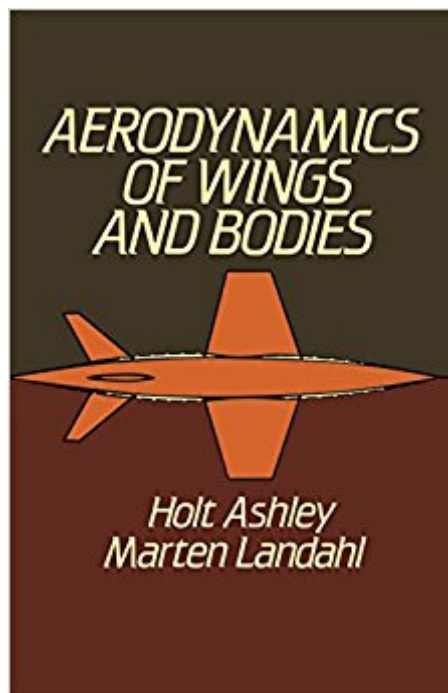




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# Aerodynamics Of Wings And Bodies (Dover Books On Aeronautical Engineering)



## 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.

## Book Information

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## Customer Reviews

The book is Copyright 1965. The fact that it is still in print says a lot about it. It must be a well-regarded standard text. The preface says that the book evolved from notes for a two-term course presented by the authors to grad students at the MIT Department of Aeronautics and Astronautics. The book contains chapters on Review of Fluid Mechanics, Constant Density Inviscid Flow, Singular Perturbation Problems, Effects of Viscosity, Thin Wing Theory, Slender Body Theory, 3D Wings in Steady Subsonic Flow, 3D Thin Wings in Steady Supersonic Flow, Supersonic Drag, Use of Flow Reversal Theorems, Interference and Nonplanar Lifting Surface Theories, Transonic Small Disturbance Flow, and Unsteady Flow. The book looks to be a very complete and very mathematical treatment of subsonic and supersonic aerodynamics. Unfortunately, the math was well beyond what I remember from my long-ago calculus classes. It is probably a 4 to 5 star book for its target audience.

Thanks a lot for your kindness and goods

This book is written by two acknowledged legends in aeronautical engineering and should be approached only by advanced aerodynamicists. Basic derivations for airfoils and wings given in other texts such as Anderson are rapidly skipped over. This allows the book to cover much more advanced material such as unsteady flow and supersonic drag in a relatively small number of pages. As a graduate student myself, I would be extremely afraid of taking the class this book arose from. Expect a pounding headache after reading this text.

Just about everyone who considers a home built aircraft enters the domain with questions. While formal education isn't required, those who want to learn about designing will find this an excellent read for under 140 pages. This book will familiarize any inquisitive mind with facts about building propeller planes that fly under 250 mph. It does cover some faster flying planes for more experienced aviators. The illustrations cover the subject matter well at the average of one photo or drawing per page and will keep your interest high. My hats off to writer Dr. Daniel P. Raymer for his

good technical writing talents. A lot more people would be attending college if books were written this way.

This is a great book that should benefit readers with a strong mathematical background at senior graduate or postgraduate level in aerospace engineering studies. Those outside this bracket may find the book a challenge to understand and follow as they can very easily be overwhelmed by the mathematics. The book has stood the test of time and is a must for specialists in aerodynamics or fluid mechanics who need a rigorous treatment of the subject. All-in-all, a good book for those who can handle advanced mathematical manipulations particularly those carrying out studies at Masters or Doctoral level.

This book is deceptively titled. It gives no inkling of the density of the math involved. It should properly be titled "A rigorous mathematical treatment of the Aerodynamics ..." I doubt I could have followed this back when I was immersed in physics and engineering courses in college. I certainly bounced right off of it 15 years later. This book should not even be available outside of University Bookstores' Engineering sections. There is simply no point in anyone else buying it.

This book may be a good supplement to advanced fluids majors but there is no description of the mammoth equations used in this text. I bought this in 86 for my aero course and never used the book.

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