Boeing Nears Completion of Newest 767 Design

Engineering definition of the Boeing 767-400ER (extended range) is 90-percent complete, a formal milestone indicating that the airplane program is finishing design and moving into production.

"Two years ago, we predicted we'd be exactly where we are today," said John Quinlivan, 767-400ER program manager. "We've released more than 9,000 engineering design packages, and accomplished this in nearly one-third less time than a traditional development schedule for derivative airplanes," he added.

The 767-400ER program remains on schedule while adding two significant design tasks to its work statement - a new interior architecture for the passenger cabin and an updated flight deck. Design teams for both tasks set aggressive schedules to support the program. Both teams achieved their goals ahead of schedule and under budget.

Quinlivan said that different teaming approaches contributed to the program's outstanding performance. One example was the use of "virtual teams" that streamlined development of the airplane's new raked (back-swept) wingtip and auxiliary-power-unit installation in the airplane's tail section.

The virtual-team approach meant that about 40 employees at the Long Beach Division, without having to leave Southern California, were able to review and fine-tune designs with teammates a thousand miles away in Everett, Wash.

Design reviews were held using Boeing-developed software known as Telefly. Telefly allowed teams at either location to simultaneously review and fine-tune designs. The teams also could control the three-dimensional image, electronically "flying" around and even through an assembly design, allowing it to be viewed from any angle.

Another example is the use of concurrent engineering, which is expected to shorten by nine months the traditional development cycle for the airplane's landing gear. The integrated product team worked closely with the supplier and its forging suppliers, providing preliminary design data so materials could be ordered and tooling designed earlier, allowing a shorter-than-usual flow time.

"We call this program `Stretch 2000' because the airplane is 21 feet longer than the 767-300 and it's on schedule to deliver in the year 2000." explained Quinlivan. "But we've also stretched our abilities and our spirit to get this far in such a short time."

The original 767 was designed in the late 1970s when most engineering releases were hand-drafted on paper. About 80 percent of the 767-400ER has been defined digitally, using computer-aided, three-dimensional, interactive design software known as CATIA. Boeing engineers digitally designed new features, such as the updated flight deck, raked wingtip and landing gear. They also converted manual drawings of some existing structures and systems to improve tooling and the accuracy of parts from suppliers.

The 767 is the first twin-aisle jetliner to be "stretched" twice. The first stretch of the original 767-200 was the 767-300, which grew by 21 feet 1 inch. The 767-400ER grew another 21 feet 1 inch, to a total length of 201 feet 4 inches. The newest 767's wingspan also increased by about 14 feet, to 170 feet 4 inches. Compared with the 767-300, this derivative provides up to 20 percent more seats and offers even lower operating costs.

Delta Air Lines, based in Atlanta, will be the first customer to take delivery of the 767-400ER, with delivery scheduled for May 2000.

###