

SPACE PROPULSION SYMPOSIUM (C4)
Hypersonic and Combined Cycle Propulsion (9)

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SABRE TECHNOLOGY DEVELOPMENT

Abstract

Reaction Engines Ltd is a UK based company focused on the advancement of high-speed air-breathing propulsion systems (SABRE) that can enable low cost reusable launcher systems. Progress in the last twelve months has been rapid in both programmatics and technology development. The company's primary objective is to deliver the first test of a SABRE air-breathing core by the end of the decade. To meet this aim, technology development has focused on the design and development of compact and lightweight heat exchangers, turbomachinery for both air and intermediate cycles, the hydrogen/air combustion system, and advanced nozzles. In parallel, extensive research and ground test continues for critical aspects of the core engine installation, specifically the air intake system, and bypass combustion system. The full propulsive system will ultimately be demonstrated in a flight test vehicle following ground demonstration of the core. This paper presents key aspects of the technology development program taking place at Reaction Engines and provides an overview of the SABRE development program and demonstration engines.