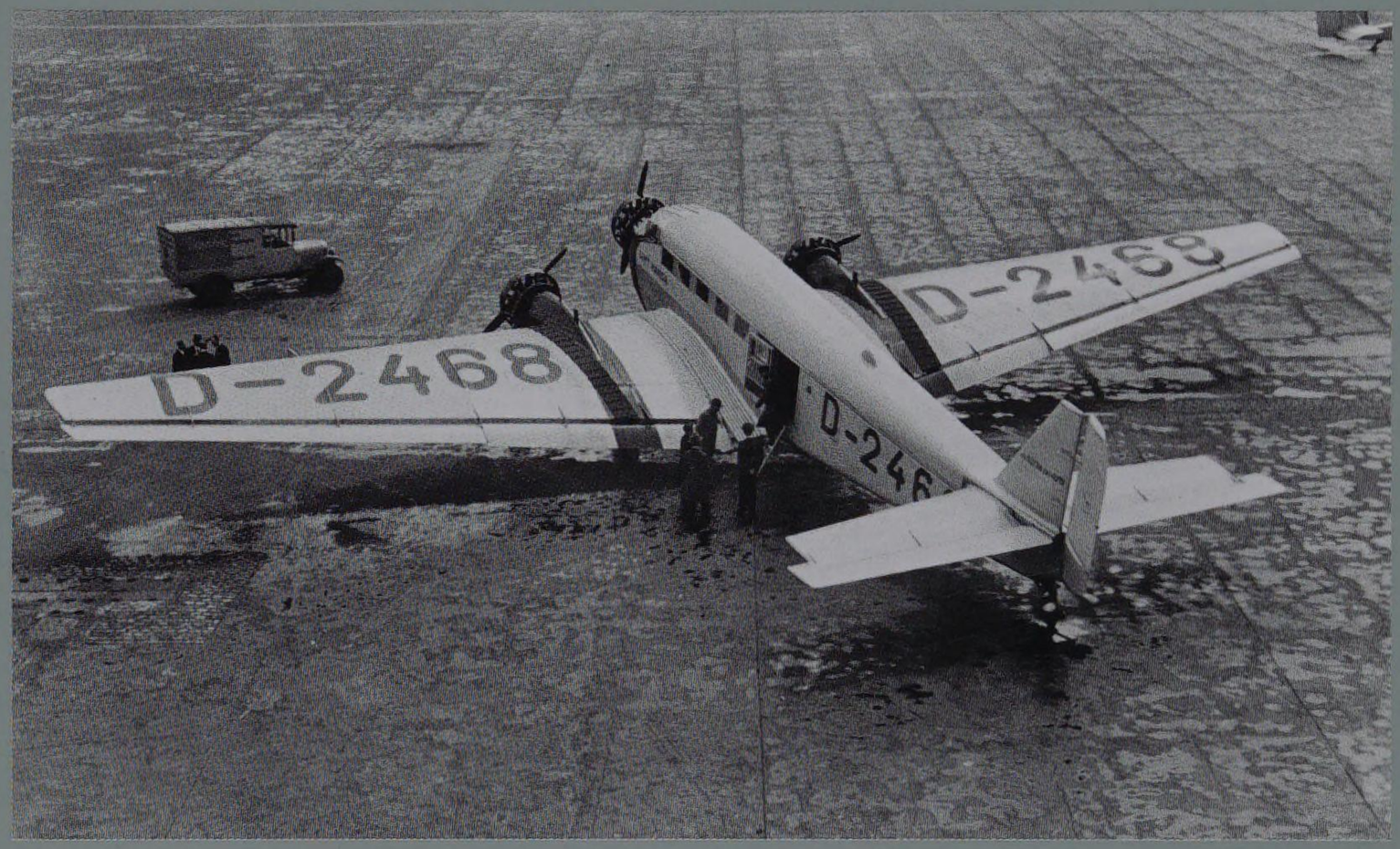
April 1931
259 units of the ANF-Mureaux 110 were built. This reconnaissance aircraft impressed through its rapid climb rate and range of 1,500 km. The version shown in the photo is the ANF 117R2.

1931
First flight of the CASA III, a twin-seater light aircraft with folding wings, of which several from the first series can be seen here on the flight line at Getafe.

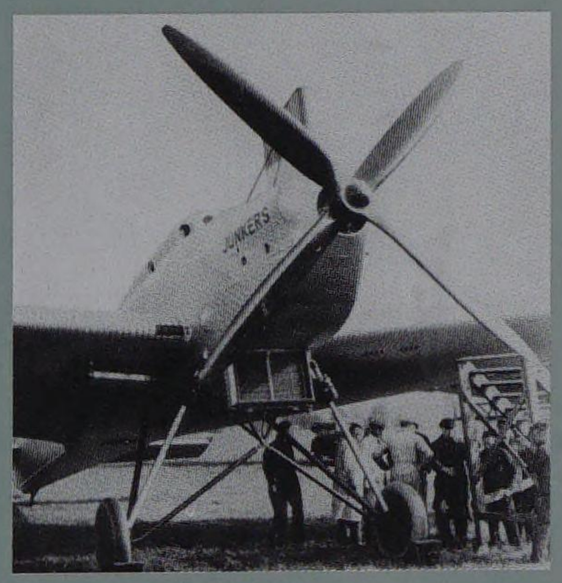




13.4.1932
First flight of the Messerschmitt M-29 racing plane. This aircraft was the first to have a cantilever undercarriage with streamlined cowling, one of a number of trailblazing technical features.

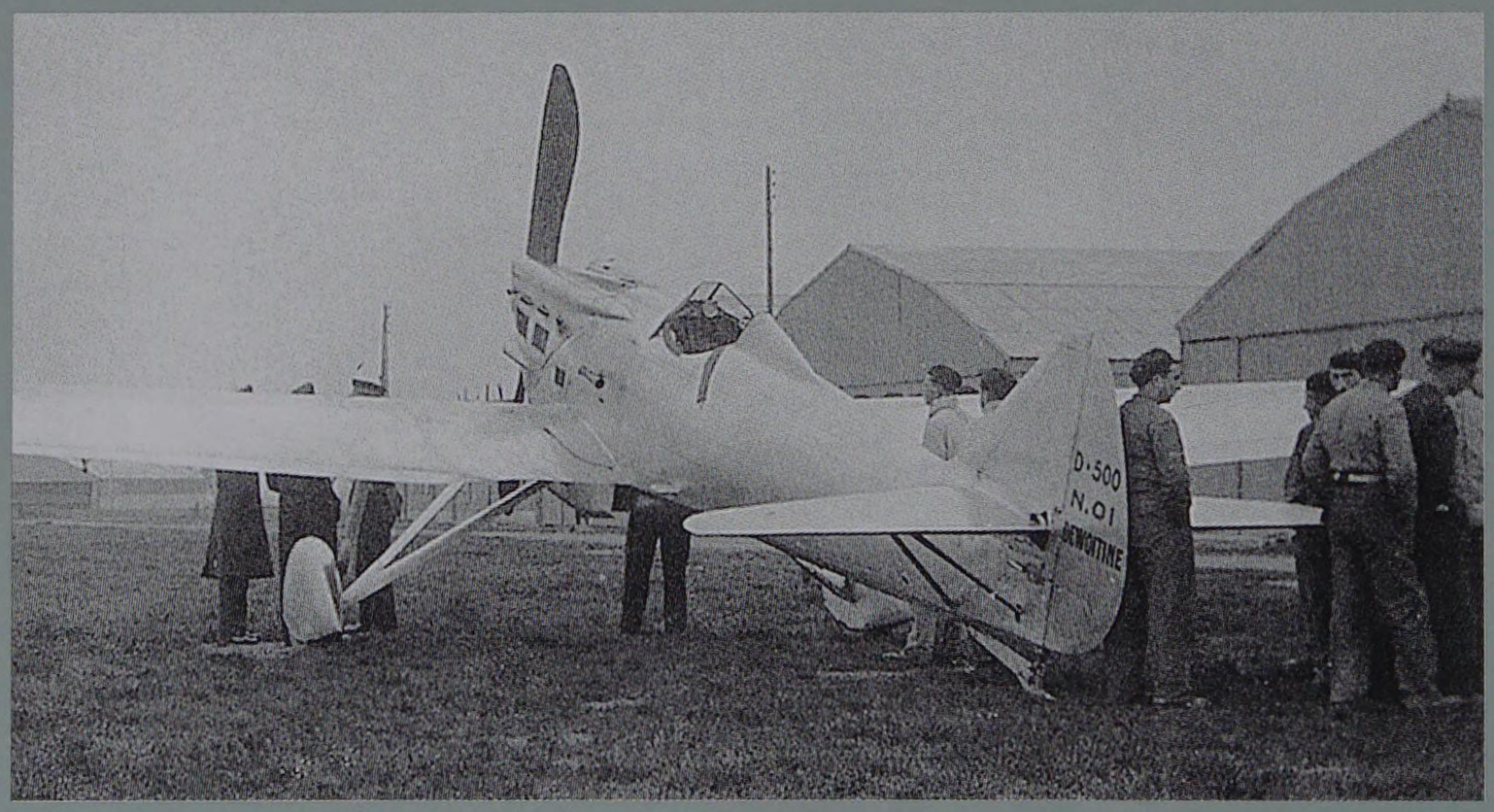


March 1932
Photo of the three-engine Junkers Ju 52/3m, the famous "Tante Ju", on its maiden flight. This aircraft soon gained the reputation of being the world's safest commercial aircraft and was to become the German aircraft industry's greatest export success.



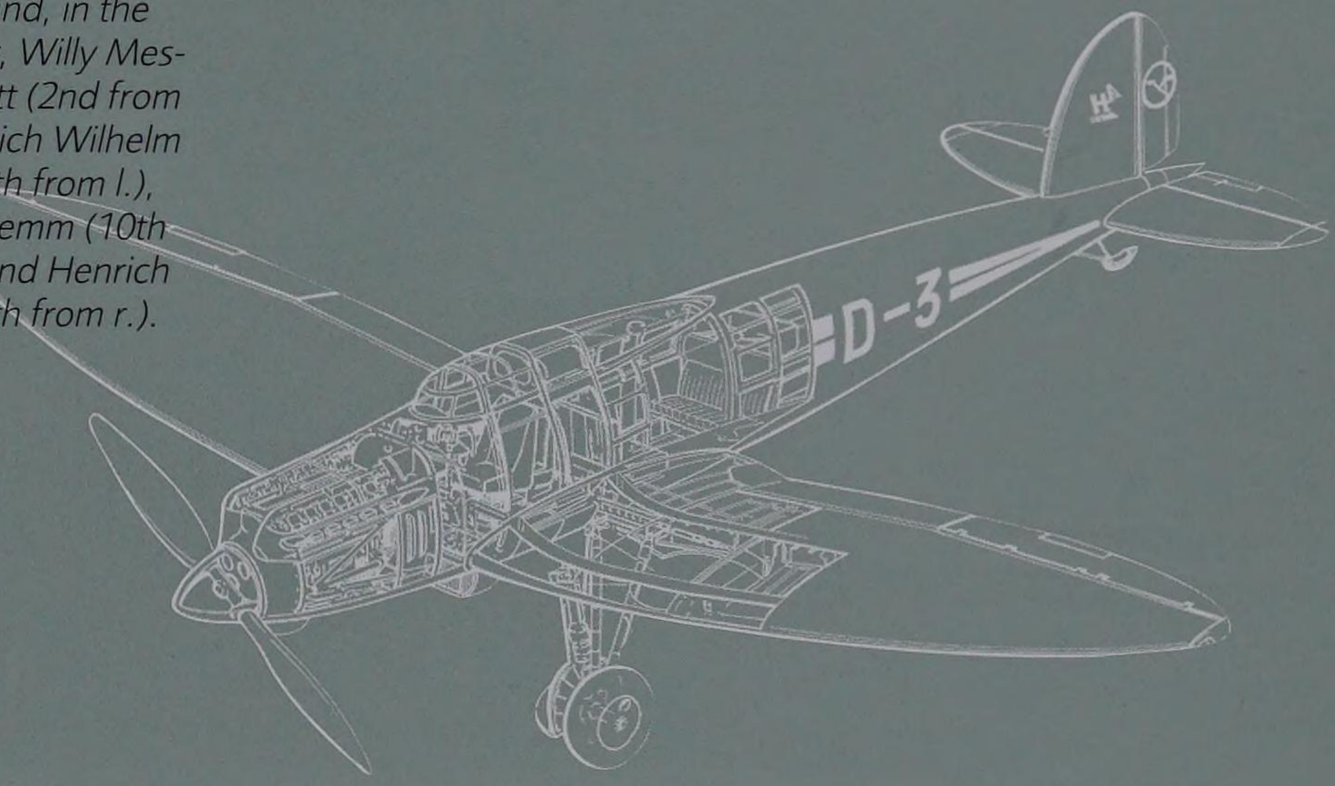
2.10.1931
First flight of the high-altitude research aircraft Ju 49 at Dessau. The Ju 49 was one of the first aircraft to have a pressurised cabin.

26.5.1932
The Farman 220-224 series consisted of heavy four-engine aircraft, originally designed as bombers, but then also used as the "Centaure" by Aéropostale and Air France on their South America routes. The Farman 220 set a new world altitude flight record.



◁ ***18.6.1932***
Confident that the low-wing design of his fighter aircraft represented the right concept, Émile Dewoitine released details of his D 500 in 1931, even before the French authorities had closed the tendering phase. His enterprise was rewarded with a production run of 400 aircraft.

1932
A meeting of the German aircraft manufacturers. The photograph shows, amongst others, in the front row Hugo Junkers (2nd from l.), Claude Dornier (4th from l.) and Ernst Heinkel (2nd from r.) and, in the back row, Willy Messerschmitt (2nd from l.), Friedrich Wilhelm Siebel (9th from l.), Hanns Klemm (10th from l.) and Henrich Focke (5th from r.).

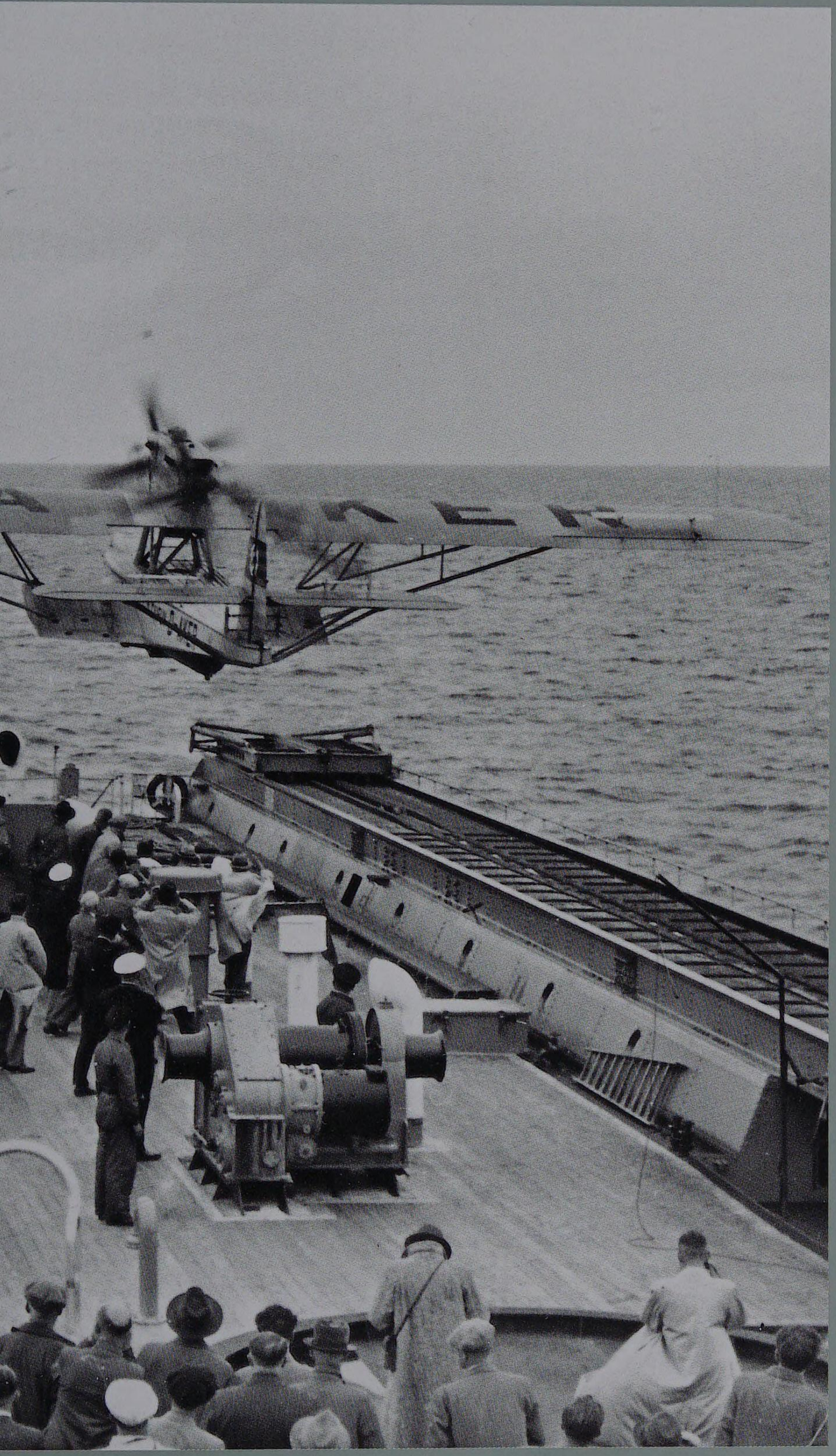


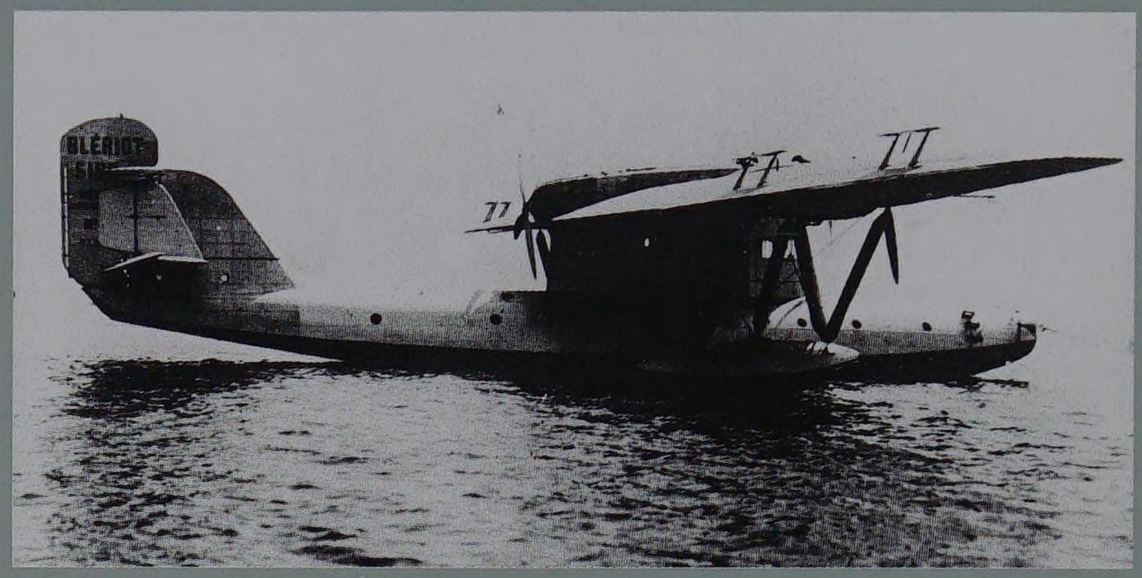
1.12.1932
The Heinkel He-70 takes off on its first flight. This was the first German aircraft with a retractable undercarriage. It soon became known as the "Heinkel Blitz" on account of its extremely high flight speeds.

29.5.1933
The first takeoff of a Dornier Wal from a steamship by means of a Heinkel catapult.

April 1933
The Breguet XIX Super Gran Raid "Cuatro Vientos" ("Four Winds"), an improved version of the aircraft and built under licence in Spain, leaves the CASA works. On 10 June, Captain Barberán and Lieutenant Collar take off from Sevilla to cross the Atlantic and reach Cuba after a 7,600 km flight.

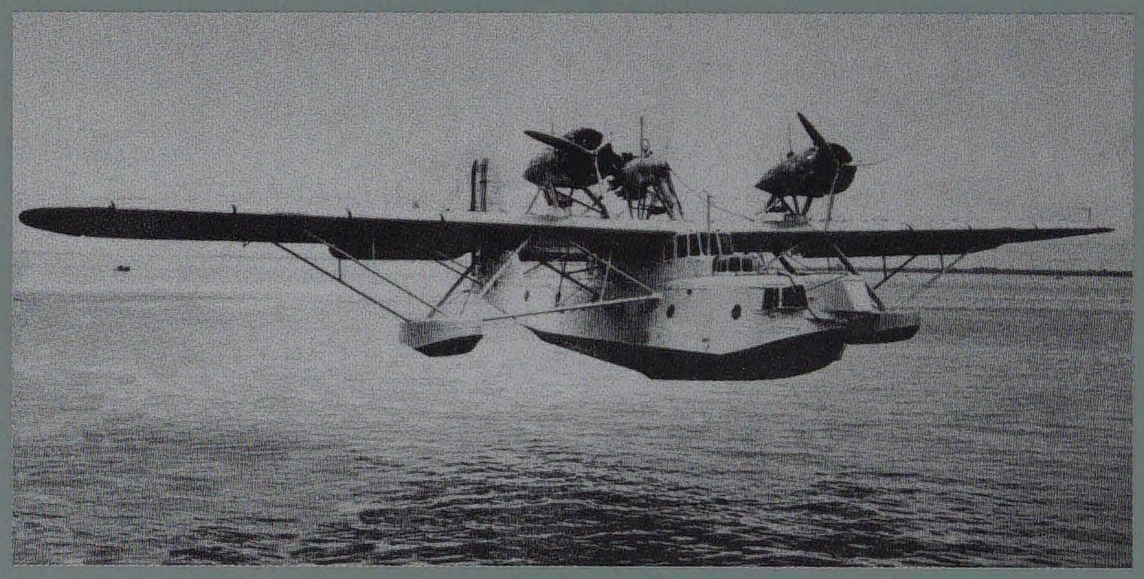
1933
The Potez 50 biplane, an aircraft constructed of wood and metal and equipped with a Gnome & Rhone 14K engine, broke the world altitude record several times: on 28 September 1933 piloted by G. Lemoine (13,661 m), on 23 June 1936 piloted by Maryse Hilsz (14,310 m) and on 14 August 1936 piloted by G. Detre (14,843 m).





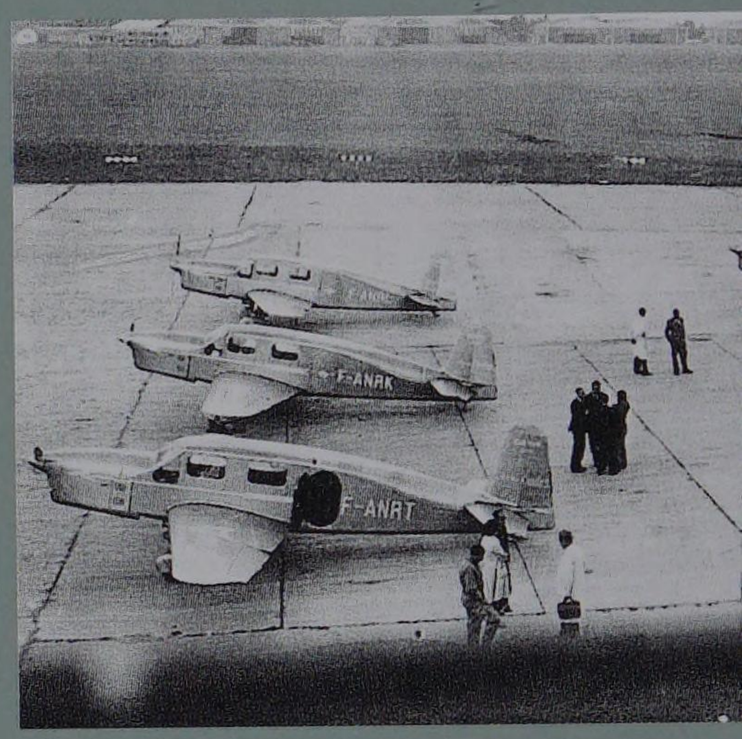
3.8.1933
The Bl-5190 flying boat "Santos Dumont" by was built by Blériot at Suresnes.

28.12.1933
The Loire 70, an aircraft originally designed for reconnaissance tasks, takes off on its first flight.



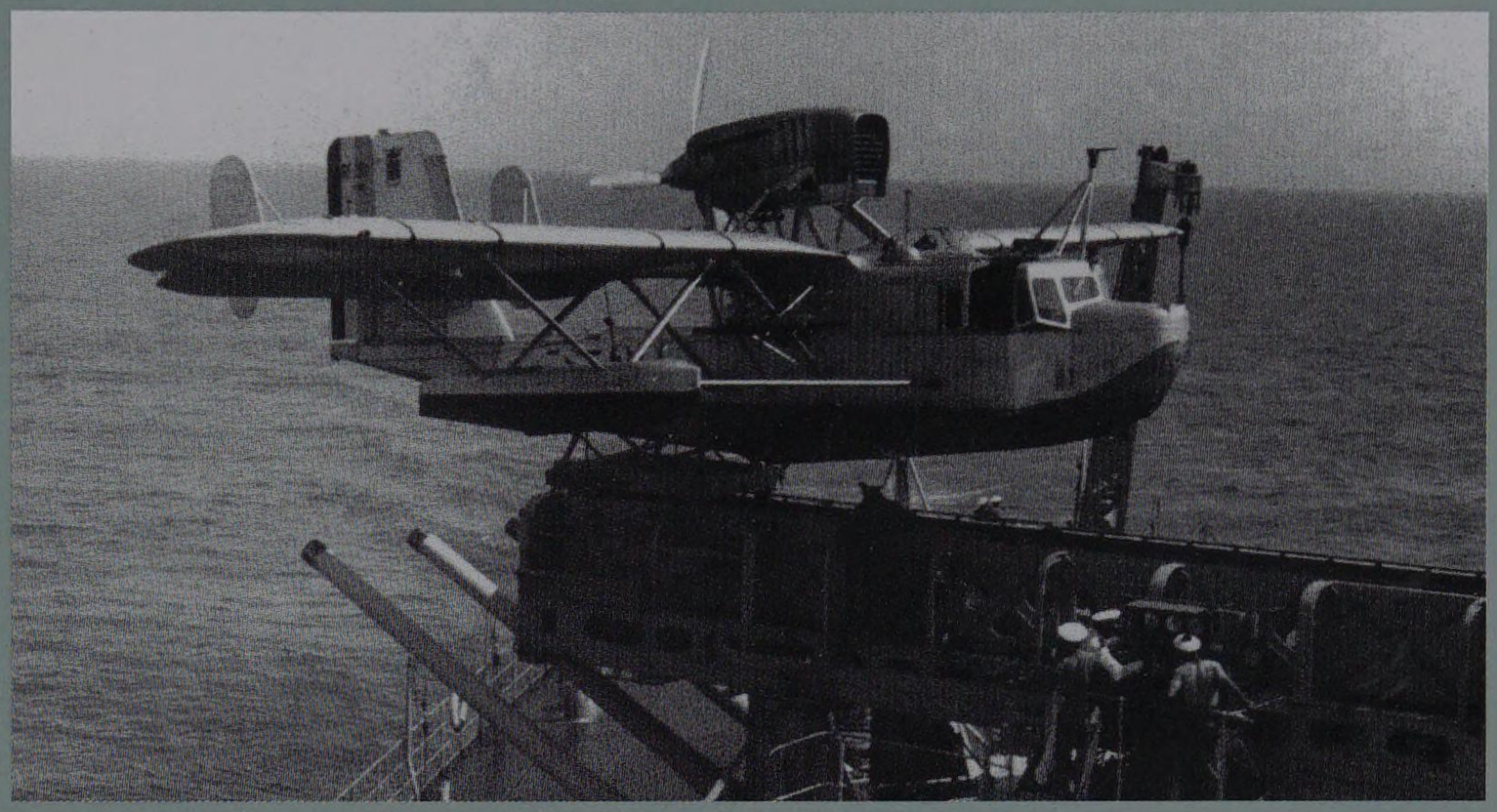
December 1933
The Farman 1020 was an experimental aircraft for studying the flight characteristics of large-surfaced wings. Henry Farman himself sat at the controls.

1934
The autogiro built by the Spanish aviation pioneer Juan de la Cierva, a combination of fixed-wing aircraft and helicopter, flies for the first time at Getafe in 1923. In 1934, the French company Lioré et Olivier receives a licence to produce the autogiro Cierva C-30.

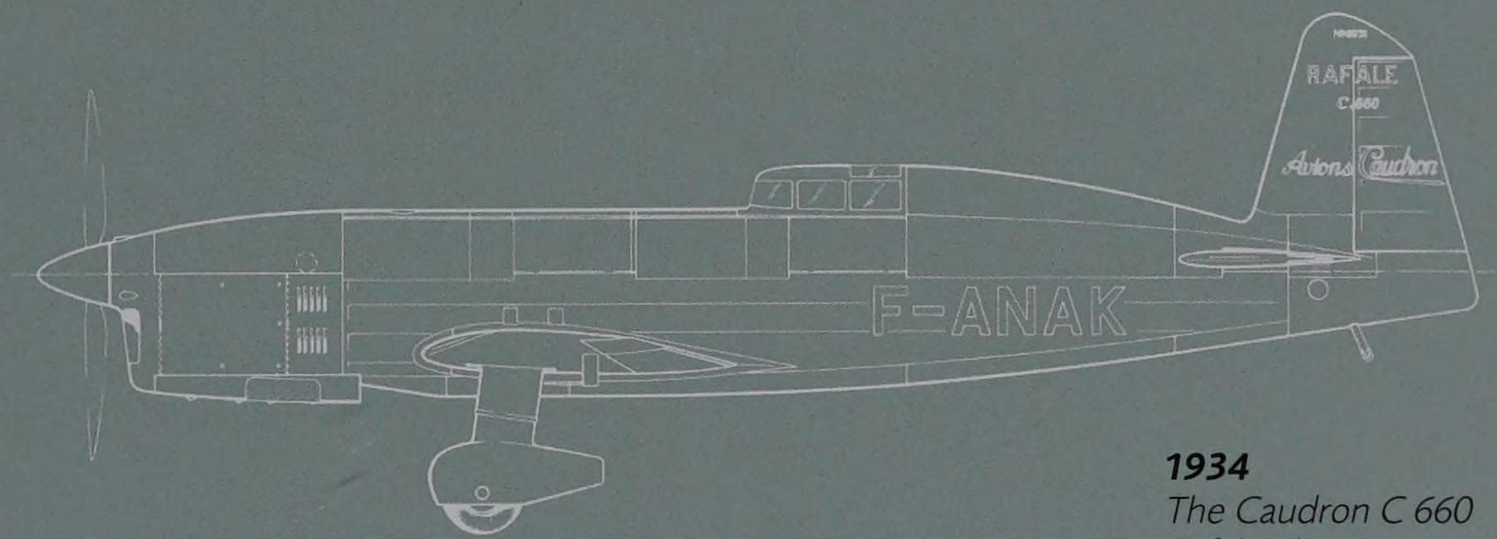


13.6.1934
First flight of the sports and touring aircraft Messerschmitt Bf-108 (later Me 108) "Taifun". The pioneer aviator Elly Beinhorn (seen here on a stopover in South Africa) also gave this aircraft its famous nickname. The Me 108 is the ancestor of all modern touring aircraft.

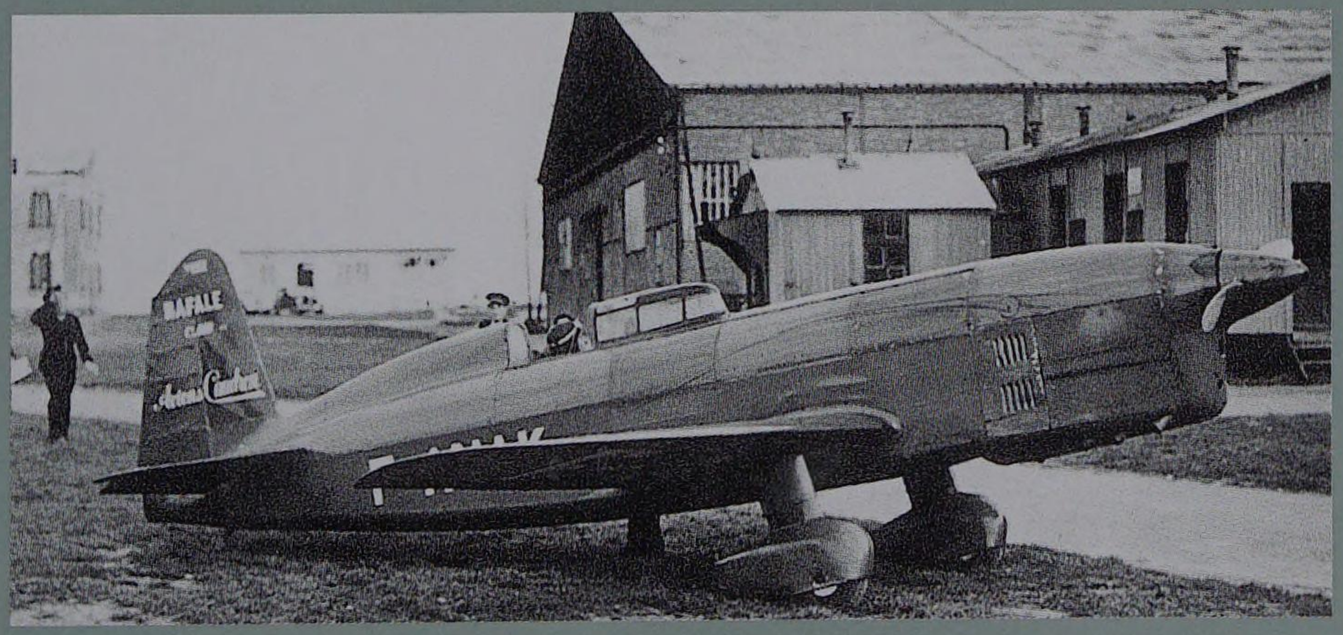
August 1934
The Caudron Simoun dominated its era: as a passenger aircraft (as seen in the photo), as a record-breaker (flown by Maryse Bastié and Saint-Exupéry), or as a trainer and military aircraft.



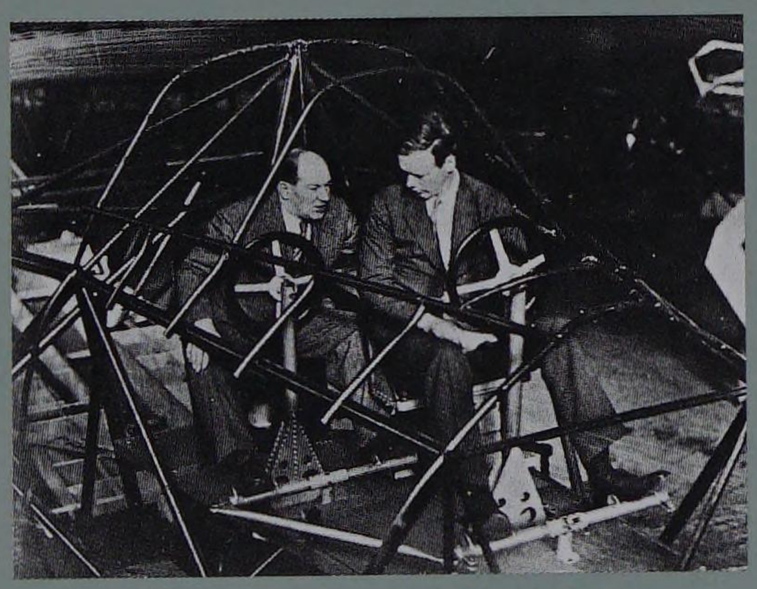
19.11.1934
A catapult takeoff sends the single-engine flying boat Loire 130 on its first flight. 124 units of this aircraft were built.



1934
The Caudron C 660 Rafale: this racer was predestined for numerous victories and speed records on account of its aerodynamic design.

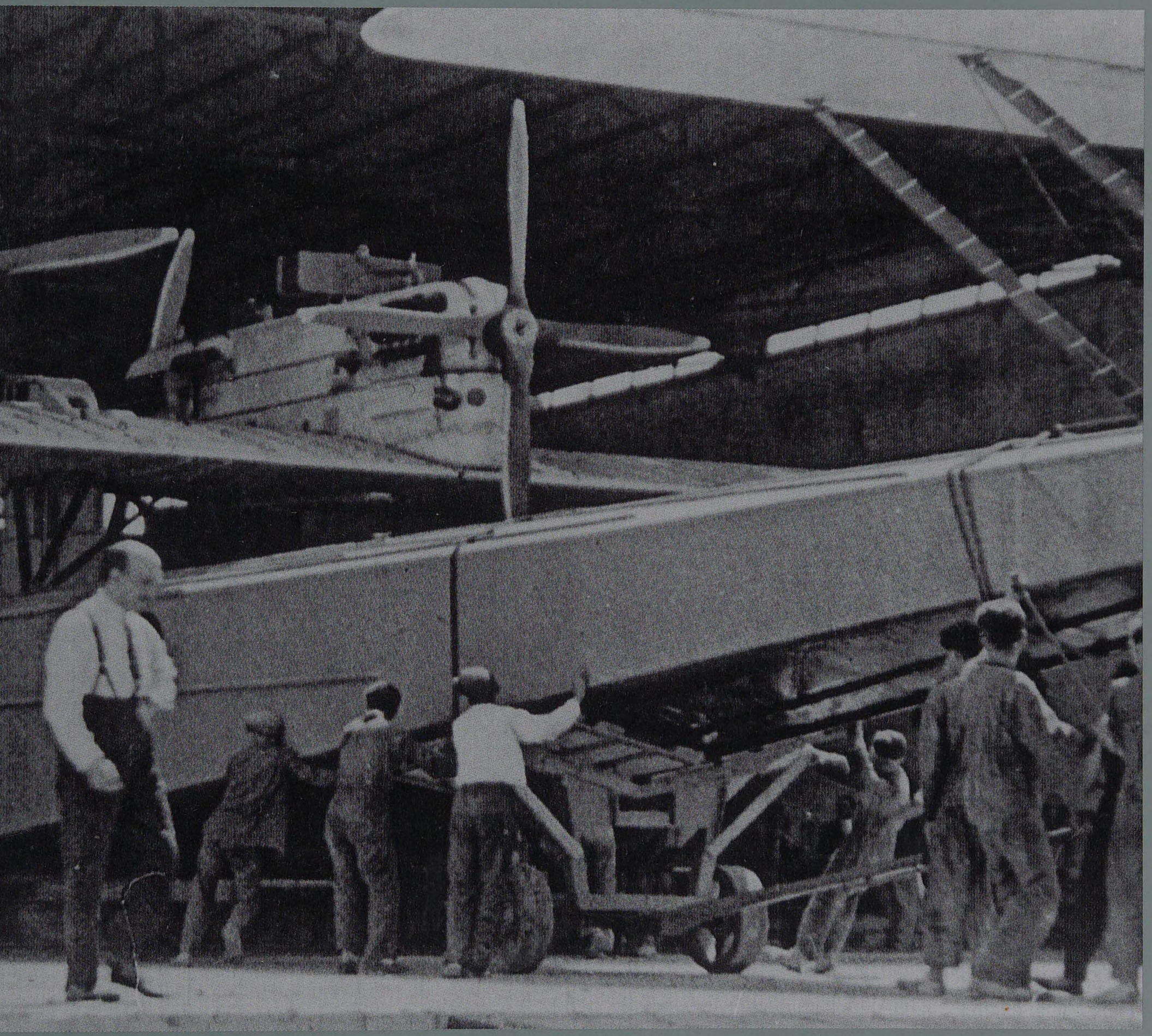


23.11.1934
The Do 17, also known as the "Flying Pencil" on account of its shape, takes off in Friedrichshafen on its first flight.



1934
Famous aviators having a tête-à-tête: Charles Lindbergh (r.) visiting Anthony Fokker.

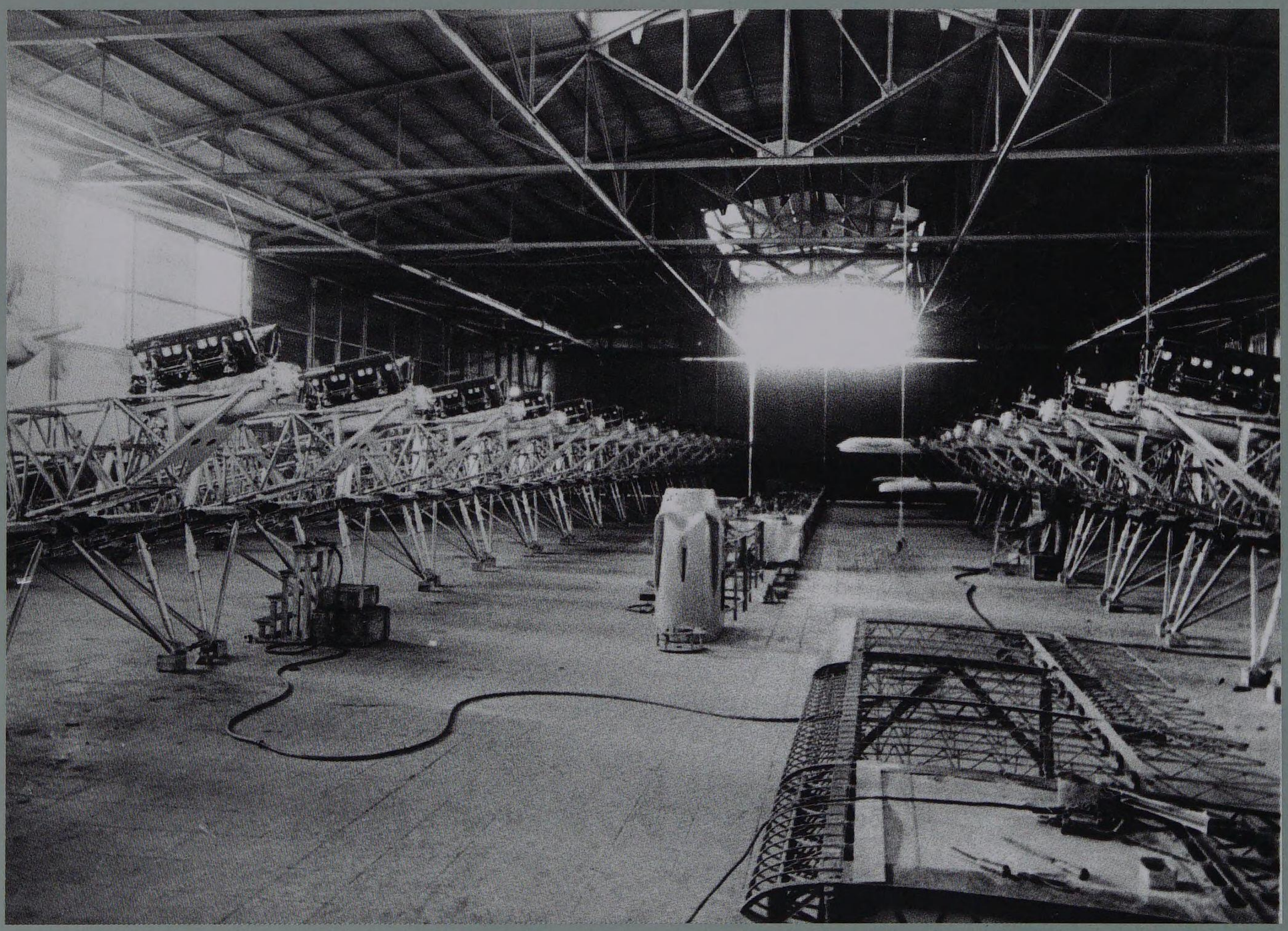
1934
The Nieuport-Delage 940 was a study for a flying wing and is considered to be a predecessor of delta-wing aircraft.

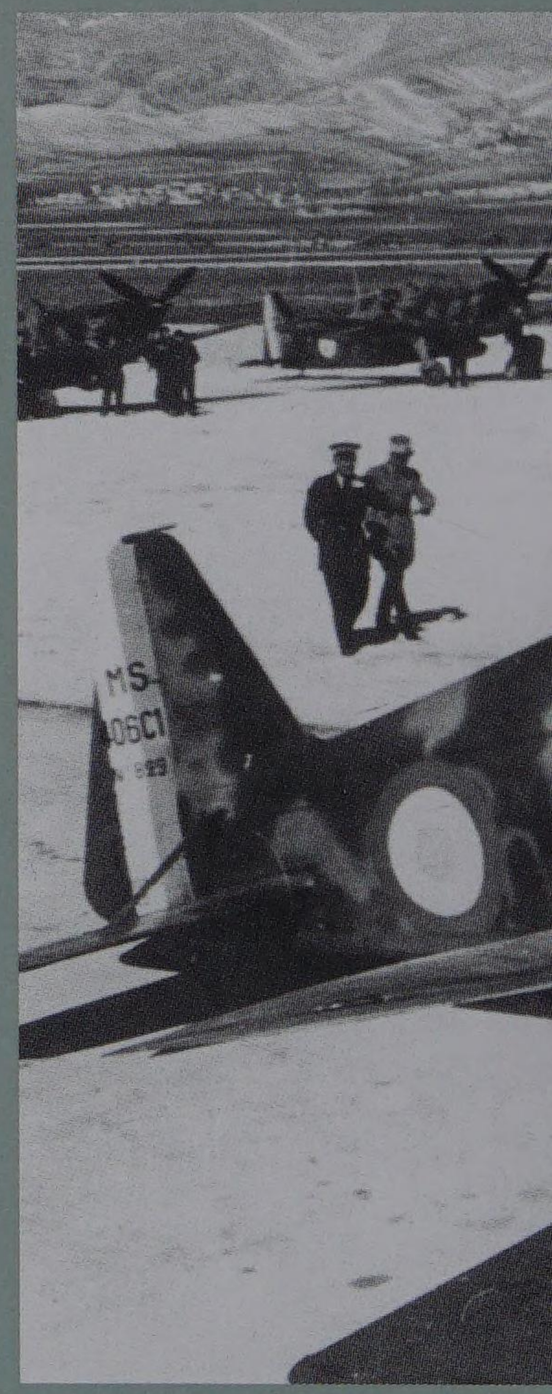


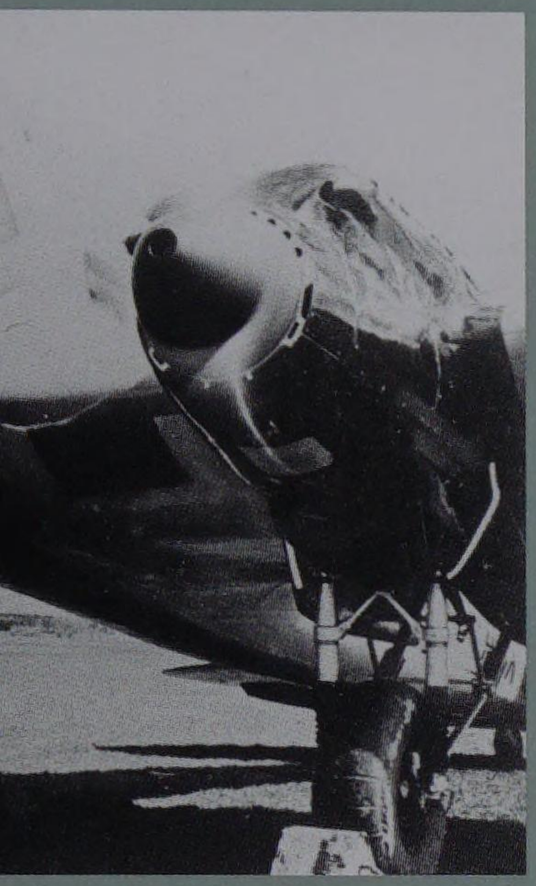
1934
Two Dornier Do J Wal having entered military service in Spain in 1929, a third aircraft of this type now enters service as a passenger aircraft, equipped with two Napier Lion engines. Don José Ortiz de Echagüe is to be seen in the foreground.

28.1.1935
Air France modernises its fleet by purchasing the Potez 62.

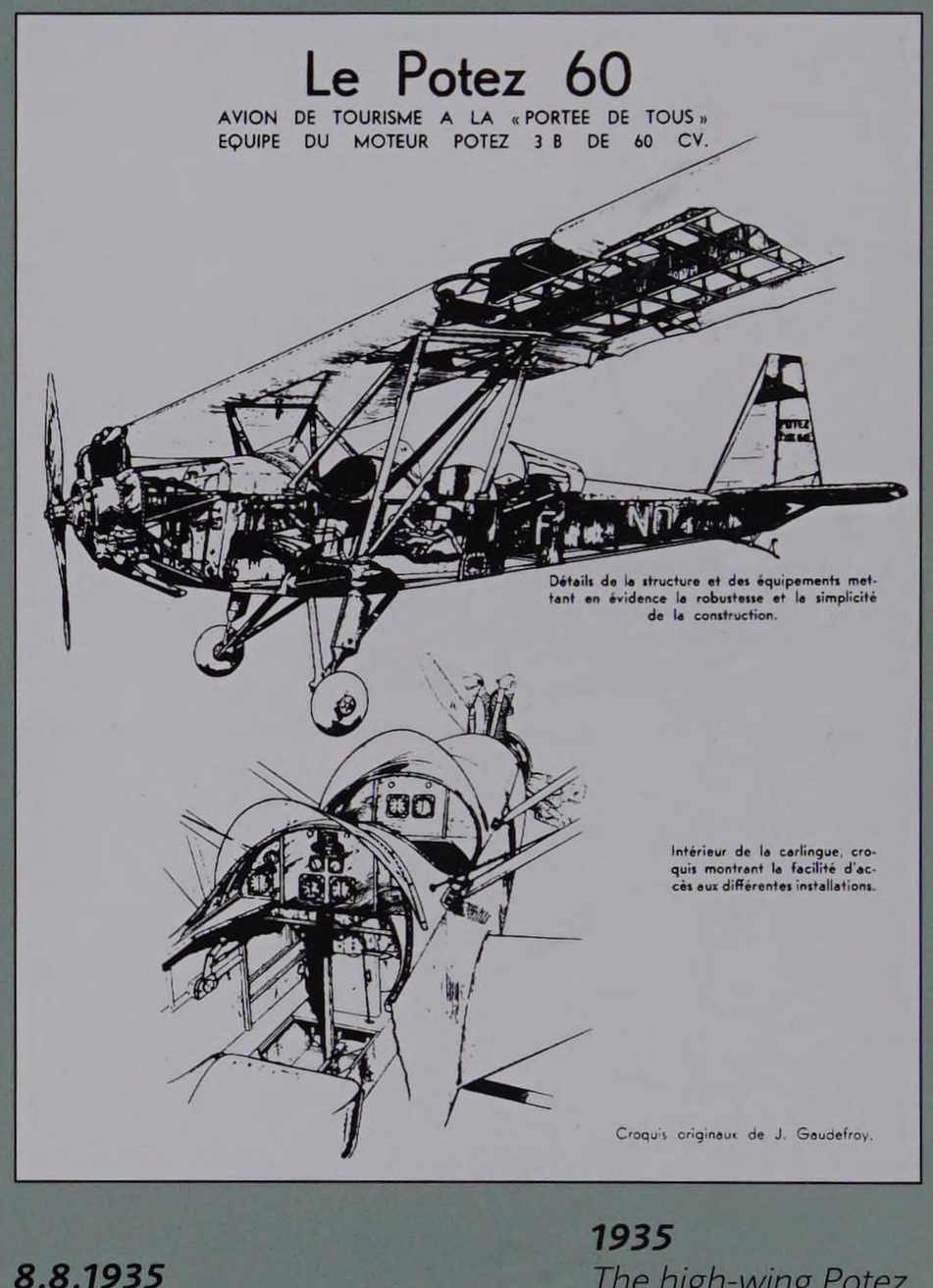
1935
The Vickers Vildebeest, a three-seater torpedo bomber built under licence at CASA, in the production hall at Getafe.







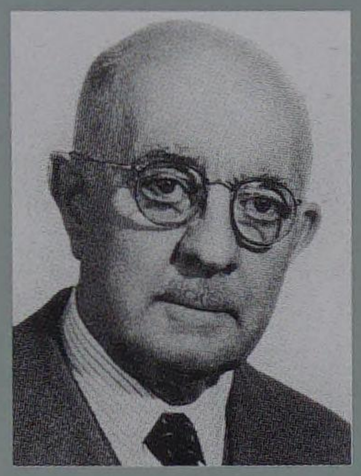
24.2.1935
First flight of the He 111, originally a fast commercial aircraft, later used as a bomber.



8.8.1935
First flight of the Morane-Saulnier MS 406 fighter aircraft. Subsequently, 1,098 units are built by Morane-Saulnier at their Nantes works, most of the production being destined for the French Air Force, but some aircraft also being exported to nine other countries.

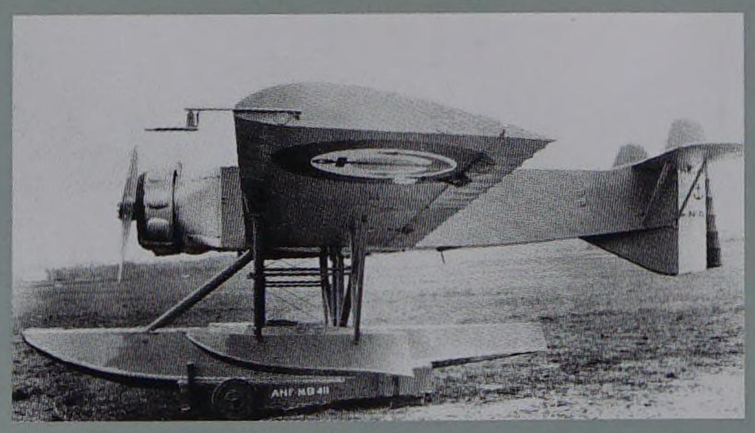
1935
The high-wing Potez 60 was a sports and training aircraft. Because of its low price, it was to become an ideal plane for aeroclubs, 156 units being built.

8.6.1935
Victor Chavarri Anduiza was to head CASA from 1935 to 1966.



29.8.1935
The three-engine passenger aircraft Dewoitine D 338 completes its first flight.

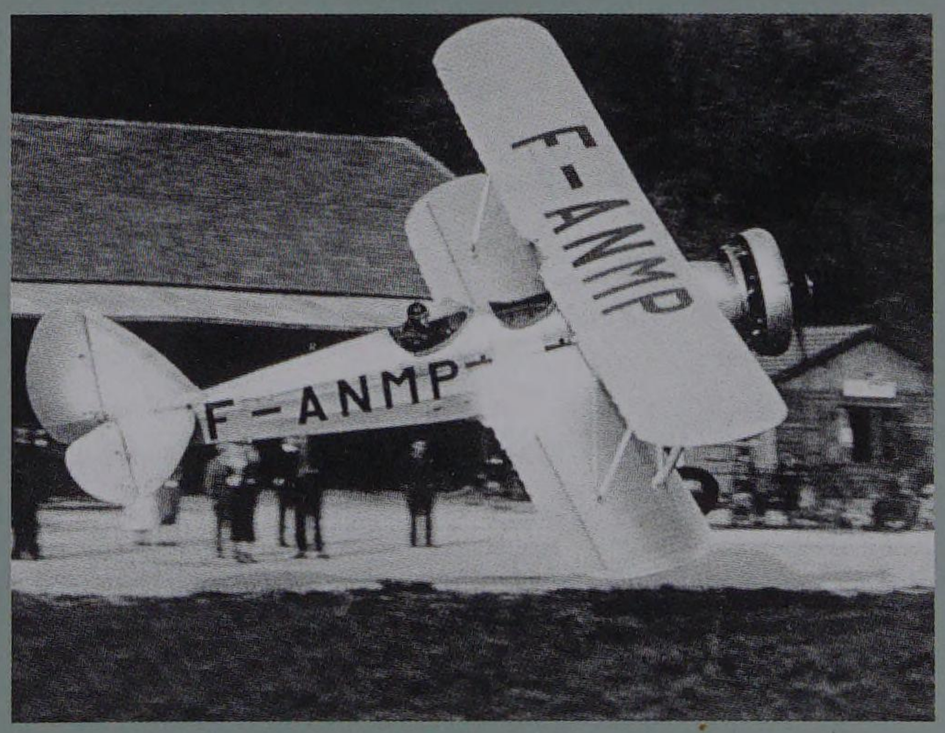
28.8.1935
First flight of the Messerschmitt Bf 109 (later Me 109), of which a record 35,000 were built. The photo right shows a production aircraft from the E series, equipped with a Daimler-Benz DB-601-A engine. Above, the first prototype, fitted with a Rolls-Royce Kestrel II engine. The "109" was mainly delivered with engines from Daimler-Benz, but the Junkers-Motorenwerke did supply some of their "Jumo" engines for this aircraft.



1935
The ANF-Mureaux 411 was a spotter seaplane derived from Marcel Besson's MB 35. It had foldable elements, enabling stowage on board the largest submarine of its day, the "Surcouf". Three of these aircraft entered service.

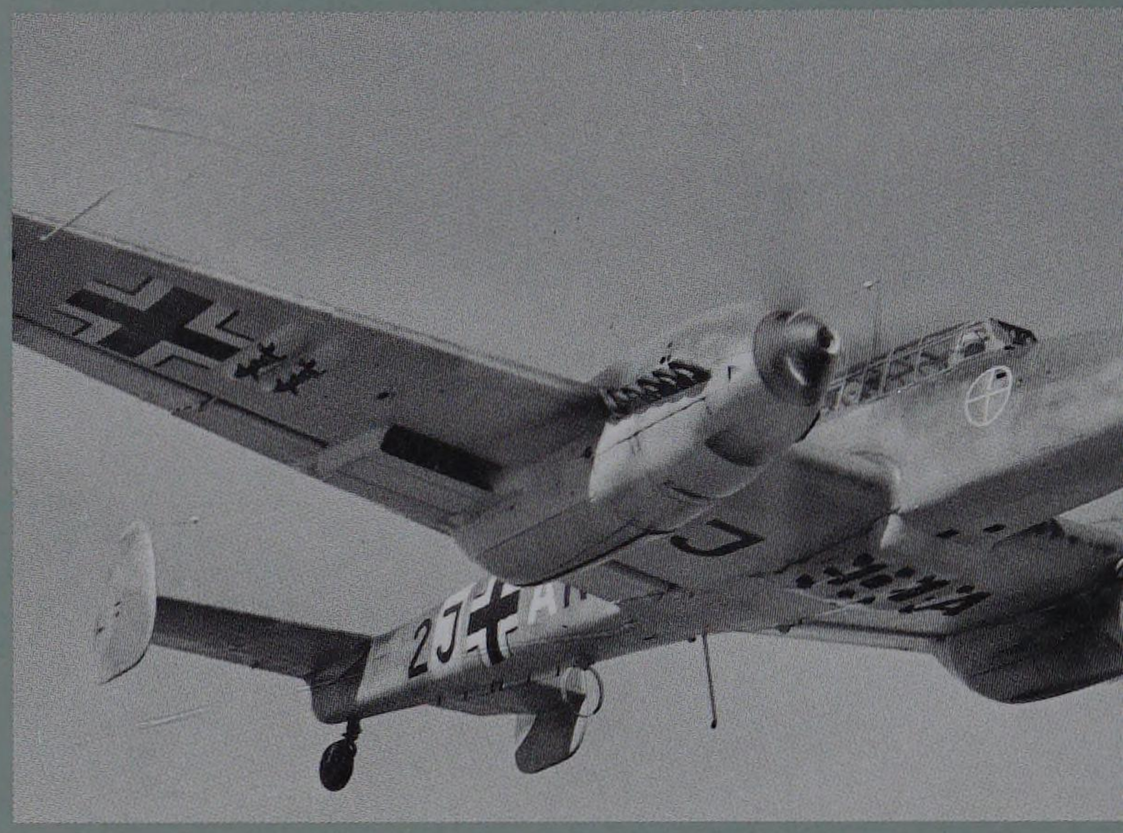
17.9.1935
The Junkers Ju 87 "Stuka" dive bomber takes off on its maiden flight from Dessau. Series production predominantly took place at Weserflug in Lemwerder.

1935
The first French Caudron Goéland enters service with Air France.

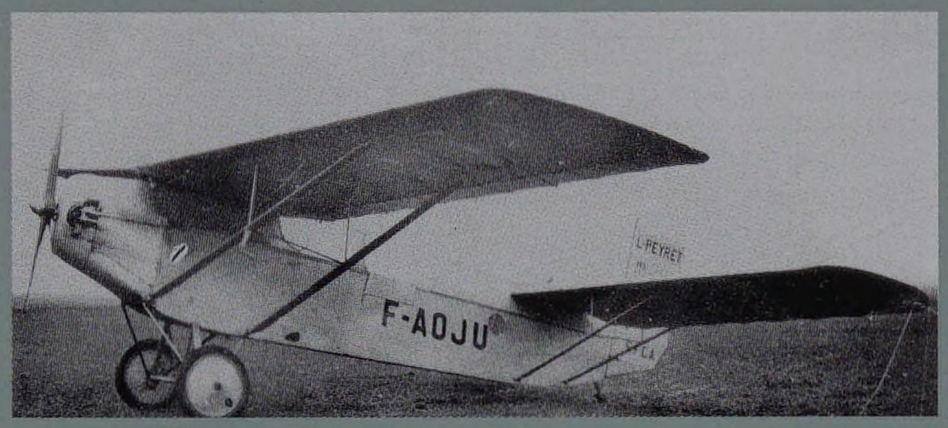


1935
Étienne Romano achieves fame with the R80 aerobatics biplane built at his CAER plant. It enters series production (190 units) and sees operational service with the French Air Force and Naval Air Arm as well as in Spain.

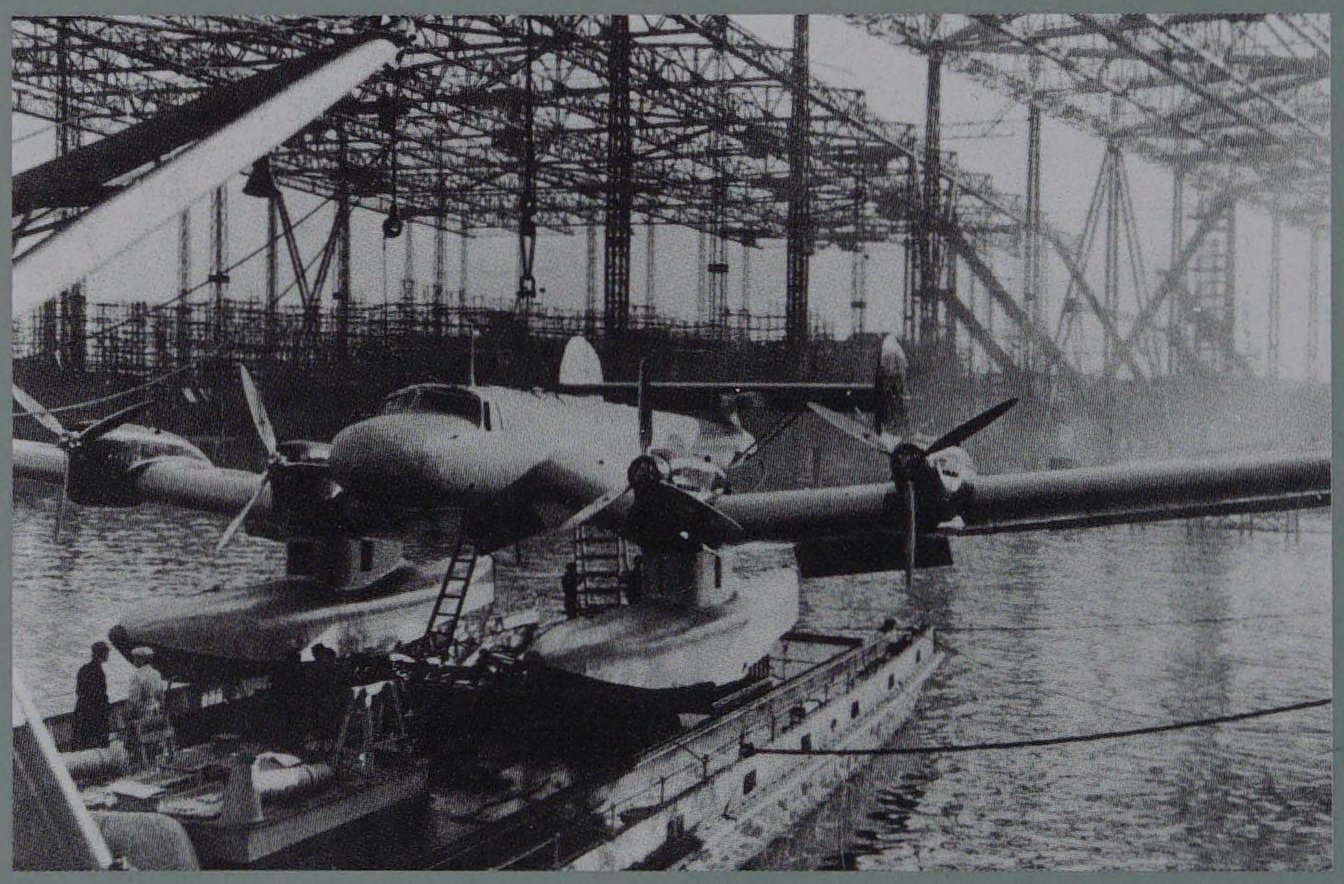
12.5.1936
First flight of the Me 110, powered by Jumo 210 B engines. From 1939 on, this aircraft was powered by Daimler-Benz DB 601 A engines.



March 1936
First flight of the Peyret Taupin. This experimental tandem-wing construction was designed by Peyret, a foreman at the Blériot works.



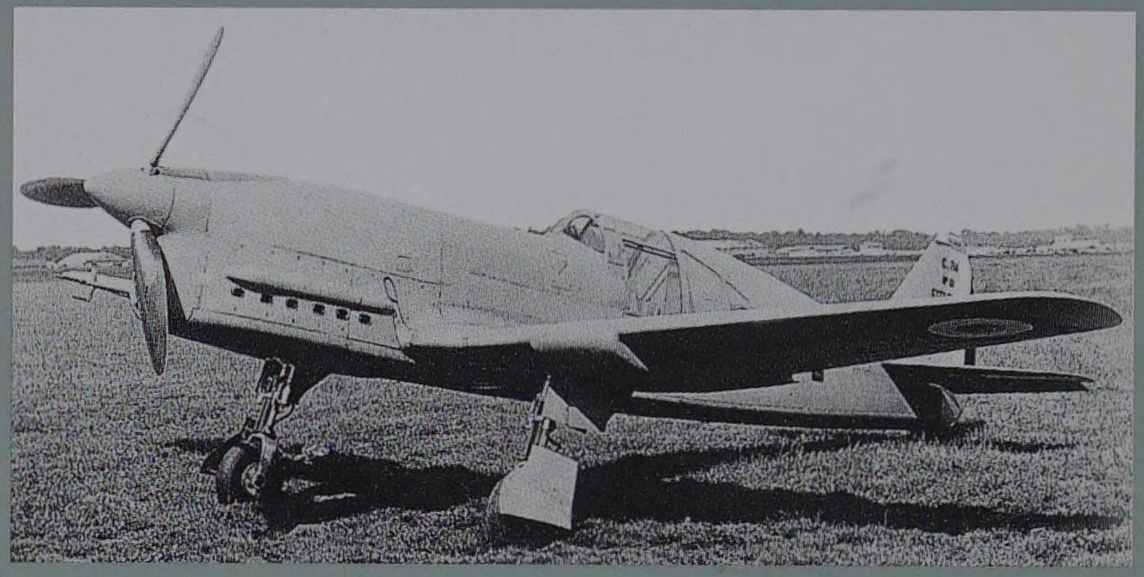
25.4.1936
The Potez 63-11 was a three-seater standard reconnaissance aircraft deployed by the French Air Force during World War II. It had a production run of 1,098 units and was exported to six countries.



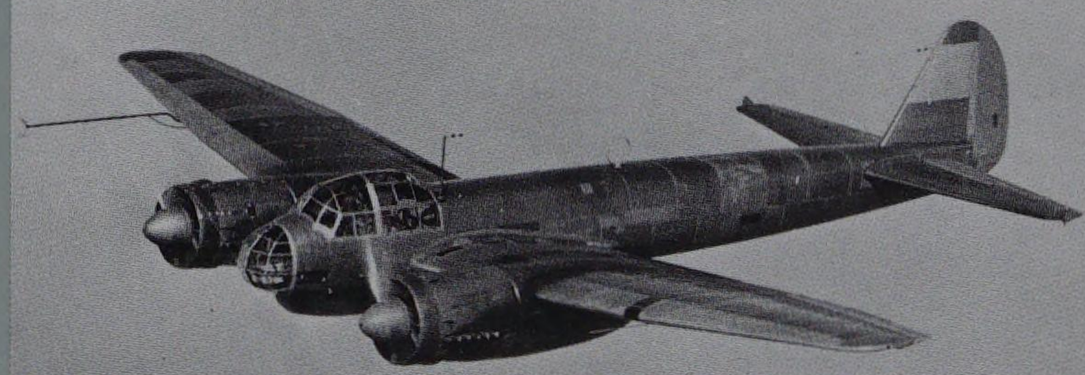
14.7.1936
The long-range reconnaissance flying boat Ha-138, built by Hamburger Flugzeugbau at Hamburg-Finkenwerder, flies low over the water on its maiden flight. In October, there followed the Ha-139, seen in the photo above on a floating dock at the Blohm & Voss yards in Hamburg.

26.6.1936
Hoykenkamp near Bremen: lift-off for the Focke-Wulf Fw-61, the world's first really manoeuvrable helicopter.

18.7.1936
The Caudron C710 was a light fighter aircraft that also saw service with the Polish and Russian air forces.

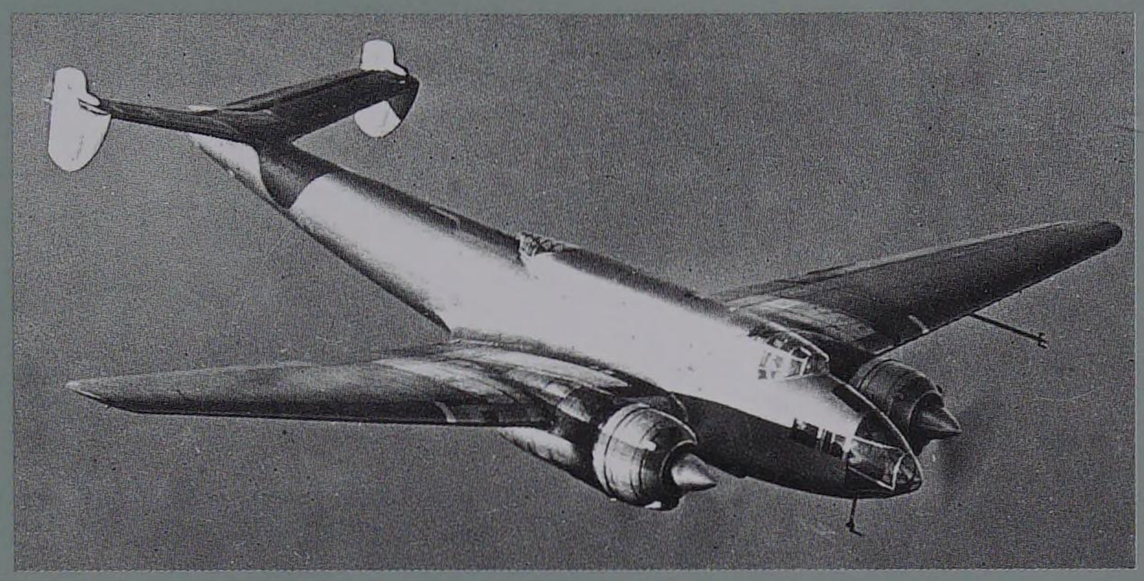


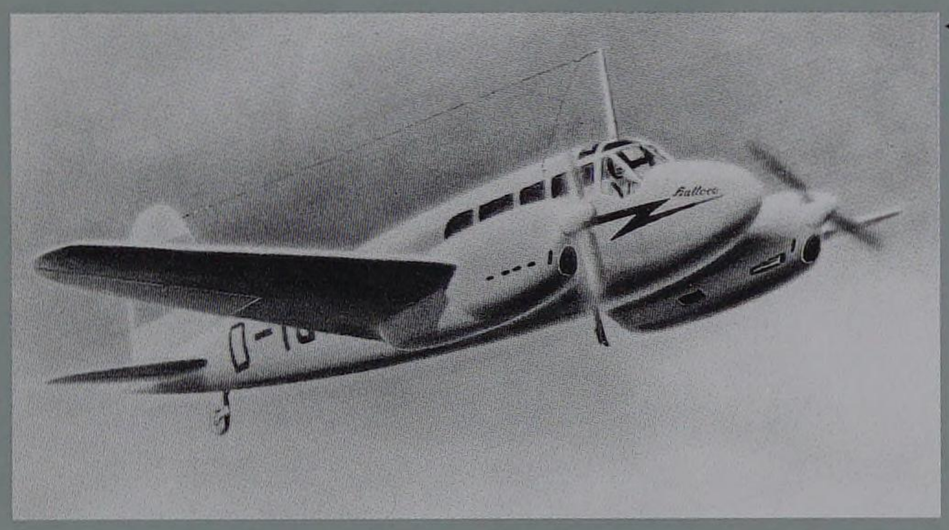
21.12.1936
First flight of the Ju 88 at Dessau. With the order for 15,000 units, the hitherto largest German procurement programme began.



1936
Nationalisation of the French aeronautics industry: formation of the companies SNCAC (Société Nationale de Constructions Aéronautiques du Centre), SNCASE (Société Nationale de Constructions Aéronautiques du Sud-Est), SNCAO (Société Nationale de Constructions Aéronautiques de l'Ouest), SNCAN (Société Nationale de Constructions Aéronautiques du Nord), SNCASO (Société Nationale de Constructions Aéronautiques du Sud-Ouest) and SNCAM (Société Nationale de Constructions Aéronautiques du Midi). Here a view of the SNCASO plant at Villacoublay.

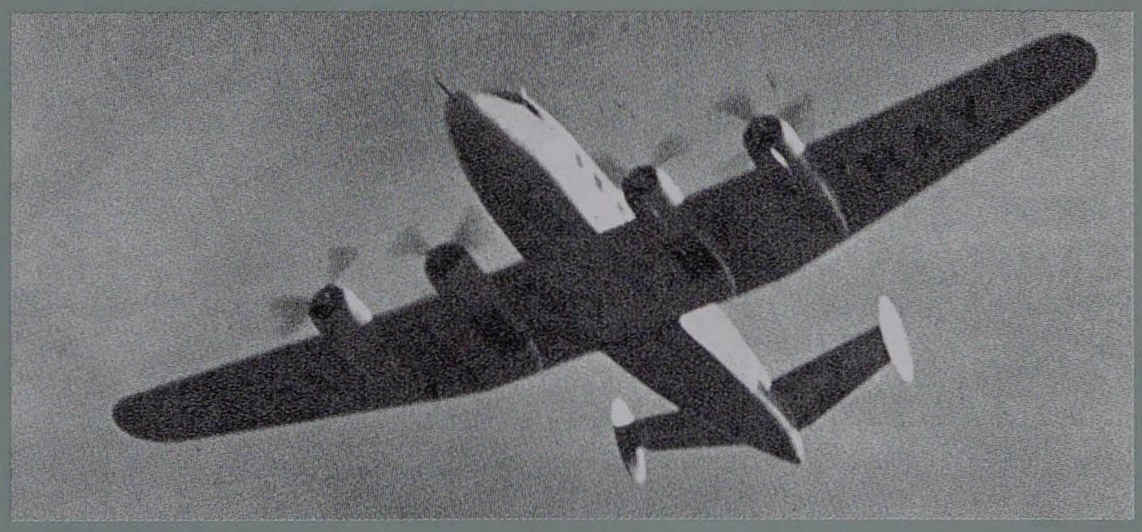
16.1.1937
The Lioré et Olivier LeO 45 was the most effective French bomber of World War II. It subsequently saw extensive use as a flying testbed.

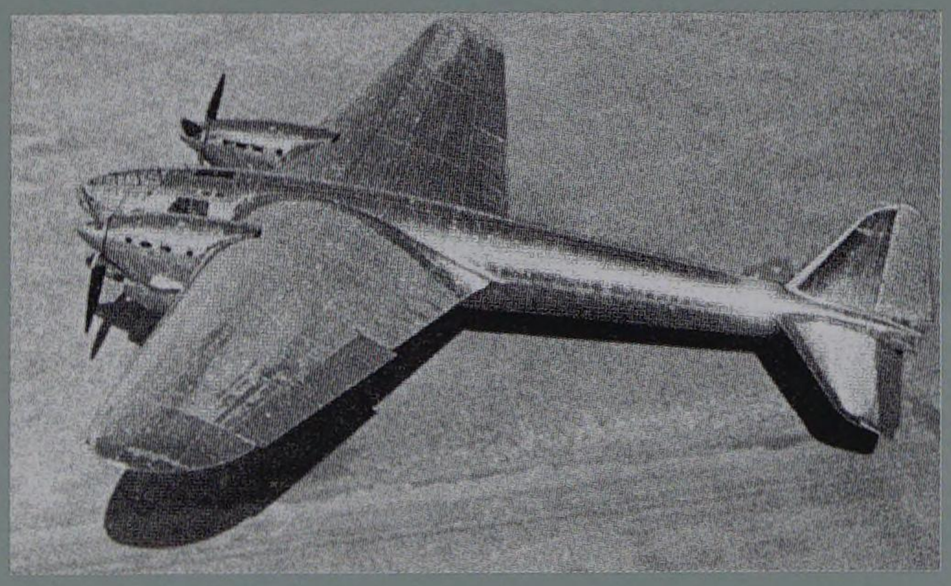




◁ ***25.2.1937***
The Siebel FH-104 takes off from Halle on its first flight. Thanks to a number of records, this German five-seater commercial aircraft also became internationally well-known.

1937
The Potez 661 was a four-engine civil transporter flown by two pilots and capable of carrying twelve passengers. It was in service with Air Afrique.





1937
The Amiot 370 was of a very elegant design and set eleven long-distance flight records.

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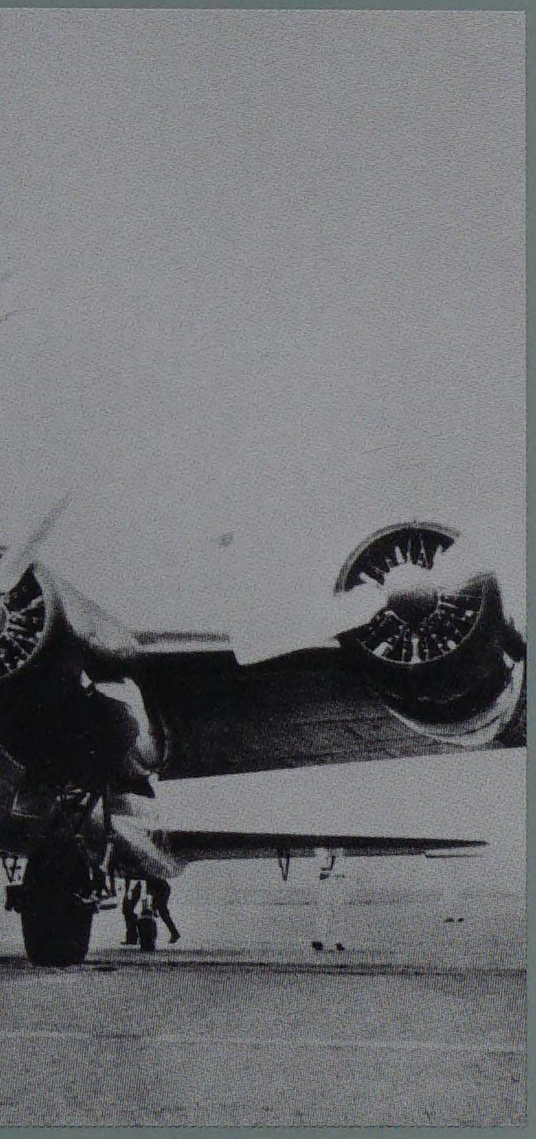
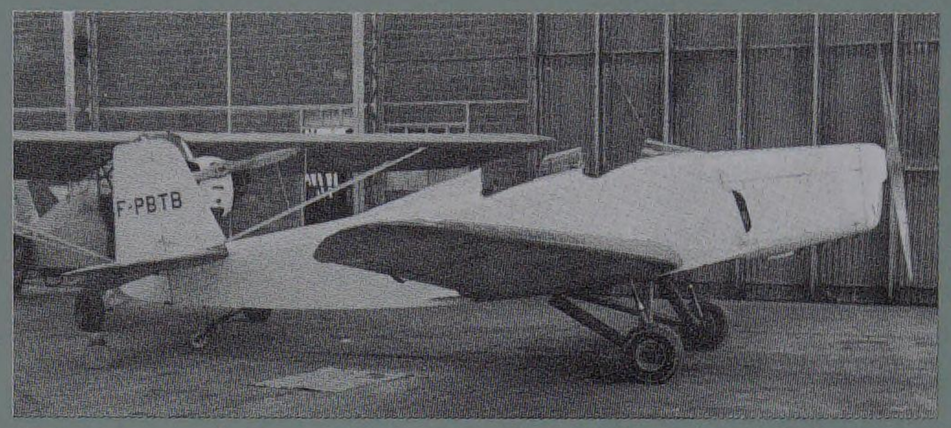
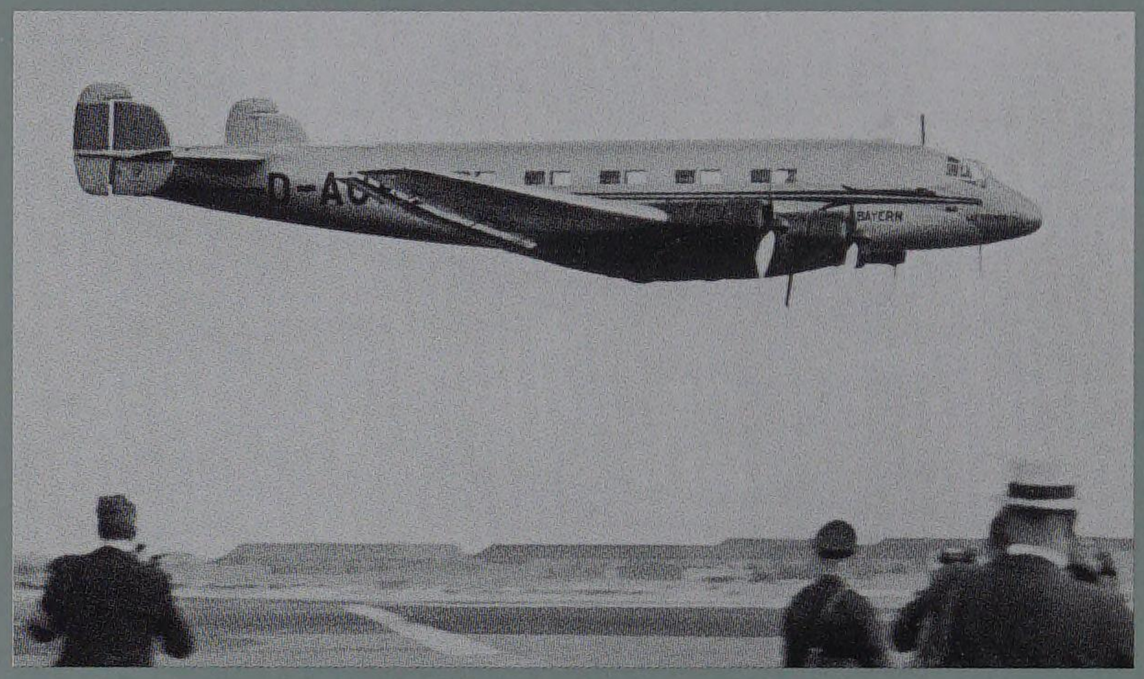
1937
The Dewoitine D 376 was an early fighter with foldable wings.



27.7.1937
First flight of the Focke-Wulf Fw-200 "Condor", developed at Bremen within a space of only twelve months and eleven days. This aircraft, which was designed under the supervision of Kurt Tank, was seen as a model for modern passenger aircraft.



1937
98 of this Maubous-sin 120 C light aircraft were built, some of which are still flown today.



28.8.1937
First flight at Dessau of the Junkers Ju 90, a commercial aircraft seating more than 40 passengers. It was fitted with a variety of engines, including the Jumo 211 and the BMW 132.

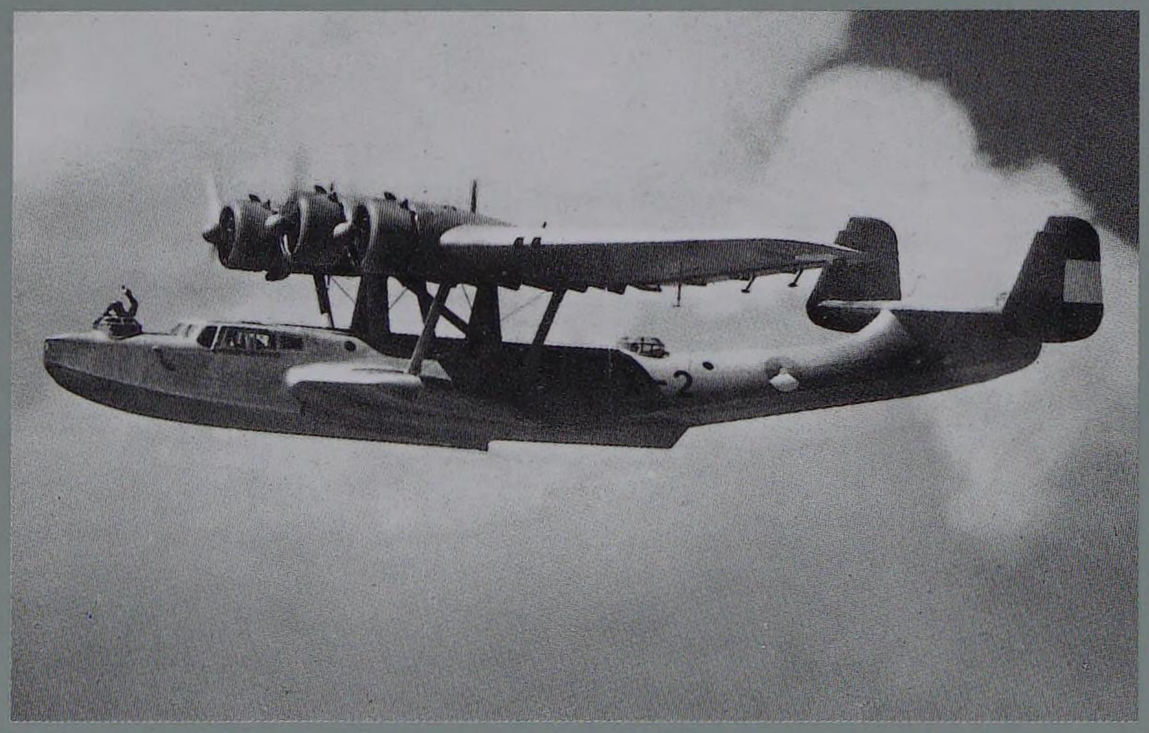
July 1937
CASA builds the Russian fighter biplane Polikarpov I-15 under licence.

11.11.1937
The German test pilot Dr. Hermann Wurster (3rd from l.) sets a world speed record by reaching 611 km/h in the Me 109.

21.5.1938
First flight of the Do 26, which was specially developed for the North Atlantic airmail routes of Deutsche Luft Hansa. It met the requirement for an aircraft that could fly the 5,600 km route from Lisbon to New York without a touchdown. Four Junkers engines – two pairs arranged in tandem – ensured a range of 9,000 km at a cruising speed of 310 km/h.

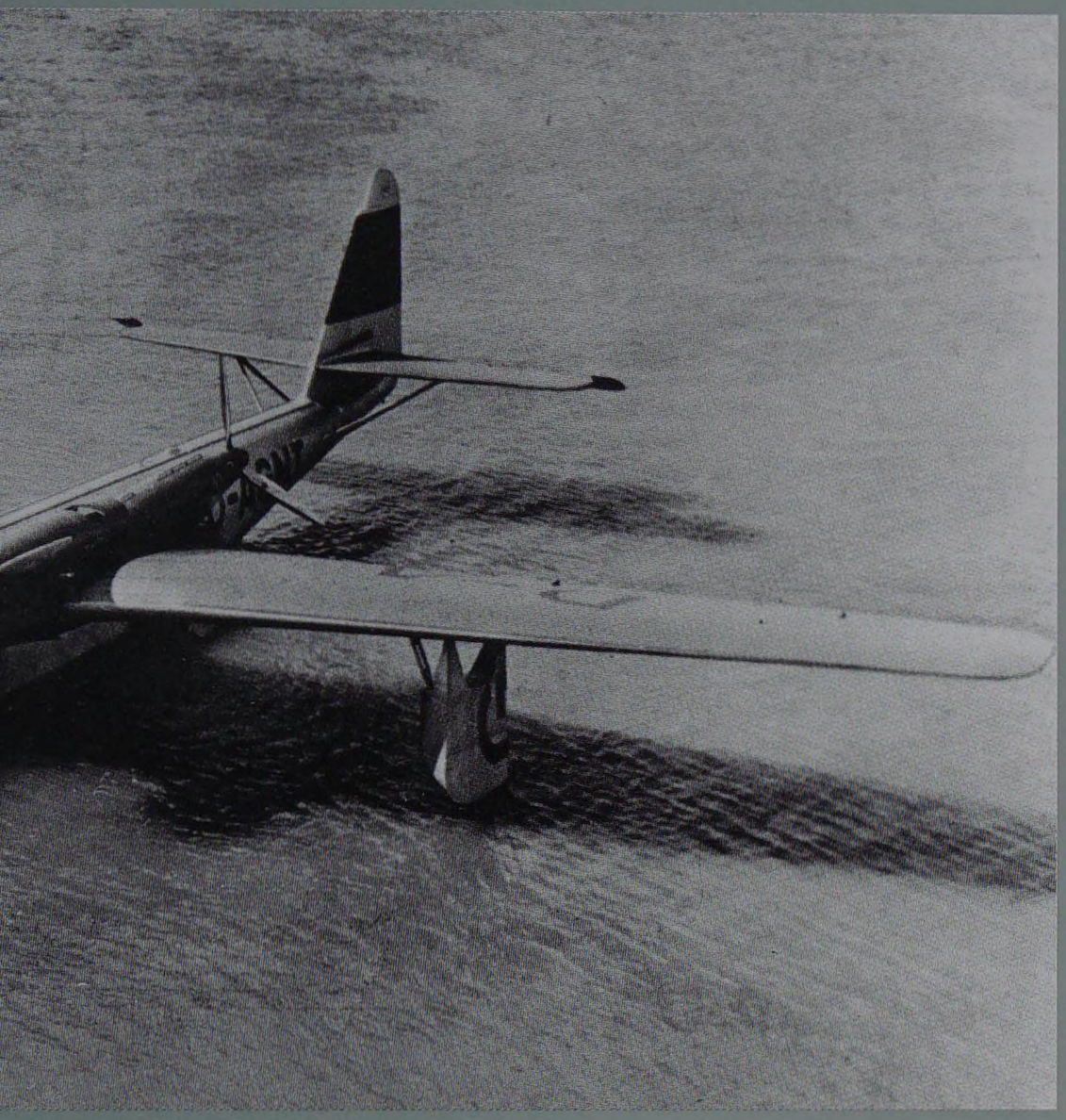
22.2.1938
Heinkel's equivalent to the Me 109, the He 100, completes its first flight.

5.6.1938
In a Heinkel He 100 A, the German pilot Ernst Udet raises the landplane speed record to 635 km/h. The cartoon, drawn by Udet himself, shows Ernst Heinkel congratulating him on his record.

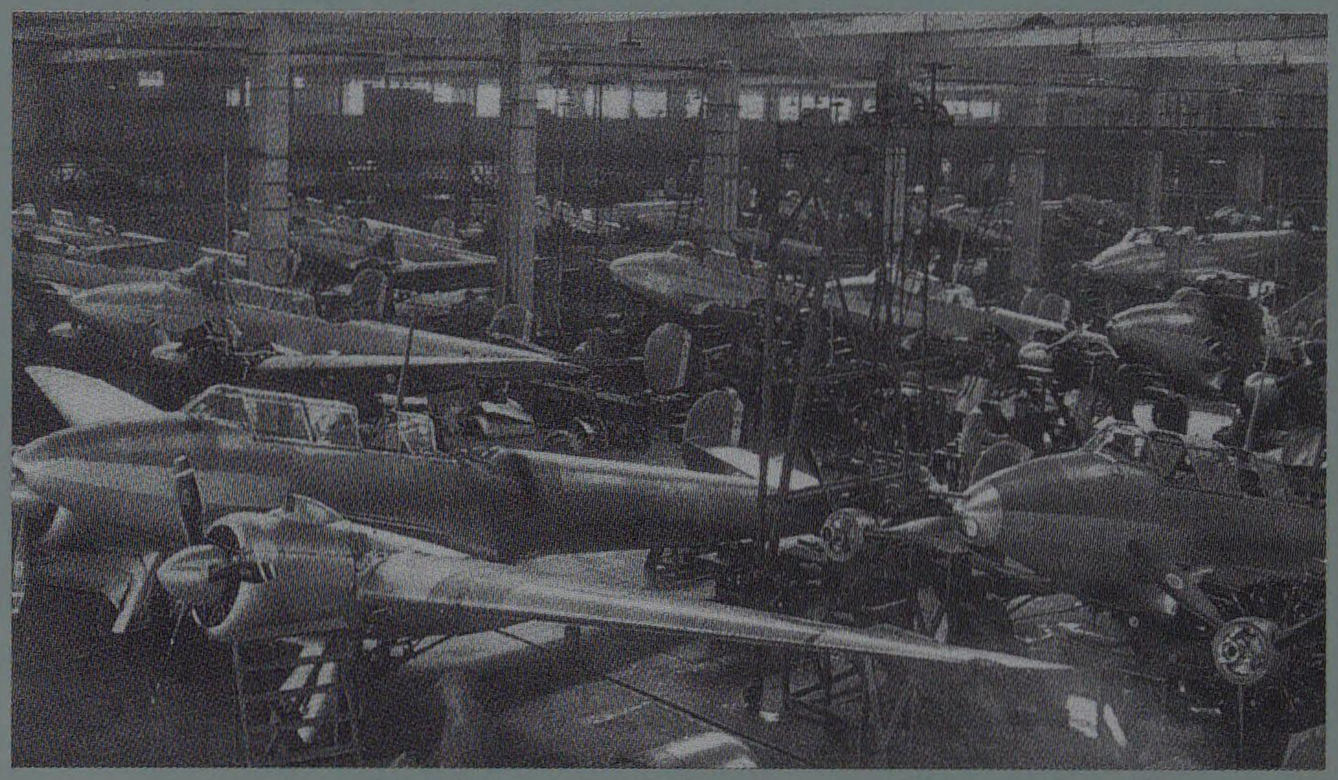


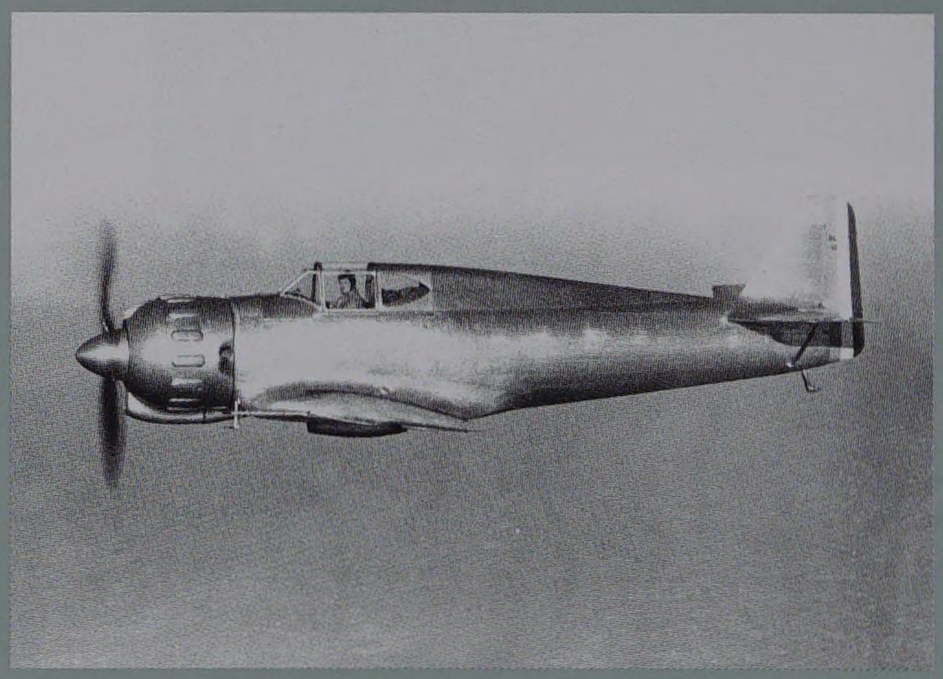
April 1938
Licensed production of the Do 24 begins at Aviolanda and De Schelde in the Netherlands.

2.10.1938
First flight of the Dewoitine D-520 fighter. By 1944, this is to become France's most built combat aircraft.



1938
Series production of the Potez 63 starts at Méaulte in northern France.



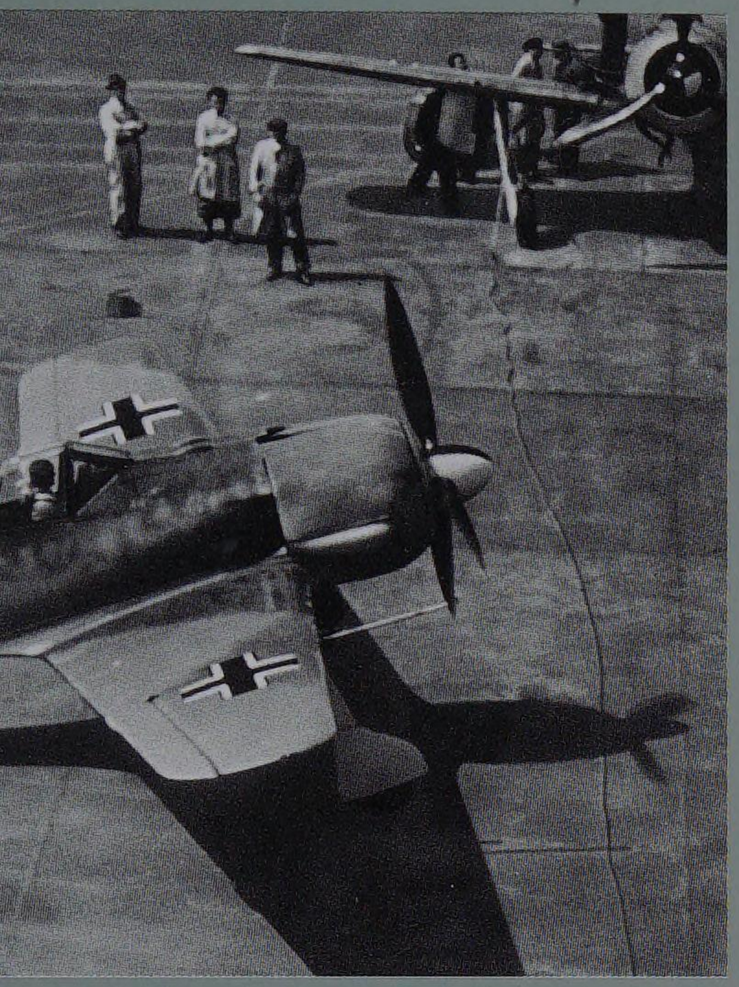


15.12.1938
The MB 152, which originated from the French designer Marcel Bloch, completes its maiden flight. In the photo: the MB 152 c. By the outbreak of war, however, only one squadron of the French Air Force had as yet been equipped with this aircraft.

19.2.-6.3.1939
Berlin: the German aviator Hanna Reitsch (seen in the small photo second right) performs 18 hover flights in the Fw 61 at the Deutschland-halle.

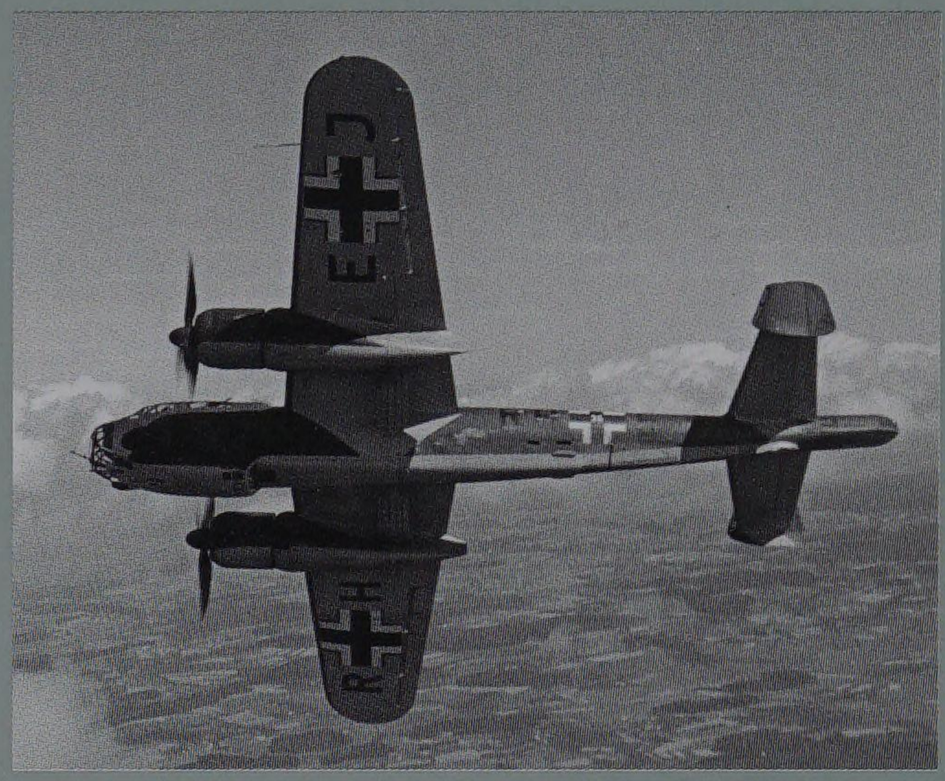
26.4.1939
Willy Messerschmitt congratulates company pilot Fritz Wendel on the new speed record. The 755 km/h reached by the Me 209 was not surpassed until 1969.

24.5.1939
First flight of a VG-33 developed by Arsenal at Villacoublay. Arsenal de l'Aéronautique was set up in 1936 as an industrial undertaking of the French armed forces.



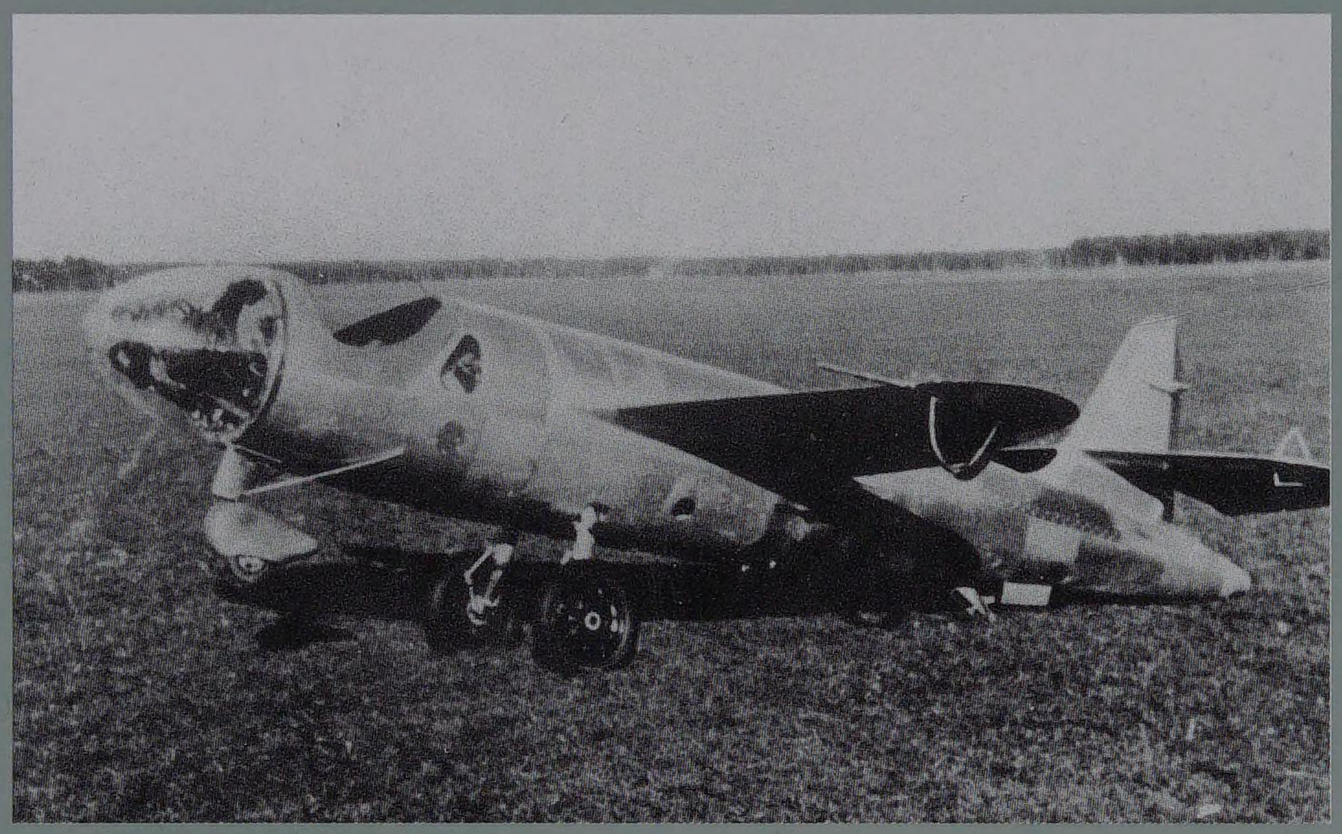
1.6.1939
Bremen: the Focke-Wulf Fw 190 takes off on its first flight with Hans Sander at the controls. 20,000 of this aircraft were produced.

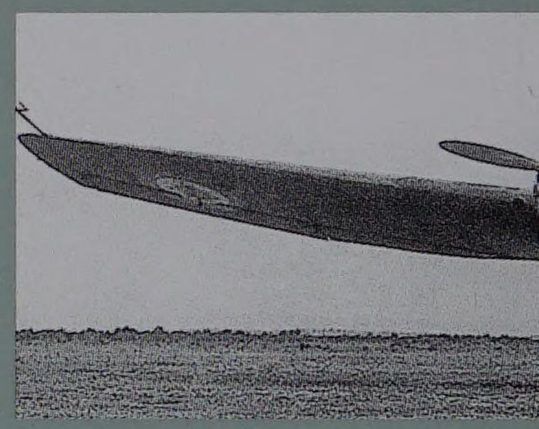
10.6.1939
First flight of the Do 217, which was built from seven easily replaceable major components, thus guaranteeing fast and problem-free maintenance.

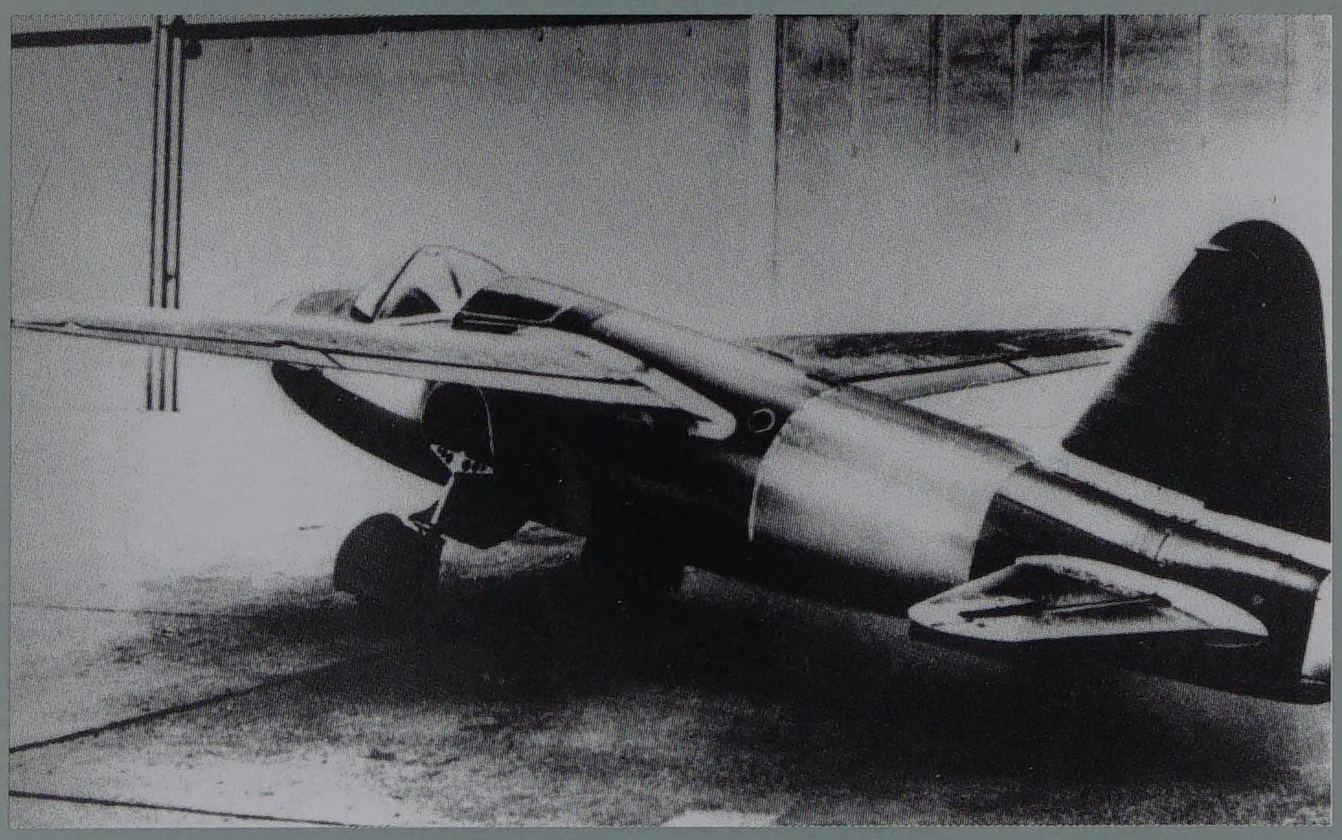


1939
The SE 161 Languedoc was designed by Marcel Bloch. After the war, it was to become one of the most important passenger aircraft, 103 being built and exports going to Spain, Poland, Egypt and the Lebanon.

20.6.1939
With Heinkel's He 176, the first ever rocket plane takes to the air on its successful maiden flight and ...





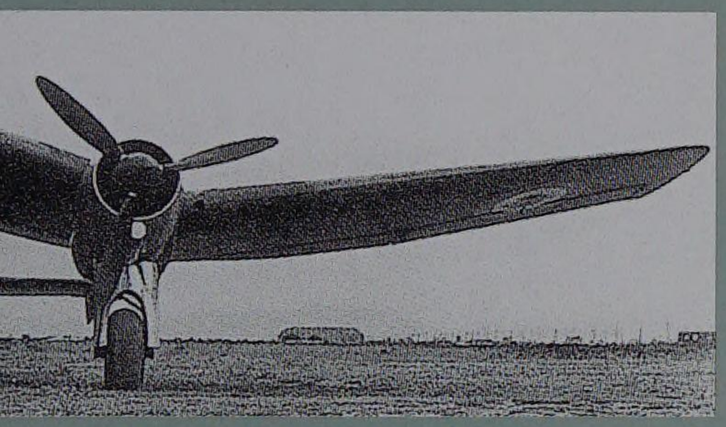


27.8.1939
... only about two months later the He 178, the world's first jet aircraft, flies for the first time.

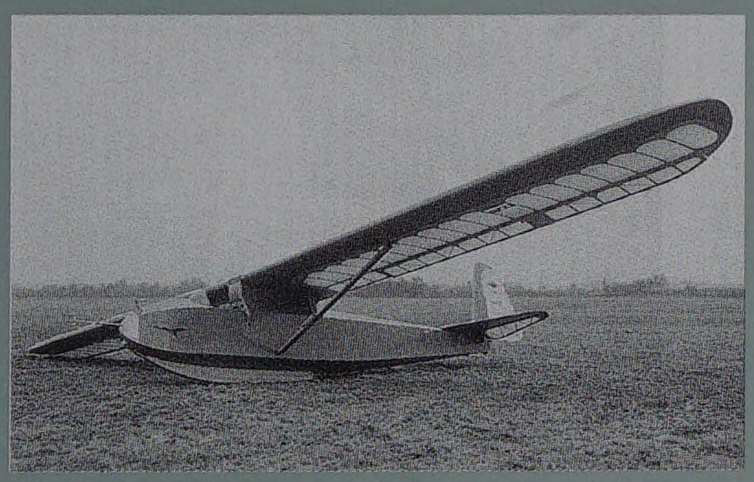
21.3.1940
The CAO 600 was a ship-launched reconnaissance aircraft and torpedo bomber and was heading for a bright future with the French Navy when its development was curtailed. CAO was the brand name of the Loire-Nieuport company, which had been re-named SNCAO after nationalisation in 1936.

2.9.1940
First flight of the Me 210 in Augsburg. Fitted with two type DB-601-F engines, each providing 1,350 hp, it had a top speed of 560 km/h.

7.9.1940
A new passenger aircraft initially designed for the transatlantic routes: the Blohm & Voss BV 222 "Wiking", developed by Hamburger Flugzeugbau, takes off on its maiden flight.

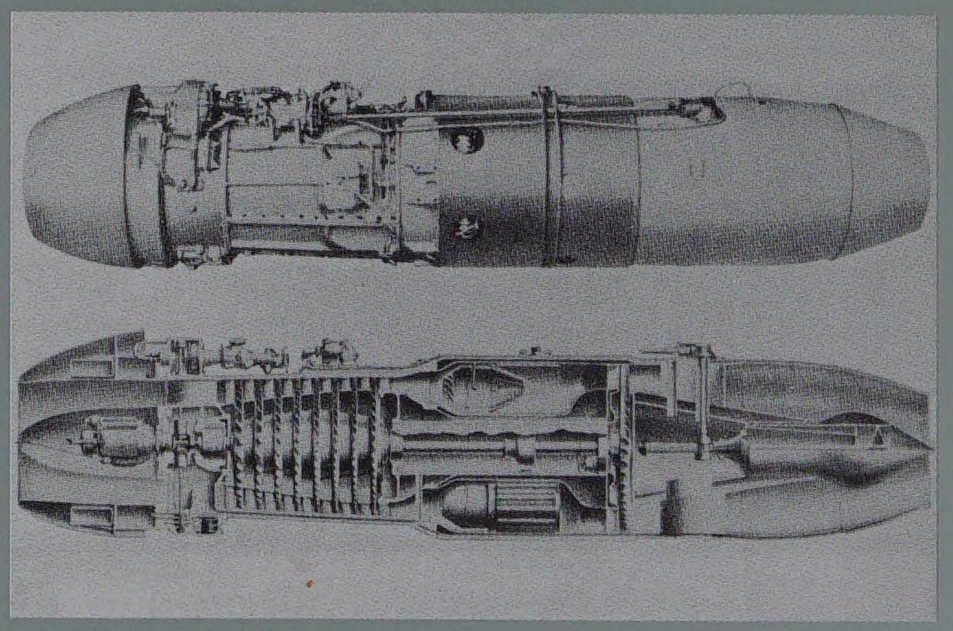


1940
The principle of the Fw 61 reaches series production when manufacture of the Focke-Achgelis Fa 223 rotorcraft starts.



1940
Robert Castello, an engineer with Dewoitine, had designed the Castel series of gliders and later the Castel-Mauboussin aircraft, from which the Fouga Magister also derived. In the photo: the Castel 301 glider.

11.10.1940
Dessau: first test bench run for the Junkers Jumo 004 jet turbine engine. This was the first turbine jet engine to go into series production, powering aircraft such as the Me 262.

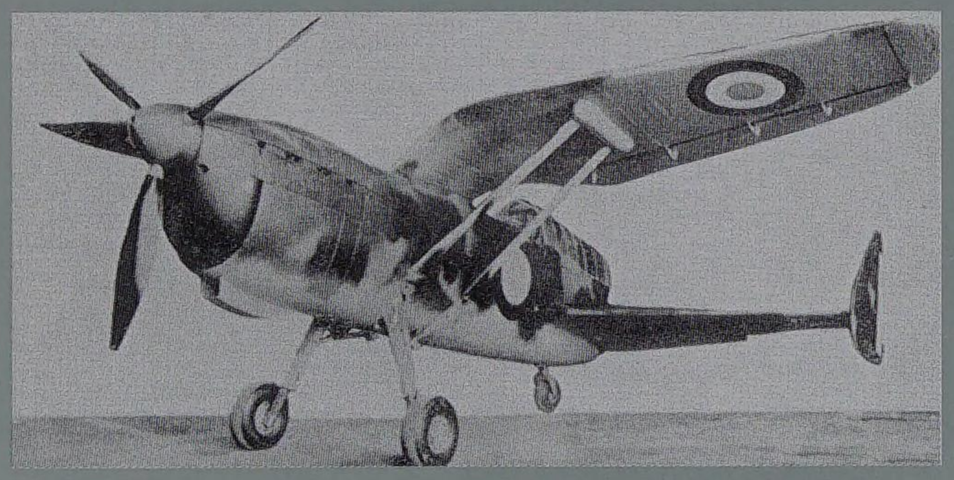


"And my silver birds will fly!"

Eugen Sänger (1905-1964), one of the fathers of space flight

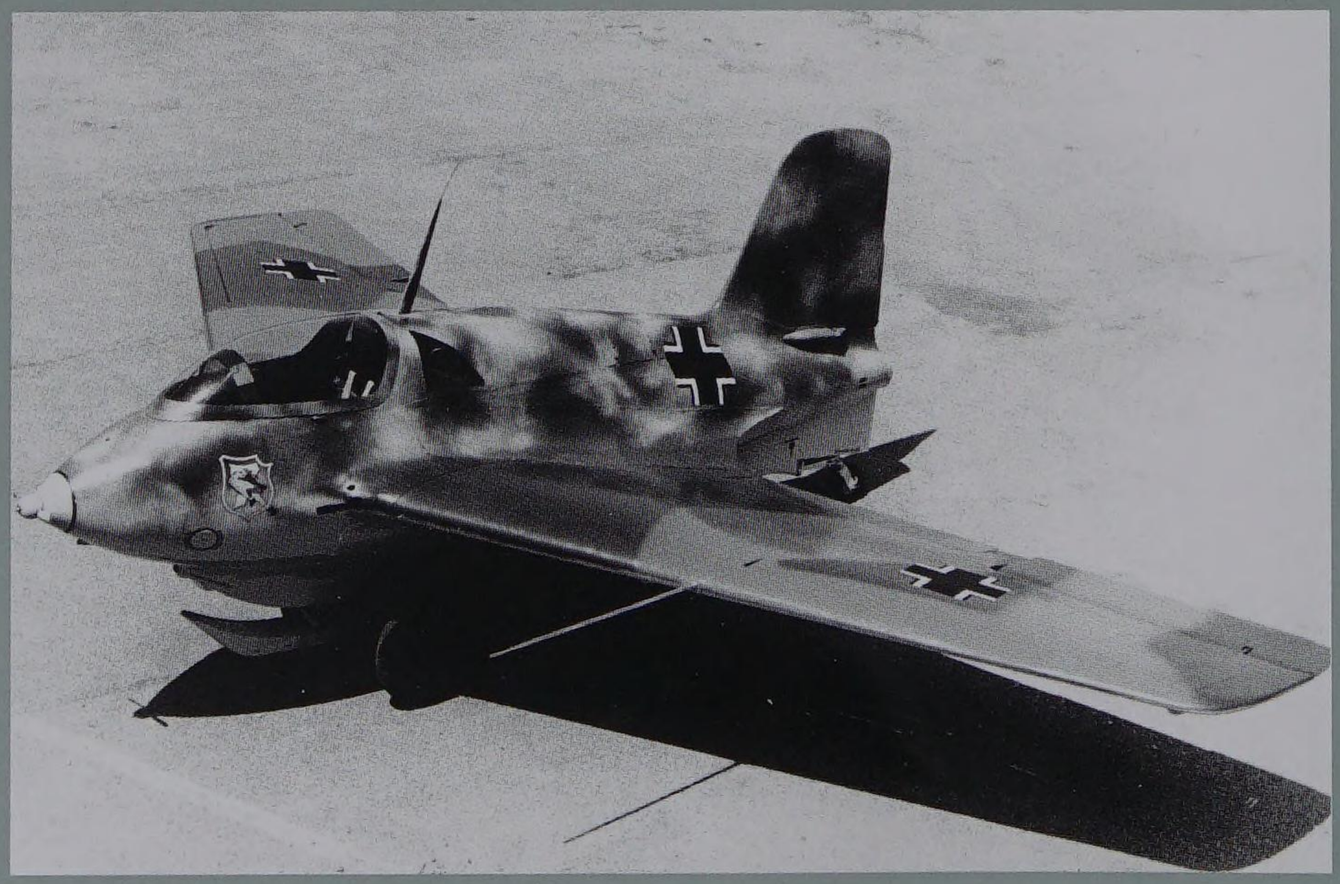
1941–1950

1941
CASA builds the German Bücker 131 "Jungmann" and Bücker 133 "Jungmeister" under licence in Spain. These aircraft receive the respective Spanish designations C-1.131 E and C-1.133 E and are used as trainers.

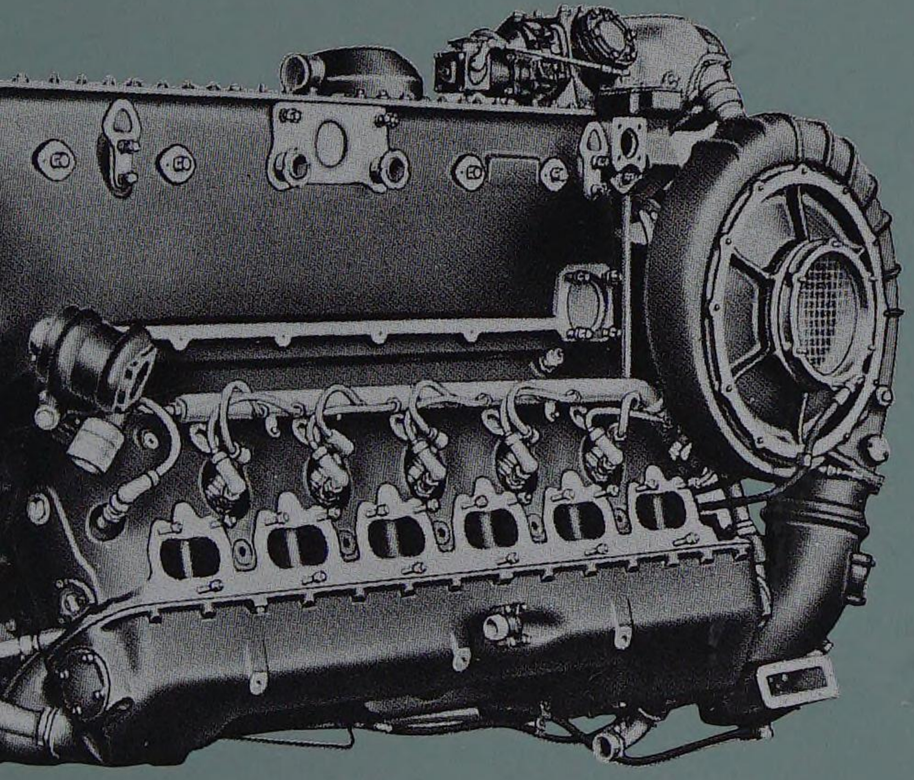


1941
The Delanne 10, which had been developed and built by the Nord Aviation predecessor Arsenal, was a fighter that was seized by occupation forces in the Second World War.

13.2.1941
At Augsburg, Heini Dittmar flies the Me 163 A for the first time. Here, the armed version of this rocket plane, the Me 163 B. This aircraft almost reached the speed of sound and its aerodynamic design enabled it to glide in on its final approach so as to land like a glider.



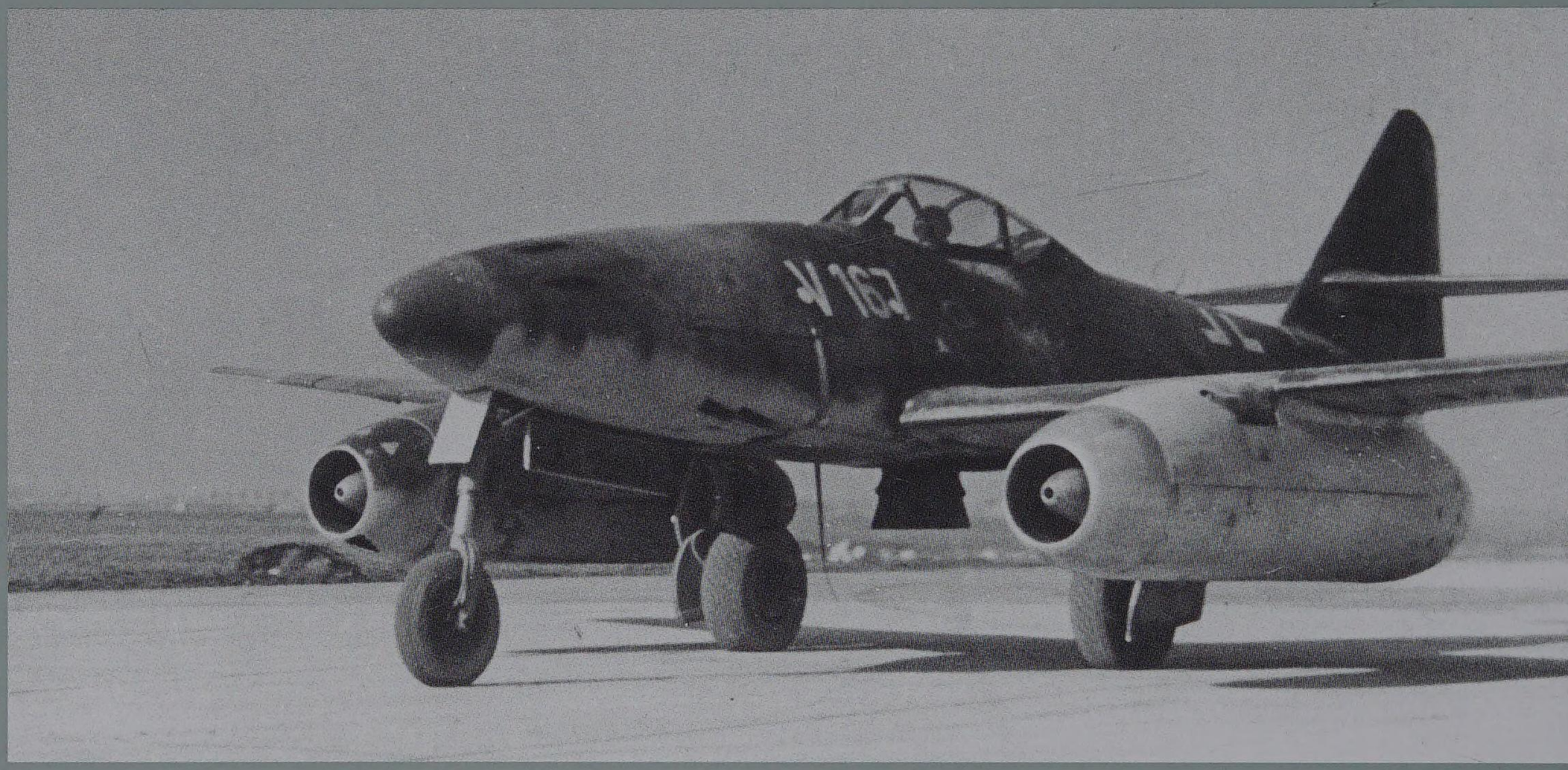
9.9.1941
The "Würzburg-Riese", the first giant radar, is set up in Germany.

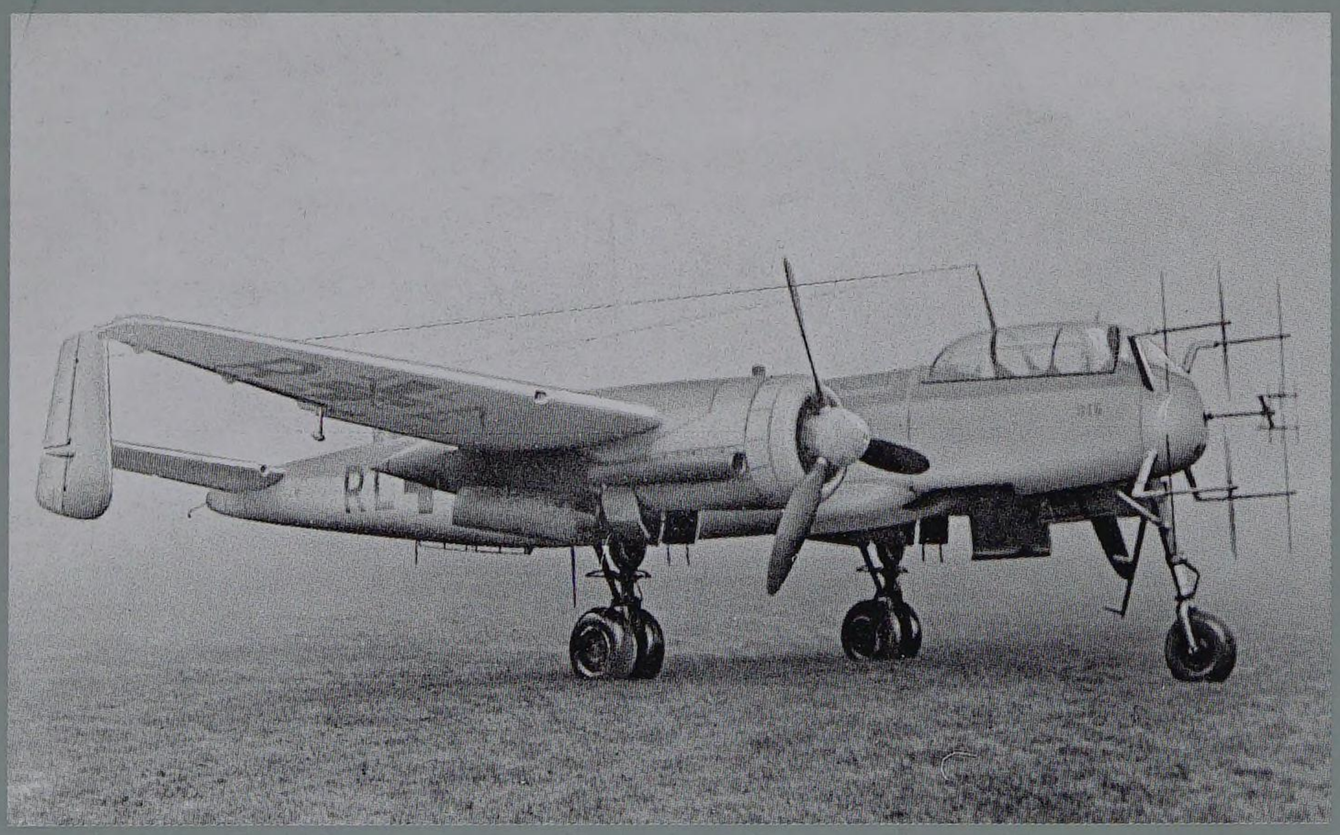


1941
The DB 605 engine is developed on the basis of the Daimler-Benz DB 601. Approximately 42,400 engines of this type are built, the highest ever production figures for any German aeroengine.

20.3.1942
First flight of the Potez CAMS 161, designed by Maurice Hurel. This was a heavy flying boat weighing 40 tonnes intended for transatlantic services. Because of the war, it did not go into series production and remained a unique model.

18.7.1942
First flight of Messerschmitt's jet-propelled Me 262 at Leipheim. The Me 262 was the world's first jet fighter to go into series production, roughly 1,500 being built.



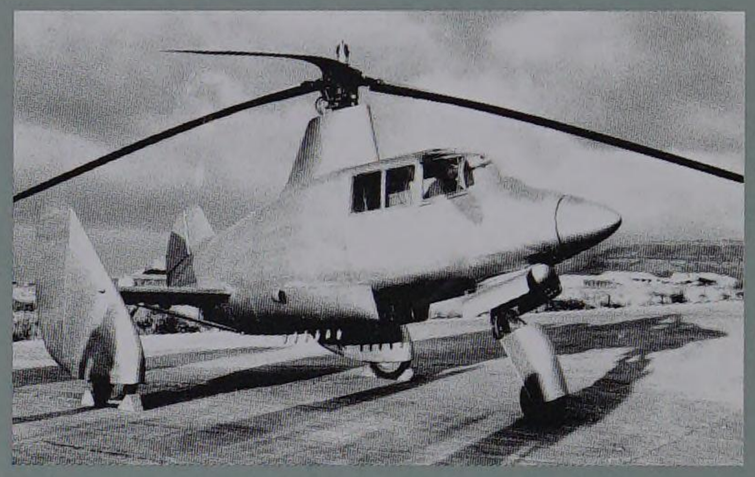


13.11.1942
The twin-seater Heinkel He 219 flies for the first time. This night fighter was powered by two 1,800 hp DB 603-E engines.

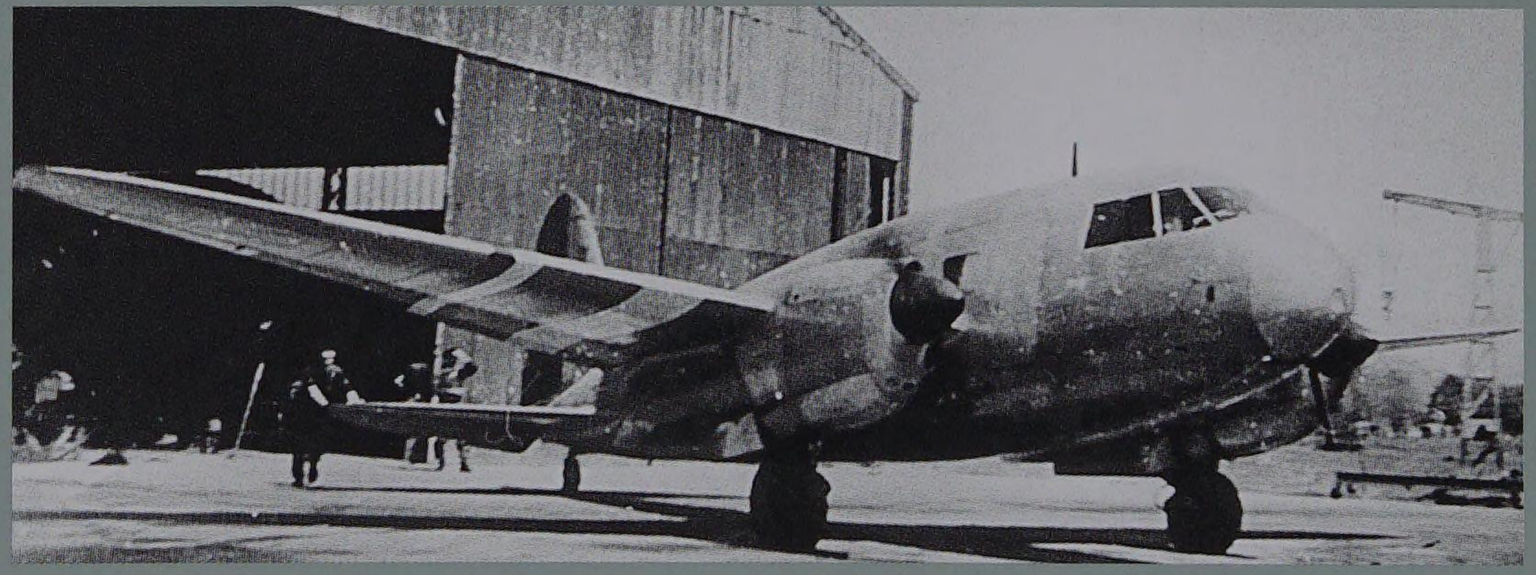
23.12.1942
First flight of the Me 264, an aircraft with excellent aerodynamics and a planned range of 15,000 km.

1943
Henri Stakenburg flies the SE 700 autogiro in Marignane for the first time.

11.12.1942
First flight of the French flying boat SE 200, built at Marignane. This aircraft had a take-off weight of 72 tonnes.



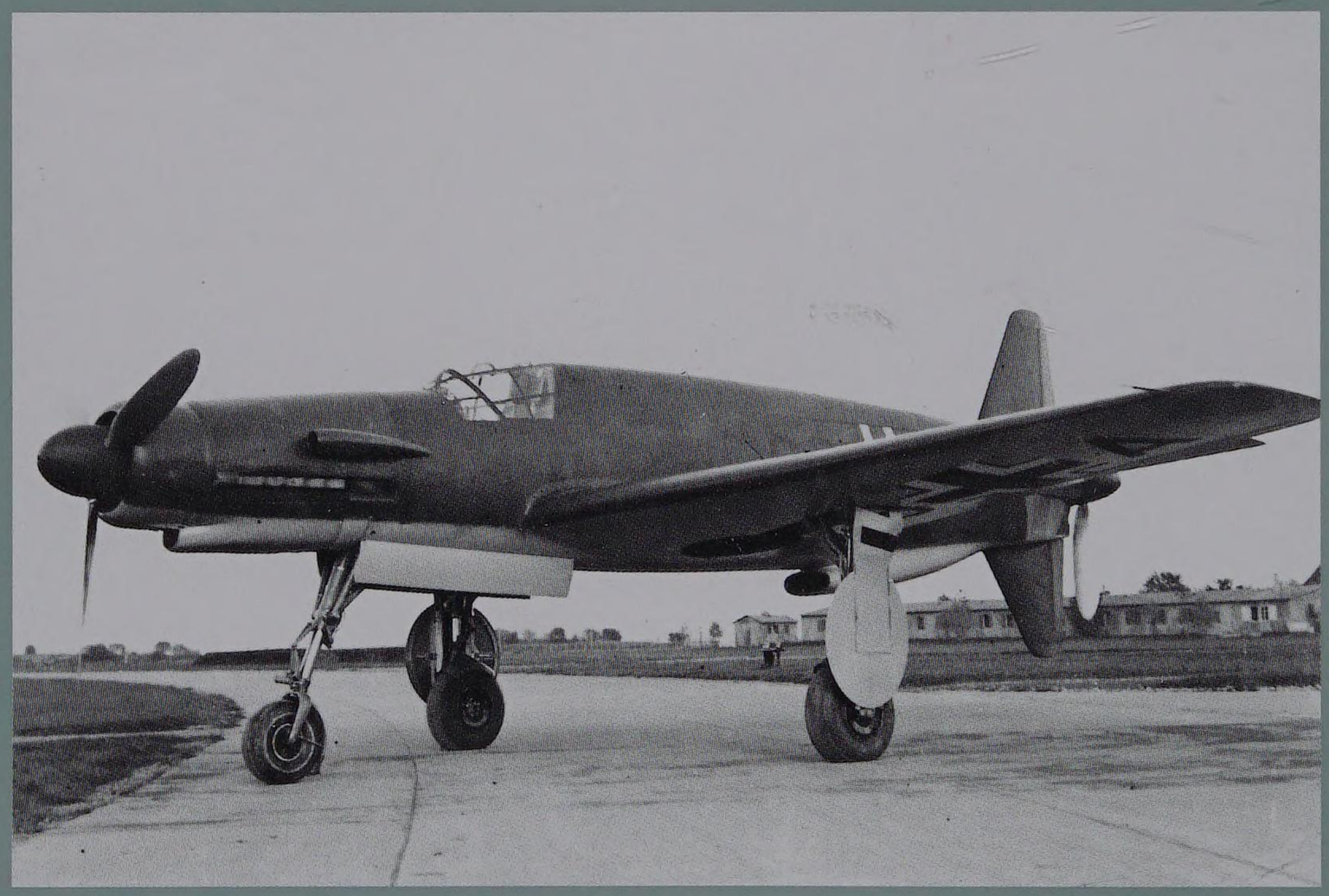
16.8.1943
The SO 90 Corse made the most unbelievable first flight in aviation history: even though he had not yet been declared fit to fly, Technical Director Maurice Hurel made an uncleared takeoff from the Cannes works and landed in Algeria three hours later, thus successfully fleeing before the occupying forces. Hurel was the originator of the CAMS flying boats. After the war, he founded the company Hurel-Dubois together with Dubois.



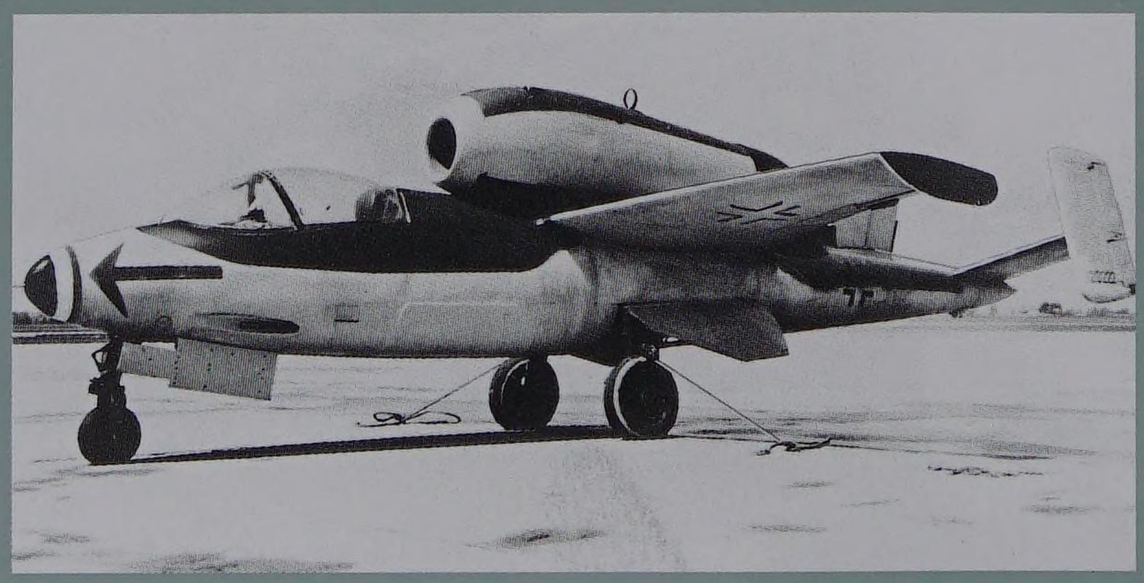
June 1944
A Ju 52 built in Spain bearing the type designation C-352 takes off on its first test flight. By 1953, 170 of these aircraft had been delivered by CASA.

May 1945
Shortly before its completion, the prototype of the most advanced aircraft of the 1940s is discovered by American troops at Oberammergau and is taken back to the USA. This fighter aircraft, the Messerschmitt P 1101, with its 40-degree swept-back wings and jet propulsion served as the model for the American experimental aircraft Bell X-5.

26.10.1944
First flight of the Do 335. Down to the present day, it is considered to be the world's fastest production aircraft powered by piston engines. This aircraft reached speeds exceeding 780 km/h.



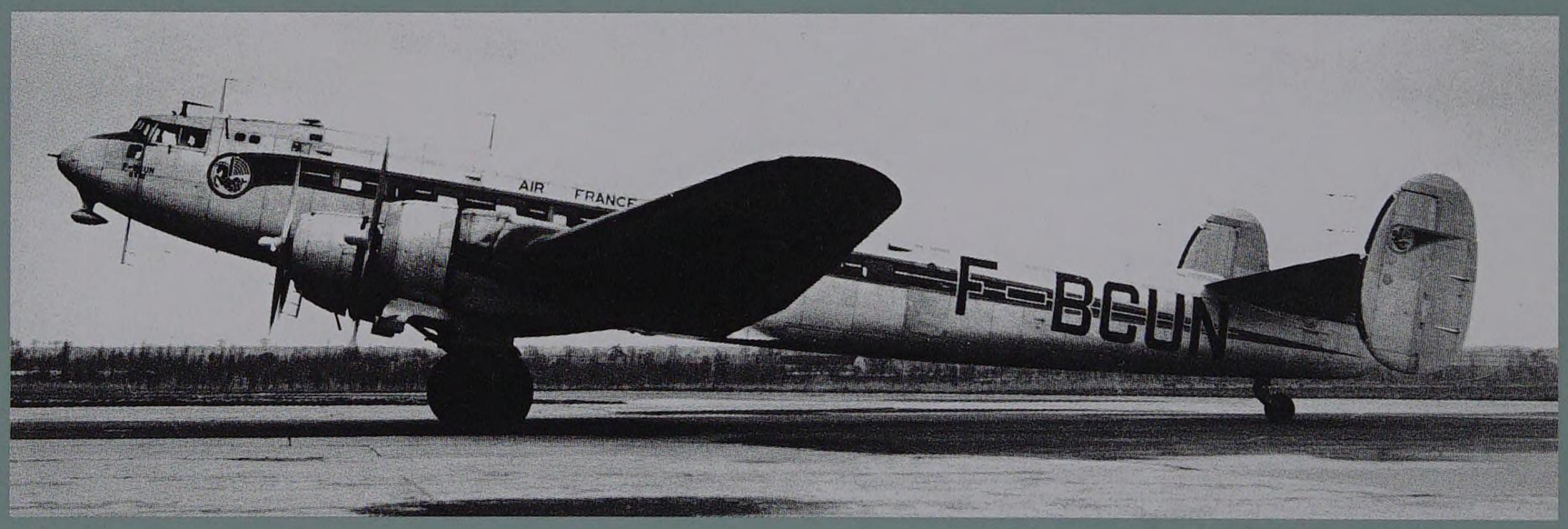
6.12.1944
Only three months after the order is placed for the He 162, this aircraft takes off on its maiden flight. An ejection seat is part of its standard equipment.



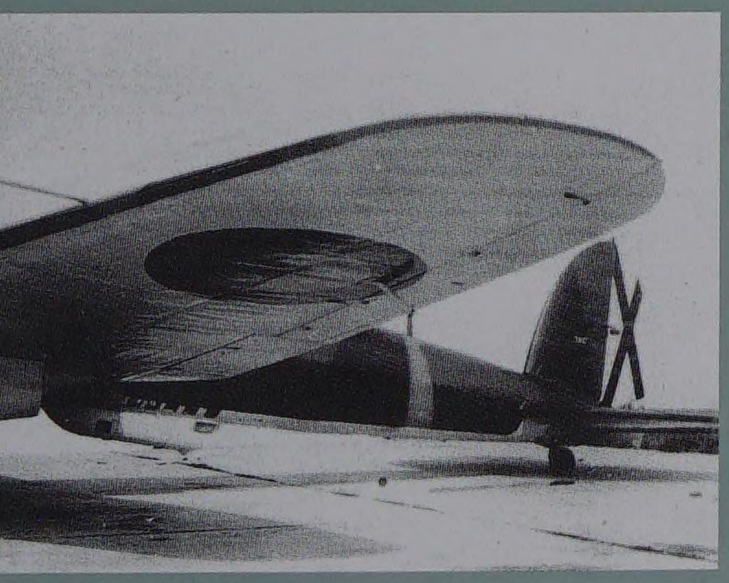
23.5.1945
The CASA C-2111, an He 111 built under licence in Spain, flies for the first time.

1945
First flight of the all-metal touring and business aircraft Nord 1200 Norécrin. In 1946, this aircraft wins the competition for the best sports aircraft organised by the French Transport Ministry. A total of 378 units of all versions were built and the aircraft was exported to 25 countries.

◁ ***6.2.1945***
First take-off of an MS 470, built at the Morane-Saulnier factory.

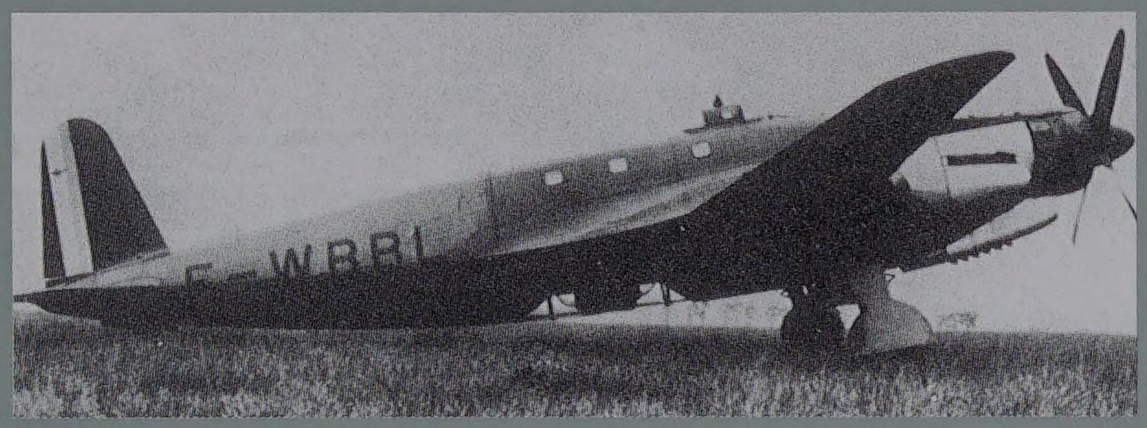


23.8.1945
The SE 161 Languedoc, a transport version and derivate of the Bloch MB 161, is the first in France passenger aircraft to fly after the war.

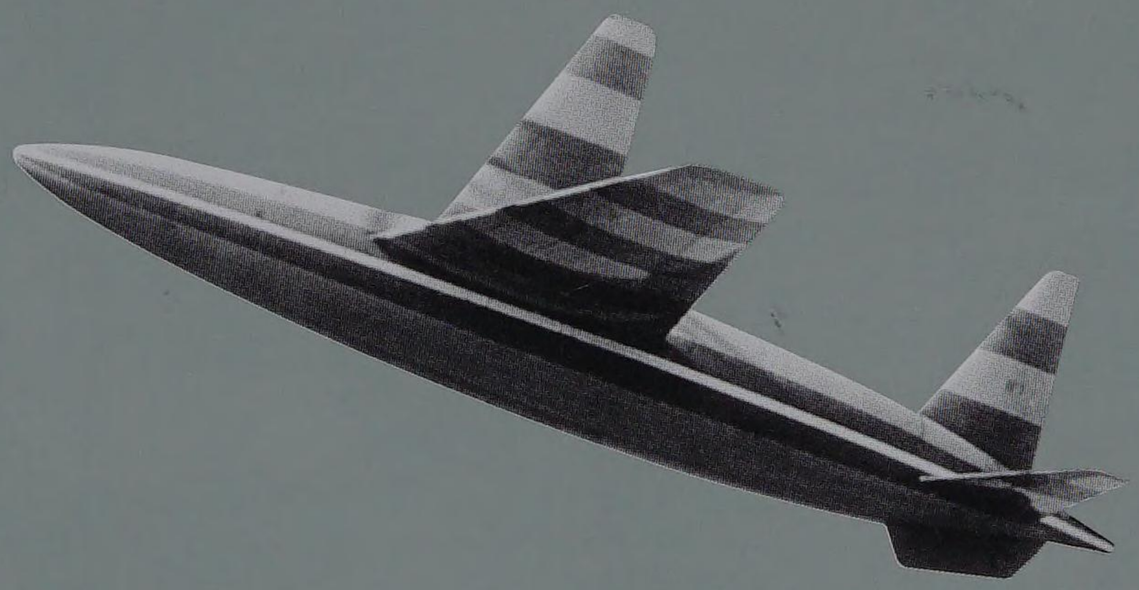


1945
Marcel Chassagny founds the French company MATRA (Mécanique Aviation Traction).

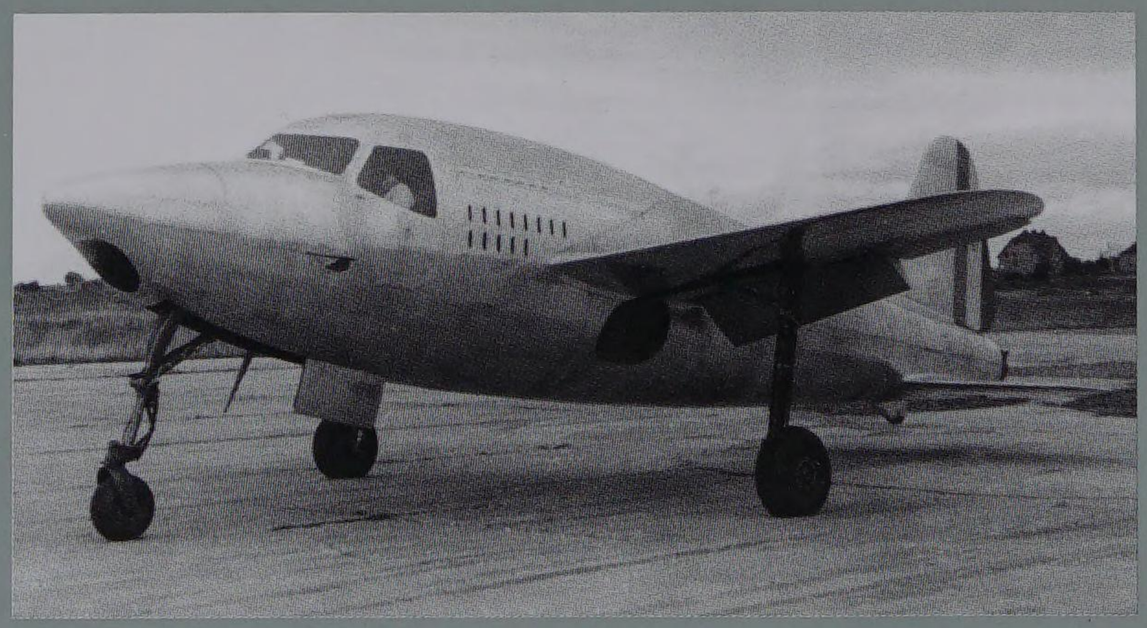
6.6.1946
The SNCAC NC 3021 Belphégor was a prototype for investigating flight into the stratosphere. It was equipped with 3,000 hp Daimler-Benz DB 610 A engines.



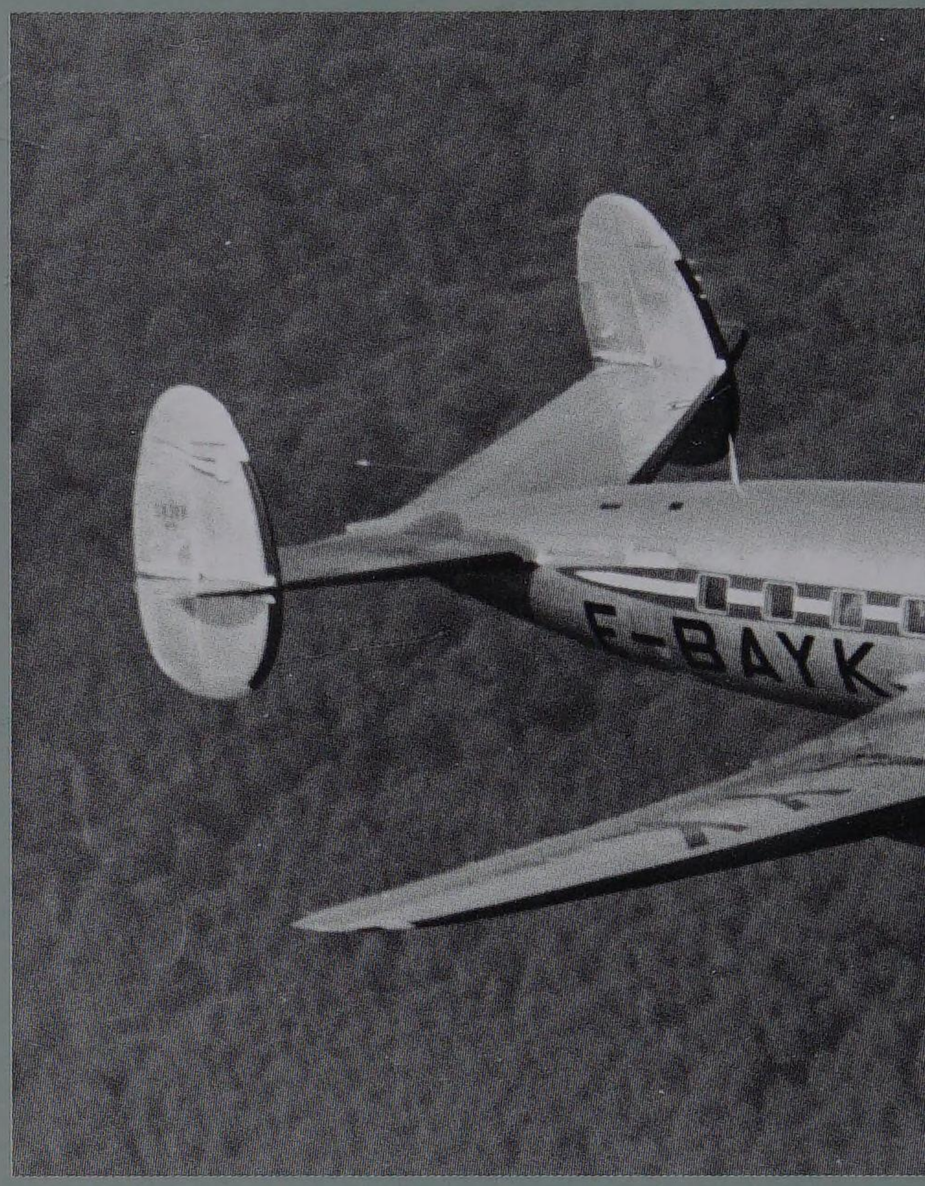
7.11.1946
The SE 1500 was the first reusable guided aerial vehicle in France to go into series production (118 units). It marked the inauguration of the research centre at Colomb Béchard.



11.11.1946
The first French jet aircraft, the SO 6000 Triton, takes off on its first flight.



11.12.1947
The SO 30 P Bretagne, of which Sud Ouest Aviation were to build 45 models, takes off for the first time. Here, the "P" stood for "pressurisé" denoting the pressurised cabin, which was introduced in 1947. The original version of the SO 30 family had first flown in 1945 and was not equipped with this feature.



△
1947
The NC 850 series tourer helped the French light aircraft industry to get off the ground again after the war. 293 models were built, including the version NC 856 A Norvigie, an artillery spotter plane.

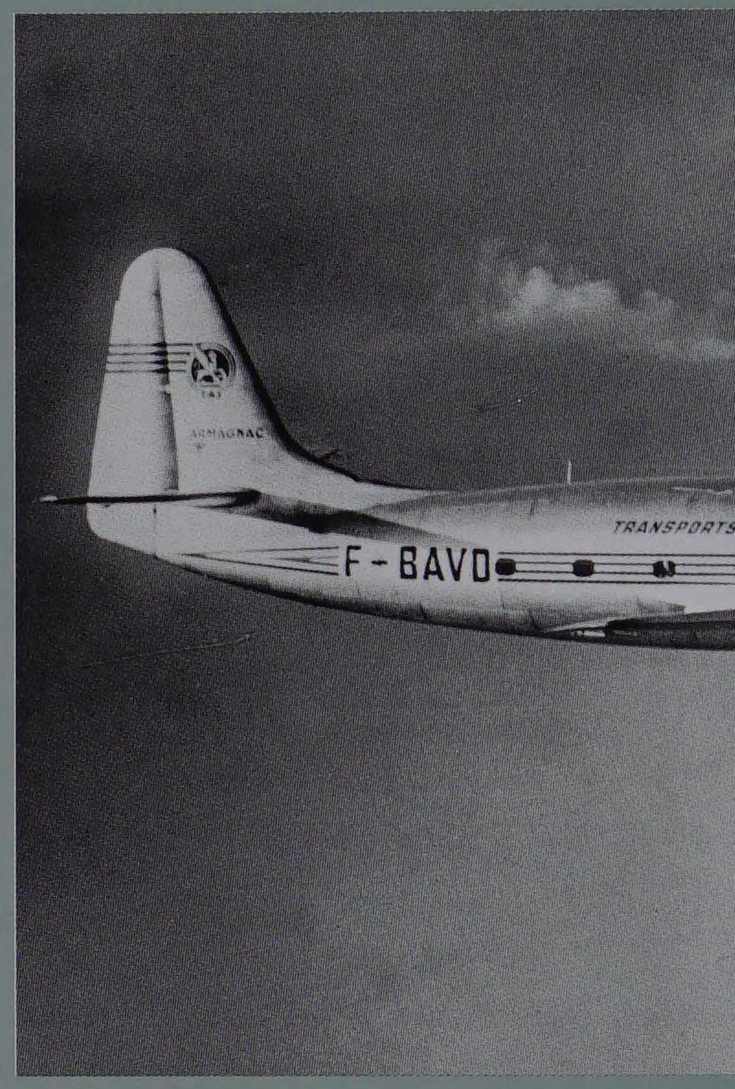
15.6.1948
The SE 3101, the first helicopter to be built at Sud Est Aviation after the war, completes its first flight.

12.11.1948 ▷
First flight of the SO 6020 Espadon, built by SNCASO.

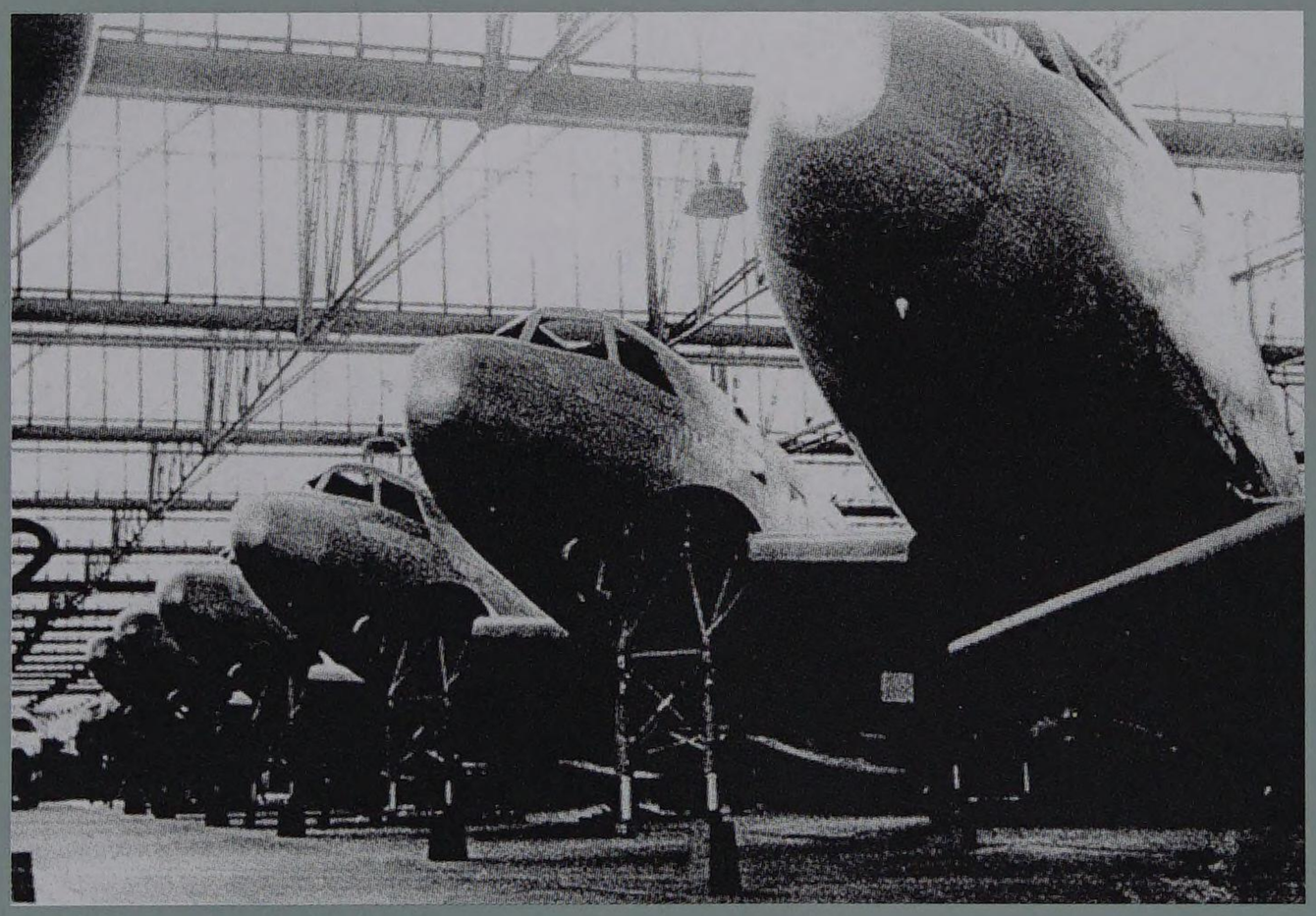
1948
The SS 10 was the world's first operational wire-guided missile. Roughly 30,000 units were produced and it was even exported to the USA.

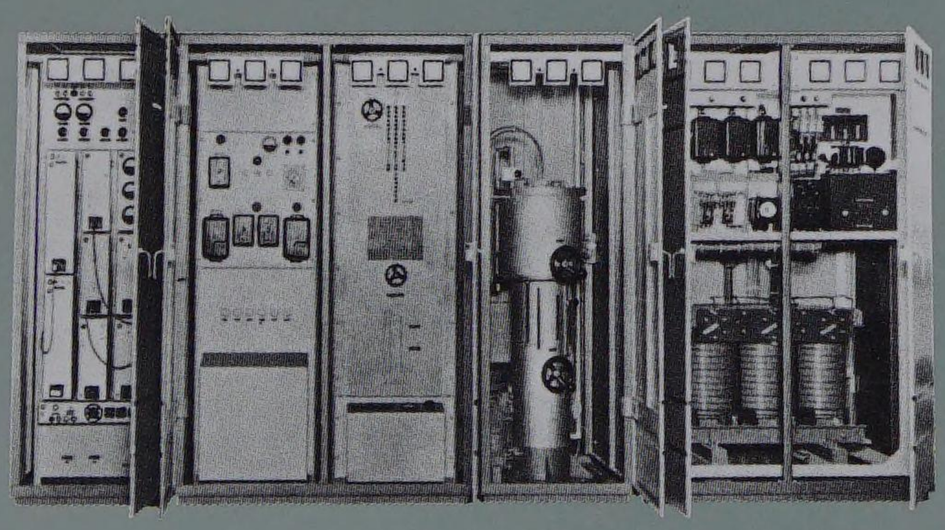
7.3.1949
First flight of the French SO 1100 Ariel I helicopter at Suresnes.

1.4.1949
The four-engine commercial aircraft SE-2010 Armagnac takes off for the first time. With its take-off weight of 73 tonnes it is the largest land-plane to be built in France to date and can carry 84 passengers over a distance of 4,800 km. The first studies for this aircraft date back to the year 1942.

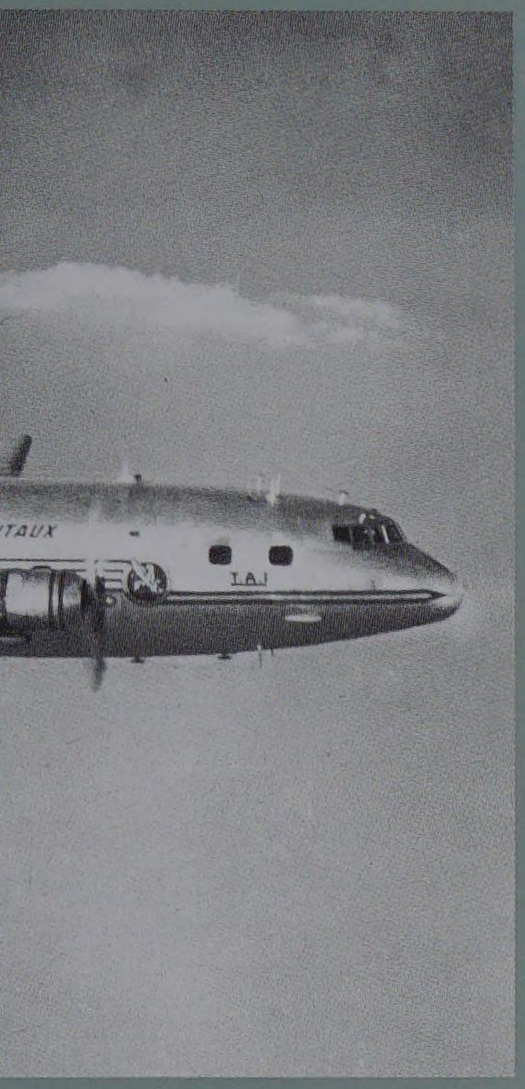


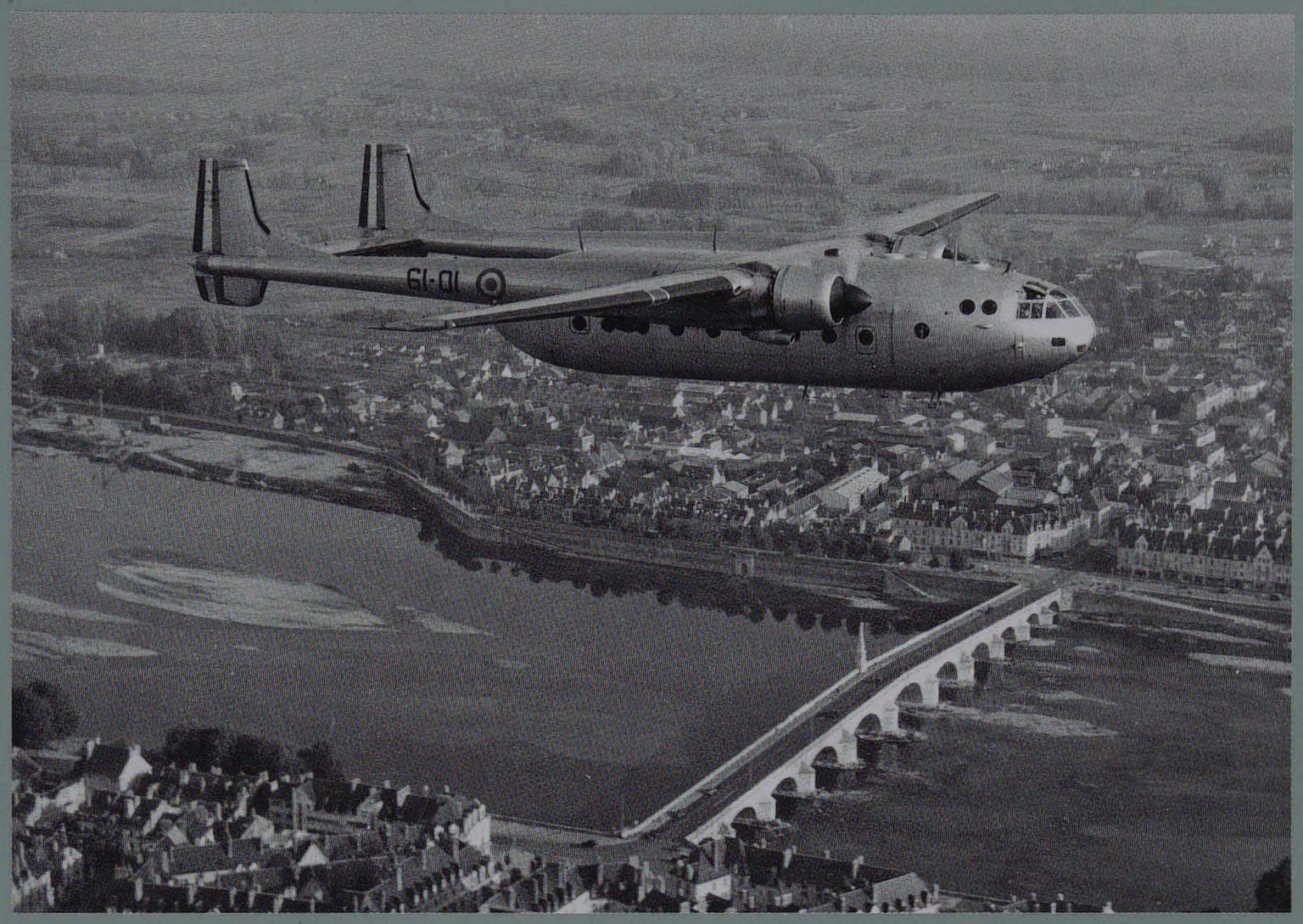
11.2.1949
The C-201A Alcotán, a light transport aircraft developed and built by CASA, takes to the air for the first time. Here, the production line at Getafe in Spain.





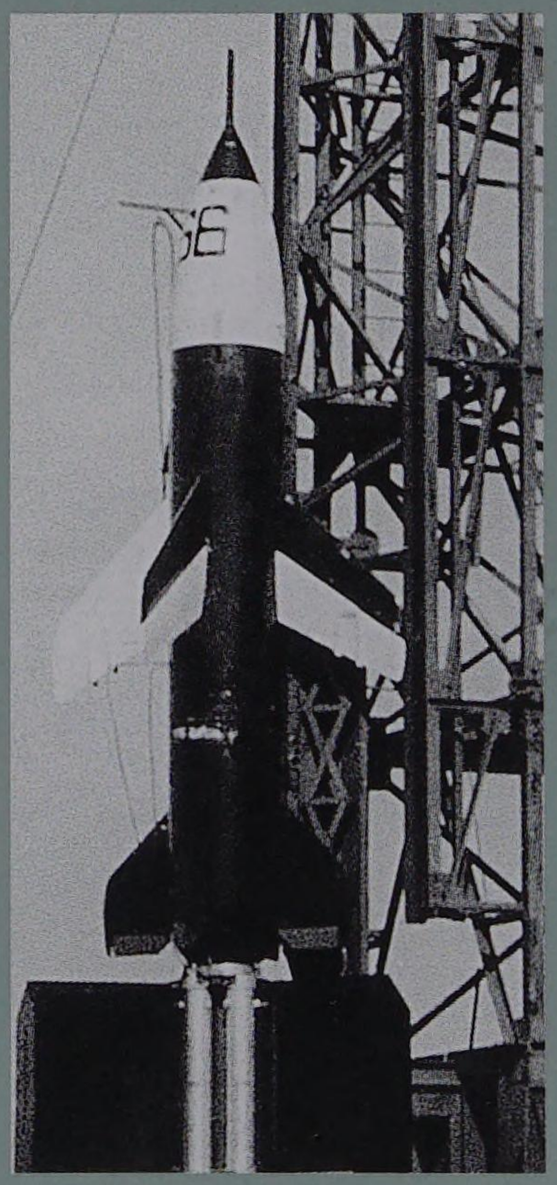
28.2.1949
Progress in high-frequency technology: the first VHF radio station goes on the air. In the photo, a 10 kW tube transmitter built by Telefunken and dating from 1950. At the same time, radio receivers with VHF function, also built by Telefunken, were launched on the market.





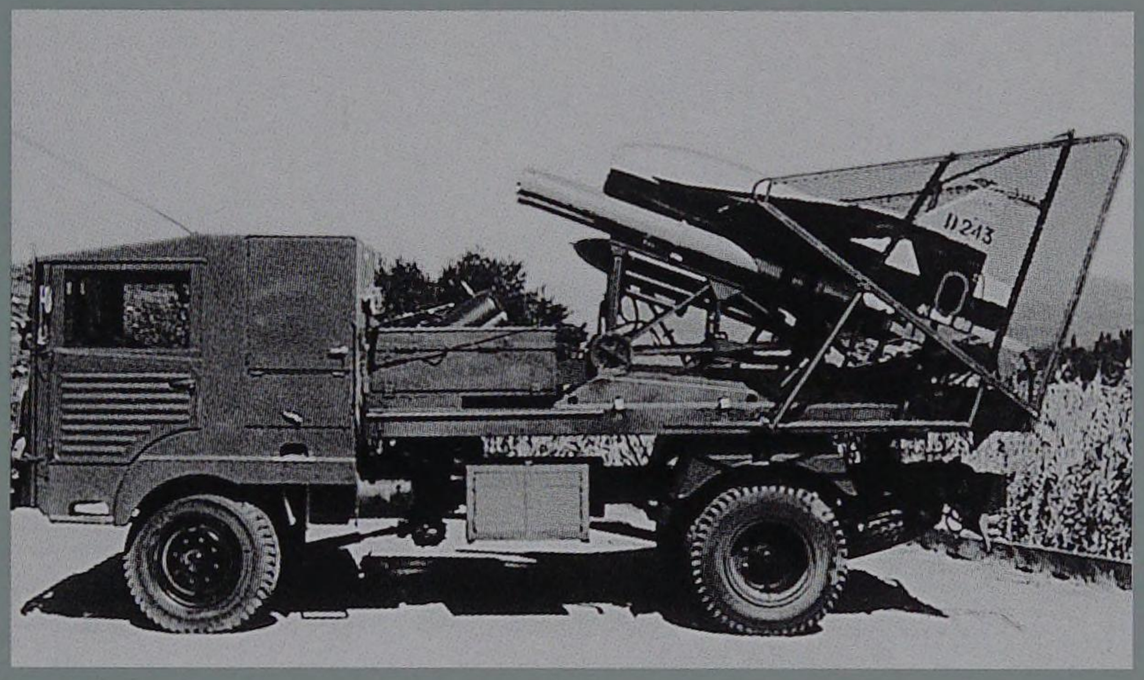
10.9.1949
The Nord 2500 Noratlas, lovingly known as "Nora": this medium-weight, twin-engine transport aircraft with twin booms was designed by Jean Calvy and became a truly legendary aircraft for the French Air Force. Series production ran to 419 units of the N 2501, of which 162 were built under licence in Germany. The "Nora" was sold to 17 countries.

11.8.1949
First flight of the prototype MS 733 "Alcyon". From 1952 to 1964, aircraft from this series served as trainers for the French Air Force. The photo shows Prince Sihanouk of Cambodia climbing into one of the 26 models equipped as support aircraft for his country's ground forces. The MS 733 "Alcyon" was succeeded by the Fouga Magister.

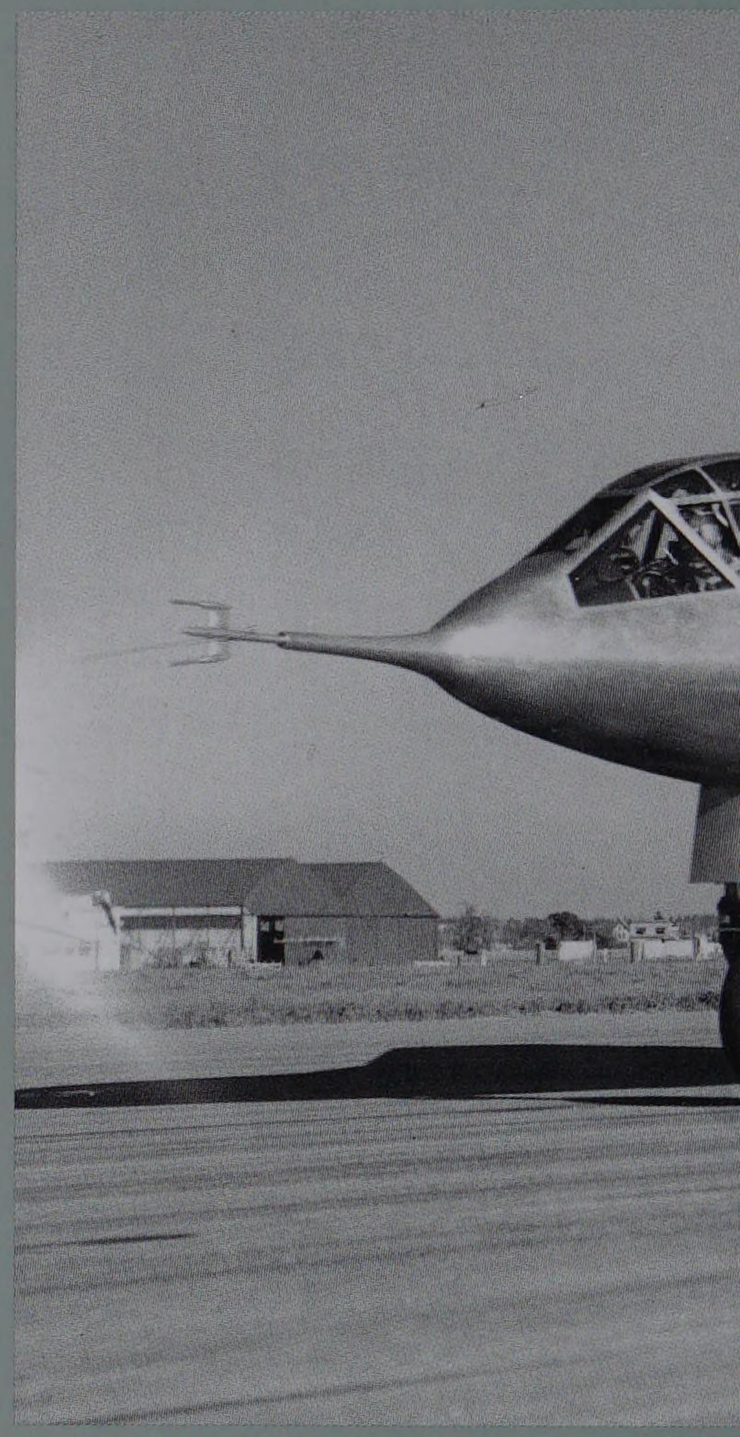


29.9.1949
The SE 4100 was the first French rocket to serve as a test-bed for all the basic technologies: construction, propulsion, guidance, control and recovery.

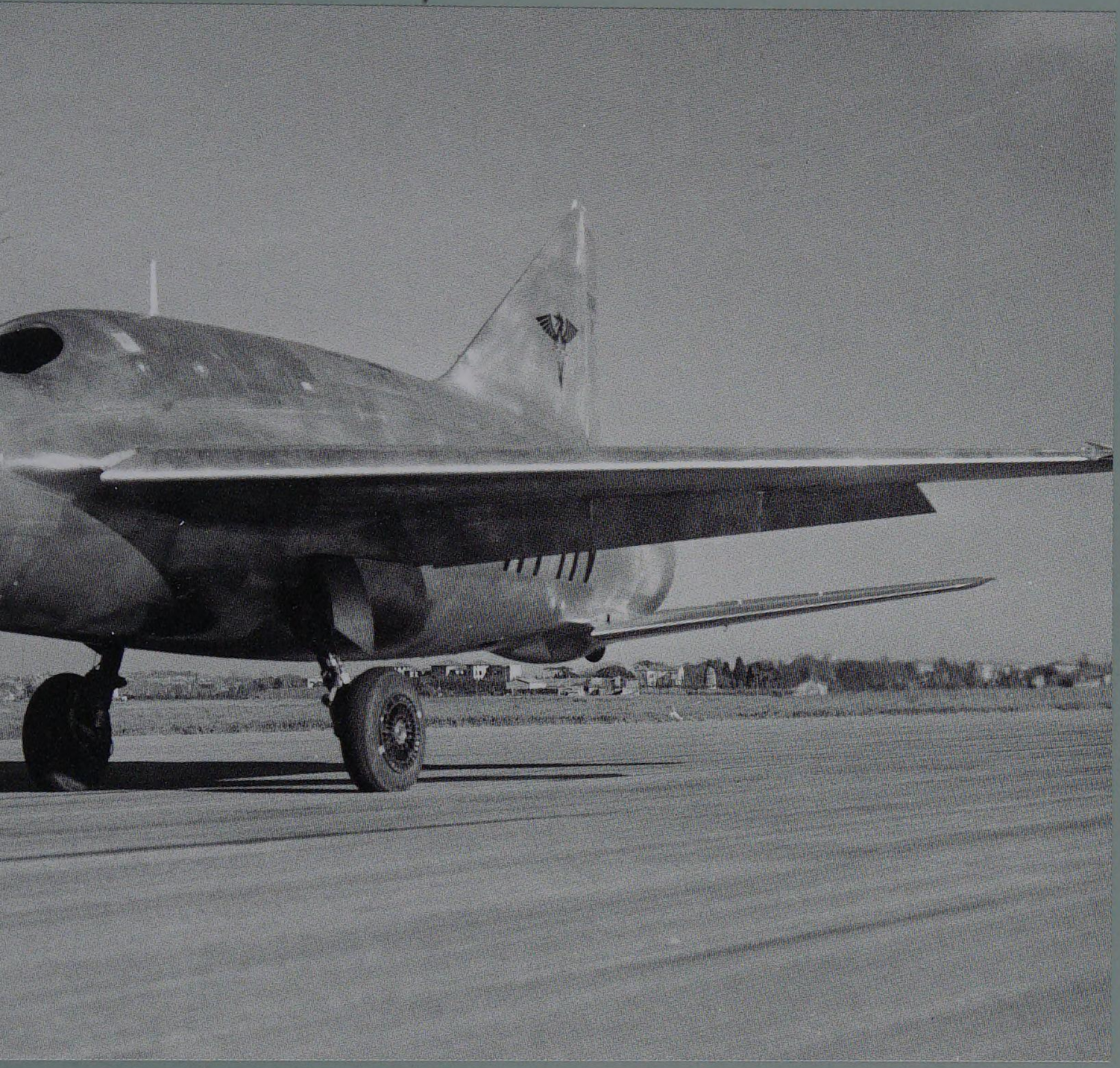
8.2.1950
567 units of the SE 4200 ground-to-ground missile were produced. This was the world's first operational system propelled by a ramjet. Two tactical units of the French Army were equipped with this missile.

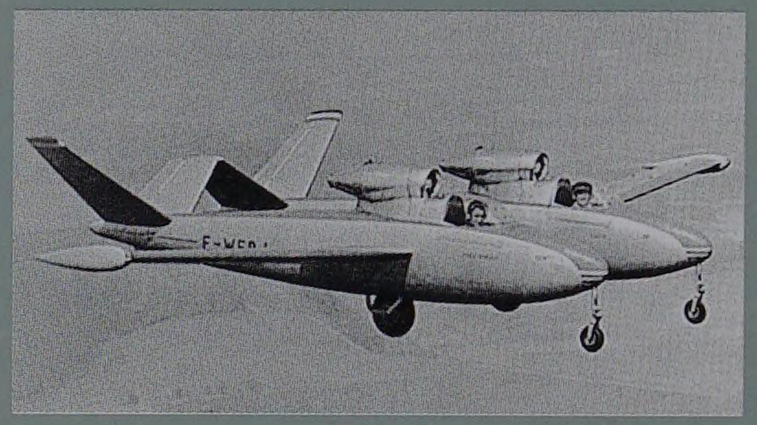


21.4.1950
First flight of the SO 1110 Ariel II, equipped with a Mathis G-8 engine and a compressor from Turboméca.



30.4.1950
The prototype of the single-seater tactical combat aircraft SE 2410, built by SNCASE, takes off on its first flight.





1950
The prototype of the Fouga CM 8 was a powered glider that was used to flight test various configurations of Turboméca light jet engines. It laid the basis for the Fouga Magister, which was to follow.

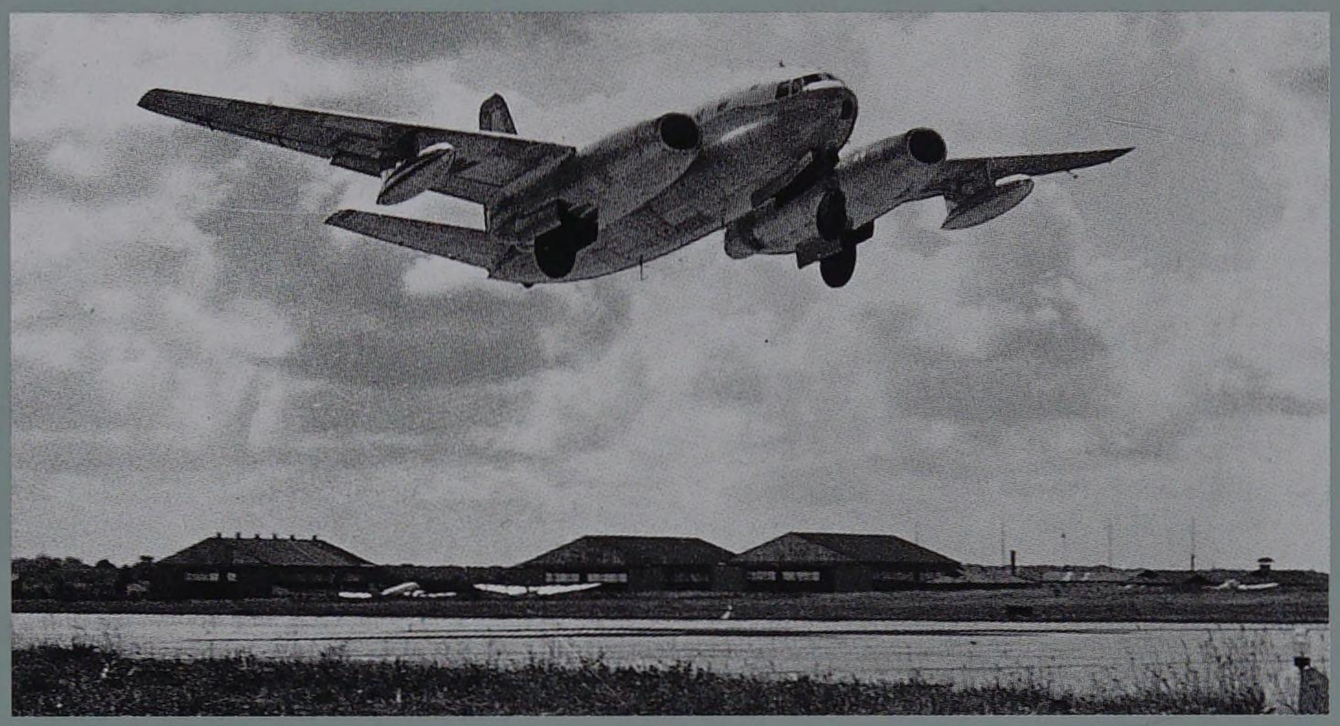
10.6.1950
The SE 3110, a helicopter built by SNCASE, hovers on its first flight at the La Courneuve plant.

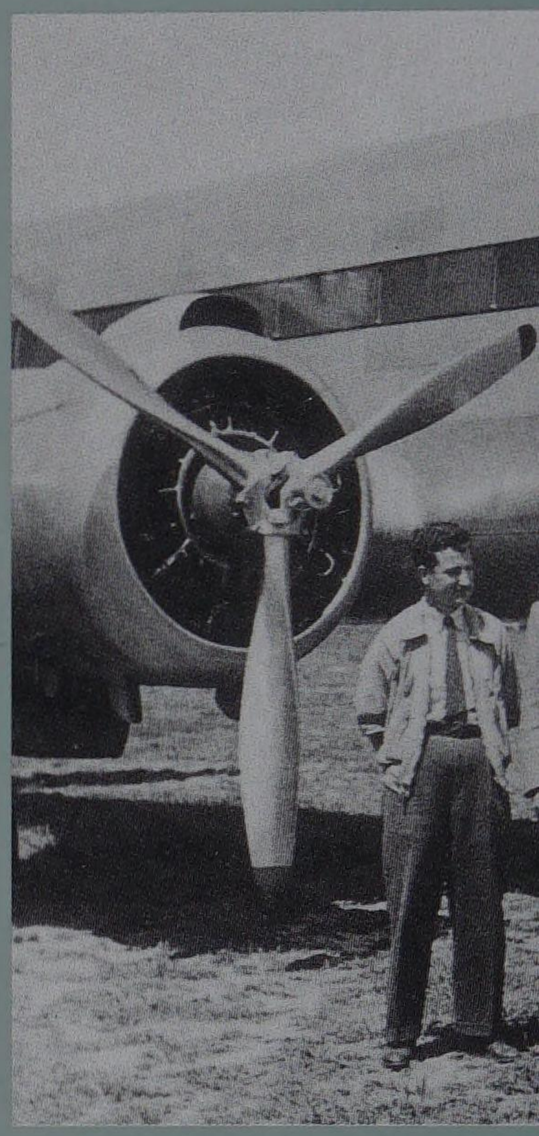
"The fact that in 1952 the existing airlines were already carrying as many as 45 million passengers demonstrates the enormous significance of aviation technology. ... May our young people build on the experience of the old pioneers of aviation and fly towards the sun: per aspera ad astra – through darkness into light!"

Friedrich Wilhelm Siebel (1891-1954), aircraft designer and entrepreneur

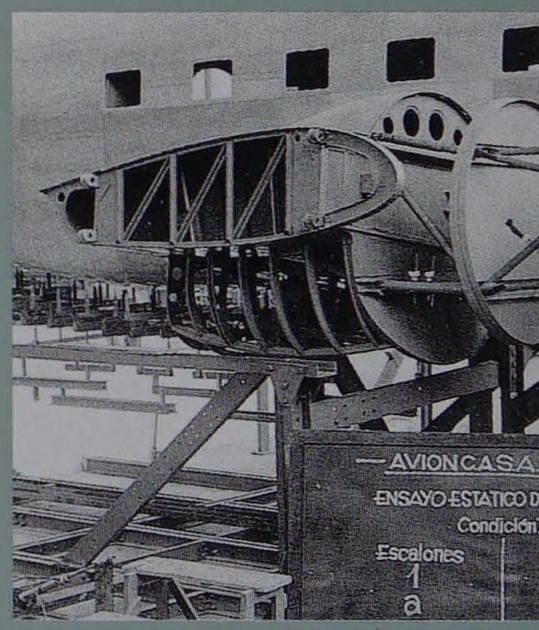
1951–1960

15.3.1951
The SO 30 Nene takes off from Villacoublay. It was used as a flying testbed for the Atar and Nene jet engines.



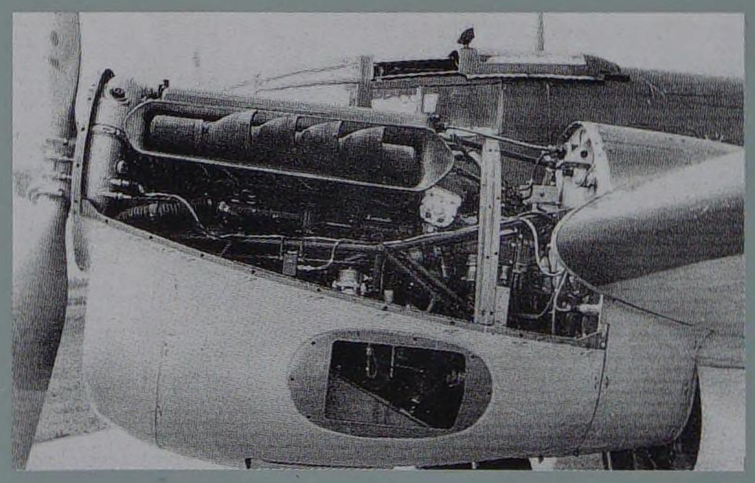


15.3.1951
The SO 4000 twin-engine bomber takes to the skies for the first time over Orléans-Bricy. It is capable of carrying a payload of 22 tonnes.

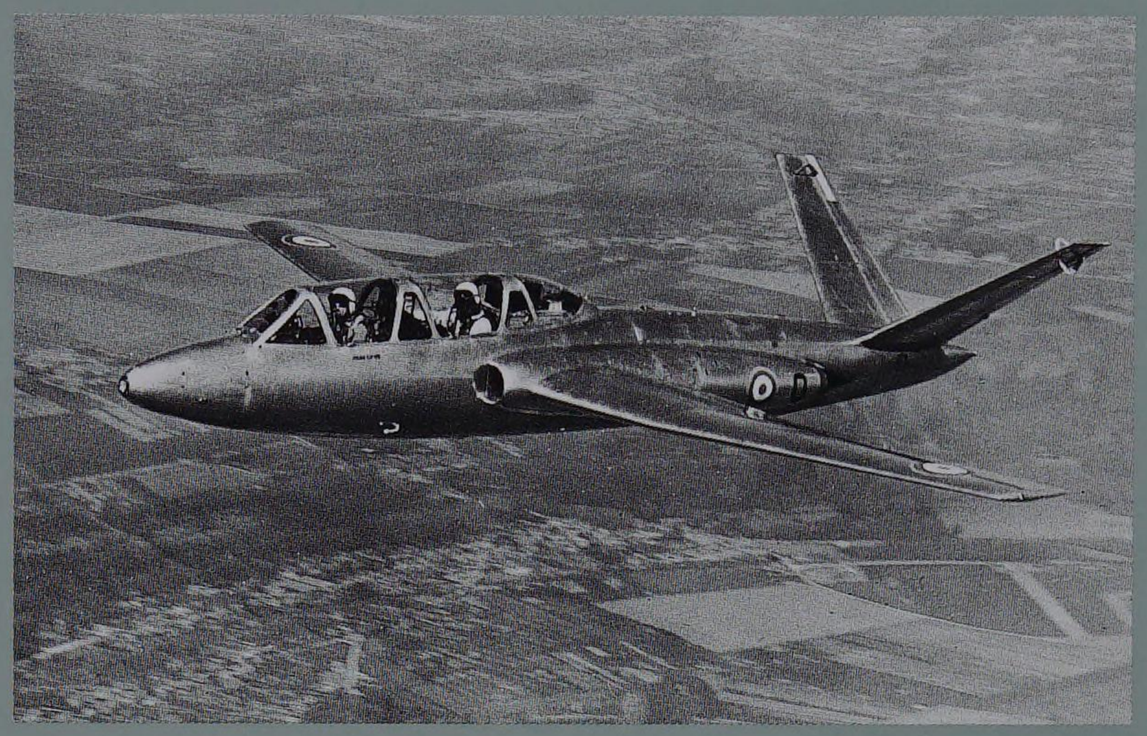


18.4.1951
The SO 1120 Ariel III was the world's first turbine-powered helicopter.

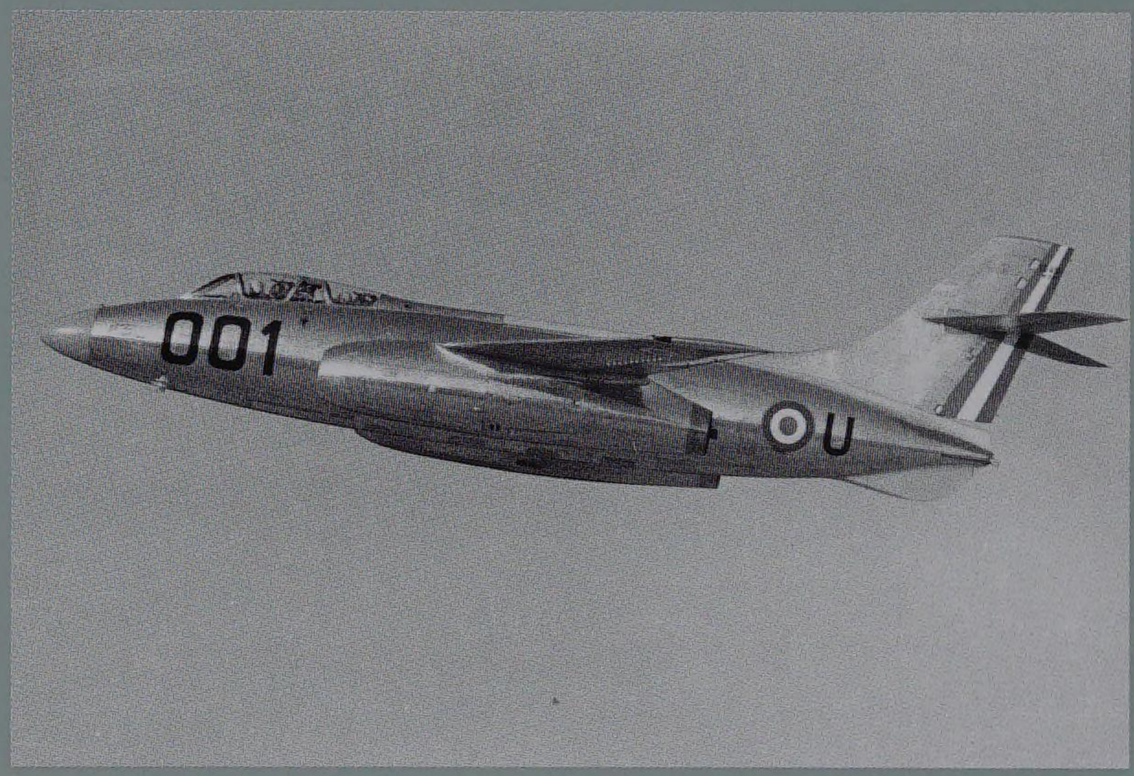
3.8.1951
The modernised C-2111, equipped with Rolls Royce Merlin engines, enters series production. It receives the designation B2-1 from the Spanish Ministry of Defence.



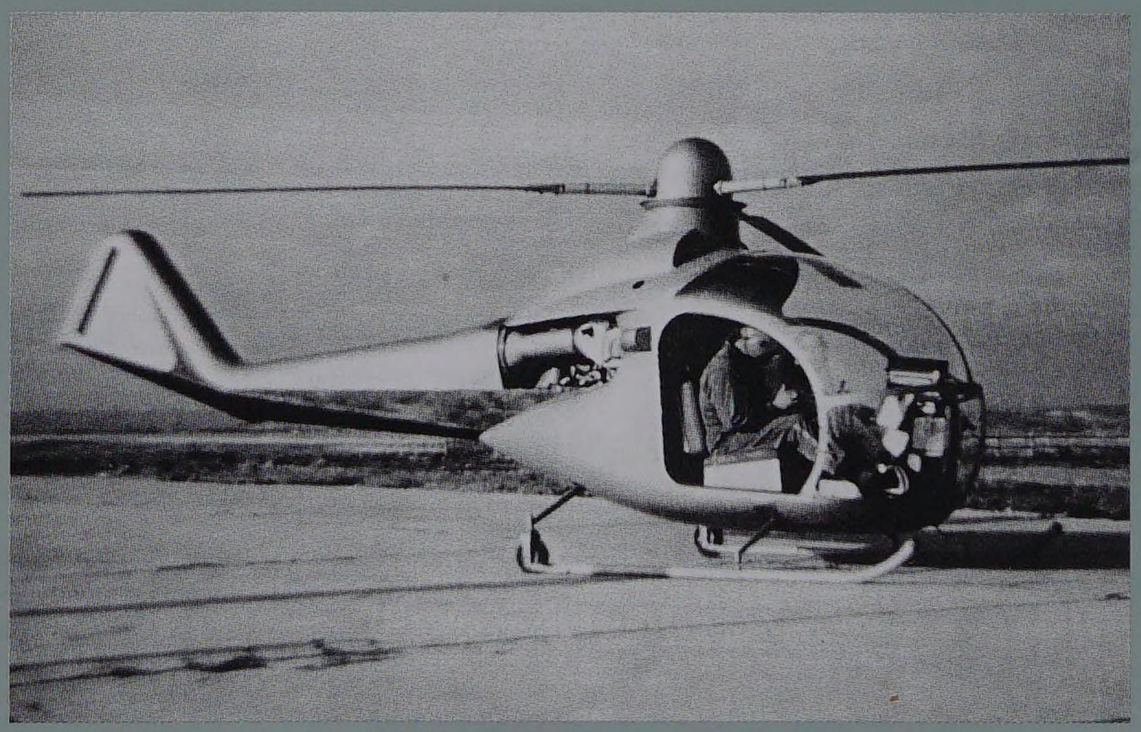
15.5.1952
The C-202 Halcón, developed and built by CASA, makes its successful first flight. In this photo taken after the first flight, Don José is to be seen (4th from left). The lower picture shows a C-202 undergoing static tests.



23.7.1952
The twin-jet Fouga CM 170 Magister was used by the French Air Force as a trainer and also for 16 years by the Patrouille de France aerobatics team. This aircraft was exported to 19 countries and built under licence in Germany, Finland and Israel.



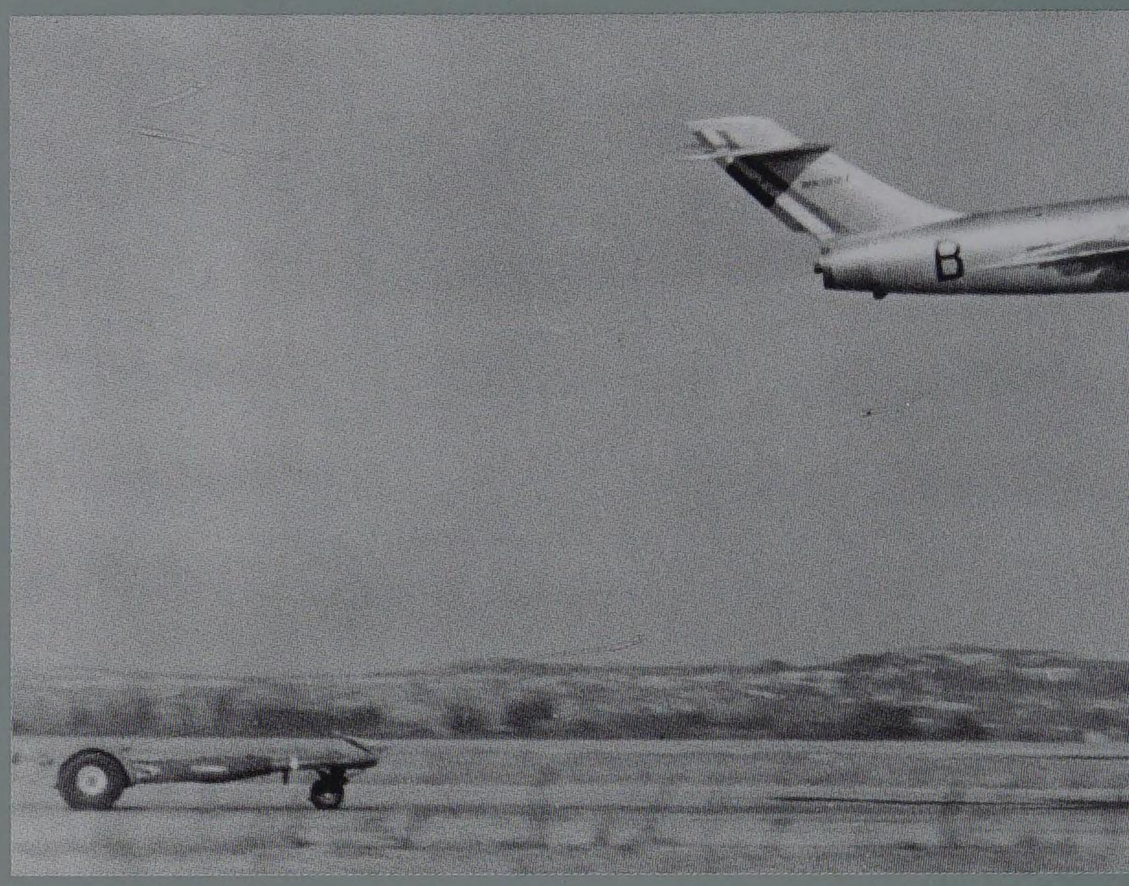
16.10.1952
First flight of the twin-jet SO 4050 Vautour. This aeroplane underwent further development, leading to three versions for different mission profiles: light bomber, night fighter and ground-attack aircraft. It saw many years of service with the French and Israeli air forces.

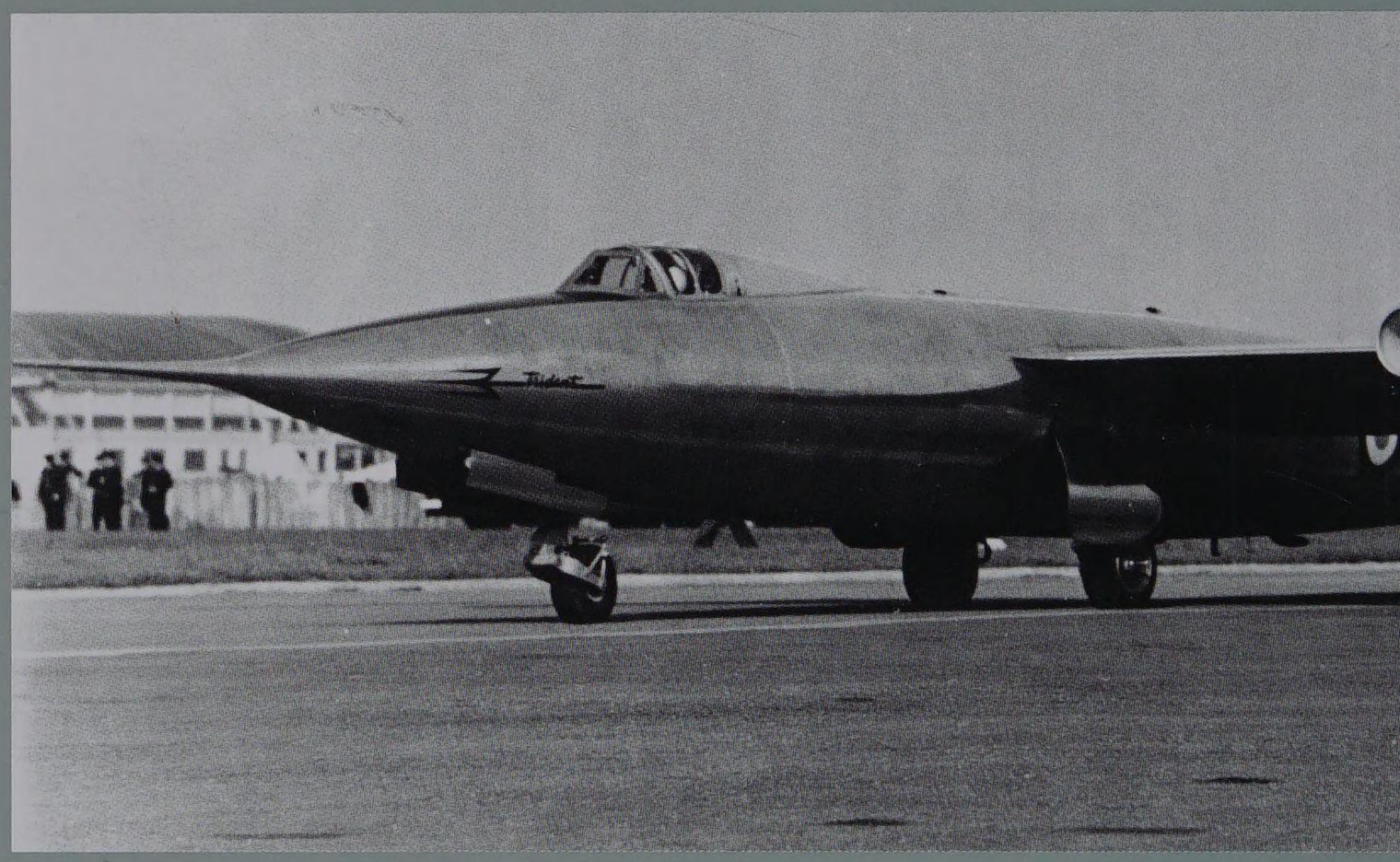


November 1952
After only a nine-month development period, the Cantiniau helicopter from Matra takes off for the first time.

2.1.1953
The SO 1221 Djinn is the first helicopter to go into series production whose rotor is propelled by compressed air ejected at the blade tips ("tip jets"). It was operated by 14 export customers, including the US Army.

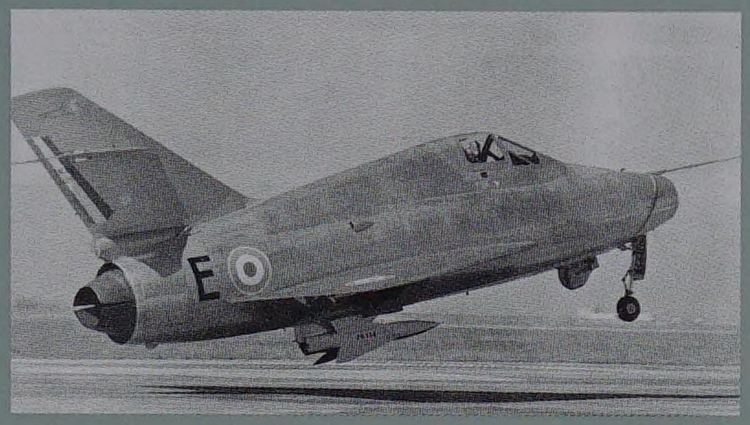
March 1953
Aircraft manufacture being banned by the Allied Peace Treaty, the Messerschmitt company starts series production of the KR 175 bubblecar, nicknamed "Snow White's Coffin". The photo shows a further development, the KR 200.



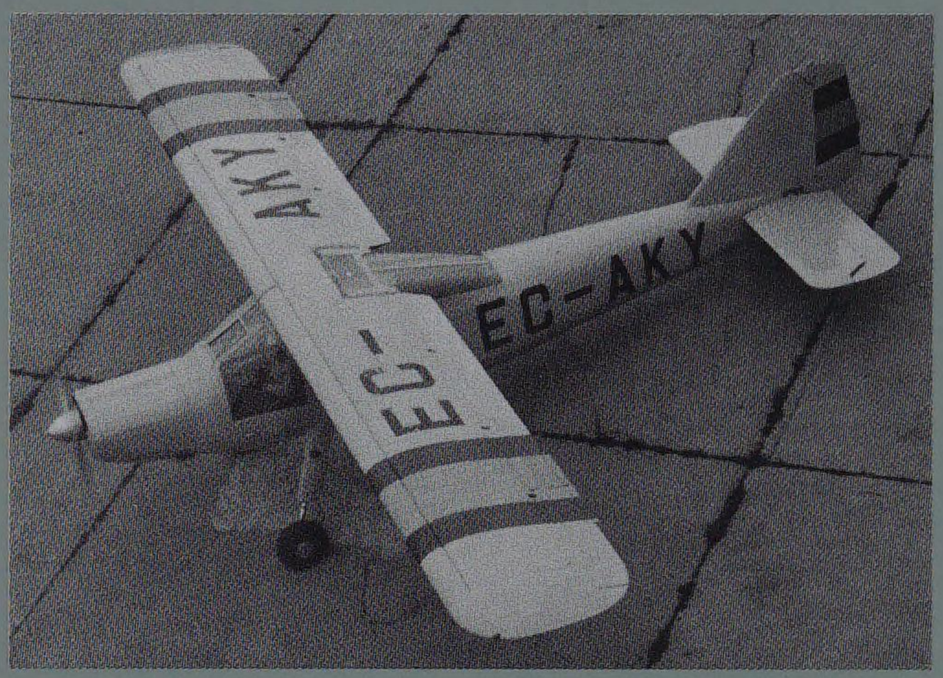


2.3.1953
The SO 9000 Trident from SNCASO, a project developed by Servanty, was a fighter equipped with a hybrid rocket jet propulsion system. It was the first European aircraft to reach Mach 2 and also broke the world records for altitude flight and rate of climb.

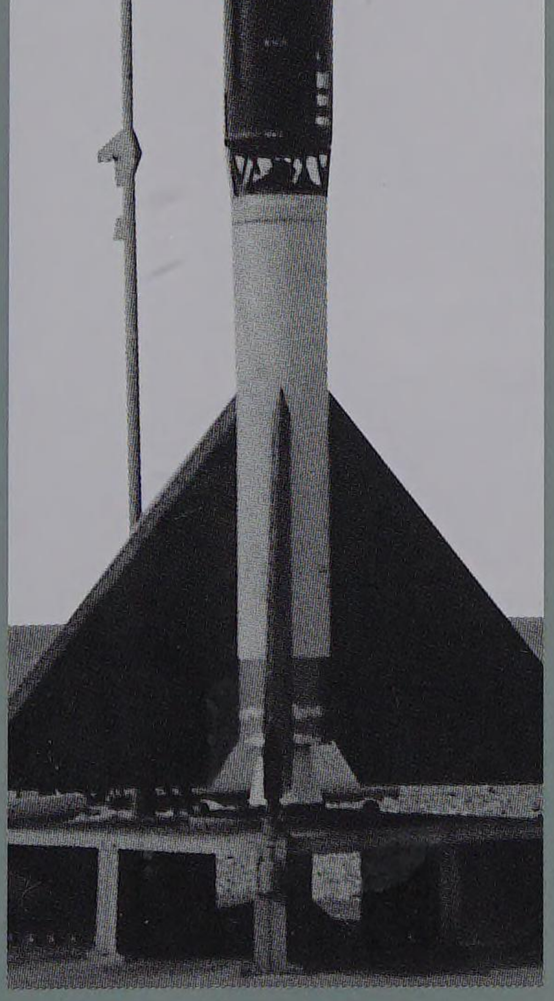
1.8.1953
The SE 5000 Baroudeur was a prototype jet aircraft that could take off from unpaved runways with the help of a "launch carriage" (see photo) and was equipped with retractable landing skids.

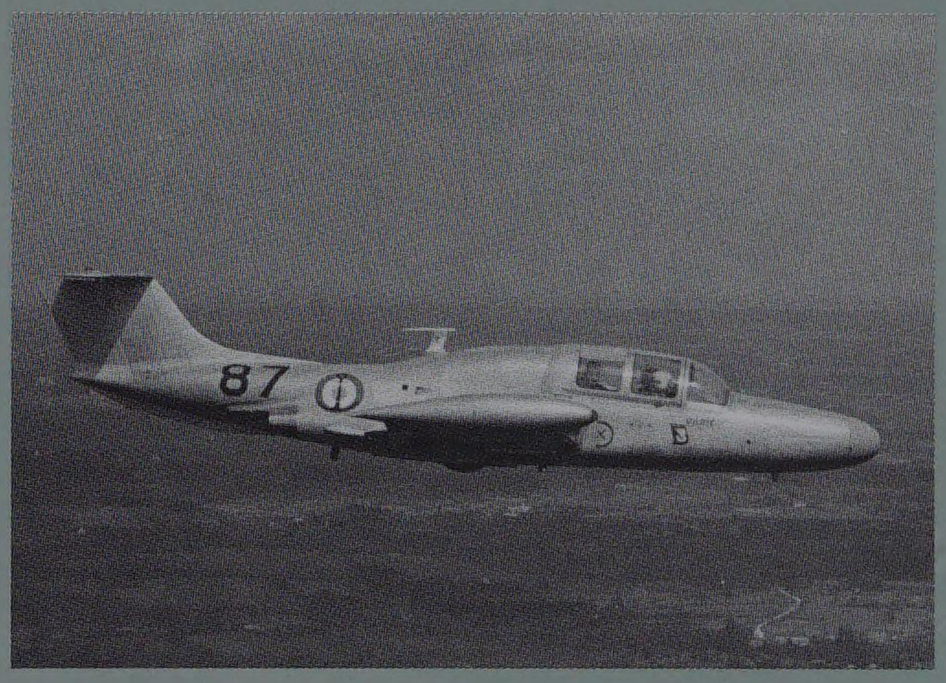


15.5.1954
The N 1402 Gerfaut was an experimental aircraft built by SNCAN. It had delta wings and was the first European aircraft to break the sound barrier in horizontal flight. Here seen equipped with type AA 20 air-to-air missiles.



25.6.1954
The first Do 25 to be built by the Spanish company CASA completes its maiden flight. The project originated from an invitation to tender for a liaison aircraft with short takeoff capabilities issued by the Spanish Air Ministry.

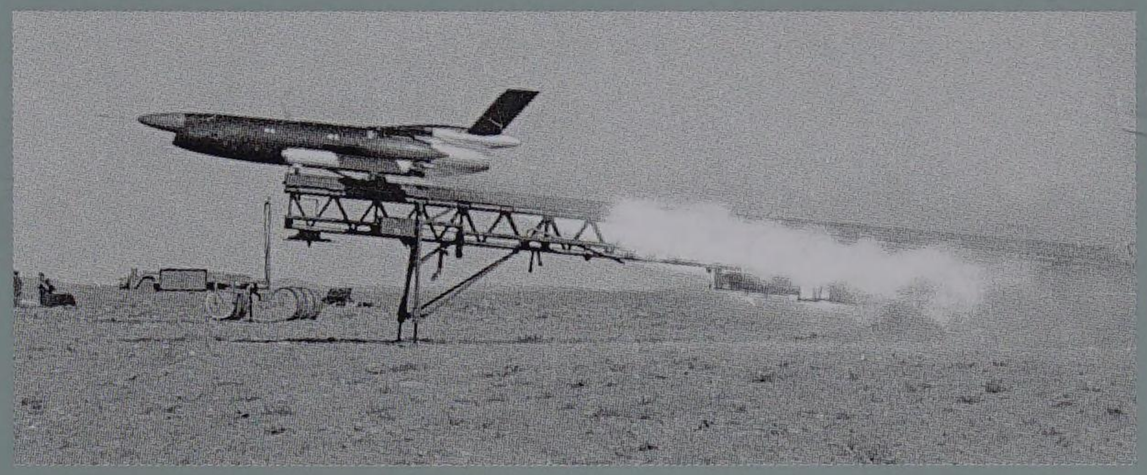




29.7.1954
The Morane-Saulnier MS 760 "Paris", the world's first business jet, was also delivered to the USA and other foreign customers. Among the purchasers were the Shah of Persia and the King of Morocco.

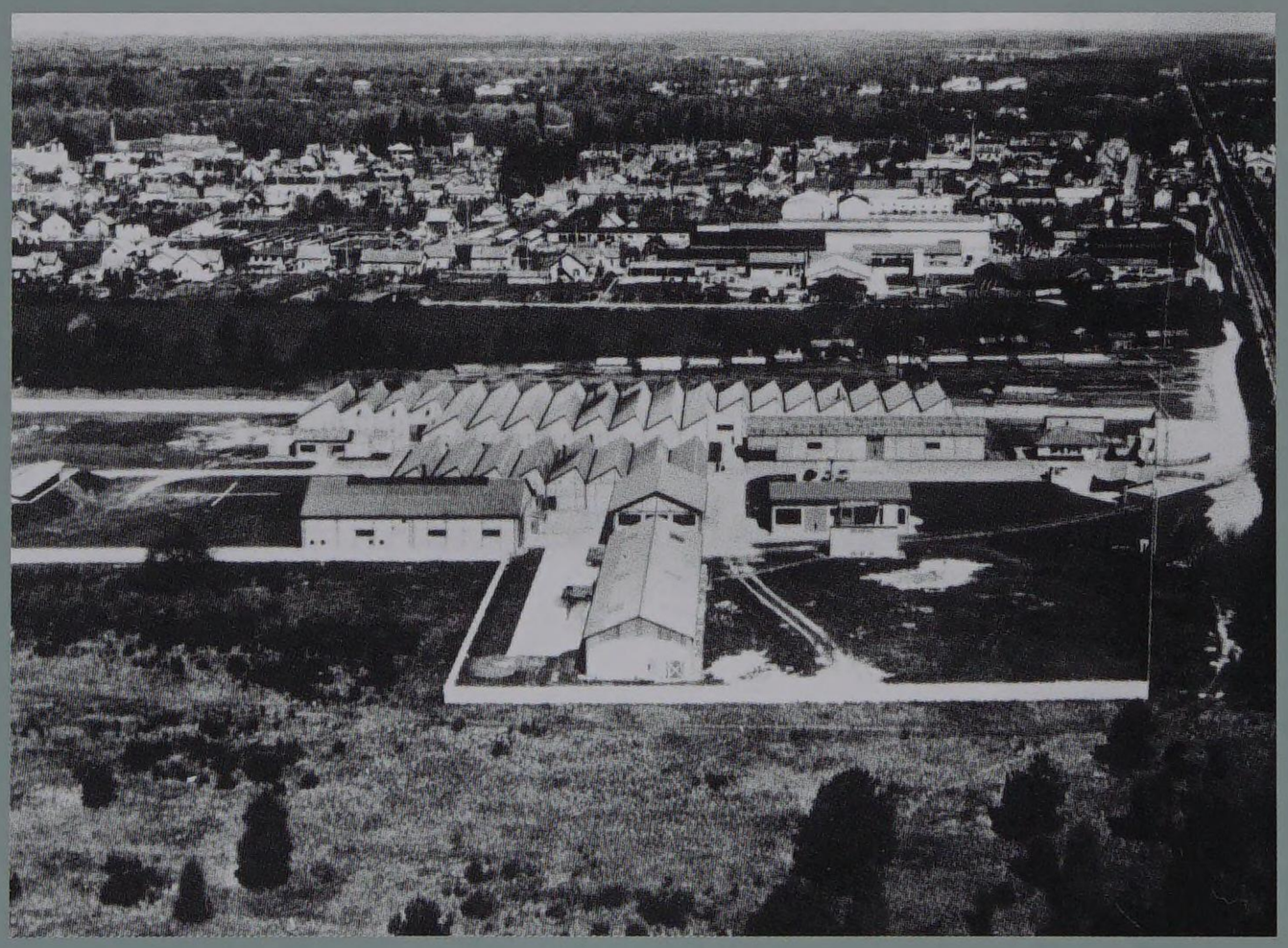
9.4.1954
The ground-to-air missile SE 4400 reached Mach 3.7, thus setting a new speed record. The world altitude record of 67,000 m (41.63 miles) it also set for an air-breathing rocket has remained unbeaten to the present day.

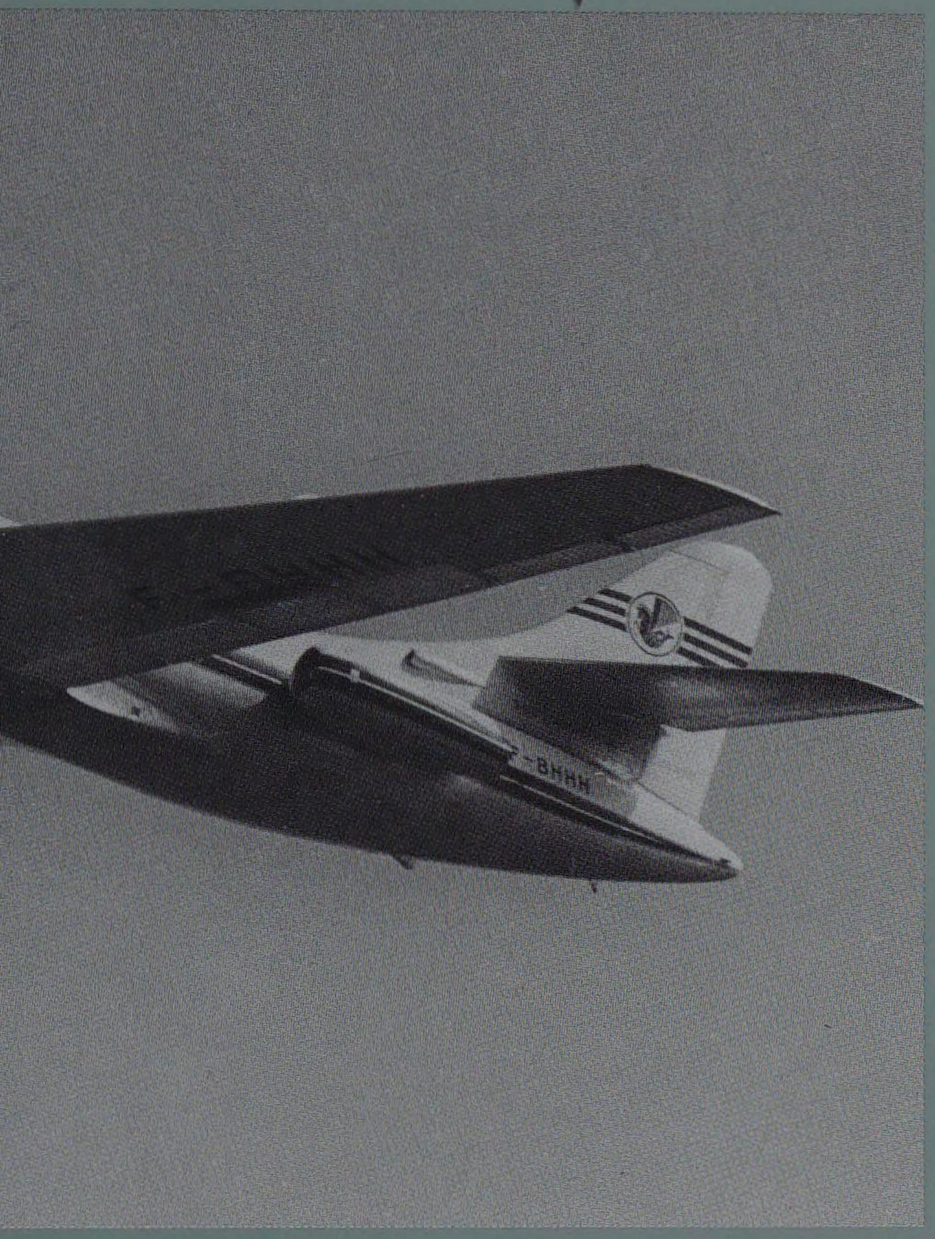
January 1955
1,569 units of the target drone CT 20 were manufactured for France, Sweden, Egypt and NATO firing ranges.



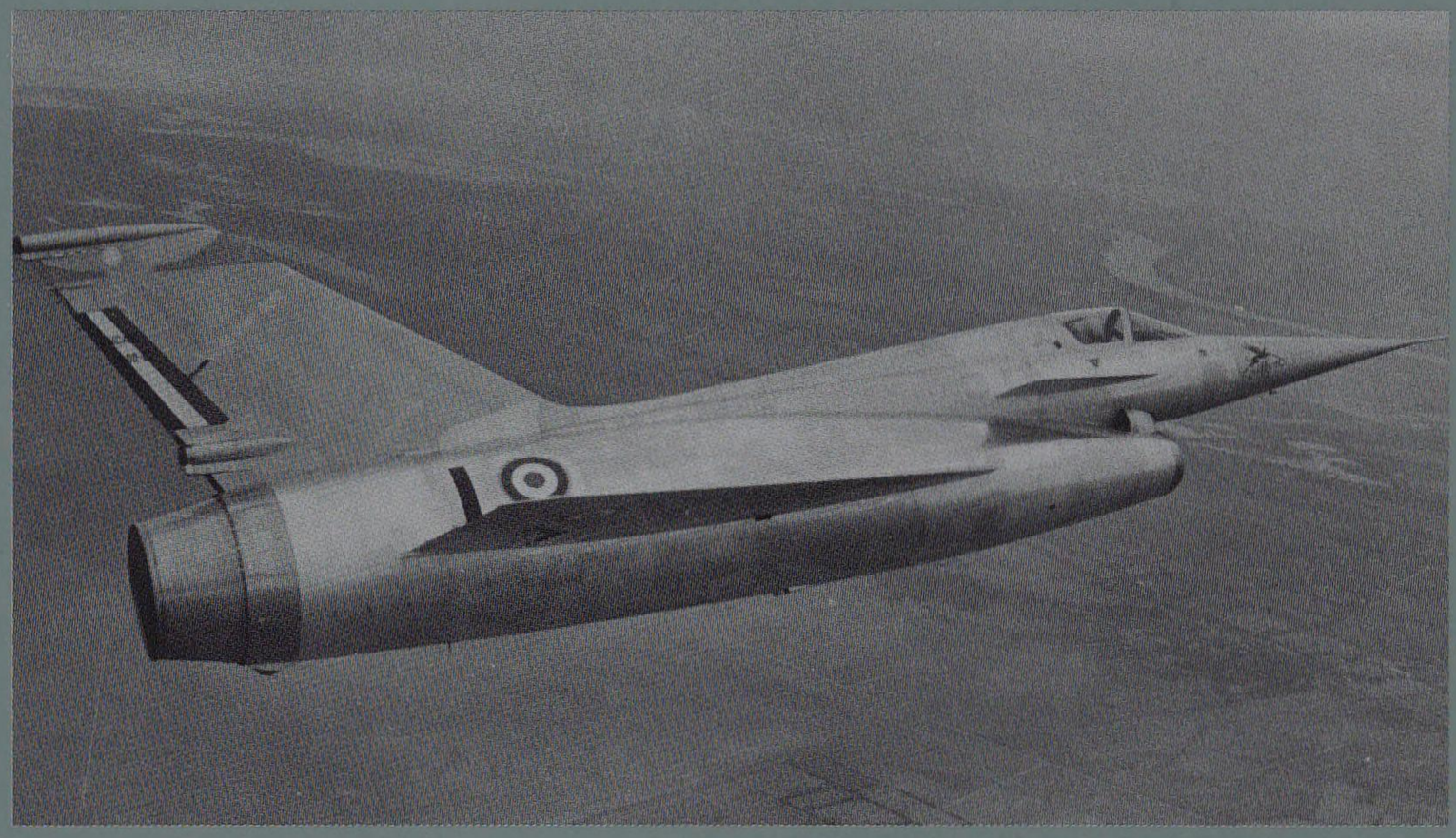
◁ ***12.3.1955***
The Lama version of the world's first series production helicopter to be equipped with a turbine engine, the Alouette II SE 3130, has held the world altitude record of12,442 m (approx. 40,820 ft) since 21.6.1972. 1,724 units of this helicopter were built, some under licence in India.

1955
Following a major order for 12,000 launchers for the M 116 unguided missile, with which the Météore, Mystère, Vautour and a number of other aircraft are to be armed, Matra builds a production plant at Salbris.





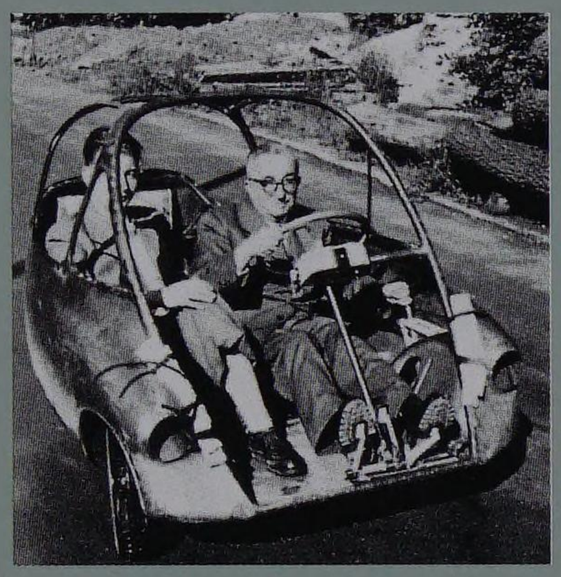
20.9.1955
The Nord 1500 Griffon was the world's first supersonic aircraft equipped with a ramjet. Eugen Sänger, who worked in France from 1946 to 1954, played a major role in the design of the engine. The Griffon, powered by a mixed ramjet/jet engine, set the world speed record of an average 1,643 km/h in a 100 km closed loop on 25.2.59. The pilot André Turcat received the American Harmon Trophy for this feat.



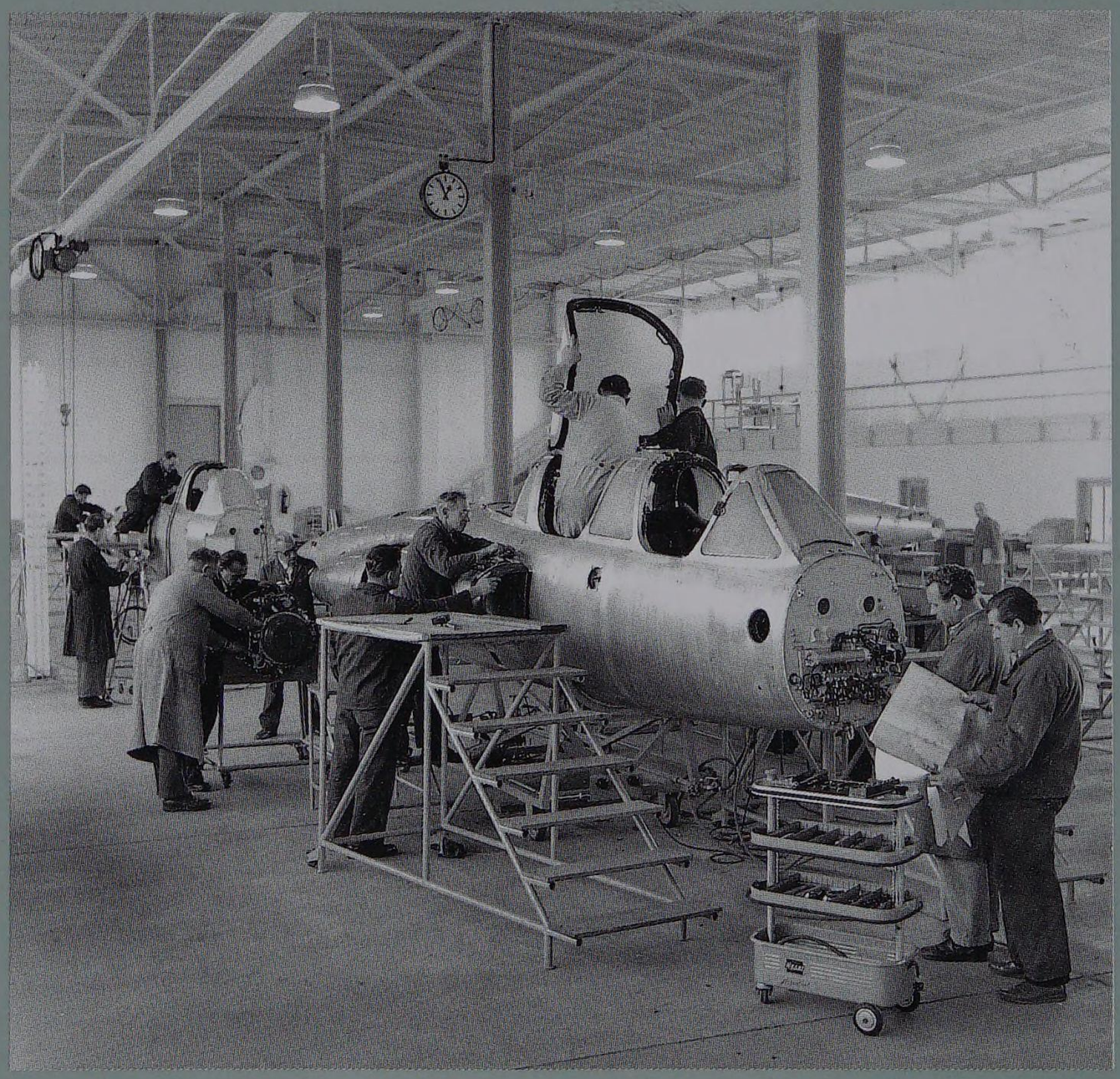
27.5.1955
282 units of the medium-haul passenger jet Caravelle SE 210 were built. Here, President de Gaulle in the Caravelle production hall at Toulouse.

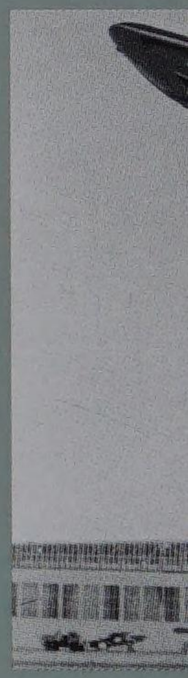
28.9.1955
The C-207 Azor transport aircraft takes off on its first flight. In the photo: an aircraft in service with the Spanish Air Force.

20.4.1956
The SE 212 Durandal interceptor built by SNCASE flies for the first time. Of this jet only two prototypes were built.

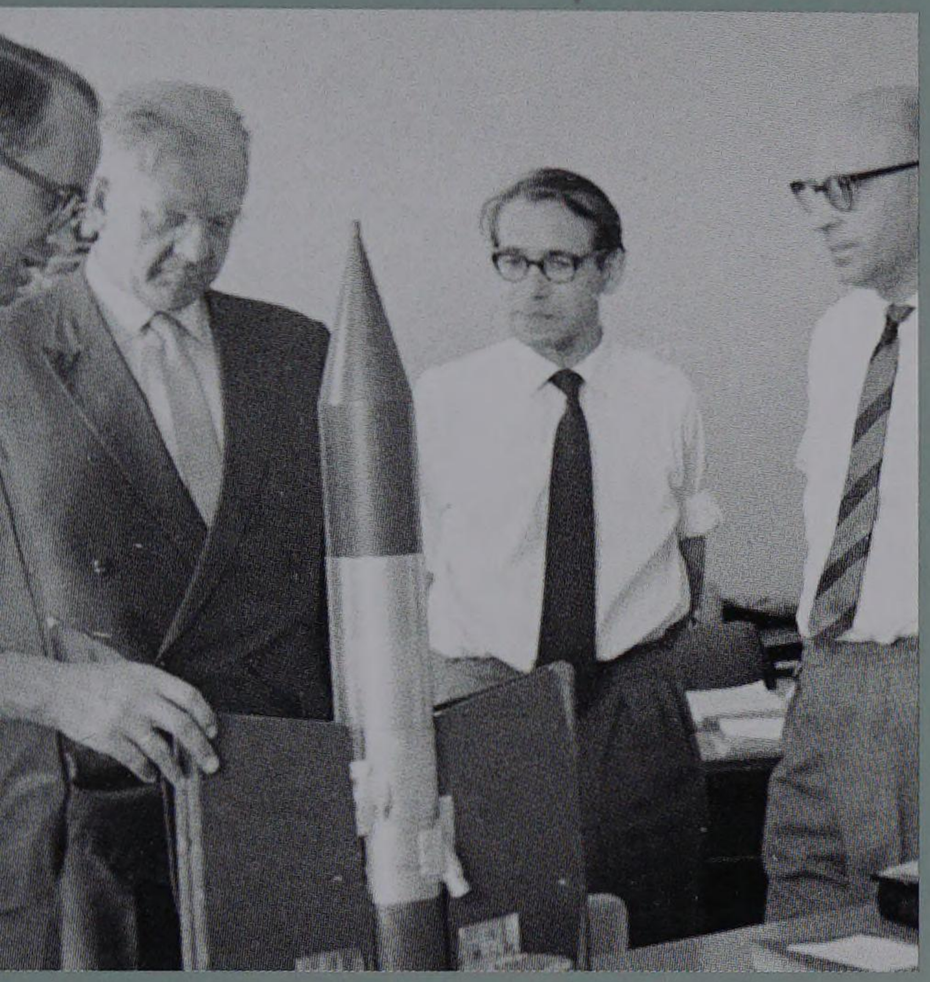


March 1956
Production starts on the Heinkel 150 microcar. Thanks to its lightweight design this cabin cruiser was a nifty little car, despite having an engine with a cubic capacity of only 175 cm³. The photo here shows Heinkel at the wheel of the prototype still without its body panelling.

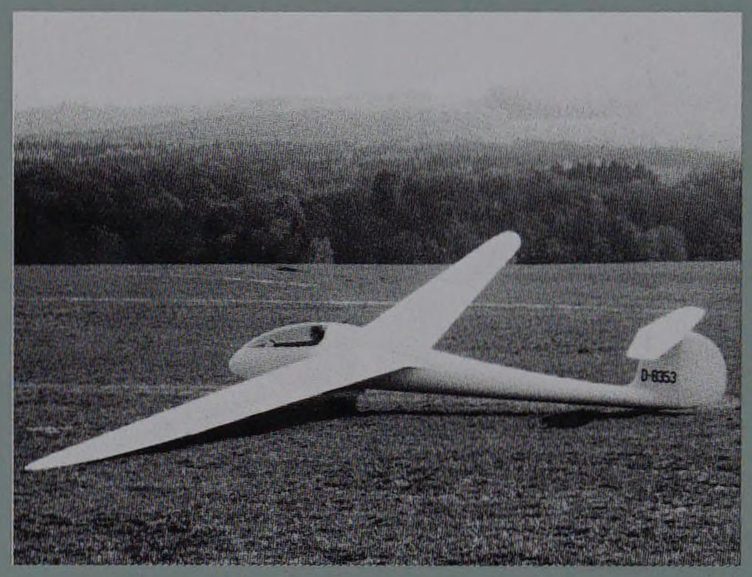




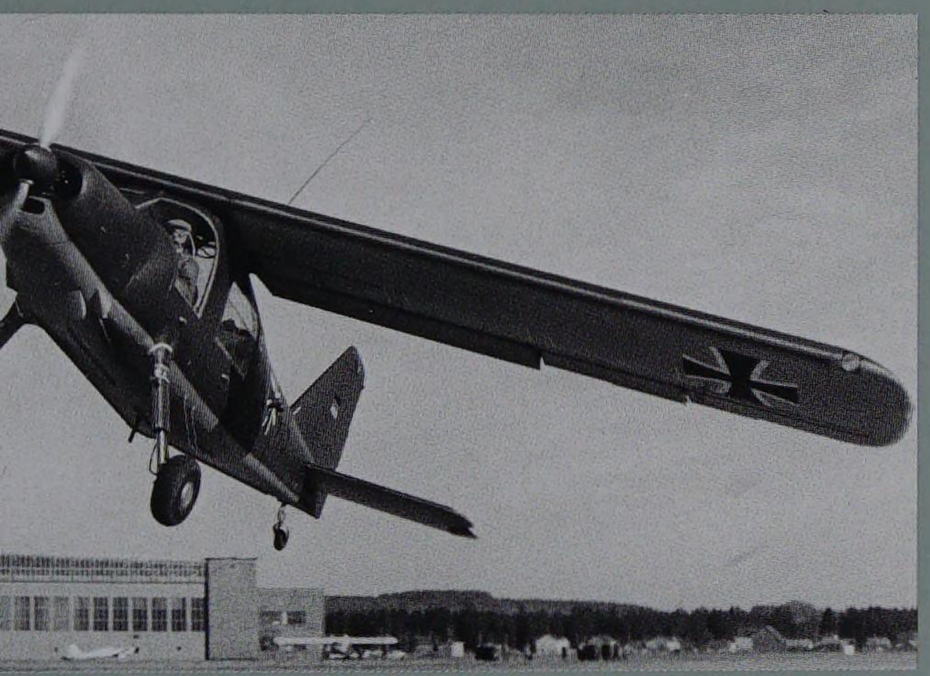
August 1956
The Messerschmitt and Heinkel companies receive the contract to manufacture the Fouga CM 170 Magister under licence.



19.1.1957
Bölkow Entwicklungen KG receives an order from the Bundeswehr for 2,000 Cobra antitank missiles. In the photograph (from l.): Ludwig Bölkow, Dr. Fischer from the German Ministry of Defence and the Bölkow employees Günter Kuhlo and Peter Nauschütz with an experimental model of the Cobra.



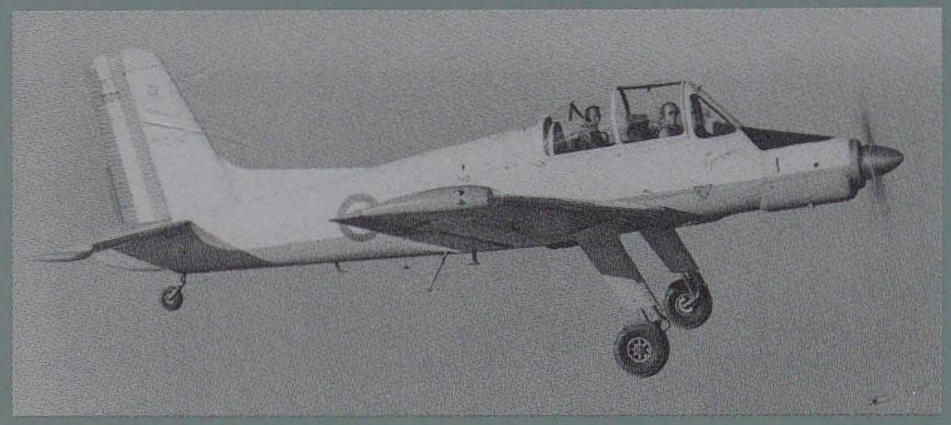
27.11.1957
First flight of the FS 24 Phönix, the first ever glider to be made of FRP. Developed by the Stuttgart University Flying Club, seven such gliders were built by Bölkow.



17.10.1956
This day sees the first flight of the Do 27 at Oberpfaffenhofen. With its order for 428 planes, the new Bundeswehr ensured that Dornier could re-establish its aircraft production in Germany. A "potential pilot" shows interest in the Do 27.

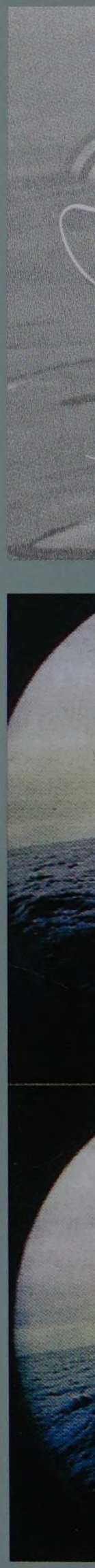
1957
The Fouga CM 175 Zéphyr, the naval version of the Fouga Magister, was used for 35 years to train pilots of the French Naval Air Arm flying from aircraft carriers. During its service life this aircraft achieved 5,300 landings on aircraft carriers.

30.4.1958
Roll-out of the Baade 152, designed by Prof. Brunolf Baade, at the state-owned VEB Flugzeugwerke Dresden. This was the first German jet-powered commercial aircraft and seated up to 76 passengers. The programme was discontinued in the spring of 1961 due to economic problems, demand in the east European market for such an aircraft being insufficient to cover costs.

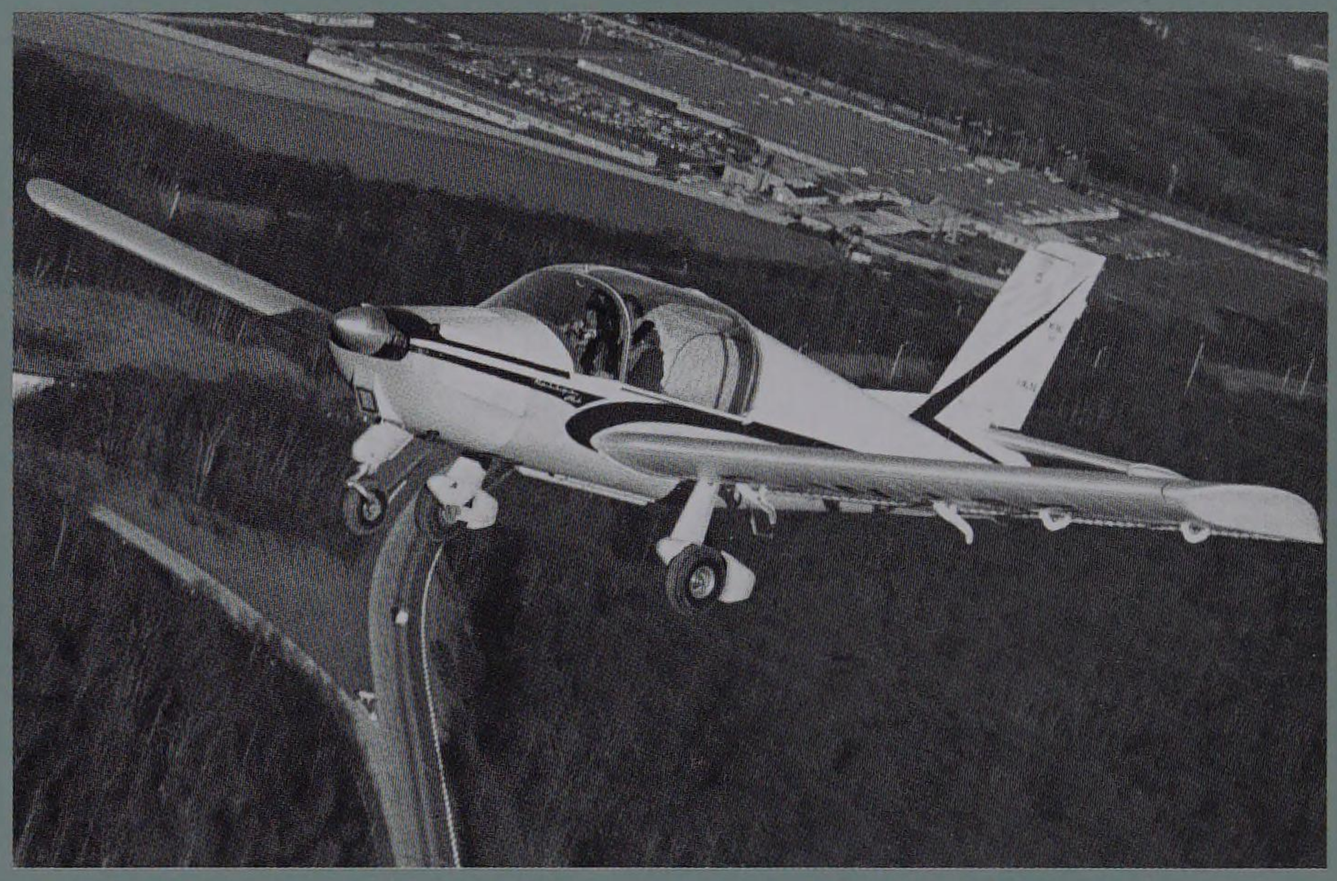


12.5.1958
The MS 1500 Epervier, a ground attack aircraft equipped with a turboprop engine, flies for the first time. It was capable of carrying stores equivalent to its own weight and taking off from unprepared airfields.

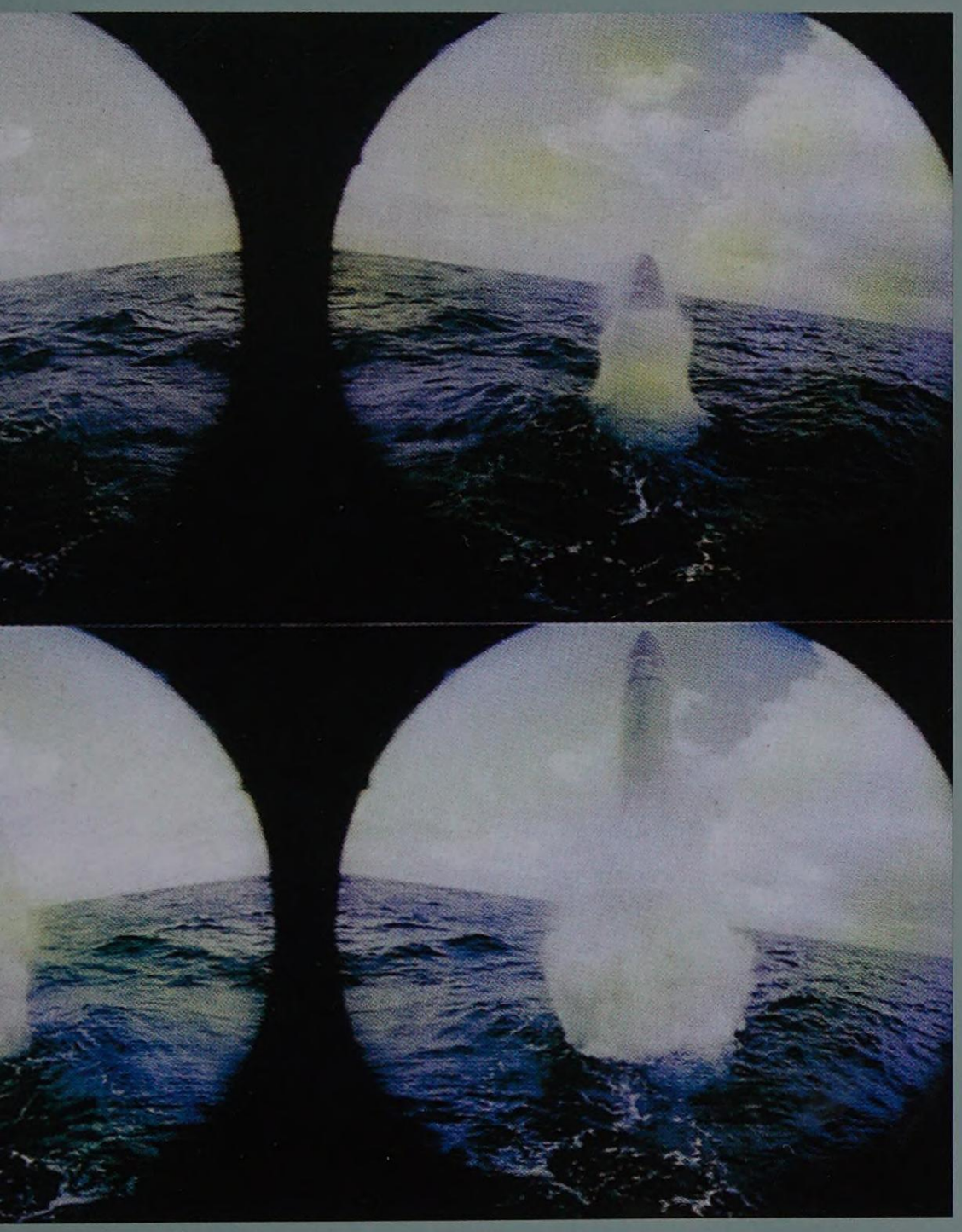
6.8.1958
Maiden flight of the first of more than 160 German Nord 2501 Noratlas aircraft built under licence. Construction of this French transport aircraft was carried out by a working group comprising the companies HFB, Weserflugzeugbau and Siebelwerke ATG (WMD Siat).



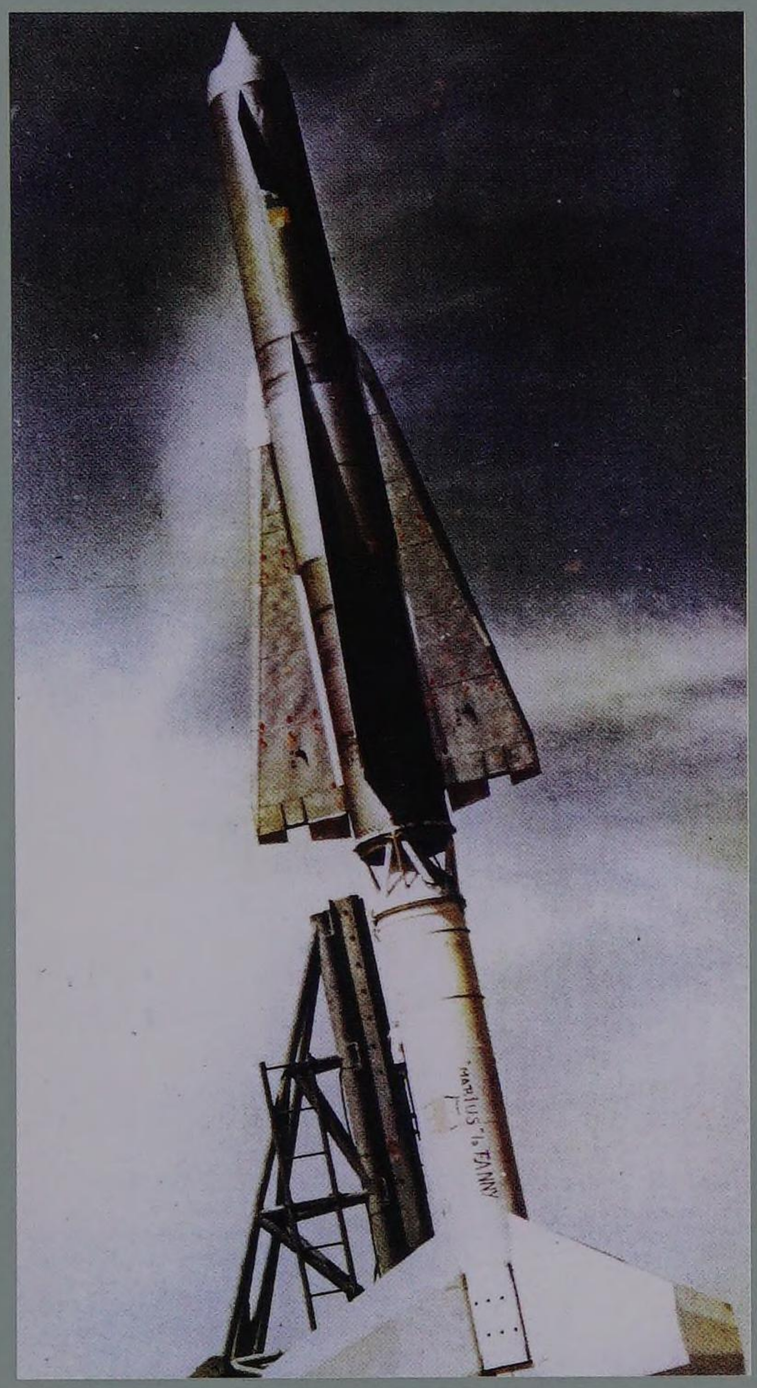
28.2.1959
2,047 units of the seven-seater helicopter Alouette III (SA 316, SA 319) were built, licensed production also taking place in India and Romania.

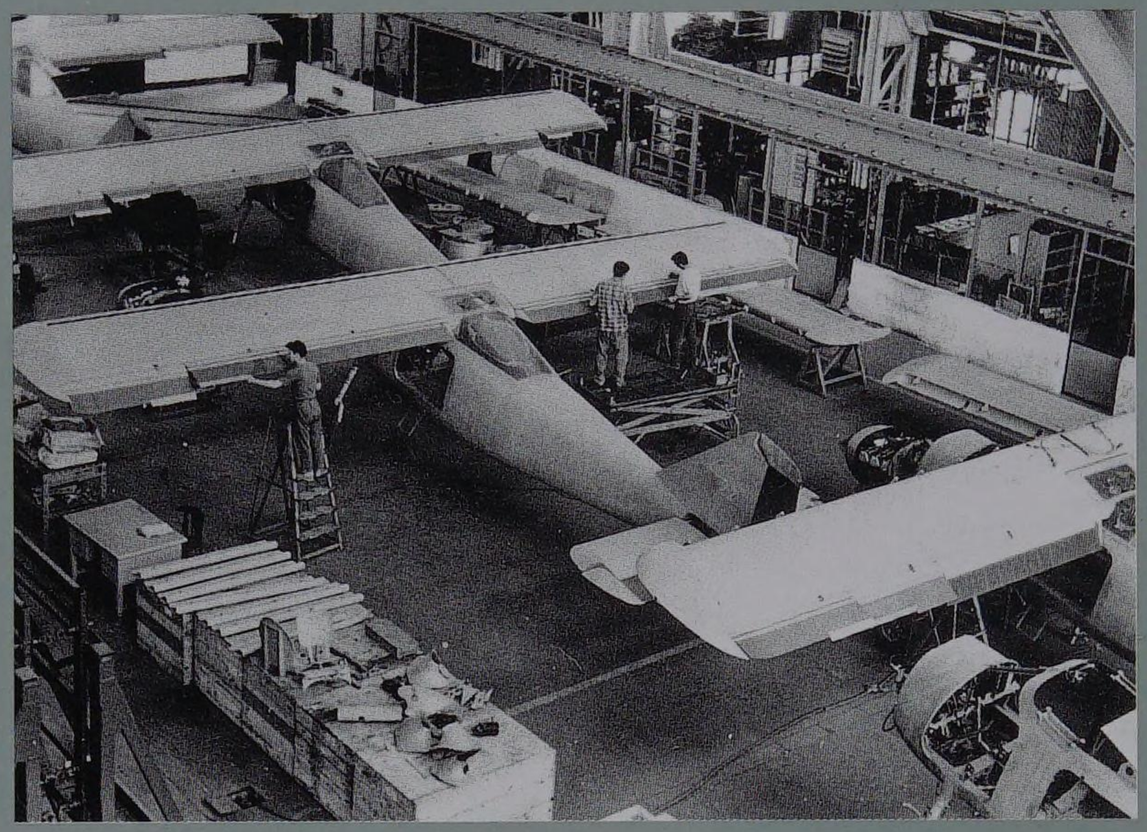


9.6.1959
Start of production for the Morane-Saulnier Rallye at the Tarbes plant, now the headquarters of EADS Socata. 3,500 units of this light tourer were sold to customers throughout the world. This aircraft is still built under the name "Koliber" by EADS PZL in Poland.



17.9.1959
The Société d'Etude et Réalisation d'Engins Balistiques (SEREB) is set up. This company provided the basis for developing France's nuclear forces. The picture shows the first launch of an M4 missile from an atomic submarine, which took place on 20.5.1975.

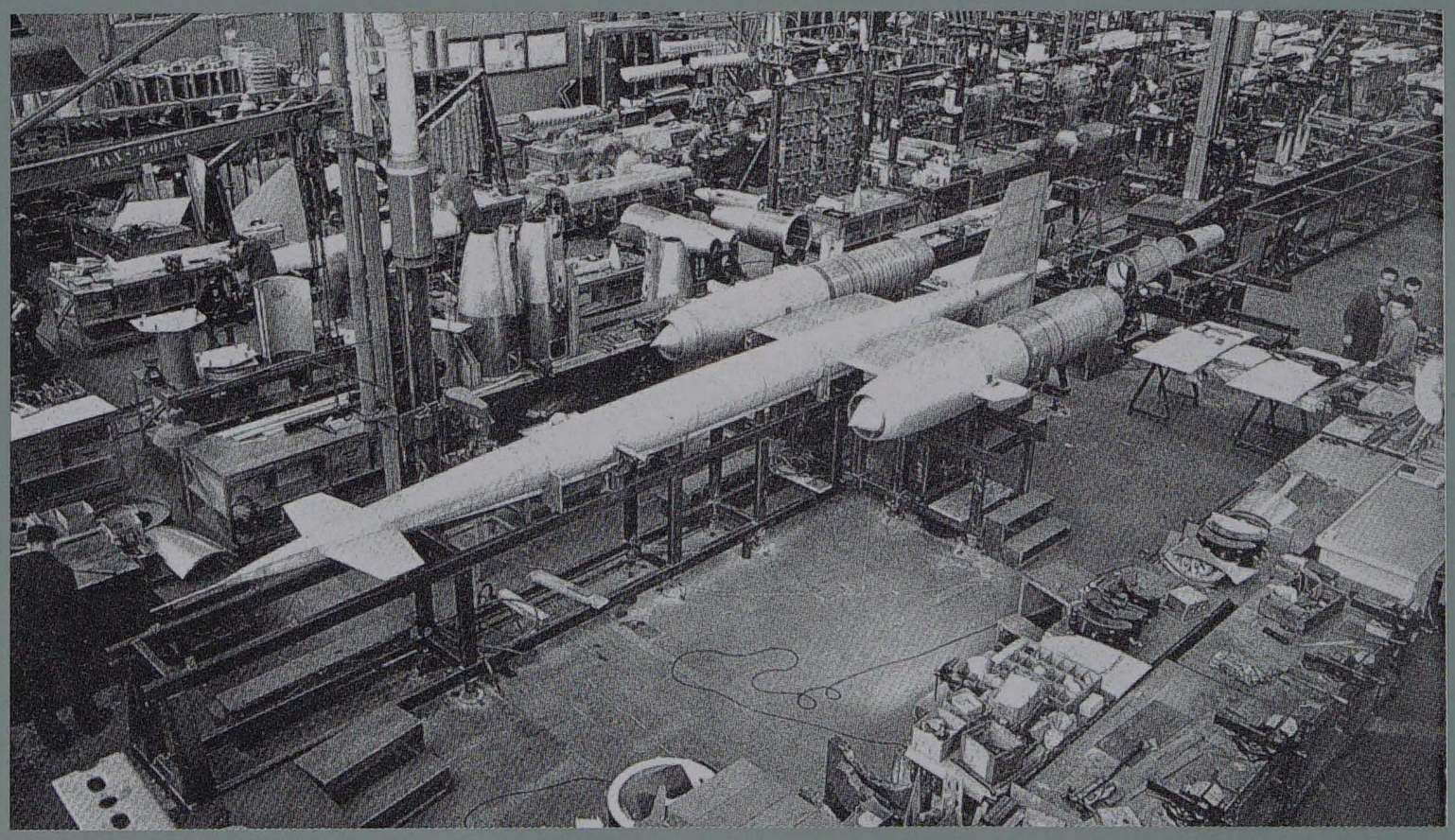




3.12.1959
The C-127, a Do 27 built under licence in Spain, undertakes its first flight at Sevilla. Here a view of the production hall at the Sevilla site.

◁ ***October 1959***
After the successful firing of the Griffon, Nord Aviation in Châtillon works on the further development of ramjet technology. The ground-to-air missile Véga is developed, which sets a new world speed record of Mach 4.2.

△
1959
Matra receives the first series production contract from the French Air Force for the R 511 air-to-air guided missile, which is equipped with semi-active electromagnetic seekers.

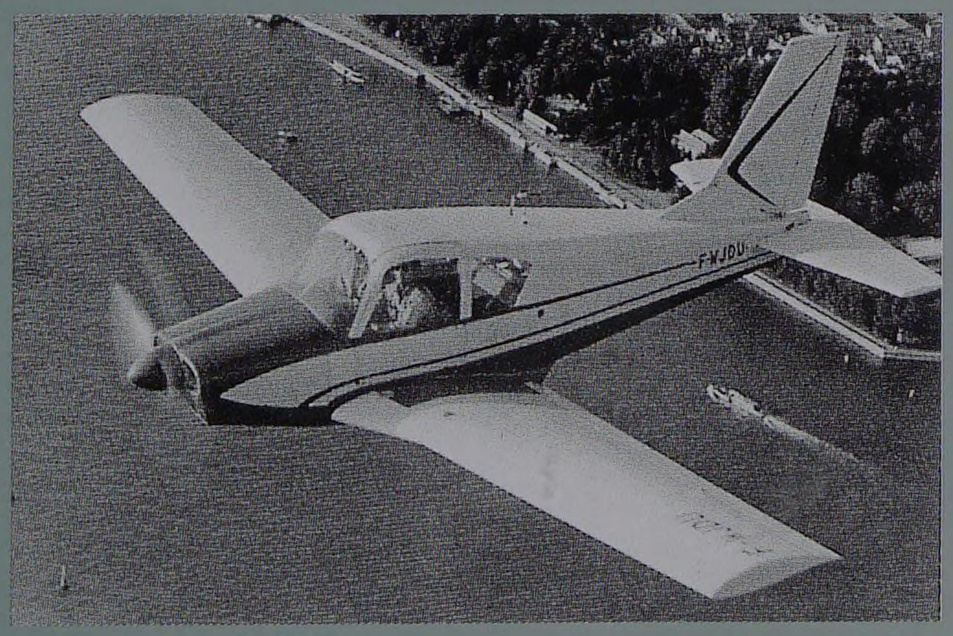


October 1959
A further development of the ramjet engine is the target missile CT 41, a device that is capable of reaching Mach 2.7 and which no aircraft of the day could intercept. The two projects were nevertheless abandoned after numerous successful firings.

△

3.5.1960
Start of the VJ 101 test series at Entwicklungsring Süd with a hovering rig. In July 1964, the resultant vertical interceptor fighter, the VJ 101, reached supersonic speed, being the first ever VTOL aircraft and the first German plane to achieve this.

Mid-1960
Start of series production under licence of the F-104 G Starfighter for the Luftwaffe by a north German and a south German working group of aeronautical companies. This contract gave the German aircraft industry an emphatic boost on its way to revival.



1960
First flight of the GY 80 Horizon, a tourer designed by the engineer Gardan. Sud Aviation built 267 of this aircraft, which was delivered to 24 countries.

"I can remember a conversation I had with engineer General Daum of Nord Aviation. He said: If I look at how aviation is developing, I see only two possibilities: either we cooperate at an international level or we cease to exist. And if we collaborate with international partners, our natural partner is the reviving German aviation industry. Daum was an outstanding man, a European par excellence."

Felix Kracht (1912-2002), major initiator of Franco-German cooperation and one of the founding fathers of the Transall and Airbus programmes

1961–1970

14.9.1961
First flight of the one-man Bölkow Bo 103 helicopter in Neubiberg. The test results went into the development of the Bo 105.

29.4.1961
The four-engine business aircraft Potez 840 was sold to customers in the USA, Germany and Morocco.

24.5.1961
Bélier/Centaure/Dragon: this family of solid-propellant rockets formed the basis for space programmes in Argentina, Brazil, India and Pakistan. They were delivered to Belgium, Sweden and ESRO (predecessor of ESA), 275 units being built in all. These rockets were also built by India and Pakistan under licence.

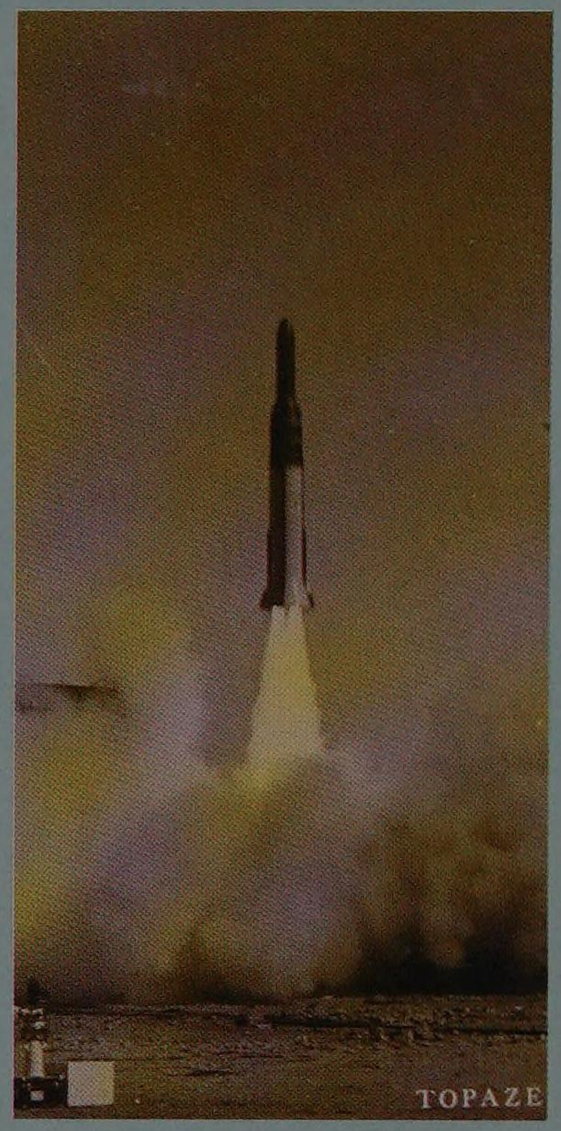
16.10.1961
In Germany, the Luftwaffe brings its first light fighter, the Fiat G 91, into service. The "Gina", developed by Fiat/Aeritalia, was built under licence by Dornier, who cooperated with Messerschmitt and Heinkel. From 1960 to 1968, 294 single-seaters (G 91/R3) and 22 trainers (G 91/T3) were delivered to the Luftwaffe.

30.3.1962
First flight of the Bo 208 Junior, a sports aircraft built by Bölkow GmbH. This is an improved version of a plane designed the Swedish engineer Björn Andreason. 210 were built at the Laupheim plant.

1962
Matra becomes the prime contractor for the first French experimental satellite, the A1, also known as Astérix. Some years later, on 26.11.1965, the satellite successfully reaches its predefined orbit aboard a French Diamant launcher.

1962
Start of the Talgo (Tren Articulado Ligero Goicoechea Oriol) programme at CASA's Getafe plant. Here, the structures were manufactured for the Talgo rolling stock using light metal alloys. The carriage bodies looked rather like aircraft fuselages, but were not as solidly built, not being subject to the loads placed on aerostructures. In 1962, Patents Talgo contracted CASA to built carriage structures and a total of 318 frames were produced for the various types and models.

7.12.1962
101 units of the SA 3210 Super Frelon, successor to the Frelon, are built and see service in eleven countries. This model sets a world speed record of 350 km/h. The prototype SE 3200 Frelon, which first flew on 10 June 1959 and was also equipped with three engines, was the world's first helicopter with a free-shaft turbine.

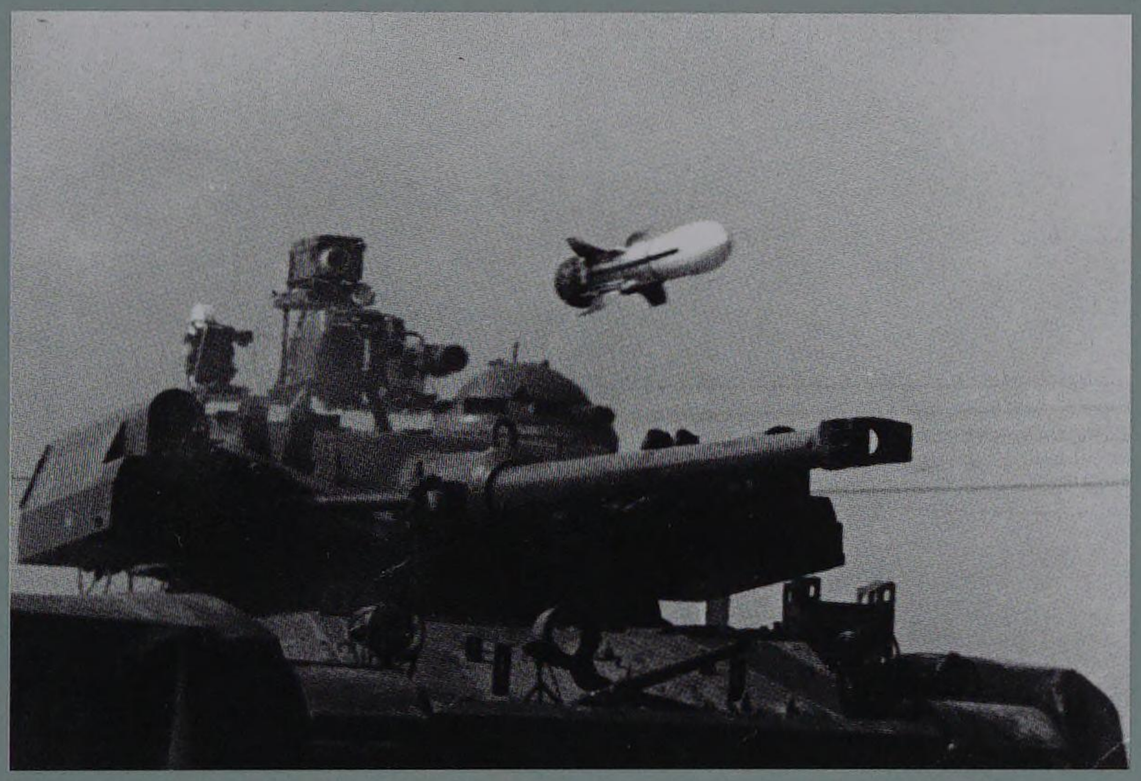


19.12.1962
First launch of the Topaze rocket, successor to the Agate, developed by SEREB. Topaze is the first French rocket to be equipped with an inertial navigation system and gimballed nozzles. It formed the second stage of the Diamant rocket.

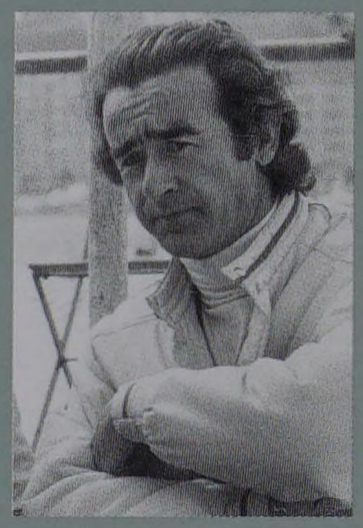
24.12.1962
The Nord 262 Frégate, developed at Nord Aviation, takes to the skies for the first time above Villaroche. This regional aircraft was designed to carry 26 passengers and a total of 111 units were built.

25.2.1963
The Franco-German Transall C-160 transport aircraft undertakes its maiden flight at Mellun-Villaroche. On the French side the company Nord Aviation and on the German side Weserflugzeugbau and Hamburger Flugzeugbau participated in this bilateral programme. In total, 213 aircraft of this type were built for the French, German, Indonesian, South African and Turkish air forces.

1963
First test firing of the Milan antitank guided missile, which had already been defined in 1962 by Nord Aviation and Bölkow KG on the basis of the SS9 project. On 12 April 1963, a bilateral government contract is placed for the development of this missile. Deliveries commence in 1973. In the meantime, 334,000 units have been delivered to 44 countries.



1963
First test firing of the Hot missile, an antitank weapon with a range of 4,000 metres. The German and French governments placed orders for this system in January 1964. Since 1976, 86,000 units have been delivered to 18 countries.



1963
Jean-Luc Lagardère becomes Managing Director of Matra. At this time the company has a workforce of 1,450.

30.1.1964
First hover flight of the Bo 46 experimental high-speed helicopter, equipped with the Derschmidt semi-rigid fast rotor system.

21.4.1964
Maiden flight of the 7- to 14-seat HFB 320 Hansa Jet, the first German business aircraft.

4.6.1964
Entwicklungsring Süd (EWR), founded by the companies Bölkow, Heinkel and Messerschmitt, shows its vertical takeoff plane VJ 101, which had completed its first hover flight on 10.4.1963, at the ILA exhibition in Hanover.

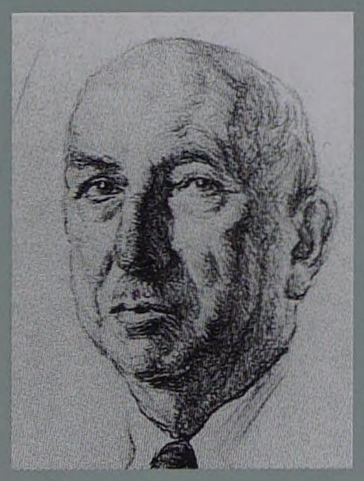
◁ ***1964***
The control test rig specially developed for the vertical takeoff aircraft Do 31 takes off for the first time.

1964
First firing of a short-range ground-to-air missile, developed jointly by Nord Aviation and Bölkow Entwicklungen KG as a result of the Franco-German government agreement of 19 October 1964. This leads to the construction of the Roland air defence system, of which two versions are offered from the very beginning: the "clear-weather" Roland 1 and the "all-weather" Roland 2. 24,000 units have been delivered.

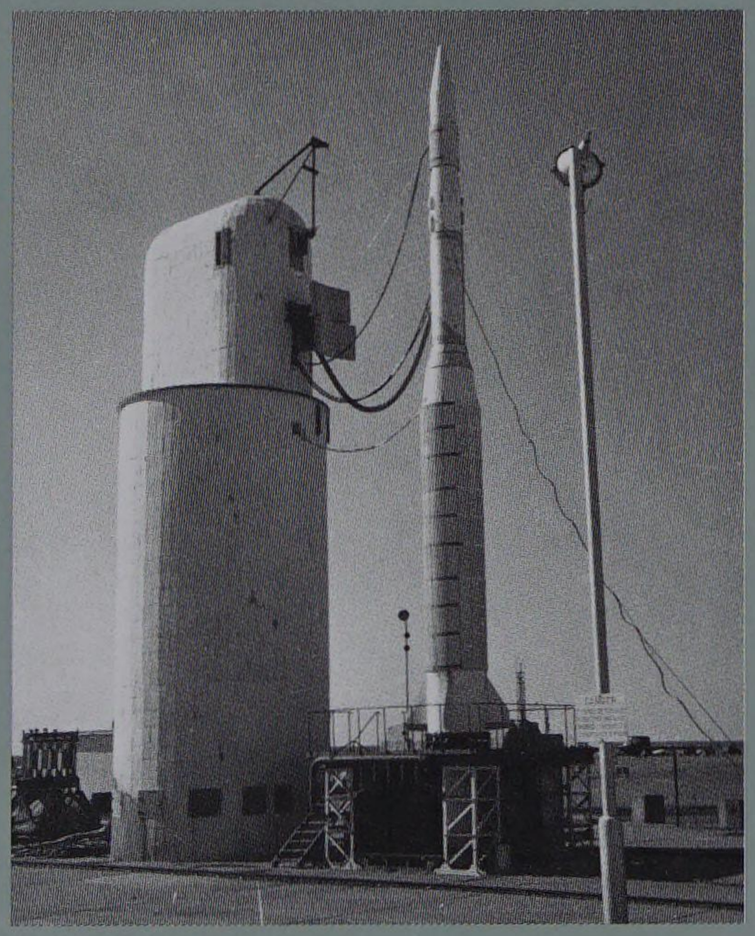
1964
The principles of lightweight construction used in aircraft manufacture were applied in the electric railcar Silberpfeil ("Silver Arrow") of the Cologne-Bonn Railways, which was developed and built by WMD-SIAT (later MBB) at Donauwörth, now the main German location of Eurocopter.

15.4.1965
The SA 330 Puma: this medium-weight twin-engine helicopter was the first of a long series that has been built in various versions down to the present day (more than 1,200 units).

23.10.1965
First firing of the SSBS rocket. The silo-launched ground-to-ground ballistic missile SSBS and the submarine-launched MSBS become operational in 1972, thus forming elements of the French strategic nuclear forces.



11.7.1966
Don José Ortiz de Echagüe, one of the founding fathers of CASA, becomes the company's CEO.



26.11.1965
Successful liftoff from the launch pad at Hammaguir in the Sahara for the Diamant launcher, developed by SEREB of France. The first and second stages were built by Nord Aviation, while Sud Aviation manufactured the third stage. The launcher transported the first French satellite Astérix into space.

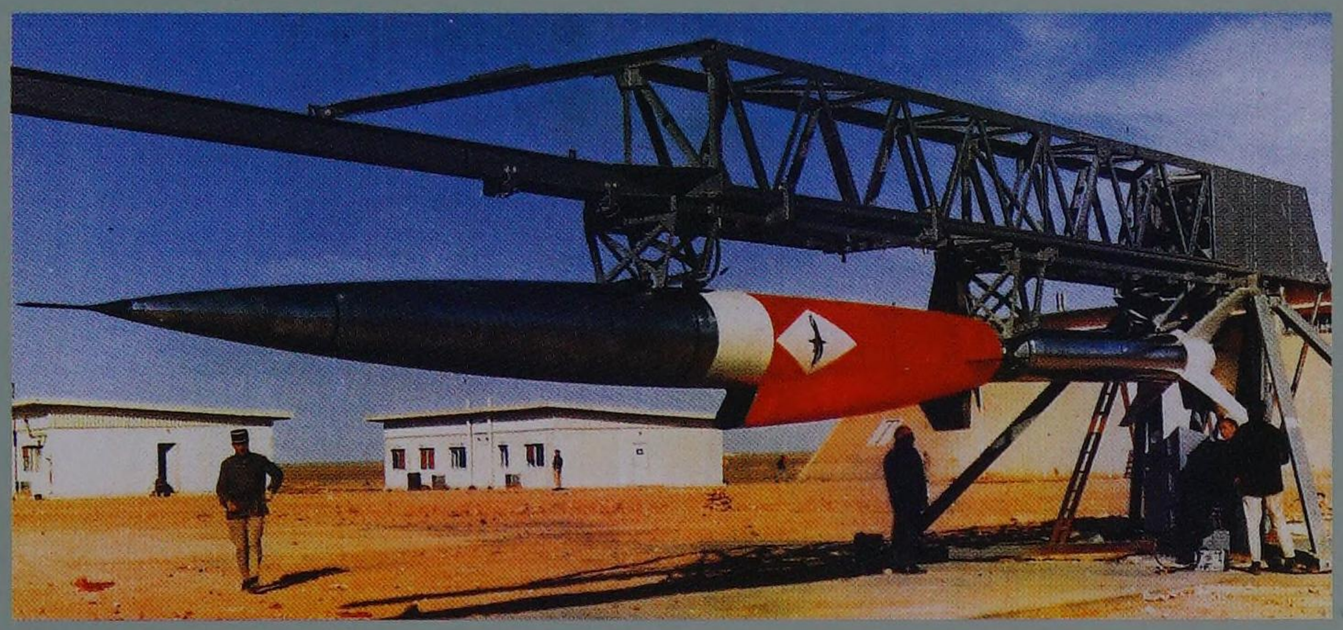
28.5.1966
First launch of a Europa I rocket from the Woomera range in Australia. The British Blue Streak formed the first stage. The third stage was a dummy.

23.2.1966
First flight of the Do 28 D Skyservant. To ensure a low selling price for this short takeoff aircraft, as many of the assemblies and components as possible were designed to be identical and exchangeable.

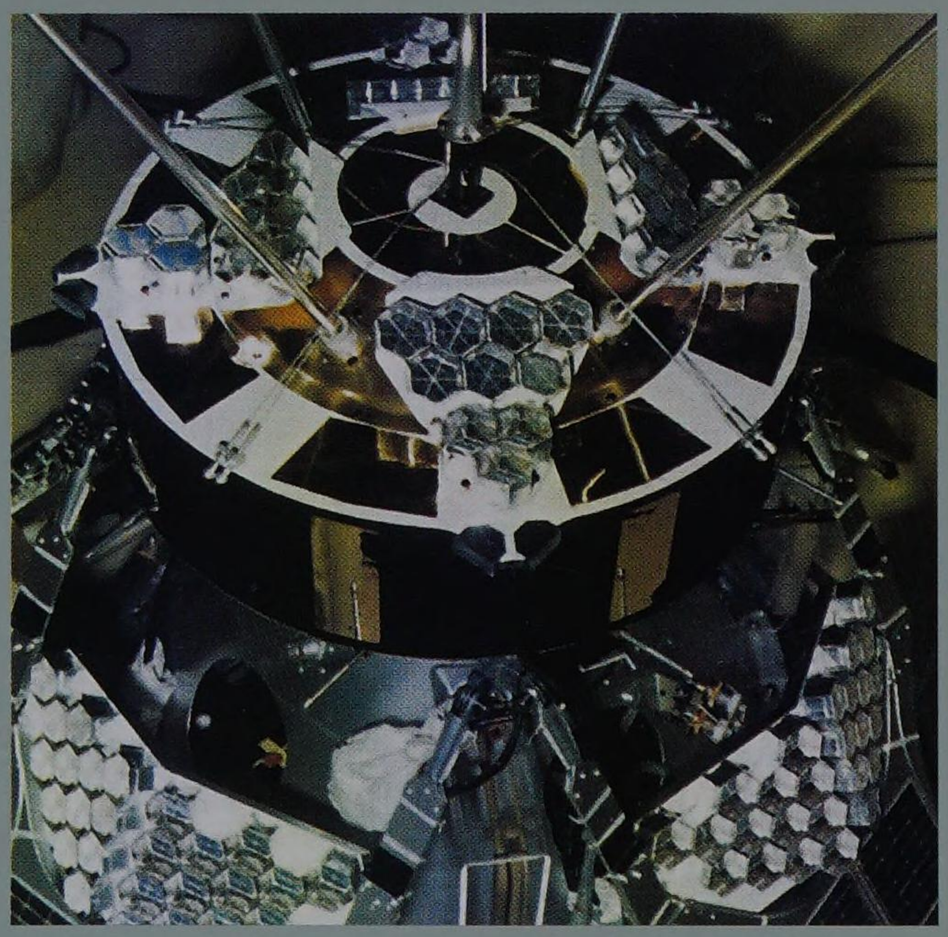
27.11.1966
The Coralie rocket, developed at LRBA and Nord Aviation, successfully lifts off from the Hammaguir base in the Sahara. This rocket also formed the second stage of the Europa 1 launcher.

16.2.1967
First flight of the Bo 105, at Ottobrunn. This is the first helicopter featuring a hingeless rotorhead without lead-lag hinges and having composite rotor blades. In the photo: company chief Ludwig Bölkow (r.) alongside test pilot Seeger. In the autumn of 1970, the first Bo 105 rescue helicopter is handed over to the German motoring organisation ADAC (photo below).

10.2.1967
The vertical takeoff Do 31 lifts off from the Dornier company airfield at Ober-pfaffenhofen near Munich for the first time.



29.1.1967
The first cruise missile of the post-war era was developed by Roger Béteille and was originally intended for launch from ships or aircraft such as the Mirage IV, Transall or Atlantic. The X 422 is a jet-powered, finless missile that reaches a speed of Mach 2. The operational version was to be fitted with a guidance system programmed with a number of waypoints to provide a low-altitude flight trajectory.



◁ ***8 and 15.2.1967***
Diadème D1C and D1D are the first European satellites to be equipped with laser reflectors. In February 1967, they are launched aboard Diamant rockets as the last missions from Hammaguir before the Algerian government closes the Sahara launch site on 1 July. These satellites represent the first application of the laser reflectors used on the Russian moon vehicle Lunokhod and, in 1970, marked the first East-West cooperation in the space field.

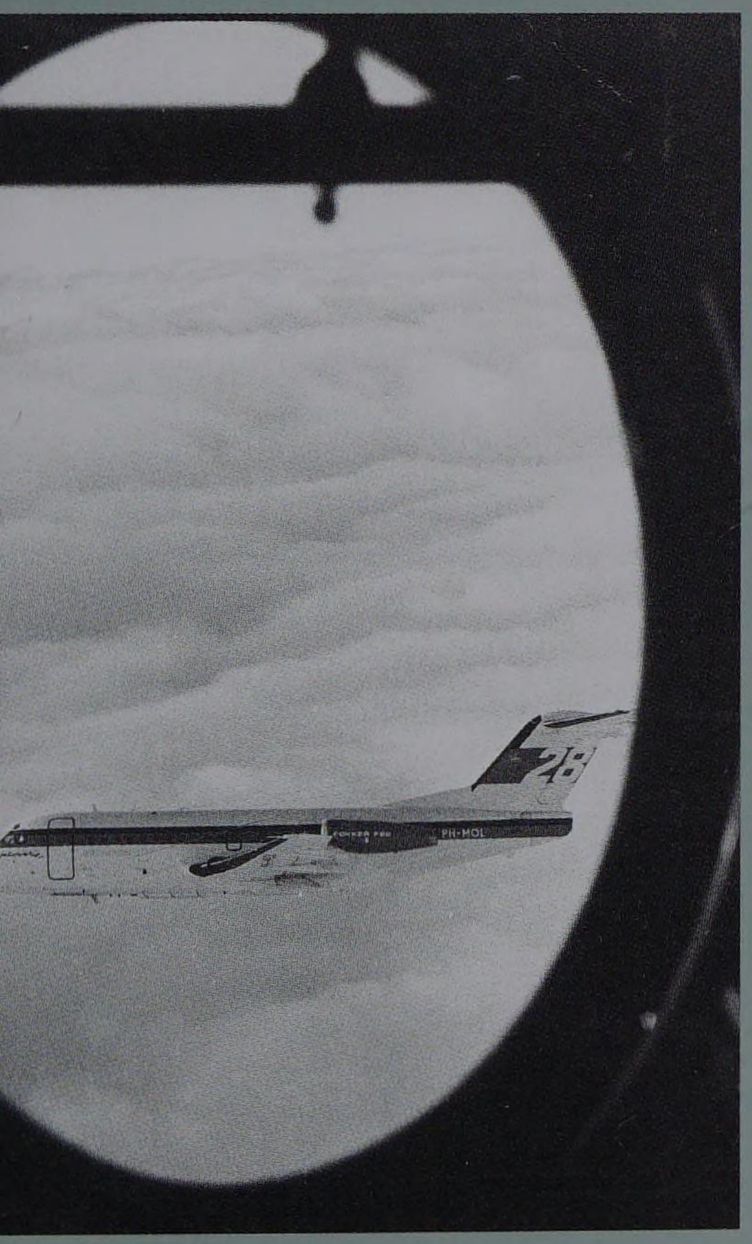
△

1.3.1967

First flight of the SIAT Flamingo in Laupheim. With this aircraft, Siebelwerke ATG of Germany later won a project competition for trainer aircraft.

12.4.1967

The SA 340 Gazelle helicopter is – like the Puma and Lynx – the result of cooperation with Westland. It is the first helicopter equipped with an encased tail rotor, known as a fenestron. 1,255 units of this helicopter were built and it set a world speed record.

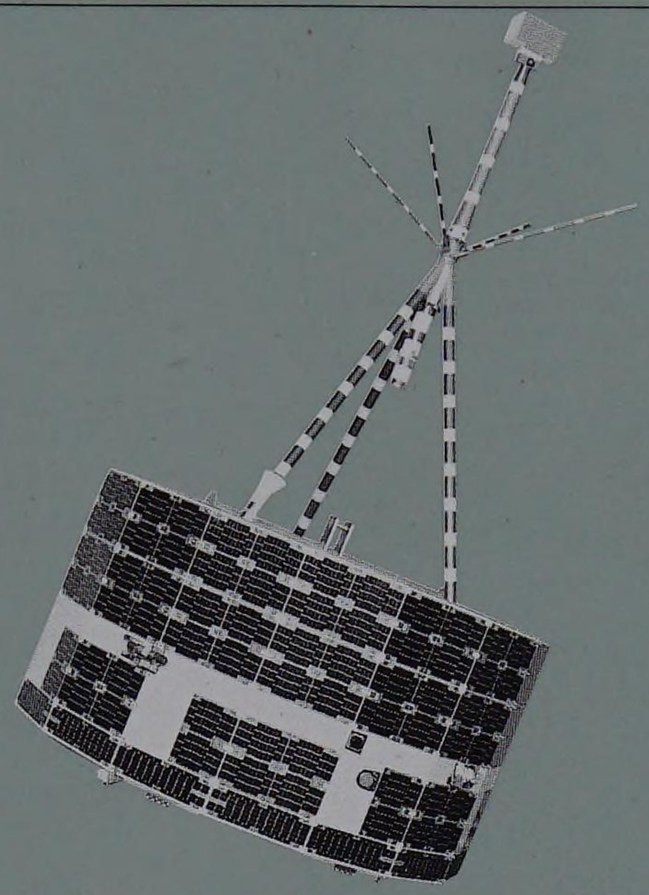


9.5.1967

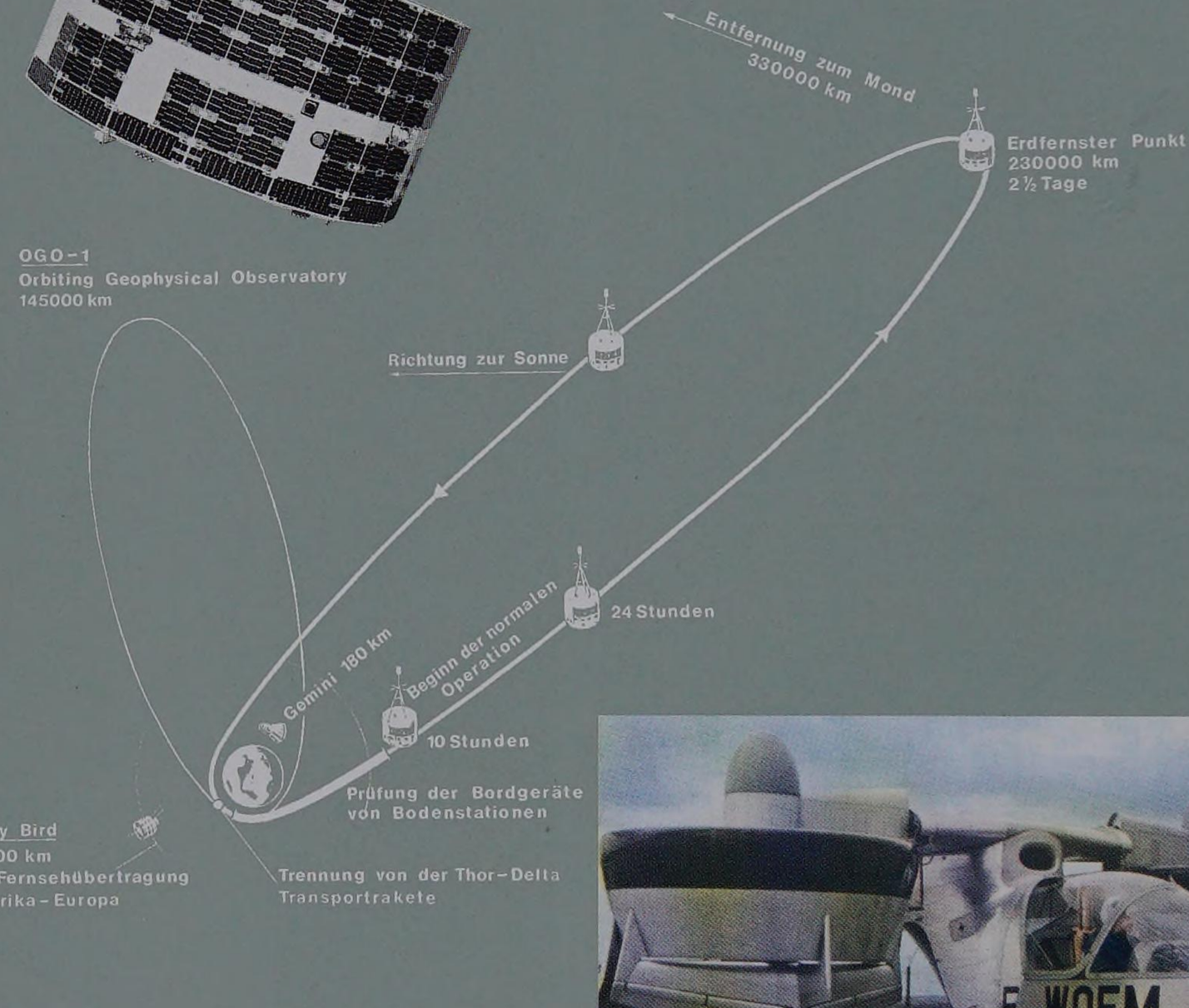
First flight of the twin-jet Fokker F28 Fellowship at Schiphol. This aircraft, designed for 55 to 65 passengers, can land on runways only 1,000 m long.

22.5.1968
A Northrop F-5 modified and built under licence by CASA flies for the first time. Here a view of the assembly hall at CASA's Getafe site.

25.1.1968
First firing of the Pluton. This ground-to-ground tactical nuclear missile equipped with an inertial navigation system and having a range of 120 km was launched from an AMX 30 type carriage. After 20 years of operational service with the French armed forces, it was decommissioned on 1 April 1993.



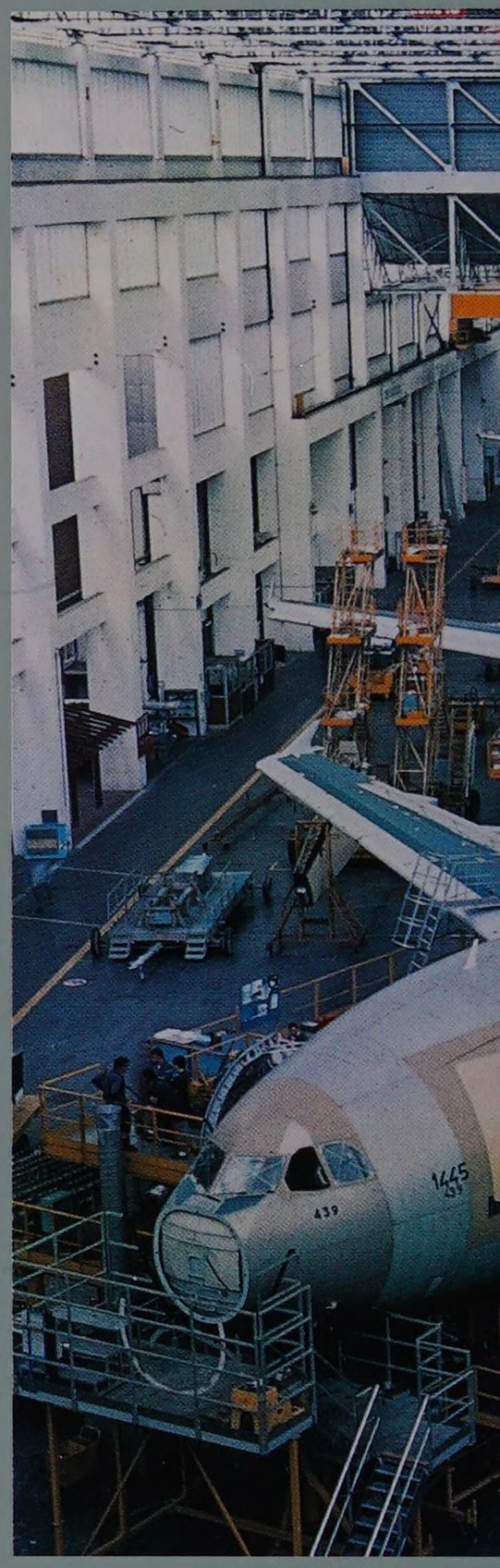
5.12.1968
The Heos A 1 satellite for the measurement of interplanetary magnetic fields is launched from Cape Kennedy. This European research satellite was built under the leadership of Junkers-Werke, then a subsidiary of Messerschmitt AG.



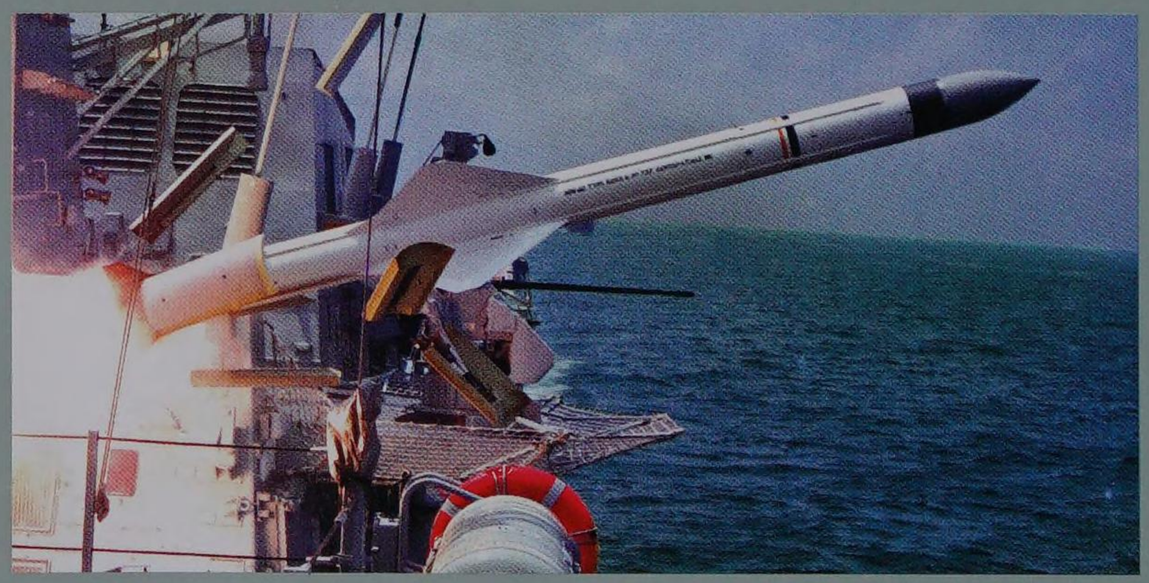
1968
An extremely advanced concept in its day, the aircraft Nord 500, the only "convertible" on the European air scene, takes off on its first test flight. Its rotors could tilt and act as propellers.

2.3.1969
The Franco-British supersonic airliner Concorde takes off on its first test flight in Toulouse.

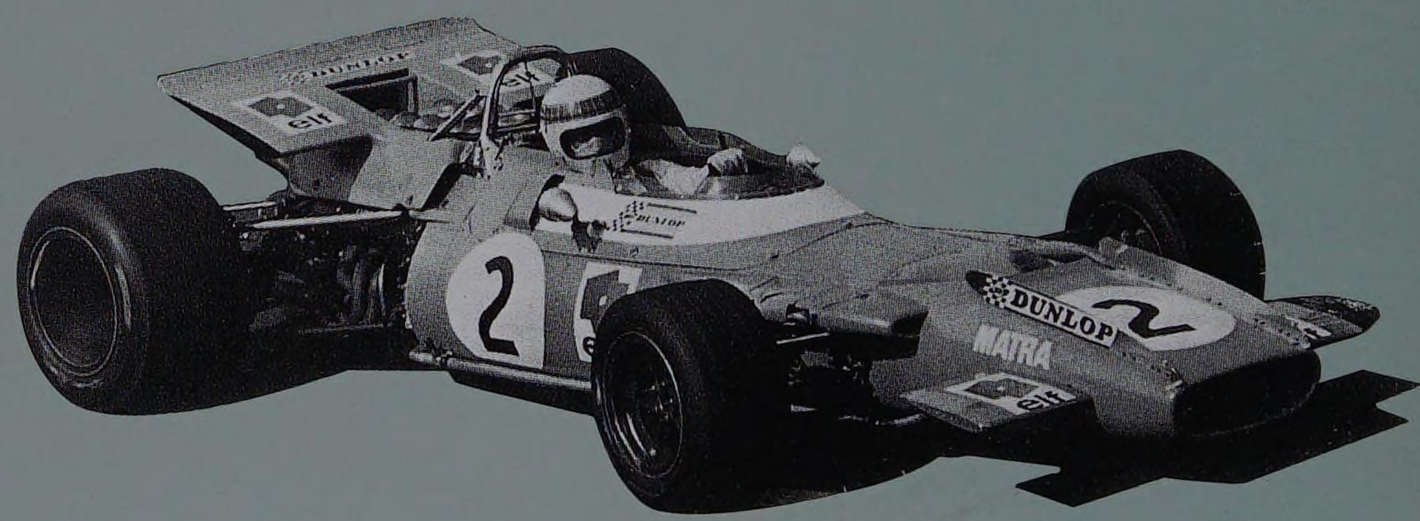
19.5.1969
The Airbus contract is signed by the German and French governments. 19 months later, on 18 December 1970, the partner companies Aerospatiale and Deutsche Airbus found the company Airbus Industrie as an economic interest grouping according to French company law with registered offices in Paris. The signatories were the future Airbus Chairman Henri Ziegler (left), the German Finance Minister of the day Franz-Josef Strauss (centre) and Ludwig Bölkow (right).



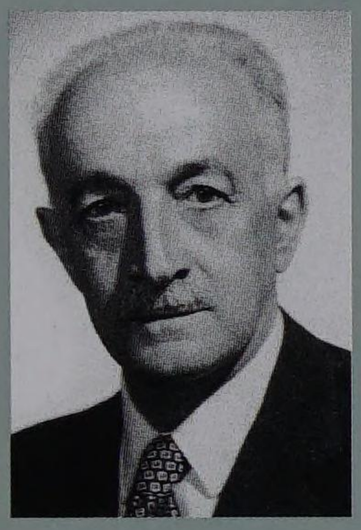
7.4.1969
The Exocet missile sets global standards in the combating of sea targets. Over 3,300 of these missiles have been in service in 32 countries.



8.11.1969
The first German research satellite Azur is launched successfully. Bölkow GmbH acted as systems leader. Other participants in the project were AEG-Telefunken, Dornier and ERNO-Raumfahrttechnik.

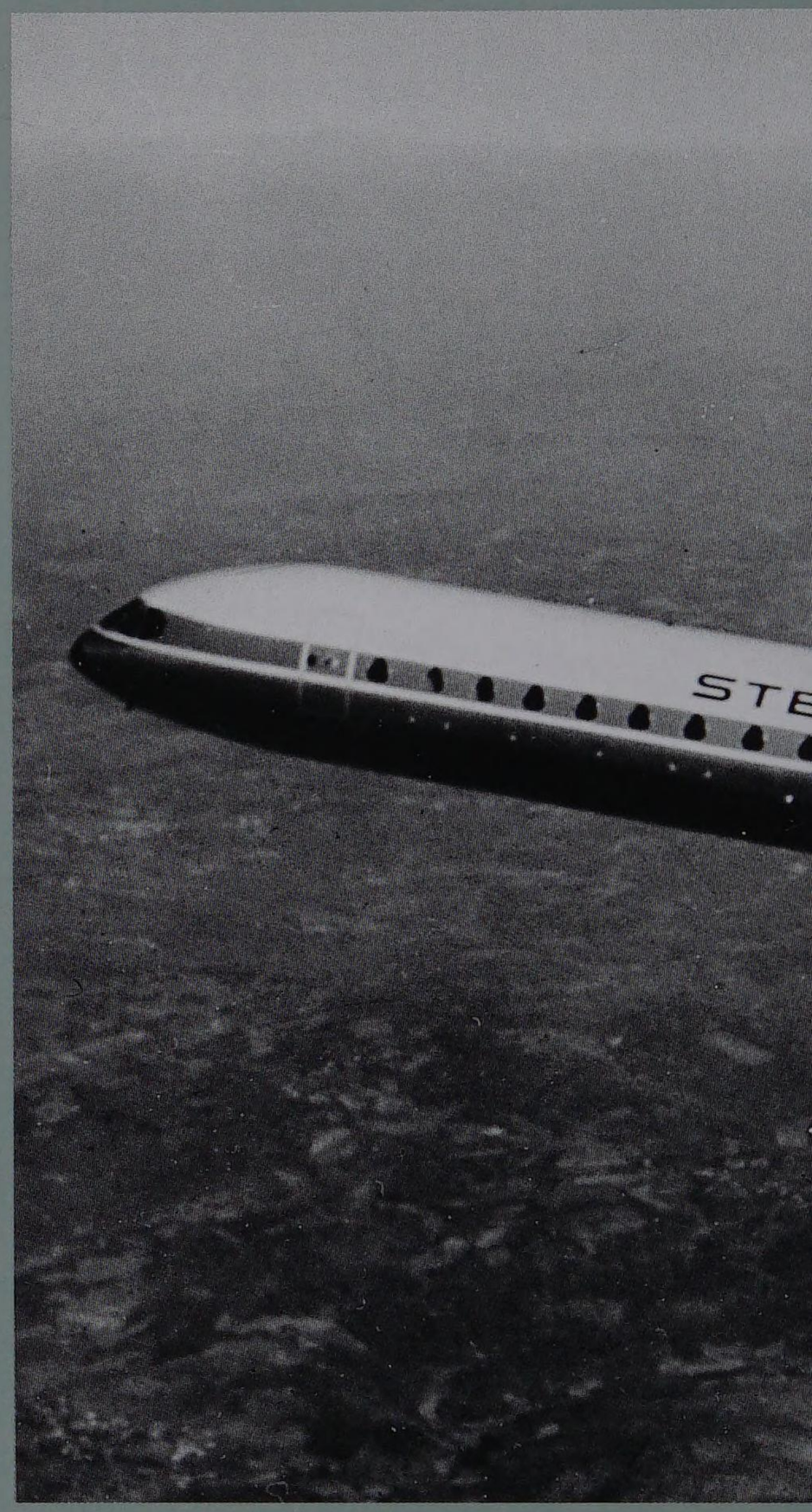


1969
Jackie Stewart wins the Formula 1 world championships in a Matra F-1 MS 80.



10.3.1970
Eugenio Aguirre was CEO of CASA from 1970 to 1971.

11.3.1970
The first joint Franco-German satellite Dial/Wika is successfully brought into orbit aboard a Diamant launcher. Its task is research into the Earth's atmosphere.



29.10.1970
The Caravelle 12 flies for the first time. During the 8th Caravelle Symposium held in Toulouse in May and attended by 27 airlines, the sale of three Caravelle 12 aircraft to Sterling Airways is announced with this Danish carrier also placing four options.

10.8.1970
Neil Armstrong (3rd from right), the first person to set foot on the moon, visits the German aerospace company MBB at Ottobrunn.

1970
From l. to r.: the respective former chiefs of Nord Aviation, Sud Aviation and SEREB, Jean Crépin, Henri Ziegler (the new CEO) and Charles Cristofini, after the merger of the three companies to form the company SNIAS (Société Nationale Industrielle Aérospatiale), which from 1984 on operated under the name Aerospatiale.

"My age was one in which you could fly through the valleys at just a few hundred feet and people waved and shouted to you. I am so glad to have lived through such an age."

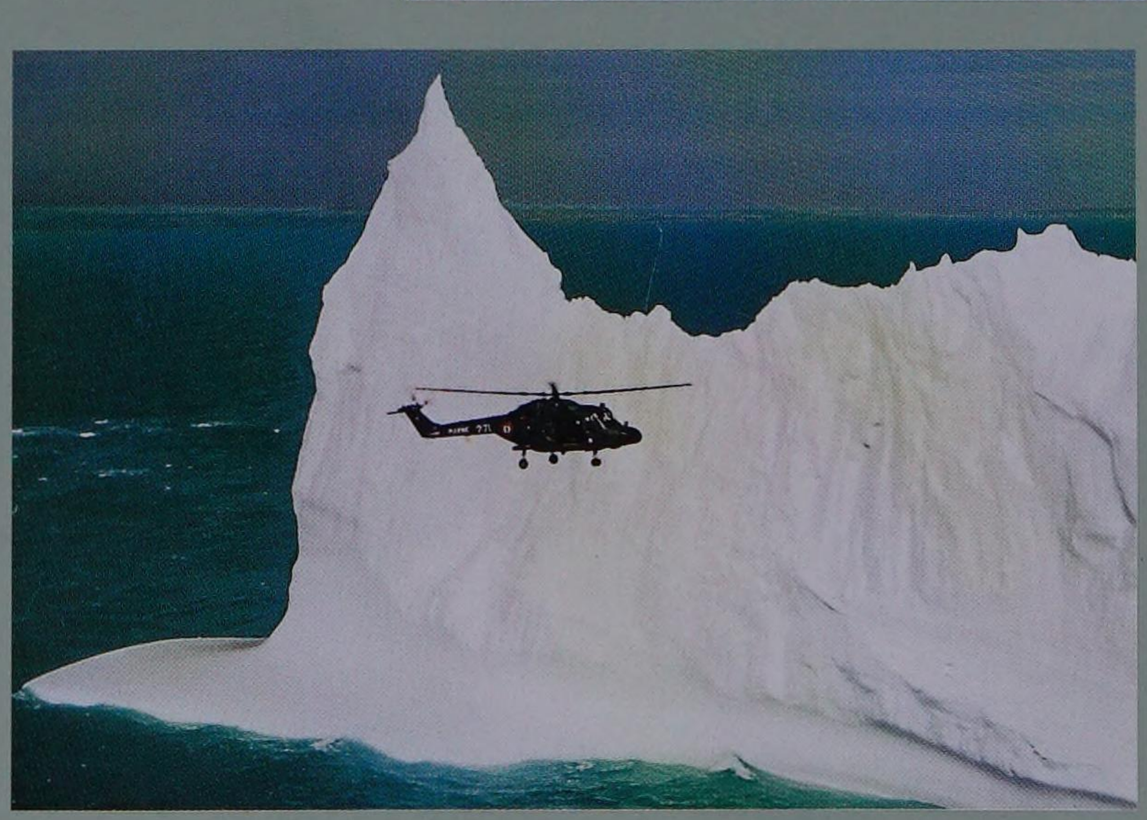
Elly Beinhorn (b. 1907), pioneer female aviator

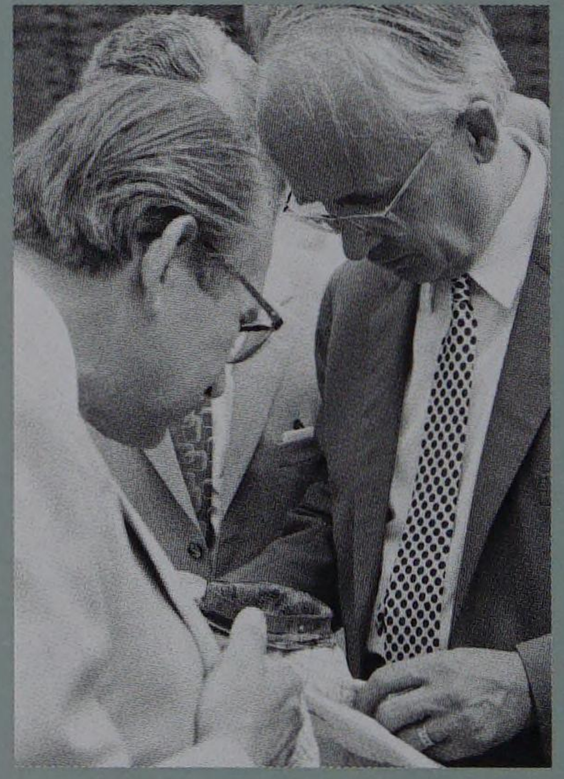
1971–1980

17.3.1971
MTU and General Electric's GE Technical Services Company conclude a contract with the objective of co-producing CF6-50 engines for the Airbus A300B.

26.3.1971
The CASA-built C-212 Aviocar tactical transporter completes its maiden flight. The photo shows an aircraft that was delivered to the Swedish Coast Guard.

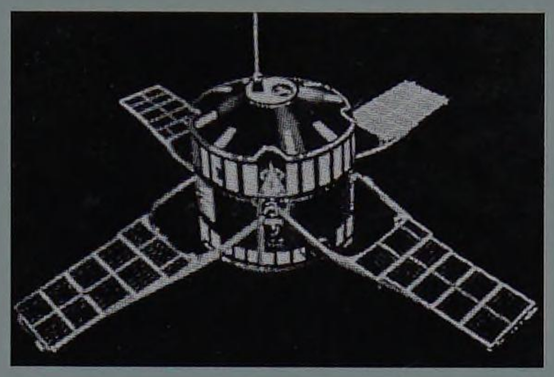
23.3.1971
The WG-13 Lynx, built jointly by Aerospatiale and the British company Westland, flies for the first time.





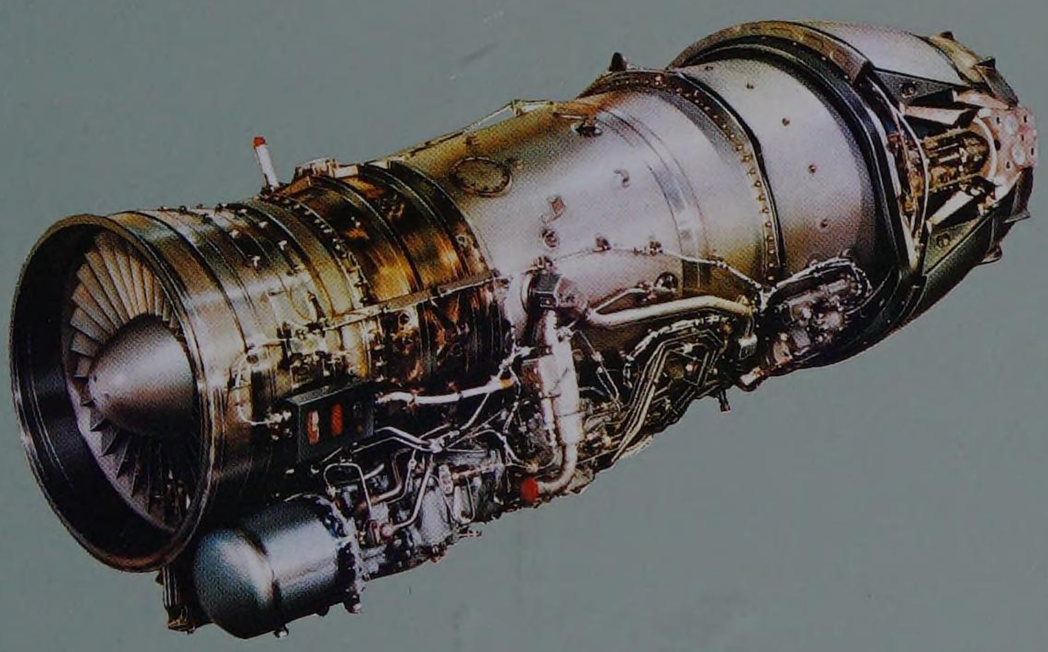
May 1971
First demonstration of the airbag, developed by the former Bölkow GmbH and subsequently to be fitted into millions of cars. In the photo: Ludwig Bölkow (r.) and his assistant Günther Kuhlo examining an airbag that has been test inflated.

2.4.1971
First test run of the experimental vehicle for the maglev train, later to become the Transrapid, on the 660 m test track in Ottobrunn.

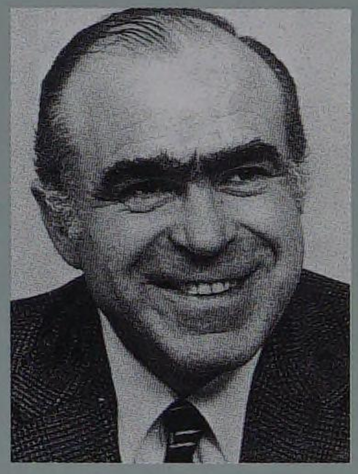


15.4.1971
The D-2, a research satellite built by Matra under contract to the French space authority CNES, is successfully launched aboard a Diamant B rocket.

14.7.1971
The VFW 614, developed by the Bremen aircraft manufacturer VFW, completes its first flight. Nowadays, this aircraft is used by the German Aerospace Center (DLR) for atmospheric research.



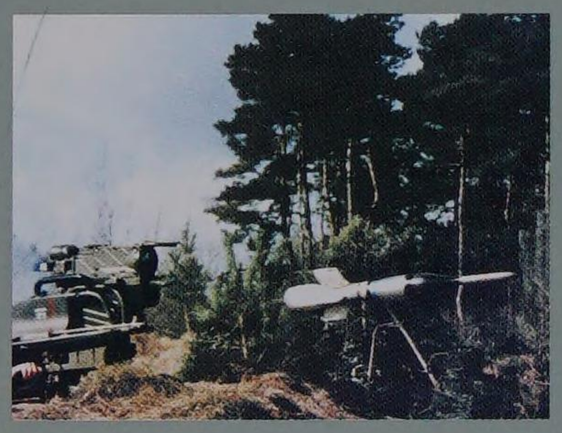
September 1971
First run of an RB 199 engine. This turbofan engine with a thrust range of 70-80 kN is the power plant for the European military aircraft Tornado. MTU is involved with a 40% share.



28.12.1971
Enrique Masó becomes CEO of CASA.

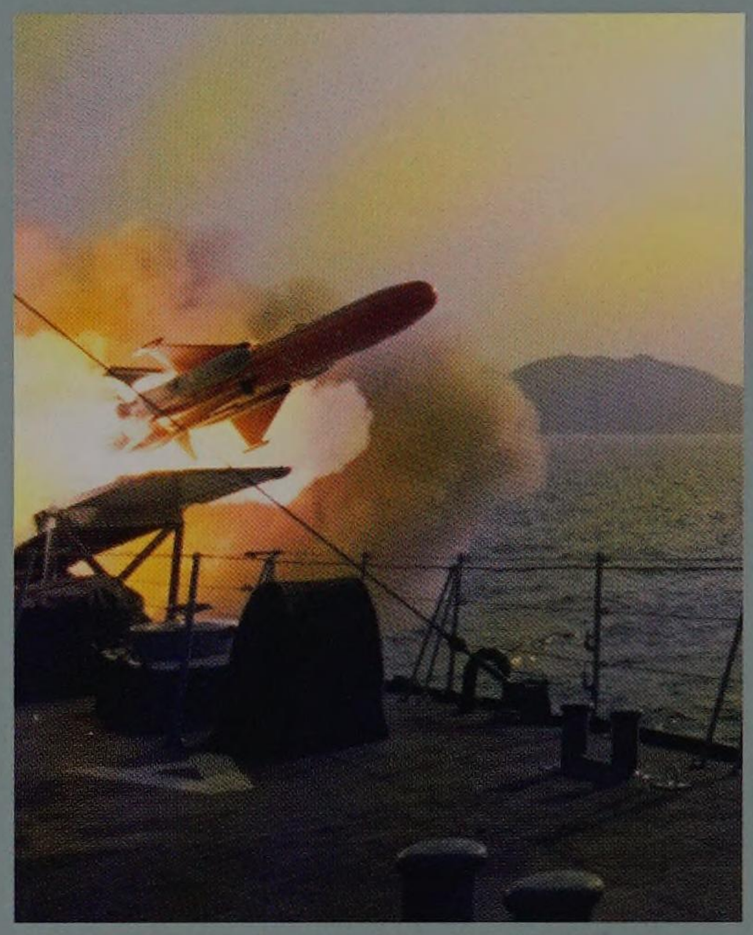
2.6.1972
First flight of the Aerospatiale-built helicopter SA-360 Dauphin at Marignane.

◁ ***9.8.1972***
The company Euromissile is founded by Aerospatiale and MBB for the development of the Hot, Milan and Roland programmes (photos from top).

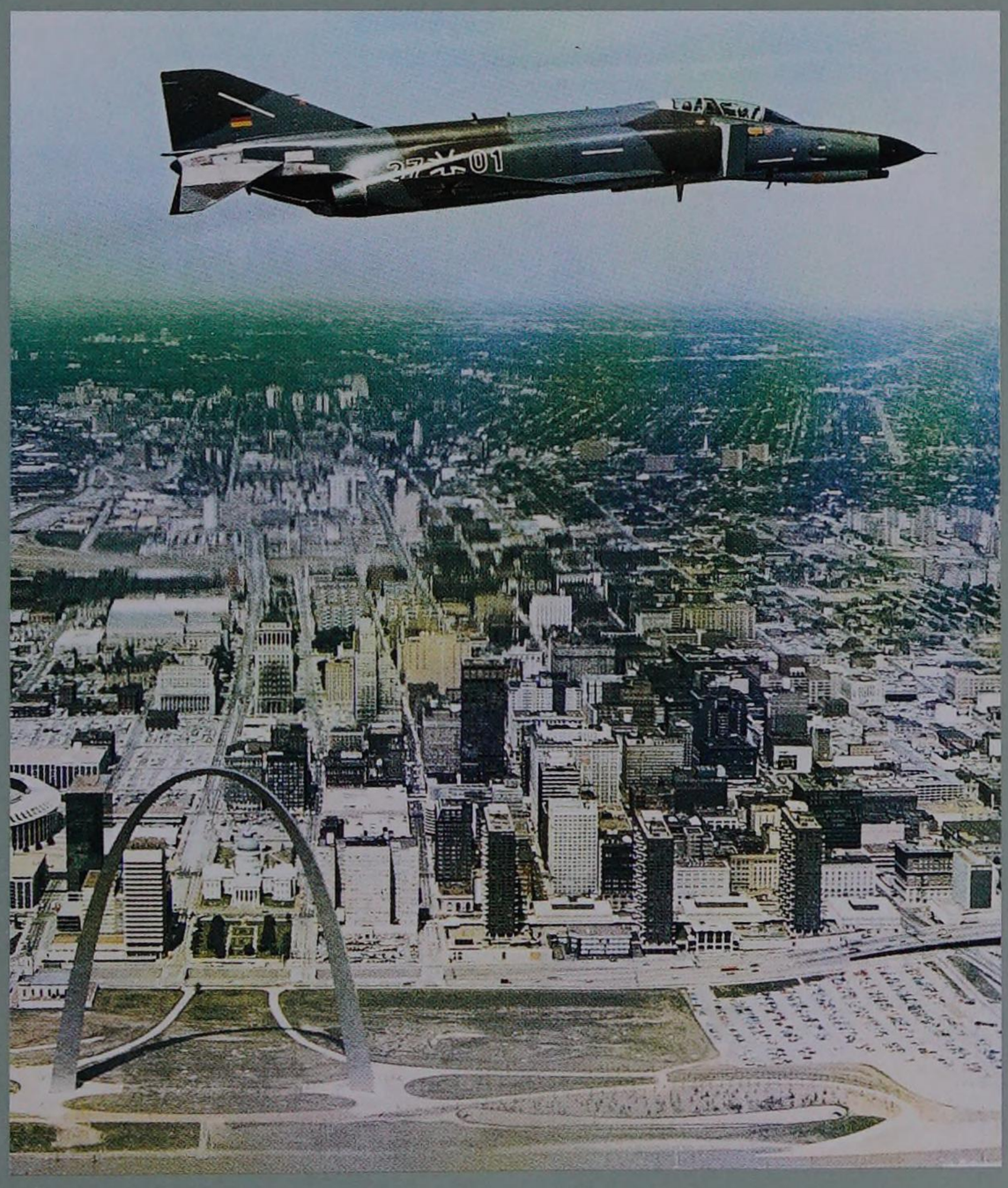


28.10.1972 ▷
The Airbus A300B, the first plane to be built by the European consortium Airbus Industrie, completes its maiden flight at Toulouse.

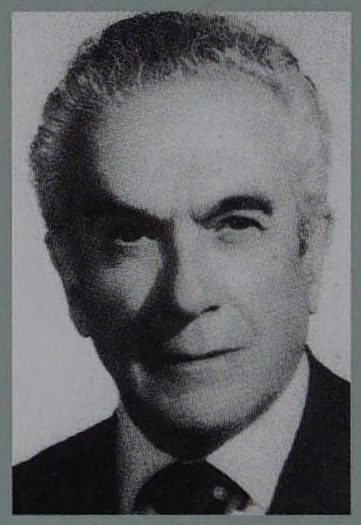
◁ ***January 1973***
Sica, developed by Matra from the ground-to-air missile Crotale, is successfully tested. The ground-to-air missile R440 from Matra was used for the first version of the Thomson CSF short-range air defence system Crotale. The picture shows the test firing of an R440.



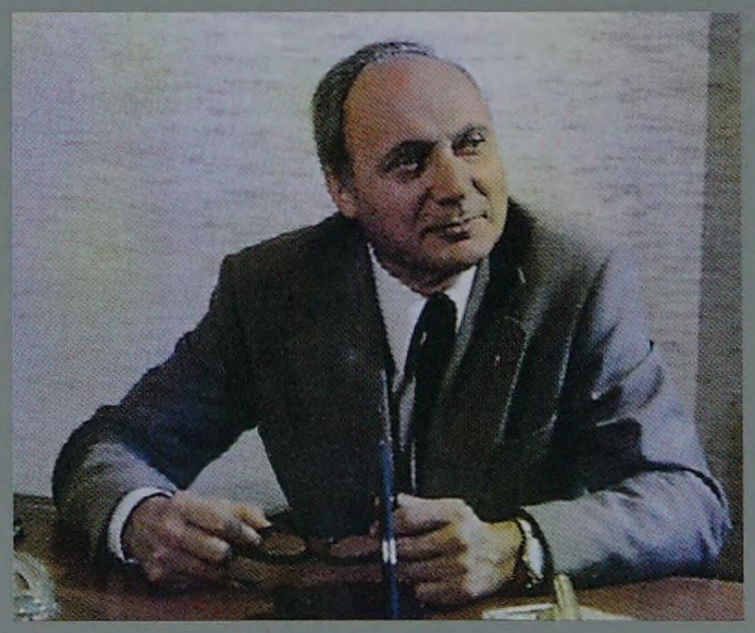
1973
The anti-ship missile Otomat, the result of a 50:50 joint venture between Matra and Oto-Melara enters operational service.



May 1973
First flight of a German F-4 equipped with MTU engines at St. Louis/Missouri.



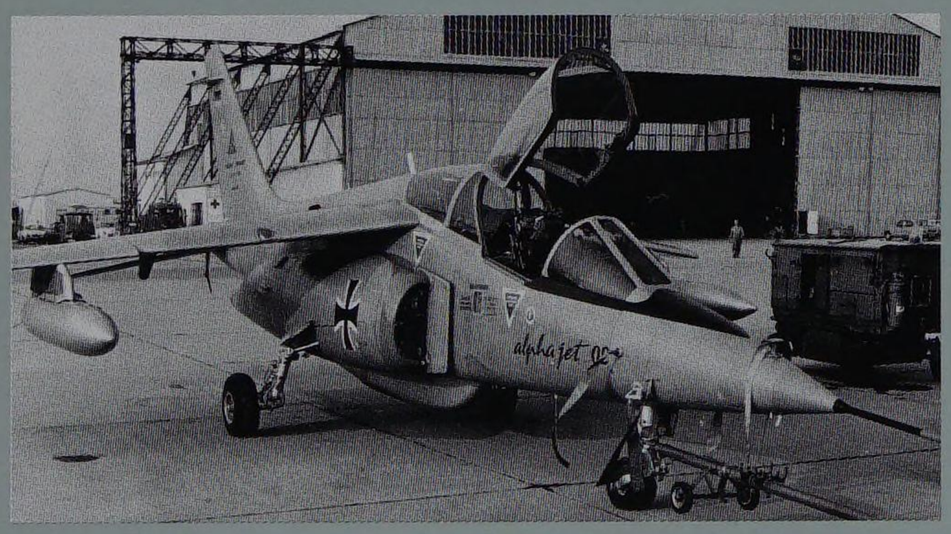
19.6.1973
Enrique Jiménez Benhamù becomes the new President and CEO of the Spanish company CASA.



28.12.1973
At an Extraordinary General Meeting, Charles Cristofini is nominated the new President and CEO of Aerospatiale.

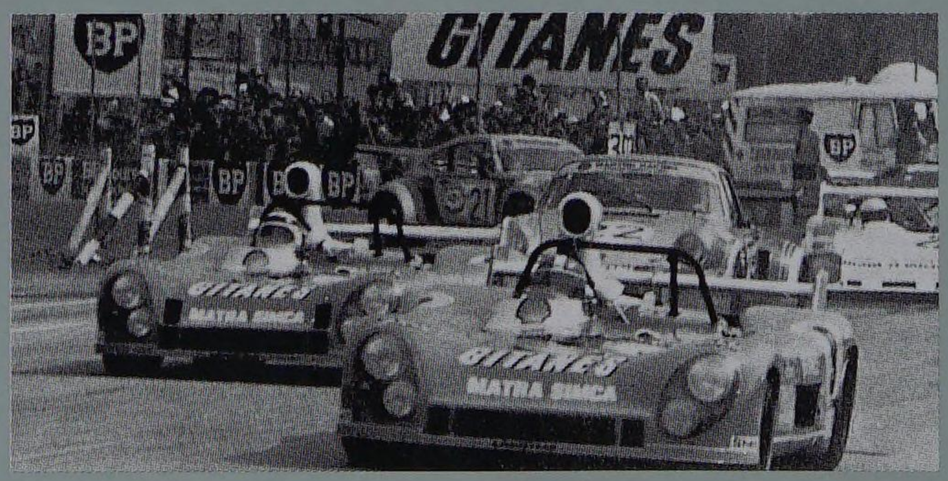
12.1.1974
The twin-jet Corvette SN 600 flies for the first time. This aircraft was developed by Aerospatiale at Saint-Nazaire.

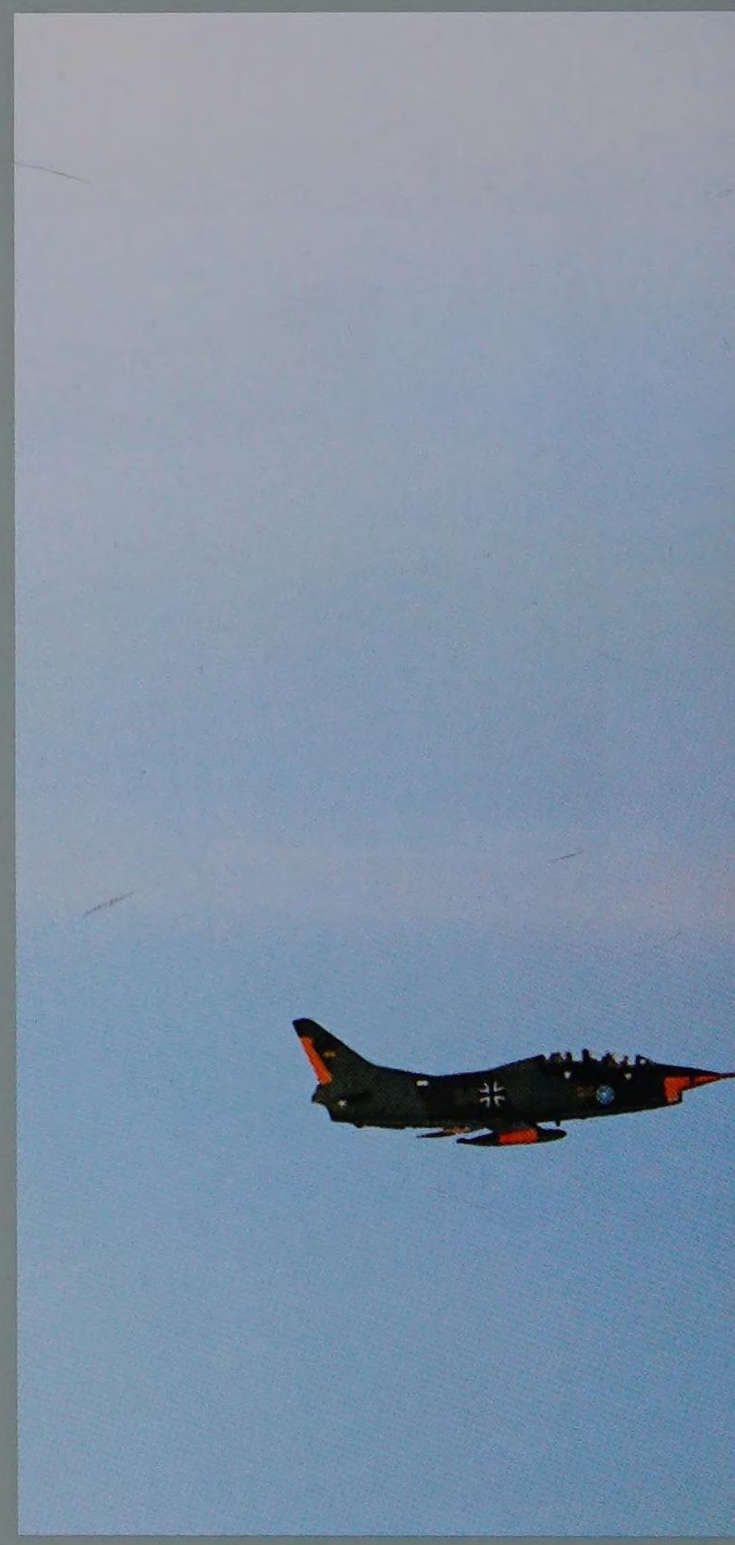
1974
The space division of CASA has been involved in the manufacture of various structures for the European launcher Ariane since the start of development. The photo shows a payload adapter manufactured using modern CFRP technology at the Barajas works near Madrid.



1974
The Matra-Simca MS 670 B wins the Le Mans 24 Hours race, thus securing the third victory in succession for Matra.

9.1.1974
The Alpha Jet P 02, a joint development by Dassault-Breguet and Dornier, undertakes its first flight at Oberpfaffenhofen.

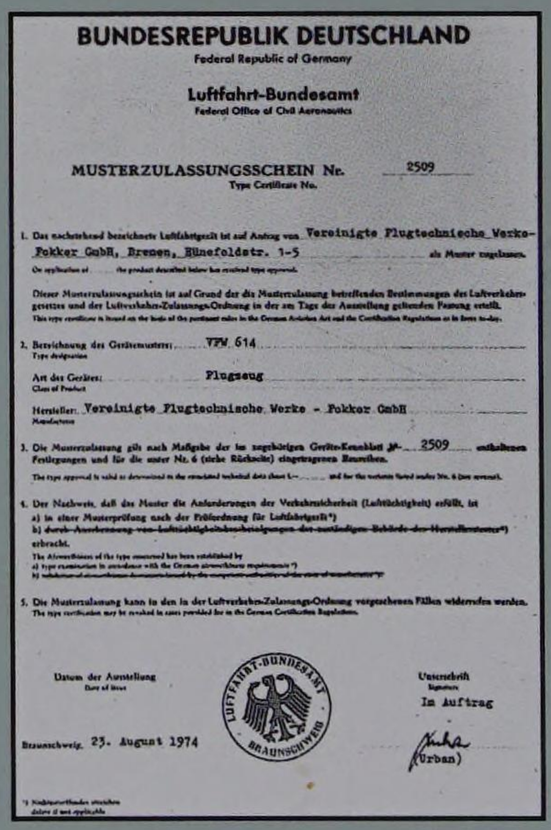




23.5.1974
The first Airbus A300B2 enters regular service for Air France on the Paris-London route. This version offers 26 seats in first class and 225 seats in the tourist class.

14.8.1974
First flight of the MRCA prototype, later known as Tornado, at Manching. The programme for this multi-role combat aircraft was initiated in 1969 as a British-German-Italian joint venture.

27.6.1974
The AS 350 Ecureuil helicopter climbs into the skies above Marignane for the first time.



BUNDESREPUBLIK DEUTSCHLAND
Federal Republic of Germany

Luftfahrt-Bundesamt
Federal Office of Civil Aeronautics

MUSTERZULASSUNGSSCHEIN Nr. 2509
Type Certificate No.

1. Das nachstehend bezeichnete Luftfahrtgerät ist auf Antrag von Vereinigte Flugtechnische Werke-Fokker GmbH, Bremen, Hünefeldstr. 1-5 als Muster zugelassen.
On application of the product described below has received type approval.

Dieser Musterzulassungsschein ist auf Grund der die Musterzulassung betreffenden Bestimmungen des Luftverkehrsgesetzes und der Luftverkehrs-Zulassungs-Ordnung in der am Tage der Ausstellung geltenden Fassung erteilt.
This type certificate is issued on the basis of the pertinent rules in the German Aviation Act and the Certification Regulations as in force to-day.

2. Bezeichnung des Gerätemusters: VFW 614
Type designation
Art des Gerätes: Flugzeug
Class of Product
Hersteller: Vereinigte Flugtechnische Werke - Fokker GmbH
Manufacturer

3. Die Musterzulassung gilt nach Maßgabe der im zugehörigen Geräte-Kennblatt Nr. 2509 enthaltenen Festlegungen und für die unter Nr. 6 (siehe Rückseite) eingetragenen Baumuster.
The type approval is valid as determined in the attached technical data sheet No. 2509 and for the variants listed under No. 6 (see reverse).

4. Der Nachweis, daß das Muster die Anforderungen der Verkehrssicherheit (Lufttüchtigkeit) erfüllt, ist
a) in einer Musterprüfung nach der Prüfordnung für Luftfahrtgerät*)
b) durch Anerkennung von Lufttüchtigkeitsbescheinigungen der zuständigen Behörde des Herstellerstaates*)
erbracht.
The airworthiness of the type concerned has been established by
a) type examination in accordance with the German airworthiness requirements *)
b) validation of airworthiness documents issued by the competent authorities of the state of manufacture *)

5. Die Musterzulassung kann in den in der Luftverkehrs-Zulassungs-Ordnung vorgesehenen Fällen widerrufen werden.
The type certification may be revoked in cases provided for in the German Certification Regulations.

Datum der Ausstellung
Date of issue
Braunschweig, 23. August 1974

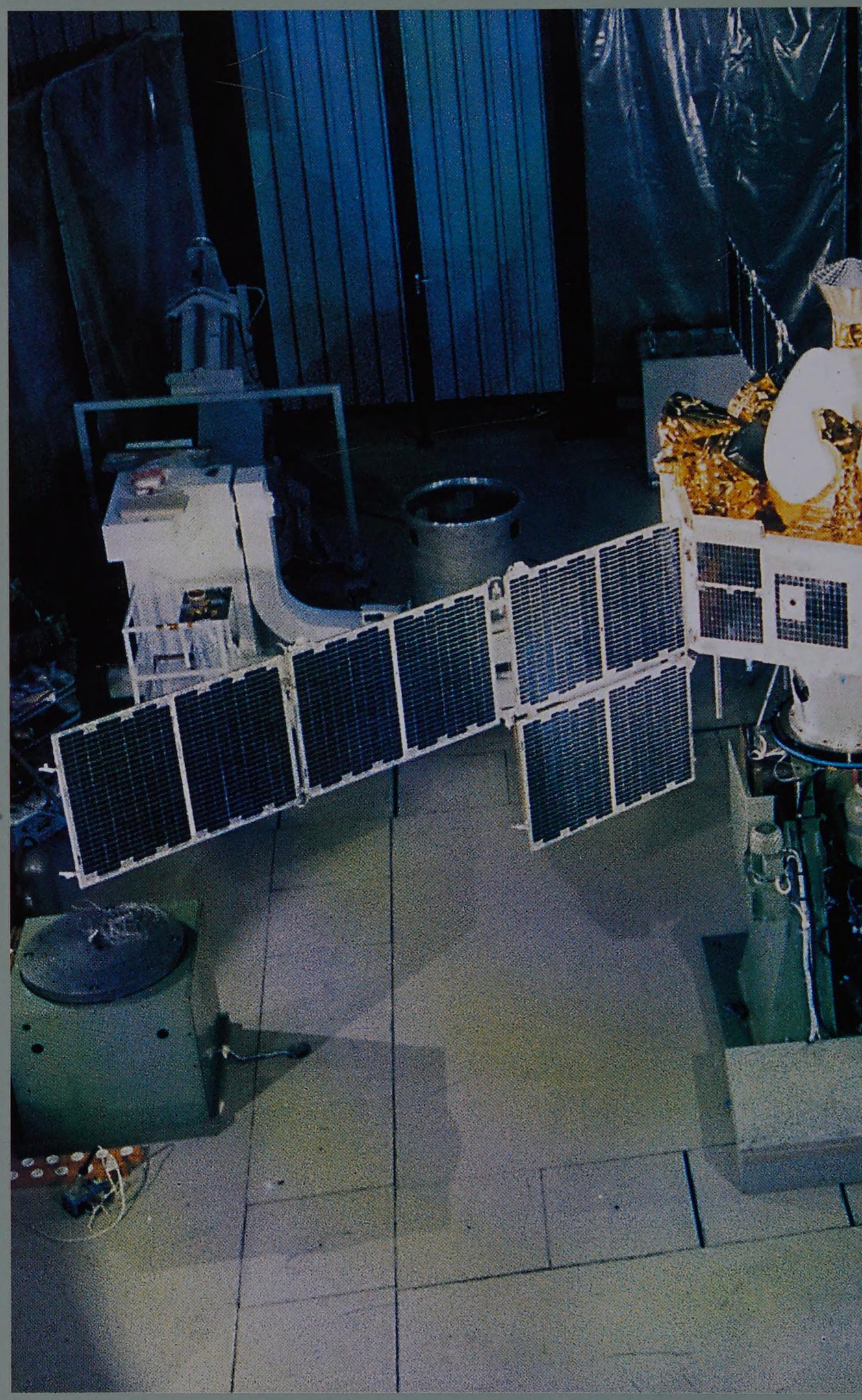
LUFTFAHRT-BUNDESAMT BRAUNSCHWEIG

Unterschrift
Signature
Im Auftrag
(Urban)

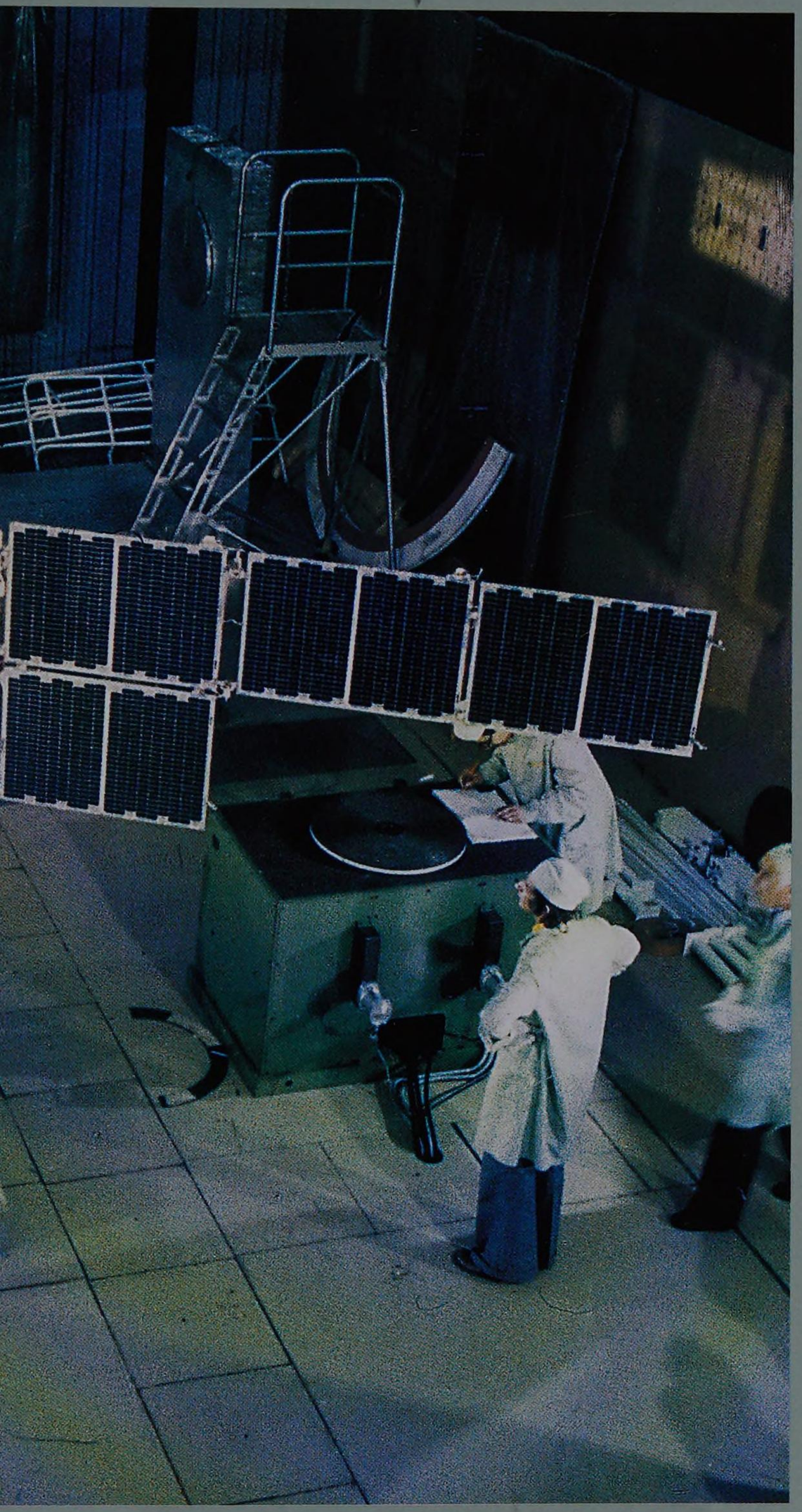
*) Nichtzutreffendes streichen
delete if not applicable

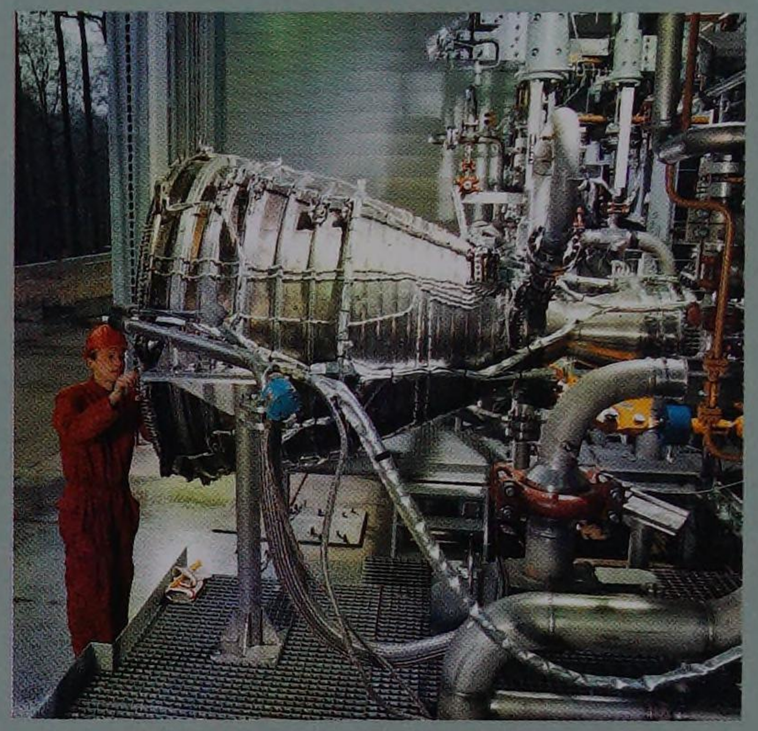
23.8.1974
VFW of Bremen receives certification from the German Federal Office of Civil Aeronautics for its VFW 614.

18.12.1974
The Franco-German communications satellite Symphonie, seen here during final calibration work at the Toulouse space centre, is launched into orbit aboard an American Delta rocket.

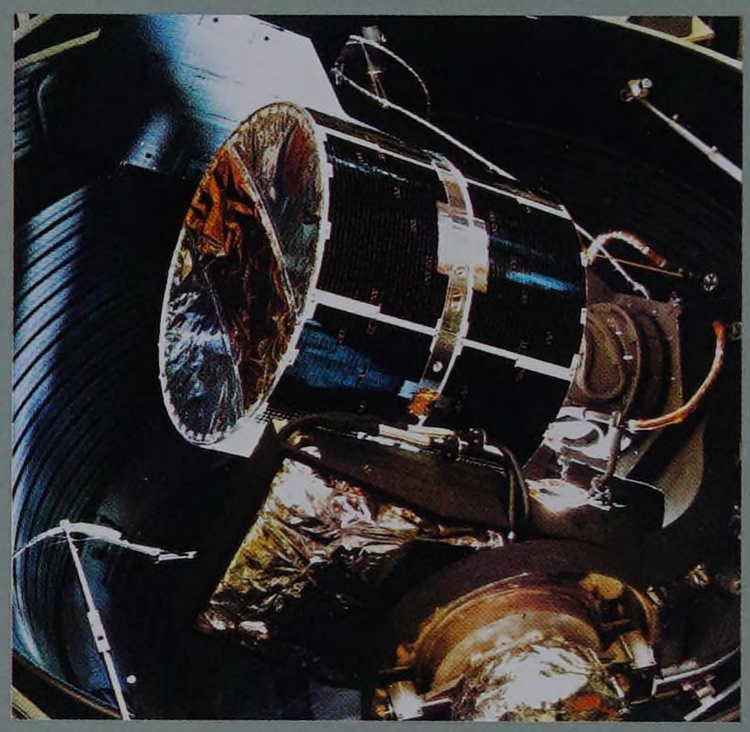


10.12.1974
The German-American solar probe Helios A is successfully launched at Cape Canaveral. Here the probe is seen undergoing tests at MBB in Ottobrunn.





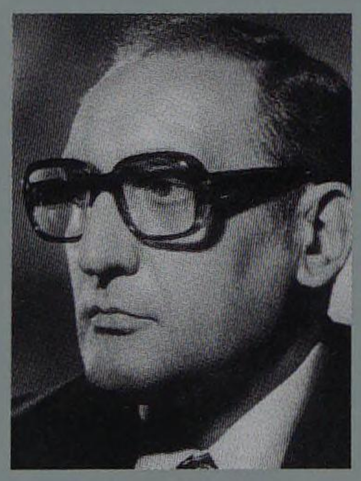
April 1975
Tests start on the HM-7-B combustion chamber for the third stage of the European launcher Ariane.



9.8.1975
Launch of the gamma-ray research satellite COS-B, built under MBB systems leadership for ESA.

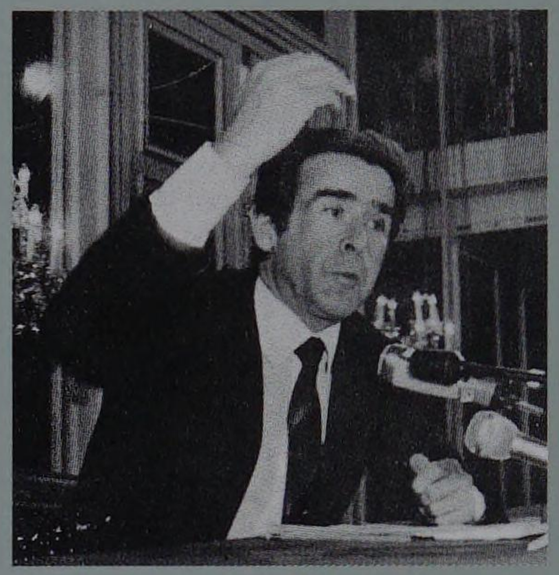
4.12.1975
Jacques Mitterand, a former general, becomes the new chief of Société Nationale Industrielle Aérospatiale (SNIAS).

December 1976
The 1,000th Magic 550 air-to-air missile leaves the production line at Matra's Salbris plant.

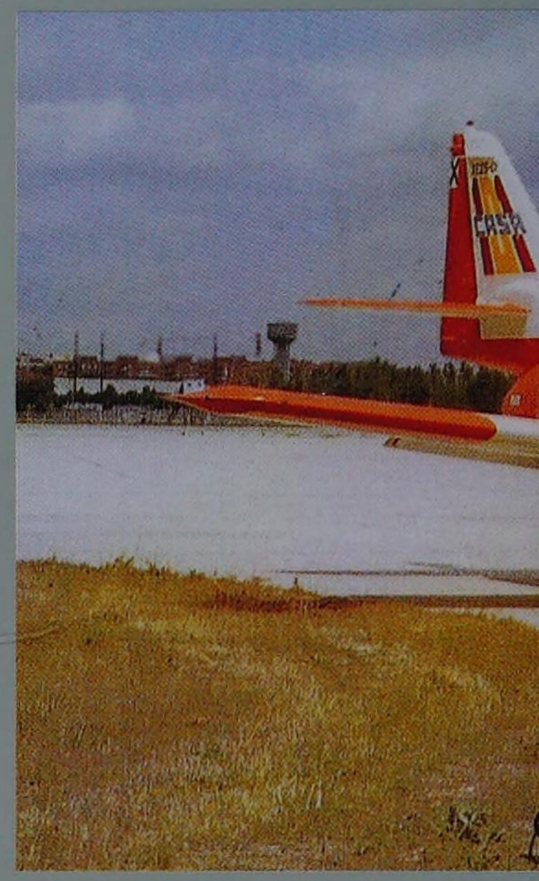


17.12.1976
Emilio González Garciá is appointed CEO of CASA.

1977
Jean-Luc Lagardère becomes President and CEO of Matra.



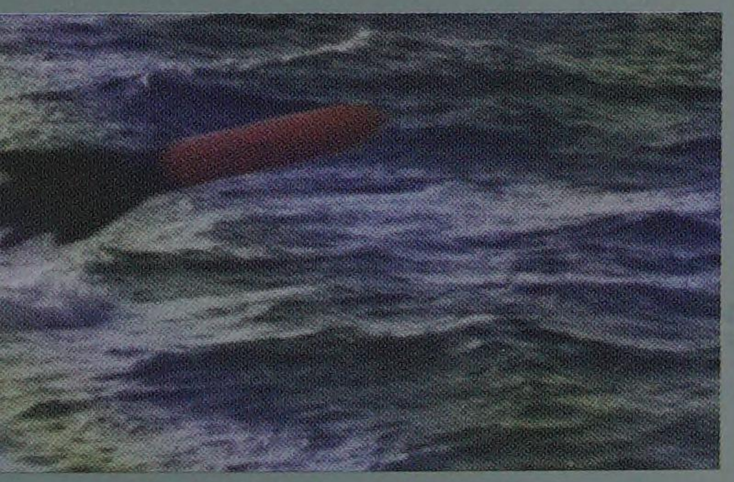
23.2.1977
The first flight of the Socata TB 10 Tobago marks the start of a long success run for this French light aircraft.

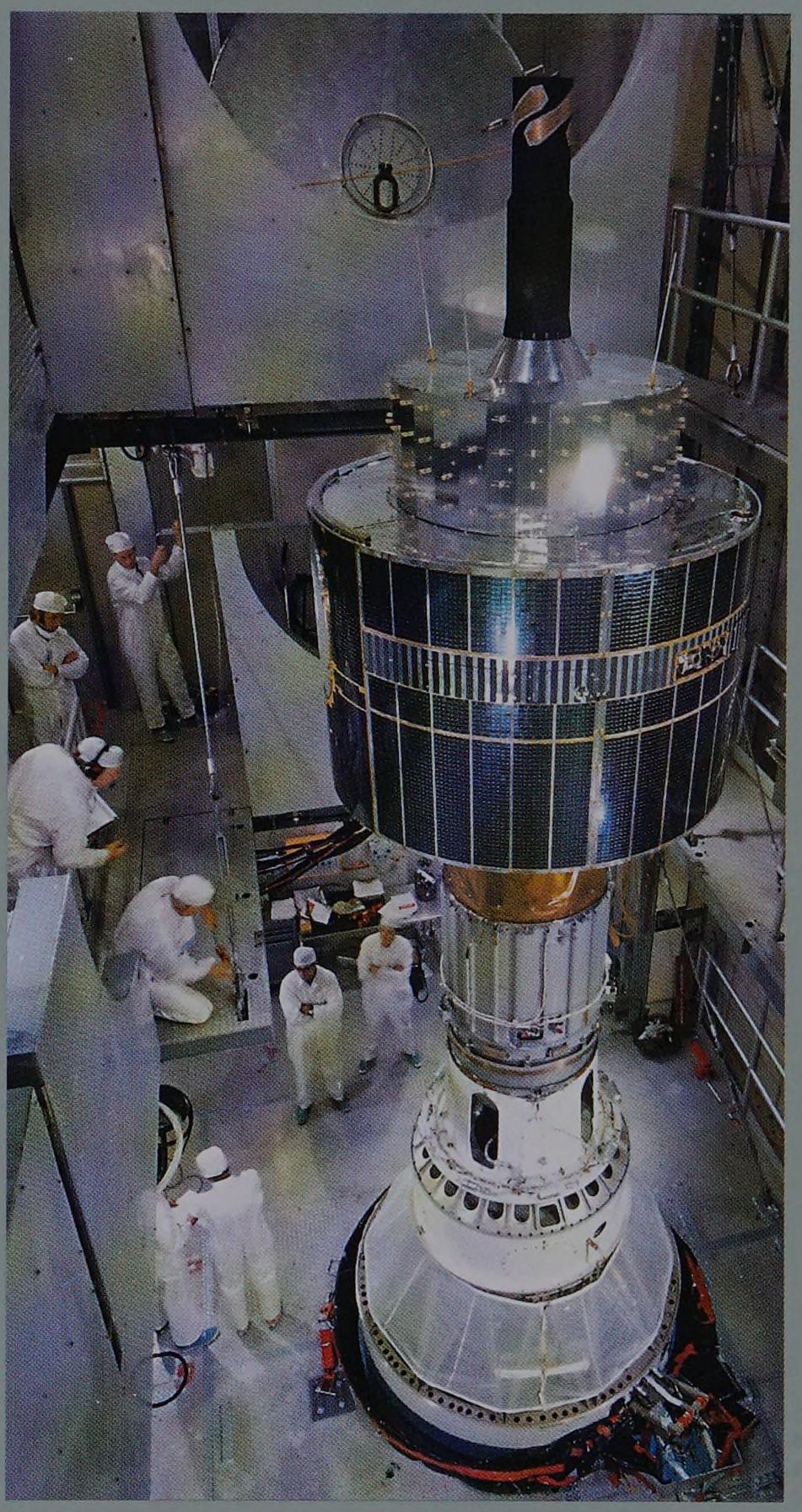


5.4.1977
Aerospatiale's Tactical Missiles division announces a 100 percent success rate for the test firings of the MM38 Exocet anti-ship missile carried out since January 1974.

27.6.1977
The single-jet trainer C-101, developed by CASA, taxies out for its first flight from Getafe. MBB participated as a subcontractor in work on this aircraft.

6.9.1977
The German anti-tank helicopter PAH-1, a modified version of the Bo 105, completes its first flight. In the photo it is seen armed with six HOT anti-tank missiles. Up to 1984, 212 of these helicopters were supplied to the Bundeswehr.

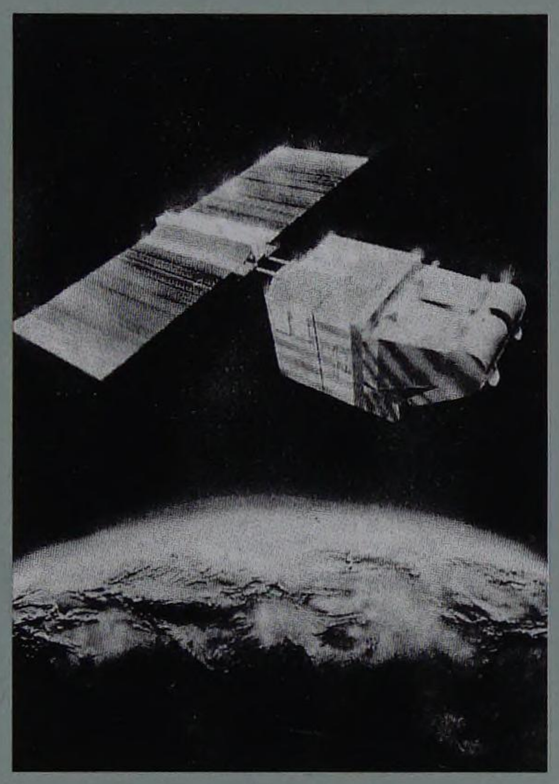




23.11.1977
Launch of the first European weather satellite Meteosat, for which Aerospatiale acts as prime contractor. MBB in Ottobrunn supplied the solar generators, orbit and attitude control systems and various scientific instruments. Two weeks later, the weather pictures taken by Meteosat were shown for the first time on French television and the German television station ZDF.

13.9.1978
The AS 332 Super Puma/Cougar built by Aerospatiale completes its first flight.

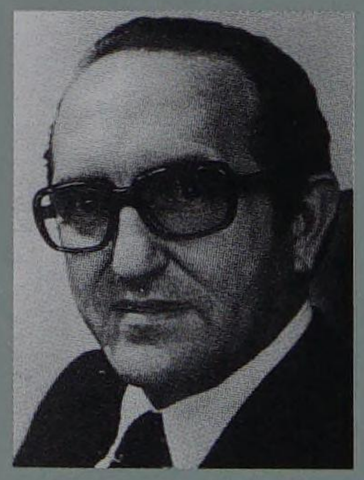
June 1978
The French space authority CNES selects Matra as the prime contractor for the Spot satellite platform. In addition, Matra takes on the task of integrating the instruments for this French earth observation programme.



28.9.1978
The first remote control system built by Dornier for a nuclear reactor is handed over.

August 1978
The first German in space: Sigmund Jähn from the former East Germany. To carry out some of his tasks he used the MKF6 multispectral camera, which had been developed by Carl-Zeiss Jena (now Gera-Optronic, previously a majority holding of Astrium).

11.10.1978
Carlos Marín becomes CEO of CASA.

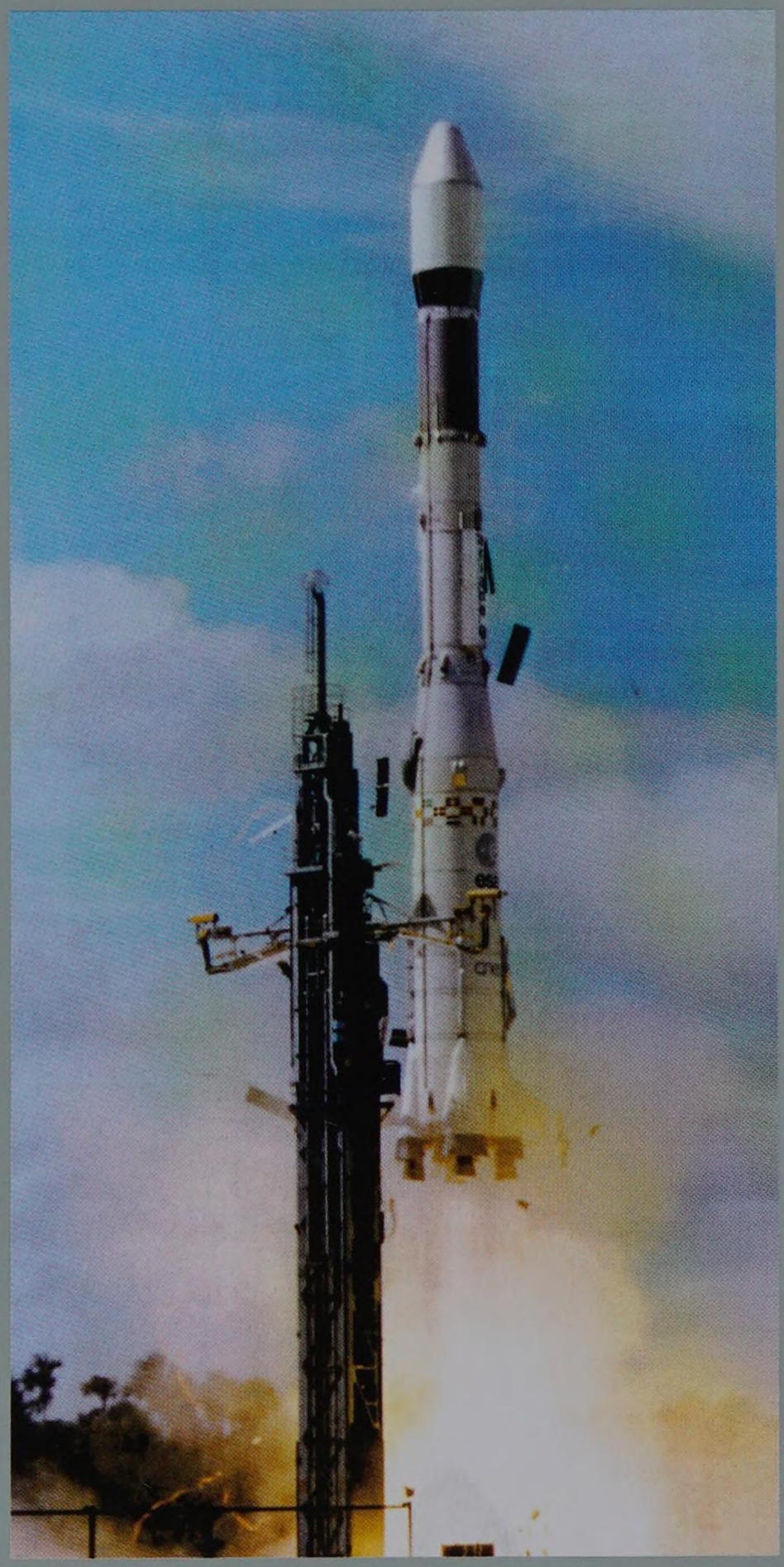


13.6.1979
The BK 117 flies for the first time at MBB in Ottobrunn. This twin-engine helicopter was developed and built within the scope of a 50:50 joint venture between the German aerospace company and Kawasaki. It can seat up to ten passengers.

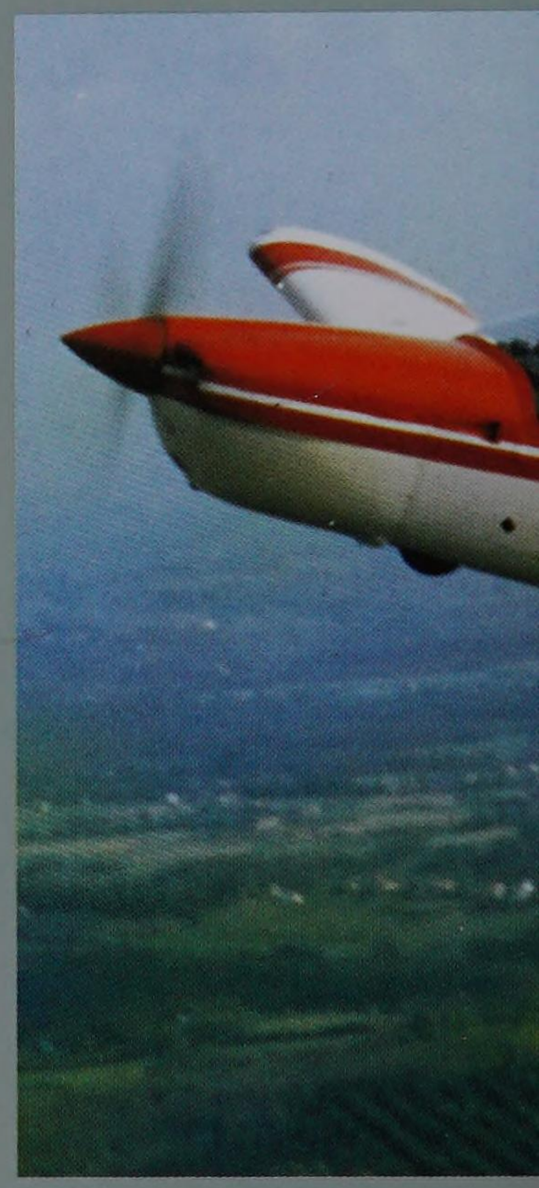
4.9.1979
The reconnaissance drone system CL-289 is unveiled, having been developed jointly by the German Dornier GmbH and Canadair Ltd. of Montreal. Later, France also purchases the CL-289 Piver system, which is built at Aerospatiale's Bourges plant.

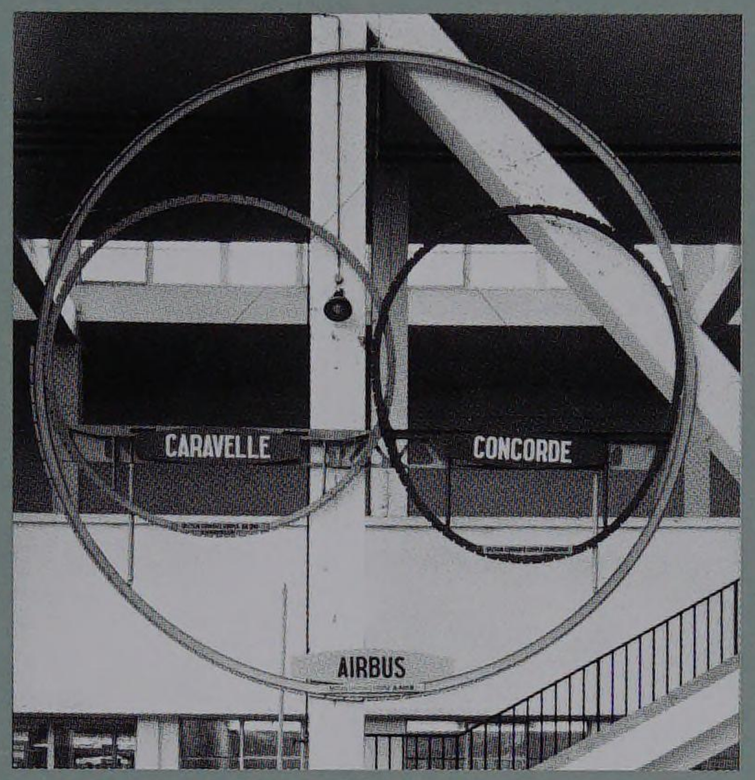
22.12.1979
The French Air Force proposes the 300 hp Socata TB-30 Epsilon as the training aircraft to replace the Fouga Magister. Here, the aircraft on its maiden flight.

24.12.1979
The first Ariane launcher successfully lifts off from the Kourou launch site in French Guyana. The EADS predecessor companies Aerospatiale, Matra, ERNO, MBB and CASA played a major role in the development and construction of this European satellite launcher and EADS is still heavily involved in the programme.

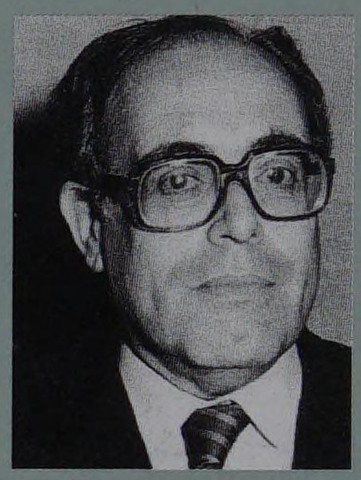


14.10.1980
First flight of the 250 hp Socata TB-20 Trinidad. This plane marked an important expansion in the product range offered by the French light aircraft manufacturer.





November 1980
By this date, orders for 500 aircraft have been received by Airbus Industrie. In the picture, a Singapore Airlines A300B4. The photo above demonstrates the fuselage cross section of the Airbus A300B in comparison with the Caravelle and the Concorde.



6.11.1980
Enrique de Guzmán takes over the top position at CASA.

"One has to realise that the future of French and European civil aeronautics as a major, independent and healthy industry depends on the success of the Airbus programme. We mustn't rest on our laurels, thinking that with the current business figures the battle has been won. Certainly this has been a victory, but it is a fragile one that may be called into question at any time. So we must therefore all – each individual in his position – continue the struggle in order to consolidate this success, thus guaranteeing not only our own jobs but also those of our children."

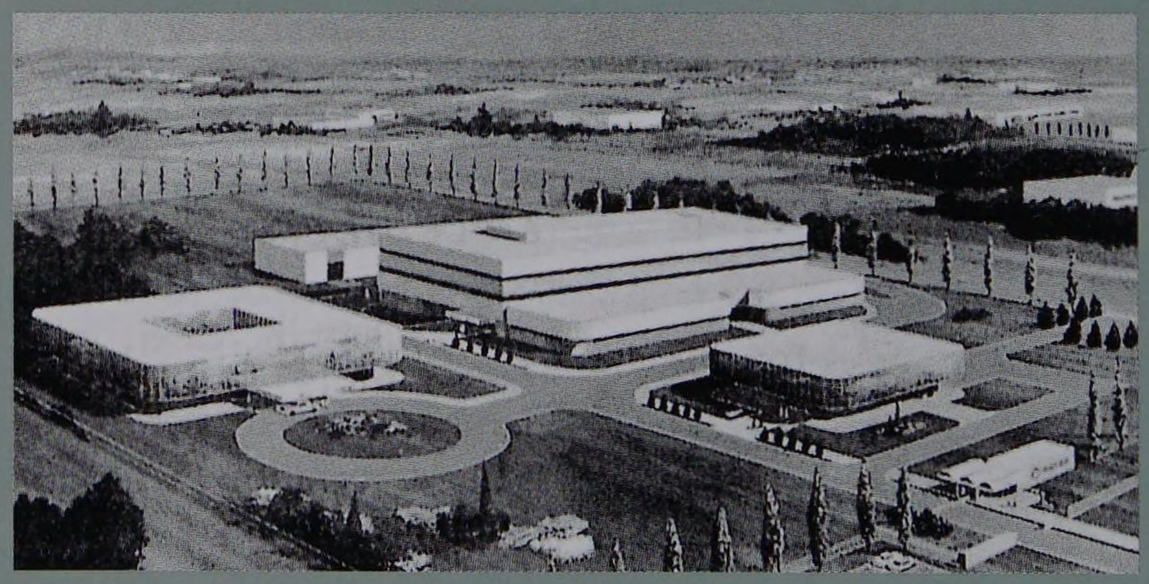
Bernard Lathière (1929-1997), former President and CEO of Airbus Industrie

1981–1990

28.3.1981
First flight of the Dornier 228 in Oberpfaffenhofen. This turboprop regional aircraft for 19 passengers has a range of 972 km and reaches a speed of 434 km/h.

19.3.1981
On behalf of NATO, Dornier at Oberpfaffenhofen equips the first Boeing E-3A AWACS aircraft with mission avionics.

June 1981
The new Matra space plant at Toulouse goes into operation. The major tasks for this facility are to be integration and testing of the ECS, telecom and Spot satellites.

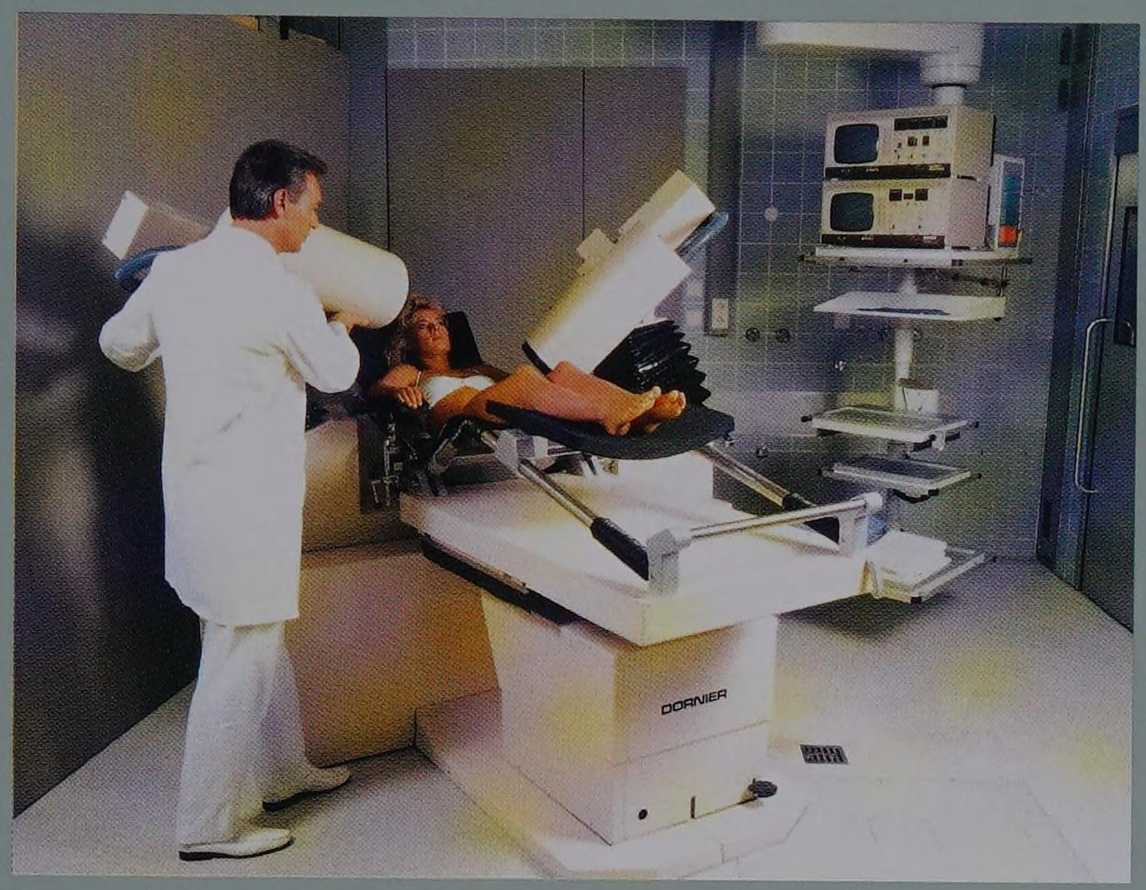


4.11.1981
The two CEOs Jacques Mitterand (Aerospatiale, seated left) and Renato Bonifacio (Aeritalia, seated right) set their signatures to the co-operation agreement between Aerospatiale and Aeritalia on the construction of the regional aircraft ATR 42.

July 1981
A solar power plant supplied by MBB is brought into operation in Kuwait.

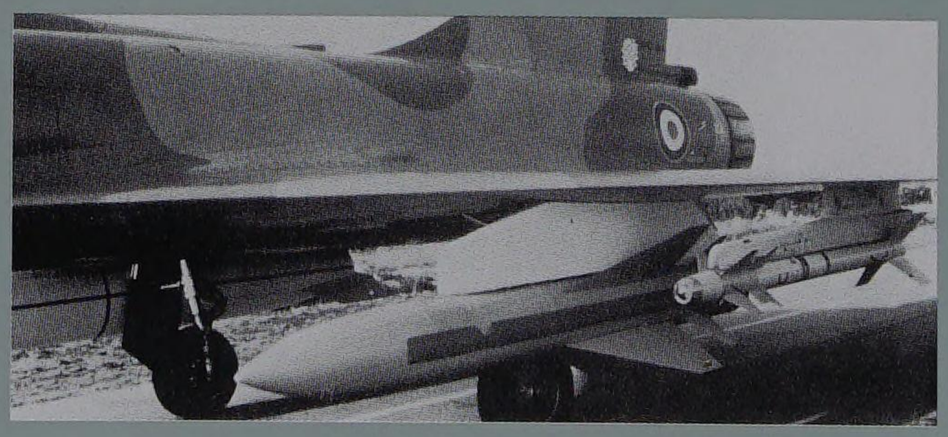
3.4.1982
First flight of the Airbus A310 at Toulouse, where final assembly of the 218-seat medium-haul airliner with a range of 9,000 km is also to take place. Lufthansa and Swissair are the first carriers to use the A310 on regular services. The two photos document a unique version, the right-hand side of the plane being in Swissair livery (upper photo) while the left-hand side is in the Lufthansa livery of the day.

7.5.1982
The first treatment centre to be equipped with renal lithotriptors made by Dornier is opened at the University Hospital of Munich-Grosshadern.



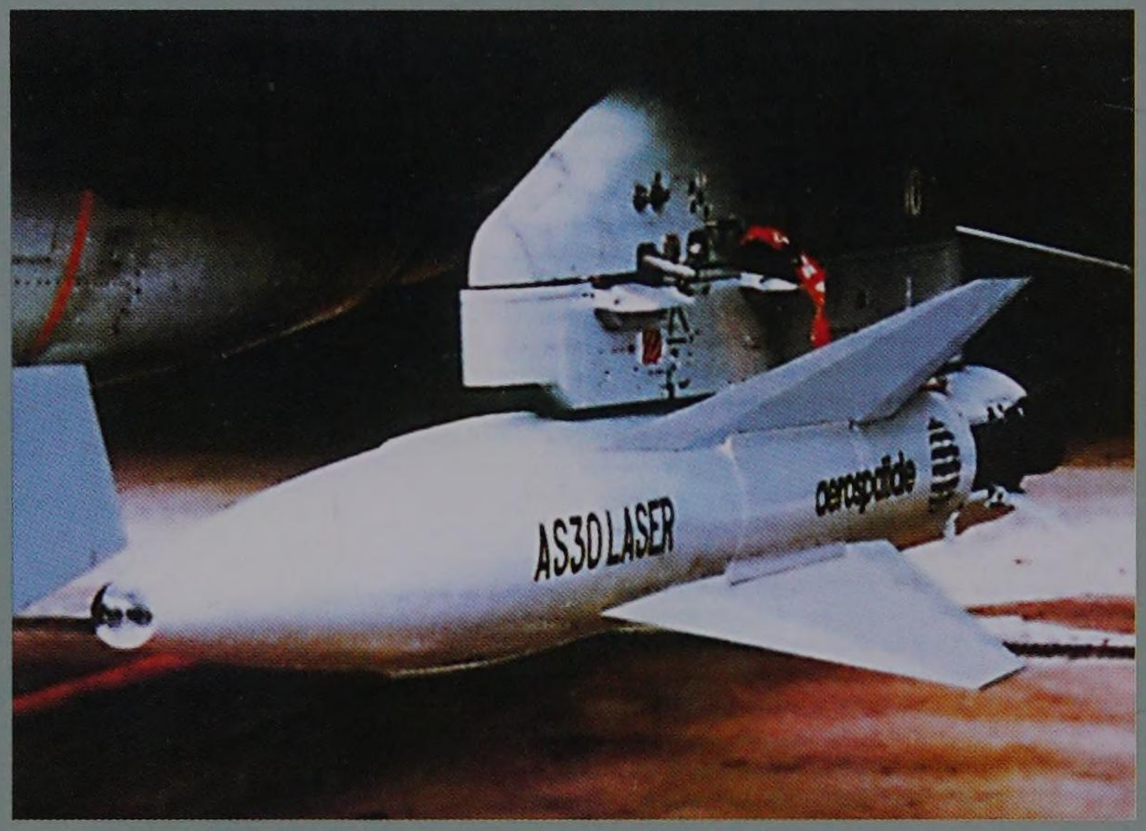
June 1982
While on board the Russian space station Salyut 7, the French cosmonaut Jean-Loup Chrétien carries out experiments in space medicine using the echograph developed by Matra. The photograph shows him with his back-up Patrick Baudry (right) during a visit to Matra

June 1982
In the city of Lille, northern France, the world's first fully automatic underground railway system, the Matra-built VAL, starts commercial operations. Two years later, the city of Orlando in Florida (photo) decides to use this system on three of its lines.

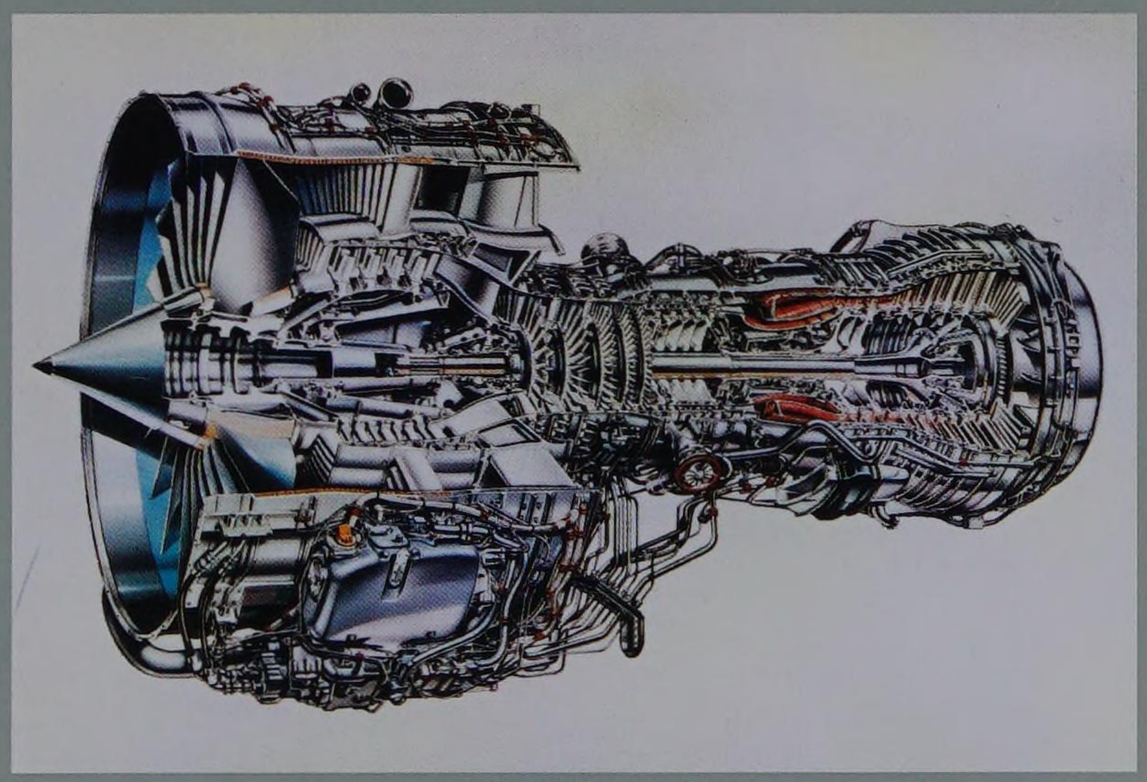


18.9.1982
Matra presents the long-range anti-radar missile Armat for the Mirage 2000.

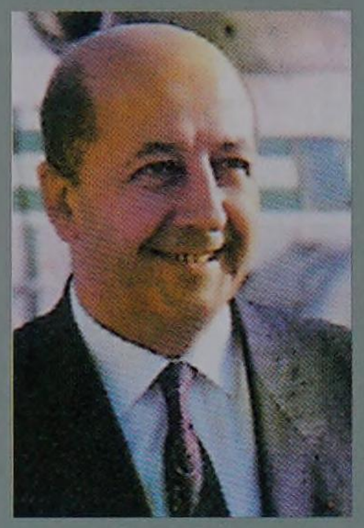
1983
The laser-guided supersonic air-to-ground missile AS 30 Laser, developed and built by Aerospatiale, becomes operational with the French Air Force.



16.4.1983 ▷
Matra and the Munich-based company MBB sign an agreement on the joint development of weapon systems, which are to include the Apache/CWS dispenser air-to-ground weapon system (50-50 workshare split with Matra and Aerospatiale) and the reconnaissance drone Brevel. The picture shows a Mirage 2000 releasing an Apache dispenser.



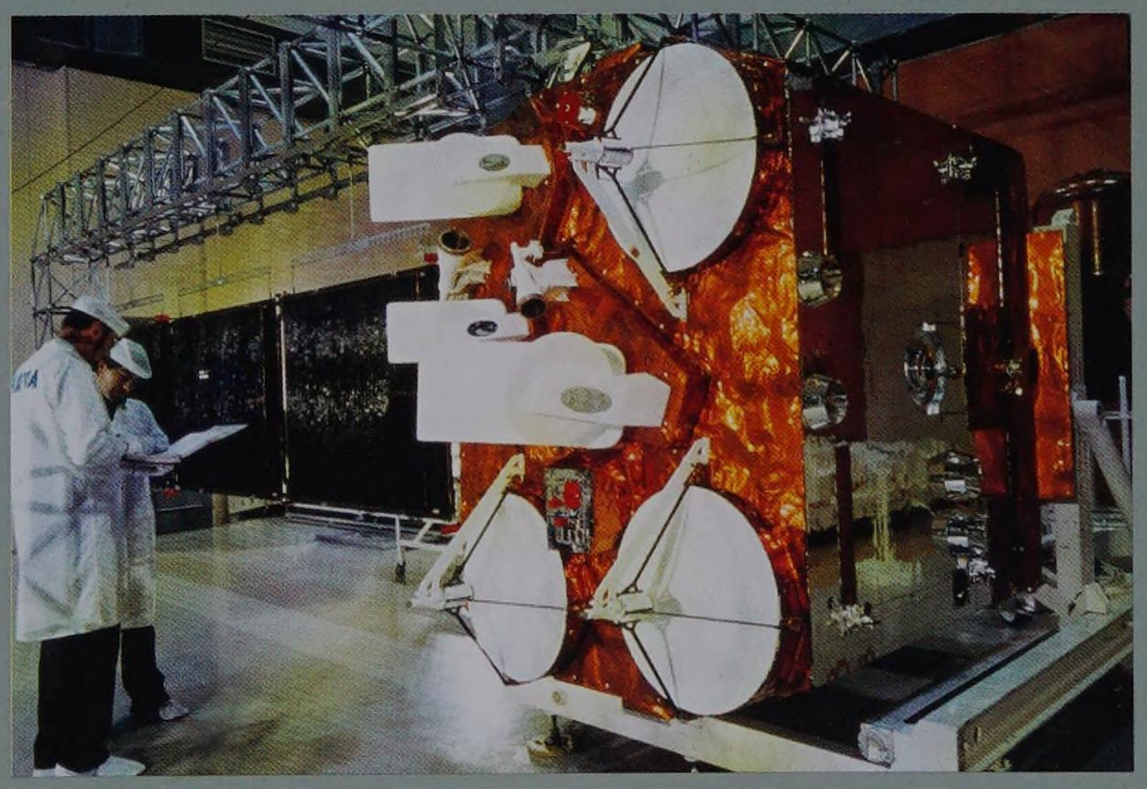
11.3.1983
MTU in Munich signs an international co-operation agreement for the development of the V2500 engine, which today powers the Airbus A320, A319 and A321 and other aircraft. International Aero Engines is officially founded in December 1983.



21.5.1983
Henri Martre becomes the new President of Aerospatiale.

26.5.1983
The ESA X-ray satellite Exosat is launched successfully. Matra was responsible for the development and integration of the low- and medium-energy experiments, while MBB provided the attitude control system and scientific experiments.

24.4.1983
First flight of the Dornier ATT flying boat, which is based on the Do 24. Only the prototype was built.

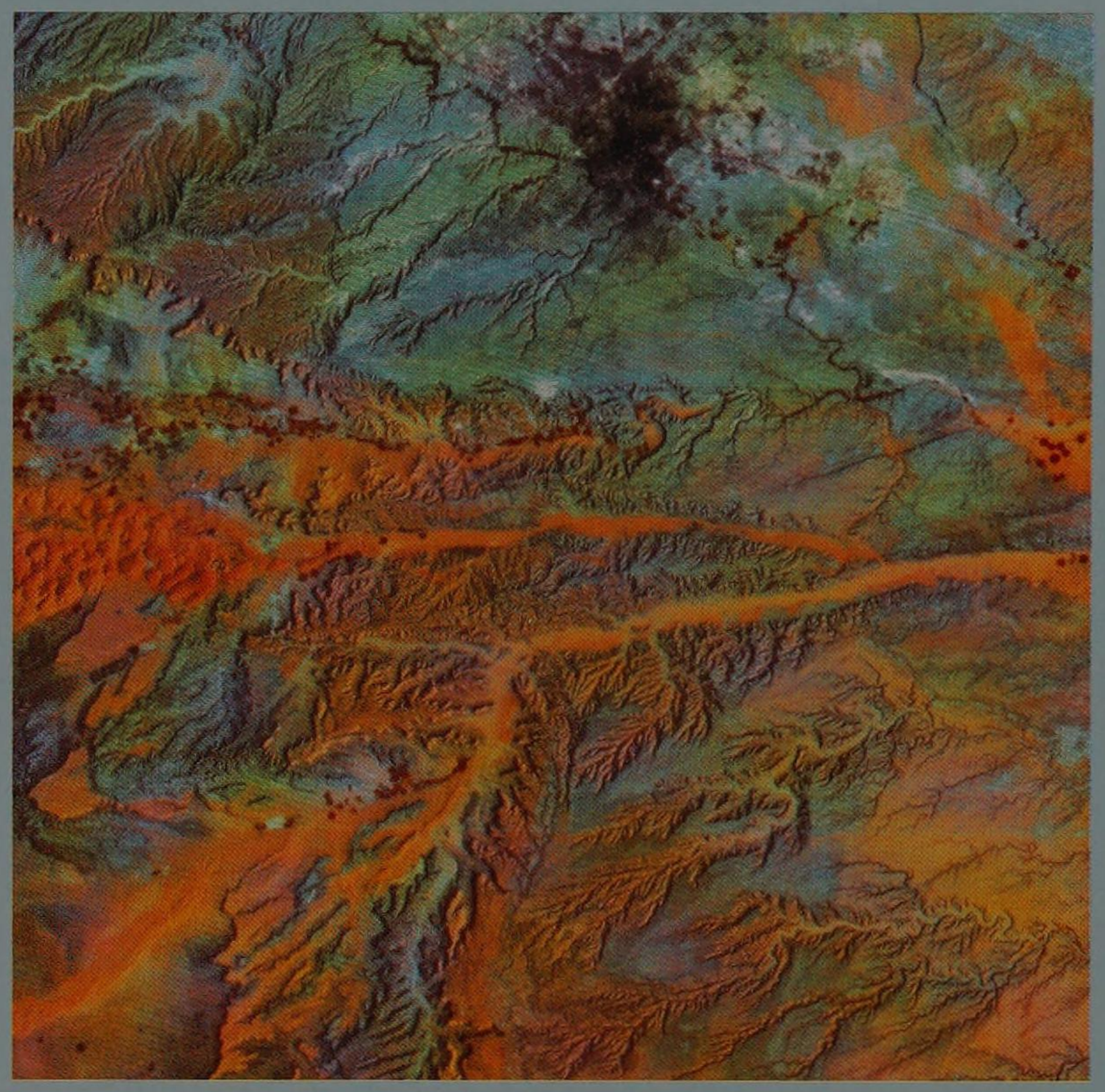


16.6.1983
Successful launch of the communications satellite ECS. Integration and testing of the satellite were carried out at the Matra facilities in Toulouse, with the company also being responsible for the attitude control system, in which a 16-bit microprocessor was used for the first time.

20.6.1983
The free-flying, retrievable and re-usable satellite platform Spas built by MBB-Erno is injected into space for the first time by the Challenger shuttle – a world premiere that caused a sensation not only on account of the technology but also because of the prospective cost savings.

November 1983
Spacelab, built in Bremen by MBB Erno as prime contractor, starts its first journey into space on board the Columbia space shuttle. The command and data management subsystem CDMS was developed by Matra.

In the photographs: the laboratory in the test centre (second left), and the German astronaut Ulf Merbold busy with scientific experiments.



February 1984
The Moms-01 earth observation camera, built by MBB at Ottobrunn and mounted on the Spas satellite platform, transmits photographs of Riad, Saudi Arabia, to earth.

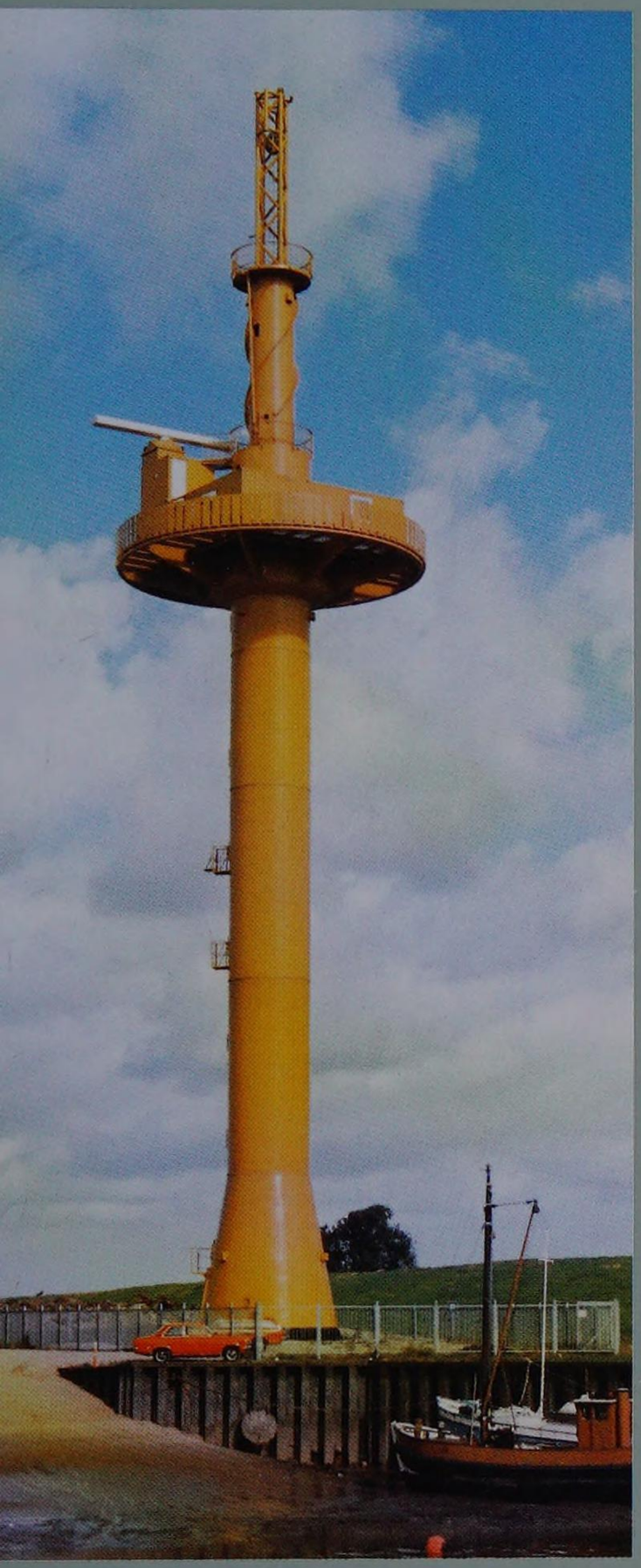
11.11.1983
First flight of the CN-235, developed by CASA and built in cooperation with the Indonesian company Nurtanio. This aircraft is built as a civil regional aircraft and also a military transporter. Additionally, it can be used as a maritime patrol aircraft.

6.12.1983
Fernando de Caralt is appointed new CEO of CASA.

11.10.1984
The signatures are put to the planning document for the EFA project – today known as the Eurofighter/Typhoon.

16.8.1984
The ATR 42 takes off from Toulouse on its maiden flight. Final assembly of this regional airliner also takes place at this site. The members of the test crew were Gilbert Defer, Jean Couche and Yves Puigret.

7.11.1984
Delivery of the Instrument Pointing System (IPS), developed by Dornier. IPS is a platform for scientific instruments used in the Spacelab programme and is capable of being stabilised and adjusted to an extreme degree of accuracy.



12.11.1984
The Jade-German Bight coastal radar chain for monitoring and safeguarding shipping traffic is brought into operation. The system was supplied by AEG-Telefunken. The Weser coastal radar chain, shown here in the photograph, followed in July 1985.

17.6.1985
Patrick Baudry becomes the second French astronaut when he flies aboard the Discovery space shuttle and carries out tasks in the Spacelab. On this mission, the echograph developed by Matra Espace is again used for medical experiments. The photo shows Baudry (left) and his Saudi-Arabian colleague HRH Prince Bandar bin Sultan Al Saud.

30.10.1985
The Spacelab D-1 mission is launched with two German scientists on board. The astronaut Ernst Messerschmid works on scientific experiments in the space laboratory developed by MBB Erno. Also on board is the Matra-developed Biorack for biological experiments in a micro-gravity environment.

22.2.1986
Successful launch of the French earth observation satellite Spot.

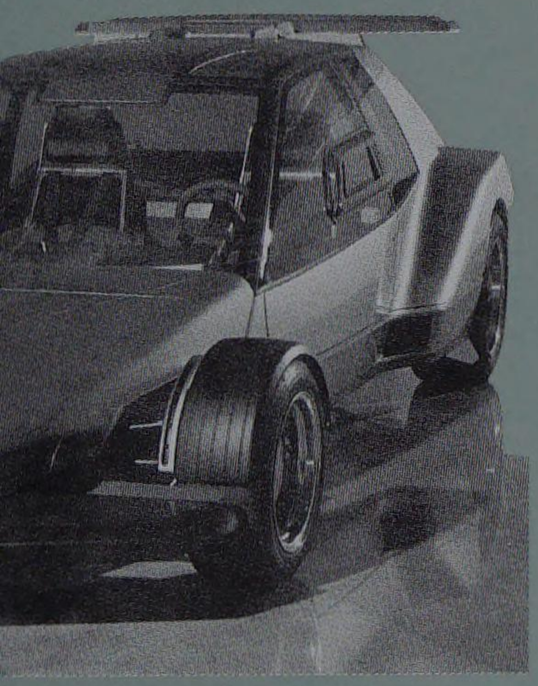
1986
The ramjet-propelled air-to-surface missile ASMP, developed and built by Aerospatiale, is brought into operational service by the French Air Force. The photo shows an ASMP being installed on a Mirage IV P.

10.6.1986
First test firing of the Matra-developed light surface-to-air anti-aircraft missile Mistral, equipped with a complete warhead.

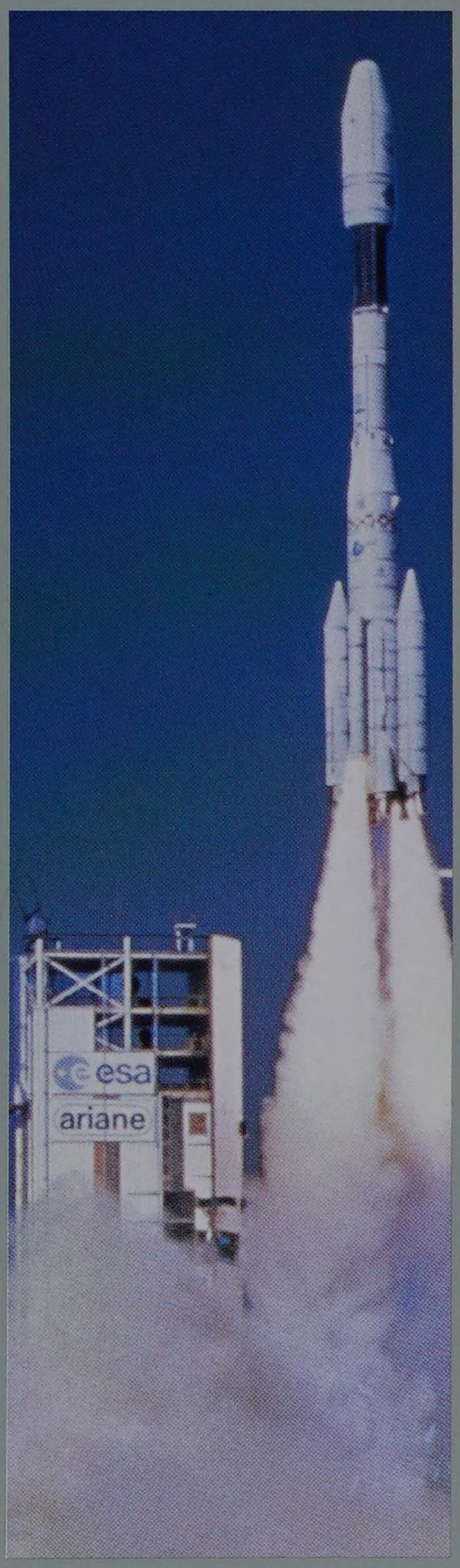
1987
This specially modified Super Puma was originally known as the Orchidée. Equipped with the "Horizon" battlefield surveillance radar developed jointly by Aerospatiale, Matra and Thomson CSF, the Super Puma entered service as a tactical support helicopter.

19.1.198
Javier Alvarez Vara becomes the new CEO at CASA.

1986
The experimental automobile P 29 from Matra is shown at the Paris Motor Show.



22.2.1987
The Airbus A320 successfully completes its maiden flight in Toulouse.



15.6.1988
Lift-off of the first Ariane 44LP launcher in Kourou. Being equipped with two liquid- and two solid-propellant boosters, this launcher can transport larger payloads into space.

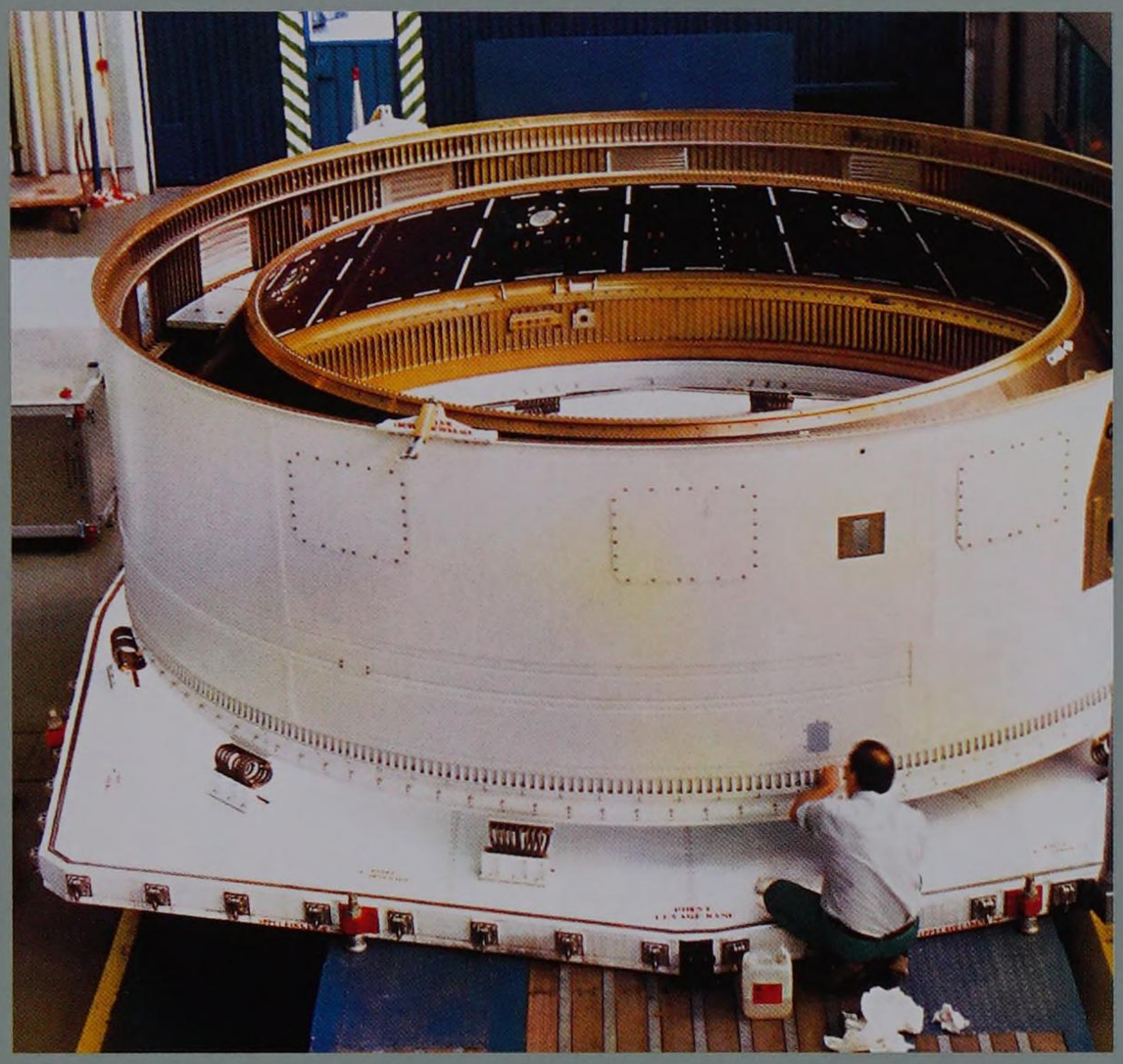
△
14.7.1988
The TBM 700, developed and built by Socata and equipped with a pressurised cabin, takes off on its first flight. This aircraft can be used for training purposes, as a business aircraft or air freighter and for police and coast guard missions. For the construction of this aircraft, the company TBM SA was founded, in which Socata (70%) and the US American Mooney (30%) are the shareholders.

◁ ***27.10.1988***
The ATR 72 takes off on its first flight at Toulouse. Compared to the other aircraft in its class, this 70-seater offers extremely low costs per seat mile.

28.11.1988
First test run of the EJ200 engine, developed specially for the Eurofighter.

12.12.1988
MBB's Bo 108 flies for the first time at Ottobrunn. This demonstration helicopter was based on the successful concept of the Bo 105 and led directly into the development of Eurocopter's EC 135.

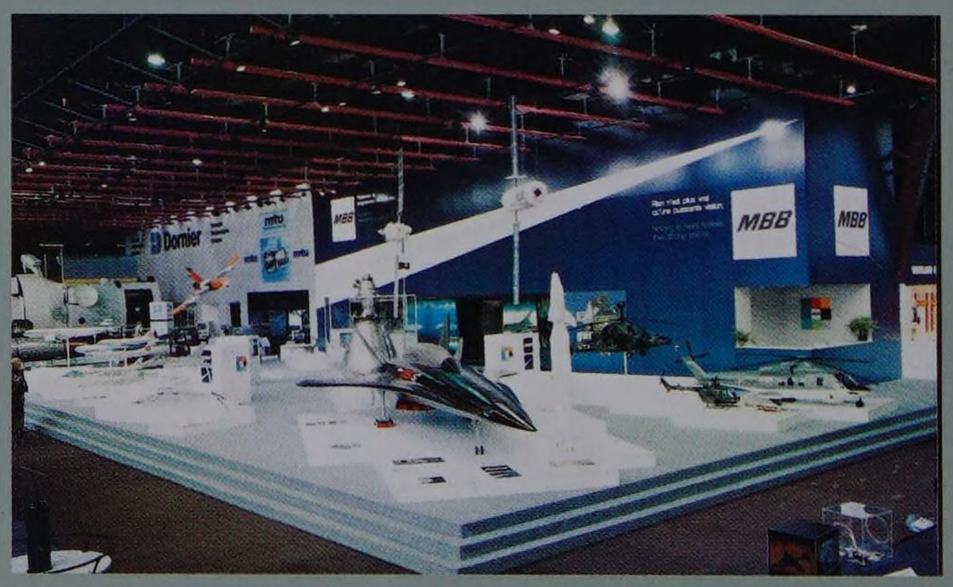
19.5.1989
Foundation of Deutsche Aerospace AG as a subsidiary of Daimler-Benz AG. Dornier, MTU and parts of the Daimler-Benz subsidiary AEG are united under the roof of the new company. In the photo are to be seen the Board of Management and the Supervisory Board of the aerospace company following signature of the memorandum of association. Fourth from left in the front row: Jürgen E. Schrempp, the first Dasa CEO and today chief of Daimler-Chrysler.



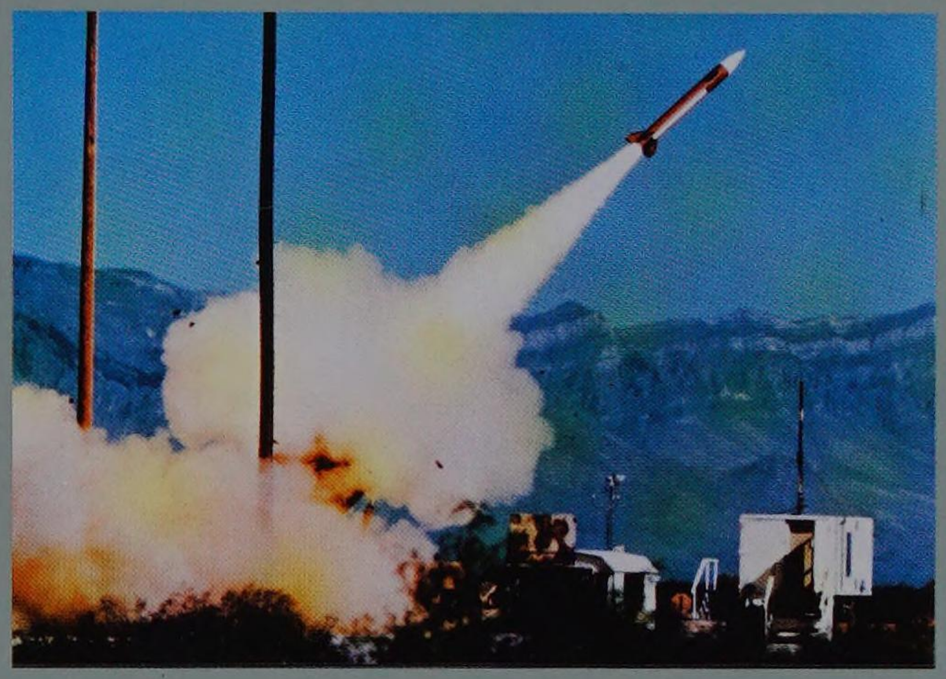
1989
CASA receives the contract for the construction of the cylindrical adapter ring, the so-called equipment bay, for the Ariane 5 launcher. It is on this part of the launcher that the EPS stage and the payload will be carried.

June 1989
Deutsche Aerospace, together with its subsidiaries Dornier, MTU and TST, appears at the Paris-Le Bourget Aerosalon for the first time (photo above).

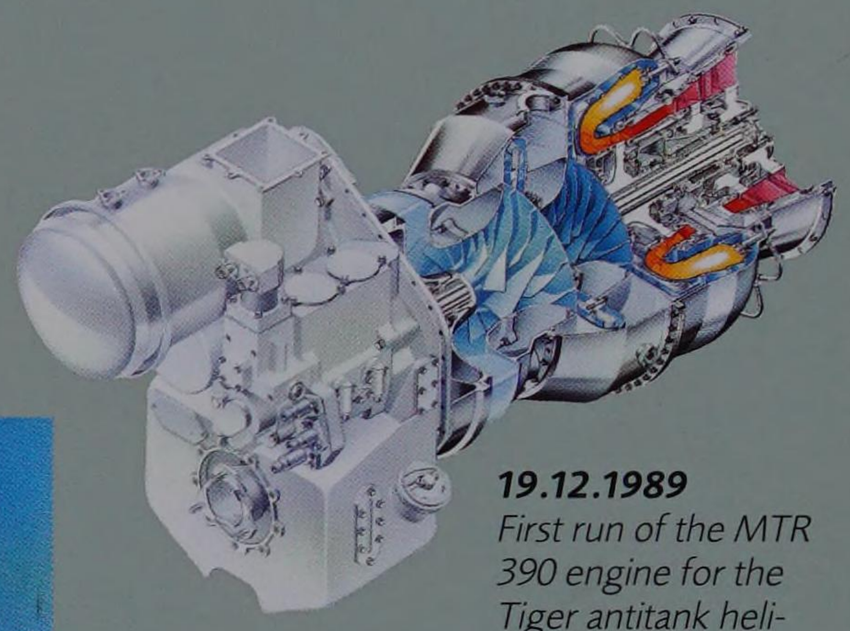
Also MBB – due to join Dasa in December – exhibits in the direct vicinity of the Dasa stand (photo right).



5.6.1989
Euroflag is set up by Aeritalia, BAe, CASA and MBB to develop a future military transport aircraft. This project will later receive the name A400M.



6.7.1989 ▷
The first production unit of the antenna mast group for the Patriot system is supplied by Dornier.

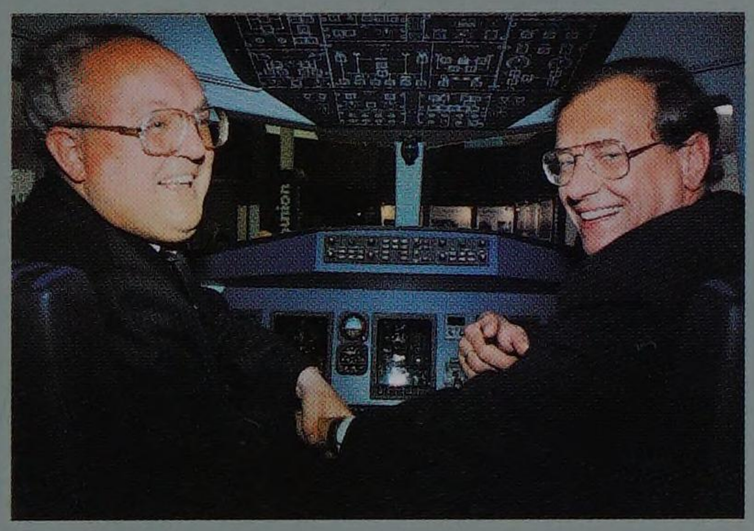


19.12.1989
First run of the MTR 390 engine for the Tiger antitank helicopter. MTU has a 40 percent share in this 1,200 to 1,500 kW performance range engine.

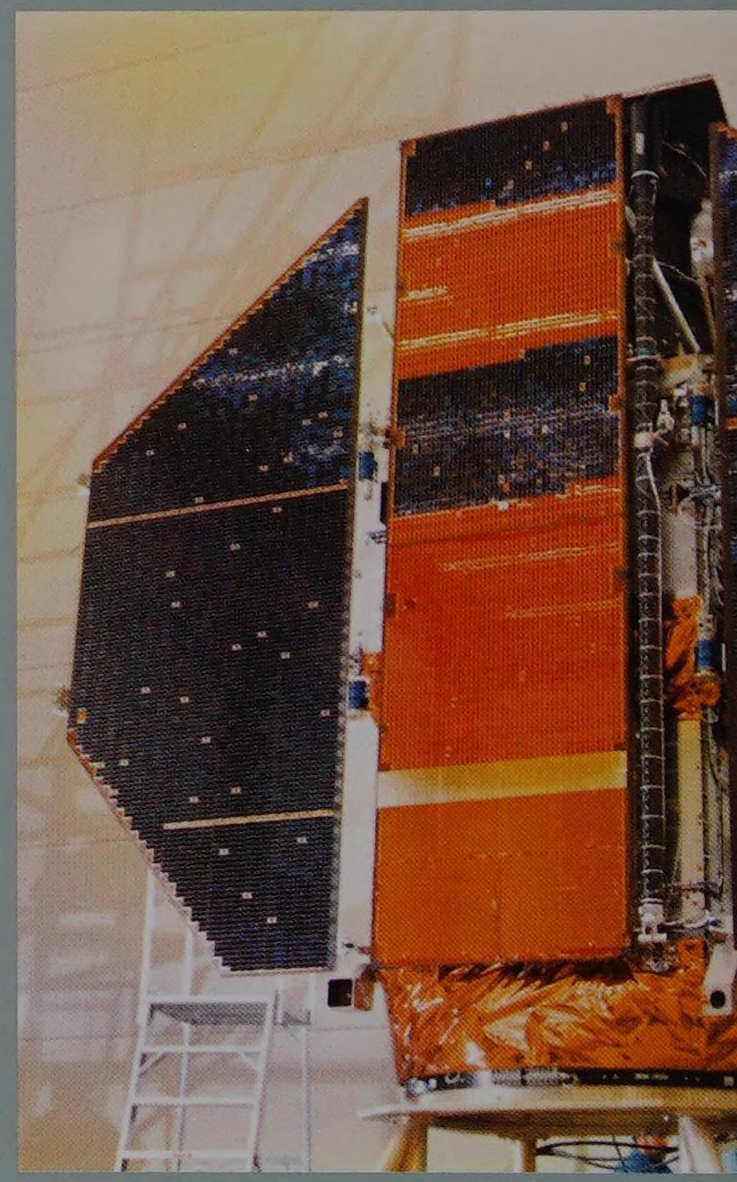
◁ ***6.6.1989***
Launch of the DFS-Kopernikus, a direct broadcasting satellite built for the German Bundespost at Bremen. Here, the satellite is to be seen in the clean room at the launch site in Kourou, French Guyana.

8.8.1989
The Hipparcos "100,000 stars" satellite successfully lifts off on its space mission aboard an Ariane 44LP. Matra was the prime contractor for this research satellite whose purpose is to help compile a new catalogue of the stars.

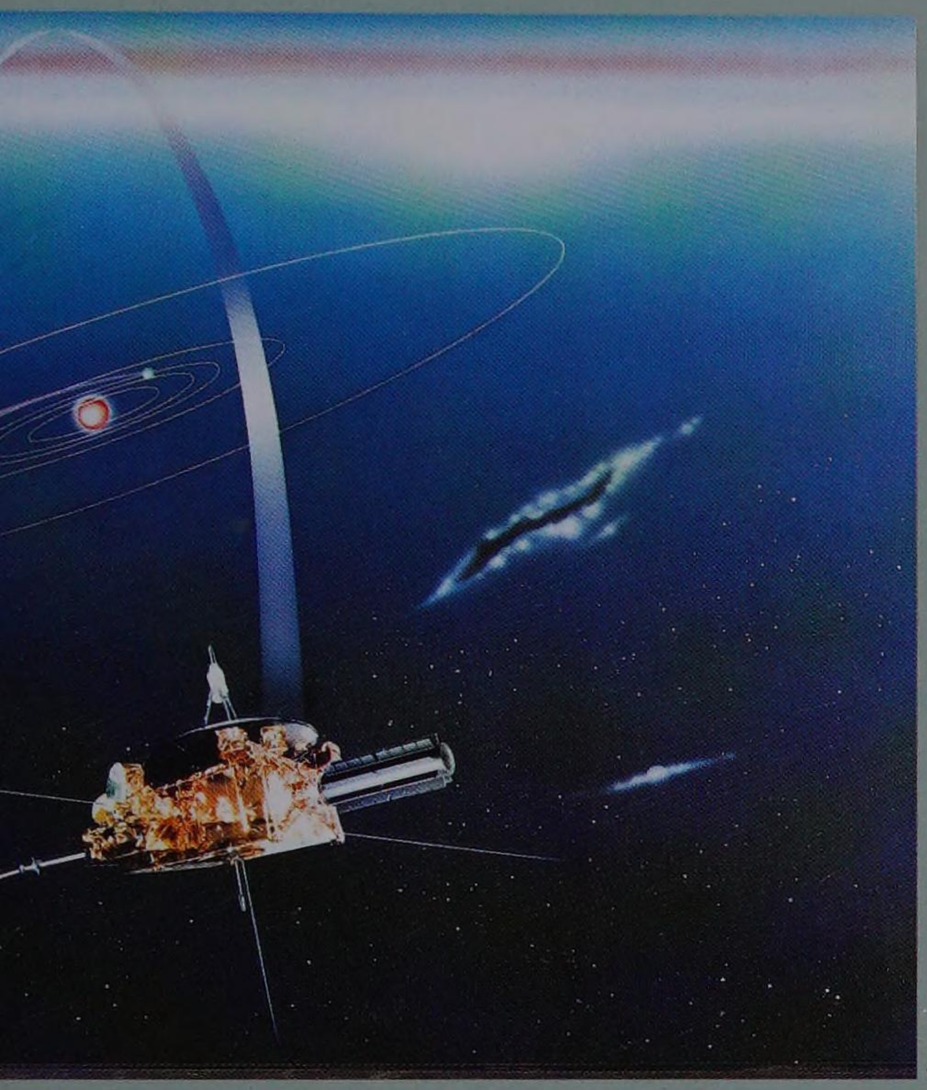
3.1.1990
An impressive balance: a total of 421 Airbus aircraft are ordered in 1989, 167 more than the year before. Airbus Industrie decides to set up a second final assembly line for the A321 at Hamburg-Finkenwerder.



14.-20.5.1990
Dasa makes its first appearance at ILA '90 in Hanover, represented by all four subsidiaries Dornier, MTU, TST and MBB. The Munich-based aerospace company MBB has only been integrated into Dasa since December 1989 – initially without Deutsche Airbus. Sitting in the cockpit mock-up of a Dornier 328: Dasa chief Schrempp (r.) with Erich Riedl, the German Government Coordinator for Aerospace. Below, a model of the NH 90 at the same trade fair.

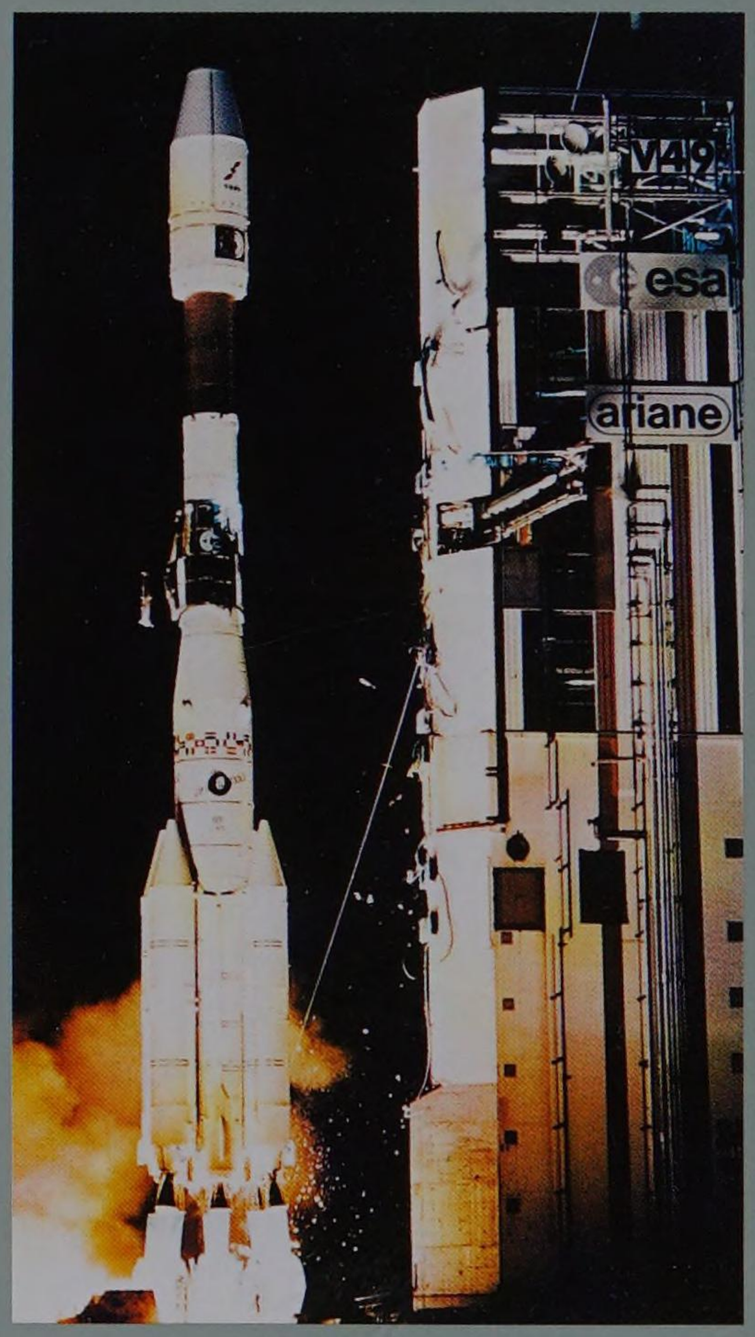


1.6.1990
Launch in Cape Canaveral of the research satellite Rosat, developed under Dornier systems leadership to explore X-ray sources in space. Here the satellite is to be seen in the clean room at Friedrichshafen.



6.10.1990
The solar probe Ulysses is launched aboard the space shuttle STS 41. It is the first probe to fly over and investigate the sun's polar regions.

11.10.1990
First flight of the German-American experimental aircraft X-31A. Ken Dyson of Rockwell was the test pilot. In the photo left: the X-31A seen on a test flight flying at an extremely high angle of attack of more than 70 degrees, which can only be achieved through the combination of thrust vector control and a delta-canard configuration.



December 1990
Aerospatiale receives an order from Arianespace for 50 Ariane 4 launchers to be delivered over the period 1991 to 1999. The picture shows the most powerful version, an Ariane 44L, at lift-off.

"This beauty consists of subtle nuances, as in the miraculous balance of soft and brilliant hues. Only a child in its innocence could apprehend the purity and splendour of this vision."

Patrick Baudry, French astronaut

1991–2000

MATRA MARCONI SPACE

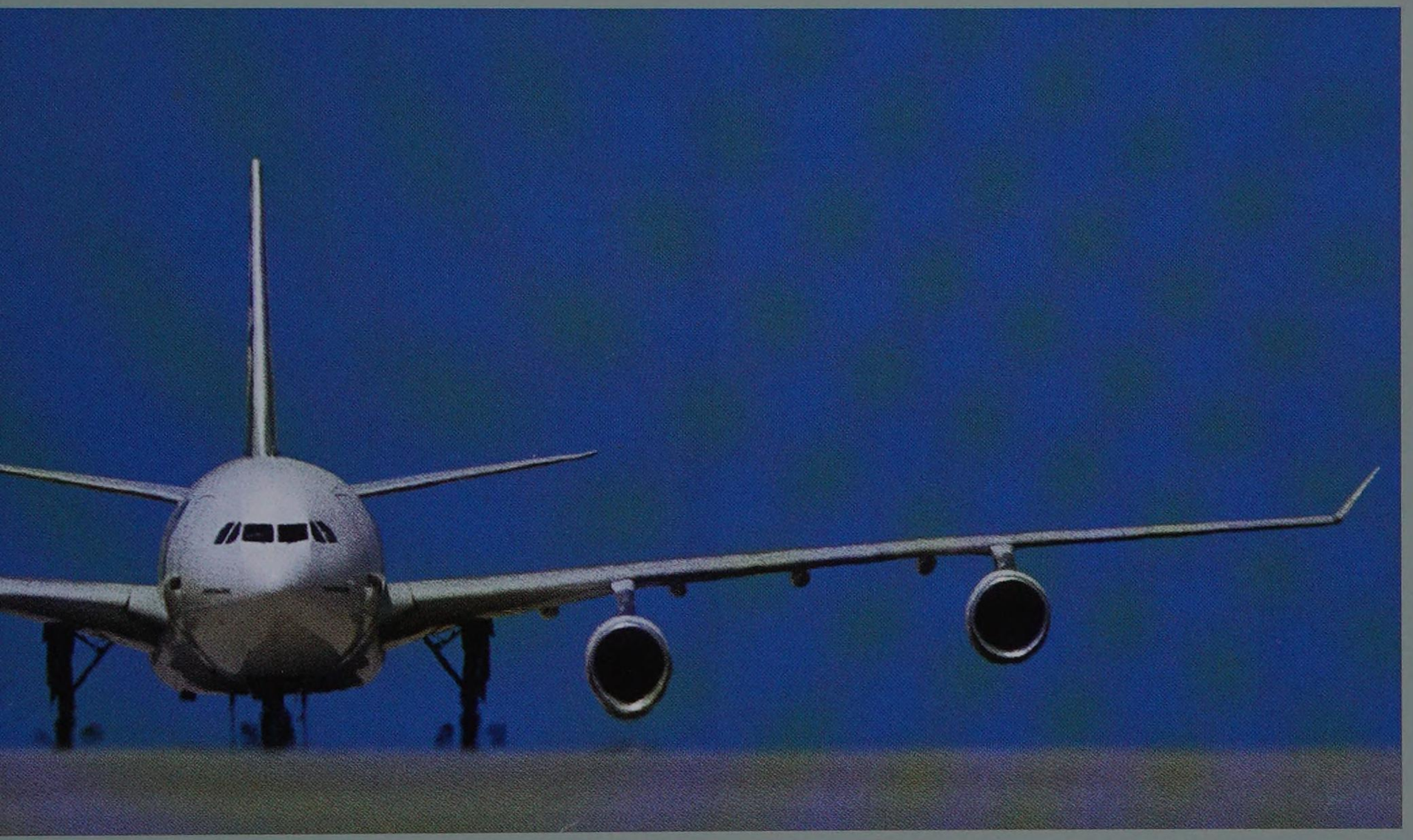
1.1.1991
Matra Marconi Space begins business operations. This company is a trailblazer in the consolidation of the European space industry, arising from the merger of Matra Espace with GEC Marconi Space Systems. In 1994, BAe Space Systems joins the group.

24.1.1991
The CASA plant Illescas (near Toledo) is inaugurated by the Spanish King Juan Carlos. The works (aerial photo) are to become the CASA Advanced Composites Centre, this technology mainly being supplied to the Airbus programmes (horizontal stabilisers, see photo) and Eurofighter (wings).

8.3.1991
MTU and Pratt & Whitney found a strategic alliance, in which each partner grants the other favoured partner status in any future commercial engine programmes. In the photo: CEOs Hubert Dunkler (MTU, r.) and Jim O'Connor (P&W).

27.4.1991
The new combat helicopter, the Eurocopter Tiger, takes off for the first time at Marignane. This Franco-German joint development is designed for a variety of attack and support tasks.

17.7.1991
Launch of the earth observation satellite ERS -1, to become one of Europe's most successful satellite programmes. ERS-1 is an all-weather system that uses microwaves and radar sensors to carry out its measurements. The image above left shows a part of the Netherlands, the photo alongside the Bay of Naples (Italy), with left the Isle of Capri and right Vesuvius. The photo right shows the ERS-1 in the ESA Test Centre at Noordwijk in the Netherlands.



6.12.1991
The Dornier 328 completes a test programme lasting almost two hours during its first flight from Oberpfaffenhofen.

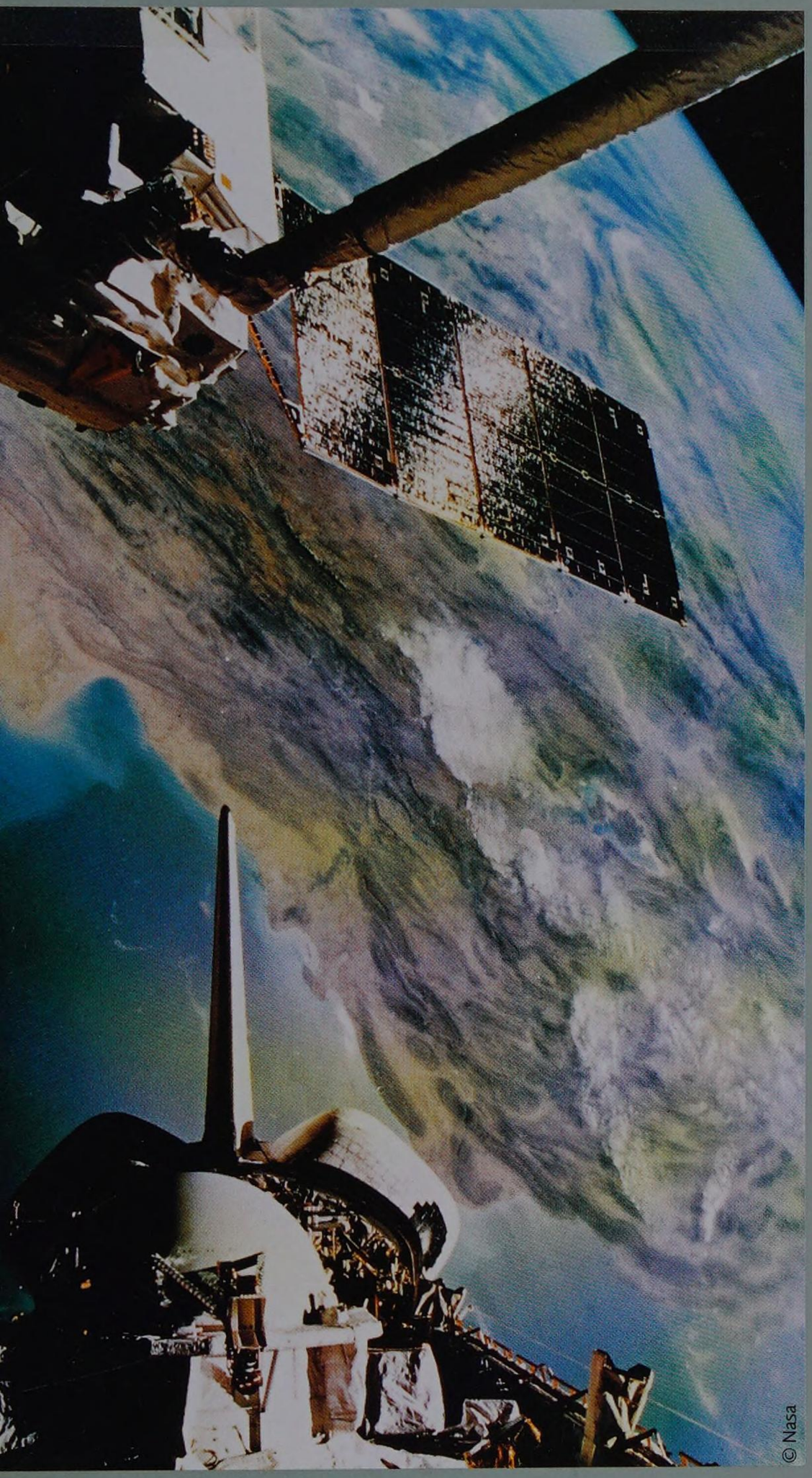
25.10.1991
First flight of the four-engine Airbus A340-300 at Toulouse. Its range of 13,500 km was at that time the greatest of any airliner and it could seat up to 295 passengers. In the photo: test pilots Nick Warner (r.) and Pierre Baud in the cockpit.

1.1.1992
Dasa and Aerospatiale combine their helicopter activities under the roof of a joint subsidiary. The company formed, Eurocopter, is the world's second largest builder of helicopters. In the photograph: the Bo 105 DBS from Dasa (l.) and the AS 355 F Ecureil from Aerospatiale.

1.4.1992
First flight of the Airbus A340-200, a shortened version designed to carry 261 passengers over greater distances: 8,000 nm/14,800 km (as opposed to the A340-300 version first flown in 1991, which could carry 295 passengers over a range of 7,300 nm/13,500 km).

15.-21.6.1992
With ILA '92, the renowned international aerospace exhibition returns to Berlin. Among the Dasa exhibits is a mock-up of the Eurofighter 2000, a four-nation project.

1.7.1992
Louis Gallois becomes Chairman and CEO of Aerospatiale.

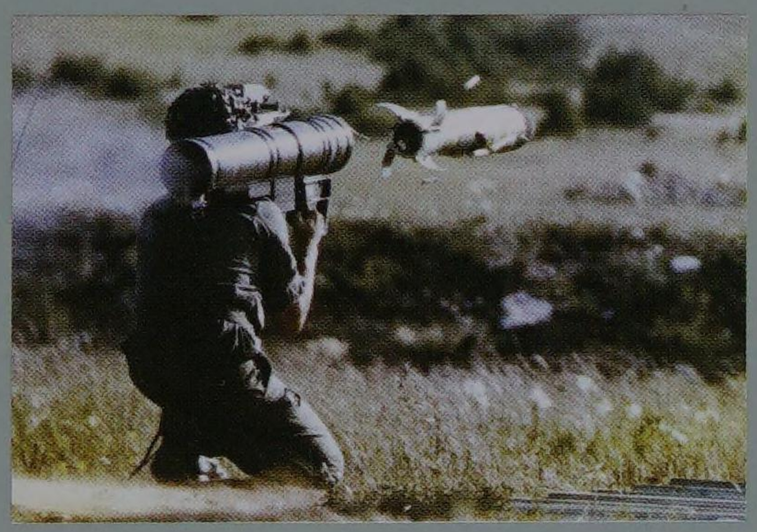


31.7.1992
500 kilometres above the Persian Gulf, the European Retrievable Carrier EURECA, a research platform built by Dasa in Bremen, is released into orbit from the space shuttle Atlantis. After almost a year in space it returns to Earth in June 1993.

2.11.1992
Toulouse: successful first flight of the A330, shown here with its "big brother", the A340. The photo left shows the five-man test flight crew, including pilot Etienne Tarnowski (2nd from l.) and co-pilot Udo Günzel (r.).

15.1.1993
First flight of the FanRanger trainer at Manching. This aircraft is the result of cooperation between Dasa and Rockwell International.

3.3.1993
Roll-out in Hamburg of the A321, the first Airbus aircraft to come from the final assembly line in Germany. The first flight is to take place a week later, on 11 March, from Hamburg-Finkenwerder.



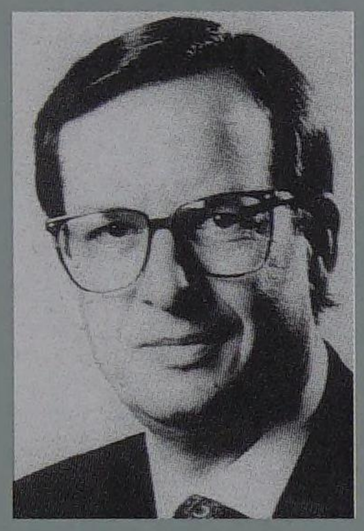
1993
The wire-guided portable infantry missile Eryx goes into operation. To date, over 1,600 launch units and 50,000 missiles have been produced for this system.

2.4. 1993
Maiden flight of the Fokker 70, a shortened version of the Fokker 100. Dasa Airbus was risk-sharing partner for the Fokker 100 and Fokker 70 programmes.

28.5.1993
Airbus Industrie decides to build the Airbus A319, a shortened version of the A320. The final assembly line of the new aircraft, like that of the A321, will be in Hamburg. The large photo shows the A320 family flying in formation.

16.-18.6.1993
The A340 "World Ranger" sets a magnificent world record: it flies round the globe, taking off from Paris, making only one touchdown (in New Zealand) and covering a total distance of 38,358 km.

27.4.1993
Dasa acquires a 51% majority holding in the Dutch aircraft manufacturer Fokker. From left: Dasa's head of Finance and Controlling Dr. Manfred Bischoff, Fokker chief Erik Jan Nederkoorn and Dasa CEO Jürgen E. Schrempp.



10.1.1994
Raúl Herranz becomes new CEO of CASA.

15.2.1994
The first flight of the EC 135, the new light helicopter from Eurocopter, takes place at Donauwörth.

1.1.1995
From now on, Deutsche Aerospace AG trades under the name of Daimler-Benz Aerospace AG. The abbreviation Dasa is retained.

Daimler-Benz Aerospace

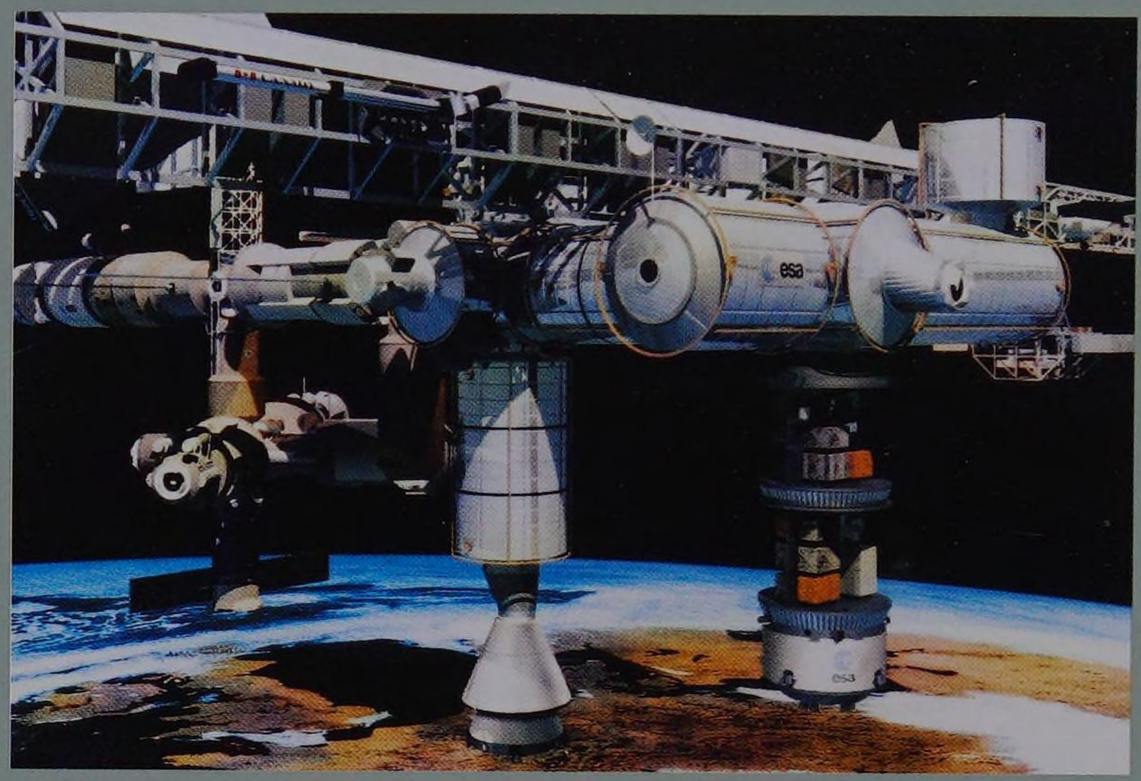
△
24.5.1995
Dr. Manfred Bischoff is the new President and CEO of Dasa. He succeeds Jürgen E. Schrempp, who becomes chief of Daimler-Benz AG.

27.3.1994
First flight of the first prototype Eurofighter 2000 at Manching with Peter Weger at the controls.

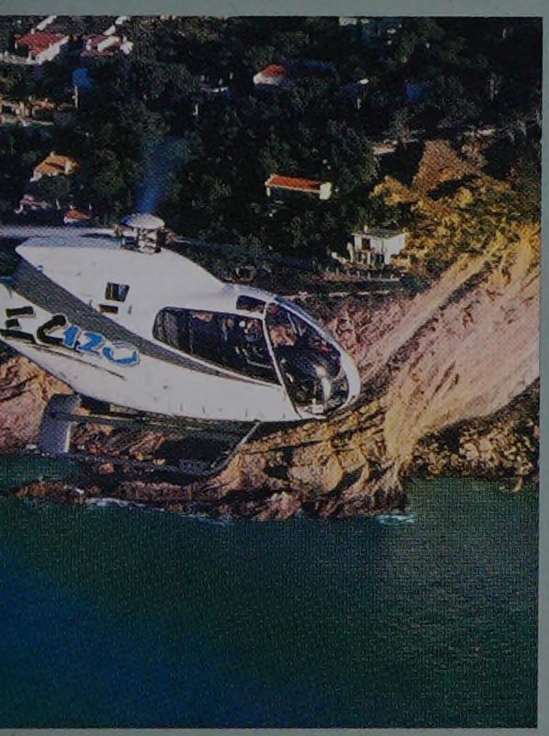
13.9.1994
The A300-600ST "Beluga", successor to the Super Guppy transporter for Airbus components, completes its first flight in Toulouse.

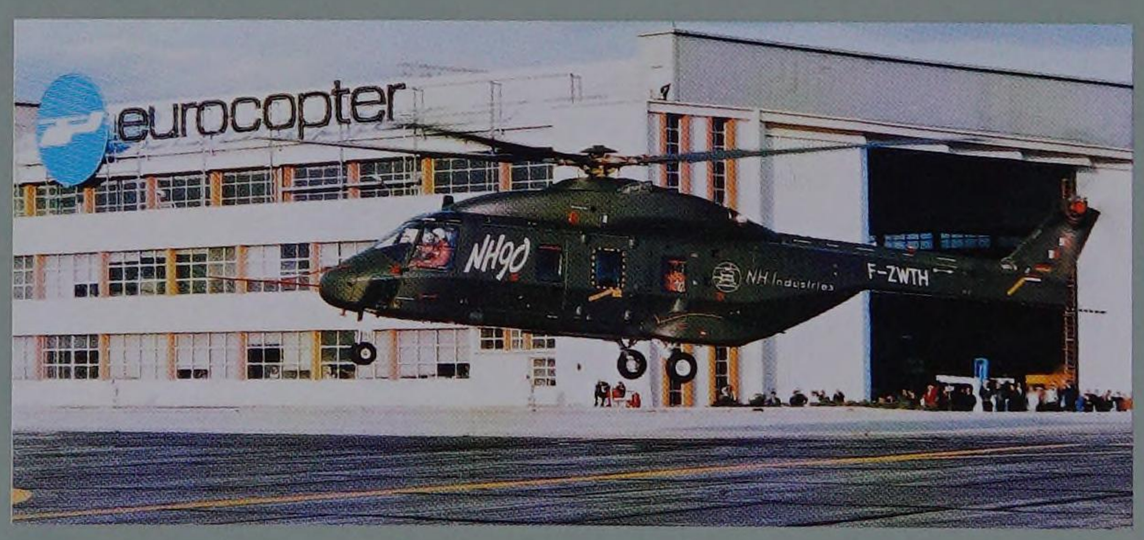
9.6.1995
The EC 120 Colibri flies for the first time at Marignane, manned by test pilot Étienne Herrenschmidt and engineer Bernard Certain.

24.8.1995
Trainees of Daimler-Benz Aerospace Airbus line up to greet the hitherto smallest member of the Airbus family, the A319, at the Hamburg-Finkenwerder plant. The "junior" successfully completes its first flight on 25.8.



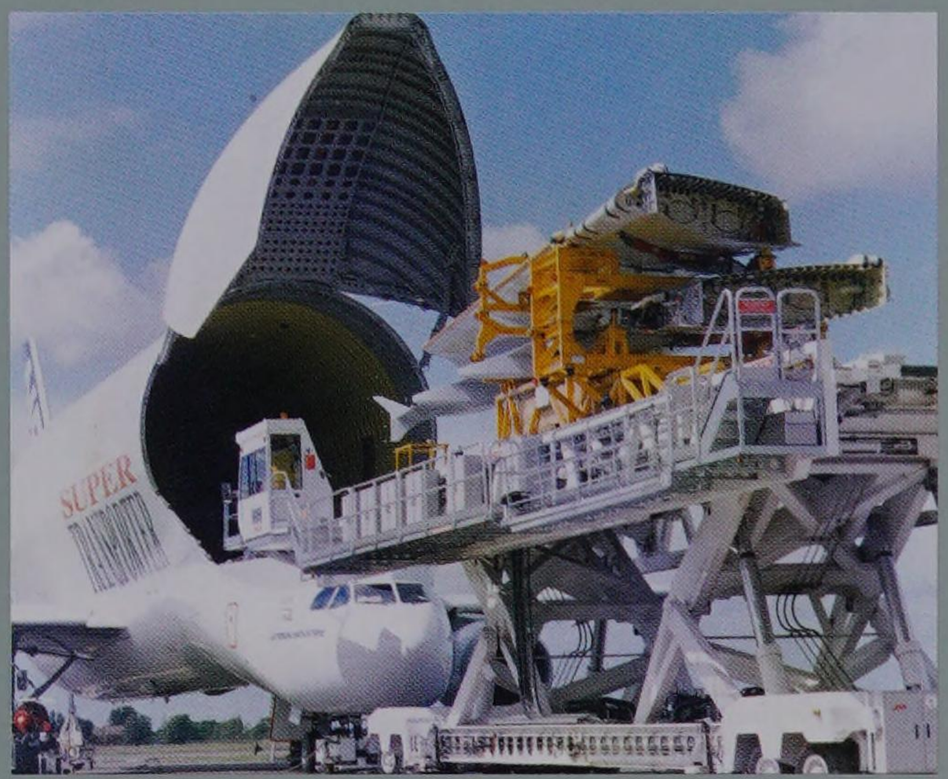
19.10.1995
During its meeting in Toulouse, the ESA Council decides in favour of European participation in the International Space Station (ISS). Aerospatiale and Dasa will develop various systems, both for the space station itself and for the European module Columbus.

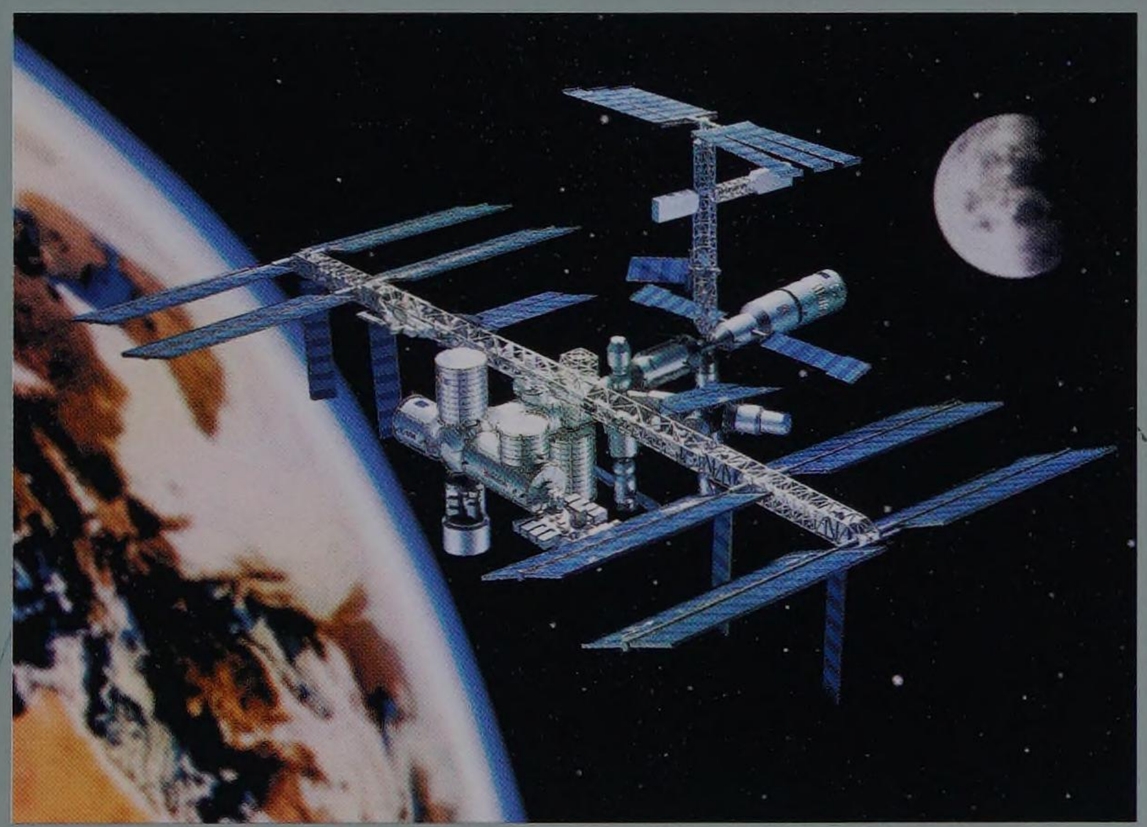




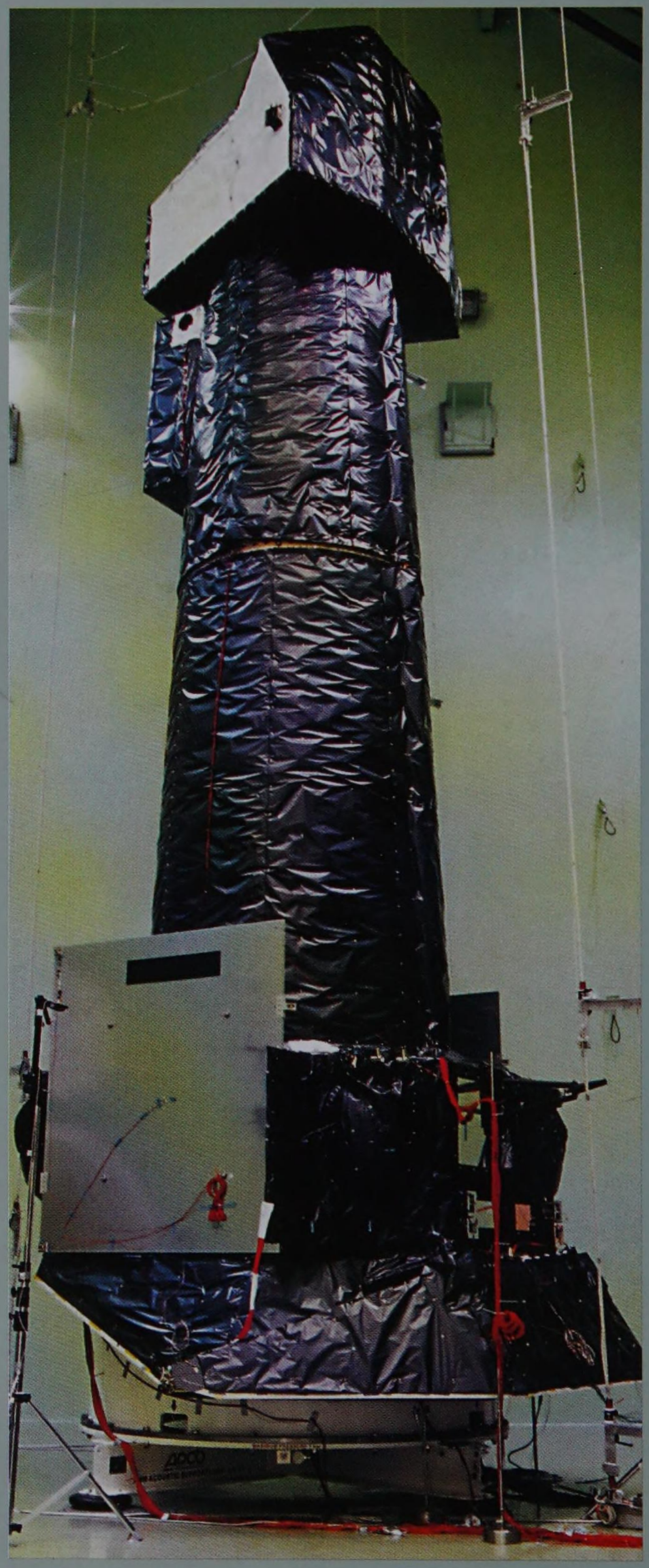
18.12.1995
The military transport helicopter NH90, developed by NH Industries, completes its first flight at Eurocopter's Marignane facility.

8.1.1996
The A300-600ST "Beluga", the world's largest civil transport aircraft, enters service. The volume of this super transporter's cargo hold is 1,400 cubic metres, while the maximum payload is 45.5 tonnes.

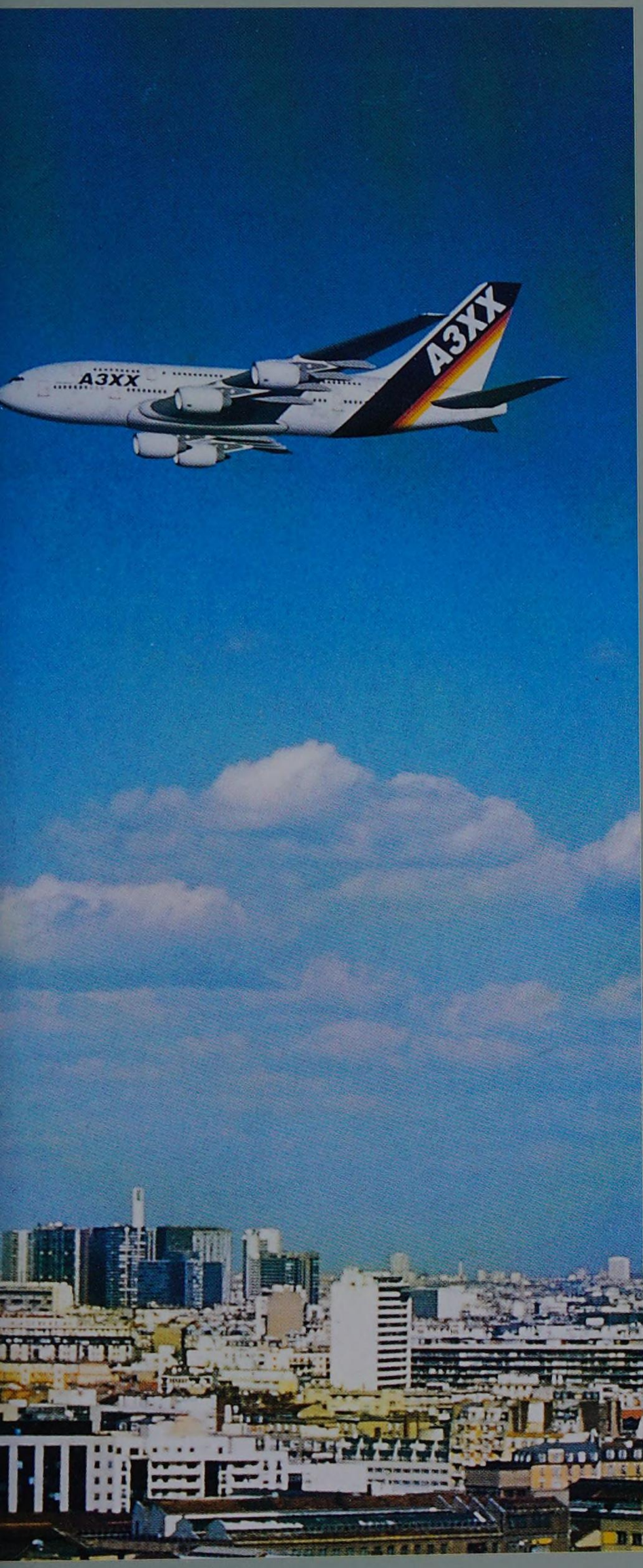




28.3.1996
ESA selects Dasa's Space Infrastructure business unit to be prime contractor for the construction of the Columbus module, Europe's contribution to the International Space Station ISS.



21.3.1996
The European Space Agency ESA awards the Dasa subsidiary Dornier Satellitensysteme GmbH the main contract to develop and build the X-ray Multi-Mirror space telescope XMM.



2.4.1996
Airbus Industrie sets up its Large Aircraft Division, an integrated department with the task of developing the superjumbo A3XX, which has since received the designation A380.

4.6.1996
The maiden flight of the new European launcher Ariane 5 ends in failure. 40 seconds into the flight, a deviation from the planned trajectory causes the rocket's self-destruction mechanism to be triggered. An inquiry board establishes that a software error had led to the mission being aborted.

17.7.1996
The development contract for the European earth observation satellite Envisat is awarded to Dornier Satellitensysteme GmbH (DSS). DSS is also to act as systems leader for the entire Envisat mission.

31.8.1996
The Spanish prototype Eurofighter, the first twin-seater version, completes its maiden flight at Getafe.

Matra BAe Dynamics

1.11.1996
Matra BAe Dynamics, a 50:50 joint venture by Matra Défense and British Aerospace, starts business operations. This new company is Europe's number one and the world's number three manufacturer of guided missiles.

9.8.1996
Yves Michot becomes President of Aerospatiale.

11.12.1996
First flight of a vertical take-off AV-8B Harrier II plus, final assembly of which took place at CASA.

12.12.1996
The A321-200, a further development of the A321-100 with an extended range of 5,000 km, takes off for the first time in Hamburg.

25.1.1997
Dasa receives the German Industry Innovation Prize for distance radar for automobiles developed in Ulm (from l. to r.: Dr. Manfred Bischoff, Head of Development Wulf Carl and the German Economics Minister Günter Rexrodt).

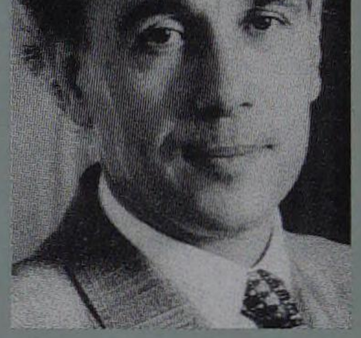
31.1.1997
The communications satellite Nahuel 1A starts operation 36,000 km out in space. This is the first satellite of the Argentinian operating company Nahuelsat, in which Dasa also holds a share. The Argentine President Carlos Menem (centre) heralds the start of the Nahuelsat system.

24.2.1997 ▷
The second German prototype Eurofighter is airborne. The aircraft is powered by the EJ200 engine, which has been specially developed for Eurofighter. In addition, it is the first of these combat aircraft to be equipped with the European airborne radar system ECR 90.

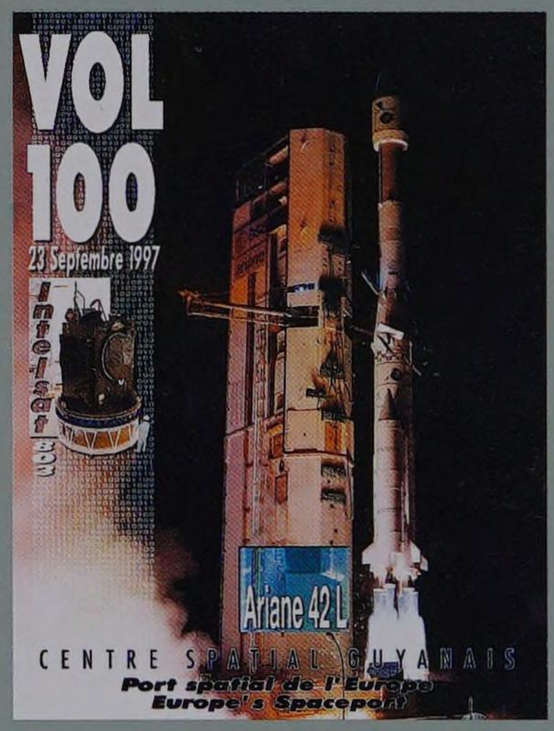
◁ ***21.4.1997***
Launch of the Spanish Minisat 01, for which CASA acted as prime contractor.

20.6.1997 ▷
The production investment contract for the Franco-German combat helicopter Tiger and its anti-tank armament (ATA) is signed at the international air show in Le Bourget. This helicopter has night mission and all-weather capabilities and can be equipped with different weapon systems.

17.7.1997
Alberto Fernández becomes new Chairman of CASA.



13.8.1997
The A330-200, the long-range version of the twin-engined Airbus A300, successfully completes its four-hour maiden flight from Toulouse.



24.9.1997
At 1.58 a.m. Central European Summer Time, the European launcher Ariane 4 lifts off on its 100th space mission. Since Ariane's first launch on 24 December 1979, the four versions have transported a total of 134 satellites and 26 piggyback payloads into orbit.

15.10.1997
The Cassini-Huygens dual mission, to which the Astrium predecessors Aerospatiale, Matra Marconi Space and Dasa's space units are making important contributions, sets off from Cape Canaveral on its 1.4 billion km flight to explore the surroundings of Saturn. In the year 2004, the Huygens probe is due to land on the Saturn moon Titan and investigate its atmosphere and surface.

30.10.1997
The second lift-off into space of the European launcher Ariane 5 is a success.

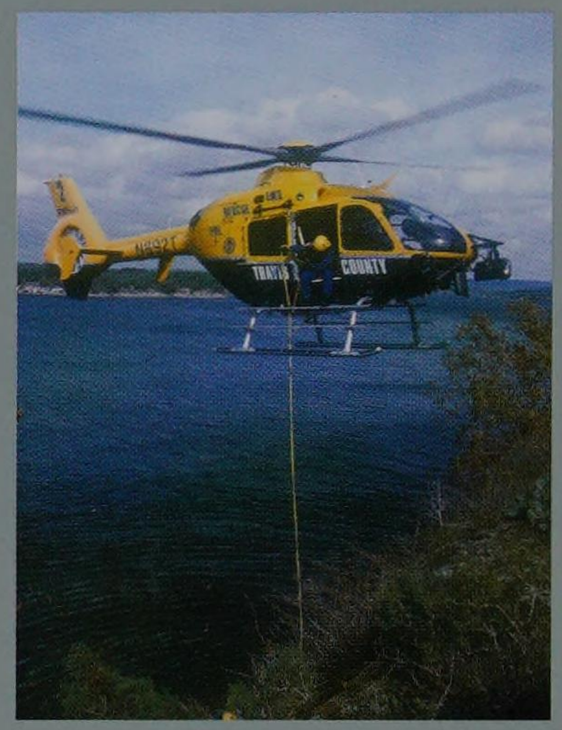
△

28.11.1997

The twin-engine military transporter CASA C-295 completes its first flight. This is a further development of the CN-235, which has been in service since 1983, and has a longer fuselage.

15.12.1997 ▷

The Franco-German joint venture Eurocopter celebrates the sale of the 100th EC 135. Only 18 months have passed since type certification of this twin-engine light helicopter.



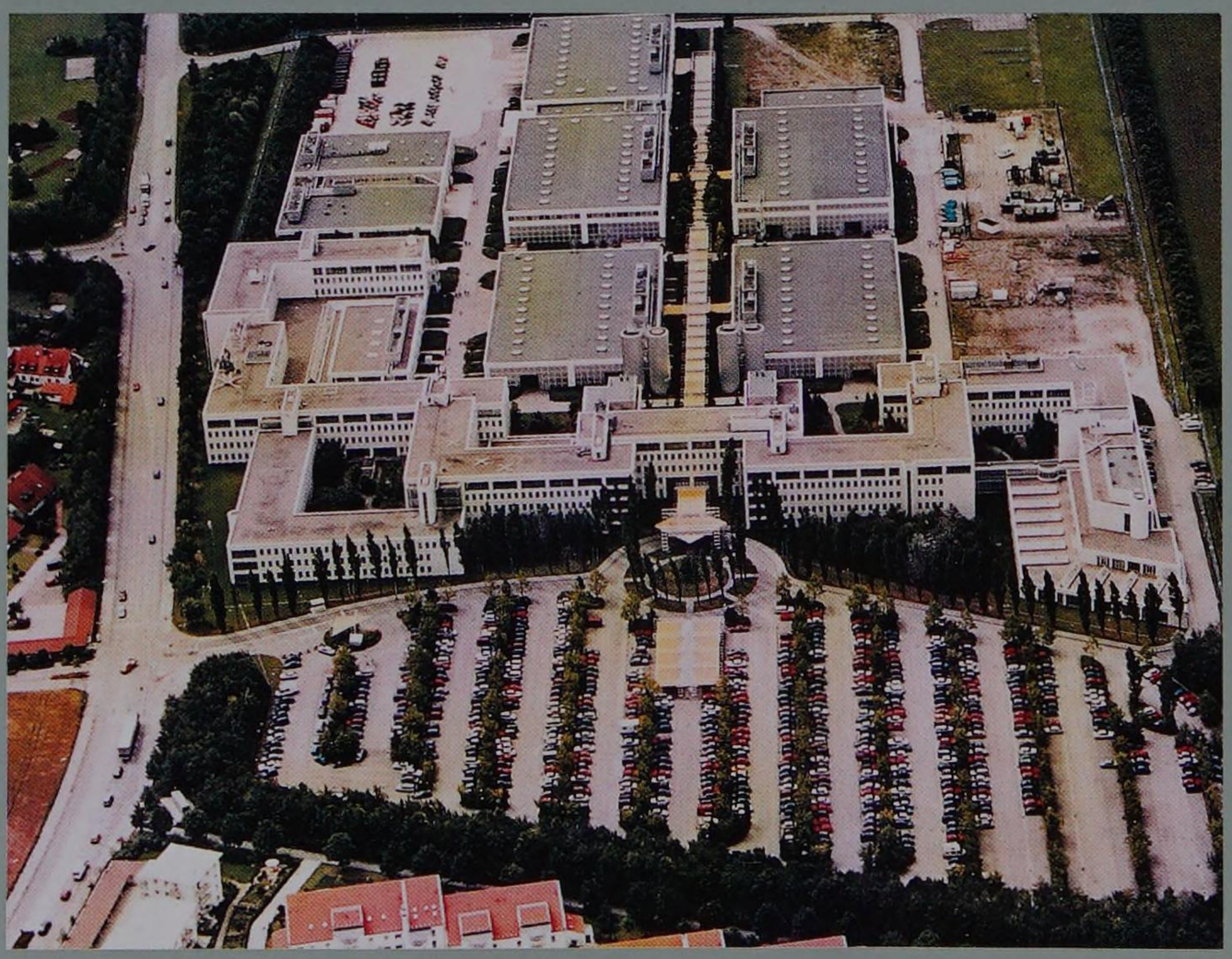
22.12.1997

With the signing of two governmental agreements on the production of the European combat aircraft Eurofighter by the defence ministers of the partner countries, the last hurdle is taken before the production investment phase in this programme. (From left) George Robertson (Great Britain), Volker Rühe (Germany), Eduardo Serra (Spain), Beniamino Andreatta (Italy).

5.12.1997

The go-ahead is given for the A340-500 and –600 programme, providing two new versions in the A330/A340 family from Airbus. The A340-500 for 313 passengers can fly 15,750 km non-stop, which makes it the world's longest range aircraft. The A340-600 can carry 373 passengers over distances up to 13,500 km. Delivery of these aircraft commences in the year 2002.

3.3.1998
CASA is 75 years old. Here, employees are seen celebrating CASA's birthday together with King Juan Carlos (back row left) and Crown Prince Felipe (back row, 6th from left) at the Barajas site in Madrid.



◁ ***15.4.1998***
Dasa takes over SI Sicherungstechnik, the Siemens defence technology arm based at Unterschleissheim near Munich, and merges it into the Defence Electronics activities of the Defense and Civil Systems business unit.

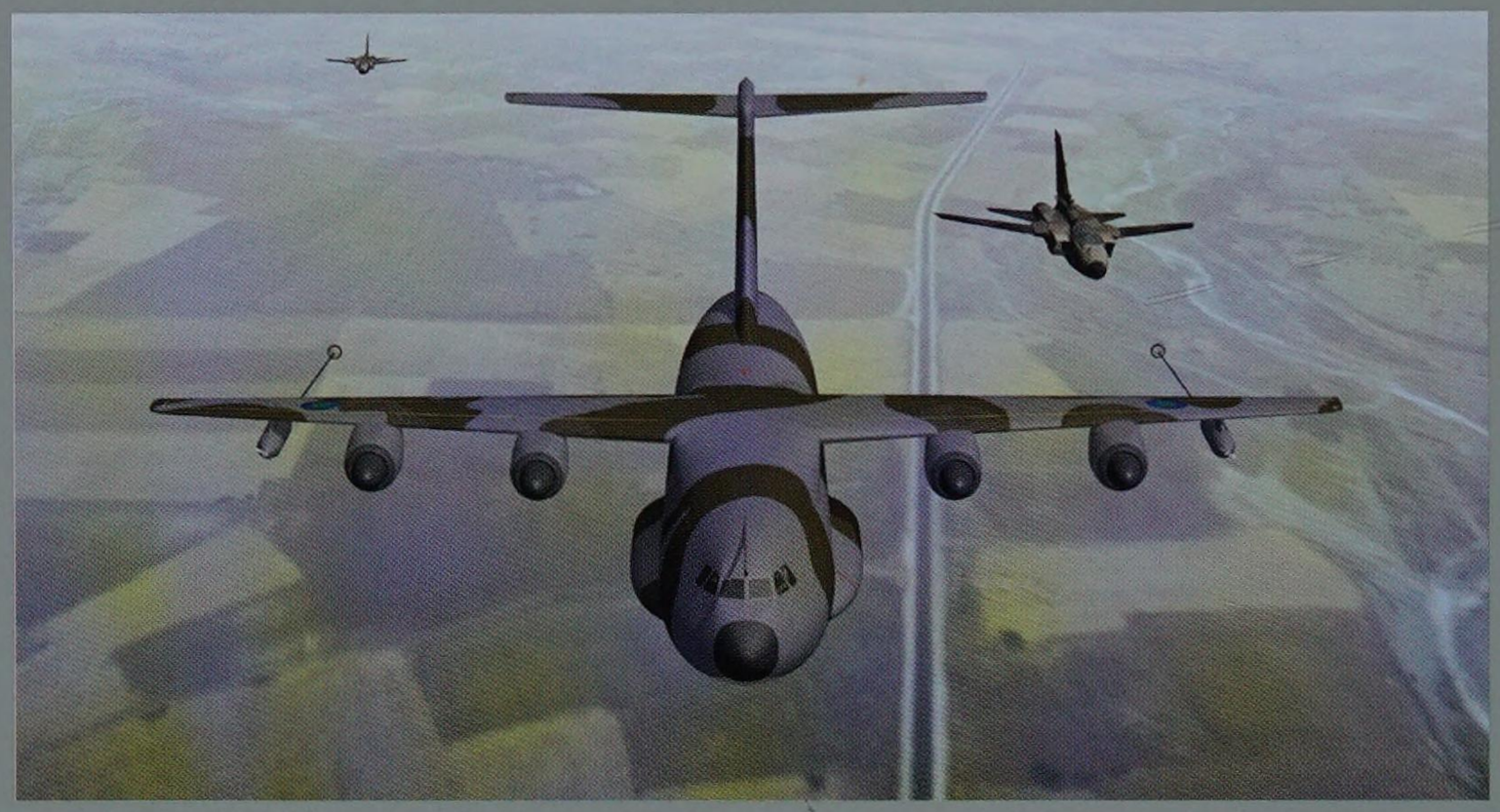
◁ ***20.5.1998***
At the International Aerospace Exhibition ILA '98, held in Berlin/Brandenburg, the French and German governments sign the contract for series production of the Franco-German combat helicopter Tiger. Also at this trade fair a full-scale model of the Columbus module for the International Space Station ISS is presented to the public for the first time (bottom photo).

Summer 1998
In late July it is announced that Lagardère is to take over the helm at Aerospatiale, which will bring what has up to now been a state company under private-sector management. In September, the future top management meets at an event accompanying the Farnborough Air Show (in the front row of the photo: left Yves Michot, right Philippe Camus).

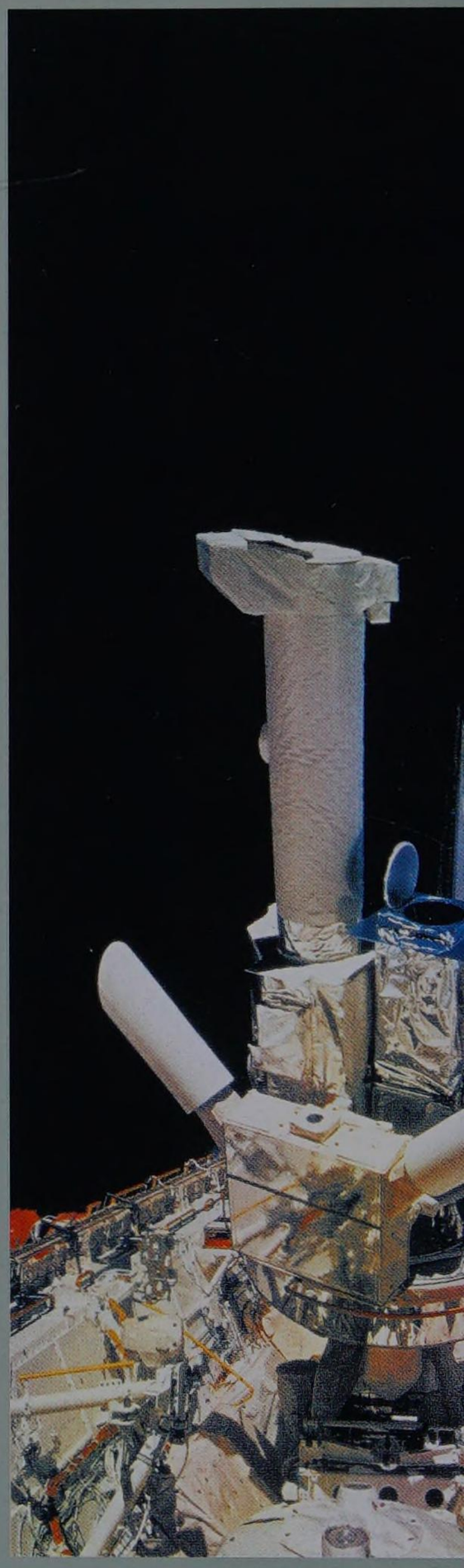
29.10.1998
The first Spanish astronaut Pedro Dugue undertakes a nine-day flight into space as a payload specialist aboard the Discovery space shuttle.

17.11.1998
Dating from the stock exchange listing of DaimlerChrysler AG on this day, Daimler-Benz Aerospace changes its name to DaimlerChrysler Aerospace AG. The abbreviation Dasa is retained.

February 1999
Airbus Military Company starts business operations in Toulouse. It is responsible for the development of the military transport aircraft A400M and has presented the technical concept for this to the governments of Belgium, France, Germany, Italy, Spain, Turkey and the United Kingdom.



15.4.1999
Airbus delivers its 1,000th aircraft from the A320 family, an A319 for Air France.



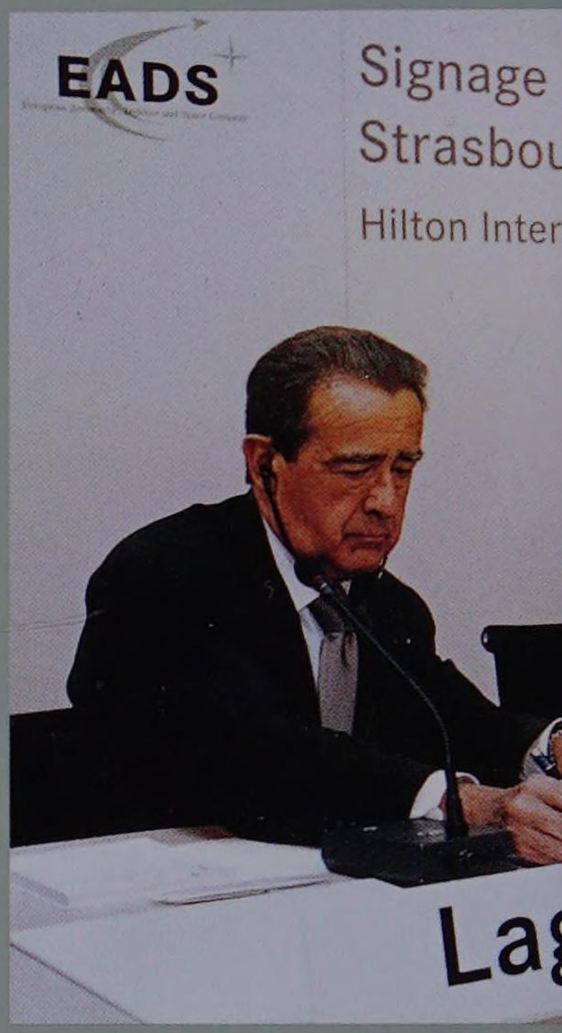
16.4.1999
After 18 years of service including numerous missions on the American space shuttle (large photo), in a ceremonial act Spacelab returns to the place of its birth. It was originally built by ERNO in Bremen. At the symbolic handover of the model (left to right): Dr. Manfred Bischoff, the German chancellor Gerhard Schröder and Nasa chief Daniel S. Goldin.

28.5.1999
The Airbus Corporate Jet A319CJ undertakes its first flight in Hamburg. The small photo gives an impression of the business facilities onboard.

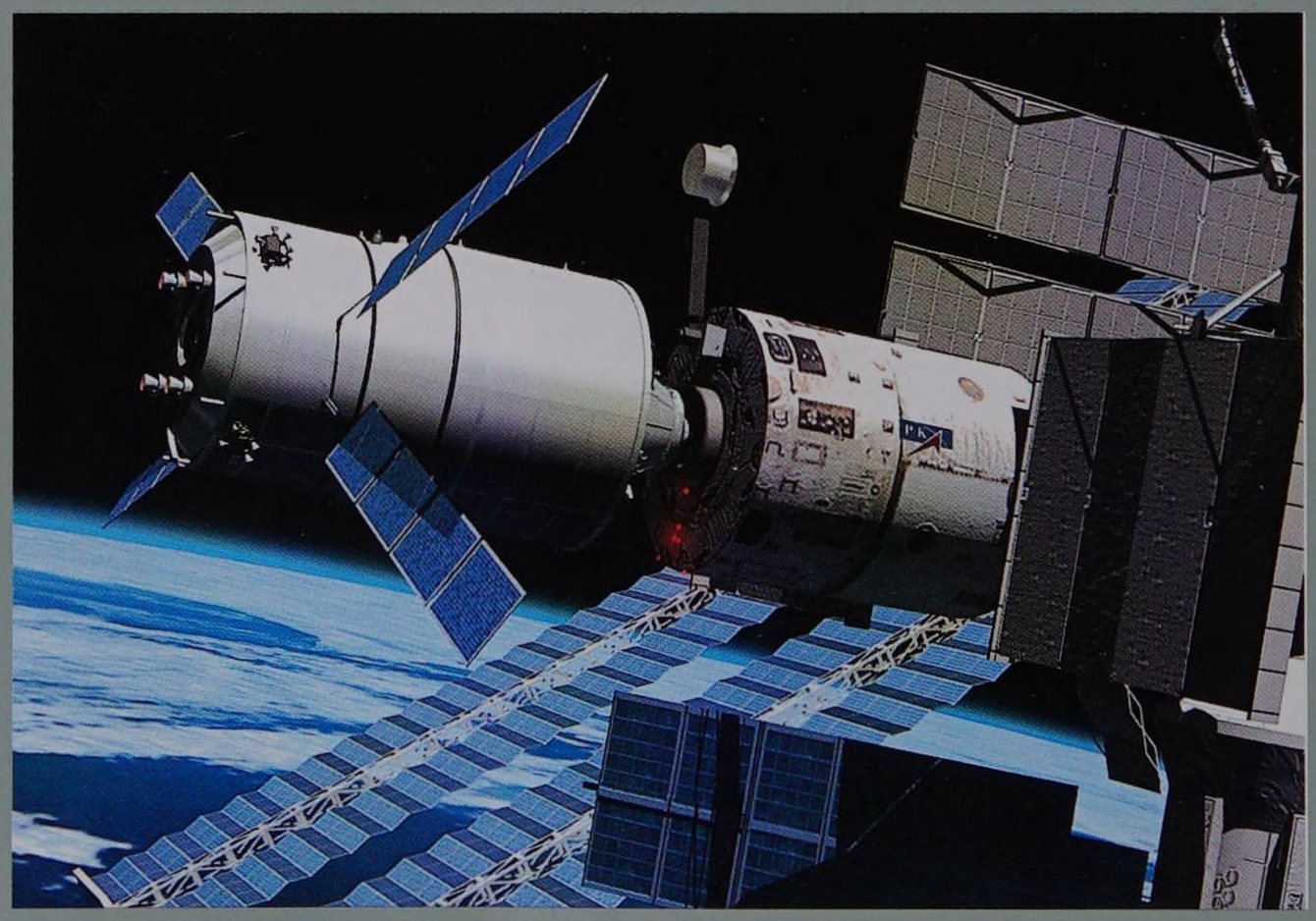
4.6.1999
Aerospatiale Matra S.A., which has arisen through the merger of the state company Aerospatiale with the Matra Hautes Technologies division of the Lagardère Group, is listed on the Paris stock exchange. The photo, taken on 14 June at the Paris Aerosalon in Le Bourget, shows the new Chairman of the Supervisory Board (centre) with the two CEOs Yves Michot (left) and Philippe Camus.

AEROSPATIALE MATRA

14.10.1999
In Strasbourg, Dasa and Aerospatiale Matra announce their merger to form the European Aeronautic Defence and Space Company. In the photo (from left): the respective Supervisory Board chairmen Jean-Luc Lagardère of Aerospatiale Matra and Jürgen E. Schrempp of Dasa, Chancellor Gerhard Schröder, Prime Minister Lionel Jospin and Finance Minister Dominique Strauss-Kahn.



11.6.1999
In Madrid, CASA and Dasa announce their intention to merge. In the photo: Dasa CEO Dr. Manfred Bischoff, the Spanish Minister of Industry Josép Piqué and Pedro Ferreras, head of SEPI (Sociedad Estatal de Participaciones Industriales).



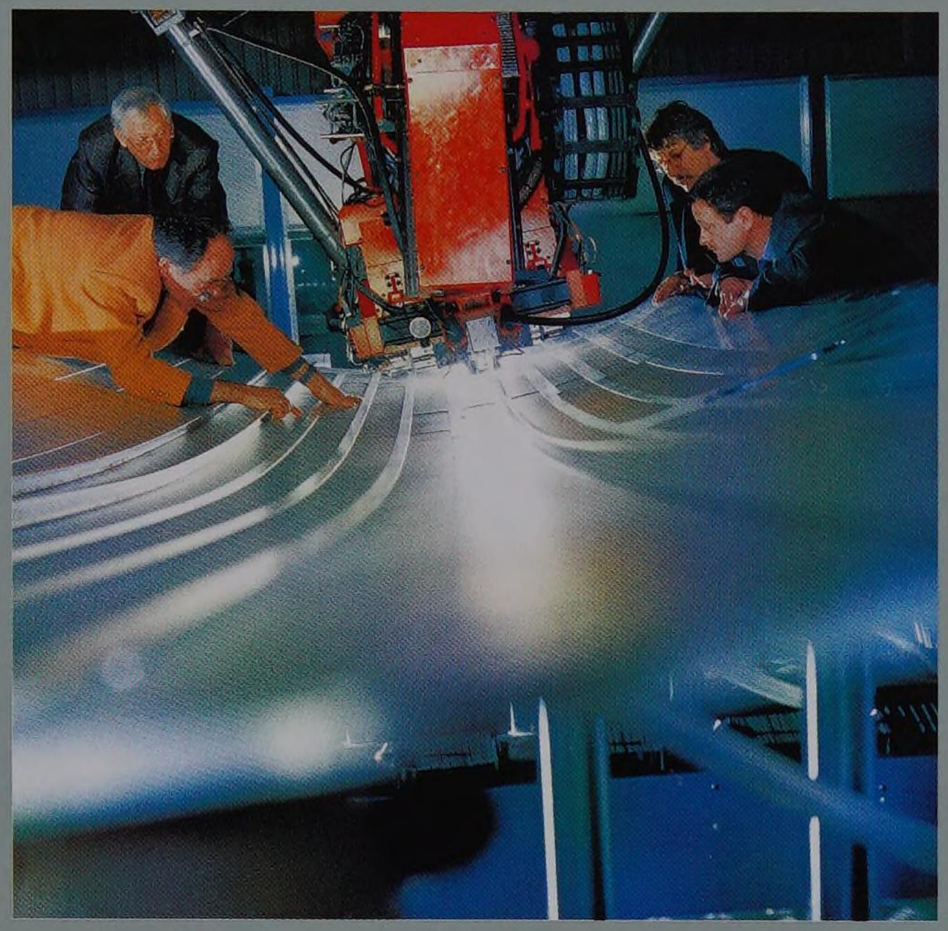
9.7.1999
Aerospatiale Matra and Dasa sign the development contract for the Automated Transport Vehicle ATV. This unmanned space transporter is due to make its first flight to the International Space Station ISS in 2004.

2.12.1999
CASA becomes the third founding member of EADS: Pedro Ferreras, president of the Spanish state holding company SEPI, signs the Business Combination Agreement. Behind are to be seen (from right to left) Dr. Manfred Bischoff, Jürgen E. Schrempp, Jean-Luc Lagardère, Philippe Pontet and Philippe Camus.

10.12.1999
The launch of the X-ray satellite XMM marks the first commercial mission for the European launcher Ariane 5.

15.12.1999
Philippe Camus takes over the sole leadership of Aerospatiale Matra.

January 2000
The German Industry Innovation Prize is awarded to Daimler-Chrysler Aerospace Airbus for laser beam welding. This new technology is applied at the Nordenham plant (photo) and is also used in Airbus France's St. Nazaire plant as well as in the Eurofighter production at Augsburg.



△
5.3.2000
The French Ministry of Defence gives the go-ahead for the naval version of the Scalp cruise missile. Matra British Aerospace Dynamics (MBD) have been developing Scalp/ Storm Shadow under contract to both the British and the French ministries of defence since 1997, with Italy joining the development contract in 1999.

14.2.2000
At a press conference in Amsterdam the EADS CEOs designate, Rainer Hertrich (left) and Philippe Camus, present the future management structure of Europe's new aerospace leader.

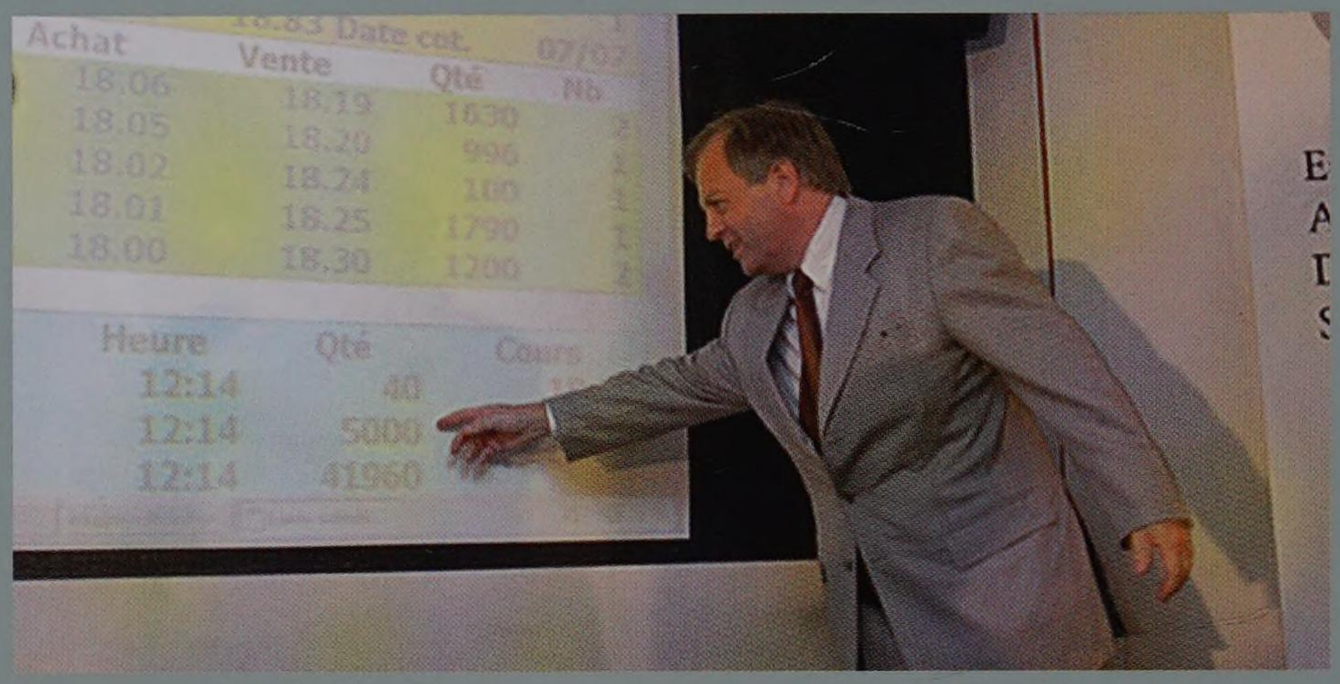
22.2.2000
Rainer Hertrich succeeds Dr. Manfred Bischoff (left) as President and CEO of Dasa.

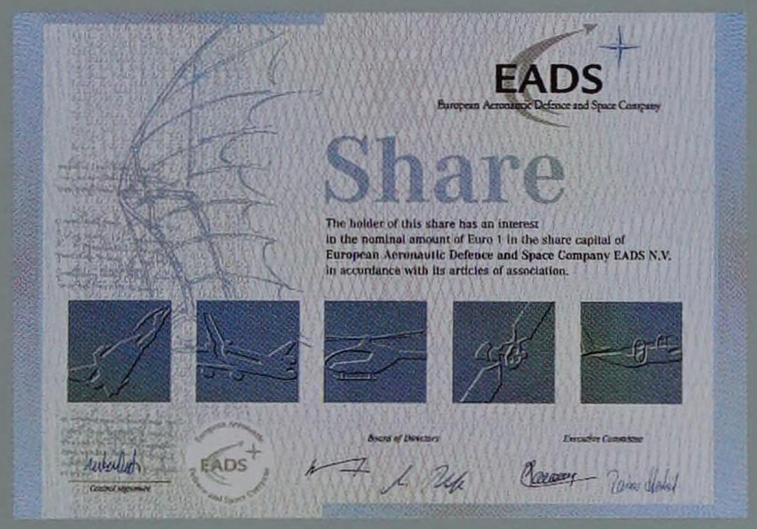
17.5.2000
The merger of the Franco-British company Matra Marconi Space with the space activities of Daimler-Chrysler Aerospace leads to the foundation of Astrium. This is now Europe's largest space company, whose workforce of almost 8,000 offers competencies in the construction of launchers and scientific, earth observation and telecommunication satellites and in space infrastructure. Here, the Astrium Board of Management (from l.): Chris Chant (Telecommunications/ Navigation), Armand Charlier (CEO), Klaus Ensslin (Earth Observation and Science) and Josef Kind (Space Infrastructure).

30.6.2000
The series production contract for the new military transport helicopter NH90 from Eurocopter is signed in Paris. It covers the first batch of 298 helicopters for the four partner nations France, Germany, Italy and the Netherlands.

10.7.2000

"Day One" for EADS. A new era in the aerospace industry begins with the official start of operations for Europe's largest aerospace company. EADS offers 30% of its shares on the Frankfurt, Madrid and Paris stock exchanges (the photo top right shows Philippe Camus in Paris). This step into a new corporate future is celebrated by the company's employees at all sites (the photo bottom right shows Cadiz). The following day, about 800 members of the management are pledged to the new company's aims and strategies (photo centre right, showing Rainer Hertrich projected onto the large screen).





18.10.2000
The European Commission gives its approval for the four-nation consortium Airbus Industrie to be transformed into an integrated company (the photo shows Airbus Headquarters in Toulouse).

19.12.2000
The shareholders of Airbus (80% EADS, 20% BAE Systems) give the programme go-ahead for the A380 superjumbo, for which 50 orders have been received from seven well-known airlines, who have also placed a number of options. Parallel development is to take place for the passenger version, the A380-800 offering 555 seats in a three-class configuration with first deliveries planned for 2006, and the freighter version, the A380-800F, due to enter service two years later.

8.11.2000
In Amsterdam, the EADS European Works Council meets for the first time. In the centre of the photo: Peter Zimmermann and Gérard Patot, the chairmen of the body.

"The power of the mind is yours to apply,
For it must not obstruct you, that ban everlasting,
So bear yourself up in your effort to fly!
For your Creator's will it cannot be
To commit you to dust, the first in Creation,
Banning you from flight, in all eternity!"

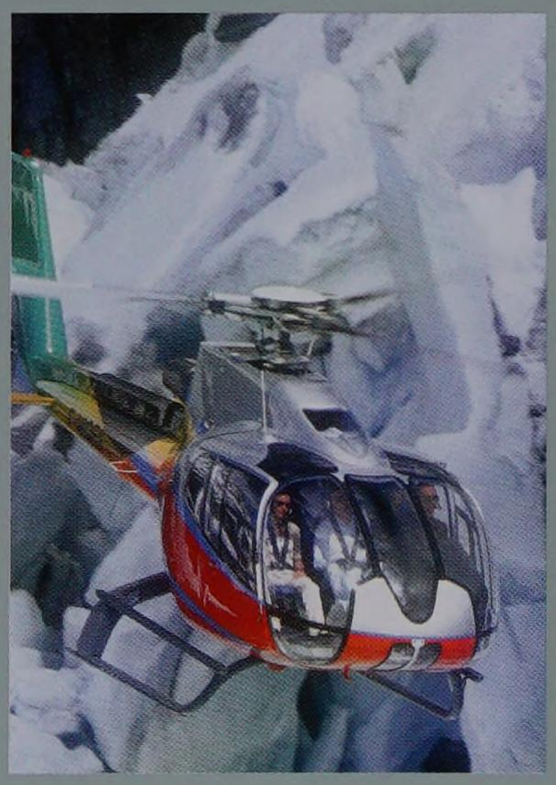
Otto Lilienthal (1848–1896), German aviation pioneer

2001–2003*

* up to May 2003

January 2001
The fifth and final A300-600ST Beluga enters service. Its take-off weight is ten tonnes higher than the predecessor models and the aircraft is now equipped with its own loading and unloading system. On 12 December 2000, the fifth Beluga successfully completed its first flight. The photo shows the aircraft during final assembly at EADS Sogerma.

23.4.2001
The A340-600, the longest Airbus version, completes its first flight in Toulouse. It has newly developed wings and in the standard seating layout can carry 380 passengers over a range of 7,500 nm/13,900 km).



13.2.2001
Eurocopter presents its new model, the EC 130 B4, a further development of the Ecureuil, at the Heli-Expo in Anaheim (California).

26.4.2001
EADS, BAE Systems and Finmeccanica combine the missile activities of their subsidiaries EADS Aerospatiale Matra Missiles, Matra BAe Dynamics and Alenia Marconi Systems. The new company is to be named MBDA and have approximately 10,000 employees in France, Great Britain and Italy. The photo shows the signing of the memorandum of association.

16.5.2001 ▷
The American company EADS Aeroframe Services, a joint venture between Northrop Grumman (19%) and EADS Sogerma Services (81%), begins operations in Lake Charles (Louisiana).

23.5.2001
The ATR partner companies Finmeccanica/Alenia and EADS integrate their respective industrial activities for this regional aircraft programme into a single entity. In the picture, the ATR final assembly line at Toulouse.

12.7.2001
Formal foundation of the Airbus SAS integrated company. Airbus has in effect been operating as a fully integrated company since January of this year. The four photos show the plants at Toulouse (1), Getafe (2), Broughton (3) and Hamburg (4).

1

2

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10.8.2001
The Australian government decides in favour of Eurocopter's combat helicopter Tiger. The contract is worth US$ 670 million and is for 22 aircraft. This is the first export order for the Tiger.

29.8.2001
Poland's Ministry of Defence intends to replace its aging An-26 aircraft with eight C-295 transport aircraft (top photo) from EADS CASA. The lower photo shows the Polish Minister of the Treasury, Aldona Kamela-Sowinska, and CASA chief Alberto Fernández at the agreement signing ceremony.

△

18.10.2001

EADS acquires a 26.8% share in the Finnish company Patria, which will be responsible for final assembly of the NH90 transport helicopter for the Nordic countries. Prior to this, on 14 September Finland and Norway had decided to procure 34 of these aircraft and on 26 September Sweden had ordered 25 NH90s.

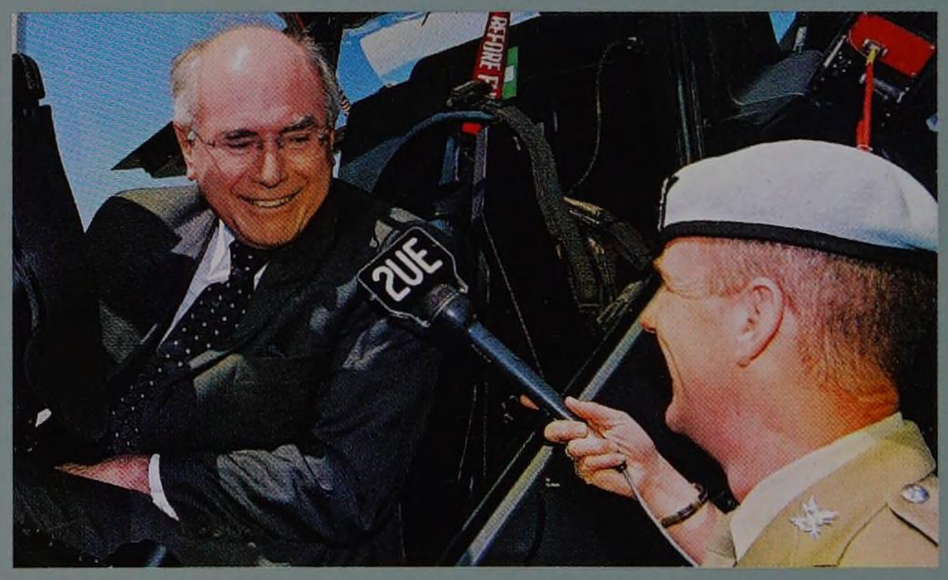
17.10.2001

EADS CASA's acquisition of 51% of the share capital of PZL Warsawa Okecie marks an important step forward in the integration of Polish companies into the European industrial landscape. The share held by EADS CASA in PZL Warsawa Okecie is to rise to 85% by the end of 2003. The remaining 15% is to remain in the hands of the workforce. After merging into EADS, PZL Warsawa Okecie trades under the name EADS PZL. In addition to carrying out final assembly of the C-295 for Poland, EADS PZL also offers its own products, in particular for agricultural tasks (vermin control), and sports planes such as the Koliber 160A shown in the picture, a licence-built Morane-Saulnier "Rallye".

November 2001
EADS CASA launches a development programme for an Advanced Air Refuelling Boom System (ARBS) to support the firm decision of EADS to enter the air-to-air refuelling market covering the whole range of products (tanker capability based on pods, FRU/HDU and boom).

19.12.2001
The MBDA formation process has been completed: the new Number Two in the global market has total annual revenues exceeding € 2 billion and on its books are orders worth approximately € 13 billion.

◁ ***13.12.2001***
The first A300-600 converted freighter takes off from EADS EFW (the Elbe Flugzeugwerke in Dresden). To date, this EADS subsidiary specialised in freighter conversion has converted 34 A300B4s, 43 A310-200s and eleven A310-300s for a total of 15 customers.

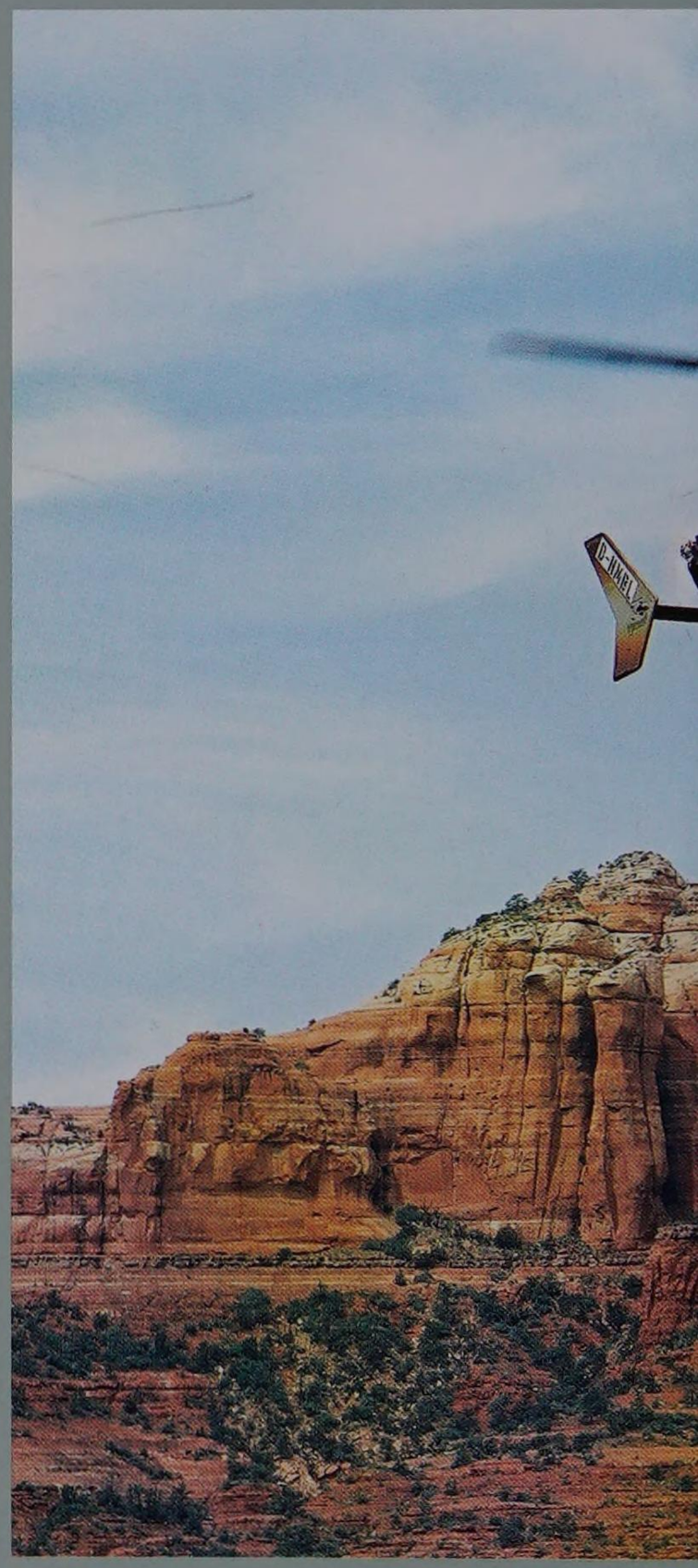


australian aerospace
Eurocopter - an EADS Company

21.12.2001
Eurocopter International Pacific is to deliver 22 Tiger helicopters to Australia from December 2004 on. Assembly is due to take place at the new subsidiary Australian Aerospace. In the photo: the Australian prime minister John Howard in the cockpit of the Tiger.

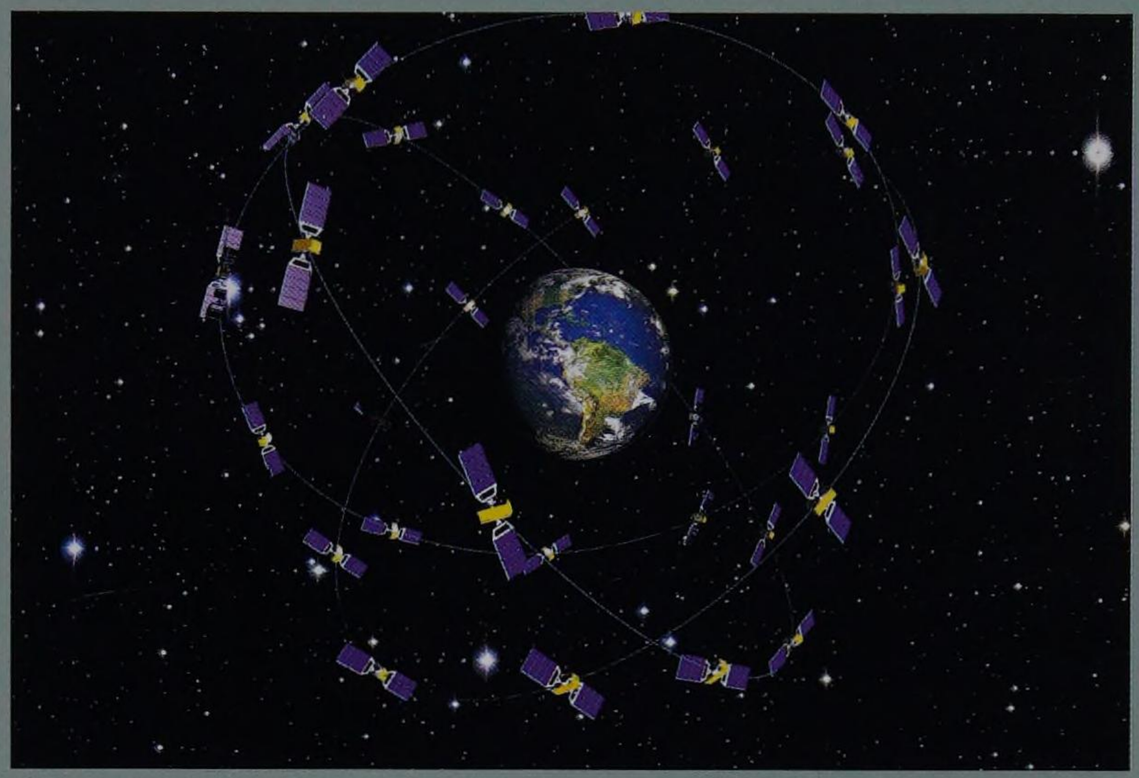
15.1.2002
The Airbus A318, the latest and smallest member of the A320 family, begins its flight test campaign at the Hamburg plant.

△
11.2.2002
The A340-500, the Airbus that now has the greatest range (8,650nm/ 16,050 km), completes its first flight in Toulouse. It has seating for 313 passengers in a standard cabin layout.



23.1.2002
Production of the A380 begins on schedule at the Airbus plant at Nantes. On this day, not only is the traditional "first metal cut" accomplished with the cutting of an aluminium triform for the wing-to-fuselage junction, but also the first carbon fibre composite components are produced for the centre wing box, which on the A380 will measure approx. 7 x 7.8 x 2 metres and weigh 12 tonnes. The use of composites for the manufacture of this large component is just one of the numerous innovative features of this new aircraft.

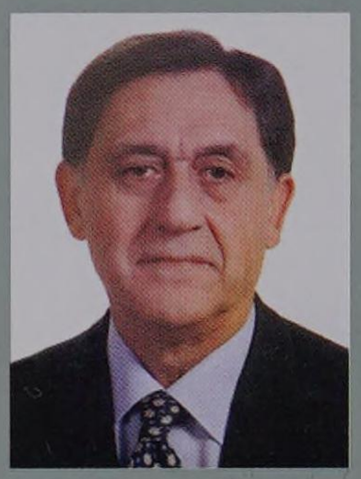
14.2.2002
Eurocopter unveils the EC 145 at the Heli-Expo in Orlando, Florida. This latest model is a further development of the BK 117 and the result of a collaborative effort with Kawasaki Heavy Industries.



△
27.2.2002
The EU Council of Transport Ministers grants its approval for the Galileo satellite navigation system. There will be 30 satellites in orbit around the Earth by 2008, which will be used to support all types of navigation, such as for aircraft and automobiles, throughout the globe. The Galileo system will be compatible with the U.S. American military-controlled GPS system.

5.3.2002
Approval given: the French Navy is the launch customer for the Scalp Naval cruise missile supplied by MBDA. Scalp/Storm Shadow can be deployed from a variety of platforms and will provide long-range strike capabilities.

22.3.2002
The roll-out of the first of a total 160 Tiger combat helicopters destined for the French and German armed forces takes place at the Eurocopter plant in Donauwörth.



17.5.2002
Francisco Fernández Sáinz becomes the new Head of the Military Transport Aircraft Division and thus also CEO of EADS CASA. At the same time, he becomes a member of the EADS Executive Committee.

25.6.2002 ▷
EADS is selected to be a partner in the Deepwater programme of the US Coast Guard, becoming one of the largest subcontractors in the successful bidder team Integrated Coast Guard Systems (a joint venture of the Lockheed Martin and Northrop Grumman companies). EADS is to supply radar components and the CASA CN-235 maritime patrol aircraft as well as systems to upgrade and modernise the Coast Guard's Eurocopter helicopter fleet.

8.4.2002
The first German Eurofighter to leave the production line, the Instrumented Production Aircraft IPA 3, takes off on its maiden flight from Manching. The very first aircraft equipped to this standard to be airborne was the Italian IPA 2, which first flew on 5 April, with Britain's IPA 1 then following on 15 April.

◁ ***May 2002***
Eurocopter celebrates its tenth anniversary in the presence of customers and visitors at the International Aerospace Exhibition ILA Berlin-Brandenburg held from 6 to 12 May: first flights of ten new models in ten years – a proud achievement.

16.7.2002
Jacques Chirac, the French president, lays the foundation stone in Toulouse for the future A380 final assembly centre. The photo shows him together with Airbus chief Noël Forgeard.

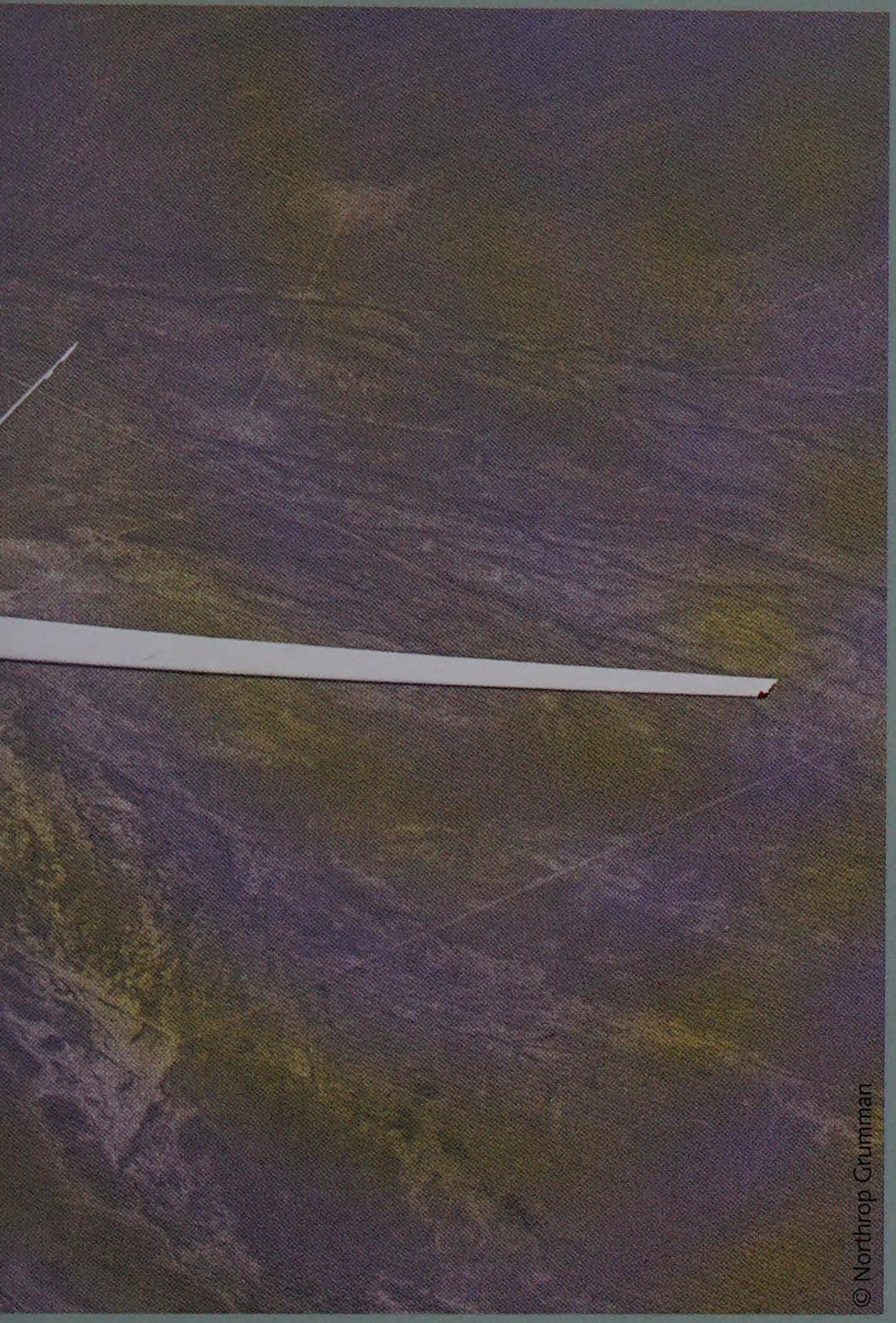
July 2002
There is plenty to report from the Farnborough Airshow in England: On 22 July, the first A340-600 is handed over to Sir Richard Branson, chief of Virgin Atlantic. On the same day, an agreement is signed on the establishment of the Air Traffic Alliance for improving the use of airspace (in the photo, from left: John Hughes of Thales Aerospace, Airbus chief Noël Forgeard, Thales chief Denis Ranque and EADS CEO Rainer Hertrich). On 23 July, the two EADS CEOs are seen together with Boeing CEO Phil Condit, agreeing on joint work for ballistic missile defence systems. On 25 July, Paradigm Secure Communications Ltd. is founded. This company is to implement the Skynet 5 satellite communications programme of the British Ministry of Defence. Visitors to the airshow are enthusiastic at the Eurofighter flypast, the first time that four of the newly-named "Typhoon" aircraft have been seen in formation.

1.8.2002
EADS takes over the Siemens plant at Oostkamp in Belgium, thus strengthening its capacity in the defence electronics field.

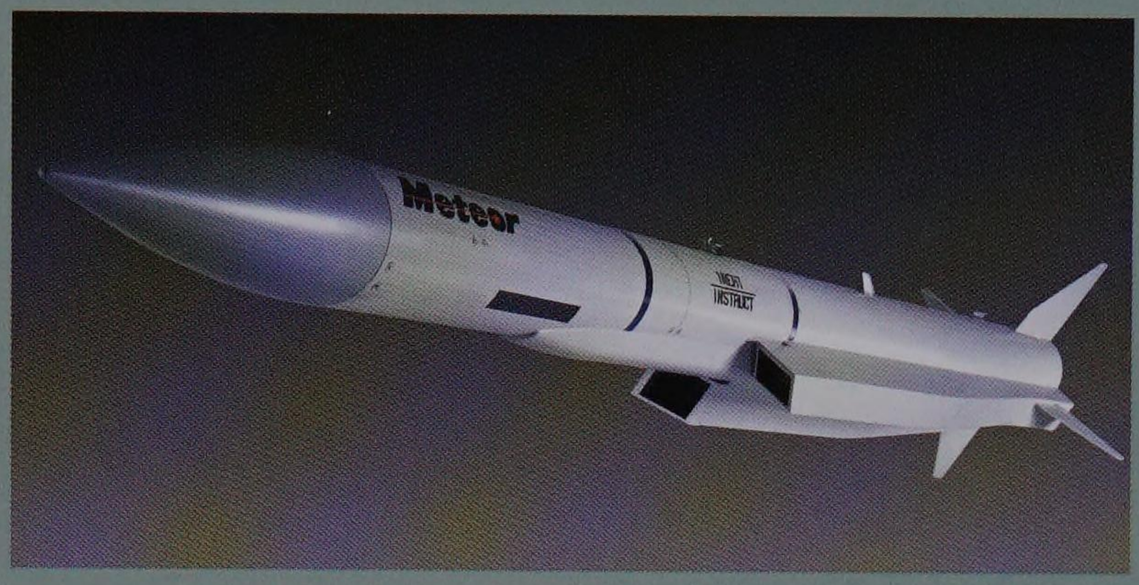
1.9.2002
Ralph D. Crosby, Jr. becomes Chairman and CEO of EADS North America, at the same time joining the Executive Committee of EADS.

8.8.2002
The German Federal Office for Defence Technology and Procurement (BWB) places an order worth € 570 million with Taurus Systems GmbH for production of the Taurus KEPD 350 missile system. Taurus is planned as armament for the German Luftwaffe's combat aircraft Tornado and Eurofighter. Deliveries are due to start in mid-2004.

11.10.2002
Hans Peter Ring becomes the new Chief Financial Officer (CFO) of EADS and a member of the company's Executive Committee.



△
17.11.2002
The first flight of an EADS-developed ELINT (electronic intelligence) payload aboard the Global Hawk developed by Northrop Grumman marks a first step towards a possible UAV reconnaissance system for the German Army. Here, the ELINT technology is integrated into an unmanned aerial vehicle.



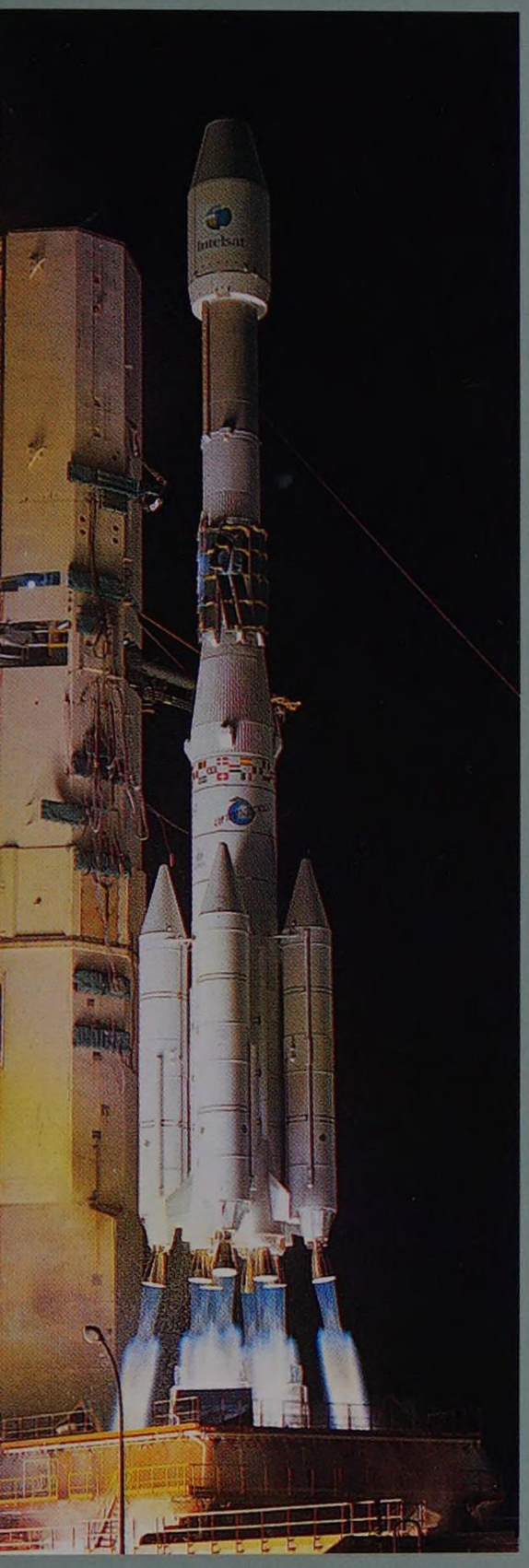
18.12.2002
The guided missile manufacturer MBDA, in which EADS and BAe Systems (37.5% each) and Finmeccanica (25%) hold shares, receives the development contract for the Meteor air-to-air guided missile, which is worth € 1.86 billion. Six nations are involved in this project. Meteor is to arm the Eurofighter, Rafale and Gripen aircraft. Delivery is due for 2008 on.

18.12.2002
The French armaments directorate DGA places an order with EADS worth € 1.3 billion for the development of the M51 ballistic missile. From 2010 on, the next generation of atomic-powered submarines is due to be equipped with this missile. EADS is acting as the industrial prime contractor, with G2P – a joint venture by Snecma Propulsion Solide and SNPE – being the prime contractor for the propulsion system and working in cooperation with EADS.

2.1.2003
Airbus achieves a major breakthrough with low-cost carriers when easyJet concludes a contract to purchase 120 A319s and places an option for a further 120 aircraft of the same type.

1.1.2003
Jussi Itävuori, Head of Human Resources at EADS, becomes a member of the EADS Executive Committee.

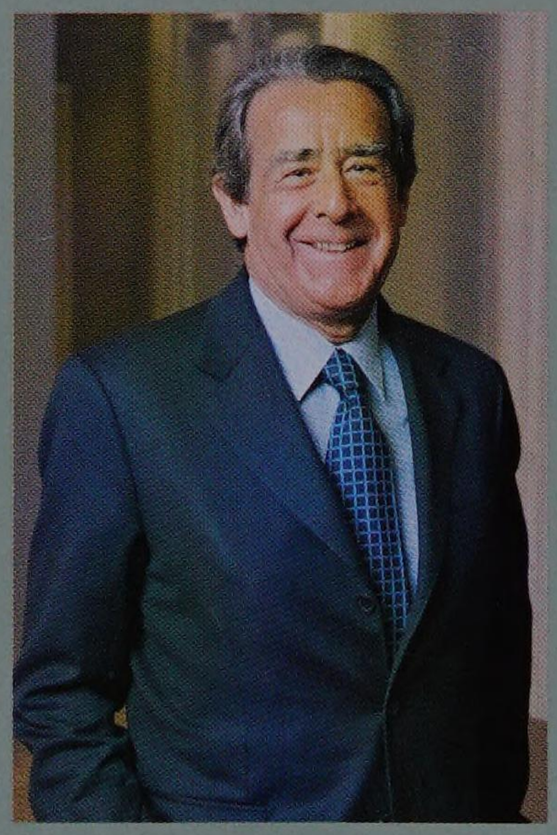
30.1.2003
EADS acquires the 25 percent share which BAe Systems holds in Astrium, Europe's leading space company. The photo shows the antenna testing facilities. The agreement will be implemented as soon as the cartel and monopolies authorities give their approval in late May. EADS also takes sole control of Paradigm, the former joint venture of BAe Systems and EADS in the military satellite communications sector.



14.2.2003
The transportation into orbit of Intelsat 907 marks the end of an era. Even the 44L, the most powerful version of the Ariane 4 launcher, has to draw on its last reserves in order to carry its colossal 4.7-tonne load out of the earth's atmosphere. Nevertheless, only 23 minutes after this final launch of an Ariane 4, Intelsat 907 is completely ready for operation. This ends the launcher's 15-year success story, 116 of these heavy lifters having transported more than 400 tonnes of satellite payload from Kourou into space. In doing so, they notched up 113 successful missions, whereas there were only three failures – a practically unbeatable record.

February 2003
In the afternoon of the 17th of this month, ST001, the first Spanish production Eurofighter, takes off from the EADS Military Aircraft facility at Getafe on its first flight. The EADS CASA chief test pilot Eduardo Cuadrado Garcia and Alfonso de Castro Tornero are at the controls. The very first production aircraft to fly was the Eurofighter GT001, which had taken off from Manching at 4.46 p.m. on 13 February. EADS test pilot Heinz Spoelgen and his colleague Robert Hierl from the Bundeswehr Technical Centre WTD 61, located at Manching, described the flight as the climax of their flying careers. On 14 February, also the maiden flights had taken place of the first Italian production Eurofighter from Alenia Aerospazio in Turin and the first British production aircraft from the BAe Systems facility at Warton.

24.2.2003
The 500th delivery of an A319 takes place in Hamburg. At the same time, this is the first of the new long-haul version A319 for the launch customer Qatar Airways and is fitted out as a corporate jet.



14.3.2003
The co-founder and current Chairman of EADS, Jean-Luc Lagardère dies suddenly.

17.3.2003
In Toulouse, the roof for the new A380 final assembly hall, which measures 115 by 250 metres and weighs roughly 7,500 tonnes, is lifted into position by hydraulic power. Later, the decision is taken to name the new A380 plant at Toulouse after the EADS co-founder Jean-Luc Lagardère.

26.3.2003
The first production Tiger HAP helicopter destined for the French Army successfully completes its first flight at Eurocopter in Marignane.

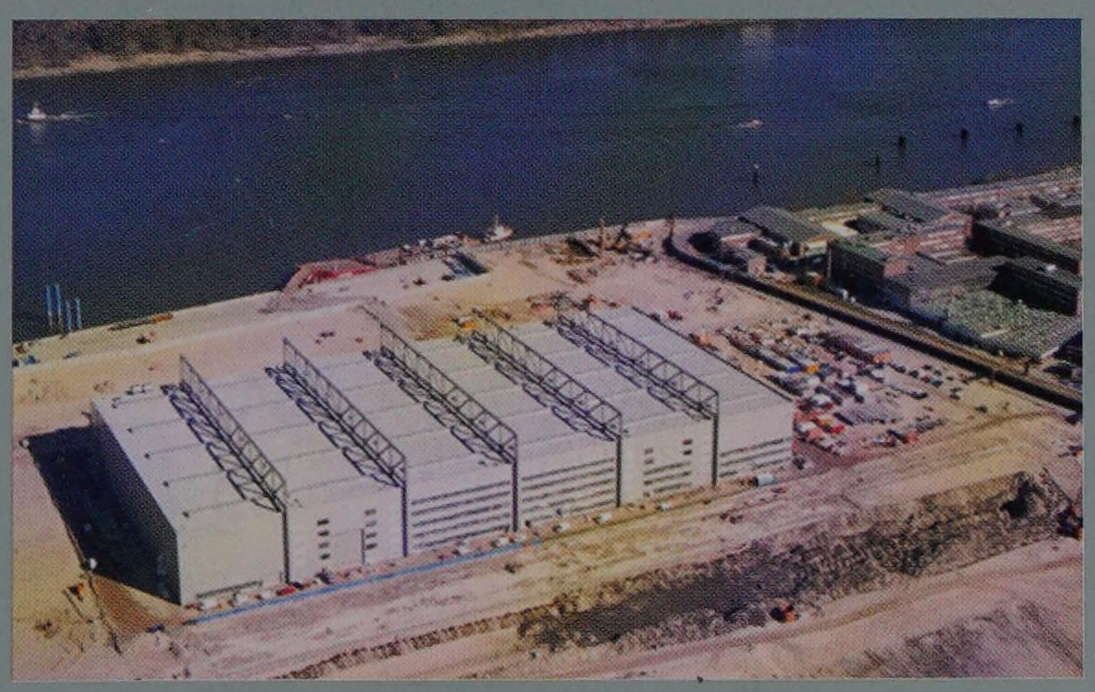
11.4.2003
The components of the 2,000th aircraft from the A320 family, an A319 for Air China, enter the final assembly line in Hamburg – an occasion appropriately celebrated by the workforce. The completed aircraft is due to be delivered to the customer in July.

29.4.2003
The German-American Vector programme concludes successfully with the world's first thrust-vectored automatic landings. The photo shows an automated "ESTOL runway landing" at a 24-degree angle of attack performed by Major Cody Allee of the US Marine Corps (ESTOL = Extremely Short Take-Off and Landing).

6.5.2003
At the EADS Annual General Meeting in Amsterdam, Arnaud Lagardère is elected as a member of the Board of Directors and, alongside Manfred Bischoff, as Chairman of the Board. In addition, EADS CFO Hans Peter Ring is also elected as a new member of the Board of Directors (from l. to r.: Ring, Arnaud Lagardère, Manfred Bischoff and the EADS CEOs Philippe Camus and Rainer Hertrich).

12.5.2003
The US Coast Guard confirms the order for the CASA CN-235 for its Deepwater programme.

21.5.2003
The first A380 production hall at the Airbus plant in Hamburg is inaugurated at a ceremony attended by the German chancellor Gerhard Schröder.



27.5.2003
The European Organisation for Joint Armament Co-operation OCCAR signs the A400M contract concluded with the programme company Airbus Military on behalf of Belgium, France, Germany, Great Britain, Luxembourg, Spain and Turkey. Including the work undertaken by Airbus, EADS has a 90 percent share in the programme and leads the consortium of participating companies. Final assembly of the Airbus military transport aircraft is to take place at EADS CASA in Sevilla. This is the largest military order EADS has yet received and is worth € 20 billion.

EADS today

EADS today

EADS – European Aeronautic Defence and Space Company – is Europe's premier aerospace company and the second largest worldwide. It is active in the fields of aeronautics, space, defence and security. The company came into being on 10 July 2000, emerging from the link-up of the German DaimlerChrysler Aerospace AG, the French Aerospatiale Matra S.A. and Construcciones Aeronáuticas S.A./CASA of Spain.

In 2002, EADS achieved revenues of € 29.9 billion, of which 80 percent were achieved in the civil market and 20 percent in the military market. The company can boast the largest order book worldwide in its branch (over € 160 billion at the end of March 2003). The EADS Group has a workforce of roughly 107,000 (May 2003) working at more than 100 sites, above all in France, Germany, Great Britain, Spain and the USA.

EADS N.V., a joint stock company according to Dutch company law, is quoted on the Frankfurt, Madrid and Paris stock exchanges. More than 30% of its shares are in widely distributed ownership. DaimlerChrysler and the French holding company Sogeade (Lagardère, French state) each hold just over 30%. The Spanish state holding company SEPI owns 5.5%.

EADS has an integrated headquarters with the Strategy, Marketing and Legal Affairs functions in Paris and the Finance, Sourcing and Communications functions in Munich. Dr. Manfred Bischoff, Member of the Board of Management of DaimlerChrysler AG, and Arnaud Lagardère, Head of the Lagardère Group, are the two Chairmen of the Board of Directors. The two Chief Executive Officers, Philippe Camus and Rainer Hertrich, are responsible for the operational side of the company's business. They head the Executive Committee, the central management board for the business operations.

The other members of the Executive Committee (at the end of May 2003) are:

- François Auque (Space)
- Ralph D. Crosby, Jr. (EADS North America)
- Thomas Enders (Defence & Security Systems)
- Francisco Fernández Sáinz (Military Transport Aircraft)
- Noël Forgeard (CEO Airbus)
- Jean-Louis Gergorin (Strategic Coordination)
- Jean-Paul Gut (EADS International)
- Gustav Humbert (COO Airbus)

EADS in figures		*2002*	*2001*	*2000*
Revenues	*€m*	*29,901*	*30,798*	*24,208*
EBIT (Earnings Before Interest and Taxes)*	*€m*	*1,426*	*1,694*	*1,399*
*Earnings per share**	*€*	*0.87*	*1.00*	*-0.06*
Dividend per share	*€*	*0.3*	*0.5*	*0.5*
Net cash (provided by operating activities)	*€m*	*1,224*	*1,533*	*2,143*
Order intake	*€m*	*31,009*	*60,208*	*49,079*
Order book	*€m*	*168,339*	*183,256*	*131,874*
Workforce (number of employees at year's end)		*103,967*	*102,967*	*88,879*

** Pre-goodwill amortisation and exceptionals*

The EADS Executive Committee.

CEOs
Philippe Camus — Rainer Hertrich

Human Resources	Strategic Coordination	Finance	Marketing	EADS North America
Jussi Itävuori	Jean-Louis Gergorin	Hans Peter Ring	Jean-Paul Gut	Ralph D. Crosby, Jr.

Airbus	Military Transport Aircraft	Aeronautics	Space	Defence & Security Systems
Noël Forgeard (CEO) Gustav Humbert (COO)	Francisco Fernández Sáinz	Dietrich Russel	François Auque	Thomas Enders
		Eurocopter	EADS SPACE	Missiles (MBDA + EADS/LFK)
		ATR	EADS Astrium	EADS Defence Electronics
		EADS Socata	EADS SPACE Transportation	EADS Military Aircraft
		EADS EFW	EADS CASA Espacio	EADS Defence & Communication Systems
		EADS Sogerma Services	EADS Sodern	EADS Services
			CILAS	

- Jussi Itävuori (Human Resources)
- Hans Peter Ring (Chief Financial Officer)
- Dietrich Russell (Aeronautics)

EADS has secured an excellent market position in all areas of the aerospace and defence industry. The company is a market leader in commercial aircraft (Airbus), helicopters (Eurocopter), space (Ariane), military transport and combat aircraft, security and defence technology and the associated services. EADS holds a 37.5% interest in MBDA, the worldwide Number Two guided missiles manufacturer. In addition, EADS is the major partner in the Eurofighter consortium and also develops the A400M military transport aircraft. EADS is structured into five divisions:

- Airbus
- Military Transport Aircraft
- Aeronautics
- Defence & Security Systems
- Space

The Rise of a European Company

At the beginning of the 1990s, efforts were already underway to merge a number of European aerospace companies who were cooperating as partners in numerous projects and programmes. From 1997 on, the governments of the four "Airbus countries" – France, Germany, Great Britain and Spain – also began advocating the merger of the aerospace giants to form a company with the working title EADC: European Aerospace and Defence Company. As a first step, it was also recommended that an independent Airbus company (single corporate entity) be formed from the Airbus Industrie consortium by integrating the production activities of the Airbus shareholders Aerospatiale (37.9%), BAe (20%), CASA (4.2%) and Dasa (37.9%).

This was intended as a response to the process of concentration being undertaken by the large aerospace companies in the U.S., which had seen Northrop and Grumman merge in 1993, Raytheon and BAe Business Jets in 1994, Lockheed and Martin Marietta in 1996 and, finally, the takeover of the McDonnell Douglas Corporation by Boeing in 1997. The fear was that, in view of the consolidation of its competitors, a fragmented European aerospace industry would barely be able to survive in the world market.

Initially, however, national mergers came to the forefront – at the outset the French state wanted to unite

Strasbourg, 14 October 1999: there was no turning back after this historic handshake. In the photo (from left): Jean-Luc Lagardère, Jürgen E. Schrempp of Dasa, Germany's chancellor Gerhard Schröder, France's prime minister Lionel Jospin and finance minister Dominique Strauss-Kahn.

Aerospatiale and Dassault Aviation, a move which never actually took place despite Aerospatiale's 46% share in Dassault Aviation, which is today held as an affiliate within the M&A activities of EADS. At the end of July 1998, it was announced that the Lagardère Group was to take a share in Aerospatiale, thus heralding the transfer of this formerly state-owned company to private-sector management. The company which emerged, Aerospatiale Matra S.A., was listed on the Paris stock exchange on 4 June 1999. The British, who had initially remained loyal to the EADC plans with Dasa and CASA, also followed their own path of national consolidation at the turn of the year 1998/1999: British Aerospace plc (BAe) and the defence arm of the General Electric Corporation, GEC Marconi, merged in 1999 to form BAE Systems. After that, on 11 June 1999 – the eve of the Paris Airshow – the German DaimlerChrysler Aerospace AG (Dasa) and Construcciones Aeronáuticas S.A. (CASA) of Spain announced that they also intended to merge. However, in the background, far greater plans were being devised in secret negotiations by a very small circle of key figures, plans which were to cause quite a stir in the autumn of 1999.

Then, in Strasbourg on 14 October 1999, the respective chairmen of the Supervisory Boards of Aerospatiale Matra and DaimlerChrysler Aerospace, Jean-Luc Lagardère and Jürgen E. Schrempp, together with the German chancellor Gerhard Schröder, the French prime minister Lionel Jospin and the French minister of finance Dominique Strauss-Kahn, signed the agreement to merge the two companies to form the new EADS – European Aeronautic Defence and Space Company, which was to be quoted on the stock exchange.

At a ceremony in Madrid on 2 December 1999, the Spanish company CASA joined EADS as the third

The German, Spanish and French heads of government set the seal on the expansion of EADS by a further founder member, CASA of Spain. From left to right in the photo, taken in Madrid on 2 December 1999: Gerhard Schröder, José María Aznar and Lionel Jospin.

The future EADS Executive Committee is presented to the public on 14 February 2000: (from left) Dietrich Russel, Axel Arendt, François Auque, Rainer Hertrich, Jean-Paul Gut, Philippe Camus, Jean-Louis Gergorin, Alberto Fernández, Thomas Enders, Noël Forgeard, Gustav Humbert.

founding member. The presence of the Spanish prime minister José María Aznar, the French prime minister Lionel Jospin and the German chancellor Gerhard Schröder underlined the political dimension of this European merger.

The company's structure, the members of the Board of Directors and the appointment of the Executive Committee were announced in Amsterdam on 14 February 2000 by EADS, still in its formation stage. In addition, 41 other managers were named who would form the "Top Executive Team" together with the members of the Executive Committee.

But even before the memorandum of association for EADS could be signed, another success on the road to joint European structures was reported: on 21 March 2000, the European cartel and monopolies authorities gave their approval for the foundation of the space company Astrium. From 17 May, this was to

10 July 2000 is Day One for EADS, whose shares are offered simultaneously on the Madrid, Paris and Frankfurt stock exchanges. The next day, the aims and strategies of EADS are presented to 800 senior executives in Amsterdam.

unite the Franco-British company Matra Marconi Space, Dasa's Space division, Dornier Satellitensysteme GmbH and the Space Infrastructure unit under one roof.

On 10 July 2000, the merger of Aerospatiale Matra, CASA and Dasa formally took place, which at the same time marked the formation of EADS. On the same day, the shares of EADS were simultaneously offered for the first time at the opening of stock trading at the exchanges in Paris, Madrid and Frankfurt. On the next day, approximately 800 members of the EADS senior management came together in Amsterdam and were initiated into the new company's aims and strategies. On the following day, the employees of the headquarters in Madrid, Paris and Ottobrunn were also informed first-hand of the company's objectives and strategies.

EADS: a global player

Today, EADS – both directly and through its subsidiaries – has production and service sites in many countries throughout the world as well as 35 foreign offices of EADS International. Alongside the EADS "core countries" of France, Germany, Great Britain and Spain, special attention should also be drawn to the USA, Canada, Mexico, Australia and China, as well as Italy, Belgium and Poland. There is also a development centre in Russia, run jointly with the Russian aerospace industry.

There have been many outstanding milestones on the continuing journey of EADS. The first one was an important decision as far as competition law is concerned, when on 18 October 2000 the European Commission gave its approval for the four-nation Airbus Industrie consortium to become an integrated company, Airbus S.A.S., with EADS (80%) and BAE Systems (20%) as its shareholders. The new firm with headquarters in Toulouse was formally founded on 12 July 2001, Airbus having in effect operated as an integrated company since January.

Airbus, together with its shareholding partners, announced the launch of its A380 programme on 19 December 2000. With 50 firm commitments (plus options) from well-known airlines around the world, a satisfactory demand was confirmed for the double-decker aircraft (with 555 seats in its standard configuration), which will be the largest passenger aircraft in the world when it enters service.

On 26 April 2001, the memorandum of association for MBDA was signed allowing EADS, BAE Systems and Finmeccanica to combine the missile activities of their subsidiaries EADS Aerospatiale Matra Missiles,

The Airbus A380 in its passenger and freighter versions.

The marketing companies and foreign offices of EADS.

EADS Aeroframe Services at Lake Charles (Louisiana/USA).

Matra BAe Dynamics and Alenia Marconi Systems. The MBDA merger was then finalised on 19 December 2001.

In the USA, the new company EADS Aeroframe Services, LLC officially started operations in Lake Charles, Louisiana on 16 May 2001. The joint venture between EADS (81%) and Northrop Grumman (19%) performs maintenance, repair and paint services for all the Airbus aircraft operating in North, Central and South America. The technical management lies with the EADS Sogerma Business Unit, which within the EADS Aeronautics Division is responsible for aircraft maintenance.

On 23 May 2001, the ATR partners Finmeccanica/Alenia (50%) and EADS (50%) merged the industrial activities of EADS ATR, the Italian company Alenia's engineering and procurement activities for the ATR regional aircraft programme and the commercial activities of the previous ATR consortium. This move has given Avions Transport Regional (ATR) greater clout in the markets.

Following the receipt from the Polish Air Force of an order for eight CASA C-295 transporters, in August 2001 EADS also acquired shares in the Warsaw-based aircraft construction company PZL Okiece.

On 18 October, EADS acquired a 28.6% share in Finland's Patria Industries Oyj. Since then, three EADS managers also sit on the Finnish company's nine-member Board of Directors. Patria is to carry out final assembly of the NH90 transport helicopter for the Northern European customers (Finland, Norway and Sweden).

EADS is one of the largest subcontractors in the Deepwater Program for the US Coast Guard (in the photo: an HH-65 Dolphin helicopter).

In Australia, the contract for the delivery of 22 Tiger combat helicopters was awarded to Eurocopter International Pacific on 21 December 2001. The helicopters, which will be delivered from December 2004 onwards, are being manufactured by Queensland-based Australian Aerospace, which has been acquired by EADS.

On 25 June 2002, the joint venture by Lockheed Martin Naval Electronics & Surveillance Systems and the Ingall shipyards of Northrop Grumman was selected as prime contractor for the US Coast Guard's modernisation programme, known as the Deepwater programme. EADS is one of the largest subcontractors in the successful bidder team. EADS is to supply radar components and the CASA CN-235 maritime patrol aircraft as well as systems to upgrade and modernise the US Coast Guard's Eurocopter helicopter fleet.

In addition, on 2 July 2002 EADS received an order from the US American company VIASAT to supply core components for the future data transmission system MIDS (Multifunctional Information Distribution System) of the US Armed Forces.

In Great Britain, Skynet 5 is the future military satellite communications system for the Ministry of Defence. On 25 July 2002, EADS and BAE Systems founded Paradigm Secure Communications Ltd. to implement the Skynet 5 programme. On 30 January 2003, EADS announced that it was to acquire the BAE Systems 25% share in Astrium and thus take control of Paradigm Secure Communications.

On 1 August 2002, EADS took over a defence electronics plant at Oostkamp in Belgium. The former

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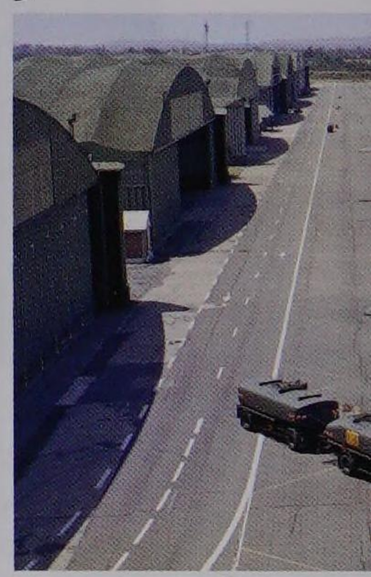

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Siemens plant had already supplied the EADS Systems & Defence Electronics Business Unit with HF components for radar and communications systems for many years.

Another clear indication of the global orientation of EADS is the concentration of the companies operating in the North American market – which achieved revenues of approximately US $ 6 billion in 2002 – under the roof of EADS North America, Inc. Ralph D. Crosby, Jr. became both its Chairman and CEO and a Member of the EADS Executive Committee on 1 September 2002.

The Divisions of EADS

Airbus – itself a single, integrated company – is the largest Division of EADS. The Airbus family of passenger jets ranges in size from 100 to 555 seats. During 2003, the company expects to consolidate its leadership as the world's largest supplier of jet airliners in terms of deliveries. From 2006, the upper end of the product range will be rounded off by the A380, the largest civil aircraft ever developed, for which component production already began in 2002.

5

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The Military Transport Aircraft Division manufactures the highly successful C-212, CN-235 and C-295 light and medium transporters, which are in service with some 50 countries around the world. It is also responsible for the A400M, the new military transporter, which exploits Airbus technology and production processes. The launch of this programme took place at the end of May 2003.

The Aeronautics Division comprises the global leader in the civil helicopter market, Eurocopter, the regional turboprop aircraft of the ATR family, the light aircraft of EADS Socata, the service and maintenance activities of EADS Sogerma Services, as well as the passenger-to-freighter conversion services and the aerostructure manufacturing activities of EADS EFW.

The missiles section of the Defence & Security Systems Division comprises EADS/LFK and, above all, MBDA, the second largest missile manufacturer in the world. In its new structure, the Division will also include the Military Aircraft Business Unit, which has the largest share in the Eurofighter programme, as well as a system house for sophisticated defence electronics and secure communications systems for civil and military applications. The Services Business Unit meets

1 The Airbus success story began with the A300B.

2 Heading for success: the Airbus family offers abroad range of aircraft from the 100-seater A318 to the 555-seater A380 superjumbo and can meet any need of any carrier

3 The C-295 built in Spain is a tried and proven transport aircraft.

4 The transporter of the future: the A400M (computer animation).

5 The best turboprops for the 50- to 70-seater regional aircraft market: the ATR 42-500 and the ATR 72-500.

6 The EADS Socata plant at Tarbes is a successful builder of light aircraft.

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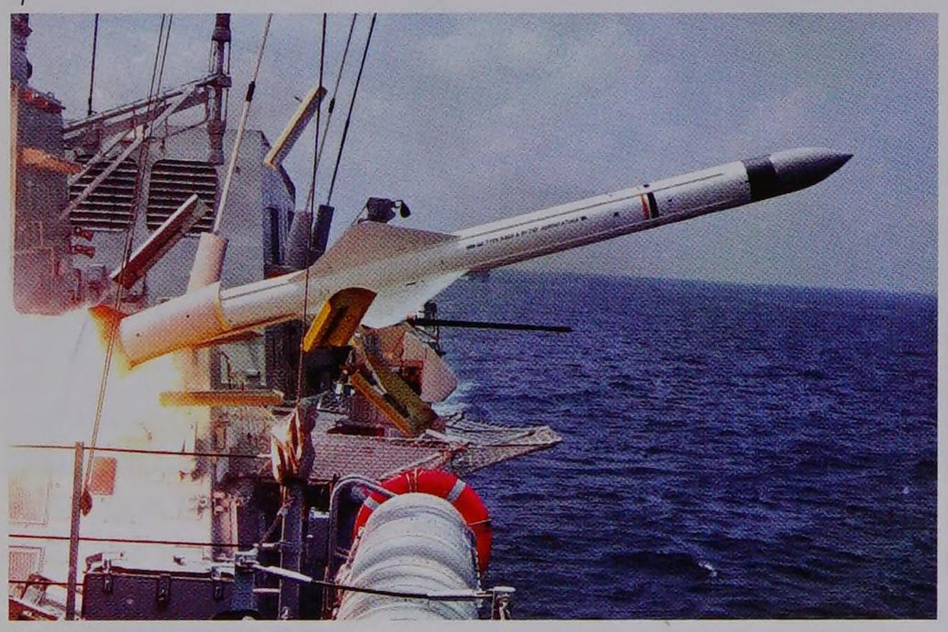

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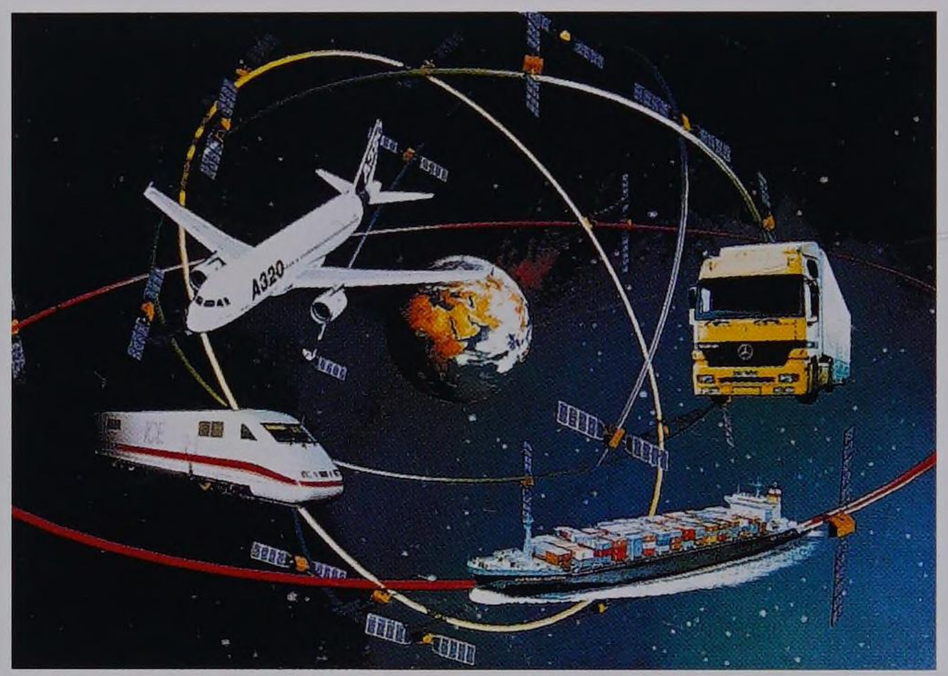

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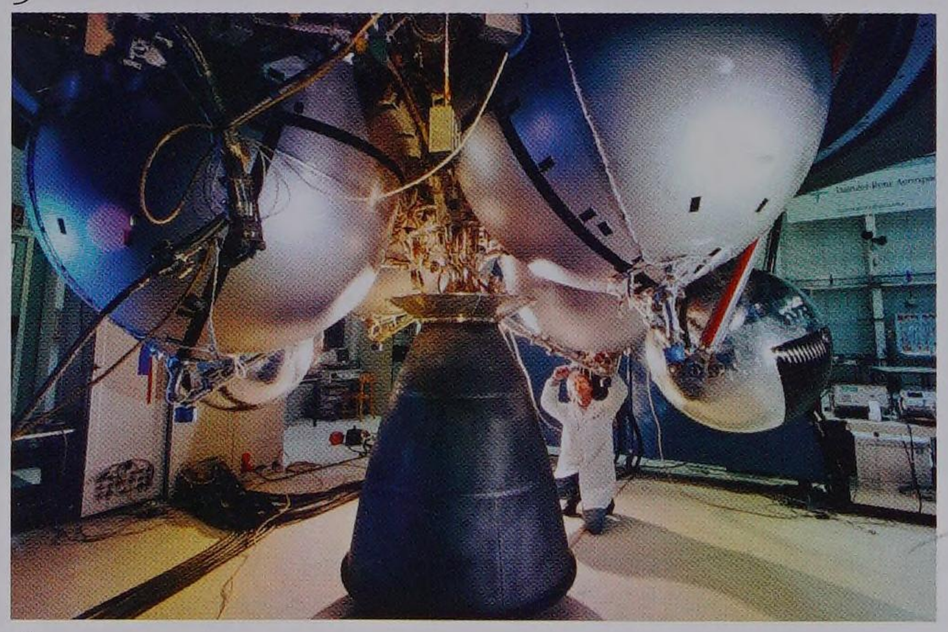


4

1 The Eurofighter "Typhoon" is the main programme of the EADS Military Aircraft Business Unit, which has locations in Germany and Spain.

2 The Exocet MM-40: a tried and proven guided weapon for naval applications.

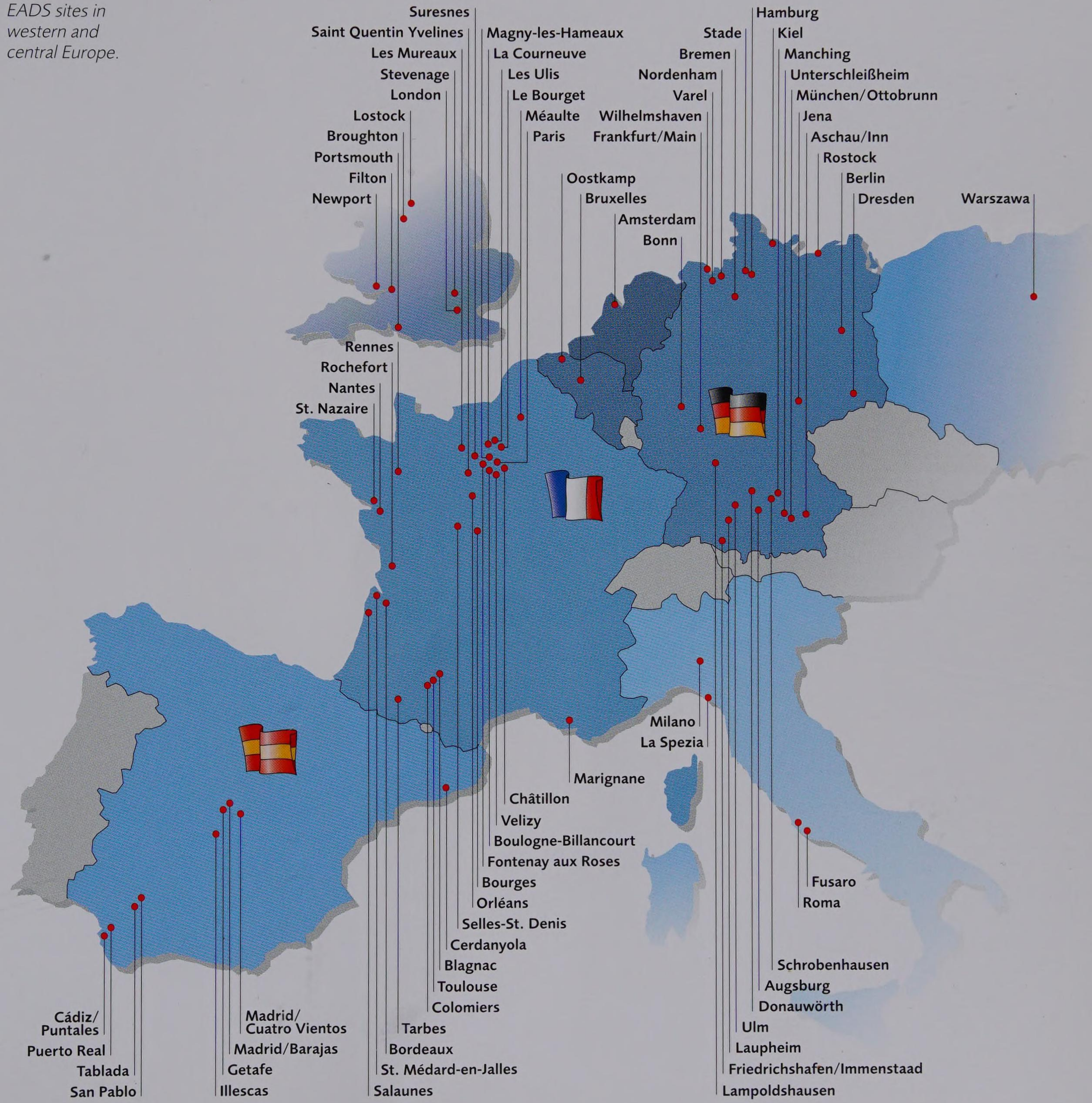
3 Galileo will be Europe's global satellite navigation system of the future.

4 The Ariane 5 programme will in future be managed by EADS SPACE Transportation.

the growing demand for outsourced service tasks within the military and security sectors.

The Space Division is active in all aspects of today's space industry – from the Ariane launchers, through telecommunications and scientific satellites from Astrium, right up to operator and other services. The Division is involved in many of the most advanced programmes in the field, including the European Mars Express programme, the International Space Station (ISS) and the future European global satellite navigation system Galileo.

EADS sites in western and central Europe.



Annex

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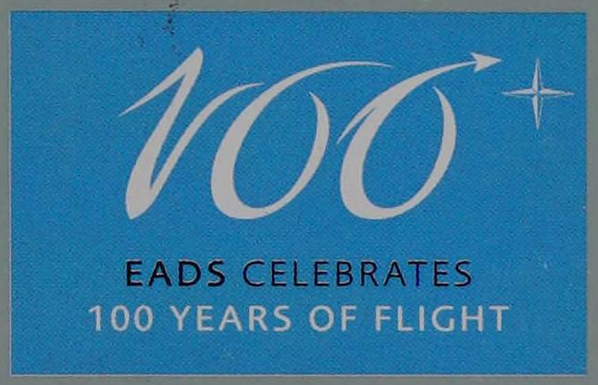

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