REACTION ENGINES

Embargoed until 0700 EDT on 18 December 2017

WATKINS, CO - December 18, 2017

Reaction Engines Begins Construction of High-Temperature Airflow Test Facility in Colorado

Reaction Engines, Inc. has begun construction of a new high-temperature airflow test facility where it plans to validate the performance of its precooler heat exchanger technology, an enabler of its revolutionary SABRE™ engine. Located at the Front Range Airport near Watkins, Colorado, the test facility will be capable of exposing the precooler test article (HTX) to high-temperature airflow conditions in excess of 1800°F (1000°C) that are expected during high-speed flights up to Mach 5.

Reaction Engines, Inc. recently received a contract award from the Defense Advanced Research Projects Agency (DARPA) to conduct the HTX tests, which are designed to build upon previous successful testing of the precooler heat exchanger at ambient temperature conditions.

“This new test facility shows our commitment to rapidly prove our precooler technology in the most compelling test campaign possible,” said Dr. Adam Dissel, President of Reaction Engines Inc. “The facility’s ability to deliver controlled temperature profiles over flight-like run durations at significant airflow represents a unique capability that can fill additional testing demand beyond HTX.”

The project is an additional investment by Reaction Engines into ground test facilities. The company is progressing rapidly on the previously announced TF1 engine test facility in the United Kingdom

where the first ground-based demonstration of its revolutionary SABRE™ air-breathing rocket engine will take place. The Colorado test facility, named TF2, consists of a test building and a control room located on the east side of the Front Range Airport. The hot air for the testing will be provided by a modified afterburning jet engine configured to produce a wide range of flowrates and temperatures.

"We are tremendously excited that Reaction Engines is locating their new engine test facility here at Front Range Airport and, as the future site of Spaceport Colorado, the linkages between high-speed aviation uses and the commercial space applications for this new technology are a perfect fit," said Dave Ruppel, Front Range Airport Director. "Reaction Engines has been outstanding to work with and we are looking forward to being a small part of their ongoing success."

Colorado has a long history as a leader in the U.S. aerospace sector, and provides a supportive and capable location for Reaction Engines' expanding U.S. activity.

"Colorado is a leading aerospace state known for our innovative businesses that propel our growing aerospace economy," remarked Jay Lindell, representing the Colorado Office of Economic Development and International Trade. "We are proud to have Reaction Engines in Colorado at the Front Range Airport and look forward to supporting their test operations that will lead to future cutting-edge propulsion technology."

Once TF2 achieves full operations, and following the completion of HTX testing, the company plans to make the facility available to industry, technology developers, and universities who could benefit from the facility's unique test capabilities.

Distribution Statement A:

Approved for Public Release, Distribution Unlimited

END

Notes to editors

About Reaction Engines:
Reaction Engines Limited ('Reaction Engines') is a privately held and growing company based in Culham, Oxfordshire, United Kingdom. It employs over 130 people, many of whom are aerospace engineers and apprentices. Founded in 1989 to develop the technologies needed for an advanced combined cycle air-breathing rocket engine class called SABRE™ (Synergetic Air-Breathing Rocket Engine), Reaction Engines is a leading contender for the next generation of hypersonic flight and space access vehicles.

Reaction Engines, Inc. (REI) is based in Castle Rock, Colorado, where it supports the expansion of Reaction Engines development efforts and leads engagement with potential U.S. government and industry partners. The U.S. subsidiary builds upon the excellent collaborative R&D efforts already accomplished with the U.S. Air Force Research Laboratory and NASA, and positions Reaction Engines' technology for future users and markets.

SABRE is an innovative new class of aerospace propulsion that has the potential to provide efficient air-breathing thrust from standstill on the runway to speeds above five times the speed of sound in

the atmosphere. A SABRE engine can then transition to a rocket mode of operation, allowing spaceflight at up to orbital velocity, equivalent to twenty-five times the speed of sound. Through its ability to 'breathe' air from the atmosphere, SABRE offers a significant reduction in propellant consumption and weight compared to conventional rocket engines, which have to carry their own oxygen.

Ground Test and Development Program

There are three core building blocks to the SABRE engine technology: the precooler, the engine core and the thrust chamber. Each of these systems can be developed and validated using ground-based demonstrations, which saves cost and time relative to flight testing – a design feature that benefitted the development of piston/propeller, jet, and rocket engines. Reaction Engines plans to mature each of these independently over the next four years, with a high-temperature test of the precooler planned for early 2018.

Investment

Reaction Engines has received significant capital from private investors and public funding which will support its transition from a successful research phase into development and testing of the engine. In 2013, the U.K. Government announced a £60m commitment to aid preparations for the design, manufacture and testing of a SABRE demonstrator engine. In 2015, Reaction Engines announced that BAE Systems had made a strategic investment in the company and committed to a working collaboration to accelerate the development of the engine.

Orbital Launch Vehicles

As a step change in propulsion, SABRE-class engines have the potential to truly revolutionize the space launch industry.

The high efficiency of a SABRE engine and the elimination of the need to carry on-board oxidizer during air-breathing flight segments enable the development of single-stage or two-stage space launch system with aircraft-like horizontal take-off and landing operations, resulting in lower cost infrastructure and mission timelines while increasing responsiveness and system reusability. In addition, SABRE-powered launch vehicles can be designed with the ability to abort their mission and return to base – an attribute that will drive significant improvements in the reliability of space launch.

Hypersonic Mission Applications

The SABRE-class is capable of achieving air-breathing flight from Mach 0 to Mach 5+ as a single propulsion installation and is well suited for a variety of potential high-speed mission areas. SABRE enables more capable high-speed vehicles to be designed and the engine's rocket mode adds the additional flexibility to increase thrust or transition to sub-orbital flight.

Hypersonic Transport

SABRE-class engines have the potential to make the world smaller through high-speed point-to-point transport. To demonstrate the uses for SABRE engine technology in Mach 5 cruise applications, Reaction Engines engaged in a 50 percent EU-funded project as part of Framework 6 called LAPCAT — Long-term Advanced Propulsion Concepts and Technologies. This study examined the technologies

required to reduce long-distance flights, e.g., from Brussels to Sydney, to just over four hours while cruising at Mach 5.

Other Applications

Reaction Engines heat exchanger technology has the potential to revolutionize the approach to thermal management across a range of industries, from aerospace to motorsport, industrial processes, and the energy sector.

For further information please contact:

Reaction Engines, Inc.
Marketing and Communications
Tel: +1 866-764-8221
info@reactionengines.com

Reaction Engines Ltd
Marketing and Communications
Tel: +44 (0)1865 520200
enquiries@reactionengines.co.uk

More information about Reaction Engines and SABRE can be found at www.reactionengines.com