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Rocketdyne Springer Science & Business Media

This book provides a comprehensive basics-to-advanced course in an aero-thermal science vital to the design of engines for either type of craft. The text classifies engines powering aircraft and single/multi-stage rockets, and derives performance parameters for both from basic aerodynamics and thermodynamics laws. Each type of engine is analyzed for optimum performance goals, and mission-appropriate engines selection is explained. Fundamentals of Aircraft and Rocket Propulsion provides information about and analyses of: thermodynamic cycles of shaft engines (piston, turboprop, turboshaft and propfan); jet engines (pulsejet, pulse detonation engine, ramjet, scramjet, turbojet and turbofan); chemical and non-chemical rocket engines; conceptual design of modular rocket engines (combustor, nozzle and turbopumps); and conceptual design of different modules of aero-engines in their design and off-design state. Aimed at graduate and final-year undergraduate students, this textbook provides a thorough grounding in the history and classification of both aircraft and rocket engines, important design features of all the engines detailed, and particular consideration of special aircraft such as unmanned aerial and short/vertical takeoff and landing aircraft. End-of-chapter exercises make this a valuable student resource, and the provision of a downloadable solutions manual will be

of further benefit for course instructors.

The Saturn V F-1 Engine CreateSpace

Introduction to Rocket Science and Engineering, Second Edition, presents the history and basics of rocket science, and examines design, experimentation, testing, and applications. Exploring how rockets work, the book covers the concepts of thrust, momentum, impulse, and the rocket equation, along with the rocket engine, its components, and the physics involved in the generation of the propulsive force. The text also presents several different types of rocket engines and discusses the testing of rocket components, subsystems, systems, and complete products. The final chapter stresses the importance for rocket scientists and engineers to creatively deal with the complexities of rocketry.

Liquid Propellant Rocket Combustion Instability AIAA

Most lifting bodies, or "flying bathtubs" as they were called, were so ugly only an engineer could love them, and yet, what an elegant way to keep wings from burning off in supersonic flight between earth and orbit. Working in their spare time (because they couldn't initially get official permission), Dale Reed and his team of engineers demonstrated the potential of the design that led to the Space Shuttle. Wingless Flight takes us behind the scenes with just the right blend of technical information and fascinating detail (the crash of M2-F2 found new life as the opening credit for TV's "The Six Million Dollar Man"). The flying bathtub, itself, is finding new life as the proposed escape-pod for the Space Station.

Abandoned in Place Springer Science & Business Media

Roland Miller's color photographs document the NASA, Air Force, and Army facilities across the nation that once played a crucial role in the space race.

Liquid Rocket Thrust Chambers University of New Mexico Press

Exploring these early years of aviation, Joseph Corn describes the fascinating, and often bizarre, plans for the future of manned flight and brings back to life the famous and lesser-known aviators who became American heroes.

Gravity's Rainbow DIANE Publishing

The revised edition of this practical, hands-on book discusses the launch vehicles in use today throughout the world, and includes the latest details on advanced systems being developed, such as electric and nuclear propulsion. The author covers the fundamentals, from the basic principles of rocket propulsion and vehicle dynamics through the theory and practice of liquid and solid propellant motors, to new and future developments. He provides a serious exposition of the principles and practice of rocket propulsion, from the point of view of the user who is not an engineering specialist.

Stephen Biesty's Incredible Cross-

Sections Prentice Hall
The solution of problems of combustion instability for more effective communication between the various workers in this field is considered. The extent of combustion instability problems in liquid propellant rocket engines and recommendations for their solution are discussed. The most significant developments, both theoretical and experimental, are presented, with emphasis on fundamental principles and relationships between alternative approaches.

Space Shuttle Missions Summary (NASA/TM-2011-216142) CRC Press
This children's book explores the innermost workings of some extraordinary buildings and machines. From helicopters to submarines, skyscrapers to coal mines, open up a fascinating world packed with unique and detailed cutaway drawings. Whether it's a Spanish galleon or a medieval castle, each cross-section slice or exploded view reveals what's going on inside. See the people swarming inside the Empire State Building, the workers busy backstage at the opera house, and where the crew sleeps on a jumbo jet. Included also are two impressive foldouts showing an ocean liner and a steam train. There are lots of fun facts to be discovered, and curious details are highlighted and explained. Did you know one of the funnels of the Queen Mary liner was fake and used for storing

deckchairs? And in almost every scene, there's the challenge to find a man on the toilet! With more than a million copies sold, Stephen Biesty's award-winning illustrated book is as fascinating today as it was when first published in 1992. Incredible Cross-Sections is the ultimate way to see how things work.

Liquid Rocket Valve Components AIAA (American Institute of Aeronautics & Astronautics)

Ferrari Formula 1 Car by Car is the complete guide to every Ferrari Formula 1 car that has competed since 1950.

The Rocket Company University Press of Kentucky

A rich visual history of real and fictional space stations, illustrating pop culture's influence on the development of actual space stations and vice versa Space stations represent both the summit of space technology and, possibly, the future of humanity beyond Earth. Space Stations: The Art, Science, and Reality of Working in Space takes the reader deep into the heart of past, present, and future space stations, both real ones and those dreamed up in popular culture. This lavishly illustrated book explains the

development of space stations from the earliest fictional visions through historical and current programs--including Skylab, Mir, and the International Space Station--and on to the dawning possibilities of large-scale space colonization. Engrossing narrative and striking images explore not only the spacecraft themselves but also how humans experience life aboard them, addressing everything from the development of efficient meal preparation methods to experiments in space-based botany. The book examines cutting-edge developments in government and commercial space stations, including NASA's Deep Space Habitats, the Russian Orbital Technologies Commercial Space Station, and China's Tiangong program. Throughout, Space Stations also charts the fascinating depiction of space stations in popular culture, whether in the form of children's toys, comic-book spacecraft, settings in science-fiction novels, or the backdrop to TV series and Hollywood movies. Space

Stations is a beautiful and captivating history of the idea and the reality of the space station from the nineteenth century to the present day.

Remembering the Giants AIAA

This National Association of Rocketry handbook covers designing and building your first model rocket to launching and recovery techniques, and setting up a launch area for competition.

Liquid Rocket Engine Combustion Instability Smithsonian Institution

Long before the NASA was the throes of planning for the Apollo voyages to the Moon, many people had seen the need for a vehicle that could access space routinely. The idea of a reusable space shuttle dates at least to the theoretical rocketplane studies of the 1930s, but by the 1950s it had become an integral part of a master plan for space exploration. The goal of efficient access to space in a heavy-lift booster prompted NASA's commitment to the space shuttle as the vehicle to continue human space flight. By the mid-1960s, NASA engineers concluded that the necessary technology was within reach to enable the creation of a reusable winged space vehicle that could haul scientific and applications satellites of all types into orbit for all users. President Richard M. Nixon approved the effort to build the shuttle in

1972 and the first orbital flight took place in 1981. Although the development program was risky, a talented group of scientists and engineers worked to create this unique space vehicle and their efforts were largely successful. Since 1981, the various orbiters -Atlantis, Columbia, Discovery, Endeavour, and Challenger (lost in 1986 during the only Space Shuttle accident)- have made early 100 flights into space. Through 1998, the space shuttle has carried more than 800 major scientific and technological payloads into orbit and its astronaut crews have conducted more than 50 extravehicular activities, including repairing satellites and the initial building of the International Space Station. The shuttle remains the only vehicle in the world with the dual ability to deliver and return large payloads to and from orbit, and is also the world's most reliable launch system. The design, now almost three decades old, is still state-of-the-art in many areas, including computerized flight control, airframe design, electrical power systems, thermal protection system, and main engines. This significant new study of the decision to build the space shuttle explains the shuttle's origin and early development. In addition to internal NASA discussions, this work details the debates in the late 1960s and early 1970s among policymakers in Congress, the Air

Force, and the Office of Management and Budget over the roles and technical designs of the shuttle. Examining the interplay of these organizations with sometimes conflicting goals, the author not only explains how the world's premier space launch vehicle came into being, but also how politics can interact with science, technology, national security, and economics in national government.

Lucifer's Hammer AIAA

“The first satisfying end-of-the-world novel in years . . . an ultimate one . . . massively entertaining.”—Cleveland Plain-Dealer The gigantic comet had slammed into Earth, forging earthquakes a thousand times too powerful to measure on the Richter scale, tidal waves thousands of feet high. Cities were turned into oceans; oceans turned into steam. It was the beginning of a new Ice Age and the end of civilization. But for the terrified men and women chance had saved, it was also the dawn of a new struggle for survival—a struggle more dangerous and challenging than any they had ever known. . . . “Take your earthquakes, waterlogged condominiums, swarms of bugs, colliding airplanes and flaming what-nots, wrap them up and they wouldn’t match one page of Lucifer’s Hammer for sweaty-

palmed suspense."—Chicago Daily News

Space Stations JHU Press

The true story of what it was like for an average kid to literally grow up with the American space program. The book is the first release in a six-volume series and follows the author from age nine and the tragic Apollo 1 fire that killed three NASA astronauts to age 12 and the drama of Apollo 13's near disaster.

Introduction to Rocket Science and Engineering Del Rey

If the United States hopes to continue as a leader in space, it must invest now in better earth-to-orbit technology by replacing obsolete launch facilities while also developing a new class of more robust and reliable vehicles. From Earth to Orbit provides strategies to reduce launch costs while increasing the reliability and resiliency of vehicles. It also recommends continued improvements for the Space Shuttle Orbiter and its subsystems and the development of a Space Transportation Main Engine (STME).

Report of the Presidential Commission on the Space Shuttle Challenger Accident www.Militarybookshop.CompanyUK

On April 25, 2006, NASA's John C. Stennis Space Center hosted

a series of lectures on Apollo Propulsion development. This monograph is a transcript of the event, held as part of the celebration to mark the 40th anniversary of the first rocket engine test conducted at the site then known as the Mississippi Test Facility. On April 23, 1966, engineers tested a cluster of five J-2 engines that powered the second stage of the Saturn V moon rocket.

Combustion Instabilities in Liquid Rocket Engines DIANE Publishing

Stung by the pioneering space successes of the Soviet Union - in particular, Gagarin being the first man in space, the United States gathered the best of its engineers and set itself the goal of reaching the Moon within a decade. In an expanding 2nd edition of How Apollo Flew to the Moon, David Woods tells the exciting story of how the resulting Apollo flights were conducted by following a virtual flight to the Moon and its exploration of the surface. From launch to splashdown, he hitches a ride in the incredible spaceships that took men to another world, exploring each step of the

journey and detailing the enormous range of disciplines, techniques, and procedures the Apollo crews had to master. While describing the tremendous technological accomplishment involved, he adds the human dimension by calling on the testimony of the people who were there at the time. He provides a wealth of fascinating and accessible material: the role of the powerful Saturn V, the reasoning behind trajectories, the day-to-day concerns of human and spacecraft health between two worlds, the exploration of the lunar surface and the sheer daring involved in traveling to the Moon and the mid-twentieth century. Given the tremendous success of the original edition of How Apollo Flew to the Moon, the second edition will have a new chapter on surface activities, inspired by reader's comment on Amazon.com. There will also be additional detail in the existing chapters to incorporate all the feedback from the original edition, and will include larger illustrations.

Shuttle, Houston Haynes Publishing UK

The book follows a unified approach to present the basic principles of rocket propulsion in concise and lucid form. This textbook comprises of ten chapters ranging from brief introduction and elements of rocket propulsion, aerothermodynamics to solid, liquid and hybrid propellant rocket engines with chapter on electrical propulsion. Worked out examples are also provided at the end of chapter for understanding uncertainty analysis. This book is designed and developed as an introductory text on the fundamental aspects of rocket propulsion for both undergraduate and graduate students. It is also aimed towards practicing engineers in the field of space engineering. This comprehensive guide also provides adequate problems for audience to understand intricate aspects of rocket propulsion enabling them to design and develop rocket engines for peaceful purposes.

The Space Shuttle Decision

Motorbooks International Full color publication. This document has been produced and updated over a 21-year period. It is intended to be a handy reference document, basically one page per flight, and care has been exercised to make it as error-free as possible. This document is basically "as flown" data and has been compiled from many sources including flight logs, flight rules, flight anomaly logs, mod flight descent summary, post flight analysis of mps propellants, FDRD, FRD, SODB, and the MER shuttle flight data and inflight anomaly list. Orbit distance traveled is taken from the PAO mission statistics.

Saturn V Springer Science & Business Media

From the longest-serving Flight Director in NASA's history comes a revealing account of high-stakes Mission Control work and the Space Shuttle program that has redefined our relationship with the universe. A compelling look inside the Space Shuttle missions that helped lay the groundwork for the Space Age, Shuttle, Houston explores the determined personalities, technological miracles, and eleventh-hour saves

that have given us human spaceflight. Relaying stories of missions (and their grueling training) in vivid detail, Paul Dye, NASA's longest-serving Flight Director, examines the split-second decisions that the directors and astronauts were forced to make in a field where mistakes are unthinkable, and where errors led to the loss of national resources -- and more importantly one's crew. Dye's stories from the heart of Mission Control explain the mysteries of flying the Shuttle -- from the powerful fiery ascent to the majesty of on-orbit operations to the high-speed and critical re-entry and landing of a hundred-ton glider. The Space Shuttles flew 135 missions. Astronauts conducted space walks, captured satellites, and docked with the Mir Space Station, bringing space into our everyday life, from GPS to satellite TV. Shuttle, Houston puts readers in his own seat at Mission Control, the hub that made humanity's leap into a new frontier possible.