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*Internal Combustion Engine Failures and Their Causes*
*By Stefan Zima, Ernst Greuter*
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978-0-7680-3495-0, 128 pp., Paperbound 2011.
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By Martin L.S. Flint, Jean-Pierre Pirault
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Finite Element Analysis for Design Engineers
By Paul M. Kurovski
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Introduction to Internal Combustion Engines
Third Edition
By Richard Stone
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Tire and Vehicle Dynamics
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By Hans B. Pacejka

Encompassing the latest developments on tire mechanics, this definitive third edition combines theory, guidance, discussion and insight in one comprehensive reference.

In this well-known resource, the author, leading tire model expert Hans Pacejka, explains the relationship between operational variables, vehicle variables and tire modeling, taking you on a journey through the effective modeling of complex tire and vehicle dynamics problems. This book:

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- contains updated information on new and evolving tire models to ensure you can select the right model for your needs, apply it appropriately and understand its limitations
- was written by the acknowledged world authority on the topic and the name behind the most widely used tire model, Pacejka’s ‘Magic Formula’, which is presented in this book

This book is the only reliable compilation of information on the subject and is the go-to resource for engineers and researchers focusing on tire and vehicle dynamics.

9780080970165, 672 pp., Hardbound 2012.
$110.00 List
Product Code R-418

Engineered Tribological Composites
The Art of Friction Material Development
By Roy Cox

Roy Cox provides readers with a thorough presentation of the topic, beginning with the earliest work on brakes by Frood in the early 1900s and friction studies by daVinci in the 1400s. From there, details about the processes of wear and the components of tribological systems are presented. Methods of manufacturing friction materials are described, and the elements of friction material are detailed—binders, fibers, abrasives, and lubricants.

A large portion of the book delves deeply into materials for binders, resins, fibers, abrasives, lubricants, and fillers, providing background on the various materials, their pros and cons, and numerous ways they can be applied to friction systems. Much of this discussion focuses on the compositional makeup and effects of ingredients as they relate to the wear and friction performance of the final product.

Readers will gain a solid background about tribology, as well as a solid understanding of matrices, fibers and additives that make up engineered tribological composites. They will learn how manufacturing affects these composites, along with how friction and wear affect those materials. They will gain a better understanding of which materials provide the optimum balance of cost, friction and wear for various applications, enabling them to better create and apply engineered tribological composites for whatever application is at hand.

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Brake Technology Handbook
By Karlheinz Bill, Bert J. Breuer
Translated and completely updated from the landmark German-language work Bremsenhandbuch, Brake Technology Handbook covers brake system fundamentals, requirements, design, construction, components, and subsystem functions for vehicles of all types (including passenger cars, commercial vehicles, off-road vehicles, motorcycles, racing vehicles and even aircraft).
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Laser Diagnostics and Optical Measurement Techniques in Internal Combustion Engines
By Hua Zhao

The increasing concern about CO2 emissions and energy prices has led to new CO2 emission and fuel economy legislation being introduced in world regions served by the automotive industry. In response, automotive manufacturers and Tier-1 suppliers are developing a new generation of internal combustion (IC) engines with ultra-low emissions and high fuel efficiency.

To further this development, a better understanding is needed of the combustion and pollutant formation processes in IC engines. As efficiency and emission abatement processes have reached points of diminishing returns, there is more of a need to make measurements inside the combustion chamber, where the combustion and pollutant formation processes take place. However, there is currently no good overview of how to make these measurements.

Based on the author’s previous SAE book, Engine Combustion Instrumentation and Diagnostics, this book focuses on laser-based optical techniques for combustion flows and in-cylinder measurements. Included are new chapters on optical engines and optical equipment, case studies, and an updated description of each technique.

The purpose of this book is to provide, in one publication, an introduction to experimental techniques that are best suited for in-cylinder engine combustion measurements. It provides sufficient details for readers to set up and apply these techniques to IC engines and combustion flows.

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Product Code R-406

Engine Failure Analysis
Internal Combustion Engine Failures and Their Causes
By Stefan Zima, Ernst Greuter

Engine failures result from a complex set of conditions, effects, and situations. To understand why engines fail and remedy those failures, one must understand how engine components are designed and manufactured, how they function, and how they interact with other engine components. To this end, this book examines how engine components are designed and how they function, along with their physical and technical properties.

Translated from a popular German reference work, this English edition sheds light on determining engine failure and remedies. The authors present a selection of engine failures, investigate and evaluate why they failed, and provide guidance on how to prevent such failures. A large range of possible engine failures is presented in a comprehensive, readily understandable manner, free of manufacturer bias.

The scope of engines covered includes general-purpose engines found in heavy commercial vehicles, railway locomotives and vehicles, electrical generators, prime movers, and marine engines. Such engines are technical precursors to automotive engines.

This book is for all who deal with engine failures: those who work in repair shops, shipyards, engineering consultancies, insurance companies and technical oversight organizations, as well as R&D departments at engine and component manufacturers. Researchers, academics, and students will learn how even the theoretically impossible can—and will—happen.

978-0-7680-0885-2, 582 pp., Hardbound 2012.
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Design, Engineering and Styling

Design Practices: Passenger Car Automatic Transmissions
Fourth Edition

Since the mid-20th Century, automatic transmissions have benefited drivers by automatically changing gear ratios, freeing the driver from having to shift gears manually. The automatic transmission's primary job is to allow the engine to operate in its speed range while providing a wide range of output (vehicle) speeds automatically. The transmission uses gears to make more effective use of the engine's torque and to keep the engine operating at an appropriate speed.

For nearly half a century, Design Practices: Passenger Car Automatic Transmissions has been the “go-to” handbook of design considerations for automatic transmission industry engineers of all levels of experience. This latest 4th edition represents a major overhaul from the prior edition and is arguably the most significant update in its long history. In summary, the authors have put together the most definitive handbook for automatic transmission design practices available today.

Virtually all existing chapters have been updated and improved with the latest state-of-the-art information and many have been significantly expanded with more detail and design consideration updates; most notably for torque converters and start devices, gears/splines/chains, bearings, wet friction, one-way clutch, pumps, seals and gaskets, and controls.

All new chapters have also been added, including state-of-the-art information on: lubrication, transmission fluids, filtration, and contamination control.

Finally, details about the latest transmission technologies—including dual clutch and continuously variable transmissions—have been added.

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By Bertrand Hsu
This book examines some basic characteristics of diesel engine combustion process, and describes the commonly used tool to analyze combustion – heat release analysis. In addition, it describes the performance changes that might be encountered in the engine user environment, with a goal of helping the reader analyze his own practical combustion problems.
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Design and Simulation of Two-Stroke Engines
By Gordon P. Blair
Design and Simulation of Two-Stroke Engines is a unique hands-on information source. The author, having designed and developed many two-stroke engines, offers practical and empirical assistance to the engine designer on many topics ranging from porting layout, to combustion chamber profile, to tuned exhaust pipes.
978-1-56091-685-7, 647 pp., Hardbound 1996.
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Engineering Wireless-Based Software Systems and Applications
By Jerry Zeyu Gao, Hising Mal, Simon Shim
This comprehensive resource gives you a thorough understanding of the software engineering processes and methods you need to tackle the complexities of building software for wireless systems.
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Onboard Diagnostics and Measurement in the Automotive Industry, Shipbuilding, and Aircraft Construction
By Michael Palocz-Andresen
Onboard Diagnostics and Measurement in the Automotive, Shipbuilding and Aircraft Industries is a unique title which focuses on the direct (OBM) and indirect (OBD) determination of emissions in transportation. It offers the reader a state-of-the-art report on the recent developments on the determination of emissions and the estimation of concentration of pollutants in the exhaust pipe, using technologies such as intelligent micro controllers, micro sensors and micro actuators systems on board. Written by Dr. Palocz-Andresen, guest professor of Sustainable Transportation at Leuphana University in Lüneburg, Onboard Diagnostics and Measurement in the Automotive, Shipbuilding and Aircraft Industries is especially useful in understanding how the European Union and the United States address the problem of transport-generated emissions. This book goes beyond the more common emissions issues encountered in the automotive arena (including light duty and heavy commercial vehicles), to expand upon the upcoming and similar concerns derived from air and sea transport. Onboard Diagnostics and Measurements in the Automotive, Shipbuilding and Aircraft Industries is a must-have source of technical information to those studying or working in the areas of transportation technology, sustainability, legislation, environment and climate protection.

978-0-7680-2078-6, 182 pp., Hardbound 2012.
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X-By-Wire Automotive Systems
By Ronald K. Jurgen
This book contains 46 papers published from 1999-2008 featuring the research on various by-wire systems, looking at the challenges faced by design engineers as traditional hydraulic or mechanical linkages are replaced by electronic control systems.
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V2V/V2I Communications for Improved Road Safety and Efficiency

By Ronald K. Jurgen

Millions of automobile accidents occur worldwide each year. Some of the most serious are rear-end crashes, side crashes within intersections, and crashes that occur when cars change lanes or drift into a lane. The holy grail of traffic safety is to avoid automobile accidents altogether.

To that end, major automakers, governments, and universities are working on systems that allow vehicles to communicate with one another as well as the surrounding infrastructure (V2V/V2I for short). These systems show promise for such functions as intersection assist, left-turn assist, do-not-pass warning, advance warning of a vehicle braking ahead, forward-collision warning, and blind-spot/lane-change warning.

This compendium explores the challenges in developing these systems and provides the latest developments in V2V/V2I technology. It begins with a series of overview news stories and articles from SAE’s magazines on the progress in this technology. This is followed by a series of technical papers on V2V/V2I dealing with the many technical aspects of design of these systems as well as discussions of such key issues as the need for extreme reliability assurances and traffic congestion overloads on the systems.

Some of the most interesting discussions in the book include:

• Overview of a large-scale test in Germany to address reliability.
• Effectiveness of different antennas and receivers that are used in various intersections settings, such as intersections where there are tall buildings or no buildings, and where high transmission power lines are located that can cause signal interference.
• Various ways to communicate between vehicles and how messages are relayed to drivers.
• Dedicated short range communication protocol for vehicle safety applications, which shows promise for combining and processing large amounts of information.


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Connectivity and the Mobility Industry

By Dr. Andrew Brown, Jr.

Bound to play an ever increasing role in the driver-vehicle relationship, connectivity is becoming a basic consumer requirement when it comes to choosing a vehicle. Moving from the computer into the car, the ability to stay in touch, informed and entertained has reached yet a higher level of technology ubiquity.

Featuring 20 SAE technical papers published in 2010 and 2011, Connectivity and the Mobility Industry addresses important aspects of one of the most cutting-edge topics in the industry today.

Edited by Dr. Andrew Brown, Jr. 2010 SAE International President and Chief Technologist for Delphi Corporation, this book also includes three original articles on the subject, written by various experts:

• What to Expect Beyond 2015 - Fourth Generation Wireless and the Vehicle
• The Evolution of the Driving Experience and Associated Technologies
• Wireless Charging of Electric Vehicle Converged with Communication Technology

Part of the new paradigm of “green, safe and connected,” this title is of special interest to those looking for an integrated view of how the driving experience will develop within these boundaries, and what emerging technologies are likely to be successful in the upcoming years.

This book is the third in the trilogy from SAE on “Safe, Green and Connected” vehicles in the mobility industry edited by Dr. Andrew Brown, Jr

Buy a Combination of Books and Save! This trilogy can be purchased in a combination of two books as follows:

- Green Technologies and Active Safety in the Mobility Industry
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By Ronald K. Jurgen
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Second Edition
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By Daniel J. Holt
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Fundamentals of Materials for Energy and Environmental Sustainability
By David Cahen, David S. Ginley
This engaging book takes an in-depth look at the critical relationships between the environment, energy and sustainability. Full color images complement the text.
9781107000230, 772 pp., Hardbound 2011.
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Autonomous Ground Vehicles
By Umit Ozguner, Keith A. Redmill, Tankut Acarman
Providing you with a practical understanding of this technology area, this innovative resource focuses on basic autonomous control and feedback for stopping and steering ground vehicles.
978-1-60807-192-0, 324 pp., Hardbound 2011.
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Commercial Vehicle Accident Reconstruction and Investigation
2nd Edition
By Rick W. Varner, Ray F. Sutphen
If you are interested in reconstructing or investigating commercial vehicle accidents, or if you are already involved in this but would like a better understanding of the issues, this book will prove to be valuable tool. The authors of this text discuss in great detail the unique aspects of commercial vehicle operation, performance and regulations, as well as human factors.
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By Mohamed Watfa
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By Kresimir Malaric
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978-1-59693-314-9, 290 pp., PDF Only 2009.
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GNSS Applications and Methods
By Demoz Gebre-Egziabher, Scott Gleason
Placing emphasis on applications development, this unique resource offers a highly practical overview of GNSS (global navigation satellite systems), including GPS.
978-1-59693-331-9, 530 pp., PDF Only 2009.
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Automotive Carbon Fiber Composites
From Evolution to Implementation
By Jackie D. Rehkopf

The development of new materials that are technically and economically viable is no small endeavor. The risks, costs, and time involved in research are usually so high that only governments or private consortia can bear them. And so it has been with the trajectory of carbon fiber reinforced composites, which are capable of providing the lightweighting needed for fuel efficiency, and the mechanical strength required for safety. After a long development cycle, this material is now being widely used by the military, in commercial aircraft, and in the automotive industry. Automotive Carbon Fiber Composites: From Evolution to Implementation, written by Dr. Jackie Rehkopf, senior researcher at Plasan Carbon Composites, gives a high-level summary on carbon reinforced fiber composites specific to the automotive industry in today’s market and its vision for the next 5 to 10 years. It begins with a comprehensive and easy-to-read overview of how composites started to be investigated as a possible alternative to metals, mostly driven by military demands, going on to cover:

- Fiber and resin types for automotive applications
- Composite constructions
- Manufacturing processes
- Machining and joining
- Reclaiming and recycling of these materials, among other topics

The title approaches the future with the realistic optimism of those who work with the challenges of creating new solutions to problems that will stay with us for some time to come: the need to conserve energy and make transportation ever more affordable without the loss of safety. Carbon fiber reinforced composites have demonstrated real value in positively addressing these issues. Automotive Carbon Fiber Composites: From Evolution to Implementation is an excellent guide for those involved in technical material strategy and research, as well as those who need to understand the basics of this subject to support better business decisions.

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Engine Failure Analysis

Internal Combustion Engine Failures and Their Causes

By Stefan Zima, Ernst Greuter

Engine failures result from a complex set of conditions, effects, and situations. To understand why engines fail and remedy those failures, one must understand how engine components are designed and manufactured, how they function, and how they interact with other engine components. To this end, this book examines how engine components are designed and how they function, along with their physical and technical properties.

Translated from a popular German reference work, this English edition sheds light on determining engine failure and remedies. The authors present a selection of engine failures, investigate and evaluate why they failed, and provide guidance on how to prevent such failures. A large range of possible engine failures is presented in a comprehensive, readily understandable manner, free of manufacturer bias.

The scope of engines covered includes general-purpose engines found in heavy commercial vehicles, railway locomotives and vehicles, electrical generators, prime movers, and marine engines. Such engines are technical precursors to automotive engines.

This book is for all who deal with engine failures: those who work in repair shops, shipyards, engineering consultancies, insurance companies and technical oversight organizations, as well as R&D departments at engine and component manufacturers. Researchers, academics, and students will learn how even the theoretically impossible can—and will—happen.

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Engineered Tribological Composites

The Art of Friction Material Development

By Roy Cox

Roy Cox provides readers with a thorough presentation of the topic, beginning with the earliest work on brakes by Frood in the early 1900s and friction studies by daVinci in the 1400s. From there, details about the processes of wear and the components of tribological systems are presented. Methods of manufacturing friction materials are described, and the elements of friction material are detailed—binders, fibers, abrasives, and lubricants.

A large portion of the book delves deeply into materials for binders, resins, fibers, abrasives, lubricants, and fillers, providing background on the various materials, their pros and cons, and numerous ways they can be applied to friction systems. Much of this discussion focuses on the compositional makeup and effects of ingredients as they relate to the wear and friction performance of the final product.

Readers will gain a solid background about tribology, as well as a solid understanding of matrices, fibers and additives that make up engineered tribological composites. They will learn how manufacturing affects these composites, along with how friction and wear affect those materials. They will gain a better understanding of which materials provide the optimum balance of cost, friction and wear for various applications, enabling them to better create and apply engineered tribological composites for whatever application is at hand.

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From Evolution to Implementation
By Jackie D. Rehkopf
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And so it has been with the trajectory of carbon fiber reinforced composites, which are capable of providing the lightweighting needed for fuel efficiency, and the mechanical strength required for safety. After a long development cycle, this material is now being widely used by the military, in commercial aircraft, and in the automotive industry.
Automotive Carbon Fiber Composites: From Evolution to Implementation, written by Dr. Jackie Rehkopf, senior researcher at Plasan Carbon Composites, gives a high-level summary on carbon reinforced fiber composites specific to the automotive industry in today’s market and its vision for the next 5 to 10 years. It begins with a comprehensive and easy-to-read overview of how composites started to be investigated as a possible alternative to metals, mostly driven by military demands, going on to cover:
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By Luther M. Gammon, Brian S. Hayes
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By Michael F. McGuire
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By Rajeshwar K. Gupta, Sohan L. Chawla
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Vehicle Noise, Vibration, and Sound Quality

By Gang Sheng (Gang Sheng Chen)

This book gives readers a working knowledge of vehicle vibration, noise, and sound quality. The knowledge it imparts can be applied to analyze real-world problems and devise solutions that reduce vibration, control noise, and improve sound quality in all vehicles—ground, aerospace, rail, and marine.

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By Ingo Stuben
Unlike standard dictionaries, this specialized dictionary is a valuable aid to the expert (engineer or mechanic), student, and other interested parties who seek a better understanding of technical terms and precise definitions.
978-3-8169-2941-3, 328 pp., Paperbound 2010.
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By Edgar J. Gunter, Wen Jeng Chen
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Laser Diagnostics and Optical Measurement Techniques in Internal Combustion Engines
By Hua Zhao

The increasing concern about CO2 emissions and energy prices has led to new CO2 emission and fuel economy legislation being introduced in world regions served by the automotive industry. In response, automotive manufacturers and Tier-1 suppliers are developing a new generation of internal combustion (IC) engines with ultra-low emissions and high fuel efficiency.

To further this development, a better understanding is needed of the combustion and pollutant formation processes in IC engines. As efficiency and emission abatement processes have reached points of diminishing returns, there is more of a need to make measurements inside the combustion chamber, where the combustion and pollutant formation processes take place. However, there is currently no good overview of how to make these measurements.

Based on the author’s previous SAE book, *Engine Combustion Instrumentation and Diagnostics*, this book focuses on laser-based optical techniques for combustion flows and in-cylinder measurements. Included are new chapters on optical engines and optical equipment, case studies, and an updated description of each technique.

The purpose of this book is to provide, in one publication, an introduction to experimental techniques that are best suited for in-cylinder engine combustion measurements. It provides sufficient details for readers to set up and apply these techniques to IC engines and combustion flows.

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Advanced Hybrid Powertrains for Commercial Vehicles
By Haoran Hu, Simon Baseley, Rudolf M. Smaling

This book provides a broad and comprehensive look at hybrid powertrain technologies for commercial vehicles. It begins with the fundamentals of hybrid powertrain systems, government regulations, and driving cycles, then provides design guidelines and key components of hybrid powertrains for commercial vehicles.

It was written for vehicle and component engineers and developers, researchers, students, policymakers, and business executives in the commercial vehicle and transportation industries to help them understand the fundamentals of hybrid powertrain technologies and market requirements for commercial vehicles. It is useful for anyone who designs or is interested in hybrid powertrains and their key components.

The term ‘commercial vehicle’ applies to everything from light delivery vehicles to class 8 long haul trucks, buses, and coaches. These vehicles are used for a wide range of duties, including transporting goods or people and infrastructure service.

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Engine Failure Analysis
Internal Combustion Engine Failures and Their Causes
By Stefan Zima, Ernst Greuter

Engine failures result from a complex set of conditions, effects, and situations. To understand why engines fail and remedy those failures, one must understand how engine components are designed and manufactured, how they function, and how they interact with other engine components. To this end, this book examines how engine components are designed and how they function, along with their physical and technical properties.

Translated from a popular German reference work, this English edition sheds light on determining engine failure and remedies. The authors present a selection of engine failures, investigate and evaluate why they failed, and provide guidance on how to prevent such failures. A large range of possible engine failures is presented in a comprehensive, readily understandable manner, free of manufacturer bias.

The scope of engines covered includes general-purpose engines found in heavy commercial vehicles, railway locomotives and vehicles, electrical generators, prime movers, and marine engines. Such engines are technical precursors to automotive engines.

This book is for all who deal with engine failures: those who work in repair shops, shipyards, engineering consultancies, insurance companies and technical oversight organizations, as well as R&D departments at engine and component manufacturers. Researchers, academics, and students will learn how even the theoretically impossible can—and will—happen.

978-0-7680-0885-2, 582 pp., Hardbound 2012.
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Design Practices: Passenger Car Automatic Transmissions
Fourth Edition
Since the mid-20th Century, automatic transmissions have benefited drivers by automatically changing gear ratios, freeing the driver from having to shift gears manually. The automatic transmission’s primary job is to allow the engine to operate in its speed range while providing a wide range of output (vehicle) speeds automatically. The transmission uses gears to make more effective use of the engine’s torque and to keep the engine operating at an appropriate speed.

For nearly half a century, Design Practices: Passenger Car Automatic Transmissions has been the “go-to” handbook of design considerations for automatic transmission industry engineers of all levels of experience. This latest 4th edition represents a major overhaul from the prior edition and is arguably the most significant update in its long history. In summary, the authors have put together the most definitive handbook for automatic transmission design practices available today.

Virtually all existing chapters have been updated and improved with the latest state-of-the-art information and many have been significantly expanded with more detail and design consideration updates; most notably for torque converters and start devices, gears/splines/chains, bearings, wet friction, one-way clutch, pumps, seals and gaskets, and controls.

All new chapters have also been added, including state-of-the-art information on:

- Lubrication
- Transmission fluids
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Finally, details about the latest transmission technologies—including dual clutch and continuously variable transmissions—have been added.

978-0-7680-1125-8, 768 pp., Hardbound 2012.
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Evolution, Use, and Future Applications
By Martin L.S. Flint, Jean-Pierre Pirault
This book is an extensive survey of opposed piston (OP) engines from 1887 to 2006. The authors explore design and performance details of all major types of opposed piston engines in stationary, ground, marine, and aviation applications.
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Diesel Emissions and Their Control
By Magdi K. Khair, W. Addy Majewski
This book will assist readers in meeting today’s tough challenges of improving diesel engine emissions, diesel efficiency, and public perception of the diesel engine. It can be used as an introductory text while at the same time providing practical information that will be useful for experienced readers.
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Design and Simulation of Two-Stroke Engines is a unique hands-on information source. The author, having designed and developed many two-stroke engines, offers practical and empirical assistance to the engine designer on many topics ranging from porting layout, to combustion chamber profile, to tuned exhaust pipes.
978-1-56091-685-7, 647 pp., Hardbound 1996.
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Put Your Knowledge in Print
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**Engine Design Concepts for World Championship Grand Prix Motorcycles**

By Alberto Boretti

The World Championship Grand Prix (WCGP) is the premier championship event of motorcycle road racing. The WCGP was established in 1949 by the sport's governing body, the Fédération Internationale de Motocyclisme (FIM), and is the oldest world championship event in the motorsports arena.

This book, developed especially for racing enthusiasts by motorsports engineering expert Dr. Alberto Boretti, provides a broad view of WCGP motorcycle racing and vehicles, but is primarily focused on the design of four-stroke engines for the MotoGP class. The book opens with general background on MotoGP governing bodies and a history of the event’s classes since the competition began in 1949. It then presents some of the key engines that have been developed and used for the competition through the years. Technologies that are used in today’s MotoGP engines are discussed.

A sidebar discussion on calculating brake, indicated, and friction performance parameters provides mathematical information for readers who like such technical details. Future developments of MotoGP engines, including the use of biofuels and recovery of thermal and braking energy, are presented. The introduction concludes with a chart that details the winners of the various classes of WCGP motorcycle racing since the competition began in 1949.

The bulk of the book consists of four previously published SAE technical papers that were expressly chosen by Dr. Boretti to provide greater insight to the relationships between engine parameters and performance, namely the influence on friction and mean effective pressure of traditional spark ignited four stroke engines tuned for a narrow high power output.


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6th AVL International Commercial Powertrain Conference Proceedings
This book includes 21 papers from four session categories held at the AVL International Commercial Powertrain Conference, the premier forum for truck, agricultural and construction equipment manufacturers.
978-0-7680-6451-3, 178 pp., Paperbound 2011. $119.95 List
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By Paul Nieuwenhuis, Philip Vergragt, Peter Wells
This book breaks through the conventional boundary between engineering and the social sciences, and the contributors represent both sides of this divide, combining economists, engineers, geographers, designers, and others.
978-1-907643-15-6, 258 pp., PDF Only 2006. $75.00 List
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By Nicholas C. Baines
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978-0-933283-14-5, 280 pp., Hardbound 2005. $135.00 List
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By Jon M. Quigley, Kim H. Pries
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By David Hoyle
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**Occupant Protection and Automobile Safety in the U.S. since 1900**  
*By Roger F. Wells*

This book provides a historical review of safety features appearing on passenger cars that have been produced for sale in the U.S. from 1900 to the present. A main theme throughout is the impact the automobile has made on society, with particular emphasis on accidents and loss of life. Another theme is the technological advances that have contributed to safer driving.

Even though the author details the technical details of the major safety-related components of automobiles, the book is written for anyone with an interest in the workings of motor vehicles. Topics include:

- events driving the implementation of specific safety features
- government involvement and legislative actions
- effects of mandated and non-mandated implementation
- effects of safety technologies on annual passenger deaths
- technical details of specific innovations
- development of crash protection testing standards

Each of the five chapters covers a different period in the evolution of passenger cars. They include detailed descriptions of technologies and advancements that have directly contributed to the production, operation, and crash-survivability improvements made to automobiles. Also included are commentaries relating to influences of political and industry-driven initiatives, consumer reactions, and apparent effects of these influences on annual fatality rates.

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**V2V/V2I Communications for Improved Road Safety and Efficiency**  
*By Ronald K. Jurgen*

Millions of automobile accidents occur worldwide each year. Some of the most serious are rear-end crashes, side crashes within intersections, and crashes that occur when cars change lanes or drift into a lane. The holy grail of traffic safety is to avoid automobile accidents altogether.

To that end, major automakers, governments, and universities are working on systems that allow vehicles to communicate with one another as well as the surrounding infrastructure (V2V/V2I for short). These systems show promise for such functions as intersection assist, left-turn assist, do-not-pass warning, advance warning of a vehicle braking ahead, forward-collision warning, and blind-spot/lane-change warning.

This compendium explores the challenges in developing these systems and provides the latest developments in V2V/V2I technology. It begins with a series of overview news stories and articles from SAE’s magazines on the progress in this technology. This is followed by a series of technical papers on V2V/V2I dealing with the many technical aspects of design of these systems as well as discussions of such key issues as the need for extreme reliability assurances and traffic congestion overloads on the systems.

Some of most interesting discussions in the book include:

- Overview of a large-scale test in Germany to address reliability.
- Effectiveness of different antennas and receivers that are used in various intersections settings, such as intersections where there are tall buildings or no buildings, and where high transmission power lines are located that can cause signal interference.
- Various ways to communicate between vehicles and how messages are relayed to drivers.
- Dedicated short range communication protocol for vehicle safety applications, which shows promise for combining and processing large amounts of information.

Editor Ronald K. Jurgen prepared this book to be of use to engineers at automakers and electronic component suppliers; software engineers; computer systems analysts and architects; academics and researchers within the electronics, computing, and automotive industries; legislators, managers and other decision-makers in the government highway sector; traffic safety professionals; and insurance and legal practitioners. Mr. Jurgen served on the editorial staff of IEEE Spectrum for 30 years and is the editor of several electronics-related handbooks and several other electronics-related compendiums published by SAE International.

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By Lothar Wech, Ulrich W. Seiffert

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Connectivity and the Mobility Industry
By Dr. Andrew Brown, Jr.

Bound to play an ever increasing role in the driver-vehicle relationship, connectivity is becoming a basic consumer requirement when it comes to choosing a vehicle. Moving from the computer into the car, the ability to stay in touch, informed and entertained has reached yet a higher level of technology ubiquity.

Featuring 20 SAE technical papers published in 2010 and 2011, Connectivity and the Mobility Industry addresses important aspects of one of the most cutting-edge topics in the industry today.

Part of the new paradigm of “green, safe and connected,” this title is of special interest to those looking for an integrated view of how the driving experience will develop within these boundaries, and what emerging technologies are likely to be successful in the upcoming years.

This book is the third in the trilogy from SAE on “Safe, Green and Connected” vehicles in the mobility industry edited by Dr. Andrew Brown, Jr.

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978-0-7680-1243-9, 393 pp., 40 Papers, Paperbound 2006.
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By Donald E. Struble
This book features 26 landmark technical covering the progression of this essential safety feature, providing a complete and thorough perspective through the analysis of both early patents and recent side airbag system developments.
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By Leonard Evans
This book applies the methods of science to better understand one of the worlds major problems -- harm in road traffic. It goes to the heart of the problem, with unconstrained analyses and identification of more effective countermeasures.
0-9754871-0-8, 464 pp., Hardbound 2005.
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