

# **787 DREAMLINER: PROGRESS ON MANY FRONTS**

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## **Abstract**

Responding to the overwhelming preference of airlines around the world, Boeing Commercial Airplanes' new airplane is the Boeing 787 Dreamliner, a super-efficient airplane. An international team of top aerospace companies is developing the airplane, led by Boeing at its Everett facility near Seattle, Wash.

## **Unparalleled Performance**

The 787-8 Dreamliner will carry 210 - 250 passengers on routes of 8,000 to 8,500 nautical miles (14,800 to 15,700 kilometers), while the 787-9 Dreamliner will carry 250 - 290 passengers on routes of 8,600 to 8,800 nautical miles (15,900 to 16,300 km). A third 787 family member, the 787-3 Dreamliner, will accommodate 290 - 330 passengers and be optimized for routes of 3,000 to 3,500 nautical miles (5,550 to 6,500 km).

In addition to bringing big-jet ranges to mid-size airplanes, the 787 will provide airlines with unmatched fuel efficiency, resulting in exceptional environmental performance. The airplane will use 20 percent less fuel for comparable missions than today's similarly sized airplane. It will also travel at speeds similar to today's fastest wide bodies, Mach 0.85. Airlines will enjoy more cargo revenue capacity.

Passengers will also see improvements with the new airplane, from an interior environment with higher humidity to increased comfort and convenience.

## **Advanced Technology**

The key to this exceptional performance is a suite of new technologies being developed by Boeing and its international technology development team.

Boeing has announced that as much as 50 percent of the primary structure -- including the fuselage and wing -- on the 787 will be made of composite materials.

An open architecture will be at the heart of the 787's systems, which will be more simplified than today's airplanes and offer increased functionality. For example, the team is looking at incorporating health-monitoring systems that will allow the airplane to self-monitor and report maintenance requirements to ground-based computer systems.

Boeing has selected General Electric and Rolls-Royce to develop engines for the new airplane. It is expected that advances in engine technology will contribute as much as 8 percent of the increased efficiency of the new airplane, representing a nearly two-generation jump in technology for the middle of the market.

Another improvement in efficiency will come in the way the airplane is designed and built. New technologies and processes are in development to help Boeing and its supplier partners

achieve unprecedented levels of performance at every phase of the program. For example, by manufacturing a one-piece fuselage section, we are eliminating 1,500 aluminum sheets and 40,000 - 50,000 fasteners.

### **Continuing Progress**

The Boeing board of directors granted authority to offer the airplane for sale in late 2003. Program launch occurred in April 2004 with a record order from All-Nippon Airways. Since that time, 29 customers have placed orders and commitments for 393 airplanes from five continents of the world, making this the most successful launch of a new commercial airplane in Boeing's history.

The program has signed on 43 of the world's most capable top-tier supplier partners and together finalized the airplane's configuration in September 2005. These partners have started detailed design and, with Boeing, are connected virtually at 135 sites around the world to work toward major assembly in 2006. Eleven partners from around the world started facility construction for a total of 3 million additional square feet to create their major structures and bring the next new airplane to market.

The 787 program will open its final assembly plant in Everett in 2007. First flight is expected in 2007 with certification, delivery and entry into service occurring in 2008.