

## Download Free Amateur Rocket Motor Construction A Complete Guide To The Construction Of Homemade Solid Fuel Rocket Motors

# Amateur Rocket Motor Construction A Complete Guide To The Construction Of Homemade Solid Fuel Rocket Motors

**This newly reissued debut book in the Rutgers University Press Classics Imprint is the story of the search for a rocket propellant which could be trusted to take man into space. This search was a hazardous enterprise carried out by rival labs who worked against the known laws of nature, with no guarantee of success or safety. Acclaimed scientist and sci-fi author John Drury Clark writes with irreverent and eyewitness immediacy about the development of the explosive fuels strong enough to negate the relentless restraints of gravity. The resulting volume is as much a memoir as a work of history, sharing a behind-the-scenes view of an enterprise which eventually took men to the moon, missiles to the planets, and satellites to outer space. A classic work in the history of science, and described as “a good book on rocket stuff...that’s a really fun one” by SpaceX founder Elon Musk, readers will want to get their hands on this**

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**influential classic, available for the first time in decades. The purpose of this manual is to provide recovery system engineers in government and industry with tools to evaluate, analyze, select, and design parachute recovery systems. These systems range from simple, one-parachute assemblies to multiple-parachute systems, and may include equipment for impact attenuation, flotation, location, retrieval, and disposition. All system aspects are discussed, including the need for parachute recovery, the selection of the most suitable recovery system concept, concept analysis, parachute performance, force and stress analysis, material selection, parachute assembly and component design, and manufacturing. Experienced recovery system engineers will find this publication useful as a technical reference book; recent college graduates will find it useful as a textbook for learning about parachutes and parachute recovery systems; and technicians with extensive practical experience will find it useful as an engineering textbook that includes a chapter on parachute- related aerodynamics. In this manual, emphasis is**

**placed on aiding government employees in evaluating and supervising the design and application of parachute systems. The parachute recovery system uses aerodynamic drag to decelerate people and equipment moving in air from a higher velocity to a lower velocity and to a safe landing. This lower velocity is known as rate of descent, landing velocity, or impact velocity, and is determined by the following requirements: (1) landing personnel uninjured and ready for action, (2) landing equipment and air vehicles undamaged and ready for use or refurbishment, and (3) impacting ordnance at a preselected angle and velocity.**

**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**

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**principles and practice of rocket propulsion, from the point of view of the user who is not an engineering specialist.**

**An American Institute of Aeronautics and Astronautics Series**

**A Curious Journey in World Record Breaking**

**A Teacher's Guide with Activities in Science, Mathematics, and Technology**

**Borg Like Me**

**Chemical Rocket Propulsion**

**Pioneers and Achievements from the XIVth Century to the Present**

**How to Create and Build Unique and Exciting Model Rockets That Work!**

Plans, diagrams, schematics, and lists of parts and tools for model rocket projects.

What's important when building a rocket from scratch? How about high performance, ease of construction and safety. Let's face it; nobody wants to lose a limb. With over fifteen years experience building rockets, Dan Pollino's latest manual makes this seemingly daunting project simple. You'll learn such fundamental tasks as: Making the rocket body from a drain pipe Making the nosecone from a plastic wine glass Making a piston that ejects the parachute without scorching it Making an electromechanical apogee detector Making the nozzle with cement and a steel washer Making the fuel from ordinary sugar You can do it! With this book anyone can

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**construct a high-quality rocket capable of reaching four hundred miles-per-hour and attaining an altitude of six thousand feet without a machine shop, or even special tools. Free bonus chapters including making the launch rail, making the ignition controller and launching the rocket multiple times are available online. In this easy-to-understand guide you'll find step-by-step instructions to building the perfect rocket without injuring yourself or your wallet. I Still Have All My Fingers is the rocket building bible amateur rocket enthusiasts have been waiting for. Dan Pollino's rockets have been featured on G4 TV's "It's Effin Science." His website [InverseEngineering.com](http://InverseEngineering.com) focuses on amateur rocketry in California.**

**This book, a translation of the French title *Technologie des Propergols Solides*, offers otherwise unavailable information on the subject of solid propellants and their use in rocket propulsion. The fundamentals of rocket propulsion are developed in chapter one and detailed descriptions of concepts are covered in the following chapters. Specific design methods and the theoretical physics underlying them are presented, and finally the industrial production of the propellant itself is explained. The material used in the book has been collected from different countries, as the development of this field has occurred separately due to the classified nature of the subject. Thus the reader not only has an overall picture of solid rocket propulsion technology but a comprehensive view of its different developmental permutations worldwide.**

### **Rocket Propulsion**

#### **My Rocket-Propelled Life and High-Octane Creations**

#### **Ignition!**

#### **The Soviet Union and the Space Race, 1945-1974**

#### **Principles, Practice and New Developments**

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Handbook of Model Rocketry

A Comprehensive Survey of Energetic Materials

***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***

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***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.***

***Since the 1960s, Ky Michaelson's rocket-powered vehicles have set 72 state, national, and international speed records. His penchant for the unknown and passion for speed have been with him since childhood, when he built his first rocket-powered motorcycle. After earning his first world record--for a rocket-powered snowmobile--he decided to go after every acceleration record in the world. This is Ky's story, the life of a driven--or rocket-powered--man. Ky tells about how he began and where he's gone, about his work on hundreds of film and television programs, and about his service as program director of "SPACESHOT 2004"--the grand effort of the Civilian Space Exploration Team (CSXT) to build and launch the first amateur rocket into space. And he describes reaching the "impossible dream" as the first amateur to license, and successfully launch, the Go Fast Rocket into space, with an altitude of 72***

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***miles--and a new speed record of 3,420 mph.***

***The technology underground is a thriving, humming, and often literally scintillating subculture of amateur inventors and scientific envelope-pushers who dream up, design, and build machines that whoosh, rumble, fly—and occasionally hurl pumpkins across enormous distances. In the process they astonish us with what is possible when human imagination and ingenuity meet nature’s forces and materials. William Gurstelle spent two years exploring the most fascinating outposts of this world of wonders: meeting and talking to the men and women who care far more for the laws of physics than they do for mundane matters like government regulations and their own personal safety. Adventures from the Technology Underground is Gurstelle’s lively and weirdly compelling report of his travels. In these pages we meet Frank Kosdon and others who draw the scrutiny of the FAA, ATF, and other federal agencies in their pursuit of high-power amateur rocketry, which they demonstrate to impressive—and sometimes explosive—effect at the annual LDRS gathering held in various remote and***

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***unpopulated areas (a necessary consideration since that acronym stands for Large Dangerous Rocket Ships). Here also are the underground technologists who turn up at the Burning Man festival in the Nevada high desert, including Lucy Hosking, “the engineer from Hell” and the creator of Satan’s Calliope, aka the World’s Loudest Thing, a pipe organ made from jet engines. Also at Burning Man is Austin “Dr. MegaVolt” Richard, who braves the arcing, sputtering, six-digit voltages of a giant Tesla coil in his protective metal suit. Add in a trip to see medieval-style catapults, air cannons, and supersized slingshots in action at the World Championship Punkin Chunkin competition in Sussex County, Delaware, and forays to the postapocalyptic enclaves of the flamethrower builders and the future-noir pits of the fighting robots, and you have proof positive that the age of invention is still going strong. In the world of science and engineering, despite its buttoned-down image, there’s plenty of fun, humor, and sheer wonder to be found at the fringes. Adventures from the Technology Underground takes you there. • Launch homemade high-power***

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***rockets. • Catapult pumpkins the better part of a mile. • Watch robot gladiators saw, flip, and pound one another into high-tech junk heaps. • Dazzle the eye with electrical discharges measured in the hundreds of thousands of volts. • Play with flamethrowers, potato guns, and other decidedly unsafe toys . . . If this is your idea of fun, you'll have a major good time on this wild ride through today's Technology Underground. From the Burning Man festival in Nevada's high desert to the latest gathering of Large Dangerous Rocket Ship builders to Delaware's annual Punkin Chunkin competition (a celebration of "science, radical self-expression, and beer"), you'll meet the inspired, government-unregulated, and corporately unfettered men and women who operate at the furthest fringes of science, engineering, and wild-eyed arc welding, building the catapults, ultra-high-voltage electrical devices, incendiary artworks, fighting robots, and other machines that demonstrate what's possible when physics meets human ingenuity.***

***An Informal History of Liquid Rocket Propellants***

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## ***Down-to-Earth Rocket Science (and Related Subjects) & Other Tales of Art, Eros, and Embedded Systems Energiya-Buran The Rocket Motor Rocket Propulsion Elements***

A translation from German of a 1929 treatise by the author. Deals with the problem of the space travel. Expresses ideas about rocketry and space travel. Extensive treatment of the engineering aspects of a space station. Extensive bibliography. 100 drawings. Equips students with an up-to-date practical knowledge of rocket propulsion, numerous homework problems, and online self-study materials.

Michel van Pelt explains for the first time the principle of space tethers: what they are and how they can be used in space. He introduces non-technical space enthusiasts to the various possibilities and feasibility of space tethers including the technological challenges and potential benefits. He illustrates how, because of their inherent simplicity, space tethers have the potential to make space travel much cheaper, while ongoing advances in tether material technology may make even seemingly far-fetched ideas a reality in the not too distant future.

Make: Rockets

Model Rocket Design and Construction

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The History of High-Power Rocketry's Ascent to the Edges of Outer Space

Federal Explosives Law and Regulations

Modern Engineering for Design of Liquid-Propellant Rocket Engines

Parachute Recovery Systems

I Still Have All My Fingers

This comprehensive handbook provides an overview of space technology and a holistic understanding of the system-of-systems that is a modern spacecraft. With a foreword by Elon Musk, CEO and CTO of SpaceX, and contributions from globally leading agency experts from NASA, ESA, JAXA, and CNES, as well as European and North American academics and industrialists, this handbook, as well as giving an interdisciplinary overview, offers, through individual self-contained chapters, more detailed understanding of specific fields, ranging through: · Launch systems, structures, power, thermal, communications, propulsion, and software, to · entry, descent and landing, ground segment, robotics, and data systems, to · technology management, legal and regulatory issues, and project management. This handbook is an equally invaluable asset to those on a career path towards the space industry as it is to those already within the industry.

This absorbing book describes the long development of the Soviet space

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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 book received the Emme Award for Astronautical Literature at the March 20 2000 luncheon of the Goddard Memorial Symposium, sponsored by the American Astronautical Society. Named in honor of the first NASA Historian, Eugene Emme, the Emme award was created in 1982 to annually recognize an outstanding book that increases public understanding of the past and potential impact of the field of astronautics.

Encyclopedic Dictionary of Pyrotechnics

A History of the Italian Space Adventure

Challenge to Apollo

The Soviet Space Shuttle

A Complete Guide to the Construction of Homemade Solid Fuel Rocket Motors

Adventures from the Technology Underground

How to Build a Big Sugar Rocket on a Budget Without Losing a Limb

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It wasn't the diamond as big as the Ritz, but it was a pretty big chunk of ice, and it got the precocious pranksters of The Mad Scientists' Club entwined in an international intrigue only the intrepid investigators of Interpol could unravel. Take the seven young mad scientists of Mammoth Falls, stick them in an antiquated blimp bound for the Austrian Alps, along with two "hep" college girls and a zany professor of mysterious Romanian origins - and you have the makings of a high-flying adventure! If you're not already a fan of super-brain Henry Mulligan, dinky Dinky Poore, fat Freddy Muldoon, and the other unpredictable troublemakers that populate this series of mad adventure stories, you will be, once you read *The Big Chunk of Ice*. The fourth book in The Mad Scientists' Club series, written by Bertrand Brinley in the 1986, but first published in 2005 by Purple House Press.

Details the problem-based learning process, explores the teacher's role, and provides background information, lessons, problems, a chart for organizing student research, and information about assessment.

This Second Edition of *Modern High-Power Rocketry* contains more than 800 photographs and illustrations specifically created to introduce the model rocket enthusiast to the exciting world of high power. Completely rewritten, photographed and designed, this book provides tips and simple advice on motor retention, ejection charges, the high-power launch and building your first Level One, Level Two and Level Three rockets.

NASA's Search for a Reusable Space Vehicle

Rocket and Spacecraft Propulsion

Construction and Certification for Thousands of Feet and Beyond

Make: High-Power Rockets

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Rockets and People:

Rockets

The International Handbook of Space Technology

Much has been written in the West on the history of the Soviet space program but few Westerners have read direct first-hand accounts of the men and women who were behind the many Russian accomplishments in exploring space. The memoirs of Academician Boris Chertok, translated from the original Russian, fills that gap. Chertok began his career as an electrician in 1930 at an aviation factory near Moscow. Twenty-seven years later, he became deputy to the founding figure of the Soviet space program, the mysterious “Chief Designer” Sergey Korolev. Chertok's sixty-year-long career and the many successes and failures of the Soviet space program constitute the core of his memoirs, *Rockets and People*. In these writings, spread over four volumes, Academician Chertok not only describes and remembers, but also elicits and extracts profound insights from an epic story about a society's quest to explore the cosmos. In Volume 1, Chertok describes his early years as an engineer and ends with the mission to Germany after the end of World War II when the Soviets captured Nazi missile technology and expertise. Volume 2 takes up the story with the development of the world's first intercontinental ballistic missile (ICBM) and ends with the launch of Sputnik and the early Moon probes. In Volume 3, Chertok recollects the great successes of the Soviet space program in the 1960s including the launch of the world's first space

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voyager Yuriy Gagarin as well as many events connected with the Cold War. Finally, in Volume 4, Chertok meditates at length on the massive Soviet lunar project designed to beat the Americans to the Moon in the 1960s, ending with his remembrances of the Energiya-Buran project. NASA SP-2005-4110.

A comprehensive collection of cyberculture pioneer Gareth Branwyn's best work, *Borg Like Me* spans a 30-year writing career. The book covers Branwyn's coming of age in a commune, his involvement in the 90s zine publishing scene, his tenure at influential cyber arts and culture mags *Mondo 2000*, *bOING bOING*, *Wired*, and his eight years at *MAKE*, spearheading the growing maker movement. Previously published material is woven throughout with Branwyn's unabashedly honest commentary, personal anecdotes, and original essays. Read about the smart-druggies behind *Mondo 2000*, impersonating Billy Idol in cyberspace (for Billy Idol), the making of the iconic early 90s hypermedia book, *Beyond Cyberpunk!*, and Branwyn going positively Phillip K. Dick after a heart attack and a bad blood transfusion. *Borg Like Me* is a smart, passionate, intense trip along the bleeding edges of art, technology, and culture at the turn of the 21st century.

*Easy PVC Rockets* is a book on how to make your own model rocket engines at home with easy techniques and readily available materials. Using only stump remover, powdered sugar, kitty litter, and some PVC pipe you can create a whole array of rocket engine designs ranging from small bottle rockets to large F class engines. Also in the

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book are homemade methods to creating your own model rockets, launch stands, and electrical ignition systems also from readily available materials.

Design Manual

Large and Dangerous Rocket Ships

How to Make Amateur Rockets - 2nd Edition

A Technical Treatise on Aerodynamic Decelerators

Modern High-power Rocketry

50 Model Rocket Projects for the Evil Genius

The Problem of Space Travel

**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**

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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

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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.

**Make: High-Power Rockets** is for all the science geeks who look at the moon and try to figure out where Neil Armstrong walked, watch in awe as rockets lift off, and want to fly their own model rockets. Starting with an overview of mid- and high-power rocketry, readers will start out making rockets with F and G engines, and move on up to H engines.

This book teaches the reader to build rockets--powered by compressed air, water, and solid propellant--with the maximum possible fun, safety, and educational experience. **Make: Rockets**

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is for all the science geeks who look at the moon and try to figure out where Neil Armstrong walked, watch in awe as rockets lift off, and want to fly their own model rockets. Starting with the basics of rocket propulsion, readers will start out making rockets made from stuff lying around the house, and then move on up to air-, water-, and solid propellant-powered rockets. Most of the rockets in the book can be built from parts in the Estes Designer Special kit.

The Parachute Manual

Big dumb boosters a low-cost space transportation option.

Easy PVC Rockets

The Space Shuttle Decision

Rocketman

An Introduction to the Engineering of Rockets

Amateur Rocket Motor Construction

*In October, 1970, The Blue Flame rocket car screamed across the Bonneville Salt Flats at 622.407 mph setting the absolute world land speed record. The title held fast for 13 years and remains the fastest American-built car in history. Ray Dausman designed the rocket engine for The Blue Flame. Why wasn't he present when The Blue Flame set the world record? Why didn't the*

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*car achieve 1,000 mph as he designed it to do? Ray's story unfolds with humorous observations of what it was like to be a fish out of water in the racing world. The reader has a front row seat for this wrestling match between regret and perspective of achievement. Sarah, Ray's daughter, shares his story in this memoir of a man with a passion for rockets and new ideas. The Reluctant Rocketman introduces the reader to a boy with a thirst for new adventures who develops a passion for rockets as he reaches adulthood with an even greater appreciation for new ideas. The Blue Flame project is the common thread throughout these chapters which shed light on the life a self-taught rocket designer who had to decide if the price of invention was worth it after all.*

*There's no available information at this time. Author will provide once information is available.*

*This well-documented and fascinating book tells how, over the centuries, a series of visionaries, scientists, technologists, and politicians fostered the involvement of Italy in space exploration. The lives of these pioneers was often far from easy, yet they persevered. The fruits of their efforts can today be witnessed in Italy's success within the cutting-edge space sector. Italy's history in space started at the end of the fourteenth century and continued with the*

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*development of fireworks. Later, the nineteenth century marked the beginning of research into rockets in a more scientific way. After World War II, rocket technology was advanced with the aid of German scientists, and in the 1960s Luigi Broglio, the father of Italian space exploration, designed the San Marco satellite. In 1979 the first Italian Space Plan was launched, but it was the foundation of the Italian Space Agency in 1988 that kick-started a program of exploration in various fields of cosmic research. The outcome was construction of the Vega launcher and collaboration in the International Space Station. Now the Italian space industry stands ready to play an important role in the Gateway orbital station. All of this history, and more, is explored in this riveting book.*

*The Reluctant Rocketman*

*The Big Chunk of Ice*

*Solid Rocket Propulsion Technology*

*Catapults, Pulsejets, Rail Guns, Flamethrowers, Tesla Coils, Air Cannons, and the Garage Warriors Who Love Them*

*How to Use Problem-based Learning in the Classroom*

*Space Tethers and Space Elevators*

*Progress in Astronautics and Aeronautics*

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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.