Pratt & Whitney Successfully Tests Next-Generation Pure Power® Geared Turbofan™ Technology as Part of FAA Sustainability Program

EAST HARTFORD, Conn., Oct. 12, 2017 /PRNewswire/ -- Pratt & Whitney, a division of United Technologies Corp. (NYSE:UTX), recently completed more than 175 hours of ground testing of a next-generation Geared Turbofan (GTF) engine propulsor technology as part of the Federal Aviation Administration's (FAA) Continuous Lower Energy, Emissions and Noise (CLEEN) program, an FAA NextGen initiative to accelerate the development of environmentally-friendly aircraft technologies. The full-scale test, conducted in West Palm Beach, Fla., marks 10 years since Pratt & Whitney first successfully demonstrated the GTF, a revolutionary new engine that delivers 16 percent better fuel efficiency, 50 percent lower nitrogen oxide emissions to the regulatory standard and a 75 percent smaller noise footprint.

This advancement builds on the completion of 275 hours of fan rig testing of the technology in 2014 and 2015. The demonstrator used an existing development engine from a certified Geared TurboFan product to validate the performance capability of a second-generation, ultra-high bypass fan design.

A key element in the technology maturation is the development and application of highly-integrated United Technologies Computational Fluid Dynamics (CFD) tools, which provide accurate predictions and design guidance to enable rig-to-engine scalability and optimized performance. A comprehensive aerodynamic, aeromechanical and acoustic test program showed the technology contributing significantly to meeting FAA CLEEN program goals, demonstrating again UTC's leadership in technology and manufacturing.

"The success of this ground test is an important step in taking our Geared Turbofan engine technology to the next level," said Alan Epstein, vice president of Technology and Environment for Pratt & Whitney. "We are working to make sure the next

generation GTF engine – already a game-changer – remains on the cutting edge of performance and sustainability."

Pratt & Whitney continues to advance the compressor and turbine technology in collaboration with the FAA as part of the CLEEN II program, a follow-on program that develops and demonstrates aircraft technology and alternative jet fuels. The engine successfully operated in a design space never before demonstrated with significantly fewer lower-pressure ratio blades than the current production engine, and a shorter duct inlet. The rig and engine tests are expected to demonstrate a suite of technologies that will help reduce fuel burn by an additional 2 percent.

The CLEEN program is an FAA initiative to accelerate the development of environmentally friendly aircraft technologies. The program is part of the FAA's Next Generation Air Transportation System (NextGen) strategy and focuses on the reduction of aircraft noise, emissions and fuel burn. For more information on the CLEEN program, visit the FAA.

Pratt & Whitney is a world leader in the design, manufacture and service of aircraft engines and auxiliary power units. United Technologies Corp., based in Farmington, Connecticut, provides high-technology systems and services to the building and aerospace industries. To learn more about UTC, visit its website at www.utc.com, or follow the company on Twitter: @UTC For more information about Pratt & Whitney, visit http://www.pratt-whitney.com. For more about UTC and Pratt & Whitney's green aviation efforts visit http://naturalleader.com.

This press release contains forward-looking statements concerning future business opportunities. Actual results may differ materially from those projected as a result of certain risks and uncertainties, including but not limited to changes in levels of demand in the aerospace industry, in levels of air travel, and in the number of aircraft to be built; challenges in the design, development, production, support, performance and realization of the anticipated benefits of advanced technologies; as well as other risks and uncertainties, including but not limited to those detailed from time to time in United Technologies Corp.'s Securities and Exchange Commission filings.

Pratt &

Whitney
+1 (860) 565-9600
media@pw.utc.com

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