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Assessment of Fuel Economy Technologies for Light-Duty Vehicles-National Research Council 2011-06-03 Various combinations of commercially available technologies could greatly reduce fuel consumption in passenger cars, sport-utility vehicles, minivans, and other light-duty vehicles without compromising vehicle performance or safety. Assessment of Technologies for Improving Light Duty Vehicle Fuel Economy estimates the potential fuel savings and costs to consumers of available technology combinations for three types of engines: spark-ignition gasoline, compression-ignition diesel, and hybrid. According to its estimates, adopting the full combination of improved technologies in medium and large cars and pickup trucks with spark-ignition engines could reduce fuel consumption by 29 percent at an additional cost of \$2,200 to the consumer. Replacing spark-ignition engines with diesel engines and components would yield fuel savings of about 37 percent at an added cost of approximately \$5,900 per vehicle, and replacing spark-ignition engines with hybrid engines and components would reduce fuel consumption by 43 percent at an increase of \$6,000 per vehicle. The book focuses on fuel consumption--the amount of fuel consumed in a given driving distance--because energy savings are directly related to the amount of fuel used. In contrast, fuel economy measures how far a vehicle will travel with a gallon of fuel. Because fuel consumption data indicate money saved on fuel purchases and reductions in carbon dioxide emissions, the book finds that vehicle stickers should provide consumers with fuel consumption data in addition to fuel economy information.

Mass Transit- 2004

Forced Induction Performance Tuning-A. Graham Bell 2002 Founded on the author's many years of experience in building, tuning and modifying high-performance engines, it sets out in accessible language the principles involved in forced induction, supported by tables and numerous illustrations. From basic theory through to building a rugged engine, all the important aspects of supercharging and turbocharging are explained and analyzed.

Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles-National Research Council 2010-07-30 Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles evaluates various technologies and methods that could improve the fuel economy of medium- and heavy-duty vehicles, such as tractor-trailers, transit buses, and work trucks. The book also recommends approaches that federal agencies could use to regulate these vehicles' fuel consumption. Currently there are no fuel consumption standards for such vehicles, which account for about 26 percent of the transportation fuel used in the U.S. The miles-per-gallon measure used to regulate the fuel economy of passenger cars. is not appropriate for medium- and heavy-duty vehicles, which are designed above all to carry loads efficiently. Instead, any regulation of medium- and heavy-duty vehicles should use a metric that reflects the efficiency with which a vehicle moves goods or passengers, such as gallons per ton-mile, a unit that reflects the amount of fuel a vehicle would use to carry a ton of goods one mile. This is called load-specific fuel consumption (LSFC). The book estimates the improvements that various technologies could achieve over the next decade in seven vehicle types. For example, using advanced diesel engines in tractor-trailers could lower their fuel consumption by up to 20 percent by 2020, and improved aerodynamics could yield an 11 percent reduction. Hybrid powertrains could lower the fuel

consumption of vehicles that stop frequently, such as garbage trucks and transit buses, by as much 35 percent in the same time frame.

Modeling and Computer Simulation of Internal Combustion Engines- 1999

Vehicle Powertrain Systems-David Crolla 2011-12-30 The powertrain is at the heart of vehicle design; the engine - whether it is a conventional, hybrid or electric design - provides the motive power, which is then managed and controlled through the transmission and final drive components. The overall powertrain system therefore defines the dynamic performance and character of the vehicle. The design of the powertrain has conventionally been tackled by analyzing each of the subsystems individually and the individual components, for example, engine, transmission and driveline have received considerable attention in textbooks over the past decades. The key theme of this book is to take a systems approach - to look at the integration of the components so that the whole powertrain system meets the demands of overall energy efficiency and good drivability. Vehicle Powertrain Systems provides a thorough description and analysis of all the powertrain components and then treats them together so that the overall performance of the vehicle can be understood and calculated. The text is well supported by practical problems and worked examples. Extensive use is made of the MATLAB(R) software and many example programmes for vehicle calculations are provided in the text. Key features: Structured approach to explaining the fundamentals of powertrain engineering Integration of powertrain components into overall vehicle design Emphasis on practical vehicle design issues Extensive use of practical problems and worked examples Provision of MATLAB(R) programmes for the reader to use in vehicle performance calculations This comprehensive and integrated analysis of vehicle powertrain engineering provides an invaluable resource for undergraduate and postgraduate automotive engineering students and is a useful reference for practicing engineers in the vehicle industry

MATLAB-Kelly Bennett 2014-09-08 MATLAB is an indispensable asset for scientists, researchers, and engineers. The richness of the MATLAB computational environment combined with an integrated development environment (IDE) and straightforward interface, toolkits, and simulation and modeling capabilities, creates a research and development tool that has no equal. From quick code prototyping to full blown deployable applications, MATLAB stands as a de facto development language and environment serving the technical needs of a wide range of users. As a collection of diverse applications, each book chapter presents a novel application and use of MATLAB for a specific result.

Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles-National Research Council 2015-09-28 The light-duty vehicle fleet is expected to undergo substantial technological changes over the next several decades. New powertrain designs, alternative fuels, advanced materials and significant changes to the vehicle body are being driven by increasingly stringent fuel economy and greenhouse gas emission standards. By the end of the next decade, cars and light-duty trucks will be more fuel efficient, weigh less, emit less air pollutants, have more safety features, and will be more expensive to purchase relative to current vehicles. Though the gasoline-powered spark ignition engine will continue to be the dominant powertrain configuration even through 2030, such vehicles will be equipped with advanced technologies, materials, electronics and controls, and aerodynamics. And by 2030, the deployment of alternative methods to propel and fuel vehicles and alternative modes of transportation, including autonomous vehicles, will be well underway. What are these new technologies - how will they work, and will some technologies be more effective than others? Written to inform The United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) and Environmental Protection Agency (EPA) Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) emission standards, this new report from the National Research Council is a technical evaluation of costs, benefits, and implementation issues of fuel reduction technologies for next-generation light-duty vehicles. Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles estimates the cost, potential efficiency improvements, and barriers to commercial deployment of technologies that might be employed from 2020 to 2030. This report describes these promising technologies and makes recommendations for their inclusion on the list of technologies applicable for the 2017-2025 CAFE standards.

Turbo-Jay K. Miller 2008 Automotive technology.

Fundamentals of Medium/Heavy Duty Diesel Engines-Gus Wright 2015-12-18 Based on the 2014 National Automotive Technicians Education Foundation (NATEF) Medium/Heavy Truck Tasks Lists and ASE Certification Test Series for truck and bus specialists, Fundamentals of Medium/Heavy Duty Diesel Engines is designed to address these and other international training standards. The text offers comprehensive coverage of every NATEF task with clarity and precision

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in a concise format that ensures student comprehension and encourages critical thinking. Fundamentals of Medium-Heavy Duty Diesel Engines describes safe and effective diagnostic, repair, and maintenance procedures for today's medium and heavy vehicle diesel engines.

Handbook of Biomass Downdraft Gasifier Engine Systems-Thomas B. Reed 1988

Locomotives and Rail Road Transportation-Avinash Kumar Agarwal 2017-02-10 This book is intended to serve as a compendium on the state-of-the-art research in the field of locomotives and rail road transport. The book includes chapters on different aspects of the subject from renowned international experts in the field. The book looks closely at diesel engine locomotives and examines performance, emissions, and environmental impact. The core topics have been categorised into four groups: general topics, efficiency improvement and noise reduction, alternate fuels for locomotive traction, and locomotive emission reduction and measurement. The book offers an excellent, cutting-edge resource for researchers working in this area. The book will also be of use to professionals and policymakers interested in locomotive engine technologies and emission standards.

Sport Compact Turbos & Blowers-Joe Pettitt 2004-09 8 1/2 x 11, Color on cover only, 300 b/w photos The number one engine modification that sport compact enthusiasts want is the addition of some form of forced induction. Sport Compact Turbos & Blowers is an enthusiast's guide to understanding, installing, and using turbochargers and superchargers on sport compact cars. Included is information on blower basics, how blowers work, roots blowers, screw-type superchargers, centrifugal superchargers, an analysis of turbocharging vs. supercharging, turbo systems for sport compacts, building a blown/turbo'd sport compact engine, and blower/turbo accessories. All the information readers need to make their sport compact car the hottest on the street is found right here.

Aircraft Powerplants, Ninth Edition-Thomas W. Wild 2018-02-02 Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. The most comprehensive guide to aircraft powerplants—fully updated for the latest advances This authoritative textbook contains all the information you need to learn to master the operation and maintenance of aircraft engines and achieve FAA Powerplant certification. The book offers clear explanations of all engine components, mechanics, and technologies. This ninth edition has been thoroughly revised to include the most current and critical topics. Brand-new sections explain the latest engine models, diesel engines, alternative fuels, pressure ratios, and reciprocating and turboprop engines. Hundreds of detailed diagrams and photos illustrate each topic. Aircraft Powerplants, Ninth Edition covers:

- Aircraft powerplant classification and progress
- Reciprocating-engine construction and nomenclature
- Internal-combustion engine theory and performance
- Lubricants and lubricating systems
- Induction systems, superchargers, and turbochargers
- Cooling and exhaust systems
- Basic fuel systems and carburetors
- Fuel injection systems
- Reciprocating-engine ignition and starting systems
- Operation, inspection, maintenance, and troubleshooting of reciprocating engines
- Reciprocating engine overhaul practices
- Principal parts, construction, types, and nomenclature of gas-turbine engines
- Gas-turbine engine theory and jet propulsion principles
- Turbine-engine lubricants and lubricating systems
- Ignition and starting systems of gas-turbine engines
- Turboprop, turboprop, and turboprop engines
- Gas-turbine operation, inspection, troubleshooting, maintenance, and overhaul
- Propeller theory, nomenclature, and operation
- Turbopropellers and control systems
- Propeller installation, inspection, and maintenance
- Engine indicating, warning, and control systems

Gas Turbine Engineering- 1981-03-01

Diesel Engine Transient Operation-Constantine D. Rakopoulos 2009-03-10 Traditionally, the study of internal combustion engines operation has focused on the steady-state performance. However, the daily driving schedule of automotive and truck engines is inherently related to unsteady conditions. In fact, only a very small portion of a vehicle's operating pattern is true steady-state, e. g. , when cruising on a motorway. Moreover, the most critical conditions encountered by industrial or marine engines are met during transients too. Unfortunately, the transient operation of turbocharged diesel engines has been associated with slow acceleration rate, hence poor driveability, and overshoot in particulate, gaseous and noise emissions. Despite the relatively large number of published papers, this very important subject has been treated in the past scarcely and only segmentally as regards reference books. Merely two chapters, one in the book Turbocharging the Internal Combustion Engine by N. Watson and M. S. Janota (McMillan Press, 1982) and another one written by D. E. Winterbone in the book The Thermodynamics and Gas Dynamics of Internal Combustion Engines, Vol. II edited by J. H. Horlock and D. E. Winterbone (Clarendon Press, 1986) are dedicated to transient operation. Both books, now out of print, were published a long time ago. Then, it seems reasonable to try to expand on these pioneering works, taking into account the recent technological advances and particularly the global concern about environmental pollution, which has intensified the

research on transient (diesel) engine operation, typically through the Transient Cycles certification of new vehicles.

Urea-SCR Technology for deNOx After Treatment of Diesel Exhausts-Isabella Nova 2014-03-14 Urea-SCR Technology for deNOx After Treatment of Diesel Exhausts presents a complete overview of the selective catalytic reduction of NOx by ammonia/urea. The book starts with an illustration of the technology in the framework of the current context (legislation, market, system configurations), covers the fundamental aspects of the SCR process (catalysts, chemistry, mechanism, kinetics) and analyzes its application to useful topics such as modeling of full scale monolith catalysts, control aspects, ammonia injections systems and integration with other devices for combined removal of pollutants.

When China Rules the World-Martin Jacques 2012 Predicts that China will supplant the west as an economic superpower, and discusses China's anti-globalization stance and dubious capacity for maintaining world peace.

Process Plant Machinery-Heinz P. Bloch 1998-12-14 Process Plant Machinery provides the mechanical, chemical or plant engineer with the information needed to choose equipment best suited for a particular process, to determine optimum efficiency, and to conduct basic troubleshooting and maintenance procedures. Process Plant Machinery is a unique single-source reference for engineers, managers and technical personnel who need to acquire an understanding of the machinery used in modern process plants: prime movers and power transmission machines; pumping equipment; gas compression machinery; and mixing, conveying, and separation equipment. Starting with an overview of each class, the book quickly leads the reader through practical applications and size considerations into profusely illustrated component descriptions. Where necessary, standard theory is expertly explained in shortcut formulas and graphs. Maintainability and vulnerability concerns are dealt with as well. Fully updated with all new equipment available Comprehensive Coverage Multi-industry relevance

Workshop Processes, Practices and Materials-Bruce Black 2010-10-28 Workshop Processes, Practices and Materials is an ideal introduction to workshop processes, practices and materials for entry-level engineers and workshop technicians. With detailed illustrations throughout and simple, clear language, this is a practical introduction to what can be a very complex subject. It has been significantly updated and revised to include new material on adhesives, protective coatings, plastics and current Health and Safety legislation. It covers all the standard topics, including safe practices, measuring equipment, hand and machine tools, materials and joining methods, making it an indispensable handbook for use both in class and the workshop. Its broad coverage makes it a useful reference book for many different courses worldwide.

Principles of Turbomachinery-R. K. Turton 2012-12-06 This text outlines the fluid and thermodynamic principles that apply to all classes of turbomachines, and the material has been presented in a unified way. The approach has been used with successive groups of final year mechanical engineering students, who have helped with the development of the ideas outlined. As with these students, the reader is assumed to have a basic understanding of fluid mechanics and thermodynamics. However, the early chapters combine the relevant material with some new concepts, and provide basic reading references. Two related objectives have defined the scope of the treatment. The first is to provide a general treatment of the common forms of turbo machine, covering basic fluid dynamics and thermodynamics of flow through passages and over surfaces, with a brief derivation of the fundamental governing equations. The second objective is to apply this material to the various machines in enough detail to allow the major design and performance factors to be appreciated. Both objectives have been met by grouping the machines by flow path rather than by application, thus allowing an appreciation of points of similarity or difference in approach. No attempt has been made to cover detailed points of design or stressing, though the cited references and the body of information from which they have been taken give this sort of information. The first four chapters introduce the fundamental relations, and the succeeding chapters deal with applications to the various flow paths.

Troubleshooting and Repair of Diesel Engines-Paul Dempsey 2007-11-05 Harness the Latest Tools and Techniques for Troubleshooting and Repairing Virtually Any Diesel Engine Problem The Fourth Edition of Troubleshooting and Repairing Diesel Engines presents the latest advances in diesel technology.

Comprehensive and practical, this revised classic equips you with all of the state-of-the-art tools and techniques needed to keep diesel engines running in top condition. Written by master mechanic and bestselling author Paul Dempsey, this hands-on resource covers new engine technology, electronic engine management, biodiesel fuels, and emissions controls. The book also contains cutting-edge information on diagnostics...fuel systems...mechanical and electronic

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governors...cylinder heads and valves...engine mechanics...turbochargers...electrical basics...starters and generators...cooling systems...exhaust aftertreatment...and more. Packed with over 350 drawings, schematics, and photographs, the updated Troubleshooting and Repairing Diesel Engines features: New material on biodiesel and straight vegetable oil fuels Intensive reviews of troubleshooting procedures New engine repair procedures and tools State-of-the-art turbocharger techniques A comprehensive new chapter on troubleshooting and repairing electronic engine management systems A new chapter on the worldwide drive for greener, more environmentally friendly diesels Get Everything You Need to Solve Diesel Problems Quickly and Easily • Rudolf Diesel • Diesel Basics • Engine Installation • Fuel Systems • Electronic Engine Management Systems • Cylinder Heads and Valves • Engine Mechanics • Turbochargers • Electrical Fundamentals • Starting and Generating Systems • Cooling Systems • Greener Diesels

Advances in Tribology-Pranav H. Darji 2016-10-26

Modern Electric, Hybrid Electric, and Fuel Cell Vehicles-Mehrdad Ehsani 2017-12-19 Air pollution, global warming, and the steady decrease in petroleum resources continue to stimulate interest in the development of safe, clean, and highly efficient transportation. Building on the foundation of the bestselling first edition, Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals, Theory, and Design, Second Edition updates and expands its detailed coverage of the vehicle technologies that offer the most promising solutions to these issues affecting the automotive industry. Proven as a useful in-depth resource and comprehensive reference for modern automotive systems engineers, students, and researchers, this book speaks from the perspective of the overall drive train system and not just its individual components. New to the second edition: A case study appendix that breaks down the Toyota Prius hybrid system Corrections and updates of the material in the first edition Three new chapters on drive train design methodology and control principles A completely rewritten chapter on Fundamentals of Regenerative Braking Employing sufficient mathematical rigor, the authors comprehensively cover vehicle performance characteristics, EV and HEV configurations, control strategies, modeling, and simulations for modern vehicles. They also cover topics including: Drive train architecture analysis and design methodologies Internal Combustion Engine (ICE)-based drive trains Electric propulsion systems Energy storage systems Regenerative braking Fuel cell applications in vehicles Hybrid-electric drive train design The first edition of this book gave practicing engineers and students a systematic reference to fully understand the essentials of this new technology. This edition introduces newer topics and offers deeper treatments than those included in the first. Revised many times over many years, it will greatly aid engineers, students, researchers, and other professionals who are working in automotive-related industries, as well as those in government and academia.

Lubricants and Lubrication, 2 Volume Set-Mang 2017-05-08 Praise for the previous edition: "Contains something for everyone involved in lubricant technology" — Chemistry & Industry This completely revised third edition incorporates the latest data available and reflects the knowledge of one of the largest companies active in the business. The authors take into account the interdisciplinary character of the field, considering aspects of engineering, materials science, chemistry, health and safety. The result is a volume providing chemists and engineers with a clear interdisciplinary introduction and guide to all major lubricant applications, focusing not only on the various products but also on specific application engineering criteria. A classic reference work, completely revised and updated (approximately 35% new material) focusing on sustainability and the latest developments, technologies and processes of this multi billion dollar business Provides chemists and engineers with a clear interdisciplinary introduction and guide to all major lubricant applications, looking not only at the various products but also at specific application engineering criteria All chapters are updated in terms of environmental and operational safety. New guidelines, such as REACH, recycling alternatives and biodegradable base oils are introduced Discusses the integration of micro- and nano-tribology and lubrication systems Reflects the knowledge of Fuchs Petrolub SE, one of the largest companies active in the lubrication business 2 Volumes wileyonlinelibrary.com/ref/lubricants

Theory of Ground Vehicles-J. Y. Wong 2001-03-20 An updated edition of the classic reference on the dynamics of road and off-road vehicles As we enter a new millennium, the vehicle industry faces greater challenges than ever before as it strives to meet the increasing demand for safer, environmentally friendlier, more energy efficient, and lower emissions products. Theory of Ground Vehicles, Third Edition gives aspiring and practicing engineers a fundamental understanding of the critical factors affecting the performance, handling, and ride essential to the development and design of ground vehicles that meet these requirements. As in previous editions, this book focuses on applying engineering principles to the analysis of vehicle behavior. A large number of practical

examples and problems are included throughout to help readers bridge the gap between theory and practice. Covering a wide range of topics concerning the dynamics of road and off-road vehicles, this Third Edition is filled with up-to-date information, including: * The Magic Formula for characterizing pneumatic tire behavior from test data for vehicle handling simulations * Computer-aided methods for performance and design evaluation of off-road vehicles, based on the author's own research * Updated data on road vehicle transmissions and operating fuel economy * Fundamentals of road vehicle stability control * Optimization of the performance of four-wheel-drive off-road vehicles and experimental substantiation, based on the author's own investigations * A new theory on skid-steering of tracked vehicles, developed by the author.

Internal Combustion Engines-Colin R. Ferguson 2015-07-01 Since the publication of the Second Edition in 2001, there have been considerable advances and developments in the field of internal combustion engines. These include the increased importance of biofuels, new internal combustion processes, more stringent emissions requirements and characterization, and more detailed engine performance modeling, instrumentation, and control. There have also been changes in the instructional methodologies used in the applied thermal sciences that require inclusion in a new edition. These methodologies suggest that an increased focus on applications, examples, problem-based learning, and computation will have a positive effect on learning of the material, both at the novice student, and practicing engineer level. This Third Edition mirrors its predecessor with additional tables, illustrations, photographs, examples, and problems/solutions. All of the software is 'open source', so that readers can see how the computations are performed. In addition to additional java applets, there is companion Matlab code, which has become a default computational tool in most mechanical engineering programs.

Air Pollution from Motor Vehicles-Asif Faiz 1996-01-01 Contributions by Surhid Gautam and Lit-Mian Chan. This book presents a state-of-the art review of vehicle emission standards and regulations and provides a synthesis of worldwide experience with vehicle emission control technologies and their applications in both industrial and developing countries. Topics covered include: * The two principal international systems of vehicle emission standards: those of North America and Europe * Test procedures used to verify compliance with emissions standards and to estimate actual emissions * Engine and aftertreatment technologies that have been developed to enable new vehicles to comply with emission standards, as well as the cost and other impacts of these technologies * An evaluation of measures for controlling emissions from in-use vehicles * The role of fuels in reducing vehicle emissions, the benefits that could be gained by reformulating conventional gasoline and diesel fuels, the potential benefits of alternative cleaner fuels, and the prospects for using hydrogen and electric power to run motor vehicles with ultra-low or zero emissions. This book is the first in a series of publications on vehicle-related pollution and control measures prepared by the World Bank in collaboration with the United Nations Environment Programme to underpin the Bank's overall objective of promoting transport that is environmentally sustainable and least damaging to human health and welfare.

Air Pollution-Bhola R. Gurjar 2010-06-22 Air pollution is recognized as one of the leading contributors to the global environmental burden of disease, even in countries with relatively low concentrations of air pollution. Air Pollution: Health and Environmental Impacts examines the effect of this complex problem on human health and the environment in different settings around the world. I

Potential Impacts of Climate Change on U.S. Transportation-Committee on Climate Change and U.S. Transportation 2008-07-16 While every mode of transportation in the U.S. will be affected as the climate changes, potentially the greatest impact on transportation systems will be flooding of roads, railways, transit systems, and airport runways in coastal areas because of rising sea levels and surges brought on by more intense storms, says a new report from the National Research Council. Though the impacts of climate change will vary by region, it is certain they will be widespread and costly in human and economic terms, and will require significant changes in the planning, design, construction, operation, and maintenance of transportation systems. The U.S. transportation system was designed and built for local weather and climate conditions, predicated on historical temperature and precipitation data. The report finds that climate predictions used by transportation planners and engineers may no longer be reliable, however, in the face of new weather and climate extremes. Infrastructure pushed beyond the range for which it was designed can become stressed and fail, as seen with loss of the U.S. 90 Bridge in New Orleans after Hurricane Katrina.

Automotive Exhaust Emissions and Energy Recovery-Apostolos Pesiridis 2014-01-01 Concerns for fuel economy and reduced emissions have turned the attention of automotive internal combustion engine manufacturers to the exhaust system and towards technological system development to account for the

significant levels of potential energy that can be recovered. The present volume on Automotive Exhaust Emissions and Energy Recovery for both gasoline and diesel engines is therefore both timely and appropriate. Whereas diesel engines have been predominantly turbocharged, only a relatively small percentage of gasoline engines are similarly equipped, which has led to significant efforts by engine manufacturers in recent years to downsize and down-speed these engines. On the other hand, the relative focus in diesel engine development in terms of emissions and exhaust energy recovery has shifted toward devices other than the turbocharger for enhanced energy recovery and emissions control technologies in order to allow the diesel engines of the future to keep up with the dual-demand for very low emissions and increasing levels of fuel economy. The book focuses on the exhaust system and the technologies and methods used to reduce emissions and increase fuel economy by capitalising on the exhaust gas energy availability (either in the form of gas kinetic energy or as waste heat extracted from the exhaust gas). It is projected that in the short to medium term, advances in exhaust emissions and energy recovery technologies will lead the way in internal combustion engine development and pave the way towards increasing levels of engine hybridisation until fully electric vehicle technology can claim a level of maturity and corresponding market shares to turn the bulk of this focus away from the internal combustion engine. This book is aimed at engine research professionals in the industry and academia, but also towards students of powertrain engineering. The collection of articles in this book reviews the fundamentals of relevance, recent exhaust system technologies, details recent or on-going projects and uncovers future research directions and potentials. *Opposed Piston Engines*-Jean-Pierre Pirault 2010 Explores the opposed piston (OP) engine and provides the first comprehensive description of most opposed piston (OP) engines from 1887 to 2006. Design and performance details of the major types of OP engines in stationary, ground, marine, and aviation applications are explored and their evolution traced.

Fundamentals of Aircraft and Rocket Propulsion-Ahmed F. El-Sayed 2016-05-25 This book provides a comprehensive basics-to-advanced course in an aero-thermal science vital to the design of engines for either type of craft. The text classifies engines powering aircraft and single/multi-stage rockets, and derives performance parameters for both from basic aerodynamics and thermodynamics laws. Each type of engine is analyzed for optimum performance goals, and mission-appropriate engines selection is explained. *Fundamentals of Aircraft and Rocket Propulsion* provides information about and analyses of: thermodynamic cycles of shaft engines (piston, turboprop, turboshaft and propfan); jet engines (pulsejet, pulse detonation engine, ramjet, scramjet, turbojet and turbofan); chemical and non-chemical rocket engines; conceptual design of modular rocket engines (combustor, nozzle and turbopumps); and conceptual design of different modules of aero-engines in their design and off-design state. Aimed at graduate and final-year undergraduate students, this textbook provides a thorough grounding in the history and classification of both aircraft and rocket engines, important design features of all the engines detailed, and particular consideration of special aircraft such as unmanned aerial and short/vertical takeoff and landing aircraft. End-of-chapter exercises make this a valuable student resource, and the provision of a downloadable solutions manual will be of further benefit for course instructors.

Pounder's Marine Diesel Engines and Gas Turbines-Doug Woodyard 2009-08-18 Since its first appearance in 1950, *Pounder's Marine Diesel Engines* has served seagoing engineers, students of the Certificates of Competency examinations and the marine engineering industry throughout the world. Each new edition has noted the changes in engine design and the influence of new technology and economic needs on the marine diesel engine. Now in its ninth edition, *Pounder's* retains the directness of approach and attention to essential detail that characterized its predecessors. There are new chapters on monitoring control and HiMSEN engines as well as information on developments in electronic-controlled fuel injection. It is fully updated to cover new legislation including that on emissions and provides details on enhancing overall efficiency and cutting CO₂ emissions. After experience as a seagoing engineer with the British India Steam Navigation Company, Doug Woodyard held editorial positions with the Institution of Mechanical Engineers and the Institute of Marine Engineers. He subsequently edited *The Motor Ship* journal for eight years before becoming a freelance editor specializing in shipping, shipbuilding and marine engineering. He is currently technical editor of *Marine Propulsion and Auxiliary Machinery*, a contributing editor to *Speed at Sea*, *Shipping World* and *Shipbuilder* and a technical press consultant to Rolls-Royce Commercial Marine. * Helps engineers to understand the latest changes to marine diesel engines * Careful organisation of the new edition enables readers to access the information they require * Brand new chapters focus on monitoring control systems and HiMSEN engines. * Over 270 high quality, clearly labelled illustrations and figures to aid understanding and help engineers quickly identify what they need to know.

Cast Iron Technology-Roy Elliott 1988-04-18 *Cast Iron Technology* presents a critical review of the nature of cast irons. It discusses the types of cast iron and

the general purpose of cast irons. It also presents the history of the iron founding industry. Some of the topics covered in the book are the description of liquid metal state; preparation of liquid metal; process of melting; description of cupola melting and electric melting methods; control of composition of liquid metal during preparation; description of primary cast iron solidification structures; and thermal analysis of metals to determine its quality. Solidification science and the fundamentals of heat treatment are also discussed. An in-depth analysis of the hot quenching techniques is provided. The graphitization potential of liquid iron is well presented. A chapter is devoted to microstructural features of cast iron. The book can provide useful information to iron smiths, welders, students, and researchers.

Diesel Engine System Design-Qianfan Xin 2011-05-26 Diesel Engine System Design links everything diesel engineers need to know about engine performance and system design in order for them to master all the essential topics quickly and to solve practical design problems. Based on the author's unique experience in the field, it enables engineers to come up with an appropriate specification at an early stage in the product development cycle. Links everything diesel engineers need to know about engine performance and system design featuring essential topics and techniques to solve practical design problems Focuses on engine performance and system integration including important approaches for modelling and analysis Explores fundamental concepts and generic techniques in diesel engine system design incorporating durability, reliability and optimization theories

Normal Accidents-Charles Perrow 1984-05-18 Discusses the pros and cons of high-risk technologies, explains how to reduce the possibilities for catastrophic accidents, and analyzes the causes of specific industrial accidents

Handbook of Petroleum Processing-Sтивен A Treese 2015-08-04 This extensively updated second edition of the already valuable reference targets research chemists and engineers who have chosen a career in the complex and essential petroleum industry, as well as other professionals just entering the industry who seek a comprehensive and accessible resource on petroleum processing. The handbook describes and discusses the key components and processes that make up the petroleum refining industry. Beginning with the basics of crude oils and their nature, it continues with the commercial products derived from refining and with related issues concerning their environmental impact. More in depth coverage of many topics previously covered in the first edition, such as hydraulic fracturing or fracking as it is often termed, help ensure this reference remains a relevant and up-to-date resource. At its core is a complete overview of the processes that make up a modern refinery, plus a brief history of the development of processes. Also described in detail are design techniques, operations and in the case of catalytic units, the chemistry of the reaction routes. These discussions are supported by calculation procedures and examples, which enable readers to use today's simulation-software packages. The handbook also covers off-sites and utilities, as well as environmental and safety aspects relevant to the industry. The chapter on refinery planning covers both operational planning and the decision making procedures for new or revamped processes. Major equipment used in the industry is reviewed along with details and examples of the process specifications for each. An extensive glossary and dictionary of the terms and expressions used in petroleum refining, plus appendices supplying data such as converging factors and selected crude oil assays, as well as an example of optimizing a refinery configuration using linear programming are all included to aid the reader. The 2nd edition of the Handbook of Petroleum Processing is an indispensable desk reference for chemists and engineers as well as an essential part of the libraries of universities with a chemical engineering faculty and oil refineries and engineering firms performing support functions or construction.

The Automotive Chassis-Giancarlo Genta 2008-12-26 This work serves as a reference concerning the automotive chassis, i.e. everything that is inside a vehicle except the engine and the body. It is the result of a decade of work mostly done by the FIAT group, who supplied material, together with other automotive companies, and sponsored the work. The first volume deals with the design of automotive components and the second volume treats the various aspects of the design of a vehicle as a system.

Industrial Noise Control and Acoustics-Randall F. Barron 2002-11-14 Compiling strategies from more than 30 years of experience, this book provides numerous case studies that illustrate the implementation of noise control applications, as well as solutions to common dilemmas encountered in noise reduction processes. It offers methods for predicting the noise generation level of common systems such as fans, motors, c

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