Numerical Computation of Hypersonic Flow Past a Two-Dimensional Blunt Body (Classic Reprint)

By Eva V Swenson

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Numerical Computation of Hypersonic Flow Past a Two-Dimensional Blunt Body Given a two-dimensional blunt body in a steady supersonic flow of compressible fluid, the problem is to study the flow between the body and the detached shock wave formed in front of it. In this paper, the shock shape is assumed to be analytic and we use it as an initial line in solving a Cauchy problem for the flow and the body. Hyperboliclty of the partial differential equations of motion is achieved in the subsonic region by means of complex extension on one of the independent variables. By means of such a substitution the first order system of nonlinear equations in two dimensions is transformed into a symmetric hyperbolic system in three independent variables. Such an increase in the number of independent variables can be avoided if the equations are written in normal form with respect to two characteristic coordinates. Difference Schemes of second order accuracy are derived for both formulations of the complex extension and they are programmed for the IBM 7090. Five...

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