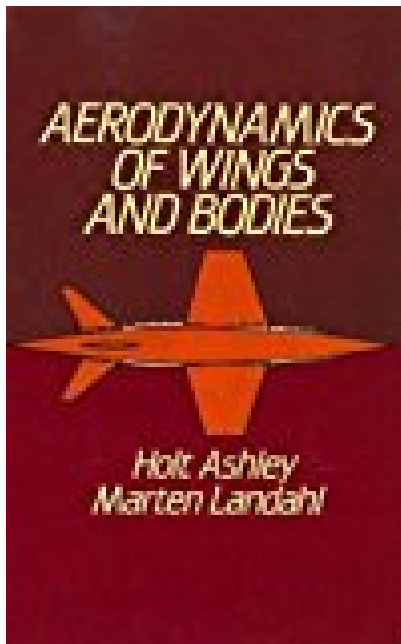


Aerodynamics of Wings and Bodies

Dover Books on Aeronautical Engineering



BOOK DETAILS

- Author : Holt Ashley
- Pages : 304 Pages
- Publisher : Dover Publications
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BOOK SYNOPSIS

Amid a welter of topics on the aeronautical engineering curriculum-hypersonic fluid mechanics, heat transfer, nonequilibrium phenomena, etc.-this concise text stands out as a rigorous, classroom-tested treatment of classical aerodynamic theory-indispensable background for aeronautical engineers and the foundation of current and future research. The present volume is also unique for its recognition of matched asymptotic expansions as a unifying framework for introducing boundary-value problems of external flow over thin wings and bodies. In addition, the book fully acknowledges the important role of high-speed computers in aerodynamics. After a short review of the fundamentals of fluid mechanics, the authors offer a fairly extensive treatment of constant-density inviscid flow. Chapter 3 deals with singular perturbation problems, presenting an extremely useful technique not to be found in most texts. Subsequent chapters give solid basic coverage of these topics: Chap. 4-Effects of Viscosity Chap. 5-Thin-Wing Theory Chap. 6-Slender-Body Theory Chap. 7-Three-Dimensional Wings in Steady, Subsonic Flow Chap. 8-Three-Dimensional Thin Wings in Steady Supersonic Flow Chap. 9- Drag at Supersonic Speeds Chap. 10- Use of Flow-Reversal Theorems in Drag Minimization Problems Chap. 11- Interference and Nonplanar Lifting Surface theories Chap. 12- Transonic Small-Disturbance Flow Chap. 13-Unsteady Flow Ideal as a primary or supplementary text at the graduate level, *Aerodynamics of Wings and Bodies* also offers working engineers a valuable reference to the results of modern aerodynamic research and a selection of new and useful analytical tools. Holt Ashley is Professor of Aeronautics/ Astronautics and Mechanical Engineering at Stanford University. Marten Landahl is in the Department of Aeronautics and Astronautics at M.I.T. and in the Department of Mechanics, The Royal Institute of Technology, Stockholm.

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