

## Engine Diagnostic Tester

Based on the premise that simple problems should always be checked first, this practical, hands-on book/CD-ROM/ worktext package introduces the diagnosis and troubleshooting of automotive engine control systems. It serves users as a single source for information on digital storage oscilloscopes, fuel injection and ignition system diagnoses, five-gas exhaust analysis, emission testing, and more -- with a very technical but easy-to-read and understand presentation. Specific chapter topics cover the diagnostic process; diagnostic trouble code retrieval; technical service bulletins and scan tool data; digital multimeters and digital storage oscilloscopes; advanced starting and charging systems diagnosis; ignition system diagnosis; engine fuels and driveability diagnosis; advanced computer sensor diagnosis; computerized carburetor diagnosis; advanced electronic fuel-injection diagnosis; emission control device diagnosis; five-gas exhaust analysis; engine condition diagnosis; and symptom-based diagnosis.

AUTOMOTIVE ENGINE DIAGNOSTICS, REPAIRS AND MANAGEMENT TECHNOLOGY: The Automobile Engine is the power house of the vehicle; it is responsible for supplying power to every system and component in the vehicle. Proper understanding of its operations is necessary for every mechanic and users. The diagnosis of automobile engines related fault is one of the most difficult and complex job to the automobile mechanic or technician, many make wrong guesses or mistakes. This study is to help eliminate such difficulty faced by auto techs and mechanics.

CONTENT:1.AUTOMOBILE ENGINE: DIAGNOSTICS, MANAGEMENT AND REPAIR TECHNOLOGY.2.A CONVERSATION BETWEEN THE AUTO CONSULTANT AND A MECHANIC.3.SOME CLASSIFICATIONS OF AUTOMOBILE ENGINES.4.COMPONENTS AND SYSTEMS ASSOCIATED WITH THE ENGINE.5.COMPONENTS AND SYSTEMS THAT CONTROLS ENGINE PERFORMANCE.6.IGNITION SYSTEM.7.FUEL SYSTEM.8.ECU.9.COOLING SYSTEM.10.EXHAUST SYSTEM.11.ENGINE ELECTRICALS.12.CRANKING OF THE ENGINE.13.WORKING PRINCIPLE OF THE ENGINE.14.LUBRICATION. 15.THE POWERTRAIN.16.TRANSMISSION.17.TYPE OF TRANSMISSION. 18.FAULTS ASSOCIATED WITH THE TRANSMISSION SYSTEM.19.THE ECU AND TRANSMISSION.20.AUTOMOTIVE COMPUTERIZED AND ELECTRICAL DIAGNOSTICS.21.TIPS FOR DIAGNOSING ENGINE RELATED PROBLEMS.22.HOW TO PROLONG YOUR CAR ENGINE LIFE. 23.CHECK ENGINE LIGHT.24.CODE READERS AND DIAGNOSTIC SCANNERS.25.WARNING LIGHTS.26.AUTOMOBILE DIAGNOSTIC TECHNOLOGY IN AFRICA. 27.IMPORTANCE OF EVENT HISTORY IN AUTOMOBILE DIAGNOSTICS TECHNOLOGY. 28.IMPORTANCE OF REGULAR DIAGNOSTICS OPERATION.29.MECHATRONICS IN AUTOMOBILE DIAGNOSTICS TECHNOLOGY.30.ENGINE COMPUTERISED DIAGNOSTICS.31.HOW TO USE A DIAGNOSTIC TOOL/SOFTWARE.32.STEP BY STEP DIAGNOSTIC PROCEDURE.33.POWERTRAIN CONTROL MODULE (PCM).34.GENERIC DIAGNOSTIC TROUBLE CODES (DTC).35.QUIZ.36.GENERIC DIAGNOSTIC TROUBLE CODE (DTC) AND DESCRIPTIONS.

AUTOMOTIVE COMPUTERIZED AND ELECTRICAL DIAGNOSTICS TECHNOLOGY is a book that deals with the technology behind computerized and electrical diagnosis of systems and components in the vehicle. This book provides theories of the operations of the On-Board Diagnostic (OBD) protocol; which include the OBD I and OBD II protocol.This book is present a practical approach to automotive diagnostic technology, with step by step analysis.The book also entails the use of various kind of diagnostic tools for various diagnostics operations, the terminology involves in the diagnostic procedure and also the technology behinds it operation.The render step by step procedures of diagnostics operations which is compatible for all kind of diagnostic tool, with necessary advices on how to perform the operations. It also touches all kind of diagnostic tools and diagnostics operation available in the automotive technology industry.This book also cover aspect such as Electronic Control Unit (ECU) reprogramming and repairs, it involves reprogramming of various systems and components in the vehicle.Some key topics in this book involves:1. AUTOMOTIVE DIAGNOSTICS TECHNOLOGY.2. THE ON-BOARD DIAGNOSTICS (OBD I) SYSTEM/PROTOCOL. 3. HOW TO DIAGNOSE USING OBD I PROTOCOL.4. ON-BOARD DIAGNOSTIC (OBD II) SYSTEM/PROTOCOL.5. DIAGNOSTIC TOOLS/SCANNERS.6. ELM327.7. LIMITATIONS OF ELM327.8. ELECTRONIC CONTROL UNIT (ECU) AND SENSORS.9. CONTROLLER AREA NETWORK (CAN).10. CHECK ENGINE LIGHT.11. CODE READERS VERSUS DIAGNOSTIC SCANNERS.12. CURRENT AND STORED FAULTS CODES.13. SOFTWARE/APPLICATIONS FOR DIAGNOSTICS TOOLS.14. CRACKED SOFTWARE VERSION AND CLONED SCAN TOOLS.15. IMMOBILIZERS.16. VIN- VEHICLE IDENTIFICATION NUMBER.17. SCN- SOFTWARE CALIBRATION NUMBER coding.18. MULTIPLEXING.19. WARNING LIGHTS.20. SENSORS AND APPLICATIONS.21. APPLICATION OF SENSORS IN BRAKING AND STABILITY SYSTEM OF VEHICLES.22. AUTOMOBILE DIAGNOSTIC TECHNOLOGY IN AFRICA (TAKING NIGERIA AS A CASE STUDY). 23. IMPORTANCE OF EVENT/HISTORY RECORDS IN AUTO DIAGNOSTICS TECHNOLOGY.24. IMPORTANCE OF REGULAR DIAGNOSTICS OPERATION.25. MECHATRONICS IN AUTOMOBILE DIAGNOSTICS TECHNOLOGY. 26. ELECTRIC VEHICLES.27. CLASSIFICATION AND FEATURES OF DIAGNOSTIC TOOLS/SCANNERS.28. GENERIC FAULT CODES.29. CHOOSING A DIAGNOSTIC TOOL/SCANNER.30. HOW TO USE A DIAGNOSTIC TOOL/SOFTWARE.31. STEP BY STEP DIAGNOSTIC PROCEDURE.32. REPROGRAMMING OF SYSTEMS AND COMPONENTS IN THE VEHICLE.33. STEPS TO REPROGRAM THE AIRBAG SYSTEM.34. IMMOBILIZER AND ECU REPROGRAMMING.35. PIN GENERATION FOR REPROGRAMMING.36. HOW TO REPROGRAM KEY TO THE IMMOBILIZER AND ECU.37. HOW TO GENERATE PASSCODE OR PIN FROM THE MANUFACTURER OR SERVICE PROVIDER.38. HOW DOES THE IMMOBILIZER SYSTEM WORKS.39. HOW TO DETECT AND DEAL WITH FAULTS IN THE IMMOBILIZER SYSTEM.40. VARIOUS FAULTS IN THE IMMOBILIZER SYSTEM AND SOLUTION.41. LIMITATIONS OF SOME DIAGNOSTIC TOOLS ON SCANNING AND REPROGRAMMING THE IMMOBILIZER SYSTEM.42. HOW TO REPROGRAM THE IMMOBILIZER SYSTEM. 43. HOW TO KNOW AN IMMOBILIZER UNIT IS FAULTY.44. HOW TO KNOW A FAULTY ECU.45.

DIAGNOSTIC TOOL/SOFTWARE FOR ECU/IMMOBILIZER REPROGRAMMING.46. ELECTRICAL ERASABLE PROGRAMMABLE READ ONLY MEMORY-EEPROM.47. ECU MAPPING.48. ECU TURNING.49. POWERTRAIN CONTROL MODULE (PCM).50. GENERIC DIAGNOSTIC TROUBLE CODES (DTC).51. GENERIC DIAGNOSTIC TROUBLE CODES (DTC) WITH THEIR DESCRIPTION.

This book is a printed edition of the Special Issue "Raspberry Pi Technology" that was published in Electronics

Standardization of Automotive Diagnostic Systems

Stories from the Road 6

A Guide for the Penetration Tester

Diagnostic Strategies of Modern Automotive Systems

Stories from the Road 9

Modern cars are more computerized than ever. Infotainment and navigation systems, Wi-Fi, automatic software updates, and other innovations aim to make driving more convenient, but they haven't kept pace with today's more hostile security environment, leaving millions vulnerable to attack. The Car Hacker's Handbook will give you a deeper understanding of the complex embedded software in modern vehicles. It begins by examining vulnerabilities and providing detailed explanations of communications over the CAN bus and between devices and systems. With your understanding of a vehicle's communication network, you'll learn how to intercept data and perform specific hacks to track vehicles, unlock doors, glitch engines, flood communications, and more. On low-cost, open source hacking tools such as Metasploit, Wireshark, Kayak, can-utils, and ChipWhisperer, The Car Hacker's Handbook will show you how to: -Build an accurate threat model -Reverse engineer the CAN bus to fake engine signals -Exploit vulnerabilities in diagnostic and data-logging systems -Hack the ECU and other firmware and embedded systems -Feed infotainment and vehicle-to-vehicle communication systems -Override factory settings with performance-tuning techniques -Build physical and virtual test benches to try out exploits. If you're curious about automotive security and have the urge to hack a two-ton computer, make The Car Hacker's Handbook your first stop.

We are entering a new era—an era of impact. The largest intergenerational transfer of wealth in history will soon be under way, bringing with it the potential for huge increases in the value of impact. Good to Great: The Art of Strategic Leadership shows how nonprofits can apply the principles of strategic leadership to attract greater financial support and leverage that funding to maximum effect. As Good to Great: The Art of Strategic Leadership, his foreword, this book offers "a detailed roadmap of disciplined thought and action for turning a good nonprofit into one that can achieve great impact at scale." William F. Meehan identifies seven essential components of strategic leadership that set high-achieving organizations apart from the rest of the nonprofit sector. Together, these components form an 'impact framework' that organizations must build, tune, and fuel if they hope to make a real difference in the world. Drawing on decades of teaching, advising, grantmaking, and research, Meehan and Jonker provide a guide that executives, staff, board members, and donors can use to jumpstart their own performance and to achieve extraordinary results for their organization. Along with setting world examples, the authors outline common management challenges faced by nonprofits, showing how these challenges differ from those faced by for-profit businesses in important ways. By offering crucial insights on the fundamentals of nonprofit management, this book will help leaders equip their organizations to fire on all cylinders and unleash the full potential of their impact. Visit [www.engineofimpact.org](http://www.engineofimpact.org) for additional information.

The features and amenities we've come to expect from our automobiles are achieved through onboard electronic control units which are connected together by bus systems for the purpose of communication (communication). Off-board communication technologies support diagnostic communication between external test equipment (OBD scan tools, HiL test systems, flash stations, workshop equipment) and automotive control units. This volume explains the basics of communication principles, protocols, and various bus systems such as CAN, LIN, FlexRay, and MOST. A detailed description of the diagnostic protocol UDS (Unified Diagnostic Services) is followed by the structure of external test equipment based on the ASAM MCD system, the ISO specification of MVCI (Modular Vehicle Control Interface) and the ODX format (Open Diagnostic Data Exchange) in minute detail. For clarity, we have included several practical examples from various stages of the process chain, including programming hardware-in-the-loop systems, reprogramming by flash download to a PDA-based OBD Scan Tool, and workshop testers.

From workhorse to racehorse, the big-block Chevy provided the power demands of the mid-'60s. used in everything from medium-duty trucks to Corvettes, these engines are worth the effort. This book! Clear, concise text guides you through each engine-rebuilding step. Includes complete specifications and more than 500 photos, drawings, charts and graphs. Covers troubleshooting, reconditioning and engine assembly. Tells you how to do a complete overhaul or a simple parts swap. One whole chapter on parts identification tells how to interchange parts for improved performance. Includes comprehensive specifications and casting numbers.

Automotive Diagnostic Systems

Everyone's Guide to Buying a Used Car and Car Maintenance

Parentology

An Automotive Case Studies Series

Today's Technician: Automotive Electricity and Electronics

Diagnostic Communication : Technology and Applications

The Challenge Built to Last, the defining management study of the nineties, showed how great companies triumph over time and how long-term sustained performance comes from the DNA of an enterprise from the very beginning. But what about the company that is not born with great DNA? How can good companies, mediocre companies, even bad ones achieve enduring greatness? The Study For years, this question preyed on the mind of Jim Collins. Are there companies that defy gravity and convert long-term mediocrity or worse into long-term superiority? And if so, what are the universal distinguishing characteristics that cause a company to go from good to great? The Standards Using tough benchmarks, C

team identified a set of elite companies that made the leap to great results and sustained those results for at least fifteen years. How great? After the leap, the good generated cumulative stock returns that beat the general stock market by an average of seven times in fifteen years, better than twice the results delivered by a company's greatest companies, including Coca-Cola, Intel, General Electric, and Merck. The Comparisons The research team contrasted the good-to-great companies with a careful comparison companies that failed to make the leap from good to great. What was different? Why did one set of companies become truly great performers while the other good? Over five years, the team analyzed the histories of all twenty-eight companies in the study. After sifting through mountains of data and thousands of pages of information, the crew discovered the key determinants of greatness -- why some companies make the leap and others don't. The Findings The findings of the Good to Great study will shed light on virtually every area of management strategy and practice. The findings include: Level 5 Leaders: The research team was shocked to discover the type of leadership required to achieve greatness. The Hedgehog Concept (Simplicity within the Three Circles): To go from good to great requires transcending the curse of competence. A Culture of Discipline: When you combine a culture of discipline with an ethic of entrepreneurship, you get the magical alchemy of great results. Technology Accelerators: Good-to-great companies leverage technology to the role of technology. The Flywheel and the Doom Loop: Those who launch radical change programs and wrenching restructurings will almost certainly fail to make the leap. "The key concepts discerned in the study," comments Jim Collins, "fly in the face of our modern business culture and will, quite frankly, upset some people." Perhaps, but what are the findings?

Automotive Scan Tool PID Diagnostics (Diagnostics Strategies of Modern Automotive Systems ) By Mandy Concepcion In this section, the different techniques of scan tool analysis will be exposed. Techniques involving PID analysis are quickly catching on, due to their speed and accuracy. By properly analyzing the different scanner PIDs, the technician can arrive at the source of the problem much faster and accurately. These procedures give rise to the new term "driver seat diagnostics", since most of the preliminary diagnosis is done through the scanner. However, these techniques will in no way replace the final manual tests that are a part of every diagnostic path. They are simply geared to point the technician in the right direction. Table of Contents INTRODUCTION (Introduction to scan tool diagnostics and the relevance of using PIDs or scanner parameter to perform the first leg of the diagnostic path) Theory of Operation Behind the Different PIDs (Describes CARB, the difference between generic and enhanced PIDs, the FTP) - OBD II Generic PIDs (PID calculated and actual vs. calculated data relationships, base injection timing, ECM value substitution) - OBD I & II General PID analysis (erasing code-or not, recording, analyzing and pinpoint tests) - Fuel PIDs into groups) - Fuel Delivery Fault Detection (fuel delivery issues, intake air temp. sensor, BARO sensor, Engine LOAD, RPM PID, Short-Term Fuel Trims, Long-Term Fuel Trims) - 60% of check engine light issues, block learn/integrators, Example 1: injector fault, Example 2: intake gasket issues, fuel status, ignition timing, MAP/MAF, TPS, O2 sensor) - Throttle, injector pulse width, voltage power, injector duty cycle, fuel trim cell) - Test #1 (Determining an engine's fuel Consumption (rich-lean operation, duty-cycle to fuel trim) - O2 sensor to fuel trim relation, FT and vacuum leaks, ignition timing and idle control, test conclusion) - Test # 2 (Misfire Detection Strategy, EGR, Ignition and Mechanical Issues) (misfires and OBD2, scanner misfire detection - a time saver, OBD2 40 and 80 cycle misfire, ignition, injector and EGR density misfire, coil-on-plug, misfires and O2 sensor) - Secondary misfire, O2 sensor & injector misfires, leaky injector, EGR and the MAP, Type A, B, C misfires, test conclusion) - Test # 3 (Air/Fuel Ratio Faults) (air-fuel imbalance, pre and post O2 sensors, open-closed-loop, fuel enable, HC & CO relation to AF issues, test conclusion) - Test # 4 (BARO, MAP & MAF PID analysis) (MAP & valve timing faults, MAP to fuel delivery or duty cycle test, volumetric efficiency, , test conclusion) - Test # 5 (Clogged exhaust) (clogged catalytic converter detection, TPS, MAF and converters, idle speed, open throttle values, vacuum readings, MAP to WOT charts analysis, engine and MAP vacuum, test conclusion) - Test # 6 (EGR Fault Detection) (EGR and MAP values, ECM, EGR issues, EGR temp sensor, DPFE sensor, EGR and O2-MAP and lift position sensor, EGR and engine pre-loading, EGR and the ECM erroneous high LOAD issues, test conclusion) - Test # 7 (O2 Sensor Heater) (O2 heaters and why?, tough to check O2 heater issues, O2 heater effect on signal output, O2 heater bias voltage, engine off and O2 heater test conclusion) - Test # 8 (Resetting Fuel Trims) (resetting injection pulse corrections, long-term and short-term fuel trims, learn condition, Lambda, case study on fuel trim) - Test # 9 (Engine Cranking Vacuum Test) (MAP/MAF cranking vacuum, vacuum to PID analysis, vacuum leaks, gauge-PID test, cranking values, test conclusion)

Presents an overview of the test, provides sample questions and answers with detailed explanations, and offers tips and techniques for taking and passing the certification exam. Automotive Computer Network Repair (Diagnostic Strategies of Modern Automotive Systems) By Mandy Concepcion In this book we will cover the intricacies of automotive communication systems or networks. The scope of this section will also go beyond the normal needs of an automotive technician. Hence, this will probably be the most challenging series to comprehend. Be patient and open minded. Always give yourself time to absorb the knowledge and do not be discouraged. Special emphasis will be placed on the CAN (Controller Area Network), since it is now the standard. CAN is one of the 9 OBD-2 protocols. A protocol is an agreement on communications interchange. It is in essence a common communication language and specifies signaling, wiring, size of cables used, who controls the network and voltage levels. Various protocols were used in the past, some generic such as ISO 9141 and SAE 1850 VPW, but the standard is now the CAN protocol. Virtually all vehicle networks now talk to each other through the CAN protocol. You can place to see the seat belt, SRS-Airbag, transmission, ABS-Brakes, engine and radio modules or computer talking to each other through the network. Ever wondered why the radio goes up when you accelerate the vehicle? That's the engine computer or module telling the radio to raise the volume due to a higher RPM and hence higher ambient noise. You can also see to see a non-shifting transmission due to a faulty network and the issue not being related to the transmission at all. Hopefully this book will shed some light on the operation of the CAN network.

needed to tackle automotive networks in today's vehicles..... Enjoy. Table of Contents 1. INTRODUCTION \* - Automotive inter-module communication systems or networks Domestic and European Vehicles \* - Fully Networked vehicles. 2. THE NEED FOR IN-VEHICLE NETWORKING \* - Use of electrical and electronic components \* - Networked automotive sensors. \* - Sharing of sensor information \* - Weight savings and the simpler wiring harnesses \* - Networking and modular systems 3. THE NEED FOR PROTOCOL or Controller Area Network communication protocol \* - CLASS A - Low speed \* - CLASS B - Medium speed \* - CLASS C - High speed \* - SAE (Society of Automotive Engineers) (International Standards Organization) \* - What is a Gateway? 4. NETWORKING ESSENTIALS \* - the 7-layer ISO/OSI reference model \* - PHYSICAL LAYER \* - DATA LINK LAYER \* - APPLICATION LAYER \* - Medium Access \* - CARRIER SENSE MULTIPLE ACCESS or CSMA \* - Network latency \* - The Topology of a network \* - The STAR topology \* - The BUS topology \* - The TREE topology \* - The RING topology 5. DIFFERENT COMMUNICATION NETWORK \* - The CCD data bus (Chrysler Collision Detection) \* - CCD bus ground bus bias voltage \* - OEM scan tool (DRB III) \* - NO TERMINATION message fault \* - The PCI bus (Programmable Communications Interface) \* - A CSMA/CD media access method The Header, DATA, CRC, IFR and EOF elements \* - DCL (Data Communications Link) \* - circuit 914 and 915 \* - SCP (J1850) (Standard Corporate Protocol) \* - Dual wire CAN topology \* - The ISO 9141 protocol \* - The NGS "DATA LINK DIAGNOSTICS" menu option \* - GM (Data Line) UART Serial Communications \* - UART data line communication GM CLASS 2 data bus \* - State of health messages \* - The Tech-2 scanner has a dynamic menu configuration \* - The Tech-2's PING-ALL-MODULES 6. CAN (Controller Area Network) \* - implementation of the CAN protocol \* - 11 bit and 29 bit identifier \* - EPA approved for MY 2003 and up \* - CAN A, B and C \* - MID and PID CAN identifiers \* - Master node \* - Drive-by-wire systems \* - Byteflight, Flexray, and Time-triggered CAN or TTCAN \* - The CAN Data-Frame \* - The CAN bus-access arbitration \* - SOF (start-of-frame) Control bit \* - Arbitration bits \* - Data bits \* - EOF or end of frame bit

101 Projects for Your Porsche Boxster

How to Rebuild Big-Block Chevy Engines

Evaluation of Diagnostic Analysis and Test Equipment for Small Automotive Repair Establishments

Good to Great

Make Your Own Diagnostic Equipment (MYODE)

Actuator, Injector, Coil & Emission Evap Testing

From hand-held, dedicated units to software that turns PCs and Palm Pilots into powerful diagnostic scanners, auto enthusiasts today have a variety of methods available to make use of on-board diagnostic systems. And not only can they be used to diagnose operational faults, they can be used as low-budget data acquisition systems and dynamometers, so you can maximize your vehicle's performance. Beginning with why scanners are needed to work effectively on modern cars, this book teaches you how to choose the right scanner for your application, how to use the tool, and what each code means. "How To Use Automotive Diagnostic Scanners" is illustrated with photos and diagrams to help you understand OBD-I and OBD-II systems (including CAN) and the scanners that read the information they record. Also included is a comprehensive list of codes and what they mean. From catalytic converters and O2 sensors to emissions and automotive detective work, this is the complete reference for keeping your vehicle EPA-compliant and on the road!

Diagnostic Communication with Road-Vehicles and Non-Road Mobile Machinery examines the communication between a diagnostic tester and E/E systems of road-vehicles and non-road mobile machinery such as agricultural machines and construction equipment. The title also contains the description of E/E systems (control units and in-vehicle networks), the communication protocols (e.g. OBD, J1939 and UDS on CAN / IP), and a glimpse into the near future covering remote, cloud-based diagnostics and cybersecurity threats.

This section gives an in depth look at the many actuators and solenoids that make up a modern automotive system. In this book, we'll explore the different actuators' theory of operation, as well as practical testing procedures that will make diagnosing them a lot easier. Additionally, the operation of the basic emission components is also covered. Be patient and take your time in absorbing the information. Hopefully this will make for a great bedside reading. Enjoy and broaden your mind. This work has been a labor of love. It is meant to compliment and broaden the working knowledge of the modern automotive technician. No theoretical information is given, except under certain explanatory circumstances and sections. But most of all, this book was done for you, " The Lone Automotive Mechanic or Technician ". The guy (or girl in some cases) who works all day long and studies at night to further his/her career in spite of the stress of the day, the guy who's not appreciated for what he does because to the rest of the world he's the dirty mechanic that doesn't know better, the guy who spends thousands of dollars in tools and equipment but that nobody has any idea that he did, and the guy who in spite of all the drawbacks of our profession is happy at what he does and keeps America rolling. This work was done for you. I hope you enjoy and learn from it. Remember, no matter what happens, keep building your knowledge and it'll pay-off in the end. Edition 4.0 Section 2- Actuators and EVAP Testing, Copyright 2004, 2011, All rights reserved. Section 2 Table of Contents \* Leak detection pump – (LDP Operation, LDP solenoid, reed switch and related vacuum hoses, analysis of the LDP, conditions that affect the LDP, EVAP system leak, ELECTRICAL TESTS, scanner test, solenoid tests, reed tests, MECHANICAL TESTS) \* Fuel injector troubleshooting strategy – (Fuel Injector Operation, correct fuel flow and spray pattern, ground controlled, Injector drivers, saturation and the peak-and-hold type driver, ground or positive controlled, injector cut-off routine, injector waveform

analysis, high impedance injector, low impedance injectors, conditions that affect injectors, injector testing, current waveform capture, injector ground test, clogged injector tests) \* GM (CS series) alternator repair strategy – (CS alternators operation, different types of alternators, principle of induction, series of diodes, Terminals L, P, F and S, conditions that affect operation, chargeoutput wire tests, alternator testing, L-terminal test, ground test, positive test, using the test light and volt-meter) \* Idle Air Control (IAC) Troubleshooting – (IAC operation, IAC stepper motor, pre-programmed desired idle speed, IAC scanner count, duty cycle controlled, regular DC motor IAC, NOSE SWITCH or THROTTLE SWITCH, coolant temperature activated IAC, coolant temperature activated type, IAC testing, using the scan tool and IAC actuator to test, PID tests)\* EGR System Troubleshooting Strategy – (EGR theory of operation, coolant temperature activated type, exhaust backpressure sensing, EGR temperature sensing, EGR valve lift position sensing, and MAP/O2 sensor feedback sensing, Ford DPFE sensor, Ref. High and Ref. Low Signal, direct method of EGR monitoring, EGR testing, scanner, multi-meter and vacuum testing, EGR boost sensor, electrical wiring/connector/ECM tests) \* EVAP System Diagnostics – (EVAP theory of operation, charcoal canister, supporting fuel vapor hoses, and EVAP purge valve, integration with the ECM, FUEL TRIMS, needed to detect a 0.040 " fuel leak, solenoid, LDP type and Reed EVAP sensor, LDP EVAP diagnostics system, LDP diaphragm pump, solenoid based EVAP, closing the vent solenoid, EVAP vacuum switch, condition that affect EVAP operation, cracked vapor hoses, defective fuel tank cap, faulty seals and sensors, broken fuel tank, leaky purge valve, EVAP smoke machine, EVAP Nitrogen test) One of the most trusted test preparation guides in the industry, AUTOMOTIVE TECHNICIAN CERTIFICATION TEST PREPARATION MANUAL A-SERIES, 5th Edition, will help to prepare users for the A1-A8 and L1 ASE certification exams. The guide is highly effective in covering need-to-know information to help users pass their exams. Each section starts with a complete overview of the ASE Tasks for that specific system. Next, each section includes ASE Style practice exams to test your knowledge on these critical ASE Tasks. Finally, each section ends an explanation of answers and ASE Task remediation. The end result: is a powerful test preparation tool, filled with updated task list theory, practice tests, and abundant, demonstrative graphics, which will arm users with the knowledge they need to master the ASE certification exams. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Engine of Impact

Automotive Oscilloscopes

Automotive Computer Network Repair

Essentials of Strategic Leadership in the Nonprofit Sector

How To Use Automotive Diagnostic Scanners

Engine Diagnostic Console

Provides information to help automotive technicians systematically diagnose electrical and electronic vehicle faults using an oscilloscope. A large number of illustrations support knowledge and understanding, with an analysis of automotive waveforms.

An award-winning scientist offers his unorthodox approach to childrearing: "Parentology is brilliant, jaw-droppingly funny, and full of wisdom"bound to change your thinking about parenting and its conventions" (Amy Chua, author of Battle Hymn of the Tiger Mother). If you're like many parents, you might ask family and friends for advice when faced with important choices about how to raise your kids. You might turn to parenting books or simply rely on timeworn religious or cultural traditions. But when Dalton Conley, a dual-doctorate scientist and full-blown nerd, needed childrearing advice, he turned to scientific research to make the big decisions. In Parentology, Conley hilariously reports the results of those experiments, from bribing his kids to do math (since studies show conditional cash transfers improved educational and health outcomes for kids) to teaching them impulse control by giving them weird names (because evidence shows kids with unique names learn not to react when their peers tease them) to getting a vasectomy (because fewer kids in a family mean smarter kids). Conley encourages parents to draw on the latest data to rear children, if only because that level of engagement with kids will produce solid and happy ones. Ultimately these experiments are very loving, and the outcomes are redemptive—even when Conley's sassy kids show him the limits of his profession. Parentology teaches you everything you need to know about the latest literature on parenting—with lessons that go down easy. You'll be laughing and learning at the same time.

In the early part of the 21st century, we find our lives intertwined with a maze of technological wonders. From cell-phones to personal computers, no human being today can escape it. Automobiles are no exception to this rule. With the ever changing emission laws of today, the one constant in the automotive industry is that things always change and will continue to do so. OBD II was designed from the beginning to do so as well. Late model vehicle systems are much more demanding, in both the amount of technology they possess and in the knowledge necessary to repair them. This work was designed to just that, a step-by step diagnostic approach to OBD II systems. It is also written with the State Inspections in mind. This is in direct response to the increasing adoption of OBD II inspections by most States throughout the country. OBD II repair don't have to be difficult or cumbersome and knowledge is the key to successful OBD II diagnostics and repair. About the Author Mandy Concepcion has worked in the automotive field for over 21 years. He holds a Degree in Applied Electronics Engineering as well as an ASE Master & L1 certification. For the past 16 years he has been exclusively involved in the diagnosis of all the different electronic systems found in today's vehicles. It is here where he draws extensive practical knowledge from his experience and hopes to convey it in his books. Mandy also designs and builds his own diagnostic equipment, DVD-Videos and repair software. Edition 4.0, Table of Contents, Copyright 2004, 2011, All rights reserved TABLE OF CONTENTS Section 1 - Basics of OBD II - What is OBD II? - Why do we need it? The Federal Test Procedure (FTP) - Technical aspects of OBD II. (FF, Monitors, Pending & Current Codes, The Drive Cycle, Re-setting Monitors, etc) - The data link connector - Diagnostic Trouble Code

implementation - Resetting Monitors - What are Freeze Frames and how are they useful in diagnostics - A word about misfires - Do I need an OEM scanner or can I get by with an aftermarket scan tool? - Generic vs. Enhanced. What's the difference? why do you need to pull-out both codes? - The vehicle failed OBD II-State Inspection, but is passing a 5 gas emissions test. Why is it? - Resetting fuel trims. It's not the same procedure for every system - The Diagnostic Executive or Task Manager. What is it? - Bi-Directional control capabilities are revolutionizing the diagnostic process - Diagnosing EVAP leaks. It doesn't have to be complicated Section 2 - Base-lining the system includes retrieving FF, codes, & monitor status - Freeze Frames information gathering - Monitor status flag - Code Setting Criteria. How and why was the code set? - Freeze Frame and Code Setting Criteria comparison - Dividing the diagnostic process into systems and using the codes to detect system faults - First rule of diagnostics-Know the system you're working on - System by System outlook - Which Monitors are Incomplete. The need to prove each system without having to run a drive cycle by using the scanner, saving time & money - General Idle PID Snap-Shot Section 3 - INTRODUCTION - OBD-2 Generic PID list - OBD I and OBD II, and general PID analysis - FUEL DELIVERY FAULT DETECTION - TEST # 1 - TEST #2 - TEST #3 - TEST #4 - TEST #5 - RUNNING THE MONITORS IN YOUR MIND USING THE SCANNER Section 4 - Putting it all together. - Principles of diagnostics - Basic Scope Testing and Bi-Directional Control - No-Start, General Diagnostics - The correct decision making process to a sound repair - Don't assume anything or get caught in a particular mind set - Taking all the facts into account

This book, "Stories from the Road - Automotive Case Studies" is a real work in action about the intricacies of modern automotive diagnostics. It is based on actual real life situations. From this book you may extract real-life lessons, which will help you as an automotive aficionado, DIY mechanic and professional technician. The work is divided into narrated stories representing real-life applications of diagnostic technology, equipment usage, repair techniques and knowledge based information. Here, you'll get input on how to use the automotive scan-tool, OBD-2 ECM/PCM readers, oscilloscope, graphing multi-meter, signal tone injector and many other diagnostic tools. You'll also get deep insights on testing all kinds of sensors and actuators, such as injectors, solenoids, transmission components, motors, fuel pumps, CAM and crank sensors, TPS, MAF, Knock and pretty much every component seen today. All the content is presented on a narrated, story like format to make the knowledge easy and fun to comprehend. With that in mind, enjoy your readings. Table of contents Stories from the Road 9 - Content \* - The PTC Learning Curve What's a PTC? Found on Dodge vehicles, it is here to stay and can through a diagnostic out of bounce. This vehicle would start then stall and afterwards it would not start again until some time had passed. The ECM was replaced, but nothing worked. See what this case diagnostic can teach you. \* - The Sputtering Malibu A Chevy with a drivability complaint and a misfire code that was hard to diagnose. See how this diagnostic developed from using a Tech-2 factory scanner to the logical path that made the tech repair the issue. \* - The Tachometer Coil Affair A no-spark condition on a Dodge, but what does that have to do with a tachometer? Ignition and coil assemblies were replaced, but the issue remained. See how it all worked out from dedicated CG video diagrams to expose the issue. Also get a grip on using the graphing multi-meter to solve this repair case. \* - Toyota it Wasn't Me Injector A great engine swap gone bad. What appeared to be a good running engine all of a sudden when buzzers. See how this diagnostic was approached and what the ECM was seeing using various tools. See how thing got crazy and took the case in the wrong direction. \* - Toyota's Ignition Octopus Misfire issues on today's crowded engines are time consuming. See how "The Octopus" or a special tool used for ignition diagnostic was employed and how diagnostic time was reduced to a minimum by this tool usage. \* - Trans-Am Rocker Poker Issue A Trans-Am having a misfire issue and the shop replaced parts galore. The shop went through all the diagnostic channels like compression, electrical test, but thing worked. A powerful tool was employed here from the tech's arsenal of tools. See how it was used to check ignition and solve the final issue. \* - VW Golf on the Rough This VW ran fine for miles, but then would start to run rough. The ECM, Hall-Effect and O2 sensor was replaced, but to no avail. This diagnostic was started by monitoring the most vital signals for starting. See how a chain of events unfolded to correct this issue. \* - Who Quit First A Ford with a complaint of hesitation upon acceleration. The venerable complete tune-up was performed. This series video runs you through a complete analysis on ignition system waveform interpretation. It also explain other concepts highly desirable in today's vehicle diagnostic. \* - Zapping the Air Control Signal A Chevy Camaro with absolutely no codes and an idle control issue. Learn how the IAC Counts were used during diagnostics. To top it all off, this issue was intermittent. Get a big scoop on scanner PID interpretation and how to use the data-stream to find vehicle issues. See how it all developed.

Occupational Outlook Handbook

Procedures for Testing Color Vision

Automotive Computerized and Electrical Diagnostics Technology

Automotive Scan Tool Pid Diagnostics

Recent Development and Test Results with SSME Data

Why Some Companies Make the Leap...And Others Don't

**POWER EQUIPMENT ENGINE TECHNOLOGY (PEET) is designed to meet the basic needs of students interested in the subject of small engine repair by helping instructors present information that will aid in the student's learning experience. The subject matter is intended to help students become more qualified employment candidates for repair shops looking for well-prepared, entry-level technicians. PEET has been written to make the learning experience enjoyable: The easy-to-read-and-understand chapters and over 600 illustrations assist visual learners with content comprehension. The book comprises 17 chapters, starting with a brief history of the internal combustion engine and ending with a chapter on troubleshooting various conditions found on any power equipment engine. Both two-stroke and four-stroke engines are covered. PEET can be used not only by pre-entry-level technicians but also as a reference manual by practicing technicians, and it will be helpful for the general consumer of power equipment engines that has**

an interest in understanding how they work. In today's world, an education prior to working in the field is becoming more desirable by all shops that hire. Power equipment technicians are currently sought after and will continue to be in demand in the future as technology advances in the manufacturing of modern power equipment engines. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Diagnostics, or fault finding, is a fundamental part of an automotive technician's work, and as automotive systems become increasingly complex there is a greater need for good diagnostic skills. Advanced Automotive Fault Diagnosis is the only book to treat automotive diagnostics as a science rather than a check-list procedure. Each chapter includes basic principles and examples of a vehicle system followed by the appropriate diagnostic techniques, complete with useful diagrams, flow charts, case studies and self-assessment questions. The book will help new students develop diagnostic skills and help experienced technicians improve even further. This new edition is fully updated to the latest technological developments. Two new chapters have been added – On-board diagnostics and Oscilloscope diagnostics – and the coverage has been matched to the latest curricula of motor vehicle qualifications, including: IMI and C&G Technical Certificates and NVQs; Level 4 diagnostic units; BTEC National and Higher National qualifications from Edexcel; International Motor Vehicle qualifications such as C&G 3905; and ASE certification in the USA.

Since its introduction in 1997, the Porsche Boxster has earned a reputation as one of the world's greatest sports cars, as well as a huge, loyal following of devoted drivers. This book is aimed at those owners of Boxsters who want to improve their machines while avoiding thousands of dollars in mechanic's costs. Clearly and simply written, with straightforward illustrations, this manual offers 101 projects to help you modify, maintain, and enhance your Porsche. Focusing on the 986 and 987 Boxster models, 101 Projects for Your Porsche Boxster presents all the necessary information, associated costs, and pitfalls to avoid when performing a wide array of projects. In a word, it makes owning a Porsche Boxster an unqualified thrill.

Make Your Own Diagnostic Equipment (MYODE) This book, "Make Your Own Diagnostic Equipment" came about from the need of many readers and viewers to be able to make and maintain fairly simple diagnostic gadgets. It is meant to show and guide the professional technician and DIY mechanic on how to make these gadgets. In many cases, due to the nature of the equipment industry, it is very expensive or virtually impossible to get these tools. The reason being is that often times tool makers don't see a profit in making these simple but effective gadgets. Most, if not all of these tools, are invaluable in diagnosing modern automotive systems. You can estimate that having one of these tools, at the right time when needed, will cut your diagnostic time by at least 50%. Of course, knowing how to use it is also important. However, by definition if you've already studied how the gadget works, how to build it an also ended up building it yourself, you've already passed the learning curve and chances are you'll know how to use it. At the very least, reading this book will put you in a much better position to also asses diagnostic issues and on the use of other important tools of automotive diagnostics. It is our hope with this work to enlighten the professional and DIY mechanic on the use, construction and operation of modern automotive diagnostic gadgets. Use this information to the best of your abilities and be on the diagnostic driver seat.

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## Techniques on Using Automotive Diagnostic Equipment

## Benefits of Modern Diesel Engine Diagnostic Tools in Fleet Maintenance and Engine Testing of Fuels and Lubricants

## Raspberry Pi Technology

## Report of Working Group 41

## OBD-II Repair Strategies

## Methods to Achieve Nationwide Automotive Diagnostic Testing

This manual takes the mystery out of Second-Generation On-Board Diagnostic Systems allowing you to understand your vehicles OBD-II system, plus what to do when the "Check Engine" light comes on, from reading the code to diagnosing and fixing the problem. Includes a comprehensive list of computer codes. Computer-controlled car repair made easy! For all car and light truck models manufactured since 1996. Understand your vehicle's On-Board Diagnostic system How to deal with that "Check Engine" light--from reading the code to diagnosing and fixing the problem Comprehensive computer codes list Diagnostic tools: Powertrain management fundamentals OBD-II "monitors" explained Generic trouble codes that cover all models! Manufacturer-specific trouble codes for GM, Ford, Chrysler, Toyota/Lexus and Honda/Acura vehicles Let your car's computer help you find the problem! Component replacement procedures Glossary and acronym list Fully illustrated with over 250 photographs and drawings

OBD 2 Repair Strategies (Including State Smog Inspections) In the early part of the 21st century, we find our lives intertwined with a maze of technological wonders. From cell-phones to personal computers, no human being today can escape it. Automobiles are no exception to this rule. With the ever changing emission laws of today, the one constant in the automotive industry is that things always change and will continue to do so. OBD II was designed from the beginning to do so as well. Late model vehicle systems are much more demanding, in both the amount of technology they possess and in the knowledge necessary to repair them. This work was designed to just that, a step-by step diagnostic approach to OBD II systems. It is also written with the State Inspections in mind. This is in direct response to the increasing adoption of OBD II inspections by most States throughout the country. OBD II repairs don't have to be difficult or cumbersome and knowledge is the key to successful OBD II diagnostics and repair. About the Author Mandy Concepcion has worked in the automotive field for over 32 years. He holds a Bachelor's Degree in Electronics Engineering as well as an ASE Master & L1 certification. For the past 16 years he has been exclusively involved in the diagnosis of all the different electronic systems found in today's vehicles. It is here where he draws extensive practical knowledge from his experience and hopes to convey it in his books. Mandy also designs and builds his own diagnostic equipment, DVD-Videos and repair software. Edition 4.0, Table of Contents, Copyright 2004, 2011, All rights reserved TABLE OF CONTENTS Section 1 - Basics of OBD II- What is OBD II?- Why do we need it? The Federal Test Procedure (FTP)- Technical aspects of OBD II. (FF, Monitors, Pending & Current Codes, The Drive Cycle, Re-setting Monitors, etc)- The data link connector- Diagnostic Trouble Code implementation- Resetting Monitors- What are Freeze Frames and how are they useful in diagnostics- A word about misfires- Do I need an OEM scanner or can I get by with an aftermarket scan tool?- Generic vs. Enhanced. What's the difference? why do you need to pull-out both codes?- The vehicle failed OBD II-State Inspection, but is passing a 5 gas emissions test. Why is it?- Resetting fuel trims. It's not the same procedure for every system- The Diagnostic Executive or Task Manager. What is it?- Bi-Directional control capabilities are revolutionizing the diagnostic process- Diagnosing EVAP leaks. It doesn't have to be complicated Section 2 - Base-lining the system includes retrieving FF, codes, & monitor status- Freeze Frames information gathering- Monitor status flag- Code Setting Criteria. How and why was the code set?- Freeze Frame and Code Setting Criteria comparison- Dividing the diagnostic process into systems and using the codes to detect system faults- First rule of diagnostics-Know the system you're working on- System by System outlook- Which Monitors are Incomplete. The need to prove each system without having to run a drive cycle by using the scanner, saving time & money- General Idle PID Snap-Shot Section 3 - INTRODUCTION- OBD-2 Generic PID list- OBD I and OBD II, and general PID analysis- FUEL DELIVERY FAULT DETECTION- TEST # 1- TEST #2- TEST #3- TEST #4- TEST #5- RUNNING THE MONITORS IN YOUR MIND USING THE SCANNER Section 4 - Putting it all together.- Principles of diagnostics- Basic Scope Testing and Bi-Directional Control- No-Start, General Diagnostics- The correct decision making process to a sound repair- Don't assume anything or get caught in a particular mind set- Taking all the facts into account

This brand new title in the Today's Technician Series covers the advanced topics of drivability, emissions testing, and engine diagnostics in depth. This new book features a thorough study of On-Board-Diagnostic generation II (OBD II) Continuous Monitors and Non-Continuous Monitors strategies, a chapter on Emission Control and Evaporative Systems, OBD II generic Diagnostic Trouble Codes identification and diagnosis, and Malfunction Indicator Light Strategies. Advanced use of On-Board Diagnostic Scanners and Digital Storage Oscilloscopes is also discussed. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Keith McCord recounts the history of automotive onboard diagnostic systems and creation of the rudimentary OBD I systems and the development as well as the evolution of OBD II. Currently, OBD-II (OnBoard Diagnostic II) is the standard of the industry, and this book provides a thorough explanation of this system. It details its main features, capabilities, and characteristics. It shows how to access the port connector on the car, the serial data protocols, and what the serial data means. To understand the diagnostic codes, the numbering system is defined and the table of common DTCs is shown. But most importantly, McCord provides a thorough process for trouble shooting problems, tracing a problem to its root, explaining why DTCs may not lead to the source of the underlying problem, and ultimately resolving the problem.

The Use of Automotive Diagnostic Tools

Waveform Analysis



ASE Test Preparation Manual - Electronic Diesel Engine Diagnosis Specialist (L2)

Advanced Automotive Fault Diagnosis

Power Equipment Engine Technology

A Report to the Congress

Unsurpassed in coverage of the theory and procedures for automotive electricity and electronics, the newest edition of this highly successful classroom and shop manual is guaranteed to instill both the knowledge and skills critical to success in the industry. TODAY'S TECHNICIAN: AUTOMOTIVE ELECTRICITY & ELECTRONICS, 5TH EDITION has been updated to offer a more streamlined presentation of diagnostic and service procedures, as well as additional attention to data bus networks, including the CAN, LIN, ISO, and other common systems. The book also features expanded coverage of vehicle accessory systems, including the new multi-stage air bag systems, weight classification systems, side air bag systems, and laser-guided cruise control systems. An all-new chapter on hybrid and high voltage systems rounds out the up-to-date content, ensuring readers gain a strong working knowledge that of the latest industry trends and technologies. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Automotive Scan Tool Pid Diagnostics Diagnostic Strategies of Modern Automotive Systems Mandy Concepcion

Stories from the Road 6 (A Narrative About Modern Automotive Diagnostics An Automotive Case Studies Series By Mandy Concepcion This book, "Stories from the Road - Automotive Case Studies" is a real work in action about the intricacies of modern automotive diagnostics. It is based on actual real life situations. From this book you may extract real-life lessons, which will help you as an automotive aficionado, DIY mechanic and professional technician. The work is divided into narrated stories representing real-life applications of diagnostic technology, equipment usage, repair techniques and knowledge based information. Here, you'll get input on how to use the automotive scan-tool, OBD-2 ECM/PCM readers, oscilloscope, graphing multi-meter, signal tone injector and many other diagnostic tools. You'll also get deep insights on testing all kinds of sensors and actuators, such as injectors, solenoids, transmission components, motors, fuel pumps, CAM and crank sensors, TPS, MAF, Knock and pretty much every component seen today. All the content is presented on a narrated, story like format to make the knowledge easy and fun to comprehend. With that in mind, enjoy your readings. Table of contents

Stories from the Road 6 - Content \* - Looking into an Escalade's Mind A Cadillac Escalade with a strange IAC code. Well it's the IAC inside the MAF sensor. Follow this diagnostic path into the inner depths of automotive diagnostics, from scan tool PID analysis and beyond. See what happened... \* - Mysteriously Revving Lincoln LS The electronic throttle control system or drive-by-wire accelerator control is now here to stay. See a complete diagnostic path for this cableless throttle control system. Follow this case from using the scanner on PID analysis, the oscilloscope and then analyzing signal waveforms. Learn from this case... \* - Monte Carlo's Nervous Meltdown A vehicle with loss of power, engine stalling and erratic idle surge is exactly what was happening to this Chevy. Was it the MAF sensor, TPS or some other component causing the issue? Was it an idle issue or also seen at higher RPMs? See the entire diagnostic path and also using an array of auto diagnostic equipment. Find out what happened next... \* - Nissan Altima's Cross Identity Crisis That's right, a Nissan with what you could call double personality. See how an ingenuous auto repair and diagnostic path was used to get to the issue. Shown with dedicated diagrams and animations to prove the case and present the case to you. Also get the scoop on using the Fox and Hound for electrical diagnostics. \* - Nissan Maxima's Burning Bush A surging idle speed issue with a difficult to detect origin. After replacing various parts, the shop ran out of options and called in the expert. See hoe this popular stepper-motor component was inoperable and the diagnostic path to repair. Follow this case from a simple scan to deep ECM diagnostics using various equipment. \* - Nissan that Wouldn't Cool Down Yes, a hot Nissan, but to the engine, the climate control system. That's right, this A/C compressor did not want to turn ON, no matter what and it was fully computerized. The auto diagnostic path was not as easy as one would think. In fact this issue proved a high tech diagnostic and tough to detect. see what happened... \* - Noisy Neighbor An erratic engine on a Ford Explorer where the TPS and ECM had already been replaced. What could it be? See the whole auto repair path and learn to interpret scan PID graphs, scope waveforms and analyze wiring issue. Get the whole story here... \* - BONUS - The AFR or air fuel ratio sensor circuit The newer wide band or A F R O2 sensor solves the narrow sensing problem of the previous Zirconium sensors. These sensors are often called by different names. Learn how they work and how to test them.

Today's Technician: Advanced Engine Performance Classroom Manual and Shop Manual

OBD-II & Electronic Engine Management Systems

Automotive Technician Certification Test Preparation Manual A-Series

Everything You Wanted to Know about the Science of Raising Children but Were Too Exhausted to Ask  
(Including State Inspections)

Road Vehicles