

# Obd 2 Repair Strategies

Michael Klyde

**OBD II Repair Strategies** Mandy Concepcion, 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 doesn'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

**OBD-II Repair Strategies** Mandy Concepcion, 2011 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

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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

Automotive Scan Tool PID Diagnostics Mandy Concepcion,2011-10-06 Automotive Scan Tool PID Diagnostics (Diagnostics Strategies of Modern Automotive Systems ) By Mandy Concepcion In this section, the different techniques of scan tool parameter (PID) 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 diagnostic work 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 all diagnostics.) - 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 values, calculated data relationships, base injection timing, ECM value substitution) - OBD I & II General PID analysis (erasing code-or not, recording, analyzing and pinpoint tests, separating 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, IAC, Closed Throttle, injector pulse width, voltage power, injector dutycycle, fuel trim cell) - Test #1 (Determining an engine's fuel Consumption (rich-lean operation, duty-cycle to fuel trim relationship, 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 misfires) (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, lean O2 & 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, MAF 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, ECM behavior, fuel delivery or duty cycle test, volumetric efficiency, , test conclusion) - Test # 5 (Clogged exhaust) (clogged catalytic converter detection, TPS, MAF and converters, idle and WOT or wide 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 reaction to 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 changing value, 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 trims, FT resetting according to manufacturer, test conclusion) - Test # 9 (Engine Cranking Vacuum Test) (MAP/MAF cranking vacuum, vacuum to PID analysis, vacuum leaks, gauge-PID test, sources of leaks, cranking values, test conclusion)

Automotive Computer Network Repair Mandy Concepcion, Automotive Computer Network Repair (Diagnostic Strategies of Modern Automotive Systems) By Mandy Concepcion In this book we will cover the intricacies of automotive inter-module 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 difficult part of this 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 system (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 computer 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 proprietary and 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. It is now common 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 your radio volume 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. It is also common 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 and knowledge needed to tackle automotive networks in today's vehicles..... Enjoy.

Table of Contents

1. INTRODUCTION \* - Automotive inter-module communication systems or networks \* - Asian, 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 PROTOCOLS \* - CAN or Controller Area Network communication protocol \* - CLASS A - Low speed \* - CLASS B - Medium speed \* - CLASS C - High speed \* - SAE (Society of Automotive Engineers) \* - ISO (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 \* - CCD bus bias voltage \* - OEM scan tool (DRB III) \* - NO TERMINATION message fault \* - The PCI bus (Programmable Communications Interface) \* - A CSMA/CD media access scheme \* - The Header, DATA, CRC, IFR and EOF elements \* - DCL (Data Communications Link) \* - circuit 914 and 915 \* - SCP (J1850) (Standard Corporate Protocol) \* - Dual wire twisted pair bus topology \* - The ISO 9141 protocol \* - The NGS DATA LINK DIAGNOSTICS menu option \* - GM (Data Line) UART Serial Communications \* - UART data line communications \* - 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 time-keeper-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) bit \* - Control bit \* - Arbitration bits  
\* - Data bits \* - EOF or end of frame bit

OBD II Diagnostic Strategies Ralph Birnbaum, Jerry Truglia, 2002-10-01 This book is designed to enable you to successfully test on-board diagnostic II vehicle problems, and prepare the reader for scan tool emissions tests.

**OBD2 Automotive Code Encyclopedia and Cross Reference Guide** Mandy Concepcion, Includes pressure/voltage/current volumes, OBD-2 code definitions & code-setting criteria--Cover.

**OBD-I & OBD-II** Greg Branish, 2023-06-09 Onboard diagnostics (OBD) systems have been an integral part of vehicle design for decades, as OBD-II became mandatory in 1996 for all cars manufactured in the United States. Almost every aspect of the diagnostics system evolved from emissions requirements that were placed on the automotive industry. Manufacturers responded with increasing complexity in the electronic controls and reporting of errors. Fortunately, some commonization followed in the industry, which made the job of a repair technician or do-it-yourself enthusiast slightly easier when working on these challenging systems. Passing emissions testing has become critically important to manufacturers of high-performance parts and installation shops. Both the US Environmental Protection Agency (EPA) and California Air Resources Board (CARB) have assessed massive fines for violations of the Clean Air Act based on information that is available from the vehicle's OBD system. Many states now require vehicles to pass an OBD check to renew the registration, making proper operation even more important to consumers. **OBD-I & OBD-II: A Complete Guide to Diagnosis, Repair, & Emissions Compliance** is an insider's guide to modern original equipment manufacturer (OEM) diagnostics systems. As a former diagnostics and performance calibration engineer, Greg Banish guides you through critical electronic control unit (ECU) functions that ultimately lead to why the check engine light on the dash is lit. Strategies are provided for how to begin looking for a solution when problems are detected. Listing every imaginable repair is impossible, but this book provides a solid foundation from which to work by explaining the electronic control unit ECU's logic in plain English. Practical examples from the author's experience highlight important lessons that will save hours of frustration and confusion. In addition to repair tips, sound advice is given for those looking to modify their vehicles while maintaining the full functionality of the emissions and diagnostics systems. Modern diagnostics systems can be a blessing or a curse, depending on your level of understanding. This book helps you harness the power of the diagnostics

inside the ECU to improve the ability to find and make the right repair the first time. This book shows that by using commonly available electronic tools, the consumer has the power to access a wealth of information about his or her vehicle. It also helps those who are looking to improve performance do so without compromise to the environment or enforcement agencies. Whether you want to repair the vehicle yourself or simply want to possess an understanding of how these systems work while dealing with service professionals, this is the guide you need.

**How To Use Automotive Diagnostic Scanners** Tracy Martin,2015-08-01 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!

Fundamentals of Automotive Maintenance and Light Repair Kirk VanGelder,2019-01-29 Designed to prepare new technicians for ASE G1 Certification, *Fundamentals of Automotive Maintenance and Light Repair*, Second Edition covers the foundational theory and skills necessary to prepare entry-level technicians to maintain and repair today's light duty vehicles.

*Activities of Transport Telematics* Jerzy Mikulski,2013-10-01 This book constitutes the proceedings of the 13th International Conference on Transport Systems Telematics, TST 2013, held in Katowice-Ustron, Poland, in October 2013. The 58 papers included in this volume were carefully reviewed and selected for inclusion in this book. They provide an overview of solutions being developed in the field of intelligent transportation systems, and include theoretical and case studies in the countries of conference participants.

Diagnostic Strategies of Modern Automotive Systems Mandy Concepcion,2011-06-13 In this section, we'll cover diagnostic equipment usage. As an automotive activity, diagnosing modern vehicles has become extremely high-tech oriented and difficult. Few professions involve so much from their



practitioner. A modern technician has to master a multitude of disciplines, including electronics, optics, mechanics, programming, computer science and many others. Such highly technological activities require a keen analytical mind. But as in any human endeavors, proficiency comes with practice and patience. The techniques presented in this section combined with the necessary hands on practice are designed to sharpen the technician's abilities to perform profitable and fast diagnostics. With patience and practice, any vehicle can be repaired. Enjoy!

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Section 3 Table of Contents\*

CURRENT RAMPING STRATEGY – (what's current ramping and how it works, oscilloscope (DSO) and a low/ high amperage clamp-on amp probe, magnetic field, fuel pumps, current ramping a fuel pump, determining the fuel pump speed, commutators, FP waveforms, ignition coil current ramping, Coil-On-Plug current ramping, ignition coil waveforms, current ramping an injector, low Amp probe usage, current ramping compression test)\*

HESITATION LACK OF POWER REPAIR STRATEGY – (strategy and operation, fuel delivery test, spark reserve test, exhaust pressure, ignition and valve timing, guidelines for a multi-channel scope, visual inspection, ECM in control, air-fuel ratio, 5-gas analyzer, HC, CO, CO<sub>2</sub>, O<sub>2</sub> and Nox analysis, fuel flow, fuel volume analysis, ignition waveform)\*

FUEL FLOW VOLUME GUIDELINES – (Fuel Volume usage for Dometic cars, Fuel Volume usage for Asian cars, Fuel Volume for Continuous injection cars)\*

IGNITION COIL WAVEFORM INTERPRETATION – (Parade ignition analysis, Super-imposed, Bar-Graphs, Raster ignition analysis, single cylinder)\*

IGNITION SYSTEM TESTING STRATEGY – (Ignition current waveform interpretation, low resistance or shorted primary ignition, shorted ignition coil, full coil saturation, Ignition testing strategy, ignition waveform interpretation, coil On-Time, Firing line, Dwell, Turn-Off, Spark line, the main 5-types of misfires, triggering device misfire, CRK and CAM, ignition testing procedures, cranking Kilo-Volts, firing line KVs, WOT KVs, Idle baseline, Pre-Loading, Individual spark line, Distributor, DIS and COP) \*

A/F RATIO (lean/rich) REPAIR STRATEGY – (Fuel trim diagnostic, air-fuel ratios, ECM in control, Pressure and Volume, Spark issues, O<sub>2</sub> not switching) \*

MINIMUM AIR RATE ADJUSTMENT – (why do we need a Min. AR adjustment, ECM strategy, IAC strategy, Adjustment procedure, a stalling engine, idle re-learn procedure, battery reset)\*

NO FUEL PRESSURE/VOLUME REPAIR STRATEGY – (No pressure volume symptomatic diagnostic, fuel system operation, fuel systems types, returnless fuel system, variable speed fuel pumps, duty-cycle control, steps to diagnose fuel system issues, defective filter, regulator)\*

NO INJECTION PULSE STRATEGY – (no injection and pulse diagnostics, crank issues, EFI operation, non-sequential and sequential injection, Direct injection, fuel pulse testing, noid light, injector voltage supply, scanner, the switched side,

engine speed signal, injector current)\* NO START/NO SPARK REPAIR PROCEDURE – (Visuals, secondary, ignition grounds, ignition power, primary side, ignition neon noid)\* NO START GENERAL REPAIR PROCEDURE – (procedures that should be used to diagnose a no start, cranks ok condition, spark, pressure, fuel)\* NOTES

Evaluating Vehicle Emissions Inspection and Maintenance Programs National Research Council, Transportation Research Board, Division on Earth and Life Studies, Board on Environmental Studies and Toxicology, Committee on Vehicle Emission Inspection and Maintenance Programs, 2001-12-16 Emissions inspection and maintenance (I/M) programs subject vehicles to periodic inspections of their emission control systems. Despite widespread use of these programs in air-quality management, policy makers and the public have found a number of problems associated with them. Prominent among these issues is the perception that emissions benefits and other impacts of I/M programs have not been evaluated adequately. Evaluating Vehicle Emissions Inspection and Maintenance Programs assesses the effectiveness of these programs for reducing mobile source emissions. In this report, the committee evaluates the differences in the characteristics of motor vehicle emissions in areas with and without I/M programs, identifies criteria and methodologies for their evaluation, and recommends improvements to the programs. Most useful of all, this book will help summarize the observed benefits of these programs and how they can be redirected in the future to increase their effectiveness.

*Estrategias de Sistemas Automotrices OBD-II* Mandy Concepcion, 2011-05-11 En la primera parte del siglo 21, nosotros encontramos nuestras vidas entrelazadas con un laberinto de maravillas tecnológicas. De los teléfonos-celulares a las computadoras personales, ningún ser humano puede escapar. Los automóviles no son ninguna excepción a esta regla. Con las leyes de emisiones cambiantes de hoy, una constante en la industria automotor es que las cosas siempre cambian y continuarán haciéndolo. OBD II fue diseñado desde el principio para esto. Los sistemas del vehículo de hoy son mucho más exigentes, en ambos la cantidad de tecnología en ellos y en el conocimiento necesario para repararlos. Este libro se diseñó teniendo en cuenta un plano de diagnóstico lento o paso a paso en OBD II. También es escrito con las Inspecciones Estatales en la mente. Esto es en respuesta directa a la adopción creciente de OBD II en inspecciones por la mayoría de los Estados a lo largo del país. OBD II no tiene que ser difícil o embarazoso y el conocimiento es la llave al éxito en su diagnósticos y reparación. Tabla de Contenido Sección 1 Los elementos esenciales de OBD II Que es OBD II.. 2 ¿Por qué nosotros lo necesitamos? El Procedimiento de la Prueba Federal (FTP) ..2 El aspecto técnico de OBD II. (FF, los

monitores, Pendiente & los Códigos Actuales, El Ciclo del Paseo, Re-poniendo a los monitores, el etc).. 6 Codigos de diagnostico y datos (PID) .. 8 La aplicacion de PIDs y codigos. FUEL TRIMS y su analisis.. 9 Monitores .. 14 Que es el marco helado de datos y cómo son útiles en diagnósticos ..15 Hay necesidad de un escáner del OEM o puedo yo sobrevivir con un scanner generico ¿examinacion del escaner? .. 15 Genérico contra Fabricante. ¿Cuál es la diferencia? ¿por qué usted necesita ambos códigos? .. 16 El vehiculo fallo la prueba OBD II de Inspección, pero está pasando la 5 prueba de emisiones de gas. ¿Por qué es esto? .. 17 Los FUEL TRIMS. No es el mismo procedimiento para cada sistema. 17-18 El Diagnóstico Ejecutivo o Gerente de la Tarea. ¿Qué es? .. 19 Las capacidades del mando bi-direccionales están revolucionando el proceso de diagnóstico.. 19 Los escapes de EVAP. No tiene que ser complicado ..20 Sección 2 Cogiendo datos de base en el sistema incluye recuperando FF, los códigos, & el estado del monitor.. 2 Información de Marcos Congelados o FREEZE-FRAMES.. 4 Supervisando los estados del monitor.. 5 Criterio de Escena de código. ¿Cómo y por qué el código se pone en memoria? .. 7 El Marco de datos congelado y Criterio de Escena de Código. Comparación ..9 Dividiendo el proceso de diagnóstico en los sistemas y usando los códigos para descubrir las faltas del sistema.. 10 Primera regla de diagnostico es conocer el sistema en que usted está trabajando .. 11 La perspectiva del Sistema.. 11 Qué monitores están Incompletos. La necesidad de demostrar cada sistema sin tener que ejecutar un ciclo de paseo o viaje usando el escáner, salvando tiempo el dinero.. 16 El grabado de PID en baja general.. 13 Sección 3 Casos y Estudio de estos. INTRODUCCIÓN.. 2 Listado en OBD-2 de PID Genéricos.. 3 OBD I y OBD II, y el análisis de PID general.. 4 DESCUBRIMIENTO DE FALTA DE ENTREGA DE GASOLINA.. 4 PRUEBA #1.. 8 PRUEBE #2.. 9 PRUEBE #3... 13 PRUEBE #4.. 14 EJECUTANDO A LOS MONITORES EN SU MENTE USANDO EL SCANNER.. 16 Seccion 4: Reuniéndolo Todo. Los principios de diagnósticos.. 2 Alcance básico de Prueba Bidireccional El mando.. 3 Diagnósticos Generales.. 5 La decisión correcta que hace el proceso una reparación legítima.. 6 No asuma nada durante el diagnostico y mantenga una mente neutral.. 7 Teniendo en cuenta todo lo dicho. Resumen. 7

**Automotive Engine Performance** Nicholas Goodnight,Kirk VanGelder,2019-02-22 Automotive Engine Performance, published as part of the CDX Master Automotive Technician Series, provides technicians in training with a detailed overview of modern engine technologies and diagnostic strategies. Taking a strategy-based diagnostic approach, it helps students master the skills needed to diagnose and resolve customer concerns correctly on the first attempt. Students will gain an understanding of current diagnostic tools and advanced performance systems as they prepare to service the engines of

tomorrow.

Automotive Electronic Diagnostics (course 1) Mandy Concepcion, With the ever increasing electronic content in today's vehicles, the need to be able to read automotive wiring diagrams is as important as knowing how to use the different equipments needed to perform diagnostic work. Reading wiring diagrams requires a bit of knowledge of electricity and experience. By knowing the laws and rules that govern electron flow, you can become very proficient at this endeavor. Feel free to play the DVD accompanying this book and referring back to so that you can absorb all the information. Good luck and enjoy. 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. AUTOMOTIVE ELECTRONIC DIAGNOSTICS (Course 1) (Including How to Read Automotive Wiring Diagrams) Table of Contents - Introduction - Electron theory and atoms - Atoms and electrons - Like forces repel and unlike forces attract. - Electron Theory and Metals - What is current? - What is resistance? - Resistance in series and parallel - Resistance and Power - What is voltage? - Introduction to transistors? - What are transformers? - Current Flow Analysis - Switches and Relays

OBD II Diagnostic Strategies Aspire,2001-01-01 This course provides a student with implementations of the Continuous and Non-continuous Monitors as well as basic MIL strategy and DTC information. At the conclusion of this class, the students should be familiar with a method of monitor implementation that a manufacturer may use as well as OBD II MIL strategies and DTC. This course can be used independently or as the second part of a 3-section, OBD II course. (Section 1-Evolution of OBD, and Section 3-OBD II Scan Tool and Diagnostic Monitors.)

**Advanced Automotive Engine Performance** Michael Klyde,2020-05 Advanced Automotive Engine Performance, published as part of the CDX Master Automotive Technician Series, provides technicians with advanced training in modern engine technologies and diagnostic strategies. Taking a strategy-based diagnostic approach, it helps students master the skills needed to diagnose and resolve customer concerns correctly on the first attempt. Students learn how to diagnose engine performance, drivability, and emission systems concerns. Ideal for advanced courses in light vehicle engine performance and for students preparing for ASE L1 certification, Advanced Automotive Engine Performance equips students with the skills necessary to successfully

maintain, diagnose, and repair today's gasoline engines--

**Automotive Engine Repair** Nicholas Goodnight,Kirk VanGelder,2017-06-27 Engine Repair, published as part of the CDX Master Automotive Technician Series, provides students with the technical background, diagnostic strategies, and repair procedures they need to successfully repair engines in the shop. Focused on a “strategy-based diagnostics” approach, this book helps students master diagnosis in order to properly resolve the customer concern on the first attempt.

*Fundamentals of Automotive Technology* Vangelder,2017-02-24 Resource added for the Automotive Technology program 106023.

**Advanced Automotive Fault Diagnosis** Tom Denton,2006-08-14 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.

Whispering the Techniques of Language: An Mental Journey through **Obd 2 Repair Strategies**

In a digitally-driven world where monitors reign supreme and instant interaction drowns out the subtleties of language, the profound techniques and mental nuances concealed within phrases usually go unheard. Yet, situated within the pages of **Obd 2 Repair Strategies** a fascinating fictional prize

blinking with raw thoughts, lies an exceptional journey waiting to be undertaken. Penned by a talented wordsmith, this enchanting opus attracts visitors on an introspective trip, softly unraveling the veiled truths and profound impact resonating within ab muscles fabric of every word. Within the mental depths of the touching review, we can embark upon a heartfelt exploration of the book is key themes, dissect its interesting publishing type, and fail to the powerful resonance it evokes deep within the recesses of readers hearts.

## Table of Contents Obd 2 Repair Strategies

|   | Repair Strategies   | Obd 2 Repair Strategies Budget-Friendly Options   |
|---|---|---|
| 1. Understanding the eBook Obd 2 Repair Strategies  | 4. Exploring eBook Recommendations from Obd 2 Repair Strategies   | 6. Navigating Obd 2 Repair Strategies eBook Formats   |
| <ul style="list-style-type: none"> <li>◦ The Rise of Digital Reading Obd 2 Repair Strategies</li> <li>◦ Advantages of eBooks Over Traditional Books</li> </ul>          | <ul style="list-style-type: none"> <li>◦ User-Friendly Interface</li> <li>◦ Personalized Recommendations</li> <li>◦ Obd 2 Repair Strategies User Reviews and Ratings</li> <li>◦ Obd 2 Repair Strategies and Bestseller Lists</li> </ul> | <ul style="list-style-type: none"> <li>◦ ePub, PDF, MOBI, and More</li> <li>◦ Obd 2 Repair Strategies Compatibility with Devices</li> <li>◦ Obd 2 Repair Strategies Enhanced eBook Features</li> </ul>                      |
| 2. Identifying Obd 2 Repair Strategies  | 5. Accessing Obd 2 Repair Strategies Free and Paid eBooks   | 7. Enhancing Your Reading Experience  |
| <ul style="list-style-type: none"> <li>◦ Exploring Different Genres</li> <li>◦ Considering Fiction vs. Non-Fiction</li> <li>◦ Determining Your Reading Goals</li> </ul> | <ul style="list-style-type: none"> <li>◦ Obd 2 Repair Strategies Public Domain eBooks</li> <li>◦ Obd 2 Repair Strategies eBook Subscription Services</li> </ul>   | <ul style="list-style-type: none"> <li>◦ Adjustable Fonts and Text Sizes of Obd 2 Repair Strategies</li> <li>◦ Highlighting and Note-Taking Obd 2 Repair Strategies</li> <li>◦ Interactive Elements Obd 2 Repair</li> </ul> |
| 3. Choosing the Right eBook Platform  |   |   |
| <ul style="list-style-type: none"> <li>◦ Popular eBook Platforms</li> <li>◦ Features to Look for in an Obd 2</li> </ul>   |   |   |

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|---|--|--|
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| 11. Cultivating a Reading Routine               |  | smartphone and an internet connection, you can   |
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| ◦ Setting Reading Goals                         |  |  |
| Obd 2 Repair Strategies                         |  |  |
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