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**Automatic Transmissions and Transaxles** [Goodheart-Willcox Pub](#) Automatic Transmissions and Transaxles spans design, construction, operation, diagnosis, service, and repair of these major components. Both hydraulic and electronic transmission controls are detailed. The use of the latest diagnostic equipment is emphasized. **Ford Automatic Transmission Overhaul Models Covered: C3, C4, C5, C6 and AOD Rear Wheel Drive Transmissions, ATX** Haynes Manuals N. America, Incorporated Covers rear-wheel drive models (C3, C4, C5, C6, and AOD) and front-wheel drive models (ATX/FLC and AXOD). Included are the fundamentals, diagnosis techniques, and modifications. **Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles** [National Academies Press](#) The light-duty vehicle fleet is expected to undergo substantial technological changes over the next several decades. New powertrain designs, alternative fuels, advanced materials and significant changes to the vehicle body are being driven by increasingly stringent fuel economy and greenhouse gas emission standards. By the end of the next decade, cars and light-duty trucks will be more fuel efficient, weigh less, emit less air pollutants, have more safety features, and will be more expensive to purchase relative to current vehicles. Though the gasoline-powered spark ignition engine will continue to be the dominant powertrain configuration even through 2030, such vehicles will be equipped with advanced technologies, materials, electronics and controls, and aerodynamics. And by 2030, the deployment of alternative methods to propel and fuel vehicles and alternative modes of transportation, including autonomous vehicles, will be well underway. What are these new technologies - how will they work, and will some technologies be more effective than others? Written to inform The United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) and Environmental Protection Agency (EPA) Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) emission standards, this new report from the National Research Council is a technical evaluation of costs, benefits, and implementation issues of fuel reduction technologies for next-generation light-duty vehicles. Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles estimates the cost, potential efficiency improvements, and barriers to commercial deployment of technologies that might be employed from 2020 to 2030. This report describes these promising technologies and makes recommendations for their inclusion on the list of technologies applicable for the 2017-2025 CAFE standards. **Automotive Power Transmission Systems** [John Wiley & Sons](#) Provides technical details and developments for all automotive power transmission systems The transmission system of an automotive vehicle is the key to the dynamic performance, drivability and comfort, and fuel economy. Modern advanced transmission systems are the combination of mechanical, electrical and electronic subsystems. The development of transmission products requires the synergy of multi-disciplinary expertise in mechanical engineering, electrical engineering, and electronic and software engineering. Automotive Power Transmission Systems comprehensively covers various types of power transmission systems of ground vehicles, including conventional automobiles driven by internal combustion engines, and electric and hybrid vehicles. The book covers the technical aspects of design, analysis and control for manual transmissions, automatic transmission, CVTs, dual clutch transmissions, electric drives, and hybrid power systems. It not only presents the technical details of key transmission components, but also covers the system integration for dynamic analysis and control. Key features: Covers conventional automobiles as well as electric and hybrid vehicles. Covers aspects of design, analysis and control. Includes the most recent developments in the field of automotive power transmission systems. The book is essential reading for researchers and practitioners in automotive, mechanical and electrical engineering. **Automated Manual Transmission Clutch Controller** A powertrain system for a hybrid vehicle. The hybrid vehicle includes a heat engine, such as a diesel engine, and an electric machine, which operates as both an electric motor and an alternator, to power the vehicle. The hybrid vehicle also includes a manual-style transmission configured to operate as an automatic transmission from the perspective of the driver. The engine and the electric machine drive an input shaft which in turn drives an output shaft of the transmission. In addition to driving the transmission, the electric machine regulates the speed of the input shaft in order to synchronize the input shaft during either an upshift or downshift of the transmission by either decreasing or increasing the speed of the input shaft. When decreasing the speed of the input shaft, the electric motor functions as an alternator to produce electrical energy which may be stored by a storage device. Operation of the transmission is controlled by a transmission controller which receives input signals and generates output signals to control shift and clutch motors to effect smooth launch, upshift shifts, and downshifts of the transmission, so that the transmission functions substantially as an automatic transmission from the perspective of the driver, while internally substantially functioning as a manual transmission. **Transmission Repair Book Ford 1960 to 2007 Automatic and Manual** Renniks Publications Automatic AOD, BW 35/40, LE85/91/93/95/97, C4, C5, C6, C9, C10, FMX and M51. Manual 3 speed, 4 speed and 5 speed single rail, Top Loader, T5 and M57. Step by step instructions for a pull down and rebuild. Includes specifications, torque settings, problem diagnosis, shift speeds plus more information. This book is from an Australian publisher, and covers both American and Australian applications. **Automated Manual Transmission Controller** A powertrain system for a hybrid vehicle. The hybrid vehicle includes a heat engine, such as a diesel engine, and an electric machine, which operates as both an electric motor and an alternator, to power the vehicle. The hybrid vehicle also includes a manual-style transmission configured to operate as an automatic transmission from the perspective of the driver. The engine and the electric machine drive an input shaft which in turn drives an output shaft of the transmission. In addition to driving the transmission, the electric machine regulates the speed of the input shaft in order to synchronize the input shaft during either an upshift or downshift of the transmission by either decreasing or increasing the speed of the input shaft. When decreasing the speed of the input shaft, the electric motor functions as an alternator to produce electrical energy which may be stored by a storage device. Operation of the transmission is controlled by a transmission controller which receives input signals and generates output signals to control shift and clutch motors to effect smooth launch, upshift shifts, and downshifts of the transmission, so that the transmission functions substantially as an automatic transmission from the perspective of the driver, while internally substantially functioning as a manual transmission. **Automotive Automatic Transmission and Transaxles** [Jones & Bartlett Learning](#) Automotive Automatic Transmission and Transaxles, published as part of the CDX Master Automotive Technician Series, provides students with an in-depth introduction to diagnosing, repairing, and rebuilding transmissions of all types. Utilizing a "strategy-based diagnostics" approach, this book helps students master technical trouble-shooting in order to address the problem correctly on the first attempt. **Automotive Transmissions Fundamentals, Selection, Design and Application** Springer Science & Business Media This book gives a full account of the development process for automotive transmissions. Main topics: - Overview of the traffic - vehicle - transmission system - Mediating the power flow in vehicles - Selecting the ratios - Vehicle transmission systems - basic design principles - Typical designs of vehicle transmissions - Layout and design of important components, e.g. gearshifting mechanisms, moving-off elements, pumps, retarders - Transmission control units - Product development process, Manufacturing technology of vehicle transmissions, Reliability and testing The book covers manual, automated manual and automatic transmissions as well as continuously variable transmissions and hybrid drives for passenger cars and commercial vehicles. Furthermore, final drives, power take-offs and transfer gearboxes for 4-WD-vehicles are considered. Since the release of the first edition in 1999 there have been a lot of changes in the field of vehicles and transmissions. About 40% of the second edition's content is new or revised with new data. **Today's Technician: Automatic Transmissions and Transaxles Classroom Manual and Shop Manual** [Cengage Learning](#) Keeping pace with industry trends and needs across the country, TODAY'S TECHNICIAN: AUTOMATIC TRANSMISSIONS AND TRANSAXLES, 6e consists of a Classroom Manual that provides easy-to-understand, well-illustrated coverage of theory and a Shop Manual that focuses on practical, NATEF task-oriented service procedures. Taking a technician-oriented focus, the book helps students master the design, construction, troubleshooting techniques, and procedures necessary for industry careers and provides hands-on practice in using scanners and oscilloscopes to help students develop critical thinking skills, diagnose problems, and make effective repairs. The Sixth Edition offers up-to-date coverage of continuously variable transmissions (CVT), drivelines for front-wheel drive (FWD) and four-wheel drive (4WD) vehicles, and provides the latest information on today's high-tech electronic controls and automatic shifting devices. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. **GM Automatic Overdrive Transmission Builder's and Swapper's Guide** [CarTech Inc](#) Vehicle maintenance. **Motor Automatic Transmission Manual Automated Manual Transmission Mode Selection Controller** A powertrain system for a hybrid vehicle. The hybrid vehicle includes a heat engine, such as a diesel engine, and an electric machine, which operates as both an electric motor and an alternator, to power the vehicle. The hybrid vehicle also includes a manual-style transmission configured to operate as an automatic transmission from the perspective of the driver. The engine and the electric machine drive an input shaft which in turn drives an output shaft of the transmission. In addition to driving the transmission, the electric machine regulates the speed of the input shaft in order to synchronize the input shaft during either an upshift or downshift of the transmission by either decreasing or increasing the speed of the input shaft. When decreasing the speed of the input shaft, the electric motor functions as an alternator to produce electrical energy which may be stored by a storage device. Operation of the transmission is controlled by a transmission controller which receives input signals and generates output signals to control shift and clutch motors to effect smooth launch, upshift shifts, and downshifts of the transmission, so that the transmission functions substantially as an automatic transmission from the perspective of the driver, while internally substantially functioning as a manual transmission. **The BMW Century The Ultimate Performance Machines** [Motorbooks International](#) The BMW Century profiles one hundred years of BMW car and motorcycle manufacturing a decade at a time with gorgeous photos and detailed text. **Modeling and Control of an Automated Manual Transmission for EcoCAR 3 Vehicle** EcoCAR 3 is a part of the Advanced Vehicle Technology Competition series hosted by the Department of Energy, and it challenges 16 North American university teams to re-engineer a 2016 Chevrolet Camaro and turn it into a hybrid electric vehicle, thus improving the environmental impact of the car while retaining its performance aspects. The Ohio State University's EcoCAR 3 vehicle has a plug-in hybrid architecture, with operation in series and parallel power flows. The architecture features a 5-speed manual transmission that was automated by the team to retain the efficiency of a manual transmission while providing the convenience of an automatic transmission. The team-developed controllers manage the clutch and shift actuators to provide supervisory control of the automated manual transmission. The simplicity and efficiency of a manual transmission combined with the advantages provided by the hybrid architecture make it a good candidate for an HEV. This thesis provides an overview of the modeling, component testing, and controls development for the AMT system. The controls development includes high level control for vehicle launch, gearshift process, and strategies used in different hybrid vehicle operation modes. **Dynamic Analysis and Control System Design of Automatic Transmissions** [Society of Automotive Engineers](#) While the basic working principle and the mechanical construction of automatic transmissions has not changed significantly, increased requirements for performance, fuel economy, and drivability, as well as the increasing number of gears has made it more challenging to design the systems that control modern automatic transmissions. New types of transmissions continuously variable transmissions (CVT), dual clutch transmissions (DCT), and hybrid powertrains have presented added challenges. Gear shifting in today s automatic transmissions is a dynamic process that involves synchronised torque transfer from one clutch to another, smooth engine speed change, engine torque management, and minimisation of output torque disturbance. Dynamic analysis helps to understand gear shifting mechanics and supports creation of the best design for gear shift control systems in passenger cars, trucks, buses, and commercial vehicles. Based on the authors graduate-level teaching material, this well-illustrated book relays how the fundamental principles of hydraulics and control systems are applied to today s automatic transmissions.It opens with coverage of basic automatic transmission mechanics and then details dynamics and controls associated with modern automatic transmissions. Topics covered include: gear shifting mechanics and controls, dynamic models of planetary automatic

transmissions, design of hydraulic control systems, learning algorithms for achieving consistent shift quality, torque converter clutch controls, centrifugal pendulum vibration absorbers, friction launch controls, shift scheduling and integrated powertrain controls, continuously variable transmission ratio controls, dual-clutch transmission controls, and more. The book includes many equations and clearly explained examples. Sample Simulink models of various transmission mechanical, hydraulic and control subsystems are also provided. Chapter Two, which covers planetary gear automatic transmissions, includes homework questions, making it ideal for classroom use. In addition to students, new engineers will find the book helpful because it provides the basics of transmission dynamics and control. More experienced engineers will appreciate the theoretical discussions that will help elevate the reader's knowledge. Although many automatic transmission-related books have been published, most focus on mechanical construction, operation principles, and control hardware. None tie the dynamic analysis, control system design, and analytic investigation of the mechanical, hydraulic, and electronic controls as does this book. **How to Rebuild and Modify High-Performance Manual Transmissions** [CarTech Inc](#) How to Rebuild and Modify High-Performance Manual Transmissions breaks down the disassembly, inspection, modification/upgrade, and rebuilding process into detailed yet easy-to-follow steps consistent with our other Workbench series books. The latest techniques and insider tips are revealed, so an enthusiast can quickly perform a tear-down, identify worn parts, select the best components, and successfully assemble a high-performance transmission. Transmission expert and designer Paul Cangialosi shares his proven rebuilding methods, insight, and 27 years of knowledge in the transmission industry. He guides you through the rebuilding process for most major high-performance transmissions, including BorgWarner T10 and super T10, GM/Muncie, Ford Toploader, and Tremec T5. This new edition also contains a complete step-by-step rebuild of the Chrysler A833 transmission. **The Automotive Transmission Book** [Springer](#) This book presents essential information on systems and interactions in automotive transmission technology and outlines the methodologies used to analyze and develop transmission concepts and designs. Functions of and interactions between components and subassemblies of transmissions are introduced, providing a basis for designing transmission systems and for determining their potentials and properties in vehicle-specific applications: passenger cars, trucks, buses, tractors and motorcycles. With these fundamentals the presentation provides universal resources for both state-of-the-art and future transmission technologies, including systems for electric and hybrid electric vehicles. **Automated Manual Transmission Shift Sequence Controller** A powertrain system for a hybrid vehicle. The hybrid vehicle includes a heat engine, such as a diesel engine, and an electric machine, which operates as both, an electric motor and an alternator, to power the vehicle. The hybrid vehicle also includes a manual-style transmission configured to operate as an automatic transmission from the perspective of the driver. The engine and the electric machine drive an input shaft which in turn drives an output shaft of the transmission. In addition to driving the transmission, the electric machine regulates the speed of the input shaft in order to synchronize the input shaft during either an upshift or downshift of the transmission by either decreasing or increasing the speed of the input shaft. When decreasing the speed of the input shaft, the electric motor functions as an alternator to produce electrical energy which may be stored by a storage device. Operation of the transmission is controlled by a transmission controller which receives input signals and generates output signals to control shift and clutch motors to effect smooth launch, upshift shifts, and downshifts of the transmission, so that the transmission functions substantially as an automatic transmission from the perspective of the driver, while internally substantially functioning as a manual transmission. **Development of A Virtual Automated Manual Transmission System** [LAP Lambert Academic Publishing](#) This research presented as the development virtual model of Automated Manual Transmission (AMT). The model is designed with the consideration of low mass, low price and good quality in Solid Edge ST3. This AMT model is designed as three subsystems, which are Dual Clutch, Direct Shift Gearbox, and Differential Gearbox. The AMT system is developed by using MSC ADAM View 2011 software. In which, the AMT model has developed the performance with using simulation. The input parameter applied to AMT model which are kinematic and mechanism. The output analysis carried out as speed increment in different gear speed ratio, shifting period, and wheel turning speed (Left and Right turn). **1993-94-95-96-1997 Ford Ranger 5R55E Transmission Repair Manual** [Jim Network](#) This is the PDF service repair manual for the Ford Ranger 1993-1997. The same manual autoshops and dealers reference to. This isn't your everyday off the shelf autostore manual. This manual is guaranteed to be better than any autostore manual. Detailed drawings Detail diagrams Detail step by step instructions Covers more than standard manuals Available as PDF, no more damage manuals. Chapters include: Body Frame and Mounting Engine Suspension Driveline Brakes Transmission Clutch Exhaust system Fuel system Steering Climate Control system Instrumentation and Warning systems Battery and charging system Audio system Lighting Electrical Power supply **Gear-Shift Strategy for a Clutchless Automated Manual Transmission in Battery Electric Vehicles Automatic Transmissions and Transaxles** [Pearson](#) Automatic Transmissions and Transaxles, 7/e provides a complete, state-of-the-art source on the operating principles as well as the service and repair procedures for modern automatic transmission transaxles, complete with the practical skills that students must master to be successful in the industry. The text focuses on the generic theory underlying the operation, diagnosis, and repair of the units and subassemblies found in the many makes and types of vehicles students are likely to encounter in their work. Formatted to appeal to today's technical trade students, Halderman uses helpful tips and visuals to bring concepts to life and guide students through the procedures. This book is part of the Pearson Automotive Professional Technician Series, which provides full-color, media-integrated solutions for today's students and instructors covering all eight areas of ASE certification, plus additional titles covering common courses. Peer reviewed for technical accuracy, the series and the books in it represent the future of automotive textbooks. **Automatic Transmission and Transaxle Set Classroom Manual and Shop Manual Package** [Prentice Hall](#) Directly correlating to the ASE testing areas for certified auto mechanics, the Automatic Transmission and Transaxle Set and Shop Manual Package has been thoroughly updated and revised with the latest information and hands-on shop procedures dealing with automatic transmissions and transaxles. This edition includes coverage of theory, diagnosis, and repair of the latest electronically controlled transmissions and transaxles. It includes transaxles used in popular imported cars, updated terms to comply with SAE J1930, a more comprehensive index and a 2-color, fully illustrated manual. This package will keep its value over the years, as it will form the core of the master technician's professional library. **Gear Change Selection and Clutch Control of an Automated Manual Transmission Vehicle** The aim of this report is to provide a detailed overview of Automated Manual Transmissions (AMT) from its control point of view. An introduction about AMT is given, stating its main advantages in terms of cost and efficiency compared to other transmission types and justifying the context which makes AMT an interesting system for investigation. It is stated as well its importance for the Ford Focus prototype vehicle, where the project will carry the investigation. This leads to the aim and objectives. Then, previous research about AMT is summarized. Starting with the common problems of AMT, some proposed control strategies follow, which aim to solve the discussed problems. As well, AMTs actuator control strategies are presented. All this analysis led to some recommendations which guide the next steps of the project. Continuing with, the vehicle is introduced with major emphasis on the AMT system. It is explained the present components and new drivers that are designed and built, which provide the functionality needed for the AMT. Next, the controller architecture development process is discussed. Starting from the low-level controllers for each of the AMT actuators, it is explained the strategy used to achieve the control of them. It includes an interesting discussion on how to use the sensors present on the actuators to achieve position control without position feedback. Then, it follows the details on how each actuator is integrated in high-level controllers until achieving the complete control of the AMT successfully. Finally, some conclusions are drawn stating the importance of the feedback sensors for gearbox controllers and the clutch control concerns. Guidance is as well given for further investigation on the AMT system of the prototype vehicle. Keywords: Gearshift, Gearbox Actuators, Gearbox Control, Clutch Control, Shift Shock, Shift Time, Vehicle Start, Simulink, Stateflow, Synchromesh, dSpace. **Control Architecture for an Automated Manual Transmission Gearbox General Motors Automatic Transmission Overhaul Models Covered, THM200-4R, THM350, THM400 and THM700-R4 - Rear W** [Haynes Manuals N. America, Incorporated](#) Covers rear-wheel drive transmissions THM200-4R, THM350, THM400 and THM700-R4; and front-wheel drive transaxles THM125/125C, THM3T40, THM440-T4 and THM4T60. **Automated Manual Transmission Shift Strategy for Parallel Hybrid Electric Vehicle Nonlinear Estimation and Control of Automotive Drivetrains** [Springer Science & Business Media](#) Nonlinear Estimation and Control of Automotive Drivetrains discusses the control problems involved in automotive drivetrains, particularly in hydraulic Automatic Transmission (AT), Dual Clutch Transmission (DCT) and Automated Manual Transmission (AMT). Challenging estimation and control problems, such as driveline torque estimation and gear shift control, are addressed by applying the latest nonlinear control theories, including constructive nonlinear control (Backstepping, Input-to-State Stable) and Model Predictive Control (MPC). The estimation and control performance is improved while the calibration effort is reduced significantly. The book presents many detailed examples of design processes and thus enables the readers to understand how to successfully combine purely theoretical methodologies with actual applications in vehicles. The book is intended for researchers, PhD students, control engineers and automotive engineers. Hong Chen is a professor at the State Key Laboratory of Automotive Simulation and Control, and the Department of Control Science and Engineering at Jilin University. Bingzhao Gao is an associate professor at the State Key Laboratory of Automotive Simulation and Control at Jilin University. **Automotive Automatic Transmission and Transaxles Tasksheet Manual** [Jones & Bartlett Publishers](#) The Automotive Automatic Transmission And Transaxles Tasksheet Manual Guides Students Through The Tasks Detailed In Automotive Automatic Transmissions And Transaxles, A Part Of The CDX Master Automotive Technician Series. Based On The New 2017 NATEF Automobile Accreditation Task Lists, This Updated Edition Provides Tasks That Meet Master Auto Service Technology (MAST) Accreditation Requirements For A2. This Manual Will Assist Students In Demonstrating Hands-On Performance And Proficiency In The Skills And Tools Required To Diagnose, Repair, And Rebuild Automatic Transmissions Of All Types. It Will Also Serve As A Personal Portfolio Of Documented Experience For Prospective Employment. **Complete Car Care Manual Reader's Digest Association (Canada)** in conjunction with the Canadian Automobile Association Describes the components and operation of an automobile, basic tools for the garage workshop, and the procedures for maintaining, troubleshooting, and repairing the family car **How to Rebuild and Modify Ford C4 and C6 Automatic Transmissions** [CarTech Inc](#) In How to Rebuild and Modify Ford C4 and C6 Automatic Transmissions, author George Reid walks readers through the process step-by-step, from removing the transmission, to complete overhaul, to proper re-installation and road testing. **Direct and General Support Maintenance Manual Transmission, Automatic, 2520-066-4240 (Allison Div., GMC Model TX 100-1). DS and GS Maintenance Manual Transmission Assemblies Automatic Allison Division, GM Models TX 200-2a, FSN 2520-860-7342 ; TX 200-2b, FSN 2520-964-9207 ; TX 200-6, FSN 2520-045-3108 Model-based Control Design and Experimental Validation of an Automated Manual Transmission** The ECOCAR 2 architecture adopts the belt coupling between engine and front electric motor, which utilizes the front electric motor to achieve speed matching between the engine and the transmission; so that the AMT in PHEV could realize 'clutchless' shifting. The AMT used in this thesis is a modified version of conventional manual transmission which utilizes two linear actuators to move the transmission shifting lever through two cables; therefore, new control method needs to be developed for this system. In order to obtain accurate, fast and robust gear shifting during AMT operation, the control system was developed using model-based control theory; with adaptive control algorithm, as well as fault diagnosis. **Automatic and Manual Transmission How To Rebuild and Modify Your Manual Transmission Today's Technician: Manual Transmissions and Transaxles Classroom Manual and Shop Manual** [Cengage Learning](#) Reflecting the latest ASE Education Foundation standards, the fully updated Seventh Edition of TODAY'S TECHNICIAN: MANUAL TRANSMISSIONS & TRANSAXLES covers must-know topics including dual-clutch systems, limited-slip differential designs, and all-wheel drive systems, as well as essential safety concepts and major components of the transmission system and subsystems. New material throughout the text gives readers an up-to-date understanding of the latest automotive technology and key advances in the fast-changing automotive industry. The authors have revised sections on electronic controls of transmissions, transfer cases, and differentials to feature the latest reprogramming techniques today's technicians need to know. Covering both fundamental theory and practical job skills, the text includes a Classroom Manual reviewing every topic for Manual Drive Train and Axles, and a hands-on Shop Manual with full-color photo sequences and detailed job sheets, including service and repair tasks based on the latest MLR, AST, and MAST task lists. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. **Truck and Trailer Systems Lab Manual** [McGraw Hill Professional](#) A practical medium- and heavy-duty truck systems Featuring more than 100 in-depth lab exercises, this hands-on guide provides the practice you need to succeed as a medium- and heavy-duty truck service technician. The labs meet and exceed NATEF standards. Every system is thoroughly covered--from electrical and lighting to brakes and transmissions. Each lab includes: Objective of the lab Safety precautions Tools needed to complete the lab Challenging review questions help to reinforce the topics covered and are patterned after the typical questions found on the ASE Medium/Heavy Duty Truck Certification tests (T3 through T8). Written by an expert with decades of experience as an automotive and diesel technician and instructor, this lab manual is the perfect companion to the comprehensive text, Truck and Trailer Systems. Truck and Trailer Systems Lab Manual covers: Vehicle identification numbers Engine, transmission, and drive axle ID tag numbers Safety Tools and measuring equipment Basic electrical Magnetism Batteries Starting system Charging system Lighting and wiring Computer systems Mobile heating, ventilation, and air-conditioning systems Tires, wheels, and wheel end systems Frames and suspensions Steering systems Trailers and fifth wheels Hydraulic brake systems Air brake foundation brakes Air brake air system Anti-lock brake systems Drive lines

Clutches Drive axles Single and twin countershaft manual transmissions Automated manual transmissions Automatic transmissions Allison automatic transmissions PMI Auxiliary power units **Today's Technician + Today's Technician - Automatic Transmissions and Transaxles Classroom Manual and Shop Manual, 7th Manual Transmissions and Transaxles Classroom Manual and Shop Manual**