

Automotive & Trucking

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Basic Technician Training

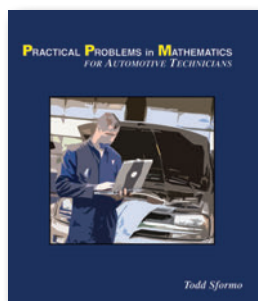
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APPLIED MATHEMATICS FOR CAREERS

MATH FOR AUTOMECHANICS



ebook

PRACTICAL PROBLEMS IN MATHEMATICS, 7E

For Automotive Technicians

Todd Sformo, Ilisagvik College

Comprehensive and easy to use, the revised and updated seventh 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!

FEATURES

- Concepts are presented to the reader in a logical, clear, and sequential manner with each stage of a procedure outlined in order to increase understanding and allow for success
- Multitude of problems proceed from the simple to the more complex that allows readers have ample opportunities to develop their skills and confidence

- as well as reinforce practice and understanding
- Examples and problems cultivate problem-solving skills that are crucial to success on the job
- Complete coverage of fundamental math principles as well as more advanced computations makes the book suitable for beginning and experienced technicians alike
- New to the seventh edition are unit Objectives aid in teaching and understanding the main concepts in each unit.

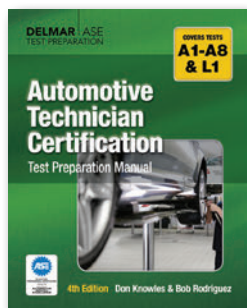
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AUTOMOTIVE

ASE PREPARATION AND NATEF CERTIFICATION



AUTOMOTIVE TECHNICIAN CERTIFICATION TEST PREPARATION MANUAL, 4E

Don Knowles

One of the most trusted test preparation guides in the industry, AUTOMOTIVE TECHNICIAN CERTIFICATION TEST PREPARATION MANUAL, 4th Edition, will help to prepare users for the A1-A8 and L1 ASE certification exams. The guide is highly effective in covering need-to-know information to help users pass their exams. Each Chapter opens with a pretest to explore the depth of preparation that is going to be required to become familiar with the information in the Chapter. Next the manual describes each ASE task and the essential content related to the task. Finally, each Chapter ends with ASE style exam questions which mimic the questions found on actual ASE tests. The end result: is a powerful test preparation tool, filled with updated task list theory, practice tests, and abundant, demonstrative graphics, which will arm users with the knowledge they need to master the ASE certification exams.

NEW TO THIS EDITION

- Practice questions match the latest ASE task lists to give users an accurate expectation of the content they will be required to know.

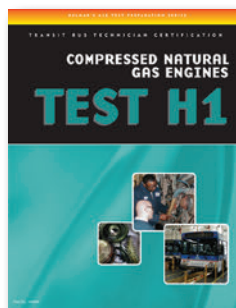
FEATURES

- Practice questions match the latest ASE task

lists to give users an accurate expectation of the content they will be required to know.

- Answers to pretest questions and helpful analyses at the end of each Chapter provide users with faster access to accurate information.
- Supportive “Hints” throughout each Chapter help users work through the process of determining the correct answers to the questions.

© 2013, 704pp, Paperback, 9781428321014



ASE TEST PREPARATION - TRANSIT BUS H1, COMPRESSED NATURAL GAS

Delmar, Cengage Learning

With more natural gas vehicles on the roads than ever before, today's technicians need to be prepared to service these vehicles, both in the shop and in a testing environment for ASE certification. To accomplish this, ASE Test Preparation – H1, Compressed Natural Gas has gathered the latest need-to-know information about the new compressed natural gas task list, and paired it with ASE-style practice tests. The book begins with a history of the ASE and progresses to include guidelines, techniques, and strategies for taking and passing the certification exams. An overview of the task lists follows and is reinforced with both ASE-style practice questions and answer rationales that allow readers to practice their test-taking skills and identify areas in need of improvement.

FEATURES

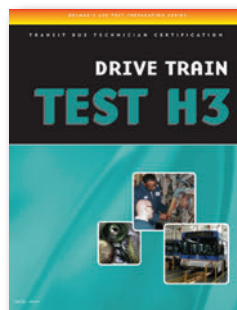
- Provides the most up-to-date ASE Task specifications for this new exam

- ASE-style exam questions reflecting the most recent ASE task list test the skills that technicians need to know on the job
- Each book contains a sample test, and additional practice learning
- Includes a brief history of ASE that follows its evolution from inception to the present
- A comprehensive glossary of technical terms helps the readers master important transit bus definitions and vocabulary
- Provides users with a better understanding of their strengths and areas needing additional review
- Content reviewed and approved by master technicians

CONTENTS

Section 1: The History of ASE. Section 2: Take and Pass Every ASE Test. Section 3: Types of Questions on an ASE Exam. Section 4: Overview of the Task List. Section 5: Sample Test for Practice. Section 6: Additional Test Questions for Practice. Section 7: Appendices.

© 2011, 254pp, Paperback, 9781435439399



ASE TEST PREPARATION - TRANSIT BUS H3, DRIVE TRAIN

Delmar

When you study with this ASE Test Preparation Manual for your Transit Bus Drive Train (H3) exam, you can be confident that you're getting the most up-to-date ASE task list available and the most current industry information. This comprehensive resource provides the skills, knowledge, and practice questions needed to successfully prepare for the exam. Ideal for entry-level transit bus technicians, as well as any transit bus technician seeking certification, it is a must-have in the journey toward certification.

FEATURES

- ASE-style exam questions reflecting the most recent ASE task list test the skills that technicians need to know on the job
- each book contains a general knowledge pretest, a sample test, and additional practice learning
- includes a brief history of ASE that follows its evolution from inception to the present
- a comprehensive glossary of technical terms helps readers master important transit bus definitions and vocabulary
- provides users with a better understanding of their strengths and areas needing additional review prior to taking an exam
- content reviewed and approved by master technicians
- details significance of ASE certification

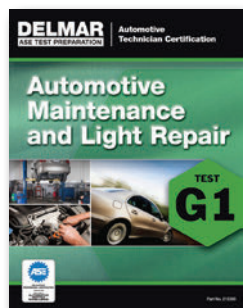
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ASE TEST PREPARATION MANUALS



ASE TECHNICIAN TEST PREPARATION AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR (G1)

Delmar Cengage Learning

The first edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the G1 Maintenance and Light Repair exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Maintenance and Light Repair task list and are fully prepared and confident to take your exam.

FEATURES

- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams to ensure your test-taking confidence.
- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas in which you will be tested.
- Delmar provides an overview of what to expect when taking an ASE exam, so you not only gain

comfort from a content perspective, but also have an understanding of the entire process.

- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.
- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but also in the style that the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

© 2014, 288pp, Paperback, 9781285753805



ebook

ASE TEST PREP- T8 PREVENTIVE MAINTENANCE, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T8 Preventive Maintenance exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Preventive Maintenance task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

- All brand new practice questions!
- Six practice tests, instead of the traditional two will

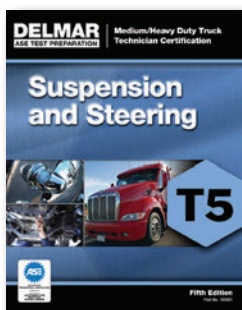
help provide you with even more preparation as you develop your test-taking confidence.

- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the areas that will help you pass.

FEATURES

- We kept these same great features: Overview of what to expect when taking an ASE exam. Up-to-date ASE task lists. Overviews of each task make an easy reference point for help in answering difficult ASE questions. ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - T5 SUSPENSION AND STEERING, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T5 Suspension and Steering exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Suspension and Steering task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

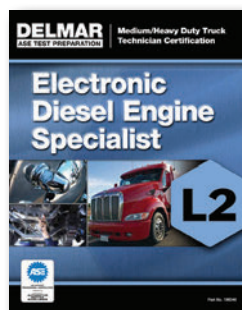
- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map

to the ASE task lists, so you are focusing on the areas that will help you pass.

FEATURES

- We kept these same great features: Overview of what to expect when taking an ASE exam. Up-to-date ASE task lists. Overviews of each task make an easy reference point for help in answering difficult ASE questions. ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION MANUAL - ELECTRONIC DIESEL ENGINE DIAGNOSIS SPECIALIST (L2)

Delmar Cengage Learning

The first edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck L2 Electronic Diesel Engine Diagnosis Specialist exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand Electronic Diesel Engine Diagnosis Specialist task list and are fully prepared and confident to take your exam.

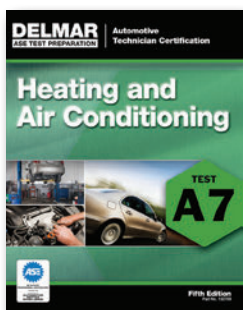
FEATURES

- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the areas that will help you pass.
- Overview of what to expect when taking an

ASE exam.

- Up-to-date ASE task lists.
- Overviews of each task make an easy reference point for help in answering difficult ASE questions.
- ASE-style exam questions.
- Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - A7 HEATING AND AIR CONDITIONING, 5E

Delmar, Cengage Learning

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A7 HEATING AND AIR CONDITIONING certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

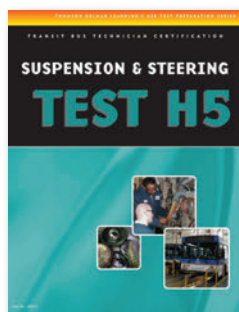
FEATURES

- Delmar matches their practice test question

weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.

- Delmar provides an overview of what to expect when taking an ASE exam, so you not only gain comfort from a content perspective, but also have an understanding of the entire process.
- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.
- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but the style in which the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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ASE TEST PREPARATION - TRANSIT BUS H5, SUSPENSION AND STEERING

Delmar, Cengage Learning

For the first time, there is a test preparation guide designed specifically to meet the requirements of the ASE certification exam for Transit Bus H5, Suspension and Steering. This exclusive new offering from Delmar Learning, ASE Test Preparation - Transit Bus H5, Suspension and Steering, is based upon the newly released ASE task list for this exam, and pairs it with ASE-style

practice questions. The end result is a thorough and relevant training regimen for anyone seeking to successfully master the H5 ASE certification exam.

FEATURES

- provides the most up-to-date ASE Task specifications for this new exam
- ASE-style exam questions reflecting the most recent ASE task list the skills that technicians need to know on the job
- each book contains a sample test, and additional practice learning
- includes a brief history of ASE that follows its evolution from inception to the present
- a comprehensive glossary of technical terms helps readers master important transit bus definitions and vocabulary
- provides users with a better understanding of their strengths and areas needing additional review
- content reviewed and approved by master technicians

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Heating, Ventilation & Air Conditioning Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Heating, Ventilation & Air Conditioning Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- Bookmarking technology enables users to track their progress from beginning to end.
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

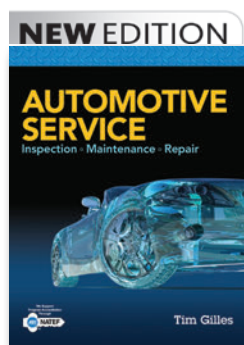
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Safety. Working as an Air Conditioning Technician. Information resources. Diagnostic and Service

Tools.Understanding Heat.Temperature and Pressure Fundamentals.Refrigerants.Refrigerant and the Environment.Engine Cooling Systems.Heater System Operation.Engine Cooling System Diagnosis.Heater System Diagnosis and Service.System Components.Cycling Refrigeration Systems.Non-Cycling Refrigeration Systems.Compressor Diagnosis and Service.Refrigerant Recovery, Evacuation and Recycling.Refrigeration System Diagnosis and Service.System Retrofit.

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AUTOMOTIVE SYSTEMS



ebook



AUTOMOTIVE SERVICE, 5E

Inspection, Maintenance, Repair

Tim Gilles, Santa Barbara City College, Santa Barbara, California

Featuring three new Chapters on Hybrid and Electric vehicles, this fully updated 5th edition of **AUTOMOTIVE SERVICE: INSPECTION, MAINTENANCE, REPAIR** helps students develop the knowledge and skills they need to be successful in a range of automotive careers. Known for its clear explanations and high quality art, this best-selling text covers all eight major course areas of automotive technology, from an introduction to shop management to theories of vehicle systems operations with step-by-step procedures for trouble shooting and repair. Technically reviewed by instructors and industry experts and reflecting the latest NATEF Automobile Program Standards, this edition is ideal for students enrolled in NATEF-accredited programs.

NEW TO THIS EDITION

- Up-to-date and technically accurate coverage throughout ensures that students, teachers, and technicians have access to the latest “need to know” automotive information.
- Three new Chapters on hybrid and electric vehicles cover fundamentals, safety and service, battery and fuel cell electronic technology, and hydraulic hybrid technology.
- Up-to-date NATEF coverage includes the latest information on NATEF Automotive Maintenance and Light repair, as well as the eight ASE Master Technician areas.
- Electrical Chapters offer up-to-date information including: testing batteries with a two-channel digital storage scope and an amp clamp, using a scan tool to reset the BCM after battery replacement, remote starting, key fob operation and diagnosis, smart charging systems, alternator decoupling pulleys, and much more.
- Other new and updated topics include light-duty diesel information and service; air conditioning and refrigerants; turbocharger, supercharger, and dynamometer coverage; variable valve timing information; technology advances in onboard diagnostics, misfire detection, adaptive strategies, the latest CAN systems, drive-by-wire, and wide-band oxygen sensors; stability control and traction control systems, electronic suspension systems, electric steering, and electronic transmission and all-wheel drive.
- Comfort and safety topics have been updated with the newest developments in air conditioning, supplemental restraints, lighting, entertainment systems, and adaptive cruise control.
- New and updated Science, Math, and History/Vintage Notes highlight automotive-related applications.

FEATURES

- Full-color photos and illustrations make key concepts come alive for the visual learner.
- Case Histories provide interesting and relevant real-world scenarios to promote student interest.
- An emphasis on critical thinking helps students develop automotive diagnostic ability.

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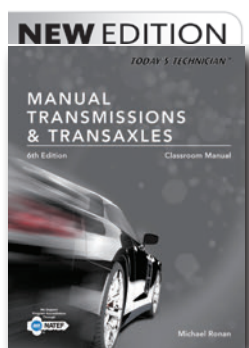
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ebook



TODAY'S TECHNICIAN, 6E

Manual Transmissions and Transaxles Classroom Manual and Shop Manual

Mike Ronan, State University of New York, Alfred State College

Reflecting the 2013 NATEF AST/MAST program standards, this fully updated Sixth Edition of TODAY'S TECHNICIAN: MANUAL TRANSMISSIONS & TRANSAXLES covers a wide range of must-know topics, including dual clutch systems, various limited-slip differential designs, and six-speed transmissions, while still addressing the basics, such as the importance of safe work habits and the purpose and major components of the transmission system and subsystems. Volume 1, the Classroom Manual, covers every topic on the ASE A3 Manual Drive Train and Axles certification test in a thorough, easy-to-understand manner, while Volume II, the Shop Manual, includes detailed job sheets that ask students to perform hands-on service and repair tasks that reflect 2013 AST/MAST task lists. Detailed full-color photos demonstrate exactly what students can expect when performing a procedure on the job. In addition, new references to high performance topics reflect recent advances in the fast-growing automotive performance industry.

NEW TO THIS EDITION

- Content has been updated throughout to adhere to the 2013 NATEF AST/MAST program standards.
- Coverage reflects the latest technological advances in the rapidly changing automotive field. New coverage of high performance topics is integrated throughout the classroom and shop

manuals to reflect recent advances in the fast-growing automotive performance industry.

- Job sheets in the shop manual incorporate the 2013 NATEF AST/MAST task lists.

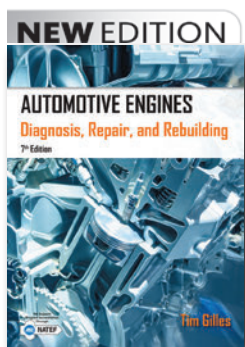
FEATURES

- Thorough, well-illustrated coverage of theory and key concepts in the Classroom Manual helps students succeed on the ASE A3 Manual Drive Train and Axles certification test.
- Practical, NATEF task-oriented service procedures in the Shop Manual prepare students for effective on-the-job performance.
- Striking full color photographs illustrate actual repairs so students know what to expect when performing a procedure on the job.
- The book's easy-to-understand presentation of technical concepts helps students master key content.
- A full color design and art program clarifies concepts and hands-on procedures to increase student success.
- Shop Manual and Classroom Manual content is cross-referenced for easy access to all relevant topical information.

CONTENTS

CLASSROOM MANUAL. 1. Manual Drive Trains and Axles. 2. Drivetrain Theory. 3. Clutches. 4. Manual Transmissions/Transaxles. 5. Front Drive Axles. 6. Drive Shafts and Universal Joints. 7. Differentials and Drive Axles. 8. Four-Wheel Drive (4WD) Systems. 9. Advanced Four-Wheel-Drive Systems. 10. Drivetrain Electrical and Electronic Systems. 11. Electronically Controlled and Automated Transmissions. **SHOP MANUAL.** 1. Safety. 2. Special Tools and Procedures. 3. Servicing Clutches. 4. Servicing Transmissions/Transaxles. 5. Servicing Front Drive Axles. 6. Servicing Drive Shafts and Universal Joints. 7. Servicing Differentials and Drive Axles. 8. Servicing Four-Wheel Drive Systems. 9. Diagnosing 4WD and AWD Control Systems. 10. Servicing Drivetrain Electrical Systems. 11. Diagnosing Advanced Electronic Systems.

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ebook



AUTOMOTIVE ENGINES, 7E

Diagnosis, Repair, Rebuilding

Tim Gilles, Santa Barbara City College, Santa Barbara, California

This complete textbook provides detailed content on the theory of operation, diagnosis, repair, and rebuilding of automotive engines. In addition to essential technical expertise, the text helps users develop the skills and knowledge they need for professional success, including critical thinking and awareness of key industry trends and practices. The text emphasizes universal repair techniques and case histories based on real-world scenarios to prepare users for careers in the field. Instructor resources include lesson plans, customizable lab sheets that address NATEF Standards, a customizable test bank with questions based on Chapter content, presentations in PowerPoint, and more. Now updated with new, full-color images and information on the latest trends, tools, and technology—including hybrid engines and high-performance components—AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, Seventh Edition, is the ideal resource for automotive programs who want a complete teaching package for their Engines course.

NEW TO THIS EDITION

- New and updated full-color photographs and illustrations throughout the text help bring key concepts to life, making it easier for users to apply what they learn in hands-on, real-world scenarios.
- The author has updated content to reflect new developments in automotive technology and industry practices, including information on hybrid

engines, gasoline direct injection theory and service, cooling and lubrication systems, variable valve timing, and relative compression testing with amp probe and DSO.

- A new section devoted to high-performance engines includes extensive coverage of turbochargers, manifolds, and camshafts, preparing users to understand and service these specialized engine components.

FEATURES

- A robust package of instructor resources makes it easier to integrate the text within your course; highlights include presentations in PowerPoint, lesson plans, customizable lab sheets incorporating NATEF Standards, and a test bank featuring abundant questions based on Chapter content.
- Special features throughout the text help support effective learning and career preparation, including images of failed and worn parts to help users prevent recurring problems, information on repairing and restoring high-performance sports cars, and tips from experienced professionals on shop practices and engine machining.
- Compelling case histories provide real-world examples to illustrate key concepts and techniques, helping users appreciate the practical applications of text material and think critically about using their knowledge and skills in a variety of professional scenarios.
- The author emphasizes repair techniques universal to all engines, covering fundamental principles and practices to prepare users for career success in independent repair shops, parts and machine shops, auto dealerships, and other settings.

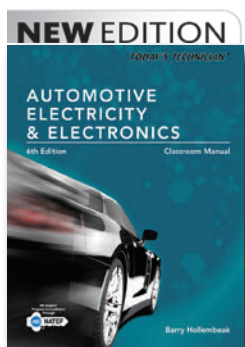
CONTENTS

Part I: ENGINE CONSTRUCTION, DIAGNOSIS, DISASSEMBLY, AND INSPECTION.1. Engine Operation.Simple Engine. Four-Stroke Engine Operation. Cylinder Arrangement. Valve Train. Cylinder Block. Front-Wheel Drive. Engine Classifications. Combustion Chamber Designs. Firing Order. Types of Cooling Systems. Ignition Types. Study Questions. ASE-Style Review Questions.2. Engine Shop Safety.General Shop

Health and Safety. Hazardous Materials. Safety Test.3. Diagnosing Engine Problems.Diagnosing Problems Before an Overhaul. Oil Consumption. Fuel Mixture Problems. Compression Loss. Engine Noises. Oil Pressure Problems. Cooling System Problems. Electronic Failures/Engine Damage. Study Questions. ASE-Style Review Questions.4. Engine Removal, Disassembly, Inspection, and In-Chassis Repairs.Shop Manuals. Engine Removal. Engine Disassembly. Ordering Parts. Major Engine Repair - Engine in the Vehicle. Study Questions. ASE-Style Review Questions.5. Cleaning the Engine.Cleaning Methods. Cleaning the Inside of the Engine. Study Questions. ASE-Style Review Questions.6. Measuring.Metric System. Measuring Tools. Precision Measuring Tools. Study Questions. ASE-Style Review Questions.Part II: THE BREATHING SYSTEM.7. Cylinder Head: Parts and Service.Head Disassembly. Carbon Removal. Crack Inspection. Crack Repair. Valve Guide Inspection. Valve Guide Repair. Valve Guide Seals. Resurfacing Heads. Study Questions. ASE-Style Review Questions.8. Cylinder Head: Springs, Valves, and Valve Seats.Valve Springs. Push Rods. Rocker Arms. Valves and Valve Service. Valve Seats and Service. Reassembling the Head. Study Questions. ASE-Style Review Questions.9. Camshafts, Lifters, Timing Belts and Chains.Camshaft. Hydraulic Lifters and Lash Adjusters. Hydraulic Lifter Operation. Roller Cam and Lifters. Cam Drives. Timing Drive Maintenance. Timing the Cam to the Crank. Timing Belts. Timing Belt Replacement. Study Questions. ASE-Style Review Questions.Part III: CYLINDER BLOCK ASSEMBLY.10. Cylinder Block - Inspection and Service.Cleaning the Block. Oil and Water Plugs. Main Bearing Caps. Main Bearing Bore Alignment. Decking the Block. Inspecting Cylinder Bores. Deglazing Cylinders. Reboring Cylinders. Honing Cylinders to Size. Chamfering the Cylinder. Cylinder Sleeves. Lifter Bores. Final Block Preparation. Study Questions. ASE-Style Review Questions.11. Crankshaft, Bearings, and Engine Balancing.Crankshaft Design. Crank End Thrust. Checking Crank Condition. Bearing Inserts. Engine Balancing. Study Questions. ASE-Style Review Questions.12. Piston, Rings, and Connecting Rod. Pistons. Piston Rings. Connecting Rods. Wrist Pins.

Study Questions. ASE-Style Review Questions.13. Lubrication System.The Lubrication System. Oil. Oil Pumps. Priming the System. Oil Filters. Filter Bypass System. Crankcase Ventilation. Study Questions. ASE-Style Review Questions.14. Cooling System. The Cooling System. Cooling System Circulation. Water Pump. Belts. Thermostat. Thermostat Bypass. Radiators. Study Questions. ASE-Style Review Questions.Part IV: ENGINE REPAIR AND REASSEMBLY.15. Engine Hardware: Fasteners, Thread Repair, and Gaskets.Characteristics of Fasteners. Bolt Stretch. Torque and Friction. Bolt Failures. Drill Bits. Taps and Threads. Repairing Broken Fasteners. Flared Lines. Gaskets. Gasket Sealer. Seals. Study Questions. ASE-Style Review Questions.16. Reassembly and Starting.Warranty. Reassembly. Completion of Assembly. Engine Installation. Engine Starting and Initial Break-in of the Camshaft. Final Inspection and Cleaning. Study Questions. ASE-Style Review Questions.Part V: ENGINE POWER AND PERFORMANCE.17. Engine Breathing: Intake and Exhaust Systems.Intake and Exhaust Manifolds. Engine Modifications to Improve Air Flow. High-Performance Valves and Valve Springs. Exhaust Manifolds and Headers. Mufflers. Study Questions. ASE-Style Review Questions.18. Turbochargers and Superchargers.Supercharging and Engine Power. Turbochargers. Turbo Boost and Lag. Supercharger Pressure Control. Variable Geometry Turbochargers. Aftercooler/Intercooler. Turbocharger Troubleshooting. Turbocharger Damage Diagnosis. Belt-driven Superchargers/ Blowers. Pressure Relief Valves. Dynamic Superchargers. Blower Problems. Study Questions. ASE-Style Review Questions.19. Producing Power: Valve Timing, Power and Torque Measurement. Camshaft and Engine Performance. Checking Camshaft Timing. Camshaft Phasing, Lobe Centers, and Lobe Spread. Variable Valve Timing. Active Fuel Management/Displacement on Demand. Power and Torque. Measuring Torque and Horsepower. Dynamometer Safety Concerns. Study Questions. ASE-Style Review Questions.

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ebook



TODAY'S TECHNICIAN, 6E

Automotive Electricity and Electronics, Classroom and Shop Manual Pack

Barry Hollembeak

Ideal for aspiring and active automotive professionals, **TODAY'S TECHNICIAN: AUTOMOTIVE ELECTRICITY & ELECTRONICS**, Sixth Edition, equips readers to confidently understand, diagnose, and repair electrical and electronic systems in today's automobiles. Using a unique two-volume approach to optimize learning in both the classroom and the auto shop, the first volume (Classroom Manual) details the theory and application of electricity, electronics, and circuitry in modern automobiles, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date technical information, and hundreds of detailed illustrations and vibrant photographs, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including audio and infotainment systems, LED and adaptive lighting, hybrid and electric vehicles, and accessory systems—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service techniques, including material on electrical and electronic controlled systems, LED and adaptive

lighting systems, and audio and infotainment systems.

- The text has been streamlined for easier reading and more effective learning, with Chapters reorganized to reflect a logical sequence of topics, and material on outdated systems and obsolete technologies removed.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos, illustrations, and diagrams have been added to provide a current and comprehensive review of electric and electronic automotive service and repair, providing valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of electricity and electronics in an automotive systems context, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern automotive electronics, electrical components, circuitry, and systems in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Electrical and Electronic Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology—such as audio and infotainment

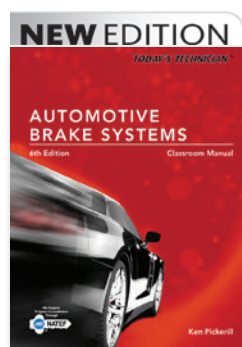
systems, lighting systems, hybrid and electric vehicles, and accessory systems—prepares students for a seamless and successful transition from the classroom to the professional repair shop.

- A full Chapter on shop safety highlights safe work habits to reinforce the importance of consistent safety practices and familiarize readers with standards and procedures they are likely to encounter in today's service and repair operations.

CONTENTS

Classroom Manual. Preface. 1. Introduction to Automotive Electrical and Electronic Systems. 2. Basic Theories. 3. Electrical and Electronic Components. 4. Wiring and Circuit Diagrams. 5. Automotive Batteries. 6. Starting Systems and Motor Designs. 7. Charging Systems. 8. Lighting Circuits. 9. Introduction to The Body Computer. 10. Computer Inputs. 11. Vehicle Communication Networks. 12. Advanced Lighting Circuits. 13. Instrumentation and Warning Lamps. 14. Accessories. 15. Radio Frequency and Infotainment Systems. 16. Passive Restraint Systems. 17. Vehicles with Alternative Power Sources. Glossary of Terms. Index. Shop Manual. Preface. 1. Safety. 2. Special Tools and Procedures. 3. Basic Electrical Troubleshooting and Service. 4. Wiring Repair and Reading Circuit Diagrams. 5. Battery Diagnosis and Service. 6. Starting System Diagnosis and Service. 7. Charging System Testing and Service. 8. Lighting Circuits Repair and Diagnosis. 9. Body Computer System Diagnosis. 10. Sensor Diagnostic Routines. 11. Vehicle Multiplexing Diagnostics. 12. Advanced Lighting Systems Diagnosis and Service. 13. Instrumentation and Warning Lamp System Diagnosis and Repair. 14. Electrical Accessories Diagnosis and Repair. 15. Servicing Radio Frequency and Infotainment Systems. 16. Servicing Passive Restraint Systems. 17. Hybrid and High-Voltage System Service. Appendix A: ASE Practice Examination. Appendix B: Metric Conversions. Appendix C: Electrical and Electronic Special Tool Suppliers. Glossary of Terms. Index.

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TODAY'S TECHNICIAN, 6E

Automotive Brake Systems, Classroom and Shop Manual Prepack

Ken Pickerill

The 6th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE BRAKE SYSTEMS is a comprehensive text that equips readers to confidently understand, diagnose, and repair today's brake systems. Using a unique two-volume approach, the first volume (Classroom Manual) details the theory and application of the total brake system, subsystem, and components, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid vehicles, brake by wire, and electric brakes—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- Extensive updates to reflect new and emerging technology and service techniques, including material on hybrid vehicles, brake by wire systems, and electric brakes.
- New and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos and procedures have been added

to provide a current and comprehensive review of brake service and repair, providing valuable reinforcement of Chapter material for today's visual learners.

- New information on stability control, active braking, and regenerative braking in hybrid vehicles, reflecting advances in technology and current industry standards and best practices.
- Numerous new study review questions are included to help students review Chapter material, assess their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

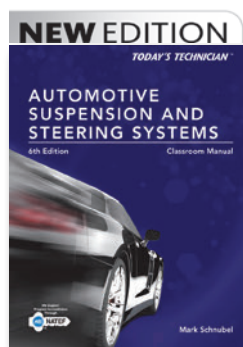
FEATURES

- Full-color drawings, photos, and schematics show modern brake technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- Thorough coverage of the 2012 NATEF Automobile Program Standards for Brakes, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology, such as ABS within a vehicle stability system, prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

CLASSROOM MANUAL. 1. Brake System Fundamentals. 2. Principles and Theories of Operation. 3. Related Systems: Tire, Wheels, Bearings, and Suspensions. 4. Master Cylinder and Brake Fluid. 5. Hydraulic Lines, Valves, and Switches. 6. Power Brake Systems. 7. Disc Brakes. 8. Drum Brakes. 9. Parking Brakes. 10. Electrical Braking Systems. **SHOP MANUAL.** 1. Brake Safety. 2. Brake Service Tools and Equipment. 3. Related System Service. 4. Master Cylinder and Brake Fluid Service. 5. Hydraulic Line, Valve, and Switch Service. 6. Power Brake Service. 7. Disc Brake Service. 8. Drum Brake Service. 9. Parking Brake Service. 10. Electrical Brake Systems.

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TODAY'S TECHNICIAN, 6E

Automotive Suspension & Steering Classroom Manual and Shop Manual

Mark Schnubel, Naugatuck Valley Community College

This text covers both the theory and procedures related to the diagnosis and service of automotive suspension and steering systems, using a unique two-volume approach to optimize learning in both the classroom and the auto shop. The first volume (Classroom Manual) details the theory and application of suspension and steering systems, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid and electric vehicles, tire plus sizing, and computer-controlled suspensions—the Sixth Edition also aligns with area A4 of the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks. Ideal for aspiring and active automotive professionals, TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION & STEERING SYSTEMS, Sixth Edition, equips readers to confidently understand, diagnose, and repair suspension and steering systems in today's automobiles.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service

techniques, including material on basic electrical theory, hybrid and electric vehicle safety, tire plus sizing and rim offset considerations, computer-controlled suspensions, radar and laser crash avoidance systems, and self-parallel parking.

- In addition to consolidating coverage of alignment into two Chapters for streamlined presentation, the text features a new, highly versatile modular structure, making it easier to select specific topics and cover them in a sequence tailored to the unique needs of your courses and students.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including new and updated job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New full-color photos, illustrations, tables, charts, and diagrams have been added throughout the text to provide valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions, forms, task examples, and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

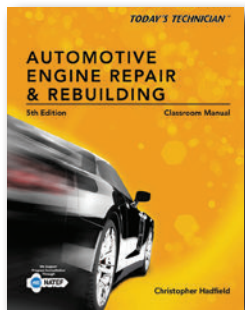
- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of automotive suspension and steering systems, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern suspension and steering technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Suspension and Steering Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.

- Detailed information on increasingly common technology—such as active steering systems, four wheel active steering (4WAS), PAX tire systems, adaptive cruise control (ACC), lane departure warning systems, telematics, electric-drive power steering pumps, electronic wheel alignment equipment, and tire pressure monitoring systems (TPMS)—prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

1. Suspension and Steering Systems Introduction and Overview. 2. Basic Theories. 3. Tires and Wheels. 4. Wheel Bearings. 5. Shock Absorbers and Struts. 6. Front Suspension Systems. 7. Rear Suspension Systems. 8. Steering Columns and Steering Linkages. 9. Four Wheel Alignment Part I. 10. Four Wheel Alignment Part II. 11. Computer-Controlled Suspension Systems. 12. Power Steering Pumps. 13. Rack and Pinion Steering Gears and Four Wheel Steering. 14. Recirculating Ball Steering Gears.

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TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

NEW TO THIS EDITION

- The 5th Edition of is aligned with the NATEF Automotive Service Technology and Master Automotive Service Technology task lists.
- New material on cylinder heads, variable valve trains, displacement on demand, and changes in the workplace give technicians an accurate picture of automotive careers today.
- New usage guidelines and issues related to

maintenance fluids and procedures for modern vehicles keep readers informed on important, day-to-day technician responsibilities.

- New photo sequences of typical procedures on maintenance and related items remove ambiguity and help readers visualize manual tasks.

FEATURES

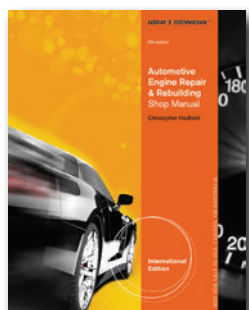
- Chapters deliver key information and skills on engine system and component maintenance, diagnosis, and repair, paving the way to successful automotive careers.
- Showcasing engines, components, and tools in remarkable detail, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition depicts the advancements found in automotive shops today, for a finely-tuned understanding of the industry.
- Practical information on hybrid vehicles, including service precautions and procedures, stress on-the-job issues and prepare readers for the automotive shop of tomorrow.
- Studying the Shop Manual's ASE practice exam prepares readers for success on the Engine Repair certification test.

CONTENTS

Classroom Manual.1. Automotive Engines.2. Theory of Engine Operation.3. Engine Repair and Rebuilding Industry.4. Engine Operating Systems.5. Engine Materials, Fasteners, Gaskets, and Seals.6. Intake and Exhaust Systems.7. Factors Affecting Engine Performance.8. Engine Configurations, Mounts, and Remanufactured Engines.9. Cylinder Heads.10. Camshafts and Valve Trains.11. Timing Mechanisms.12. Engine Block Construction.13. Pistons, Rings, Connecting Rods, and Bearings.14. Alternative Fuel and Advanced Technology Vehicles. Shop Manual.1. Safety and Shop Practices.2. Basic Testing, Initial Inspection, and Service Procedures.3. Engine Rebuilding Tools and Skills.4. Diagnosing and Servicing Engine Operating Systems.5. Repair and Replacement of Engine Fasteners, Gaskets, and Seals.6. Intake and Exhaust System Diagnosis and Service.7. Diagnosing Engine Performance Concerns.8. Engine Removal, Engine Swap, and Engine Installation.9. Cylinder Head Disassemble, Inspection, and Service.10. Valve Train Service.11.

Timing Mechanism Service.12. Inspecting, Disassembling, and Servicing the Cylinder Block Assembly.13. Short Block Component Service and Engine Assembly.14. Alternative Fuel and Advanced Technology Vehicle Service.

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TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, INTERNATIONAL EDITION, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

NEW TO THIS EDITION

- The 5th Edition of is aligned with the NATEF Automotive Service Technology and Master Automotive Service Technology task lists.
- New material on cylinder heads, variable valve trains, displacement on demand, and changes in the workplace give technicians an accurate picture of automotive careers today.
- New usage guidelines and issues related to maintenance fluids and procedures for modern vehicles keep readers informed on important, day-to-day technician responsibilities.
- New photo sequences of typical procedures on maintenance and related items remove ambiguity and help readers visualize manual tasks.

FEATURES

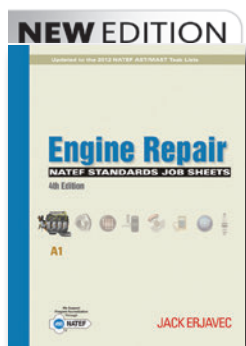
- Chapters deliver key information and skills on engine system and component maintenance, diagnosis, and repair, paving the way to successful automotive careers.
- Showcasing engines, components, and tools in remarkable detail, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition depicts the advancements found in automotive shops today, for a finely-tuned understanding of the industry.
- Practical information on hybrid vehicles, including service precautions and procedures, stress on-the-job issues and prepare readers for the automotive shop of tomorrow. Studying the Shop Manual's ASE practice exam prepares readers for success on the Engine Repair certification test.

CONTENTS

Classroom Manual.1. Automotive Engines.2. Theory of Engine Operation.3. Engine Repair and Rebuilding Industry.4. Engine Operating Systems.5. Engine Materials, Fasteners, Gaskets, and Seals.6. Intake and Exhaust Systems.7. Factors Affecting Engine Performance.8. Engine Configurations, Mounts, and Remanufactured Engines.9. Cylinder Heads.10. Camshafts and Valve Trains.11. Timing Mechanisms.12. Engine Block Construction.13. Pistons, Rings, Connecting Rods, and Bearings.14. Alternative Fuel and Advanced Technology Vehicles. Shop Manual.1. Safety and Shop Practices.2. Basic Testing, Initial Inspection, and Service Procedures.3.

Engine Rebuilding Tools and Skills.4. Diagnosing and Servicing Engine Operating Systems.5. Repair and Replacement of Engine Fasteners, Gaskets, and Seals.6. Intake and Exhaust System Diagnosis and Service.7. Diagnosing Engine Performance Concerns.8. Engine Removal, Engine Swap, and Engine Installation.9. Cylinder Head Disassemble, Inspection, and Service.10. Valve Train Service.11. Timing Mechanism Service.12. Inspecting, Disassembling, and Servicing the Cylinder Block Assembly.13. Short Block Component Service and Engine Assembly.14. Alternative Fuel and Advanced Technology Vehicle Service.

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NATEF STANDARDS JOB SHEETS AREA A1, 4E

Jack Erjavec, Columbus State Community College (Emeritus);
Ken Pickerill

All eight of the NATEF Job Sheets manuals have been thoughtfully designed to assist users gain valuable job preparedness skills and master specific diagnostic and repair procedures required for success as a professional automotive technician. Ideal for use either as a stand-alone item or with any comprehensive or topic-specific automotive text, the entire series is aligned with the 2013 NATEF tasks and consists of individual books for each of the following areas: Engine Repair, Automatic Transmissions/Transaxles, Manual Drive Trains and Axles, Suspension and Steering, Brakes, Electricity/Electronics, Heating and Air Conditioning, and Engine Performance. Central

to each manual are well-designed and easy-to-read job sheets, each of which contains specific performance-based objectives, lists of required tools and materials, safety precautions, plus step-by-step procedures to lead users to completion of shop activities. Also, each job sheet references all applicable NATEF Standards. As they work through each task, users are encouraged to conduct tests, record measurements, make observations, and employ critical-thinking skills in order to draw conclusions. Space is included for users to make notes concerning problems encountered while working, and for instructors to add comments and/or grades.

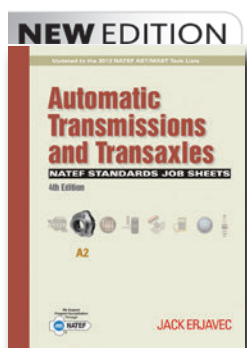
NEW TO THIS EDITION

- New and revised information to align with NATEF's 2012 accreditation model, to reflect specific AST and MAST tasks as practiced by today's automotive technicians.

FEATURES

- Manuals are not keyed to a specific text, making it easy to use one or more of them in any automotive education or training program in which NATEF coverage is desired.
- Job Sheets are correlated to all relevant NATEF tasks to help track students' results with each shop activity.
- Completed Job Sheets may be kept as records, providing tangible evidence that instructors are addressing all NATEF tasks while paving the way for program certification.
- All Job Sheets are perforated and begin on right-hand pages, enabling users to hand them in as homework or add them to portfolios.

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NATEF STANDARDS JOB SHEETS AREA A2, 4E

Jack Erjavec, Columbus State Community College (Emeritus);
Ken Pickerill

All eight of the NATEF Job Sheets manuals have been thoughtfully designed to assist users gain valuable job preparedness skills and master specific diagnostic and repair procedures required for success as a professional automotive technician. Ideal for use either as a stand-alone item or with any comprehensive or topic-specific automotive text, the entire series is aligned with the 2013 NATEF tasks and consists of individual books for each of the following areas: Engine Repair, Automatic Transmissions/Transaxles, Manual Drive Trains and Axles, Suspension and Steering, Brakes, Electricity/Electronics, Heating and Air Conditioning, and Engine Performance. Central to each manual are well-designed and easy-to-read job sheets, each of which contains specific performance-based objectives, lists of required tools and materials, safety precautions, plus step-by-step procedures to lead users to completion of shop activities. Also, each job sheet references all applicable NATEF Standards. As they work through each task, users are encouraged to conduct tests, record measurements, make observations, and employ critical-thinking skills in order to draw conclusions. Space is included for users to make notes concerning problems encountered while working, and for instructors to add comments and/or grades.

NEW TO THIS EDITION

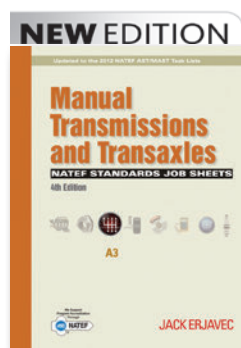
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FEATURES

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- Completed Job Sheets may be kept as records, providing tangible evidence that instructors are addressing all NATEF tasks while paving the way for program certification.
- All Job Sheets are perforated and begin on right-hand pages, enabling users to hand them in as homework or add them to portfolios.

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ebook

NATEF STANDARDS JOB SHEETS AREA A3, 4E

Jack Erjavec, Columbus State Community College (Emeritus);
Ken Pickerill

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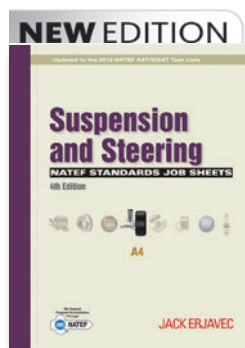
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NATEF STANDARDS JOB SHEETS AREA A4, 4E

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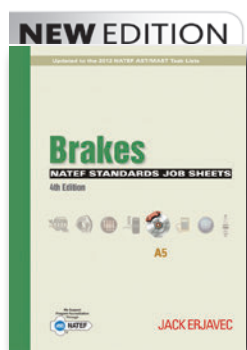
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NATEF STANDARDS JOB SHEETS AREA A5, 4E

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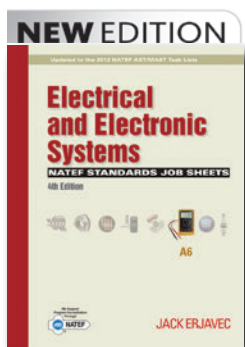
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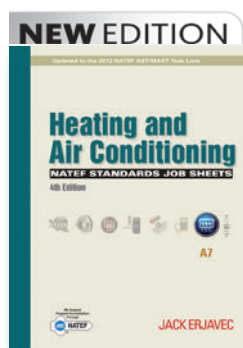
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NATEF STANDARDS JOB SHEETS AREA A7, 4E

Jack Erjavec, Columbus State Community College (Emeritus);
Ken Pickerill

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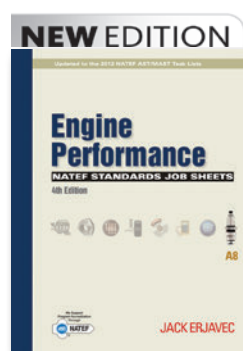
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NATEF STANDARDS JOB SHEETS AREA A8, 4E

Jack Erjavec, Columbus State Community College (Emeritus);
Ken Pickerill

All eight of the NATEF Job Sheets manuals have been thoughtfully designed to assist users gain valuable job preparedness skills and master specific diagnostic and repair procedures required for success as a professional automotive technician. Ideal for use either as a stand-alone item or with any comprehensive or topic-specific automotive text, the entire series is aligned with the 2013 NATEF tasks and consists of individual books for each of the following areas: Engine Repair, Automatic Transmissions/Transaxles, Manual Drive Trains and Axles, Suspension and Steering, Brakes, Electricity/Electronics, Heating and Air Conditioning, and Engine Performance. Central to each manual are well-designed and easy-to-read job sheets, each of which contains specific performance-based objectives, lists of required tools and materials, safety precautions, plus step-by-step procedures to lead users to completion of shop activities. Also, each job sheet references all applicable NATEF Standards. As they work through each task, users are encouraged to conduct tests, record measurements, make observations, and employ critical-thinking skills in order to draw conclusions. Space is included for users to make notes concerning problems encountered while working, and for instructors to add comments and/or grades.

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ebook

AUTOMOTIVE MAINTENANCE & LIGHT REPAIR

Rob Thompson, Columbus State Community College

AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR (AM&LR) was designed to meet the needs of automotive programs that teach to the competencies specified in NATEF's Maintenance & Light Repair (MLR) program standard. Designed for entry-level students, the primary features of AM&LR are the focus on the foundational principles and knowledge for the MLR tasks, and the activities to supplement student learning. Both the core textbook and accompanying workbook provide

activities covering the entire MLR task list, as well as many supplemental tasks often expected of entry-level technicians. In addition, Automotive Maintenance and Light Repair is written to engage students not just in automotive competencies, but also in applied academic skills and lifelong learning skills, including math, science, and communication.

FEATURES

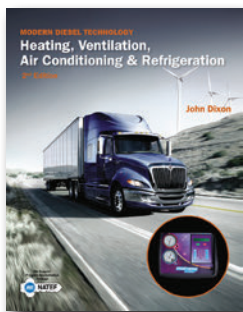
- Detailed coverage of NATEF task list for Maintenance and Light Repair (MLR): The text delivers an effective, highly practical learning experience designed to ensure that students master NATEF tasks and attain professional success.
- Emphasis on essential academic and professional skills such as math, science, effective communication, strong work ethic, and dedication to lifelong learning.
- Chapter review questions assess and deepen comprehension of content.
- Chapter activities develop expertise with key tools, components, and systems.
- An array of supplemental resources are available to enhance classroom instruction, including customizable Chapter presentations in PowerPoint, an instructor's guide with answer keys, an extensive library of images from the text, an ExamView test bank, and correlations to NATEF tasks.
- Lab Worksheets in the Workbook promote mastery of essential NATEF tasks.

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1. Introduction to the Automotive Industry. 2. Safety. 3. Shop Orientation. 4. Basic Technician Skills. 5. Wheels, Tires, and Wheel Bearings. 6. Suspension System Principles. 7. Suspension System Service. 8. Steering System Principles. 9. Steering Service. 10. Brake System Principles. 11. Brake System Service. 12. Drum Brake System Principles. 13. Drum Brake System Inspection and Service. 14. Disc Brake System Principles. 15. Disc Brake System Inspection and Service. 16. Antilock Brakes, Vehicle Stability Control, and Power Assist. 17. Electrical/Electronic System Principles. 18. Basic Electrical/Electronic System Service. 19. Starting and Charging System Principles. 20. Starting and

Charging System Service.21. Lighting and Electrical Accessories.22. Engine Performance Principles.23. Engine Mechanical Testing and Service.24. Engine Performance Service.25. Automatic and Manual Transmissions.26. Heating and Air Conditioning.27. Vehicle Maintenance.

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ebook

MODERN DIESEL TECHNOLOGY, 2E

Heating, Ventilation, Air Conditioning & Refrigeration

John Dixon, Centennial College, Toronto

Easy to read yet technically precise, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition is the text of choice for many of the country's best diesel technology programs. Detailing the foundations of truck heating, air conditioning, engine cooling, and truck-trailer refrigeration, the book integrates modern technical terms with photos that clearly demonstrate typical, on-the-job tasks in logical sequence. Coverage includes an entire section on thermodynamics, as well as solid instruction on safety, equipment, components, troubleshooting, performance testing, maintenance, and even the history of HVAC/R in the diesel trucking industry. Enhanced with photos, drawings, and self-testing questions in each Chapter, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition delivers the technical accuracy and depth of HVAC/R information not found in any other text.

NEW TO THIS EDITION

- New Coach Chapter: This all-new Chapter

details how the latest large bus air conditioning systems function, along with troubleshooting and maintenance procedures.

- EPA Standards: Advise students on proper refrigerant handling with these current EPA updates, and help technicians avoid penalties for non-compliance with environmental laws.
- Timely Updates: As requested by reviewers, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition has been thoroughly updated, including all-new discussions on the industry's latest technological advances.
- Improved Questions: Overhauled for the 2nd Edition, revised end-of-Chapter review questions and answers prepare future technicians with pinpoint accuracy.
- Ideal Coverage: Unique sections on today's transport refrigeration equipment, supplemental truck heating and cooling, and other modern-day issues make MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition a key resource in any training setting.

FEATURES

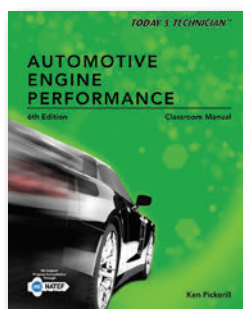
- The instructor's manual offers a complete correlation to the NATEF tasks presented in the coverage of the each chapter.
- Background Physics: A full Chapter on thermodynamics theory gives students the understanding of basic physics they need to thrive in their HVAC/R diesel technician training.
- Unmatched Coverage: Chapters cover AC components, refrigeration, engine cooling systems, climate control, and all aspects of refrigeration equipment, as well as service procedures, troubleshooting, performance testing, and maintenance. No competing text offers so many topics with such depth!
- Step-by-Step Guidance: Helpful photographs and line art depict major HVAC and refrigeration systems, while simple terminology and product-specific examples support student learning further.

CONTENTS

1. History of HVAC.
2. Environmental and Safety Practices.
3. Thermodynamics.
4. Air Conditioning

Components: Compressor, Condenser, and Receiver-Drier.5. Air-Conditioning Components: Metering Devices, Evaporator, Accumulator.6. Air Conditioning Systems.7. Service Procedures.8. Truck Engine Cooling Systems.9. Climate Control/ Supplemental Truck Heating/Cooling.10. Trouble Shooting.11. APADs/ACPU Air Conditioning Control Systems (Air Conditioning Protection Unit).12. Coach Air Conditioning.13. Truck Trailer Refrigeration Equipment.14. Truck Trailer Refrigeration Components.15. Truck Trailer Refrigerant Flow Control.16. Truck Trailer Refrigeration Electrical Components.17. Truck Trailer Refrigeration Maintenance Procedures.

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CourseMate

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Engine Performance, Classroom and Shop Manuals

Ken Pickerill

The 6th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE PERFORMANCE is a comprehensive learning package designed to build automotive skills in both classroom and shop settings. Following current NATEF criteria, this two-manual set examines each of the major systems affecting engine performance and driveability—including intake and exhaust, sensors, computerized engine controls, fuel ignition, and emissions. The Classroom Manual addresses system theory, while a coordinating Shop Manual covers tools, procedures, diagnostics, testing, and service. This edition includes updates to the latest technologies, as well as a collection of electronic teaching supplements that take automotive

technician training to new levels.

NEW TO THIS EDITION

- Expanded content on Direct Fuel Injection and Return-Less Fuel Systems brings readers up to date, while an entire new Chapter explores Pulse Width Modulated Fuel Systems and its effects on fuel economy.
- Updated Chapters include a thorough look at Variable Valve Timing and its positive impact on engine performance, as well as in-depth discussions on related diagnostic methods.
- The 6th Edition includes revised end-of-Chapter questions to increase reader comprehension while bolstering the Today's Technician Series reputation for delivering detailed and technically accurate content.
- New for the 6th Edition, the available CourseMate learning tool ratchets up student performance with an e-book, interactive note taking, quizzing, videos, and more.

FEATURES

- Describe the key features (e.g. a Chapter in the TOC, a feature to spotlight, a supplement to call out, and technology to mention) instructors will want to be aware of.
- Correlates with the current NATEF A8 Standard for Engine Performance, as well as ASE Certification criteria; the 6th Edition fully prepares learners with the latest information available on the market.
- The 6th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE PERFORMANCE, 6th Edition has been updated to focus on the latest advances in automotive technologies, such as electronic controls.
- ASE-style questions and an ASE sample exam give readers the extra practice they need to prepare for certification; NATEF correlations on the applicable Job Sheets, and a NATEF correlation chart for the chapter content help instructors and programs ensure proper coverage for certification requirements
- Supplements available with the 6th Edition include enhanced PowerPoint™ slides with animations and video clips, Chapter tests in ExamView, Image Library, Instructor Guide, Job Sheets, WebTutor® Advantage cartridges for Blackboard® and Angel

Learning Management Systems, and CourseMate interactive learning tools.

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PART I: CLASSROOM MANUAL. 1. Overview of Engine Performance. 2. Basic Theories. 3. Engine Design and Operation. 4. Electricity and Electronics. 5. Intake and Exhaust Systems. 6. Input Sensors. 7. Fuel Systems. 8. Electronic Fuel Injection Systems. 9. Distributor Ignition. 10. Electronic Ignition (EI) Systems. 11. Emission Control Systems. 12. Computer Outputs and Networks. 13. OBD II. 14. Related Systems. **PART II: SHOP MANUAL.** 1. Tools and Safety. 2. Typical Shop Procedures and Equipment. 3. General Engine Condition Diagnosis. 4. Basic Electrical Tests and Service. 5. Intake and Exhaust System Diagnosis and Service. 6. Engine Control System Diagnosis and Service. 7. Fuel System Diagnosis and Service. 8. Electronic Fuel Injection Diagnosis and Service. 9. Distributor Ignition System Diagnosis and Service. 10. Electronic Ignition System (EI) Diagnosis and Service. 11. Emission Control System Diagnosis and Service. 12. Servicing Computer Outputs and Networks. 13. On-Board Diagnostic (OBD II) System Diagnostics and Service. 14. Related Systems.

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CourseMate

TODAY'S TECHNICIAN, 6E

Automotive Engine Performance Classroom and Shop Manuals, International Edition

Ken Pickerill

The 6th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE PERFORMANCE, International Edition is a comprehensive learning package designed to build automotive skills in both classroom and shop settings. Following current NATEF criteria, this two-manual set examines each of the major systems affecting engine performance and drivability—including intake and exhaust, sensors, computerized engine controls, fuel ignition, and emissions. The Classroom Manual addresses system theory, while a coordinating Shop Manual covers tools, procedures, diagnostics, testing, and service. This edition includes updates to the latest technologies, as well as a collection of electronic teaching supplements that take automotive technician training to new levels.

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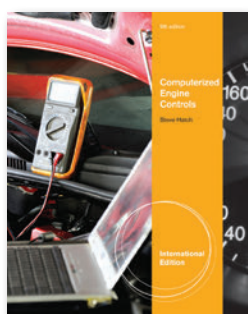
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ebook

COMPUTERIZED ENGINE CONTROLS, INTERNATIONAL EDITION, 9E

Steve V. Hatch, Lincoln College of Technology (LCT), Denver

Delivering solid coverage of both domestic and imports, **COMPUTERIZED ENGINE CONTROLS, International Edition** equips readers with the foundational knowledge needed to successfully diagnose and repair vehicle electronic systems. Reflecting the latest technological advances from the field, the Ninth Edition offers updated and expanded coverage of the approach of diagnostics, air/fuel ratio sensors, OBD II, and much more. This text includes in-depth insight into such cutting-edge topics as hybrid and fuel cell vehicles, GM's 42-volt system, hexadecimal conversion, multiplexing, and logic gates. Key concepts are reinforced with ASE-style, end-of-Chapter questions to familiarize readers with the types of questions they are likely to see in certification testing.

NEW TO THIS EDITION

- Coverage of Diagnostic Approach—Appendix A

in the previous edition—has been expanded and moved into the main body of the text as the new Chapter 18.

- Additional material dealing with air/fuel ratio sensors is now included.
- GM TBI and PFI Chapters of previous editions have been combined, minimizing the emphasis on TBI systems.
- Completely reorganized and rewritten, the Chapter on OBD II is easier to read and includes coverage of the most current technology.
- Reflecting the market's reduced need for product-specific training, the author continues to de-emphasize the product-specific Chapters of this book while increasing the amount of generic information that applies to all electronic engine control systems.
- In direct response to customer requests, the Ninth Edition's instructor resources include PowerPoint lecture slides using selected images from the text, ExamView electronic test questions, an answer key to the exercises and review questions in the text, lab sheets that instructors can copy and assign to students, and an Image library of illustrations from the text.

FEATURES

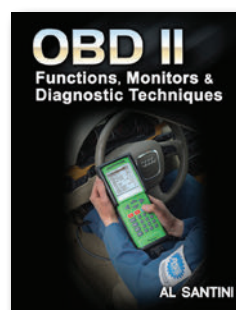
- Featuring extensive coverage of manufacturer-specific technology, **COMPUTERIZED ENGINE CONTROLS**, 9e provides detailed discussions of GM, Ford, Chrysler, Bosch, and Nissan/Toyota/Honda engine controls.
- Engages the students with an easy-to-read presentation in a logical sequence of topics.
- ASE-style, end-of-Chapter questions drive home key concepts and familiarize readers with the types of questions they are likely to see both in practice and in certification testing.

CONTENTS

1. A Review of Electricity and Electronics.2. Computers in Cars.3. Common Components for Computerized Engine Control Systems.4. Common Operating System Principles for Computerized Engine Control Systems.5. Diagnostic Concepts.6. Diagnostic Equipment.7. Exhaust Gas Analysis.8. Understanding OBD II.9. Multiplexing Concepts.10. General Motor's Electronic Engine Controls.11.

Advanced General Motor's Engine Controls.12. Ford's Electronic Control IV (EEC IV).13. Ford's Electronic Control V (EEC V).14. Chrysler Corporation Fuel Injection Systems.15. European (Bosch) Engine Control Systems.16. Asian Computer Control Systems.17. Alternative Power Sources.18. Approach to Diagnostics.

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ebook

OBD-II: FUNCTIONS, MONITORS AND DIAGNOSTIC TECHNIQUES

Al Santini, College of DuPage (retired)

OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES is a resource that offers complete coverage of OBD II and tells your students what they need to know to succeed as field technicians. This exciting new book combines coverage of OBD II design, its role in state emission testing failures, diagnosis and repair, and the setting of readiness monitors. It provides your students with a solid working knowledge of the purpose and functions of the OBD II by beginning with an overview of the technology and its role in on-the-job tasks. Using this as a foundation, the author then addresses more advanced topics, including the extremely high-powered diagnostic abilities involving the various scanner modes, as well as the hows and whys of setting readiness monitors. With numerous practical examples and an emphasis on world-wide vehicle coverage that does not limit explanations to specific manufacturers, **OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES**, will prepare your students for success in the industry.

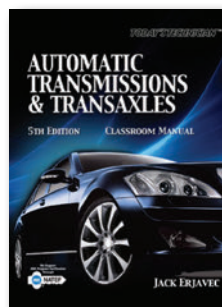
FEATURES

- Contains case studies that present actual vehicle failure scenarios and then demonstrate diagnosis and repair, offering reinforcement and the application of key concepts.
- Copies of vehicle scan data stream provide real-world data, enabling your students to easily transfer their knowledge to the world of work.
- Includes bi-directional control of the systems that provides a unique feature never before seen in any other book.
- Opens each Chapter with objectives, offering an introduction to each topic area and why it is important.
- ASE-style questions at the end of each Chapter prepare students for certification success.
- Detailed photos, line drawings and screen captures that illustrate important information.

CONTENTS

1. Introduction to OBD II.2. OBD-I vs. OBD-II.3. Diagnostic Trouble Codes (DTC's).4. Readiness and Monitors.5. Monitors and Strategies.6. Scan Data.7. Continuous Monitors-Misfire.8. The Fuel System Monitor.9. Comprehensive Component Monitor.10. Oxygen Sensor Monitor.11. CAT Monitor.12. EVAP Monitor.13. EGR Monitor.14. Air Monitor, Thermostat, and PCV Systems.15. Using OBD II Modes 5 and 6.16. Repair Baseline Techniques.17. CAN and OBD II.18. Using a DSO on an OBD II System.

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ebook

TODAY'S TECHNICIAN, 5E

Automatic Transmissions and Transaxles Classroom Manual and Shop Manual

Jack Erjavec, Columbus State Community College (Emeritus)

TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E is a Classroom Manual and Shop Manual set that has been completely updated to keep pace with industry trends and the needs of automotive education programs across the country. This book's technician-oriented focus will help your students master all of the design, construction, troubleshooting techniques, and service procedures required for them to enter the workplace. The Classroom Manual begins with an introduction to drive train basics and the Shop Manual begins with an introduction to safety. This is followed by a review of directly relevant electricity/electronics principles, plus more opportunities for your students to gain practice in using scanners and oscilloscopes to develop critical thinking skills, diagnose problems, and make effective repairs. **TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E** also includes an introduction to continuously variable transmissions (CVT), up-to-the-minute coverage of drivelines for front-wheel drive (FWD) and four-wheel drive (4WD) vehicles, as well as the latest information on today's high-tech electronic controls and automatic shifting devices.

NEW TO THIS EDITION

- Includes new topics on various transmission designs used (or planned to be used) in hybrid vehicles, the Lepelletier gear setup (which results in five, six, seven, and eight speed transmissions),

power split units and various constantly variable transmission designs.

- Includes more information on current electronic control systems, including the various protocols used for multiplexing.
- Uses current model transmissions as examples throughout the text.
- All new full-color photos, illustrations and text design.
- Adds several new photo sequences on reprogramming a TCM and overhauling a five- and six-speed transmission.
- Uses currently accepted service procedures as examples throughout the text, which also serve as the basis for new job sheets that are included in the text.
- Content is updated to the most current NATEF Standards for Automatic Transmissions and Transaxles.

FEATURES

- Includes new topics on hybrid vehicle transmission designs, the Lepelletier gear setup, power split units, and various continuously variable transmission (CVT) designs and all new content on electronic control systems.
- Contains superior topic coverage that provides your students with the most complete and up-to-date information on automatic transmission theory, diagnosis, and repair available in a single source.
- Contains improved illustrations and step-by-step photo sequences that include all major automatic transmission repair procedures and promote professional work practices.

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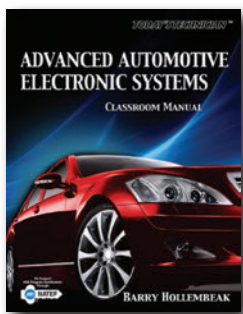
Classroom Manual. 1. Drive Train Basics. Objectives. Introduction. Engine. Transmissions. Drive Line. Types Of Gears. Bearings. General Maintenance. Automatic Transmission Fluid. Summary. Terms To Know. Review Questions. 2. Drive Train Theory. Objectives. Introduction. Matter. Energy. Force. Motion. Work. Liquids. Heat. Electricity And Electromagnetism. Terms To Know. Summary. Review Questions. 3. General Theories Of Operation. Introduction. Basic Operation. Planetary Gearing. Transmission Controls. Laws of Hydraulics. Application of Hydraulics in Transmissions. Pressure

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to Know. Review Questions. 2. Special Tools And Procedures. Objectives. Introduction. Diagnostic Tools. Torque Wrenches. Power Tools. Measuring Tools. Transmission Tools and Equipment. Service Manuals. Fasteners. Basic Gear Adjustments. Working as An Auto Tech. ASE Certification. Summary. Terms to Know. Review Questions. 3. Diagnosis, Maintenance, And Basic Adjustments. Objectives. Identification. Diagnostics. Fluid Leaks. Transmission Cooler and Line Inspection. Road Testing the Vehicle. Diagnose Hydraulic and Vacuum Control Systems. Pressure Tests. Linkages. Other Adjustments. Case Study. Terms to Know. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. 4. Electrical And Electronic System Diagnosis and Service. Objectives. Basic EAT Testing. Guidelines for Diagnosing EATs. Basic Electrical Testing. Electrical Problems. Lab Scopes. Scan Tools. General EAT Diagnosis. Preliminary Checks. On-Board Diagnostics. Basic Diagnostics of Non-OBD II Systems. Basic Diagnostics of OBD II Systems. Electronic Defaults. Testing Electronic Circuits and Components. Diagnosis of Computer Supply and Ground Wires. Detailed Testing of Actuators. Testing Solenoids. Repairing the System. Diagnosing OBD I Systems. Case Study. Terms to Know. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. 5. Rebuilding Transmissions. Objectives. Diagnosis of Noise and Vibration Problems. Transmission/Transaxle Removal. Disassembly. Speedometer Drive Service. Transmission Case Service Gaskets. Seals. Reassembly and Testing. Case Study. Terms to Know. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. 6. Torque Converter And Oil Pump Service. Objectives. General Diagnostics. Testing Converter Clutches. General Converter Control Diagnostics. Electronic Converter Clutch Control Diagnostics. Stall Testing. Bench Testing. Cleaning. Torque Converter Replacement. Oil Pump Service. Transmission Cooler Service. Case Study. Terms to Know. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. 7. General Hydraulic System Service. Objectives. Valve Body Removal. Valve Body Service. Governor Service. Case Study. Terms to Know. ASE-Style Review Questions. ASE

Challenge Questions. Job Sheets. 8. Gear And Shaft Service. Objectives. Thrust Washers, Bushings, and Bearings. Planetary Gear Assemblies. Shafts. Parking Pawl. Drive Chains. Transfer Gears. Final Drive Units. Housing and Case Service. Case Study. Terms to Know. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. 9. Friction And Reaction Unit Service. Objectives. Friction and Reaction Units. Band Service. Servo and Accumulator Service Multiple-Friction Disc Assemblies. Clutch Volume Index. One-Way Clutch Assemblies. Case Study. Terms to Know. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. 10. Rebuilding Common Transmissions. Objectives. Chrysler Transmissions and Transaxles. Ford Motor Company Transmissions. General Motors Transmissions. Honda Transaxles. Nissan Motor Company Transmissions. Toyota Transaxles. Case Study. ASE-Style Review Questions. ASE Challenge Questions. Job Sheets. Appendix A: ASE Practice Examination. Appendix B: Automatic Transmission Special Tool Suppliers. Appendix C: Metric Conversions. Glossary. Index.

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ebook

TODAY'S TECHNICIAN

Advanced Automotive Electronic Systems, Classroom and Shop Manual

Barry Hollembeak

TODAY'S TECHNICIAN: ADVANCED AUTOMOTIVE ELECTRONIC SYSTEMS, is an extension of the popular Today's Technician Series that covers all mechanical and electrical systems of automobiles and light trucks. This book is intended for a course in advanced automotive electronic systems and is divided into two volumes: a Classroom Manual and a Shop Manual that separate cognitive and performance learning objectives, respectively. The design is based on features that are known to promote improved student learning. The Classroom Manual contains the principles of operation for the most advanced electrical systems used today and covers design variations of components used by the different vehicle manufacturers. The book builds upon basic facts and theories and will help develop students' knowledge through its extensive coverage of component and system operation. The Shop Manual covers the diagnostic processes for proper repairs and focuses more on the diagnostics of the components used within a system than on how to replace the component. The intent is to guide your students' thought processes toward finding the root cause of the problem, concentrating their attention on becoming a diagnostician and not a "parts changer". Your students will learn how to develop a systematic approach to problem solving in order to isolate the root cause of the problem, thereby enhancing their ability to fix products right the first time. Photo Sequences are used to illustrate some of the common diagnostic procedures. Both

Manuals are arranged in corresponding Chapters, and topics within the Chapters are linked between manuals by page references in the margins. Both volumes contain clear and thoughtfully-selected photos and illustrations. The margins of the pages include many special features of the series that are designed to underscore important points made in the running text, highlight safety concerns, and offer real world scenarios that the author has encountered in the shop.

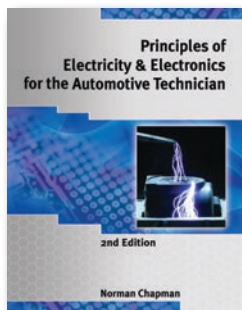
FEATURES

- **CLASSROOM MANUAL:** New and important terms are boldfaced in the Classroom Manual text and defined in the glossary. Some key terms are clarified in the margins with text boxes.
- Margin notes are included to enhance attention and learning. These include simple examples of concepts just introduced, explanations or definitions of terms, examples of common trade jargon and exceptions to the norm explained in the running text.
- The Classroom Manual includes page number cross references to the related topic in the Shop Manual whenever appropriate.
- Includes ten short answer essay, ten fill-in-the blank and ten ASE-Style multiple-choice questions after each Chapter to accurately assess the student's competence in the objectives stated at the beginning of the Chapter.
- **SHOP MANUAL:** Includes photo sequences of shop procedures to offer real world examples of how these step-by-step tasks are performed.
- Margin notes and key terms are also included in the Shop Manual, as well as page number cross references to related topics in the Classroom Manual.
- Contains Service Tips that provide the student with information on when a special procedure or short cut can be used and represent things an experienced technician might do.
- Uses realistic case studies at the conclusion of each Chapter to reinforce the thought process and test procedures just discussed in the text.
- Includes Job Sheets at the end of every Chapter that guide students through common diagnostic procedures that they are likely to encounter as professional technicians.

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PRINCIPLES OF ELECTRICITY & ELECTRONICS FOR THE AUTOMOTIVE TECHNICIAN, 2E

Norm Chapman, South Puget Sound Community College

Principles of Electricity & Electronics for the Automotive Technician, 2E 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.

FEATURES

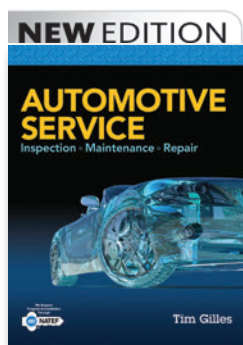
- repetition of key concepts enhances retention of need-to-know information and prepares readers for more complicated subject matter
- charts and graphs support and clarify key concepts
- case studies tie electrical theory to real-life examples, allowing readers to see how the information applies to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

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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.

© 2010, 608pp, Paperback, 9781428361218

AUTOMOTIVE TECHNICIAN TRAINING



ebook

MindTap

AUTOMOTIVE SERVICE, 5E

Inspection, Maintenance, Repair

Tim Gilles, Santa Barbara City College, Santa Barbara, California

Featuring three new Chapters on Hybrid and Electric vehicles, this fully updated 5th edition of **AUTOMOTIVE SERVICE: INSPECTION, MAINTENANCE, REPAIR** helps students develop the knowledge and skills they need to be successful in a range of automotive careers. Known for its clear explanations and high quality art, this best-selling text covers all eight major course areas of automotive technology, from an introduction to shop management to theories of vehicle systems operations with step-by-step procedures for trouble shooting and repair. Technically reviewed by instructors and industry experts and reflecting the latest NATEF Automobile Program Standards, this edition is ideal for students enrolled in NATEF-accredited programs.

NEW TO THIS EDITION

- Up-to-date and technically accurate coverage throughout ensures that students, teachers, and technicians have access to the latest “need to know” automotive information.
- Three new Chapters on hybrid and electric vehicles cover fundamentals, safety and service, battery and fuel cell electronic technology, and hydraulic hybrid technology.
- Up-to-date NATEF coverage includes the latest information on NATEF Automotive Maintenance

and Light repair, as well as the eight ASE Master Technician areas.

- Electrical Chapters offer up-to-date information including: testing batteries with a two-channel digital storage scope and an amp clamp, using a scan tool to reset the BCM after battery replacement, remote starting, key fob operation and diagnosis, smart charging systems, alternator decoupling pulleys, and much more.
- Other new and updated topics include light-duty diesel information and service; air conditioning and refrigerants; turbocharger, supercharger, and dynamometer coverage; variable valve timing information; technology advances in onboard diagnostics, misfire detection, adaptive strategies, the latest CAN systems, drive-by-wire, and wide-band oxygen sensors; stability control and traction control systems, electronic suspension systems, electric steering, and electronic transmission and all-wheel drive.
- Comfort and safety topics have been updated with the newest developments in air conditioning, supplemental restraints, lighting, entertainment systems, and adaptive cruise control.
- New and updated Science, Math, and History/Vintage Notes highlight automotive-related applications.

FEATURES

- Full-color photos and illustrations make key concepts come alive for the visual learner.
- Case Histories provide interesting and relevant real-world scenarios to promote student interest.
- An emphasis on critical thinking helps students develop automotive diagnostic ability.

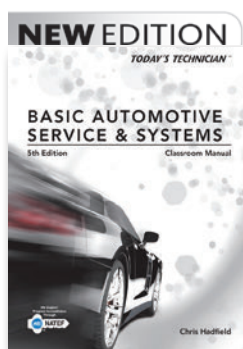
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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 5E

Basic Automotive Service and Systems, Classroom Manual and Shop Manual

Chris Hadfield, Central Lakes College

The 5th edition of BASIC AUTOMOTIVE SERVICE & SYSTEMS is a comprehensive Classroom Manual/Shop Manual set provides an accessible overview of automotive systems to prepare you for all aspects of work in the field. Now fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition features a new full color design, more coverage of hybrid vehicles and emerging technologies, and revised and updated coverage of electronic engine controls. The content is current and relevant to the industry today, and includes state-of-the-art information on the global automotive industry and the role of the technician within it. The Classroom Manual explores the basic theories of operation behind each automotive system, while the Shop Manual covers the hands-on diagnostic, testing, and repair procedures that relate to them. Assuming no prior knowledge of automotive technology, this clear and engaging book addresses fundamental skills and maintenance and the application of key theories.

NEW TO THIS EDITION

- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- This edition's full color design with new photographs and updated line art helps readers better visualize processes and procedures.
- Coverage of hybrid vehicles and emerging

technologies, along with revised and updated coverage of electronic engine controls, prepares students for today's workplace.

- Includes all new Job Sheets that are focused on skill building.
- Content cross references current industry practices to help the student understand and practice real-world workplace competencies.
- Employer focused soft skills are integrated into each topic.
- The text features in depth basic and preventative maintenance information with a focus on skill building, with expanded coverage on electrical theory and diagnosis.

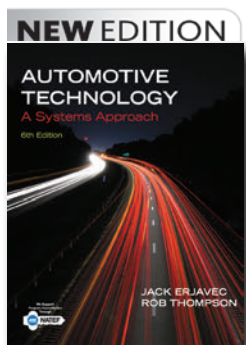
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ebook



AUTOMOTIVE TECHNOLOGY, 6E

A Systems Approach

Jack Erjavec, Columbus State Community College (Emeritus);
Rob Thompson, Columbus State Community College

AUTOMOTIVE TECHNOLOGY: A SYSTEMS APPROACH - the leading authority on automotive theory, service, and repair - has been thoroughly updated to provide accurate, current information on the latest technology, industry trends, and state-of-the-art tools and techniques. This comprehensive text covers the full range of basic topics outlined by ASE, including engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance. Now updated to reflect the latest NATEF MAST standards, as well as cutting-edge hybrid and electric engines, this trusted text is an essential resource for aspiring and active technicians who want to succeed in the dynamic, rapidly evolving field of automotive service and repair.

NEW TO THIS EDITION

- Two new Chapters provide detailed, dedicated coverage of hybrid and electric engines, outlining essential knowledge and skills technicians need to service these increasingly common, uniquely complex vehicles.
- New “The Three Cs” feature presents students with a real world vehicle problem to introduce the essential methodology for approaching a repair: concern, cause, and correction.
- The authors have carefully revised and updated the text to reflect the new NATEF MAST standards,

preparing readers to pursue professional certification and develop the knowledge and skills they need for success in today's dynamic automotive service and repair industry.

- Illustrations, diagrams, and other visual elements throughout the text have been updated and enhanced to ensure technical accuracy, help bring key Chapter concepts to life, and make material more engaging and effective for today's visual learners.

FEATURES

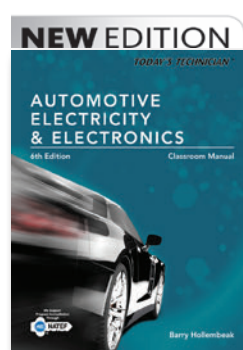
- An early Chapter on automotive systems covers the basic NATEF tasks that apply to all systems, providing a wide-ranging overview of essential concepts that today's automotive technicians need to master for professional certification and career success.
- Extensive questions conclude each Chapter to reinforce key concepts, enable students to assess their understanding, and help them prepare effectively for ASE certification.
- The text provides a uniquely thorough, detailed guide to essential automotive topics, including all of the basic areas outlined by ASE, such as engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance.
- An extensive suite of instructor resources is available to reinforce teaching and learning, including Chapter presentations in PowerPoint with videos and animations, electronic test banks, NATEF task correlations, an Image Library of all Chapter figures, and more.

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ebook

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Electricity and Electronics, Classroom and Shop Manual Pack

Barry Hollembeak

Ideal for aspiring and active automotive professionals, **TODAY'S TECHNICIAN: AUTOMOTIVE ELECTRICITY & ELECTRONICS**, Sixth Edition, equips readers to confidently understand, diagnose, and repair electrical and electronic systems in today's automobiles. Using a unique two-volume approach to optimize learning in both the classroom and the auto shop, the first volume (Classroom Manual) details the theory and application of electricity, electronics, and circuitry in modern automobiles, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date technical information, and hundreds of detailed illustrations and vibrant photographs, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including audio and infotainment systems, LED and adaptive lighting, hybrid and electric vehicles, and accessory systems—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service techniques, including material on electrical and electronic controlled systems, LED and adaptive

lighting systems, and audio and infotainment systems.

- The text has been streamlined for easier reading and more effective learning, with Chapters reorganized to reflect a logical sequence of topics, and material on outdated systems and obsolete technologies removed.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos, illustrations, and diagrams have been added to provide a current and comprehensive review of electric and electronic automotive service and repair, providing valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of electricity and electronics in an automotive systems context, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern automotive electronics, electrical components, circuitry, and systems in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Electrical and Electronic Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology—such as audio and infotainment systems, lighting systems, hybrid and electric

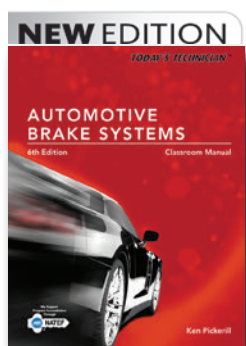
vehicles, and accessory systems—prepares students for a seamless and successful transition from the classroom to the professional repair shop.

- A full Chapter on shop safety highlights safe work habits to reinforce the importance of consistent safety practices and familiarize readers with standards and procedures they are likely to encounter in today's service and repair operations.

CONTENTS

Classroom Manual.Preface.1. Introduction to Automotive Electrical and Electronic Systems.2. Basic Theories.3. Electrical and Electronic Components.4. Wiring and Circuit Diagrams.5. Automotive Batteries.6. Starting Systems and Motor Designs.7. Charging Systems.8. Lighting Circuits.9. Introduction to The Body Computer.10. Computer Inputs.11. Vehicle Communication Networks.12. Advanced Lighting Circuits.13. Instrumentation and Warning Lamps.14. Accessories.15. Radio Frequency and Infotainment Systems.16. Passive Restraint Systems.17. Vehicles with Alternative Power Sources.Glossary of Terms.Index.Shop Manual.Preface.1. Safety.2. Special Tools and Procedures.3. Basic Electrical Troubleshooting and Service.4. Wiring Repair and Reading Circuit Diagrams.5. Battery Diagnosis and Service.6. Starting System Diagnosis and Service.7. Charging System Testing and Service.8. Lighting Circuits Repair and Diagnosis.9. Body Computer System Diagnosis.10. Sensor Diagnostic Routines.11. Vehicle Multiplexing Diagnostics.12. Advanced Lighting Systems Diagnosis and Service.13. Instrumentation and Warning Lamp System Diagnosis and Repair.14. Electrical Accessories Diagnosis and Repair.15. Servicing Radio Frequency and Infotainment Systems.16. Servicing Passive Restraint Systems.17. Hybrid and High-Voltage System Service.Appendix A: ASE Practice Examination.Appendix B: Metric Conversions. Appendix C: Electrical and Electronic Special Tool Suppliers.Glossary of Terms.Index.

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CourseMate

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TODAY'S TECHNICIAN, 6E

Automotive Brake Systems, Classroom and Shop Manual Prepack

Ken Pickerill

The 6th Edition of **TODAY'S TECHNICIAN: AUTOMOTIVE BRAKE SYSTEMS** is a comprehensive text that equips readers to confidently understand, diagnose, and repair today's brake systems. Using a unique two-volume approach, the first volume (Classroom Manual) details the theory and application of the total brake system, subsystem, and components, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid vehicles, brake by wire, and electric brakes—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- Extensive updates to reflect new and emerging technology and service techniques, including material on hybrid vehicles, brake by wire systems, and electric brakes.
- New and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos and procedures have been added

to provide a current and comprehensive review of brake service and repair, providing valuable reinforcement of Chapter material for today's visual learners.

- New information on stability control, active braking, and regenerative braking in hybrid vehicles, reflecting advances in technology and current industry standards and best practices.
- Numerous new study review questions are included to help students review Chapter material, assess their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

- Full-color drawings, photos, and schematics show modern brake technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- Thorough coverage of the 2012 NATEF Automobile Program Standards for Brakes, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology, such as ABS within a vehicle stability system, prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

CLASSROOM MANUAL. 1. Brake System Fundamentals. 2. Principles and Theories of Operation. 3. Related Systems: Tire, Wheels, Bearings, and Suspensions. 4. Master Cylinder and Brake Fluid. 5. Hydraulic Lines, Valves, and Switches. 6. Power Brake Systems. 7. Disc Brakes. 8. Drum Brakes. 9. Parking Brakes. 10. Electrical Braking Systems. **SHOP MANUAL.** 1. Brake Safety. 2. Brake Service Tools and Equipment. 3. Related System Service. 4. Master Cylinder and Brake Fluid Service. 5. Hydraulic Line, Valve, and Switch Service. 6. Power Brake Service. 7. Disc Brake Service. 8. Drum Brake Service. 9. Parking Brake Service. 10. Electrical Brake Systems.

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ebook

AUTOMOTIVE MAINTENANCE & LIGHT REPAIR

Rob Thompson, Columbus State Community College

AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR (AM&LR) was designed to meet the needs of automotive programs that teach to the competencies specified in NATEF's Maintenance & Light Repair (MLR) program standard. Designed for entry-level students, the primary features of AM&LR are the focus on the foundational principles and knowledge for the MLR tasks, and the activities to supplement student learning. Both the core textbook and accompanying workbook provide activities covering the entire MLR task list, as well as many supplemental tasks often expected of entry-level technicians. In addition, Automotive Maintenance and Light Repair is written to engage students not just in automotive competencies, but also in applied academic skills and lifelong learning skills, including math, science, and communication.

FEATURES

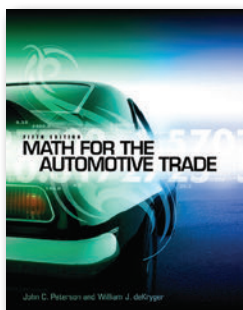
- Detailed coverage of NATEF task list for Maintenance and Light Repair (MLR): The text delivers an effective, highly practical learning experience designed to ensure that students master NATEF tasks and attain professional success.
- Emphasis on essential academic and professional skills such as math, science, effective communication, strong work ethic, and dedication to lifelong learning.
- Chapter review questions assess and deepen comprehension of content.
- Chapter activities develop expertise with key tools, components, and systems.

- An array of supplemental resources are available to enhance classroom instruction, including customizable Chapter presentations in PowerPoint, an instructor's guide with answer keys, an extensive library of images from the text, an ExamView test bank, and correlations to NATEF tasks.
- Lab Worksheets in the Workbook promote mastery of essential NATEF tasks.

CONTENTS

1. Introduction to the Automotive Industry. 2. Safety. 3. Shop Orientation. 4. Basic Technician Skills. 5. Wheels, Tires, and Wheel Bearings. 6. Suspension System Principles. 7. Suspension System Service. 8. Steering System Principles. 9. Steering Service. 10. Brake System Principles. 11. Brake System Service. 12. Drum Brake System Principles. 13. Drum Brake System Inspection and Service. 14. Disc Brake System Principles. 15. Disc Brake System Inspection and Service. 16. Antilock Brakes, Vehicle Stability Control, and Power Assist. 17. Electrical/Electronic System Principles. 18. Basic Electrical/Electronic System Service. 19. Starting and Charging System Principles. 20. Starting and Charging System Service. 21. Lighting and Electrical Accessories. 22. Engine Performance Principles. 23. Engine Mechanical Testing and Service. 24. Engine Performance Service. 25. Automatic and Manual Transmissions. 26. Heating and Air Conditioning. 27. Vehicle Maintenance.

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ebook



MATH FOR THE AUTOMOTIVE TRADE, 5E

John C. Peterson, Chattanooga State Technical Community College (retired); William deKryger

MATH FOR THE AUTOMOTIVE TRADE, 5E is an up-to-date, highly practical book that helps your students develop a real-world understanding of math concepts and applications in the modern automotive repair trade. Written at a beginner's level, this book is a comprehensive instructional workbook that shows your students how to solve the types of math problems faced regularly by automotive technicians. Unique to MATH FOR THE AUTOMOTIVE TRADE, 5E are realistic practice exercises that allow your students to determine if their answers fall within manufacturers' specifications and repair orders that are completed by finding the appropriate information in the professional literature and reference material, included in the book's valuable appendices.

NEW TO THIS EDITION

- Contains updated applications and examples that reflect changes in automotive technology.
- New coverage of Statistics included.
- Replaced the flat rate pages for the Corvette in Appendix A with pages for the Ford Fusion, Milan (2006–2009), Zephyr (2006), MKZ (2007–2009), and Milan Hybrid (2010), emphasizing new hybrid technology.
- Contains updated coverage of automotive parts and equipment, new repair orders, additional questions that reflect current concerns with hybrid, electric, and other new technologies and updated gas prices, tax data, etc. that reflect "current" prices.

- Contains content that is correlated with NATEF's Applied Academics and will help prepare your students for ASE Automotive tests.

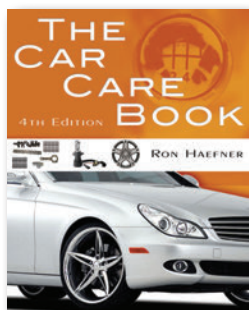
FEATURES

- Reviews basic mathematics skills, practical math applications for specific automotive situations, and both customary and metric systems of measurement as they apply to the automotive trade, immediately preparing students with math skills they will use on the job.
- Covers personal and business finance examine discounts, profit and loss, commissions, interest and payments, and taxes, providing a well-rounded business review of the issues faced by today's automotive technician.
- Provides manufacturer's specification data for real-world applications to problems ensuring a realistic experience for your students that will mirror what they'll encounter on the job.

CONTENTS

1. Whole Numbers. 2. Decimals. 3. Fractions. 4. Geometry, Angle Measurement and the Metric System. 5. Integers and Signed Numbers. 6. Ratios, Proportions, and Percentages. 7. Business and Statistics. 8. Completing Repair Orders. 9. The Automobile Engine. 10. Automobile Engine Systems. 11. Automobile Electrical Systems. 12. The Automobile Drive Train. 13. The Automobile Chassis. 14. Automobile Heating, Ventilation, and Air Conditioning. 15. Measurement Tools. Appendix B. Summary of Formulas in this Text-Workbook. Appendix C. Answers to Odd-Numbered Practice Exercises. Index.

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ebook

THE CAR CARE BOOK, 4E

Ron Haefner, Columbus High School

Consumers typically face three main challenges when it comes to understanding their 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 edition, *The Car Care Book*, 4th Edition 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.

NEW TO THIS EDITION

- An all-new Chapter on electric and hybrid vehicles discusses these emerging technologies, including basic maintenance and important safety considerations

FEATURES

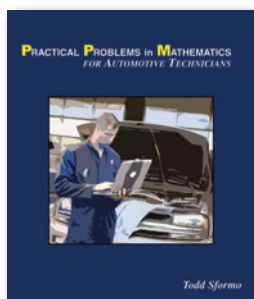
- Detailed illustrations and photos depict the components of the car and their locations, with cutaway views of the inside of various key systems for enhanced comprehension
- Broad, general coverage avoids model-specific content so the concepts are accessible and applicable for a wide audience of readers

- 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.

© 2010, 496pp, Paperback, 9781428342958



ebook

PRACTICAL PROBLEMS IN MATHEMATICS, 7E

For Automotive Technicians

Todd Sformo, Ilisagvik College

Comprehensive and easy to use, the revised and updated seventh 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!

FEATURES

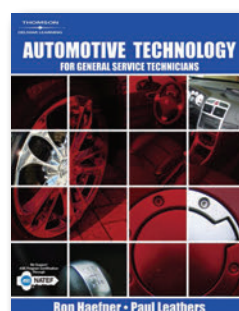
- Concepts are presented to the reader in a logical, clear, and sequential manner with each stage of a procedure outlined in order to increase understanding and allow for success
- Multitude of problems proceed from the simple to the more complex that allows readers have ample opportunities to develop their skills and confidence as well as reinforce practice and understanding
- Examples and problems cultivate problem-solving skills that are crucial to success on the job
- Complete coverage of fundamental math principles as well as more advanced computations makes the book suitable for beginning and experienced technicians alike
- New to the seventh edition are unit Objectives aid in teaching and understanding the main concepts in each unit.

CONTENTS

Preface. Estimation. Section 1. Whole Numbers. Unit 1. Addition of Whole Numbers. Unit 2. Subtraction of Whole Numbers. Unit 3. Multiplication of Whole Numbers. Unit 4. Division of Whole Numbers. Section 2. Common Fractions. Unit 5. Addition of Common Fractions. Unit 6. Subtraction of Common Fractions. Unit 7. Multiplication of Common Fraction. Unit 8. Division of Common Fractions. Section 3. Decimal Fractions. Unit 9. Fractional Equivalents. Unit 10. Addition of Decimal Fractions. Unit 11. Subtraction of Decimal Fractions. Unit 12. Multiplication of Decimal Fractions. Unit 13. Division of Decimal Fractions. Unit 14. Micrometer Reading: Application of Decimal Fractions. Unit 15. Multiple Operations of Common and Decimal Fractions. Section 4. Percent and Percentage. Unit 16. Simple Percent. Unit 17. Simple Percentage. Unit 18. Discounts. Unit 19. Profit and Loss, Commissions. Unit 20. Interest and Taxes. Unit 21. Percent of Error and Averages. Section 5. Measurement. Unit 22. English Linear Measurements. Unit 23. Metric Measurements. Unit 24. Scale Reading. Unit 25. Scale Reading of Test Meters. Unit 26. Circular Measurements. Unit 27. Angular Measurements. Unit 28. Area and Volume Measurement. Unit 29. Time, Speed, and Money Calculations. Section

6. Ratio and Proportion. Unit 30. Ratios. Unit 31. Proportions. Section 7. Formulas. Unit 32. Formulas for Circular Measurement. Unit 33. Formulas for Efficiency. Unit 34. Temperature. Unit 35. Cylindrical Volume Measurements. Unit 36. Horsepower. Unit 37. Ohms Law. Section 8. Graphs. Unit 38. Use of Graphs. Section 9. Invoices. Unit 39. Repair Orders and Shop Tickets. Appendix. Glossary. Answers to Odd-Numbered Problems

© 2009, 288pp, Paperback, 9781428335240



AUTOMOTIVE TECHNOLOGY

For General Service Technicians

Ron Haefner, Columbus High School; Paul Leathers, Columbus High School in Columbus, NE

Introducing the first automotive technology textbook designed for NATEF's General Service Technician Program! This new 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. The authors highlight the importance of workplace skills and discuss employee responsibilities, such as preparing vehicles for service and delivering them to customers. Pre-publication reviews praised the book's readability, real-life examples, and simple but accurate presentation of technical information. "I love the non-complex development of the subjects in the text! You have really made an easy-to-understand text for students," said one. "This book can reach the kids," said another.

FEATURES

- Full color is used throughout the book to maximize

the value of every photograph and line drawing

- Chapters are kept short to avoid overwhelming students and thoughtfully organized by area so that instructors can choose the order that works best for them
- Student interest is engaged and maintained by “You Should Know,” “Tech Tips,” “It’s the Law,” and “Did You Know?” in-text features.
- The accompanying Student Workbook provides Chapter review activities and task sheets that guide the student through relevant shop activities
- An Applied Academics Workbook supplements the text with practice in math, science and communications skills that are keyed to automotive examples
- An e.resource with PowerPoint lecture outlines, an Image Library, and a Computerized Test Bank is available to instructors who want to make classroom lecture as efficient and engaging as possible

CONTENTS

Preface. Chapter 01 The Automotive Business. Chapter 02 Employee Skills for Career Success. Chapter 03 General Shop Safety. Chapter 04 Tool and Equipment Safety. Chapter 05 Tools and Equipment. Chapter 06 Basic Shop Procedures. Chapter 07 Measuring Systems, Measurements, and Fasteners. Chapter 08 Service Information. Chapter 09 Using Service Information. Chapter 10 Vehicle Inspection and Valeting. Chapter 011 Basic Electricity and Electric Circuits. Chapter 012 Light Circuits. Chapter 013 Light Circuit Maintenance, Diagnosis, and Service. Chapter 014 Indicator Lights and Gauges. Chapter 015 Indicator Light and Gauge Maintenance, Diagnosis, and Service. Chapter 016 Basic Wiring and Wiring Repair. Chapter 017 Battery and Starting Systems. Chapter 018 Battery and Starting System Maintenance, Diagnosis, and Service. Chapter 019 Charging Systems. Chapter 020 Charging System Maintenance, Diagnosis, and Service. Chapter 021 Ignition Systems. Chapter 022 Ignition System Maintenance, Diagnosis, and Service. Chapter 023 Brake System Design and Operation. Chapter 024 Brake System Maintenance, Diagnosis, and Service Calipers. Chapter 025 Steering Columns, Linkages, and Power Steering Pumps, Maintenance, Diagnosis

and Service. Chapter 026 Manual and Power Steering Gears, Maintenance, Diagnosis, and Service. Chapter 027 Tires, Wheels, and Hubs. Chapter 028 Tire, Wheel, and Hub Maintenance, Diagnosis, and Service. Chapter 029 Suspension Systems. Chapter 030 Suspension System Maintenance, Diagnosis, and Service. Chapter 031 Wheel Alignment. Chapter 032 The Four-Stroke Cycle and Cylinder Arrangements. Chapter 033 Engine Oil and Lubrication Systems. Chapter 034 Engine Lubrication System Maintenance, Diagnosis, and Service. Chapter 035 Engine Coolant and Cooling Systems. Chapter 036 Engine Cooling Systems, Maintenance, Diagnosis, and Service. Chapter 037 Fuel System Fundamentals. Chapter 038 Fuel System Components. Chapter 039 Fuel System Service. Chapter 040 Vehicle Emissions and Emission Standards. Chapter 041 Emission Systems. Chapter 042 Emission System Maintenance, Diagnosis, and Service. Chapter 043 Engine Control Computers and Output Controls. Chapter 044 Input Sensors for Engine Control Systems. Chapter 045 Input Sensor Maintenance, Diagnosis, and Service. Chapter 046 Engine Control Systems. Chapter 047 Engine Control System Maintenance, Diagnosis, and Service. Chapter 048 Manual Transmission and Transaxle, Maintenance, Diagnosis, and Service. Chapter 049 Automatic Transmission and Transaxle Maintenance, Diagnosis, and Service. Chapter 050 Clutch Maintenance, Diagnosis, and Service. Chapter 051 Drive Shaft, Drive Axle, and Universal Joint Maintenance, Diagnosis and Service. Chapter 052 Heating, Ventilation, and Air Conditioning Systems. Chapter 053 Heating, Ventilation, and Air Conditioning Maintenance, Diagnosis, and Service. Chapter 054 Supplemental Restraint Systems. Bilingual Glossary. Index

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BASIC TECHNICIAN TRAINING



ebook

MATHS & ENGLISH FOR AUTOMOTIVE Functional Skills

Andrew Spencer, teaches secondary education in New South Wales and South Australia.; Jim Scivyer, College of North West London

This write-in workbook is an invaluable resource to help learners' improve their Maths and English skills and help prepare for Level 1 and Level 2 Functional Skills exams. The workbook format enables learners to practice and improve their maths and English skills and the real-life questions, exercises and scenarios are all written with an automotive context to help learners find essential Maths and English theory understandable, engaging and achievable. This workbook is an invaluable resource to support Maths and English learning in the classroom, at work and for personal study at home.

FEATURES

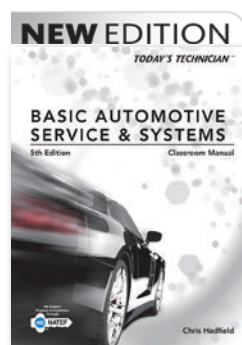
- Subject specific, contextualised Maths and English exercises using up-to-date, dynamic scenarios relating to the automotive industry.
- A clear write-in workbook format to improve learners' Maths and English skills either in a classroom environment or for self-paced revision.
- An ideal workbook to practice the Maths and English skills required for Functional Skills Level 1 and 2 exams

CONTENTS

Chapter. Title. English. Unit 1. Spelling. Unit 2. Alphabetising. Unit 3. Comprehension. Unit 4. Writing skills. Unit 5. Grammar. Maths. Unit 6. General mathematics. Unit 7. Basic operations. Unit 8.

Decimals .Unit 9. Fractions. Unit 10. Percentages. Unit 11. Measurement conversions. Unit 12. Measurement – Length and Area. Unit 13. Earning wages. Unit 14. Squaring numbers. Unit 15. Ratios. Unit 16. Mechanical Reasoning. Unit 17. Reading, interpreting and understanding information in tables, charts and graphs. Unit 18. Practice written exam for the Automotive industry

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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 5E

Basic Automotive Service and Systems, Classroom Manual and Shop Manual

Chris Hadfield, Central Lakes College

The 5th edition of BASIC AUTOMOTIVE SERVICE & SYSTEMS is a comprehensive Classroom Manual/Shop Manual set provides an accessible overview of automotive systems to prepare you for all aspects of work in the field. Now fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition features a new full color design, more coverage of hybrid vehicles and emerging technologies, and revised and updated coverage of electronic engine controls. The content is current and relevant to the industry today, and includes state-of-the-art information on the global automotive industry and the role of the technician within it. The Classroom Manual explores the basic theories of operation behind each automotive system, while the Shop Manual covers the hands-on diagnostic, testing, and repair procedures that relate to them. Assuming no prior knowledge of automotive technology, this clear and

engaging book addresses fundamental skills and maintenance and the application of key theories.

NEW TO THIS EDITION

- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- This edition's full color design with new photographs and updated line art helps readers better visualize processes and procedures.
- Coverage of hybrid vehicles and emerging technologies, along with revised and updated coverage of electronic engine controls, prepares students for today's workplace.
- Includes all new Job Sheets that are focused on skill building.
- Content cross references current industry practices to help the student understand and practice real-world workplace competencies.
- Employer focused soft skills are integrated into each topic.
- The text features in depth basic and preventative maintenance information with a focus on skill building, with expanded coverage on electrical theory and diagnosis.

FEATURES

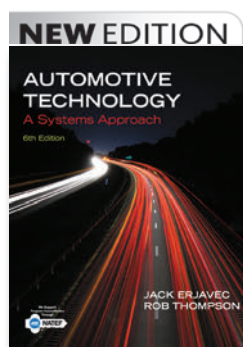
- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- A full color design with new photographs and updated line art makes visualizing processes and procedures easier.
- Coverage of hybrid vehicles and emerging technologies, along with revised and updated coverage of electronic engine controls, prepares you for today's workplace.

CONTENTS

1. Automotive Systems and Operations. 2. The Automotive Business. 3. Automotive Tools and Equipment. 4. Measurements and Precision Measuring Devices. 5. Fasteners. 6. Automotive Bearings and Sealants. 7. Automobile Theories of Operation. 8. Power System Operation and Subsystems. 9. Brakes. 10. Suspension and

Steering. 11. Powertrains. 12. Auxiliary Systems and Climate Control. Glossary. Index.

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ebook

MindTap

AUTOMOTIVE TECHNOLOGY, 6E

A Systems Approach

Jack Erjavec, Columbus State Community College (Emeritus);
Rob Thompson, Columbus State Community College

AUTOMOTIVE TECHNOLOGY: A SYSTEMS APPROACH - the leading authority on automotive theory, service, and repair - has been thoroughly updated to provide accurate, current information on the latest technology, industry trends, and state-of-the-art tools and techniques. This comprehensive text covers the full range of basic topics outlined by ASE, including engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance. Now updated to reflect the latest NATEF MAST standards, as well as cutting-edge hybrid and electric engines, this trusted text is an essential resource for aspiring and active technicians who want to succeed in the dynamic, rapidly evolving field of automotive service and repair.

NEW TO THIS EDITION

- Two new Chapters provide detailed, dedicated coverage of hybrid and electric engines, outlining essential knowledge and skills technicians need to service these increasingly common, uniquely complex vehicles.
- New "The Three Cs" feature presents students

with a real world vehicle problem to introduce the essential methodology for approaching a repair: concern, cause, and correction.

- The authors have carefully revised and updated the text to reflect the new NATEF MAST standards, preparing readers to pursue professional certification and develop the knowledge and skills they need for success in today's dynamic automotive service and repair industry.
- Illustrations, diagrams, and other visual elements throughout the text have been updated and enhanced to ensure technical accuracy, help bring key Chapter concepts to life, and make material more engaging and effective for today's visual learners.

FEATURES

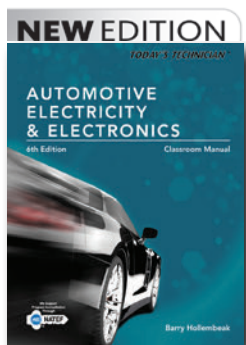
- An early Chapter on automotive systems covers the basic NATEF tasks that apply to all systems, providing a wide-ranging overview of essential concepts that today's automotive technicians need to master for professional certification and career success.
- Extensive questions conclude each Chapter to reinforce key concepts, enable students to assess their understanding, and help them prepare effectively for ASE certification.
- The text provides a uniquely thorough, detailed guide to essential automotive topics, including all of the basic areas outlined by ASE, such as engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance.
- An extensive suite of instructor resources is available to reinforce teaching and learning, including Chapter presentations in PowerPoint with videos and animations, electronic test banks, NATEF task correlations, an Image Library of all Chapter figures, and more.

CONTENTS

Part I: AUTOMOTIVE TECHNOLOGY.1. Careers in the Automotive Industry.2. Workplace Skills.3. Basic Theories and Math.4. Automotive Systems.5. Hand Tools and Shop Equipment.6. Diagnostic Equipment and Special Tools.7. Working Safely In the Shop.8. Preventative Maintenance and Basic

Services.Part II: ENGINES.9. Automotive Engine Designs and Diagnosis.10. Engine Disassembly and Cleaning.11. Lower-End Theory and Service.12. Upper-End Theory and Service.13. Engine Sealing and Reassembly.14. Lubricating and Cooling Systems.Part III: ELECTRICITY.15. Basics of Electrical Systems.16. General Electrical System Diagnostics and Service.17. Batteries: Theory, Diagnosis, and Service.18. Starting and Traction Motor Systems.19. Charging Systems.20. Lighting Systems.21. Instrumentation and Information Displays.22. Basics of Electronics and Computer Systems.23. Electrical Accessories.Part IV: ENGINE PERFORMANCE.24. Engine Performance Systems.25. Detailed Diagnosis and Sensors.26. Ignition Systems.27. Ignition System Diagnosis and Service.28. Diesel and Other Alternative Fuels.29. Fuel Delivery Systems.30. Electronic Fuel Injection.31. Fuel Injection Diagnosis and Service.32. Intake and Exhaust Systems.33. Emission Control Systems.34. Emission Control Systems Diagnosis and Service.35. Hybrid Vehicles.36. Electric Vehicles.Part V: MANUAL TRANSMISSIONS AND TRANSAXLES.37. Clutches.38. Manual Transmission and Transaxles.39. Manual Transmission and Transaxle Service.40. Drive Axles and Differentials.Part VI: AUTOMATIC TRANSMISSIONS AND TRANSAXLES.41. Automatic Transmissions and Transaxles.42. Electronic Automatic Transmissions.43. Automatic Transmission and Transaxle Service.44. Four- and All-Wheel Drive.Part VII: SUSPENSION AND STEERING SYSTEMS.45. Tires and Wheels.46. Suspension Systems.47. Steering Systems.48. Restraint Systems. Theory, Diagnosis, and Service.49. Wheel Alignment.Part VIII: BRAKES.50. Brake Systems.51. Drum Brakes.52. Disc Brakes.53. Antilock Brake, Traction Control, and Stability Control Systems.Part IX: PASSENGER COMFORT.54. Heating and Air Conditioning.55. Heating and Air Conditioning Diagnosis and Service.

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ebook



TODAY'S TECHNICIAN, 6E

Automotive Electricity and Electronics, Classroom and Shop Manual Pack

Barry Hollembeak

Ideal for aspiring and active automotive professionals, **TODAY'S TECHNICIAN: AUTOMOTIVE ELECTRICITY & ELECTRONICS**, Sixth Edition, equips readers to confidently understand, diagnose, and repair electrical and electronic systems in today's automobiles. Using a unique two-volume approach to optimize learning in both the classroom and the auto shop, the first volume (Classroom Manual) details the theory and application of electricity, electronics, and circuitry in modern automobiles, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date technical information, and hundreds of detailed illustrations and vibrant photographs, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including audio and infotainment systems, LED and adaptive lighting, hybrid and electric vehicles, and accessory systems—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service techniques, including material on electrical and electronic controlled systems, LED and adaptive

lighting systems, and audio and infotainment systems.

- The text has been streamlined for easier reading and more effective learning, with Chapters reorganized to reflect a logical sequence of topics, and material on outdated systems and obsolete technologies removed.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos, illustrations, and diagrams have been added to provide a current and comprehensive review of electric and electronic automotive service and repair, providing valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of electricity and electronics in an automotive systems context, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern automotive electronics, electrical components, circuitry, and systems in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Electrical and Electronic Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology—such as audio and infotainment systems, lighting systems, hybrid and electric

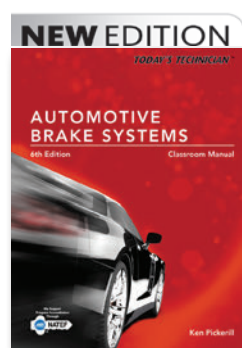
vehicles, and accessory systems—prepares students for a seamless and successful transition from the classroom to the professional repair shop.

- A full Chapter on shop safety highlights safe work habits to reinforce the importance of consistent safety practices and familiarize readers with standards and procedures they are likely to encounter in today's service and repair operations.

CONTENTS

Classroom Manual. Preface. 1. Introduction to Automotive Electrical and Electronic Systems. 2. Basic Theories. 3. Electrical and Electronic Components. 4. Wiring and Circuit Diagrams. 5. Automotive Batteries. 6. Starting Systems and Motor Designs. 7. Charging Systems. 8. Lighting Circuits. 9. Introduction to The Body Computer. 10. Computer Inputs. 11. Vehicle Communication Networks. 12. Advanced Lighting Circuits. 13. Instrumentation and Warning Lamps. 14. Accessories. 15. Radio Frequency and Infotainment Systems. 16. Passive Restraint Systems. 17. Vehicles with Alternative Power Sources. Glossary of Terms. Index. Shop Manual. Preface. 1. Safety. 2. Special Tools and Procedures. 3. Basic Electrical Troubleshooting and Service. 4. Wiring Repair and Reading Circuit Diagrams. 5. Battery Diagnosis and Service. 6. Starting System Diagnosis and Service. 7. Charging System Testing and Service. 8. Lighting Circuits Repair and Diagnosis. 9. Body Computer System Diagnosis. 10. Sensor Diagnostic Routines. 11. Vehicle Multiplexing Diagnostics. 12. Advanced Lighting Systems Diagnosis and Service. 13. Instrumentation and Warning Lamp System Diagnosis and Repair. 14. Electrical Accessories Diagnosis and Repair. 15. Servicing Radio Frequency and Infotainment Systems. 16. Servicing Passive Restraint Systems. 17. Hybrid and High-Voltage System Service. Appendix A: ASE Practice Examination. Appendix B: Metric Conversions. Appendix C: Electrical and Electronic Special Tool Suppliers. Glossary of Terms. Index.

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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Brake Systems, Classroom and Shop Manual Prepack

Ken Pickerill

The 6th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE BRAKE SYSTEMS is a comprehensive text that equips readers to confidently understand, diagnose, and repair today's brake systems. Using a unique two-volume approach, the first volume (Classroom Manual) details the theory and application of the total brake system, subsystem, and components, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid vehicles, brake by wire, and electric brakes—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- Extensive updates to reflect new and emerging technology and service techniques, including material on hybrid vehicles, brake by wire systems, and electric brakes.
- New and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos and procedures have been added

to provide a current and comprehensive review of brake service and repair, providing valuable reinforcement of Chapter material for today's visual learners.

- New information on stability control, active braking, and regenerative braking in hybrid vehicles, reflecting advances in technology and current industry standards and best practices.
- Numerous new study review questions are included to help students review Chapter material, assess their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

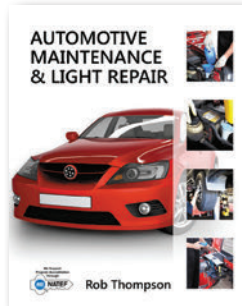
FEATURES

- Full-color drawings, photos, and schematics show modern brake technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- Thorough coverage of the 2012 NATEF Automobile Program Standards for Brakes, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology, such as ABS within a vehicle stability system, prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

CLASSROOM MANUAL. 1. Brake System Fundamentals. 2. Principles and Theories of Operation. 3. Related Systems: Tire, Wheels, Bearings, and Suspensions. 4. Master Cylinder and Brake Fluid. 5. Hydraulic Lines, Valves, and Switches. 6. Power Brake Systems. 7. Disc Brakes. 8. Drum Brakes. 9. Parking Brakes. 10. Electrical Braking Systems. **SHOP MANUAL.** 1. Brake Safety. 2. Brake Service Tools and Equipment. 3. Related System Service. 4. Master Cylinder and Brake Fluid Service. 5. Hydraulic Line, Valve, and Switch Service. 6. Power Brake Service. 7. Disc Brake Service. 8. Drum Brake Service. 9. Parking Brake Service. 10. Electrical Brake Systems.

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ebook

AUTOMOTIVE MAINTENANCE & LIGHT REPAIR

Rob Thompson, Columbus State Community College

AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR (AM&LR) was designed to meet the needs of automotive programs that teach to the competencies specified in NATEF's Maintenance & Light Repair (MLR) program standard. Designed for entry-level students, the primary features of AM&LR are the focus on the foundational principles and knowledge for the MLR tasks, and the activities to supplement student learning. Both the core textbook and accompanying workbook provide activities covering the entire MLR task list, as well as many supplemental tasks often expected of entry-level technicians. In addition, Automotive Maintenance and Light Repair is written to engage students not just in automotive competencies, but also in applied academic skills and lifelong learning skills, including math, science, and communication.

FEATURES

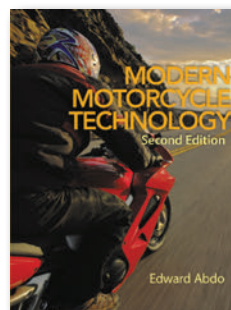
- Detailed coverage of NATEF task list for Maintenance and Light Repair (MLR): The text delivers an effective, highly practical learning experience designed to ensure that students master NATEF tasks and attain professional success.
- Emphasis on essential academic and professional skills such as math, science, effective communication, strong work ethic, and dedication to lifelong learning.
- Chapter review questions assess and deepen comprehension of content.
- Chapter activities develop expertise with key tools, components, and systems.

- An array of supplemental resources are available to enhance classroom instruction, including customizable Chapter presentations in PowerPoint, an instructor's guide with answer keys, an extensive library of images from the text, an ExamView test bank, and correlations to NATEF tasks.
- Lab Worksheets in the Workbook promote mastery of essential NATEF tasks.

CONTENTS

1. Introduction to the Automotive Industry.2. Safety.3. Shop Orientation.4. Basic Technician Skills.5. Wheels, Tires, and Wheel Bearings.6. Suspension System Principles.7. Suspension System Service.8. Steering System Principles.9. Steering Service.10. Brake System Principles.11. Brake System Service.12. Drum Brake System Principles.13. Drum Brake System Inspection and Service.14. Disc Brake System Principles.15. Disc Brake System Inspection and Service.16. Antilock Brakes, Vehicle Stability Control, and Power Assist.17. Electrical/Electronic System Principles.18. Basic Electrical/Electronic System Service.19. Starting and Charging System Principles.20. Starting and Charging System Service.21. Lighting and Electrical Accessories.22. Engine Performance Principles.23. Engine Mechanical Testing and Service.24. Engine Performance Service.25. Automatic and Manual Transmissions.26. Heating and Air Conditioning.27. Vehicle Maintenance.

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ebook

MODERN MOTORCYCLE TECHNOLOGY, 2E

Edward Abdo

MODERN MOTORCYCLE TECHNOLOGY, Second Edition takes your students on an in-depth exploration of the internal and external workings of today's 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 safety measures, engine operation, internal combustion engines (2-stroke and 4-stroke), electrical fundamentals, and overall motorcycle maintenance, as well as a special Chapter devoted to troubleshooting. Throughout the book, the author's straightforward writing style and extensive, full-color photos and illustrations help engage readers and bring the material to life. The Second Edition has been thoroughly updated, and includes new content on the latest motorcycle models and technology from today's top manufacturers. The new edition also features additional material on key topics such as fuel injection, suspension systems, and V-engine technology, as well as an expanded suite of separately available supplementary teaching and learning tools—including a hands-on student workbook and electronic instructor's resources. Modern Motorcycle Technology is a valuable resource for anyone seeking the knowledge and skills to succeed in today's motorcycle technology field.

NEW TO THIS EDITION

- The Second Edition has been thoroughly updated with current, technically accurate information on modern technology from leading motorcycle

manufacturers, making this trusted resource ideal for students preparing to enter today's motorcycle technology field.

- New and revised coverage of key topics throughout the text includes additional material on fuel injection, V-engine technology, suspension systems, and troubleshooting, ensuring students will have the depth and breadth of knowledge to succeed in their chosen careers.
- The author has revised and expanded the review questions that conclude each Chapter.
- A new, complete Instructor Resources package includes a variety of valuable electronic tools to help you plan and deliver an effective course, including Chapter presentations in PowerPoint®, Chapter test banks in ExamView®, and an Image Gallery that includes electronic images from the text.
- The text's vast collection of vivid, full-color images is now even larger and better, with updated illustrations in every Chapter and over 500 all-new photographs, making it easier than ever for visual learners to grasp key concepts quickly and confidently apply what they learn.

FEATURES

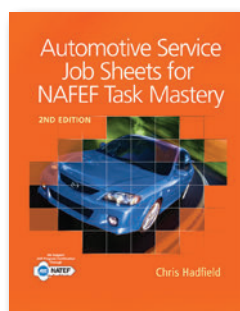
- Chapters devoted specifically to maintenance and troubleshooting build on previous material and provide a solid foundation to help students apply their knowledge and skills to diagnose, repair, and service motorcycles.
- To complement the author's industry expertise and clear, concise writing style, more than 1,000 full-color photos, useful diagrams, and detailed illustrations help bring key concepts to life and provide outstanding support for visual learners.
- Summaries and review questions at the end of each Chapter highlight and reinforce critical information, allowing students to assess their learning and focus on key areas for further study.
- The ancillary Student Skill Guide provides students with hands-on activities to help them put theory into practice and hone essential real-world skills.

CONTENTS

1. Introduction to Modern Motorcycle Technology.2. Safety First.3. Tools.4. Measuring Systems, Fasteners, and Thread Repair.5. Basic Engine

Operation and Configurations.6. Internal Combustion Engines.7. Lubrication and Cooling Systems.8. Fuel Systems.9. Drives, Clutches, and Transmissions.10. Two Stroke Engine Top End Inspection.11. Two Stroke Engine Lower End Inspection.12. Four Stroke Engine Top End Inspection.13. Four Stroke Engine Lower End Inspection.14. Electrical Fundamentals.15. Charging Systems and DC Circuits.16. Ignition and Electric Starting Systems.17. Frames and Suspension.18. Brakes, Wheels, and Tires.19. Motorcycle Maintenance and Emission Controls.20. Motorcycle Troubleshooting.

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ebook

AUTOMOTIVE SERVICE JOB SHEETS FOR NATEF TASK MASTERY, 2E

Chris Hadfield, Central Lakes College

Help your students master the skills they need to succeed in the automotive industry, with nearly 200 hands-on lab and shop activities correlated to National Automotive Technicians Education Foundation (NATEF) tasks for all eight Automotive Service Excellence (ASE) systems. With content organized by technology area for convenient reference, this dynamic, full-color manual provides detailed illustrations with step-by-step instructions for all major service, diagnostic, and repair procedures, from engines to electronics. Extensive new and updated material makes the Second Edition of this valuable resource even more useful, with performance-based worksheets covering everything on the current NATEF Task List--more than 450 tasks in all! In addition, integrated assessment and critical thinking questions help

students reflect on their work, enhance their understanding, and develop important real-world skills they can apply as working automotive professionals.

NEW TO THIS EDITION

- The Second Edition features extensive new and updated content to provide inclusive coverage of the NATEF Task List, with nearly 200 hands-on activities encompassing more than 450 tasks in all eight ASE systems.
- The text features an even stronger emphasis on critical thinking and forward assessment, with numerous task-specific questions to help students reflect on their work, deepen their understanding of the procedures, and build confidence in their growing skill set.
- Standards-based formative assessment questions are integrated into every job sheet to make it easier to evaluate student progress and performance and identify any areas that may need reinforcement.
- A new, text-specific Premium Website features electronic versions of the job sheets to offer convenient online access.
- The text clearly identifies job sheets that cover closely connected or sequential procedures, giving students useful insights into the relationships among repair tasks as they are commonly performed by real-world technicians.

FEATURES

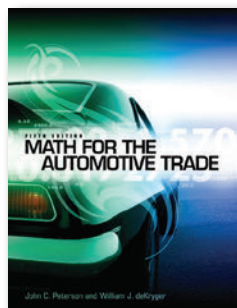
- Numerous full-color photos throughout the text clearly illustrate each service, diagnostic, and repair procedure, providing a useful visual guide to the step-by-step tasks students will need to perform.
- A numerical rating scale (0-4) and rubric at the end of each job sheet allows you to evaluate and record student performance quickly and easily.

CONTENTS

1. The Automobile Industry.2. Shop Procedures, Safety, Tools, and Equipment.3. Vehicle Inspection.4. Engine Operation and Service.5. Cooling System Belts, Hoses, and Plumbing.6. Electrical System Theory and Service.7. Heating and Air Conditioning.8. Engine Performance Diagnosis: Theory and Service.9. Automotive Engine Service

and Repair.10. Brakes and Tires.11. Suspension, Steering, and Alignment.12. Drive Train.

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ebook

CourseMate

MATH FOR THE AUTOMOTIVE TRADE, 5E

John C. Peterson, Chattanooga State Technical Community College (retired); William deKryger

MATH FOR THE AUTOMOTIVE TRADE, 5E is an up-to-date, highly practical book that helps your students develop a real-world understanding of math concepts and applications in the modern automotive repair trade. Written at a beginner's level, this book is a comprehensive instructional workbook that shows your students how to solve the types of math problems faced regularly by automotive technicians. Unique to MATH FOR THE AUTOMOTIVE TRADE, 5E are realistic practice exercises that allow your students to determine if their answers fall within manufacturers' specifications and repair orders that are completed by finding the appropriate information in the professional literature and reference material, included in the book's valuable appendices.

NEW TO THIS EDITION

- Contains updated applications and examples that reflect changes in automotive technology.
- New coverage of Statistics included.
- Replaced the flat rate pages for the Corvette in Appendix A with pages for the Ford Fusion, Milan (2006–2009), Zephyr (2006), MKZ (2007–2009), and Milan Hybrid (2010), emphasizing new hybrid technology.
- Contains updated coverage of automotive parts

and equipment, new repair orders, additional questions that reflect current concerns with hybrid, electric, and other new technologies and updated gas prices, tax data, etc. that reflect “current” prices.

- Contains content that is correlated with NATEF’s Applied Academics and will help prepare your students for ASE Automotive tests.

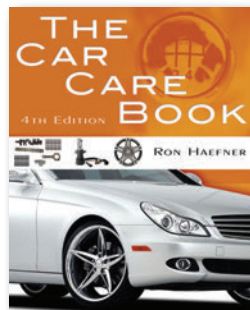
FEATURES

- Reviews basic mathematics skills, practical math applications for specific automotive situations, and both customary and metric systems of measurement as they apply to the automotive trade, immediately preparing students with math skills they will use on the job.
- Covers personal and business finance examine discounts, profit and loss, commissions, interest and payments, and taxes, providing a well-rounded business review of the issues faced by today’s automotive technician.
- Provides manufacturer’s specification data for real-world applications to problems ensuring a realistic experience for your students that will mirror what they’ll encounter on the job.

CONTENTS

1. Whole Numbers.2. Decimals.3. Fractions.4. Geometry, Angle Measurement and the Metric System.5. Integers and Signed Numbers.6. Ratios, Proportions, and Percentages.7. Business and Statistics.8. Completing Repair Orders.9. The Automobile Engine.10. Automobile Engine Systems.11. Automobile Electrical Systems.12. The Automobile Drive Train.13. The Automobile Chassis.14. Automobile Heating, Ventilation, and Air Conditioning.15. Measurement Tools. Appendix B. Summary of Formulas in this Text-Workbook. Appendix C. Answers to Odd-Numbered Practice Exercises.Index.

© 2012, 352pp, Paperback, 97811111318239



ebook

THE CAR CARE BOOK, 4E

Ron Haefner, Columbus High School

Consumers typically face three main challenges when it comes to understanding their 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 edition, The Car Care Book, 4th Edition 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.

NEW TO THIS EDITION

- An all-new Chapter on electric and hybrid vehicles discusses these emerging technologies, including basic maintenance and important safety considerations

FEATURES

- 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.

© 2010, 496pp, Paperback, 9781428342958



AUTOMOTIVE TECHNOLOGY

For General Service Technicians

Ron Haefner, Columbus High School; Paul Leathers, Columbus High School in Columbus, NE

Introducing the first automotive technology textbook designed for NATEF's General Service Technician Program! This new 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. The authors highlight the importance of workplace skills and discuss employee responsibilities, such as preparing vehicles for service and delivering them to customers. Pre-publication reviews praised the book's readability, real-life examples, and simple but accurate presentation of technical information. "I love the non-complex development of the subjects in the text! You have really made an easy-to-

understand text for students," said one. "This book can reach the kids," said another.

FEATURES

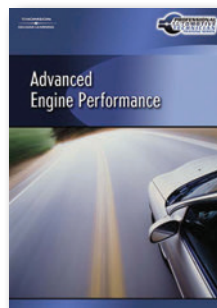
- Full color is used throughout the book to maximize the value of every photograph and line drawing
- Chapters are kept short to avoid overwhelming students and thoughtfully organized by area so that instructors can choose the order that works best for them
- Student interest is engaged and maintained by "You Should Know," "Tech Tips," "It's the Law," and "Did You Know?" in-text features.
- The accompanying Student Workbook provides Chapter review activities and task sheets that guide the student through relevant shop activities
- An Applied Academics Workbook supplements the text with practice in math, science and communications skills that are keyed to automotive examples
- An e.resource with PowerPoint lecture outlines, an Image Library, and a Computerized Test Bank is available to instructors who want to make classroom lecture as efficient and engaging as possible

CONTENTS

Preface. Chapter 01 The Automotive Business. Chapter 02 Employee Skills for Career Success. Chapter 03 General Shop Safety. Chapter 04 Tool and Equipment Safety. Chapter 05 Tools and Equipment. Chapter 06 Basic Shop Procedures. Chapter 07 Measuring Systems, Measurements, and Fasteners. Chapter 08 Service Information. Chapter 09 Using Service Information. Chapter 10 Vehicle Inspection and Valeting. Chapter 011 Basic Electricity and Electric Circuits. Chapter 012 Light Circuits. Chapter 013 Light Circuit Maintenance, Diagnosis, and Service. Chapter 014 Indicator Lights and Gauges. Chapter 015 Indicator Light and Gauge Maintenance, Diagnosis, and Service. Chapter 016 Basic Wiring and Wiring Repair. Chapter 017 Battery and Starting Systems. Chapter 018 Battery and Starting System Maintenance, Diagnosis, and Service. Chapter 019 Charging Systems. Chapter 020 Charging System Maintenance, Diagnosis, and Service. Chapter 021 Ignition Systems. Chapter 022 Ignition System Maintenance, Diagnosis,

and Service. Chapter 023 Brake System Design and Operation. Chapter 024 Brake System Maintenance, Diagnosis, and Service Calipers. Chapter 025 Steering Columns, Linkages, and Power Steering Pumps, Maintenance, Diagnosis and Service. Chapter 026 Manual and Power Steering Gears, Maintenance, Diagnosis, and Service. Chapter 027 Tires, Wheels, and Hubs. Chapter 028 Tire, Wheel, and Hub Maintenance, Diagnosis, and Service. Chapter 029 Suspension Systems. Chapter 030 Suspension System Maintenance, Diagnosis, and Service. Chapter 031 Wheel Alignment. Chapter 032 The Four-Stroke Cycle and Cylinder Arrangements. Chapter 033 Engine Oil and Lubrication Systems. Chapter 034 Engine Lubrication System Maintenance, Diagnosis, and Service. Chapter 035 Engine Coolant and Cooling Systems. Chapter 036 Engine Cooling Systems, Maintenance, Diagnosis, and Service. Chapter 037 Fuel System Fundamentals. Chapter 038 Fuel System Components. Chapter 039 Fuel System Service. Chapter 040 Vehicle Emissions and Emission Standards. Chapter 041 Emission Systems. Chapter 042 Emission System Maintenance, Diagnosis, and Service. Chapter 043 Engine Control Computers and Output Controls. Chapter 044 Input Sensors for Engine Control Systems. Chapter 045 Input Sensor Maintenance, Diagnosis, and Service. Chapter 046 Engine Control Systems. Chapter 047 Engine Control System Maintenance, Diagnosis, and Service. Chapter 048 Manual Transmission and Transaxle, Maintenance, Diagnosis, and Service. Chapter 049 Automatic Transmission and Transaxle Maintenance, Diagnosis, and Service. Chapter 050 Clutch Maintenance, Diagnosis, and Service. Chapter 051 Drive Shaft, Drive Axle, and Universal Joint Maintenance, Diagnosis and Service. Chapter 052 Heating, Ventilation, and Air Conditioning Systems. Chapter 053 Heating, Ventilation, and Air Conditioning Maintenance, Diagnosis, and Service. Chapter 054 Supplemental Restraint Systems. Bilingual Glossary. Index

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Advanced Engine Performance Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Advanced Engine Performance Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- Bookmarking technology enables users to track their progress from beginning to end
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards

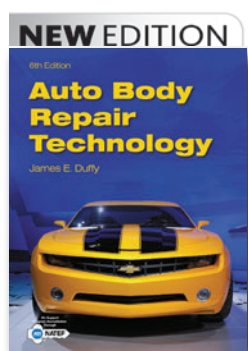
CONTENTS

On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensors.

Ignition Systems and Related Input Sensors/Output Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emissions Control and Evaporative Systems. Strategies of On-Board Diagnostic Continuous Monitors. Strategies of On-Board Diagnostic Non-Continuous Monitors. Failure Diagnosis and Five-Gas Exhaust Analysis. OBD II Codes, Acronyms and Milestones

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COLLISION REPAIR



ebook

CourseMate

MindTap

AUTO BODY REPAIR TECHNOLOGY, 6E

James E. Duffy, Indiana State University, President, Beneficial Books and Video

AUTO BODY REPAIR TECHNOLOGY, Sixth Edition, features extensive new and updated material reflecting the latest automotive technology and current industry best practices. In addition to incorporating the current NATEF Collision Repair and Refinish Program Standards and Task Lists, this market-leading text provides detailed information on working with hybrid and electric vehicles, using environmentally friendly water-based paints, and other cutting-edge methods and materials. Celebrated for its clear, reader-friendly explanations and detailed, accurate information, this proven text also includes abundant full-color photos and illustrations to make even complex concepts easier to understand and apply. Available supplements include a tech manual with shop assignments and job sheets, as well as interactive online resources ideal for today's courses and

learners. Providing comprehensive coverage of collision repair—from initial evaluation and estimating, to structural and mechanical repairs, to repainting and refinishing—this trusted text helps readers quickly and confidently learn the skills and procedures they need to succeed as professional automotive technicians.

NEW TO THIS EDITION

- This trusted guide has been thoroughly updated and expanded to cover the latest industry trends, technology, and practices, including the current NATEF Collision Repair and Refinish Program Standards and Task Lists.
- A new Chapter devoted to hybrid technology service and safety provides detailed information on servicing today's high-tech hybrid and electric vehicles, including vital safety considerations when working with electric circuits and assemblies that can carry deadly levels of voltage and current.
- The Sixth Edition describes safe, effective procedures for using high-voltage equipment (such as protective clothing and insulated plastic and carbon-fiber hand tools) when working on electric drivelines during major structural repairs to hybrid and electric vehicles.
- Chapter review materials now feature new and revised activities and exercises to reinforce essential math, critical thinking, and problem-solving skills that today's technicians need for success in this fast-paced field.
- The text explores the special procedures required for effective mixing and application of water-based paints, preparing students for a smooth transition from oil-based paints as more states mandate the use of these materials to reduce VOC emissions into the atmosphere.

FEATURES

- Vibrant, full-color photos and illustrations throughout the text help bring key concepts to life and illustrate important repair, repainting, and refinishing techniques in vivid detail, making even complex concepts easier for students to understand and apply.
- The author devotes particular attention to information on software and hardware used in many modern collision repair shops, preparing

students to use the tools and processes they will encounter as working professionals when accessing service information and specifications.

- Known for its comprehensive coverage and detailed, accurate information, the text complements material on traditional collision repair topics with useful information on mechanical components, wheel alignment, and restraint system operation.
- In addition to helping students develop the knowledge and skills they need to master their trade, the text features information on ASE certification and entrepreneurship to prepare students for lasting, successful careers as professional automotive technicians.
- Resources available to complement the text include a tech manual with hands-on shop assignments and job sheets, as well as a variety of interactive resources to enhance teaching and learning, including lecture slides, an electronic test bank with hundreds of questions, and a library of full-color digital images.

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Matching and Custom Painting. 28. Paint Problems and Final Detailing. Part VII: COLLISION REPAIR PROFESSIONALISM. 29. Job Success and ASE Certification. 30. Hybrid Technology, Service Safety.

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ebook

CourseMate

COLLISION REPAIR AND REFINISHING, 2E

A Foundation Course for Technicians, International Edition

Alfred Thomas, Pennsylvania College of Technology; Michael Jund, Eastern Iowa Community College

COLLISION REPAIR AND REFINISHING: A FOUNDATION COURSE FOR TECHNICIANS, International Edition covers all the major areas 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, sacrificial coatings for corrosion resistance, mechanical & electrical systems, and more. The logical progression of topics and easy-to-understand writing style are perfect for students with little or no prior exposure to collision repair.

NEW TO THIS EDITION

- An all-new Chapter exclusively covers waterborne technology.
- Four all new Chapters cover common mechanical repairs that are needed following a collision.
- Expanded coverage of writing a resume, developing interview skills, and other skills needed that will help your students secure their first job.
- New content on mechanical and electrical components.

- Chapters revised to cover new and emerging technologies.

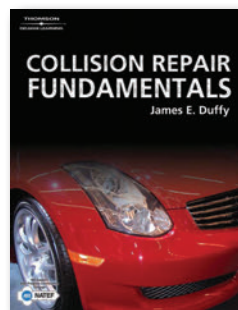
FEATURES

- This is the first collision repair book written in and for 21st century students.
- Collision Repair and Refinishing: A Foundation Course for Technicians, 2e is comprehensive, well illustrated and completely up to date with the latest technologies.
- The new edition is easy to read and contains current information and a logical sequence of topics.

CONTENTS

1. Introduction to Collision Repair. 2. Collision Shop Safety. 3. Hand Tools. 4. Power Tools. 5. Welding Procedures and Equipment. 6. Vehicle Construction. 7. Straightening Steel and Aluminum. 8. Body Filler. 9. Trim and Hardware. 10. Estimating Collision Damage. 11. Collision Damage Analysis. 12. Bolted Exterior Panel Replacement. 13. Measuring Structural Damage. 14. Straightening Unibody. 15. Welded Exterior Panel Replacement. 16. Structural Parts Replacement. 17. Full Frame Sectioning/Replacement. 18. Plastic Repair. 19. Corrosion Protection. 20. Paint Spray Guns. 21. Spray Techniques. 22. Equipment for the Refinishing Shop. 23. Detailing. 24. Understanding Refinishing. 25. Surface Preparation. 26. Masking Materials and Procedures. 27. Solvents for Refinishing. 28. Application of Undercoats. 29. Advanced Refinishing Procedures Solvent Born. 30. Advanced Refinishing Procedures Waterborne (New). 31. Color Evaluation and Adjustment. 32. Paint Problems and Prevention. 33. Electrical Components (New). 34. Suspension and Steering Systems (New). 35. Brake Systems (New). 36. Mechanical Systems (New).

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COLLISION REPAIR FUNDAMENTALS

James E. Duffy, Indiana State University, President, Beneficial Books and Video

This all new 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.

FEATURES

- Full color artwork features state-of-the-art collision repair technology
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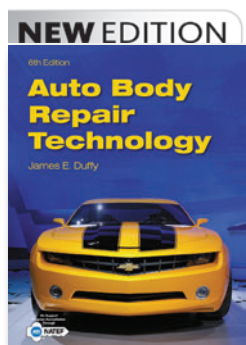
CONTENTS

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COLLISION TECHNOLOGY



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CourseMate

MindTap

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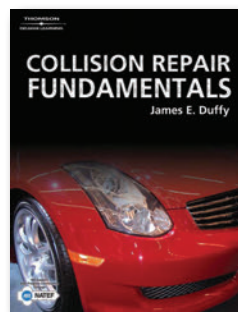
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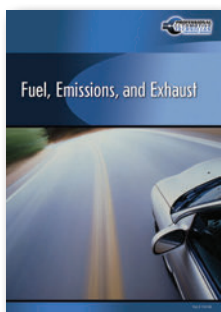
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ELECTRONIC TRAINING & REFERENCE SOLUTIONS



PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Fuels, Emissions and Exhaust Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar, a part of Cengage Learning, and the leader in providing first-rate educational materials for

automotive technicians, now offers Fuel, Emissions, and Exhaust Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

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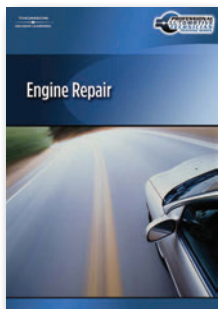
- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- bookmarking technology enables users to track their progress from beginning to end.
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- all material follows the latest ASE and NATEF standards.

CONTENTS

Chapter 1: Safe Work Practices. Chapter 2: Special Tools and Equipment. Chapter 3: Electrical Test Equipment. Chapter 4: Working as a Fuels and Emissions Technician. Chapter 5: Introduction to the Computer. Chapter 6: Computer System Diagnosis. Chapter 7: Computer Inputs and Outputs. Chapter 8: Input and Output Diagnostics. Chapter 9: Automotive Fuels. Chapter 10: Alternative Fuels. Chapter 11: Basic Fuel Testing. Chapter 12: Fuel Tanks. Chapter 13: Fuel Tank Service. Chapter 14: Fuel Pumps and Lines. Chapter 15: Fuel Filter and Fuel Line Service. Chapter 16: Electric Fuel Pump Circuits. Chapter 17: Fuel Pump Diagnosis and Repair. Chapter 18: The Importance of the Air-Fuel Ratio. Chapter 19: Adaptive Memory. Chapter 20: Fuel-Injection Systems. Chapter 21: Electronic Fuel-Injection Input Sensor Diagnosis and Service. Chapter 22: Injector Testing and Service. Chapter 23: Scan Tester Diagnostics. Chapter 24: Emissions and the Automotive Industry. Chapter 25: Pre-combustion Controls. Chapter 26: Post-

combustion Controls. Chapter 27: Exhaust Analyzer Operation. Chapter 28: Diagnosing the Emissions System. Chapter 29: Introduction to OBD-II. Chapter 30: DaimlerChrysler's OBD-II. Chapter 31: DaimlerChrysler's OBD-II with Next-Generation Controller. Chapter 32: General Motors's OBD-II. Chapter 33: Ford's OBD-II. Chapter 34: Import OBD-II. Chapter 35: Introduction to OBD-II Diagnostics. Chapter 36: OBD-II Diagnostics – Drive Cycles. Chapter 37: EVAP Leak Diagnosis. Chapter 38: Alternative Fuel Vehicles. Chapter 39: Alternative Fuel System Service. Chapter 40: CNG Electrical Component Diagnostics and Service. Chapter 41: Vehicles With Alternative Power Source Final Review

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FEATURES

- attention-grabbing animations and learner

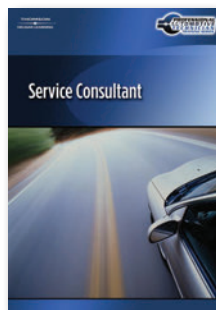
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CONTENTS

Safety and Communication. Engine Operations and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

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CONTENTS

Service Facilities and the Service Consultant. Communications: Customer Relations. Internal Communications, Relations, and Supervision. Communications: Customer Delivery and Follow-Up. Product Knowledge

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Parts Specialist Computer Based Training (CBT)

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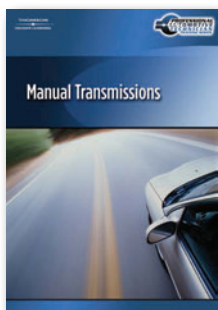
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General Operations. Customer Relations and Sales Skills. Vehicle Systems Knowledge. Vehicle Identification. Cataloging Skills. Inventory Management. Merchandising

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

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FEATURES

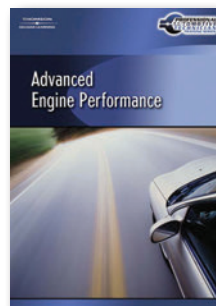
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Safety and Communication. Basic Theories and Services. Drivelines. Final Drives. Clutch Assemblies. Manual Transmissions. Four-Wheel

Drive Systems.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Advanced Engine Performance Computer Based Training (CBT)

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On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensors. Ignition Systems and Related Input Sensors/Output Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emissions Control and Evaporative Systems. Strategies of On-Board Diagnostic Continuous Monitors. Strategies of On-Board Diagnostic Non-Continuous Monitors. Failure Diagnosis and Five-Gas Exhaust Analysis. OBD II Codes, Acronyms and Milestones

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Heating, Ventilation & Air Conditioning Computer Based Training (CBT)

Delmar, Cengage Learning

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: ENGINE PERFORMANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

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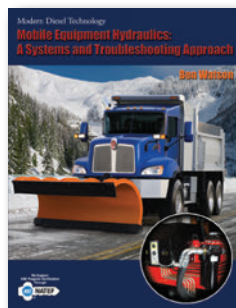
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MEDIUM/HEAVY DUTY TRUCK



ebook

MOBILE EQUIPMENT HYDRAULICS

A Systems and Troubleshooting Approach

Ben Watson

Designed for the required course on hydraulics found in diesel technology and heavy equipment programs, MOBILE EQUIPMENT HYDRAULICS: A SYSTEMS AND TROUBLESHOOTING APPROACH, takes a practical approach to the understanding of fluid power / hydraulic systems. Instead of concentrating on the design issues of fluid power systems this book approaches hydraulics more like a technician would to approach a system that requires maintenance or troubleshooting. Nearly all aspiring diesel technicians receive training in this subject, which is one of seven areas of study recognized by NATEF in diesel technology. Coverage includes a study of terminology, industrial standards, symbols and basic circuitry design as related to fluid power. Examples are drawn from actual equipment that is relevant to the program of study, whether it be heavy truck, earth-moving, or agricultural equipment.

FEATURES

- Written in easy to understand language with limited use of math to explain concepts and theory.
- Written for the technician for whom hydraulic

systems is not their primary trade.

- Emphasizes the skills required by these technicians in their daily work with hydraulic systems as a truck and heavy equipment service technician.
- Emphasizes important skills, such as how to research, find and interpret diagnostic information.
- An Instructor's CD which will include an answer key, additional Chapter tests, an Image Library of art and photos organized by Chapter and PPT lecture outlines.

CONTENTS

1. An Overview.2. Building a Basic Cylinder or Hydraulic Motor Circuit.3. The Math.4. ANSI Symbols.5. Oils and Other Hydraulic Fluids.6. Piping, Tubing and Hoses.7. Couplers and Fittings.8. System Design.9. Electrical Controls.10. Maintenance.11. Troubleshooting Fluid Power Systems.12. Conversions.13. Hydraulic/Fluid Power Systems.

© 2011, 256pp, Paperback, 9781418080433

SERVICE MANAGEMENT



ebook

THE SERVICE CONSULTANT, 2E

Principles of Service Management and Ownership

Ronald A. Garner, Pennsylvania College of Technology; C. William Garner, Rutgers University

Designed to prepare readers for a successful career as an automotive service consultant, THE SERVICE CONSULTANT: PRINCIPLES OF SERVICE MANAGEMENT AND OWNERSHIP, Second Edition teaches readers how to maximize profits and improve customer satisfaction in an automotive business. With coverage of task-

oriented procedures for day-to-day operations as well as communications, relations, supervision, and customer delivery, this practical text provides readers with an in-depth examination of the multi-faceted responsibilities of an automotive service consultant. In addition, the text content correlates to the ASE tasks for Automotive Service Consultant (C1) in order to help readers better prepare for the ASE certification exam. Furthermore, the second edition contains updated examples, activities, technology, case studies, and visual aids so that readers are exposed to the most up-to-date information in the field.

NEW TO THIS EDITION

- A new boxed feature presents case studies to help students master theory.
- Throughout the text, illustrations have been updated and expanded in order to appeal to the visual learner.
- Instructor resources have been expanded to include PowerPoint lecture presentation and ExamView text questions.

FEATURES

- The text content correlates to the ASE tasks for Automotive Service Consultant (C1) in order to help readers better prepare for the ASE certification exam.
- Activities that require readers to interview local service facility managers provide opportunities for establishing important industry contacts for the future.
- Visits to local service facilities are encouraged so that readers can compare content in the book with real-life situations and procedures happening in the industry.
- Careful attention to the sequence of job duties for the service consultant gives readers a clear picture of the types of work and responsibilities that will be expected of them when they enter the workforce.

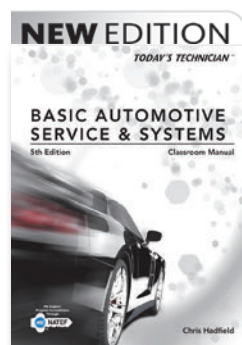
CONTENTS

PART I: SERVICE FACILITIES AND THE SERVICE CONSULTANT.1. Types of Automotive Service Facilities, Professional Credentials, and Profit.2. The Role of the Service Consultant, Parts Specialist, and Warranty Administrator.3. The Team Approach:

Business Operations and Repair Order Tracking. 4. Computerized Shop Management Systems. 5. Checking Vehicle and Customer Records. 6. Working with Warranties, Service Contracts, Service Bulletins, and Campaigns/Recalls. PART II: COMMUNICATIONS: CUSTOMER RELATIONS. 7. Electronic Communications, Websites, and Social Networks. 8. Personal Communication: From the Greeting to the Presentation of the Invoice. 9. Working Out Service Details with Customers. 10. Prioritizing Repair Needs. 11. Closing a Sale. PART III: COMMUNICATION: CUSTOMER DELIVERY AND FOLLOW UP. 12. Writing for the Technician. 13. Workflow and Efficient Shop Operations. 14. Customer Relations: Sales, Follow-Ups, and Promotions. PART IV: COMMUNICATION: CUSTOMER DELIVERY AND FOLLOW UP. 15. Assistant Service Manager Duties. 16. A positive Work Environment for Efficient Business Performance. 17. Analysis of Shop Operations and Business Performance. 18. Service Facility Business Start Up and Ownership. Appendix ASE (C1) Task List: Service Consultant. Glossary. Index.

© 2014, 352pp, Hardback, 9781133612353

TECHNICIAN TRAINING



ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 5E

Basic Automotive Service and Systems, Classroom Manual and Shop Manual

Chris Hadfield, Central Lakes College

The 5th edition of BASIC AUTOMOTIVE SERVICE & SYSTEMS is a comprehensive Classroom Manual/Shop Manual set provides an accessible overview of automotive systems to prepare you for all aspects of work in the field. Now fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition features a new full color design, more coverage of hybrid vehicles and emerging technologies, and revised and updated coverage of electronic engine controls. The content is current and relevant to the industry today, and includes state-of-the-art information on the global automotive industry and the role of the technician within it. The Classroom Manual explores the basic theories of operation behind each automotive system, while the Shop Manual covers the hands-on diagnostic, testing, and repair procedures that relate to them. Assuming no prior knowledge of automotive technology, this clear and engaging book addresses fundamental skills and maintenance and the application of key theories.

NEW TO THIS EDITION

- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- This edition's full color design with new photographs and updated line art helps readers better visualize

processes and procedures.

- Coverage of hybrid vehicles and emerging technologies, along with revised and updated coverage of electronic engine controls, prepares students for today's workplace.
- Includes all new Job Sheets that are focused on skill building.
- Content cross references current industry practices to help the student understand and practice real-world workplace competencies.
- Employer focused soft skills are integrated into each topic.
- The text features in depth basic and preventative maintenance information with a focus on skill building, with expanded coverage on electrical theory and diagnosis.

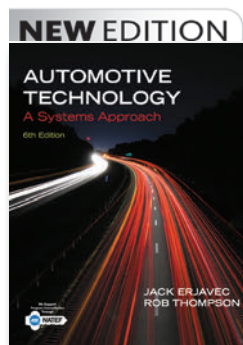
FEATURES

- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- A full color design with new photographs and updated line art makes visualizing processes and procedures easier.
- Coverage of hybrid vehicles and emerging technologies, along with revised and updated coverage of electronic engine controls, prepares you for today's workplace.

CONTENTS

1. Automotive Systems and Operations. 2. The Automotive Business. 3. Automotive Tools and Equipment. 4. Measurements and Precision Measuring Devices. 5. Fasteners. 6. Automotive Bearings and Sealants. 7. Automobile Theories of Operation. 8. Power System Operation and Subsystems. 9. Brakes. 10. Suspension and Steering. 11. Powertrains. 12. Auxiliary Systems and Climate Control. Glossary. Index.

© 2016, 960pp, Paperback, 9781285442297



ebook

MindTap

AUTOMOTIVE TECHNOLOGY, 6E

A Systems Approach

Jack Erjavec, Columbus State Community College (Emeritus);
Rob Thompson, Columbus State Community College

AUTOMOTIVE TECHNOLOGY: A SYSTEMS APPROACH - the leading authority on automotive theory, service, and repair - has been thoroughly updated to provide accurate, current information on the latest technology, industry trends, and state-of-the-art tools and techniques. This comprehensive text covers the full range of basic topics outlined by ASE, including engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance. Now updated to reflect the latest NATEF MAST standards, as well as cutting-edge hybrid and electric engines, this trusted text is an essential resource for aspiring and active technicians who want to succeed in the dynamic, rapidly evolving field of automotive service and repair.

NEW TO THIS EDITION

- Two new Chapters provide detailed, dedicated coverage of hybrid and electric engines, outlining essential knowledge and skills technicians need to service these increasingly common, uniquely complex vehicles.
- New "The Three Cs" feature presents students with a real world vehicle problem to introduce the essential methodology for approaching a repair: concern, cause, and correction.
- The authors have carefully revised and updated the text to reflect the new NATEF MAST standards,

preparing readers to pursue professional certification and develop the knowledge and skills they need for success in today's dynamic automotive service and repair industry.

- Illustrations, diagrams, and other visual elements throughout the text have been updated and enhanced to ensure technical accuracy, help bring key Chapter concepts to life, and make material more engaging and effective for today's visual learners.

FEATURES

- An early Chapter on automotive systems covers the basic NATEF tasks that apply to all systems, providing a wide-ranging overview of essential concepts that today's automotive technicians need to master for professional certification and career success.
- Extensive questions conclude each Chapter to reinforce key concepts, enable students to assess their understanding, and help them prepare effectively for ASE certification.
- The text provides a uniquely thorough, detailed guide to essential automotive topics, including all of the basic areas outlined by ASE, such as engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance.
- An extensive suite of instructor resources is available to reinforce teaching and learning, including Chapter presentations in PowerPoint with videos and animations, electronic test banks, NATEF task correlations, an Image Library of all Chapter figures, and more.

CONTENTS

Part I: AUTOMOTIVE TECHNOLOGY.1. Careers in the Automotive Industry.2. Workplace Skills.3. Basic Theories and Math.4. Automotive Systems.5. Hand Tools and Shop Equipment.6. Diagnostic Equipment and Special Tools.7. Working Safely In the Shop.8. Preventative Maintenance and Basic Services.Part II: ENGINES.9. Automotive Engine Designs and Diagnosis.10. Engine Disassembly and Cleaning.11. Lower-End Theory and Service.12. Upper-End Theory and Service.13. Engine Sealing and Reassembly.14. Lubricating and Cooling

Systems.Part III: ELECTRICITY.15. Basics of Electrical Systems.16. General Electrical System Diagnostics and Service.17. Batteries: Theory, Diagnosis, and Service.18. Starting and Traction Motor Systems.19. Charging Systems.20. Lighting Systems.21. Instrumentation and Information Displays.22. Basics of Electronics and Computer Systems.23. Electrical Accessories.Part IV: ENGINE PERFORMANCE.24. Engine Performance Systems.25. Detailed Diagnosis and Sensors.26. Ignition Systems.27. Ignition System Diagnosis and Service.28. Diesel and Other Alternative Fuels.29. Fuel Delivery Systems.30. Electronic Fuel Injection.31. Fuel Injection Diagnosis and Service.32. Intake and Exhaust Systems.33. Emission Control Systems.34. Emission Control Systems Diagnosis and Service.35. Hybrid Vehicles.36. Electric Vehicles.Part V: MANUAL TRANSMISSIONS AND TRANSAXLES.37. Clutches.38. Manual Transmission and Transaxles.39. Manual Transmission and Transaxle Service.40. Drive Axles and Differentials.Part VI: AUTOMATIC TRANSMISSIONS AND TRANSAXLES.41. Automatic Transmissions and Transaxles.42. Electronic Automatic Transmissions.43. Automatic Transmission and Transaxle Service.44. Four- and All-Wheel Drive.Part VII: SUSPENSION AND STEERING SYSTEMS.45. Tires and Wheels.46. Suspension Systems.47. Steering Systems.48. Restraint Systems. Theory, Diagnosis, and Service.49. Wheel Alignment.Part VIII: BRAKES.50. Brake Systems.51. Drum Brakes.52. Disc Brakes.53. Antilock Brake, Traction Control, and Stability Control Systems.Part IX: PASSENGER COMFORT.54. Heating and Air Conditioning.55. Heating and Air Conditioning Diagnosis and Service.

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ebook



VEHICLE MAINTENANCE AND REPAIR LEVEL 1, 2E

Patrick Hamilton, Chairman of the IMI Members Association
Norfolk; John Rooke CertEd, MIMI, Mifl; Julian Brown

This new edition of the highly successful Vehicle Maintenance and Repair Level 1 workbook provides complete coverage of the QCF National Occupational Standards at Level 1 as set by the IMI and is in-line with VRQ and NVQ qualifications. Learners will be inspired by the full-colour diagrams and images illustrating key techniques and the Tip Boxes, weblinks, activities and questions will ensure learners have full understanding of all the essential information. This easy to use, easy to follow workbook ensures learners have all the theoretical and practice knowledge in preparation for further study or the world of work.

FEATURES

- Full coverage of essential topics on good and safe working, engines, chassis, transmission and electrical systems.
- UK automotive terminology used throughout to ensure learners have the correct knowledge which can be applied in the workplace.
- Clear objectives and key terms at the start of each section to outline the core information.
- Exciting colour images and photos from leading companies in the motor and mechanical engineering industry to bring the subject to life.
- Full-colour diagrams illustrate key methods and technical details so learners can fully understand every technique.
- The host of self-assessment, multiple choice questions ensure learners are prepared for the awarding body on-line multiple choice questions.
- Crosswords and Word searches help learners

remember the key terminologies in preparation for assessment.

- Covers a wide range of vehicle makes and models focussing in on right hand drive
- Complete 'time saving' Instructor's companion for checking students.

CONTENTS

Part 1: Introduction. Section 1: Personal and Social Development (PSD.). Section 2: Employment Rights and Responsibilities (ERR.). Section 3: Health and Safety. Section 4: Tools, Equipment and Materials. Section 5: The Retail Automotive Industry. Part 2: Engine Construction and Operating Principles. Section 1: Spark Ignition Engine Systems, Components and Operation. Section 2: Compression Ignition Engine Systems, Components and Operation. Section 3: Engine Liquid Cooling & Lubrication System Components and Operation. Section 4: Exhaust Systems Components and Maintenance. Section 5: Spark Ignition System Maintenance. Section 6: Introduction to Spark Ignition Fuel Systems. Section 7: Introduction to Compression Ignition Fuel Systems. Part 3: Chassis Section 1: Vehicle Construction. Section 2: Steering and Suspension Systems Components and Maintenance. Section 3: Braking Systems Components and Maintenance. Section 4: Wheels and Tyres Construction and Maintenance. Part 4: Driveline Transmissions. Section 1: The vehicle transmission: engine, clutch, gearbox, driveshaft/propshaft. final drive, centre diff/ transfer box. Part 5: Electrical Systems. Section 1: Electrical Foundation Skills: Electrical principles, battery charging, Starting, lighting and system maintenance, auxiliary. Part 6: Low Carbon Technologies. Part 7: Valeting. Part 8: Heavy Vehicle Maintenance. Part 9: Motorcycle Maintenance.

© 2012, 288pp, Paperback, 9781408064221



ebook



LIGHT VEHICLE MAINTENANCE AND REPAIR LEVEL 2, 2E

Soft Bound Version

Patrick Hamilton, Chairman of the IMI Members Association Norfolk; John Rooke CertEd, MIMI, Mifl; Robert Sharman, Sector Skills Council

This new edition of the highly successful Light Vehicle Maintenance and Repair Level 2 workbook provides complete coverage of the National Occupational Standards at Level 2 as set by the IMI and has been reviewed by Roy Brooks, the highly acclaimed author of the first edition. The easy to use, easy to follow format makes this the perfect companion for the course, for use in class and while carrying out practical tasks. Learners will be inspired by the full-colour diagrams and images illustrating key techniques and the Tip Boxes, weblinks, activities and questions will ensure learners have full understanding of all the essential information.

FEATURES

- Up-to-date QCF National Occupational Standard mapping grid as per the IMI standards at Level 2
- Full coverage of essential topics on good and safe working practise, engines, chassis, transmission and electrical systems
- Clear objectives and key terms at the start of each section to outline the core information
- Exciting colour images and photos from leading companies in the motor and mechanical engineering industry to bring the subject to life
- Full-colour diagrams illustrate key methods and technical details so learners can fully understand every technique
- Crosswords, word searches and activities boxes to enable learners to assess their understanding

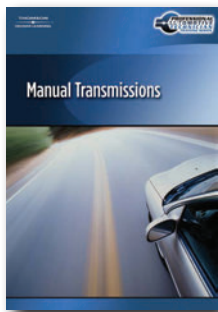
as they go

- Useful weblinks, Tip boxes and Check Your Knowledge multiple choice questions help prepare students for assessment
- Covers a wide range of vehicle makes and models focussing in on right hand drive
- Complete 'time saving' Instructor's companion for checking students answers

CONTENTS

Part 1 – Introduction. Section 1 Health & Safety. Section 2 Good Housekeeping. Part 2 – The Motor Industry. Section 1 Workplace structure and job roles. Section 2- Tools and Equipment. Part 3 – Engines. Section 1 Construction and operating principles. Section 2 Cooling. Section 3 Lubrication. Section 4 Fuel injection systems. Section 5 Ignition Systems. Section 6 Exhaust Systems. Part 4 – Chassis. Section 1 Vehicle Construction. Section 2 Wheels & Tyres. Section 3 Braking systems. Section 4 Suspension systems. Section 5 Steering systems. Part 5 – Transmission. Section 1 Vehicle layouts. Section 2 Clutch. Section 3 Gearbox. Section 4 Final drive. Section 5 Driveline. Part 6 – Electrical Systems. Section 1 Understanding electricity. Section 2 Circuits and operation. Section 3 Batteries. Section 4 starting system. Section 5 Charging system. Section 6 Auxiliary systems. Section 7 Diagnosis and testing. Endmatter. Bibliography for further reading. Glossary

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Manual Transmission Computer Based Training (CBT)
Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Manual Transmission Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- Bookmarking technology enables users to track their progress from beginning to end.
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety and Communication. Basic Theories and Services. Drivelines. Final Drives. Clutch Assemblies. Manual Transmissions. Four-Wheel Drive Systems.

© 2008, NonBook-Disk, 9781418042554



ebook



LIGHT VEHICLE MAINTENANCE AND REPAIR LEVEL 2, 2E

Spiral Bound Version

Patrick Hamilton, Chairman of the IMI Members Association
Norfolk; John Rooke CertEd, MIMI, Mifi; Robert Sharman,
Sector Skills Council

This new edition of the highly successful Light Vehicle Maintenance and Repair Level 2 workbook provides complete coverage of the National Occupational Standards at Level 2 as set by the IMI and has been reviewed by Roy Brooks, the highly acclaimed author of the first edition. The easy to use, spiral bound format makes this the perfect companion for the course, enabling learners to use the workbook in-class and while carrying out practical tasks. Learners will be inspired by the full-colour diagrams and images illustrating key techniques and the Tip Boxes, weblinks, activities and questions will ensure learners have full understanding of all the essential information.

FEATURES

- Up-to-date QCF National Occupational Standard mapping grid as per the IMI standards at Level 2
- Full coverage of essential topics on good and safe working practise, engines, chassis, transmission and electrical systems
- Clear objectives and key terms at the start of each section to outline the core information
- Exciting colour images and photos from leading companies in the motor and mechanical engineering industry to bring the subject to life
- Full-colour diagrams illustrate key methods and technical details so learners can fully understand every technique

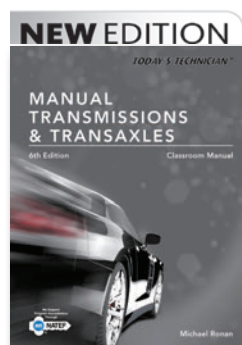
- Crosswords, word searches and activities boxes to enable learners to assess their understanding as they go
- Useful weblinks, Tip boxes and Check Your Knowledge multiple choice questions help prepare students for assessment
- Covers a wide range of vehicle makes and models focussing in on right hand drive
- Complete 'time saving' Instructor's companion for checking students answers

CONTENTS

.Part 1 – Introduction. Section 1 Health & Safety. Section 2 Good Housekeeping. Part 2 – The Motor Industry. Section 1 Workplace structure and job roles. Section 2 Tools and Equipment. Part 3 – Engines. Section 1 Construction and operating principles. Section 2 Cooling. Section 3 Lubrication. Section 4 Fuel injection systems. Section 5 Ignition Systems. Section 6 Exhaust Systems. Part 4 – Chassis. Section 1 Vehicle Construction. Section 2 Wheels & Tyres. Section 3 Braking systems. Section 4 Suspension systems. Section 5 Steering systems. Part 5 – Transmission. Section 1 Vehicle layouts. Section 2 Clutch. Section 3 Gearbox. Section 4 Final drive. Section 5 Driveline. Part 6 – Electrical Systems. Section 1 Understanding electricity. Section 2 Circuits and operation. Section 3 Batteries. Section 4 starting system. Section 5 Charging system. Section 6 Auxiliary systems. Section 7 Diagnosis and testing. Endmatter. Bibliography for further reading. Glossary

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UNDERCAR SYSTEMS



ebook

MindTap

TODAY'S TECHNICIAN, 6E

Manual Transmissions and Transaxles Classroom Manual and Shop Manual

Mike Ronan, State University of New York, Alfred State College

Reflecting the 2013 NATEF AST/MAST program standards, this fully updated Sixth Edition of TODAY'S TECHNICIAN: MANUAL TRANSMISSIONS & TRANSAXLES covers a wide range of must-know topics, including dual clutch systems, various limited-slip differential designs, and six-speed transmissions, while still addressing the basics, such as the importance of safe work habits and the purpose and major components of the transmission system and subsystems. Volume 1, the Classroom Manual, covers every topic on the ASE A3 Manual Drive Train and Axles certification test in a thorough, easy-to-understand manner, while Volume II, the Shop Manual, includes detailed job sheets that ask students to perform hands-on service and repair tasks that reflect 2013 AST/MAST task lists. Detailed full-color photos demonstrate exactly what students can expect when performing a procedure on the job. In addition, new references to high performance topics reflect recent advances in the fast-growing automotive performance industry.

NEW TO THIS EDITION

- Content has been updated throughout to adhere to the 2013 NATEF AST/MAST program standards.
- Coverage reflects the latest technological advances in the rapidly changing automotive

field. New coverage of high performance topics is integrated throughout the classroom and shop manuals to reflect recent advances in the fast-growing automotive performance industry.

- Job sheets in the shop manual incorporate the 2013 NATEF AST/MAST task lists.

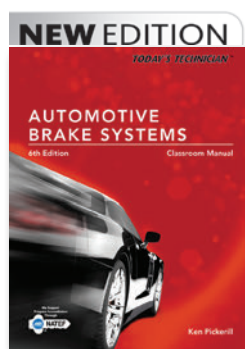
FEATURES

- Thorough, well-illustrated coverage of theory and key concepts in the Classroom Manual helps students succeed on the ASE A3 Manual Drive Train and Axles certification test.
- Practical, NATEF task-oriented service procedures in the Shop Manual prepare students for effective on-the-job performance.
- Striking full color photographs illustrate actual repairs so students know what to expect when performing a procedure on the job.
- The book's easy-to-understand presentation of technical concepts helps students master key content.
- A full color design and art program clarifies concepts and hands-on procedures to increase student success.
- Shop Manual and Classroom Manual content is cross-referenced for easy access to all relevant topical information.

CONTENTS

CLASSROOM MANUAL. 1. Manual Drive Trains and Axles. 2. Drivetrain Theory. 3. Clutches. 4. Manual Transmissions/Transaxles. 5. Front Drive Axles. 6. Drive Shafts and Universal Joints. 7. Differentials and Drive Axles. 8. Four-Wheel Drive (4WD) Systems. 9. Advanced Four-Wheel-Drive Systems. 10. Drivetrain Electrical and Electronic Systems. 11. Electronically Controlled and Automated Transmissions. **SHOP MANUAL.** 1. Safety. 2. Special Tools and Procedures. 3. Servicing Clutches. 4. Servicing Transmissions/Transaxles. 5. Servicing Front Drive Axles. 6. Servicing Drive Shafts and Universal Joints. 7. Servicing Differentials and Drive Axles. 8. Servicing Four-Wheel Drive Systems. 9. Diagnosing 4WD and AWD Control Systems. 10. Servicing Drivetrain Electrical Systems. 11. Diagnosing Advanced Electronic Systems.

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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Brake Systems, Classroom and Shop Manual Prepack

Ken Pickerill

The 6th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE BRAKE SYSTEMS is a comprehensive text that equips readers to confidently understand, diagnose, and repair today's brake systems. Using a unique two-volume approach, the first volume (Classroom Manual) details the theory and application of the total brake system, subsystem, and components, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid vehicles, brake by wire, and electric brakes—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- Extensive updates to reflect new and emerging technology and service techniques, including material on hybrid vehicles, brake by wire systems, and electric brakes.
- New and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos and procedures have been added

to provide a current and comprehensive review of brake service and repair, providing valuable reinforcement of Chapter material for today's visual learners.

- New information on stability control, active braking, and regenerative braking in hybrid vehicles, reflecting advances in technology and current industry standards and best practices.
- Numerous new study review questions are included to help students review Chapter material, assess their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

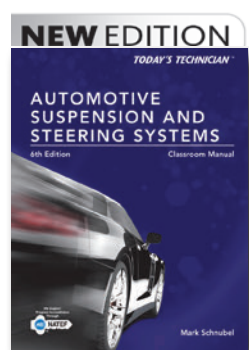
FEATURES

- Full-color drawings, photos, and schematics show modern brake technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- Thorough coverage of the 2012 NATEF Automobile Program Standards for Brakes, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology, such as ABS within a vehicle stability system, prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

CLASSROOM MANUAL. 1. Brake System Fundamentals. 2. Principles and Theories of Operation. 3. Related Systems: Tire, Wheels, Bearings, and Suspensions. 4. Master Cylinder and Brake Fluid. 5. Hydraulic Lines, Valves, and Switches. 6. Power Brake Systems. 7. Disc Brakes. 8. Drum Brakes. 9. Parking Brakes. 10. Electrical Braking Systems. **SHOP MANUAL.** 1. Brake Safety. 2. Brake Service Tools and Equipment. 3. Related System Service. 4. Master Cylinder and Brake Fluid Service. 5. Hydraulic Line, Valve, and Switch Service. 6. Power Brake Service. 7. Disc Brake Service. 8. Drum Brake Service. 9. Parking Brake Service. 10. Electrical Brake Systems.

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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Suspension & Steering Classroom Manual and Shop Manual

Mark Schnubel, Naugatuck Valley Community College

This text covers both the theory and procedures related to the diagnosis and service of automotive suspension and steering systems, using a unique two-volume approach to optimize learning in both the classroom and the auto shop. The first volume (Classroom Manual) details the theory and application of suspension and steering systems, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid and electric vehicles, tire plus sizing, and computer-controlled suspensions—the Sixth Edition also aligns with area A4 of the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks. Ideal for aspiring and active automotive professionals, TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION & STEERING SYSTEMS, Sixth Edition, equips readers to confidently understand, diagnose, and repair suspension and steering systems in today's automobiles.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service

techniques, including material on basic electrical theory, hybrid and electric vehicle safety, tire plus sizing and rim offset considerations, computer-controlled suspensions, radar and laser crash avoidance systems, and self-parallel parking.

- In addition to consolidating coverage of alignment into two Chapters for streamlined presentation, the text features a new, highly versatile modular structure, making it easier to select specific topics and cover them in a sequence tailored to the unique needs of your courses and students.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including new and updated job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New full-color photos, illustrations, tables, charts, and diagrams have been added throughout the text to provide valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions, forms, task examples, and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

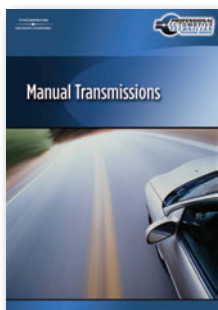
- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of automotive suspension and steering systems, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern suspension and steering technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Suspension and Steering Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.

- Detailed information on increasingly common technology—such as active steering systems, four wheel active steering (4WAS), PAX tire systems, adaptive cruise control (ACC), lane departure warning systems, telematics, electric-drive power steering pumps, electronic wheel alignment equipment, and tire pressure monitoring systems (TPMS)—prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

1. Suspension and Steering Systems Introduction and Overview.
2. Basic Theories.
3. Tires and Wheels.
4. Wheel Bearings.
5. Shock Absorbers and Struts.
6. Front Suspension Systems.
7. Rear Suspension Systems.
8. Steering Columns and Steering Linkages.
9. Four Wheel Alignment. Part I.
10. Four Wheel Alignment. Part II.
11. Computer-Controlled Suspension Systems.
12. Power Steering Pumps.
13. Rack and Pinion Steering Gears and Four Wheel Steering.
14. Recirculating Ball Steering Gears.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Manual Transmission Computer Based Training (CBT)
Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Manual Transmission Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

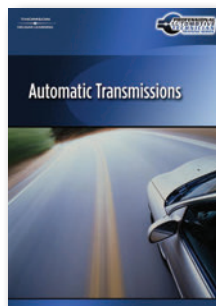
- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- Bookmarking technology enables users to track their progress from beginning to end.
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety and Communication. Basic Theories and Services. Drivelines. Final Drives. Clutch Assemblies. Manual Transmissions. Four-Wheel

Drive Systems.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: AUTOMATIC TRANSMISSIONS COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Automatic Transmissions Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

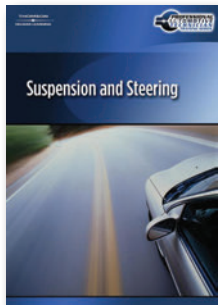
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CONTENTS

Safety and Communication. Basic Theories and Services. Basic Operation. Diagnostic and In-Vehicle Service. Hydraulic System and Controls. Internal Parts. Transmission Service

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: SUSPENSION AND STEERING COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Suspension and Steering Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

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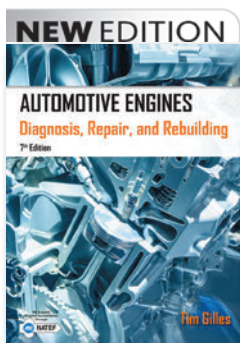
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Basic Theories and Services. Tires and Wheels. Wheel and Axle Bearings. Springs, Shocks, and Struts. Suspension Systems. Steering Systems. Power Steering. Wheel Alignment

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UNDERHOOD SYSTEMS



ebook

CourseMate

AUTOMOTIVE ENGINES, 7E

Diagnosis, Repair, Rebuilding

Tim Gilles, Santa Barbara City College, Santa Barbara, California

This complete textbook provides detailed content on the theory of operation, diagnosis, repair, and rebuilding of automotive engines. In addition to essential technical expertise, the text helps users develop the skills and knowledge they need for professional success, including critical thinking and awareness of key industry trends and practices. The text emphasizes universal repair techniques and case histories based on real-world scenarios to prepare users for careers in the field. Instructor resources include lesson plans, customizable lab sheets that address NATEF Standards, a customizable test bank with questions based on Chapter content, presentations in PowerPoint,

and more. Now updated with new, full-color images and information on the latest trends, tools, and technology—including hybrid engines and high-performance components—AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, Seventh Edition, is the ideal resource for automotive programs who want a complete teaching package for their Engines course.

NEW TO THIS EDITION

- New and updated full-color photographs and illustrations throughout the text help bring key concepts to life, making it easier for users to apply what they learn in hands-on, real-world scenarios.
- The author has updated content to reflect new developments in automotive technology and industry practices, including information on hybrid engines, gasoline direct injection theory and service, cooling and lubrication systems, variable valve timing, and relative compression testing with amp probe and DSO.
- A new section devoted to high-performance engines includes extensive coverage of turbochargers, manifolds, and camshafts, preparing users to understand and service these specialized engine components.

FEATURES

- A robust package of instructor resources makes it easier to integrate the text within your course; highlights include presentations in PowerPoint, lesson plans, customizable lab sheets incorporating NATEF Standards, and a test bank featuring abundant questions based on Chapter content.
- Special features throughout the text help support effective learning and career preparation, including images of failed and worn parts to help users prevent recurring problems, information on repairing and restoring high-performance sports cars, and tips from experienced professionals on shop practices and engine machining.
- Compelling case histories provide real-world examples to illustrate key concepts and techniques, helping users appreciate the practical applications of text material and think critically about using their knowledge and skills in a variety of professional scenarios.

- The author emphasizes repair techniques universal to all engines, covering fundamental principles and practices to prepare users for career success in independent repair shops, parts and machine shops, auto dealerships, and other settings.

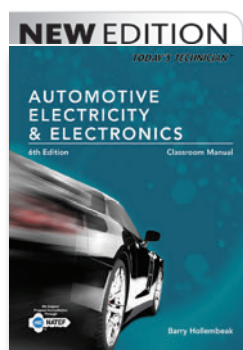
CONTENTS

Part I: ENGINE CONSTRUCTION, DIAGNOSIS, DISASSEMBLY, AND INSPECTION.1. Engine Operation.Simple Engine. Four-Stroke Engine Operation. Cylinder Arrangement. Valve Train. Cylinder Block. Front-Wheel Drive. Engine Classifications. Combustion Chamber Designs. Firing Order. Types of Cooling Systems. Ignition Types. Study Questions. ASE-Style Review Questions.2. Engine Shop Safety.General Shop Health and Safety. Hazardous Materials. Safety Test.3. Diagnosing Engine Problems.Diagnosing Problems Before an Overhaul. Oil Consumption. Fuel Mixture Problems. Compression Loss. Engine Noises. Oil Pressure Problems. Cooling System Problems. Electronic Failures/Engine Damage. Study Questions. ASE-Style Review Questions.4. Engine Removal, Disassembly, Inspection, and In-Chassis Repairs.Shop Manuals. Engine Removal. Engine Disassembly. Ordering Parts. Major Engine Repair - Engine in the Vehicle. Study Questions. ASE-Style Review Questions.5. Cleaning the Engine.Cleaning Methods. Cleaning the Inside of the Engine. Study Questions. ASE-Style Review Questions.6. Measuring.Metric System. Measuring Tools. Precision Measuring Tools. Study Questions. ASE-Style Review Questions.Part II: THE BREATHING SYSTEM.7. Cylinder Head: Parts and Service.Head Disassembly. Carbon Removal. Crack Inspection. Crack Repair. Valve Guide Inspection. Valve Guide Repair. Valve Guide Seals. Resurfacing Heads. Study Questions. ASE-Style Review Questions.8. Cylinder Head: Springs, Valves, and Valve Seats.Valve Springs. Push Rods. Rocker Arms. Valves and Valve Service. Valve Seats and Service. Reassembling the Head. Study Questions. ASE-Style Review Questions.9. Camshafts, Lifters, Timing Belts and Chains.Camshaft. Hydraulic Lifters and Lash Adjusters. Hydraulic Lifter Operation. Roller Cam and Lifters. Cam Drives. Timing Drive Maintenance. Timing the Cam to the Crank.

Timing Belts. Timing Belt Replacement. Study Questions. ASE-Style Review Questions. Part III: CYLINDER BLOCK ASSEMBLY. 10. Cylinder Block - Inspection and Service. Cleaning the Block. Oil and Water Plugs. Main Bearing Caps. Main Bearing Bore Alignment. Decking the Block. Inspecting Cylinder Bores. Deglazing Cylinders. Reboring Cylinders. Honing Cylinders to Size. Chamfering the Cylinder. Cylinder Sleeves. Lifter Bores. Final Block Preparation. Study Questions. ASE-Style Review Questions. 11. Crankshaft, Bearings, and Engine Balancing. Crankshaft Design. Crank End Thrust. Checking Crank Condition. Bearing Inserts. Engine Balancing. Study Questions. ASE-Style Review Questions. 12. Piston, Rings, and Connecting Rod. Pistons. Piston Rings. Connecting Rods. Wrist Pins. Study Questions. ASE-Style Review Questions. 13. Lubrication System. The Lubrication System. Oil. Oil Pumps. Priming the System. Oil Filters. Filter Bypass System. Crankcase Ventilation. Study Questions. ASE-Style Review Questions. 14. Cooling System. The Cooling System. Cooling System Circulation. Water Pump. Belts. Thermostat. Thermostat Bypass. Radiators. Study Questions. ASE-Style Review Questions. Part IV: ENGINE REPAIR AND REASSEMBLY. 15. Engine Hardware: Fasteners, Thread Repair, and Gaskets. Characteristics of Fasteners. Bolt Stretch. Torque and Friction. Bolt Failures. Drill Bits. Taps and Threads. Repairing Broken Fasteners. Flared Lines. Gaskets. Gasket Sealer. Seals. Study Questions. ASE-Style Review Questions. 16. Reassembly and Starting. Warranty. Reassembly. Completion of Assembly. Engine Installation. Engine Starting and Initial Break-in of the Camshaft. Final Inspection and Cleaning. Study Questions. ASE-Style Review Questions. Part V: ENGINE POWER AND PERFORMANCE. 17. Engine Breathing: Intake and Exhaust Systems. Intake and Exhaust Manifolds. Engine Modifications to Improve Air Flow. High-Performance Valves and Valve Springs. Exhaust Manifolds and Headers. Mufflers. Study Questions. ASE-Style Review Questions. 18. Turbochargers and Superchargers. Supercharging and Engine Power. Turbochargers. Turbo Boost and Lag. Supercharger Pressure Control. Variable Geometry Turbochargers. Aftercooler/Intercooler. Turbocharger Troubleshooting. Turbocharger

Damage Diagnosis. Belt-driven Superchargers/ Blowers. Pressure Relief Valves. Dynamic Superchargers. Blower Problems. Study Questions. ASE-Style Review Questions. 19. Producing Power: Valve Timing, Power and Torque Measurement. Camshaft and Engine Performance. Checking Camshaft Timing. Camshaft Phasing, Lobe Centers, and Lobe Spread. Variable Valve Timing. Active Fuel Management/Displacement on Demand. Power and Torque. Measuring Torque and Horsepower. Dynamometer Safety Concerns. Study Questions. ASE-Style Review Questions.

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ebook

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Electricity and Electronics, Classroom and Shop Manual Pack

Barry Hollembeak

Ideal for aspiring and active automotive professionals, TODAY'S TECHNICIAN: AUTOMOTIVE ELECTRICITY & ELECTRONICS, Sixth Edition, equips readers to confidently understand, diagnose, and repair electrical and electronic systems in today's automobiles. Using a unique two-volume approach to optimize learning in both the classroom and the auto shop, the first volume (Classroom Manual) details the theory and application of electricity, electronics, and circuitry in modern automobiles, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date technical information, and hundreds of detailed

illustrations and vibrant photographs, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including audio and infotainment systems, LED and adaptive lighting, hybrid and electric vehicles, and accessory systems—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service techniques, including material on electrical and electronic controlled systems, LED and adaptive lighting systems, and audio and infotainment systems.
- The text has been streamlined for easier reading and more effective learning, with Chapters reorganized to reflect a logical sequence of topics, and material on outdated systems and obsolete technologies removed.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos, illustrations, and diagrams have been added to provide a current and comprehensive review of electric and electronic automotive service and repair, providing valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of electricity and electronics in an automotive systems context, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics

show modern automotive electronics, electrical components, circuitry, and systems in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.

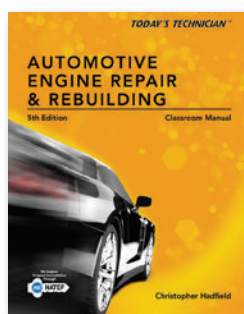
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Electrical and Electronic Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology—such as audio and infotainment systems, lighting systems, hybrid and electric vehicles, and accessory systems—prepares students for a seamless and successful transition from the classroom to the professional repair shop.
- A full Chapter on shop safety highlights safe work habits to reinforce the importance of consistent safety practices and familiarize readers with standards and procedures they are likely to encounter in today's service and repair operations.

CONTENTS

Classroom Manual. Preface. 1. Introduction to Automotive Electrical and Electronic Systems. 2. Basic Theories. 3. Electrical and Electronic Components. 4. Wiring and Circuit Diagrams. 5. Automotive Batteries. 6. Starting Systems and Motor Designs. 7. Charging Systems. 8. Lighting Circuits. 9. Introduction to The Body Computer. 10. Computer Inputs. 11. Vehicle Communication Networks. 12. Advanced Lighting Circuits. 13. Instrumentation and Warning Lamps. 14. Accessories. 15. Radio Frequency and Infotainment Systems. 16. Passive Restraint Systems. 17. Vehicles with Alternative Power Sources. Glossary of Terms. Index. Shop Manual. Preface. 1. Safety. 2. Special Tools and Procedures. 3. Basic Electrical Troubleshooting and Service. 4. Wiring Repair and Reading Circuit Diagrams. 5. Battery Diagnosis and Service. 6. Starting System Diagnosis and Service. 7. Charging System Testing and Service. 8. Lighting Circuits Repair and Diagnosis. 9. Body Computer System Diagnosis. 10. Sensor Diagnostic Routines. 11. Vehicle Multiplexing Diagnostics. 12. Advanced

Lighting Systems Diagnosis and Service.13. Instrumentation and Warning Lamp System Diagnosis and Repair.14. Electrical Accessories Diagnosis and Repair.15. Servicing Radio Frequency and Infotainment Systems.16. Servicing Passive Restraint Systems.17. Hybrid and High-Voltage System Service.Appendix A: ASE Practice Examination.Appendix B: Metric Conversions. Appendix C: Electrical and Electronic Special Tool Suppliers.Glossary of Terms.Index.

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CourseMate

MindTap

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR

& REBUILDING, 5th Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

NEW TO THIS EDITION

- The 5th Edition of is aligned with the NATEF Automotive Service Technology and Master Automotive Service Technology task lists.
- New material on cylinder heads, variable valve trains, displacement on demand, and changes in the workplace give technicians an accurate picture of automotive careers today.
- New usage guidelines and issues related to maintenance fluids and procedures for modern vehicles keep readers informed on important, day-to-day technician responsibilities.
- New photo sequences of typical procedures on maintenance and related items remove ambiguity and help readers visualize manual tasks.

FEATURES

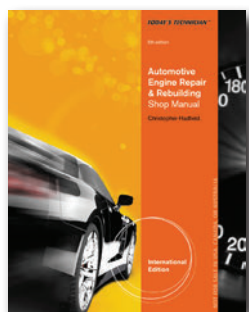
- Chapters deliver key information and skills on engine system and component maintenance, diagnosis, and repair, paving the way to successful automotive careers.
- Showcasing engines, components, and tools in remarkable detail, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition depicts the advancements found in automotive shops today, for a finely-tuned understanding of the industry.
- Practical information on hybrid vehicles, including service precautions and procedures, stress on-the-job issues and prepare readers for the automotive shop of tomorrow.
- Studying the Shop Manual's ASE practice exam prepares readers for success on the Engine Repair certification test.

CONTENTS

Classroom Manual.1. Automotive Engines.2. Theory of Engine Operation.3. Engine Repair and Rebuilding Industry.4. Engine Operating Systems.5. Engine Materials, Fasteners, Gaskets, and Seals.6. Intake and Exhaust Systems.7. Factors Affecting Engine Performance.8. Engine Configurations, Mounts, and Remanufactured Engines.9. Cylinder

Heads.10. Camshafts and Valve Trains.11. Timing Mechanisms.12. Engine Block Construction.13. Pistons, Rings, Connecting Rods, and Bearings.14. Alternative Fuel and Advanced Technology Vehicles. Shop Manual1. Safety and Shop Practices.2. Basic Testing, Initial Inspection, and Service Procedures.3. Engine Rebuilding Tools and Skills.4. Diagnosing and Servicing Engine Operating Systems.5. Repair and Replacement of Engine Fasteners, Gaskets, and Seals.6. Intake and Exhaust System Diagnosis and Service.7. Diagnosing Engine Performance Concerns.8. Engine Removal, Engine Swap, and Engine Installation.9. Cylinder Head Disassemble, Inspection, and Service.10. Valve Train Service.11. Timing Mechanism Service.12. Inspecting, Disassembling, and Servicing the Cylinder Block Assembly.13. Short Block Component Service and Engine Assembly.14. Alternative Fuel and Advanced Technology Vehicle Service.

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CourseMate

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, INTERNATIONAL EDITION, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians

Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

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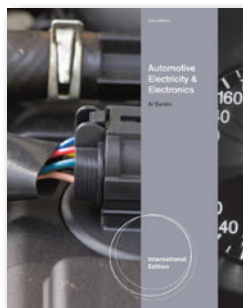
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ebook

AUTOMOTIVE ELECTRICITY & ELECTRONICS, INTERNATIONAL EDITION, 2E

Al Santini, College of DuPage (retired)

Today's automotive technicians need a thorough understanding of electrical principles and electronic systems to service modern vehicles. With **AUTOMOTIVE ELECTRICITY & ELECTRONICS, 2E, International Edition** students can explore how automotive electronics work, the role they play in a vehicle's normal operation, how and why technicians use test instruments, and common diagnosis and repair procedures. The text provides a solid grounding in the fundamentals of electricity and electronics, giving students the foundation they need to master advanced topics such as batteries, starting and charging systems, ignitions, and electrical accessories. Practical testing procedures are covered as well, including the use of both common shop tools and highly technical equipment. The text also includes up-to-date coverage of current systems, tools, and J1930 terminology. A new hands-on Study Guide/Lab manual is available to help students apply what they learn and prepare for career success.

NEW TO THIS EDITION

- The Second Edition includes extensive updates to eliminate dated material and keep pace with ongoing innovations in automotive electronics, giving students an up-to-date knowledge of the systems and tools they may encounter on the job.
- New Chapters on ignitions cover the diagnosis and repair of coil on plug systems, offering useful information and practical guidance students can apply in servicing modern vehicles.

- Additional battery testing information expands coverage of this essential topic.
- New task-oriented job sheets, included in the Study Guide/Lab Manual, make it easy for students to transition from text-based learning to hands-on application, giving them an invaluable opportunity to hone critical skills in the lab or shop.
- New electronic resources offer simple, effective ways to enhance teaching and expand learning, including an extensive library of images for use in the classroom, highly visual presentation slides, and Computerized Test Bank.

FEATURES

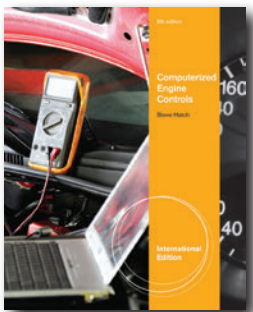
- Each section includes a series of objectives related to National Automotive Technicians Education Foundation (NATEF) standards to help students and instructors to meet certification requirements.
- The text includes thorough coverage of vehicle systems and test equipment, including digital storage oscilloscopes and current probe use.
- Detailed coverage of computer controls and the equipment used to test them enables students to build confidence and expertise with these critical components of modern vehicles.
- Review questions to conclude each Chapter—including many patterned after the Automotive Service Excellence (ASE) certification exams students may eventually take—help students assess their learning and identify topics for additional review.

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1. Safe working practices.2. Working as an electricity/electronics technician.3. Voltage, current and resistance.4. Circuits.5. Voltmeters.6. Ammeters.7. Ohmmeter.8. Circuits that do work.9. Analyzing series circuits.10. Analyzing parallel circuits.11. Series – parallel circuits.12. Control circuits.13. Diagnosing open circuits.14. Diagnosing short circuits.15. Servicing open and short circuits.16. Digital storage oscilloscopes.17. DSO trigger and slope.18. Reading and interpreting a DSO pattern.19. Using a current probe with a DSO.20. Using the DSO's multiple trace capability.21. Solid state devices.22. Electronic control input devices.23. Diagnosing and servicing electronic

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ebook

COMPUTERIZED ENGINE CONTROLS, INTERNATIONAL EDITION, 9E

Steve V. Hatch, Lincoln College of Technology (LCT), Denver

Delivering solid coverage of both domestic and imports, **COMPUTERIZED ENGINE CONTROLS, International Edition** equips readers with the foundational knowledge needed to successfully diagnose and repair vehicle electronic systems. Reflecting the latest technological advances from the field, the Ninth Edition offers updated and expanded coverage of the approach of diagnostics, air/fuel ratio sensors, OBD II, and much more. This text includes in-depth insight into such cutting-edge topics as hybrid and fuel cell vehicles, GM's 42-volt system, hexadecimal conversion, multiplexing, and logic gates. Key concepts are reinforced with ASE-style, end-of-Chapter questions to familiarize readers with the types of questions they are likely to see in certification testing.

NEW TO THIS EDITION

- Coverage of Diagnostic Approach—Appendix A in the previous edition—has been expanded and moved into the main body of the text as the new Chapter 18.
- Additional material dealing with air/fuel ratio sensors is now included.
- GM TBI and PFI Chapters of previous editions have been combined, minimizing the emphasis on TBI systems.
- Completely reorganized and rewritten, the Chapter on OBD II is easier to read and includes coverage of the most current technology.
- Reflecting the market's reduced need for product-specific training, the author continues to de-emphasize the product-specific Chapters of this

book while increasing the amount of generic information that applies to all electronic engine control systems.

- In direct response to customer requests, the Ninth Edition's instructor resources include PowerPoint lecture slides using selected images from the text, ExamView electronic test questions, an answer key to the exercises and review questions in the text, lab sheets that instructors can copy and assign to students, and an Image library of illustrations from the text.

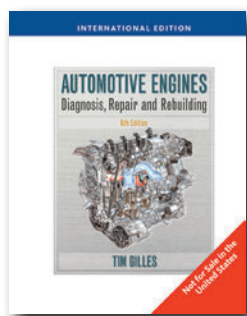
FEATURES

- Featuring extensive coverage of manufacturer-specific technology, **COMPUTERIZED ENGINE CONTROLS, 9e** provides detailed discussions of GM, Ford, Chrysler, Bosch, and Nissan/Toyota/Honda engine controls.
- Engages the students with an easy-to-read presentation in a logical sequence of topics.
- ASE-style, end-of-Chapter questions drive home key concepts and familiarize readers with the types of questions they are likely to see both in practice and in certification testing.

CONTENTS

1. A Review of Electricity and Electronics. 2. Computers in Cars. 3. Common Components for Computerized Engine Control Systems. 4. Common Operating System Principles for Computerized Engine Control Systems. 5. Diagnostic Concepts. 6. Diagnostic Equipment. 7. Exhaust Gas Analysis. 8. Understanding OBD II. 9. Multiplexing Concepts. 10. General Motor's Electronic Engine Controls. 11. Advanced General Motor's Engine Controls. 12. Ford's Electronic Control IV (EEC IV). 13. Ford's Electronic Control V (EEC V). 14. Chrysler Corporation Fuel Injection Systems. 15. European (Bosch) Engine Control Systems. 16. Asian Computer Control Systems. 17. Alternative Power Sources. 18. Approach to Diagnostics.

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eBook

AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, INTERNATIONAL EDITION, 6E

Tim Gilles, Santa Barbara City College, Santa Barbara,
California

AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING International Edition provides updated, accurate, and comprehensive information on what is needed to diagnose, repair, and rebuild automotive engines. This book will build readers' technical expertise and critical thinking skills, while also providing them with information on current industry trends and concerns. This revised edition includes an enhanced Chapter on engine diagnosis 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 bring this new edition to life.

NEW TO THIS EDITION

- Includes Instructor Resource Materials that contain an extensive collection of lab sheets in electronic Microsoft Word format that address NATEF Standards and which can be easily customized to suit the needs of the instructor. Also included are lesson plans that can be used as a starting point for teachers new to the engine rebuilding area and a supplemental practice test bank.
- New illustrations and photos of unusual wear and failed parts to help students understand how to correct problems so they do not recur.
- Updated information on repairing and restoring high performance sport compact cars, including vintage racing cars.

- Updated information on the ever-changing areas of cooling and lubrication.
- Includes the following additional updates: separation of interesting but dated material from the rest of the information on Vintage Engines; inclusion of real-world case histories that provide critical thinking practice; addition of new shop tips; addition of generic engine machining tips from experienced machinists.

FEATURES

- Includes updated information on engine cooling and lubrication systems, with a focus on maintenance for longer-lasting vehicles.
- Includes new content on the repair of high performance sport compact cars, hot rodding, and vehicle restoration, reflecting the evolution of the design and engineering of automotive engines.
- Adds new case histories that draw attention to real-world situations and provide more critical thinking practice.
- Discusses repair techniques that are universal to all engines, preparing readers for careers in independent repair shops, parts and machine shops, and dealerships.
- Includes ASE-style engine machinist practice tests and explanations in the back of the book that will help readers to effectively prepare for the ASE Certification Exam.

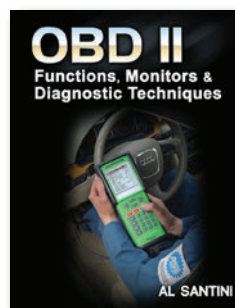
CONTENTS

PART 1: ENGINE CONSTRUCTION, DIAGNOSIS, DISASSEMBLY, AND INSPECTION. 1. Engine Operation. Simple Engine. Four-Stroke Engine Operation. Cylinder Arrangement. Valve Train. Cylinder Block. Front-Wheel Drive. Engine Classifications. Combustion Chamber Designs. Firing Order. Types of Cooling Systems. Ignition Types. Study Questions. ASE-Style Review Questions. 2. Engine Shop Safety. General Shop Health and Safety. Hazardous Materials. Safety Test. 3. Diagnosing Engine Problems. Diagnosing Problems Before an Overhaul. Oil Consumption. Fuel Mixture Problems. Compression Loss. Engine Noises. Oil Pressure Problems. Cooling System Problems. Electronic Failures/Engine Damage. Study Questions. ASE-Style Review Questions. 4. Engine Removal, Disassembly, Inspection, and In-

Chassis Repairs. Shop Manuals. Engine Removal. Engine Disassembly. Ordering Parts. Major Engine Repair – Engine in the Vehicle. Study Questions. ASE-Style Review Questions. 5. Cleaning the Engine. Cleaning Methods. Cleaning the Inside of the Engine. Study Questions. ASE-Style Review Questions. 6. Measuring. Metric System. Measuring Tools. Precision Measuring Tools. Study Questions. ASE-Style Review Questions. PART 2: THE BREATHING SYSTEM. 7. Cylinder Head: Parts and Service. Head Disassembly. Carbon Removal. Crack Inspection. Crack Repair. Valve Guide Inspection. Valve Guide Repair. Valve Guide Seals. Resurfacing Heads. Study Questions. ASE-Style Review Questions. 8. Cylinder Head: Springs, Valves, and Valve Seats. Valve Springs. Push Rods. Rocker Arms. Valves and Valve Service. Valve Seats and Service. Reassembling the Head. Study Questions. ASE-Style Review Questions. 9. Camshafts, Lifters, Timing Belts and Chains. Camshaft. Hydraulic Lifters and Lash Adjusters. Hydraulic Lifter Operation. Roller Cam and Lifters. Cam Drives. Timing Drive Maintenance. Timing the Cam to the Crank. Timing Belts. Timing Belt Replacement. Study Questions. ASE-Style Review Questions. 10. Engine Power Development: Manifolds, Superchargers, and Camshaft Performance. Intake and Exhaust Manifolds. Turbochargers and Superchargers. Camshaft and Engine Performance. Camshaft Timing. Camshaft Phasing, Lobe Centers and Lobe Spread. Multiple Valve Heads. Variable Valve Timing. Power and Torque. Measuring Torque and Horsepower. Study Questions. ASE-Style Review Questions. PART 3: CYLINDER BLOCK ASSEMBLY. 11. Cylinder Block – Inspection and Service. Cleaning the Block. Oil and Water Plugs. Main Bearing Caps. Main Bearing Bore Alignment. Decking the Block. Inspecting Cylinder Bores. Deglazing Cylinders. Reboring Cylinders. Honing Cylinders to Size. Chamfering the Cylinder. Cylinder Sleeves. Lifter Bores. Final Block Preparation. Study Questions. ASE-Style Review Questions. 12. Crankshaft, Bearings, and Engine Balancing. Crankshaft Design. Crank End Thrust. Checking Crank Condition. Bearing Inserts. Engine Balancing. Study Questions. ASE-Style Review Questions. 13. Piston, Rings, and Connecting Rod. Pistons.

Piston Rings. Connecting Rods. Wrist Pins. Study Questions. ASE-Style Review Questions. 14. Lubrication System. The Lubrication System. Oil. Oil Pumps. Priming the System. Oil Filters. Filter Bypass System. Crankcase Ventilation. Study Questions. ASE-Style Review Questions. 15. Cooling System. The Cooling System. Cooling System Circulation. Water Pump. Belts. Thermostat. Thermostat Bypass. Radiators. Study Questions. ASE-Style Review Questions. PART 4: ENGINE REPAIR AND REASSEMBLY. 16. Engine Hardware: Fasteners, Thread Repair, and Gaskets. Characteristics of Fasteners. Bolt Stretch. Torque and Friction. Bolt Failures. Drill Bits. Taps and Threads. Repairing Broken Fasteners. Flared Lines. Gaskets. Gasket Sealer. Seals. Study Questions. ASE-Style Review Questions. 17. Reassembly and Starting. Warranty. Reassembly. Completion of Assembly. Engine Installation. Engine Starting and Initial Break-in of the Camshaft. Final Inspection and Cleaning. Study Questions. ASE-Style Review Questions.

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ebook

OBD-II: FUNCTIONS, MONITORS AND DIAGNOSTIC TECHNIQUES

Al Santini, College of DuPage (retired)

OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES is a resource that offers complete coverage of OBD II and tells your students what they need to know to succeed as field technicians. This exciting new book combines coverage of OBD II design, its role in state emission testing failures, diagnosis and repair, and the setting of readiness monitors. It provides your students

with a solid working knowledge of the purpose and functions of the OBD II by beginning with an overview of the technology and its role in on-the-job tasks. Using this as a foundation, the author then addresses more advanced topics, including the extremely high-powered diagnostic abilities involving the various scanner modes, as well as the hows and whys of setting readiness monitors. With numerous practical examples and an emphasis on world-wide vehicle coverage that does not limit explanations to specific manufacturers, **OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES**, will prepare your students for success in the industry.

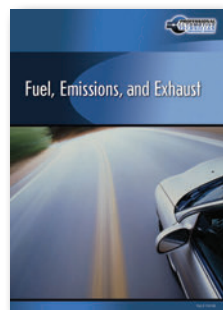
FEATURES

- Contains case studies that present actual vehicle failure scenarios and then demonstrate diagnosis and repair, offering reinforcement and the application of key concepts.
- Copies of vehicle scan data stream provide real-world data, enabling your students to easily transfer their knowledge to the world of work.
- Includes bi-directional control of the systems that provides a unique feature never before seen in any other book.
- Opens each Chapter with objectives, offering an introduction to each topic area and why it is important.
- ASE-style questions at the end of each Chapter prepare students for certification success.
- Detailed photos, line drawings and screen captures that illustrate important information.

CONTENTS

1. Introduction to OBD II.2. OBD-I vs. OBD-II.3. Diagnostic Trouble Codes (DTC's).4. Readiness and Monitors.5. Monitors and Strategies.6. Scan Data.7. Continuous Monitors-Misfire.8. The Fuel System Monitor.9. Comprehensive Component Monitor.10. Oxygen Sensor Monitor.11. CAT Monitor.12. EVAP Monitor.13. EGR Monitor.14. Air Monitor, Thermostat, and PCV Systems.15. Using OBD II Modes 5 and 6.16. Repair Baseline Techniques.17. CAN and OBD II.18. Using a DSO on an OBD II System.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Fuels, Emissions and Exhaust Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar, a part of Cengage Learning, and the leader in providing first-rate educational materials for automotive technicians, now offers Fuel, Emissions, and Exhaust Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

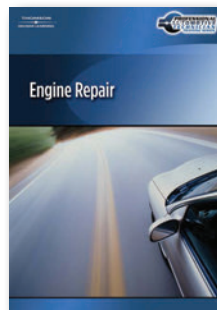
- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- bookmarking technology enables users to track their progress from beginning to end.
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- all material follows the latest ASE and NATEF standards.

CONTENTS

Chapter 1: Safe Work Practices. Chapter 2: Special Tools and Equipment. Chapter 3: Electrical Test Equipment. Chapter 4: Working as a Fuels and

Emissions Technician. Chapter 5: Introduction to the Computer. Chapter 6: Computer System Diagnosis. Chapter 7: Computer Inputs and Outputs. Chapter 8: Input and Output Diagnostics. Chapter 9: Automotive Fuels. Chapter 10: Alternative Fuels. Chapter 11: Basic Fuel Testing. Chapter 12: Fuel Tanks. Chapter 13: Fuel Tank Service. Chapter 14: Fuel Pumps and Lines. Chapter 15: Fuel Filter and Fuel Line Service. Chapter 16: Electric Fuel Pump Circuits. Chapter 17: Fuel Pump Diagnosis and Repair. Chapter 18: The Importance of the Air-Fuel Ratio. Chapter 19: Adaptive Memory. Chapter 20: Fuel-Injection Systems. Chapter 21: Electronic Fuel-Injection Input Sensor Diagnosis and Service. Chapter 22: Injector Testing and Service. Chapter 23: Scan Tester Diagnostics. Chapter 24: Emissions and the Automotive Industry. Chapter 25: Pre-combustion Controls. Chapter 26: Post-combustion Controls. Chapter 27: Exhaust Analyzer Operation. Chapter 28: Diagnosing the Emissions System. Chapter 29: Introduction to OBD-II. Chapter 30: DaimlerChrysler's OBD-II. Chapter 31: DaimlerChrysler's OBD-II with Next-Generation Controller. Chapter 32: General Motors's OBD-II. Chapter 33: Ford's OBD-II. Chapter 34: Import OBD-II. Chapter 35: Introduction to OBD-II Diagnostics. Chapter 36: OBD-II Diagnostics – Drive Cycles. Chapter 37: EVAP Leak Diagnosis. Chapter 38: Alternative Fuel Vehicles. Chapter 39: Alternative Fuel System Service. Chapter 40: CNG Electrical Component Diagnostics and Service. Chapter 41: Vehicles With Alternative Power Source. Final Review

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Engine Repair Computer Based Training (CBT)

Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Repair Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

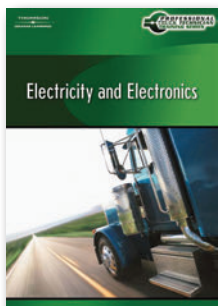
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CONTENTS

Safety and Communication. Engine Operations and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing

Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Medium/Heavy Duty Truck Electricity and Electronics
CBT - Bilingual

Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Electricity and Electronics Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
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- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards

- Course is bilingual- switch back and forth between English and Spanish at the click of a button.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES, PREVENTIVE MAINTENANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning; Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Preventive Maintenance Web Based Training (WBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
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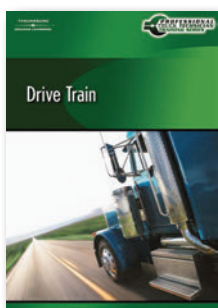
standards

- course is bilingual- switch back and forth between English and Spanish at the click of a button

CONTENTS

1. Introduction.2. Shop Safety & Operations.3. Preventive Maintenance Program.4. Engine Systems.5. Cab & Hood.6. Electrical & Electronics Systems.7. Frame & Chassis.8. Road & Operational Tests.9. Final Review.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: DRIVE TRAIN COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Drive Train Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
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- periodic progress checks and end-of-section

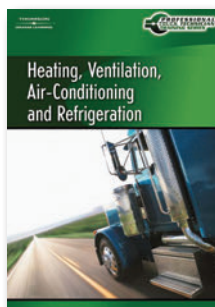
reviews are integrated throughout to ensure the highest level of retention

- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

1. Shop Safety and Operations. 2. Tools and Fasteners. 3. Clutches. 4. Standard Transmission. 5. Standard Transmission Servicing. 6. Torque Converters. 7. Automatic Transmissions. 8. Automatic Transmission Maintenance. 9. Electronically Automated Standard Transmissions. 10. Allison Electronic Transmissions. 11. Driveshaft Assemblies. 12. Heavy-Duty Truck Axles. 13. Heavy-Duty Truck Axle Service and Repair

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Heating, Ventilation, Air-Conditioning and Refrigeration Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair

information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

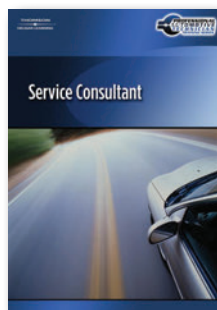
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- all material follows the latest ASE and NATEF standards

CONTENTS

1. Heating, Ventilation and Air Conditioning.
2. Environmental and Safety Practices.
3. Thermodynamics.
4. Air-Conditioning Components.
5. The Refrigeration System.
6. Service Procedures.
7. Truck Engine Cooling System.
8. Cab Climate Control/Supplemental Truck Heating and Cooling.
9. Troubleshooting and Performance Testing.
10. APAD/ACPU A/C Control Systems.
11. Truck-Trailer Refrigeration Equipment.
12. Refrigeration Components.
13. Refrigerant Flow Control.
14. Truck Trailer Refrigeration Electrical Components.
15. Truck and Trailer Refrigeration Maintenance

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Service Consultant Computer Based Training (CBT)
Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Service Consultant Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

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- all material follows the latest ASE and NATEF standards

CONTENTS

Service Facilities and the Service Consultant. Communications: Customer Relations. Internal Communications, Relations, and Supervision. Communications: Customer Delivery and Follow-

Up. Product Knowledge

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Parts Specialist Computer Based Training (CBT)
Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Parts Specialist Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

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CONTENTS

General Operations. Customer Relations and

Sales Skills. Vehicle Systems Knowledge. Vehicle Identification. Cataloging Skills. Inventory Management. Merchandising

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Heating, Ventilation & Air Conditioning Computer Based Training (CBT)
Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Heating, Ventilation & Air Conditioning Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

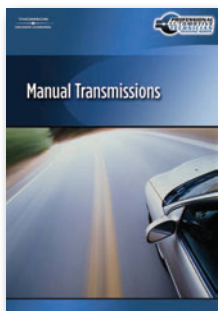
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- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety. Working as an Air Conditioning Technician. Information resources. Diagnostic and Service Tools. Understanding Heat. Temperature and Pressure Fundamentals. Refrigerants. Refrigerant and the Environment. Engine Cooling Systems. Heater System Operation. Engine Cooling System Diagnosis. Heater System Diagnosis and Service. System Components. Cycling Refrigeration Systems. Non-Cycling Refrigeration Systems. Compressor Diagnosis and Service. Refrigerant Recovery, Evacuation and Recycling. Refrigeration System Diagnosis and Service. System Retrofit.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Manual Transmission Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Manual Transmission Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

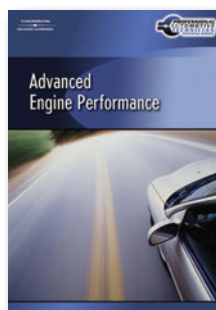
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- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety and Communication. Basic Theories and Services. Drivelines. Final Drives. Clutch Assemblies. Manual Transmissions. Four-Wheel Drive Systems.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Advanced Engine Performance Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Advanced Engine Performance Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly

interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

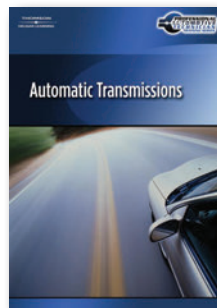
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CONTENTS

On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensors. Ignition Systems and Related Input Sensors/Output Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emissions Control and Evaporative Systems. Strategies of On-Board Diagnostic Continuous Monitors. Strategies of On-Board Diagnostic Non-Continuous Monitors. Failure Diagnosis and Five-Gas Exhaust Analysis. OBD II Codes, Acronyms and Milestones

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: AUTOMATIC TRANSMISSIONS COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Automatic Transmissions Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

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CONTENTS

Safety and Communication. Basic Theories and Services. Basic Operation. Diagnostic and In-

Vehicle Service. Hydraulic System and Controls.
Internal Parts. Transmission Service

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: ENGINE PERFORMANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Performance Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

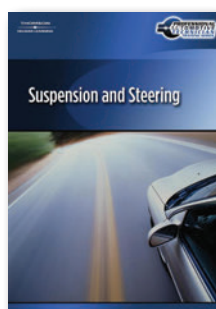
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- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course

- All material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Engine Operation and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: SUSPENSION AND STEERING COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Suspension and Steering Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

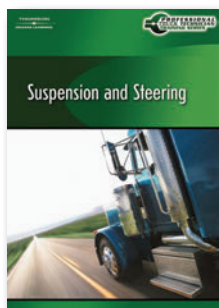
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CONTENTS

Safety and Communication. Basic Theories and Services. Tires and Wheels. Wheel and Axle Bearings. Springs, Shocks, and Struts. Suspension Systems. Steering Systems. Power Steering. Wheel Alignment

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

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CONTENTS

1. Safety Practices. 2. Basic Theory. 3. Tire, Wheels, and Wheel Bearings. 4. Steering Columns, Manual Steering Gears, and Steering Linkages. 5. Power Steering Pumps and Power Steering Gears. 6. Frames and Fifth Wheels. 7. Suspension Systems. 8. Air Suspension Systems. 9. Wheel Alignments

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AUTOMOTIVE & TRUCK TECHNOLOGY

ASE PREPARATION AND NATEF CERTIFICATION



ebook

ASE TEST PREP- T8 PREVENTIVE MAINTENANCE, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE

SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T8 Preventive Maintenance exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Preventive Maintenance task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the areas that will help you pass.

FEATURES

- We kept these same great features: Overview of what to expect when taking an ASE exam. Up-to-date ASE task lists. Overviews of each task make an easy reference point for help in answering difficult ASE questions. ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ebook

ASE TEST PREPARATION - P2 PARTS SPECIALIST, 5E

Delmar, Cengage Learning

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the P2 PARTS SPECIALIST certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

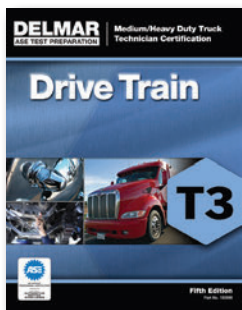
- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
- Delmar provides an overview of what to expect when taking an ASE exam, so you not only gain comfort from a content perspective, but also have an understanding of the entire process.
- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.

- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but the style in which the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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ASE TEST PREPARATION - T3 DRIVE TRAIN, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T3 Drive Train exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Drive Train task list and are fully prepared and confident to take your exam.

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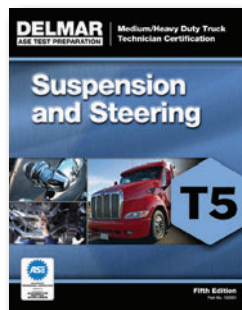
- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
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FEATURES

- We kept these same great features: Overview of

what to expect when taking as ASE exam. Up-to-date ASE task lists. Overviews of each task make an easy reference point for help in answering difficult ASE questions. ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - T5 SUSPENSION AND STEERING, 5E

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The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T5 Suspension and Steering exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Suspension and Steering task list and are fully prepared and confident to take your exam.

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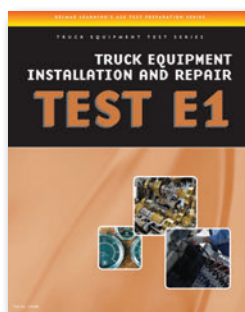
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difficult ASE questions. ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ebook

ASE TEST PREPARATION - TRUCK EQUIPMENT TEST SERIES

Truck Equipment Installation and Repair, Test E1

Delmar, Cengage Learning

Start an ASE training regimen that is focused, thorough, and will prepare you for success, using this new test preparation guide from Delmar Learning. Concentrating on the very latest truck equipment installation and repair task list released by the ASE, this book provides the tools readers need to get ready for the certification exam. It begins with a history of the ASE and progresses to include guidelines, techniques, and strategies for taking and passing ASE certification exams. An overview of the task list follows, detailing the most recent procedures used to properly install, diagnose, service, and repair truck equipment and related support systems. At the core of the book's training methods are the ASE-style practice questions and answer rationales, which allow readers to apply their knowledge and practice putting it to use in a format that mimics the certification testing environment.

FEATURES

- Tasks are explained in full detail to instill a solid comprehension of all elements of the task lists
- Explanations are provided for both correct and incorrect Practice Test answers, providing opportunities for in-depth understanding of the material and the ability to hone in on more

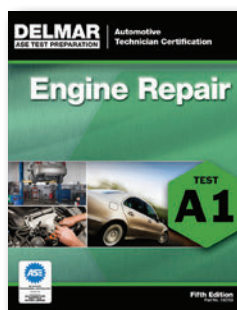
challenging concepts

- Thorough, certification-based coverage makes this an ideal resource for both entry-level technicians and experienced technicians seeking certification

CONTENTS

Section 1: The History of ASE. Section 2: Take and Pass Every ASE Test. Section 3: Types of Questions on an ASE Exam. Section 4: Overview of the Task List. Section 5: Sample Test for Practice. Section 6: Additional Test Questions for Practice. Section 7: Appendices

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ASE TEST PREPARATION - A1 ENGINE REPAIR, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A1 ENGINE REPAIR certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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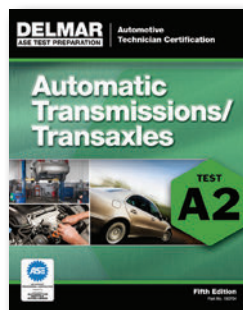
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- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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ASE TEST PREPARATION - A2 AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A2 AUTOMATIC TRANSMISSIONS AND TRANSAXLES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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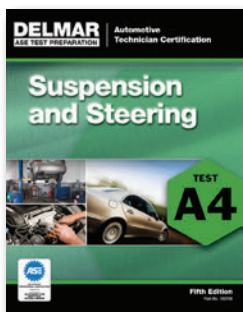
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ASE TEST PREPARATION - A4 SUSPENSION AND STEERING, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A4 SUSPENSION AND STEERING certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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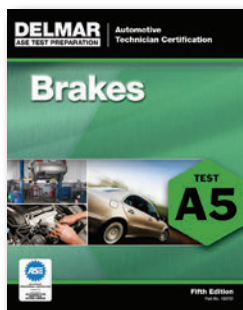
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ASE TEST PREPARATION - A5 BRAKES, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A5 BRAKES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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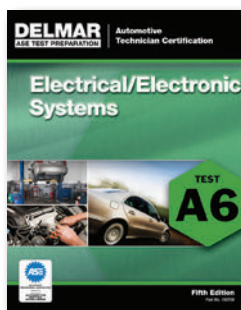
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ASE TEST PREPARATION - A6 ELECTRICITY AND ELECTRONICS, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A6 ELECTRICITY AND ELECTRONICS certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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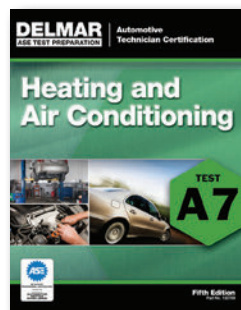
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ASE TEST PREPARATION - A7 HEATING AND AIR CONDITIONING, 5E

Delmar, Cengage Learning

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A7 HEATING AND AIR CONDITIONING certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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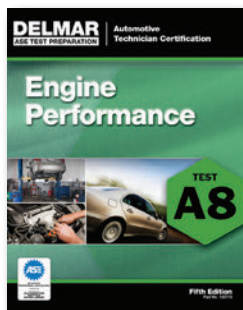
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ASE TEST PREPARATION - A8 ENGINE PERFORMANCE, 5E

Delmar, Cengage Learning

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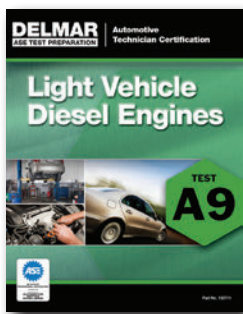
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ASE TEST PREPARATION - A9 LIGHT VEHICLE DIESEL ENGINES

Delmar

The first edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A9 LIGHT VEHICLE DIESEL ENGINES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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ASE TEST PREPARATION - C1 SERVICE CONSULTANT, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the C1 SERVICE CONSULTANT certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

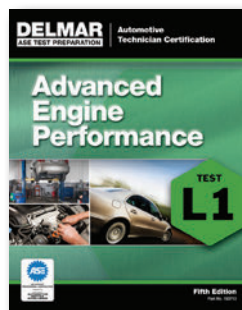
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ASE TEST PREPARATION - L1 ADVANCED ENGINE PERFORMANCE, 5E

Delmar, Cengage Learning

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the L1 ADVANCED ENGINE PERFORMANCE certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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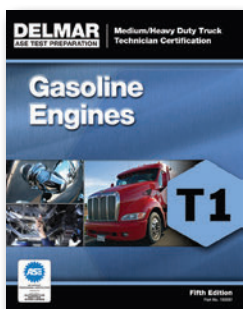
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ASE TEST PREPARATION - T1 GASOLINE ENGINES, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T1 Gasoline Engines exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Gasoline Engines task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

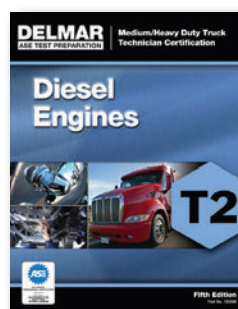
- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the

areas that will help you pass.

FEATURES

- We kept these same great features: Overview of what to expect when taking an ASE exam. Up-to-date ASE task lists. Overviews of each task make an easy reference point for help in answering difficult ASE questions. ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - T2 DIESEL ENGINES, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T2 Drive Train exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Diesel Engines task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

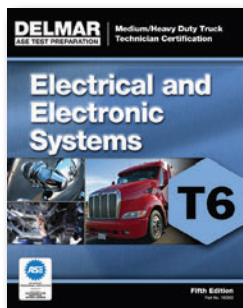
- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the areas that will help you pass.

FEATURES

- We kept these same great features: Overview of

what to expect when taking as ASE exam.Up-to-date ASE task lists.Overviews of each task make an easy reference point for help in answering difficult ASE questions.ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - T6 ELECTRICAL AND ELECTRONIC SYSTEM, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T6 Electrical and Electronic Systems exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Electrical and Electronic Systems task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the areas that will help you pass.

FEATURES

- We kept these same great features:Overview of what to expect when taking as ASE exam.Up-to-date ASE task lists.Overviews of each task make

an easy reference point for help in answering difficult ASE questions.ASE-style exam questions. Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - T7 HEATING, VENTILATION, AND AIR CONDITIONING, 5E

Delmar, Cengage Learning

The fifth edition of DELMAR'S AUTOMOTIVE SERVICE EXCELLENCE (ASE) TEST PREPARATION MANUAL for the Medium/Heavy Duty Truck T7 Heating, Ventilation, and Air Conditioning exam now contains even more content so you can pass your ASE exam the first time. This manual will ensure that you understand the Heating, Ventilation, and Air Conditioning task list and are fully prepared and confident to take your exam.

NEW TO THIS EDITION

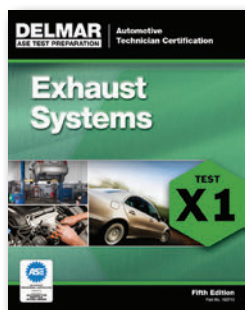
- All brand new practice questions!
- Six practice tests, instead of the traditional two will help provide you with even more preparation as you develop your test-taking confidence.
- Test questions are weighted for importance to map to the ASE task lists, so you are focusing on the areas that will help you pass.

FEATURES

- We kept these same great features:Overview of what to expect when taking as ASE exam.Up-to-date ASE task lists.Overviews of each task make an easy reference point for help in answering difficult ASE questions.ASE-style exam questions.

Detailed explanations as to why a particular answer is correct or incorrect.

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ASE TEST PREPARATION - X1 EXHAUST SYSTEMS, 5E

Delmar, Cengage Learning

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the X1 EXHAUST SYSTEMS certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

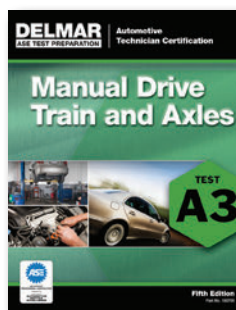
FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
- Delmar provides an overview of what to expect when taking an ASE exam, so you not only gain

comfort from a content perspective, but also have an understanding of the entire process.

- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.
- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but the style in which the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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ASE TEST PREPARATION- A3 MANUAL DRIVE TRAINS AND AXLES, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A3 MANUAL DRIVE TRAINS AND AXLES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

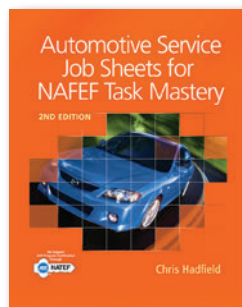
NEW TO THIS EDITION

- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
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- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.
- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but the style in which the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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ebook

AUTOMOTIVE SERVICE JOB SHEETS FOR NATEF TASK MASTERY, 2E

Chris Hadfield, Central Lakes College

Help your students master the skills they need to succeed in the automotive industry, with nearly 200 hands-on lab and shop activities correlated to National Automotive Technicians Education Foundation (NATEF) tasks for all eight Automotive Service Excellence (ASE) systems. With content organized by technology area for convenient reference, this dynamic, full-color manual provides detailed illustrations with step-by-step instructions for all major service, diagnostic, and repair procedures, from engines to electronics. Extensive new and updated material makes the Second Edition of this valuable resource even more useful, with performance-based worksheets covering everything on the current NATEF Task List--more than 450 tasks in all! In addition, integrated assessment and critical thinking questions help students reflect on their work, enhance their understanding, and develop important real-world skills they can apply as working automotive professionals.

NEW TO THIS EDITION

- The Second Edition features extensive new and updated content to provide inclusive coverage of the NATEF Task List, with nearly 200 hands-on activities encompassing more than 450 tasks in all eight ASE systems.
- The text features an even stronger emphasis on critical thinking and forward assessment, with numerous task-specific questions to help students reflect on their work, deepen their understanding of the procedures, and build confidence in their

growing skill set.

- Standards-based formative assessment questions are integrated into every job sheet to make it easier to evaluate student progress and performance and identify any areas that may need reinforcement.
- A new, text-specific Premium Website features electronic versions of the job sheets to offer convenient online access.
- The text clearly identifies job sheets that cover closely connected or sequential procedures, giving students useful insights into the relationships among repair tasks as they are commonly performed by real-world technicians.

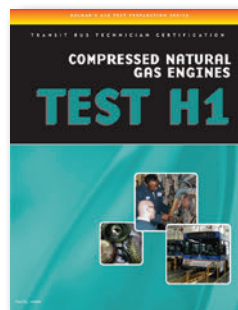
FEATURES

- Numerous full-color photos throughout the text clearly illustrate each service, diagnostic, and repair procedure, providing a useful visual guide to the step-by-step tasks students will need to perform.
- A numerical rating scale (0-4) and rubric at the end of each job sheet allows you to evaluate and record student performance quickly and easily.

CONTENTS

1. The Automobile Industry. 2. Shop Procedures, Safety, Tools, and Equipment. 3. Vehicle Inspection. 4. Engine Operation and Service. 5. Cooling System Belts, Hoses, and Plumbing. 6. Electrical System Theory and Service. 7. Heating and Air Conditioning. 8. Engine Performance Diagnosis: Theory and Service. 9. Automotive Engine Service and Repair. 10. Brakes and Tires. 11. Suspension, Steering, and Alignment. 12. Drive Train.

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ASE TEST PREPARATION - TRANSIT BUS H1, COMPRESSED NATURAL GAS

Delmar, Cengage Learning

With more natural gas vehicles on the roads than ever before, today's technicians need to be prepared to service these vehicles, both in the shop and in a testing environment for ASE certification. To accomplish this, ASE Test Preparation – H1, Compressed Natural Gas has gathered the latest need-to-know information about the new compressed natural gas task list, and paired it with ASE-style practice tests. The book begins with a history of the ASE and progresses to include guidelines, techniques, and strategies for taking and passing the certification exams. An overview of the task lists follows and is reinforced with both ASE-style practice questions and answer rationales that allow readers to practice their test-taking skills and identify areas in need of improvement.

FEATURES

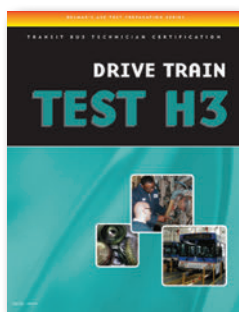
- Provides the most up-to-date ASE Task specifications for this new exam
- ASE-style exam questions reflecting the most recent ASE task list test the skills that technicians need to know on the job
- Each book contains a sample test, and additional practice learning
- Includes a brief history of ASE that follows its evolution from inception to the present
- A comprehensive glossary of technical terms helps the readers master important transit bus definitions and vocabulary
- Provides users with a better understanding of their strengths and areas needing additional review

- Content reviewed and approved by master technicians

CONTENTS

Section 1: The History of ASE. Section 2: Take and Pass Every ASE Test. Section 3: Types of Questions on an ASE Exam. Section 4: Overview of the Task List. Section 5: Sample Test for Practice. Section 6: Additional Test Questions for Practice. Section 7: Appendices.

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ASE TEST PREPARATION - TRANSIT BUS H3, DRIVE TRAIN

Delmar

When you study with this ASE Test Preparation Manual for your Transit Bus Drive Train (H3) exam, you can be confident that you're getting the most up-to-date ASE task list available and the most current industry information. This comprehensive resource provides the skills, knowledge, and practice questions needed to successfully prepare for the exam. Ideal for entry-level transit bus technicians, as well as any transit bus technician seeking certification, it is a must-have in the journey toward certification.

FEATURES

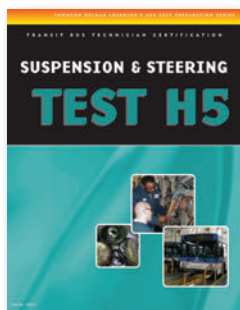
- ASE-style exam questions reflecting the most recent ASE task list test the skills that technicians need to know on the job
- each book contains a general knowledge pretest, a sample test, and additional practice learning
- includes a brief history of ASE that follows its evolution from inception to the present

- a comprehensive glossary of technical terms helps readers master important transit bus definitions and vocabulary
- provides users with a better understanding of their strengths and areas needing additional review prior to taking an exam
- content reviewed and approved by master technicians
- details significance of ASE certification

CONTENTS

Section 1: The History of ASE. Section 2: Take and Pass Every ASE Test. Section 3: Types of Questions on an ASE Exam. Section 4: Overview of the Task List. Section 5: Sample Test for Practice. Section 6: Additional Test Questions for Practice. Section 7: Appendices

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ASE TEST PREPARATION - TRANSIT BUS H5, SUSPENSION AND STEERING

Delmar, Cengage Learning

For the first time, there is a test preparation guide designed specifically to meet the requirements of the ASE certification exam for Transit Bus H5, Suspension and Steering. This exclusive new offering from Delmar Learning, ASE Test Preparation - Transit Bus H5, Suspension and Steering, is based upon the newly released ASE task list for this exam, and pairs it with ASE-style practice questions. The end result is a thorough and relevant training regimen for anyone seeking to successfully master the H5 ASE certification exam.

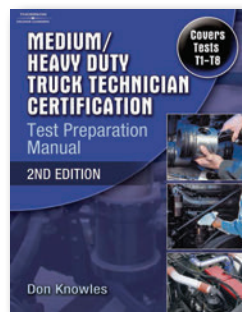
FEATURES

- provides the most up-to-date ASE Task specifications for this new exam
- ASE-style exam questions reflecting the most recent ASE task list the skills that technicians need to know on the job
- each book contains a sample test, and additional practice learning
- includes a brief history of ASE that follows its evolution from inception to the present
- a comprehensive glossary of technical terms helps readers master important transit bus definitions and vocabulary
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- content reviewed and approved by master technicians

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MEDIUM/HEAVY DUTY TRUCK TECHNICIAN CERTIFICATION TEST PREPARATION MANUAL, 2E

Don Knowles

Updated to reflect the most current ASE tasks, this book combines a clear writing style, in-depth coverage, and abundant practice questions and tests to deliver a tool that will help trucking technicians and students successfully prepare for all eight areas of the Medium/Heavy Duty Truck certification exams. Each Chapter of the Medium/Heavy Duty Truck Technician Certification Test Preparation Manual, 2nd Edition is devoted to thoroughly covering one specific ASE truck test, resulting in eight core Chapters that instill the knowledge and skills needed to get certified. These Chapters include extensive coverage of all the ASE tasks associated with each test, ASE-style questions to familiarize users with the testing format, as well as hints to encourage users to be actively involved in the problem-solving process. Pre-tests, post-tests, and sample tests are all accompanied by answers and answer analysis so users can receive immediate feedback for a continuous learning process.

FEATURES

- diagrams and charts are used to illustrate key concepts, and to reflect current ASE tests that sometimes employ illustrations as the basis for test questions
- pre-tests at the beginning of each Chapter provide users with a starting point for each topic, and a measure of which areas they need to focus on
- post-tests follow each Chapter to test knowledge, helping users to determine if additional study on

a particular topic is required

- back-of-book glossary serves as a quick reference for difficult terms

CONTENTS

Contents. Introduction. History. NIASE. ASE. ASE Testing. Objective Tests. Chapter 1 Gasoline Engines. Chapter 2 Diesel Engines. Chapter 3 Drivetrain. Chapter 4 Brakes. Chapter 5 Steering and Suspension. Chapter 6 Electrical/Electronic Systems. Chapter 7 Heating, Ventilation, and Air Conditioning (HVAC) Systems. Chapter 8 Preventive Maintenance and Inspection (PMI)

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AUTOMOTIVE SERVICE MANAGEMENT



ebook

THE SERVICE CONSULTANT, 2E

Principles of Service Management and Ownership

Ronald A. Garner, Pennsylvania College of Technology; C. William Garner, Rutgers University

Designed to prepare readers for a successful career as an automotive service consultant, **THE SERVICE CONSULTANT: PRINCIPLES OF SERVICE MANAGEMENT AND OWNERSHIP**, Second Edition teaches readers how to maximize profits and improve customer satisfaction in an automotive business. With coverage of task-oriented procedures for day-to-day operations as well as communications, relations, supervision, and customer delivery, this practical text provides readers with an in-depth examination of the multifaceted responsibilities of an automotive service consultant. In addition, the text content correlates

to the ASE tasks for Automotive Service Consultant (C1) in order to help readers better prepare for the ASE certification exam. Furthermore, the second edition contains updated examples, activities, technology, case studies, and visual aids so that readers are exposed to the most up-to-date information in the field.

NEW TO THIS EDITION

- A new boxed feature presents case studies to help students master theory.
- Throughout the text, illustrations have been updated and expanded in order to appeal to the visual learner.
- Instructor resources have been expanded to include PowerPoint lecture presentation and ExamView text questions.

FEATURES

- The text content correlates to the ASE tasks for Automotive Service Consultant (C1) in order to help readers better prepare for the ASE certification exam.
- Activities that require readers to interview local service facility managers provide opportunities for establishing important industry contacts for the future.
- Visits to local service facilities are encouraged so that readers can compare content in the book with real-life situations and procedures happening in the industry.
- Careful attention to the sequence of job duties for the service consultant gives readers a clear picture of the types of work and responsibilities that will be expected of them when they enter the workforce.

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PART I: SERVICE FACILITIES AND THE SERVICE CONSULTANT. 1. Types of Automotive Service Facilities, Professional Credentials, and Profit. 2. The Role of the Service Consultant, Parts Specialist, and Warranty Administrator. 3. The Team Approach: Business Operations and Repair Order Tracking. 4. Computerized Shop Management Systems. 5. Checking Vehicle and Customer Records. 6. Working with Warranties, Service Contracts, Service Bulletins, and Campaigns/Recalls. **PART II: COMMUNICATIONS: CUSTOMER RELATIONS.**

7. Electronic Communications, Websites, and Social Networks. 8. Personal Communication: From the Greeting to the Presentation of the Invoice. 9. Working Out Service Details with Customers. 10. Prioritizing Repair Needs. 11. Closing a Sale. PART III: COMMUNICATION: CUSTOMER DELIVERY AND FOLLOW UP. 12. Writing for the Technician. 13. Workflow and Efficient Shop Operations. 14. Customer Relations: Sales, Follow-Ups, and Promotions. PART IV: COMMUNICATION: CUSTOMER DELIVERY AND FOLLOW UP. 15. Assistant Service Manager Duties. 16. A positive Work Environment for Efficient Business Performance. 17. Analysis of Shop Operations and Business Performance. 18. Service Facility Business Start Up and Ownership. Appendix ASE (C1) Task List: Service Consultant. Glossary. Index.

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ASE TEST PREPARATION - C1 SERVICE CONSULTANT, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the C1 SERVICE CONSULTANT certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared

and confident on test day.

NEW TO THIS EDITION

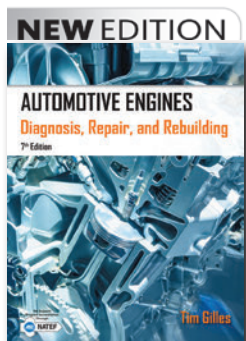
- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
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- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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AUTOMOTIVE SYSTEMS



ebook



AUTOMOTIVE ENGINES, 7E

Diagnosis, Repair, Rebuilding

Tim Gilles, Santa Barbara City College, Santa Barbara, California

This complete textbook provides detailed content on the theory of operation, diagnosis, repair, and rebuilding of automotive engines. In addition to essential technical expertise, the text helps users develop the skills and knowledge they need for professional success, including critical thinking and awareness of key industry trends and practices. The text emphasizes universal repair techniques and case histories based on real-world scenarios to prepare users for careers in the field. Instructor resources include lesson plans, customizable lab sheets that address NATEF Standards, a customizable test bank with questions based on Chapter content, presentations in PowerPoint, and more. Now updated with new, full-color images and information on the latest trends, tools, and technology—including hybrid engines and high-performance components—AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, Seventh Edition, is the ideal resource for automotive programs who want a complete teaching package for their Engines course.

NEW TO THIS EDITION

- New and updated full-color photographs and illustrations throughout the text help bring key concepts to life, making it easier for users to apply what they learn in hands-on, real-world scenarios.
- The author has updated content to reflect new

developments in automotive technology and industry practices, including information on hybrid engines, gasoline direct injection theory and service, cooling and lubrication systems, variable valve timing, and relative compression testing with amp probe and DSO.

- A new section devoted to high-performance engines includes extensive coverage of turbochargers, manifolds, and camshafts, preparing users to understand and service these specialized engine components.

FEATURES

- A robust package of instructor resources makes it easier to integrate the text within your course; highlights include presentations in PowerPoint, lesson plans, customizable lab sheets incorporating NATEF Standards, and a test bank featuring abundant questions based on Chapter content.
- Special features throughout the text help support effective learning and career preparation, including images of failed and worn parts to help users prevent recurring problems, information on repairing and restoring high-performance sports cars, and tips from experienced professionals on shop practices and engine machining.
- Compelling case histories provide real-world examples to illustrate key concepts and techniques, helping users appreciate the practical applications of text material and think critically about using their knowledge and skills in a variety of professional scenarios.
- The author emphasizes repair techniques universal to all engines, covering fundamental principles and practices to prepare users for career success in independent repair shops, parts and machine shops, auto dealerships, and other settings.

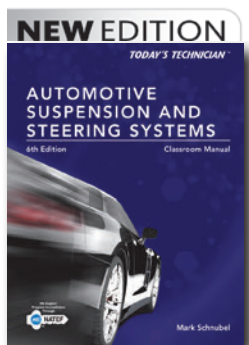
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Questions.12. Piston, Rings, and Connecting Rod. Pistons. Piston Rings. Connecting Rods. Wrist Pins. Study Questions. ASE-Style Review Questions.13. Lubrication System.The Lubrication System. Oil. Oil Pumps. Priming the System. Oil Filters. Filter Bypass System. Crankcase Ventilation. Study Questions. ASE-Style Review Questions.14. Cooling System. The Cooling System. Cooling System Circulation. Water Pump. Belts. Thermostat. Thermostat Bypass. Radiators. Study Questions. ASE-Style Review Questions.Part IV: ENGINE REPAIR AND REASSEMBLY.15. Engine Hardware: Fasteners, Thread Repair, and Gaskets.Characteristics of Fasteners. Bolt Stretch. Torque and Friction. Bolt Failures. Drill Bits. Taps and Threads. Repairing Broken Fasteners. Flared Lines. Gaskets. Gasket Sealer. Seals. Study Questions. ASE-Style Review Questions.16. Reassembly and Starting.Warranty. Reassembly. Completion of Assembly. Engine Installation. Engine Starting and Initial Break-in of the Camshaft. Final Inspection and Cleaning. Study Questions. ASE-Style Review Questions.Part V: ENGINE POWER AND PERFORMANCE.17. Engine Breathing: Intake and Exhaust Systems.Intake and Exhaust Manifolds. Engine Modifications to Improve Air Flow. High-Performance Valves and Valve Springs. Exhaust Manifolds and Headers. Mufflers. Study Questions. ASE-Style Review Questions.18. Turbochargers and Superchargers.Supercharging and Engine Power. Turbochargers. Turbo Boost and Lag. Supercharger Pressure Control. Variable Geometry Turbochargers. Aftercooler/Intercooler. Turbocharger Troubleshooting. Turbocharger Damage Diagnosis. Belt-driven Superchargers/ Blowers. Pressure Relief Valves. Dynamic Superchargers. Blower Problems. Study Questions. ASE-Style Review Questions.19. Producing Power: Valve Timing, Power and Torque Measurement. Camshaft and Engine Performance. Checking Camshaft Timing. Camshaft Phasing, Lobe Centers, and Lobe Spread. Variable Valve Timing. Active Fuel Management/Displacement on Demand. Power and Torque. Measuring Torque and Horsepower. Dynamometer Safety Concerns. Study Questions. ASE-Style Review Questions.

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eBook

CourseMate

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Suspension & Steering Classroom Manual and Shop Manual

Mark Schnubel, Naugatuck Valley Community College

This text covers both the theory and procedures related to the diagnosis and service of automotive suspension and steering systems, using a unique two-volume approach to optimize learning in both the classroom and the auto shop. The first volume (Classroom Manual) details the theory and application of suspension and steering systems, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid and electric vehicles, tire plus sizing, and computer-controlled suspensions—the Sixth Edition also aligns with area A4 of the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks. Ideal for aspiring and active automotive professionals, TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION & STEERING SYSTEMS, Sixth Edition, equips readers to confidently understand, diagnose, and repair suspension and steering systems in today's automobiles.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service

techniques, including material on basic electrical theory, hybrid and electric vehicle safety, tire plus sizing and rim offset considerations, computer-controlled suspensions, radar and laser crash avoidance systems, and self-parallel parking.

- In addition to consolidating coverage of alignment into two Chapters for streamlined presentation, the text features a new, highly versatile modular structure, making it easier to select specific topics and cover them in a sequence tailored to the unique needs of your courses and students.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including new and updated job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New full-color photos, illustrations, tables, charts, and diagrams have been added throughout the text to provide valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions, forms, task examples, and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

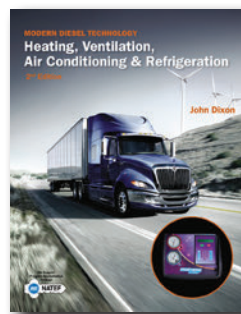
- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of automotive suspension and steering systems, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern suspension and steering technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Suspension and Steering Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.

- Detailed information on increasingly common technology—such as active steering systems, four wheel active steering (4WAS), PAX tire systems, adaptive cruise control (ACC), lane departure warning systems, telematics, electric-drive power steering pumps, electronic wheel alignment equipment, and tire pressure monitoring systems (TPMS)—prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

1. Suspension and Steering Systems Introduction and Overview. 2. Basic Theories. 3. Tires and Wheels. 4. Wheel Bearings. 5. Shock Absorbers and Struts. 6. Front Suspension Systems. 7. Rear Suspension Systems. 8. Steering Columns and Steering Linkages. 9. Four Wheel Alignment Part I. 10. Four Wheel Alignment Part II. 11. Computer-Controlled Suspension Systems. 12. Power Steering Pumps. 13. Rack and Pinion Steering Gears and Four Wheel Steering. 14. Recirculating Ball Steering Gears.

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ebook

MODERN DIESEL TECHNOLOGY, 2E Heating, Ventilation, Air Conditioning & Refrigeration John Dixon, Centennial College, Toronto

Easy to read yet technically precise, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition is the text of choice for many of the country's best diesel technology programs. Detailing the foundations of truck heating, air conditioning, engine cooling, and truck-trailer refrigeration, the book integrates modern technical terms with photos that clearly demonstrate typical, on-the-job tasks in logical sequence. Coverage includes an entire section on thermodynamics, as well as solid instruction on safety, equipment, components, troubleshooting, performance testing, maintenance, and even the history of HVAC/R in the diesel trucking industry. Enhanced with photos, drawings, and self-testing questions in each Chapter, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition delivers the technical accuracy and depth of HVAC/R information not found in any other text.

NEW TO THIS EDITION

- **New Coach Chapter:** This all-new Chapter details how the latest large bus air conditioning systems function, along with troubleshooting and maintenance procedures.
- **EPA Standards:** Advise students on proper refrigerant handling with these current EPA updates, and help technicians avoid penalties for non-compliance with environmental laws.
- **Timely Updates:** As requested by reviewers, MODERN DIESEL TECHNOLOGY: HEATING,

VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition has been thoroughly updated, including all-new discussions on the industry's latest technological advances.

- Improved Questions: Overhauled for the 2nd Edition, revised end-of-Chapter review questions and answers prepare future technicians with pinpoint accuracy.
- Ideal Coverage: Unique sections on today's transport refrigeration equipment, supplemental truck heating and cooling, and other modern-day issues make MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition a key resource in any training setting.

FEATURES

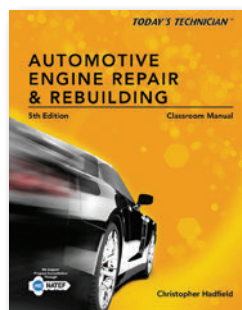
- The instructor's manual offers a complete correlation to the NATEF tasks presented in the coverage of the each chapter.
- Background Physics: A full Chapter on thermodynamics theory gives students the understanding of basic physics they need to thrive in their HVAC/R diesel technician training.
- Unmatched Coverage: Chapters cover AC components, refrigeration, engine cooling systems, climate control, and all aspects of refrigeration equipment, as well as service procedures, troubleshooting, performance testing, and maintenance. No competing text offers so many topics with such depth!
- Step-by-Step Guidance: Helpful photographs and line art depict major HVAC and refrigeration systems, while simple terminology and product-specific examples support student learning further.

CONTENTS

1. History of HVAC.2. Environmental and Safety Practices.3. Thermodynamics.4. Air Conditioning Components: Compressor, Condenser, and Receiver-Drier.5. Air-Conditioning Components: Metering Devices, Evaporator, Accumulator.6. Air Conditioning Systems.7. Service Procedures.8. Truck Engine Cooling Systems.9. Climate Control/ Supplemental Truck Heating/Cooling.10. Trouble Shooting.11. APADs/ACPU Air Conditioning Control Systems (Air Conditioning Protection Unit).12. Coach Air Conditioning.13. Truck Trailer Refrigeration

Equipment.14. Truck Trailer Refrigeration Components.15. Truck Trailer Refrigerant Flow Control.16. Truck Trailer Refrigeration Electrical Components.17. Truck Trailer Refrigeration Maintenance Procedures.

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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

NEW TO THIS EDITION

- The 5th Edition of is aligned with the NATEF Automotive Service Technology and Master Automotive Service Technology task lists.
- New material on cylinder heads, variable valve trains, displacement on demand, and changes in the workplace give technicians an accurate picture of automotive careers today.
- New usage guidelines and issues related to maintenance fluids and procedures for modern vehicles keep readers informed on important, day-to-day technician responsibilities.
- New photo sequences of typical procedures on maintenance and related items remove ambiguity and help readers visualize manual tasks.

FEATURES

- Chapters deliver key information and skills on engine system and component maintenance, diagnosis, and repair, paving the way to successful automotive careers.
- Showcasing engines, components, and tools in remarkable detail, **TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING**, 5th Edition depicts the advancements found in automotive shops today, for a finely-tuned understanding of the industry.
- Practical information on hybrid vehicles, including service precautions and procedures, stress on-the-job issues and prepare readers for the automotive shop of tomorrow.
- Studying the Shop Manual's ASE practice exam prepares readers for success on the Engine Repair certification test.

CONTENTS

Classroom Manual.1. Automotive Engines.2. Theory of Engine Operation.3. Engine Repair and Rebuilding Industry.4. Engine Operating Systems.5. Engine Materials, Fasteners, Gaskets, and Seals.6. Intake and Exhaust Systems.7. Factors Affecting Engine Performance.8. Engine Configurations, Mounts, and Remanufactured Engines.9. Cylinder Heads.10. Camshafts and Valve Trains.11. Timing Mechanisms.12. Engine Block Construction.13. Pistons, Rings, Connecting Rods, and Bearings.14. Alternative Fuel and Advanced Technology Vehicles. Shop Manual1. Safety and Shop Practices.2. Basic

Testing, Initial Inspection, and Service Procedures.3. Engine Rebuilding Tools and Skills.4. Diagnosing and Servicing Engine Operating Systems.5. Repair and Replacement of Engine Fasteners, Gaskets, and Seals.6. Intake and Exhaust System Diagnosis and Service.7. Diagnosing Engine Performance Concerns.8. Engine Removal, Engine Swap, and Engine Installation.9. Cylinder Head Disassemble, Inspection, and Service.10. Valve Train Service.11. Timing Mechanism Service.12. Inspecting, Disassembling, and Servicing the Cylinder Block Assembly.13. Short Block Component Service and Engine Assembly.14. Alternative Fuel and Advanced Technology Vehicle Service.

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ebook

CourseMate

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, INTERNATIONAL EDITION, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include

advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, **TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING**, International Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

NEW TO THIS EDITION

- The 5th Edition of is aligned with the NATEF Automotive Service Technology and Master Automotive Service Technology task lists.
- New material on cylinder heads, variable valve trains, displacement on demand, and changes in the workplace give technicians an accurate picture of automotive careers today.
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- New photo sequences of typical procedures on maintenance and related items remove ambiguity and help readers visualize manual tasks.

FEATURES

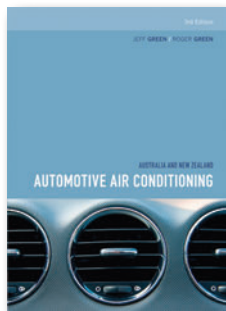
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Classroom Manual.1. Automotive Engines.2. Theory of Engine Operation.3. Engine Repair and Rebuilding Industry.4. Engine Operating Systems.5.

Engine Materials, Fasteners, Gaskets, and Seals.6. Intake and Exhaust Systems.7. Factors Affecting Engine Performance.8. Engine Configurations, Mounts, and Remanufactured Engines.9. Cylinder Heads.10. Camshafts and Valve Trains.11. Timing Mechanisms.12. Engine Block Construction.13. Pistons, Rings, Connecting Rods, and Bearings.14. Alternative Fuel and Advanced Technology Vehicles. Shop Manual1. Safety and Shop Practices.2. Basic Testing, Initial Inspection, and Service Procedures.3. Engine Rebuilding Tools and Skills.4. Diagnosing and Servicing Engine Operating Systems.5. Repair and Replacement of Engine Fasteners, Gaskets, and Seals.6. Intake and Exhaust System Diagnosis and Service.7. Diagnosing Engine Performance Concerns.8. Engine Removal, Engine Swap, and Engine Installation.9. Cylinder Head Disassemble, Inspection, and Service.10. Valve Train Service.11. Timing Mechanism Service.12. Inspecting, Disassembling, and Servicing the Cylinder Block Assembly.13. Short Block Component Service and Engine Assembly.14. Alternative Fuel and Advanced Technology Vehicle Service.

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AUTOMOTIVE AIR CONDITIONING, 3E Australia and New Zealand

Jeff Green, TAFE NSW; Roger Green, Sydney Institute of TAFE

Automotive Air Conditioning: Australia and New Zealand is a text book for professional training and covers in three parts air conditioning theory, system diagnosis and service procedures. Now in full colour, this 3rd edition covers sustainability, growing environmental concerns and recent

changes to refrigerants and their legislative requirements. The 3rd edition now covers the following units of competency from the AUR05 Training Package:

- AURT222670A Service A/C systems
- AURT322666A Repair/retrofit A/C systems
- AURT322645A Overhaul air conditioning system components
- AURC270103A Apply safe work practices
- AURT366108A Carry out diagnostic procedures
- AURT202166B Repair cooling system
- AURT223104A Assemble and install refrigeration systems/components
- AURT366308A Carry out advanced diagnostic procedures
- AURT202170A Inspect and service cooling – pressure and boiling
- AURT271781A Implement and monitor environmental regulations in the automotive mechanical industry
- AURE218708A Carry out repairs to single electrical circuits
- BSBSUS201A Participate in environmentally sustainable work practices

CONTENTS

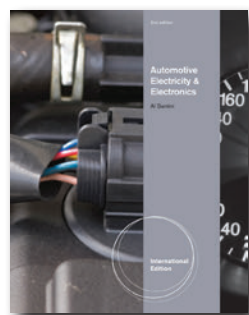
SECTION 1 AIR-CONDITIONING THEORY.1. Introduction to air conditioning, metric conversions and refrigerant handling regulations.2. Climate change.3. The human body and heat.4. The refrigeration circuit.5. Refrigerants.6. Retrofitting – using a different refrigerant.7. Receiver dryers, accumulators, moisture and its removal.8. Service valves and manifold and gauge sets.9. Leak detection.10. Compressors.11. Expansion valves.12. Electrical and other system controls.13. Engine cooling, heating and air-conditioning ducting.14. Electronic climate control (ECC).

SECTION 2 SYSTEM DIAGNOSIS.2.1 System-diagnosis flow charts.2.2 System-diagnosis charts.2.3 System-diagnosis problem sheets.2.4 Pressure/temperature charts.2.5 Temperature-pressure exercises.2.6 System-diagnosis exercises.

SECTION 3 SERVICE PROCEDURES.3.1 Service procedure 1 Connecting the manifold and gauge set to the air-conditioning system.3.2 Service procedure 2 Performance testing the system.3.3 Service procedure 3 Purging the system and recovering the refrigerant.3.4 Service procedure 4 Evacuation of the system.3.5 Service procedure 5 System oil compensation.3.6 Service procedure 6 Charging the system.3.7 Service procedure 7 Leak testing the system.3.8 Service procedure 8 Testing

and adjusting the thermostatic switch.3.9 Service procedure 9 Testing the expansion valve – TX valve or FOT.3.10 Service procedure 10 Servicing the Sanden SD compressor.3.11 Service procedure 11 Servicing the Sanden TR70/90 compressor.3.12 Service procedure 12 Servicing the TRF/TRS090 and the TRF/TRS105 Sanden compressors

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ebook

AUTOMOTIVE ELECTRICITY & ELECTRONICS, INTERNATIONAL EDITION, 2E

Al Santini, College of DuPage (retired)

Today's automotive technicians need a thorough understanding of electrical principles and electronic systems to service modern vehicles. With **AUTOMOTIVE ELECTRICITY & ELECTRONICS, 2E**, International Edition students can explore how automotive electronics work, the role they play in a vehicle's normal operation, how and why technicians use test instruments, and common diagnosis and repair procedures. The text provides a solid grounding in the fundamentals of electricity and electronics, giving students the foundation they need to master advanced topics such as batteries, starting and charging systems, ignitions, and electrical accessories. Practical testing procedures are covered as well, including the use of both common shop tools and highly technical equipment. The text also includes up-to-date coverage of current systems, tools, and J1930 terminology. A new hands-on Study Guide/Lab manual is available to help students apply what they learn and prepare for career success.

NEW TO THIS EDITION

- The Second Edition includes extensive updates to eliminate dated material and keep pace with ongoing innovations in automotive electronics, giving students an up-to-date knowledge of the systems and tools they may encounter on the job.
- New Chapters on ignitions cover the diagnosis and repair of coil on plug systems, offering useful information and practical guidance students can apply in servicing modern vehicles.
- Additional battery testing information expands coverage of this essential topic.
- New task-oriented job sheets, included in the Study Guide/Lab Manual, make it easy for students to transition from text-based learning to hands-on application, giving them an invaluable opportunity to hone critical skills in the lab or shop.
- New electronic resources offer simple, effective ways to enhance teaching and expand learning, including an extensive library of images for use in the classroom, highly visual presentation slides, and Computerized Test Bank.

FEATURES

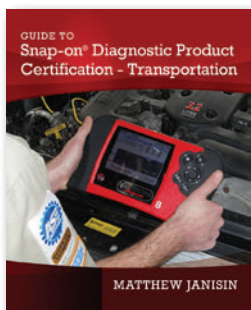
- Each section includes a series of objectives related to National Automotive Technicians Education Foundation (NATEF) standards to help students and instructors to meet certification requirements.
- The text includes thorough coverage of vehicle systems and test equipment, including digital storage oscilloscopes and current probe use.
- Detailed coverage of computer controls and the equipment used to test them enables students to build confidence and expertise with these critical components of modern vehicles.
- Review questions to conclude each Chapter—including many patterned after the Automotive Service Excellence (ASE) certification exams students may eventually take—help students assess their learning and identify topics for additional review.

CONTENTS

1. Safe working practices.2. Working as an electricity/electronics technician.3. Voltage, current and resistance.4. Circuits.5. Voltmeters.6. Ammeters.7. Ohmmeter.8. Circuits that do work.9. Analyzing

series circuits.10. Analyzing parallel circuits.11. Series – parallel circuits.12. Control circuits.13. Diagnosing open circuits.14. Diagnosing short circuits.15. Servicing open and short circuits.16. Digital storage oscilloscopes.17. DSO trigger and slope.18. Reading and interpreting a DSO pattern.19. Using a current probe with a DSO.20. Using the DSO's multiple trace capability.21. Solid state devices.22. Electronic control input devices.23. Diagnosing and servicing electronic control input devices.24. Integrated circuits as input devices.25. Diagnosing and servicing IC's.26. Oxygen sensors.27. Diagnosing and servicing oxygen sensors.28. Wiring diagram symbols.29. Using the wiring diagram as a service tool.30. Automotive batteries.31. Diagnosing batteries.32. Servicing batteries.33. Starting system.34. Solenoid shift starters.35. Diagnosing and servicing solenoid shift starting systems.36. Gear reduction starters.37. Diagnosing gear reduction starters.38. Starter controls.39. Diagnosing starting controls.40. Starting system servicing.41. Charging system overview.42. Field circuits.43. Diagnosing and servicing the charging system.44. Secondary ignition systems.45. Servicing the secondary ignition system.46. Primary ignition system.47. Diagnosing and servicing the primary ignition systems.48. Distributorless ignition circuits.49. Diagnosing and servicing the secondary ignition system on a distributorless vehicle.50. Distributorless primary ignition systems.51. Diagnosing and servicing the primary circuit on a distributorless ignition system.52. Coil on plug ignition systems.53. Diagnosing and servicing the coil on plug ignition system.54. Lighting circuits.55. Diagnosing lighting circuits.56. Defogger, horn and windshield wiper circuits.57. Diagnosing horn and windshield wiper circuits.58. Motor driven accessories.59. Diagnosing motor driven accessories.

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GUIDE TO DIAGNOSTIC PRODUCT CERTIFICATION – TRANSPORTATION

Matthew Janisin, Gateway Technical College, Kenosha, WI & Elkhorn Area High School, Elkhorn, WI

The Guide to Diagnostic Product Certification – Transportation is intended to give your students the knowledge they need to more effectively use their Snap-On diagnostic tools. As vehicles have become more complex so have the tools used to diagnose them. While many automotive programs do a great job teaching the vehicle systems, few take the time to explain in detail the sophisticated diagnostic tools needed to diagnosis them. Current market research indicates that most technicians only use about 15% of their diagnostic tools' capabilities; this manual, designed to accompany the Snap-On Diagnostic Certification Program, will aim to boost usage to 90%. The manual begins with a physical overview of each of the tools and explains the various ports, connectors, buttons and controls. In separate sections each tool's utility menu is fully explained and all customizable features are discussed so the user will have full control to make the tool their own. Finally, every aspect of the tool including the Scanner, Lab Scope, Component Test Meter, Troubleshooter, and all other options are explained in detail. This manual will greatly increase a student's employability and a technician's productivity when either is faced with a complex diagnostic situation.

FEATURES

- Clear and distinct sections make finding the most relevant information quick and easy.
- In depth analysis and training on all level of diagnostic tools including Ethos, Solus Pro, Vantage Pro, and MODIS.

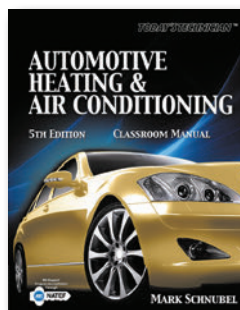
Vantage Pro, and MODIS.

- Your students will get more value out of the tools they already own and increase their employability and productivity.
- Review questions to help your students pass the Snap-On Diagnostic Certification Tests.
- Actual repair situations are discussed in relation to incorporating the various diagnostic tools and techniques.
- Your students will become a Power User of the diagnostic tool, utilizing over 90% of its features and benefits.

CONTENTS

1. Ethos.2. Solus Pro.3. Vantage Pro.4. MODIS.5. Data Management.6. Scanner Introduction.7. Global OBD verse VIN Specific Information.8. Codes Menu.9. Viewing & Interpreting Scanner Data (added "Scanner" to title, little more clear).10. Functional Tests.11. Fast-Track Troubleshooter.12. Component Testing.13. Multimeter Functions.14. Lab Scope Operation.15. ShopKey.16. Verus.

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ebook

CourseMate

MindTap

TODAY'S TECHNICIAN, 5E

Automotive Heating & Air Conditioning Classroom Manual and Shop Manual

Mark Schnubel, Naugatuck Valley Community College

TODAY'S TECHNICIAN: AUTOMOTIVE HEATING & AIR CONDITIONING, Fifth Edition, is an integrated, two-book set that covers theory and hands-on content in separate Classroom and Shop Manuals. This innovative approach allows students to learn fundamental climate control theory, including basic physics related to heat

transfer, before applying their knowledge through practical, hands-on shop work. Cross-references in each manual link related material, making it easy to connect classroom learning to lab and shop activity. Updated to reflect the latest trends, technology, and relevant NATEF standards, the Fifth Edition includes new material on next-generation refrigerants such as HFO-1234yf, as well as a bold, full-color design for enhanced reader appeal. This up-to-date, technically accurate guide is a valuable resource for students and professionals seeking ASE certification, or anyone interested in the principles, components, diagnosis, and repair of modern automotive heating and air conditioning systems.

NEW TO THIS EDITION

- The Fifth Edition includes new and updated content to reflect recent trends and technology in the automotive industry, including material on hybrid vehicle service and safety, as well as high voltage electric air conditioning compressor systems.
- Enhanced coverage of core course concepts includes new information on basic electrical theory, as well as a comprehensive introduction to HVAC climate control systems and sensors theory and diagnosis.
- A vibrant, eye-catching, full-color design now provides enhanced visual appeal, while updated illustrations and photo sequences help bring key concepts to life and make it easier for students to apply their skills in the automotive shop.
- New and revised job sheets reflect the latest NATEF tasks, helping students develop the skills they will need to obtain certification and succeed as professionals in the automotive services industry.

FEATURES

- Separate Classroom and Shop Manuals allow students to focus their learning on essential theory in the classroom and practical applications in the lab or shop, while cross-references in each manual make it easy to connect theoretical material to hands-on activities.
- Each Chapter opens with an overview of learning objectives related to current NATEF (National

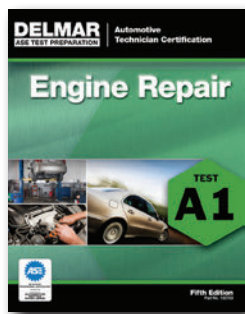
Automotive Technicians Education Foundation) standards, helping students understand certification requirements and focus their reading and studying appropriately.

- Highly detailed and technically accurate, this trusted text provides an in-depth introduction to the principles and practices today's automotive technicians need to master for success in diagnosing and servicing modern heating and cooling systems.
- A complete instructor support package includes useful teaching resources such as Microsoft® PowerPoint® presentations, a computerized test bank, a digital image library, an instructor's guide to the text, and a NATEF correlation grid, all designed to save you time in the classroom.

CONTENTS

1. Heating and Air Conditioning—History and the Environment.2. Temperature and Pressure Fundamentals.3. Engine Cooling and Comfort Heating Systems.4. Air-Conditioning System Operating Principles.5. Refrigerant System Components.6. Refrigerant System Servicing and Testing.7. Diagnosis of the Refrigeration System.8. Compressors and Clutches.9. Case and Duct Systems.10. System Controls.11. Future Trends and Retrofit (R-12 to R-134a.)

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ASE TEST PREPARATION - A1 ENGINE REPAIR, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A1 ENGINE REPAIR certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

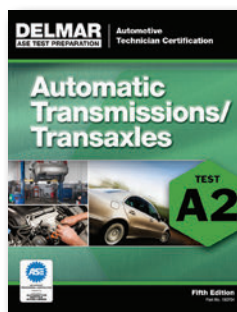
- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
- Delmar provides an overview of what to expect when taking an ASE exam, so you not only gain comfort from a content perspective, but also have an understanding of the entire process.
- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.

- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but the style in which the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

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ASE TEST PREPARATION - A2 AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A2 AUTOMATIC TRANSMISSIONS AND TRANSAXLES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

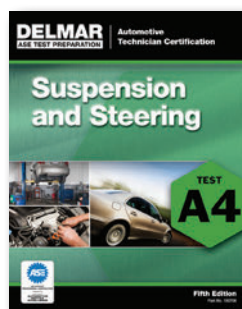
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ASE TEST PREPARATION - A4 SUSPENSION AND STEERING, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A4 SUSPENSION AND STEERING certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

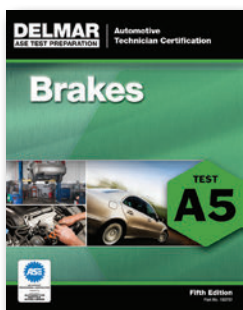
- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
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ASE TEST PREPARATION - A5 BRAKES, 5E

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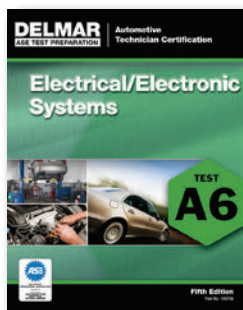
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ASE TEST PREPARATION - A6 ELECTRICITY AND ELECTRONICS, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A6 ELECTRICITY AND ELECTRONICS certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

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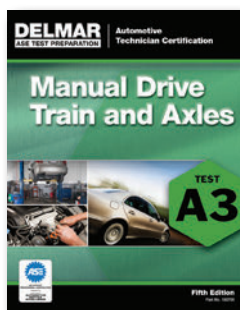
- Delmar has significantly increased the number of practice exams in their preparation manuals – providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

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ASE TEST PREPARATION- A3 MANUAL DRIVE TRAINS AND AXLES, 5E

Delmar

The fifth edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A3 MANUAL DRIVE TRAINS AND AXLES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

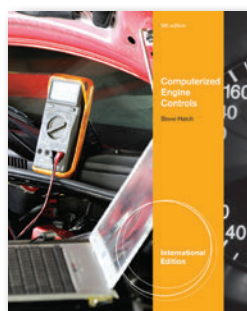
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ebook

COMPUTERIZED ENGINE CONTROLS, INTERNATIONAL EDITION, 9E

Steve V. Hatch, Lincoln College of Technology (LCT), Denver

Delivering solid coverage of both domestic and imports, **COMPUTERIZED ENGINE CONTROLS, International Edition** equips readers with the foundational knowledge needed to successfully diagnose and repair vehicle electronic systems. Reflecting the latest technological advances from the field, the Ninth Edition offers updated and expanded coverage of the approach of diagnostics, air/fuel ratio sensors, OBD II, and much more. This text includes in-depth insight into such cutting-edge topics as hybrid and fuel cell vehicles, GM's 42-volt system, hexadecimal conversion, multiplexing, and logic gates. Key concepts are reinforced with ASE-style, end-of-Chapter questions to familiarize readers with the types of questions they are likely to see in certification testing.

NEW TO THIS EDITION

- Coverage of Diagnostic Approach—Appendix A in the previous edition—has been expanded and moved into the main body of the text as the new Chapter 18.
- Additional material dealing with air/fuel ratio sensors is now included.
- GM TBI and PFI Chapters of previous editions have been combined, minimizing the emphasis on TBI systems.
- Completely reorganized and rewritten, the Chapter on OBD II is easier to read and includes coverage of the most current technology.
- Reflecting the market's reduced need for product-specific training, the author continues to de-emphasize the product-specific Chapters of this

book while increasing the amount of generic information that applies to all electronic engine control systems.

- In direct response to customer requests, the Ninth Edition's instructor resources include PowerPoint lecture slides using selected images from the text, ExamView electronic test questions, an answer key to the exercises and review questions in the text, lab sheets that instructors can copy and assign to students, and an Image library of illustrations from the text.

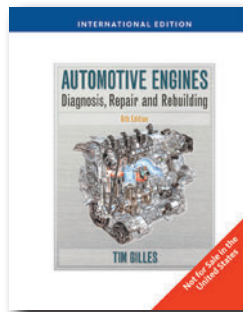
FEATURES

- Featuring extensive coverage of manufacturer-specific technology, **COMPUTERIZED ENGINE CONTROLS**, 9e provides detailed discussions of GM, Ford, Chrysler, Bosch, and Nissan/Toyota/Honda engine controls.
- Engages the students with an easy-to-read presentation in a logical sequence of topics.
- ASE-style, end-of-Chapter questions drive home key concepts and familiarize readers with the types of questions they are likely to see both in practice and in certification testing.

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ebook

AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, INTERNATIONAL EDITION, 6E

Tim Gilles, Santa Barbara City College, Santa Barbara, California

AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING International Edition provides updated, accurate, and comprehensive information on what is needed to diagnose, repair, and rebuild automotive engines. This book will build readers' technical expertise and critical thinking skills, while also providing them with information on current industry trends and concerns. This revised edition includes an enhanced Chapter on engine diagnosis 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 bring this new edition to life.

NEW TO THIS EDITION

- Includes Instructor Resource Materials that contain an extensive collection of lab sheets in electronic Microsoft Word format that address NATEF Standards and which can be easily customized to suit the needs of the instructor. Also included are lesson plans that can be used as a starting point for teachers new to the engine rebuilding area and a supplemental practice test bank.
- New illustrations and photos of unusual wear and failed parts to help students understand how to correct problems so they do not recur.
- Updated information on repairing and restoring high performance sport compact cars, including vintage racing cars.

- Updated information on the ever-changing areas of cooling and lubrication.
- Includes the following additional updates: separation of interesting but dated material from the rest of the information on Vintage Engines; inclusion of real-world case histories that provide critical thinking practice; addition of new shop tips; addition of generic engine machining tips from experienced machinists.

FEATURES

- Includes updated information on engine cooling and lubrication systems, with a focus on maintenance for longer-lasting vehicles.
- Includes new content on the repair of high performance sport compact cars, hot rodding, and vehicle restoration, reflecting the evolution of the design and engineering of automotive engines.
- Adds new case histories that draw attention to real-world situations and provide more critical thinking practice.
- Discusses repair techniques that are universal to all engines, preparing readers for careers in independent repair shops, parts and machine shops, and dealerships.
- Includes ASE-style engine machinist practice tests and explanations in the back of the book that will help readers to effectively prepare for the ASE Certification Exam.

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Chassis Repairs. Shop Manuals. Engine Removal. Engine Disassembly. Ordering Parts. Major Engine Repair – Engine in the Vehicle. Study Questions. ASE-Style Review Questions. 5. Cleaning the Engine. Cleaning Methods. Cleaning the Inside of the Engine. Study Questions. ASE-Style Review Questions. 6. Measuring. Metric System. Measuring Tools. Precision Measuring Tools. Study Questions. ASE-Style Review Questions. PART 2: THE BREATHING SYSTEM. 7. Cylinder Head: Parts and Service. Head Disassembly. Carbon Removal. Crack Inspection. Crack Repair. Valve Guide Inspection. Valve Guide Repair. Valve Guide Seals. Resurfacing Heads. Study Questions. ASE-Style Review Questions. 8. Cylinder Head: Springs, Valves, and Valve Seats. Valve Springs. Push Rods. Rocker Arms. Valves and Valve Service. Valve Seats and Service. Reassembling the Head. Study Questions. ASE-Style Review Questions. 9. Camshafts, Lifters, Timing Belts and Chains. Camshaft. Hydraulic Lifters and Lash Adjusters. Hydraulic Lifter Operation. Roller Cam and Lifters. Cam Drives. Timing Drive Maintenance. Timing the Cam to the Crank. Timing Belts. Timing Belt Replacement. Study Questions. ASE-Style Review Questions. 10. Engine Power Development: Manifolds, Superchargers, and Camshaft Performance. Intake and Exhaust Manifolds. Turbochargers and Superchargers. Camshaft and Engine Performance. Camshaft Timing. Camshaft Phasing, Lobe Centers and Lobe Spread. Multiple Valve Heads. Variable Valve Timing. Power and Torque. Measuring Torque and Horsepower. Study Questions. ASE-Style Review Questions. PART 3: CYLINDER BLOCK ASSEMBLY. 11. Cylinder Block – Inspection and Service. Cleaning the Block. Oil and Water Plugs. Main Bearing Caps. Main Bearing Bore Alignment. Decking the Block. Inspecting Cylinder Bores. Deglazing Cylinders. Reboring Cylinders. Honing Cylinders to Size. Chamfering the Cylinder. Cylinder Sleeves. Lifter Bores. Final Block Preparation. Study Questions. ASE-Style Review Questions. 12. Crankshaft, Bearings, and Engine Balancing. Crankshaft Design. Crank End Thrust. Checking Crank Condition. Bearing Inserts. Engine Balancing. Study Questions. ASE-Style Review Questions. 13. Piston, Rings, and Connecting Rod. Pistons.

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ebook

OBD-II: FUNCTIONS, MONITORS AND DIAGNOSTIC TECHNIQUES

Al Santini, College of DuPage (retired)

OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES is a resource that offers complete coverage of OBD II and tells your students what they need to know to succeed as field technicians. This exciting new book combines coverage of OBD II design, its role in state emission testing failures, diagnosis and repair, and the setting of readiness monitors. It provides your students

with a solid working knowledge of the purpose and functions of the OBD II by beginning with an overview of the technology and its role in on-the-job tasks. Using this as a foundation, the author then addresses more advanced topics, including the extremely high-powered diagnostic abilities involving the various scanner modes, as well as the hows and whys of setting readiness monitors. With numerous practical examples and an emphasis on world-wide vehicle coverage that does not limit explanations to specific manufacturers, **OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES**, will prepare your students for success in the industry.

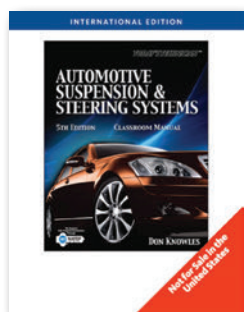
FEATURES

- Contains case studies that present actual vehicle failure scenarios and then demonstrate diagnosis and repair, offering reinforcement and the application of key concepts.
- Copies of vehicle scan data stream provide real-world data, enabling your students to easily transfer their knowledge to the world of work.
- Includes bi-directional control of the systems that provides a unique feature never before seen in any other book.
- Opens each Chapter with objectives, offering an introduction to each topic area and why it is important.
- ASE-style questions at the end of each Chapter prepare students for certification success.
- Detailed photos, line drawings and screen captures that illustrate important information.

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ebook

TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION & STEERING, INTERNATIONAL EDITION, 5E

Don Knowles

Master the knowledge and skills needed to diagnose and service suspension and steering systems for today's cars, SUVs, light duty trucks and now, hybrids, with the latest edition of this highly successful Classroom/Shop Manual package! With the same carefully constructed balance of theory and practice that made previous editions so valuable, the 5th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION AND STEERING, International Edition takes the content to the next level, from coverage of the latest mandatory tire pressure monitoring systems to the newest electronically-controlled suspension systems. And the highly updated, state-of-the-art information doesn't end there; the book also features new information on the most current front and rear suspension designs, recent developments in steering columns and air bag systems, and the latest electronic power steering gears. Reinforcing its practical, user-friendly approach are strategically placed cautions and warnings that emphasize safe working procedures and case studies that link theory to the real-life practices of today's professional, ASE-certified technicians, making this a must-have for aspiring automotive technicians in both certificate and degree programs.

NEW TO THIS EDITION

- All-new content on the latest automotive industry trends and developments, including Active Steering System operation and service, Four

Wheel Active Steering (4WAS) operation and service, PAX tire systems, Adaptive Cruise Control (ACC), Lane Departure Warning Systems, and Telematics.

- Expanded and updated coverage of Tire Pressure Monitoring Systems (TPMS).
- New, visually exciting four-color format with hundreds of new photographs and line drawings.

FEATURES

- Builds strong foundation in systems examination with an in-depth look at the latest computer-controlled suspension systems.
- Quickly brings readers up-to-speed with critical industry information with a solid introduction to the electric-drive power steering pumps used on some vehicles and hybrid cars, as well as the latest electronic wheel alignment equipment and procedures on most current suspension systems.
- Facilitates understanding of electrical and electronic principles at work through comprehensive coverage of the advantages, application, design, operation, diagnosing, and servicing of electric-assist power steering gears.
- Forms powerful connections between theory and the day-to-day experiences of today's professional, ASE-certified technicians with case studies and practical customer care tips.
- Visually exciting four-color format with hundreds of new photographs and line drawings aids learning.

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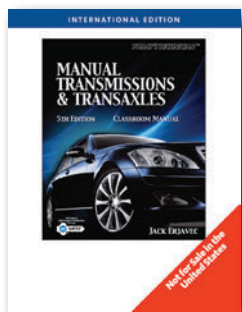
Types of Wheel Alignment, Computer Alignment Systems, Camber Fundamentals, Driving Conditions Affecting Camber, Caster Fundamentals, Safety Factors and Caster, Steering Terminology, Summary, Review Questions.16. Four Wheel Alignment Part II Introduction, Steering Axis Inclination (SAI) Definition, SAI Purpose, SAI and Safety Factors, Scrub Radius, Wheel Setback, Toe Definition, Toe setting for Front-Wheel- Drive and Rear-Wheel-Drive Vehicles, Toe Adjustment and Tire Wear, Turning Radius, Rear Wheel Alignment, Summary, Review Questions.Shop Manual Table of Contents1. Safety Introduction, Occupational Safety and Health Act, Shop Hazards, Shop Safety Rules, Air Quality, Shop Safety Equipment, Shop Layout, Safety in the Automotive Shop, General Shop Safety, Personal Safety, Electrical Safety, Gasoline Safety, Fire Safety, Vehicle Operation, Housekeeping Safety, Air Bag Safety, Lifting and Carrying, Hand Tool Safety, Lift Safety, Hydraulic Jack and Safety Stand Safety, Power Tool Safety, Compressed Air Equipment Safety, Cleaning Equipment Safety and Environmental Considerations, Hazardous Waste Disposal, Summary, Case Study, Terms to Know, ASE-Style Review Questions, Job Sheets.2. Typical Shop Procedures Using Suspension and Steering Equipment, Measuring Systems, Basic Diagnostic Procedure, Suspension and Steering Tools, Hydraulic Pressing and Lifting Equipment, Suspension and Steering Service Diagnostic and Measurement Tools, Employer and Employee Obligations, National Institute for Automotive Service Excellence (ASE) Certification, Service Manuals, Summary, Case Studies, Terms to Know, ASE-Style Review Questions, Job Sheets.3. Wheel Bearing and Seal Service Diagnosis of Bearing Defects, Service and Adjustment of Tapered Roller Bearing-Type Wheel Bearings, Wheel Hub Unit Diagnosis, Front Drive Axle Diagnosis, Drive Axle Removal, Special Procedures for Drive Axle Removal, Front Wheel Hub Unit Removal and Replacement, Rear Axle Bearing and Seal Service Rear-Wheel Drive Cars, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.4. Tire and Wheel Servicing and Balancing Tire Noises and Steering Problems, Tire Rotation, Tire and

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TODAY'S TECHNICIAN: MANUAL TRANSMISSIONS AND TRANSAXLES INTERNATIONAL EDITION, 5E

Jack Erjavec, Columbus State Community College (Emeritus)

Updated to include the latest developments in the field, TODAY'S TECHNICIAN: MANUAL TRANSMISSIONS AND TRANSAXLES, International Edition covers a wide range of must-know topics including dual clutch systems, various limited-slip differential designs, six-speed transmissions, diagnosis and servicing new systems and self-shifting manual, while still addressing the foundational basics like the purpose and major components of the transmission system and subsystems. Divided into two volumes, the Classroom Manual presents system theory and addresses cognitive objectives, and the Shop Manual covers hands-on service and repair tasks, addressing performance objectives. TODAY'S TECHNICIAN: MANUAL TRANSMISSIONS AND TRANSAXLES, International Edition features detailed full-color photos to walk the reader through what to expect when they perform a procedure on-the-job. Likewise, the book stresses the importance of safe work habits – dedicating a full Chapter to the topic. Finally, the textbook includes all of the information required to successfully pass an ASE exam for Manual Drive Trains and Axles.

NEW TO THIS EDITION

- Full-color art program and more photos, especially in Classroom Manual.
- Coverage of new technologies, especially electronic clutch controls, electronic shift units, advanced all-wheel drive systems, and coverage of hybrid drive systems.

- Emphasis on technical accuracy and more coverage of real life malfunctions and appropriate diagnostic routines.
- Expansion of instructor package to include Blackboard and WebCT ready online supplements.
- Greater emphasis on NATEF applied academics as they relate to the subject, basic diagnostics, customer relations and preparing work orders.

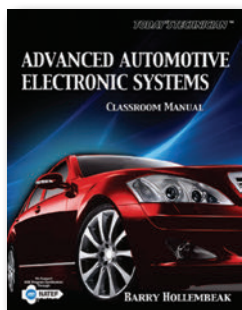
FEATURES

- Content updated to the 2008 NATEF Program Standards.
- All new full-color artwork and text design.
- Additional procedural and diagnostic coverage, newer images.
- Shop Manual and Classroom Manual content is cross-referenced for easy access to all relevant topical information.

CONTENTS

CLASSROOM MANUAL.1 Manual Drive Trains and Axles.2 Drivetrain Theory.3 Clutches.4 Manual Transmissions/Transaxles.5 Front Drive Axles.6 Drive Shafts and Universal Joints.7 Differentials and Drive Axles.8 Four-Wheel Drive (4WD) Systems.9 Advanced Four-Wheel-Drive Systems.10 Drivetrain Electrical and Electronic Systems.11 Electronically-Controlled and Automated Transmissions.SHOP MANUAL.1 SAFETY.2 SPECIAL TOOLS AND PROCEDURES.3 Servicing Clutches.4 Servicing Transmissions/Transaxles.5 SERVICING FRONT DRIVE AXLES.6 SERVICING DRIVE SHAFTS AND UNIVERSAL JOINTS.7 Servicing Differentials and Drive Axles.8 SERVICING FOUR-WHEEL DRIVE SYSTEMS.9 Diagnosing 4WD and AWD Control Systems.10 Servicing Drivetrain Electrical Systems.11 Diagnosing Advanced Electronic Systems.

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TODAY'S TECHNICIAN

Advanced Automotive Electronic Systems, Classroom and Shop Manual

Barry Hollembeak

TODAY'S TECHNICIAN: ADVANCED AUTOMOTIVE ELECTRONIC SYSTEMS, is an extension of the popular Today's Technician Series that covers all mechanical and electrical systems of automobiles and light trucks. This book is intended for a course in advanced automotive electronic systems and is divided into two volumes: a Classroom Manual and a Shop Manual that separate cognitive and performance learning objectives, respectively. The design is based on features that are known to promote improved student learning. The Classroom Manual contains the principles of operation for the most advanced electrical systems used today and covers design variations of components used by the different vehicle manufacturers. The book builds upon basic facts and theories and will help develop students' knowledge through its extensive coverage of component and system operation. The Shop Manual covers the diagnostic processes for proper repairs and focuses more on the diagnostics of the components used within a system than on how to replace the component. The intent is to guide your students' thought processes toward finding the root cause of the problem, concentrating their attention on becoming a diagnostician and not a "parts changer". Your students will learn how to develop a systematic approach to problem solving in order to isolate the root cause of the problem, thereby enhancing their ability to fix products right the first time. Photo Sequences are used to illustrate some of the common diagnostic procedures. Both

Manuals are arranged in corresponding Chapters, and topics within the Chapters are linked between manuals by page references in the margins. Both volumes contain clear and thoughtfully-selected photos and illustrations. The margins of the pages include many special features of the series that are designed to underscore important points made in the running text, highlight safety concerns, and offer real world scenarios that the author has encountered in the shop.

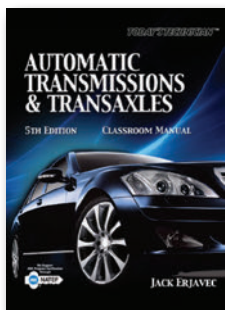
FEATURES

- **CLASSROOM MANUAL:** New and important terms are boldfaced in the Classroom Manual text and defined in the glossary. Some key terms are clarified in the margins with text boxes.
- Margin notes are included to enhance attention and learning. These include simple examples of concepts just introduced, explanations or definitions of terms, examples of common trade jargon and exceptions to the norm explained in the running text.
- The Classroom Manual includes page number cross references to the related topic in the Shop Manual whenever appropriate.
- Includes ten short answer essay, ten fill-in-the blank and ten ASE-Style multiple-choice questions after each Chapter to accurately assess the student's competence in the objectives stated at the beginning of the Chapter.
- **SHOP MANUAL:** Includes photo sequences of shop procedures to offer real world examples of how these step-by-step tasks are performed.
- Margin notes and key terms are also included in the Shop Manual, as well as page number cross references to related topics in the Classroom Manual.
- Contains Service Tips that provide the student with information on when a special procedure or short cut can be used and represent things an experienced technician might do.
- Uses realistic case studies at the conclusion of each Chapter to reinforce the thought process and test procedures just discussed in the text.
- Includes Job Sheets at the end of every Chapter that guide students through common diagnostic procedures that they are likely to encounter as professional technicians.

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CLASSROOM MANUAL: Preface.1. Introduction to Electronic Systems.2. Practical Theories and Laws.3. Computer Systems.4. Vehicle Communication Networks.5. Supplemental Airbag Systems.6. Driver and Passenger Comfort Systems.7. Electronic Stability and Roll-Over Mitigation Systems.8. Driver Assistance Systems.9. Infotainment Systems.10. Alternate Propulsion Systems.11. Glossary of Terms.12. Index.**SHOP MANUAL:**Preface.1. Safety.2. Special Tools and Advanced Diagnostic Procedures.3. Computer Systems Diagnostics.4. Diagnosing Vehicle Communication Systems.5. Supplemental Airbag System Diagnosis.6. Diagnosing Driver and Passenger Comfort Systems.7. Diagnosing Electronic Stability and Roll-Over Mitigations Systems.8. Diagnosing Driver Assistance Systems.9. Diagnosing Infotainment Systems.10. Hybrid and High-Voltage System Service.11. Glossary of Terms.12. Index.

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TODAY'S TECHNICIAN, 5E

Automatic Transmissions and Transaxles Classroom Manual and Shop Manual

Jack Erjavec, Columbus State Community College (Emeritus)

TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E is a Classroom Manual and Shop Manual set that has been completely updated to keep pace with industry trends and the needs of automotive education programs across the country. This book's technician-oriented focus will help your students master all of the design, construction, troubleshooting techniques, and service procedures

required for them to enter the workplace. The Classroom Manual begins with an introduction to drive train basics and the Shop Manual begins with an introduction to safety. This is followed by a review of directly relevant electricity/electronics principles, plus more opportunities for your students to gain practice in using scanners and oscilloscopes to develop critical thinking skills, diagnose problems, and make effective repairs. **TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E** also includes an introduction to continuously variable transmissions (CVT), up-to-the-minute coverage of drivelines for front-wheel drive (FWD) and four-wheel drive (4WD) vehicles, as well as the latest information on today's high-tech electronic controls and automatic shifting devices.

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- Includes new topics on various transmission designs used (or planned to be used) in hybrid vehicles, the Lepelletier gear setup (which results in five, six, seven, and eight speed transmissions), power split units and various constantly variable transmission designs.
- Includes more information on current electronic control systems, including the various protocols used for multiplexing.
- Uses current model transmissions as examples throughout the text.
- All new full-color photos, illustrations and text design.
- Adds several new photo sequences on reprogramming a TCM and overhauling a five- and six-speed transmission.
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- Content is updated to the most current NATEF Standards for Automatic Transmissions and Transaxles.

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- Contains superior topic coverage that provides your students with the most complete and up-to-date information on automatic transmission theory, diagnosis, and repair available in a single source.
- Contains improved illustrations and step-by-step photo sequences that include all major automatic transmission repair procedures and promote professional work practices.

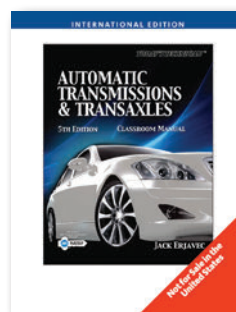
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TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, INTERNATIONAL EDITION, 5E

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- Contains improved illustrations and step-by-step photo sequences that include all major automatic transmission repair procedures and promote professional work practices.
- Focuses attention on the performance of common service procedures through the use of Job Sheets in the Shop Manual.
- Includes a comprehensive Spanish/English glossary, plus the addition of 11930 terminology to help your student master terms, as well as an ASE practice exam.

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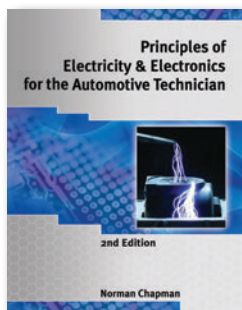
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PRINCIPLES OF ELECTRICITY & ELECTRONICS FOR THE AUTOMOTIVE TECHNICIAN, 2E

Norm Chapman, South Puget Sound Community College

Principles of Electricity & Electronics for the Automotive Technician, 2E 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.

FEATURES

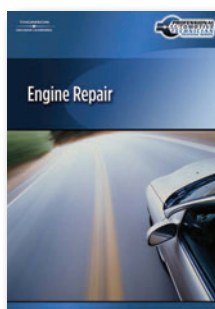
- repetition of key concepts enhances retention of need-to-know information and prepares readers for more complicated subject matter
- charts and graphs support and clarify key concepts
- case studies tie electrical theory to real-life examples, allowing readers to see how the information applies to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

© 2010, 608pp, Paperback, 9781428361218



PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Engine Repair Computer Based Training (CBT)

Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Repair Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the

highest level of retention

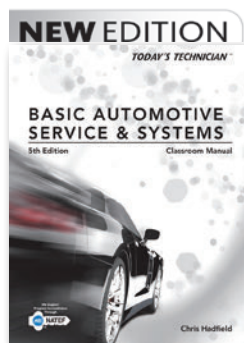
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Engine Operations and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

© 2010, NonBook-Disk, 9781418042530

AUTOMOTIVE TECHNICIAN TRAINING



ebook

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TODAY'S TECHNICIAN, 5E

Basic Automotive Service and Systems, Classroom Manual and Shop Manual

Chris Hadfield, Central Lakes College

The 5th edition of BASIC AUTOMOTIVE SERVICE & SYSTEMS is a comprehensive Classroom Manual/Shop Manual set provides an accessible overview of automotive systems to prepare you for all aspects of work in the field. Now fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition features a new full color design, more coverage of hybrid vehicles and emerging technologies, and revised and updated coverage of electronic engine controls.

The content is current and relevant to the industry today, and includes state-of-the-art information on the global automotive industry and the role of the technician within it. The Classroom Manual explores the basic theories of operation behind each automotive system, while the Shop Manual covers the hands-on diagnostic, testing, and repair procedures that relate to them. Assuming no prior knowledge of automotive technology, this clear and engaging book addresses fundamental skills and maintenance and the application of key theories.

NEW TO THIS EDITION

- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- This edition's full color design with new photographs and updated line art helps readers better visualize processes and procedures.
- Coverage of hybrid vehicles and emerging technologies, along with revised and updated coverage of electronic engine controls, prepares students for today's workplace.
- Includes all new Job Sheets that are focused on skill building.
- Content cross references current industry practices to help the student understand and practice real-world workplace competencies.
- Employer focused soft skills are integrated into each topic.
- The text features in depth basic and preventative maintenance information with a focus on skill building, with expanded coverage on electrical theory and diagnosis.

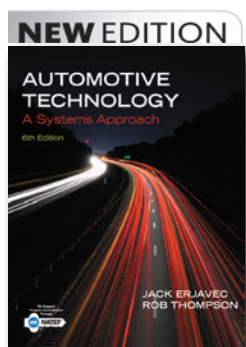
FEATURES

- Fully updated to align with the new NATEF accreditation model introduced in 2012, the Fifth Edition is primarily coordinated with NATEF's Maintenance and Light Repair program option.
- A full color design with new photographs and updated line art makes visualizing processes and procedures easier.
- Coverage of hybrid vehicles and emerging technologies, along with revised and updated coverage of electronic engine controls, prepares you for today's workplace.

CONTENTS

1. Automotive Systems and Operations. 2. The Automotive Business. 3. Automotive Tools and Equipment. 4. Measurements and Precision Measuring Devices. 5. Fasteners. 6. Automotive Bearings and Sealants. 7. Automobile Theories of Operation. 8. Power System Operation and Subsystems. 9. Brakes. 10. Suspension and Steering. 11. Powertrains. 12. Auxiliary Systems and Climate Control. Glossary. Index.

© 2016, 960pp, Paperback, 9781285442297



ebook

MindTap

AUTOMOTIVE TECHNOLOGY, 6E

A Systems Approach

Jack Erjavec, Columbus State Community College (Emeritus);
Rob Thompson, Columbus State Community College

AUTOMOTIVE TECHNOLOGY: A SYSTEMS APPROACH - the leading authority on automotive theory, service, and repair - has been thoroughly updated to provide accurate, current information on the latest technology, industry trends, and state-of-the-art tools and techniques. This comprehensive text covers the full range of basic topics outlined by ASE, including engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance. Now updated to reflect the latest NATEF MAST standards, as well as cutting-edge hybrid and electric engines, this trusted text is an essential resource for aspiring and active technicians who want to succeed in the dynamic, rapidly evolving field of automotive service and repair.

NEW TO THIS EDITION

- Two new Chapters provide detailed, dedicated coverage of hybrid and electric engines, outlining essential knowledge and skills technicians need to service these increasingly common, uniquely complex vehicles.
- New “The Three Cs” feature presents students with a real world vehicle problem to introduce the essential methodology for approaching a repair: concern, cause, and correction.
- The authors have carefully revised and updated the text to reflect the new NATEF MAST standards, preparing readers to pursue professional certification and develop the knowledge and skills they need for success in today’s dynamic automotive service and repair industry.
- Illustrations, diagrams, and other visual elements throughout the text have been updated and enhanced to ensure technical accuracy, help bring key Chapter concepts to life, and make material more engaging and effective for today’s visual learners.

FEATURES

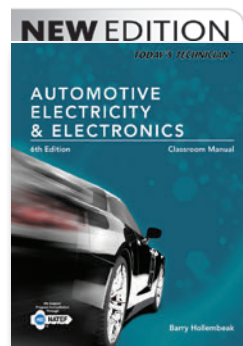
- An early Chapter on automotive systems covers the basic NATEF tasks that apply to all systems, providing a wide-ranging overview of essential concepts that today’s automotive technicians need to master for professional certification and career success.
- Extensive questions conclude each Chapter to reinforce key concepts, enable students to assess their understanding, and help them prepare effectively for ASE certification.
- The text provides a uniquely thorough, detailed guide to essential automotive topics, including all of the basic areas outlined by ASE, such as engine repair, automatic transmissions, manual transmissions and transaxles, suspension and steering, brakes, electricity and electronics, heating and air conditioning, and engine performance.
- An extensive suite of instructor resources is available to reinforce teaching and learning, including Chapter presentations in PowerPoint with videos and animations, electronic test banks, NATEF task correlations, an Image Library of all Chapter figures, and more.

CONTENTS

Part I: AUTOMOTIVE TECHNOLOGY.1. Careers in the Automotive Industry.2. Workplace Skills.3. Basic Theories and Math.4. Automotive Systems.5. Hand Tools and Shop Equipment.6. Diagnostic Equipment and Special Tools.7. Working Safely In the Shop.8. Preventative Maintenance and Basic Services.Part II: ENGINES.9. Automotive Engine Designs and Diagnosis.10. Engine Disassembly and Cleaning.11. Lower-End Theory and Service.12. Upper-End Theory and Service.13. Engine Sealing and Reassembly.14. Lubricating and Cooling Systems.Part III: ELECTRICITY.15. Basics of Electrical Systems.16. General Electrical System Diagnostics and Service.17. Batteries: Theory, Diagnosis, and Service.18. Starting and Traction Motor Systems.19. Charging Systems.20. Lighting Systems.21. Instrumentation and Information Displays.22. Basics of Electronics and Computer Systems.23. Electrical Accessories.Part IV: ENGINE PERFORMANCE.24. Engine Performance Systems.25. Detailed Diagnosis and Sensors.26. Ignition Systems.27. Ignition System Diagnosis and Service.28. Diesel and Other Alternative Fuels.29. Fuel Delivery Systems.30. Electronic Fuel Injection.31. Fuel Injection Diagnosis and Service.32. Intake and Exhaust Systems.33. Emission Control Systems.34. Emission Control Systems Diagnosis and Service.35. Hybrid Vehicles.36. Electric Vehicles.Part V: MANUAL TRANSMISSIONS AND TRANSAXLES.37. Clutches.38. Manual Transmission and Transaxles.39. Manual Transmission and Transaxle Service.40. Drive Axles and Differentials.Part VI: AUTOMATIC TRANSMISSIONS AND TRANSAXLES.41. Automatic Transmissions and Transaxles.42. Electronic Automatic Transmissions.43. Automatic Transmission and Transaxle Service.44. Four- and All-Wheel Drive.Part VII: SUSPENSION AND STEERING SYSTEMS.45. Tires and Wheels.46. Suspension Systems.47. Steering Systems.48. Restraint Systems. Theory, Diagnosis, and Service.49. Wheel Alignment.Part VIII: BRAKES.50. Brake Systems.51. Drum Brakes.52. Disc Brakes.53. Antilock Brake, Traction Control, and Stability Control Systems.Part IX: PASSENGER COMFORT.54. Heating and Air Conditioning.55. Heating and Air

Conditioning Diagnosis and Service.

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ebook

MindTap

TODAY'S TECHNICIAN, 6E

Automotive Electricity and Electronics, Classroom and Shop Manual Pack

Barry Hollembeak

Ideal for aspiring and active automotive professionals, TODAY'S TECHNICIAN: AUTOMOTIVE ELECTRICITY & ELECTRONICS, Sixth Edition, equips readers to confidently understand, diagnose, and repair electrical and electronic systems in today's automobiles. Using a unique two-volume approach to optimize learning in both the classroom and the auto shop, the first volume (Classroom Manual) details the theory and application of electricity, electronics, and circuitry in modern automobiles, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date technical information, and hundreds of detailed illustrations and vibrant photographs, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including audio and infotainment systems, LED and adaptive lighting, hybrid and electric vehicles, and accessory systems—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- The Sixth Edition features extensive updates to reflect new and emerging technology and service techniques, including material on electrical and electronic controlled systems, LED and adaptive lighting systems, and audio and infotainment systems.
- The text has been streamlined for easier reading and more effective learning, with Chapters reorganized to reflect a logical sequence of topics, and material on outdated systems and obsolete technologies removed.
- The author has added and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos, illustrations, and diagrams have been added to provide a current and comprehensive review of electric and electronic automotive service and repair, providing valuable reinforcement of Chapter material for today's visual learners.
- Numerous new study review questions and job sheets are included to help students review Chapter material, assess and apply their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

FEATURES

- This comprehensive, versatile text is ideal for both classroom and hands-on learning, with a dedicated Classroom Manual covering theory and application of electricity and electronics in an automotive systems context, and a separate Shop Manual focused on real-world service, diagnosis, and repair procedures.
- Full-color drawings, photos, and schematics show modern automotive electronics, electrical components, circuitry, and systems in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- The text provides thorough coverage of the 2012 NATEF Automobile Program Standards for Electrical and Electronic Systems and includes a full ASE practice exam, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering

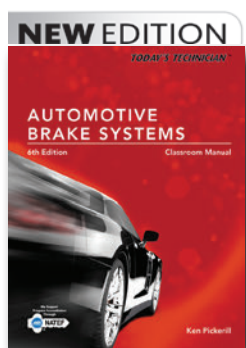
a reliable, up-to-date reference for today's technicians.

- Detailed information on increasingly common technology—such as audio and infotainment systems, lighting systems, hybrid and electric vehicles, and accessory systems—prepares students for a seamless and successful transition from the classroom to the professional repair shop.
- A full Chapter on shop safety highlights safe work habits to reinforce the importance of consistent safety practices and familiarize readers with standards and procedures they are likely to encounter in today's service and repair operations.

CONTENTS

Classroom Manual. Preface. 1. Introduction to Automotive Electrical and Electronic Systems. 2. Basic Theories. 3. Electrical and Electronic Components. 4. Wiring and Circuit Diagrams. 5. Automotive Batteries. 6. Starting Systems and Motor Designs. 7. Charging Systems. 8. Lighting Circuits. 9. Introduction to The Body Computer. 10. Computer Inputs. 11. Vehicle Communication Networks. 12. Advanced Lighting Circuits. 13. Instrumentation and Warning Lamps. 14. Accessories. 15. Radio Frequency and Infotainment Systems. 16. Passive Restraint Systems. 17. Vehicles with Alternative Power Sources. Glossary of Terms. Index. Shop Manual. Preface. 1. Safety. 2. Special Tools and Procedures. 3. Basic Electrical Troubleshooting and Service. 4. Wiring Repair and Reading Circuit Diagrams. 5. Battery Diagnosis and Service. 6. Starting System Diagnosis and Service. 7. Charging System Testing and Service. 8. Lighting Circuits Repair and Diagnosis. 9. Body Computer System Diagnosis. 10. Sensor Diagnostic Routines. 11. Vehicle Multiplexing Diagnostics. 12. Advanced Lighting Systems Diagnosis and Service. 13. Instrumentation and Warning Lamp System Diagnosis and Repair. 14. Electrical Accessories Diagnosis and Repair. 15. Servicing Radio Frequency and Infotainment Systems. 16. Servicing Passive Restraint Systems. 17. Hybrid and High-Voltage System Service. Appendix A: ASE Practice Examination. Appendix B: Metric Conversions. Appendix C: Electrical and Electronic Special Tool Suppliers. Glossary of Terms. Index.

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TODAY'S TECHNICIAN, 6E

Automotive Brake Systems, Classroom and Shop Manual Prepack

Ken Pickerill

The 6th Edition of **TODAY'S TECHNICIAN: AUTOMOTIVE BRAKE SYSTEMS** is a comprehensive text that equips readers to confidently understand, diagnose, and repair today's brake systems. Using a unique two-volume approach, the first volume (Classroom Manual) details the theory and application of the total brake system, subsystem, and components, while the second (Shop Manual) covers real-world symptoms, diagnostics, and repair information. Known for its comprehensive coverage, accurate and up-to-date details, and abundant illustrations, the text is an ideal resource to prepare for success as an automotive technician or pursue ASE certification. Now updated with extensive information on new and emerging technology and techniques—including hybrid vehicles, brake by wire, and electric brakes—the Sixth Edition also aligns with the NATEF 2012 accreditation model, including job sheets correlated to specific AST and MAST tasks.

NEW TO THIS EDITION

- Extensive updates to reflect new and emerging technology and service techniques, including material on hybrid vehicles, brake by wire systems, and electric brakes.
- New and revised information to align with NATEF's 2012 accreditation model, including updating job sheets to reflect specific AST and MAST tasks as practiced by today's automotive technicians.
- New photos and procedures have been added

to provide a current and comprehensive review of brake service and repair, providing valuable reinforcement of Chapter material for today's visual learners.

- New information on stability control, active braking, and regenerative braking in hybrid vehicles, reflecting advances in technology and current industry standards and best practices.
- Numerous new study review questions are included to help students review Chapter material, assess their understanding of key concepts and procedures, and identify any areas that need additional reinforcement.

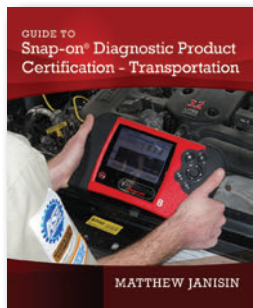
FEATURES

- Full-color drawings, photos, and schematics show modern brake technology and applications in accurate detail, bringing Chapter material to life and making even complex concepts and procedures easier to understand and apply.
- Thorough coverage of the 2012 NATEF Automobile Program Standards for Brakes, providing ideal preparation for students and professionals alike interested in pursuing ASE certification—as well as offering a reliable, up-to-date reference for today's technicians.
- Detailed information on increasingly common technology, such as ABS within a vehicle stability system, prepares students for a seamless and successful transition from the classroom to the professional repair shop.

CONTENTS

CLASSROOM MANUAL. 1. Brake System Fundamentals. 2. Principles and Theories of Operation. 3. Related Systems: Tire, Wheels, Bearings, and Suspensions. 4. Master Cylinder and Brake Fluid. 5. Hydraulic Lines, Valves, and Switches. 6. Power Brake Systems. 7. Disc Brakes. 8. Drum Brakes. 9. Parking Brakes. 10. Electrical Braking Systems. **SHOP MANUAL.** 1. Brake Safety. 2. Brake Service Tools and Equipment. 3. Related System Service. 4. Master Cylinder and Brake Fluid Service. 5. Hydraulic Line, Valve, and Switch Service. 6. Power Brake Service. 7. Disc Brake Service. 8. Drum Brake Service. 9. Parking Brake Service. 10. Electrical Brake Systems.

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GUIDE TO DIAGNOSTIC PRODUCT CERTIFICATION – TRANSPORTATION

Matthew Janisin, Gateway Technical College, Kenosha, WI & Elkhorn Area High School, Elkhorn, WI

The Guide to Diagnostic Product Certification – Transportation is intended to give your students the knowledge they need to more effectively use their Snap-On diagnostic tools. As vehicles have become more complex so have the tools used to diagnose them. While many automotive programs do a great job teaching the vehicle systems, few take the time to explain in detail the sophisticated diagnostic tools needed to diagnosis them. Current market research indicates that most technicians only use about 15% of their diagnostic tools' capabilities; this manual, designed to accompany the Snap-On Diagnostic Certification Program, will aims to boost usage to 90%. The manual begins with a physical overview of each of the tools and explains the various ports, connectors, buttons and controls. In separate sections each tool's utility menu is fully explained and all customizable features are discussed so the user will have full control to make the tool their own. Finally, every aspect of the tool including the Scanner, Lab Scope, Component Test Meter, Troubleshooter, and all other options are explained in detail. This manual will greatly increase a student's employability and a technician's productivity when either is faced with a complex diagnostic situation.

FEATURES

- Clear and distinct sections make finding the most relevant information quick and easy.
- In depth analysis and training on all level of diagnostic tools including Ethos, Solus Pro,

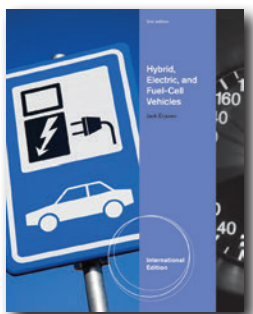
Vantage Pro, and MODIS.

- Your students will get more value out of the tools they already own and increase their employability and productivity.
- Review questions to help your students pass the Snap-On Diagnostic Certification Tests.
- Actual repair situations are discussed in relation to incorporating the various diagnostic tools and techniques.
- Your students will become a Power User of the diagnostic tool, utilizing over 90% of its features and benefits.

CONTENTS

1. Ethos. 2. Solus Pro. 3. Vantage Pro. 4. MODIS. 5. Data Management. 6. Scanner Introduction. 7. Global OBD verse VIN Specific Information. 8. Codes Menu. 9. Viewing & Interpreting Scanner Data (added "Scanner" to title, little more clear). 10. Functional Tests. 11. Fast-Track Troubleshooter. 12. Component Testing. 13. Multimeter Functions. 14. Lab Scope Operation. 15. ShopKey. 16. Verus.

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ebook

HYBRID, ELECTRIC AND FUEL-CELL VEHICLES, INTERNATIONAL EDITION, 2E

Jack Erjavec, Columbus State Community College (Emeritus)

HYBRID, ELECTRIC AND FUEL-CELL VEHICLES, 2E, International Edition, covers the cutting-edge technology and technology that are revolutionizing today's automotive industry. Author Jack Erjavec combines in-depth industry expertise with an engaging, reader-friendly style, providing extensive detail on new and upcoming electric vehicles, including hybrids in production today and the fuel cell vehicles of tomorrow. Expansive coverage ranges from basic theory related to vehicle construction, electricity, batteries, and motors, to the political and social impact of these high-profile vehicles. In addition to up-to-date, highly accurate technical information on vehicles available today—including service procedures and safe shop practices—the text provides an informed look into the future with material on vehicles currently under development.

NEW TO THIS EDITION

- The Second Edition features an all-new two-color design to enhance visual appeal and make this engaging text even more inviting and accessible for students.
- Extensive updates to photos and illustrations throughout the text provide strong support for visual learners, as well as convenient references to help students recognize and understand new technology they are likely to encounter in the shop or lab.
- Updated to reflect the latest vehicle models and relevant current technology being used or developed by today's manufacturers.

- New material on pure electric vehicles explores the technology behind this exciting, emerging trend in automotive manufacturing, as well as offering a useful analysis of the industry's transition to electric vehicles.
- New service procedures cover practical tips and processes students can apply when servicing today's hybrid vehicles.

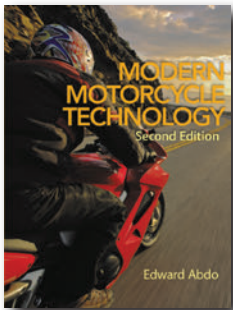
FEATURES

- The text provides a useful overview of current electric, hybrid, and fuel cell vehicles, including their operation and construction, as well as the specific advantages and disadvantages of each.
- Since working on hybrid vehicles requires unique and critical precautions to be taken in the shop, safety issues are stressed throughout the text.
- In addition to outlining maintenance and service procedures for electric vehicles, the text describes the true costs of owning and operating them, including tax incentive programs available to consumers.
- Coverage of range and fuel economy includes material on vehicle physics, regenerative braking, aerodynamics, and fuel consumption of various electric models, helping students understand both the essential principles involved and their practical applications.

CONTENTS

1. An Introduction to Electric Vehicles. 2. Electrical Basics. 3. Motor and Generator Basics. 4. Battery Basics. 5. The Basics of a Battery Operated Electric Vehicle. 6. HEV Basics. 7. Mild and Assist Hybrids. 8. Full Hybrids. 9. Hybrid Maintenance and Service. 10. Fuel Cell and Other Possible Vehicles.

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ebook

MODERN MOTORCYCLE TECHNOLOGY, 2E

Edward Abdo

MODERN MOTORCYCLE TECHNOLOGY, Second Edition takes your students on an in-depth exploration of the internal and external workings of today's 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 safety measures, engine operation, internal combustion engines (2-stroke and 4-stroke), electrical fundamentals, and overall motorcycle maintenance, as well as a special Chapter devoted to troubleshooting. Throughout the book, the author's straightforward writing style and extensive, full-color photos and illustrations help engage readers and bring the material to life. The Second Edition has been thoroughly updated, and includes new content on the latest motorcycle models and technology from today's top manufacturers. The new edition also features additional material on key topics such as fuel injection, suspension systems, and V-engine technology, as well as an expanded suite of separately available supplementary teaching and learning tools—including a hands-on student workbook and electronic instructor's resources. *Modern Motorcycle Technology* is a valuable resource for anyone seeking the knowledge and skills to succeed in today's motorcycle technology field.

NEW TO THIS EDITION

- The Second Edition has been thoroughly updated with current, technically accurate information on modern technology from leading motorcycle

manufacturers, making this trusted resource ideal for students preparing to enter today's motorcycle technology field.

- New and revised coverage of key topics throughout the text includes additional material on fuel injection, V-engine technology, suspension systems, and troubleshooting, ensuring students will have the depth and breadth of knowledge to succeed in their chosen careers.
- The author has revised and expanded the review questions that conclude each Chapter.
- A new, complete Instructor Resources package includes a variety of valuable electronic tools to help you plan and deliver an effective course, including Chapter presentations in PowerPoint®, Chapter test banks in ExamView®, and an Image Gallery that includes electronic images from the text.
- The text's vast collection of vivid, full-color images is now even larger and better, with updated illustrations in every Chapter and over 500 all-new photographs, making it easier than ever for visual learners to grasp key concepts quickly and confidently apply what they learn.

FEATURES

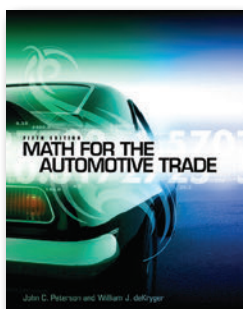
- Chapters devoted specifically to maintenance and troubleshooting build on previous material and provide a solid foundation to help students apply their knowledge and skills to diagnose, repair, and service motorcycles.
- To complement the author's industry expertise and clear, concise writing style, more than 1,000 full-color photos, useful diagrams, and detailed illustrations help bring key concepts to life and provide outstanding support for visual learners.
- Summaries and review questions at the end of each Chapter highlight and reinforce critical information, allowing students to assess their learning and focus on key areas for further study.
- The ancillary Student Skill Guide provides students with hands-on activities to help them put theory into practice and hone essential real-world skills.

CONTENTS

1. Introduction to Modern Motorcycle Technology.
2. Safety First.
3. Tools.
4. Measuring Systems, Fasteners, and Thread Repair.
5. Basic Engine

Operation and Configurations.6. Internal Combustion Engines.7. Lubrication and Cooling Systems.8. Fuel Systems.9. Drives, Clutches, and Transmissions.10. Two Stroke Engine Top End Inspection.11. Two Stroke Engine Lower End Inspection.12. Four Stroke Engine Top End Inspection.13. Four Stroke Engine Lower End Inspection.14. Electrical Fundamentals.15. Charging Systems and DC Circuits.16. Ignition and Electric Starting Systems.17. Frames and Suspension.18. Brakes, Wheels, and Tires.19. Motorcycle Maintenance and Emission Controls.20. Motorcycle Troubleshooting.

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ebook



MATH FOR THE AUTOMOTIVE TRADE, 5E

John C. Peterson, Chattanooga State Technical Community College (retired); William deKryger

MATH FOR THE AUTOMOTIVE TRADE, 5E is an up-to-date, highly practical book that helps your students develop a real-world understanding of math concepts and applications in the modern automotive repair trade. Written at a beginner's level, this book is a comprehensive instructional workbook that shows your students how to solve the types of math problems faced regularly by automotive technicians. Unique to MATH FOR THE AUTOMOTIVE TRADE, 5E are realistic practice exercises that allow your students to determine if their answers fall within manufacturers' specifications and repair orders that are completed by finding the appropriate information in the professional literature and reference material, included in the book's valuable appendices.

NEW TO THIS EDITION

- Contains updated applications and examples that reflect changes in automotive technology.
- New coverage of Statistics included.
- Replaced the flat rate pages for the Corvette in Appendix A with pages for the Ford Fusion, Milan (2006–2009), Zephyr (2006), MKZ (2007–2009), and Milan Hybrid (2010), emphasizing new hybrid technology.
- Contains updated coverage of automotive parts and equipment, new repair orders, additional questions that reflect current concerns with hybrid, electric, and other new technologies and updated gas prices, tax data, etc. that reflect "current" prices.
- Contains content that is correlated with NATEF's Applied Academics and will help prepare your students for ASE Automotive tests.

FEATURES

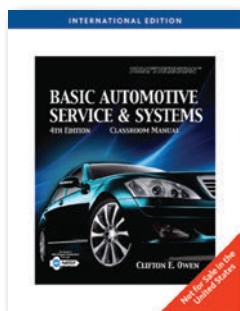
- Reviews basic mathematics skills, practical math applications for specific automotive situations, and both customary and metric systems of measurement as they apply to the automotive trade, immediately preparing students with math skills they will use on the job.
- Covers personal and business finance examine discounts, profit and loss, commissions, interest and payments, and taxes, providing a well-rounded business review of the issues faced by today's automotive technician.
- Provides manufacturer's specification data for real-world applications to problems ensuring a realistic experience for your students that will mirror what they'll encounter on the job.

CONTENTS

1. Whole Numbers.2. Decimals.3. Fractions.4. Geometry, Angle Measurement and the Metric System.5. Integers and Signed Numbers.6. Ratios, Proportions, and Percentages. 7. Business and Statistics.8. Completing Repair Orders.9. The Automobile Engine.10. Automobile Engine Systems.11. Automobile Electrical Systems.12. The Automobile Drive Train.13. The Automobile Chassis.14. Automobile Heating, Ventilation, and Air Conditioning.15. Measurement Tools. Appendix B. Summary of Formulas in this Text-Workbook.

Appendix C. Answers to Odd-Numbered Practice Exercises.Index.

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ebook

TODAY'S TECHNICIAN: BASIC AUTOMOTIVE SERVICE AND SYSTEMS, INTERNATIONAL EDITION, 4E

Clifton E. Owen, Grittin Technical College

Give your students a competitive edge in the automotive industry by preparing them with this updated classroom/shop manual set that explores the basic theories of operation behind each automotive system and the diagnostic, testing, and repair procedures that relate to them. Assuming no prior knowledge of automotive technology, the book addresses fundamental skills, maintenance and the application of the key theories in a manner that is both clear and engaging for students of all levels. This exciting new edition includes increased usage of metric measuring instruments, expanded information on brakes, including Active Braking systems and their link to Active Suspension systems, and enhanced coverage of electronic stability and electronic power steering, including four-wheel steering. This all-new content is built into the book using the same solid foundation of knowledge that its previous editions are known for, making TODAY'S TECHNICIAN: BASIC AUTOMOTIVE SERVICE & SYSTEMS, International Edition a teaching tool that you won't want to go without.

NEW TO THIS EDITION

- Introduces and expands upon conducting express

service procedures, including a job sheet for express service tasks that covers how to conduct a vehicle safety/maintenance inspection and the use of the inspection results.

- Increases emphasis on safety with refined tool Chapters that use photo sequences to highlight and address the safety and operation of various tools, such as oxyacetylene torches.
- Prepares students for employment, or even that first promotion, with revised content that provides additional technical and task-focused information that can be easily applied to the world of work.
- Keeps students up-to-date on the latest industry trends and technologies with an increased use of metric measuring instruments, expanded information on brakes, including Active Braking systems and their link to Active Suspension systems, and electronic stability and electronic power steering, including four-wheel steering.

FEATURES

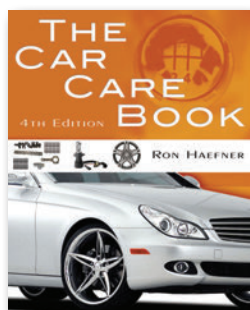
- Provides well-rounded coverage that will prepare students for all aspects of work in the field with detailed customer service procedures and the technical information they need to communicate intelligently with a customer on exactly what has to be repaired, replaced, or reused.
- Enhances student knowledge with expanded vehicle computer details, including a detailed description of signals, actuators, sensors, and other computer system components.
- Features content that is current and relevant to the industry today with state-of-the-art information on the global automotive industry and the role of the technician within it.

CONTENTS

Classroom Manual Table of Contents:1. Automotive Systems And Operations.2. The Automotive Business.3. Automotive Tools And Equipment.4. Measurements And Precision Measuring Devices.5. Fasteners.6. Automotive Bearings And Sealants.7. Automobile Theories Of Operation.8. Power System Operation And Subsystems.9. Brakes.10. Suspension And Steering.11. Powertrains.12. Auxiliary Systems And Climate Control.Glossary. Index.Shop Manual – Table of Contents:1. Safety Issues And First Aid.2. Shop Operations And The

Technician.3. Tools And Equipment Usage.4. Precision Measurements.5. Fastener Usage And Repair.6. Automotive Bearing And Sealant Service.7. Diagnosing By Theories And Inspection.8. Engine Preventive Maintenance.9. Servicing Brake Systems.10. Suspension And Steering Service.11. Powertrain Service.12. Auxiliary System Service.

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ebook

THE CAR CARE BOOK, 4E

Ron Haefner, Columbus High School

Consumers typically face three main challenges when it comes to understanding their 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 edition, *The Car Care Book, 4th Edition* 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.

NEW TO THIS EDITION

- An all-new Chapter on electric and hybrid vehicles discusses these emerging technologies, including basic maintenance and important

safety considerations

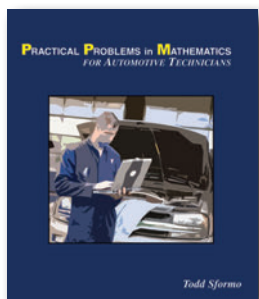
FEATURES

- 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.

© 2010, 496pp, Paperback, 9781428342958



ebook

PRACTICAL PROBLEMS IN MATHEMATICS, 7E

For Automotive Technicians

Todd Sformo, Ilisagvik College

Comprehensive and easy to use, the revised and updated seventh 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!

FEATURES

- Concepts are presented to the reader in a logical, clear, and sequential manner with each stage of a procedure outlined in order to increase understanding and allow for success
- Multitude of problems proceed from the simple to the more complex that allows readers have ample opportunities to develop their skills and confidence as well as reinforce practice and understanding
- Examples and problems cultivate problem-solving skills that are crucial to success on the job
- Complete coverage of fundamental math principles as well as more advanced computations makes the book suitable for beginning and experienced technicians alike

- New to the seventh edition are unit Objectives aid in teaching and understanding the main concepts in each unit.

CONTENTS

Preface. Estimation. Section 1. Whole Numbers. Unit 1. Addition of Whole Numbers. Unit 2. Subtraction of Whole Numbers. Unit 3. Multiplication of Whole Numbers. Unit 4. Division of Whole Numbers. Section 2. Common Fractions. Unit 5. Addition of Common Fractions. Unit 6. Subtraction of Common Fractions. Unit 7. Multiplication of Common Fraction. Unit 8. Division of Common Fractions. Section 3. Decimal Fractions. Unit 9. Fractional Equivalents. Unit 10. Addition of Decimal Fractions. Unit 11. Subtraction of Decimal Fractions. Unit 12. Multiplication of Decimal Fractions. Unit 13. Division of Decimal Fractions. Unit 14. Micrometer Reading: Application of Decimal Fractions. Unit 15. Multiple Operations of Common and Decimal Fractions. Section 4. Percent and Percentage. Unit 16. Simple Percent. Unit 17. Simple Percentage. Unit 18. Discounts. Unit 19. Profit and Loss, Commissions. Unit 20. Interest and Taxes. Unit 21. Percent of Error and Averages. Section 5. Measurement. Unit 22. English Linear Measurements. Unit 23. Metric Measurements. Unit 24. Scale Reading. Unit 25. Scale Reading of Test Meters. Unit 26. Circular Measurements. Unit 27. Angular Measurements. Unit 28. Area and Volume Measurement. Unit 29. Time, Speed, and Money Calculations. Section 6. Ratio and Proportion. Unit 30. Ratios. Unit 31. Proportions. Section 7. Formulas. Unit 32. Formulas for Circular Measurement. Unit 33. Formulas for Efficiency. Unit 34. Temperature. Unit 35. Cylindrical Volume Measurements. Unit 36. Horsepower. Unit 37. Ohms Law. Section 8. Graphs. Unit 38. Use of Graphs. Section 9. Invoices. Unit 39. Repair Orders and Shop Tickets. Appendix. Glossary. Answers to Odd-Numbered Problems

© 2009, 288pp, Paperback, 9781428335240



AUTOMOTIVE TECHNOLOGY

For General Service Technicians

Ron Haefner, Columbus High School; Paul Leathers,
Columbus High School in Columbus, NE

Introducing the first automotive technology textbook designed for NATEF's General Service Technician Program! This new 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. The authors highlight the importance of workplace skills and discuss employee responsibilities, such as preparing vehicles for service and delivering them to customers. Pre-publication reviews praised the book's readability, real-life examples, and simple but accurate presentation of technical information. "I love the non-complex development of the subjects in the text! You have really made an easy-to-understand text for students," said one. "This book can reach the kids," said another.

FEATURES

- Full color is used throughout the book to maximize the value of every photograph and line drawing
- Chapters are kept short to avoid overwhelming students and thoughtfully organized by area so that instructors can choose the order that works best for them
- Student interest is engaged and maintained by "You Should Know," "Tech Tips," "It's the Law," and "Did You Know?" in-text features.
- The accompanying Student Workbook provides Chapter review activities and task sheets that guide the student through relevant shop activities
- An Applied Academics Workbook supplements

the text with practice in math, science and communications skills that are keyed to automotive examples

- An e.resource with PowerPoint lecture outlines, an Image Library, and a Computerized Test Bank is available to instructors who want to make classroom lecture as efficient and engaging as possible

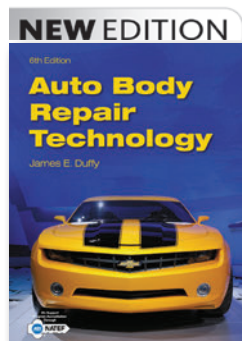
CONTENTS

Preface. Chapter 01 The Automotive Business. Chapter 02 Employee Skills for Career Success. Chapter 03 General Shop Safety. Chapter 04 Tool and Equipment Safety. Chapter 05 Tools and Equipment. Chapter 06 Basic Shop Procedures. Chapter 07 Measuring Systems, Measurements, and Fasteners. Chapter 08 Service Information. Chapter 09 Using Service Information. Chapter 10 Vehicle Inspection and Valeting. Chapter 011 Basic Electricity and Electric Circuits. Chapter 012 Light Circuits. Chapter 013 Light Circuit Maintenance, Diagnosis, and Service. Chapter 014 Indicator Lights and Gauges. Chapter 015 Indicator Light and Gauge Maintenance, Diagnosis, and Service. Chapter 016 Basic Wiring and Wiring Repair. Chapter 017 Battery and Starting Systems. Chapter 018 Battery and Starting System Maintenance, Diagnosis, and Service. Chapter 019 Charging Systems. Chapter 020 Charging System Maintenance, Diagnosis, and Service. Chapter 021 Ignition Systems. Chapter 022 Ignition System Maintenance, Diagnosis, and Service. Chapter 023 Brake System Design and Operation. Chapter 024 Brake System Maintenance, Diagnosis, and Service. Chapter 025 Steering Columns, Linkages, and Power Steering Pumps, Maintenance, Diagnosis and Service. Chapter 026 Manual and Power Steering Gears, Maintenance, Diagnosis, and Service. Chapter 027 Tires, Wheels, and Hubs. Chapter 028 Tire, Wheel, and Hub Maintenance, Diagnosis, and Service. Chapter 029 Suspension Systems. Chapter 030 Suspension System Maintenance, Diagnosis, and Service. Chapter 031 Wheel Alignment. Chapter 032 The Four-Stroke Cycle and Cylinder Arrangements. Chapter 033 Engine Oil and Lubrication Systems. Chapter 034 Engine Lubrication System Maintenance, Diagnosis, and Service. Chapter 035 Engine

Coolant and Cooling Systems. Chapter 036 Engine Cooling Systems, Maintenance, Diagnosis, and Service. Chapter 037 Fuel System Fundamentals. Chapter 038 Fuel System Components. Chapter 039 Fuel System Service. Chapter 040 Vehicle Emissions and Emission Standards. Chapter 041 Emission Systems. Chapter 042 Emission System Maintenance, Diagnosis, and Service. Chapter 043 Engine Control Computers and Output Controls. Chapter 044 Input Sensors for Engine Control Systems. Chapter 045 Input Sensor Maintenance, Diagnosis, and Service. Chapter 046 Engine Control Systems. Chapter 047 Engine Control System Maintenance, Diagnosis, and Service. Chapter 048 Manual Transmission and Transaxle, Maintenance, Diagnosis, and Service. Chapter 049 Automatic Transmission and Transaxle Maintenance, Diagnosis, and Service. Chapter 050 Clutch Maintenance, Diagnosis, and Service. Chapter 051 Drive Shaft, Drive Axle, and Universal Joint Maintenance, Diagnosis and Service. Chapter 052 Heating, Ventilation, and Air Conditioning Systems. Chapter 053 Heating, Ventilation, and Air Conditioning Maintenance, Diagnosis, and Service. Chapter 054 Supplemental Restraint Systems. Bilingual Glossary. Index

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COLLISION REPAIR



ebook

CourseMate

MindTap

AUTO BODY REPAIR TECHNOLOGY, 6E

James E. Duffy, Indiana State University, President, Beneficial Books and Video

AUTO BODY REPAIR TECHNOLOGY, Sixth Edition, features extensive new and updated material reflecting the latest automotive technology and current industry best practices. In addition to incorporating the current NATEF Collision Repair and Refinish Program Standards and Task Lists, this market-leading text provides detailed information on working with hybrid and electric vehicles, using environmentally friendly water-based paints, and other cutting-edge methods and materials. Celebrated for its clear, reader-friendly explanations and detailed, accurate information, this proven text also includes abundant full-color photos and illustrations to make even complex concepts easier to understand and apply. Available supplements include a tech manual with shop assignments and job sheets, as well as interactive online resources ideal for today's courses and learners. Providing comprehensive coverage of collision repair—from initial evaluation and estimating, to structural and mechanical repairs, to repainting and refinishing—this trusted text helps readers quickly and confidently learn the skills and procedures they need to succeed as professional automotive technicians.

NEW TO THIS EDITION

- This trusted guide has been thoroughly updated and expanded to cover the latest industry trends,

technology, and practices, including the current NATEF Collision Repair and Refinish Program Standards and Task Lists.

- A new Chapter devoted to hybrid technology service and safety provides detailed information on servicing today's high-tech hybrid and electric vehicles, including vital safety considerations when working with electric circuits and assemblies that can carry deadly levels of voltage and current.
- The Sixth Edition describes safe, effective procedures for using high-voltage equipment (such as protective clothing and insulated plastic and carbon-fiber hand tools) when working on electric drivelines during major structural repairs to hybrid and electric vehicles.
- Chapter review materials now feature new and revised activities and exercises to reinforce essential math, critical thinking, and problem-solving skills that today's technicians need for success in this fast-paced field.
- The text explores the special procedures required for effective mixing and application of water-based paints, preparing students for a smooth transition from oil-based paints as more states mandate the use of these materials to reduce VOC emissions into the atmosphere.

FEATURES

- Vibrant, full-color photos and illustrations throughout the text help bring key concepts to life and illustrate important repair, repainting, and refinishing techniques in vivid detail, making even complex concepts easier for students to understand and apply.
- The author devotes particular attention to information on software and hardware used in many modern collision repair shops, preparing students to use the tools and processes they will encounter as working professionals when accessing service information and specifications.
- Known for its comprehensive coverage and detailed, accurate information, the text complements material on traditional collision repair topics with useful information on mechanical components, wheel alignment, and restraint system operation.
- In addition to helping students develop the knowledge and skills they need to master their

trade, the text features information on ASE certification and entrepreneurship to prepare students for lasting, successful careers as professional automotive technicians.

- Resources available to complement the text include a tech manual with hands-on shop assignments and job sheets, as well as a variety of interactive resources to enhance teaching and learning, including lecture slides, an electronic test bank with hundreds of questions, and a library of full-color digital images.

CONTENTS

Part I: INTRODUCTION. 1. Collision Repair: Introduction and Careers. 2. Vehicle Construction Technology. 3. Service Information, Specifications, Measurements. 4. Hand Tool Technology. 5. Power Tool Technology. 6. Compressed Air System Technology. 7. Body Shop Materials, and Fastener Technology. 8. Welding Equipment Technology. 9. Shop Safety and Efficiency. Part II: ESTIMATING. 10. Estimating Repair Costs. Part III: MINOR REPAIRS. 11. Working Sheet Metal. 12. Using Body Fillers. 13. Repairing Plastics. 14. Hood, Bumper, Fender, Lid, and Trim Service. 15. Door, Roof, and Glass Service. 16. Passenger Compartment Service. Part IV: MAJOR BODY FRAME REPAIRS. 17. Body/Frame Damage Measurement. 18. UniBody/Frame Realignment. 19. Welded Panel Replacement. 20. Restoring Corrosion Protection. Part V: MECHANICAL ELECTRICAL REPAIRS. 21. Chassis Service and Wheel Repair. 22. Electrical/Electronic System Operation and Service. 23. Restraint System Operation and Service. Part VI: REFINISHING. 24. Refinishing Equipment Technology. 25. Vehicle Surface Preparation and Masking. 26. Refinishing Procedures. 27. Color Matching and Custom Painting. 28. Paint Problems and Final Detailing. Part VII: COLLISION REPAIR PROFESSIONALISM. 29. Job Success and ASE Certification. 30. Hybrid Technology, Service Safety.

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ebook



COLLISION REPAIR AND REFINISHING, 2E

A Foundation Course for Technicians, International Edition

Alfred Thomas, Pennsylvania College of Technology; Michael Jund, Eastern Iowa Community College

COLLISION REPAIR AND REFINISHING: A FOUNDATION COURSE FOR TECHNICIANS, International Edition covers all the major areas 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, sacrificial coatings for corrosion resistance, mechanical & electrical systems, and more. The logical progression of topics and easy-to-understand writing style are perfect for students with little or no prior exposure to collision repair.

NEW TO THIS EDITION

- An all-new Chapter exclusively covers waterborne technology.
- Four all new Chapters cover common mechanical repairs that are needed following a collision.
- Expanded coverage of writing a resume, developing interview skills, and other skills needed that will help your students secure their first job.
- New content on mechanical and electrical components.
- Chapters revised to cover new and emerging technologies.

FEATURES

- This is the first collision repair book written in and for 21st century students.
- Collision Repair and Refinishing: A Foundation Course for Technicians, 2e is comprehensive,

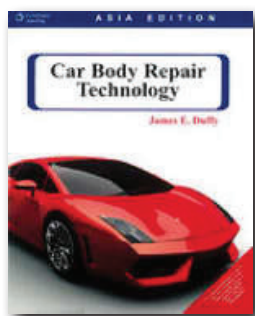
well illustrated and completely up to date with the latest technologies.

- The new edition is easy to read and contains current information and a logical sequence of topics.

CONTENTS

1. Introduction to Collision Repair. 2. Collision Shop Safety. 3. Hand Tools. 4. Power Tools. 5. Welding Procedures and Equipment. 6. Vehicle Construction. 7. Straightening Steel and Aluminum. 8. Body Filler. 9. Trim and Hardware. 10. Estimating Collision Damage. 11. Collision Damage Analysis. 12. Bolted Exterior Panel Replacement. 13. Measuring Structural Damage. 14. Straightening Unibody. 15. Welded Exterior Panel Replacement. 16. Structural Parts Replacement. 17. Full Frame Sectioning/Replacement. 18. Plastic Repair. 19. Corrosion Protection. 20. Paint Spray Guns. 21. Spray Techniques. 22. Equipment for the Refinishing Shop. 23. Detailing. 24. Understanding Refinishing. 25. Surface Preparation. 26. Masking Materials and Procedures. 27. Solvents for Refinishing. 28. Application of Undercoats. 29. Advanced Refinishing Procedures Solvent Born. 30. Advanced Refinishing Procedures Waterborne (New). 31. Color Evaluation and Adjustment. 32. Paint Problems and Prevention. 33. Electrical Components (New). 34. Suspension and Steering Systems (New). 35. Brake Systems (New). 36. Mechanical Systems (New).

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CAR BODY REPAIR TECHNOLOGY

James Duffy

The industry-leading textbook for collision repair and refinishing is now updated to the NATEF 2006 Collision Repair and Refinish Program Standards. 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. And 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 that includes a Student Technician's Manual, print Instructor's Guide, and e.resource CD-ROM for instructors, the Auto Body Repair Technology package is second to none.

FEATURES

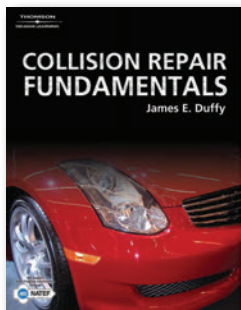
- New full-color artwork throughout entire book illustrates important topics associated with repair, painting and refinishing
- Discussion of software and hardware commonly available in modern collision repair shops prepares technicians to access service information and specifications quickly and efficiently using a personal computer
- Content on servicing mechanical components, wheel alignment, and restraint system operation rounds out the comprehensive coverage
- Valuable information on ASE certification and entrepreneurship is also included to guide readers to success in their careers
- Enhanced e.resource includes PowerPoint,

Computerized Test Bank with hundreds of test questions, and full color Image Library for a complete instructor preparation solution

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

© 2011, 1145pp, Paperback, 9789814296632



COLLISION REPAIR FUNDAMENTALS

James E. Duffy, Indiana State University, President, Beneficial Books and Video

This all new 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.

FEATURES

- Full color artwork features state-of-the-art collision repair technology
- Easy-to-read, approachable Chapters are perfect for the new collision repair student
- Thoroughly revised Technician's Manual covering NATEF tasks, allow for hands-on learning activities.

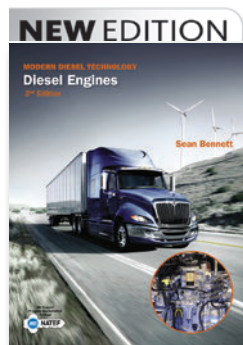
CONTENTS

Section 1- Basics 1.Careers in Collision Repair. 2.Safety, ASE Certification. 3.Vehicle Construction. 4.Hand Tools. 5.Power Tools. 6.Measurements, Manuals. 7.Fasteners. 8.Hardware and Materials. 9.Welding, Heating, Cutting. Section 2- Minor Body Repairs. 10.Metal Straightening Fundamentals. 11.Plastic and Fiberglass Repair. 12.Replacing Fastened Panels. 13.Servicing Doors, Glass, Air/Water Leaks. Section 3- Refinishing. 14.Vehicle Paint Prep. 15.Shop Paint Prep. 16.Painting Fundamentals. 17.Color Matching. 18.Paint

Problems, Final Detailing. 19.Decals, Custom Painting, Trim Section 4 -Major Body Frame Repairs. 20.Measuring Vehicle Damage. 21.Frame-Unibody Straightening. 22.Replacing Structural Parts, Corrosion Protection Section 5- Other Body Shop Operations. 23.Interior and Top Repairs. 24.Mechanical Repairs. 25.Wheel Alignment. 26.Electrical Repairs. 27.Restraint System Repairs. Section 6- Estimating, Entrepreneurship. 28.Estimating Repair Costs. 29.Entrepreneurship, Job Success, Certification

© 2008, 576pp, Hardback, 9781418013363

DIESEL TECHNOLOGY



ebook

MODERN DIESEL TECHNOLOGY, 2E

Diesel Engines

Sean Bennett

MODERN DIESEL TECHNOLOGY: DIESEL ENGINES, Second Edition, provides a thorough, reader-friendly introduction to diesel engine theory, construction, operation, and service. Combining a simple, straightforward writing style, ample illustrations, and step-by-step instruction, this trusted text helps aspiring technicians develop the knowledge and skills they need to service modern, computer-controlled diesel engines. The text provides an overview of essential topics such as shop safety, tools and equipment, engine construction and operation, major engine systems, and general service and repair concepts. Dedicated Chapters then explore engine, fuel, and vehicle computer control subsystems, as well as diesel emissions. Thoroughly revised to reflect the latest

technology, trends, and techniques—including current NATEF standards—the Second Edition provides an accurate, up-to-date introduction to modern diesel engines and a solid foundation for professional success.

NEW TO THIS EDITION

- The Second Edition features extensive new and revised information reflecting current technology, industry trends, and service and repair techniques, including ongoing changes to engine, fuel, and emissions technology spurred by EPA standards and market pressure to boost fuel economy.
- The author has added a new Chapter on engine service procedure to provide in-depth, up-to-date coverage of essential topics, including a step-by-step approach to lube and filter changes.
- The opening Chapter on safety has been revised to include current industry standards and best practices, including a strong emphasis on safely handling hoisting equipment.
- The tools and equipment Chapter has been revised to include new and improved illustrations, as well as more detailed instructions on the use of engine-specific shop tools.
- An updated emissions Chapter provides clear, informative coverage of the EPA 2013 and 2016 emissions standards that will soon impact diesel technology, as well as federal proposals related to CO₂ carbon dump containment.

FEATURES

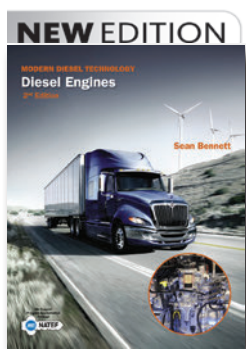
- Two-color diagrams throughout the text help illustrate key concepts and techniques, complementing Chapter material to reinforce learning.
- Clear, concise coverage of essential topics and an engaging, reader-friendly presentation make even complex concepts easier to master for readers of all backgrounds and experience levels.
- Learning objectives open each section by clearly outlining key topics that will be covered, helping readers set accurate expectations and focus their efforts effectively.
- A comprehensive glossary of key terms and acronyms provides a convenient reference, enabling readers to master the standard vocabulary used by professionals in the field.

- Employing a modular format that makes it easy to adapt Chapter material to a specific syllabus or student interests, the text covers diverse topics such as shop safety, tools and equipment, engine construction and operation, major engine systems and subsystems, service and repair, and emissions.

CONTENTS

1. Safety. 2. Hand and Shop Tools. 3. Engine Fundamentals. 4. Piston Assemblies, Crankshafts, Flywheels, and Dampers. 5. Timing Geartrains, Camshafts, Tappets, Rockers, and Cylinder Valves. 6. Cylinder Blocks, Liners, Cylinder Heads, Rocker Housings, Oil Pans, and Manifolds. 7. Lubricating Oil and Lubrication Systems. 8. Coolant and Cooling Systems. 9. Intake and Exhaust Systems and Turbochargers. 10. Engine Brakes. 11. Engine Service Procedure. 12. Engine Removal, Disassembly, Cleaning, Inspection, and Reassembly. 13. Fuel Subsystems. 14. Injector Nozzles. 15. Engine Management Electronics. 16. Diesel Fuel Injection Systems. 17. Emissions.

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ebook

MODERN DIESEL TECHNOLOGY, 2E Diesel Engines

Sean Bennett

MODERN DIESEL TECHNOLOGY: DIESEL ENGINES, Second Edition, provides a thorough, reader-friendly introduction to diesel engine theory, construction, operation, and service. Combining a simple, straightforward writing style, ample illustrations, and step-by-step instruction, this trusted text helps aspiring technicians develop the knowledge and skills they need to service modern, computer-controlled diesel engines. The text provides an overview of essential topics such as shop safety, tools and equipment, engine construction and operation, major engine systems, and general service and repair concepts. Dedicated Chapters then explore engine, fuel, and vehicle computer control subsystems, as well as diesel emissions. Thoroughly revised to reflect the latest technology, trends, and techniques—including current NATEF standards—the Second Edition provides an accurate, up-to-date introduction to modern diesel engines and a solid foundation for professional success.

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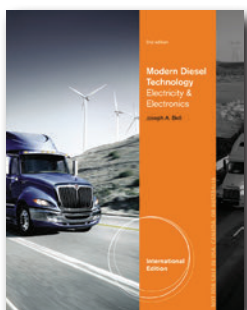
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CONTENTS

1. Safety.
2. Hand and Shop Tools.
3. Engine Fundamentals.
4. Piston Assemblies, Crankshafts, Flywheels, and Dampers.
5. Timing Geartrains, Camshafts, Tappets, Rockers, and Cylinder Valves.
6. Cylinder Blocks, Liners, Cylinder Heads, Rocker Housings, Oil Pans, and Manifolds.
7. Lubricating Oil and Lubrication Systems.
- 8.

Coolant and Cooling Systems.9. Intake and Exhaust Systems and Turbochargers.10. Engine Brakes.11. Engine Service Procedure.12. Engine Removal, Disassembly, Cleaning, Inspection, and Reassembly.13. Fuel Subsystems.14. Injector Nozzles.15. Engine Management Electronics.16. Diesel Fuel Injection Systems.17. Emissions.

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ebook

MODERN DIESEL TECHNOLOGY, 2E

Electricity and Electronics, International Edition

Joseph Bell

Today's diesel vehicles integrate electrical and electronic controls within all major systems, making a thorough understanding of current technology essential for success as a diesel technician. Bell's MODERN DIESEL TECHNOLOGY: ELECTRICITY AND ELECTRONICS, International Edition, provides this understanding through clear explanations of fundamental principles, detailed coverage of the latest engines and equipment, abundant real-world examples, and the technical accuracy and depth of detail that professional technicians demand. An engaging writing style and highly visual layout make the material easier to master, while a strong focus on practical applications and problem-solving help readers readily use what they learn in the shop. Now updated with a visually appealing, two-color design and new material to reflect the latest technology and practices, this proven guide is an essential resource for aspiring and professional diesel technicians alike.

NEW TO THIS EDITION

- A new, dedicated Chapter provides thorough,

up-to-date coverage of diesel engine electronics, including HD-OBD and exhaust emissions systems, as well as an introduction to automated control systems.

- The Second Edition has been carefully updated and expanded with accurate information on the latest technologies and techniques, including deeper coverage of sensor technologies and multiplexing, and new information on hybrid electric trucks, advanced anti-lock braking (ABS) systems, and telematics.
- New material to enhance the Second Edition includes advanced content in the "Extras for Experts" features, examples and illustrations reflecting a wide range of current trucks and heavy equipment from various manufacturers, and more guidance on troubleshooting in difficult, real-world scenarios.
- A new, two-color design makes the text more visually appealing and allows for enhanced illustrations that make key concepts and examples easier to understand and apply.
- A broader set of supplements for the text is now available to facilitate teaching and learning, including an ExamView test bank for instructors.

FEATURES

- While providing a solid grounding in essential electrical theory and physics principles, the text does not burden readers with unnecessary mathematical detail, enabling even those inexperienced or uncomfortable with advanced math to readily master the material.
- More than 500 photos, illustrations, and other visual elements help bring Chapter material to life and make it easier for readers to apply what they learn in the shop while honing their skills through hands-on practice.
- In addition to abundant real-world examples featuring the International High Performance model, the text presents a variety of first-hand experiences to give readers the perspective of a professional technician and convey historical information about the electronics revolution in the automotive industry.
- Each Chapter includes references to relevant Automotive Service Excellence (ASE) and National Automotive Technicians Education

Foundation (NATEF) standards, enabling readers to connect material to the corresponding industry guidelines that will apply to their work as professional technicians.

CONTENTS

1. Safety. 2. The Fundamentals of Electricity. 3. Physics for Electricity. 4. Electrical Components. 5. Batteries. 6. Basic Electronics. 7. Charging Systems. 8. DC Motors. 9. Lighting Systems. 10. Electrical Accessories. 11. Sensors, Digital Electronics and Multiplexing. 12. Instrumentation. 13. Diesel Engine Electronics. 14. Body Control Modules. 15. Modern Truck Electrical System.

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ebook

MODERN DIESEL TECHNOLOGY, 2E Heavy Equipment Systems

Robert Huzij, Cambrian College; Angelo Spano, Centennial College; Sean Bennett

Written by experienced technicians, MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS, 2nd Edition combines manufacturer-based and universal information into a single, reliable resource. The book's unique focus on off-highway mobile equipment systems delivers service and repair essentials for heavy equipment, agricultural equipment, and powered lift truck technology. Detailing everything from safety to best practices, Chapter coverage addresses four key areas: hydraulics, heavy duty brakes, and drivetrains, as well as steering, suspension, and track systems. The 2nd Edition of MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS also includes the latest updates in

computer-controlled hydraulics, GPS, electronic controls for other systems to help specialty technicians master their ever-evolving trade.

NEW TO THIS EDITION

- **Modern Conveniences:** Revised throughout, the 2nd Edition of MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS also features an expanded Instructor Resource package, including a time-saving test bank in ExamView and image-intensive PowerPoint® slides.
- **More Electronic Controls:** Responding to reviewer feedback, four full Chapters dig even deeper into electronic controls, especially as they apply to today's mobile hydraulics systems.
- **Extra Safety:** MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS, 2nd Edition protects specialty technicians with expanded content on safety, including ROPs and FOPs, and high voltage safety precautions.
- **New AC Drivetrain Coverage:** An added Chapter on heavy-duty AC drivetrains covers trolley drive capable systems, and includes special emphasis on safety when working with high voltages.
- **Uplifting Topics:** Readers get the latest techniques in hoisting and rigging with this brand new Chapter on best practices when working with and around heavy equipment.

FEATURES

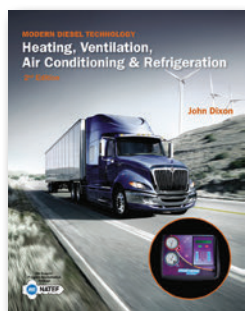
- **Enlightening Visuals:** Detailed illustrations and photographs throughout the book clarify important concepts for readers.
- **Reader-Friendly Style:** Straightforward, concise writing from authors with firsthand industry expertise makes the information easy to grasp and highly relatable.
- **Practical Approach:** Focusing on performance-based learning outcomes—turning abstract theories into real-world, hands-on tasks—adds depth and context to the readings.
- **Comprehensive Resource:** This go-to guide for specialty technicians complements any manufacturer's manual, and addresses the full range of mobile heavy equipment manufactured and marketed in North America.

CONTENTS

1. Safety. 2. Hoisting And Rigging. 3. Introduction

to Hydraulics. 4. Hydraulic System Components. 5. Hydraulic Symbols and Schematics. 6. Hydraulic System Maintenance and Diagnostics. 7. Hydraulic Brakes. 8. Spring-Applied, Hydraulic-Released Brakes. 9. Air and Air Over Hydraulic Brake Systems. 10. Introduction to Powertrains. 11. Powershift Transmissions. 12. Hydrostatic Drive Systems and Retarders. 13. Driveline Systems. 14. Heavy Duty Drive Axles. 15. Final Drives. 16. Steering Systems. 17. Tires, Tracks, and Rim Systems. 18. Suspension Systems. 19. Machine and Equipment Electronics. 20. AC Electric Drive Systems.

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ebook

MODERN DIESEL TECHNOLOGY, 2E

Heating, Ventilation, Air Conditioning & Refrigeration

John Dixon, Centennial College, Toronto

Easy to read yet technically precise, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition is the text of choice for many of the country's best diesel technology programs. Detailing the foundations of truck heating, air conditioning, engine cooling, and truck-trailer refrigeration, the book integrates modern technical terms with photos that clearly demonstrate typical, on-the-job tasks in logical sequence. Coverage includes an entire section on thermodynamics, as well as solid instruction on safety, equipment, components, troubleshooting, performance testing, maintenance, and even the history of HVAC/R in the diesel trucking industry. Enhanced with photos, drawings, and self-testing questions in each Chapter, MODERN DIESEL TECHNOLOGY:

HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition delivers the technical accuracy and depth of HVAC/R information not found in any other text.

NEW TO THIS EDITION

- **New Coach Chapter:** This all-new Chapter details how the latest large bus air conditioning systems function, along with troubleshooting and maintenance procedures.
- **EPA Standards:** Advise students on proper refrigerant handling with these current EPA updates, and help technicians avoid penalties for non-compliance with environmental laws.
- **Timely Updates:** As requested by reviewers, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition has been thoroughly updated, including all-new discussions on the industry's latest technological advances.
- **Improved Questions:** Overhauled for the 2nd Edition, revised end-of-Chapter review questions and answers prepare future technicians with pinpoint accuracy.
- **Ideal Coverage:** Unique sections on today's transport refrigeration equipment, supplemental truck heating and cooling, and other modern-day issues make MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition a key resource in any training setting.

FEATURES

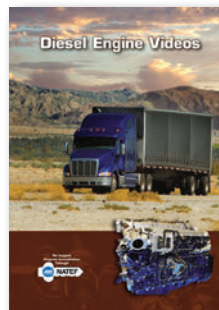
- **The instructor's manual** offers a complete correlation to the NATEF tasks presented in the coverage of the each chapter.
- **Background Physics:** A full Chapter on thermodynamics theory gives students the understanding of basic physics they need to thrive in their HVAC/R diesel technician training.
- **Unmatched Coverage:** Chapters cover AC components, refrigeration, engine cooling systems, climate control, and all aspects of refrigeration equipment, as well as service procedures, troubleshooting, performance testing, and maintenance. No competing text offers so many topics with such depth!
- **Step-by-Step Guidance:** Helpful photographs

and line art depict major HVAC and refrigeration systems, while simple terminology and product-specific examples support student learning further.

CONTENTS

1. History of HVAC. 2. Environmental and Safety Practices. 3. Thermodynamics. 4. Air Conditioning Components: Compressor, Condenser, and Receiver-Drier. 5. Air-Conditioning Components: Metering Devices, Evaporator, Accumulator. 6. Air Conditioning Systems. 7. Service Procedures. 8. Truck Engine Cooling Systems. 9. Climate Control/ Supplemental Truck Heating/Cooling. 10. Trouble Shooting. 11. APAds/ACPU Air Conditioning Control Systems (Air Conditioning Protection Unit). 12. Coach Air Conditioning. 13. Truck Trailer Refrigeration Equipment. 14. Truck Trailer Refrigeration Components. 15. Truck Trailer Refrigerant Flow Control. 16. Truck Trailer Refrigeration Electrical Components. 17. Truck Trailer Refrigeration Maintenance Procedures.

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DIESEL ENGINE VIDEOS

Sean Bennett; Douglas L. Potter

DIESEL ENGINE VIDEOS contain 57 original videos, each averaging 2 minutes in length, on topics that cover both the theory and servicing of modern diesel engines, fuel and engine management systems. Designed to accompany the Fourth Edition of Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems, the videos provide step-by-step demonstrations of some of the key shop floor procedures undertaken by technicians. There is an emphasis on service and maintenance tasks, and up-to-date equipment and tools are used in the demonstrations. Basic engine service techniques, engine reconditioning, and operations such as connecting to a chassis data bus are covered, along with demonstrations of dynamometer test bed procedure. The videos were scripted and filmed with expert oversight at every step to insure the highest degree of authenticity and technical accuracy. They are ideally suited as attention-getting additions to the Powerpoint presentations available with Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems, or to an instructor's own lecture materials. The video files are available on CD-ROM and come with a chart correlating them to relevant Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems 4e Chapters and to the NATEF Task List. Give your students the advantage of understanding important repair procedures before they walk in the shop!

FEATURES

- Diesel Engine Videos contain 57 original videos, each averaging 2 minutes in length.

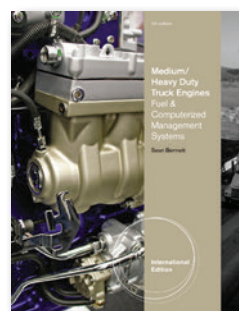
- Topics cover both the theory and servicing of modern diesel engines, fuel and engine management systems.
- Provides step-by-step demonstrations of some of the key shop floor procedures undertaken by technicians. There is an emphasis on service and maintenance tasks, and up-to-date equipment and tools are used in the demonstrations.
- The videos were scripted and filmed with expert oversight at every step to insure the highest degree of authenticity and technical accuracy.
- Ideally suited as attention-getting additions to the Powerpoint presentations available with Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems, or to an instructor's own lecture materials.
- Accompanying chart correlating the videos to relevant Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems 4e Chapters and to the NATEF Task List.

CONTENTS

1. Diesel Cycle.2. Measuring End Gap.3. Installing Piston Rings.4. Installing a Piston Pack Using a Ring Compressor.5. Assembling Connecting Rods.6. Measuring the Crankshaft.7. Using Plastigage.8. Bearing Roll Over Demonstration.9. Measuring Crankshaft Endplay.10. Installing a Ring Gear onto a Flywheel.11. Measuring Camshaft Lift in V-Blocks.12. Installing a Camshaft Bushing.13. Removing and Reinstalling Cylinder Head Valves Using Spring Compressor.14. Using a Spring Tension Tester.15. Using a Depth Micrometer to Measure Valve Protrusion and Recession.16. Companion Cylinder Identification.17. Adjusting Valve Bridges Using Thickness Gauges.18. Adjusting a Set of Valves Using Correct Procedure.19. Barring an Engine into Correct Position.20. Pulling a Cylinder Liner.21. Installing Liner O-rings.22. Installing Liners.23. Measuring Cylinder Block Deck.24. Identifying Liner Cavitation and Outlining Its Causes.25. Flywheel Housing Concentricity.26. Glaze Busting.27. Change Oil Filter.28. Oil Sampling.29. Coolant Test Strip Analysis.30. Using a Refractometer.31. Coolant Pressure Testing.32. Air Inlet Restriction Indicator.33. Replacing a Dry Element Air Filter.34. Engine Retarders.35. T-Puller to Remove Pulley.36. Engine Disassembly Practices.37. Magnaflux

Testing.38. Measuring a Connecting Rod.39. Pre-Lubricating an Engine.40. Dynamometer Test Bed.41. Chassis Dynamometer Test.42. Replacing a Fuel Filter.43. Changing a Multi-Function Fuel Filter.44. NOP Test on Injector.45. Removing Injector with a Heel Bar.46. Ultrasonic Cleaning Injector Nozzle.47. Resistance and Voltage Reading.48. Current Clamp Reading.49. Voltage Drop.50. Connecting Hand-Held EST.51. Connecting a Laptop to a Vehicle.52. Connecting an OEM SIS.53. Assemble a Weatherproof Connector.54. Calibration Programming an Electronic Injector.55. Setting Injector Height.56. Active Regeneration of DPF.57. Loss of Power.

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ebook

CourseMate

MEDIUM/HEAVY DUTY TRUCK ENGINES, FUEL & COMPUTERIZED MANAGEMENT SYSTEMS, INTERNATIONAL EDITION, 4E

Sean Bennett

The most comprehensive guide to highway diesel engines and their management systems available today, MEDIUM/HEAVY DUTY TRUCK ENGINES, FUEL & COMPUTERIZED MANAGEMENT SYSTEMS, 4E, International Edition is a user-friendly resource ideal for students, entry-level technicians, and experienced professionals alike. Coverage includes the full range of diesel engines, from light duty to heavy duty, as well as the most current diesel engine management electronics used in the industry. The extensively updated fourth edition features 16 new Chapters to reflect industry trends and technology, including

a decreased focus on outdated hydromechanical fuel systems, additional material on diesel electric/hydraulic hybrid technologies, and information on the principles and practices underlying current and proposed ASE and NATEF tasks. With an emphasis on today's computer technology that sets it apart from any other book on the market, this practical, wide-ranging guide helps prepare your students for career success in the dynamic field of diesel engine service.

NEW TO THIS EDITION

- The fourth edition features extensive updates throughout the text to reflect the latest diesel engines, computerized management systems, and related technology and practices, preparing students for success in the ever-evolving world of diesel engine service.
- Sixteen new Chapters provide up-to-date information on important industry trends and technology, including diesel electric/hydraulic hybrid technologies, as well as principles and practices related to current and future ASE and NATEF tasks.
- Abundant new material provides thorough coverage of important topics such as single and dual actuator EUI systems, traditional and amplified CR systems, biodiesel and alternate fuel systems, exhaust/aftertreatment systems, and cutting-edge troubleshooting and diagnostics.
- The author combines a clear writing style and practical focus with a new, stronger emphasis on universal principles and practices, preparing students to confidently perform a wide array of service tasks involving engines and systems by today's leading manufacturers, including Bosch, Caterpillar, Cummins, Navistar, Paccar, and Volvo/Mack.

FEATURES

- Applying his extensive experience as an educator and diesel service technician, the author combines exceptional technical accuracy with a highly accessible writing style that engages students and helps them readily master even complex material.
- The text addresses current and proposed ASE and NATEF standards while incorporating relevant mathematics and science material throughout,

helping students hone practical, technical skills while building the conceptual knowledge necessary for career success and satisfaction.

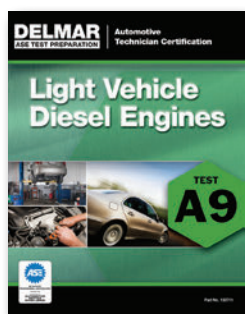
- Well-organized into three intuitive, sequential sections, the text provides an in-depth introduction to diesel engine fundamentals before exploring more advanced material on fuel systems, engine management, alternate power, and emissions.
- Without skimping on the theory and principles underlying modern diesel engines and their repair and maintenance, the text emphasizes hands-on applications linked to performance-based learning outcomes, preparing students to apply what they learn in a real-world setting.
- With up-to-date coverage of the latest Tier IV diesel engines, information systems, and electronically guided diagnostics, this detailed text helps students develop the knowledge and skills to enter the modern truck service industry with confidence.

CONTENTS

Part I: DIESEL ENGINE FUNDAMENTALS.1. Introduction.2. Hand and Shop Tools.3. Personal Safety Equipment.4. Engine Fundamentals.5. History of the Heat Engine.6. Power.7. Diesel Engine Powertrain Assemblies.8. Diesel Engine Feedback Assembly.9. Engine Housing Components.10. Diesel Engine Lubrication Systems.11. Engine Cooling Systems.12. Engine Breathing.13. Engine Retarders.14. Engine Service Procedure.15. Diesel Engine Removal, Disassembly, Cleaning, Inspection and Reassembly.16. Diesel Engine Run-in and Performance Testing.Part II: DIESEL FUEL SYSTEMS.17. Chemistry and Combustion in Diesel Engines.18. Diesel Fuel Characteristics.19. Fuel Sub systems.20. Fuel Injection Basics and Governor Principles.21. Injector Nozzles.22. Port Helix Metering Fuel Systems.23. Inlet Metering Rotary Distributor Pumps.24. Sleeve Metering Rotary Distributor Pumps.25. Single Actuator EUI Fuel Systems.26. Twin Actuator EUI Fuel Systems.27. HEUI Fuel System.28. Electronic Unit Pump (EUP) Fuel Systems.29. HPI-TP Fuel System.30. Common Rail Fuel Systems.31. Amplified CR Systems. Part III: ENGINE MANAGEMENT, ALTERNATE POWER, AND EMISSIONS.32. Review of Electrical and Electronics Fundamentals.33. Networking and

Communications in the Trucking Industry.34. Vehicle Computers.35. ESTs and SIS.36. Electrical Wiring, Connector, and Terminal Repair.37. Multiplexing.38. Biodiesel and Alternate Fuels. 39. Electric and Hydraulic Hybrid Drives.40. Bosch EDC Systems.41. Caterpillar ADEM Management Systems.42. Cummins Management Systems.43. Detroit Diesel DDEC – Management Systems.44. Navistar Management Systems.45. Paccar Management Systems.46. Volvo and Mack Management Systems.47. Emissions Management.48. Exhaust Aftertreatment Systems.49. Failure Analysis.50. Troubleshooting and Diagnostics.

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ASE TEST PREPARATION - A9 LIGHT VEHICLE DIESEL ENGINES

Delmar

The first edition of Delmar's Automotive Service Excellence (ASE) Test Preparation Manual for the A9 LIGHT VEHICLE DIESEL ENGINES certification exam contains an abundance of content designed to help you successfully pass your ASE exam. This manual will ensure that you not only understand the task list and therefore the content your actual certification exam will be based upon, but also provides descriptions of the various types of questions on a typical ASE exam, as well as presents valuable test taking strategies enabling you to be fully prepared and confident on test day.

NEW TO THIS EDITION

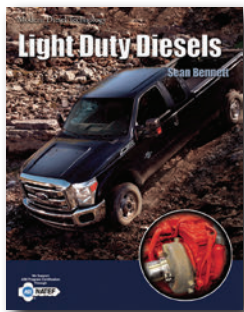
- Delmar has significantly increased the number of practice exams in their preparation manuals –

providing you with six practice exams (the most in the industry!) as a means of providing you with as many opportunities as possible to ensure your test-taking confidence.

FEATURES

- Delmar matches their practice test question weighting to the ASE task list, so you are focusing your preparation time on the same areas that you will be tested.
- Delmar provides an overview of what to expect when taking an ASE exam, so you not only gain comfort from a content perspective, but also have an understanding of the entire process.
- Delmar includes only the most up-to-date ASE task list data in their manuals, ensuring you are preparing with the current materials.
- Delmar provides an overview of each task, providing an easy reference point for help in answering all ASE questions.
- Delmar uses all ASE-style exam questions in their practice exams, allowing you to gain comfort in not only the content of the exam, but the style in which the questions are written.
- Delmar provides detailed explanations as to why a particular answer is correct or incorrect so you can target your time preparing on the areas that need the most focus.

© 2012, 192pp, Paperback, 9781111127114



ebook

MODERN DIESEL TECHNOLOGY

Light Duty Diesels

Sean Bennett

MODERN DIESEL TECHNOLOGY: LIGHT DUTY DIESELS provides a thorough introduction to the light-duty diesel engine, now the power plant of choice in pickup trucks and automobiles to optimize fuel efficiency and longevity. While the major emphasis is on highway usage, best-selling author Sean Bennett also covers small stationary and mobile off-highway diesels. Using a modularized structure, Bennett helps the reader achieve a conceptual grounding in diesel engine technology. After exploring the tools required to achieve hands-on technical competency, the text explores major engine subsystems and fuel management systems used over the past decade, including the common rail fuel systems that manage almost all current light duty diesel engines. In addition, this text covers engine management systems, computer controls, multiplexing electronics, diesel emissions and the means used to control them. All generations of CAN-bus technology are examined, including the latest automotive CAN-C multiplexing and the basics of network bus troubleshooting. ASE A-9 certification learning objectives are addressed in detail.

FEATURES

- Uses a building-block approach to introduce readers to diesel engine technology, beginning with engine hardware and advancing to computer controls, CAN-bus networking and emission control logic.
- Includes hundreds of photographs and colorful line illustrations to help explain technical concepts.

- Targets the learning objectives of the newly introduced ASE A-9 Certification Exam.
- Offers clearly stated learning objectives, Chapter review questions, a detailed glossary of terms and many practical tips for working on diesel engines.

CONTENTS

1. Shop safety.2. Introduction to diesel engines.3. Diesel engine cylinder blocks.4. Cylinder head assemblies.5. Intake and exhaust systems.6. Cooling and lubricating circuits.7. Fuel subsystems.8. Injectors.9. Pump line nozzle (PLN) fuel injection systems.10. Electronically controlled injection systems.11. Engine electrical (cranking and charging).12. Engine electronics. 13. Emissions controls.14. Servicing and maintenance.15. Diagnostics and testing.

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ebook

HEAVY VEHICLE SYSTEMS, INTERNATIONAL EDITION, 5E

Sean Bennett

HEAVY VEHICLE SYSTEMS, International Edition is a best-selling introduction to servicing medium-and heavy-duty trucks, providing a strong foundation of content on Electricity and Electronics, Power Train, Steering and Suspension, Brakes, and Accessories Systems. The fifth edition has been updated throughout including an introduction to Eaton DM clutches and comprehensive coverage of Caterpillar's new highway vocational transmission, updates of electricity and electronics to cover new battery technology, and coverage of new FMVSS 121 (2009) stopping distance for

semi-combinations.

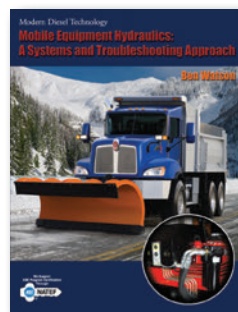
NEW TO THIS EDITION

- Standard to metric values (metric in brackets) throughout except for CVSA and FMVSS compliance specs. (These are not converted due to the potential to create confusion).
- Shift from PM routines to prognostic maintenance, reflecting current trucking industry practices.
- Updating of electricity and electronics to cover new battery technology, changes in electronic service tools, collision avoidance technologies, and service information systems (SIS).
- Introduction to Eaton DM clutches and comprehensive coverage of Caterpillar's new highway vocational transmissions (CX family).
- Coverage of new FMVSS 121 (2009) stopping distance for semi-combinations.
- Inclusion of Reefer cryogenics and BlueCool-type heat exchanges.

CONTENTS

1. Introduction to the Trucking Industry. 2. Shop Safety. 3. Tools and Fasteners. 4. Maintenance and Prognostics. 5. Basic Electricity. 6. Basics of Electronics and Computers. 7. Batteries. 8. Charging Circuits. 9. Cranking Circuits. 10. Chassis Electrical Circuits. 11. Diagnosis and Repair of Electronic Circuits. 12. Chassis Data Bus Systems. 13. Basics of hydraulics. 14. Clutch Systems. 15. Mechanical Transmissions. 16. Servicing Mechanical Transmissions. 17. Torque Converters. 18. Automatic Transmissions. 19. Automatic Transmission Maintenance. 20. Electronically Automated Mechanical Transmissions. 21. Electronic Automatic Transmissions. 22. Driveshafts and Drivelines. 23. Drive and Dead Axle Systems. 24. Axle Service and Repair. 25. Alignment and Steering Systems. 26. Suspension Systems. 27. Wheels and Tires. 28. Air Brake Systems. 29. Hydraulic and Air-over-Hydraulic Braking Systems. 30. ABS and EBS. 31. Servicing Air Brakes. 32. Frame and Chassis Systems. 33. Trailers. 34. Truck Coupling Systems. 35. Heating, Cooling, and Ventilation Systems. Acronyms. Glossary

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ebook

MOBILE EQUIPMENT HYDRAULICS

A Systems and Troubleshooting Approach

Ben Watson

Designed for the required course on hydraulics found in diesel technology and heavy equipment programs, MOBILE EQUIPMENT HYDRAULICS: A SYSTEMS AND TROUBLESHOOTING APPROACH, takes a practical approach to the understanding of fluid power / hydraulic systems. Instead of concentrating on the design issues of fluid power systems this book approaches hydraulics more like a technician would to approach a system that requires maintenance or troubleshooting. Nearly all aspiring diesel technicians receive training in this subject, which is one of seven areas of study recognized by NATEF in diesel technology. Coverage includes a study of terminology, industrial standards, symbols and basic circuitry design as related to fluid power. Examples are drawn from actual equipment that is relevant to the program of study, whether it be heavy truck, earth-moving, or agricultural equipment.

FEATURES

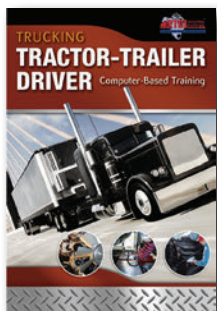
- Written in easy to understand language with limited use of math to explain concepts and theory.
- Written for the technician for whom hydraulic systems is not their primary trade.
- Emphasizes the skills required by these technicians in their daily work with hydraulic systems as a truck and heavy equipment service technician.
- Emphasizes important skills, such as how to research, find and interpret diagnostic information.
- An Instructor's CD which will include an answer key, additional Chapter tests, an Image Library of art and photos organized by Chapter and

PPT lecture outlines.

CONTENTS

1. An Overview.2. Building a Basic Cylinder or Hydraulic Motor Circuit.3. The Math.4. ANSI Symbols.5. Oils and Other Hydraulic Fluids.6. Piping, Tubing and Hoses.7. Couplers and Fittings.8. System Design.9. Electrical Controls.10. Maintenance.11. Troubleshooting Fluid Power Systems.12. Conversions.13. Hydraulic/Fluid Power Systems.

© 2011, 256pp, Paperback, 9781418080433



TRUCKING: TRACTOR-TRAILER DRIVER COMPUTER BASED TRAINING, CD-ROM

Delmar, Cengage Learning

The Trucking: Tractor-Trailer Driver Computer Based Training (CBT) provides a comprehensive driver training curriculum available on CD-ROM. This user-friendly product contains core content while utilizing graphics, animations, and interactions to keep the student engaged throughout the learning process. Use it alone, or in combination with the Tractor-Trailer Driver Handbook/Workbook for an unrivaled learning experience.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- book-marking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of section reviews are integrated throughout to ensure the

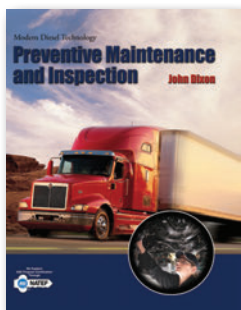
highest level of retention

- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest FMCSA regulation guidelines

CONTENTS

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

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ebook

MODERN DIESEL TECHNOLOGY

Preventive Maintenance and Inspection

John Dixon, Centennial College, Toronto

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. MDT: 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.

FEATURES

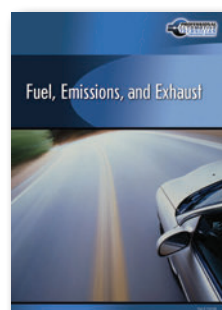
- detailed photo sequences allow readers to follow along step by step with critical tasks
- clear, straightforward approach facilitates an understanding of even the most complicated concepts
- checklists included for generic preventive maintenance for trucks and trailers, as well as coupling systems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

CONTENTS

1. General Shop Safety. 2. Hand tools. 3. Fasteners. 4. PM Service. 5. Cooling System Service and Inspection. 6. Drive Train Service. 7. Transmission Service and Inspection Automatic and Standard. 8. Tire Wheel and Rim Service and Inspection. 9. Braking Systems Service and Inspection. 10. Chassis / Cab Service and Inspection. 11. Steering System and Suspension Service and Inspection. 12. Electrical Systems and Auxiliary Components. 13. Coupling Systems. 14. Truck/Trailer Reefer service and Inspection. 15. Trailer Service and Inspection. 16. Tank Trailer Service and Inspection. 17. Tractor PMI Class 7 and 8 Diesel Powered with Air Brakes.

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ELECTRONIC TRAINING & REFERENCE SOLUTIONS



PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Fuels, Emissions and Exhaust Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar, a part of Cengage Learning, and the leader in providing first-rate educational materials for automotive technicians, now offers Fuel, Emissions, and Exhaust Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive

the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

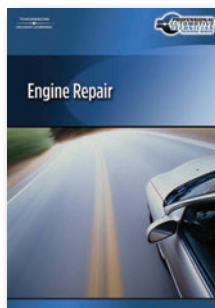
- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- bookmarking technology enables users to track their progress from beginning to end.
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- all material follows the latest ASE and NATEF standards.

CONTENTS

.Chapter 1: Safe Work Practices.Chapter 2: Special Tools and Equipment.Chapter 3: Electrical Test Equipment.Chapter 4: Working as a Fuels and Emissions Technician.Chapter 5: Introduction to the Computer.Chapter 6: Computer System Diagnosis.Chapter 7: Computer Inputs and Outputs.Chapter 8: Input and Output Diagnostics.Chapter 9: Automotive Fuels.Chapter 10: Alternative Fuels.Chapter 11: Basic Fuel Testing.Chapter 12: Fuel Tanks.Chapter 13: Fuel Tank Service.Chapter 14: Fuel Pumps and Lines.Chapter 15: Fuel Filter and Fuel Line Service.Chapter 16: Electric Fuel Pump Circuits.Chapter 17: Fuel Pump Diagnosis and Repair.Chapter 18: The Importance of the Air-Fuel Ratio.Chapter 19: Adaptive Memory.Chapter 20: Fuel-Injection Systems.Chapter 21: Electronic Fuel-Injection Input Sensor Diagnosis and Service.Chapter 22: Injector Testing and Service.Chapter 23: Scan Tester Diagnostics.Chapter 24: Emissions and the Automotive Industry.Chapter 25: Pre-combustion Controls.Chapter 26: Post-combustion Controls.Chapter 27: Exhaust Analyzer Operation.Chapter 28: Diagnosing the Emissions System.Chapter 29: Introduction to OBD-II.Chapter 30: DaimlerChrysler's OBD-II.Chapter 31: DaimlerChrysler's OBD-II with Next-Generation Controller.Chapter 32: General Motors's OBD-II.Chapter 33: Ford's OBD-II.Chapter 34: Import OBD-II.Chapter 35: Introduction to OBD-II Diagnostics.

Chapter 36: OBD-II Diagnostics – Drive Cycles.Chapter 37: EVAP Leak Diagnosis.Chapter 38: Alternative Fuel Vehicles.Chapter 39: Alternative Fuel System Service.Chapter 40: CNG Electrical Component Diagnostics and Service.Chapter 41: Vehicles With Alternative Power SourceFinal Review

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Engine Repair Computer Based Training (CBT)
Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Repair Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users

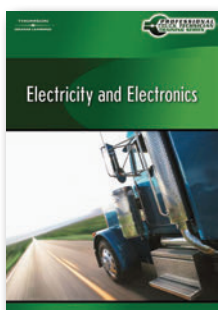
achieving a score of 80% or higher on the final review of the course

- all material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Engine Operations and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Medium/Heavy Duty Truck Electricity and Electronics
CBT - Bilingual
Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Electricity and Electronics Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program

- Bookmarking technology enables users to track their progress from beginning to end
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards
- Course is bilingual- switch back and forth between English and Spanish at the click of a button.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES, PREVENTIVE MAINTENANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning; Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Preventive Maintenance Web Based Training (WBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged

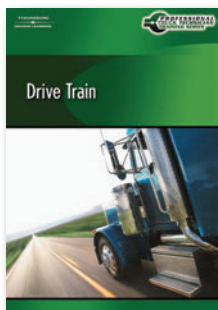
throughout the course of the program

- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards
- course is bilingual- switch back and forth between English and Spanish at the click of a button

CONTENTS

1. Introduction.2. Shop Safety & Operations.3. Preventive Maintenance Program.4. Engine Systems.5. Cab & Hood.6. Electrical & Electronics Systems.7. Frame & Chassis.8. Road & Operational Tests.9. Final Review.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: DRIVE TRAIN COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Drive Train Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this

highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

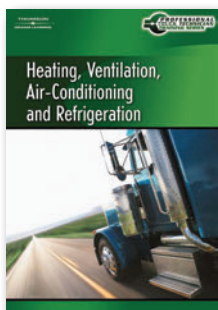
FEATURES

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- all material follows the latest ASE and NATEF standards

CONTENTS

1. Shop Safety and Operations.2. Tools and Fasteners.3. Clutches.4. Standard Transmission.5. Standard Transmission Servicing.6. Torque Converters.7. Automatic Transmissions.8. Automatic Transmission Maintenance.9. Electronically Automated Standard Transmissions.10. Allison Electronic Transmissions.11. Driveshaft Assemblies.12. Heavy-Duty Truck Axles.13. Heavy-Duty Truck Axle Service and Repair

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Heating, Ventilation, Air-Conditioning and Refrigeration Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

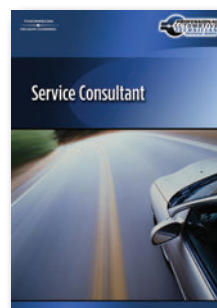
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- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

1. Heating, Ventilation and Air Conditioning.2.

Environmental and Safety Practices.3. Thermodynamics.4. Air-Conditioning Components.5. The Refrigeration System.6. Service Procedures.7. Truck Engine Cooling System.8. Cab Climate Control/Supplemental Truck Heating and Cooling.9. Troubleshooting and Performance Testing.10. APAD/ACPU A/C Control Systems.11. Truck-Trailer Refrigeration Equipment.12. Refrigeration Components.13. Refrigerant Flow Control.14. Truck Trailer Refrigeration Electrical Components.15. Truck and Trailer Refrigeration Maintenance

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Service Consultant Computer Based Training (CBT)

Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Service Consultant Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end

- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

Service Facilities and the Service Consultant. Communications: Customer Relations. Internal Communications, Relations, and Supervision. Communications: Customer Delivery and Follow-Up. Product Knowledge

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Parts Specialist Computer Based Training (CBT)

Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Parts Specialist Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

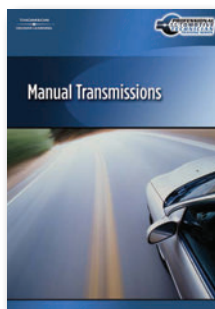
- attention-grabbing animations and learner

- interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

General Operations. Customer Relations and Sales Skills. Vehicle Systems Knowledge. Vehicle Identification. Cataloging Skills. Inventory Management. Merchandising

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Manual Transmission Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Manual Transmission Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of

technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- Bookmarking technology enables users to track their progress from beginning to end.
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety and Communication. Basic Theories and Services. Drivelines. Final Drives. Clutch Assemblies. Manual Transmissions. Four-Wheel Drive Systems.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Heating, Ventilation & Air Conditioning Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Heating, Ventilation & Air Conditioning Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers

more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

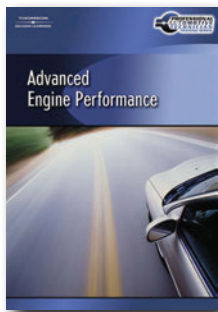
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- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety. Working as an Air Conditioning Technician. Information resources. Diagnostic and Service Tools. Understanding Heat. Temperature and Pressure Fundamentals. Refrigerants. Refrigerant and the Environment. Engine Cooling Systems. Heater System Operation. Engine Cooling System Diagnosis. Heater System Diagnosis and Service. System Components. Cycling Refrigeration Systems. Non-Cycling Refrigeration Systems. Compressor Diagnosis and Service. Refrigerant Recovery, Evacuation and Recycling. Refrigeration System Diagnosis and Service. System Retrofit.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Advanced Engine Performance Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Advanced Engine Performance Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

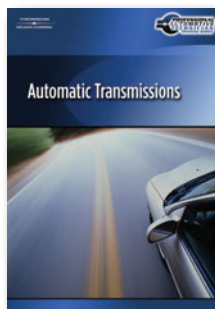
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- Bookmarking technology enables users to track their progress from beginning to end
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards

CONTENTS

On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensors. Ignition Systems and Related Input Sensors/Output

Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emissions Control and Evaporative Systems. Strategies of On-Board Diagnostic Continuous Monitors. Strategies of On-Board Diagnostic Non-Continuous Monitors. Failure Diagnosis and Five-Gas Exhaust Analysis. OBD II Codes, Acronyms and Milestones

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: AUTOMATIC TRANSMISSIONS COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Automatic Transmissions Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- Bookmarking technology enables users to track their progress from beginning to end
- Periodic progress checks and end-of-section

reviews are integrated throughout to ensure the highest level of retention

- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Basic Theories and Services. Basic Operation. Diagnostic and In-Vehicle Service. Hydraulic System and Controls. Internal Parts. Transmission Service

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: ENGINE PERFORMANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Performance Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner

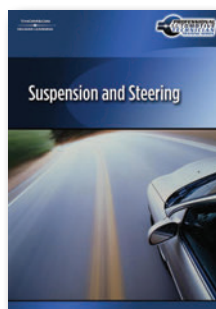
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- All material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Engine Operation and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES: SUSPENSION AND STEERING COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Suspension and Steering Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory,

diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

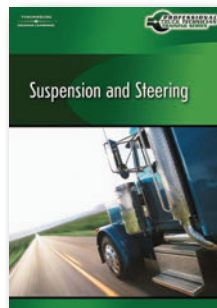
FEATURES

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- all material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Basic Theories and Services. Tires and Wheels. Wheel and Axle Bearings. Springs, Shocks, and Struts. Suspension Systems. Steering Systems. Power Steering. Wheel Alignment

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Suspension and Steering Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Suspension and Steering Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

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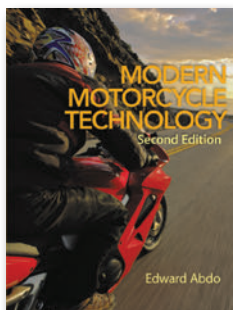
CONTENTS

1. Safety Practices. 2. Basic Theory. 3. Tire, Wheels, and Wheel Bearings. 4. Steering Columns, Manual Steering Gears, and Steering Linkages. 5. Power Steering Pumps and Power Steering Gears. 6.

Frames and Fifth Wheels. 7. Suspension Systems. 8. Air Suspension Systems. 9. Wheel Alignments

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MOTORCYCLE AND SMALL ENGINE TECHNOLOGY



ebook

MODERN MOTORCYCLE TECHNOLOGY, 2E

Edward Abdo

MODERN MOTORCYCLE TECHNOLOGY, Second Edition takes your students on an in-depth exploration of the internal and external workings of today's 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 safety measures, engine operation, internal combustion engines (2-stroke and 4-stroke), electrical fundamentals, and overall motorcycle maintenance, as well as a special Chapter devoted to troubleshooting. Throughout the book, the author's straightforward writing style and extensive, full-color photos and illustrations help engage readers and bring the material to life. The Second Edition has been thoroughly updated, and includes new content on the latest motorcycle models and technology from today's top manufacturers. The new edition also features additional material on key topics such as fuel injection, suspension systems, and V-engine technology, as well as an expanded suite of separately available supplementary teaching and learning tools—including a hands-on student workbook and electronic instructor's resources.

Modern Motorcycle Technology is a valuable resource for anyone seeking the knowledge and skills to succeed in today's motorcycle technology field.

NEW TO THIS EDITION

- The Second Edition has been thoroughly updated with current, technically accurate information on modern technology from leading motorcycle manufacturers, making this trusted resource ideal for students preparing to enter today's motorcycle technology field.
- New and revised coverage of key topics throughout the text includes additional material on fuel injection, V-engine technology, suspension systems, and troubleshooting, ensuring students will have the depth and breadth of knowledge to succeed in their chosen careers.
- The author has revised and expanded the review questions that conclude each Chapter.
- A new, complete Instructor Resources package includes a variety of valuable electronic tools to help you plan and deliver an effective course, including Chapter presentations in PowerPoint®, Chapter test banks in ExamView®, and an Image Gallery that includes electronic images from the text.
- The text's vast collection of vivid, full-color images is now even larger and better, with updated illustrations in every Chapter and over 500 all-new photographs, making it easier than ever for visual learners to grasp key concepts quickly and confidently apply what they learn.

FEATURES

- Chapters devoted specifically to maintenance and troubleshooting build on previous material and provide a solid foundation to help students apply their knowledge and skills to diagnose, repair, and service motorcycles.
- To complement the author's industry expertise and clear, concise writing style, more than 1,000 full-color photos, useful diagrams, and detailed illustrations help bring key concepts to life and provide outstanding support for visual learners.
- Summaries and review questions at the end of each Chapter highlight and reinforce critical information, allowing students to assess their

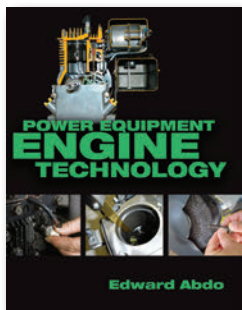
learning and focus on key areas for further study.

- The ancillary Student Skill Guide provides students with hands-on activities to help them put theory into practice and hone essential real-world skills.

CONTENTS

1. Introduction to Modern Motorcycle Technology.2. Safety First.3. Tools.4. Measuring Systems, Fasteners, and Thread Repair.5. Basic Engine Operation and Configurations.6. Internal Combustion Engines.7. Lubrication and Cooling Systems.8. Fuel Systems.9. Drives, Clutches, and Transmissions.10. Two Stroke Engine Top End Inspection.11. Two Stroke Engine Lower End Inspection.12. Four Stroke Engine Top End Inspection.13. Four Stroke Engine Lower End Inspection.14. Electrical Fundamentals.15. Charging Systems and DC Circuits.16. Ignition and Electric Starting Systems.17. Frames and Suspension.18. Brakes, Wheels, and Tires.19. Motorcycle Maintenance and Emission Controls.20. Motorcycle Troubleshooting.

© 2013, 560pp, Hardback, 9781111640644



ebook

POWER EQUIPMENT ENGINE TECHNOLOGY

Edward Abdo

POWER EQUIPMENT ENGINE TECHNOLOGY (PEET) is designed to meet the basic needs of students interested in the subject of small engine repair by helping instructors present information that will aid in the student's learning experience. The subject matter is intended to help students become more qualified employment candidates for repair shops looking for well-prepared, entry-level technicians. PEET has been written to make the

learning experience enjoyable: The easy-to-read-and-understand Chapters and over 600 illustrations assist visual learners with content comprehension. The book comprises 17 Chapters, starting with a brief history of the internal combustion engine and ending with a Chapter on troubleshooting various conditions found on any power equipment engine. Both two-stroke and four-stroke engines are covered. PEET can be used not only by pre-entry-level technicians but also as a reference manual by practicing technicians, and it will be helpful for the general consumer of power equipment engines that has an interest in understanding how they work. In today's world, an education prior to working in the field is becoming more desirable by all shops that hire. Power equipment technicians are currently sought after and will continue to be in demand in the future as technology advances in the manufacturing of modern power equipment engines.

FEATURES

- Excellent use of full-color illustrations and photos, and an easy-to-read writing style is used to cover varying degrees of student comprehension.
- The text does a great job of introducing electrical theory. The foundation this textbook sets with its basic maintenance and troubleshooting will serve students well as they move into more advanced courses.
- An exceptionally organized layout of Chapters provides a more logical read than that of other books with similar content.
- This book never misses a beat, with amazing attention to detail and descriptive narrations with up-to-date and accurate information.
- An extra all-encompassing student workbook facilitates learning and the application of knowledge and skills.

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1. INTRODUCTION TO POWER EQUIPMENT ENGINE TECHNOLOGY.Objectives. Introduction. A Brief History of the Internal Combustion Engine. Power Equipment Industry Opportunities. Power Equipment Industry Education and Certification. Summary. Chapter 1 Review Questions.2. SAFETY FIRST.Objectives. Introduction. The Safety Attitude. Fire Safety. Hazardous Chemicals. Right-to-

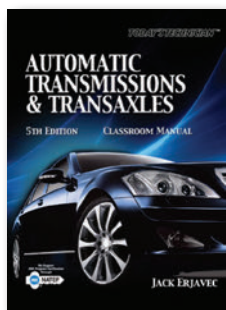
know Laws. Electrical Safety. Exhaust Gas Safety. Safe Operation of Equipment. Good Housekeeping Practices. Handling Heavy Objects and Materials. Using Personal Protective Equipment (PPE). Using Tools Safely. Chapter 2 Summary. Chapter 2 Review Questions.3. TOOLS.Objectives. Introduction. Basic Hand Tools. Power Tools. Special Tools. Purchasing Tools. Storing Tools. Service Information Library. Summary. Chapter 3 Review Questions.4. MEASURING SYSTEMS, FASTENERS AND THREAD REPAIR.Objectives. Introduction. Measurement Systems. Fasteners. Inspection and Cleaning of Threaded Fasteners. Stresses on Threaded Fasteners. Tips for Working with Threaded Fasteners. Tightening and Torque. Repairing and Replacing Broken Fasteners. Chapter Summary. Chapter 4 Review Questions.5. BASIC ENGINE OPERATION AND CONFIGURATIONS. Objectives. Basic Engine Operation. Engine Ratings. Basic Four-Stroke Engine Components. Basic Two-Stroke Engine Components. Engine Cooling. Engine Configurations. Summary. Chapter 5 Review Questions.6. INTERNAL COMBUSTION ENGINES.Objectives. Introduction. General and Scientific Terms. Basic Internal Combustion Engine Operation. Internal-Combustion Engine Operation. Basic Four-Stroke Engine Components. Four Stroke Engine Theory of Operation. Two Stroke Engines. Two Stroke Engine Components. Two-Stroke Engine Theory of Operation. Two-Stroke Engine Induction Systems. Two-Stroke Exhaust Systems. Comparing Two-Stroke to Four-Stroke Engines. Summary. Chapter 6 Review Questions.7. LUBRICATION AND COOLING SYSTEMS. Objectives. Introduction. Lubricants and Lubrication. Friction Reducing Devices. Two Stroke Engine Lubrication. Four Stroke Engine Lubrication. Cooling Systems. Summary. Chapter 7 Review Questions.8. FUEL SYSTEMS.Objectives. Introduction. Fuel. Oxygen. Emissions. The Carburetor. Fuel Delivery Systems. Carburetor Types and Operation. Fuel Injection. Chapter Summary. Chapter 8 Review Questions.9. GOVERNOR AND THROTTLE CONTROL SYSTEMS.Objectives. Introduction. Manual Throttle Control. Governor Throttle Control. Chapter Summary. Chapter 9 Review Questions.10. TWO STROKE ENGINE TOP END INSPECTION.

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AUTOMOTIVE SYSTEMS

AUTOMATIC TRANSMISSIONS



ebook

TODAY'S TECHNICIAN, 5E

Automatic Transmissions and Transaxles Classroom Manual and Shop Manual

Jack Erjavec, Columbus State Community College (Emeritus)

TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E is a Classroom Manual and Shop Manual set that has been completely updated to keep pace with industry trends and the needs of automotive education programs across the country. This book's technician-oriented focus will help your students master all of the design, construction, troubleshooting techniques, and service procedures required for them to enter the workplace. The Classroom Manual begins with an introduction to drive train basics and the Shop Manual begins with an introduction to safety. This is followed by a review of directly relevant electricity/electronics principles, plus more opportunities for your students to gain practice in using scanners and oscilloscopes to develop critical thinking skills, diagnose problems, and make effective repairs. **TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 5E** also includes an introduction to continuously variable transmissions (CVT), up-to-the-minute coverage of drivelines for front-wheel drive (FWD) and four-wheel drive (4WD) vehicles, as well as the latest information on today's high-tech electronic controls and automatic shifting devices.

NEW TO THIS EDITION

- Includes new topics on various transmission designs used (or planned to be used) in hybrid vehicles, the Lepelletier gear setup (which results in five, six, seven, and eight speed transmissions), power split units and various constantly variable transmission designs.
- Includes more information on current electronic control systems, including the various protocols used for multiplexing.
- Uses current model transmissions as examples throughout the text.
- All new full-color photos, illustrations and text design.
- Adds several new photo sequences on reprogramming a TCM and overhauling a five- and six-speed transmission.
- Uses currently accepted service procedures as examples throughout the text, which also serve as the basis for new job sheets that are included in the text.
- Content is updated to the most current NATEF Standards for Automatic Transmissions and Transaxles.

FEATURES

- Includes new topics on hybrid vehicle transmission designs, the Lepelletier gear setup, power split units, and various continuously variable transmission (CVT) designs and all new content on electronic control systems.
- Contains superior topic coverage that provides your students with the most complete and up-to-date information on automatic transmission theory, diagnosis, and repair available in a single source.
- Contains improved illustrations and step-by-step photo sequences that include all major automatic transmission repair procedures and promote professional work practices.

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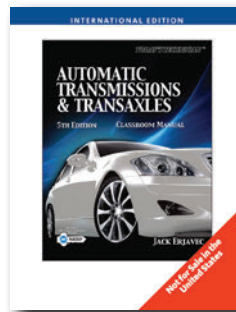
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ebook

TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, INTERNATIONAL EDITION, 5E

Jack Erjavec, Columbus State Community College (Emeritus)

TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, International Edition is a Classroom Manual and Shop Manual set that has been completely updated to keep pace with industry trends and the needs of automotive education programs across the country. This book's technician-oriented focus will help your students master all of the design, construction, troubleshooting techniques, and service procedures required for them to enter the workplace. The Classroom Manual begins with an introduction to drive train basics and the Shop Manual begins with an introduction to safety. This is followed by a review of directly relevant electricity/electronics principles, plus more opportunities for your students to gain practice in using scanners and oscilloscopes to develop critical thinking skills, diagnose problems, and make effective repairs. **TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, International Edition** also includes an introduction to continuously variable transmissions (CVT), up-to-the-minute coverage of drivelines for front-wheel drive (FWD) and four-wheel drive (4WD) vehicles, as well as the latest information on today's high-tech electronic controls and automatic shifting devices.

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transmissions), power split units and various constantly variable transmission designs. Includes more information on current electronic control systems, including the various protocols used for multiplexing. Uses current model transmissions as examples throughout the text. All new full-color photos, illustrations and text design.

- Shop Manual: Adds several new photo sequences on reprogramming a TCM and overhauling a five- and six-speed transmission. Uses currently accepted service procedures as examples throughout the text, which also serve as the basis for new job sheets that are included in the text. Content is updated to the most current NATEF Standards for Automatic Transmissions and Transaxles.

FEATURES

- Includes new topics on hybrid vehicle transmission designs, the Lepelletier gear setup, power split units, and various continuously variable transmission (CVT) designs and all new content on electronic control systems.
- Contains superior topic coverage that provides your students with the most complete and up-to-date information on automatic transmission theory, diagnosis, and repair available in a single source.
- Contains improved illustrations and step-by-step photo sequences that include all major automatic transmission repair procedures and promote professional work practices.
- Focuses attention on the performance of common service procedures through the use of Job Sheets in the Shop Manual.
- Includes a comprehensive Spanish/English glossary, plus the addition of 11930 terminology to help your student master terms, as well as an ASE practice exam.

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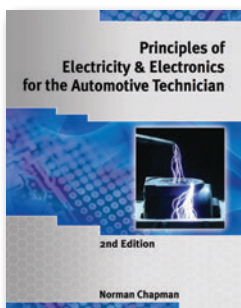


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ELECTRICITY & ELECTRONICS



PRINCIPLES OF ELECTRICITY & ELECTRONICS FOR THE AUTOMOTIVE TECHNICIAN, 2E

Norm Chapman, South Puget Sound Community College

Principles of Electricity & Electronics for the Automotive Technician, 2E 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.

FEATURES

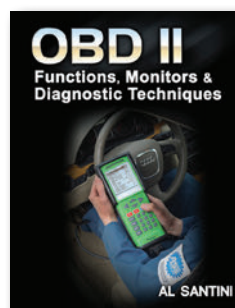
- repetition of key concepts enhances retention of need-to-know information and prepares readers for more complicated subject matter
- charts and graphs support and clarify key concepts
- case studies tie electrical theory to real-life examples, allowing readers to see how the information applies to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

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ENGINE PERFORMANCE



ebook

OBD-II: FUNCTIONS, MONITORS AND DIAGNOSTIC TECHNIQUES

Al Santini, College of DuPage (retired)

OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES is a resource that offers complete coverage of OBD II and tells your students what they need to know to succeed as field technicians. This exciting new book combines coverage of OBD II design, its role in state emission testing failures, diagnosis and repair, and the setting of readiness monitors. It provides your students with a solid working knowledge of the purpose and functions of the OBD II by beginning with an overview of the technology and its role in on-the-job tasks. Using this as a foundation, the author then addresses more advanced topics, including the extremely high-powered diagnostic abilities involving the various scanner modes, as well as the hows and whys of setting readiness monitors. With numerous practical examples and an emphasis on world-wide vehicle coverage that does not limit

explanations to specific manufacturers, OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES, will prepare your students for success in the industry.

FEATURES

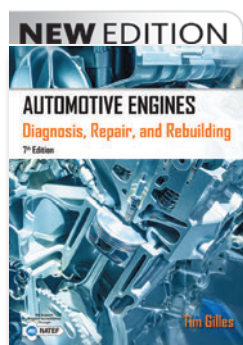
- Contains case studies that present actual vehicle failure scenarios and then demonstrate diagnosis and repair, offering reinforcement and the application of key concepts.
- Copies of vehicle scan data stream provide real-world data, enabling your students to easily transfer their knowledge to the world of work.
- Includes bi-directional control of the systems that provides a unique feature never before seen in any other book.
- Opens each Chapter with objectives, offering an introduction to each topic area and why it is important.
- ASE-style questions at the end of each Chapter prepare students for certification success.
- Detailed photos, line drawings and screen captures that illustrate important information.

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ENGINE REPAIR



ebook

CourseMate

AUTOMOTIVE ENGINES, 7E

Diagnosis, Repair, Rebuilding

Tim Gilles, Santa Barbara City College, Santa Barbara, California

This complete textbook provides detailed content on the theory of operation, diagnosis, repair, and rebuilding of automotive engines. In addition to essential technical expertise, the text helps users develop the skills and knowledge they need for professional success, including critical thinking and awareness of key industry trends and practices. The text emphasizes universal repair techniques and case histories based on real-world scenarios to prepare users for careers in the field. Instructor resources include lesson plans, customizable lab sheets that address NATEF Standards, a customizable test bank with questions based on Chapter content, presentations in PowerPoint, and more. Now updated with new, full-color images and information on the latest trends, tools, and technology—including hybrid engines and high-performance components—AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, Seventh Edition, is the ideal resource for automotive programs who want a complete teaching package for their Engines course.

NEW TO THIS EDITION

- New and updated full-color photographs and illustrations throughout the text help bring key concepts to life, making it easier for users to apply what they learn in hands-on, real-world scenarios.
- The author has updated content to reflect new

developments in automotive technology and industry practices, including information on hybrid engines, gasoline direct injection theory and service, cooling and lubrication systems, variable valve timing, and relative compression testing with amp probe and DSO.

- A new section devoted to high-performance engines includes extensive coverage of turbochargers, manifolds, and camshafts, preparing users to understand and service these specialized engine components.

FEATURES

- A robust package of instructor resources makes it easier to integrate the text within your course; highlights include presentations in PowerPoint, lesson plans, customizable lab sheets incorporating NATEF Standards, and a test bank featuring abundant questions based on Chapter content.
- Special features throughout the text help support effective learning and career preparation, including images of failed and worn parts to help users prevent recurring problems, information on repairing and restoring high-performance sports cars, and tips from experienced professionals on shop practices and engine machining.
- Compelling case histories provide real-world examples to illustrate key concepts and techniques, helping users appreciate the practical applications of text material and think critically about using their knowledge and skills in a variety of professional scenarios.
- The author emphasizes repair techniques universal to all engines, covering fundamental principles and practices to prepare users for career success in independent repair shops, parts and machine shops, auto dealerships, and other settings.

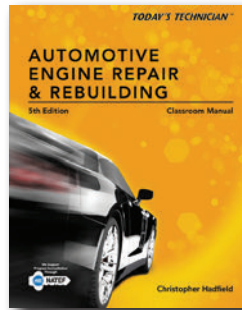
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CourseMate

MindTap

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, 5th Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

NEW TO THIS EDITION

- The 5th Edition of is aligned with the NATEF Automotive Service Technology and Master Automotive Service Technology task lists.
- New material on cylinder heads, variable valve trains, displacement on demand, and changes in the workplace give technicians an accurate picture of automotive careers today.
- New usage guidelines and issues related to

maintenance fluids and procedures for modern vehicles keep readers informed on important, day-to-day technician responsibilities.

- New photo sequences of typical procedures on maintenance and related items remove ambiguity and help readers visualize manual tasks.

FEATURES

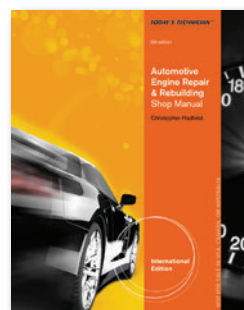
- Chapters deliver key information and skills on engine system and component maintenance, diagnosis, and repair, paving the way to successful automotive careers.
- Showcasing engines, components, and tools in remarkable detail, **TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING**, 5th Edition depicts the advancements found in automotive shops today, for a finely-tuned understanding of the industry.
- Practical information on hybrid vehicles, including service precautions and procedures, stress on-the-job issues and prepare readers for the automotive shop of tomorrow.
- Studying the Shop Manual's ASE practice exam prepares readers for success on the Engine Repair certification test.

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Classroom Manual.1. Automotive Engines.2. Theory of Engine Operation.3. Engine Repair and Rebuilding Industry.4. Engine Operating Systems.5. Engine Materials, Fasteners, Gaskets, and Seals.6. Intake and Exhaust Systems.7. Factors Affecting Engine Performance.8. Engine Configurations, Mounts, and Remanufactured Engines.9. Cylinder Heads.10. Camshafts and Valve Trains.11. Timing Mechanisms.12. Engine Block Construction.13. Pistons, Rings, Connecting Rods, and Bearings.14. Alternative Fuel and Advanced Technology Vehicles. Shop Manual1. Safety and Shop Practices.2. Basic Testing, Initial Inspection, and Service Procedures.3. Engine Rebuilding Tools and Skills.4. Diagnosing and Servicing Engine Operating Systems.5. Repair and Replacement of Engine Fasteners, Gaskets, and Seals.6. Intake and Exhaust System Diagnosis and Service.7. Diagnosing Engine Performance Concerns.8. Engine Removal, Engine Swap, and Engine Installation.9. Cylinder Head Disassemble, Inspection, and Service.10. Valve Train Service.11.

Timing Mechanism Service.12. Inspecting, Disassembling, and Servicing the Cylinder Block Assembly.13. Short Block Component Service and Engine Assembly.14. Alternative Fuel and Advanced Technology Vehicle Service.

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TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, CLASSROOM MANUAL AND SHOP MANUAL, INTERNATIONAL EDITION, 5E

Chris Hadfield, Central Lakes College

TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING, International Edition delivers the theoretical and practical knowledge technicians need to repair and service modern automotive engines and prepare for the Automotive Service Excellence (ASE) certification exam. Designed around National Automotive Technicians Education Foundation (NATEF) standards, this system-specific text addresses engine construction, engine operation, intake and exhaust systems, and engine repair, as well as the basics in engine rebuilding. Forward-looking discussions include advancements in hybrid technology, factors affecting engine performance, and designs and functions of modern component parts. Long known for its technical accuracy and concise writing style, **TODAY'S TECHNICIAN: AUTOMOTIVE ENGINE REPAIR & REBUILDING**, International Edition revs up classroom and shop learning with realistic line drawings, detailed photos and a variety of electronic tools for instructors.

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FEATURES

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COMPUTERIZED ENGINE CONTROLS, INTERNATIONAL EDITION, 9E

Steve V. Hatch, Lincoln College of Technology (LCT), Denver

Delivering solid coverage of both domestic and imports, COMPUTERIZED ENGINE CONTROLS, International Edition equips readers with the foundational knowledge needed to successfully diagnose and repair vehicle electronic systems. Reflecting the latest technological advances from the field, the Ninth Edition offers updated and expanded coverage of the approach of diagnostics, air/fuel ratio sensors, OBD II, and much more. This text includes in-depth insight into such cutting-edge topics as hybrid and fuel cell vehicles, GM's 42-volt system, hexadecimal conversion, multiplexing, and logic gates. Key concepts are reinforced with ASE-style, end-of-Chapter questions to familiarize readers with the types of questions they are likely to see in certification testing.

NEW TO THIS EDITION

- Coverage of Diagnostic Approach—Appendix A in the previous edition—has been expanded and moved into the main body of the text as the new Chapter 18.
- Additional material dealing with air/fuel ratio sensors is now included.
- GM TBI and PFI Chapters of previous editions have been combined, minimizing the emphasis on TBI systems.
- Completely reorganized and rewritten, the Chapter on OBD II is easier to read and includes coverage of the most current technology.
- Reflecting the market's reduced need for product-specific training, the author continues to de-emphasize the product-specific Chapters of this book while increasing the amount of generic information that applies to all electronic engine control systems.
- In direct response to customer requests, the Ninth Edition's instructor resources include PowerPoint lecture slides using selected images from the text, ExamView electronic test questions, an answer key to the exercises and review questions in the text, lab sheets that instructors can copy and assign to students, and an Image library of illustrations from the text.

FEATURES

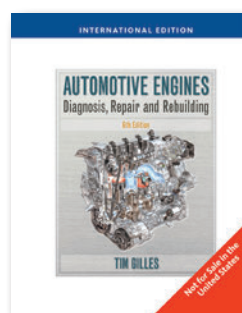
- Featuring extensive coverage of manufacturer-specific technology, **COMPUTERIZED ENGINE CONTROLS, 9e** provides detailed discussions of GM, Ford, Chrysler, Bosch, and Nissan/Toyota/Honda engine controls.
- Engages the students with an easy-to-read presentation in a logical sequence of topics.
- ASE-style, end-of-Chapter questions drive home key concepts and familiarize readers with the types of questions they are likely to see both in practice and in certification testing.

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ebook

AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING, INTERNATIONAL EDITION, 6E

Tim Gilles, Santa Barbara City College, Santa Barbara, California

AUTOMOTIVE ENGINES: DIAGNOSIS, REPAIR, REBUILDING International Edition provides updated, accurate, and comprehensive information on what is needed to diagnose, repair, and rebuild automotive engines. This book will build readers' technical expertise and critical thinking skills, while also providing them with information on current industry trends and concerns. This revised edition includes an enhanced Chapter on engine diagnosis 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 bring this new edition to life.

NEW TO THIS EDITION

- Includes Instructor Resource Materials that contain an extensive collection of lab sheets in electronic Microsoft Word format that address

NATEF Standards and which can be easily customized to suit the needs of the instructor. Also included are lesson plans that can be used as a starting point for teachers new to the engine rebuilding area and a supplemental practice test bank.

- New illustrations and photos of unusual wear and failed parts to help students understand how to correct problems so they do not recur.
- Updated information on repairing and restoring high performance sport compact cars, including vintage racing cars.
- Updated information on the ever-changing areas of cooling and lubrication.
- Includes the following additional updates: separation of interesting but dated material from the rest of the information on Vintage Engines; inclusion of real-world case histories that provide critical thinking practice; addition of new shop tips; addition of generic engine machining tips from experienced machinists.

FEATURES

- Includes updated information on engine cooling and lubrication systems, with a focus on maintenance for longer-lasting vehicles.
- Includes new content on the repair of high performance sport compact cars, hot rodding, and vehicle restoration, reflecting the evolution of the design and engineering of automotive engines.
- Adds new case histories that draw attention to real-world situations and provide more critical thinking practice.
- Discusses repair techniques that are universal to all engines, preparing readers for careers in independent repair shops, parts and machine shops, and dealerships.
- Includes ASE-style engine machinist practice tests and explanations in the back of the book that will help readers to effectively prepare for the ASE Certification Exam.

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ebook

OBD-II: FUNCTIONS, MONITORS AND DIAGNOSTIC TECHNIQUES

Al Santini, College of DuPage (retired)

OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES is a resource that offers complete coverage of OBD II and tells your students what they need to know to succeed as field technicians. This exciting new book combines coverage of OBD II design, its role in state emission testing failures, diagnosis and repair, and the setting of readiness monitors. It provides your students with a solid working knowledge of the purpose and functions of the OBD II by beginning with an overview of the technology and its role in on-the-job tasks. Using this as a foundation, the author then addresses more advanced topics, including the extremely high-powered diagnostic abilities involving the various scanner modes, as well as the hows and whys of setting readiness monitors. With numerous practical examples and an emphasis on world-wide vehicle coverage that does not limit explanations to specific manufacturers, OBD II: FUNCTIONS, MONITORS, AND DIAGNOSTIC TECHNIQUES, will prepare your students for success in the industry.

FEATURES

- Contains case studies that present actual vehicle failure scenarios and then demonstrate diagnosis and repair, offering reinforcement and the application of key concepts.
- Copies of vehicle scan data stream provide real-world data, enabling your students to easily transfer their knowledge to the world of work.
- Includes bi-directional control of the systems that provides a unique feature never before seen in

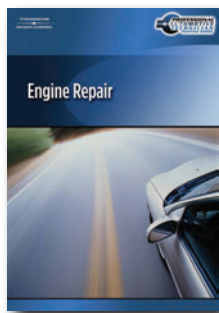
any other book.

- Opens each Chapter with objectives, offering an introduction to each topic area and why it is important.
- ASE-style questions at the end of each Chapter prepare students for certification success.
- Detailed photos, line drawings and screen captures that illustrate important information.

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1. Introduction to OBD II.2. OBD-I vs. OBD-II.3. Diagnostic Trouble Codes (DTC's).4. Readiness and Monitors.5. Monitors and Strategies.6. Scan Data.7. Continuous Monitors-Misfire.8. The Fuel System Monitor.9. Comprehensive Component Monitor.10. Oxygen Sensor Monitor.11. CAT Monitor.12. EVAP Monitor.13. EGR Monitor.14. Air Monitor, Thermostat, and PCV Systems.15. Using OBD II Modes 5 and 6.16. Repair Baseline Techniques.17. CAN and OBD II.18. Using a DSO on an OBD II System.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Engine Repair Computer Based Training (CBT)
Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Repair Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training

tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

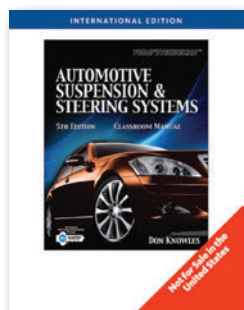
- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

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Safety and Communication. Engine Operations and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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SUSPENSION & STEERING



ebook

TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION & STEERING, INTERNATIONAL EDITION, 5E

Don Knowles

Master the knowledge and skills needed to diagnose and service suspension and steering systems for today's cars, SUVs, light duty trucks and now, hybrids, with the latest edition of this highly successful Classroom/Shop Manual package! With the same carefully constructed balance of theory and practice that made previous editions so valuable, the 5th Edition of TODAY'S TECHNICIAN: AUTOMOTIVE SUSPENSION AND STEERING, International Edition takes the content to the next level, from coverage of the latest mandatory tire pressure monitoring systems to the newest electronically-controlled suspension systems. And the highly updated, state-of-the-art information doesn't end there; the book also features new information on the most current front and rear suspension designs, recent developments in steering columns and air bag systems, and the latest electronic power steering gears. Reinforcing its practical, user-friendly approach are strategically placed cautions and warnings that emphasize safe working procedures and case studies that link theory to the real-life practices of today's professional, ASE-certified technicians, making this a must-have for aspiring automotive technicians in both certificate and degree programs.

NEW TO THIS EDITION

- All-new content on the latest automotive industry

trends and developments, including Active Steering System operation and service, Four Wheel Active Steering (4WAS) operation and service, PAX tire systems, Adaptive Cruise Control (ACC), Lane Departure Warning Systems, and Telematics.

- Expanded and updated coverage of Tire Pressure Monitoring Systems (TPMS).
- New, visually exciting four-color format with hundreds of new photographs and line drawings.

FEATURES

- Builds strong foundation in systems examination with an in-depth look at the latest computer-controlled suspension systems.
- Quickly brings readers up-to-speed with critical industry information with a solid introduction to the electric-drive power steering pumps used on some vehicles and hybrid cars, as well as the latest electronic wheel alignment equipment and procedures on most current suspension systems.
- Facilitates understanding of electrical and electronic principles at work through comprehensive coverage of the advantages, application, design, operation, diagnosing, and servicing of electric-assist power steering gears.
- Forms powerful connections between theory and the day-to-day experiences of today's professional, ASE-certified technicians with case studies and practical customer care tips.
- Visually exciting four-color format with hundreds of new photographs and line drawings aids learning.

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Electronic Systems and Networks, Vehicle Stability Control, Active Roll Control Systems, Active Cruise Control (ACC) Systems, Lane Departure Warning Systems, Collision Mitigation Systems, Telematics, Summary, Review Questions. 9. Steering Columns and Steering Linkages Introduction, Conventional Nontilt Steering Column, Tilt Steering Column, Electronic Tilt/telescoping Steering Column, Active Steering Column, Steering Linkage Mechanisms, Steering Damper, Summary, Review Questions.10. Power Steering Pumps Introduction, Power Steering Pump Drive Belts, Types of Power-Assisted Steering Systems, Power Steering Pump Design, Power Steering Pump Operation, Hybrid Vehicles and Power Steering Systems, Various Types of HEVs, Fuel Cell Vehicles, Summary, Review Questions.11. Recirculating Ball Steering Gears Introduction, Manual Recirculating Ball Steering Gears, Power Recirculating Ball Steering Gears, Summary, Review Questions.12. Rack and Pinion Steering Gears Introduction, Manual Rack and Pinion Steering Gear Main Components, Steering Gear Ratio, Manual Rack and Pinion Steering Gear Mounting, Advantages and Disadvantages of Rack and Pinion Steering, Power Rack and Pinion Steering Gears, Types of Rack and Pinion Steering Gears, Electronic Variable Orifice Steering, Saginaw Electronic Variable Orifice Steering, Rack-Drive Electronic Power Steering, Electronic Power Steering System Operation, Column-Drive Electronic Power Steering, Column-Drive Electronic Power Steering Operation, Pinion-Drive Electronic Power Steering, Active Steering System, Steer-By-Wire Systems, Summary, Review Questions.13. Four-Wheel Steering Systems Introduction, Electronically Controlled Four-Wheel Steering, Input Sensors, Four-Wheel Steering System Operation, Quadrasteer Four-Wheel Steering Systems, Quadrasteer Four-Wheel Steering System Operation, Rear Active Steering System, Four-Wheel Active Steering (4WAS), Summary, Review Questions.14. Frames and Frame Damage Introduction, Types of Frames and Frame Construction, Unitized Body Design, Vehicle Directional Stability, Types of Frame Damage, Summary, Review Questions.15. Four Wheel Alignment Part I Introduction, Wheel Alignment

Theory, Importance of Four Wheel Alignment, Rear Wheel Alignment and Vehicle Tracking Problems, Types of Wheel Alignment, Computer Alignment Systems, Camber Fundamentals, Driving Conditions Affecting Camber, Caster Fundamentals, Safety Factors and Caster, Steering Terminology, Summary, Review Questions.16. Four Wheel Alignment Part II Introduction, Steering Axis Inclination (SAI) Definition, SAI Purpose, SAI and Safety Factors, Scrub Radius, Wheel Setback, Toe Definition, Toe setting for Front-Wheel- Drive and Rear-Wheel-Drive Vehicles, Toe Adjustment and Tire Wear, Turning Radius, Rear Wheel Alignment, Summary, Review Questions.Shop Manual Table of Contents1. Safety Introduction, Occupational Safety and Health Act, Shop Hazards, Shop Safety Rules, Air Quality, Shop Safety Equipment, Shop Layout, Safety in the Automotive Shop, General Shop Safety, Personal Safety, Electrical Safety, Gasoline Safety, Fire Safety, Vehicle Operation, Housekeeping Safety, Air Bag Safety, Lifting and Carrying, Hand Tool Safety, Lift Safety, Hydraulic Jack and Safety Stand Safety, Power Tool Safety, Compressed Air Equipment Safety, Cleaning Equipment Safety and Environmental Considerations, Hazardous Waste Disposal, Summary, Case Study, Terms to Know, ASE-Style Review Questions, Job Sheets.2. Typical Shop Procedures Using Suspension and Steering Equipment, Measuring Systems, Basic Diagnostic Procedure, Suspension and Steering Tools, Hydraulic Pressing and Lifting Equipment, Suspension and Steering Service Diagnostic and Measurement Tools, Employer and Employee Obligations, National Institute for Automotive Service Excellence (ASE) Certification, Service Manuals, Summary, Case Studies, Terms to Know, ASE-Style Review Questions, Job Sheets.3. Wheel Bearing and Seal Service Diagnosis of Bearing Defects, Service and Adjustment of Tapered Roller Bearing-Type Wheel Bearings, Wheel Hub Unit Diagnosis, Front Drive Axle Diagnosis, Drive Axle Removal, Special Procedures for Drive Axle Removal, Front Wheel Hub Unit Removal and Replacement, Rear Axle Bearing and Seal Service Rear-Wheel Drive Cars, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.4.

Tire and Wheel Servicing and Balancing Tire Noises and Steering Problems, Tire Rotation, Tire and Wheel Service, Tire and Wheel Service Precautions, Wheel Rim Service, Tire Remounting Procedure, Diagnosing and Servicing Tire Pressure Monitoring Systems, Tire and Wheel Runout Measurement, Tread Wear Measurement, Preliminary Wheel Balance Checks, Tire Inflation Pressure, Static and Dynamic Wheel Balance Procedure, Electronic Wheel Balancers with Lateral Force Measurement (LFM), and Radial Variation Capabilities, On-Car Wheel Balancing, Vibration Diagnosis, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.5. Shock Absorbers and Strut Diagnosis and Service Shock Absorber Visual Inspection, Shock Absorber or Strut Bounce Test, Shock Absorber Manual Test, Air Shock Absorber Diagnosis and Replacement, Shock Absorber Replacement, Diagnosis of Front Spring and Strut Noise, Strut Removal and Replacement, Removal of Strut from Coil Spring, Strut Disposal Procedure, Installation of Coil Spring on Strut, Installation of Strut-and-Spring Assembly in Vehicle, Rear Strut Replacement, Installing Strut Cartridge, Off-Car, Installing Strut Cartridge, On-Car, Diagnosis of Electronically Controlled Shock Absorbers, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.6. Front Suspension System Service Curb Riding Height Measurement, Front Suspension Diagnosis and Service, Control Arm Diagnosis and Service, Removing and Replacing Longitudinally Mounted Torsion Bars, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.7. Rear Suspension Service Rear Suspension Diagnosis and Service, Lower Control Arm and Ball Joint Diagnosis and Replacement, Rear Leaf-Spring Diagnosis and Replacement, Track Bar Diagnosis and Replacement, Stabilizer Bar Diagnosis and Service, Rear Suspension Tie-Rod Inspection and Replacement, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.8. Computer-Controlled Suspension System Service Preliminary Inspection of Computer-Controlled Suspension Systems, Programmed Ride Control System Diagnosis, Electronic Air Suspension Diagnosis and

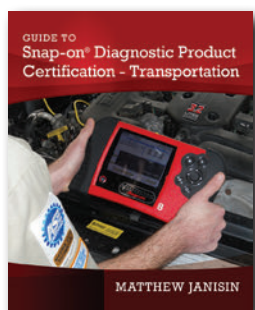
Service, Servicing and Diagnosing Vehicle Dynamic Suspension Systems, Diagnosis of Electronic Suspension Control Systems, Scan Tool Diagnosis of Electronic Suspension Control Systems, Diagnosis of Vehicle Networks, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.9. Steering Column and Linkage Diagnosis and Service Air Bag Deployment Module Steering Wheel and Clock Spring Electrical Connector Removal and Replacement, Steering Column Service, Collapsible Steering Column Inspection, Tilt Steering Column Disassembly, Tilt Steering Column Inspection and Parts Replacement, Tilt Steering Column Assembly, Steering Column Flexible Coupling and Universal Joint Diagnosis and Service, Steering Column Diagnosis, Steering Linkage Diagnosis and Service, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.10. Power Steering Pump Diagnosis and Service Power Steering Pump Belt Service, Power Steering Pump Fluid Service, Power Steering Pump Diagnosis, Power Steering Pump Service, Inspecting and Servicing Power Steering Lines and Hoses, Power Steering Hose Replacement, Hybrid Electric Vehicle (HEV) Electrohydraulic Power Steering (EHPS) Diagnosing and Servicing Procedures, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.11. Recirculating Ball Steering Gear Diagnosis and Service Power Recirculating Ball Steering Gear Diagnosis, Power Recirculating Ball Steering Gear Replacement, Power Recirculating Ball Steering Gear Adjustments, Power Recirculating Ball Steering Gear Oil Leak Diagnosis, Power Recirculating Ball Steering Gear Seal Replacement, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.12. Power Rack and Pinion Steering Gear Diagnosis and Service Manual or Power Rack and Pinion Steering Gear On-Car Inspection, Manual or Power Rack and Pinion Steering Gear Removal and Replacement, Manual Rack and Pinion Steering Gear Diagnosis and Service, Power Rack and Pinion Steering Gear Diagnosis and Service, Diagnosis of Power Steering and Suspension Systems, Diagnosis of Magnasteer Systems, Diagnosis of Rack-Drive Electronic Power

Steering, Diagnosis of Column-Drive Electronic Power Steering, Active Steering System Preliminary Diagnosis, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.13. Electronic Four-Wheel Steering Diagnosis and Service Preliminary Inspection, Quadrateer Diagnosis, Electronically Controlled Four-Wheel Steering Diagnosis, Rear Steering Actuator Service, Diagnosis of Four-Wheel Active Steering (4WAS) System, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.14. Frame Diagnosis and Service Indications of Frame Damage, Frame Diagnosis, Checking Frame Alignment, Measuring Unitized Body Alignment, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.15. Four Wheel Alignment Procedure Wheel Alignment Preliminary Diagnosis and Inspection, Four Wheel Alignment with Computer Alignment Systems, Wheel Alignment Screens, Adjustment Screens, Diagnostic Drawing and Text Screens, Checking Toe Change and Steering Linkage Height, Bent Front Strut Diagnosis, Case Study, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.16. Four Wheel Alignment Adjustments Wheel Alignment Procedure, Camber Adjustment, Caster Adjustment, Caster Adjustment Procedure, Setback Measurement and Correction Procedure, Steering Axis Inclination (SAI) Correction Procedure, Toe Adjustment, Steering Wheel Centering Procedure, Causes of Improper Rear Wheel Alignment, Rear Suspension Adjustments, Rear Wheel Tracking Measurement with a Track Gauge, Case Study, Terms to Know, ASE-Style Review Questions, ASE Challenge Questions, Job Sheets.

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BASIC TECHNICIAN TRAINING

COMPREHENSIVE AUTOMOTIVE TECHNOLOGY



GUIDE TO DIAGNOSTIC PRODUCT CERTIFICATION – TRANSPORTATION

Matthew Janisin, Gateway Technical College, Kenosha, WI & Elkhorn Area High School, Elkhorn, WI

The Guide to Diagnostic Product Certification – Transportation is intended to give your students the knowledge they need to more effectively use their Snap-On diagnostic tools. As vehicles have become more complex so have the tools used to diagnose them. While many automotive programs do a great job teaching the vehicle systems, few take the time to explain in detail the sophisticated diagnostic tools needed to diagnosis them. Current market research indicates that most technicians only use about 15% of their diagnostic tools' capabilities; this manual, designed to accompany the Snap-On Diagnostic Certification Program, will aims to boost usage to 90%. The manual begins with a physical overview of each of the tools and explains the various ports, connectors, buttons and controls. In separate sections each tool's utility menu is fully explained and all customizable features are discussed so the user will have full control to make the tool their own. Finally, every aspect of the tool including the Scanner, Lab Scope, Component Test Meter, Troubleshooter, and all other options are explained in detail. This manual will greatly increase a student's employability and

a technician's productivity when either is faced with a complex diagnostic situation.

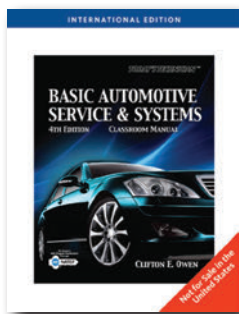
FEATURES

- Clear and distinct sections make finding the most relevant information quick and easy.
- In depth analysis and training on all level of diagnostic tools including Ethos, Solus Pro, Vantage Pro, and MODIS.
- Your students will get more value out of the tools they already own and increase their employability and productivity.
- Review questions to help your students pass the Snap-On Diagnostic Certification Tests.
- Actual repair situations are discussed in relation to incorporating the various diagnostic tools and techniques.
- Your students will become a Power User of the diagnostic tool, utilizing over 90% of its features and benefits.

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1. Ethos.2. Solus Pro.3. Vantage Pro.4. MODIS.5. Data Management.6. Scanner Introduction.7. Global OBD verse VIN Specific Information.8. Codes Menu.9. Viewing & Interpreting Scanner Data (added "Scanner" to title, little more clear).10. Functional Tests.11. Fast-Track Troubleshooter.12. Component Testing.13. Multimeter Functions.14. Lab Scope Operation.15. ShopKey.16. Verus.

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ebook

TODAY'S TECHNICIAN: BASIC AUTOMOTIVE SERVICE AND SYSTEMS, INTERNATIONAL EDITION, 4E

Clifton E. Owen, Grittin Technical College

Give your students a competitive edge in the automotive industry by preparing them with this updated classroom/shop manual set that explores the basic theories of operation behind each automotive system and the diagnostic, testing, and repair procedures that relate to them. Assuming no prior knowledge of automotive technology, the book addresses fundamental skills, maintenance and the application of the key theories in a manner that is both clear and engaging for students of all levels. This exciting new edition includes increased usage of metric measuring instruments, expanded information on brakes, including Active Braking systems and their link to Active Suspension systems, and enhanced coverage of electronic stability and electronic power steering, including four-wheel steering. This all-new content is built into the book using the same solid foundation of knowledge that its previous editions are known for, making TODAY'S TECHNICIAN: BASIC AUTOMOTIVE SERVICE & SYSTEMS, International Edition a teaching tool that you won't want to go without.

NEW TO THIS EDITION

- Introduces and expands upon conducting express service procedures, including a job sheet for express service tasks that covers how to conduct a vehicle safety/maintenance inspection and the use of the inspection results.
- Increases emphasis on safety with refined tool

Chapters that use photo sequences to highlight and address the safety and operation of various tools, such as oxyacetylene torches.

- Prepares students for employment, or even that first promotion, with revised content that provides additional technical and task-focused information that can be easily applied to the world of work.
- Keeps students up-to-date on the latest industry trends and technologies with an increased use of metric measuring instruments, expanded information on brakes, including Active Braking systems and their link to Active Suspension systems, and electronic stability and electronic power steering, including four-wheel steering.

FEATURES

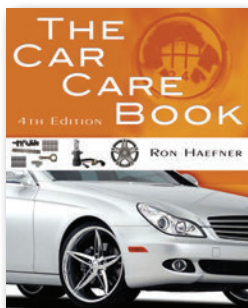
- Provides well-rounded coverage that will prepare students for all aspects of work in the field with detailed customer service procedures and the technical information they need to communicate intelligently with a customer on exactly what has to be repaired, replaced, or reused.
- Enhances student knowledge with expanded vehicle computer details, including a detailed description of signals, actuators, sensors, and other computer system components.
- Features content that is current and relevant to the industry today with state-of-the-art information on the global automotive industry and the role of the technician within it.

CONTENTS

Classroom Manual Table of Contents: 1. Automotive Systems And Operations. 2. The Automotive Business. 3. Automotive Tools And Equipment. 4. Measurements And Precision Measuring Devices. 5. Fasteners. 6. Automotive Bearings And Sealants. 7. Automobile Theories Of Operation. 8. Power System Operation And Subsystems. 9. Brakes. 10. Suspension And Steering. 11. Powertrains. 12. Auxiliary Systems And Climate Control. Glossary. Index. Shop Manual – Table of Contents: 1. Safety Issues And First Aid. 2. Shop Operations And The Technician. 3. Tools And Equipment Usage. 4. Precision Measurements. 5. Fastener Usage And Repair. 6. Automotive Bearing And Sealant Service. 7. Diagnosing By Theories And Inspection. 8. Engine Preventive Maintenance. 9. Servicing Brake

Systems.10. Suspension And Steering Service.11. Powertrain Service.12. Auxiliary System Service.

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ebook

THE CAR CARE BOOK, 4E

Ron Haefner, Columbus High School

Consumers typically face three main challenges when it comes to understanding their 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 edition, *The Car Care Book, 4th Edition* 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.

NEW TO THIS EDITION

- An all-new Chapter on electric and hybrid vehicles discusses these emerging technologies, including basic maintenance and important safety considerations

FEATURES

- 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.

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AUTOMOTIVE TECHNOLOGY

For General Service Technicians

Ron Haefner, Columbus High School; Paul Leathers, Columbus High School in Columbus, NE

Introducing the first automotive technology textbook designed for NATEF's General Service Technician Program! This new 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. The authors highlight the importance of workplace skills and discuss employee responsibilities, such as preparing vehicles for service and delivering them

to customers. Pre-publication reviews praised the book's readability, real-life examples, and simple but accurate presentation of technical information. "I love the non-complex development of the subjects in the text! You have really made an easy-to-understand text for students," said one. "This book can reach the kids," said another.

FEATURES

- Full color is used throughout the book to maximize the value of every photograph and line drawing
- Chapters are kept short to avoid overwhelming students and thoughtfully organized by area so that instructors can choose the order that works best for them
- Student interest is engaged and maintained by "You Should Know," "Tech Tips," "It's the Law," and "Did You Know?" in-text features.
- The accompanying Student Workbook provides Chapter review activities and task sheets that guide the student through relevant shop activities
- An Applied Academics Workbook supplements the text with practice in math, science and communications skills that are keyed to automotive examples
- An e.resource with PowerPoint lecture outlines, an Image Library, and a Computerized Test Bank is available to instructors who want to make classroom lecture as efficient and engaging as possible

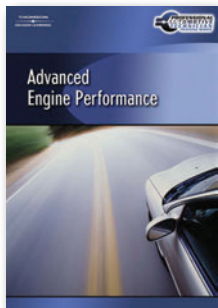
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Preface. Chapter 01 The Automotive Business. Chapter 02 Employee Skills for Career Success. Chapter 03 General Shop Safety. Chapter 04 Tool and Equipment Safety. Chapter 05 Tools and Equipment. Chapter 06 Basic Shop Procedures. Chapter 07 Measuring Systems, Measurements, and Fasteners. Chapter 08 Service Information. Chapter 09 Using Service Information. Chapter 10 Vehicle Inspection and Valeting. Chapter 011 Basic Electricity and Electric Circuits. Chapter 012 Light Circuits. Chapter 013 Light Circuit Maintenance, Diagnosis, and Service. Chapter 014 Indicator Lights and Gauges. Chapter 015 Indicator Light and Gauge Maintenance, Diagnosis, and Service. Chapter 016 Basic Wiring and Wiring Repair. Chapter 017 Battery and Starting Systems. Chapter 018 Battery

and Starting System Maintenance, Diagnosis, and Service. Chapter 019 Charging Systems. Chapter 020 Charging System Maintenance, Diagnosis, and Service. Chapter 021 Ignition Systems. Chapter 022 Ignition System Maintenance, Diagnosis, and Service. Chapter 023 Brake System Design and Operation. Chapter 024 Brake System Maintenance, Diagnosis, and Service Calipers. Chapter 025 Steering Columns, Linkages, and Power Steering Pumps, Maintenance, Diagnosis and Service. Chapter 026 Manual and Power Steering Gears, Maintenance, Diagnosis, and Service. Chapter 027 Tires, Wheels, and Hubs. Chapter 028 Tire, Wheel, and Hub Maintenance, Diagnosis, and Service. Chapter 029 Suspension Systems. Chapter 030 Suspension System Maintenance, Diagnosis, and Service. Chapter 031 Wheel Alignment. Chapter 032 The Four-Stroke Cycle and Cylinder Arrangements. Chapter 033 Engine Oil and Lubrication Systems. Chapter 034 Engine Lubrication System Maintenance, Diagnosis, and Service. Chapter 035 Engine Coolant and Cooling Systems. Chapter 036 Engine Cooling Systems, Maintenance, Diagnosis, and Service. Chapter 037 Fuel System Fundamentals. Chapter 038 Fuel System Components. Chapter 039 Fuel System Service. Chapter 040 Vehicle Emissions and Emission Standards. Chapter 041 Emission Systems. Chapter 042 Emission System Maintenance, Diagnosis, and Service. Chapter 043 Engine Control Computers and Output Controls. Chapter 044 Input Sensors for Engine Control Systems. Chapter 045 Input Sensor Maintenance, Diagnosis, and Service. Chapter 046 Engine Control Systems. Chapter 047 Engine Control System Maintenance, Diagnosis, and Service. Chapter 048 Manual Transmission and Transaxle, Maintenance, Diagnosis, and Service. Chapter 049 Automatic Transmission and Transaxle Maintenance, Diagnosis, and Service. Chapter 050 Clutch Maintenance, Diagnosis, and Service. Chapter 051 Drive Shaft, Drive Axle, and Universal Joint Maintenance, Diagnosis and Service. Chapter 052 Heating, Ventilation, and Air Conditioning Systems. Chapter 053 Heating, Ventilation, and Air Conditioning Maintenance, Diagnosis, and Service. Chapter 054 Supplemental Restraint Systems

Bilingual Glossary Index

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Advanced Engine Performance Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Advanced Engine Performance Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

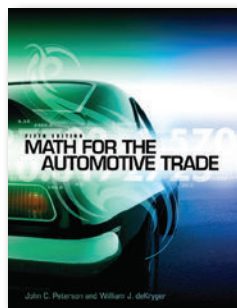
- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- Bookmarking technology enables users to track their progress from beginning to end
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards

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On-Board Diagnostic Scanners and Digital Storage Oscilloscopes. Computers and Input Sensors. Ignition Systems and Related Input Sensors/Output Actuators Diagnosis. Fuel System and Related Input Sensors/Output Actuators Diagnosis. Emissions Control and Evaporative Systems. Strategies of On-Board Diagnostic Continuous Monitors. Strategies of On-Board Diagnostic Non-Continuous Monitors. Failure Diagnosis and Five-Gas Exhaust Analysis. OBD II Codes, Acronyms and Milestones

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MATH SKILLS



ebook

CourseMate

MATH FOR THE AUTOMOTIVE TRADE, 5E

John C. Peterson, Chattanooga State Technical Community College (retired); William deKryger

MATH FOR THE AUTOMOTIVE TRADE, 5E is an up-to-date, highly practical book that helps your students develop a real-world understanding of math concepts and applications in the modern automotive repair trade. Written at a beginner's level, this book is a comprehensive instructional workbook that shows your students how to solve the types of math problems faced regularly by automotive technicians. Unique to MATH FOR THE AUTOMOTIVE TRADE, 5E are realistic practice exercises that allow your students to determine if their answers fall within manufacturers' specifications and repair orders that are completed by finding the appropriate information in the professional literature and reference material, included in the book's valuable appendices.

NEW TO THIS EDITION

- Contains updated applications and examples that reflect changes in automotive technology.
- New coverage of Statistics included.
- Replaced the flat rate pages for the Corvette in Appendix A with pages for the Ford Fusion, Milan (2006–2009), Zephyr (2006), MKZ (2007–2009), and Milan Hybrid (2010), emphasizing new hybrid technology.
- Contains updated coverage of automotive parts and equipment, new repair orders, additional questions that reflect current concerns with hybrid, electric, and other new technologies and updated gas prices, tax data, etc. that reflect “current” prices.
- Contains content that is correlated with NATEF’s Applied Academics and will help prepare your students for ASE Automotive tests.

FEATURES

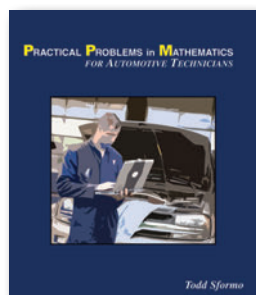
- Reviews basic mathematics skills, practical math applications for specific automotive situations, and both customary and metric systems of measurement as they apply to the automotive trade, immediately preparing students with math skills they will use on the job.
- Covers personal and business finance examine discounts, profit and loss, commissions, interest and payments, and taxes, providing a well-rounded business review of the issues faced by today’s automotive technician.
- Provides manufacturer’s specification data for real-world applications to problems ensuring a realistic experience for your students that will mirror what they’ll encounter on the job.

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1. Whole Numbers. 2. Decimals. 3. Fractions. 4. Geometry, Angle Measurement and the Metric System. 5. Integers and Signed Numbers. 6. Ratios, Proportions, and Percentages. 7. Business and Statistics. 8. Completing Repair Orders. 9. The Automobile Engine. 10. Automobile Engine Systems. 11. Automobile Electrical Systems. 12. The Automobile Drive Train. 13. The Automobile Chassis. 14. Automobile Heating, Ventilation, and Air Conditioning. 15. Measurement Tools. Appendix B. Summary of Formulas in this Text-Workbook.

Appendix C. Answers to Odd-Numbered Practice Exercises. Index.

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ebook

PRACTICAL PROBLEMS IN MATHEMATICS, 7E

For Automotive Technicians

Todd Sformo, Ilisagvik College

Comprehensive and easy to use, the revised and updated seventh 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!

FEATURES

- Concepts are presented to the reader in a logical, clear, and sequential manner with each stage of a procedure outlined in order to increase understanding and allow for success
- Multitude of problems proceed from the simple to the more complex that allows readers have ample opportunities to develop their skills and confidence as well as reinforce practice and understanding
- Examples and problems cultivate problem-solving

- skills that are crucial to success on the job
- Complete coverage of fundamental math principles as well as more advanced computations makes the book suitable for beginning and experienced technicians alike
- New to the seventh edition are unit Objectives aid in teaching and understanding the main concepts in each unit.

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TRUCKING

ASE TEST PREPARATION MANUALS



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ASE TEST PREP- T8 PREVENTIVE MAINTENANCE, 5E

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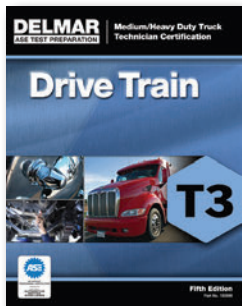
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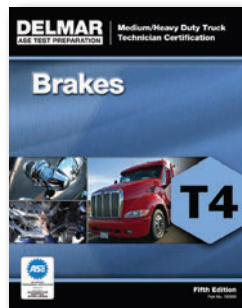
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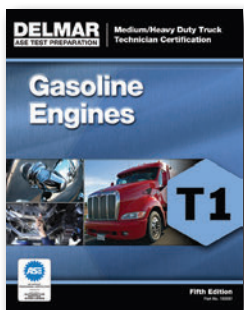
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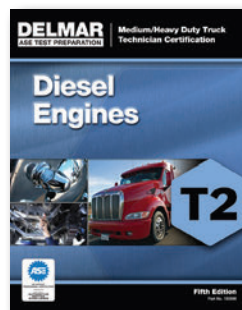
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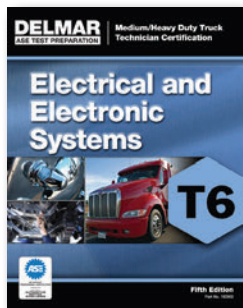
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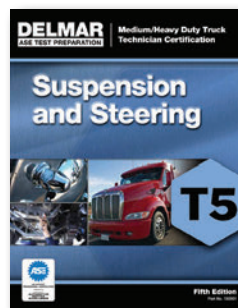
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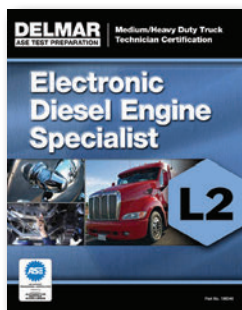
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ASE TEST PREPARATION MANUAL - ELECTRONIC DIESEL ENGINE DIAGNOSIS SPECIALIST (L2)

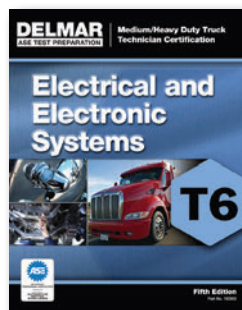
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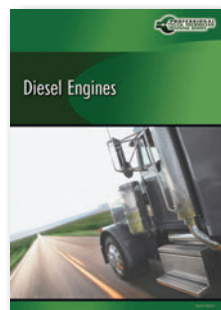
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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Medium/Heavy Duty Truck Diesel Engines Computer Based Training (CBT)

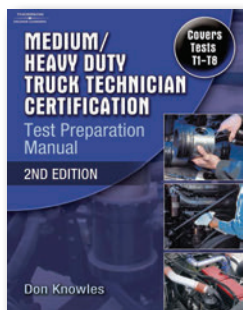
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FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

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MEDIUM/HEAVY DUTY TRUCK TECHNICIAN CERTIFICATION TEST PREPARATION MANUAL, 2E

Don Knowles

Updated to reflect the most current ASE tasks, this book combines a clear writing style, in-depth coverage, and abundant practice questions and tests to deliver a tool that will help trucking technicians and students successfully prepare for all eight areas of the Medium/Heavy Duty Truck certification exams. Each Chapter of the Medium/Heavy Duty Truck Technician Certification Test Preparation Manual, 2nd Edition is devoted to thoroughly covering one specific ASE truck test, resulting in eight core. Chapters that instill the knowledge and skills needed to get certified. These Chapters include extensive coverage of all the ASE tasks associated with each test, ASE-style questions to familiarize users with the testing format, as well as hints to encourage users to be actively involved in the problem-solving process. Pre-tests, post-tests, and sample tests are all accompanied by answers and answer analysis so users can receive immediate feedback for a continuous learning process.

FEATURES

- diagrams and charts are used to illustrate key concepts, and to reflect current ASE tests that sometimes employ illustrations as the basis for test questions
- pre-tests at the beginning of each Chapter provide users with a starting point for each topic, and a measure of which areas they need to focus on
- post-tests follow each Chapter to test knowledge, helping users to determine if additional study on

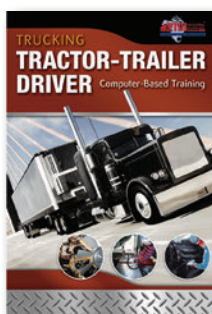
- a particular topic is required
- back-of-book glossary serves as a quick reference for difficult terms

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Contents. Introduction. History. NIASE. ASE. ASE Testing. Objective Tests. Chapter 1 Gasoline Engines. Chapter 2 Diesel Engines. Chapter 3 Drivetrain. Chapter 4 Brakes. Chapter 5 Steering and Suspension. Chapter 6 Electrical/Electronic Systems. Chapter 7 Heating, Ventilation, and Air Conditioning (HVAC) Systems. Chapter 8 Preventive Maintenance and Inspection (PMI)

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DIESEL TECHNOLOGY



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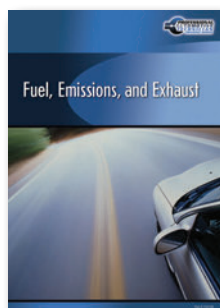
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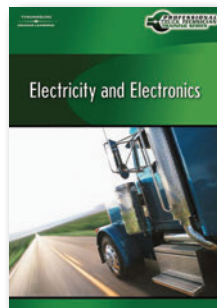
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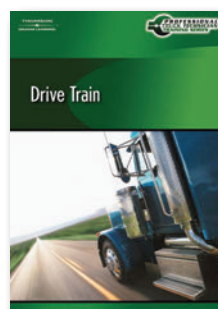
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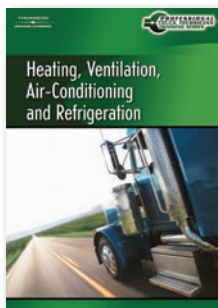
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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Heating, Ventilation, Air-Conditioning and Refrigeration Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

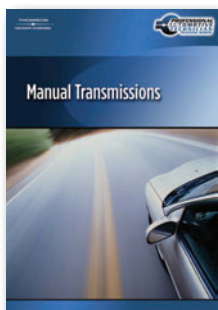
FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

1.Heating, Ventilation and Air Conditioning. 2.Environmental and Safety Practices. 3.Thermodynamics. 4.Air-Conditioning Components. 5.The Refrigeration System. 6.Service Procedures. 7.Truck Engine Cooling System. 8.Cab Climate Control/Supplemental Truck Heating and Cooling. 9.Troubleshooting and Performance Testing. 10.APAD/ACPU A/C Control Systems. 11.Truck-Trailer Refrigeration Equipment. 12.Refrigeration Components. 13.Refrigerant Flow Control. 14.Truck Trailer Refrigeration Electrical Components. 15.Truck and Trailer Refrigeration Maintenance

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Manual Transmission Computer Based Training (CBT)
Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Manual Transmission Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program.
- Bookmarking technology enables users to track their progress from beginning to end.
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety and Communication. Basic Theories and Services. Drivelines. Final Drives. Clutch Assemblies. Manual Transmissions. Four-Wheel Drive Systems.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Heating, Ventilation & Air Conditioning Computer Based Training (CBT)
Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Heating, Ventilation & Air Conditioning Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

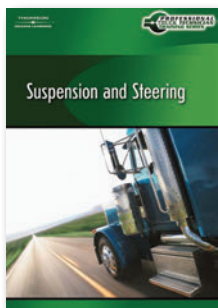
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- Bookmarking technology enables users to track their progress from beginning to end.
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention.
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course.
- All material follows the latest ASE and NATEF standards.

CONTENTS

Safety. Working as an Air Conditioning Technician. Information resources. Diagnostic and Service Tools. Understanding Heat. Temperature and

Pressure Fundamentals.Refrigerants.Refrigerant and the Environment.Engine Cooling Systems.Heater System Operation.Engine Cooling System Diagnosis.Heater System Diagnosis and Service.System Components.Cycling Refrigeration Systems.Non-Cycling Refrigeration Systems.Compressor Diagnosis and Service.Refrigerant Recovery, Evacuation and Recycling.Refrigeration System Diagnosis and Service.System Retrofit.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Suspension and Steering Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Suspension and Steering Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section

reviews are integrated throughout to ensure the highest level of retention

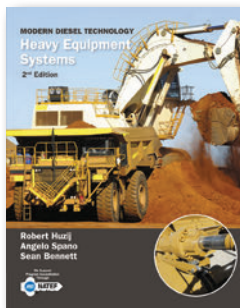
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

1.Safety Practices. 2.Basic Theory. 3.Tire, Wheels, and Wheel Bearings. 4.Steering Columns, Manual Steering Gears, and Steering Linkages. 5.Power Steering Pumps and Power Steering Gears. 6.Frames and Fifth Wheels. 7.Suspension Systems. 8.Air Suspension Systems. 9.Wheel Alignments

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MEDIUM/HEAVY DUTY TRUCK



ebook

MODERN DIESEL TECHNOLOGY, 2E

Heavy Equipment Systems

Robert Huzij, Cambrian College; Angelo Spano, Centennial College; Sean Bennett

Written by experienced technicians, MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS, 2nd Edition combines manufacturer-based and universal information into a single, reliable resource. The book's unique focus on off-highway mobile equipment systems delivers service and repair essentials for heavy equipment, agricultural equipment, and powered lift truck technology. Detailing everything from safety to best practices, Chapter coverage addresses four key areas: hydraulics, heavy duty brakes, and drivetrains, as well as steering, suspension,

and track systems. The 2nd Edition of MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS also includes the latest updates in computer-controlled hydraulics, GPS, electronic controls for other systems to help specialty technicians master their ever-evolving trade.

NEW TO THIS EDITION

- **Modern Conveniences:** Revised throughout, the 2nd Edition of MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS also features an expanded Instructor Resource package, including a time-saving test bank in ExamView and image-intensive PowerPoint® slides.
- **More Electronic Controls:** Responding to reviewer feedback, four full Chapters dig even deeper into electronic controls, especially as they apply to today's mobile hydraulics systems.
- **Extra Safety:** MODERN DIESEL TECHNOLOGY: HEAVY EQUIPMENT SYSTEMS, 2nd Edition protects specialty technicians with expanded content on safety, including ROPs and FOPs, and high voltage safety precautions.
- **New AC Drivetrain Coverage:** An added Chapter on heavy-duty AC drivetrains covers trolley drive capable systems, and includes special emphasis on safety when working with high voltages.
- **Uplifting Topics:** Readers get the latest techniques in hoisting and rigging with this brand new Chapter on best practices when working with and around heavy equipment.

FEATURES

- **Enlightening Visuals:** Detailed illustrations and photographs throughout the book clarify important concepts for readers.
- **Reader-Friendly Style:** Straightforward, concise writing from authors with firsthand industry expertise makes the information easy to grasp and highly relatable.
- **Practical Approach:** Focusing on performance-based learning outcomes—turning abstract theories into real-world, hands-on tasks—adds depth and context to the readings.
- **Comprehensive Resource:** This go-to guide for specialty technicians complements any manufacturer's manual, and addresses the full range of mobile heavy equipment manufactured

and marketed in North America.

CONTENTS

1.Safety. 2.Hoisting And Rigging. 3.Introduction to Hydraulics. 4.Hydraulic System Components. 5.Hydraulic Symbols and Schematics. 6.Hydraulic System Maintenance and Diagnostics. 7.Hydraulic Brakes. 8.Spring-Applied, Hydraulic-Released Brakes. 9.Air and Air Over Hydraulic Brake Systems. 10.Introduction to Powertrains. 11.Powershift Transmissions. 12.Hydrostatic Drive Systems and Retarders. 13.Driveline Systems. 14.Heavy Duty Drive Axles. 15.Final Drives. 16.Steering Systems. 17.Tires, Tracks, and Rim Systems. 18.Suspension Systems. 19.Machine and Equipment Electronics. 20. AC Electric Drive Systems.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES, PREVENTIVE MAINTENANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning; Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Preventive Maintenance Web Based Training (WBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

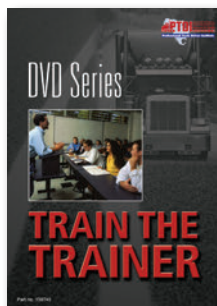
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- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards
- course is bilingual- switch back and forth between English and Spanish at the click of a button

CONTENTS

1. Introduction.2. Shop Safety & Operations.3. Preventive Maintenance Program.4. Engine Systems.5. Cab & Hood.6. Electrical & Electronics Systems.7. Frame & Chassis.8. Road & Operational Tests.9. Final Review.

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OPERATIONS AND MANAGEMENT



TRAIN THE TRAINER DVD SERIES

Delmar

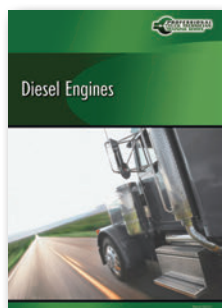
Among the many challenges facing the trucking industry is standardizing driver training to ensure placement and retention of highly skilled professionals in the field. The Train the Trainer Program produced by PTDI and Delmar, Cengage Learning strengthens the knowledge and skills of future trainers – the foundation of the trucking industry – and improves the image of the industry by improving instructor training. This exciting new turnkey instructor-training program includes an Instructor's Guide, a Student Course Book, and a DVD Series. Developed as a modular system, the Train the Trainer Program can be used to fit a pre-existing program that lasts from 2-4 days. It can be used for training "finishing" trainers at companies or instructor's in driving schools.

FEATURES

- Two 30-minute DVD's offer practical demonstrations of methodology for the classroom and provide examples of constructive, effective teaching.
- Detailed scenarios are designed to provide motivational techniques and tips for successful classroom instruction will stimulate discussion and provide the basis for assignments and activities.

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TECHNICIAN TRAINING



PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Medium/Heavy Duty Truck Diesel Engines Computer Based Training (CBT)

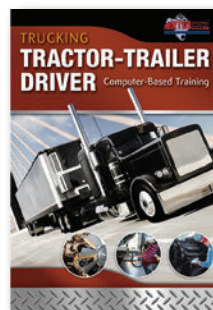
Delmar, Cengage Learning

Delmar, a part of Cengage Learning, and the leader in providing first-rate educational materials for technicians, now offers the Diesel Engines Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

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TRUCKING: TRACTOR-TRAILER DRIVER COMPUTER BASED TRAINING, CD-ROM

Delmar, Cengage Learning

The Trucking: Tractor-Trailer Driver Computer Based Training (CBT) provides a comprehensive driver training curriculum available on CD-ROM. This user-friendly product contains core content while utilizing graphics, animations, and interactions to keep the student engaged throughout the learning process. Use it alone, or in combination with the Tractor-Trailer Driver Handbook/Workbook for an unrivaled learning experience.

FEATURES

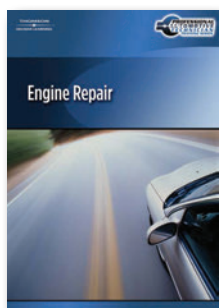
- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- book-marking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of section reviews are integrated throughout to ensure the highest level of retention
- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest FMCSA regulation guidelines

CONTENTS

Hours of Service. Transportation Technology. Whistleblower Protections. The Commercial Driver's License. Control Systems. Vehicle Systems. Basic Control. Shifting. Backing. Space Management. Speed Management. Railroad Crossings. Emergency Maneuvers. Accident Procedures. Trip Planning.

Driving International Routes. Transportation Security. Communication. Visual Search. Night Driving. Extreme Driving Conditions. Skid Control. Hazard Awareness. Coupling & Uncoupling. Sliding Fifth Wheels & Tandem Axles. Special Rigs. Preventive Maintenance & Servicing. Recognizing & Reporting Malfunctions. Handling, Documentation. Hazardous Materials. Public Relations & Job Search. Professional Driver Health. Safety & Security.

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Engine Repair Computer Based Training (CBT)
Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Engine Repair Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner interactions keep users interested and engaged throughout the course of the program
- bookmarking technology enables users to track their progress from beginning to end
- periodic progress checks and end-of-section reviews are integrated throughout to ensure the

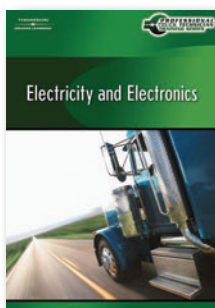
highest level of retention

- a certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- all material follows the latest ASE and NATEF standards

CONTENTS

Safety and Communication. Engine Operations and Support Systems. Engine Evaluation. Engine Block Construction, Inspection and Repair. Cylinder Head Construction, Inspection and Repair. Timing Mechanism Construction, Inspection and Repair. Engine Assembly and Break-In

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Medium/Heavy Duty Truck Electricity and Electronics
CBT - Bilingual
Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Electricity and Electronics Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- Attention-grabbing animations and learner

interactions keep users interested and engaged throughout the course of the program

- Bookmarking technology enables users to track their progress from beginning to end
- Periodic progress checks and end-of-section reviews are integrated throughout to ensure the highest level of retention
- A certificate of completion can be printed by users achieving a score of 80% or higher on the final review of the course
- All material follows the latest ASE and NATEF standards
- Course is bilingual- switch back and forth between English and Spanish at the click of a button.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES, PREVENTIVE MAINTENANCE COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning; Delmar

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Preventive Maintenance Web Based Training (WBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

- attention-grabbing animations and learner

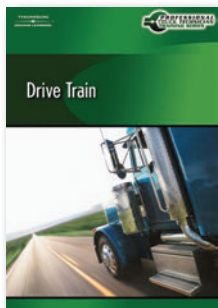
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CONTENTS

1. Introduction.2. Shop Safety & Operations.3. Preventive Maintenance Program.4. Engine Systems.5. Cab & Hood.6. Electrical & Electronics Systems.7. Frame & Chassis.8. Road & Operational Tests.9. Final Review.

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: DRIVE TRAIN COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Drive Train Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

FEATURES

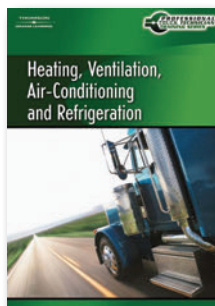
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- all material follows the latest ASE and NATEF standards

CONTENTS

1.Shop Safety and Operations. 2.Tools and Fasteners. 3.Clutches. 4.Standard Transmission. 5.Standard Transmission Servicing. 6.Torque Converters. 7Automatic Transmissions. 8Automatic

Transmission Maintenance. 9.Electronically Automated Standard Transmissions. 10.Allison Electronic Transmissions. 11.Driveshaft Assemblies. 12.Heavy-Duty Truck Axles. 13.Heavy-Duty Truck Axle Service and Repair

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES: HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION COMPUTER BASED TRAINING (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Heating, Ventilation, Air-Conditioning and Refrigeration Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

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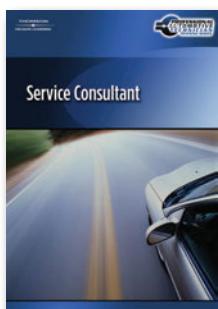
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CONTENTS

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2.Environmental and Safety Practices.
3.Thermodynamics. 4.Air-Conditioning Components.
5.The Refrigeration System. 6.Service Procedures.
7.Truck Engine Cooling System. 8.Cab Climate Control/Supplemental Truck Heating and Cooling.
9.Troubleshooting and Performance Testing.
10.APAD/ACPU A/C Control Systems. 11.Truck-Trailer Refrigeration Equipment. 12.Refrigeration Components. 13.Refrigerant Flow Control. 14.Truck Trailer Refrigeration Electrical Components. 15.Truck and Trailer Refrigeration Maintenance

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Service Consultant Computer Based Training (CBT)

Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Service Consultant Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians

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FEATURES

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- all material follows the latest ASE and NATEF standards

CONTENTS

Service Facilities and the Service Consultant. Communications: Customer Relations. Internal Communications, Relations, and Supervision. Communications: Customer Delivery and Follow-Up. Product Knowledge

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PROFESSIONAL AUTOMOTIVE TECHNICIAN TRAINING SERIES

Parts Specialist Computer Based Training (CBT)

Cengage Delmar Learning

Delmar Learning, the leader in providing first-rate educational materials for automotive technicians, now offers the Parts Specialist Computer Based Training (CBT), which is part of the exciting, self-paced Professional Automotive Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

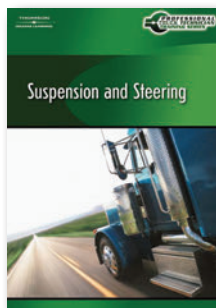
FEATURES

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- all material follows the latest ASE and NATEF standards

CONTENTS

General Operations. Customer Relations and Sales Skills. Vehicle Systems Knowledge. Vehicle Identification. Cataloging Skills. Inventory Management. Merchandising

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PROFESSIONAL TRUCK TECHNICIAN TRAINING SERIES

Suspension and Steering Computer Based Training (CBT)

Delmar, Cengage Learning

Delmar Learning, the leader in providing first-rate educational materials for technicians, now offers the Suspension and Steering Computer Based Training (CBT), which is part of the exciting, self-paced Professional Truck Technician Training Series. This course offers more than 8.5 hours worth of quality instruction. Combining theory, diagnosis, and repair information into one easy-to-use training tool, this highly interactive product helps technicians receive the most applicable delivery method for their needs, regardless of technical infrastructure.

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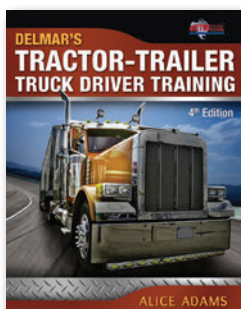
CONTENTS

1.Safety Practices. 2.Basic Theory. 3.Tire, Wheels,

and Wheel Bearings. 4. Steering Columns, Manual Steering Gears, and Steering Linkages. 5. Power Steering Pumps and Power Steering Gears. 6. Frames and Fifth Wheels. 7. Suspension Systems. 8. Air Suspension Systems. 9. Wheel Alignments

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TRUCK DRIVER TRAINING



ebook

TRACTOR-TRAILER TRUCK DRIVER TRAINING, 4E

Alice Adams; Ptdi

When students need to learn from the resource even the pros trust, look no further than Delmar's Tractor-Trailer Truck Driver Training, 4E. Delmar is the only official education partner of the Professional Truck Driver Institute (PTDI). Our goal is to ensure that students are armed with the information needed to excel in their truck driver careers. The all-new fourth edition incorporates both customer and industry feedback to bring enhancements that truly capture the learning needs of the industry. One key improvement: the book's approach has been broadened to include all of North America, in an effort to provide accurate, effective content that is relevant to all drivers, whether they drive within or beyond the border of the United States. Additional updates include a detailed Chapter devoted to CSA 2010, references to the latest tractor-trailer and driving technologies, as well as "day in the life" stories written by truck drivers and industry leaders that illustrate how truck driving experiences can shape both lives and careers. The end result is a valuable resource that will instill an up-to-date, comprehensive foundational knowledge that will help drivers in any stage of their career development.

FEATURES

- End-of-Chapter and Appendix resources include relevant websites, industry-acknowledged reference materials, and trucking association contact information that provide users with the tools to access information outside the confines of the book.
- New Chapter detailing CSA 2010 and the updated use of technology throughout the industry keep users up to date.
- Content includes information on the latest Federal Motor Carrier Safety Administration (FMCSA) regulations and standards.
- Robust illustrations and photographs clarify important topics and help users to visualize the material presented.
- Engaging, straightforward writing style captures attention and makes content easy to understand for users of all backgrounds and levels.

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Tel: (65) 6410 1200 • Fax (65) 6410 1208

Website: www.cengageasia.com • Email: asia.info@cengage.com

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SINGAPORE

Cengage Learning Asia Pte Ltd
151 Lorong Chuan
#02-08 New Tech Park
Singapore 556741
Tel (65) 6410 1200
Fax (65) 6410 1208
Email asia.info@cengage.com
www.cengageasia.com

CHINA

Cengage Learning (Beijing) Education
Technology Co., Ltd
Room 1201, South Tower
Building C, Raycom Info Tech Park
No. 2 Kexueyuan South Road
Haidian District, Beijing
P.R. China 100190
Tel (86) 10 8286 2095/2096/2097
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Email asia.infochina@cengage.com
www.cengage.com.cn

HONG KONG

Cengage Learning Hong Kong Limited
Units 808–810 8/F, Tins Enterprises Centre
777 Lai Chi Kok Road
Cheung Sha Wan, Kowloon
Hong Kong
Tel (852) 2612 1833
Fax (852) 2408 2498
Email asia.infohongkong@cengage.com

INDONESIA

PT. Cengage Learning Indonesia
COSA Building, 2nd Floor
Jalan Tomang Raya No. 70
Jakarta Barat, 11430
Indonesia
Tel (62) 21 569 58815
Fax (62) 21 569 52371
Email asia.infoindonesia@cengage.com

JAPAN

Cengage Learning K. K.
5F, 2nd Funato Building
1-11-11 Kudankita
Chiyoda-ku
Tokyo 102-0073
Japan
Tel (81) 3 3511 4390
Fax (81) 3 3511 4391
Email asia.infojapan@cengage.com
www.cengage.jp

KOREA

Cengage Learning Korea Ltd
Suite 1801 Seokyo Tower Bldg
133 Yanghwa-Ro Mapo-Gu
Seoul, 121-837
Korea, South
Tel (82) 2 322 4926
Fax (82) 2 322 4927
Email asia.infokorea@cengage.com

MALAYSIA

Cengage Learning Asia Pte Ltd
(Malaysia Branch)
Co. Reg No: 993622K
No. 4 Jalan PJS 11/18
Bandar Sunway
46150 Petaling Jaya, Selangor
Malaysia
Tel (60) 3 5636 8351/52
Fax (60) 3 5636 8302
Email asia.infomalaysia@cengage.com

PHILIPPINES/OCEANIA

Cengage Learning Asia Pte Ltd
(Philippine Branch)
Unit 2105-2106 Raffles Corporate Center
F. Ortigas Jr. Rd., Ortigas Center
Pasig City, Philippines 1605
Tel (63) 2 915 5290 to 93; (63) 2 4706740
Fax (63) 2 915 1694
Email asia.infophilippines@cengage.com

TAIWAN

Cengage Learning Asia Pte Ltd
(Taiwan Branch)
9F-1 No.87 Cheng Chou Rd
Da Tong District
103 Taipei
Taiwan
Tel (886) 2 2558 0569
Fax (886) 2 2558 0360
Email asia.infotaiwan@cengage.com
www.cengage.tw

THAILAND/INDOCHINA

Cengage Learning Indo-China Limited
408/32 Phaholyothin Place Building
8th Floor, Phaholyothin Avenue
Samseannai, Phayathai
Bangkok 10400
Thailand
Tel (66) 2 619 0433–5
Fax (66) 2 619 0436
Email asia.infothailand@cengage.com

VIETNAM

Cengage Learning Vietnam
Company Limited
Suite 1111, 11th Floor, Zen Plaza Building
54–56 Nguyen Trai Street, District 1
Ho Chi Minh City
Vietnam
Tel (84) 28 3925 7880
Fax (84) 28 3925 7881
Email asia.infovietnam@cengage.com

For territories not listed above, please contact Cengage Learning in Singapore



Cengage Learning Asia Pte Ltd

151 Lorong Chuan #02-08, New Tech Park (Lobby H), Singapore 556741

Tel (65) 6410 1200 • Fax (65) 6410 1208

Email asia.info@cengage.com • website: www.cengageasia.com

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