## **Boeing 737 Advanced-Technology Winglets Make World Debut**

Boeing Next-Generation 737-800 advanced-technology winglets made their world debut in revenue service last week with German carrier Hapag-Lloyd Flug.

Hanover-based Hapag-Lloyd became the first airline in the world to fly 737-800s equipped with the cost-effective, environmentally friendly wingtip extensions on commercial routes. The carrier uses 737-800s with winglets on routes from Germany to Mediterranean destinations.

The new winglets on the Boeing 737-800 curve out and up from the wingtip, reducing aerodynamic drag and boosting performance. They add about 5 feet (1.5 meters) to the airplane's total wingspan and allow the airplane to fly up to 130 nautical miles (240 kilometers) further.

"The winglets on our 737-800s will cut the airplane's already low fuel consumption, emissions and takeoff noise and make them even more eco-friendly," said Wolfgang Kurth, Hapag-Lloyd managing director. "Less fuel means more range and gives us the opportunity to open new markets"

The fuel consumption of the 737-800s without winglets in Hapag-Lloyd's fleet already is as low as 2.1 liters per 100 seat kilometers. "We expect the winglets to decrease fuel burn even further - by up to 5 percent in cruise - and reduce the noise affected area by 6.5 percent," Kurth said.

Winglets also have the potential to increase the optimum cruise altitude of the airplane, reduce engine maintenance costs, improve takeoff performance, and increase the weight the airplane can carry by .55 of a ton to 3.3 tons (.5 of a ton to 3 metric tons).

"Next-Generation 737 winglets have proven their value in service on privately owned Boeing Business Jets, and now Hapag-Lloyd will see firsthand the unmatched benefits winglets can bring to commercial operators," said Toby Bright, Boeing Commercial Airplanes senior vice president for Europe and Russia. "Hapag-Lloyd, which was the first airline to order the new-technology 737-800s back in 1994, will once again make history as a company that quickly recognizes the importance of technological improvements in aviation."

Hapag-Lloyd has started to retrofit its fleet of 27 Boeing 737-800s with winglets.

Winglets initially were developed for use on the Boeing Business Jet, an adapted Next-Generation 737-700 with 737-800 wings, by Aviation Partners, Inc. (API). During the design process, Boeing and API formed a joint venture that further developed the design. The joint venture is called Aviation Partners Boeing (APB).

Building a quieter, more fuel-efficient airplane was a top priority for Boeing engineers who initially designed the 737-800 and other members of the Next-Generation 737 family. The model's new CFM56-7 engines produced by CFMI, a joint venture of General Electric Co. of the United States and Snecma of France, meet community noise restrictions well below current Stage 3 limits and below expected Stage 4 limits. Emissions also are reduced beyond required standards.

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