

DELMAR'S  
**AUTOMOTIVE &  
TRUCK TECHNOLOGY**  
2009 CATALOG



## A LETTER FROM YOUR AUTOMOTIVE & TRUCK TECHNOLOGY TEAM

Dear Instructor:

Welcome to Delmar Cengage Learning's new Automotive and Truck Technology Catalog for 2009! Our continuing mission is to support your educational objectives and help you train the next generation of skilled automotive, heavy vehicle/heavy equipment and collision repair technicians. For the many programs that have already achieved NATEF certification or expect to do so in the future, you'll find in this catalog a wealth of materials that address your specific needs and reflect the latest NATEF Program Standards.

In the listings of new automotive technology and truck technology products, you'll see an exciting Fifth Edition of our flagship product, *Automotive Systems: A Systems Approach*, by Jack Erjavec, as well as many other revised titles on car care, electrical principles, automotive heating/air conditioning, medium/heavy truck engines, and computerized engine controls. What's more, we are expanding the scope of our program by producing new texts on important topics like motorcycle technology, heavy equipment systems, preventive maintenance/inspection for heavy vehicles, and collision repair/refinishing.

We are also responding to your demand for online teaching and learning tools by producing our first **Student Online Companion**, which will accompany *Automotive Systems Fifth Edition*, and our first **WebTutor Advantage**, a Blackboard cartridge that will accompany *Today's Technician™* titles.

In bringing these products to you, Delmar's authors, editorial staff and expert reviewers have paid special attention to your need for **thorough, up-to-date coverage and technical accuracy**.

Because changing automotive and truck technologies call for new instructional approaches as well as updated content, we're always receptive to innovative textbook proposals. Please contact me if you're thinking about writing a text — I'll be happy to review with you Delmar's needs and our winning publishing strategy.

We are especially pleased to continue our valuable partnership with NACAT, the North American Council of Automotive Teachers. Delmar proudly sponsors the **Jack Erjavec New Automotive Instructor Scholarship Award**, which is administered by the NACAT Foundation (*please see inside back cover for more information*).

I thank you again for the confidence you've placed in our materials. Your demand for the highest quality teaching tools drives all of us here to find new and better ways to help you save your valuable time, while helping your students achieve better grades.

Sincerely,  
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Delmar is on the leading edge when it comes to helping you teach and helping your students learn. We are proud to offer solutions that make instructors more productive, and tools that assist students in learning more effectively.

In addition to the solutions described below, we publish full online and DVD course material, online ASE exam prep, and more. Ask your Delmar sales rep for more information on any of these solutions, which can be found later in this catalog.

## FOR INSTRUCTORS

### E.RESOURCE™ CD-ROM / INSTRUCTOR'S RESOURCE CD-ROM

The e.resource™ CD-ROM is available for many of our Automotive titles. It contains tools and instructional resources that will enrich your classroom and shorten your preparation time. The elements of e.resource™ link directly to the text and tie together to provide a unified instructional system. Components include the following:

- Electronic Instructor's Manual files include lecture outlines, teaching tips, answers to text questions and case studies, skills checklists, and resource lists to accompany the text.
- Computerized Testbank in ExamView format contain hundreds of questions that can be modified. New questions can be added as needed.
- Image Library, containing nearly all the drawings and high quality photos from the text, allow you to create your own PowerPoints™.
- PowerPoint™ Presentations provide a visual outline of key concepts from each chapter that can be further enhanced by importing images from the Image Library.
- Student ASE/NATEF Correlation Checklists allow you and your students to track their progress developing competencies in the ASE subject areas.
- Customizable Job Sheets are correlated to NATEF tasks and provided as Microsoft Word documents for easy editing.
- e.resource™ files are easily exportable to Blackboard or WebCT.

## FOR LEARNERS

### DVDS

We offer high quality DVD products that provide interactive instruction and multiple camera angles.

### CD-ROM COURSEWARE

Take advantage of our interactive video-based CD-ROMs that are available for individual use or over a network for self-paced and instructor-led learning. Many systems and topic areas are also available as VHS Tapes.

### ONLINE COMPATIBLE MATERIALS

Does your program use WebCT or Blackboard? Our e.resource™ materials, including ExamView® tests, easily export to WebCT and Blackboard formats.

**SEE INDIVIDUAL PRODUCT PAGES FOR LISTING OF ACCOMPANYING SUPPLEMENTS.**

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NOTE: The publishing industry is moving toward 13-digit ISBNs (order numbers). In this catalog you will find the 13-digit version of the ISBN.

# CUSTOMIZATION SERVICES

Whether you would like your organization's logo on the cover of one of our books, just need certain chapters from one book, or even want to combine your department or state content with ours, Delmar can help you create the most effective affordable solutions.

## SOME POPULAR OPTIONS FOR CUSTOMIZATION INCLUDE:

**Custom Cover.** Add your logo, key message or title to Delmar books to create your own private-labeled custom training materials. By customizing our materials with your organization's information, you not only foster loyalty to your program; you also visibly demonstrate your organization's commitment to training.

**Bundling Several Books Together.** Combine two or more books into a pre-packaged bundle. The books can come shrink-wrapped for easy distribution.

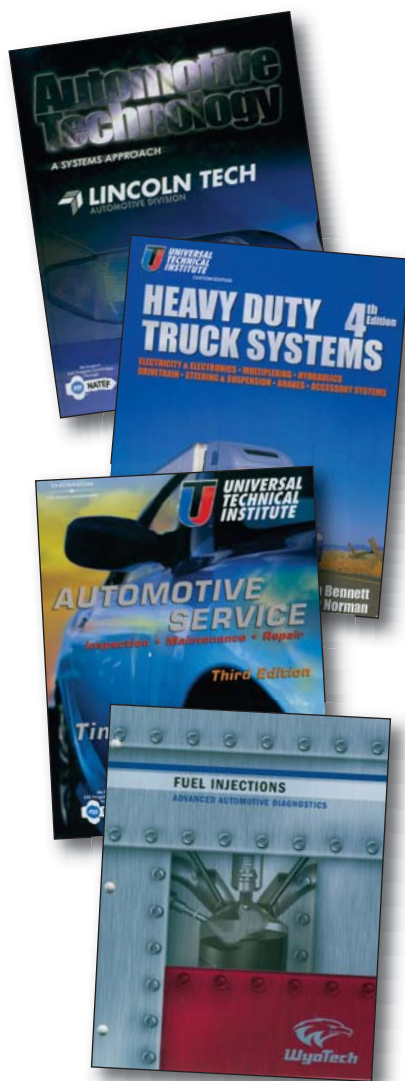
**Selecting Material from One or More Books.** Select several chapters from our library of content and rebind them into your own focused text, or even add your own content. You will be surprised at how affordable this can be.

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Delmar is proud to offer customized services as well. Testbank development and test validation, curriculum development, and other services are available to state agencies and other large training organizations.

*For more information, please contact your sales representative, or our Senior Curriculum Manager, Elizabeth Sugg at [elizabeth.sugg@cengage.com](mailto:elizabeth.sugg@cengage.com).*



# AUTOMOTIVE TECHNOLOGY: A SYSTEMS APPROACH, Fifth Edition

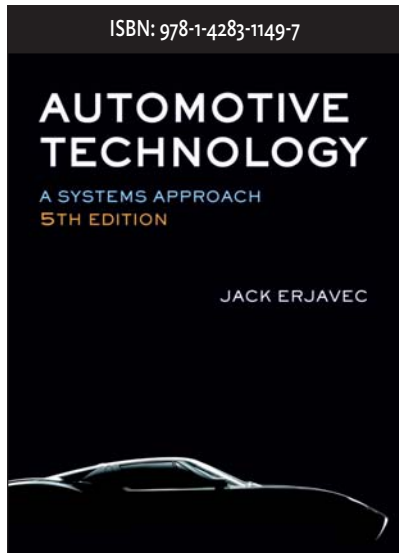
Jack Erjavec

**NEW  
EDITION!**



ISBN: 978-1-4283-1149-7

1,472 pp, 8-1/2" x 11", HC, 4-Color, ©2010



The leading authority on theory, service and repair procedures for contemporary automobiles remains the most technically comprehensive on the market! The fifth edition of *Automotive Technology: A Systems Approach*, has been updated to reflect the most recent technological developments in the industry, featuring coverage of hybrid vehicles throughout the text, all new content on electronic automatic transmissions, preventive maintenance, and more. This enhanced presentation of the theory, diagnosis, and service of automobiles and light trucks covers the 2008 NATEF Automobile Program Standards to help ready auto tech programs for certification. The “must have” information contained in this book will help readers understand and efficiently diagnose and service all automotive systems.

## NEW FEATURES INCLUDED IN THIS EDITION

- two new chapters devoted specifically to engine performance systems and sensors as well as an all new chapter on Electronic Automatic Transmissions
- updated end-of-chapter questions reinforce chapter content and ready students for ASE certification
- hybrid vehicle information is incorporated throughout the book
- a new Automotive Systems chapter covers the basic NATEF tasks that apply to all systems
- Workplace Skills chapter is updated to give future technicians a realistic perspective on employment as an auto technician, including communicating, critical thinking, and applying for a job
- Performance Tips are incorporated throughout the text to add depth to specific performance-related system topics
- “Go to” text element directs readers to other relevant areas in the text for further review and study

## NEW! STUDENT ONLINE COMPANION

This free student resource packaged with each book includes:

- PowerPoint™ chapter outlines with images
- ASE-Style Practice Questions on all 8 ASE-topic areas
- Web-links and Activities
- 45 Challenging Concepts – Highlights concepts that present the most difficulty for students with videos, narration and theory questions to help make topics clearer for students
- Interactive online games for each automotive system area

## CONTENTS

Automotive Technology. Engines. Electricity. Engine Performance. Manual Transmissions and Transaxles. Automatic Transmissions and Transaxles. Suspension and Steering Systems. Brakes. Passenger Comfort.

## SUPPLEMENTS

**Instructor's Resource CD-ROM** ISBN: 978-1-4283-1152-7

**Instructor's Manual** ISBN: 978-1-4283-1151-0

**Tech Manual** ISBN: 978-1-4283-1150-3

## ALSO AVAILABLE

*Applied Academics for Automotive Technicians* ISBN: 978-1-4283-9999-0

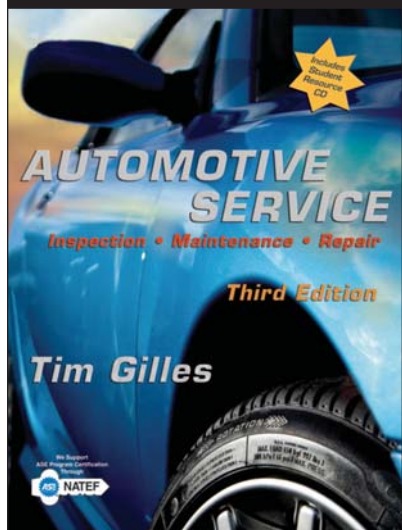
See inside back cover for information on the **Jack Erjavec New Automotive Instructor Scholarship**

# AUTOMOTIVE SERVICE: INSPECTION, MAINTENANCE, REPAIR, Third Edition

Tim Gilles

ISBN: 978-1-4180-3758-1

1,488 pp, 8-1/2" x 11", HC, 4-Color, ©2008



Updated to reflect the latest technology in the automotive industry, this book will provide the knowledge and skills needed to successfully inspect, maintain, and repair vehicles of all makes and models. *Automotive Service: Inspection, Maintenance, and Repair, Third Edition* begins by introducing readers to a number of automotive career options, shop management basics, plus necessary tools and equipment. The book then progresses to the theories of vehicle systems operations and includes step-by-step procedures for troubleshooting and repairing all major systems of the modern automobile. Updates include coverage of new vehicle technology like EVAP systems, on-board diagnostics and emissions, alternative fuels, and hybrid vehicles, making this book not only comprehensive but also current so that readers can feel confident they are learning the very latest in industry trends and techniques.

## KEY FEATURES

- full-color, updated photos and illustrations make key concepts come alive for the visual learner
- Safety Notes and Caution text boxes underscore the importance of safety
- textbook correlates to NATEF Standards
- robust ancillary package includes PowerPoint™, Image Library, Computerized Test Bank, Lab Manual with Job Sheets, Instructor's Guide, and more

## CONTENTS

**THE AUTOMOBILE INDUSTRY.** Introduction to the Automobile. Automotive Careers and Technician Certification. **SHOP PROCEDURES, SAFETY, TOOLS, AND EQUIPMENT.** Shop Safety. Shop Management, Service Records, and Parts. Locating Service Information and Specifications. Measuring Tools and Systems. Hardware, Fasteners, Drills, and Thread Repair. Shop Tools. General Shop Equipment. Cleaning Equipment and Methods. Lifting Equipment and Air Compressors. **VEHICLE INSPECTION** (Lubrication/Safety Check). Engine Lubrication. Underhood and Body Inspection (Car on Ground). Undercar Inspection and Service. **ENGINE OPERATION AND SERVICE.** Introduction to the Engine. Engine Classifications and Advanced Transportation Technologies. Engine Size and Measurements. Engine Upper End. Engine Lower End and Lubrication System Theory. **COOLING SYSTEM, BELTS, HOSES, AND PLUMBING.** Cooling System Theory. Cooling System Service. Automotive Belts. Automotive Hoses. Automotive Plumbing: Tubing and Pipe. **ELECTRICAL SYSTEM THEORY AND SERVICE.** Basic Electrical System Theory and Repairs. Battery Fundamentals. Battery Service. Starting System Fundamentals. Starting System Service. Charging System Fundamentals. Charging System Service. Lighting and Wiring Fundamentals. Lighting and Wiring Service. Safety, Security, Comfort Systems, and Electrical Accessories. **HEATING AND AIR CONDITIONING.** Heating and Air Conditioning Fundamentals. Heating and Air Conditioning Service. **ENGINE PERFORMANCE DIAGNOSIS: THEORY AND SERVICE.** Ignition System Fundamentals. Ignition System Service. Fuels and Alternative Fuels. Fuel System Fundamentals. Fuel System Service. Intake and Exhaust Systems, Turbochargers and Superchargers. Emission Control System Fundamentals. Emission Control System Service. Electronics and Computer Systems Fundamentals. Electronics and Computer Systems Service. Advanced Emissions and On-board Diagnostics (ODB). Diagnosing Engine Performance Problems. **AUTOMOTIVE ENGINE SERVICE AND REPAIR.** Diagnosing Engine Mechanical Problems. Engine Removal and Disassembly. Engine Sealing, Gaskets, Fastener Torque. Engine Diagnosis and Service: Cylinder Head and Valvetrain. Engine Diagnosis and Service: Block, Crankshaft, Bearings, and Lubrication System. Engine Diagnosis and Service: Piston, Piston Rings, Connecting Rod, Engine Balancing. Ordering Parts, Short and Long Blocks, Engine Assembly. Engine Installation, Break in, and In-Chassis Repairs. **BRAKES AND TIRES.** Brake Fundamentals. Brakes Service. Anti-lock Brakes – Traction and Stability Control. Bearings, Seals, and Greases. Tire and Wheel Theory. Tire and Wheel Service. **SUSPENSION, STEERING, ALIGNMENT.** Suspension Fundamentals. Suspension System Service. Steering Fundamentals. Steering Service. Wheel Alignment Fundamentals. Wheel Alignment Service. **DRIVE TRAIN.** Clutch Fundamentals. Clutch Diagnosis and Service. Manual Transmission Fundamentals. Manual Transmission Diagnosis and Service. Automatic Transmission Fundamentals. Automatic Transmission Diagnosis and Service. Driveline Operation. Driveline Diagnosis and Service. Front Wheel Drive (Transaxle and CV Joints) Fundamentals. Front Wheel Drive (Transaxle and CV Joints) Service. Driveline Vibration.

## STUDENT RESOURCE CD (BACK-OF-BOOK CD-ROM)

This **FREE** student resource included in each book includes the following elements:

- ASE Test Prep – Over 200 interactive ASE-style practice questions
- Games and Activities – interactive games keyed to chapter groupings
- PowerPoint™ Chapter Reviews – Illustrated study outlines for students
- Video Clips – 30 high quality, live-action videos

## SUPPLEMENTS

**e.resource** ISBN: 978-1-4180-3761-1

**Instructor's Guide** ISBN: 978-1-4180-3760-4

**Lab Manual with Job Sheets for Basic Tasks** ISBN: 978-1-4180-3759-8

**See page 36 for NATEF Task Sheets**

## BUNDLES

Text and Lab Manual ISBN: 978-1-4283-1549-5

Text and Auto Job Sheets for NATEF Task Mastery

ISBN: 978-1-4283-4488-4

# AUTOMOTIVE TECHNOLOGY FOR GENERAL SERVICE TECHNICIANS

Ron Haefner & Paul Leathers




984 pp, 8-1/2" x 11" HC, 4-Color, ©2008

Introducing the first automotive technology textbook designed for NATEF's General Service Technician Program! This text provides a foundation of general theory and operation for the tasks specified in the NATEF GST Standards and covers the most common repair and diagnostic procedures for all eight major automotive systems, highlighting the importance of workplace skills and employee responsibilities. Reviews praise the book's readability, real-life examples, and simple but accurate presentation of technical information.

## CONTENTS

Preface. Automotive Business. Employee Skills for Career Success. General Shop Safety. Tool and Equipment Safety. Tools and Equipment. Basic Shop Procedures. Measuring Systems, Measurements, and Fasteners. Service Information. Using Service Information. Vehicle Inspection and Detailing. Basic Electricity and Electrical Circuits. Light Circuits. Light Circuit Maintenance, Diagnosis, and Service. Indicator Lights and Gauges. Indicator Light Maintenance, Diagnosis, and Service. Basic Wiring Repair. Battery and Starting Systems. Battery and Starting System Maintenance, Diagnosis, and Service. Charging Systems. Charging System Maintenance and Diagnosis. Ignition Systems. Ignition System Maintenance, Diagnosis, and Service. Brake System Design and Operation. Brake System Maintenance, Diagnosis, and Service. Steering Columns, Steering Linkages, and Power Steering Pumps: Maintenance, Diagnosis and Service. Manual and Power Steering Gear Maintenance, Diagnosis, and Service. Tires, Wheels, and Hubs. Tire, Wheel, and Hubs: Maintenance, Diagnosis, and Service. Suspension Fundamentals. Shocks and Suspension Service. Wheel Alignment. The Four-Stroke Cycle and Cylinder Arrangements. Lubrication Systems. Lubrication System Service. Cooling Systems. Cooling Systems Service. Fuel System Fundamentals. Fuel System Components. Fuel Injection System and Repair. Vehicle Emissions and Emission Standards Fundamentals. Emission Systems. Emission System Maintenance, Diagnosis, and Service. Engine Control Computers and Output Controls. Input Sensors for Engine Control Systems. Input Sensor Maintenance, Diagnosis, and Service. Engine Control Systems. Engine Control System Maintenance, Diagnosis, and Service. Manual Transmission/Transaxle. Automatic Transmission/Transaxle. Clutch. Driveshaft and Driveline. Heating, Ventilation, and Air Conditioning Systems. Heating, Ventilation, and Air Conditioning System Service. Supplemental Restraint Systems.

## SUPPLEMENTS

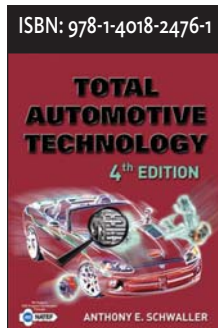
 **e.resource** ISBN: 978-1-4180-1343-1  
**Workbook with NATEF Task Sheets**  
 ISBN: 978-1-4180-1341-7  
**Applied Academics Workbook**  
 ISBN: 978-1-4180-1342-4

## BUNDLES

Text and Workbook ISBN: 978-1-4283-4480-8  
 Text and Applied Academics Workbook  
 ISBN: 978-1-4283-4483-9

# TOTAL AUTOMOTIVE TECHNOLOGY, Fourth Edition

Anthony E. Schwaller




1,112 pp, 8-1/2" x 11", SC, 1-Color w/4-Color Insert, ©2005

The theory and practice for all major systems and components of today's automobiles are introduced in this fully-updated revision by an experienced author. The easy-to-read format divides content into manageable units. A "Problems, Diagnosis, and Service" troubleshooting approach is used to deliver content that is also directly related to ASE certification exams and NATEF tasks.

## CONTENTS

Working in the Automotive Shop. Fundamentals of Automotive Engines. Mechanical/Fluid Engine Systems. Electrical Engine Systems. Emission and Control Systems. Power Transmission Systems. Vehicle Suspension and Control. Systems. Vehicle Accessory Systems.  
*For a full listing of contents visit [autoed.cengage.com](http://autoed.cengage.com).*

## SUPPLEMENTS

 **e.resource** ISBN: 978-1-4018-2484-6  
**Instructor's Manual** ISBN: 978-1-4018-2481-5  
**Workbook** ISBN: 978-1-4018-2479-2

## BUNDLES

Text and Workbook ISBN: 978-1-4018-7742-2  
 Text and NATEF Job Sheets, Second Edition  
 ISBN: 978-1-4180-2134-4

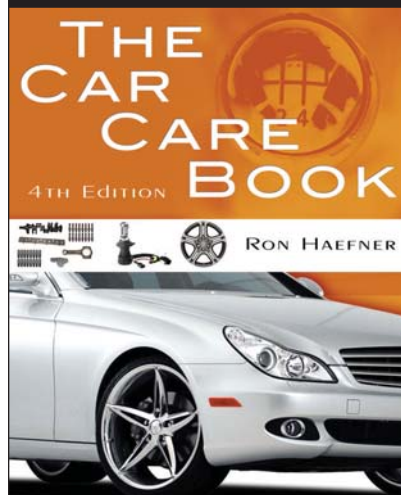
# THE CAR CARE BOOK, Fourth Edition

Ron Haefner

**NEW  
EDITION!**

ISBN: 978-1-4283-4295-8

496 pp, 7-3/8" x 9-1/4", SC, 2-Color, ©2010



Students typically face three main challenges when it comes to understanding automobiles: the technologies underlying the car's major systems, the basics of inspection and maintenance, and the financial aspects of owning and operating an automobile. In this updated fourth edition, *The Car Care Book* explores these areas, using the very latest automobile technology to provide an accurate, current context for learning. The book first breaks each section of the car into systems and subsystems to help the reader digest important concepts. Coverage then progresses to include the common tools needed to perform car maintenance and minor repairs, as well as building a preventive maintenance program. Concluding with a section on financial issues, from buying and selling to insurance considerations to the benefits of leasing, this resource provides a thorough and comprehensive overview of basic automobile care.

### KEY FEATURES

- an all-new chapter on electric and hybrid vehicles discusses these emerging technologies, including basic maintenance and important safety considerations
- detailed illustrations and photos depict the components of the car and their locations, with cutaway views of the inside of various key systems for enhanced comprehension
- broad, general coverage avoids model-specific content so the concepts are accessible and applicable for a wide audience of readers
- short, concise chapters deliver content in manageable chunks that are modular in format for flexible classroom presentation or self-study learning

### CONTENTS

What makes the Wheels Go Round? Tooling Up. The Engine. The Fuel System. The Electrical System. The Lubrication and Cooling System. The Drivetrain. Tires and Brakes. Suspension and Steering. Heating. Air Conditioning, and Optional Equipment. Your Maintenance Program.

A Look at Repairs. The Repair-It/Replace-It Decision. Buying Tips for Parts and Insurance. Buying a New Car. Leasing. Glossary.

### SUPPLEMENT

**Instructor's Resource CD-ROM** ISBN: 978-1-4283-4294-1

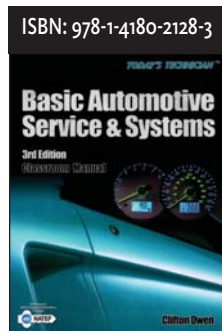
### ALSO AVAILABLE

*The Car Care Book, Fourth Edition* Hardcover ISBN: 978-1-4283-4293-4

**See page 40 for listing of related multimedia products.**

# TODAY'S TECHNICIAN™: BASIC AUTOMOTIVE SERVICE & SYSTEMS, Third Edition

Clifton Owen



See series description on page 10.

ISBN: 978-1-4180-2128-3 896 pp, 8-1/2" x 11", SC, 2-Color, ©2007

This updated classroom/shop manual set explores the basic theories of operation behind each automotive system and the diagnostic, testing, and repair procedures assuming no prior knowledge of automotive technology. Fundamental skills and maintenance are addressed, as well as the application of the theory behind each automotive system. New and proposed strategies in engine fuels and vehicle power systems, an overview of current undercarriage systems technologies, and information on alternative fuels vehicles are just some of the topics covered in the new edition.

## CONTENTS

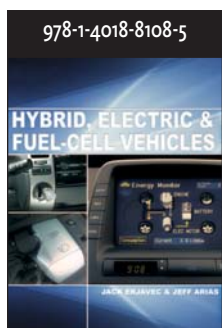
**CLASSROOM MANUAL:** Light Vehicle Operating Systems. The Automotive Business. Automotive Tools and Equipment. Measurements and Precision Measuring Devices. Fasteners. Automotive Supports and Seals. Automotive Theories of Operations. Power System Operation and Sub-Systems. Power Trains. Brake Systems. Suspension and Steering Systems. Auxiliary Systems and Accessories **SHOP MANUAL:** Safety Issues and First Aid. Shop Operation and the Technician. Tools and Equipment. Precision Measurements. Fastener Usage and Repair. Automotive Bearing and Sealant Service. Vehicle Inspection and Diagnostic Procedures. Engine. Preventive Maintenance. Power Train Maintenance. Suspension & Steering Service. Brake System Service. Auxiliary System Service.

## SUPPLEMENT

 **e.resource** ISBN: 978-1-4180-3006-3

# HYBRID, ELECTRIC & FUEL-CELL VEHICLES

Jack Erjavec & Jeff Arias



978-1-4018-8108-5

336 pp, 8-1/2" x 11", SC, 1-Color, ©2007

Get all the information you need on the revolutionary vehicles that are gaining popularity in today's automotive industry. This easy-to-read book addresses the movement of technology towards new and upcoming electric vehicles, with a focus on the hybrids in use today and the fuel cell vehicles of tomorrow. Expansive coverage includes the political and social impact of these vehicles, as well as the basic theories of alternative vehicles as they relate to construction, electricity, batteries, and motors. The book ends with a look into the future, focusing on vehicles under development.

## CONTENTS

An Introduction to Electric Vehicles. Electrical Basics. Motor and Generator Basics. Battery Basics. The Basics of a Battery-Operated Electric Vehicle. HEV Basics. Mild and Assist Hybrids. Full Hybrids. Hybrid Maintenance and Service. Fuel Cell and Other Possible Vehicles.

## SUPPLEMENT

**Instructor's CD-ROM** ISBN: 978-1-4018-8109-2

# PRACTICAL PROBLEMS IN MATHEMATICS FOR AUTOMOTIVE TECHNICIANS,

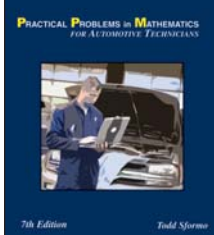
## Seventh Edition

Todd Sformo

**NEW  
EDITION!**

ISBN: 978-1-4283-3524-0

288 pp, 7-3/8" x 9-1/4", SC, 1-Color, ©2009



Comprehensive and easy to use, the revised and updated sixth edition covers practical math problems that automotive technicians will face on the job. The easy-to-read and well organized chapters of *Practical Problems in Mathematics for Automotive Technicians, Seventh Edition* feature step-by-step instructions, diagrams, charts, and examples that facilitate the problem-solving process while reinforcing key concepts. The presentation builds from the basics of whole-number operations to cover percentages, linear measurement, ratios, and the use of more advanced formulas. With a special section on graphs, scale reading of test meters, and invoices found in the workplace, this text is tailor-made for students in any automotive course of study!

### CONTENTS

Addition of Whole Numbers. Subtraction of Whole Numbers. Multiplication of Whole Numbers. Division of Whole Numbers. Common Fractions. Addition of Common Fractions. Subtraction of Common Fractions. Multiplication of Common Fraction. Division of Common Fractions. Decimal Fractions. Fractional Equivalents. Addition of Decimal Fractions. Subtraction of Decimal Fractions. Multiplication of Decimal Fractions. Division of Decimal Fractions. Micrometer Reading: Application of Decimal Fractions. Multiple Operations of Common and Decimal Fractions. Percent and Percentage. Simple Percent. Simple Percentage. Discounts. Profit and Loss. Commissions. Interest and Taxes.

### SUPPLEMENT

 **e.resource** ISBN: 978-1-4283-3525-7

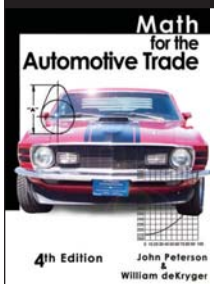
# MATH FOR THE AUTOMOTIVE TRADE,

## Fourth Edition

John Peterson & William deKryger

ISBN: 978-1-4180-3101-5

352 pp, 8-1/2" x 11", SC, 1-Color, ©2006



With the most inclusive range of automotive-related topics available, this instructional text/workbook teaches users how to solve the types of math problems faced regularly by automotive technicians.

### CONTENTS

Whole Numbers. Decimals. Fractions. Geometry, Angle Measurement and the Metric System. Integers and Signed Numbers. Ratios, Proportions, and Percentages. Completing Repair Orders. The Automobile Engine. Automobile Engine Systems. Automobile Electrical Systems. The Automobile Drive Train. The Automobile Chassis. Automobile Heating, Ventilation, and Air Conditioning. Measurement Tools.

### SUPPLEMENT

 **e.resource** ISBN: 978-1-4180-3102-2

## SERIES OVERVIEW

Delmar's TechOne series is a state-of-the-art series of automotive titles that combines classroom theory, diagnosis, and repair into single, easy-to-use volumes. Each TechOne title includes current and concise information on ASE and other specific subject areas, with a variety of learning aids designed to respond to today's instructor and student needs.

### LOOK FOR THESE SERIES FEATURES

- large numbers of short chapters divide complex material into manageable chunks of information
- shorter chapters can be taught in almost any order, providing instructors flexibility to pick and choose the material that best reflects the depth, direction, and pace of their courses
- extensive art programs with abundant drawings and photos
- "You Should Know" and "Interesting Facts" draw attention to important points deserving further emphasis
- each TechOne title begins with a section on "Safety and Communication" that stresses safe work practices, tool competence, and familiarity with workplace "soft skills" for future success as an automotive technician
- a bilingual glossary offers Spanish translations of technical terms alongside their English counterparts
- each TechOne title has a corresponding Instructor's Manual with CD-ROM that contains the answers to all chapter-end review questions and a complete correlation of the text to NATEF tasks, PowerPoint™ slides for classroom presentations, a computerized test bank, and adaptable Electronic Worksheets so instructors can create in-class assignments or homework

### TITLES IN THE SERIES

#### TechOne: Basic Automotive Service & Maintenance

*Don Knowles*

ISBN: 978-1-4018-5208-5

#### A1 TechOne: Automotive Engine Repair

*Elisabeth H. Dorries*

ISBN: 978-1-4018-5941-1

#### A2 TechOne: Automatic Transmissions

*Jack Erjavec*

ISBN: 978-0-7668-1169-0

#### A3 TechOne: Manual Transmissions

*Jack Erjavec*

ISBN: 978-1-4018-3400-5

#### A4 TechOne: Suspension and Steering

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All TechOne Series books are 8-1/2" x 11", SC, 2-Color.



# TODAY'S TECHNICIAN™ SERIES

Jack Erjavec, Series Editor



## SERIES OVERVIEW

The Today's Technician™ Series from Delmar demonstrates our commitment to providing high-quality books that work for automotive technology programs. We've developed easy-to-use, cross-referenced Classroom and Shop Manuals along with a timesaving e.resource™ to provide a complete system of instructional support. The Series includes titles that correspond to the eight major automotive service areas as defined by ASE, plus additional titles that address advanced topics.

### LOOK FOR THESE SERIES FEATURES

- Job Sheets in the Shop Manual guide readers through procedures covered in the chapter
- Photo Sequences and step-by-step instructions for diagnostic and repair procedures are included in the Shop Manual
- “Cautions” and “Warnings” throughout the Shop Manual emphasize safety and the need to carefully follow repair procedures
- Case Studies provide examples of the diagnostic strategies a technician uses to identify and solve a problem
- ASE-style questions at the end of each chapter, plus a sample ASE exam, help prepare readers for the certification testing
- Author's Notes contained in the Classroom Manual explain difficult concepts in an easy-to-understand straightforward manner
- An e.resource™ containing ready-to-use PowerPoint™ slides, a computerized testbank, Image Library and other helpful resources is available to minimize preparation time for instructors

### TITLES IN THE SERIES

**A1** Today's Technician™: Automotive Engine Repair & Rebuilding, Third Edition

*Elisabeth H. Dorries*

See page 11

**A2** Today's Technician™: Automatic Transmissions & Transaxles, Fourth Edition

*Jack Erjavec*

See page 12

**A3** Today's Technician™: Manual Transmissions & Transaxles, Fourth Edition

*Jack Erjavec*

See page 12

**A4** Today's Technician™: Automotive Suspension & Steering Systems, Fourth Edition

*Don Knowles*

See page 13

**A5** Today's Technician™: Automotive Brake Systems, Fourth Edition

*Clifton E. Owen*

See page 14

**A6** Today's Technician™: Automotive Electricity & Electronics, Fourth Edition

*Barry Hollembeck*

See page 16

**A7** Today's Technician™: Automotive Heating & Air Conditioning, Fourth Edition

*Mark Schnubel*

See page 17

**A8** Today's Technician™: Automotive Engine Performance, Fourth Edition

*Ken Pickerill*

See page 19

**L1** Today's Technician™: Advanced Engine Performance

*Mark Schnubel*

See page 19

**X1** Today's Technician™: Automotive Fuels & Emissions

*Barry Hollembeck*

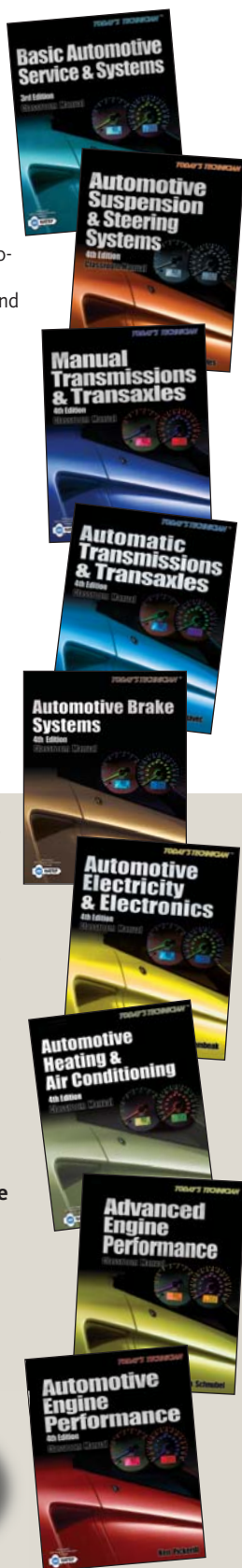
See page 20

**Today's Technician™: Basic Automotive Service & Systems, Third Edition**

*Clifton Owen*

See page 7

See page 38 for electronic automotive technician training



All Today's Technician™ Series books are 8-1/2" x 11", 2-Color. All include softcover Classroom Manual shrink-wrapped with spiralbound Shop Manual.

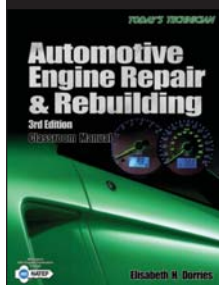
# TODAY'S TECHNICIAN™: AUTOMOTIVE ENGINE REPAIR & REBUILDING, Third Edition

Elisabeth H. Dorries

ISBN: 978-1-4018-8262-4

992 pp, 8-1/2" x 11", SC, 2-Color, ©2006

A1



See series description  
on page 10.

The theory and service of modern automotive engines is at the heart of this edition. Thoroughly enhanced and updated, this book includes information on variable valve timing systems, hybrid and other advanced technology vehicles. Readers will learn how components are designed and how they function to support engine operation through the help of realistic line drawings and well-structured photographs that engage them in the parts and pieces of today's automotive engines. The newly revised Third Edition includes more engine performance diagnostic information, as well as NATEF content to help readers adequately prepare for the ASE certification exam in Engine Repair.

## CONTENTS

**Classroom Manual:** System Overview. Theory of Engine Operation. Engine Operating Systems. Engine Materials, Fasteners, Seals And Gaskets. Intake and Exhaust Systems. Engine Performance Problems. Engine Mounting and Attachments. Cylinder Heads. Camshafts and Valvetrains Chapter. Timing Mechanisms Chapter. Cylinder Block Assembly. Pistons, Rings, Connecting Rods And Bearings. Advanced Technology Vehicles. **Shop Manual:** Safety and Shop Practices. Engine Repair Skills, Procedures and Tools. Engine Operating Systems Diagnosis and Service. Repair and Replacement of Fasteners, Gaskets and Seals. Intake and Exhaust System Service. Engine Evaluation. Engine Removal, Replacement and Installation. Cylinder Head Service. Valvetrain and Camshaft Service. Timing Mechanism Service. Cylinder Block Service. Short Block Component Service and Assembly. Advanced Technology Vehicle Service.

## SUPPLEMENTS

 **e.resource** ISBN: 978-1-4018-8264-8

**Instructor's Manual** ISBN: 978-1-4018-8263-1

## BUNDLE

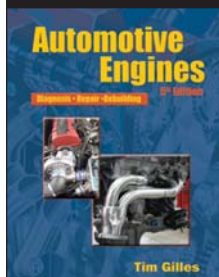
Text and ASE Prep Manual ISBN: 978-1-4180-4467-1

# AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR & REBUILDING, Fifth Edition

Tim Gilles

ISBN: 978-1-4180-0963-2

688 pp, 8-1/2" x 11", SC, 2-Color, ©2007



The Fifth Edition reflects current trends and industry concerns while providing comprehensive coverage that builds the technical expertise and critical thinking skills needed to effectively diagnose and troubleshoot worn and failed parts. Revision highlights include an enhanced engine diagnosis chapter and updated information on four-valve per cylinder engines, camshaft timing, variable valve timing, and high performance engines. Hundreds of new and updated photos and sketches are also included.

## CONTENTS

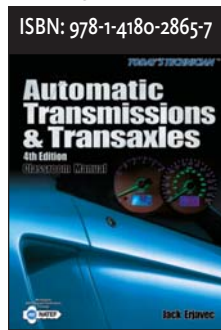
Engine Construction, Diagnosis, Disassembly, and Inspection. Engine Operation. Engine Shop Safety. Diagnosing Engine Problems. Engine Removal, Disassembly, Inspection, and In-Chassis Repairs. Cleaning the Engine. Measuring the Breathing System. Cylinder Head: Parts and Service. Cylinder Head: Springs, Valves, and Valve Seats. Camshafts, Lifters, Timing Belts, and Chains. Engine Power Development: Manifolds, Superchargers, and Camshaft Performance. Cylinder Block Assembly. Cylinder Block. Inspection and Service. Crankshaft, Bearings, and Engine Balancing. Pistons, Rings, and Connecting Rods. Lubrication. Cooling System. Engine Repair and Reassembly. Engine Hardware: Fasteners, Thread Repair, and Gaskets. Reassembly and Starting.

## SUPPLEMENT

 **e.resource** ISBN: 978-1-4180-0964-9

# TODAY'S TECHNICIAN™: AUTOMATIC TRANSMISSIONS & TRANSAXLES, Fourth Edition

Jack Erjavec



ISBN: 978-1-4180-2865-7

464 pp, 8-1/2" x 11", SC, 2-Color, ©2007

A2

Revised to keep pace with industry trends and the needs of automotive education programs across the country, its complete, technician-oriented coverage will lead users to mastery of all of the design, construction, troubleshooting techniques, and service procedures required to enter the workplace. The Classroom Manual begins with an important introduction to drive train basics, the Shop Manual with an intro to safety. This is followed immediately by a review of directly relevant electricity/electronics principles, plus more opportunities to gain practice in using scanners and oscilloscopes to develop critical thinking skills, diagnose problems, and make effective repairs.

## CONTENTS

Drive Train Basics. Drive Train Theory. General Theories of Operation. Electronic Controls. Transmission Designs. Torque Converters and Oil Pumps. Hydraulic Circuits and Controls. Gears And Shafts. Reaction and Friction Units. Common Automatic Transmissions Automatic Transmission Related Associations.

## SUPPLEMENTS

**e.resource** ISBN: 978-1-4180-2867-1  
**Instructor's Manual** ISBN: 978-1-4180-2866-4

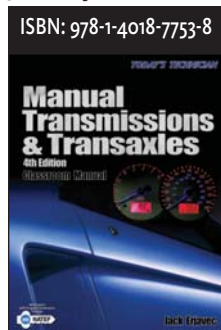
## BUNDLE

Text and ASE Prep Manual ISBN: 978-1-4283-0104-7

See series description on page 10.

# TODAY'S TECHNICIAN™: MANUAL TRANSMISSIONS & TRANSAXLES, Fourth Edition

Jack Erjavec



ISBN: 978-1-4018-7753-8

864 pp, 8-1/2" x 11", SC, 2-Color, ©2006

A3

This comprehensive, two-volume package provides users with a solid overview of clutches, transmissions, transaxles, drive axles, differentials, and four-wheel drive systems. The updated fourth edition features the latest technological developments, including dual clutch systems, various limited-slip differential designs, six speed transmissions, constantly variable transmissions, and self-shifting manual transmissions. With a sharp focus on current technologies and the inclusion of outstanding learning features, this edition provides an excellent classroom resource for students preparing to become future technicians!

## CONTENTS

**Classroom Manual:** Manual Drive Trains and Axles. Drivetrain Theory. Clutches. Manual Transmissions/Transaxles. Front Drive Axles. Drive Shafts and Universal Joints. Differentials and Drive Axles. Four-Wheel-Drive Systems. Advanced Four-Wheel-Drive Systems. Drivetrain Electrical and Electronic Systems. **Shop Manual:** Safety. Special Tools & Procedures. Servicing Clutches. Servicing Transmissions/Transaxles. Servicing Front Drive Axles. Servicing Drive Shafts and Universal Joints. Servicing Differentials and Drive Axles. Servicing Four-Wheel-Drive Systems. Diagnosing 4WD and AWD Control Systems. Servicing Drivetrain Electrical Systems Appendices.

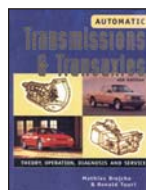
## SUPPLEMENTS

**e.resource** ISBN: 978-1-4018-7755-2  
**Instructor's Manual** ISBN: 978-1-4018-7754-5

## BUNDLE

Text and ASE Prep Manual ISBN: 978-1-4180-4469-5

See series description on page 10.



## AUTOMATIC TRANSMISSIONS & TRANSAXLES, Fourth Edition

Mathias Brejcha & Ronald Tuuri

ISBN: 978-0-8273-8038-7

704 pp, 8-1/2" x 11", SC, 1-Color, ©1997

**Instructor's Manual** ISBN: 978-0-8273-8039-4

See page 40 for listing of related multimedia products.

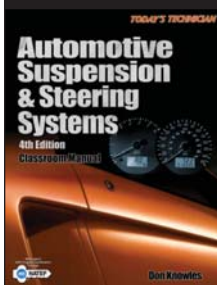
# TODAY'S TECHNICIAN™: AUTOMOTIVE SUSPENSION & STEERING SYSTEMS, Fourth Edition

Don Knowles

ISBN: 978-1-4018-9682-9

432 pp, 8-1/2" x 11", SC, 2-Color, ©2007

A4



See series description  
on page 10.

This edition features current content on suspension and steering systems for today's cars, SUVs, light duty trucks and now, hybrids! The Fourth Edition is teeming with new and improved content, from the latest mandatory tire pressure monitoring systems to the newest electronically-controlled suspension systems. New information on the latest front and rear suspension designs, recent developments in steering columns and air bag systems, and the latest electronic power steering gears are also discussed.

## CONTENTS

**Classroom Manual:** Introduction. Newton's Laws of Motion. Work and Force. Wheel Bearings. Tires and Wheels. Shock Absorbers and Struts. Front Suspension Systems. Rear Suspension Systems. Computer-Controlled Suspension Systems Introduction. Steering Columns and Steering Linkage Mechanisms. Power Steering Pumps. Recirculating Ball Steering Gears. Four-Wheel Steering Systems. Frames and Frame Damage. Four-Wheel Alignment, Part I. Four-Wheel Alignment, Part II  
**Shop Manual:** Safety. Typical Shop Procedures. Wheel Bearing and Seal Service. Tire and Wheel Servicing and Balancing. Shock Absorber and Strut Diagnosis and Service. Front Suspension System Service. Rear Suspension Service. Steering Column and Linkage Diagnosis and Service. Power Steering Pump Diagnosis and Service. Recirculating Ball Steering Gear Diagnosis and Service. Power Rack and Pinion Steering Gear Diagnosis and Service. Electronic Four-Wheel Steering Diagnosis and Service. Frame Diagnosis and Service. Four-Wheel Alignment Procedure. Four-Wheel Alignment Adjustments.

## SUPPLEMENTS

**e.resource** ISBN: 978-1-4018-9684-3  
**Instructor's Manual** ISBN: 978-1-4018-9683-6

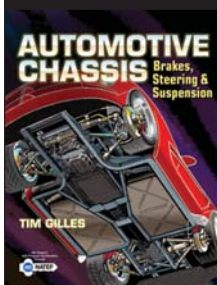
**BUNDLE**  
Text and ASE Prep Manual ISBN: 978-1-4283-1306-4

# AUTOMOTIVE CHASSIS: BRAKES, STEERING & SUSPENSION

Tim Gilles

ISBN: 978-1-4018-5630-4

576 pp, 8-1/2" x 11", SC, 2-Color, ©2005



This user-friendly resource will thoroughly prepare readers to work in the important area of automotive technology known as chassis systems. It features coverage of both brakes and suspension/steering in one complete volume.

## CONTENTS

Introduction to Chassis Systems/Safety/Brake Inspection. Getting Started in the Shop. Brakes Fundamentals. Master Cylinder and Hydraulics Fundamentals. Master cylinder and hydraulic system service. Drum Brake Fundamentals and Service. Disc Brake Fundamentals and Service. Friction Materials, Drums and Rotors. Other Brake Systems: Parking Brake and Power Brake. Anti-lock Brakes Fundamentals and Service. Bearings/ Seals/Greases. Tire and Wheel Fundamentals. Tire and Wheel Service. Suspension System Fundamentals. Suspension System Service. Steering Fundamentals. Steering System Service. Wheel Alignment Fundamentals. Wheel Alignment Service. Front Wheel Drive Axles Fundamentals and Service. Rear Wheel Drive Shafts and Axles Fundamentals and Service. Driveline Vibration.

## SUPPLEMENT

**Instructor's CD-ROM** ISBN: 978-1-4018-5631-1

See page 40 for listing of related multimedia products.

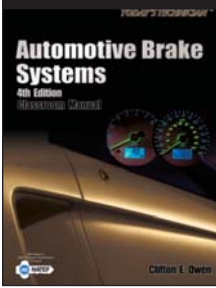
# TODAY'S TECHNICIAN™: AUTOMOTIVE BRAKE SYSTEMS, Fourth Edition

Clifton E. Owen

ISBN: 978-1-4180-6221-7

320 pp, 8-1/2" x 11", SC, 2-Color, ©2008

A5



See series description  
on page 10.

This Fourth Edition of *Today's Technician™: Automotive Brake Systems* continues to provide outstanding coverage of the theory and repair procedures related to automotive brakes. Major updates in this edition include coverage of the latest materials used in brake systems, current electronics, and an expanded but more general coverage of electric braking systems, so users don't get bogged down with highly detailed, manufacturer-specific information. Together, the Classroom and Shop Manuals offer all the information needed to understand, diagnose, and repair most problems that could occur with today's brakes systems.

## CONTENTS

**Classroom Manual:** Brake System Fundamentals. Principles and Theories of Operation. Related Systems. Master Cylinders and Fluids. Hydraulic Lines, Hoses, Valves, and Electrical Devices. Power Brake Systems. Disc Brake Systems. Drum Brake Systems. Parking Brake System. Electronic Braking Systems. **Shop Manual:** Personal and Brake Safety. Brake Service Tools and Equipment. Related Systems Service. Master Cylinder Service. Hydraulic Line, Valve, and Switch Service. Power Brake Service. Disc Brake Service. Drum Brake Service. Parking Brake Service. Electrical Brake System Service.

## SUPPLEMENTS

**e. resource** ISBN: 978-1-4180-6223-1

Text and ASE Prep Manual ISBN: 978-1-4283-1362-0

**Instructor's Manual** ISBN: 978-1-4180-6222-4

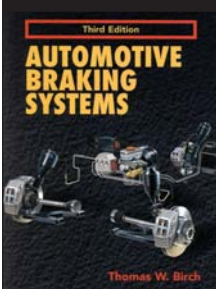
## BUNDLE

# AUTOMOTIVE BRAKING SYSTEMS, Third Edition

Thomas W. Birch

ISBN: 978-0-8273-9097-3

544 pp, 8-1/2" x 11", SC, 1-Color, ©1999



Complete theory information is presented first, followed by general service material that is useable in all repair shops; both portions are well illustrated. Written in a style that is easy to read, the text explains operations thoroughly and clearly. Service and repairs are covered on all levels: preventative maintenance, trouble diagnosis and problem solving, in-vehicle service, and major repair.

## CONTENTS

Brake System Fundamentals. Principles of Braking. Drum Brake Theory. Disc Brake Theory. Parking Brake Theory. Hydraulic System Theory. Power Brake Theory. Antilock Braking System Theory. Brake System Service. Drum Brake Service. Disc Brake Service. Hydraulic System Service. Power Brake Service. Parking Brake Service. Antilock Brake System Service. Wheel, Bearings-Theory and Service. Trailer Brake System. Brake Systems for High-Performance Vehicles.

## SUPPLEMENT

**Instructor's Manual** ISBN: 978-0-8273-9098-0

See page 40 for listing of related multimedia products.

# PRINCIPLES OF ELECTRICITY & ELECTRONICS FOR THE AUTOMOTIVE TECHNICIAN,

## Second Edition

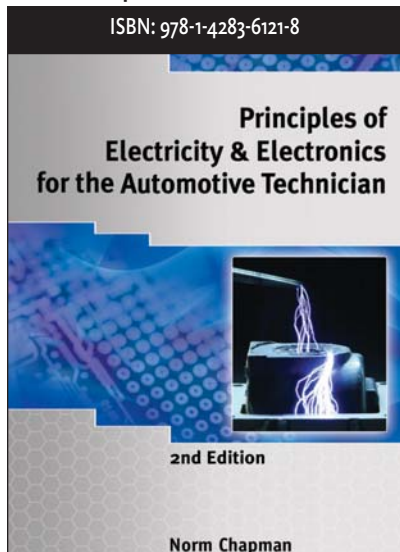
Norm Chapman

**NEW  
EDITION!**

ISBN: 978-1-4283-6121-8

608 pp, 8-1/2" x 11", SC, 2-Color, ©2009

A6



*Principles of Electricity & Electronics for the Automotive Technician, Second Edition* thoroughly covers the basics of automotive electricity and electronics to fully prepare beginning technicians for more complex electrical concepts. Written by an ASE Master Technician and teacher, the book draws readers in using a combination of basic theory, case studies, hands-on vehicle tasks and ASE-style review questions. The updated second edition includes expanded coverage of hybrid electrical vehicles and safety procedures, technological advances in electronically controlled vehicle accessories, and new troubleshooting techniques using cutting-edge equipment and procedures. Simple illustrations and wiring diagrams, along with straightforward explanations of how automotive electricity and electronics work, act together to make this an ideal introduction to electrical and electronics diagnostics and service.

### KEY FEATURES

- repetition of key concepts enhances retention of need-to-know information and prepares readers for more complicated subject matter
- charts and graphs support and clarify key concepts
- case studies tie electrical theory to real-life examples, allowing readers to see how the information applies to the real world
- valuable as a study guide for ASE tests

### CONTENTS

Introduction to Electricity & Electronics. Basic Electrical Theory. Measurement System & Calculator Use. Components of an Electrical Circuit. Meters & Measuring Devices. Basic of Electronics & Computers. Series Circuits. Parallel Circuits. Series/Parallel Circuits. Basic Troubleshooting Techniques & Tips. Electrical Circuits, Lighting, & Instrumentation. Batteries & Testing. Starting System Theory. Charging System Theory. Ignition System Theory.

### SUPPLEMENT



e.resource ISBN: 978-1-4283-6122-5

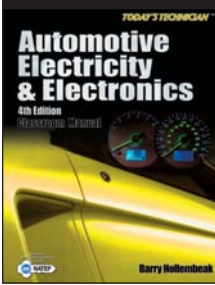
# TODAY'S TECHNICIAN™: AUTOMOTIVE ELECTRICITY & ELECTRONICS, Fourth Edition

Barry Hollembeak

ISBN: 978-1-4180-1267-0

592 pp, 8-1/2" x 11", SC, 2-Color, ©2007

A6



See series description on page 10.

Streamlined diagnostic and service procedures and added attention to data bus networks, including the CAN, LIN, ISO, and other common systems, are highlighted in this revision. Expanded coverage of vehicle accessory systems includes the new multi-stage air bag systems, weight classification systems, side air bag systems, and laser guided cruise control systems. An all-new chapter on hybrid and high voltage systems is also featured as well as a full chapter devoted to safety.

## CONTENTS

**Classroom Manual:** Basic Electrical Systems. Introduction to Automotive Electrical and Electronic Systems. Basic Theories. Electrical Components. Wiring and Circuit Diagrams. Automotive Batteries. Starting Systems. Charging Systems. Lighting Circuits. Electrical Accessories. Electronic Systems. Introduction To The Body Computer. Vehicle Communication Networks. Advanced Lighting Circuits. Instrumentation and Warning Lamps. Ignition Systems. Electronic Chassis Control and Accessory Systems. Passive Restraint Systems. Alternate Propulsion Systems. Glossary of Terms. Index. **Shop Manual:** Safety. Special Tools and Procedures. Basic Electrical Troubleshooting and Service. Wiring Repair and Reading Circuit Diagrams. Battery Diagnosis and Service. Starting System Diagnosis and Service. Charging System Testing and Service. Lighting Circuits Repair and Diagnosis. Electrical Accessories Diagnosis And Repair Section. Electronic Systems. Body Computer System Diagnosis. Vehicle Multiplexing Diagnostics. Advanced Lighting Systems Diagnosis and Service. Instrumentation and Warning Lamp System Diagnosis and Repair. Ignition System Diagnosis and Service. Diagnosis of Electronic Chassis and Accessory Systems. Servicing Passive Restraint Systems. Hybrid and High-Voltage System Service.

## SUPPLEMENTS

**e. resource** ISBN: 978-1-4180-1269-4

**Instructor's Manual** ISBN: 978-1-4180-1268-7

## BUNDLE

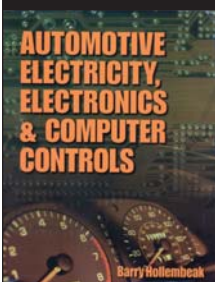
Text and ASE Prep Manual ISBN: 978-1-4283-9545-9

# AUTOMOTIVE ELECTRICITY, ELECTRONICS & COMPUTER CONTROLS

Barry Hollembeak

ISBN: 978-0-8273-6566-7

512 pp, 8-1/2" x 11", SC, 1-Color, ©1999



Designed to teach how automotive electricity and electronics systems work, this book provides a thorough introduction to diagnostics and repair. Each concepts chapter is followed by a shop chapter with a wealth of photo sequences and line illustrations.

## CONTENTS

**PREFACE:** BASIC ELECTRICAL SYSTEMS: Safety. Basic Electrical Theories. Electrical & Electronic Components. Circuit Problems and Electrical Test. Basic Electrical Troubleshooting & Service. Wiring & Circuit Diagrams. Wiring Repair. Automotive Batteries. Battery Diagnosis & Service. Direct Current Motors and the Starting System. Starting System Diagnosis & Service. Charging Systems. Charging System Testing & Service. Lighting Circuits. Lighting Circuits Repair and Diagnosis. Conventional Analog Instrumentation, Indicator Lights, and Warning Devices. Conventional Instrument Cluster Diagnosis and Repair. Electrical Accessories. Electrical Accessories Diagnosis & Repair. Basic Distributor and Electronic Ignition Systems. Basic Ignition System Diagnosis and Service. **ELECTRONIC SYSTEMS:** Introduction to Computers. Body Computer System Diagnosis. Computer Controlled Ignition Systems. Computer Controlled Ignition System Diagnosis. Electrical Fuel Control. Electrical Fuel Injection Diagnosis and Service. On Board Diagnostics Second Generation (OBD II). OBD II Diagnosis. **ELECTRONIC ACCESSORIES:** Advanced Lighting Circuits and Electrical Instrumentation. Advanced Lighting Systems and Electronic Instrumentation Diagnosis & Repair. Electronic Climate Control. Diagnosis of Electronic Climate Control Systems. Vehicle Accessories. Diagnosing and Servicing Vehicle Accessories. Passive Restraint Systems. Diagnosing Passive Restraint Systems. Glossary of Terms. Index.

## SUPPLEMENT

**Instructor's Manual** ISBN: 978-0-8273-6571-1

See page 40 for listing of related multimedia products.

# TODAY'S TECHNICIAN™: AUTOMOTIVE HEATING & AIR CONDITIONING, Fourth Edition

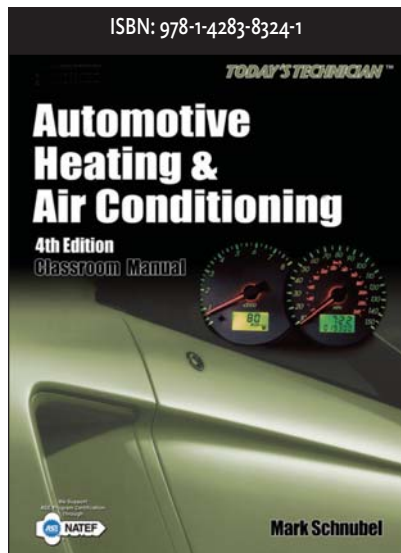
Mark Schnubel

**NEW  
EDITION!**

ISBN: 978-1-4283-8324-1

400 pp, 8-1/2" x 11", SC, 2-Color, ©2009

A7



See series description  
on page 10.

*Today's Technician: Heating & Air Conditioning, Fourth Edition* is a two-book set that separates theory and diagnostic content into Classroom and Shop Manuals. This separation allows readers to learn theories of heating and air conditioning before applying them, with the benefit of cross-referenced page numbers in each manual to link related material. Updated to reflect the industry's latest developments and trends, this edition includes expanded coverage of basic theories, as well as all-new sections on upgraded equipment, sealant contamination and testing, and non-compressible gas contamination. In addition, the information on compressors has been updated to include new hybrid electric compressors and the safety issues that accompany them. With this up-to-date, technically accurate information, this is a valuable resource for learning the theory, components, diagnosis and repair of modern automotive heating and air conditioning systems.

## KEY FEATURES

- current NATEF-oriented objectives open each chapter, helping readers to understand and meet certification requirements
- updated illustrations and photo sequences offer visual explanations of the most recent technological developments in the area of automotive heating and air conditioning
- revised job sheets reflect the latest NATEF tasks, adequately preparing readers for the work they are likely to face in the field
- instructor support package, including PowerPoint™, Computerized Test Bank, Image Library, Instructor's Guide and NATEF Correlation Grid, saves teachers time in the classroom so they can spend more hands-on time with students

## CONTENTS

**Class Manual:** Heating and Air Conditioning Systems. Basic Theories .Engine Cooling and Comfort Heating Systems. Air Conditioning System Operating Principles. Refrigerant System Components. Refrigerant System Servicing and Testing. Diagnosis of Refrigeration System. Case and Duct Systems. System Controls. Future Trends and Retrofit (R-12 to R-134a) **Shop Manual:** Safety. Typical Shop Procedures. Diagnosis and Service of Engine Cooling and Comfort Heating Systems. The Manifold and Gauge Set. Servicing System Components. Air Conditioning System Servicing and Testing. Servicing the System. Compressors and Clutches. Case and Duct Systems. Diagnosis and Service of System Controls. Retrofit of R-12 (CFC-12) to R-134a (HFC-134a).

## SUPPLEMENT



**e.resource** ISBN: 978-1-4283-3830-2

**WebTutor Advantage** ISBN: 978-1-4354-6432-2

## BUNDLE

Text and ASE Prep Manual ISBN: 978-1-4354-1398-6



## AUTOMOTIVE AIR CONDITIONING, Eighth Edition

Boyce H. Dwiggins

ISBN: 978-0-7668-0788-4

512 pp, 8-1/2" x 11", SC, 1-Color, ©2002

**Instructor's Manual** ISBN: 978-0-7668-0789-1

## BUNDLES

Text and ASE Test Prep A7 Manual ISBN: 978-1-4018-4719-7

Text and NATEF Job Sheet A7, 2E ISBN: 978-1-4180-2651-6

**See page 40 for listing of related multimedia products.**

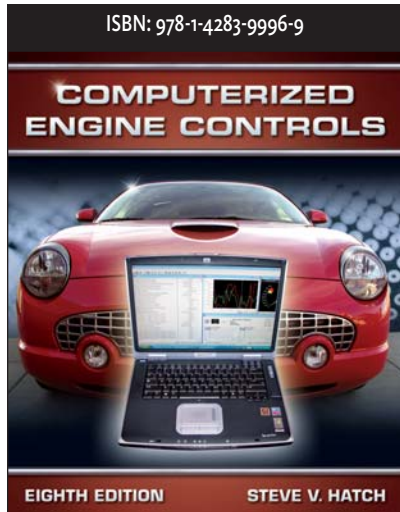
# COMPUTERIZED ENGINE CONTROLS,

## Eighth Edition

Steve V. Hatch



ISBN: 978-1-4283-9996-9



656 pp, 8" x 9-1/4", SC, 1-Color, ©2009

Get the resource no technician should be without! Now in its Eighth Edition, *Computerized Engine Controls* continues the tradition of its predecessors with strong, solid coverage of both domestic and import engine control systems, which provides readers with the foundational knowledge needed to diagnose and repair any electronic system on any vehicle. Thoroughly updated to offer insight into the latest technological advances found on today's roads and highways, the Eighth Edition examines such cutting-edge topics as hybrid and fuel cell vehicles, GM's 42-volt system, hexadecimal conversion and OBD II, multiplexing, and more. This updated edition also includes new content that will help electrical concepts come alive and all-new coverage of logic gates, taking the magic and mystery out of the computer. For technicians who are interested in increasing their diagnostic effectiveness on today's vehicle electronic systems, this book is an absolute "must!"

### KEY FEATURES

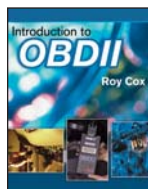
- updated line art offers a high level of detail, exceeding the typical manufacturers line arts used in other books on the market
- ASE-style, end-of-chapter questions reinforce key concepts and familiarize readers with the types of questions they are likely to see, either in practice or in certification testing
- all-new appendix offers automotive-related web addresses, providing resources for readers to stay current in industry knowledge
- other valuable appendices help readers transform theory from the book's pages into hands-on diagnostic approaches for use on modern vehicles

### CONTENTS

A Review of Electricity and Electronics. Computers in Cars. Common Components for Computerized Engine Control Systems. Common Operating Principles for Computerized Engine Control Systems. Diagnostic Concepts. Diagnostic Equipment. Exhaust Gas Analysis. OBD II Self-Diagnostics. Multiplexing Concepts. General Motors' Electronic Fuel Injection. General Motors and Port Fuel Injection. Advanced General Motors Engine Controls. Ford's Electronic Engine Control IV (EEC IV). Ford's Electronic Engine Control V (EEC V). Chrysler Corporation Fuel Injection Systems. European (Bosch) Engine Control Systems. Asian Computer Control Systems. Alternative Power Sources. Approach to Diagnostics. Terms and Acronyms. Automotive-Related Web Addresses.

### SUPPLEMENT

Instructor's CD-ROM ISBN: 978-1-4283-9995-2



### INTRODUCTION TO OBD II

Roy Cox

ISBN: 978-1-4180-1220-5

256 pp, 8-1/2" x 11", SC, 1-Color, ©2006

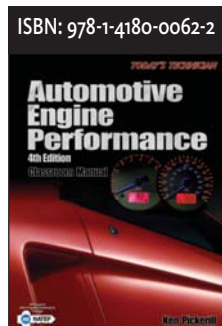
Diagnostic Computer Based Training (CBT) CD-ROM ISBN: 978-1-4180-1221-2

Instructor's Guide ISBN: 978-1-4180-1222-9

**See page 40 for listing of related multimedia products.**

# TODAY'S TECHNICIAN™: AUTOMOTIVE ENGINE PERFORMANCE, Fourth Edition

Ken Pickerill



ISBN: 978-1-4180-0062-2

1,248 pp, 8-1/2" x 11", SC, 2-Color, ©2006

A8

This comprehensive training/education package focuses on the major engine systems affecting engine performance and drivability. *Today's Technician: Automotive Engine Performance, Fourth Edition* includes updated content on ignition systems, intake and exhaust systems, fuels and emission controls and related electronics, in two comprehensive manuals. With a sharp focus on current technologies and the inclusion of outstanding learning features, this new edition provides an excellent classroom resource for students preparing to become future technicians.

## CONTENTS

**Class Manual:** Overview of Engine Performance. Basic Theories. Engine Design and Operation. Electricity and Electronics. Class-Related Systems. Ignition Systems. EI and DI. Intake and Exhaust Systems. Fuel Systems. EFI Systems. Emission Controls. Computers and Input Sensors. Output Devices and Computer Networking. OBD 2. **Shop Manual:** Safety. Shop Procedures. Engine Condition Diagnosis. Electrical Tests. Related Systems. Ignition System Service. EI and DI Service. Intake and Exhaust Systems Service. Fuel Systems Service. EFI System Service. Emission Control Service. Computer and Input Sensor Diagnosis. Output Devices and Computer System Diagnosis. OBD 2 Diagnostics Or (On-Board-Diagnostics).

## SUPPLEMENTS

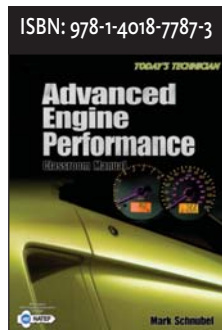
**e.** **e.resource** ISBN: 978-1-4180-0063-9  
**Instructor's Manual** ISBN: 978-1-4180-0064-6

**BUNDLE**  
Text and ASE Prep Manual ISBN: 978-1-4180-4473-2

See series description  
on page 10.

# TODAY'S TECHNICIAN™: ADVANCED ENGINE PERFORMANCE

Mark Schnubel



ISBN: 978-1-4018-7787-3

992 pp, 8-1/2" x 11", SC, 2-Color, ©2006

L1

This title in the *Today's Technician Series* covers the advanced topics of drivability, emissions testing, and engine diagnostics in depth. It features a thorough study of On-Board-Diagnostic generation II (OBD II) Continuous Monitors and Non-Continuous Monitors strategies, a chapter on Emission Control and Evaporative Systems, OBD II generic Diagnostic Trouble Codes identification and diagnosis, and Malfunction Indicator Light Strategies. Advanced use of On-Board Diagnostic Scanners and Digital Storage Oscilloscopes is also discussed.

## CONTENTS

**Class Manual:** Overview of topics to be covered. Basic operational Theories. History of On-Board Diagnostics. On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensors. Ignition System and Related Input Sensors/Output Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emission Control and Evaporative Systems. Strategies of On-Board-Diagnostic Continuous Monitors. Strategies of On-Board-Diagnostic Non-Continuous Monitors. I/M Failure Diagnosis and Five-Gas Exhaust Analysis. Appendices. **Shop Manual:** Safety and Shop Practices. Special Tools and Procedures. On-Board Diagnostics and Emissions Tests. On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensor Diagnosis and Service. Ignition System and Related Input Sensors/Output Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emission Control and Evaporative Systems Diagnosis and Service. Strategies of On-Board-Diagnostic Continuous Monitors. Strategies of On-Board-Diagnostic Non-Continuous Monitors. I/M Failure Diagnosis and Five-Gas Exhaust Analysis.

## SUPPLEMENT

**e.** **e.resource** ISBN: 978-1-4018-7789-7

**BUNDLE**  
Text and ASE Prep Manual ISBN: 978-1-4180-4475-6

See series description  
on page 10.

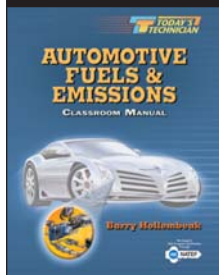
# TODAY'S TECHNICIAN™: AUTOMOTIVE FUELS & EMISSIONS

Barry Hollembeak

ISBN: 978-1-4018-3904-8

816 pp, 8-1/2" x 11", SC, 2-color, ©2005

X1



See series description  
on page 10.

Theory, diagnostics, and service procedures for automotive fuel and emission systems are spotlighted in this Classroom and Shop Manual set. Experienced author Barry Hollembeak enhances the reader's understanding of present-day automotive fuels and emission systems by covering the theories and procedures that underpin ASE high priority skills. The Classroom Manual builds upon facts and theories, while the Shop Manual, through performance-based objectives, helps readers acquire diagnostic and repair competency. Both manuals are tightly correlated with corresponding chapters and cross-references so that readers can make a sound connection between theoretical concepts and practical skills.

## CONTENTS

Photo Sequence. Contents. Job Sheets Contents. Preface. Tools and Safety. Typical Shop Procedures. Computer System Diagnosis. Ignition System Diagnosis and Service. Fuel Delivery System Diagnosis and Service. Electronic Fuel Injection Diagnosis and Service. Emission Control System Diagnosis and Service. OBD-II Diagnostics. I/M 240 Diagnostics. Alternative Fuel System Service. Appendix. Glossary. Index.

## SUPPLEMENTS

 **e.resource** ISBN 978-1-4018-3910-9  
**Instructor's Manual** ISBN 978-1-4018-3908-6

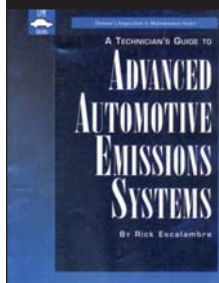
**BUNDLE**  
Text and ASE Prep Manual ISBN: 978-1-4180-4474-9

# A TECHNICIAN'S GUIDE TO ADVANCED AUTOMOTIVE EMISSIONS SYSTEMS

Richard Escalambre

ISBN: 978-0-8273-7154-5

416 pp, 8-1/2" x 11", SC, 1-Color, ©1995



This reference is ideal for anyone, from students to professionals to hobbyists interested in the latest government standards and procedures concerning automotive emissions.

## CONTENTS

History of Emissions Testing. I/M 240. EPA Program Specifications. Dynamic & Static Testing. Pressure & Flow Testing. I/M 240 Equipment. I/M 240 Test Procedures. Interpreting I/M 240 Inspection Data. I/M 240 Hotline. OBD/OBDII. Scan Tool & Supporting Equipment. Lab Oscilloscopes. Electronic Recalibration of On-board Computer (EEPROM).

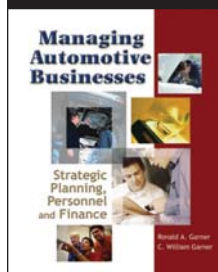
See page 40 for listing of related multimedia products.

# MANAGING AUTOMOTIVE BUSINESSES: STRATEGIC PLANNING, PERSONNEL AND FINANCE

Ronald A. Garner & C. William Garner

ISBN: 978-1-4018-9896-0

360 pp, 7-3/8" x 9-1/4", SC, 1-Color, ©2006



The success of any organization most often depends on the execution and management of such strategic issues as business development, personnel and fiscal operations. This book introduces readers to the duties and practices assigned to service managers in the successful operation of an automotive service facility.

## CONTENTS

The Service Manager and the Business Structure. Ownership, Types of Facilities and the Service Manager's Job. Strategic Business Planning. Preparing Formatted Systems. Human Resources Management. Recruitment and Selection of New Employees. Introduction and Personnel Development. Evaluation of Employee Performances. Basic Business Practice. Accounting Process and Financial Statements. Paying Employees and the Labor Sales Worksheet. Sale of Parts. Financial Management of a Parts Profit Center. Diagnosing Financial Operations. Performing in the Lower Orange and Red Zones.

## SUPPLEMENT

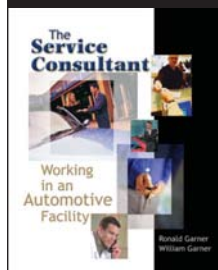
**Instructor's Manual** ISBN 978-1-4018-9897-7

# THE SERVICE CONSULTANT: WORKING IN AN AUTOMOTIVE FACILITY

Ronald A. Garner & C. William Garner

ISBN: 978-1-4018-7990-7

256 pp, 7-3/8" x 9-1/4", HC, 1-Color, ©2005



This book examines the responsibilities and procedures associated with the multi-faceted role of an automotive service consultant. It provides an understanding of how service techniques are used to maximize customer satisfaction and profitability.

## CONTENTS

SERVICE FACILITIES AND THE SERVICE CONSULTANT: Types of Automotive Service Facilities. The Job of the Service Consultant. The Team Approach. Checking Vehicle and Customer Records. Working with Warranties, Service Contracts, Service Bulletins, and Campaign/Recalls. COMMUNICATIONS: CUSTOMER RELATIONS: Telephone Communications. Personal Face-to-Face Communications: Greeting and Start-up. Personal Face-to-Face communications: Maintaining Smooth Relations and Promoting Sales. Personal Face-to-face Communications: Closing the Sale and Promoting Relations. INTERNAL COMMUNICATION, RELATIONS AND SUPERVISION: Writing for the Technician. Workflow at the Service Facility. When the Service Consultant is a Supervisor. COMMUNICATION: Customer Delivery and Follow-up: Scheduling Additional Work and Customer Authorization after Technical Diagnosis. The Invoice, Delivery, and Customer Feedback.

## SUPPLEMENTS

For sample syllabus, see [www.autoed.cengage.com/resources/supplemental](http://www.autoed.cengage.com/resources/supplemental)

**Instructor's Manual** ISBN 978-1-4018-7991-4

## BUNDLE

Text and ASE Test Prep C1: Service Consultant ISBN 978-1-4180-0309-8

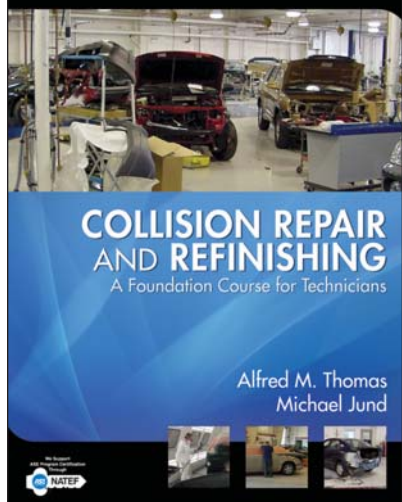
# COLLISION REPAIR AND REFINISHING: A FOUNDATION COURSE FOR TECHNICIANS

**NEW!**

Alfred M. Thomas &amp; Michael Jund

ISBN 978-1-4018-8994-4

832 pp, 8-1/2" x 11", SC, 1-Color, ©2010



This new book covers all the necessary tasks for gaining knowledge of collision repair and refinishing as outlined by NATEF. In-depth coverage includes structural and non-structural analysis and damage repair, welding, painting and refinishing, paint chemistry, superficial coatings for corrosion resistance, and more. The logical progression of topics and easy-to-understand style help convey the professional knowledge and technical know-how that readers need to employ on the job.

## KEY FEATURES

- up-to-date, full-color illustrations help users visualize tasks and procedures as they are described
- important safety reminders help build an awareness of hazards that may be encountered on-the-job
- useful “Tech Tips” offer snapshots of real life situations to help readers do the job faster, easier, and more safely
- provides in-depth knowledge of everything from tool identification to returning frame damage to a manufacturer’s specifications
- features the trade’s most common terms and jargon from expert authors who are both master technicians and collision repair instructors
- an excellent companion to I-CAR’s enhanced delivery curriculum

## CONTENTS

Introduction to Collision Repair. Collision Shop Safety. Hand Tools. Power Tools. Welding Procedures and Equipment. Vehicle Construction. Straightening Steel and Aluminum. Body Filler. Trim and Hardware. Estimating Collision Damage. Collision Damage Analysis. Bolted Exterior Panel Replacement. Measuring Structural Damage. Straightening Unibody. Structural Parts Replacement. Full Frame Sectioning/Replacement. Welded Exterior Panel Replacement. Plastic Repair. Corrosion Protection. Paint Spray Guns. Spray Techniques. Equipment for the Refinishing Shop. Detailing. Understanding Refinishing. Surface Preparation. Masking Materials and Procedures. Solvents for Refinishing. Application of Undercoats. Advanced Refinishing Procedures. Color Evaluation and Adjustment. Paint Problems and Prevention.

## SUPPLEMENTS

**Instructor’s Resource CD-ROM** ISBN 978-1-4018-8998-2

**Tech Manual** ISBN 978-1-4180-0102-5

**Instructor’s Manual** 978-1-4018-8997-5

# AUTO BODY REPAIR TECHNOLOGY, Fifth Edition

James E. Duffy



ISBN: 978-1-4180-7353-4

1,024 pp, 8-1/4" x 11", HC, 4-Color, ©2008



Written with clearer explanations and more detail than any other collision repair learning tool on the market, *Auto Body Repair Technology, Fifth Edition* delves into all aspects of collision repair, from initial collision evaluation, to estimating, to final paint detailing. Because the book is written by a leading author in the auto body field, readers will feel confident that they are learning skills and procedures that incorporate the latest advances in materials and methods. With an enhanced supplement package the *Auto Body Repair Technology* package is second to none.

## CONTENTS

**INTRODUCTION.** Collision Repair: Introduction and Careers. Vehicle Construction Technology. Service Information, Specifications, Measurements. Hand Tool Technology. Power Tool Technology. Compressed Air System Technology. Body Shop Materials, and Fastener Technology. Welding Equipment Technology. Shop Safety and Efficiency. **ESTIMATING.** Estimating Repair Costs. **MINOR REPAIRS.** Working Sheet Metal. Using Body Fillers. Repairing Plastics. Hood, Bumper, Fender, Lid, and Trim Service. Door, Roof, and Glass Service. **MAJOR BODY FRAME REPAIRS.** Passenger. Compartment Service. Body/Frame Damage Measurement. UniBody/Frame Realignment. Welded Panel Replacement. Restoring Corrosion Protection. **MECHANICAL ELECTRICAL REPAIRS.** Chassis Service and Wheel Repair. Electrical/Electronic System Operation and Service. Restraint System Operation and Service. **REFINISHING.** Refinishing Equipment Technology. Vehicle Surface Preparation and Masking. Refinishing Procedures. Color Matching and Custom Painting. Paint Problems and Final Detailing. **COLLISION REPAIR PROFESSIONALISM.** Job Success and ASE Certification.

## SUPPLEMENTS

**e.** **e.resource** ISBN 978-1-4180-7356-5  
**Instructor's Manual** ISBN 978-1-4180-7355-8  
**Tech Manual** ISBN 978-1-4180-7354-1

## BUNDLE

Text and Tech Manual ISBN 978-1-4283-4560-7

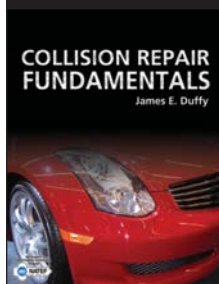
# COLLISION REPAIR FUNDAMENTALS

James E. Duffy



ISBN: 978-1-4180-1336-3

576 pp, 8-1/2" x 11", HC, 4-Color, ©2008



This textbook was written and illustrated to introduce readers to automotive collision repair. *Collision Repair Fundamentals* stresses the repair of minor body damage and repainting, as well as advanced repairs such as frame straightening and structural panel replacement. Coverage has been added on the latest high-efficiency spray guns, UV-primers, primer-surfacers with a built in guide-coat action, aluminum weld-rivet construction, and much more. Each service-oriented chapter is accompanied by a practice ASE test featuring numerous ASE-style questions.

## CONTENTS

Basics. Careers in Collision Repair Safety. ASE Certification. Vehicle Construction. Hand Tools. Power Tools. Measurements, Manuals. Fasteners. Hardware and Materials. Welding, Heating, Cutting. Minor Body Repairs. Metal Straightening Fundamentals. Plastic and Fiberglass Repair. Replacing Fastened Panels Servicing Doors, Glass, Air/Water Leaks. Refinishing. Vehicle Paint Prep. Shop Paint Prep. Painting Fundamentals. Color Matching. Paint Problems, Final Detailing. Decals, Custom Painting, Trim. Major Body Frame. Repairs. Measuring Vehicle Damage. Frame-Unibody Straightening. Replacing Structural Parts, Corrosion Protection. Refinishing. Other Body Shop Operations. Interior and Top Repairs. Mechanical Repairs. Wheel Alignment. Electrical Repairs. Restraint System Repairs. Estimating, Entrepreneurship. Estimating Repair Costs. Entrepreneurship, Job Success, Certification.

## SUPPLEMENTS

**Student Workbook and Activity Guide**  
 ISBN 978-1-4180-1337-0  
**Instructor's Manual** ISBN 978-1-4180-1338-7  
**Instructor's CD-ROM** ISBN 978-1-4180-1339-4

## BUNDLE

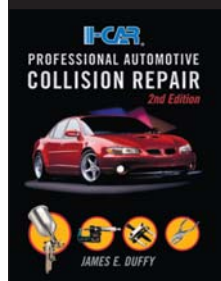
Text and Student Workbook ISBN 978-1-4283-1592-1

# I-CAR PROFESSIONAL AUTOMOTIVE COLLISION REPAIR, Second Edition

James E. Duffy

ISBN: 978-0-7668-1398-4

688 pp, 8-1/2" x 11", HC, 2-Color, ©2001



This popular comprehensive introduction to automotive collision repair includes a full-color painting and refinishing section and coverage of the latest high-efficiency spray guns, gravity feed spray guns, and surface preparation materials and methods. Each service-oriented chapter features numerous ASE-style questions.

## CONTENTS

Fundamentals. Industry Overview and Careers. Safety and Certification. Vehicle Construction. Hand Tools. Power Tools and Equipment. Basic Measurement, and Service Information. Fasteners. Collision Repair Hardware and Materials. Minor Repairs. Straightening Fundamentals. Plastic and Composite Repair. Replacing Hoods, Bumpers, Fenders, Grilles, and Lids. Servicing Doors, Glass, and Leaks. Pre Painting Preparation. Vehicle Surface Preparation. Shop and Equipment Preparation. Refinishing. Painting and Refinishing Fundamentals. Color Matching. Paint/Refinish Problems and Final Detailing. Decals, Custom Painting and Trim. Major Repairs. Measuring Vehicle Damage. Full Frame and Unibody Straightening. Other Operations. Replacing Structural Parts and Corrosion Protection. Interior Repairs. Mechanical Repairs. Wheel Alignment. Electrical Repairs. Restraint System Repairs. Estimating and Entrepreneurship. Estimating Repair Costs. Entrepreneurship and Job Success. Glossary. Appendices. Index.

## SUPPLEMENTS

**Instructor's Manual** ISBN 978-0-7668-1400-4

**Tech Manual** ISBN 978-0-7668-1399-1

## BUNDLE

Text and Tech Manual ISBN 978-0-7668-6547-1

# AUTO BODY REPAIR TECHNOLOGY DVD SERIES

James E. Duffy

ISBN: 978-1-4018-8923-4

Complete Series on 5 DVDs, ©2005



This highly engaging DVD training series details both the theoretical and practical aspects of auto body repair technology, preparing viewers for what it takes to be a successful auto body repair technician. Six-plus hours of live action, simulations, and specially-selected computer graphics provide a unique learning experience while reducing instructor preparation time

## CONTENTS (DVDs CAN ALSO BE PURCHASED SEPARATELY)

**DVD 1:** Safety, Body Shop Power Tools and Equipment, Vehicle Construction ISBN 978-1-4018-7854-2

**DVD 2:** Metal Straightening Fundamentals, Body Shop Materials & Fasteners, Fiberglass and Plastic Repair ISBN 978-1-4018-7856-6

**DVD 3:** Frame - Unibody Straightening, Estimating Repair Costs, Replacing Structural Parts, Corrosion Protection ISBN 978-1-4018-7857-3

**DVD 4:** Measuring Vehicle Damage, Paint Preparation, Painting Fundamentals ISBN 978-1-4018-7858-0

**DVD 5:** Color Matching, Painting Problems, Buffing and Detailing, Doors, Glass, Interior Service ISBN 978-1-4018-7860-3

## System Requirements

Works on a DVD player or on a computer with a DVD drive.

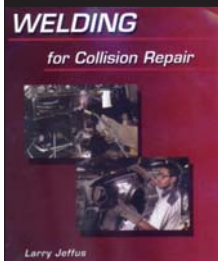
*See page 40 for listing of related multimedia products.*

# WELDING FOR COLLISION REPAIR

Larry Jeffus

ISBN: 978-0-7668-0966-6

304 pp, 8-1/2" x 11", SC, 1-Color, ©1999



## CONTENTS

Welding Safety. Restoring a Vehicle's Structural Integrity. MIG Welding. MIG Techniques. MIG Welding Practices. Resistance Spot Welding (RSW). Shielded Metal Arc Welding (Stick Welding). Oxyacetylene Welding. Brazing and Soldering. Plasma Arc and Flame Cutting. Plastic Repair Materials and Equipment. Plastic Repair Methods. Special Plastic and Fiberglass Repair Techniques. Glossary. Reference Tables. Troubleshooting Guides. Decimal and Metric Equivalents. Index.

## SUPPLEMENT

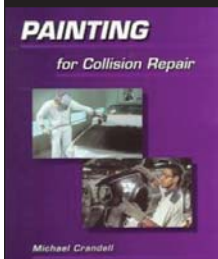
**Instructor's Manual** ISBN 978-0-7668-0967-3

# PAINTING FOR COLLISION REPAIR

Michael Crandell

ISBN: 978-0-7668-0905-5

336 pp, 8-1/2" x 11", SC, 1-Color, ©1999



## CONTENTS

Safety Procedures. Refinishing Equipment and Its Use. Spray Gun and Its Use. Compressed Air Supply Equipment. Minor Body Repairs. Restoring Corrosion Protection. Automotive Refinishing Materials. Sanding Materials and Methods. Surface Refinishing Prep. Paint Mixing Systems. Application of Color. Troubleshooting. Color Matching. Painting Plastic Parts. Detailing. Glossary. Index.

## SUPPLEMENT

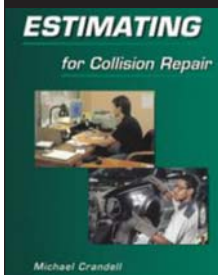
**Instructor's Manual** ISBN 978-0-7668-0940-6

# ESTIMATING FOR COLLISION REPAIR

Michael Crandell

ISBN: 978-0-7668-0891-1

352 pp, 8-1/2" x 11", SC, 1-Color, ©1999



## CONTENTS

Introduction to Damage Report Writing. Modern Vehicle Construction. Collision Damage to Body and Frames. Auto Collision Repair Methods. Making a Damage Appraisal. Estimating Labor and Parts Cost. Assessing Damage to the Body Shell. Assessing Mechanical Component Damage. Estimating Refinishing Costs. Preparing Damage Reports/Appraisals. Computerized Damage Reports and Shop Management. Glossary. Index.

## SUPPLEMENT

**Instructor's Manual** ISBN 978-0-7668-0892-8

*See page 40 for listing of related multimedia products.*

# MEDIUM/HEAVY DUTY TRUCK ENGINES, FUEL & COMPUTERIZED MANAGEMENT SYSTEMS, Third Edition

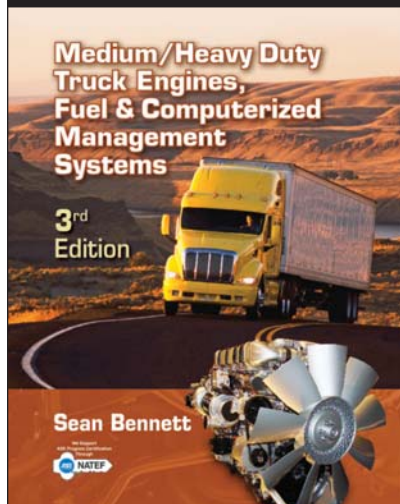
Sean Bennett

**NEW EDITION!**



ISBN: 978-1-4283-6666-4

960 pp, 8-1/2" x 11", HC, 2-Color, ©2009



The most comprehensive guide to highway diesel engines and their management systems available today, *Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems, Third Edition* is a user-friendly resource for both entry-level and experienced technicians alike. Coverage includes the full range of truck diesels, from light duty to heavy duty, as well as the most current diesel engine management electronics used in the industry. The updated third edition features all-new discussions of series and parallel hybrid drive trains that use both electric and hydraulic hybrid technology, emerging battery and ultracapacitor technology popular in hybrid electric vehicles, expanded coverage of the new Delphi E3 injectors used in post-2007 Caterpillar, Detroit Diesel, Volvo and Mack engines, and more. With an emphasis on today's computer technology that sets it apart from any other book on the market, this is an ideal guide to working effectively in modern truck service facilities.

## KEY FEATURES

- up-to-date with coverage of Tier III and IV (2010) diesel engines prepares readers for challenges of the real-world truck service repair industry
- all-new chapter on troubleshooting modern diesel engines using online service information systems and electronically guided diagnostics rounds out the comprehensive content
- coverage spans all of the diesel engine systems to ASE test standards (T2 and L2)
- content is consistent with current NATEF standards and includes applied academics, mathematics, and science skill sets interwoven throughout
- information is well organized and technically accurate, with dedicated chapters for each engine or management system for easy reading and improved learning
- theoretical content is directly correlated to practical, hands-on application aimed at producing performance-based learning outcomes

## CONTENTS

Diesel Engine Fundamentals. History of the Heat Engine. Power. Diesel Engine Powertrain Assemblies. Diesel Engine Feedback Assembly. Engine Housing Components Diesel Engine Lubrication Systems. Engine Cooling Systems. Engine Breathing. Engine Retarders. Diesel Engine Removal. Disassembly. Cleaning, Inspection and Reassembly. Diesel Engine Run-in and Performance Testing. Hydromechanical Diesel and Alternate Fuel Systems. Chemistry and Combustion in Diesel Engines. Diesel Fuel Characteristics Fuel Sub Systems. Overview of Diesel Fuel Injection Basics. Injector Nozzles. Port Helix Metering Injection Pumps. Detroit Diesel Mechanical Unit Injection. Caterpillar Mechanical Unit Injection. Cummins PT System. Rotary Distributor Pumps. Governors. Biodiesel, Hybrids, and Alternate Fuels. Failure Analysis. Electronics. Engine Management and Emissions. Review of Electrical and Electronics Fundamentals. Introduction to Computers, Networking and Communications in the Trucking Industry. Vehicle Computers. ESTs and SIS. Electrical Wiring, Connector and Terminal Repair. Multiplexing. Bosch Electronic Distributor Systems. Mack V MAC I & II. Detroit Diesel Electronic Controls. Caterpillar ADEM MEUI Systems. Volvo and Mack EUI Systems. Cummins CELECT Plus. Bosch EUP Systems on Mercedes Benz and Mack E-Tech. Caterpillar and International Trucks HEUI. Cummins HPI-TP. Cummins CAPS. Common Rail Systems, Emissions, Troubleshooting and Diagnostics.

## SUPPLEMENTS



e.resource ISBN: 978-1-4283-6660-2

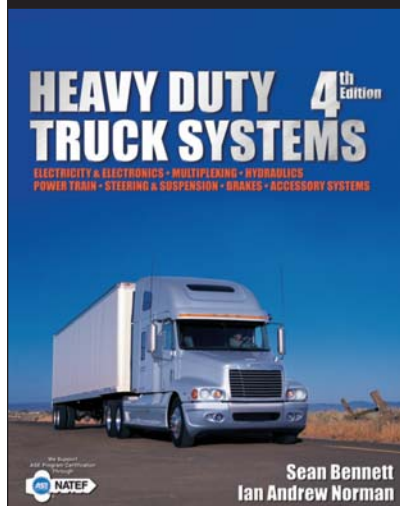
Workbook ISBN: 978-1-4283-6661-9

# HEAVY DUTY TRUCK SYSTEMS, Fourth Edition

Sean Bennett & Ian Andrew Norman

ISBN: 978-1-4018-7064-5

1,216 pp, 8-1/2" x 11", HC, 2-Color, ©2006



This best-selling introduction to servicing medium and heavy-duty trucks *Heavy Duty Truck Systems, Fourth Edition* continues to provide a strong foundation of content on Electricity and Electronics, Power Train, Steering and Suspension, Brakes, and Accessories Systems. And now, the Fourth Edition has been technically updated and restructured to address 2004 compliance issues and Out Of Service (OOS) criteria. *Heavy Duty Truck Systems, Fourth Edition* also features a dedicated chapter on multiplexing with special focus on the Freightliner M2 and Navistar Diamond Plus systems, as well as an all new chapter on hydraulic principles and hydraulic circuits. Other enhancements include improved coverage of transmissions to address changing technologies, and an expanded chapter on electronically automated transmissions that includes emerging Meritor and Mercedes-Benz transmissions. The Fourth Edition also explores the currently popular anti-rollover protection electronics.

## KEY FEATURES

- two all new chapters on Hydraulics and Multiplexing
- updated, 2-color art program now even more engaging to visual learners
- written by a truck technical trainer using straightforward language that is appropriate for a wide range of learners
- completely up-to-date content includes J-1939 coverage in each chapter dealing with electronics, expanded TMC wheel end procedures that reflect an industry trend toward pre-adjusted hub assemblies, and truck brake systems coverage that is compliant with today's standards
- expanded glossary of truck technology provides an invaluable reference for students
- enhanced supplement package now includes NATEF Correlation Grid, PowerPoint™ with Images, a Computerized Test Bank, and an Image Library

## CONTENTS

Introduction to Servicing Heavy-Duty Trucks. Shop Safety and Operations. Tools and Fasteners. Preventive Maintenance Program. Fundamentals of Electricity. Fundamentals of Electronics and Computers Batteries. Charging Systems. Cranking Systems. Chassis Electrical Circuits. Diagnosis and Repair of Electronic Circuits. Multiplexing. Hydraulics. Clutches. Standard Transmissions. Standard Transmission Servicing. Torque Converters. Automatic Transmissions. Automatic Transmission Maintenance. Electronically Automated Standard Transmissions. Allison Electronic Transmissions. Driveshaft Assemblies. Heavy-Duty Truck Axles. Heavy-Duty Truck Axle Service and Repair. Steering and Alignment. Suspension Systems. Wheels and Tires. Truck Brake Systems. Hydraulic Brakes and Air-Over-Hydraulic Brake Systems. ABS and EBS. Air Brake Servicing. Vehicle Chassis Frame Heavy Duty Truck Trailers. Fifth Wheels and Coupling Systems. Heavy-Duty Heating, Ventilation, and Air-Conditioning Systems. Appendices.

## SUPPLEMENTS



e.resource ISBN 978-1-4018-7066-9

Student Workbook ISBN 978-1-4018-7065-2

## BUNDLE

Text and Workbook ISBN 978-1-4180-0925-0

I like the approach of this book a lot.

I also have the first, second, and third editions of the book, and I am noticing that it keeps getting better.

The writing style is easy to follow and is organized in a logical sequence. I cannot think of any truck systems that are not covered in this text.

—Dale McPherson,  
Eastern Idaho Technical College, Idaho Falls, ID

Proudly Presenting...

# The Modern Diesel Technology Series

See page 38  
for electronic  
medium/heavy  
duty truck  
technician  
training

In our continued commitment to provide the most up-to-date and relevant learning materials, Delmar is proud to present *The Modern Diesel Technology Series*. This exciting series has been developed to address the changing technology and the need for in depth, modern, system-specific textbooks in the field of truck and heavy equipment technology. Each title in the series focuses exclusively on the competencies identified by its title, and serves as an ideal review and study vehicle for technicians prepping for certification examinations. This focused approach gives more flexibility in designing programs that target specific ASE certifications.

## SUPPLEMENT

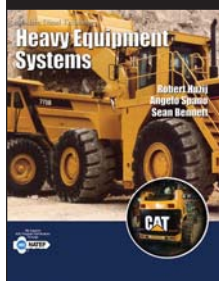
**An instructor's CD-ROM is available for each title.** The content of the CD-ROM includes an Instructor's Guide and an Image Library containing a database of images from the text that can be used to enhance classroom presentations.

## MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS

Robert Huzij, Angelo Spano & Sean Bennett

ISBN: 978-1-4180-0950-2

496 pp, 8-1/2" x 11", SC, 2-Color, ©2009



*Modern Diesel Technology: Heavy Equipment Systems* is the only textbook on the market that deals exclusively with off-highway mobile equipment systems. Designed to meet the specific needs of technicians in the specialty areas of heavy equipment, agricultural equipment, and powered lift truck technology, this book marks a valuable departure from the books aimed at truck technicians and the manufacturer-produced literature that specialty technicians have had to rely on for so long. The book begins with a chapter on basic safety, and is then broken down into four sections to address the four key elements of heavy equipment systems: hydraulics, heavy duty brake systems, drive train systems, and steering, suspension, and track systems. Written by an author team with extensive experience, both as professionals in the industry and as teachers of specialty technician programs, this book will provide readers with an in-depth understanding of the skills and concepts needed to be an effective technician in this specialty field.

## CONTENTS

Shop Safety. Hydraulics. Introduction to Hydraulics. Hydraulic System Components. Hydraulic Symbols & Schematics. Hydraulic System Maintenance and Diagnostics. Heavy Duty Brake Systems. Hydraulic Brakes. Mechanical Brake Systems. Air Brakes. Air Assisted Hydraulic Brake Systems. Drivetrain Systems. Introduction to Power Trains. Mechanical Clutches. Mechanical transmissions. Power Shift Transmissions. Hydro Static Drive and Retarder Systems. Driveline Systems. Differentials. Final Drives. Steering, Suspension and Track Systems. Introduction to Suspension Systems. Steering Systems. Track Systems Glossary.

## SUPPLEMENT

**Instructors CD-ROM** ISBN 978-1-4180-0951-9

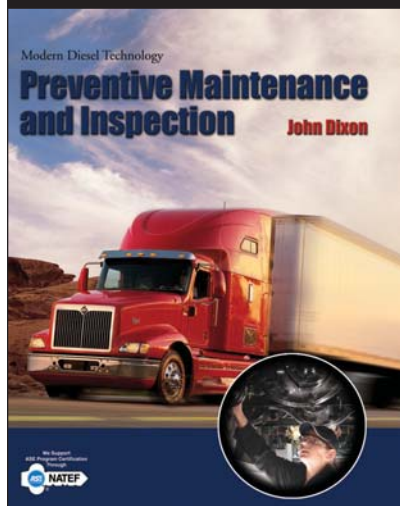
# MODERN DIESEL TECHNOLOGY: PREVENTIVE MAINTENANCE AND INSPECTION

John Dixon

**NEW!**

ISBN: 978-1-4180-5391-8

400 pp, 8-1/2" x 11", SC, 1-Color, ©2010



Designed for technicians new to the field of preventive maintenance for trucks and trailers, this valuable resource offers readers a clear, solid understanding of the otherwise complex equipment involved in truck servicing. *Modern Diesel Technology: Preventive Maintenance and Inspection* provides the knowledge needed to identify potential problems during regular service, before they turn into major repair issues or a roadside breakdown. The book breaks down need-to-know content areas into chapters that make sense: from general shop safety and hand tools to truck/trailer reefer service and coupling systems and everything in between. Each chapter includes procedures for inspecting and maintaining that specific area. Using a generic preventive maintenance checklist as a guideline throughout, this go-to guide has everything the beginning technician needs to perform effective servicing.

## KEY FEATURES

- detailed photo sequences allow readers to follow along step by step with critical tasks
- clear, straightforward approach facilitates an understanding of even the most complicated concepts
- checklists included for generic preventive maintenance for trucks and trailers, as well as coupling systems and auxiliary components
- ASE and NATEF correlations are provided in the Instructor's Guide for each chapter where applicable

## CONTENTS

General Shop Safety. Hand tools. Fasteners. PM Service. Cooling System Service and Inspection. Drive Train Service. Transmission Service and Inspection Automatic and Standard. Tire Wheel and Rim Service and Inspection. Braking Systems Service and Inspection. Chassis Cab Service and Inspection. Steering System and Suspension Service and Inspection. Electrical Systems and Auxiliary Systems. Truck/Trailer Reefer service and Inspection. Trailer

## SUPPLEMENTS

**Instructor's Resource CD-ROM** ISBN: 978-1-4180-5392-5

**Job Sheet** ISBN 978-1-4180-6342-9

## ALSO AVAILABLE

### TODAY'S TECHNICIAN™: MEDIUM/HEAVY DUTY TRUCK DIESEL ENGINES

John F. Kershaw & Sean Bennett

Classroom/Shop Manual ISBN: 978-0-8273-7221-4

768 pp, 8-1/2" x 11", SC, 1-Color, ©2001

**Classroom Manager** ISBN 978-0-8273-7223-8

**Instructor's Manual** ISBN 978-0-8273-7222-1

### TODAY'S TECHNICIAN™: MEDIUM/HEAVY DUTY TRUCK ELECTRICITY & ELECTRONICS

Sulev Oun

Classroom/Shop Manual ISBN: 978-0-8273-7006-7

808 pp, 8-1/2" x 11", SC, 1-Color, ©2001

**Classroom Manager** ISBN 978-0-8273-7008-1

**Instructor's Manual** ISBN 978-0-8273-7007-4

### TODAY'S TECHNICIAN™: MEDIUM/HEAVY DUTY TRUCK STEERING & SUSPENSION

Don Knowles

Classroom/Shop Manual ISBN: 978-0-8273-7284-9

728 pp, 8-1/2" x 11", SC, 1-Color, ©1999

**Classroom Manager** ISBN 978-0-8273-7286-3

**Instructor's Manual** ISBN 978-0-8273-7285-6

### TODAY'S TECHNICIAN™: MEDIUM/HEAVY DUTY TRUCK BRAKES

Don Knowles

Classroom/Shop Manual ISBN: 978-0-8273-7287-0

897 pp, 8-1/2" x 11", SC, 1-Color, ©1998

**Classroom Manager** ISBN 978-0-8273-7289-4

**Instructor's Manual** ISBN 978-0-8273-7288-7

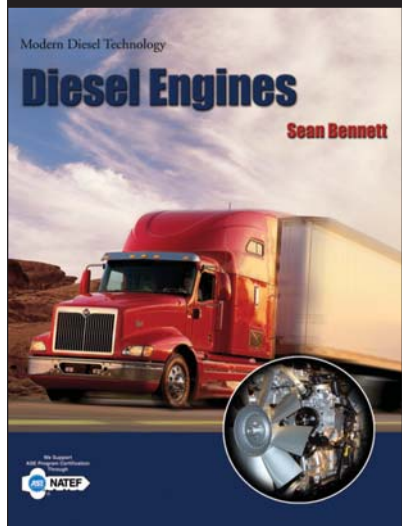
# MODERN DIESEL TECHNOLOGY: DIESEL ENGINES

Sean Bennett



ISBN: 978-1-4018-9809-0

416 pp, 8-1/2" x 11", SC, 2-Color, ©2010



*Modern Diesel Technology: Diesel Engines* is an ideal primer for the aspiring diesel technician, using simple, straightforward language and a building block approach to build a working knowledge of the modern computer-controlled diesel engine and its subsystems. The book includes dedicated chapters for each major subsystem, along with coverage devoted to dealing with fuel subsystems, and the basics of vehicle computer control systems. Fuel and engine management systems are discussed in generic terms to establish an understanding of typical engine systems, and there is an emphasis on fuel systems used in post-2007 diesel engines. Concluding with a chapter on diesel emissions and the means used to control them, this is a valuable resource designed to serve as a foundation for more advanced studies in diesel engine technology

## KEY FEATURES

- 2-Color diagrams illustrate key concepts and enhance explanations
- clear, easy to follow language allows readers of all backgrounds and levels to benefit from the topics offered
- learning objectives clearly state what each section will cover, preparing readers and reinforcing critical content
- comprehensive glossary and dictionary of acronyms is provided in back of book as an additional reference
- modular format adapts well to modular syllabi

## CONTENTS

Safety Hand and Shop Tools. Engine Fundamentals. Piston Assemblies, Crankshafts, Flywheels, and Dampers. Timing Geartrains, Camshafts, Tappets, Rockers, and Cylinder Valves. Cylinder Blocks, Liners, Cylinder Heads, Rocker Housings, Oil Pans and Manifolds. Lubricating Oil and Lubrication Systems. Coolant and Cooling Systems. Intake and Exhaust Systems and Turbochargers. Engine Brakes. Engine Removal, Disassembly, Cleaning, Inspection and Reassembly Fuel Sub Systems. Injector Nozzles. Vehicle Computers. Diesel Fuel Injection Systems. Emissions.

## SUPPLEMENTS

**Instructor's Resource CD-ROM** ISBN: 978-1-4018-9810-6

**Job Sheets** ISBN: 978-1-4180-6341-2

## ALSO AVAILABLE

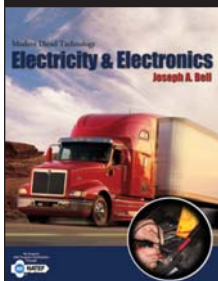
*Modern Diesel Technology: Diesel Engines* Hardcover ISBN: 978-1-4354-4044-9

# MODERN DIESEL TECHNOLOGY: ELECTRICITY & ELECTRONICS

Joseph A. Bell

ISBN: 978-1-4018-8013-2

480 pp, 8-1/2" x 11", SC, 1-Color, ©2007



## KEY FEATURES

- real-world information on multiplexing and electronic modules on modern trucks is delivered in an easy-to-read style
- a unique method of explaining basic electricity employs the use of compressed air analogies as an alternative to the overdone water analogies
- simplifies the learning process by stressing the fundamental principles of electricity and physics without excessive use of math
- first-hand experiences from a technician's point of view
- ASE and NATEF correlations are provided in each chapter where applicable

## CONTENTS

The Fundamentals of Electricity. Physics for Electricity. Safety. Electrical Components. Batteries. Basic Electronics. Charging Systems. DC Motors. Lighting Systems. Electrical Accessories. Sensors and Digital Electronics. Instrumentation. Body Control Modules. Modern Truck Electrical System.

## SUPPLEMENTS

**Instructor's CD-ROM** ISBN: 978-1-4018-8014-9

### BUNDLE

**Job Sheets** ISBN: 978-1-4180-6338-2

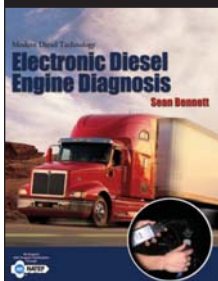
Text and Job Sheets ISBN: 978-1-4283-4487-7

# MODERN DIESEL TECHNOLOGY: ELECTRONIC DIESEL ENGINE DIAGNOSIS

Sean Bennett

ISBN: 978-1-4018-7079-9

384 pp, 8-1/2" x 11", SC, 1-Color, ©2007



## KEY FEATURES

- information on emission controls and current field testing of emissions
- exceeds ASE L2 task objectives with user-friendly chapters on all of the major diesel engine OEM diesel engine management systems
- develops an understanding of useful troubleshooting procedures used to diagnose electronic diesel engines

## CONTENTS

Introduction and Safety. Vehicle Computer Systems. Electronic Service Tools. Electrical Wiring, Connector, and Terminal Repair. Multiplexing. Medium-/Heavy Duty Composite Engine. Electronic Unit Injector Fueled Engines. Bosch Electronic Distributor and Common Rail Systems. Pump-Line-Nozzle, Integral Pump Systems. Bosch EUP on V-MAC III-E-Tech and Mercedes-Benz. Caterpillar and International Trucks HEUI. Cummins ISX Engines with HPI-TP Management. Emissions. Electronic Diesel Engine Controls Diagnosis. Engine Intake and Exhaust Diagnosis. Fuel Subsystems.

## SUPPLEMENTS

**Instructor's CD-ROM** ISBN: 978-1-4018-7080-5

### BUNDLE

**Job Sheets** ISBN: 978-1-4180-6341-2

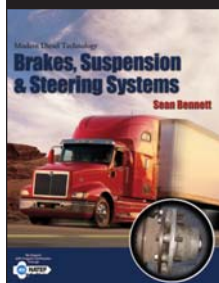
Text and Job Sheets ISBN: 978-1-4283-4482-2

# MODERN DIESEL TECHNOLOGY: BRAKES, SUSPENSION & STEERING SYSTEMS

Sean Bennett

ISBN: 978-1-4180-1372-1

448 pp, 8-1/2" x 11", SC, 1-Color, ©2007



## KEY FEATURES

- excellent preparation guide for T4 and T5 certification testing
- comprehensive coverage of the components, systems, and testing procedures required to effectively work on truck brakes, suspension, front-end, and steering systems
- personal and shop safety practices are integrated throughout, and compliance and inspection issues are addressed
- provides an assortment of test questions that are both conceptual and ASE task-oriented
- a comprehensive glossary helps readers navigate the book without stumbling over key words and definitions

## CONTENTS

Introduction and Safety. Fundamentals. Air Brake Components. Hydraulic Brakes and Air-Over-Hydraulic Brake Systems. Antilock Brake Systems. Air Brake Servicing. Steering and Alignment. Suspension Systems. Wheels And Tires. Truck and Trailer Frames. Fifth Wheels and Coupling Systems. Glossary.

## SUPPLEMENTS

**Instructor's CD-ROM** ISBN: 978-1-4180-1373-8

**Job Sheets** ISBN: 978-1-4180-6340-5

## BUNDLE

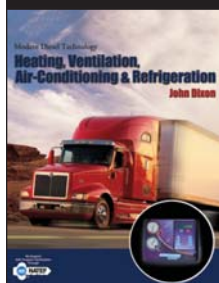
Text and Job Sheets ISBN: 978-1-4283-1457-3

# MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR-CONDITIONING, & REFRIGERATION

John Dixon

ISBN: 978-1-4018-7849-8

304 pp, 8-1/2" x 11", SC, 1-Color, ©2007



## KEY FEATURES

- specific information on transport refrigeration equipment in use today, not found in any other text of its kind
- coverage of supplemental truck heating and cooling, a hot topic as governments try to regulate the amount of emissions being produced by the trucking industry
- provides all relevant material in one complete book
- ASE and NATEF correlations are provided in each chapter where applicable.

## CONTENTS

Heating, Ventilation, and Air Conditioning. Environmental and Safety Practices. Thermodynamics. Air-Conditioning Components. Air-Conditioning Components. The Refrigeration Systems. Service Procedures. Truck Engine Cooling Systems. Cab Climate Control/ Supplemental Truck Heating and Cooling. Troubleshooting and Performance Testing. APAD/ACPU A/C Control Systems. Truck-Trailer Refrigeration Equipment. Refrigeration Components. Refrigerant Flow Control. Truck Trailer Refrigeration Electrical Components. Truck and Trailer Refrigeration Maintenance.

## SUPPLEMENTS

**Instructor's CD-ROM** ISBN: 978-1-4018-7850-4

**Job Sheets** ISBN: 978-1-4180-6338-2

## BUNDLE

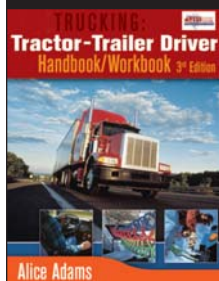
Text and Job Sheets ISBN: 978-1-4283-4481-5

# TRUCKING: TRACTOR-TRAILER DRIVER HANDBOOK/WORKBOOK, Third Edition

Alice Adams

ISBN: 978-1-4180-1262-5

648 pp, 8-1/2" x 11", SC, 4-Color, ©2006



## KEY FEATURES

- hours-of-service information, the newest rail crossing safety guidelines, and current transportation security requirements
- easy-to-read writing style, full-color photos and compelling illustrations clearly demonstrate important transportation concepts
- engaging cartoons convey practical advice from veteran drivers
- driver tips in each chapter, along with “cautions” and “warnings,” help drivers anticipate and avoid common problems
- coverage of new FMCSA Entry Level Truck Driver minimum requirement coverage
- written in cooperation with the Professional Truck Driver Institute (PTDI)
- based on the Tractor-Trailer Driver Curriculum originally developed by the Department of Transportation’s Federal Highway Administration

## CONTENTS

An Introduction to Trucking. Vehicle Inspection. Control Systems. Vehicle Systems. Basic Control. Shifting. Backing. Coupling/Uncoupling. Sliding Fifth Wheels/Tandem Axles. Preventive Maintenance. Recognizing/Reporting Malfunctions. Communication. Space Management. Visual Search. Speed Management. Night Driving. Extreme Driving Conditions. Skid Control. Hazard Awareness. Railroad Crossings. Emergency Maneuvers. Accident Procedures. Special Rigs. Handling Cargo. Cargo Documentation. Trip Planning. Hours of Service. Driving International Routes. Transportation Security. Public Relations and Job Search. Professional Driver Health, Safety and Security. Hazardous Materials. Transportation Technology. The Commercial Driver’s License. Appendices.

## SUPPLEMENT



e.resource ISBN: 978-1-4180-1263-2

## ALSO AVAILABLE

### Tractor Trailer Driver Computer-Based Training/Web-Based Training

CBT ISBN: 978-1-4354-5406-4

WBT ISBN: 978-1-4354-5407-1

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### Trucking Guide to Border Crossing

ISBN: 978-1-4018-2007-7

### Commercial Trucking Bilingual Dictionary

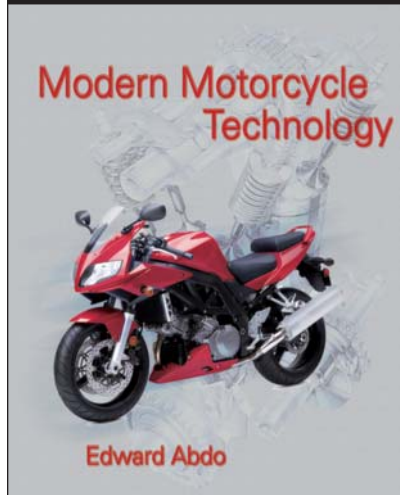
ISBN: 978-1-4018-5243-6

# MODERN MOTORCYCLE TECHNOLOGY

Edward Abdo

ISBN: 978-1-4180-1264-9

608 pp, 8-1/2" x 11", HC, ©2009



With the most up-to-date information on today's motorcycles, *Modern Motorcycle Technology* takes readers on an in-depth exploration of the internal and external workings of motorcycles. The book begins with an overview of motorcycle technology, from a history of the vehicle to the current state of the industry. Coverage then progresses to include safety measures, engine operation, internal combustion engines, electrical fundamentals, and overall motorcycle maintenance. With a special chapter devoted to troubleshooting and a straightforward writing style for better comprehension, this book is a valuable resource for anyone seeking the knowledge and skills needed to succeed in today's motorcycle technology field.

## KEY FEATURES

- chapters devoted specifically to maintenance and troubleshooting give readers a foundation for diagnosing, repairing and servicing motorcycles
- nearly 1,000 diagrams and detailed illustrations provide outstanding support for visual learners
- Chapter Summaries and Review Questions at the end of each chapter highlight and reinforce critical information
- the ancillary Student Skill Guide provides students with hands-on activities to allow them to put theory into practice

## CONTENTS

Introduction to Modern Motorcycle Technology. Safety First. Tools. Measuring Systems, Fasteners and Thread Repair. Basic Engine Operation and Configurations. Internal Combustion Engines. Lubrication and Cooling Systems. Fuel Systems. Clutch and Drive Clutch and Transmission Systems. Two Stroke Engine Top End Inspection. Two-Stroke Engine Lower-End Inspection. Four Stroke Engine Top End Inspection. Four Stroke Engine Lower End Inspection. Electrical Fundamentals. Charging Systems and Direct Current Circuits. Motorcycle Ignition and Electric Starting Systems. Frames, Steering and Suspension Systems. Brakes, Wheel and Tires. Motorcycle Maintenance. Motorcycle Troubleshooting.

## SUPPLEMENTS



**e.resource** ISBN: 978-1-4180-1266-3

**Student Skill Guide** ISBN: 978-1-4180-1265-6



## ALSO AVAILABLE

### OUTDOOR POWER EQUIPMENT

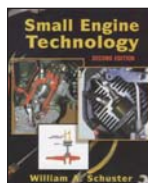
Jay Webster

ISBN: 978-0-7668-1391-5

600 pp, 8" x 11", SC, 1-Color, ©2001

**Instructor's Manual** ISBN: 978-0-7668-1393-9

**Lab Manual** ISBN: 978-0-7668-1392-2



### SMALL ENGINE TECHNOLOGY, Second Edition

William A. Schuster

Hardcover ISBN: 978-0-8273-7699-1

Softcover ISBN: 978-0-8273-7778-3

421 pp, 7-7/8" x 9-1/4", 1-Color, ©1999

**Instructor's Manual** ISBN: 978-0-8273-7700-4

# NATEF TASKS ON DVD



## More Choices, Better Choices ...

As the leading publisher of Automotive Technology educational materials, Delmar is pleased to present a high-quality DVD series designed to demonstrate NATEF-required service tasks in high-resolution video clips. This DVD set illustrates hundreds of task procedures mapped to NATEF standards.

The entire series of DVDs is correlated to the 2005 NATEF Task lists, which makes them ideal for use in combination with NATEF Standards Job Sheets, or with any comprehensive or topic-specific automotive text.

### KEY FEATURES

- **DVD Technology:** Straightforward navigation with menu-driven program that launches videos keyed to the 2005 NATEF task lists by area. Subtitle option for hearing-impaired students.
- **Current & Comprehensive:** Video segments covering over 300 NATEF tasks. It provides complete coverage of all P1 tasks in each of the six areas.
- **Relevant:** Innovative performance-based approach to learning, designed to demonstrate NATEF-required service tasks for program certification.
- **Instructor & Classroom Support:** Optional CD available that includes 2005 NATEF Job Sheets CD featuring printable .pdf files of more than 350 task sheets in all 8 Automotive System Areas.
- **Flexible Purchasing Options:** Purchase only what you need based on your specific training needs without the hassle and expense of costly "upgrade programs."

## NATEF Core Tasks DVD Sampler ISBN:

978-1-4180-4082-6

**NATEF Tasks on 6 DVDs:** *Featuring over 8 hours of live-action videos covering:*

- Engine Repair
- Suspension and Steering
- Brakes
- Electrical and Electronics
- Heating and A/C
- Engine Performance

ISBN: 978-1-4180-4077-2

**NATEF Core Tasks on 4 DVDs:**

*Featuring 6 hours of live-action video covering NATEF Core Areas:*

- Suspension and Steering
- Brakes
- Electrical and Electronics
- Engine Performance

ISBN: 978-1-4180-4078-9

### Also Available:

NATEF Tasks on 6 DVDs + NATEF Standards Job Sheet PDFs on CD-ROM  
ISBN: 978-1-4180-4080-2

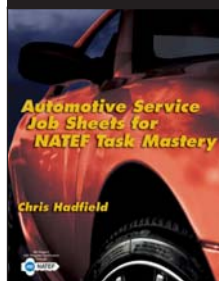
NATEF Tasks on 4 DVDs + NATEF Standards Job Sheet PDFs on CD-ROM  
ISBN: 978-1-4180-4081-9

# AUTOMOTIVE SERVICE JOB SHEETS FOR NATEF TASK MASTERY

Chris Hadfield

ISBN: 978-1-4180-7302-2

640 pp, 8-1/2" x 11", SC, 4-Color, ©2008



Master the skills needed to succeed in the automotive industry with nearly two hundred hands-on lab and shop activities in this new, full-color manual. Correlated to NATEF tasks for all eight ASE systems and organized by technology area, *Automotive Service Job Sheets for NATEF Task Mastery* provides detailed explanations and illustrations of all major diagnostic and repair procedures. Using a performance-based approach, this valuable resource will guide readers through all of NATEF's P-1 tasks, and many of the P-2 and P-3 tasks, giving them the knowledge and technical know-how to accomplish key automotive tasks and develop critical thinking skills that can be applied to real-world scenarios.

## CONTENTS

The Automobile Industry Job Sheets. Shop Procedures, Safety, Tools, and Equipment Job sheets. Vehicle Inspection Job Sheets. Engine Operation and Service Job sheets. Cooling and Fuel System Theory and Service Jobsheets. Electrical System Theory and Service Job Sheets. Vehicle Electronics, Computer Controls, and Comfort Systems Job Sheets. Engine Performance Diagnosis: Theory and Service Job Sheets. Automotive Engine Performance and Repair Job Sheets. Miscellaneous Chassis Theory and Service Job Sheets. Suspension, Steering, Alignment Job Sheets. Drive Train Job Sheets. (205 Job Sheets-For complete listing of individual job sheets visit [www.autoed.cengage.com](http://www.autoed.cengage.com))

## SUPPLEMENT

Instructor's CD-ROM ISBN 978-1-4180-7303-9



# NATEF STANDARDS JOB SHEETS, SECOND EDITION

Jack Erjavec

ISBN: 978-1-4180-2082-8

Full Set. Average 180 pp each, 8-1/2" x 11", SC, 1-Color, ©2006



Each of our eight NATEF (National Automotive Technicians Education Foundation) Standards Job Sheet workbooks has been thoughtfully designed to assist users in gaining valuable job preparedness skills and mastering specific technical competencies required for success as a professional automotive technician. Ideal for use as a stand-alone item, or with any comprehensive or topic-specific automotive text, the entire series is based on the 2005 NATEF tasks and consists of individual books for each

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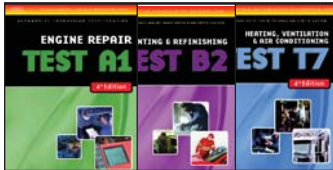
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# Jack Erjavec New Automotive Instructor Scholarship

## THE PURPOSE

The annual Jack Erjavec New Automotive Instructor Scholarship was awarded for the first time in June 2007. The goal of this new scholarship is to foster the professional development of promising new automotive technology instructors. Sponsored by Delmar, and administered by NACAT, the \$2500 annual award provides funding to allow one instructor each year to attend the summer NACAT conference and other training events.

## NOMINATIONS and ELIGIBILITY

A nomination form is available at [autoed.cengage.com/scholarship](http://autoed.cengage.com/scholarship) and [nacat.com](http://nacat.com). Nominations can be made by department chairs, fellow instructors, or administrators, and the scholarship is open to automotive technology instructors who have less than 3 academic years of automotive teaching experience at time of nomination, and who work at public and private secondary and post-secondary schools and training centers in North America.

## IMPORTANT DATES

The scholarship is to be primarily utilized for travel to and attendance at the NACAT annual conference. The award is open to NACAT members as well as non-members, and the 2009 nomination deadline is April 1, 2009. Announcement of the award will be made by May 15, 2009.

## ABOUT JACK ERJAVEC

The scholarship recognizes the contributions of Jack Erjavec, former board member and current officer of NACAT, and recipient of the 2006 NACAT MVP award. Erjavec is the author of *Automotive Technology, Fourth Edition*, published by Delmar, and is the lead author, series editor, or contributor to dozens of other Delmar books. Erjavec was a charter member of STS/SAE, has served as board member of the Automotive Training Managers Council, and has been awarded numerous honors throughout his career.

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