Boeing 7E7 Wind Tunnel Testing Refines Configuration

Boeing [NYSE: BA] is proceeding with the second round of wind tunnel tests for its all-new 7E7 Dreamliner at four locations around the world as it works toward finalizing the passenger airplane's configuration early next year.

In addition to its own high-speed facility in Seattle, Boeing is using the QinetiQ low-speed wind tunnel in Farnborough, England; the National Aeronautics and Space Administration (NASA) Ames facility in Mountain View, Calif.; and the University of Washington low-speed wind tunnel, also in Seattle.

"No one in the world does advanced aerodynamics as well as Boeing, said Chief Project Engineer Tom Cogan. "It is a core competency that allows us to create the airplanes that our customers want.

Boeing has refined its computational fluid dynamics methods since designing its 777 airplane during the early 1990s, allowing designers to optimize an aircraft's shape to achieve the highest efficiency.

In the past, Boeing has taken as many as 60 wing designs into wind tunnels for testing. For the 7E7, it will take fewer than a dozen.

"We are more efficient throughout the design effort, said Cogan. "It's another way we are controlling costs. We continue to find that our computation fluid dynamics (CFD) programs are extremely accurate in predicting the performance of our design.

Advanced aerodynamics is one of four characteristics contributing to the 7E7's dramatic improvements in fuel efficiency. The airplane will use 20 percent less fuel per passenger as compared to other airplanes in its class.

In addition to improving airplane performance and team efficiency, computational fluid dynamics and wind tunnel testing contribute to safety, the ultimate design goal.

More than 15,000 hours of wind tunnel time will be logged to develop the 7E7.

Certification and entry into service for the 7E7 is planned for 2008.

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For further information:
Lori Gunter
425-717-0571