

Jet Engine Tech

Improving the Efficiency of Engines for Large Nonfighter Aircraft
Takeoff! USAF Formal Schools
Making Jet Engines in World War II
Modern Experimental Aircraft
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Improving the Efficiency of Engines for Large Nonfighter Aircraft

Takeoff!

A comprehensive index to company and industry information in business journals.

USAF Formal Schools

Taking a fresh, holistic approach to the topic of architectural technology, this indispensable book looks at the 'why' as well as the 'how' of building science, providing a comprehensive, clear and concise introduction to the subject. The demands faced by architects in their training and education are constantly changing. Written by two practicing architects who teach

building technology and design, this text ensures that the reader is given the full picture of the discipline, as it integrates technical material with design sensibilities. Incorporating structural design, environmental principles, material science and human factors, this book shows how these topics rely upon and influence one another in architectural design. It also relates the technical with the theoretical, illustrating how technology and design have influenced one another historically. Offering highly practical guidance to the essentials of building design, this book is the first to provide the full spectrum of building science for architects in one volume. Design-Tech includes hundreds of illustrations and numerous case studies that show how these theories work in practice. * A single volume integrating structural, environmental and construction engineering basics for architects * A holistic approach to technology, illustrating how it relates to the history and theory of architecture * Presents sustainable design as a given, with environmental design principles included throughout the text

Making Jet Engines in World War II

Modern Experimental Aircraft

Committee Serial No. 38. Investigates armed services promotion requirements and procedures, and the alleged inadequacy of present promotion system. Includes report by Secretary of Navy: "Report of the Secretary of the Navy's Task Force on Navy/Marine Military Personnel Retention" (Jan. 25, 1966, p. 6531-6591).

Hearings Before the Special Subcommittee on Enlisted Promotion Policy Review, Committee on Armed Services, House of Representatives, Ninetieth Congress, First Session

Design-tech

Jet Engines

The Big Book of X-Bombers & X-Fighters

Our stories of industrial innovation tend to focus on individual initiative and breakthroughs. With Making Jet Engines in

World War II, Hermione Giffard uses the case of the development of jet engines to offer a different way of understanding technological innovation, revealing the complicated mix of factors that go into any decision to pursue an innovative, and therefore risky technology. Giffard compares the approaches of Britain, Germany, and the United States. Each approached jet engines in different ways because of its own war aims and industrial expertise. Germany, which produced more jet engines than the others, did so largely as replacements for more expensive piston engines. Britain, on the other hand, produced relatively few engines—but, by shifting emphasis to design rather than production, found itself at war's end holding an unrivaled range of designs. The US emphasis on development, meanwhile, built an institutional basis for postwar production. Taken together, Giffard's work makes a powerful case for a more nuanced understanding of technological innovation, one that takes into account the influence of the many organizational factors that play a part in the journey from idea to finished product.

Green Light for Green Flight

The Middle East, Abstracts and Index

Annotation A design textbook attempting to bridge the gap between traditional academic textbooks, which emphasize individual concepts and principles; and design handbooks, which provide collections of known solutions. The airbreathing gas turbine engine is the example used to teach principles and methods. The first edition appeared in 1987. The disk contains supplemental material. Annotation c. Book News, Inc., Portland, OR (booknews.com).

Predicasts F & S Index United States

If air travel was once the bold future, it has now settled into a mundane, on-going present. We no longer expect romantic experiences or sublime views, but just hope that we get from here to there with minimal hassle. In *The End of Airports*, Christopher Schaberg suggests that even as the epoch of flight approaches a threshold of banality, there are still mysteries to be unraveled around our aircraft and airfields. Drawing from his own experiences working at an airport, as well as interpreting these spaces from the perspective of a cultural critic, Schaberg explores the secret lives of jet bridges, seating areas, concourses, and tarmac vehicles, showing how the ordinary objects of flight call for wonder and inquiry. *The End of Airports* is not an obituary—it's more like an ode to terminals in the digital age.

Uninhabited Air Vehicles

Bibliography of Books and Published Reports on Gas Turbines, Jet Propulsion, and Rocket Power Plants

Broaden your knowledge of jet engine technology and its associated subjects. This is a technically comprehensive study of the components that constitute a gas turbine aero-engine and examines each part's design and function in practice. Concentrates on turbojet, turboprop and turboprop designs, and is applicable to civilian and military usage. Contains an overview of the main design types and fundamentals, and looks at air intakes, compressors, turbines and exhaust systems in great detail.

Jet Age

Bibliography of Books and Published Reports on Gas Turbines, Jet Propulsion and Rocket Power Plants

A comprehensive reference for engineers and researchers, Gas Turbine Heat Transfer and Cooling Technology, Second Edition has been completely revised and updated to reflect advances in the field made during the past ten years. The second edition retains the format that made the first edition so popular and adds new information mainly based on selected published papers in the open literature. See What's New in the Second Edition: State-of-the-art cooling technologies such as advanced turbine blade film cooling and internal cooling Modern experimental methods for gas turbine heat transfer and cooling research Advanced computational models for gas turbine heat transfer and cooling performance predictions Suggestions for future research in this critical technology The book discusses the need for turbine cooling, gas turbine heat-transfer problems, and cooling methodology and covers turbine rotor and stator heat-transfer issues, including endwall and blade tip regions under engine conditions, as well as under simulated engine conditions. It then examines turbine rotor and stator blade film cooling and discusses the unsteady high free-stream turbulence effect on simulated cascade airfoils. From here, the book explores impingement cooling, rib-turbulent cooling, pin-fin cooling, and compound and new cooling techniques. It also highlights the effect of rotation on rotor coolant passage heat transfer. Coverage of experimental methods includes heat-transfer and mass-transfer techniques, liquid crystal thermography, optical techniques, as well as flow and thermal measurement techniques. The book concludes with discussions of governing equations and turbulence models and their applications for predicting turbine blade heat transfer and film cooling, and turbine blade internal cooling.

Hearings Before and Special Reports Made by Committee on Armed Services of the House of

Representatives on Subjects Affecting the Naval and Military Establishments

Aeronautical Technologies for the Twenty-First Century

There has been a remarkable difference in the research and development regarding gas turbine technology for transportation and power generation. The former remains substantially florid and unaltered with respect to the past as the superiority of air-breathing engines compared to other technologies is by far immense. On the other hand, the world of gas turbines (GTs) for power generation is indeed characterized by completely different scenarios in so far as new challenges are coming up in the latest energy trends, where both a reduction in the use of carbon-based fuels and the raising up of renewables are becoming more and more important factors. While being considered a key technology for base-load operations for many years, modern stationary gas turbines are in fact facing the challenge to balance electricity from variable renewables with that from flexible conventional power plants. The book intends in fact to provide an updated picture as well as a perspective view of some of the abovementioned issues that characterize GT technology in the two different applications: aircraft propulsion and stationary power generation. Therefore, the target audience for it involves design, analyst, materials and maintenance engineers. Also manufacturers, researchers and scientists will benefit from the timely and accurate information provided in this volume. The book is organized into three main sections including 10 chapters overall: (i) Gas Turbine and Component Performance, (ii) Gas Turbine Combustion and (iii) Fault Detection in Systems and Materials.

Enlistment and Reenlistment in Regular Air Force

U.S. Air Force (USAF) planners have envisioned that uninhabited air vehicles (UAVs), working in concert with inhabited vehicles, will become an integral part of the future force structure. Current plans are based on the premise that UAVs have the potential to augment, or even replace, inhabited aircraft in a variety of missions. However, UAV technologies must be better understood before they will be accepted as an alternative to inhabited aircraft on the battlefield. The U.S. Air Force Office of Scientific Research (AFOSR) requested that the National Research Council, through the National Materials Advisory Board and the Aeronautics and Space Engineering Board, identify long-term research opportunities for supporting the development of technologies for UAVs. The objectives of the study were to identify technological developments that would improve the performance and reliability of "generation-after-next" UAVs at lower cost and to recommend areas of fundamental research in materials, structures, and aeronautical technologies. The study focused on innovations in technology that would "leapfrog" current technology development and would be ready for scaling-up in the post-2010 time frame (i.e., ready for use on aircraft by 2025).

A Review of United States Air Force and Department of Defense Aerospace Propulsion Needs

Hearings, Reports and Prints of the House Committee on Armed Services

45 accurately rendered illustrations of dynamic flying prototypes: Northrop XP-56 Black Bullet, the Bell X-1 rocketplane, the diminutive McDonnell XF-85 Goblin "parasite," more. Descriptive captions.

Securing the Future of U.S. Air Transportation

The captivating story of the titans, engineers, and pilots who raced to design a safe and lucrative passenger jet. In *Jet Age*, journalist Sam Howe Verhovek explores the advent of the first generation of jet airliners and the people who designed, built, and flew them. The path to jet travel was triumphal and amazingly rapid—less than fifty years after the Wright Brothers' first flight at Kitty Hawk, Great Britain led the world with the first commercial jet plane service. Yet the pioneering British Comet was cursed with a tragic, mysterious flaw, and an upstart Seattle company put a new competitor in the sky: the Boeing 707 Jet Stratoliner. *Jet Age* vividly recreates the race between two nations, two global airlines, and two rival teams of brilliant engineers for bragging rights to the first jet service across the Atlantic Ocean in 1958. At the center of this story are great minds and courageous souls, including Sir Geoffrey de Havilland, who spearheaded the development of the Comet, even as two of his sons lost their lives flying earlier models of his aircraft; Sir Arnold Hall, the brilliant British aerodynamicist tasked with uncovering the Comet's fatal flaw; Bill Allen, Boeing's deceptively mild-mannered president; and Alvin "Tex" Johnston, Boeing's swashbuckling but supremely skilled test pilot. The extraordinary airplanes themselves emerge as characters in the drama. As the Comet and the Boeing 707 go head-to-head, flying twice as fast and high as the propeller planes that preceded them, the book captures the electrifying spirit of an era: the Jet Age. In the spirit of Stephen Ambrose's *Nothing Like It in the World*, Verhovek's *Jet Age* offers a gorgeous rendering of an exciting age and fascinating technology that permanently changed our conception of distance and time, of a triumph of engineering and design, and of a company that took a huge gamble and won.

Aircraft Engine Design

NASA's Environmentally Responsible Aviation (ERA) project began in 2009 to explore and document the feasibility, benefits and technical risks of advanced vehicle concepts and enabling technologies for reducing aviation's overall impact on the environment. Goals included reducing community noise footprints, fuel burn, and nitrogen oxide emissions. This book reviews the advanced aircraft design concepts, construction technologies, and propulsion advancements that were

researched by the ERA project.

Aircraft Propulsion and Gas Turbine Engines

The primary human activities that release carbon dioxide (CO₂) into the atmosphere are the combustion of fossil fuels (coal, natural gas, and oil) to generate electricity, the provision of energy for transportation, and as a consequence of some industrial processes. Although aviation CO₂ emissions only make up approximately 2.0 to 2.5 percent of total global annual CO₂ emissions, research to reduce CO₂ emissions is urgent because (1) such reductions may be legislated even as commercial air travel grows, (2) because it takes new technology a long time to propagate into and through the aviation fleet, and (3) because of the ongoing impact of global CO₂ emissions. Commercial Aircraft Propulsion and Energy Systems Research develops a national research agenda for reducing CO₂ emissions from commercial aviation. This report focuses on propulsion and energy technologies for reducing carbon emissions from large, commercial aircraft—single-aisle and twin-aisle aircraft that carry 100 or more passengers—because such aircraft account for more than 90 percent of global emissions from commercial aircraft. Moreover, while smaller aircraft also emit CO₂, they make only a minor contribution to global emissions, and many technologies that reduce CO₂ emissions for large aircraft also apply to smaller aircraft. As commercial aviation continues to grow in terms of revenue-passenger miles and cargo ton miles, CO₂ emissions are expected to increase. To reduce the contribution of aviation to climate change, it is essential to improve the effectiveness of ongoing efforts to reduce emissions and initiate research into new approaches.

Commercial Aircraft Propulsion and Energy Systems Research

Futuristic transportation is a concept that has provided a constant source of fascination for scientists, designers and artists. Using a range of illustrations, original diagrams, photographs and historical explanations, Future Tech explores the key developments at the forefront of vehicular technology, ranging from current advancements, such as hydrogen cell cars to projects still in early stages of development, such as jet paks, flying trains and wave piercing catamarans. The technologies are examined thoroughly and their advantages and disadvantages clearly assessed. Future Tech is a compilation of material which explores and defines the way the future is imagined in the present, and tries to answer that ever more pressing question of how we move forward.

Gas Turbine Heat Transfer and Cooling Technology, Second Edition

Prepared at the request of NASA, Aeronautical Technologies for the Twenty-First Century presents steps to help prevent the erosion of U.S. dominance in the global aeronautics market. The book recommends the immediate expansion of research on

advanced aircraft that travel at subsonic speeds and research on designs that will meet expected future demands for supersonic and short-haul aircraft, including helicopters, commuter aircraft, "tiltrotor," and other advanced vehicle designs. These recommendations are intended to address the needs of improved aircraft performance, greater capacity to handle passengers and cargo, lower cost and increased convenience of air travel, greater aircraft and air traffic management system safety, and reduced environmental impacts.

Aircraft: Gas Turbine Engine Technology

Exposure to noise at home, at work, while traveling, and during leisure activities is a fact of life for all Americans. At times noise can be loud enough to damage hearing, and at lower levels it can disrupt normal living, affect sleep patterns, affect our ability to concentrate at work, interfere with outdoor recreational activities, and, in some cases, interfere with communications and even cause accidents. Clearly, exposure to excessive noise can affect our quality of life. As the population of the United States and, indeed, the world increases and developing countries become more industrialized, problems of noise are likely to become more pervasive and lower the quality of life for everyone. Efforts to manage noise exposures, to design quieter buildings, products, equipment, and transportation vehicles, and to provide a regulatory environment that facilitates adequate, cost-effective, sustainable noise controls require our immediate attention. Technology for a Quieter America looks at the most commonly identified sources of noise, how they are characterized, and efforts that have been made to reduce noise emissions and experiences. The book also reviews the standards and regulations that govern noise levels and the federal, state, and local agencies that regulate noise for the benefit, safety, and wellness of society at large. In addition, it presents the cost-benefit trade-offs between efforts to mitigate noise and the improvements they achieve, information sources available to the public on the dimensions of noise problems and their mitigation, and the need to educate professionals who can deal with these issues. Noise emissions are an issue in industry, in communities, in buildings, and during leisure activities. As such, Technology for a Quieter America will appeal to a wide range of stakeholders: the engineering community; the public; government at the federal, state, and local levels; private industry; labor unions; and nonprofit organizations. Implementation of the recommendations in Technology for a Quieter America will result in reduction of the noise levels to which Americans are exposed and will improve the ability of American industry to compete in world markets paying increasing attention to the noise emissions of products.

Future Tech

This book presents firsthand insights into strategies and approaches for the commercial aerospace supply chain in response to the numerous changes that airlines, aircraft OEMs and their suppliers have experienced over the past few decades. In doing so, it investigates the entire product value chain. Accordingly, the chapters address the challenges of configuration

and demand, and highlight the specificities of customization in the aviation industry. They analyze component manufacturing, share valuable insights into assembly and integration activities, and describe aftermarket business models. In order to ensure more varied and balanced coverage, the book includes contributions by researchers, suppliers, and experts and practitioners from consulting companies and the aircraft industry. Taken together, they provide a holistic perspective on the transformation drivers and the innovations that have either been implemented or will be adopted in the near future. The book introduces and describes new concepts and innovations such as 3D printing, E2E demand management, digital production, predictive maintenance and open innovation in general, supplementing them with sample industrial applications from the aviation sector.

High Speed Aerodynamics and Jet Propulsion: Jet propulsion engines. Ed.: O. E. Lancaster

Because of the important national defense contribution of large, non-fighter aircraft, rapidly increasing fuel costs and increasing dependence on imported oil have triggered significant interest in increased aircraft engine efficiency by the U.S. Air Force. To help address this need, the Air Force asked the National Research Council (NRC) to examine and assess technical options for improving engine efficiency of all large non-fighter aircraft under Air Force command. This report presents a review of current Air Force fuel consumption patterns; an analysis of previous programs designed to replace aircraft engines; an examination of proposed engine modifications; an assessment of the potential impact of alternative fuels and engine science and technology programs, and an analysis of costs and funding requirements.

The End of Airports

Aircraft Propulsion and Gas Turbine Engines, Second Edition builds upon the success of the book's first edition, with the addition of three major topic areas: Piston Engines with integrated propeller coverage; Pump Technologies; and Rocket Propulsion. The rocket propulsion section extends the text's coverage so that both Aerospace and Aeronautical topics can be studied and compared. Numerous updates have been made to reflect the latest advances in turbine engines, fuels, and combustion. The text is now divided into three parts, the first two devoted to air breathing engines, and the third covering non-air breathing or rocket engines.

Cobra Jet: The History of Ford's Greatest High-Performance Muscle Cars

Examines the 1984 "war" that pitted Pratt and Whitney against GE in head-to-head competition for multi billion dollar defense contracts to provide high performance engines for front line fighter aircraft. The circumstances surrounding the lengthy battle led to the Air Force decision to split future engine sales between the two. Attempts to cut through emotional

opinions of the "combatants," to report reality, and to identify lessons learned. Helps the reader to understand the government-to-contractor personality issues; to understand management styles, business expectations and communication skills of key participants.

Progress in Gas Turbine Performance

They're all here--every X-bomber and X-fighter since 1942. On October 2, 1942, the Bell XP-59 Airacomet soared up and away from present-day Edwards AFB, launching the US Army Air Forces into the Jet Age. In the several decades since, hundreds of new variations of experimental and test turbojet-powered bombers and fighters--X-bombers and X-fighters--have taken explosive flight. These aircraft blazed a trail leading to today's B-2 Stealth Bomber and F-35 Joint Strike Fighter. The Big Book of X-Bombers & X-Fighters showcases all of the USAF jet-powered X-bombers and X-fighters that have flown since 1942--more than 90 in all, including the alphabet soup of their variants. From experimental to prototype service bombers and fighters--from the XB-43 to the B-2A and the XP-59A to the F-35A--they're all here, with their inside stories revealed. Some of these aircraft were further developed. Others were canceled. All stretched the performance and design envelopes. More than 250 photos illustrate all of these experimental aircrafts' cutting-edge features and zeroes in on histories of their design, flight testing, and weapons testing. Specification tables detailing performance, design, and armaments help round out this compendium of information on truly groundbreaking aviation designs. X-bombers and X-fighters in The Big Book of X-Bombers & X-Fighters include: Bell P-59 Airacomet Republic P/F-84 Thunderjet Douglas B-43 Jetmaster North American B-45 Tornado Boeing B-47 Stratojet Curtiss P/F-87 Blackhawk McDonnell P/F-85 Goblin Convair P/F-92 "Dart" Northrop F-17 Cobra Boeing B-1 Lancer And all the rest! Specifications included for each aircraft include: Length Height Wingspan Empty weight Gross weight Maximum range Ceiling Maximum speed Armament In addition, veteran aviation author Steve Pace shows readers some of the designs that could have been and offers a peek into what might be lurking in the future, making this the definitive guide to USAF jet-powered experimental aircraft!

The Air Force and the Great Engine War

Tech Notes

Relive Ford's glory days in the muscle car era in this stunning new volume covering the popular and powerful Cobra Jets! Ford's "Total Performance" racing program in the early 1960s was the first stone turned in the task of repurposing its image to the youth market. The introduction of the Mustang increased that exponentially, but even in 289 Hi-Po form it was no match for the Pontiac GTO or other muscle cars. Neither was the 1966 Fairlane GT or subsequent 390 Mustang the following

year. But when the 428 Cobra Jet Mustang debuted at Pomona for the NHRA Winternationals in 1968, that image evolved from wholesome to fearsome! Cobra Jet Mustangs downed all comers and took the vaunted Super Stock Eliminator crown while introducing a new weapon under the hood to serve as fair warning to what was to be uncoiled at the stoplight. By the next model year with the revolutionary shaker hood on Cobra Jet-equipped Mach 1s and the striking snake adorning the sheet metal of the midsize Cobra, Ford's image makeover was complete. The demise of the muscle car era didn't signify the end of the Cobra Jet, as Ford continued the performance reign with the 351 Cobra Jet. The legacy left by Mustang, Cougar, Torino, Cyclone, and Ranchero 428, 429, and 351 Cobra Jet-powered vehicles is indelible. Mustang Monthly editor Rob Kinnan and muscle car expert Diego Rosenberg bring this history back to life in an all-encompassing book that is the first to specifically feature all Cobra Jet cars, including the purpose-built drag cars of today! Cobra Jet: The History of Ford's Greatest High Performance Cars will hypnotize you as the first and complete history of Ford's most famous engines during the era's peak.

Supply Chain Integration Challenges in Commercial Aerospace

As recently as the summer of 2001, many travelers were dreading air transportation because of extensive delays associated with undercapacity of the system. That all changed on 9/11, and demand for air transportation has not yet returned to peak levels. Most U.S. airlines continue to struggle for survival, and some have filed for bankruptcy. The situation makes it difficult to argue that strong action is urgently needed to avert a crisis of undercapacity in the air transportation system. This report assesses the visions and goals for U.S. civil aviation and technology goals for the year 2050.

HEARINGS BEFORE THE SPECIAL SUBCOMMITTEE ON ENLISTED PROMOTION POLICY REVIEW

Rocket and air-breathing propulsion systems are the foundation on which planning for future aerospace systems rests. A Review of United States Air Force and Department of Defense Aerospace Propulsion Needs assesses the existing technical base in these areas and examines the future Air Force capabilities the base will be expected to support. This report also defines gaps and recommends where future warfighter capabilities not yet fully defined could be met by current science and technology development plans.

Technology for a Quieter America

Aeronautical Engineering Review

Machine Design

Hearings

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