BOMBARDIER

BACKGROUNDER

CSERIES

BOMBARDIER COMMERCIAL AIRCRAFT

The *CSeries* family of aircraft offers unmatched operating economics, reliability, total life cycle support, significant reduction of environmental footprint, passenger appeal and operational flexibility to meet the future demands of the 100- to 149-seat commercial market segment.

Launched on July 13, 2008, the *CSeries* aircraft is expected to enter into service in 2013. Gary Scott, President, Bombardier Commercial Aircraft is leading the development of this aircraft program.

Description

In addition to unmatched passenger comfort, the competitive 110-seat and 130-seat *CSeries* family of aircraft will benefit from the latest technological advancements, including: fourth generation aerodynamics; increased use of composites and advanced aluminium alloy in structures; a next-generation engine – the Pratt & Whitney PurePower™ PW1000G engine; and the very latest in system technologies, such as fly-by-wire and electric brakes.

The *CSeries* models *CS100* (formerly C110) and *CS300* (formerly C130) aircraft will share a new common centerline engine and have the same crew type rating, operating and maintenance procedures. Each of the aircraft models will also have operational flexibility to permit utilization on both short-haul and transcontinental routes.

At entry into service, the *CSeries* family of aircraft will be the greenest single-aisle aircraft in its class. These game-changing aircraft will emit 20* per cent less CO_2 and 50* per cent less NO_x, fly four* times quieter, and deliver dramatic energy savings – 20* per cent fuel burn advantage as well as 15* per cent improved cash operating costs versus current in-production aircraft of similar size. The *CSeries* aircraft will set a new benchmark in the industry, consuming as little as two liters of fuel per passenger per 100 kilometers in its more dense seating layouts*.

In addition to Bombardier's fourth-generation transonic composite wing design, the company is also using its Reconfigurable Engineering Flight Simulator II (REFS II) to develop customized 'fly-by-wire' control laws specific to the *CSeries* aircraft. This simulator is the first of many devices planned, as part of an extensive integrated test regime, to ensure the *CSeries* aircraft achieves consistently high levels of reliability when it enters service.

	CS100	***CS300***
Seating Capacity	Mixed Class: 100 Standard: 110 High Density: 125	Mixed Class: 120 Standard: 130 High Density: 145
Range 225 lb. / pax, MTOW, normal cruise	2,950 nm (5,463 km)	2,950 nm (5,463 km)
Maximum Takeoff Weight (MTOW)	120,700 lb. (54,749 kg) to 127,800 lb. (57,969 kg)	131,300 lb. (59,557 kg) to 139,100 lb. (63,095 kg)
Overall Length	114 ft. 4 in. (34.8 m)	124 ft. 10 in. (38.0 m)
Cabin Height	84 in. (213.4 cm)	
Standard Interior Configuration	Two-by-three seating, with a comfortable 32-inch pitch separated by a 20-inch centre aisle, offering a modular forward and aft cabin. Mixed class interior layouts are also available, with a four-abreast seating business class, to suit operator requirements. Overhead rotating bins, a first for single-aisle aircraft, are designed to ensure the most cabin storage in its class.	

Manufacturing

The aircraft's final assembly will take place at Bombardier's Mirabel facility; the design and manufacture of the aircraft's aft fuselage and cockpit at Bombardier's Saint-Laurent facility - both sites in the greater Montréal area; the design and manufacture of the wings will take place at Bombardier's Belfast facility.

Key Suppliers

All major suppliers will work with the *CSeries* team located at Bombardier Aerospace's Product Development Centre in Saint-Laurent, Québec as part of the Joint Conceptual Definition Phase. Suppliers include:

C&D Zodiac for the design and production of the aircraft's interior package, which includes the seats, interiors (including the linings, monuments, bins, galleys and lavatories), as well as the following systems: oxygen, lighting, insulation, waste and water;

Rockwell Collins as the supplier for the aircraft's avionics system. Tailored specifically for the *CSeries* aircraft, its fully integrated flight deck capability will provide flexibility, high reliability and low life cycle costs without compromising the aircraft's performance;

Parker Hannifin Corporation, through its Aerospace Group, for the design and production of the *CSeries* airliner's fully integrated fuel and hydraulics systems;

Liebherr-Aerospace Toulouse SAS for the design and production of the aircraft's Air Management System, which includes the environmental control and cabin pressure control system.

The Shenyang Aircraft Corporation (SAC), a subsidiary of the state-owned aviation industrial entity China Aviation Industry (AVIC) for the supply of the *CSeries* aircraft centre fuselage.

Alenia Aeronautica will provide the horizontal and vertical stabilizers, fully equipped with hydraulic, electrical and flight control systems, lights and antennas.

Fokker Elmo will be responsible for the design and production of the entire wiring and interconnection system. Additionally Fokker Elmo will design and produce all flight test and instrumentation wiring required during the certification of the *CSeries* aircraft.

Goodrich Actuation Systems will be responsible for the design and production of the flap and slat actuation systems for the *CSeries* aircraft. A critical system for take-off and landing, the flap system is installed on the wing and increases both lift and drag, while the slat system adds lift and helps maintain smoother airflow.

Milestones

- Starting in **2004**, Bombardier Aerospace employed a dedicated multi-disciplinary team to evaluate the feasibility and begin the development of a new-generation commercial aircraft.

- On **November 12, 2007**, Bombardier and Pratt & Whitney (P&W) reached an agreement on commercial and technical terms to provide exclusive power for the *CSeries* aircraft with P&W's Geared Turbofan™ engine.

- On **February 22, 2008**, Bombardier's Board of Directors granted Bombardier Aerospace the authority to offer (ATO) formal sales proposals of the optimized *CSeries* aircraft family to airline customers.

- On **July 13, 2008**, Bombardier launched its *CSeries* family of aircraft. Launch customer, Lufthansa signed a letter of interest (LOI) for up to 60 aircraft, including 30 options.

- On **March 11, 2009**, Bombadier Aerospace announced that Deutsche Lufthansa AG, the launch customer for the *CSeries* aircraft program, had signed a firm purchase agreeement for 30 *CS100* single-aisle aircraft. These aircraft will be operated by Swiss International Air Lines Ltd. The agreemnt also includes options on an additional 30 *CSeries* aircraft.

- On **March 30, 2009,** Bombardier Aerospace announced that Lease Corporation International Aviation (New Buildings) Limited had signed a firm purchase agreement for three *CS100* and 17 *CS300* jetliners. The purchaser, which also took options on a further 20 *CSeries* aircraft, is a wholly owned subsidiary of Lease Corporation International Limited (LCI). LCI is a privately owned aircraft leasing company that owns and leases planes to major airlines.

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* The *CSeries* aircraft is in the design phase. All data and specifications are estimates, subject to change in family strategy, branding, capacity, performance during the course of the design, manufacture and certification process. Performance has been estimated based on a 500-nm North American operating environment.

Images of *CSeries* aircraft can be downloaded at www.nowisthefuture.com
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