

Research on Supersonic Inlet Bleed

NASA Technical Reports Server (NTRS), et al., David O. Davis

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Research on Supersonic Inlet Bleed

By David O. Davis

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 34 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.Phase I data results of the Fundamental Inlet Bleed Experiments project at NASA Glenn Research Center (GRC) are presented which include flow coefficient results for two singlehole boundary-layer bleed configurations. The bleed configurations tested are round holes at inclination angles of 90deg and 20deg both having length-to-diameter ratios of 2. 0. Results were obtained at freestream Mach numbers of 1.33, 1. 62, 1. 98, 2. 46, and 2. 92 and unit Reynolds numbers of 0. 984, 1. 89, and 2. 46 10(exp 7)m. Approach boundary-layer data are presented for each flow condition and the flow coefficient results are compared to existing multi-hole data obtained under similar conditions. For the 90deg hole, the single and multi-hole distributions agree fairly well with the exception that under supercritical operation, the multi-hole data chokes at higher flow coefficient levels. This behavior is also observed for the 20deg hole but to a lesser extent. The 20deg hole also shows a markedly different characteristic at subcritical operation. Also presented are preliminary results of a Computational Fluid Dynamics (CFD) analysis of both configurations at the Mach 1....



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