Amazing Technology Facts from Boeing Commercial Airplanes

Boeing makes jets that weigh almost 900,000 pounds (408,240 kilograms) fully loaded, and yet they fly in the sky like birds. That alone is pretty amazing.

But the miracle of flight is only one of hundreds of technological wonders at Boeing. Here are a few more that are sure to amaze you:

Shown here is an artist rendering of the 7E7 -- an airplane that will travel as fast as today's fastest widebody jets (the Boeing 777 and 747 travel at Mach 0.85) but use 15 to 20 percent less fuel.
- In 1998, airplane operations and maintenance documents required 310 million pieces of paper. If stacked, the pages would be 24 miles (39 kilometers) high. By the end of 2004, Boeing expects to be able to allow customer to choose to replace most paper documents with electronic ones.

- A modern Boeing airplane with 70 percent of the seats occupied is more fuel efficient than a new automobile carrying two people.

- The air flowing through a 767-400ER engine at takeoff power could inflate the Goodyear Blimp in seven seconds.

- The Boeing 777 is the first jetliner to be 100 percent digitally designed using three-dimensional solids technology. Throughout the design process, the airplane was "preassembled" on the computer, eliminating the need for a costly, full-scale mock-up.

- Boeing's primary Product Development effort is the 7E7 -- an airplane that will travel as fast as today's fastest widebody jets (the Boeing 777 and 747 travel at Mach 0.85) but use 15 to 20 percent less fuel. The airplane will carry 200-250 passengers on routes as long as 7,500 nautical miles. It will achieve this unprecedented performance through advancements in engine, aerodynamic, material and systems technologies.

- Final assembly of the 717 takes place on a continuous moving line at the Boeing plant in Long Beach, Calif. -- just like an automobile factory. Airplanes move about one-half inch every minute during production.

- Today, customers can order more than 6.5 million different types of spare parts on the MyBoeingFleet.com Web site, which hosts more than 130,000 spare-parts transactions each week.

The 717, Boeing's smallest jet, is assembled in Long Beach, California on a continuous moving line.
- The current Boeing 747-400 is about 25 percent more fuel efficient and twice as quiet as the original 747.

- The 757 serves the world's highest-altitude commercial airport at Bangda, Tibet, at 14,219 feet (4,334 meters). The exceptional performance of the 757-200 allows it to operate from almost any airport in the world including those with short runways, heat and cold extremes and high altitudes.

- Last year, a team of more than 500 Boeing service engineers handled approximately 180,000 requests for technical assistance and information from airlines around the globe.

- The Portable Maintenance Aid holds key maintenance information in a few compact discs loaded into a laptop computer and taken directly to an airplane or installed on a local area network. Mechanics can quickly pinpoint technical problems at the gate instead of making repeated trips to a reference center to look up information on paper or microfilm.

- A pilot certified to fly a 757 also can fly a 767 with minimal additional familiarization because the technologically advanced cockpits have a common design.

The 777 was the first jetliner designed entirely using three-dimensional computer-aided design.
- According to the U.S. Environmental Protection Agency, airplanes contribute only about 2 percent of all carbon monoxide and nitrogen oxide emissions and an even smaller portion of hydrocarbon emissions.

- In 1999, Boeing recycled enough aluminum to build 233 Boeing 747s, enough steel to manufacture more than 58,000 midsize cars, and enough paper to save 25,000 pine trees.

- Both the 757-200 and 757-300 have high-bypass-ratio engines and a wing design that help make them two of the quietest, most fuel-efficient jetliners in the world. The 757 Freighter is so quiet that it is allowed to operate without night restrictions at even the world's most noise-sensitive airports.

- The 767 was the first large commercial airplane to use efficiency-enhancing "raked" wingtips, which achieves a 4 to 5 percent fuel-efficiency improvement on the 767-400ER. That equals a savings of 1.3 million pounds of fuel and 4 million pounds of global warming CO_2 per year, per airplane.

For more information about Boeing and its products and services, visit the Web site.

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