

Ascent Checklist Nasa

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.

Six days ago, astronaut Mark Watney became one of the first people to walk on Mars. Now, he's sure he'll be the first person to die there. After a dust storm nearly kills him and forces his crew to evacuate while thinking him dead, Mark finds himself stranded and completely alone with no way to even signal Earth that he's alive--and even if he could get word out, his supplies would be gone long before a rescue could arrive. Chances are, though, he won't have time to starve to death. The damaged machinery, unforgiving environment, or plain old "human error" are much more likely to kill him first. But Mark isn't ready to give up yet. Drawing on his ingenuity, his engineering skills--and a relentless, dogged refusal to quit--he steadfastly confronts one seemingly insurmountable obstacle after the next. Will his resourcefulness be enough to overcome the impossible odds against him? Between 1992 and 1996, the American aerospace community vigorously explored the development of a post-Space Shuttle reusable space transportation system for the United States. This activity included studies by the National Aeronautics and Space Administration (NASA), scientific foundations, and the aerospace industry. Likewise, both the executive branch of the government, through the issuance of a White House Policy Space Transportation Directive, and the legislative branch, through the holding of congressional hearings and budget allocations to NASA and the Department of Defense, were deeply involved in the decision-making process. The new policy direction was aimed toward reestablishing the United States' competitiveness in the space launch vehicle development and launch area and in transferring much of this activity to the U.S. aerospace industry. These developments served as the prelude to NASA's single-stage-to-orbit (SSTO), reusable launch vehicle (RLV) program that included the development of three technology test bed vehicles. The first of these vehicles was the DC-XA (Clipper Graham, which actually was an upgrade to the original DC-X (Delta-Clipper Experimental) developed by McDonnell Douglas for the Department of Defense and subsequently transferred to NASA at the start of the Agency's single-stage-to-orbit program. The DC-XA Clipper Graham was followed by the X-33, which was intended to serve as a test bed vehicle for the subsequent development of a full-size reusable single-stage-to-orbit vehicle, and the X-34, which was intended as a technology test bed vehicle to demonstrate low-cost reusability and to conduct flight experiments. These were all promising concepts, and prospects for developing a cheap, robust, reusable space lift system to supplant the already aging Space Shuttle seemed assured. But within a decade, such hopes had been dashed--all the more frustrating to program proponents and participants, who had contributed some remarkably creative engineering to support the bold conceptual visions underpinning each of these programs. This book examines arguably the most elegant and promising of all of these, the NASA-Orbital Sciences X-34 Technology Testbed Demonstrator program, one ranking high on any list of the best research aircraft never flown

Apollo 12
How the Space Shuttle Flew in Space
The Work of the Space Task Group, America's First True Space Pioneers
NASA System Safety Handbook
A Statistical Reference
Countdown to a Moon Launch
1969 NASA Authorization, Hearings...

Effective software is essential to the success and safety of the Space Shuttle, including its crew and its payloads. The on-board software continually monitors and controls critical systems throughout a Space Shuttle flight. At NASA's request, the committee convened to review the agency's flight software development processes and to recommend a number of ways those processes could be improved. This book, the result of the committee's study, evaluates the safety, oversight, and management functions that are implemented currently in the Space Shuttle program to ensure that the software is of the highest quality possible. Numerous recommendations are made regarding safety and management procedures, and a rationale is offered for continuing the Independent Verification and Validation effort that was instituted after the Challenger Accident. The official record of America's first space station, this book from the NASA History Series chronicles the Skylab program from its planning during the 1960s through its 1973 launch and 1979 conclusion. 1983 edition.

"Since its earliest days, flight has been about pushing the limits of technology and, in many cases, pushing the limits of human endurance. The human body can be the limiting factor in the design of aircraft and spacecraft. Humans cannot survive unaided at high altitudes. There have been a number of books written on the subject of spacesuits, but the literature on the high-altitude pressure suits is lacking. This volume provides a high-level summary of the technological development and operational use of partial- and full-pressure suits, from the earliest models to the current high altitude, full-pressure suits used for modern aviation, as well as those that were used for launch and entry on the Space Shuttle. The goal of this work is to provide a resource on the technology for suits designed to keep humans alive at the edge of space."--NTRS Web site.

Wings in Orbit

Redefining the Right Stuff

Alien Oceans

Computers Take Flight

Crash course

Managing NASA in the Apollo Era

Taming Liquid Hydrogen

CubeSat Handbook: From Mission Design to Operations is the first book solely devoted to the design, manufacturing, and in-orbit operations of CubeSats. Beginning with an historical overview from CubeSat co-inventors Robert Twiggs and Jordi Puig-Suari, the book is divided into 6 parts with contributions from international experts in the area of small satellites and CubeSats. It covers topics such as standard interfaces, on-board & ground software, industry standards in terms of control algorithms and sub-systems, systems engineering, standards for AITV (assembly, integration, testing and validation) activities, and launch regulations. This comprehensive resource provides all the information needed for engineers and developers in industry and academia to successfully design and launch a CubeSat mission. Provides an overview on all aspects that a CubeSat developer needs to analyze during mission design and its realization Features practical examples on how to design and deal with possible issues during a CubeSat mission Covers new developments and technologies, including ThinSats and PocketQubeSats

The Apollo 11 Mission, primarily designed to land men on the Moon and return them safely to Earth, signaled a new phase of the manned space program. Based on the success of Apollo 11, the first of a series of missions designed for the systematic exploration of the Moon was successfully accomplished on Apollo 12. The fact that the Apollo 12 astronauts were able to achieve a pinpoint landing at a preselected site, and then spend an extended time on the lunar surface, graphically illustrates the rapid progress of the Apollo program. The Apollo 12 mission added significantly to man's knowledge of the Moon. The precise landing capability allowed the crew to accomplish a wide variety of preplanned tasks and paved the way for planning future missions to smaller, more selected landing areas with the possibility of significant scientific returns. The publication includes chapters on mission description, summary of scientific results, photographic summary of the Apollo 12 Mission, crew observations, passive seismic experiment, lunar surface magnetometer experiment, the solar-wind spectrometer experiment, suprathermal ion detector experiment (Lunar ionosphere detector), cold cathode gage (lunar atmosphere detector), the solar-wind composition experiment, Apollo 12 multispectral photography experiment, preliminary geologic investigation of the Apollo 12 landing site, lunar surface closeup stereoscopic photography, preliminary examination of lunar samples, and preliminary results from Surveyor 3 analysis. DVD contains unique synchronized film and audio of the lunar landing, rendezvous and docking. Rare training footage of the crew aboard the KC-135, launch footage, multi-camera EVA film, splashdown and recovery footage.

CubeSat Handbook

Lessons learned from accidents involving remotely piloted and autonomous aircraft

The Search for Life in the Depths of Space

Launch Vehicle Design Process: Characterization, Technical Integration, and Lessons Learned

The Final Flight of Shuttle Columbia

Flight Instruction Manual

On the Shoulders of Titans

Inside the epic quest to find life on the water-rich moons at the outer reaches of the solar system Where is the best place to find life beyond Earth? We often look to Mars as the most promising site in our solar system, but recent scientific missions have revealed that some of the most habitable real estate may actually lie farther away. Beneath the frozen crusts of several of the small, ice-covered moons of Jupiter and Saturn lurk vast oceans that may have existed for as long as Earth, and together may contain more than fifty times its total volume of liquid water. Could there be organisms living in their depths? Alien Oceans reveals the science behind the thrilling quest to find out. Kevin Peter Hand is one of today's leading NASA scientists, and his pioneering research has taken him on expeditions around the world. In this captivating account of scientific discovery, he brings together insights from planetary science, biology, and the adventures of scientists like himself to explain how we know that oceans exist within moons of the outer solar system, like Europa, Titan, and Enceladus. He shows how the exploration of Earth's oceans is informing our understanding of the potential habitability of these icy moons, and draws lessons from what we have learned about the origins of life on our own planet to consider how life could arise on these distant worlds. Alien Oceans describes what lies ahead in our search for life in our solar system and beyond, setting the stage for the transformative discoveries that may await us.

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.

NASA commissioned the Columbia Accident Investigation Board (CAIB) to conduct a thorough review of both the technical and the organizational causes of the loss of the Space Shuttle Columbia and her crew on February 1, 2003. The accident investigation that followed determined that a large piece of insulating foam from Columbia's external tank (ET) had come off during ascent and struck the leading edge of the left wing, causing critical damage. The damage was undetected during the mission. The Columbia accident was not survivable. After the Columbia Accident Investigation Board (CAIB) investigation regarding the cause of the accident was completed, further consideration produced the question of whether there were lessons to be learned about how to improve crew survival in the future. This investigation was performed with the belief that a comprehensive, respectful investigation could provide knowledge that can protect future crews in the worldwide community of human space flight. Additionally, in the course of the investigation, several areas of research were identified that could improve our understanding of both nominal space flight and future spacecraft accidents. This report is the first comprehensive, publicly available accident investigation report addressing crew survival for a human spacecraft mishap, and it provides key information for future crew survival investigations. The results of this investigation are intended to add meaning to the sacrifice of the crew's lives by making space flight safer for all future generations.

The NASA History of Manned Lunar Spacecraft to 1969

Adventures of a Pioneering Female NASA Flight Controller

Report of the Presidential Commission on the Space Shuttle Challenger Accident

A History of Nasa's Pioneering Digital Fly-by-Wire Project

A History of Project Gemini

Report of Apollo 13 Review Board

Evidence Reviewed by the NASA Human Research Program

The original "final edition" of the Apollo 11 flight plan, restored and reprinted for the 50th Anniversary of the moon landing that took place in 1969.

Marianne J. Dyson recounts for us a time when women were making the first inroads into space flight control, a previously male-dominated profession. The story begins with the inspiration of the Apollo 11 landing on the Moon and follows the challenges of pursuing a science career as a woman in the 70s and 80s, when it was far from an easy path. Dyson relates the first five space shuttle flights from the personal perspective of mission planning and operations in Houston at the Johnson Space Center, based almost exclusively on original sources such as journals and NASA weekly activity reports. The book's historical details about samples, and flight controller training exemplify both the humorous and serious aspects of space operations up through the Challenger disaster, including the almost unknown fire in Mission Control during STS-5 that nearly caused an emergency entry of the shuttle. From an insider with a unique perspective and credentials to match, this a must-read for anyone interested in the workings of NASA during one of its busiest and defining times, and the challenges faced by women pursuing scientific careers .

On February 1, 2003, the unthinkable happened. The space shuttle Columbia disintegrated 37 miles above Texas, seven brave astronauts were killed and America's space program, always an eyeblink from disaster, suffered its second catastrophic in-flight failure. Unlike the Challenger disaster 17 years earlier, Columbia's destruction left the nation one failure away from the potential abandonment of human space exploration. Media coverage in the immediate aftermath focused on the possible cause of the disaster, and on the nation's grief. But the full human story, and the shocking details of NASA's crucial mistakes, have never been told -- until now. Based on dozens of exclusive interviews, never-before-published documents and recordings of key meetings obtained by the authors, Comm Check takes the reader inside the conference rooms and offices where NASA's best and brightest managed the nation's multi-billion-dollar shuttle program -- and where they failed to recognize the signs of an impending disaster. It is the story of a space program pushed to the brink of failure by relentless political pressure, shrinking budgets and flawed decision making. The independent investigation into the disaster uncovered why Columbia broke apart in the sky above Texas. Comm Check brings that story to life with the human drama behind the tragedy. Michael Cabbage and William Harwood, two of America's most respected space journalists, are veterans of all but a handful of NASA's 113 shuttle missions. Tapping a network of sources and bringing a combined three decades of experience to bear, the authors provide a rare glimpse into NASA's inner circles, chronicling the agency's most devastating failure and the challenges that face NASA as it struggles to return America to space.

Space Medicine in Project Mercury

Preparing Apollo for Its Historic Journey

NASA Technical Note

Comm Check

Apollo 11 Flight Plan

Saturn V Flight Manual, SA 507

NASA's X-34 and the Quest for Cheap Reusable Access to Space

Apollo 12The NASA Mission ReportsCollectors Guide Pub

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. --and where they failed to recognize the signs of an impending disaster. It is the story of a space program pushed to the brink of failure by relentless political pressure, shrinking budgets and flawed decision making. The independent investigation into the disaster uncovered why Columbia broke apart in the sky above Texas. Comm Check brings that story to life with the human drama behind the tragedy. Michael Cabbage and William Harwood, two of America's most respected space journalists, are veterans of all but a handful of NASA's 113 shuttle missions. Tapping a network of sources and bringing a combined three decades of experience to bear, the authors provide a rare glimpse into NASA's inner circles, chronicling the agency's most devastating failure and the challenges that face NASA as it struggles to return America to space.

Reviews the circumstances surrounding the Challenger accident to establish the probable cause or causes of the accident. Develops recommendations for corrective or other action based upon the Commission's findings and determinations. Color photos, charts and tables.

Apollo 12 Preliminary Science Report

The Martian

U.S. Aviation Pressure Suits, Wiley Post to Space Shuttle

Promise Denied

Final Edition

Chariots for Apollo

This book provides unique access to the story of how scientists were accepted into the American Space Programme, and reveals how, after four difficult decades, the role of the heroic test pilot astronaut has been replaced by men and women who are science orientated space explorers.

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.

1. A new science / 2. A hypersonic research airplane / 3. Conflict and innovation / 4. The million-horsepower engine / 5. High range and dry lakes / 6. Preparations / 7. The flight program / 8. The research program.

Human Health and Performance Risks of Space Exploration Missions

From Mission Design to Operations

Apollo by the Numbers

1969 NASA Authorization

The Birth of NASA

A Simulation Model for Probabilistic Analysis of Space Shuttle Abort Modes

To Orbit and Back Again

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 manuals, and flight controller training exemplify both the humorous and serious aspects of space operations up through the Challenger disaster, including the almost unknown fire in Mission Control during STS-5 that nearly caused an emergency entry of the shuttle. From an insider with a unique perspective and credentials to match, this a must-read for anyone interested in the workings of NASA during one of its busiest and defining times, and the challenges faced by women pursuing scientific careers .

System safety is the application of engineering and management principles, criteria, and techniques to optimize safety within the constraints of operational effectiveness, time, and cost throughout all phases of the system life cycle. System safety is to safety as systems engineering is to engineering. When performing appropriate analysis, the evaluation is performed ensuring that system safety has an integrated system-level perspective. The NASA System Safety Handbook presents the overall framework for System Safety and provides the general concepts needed to implement the framework. The treatment addresses activities throughout the system life cycle to assure that the system meets safety performance requirements for project management and engineering teams and for those with review and oversight responsibilities. It can be used both in a forward-thinking mode to promote the development of safe systems, and in a retrospective mode to determine whether desired safety objectives have been achieved. The topics covered in this volume include general approaches for formalizing a corresponding hierarchical set of safety claims, characterizing the system safety activities needed to provide supporting evidence, and presenting a risk-informed safety case that validates the claims. Volume 2, to be completed in 2012, will provide specific guidance on the conduct of the major system safety activities and the development of the evidence.

Explains how the space shuttle works and describes a shuttle trip from lift-off to touchdown.

Columbia Crew Survival Investigation Report

Extending the Frontiers of Flight

The Centaur Upper Stage Rocket, 1958-2002

The NASA History of Skylab

Dressing for Altitude

Scientific and Engineering Legacies of the Space Shuttle 1971-2010

Space Shuttle Missions Summary (NASA/TM-2011-216142)

Unofficially they called themselves the TFNG, or the Thirty-Five New Guys. Officially, they were NASAs Group 8 astronauts, selected in January 1978 to train for orbital missions aboard the Space Shuttle. Prior to this time only pilots or scientists trained as pilots had been assigned to fly on Americas spacecraft, but with the advent of the innovative winged spacecraft the door was finally opened to non-pilots, including women and minorities. In all, 15 of those selected were categorised as Pilot Astronauts, while the other 20 would train under the new designation of Mission Specialist. Altogether, the Group 8 astronauts would be launched on a total of 103 space missions; some flying only once, while others flew into orbit as many as five times. Sadly, four of their number would perish in the Challenger tragedy in January 1986. In their latest collaborative effort, the authors bring to life the amazing story behind the selection of the first group of Space Shuttle astronauts, examining their varied backgrounds and many accomplishments in a fresh and accessible way through deep research and revealing interviews. Throughout its remarkable 30-year history as the workforce of NASAs human spaceflight exploration, twice halted through tragedy, the Shuttle fleet performed with magnificence. So too did these 35 men and women, swept up in the dynamic thrust and ongoing development of Americas Space Shuttle program. This book on the Group 8 Astronauts, the TFNGs, is an excellent summation of the individuals first selected for the new Space Shuttle Program. It provides insight into what it took to first get the Space Shuttle flying. For any space enthusiast it is a must read. Robert L. Crippen PLT on STS-1.

NASA's Scientist-Astronauts

Living and Working in Space

NASA's First Space Shuttle Astronaut Selection

An Assessment of Space Shuttle Flight Software Development Processes

The NASA Mission Reports

Hearings, Ninetieth Congress, Second Session, on H.R. 15086 (superseded by H.R. 15856).

A Passion for Space