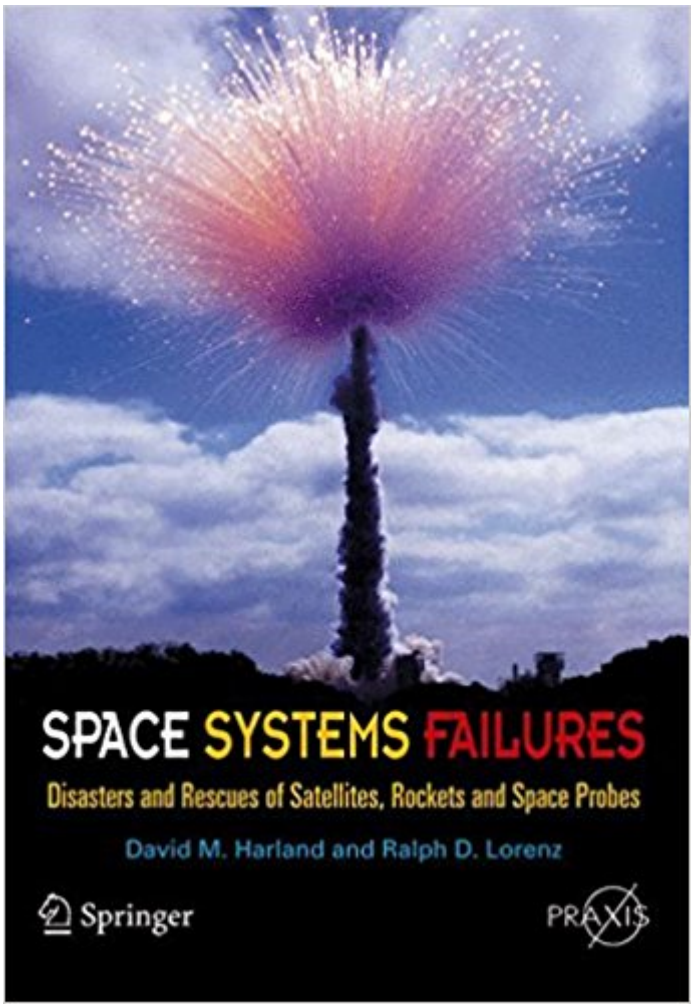
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Space Systems Failures: Disasters And Rescues Of Satellites, Rocket And Space Probes (Springer Praxis Books)



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Synopsis

The very first book on space systems failures written from an engineering perspective. Focuses on the causes of the failures and discusses how the engineering knowledge base has been enhanced by the lessons learned. Discusses non-fatal anomalies which do not affect the ultimate success of a mission, but which are failures nevertheless. Describes engineering aspects of the spacecraft, making this a valuable complementary reference work to conventional engineering texts.

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Customer Reviews

From the reviews: "Harland (space historian) and Lorenz (Univ. of Arizona, Tucson), using occasional flashes of humor, explore in depth the wide variety of causes of failure of space systems Ã¢â ¬Â¦. The material is very practical, punchy, and straightforward, presented in a refreshing writing style. The book contains many Ã¢â ¬Â¦ illustrations, extensive references at the end of each chapter and a full 14-page index. Ã¢â ¬Â¦ it is a must for scientists and engineers engaged in or planning a career in space systems. Summing Up: Recommended." (W. E. Howard, CHOICE, November, 2005) "This book is the literary equivalent of the Ã¢â ¬Ëœtell-allÃ¢â ¬â„¢ TV documentary and should meet most of its readersÃ¢â ¬â„¢ vicarious interests in what can go wrong in Ã¢â ¬â œ or on the way to Ã¢â ¬â œspace. Ã¢â ¬Â¦ The book is pretty well encyclopaedic Ã¢â ¬Â¦. The book is illustrated with black-and-white photos and diagrams Ã¢â ¬Â¦. On balance,

this book is well researched and referenced Ã¢â ¬Â¦ . Anyone involved in the design, manufacturing and operation of spacecraft and launch vehicles should read this book Ã¢â ¬Â¦ and learn." (satellite-evolution.com, May/June, 2007)

... by which I mean a small amount of information about each of a large number of facts, with very little analysis or insight. And, just about as interesting to read as chapter after chapter of encyclopedia entries.Looking at each chapter’s bibliography, you can tell that the authors spent a lot of time poring over back issues of Aviation Week and other publications, so that might save you some time if you are researching a specific failure. And they do have a very extensive collection of failures - this is not just Apollo 13 and Ariane 5.I was surprised to find mention (and a small amount of detail) of some of the relatively minor programs I have been involved with over the last 15 years or so. However, the visually spectacular failure of the Conestoga launch vehicle (certainly in the category of "minor players") wasn’t covered, so this can’t be said to be a definitive collection of every launch or spacecraft failure.If you want to know how failures are analyzed post-mortem, or what processes and procedures are put in place to learn from those mistakes, you won’t find it here. This is really just a diary of the timeline of failures in the Space Age.

This book examines failures related to space exploration in general. It is thorough, much more than I expected. A bit depressing, but it provides invaluable insight into the science, art and craft of building and launching satellites.The book is divided in two quite different parts: launchers and satellites, with a special chapter on repairs undertaken from the space shuttle.The launcher part is organized by launchers types, and has a very good objective of putting things in historical perspective, a very good point. The satellite part is organized by failures types. This is a wise way to do in this case.There is not much to do in case of problems on a launcher apart from doing fault analysis, with corrections to be applied to the next launches. This is quite different and much more interesting with problems on satellites or probes.They are examples of missions which looked like total write-offs being rescued by the skills and intelligence of engineers using treasures of imagination and ingenuity to rescue a mission, sometimes exceeding the objectives planned originally for the mission. (Hipparcos, Deep Space 1, etc) This makes the reading of this section very interesting, sometimes feeling like a thriller.The real added value of this book is the description of the incredible ingenuity applied by engineers and operators to solve the problems when a satellite fails in orbit, therefore out of physical reach. This is the best part and shows that in general, human being are better to adapt to given situations and solve problems imposed on them than being able to

predict them and act accordingly beforehand.This is proven by the number of incredibly stupid faults described in the book, from the decimal point misplaced, to the calculations made in imperial units instead of metric, leading sometimes to billion size dollars bills.I regret that some important recap tables (page 157) and some figures are not better printed or be made more readable. Also a good improvement would be to put a success/failures table at the end of each section covering a given launcher.Also, I regret the absence of a simple tutorial chapter explaining the basics of rocket and satellite event recording and telemetry, the amount and nature of the parameters recorded, the various captors and a basic description of the procedures of post-mortem analysis. This would help appreciate even more the reading of the book.Patrick Haubrechts Geneva Switzerland

The references at the end of each chapter are mostly from Aviation Week. Basically, it is a collection of the press releases and Aviation Week reporting on the incidents covered in the book. That IS useful, but it could be so much more powerful with the insight that engineers who worked these programs could have brought.All the information is available and some of the conclusions don’t stand the test of time. One glaring example, when discussing the Chinese launch of commsats "18 July 1998 effectively marked the end of Chinese participation in the commercial launcher market." This has proved laughably untrue as China is one of the dominate players, whereas it is the USA that pushed out of this market.

Some reviewers are complaining that this book doesn’t have "enough detail." But bear in mind that the title has a LOT of ground to cover -- there’s no shortage of incidents in it. So unless you’re looking for a "doorstop" book, you have to expect that any given failure will / can get only so much coverage.I’d recommend you look at this as an encyclopedia of aerospace failures. You can go deeper with some work online, but this will give you plenty of material at an overview level.

Engaging and interesting. Not your average textbook!

Lessons learned from past missions are extremely useful. This is an easy read, and a valuable addition to the collection of any engineer, in any discipline.

This is just a long list of failures, apparently consolidated from aerospace magazines. There is a little attempt to summarize or draw lessons learned, but they are inadequate. Don’t bother with this book.

As many other reviewers have noted, this book goes into great detail to describe failures that occurred in many space missions, failures that involved everything from catastrophic booster failure to simple blown fuses. To be honest, I found most of these to be rather boring, and even the more dramatic were presented in a dry fashion. Moreover, as some have noted, there is only a feeble attempt to generalize these experiences and draw insightful conclusions about them. There are some interesting tidbits that can be extracted from a brisk read-through, but not much in the way of enlightenment.

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