A PILOT’S STORY: AIR FORCE TO FEDEX TO FLYING EYES
LEARNING TO WEATHER THE WEATHER IN REAL TIME

SUSTAINABLE FUEL: WHAT IS IT & DOES IT FLY?

40 YEARS FLYING
LIGHTHAWK’S CONSERVATION FROM ABOVE

PILATUS
PC-12 NGX
MILESTONE MAKER

LEARNING TO WEATHER THE WEATHER IN REAL TIME

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PC-12 NGX
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WE FLY: PILATUS' NEW

PC-12 NGX

The latest edition of the popular single-engine turboprop will make any jet pilot feel right at home.

BY ROB MARK
I think I called it an airborne Chevy Suburban. Pilatus chief pilot Jed Johnson offered a more descriptive tag line when I was in Broomfield, Colorado, for a December 2019 visit to Pilatus Business Aircraft, calling it a “turbine Suburban.”

No matter what nickname you give it, the PC-12 is famous for being able to haul a couple of Harleys and a few passengers out to a dirt strip and back (see “A Little PC-12 History” for more on the models). In fact, Pilatus specifically designed the PC-12 with a T-tail to make using a forklift possible while loading cargo through that big aft door. Johnson said, originally, Pilatus just saw the airplane as a robust utility, cargo and military airplane that was only later transformed into a luxury vehicle. Pilatus vice president of marketing Tom Aniello said it was actually the dealers who saw the potential for the PC-12 once the interior was spiffed up.

With 1,750 PC-12s built to date, new NGX owners—about 10 percent of whom will operate it single pilot—can carry a 2,000-pound load on a 3½-hour IFR flight with reserves and feel as though they were operating a light jet, except for the NGX’s 290-knot top speed. Adding to the airplane’s own capabilities is the venerable Pratt & Whitney Canada PT6 powerplant, which gives the NGX a unique flight hours under its belt, and Honeywell’s proven Epic avionics system.

Today, single-engine turboprops are almost commonplace with Daher’s TBM series, Piper’s M500 and M600, and Cessna’s Caravan in addition to the PC-12. None can carry the load of the PC-12 except the Caravan, which is 100 knots slower. Only the Cessna Denali, still in development might give the PC-12 a run for its money. Aniello mentioned that possibility but quickly added that the fact alone that Textron is building a PC-12 clone adds credibility to the PC-12’s ability to carry tons of stuff.

What Happens in Vegas Is No Secret

Pilatus kept development of the new NGX under wraps until the official unveiling at the National Business Aviation Association’s Business Aviation Convention & Exhibition in Las Vegas in October 2019; with EASA and FAA certification already in hand. “The NGX includes the biggest package of updates at a serial number that we’ve ever seen,” Aniello said. The NGX comes standard with a Pratt & Whitney Canada PT6E-67EFT with full authority digital engine control—a first for a single-engine turboprop—that includes an autotrottle and 10 percent more usable horsepower.

In the cockpit, pilots will find updated Honeywell Epic avionics that include four 10.4-inch high-resolution screens and greater processing power. Pilatus brands their cockpit as the Advanced Cockpit Environment. The cabin windows—10 percent larger than previous models—significantly increase the amount of ambient light flooding the cabin. The cabin also includes a new air-distribution system, better lighting, heating and cooling, and significantly increased maintenance intervals to reduce operating costs. BMW Designworks created more-comfortable seating reminiscent of that automaker’s ground-based products.

Johnson told me “Putting a fade on the PT6 is much more complicated than on a jet because of the need to control the prop. But you also need the avionics to take advantage of the autotrottle. With [the fade], we can now operate the engine closer to its margins for better performance.” For those who worry about the effects of electrical failures, Johnson said, “If every single electrical system in the airplane died, you’d still have backup instruments and engine control thanks to a backup permanent-magnet alternator available just in case.

Sitting next to the PC-24 at the Pilatus booth, the shell of the PC-12 NGX physically looked like the Model 10 I’d flown more than a decade earlier. But the outside surface of the NGX seemed richer, more on the models. In fact, Pilatus just saw the airplane as a robust utility, cargo and military airplane that was only later transformed into a luxury vehicle. Pilatus vice president of marketing Tom Aniello said it was actually the dealers who saw the potential for the PC-12 once the interior was spiffed up.

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When Pilatus—then maker of the famous Turbo Porter single-engine STOL aircraft—announced the PC-12 in 1991, the design was as a highly efficient workhorse perfect for the utility, cargo and commuter airline, as well as air-ambulance segments. The first PC-12 flew on May 31, 1991, with certification by the Swiss Federal Office of Civil Aviation on March 30, 1994. The FAA’s nod followed on July 15, 1994. Three decades later, it would be tough to look at the more than 1,750 PC-12s produced as anything other than a dream come true.

The PC-12 was certified to Part 23 standards to increase the engine’s overhaul time from 3,500 to 5,000 hours, with a slight increase in the engine’s overhaul time being made as well. The PC-12’s engines that covers just about any conceivable need. 

Adios to many possible failure points. The airframe was capable of carrying 400 pounds of cargo plus a 1,000-pound pallet with seating up to 10 passengers. The cockpit also contained 100 channels of data that help eliminate the need for fussing with the propeller, while the FADEC completely automates an engine start.

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There’s an interconnect between the system to take us to Garden City, or about 60 gallons. At FL 270, turning us south toward DIA. Departure cleared us to 12,000 feet and turned us south toward DIA. A climb to FL 230 quickly followed as the FMS speed called for 140 knots to deliver a climb rate of about 1,600 fpm while burning 518 pounds of fuel per hour. We could have increased the climb rate, but that would have given us a steeper deck angle. For a cruise climb, 140 seemed to work fine.

Passing through FL 180, I engaged the autopilot. Johnson suggested we try a visual approach to Garden City and watch the autopilot fly a precise traffic pattern as the VNAV brought us down a 3-degree slope to 500 feet, where I’d punch off the autopilot. Abeam Runway 35 but still away from the airport, I lowered the gear because we were still 4,000 feet agl. Our weight was relatively light, so Johnson suggested flaps at 30 degrees. The NGX turned itself smartly onto the downwind and the base as it slowed to 110 knots. I confirmed the gear was down and selected flaps 30. The airplane slowed to 100 knots and eventually settled on ref plus 5, or about 85 knots. At 500 agl, I switched off the autopilot. I flipped off the autopilot but left on the autothrottle. We canceled IFR to maneuver a bit west of KGCK.

Johnson spoke about another PC-12 mission accomplished. Honeywell Epic capability. He said if he lost the engine, but feathered the propeller, he would feel perfectly confident setting up a visual approach with an 8-degree glideslope to a mountain airport at night and letting the autopilot fly the entire procedure down to the ground. That would sure beat the guessing and wandering around the sky most pilots would face after such a failure.

We canted IFR to maneuver a bit west of KGCK. I flipped off the autopilot but left on the autothrottle. Johnson said within 20 miles of the destination airport and below 5,500 feet the AT will automatically slow the airplane to 150 knots—just right for gear and flaps—within 20 miles of the destination airport and below 5,500 feet. We tried a number of steep turns along the way with banks of 60 degrees in both directions. The NGX’s envelope protection quickly rolled the airplane back to no more than a 30-degree bank every time. The NGX seemed like a graceful airplane without a mean bone in its body.

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