Nexcelle's integrated propulsion system nacelle takes flight on the CFM International LEAP jet engine

Victorville, California, October 9, 2014 – The start-up of airborne evaluations with CFM International's LEAP-1C powerplant represents an important aviation milestone, marking the first time a next-generation integrated propulsion system (IPS) has taken flight – using the innovative engine nacelle system developed by Nexcelle.

Nexcelle's IPS nacelle system is an important contributor to the LEAP-1C's performance enhancements for the twin-engine COMAC C919 jetliner, offering improved aerodynamics, lower weight, higher reliability and easier maintenance. The IPS nacelle was developed with the expertise of Nexcelle's two parent companies – Aircelle (Safran) and GE Aviation's Middle River Aircraft Systems (MRAS).

LEAP-1C flight testing with Nexcelle's IPS nacelle system began October 06, utilizing a fully-equipped engine installed on one of GE Aviation's modified 747 flying testbed aircraft at Victorville, California. Personnel from Aircelle and MRAS were at Victorville to support the nacelle's installation, and technical support will be continued by Nexcelle throughout the flight test activity.

“Our vision for truly integrated propulsion systems is now a reality,” said Nexcelle President Michel Abella. "This achievement results from our parent companies' determination to achieve a breakthrough in jet engine nacelle technology, and comes from their exemplary cooperation since January 2009, when the joint venture was created.”

Key elements of Nexcelle's IPS nacelle system for the LEAP-1C include a low
drag front end with a directed flow nozzle deicing system; an all-new translating O-Duct thrust reverser configuration; a fan cowl that is structurally integrated to the engine; and an integrated mounting system for reduced engine distortion and enhanced on-wing performance. The IPS’ installed performance is further enhanced by a low drag, low weight pylon developed concurrently with the nacelle by COMAC.

The one-piece composite O-Duct configuration is replacing a traditional thrust reverser’s two-piece “D” doors. When deployed, the O-Duct moves aftward to the reverse thrust position, eliminating drag links in the engine's secondary flow-path, enhancing the airflow path and improving fuel consumption, while also increasing thrust reverser efficiency. The O-Duct deployment is performed with an evolved electrical thrust reverser actuation system.

Another of the nacelle system’s technological advances is the directed flow nozzle deicing system, which more efficiently swirls engine bleed air within the inlet lip – providing weight, efficiency and maintainability improvements from traditional nacelle deicing systems that use Piccolo tubes.

Nexcelle’s LEAP-1C nacelle also incorporates the extensive use of lightweight and noise-attenuating composite materials, benefiting from the proven experience of parent Companies in their respective nacelle and thrust reverser product lines.

About Nexcelle (www.nexcelle.com)

Nexcelle is creating smart nacelle systems for tomorrow’s world travel. Headquartered in Cincinnati, Ohio, USA, the company is a 50/50 joint venture of Safran (Aircelle) and GE Middle River Aircraft Systems (MRAS), which are leading suppliers of engine nacelles, thrust reversers and aerostructures. Through Nexcelle’s relationship with CFM International, GE Aviation and Safran, the company brings unparalleled expertise in the design, development, production and support of integrated propulsion systems for a wide range of aircraft.