



V280

## OBD2 & EOBD Scan Tool



# User's Manual

# CONTENTS

<b>1. Security Information</b>	1
1.1 Safety Precautions and Warnings	1
<b>2. OBD (On-Board Diagnostics) II Introduction</b>	1
2.1 OBD-II/EOBD-II	1
2.2 Data Link Connector (DLC)	2
<b>3. Product Instructions</b>	2
3.1 Product Description	2
3.2 Specifications	3
3.3 Accessories Included	4
3.4 Keyboard	4
3.5 Power	4
3.6 System Setup	5
3.7 Vehicle Coverage	6
3.8 Protocol Coverage	7
3.9 Test Mode Coverage	7
3.10 Product Troubleshooting	8
<b>4. OBD-II Diagnosis</b>	9
4.1 Read DTCs	9
4.2 Clear DTCs	11
4.3 Live Data	12
4.4 Freeze Frame Data	14
4.5 MIL Status	14
4.6 Viewing Vehicle Information	15
4.7 O <sub>2</sub> Sensor	15
4.8 Mode 6	16
4.9 Mode 8	16
4.10 I/M Readiness Monitors	17
4.11 Battery Test	19
4.12 DTC Query	19
<b>5. Review Data</b>	20
5.1 Reviewing Data	20
<b>6. Warranty</b>	20
6.1 Limited One Year Warranty	20
6.2 Service Procedures	20

# **1. Security Information**

## **1. 1 Safety Precautions and Warnings**

To prevent personal injury or damage to vehicles and/or the scan tool, read this instruction manual first and observe the following safety precautions at a minimum whenever working on a vehicle:

- Always perform automotive testing in a safe environment.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well ventilated work area: Exhaust gases are poisonous.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/ electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the scan tool dry, clean, free from oil/ water or grease. Use a mild detergent on a clean cloth to clean the outside of the scan tool when necessary.

# **2. OBD (On-Board Diagnostics) II Introduction**

## **2.1 On-Board Diagnostics(OBD)II**

The first generation of On-Board Diagnostics(called OBD I)was developed by the California Air Resources Board (ARB) and implemented in 1988 to monitor some of the emission control components on vehicles. As technology evolved and the desire to improve the On-Board Diagnostic system increased, a new generation of On-Board Diagnostic system was developed. This second generation of On-Board Diagnostic regulations is called "OBDII".

The OBD II system is designed to monitor emission control systems and key engine components by performing either continuous or periodic tests of specific components and vehicle conditions. When a problem is detected, the OBD II system turns on a warning lamp (MIL) on the vehicle instrument panel to alert the driver typically by the phrase of "Check Engine" or "Service Engine Soon". The system will also store important information about the detected malfunction so that a technician can accurately find and fix the problem. Here below follow three pieces of such valuable information:

- 1) Whether the Malfunction Indicator Light (MIL) is commanded 'on' or 'off';
- 2) Which, if any, Diagnostic Trouble Codes (DTCs) are stored
- 3) Readiness Monitor status.

## 2.2 Data Link Connector (DLC)

The DLC (Data Link Connector or Diagnostic Link Connector) is the standardized 16-cavity connector where diagnostic scan tools interface with the vehicle's on-board computer. The DLC is usually located 12 inches from the center of the instrument panel (dash), under or around the driver's side for most vehicles. If Data Link Connector is not located under dashboard, a label should be there telling location. For some Asian and European vehicles, the DLC is located behind the ashtray and the ashtray must be removed to access the connector. If the DLC cannot be found, refer to the vehicle's service manual for the location.

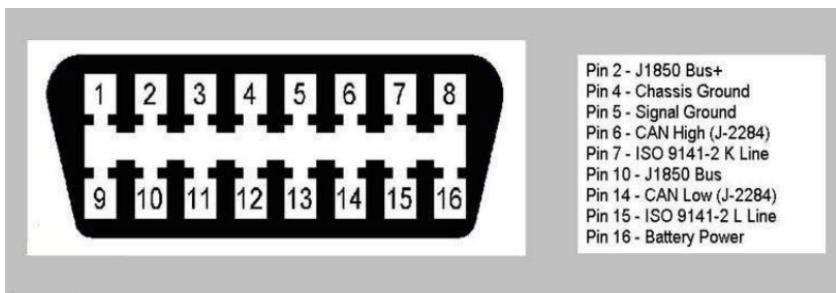


Figure 1

Pin 1, Pin 8, Pin 9, Pin 11, Pin 12, Pin 13 – Manufacture Discretion.

## 3. Product Instructions

### 3.1 Product Description

v890 is easy to carry, simple to operate, fast in diagnosis, large in memory, comprehensive in code base, powerful in performance and novel in design. It is a new generation OBDII diagnostic tool tailored for the owner. Data Live, Freeze Frame, Read DTC, Clear DTC, O2 Sensor Test, On-board Test(Mode 6), Smog Check, I/M Readiness, EVAP Test(Mode 8), Vehicle Info, MIL Status, Battery Test, Fuel Analysis, Performance Data, Engine Data, DTC Query, Data Review, Printer, Settings are fully covered.

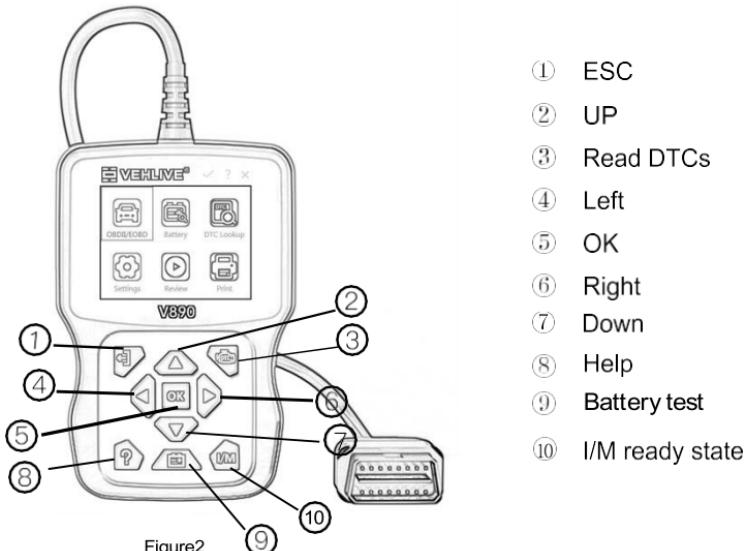


Figure2

**1. ESC Button:** Returns to the previous screen.

**2. Up Button:** Moves up through menu and submenus. Moves to previous screen if information covers more than one screen.

**3. DTC button:** One-key Read DTC operation. Read the car fault code quickly.

**4. Left Button:** Moves to previous screen if information covers more than one screen.

**5. OK Button:** Conforms a selection from a menu.

**6. Right Button:** Moves to next screen if information covers more than one screen.

**7. Down Button:** Moves down through menu and submenus. Moves to next screen if information covers more than one screen.

**8. Help Button:** Quickly review the function description of each One-key.

**9. Batter Button:** Quickly detect battery information.

**10.I/M Button:** One-key I/M Readiness operation.

### 3.2 Specifications

Display Screen	TFT Color (320*RGB*240)
Operating Temperature	0 to 60°C (32 to 140°F)

Storage Temperature	-20 to 70°C (-4 to 158°F)
Power	8V to 18V (power provided by vehicle battery)

### 3.3 Accessories Included

1. User's Manual— Instructions on tool operations.
2. OBDII cable (DLC) -- Data Link Connector or Diagnostic Link Connector, provides power to tool and communication between tool and vehicle.

### 3.4 Keyboard

No solvents such as alcohol are allowed to clean the keypad or display. Use a mild nonabrasive detergent and a soft cotton cloth. Do not soak the keypad as the keypad is not waterproof.



Figure 3

### 3.5 Power

The scan tool is powered via the vehicle Data Link Connector (DLC). Just follow the steps below to turn on the scan tool:

1. Connect the OBD II Cable to scan tool.
2. Find DLC on vehicle.
3. Plug OBD II cable to the vehicle's DLC.
4. Power up the scan tool, and wait for the Main Screen to appear.



Figure 4

### 3.6 System Setup

The System Setup functions allow you to adjust default settings and view information about the scan tool.

- 1.Language: You can choose eight languages from the followings: Chinese, English, French, German, Spanish, Russian, Italian, Polish.
- 2.Unit of measure: Sets the unit of measure to English or Metric.
- 3.Beep Set: Turns on/off beep.
- 4.Key Test: Checks if the keyboard is working properly.
- 5.LCD Test: Checks if the LCD display is working properly.
- 6.Screen Test: Checks if the screen is working properly.

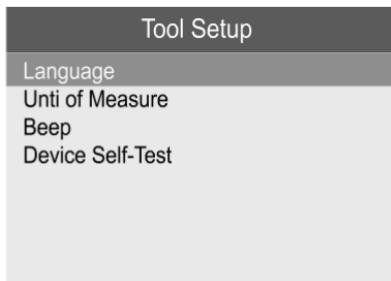


Figure 5

To enter the Setup menu

From the Main Screen: Use LEFT/RIGHT scroll button to select Setting, and press the OK button. Following the instructions to do adjustments and settings could make your diagnosis more conveniently and easily.

### Unit of Measure

Metric is the default measurement unit.

- 1) From Unit of Measure screen, use the OK button to select the desired unit of measurement.

Unit of Measure	
Flow	lb/min
Speed	mph
Distance	miles
Pressure1	PSI
Pressure2	inHg
Pressure3	inH2O
Pressure4	inH2O
Temperature	°F

Figure 6

## **Beep Set**

The default setting is Beep On.

- 1) From Beep Set menu, use the OK button to select ON or OFF to turn on/off the beep.

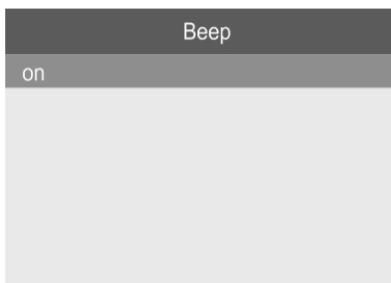


Figure 7

## **Key Test**

The Key Test function checks if the keyboard is working properly.

- 1) Press any key to start test. When you press a key, the name of corresponding key will show on the screen. Otherwise, the key is not functioning properly.
- 2) Double press ESC to return to previous menu.

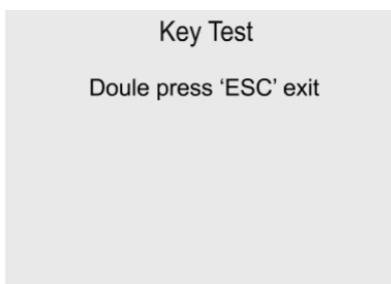


Figure 8

## **LCD Test**

The LCD Test function checks if the LCD display is working normally.

- 1) Look for missing spots in the red, green, yellow LCD display.
- 2) When completed, press the ESC button to exit.

## **3.7 Vehicle Coverage**

The Scan Tool is specially designed to work with all OBD II compliant vehicles, including those equipped with next-generation protocol-Control Area Network (CAN). It is required by EPA that all 1996 and

newer vehicles (cars and light trucks) sold in the United States must be OBD II compliant and this includes all Domestic, Asian and European vehicles.

A small number of 1994 and 1995 model year gasoline vehicles are OBD II compliant. To verify if a 1994 or 1995 vehicle is OBD II compliant, check the Vehicle Emissions Control Information (VECI) Label which is located under the hood or by the radiator of most vehicles. If the vehicle is OBD II compliant, the label will designate "OBD II Certified". Additionally, Government regulations mandate that all OBD II compliant vehicles must have a "common sixteen-pin Data Link Connector (DLC).

For your vehicle to be OBD II compliant it must have a 16-pin DLC under the dash and the Vehicle Emission Control Information Label must state that the vehicle is OBD II compliant.

### 3.8 Protocol Coverage

Allows different systems and sensors in a vehicle to communicate.

There are currently five Protocols: SAE\_J1850(PWM, VPW), ISO\_9141-2, ISO\_14230-4(KWP, KWP-5BPS), ISO\_15765-4(CAN, CAN-B, CAN-C, CAN-D).

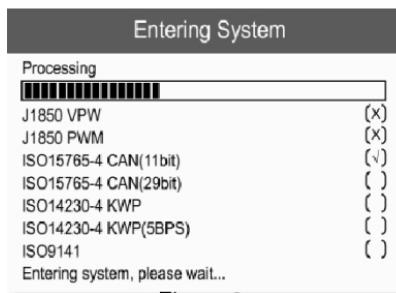


Figure 9

PID- Parameter Identification Data: Data returned by the vehicle's Control Modules to the Scan Tool.

### 3.9 Test Mode Coverage

Here is a basic introduction to the OBD II communication protocol.

Note: Not all Modes are supported by all vehicles.

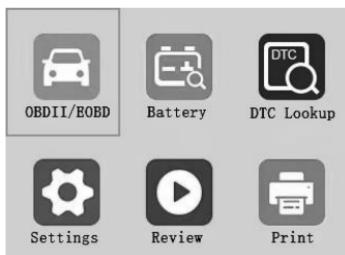


Figure 10



Figure 11

Mode \$01-Identifies the Power-train information and shows current data available to the scan tool.

Mode \$02-Request Powertrain Freeze Frame Data.

Mode \$03-Request Emission-related stored DTCs.

Mode \$04-Clear/reset Emission-related diagnostic information.

Mode \$05-Request Oxygen Sensor Monitoring Test Results(2007 and older vehicles only)

Mode \$06-Non-continuously Monitored System test results.

Mode \$07-Request for DTCs (pending) from Continuously Monitored Systems after a single driving cycle has been performed to determine if repair has fixed a problem.

Mode \$08-Request control of on-Board system, test or component.

Mode \$09-Request vehicle information.

Mode \$0A-Request Emission-related permanent DTCs.

Mode \$0B-Malfunction Indicator Lamp. The vehicle's "Check Engine" warning light that activates when a DTC is stored.

Mode \$0C-Battery test. Viewing the status and the voltage of the vehicle.

### 3.10 Product Troubleshooting

This part describes problems that you may encounter while using the scan tool.

Problem	Possible Cause	Likely Solutions
Scan Tool doesn't power up	1.OBDII Cable connector not connected securely. 2. Vehicle's DLC pins are bent or broken. 3. Vehicle's battery is bad.	1.Verify that the Scan Tool's OBDII Cable connector is securely connected to the vehicle's DLC. 2.Check if the DLC pins are bent or broken.If bent or broken,have a certified technician repair the DLC. 3.Make sure vehicle's battery it providing at least 8V.
Vehicle Linking Error	1. Vehicle is not OBD compliant. 2. Ignition is off. 3. Bad connection.	1.Verify that the vehicle is OBDII compliant. 2.Verify that the ignition is ON. 3.Reset the tool by turning the ignition off,waiting 10 seconds,then turning the ignition back on.
Scan Tool Freezes	Scan Tool or vehicle's computer system not responding.	Reset the Scan Tool by turning the ignition off, waiting 10 seconds,then turning the ignition back on.

## 4. OBD-II Diagnosis

The OBD II Diagnostics function is a fast-access option that allows you to carry out a quick test on the engine system of OBD II. When more than one vehicle control module is detected by the scan tool, you will be prompted to select the module where the data may be retrieved. The most often to be selected are the Power-train Control Module [PCM] and Transmission Control Module [TCM]. The US regional models can read other modules, such as ABS, SRS etc., greatly support data reading of 8 modules at a time.

**CAUTION:** Don't connect or disconnect any test equipment with ignition on or engine running.

- 1) Turn the ignition off.
- 2) Locate the vehicle's 16-pin Data Link Connector(DLC).
- 3) Plug the scan tool cable connector into the vehicle's DLC.
- 4) Turn the ignition on. Engine can be off or running.
- 5) Turn on the scan tool. Select OBDII from the Main Screen.
- 6) Press the OK button to wait for the Menu to appear. A sequence of messages displaying the OBDII protocols will be observed on the display until the vehicle protocol is detected.

### 4.1 Read DTCs (Diagnostic Trouble Codes)

OBD II Diagnostic Trouble Codes are codes that are stored by the on-board computer diagnostic system in response to a problem found in the vehicle. These codes identify a particular problem area and are intended to provide you with a guide as to where a fault might be occurring within a vehicle.

There are three types of DTCs:

1. Stored DTCs - A DTC is stored when a fault condition has occurred that meets enough criteria to activate the MIL.
  2. Pending DTCs - When a fault condition is identified during a Drive Cycle, but does not meet enough criteria to activate the MIL. If the fault condition occurs during two consecutive Drive Cycles, it will turn into a Stored DTC and the MIL will activate.
  3. Permanent DTCs - A stored DTC that can only be cleared by the OBDII system, after repairs are made, and a set number of Driving Cycles have been completed.
- OBD II Diagnostic Trouble Codes consists of a five-digit alphanumeric code. The first character, a letter, identifies which control system sets the code. The other four characters, all numbers, provide additional information on where the DTC originated and the operating conditions that caused it to set. Here below is an example to illustrate the structure of the digits:

#### DTC Example

P 0 2 0 2

**P--Systems:** B=Body C= Chassis P=Powertrain U=Network

**0--Code Type Generic(SAE):** P0, P2, P34-P39; B0, B3; C0, C3; U0, U3 (Manufacturer Specific: P1, P30-P33; B1, B2; C1, C2; U1, U2)

## **2--Sub-systems:**

- 1=Fuel and Air Metering
- 2=Fuel and Air Metering
- 3=Ignition System or Engine Misfire
- 4=Auxiliary Emission Controls
- 5=Vehicle Speed Control and Idle Controls
- 6=Computer Output Circuits
- 7=Transmission Controls
- 8=Transmission Controls.

## **02--Identifying specific malfunction section of the systems**

### **Read DTCs as follows:**

- 1.Use UP/DOWN scroll button to select Read DTC from Diagnostic Menu and press OK button.
- 2.Use the UP/DOWN scroll button to select Stored Codes, Pending Codes or Permanent Codes from the Read Codes menu and press the OK button.

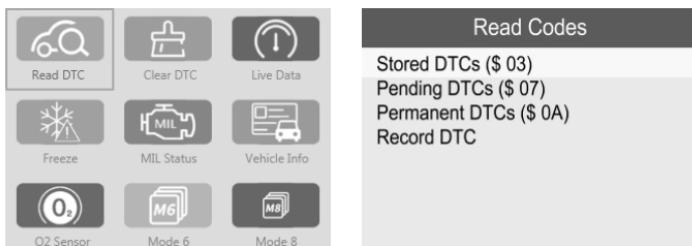


Figure 12

Figure 13

If there is not any Diagnostic Trouble Code, the display indicates "No(pending) codes are stored in the module!" Wait a few seconds or press any key to return to previous screen.

**NOTE:** Permanent Codes function is available for merely vehicles supporting the CAN protocols.

3.View DTCs and their definitions on screen

4.If more than one DTC is found, use the UP/DOWN scroll button to check all the codes.

If retrieved DTCs contain any manufacturer specific or enhanced codes, a "The vehicle's code is defined by the manufacturer, please enter to select the manufacturer." message comes up prompting you to select vehicle manufacturer to view DTC definitions. Use UP/DOWN scroll button to select manufacturer and then press OK button to confirm.

Stored DTC	
B2891	1/2 >
The vehicle's code is defined by the manufacturer, please enter to select the manufacturer	

Figure 14

Select Car Brand	
OTHER	SOU EAST
ALFA	BMW
FIAT	MINI
LANCIA	ROLLS ROYCE
ASTON MARTIN	BRAZIL GM
BENZ	CHRYSLER
MITSUBISHI	JEEP

< 1/5 >

Figure 15

If the manufacturer of your vehicle is not listed, use the UP/DOWN scroll button to select Other and press the OK button.

## V890 indicator status

### 1. Green light

A has no fault code or broken line

B has permanent code

### 2. Red light

A has stored code

B has current code and permanent code

### 3. Yellow light

A has pending code

B has pending code and permanent code

### 4. Red and yellow lights

A has stored code and pending code

B has current code, pending code and permanent code

## 4.2 Clear DTCs

CAUTION: Erasing the Diagnostic Trouble Codes may allow the scan tool to delete not only the codes from the vehicle's on-board computer, but also "Freeze Frame" data and manufacturer specific enhanced data. Further, the I/M Readiness Monitor Status for all vehicle monitors is reset to Not Ready or Not Complete status. Do not erase the codes before the system has been checked completely by a technician.

NOTE: Erasing codes does not mean that trouble codes in ECU have been eliminated completely. As long as there is fault with the vehicle, the trouble codes keeps on presenting.

This function is performed with key on engine off (ROEO). Do not start the engine.

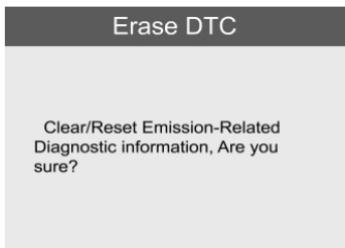


Figure 16



Figure 17

1. Use the UP/DOWN scroll buttons to select Clear DTCs from Diagnostics Menu and press the OK button.

2. Choose whether to erase codes or not.

### 4.3 Live Data

In this function, you can not only read the live data but also record data for later review.

Viewing Data: allows viewing of live or real time PID data of vehicles computer module(s).

To view live data, use the UP/DOWN scroll button to select Live Data from Diagnostic Menu and press the OK button.

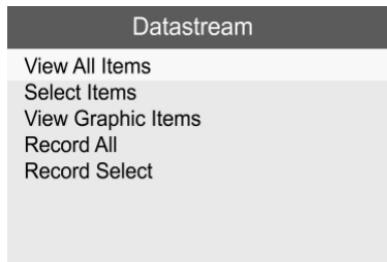


Figure 18

#### A. View All Items

1. To view complete set of data, use UP/DOWN scroll button to select View All Items from Live Data menu and press the OK button.

2. View live PIDs on the screen. Use the UP/DOWN or Left/Right scroll button for more PIDs if additional information is available on more than one page.

All Datastream	
Fuel system 1 status	OL
Fuel system 2 status	OL
Calculated LOAD Value	96.1%
Engine Coolant Temperature	118°F
Short Term Fuel Trim-Bank 1	-21.1%

Figure 19

## B. Select Items

To view customized PID data, click Select Items from Live Data menu and press the OK button.

1. Use the UP/DOWN scroll button to get the desired items and click OK button to confirm.

2. Press ESC to view the selected PIDs.

Select Items	
[ ]	Fuel system 1 status
[ ]	Fuel system 2 status
[ ]	Calculated LOAD Value
[ ]	Engine Coolant Temperature
[ ]	Short Term Fuel Trim - Bank 1
< 1/18 >	

Figure 20

Select Items	
[ ]	Fuel system 1 status
[ ]	Fuel system 2 status
[ ]	Calculated LOAD Value
[ ]	Engine Coolant Temperature
[ ]	Short Term Fuel Trim - Bank 1
< 1/18 >	

Figure 21

## C. View Graphic Items

1. Use the UP/DOWN scroll button to get the desired items and click OK button to confirm.

2. Press ESC to view the selected PIDs.

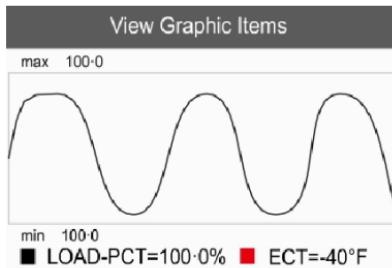


Figure 22

NOTE: Merge Graph can be used to compare four related parameters in graphic mode.

## Recording Data

### A. Record All

1. Use UP/DOWN scroll button to select Record All from Live Data menu and press the OK button.

2. The scan tool will start timing to record retrieved live data.

3. Press ESC to stop recording.

4. You may review the recorded data in Review function.

## B. Record Select

1. Use UP/DOWN scroll button to select Record Select from Live Data menu and press the OK button.
2. Use the UP/DOWN scroll button to get the desired items, then press ESC, the scan tool will start timing to record selected live data.
3. Press ESC again to stop recording.
4. You may review the recorded data in Review function.

## 4.4 Freeze Frame Data

Freeze Frame Data: Operating conditions that are stored when a DTC is stored.

Freeze Frame Data allows the technician to view the vehicle's operating parameters at the moment a DTC is detected. For example, the parameters may include engine speed (RPM), engine coolant temperature (ECT), or vehicle speed sensor (VSS) etc.

Freeze Frame	
DTC that caused required freeze frame data storage	P0758
Fuel system 1 status	OL
Fuel system 2 status	OL
Calculated LOAD Value	0.0%
Engine Coolant Temperature	19°F

< 1/3 >

Figure 23

Record Freeze	
DTC that caused required freeze frame data storage	P0758
Fuel system 1 status	OL
Fuel system 2 status	OL
Calculated LOAD Value	0.0%
Engine Coolant Temperature	19°F

< 1/3 >

Figure 24

1. Select Freeze Frame from Diagnostic Menu and press the OK button.

2. View data. If retrieved information covers more than one screen, use the DOWN scroll button as necessary until all the data have been shown up.

3. Select Save to record freeze frame.

## 4.5 MIL Status

The MIL Status allows checking the status of MIL and run time/distance with Check Engine Light on, run time/distance since DTC cleared.

1. Select MIL from Diagnostic Menu and press OK button.

2. Use the UP/DOWN scroll button to select the item you'd like to check.

ON		
Run Time with Check Engine Light On.		
0 Day	0 Hours	0 Minutes
Distance with Check Engine Light On		
0 KM	0.00 Miles	

< 1/2 >

Figure 25

0 Day	0 Hours	0 Minutes
Distance Since Trouble Code Cleared		
0 KM	0.00 Miles	
Run Time Since Engine Start		
0 Hours	35 Minutes	5 Seconds

< 1/2 >

Figure 26

## 4.6 Viewing Vehicle Information

The Vehicle Info. function enables retrieval of Vehicle Identification No. (VIN), Calibration ID Nos.(CINs), Calibration Verification Nos.(CVNs) .

Vehicle Information
Vehicle Identification Number(VIN): LFV3A24G9D3020130
Calibration Identifications(CID): CID1: JMB*36761500
Calibration Verification Numbers(CVN): CVN1: 4A4D422A CVN2: 33363736

Figure 27

- 1.Select Vehicle Info. from the Diagnostic Menu and press OK button.
- 2.View retrieved vehicle information on screen.

## 4.7 O2 Sensor

OBD2 regulations set by SAE require that relevant vehicles monitor and tests on the oxygen (O2) sensors to identify problem related to fuel efficiency and vehicle emissions. These tests are not on-demand tests and they are done automatically when engine operating conditions are within specified limits. These test results are saved in the on-board computer's memory.

The O2 Monitor Test function allows retrieval and viewing of O2 sensor monitor test results for the most recently performed tests from the vehicle's on board computer.

The O2 Monitor Test function is not supported by vehicles which communicate using a controller area network (CAN). For O2 Monitor Test results of CAN-equipped vehicles, see chapter "On-Board Mon Test"

- 1.Use the UP/DOWN scroll button to select O2 sensor from O2 Sensor menu and press OK button.
- 2.Wait a few seconds while the scan tool validates the PID MAP.If the vehicle does not support the mode, an advisory message will be displayed on the screen.
- 3.View test results of selected O2 sensor.

Select o2 Sensor
Bank 1-Sensor1
Bank 1-Sensor2
Bank 2-Sensor1
Bank 2-Sensor2

Figure 28

High sensor voltage
Test ID
\$04
Test Value
0.550
Minimum Limit
0.000
Manimum
1.275
Status
pass

Figure 29

## 4.8 Mode 6

Mode 6 (On-Board Monitor Test) is useful after servicing or after erasing a vehicle's control module memory. The On-Board Monitor Test for non-CAN-equipped vehicles retrieves and displays test results for emission-related power train components and systems that are not continuously monitored. The On-Board Monitor Test for CAN-equipped vehicles retrieves and displays test results for emission-related power train components and systems that are and are not continuously monitored. Test and components IDs are determined by the vehicle manufacturer.

In this test, there are typically a minimum value, a maximum value, and a current value for each monitor. By comparing the current value with the minimum and maximum value, the scan tool will determine if it is OK.

- 1.From Mode 6 menu, use the UP/DOWN scroll button to select a test to view and press the OK button.
- 2.Wait a few seconds while the scan tool validates the PID MAP.
- 3.The scan tool will prompt you to select the vehicle make. (If you have selected the vehicle before, the Vehicle Manufacturer screen would not appear again)
- 4.After you select the vehicle manufacturer, the scan tool shows the On-Board Monitors tests for specific monitoring systems.

If the vehicle under test does not support the mode, an advisory message will be displayed on the screen.

On-Board Monitoring
Test \$01 Data
Test \$02 Data
Test \$09 Data

Figure 30

Test \$01 Data	
Component ID	\$07
Limit Type	Max
Test Value	0
Minimum Limit	---
Maximum Limit	128
Status	Pass

Figure 31

## 4.9 Mode 8

Mode 8 (The Component Test) function allows initiating a leak test for the vehicle's EVAP system. The scan tool itself does not perform the leak test, but commands the vehicle's on-board computer to start the test. Different vehicle manufacturers might have different criteria and methods for stopping the test once it has been started. Before starting the Component Test, refer to the vehicle service manual for instructions to stop the test.

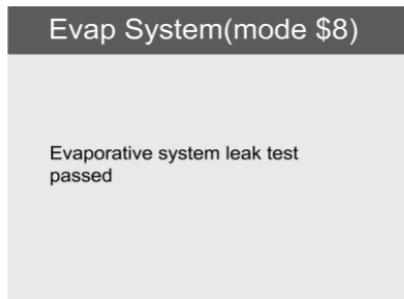


Figure 32

1. Select Mode 8 from Diagnostic Menu and press the OK button.
2. If the test has been initiated by the vehicle, a confirmation message will be displayed on the screen.
3. Some vehicles do not allow scan tools to control vehicle systems or components. If the vehicle under test does not support the EVAP Leak Test, an advisory message is displayed on the screen.

#### 4.10 I/M Readiness Monitors

An important part of a vehicle's OBD II system is the Readiness Monitors, which are indicators used to find out if all of the emissions components have been evaluated by the OBD II system. They are running periodic tests on specific systems and components to ensure that they are performing within allowable limits. Currently, there are eleven OBD II Readiness Monitors(or I/M Monitors) defined by the U.S. Environmental Protection Agency(EPA). Not all monitors are supported by all vehicles and the exact number of monitors in any vehicle depends on the motor vehicle manufacturer's emissions control strategy.

In order for the OBD monitor system to become ready, the vehicle should be driven under a variety of normal operating conditions. These operating conditions may include a mix of highway driving and stop and go, city type driving, and at least one overnight-off period. For specific information on getting your vehicles OBD monitor system ready, please consult your vehicle owner's manual.

I/M Readiness function is used to check the operations of the Emission System on OBD2 compliant vehicles. It is an excellent function to use prior to having a vehicle inspected for compliance to a state emissions program.

I/M Readiness			
MIL		IGN	Spark
DTC	14	Pd DTC	15
MIS	✓	EVAP	✗
FUE	✓	AIR	✗
CCM	✓	O2S	✗
CAT	✗	HRT	✗
HCAT	✗	EGR	✗

Figure 33

**CAUTION** - By clearing trouble codes you also clear the readiness status for the individual emission system readiness tests. In order to reset these monitors, the vehicle must be driven through a complete drive cycle with no trouble codes in memory. Times for reset vary depending on vehicle.

Some latest vehicle models may support two types of I/M Readiness tests:

- A. Since DTCs Cleared - indicates status of the monitors since the DTCs are erased.
- B. This Drive Cycle - indicates status of monitors since the beginning of the current drive cycle.

An I/M Readiness Status result of "NO" does not necessarily indicate that the vehicle being tested will fail the state I/M inspection. For some states, one or more such monitors may be allowed to be "Not Ready" to pass the emissions inspection.

- ✓ -- Indicates that a particular monitor being checked has completed its diagnostic testing.
- ✗ -- Indicates that a particular monitor being checked has not completed its diagnostic testing.
- 🚫 -- The monitor is not supported on that vehicle.

1. Press I/M Readiness button to enter.
2. Wait a few seconds while the scan tool validates the PID MAP.
3. If the vehicle supports both types of tests, then both types will be shown on the screen for selection.
4. Use the UP/DOWN scroll button, as necessary, to view the status of the MIL light ("ON" or "OFF") and the following monitors:

For spark ignition engines:

- MIS - Misfire Monitor
- FUEL -- Fuel System Monitor
- CCM - Comprehensive Component Monitor
- EGR - EGR System Monitor
- O2S -- O2 Sensors Monitor
- CAT -- Catalyst Monitor
- EVAP -- Evaporative System Monitor
- HTR -- O2 Sensor Heater Monitor
- AIR -- Secondary Air Monitor
- HCAT -- Heated Catalyst Monitor

For compression ignition engines:

- MIS -- Misfire Monitor
- FUEL -- Fuel System Monitor
- CCM -- Comprehensive Component Monitor
- EGR - EGR System Monitor
- HCCAT -- NMHC Catalyst Monitor

- NCAT -- NOx Aftertreatment Monitor
- BP -- Boost Pressure System Monitor
- EGS -- Exhaust Gas Sensor Monitor
- PM -- PM Filter Monitor

## 4.11 Battery Test

The Battery Test function allows viewing the status and the voltage of the vehicle.

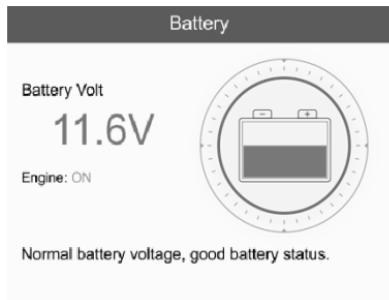


Figure 34

1. Select Battery from Diagnostic Menu and press OK button.
2. You can clearly see the status and the voltage of the vehicle.

## 4.12 DTC Query

The DTC Query function allows user to search definitions of DTC stored in built-in DTC library.

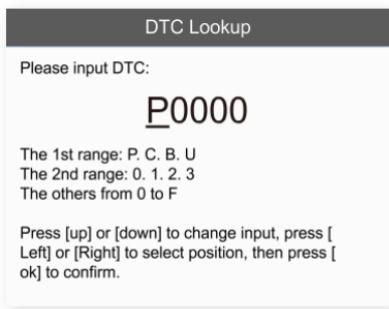


Figure 35

1. Use the UP/DOWN scroll button to select DTC Query from Diagnostic Menu and press OK button.
2. Wait for the scan tool to display the DTC Query screen.
3. Press UP/DOWN to change input, press LEFT/RIGHT to select position. Then press OK button to confirm and the scan tool will display this code's definition on screen.

If definition could not be found(SAE or Manufacturer Specific), the scan tool displays "The fault code is not found in the database"

4.Press ESC button to return to previous menu.

## **5. Review Data**

The Review function allows viewing data from last test recorded by the scan tool.

### **5.1 Reviewing Data**

1.Select Review from Main Screen, and press the OK button.

2.Use the UP/DOWN scroll button to select the item you'd like to review. Then press OK button to continue.

3.Review selected data on screen.

If no data from previously tested vehicle is recorded, a message "No data available!" shows on the screen.

4.If you'd like to delete the saved data, select Review from Main Scree, and then choose the one you want to delete and press OK.

## **6.Warranty**

### **6.1 Limited Three Year Warranty**

This product will be free from all defects in materials and workmanship for a period of three(3) year from the date of the original purchase, subject to the following terms and conditions:

- 1) The sole responsibility of our company under the Warranty is limited to either the repair or, at the option of us, replacement of the scan tool at no charge with Proof of Purchase. The sales receipt may be used for this purpose.
- 2) This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
- 3) We shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the scan tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- 4) All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. We reserves the right to make changes at any time without notice.

### **6.2 Service Procedures**

If you have any questions, please contact your local store, distributor or visit our website.

If it becomes necessary to return the scan tool for repair, contact your local distributor for more information.

