

OBD-2 Troubleshooter CD ROM

(www.autodiagnosicsandpublishing.com)

User's Manual



INSTALLATION INSTRUCTIONS

To install the software, perform the following easy steps:

1. **Double click** on the "OBD-2 Troubleshooter Installation Files" folder.
2. **Double click** on the "Setup" icon. This will start the installation program.
3. A "Welcome to the OBD-2 Troubleshooter" screen will start immediately. **Click the "OK" button.**
4. A screen with a BIG square installation button and icon appears. Click on the **big square button** to prepare for the install.
5. Next, a choose the program group screen will appear. The setup will automatically install on the "Programs files". This is recommended, **so click the "Continue" button.**
6. At this point in time the OBD-2 Troubleshooter program will begin the **brief installation process.**
7. Finally, an installation complete screen appears and you're done. **Click the "OK" button.**

To start the OBD-2 troubleshooter, click start, all programs, and then the OBD-2 Troubleshooter should be seen. Click on it.

To put an icon on the "Desktop" or the main windows screen, click "Start", My Computer, then click the C: DRIVE or where the program was installed, double click "Program Files" and then OBD2 Troubleshooter. Just copy and paste the icon to the program on the "Desktop". Now every time you need to open the OBD-2 Troubleshooter, just double click on this desktop icon.



OBD-2 Troubleshooting CD ROM (A diagnostics software)

In this user's manual you'll learn the basic and more advanced principles of using this software product.

OBD-2 Troubleshooter on CD ROM is a full diagnostic computer program that guides you through the diagnostics process. The software's diagnostics approach is that of a logical and sequential algorithm (step-by-step procedure). It follows the same basic format that the ECM does when running the monitors.

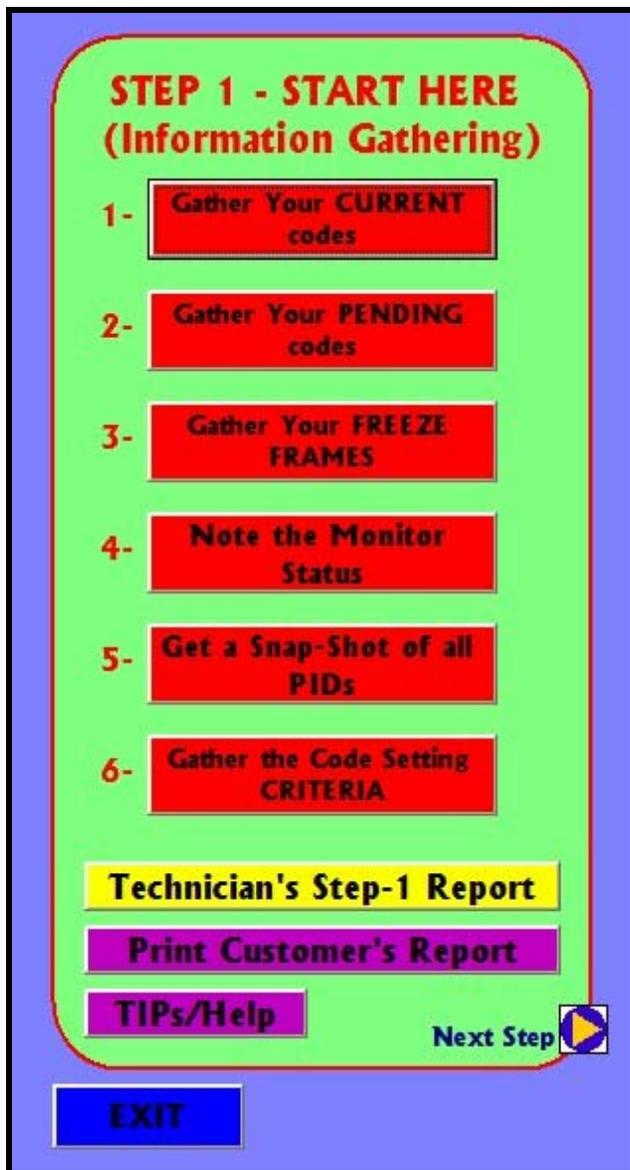
The first page is the start-up page, which is a simple introduction to the rest of the software itself. You'll also see our website address in case you need to get in touch with us.



MAIN MENU

The MAIN MENU page is the heart of the program. From here you'll be able to access any section of the software. As you can see, the menu options are divided into 3 easy steps, with sub-steps within each one.

STEP 1 is the **information gathering** phase of the OBD-2 diagnosis. Within this first step you'll be able to gather all the clues you'll ever need to continue on the diagnostics process. Besides the 6 sub-steps in this section, you also get more than 400 pages of specification in text format to help you during the diagnostics process. Finally, the section also ends with a printed report section. Two reports are configured and printed for you. A **TECHNICIAN'S REPORT** and a **CUSTOMER'S REPORT**. The technician's report will then tell you what to do in the next section of the software, STEP 2.



STEP 1 (In Depth)

The first section is further subdivided into 6 steps. This section is geared towards gathering information only.

In step 1, you get to record your current codes from a long drop-down menu, covering all of the Generic Codes. In step 2, you do the same for pending codes. Step 3 will let you browse each PID for Freeze-Frames purposes. Step 4 will let input the MANITOR STATUS. This information is vary important during the system diagnosis. Step 5 provides information on different PIDs or parameters found on the scanner, and how they apply to your repair. Then step 6 gives you over 380 pages of codes setting criteria information gathered from the latest

OBD-2 sources. Notice that code definitions are the same for all OBD-2 systems, but NOT the code setting criteria. The CSC in step 6 can be found for most vehicles manufactured today.

As you go through these steps, the information is being recorded within the program's memory. This information is then used to generate a TECHNICIAN'S and a CUSTOMER'S report later on. When the Tech-Report yellow button is pressed, the software make a series of calculations and outputs a set of printed brief instruction on what to do next. This is where this software really shines. A purple customer's report is also available.



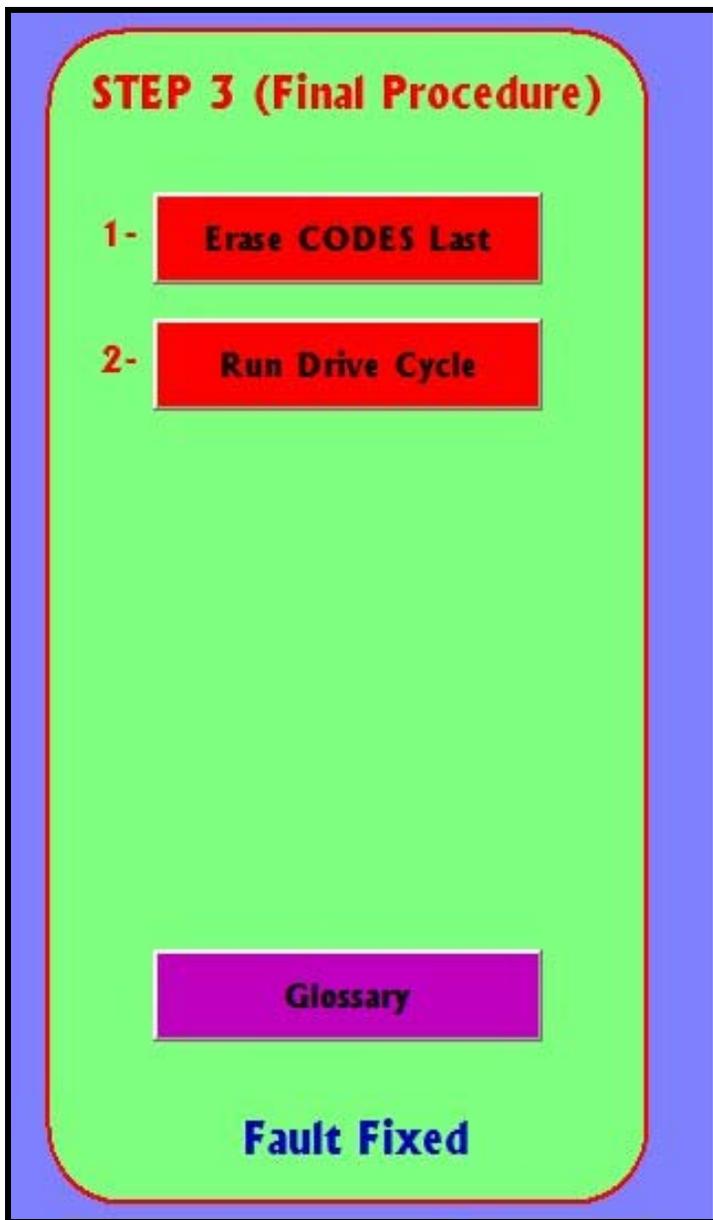
STEP 2 (In Depth)

After the technician's report is generated from the previous step, you simply apply the information to step 2. The report simply exposes the areas that need attention and those that don't. By simply concentrating on the problem area (s) you save time and money.

Step 2 is also sub-divided into the different systems or Monitors found on all OBD-2 vehicles. These options go from PID analysis on what the scanner parameters mean and how to use them in fault detection, Comprehensive monitor, Misfires, Fuel Trims and what to do,

EGR systems, Secondary air injection, Converter testing, O2 sensor monitor and O2 Heater testing, and finally EVAP monitor testing.

A further 3 more options are added, which deal with "What Fails the Most?", "NO Communications" problems with the diagnostics network, and "CEL ON with no codes" faults. These extra options give a bit of input on what could be wrong with your faulty vehicle.

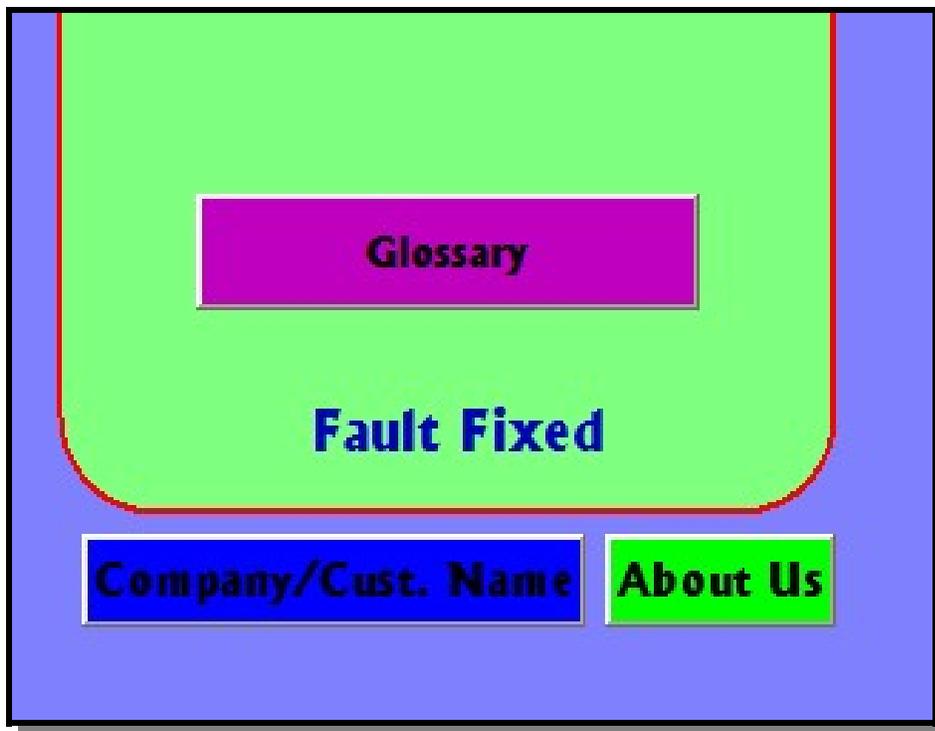


STEP 3 (In Depth)

Most faults are resolved by the time you get to step 3. In here, you get the different procedures to erase the faulty codes, which is a simple matter of using the scanner, but you also get the procedures for adaptive memory clearing or resetting. This procedure is many times overlooked, with the end result of the vehicle coming back to you with the same code. This section tells you how to reset the vehicle back to the original memory factor matrix. In essence, you simply tell the ECM to start fresh after the repair is done. In the event that you get a code back, you know that it isn't due to something you did and

further testing is needed.

The final sub-step (2) will tell you the procedure to run the DRIVE-CYCLE according to the make of the vehicle in question. Running the drive-cycle has become a normal part of the repair process and the more information you have on it, the faster you get to run it.



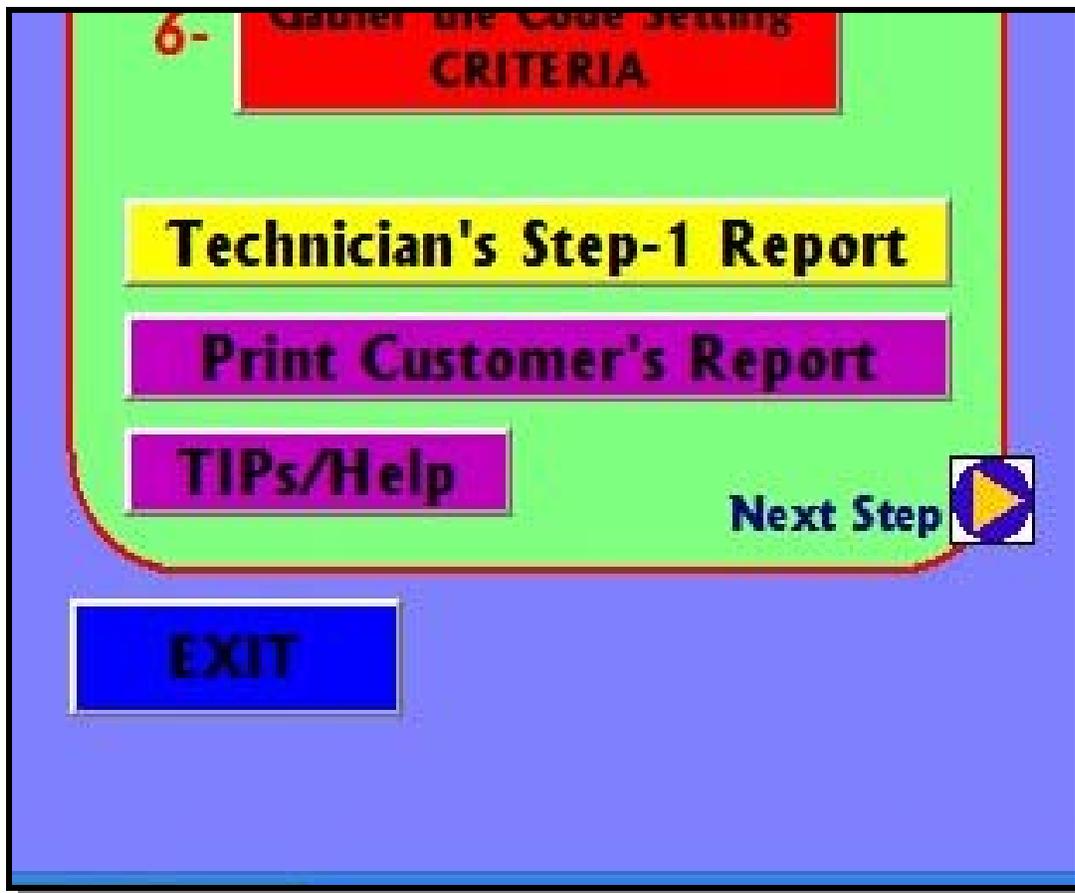
COMPANY AND ABOUT US

The "Company" and "Customer" name button will let you input the name, complete address and any further data that you might want to add to the customer's report.

This information will be printed on the customer report, together with all the pertinent data acquired during the information gathering phase.

An OBD-2 "Glossary" is also provided with hundreds of definitions relating to OBD-2 nomenclature.

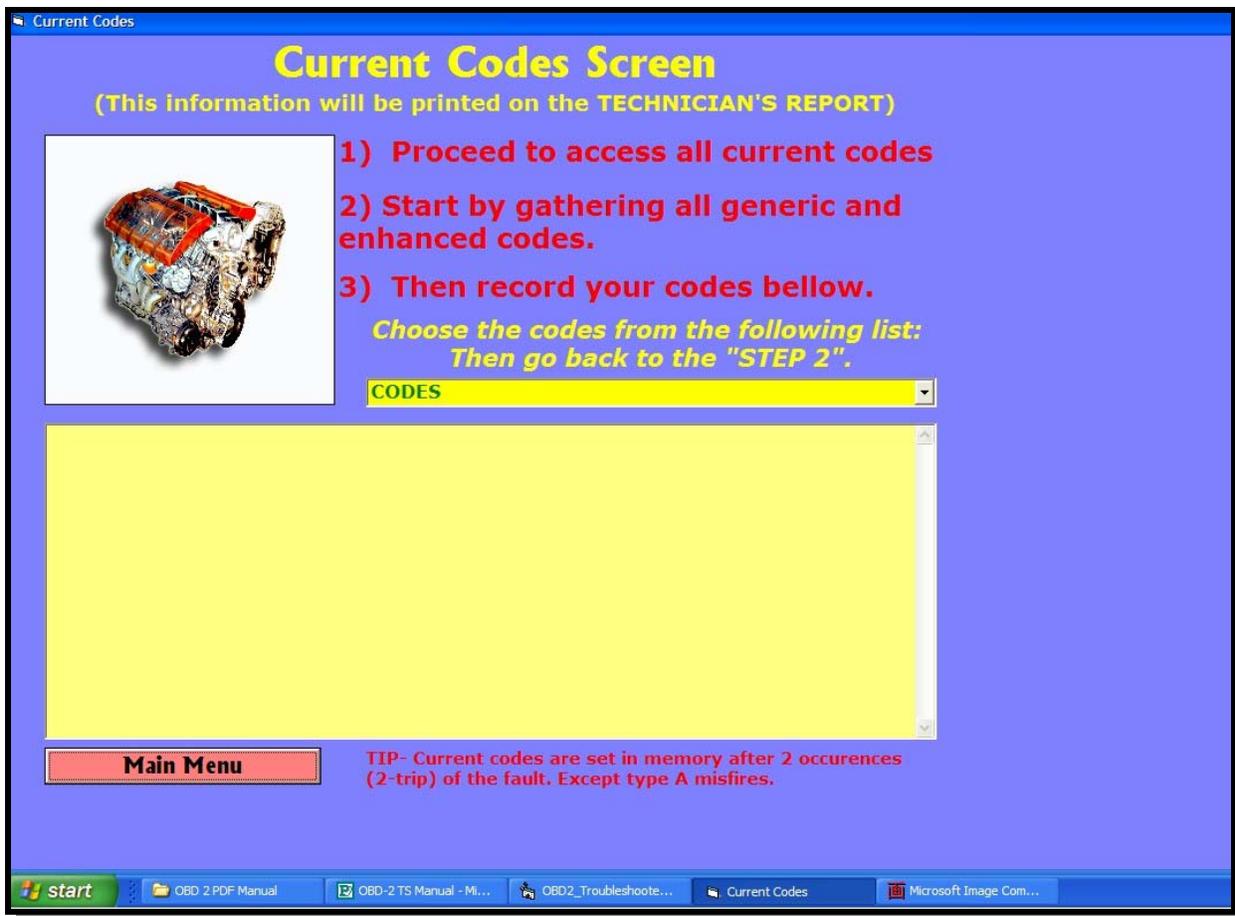
The "About Us" button is a quick reference to our website.



TECHNICIAN'S, CUSTOMER REPORT AND TIPS/HELP

Here, in more detail, you see the "Technician's Report" button, which gives you a printed report with instructions on what to do within step 2. The print "Customer's" report print a nice report to give to your customer if need be.

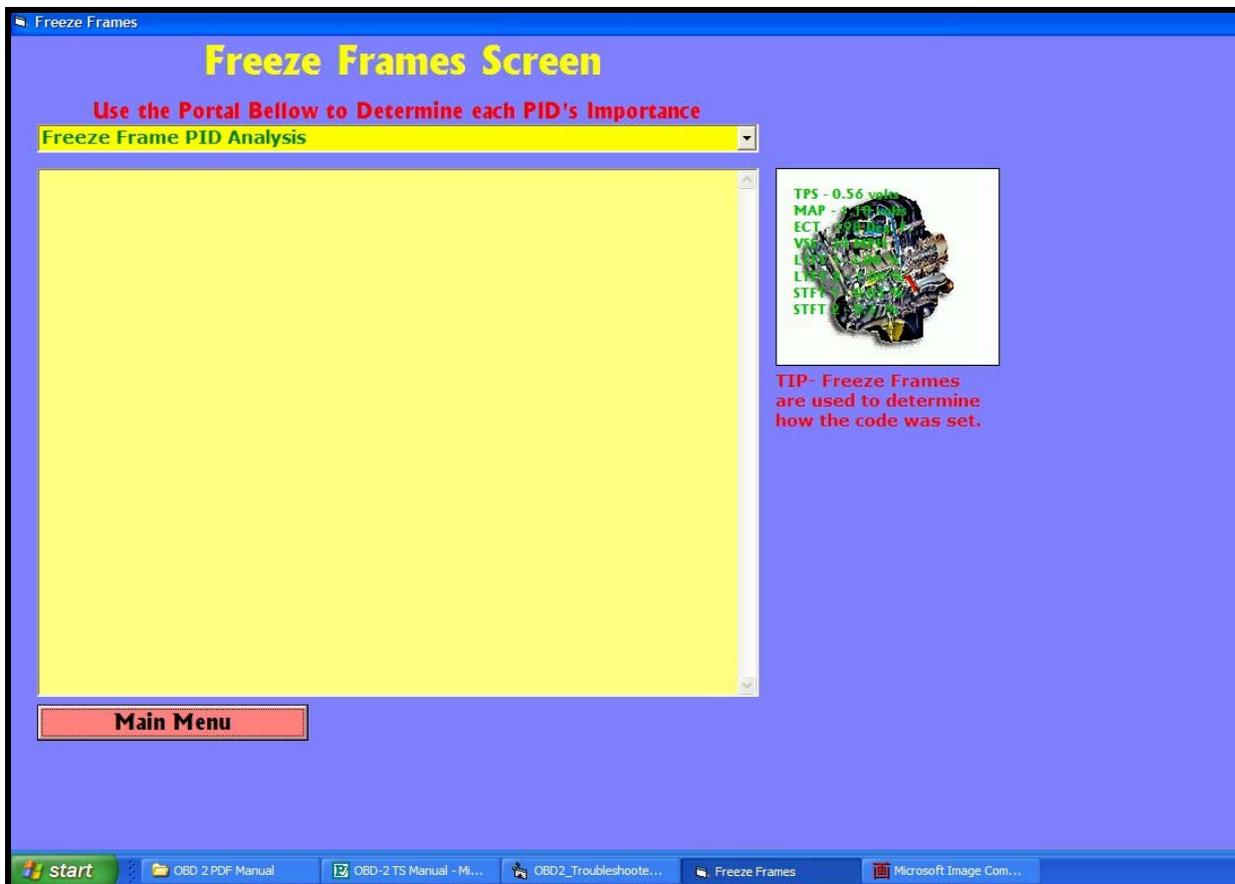
The "Tips/Help" button opens a screen with a large array of options to help you with different issues from sensors testing, to equipment usage. More on this next.



CURRENT CODES SCREEN

The “Current codes” screen let you choose you faulty codes from a large drop-down list. As soon as you input the codes, the codes definition pops-up and this data gets recorded within the software memory for latter analysis and printing. The “Pending codes” screen next on the list is similar to this screen, but prints on the pending side of the report.

The data collected in this screen will then become part of the technician’s report to be printed out.



FREEZE-FRAMES SCREEN

The FF screen provides you with important facts so far as each PID within the FF is concerned. You get to pick the different PIDs found within the scan tool FF data list and determine what they mean. This part of the program is somewhat related to the PID analysis found in step 2.

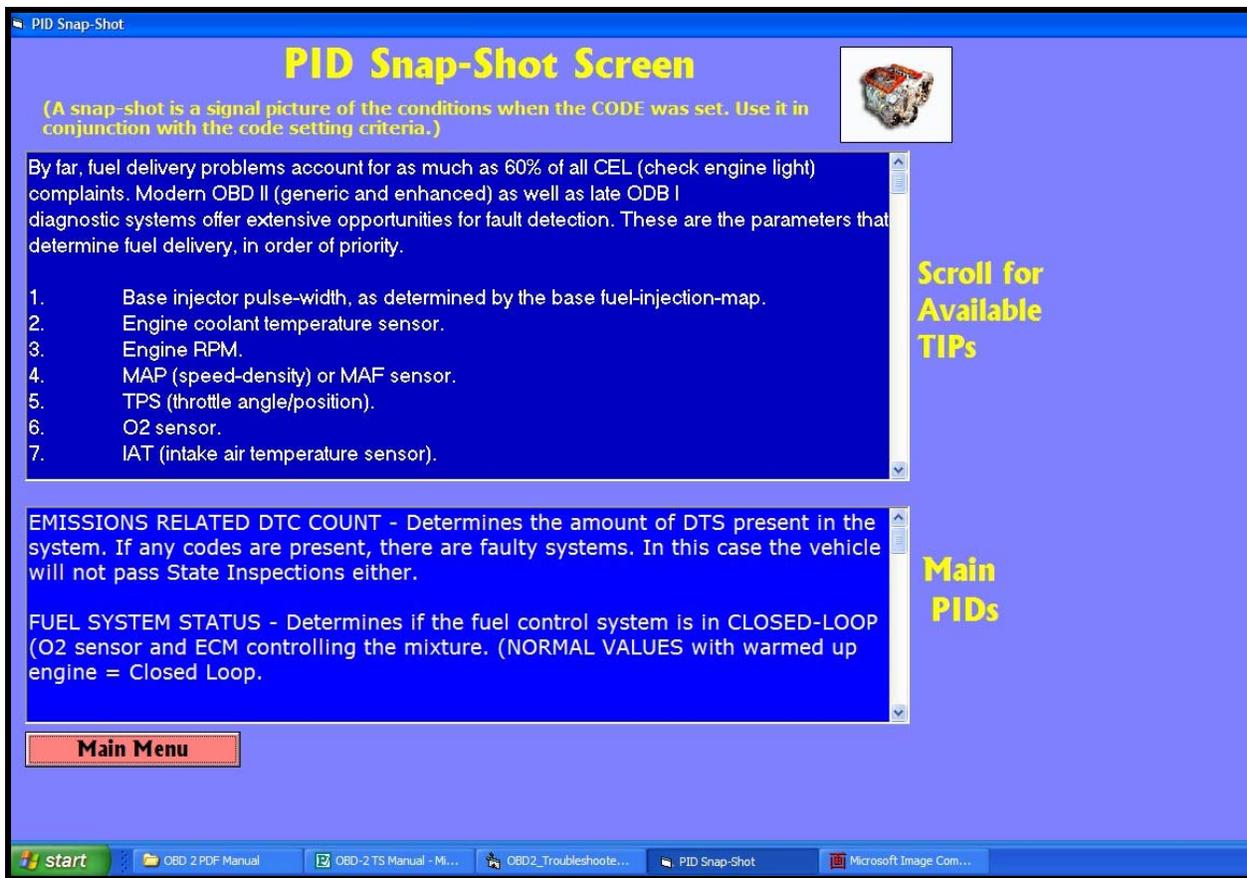
Reading and using the FF is extremely important to the diagnostics process. Use this option in conjunction with the "TIPs/Help" button to learn more about Freeze-Frames.



MONITOR STATUS SCREEN

The “Monitor Status” screen lets you record all pertinent monitors flags. This data will be recorded in the technician’s report and the software will generate a specific output depending on the choices made here. The idea is to use all these clues (Current and Pending codes, FF, Monitor Status, Codes setting criteria, etc) to tackle the problem at hand.

Depending the answers given here, you’ll get a tailored report on where to concentrate and what systems to ignore.



PID SNAP-SHOT

The PID snap-shot screen is where you can find plenty of information if the meaning, and use of the different PIDs on the Generic OBD-2 system. Not all PIDs are used by one single maker. So the understanding and usage PIDs is integral on OBD-2 diagnostics.

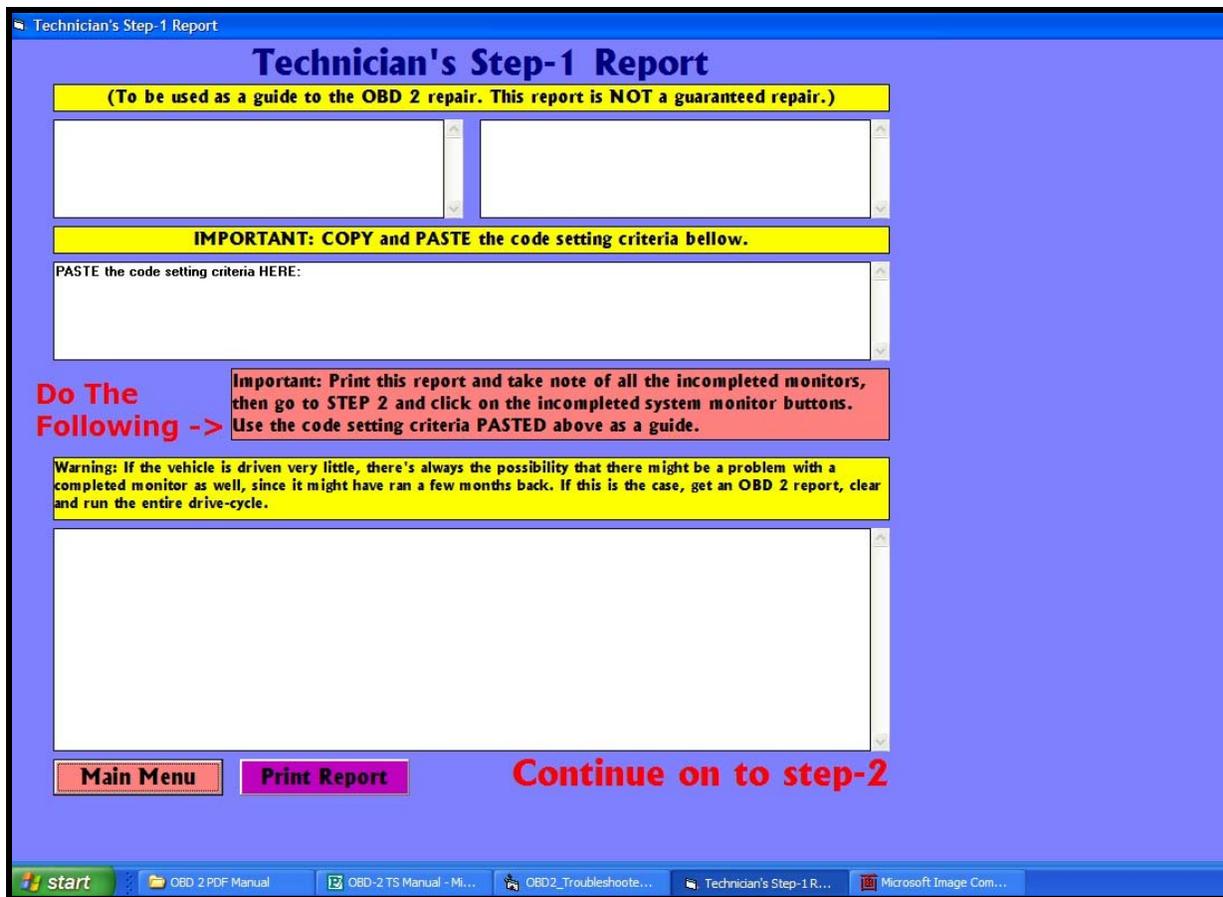
Within the PIDs screen, you have 2 portals that deal with all the main and secondary PIDs found in OBD-2.



CODE SETTING CRITERIA SCREEN

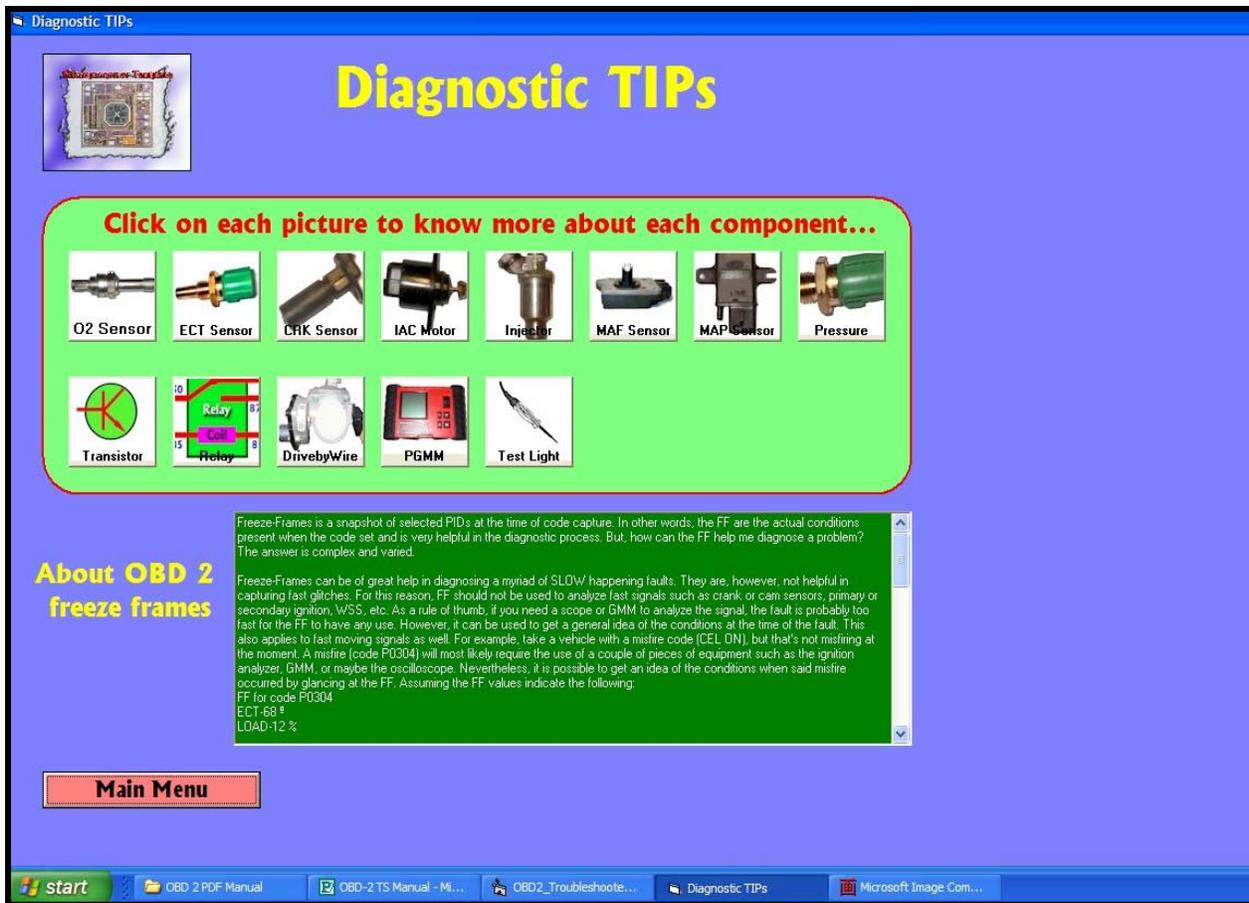
The code setting criteria screen is one of the highlights of this program. It holds hundreds of pages of text data pertaining to how each codes is set. This is what's called the code setting criteria; and this criteria is different for each manufacturer. Within this page you get all the Asian foreign makes and, at the lower left, you also see a LIGHT-GREEN domestic screen, which goes further into the CSC for all the domestic vehicles.

The code setting criteria is a must have in OBD-2 diagnostics. Often times, it holds the clue to getting to a diagnostic repair determination. When in this page, you simply copy and paste the CSC on to the Technician's report, which you'll get at the end of Step 1. By choosing (copying and pasting) all the CSC, as well as the rest of the data gathered from all the sub-steps you have at your disposal the information needed to get to the bottom of the problem.



TECHNICIAN'S REPORT SCREEN

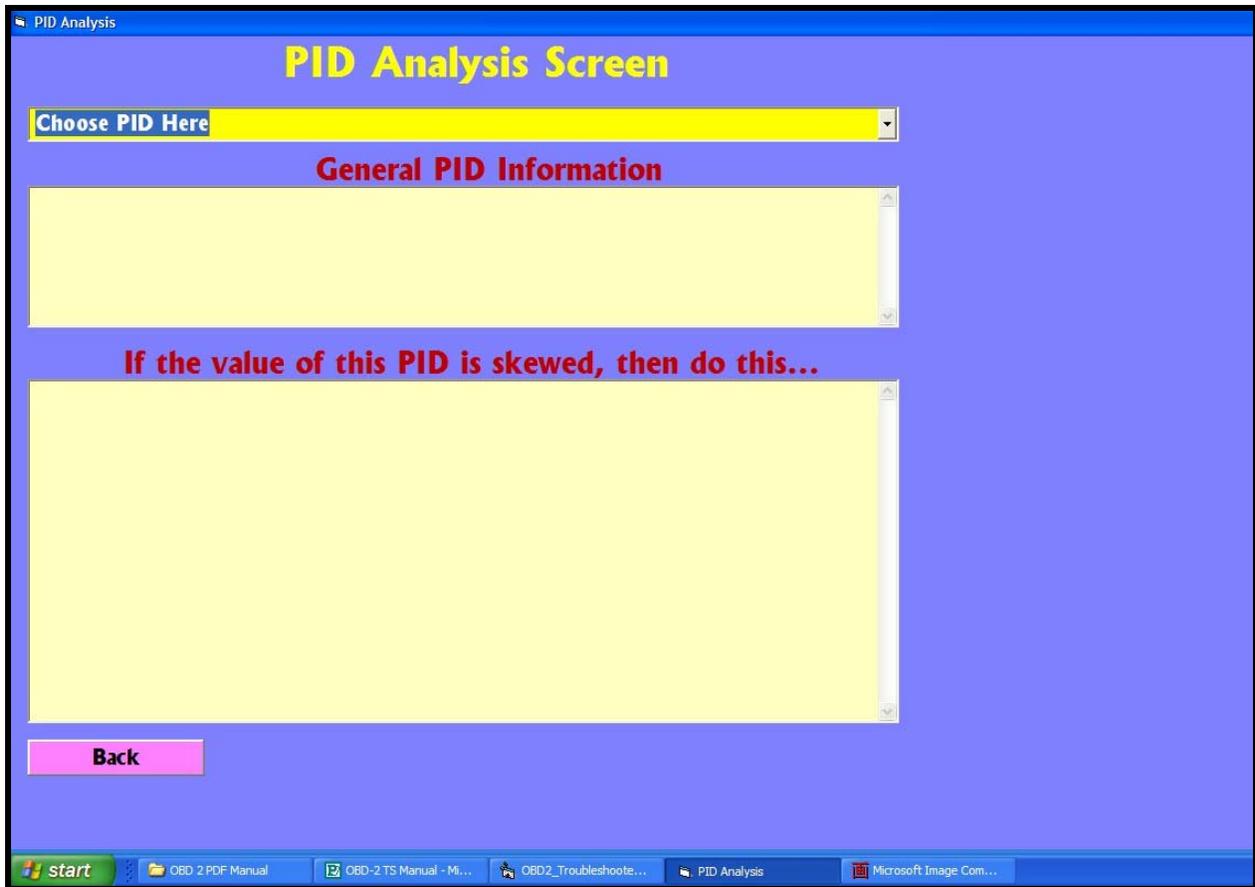
On the "Technician's Report" page, you simply get an overview of the data gathered for the report. You also have the ability to paste the CSC on to a section for later analysis. The technician's report screen will not give you all the data that you'll get when you actually press the "Print Report" button. Once you print the report, you then get a few directives to use on the next step.



DIAGNOSTICS TIPS

This page is full of technical tips and procedures. The 13 buttons seen here will take you through different training screens, giving you factual information. These screens are not part of your vehicle repair, but are presented to give you more insight on different aspects of automotive technology. By clicking each button you get directed and focused information on sensors, actuators, transistors, relays, drive-by-wire systems, equipment, etc.

The bottom part of the screen also gives you information on freeze-frames and how they relate to OBD-2.



PID ANALYSIS SCREEN

The PID analysis screen lets you choose from a list of PIDs and get targeted data on this PID, plus information on the fault if its value is skewed. In other words, what to do if the parameter is out of calibration. Often times you see these Generic PIDs on the screen, with little help from the manufacturer of scanner on what it means and how to use it. This screen may lead you to the solution of the problem, without going any further. But if not, continue on to the other systems.

Comprehensive Monitor

Comprehensive Monitor

Comprehensive Monitor checks for open or short circuits

The diagram shows a central green 'Module' with pins 1 through 20. Pin 11 is connected to the O2 Heater. Pins 12, 13, 14, 15, 17, 18, 19, and 20 are connected to the O2 Signal. Pins 1, 2, 3, 4, 5, 7, 8, 9, and 10 are connected to the Ign. Coils. Pin 1 is also connected to the Ignition Switch. Pin 2 is connected to the Relay. Pin 3 is connected to the ECM-RPM. Pin 4 is connected to the Fuel Pump. Pin 5 is connected to the FPS. Pin 7 is connected to ground. Pin 8 is connected to the Ignition Switch. Pin 9 is connected to the Fuel Pump. Pin 10 is connected to the FPS. Pin 11 is connected to the O2 Heater. Pin 12 is connected to the O2 Signal. Pin 13 is connected to the O2 Signal. Pin 14 is connected to the O2 Signal. Pin 15 is connected to the O2 Signal. Pin 17 is connected to the O2 Signal. Pin 18 is connected to the O2 Signal. Pin 19 is connected to the O2 Signal. Pin 20 is connected to the O2 Signal.

COMPREHENSIVE MON.

The Comprehensive monitor is one of the 3 "Continuous Monitors" that runs immediately after erasing the faulty codes. This monitor is in charge of testing OPEN and SHORT circuits within the sensor/actuator spectrum of components. When this continuous monitor runs and completes, the OBD 2 diagnostics executive will flag it as "Complete" and issue a fault "Pending Code" if a circuit fault has been found (open/short). The second instance of the fault, the ECM's software will then mature that code and set it as a "Current Code".

Diagnosing with this monitor is very straightforward. Simply take into account all codes that are related to sensors and actuators. As soon as this monitor completes (instantaneously), the ECM would have checked all sensors and actuators for circuit faults.

If you're proving the system after a

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COMPREHENSIVE MONITOR SCREEN

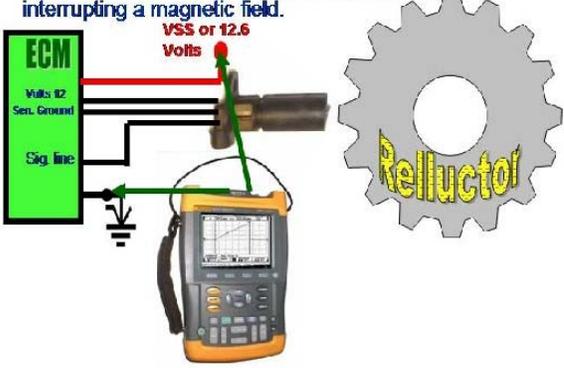
The comprehensive monitor screen gives you all you need to know about CM. This monitor is in charge of testing most sensors and actuators for electrical and electronic faults. Although it runs instantaneously, it is essential to the OBD 2 repair process.

Misfire Monitor Diagnostics

Misfire Monitor Diagnostic Procedure

Testing Automotive Sensors

The Hall-Effect CAM/CRK sensor operates by interrupting a magnetic field.



ECM
Volts 12
Sen. Ground
Sig. line

VSS or 12.6
Volts

Reluctor

THE MISFIRE MONITOR

The misfire monitor is also a continuous monitor. This monitor runs immediately after the vehicle is started. The misfire monitor works by using the "Crank Sensor" to detect any speed differential as the engine is turning. A square or sine wave glitch will be seen by the ECM as a misfire and set a "Pending Code". In the past, the ECM software was often calibrated too sensitive. The end result were erroneous codes set in the ECM memory. Always make sure that a reflash is not needed for the vehicle you're working on. To determine if a re-flash is needed do the following:

- Using the Generic OBD 2 scanner, read the ECM software number. This procedure will not work if the ECM is not re-flashable.
- Compare the software number to the TSB number to verify that a re-flash is not needed.

ECM re-flashing is becoming a mainstay in automotive repairs. A new Generic Re-flasher protocol/unit is already available. These gadgets allow you to do an OBD 2 re-flash on any OBD 2 engine module, without the need for a Dealer Scanner.

When diagnosing misfire codes also make sure that the CRK sensor re-learn procedure was done (GM, Mercedes, Chrysler, FORD, etc). Most modern ECMs have this reset option on the scan tool. Re-learning the new CRK sensor's imperfections made during manufacturing is of absolute importance. If this procedure is not done, the vehicle will set erroneous misfire codes.

COMMON SOURCES OF MISFIRES ARE:

- Mechanical faults - always perform a compression test if the engine itself is suspect.
- Ignition components - perform an engine analysis of the ignition waveforms. Make sure the misfire is

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MISFIRE MONITOR SCREEN

The misfire monitor gives you pointers, facts and procedures regarding the setting of a CEL of a failed State Inspection due to a misfiring cylinder.

The software screen explains how to test for the different misfires, the importance of performing a CRK sensor relearn procedure, and what to do when presented with these faults. This section can also be used in combination with other "Help" options to get to the root-cause of a misfire.

Fuel Trim Monitor Diagnostics

Fuel Trim Analysis

Electronic Fuel Injector

THE FUEL TRIM MONITOR

The fuel trim monitor is one of the continuous monitors, which runs instantaneously. This monitor or computer sub-program checks the general A/F ratio characteristics of the working fuel control system. Testing this system involves proving the function of all the components needed to keep the A/F ratio at 14.7:1. The fuel monitor will use the "FUEL TRIM PID" to detect a faulty condition. This monitor is related to the following:

1. Checks and uses the fuel trims to determine if the A/F ratio is skewed.

To check this monitor DO the following!
 (Start the engine, let it warm-up, and check the Fuel Status PID, LTFT and STFT at idle and 2500 RPM?)

Check the FUEL STATUS PID. Is it at "CLOSED LOOP" ?
 YES NO

Check the LTFT. Is the LTFT value below -10% or above +10% ?
 YES NO

Check the STFT PID. Is the STFT value below -8% or above +8% ?
 YES NO

Answer the questions above, click me, then follow directions...

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FUEL TRIM ANALYSIS

The FUEL TRIM screen is also an interactive option that goes into the usage of this PID to diagnose A/F (Air/Fuel) fault conditions. In here you'll be asked a series of questions. The software then chooses a set of answers to be displayed on the lower part of the screen. The answers given will guide you further in the diagnostics process.

A/F ratio problems account for close to 75% of all OBD 2 faults seen today. The proper diagnosis, usage and application of these practical procedures will make for a profitable and fast repair. The help and guidance that you get here will give the extra push you need during the hardest repairs.

EGR System Monitor

TO TEST THE EGR POSITION SENSOR, DO AS IN THE "EGR MAP" TYPE TEST.
 These 2 systems are electrically similar. Always test for the EGR position sensor reference voltage,

TO TEST THE EGR TEMP. SENSOR, DO THE FOLLOWING!
 1-First disconnect the EGR temp. sensor connector and measure its reference voltage with KOEO. If 1 wire, measure between chassis and sensor wire. If 2 wires, then measure across both wires. This is done to

Intake Manifold Side

TO TEST THE MAP SENSOR EGR FEEDBACK SYSTEM, DO THE FOLLOWING!
 1-Disconnect the EGR MAP sensor connector and test its 5 volt reference, ground and signal wire. Test the signal wire by jumping the 5.00 volt reference wire and the signal wire. Watch the scan tool reading jump to 5.00 volts as you do so.
 2-Start the engine and connect a scanner to the DLC connector.

Exhaust Manifold Side

DPFE

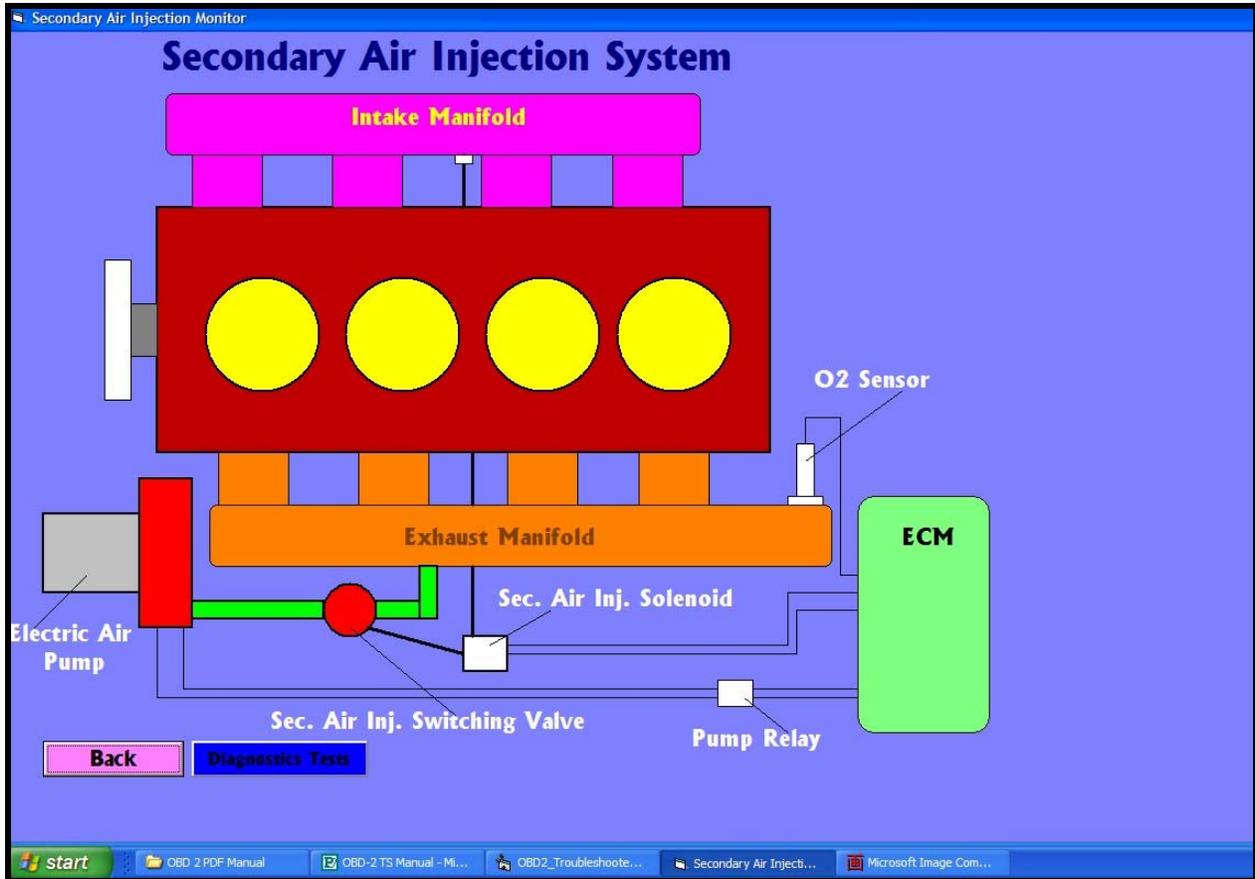
TO TEST THE DPFE SENSOR, DO THE FOLLOWING!
 1-Start the engine and connect a scanner to the DLC connector.
 2-If a scanner is NOT available, connect a DMM or GMM to the DPFE sensor signal wire.
 3-Set the parking brake on and block the tires for safety.
 4-Step on the brakes and put the transmission in drive.
 5-While stepping on the brakes, lightly accelerate the vehicle (pre-

There are 4 main types of EGR systems. Following these guides to test each system.

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EGR SYSTEM MONITOR

EGR system monitor is based on the different types of EGR systems on the market and how to test them. This is a factual screen of procedures directed at test EGR systems only. Of you were directed to this screen, from the technician's report, here you'll get what you need to test all EGRs, regardless of make and model.



SECONDARY AIR INJECTION MONITOR SCREEN

The secondary air system is a main stay in the OBD 2 arsenal of monitors and systems. Seen mostly on the newer models, the ECM will thoroughly check the operation of the SAI system and issue a faulty code if necessary.

This part of the program will guide you in testing this easily verifiable system.

Catalytic Converter Monitor Diagnostics

Catalytic Efficiency Monitor

O2 Bank 1, Sensor 1 O2 Bank 1, Sensor 2

O2 Bank 2, Sensor 1 O2 Bank 2, Sensor 2

CATALYTIC CONVERTER MONITOR:

The converter monitor relies on the pre and post O2 sensor signals to determine if there's a converter fault. This is one of the few codes that you should take on FAITH VALUE. This means that if there is a converter code, perform the few steps shown next, then TRUST THE CODE. The reason for this is due to the fact that the ECM uses data that's pre-programmed into its memory to issue a converter code. This data is not published or found anywhere else, and is based on the FTP or Federal Test Procedure for that vehicle. These converter monitor tests can not be applied without the programmed data, which again is not

Before Converter O2 Sensor

After Converter O2 Sensor

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CATALYST EFFICIENCY MONITOR

The catalyst efficiency monitor was instituted by CARB to test the viability of the catalytic converter. By using two O2 sensors, the ECM can thoroughly test the efficiency of the converter.

A problem with one of the O2 sensors could make the ECM issue a bogus converter code and make the repair a lot more expensive than it would otherwise be.

Within this screen you'll get all the test procedures to guide in making a proper diagnosis of the converter system.

Oxygen Sensor Monitor Diagnostics

Gray Wire = O2 Ground
 Black Wire = O2 Signal
 2 White Wires = O2 Heater

OXYGEN SENSOR MONITOR

The Oxygen sensor monitor relies on sets of programmed values to determine if this component is faulty. The O2 sensor is tested by the ECM by analyzing its output frequency and amplitude. All O2 sensors should output a minimum value of these two parameters to be considered as passing the test. Use the following tests to determine if the O2 sensor is good. For the most part, a problem with the A/F mixture will set an O2 sensor code, even though the O2 sensor may be OK.

If the O2 sensor is found to be OK. Perform a scanner PID analysis of the LTFT (Long Term Fuel Trims) and the STFT (Short Term Fuel Trims) and click on the button that applies below:
 Click on one of these two buttons to the left.

IF the LTFT or STFT are below -10% then --->

If the LTFT or STFT are above +10% then ---->

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OXYGEN SENSOR MONITOR

The Oxygen sensor monitor section is also an interactive screen that points you in the right direction when it comes to testing A/F and O2 sensor faults.

Get guidance in testing for “Lean” and “Rich” conditions by pressing a few buttons. Simple, fast and reliable information.

Oxygen Sensor Heater Monitor Diagnostics

Gray Wire = O2 Ground
 Black Wire = O2 Signal
 12.6 V or Batt Voltage
 O2 HEATER RELAY
 ECM
 ECM controlled O2 Heater GROUND

The O2 sensor HEATER is very easy to test, but there are a few key points to watch for. Perform the following tests:

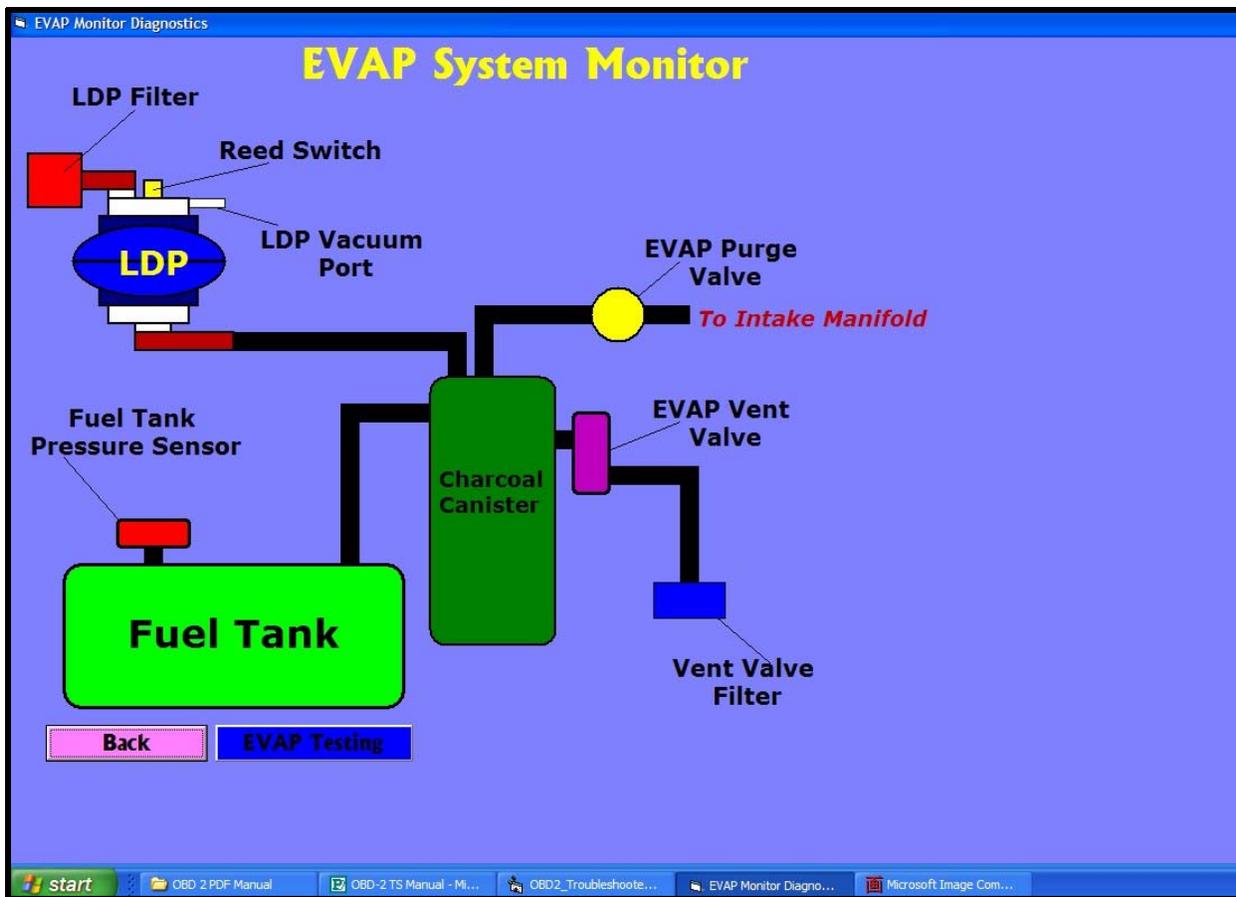
1. To test the O2 sensor heater, there can be NO codes present or set in memory. If this is the case, the ECM will not turn the O2 heater circuit (usually a ground) on. This is done to protect the ECM's internal driver, in case of a short circuit.
2. If O2 heater codes are present, record all FF, codes, Pending codes, and any other OBD-2 information that you might need later on in the repair process. Then proceed to erase the O2 heater codes.

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OXYGEN SENSOR HEATER MONITOR

The O2 Heater monitor is integral in OBD 2 repairs. Often times, the ECM controls both the O2 Heater + and Heater -. A fault with this circuit will simply make the ECM shut down the system and turn OFF the O2 Heater completely.

This screen tell you what to do and why. In most systems, even if you replace the O2 sensor the Heater circuit will still be inoperative. Get the procedures and guidance to test all heater circuits.



EVAP SYSTEM MONITOR

EVAP systems are some of the most complicated systems to test. Get the facts and test procedures here. Used it in combination with other "Help" based section in this program to get to the bottom of the root cause of the fault.

What Fails the Most

1) Misfire Detection:

Testing Automotive Sensors
The Hall-Effect CAM/CRK sensor operates by interrupting a magnetic field.
VSS or 12.0 Volts

Engine Misfire
HALL EFFECT CRK SENSOR.
This CRK sensor signal shows missing pulses which could be caused by improper sensor air gap, missing teeth on the reluctor wheel or a defective internal sensor coil.

2) Air/Fuel Imbalance Detection:

Air/Fuel Ratio Faults:
Air-fuel ratio imbalance is by far, the most common type of fault in modern fuel control systems. Such faults can range from a small vacuum leak to a dripping injector. Any condition that affects the correct fuel delivery at the stoichiometric ratio of 14.7:1 is considered an A/F imbalance and the possible source of a drivability complaint. Stringent emission laws and the development of new engine technologies do not tolerate the results created by prolonged A/F ratio faults. The possibility of catalytic converter damage is always present, which is the reason for manufacturers going to great depth in trying to protect it. In the past decade, safety programming logic has been incorporated into the

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Press Here for Sec Ign/Guide

WHAT FAILS THE MOST SCREEN

This screen goes deep into the two most prevalent OBD 2 faults, misfires and Air/Fuel Imbalance problems. Get the facts, procedures and guidance you need.

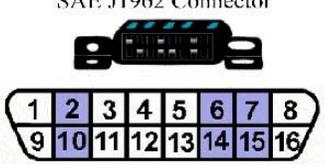
The two sub-sections explain and give the right procedures in this diagnostic area. A further option takes you another screen, which covers interpretation of "Ignition" waveforms and the different value points in test for misfires.

Use this screen as part of the "Help" system found throughout the entire software.

No Communication Diagnostics

No Communications Diagnostics

SAE J1962 Connector



Pin Assignments

PIN 1 -	Manufacturers discretion
PIN 2 -	SAE J1850 Line (Bus +) *
PIN 3 -	Manufacturers discretion
PIN 4 -	Chassis Ground
PIN 5 -	Signal Ground
PIN 6 -	SAE J2284 (CAN High) *
PIN 7 -	K Line of ISO 9141-2 & ISO/DIS 4230-4*
PIN 8 -	Manufacturers discretion
PIN 9 -	Manufacturers discretion
PIN 10 -	SAE J1850 Line (Bus -) *
PIN 11 -	Manufacturers discretion
PIN 12 -	Manufacturers discretion
PIN 13 -	Manufacturers discretion
PIN 14 -	SAE J2284 (CAN Low) *
PIN 15 -	L Line of ISO 9141-2 & ISO/DIS 4230-4*
PIN 16 -	Unswitched Vehicle Battery Positive

OBD 2 No Communications Fault

Close to 90% of all "No Communications" fault during and OBD-2 State Inspection Test or normal diagnostics is due to a faulty connector. In most cases the actual female pins become open, due to time and wear, and will not make proper contact with the scanner or State Inspection computer.

1. Step one in diagnosing No Communication faults is to perform a visual inspection of all the connector pins. Their faulty state may not become apparent at first glance. Use a light to do the visual inspection.
2. Reach at the back of the OBD-2 connector and inspect (visual and feel) whether the connector wires are all properly attached to their respective pins. Sometimes during a radio installation the installer has pulled on the wires or connected another circuit that's created a problem.
3. Use a small metal pick and

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NO COMMUNICATIONS SCREEN

The NO COMMUNICATIONS screen gives you facts and guidance on testing vehicles that fail a State Inspection, have a CEL on but you can't get data with your scanner, or in instances where the vehicle doesn't start and you need the use of the scanner.

CEL ON with No codes

The Different CEL Wiring Arrangements

CEL Wiring Arrangements

There are many cases in which the CEL may be on, but no codes are found in the generic OBD-2 mode. A few faulty issues are related to this type of situation. The following are points and procedures to detect and correct these problems.

- 1) The first step is determining if your CEL ON situation is not due to an enhanced code present in memory. Due to the separate nature of the Generic and Enhanced coding systems, an enhanced code may not show up on the generic side. Even further, some non-OEM scanners may not show the enhanced codes together with the generic

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CEL ON WITH NO CODES FAULT SCREEN

The CEL or Check Engine Light is On, but with no codes. This is becoming a very common faulty issue on OBD 2 systems. Get the guidance you need to diagnose a CEL circuit. What are the different circuit configurations? Get detailed and targeted guidance on all CEL related issues.

Erasing Codes

Erasing Faulty Codes (Last STEP)

(Erase Codes and Re-set Adaptive Memory, then go to the Next STEP to run the DRIVE-CYCLES)

Erasing Codes, FF and Monitor Status

Erasing the OBD-2 codes should always be the last step in the repair process. By clearing codes, you're also clearing the Freeze-Frames, and the Monitor Status. This wealth of OBD-2 information is absolutely necessary when performing diagnostics on the different systems pertaining to a modern vehicle. Once the codes are erased, there're

[Click Here to See Code Erasure and Adaptive Reset Procedure -->](#)

The diagram illustrates two methods for erasing codes and adaptive memory. On the left, a scan tool is connected to the DLC connector of a vehicle's engine control unit (ECU). On the right, the battery is disconnected from the ECU. The ECU is shown in the center, with lines indicating the connection points for both methods.

Erasing Codes and Adaptive Memory At the DLC Connector.

Erasing Codes and Adaptive Memory by Disconnecting the Battery.

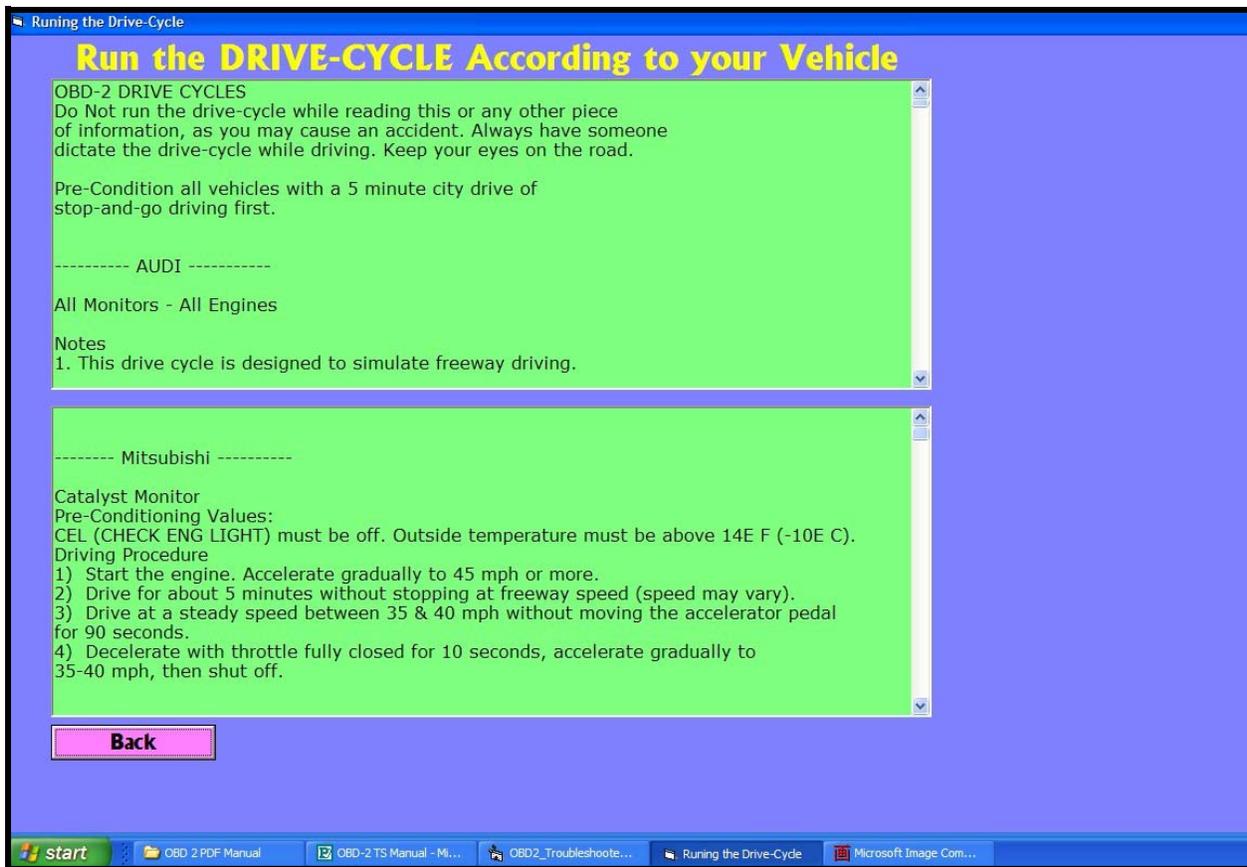
Battery

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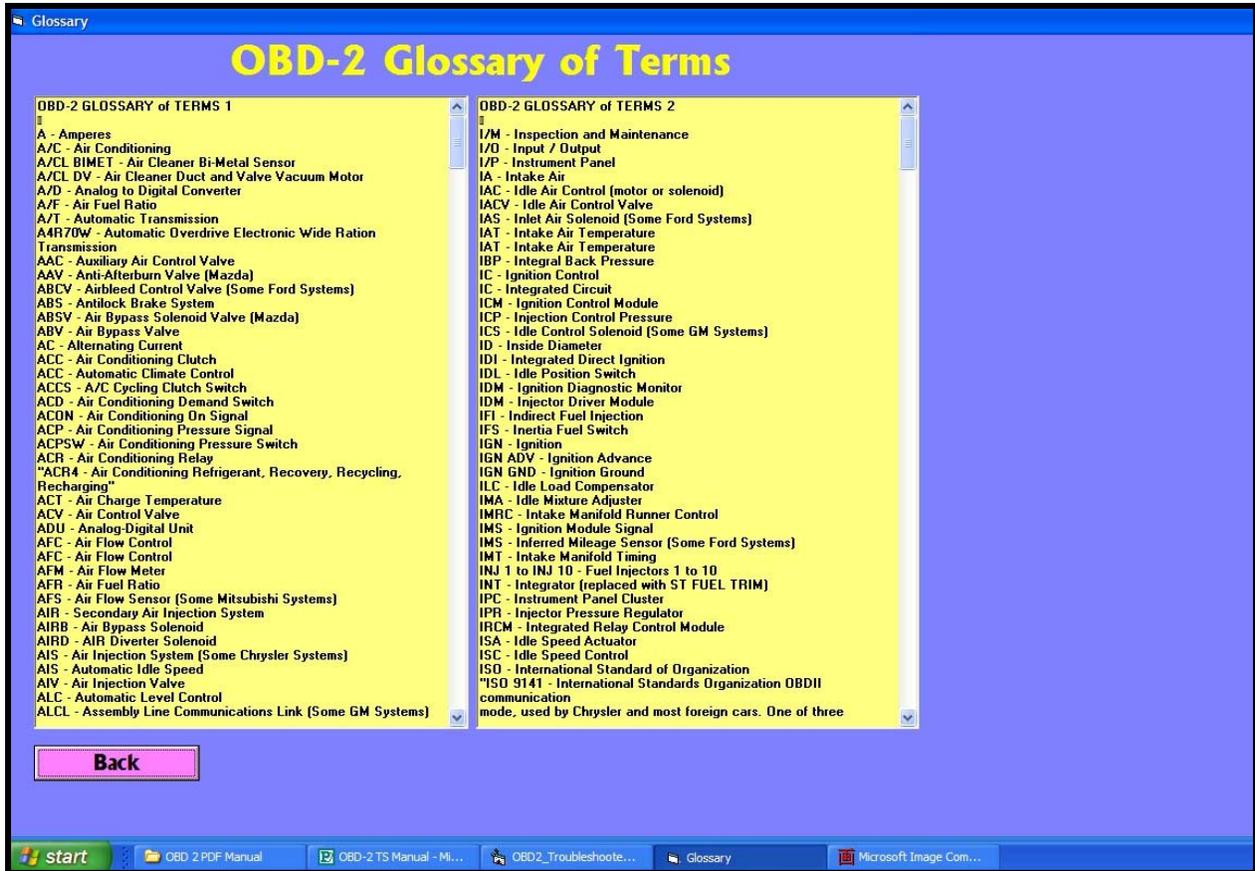
RESETTING CODES AND ADAPTIVE MEMORY FACTOR

Memory and faulty code erasure is very important when it comes to OBD 2 repairs. Not only is it necessary to erase the codes, a simple affair, but also resetting adaptive memory factors to let the ECM know that a repair has been made. The trouble is that this procedure is different per manufacturer. Get the procedures and guide on how to reset adaptive memory factors.



RUNNING THE DRIVE-CYCLES

Running the DRIVE-CYCLE is the last part in the repair process. Get all the "drive cycles" for almost all automobile makers on the market, including Asian, Euros, and Domestic systems. By running the DC correctly, you'll get to finish your repair faster and cheaper.



GLOSSARY SCREEN

This last part is a compendium of hundreds of automotive terms, which may come in handy at one point or another.