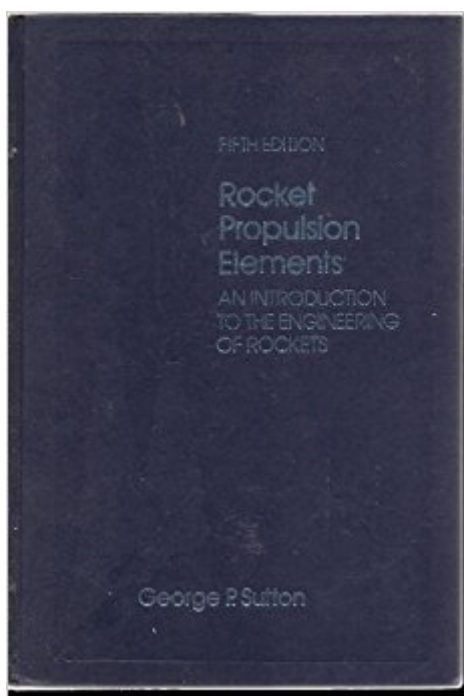


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# Rocket Propulsion Elements: An Introduction To The Engineering Of Rockets



## Synopsis

A revision of the standard text on the basic technology, performance and design rationale of rocket propulsion. After discussing fundamentals, such as nozzle thermodynamics, heat transfer, flight performance and chemical reaction analysis, the book continues with treatments of various types of liquid and solid propellants and rocket testing. It brings together the engineering science disciplines necessary for rocket design: thermodynamics, heat transfer, flight mechanics, chemical reactions and materials behavior. SI units and information on computer-aided testing have also been added.

## Book Information

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## Customer Reviews

**Aerospace Engineering/Mechanical Engineering** The definitive text on rocket propulsion-now completely revised to reflect rapid advancements in the field For more than fifty years, this seminal text has been regarded as the single most authoritative sourcebook on rocket propulsion technology. More comprehensive and coherently organized than any other book on the subject, *Rocket Propulsion Elements* guides readers evenhandedly through the complex factors that shape propulsion, with both theory and practical design considerations. With more than a third of the text and illustrations either completely new or extensively revised, this latest edition includes current information on engine structures, nozzle theory, gas properties, thrust chambers, launch vehicles, and more. With a detailed table of contents breaking down each chapter into subsections-as well as an expanded index of key words-the Seventh Edition efficiently steers readers quickly to the information they need. Other highlights include: \* Separate chapters on liquid, solid, and hybrid

propulsion systems and a new chapter on thrust chambers including the new aerospike nozzle \* Comprehensive coverage of rocket propulsion technology, with applications to space flight, satellite flight, and guided and unguided missiles \* Problem-solving examples and exercises relevant to actual design situations \* More than 340 illustrations, including photographs, tables, and graphs \* Coherent, up-to-date chapter on electrical propulsion balancing fundamentals with practical aspects and applications For professional engineers in the aerospace and defense industries as well as undergraduate and graduate students in mechanical and aerospace engineering, this time-honored resource is indispensable for its scope of coverage and utility. --This text refers to an out of print or unavailable edition of this title.

GEORGE P. SUTTON is a consultant for the aerospace industry. He formerly served as Executive Director of Engineering at Rocketdyne (now The Boeing Company) and as a Laboratory Associate at Lawrence Livermore National Laboratory. OSCAR BIBLARZ is a Professor in the Department of Aeronautics and Astronautics at the Naval Postgraduate School in Monterey, California. --This text refers to an out of print or unavailable edition of this title.

I have loved rocket propulsion in all its forms (real and imagined) since I was following the Apollo 11 mission on television. This book will help you with every aspect of rocketry whether for direct professional relevance, hobbyist development or whether you dream with many of us of solving the problems that will allow us (as so eloquently put by the late Carl Sagan) to "dip our toes in the cosmic ocean". I believe we must swim between the stars and the nuts and bolts foundations for doing it are in this book. Go get it. Lets do it.

This is a very well written book. I find it easy to read and understand and conveys essentials quickly. I would highly recommend this book for anyone who either wants to improve their knowledge about Rockets or people who are in an upper division class regarding rocket propulsion

Excellent material, and well organized.

This is the best book on rocket propulsion that I have seen. The reading is smooth and the jargon is kept to a simple amount to understand with out being a rocket scientist. Diagrams and charts are excellent in explaining what the author is talking about. Author keeps it simple for all!!

This was a required test for a rocket propulsion class, but it has become an invaluable resource for many classes. Purchased for at least 20% less than other outlets.

The product was what i asked for, so that is pleasing. The transaction was safe and reliable. Thank you

I picked up this book in a used bookstore on a lark, tossed it on my "in" pile of books, and there it languished for a year or so. When I finally picked it up as a cure for insomnia, I managed to make my way through 2/3 of the thing before finally falling asleep. This book is marvelous. I had no idea what was involved in real rocket science, but quite a bit. Vibration physics, thermodynamics, chemistry, injectors, turbopumps... The book would make a wonderful practical course for, say, a senior physics student, to test his knowledge of different fields. I was also struck by the elegant simplicity of the models which were actually used to design the rockets we use today. This is no cookbook of differential equations for finite element analysis and doing what the idiot box says; this harkens back to when engineers used slide rules, and designed things they really understood. The elegant results for nozzle shape, driven by thermodynamics (I had no idea why rockets had big nozzles like they do), and flame length estimators of rocket thrust alone were worth the price of the book. I had no idea it is still used as a textbook for rocketry (I have the second edition from 1956), but it doesn't surprise me terribly. The lucidity of the writing and derivations made this almost inevitable. I'm sure there are more practical books in Russian, but there aren't in English, so this one will remain a classic until Americans begin to do real rocket science again.

When as a young physicist I started working on rocket nozzle design most of the material in this book had to be dug up from a paper here, a book there, or else it simply wasn't known. Now here's everything you need to know in a couple of chapters. And besides nozzle design, here in information on virtually every aspect of rockets from the design to the propellents, from concepts to testing. Most of the book is on conventional liquid or solid fuel chemical rockets, because that's where most of the action is today. There is a new chapter (from my older edition) on electrical propulsion. The book is suitable for use as a textbook for either a one or two term course, or as an introductory book to an engineer now moving into the field, or as a reference book for the experienced. It is especially good to use when you need to come up to speed on some area of the business where you don't normally work. The one weakness of the book is the lack of discussion on computers either in terms of engine control systems or of the design software that is available. Next

revision I guess.

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