

INNOVA®

5610

CarScan®
PRO

+
REPAIR
SOLUTIONS **2**



HELLO...

On behalf of everyone at INNOVA, we want to welcome you and thank you for purchasing the **INNOVA® 5610 CarScan® Pro!** Every automotive diagnostic scan tool we make includes tons of pro-level features designed to help maximize, and simplify, your OBD2 diagnostic routine. In this manual, we will guide you on how to access your tool's intuitive functions including:

- | | |
|--|---|
| ☒ Check Engine Light Diagnostics | ☒ Steering Angle Sensor (SAS) Calibration |
| ☒ Bi-Directional Active Tests | ☒ DPF Reset |
| ☒ Special Function | ☒ SRS / Safety System Inspection |
| ☒ Enhanced Data Stream | ☒ Oil Level Checks |
| ☒ TPMS / Tire Pressure Readings | ☒ Battery System Check |
| ☒ Transmission Temperature Readings | ☒ Stream Live Data PIDs |
| ☒ Hybrid Battery Cell Voltage Readings | ☒ Smog / Emissions Readiness |
| ☒ EPB/ABS Servicing | ☒ OEM Level Diagnostics |
| ☒ OEM Network Scans | ☒ OBD1 Testing (Optional) |
| ☒ Battery Reset | ☒ And Much More... |
| ☒ Oil Light Reset | |

Plus, gain the benefit of having unlimited access to real world solutions on your mobile device:



RepairSolutions2® seamlessly pairs with your INNOVA OBD2 diagnostic tool to deliver the most complete automotive repair database with verified fixes from ASE Certified Master Technicians. Find the right fix and the right parts instantly on your mobile device.

Enjoy using your INNOVA diagnostic equipment!

Yours sincerely,

The Innova Technical Team

P.S: Join us on social media to stay current...





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LEGAL INFORMATION

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC ID: 2AC7Z-ESPWR00M32D

FCC RF Radiation Exposure Statement

- The transmitters within this device must not be co-located or operating in conjunction with any other antenna or transmitter.
- This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain with IC RF exposure compliance requirements please follow operation instruction as documented in this manual.

TRADEMARKS

Title, ownership rights, and intellectual property rights in the Products and Services shall remain in Innova and/or its licensors and other suppliers. Licensee and End Users acknowledge such ownership, confidential information, and intellectual property rights and will not take any action to jeopardize, limit or interfere in any manner with Innova's or its licensors' or other suppliers' ownership of or rights with respect to the Products and Services. The Products and Services may be protected by Patent, Trademark, Copyright and/or other intellectual property laws and by international treaties. All trademarks used in connection with the Products and Services are owned by Innova, its affiliates or its licensors and other suppliers, and no license to use any such trademarks is provided hereunder. Licensee and End Users agree that Innova may use in any manner and without limitation all comments, suggestions, complaints and other

feedback Licensee and End Users provide relating to the Products and Services. For more information and current listing of trademarks, please visit <https://www.innova.com/pages/trademarks>.

PATENTS

Innova Electronics Corp. protects its intellectual property with numerous U.S. patents, which were used to research, design and manufacture this product. Please visit <https://www.innova.com/pages/patents> for additional information.

SOFTWARE VERSION

Please note that the images and functions on this manual may differ based on the current **Firmware Version (FW)** you have. To check your scan tool's current version and to check for updates, please see **Viewing the Firmware Version** [[See page 86](#)].

CALIFORNIA PRODUCT WARNINGS

WARNING

This product can expose you to chemicals including DiNP, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SAFETY PRECAUTIONS

SAFETY FIRST!

It is important that every user utilizing this product read all instructions and warnings included within this manual to ensure your safety, the safety of others, and to prevent damage to this product & vehicles being diagnosed and repaired. This manual describes common test procedures used by experienced service technicians. It is inferred that the user has a good understanding of vehicle systems before using this product.

Many test procedures require precautions to avoid accidents that can result in personal injury, and/or damage to your vehicle or test equipment. At a minimum, the following safety standards should be followed whenever using this product, or whenever working on a vehicle.

- ❑ When an engine is running, it produces carbon monoxide, a toxic and poisonous gas. To prevent serious injury or death from carbon monoxide poisoning, **operate the vehicle ONLY in a well-ventilated area.**
- ❑ To protect your eyes from propelled objects as well as hot or caustic liquids, **always wear approved safety eye protection.**
- ❑ When an engine is running, many parts (such as the coolant fan, pulleys, fan belt etc.) turn at high speed. To avoid serious injury, **always be aware of moving parts.** Keep a safe distance from these parts as well as other potentially moving objects.
- ❑ Engine parts become very hot when the engine is running. To prevent severe burns, **avoid contact with hot engine parts.**
- ❑ Before starting an engine for testing or troubleshooting, make sure the parking brake is engaged. **Put the transmission in park** (for automatic transmission) **or neutral** (for manual transmission). **Block the drive wheels** with suitable tire blocks.
- ❑ Connecting or disconnecting test equipment when the ignition is ON can damage test equipment and the vehicle's electronic components. **Turn the ignition OFF before connecting the scan tool to or disconnecting the scan tool from the vehicle's Data Link Connector (DLC).**
- ❑ To **prevent damage to the on-board computer** when taking vehicle electrical measurements, always use a digital multimeter with at least 10 Megohms of impedance.
- ❑ Fuel and battery vapors are highly flammable. To prevent an explosion, keep all sparks, heated items, and open flames away from the battery and fuel vapors. **DO NOT SMOKE NEAR THE VEHICLE DURING TESTING**
- ❑ **Don't wear loose clothing or jewelry when working on an engine.** Loose clothing can become caught in the fan, pulleys, belts, etc. Jewelry is highly conductive and can cause a severe burn if it makes contact between a power source and ground.

SAFETY ALERT ICONS

As you read this manual, color-coded icons are used throughout to identify safety alerts and warnings. These are provided to help prevent serious injury to you, injury to bystanders, and damage to property or equipment. They are characterized as follows:



Yellow Icon – Provides a “**NOTE:**” statement to offer special information or tip on what is being instructed.



Orange Icon – Potential hazardous situation. Provides a “**WARNING:**” statement on how to proceed to avoid serious injury to the user, bystanders, and/or equipment.



Red Icon – Imminent hazardous situation. Provides an immediate “**DANGER:**” alert on what must be done to prevent serious injury or death to the user or bystanders.

INTRODUCTION

SCAN TOOL CONTROLS AND INDICATORS

See Figure 1 for the locations of items 1 through 22, below.

1. **Display** – Color LCD display shows menus and sub-menus, test results, Scan Tool functions and Monitor status information. See DISPLAY FUNCTIONS for more details.
 2. **GREEN LED** – Indicates that all engine systems are running normally (all Monitors on the vehicle are active and performing their diagnostic testing, and no DTCs are present).
 3. **YELLOW LED** – Indicates there is a possible problem. A “Pending” DTC is present and/or some of the vehicle’s emission monitors have not run their diagnostic testing.
 4. **RED LED** – Indicates there is a problem in one or more of the vehicle’s systems. The red LED is also used to show that DTC(s) are present. DTCs are shown on the Scan Tool’s display. In this case, the Malfunction Indicator (“Check Engine”) lamp on the vehicle’s instrument panel will light steady on.
 5. **Left Soft Key** – selects the associated option shown on the display (Yes/No, Previous/Next, etc.).
 6. **Right Soft Key** – selects the associated option shown on the display (Yes/No, Previous/Next, etc.).
-

Figure 1. Controls and Indicators

7. **▲ UP button** – When in MENU mode, scrolls UP through the menu options. When LINKED to a vehicle, scrolls UP through the current display screen to display additional data.
8. **↵ ENTER button** – When in MENU mode, confirms the selected option or value.
9. **▼ DOWN button** – When in MENU mode, scrolls DOWN through the menu options. When LINKED to a vehicle, scrolls DOWN through the current display screen to display additional data.

10.  **ERASE button** – Erases Diagnostic Trouble Codes (DTCs), and “Freeze Frame” data from the vehicle’s computer, and resets Monitor status.
11.  **SYSTEM MENU button** – When pressed, displays the System Menu.
12. **DTC/FF button** – Displays the DTC View screen and/or scrolls the LCD display to view DTCs.
13.  **POWER/LINK button** – When not connected to a vehicle, turns the Scan Tool “On” and “Off” (press and hold for 3 seconds). When connected to a vehicle, links the Scan Tool to the vehicle’s computer.
14. **M button** – When pressed, displays the Main Menu.
15. **LD button** – When pressed while linked to a vehicle, places the Scan Tool in Live Data mode.
16. **OBD II Cable** (detachable) – Connects the scan tool to the vehicle’s Data Link Connector (DLC) when retrieving codes from OBD II systems.



NOTE: Items 17 through 22 are available with purchase of the optional INNOVA® 3129 OBD1 Kit.

17. **CHRYSLER DLC Adapter** (optional) – Installs on cable (item 22) when connecting to a Chrysler OBD1 Data Link Connector.
18. **FORD DLC Adapter** (optional) – Installs on cable (item 22) when connecting to a Ford OBD1 Data Link Connector.
19. **GM DLC Adapter** (optional) – Installs on cable (item 22) when connecting to a GM OBD1 Data Link Connector.
20. **HONDA DLC Adapter** (optional) – Installs on cable (item 22) when connecting to a Honda OBD1 Data Link Connector.
21. **TOYOTA DLC Adapter** (optional) – Installs on cable (item 22) when connecting to a Toyota OBD1 Data Link Connector.
22. **OBD1 Extension Cable** (optional) – Connects the Scan Tool to the various available OBD1 DLC Adapters. Can also be used to extend the reach of an OBD II Cable (item 16).

SCAN TOOL DISPLAY FUNCTIONS

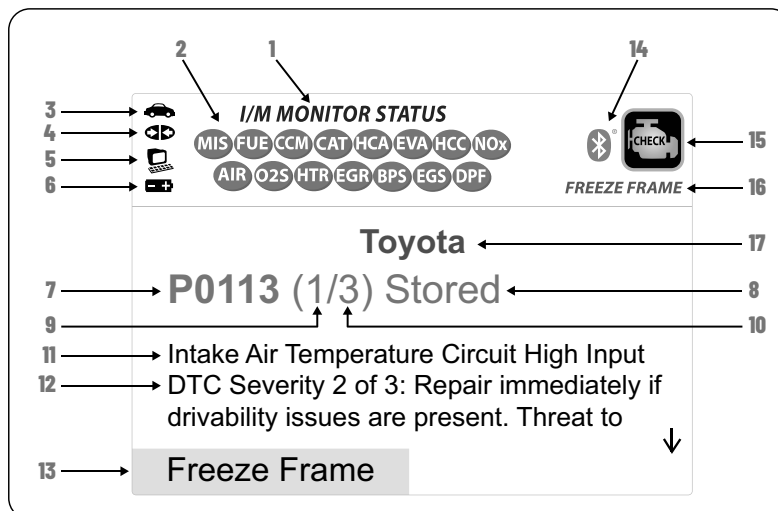


Figure 2. OBD2 Display Functions

See Figure 2 for the locations of items 1 through 18, below.

1. **I/M MONITOR STATUS field** - Identifies the I/M Monitor status area.
2. **Monitor icons** - Indicate which Monitors are supported by the vehicle under test, and whether or not the associated Monitor has run its diagnostic testing (Monitor status). A solid green icon indicates the associated Monitor has completed its diagnostic testing. A flashing red icon indicates that the vehicle supports the associated Monitor, but the Monitor has not yet run its diagnostic testing.
3.  **Vehicle icon** – When visible, indicates that the Scan Tool is being powered through the vehicle's DLC connector.
4.  **Link icon** - When visible, indicates the Scan Tool is communicating with the vehicle's computer.
5.  **Computer icon** – When visible, indicates the Scan Tool is linked to a personal computer.
6.  **Scan Tool Internal Battery icon** – When visible, indicates the Scan Tool batteries are "low" and should be replaced. If the batteries are not replaced when the battery icon is "on", all 3 LEDs will light to warn that the batteries need replacement. No data is displayed on screen when all 3 LEDs are lit.
7. **DTC Display Area** - Displays the Diagnostic Trouble Code (DTC) number. Each fault is assigned a code number that is specific to that fault.
8. **Code Type** – Indicates the type of code being displayed: **Stored, Pending, Permanent**, etc.
9. **Code Number Sequence** – The Scan Tool assigns a sequence number to each DTC that is present in the computer's memory, starting with "1." This number indicates which code is currently displayed. Code number "1" is always the highest priority code, and the one for which "Freeze Frame" data has been stored.



NOTE: If "1" is a "Pending" code, there may or may not be "Freeze Frame" data stored in memory.

10. **Code Enumerator** – Indicates the total number of codes retrieved from the vehicle's computer.
11. **Test Data Display Area** – Displays DTC definitions, Freeze Frame data and other pertinent test information messages.
12. **Severity** – Indicates the level of severity for the priority code (*code number "1"*), as follows:
 - 1: Service should be scheduled and repairs made when convenient. This DTC typically has no immediate threat to essential system components in the short term.
 - 2: Repair immediately if drivability issues are present. Threat to essential system components if not repaired as soon as possible.
 - 3: Stop and repair vehicle immediately to prevent interrelated failures. Harmful and damaging to essential system components.
13. **Softkey Function** – Based on current displayed data, provides quick access to specific functions by using the tool's soft key buttons.
14.  **Bluetooth icon** – Indicates communication status with a compatible INNOVA® mobile application. A solid blue icon indicates an active Bluetooth connection has been established.
15. **SYSTEM icon** – Indicates the system with which the diagnostic trouble code is associated:



MIL icon



ABS icon



SRS icon

- 16. **FREEZE FRAME icon** - Indicates that there is Freeze Frame data stored in the vehicle's computer memory. (Captured when Priority Code was set / Code #1)
- 17. **Current View Title** – Provides the title of what is being displayed, such as the vehicle being tested, or other functions.

MAIN MENU

You can use the Scan Tool to perform additional diagnostic tests, view diagnostic and vehicle information stored in the vehicle's on-board computer, and configure the Scan Tool for your particular needs. These functions are accessed through the Main Menu. The following functions are available:

- **Active Test** – Displays a menu of Active Test functions for the vehicle under test, which lets you perform active tests for various vehicle actuators and systems. [\[See page 33\]](#)
- **Special Function** – Displays a menu of Special Function, which allows you to perform dealership-level relearn procedures. [\[See page 45\]](#)
- **Service Reset** – Lets you reset the Oil Maintenance Light, reset the battery monitor system after battery replacement, perform a Diesel Particulate Filter (DPF) reset, perform calibration procedures for the vehicle's Steering Angle Sensor (SAS), perform Electronic Parking Brake (EPB) cable replacement and reset, or perform an Anti-Lock Brake System (ABS) bleeding service. [\[See page 70\]](#)
- **Service Check** – Lets you view the current engine oil level, oil life remaining, brake pad life, and transmission fluid temperature. [\[See page 77\]](#)
- **Hybrid Battery Check, Battery/Alternator Test** – Performs a check of the vehicle's battery and alternator system (or hybrid/EV battery system) to ensure the system is operating within acceptable limits. [\[See page 77\]](#)
- **OBD Mode Test** – Displays the OBD Mode Test menu, which lets you retrieve and view results for the O2 Sensor Test and OBD Monitor Test, view Drive Cycle procedures and description for a selected Monitor, and initiate a test of the vehicle's EVAP system. [\[See page 77\]](#)
- **Drive Cycle Procedure** – Lets you view drive cycle procedures for a selected vehicle monitor. [\[See page 82\]](#)
- **DLC Locator** – Lets you find the location of the Data Link Connector (DLC) for a specified vehicle. [\[See page 84\]](#)
- **Vehicle Information** – Displays the Vehicle Info menu, which lets you retrieve and view reference information for the vehicle under test. [\[See page 84\]](#)
- **Firmware Version** – Displays the Scan Tool's firmware version. [\[See page 86\]](#)
- **Tool Library** – Displays the Tool Library menu, which provides access to OBD1 and OBD2 DTC libraries, and definitions for Monitor icons and LED indicators.
- **Tool Settings** – Displays the Tool Settings menu, which lets you configure the Scan Tool to your particular needs.

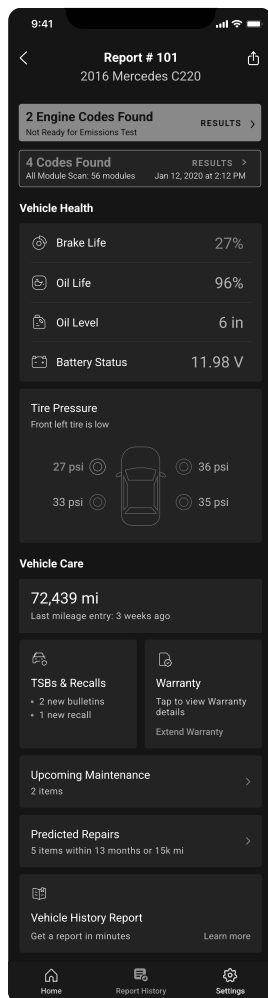




NOTE: The OBD Mode Test options are shown only when the Scan Tool is in Global OBD2 mode.

FIX FOR DTCs – The RepairSolutions2® (RS2) APP

Innova's RepairSolutions2® (RS2) is a web-based service created to assist Do-it-Yourselfers and Professional technicians simplify their vehicle diagnostic process. In essence, RS2 helps you decode the diagnostic data collected by your INNOVA® OBD2 Scan Tool to arrive at a most likely fix. At its core, RS2 uses a database of millions of real-world verified fixes—collected over the last 25 years by ASE Master Technicians across the U.S.—that is cross-referenced to your specific vehicle's problem to instantly arrive at a verified fix. Think of RS2 as your personalized technician to help diagnose, repair, and maintain your vehicle(s).



THE RepairSolutions2® APP DELIVERS SOLUTIONS

- **Verified Fixes** – Find the most likely fixes reported and verified by ASE Technicians for the retrieved DTCs. Plus, quickly purchase the exact parts you need right from the app.
- **Predicted Repairs** – With millions of verified repair solutions, get a statistical probability of what repairs you may need within the next 12 months.
- **TSBs & Recalls** – Learn if there are any special NHTSA safety recalls or Technical Service Bulletins (TSBs) issued by your vehicle's manufacturer.
- **Vehicle Health Reports** - Get a quick insight on how your vehicle's vitals are currently performing (e.g., oil life, brake pad life, battery status, etc.) and get alerts to potential problems.
- **Upcoming Maintenance** – View your vehicle manufacturer's recommended maintenance intervals. Plus, conveniently purchase the correct maintenance parts right from the app.
- **And much more...**

HARDWARE REQUIREMENTS

- Innova Scan Tool with Bluetooth® connectivity
- Android or iOS Mobile Device

DOWNLOAD THE RS2 APP

- **Apple iOS Devices** (click on the link)



- **Android Devices** (click on the link)



- **From an INNOVA Scan Tool**

- Scan the **QR Code** displayed on the tool's screen when pairing with the tool

USING RepairSolutions2®

1. Retrieve your vehicle's diagnostic data [See page 9].
2. Download and install the RepairSolutions2® app (see above)
3. Launch the **RS2 app** and log in to your account.
 - If you have not yet established an account, you must register for a FREE RS2 account before proceeding.
4. Follow the screen prompts to pair your INNOVA Scan Tool.
 - Begin the pairing process by selecting your handheld tool from the list.
5. Once paired, the data from your tool is automatically transferred to the RS2 app to create a report.



NOTE: If the data does not automatically transfer, simply keep the app and tool paired and scan your vehicle again.

SCAN TOOL BATTERY REPLACEMENT

Replace batteries when the battery symbol  is visible on display and/or the screen displays a warning message: *Batteries are low. Please replace batteries before continuing.*

1. Locate the battery cover on the back of the Scan Tool.
2. Slide the battery cover off with your fingers.
3. Replace batteries with three AA-size batteries (for longer life, use Alkaline-type batteries).
4. Reinstall the battery cover on the back of the Scan Tool.

ADJUSTMENTS AFTER BATTERY INSTALLATION

The first time the Scan Tool is turned on, you must select the desired display language (English, French or Spanish) and unit of measurement (Standard or metric) as follows:

1. Press and hold **POWER/LINK**  to turn the Scan Tool "ON."
 - The Select Language screen displays.
2. Select the desired display language, then press **ENTER** .
- The Select Unit screen displays.
3. Select the desired unit of measurement, then press **ENTER** .

- The Firmware Version screen displays.



NOTE: After the initial language and unit of measurement selections are performed, these, as well as other settings, can be changed as desired. [\[See page 89\]](#)

USING THE SCAN TOOL

RETRIEVING OBD2 DIAGNOSTIC TROUBLE CODES

Never replace a part based only on the DTC definition. Each DTC has a set of testing procedures, instructions, and flow charts that must be followed to confirm the location of the problem. Always refer to the vehicle's service manual for detailed testing instructions.



NOTE: Check your vehicle thoroughly before performing any test.



WARNING: ALWAYS observe safety precautions whenever working on a vehicle.

1. Turn the ignition **OFF**.
2. Locate the vehicle's 16-pin Data Link Connector (DLC).

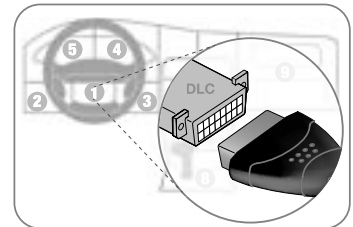


NOTE: Some DLCs have a plastic cover that must be removed before connecting the Scan Tool.

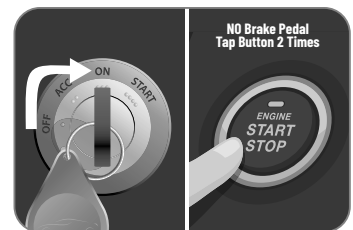


NOTE: If the Scan Tool is ON, turn it OFF BEFORE connecting to the DLC.

3. Connect the Scan Tool to the vehicle's DLC. The cable connector is keyed and will only fit one way.
 - If you have problems connecting the cable to the DLC, rotate the connector 180°.
 - If you still have problems, check the DLC on the vehicle and on the Scan Tool.



4. Turn the ignition on. **DO NOT** start the engine.
5. When the Scan Tool is properly connected to the vehicle's DLC, the unit automatically turns ON.
 - If the unit does not power on automatically, it may indicate there is no power present at the vehicle's DLC connector. Check the fuse panel and replace any burned-out fuses.
 - If replacing the fuse(s) does not correct the problem, consult the vehicle's repair manual to identify the proper computer (PCM) fuse/ circuit, and perform any necessary repairs before proceeding.
6. The Scan Tool automatically checks the vehicle's computer to determine which communication protocol it is using.



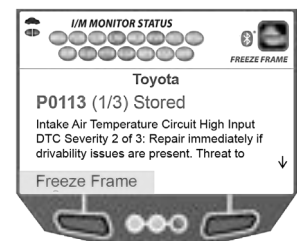
- Tool begins to **"AUTO-LINK"** to identify computer's communication protocol. A progress bar is displayed while a communication link is established.





NOTE: A *PROTOCOL* is a set of rules and procedures for regulating data transmission between computers, and between testing equipment and computers. As of this writing, five different types of protocols (ISO 9141, Keyword 2000, J1850 PWM, J1850 VPW and CAN) are in use by vehicle manufacturers.

- If the Scan Tool fails to link to the vehicle's computer, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Choose **Relink** to try again, or select **System Menu** to return to the System Menu.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
 - Choose **System Menu** to return to the System Menu.
 - Turn the ignition off, and disconnect the Scan Tool.
 - Contact Technical Support for assistance.
7. If the Scan Tool **can** decode the Vehicle Identification Number (VIN) for the vehicle under test, the OBD2 results screen displays. Proceed to **step 9**.
 8. If the Scan Tool **cannot** decode the Vehicle Identification Number (VIN) for the vehicle under test, one of the following will result:
 - If the vehicle **has** stored OEM Diagnostic Trouble Codes (DTCs), the "Select Make" screen displays.
 - Use the **UP ▲** or **DOWN ▼** button to select the desired vehicle, then press **ENTER ↵**. Proceed to **step 9**.
 - If the vehicle **does not** have OEM Diagnostic Trouble Codes, the screen displays results as "Global OBD2". Proceed to **step 9**.
 9. After approximately 2~3 seconds, the Scan Tool will retrieve and display any Diagnostic Trouble Codes (DTCs), Monitor Status and Freeze Frame Data retrieved from the vehicle's computer memory.
 - The Scan Tool will display a code only if codes are present. If no codes are present, the message "No Powertrain DTCs or Freeze Frame Data presently stored in the vehicle's computer" displays.
 10. Refer to **DISPLAY FUNCTIONS** for a description of display elements. [See [page 6](#)]



NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the display area to indicate the presence of additional information.



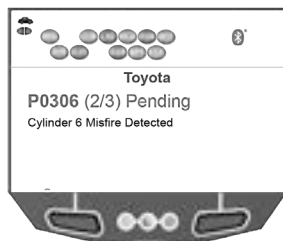
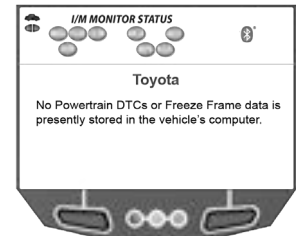
NOTE: If a definition for the currently displayed code is not available, an advisory message shows.

11. Read and interpret Diagnostic Trouble Codes/system condition using the display and the green, yellow, and red LEDs.



NOTE: The green, yellow, and red LEDs are used (with the display) as visual aids to make it easier to determine engine system conditions.

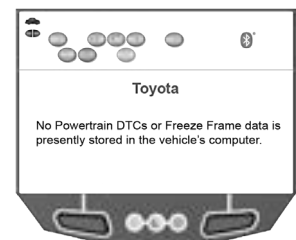
- **Green LED** – Indicates that all engine systems are “OK” and operating normally. All monitors supported by the vehicle have run and performed their diagnostic testing, and no trouble codes are present. All Monitor icons will be solid.
- **Yellow LED** – Indicates one of the following conditions:



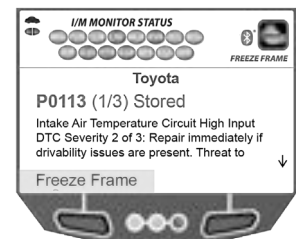
[A] A PENDING CODE IS PRESENT – If the yellow LED is illuminated, it may indicate a Pending code is present. Check the display for confirmation. A Pending code is confirmed by the presence of a numeric code and the word Pending.

[B] MONITOR NOT RUN STATUS – If the display shows a zero (indicating there are no DTC's present in the vehicle's computer memory), but the yellow LED is

illuminated, it may be an indication that some of the Monitors supported by the vehicle have not yet run and completed their diagnostic testing. Check the display for confirmation. All Monitor icons that are blinking have not yet run and completed their diagnostic testing; all Monitor icons that are solid have run and completed their diagnostic testing.



- **Red LED** – Indicates there is a problem with one or more of the vehicle's systems. The red LED is also used to indicate that DTC(s) are present. In this case, the Malfunction Indicator (Check Engine) lamp on the vehicle's instrument panel will be illuminated.
- Choose **Freeze Frame** to view Freeze Frame data for the “priority” DTC.



NOTE: DTC's that start with “P0”, “P2” and some “P3” are considered Generic (Universal). All Generic DTC definitions are the same on all OBD2 equipped vehicles. The Scan Tool automatically displays the code definitions (if available) for Generic DTC's.



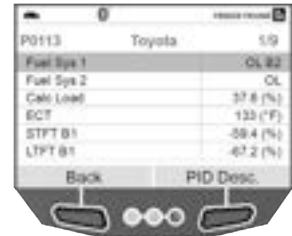
NOTE: DTC's that start with “P1” and some “P3” are Manufacturer specific codes – their code definitions will vary with each vehicle manufacturer.

12. If more than one Diagnostic Trouble Code (DTC) was retrieved:

- Press the **Freeze Frame** left soft key, as necessary, to view Freeze Frame data associated to DTC #1.
- Press and release **DTC/FF** to view additional stored codes. Each time **DTC/FF** is pressed and released, the Scan Tool will scroll and display the next DTC in sequence until all DTCs in its

memory have displayed.

- In OBD2 systems, when an emissions-related engine malfunction occurs that causes a DTC to set, a record or snapshot of engine conditions at the time that the malfunction occurred is also saved in the vehicle's computer memory. The record saved is called Freeze Frame data. Saved engine conditions include, but are not limited to: **engine speed, open or closed loop operation, fuel system commands, coolant temperature, calculated load value, fuel pressure, vehicle speed, air flow rate, and intake manifold pressure.**



NOTE: If more than one malfunction is present that causes more than one DTC to be set, only the code with the highest priority will contain Freeze Frame data. The code designated "01" on the Scan Tool display is referred to as the **PRIORITY** code, and Freeze Frame data always refers to this code. The priority code is also the one that has commanded the MIL (Check Engine) lamp on.



NOTE: Retrieved information can be uploaded to a Personal Computer (PC) with the use of optional software (see instructions included with the software for more information).

13. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the "Priority" Code.
14. Determine engine system(s) condition by viewing the display for any retrieved Diagnostic Trouble Codes, code definitions and Freeze Frame data, interpreting the green, yellow, and red LEDs.
 - If DTCs were retrieved and you are going to perform the repairs yourself, proceed by consulting the Vehicle's Service Repair Manual for testing instructions, testing procedures, and flow charts related to retrieved code(s).



NOTE: To prolong battery life, the Scan Tool automatically shuts "Off" approximately three minutes after it is disconnected from the vehicle. The DTCs retrieved, Monitor Status and Freeze Frame data (if any) will remain in the Scan Tool's memory, and may be viewed at any time by turning the unit "On". If the Scan Tool's batteries are removed, or if the Scan Tool is re-linked to a vehicle to retrieve codes/data, any prior codes/data in its memory are automatically cleared.

THE SYSTEM MENU – OEM FUNCTIONS

The **System Menu** provides the ability to retrieve "enhanced" DTCs, Anti-lock Braking System (**ABS**), Supplemental Restraint System (**SRS**) DTCs and Tire Pressure Monitoring System (**TPMS**) DTCs for most **BMW, Chrysler/Jeep, Ford/Mazda, GM/Isuzu, Honda/Acura, Hyundai, Mercedes Benz, Nissan, Toyota/Lexus, Volkswagen, Volvo**, and other vehicles. The types of enhanced data available depends on the vehicle make. You can also return to the Global OBD2 mode.



NOTE: Depending on the vehicle under test, some features and functions may not be available.

To access the System Menu, press **SYSTEM MENU** . Select the desired option, then press **ENTER**  to view the selected information.

- **To view Global OBD2:** Select **Global OBD2** from the System Menu. [See page 12]
- **To view OEM enhanced DTCs:** Select **[make] OEM Enhanced** from the System Menu. [See page 16]
- **To view ABS DTCs:** Select **ABS** from the System Menu. [See page 19]
- **To view SRS DTCs:** Select **SRS** from the System Menu. [See page 20]
- **To view TPMS DTCs:** Select **TPMS** from the System Menu. [See page 21]
- **To perform a Network Scan:** Select **All Modules Scan** or **Module Selection**, as desired. [See page 22]



VIEWING OEM ENHANCED DTCs (Except Ford/Mazda)

When **[make] OEM Enhanced** is chosen from the System Menu, the Scan Tool retrieves OEM enhanced DTCs from the vehicle's computer.

1. A "One moment please" message displays while the Scan Tool retrieves the selected DTCs.
 - If the Scan Tool fails to link to the vehicle's computer, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Choose **Relink** to try again, or choose **System Menu** to return to the System Menu.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
 - Press **SYSTEM MENU**  to return to the System Menu.
 - Turn the ignition off, and disconnect the Scan Tool.
 - Contact Technical Support for assistance.
2. Refer to **Scan Tool Display Functions** on [See page 6] for a description of LCD display elements.



NOTE: If the definition for the currently displayed code is not available, an advisory message shows.



NOTE: I/M MONITOR STATUS icons are not displayed when viewing enhanced DTCs.





NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.

- If no codes are present, the message “No OEM Enhanced DTCs are presently stored in the vehicle’s computer” shows. Choose **SYSTEM MENU**  to return to the System Menu.
- 3. If more than one code was retrieved press **DTC/FF**, or the **UP** ▲ or **DOWN** ▼ button, to display additional codes one at a time.



NOTE: If the Scan Tool’s communication with the vehicle’s computer disconnects, press **POWER/LINK**  again to re-establish communication.

- 4. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the “Priority” Code.
 - To exit the enhanced mode, choose **SYSTEM MENU**  to return to the System Menu. Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.

VIEWING OEM ENHANCED DTCs (Ford/Mazda Only)



NOTE: Mazda Enhanced DTCs are available for Mazda-branded Ford vehicles only.

When **Ford OEM Enhanced** is chosen from the System Menu, the Ford OEM Enhanced menu displays. You may view DTCs for either the “**Continuous Memory DTCs**”, “**KOEO (Key On Engine Off) Test**” or “**KOER (Key On Engine Running) Test**.”

1. Select the desired option, then press **ENTER** .
 - If **KOER** is selected, an advisory message shows.
 - “NOTE: Engine must be at operating temperature and running to begin the test.”
 - Once ready, choose **Continue**. Proceed to **step 4**.
2. If **KOEO** is selected, an “instructional” message shows.
 - Make sure the ignition is ON. Choose **Continue**. Proceed to **step 4**.
3. If **Continuous Memory DTCs** is selected, an “instructional” message shows.
 - Turn the ignition OFF, then back ON. Choose **Continue**. Proceed to **step 4**.
4. A “One moment please” message displays while the test is in progress.
 - If the Scan Tool fails to link to the vehicle’s computer, a “Communication Error” message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.



- Choose Relink to try again, or choose **SYSTEM MENU**  to return to the System Menu.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
 - Press **SYSTEM MENU**  to return to the System Menu.
 - Turn the ignition off, and disconnect the Scan Tool.
 - Contact Technical Support for assistance.
 - If the **KOER Test** was selected, and the vehicle's engine is not running, an advisory message shows.
 - Start the engine and choose **Relink** to try again, or choose **SYSTEM MENU**  to return to the System Menu.
 - If the **KOEO Test** was selected, and the vehicle's engine is running, an advisory message shows.
 - Turn the ignition OFF then back ON and choose **Relink** to try again, or choose **SYSTEM MENU**  to return to the System Menu.
5. If the **KOER** test was selected, an "instructional" message shows.
- Turn the steering wheel to the right, then release.
 - Press and release the brake pedal.
 - Cycle the overdrive switch (if equipped).
 - A "One moment please" message displays while the test is in progress.
6. Refer to **DISPLAY FUNCTIONS** [See page 6] for a description of LCD display elements.
-  **NOTE:** If the definition for the currently displayed code is not available, an advisory message shows.

 **NOTE:** I/M MONITOR STATUS icons are not displayed when viewing enhanced DTCs.

 **NOTE:** In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.


- If no codes are present, a "System Pass" message displays. Choose **SYSTEM MENU**  to return to the System Menu.
7. If more than one code was retrieved press **DTC/FF**, or scroll button, to display additional codes one at a time.
- The Scan Tool's communication link with the vehicle's computer disconnects. To re-establish communication, press **POWER/LINK**  again.
8. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the "Priority" Code.
- To view additional enhanced DTCs, repeat steps 1 through 5, above.

- To exit the enhanced mode, choose **SYSTEM MENU**  to return to the System Menu. Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.

VIEWING ABS DTCs



NOTE: Refer to the [manufacturer's website](#) for vehicle makes covered.

1. When **ABS** is chosen from the System Menu, a "One moment please" message displays while the Scan Tool retrieves the selected DTCs.
 - If ABS functionality is not supported, an advisory message shows. Press **SYSTEM MENU**  to return to the System Menu.
 - If the Scan Tool fails to link to the vehicle's computer, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Choose **Relink** to try again, or choose **SYSTEM MENU**  to return to the System Menu.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
 - Press **SYSTEM MENU**  to return to the System Menu.
 - Turn the ignition off, and disconnect the Scan Tool.
 - Contact Technical Support for assistance.
2. Refer to **DISPLAY FUNCTIONS** [See page 6] for a description of LCD display elements.



NOTE: If the definition for the currently displayed code is not available, an advisory message shows.



NOTE: I/M MONITOR STATUS icons are not displayed when viewing ABS DTCs.



NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.

- If no codes are present, the message "No ABS DTCs are presently stored in the vehicle's computer" shows. Choose **SYSTEM MENU**  to return to the System Menu.

3. If more than one code was retrieved press **DTC/FF**, or the **UP**  or **DOWN**  button, to display additional codes one at a time.



NOTE: If the Scan Tool's communication with the vehicle's computer disconnects, press **POWER/LINK**  again to re-establish communication.



4. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the "Priority" Code.
 - To exit the enhanced mode, choose **SYSTEM MENU**  to return to the System Menu. Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.

VIEWING SRS DTCs



NOTE: Refer to the [manufacturer's website](#) for vehicle makes covered.

1. When **SRS DTCs** is chosen from the System Menu, a "One moment please" message displays while the Scan Tool retrieves the selected DTCs.
 - If SRS functionality is not supported, an advisory message shows. Press **SYSTEM MENU**  to return to the System Menu.
 - If the Scan Tool fails to link to the vehicle's computer, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Choose **Relink** to try again, or choose **SYSTEM MENU**  to return to the System Menu.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
 - Press **SYSTEM MENU**  to return to the System Menu.
 - Turn the ignition off, and disconnect the Scan Tool.
 - Contact Technical Support for assistance.
2. Refer to **DISPLAY FUNCTIONS** [See page 6] for a description of LCD display elements.



NOTE: If the definition for the currently displayed code is not available, an advisory message shows.



NOTE: I/M MONITOR STATUS icons are not displayed when viewing SRS DTCs.



NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.

- If no codes are present, the message "No SRS DTCs are presently stored in the vehicle's computer" shows. Choose **SYSTEM MENU**  to return to the System Menu.

3. If more than one code was retrieved press **DTC/FF**, or the **UP**  or **DOWN**  button, to display additional codes one at a time.





NOTE: If the Scan Tool's communication with the vehicle's computer disconnects, press **POWER/LINK**  again to re-establish communication.

4. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the "Priority" code.
 - To exit the enhanced mode, choose **SYSTEM MENU**  to return to the System Menu.
 - Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.

VIEWING TPMS DTCs



NOTE: Refer to the [manufacturer's website](#) for vehicle makes covered.

1. When **TPMS DTCs** is chosen from the System Menu, a "One moment please" message displays while the Scan Tool retrieves the selected DTCs.
 - If TPMS functionality is not supported, an advisory message shows. Press **SYSTEM MENU**  to return to the System Menu.
 - If the Scan Tool fails to link to the vehicle's computer, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Press **POWER/LINK**  to continue.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
 - Press **SYSTEM MENU**  to return to the System Menu.
 - Turn the ignition off, and disconnect the Scan Tool.
 - Contact Technical Support for assistance.
2. Refer to **DISPLAY FUNCTIONS** [\[See page 6\]](#) for a description of LCD display elements.



NOTE: If the definition for the currently displayed code is not available, an advisory message shows.



NOTE: I/M MONITOR STATUS icons are not displayed when viewing SRS DTCs.



NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.



- If no codes are present, the message "No TPMS DTCs are presently stored in the vehicle's computer" shows.
- 3. If more than one code was retrieved press **DTC/FF**, or the **UP ▲** or **DOWN ▼** button, to display additional codes one at a time.



NOTE: If the Scan Tool's communication with the vehicle's computer disconnects, press **POWER/LINK**  again to re-establish communication.

- 4. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the "Priority" code.
 - To exit the enhanced mode, press **System Menu** to return to the System Menu.
 - Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.

NETWORK SCAN

The **Network Scan** lets you perform a scan of all vehicle modules, or of a single selected module, to retrieve DTCs associated with the module(s).

ALL MODULE SCAN

1. Select **All Modules Scan** from the System Menu, then press **ENTER** .
 - A "One moment please" message displays while the Scan Tool scans all available modules.
 - When the scan is complete, the All Module Scan screen displays. The screen shows the number of DTCs recorded for each available module.



2. Select the module for which you wish to view DTCs, then press **ENTER** . A "One moment please" message displays while the requested DTCs are retrieved.
 - If the Scan Tool fails to link to the selected module, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Choose **Relink** to try again, or choose **System Menu** to return to the System Menu.
 - If the selected module does not support the "Read DTC" function, an advisory message displays. Choose **System Menu** to return to the System Menu, or choose **Main Menu** to access the Main Menu.



3. Refer to **DISPLAY FUNCTIONS** [See page 6] for a description of LCD display elements.



NOTE: If the definition for the currently displayed code is not available, an advisory message shows.



NOTE: I/M MONITOR STATUS icons are not displayed when using the Network Scan function.



NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.

- If no codes are present, the message "No (system name) DTCs are presently stored in the vehicle's computer" shows. Choose **System Menu** to return to the System Menu.
4. If more than one code was retrieved press **DTC/FF**, or the **UP ▲** or **DOWN ▼** button, to display additional codes one at a time.
-
- NOTE:** If the Scan Tool's communication with the vehicle's computer disconnects, press **POWER/LINK**  again to re-establish communication.
5. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the first code.
 - To exit the enhanced mode, choose **System Menu** to return to the System Menu. Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.

SCAN A SELECTED MODULE

1. Choose **Module Selection** from the System Menu, then press **ENTER** .
 - If the Select Group screen displays, select the group (**Drive**, **Chassis**, **Body**, etc.) containing the module you wish to scan, then press **ENTER** . Proceed to **step 2**.
 - If the Select Group screen does not display, proceed to **step 2**.
2. The Available Systems screen displays. Select the desired module, then press **ENTER** .
 - A "One moment please" message displays while the requested DTCs are retrieved.
3. Select the module for which you wish to view DTCs, then press **ENTER** . A "One moment please" message displays while the requested DTCs are retrieved.
 - If the Scan Tool fails to link to the selected module, a "Communication Error" message shows.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Choose **Relink** to try again, or choose **System Menu** to return to the System Menu.
 - If the selected module does not support the "Read DTC" function, an advisory message displays. Choose **System Menu** to return to the System Menu, or choose **Main Menu** to access the Main Menu.

4. Refer to **DISPLAY FUNCTIONS** [See page 6] for a description of LCD display elements.



NOTE: If the definition for the currently displayed code is not available, an advisory message shows.



NOTE: I/M MONITOR STATUS icons are not displayed when using the Network Scan function.



NOTE: In the case of long code definitions, a small arrow is shown in the upper/lower right-hand corner of the code display area to indicate the presence of additional information.

- If no codes are present, the message "No (system name) DTCs are presently stored in the vehicle's computer" shows. Choose **System Menu** to return to the System Menu.

5. If more than one code was retrieved press **DTC/FF**, or the the **UP ▲** or **DOWN ▼** button, to display additional codes one at a time.



NOTE: If the Scan Tool's communication with the vehicle's computer disconnects, press **POWER/LINK**  again to re-establish communication.

6. When the last retrieved DTC has been displayed and **DTC/FF** is pressed, the Scan Tool returns to the first code.

- To select another module, choose **Module Selection** to return to the Module Selection list.
- To exit the enhanced mode, choose **System Menu** to return to the System Menu. Select **Global OBD2**, then press **ENTER**  to return to the Global OBD2 mode.



ERASING DIAGNOSTIC TROUBLE CODES (DTCs)



NOTE: When the Scan Tool's **ERASE** function is used to erase DTCs from the vehicle's on-board computer, "Freeze Frame" data and manufacturer-specific-enhanced data are also erased. "Permanent" DTCs ARE NOT erased by the **ERASE** function.

If you plan to take the vehicle to a Service Center for repair, **DO NOT** erase the codes from the vehicle's computer. If the codes are erased, valuable information that might help the technician troubleshoot the problem will also be erased.

Erase DTCs from the computer's memory as follows:



NOTE: When DTCs are erased, the I/M Readiness Monitor Status program resets the status of all Monitors to a not run condition. To set all Monitors to a **DONE** status, an OBD2 Drive Cycle must be performed.

1. If not connected already, connect the Scan Tool to the vehicle's DLC, and turn the ignition "On", but do not start the engine. (If the Scan Tool is already connected and linked to the vehicle's computer, proceed directly to **step 3**. If not, continue to **step 2**.)
2. Perform the **Code Retrieval** procedure [See page 12].

- **To erase OBD2 DTCs:** Wait until the codes are displayed, then proceed to **step 3**.
 - **To erase enhanced, ABS, SRS, TPMS or Network DTCs:** Press **SYSTEM MENU**  to display the System Menu. Select the desired option, then press **ENTER** . Perform the appropriate Code Retrieval procedure and then proceed to **step 3**.
3. Press and release **ERASE** .
- A confirmation message shows.
 - If you are sure you want to proceed, choose **Erase DTCs** to continue.
 - If you do not want to proceed, choose **Back** to cancel the erase procedure.
4. If you chose to erase DTCs, a “One moment please...” message displays while the erase function is in progress.



NOTE: If the vehicle's engine is running, an advisory message shows. Turn the engine OFF, then turn the ignition back to ON. **DO NOT** start the engine. Choose **Erase DTCs** to continue.

- If the **erase was successful**, a confirmation message shows. The Scan Tool automatically re-links to the vehicle's computer after 3 seconds.



NOTE: If the erase was not successful and ECU error code \$22 is present, an advisory message displays. Start the engine and maintain vehicle speed at 0. Choose **Erase DTCs** to try again.

- If the erase **was not successful**, an advisory message shows indicating the erase request was sent to the vehicle's computer. The Scan Tool automatically re-links to the vehicle's computer after 3 seconds.

LIVE DATA MODE

The Scan Tool lets you view and/or record "real-time" Live Data. This information includes values (volts, rpm, temperature, speed etc.) and system status information (open loop, closed loop, fuel system status, etc.) generated by the various vehicle sensors, switches, and actuators. These are the same signal values generated by the sensors, actuators, switches and/or vehicle system status information used by the vehicle's computer when calculating and conducting system adjustments and corrections.

The real time (Live Data) vehicle operating information (values/status) that the computer supplies to the Scan Tool for each sensor, actuator, switch, etc. is called Parameter Identification (PID) Data.

Each PID (sensor, actuator switch, status, etc.) has a set of operating characteristics and features (parameters) that serve to identify it. The Scan Tool displays this information for each sensor, actuator, switch, or status that is supported by the vehicle under test.



DANGER: If the vehicle must be driven in order to perform a troubleshooting procedure, **ALWAYS** have a second person help you. One person should drive the vehicle while the other person observes the Scan Tool data. Trying to drive and operate the Scan Tool at the same time is dangerous, and could cause a serious traffic accident.

VIEWING LIVE DATA

1. While linked to the vehicle, start the engine, then press **LD**.
2. A "One moment please . . ." message displays while the Scan Tool establishes communication with the vehicle.
 - If the Scan Tool fails to establish communication with the vehicle, a "Communication Error" message displays.
 - Ensure the vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Press **ENTER**  to continue.
3. Real-time Live Data (PID) information supported by the vehicle under test displays.
 - If Live Data is not supported by the vehicle under test, an advisory message displays. Choose **Relink** to try again, or choose **System Menu** to return to the System Menu.



NOTE: The values for the various PIDs displayed may change as the vehicle's operating conditions change.



4. Only a limited amount of PID data can be displayed on the screen at one time. If additional PID data is available,

a small arrow is shown on the display. Press **UP ▲** and **DOWN ▼**, as necessary, to view all available PID data.

- If communication with the vehicle is lost while viewing Live Data, an advisory message displays.

5. Choose **Graph** to view the currently selected PID in “graph” mode. Choose **Text View** to return to the PID list.

- With one PID displayed in “graph” mode, choose **2 Graphs** to graph an additional PID.
- With two PIDs displayed in “graph” mode, choose **4 Graphs** to graph two additional PIDs.
- With four PIDs shown in “graph” mode, press **ENTER ↵** to select each PID to Superimpose.
- Choose **1 Graph** to return to the first PID selected for “graph” mode display, or choose **Text View** to return to the PID list.



6. Press and hold **ENTER ↵** to view the “expanded” definition for the currently selected PID. Release to return to the PID list.



NOTE: The “expanded” definition functionality is available only when enabled through Tool Settings. [See page 89]

7. If you experience vehicle problems, view and/or compare the Live Data (PID) information displayed on the Scan Tool to specifications in the vehicle’s repair manual.



NOTE: If desired, you can “customize” the Live Data display to show only those PIDs you are interested in viewing. See Customizing Live Data (PIDs) below for details. You may also choose to record Live Data for later viewing. [See page 28]

CUSTOMIZING LIVE DATA (PIDs)

You can customize the **Live Data** display by placing the Scan Tool in “**Custom Live Data**” mode and selecting only the PIDs that you wish to display.

1. With the Scan Tool in Live Data mode [See page 25], choose **Custom Live Data**, or press **LD** to access the Live Data Menu, then select **Custom Live Data** and press **ENTER ↵**.

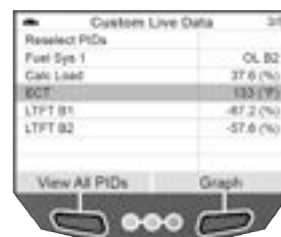
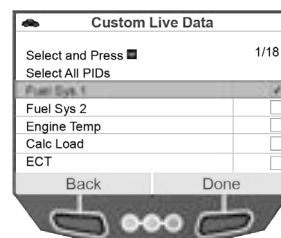
- If the Scan Tool fails to establish communication with the vehicle, a “Communication Error” message displays.
 - Ensure the vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Press **POWER/LINK 🔌** to continue.



- If Live Data is not supported by the vehicle under test, an advisory message displays. Choose

Relink to try again, or choose **System Menu** to return to the System Menu.

- If custom Live Data was previously configured, the Select PIDs to Use screen displays.
 - To use the existing custom Live Data selections, select Use Existing PIDs, then press **ENTER** . Proceed to **step 5**.
 - To configure new custom Live Data, select [**Select new PIDs**], then press **ENTER** . The Custom Live Data menu displays. Proceed to **step 2**.
 - If custom Live Data was not previously selected, the Custom Live Data menu displays. Proceed to **step 2**.
2. Press **UP** and **DOWN** to scroll through the available PIDs. When a PID you wish to display is highlighted, press **ENTER** (a "checkmark" shows to confirm your selection). Repeat until only the PIDs you want to display are selected.
 - To select all PIDs, choose **Select All PIDs**.
 - To deselect a PID, highlight the PID, then press **ENTER** . The checkmark is removed.
 3. When you are finished making your selection(s), choose **Done** to continue.
 4. The Scan Tool is now in "Custom Live Data" mode. Only the PIDs you selected are shown.
 - To change the current custom Live Data selections, select **Reselect PIDs**, then press **ENTER** to return to the Custom Live Data menu. Repeat **step 2**.
 5. To exit the "Custom Live Data" mode, press **M** to return to the Live Data Menu.



RECORDING (CAPTURING) LIVE DATA

You can record and save several frames of Live Data information for each PID supported by the vehicle in the Scan Tool's memory.

There are two ways that the Scan Tool can record Live Data:

- Record by **DTC Trigger**
- Record by **Manual Trigger**



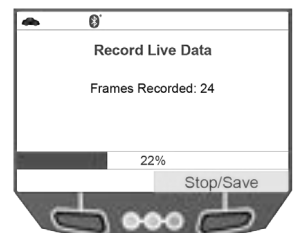
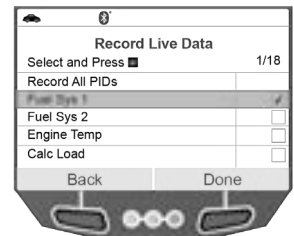
NOTE: If **POWER/LINK** is pressed at any time while in Live Data mode, any recorded Live Data will be erased from the Scan Tool's memory.

RECORD BY DTC TRIGGER

This function automatically records Live Data information when a DTC sets and saves it in the Scan Tool's memory. The recorded data can be a valuable troubleshooting aid, particularly if you are experiencing a fault that is causing a DTC

to set. The Scan Tool can record approximately 100 frames of Live Data.

1. With the Scan Tool in Live Data mode [See page 25], press and hold **LD** until the Live Data Menu displays.
2. Select **Record by DTC Trigger**, then press **ENTER** .
 - The Select PIDs to Record screen displays.
 - If the Scan Tool fails to establish communication with the vehicle, a "Communication Error" message displays.
 - Ensure the vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Press **POWER/LINK**  to continue.
3. Press **UP**  and **DOWN**  to scroll through the available PIDs. When a PID you wish to display is highlighted, press **ENTER**  (a "checkmark" shows to confirm your selection). Repeat until only the PIDs you want to record are selected.
 - To select all PIDs, choose **Select All PIDs**.
 - To deselect a PID, highlight the PID, then press **ENTER** . The checkmark is removed.
4. When you are finished making your selections, choose **Done** to continue.
 - If DTCs are presently stored in the vehicle's computer, an advisory message displays.
 - Choose **Erase DTCs**. A "One moment please..." message displays while DTCs are erased from the vehicle's computer.
 - If the erase is not successful, an advisory message displays.
 - To retry the erase process, verify that the Scan Tool is properly connected to the vehicle's DLC and that the ignition is on. Choose **Erase DTCs**.
 - To exit the record function, Choose **Back** to return to the Record Live Data menu.
 - When the Erase process is complete, the Record Live Data screen displays the message "Ready to record Waiting for DTCs."
5. Put the engine in the operating condition that causes the DTC to set.
 - If necessary, drive the vehicle until you reach the vehicle speed at which the problem occurs.
6. When the Scan Tool detects a fault that causes a DTC to set, it automatically records and saves approximately 100 frames of Live Data information in its memory for each PID selected.
 - A progress message shows on the display.

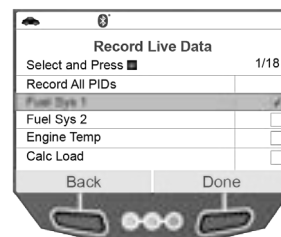


- You can stop and save recorded Live Data at any time by choosing **Stop/Save**.
- When recording is complete, a confirmation screen displays. Choose **Yes** to playback Live Data [See page 31] or **No** to return to the Live Data menu, as desired.
- If recording was not successful, an advisory message displays. Choose **Continue** to return to the Live Data menu.

RECORD BY MANUAL TRIGGER

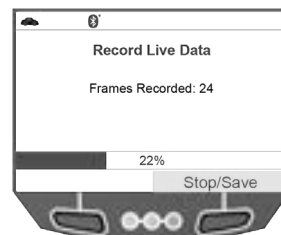
This option lets you select the precise time at which the Live Data recording will occur. Record by Manual Trigger can be a very valuable tool when troubleshooting intermittent problems that do not meet the requirements for a DTC to set. The Scan Tool is capable of recording approximately 100 frames of Live Data.

1. With the Scan Tool in Live Data mode [See page 25], press and hold **LD** until the Live Data Menu displays.
2. Select **Record Manually**, then press **ENTER** .
 - The Select PIDs to Record screen displays.
 - If the Scan Tool fails to establish communication with the vehicle, a “Communication Error” message displays.
 - Ensure your vehicle is OBD2 compliant.
 - Verify the connection at the DLC, and verify the ignition is ON.
 - Turn the ignition OFF, wait 5 seconds, then back ON to reset the computer.
 - Press **POWER/LINK**  to continue.
3. Press **UP**  and **DOWN**  to scroll through the available PIDs. When a PID you wish to record is highlighted, press **ENTER**  (a “checkmark” shows to confirm your selection). Repeat until only the PIDs you want to record are selected.
 - To select all PIDs, choose **Select All PIDs**.
 - To deselect a PID, highlight the PID, then press **ENTER** . The checkmark is removed.



NOTE: To record all PIDs, use the **UP**  and **DOWN**  buttons, as necessary, to highlight **Record All PIDs**, the press the **LD** button to continue.

4. When you are finished making your selections, choose **Done** to continue.
 - The Record Live Data screen displays.
 - Put the engine in the operating condition where the problem manifests itself.
 - If necessary, drive the vehicle until you reach the vehicle speed at which the problem occurs.
5. When the problem occurs, choose **Record**.
 - A progress message shows on the display.



- When recording is complete, a confirmation screen displays. Choose **Yes** to playback Live Data [See page 31] or **No** to return to the Live Data menu, as desired.
- If recording was not successful, an advisory message displays. Choose **Continue** to return to the Live Data menu.



NOTE: If desired, you can transfer the recorded Live Data information to a personal computer with the use of optional software (see instructions included with the software for more information).

LIVE DATA PLAYBACK

Once Live Data has been recorded, it is saved in the Scan Tool's memory. You can view recorded Live Data immediately after recording by selecting **Yes** from the Record Live Data confirmation screen [See page 31], or you can view it later using the "Playback" function.

1. With the Scan Tool not connected to a vehicle, press **POWER/LINK** .
 - The "Vehicle Selection" screen displays. Use the **UP**  or **DOWN**  button to select the desired vehicle, then press **ENTER** .
2. Select **Global OBD2** and press **ENTER** .
 - To cancel and select another vehicle, press the **Vehicle Selection** soft key.
3. Press the **LD** button.
4. Select **Playback Live Data**, then press **ENTER** .
 - The Playback Live Data menu displays.



NOTE: If there is no Live Data currently stored in the Scan Tool's memory, an advisory message shows on the display. Choose **Main Menu** to return to the Main Menu.



NOTE: When you select **Yes** from the Record Live Data confirmation screen, the Scan Tool enters the "Live Data Playback" mode, and the Playback Live Data menu displays.

5. Select **Continuous Playback** or **Frame by Frame**, as desired, then press **ENTER** .
 - The display shows the recorded Live Data, beginning with the "trigger" frame.
 - Only a limited amount of PID data can be displayed on the screen at one time. If additional PID data is available, a small arrow is shown on the display. Press **UP**  and **DOWN** , as necessary, to view all available PID data.
 - When viewing recorded Live Data, look for any irregularities in any of the PID values/signal information (LTFT %, RPM, MAP, TEMP, etc.). If any PIDs are not within specification, or irregularities are detected, follow the procedures in the vehicle's service repair manual to

perform additional troubleshooting and repair.

6. When you select **Continuous Playback**, the Scan Tool plays recorded data at a rate of one frame / 2 seconds.

- To view the recorded data in graph mode, press **ENTER** .
 - Use the **UP**  or **DOWN**  button to scroll and view each available recorded PID in graph mode.
 - Press **ENTER**  a second time to view **2 Graphs**, and a third time to view **4 Graphs** on a single screen.
 - To Superimpose PID values (for comparison purposes), use the the **UP**  or **DOWN**  button to scroll to the desired PID and press **ENTER**  to select it – selected item is highlighted in black. Once all PID selections are completed, press and hold the **LD** button.

- Select **Pause**, to “pause” the Live Data playback. Select **Play** to resume the playback mode.

- Select **Exit Playback** to exit the Live Data Playback mode and return to the Playback Live Data menu.

- Once playback finishes, the tool automatically returns to the Playback Live Data menu.

- To play the data back again, select **Continuous Playback** or **Frame by Frame**, as desired, then press **ENTER** .



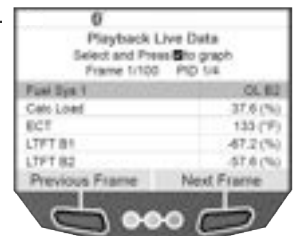
7. When **Frame by Frame** is selected, you must scroll the individual frames manually.

- When you have viewed all PID information for the current frame of Live Data, choose **Next Frame** or **Previous Frame**, as desired.

- To view the recorded data in graph mode, press **ENTER** .

- Use the **UP**  or **DOWN**  button to scroll and view each available recorded PID in graph mode.
- Press **ENTER**  a second time to view **2 Graphs**, and a third time to view **4 Graphs** in a single screen.
- To Superimpose PID values (for comparison purposes), use the **UP**  or **DOWN**  button to scroll to the desired PID and press **ENTER**  to select it – selected item is highlighted in black. Once all PID selections are completed, press and hold the **LD** button.

- To exit Live Data Playback mode, use the **DOWN**  button to scroll and select the **Exit Playback** item at the bottom of the list, then press **ENTER** .



ADDITIONAL DIAGNOSTIC TESTS

ACTIVE TEST

The **Active Test** function lets you perform active tests for various vehicle actuators and systems. The specific tests available depend on the vehicle make and model being tested. This function is accessed by pressing the **Main Menu [M]** button.

CHRYSLER ACTIVE TESTS

Depending on the vehicle under test, the Active Test menu provides access to one or more of the following tests on Chrysler vehicles:

- NVLD Evaporative Vent Valve Solenoid Control State
- Intake Manifold Tuning Valve (MTV) Solenoid Control State
- Intake Manifold Short Runner Valve (SRV) Solenoid Control State
- Radiator Cooling Fan Relay #2 Control State
- Radiator Cooling Fan Relay PWM Control State
- Oxygen Sensor 1/1 Heater Control State
- Oxygen Sensor 2/1 Heater Control State
- Oxygen Sensor 1/2 Heater Control State
- Oxygen Sensor 2/2 Heater Control State



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose Exit to return to the Active Test menu.

NVLD Evaporative Vent Valve Solenoid Control State Test

1. Select **NVLD Evaporative Vent Valve Solenoid Control State** in the PCM Active Test menu, then press **ENTER** 
 - The screen shows Live data
2. Select **On**, **Off**, or **Toggle** as desired, then press **ENTER** 
 - The screen refreshes to show the Result.
3. Choose **Exit** to return to the PCM Active Test menu.

GM ACTIVE TESTS

Depending on the vehicle under test, the Active Test menu provides access to one or more of the following tests on GM vehicles:

- Air Pump Relay
- Cooling Fan
- EVAP Purge Solenoid
- EVAP Vent Solenoid
- Fuel Pump Relay



NOTE: If an error occurs while performing any function. Choose **Exit** to return to the Active Test menu.

Air Pump Relay Test

The Air Pump Relay function lets you turn the Air Pump Relay ON or OFF.

1. Select **Air Pump Relay** in the ECM Active Test menu, then press **ENTER** .
 - An "instructional" screen displays. Follow the instructions to prepare the vehicle for the test procedure.
2. Press **On** or **Off** as desired
 - The screen refreshes to show the Result.
3. Choose **Exit** to return to the Active Test menu.

Cooling Fan Test

The Cooling Fan function lets you control the fan speed.

1. Select **Cooling Fan** in the ECM Active Test menu, then press **ENTER** .
 - Wait for a few seconds to link the Control Unit.
 - The Cooling Fan screen displays.
 - The screen shows the "**Commanded State**", "**Fan Relay 1**", "**Fan Relays 2 and 3**", "**Fan Relays 1, 2 and 3**" and **Off**.
2. Select the fan speed you wish.
 - The Commanded State shows the result.
3. Choose **Exit** to return to the ECM Active Test menu.

EVAP Purge Solenoid Test

The EVAP Purge Solenoid function lets you Increase or Decrease EVAP purge solenoid.

1. Select **EVAP Purge Solenoid** in the ECM Active Test menu, then press **ENTER** .
 - Wait for a few seconds to link the Control Unit.
 - The EVAP Purge Solenoid screen displays.

2. Select **Increase** or **Decrease** as desired, then press **ENTER** ↵.
 - The screen refreshes to show the test result.
3. Choose **Exit** to return to the ECM Active Test menu.

EVAP Vent Solenoid Test

The EVAP Vent Solenoid function lets you turn EVAP vent solenoid ON or OFF.

1. Select **EVAP Vent Solenoid** in the ECM Active Test menu, then press **ENTER** ↵.
 - The EVAP Vent Solenoid screen displays.
2. Select **On** or **Off** as desired, then press **ENTER** ↵.
 - The screen refreshes to show the test result.
3. Repeat **step 2** as desired.
4. Choose **Exit** to return to the ECM Active Test menu.

Fuel Pump Relay Test

The Fuel Pump Relay function lets you turn the fuel pump relay ON or OFF.

1. Select **Fuel Pump Relay** in the Active Test menu, then press **ENTER** ↵.
 - An "informational" screen displays.
2. Press **Next** to continue.
 - The Fuel Pump Relay screen displays.
3. Select **On** or **Off**, as desired, then press **ENTER** ↵.
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

FORD ACTIVE TESTS

Depending on the vehicle under test, the Active Test menu provides access to one or more of the following tests on Ford vehicles:

- Spark Advance
- Gear Command by Output State Control
- One-Touch Start Status
- (EVAP) Vapor Blocking Valve
- Output State Control of Torque Converter



- Fan Speed Desired
- Fuel Pump Test
- Injector Disable Test



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose **Exit** to return to the Active Test menu.

Spark Advance Test

The Spark Advance function lets you increase or decrease spark advance.

1. Select Spark Advance in the Active Test menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Place the transmission in PARK.
 - Start and idle the engine.
2. Press **ENTER**  to continue.
 - The Spark Advance screen displays.
3. Select **Increase** or **Decrease**, as desired, then press **ENTER** 
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

Gear Commanded by Output State Control Test

The Gear Commanded by Output State Control function lets you select the transmission gear command.

1. Select **Gear Commanded by Output State Control** in the Active Test menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Press **ENTER**  to continue.
 - The Gear Commanded by Output State Control screen displays.
3. Select the gear to be commanded, as desired, then press **ENTER** 
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

One-Touch Start Status Test

The One-Touch Start Status function lets you enable or disable one touch start functionality.

1. Select **One-Touch Start Status** in the Active Test menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Press **ENTER**  to continue.
 - The One-Touch Start Status screen displays.
3. Select **Disabled** or **Enabled**, as desired, then press **ENTER** 
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

(EVAP) Vapor Blocking Valve Test

The (EVAP) Vapor Blocking Valve function lets you turn the vapor blocking valve ON or OFF.

1. Select **(EVAP) Vapor Blocking Valve** in the Active Test menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Press **ENTER**  to continue.
 - The (EVAP) Vapor Blocking Valve screen displays.
3. Select **On** or **Off**, as desired, then press **ENTER** 
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

Output State Control of Torque Converter Test

The Output State Control of Torque Converter function lets you select the operating mode of the torque converter.

1. Select **Output State Control of Torque Converter** in the Active Test menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Press **ENTER**  to continue.
 - The Output State Control of Torque Converter screen displays.
3. Select **Trans Control**, **Unlock** or **Lock**, as desired, then press **ENTER** 
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

Fan Speed Desired Test

The Fan Speed Desired function lets you increase or decrease cooling fan speed.

1. Select **Fan Speed Desired** in the Active Test menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Press **ENTER**  to continue.
 - The Fan Speed Desired screen displays.
3. Select **Increase** or **Decrease**, as desired, then press **ENTER** .
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

Fuel Pump Test

The Fuel Pump function lets you turn the fuel pump ON or OFF.

1. Select **Fuel Pump** in the Active Test menu, then press **ENTER** .
 - An “informational” screen displays.
2. Press **ENTER**  to continue.
 - The Fuel Pump screen displays.
3. Select **On** or **Off**, as desired, then press **ENTER** .
 - The screen refreshes to show the test result.
4. Repeat **step 3** as desired.
5. Choose **Exit** to return to the Active Test menu.

Injector Disable Test

The Injector Disable functions let you disable a selected fuel injector.

1. Select **Injector 1 Disable**, **Injector 2 Disable**, **Injector 3 Disable** or **Injector 1 Disable** in the Active Test menu, as desired, then press **ENTER** .
 - An “informational” screen displays.
2. Press **ENTER**  to continue.
 - The Injector Disable screen displays.
3. Select **Disabled**, then press **ENTER** .
 - The screen refreshes to show the test result.
4. Choose **Exit** to return to the Active Test menu.

HYUNDAI ACTIVE TESTS

Depending on the vehicle under test, the Active Test menu provides access to one or more of the following tests on Hyundai Vehicles:

- Check Engine Lamp (MIL)
- Electronic Waste Gate Valve (Turbo Only)
- Variable Intake Solenoid (Option)
- Fuel Pump Relay
- A/C Compressor Relay
- Fuel Pump Control
- Immobilizer Lamp (Option)



Check Engine Lamp (MIL) Test

The Check Engine Lamp (MIL) function allows you to check the operation of the MIL warning lamp.

1. Select **Engine Check Lamp (MIL)** in the Active Test Menu, then press **ENTER** .
 - A "confirmation" screen displays.
2. Choose **OK** to continue.
 - An "instructional" screen displays. Prepare the vehicle for the test as directed:
 - IG On
 - Engine Off
3. Press **Start** to begin the test.
 - A "status" screen displays while the vehicle is being tested.
4. Press **Stop** to finish the test.
 - A "results" screen displays.
5. Press **OK** to display the "confirmation" screen.
6. Press **Cancel** to return to the Active Test menu.

Electronic Waste Gate Valve (Turbo Only) Test

1. Select **Electronic Waste Gate Valve (Turbo Only)** in the Active Test Menu, then press **ENTER** .
 - A "confirmation" screen displays.
2. Choose **OK** to continue.
 - An "instructional" screen displays. Prepare the vehicle for the test as directed:
 - IG On
 - Engine Off or IDLE

3. Press **Start** to begin the test.
 - A "status" screen displays while the vehicle is being tested.
4. Press **Stop** to finish the test.
 - A "results" screen displays.
5. Press **OK** to display the "confirmation" screen.
6. Press **Cancel** to return to the Active Test menu.

Variable Intake Solenoid (Option) Test

1. Select **Variable Intake Solenoid (Option)** in the Active Test Menu, then press **ENTER** .
 - A "confirmation" screen displays.
2. Choose **OK** to continue.
 - An "instructional" screen displays. Prepare the vehicle for the test as directed:
 - Engine RUN
3. Press **Start** to begin the test.
 - A "status" screen displays while the vehicle is being tested.
4. Press **Stop** to finish the test.
 - A "results" screen displays.
5. Press **OK** to display the "confirmation" screen.
6. Press **Cancel** to return to the Active Test menu.

NISSAN ACTIVE TESTS

Depending on the vehicle under test, the Active Test menu provides access to one or more of the following tests on Nissan vehicles:

- Fan Duty Control
- Fuel Injection
- Purge Vol Control Valve
- Vent Control Valve



NOTE: If an error occurs while performing any function, an "advisory" message displays. Choose Exit to return to the Active Test menu.

Fan Duty Control Test

1. Select **Fan Duty Control** in the Active Test menu, then press **ENTER** .
 - An "instructional" screen displays. Prepare the vehicle for test as directed:

- Ignition Switch **On**
- 2. Press **Next** to continue.
 - The Fan Duty Control screen displays.
- 3. Select **Increase** or **Decrease**, as desired, then press **ENTER** ↵.
 - The screen refreshes to show the Result.
- 4. Repeat **step 3** as desired.
- 5. Press **Exit** to return to the Active Test menu.

Purge Vol Control Valve Test

1. Select **Purge Vol Control Valve** in the Active Test menu, then press **ENTER** ↵.
 - An "instructional" screen displays. Prepare the vehicle for test as directed
 - Engine: After Warning Up Above 158°F (70°C), run Engine at 1500-2000rpm.
2. Press **Next** to continue.
 - An "Information" screen displays.
3. Press **Next** to continue.
 - "The Purge Vol Control Valve" screen displays.
4. Select **Down 10%** or **Up 10%**, as desired, then press **ENTER** ↵.
 - The screen refreshes to show the test result.
5. Repeat **step 3** as desired.
6. Press **Exit** to return to the Active Test menu.

Vent Control Valve Test

1. Select **Vent Control Valve** in the Active Test menu, then press **ENTER** ↵.
 - An "instructional" screen displays. Prepare the vehicle for test as directed:
 - Ignition Switch: **ON** (Engine Stopped)
2. Press **Next** to continue.
 - An "Information" screen displays.
3. Press **Next** to continue.
 - "The Purge Vol Control Valve" screen displays.
4. Select **On** or **Off**, as desired, then press **ENTER** ↵.
 - The screen refreshes to show the test result.
5. Repeat **step 3** as desired.
6. Press **Exit** to return to the Active Test menu.

TOYOTA ACTIVE TESTS

Depending on the vehicle under test, the Active Test Menu provides access to one or more of the following tests on Toyota vehicles:

- EGR Cut VSV
- EGR Step Position / System
- Inspection Mode
- Cranking Request
- PWM Output Test
- Cooling Fan Hi / Mid / Lo / Stop
- OFF Ave Cg Relay



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose **Exit** to return to the Active Test Menu.

EGR Cut VSV Test

The EGR Cut VSV function lets you activate and deactivate the Exhaust Gas Recirculation (EGR) Vacuum Switching Valve (VSV).

1. Select **EGR Cut VSV** in the Active Test Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
 - Place the transmission in PARK.
2. Choose **Continue** to proceed.
 - The Control EGR Cut VSV screen displays.
3. Choose **On** to activate the EGR Cut VSV. Choose **Off** to deactivate the EGR Cut VSV.
 - The display refreshes to show the results. Repeat as desired.
4. Choose **Exit** to return to the Active Test Menu.

EGR Step Position / System Test

The EGR Step Position / System function lets you increase Exhaust Gas Recirculation (EGR) target position through its full range (1% - 100%)

1. Select **EGR Step Position / System** in the Active Test Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
 - Place the transmission in PARK.

2. Choose **Continue** to proceed.
 - The Control EGR Step Position / System screen displays.
3. Choose **Decrease** to decrease the EGR target position. Choose **Increase** to increase the EGR target position.
 - The display refreshes to show the results. Repeat as desired.
4. Press **ENTER**  to return to the Active Test Menu.

Inspection Mode Test

The Inspection Mode function is used to check exhaust gases by engine intermittent prohibition or to allow use of a chassis dynamometer by cutting Traction Control (TRC).

1. Select **Inspection Mode** in the Active Test Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Erase all DTCs from the vehicle’s computer
 - Turn the ignition on. **DO NOT** start the engine.
 - Verify the Ready Light is OFF.
2. Choose **Next** to continue.
 - The Select Inspection Mode screen displays.
3. Select the desired inspection mode; **2WD** for cutting TRC, **2WD** for measuring Exhaust Gas, **4WD** for cutting TRC or **4WD** for measuring Exhaust Gas.
 - A “confirmation” screen displays.
4. Choose **Exit** to return to the Active Test Menu.
5. Turn the ignition **OFF** to exit the inspection mode.

Cranking Request Test

The Cranking Request function lets you toggle the ECU mode from “normal” to “compression test” mode for performing a compression test or other maintenance functions.

1. Select **Cranking Request** in the Active Test Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
 - Verify the Ready Light is OFF.
2. Choose **Continue** to proceed.
 - The Set Mode screen displays.
3. Choose **On** to place the ECU in “compression test” mod. Choose **Off** to place the ECU in “normal” mode.
 - The display refreshes to show the test results. Repeat as desired.
4. Choose **Exit** to return to the Active Test Menu.

PWM Output Test

The PWM Output Test function lets you turn off current within the inverter when performing inverter maintenance.

1. Select **PWM Output Test** in the Active Test Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
 - Place the transmission in PARK.
 - Verify the Ready Light is OFF.
2. Choose **Continue** to proceed.
 - The Control PWM Output screen displays.
3. Choose **On** to stop inverter current. Choose **Off** to return to normal mode.
 - The display refreshes to show the test results. Repeat as desired.
4. Choose **Exit** to return to the Active Test Menu.

Cooling Fan Test

The Cooling Fan functions let you control operation of the battery cooling fan motor.

1. Select **Cooling Fan Hi**, **Cooling Fan Mid**, **Cooling Fan Lo** or **Cooling Fan Stop**, in the Active Test Menu, as desired, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Place the transmission in NEUTRAL.
 - Verify the Ready Light is ON.
2. Choose **Continue** to proceed.
 - The Control Cooling Fan screen displays.
3. Choose **On** to turn the cooling fan On. Choose **Off** to turn the cooling fan off. It may take from 3 to 10 seconds for cooling fan speed to change.
 - The display refreshes to show the results. Repeat as desired.
4. Choose **Exit** to return to the Active Test Menu.

OFF Ave Cg Relay Test

The OFF Ave Cg Relay function lets you activate and deactivate the THS charger adapter relay.

1. Select **OFF Ave Cg Relay** in the Active Test Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Place the transmission in NEUTRAL.
 - Verify the Ready Light is ON.

2. Choose **Continue** to proceed.
 - The Control Relay screen displays.
3. Choose **On** to activate the relay. Choose **Off** to deactivate the relay.
 - The display refreshes to show the test results. Repeat as desired.
4. Choose **Exit** to return to the Active Test Menu.

SPECIAL FUNCTION

The Special Function utility gives you the ability to perform dealership-level relearn procedures. The specific procedures available depend on the vehicle's make and model. Access this utility by pressing the **Main Menu [M]** button.

CHRYSLER SPECIAL FUNCTION

Depending on the vehicle under test, the Special Function menu provides access to one or more of the following tests on Chrysler vehicles:

- Cam Crank Relearn
- Idle Up Feature Enable
- IMA Rapid Calibration
- Learn ETC
- Compression Test
- Cylinder Performance Test
- EGR System Test
- ESIM Forced Monitor Test
- ETC System Test
- ETC Throttle Follower Test
- Set Engine RPM
- LDP Forced Monitor Test
- VVT System Test



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose **Exit** to return to the Special Function menu.

Cam Crank Relearn

1. Select **Cam Crank Relearn** in the Special Function menu, then press **ENTER** .

- An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
- 2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
- 3. A “confirmation” screen displays when the learn routine begins.
 - An “instructional” screen displays while the procedure is in progress. Perform the following when prompted:
 - Start and run the engine until engine coolant temperature is greater than 70°C (158°F).
 - A “results” screen displays when the learn procedure has completed.
- 4. Choose **Finish** to return to the Special Function menu.

Idle Up Feature Enable

The Idle Up Feature Enable function lets you enable or disable the idle up feature.

1. Select **Idle Up Feature Enable** in the Special Function menu, then press **ENTER** .
 - An “informational” screen displays.
2. Choose **Yes** to continue.
 - The Select Mode screen displays.
3. Select **Enable** or **Disable**, as desired, then press **ENTER** .
 - A “confirmation” screen displays.
4. Choose **Finish** to return to the Special Function menu.

IMA Rapid Calibration

The IMA Rapid Calibration function lets you perform the Integrated Motor Assist (IMA) calibration procedure.

1. Select **IMA Rapid Calibration** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the calibration routine begins.
 - A “results” screen displays when the learn procedure has completed.
4. Choose **Finish** to return to the Special Function menu.

Learn ETC (001 / 002)

The Learn ETC function lets you perform the Electronic Throttle Control (ETC) learn procedure.

1. Select **Learn ETC** in the Special Function menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the learn routine begins.
 - A series of “instructional” screens display while the procedure is in progress. Perform the following when prompted:
 - Press and hold the accelerator pedal.
 - Release the accelerator pedal.
 - A “results” screen displays when the learn procedure has completed.
4. Choose **Finish** to return to the Special Function menu.

Compression Test

1. Select **Compression Test** in the Special Function menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure the battery is fully charged.
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the compression test begins.
 - An “instructional” screen displays.
 - Crank the engine.
 - While the engine is cranked, the screen shows Live Data for the **Average Engine RPM**, **Current Injection Mass**, and **Engine RPM for Cylinder 1** through **Engine RPM for Cylinder 8**, as applicable.
4. Choose **Finish** to return to the Special Function menu.

Cylinder Performance Test

The Cylinder Performance Test function lets you perform a cylinder performance test.

1. Select **Cylinder Performance Test** in the Special Function menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and idle the engine.
 - Place the transmission in PARK.

2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
 - The Select Test screen displays.
3. Select **Normal** or **On**, as desired, then press **ENTER** .
 - The Test Results screen displays.
 - The screen shows the values for **Cylinder 1 Contribution** through **Cylinder 6 Contribution**, **Cylinder 1 – 3 Contribution**, **Cylinder 4 – 6 Contribution** and **ECM Engine RPM**.
4. If desired, choose **Reselect** to return to the Select Test screen, and repeat **step 3** to select a test mode.
5. Choose **Finish** to return to the Special Function menu.

EGR System Test

The EGR System Test function lets you perform an Exhaust Gas Recirculation (EGR) system test.

1. Select **EGR System Test** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and idle the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
 - The Select Flow Rate screen displays.
3. Select **Normal**, **Closed**, **Open** or the desired flow rate (100 g/s, 200 g/s, 300 g/s), then press **ENTER** .
 - The Test Results screen displays.
 - The screen shows the current values for **MAP Vacuum**, **Engine Speed** and **EGR Duty Cycle**.
4. If desired, choose **Reselect** to return to the Select Flow Rate screen, and repeat **step 3** to select a new flow rate.
5. Choose **Finish** to return to the Special Function menu.

ESIM Forced Monitor Test

The ESIM Forced Monitor Test lets you perform an Evaporative System Integrity Monitor (ESIM) forced monitor test.

1. Select **ESIM Forced Monitor Test** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and idle the engine.
 - When repeating the test, allow 30 seconds between tests.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the test routine begins.

- A “results” screen displays when the learn procedure has completed.
 - Depending on the results returned, the screen shows one of the following:
 - The message “Routine is complete”
 - Live Data for **NGC Routine Status**, **Large Leak Monitor Status**, **ESIM Switch Closed**, **Purge Duty Cycle**, **Purge AirFlow** and **ESIM Frozen Test Timer**.
4. Choose **Finish** to return to the Special Function menu.

ETC System Test (001)

The ETC System Test lets you perform an Electronic Throttle Control (ETC) system test.

1. Select **ETC System Test** in the Special Function menu, then press **ENTER** ↵.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
 - The Select Throttle Position screen displays.
3. Select **Normal**, **Closed**, **Open** or the desired percentage (from 10% to 70%), then press **ENTER** ↵.
 - The Test Results screen displays.
 - The screen shows the current values for **APP 1 Volts**, **APP 2 Volts**, **TPS 1 Volts**, **TPS 2 Volts** and **Throttle Blade 1 Position**.
4. If desired, choose **Reselect** to return to the Select Position screen, and repeat step 3 to select a new throttle position.
5. Choose **Finish** to return to the Special Function menu.

ETC System Test (002)

The ETC System Test lets you perform an Electronic Throttle Control (ETC) system test.

1. Select **ETC System Test** in the Special Function menu, then press **ENTER** ↵.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
 - The Select Throttle Position screen displays.
3. Select **Normal**, **Closed**, **Open** or the desired percentage (from 10% to 90%), then press **ENTER** ↵.
 - The Test Results screen displays.
 - The screen shows the current values for **APP 1 Volts**, **APP 2 Volts**, **TPS 1 Volts**, **TPS 2 Volts**,

TPS 3 Volts, TPS 4 Volts, Throttle Blade 1 Position and Throttle Blade 2 Position.

4. If desired, choose **Reselect** to return to the Select Position screen, and repeat **step 3** to select a new throttle position.
5. Choose **Finish** to return to the Special Function menu.

ETC Throttle Follower Test

The ETC Throttle Follower Test function lets you perform an Electronic Throttle Control (ETC) follower test.

1. Select **ETC Throttle Follower Test** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the test routine begins.
 - A “results” screen displays when the test procedure has completed.
 - The screen shows the current values for **APP 1 Volts, APP 2 Volts, TPS 1 Volts, TPS 2 Volts** and **Throttle Blade 1 Position**.
4. Choose **Exit** to return to the Special Function menu.

Set Engine RPM

The Set Engine RPM function lets you set engine speed to a specified value.

1. Select **Set Engine RPM** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and idle the engine.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
 - The Select RPM screen displays.
3. Select the **desired RPM value** (700 RPM to 1300 RPM), as desired, then press **ENTER** .
 - The Test Results screen displays.
 - The screen shows the current Engine Speed.
4. If desired, choose **Reselect** to return to the Select RPM screen, and repeat **step 3** to select a new engine speed.
5. Choose **Finish** to return to the Special Function menu.

LDP Forced Monitor Test

The LDP Forced Monitor Test function lets you initiate the LDP forced monitor test.

1. Select **LDP Forced Monitor Test** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed.
 - Start and idle the engine.
 - When repeating the test, allow 30 seconds between tests.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the test routine begins.
 - A Live Data screen displays.
 - The screen shows Live Data for **LDP Forced Monitor Test Routine Start**, **Time From Start Run**, **LDP Switch**, **LDP Monitor Status**, **Purge Adaptive Duty Cycle** and **Purge Air Flow**.
4. Choose **Exit** to return to the Special Function menu.

VVT System Test

The VVT System Test function lets you initiate a test of the Variable Valve Timing (VVT) system.

1. Select **VVT System Test** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and idle the engine.
 - Make sure engine coolant temperature is 83°C (180°F) before proceeding.
2. Choose **Yes** to continue.
 - A “status” screen displays while a vehicle status check is performed.
3. A “confirmation” screen displays when the routine begins.
 - A “results” screen displays when the routine has completed.
4. Choose **Finish** to return to the Special Function menu.

GM SPECIAL FUNCTION

Depending on the vehicle under test, the ECM Special Function menu provides access to one or more of the following tests on GM vehicles:

- Engine Speed Control
- Throttle Position
- Throttle Sweep



- Reset Idle Learn
- Fuel Injector Balance
- Cylinder Power Balance
- Engine Oil Life Reset
- Crankshaft Position Variation Learn
- HO2S Learn Sensor



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose **Exit** to return to the ECM Special Function menu.

Engine Speed Control

The Engine Speed Control function lets you increase or decrease engine speed from a base commanded RPM in 25 RPM increments.

1. Select **Engine Speed Control** in the ECM Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Set the parking brake.
 - Block all drive wheels.
 - Start and idle the engine.
2. Choose **Next** to continue.
 - Engine speed is commanded to 550 RPM and the RPM Control test screen displays.
 - The screen shows the Commanded RPM, actual Engine Speed, and the Desired Idle Speed.
3. Choose **Decrease 25 RPM** or **Increase 25 RPM**, as desired, to decrease or increase engine speed, and observe results on the display.
4. To exit the test, press **ENTER** to reduce the commanded engine speed to 0 RPM, then press **Exit** or **Back** to return to the ECM Special Function menu.

Throttle Position

The Throttle Position function lets you increase or decrease throttle position from the null (idle) state.

1. Select **Throttle Position** in the ECM Special Function menu, then press **ENTER** .
 - A “status” message shows while the tool links with the control unit. When a link is established with the control unit, the Throttle Position test screen displays.
 - The screen shows the Commanded State of the throttle, the TP Desired Angle, and the TP Indicated Angle.
2. Choose **Decrease** or **Increase**, as desired, to decrease or increase the throttle position angle, and observe results on the display.

3. Press **Exit** or **Back** to return to the ECM Special Function menu.

Throttle Sweep

The Throttle Sweep function automatically moves the throttle from the null (idle) state to wide open throttle.

1. Select **Throttle Sweep** in the ECM Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Next** to continue.
 - The Throttle Sweep test screen displays.
 - The screen shows the throttle Commanded State and current values for the TAC Motor Command, TP Sensor 1, TP Sensor 2, TAC Motor and TP Sensors 1 and 2.
3. Choose **Start** to begin the test and observe results on the display.
4. Choose **Stop** to end the test before wide open throttle is reached and return the throttle to the null (idle) state.
5. Choose **Exit** to return to the ECM Special Function menu.

Reset Idle Learn

The Reset Idle Learn function resets the idle learn values for TP sensors 1 and 2.

1. Select **Reset Idle Learn** in the ECM Special Function menu, then press **ENTER** .
 - A “status” message shows while the tool links with the control unit. When data is returned from the control unit, the Reset Idle Learn screen displays.
 - The screen shows the **TP Sensor 1 Learned Minimum** and **TP Sensor2 Learned Minimum** values.
2. Choose **Reset** to reset the idle learn values for TP sensors 1 and 2.
 - A status screen displays while the procedure is in progress.
 - When the procedure is completed, the message “Reset Idle Learn Complete” displays.
3. Choose **Exit** to return to the ECM Special Function menu.

Fuel Injector Balance

The Fuel Injector Balance function lets you check the fuel pressure drop for a selected fuel injector.



NOTE: A fuel pressure gauge (purchased separately) is required to perform this function.

1. Select **Fuel Injector Balance** in the ECM Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Choose **Next** as necessary to scroll the “instructional” screen.

- Ensure all fuel lines are connected.
- Connect the fuel pressure gauge to the fuel line.
- The Select Injector screen displays.
- 2. Select the injector you wish to test, then press **ENTER** .
- The Injector Pressure screen displays.
- 3. Note and record the fuel pressure reading for the selected injector, then choose **Pulse**
 - Injector to pulse the injector.
 - The Injector Pressure Drop screen displays.
- 4. Note and record the fuel pressure drop for the selected injector, then choose **Continue** to return to the Select Injector screen.
 - Repeat **steps 2 through 4** for additional injectors, as desired.
- 5. Choose **Exit** to return to the ECM Special Function menu.

Cylinder Power Balance

The Cylinder Power Balance function lets you disable a selected fuel injector to note the resulting power drop.

1. Select **Cylinder Power Balance** in the ECM Special Function menu, then press **ENTER** .
- An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Set the parking brake.
 - Block all drive wheels.
 - Start and idle the engine.
 - Make sure the A/C system is off.
2. Choose **Next** to continue.
 - The Select Injector screen displays.
3. Select the injector you wish to test, then press **ENTER** .
- The Cylinder Power Balance screen displays.
- The screen shows the current Engine Speed.
4. Choose **Disable** to disable the selected fuel injector, and observe the change in Engine Speed.
5. Choose **Enable** to enable the selected fuel injector.
6. Press **ENTER**  to return to the Select Injector screen.
 - Repeat **steps 3 through 6** for additional injectors, as desired.
7. Choose **Exit** to return to the ECM Special Function menu.

Engine Oil Life Reset

The Engine Oil Life Reset function lets you enter a new value (percentage) for the engine oil life parameter.

1. Select **Engine Oil Life Reset** in the ECM Special Function menu, then press **ENTER** .
 - The Engine Oil Life Reset screen displays. The screen shows the current Engine Oil Life value.
2. Choose **Input New Value** to continue.
 - The Enter Value screen displays.
3. Use the **UP**  and **DOWN**  buttons to specify the desired percentage of remaining engine oil life.
4. Choose **Perform Reset** to continue.
 - A “confirmation” screen shows the new Engine Oil Life Value
5. Choose **Exit** to return to the ECM Special Function menu.

Crankshaft Position Variation Learn

The Crankshaft Position Variation Learn function lets you perform the “learning” procedure for crankshaft position variation.

1. Select **Crankshaft Position Variation Learn** in the ECM Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:



NOTE: Choose **Next** as necessary to scroll the “instructional” screen.

- Block all drive wheels.
 - Set the parking brake. (**DO NOT** apply the brake pedal at this time.)
 - Turn the ignition on. **DO NOT** start the engine at this time.
 - Press and hold the brake pedal.
 - Start and idle the engine.
 - Make sure the A/C system is off.
 - Place the transmission in PARK or NEUTRAL.
2. Choose **Next** to continue.
 - If engine coolant temperature is less than 70°C, a status screen displays.
 - When engine coolant temperature is greater than 70°C, an “instructional” screen displays.
 - Cycle the ignition off then back on.
 - Start and idle the engine.
 3. Choose **Next** to continue.
 - A “status” screen displays.
 - The screen shows the current values for **Engine Speed**, **TP Indicated Angle**, **ECT Sensor**, **A/C Relay Command**, and **APP Indicated Angle**.
 - Accelerate to wide open throttle, and hold until fuel cutoff occurs, then release the accelerator.

- The message “Test in progress...” shows while the “learn” procedure is in progress.
 - When the procedure is complete, the message “Learn Status: Success” shows.
4. Choose **Exit** to return to the ECM Special Function menu.

HO2S Learn Sensor

The HO2S Learn Sensor function lets you perform the “learning” procedure for a selected oxygen sensor heater.

1. Select **HO2S Learn Sensor** in the ECM Special Function menu, then press **ENTER** .
 - The Select Sensor screen displays.
2. Select the oxygen sensor you wish to reset, then choose **Reset**.
 - A “status” screen displays the Commanded State as Reset while the reset is in progress.
3. When the reset is complete, the Commanded State returns to **None**.
 - Repeat **step 2** to reset additional oxygen sensors.
4. Choose **Exit** to return to the ECM Special Function menu.

HONDA SPECIAL FUNCTION

Depending on the vehicle under test, the Special Function menu provides access to one or more of the following tests on Honda vehicles:

- O2 Test
- EGR Test
- VTC Test
- IACV Test
- EVAP Test



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose Exit to return to the ECM Special Function menu.

O2 Test

The O2 Test function lets you perform a check of the vehicle’s oxygen sensors.

1. Select **O2 Test** in the Special Function menu, then press **ENTER** .
 - A series of “informational/instructional” screens display. Choose Continue as necessary to scroll the screens. Prepare the vehicle for test as directed:
 - Make sure the battery is fully charged.
 - Make sure all vehicle electrical devices are **OFF**.

- Make sure the steering wheel is in the center position, and **DO NOT** move during testing.
 - Turn the ignition on. **DO NOT** start the engine at this time.
2. Choose **Continue** to proceed.
 - An “instructional” screen displays.
 3. Start and idle the engine.

 **NOTE:** If DTCs are present in the vehicle's computer, an “advisory” screen displays. Clear DTCs before proceeding.

 - The Throttle Snap screen displays.
 - Switch engine speed from 1000 RPM to 3000 RPM three times. The Snap Counter increments for each throttle snap.
 - An “instructional” screen displays. Perform the following:
 - Press and hold the accelerator to maintain engine speed between 2000-3000 RPM.
 - Hold the accelerator steady for 5 seconds.
 4. A “status” screen displays while the test is in progress.
 - The screen shows the **Elapsed Time**, **Engine Speed** and **O2S** (oxygen sensor) voltage.
 5. Hold the accelerator steady for 30 seconds.
 - A “results” screen displays when testing is complete.
 - The screen shows the maximum and minimum O2 sensor voltage (**VO2MAX**, **VO2MIN**) and switching voltage count (**CLH**).
 6. Choose **Back** to return to the Special Function menu.

EGR Test

The EGR Test function lets you perform a check of the vehicle's Exhaust Gas Recirculation (EGR) system. The test is performed in two phases.

1. Select **EGR Test** in the Special Function menu, then press **ENTER** 
 - An “informational” screen displays.
2. Choose **Continue** to proceed.

 **NOTE:** If DTCs are present in the vehicle's computer, an “advisory” screen displays. Clear DTCs before proceeding.

 - A series of “instructional” screens display. Choose **Continue** as necessary to scroll the screens. Perform the following as directed:
 - Start and idle the engine.
 - Maintain engine speed below 1500 RPM.
3. A “status” screen displays while test phase 1 is in progress.

- The Status screen shows the EGR valve lift voltage (EGR V L S).
 - If conditions are out-of-range for EGR control, an “advisory” message displays. Choose **Back** to return to the Special Function menu.
 - If the EGR system fails test phase 1, an “advisory” message displays. Choose **Back** to return to the Special Function menu.
 - If the EGR system passes test phase 1, an “instructional” screen displays. Prepare the vehicle for test as directed:
 - Warm the engine to normal operating temperature.
 - Make sure all vehicle electrical devices are **OFF**.
 - Make sure the steering wheel is in the center position, and **DO NOT** move during testing.
4. Choose **Continue** to proceed.
-  **NOTE:** If DTCs are present in the vehicle’s computer, an “advisory” screen displays. Clear DTCs before proceeding.
- An “instructional” screen displays. Perform the following.
 - Press and hold the accelerator to maintain engine speed between 2400-3500 RPM.
5. A “status” screen displays while the test is in progress.
- The screen shows **EGR LIFT SENSOR** voltage, and may show **ENGINE SPEED**.
6. Release the accelerator pedal when prompted.
7. Read the test results:
- If the EGR system **passes** test phase 2, a “confirmation” screen displays. Choose **Back** to return to the Special Function menu.
 - If the EGR system **fails** test phase 2, an “advisory” screen displays. Choose **Back** to return to the Special Function menu.

VTC Test

The VTC Test function lets you perform a check of the vehicle’s Variable Timing Control (VTC) system.

1. Select **VTC Test** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure all vehicle electrical devices are **OFF**.
 - Make sure the steering wheel is in the center position, and **DO NOT** move during testing.
 - Start and idle the engine.
 - Set the parking brake.
 - Place the transmission in neutral.
2. Choose **Continue** to proceed.



NOTE: If DTCs are present in the vehicle's computer, an "advisory" screen displays. Clear DTCs before proceeding.

- An "instructional" screen displays. Perform the following:
 - Press and hold the accelerator to maintain engine speed between 3500-4000 RPM.
 - Maintain engine speed above 3000 RPM for the duration of the test.
 - A "status" screen displays while the test is in progress. The screen shows Engine Speed and Valve Timing.
3. Maintain engine speed above 3000 RPM for the duration of the test.
 4. If the VTC system passes the test, a "confirmation" screen displays. Choose **Back** to return to the Special Function menu.
 - If conditions are out-of-range for VTC control, or if the VTC system fails test phase 2, an "advisory" screen displays. Choose **Back** to return to the Special Function menu.

IACV Test

The IACV Test function lets you perform a test of the vehicle's Idle Air Control Valve (IACV).

1. Select **IACV Test** in the Special Function menu, then press **ENTER** .
 - A series of "informational/instructional" screens display. Choose **Continue** as necessary to scroll the screens. Prepare the vehicle for test as directed:



NOTE: If DTCs are present in the vehicle's computer, an "advisory" screen displays. Clear DTCs before proceeding.

- Make sure battery voltage is between 10.5V – 15.5V.
 - Start the engine and allow to warm up. Make sure engine coolant temperature does not exceed 100°F. Turn the ignition off. Turn the ignition back on. **DO NOT** start the engine.
 - Set the parking brake.
 - Place the transmission in PARK or NEUTRAL.
 - Make sure all vehicle electrical devices are **OFF**.
 - Make sure the steering wheel is in the center position, and **DO NOT** move during testing.
2. Choose **Continue** to proceed.
 - An "instructional" screen displays.
 3. Start and idle the engine.
 - A "status" screen displays while Stage 1 of the test is in progress.
 - The screen shows the current **Engine Speed** and **IAC COMMAND**.
 - A "confirmation" screen displays when testing is complete.
 - If conditions are out-of-range for idle air control, an "advisory" message displays. Choose **Back** to return to the Special Function menu.

4. Choose **Continue** to proceed.
 - The test repeats through a total of 4 stages.
 - A “confirmation” screen displays when each testing stage is complete. Choose **Continue** to proceed.
 - If conditions are out-of-range for idle air control, or if a possible failure is detected for any stage, an “advisory” message displays.
 - Choose **Back** to return to the Special Function menu.
5. When all stages of the test are complete, a final “confirmation” screen displays. Choose **Back** to return to the Special Function menu.

EVAP Test

The EVAP Test function lets you test the vehicle’s Evaporative (EVAP) Emissions System. You may choose to perform a **SINGLE SOLENOID** test, **MULTI SOLENOID** test, or **FUNCTION TEST**.

To access the EVAP Test function:

- Select EVAP Test in the Special Function menu, then press **ENTER** ↵.
- The EVAP TEST menu displays.

To perform the SINGLE SOLENOID test:

1. Select **SINGLE SOLENOID** in the EVAP TEST menu, then press **ENTER** ↵.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure the battery is fully charged.
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Continue** to proceed.
 - The Select Test screen displays.
3. Select the desired test, then choose **Continue**.
 - A “status” screen displays while the test is in progress.
 - The screen shows the **EVAP TEST** selected, the **FPT Sensor** pressure, the **EVAP PC Duty** cycle, and the **EVAP CVS Valve** status.
4. Choose **Back** to exit the test.
 - A “Test is complete” message displays.
5. Choose **Exit** to return to the EVAP TEST menu.

To perform the MULTI SOLENOID test:

1. Select **MULTI SOLENOID** in the EVAP TEST menu, then press **ENTER** ↵.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:

- Make sure the battery is fully charged.
- Turn the ignition on. **DO NOT** start the engine.
- 2. Choose **Continue** to proceed.
 - The Select Test screen displays.
- 3. Select the desired test, then choose **Continue**.
 - A “status” screen displays while the test is in progress.
 - The screen shows the **EVAP TEST** selected, the **FPT Sensor** pressure, the **EVAP PC Duty** cycle, and the **EVAP CVS Valve** status.
- 4. Choose **Back** to exit the test.
 - A “Test is complete” message displays.
- 5. Choose **Exit** to return to the EVAP TEST menu.

To perform the FUNCTION TEST:

1. Select **FUNCTION TEST** in the EVAP TEST menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure the battery is fully charged.
 - Turn the ignition on. **DO NOT** start the engine.
2. Choose **Continue** to proceed.
 - The Confirm Fuel Level screen displays.
3. If the fuel tank **IS NOT** empty, choose **No** and proceed to **step 4**.
 - If the fuel tank **IS** empty, choose **Yes**. An “advisory” message displays. Choose **Exit** to exit the test.
4. A series of “instructional” screens display. Choose **Continue** as necessary to scroll the screens. Perform the following as directed:
 - Remove the fuel filler cap.
 - Replace the fuel filler cap.
 - If a possible failure is detected or a DTC is registered, an “advisory” message displays. Choose **Back** to return to the EVAP TEST menu.
 - A “status” screen displays while the first stage of the test is in progress.
 - The screen shows the **FPT Sensor** pressure, the **EVAP PC Duty** cycle, and the **EVAP CVS Valve** status.
 - If a possible failure is detected or a DTC is registered, an “advisory” message displays. Choose **Back** to return to the EVAP TEST menu.
5. When the current stage of the test is completed, a series of “instructional” screens display, based on the test results. Follow the instructions as directed.
 - A “status” screen displays while the first stage of the test is in progress.

- The screen shows the **FPT Sensor** pressure, the **EVAP PC Duty** cycle, and the **EVAP CVS Valve** status.
 - If a possible failure is detected or a DTC is registered, an “advisory” message displays. Choose **Back** to return to the EVAP TEST menu.
- 6. When all stages of the test are complete, a final “confirmation” screen displays. Choose **Back** to return to the EVAP TEST menu.

TOYOTA SPECIAL FUNCTION

Depending on the vehicle under test, the Special Function Menu provides access to one or more of the following tests on Toyota vehicles:

- D-4S A/F Control
- D-4S Fuel Cut
- D-4S Injection Volume
- O2S/RPM Check
- EVAP System Check
- Secondary Air Injection Check



D-4S A/F Control

The D-4S A/F Control function lets you modify the fuel injection process and fuel injection volume.

1. Select **D-4S A/F Control** in the PCM Special Function Menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and run the engine at 3000 RPM maximum.
 - Place the transmission in PARK.
 - Make sure engine coolant temperature is 80°C before proceeding.
2. Choose Continue to proceed.
 - The Select Injection Type screen displays.
3. Select **PORT** (Port Injection), **DIRECT** (Direct Injection), or **EITHER** (Engine control dependency), as appropriate, then press **ENTER** .
 - The display refreshes to show the results.
4. Choose **Exit** to return to the PCM Special Function Menu.

D-4S Fuel Cut

The D-4S Fuel Cut function lets you modify the fuel injection process and enable or disable a selected fuel injector.

1. Select **D-4S Fuel Cut** in the PCM Special Function Menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and run the engine at 3000 RPM maximum.
 - Place the transmission in PARK.
 - Make sure engine coolant temperature is above 80°C before proceeding.
2. Choose **Continue** to proceed.
 - The Select Injection Type screen displays.
3. Select **PORT** (Port Injection), **DIRECT** (Direct Injection), or **EITHER** (Engine control dependency), as appropriate, then press **ENTER** 
 - The Select Injector screen displays.
4. Select the desired fuel injector, then press **ENTER** 
 - The Injector Control screen displays.
5. Choose **Off** to disable the selected fuel injector. Choose **On** to enable the selected fuel injector.
 - The display refreshes to show the results. Repeat as desired.
6. Choose **Exit** to return to the PCM Special Function Menu.

D-4S Injection Volume

The D-4S Injection Volume function lets you modify the fuel injection process and increase or decrease fuel injection volume.

1. Select **D-4S Injector** in the PCM Special Function Menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Start and run the engine at 3000 RPM maximum.
 - Place the transmission in PARK.
 - Make sure engine coolant temperature is above 80°C before proceeding.
2. Choose **Continue** to proceed.
 - The Select Injection Type screen displays.
3. Select **PORT** (Port Injection), **DIRECT** (Direct Injection), or **EITHER** (Engine control dependency), as appropriate, then press **ENTER** 
 - The Control Injection Volume screen displays.
4. Choose **Decrease** to decrease injection volume. Choose **Increase** to increase injection volume.
 - The display refreshes to show the results. Repeat as desired.
5. Press **Exit** or **Back** to return to the PCM Special Function Menu.

O2S/RPM Check

The O2S RPM Check lets you perform an O2 sensor / engine speed check.

1. Start and run the engine.
2. Select **O2S/RPM Check** in the Special Function Menu, then press **ENTER** .
 - The Select Sensor screen displays.
3. Select the desired O2 sensor, then press **ENTER** .
 - Repeat as desired to select additional sensors.
4. Choose **Next** to continue.
 - A “results” screen displays.
 - The screen shows the current Engine speed and the list of selected sensors.
5. Choose **Back** to return to the Select Sensor screen, or choose **Exit** to return to the PCM Special Function Menu.

EVAP System Check

The EVAP System Check function lets you initiate a check of the vehicle’s Evaporative Emissions System. Depending on model, the vehicle will support one of four system types.

EVAP VSV CHECK

1. Select **EVAP System Check** in the Special Function Menu, then press **ENTER** .
 - A series of “informational” screens display.
2. Choose **Continue** as needed to scroll to subsequent screens.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure fuel level is between 1/4 and 3/4.
 - Make sure fuel temperature is below 35°C.
 - Start and run the engine.
 - Place the transmission in PARK.
3. Choose **Continue** to proceed.
 - The vehicle’s computer performs an initial vapor pressure sensor check to determine if a leak may be present. A “results” screen displays when the check is complete.
4. Choose **Continue** to proceed, or choose **Exit** to return to the Special Function Menu.
 - The vehicle’s computer performs an 11-step check of the EVAP system. A “status” screen displays the name and number of the current **Step**, the **Vapor Pressure**, and the status of the **Purge VSV**, **Tank Bypass VSV** and **Canister Control VSV**.
5. Choose **Continue** as needed to scroll to the next stage of the test.
 - When the test is completed, a “confirmation” screen displays.

6. Choose **Exit** to return to the Special Function Menu.

LEV II SYS CHECK

1. Select **EVAP System Check** in the Special Function Menu, then press **ENTER** .
 - A series of “informational” screens display.
2. Choose **Continue** as needed to scroll to subsequent screens.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure fuel level is between 1/4 and 3/4.
 - Make sure fuel temperature is below 35°C.
 - Start and run the engine.
 - Place the transmission in PARK.
3. Choose **Continue** to proceed.
 - The vehicle’s computer performs a 6-step check of the EVAP system. A “status” screen displays the name and number of the current **Step**, the **Vapor Pressure**, and the status of the **Purge VSV** and **Canister Control VSV**.
4. Choose **Next Step** as needed to scroll to the next stage of the test.
 - When the test is completed, a “confirmation” screen displays.
5. Choose **Exit** to return to the Special Function Menu.

EVAP VSV CHECK KEY-OFF MONITOR SYSTEM – *Closed Tank*

1. Select **EVAP System Check** in the Special Function Menu, then press **ENTER** .
 - A series of “informational” screens display.
2. Choose **Continue** as needed to scroll to subsequent screens.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure fuel level is less than 9/10.
 - Make sure fuel temperature is below 35°C (95°F).
 - Make sure the fuel door is closed (and remains closed for the duration of the test)
 - Turn the ignition on. **DO NOT** start the engine.
3. Choose **Continue** to proceed.
 - The vehicle’s computer performs a 9-step check of the EVAP system. A “status” screen displays the name and number of the current **Step**, the **Vapor Pressure**, and the status of the **Purge VSV**, **Vent Valve**, **Vacuum Pump** and **Fuel VCV**.
4. Choose **Next Step** as needed to scroll to the next stage of the test.
 - When the test is completed, a “confirmation” screen displays.
5. Choose **Exit** to return to the Special Function Menu.

EVAP VSV CHECK KEY-OFF MONITOR SYSTEM – *One Way Valve*

1. Select **EVAP System Check** in the Special Function Menu, then press **ENTER** .
 - A series of “informational” screens display.
2. Choose **Continue** as needed to scroll to subsequent screens.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure fuel level is less than 9/10.
 - Make sure fuel temperature is below 35°C.
 - Turn the ignition on. **DO NOT** start the engine.
 - Place the transmission in PARK.
3. Choose **Continue** to proceed.
 - The vehicle’s computer performs a 9-step check of the EVAP system. A “status” screen displays the name and number of the current **Step**, the **Vapor Pressure**, and the status of the **Purge VSV**, **Vent Valve** and **Vacuum Pump**.
4. Choose **Next Step** as needed to scroll to the next stage of the test.
 - When the test is completed, a “confirmation” screen displays.
5. Choose **Exit** to return to the Special Function Menu.

Secondary Air Injection Check

The Secondary Air Injection Check function lets you test components of the vehicle’s secondary air injection system.

1. Select **Secondary Air Injection Check** in the Special Function Menu, then press **ENTER** .
 - An “informational” screen displays.
2. Choose **Continue** to proceed.
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Make sure no DTCs related to throttle, air flow, or misfire are present.
 - Make sure 2nd Air System Status of Data List is OFF.
 - Turn the ignition on. **DO NOT** start the engine.
 - Set the parking brake.
3. Choose **Continue** to proceed.
 - A “countdown” timer displays, followed by an “instructional” screen. Prepare the vehicle for test as directed:
 - Start and idle the engine.
 - Make sure the air/fuel sensor outputs the correct air/fuel ratio after idling the engine for 10 minutes minimum.
4. Choose **Continue** to proceed.

- A "Warning" screen displays. **BE SURE** to observe all precautions to prevent damaging system components.
- 5. Choose **Continue** to proceed.
 - The Select Test screen displays.
- 6. Select the desired test, then press **ENTER** ↵.
 - The Test Results screen displays.
 - When the test has completed, an "advisory" message displays.
 - Choose **Continue** to return to the Select Test screen, or choose **Exit** to return to the PCM Special Function Menu.

HYUNDAI SPECIAL FUNCTION

Depending on the vehicle under test, the Special Function menu provides access to one or more of the following tests on Hyundai vehicles:

- EVAP. Leakage Test
- Resetting Adaptive Values



EVAP. Leakage Test

The EVAP. Leakage Test function lets you check the evaporative system and leakage.

1. Select **EVAP. Leakage Test** in the Special Function menu, then press **ENTER** ↵.
 - An "instructional" screen displays. Prepare the vehicle for the test as directed:
 - Vehicle Stopped
 - Fuel Level 15-85%
 - No Trouble Codes
 - Idle State
 - Engine Warm Up (ECT Above 80°C)
2. Press **OK** to Start
 - A "confirmation" screen displays.
 - If you are sure to perform this test, press **OK**. Otherwise, press **Cancel**.
3. Press **OK** to start.
 - A "status" screen displays.
 - The screen shows Test Time, Fuel Tank Pressure, and Fuel Level.
 - A "results" screen displays when the learning procedure has been completed.
4. Choose **Cancel** to return to the Special Function menu.

Resetting Adaptive Values

The Resetting Adaptive Values function lets you reset all adaptive values.

1. Select **Resetting Adaptive Values** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for the test as directed:
 - IG On
 - Engine Off
2. Press **Reset** to start.
 - A “confirmation” screen displays.
 - If you are sure to perform this test, press **OK**. Otherwise, press **Cancel**.
3. Press **OK** to continue.
 - A “results” screen displays when the learning procedure has been completed.
4. Choose **OK** to return to the Special Function menu.

NISSAN SPECIAL FUNCTION

Depending on the vehicle under test, the Special Function menu provides access to one or more of the following tests on Nissan vehicles:

- Fuel Pressure Release
- Closed Throttle Position Learning
- Self Learning Control
- Idle Air Volume Learn
- Air/Fuel Initial Learning
- EGR Control Valve Closed Position Learning
- Wastegate Actuator Position Learn Value Clear
- Electric Intake Valve Timing Control Learning
- Target Idle RPM Adj



NOTE: If an error occurs while performing any function, an “advisory” message displays. Choose **Exit** to return to the Main Menu.

Fuel Pressure Release

1. Select **Fuel Pressure Release** in the Special Function menu, then press **ENTER** .
 - An “instructional” screen displays. Prepare the vehicle for test as directed:

- Engine At Idle.
- 2. Choose **Next** to Continue
 - A “status” screen displays while a vehicle status check is performed.
 - Perform the instruction that is displayed on the screen:
 - Crank Engine two or three times.
 - Turn Ignition Switch OFF
- 3. Choose **Exit** to return to the Main Menu.

Closed Throttle Position Learning

1. Select **Closed Throttle Position Learning** in the Special Function menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed:
 - Ignition On and Engine stopped
2. Press **Next** to start
 - A “results” screen displays when the test procedure has been completed.
3. Choose **Exit** to return to the Main Menu.

Self Learning Control

1. Select **Self Learning Control** in the Special Function menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for the test as directed:
 - *Battery*: More Than 12V (At Idle)
 - *Engine Idle Coolant Temperature*: 158 - 212°F (70-100°C)
 - *Transmission*: P or N
 - *Electric Load Switch*: OFF
 - *Steering Wheel*: Strait-Ahead Position then IG ON Engine OFF.
2. Press **Next** to start.
 - A “results” screen displays when the test procedure has been completed.
3. Choose **Exit** to return to the Main Menu.

Idle Air Volume Learn

1. Select **Idle Air Volume Learn** in the Special Function menu, then press **ENTER** 
 - An “information” screen displays.
2. Press **Next** to continue.
 - An “instructional” screen displays. Prepare the vehicle for the test as directed:
 - Depending on the vehicle under test, it may be necessary to perform a **Closed Throttle**

Position Learning procedure before performing this function. [See page 69]

- Engine Running
 - Vehicle Stop
 - *Battery*: More Than 12.9 V (At Idle)
 - *Coolant Temperature*: 158 - 212°F (70 - 100°C)
 - *Transmission*: P or N
 - *Electric Load Switch*: OFF
 - *Steering Wheel*: Straight-Ahead Position
3. Press **Next** after that all of the following conditions are satisfied
 - The test results screen displays.
 - The screen shows the current Engine Speed.
 4. Choose **Exit** to return to the Main Menu.

PERFORMING SERVICE RESETS

The Service Reset function offers up to five options for performing service reset procedures: **Oil Reset**, **Battery Reset**, **Steering Angle Sensor Calibration**, **EPB Reset**, **ABS Bleeding** and **Diesel Particulate Filter Reset**. This function is accessed by pressing the Main Menu **M** button. Procedures may vary depending on the vehicle being serviced.

RESETTING THE OIL MAINTENANCE LIGHT

1. While linked to the vehicle, press the **M** button.
 - The Main Menu displays.
2. Choose **Service Reset**, then press **ENTER** .
 - The Service Reset functions display.
3. Select **Oil Reset**, then press **ENTER** .
 - The Oil Reset screen displays.
 - If the vehicle under test is equipped with a navigation system, choose **Yes** to continue.
 - If the vehicle under test is not equipped with a navigation system, choose **No** to continue.



NOTE: If the Scan Tool cannot reset the Oil Maintenance Light, an “instructional” dialog displays, showing the manual procedures for resetting the indicator light. When finished viewing the instructions, press the **M** button to return to the Main Menu.

4. The Select Reset Method screen displays.
 - If the vehicle under test does not have a oil reset command function, the service procedures

will immediately be displayed.

5. To perform the oil reset by procedure, choose **View Procedure**.
 - An “instructional” dialog displays, showing the manual procedures for resetting the indicator light. When finished viewing the instructions, press **Back** to return to the Main Menu.
6. To perform oil reset by command, choose **Perform Command**.
 - A “status” message displays while oil reset is in progress.
7. When the reset process has completed, a confirmation message displays.
 - Choose **Back** or **Exit**, as appropriate, to return to the Service Reset menu.
 - If the oil reset was not successful, an advisory message displays.
 - To perform the oil reset by procedure, choose **View Procedure**.
 - An “instructional” message displays, showing the manual procedures for resetting the indicator light.
 - If you do not wish to perform the oil reset by procedure, choose **Exit** to return to the Service Reset menu.

BATTERY RESET

You can use the Scan Tool to view the procedures for resetting the battery monitor system following battery replacement or perform battery reset OBD service (**for Audi, BMW, Ford, Volkswagen, and Volvo models only**).

To view battery reset procedures:

1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Choose **Service Reset**, then press **ENTER** ↵.
 - The Service Reset functions display.
3. Select **Battery Reset**, then press **ENTER** ↵.
 - The Battery Reset menu displays.
4. Select **Battery Reset Procedures**, then press **ENTER** ↵.
 - The Battery Reset Procedures menu displays. The menu provides access to **General Information**, and procedures to be followed **Before Battery Disconnection**, **Before Battery Connection**, and **After Battery Connection**.



NOTE: If battery reset procedures are not available, an advisory message shows. Choose **Back** to return to the Battery Reset Menu.

5. Choose the procedure you wish to view, then press **ENTER** ↵.
 - The selected procedure displays.
6. When you have finished viewing the retrieved information, choose **Back** to return to the Battery Reset

Procedures menu. Repeat **step 4** to view additional procedures.

- When you have finished viewing all desired procedures, choose **Main Menu** to return to the Main Menu.

To perform battery reset OBD service (BMW/Ford/Volvo):

1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Select **Battery Reset**, then press **ENTER** .
 - The Battery Reset menu displays.
3. Select **Battery Reset OBD Service**, then press **ENTER** .
 - An “instructional” message displays.
4. Follow the instructions provided to prepare the vehicle for battery reset OBD service. When all necessary procedures have been performed, choose **Next** to continue.
 - A “Live Data” screen displays, if applicable.
5. Choose **Next** to continue.
 - A “One moment please...” message displays while battery reset is in process.
6. If the battery reset process is successful, a “Reset Complete” message displays.
 - Choose **Exit** to return to the Main Menu.
 - If the battery reset process is *not* successful, a “Reset Fail” message displays. Choose **Back** to return to the Battery Reset Menu.

To perform battery reset OBD service (Audi/Volkswagen):

1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Select **Battery Reset**, then press **ENTER** .
 - The Battery Reset menu displays.
3. Select **Battery Reset OBD Service**, then press **ENTER** .
 - An “informational” screen displays.
4. Choose **Next** to continue.
 - A series of “instructional” screens display, directing you to enter reference information for the battery (*part number, manufacturer, serial number*).
5. Choose **Next** as necessary to scroll the screen and enter the necessary information.
 - A “confirmation” screen displays.
 - The screen shows the previously entered Battery part number, Battery manufacturer and Battery serial number.

6. Select the desired option:
 - To proceed with coding, select **Carry out coding** and press **ENTER** . Proceed to **step 7**.
 - To re-enter battery reference information, select **Repeat input** and press **ENTER** . Repeat **steps 4 and 5**.
 - To cancel the battery reset process, select **Cancel** and press **ENTER** to return to the Battery Reset Menu.
7. If battery coding was successful, a “confirmation” screen displays. Choose **Back** to return to the Battery Reset Menu.
 - If battery coding was *not* successful, an “advisory” screen displays. Choose **Exit** to return to the Main Menu.

STEERING ANGLE SENSOR (SAS) CALIBRATION

The Steering Angle Sensor Calibration function is available for **BMW, Chrysler, Ford, GM, Hyundai, Nissan, Toyota, Volkswagen**, and **Volvo** vehicles **only**. Calibration procedures vary between vehicle makes and models.



NOTE: If an error occurs while performing calibration procedures, an “advisory” message displays. Choose **Exit** to return to the Service Reset Menu.

1. Select **Steering Angle Sensor Calibration** in the Service Reset menu, then press **ENTER** .
 - For some vehicles, a sub-menu displays. Select the desired option, then press **ENTER** . Proceed to **step 2**.
-
- NOTE:** If SAS calibration is not supported by the vehicle under test, an “advisory” message displays. Choose **Back** to return to the Service Reset Menu.
2. A “One moment” message displays, followed by one or more “informational/ instructional” screens.
 - Perform test procedures as directed. Choose **Next**, as appropriate, to scroll to the next screen.
 3. For some vehicles, “status” screens display as each phase of the calibration procedure is successfully completed. Choose **Next**, as appropriate, to scroll to the next screen.
 - A “results” screen displays when the calibration procedure has completed.
 4. Choose **Back** to return to the Service Reset Menu.

EPB RESET

EPB Reset procedures vary between vehicle makes and models.



NOTE: If an error occurs while performing calibration procedures, an “advisory” message displays. Choose **Exit** to return to the Service Reset Menu.

1. Select **EPB Reset** in the Service Reset menu, then press **ENTER** .
 - A “One moment” message displays.
 - For some vehicles, one or more sub-menus display. Select the desired module and/or option,

as appropriate, then press **ENTER** . Proceed to **step 2**.



NOTE: If EPB reset is not supported by the vehicle under test, an “advisory” message displays. Choose **Back** to return to the Service Reset Menu.

2. One or more “informational/instructional” screens display.
 - Perform test procedures as directed. Choose **Next**, as appropriate, to scroll to the next screen.
3. For some vehicles, “status” screens display as each phase of the calibration procedure is successfully completed. Choose **Next**, as appropriate, to scroll to the next screen.
 - A “One moment” message displays while the procedure is in process.
 - A “results” screen displays when the calibration procedure has completed.



NOTE: If the procedure is stopped due to a communication error, an “advisory” message displays. Choose **Back** to return to the Service Reset Menu.

4. Choose **Back** to return to the Service Reset Menu.

DIESEL PARTICULATE FILTER RESET (EXCEPT CHRYSLER, GENERAL MOTORS, NISSAN, OR VOLKSWAGEN)



NOTE: If the vehicle under test is not a diesel vehicle, an “advisory” message displays. Choose **Back** to return to the Service Reset menu. Diesel Particulate Filter Reset is not available for your vehicle.

1. Select **Diesel Particulate Filter Reset** in the Service Reset menu, then press **ENTER** .
 - A “One moment” message displays, followed by the DPF Reset Menu.
2. Select **DPF Regeneration Procedure**, then press **ENTER** .
 - The DPF Regeneration Procedure screen displays.



NOTE: If the vehicle under test does not support DPF Regeneration Procedure, an “informational” screen displays the procedures for “passive” DPF regeneration. Choose **Back** to return to the DPF Reset Menu.

3. Choose **Next** to continue.
 - An “informational” screen displays the procedures for “passive” or “active” DPF regeneration, as applicable. Choose **Back** to return to the DPF Reset Menu.
4. Choose **Back** to return to the DPF Reset Menu, then choose **Back** to return to the Service Reset menu.

DIESEL PARTICULATE FILTER RESET (CHRYSLER)

1. Select **Diesel Particulate Filter Reset** in the Service Reset menu, then press **ENTER** .
 - A “One moment” message displays, followed by the Diesel Particulate Filter Reset menu.
2. Select the desired option, then press **ENTER** .

- An “instructional” screen displays. Prepare the vehicle for test as directed.
3. Choose **Yes** to continue.
 - A series of “status” screens display while the routine is in process.
 - A “confirmation” screen displays when the routine is completed.



NOTE: If the routine does not complete successfully, an “advisory” message displays. Choose **Close** to return to the Diesel Particulate Filter Reset menu.

4. Choose **Finish** to return to the Diesel Particulate Filter Reset menu, then choose **Back** to return to the Service Reset menu.

DIESEL PARTICULATE FILTER RESET (GENERAL MOTORS)

1. Select **Diesel Particulate Filter Reset** in the Service Reset menu, then press **ENTER** 
 - A “One moment” message displays, followed by the Diesel Particulate Filter Reset menu.
2. Select the desired option, then press **ENTER** 
 - One or more “informational/instructional” screens display.
3. Choose **Next**, as appropriate, to scroll to the next screen.
 - For some vehicles, a “confirmation” screen displays.
4. Select **On** or **Reset**, as appropriate.
 - A “confirmation” or “results” screen displays when the routine is completed.



NOTE: If the routine does not complete successfully, an “advisory” message may display. Choose **End** to return to the Diesel Particulate Filter Reset menu.

5. Choose **Exit** to return to the Diesel Particulate Filter Reset menu, then choose **Back** to return to the Service Reset menu.

DIESEL PARTICULATE FILTER RESET (NISSAN)

1. Select **Diesel Particulate Filter Reset** in the Service Reset menu, then press **ENTER** 
 - An “instructional” screen displays. Prepare the vehicle for test as directed.
2. Choose **Next** to continue.
 - A “status” screen displays while the routine is in process.
 - A “confirmation” screen displays when the routine is completed.



NOTE: If the routine does not complete successfully, an “advisory” message displays. Choose **Exit** to return to the Service Reset menu.

3. Choose **End** to return to the Service Reset menu.

DIESEL PARTICULATE FILTER RESET (VOLKSWAGEN)

1. Select **Diesel Particulate Filter Reset** in the Service Reset menu, then press **ENTER** .
 - A “One moment” message displays, followed by the Diesel Particulate Filter Reset menu.
2. Select the desired option, then press **ENTER** .
 - A series of “informational/instructional” screens display. Prepare the vehicle for test as directed.



NOTE: If the selected function is not supported by the vehicle under test, an “advisory” message may display. Choose **End** to return to the Diesel Particulate Filter Reset menu.

3. Choose **Next**, Continue, or **Start**, as appropriate, to continue.
 - One or more “status” screens may display while the routine is in process.
 - A “confirmation” or “results” screen displays when the routine is completed.
-  **NOTE:** If the routine does not complete successfully, an “advisory” message may display. Choose **End** to return to the Diesel Particulate Filter Reset menu.
4. Choose **End** to return to the Diesel Particulate Filter Reset menu, then choose **Back** to return to the Service Reset menu.

ABS BLEEDING

The ABS Bleeding function is available for **Chrysler**, **GM**, **Hyundai/KIA**, **Mazda**, and **Toyota** vehicles only. Procedures vary between vehicle makes and models.



NOTE: If an error occurs while performing ABS bleeding procedures, an “advisory” message displays. Choose **Exit** or **Back**, as necessary, to return to the Service Reset menu.

1. Select **ABS Bleeding** in the Service Reset menu, then press **ENTER** .
 - A “One moment” message may display.
 - A sub-menu displays. Select the desired option, then press **ENTER** . Proceed to **step 2**.
2. One or more “informational/ instructional” screens display.
 - Perform test procedures as directed. Choose **Next** or **Continue**, as appropriate, to scroll to the next screen.
3. For some vehicles, “status” screens display as each phase of the calibration procedure is successfully completed. Choose **Next** or **Continue**, as appropriate, to scroll to the next screen.
 - A “results” screen displays when the procedure has completed.



NOTE: If the procedure is stopped due to a communication error, an “advisory” message displays. Choose **Exit** or **Back**, as necessary, to return to the Service Reset menu.

4. Choose **Exit** or **Back**, as necessary, to return to the Service Reset menu.

PERFORMING A SERVICE CHECK

The Service Check function lets you check brake pad status, current oil level and oil life, and transmission fluid temperature.

1. While linked to the vehicle, press **M**.
 - The Main Menu displays.
2. Select **Service Check**, then press **ENTER** ↵.
 - The Service Check screen displays.
 - The screen shows the current **Brake Pads** status, **Engine Oil Level**, **Oil Life Remaining** and **Transmission Fluid Temperature**.
3. When you have finished viewing the information, choose **Back** to return to the Main Menu.



HYBRID/EV BATTERY TEST, BATTERY ALTERNATOR TEST

The Scan Tool can perform a check of the vehicle's battery and alternator system (or hybrid/EV battery system) to ensure the system is operating within acceptable limits.

1. Press **M** and release.
 - The Main Menu displays.
 2. Select **Hybrid/EV Battery Test**, **Battery/Alternator Test**, then press **ENTER** ↵.
 - If the vehicle is an electric or hybrid vehicle, the Hybrid/EV Battery Test screen shows a graphic display of the current state of charge for all cells in the battery pack displays.
-  **NOTE:** If the Hybrid/EV Battery Test is not supported by the vehicle under test, an "advisory" message displays. Choose **Back** to return to the Main Menu.
- If the vehicle is not an electric or hybrid vehicle, the **Battery/Alternator Test** menu displays [\[See page 81\]](#).
3. When you have finished viewing the retrieved information, choose **Back** to return to the Main Menu.



SYSTEM TEST MENU

Additional tests are accessed through the OBD Mode Test menu. The following functions are available:

- **O2 Sensor Test** – Retrieves and displays O2 sensor monitor test results from your vehicle's on-board computer.
- **OBD Monitor Test** – Retrieves and displays test results for emission-related powertrain components and systems that are not continuously monitored.
- **EVAP Test** – Performs a leak test for the vehicle's EVAP system.
- **I/M Monitor Test** - View the Drive Cycle procedures and description of a selected Monitor

1. While linked to the vehicle, press the **M** button.
 - The Main Menu displays.
2. Select **OBD Mode Test**, then press **ENTER** .
 - The OBD Mode Test menu displays.



NOTE: If OBD Mode Test is not shown on the Main Menu, the OBD Mode Test functions are not available for the vehicle under test.



O2 SENSOR TEST

OBD2 regulations require that applicable vehicles monitor and test operation of the oxygen (O2) sensors to identify problems that can affect fuel efficiency and vehicle emissions. These tests are performed automatically when engine operating conditions are within predefined limits. Results of these tests are stored in the on-board computer's memory.

The O2 Sensor Test function lets you retrieve and view O2 sensor monitor test results for the most recently completed tests from the vehicle's on-board computer.



NOTE: The Scan Tool does not perform O2 sensor tests, but retrieves results from the most recently performed O2 sensor tests from the on-board computer's memory. You may retrieve O2 sensor test results for only one test of one sensor at any given time.

1. From the OBD Mode Test menu, select **O2 Sensor Test**, then press **ENTER** .
2. A "One moment please..." message displays, followed by the Select Sensor screen.



NOTE: If O2 sensor test data is not presently stored in the vehicle's computer, an advisory message displays. Choose **Back** (to return to the OBD Mode Test menu) or Main Menu, as desired.

3. Select the O2 sensor for which you wish to view test results, then press **ENTER**  to display the test results.
4. When you have finished viewing the retrieved test data, choose **Next** to view test results for the next sensor, or choose **Back** to return to the Select Sensor screen.
5. When you have finished viewing test data for all desired sensors, choose **Back** from the Select Sensor screen to return to the OBD Mode Test menu; or press **Main Menu** to return to the Main Menu.



OBD MONITOR TEST

The OBD Monitor Test function retrieves and displays test results for emission-related powertrain components and systems that are not continuously monitored. The tests available are determined by the vehicle manufacturer.



NOTE: The Scan Tool does not perform the OBD monitor test, but retrieves results from the most recently performed tests from the on-board computer's memory. You may retrieve OBD monitor test results for only one test at any given time.

1. From the OBD Mode Test menu, select **OBD Monitor Test**, then press **ENTER** .

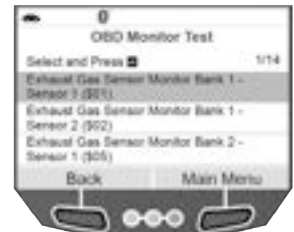
2. A "One moment please. . ." message displays, followed by the Select Test screen. (Refer to the vehicle's service repair manual for information related to non-continuous tests.)



NOTE: If OBD monitor test data is not presently stored in the vehicle's computer, an advisory message displays. Choose **Back** (to return to the OBD Mode Test menu) or **Main Menu**, as desired.



NOTE: If OBD monitor tests are not supported by the vehicle under test, an advisory message displays. Choose **Back** (to return to the OBD Mode Test menu) or **Main Menu**, as desired.



3. Select the desired test, then press **ENTER**  to display the test results. The display shows the following information:

- Test ID number
- Module ID number
- Component ID number
- Min or Max test limit (Only one test limit, either Min or Max, is shown for any given test)
- Test Value and status



NOTE: Status is calculated by the Scan Tool by comparing the Test Value against the displayed test limit (either Min or Max). Status is shown as either Low, High, or OK.

4. When you have finished viewing the retrieved test data, choose **Next** to view results for the next test, or choose **Back** to return to the Select Test screen.
5. When you have finished viewing test data for all desired tests, choose **Back** from the Select Test screen to return to the OBD Mode Test menu; or choose **Main Menu** to return to the Main Menu.

EVAP TEST

The EVAP Test function lets you initiate a leak test for the vehicle's EVAP system.



NOTE: The Scan Tool does not perform the leak test, but signals to vehicle's on-board computer to initiate the test. The vehicle manufacturer determines the criteria and method for stopping the test once it has been started. Refer to the vehicle's service repair manual to determine the procedures necessary to stop the test.

1. From the OBD Mode Test menu, select **EVAP Test**, then press **ENTER** .

- A "One moment please..." message displays.

2. When the EVAP leak test has been initiated by the vehicle's on-board computer, a confirmation message displays. Choose **Back** to return to the OBD Mode Test menu; or choose **Main Menu** to return to the Main Menu.



NOTE: Some vehicle manufacturers do not allow Scan Tools or other external devices to control vehicle systems. If the EVAP Test is not supported by the vehicle under test, an advisory message displays. Choose **Back** (to return to the OBD Mode Test menu) or **Main Menu**, as desired.



I/M MONITOR TEST

A Drive Cycle for a Monitor requires that the vehicle is driven in such a way that all the required "Enabling Criteria" for the Monitor to run and complete its diagnostic testing are met. You can use the Scan Tool to view the Drive Cycle procedures for a selected Monitor. You can also view a description of a selected Monitor.

1. From the OBD Mode Test menu, select **I/M Monitor Test**, then press **ENTER** .
2. A "One moment please. . ." message displays, followed by a selection dialog. Select **Since DTCs Cleared** or **This Drive Cycle** as appropriate. Press **ENTER**  to continue.

- If the vehicle under test does not support **This Drive Cycle**, a warning message displays "This vehicle does not support this monitor type." Choose **Back** to return to the previous dialog.

3. The Select Monitor screen displays listing all Monitors supported by the vehicle.
4. To view a Monitor description, select the desired Monitor, then choose **Description**.

- A description for the selected Monitor displays.

5. To view Drive Cycle procedures for a Monitor, select the desired Monitor, then choose **Drive Cycle**.



NOTE: If Drive Cycle Procedures are not available for the vehicle, an advisory message shows. Choose **Back** to return to the Main Menu.

- The Drive Cycle Procedures screen for the Monitor display.

6. The Trip Cycle Procedure screen shows the specific set of operating procedures that ensure the vehicle is driven in such a way that all the required "Enabling Criteria" for the Monitor to run and complete its diagnostic testing are met.
7. When you are finished viewing the Trip Cycle Procedures, choose **Back** to return to the OBD Mode Test menu, or press **M** to return to the Main Menu.



BATTERY / ALTERNATOR TEST

The Scan Tool can perform a check of the vehicle's battery and alternator system to ensure the system is operating within acceptable limits. You can perform a battery check only, or an alternator system (battery and alternator) check.

PERFORM A BATTERY CHECK ONLY

When Hybrid Battery Check, Battery/Alternator Test is selected from the Main Menu and the vehicle is not an electric or hybrid vehicle, the Battery/Alternator Test menu displays. Proceed to **step 3**.

1. Press **M** and release.
 - The Main Menu displays.
2. Select **Battery/Alternator Test**, then press **ENTER** .
 - The Battery/Alternator Test Menu displays.
3. Select **Battery Test**, then press **ENTER** .
 - An "instructional" message displays, showing the procedures to prepare the vehicle for the battery check.
4. Prepare the vehicle for the battery check:
 - Turn the engine off.
 - Place the transmission in PARK or NEUTRAL, and set the parking brake.
 - Make a visual check of the battery's condition. If the battery terminals are corroded or other damage is present, clean or replace the battery as appropriate.
 - For "unsealed" batteries, make sure the water level in each cell is above the battery plates.
 - Turn the ignition on. **DO NOT** start the engine.
5. Choose **Continue** to proceed.



NOTE: If the engine is running, an advisory message shows. Turn the engine off, then turn the ignition on. **DO NOT** start the engine. Press **ENTER**  to continue.

- An "instructional" message displays.
6. Turn the vehicle's headlights on, then choose **Continue** to proceed.
 - A "countdown" message shows while the battery check is in process.
 - If battery voltage is less than 12.1 volts, an advisory message shows. Choose **Main Menu** to return to the Main Menu. Turn the ignition off and disconnect the Scan Tool from the vehicle. Fully charge the battery, then repeat the battery check.
 - If battery voltage is greater than 12.1 volts, an "instructional" message shows.
 7. Turn the vehicle's headlights off, then choose **Continue** to proceed.
 - An "instructional" message shows.

8. Start the vehicle's engine. Allow the engine to run for several seconds, then turn the engine off. Repeat for a total of **three "start/stop"** cycles.



NOTE: If the Scan Tool did not detect "cranking status" for the vehicle's engine, an advisory message shows. Choose **Retest** to repeat the battery check, or choose **Exit** to return to the Main Menu.

9. When the battery check is complete, a results screen displays with the battery's status.
10. Choose **Main Menu** to return to the Main Menu.

PERFORM A CHARGING SYSTEM CHECK

When Hybrid Battery Check, Battery/Alternator Test is selected from the Main Menu and the vehicle is not an electric or hybrid vehicle, the Battery/Alternator Monitor menu displays. Proceed to **step 3**.

1. Press the **M** button and release.
 - The Main Menu displays.
2. Select **Battery/Alternator Test**, then press **ENTER** ↵.
 - The Battery/Alternator Test Menu displays.
3. Select **Alternator Test**, then press **ENTER** ↵.
 - An "instructional" message shows.
4. Start and warm the engine to normal operating temperature. Turn on the headlights. Choose **Continue** to proceed.
 - An "instructional" message shows.
5. Press the accelerator pedal to raise engine speed to 2000 RPM, and maintain the engine speed.
 - When engine speed is within the required range, the alternator test begins. A progress screen shows.
 - When the "countdown" timer expires, an "instructional" message shows.
6. Turn the vehicle's headlights off, and return the engine to idle speed.
 - A "One moment please..." message displays while the test results are retrieved.
7. When the alternator check is complete, a results screen shows charging system voltage and indicates whether or not the charging system is within acceptable limits.
8. Choose **Main Menu** to return to the Main Menu.



VIEWING DRIVE CYCLE PROCEDURES

A Drive Cycle for a Monitor requires that the vehicle is driven in such a way that all the required "Enabling Criteria" for the Monitor to run and complete its diagnostic testing are met. You can use the Scan Tool to view the Drive Cycle procedures for a selected Monitor.

1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Select **Drive Cycle Procedures**, then press **ENTER** .
- A “One moment please...” message displays while the Scan Tool retrieves Monitor status.
3. When Monitor status has been retrieved, the Drive Cycle Procedures menu displays. Depending on Monitor status, you can view Drive Cycle procedures for **Monitors Incomplete** or **Monitors Complete**.



NOTE: If Drive Cycle Procedures are not available for the vehicle, an advisory message shows. Choose **Back** to return to the Main Menu.

4. Select **Monitors Incomplete** or **Monitors Complete**, as desired, then press **ENTER** .
- A list of the available Monitors for the selected status displays.



NOTE: If no Monitors for the selected status are detected, an advisory message shows. Choose **Back** to return to the Main Menu.

5. Select the Monitor for which you wish to view Drive Cycle Procedures, then press **ENTER** .
- A “One moment please...” message displays while the Scan Tool retrieves the requested Drive Cycle Procedure. The Drive Cycle Procedures screen for the Monitor displays when the procedure has been retrieved.



NOTE: If a Drive Cycle Procedure for the selected Monitor is not available, an advisory message shows. Choose **Back** to return to the Main Menu.

6. The Drive Cycle Procedure screen shows the specific set of operating procedures that ensure the vehicle is driven in such a way that all the required “Enabling Criteria” for the Monitor to run and complete its diagnostic testing are met.
7. When you are finished viewing the Drive Cycle Procedures, choose **Back** to return to the Drive Cycle Procedures menu, or press **M** to return to the Main Menu.

TOOL UTILITIES & SETTINGS

USING THE DLC LOCATOR

1. Select **DLC Locator** in the Main Menu, then press **ENTER** .
 - The Select Vehicle Model Year screen displays.
2. Select the desired vehicle model year, then press **ENTER** .
 - The Select Vehicle Manufacturer screen displays.
3. Select the desired vehicle manufacturer, then press **ENTER** .
 - The Select Vehicle Model screen displays.
4. Select the desired model, then press **ENTER** .
 - The DLC Location screen for the selected vehicle displays.
 - The DLC Location screen shows the selected vehicle make and model, a description of the DLC location and whether the DLC is "covered" or "uncovered," and includes a picture of the DLC location.
5. When you have finished viewing the DLC location, choose **New Vehicle** (to view the DLC location for another vehicle) or choose **Exit** to return to the Main Menu.



VIEWING VEHICLE INFORMATION

The Vehicle Information function offers three options for retrieving reference information for the vehicle under test: **Vehicle ID**, **Available Modules** and **IPT** (In-Use Performance Tracking).

RETRIEVING VEHICLE ID INFORMATION



NOTE: The Vehicle ID function is applicable to model year 2000 and newer OBD2-compliant vehicles.



The Scan Tool can retrieve a list of information (provided by the vehicle manufacturer), unique to the vehicle under test, from the vehicle's on-board computer. This information may include:

- The vehicle's VIN number
- The control module identification number
- The vehicle's calibration ID(s). These IDs uniquely identify the software version(s) for the vehicle's control module(s).
- The Vehicle's Calibration Verification Number(s) (CVNs) required by ODB2 regulations. CVNs

are used to determine if emission-related calibrations for the vehicle under test have been changed. One or more CVNs may be returned by the vehicle's computer.

1. With the Scan Tool in OBD2 mode, press and release the **M** button.
 - The Main Menu displays.
2. Select Vehicle Information, then press **ENTER** .
3. Select **Vehicle ID**, then press **ENTER** .



NOTE: The first time the Vehicle ID function is used, it may take several minutes to retrieve the information from the vehicle's computer.

4. When the retrieval process is completed, the vehicle ID information displays.
5. When you have finished viewing the retrieved vehicle ID information, choose **Back** (to return to the Vehicle Information menu) or **Main Menu**, as desired.



VIEWING AVAILABLE MODULES

The Scan Tool can retrieve a list of modules supported by the vehicle under test.

1. With the Scan Tool in OBD2 mode, press and release the **M** button.
 - The Main Menu displays.
2. Select Vehicle Information, then press **ENTER** .
3. Select **Available Modules**, then press **ENTER** .
4. When the retrieval process is completed, a complete list of modules supported by the vehicle under test displays.
5. When you have finished viewing the list of available modules, choose **Back** (to return to the Vehicle Information menu) or **Main Menu**, as desired.



VIEWING IN-USE PERFORMANCE TRACKING (IPT)

The Scan Tool can retrieve In-use Performance Tracking (IPT) statistics for monitors supported by the vehicle under test. Two values are returned for each monitor; the number of times that all conditions necessary for a specific monitor to detect a malfunction have been encountered (XXXCOND), and the number of times that the vehicle has been operated under the specific conditions for the monitor (XXXCOMP). Statistics are also provided for the number of times the vehicle has been operated in OBD monitoring conditions (OBDCOND), and the number of times the vehicle's engine has been started (IGNCNTR).

1. With the Scan Tool in OBD2 mode, press and release the **M** button.
 - The Main Menu displays.
2. Select **Vehicle Information**, then press the **ENTER**  button.

- The Vehicle Information menu displays.
- 3. Select **IPT**, then press **ENTER** ↵.
- 4. When the retrieval process is completed, the In-use Performance Tracking statistics for the vehicle under test display.
 - If In-use Performance Tracking is not available for the vehicle, an advisory message displays. Choose **Back** (to return to the Vehicle Information menu) or **Main Menu**, as desired.
- 5. When you have finished viewing the statistics, choose **Back** (to return to the Vehicle Information menu) or **Main Menu**, as desired.



VIEWING THE FIRMWARE VERSION

1. Select **Firmware Version** in the Main Menu, then press **ENTER** ↵.
 - The Firmware Version screen displays.
 - The screen shows the Scan Tool's current firmware version, bootloader version, database version, and tool ID.
2. Press **M** to return to the Main Menu.



THE TOOL LIBRARY

Tool Library contains valuable reference information for the Scan Tool. The following functions are available:

- **Icon Meaning** – Shows the full names for the I/M MONITOR STATUS icons shown and descriptions of informational icons on the Scan Tool's display.
 - **DTC Library** – Provides access to libraries of OBD1 and OBD2 DTC definitions.
 - **Hotkey Legend** - Shows functional descriptions for the Scan Tool's hotkeys.
 - **LED Meaning** – Provides descriptions of the meaning of the Scan Tool SYSTEM STATUS LEDs.
 - **QR RS2 App** – Explains the benefits of the RS2 App and QR code to download app.
1. While linked to the vehicle, press **M**.
 - The Main Menu displays.
 2. Select **Tool Library**, then press **ENTER** ↵.
 - The Tool Library menu displays.



VIEWING TOOL ICON MEANINGS

The I/M MONITOR STATUS icons on the Scan Tool's LCD display provide an indication of the "Completed / Not Complete" status for all I/M Monitors supported by the vehicle under test. The Icon Meaning function displays the full name for each Monitor icon, as well as descriptions of the meanings of other informational icons shown on the Scan Tool's display.

- From the Tool Library menu, select **Icon Meaning**, then press **ENTER** .
 - The Icon Meaning menu displays.
- Select the type of icons you wish to view, **Spark Ignition Monitors**, **Compression Ignition Monitors** or **Tool Icons**, then press **ENTER** .
 - The screen shows a list of Monitor for the selected category.
 - Choose **Back** to return to the Icon Meaning menu. If desired, repeat **step 2** to view additional Icon Meanings.
- When you have finished viewing the descriptions, choose **Back** to return to the Icon Meaning Menu.



USING THE DTC LIBRARY (OBD1 VEHICLES)

- From the Tool Library menu, select **DTC Library**, then press **ENTER** .
 - The Select Library screen displays.
- Select **OBD1 Library**, then press **ENTER** .
 - The Select Manufacturer screen displays.
- Select the desired vehicle manufacturer, then press **ENTER** .
 - A confirmation message shows.
 - If the correct manufacturer is not shown, choose **No** to return to the list of vehicle manufacturers.
 - If the correct manufacturer is shown, choose **Yes**.
- The Enter DTC screen displays.
 - The screen shows the code "000," with the first character highlighted. Press **UP**  or **DOWN** , as necessary, to scroll to the first digit of the DTC, then choose **Next Digit**.
 - The selected character displays solid, and the next character is highlighted.
- Select the remaining digits in the DTC in the same way. When you have selected all the DTC digits, press **ENTER**  to view the DTC definition.
- When you have finished viewing the DTC definition, choose **Back** to return to the Enter DTC screen and enter additional DTCs; or press **M** to return to the Main Menu.





NOTE: If a definition for the DTC you entered is not available, an advisory message shows. Choose **Back** to return to the Enter DTC screen and enter additional DTCs; or press **M** to return to the Main Menu.

USING THE DTC LIBRARY (OBD2 VEHICLES)

1. From the Tool Library menu, select **DTC Library**, then press **ENTER** .
 - The Select Library screen displays.
2. Select **OBD2 Library**, then press **ENTER** .
 - The Select Manufacturer screen displays.
3. Select the desired vehicle manufacturer, then press **ENTER** .
 - A confirmation message shows.
 - If the correct manufacturer is not shown, choose **No** to return to the list of vehicle manufacturers.
 - If the correct manufacturer is shown, choose **Yes**.
4. The Enter DTC screen displays.
 - The screen shows the code "P0001," with the "P" highlighted. Press **UP**  or **DOWN** , as necessary, to scroll to the desired DTC type (**P**=Powertrain, **U**=Network, **B**=Body, **C**=Chassis), then choose **Next Digit**.
 - The selected character displays solid, and the next character is highlighted.
5. Select the remaining digits in the DTC in the same way. When you have selected all the DTC digits, press **ENTER**  to view the DTC definition.
6. When you have finished viewing the DTC definition, choose **Back**, to return to the Enter DTC screen and enter additional DTCs; or press **M** to return to the Main Menu.



NOTE: If a definition for the DTC you entered is not available, an advisory message shows. Choose **Back** to return to the Enter DTC screen and enter additional DTCs; or press **M** to return to the Main Menu.

VIEWING THE HOTKEY LEGEND

1. From the Tool Library menu, select **Hotkey Legend**, then press **ENTER** .
 - The Hotkey Legend screen displays.
 - The screen shows a functional description of each of the Scan Tool's hotkeys.
2. When you have finished viewing the Hotkey Legend, choose **Back** to return to the Tool Library menu, or choose **Main Menu** to return to the Main Menu.

VIEWING LED MEANING

The SYSTEM STATUS LEDs on the Scan Tool provide a visual indication of the I/M Readiness status of the vehicle under test. The LED Meaning function provides a description of the meanings of the green, yellow, and red SYSTEM STATUS LEDs.



1. From the Tool Library menu, select **LED Meaning**, then press **ENTER** .
 - The LED Meaning screen displays.
 - To exit, choose **Back** to return to the Tool Library menu, or choose **Main Menu** to return to the Main Menu.

VIEWING THE APP QR CODE - *RepairSolutions2™ (RS2)*

1. From the Tool Library menu, select **QR RS2 App**, then press **ENTER** .
 - The QR RS2 App screen displays.
2. Press **UP** or **DOWN** to navigate through the options.
 - Scan the QR Code with a mobile device to download the RS2 App
 - To exit, choose **Back** to return to the Tool Library menu, or choose **Main Menu** to return to the Main Menu.

TOOL SETTINGS

The Scan Tool lets you make several adjustments and settings to configure the tool to your particular needs. The following functions can be performed:

- **Adjust Brightness:** Adjusts the brightness of the display screen.
- **Audible Tone:** Turns the Scan Tool's audible tone "on" and "off." When turned "on," a tone sounds each time a button is pressed.
- **Live Data Description:** Enables "expanded" definition functionality for the Live Data mode.
- **Language Selection:** Sets the display language for the Scan Tool to English, French or Spanish.
- **Unit of Measurement:** Sets the Unit of Measurement for the Scan Tool's display to USA or metric.
- **QR RS2 App Settings:** Sets the display of QR RS2 app for the "Enable" or "Disable" when linking to the OBD2 Scan Tool



VIEWING THE TOOL SETTINGS MODE

1. With the Scan Tool powered **ON**, press and release the **M** button.

- The Main Menu displays.
- 2. Select **Tool Settings**, then press **ENTER** ↵.
- The Tool Setting menu displays.
- 3. Make any adjustments and settings as described below.

ADJUSTING DISPLAY BRIGHTNESS

1. Select **Adjust Brightness** in the Tool Settings menu, then press **ENTER** ↵.
 - The Adjust Brightness screen displays.
2. Press **UP** ▲ and **DOWN** ▼ to make the display lighter or darker, then choose **Save** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, choose **Back**.

ENABLING/DISABLING THE AUDIBLE TONE

1. Select **Audible Tone** in the Tool Settings menu, then press **ENTER** ↵.
 - The Audible Tone screen displays.
2. Select **On** or **Off** as desired, then choose **Save** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, choose **Back**.

ENABLING/DISABLING LIVE DATA DESCRIPTIONS

1. Select **Live Data Descriptions** in the Tool Settings menu, then press **ENTER** ↵.
 - The Live Data Descriptions screen displays.
2. Select **On** or **Off** as desired, then choose **Save** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, choose **Back**.

SELECTING THE DISPLAY LANGUAGE

1. Select **Language Selection** in the Tool Settings menu, then press **ENTER** ↵.
 - The Language Selection screen displays.
2. Select the desired display language (**English**, **Español**, **Français**) then choose **Save** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, choose **Back**.

SETTING THE UNIT OF MEASUREMENT

1. Select **Unit of Measurement** in the Tool Settings menu, then press **ENTER** ↵.
 - The Unit of Measurement screen displays.
2. Select the desired unit of measurement (**Standard** or **Metric**), then choose **Save** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, choose **Back**.

SETTING THE QR RS2 APP MODE

1. Select **QR RS2 App Settings** in the Tool Settings menu, then press **ENTER** .
 - The QR RS2 App Settings screen displays.
2. Select **Enable** or **Disable** as desired, then choose Save to save your changes.



NOTE: To return to the Tool Settings menu without making changes, choose **Back**.



EXITING THE MENU MODE

- From the Tool Settings Menu, choose **Back** to return to the Main Menu.

When you retrieve DTCs from a vehicle, the data is saved to the Scan Tool's memory. The Scan Tool stores data for the three most recent vehicles tested.



NOTE: Each time you retrieve DTCs from a new vehicle, existing data for the oldest vehicle in the Scan Tool's memory is overwritten with the new data.

VIEWING SCAN DATA SAVED IN MEMORY

When you turn the Scan Tool on while NOT connected to a vehicle, and data is currently saved in the Scan Tool's memory, the Scan Tool enters Memory mode. You can view DTCs and Live Data stored in the Scan Tool's memory.

1. With the Scan Tool **NOT** connected to a vehicle, press and release **POWER/LINK** to turn the Scan Tool on.



NOTE: If the Scan Tool's batteries are low, a warning message displays. Replace the batteries before continuing.

2. If more than one vehicle is stored in the Scan Tool's memory, the Vehicle Selection menu displays. Select the desired vehicle, then press **ENTER** .



NOTE: If there are no vehicles currently stored in the Scan Tool, an advisory message displays. Press **M** to return to the Main Menu.

- The Memory System Menu displays.

3. Select the DTCs you wish to view, then press **ENTER** .

- The Scan Tool displays the "priority" DTC.



NOTE: If there are no DTCs currently stored in the Scan Tool's memory, an advisory message shows on the display.

- Press **DTC/FF** to scroll through all stored DTCs.



- When all DTCs have been displayed and **DTC/FF** is pressed, the Scan Tool displays the first enhanced DTC stored in memory. Press **DTC/FF** to scroll through all stored enhanced DTCs.
 - Choose **Freeze Frame** to view Freeze Frame data for the “priority” DTC.
4. When you have finished viewing data in the Scan Tool's memory, press and release **POWER/LINK**  to turn the Scan Tool off.

TOOL FIRMWARE UPDATES

The following provides detailed instructions on how to download the **INNOVA® OBD Tool Updater** application and update your INNOVA OBD2 diagnostic tool.

DOWNLOAD & INSTALL APPLICATION

Windows OS

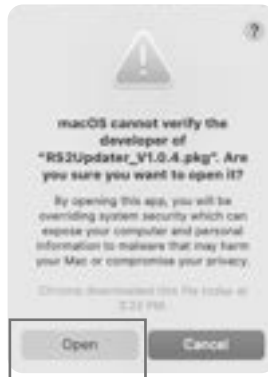
1. From your Windows PC, download the software by clicking on this link: [DOWNLOAD](#)
 - The application “**OBDToolUpdaterPC_V1.3.1_Live.exe**” begins downloading to your Windows PC.
2. Locate the downloaded application and double click the file to begin installation.
 - If a Windows protection pop-up displays.
 - Click on the “**More info**” link.
 - Click on “**Run Anyway**” to proceed with the installation.
3. The InstallShield Wizard launches.
4. Follow the prompts to complete the installation.
 - See **Updating Your Scan Tool** section to proceed.

Mac OS

1. From your Mac, download the software by clicking on this link: [DOWNLOAD](#)
 - The file “**RS2UpdaterMac_V1.0.4_Live.zip**” begins downloading to your Mac.
2. Locate the downloaded application on your Downloads folder.
3. Unzip the file and double click the “**RS2Updater_V1.0.4.pkg**” file to begin installation.
 - If the following security protection pop-up displays, click **OK** to close the window.
 - ‘Right click’ on the **RS2Updater_V1.0.4.pkg** file and click “**Open**”.



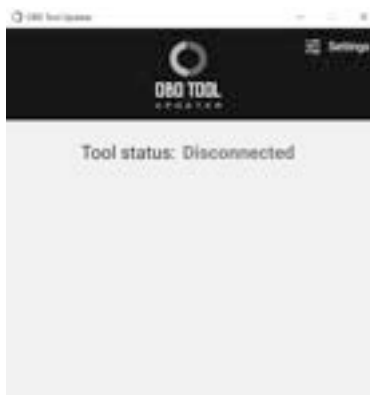
- Safely continue the installation by clicking the “Open” button.



4. Follow the prompts to complete the installation.
 - See **Updating Your Scan Tool** section to proceed.

UPDATING YOUR SCAN TOOL

1. Locate and Open the “**OBD Tool Updater**” application.
 - Double click to launch it.
 - Once open, the software will initially display “**Disconnected**”.



2. Using a standard mini-USB cable, connect your tool to your computer.
 - Wait a few seconds for the software to detect it.

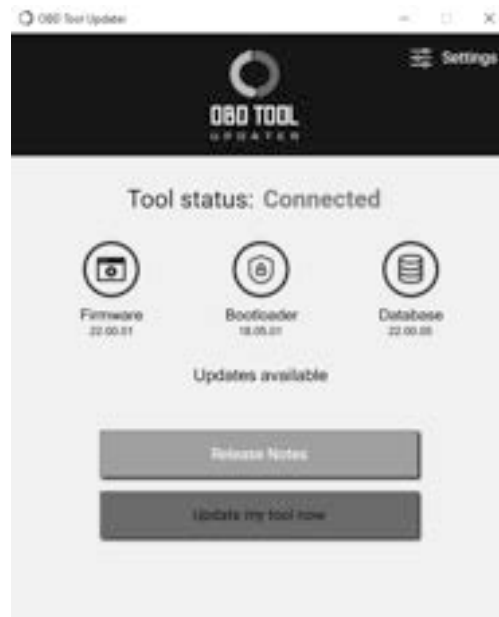


NOTE: If using a USB charging cable, and not a USB data cable, you will get the 'Disconnected' message. Charging Cables: Can only charge devices, but cannot transfer data. These are commonly called 'Charge-only' cables. Data Cables: Does both; charges your devices and transfers data.

3. Upon a good connection, the status changes to “**Connected**” and displays the tool’s current Firmware,

Bootloader, and Database versions.

- Wait a few more seconds for the software to check for updates.
- If an update is available, the following displays:



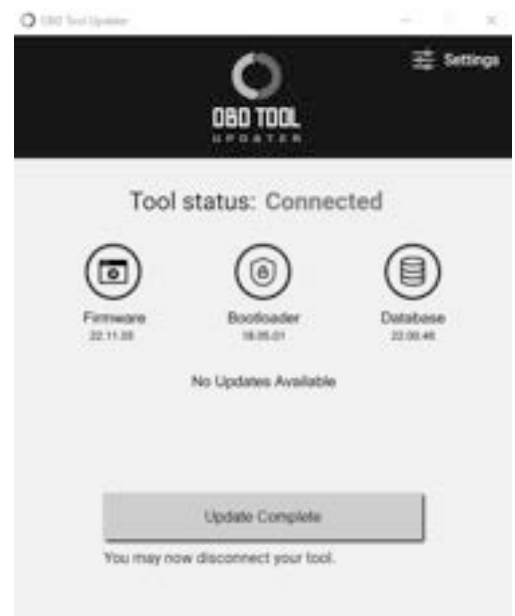
- If an update is not available, a “No Updates Available” message displays:

4. If an update is available, click the “**Update my tool now**” button to begin.

- The update is divided into individual steps such as bootloader, firmware, and database. Please be aware that this **process may take up to 25 minutes**. Do not disconnect the tool or close the app until all updates have been completed.
- Click on the “**Release Notes**” button to view what features and functions were added or corrected with this new version.

5. If the update was successful, the message “*Update Complete*” displays. At this point the tool has been updated and can be safely disconnected.

- If an error occurred during the update, the progress bar turns red and stops with the message “Update Error”. Please disconnect the tool and follow the steps indicated above to attempt the update process again.



TROUBLESHOOTING TIPS

1. Tool is connected to the computer, but the app shows a '**Disconnected**' status.
 - Please make sure the USB data cable to the computer and your tool are properly seated.
 - Try switching to a different USB port.
 - Try using another USB cable.
 - Make sure you are using the right Updater. Older model tools are not compatible with the new, OBD2 Tool Updater.
2. Tool is connected, but do not see "**Update my tool now**" button.
 - That means your tool is up to date and there are no new updates for your tool.
3. The update is **stuck at 1% (or 5%)** and not progressing.
 - Please install the latest updater for your tool. Visit lnnova.com/support to get the latest software.
 - Reboot your computer.
 - Disable any Antivirus software running in the background.
 - Attempt the update again by following the steps indicated above.

WARRANTY+ CUSTOMER SERVICE

LIMITED WARRANTY

The Manufacturer warrants to the original purchaser that this unit is free of defects in materials and workmanship under normal use and maintenance for a period of one (1) year from the date of original purchase.

If the unit fails within the one (1) year period, it will be repaired or replaced, at the Manufacturer's option, at no charge, when returned prepaid to the Service Center with Proof of Purchase. The sales receipt may be used for this purpose. Installation labor is not covered under this warranty. All replacement parts, whether new or remanufactured, assume as their warranty period only the remaining time of this warranty.

This warranty does not apply to damage caused by improper use, accident, abuse, improper voltage, service, fire, flood, lightning, or other acts of God, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.

The Manufacturer, under no circumstances shall be liable for any consequential damages for breach of any written warranty of this unit. This warranty gives you specific legal rights, and you may also have rights, which vary from state to state. This manual is copyrighted with all rights reserved. No portion of this document may be copied or reproduced by any means without the express written permission of the Manufacturer. **THIS WARRANTY IS NOT TRANSFERABLE.** For service, send via U.P.S. (if possible) prepaid to Manufacturer. Allow 3-4 weeks for service/repair.

CUSTOMER SERVICE

Our ASE Certified technical staff is here to help if you have any questions or require service. For information on UPDATES and OPTIONAL ACCESSORIES, please contact your local store, distributor or Innova's Service Center.

USA & Canada: (800) 544-4124

Monday through Friday: 6:00 AM to 6:00 PM PST

All others: (714) 241-6802

Monday through Friday: 6:00 AM to 6:00 PM PST

FAX: (714) 241-3979 (24 Hr.)

Web: www.innova.com

GLOSSARY

OBD2 TERMINOLOGY

The following terms and their definitions are related to OBD2 systems.

- **Powertrain Control Module (PCM)** - The PCM is the OBD2 accepted term for the vehicle's "on-board computer." In addition to controlling the engine management and emissions systems, the PCM also participates in controlling the powertrain (transmission) operation. Most PCMs also have the ability to communicate with other computers on the vehicle (ABS, ride control, body, etc.).
- **Monitor** - Monitors are "diagnostic routines" programmed into the PCM. The PCM utilizes these programs to run diagnostic tests, and to monitor operation of the vehicle's emissions-related components or systems to ensure they are operating correctly and within the vehicle's manufacturer specifications. Currently, up to fifteen Monitors are used in OBD2 systems. Additional Monitors will be added as the OBD2 system is further developed.



NOTE: *Not all vehicles support all fifteen Monitors*

- **Enabling Criteria** - Each Monitor is designed to test and monitor the operation of a specific part of the vehicle's emissions system (EGR system, oxygen sensor, catalytic converter, etc.). A specific set of "conditions" or "driving procedures" must be met before the computer can command a Monitor to run tests on its related system. These "conditions" are known as "**Enabling Criteria**." The requirements and procedures vary for each Monitor. Some Monitors only require the ignition key to be turned "**On**" for them to run and complete their diagnostic testing. Others may require a set of complex procedures, such as, starting the vehicle when cold, bringing it to operating temperature, and driving the vehicle under specific conditions before the Monitor can run and complete its diagnostic testing.
- **Complete / Incomplete** - The terms "**Complete**" or "**Incomplete**" are used throughout this manual. "**Complete**," means the PCM **has** commanded a particular Monitor to perform the required diagnostic testing on a system to ensure the system is operating correctly (within factory specifications). The term "**Incomplete**" means the PCM **has not** yet commanded a particular Monitor to perform diagnostic testing on its associated part of the emissions system.
- **Trip** - A Trip for a particular Monitor requires that the vehicle is being driven in such a way that all the required "Enabling Criteria" for the Monitor to run and complete its diagnostic testing are met. The "Trip Drive Cycle" for a particular Monitor begins when the ignition key is turned "**On**." It is successfully completed when all the "Enabling Criteria" for the Monitor to run and complete its diagnostic testing are met by the time the ignition key is turned "**Off**." Since each of the fifteen monitors is designed to run diagnostics and testing on a different part of the engine or emissions system, the "Trip Drive Cycle" needed for each individual Monitor to run and complete varies.
- **OBD2 Drive Cycle** - An OBD2 Drive Cycle is an extended set of driving procedures that takes into consideration the various types of driving conditions encountered in real life. These conditions may include starting the vehicle when it is cold, driving the vehicle at a steady speed (cruising), accelerating, etc. An OBD2 Drive Cycle begins when the ignition key is turned "On" (when cold) and ends when the vehicle has been driven in such a way as to have all the "Enabling Criteria" met for all its applicable Monitors. Only those trips that provide the Enabling Criteria for all Monitors applicable to the vehicle to

run and complete their individual diagnostic tests qualify as an OBD2 Drive Cycle. OBD2 Drive Cycle requirements vary from one model of vehicle to another. Vehicle manufacturers set these procedures. Consult your vehicle's service manual for OBD2 Drive Cycle procedures.



NOTE: Do not confuse a "Trip" Drive Cycle with an OBD2 Drive Cycle. A "Trip" Drive Cycle provides the "Enabling Criteria" for one specific Monitor to run and complete its diagnostic testing. An OBD2 Drive Cycle must meet the "Enabling Criteria" for all Monitors on a particular vehicle to run and complete their diagnostic testing.

- **Warm-up Cycle** - Vehicle operation after an engine off period where engine temperature rises at least 40°F (22°C) from its temperature before starting, and reaches at least 160°F (70°C). The PCM uses warm-up cycles as a counter to automatically erase a specific code and related data from its memory. When no faults related to the original problem are detected within a specified number of warm-up cycles, the code is erased automatically.

OBD2 MONITORS

To ensure the correct operation of the various emissions-related components and systems, a diagnostic program was developed and installed in the vehicle's on-board computer. The program has several procedures and diagnostic strategies. Each procedure or diagnostic strategy is made to monitor the operation of, and run diagnostic tests on, a specific emissions-related component or system. These tests ensure the system is running correctly and is within the manufacturer's specifications. On OBD2 systems, these procedures and diagnostic strategies are called "Monitors."

Currently, fifteen Monitors are supported by OBD2 systems. Additional monitors may be added because of Government regulations as the OBD2 system grows and matures. Not all vehicles support all fifteen Monitors. Additionally, some Monitors are supported by "spark ignition" vehicles only, while others are supported by "compression ignition" vehicles only.

Monitor operation is either "**Continuous**" or "**Non-Continuous**," depending on the specific monitor.

CONTINUOUS MONITORS

Three of these Monitors are designed to constantly monitor their associated components and/or systems for proper operation. Continuous Monitors run constantly when the engine is running.

CCM = Comprehensive Component Monitor

MIS = Misfire Monitor

FUE = Fuel System Monitor

NON-CONTINUOUS MONITORS

The other twelve Monitors are “non-continuous” Monitors. “Non-continuous” Monitors perform and complete their testing once per trip.

O2S = Oxygen Sensor Monitor

HTR = Oxygen Sensor Heater Monitor

CAT = Catalyst Monitor

HCA = Heated Catalyst Monitor

EGR = EGR (Exhaust Gas Recirculation) System Monitor

EVA = EVAP System Monitor

AIR = Secondary Air System Monitor



NOTE: The following Monitors became standard beginning in 2010. The majority of vehicles produced before this time will not support these Monitors.

HCC = NMHC (Non-Methane Hydrocarbon Converting) Catalyst Monitor

NOx = NOx/SCR Aftertreatment Monitor

BPS = Boost Pressure System Monitor

EGS = Exhaust Gas Sensor Monitor

DPF = PM (Particulate Matter) Filter Monitor

ADDITIONAL TERMINOLOGY + ACRONYMS

- **ABS** = Anti-Lock Brakes
- **DLC** = Data Link Connector (vehicle's data port)
- **DTC** = Diagnostic Trouble Codes
- **KOEO** = Key On, Engine Off
- **KOER** = Key On, Engine Running
- **MIL** = Malfunction Indicator Lamp (Check Engine Light)

- **OBD** = On Board Diagnostics
 - **OBD2 / OBD II** = On Board Diagnostics, Second Generation
 - **OEM** = Original Equipment Manufacturer
 - **PID** = Parameter Identification Data
 - **SRS** = Safety Restraint System
 - **TPMS** = Tire Pressure Monitoring System
 - **TSBs** = Technical Service Bulletins
-



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