CFM begins LEAP-1B engine ground test program

- Achieved full take-off thrust
- Testing began three days ahead of schedule

VILLAROCHE, France — 18 June 2014 — CFM International has initiated ground testing of the first LEAP-1B engine at Snecma (Safran) facilities in Villaroche, France. The testing launches a two-year program that will culminate in engine certification in 2016 and entry into commercial service on the Boeing 737 MAX airplane in 2017. The LEAP-1B engine, which is the exclusive powerplant for the 737 MAX family, fired for the first time on June 13th, three days ahead of the schedule set when the program was launched in 2011. After a series of break-in runs, the engine has been operating smoothly and has reached full take-off thrust. "We are really excited to have this engine on test. Now that we are running at full power, we can really see what it is capable of," said Cédric Goubet, executive vice president for CFM. "All of the testing we have done to date has validated the technology choices we made and we look forward to the LEAP-1B expanding our knowledge base. Our team has done a fantastic job of keeping this program on schedule and, with each day, our confidence grows. The LEAP engine will deliver everything we have promised and more." The engine will be on test for the next several weeks, during which CFM will verify its mechanical operation, its operability (stall margin), engine starts, and further validate the advanced technologies incorporated in the engine, including the woven carbon fiber composite fan, the Twin-Annular, Pre-Mixing Swirler (TAPS) combustor, ceramic matrix composite shrouds in the high-pressure turbine and titanium aluminide blades in the low-pressure turbine. "The LEAP engine is a really exceptional motor; we are thrilled with everything we are seeing," said Allen Paxson, CFM executive vice president. "The reason we chose such an aggressive maturation and certification schedule is to wring out any issues and solve them long before the engine ever enters a customer fleet. What the plan has also done is validate our philosophy of extensive component and rig tests well in advance of full engine testing. We had thousands of hours under our belt before we ever assembled the first engine. This engine is right where we want it to be." This LEAP-1B engine is part of the most extensive ground and flight test certification program in CFM's history. The total program, which encompasses all three LEAP engine variants, includes 28 ground and CFM flight test engines, along with a total of 32 flight test engines for Boeing, as well as Airbus and COMAC. Over the next three years, these engines will accumulate approximately 40,000 engine cycles leading up to entry into service. By the time this engine enters service, CFM will have simulated more than 15 years of airline service with 60 different engine builds. CFM officially launched the LEAP engine, which is the company's first all-new centreline engine in nearly 40 years, in 2008. The engine was being designed to bring double-digit improvements in fuel efficiency, emissions and noise, while maintaining the legendary reliability and low cost of ownership of its predecessor, the ubiquitous CFM56 engine family. In 2011, Boeing selected the LEAP-1B as the sole
powerplant for its new 737 MAX, extending a more than 30-year relationship. CFM has been the only engine provider for the 737 aircraft family since the 737 Classic entered service in 1984. The foundation of the LEAP engine is heavily rooted in advanced aerodynamics, environmental, and materials technology development programs. It will provide double-digit improvements in fuel consumption and CO2 emissions compared to today's best CFM engine, along with dramatic reductions in engine noise and emissions. All this technology brings with it CFM's legendary reliability and low maintenance costs.

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About CFM International

CFM International, a 50/50 joint company between Snecma (Safran) and GE, is the world's leading supplier of commercial aircraft engines, has delivered more than 26,000 engines to date. The LEAP-1B-powered Boeing 737 MAX has had one of the most successful program introductions in history, garnering more than 2,000 aircraft orders to date. For more information, visit us at http://www.cfmaeroengines.com or follow us on Twitter @CFM_engines. For more information, contact:

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