

A Guide to TMC Recommended Practices

TMC's *Recommended Practices Manual* has been recognized throughout the heavy-duty commercial vehicle maintenance arena for 30 years as being one of the leading maintenance guides for commercial vehicles and contains the best equipment maintenance and maintenance shop management information available. This comprehensive manual contains more than 300 Recommended Practices (RPs).

A Recommended Practice is a specification or practice—the adoption of which is voluntary—that is used to assist fleets and equipment manufacturers in the purchase, design, maintenance and performance of their equipment. TMC issues two types of RPs: Recommended Maintenance Practices and Recommended Engineering Practices. Recommended Maintenance Practices are voluntary practices that assist equipment users, vehicle/component manufacturers, and other industry suppliers in the maintenance of commercial vehicle equipment. They also include informational documents that cover technical aspects of maintenance, equipment and supporting technologies.

Recommended Engineering Practices are voluntary practices that assist equipment users, vehicle/component manufacturers, and other industry suppliers in the design, specification, construction and performance of commercial vehicle equipment.

What follows is a description of each RP as it appears in the current edition of TMC's *Recommended Practices Manual*.

* Will appear in TMC's *2009 RP Manual Supplement*.

ELECTRICAL AND INSTRUMENTS — S.1

RP 101B Heavy-Duty Truck Alternator Mounting — Discusses location and installation procedures and mounting material selection for maximum charging system life. Procedure covers mounting bracket, adjusting strap, pulleys, bushings, and associated hardware. Also describes alternator mounting maintenance procedures.

RP 105C Battery Cable Assemblies — Gives recommendations for proper selection and installation of battery cables to obtain maximum cranking circuit performance. This RP covers battery cables, terminals, heat shielding, grounding techniques, wire gauge, and replacement wire selection.

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- RP 106 6-Volt vs. 12-Volt Battery Study — Discusses the relative merits of 6-volt vs. 12-volt batteries for linehaul trucks. Covers battery life, hook-up, installation configurations, effects of electrical problems, and gives usage statistics for both types of battery systems.
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- RP 107C Seven Conductor Truck-Trailer and Converter Dolly Jumper Cable and Connector Selection — Covers the minimum requirements for heavy duty tractor-trailer and converter dolly jumper cables and connectors.
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- RP 109A Battery Ratings and Engine Cranking Requirements — Defines cold cranking ampere and reserve capacity ratings and gives recommendations to achieve adequate engine cranking performance and long-term cranking system reliability.
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- RP 110C Low-Tension Cable for Heavy-duty Truck-Tractor Wiring Systems — This RP provides guidelines for specifying low-tension cables for heavy-duty truck/tractor wiring systems.
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- RP 111B Circuit Protection — Covers guidelines for circuit protection of heavy-duty truck-tractor D.C. wiring systems.
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- RP 112A Terminals for Heavy-duty Truck-Tractor Primary Wiring Systems — Covers design criteria, performance specifications, and application guidelines for primary wiring terminals.
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- RP 113B Electrical System Connectors— Covers minimum general guidelines for the design, performance, and application of connectors and insulators for heavy-duty motor vehicles.
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- RP 114B Wiring Harness Protection— Covers minimum guidelines for protection of wiring harnesses from the operating and environmental conditions encountered on heavy duty-truck tractors.
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- RP 115 Speedometer and Tachometer Cable Requirements — Discusses application, installation, testing, and lubrication of light-and heavy-duty speedometer and tachometer cables.
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- RP 116 Installing Instruments, Gauges & Speedometers — Discusses proper mounting, wiring, and reliability determination for electrical and mechanical gauges and transducers.
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- RP 118A Turn Signal Switches — Covers design criteria, minimum performance, and test specifications for heavy-duty truck turn signal switches.
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- RP 120B Wiring System Identification — Covers the minimum requirements for wiring system identification on heavy-duty trucks and tractor trailers.
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- RP 121A Electrical Connector System for Auxiliary Starting and Off-Board Diagnostics — Covers detail, dimension, and design of the plug and receptacle which must mate properly to permit interchangeable use of different manufacturers' products.
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- RP 123A Standardization of Speedometer and Tachometer Signals — Establishes a standard vehicle and engine speed signal and frequency that can be used by any electronic device on a heavy-duty vehicle requiring knowledge of speed/distance or engine revolution information.
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- RP 124A Heavy-duty Headlamp Design Specifications — Provides specifications for heavy-duty headlamps for use both by lamp users and lamp manufacturers.
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- RP 125A Battery Vibration Standards — Replaces existing battery mounting guidelines with one to offer both truck manufacturers and fleets an alternative to mounting batteries between the frame rails to increase battery life.
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- RP 126 Air Starters — Provides minimum performance requirements, discusses user maintenance, and is a guide for OEMs in the application of air starters on mid-range and heavy-duty diesel engines.
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- RP 127B Fleet Service Light Bulb Specifications — Identifies heavy-duty lamps and includes a specifications chart for most light bulbs used in heavy-duty vehicle applications.
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- RP 128A Turn Signal and Hazard Warning Flashers — Covers SAE specifications, durability requirements, design configurations, and usage of turn signals and hazard flashers.
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- RP 129 Heavy-duty Vehicle System Wiring Checks — Provides preventative maintenance and troubleshooting procedures for heavy-duty vehicle starting and charging systems.
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- RP 130 Guidelines to Determine Requirements of Charging Systems — Aids in fleet specification of charging system components by recommending the best charging system for a given vehicle designed for a specific use.
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- RP 131A High CCA Battery Applications for Class 7 & 8 Commercial Vehicles — This Recommended Practice clarifies questions concerning the use of high CCA batteries on Class 7 and 8 commercial vehicles.
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- RP 132A Battery Charging, Testing and Handling — This RP is an update of RP 132, offering guidelines on battery charging, testing, and handling procedures.
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- RP 133 High CCA Battery Applications for Class 2 to 6 Commercial Vehicles — This Recommended Practice points out potential application problems for the entire cranking system when utilizing high CCA batteries in place of standard batteries in Class 2 to 6 commercial vehicles. Covers effects on the starter, battery cables, and effects on battery cycling and life.
- RP 134 Starter/Alternator Rebuild Performance Standard Guidelines — Presents guidelines to be used to ensure that major/minor components within starters and alternators are properly examined and replaced as necessary in order to provide reliable service when installed.
- RP 135 Multi-Pin Connector Repairs — Provides fleet maintenance organizations with an effective guide for obtaining the proper multi-pin connector repair products and services. The Recommended Practice is not intended to define repair procedures because of the vast number of different connector systems on the market. Instead, the Recommended Practice defines what products and services fleets should expect to receive from connector suppliers. This product definition is necessary to simply the repair of a wide range of types of multi-pin connectors used in today's wiring systems.
- RP 136A Isolated Battery Systems — Provides guidelines for the design of isolated/split battery systems to enable cab accessory units to be electrically powered without drawing on the primary/starting system of the vehicle or retrofitting an existing vehicle to an isolated system.
- RP 137B Antilock Electrical Supply From Tractors Through the SAE J560 Seven-Pin Connector — The purpose of this RP is to provide fleets with a method of ensuring that adequate power will be available at the front of a trailer (or first trailer in a double or triple combination unit) to operate an antilock braking system (ABS), using the traditional seven pin connector.
- RP 138 Auxiliary Forward Lighting — This Recommended Practice provides fleets, truck manufacturers, and component manufacturers with guidelines for the proper installation of auxiliary forward lighting devices to help conform to various state regulations. Such devices include daytime running lights (DRLs) and fog lamps, the use of which can be desirable under certain environmental conditions. The RP also provides a current list of state regulations covering a variety of auxiliary forward lighting devices.
- RP 139A Battery Selection Criteria — This RP is an update of RP 139, offering guidelines on selecting batteries for commercial vehicles.
- RP 141 Trailer ABS Power Supply Requirements — This RP sets performance standards for trailer ABS power supply requirements.
- RP 142 High-Speed Data Link Cable Repair Guidelines — Identifies recommended materials and methods to repair or add a device to high-speed data link cables.
- RP 143 Light Emitting Diode (LED) Technology — Describes benefits and features of LEDs when spec'ing heavy-duty signaling and marking devices. Offers spec'ing recommendations on connectors and wiring for LEDs and offers return on investment formula for making purchasing decisions.
- RP 144 Minimum Performance Requirements for In-Cab Trailer ABS Malfunction Lamps — Identifies minimum performance requirements for ABS warning lamps.
- RP 145 Symbols for Electrical Circuit Protection — This RP endorses an SAE Recommended Practice that standardizes electrical circuit symbology.
- RP 146 Identification of Standardized Electrical Circuits for Class 8 Vehicles — This RP endorses an SAE Recommended Practice that standardizes electrical circuit identification.
- RP 147 SAE J560 Plug and Receptacle Wire-to-Terminal Interface Performance Guidelines — This RP establishes new equipment-user driven performance guidelines for the SAE J560 plug and receptacle wire-to-terminal interface.
- RP 148 Exterior Lighting Systems for Signaling, Marker, Clearance and Identification Lamps — This RP offers guidelines for exterior lighting systems.
- RP 149 Alternator Drive Standardization — This RP offers guidelines for alternator drive standardization.
- RP 150 Alternator Terminal Standardization — This RP offers guidelines for alternator terminal standardization.
- RP 151 Guidelines for Extending Headlamp Life — This RP offers guidelines for extending headlamp life.
- RP 152 Performance Guidelines for Cab and Sleeper Interior Lighting — This RP offers guidelines for cab and sleeper interior lighting.
- RP 153 Lamp-to-Connector Interface Guidelines — This RP offers guidelines on lamp-to-connector interfaces.

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- RP 154 Guidelines for Wiring Harness, Routing, Clamping and Protection — This RP offers guidelines on wiring harness, routing clamping and protection.
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- RP 155 Selection and Application of Corrosion Preventive Materials for Electrical Terminals and Connectors — This RP covers selection and application of corrosion prevention materials.
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- RP 156 Electrical Circuit Protection Components — This RP covers electrical circuit protection components.
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- RP 157 Service And Installation Guidelines For Citizen Band Radio Antenna Systems — This RP covers service and installation guidelines for CB radio antenna systems.
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- RP 158 Wiring And Circuit Protection Guidelines For 12-Volt Cab And Sleeper Power Outlets—This RP covers wiring and circuit protection guidelines for cab and sleeper power outlets.
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- RP 159 Installation and Inspection Guidelines for Seven Conductor Truck-Trailer/Converter Dolly Jumper Cable and Connector. — This RP covers installation and inspection guidelines for combination vehicle electrical connectors and cables.
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- RP 160 Wiring And Circuit Protection Guidelines For 12-Volt DC to 120-Volt AC In-Cab Inverter Systems—This RP covers wiring and circuit protection guidelines for in cab inverter systems commonly used on tractors.
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- *RP 161 Forward Lighting Aiming Methods. — This proposed RP offers guidelines for forward lighting aiming methods.
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- *RP 162 Design Guidelines for Electrochemical Capacitors Used in Starting Applications. — This proposed RP offers design guidelines for electrochemical capacitors used in starting applications.
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- *RP 163 Power Inverter Selection Recommendations. — This proposed RP offers guidelines for selecting power inverters for Class 7-8 vehicle applications.
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- TIRE & WHEEL — S.2**
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- RP 201C Tire Flap & Rim Dimensions — Relates tire width and diameter with recommended rim and flap widths.
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- RP 203C Truck Tire Regrooving — Summarizes two crucial federal regulations that must be followed when regrooving tires.
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- RP 205B Use of Tire Bead Lubricants — Outlines proper selection and use of tire bead lubricants.
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- RP 206B Tire Repair Procedures — Provides easy-to-follow, step-by-step procedures for repairing bias and radial tires that will consistently produce satisfactory repairs.
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- RP 208C Tire Cost Determination — Gives analysis procedures for accurate determination of all tire costs, including retreading, to provide an optimal tire replacement strategy.
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- RP 209D Tire and Rim Safety Procedures — This RP describes tire and rim safety procedures.
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- RP 210D Radial Tire Construction Terminology — This RP describes radial tire construction terminology.
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- RP 211B Rim and Wheel Selection and Maintenance — Acquaints the user of highway tractors and trailers with rim/wheel nomenclature, types available, load inflation restrictions, potential dangers of mismatched multi-piece rim components, dual spacings, and proper maintenance practices.
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- RP 212C Industry Advisory for Retreading Truck and Bus Tires — Provides standards and guidelines for manufacturing retreaded truck and bus tires, including casing inspection and in process rules.
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- RP 213D RMA Truck Tire and Wheel Related Publications— Lists title and publication number and gives ordering information for The Rubber Manufacturers' Association publications for the care and service of truck tires.
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- RP 214C Tire/Wheel End Balance and Runout — This RP is an update to TMC RP214A, offering maintenance recommendations regarding tire/wheel-end balance and runout.
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- RP 215D Sources of Tire & Wheel Information — Gives addresses of associations disseminating information on tire retreading, wheels and rims, and tire rubber.
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- RP 216B Radial Tire Conditions Analysis Guide — A detailed guide covering all aspects of tire damage and defects and includes multiple photographs. This guide is an invaluable tool for the determination of tire failure. Guide is also available as a separate publication.
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- RP 217B Attaching Hardware for Aluminum Disc Wheels — Provides information to enable proper selection of compatible wheels, studs, and nuts for use with various types of disc wheel mountings.
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- RP 218D DOT Tire Identification Codes — Defines DOT tire codes thus simplifying fleet tire record keeping and tire identifying procedures.
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- RP 219B Radial Tire Wear Conditions and Causes (A Guide to Wear Pattern Analysis) — Covers probable causes for all types of radial tire wear, what to do with the worn tire, and how to correct the problem. This Recommended Practice contains numerous photographs and is available as a separate publication.
- RP 220B Tire Tread Design Selection — Gives guidelines for the proper selection of tread design for various applications to provide maximum performance.
- RP 221C Retread Plant Inspection Guidelines — Provides guidelines for the evaluation and selection of a tire retread supplier.
- RP 222B User's Guide to Wheels and Rims — Covers all aspects of wheel and rim damage, probable cause, and recommended actions. This Recommended Practice contains numerous photographs and is available as a separate publication.
- RP 223C Tire Selection Process — Gives guidelines for tire selection and covers tire type, design, etc. Also discusses speed and axle weights and how they relate to tire selection.
- RP 224C Tire Retread Process — Assists the retread user in understanding the differences and characteristics of the various retread processes.
- RP 226B Radial Tire Repair Identifier — Explains how to properly apply tire repair identification patches to repaired heavy-duty vehicle tires. These patches can prevent the possibility of the tire (and vehicle) from mistakenly being placed out of service due to what a safety inspector or mechanic perceives as a dangerous tire defect and not a normal tire section repair bulge.
- RP 228A Guidelines for Tire Radio Frequency Tags and Readers — This Recommended Practice provides guidelines for the manufacture and use of passive radio frequency (RF) identification devices molded into a tire or encapsulated in a patch and bonded to the inner liner of radial, medium- and heavy-duty, tubeless truck tires.
- RP 229A Computerized Tire Recordkeeping— This RP provides guidance to fleets trying to establish a computerized tire recordkeeping system.
- RP 230A Tire Test Procedures for Tread Wear, Serviceability and Fuel Economy — Establishes tire test procedures for fleets evaluating different tire/vehicle combinations for tread wear, serviceability and fuel economy.
- RP 231 Wheel System Maintenance Labeling Guidelines — Establishes a standard format for wheel system maintenance labels.
- RP 232 Zipper Rupture Inspection Procedures for Light- and Medium-Duty Truck Tires — This RP establishes procedures for identifying “zipper” ruptures failures in tires.
- RP 233A Radial Tire Nail Hole Repair Training Guidelines — Establishes repair and training guidelines for nail hole damage in radial tires.
- RP 234 Proper Valve Hardware Selection Guidelines — This RP covers valve hardware selection.
- RP 235 Guidelines for Tire Inflation Pressure Maintenance— This RP covers guidelines for tire inflation pressure maintenance.
- RP 236 Outsourcing Guidelines for Tire and Wheel Maintenance — This RP covers outsourcing guidelines for tire and wheel maintenance.
- RP 237 Retorquing Guidelines for Disc Wheels — This RP covers guidelines for retorquing disc wheels used on heavy-duty trucks and tractors.
- RP 238 Troubleshooting Disc Wheel Looseness—This RP covers guidelines for diagnosing looseness in disc wheels.
- RP 241 Tubeless Disc Wheel Inspection for Undersized Bead Seats—This RP covers inspection guidelines for undersized bead seats on tubeless disc wheels.
- RP 242 Guidelines for Evaluating Tire and Wheel Related Products and Systems—This RP offers guidelines for evaluating tire and wheel related products.
- RP 243 Tire and Wheel Match Mounting Markings— This RP covers identification of tire and wheel match mounting markings.

ENGINES — S.3

- RP 301C Maintaining Air Intake Systems— Covers maintenance and service procedures and discusses intake restriction for oil bath and dry element air cleaners and intake systems.
- RP 302C Fleet Purchasing Specification for Low— Silicate, Ethylene Glycol — Base Antifreeze Engine Coolant Requiring SCAs — Lists minimum specifications for ethylene glycol coolant.
- RP 303C Silicone Coolant Hoses and Hose Assemblies— This Recommended Practice covers straight or pre— formed hose or hose assem-

- blies of a superior quality polysiloxane (silicone) type used in diesel or gasoline engine coolant systems between engines, radiators, and heaters. Hose and/or hose assemblies are to be used where ultra — long life is required or extreme temperature conditions are prevalent.
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- RP 304C Minimum Specifications for On-Highway No. 2-D Diesel Fuel — This updated Recommended Practice lists minimum diesel fuel specifications for over — the road, heavy-duty, diesel — fueled vehicles.
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- RP 309B Preferred Fuel Specification — 2D and Glossary of Fuel Terms — This updated Recommended Practice contains suggested and recommended guidelines describing better quality diesel fuel. A glossary of terms is provided to further assist fuel purchasers in becoming familiar with fuel terminology and fuel property options.
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- RP 310A Water Ingestion Prevention — Discusses the consequences of water and salt (from rain and road deicing chemicals) entering heavy-duty vehicle air intake systems and gives methods to minimize the ingestion of water and road salt.
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- RP 311A Cold Weather Operation — Discusses the proper methods to use to prepare a heavy-duty truck for cold weather operation (+40 to — 40°F). Topics covered include readying the following for cold weather operation: engine coolant; engine, transmission, and differential lubricants; hoses and clamps; air starters; batteries and cables; diesel fuel; coolant, intake manifold, and oil heaters; fuel heaters; and winterfronts and radiator shutters.
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- RP 312A Qualifying Questions for Evaluating Aftermarket Diesel Fuel Additive Packages* — Addresses possible negative side effects of using aftermarket fuel additives.
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- RP 313C Checklist for Cooling System Maintenance — This RP provides guidelines for cooling system maintenance.
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- RP 316A Engine Temperature Control Settings for Liquid Cooled Diesel Engines — Guides the fleet operator on how to specify the thermostat, shutterstat, fan controls, alarm systems, and shutdown devices in order to achieve compatibility between components.
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- RP 317 Fuel/Water Separating Devices — Guides the fleet operator on how to best specify a fuel/water separating device.
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- RP 318B Used Engine Oil Analysis — Discusses reasons for oil analysis, oil analysis laboratory selection, sampling procedures, and test results. An oil analysis glossary is included.
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- RP 319A General Guidelines and Precautions on Supplemental Coolant Additives — Gives guidelines for the selection and use of supplemental coolant additives used to protect heavy-duty vehicle cooling systems.
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- RP 320B Inspection, Maintenance and Tension of Accessory Belt Drive Systems — Provides the heavy-duty vehicle mechanic with the proper procedures for inspecting, installing, tensioning, and maintaining V-ribbed belts on Class 3 through 8 commercial vehicles.
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- RP 321 Fuel Crossover Line Protection and Configuration Guidelines— Designed to reduce the possibility of crossover line ruptures which may result in fuel spills which pose safety problems and contaminate road/right-of-way-surfaces leading to environmental clean-up and fines.
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- RP 322A Coolant Pump Failure Modes and Life Extension — Contains information from a TMC fleet survey conducted by the Coolant Pump Failure Task Force, presentations made during Task Force meetings, and current Service Bulletins from various original equipment manufacturers (OEMs) and suppliers. This Recommended Practice does not make suggestions about coolant pump design changes.
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- RP 323 Aqueous Propylene Glycol Coolant Guidelines — Presents a general guideline for the comparison of propylene glycol-based coolants to ethylene glycol-based coolants in heavy-duty truck systems. This Recommended Practice identifies some of the precautions and application considerations to be aware of when switching to an aqueous propylene glycol-based coolant.
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- RP 325 Radiator Integrity for On-Highway Trucks — Establishes time and mileage parameters, as well as service and maintenance characteristics for radiators in medium- and heavy-duty trucks used in on-highway service. It can serve as a guideline for OEM truck assembly and radiator manufacturers when designing cooling products for specific applications and help the end-user when purchasing new vehicles.
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- RP 326 Recycling Engine Coolant — This Recommended Practice describes the reasons why changing coolant is necessary and discusses the various processes used in on-site recycling equipment. Some considerations in deciding whether or not to recycle coolant on-site are given and a table is included for reference

- concerning various operational parameters and costs associated with the listed processes.
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- RP 327 Fan Drive Control Systems — This Recommended Practice describes the control system for fan drives requiring the use of remote temperature sensing controls and override switches, and addresses maintenance and troubleshooting for such systems.
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- RP 328 Fleet Purchasing Specification for Nitrite-Containing Supplemental Coolant Additives — This Recommended Practice covers general, physical, chemical, and performance requirements for SCAs that are used for precharging and periodic servicing of coolants for use in heavy duty engines. This includes SCA concentrates in liquid, solid, or slurry form.
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- RP 329 Fleet Purchasing Specification for Nitrite-Containing Ethylene Glycol Base Coolant — This Recommended Practice specifies requirements for concentrated and prediluted forms of fully-formulated ethylene glycol base antifreeze/coolant which does not require a precharge of supplemental coolant additives.
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- RP 330 Fleet Purchasing Specification for Nitrite-Containing Ethylene Glycol Base Coolant — This Recommended Practice specifies requirements for fully-formulated propylene glycol base antifreeze/coolant which does not require a precharge of supplemental coolant additives.
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- RP 331 Charge Air Cooler Integrity — This Recommended Practice is designed to improve the design, maintenance, safety and performance of charge air coolers (CAC) while reducing CAC costs to equipment users.
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- *RP 332B Guidelines For Hoses, Clamps, and Fittings For Cooling And Charge Air Cooler Systems. — This proposed RP offers guidelines for hoses clamps and fittings used on engine cooling and charge air cooler systems.
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- RP 333A Heat Exchanger Maintenance and Cleaning — This RP provides guidance concerning the exterior maintenance and cleaning of heat exchangers/cooling modules used in Class 6-8 vehicles. Heat exchangers/cooling modules are defined as the radiator, charge air cooler, condenser, oil-to-air cooler, recirculation shields, and associated mounting brackets and hardware.
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- RP 334A Determining Extended Oil Drain Intervals for Heavy-duty Diesel Engines Helps equipment users determine extended oil drain intervals for diesel engines over 8.0L displacement.
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- RP 335 Simplified Snap-Idle Acceleration Smoke Testing — Offers simplified, easy-to-understand instructions for conducting J1667 Snap-Idle Smoke Test Procedures.
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- RP 336 A Aluminum Radiator Maintenance — Offers interior and exterior maintenance recommendations for aluminum radiators.
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- RP 337A Determining the Validity of Low-Power Complaints Offers recommendations for troubleshooting low-power complaints.
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- RP 338A Extended Service Interval Coolants Describes new extended service interval (ESI) coolant technologies. Q&A format addresses common technician concerns regarding ESI and traditional coolants.
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- RP 339 Maintaining Fuel/Water Separators — This RP offers recommendations for maintaining fuel/water separators.
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- RP 342 Guidelines for Recording Electronic Engine Parameter Changes — This RP offers security guidelines for keeping track of parameter changes for electronic engines.
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- RP 343A Charge Air Cooler Winterfront Application and Design Guidelines — This RP offers guidelines for design and selection of CAC winterfronts.
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- RP 344 Understanding Engine ECM Data — This RP offers information on interpreting and using engine data collected on-board vehicles.
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- RP 345A Diesel Fuel Housekeeping Guidelines — This RP offers guidelines for maintaining diesel fuel storage and delivery infrastructure so as to ensure quality fuel.
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- *RP 346A Accessory Belt Drive Pulley Standardization — This proposed RP offers guidelines for standardizing accessory belt drive pulleys.
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- RP 347 Fan Drive Maintenance and Troubleshooting — This RP offers guidelines on fan drive maintenance and diagnostics.
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- RP 348 Coolant Hose Rating Factors — This RP covers guidelines for coolant hose ratings.
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- RP 349 Design Guidelines for ECM Harness and Connectors — This RP offers design guidelines for ECM harnesses and connectors.
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- RP 351 Guidelines for Color Standardization of Engine/Coolant Antifreeze — This RP offers guidelines for standardizing engine coolant color schemes.
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- RP 352 Fan Drive Design and Application Guidelines

a list of questions to consider to aid in proper selection of a vehicle refinisher.

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- RP 417A Supporting Pneumatic/Electrical Lines Between Cab and Trailer — This Recommended Practice serves as an industry guide to performance requirements, applicable regulations, and proper means of support for pneumatic/electrical service hoses between the tractor cab and trailer.
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- RP 418 Heavy-duty In-Cab R-134a Air Conditioning Systems — This Recommended Practice establishes recommendations for R-134a air conditioning systems. These recommendations are intended to describe equipment capable of meeting the requirements for over-the-highway vehicles and to minimize maintenance costs. The RP provides system component descriptions, installation recommendations, and maintenance procedures for heavy-duty in-cab air conditioning systems equipped with R-134a refrigerant. (Note: This RP does not cover trailer refrigeration.)
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- RP 419 Heater Performance Requirements for Truck Cabs — This Recommended Practice provides heater system performance parameters that will achieve driver comfort in cold weather driving conditions. This Recommended Practice covers all Class 6, 7, and 8 powered vehicles. It shall apply at an ambient temperature of 0°F.
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- RP 420A Minimum Service Life Requirements for Heavy-duty HVAC Cab Controls — Establishes minimum service life requirements for heating, ventilation, and air conditioning (HVAC) systems in heavy-duty commercial vehicles that are acceptable to equipment users.
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- RP 421 In-Cab Air Conditioning Retrofit Procedure — Establishes a retrofitting procedure for fleets wishing to retrofit R-12 A/C systems to R-134a or other alternative refrigerants.
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- RP 422 A Cab Insulation Testing Methodology — Establishes test procedures for determining heat or thermal transmission rates of heavy-duty vehicle driver and sleeper cabins. Also establishes rating method for heat/thermal transmission.
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- RP 423 Color Coding of Air Brake Systems — Establishes recommendations for standardized color coding of air brake systems.
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- RP 424 Door Hardware Performance Requirements — This RP establishes minimum performance standards for tractor door hardware.
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- RP 425 Mirror Positioning and Aiming — This RP offers guidelines on cab mirror positioning and aiming.
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- RP 426 Service Guidelines for Occupant Restraints — This RP offers recommendations on servicing and maintaining heavy-duty vehicle occupant restraints.
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- RP 428 Guidelines for Vision Devices — This RP offers guidelines for primary and supplemental vision devices.
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- RP 429 Windshield Replacement and Repair — This RP offers guidelines on windshield replacement and repair.
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- RP 430 Guidelines for Collision Warning Devices — This RP offers guidelines for collision warning devices.
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- RP 431 Guidelines for Electrical Cab Power Points — This RP offers guidelines for spec'ing electrical cab power points.
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- RP 432 Engine Off HVAC Performance Requirements for Trucks With Sleeper Cabs — This RP offers guidelines for performance requirements of engine-off HVAC systems for sleeper cabs.
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- RP 433 Truck Washing and Cleaning Guidelines — This RP offers guidelines for truck washing and cleaning.
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- RP 434 Cab And Sleeper Insulation Efficiency Guidelines—This RP offers recommendations for cab and sleeper insulation.
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- RP 435 Installation and Inspection Guidelines for Pneumatic and Electrical Tractor-Trailer Hookup Lines—This RP offers installation and inspection guidelines for tractor-trailer connectors.
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- RP 436 HVAC Performance and Testing Criteria—This RP offers recommendations for HVAC performance and testing criteria for Class 7-8 commercial vehicles.
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- RP 437 Guidelines for Truck Stop Electrification Interface—This RP offers guidelines for the interface between vehicle and truckstop electrification systems.
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- FLEET MAINTENANCE MANAGEMENT — S.5**
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- RP 503B Standardization of Training Aid Materials — Provides a training aid format guideline for automotive manufacturers to adhere to when producing audio visual training aids.
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- RP 507 Off-Board Diagnostic Tools and Devices: Menus and Function Keys — This Recommended Practice provides a menu/Fkey standard practice to provide standard menu shells designed to improve mechanic familiarity and

- training effectiveness with OEM and aftermarket diagnostic devices.
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- RP 510 New Facility Development — This Recommended Practice is designed to help fleet managers plan for future maintenance facility requirements that adequately support their business plans.
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- RP 511 Refrigerant Recovery — The purpose of this Recommended Practice is to establish recommendations for the use of mobile air conditioning refrigerant recovery and recycling equipment, and for certification of technicians who use the equipment when servicing these systems.
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- RP 512 Mechanic Staffing Determination — Provides a basic formula to calculate the number of mechanics required to adequately staff a heavy-vehicle maintenance shop. The formula can be utilized with manual (paper) records or computerized data. If no history is available, maintenance information can be obtained from vehicle manufacturers.
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- RP 513 Estimating Number of Service Bays — Intended to assist fleets that are planning new maintenance shop facilities by giving an analytical methodology for estimating the number of service bays required in the new facility. Covers general maintenance shop facilities for all classes of vehicles.
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- RP 515 Maintenance Shop Design Considerations — Intended to assist fleets who are planning new maintenance shop facilities. It provides a list of critical elements that should be considered in the design.
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- RP 516A Technician Training: A Model for Training Program Planners — Presents a guideline for the maintenance shop manager to use in preparing a training program for service technicians. It explains factors for consideration in developing a performance-based training program — whether the program is developed internally or provided by outside suppliers.
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- RP 517 Managing Environmental Compliance — This Recommended Practice is designed to provide guidance in a program for managing environmental compliance. Compliance involves satisfying regulatory bodies at the federal, state, and local levels. This RP is limited to providing guidance on compliance education/training, self-audits, and recordkeeping. It does not cover regulatory requirements of the U.S. Department of Transportation (DOT).
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- RP 518 Fuel Station Planning — The purpose of this Recommended Practice is to provide fleet managers guidelines when working with design professionals in designing fueling stations. It is not intended to establish a standard fuel station design, but rather provide fleet managers with a “road map” that helps them achieve a design that best suits the needs of their fleet. This Recommended Practice is intended for all fleet diesel and/or gasoline fueling operations. Among the topics that this RP covers include: regulatory requirements, planning considerations, fuel storage, and fuel dispensing.
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- RP 519 Recommendations for an Employee Performance Evaluation Program — This RP provides fleet managers with a basic set of forms and instructions for the assessment and evaluation of maintenance and support personnel. The reader must realize this Recommended Practice offers general guidelines only. A complete evaluation system must be structured to each operation.
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- RP 520 A/C System Refrigerant Flushing — Covers flushing material, equipment and procedures for flushing both CFC (R-12) and HFC (R-134a) charged vehicle cab A/C systems in service, repair or retrofit operations.
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- RP 521 Cost Items Needed to Determine a Fully Burdened Technician Labor Rate — Identifies items that should be used to determine fully burdened labor rates.
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- RP 522 Survey Development Guidelines — This management RP offers recommendations for developing and administering surveys.
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- RP 524 Advisory Annotation Guidelines — This RP offers recommendations for standardizing definitions for advisory annotation terms, such as “danger,” “warning,” etc.
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- RP 525 ISO 9002 Certification Considerations — This RP offers guidelines for fleets considering ISO 9002 certification.
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- RP 526 Guidelines for Shop Review Practices — This RP offers guidelines for shop review procedures.
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- RP 527 Vendor Selection Guidelines for Towing and Recovery — This RP offers guidelines for selecting towing and recovery vendors.
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- RP 528 Technician Certification Program Guidelines — This RP offers guidelines for establishing an in-house fleet technician certification program.

- RP 530 Fleet Guidelines for Parts Purchasing—This RP offers guidelines on parts purchasing.
- RP 531 Parts Inventory Management Guidelines—This RP offers guidelines for parts inventory management.
- RP 532 Model Year Introduction Guidelines—This RP offers guidelines for standardizing model year introductions of vehicles.
- *RP 534 Guidelines For Determining Vehicle Lift Productivity Efficiencies. — This proposed RP offers guidelines for determining the productivity efficiencies of vehicle lifts in a maintenance shop.

CHASSIS AND BRAKE SYSTEMS — S.6

- RP 602B Recovery Attachment Points for Trucks, Tractors, and Combination Vehicles — The purpose of this Recommended Practice is to help recovery professionals reduce the time necessary to recover vehicles from their immediate location of disablement, and avoid further damaging the vehicle during the recovery process. For recommendations on long-term towing of disabled or wrecked vehicles see TMC RP 626, "Heavy-duty Truck Towing Procedures." This Recommended Practice establishes the performance objectives of recovery attachment points. It is directed at Class 6, 7, and 8 on and on-off highway trucks, truck tractors, and tractor-trailer combinations (both conventional and cab-over configurations).
- RP 603C Fifth Wheel Mounting - Aftermarket — Provides information to assist in the safe installation of heavy-duty vehicle aftermarket stationary and sliding fifth wheels.
- RP 604B Brake Chambers for Air-Braked Vehicles — This RP us an update to TMC RP 604A, offering maintenance recommendations for air brake chambers.
- RP 605A Reconditioning Brake Shoes — This RP is intended to set standards for brake shoe specs that will ensure consistent performance required for a balanced brake system.
- RP 606A Brake Lining Procedures — Covers legal marking requirements for brake linings and explains these markings. Also discusses shoe and lining assembly and related procedures.
- RP 607B Service and Inspection of S-Cam Brake Systems — Serves as a thorough guide for the inspection and servicing of all heavy-duty S-cam air brake system components. The RP identifies all appropriate brake system nomenclature and explains how each component interacts to ensure maximum braking performance. It also defines tolerances for proper lining and drum performance.
- RP 608A Brake Drums and Rotors — Gives brake drum and rotor nomenclature and discusses brake drum and rotor maintenance, repair, identification, replacement, and brake drum problem diagnosis and correction.
- RP 609B Manual and Automatic Slack Adjuster Removal, Installation, and Maintenance — Provides information regarding the removal, installation, operation, maintenance, and selection of heavy-duty vehicle manual and automatic slack adjusters
- RP 610A Driveline Design Criteria — Provides workable guidelines for the evaluation of driveline designs and installations. Adherence to these recommendations should provide satisfactory truck driveline performance.
- RP 612B Pneumatic Brake Balance — Provides general guidelines for brake balance on tractors, trailers, and combination vehicles.
- RP 613 Brake System Torque Balance Test Procedure — Provides a method to determine the brake system torque balance for commercial vehicles.
- RP 614 Air Brake (Nylon Reinforced) Tubing & Fittings — Covers minimum requirements for fleet maintenance of air brake connections utilizing fractional inch nonmetallic tubing. Included are dimensional, performance, and identification requirements and specifications.
- RP 615 Hose Fitting Standard — Lists complete standards for SAE 45° flare seat fittings in sizes -4 through-12 and SAE 37° flare seat fittings in sizes -16 and above.
- RP 616 Uniform Labeling of Air Brake Valves — Provides a means of identifying vehicle air brake components with performance (input-output) characteristics. This labeling procedure (in accordance with SAE J1860) intends to identify and facilitate proper in-service valve replacement.
- RP 617A Contaminant Elimination Procedure for Tractor, Trailer or Dolly Air Brake Systems — This RP offers a procedure for eliminating contaminants from air brake systems.
- RP 618 Wheel Bearing Adjustment Procedure — This RP offers a procedure to achieve a verifiable

- wheel bearing end play of 0.001-0.005 inch (0.025-0.127 mm) for steer, drive, and trailer axle assemblies using conventional double-nut or single-nut systems.
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- RP 619A Air System Inspection Procedure — A complete inspection procedure to evaluate and correct truck air system problems.
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- RP 620B Front End Alignment Steering Geometry — Defines caster, camber, and knuckle pin inclination and toe-in specifications and describes the types of tire wear and vehicle handling problems that occur when these specifications are incorrect.
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- RP 621 Specifications/Communications — Tries to identify and clarify specification communication among component suppliers, equipment users, and manufacturers by providing step-by-step guidelines for improving communications and establishing the necessary procedures to ensure that equipment users will get the options they specify.
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- RP 622 Wheel Seal and Bearing Removal, Installation, and Maintenance — Defines practices and procedures to perform a wheel seal replacement that meets fleet performance requirements. Also includes procedures and standards for storage, handling, and installation of wheel seals and wheel bearings for heavy-duty vehicles.
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- RP 623 Uniform Diagnostics Guide for Heavy-duty Vehicle Power Steering Systems — Provides a uniform method of diagnosing heavy-duty truck and truck tractor power steering complaints and gives the maintenance technician general advice concerning the diagnosis and correction of commercial vehicle steering related problems.
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- *RP 624A Lubricant Fundamentals. — This proposed RP offers general information on the fundamentals of chassis-related lubricants.
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- RP 625 Brake Drum and Lining Compatibility — Provides guidelines for the inspection and maintenance of the foundation brake system. It addresses causes of premature lining wear and drum wear and other brake components
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- RP 626 Heavy-duty Truck Towing Procedures — Provides guidelines for equipment usage and to acquaint the tow truck operator with the general phases involved in heavy-duty truck towing. This should not be considered as a comprehensive guide to truck towing and recovery, but rather as a brief introduction to some of the problems involved.
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- RP 627 Brake Lining Structural Defects — Provides guidelines for identification of structural defects in brake linings in order to classify them into either an “out-of-service” category — as defined by the Commercial Vehicle Safety Alliance (CVSA) North American Uniform Out-of-Service Criteria — or an “in-service” category which would permit continued operation of the vehicle.
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- RP 628A Aftermarket Brake Lining Classification — This Recommended Practice provides information on judging the performance of aftermarket brake linings on 16.5 x 7-inch brakes when tested to the federally mandated, original equipment dynamometer test procedure contained in Federal Motor Vehicle Safety Standard 121.
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- RP 629 Brake Lining Contamination — This Recommended Practice identifies grease- and oil-contaminated brake lining conditions and provides guidelines for lining evaluation caused by such contamination.
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- RP 630 Air Compressor Diagnosing for Excessive Oil Consumption — This Recommended Practice is concerned with identifying the problems and describing possible solutions in attempting to troubleshoot excessive oil consumption in air compressors.
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- RP 631A Recommendations for Wheel End Lubrication — This RP is an update of RP 631, offering recommendations for wheel end lubrication for heavy-duty commercial vehicles.
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- RP 632 Matching Air Brake Systems — This Recommended Practice addresses vehicles with braking systems manufactured in accordance with Federal Motor Vehicle Safety Standard (FMVSS) 121 Docket 90-3. Specifically, it outlines some of the issues that could be encountered in vehicle combinations, where both pre- and post-Docket 90-3 vehicles are operated. It recommends maintenance practices for existing vehicles and specification details for new vehicles, that will enhance the brake performance of combination vehicles. The purpose of this Recommended Practice is to identify and address potential problems in mixing vehicles and brake systems manufactured pre- and post-Docket 90-3. It also advises fleet operators of the maintenance practices to be adopted for existing vehicles and to inform them regarding the specification and installation of braking equipment for new vehicles, so as to minimize any negative impacts of FMVSS 121 Docket 90-3 on vehicle operation.

- RP 633 Effects of Drivetrain Torsionals — This Recommended Practice is intended to inform fleet managers of a number of drivetrain torsional issues that must be considered when specifying drivetrains. This RP presents a hierarchy of high risk vehicle configurations and usages, lists the specific failure modes that are attributable to drivetrain torsionals, and suggests specific corrective actions that will result in enhanced durability and driver comfort levels. This RP is designed to supplement the information contained in TMC RP 610A, Driveline Design Criteria. The first two sections of this Recommended Practice alert users of the potential problems associated with some of today's vehicle configurations. The third section offers solutions to the identified problems.
- RP 634 Ride Height Concerns and Adjustment Procedures for Air Ride Suspensions — Various vehicle and/or suspension manufacturers' instructions sometimes can complicate the process of setting and maintaining proper ride height on tractors or trucks equipped with air ride suspensions. This Recommended Practice points out the potential problems caused by improper ride height and provides advice for maintaining proper adjustment of air ride suspensions. This Recommended Practice describes procedures for adjusting air ride suspension ride height and recommends that manufacturers clearly label correct ride height settings on the vehicle. This Recommended Practice applies to single and tandem drive axles equipped with air ride suspensions used on Class 6,7, and 8 vehicles. This Recommended Practice does not offer fleets recommendations regarding air ride suspension component type, size, or placement.
- RP 635 Long Stroke Brake Chambers — Provides fleets information on the use of long stroke brake chambers.
- RP 636 Specifying Auxiliary Retarders — Offers recommendations for specifying auxiliary retarders.
- RP 637 Tractor Air Dryer Guidelines — Offers recommendations for specifying, installing and maintaining tractor air dryers.
- RP 638 Heavy-duty Clutch Maintenance Guidelines — This RP offers maintenance recommendations for heavy-duty clutches.
- RP 639 Spec'ing Heavy-duty Clutches — This RP offers spec'ing and design recommendations for heavy-duty clutches.
- RP 640A Alternate Wheel Bearing Adjustment Systems — This RP offers information on alternate wheel bearing adjustment systems.
- RP 641 Maintenance Guidelines for Hydraulically Activated Clutches — This RP offers guidelines for maintaining hydraulically activated clutches.
- RP 642A Total Vehicle Alignment: Recommendations for Maximizing Tire and Alignment-Related Component Life — This RP offers comprehensive alignment guidelines for medium- and heavy-duty vehicles.
- RP 643 Air-Ride Suspension Maintenance Guidelines — This RP offers maintenance guidelines for air-ride suspension systems used on tractor chassis.
- RP 644 Wheel End Conditions Analysis Guide — This RP offers guideline on wheel end conditions and how to identify them.
- RP 645 Tie Rod Inspection and Maintenance Procedure — This RP offers guidelines on tie rod inspection and maintenance.
- RP 646 Driveline Fastener Preventive Maintenance — This RP offers guidelines on driveline fastener preventive maintenance.
- RP 647 Guidelines for Care and Use of Onboard Lubrication Systems — This RP offers guidelines for care and use of onboard lubrication systems.
- RP 648 Troubleshooting Ride Complaints — This RP offers a comprehensive guideline to diagnosing ride complaints in heavy-duty tractors and trucks.
- RP 649 Diagnostic Guidelines for Performance-Based Brake Testing — This RP offers troubleshooting guidelines for vehicles following unsuccessful testing using a performance-based brake tester.
- RP 650 Guidelines for Fifth Wheel Pre-Delivery Inspection, Preventive Maintenance and Troubleshooting — This RP offers guidelines for fifth wheel pre-delivery, inspection, PM and troubleshooting.
- RP 651 Steer Axle Maintenance Guidelines—This RP offers guidelines for steer axle maintenance.
- RP 652 Service and Inspection of Air Disc Brakes—This RP offers guidelines on service and inspection of air disc brakes.
- RP 653 Fifth Wheel Coupling And Uncoupling Guidelines—This RP offers guidelines on fifth wheel coupling and uncoupling.
- RP 654 Torque Rod Selection and OEM Installation Guidelines for On-Highway Vehicles—This RP offers guidelines for torque rod selection and OEM installation.

RP 655	Drive Axle Maintenance Guidelines—This RP offers guidelines on drive axle maintenance.	RP 713B	Procedure for Hooking Double Trailers — Gives steps to properly hitch doubles with one person.
*RP 656	Hub and Spoke Wheel Fastener Maintenance. — This proposed RP offers guidelines on hub and spoke wheel fastener maintenance.	RP 714	Piggy-Back Trailers — Gives names of four Truck Trailer Manufacturers Association Recommended Practices that assist in spec'ing piggy-back options for trailers.
TRAILERS, BODIES AND MATERIAL HANDLING — S.7			
RP 701	Mud Flap Mounting Brackets and Drilling Pattern — Diagrams mud flap mounting brackets and mud flap drilling pattern for mud flap installation.	RP 715	Truck Trailer (Van) Front and Rear Construction for Trailer on Flatcar Service — Establishes general design load specifications intended as minimum requirements for front and rear end structures of van trailers for use in over-the-road and trailer on flatcar applications.
RP 702C	Trailer Lamp and Reflector Placement — Covers lamp and reflector replacement on all van, open top, reefer, platform, pole, convertible side, grain and dump trailers, and tankers.	RP 716	Kingpin and Upper Coupler Requirements for Trailers — Gives kingpin and upper coupler requirements for trailers when specified for TOFC service.
RP 703B	Electrical and Gladhand Connector Placement — Details placement of air and electrical connectors on van, open top, reefer, platform, and pole trailers.	RP 717A	Guidelines for Infrared Thermographic Testing of Refrigerated Trailers — Discusses infrared scanning of refrigerated trailers for air leaks and/or insulation irregularities. This Recommended Practice covers locating a scanning service, scanning equipment types, scanning procedures, effects of weather conditions, and scanning documentation.
RP 704B	Heavy-duty Lighting Systems for Trailers — Covers general design and installation of heavy-duty wiring and lighting for truck trailers and supplements FMVSS and DOT Federal Motor Carrier Safety Regulations.	RP 718A	Refrigerated Transportation Foundation Method for Classification of Controlled Temperature Vehicles — This Recommended Practice establishes a method for classifying controlled temperature vehicles and domestic containers.
RP 705A	Standard Trailer Landing Gear Mounting Pattern — Provides a template to produce a standard trailer mounting bracket to which all models of landing gear can be applied, using a standard 5/8-inch hole for mounting.	RP 720	Emergency Contaminant Removal From a Refrigeration Unit — Establishes a process for cleaning trailer reefer systems that have become contaminated internally, i.e., loss of refrigerant coupled with system contamination from dirt and moisture.
RP 707A	Rear Bumper Dimensions — Standardizes ICC bumper dimensions.	RP 721	Lifting Converter Dollies — Provides guidelines for the safe lifting and manual handling of single axle and single point hitch (Type A) converter dollies equipped with support legs which cannot be cranked up and do not have casters.
RP 708A	Trailer Axle Alignment — Discusses how to properly align trailer axles to minimize tire wear while promoting vehicle safety.	RP 722	Large Vehicle Conspicuity Markings — Establishes the minimum design, configuration, and dimensional criteria for reflective marking systems to improve the night conspicuity of large vehicles.
RP 709	Hubcap Standardization: Bolt-on Type—Diagrams the Type I and Type II bolt-on hubcap, two types recommended for use on trailer axle hubs.	RP 723A	12-Year Life Domestic Laminated Hardwood Flooring For Dry Freight Van Trailers — Designed to assist in the writing of specifications for domestic laminated hardwood flooring which will provide 12 years of useful service. Addresses preparation, construction, and finishing of the wood component only, and does
RP 710	Overhead Door Selection, Installation, and Maintenance for a Dry Van or Body — Provides specifications and covers maintenance for dry van or body overhead door systems that will provide 12 years of service only with routine lubrication and adjustment.		
RP 711	12-Year Life Swing-Type Dry Freight Van Trailer Doors — Gives manufacturing specifications for dry freight van trailer swing (hinged) doors which will provide 12 years of useful service with routine maintenance that includes repair or replacement of door gaskets.		

- not address the floor as a structural system within the dry freight van.
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- RP 724 Fiberglass Reinforced Plywood (FRP) Construction Specifications — Intended to provide minimum standards for fleet operators purchasing fiberglass reinforced plywood (FRP) trailers and van bodies. It is also intended to inform fleet operators of the availability of various FRP options. It considers the structural components of FRP trailers and van bodies as a total system. Specifications considered include plywood core and fiberglass thickness and construction, fiberglass finish coats, scuff liners, bottom side rails, fasteners, and moisture protection.
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- RP 725 FRP Panel Maintenance and Repair — This Recommended Practice is designed to serve as a guide for the proper care, maintenance and repair of fiberglass reinforced plastic (FRP) panels used in the trucking industry.
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- RP 727 Liftgate Specifications and Installation — Designed to assist equipment users in specifying rear- or side-mounted, hydraulic liftgates. It covers liftgates used on straight trucks and combination vehicles. It addresses proper equipment identification, proper vehicle specification and liftgate installation, and proper identification of liftgate operating specifications (i.e., number of performance cycles, driving [recharge] time, proper power supply, etc.)
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- RP 728 Trailer Axle Maintenance — Offers guidance on improving the efficiency and performance of trailer axle equipment and its maintenance. It specifically covers welding hardware to axles, installing axles and associated components, inspecting axles and associated components, and lubricating axle components.
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- RP 729 Trailer Fastener Specification — Offers fleets guidance on trailer fastener specification.
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- RP 730 Air Line Antifreeze Recommendations for Trailer Air Brake Systems — Offers fleets guidance on the use of air line antifreeze for trailer air brake systems.
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- RP 731A Lube Free Coupling Guidelines — This RP offers guidelines for lube-free tractor trailer coupling systems.
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- RP 732 Trailer Rear Impact Guard Repair Guidelines — This RP offers repair guidelines for trailer rear impact guards.
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- RP 733 Liftgate Preventive Maintenance Inspection — This RP offers guidelines for liftgate preventive maintenance and inspection.
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- RP 734 Van Moisture Contamination Guidelines — This RP offers guidelines for minimizing van moisture.
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- RP 735 Battery Recommendations for Engine Powered Material Handling Vehicles — Provides nine recommendations and standards to minimize battery problems in material handling vehicles.
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- RP 736 Repair, Section, and Replacement of Longitudinal Van Rails — This RP offers guidelines for repair, section and replacement of longitudinal van rails.
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- RP 737 Recommendations for a Universal Replacement Horizontal Rear Impact Guard — This RP offers recommendations for a universal replacement impact guard.
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- RP 738 Spec'ing Guidelines for Cargo Securement Systems Used on Flatbed Vehicles — This RP offers guidelines for spec'ing cargo securement systems used on flatbeds.
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- RP 739 Maintenance, Inspection, and Operating Guidelines for Cargo Securement Systems Used on Flatbed Vehicles. Description is self-explanatory.
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- RP 740 Corrosion Protection From Dissimilar Metals — This RP offers guidelines for corrosion prevention related to contact between dissimilar metals.
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- RP 741 Guidelines for Flatbed, Van Trailer, and Truck Body Entry and Egress — This RP offers guidelines on trailer entry and egress.
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- RP 742 Minimal Specifications for Van Trailers Shipped on Railcars — This RP offers recommendations for spec'ing van trailers to be shipped on railcars.
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- RP 743 Cargo Securement Systems For Van-Type Trailers And Truck Bodies— This RP offers recommendations for cargo securement systems for van-type trailers and bodies.
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- RP 744 Pintle Hook Maintenance Guidelines— This RP offers maintenance guidelines for pintle hooks.
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- RP 745 Inspection And Maintenance Guidelines For Cargo Securement Systems Used With Van-Type Trailers And Truck Bodies— This RP offers inspection and maintenance guidelines for cargo securement systems used on van-type trailers and bodies.
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- RP 746 Drawbar Length Considerations— This RP offers guidelines for drawbar length.
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- RP 747 Drawbar Eye Maintenance Guidelines— This RP

offers guidelines on drawbar eye maintenance.

RP 748	Trailer Refrigeration Unit Preventive Maintenance Inspection Guidelines—This RP offers preventive maintenance inspection guidelines for trailer refrigeration units.
RP 749	Composite Van Trailer Repairs—This RP offers guidelines for repairing composite van trailers.
RP 750	Upper Coupler Inspection Guidelines—This RP offers guidelines for inspecting upper couplers.
RP 751	Safety Chains and Attachments—This RP offers guidelines on safety chains and attachments.
RP 752	Forklift Preventive Maintenance Inspection Guidelines—This RP offers guidelines on forklift preventive maintenance inspection.
*RP 753	Guidelines for Liftgate Decals. — This proposed RP offers guidelines for designing liftgate advisory decals.
*RP 754	Liftgate Charging and Power Circuits. — This proposed RP offers design guidelines for liftgate charging and power circuits.

COST CONTROL METHODS — S.8

RP 801C	Bar Coding Guidelines — This updated Recommended Practice provides guidelines and minimum performance criteria for the use of bar code technology for parts identification and inventory tracking in the trucking industry. The use of Symbology 3 of 9 and UPC Symbology are discussed.
RP 802D	TMC/ATA Vehicle Maintenance Reporting Standards (VMRS 2000) — Provides an outline of TMC/ATA VMRS 2000, its advantages to the fleet operator, and guidance on the basic requirements for implementation of the VMRS 2000 System.
RP 803	Pre-Service Vehicle Inspection — Provides a form containing most standard items to be inspected prior to a truck or tractor being put in service.
RP 804	Labor Productivity Measurement — Provides a basic set of standard forms and instructions to aid measurement of maintenance shop productivity.
RP 805	Parts Vendor Performance Evaluation — Designed to help fleet maintenance managers choose vehicle parts vendors that provide efficient service in a fair and impartial manner. Also provides information to help measure the

quality of service provided parts vendors.

RP 806	Service Vendor Performance Evaluation — Guides the fleet maintenance department in rating the quality of service provided by outside service vendors and assists fleets in making objective decisions when choosing among competing vendors. Intended for internal use of the maintenance operation and in no way is to be used in a collaborative manner among fleet users. Use of this rating mechanism is intended to streamline the process of selecting a service vendor for routine or emergency repairs.
RP 807A	Universal Equipment Claim Process — This RP offers guidelines for standardizing claim processing.
RP 808	EDI Guidelines for Aftermarket Parts Purchasing — This RP offers guidelines for aftermarket parts purchasing transactions using electronic data interchange.

ENERGY CONSERVATION — S.11

RP 1102	TMC/SAE In-Service Fuel Consumption Test Procedure - Type II — Provides a standardized test procedure for comparing the in-service fuel consumption of two conditions of a test vehicle or of one test vehicle to another when it is not possible to run two test vehicles simultaneously. Also included is the final report of the Type II Truck and Bus Fuel Economy Demonstration which validated the test procedure.
RP 1103	TMC/SAE Fuel Consumption In-Service Test Procedure Recommended Practice - Type III — Provides a one-day standard test procedure for comparing the fuel economy of components or systems of the type which can be switched from one vehicle to another in a short period of time.
RP 1104	Computer Application Technology — Offers suggestions for parameters to consider when running truck and engine manufacturers' computer simulations to assist in vehicle spec'ing.
RP 1105A	Idling Limiting Systems — This RP is an update of RP 1105, which offers guidelines on spec'ing idle limiting systems.
RP 1106	Evaluating Diesel Fuel Additives for Commercial Vehicles — Provides performance testing and supplier information to educate and help commercial vehicle operators select from among the various fuel additives and suppliers of additives that claim fuel economy and other performance benefits.

- RP 1107 Spec'ing Drivetrains — Provides truck buyers with procedures to help determine drivetrain specs that will enable the trucks to get maximum fuel economy for a given set of operating conditions and performance requirements.
- RP 1108 Analysis of Costs from Idling and Parasitic Devices for Heavy Duty Trucks — This Recommended Practice identifies sources of cost associated with engine idling and provides methods for estimating these costs, including a simple method for determining the horsepower demand of optional accessories for truck/tractor trailer combinations.
- RP 1109 Type IV Fuel Economy Test Procedure — This Recommended Practice provides a test procedure for comparing the fuel consumption of two vehicles of similar capabilities, or one unit of a combination vehicle to the same unit of another combination vehicle. This procedure also provides for evaluation of the effects of certain components or systems on fuel economy.
- RP 1110 Aerodynamic Devices: Inspection and Maintenance Procedures — The purpose of this Recommended Practice is to describe the effects that aerodynamic drag reduction devices can have on truck and combination vehicle operation and maintenance.
- RP 1111 Relationships Between Truck Components and Fuel Economy — Helps equipment users understand the relationships between component specification and fuel economy.
- RP 1112 Lightweight Components Effect on Fuel Economy — Describes the effect of lightweight components on fuel economy. Useful aid in vehicle specification.
- RP 1113 Guidelines for Driver Incentive Programs — Offers guidelines for the successful implementation of driver incentive programs.
- RP 1114 Driver's Effect on Fuel Economy — Describes driver's effect on vehicle fuel economy and offers recommendations on improving driver performance.
- RP 1115 Guidelines for Qualifying Products Claiming a Fuel Economy Benefit — This RP offers guidelines for qualifying products claiming a fuel economy benefits.
- RP 1116 Diesel Fuel Additive Functional Groups and Winter Operability — This RP offers information when considering spec'ing and using diesel fuel additives for improving winter operability.

TOTAL VEHICLE ELECTRONICS — S.12

- RP 1201 Joint TMC/SAE Recommended Practice for Serial Data Communications Between Microcomputer Systems in Heavy-duty Vehicle Applications — The purpose of this Recommended Practice is to define a general-purpose serial data communication link that may be utilized in heavy-duty vehicle applications. It is intended to serve as a guide toward a standard practice to promote serial communication compatibility among microcomputer-based modules. The primary use of the general-purpose communications link is expected to be the sharing of data among stand-alone modules to cost effectively enhance their operation.
- RP 1202B Offboard Diagnostic Standards — This RP is an update to RP 1202, dealing with off-board vehicle diagnostic standards.
- RP 1203A Electronic Term Standardization — This Recommended Practice provides definitions for the numerous electronic terms and acronyms used throughout the trucking industry by vehicle manufacturers and others.
- RP 1204 Mechanic's Electrical Skill Evaluation — Prepared as an aid to fleets in evaluating the electrical skill level of their mechanics. The Evaluation results are intended to be used to determine the required training programs needed for the mechanic to properly maintain truck electronic control systems.
- RP 1205 Heavy-duty Vehicle Chassis Dynamometer Test Procedure — Provides a standard procedure for chassis dynamometer testing of heavy-duty vehicles for the purpose of determining power delivered through the drive tires. It also provides a method for correcting observed power to reference test conditions and explains how to analyze test data.
- RP 1206 Placement and Structural Requirements For Heavy-duty Navigation/Communication Devices — Provides guidelines to original equipment manufacturers for provision of power and ground connections in the vehicle cab to support end-user installed trip recorders, mobile communication equipment, etc. Designed to cover connection of such devices to 12-volt negative ground electrical systems requiring 20 amps or less of unswitched power or 15 amps of switched power, the in-cab accessory power interface is intended to simplify end-user installation, maintenance, and transfer of user-installed electronic and electrical equipment by providing power and ground connection access.

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- RP 1207 Cab Electronic Accessory Power Interface — This Recommended Practice established general guidelines for OEM vehicle electrical power wiring design to support the proper installation of quote “add-on” equipment by end-users.
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- RP 1208B PC Service Tool: Hardware Selection Guidelines — Intended to help trucking equipment users understand how various PC-based maintenance service applications software can influence the type of PC hardware (personal computers) necessary to best fit their operation. It also aims to promote compatibility among hardware and software products developed for vehicle diagnosis and service.
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- RP 1209 Sensor Diagnostics — Covers troubleshooting, maintenance and installation issues regarding many types of vehicle sensors.
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- RP 1210B Windows Communication API — This RP is an update to RP 1210, which offers a recommended standardized application program interface for PC-based maintenance/diagnostic software using Microsoft Windows.
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- RP 1211 Electronic Dash Display Guidelines — Establishes a standard protocol for transmission of electronic messages to and from a dash-mounted display device.
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- RP 1212A PC-to-User Interface Recommendations for Electronic Engines — This RP offers guidelines for developing user interfaces for engine-related software packages to minimize technician training requirements.
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- RP 1213 Vehicle to Off-Board Computing Devices Component User Interface Guidelines — This RP offers guidelines for component user interface between the vehicle and off-board technology.
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- RP 1214 Guidelines for Event Recording: Collection, Storage & Retrieval — This RP offers guidelines for event data recording, storage and retrieval.
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- RP 1215 Software Compatibility Guidelines — This RP offers guidelines for software compatibility between service programs.
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- RP 1216 Vehicle to Office Data Communications — This RP offers design and specification recommendations for establishing industry voluntary practices for vehicle to office data communications as it applies to on-board technologies.
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- RP 1217 Tractor Trailer Interface Guidelines — This document defines the minimum requirements for a new and optional replacement / supplemental connector for the J560 connector. The new connector will allow for increased power between the tractor and trailer and facilitate data communications. This connector will be used in the short term to allow for growth of new technical advancements, and long term as a possible replacement for the existing J560 connector. The document defines the minimum requirements as seen by the industry and will be provided to SAE to facilitate the development/specification for a new connector. It is assumed that every effort will be made to keep this new solution cost effective. This intention and sole purpose of this RP to provide a recommendation for SAE in their selection criteria and in no way endorses, recommends, approves, promotes, or favors the preferential treatment of one vendor over another.
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- RP 1218 Guidelines for Remote Disablement of Commercial Vehicles—This RP offers guidelines for remote disablement of commercial vehicles.
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- RP 1220 Guidelines For Collision Warning And Adaptive Cruise Control Safety Devices For Use On Heavy Trucks—This RP offers guidelines for collision warning and adaptive cruise control safety devices used on Class 7-8 trucks.
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- RP 1221 Guidelines For Lane Departure Warning Systems—This RP offers guidelines for lane departure warning systems.
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- RP 1222 Guidelines For Heavy-Duty Vehicle Stability Systems—This RP offers guidelines for heavy-duty vehicle stability systems.
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- LIGHT- AND MEDIUM-DUTY TRUCKS — S.14**
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- RP 1401 Cab and Body Preventive Maintenance Inspection Procedures — This Recommended Practice offers a standardized, effective preventive maintenance (PM) procedure for truck bodies using a checklist worksheet that covers all popular types of light- and medium-duty cabs and bodies. This RP is one section of a comprehensive PM manual for light- and medium-duty vehicles (Class 2-6 vehicles).
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- RP 1402 Tire Selection for Commercial Light Trucks — This Recommended Practice is designed to assist fleets in the selection of tires for Class 2-5 vehicles used in commercial applications. The RP explains tire size designations; tire speed and load index designations, and tire construction options.
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- RP 1403 Determining Engine Oil Drain Intervals for Light- and Medium-Duty Trucks — This Recommended Practice is designed to help fleets establish
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optimum oil change intervals for light- and medium-duty vehicles used in short-haul, pickup and delivery, and/or “peddle-type” applications. This Recommended Practice applies to gasoline, diesel, and other alternatively fueled internal combustion engines used in Class 2-6 vehicles.

- RP 1404 Wiring System Standards for the Light- and Medium-Truck Chassis/Body Interface — Establishes recommendations for wiring systems standardization between light/medium truck chassis and bodies.
- RP 1405 Minimizing Dirt and Water Intrusion in Cargo Areas — Offers fleets guidance on how to minimize dirt and water intrusion in light/medium vehicle cargo areas.
- RP 1406 Basic Electric/Electronic Diagnostic Procedures — Offers recommendations for basic electrical/electronic troubleshooting procedures for Class 2-6 vehicles.
- RP 1407 Hydraulic Brake Maintenance Guidelines — Offers technicians guidelines in the proper inspection, diagnosis, and repair of hydraulic brake systems used in light- and medium-duty vehicles.
- RP 1408 Cab Interior Noise Standard for Light- and Medium-Duty Walk-in Vans — This RP establishes equipment user-driven performance guidelines for cab interior noise for light- and medium-duty walk-in vans.
- RP 1409 Light- and Medium-Duty Automatic Transmission Operation, Design and Specifications — This RP offers spec'ing and operation guidelines for LMV automatic transmissions.
- RP 1410 Maintenance Guidelines for Light- and Medium-Duty Automatic Transmissions — This RP offers maintenance guidelines for LMV automatic transmissions.
- RP 1411 Light- and Medium-Duty Automatic Transmission Fluid Guidelines — This RP offers spec'ing and usage guidelines for LMV automatic transmission fluid.
- RP 1412 Walk-in Van Electrical System Routing and Load Requirements — This RP offers design guidelines for electrical system routing and load requirements for walk-in van applications.
- RP 1413 Dry Freight Body Components — This RP offers guidelines for maintaining/spec'ing dry freight bodies.
- RP 1414 Guidelines for Evaluating Preventive Maintenance Programs for Light- & Medium-Duty Ve-

hicles — This RP offers guidelines for evaluating preventive maintenance programs for Class 2-6 vehicles.

- RP 1415 Hydraulic Brake Rotor Durability and Diagnostic Guidelines — This RP offers guidelines for durability and troubleshooting of hydraulic brake system rotors.
- RP 1416 Guidelines for Used Engine Coolant Analysis—This RP offers guidelines for used engine coolant analysis.
- RP 1417 Lubricant and Fluid Sampling Guidelines—This RP offers guidelines for lube and fluid sampling.
- RP 1418 Effects of Drivetrain Torsionals on Light- and Medium-Duty Vehicles—This RP offers guidelines on the effects of drivetrain torsionals on Class 2-6 vehicles.
- RP 1419 Trailer Towing With Light- and Medium-Duty Vehicles—This RP offers guidelines on trailer towing with Class 2-6 vehicles.
- *RP 1420 Fluid Analysis For Class 2-6 Vehicles. — This proposed RP offers guidelines for fluid analysis pertaining to Class 2-6 commercial vehicles.

SPECIALTY VEHICLES — S.15

- RP 1501 Preventive Maintenance Guidelines for Specialty Vehicle Hydraulic Systems — This RP offers preventive maintenance guidelines for hydraulic systems used on specialty vehicles.
- RP 1502 Spec'ing Guidelines for Hydraulic System Fluids, Hoses, and Filters — This RP offers spec'ing guidelines for hydraulic system fluids, hoses and filters used on specialty vehicles.
- RP 1503 Brake Maintenance Guidelines for Severe Vocational Applications—This RP offers maintenance guidelines for braking systems used in severe-service vocational applications, such as refuse operations.
- RP 1504 Refuse Chassis-to-Body Electrical System Circuit and Load Requirements—This RP offers guidelines for chassis-to-body electrical system circuit and load requirements for refuse vehicles.
- RP 1505 Torque Rod Selection and OEM Installation Guidelines for Vocational Vehicles—This RP offers torque rod selection and installation guidelines for vocational vehicles.
- RP 1506 Torque Rod Maintenance Guidelines for Vocational Vehicles—This RP offers torque rod maintenance guidelines for vocational vehicles.

RP 1507 Recommendations for a J1939 Network Interface Strategy—This RP offers recommendations for developing J1939 network interfaces for vocational vehicles.

OFFBOARD DATA SYSTEMS — S.22

RP 2201 Transportation and Linerless Label Media Specification — This RP offers recommendations for specifying transportation and linerless label media.

RP 2202 Transportation and Linerless Printer Product Specification — This RP offers recommendations for specifying transportation and linerless printer product.

RP 2203 Trailer Tracking Interface Standard — This RP standardizes trailer tracking interfaces.

RP 2204 Guidelines for Wireless Data Connectivity at Fixed Points of Presence—This RP offers guidelines for wireless data connectivity and fixed points of presence such as truckstops.