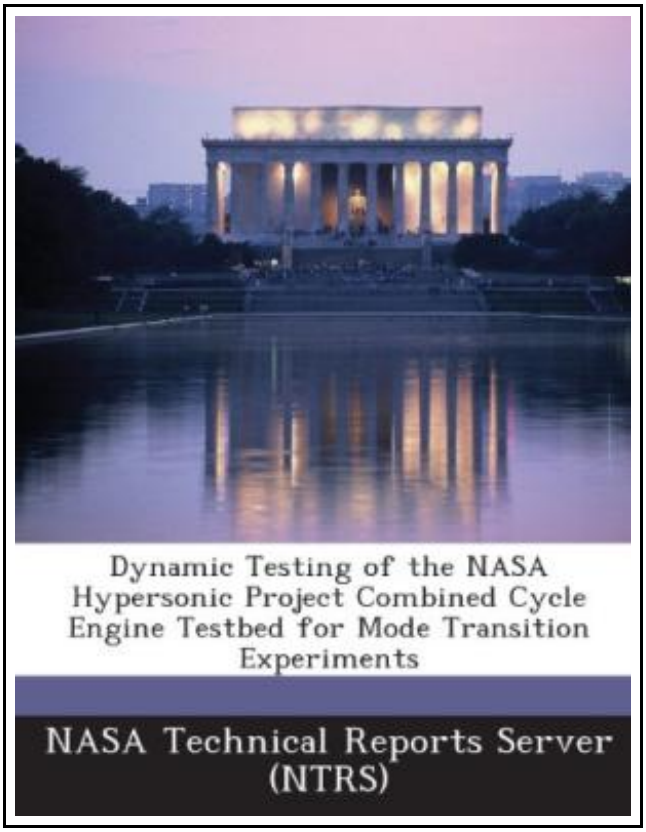
Dynamic Testing of the NASA Hypersonic Project Combined Cycle Engine Testbed for Mode Transition Experiments



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Reviews

An exceptional ebook along with the typeface employed was intriguing to see. It really is simplistic but surprises within the fifty percent of the ebook. It is extremely difficult to leave it before concluding, once you begin to read the book.

(Brian Miller)

DYNAMIC TESTING OF THE NASA HYPERSONIC PROJECT COMBINED CYCLE ENGINE TESTBED FOR MODE TRANSITION EXPERIMENTS

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BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 36 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.NASA is interested in developing technology that leads to more routine, safe, and affordable access to space. Access to space using airbreathing propulsion systems has potential to meet these objectives based on Airbreathing Access to Space (AAS) system studies. To this end, the NASA Fundamental Aeronautics Program (FAP) Hypersonic Project is conducting fundamental research on a Turbine Based Combined Cycle (TBCC) propulsion system. The TBCC being studied considers a dual flow-path inlet system. One flow-path includes variable geometry to regulate airflow to a turbine engine cycle. The turbine cycle provides propulsion from take-off to supersonic flight. The second flow-path supports a dual-mode scramjet (DMSJ) cycle which would be initiated at supersonic speed to further accelerate the vehicle to hypersonic speed. For a TBCC propulsion system to accelerate a vehicle from supersonic to hypersonic speed, a critical enabling technology is the ability to safely and effectively transition from the turbine to the DMSJ-referred to as mode transition. To experimentally test methods of mode transition, a Combined Cycle Engine (CCE) Large-scale Inlet testbed was designed with two flow paths-a low speed flow-path sized for a turbine cycle and a high speed flow-path designed for a DMSJ. This testbed system is identified as the CCE Large-Scale Inlet for Mode Transition studies (CCE-LIMX). The test plan for the CCE-LIMX in the NASA Glenn Research Center (GRC) 10- by 10-ft Supersonic Wind Tunnel (10x10 SWT) is segmented into multiple phases. The first phase is a matrix of inlet characterization (IC) tests to evaluate the inlet performance and establish the mode transition schedule. The second phase is a matrix of dynamic system identification (SysID) experiments designed to support closed-loop control development at mode transition schedule operating points...

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