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**Rocket Ranch** - Jonathan H. Ward 2015-07-13  
Jonathan Ward takes the reader deep into the facilities at Kennedy Space Center to describe NASA's first computer systems used for spacecraft and rocket checkout and explain how tests and launches proceeded. Descriptions of early operations include a harrowing account of the heroic efforts of pad workers during the Apollo 1 fire. A companion to the author's book *Countdown to a Moon Launch: Preparing Apollo for Its Historic Journey*, this explores every facet of the facilities that served as the base for the Apollo/Saturn missions. Hundreds of illustrations complement the firsthand accounts of more than 70 Apollo program managers and engineers. The era of the Apollo/Saturn missions was perhaps the most exciting period in American space exploration history. Cape Canaveral and Kennedy Space Center were buzzing with activity. Thousands of workers came to town to build the facilities and launch the missions needed to put an American on the Moon before the end of the decade. Work at KSC involved much more than just launching rockets. It was a place like none other on Earth. Technicians performed intricate operations, and hazards abounded everywhere, including lightning, fire, highly-toxic fuels, snakes, heat, explosives, LOX spills, and even plutonium. The reward for months of 7-day workweeks under intense

pressure was witnessing a Saturn V at liftoff. For anyone who ever wished they had worked at Kennedy Space Center during the Apollo era, this book is the next best thing. The only thing missing is the smell of rocket fuel in the morning.

[Countdown to a Moon Launch](#) - Jonathan H. Ward 2015-07-07

Thousands of workers labored at Kennedy Space Center around the clock, seven days a week, for half a year to prepare a mission for the liftoff of Apollo 11. This is the story of what went on during those hectic six months. *Countdown to a Moon Launch* provides an in-depth look at the carefully choreographed workflow for an Apollo mission at KSC. Using the Apollo 11 mission as an example, readers will learn what went on day by day to transform partially completed stages and crates of parts into a ready-to-fly Saturn V. Firsthand accounts of launch pad accidents, near misses, suspected sabotage, and last-minute changes to hardware are told by more than 70 NASA employees and its contractors. A companion to *Rocket Ranch*, it includes many diagrams and photographs, some never before published, to illustrate all aspects of the process. NASA's groundbreaking use of computers for testing and advanced management techniques are also covered in detail. This book will demystify the question of how NASA could build

and launch Apollo missions using 1960s technology. You'll discover that there was no magic involved - just an abundance of discipline, willpower, and creativity.

The Hubble Space Telescope - David J. Shayler  
2015-11-25

The highly successful Hubble Space Telescope was meant to change our view and understanding of the universe. Within weeks of its launch in 1990, however, the space community was shocked to find out that the primary mirror of the telescope was flawed. It was only the skills of scientists and engineers on the ground and the daring talents of astronauts sent to service the telescope in December 1993 that saved the mission. For over two decades NASA had developed the capabilities to service a payload in orbit. This involved numerous studies and the creation of a ground-based infrastructure to support the challenging missions. Unique tools and EVA hardware supported the skills developed in crew training that then enabled astronauts to complete a demanding series of spacewalks. Drawing upon first hand interviews with those closely involved in the project over thirty years ago this story explains the development of the servicing mission concept and the hurdles that had to be overcome to not only launch the telescope but also to mount the first servicing mission - a mission that restored the telescope to full working order three years after its launch, saved the reputation of NASA, and truly opened a new age in understanding of our place in space. This is not just a tale of space age technology, astronauts and astronomy. It is also a story of an audacious scientific vision, and the human ingenuity and determination to overcome all obstacles to make it possible. Hubble Space Telescope: From Concept to Success is a story of an international partnership, dedicated teamwork and a perfect blend of human and robotic space operations that will inspire people of all ages. The subsequent servicing missions that enabled the telescope to continue its scientific program beyond its 25th year in orbit are described in a companion volume Enhancing Hubble's Vision: Servicing a National Treasure.

**Shoot for the Moon** - James Donovan  
2019-03-12

Learn why NASA astronaut Mike Collins calls

this extraordinary space race story "the best book on Apollo": this inspiring and intimate ode to ingenuity celebrates one of the most daring feats in human history. When the alarm went off forty thousand feet above the moon's surface, both astronauts looked down at the computer to see 1202 flashing on the readout. Neither of them knew what it meant, and time was running out . . . On July 20, 1969, Neil Armstrong and Buzz Aldrin became the first humans to walk on the moon. One of the world's greatest technological achievements -- and a triumph of the American spirit -- the Apollo 11 mission was a mammoth undertaking involving more than 410,000 men and women dedicated to winning the space race against the Soviets. Set amid the tensions and upheaval of the sixties and the Cold War, Shoot for the Moon is a gripping account of the dangers, the challenges, and the sheer determination that defined not only Apollo 11, but also the Mercury and Gemini missions that came before it. From the shock of Sputnik and the heart-stopping final minutes of John Glenn's Mercury flight to the deadly whirligig of Gemini 8, the doomed Apollo 1 mission, and that perilous landing on the Sea of Tranquility -- when the entire world held its breath while Armstrong and Aldrin battled computer alarms, low fuel, and other problems -- James Donovan tells the whole story. Both sweeping and intimate, Shoot for the Moon is "a powerfully written and irresistible celebration" of one of humankind's most extraordinary accomplishments (Booklist, starred review).

**Animals in Space** - Colin Burgess 2007-07-05

This book is as a detailed, but highly readable and balanced account of the history of animal space flights carried out by all nations, but principally the United States and the Soviet Union. It explores the ways in which animal high-altitude and space flight research impacted on space flight biomedicine and technology, and how the results - both successful and disappointing - allowed human beings to then undertake that same hazardous journey with far greater understanding and confidence. This complete and authoritative book will undoubtedly become the ultimate authority on animal space flights.

Yearbook on Space Policy 2015 - Cenan Al-Ekabi  
2017-01-02

The Yearbook on Space Policy, edited by the European Space Policy Institute (ESPI), is the reference publication analysing space policy developments. Each year it presents issues and trends in space policy and the space sector as a whole. Its scope is global and its perspective is European. The Yearbook also links space policy with other policy areas. It highlights specific events and issues, and provides useful insights, data and information on space activities. The first part of the Yearbook sets out a comprehensive overview of the economic, political, technological and institutional trends that have affected space activities. The second part of the Yearbook offers a more analytical perspective on the yearly ESPI theme and consists of external contributions written by professionals with diverse backgrounds and areas of expertise. The third part of the Yearbook carries forward the character of the Yearbook as an archive of space activities. The Yearbook is designed for government decision-makers and agencies, industry professionals, as well as the service sectors, researchers and scientists and the interested public.

Through the Glass Ceiling to the Stars - Eileen M. Collins 2021-10-19

The long-awaited memoir of a trailblazer and role model who is telling her story for the first time. Eileen Collins was an aviation pioneer her entire career, from her crowning achievements as the first woman to command an American space mission as well as the first to pilot the space shuttle to her early years as one of the Air Force's first female pilots. She was in the first class of women to earn pilot's wings at Vance Air Force Base and was their first female instructor pilot. She was only the second woman pilot admitted to the Air Force's elite Test Pilot Program at Edwards Air Force Base. NASA had such confidence in her skills as a leader and pilot that she was entrusted to command the first shuttle mission after the Columbia disaster, returning the US to spaceflight after a two-year hiatus. Since retiring from the Air Force and NASA, she has served on numerous corporate boards and is an inspirational speaker about space exploration and leadership. Eileen Collins is among the most recognized and admired women in the world, yet this is the first time she has told her story in a book. It is a story not only

of achievement and overcoming obstacles but of profound personal transformation. The shy, quiet child of an alcoholic father and struggling single mother, who grew up in modest circumstances and was an unremarkable student, she had few prospects when she graduated from high school, but she changed her life to pursue her secret dream of becoming an astronaut. She shares her leadership and life lessons throughout the book with the aim of inspiring and passing on her legacy to a new generation.

**Apollo** - Richard W. Orloff 2006-08-29

This book provides an overview of the origins of the Apollo program and descriptions of the ground facilities, launch vehicles and spacecraft that were developed in the quest to reach - and return from - the surface of the moon. It will serve as an invaluable single-volume sourcebook for space enthusiasts, space historians, journalists, and others. The text includes a comprehensive collection of tables listing facts and figures for each mission.

Countdown to a Moon Launch - Jonathan H. Ward 2015-07-23

Thousands of workers labored at Kennedy Space Center around the clock, seven days a week, for half a year to prepare a mission for the liftoff of Apollo 11. This is the story of what went on during those hectic six months. Countdown to a Moon Launch provides an in-depth look at the carefully choreographed workflow for an Apollo mission at KSC. Using the Apollo 11 mission as an example, readers will learn what went on day by day to transform partially completed stages and crates of parts into a ready-to-fly Saturn V. Firsthand accounts of launch pad accidents, near misses, suspected sabotage, and last-minute changes to hardware are told by more than 70 NASA employees and its contractors. A companion to Rocket Ranch, it includes many diagrams and photographs, some never before published, to illustrate all aspects of the process. NASA's groundbreaking use of computers for testing and advanced management techniques are also covered in detail. This book will demystify the question of how NASA could build and launch Apollo missions using 1960s technology. You'll discover that there was no magic involved - just an abundance of discipline, willpower, and creativity.

Ike - Ike Rigell 2017-09-20

What would you do if you were an 18-year-old Marine operating a small combat telephone switchboard on Midway Island, and you have to put the call through to your Commanding Officer, letting him know that the Japanese had attacked Pearl Harbor . . . this was the situation Ike Rigell found himself in on December 7, 1941. Growing up in the tiny town of Slocomb, AL, Ike never dreamed he would travel halfway around the world to fight for his beloved country in WWII, and then go onto a long and prolific career at NASA and the aerospace industry. Ike's emotional, poignant, and often humorous firsthand account of his life over the years pays tribute to our nation's history through the time-honored tradition of storytelling.

Kennedy Space Center - David West Reynolds  
2010-01-01

Provides detailed information on the earliest developments of rockets, the Apollo program, the Space Station, and the future of space exploration, offering a look at the departure gate for every space mission and the launching point of other advanced scientific spacecraft.

*On the Shoulders of Titans* - Barton C. Hacker  
1977

**Exploring the Moon** - David M. Harland  
2008-04-16

In this comprehensive overview of Man's relationship with his planet's nearest neighbor, David Harland opens with a review of the robotic probes, namely the Rangers which returned television before crashing into the Moon, the Surveyors which 'soft landed' in order to investigate the nature of the surface, and the Lunar Orbiters which mapped prospective Apollo landing sites. He then outlines the historic landing by Apollo 11 and the final three missions of comprehensive geological investigations. He concludes with a review of the robotic spacecraft that made remote-sensing observations of the Moon. This Commemorative Edition includes a foreword by one of the original astronauts as well as an extra section reviewing the prospect of renewed exploration there. New graphics and images are also included.

**Freedom 7** - Colin Burgess 2013-09-27

Inevitably, there are times in a nation's history when its hopes, fears and confidence in its own destiny appear to hinge on the fate of a single

person. One of these pivotal moments occurred on the early morning of May 5, 1961, when a 37-year-old test pilot squeezed himself into the confines of the tiny Mercury spacecraft that he had named Freedom 7. On that historic day, U.S. Navy Commander Alan Shepard carried with him the hopes, prayers, and anxieties of a nation as his Redstone rocket blasted free of the launch pad at Cape Canaveral, hurling him upwards on a 15-minute suborbital flight that also propelled the United States into the bold new frontier of human space exploration. This book tells the enthralling story of that pioneering flight as recalled by many of the participants in the Freedom 7 story, including Shepard himself, with anecdotal details and tales never before revealed in print. Although beaten into space just three weeks earlier by the Soviet cosmonaut Yuri Gagarin, Alan Shepard's history-making mission aboard Freedom 7 nevertheless provided America's first tentative step into space that would one day see its Apollo astronauts - including Alan Shepard - walk on the Moon.

**Gemini - Steps to the Moon** - Shayler David  
2001-09-01

In *Gemini - Steps to the Moon*, David Shayler, the author, tells the story of the origin and development of the programme and the spacecraft from the perspective of the engineers, flight controllers and astronauts involved. It includes chapters on flight tests, Extra Vehicular Activity (EVA), rendezvous and docking, as well as information from NASA archives and personal interviews.

**Prepare for Launch** - Erik Seedhouse  
2018-10-10

Today's astronauts require many different abilities. They must not only be expert in performing flight simulations but must also be proficient in such dissimilar subjects as photography, thermodynamics, electrical repairs, flight procedures, oceanography, public affairs, and geology. In *Prepare for Launch*, the author introduces the technologies and myriad activities that constitute or affect astronaut training, such as the part-task trainers, emergency procedures, the fixed-based and motion-based simulators, virtual environment training, and the demands of training in the Weightless Environment Training Facility. With plans to return to the Moon and future missions

to Mars, the current selection criteria and training are very different from those used for short duration mission Space Shuttle crews. Dr. Erik Seedhouse in this book focuses on how astronaut candidates are taught to cope with different needs and environments (for example, hibernation, artificial gravity, and bioethics issues) and also includes brief discussions of the astronaut application and selection process.

*The Race to the Moon Chronicled in Stamps, Postcards, and Postmarks* - Umberto Cavallaro  
2018-10-05

The story of the famed race to the Moon between the US and the USSR has been told countless times. The strategies of these two superpowers have often been paralleled in a way that highlights their fight for dominance and efforts to develop needed new technologies. This book will show how beneath these surface similarities, the two competing nations employed very different core tactics. It provides a new perspective of the history of the space race by analyzing that history through philately - that is, from the images on postage stamps, post cards, and letters in circulation at that time. Through this fascinating historical visual record, the author shows how the propaganda-heavy approach of the USSR eventually lost out to the more pragmatic approach of the United States.

*Apollo Mission Control* - Manfred "Dutch" von Ehrenfried  
2018-06-21

This book describes the history of this now iconic room which represents America's space program during the Gemini, Apollo, Skylab, Apollo-Soyuz and early Space Shuttle eras. It is now a National Historic Landmark and is being restored to a level which represents the day the flight control teams walked out after the last lunar landing missions. The book is dedicated to the estimated 3,000 men and women who supported the flights and tells the story from their perspective. It describes the rooms of people supporting this control center; those rooms of engineers, analysts and scientists most people never knew about. Some called it a "shrine" and some called it a "cathedral." Now it will be restored to its former glory and soon thousands will be able to view the place where America flew to the moon.

**Foothold in the Heavens** - Ben Evans  
2010-08-14

**Foothold in the Heavens**, the second volume in the *A History of Human Space Exploration* series, focuses upon the 1970s, the decade in which humanity established real, longterm foothold in the heavens with the construction and operation of the first space stations. It marked a transitional phase between the heady, race-to-the-Moon days of the Sixties and efforts to make space travel more economical, more frequent and more 'routine.' Space exploration in the Seventies, although dominated by Soviet achievement, saw the first efforts of mankind to really 'live' and work in space, producing results of direct benefit to humans on Earth. The emphasis changed from the gung-ho, 'strap-it-on-and-go' pioneers of the Sixties to the more practical exploitation of space for science, medicine, and technology. This book focuses on each mission launched between April 1971 and April 1981: from the launch of the world's first space station to the end of operations of Salyut 6, and from the expanded, lengthy exploration of the Moon on Apollo 15 to the first flight of the Shuttle.

*Mission Control* - Michael Peter Johnson  
2015  
"In *Mission Control*, Michael Johnson explores the famous Johnson Space Center in Houston, the Jet Propulsion Laboratory in Pasadena, and the European Space Operations Centre in Darmstadt, Germany--each a strategically designed micro-environment responsible for the operation of spacecraft and the safety of passengers. He explains the motivations behind the location of each center and their intricate design. He shows how the robotic spaceflight missions overseen in Pasadena and Darmstadt set these centers apart from Houston, and compares the tracking networks used for different types of spacecraft,"--Amazon.com.

**Space Invaders** - Michel van Pelt  
2010-05-05  
Manned space programs attract the most media attention, and it is not hard to understand why: the danger, the heroism, the sheer adventure we as earthbound observers can imagine when humans are involved. But robotic missions deserve a respectful and detailed history and analysis of their own, and this book provides it. Instead of describing one specific spacecraft or mission, Michel van Pelt offers a "behind the scenes" look at the life of a space probe from its first conceptual design to the analysis of the

scientific data returned by the spacecraft.

**Soviet and Russian Lunar Exploration** - Brian Harvey 2007-08-17

This book tells the story of the Soviet and Russian lunar programme, from its origins to the present-day federal Russian space programme. Brian Harvey describes the techniques devised by the USSR for lunar landing, from the LK lunar module to the LOK lunar orbiter and versions tested in Earth's orbit. He asks whether these systems would have worked and examines how well they were tested. He concludes that political mismanagement rather than technology prevented the Soviet Union from landing cosmonauts on the moon. The book is well timed for the return to the moon by the United States and the first missions there by China and India. *Chariots for Apollo* - Courtney G. Brooks 2009-03-26

Written by a trio of experts, this is the definitive reference on the Apollo spacecraft and lunar modules. It traces the design of the vehicles, their development, and their operation in space. More than 100 photographs and illustrations highlight the text, which begins with NASA's origins and concludes with the triumphant Apollo 11 moon mission.

**Energiya-Buran** - Bart Hendrickx 2007-12-05

This absorbing book describes the long development of the Soviet space shuttle system, its infrastructure and the space agency's plans to follow up the first historic unmanned mission. The book includes comparisons with the American shuttle system and offers accounts of the Soviet test pilots chosen for training to fly the system, and the operational, political and engineering problems that finally sealed the fate of Buran and ultimately of NASA's Shuttle fleet.

**The Space Shuttle: An Experimental Flying Machine** - Ben Evans 2021-05-10

This book explains how the achievements of the Space Shuttle, the world's first reusable manned spacecraft, were built on the foundation of countless technical challenges. Through thick and thin, the Space Shuttle remained the centerpiece of the American human spaceflight program for three decades. In addition to deploying satellites, planetary probes and, of course, the Hubble Space Telescope, it delivered astronauts to the Mir space station and assembled and sustained the International Space

Station. Yet the path to these incredible achievements was never an easy one, with some obstacles resulting in the loss of life and other major consequences that plagued the fleet throughout its operational career. The book adopts a challenge-by-challenge approach, focusing on specific difficulties and how (if at all) they were fully overcome. Going beyond the technical issues, it relates the human stories of each incident and how changes were effected in order to make the shuttle an exceptionally safer - though still experimental - flying machine.

*How Apollo Flew to the Moon* - W. David Woods 2011-08-08

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.

*The Right Stuff* - Tom Wolfe 2008-03-04

From "America's nerviest journalist" (Newsweek)--a breath-taking epic, a magnificent

adventure story, and an investigation into the true heroism and courage of the first Americans to conquer space. "Tom Wolfe at his very best" (The New York Times Book Review) Millions of words have poured forth about man's trip to the moon, but until now few people have had a sense of the most engrossing side of the adventure; namely, what went on in the minds of the astronauts themselves - in space, on the moon, and even during certain odysseys on earth. It is this, the inner life of the astronauts, that Tom Wolfe describes with his almost uncanny empathetic powers, that made *The Right Stuff* a classic.

*The Apollo Guidance Computer* - Frank O'Brien  
2010-06-25

The technological marvel that facilitated the Apollo missions to the Moon was the on-board computer. In the 1960s most computers filled an entire room, but the spacecraft's computer was required to be compact and low power. Although people today find it difficult to accept that it was possible to control a spacecraft using such a 'primitive' computer, it nevertheless had capabilities that are advanced even by today's standards. This is the first book to fully describe the Apollo guidance computer's architecture, instruction format and programs used by the astronauts. As a comprehensive account, it will span the disciplines of computer science, electrical and aerospace engineering. However, it will also be accessible to the 'space enthusiast'. In short, the intention is for this to be the definitive account of the Apollo guidance computer. Frank O'Brien's interest in the Apollo program began as a serious amateur historian. About 12 years ago, he began performing research and writing essays for the Apollo Lunar Surface Journal, and the Apollo Flight Journal. Much of this work centered on his primary interests, the Apollo Guidance Computer (AGC) and the Lunar Module. These Journals are generally considered the canonical online reference on the flights to the Moon. He was then asked to assist the curatorial staff in the creation of the Cradle of Aviation Museum, on Long Island, New York, where he helped prepare the Lunar Module simulator, a LM procedure trainer and an Apollo space suit for display. He regularly lectures on the Apollo computer and related topics to diverse groups, from NASA's

computer engineering conferences, the IEEE/ACM, computer festivals and university student groups.

*Bringing Columbia Home* - Michael D. Leinbach  
2018-01-23

The "gripping and dramatic" inside story of the epic search and recovery operation after the Columbia shuttle disaster that united thousands of Americans (Booklist). Voted the Best Space Book of the Year by the Space Hipsters On February 1, 2003, Columbia disintegrated on reentry before the nation's eyes, and all seven astronauts aboard were lost. Mike Leinbach, Launch Director of the space shuttle program at NASA's John F. Kennedy Space Center, was a key leader in the search and recovery effort as NASA, FEMA, the FBI, the US Forest Service, and dozens more federal, state, and local agencies combed an area of rural east Texas the size of Rhode Island for every piece of the shuttle and her crew they could find. Assisted by hundreds of volunteers, it would become the largest ground search operation in US history—an effort that was instrumental in piecing together what happened so the shuttle program could return to flight and complete the International Space Station. Written by Leinbach, this is the definitive inside story of the disaster, the recovery, and the inspiring response, sharing the deeply personal stories that emerged as NASA employees looked for lost colleagues and searchers overcame immense physical, logistical, and emotional challenges and worked together to accomplish the impossible. Featuring a foreword and epilogue by astronauts Robert Crippen and Eileen Collins, and dedicated to the astronauts and recovery search persons who lost their lives, this is "a gripping account of a fatal tragedy and the impressive and deeply emotional human response that ensued" (Kirkus Reviews, starred review). "Despite the dramatic tragedy at the beginning of the book, it's the quiet stories of perseverance and camaraderie that will linger longest." —Christian Science Monitor "Vividly capture[s] the intensity of those very difficult days...The book also reminded me of the spirit of the American people who selflessly worked together to help NASA in its hour of greatest need. It's a message we all need to remember these days." —Scott Kelly

**Rocket Ranch** - Jonathan H. Ward 2015-06-26  
Jonathan Ward takes the reader deep into the facilities at Kennedy Space Center to describe NASA's first computer systems used for spacecraft and rocket checkout and explain how tests and launches proceeded. Descriptions of early operations include a harrowing account of the heroic efforts of pad workers during the Apollo 1 fire. A companion to the author's book *Countdown to a Moon Launch: Preparing Apollo for Its Historic Journey*, this explores every facet of the facilities that served as the base for the Apollo/Saturn missions. Hundreds of illustrations complement the firsthand accounts of more than 70 Apollo program managers and engineers. The era of the Apollo/Saturn missions was perhaps the most exciting period in American space exploration history. Cape Canaveral and Kennedy Space Center were buzzing with activity. Thousands of workers came to town to build the facilities and launch the missions needed to put an American on the Moon before the end of the decade. Work at KSC involved much more than just launching rockets. It was a place like none other on Earth. Technicians performed intricate operations, and hazards abounded everywhere, including lightning, fire, highly-toxic fuels, snakes, heat, explosives, LOX spills, and even plutonium. The reward for months of 7-day workweeks under intense pressure was witnessing a Saturn V at liftoff. For anyone who ever wished they had worked at Kennedy Space Center during the Apollo era, this book is the next best thing. The only thing missing is the smell of rocket fuel in the morning.

**The Saturn V F-1 Engine** - Anthony Young 2019-02-19

When the mighty Rocketdyne F-1 engine was conceived in the late 1950s for the U.S. Air Force, it had no defined mission and there was no launch vehicle it could power. It was a bold concept to push the technological envelope of rocket propulsion in order to put massive payloads into Earth orbit. Few realized at the time that the F-1 would one day propel American astronauts to the Moon. In *The Saturn V F-1 Engine*, Anthony Young tells the amazing story of unbridled vision, bold engineering, explosive failures during testing, unrelenting persistence to find solutions, and ultimate success in

launching the Saturn V with a 100 percent success rate. The book contains personal interviews with many Rocketdyne and NASA personnel involved in the engine's design, development, testing and production; is lavishly illustrated with black-and-white and color photographs, many never previously published is the first complete history of the most powerful rocket engine ever built. The F-1 engine remains the high point in U.S. liquid rocket propulsion - it represents a period in American history when nothing was impossible.

**The Rebirth of the Russian Space Program** - Brian Harvey 2007-05-10

This, fifty years after Sputnik, is the definitive book on the Russian space program. The author covers all the key elements of the current Russian space program, including both manned and unmanned missions. He examines the various types of unmanned applications programs as well as the crucial military program, and even analyzes the infrastructure of production, launch centres and tracking. You'll also find discussion of the commercialization of the program and its relationship with western companies. Russia's current space experiment is also put in a comparative global context. Strong emphasis is placed on Russia's future space intentions and on new programs and missions in prospect.

**Von Braun** - Michael Neufeld 2017-04-12  
Curator and space historian at the Smithsonian's National Air and Space Museum delivers a brilliantly nuanced biography of controversial space pioneer Wernher von Braun. Chief rocket engineer of the Third Reich and one of the fathers of the U.S. space program, Wernher von Braun is a source of consistent fascination. Glorified as a visionary and vilified as a war criminal, he was a man of profound moral complexities, whose intelligence and charisma were coupled with an enormous and, some would say, blinding ambition. Based on new sources, Neufeld's biography delivers a meticulously researched and authoritative portrait of the creator of the V-2 rocket and his times, detailing how he was a man caught between morality and progress, between his dreams of the heavens and the earthbound realities of his life.

**The Birth of NASA** - Manfred "Dutch" von

Ehrenfried 2016-03-23

This is the story of the work of the original NASA space pioneers; men and women who were suddenly organized in 1958 from the then National Advisory Committee on Aeronautics (NACA) into the Space Task Group. A relatively small group, they developed the initial mission concept plans and procedures for the U. S. space program. Then they boldly built hardware and facilities to accomplish those missions. The group existed only three years before they were transferred to the Manned Spacecraft Center in Houston, Texas, in 1962, but their organization left a large mark on what would follow. Von Ehrenfried's personal experience with the STG at Langley uniquely positions him to describe the way the group was structured and how it reacted to the new demands of a post-Sputnik era. He artfully analyzes how the growing space program was managed and what techniques enabled it to develop so quickly from an operations perspective. The result is a fascinating window into history, amply backed up by first person documentation and interviews.

**Future Spacecraft Propulsion Systems** - Paul A. Czysz 2006-09-19

An understandable perspective on the types of space propulsion systems necessary to enable low-cost space flights to Earth orbit and to the Moon and the future developments necessary for exploration of the solar system and beyond to the stars.

**The Design and Engineering of Curiosity** - Emily Lakdawalla 2018-03-27

This book describes the most complex machine ever sent to another planet: Curiosity. It is a one-ton robot with two brains, seventeen cameras, six wheels, nuclear power, and a laser beam on its head. No one human understands how all of its systems and instruments work. This essential reference to the Curiosity mission explains the engineering behind every system on the rover, from its rocket-powered jetpack to its radioisotope thermoelectric generator to its fiendishly complex sample handling system. Its lavishly illustrated text explains how all the instruments work -- its cameras, spectrometers, sample-cooking oven, and weather station -- and describes the instruments' abilities and limitations. It tells you how the systems have functioned on Mars, and how scientists and

engineers have worked around problems developed on a faraway planet: holey wheels and broken focus lasers. And it explains the grueling mission operations schedule that keeps the rover working day in and day out.

**Apollo** - Richard W. Orloff 2006-03-15

A complete resource for Apollo program information covers the technological and managerial setbacks, tracks the development of the Saturn rocket, and details each Apollo mission.

**SpaceX** - Erik Seedhouse 2013-06-15

This first account of commercial spaceflight's most successful venture describes the extraordinary feats of engineering and human achievement that have placed SpaceX at the forefront of the launch industry and made it the most likely candidate for transporting humans to Mars. Since its inception in 2002, SpaceX has sought to change the space launch paradigm by developing a family of launch vehicles that will ultimately reduce the cost and increase the reliability of space access tenfold. Coupled with the newly emerging market for governmental, private, and commercial space transport, this new model will re-ignite humanity's efforts to explore and develop space. Formed in 2002 by Elon Musk, the founder of PayPal and the Zip2 Corporation, SpaceX has already developed two state-of-the-art new launch vehicles, established an impressive launch manifest, and been awarded COTS funding by NASA to demonstrate delivery and return of cargo to the ISS. This book describes how simplicity, low-cost, and reliability can go hand in hand, as promoted in the philosophy of SpaceX. It explains how, by eliminating the traditional layers of internal management and external sub-contractors and keeping the vast majority of manufacturing in house, SpaceX reduces its costs while accelerating decision making and delivery, controls quality, and ensures constant liaison between the design and manufacturing teams.

**To Orbit and Back Again** - Davide Sivoletta 2013-08-27

The Space Shuttle has been the dominant machine in the U.S. space program for thirty years and has generated a great deal of interest among space enthusiasts and engineers. This book enables readers to understand its technical systems in greater depth than they have been

able to do so before. The author describes the structures and systems of the Space Shuttle, and then follows a typical mission, explaining how the structures and systems were used in the launch, orbital operations and the return to Earth. Details of how anomalous events were dealt with on individual missions are also provided, as are the recollections of those who built and flew the Shuttle. Many photographs and technical drawings illustrate how the Space Shuttle functions, avoiding the use of complicated technical jargon. The book is divided into two sections: Part 1 describes each subsystem in a technical style, supported by diagrams, technical drawings, and photographs to enable a better understanding of the concepts. Part 2 examines different flight phases, from liftoff to landing. Technical material has been obtained from NASA as well as from other forums and specialists. Author Davide Sivolella is an aerospace engineer with a life-long interest in space and is ideally qualified to interpret technical manuals for a wider audience. This book provides comprehensive

coverage of the topic including the evolution of given subsystems, reviewing the different configurations, and focusing on the solutions implemented.

**Destination Moon** - Richard Maurer  
2019-06-11

The history of NASA's Apollo program from Earth orbital missions to lunar landings in a propulsive nonfiction narrative. Only now, it is becoming clear how exceptional and unrepeatable Apollo was. At its height, it employed almost half a million people, many working seven days a week and each determined that "it will not fail because of me." Beginning with fighter pilots in World War II, Maurer traces the origins of the Apollo program to a few exceptional soldiers, a Nazi engineer, and a young eager man who would become president. Packed with adventure, new stories about familiar people, and undeniable danger, Destination Moon takes an unflinching look at a tumultuous time in American history, told expertly by nonfiction author Richard Maurer.