TTx™ offers additional safety, flexibility

FIKI system allows pilots to fly into known icing conditions

The Cessna® TTx now offers pilots a wider breadth of missions with its latest certification, the high-performance aircraft’s Flight Into Known Icing (FIKI) system. FIKI is more than additional safety. It’s an added degree of dispatch reliability and travel flexibility. “A TTx aircraft equipped with the optional FIKI system offers great value for customers,” said Brian Steele, TTx business leader. “It allows owners’ business and recreational plans to stay on schedule, even in some adverse weather conditions.”

Cessna’s goal was more than adding the certified FIKI system to the fastest commercially-produced and certified fixed-gear, single-engine aircraft in its class. It was to do so without slowing the aircraft—a goal engineers and designers met handily.

“It maintains all performance numbers. We don’t lose speed or performance.”

– Brian Steele, TTx business leader

The primary reason is the flush-mounted panels on the aircraft’s wings. By notching out the leading edge of the original wing design and nesting the titanium panels inside that space, the aerodynamic functionality is essentially the same as the previous design.

The Cessna TTx team continued that precision design throughout the FIKI system, first by choosing the overall system that performs best on single-engine piston aircraft—one based on TKS, a specialized industry-leading fluid that both melts existing ice and prevents water from freezing.
The new design distributes the TKS fluid to the wing’s full span and to the horizontal and vertical stabilizers through laser-drilled micro holes. A redundant pump system supplies the fluid pressure and also feeds a slinger ring to protect the propeller and nose. A separate pump keeps the windshield clear through a dedicated nozzle system, and cockpit-controlled LED ice lights allow pilots to easily inspect the wings for ice while flying at night.

Under normal ice conditions, pilots have enough fluid to fly two and a half hours—about the time of a typical long-range mission. For conditions that are especially icy, the system also allows pilots to pump more TKS fluid onto the aircraft faster through two additional modes, high and max. The system also has a backup mode in the event of a primary system failure.

No matter which mode the FiKI system is in, the avionics offers added situational awareness by displaying information pilots used to have to spend time figuring themselves. “Integrated into the G2000™ is indication of how much fluid and endurance you have, as well as system status and warning messages,” said Steele. “It’s making the decision process easier by doing dynamic calculations for you based on what mode you’re in and the operational time remaining.”

To Steele, the primary value and benefit of this intricate incorporation of sophisticated systems is clear, “As an aircraft operator, it broadens the envelope of the aircraft by permitting safe flight in more challenging weather conditions. You have added situational awareness with the G2000 integration, and the system provides comfort and peace of mind by leaving you better prepared for encountering both known and unexpected layers of ice in the clouds.”