FOR IMMEDIATE RELEASE

REACTION ENGINES

15th June 2015

REACTION ENGINES BEGIN TESTING NEW ROCKET ENGINE

Reaction Engines Ltd. have begun their latest round of rocket engine testing in Westcott, UK.

The SABRE engine requires a novel design of the rocket engine's thrust chamber and nozzle to allow operation in both air-breathing and rocket modes, as well as a smooth transition between the two. The Advanced Nozzle project is demonstrating the feasibility of this concept and represents a significant technology development effort towards the SABRE demonstrator engine.

The test engine, which has been successfully fired 15 times during its initial commissioning phase in spring 2015, incorporates several new technologies including a 3D printed, actively cooled propellant injector system. Aerodynamic data collected from the firings is being used to validate in-house computational modelling and advance the nozzle design. The test campaign is being operated by Airborne Engineering Ltd in Westcott, Buckinghamshire. Operations are planned to continue throughout 2015, including long duration burns and tests investigating the transition between air-breathing and rocket operation planned for later in the year.

Dr Helen Webber, Reaction Engines' Project Lead for the Advanced Nozzle Programme, commented:

"This experimental engine is an important step into a new era of propulsion and space access. We are using it to test the aerodynamics and performance of the advanced nozzles that the SABRE engine will use, in addition to new manufacturing technologies such as our 3D-printed injection system. The testing of new propulsion technology has required close work with our partners at Airborne Engineering, in order to make a test rig that can simulate the unique and demanding range of conditions required to put this engine through its paces. Despite being much smaller than SABRE, this engine is still the largest bi-propellant engine to be tested at Westcott for over thirty years, and it is exciting to see the resurgence of Westcott as the centre for UK rocket propulsion research and development. The next few months will see us running the engine for much longer periods in order to explore the transition between the air-breathing and rocket modes of the SABRE's flight - an important and challenging part of powering Skylon into space."

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Notes to editors

1. Reaction Engines Ltd is an aerospace technology and propulsion company headquartered in the UK with core capabilities in the design, manufacture and testing of ultra-lightweight heat exchangers and aerospace propulsion technology.

2. Reaction Engines' ultra-lightweight air heat exchangers cool hot air from 1,000°C to minus 150°C in 1/100th second. With proprietary frost control technology preventing the formation of ice at sub-zero temperatures, the SABRE engine's pre-cooler is able transfer the same amount of heat generated by electricity power stations (~450MW) using equipment that weighs less than a standard car (< 1.5 tonne).

3. Combined with unique thermodynamic cycles, Reaction Engines' technology enables a new class of aerospace engine called the Synergetic Air-Breathing Rocket Engine ('SABRE'). This breakthrough in aerospace propulsion can power aircraft from a runway start up to Mach 5.5 in the atmosphere (more than twice the speed of a conventional jet engine) and then subtly transition to a pure rocket mode which allows the engine to operate outside of the Earth's atmosphere up to orbital velocity (Mach 25, 17,000mph, 7.5km/sec). The viability of the SABRE engine has been independently validated by the European Space Agency during a review which was undertaken at the request of the UK Space Agency.

4. Reaction Engines Ltd has an ongoing privately funded SABRE engine technology development programme, and in 2013 the UK Government announced a £60m commitment towards the development to aid preparations for the design, manufacture and testing of the first SABRE demonstrator engines.

5. REL's technologies have the potential for wider application across large industrial markets to improve efficiency and create new capabilities, with applications in power generation, conventional gas turbines and desalination.

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