THE PC-12 PRO SIMULATOR: BRINGING REAL-WORLD FLIGHT TRAINING TO LIFE

News / Maintenance / Trainings, Manufacturer

A professional training device such as the new PC-12 PRO simulator is built on flight data supplied and validated by Pilatus. Drawing on actual flight-test and performance data, it accurately reproduces the aircraft's behavior throughout its entire flight envelope. From handling characteristics and systems logic to cockpit controls, failure scenarios and weather conditions, every aspect is replicated with exceptional fidelity while meeting the industry's most demanding certification standards.

At the core of the simulator is the Advanced Cockpit Environment (ACE), powered by the latest-generation Garmin G3000 PRIME avionics suite. This ensures that pilots transitioning to the PC-12 PRO train from day one in an environment that mirrors the aircraft's real-world cockpit. Beyond customer pilot training, the simulator has also become a valuable resource for Pilatus' own development and testing activities.

"The simulator gives us capabilities we did not have before," explains David Liechti, Pilatus Test Pilot. "We can now develop, train and validate procedures independently of weather conditions or aircraft availability. The simulator allows us to train for situations we would never deliberately

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create in the actual aircraft. ”

Low Visibility Operations (LVO) illustrate the simulator’s capabilities particularly well. Complex procedures can be practiced, analyzed and refined in a controlled environment, with scenarios repeated as many times as needed under identical conditions. This enables new operational sequences to be developed, tested and optimized in the simulator long before they are introduced into real-world flight operations.

Training that goes the extra mile

The simulator delivers a highly detailed replica of the PC-12 PRO cockpit, enabling crews to gain a comprehensive understanding of the aircraft’s systems, logic and operational environment. Training extends well beyond procedural proficiency, focusing on building an in-depth knowledge of how the aircraft functions as an integrated system.

Pilatus pilots also rely on the simulator extensively. When adverse weather prevents a test flight, procedures can still be developed, rehearsed and validated in a controlled environment. The simulator additionally supports ongoing training for both flight crews and technical personnel.

For maintenance teams, it provides a valuable platform to practice engine runs and prepare for abnormal scenarios. Whether addressing an unexpected rise in oil temperature during an engine run-up or responding to specific system alerts, technicians can experience and evaluate situations that would be difficult or impractical to recreate in an aircraft. These scenarios can then be reviewed and analyzed collectively to enhance understanding and decision-making.

Practicing situations rarely encountered in everyday operations

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The simulator proves especially valuable when real-world training opportunities reach their practical limits. It allows crews to rehearse complex, high-risk and highly unusual scenarios in a safe, controlled environment without exposing personnel or aircraft to unnecessary risk.

These scenarios can include GPS outages during North Atlantic operations, severe weather encounters and other challenging situations that pilots may rarely experience in actual flight. Crews can practice responding to a navigation failure in the middle of an ocean crossing or evaluate the critical decisions required when weather conditions deteriorate unexpectedly. Even emergency fire scenarios can be simulated using a fog machine, creating a highly realistic training environment that prepares crews for real-world emergencies.

The simulator also brings greater flexibility and efficiency to training programs. Much of the differences training required for the PC-12 PRO can now be completed in the simulator, reducing both training costs and aircraft downtime while allowing pilots to focus on specific learning objectives. Crucially, training can be conducted regardless of weather conditions or aircraft availability, ensuring consistent and uninterrupted progress.

Full-motion simulator under development

The current PC-12 PRO simulator is only the beginning. Pilatus is already working on a next-generation full-motion simulator designed to reproduce the aircraft’s movements with exceptional realism, further elevating the training experience and enhancing immersion for pilots and operators alike.

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As the PC-12 PRO continues to set new standards in the cockpit, its simulator reflects the same spirit of innovation on the ground. Combining advanced technology with highly realistic flight training, it serves as far more than a pilot training device, creating a platform for procedure development, operational validation and continuous learning that extends well beyond conventional simulator training.

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