T56 501 Engine

Reflecting the developments in gas turbine combustion technology that have occurred in the last decade, Gas Turbine Combustion: Alternative Fuels and Emissions, Third Edition provides an up-to-date design manual and research reference on the design, manufacture, and operation of gas turbine combustors in applications ranging from aeronautical to power generation. Essentially self-contained, the book only requires a moderate amount of prior knowledge of physics and chemistry. In response to the fluctuating cost and environmental effects of petroleum fuel, this third edition includes a new chapter on alternative fuels. This chapter presents the physical and chemical properties of conventional (petroleum-based) liquid and gaseous fuels for gas turbines; reviews the properties of alternative (synthetic) fuels and conventional-alternative fuel blends; and describes the influence of these different fuels and their blends on combustor performance, design, and emissions. It also discusses the special requirements of aircraft fuels and the problems encountered with fuels for industrial gas turbines. In the updated chapter on emissions, the authors highlight the quest for higher fuel efficiency and reducing carbon dioxide emissions as well as the regulations involved. Continuing to offer detailed coverage of multifuel

capabilities, flame flashback, high off-design combustion efficiency, and liner failure studies, this best-selling book is the premier guide to gas turbine combustion technology. This edition retains the style that made its predecessors so popular while updating the material to reflect the technology of the twenty-first century.

Limited by Design is the first comprehensive study of the varying roles played by the more than 16,000 research and development laboratories in the U.S. national innovation system. Michael Crow and Barry Bozeman offer policy makers and scientists a blueprint for making more informed decisions about how to best utilize and develop the capabilities of these facilities. Some labs, such as Bell Labs, Westinghouse, and Eastman Kodak, have been global players since the turn of the century. Others, such as Los Alamos National Laboratory, have been mainstays of the military/energy industrial complex since they evolved in the 1940s. These and other institutions have come to serve as the infrastructure upon which a range of industries have relied and have had a tremendous impact on U.S. social and economic history. Michael Crow and Barry Bozeman illustrate the histories, missions, structure, and behavior of individual laboratories, and explore the policy contexts in which they are embedded. In studying this large and varied collection of labs, Crow, Bozeman, and their colleagues develop a

new framework for understanding the structure and behavior of laboratories that also provides a basis for rationalizing federal science and technology policy to create more effective laboratories. The book draws upon interviews and surveys collected from thousands of scientists, administrators, and policy makers, and features boxed "lab windows" throughout that provide detailed information on the variety of laboratories active in the U.S. national innovation system. Limited by Design addresses a range of questions in order to enable policy makers, university administrators, and scientists to plan effectively for the future of research and development.

This revised edition provides understanding of the basic physical, chemical, and aerodynamic processes associated with gas turbine combustion and their relevance and application to combustor performance and design. It also introduces the many new concepts for ultra-low emissions combustors, and new advances in fuel preparation and liner wall-cooling techniques for their success. It details advanced and practical approaches to combustor design for the clean burning of alternative liquid fuels derived from oil shades, tar sands, and coal. Additional topics include diffusers, combustion performance fuel injection, combustion noise, heat transfer, and emissions.

Vols. for 1977-19 include a section: Turbomachinery world news, called v. 1-

The memorandum discusses the applications of heat-resistant metallic materials in aircraft gas turbine engines. Brief background information on the engines of each of the manufacturers is followed by a detailed discussion of the materials used in various components of the engines. Some current trends in turbine-engine materials applications are pointed out. An extensive appendix arranged according to manufacturer, lists materials used in recent and current engines and presents some brief data on size, weight, and application of each of the engines.

A Commemorative Edition Pictorial History, written by Joan Zigmunt, tells of how the Allison Engine Company revolutionized the aircraft engine business

The most comprehensive history of the aircraft manufacturing industry to date

This book explores a technology that transformed airplanes into safe, practical tools of war and a means of transportation during the first half of the twentieth century.

Mission profiles and maintenance procedures relating to the T56-A-14 turboprop engine were investigated to develop duty cycle information. This information was applied to a derivative engine designated as the 501-M71. A survey of fleet squadron pilots revealed that two profiles account for the majority of flight hours; anti-submarine warfare and pilot training. The T56 duty cycle was compared with the duty cycle for the 501-M71 derivative. The T56 uses twice as many cycles but less than one quarter of the hot time. This low hot time is attributed directly to the present T56 turbine temperature restriction. A new engine or derivative is likely to consume more hot time

when operating without this restriction. (Author).