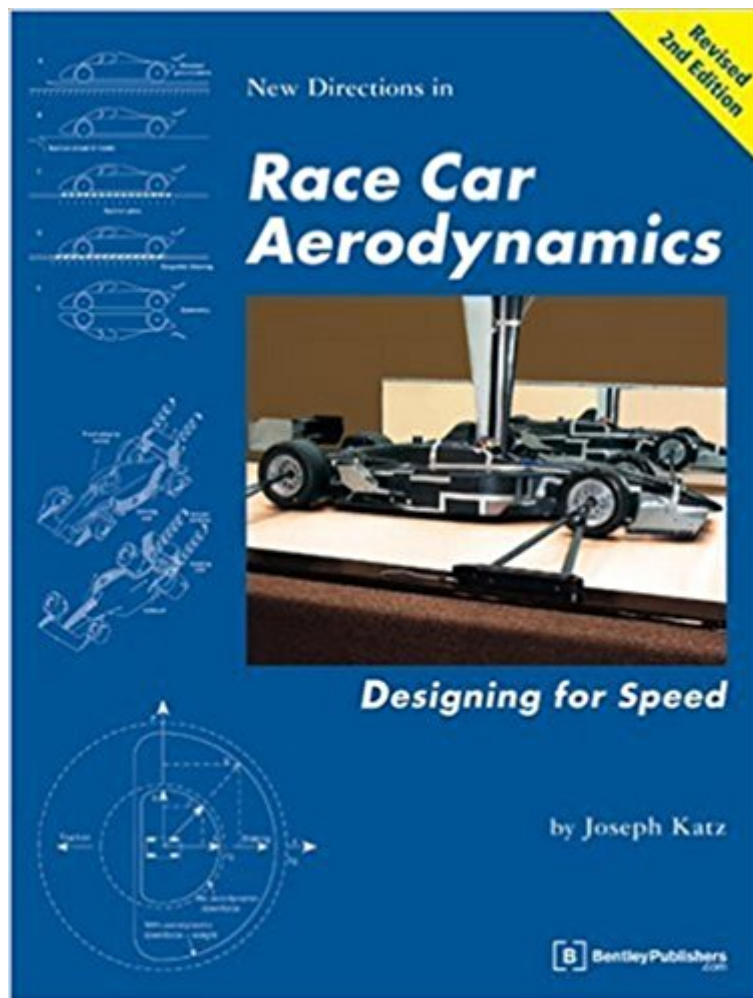




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# Race Car Aerodynamics: Designing For Speed (Engineering And Performance)



## Synopsis

The first book to summarize the secrets of the rapidly developing field of high-speed vehicle design. From F1 to Indy Car, Drag and Sedan racing, this book provides clear explanations for engineers who want to improve their design skills and enthusiasts who simply want to understand how their favorite race cars go fast. Explains how aerodynamics win races, why downforce is more important than streamlining and drag reduction, designing wings and venturis, plus wind tunnel designs and more.

## Book Information

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## Customer Reviews

This is my first book review since high school (52 years ago), so please keep that in mind. My interest in racing is in making a 36 HP (modified) Volkswagen go as fast as it can in a straight line at Bonneville and other tracks, which is very much affected by the aerodynamics of the situation, so I was interested in finding out what this book has to say about it. Many race cars are also required to go around corners fast, which is what this book is mostly concerned with. Author Katz explains that the aerodynamic forces that push a car down onto the ground very greatly affect the cornering (and braking) ability of the car. The book is very much concerned with down force on the car resulting from the shape of the car. There are many pictures, explanations of how aerodynamic forces work, equations, and examples of the various aerodynamic effects caused by the shape of the car. The equations are simple enough that no one should be afraid of them. The book contains many

explanations of boundary layer, lift and drag coefficients, effects of air density and viscosity, Reynolds number, and other factors, all of which are explanations of how air flow over a car affects its movement at high speed. My concern with the various devices to increase down force on the car is limited to what is required to keep aerodynamic lift from affecting the stability of the car at high speed (for me, 100 mph). Although I want to understand these down forces, I would have liked to learn more about what it takes to reduce drag at high speed. There is a list of references at the end of each chapter, some of them probably answering this question, so I will be interested in checking them to see what they say about drag. As explained by the author, a stable situation at high speed results when the down force on the rear wheels increases more than the down force of the front wheels. How to do this is what I want to know, and the book explains how wings and underbody shape can do this. I am still considering how to do this with my VW. I obtained the first edition from the library and bought the second edition. This book will be part of my library on old VWs, and I expect to be rereading it often. If the author or anyone else reads this review, I would like to receive any comments on it.

This is a layman's account of aerodynamics for race car enthusiasts. The equations required for lift and drag are presented, minimal math because nothing is derived, and are illustrated in applications. I leave it to the non-mathematical readers to tell you if the approach worked, but it would be impossible to do the job with fewer formulae than he presents.

Aerodynamics is an important factor at any speed. The book is well written and gives lots of examples. Most of the examples are cars made before 2000 but otherwise many of the cars features are known tuner/enthusiast cars that are still found on the road today. It was easy enough for me to understand and I am not any kind of genius. There are lots of graphs, tables, and pictures to illustrate the authors point. Overall I feel I got my moneys worth and will probably end up reading it multiple times.

Excellent knowledge for up and coming aerodynamic engineers; mostly those unfamiliar with much fluid dynamics. Fun read, very informative. Mostly allows the reader to think outside the box and create critical thinking through fluid dynamics in a new light.

The author does an excellent job of giving a layman's intro to auto-aerodynamics and the text is quite useful for a fan trying to understand what all those wings, bills and slots are supposed to do on

CART, F1, IRL cars. It is clear that the author is very well versed in the subject of aerodynamics. Regrettably, he seems more intrigued by aerodynamics, than automobile aerodynamics and he draws the line of application to autos so shallowly that a serious reader will have to go to other aero-texts to actually apply what is offered here. This does not mean that he doesn't discuss at length, things like wings, slots, boundary-layers and a modest discussion of laminar flow (which is curious, since it is rarely achieved to any large degree -- the chronic automobile problem of turbulence producing bumps, ridges, seams and other protrusions, coupled with awful pressure gradients except perhaps on land speed record cars) and that part of the text is interesting. There is an ongoing -- and intriguing, but not thorough -- discussion of the exotics of the racing world and he looks at open-wheeled cars quite often, but there is a noticeable lack of discussion of open-wheel v. mud-flap bodywork. But the discussion of the challenges of racing at high-speeds in relatively stock-bodied autos is superficial at best. As an example, with all the aero-difficulties that NASCAR stockers have had staying on the ground for the past 15-years, there is limited discussion and the reader is left with one picture of an old Pontiac sedan drafting -- you will have to really read between the lines to figure out what a spoiler does, let alone how this most basic device works. However, if you dig, a reader can extrapolate some useful, but minimal, lift/drag/downforce data from some of the tables in the book...Unfortunately, the good professor didn't give us the benefit of much of his obvious knowledge -- it seems to be an honest look at the automobile, but through the eyes of a Cessna, Boeing or Lockheed designer. A great book at half the price, but if your interests or racing rules require a relatively stock sedan or sports-car body configuration, there are other books with a more thorough treatment of the subject in this price range.

A good book with plenty of references to other books to find specific information you might be after.

It's good for me!! and delivery was very fast!

This book is great for understanding the math involved with aerodynamics. It reads like a textbook - facts with examples and evidence. A really great read so far. I'm just a hobbyist, but I'm fascinated by fluid/aerodynamics.

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