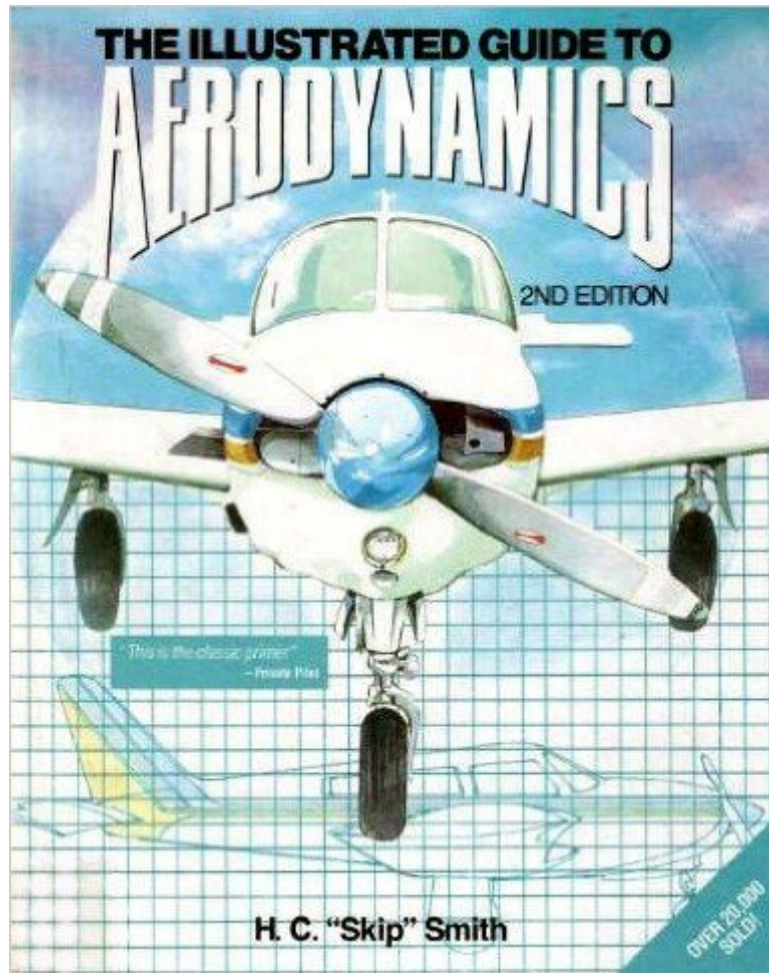


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# The Illustrated Guide To Aerodynamics



## Synopsis

Most pilots and flight students wince at the mention of the term "aerodynamics" because most courses and books dealing with the subject do so using complicated scientific theory and intricate mathematical formulas. And yet, an understanding of aerodynamics is essential to the people who operate and maintain airplanes. This unique introductory guide, which sold more than 20,000 copies in its first edition, proves that the principles of flight can be easy to understand, even fascinating, to pilots and technicians who want to know how and why an aircraft behaves as it does. Avoiding technical jargon and complex calculations, Hubert "Skip" Smith demonstrates how aerodynamic factors affect all aircraft in terms of lift, thrust, drag, in-air performance, stability, and control. Readers also get an inside look at how modern aircraft are designed-including all the steps in the design process, from concept to test flight and the reasoning behind them. This edition features expanded coverage of aircraft turning and accelerated climb performance, takeoff velocities, load and velocity-load-factors, area rules, and hypersonic flight, as well as the latest advances in laminar flow airfoils, wing and fuselage design, and high-performance lightplanes. Question and answer sections are added for classroom use. --This text refers to the Paperback edition.

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## Customer Reviews

Unless one has considerable experience interpreting mathematical formulae, it may be worth their while to consider a book such as this before reading a university level aerodynamics textbook. The textbook will be made somewhat more comprehensible knowing the basic principle which a more

descriptive book, such as this one, can teach simply. Most textbooks in the subject, even those meant as introductory, give a painfully mathematical and theoretical treatment with insufficient verbal explanation. They are meant for complete school courses, where a teacher can qualitatively describe the physical principles. Without the benefit of professors, a book like Smith's is required to provide the intuitive capacity which then makes the textbooks useful. The Illustrated Guide to Aerodynamics was not prepared as a university textbook, hence its semi-quantitative, largely practical, explanation of aerodynamics principles, but students will still find it valuable in reducing the effort needed when they turn to their textbooks. The important concepts are all covered and explained well, along with aerodynamics terms and design considerations. Use this book to help you understand, the others to help your grade point average. Smith's book would also be understandable to those who are not students, but do want to know about the physical principles involved in aircraft flight. Many diagrams and graphs explain the subject matter in pictures. A knowledge of basic mechanics and basic fluid mechanics is required, however. My only complaint is the author's use of English units on an SI continent. English units are somewhat forgivable however, since aerodynamics and fluid mechanics are areas which continue to resist complete conversion to SI. In any case, the formulae in the book are meant mainly to illustrate cause and effect relationships. Though the book was for the topic of flight, some basics in materials and structures would have been welcome too. Thank you, "Skip", for writing a comprehensive book on aerodynamics which is enjoyable and comprehensible. You have taught us to read aerodynamics.

I found Skip Smith's book to be an excellent layman's introduction to aerodynamics. Fluid mechanics does not usually make for interesting, easily comprehensible reading, but Dr. Smith's book is clearly the exception. I'm constantly irritated by the very inaccurate descriptions of aerodynamics given in many flying magazines and instructional books. This book has none of those common errors. Reading this book should greatly increase the average pilot's knowledge of how his plane flies and what huge design constraints aeronautical engineers have to live with. Highly recommended reading for all those who are interested in learning more about the principles of flight.

This is a great book. If you have a good grasp of algebra you can grasp most key facts about aerodynamics. Most other texts require a level of comfort with differential equations that I don't have. This is my second copy as my first copy went missing.

The best basic introduction to aerodynamics that has ever been published that I am aware of. Very

clear and well written and illustrated. I love this book. You will not need advance mathematics to follow along, although some college physics or engineering will certainly be helpful.

This book was just right for what I was looking for. Not too much math represented, just a little algebra and geometry. There are a few areas I wish I could've asked a question to the author, but overall this is a good intro to the basic principles of aviation.

This guide is an excellent primer for anyone in college, anyone who has a technical degree, or has a strong background in high school science. This is the first time I have ever seen aerodynamics presented in a form this concise and well explained. The book is a great supplement to the classic "Stick and Rudder - an explanation of the art of flying" (Wolfgang Langewiesche). My degree is in aerodynamics and the guide provided me with many hours of enjoyable reading which brought back many wonderful memories of my aerodynamics classes. The illustrations are excellent and make the material much more digestible.

I read this book for research that I am doing at school. In this book the author carefully and slowly explains the principles of aerodynamics. His approach is perfect for those of us who are new to the subject. The layout of the book makes sense. The book includes many examples along with thorough explanations of these examples. (He also gives many interesting anecdotal comments.) Additionally, the author's handling of the material is simple, but not so basic that one cannot get a full understanding of aerodynamic forces acting on an airplane and on the structures that comprise the vehicle. This book is a very useful reference for understanding aerodynamic forces and how these forces can be determined and predicted.

Extremely easy to understand aerodynamics guide. It is a good intro, but leaves an engineer with a myriad of question marks. It could have been a lot better with a little more analysis coupled with the excellent conceptual explanations.

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