AN UP-CLOSE LOOK AT THE TECH BEHIND THE TURBOPROP

PILATUS PC-12 NGX

FOR THE PILOTS OF OWNER-FLOWN, CABIN-CLASS AIRCRAFT

NOVEMBER 2020 $3.95 US
VOLUME 24 NUMBER 11

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As a follow up to our initial review of Pilatus’ PC-12 NGX in our December 2019 issue of Twin & Turbine, Tom Aniello, vice president of marketing, offered us the opportunity to fly the plane at the Pilatus Business Aircraft (a Pilatus Aircraft subsidiary) facility located at Rocky Mountain Regional Airport (KBJC).

Over the years, I have flown the previous PC-12 models for personal, business, charter and disaster relief flights, so I’ve experienced Pilatus’ updates firsthand. Now, with nearly 1,800 PC-12s produced, they have introduced the most extensive upgrade of the PC-12 to date – the NGX. It is the first with Pratt and Whitney Canada’s latest PT6, the PT6E-67XP. Developing 1,200 SHP, it is the first production turboprop engine with a dual-channel EPEC (Electronic Propeller and Engine Control), controlling both engine and propeller.
**Preflight**

When conducting a preflight of the NGX, starting with the engine and its environs, you notice several changes. From the simple, such as removing the oil level sensor wiring, to the absence of the traditional propeller governor, to the EPECS and DCTU (Data Collection Transfer Unit) in compartments beneath the engine. The Manual Override lever (MOR) and condition lever are not required since these functions are now managed by the EPECS. The pilot has a single power control lever (PCL).

Externally you can’t see the upgraded fuel system of the NGX, but more effective oil/fuel heat exchanger is incorporated with motive flow jet fuel pumps, improved vents and lines insulated. These changes also eliminate the requirement for anti-icing additives. An important consideration since these additives are not widely available in many parts of the world.

**The Brains**

EPECS is a complex system of control and sensor components for the engine and propeller – from the engine oil level sensor to the Throttle Quadrant (and PCL) to the Permanent Magnet Alternator (PMA). The electronic engine control (EEC) component of the EPECS monitors over 100 parameters, and in conjunction with the Propeller Control Unit (PCU) and the Fuel Control Unit (FCU), manages the engine and propeller based upon power requirements set by the pilot or autothrottle. Yes – the NGX has a very effective autothrottle! The start process is automatic, with the removal of the MOR and condition levers as mentioned. Progress through the sequence the same levers as mentioned. Progress through the sequence.

**The Cabin**

Pilatus took the already-large cabin windows of the PC-12 and made them 10 percent larger. To the passengers, it provides a substantial change in their outside view. As Pilatus likes to say, the PC-12 series is “designed for those that refuse to travel light.” The spacious cabin and cargo area fit that need.

Flying the NGX

With Brian Mead, Pilatus demonstration pilot, we filed an IFR flight from KJCU to Salida, Colorado (KANK) and back. We did a preflight in their hangar and then moved outside to their ramp on the southwest side of the airport. Our flight plan included the ROCKIES IFR departure then direct to Salida. Setting up the aircraft configuration, including weights, is simple with an intuitive flow. We entered the flight plan into the FMS, which synchronized with the optional second FMS. I found the new touch panel controller improved efficiency. I could select functions on the touch panel while keeping my cursor focused on the MFD display, enabling me to multitask faster.

The checklists are embedded within ACE, easily selected and acknowledged using control yoke switches. Starting was simple. Move engine switch to ON, press the starter. The EEC sends the appropriate speed to ignite and inject.
There’s something for everyone: passengers enjoy the modern new cabin, and the autotrottle, single-power lever and electronic engine controls are a pilot’s dream.”

In Europe, the first PC-12 NGX delivery went to Dr. Ulrich Byszio in Germany. Dr. Byszio, a pilot with a passion for all forms of aviation, moved from a popular 15 degrees flaps to the PC-12 NGX. The PC-12 NGX is the perfect aircraft for my travels around Europe. The combination of its speed, fuel efficiency, comfort and safety record makes it ideal for both corporations and owner-pilots like myself. It offers an incredible level of versatility that can’t be matched by anything else in this class,” commented Dr. Byszio after taking delivery of his new NGX.

Following the first PC-12 NGX delivery, the order book has continued to grow. In the United States, we’ve seen a surge in demand, particularly among private operators. Many owners are upgrading their existing PC-12s to the new model to take advantage of the latest technology and features.

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