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Advanced Jet Noise Exhaust Concepts in NASAs N2 Supersonics Validation Study and the Environmentally Responsible Aviation Project's Upcoming Hybrid

By Brenda S. Henderson

Bibliogov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 50 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Acoustic and flow-field experiments were conducted on exhaust concepts for the next generation supersonic, commercial aircraft. The concepts were developed by Lockheed Martin (LM), Rolls-Royce Liberty Works (RRLW), and General Electric Global Research (GEGR) as part of an N2 (next generation forward) aircraft system study initiated by the Supersonics Project in NASA's Fundamental Aeronautics Program. The experiments were conducted in the Aero-Acoustic Propulsion Laboratory at the NASA Glenn Research Center. The exhaust concepts presented here utilized lobed-mixers and ejectors. A powered third-stream was implemented to improve ejector acoustic performance. One concept was found to produce stagnant flow within the ejector and the other produced discrete-frequency tones (due to flow separations within the model) that degraded the acoustic performance of the exhaust concept. NASA's Environmentally Responsible Aviation (ERA) Project has been investigating a Hybrid Wing Body (HWB) aircraft as a possible configuration for meeting N2 system level goals for noise, emissions, and fuel burn. A recently completed NRA led by Boeing Research and Technology resulted in a full-scale aircraft design and wind tunnel model. This model will be tested acoustically in...

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