

Boeing in France

Boeing and France, a Growing Partnership

The Boeing relationship with France goes back to 1910, when the company's founder, William "Bill" Boeing, traveled from Seattle to Los Angeles to attend an international air show. The star of the event was French flying ace Louis Paulhan, breaking world altitude and endurance records and demonstrating spectacular flying skills. Bill Boeing was enchanted. And, because he spoke French, he was able to chat with Paulhan and ask him about this exciting technology — flying machines. Boeing went back home to Seattle, determined to get into the airplane business.

Boeing has partnered with France for more than 50 years. It all started in 1955, when Air France became the first airline outside of the United States to enter the jet age on the wings of a Boeing 707. Step by step, France has become both a customer and a loyal partner to Boeing in both civilian and military aerospace activities.

Over the years, the company has entered into a growing number of partnerships with the French aerospace industry. Since the 1980s, CFM International, a joint venture created in 1974 between Snecma (a Safran Group subsidiary) and General Electric, has become the sole source to power all 737s with CFM56 turbofan engines. The company will remain Boeing's single supplier on the 737 MAX with the brand new LEAP-1B engine. Since the start of the 787 Dreamliner program, the relationship between Boeing and French industry has entered a new dimension, with 37 French companies supplying equipment and systems on the 787 as tier 1 or sub-tier suppliers.

Boeing appointed Yves Galland as the president of Boeing France in 2003. Boeing has more than 40 employees based in France, located mainly in the Paris area. They are involved in sales and marketing, technical assistance, corporate activities and managing operations.

A Long-Lasting Relationship with French Airlines

Boeing enjoys a strong relationship with Air France and a number of France's other leading commercial airlines and has sold a total of nearly 270 airplanes to French carriers in 60 years.

Since 1955, when it first acquired the famous Boeing 707, Air France has operated a very large number of Boeing airplanes, including the 727, the 737, the 767 and the 747. In 1966, Air France ordered its first 747 and over the last 40 years has acquired 53 members of this family. In 1998, it took delivery of its first 777-200ER and in 2000 became launch customer for the 777-300ER.

In late 2010, Boeing delivered its 200th airplane to Air France, a 777-300ER. With more than 66 units in operation, the 777 is the backbone of the Air France long-haul fleet, accounting for more than half of this fleet. Air France, which also relies on Boeing to power its freight business, was launch customer for the 747-400ER Freighter in 2001 and the 777 Freighter in 2005. In addition to airplanes purchased directly from Boeing, Air France operates a large number of leased Boeing airplanes.

The Air France-KLM Group is a long-time valued customer, with a large Boeing fleet of 175 airplanes in operation, including 75 for Air France and 100 for KLM. Air France-KLM is the second largest 777 operator in the world, with 91 aircraft in operation; Air France alone is the third. As part of its long-haul fleet renewal, the Air France-KLM Group placed an order in late 2011 for 25 Boeing 787-9 Dreamliner airplanes, with options for 25 more. Including 12 787 leases with AerCap, the Air France-KLM Group will operate a fleet of 37 Boeing 787-9s — and more as the company exercises its options. The first Boeing 787-9 will start operating with KLM in October 2015 and with Air France by the end of 2016.

In 2014, the Air France-KLM Group announced a plan to rapidly grow its low-cost airline subsidiary Transavia France, based on the same business model as Transavia Holland, which operates 35 737NGs. The French airline currently operates 21 737-800s from Orly Airport, with plans to grow to 40 aircraft by 2019. In 2015, the Transavia Company and Boeing announced an order for 17 737-800s (with three options) to support the growth of Transavia's operations from France and the Netherlands.

In addition to Air France and Transavia, Boeing has a presence in five metropolitan France-based airlines, including Air Méditerranée (two 737-500s), Corsair (three 747-400s), Europe Airpost (16 737s), XL Airways France (two 737-800s) and La Compagnie (one 757-200).

In French overseas departments and territories, Boeing airplanes have also proved to be very successful. From Reunion Island in the Indian Ocean, Air Austral operates an all-Boeing fleet of six airplanes including two 737s and four 777s to metropolitan France, South Africa, Thailand, India and a number of destinations in the Indian Ocean. Air Austral has two 787-8s on order with Boeing in addition to two 777-300ERs.

Similarly, as Tahiti's only international airline, Air Tahiti Nui provides vital long-range service to French Polynesia from France, Australia, Japan, New Zealand and the United States. In 2015, Air Tahiti placed an order for four 787s to modernize its existing fleet of A340s.

Boeing, Supplier to the French Forces

For more than 50 years, Boeing has provided equipment to French military forces. In 1990, the Boeing Airborne Warning and Control System (AWACS)

E-3F was chosen by France to meet its airborne surveillance and command and control requirements. This model was designed using the standard AWACS configuration together with a number of additional system improvements and is powered by GE/Snecma CFM56-2 high-efficiency, turbofan engines.

In 2010, a contract was signed to upgrade the four AWACS aircraft and the fleet's ground system. This mid-life upgrade is modeled on the Block 40/45 program developed for the U.S. AWACS fleet. Block 40/45 greatly enhances the operational potential of network operations and augments the capacity, reliability and effective execution of missions. Air France Industries, under a contract to Boeing, performs installation and checkout at its new facility in Paris Roissy Charles de Gaulle, France. Air France Industries and Boeing teams began upgrading the fleet in May 2013. The first upgraded aircraft was delivered on schedule to the French Air Force in July 2014, and a second aircraft was delivered in March 2015. The entire fleet upgrade is due to be completed by the end of 2016.

France also owns and operates 11 C-135FR refueling aircraft and three KC-135R aircraft. This fleet belongs to the Strategic Air Forces Command (CFAS) and serves the purpose of refueling a number of aircraft types for long-range missions, enabling, for example, the Mirage 2000 to travel over long ranges. In December 2013, the first French KC-135Rs arrived at Boeing San Antonio for a series of avionics upgrades to keep the aircraft compliant with Global Air Traffic Management (GATM) standards. By summer 2015, all three modified aircraft will have been delivered back to the French Air Force.

Boeing has an historic commitment to working with the French Air Force and the French defense procurement agency Délégation Générale de l'Armement (DGA) throughout the aircraft life cycle. This is made possible through a significant, ongoing contract for fleet support with Sabena Technics, which maintains the fleet.

The Best of the French Aerospace Industry Partnering with Boeing

For more than 40 years, Boeing has been partnering with French aerospace companies. The partnership began with CFM International, a joint venture created in 1974 by General Electric and Snecma (Safran Group). Today, all Boeing 737s are powered by CFM56 turbofan engines built by CFM International; to date, more than 18,680 CFM56 engines have been delivered to Boeing for various civil and military programs. Continuing the long partnership, the new 737 MAX will be powered by the CFM LEAP-1B engine, which started its flight tests in April 2015.

While Boeing is Snecma's largest customer, Boeing is now working with all major French aerospace players in relationships built on mutual trust, with a real economic impact in France. With more than 100 French companies involved in Boeing programs, Boeing represents the largest source of export for the French

aerospace suppliers. Thanks to production rate increases on the 737, 777 and 787 programs, the partnership with French aerospace suppliers has grown dramatically over the last few years. It is now valued at \$6 billion per year (including direct and indirect sales to Boeing). Using France's standard accounting method, 30,000 direct and indirect jobs are now linked to the partnership between Boeing and French industry.

37 French Companies on Board the 787

With the launch of the revolutionary 787 Dreamliner, Boeing sought partnerships with leading companies around the world to deliver the best possible solutions for this innovative airplane. Thirty-seven French companies partner with Boeing on the 787, including eight as tier 1 suppliers. They include Dassault Systèmes (software solutions), Labinal (wiring), Latécoère (passenger doors), Messier-Bugatti-Dowty (main and nose landing gear, electric brakes), Michelin (aftermarket tires), Radiall (connectors), Thales (electric power conversion system, flight display, in-flight entertainment system) and Zodiac Aerospace (emergency slides, primary electrical distribution, wastewater and waste treatment management systems, and various equipment).

15 Suppliers Have Joined the “Boeing French Team” Since 2005

Since 2005, the best of the French aerospace industry have joined the “Boeing French team” — a group of 15 French suppliers, of which eight are on board the 787. The Boeing French team partners have launched several initiatives in recent years to promote the French aerospace industry inside Boeing. These 15 suppliers are increasingly involved in Boeing commercial and defense programs. The team has also welcomed an associated member.

Aubert & Duval. A member of the ERAMET group, Aubert & Duval provides advanced metallurgical solutions required for projects in the most demanding industries, including aerospace, energy, industrial tool steels, motor racing and medical. Aubert & Duval has been a supplier to Boeing for more than 30 years, providing aluminum, titanium and steel forgings and parts for the 737, 747, 777, 787 and C-17 programs.

Daher. The aerospace branch of the Daher group specializes in complex subassemblies requiring dual expertise in composites and metals, the integration of systems and global responsibilities (customer support, life cycle analysis and involvement right up to installation on the final assembly line). Daher has been successfully partnering on the 777 program since 2006, with the manufacturing of acoustic plenums for the Honeywell auxiliary power units.

Dassault Systèmes. Since the 1990s, Boeing has been using CATIA software from this company. Dassault Systèmes' collaborative tools have helped Boeing design the Next-Generation 737 and the 777 and carry out the entire virtual design, testing and production of the 787 Dreamliner. Dassault Systèmes'

product life cycle management solutions used by Boeing on the 787 include DELMIA for virtual planning and production, CATIA for virtual product design, and ENOVIA for enterprisewide collaboration, giving every stakeholder in the process access to 3D data models of parts, assemblies and systems.

Deutsch. The French subsidiary of Deutsch, which specializes in connectors, is a supplier to Boeing for the 787.

Labinal. This Safran subsidiary supplies a complete system of electrical interconnections for all Boeing commercial programs and certain military programs such as the V-22 and CH-47. For the 787, Labinal is producing the entire wiring system, together with performing engineering studies and providing on-site support.

Latécoère. Building on industrial relations with Boeing since the 1990s, Latécoère manufactures composite passenger doors for the 787. It was the first French company to work on Boeing aerostructures and also manufactures the giant cargo doors for the main deck of the 777 Freighter.

Liebherr-Aerospace. At its Toulouse plant, this company manufactures air cooling systems for the 787 galleys and an air control system for the new 747-8.

LISI AEROSPACE. A world leader in the aerospace fasteners and assembly components market, LISI AEROSPACE provides Boeing with fasteners and assembly components for commercial and military programs.

Messier-Bugatti-Dowty. This Safran subsidiary manufactures the main and forward landing gear and the electric brake system for the 787 Dreamliner. The company also supplies carbon brakes for long-haul jetliners (767-200/300ER and 777), the Next-Generation 737, and the C-17 Globemaster III and the monitoring system for the 747-8's brakes and tires. In the military business, the company also provides landing gear for the F-18 E/F and the V-22.

Michelin. Michelin is a supplier of qualified products for all Boeing commercial and military airplanes. Since 1995, Boeing has adopted and extended the radial technology originally developed by Michelin for the 777 to all its long-range fleet. The future 787-9 will be fitted with Michelin NZG new-generation radial tires.

Radiall. The company designs interconnect systems for all critical systems on the 787 Dreamliner. Radiall began working very early on with Boeing, introducing breakthrough technologies on various programs.

Snecma. A Safran subsidiary, Snecma is an historic partner to Boeing that has delivered more than 12,000 CFM56 engines jointly with General Electric to power Boeing commercial and military airplanes. The 737 family is powered exclusively by CFM56-7B engines, while the new 737 MAX will be powered by the new

CFM LEAP-1B engine. Snecma also partners with General Electric in manufacturing engines for the 767 and 777.

Souriau. World leader in commercial aviation circular connectors, it designs and supplies circular connectors for the 787, especially those using new composite technology.

Thales. A leading international electronics and systems company, Thales provides the 787 power conversion system and the latest generation lithium-ion batteries, together with integrated flight displays giving navigation parameters and the in-flight entertainment system.

Zodiac Aerospace. Companies in the Zodiac Aerospace group provide various components for the 787, such as emergency slides, pilots' oxygen masks, primary electrical distribution, cockpit monitors and keyboards, wiper blades, landing gear levers, interior design, and the wastewater and waste treatment management system. Zodiac Aerospace is also involved on the 737, 767, 777 and 747-8.

Aéroport Châteauroux-Centre (Châteauroux-Centre Airport) is an associated member of the Boeing French team. Located at the heart of Europe and in the center of France, Châteauroux-Centre Airport is an industrial airport specialized in freight, pilot training and aircraft maintenance. It is also a historical air depot and an airplane dismantling center for aircraft that have reached the end of their life cycle. Along with Boeing, Châteauroux-Centre Airport is a founding member of the Aircraft Fleet Recycling Association (AFRA).

Boeing Corporate Citizenship Initiatives with French Communities Focus on Employment and Education

From 2005 to early 2015, Boeing France supported Les Restos du Coeur ("Restaurants of the Heart"), the well-known nonprofit organization in France. Various programs coordinated with Boeing focused on the opening of support centers as well as housing and social services for the homeless and families in need. In 2011, Boeing and Les Restos du Coeur launched Aéronautique Solidaire ("Solidarity in Aerospace"), an initiative designed to provide aerospace training and industry job placement assistance to disadvantaged individuals in France. In three years, more than 130 people have benefited from Solidarity in Aerospace through a job offer, a temporary assignment or a professional training program.

In 2015, Boeing France is launching a new initiative with Fédération Léo Lagrange, a nonprofit organization that runs a popular education project in the fields of youth animation, job training and help of public actors in the implementation of education policies. Boeing will be the first private and main partner of Léo Lagrange's new project, The Jobs Hub. This program will deploy a range of activities for audiences from 11 to 15 years old. It will offer a playful

approach to explore possible career plans at any level of qualification. The priority is to create links with companies, especially in the scientific and industrial sectors. In addition, the participants will have the opportunity to participate in an aerospace challenge organized by Boeing and the Léo Lagrange.

#

Contact:

Antoine Balas
Corporate Communications, France
+33 1 70 37 07 07
antoine.balas@boeing.com

Daniel Mosely
Boeing Commercial Airplanes, Europe
+ 44 208 235 5665
daniel.mosely@boeing.com

Marcia Costley
Boeing Defense, Space & Security, Europe
+1 562 797 7281
marcia.b.costley@boeing.com

Last revised June 2015.