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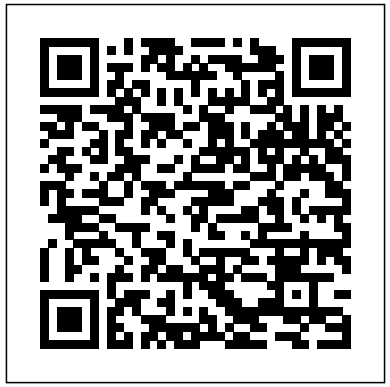

NASA Saturn V 1967-1973 (Apollo 4 to Apollo 17 & Skylab) Springer Science & Business Media

Science fiction roman.

Saturn V Flight Manual, SA 504 University of New Mexico Press

This is the first major publication on liquid-rocket combustion devices since 1960, and includes 20 chapters prepared by world-renowned experts. Each chapter focuses on a specific aspect of liquid-propellant combustion and thrust chamber dynamics, and is incorporated into the volume in a well-organized, cohesive manner. There are contributions from nine different countriesChina, France, Germany, Italy, Japan, the Netherlands, Russia, Sweden, and the United States.

Orbital Mechanics for Engineering Students AIAA

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.

Lucifer's Hammer Penguin

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.

Challenge to Apollo CreateSpace

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.

Quality and Reliability Assurance University Press of Kentucky

Whilst most contemporary books in the aerospace propulsion field are dedicated primarily to gas turbine engines, there is often little or no coverage of other propulsion systems and devices such as propeller and helicopter rotors or detailed attention to rocket engines. By taking a wider viewpoint, Powered Flight

- The Engineering of Aerospace Propulsion aims to provide a broader context, allowing observations and comparisons to be made across systems that are overlooked by focusing on a single aspect alone. The physics and history of aerospace propulsion are built on step-by-step, coupled with the development of an appreciation for the mathematics involved in the science and engineering of propulsion. Combining the author ' s experience as a researcher, an industry professional and a lecturer in graduate and undergraduate aerospace engineering, Powered Flight - The Engineering of Aerospace Propulsion covers its subject matter both theoretically and with an awareness of the practicalities of the industry. To ensure that the content is clear, representative but also interesting the text is complimented by a range of relevant graphs and photographs including representative engineering, in addition to several propeller performance charts. These items provide excellent reference and support materials for graduate and undergraduate projects and exercises. Students in the field of aerospace engineering will find that Powered Flight - The Engineering of Aerospace Propulsion supports their studies from the introductory stage and throughout more intensive follow-on studies.

Rocketdyne Springer

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.

Stephen Biesty's Incredible Cross-Sections Prentice Hall

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.

Stages to Saturn Springer Science & Business Media

Few launch vehicles are as iconic and distinctive as NASA's behemoth rocket, the Saturn V, and none left such a lasting impression on those who watched it ascend. Developed with the specific brief to send humans to the Moon, it pushed rocketry to new scales. Its greatest triumph is that it achieved its goal repeatedly with an enviable record of mission success. Haynes' Saturn V Manual tells the story of this magnificent and hugely powerful machine. It explains how each of the vehicle's three stages worked; Boeing's S-IC first stage with a power

output as great as the UK's peak electricity consumption, North American Aviation's S-II troubled second stage, Douglas's workhorse S-IVB third stage with its instrument unit brain - as much a spacecraft as a rocket. From the decision to build it to the operation of its engines' valves and pumps, this lavishly illustrated and deeply informative book offers a deeper appreciation of the amazing Saturn V.

Shuttle, Houston Springer

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.

Chemical Rocket Propulsion DIANE Publishing

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.

Voyage Smithsonian Institution

“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

Wingless Flight AIAA

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).

Saturn V CRC Press

Orbital Mechanics for Engineering Students, Second Edition, provides an introduction to the basic concepts of space mechanics. These include vector kinematics in three dimensions; Newton’s laws of motion and gravitation; relative motion; the vector-based solution of the classical two-body problem; derivation of Kepler’s equations; orbits in three dimensions; preliminary orbit determination; and orbital maneuvers. The book also covers relative motion and the two-impulse rendezvous problem; interplanetary mission design using patched conics; rigid-body dynamics used to characterize the attitude of a space vehicle; satellite attitude dynamics; and the characteristics and design of multi-

stage launch vehicles. Each chapter begins with an outline of key concepts and concludes with problems that are based on the material covered. This text is written for undergraduates who are studying orbital mechanics for the first time and have completed courses in physics, dynamics, and mathematics, including differential equations and applied linear algebra. Graduate students, researchers, and experienced practitioners will also find useful review materials in the book. NEW: Reorganized and improved discusions of coordinate systems, new discussion on perturbations and quarternions NEW: Increased coverage of attitude dynamics, including new Matlab algorithms and examples in chapter 10 New examples and homework problems

Fundamentals of Rocket Propulsion National Academies Press

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.

Saturn Springer

The launch of Sputnik in 1957 not only began the space age, it also showed that Soviet rockets were more powerful than American ones. Within months, the US Air Force hired Rocketdyne for a feasibility study of an engine capable of delivering at least 1 million pounds of thrust. Later, NASA ran the development of this F-1 engine in order to use it to power the first stage of the Saturn V rocket that would send Apollo missions to the Moon. It is no exaggeration to say that without the F-1 engine NASA would not have been able to achieve President Kennedy ' s 1961 challenge to his nation to land a man on the Moon before the decade was out.

Handbook of Model Rocketry DIANE Publishing

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.

Powered Flight JHU Press

This is the first book in the literature to cover the development and testing practices for liquid rocket engines in Russia and the former Soviet Union.Combustion instability represents one of the most challenging probelms in the development of propulsion engines. A famous example is the F-1 engines for the first stage of the Saturn V launch vehicles in the Apollo project. More than 2000 full engine tests and a vast number of design modifications were conducted to cure the instability problem.This book contains first-hand information about the testing and development practices for treating liquid rocket combustion-instability problems in Russia and the former Soviet Union. It covers more than 50 years of research, with an emphasis placed on the advances made since 1970.The book was prepared by a former R&D director of the Research Institute of Chemical Engineering, NIICHIMMASH, the largest liquid rocket testing center in the world, and has been carefully edited by three well-known experts in the field.

Liquid Rocket Thrust Chambers

www.Militarybookshop.CompanyUK

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.

Remembering the Giants Springer Science & Business Media

Developed and expanded from the work presented at the New Energetic Materials and Propulsion Techniques for Space Exploration workshop in June 2014, this book contains new scientific results, up-to-date reviews, and inspiring perspectives in a number of areas related to the energetic aspects of chemical rocket propulsion. This collection covers the entire life of energetic materials from their conceptual formulation to practical manufacturing; it includes coverage of theoretical and experimental ballistics, performance properties, as well as laboratory-scale and full system-scale, handling, hazards, environment, ageing, and disposal. Chemical Rocket Propulsion is a unique work, where a selection of accomplished experts from the pioneering era of space propulsion and current technologists from the most advanced international laboratories discuss the future of chemical rocket propulsion for access to, and exploration of, space. It will be of interest to both postgraduate and final-year undergraduate students in aerospace engineering, and practicing aeronautical engineers and designers, especially those with an interest in propulsion, as well as researchers in energetic materials.