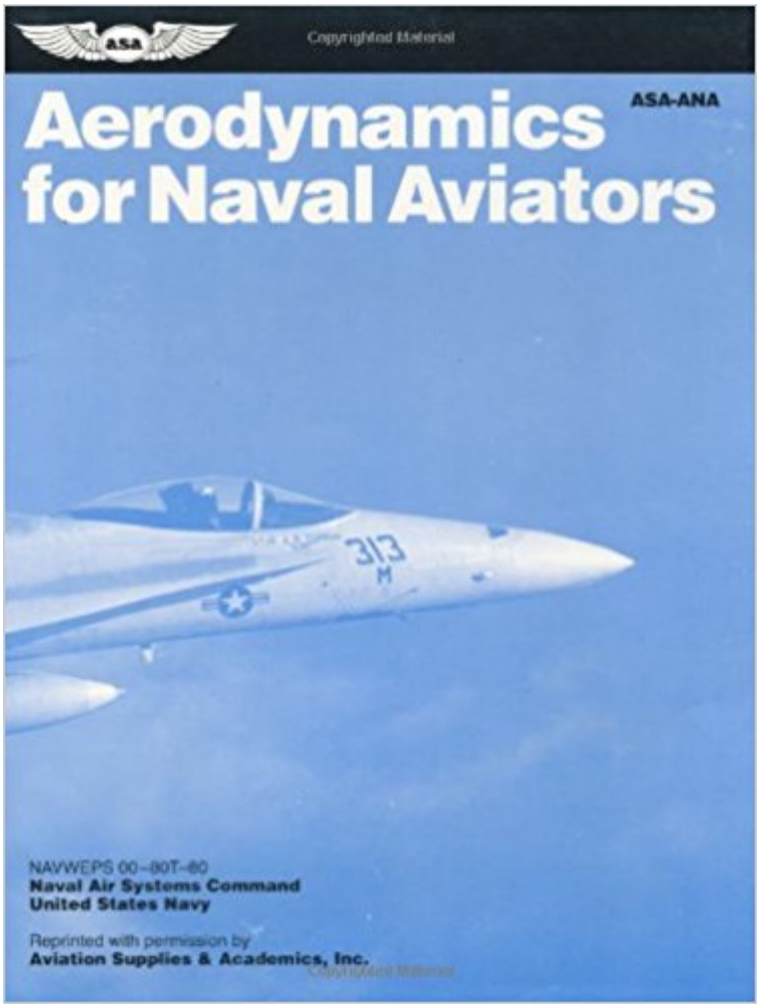
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Aerodynamics For Naval Aviators (FAA Handbooks)



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Synopsis

This series of textbooks and supplements for pilots, student pilots, aviation instructors, and aviation specialists provides information on every topic needed to qualify for and excel in the field of aviation. Most FAA Knowledge ExamsÃ¢â ¬â„¢ questions are taken directly from the information presented in these texts.This textbook presents the elements of applied aerodynamics and aeronautical engineering that directly relate to the flight training and general flight operations of naval aviators.

Book Information

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Customer Reviews

Updated with the latest government procedures and regulations

The Federal Aviation Administration is the government agency that oversees and regulates the aviation industry, pilot licensing, and airspace in the United States.

Want to know what Naval Aviators know? This has some of it. Want to know what Aerodynamic Engineers know?....This has a lot of it.

Here’s my very simple take on this book: if you operate (fly) airplanes of any kind, you need to have this book in your easy-to-get-to library. Period.My only negative comment is that the current "FAA reprint version" (How did they get involved? This is not a typical "How to" FAA kind of

publications!)of the original NAVOPS manual is of very poor reproduction quality. The photos and artwork look "muddy" compared to an original copy of the manual. The text is not crisp, while some of the photographs of wind tunnel demonstrations are simply not understandable unless you know already what you're looking at.Although it was written in 1959 by Hugh Hurt of USC under contract to the U. S. Navy (and thus its copyright came into the public domain), it remains as relavant and informative today as it was when the ink was drying on the first press run! Incidentally, this same book also had a brief life as an Air Force manual, ATCM 51-3, Aerodynamics for Pilots, used by Air Training Command as a reference text in the pilot training program during the 1960s. The USAF version simply replaced the motivational photos of Navy aircraft with USAF models, but the manual was otherwise identical. It was eventually replaced by a much less rigorous edition, about one third the size and scope, that was, by comparison, almost useless. Seems that people found it too challenging, especially all that math -- a point I'll address below.Some of the material will shed "AH-HAH!" kind of light on day-to-day routine things; other topics will inform how you ought to approach the extraordinary, whether it's a sudden weather change, or an in-flight emergency.Not every pilot will find all chapters equally interesting. Also, experience has shown that the majority of pilots who are interested in the details of aerodynamics seem to gravitate towards the performance aspects of aircraft flight: Performance is generally easier to understand, but the real details of how the aircraft's inherent properties as seen by the pilot are only revealed in the sections on stability and control. Don't slight those chapters.A suggestion about approach: even though you may have never flow a jet-powered aircraft and have little prospect of doing so, don't think that it's a waste of time to learn about the details of jet aircraft aerodynamics (as distinct from propeller aircraft). Why? Because it's easier to learn first about how a jet-thrust aircraft behaves without the complications such as torque, brake horsepower, etc., introduced by getting thrust from an "air screw." Once you're clear about these basics, then you will be able to understand a little easier how various performance and stability and control issues are affected by the propeller/recip combination.Thus, the book is clearly oriented toward the operator/pilot and the things he has direct control over, or things that will affect his decisions or decision-making process, or choices of technique of how to operate his airplane. (You might be surprised to discover that a lot of techniques that are around were developed as easy-to-use compromises, needed simply because people didn't know the underlying details -- not because they're naturally the best way to do something.)The only persistent objection to this text over the years has concerned its routine use of math, consisting basically of simple algebraic expressions, with some trig thrown in occasionally when trying to analyze things going on at some angle, such as bank or climb angles. There is also frequent use of simple graphs

that show important relationships between two variables, say, angle of attack and the wing's lift coefficient.Well, it's an accurate observation, but it's not a fair criticism -- and it's certainly not a valid reason to not use and study the text.The book presents the derived equations, the results, obtained from other texts, whereby the pilot can see the physical terms that affect some aerodynamic terms (e.g., lift). In doing so, you also see two essential things: first, how the terms are related to one another; secondly, how changing each of them, alone or in groups, affects the airplane's overall behavior. You see, for instance, what's really going on when you operate from a high elevation airport in the summer vs. winter, how the change in density altitude affects lift, drag, engine performance, etc. Without the results-based math that this book uses, you're really guessing or relying on what other people pass along as rules of thumb.Can you fly an airplane without knowing how to interpret the meaning of an equation? Of course. People do it every day. But: can you fully understand what you're doing without knowing the full scope of information that the equations are conveying? No, not really. Besides, it's a real kick to be able to visualize an equation, say of maneuvering flight, and translate that mental picture into a series of control inputs that make the aircraft do exactly what you want it to do, as you bring that mental picture into reality.For example, once you learn to think, to visualize, in terms of knowing that an airplane's turn radius is proportional to the square of its true airspeed, you know a great deal more than the person who simply knows that as the speed increases, the turn gets bigger. If you understand the relationship between the wing's lift coefficient vs. angle of attack, you'll also have a deeper understanding of the most effective techniques for flying final approach at a given airspeed and how you might safely modify your approach for unusual conditions, such as weather or being confronted with a shorter-than-expected runway.If you don't learn the language that conveys the details of Why the airplane behaves as it does, you're always going to feel a little uncomfortable, uneasy perhaps, just as you would if you were at a party and everyone was speaking some foreign language. This is especially true when you encounter a situation that the normal procedures -- the How of it -- were not intended to address. If you don't have this underlying understanding, you'll find yourself in a position of having to play "test pilot" -- without the benefit of the training and experience that usually goes with that title!The last point to make concerns the book's age: it is more than 40 years old now. The short answer is that airplanes still only talk Newton and Bernoulli, etc., and those guys never get too old. The advent of the "electric airplane" hasn't changed the basic aerodynamic issues the pilot must understand. Rather, electronics largely just alters the economics of flying and has also enhanced safety considerably. Technologies such as anti-skid brakes or 3-axis autopilots have been around for over 50 years, working exactly according to the same principles then as they do

today. What has changed is how much it costs to get the capability. In 1950, anti-skid braking on a military aircraft might add $50,000 to the cost of the aircraft. Today, the same system functionality is installed in cars, no less, for under $25.00! The variables (the equations) that describe stopping distance have not changed, however. For private pilots especially, e.g., the single-engine Cessna variety, the airplanes generally available to that market are much older than the book is. Even if they do have an expensive Glass Cockpit, from a performance and handling qualities standpoint a 172 is still a 60-year old airplane, no matter what the instrument panel looks like or its date of assembly.A final comment: In my opinion, anyone who aspires to a high level of aeronautical proficiency that ultimately has safety as a major objective, anyone who wants to truly master his or her craft, needs to be able to study and learn at the level of detail and rigor presented in Hurt's technical masterpiece. It's a true classic.

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Good book needed for a class I was taking. Fast delivery.

This book is no doubt one of the best books ever on the subject, unfortunately the Kindle version is seriously flawed in terms of format, to the point of being almost useless! WARNING: Do not buy the Kindle version of this book!

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