



A Comparison of the Potential and the Euler Formulations of the Equations of Motion for Transonic Flow (Classic Reprint) (Paperback)

By Kevin McGrattan

Forgotten Books, 2018. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****. Excerpt from A Comparison of the Potential and the Euler Formulations of the Equations of Motion for Transonic Flow It is well known that the most efficient cruising speed of modern commercial aircraft lies in a range of free stream Mach numbers M_0 near 7, where the fluid flow past the body may be characterized as transonic or supercritical. The flight efficiency is measured by the dimensionless parameter $M_0 C_L C_D$, where C_L and C_D are the coefficients of lift and drag, respectively. In this range of Mach numbers a region of supersonic flow forms above the wing, which is terminated by a shock wave across which the pressure, density, and velocity of the fluid change rapidly. A rapid rise in the drag due to these shock waves, which reduces the overall flight efficiency, occurs in the transonic range. The goal of the aeronautical engineer is to design supercritical airfoils that will postpone the onset of strong shocks until a higher cruising speed can be attained. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books....



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