

# The sky's the limit

The story of the Next-Generation 737 is one of continuous improvement

By Dawsalee Griffin and photos by Bob Ferguson

**PHOTO:** Samoeun Van, 737 mechanic, assembles a cockpit. Recent 737 flight-deck improvements include enhanced displays and upgraded Electronic Flight Bag capability.

**A**t first glance, the airplane landing at Boeing Field in Seattle doesn't look any different from other 737-800s. But this airplane, fully fueled, can fly farther than any 737 before it, thanks to the engine and aerodynamic improvements it is testing.

The most visible sign that this airplane is different is the new, more teardrop-shaped anti-collision light. The streamlined light is more aerodynamic than the familiar pillbox shape—something that looks like it belongs on a police cruiser.

Other improvements on the test airplane include alterations to the airframe to reduce drag, as well as enhancements to the CFM engines.

"This performance improvement package gives operators about 2 percent better



**PHOTO:** Winglets, introduced in 2002, were one of the first performance improvements added to the Next-Generation 737. Now, about 95 percent of the planes at the Renton, Wash., factory have winglets.

performance than the current models,” said John Hamilton, 737 chief project engineer.

That might not sound like much, but it can add up to \$120,000 a year in fuel savings, depending on the cost of fuel, according to Hamilton. And 2 percent equals 470 tons (430 metric tons) less carbon emitted per airplane annually.

These are just the latest improvements Boeing has made to its Next-Generation 737 family.

Hamilton calls it “investing in the product.”

That investment began shortly after the Next-Generation 737s went into service. Over the past 12 years innovations have ranged from performance improvements to a new interior to improved reliability and enhanced navigation aids—always pushing the boundaries to find ways to increase value for the customer.

The result, including the performance improvement package, is about a 7 percent performance improvement, making the Next-Generation family more efficient than its rivals, according to Boeing. And the company is already at work defining the next round of improvements.

“We’ve improved the product every year since the Next-Generation went into service,” Hamilton said.

One of the first innovations came in 2002 when Boeing offered what’s now the 737’s most recognizable feature—fuel-saving Blended Winglets.

About 95 percent of all the 737s being built in the Renton, Wash., factory now sport Blended Winglets, which can improve fuel consumption by 3.5 to 4 percent.

In 2008, Boeing offered carbon brakes for its 737s.

“We looked at using carbon brakes when we were originally designing the Next-Generation 737,” Hamilton said, “but the technology wasn’t where we needed it to be.”

When the carbon technology did catch up, the 737 engineers were ready to take advantage of it. The 737’s optional carbon brakes offer a 700-pound (320-kilogram) weight savings, equal to three passengers or 0.4 percent less fuel consumption. Carbon brakes also last three times longer than steel brakes.

Other improvements developed since 2000 include the ability of the 737 to land at high-altitude airports or those with runways less than 5,000 feet (1,520 meters) long.

But performance improvements are only one area where Boeing is continuing to enhance its 737s.

Passenger comfort is as important to Boeing as it is to the airlines, Hamilton said. “We share the results of our studies and get feedback from our customers about improvements they’d like to see.”

Some of those are included in the new 737 Boeing Sky Interior, with its open, roomy look.

Boeing also continues to make improvements and cut operational costs in other ways, working with airlines and regulators to improve efficiencies in the air traffic system, and improving product quality on its already-efficient production line.

And the company is working with airlines on navigation procedures that enable pilots to make more direct approaches, especially on landing—saving time and fuel.

“In line with our legacy of continuously improving our products,” Hamilton said, “we’ll keep figuring out how we want to make our product even better going forward.” ■

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