

5300LaT

INNOVA[®]

OBD2&1 Diagnostic Tool Kit

USER'S MANUAL



HELLO...

On behalf of everyone at INNOVA, we want to assure you that we are committed to assisting you and your customers with routine vehicle maintenance tasks. We take pride in offering simple-to-use and easy-to-understand diagnostic solutions. Here are some of the things you can do with the **INNOVA® 5300LaT** OBD2&1 Diagnostic Tool Kit:

- ✓ *Check Engine Light Diagnostics*
- ✓ *BMS/Battery Reset & Initialization*
- ✓ *Oil Light Reset / Oil Level / Oil Life*
- ✓ *Brake Pad Life*
- ✓ *DTC Severity*
- ✓ *Full 10 Modes of OBD2*
- ✓ *Read ABS Codes*
- ✓ *OBD1 Diagnostics*
- ✓ *Stream Live Data PIDs*
- ✓ *Smog / Emissions Readiness*
- ✓ *Trip Cycle Procedures*
- ✓ *Battery/ Alternator Test*
- ✓ *And Much More...*

Enjoy using your INNOVA diagnostic equipment!

Yours sincerely,

The Innova Technical Team

P.S: See what's new, connect with us on social...



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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 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.

FIRMWARE 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 45](#)].

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 14, below.

1. **Display** – Color LCD display shows menus and submenus, test results, Scan Tool functions and Monitor status information. See DISPLAY FUNCTIONS for more details. [See page 6]
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. **▲ 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.
6. **↵ ENTER button** – When in MENU mode, confirms the selected option or value.
7. **▼ 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.
8. **ERASE button** – Erases Diagnostic Trouble Codes (DTCs), and “Freeze Frame” data from the vehicle’s computer, and resets Monitor status.
9. **SYSTEM MENU button** – When pressed, displays the System Menu.
10. **FF.DTC button** – Displays the DTC View screen and/or scrolls the LCD display to view DTC and Freeze Frame Data.
11. **POWER.LINK button** – When connected to a vehicle, links the Scan Tool to the vehicle’s computer.
12. **M button** – When pressed, displays the Main



Figure 1. Controls and Indicators

Menu.

13. **LD button** – When pressed while linked to a vehicle, places the Scan Tool in Live Data mode.
14. **OBD II Cable** (detachable) – Connects the scan tool to the vehicle's Data Link Connector (DLC) when retrieving codes from OBD II systems.

SCAN TOOL DISPLAY FUNCTIONS

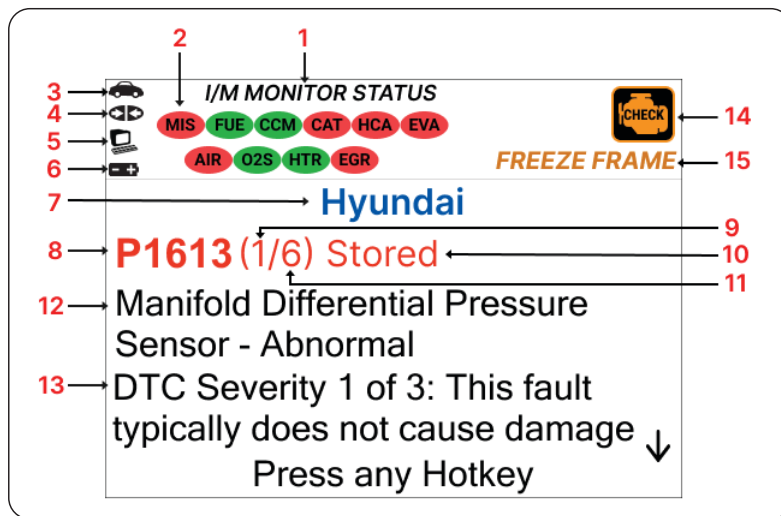





Figure 2. OBD2 Display Functions

See Figure 2 for the locations of items 1 through 15, 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.



NOTE: The I/M Monitor Status icons are associated with INSPECTION and MAINTENANCE (I/M) READINESS STATUS. Some states require that all vehicle Monitors have run and completed their diagnostic testing before a vehicle can be tested for Emissions (Smog Check). A maximum of fifteen Monitors are used on OBD2 systems. Not all vehicles support all fifteen Monitors. When the Scan Tool is linked to a vehicle, only icons for Monitors that are supported by the vehicle under test are visible on the display.

3.  **Vehicle icon** – When visible, indicates that the Scan Tool is being powered through the vehicle's DLC connector.
4.  **POWER.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. **Current View Title** – Provides the title of what is being displayed, such as the vehicle being tested, or other functions.
8. **DTC Display Area** - Displays the Diagnostic Trouble Code (DTC) number. Each fault is assigned a code number that is specific to that fault.
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 Type** – Indicates the type of code being displayed: **Stored, Pending, Permanent**, etc.
11. **Code Enumerator** – Indicates the total number of codes retrieved from the vehicle’s computer.
12. **Test Results Area** – Displays DTC definitions, Freeze Frame data and other pertinent test information messages.
13. **Severity** – Indicates the level of severity for the priority code (*code number “1”*), as follows:

1: This fault typically does not cause damage to components and should be serviced when convenient.

2: This fault may pose damage to components and should be repaired as soon as possible.

3: This fault will cause damage to components and should be repaired immediately.

14. **SYSTEM icon** – Indicates the system with which the diagnostic trouble code is associated:



MIL icon





ABS icon

15. **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).

INITIAL SETUP


The first time the Scan Tool is plugged into the vehicle, you must select the desired display language (English, French or Spanish) and the unit of measurement (U.S. Standard or metric) as follows:

1. Select the desired display language, then press **ENTER** .
 - The Select Unit screen displays.
2. Select the desired unit of measurement, then press **ENTER** .



NOTE: After the initial language and unit of measurement selections are performed, these, as well as other settings, can be changed as desired under the Tool Settings section. [[See page 48](#)]

SCAN TOOL BATTERY REPLACEMENT

Replace batteries when the battery  symbol is visible on the 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 (3) AA-size batteries (for longer life, use Alkaline-type batteries).
4. Reinstall the battery cover on the back of the Scan Tool.

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).

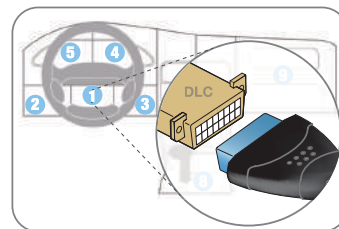


NOTE: Some DLCs have a plastic cover that must be removed before connecting the Scan Tool.



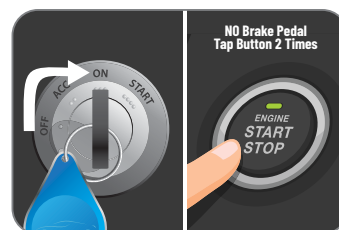
NOTE: If the Scan Tool is ON, turn it OFF BEFORE connecting to the DLC.

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.

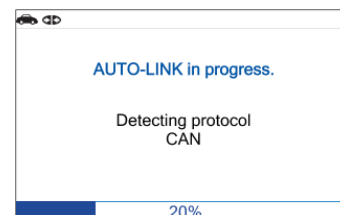


4. Turn the ignition on. **DO NOT** start the engine.
5. When the Scan Tool is properly connected to the vehicle's DLC, the unit automatically turns ON.

- 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.



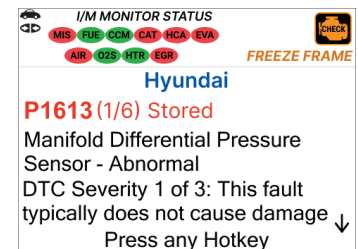
6. The Scan Tool automatically checks the vehicle's computer to determine which communication protocol it is using.
 - Tool begins to **"AUTO-LINK"** to identify computer's communication protocol. A progress bar is displayed while a communication link is established.





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 **POWER.LINK** 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.



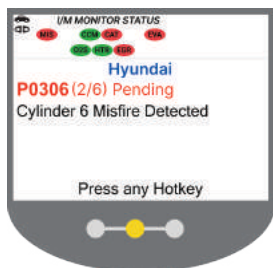
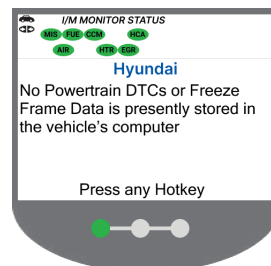
NOTE: If a definition for the currently displayed code is not available, an advisory message shows.

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



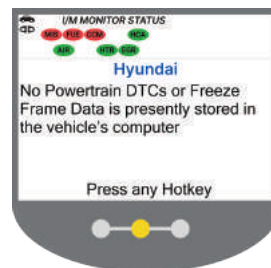
NOTE: The green, yellow, and red LEDs are used (with the display) as visual aids to make it easier to determine engine system conditions.

- 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**.

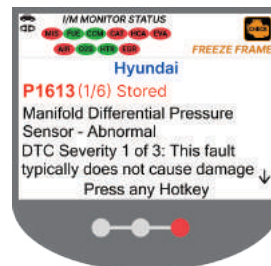
[B] MONITOR NOT RUN STATUS – If the display shows a zero (indicating there are no DTC's present in the vehicle's computer memory), but the yellow LED is illuminated, it may be an indication that some of the Monitors supported by the vehicle have not yet run and completed their diagnostic testing. Check 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.



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.

- If more than one Diagnostic Trouble Code (DTC) was retrieved, and to view Freeze Frame Data, press and release the **FF.DTC**, as necessary.
 - Each time **FF.DTC** is pressed and released, the Scan Tool will scroll and display the next DTC in sequence until all DTCs in its memory have displayed.
 - Freeze Frame data (if available) will display after DTC #1.
 - 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..

13. When the last retrieved DTC has been displayed and **FF.DTC** 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 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 [M]. The following functions are available:

- **System Tests** – Displays the System Tests menu, which lets your retrieve and view results for the O2 Sensor Test and OBD Monitor Test, lets you initiate a test of the vehicle's EVAP system, and allows to perform an I/M Monitor Test. [See page 26]
- **Vehicle Information** – Displays the Vehicle Info menu, which lets you retrieve and view reference information for the vehicle under test. [See page 42]
- **DLC Locator** – Lets you find the location of the Data Link Connector (DLC) for a specified vehicle. [See page 45]
- **Battery/Alternator Test** – Performs a check of the vehicle's battery and alternator system to ensure the system is operating within acceptable limits. [See page 39]
- **Drive Cycle Procedures** – Lets you view trip cycle procedures for a selected vehicle monitor. [See page 41]


Main Menu	
Select and press 	1/10
System Tests	
Vehicle Information	
DLC Locator	
Battery/ Alternator Test	
Drive Cycle Procedures	
Press any Hotkey	

- **Service Reset** – Lets you reset the Oil Maintenance Light [\[See page 29\]](#) and reset the Battery Monitor System after battery replacement [\[See page 30\]](#).
- **Service Check** – Lets you view the current engine oil level, oil life remaining and brake pad life. [\[See page 38\]](#)
- **Firmware Version** – Displays the Scan Tool's firmware version. [\[See page 45\]](#)
- **Tool Library** – Displays the Tool Library menu, which provides access to OBD1 and OBD2 DTC libraries, Icon Meaning, and LED Meaning. [\[See page 45\]](#)
- **Tool Settings** – Displays the Tool Settings menu, which lets you make several adjustments and settings to configure the Scan Tool to your needs. [\[See page 48\]](#)





NOTE: The **System Tests** option is shown only when the Scan Tool is in Global OBD2 mode.

THE SYSTEM MENU – OEM FUNCTIONS

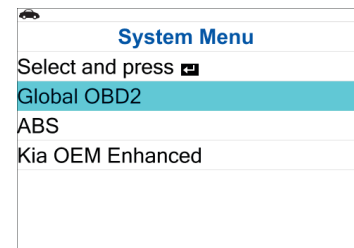
The **SYSTEM MENU**  provides the ability to retrieve “enhanced” DTCs and Anti-lock Braking System (**ABS**) DTCs for most **BMW, Chrysler/Jeep, Ford/Mazda, GM/Isuzu, Honda/Acura, Hyundai, Mercedes Benz, Nissan, Toyota/Lexus, Volkswagen, Volvo**, and other vehicles. The types of enhanced data available 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. [\[See page 9\]](#)
- **To view OEM enhanced DTCs:** Select **[make] OEM Enhanced** from the System Menu. [\[See page 13\]](#)
- **To view ABS DTCs:** Select **ABS** from the System Menu. [\[See page 16\]](#)



VIEWING OEM ENHANCED DTCs (Except Ford/Mazda)

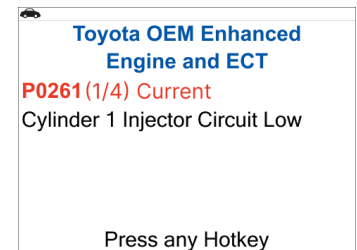
When **[make] OEM Enhanced** is chosen from the System Menu, the Scan Tool retrieves OEM enhanced DTCs from the vehicle's computer.

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.

USING THE SCAN TOOL

Viewing OEM Enhanced DTCs (Ford/Mazda Only)

- 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, or press **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. Press **SYSTEM MENU** to return to the System Menu.
3. If more than one code was retrieved press **FF.DTC**, 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** to re-establish communication.

4. When the last retrieved DTC has been displayed and **FF.DTC** 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.










VIEWING OEM ENHANCED DTCs (Ford/Mazda Only)

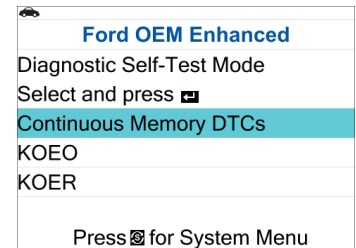


NOTE: Mazda Enhanced DTCs are available for Mazda-branded Ford vehicles only.

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.
 - Start and warm the engine to normal operating temperature, then press **ENTER** . Proceed to **step 3**.
2. If **KOEO** or **Continuous Memory** is selected, an “instructional” message shows.
 - Turn the ignition OFF, then back ON. Press **ENTER** . Proceed to **step 3**.
3. 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.
 - 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.
 - If the **KOER** test was selected, and the vehicle’s engine is not running, an advisory message shows.
 - Start the engine and press **ENTER**  to try again, or, press **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 press **ENTER**  to try again, or, press **SYSTEM MENU**  to return to the System Menu.
4. If the **KOER** test was selected, an “instructional” message shows.
 - Turn the steering wheel to the left, 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.
5. Refer to **DISPLAY FUNCTIONS** [[See page 6](#)] for a description of LCD display elements.



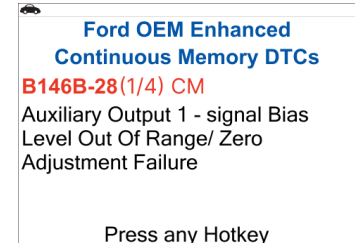


NOTE: I/M MONITOR STATUS icons are not displayed when viewing enhanced DTCs.



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" displays. Press any Hotkey.
6. If more than one code was retrieved press **FF.DTC**, or the **UP ▲** or **DOWN ▼** button, to display additional codes one at a time.
 7. When the last retrieved DTC has been displayed and **FF.DTC** is pressed, the Scan Tool returns to the "Priority" code.
 - To view additional enhanced DTCs, repeat **steps 1 through 6**, above.
 - 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.



VIEWING ABS DTCs

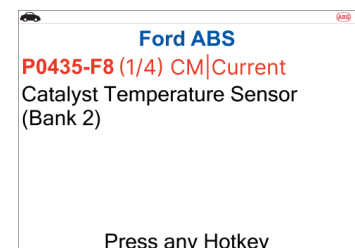


NOTE: Refer to the [manufacturer's website](#) for vehicle makes covered.

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.
 - 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 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. Press **SYSTEM MENU**  to return to the System Menu.
- 3. If more than one code was retrieved press **FF.DTC**, 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 the  **POWER.LINK** button again to re-establish communication.

- 4. When the last retrieved DTC has been displayed and **FF.DTC** 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.

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.

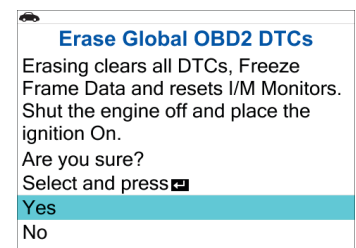
If you plan to take the vehicle to a Service Center for repair, **DO NOT** erase the codes from the vehicle's computer. If the codes are erased, valuable information that might help the technician troubleshoot the problem will also be erased.


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 9](#)].
 - **To erase OBD2 DTCs:** Wait until the codes are displayed, then proceed to **step 3**.
 - **To erase OEM enhanced or ABS 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**.

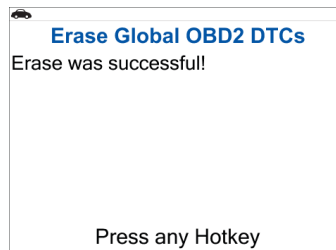


3. Press and release **ERASE** . A confirmation message shows.
 - If you are sure you want to proceed, choose **Yes** to continue.
 - If you do not want to proceed, choose **No** to cancel the erase procedure.
4. If you chose to erase DTCs, a “One moment please...” message displays while the erase function 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 relinks 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 relinks to the vehicle's computer after 3 seconds.



NOTE: Please be aware that erasing DTCs will not resolve the problem(s) that caused the code(s) to be set. If proper repairs to correct the problem that caused the code(s) to be set are not made, the code(s) will appear again (and the Check Engine Light will illuminate) as soon as the vehicle is driven long enough for its Monitors to complete their testing.

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

- While linked to the vehicle, start the engine, then press **LD**.
- 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.
- 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. Press **M** to return to the Main Menu, or press **SYSTEM MENU**  to return to the System Menu.

Powertrain Live Data	
Select and press  to graph	
PCM PID	1/12
Fuel Sys 1	CL
Fuel Sys 2	OL
Calc Load	20.0 (%)
ECT	302 (°F)
STFT B1	-50.0 (%)
Press LD for LD Menu	



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

- 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. Press and release **ENTER ↵** to view the currently selected PID in “graph” mode. Press and release **ENTER ↵** again to return to the PID list.
 - You can display a maximum of two PIDs in “graph” mode at any given time.
 - With two PID shown in “graph” mode, press and hold **LD** to superimpose one graph over the other.
 - Release **LD** to separate the graphs.
 6. Press and hold **ENTER ↵** to view the “expanded” definition for the currently selected PID. Release to return to the PID list.

Powertrain Live Data	
Select and press LD to graph	
PCM PID	1/12
Calc Load	20.0 (%)
ECT	302 (°F)
348	
256	
Press LD for LD Menu	



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. [\[See page 21\]](#)

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 [\[See page 19\]](#), press **LD** to access the Live Data Menu.
2. Select Custom Live Data, then press **ENTER ↵**.
 - 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.
 - If Live Data is not supported by the vehicle under test, an advisory message displays. Press **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 3**.

Live Data Menu	
Select and press LD	
Custom Live Data	
Record Live Data	
Playback Live Data	
Back	
Press any Hotkey	

- If custom Live Data was not previously selected, the Custom Live Data menu displays. Proceed to **step 3**.
3. Press **UP ▲** and **DOWN ▼** to scroll through the available PIDs. When the 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 deselect a PID, highlight the PID, then press **ENTER ↵**. The checkmark is removed.
 4. When you are finished making your selection(s), press **LD** to continue.
 - If no PIDs have been selected, an advisory message displays. Press **ENTER ↵** to return to the Custom Live Data menu.
 5. 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 3**.
 6. To exit the “Custom Live Data” mode, press **LD** to return to the Live Data Menu.

Custom Live Data	
Press LD to proceed	
Back	
Fuel Sys 1	<input checked="" type="checkbox"/>
Fuel Sys 2	<input type="checkbox"/>
Calc Load	<input type="checkbox"/>
ECT	<input type="checkbox"/>
STFT B1	<input type="checkbox"/>

Custom Live Data	
Select and press LD to graph	1/10
Reselect PIDs	
Fuel Sys 1	CL
Fuel Sys 2	OL
Calc Load	20.0 (%)
ECT	302 (°F)
Press LD for LD 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.

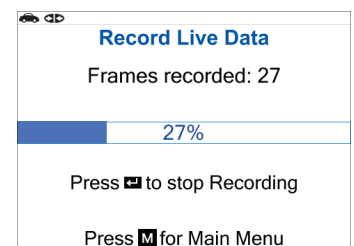
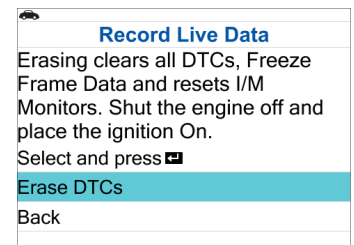
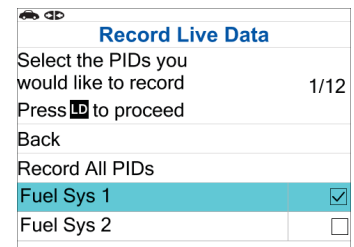
RECORD BY DTC TRIGGER

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 19](#)], press **LD** to access the Live Data Menu.
2. Select **Record Live Data**, then press **ENTER ↵**.
 - The Record Live Data Menu 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. Select Record by DTC Trigger, then press **ENTER** .
 - The Select PIDs to Record screen displays.
 4. 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 have all been selected.
 - To deselect a PID, highlight the PID, then press **ENTER** . The checkmark is removed.

NOTE: To record all PIDs, select **Record All PIDs**, then press **LD** to continue.
 5. When you are finished making your selections, press **LD** to continue.
 - If DTCs are presently stored in the vehicle’s computer, an advisory message displays. Select **Erase DTCs**, then press **ENTER** . A “One moment please...” message displays while DTCs are erased from the vehicle’s computer.
 - If the erase was 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. Select **Erase DTCs**, then press **ENTER** .
 - To exit the record function, select **Back**, then press **ENTER**  to return to the Record Live Data menu.
 - The Record Live Data screen displays.
 6. 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.
 7. 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 pressing **ENTER** .
 - When recording is complete, a confirmation screen displays. Select










Yes and press **ENTER**  to playback Live Data [\[See page 24\]](#) or select **No** and press **ENTER**  to return to the Live Data menu, as desired.

- If recording was not successful, an advisory message shows on the display. Press the **ENTER**  button to return to the Record 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 can record approximately 100 frames of Live Data.

1. With the Scan Tool in Live Data mode [\[See page 19\]](#), press **LD** to access the Live Data Menu.
2. Select **Record Live Data**, then press **ENTER** .
 - The Record Live Data Menu 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. Select **Record Manually**, then press **ENTER** .
 - The Select PIDs to Record screen displays.
4. 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 have all been selected.
 - To deselect a PID, highlight the PID, then press **ENTER** . The checkmark is removed.







NOTE: To record all PIDs, select **Record All PIDs**, then press **LD** to continue.

Record Live Data	
Select the PIDs you would like to record	1/12
Press LD to proceed	
Back	
Record All PIDs	
Fuel Sys 1	<input checked="" type="checkbox"/>
Fuel Sys 2	<input type="checkbox"/>







5. When you are finished making your selections, press **LD** to continue.
 - The Record Live Data screen displays.
 - Highlight **Start Recording**. 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.

Record Live Data	
Frames recorded: 27	
<div style="width: 27%; background-color: #0070C0; height: 10px;"></div> 27%	
Press LD to stop Recording	
Press M for Main Menu	


6. When the problem occurs, press and release **LD**.
 - A progress message shows on the display.
 - You can stop and save recorded Live Data at any time by pressing **ENTER** .
 - When recording is complete, a confirmation screen displays. Select **Yes** and press **ENTER**  to playback Live Data [\[See page 24\]](#) or select **No** and press **ENTER**  to return to the Live Data menu, as desired.
 - If recording was not successful, an advisory message displays. Press **ENTER**  to return to the Record Live Data menu.




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 [\[See page 21\]](#), or you can view it later using the "Playback" function.

1. With the Scan Tool not connected to a vehicle, press the  **POWER.LINK** button.
 - The "Vehicle Selection" screen displays. Use the **UP**  and **DOWN**  buttons to select the desired vehicle, then press **ENTER** .
2. Select **Global OBD2** and press **ENTER** .
 - Press the **LD** button. Proceed to **step 4**.
3. With the Scan Tool connected to the vehicle and in Live Data mode [\[See page 19\]](#), press **LD** to access the Live Data Menu.
4. Select **Playback Live Data**, then press the **ENTER**  button.
 - The Playback Live Data menu displays.



















 **NOTE:** If there is no Live Data currently stored in the Scan Tool's memory, and advisory message shows on the display.

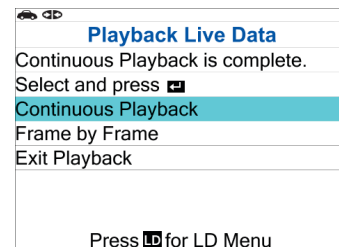
 **NOTE:** When you select **Yes** from the Record Live Data confirmation screen, the Scan Tool enters the "Live Data Playback" mode, and the Playback Live Data menu displays.

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**  or **DOWN** , as necessary, to view all available PID data.
 - When viewing recorded Live Data, look for any irregularities in any of

Playback Live Data	
Select and press  to graph	
Frame 1/100	PID 1/4
Fuel Sys 1	CL
Fuel Sys 2	OL
Calc Load	20.0 (%)
ECT	302 (°F)
STFT B1	-50.0 (%)
Press LD for LD Menu	

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**  and **DOWN**  buttons to scroll and view each available recorded PID in graph mode.
 - Press **ENTER**  a second time to view **2 Graphs** on a single screen.
7. To Superimpose PID values (for comparison purposes), use the **UP**  and **DOWN**  buttons 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.
8. Once the playback is finished, a Playback Complete message displays.
 - To play the data back again, select **Continuous Playback** or **Frame by Frame**, as desired, then press **ENTER** .
 - To exit Live Data Playback mode and return to Live Data mode, select **Exit Playback**, then press **ENTER** .
9. 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, select **Next Frame** or **Previous Frame**, as desired, then press **ENTER** .
 - To view the recorded data in graph mode, press **ENTER** .
 - Use the **UP**  and **DOWN**  buttons to scroll and view each available recorded PID in graph mode.
 - Press **ENTER**  a second time to view **2 Graphs** on a single screen.
10. To Superimpose PID values (for comparison purposes), use the **UP**  and **DOWN**  buttons 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, select **Exit Playback**, then press **ENTER** .




NOTE: If there is no Live Data currently stored in the Scan Tool's memory, an advisory message shows on the display. Press **LD** to exit the "Live Data Playback" mode.

ADDITIONAL DIAGNOSTIC TESTS

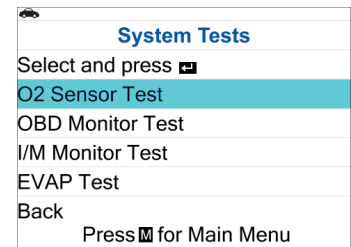
SYSTEM TESTS MENU

Additional tests are accessed through the System Tests 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 Description and Drive Cycle procedures for a selected Monitor
1. While linked to the vehicle, press the **M** button.
 - The Main Menu displays.
 2. Select **System Tests**, then press **ENTER** .
 - The System Tests menu displays.



NOTE: If System Tests is not shown on the Main Menu, the System Tests 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.

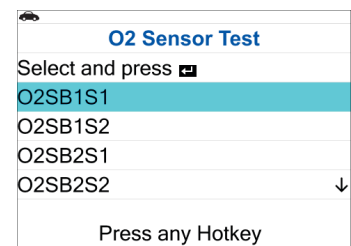


NOTE: The Scan Tool does not perform O2 sensor tests, but retrieves results from the most recently performed O2 sensor tests from the on-board computer's memory. You may retrieve O2 sensor test results for only one test of one sensor at any given time.

1. From the System Tests 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. Press **M** to return to the Main Menu.





NOTE: If O2 sensor tests are not supported by the vehicle under test, an advisory message displays. Press **M** to return to the Main Menu.


3. Select the O2 sensor for which you wish to view test results, then press **ENTER**  to display the test results.
4. When test results have been retrieved, data for the selected sensor test will show on the Scan Tool's display.
5. When you have finished viewing the retrieved test data:
 - To view test results for the next sensor, select **Next**, then press **ENTER** .
 - To return to the Select Sensor screen, select **Back**, then press **ENTER** .
6. When you have finished viewing test data for all desired sensors, select **Back**, then press **ENTER**  to return to the System Tests menu; or, press **M** 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 System Tests 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. Press **M** to return to the Main Menu.

OBD Monitor Test	
Select and press 	1/14
Exhaust Gas Sensor Monitor Bank 1 - Sensor 1 (\$01)	
Exhaust Gas Sensor Monitor Bank 1 - Sensor 2 (\$02)	
Exhaust Gas Sensor Monitor Bank 2 - Sensor 1 (\$05)	
Press any Hotkey	




NOTE: If OBD monitor tests are not supported by the vehicle under test, an advisory message displays. Press **M** to return to the Main Menu.

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**.



- When you have finished viewing the retrieved test data, select **Back** on the Select Test screen, then press **ENTER**  to return to the System Tests menu; or, press **M** to return to the Main Menu.

EVAP TEST

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

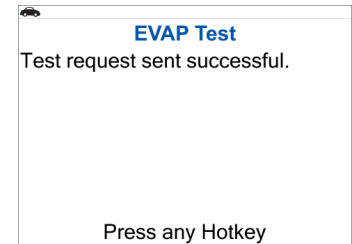


NOTE: The Scan Tool does not perform the leak test, but signals to vehicle's on-board computer to initiate the test. The vehicle manufacturer determines the criteria and method for stopping the test once it has been started. Refer to the vehicle's service repair manual to determine the procedures necessary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

- From the System Tests menu, select **EVAP Test**, then press **ENTER** .
 - A "One moment please..." message displays.
- When the EVAP leak test has been initiated by the vehicle's on-board computer, a confirmation message displays. Select **Back**, then press **ENTER**  to return to the System Tests menu; or, press **M** 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. Press the **M** button to return to the Main Menu.



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.

- From the Systems Test menu, select **I/M Monitor Test**, then press **ENTER** .
- 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 *Since DTCs Cleared* or *This Drive Cycle*, a warning message displays "This vehicle does not support this monitor type." Press the **M** button to return to the previous dialog.
- The Select Monitor screen displays listing all Monitors supported by the vehicle.
- To view a Monitor description of Drive Cycle Procedures for a Monitor, select the desired **Monitor**, then press **ENTER** .
 - A Menu for the selected Monitor displays.
- To view a Monitor description, choose **Description**.
 - A description for the selected Monitor displays.
- To view Drive Cycle Procedures for a Monitor, choose **Drive Cycle**.

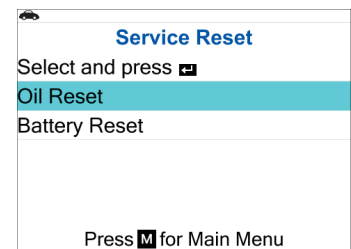


NOTE: If Drive Cycle Procedures are not available for the vehicle, an advisory message displays. Press **M** to return to the Main Menu.

- The Drive Cycle Procedures screen for the Monitor displays.
7. 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.
 8. When you are finished viewing the Drive Cycle Procedures, press the **M** button to return to the previous dialog.


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, select **Yes** and press **ENTER** to continue.
 - If the vehicle under test is not equipped with a navigation system, select **No** and press **ENTER** 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 Reset Oil Maintenance Indicator screen displays.
 - If you do not wish to proceed with the reset process, select **No**, then press **ENTER** to return to the System Menu.
 - If you wish to proceed with the reset process, select **Yes**, then press **ENTER** to continue.
5. When the reset process has completed, a confirmation message displays. Press **M** to return to the Main Menu.
 - If the oil reset was not successful, an advisory message displays.
 - To perform the oil reset by procedure, select **Yes**, then press **ENTER** .
 - An “instructional” message displays, showing the manual procedures for resetting the indicator light.

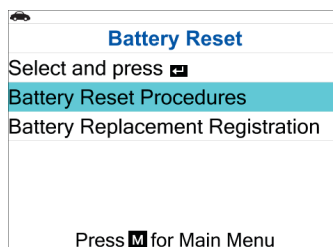
- If you do not wish to perform the oil reset by procedure, select **No**, then press **ENTER**  to return to the Main Menu.


BATTERY RESET

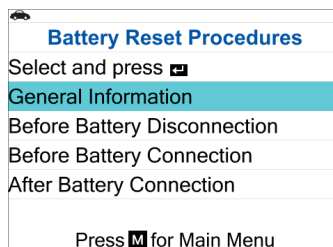
You can use the Scan Tool to view the procedures for resetting the battery monitor system following battery replacement or perform battery reset OBD service.

VIEWING BATTERY RESET PROCEDURES


1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Select **Service Reset**, then press **ENTER** .
 - The Service Reset menu displays.
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 for your vehicle, an advisory message shows. Press **M** to return to the Main Menu.

5. Select the procedure you wish to view, then press **ENTER** .
 - The selected procedure displays.

6. The procedure depends on the vehicle being tested.
- Below are examples of Battery Reset Procedures for some manufacturers.

For Chrysler:

General Information

1. Disconnecting battery may erase memory from electronic units (e.g. radio, clock).
2. Disconnecting battery may erase memory from engine control module (ECM) and/or transmission control module

Press **M** for go back

Before Battery Disconnection

1. Switch ignition OFF.
2. Ensure auxiliary battery (if fitted) is also disconnected.
3. Before supplementary restraint system (SRS) repairs:
 - a. Ensure vehicle interior is unoccupied.

Press **M** for go back

Before Battery Connection

1. After supplementary restraint system (SRS) repairs:
 - a. Ensure vehicle interior is unoccupied.
 - b. Switch ignition OFF.
 - c. Close all doors.

Press **M** for go back

After Battery Connection

1. For all models
 - A. Use scan tool to read and clear diagnostic trouble codes.
2. Electric Windows and Sunroof
 - A. For one - touch automatic function electric windows:
 - a. Turn ignition switch ON.

Press **M** for go back

For Mercedes-Benz:

General Information

1. Battery disconnection may clear all electronic memory (such as in the clock, radio, on-board computer, etc.).
2. Battery disconnection may clear all engine control module (ECM) memory and/or

Press **M** for go back

Before Battery Disconnection

1. Models with keyless entry/start system:
 - A. Press start/stop button to Turn OFF the ignition.
 - B. Ensure keyless entry/start system remote control removed from vehicle and stored out of

Press **M** for go back

Before Battery Connection

There are no specific procedures.

Press **M** for go back

After Battery Connection

* All models
- Access fault memories and erase trouble codes.

1. Electric windows and sunroof
 - A. Electric windows
 - a. Turn ON the ignition.
 - b. Lift and hold window switch

Press **M** for go back

For Nissan:

<p>General Information</p> <p>1. Battery disconnection may clear all electronic memory (such as in the clock, radio, on-board computer, etc.).</p> <p>2. Battery disconnection may clear all engine control module (ECM) memory and/or</p> <p>Press M for go back</p>	<p>Before Battery Disconnection</p> <p>There are no specific procedures.</p> <p>Press M for go back</p>
<p>Before Battery Connection</p> <p>There are no specific procedures.</p> <p>Press M for go back</p>	<p>After Battery Connection</p> <p>1. Engine Control System</p> <p>A. Idle air volume learning. Use Scan tool to reset.</p> <p>2. Brake Control System</p> <p>A. Steering angle sensor zero position. Use Scan tool to reset.</p> <p>3. Power Window control</p> <p>Press M for go back</p>




For Other Vehicles:

- The Battery Reset Procedures vary depending on the vehicle under test.
7. When you have finished viewing the retrieved information, press **M** to return to the Main Menu. Repeat **steps 2 through 4** to view additional procedures.

PERFORMING BATTERY RESET OBD SERVICE

Here are examples to perform battery reset OBD service for **Audi/Volkswagen, Ford, BMW** and **Volvo** models.

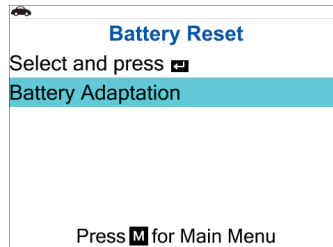
Audi/ Volkswagen Battery Reset OBD Service

1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Select **Service Reset**, then press **ENTER** .
 - The Service Reset menu displays.
3. Select **Battery Reset**, then press **ENTER** .
 - The Battery Reset menu displays.
 - Select **Battery Reset Service**, then press **ENTER** .

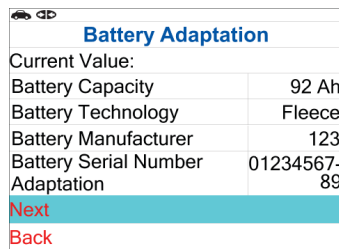


NOTE: The name of the Battery Reset OBD service varies depending on the vehicle under test.

- Select **Battery Adaptation** – available selection depends on the vehicle being serviced, then press **ENTER** ↵.



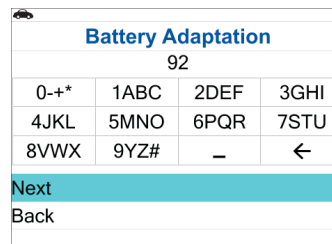
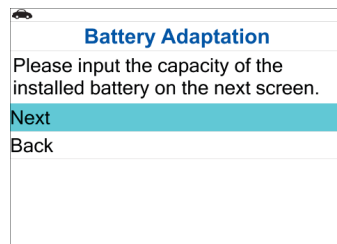
- A “current value” of the battery screen is displayed. When you have finished viewing the current values of the battery, press **Next** to continue.



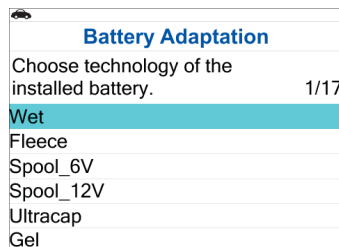
- A “One moment please...” message displays while battery reset is in process.

- The subsequent screens requires you to enter all information about the battery following its replacement.

- In the initial step, please input the battery capacity of the installed battery:



- In the next step, select the battery technology of the installed battery:



- And then entering the 03-digit battery manufacturer of the installed battery:

Battery Adaptation	
Please enter the 03-digit manufacturer of the installed battery on the next screen.	
Next	
Back	

Battery Adaptation			
1FG			
0-+*	1ABC	2DEF	3GHI
4JKL	5MNO	6PQR	7STU
8VWX	9YZ#	-	←
Next			
Back			




- For the final step, please input the 10-digit serial number of the installed battery:



Battery Adaptation	
Please input the 10-digit serial number of the installed battery on the next screen.	
Next	
Back	

Battery Adaptation			
360731****			
0-+*	1ABC	2DEF	3GHI
4JKL	5MNO	6PQR	7STU
8VWX	9YZ#	-	←
Next			
Back			

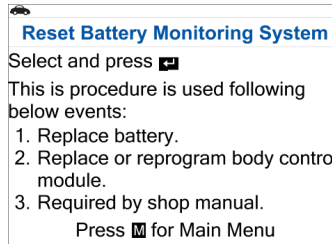
- After completing all the steps mentioned above, select **Next** to continue.
- If the battery reset process was successful, a confirmation message displays. Select **End** to return to the Battery Reset Service menu or press **M** to return to the Main Menu.
 - If the battery reset process was not successful, an advisory message displays. Select **Yes** to repeat the perform reset or select **No** to return to the Battery Reset Service menu.

Ford Battery Reset OBD Service

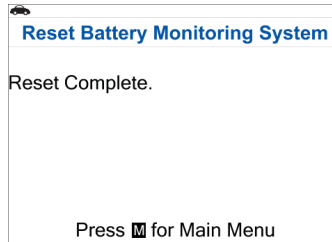
- While linked to a vehicle, press **M**.
 - The Main Menu displays.
- Select **Service Reset**, then press **ENTER** .
 - The Service Reset menu displays.
- Select **Battery Reset**, then press **ENTER** .
 - The Battery Reset menu displays.
- Select **Reset Battery Monitoring System** – available selection depends on the vehicle being serviced, then press **ENTER** .

Battery Reset
Select and press 
Battery Reset Procedures
Reset Battery Monitoring System
Press  for Main Menu

- An “instructional” message displays.
5. Follow the instructions provided to prepare the vehicle for battery reset OBD service. When all necessary procedures have been performed, press **Next** to continue.



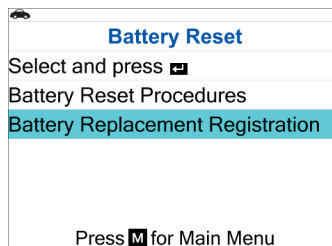
- A “One moment please...” message displays while battery reset is in process.
6. If the battery reset process was successful, a “Reset Complete” message displays. Press **M** to return to the Main Menu.



- If the battery reset process was not successful, a “Reset Fail” message displays. Press **M** to return to the Main Menu.

BMW Battery Reset OBD Service


1. While linked to a vehicle, press **M**.
 - The Main Menu displays.
2. Select **Service Reset**, then press **ENTER** ↵.
 - The Service Reset menu displays.
3. Select **Battery Reset**, then press **ENTER** ↵.
 - The Battery Reset menu displays.



4. Select **Battery Replacement Registration**, then press **ENTER** ↵.



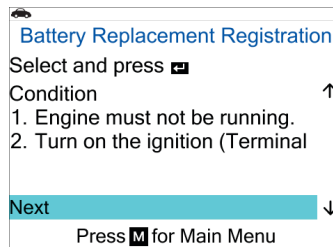
NOTE: The name of the Battery Reset OBD service varies depending on the vehicle under test.

- An “instructional” message displays. Follow the instructions to operate the vehicle and then press **ENTER**  to continue.
- If the vehicle under test does not support Battery Reset OBD service, a warning message displays. Press the **M** button to return to the previous dialog.

5. The following screen presents the information and instructions necessary to prepare for performing the function.



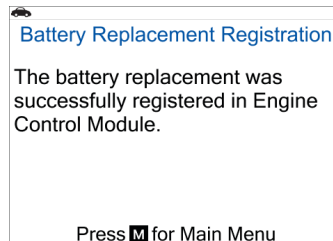
- When all necessary procedures have been performed, scroll through the screen, and press the **Next** button to proceed.



- If you prefer not to proceed with the service, navigate through the screen and either press the **Back** button to return to the Battery Reset menu, or the **M** button to return to the Main Menu.

6. A “Resetting. One moment please...” message displays while battery reset is in process.

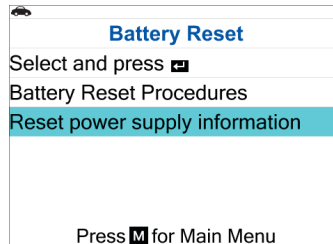
7. If the battery reset process is successful, a success message will be shown. Press **M** to return to the Main Menu.



Volvo Battery OBD Service

1. While linked to a vehicle, press **M**.
 - The Main Menu displays.

2. Select **Service Reset**, then press **ENTER** ↵.
 - The Service Reset menu displays.
3. Select **Battery Reset**, then press **ENTER** ↵.
 - The Battery Reset menu displays.

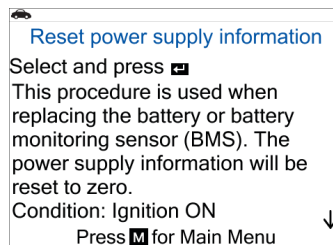


4. Select **Reset power supply information**, then press **ENTER** ↵.

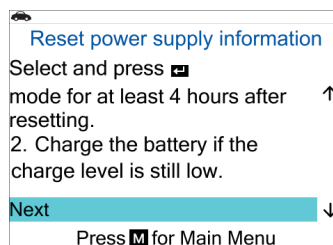


NOTE: The name of the Battery Reset OBD service varies depending on the vehicle under test.

- A “One moment please...” message displays.
 - If the vehicle under test does not support Battery Reset OBD service, a warning message displays. Press the **M** button to return to the previous dialog.
5. The following screen presents the information and instructions necessary to prepare for performing the function.



- When all necessary procedures have been performed, scroll through the screen, and press the **Next** button to proceed.



- If you prefer not to proceed with the service, navigate through the screen and either press the **Back** button to return to the Battery Reset menu, or the **M** button to return to the Main Menu.

6. The next screen shows details about the number of days of battery operation before performing the reset.


Reset power supply information	
Select and press M	1/1
Battery operation since BMS reset (days)	980
Next	
Back	
Press M for Main Menu	

- Press **Next** to perform the resetting.
 - If you prefer not to proceed with the service, press the **Back** button to return to the Battery Reset menu, or the **M** button to return to the Main Menu.
7. A “Resetting. One moment please...” message displays while battery reset is in process.
8. If the battery reset process is successful, a message indicating “Reset completed” will be displayed, and the number of days will be reset to 0. Press **M** to return to the Main Menu.

Reset power supply information	
Reset completed	1/1
Battery operation since BMS reset (days)	0
Press M for Main Menu	

PERFORMING A SERVICE CHECK

The Service Check function lets you check the current oil level, oil life remaining, and brake pad life.

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 **Engine Oil Level**, **Oil Life Remaining** and **Brake Pad Life**.




Service Check	
Engine Oil Level	Low
Oil Life Remaining	51%
Brake Pad Life	OK
Press M to go back	

- When you have finished viewing the information, 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.

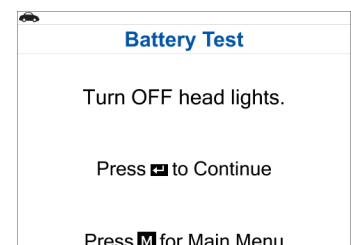
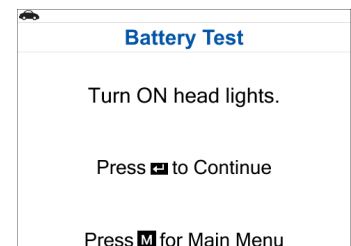
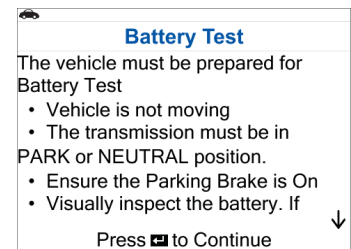
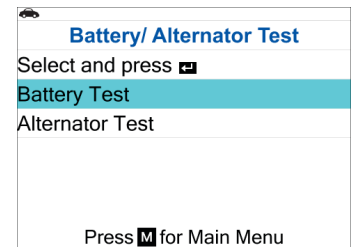
PERFORM A BATTERY CHECK ONLY

- Press **M** and release.
 - The Main Menu displays.
- Select **Battery/Alternator Test**, then press **ENTER** .
 - The Battery/Alternator Test Menu displays.
- Select **Battery Test**, then press **ENTER** .
 - An "instructional" message displays, showing the procedures to prepare the vehicle for the battery check.
- 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.
- Press **ENTER**  to begin the battery check.



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.
- Turn the vehicle's headlights on, then press **ENTER**  to continue.
 - A "countdown" message shows while the battery check is in process.
 - Turn the vehicle's headlights **OFF**, then press the **ENTER**  to proceed.
 - An "instructional" message displays.
 - If battery voltage is **less than 11.8 volts**, an advisory message shows. Turn the ignition off and disconnect the Scan Tool from the vehicle. Fully charge the battery, then repeat the battery check.
 - If the battery voltage is **between 11.8 and 12.1 volts**, a warning




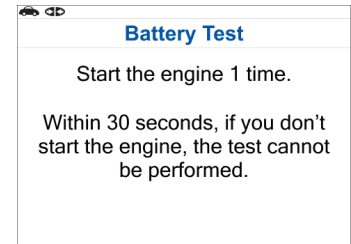
message displays: “Battery voltage is low, this may affect the accuracy of the test results.”

- If battery voltage is **greater than 12.1 volts**, an “instructional” message displays.

8. Start the vehicle’s engine.






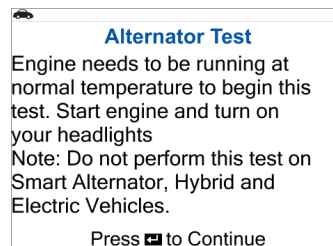
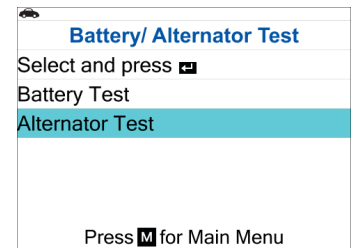
NOTE: *If the Scan Tool did not detect the signal start of the vehicle’s engine, and advisory message shows. Press **ENTER**  to repeat the battery check, or, press **M** to return to the Main Menu.*



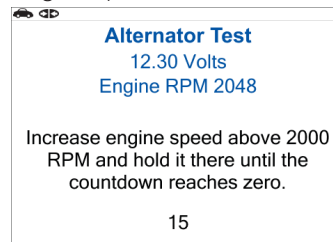
9. When the battery check is complete, a results screen displays with the battery’s status.
10. Press **M** to return to the Main Menu.

PERFORM A CHARGING SYSTEM CHECK

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. Press **ENTER**  to continue.
 - An “instructional” message is displayed.

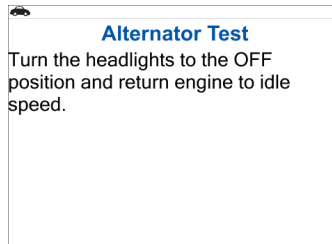


5. Press the accelerator pedal to raise engine speed to 2000 RPM, and maintain the engine speed.

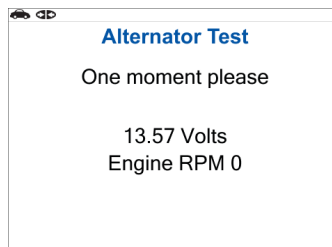


- When engine speed is within the required range, the alternator test begins. A progress screen shows.
- When the “countdown” timer expires, an “instructional” message shows.

- 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.
- 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. Press **M** 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.

- While linked to a vehicle, press **M**.
 - The Main Menu displays.
- Select **Drive Cycle Procedures**, then press **ENTER** .
 - A "One moment please..." message displays while the Scan Tool retrieves Monitor status.
- 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*.

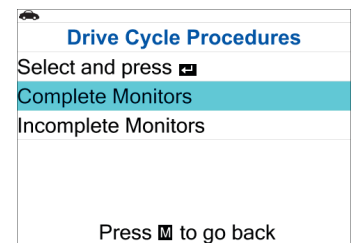


NOTE: If Drive Cycle Procedures are not available for the vehicle, an advisory message shows. Select **Back**, then press **ENTER** to return to the Main Menu.

- 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. Select **Back**, then press **ENTER** to return to the Main Menu.




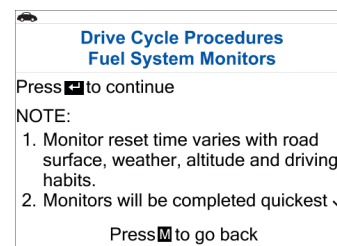
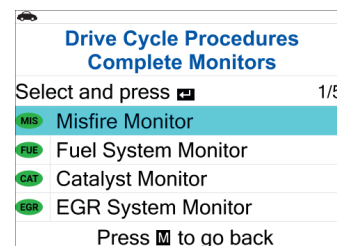
5. Select the Monitor for which you wish to view Drive Cycle Procedures, then press **ENTER** .

- 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. Select **Back**, then press **ENTER**  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, press **ENTER**  to return to the Drive Cycle Procedures menu, or press **M** 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).

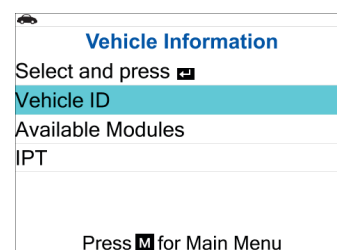
RETRIEVING VEHICLE ID INFORMATION



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 onboard 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 OBD2 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** .

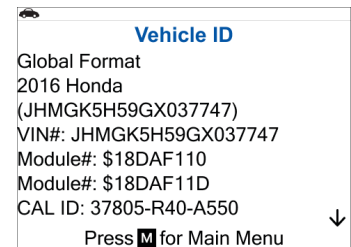
- The Vehicle Information menu displays.

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, press **M** to return to the Main Menu.



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.

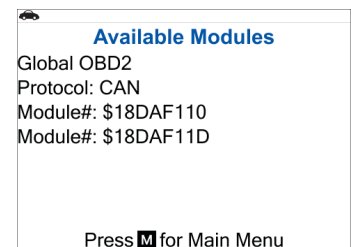
2. Select **Vehicle Information**, then press **ENTER** .

- The Vehicle Information menu displays.

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, press **M** to return to the Main Menu.



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.

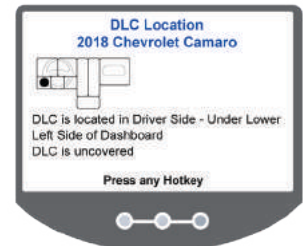
IPT	
	1/20
OBDCOND	0
IGNCNTR	0
CATCOMP1	1115
CATCOND1	2061
CATCOMP2	0
CATCOND1	0

- If In-use Performance Tracking is not available for the vehicle, an advisory message displays. Press **M** to return to the Main Menu.
5. When you have finished viewing the statistics, 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, press any Hotkey to exit the DLC Locator.



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.

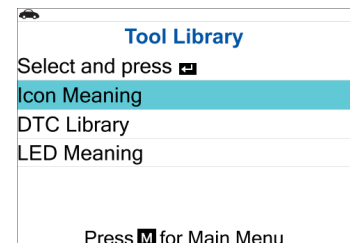
Scan Tool
 Firmware: Vxx.xx.xx
 Boot loader: Vxx.xx.xx
 Database: Vxx.xx.xx
 Tool ID: 0x030E


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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.

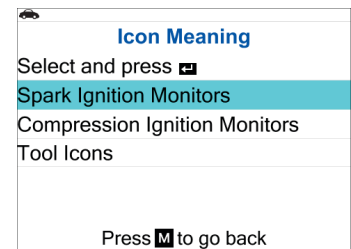


- **LED Meaning** – Provides descriptions of the meaning of the Scan Tool SYSTEM STATUS LEDs.
1. While linked to the vehicle, press **M**.
 - The Main Menu displays.
 2. Select **Tool Library**, then press **ENTER** .
 - The Tool Library menu displays.








VIEWING TOOL ICON MEANINGS

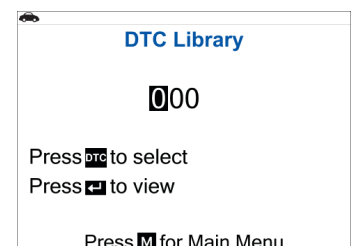
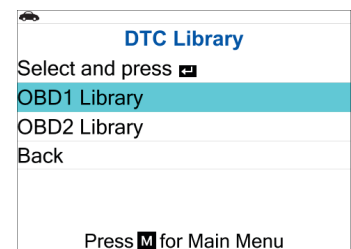
The I/M MONITOR STATUS icons on the Scan Tool's LCD display provide an indication of the "Complete / Incomplete" status for all I/M Monitors supported by the vehicle under test. The Icon Meaning function displays the full name for each Monitor icon, as well as descriptions of the meanings of other informational icons shown on the Scan Tool's display.


1. From the Tool Library menu, select **Icon Meaning**, then press **ENTER** .
 - The Icon Meaning menu displays.
2. Press **UP**  or **DOWN** , as necessary, to 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.
 - Press **ENTER**  to return to the Icon Meaning menu. If desired, repeat **step 2** to view additional Icon Meanings.
3. When you have finished viewing the descriptions, press **M** to return to the Main Menu.



DTC LIBRARY - OBD1 VEHICLES

1. From the Tool Library menu, select **DTC Library**, then press **ENTER** .
 - The Select Library screen displays.
2. Select **OBD1 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, select **No** and press **ENTER**  to return to the list of vehicle manufacturers.
 - If the correct manufacturer is shown, select **Yes** and press **ENTER** .
4. 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 press the **DTC** button.








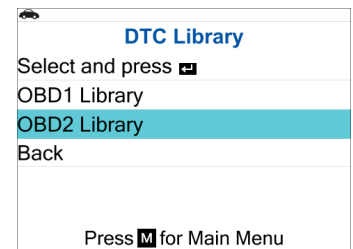
- The selected character displays solid, and the next character is highlighted.
- 5. Select the remaining digits in the DTC in the same way. When you have selected all the DTC digits, press **ENTER**  to view the DTC definition.
- 6. When you have finished viewing the DTC definition, press **M** to return to the Main Menu.







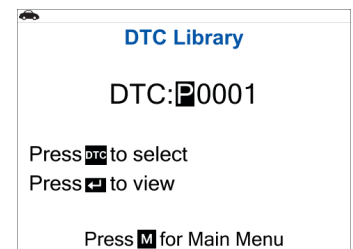
NOTE: If a definition for the DTC you entered is not available, an advisory message shows. Press **M** to return to the Main Menu.

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, select **No** and press **ENTER**  to return to the list of vehicle manufacturers.
 - If the correct manufacturer is shown, select **Yes** and press **ENTER** .



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 press **ENTER** .
 - 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, press **M** to return to the Main Menu.




NOTE: If a definition for the DTC you entered is not available, an advisory message shows. Press **M** 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, press **M** to return to the Main Menu.

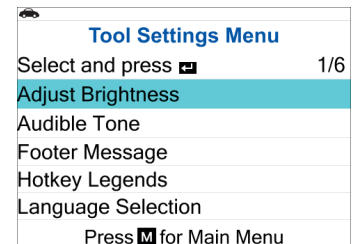
TOOL SETTINGS

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.
- **Footer Messages:** Turns the navigational "footers" at the bottom of most display screens "on" and "off".
- **Hotkey Legends:** Shows functional descriptions for the Scan Tool's hotkeys.
- **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.

ACCESSING THE TOOL SETTINGS MODE

1. While linked to the vehicle, 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 press **ENTER**  to save your changes.

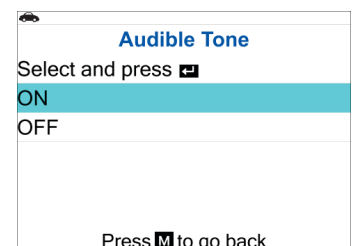


NOTE: To return to the Tool Settings menu without making changes, press **M** to return to the Main Menu.



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 press **ENTER**  to save your changes.





NOTE: To return to the Tool Settings menu without making changes, press **M** to return to the Main Menu.

ENABLING / DISABLING NAVIGATIONAL FOOTERS

1. Select **Footer Messages** in the Tool Settings menu, then press **ENTER** .
 - The Footer Messages screen displays.
2. Select **On** or **Off** as desired, then press **ENTER** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, press **M** to return to the Main Menu.

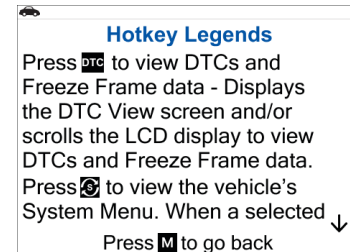


VIEWING THE HOTKEY LEGENDS

1. Select **Hotkey Legends** in the Tool Settings menu, then press **ENTER** .
 - The Hotkey Legends screen displays.
 - The screen shows a functional description of each of the Scan Tool's hotkeys.



NOTE: To return to the Tool Settings menu without making changes, press **M** to return to the Main Menu.

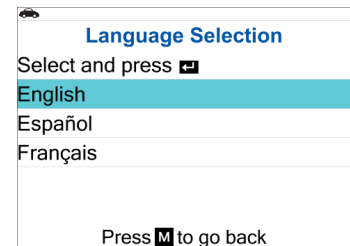


SELECTING THE DISPLAY LANGUAGE

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 press **ENTER** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, press **M** to return to the Main Menu.

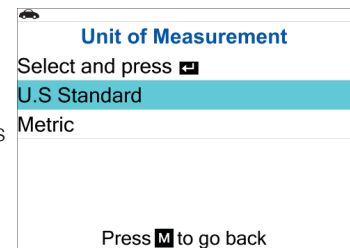


SETTING THE UNIT OF MEASUREMENT

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 (**U.S. Standard** or **Metric**), then press **ENTER** to save your changes.



NOTE: To return to the Tool Settings menu without making changes, press **M** to return to the Main Menu.



EXITING THE MENU MODE

- From the Tool Settings Menu, press **M** to return to the Main Menu.



NOTE: 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 DATA STORED IN MEMORY





When you retrieve DTCs from a vehicle, the data is saved to the Scan Tool's memory. Each time you retrieve DTCs, existing data in the Scan Tool's memory is overwritten with the new data.

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. Here's how 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 the  **POWER.LINK** button to turn the Scan Tool on.
 - 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.

3. Select the **DTCs** you wish to view, then press **ENTER** 
 - The Scan Tool displays the "priority" DTC. If there are no DTCs currently stored in the Scan Tool's memory, an advisory message shows.
 - Press **FF.DTC** to scroll through all stored DTCs, and to view Freeze Frame data for the priority DTC.
 - When all DTCs have been displayed and **FF.DTC** is pressed, the Scan Tool displays the first enhanced DTC stored in memory. Press **FF.DTC**, or the **UP**  and **DOWN**  buttons, to scroll through all stored enhanced DTCs.
4. When you have finished viewing data in the Scan Tool's memory, press and release  **POWER.LINK** button to turn the Scan Tool OFF.

OBD1 DIAGNOSTICS

The Scan Tool provides diagnostic capabilities for OBD1 vehicles manufactured between 1981 and 1995, including Chrysler/Jeep, Ford Cars and Trucks Vans, Honda, GM, and Toyota.

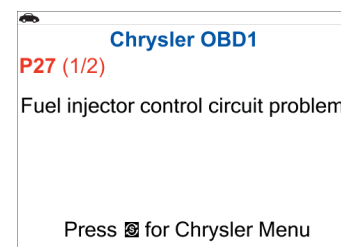
CHRYSLER/JEEP OBD1 SYSTEMS

1. Locate the vehicle's Data Link Connector (DLC).



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

2. Connect the scan tool (with the **Chrysler Connector Cable Adaptor** attached) to the vehicle's DLC.
 - Set the parking brake, and make sure all vehicle accessories are turned off.
 - Turn the ignition **ON**. **DO NOT** start the engine.
3. Chrysler OBD1 System Menu displays.
4. To retrieve codes from the vehicle's computer:
 - Press **UP ▲** and **DOWN ▼** buttons, as necessary, to highlight the model year of the vehicle, then press **ENTER ↵**.
5. A "One moment please..." message shows while codes are being retrieved.
 - If the scan tool fails to link to the vehicle's computer, a "Communication Error" message shows.
 - Verify the ignition is **ON**.
 - Check the cable connections at the scan tool and at the vehicle's DLC.
 - Turn the ignition **OFF**, wait 10-12 seconds, then turn back **ON** to reset the computer.
 - Press the **POWER.LINK** button to continue.
 - If the scan tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
6. If the scan tool was able to link to the vehicle successfully, the scan tool displays the retrieved DTCs.
 - The scan tool will display a code only if codes are present. If no codes are present, the message "No DTCs are presently stored in the vehicle's computer" displays.
7. Press **Erase** button to erase **ALL** retrieved Diagnostic Trouble Codes (DTCs).
8. Disconnect the scan tool from the vehicle and turn the ignition key **OFF**.
9. To prolong battery life, the scan tool automatically shuts "Off" after approximately three minutes of no button activity. The DTCs retrieved will remain in the scan tool's memory and may be viewed at any time. If the scan tool's batteries are removed, or if the scan tool is re-linked to a vehicle to retrieve codes, any prior codes in its memory are automatically cleared.



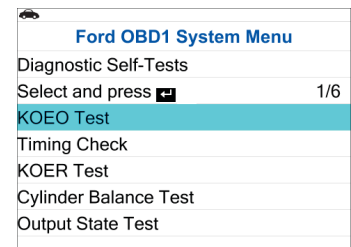
10. Follow the testing and repair procedures outlined in the vehicle's service repair manual to correct "hard" DTCs. Codes should be addressed and eliminated in the order they were received erasing and retesting after each repair is made to be sure the fault was eliminated.

FORD OBD1 SYSTEMS

Overview of Ford Code Retrieval Process

Ford's computer self-diagnostic system is divided into four main sections:

1. "Key On Engine Off" (**KOEO**) Self-Test.
2. "Continuous Memory" (**CM**) Self-Test.
3. "Key On Engine Running" (**KOER**) Self-Test.
4. Other EEC-IV System tests.



These Self-Tests are designed to monitor and/or test the components and circuits that are controlled by the vehicle's computer, and to save and/or transmit test results to the scan tool. The "Continuous Memory" Self-Test is designed to run continuously whenever the vehicle is in normal operation. If a fault is detected by the "Continuous Memory" Self-Test, a fault code is saved in the vehicle's computer memory for later retrieval. Self-Tests are designed in such a way that to properly diagnose a problem, you must perform all the Self-Tests, in the proper sequence.

If you fail to perform a test, or you perform a test out of sequence, you might miss a problem that is only detected during that part of the test.

KEY ON ENGINE OFF (KOEO) TEST

During the KOEO Self-Test, two groups of codes are retrieved.

- The first group of codes are called "KOEO codes". A "KOEO" icon shows to indicate code is a "KOEO" code.
- The second group of codes are called "Continuous Memory" codes. A "Continuous Memory" icon shows to indicate the code is a "Continuous Memory" code.







NOTE: Check your vehicle thoroughly before performing any test.

1. Locate the vehicle's Data Link Connector (DLC).



NOTE: Some DLCs have a plastic cover that must be removed before connecting to the scan tool.

2. Connect the scan tool (with the **Ford Connector Cable Adaptor** attached) to the vehicle's DLC. Connect the scan tool to **BOTH** connectors. Press the  **POWER.LINK** button to turn the scan tool ON.
3. The Ford OBD1 System Menu displays.
4. Highlight **KOEO Test**, then press **ENTER** .
 - The LCD display shows instructions to prepare the vehicle for the KOEO Test.


5. Start and warm the engine to normal operating temperature. Press **ENTER**  to continue.
6. Turn the ignition key **OFF** and wait for the on-screen prompt.
7. Turn the ignition **ON**. **DO NOT** start the engine. If your vehicle is equipped with one of the following engine types, perform the added procedures described below:
 - **For 4.9L engines with standard transmission:** Press and hold the clutch until all codes are sent (steps 7 through 9).
 - **For 7.3L diesel engines:** Press and hold accelerator until all codes are sent (**steps 7 through 9**).
 - **For 2L turbo engines with octane switch:** Put switch in premium position.
8. Press the **ENTER**  button to continue.
9. A "One moment please KOEO test is in progress..." message shows while codes are being retrieved.



NOTE: When the ignition is turned "on", the vehicle's computer enters the Self-Test mode. Clicking sounds will be heard. This indicates the vehicle's computer is activating relays, solenoids, and other components to check their operation.



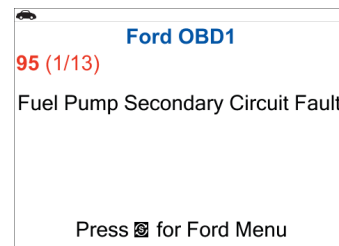
WARNING: On some vehicles equipped with an Electric Cooling Fan, the computer activates the cooling fan to check its operation. To avoid injury, keep your hands or any part of your body a safe distance from the engine during this test.

- If the scan tool fails to link to the vehicle's computer, a "Vehicle is not responding" message shows.
 - Verify the ignition is **ON**
 - Check the cable connections at the Scan Tool and at the vehicle's DLC.
 - Turn the ignition **OFF**, wait 10 seconds, then turn back **ON** to reset the computer. Press the **ENTER**  button to continue.
 - If the scan tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
10. If the scan tool was able to link to the vehicle successfully a "Code retrieval was successful..." message shows temporarily, followed by any retrieved DTCs.



NOTE: Most Ford EEC-IV vehicle computers up to 1991 use a two-digit code system. From 1991 to 1995 most use a three-digit code system.

- The scan tool will display a code only if codes are present in the vehicle's computer memory.
- If no problems are found during the KOEO Self-Test, the computer sends a "PASS" code (code 11 or 111) to the scan tool.
- If no Continuous Memory codes are present in the vehicle's computer memory, the scan tool displays a "PASS" code (code 11 or 111).
- The scan tool will display a code only if codes are present. If no codes are present, the message "No DTCs are presently stored in the vehicle's computer" displays.



11. Press the **Erase** button to erase **ALL** retrieved Diagnostic Trouble Codes (DTCs).
12. Disconnect the scan tool from the vehicle and turn the ignition key **OFF**.
13. To prolong battery life, the scan tool automatically shuts "Off" after approximately three minutes of no button activity. The DTCs retrieved will remain in the scan tool's memory and may be viewed at any time. If the scan tool's batteries are removed, or if the scan tool is re-linked to a vehicle to retrieve codes, any prior codes in its memory are automatically cleared.
14. Follow the testing and repair procedures outlined in the vehicle's service repair manual to correct "hard" DTCs. Codes should be addressed and eliminated in the order they were received, erasing, and retesting after each repair is done to be sure the fault was eliminated.



NOTE: Before "Continuous Memory" codes can be serviced, both the KOEO and the KOER Self-Tests must pass (a PASS code 11 or 111 is obtained). After both of these tests have passed, erase the vehicle's computer memory, take the vehicle for a short drive, then repeat the KOEO Self-Test. If any Continuous Memory faults are present, service them all this time.



NOTE: Do not proceed to the ignition timing check procedure or the KOER test until a PASS code (code 11 or 111) for KOEO test is obtained.

ENGINE TIMING CHECK



NOTE: Before performing the KOER Self-Test, the vehicle's Ignition Base Timing and the computer's ability to electronically control timing advance must be checked for proper operation.



NOTE: This procedure is only applicable to 1992 and older vehicles (excluding diesel engines). For 1993 and newer vehicles, refer to the vehicle's service repair manual for procedures to check and adjust timing.

For 1992 and older vehicles, the scan tool can be used in combination with a timing light to check ignition timing and the vehicle computer's ability to advance ignition timing.



NOTE: Check your vehicle thoroughly before performing any test




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




- A timing light is required to perform this test.
- The vehicle must pass the KOEO Test before performing this test.

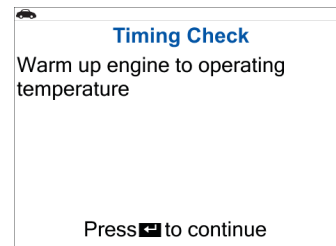
1. Locate the vehicle's Data Link Connector (DLC).






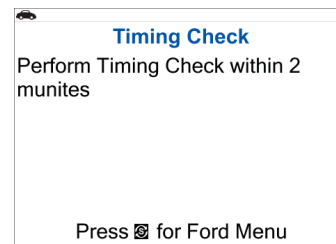
NOTE: Some DLCs have a plastic cover that must be removed before connecting to the scan tool.

2. Connect the scan tool (with the **Ford Connector Cable Adaptor** attached) to the vehicle's DLC. Connect the scan tool to **BOTH** connectors. Press  **POWER.LINK** to turn the scan tool ON, then press **ENTER**  to continue.

3. The Ford OBD1 System Menu displays.
4. Highlight **Timing Check**, then press **ENTER** .
 - The Select Model Year screen displays.
5. Highlight the vehicle **model year**, then press the **ENTER**  button.
 - **For 1993 and newer vehicles:** The message “Follow instructions in vehicle service manual to perform timing check” displays. Press the **SYSTEM MENU**  button to return to the Ford Menu. Refer to the vehicle service manual for procedures.
 - **For 1992 and older vehicles:** The message “Warm up engine to operating temperature” displays.



6. Start and warm the engine to normal operating temperature. Press the **ENTER**  button to continue.
7. When prompted, turn off all vehicle accessories, turn the ignition key **OFF** and wait for the on-screen prompt. If you wish to exit the Timing Check procedure currently, press the **SYSTEM MENU**  button.
8. When instructed, start the engine, and press the **ENTER**  button.
 - A “One moment please preparation for test is in progress” message shows temporarily, followed by the message “Perform Timing Check within two minutes.”



9. Perform the Timing Check as follows:
 - The vehicle’s computer is programmed to advance ignition timing 20° (±3°) above the vehicle’s “base timing” value, and to freeze this setting for two minutes from the time the “Perform Timing Check within 2 minutes” message displays.
 - Within this two-minute period, follow instructions in the vehicle’s service repair manual to check the ignition timing with a timing light and ensure that it is 20° above the specified base timing value (±3°).
10. If timing light readings are within the acceptable range:
 - Base timing and the vehicle computer’s ability to advance timing are working properly.
 - Proceed to the KOER Self-Test.
11. If timing light readings are not within the acceptable range:
 - Base timing may be out of adjustment, or the computer may have problems with the timing advance circuit.
 - Refer to the vehicle’s service repair manual for procedures on adjusting and/or repairing ignition timing. Repairs to ignition timing must be made before proceeding to the KOER Test.











KEY ON ENGINE RUNNING (KOER) SELF-TEST

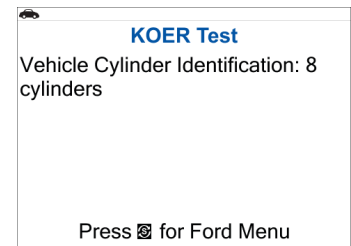


NOTE: Check your vehicle thoroughly before performing any test.




NOTE: **ALWAYS** observe safety precautions whenever working on a vehicle.

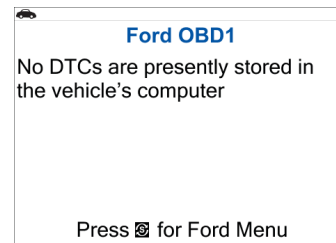
- The vehicle must pass the KOEO Test before performing this test.
 - The vehicle must pass the Engine Timing Check before performing this test.
1. Locate the vehicle's Data Link Connector (DLC).
 - 
NOTE: Some DLCs have a plastic cover that must be removed before connecting the Scan Tool cable connector.
 2. Connect the scan tool (with the **Ford Connector Cable Adaptor** attached) to the vehicle's DLC. Connect the scan tool to **BOTH** connectors. Press  **POWER.LINK** to turn the scan tool ON, then press **ENTER**  to continue.
 3. The Ford OBD1 System Menu displays.
 4. Highlight **KOER Test**, then press **ENTER** .
 - The message "Make sure ignition timing is within factory specifications" displays. If necessary, press the **SYSTEM MENU**  button to return to the Ford Menu and perform an Engine Timing Check. Otherwise, press the **ENTER**  button to continue.
 5. The message "Warm up engine to operating temperature" displays. Start and warm the engine to normal operating temperature. Press the **ENTER**  button to continue.
 6. When prompted, turn off all vehicle accessories, turn the ignition key **OFF**. If you wish to exit the KOER test currently, press the **SYSTEM MENU**  button.
 7. When instructed, start the engine, and press the **ENTER**  button to continue. A "One moment please KOER test is in progress..." message shows temporarily.
 8. The scan tool retrieves the Cylinder Identification (ID) Code. (Identifies the number of cylinders for the vehicle under test).
 - If the scan tool cannot retrieve the Cylinder ID Code, an advisory message display. Press the **SYSTEM MENU**  button to exit and repeat the Key On Engine Off (KOEO) test until DTC 11 or 111 displays.
 9. Perform the following procedures when prompted.
 - Turn the steering wheel 1/2 turn to right, hold for four seconds and release.
 - Press the brake pedal to the floor and then release it.
 - Cycle the Overdrive Switch (if equipped).
 - Quickly press the accelerator pedal to the floor and then release it.
 10. After the above procedures are performed a "One moment please KOER test is in progress..." message shows temporarily, followed by a "Retrieving codes" message.



NOTE: Most Ford EEC-IV vehicle computers up to 1991 use a two-digit code system. From 1991 to 1995 most use a three-digit code system.

- If the scan tool fails to link to the vehicle's computer, a "Vehicle is not responding" message shows.
 - Verify the ignition is **ON**.
 - Check the cable connections at the Scan Tool and at the vehicle's DLC.

- Turn the ignition **OFF**, wait 10 seconds, then turn back **ON** to reset the computer.
 - Press **ENTER**  to continue.
 - The scan tool displays a code only if codes are present in the vehicle's computer memory. If no codes are present, a "No DTCs are presently stored in the vehicle's computer" message is displayed.
11. If no problems are found during the KOER Self-Test, the computer sends a "PASS code" (code 11 or 111) to the scan tool.
 12. Press the **Erase** button to erase **ALL** retrieved Diagnostic Trouble Codes (DTCs).
 13. Turn the engine OFF and disconnect the scan tool from the vehicle's test connectors.



NOTE: All retrieved DTCs will remain in the Scan Tool's memory. If the KOER Test procedure is performed again, DTCs from a prior test will automatically clear and will be replaced by the most current DTCs retrieved.

14. All KOER codes that are retrieved by the Scan Tool during the KOER Self-Test represent problems that are present now (at the time the test is performed). The related vehicle problems that caused the codes to be sent must be repaired using the procedures described in the vehicle's repair manual.
15. After all repairs have been completed, repeat the KOER Self-Test.
16. If a "pass code" (code 11 or 111) is received, it indicates that the repairs were successful, and all the related systems are working properly.
17. If a "pass code" (code 111 or 111) is not received, the repair was unsuccessful. Consult the vehicle's service manual and recheck the repair procedure.

CYLINDER BALANCE TEST (Vehicles equipped with Sequential Electronic Fuel Injected (SEFI) systems only)

The Cylinder Balance Test assists in finding a weak or noncontributing cylinder. The computer shuts off fuel (cuts off power to injectors) to each cylinder, in sequence, and monitors for RPM changes (drop). Based on this information, the computer determines if all the cylinders are contributing power equally (for proper engine operation), or if some cylinders are only contributing partially or not contributing at all.



NOTE: Check your vehicle thoroughly before performing any test.










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

1. Locate the vehicle's Data Link Connector (DLC).



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

2. Connect the scan tool (with the **Ford Connector Cable Adaptor** attached) to the vehicle's DLC. Connect the scan tool to **BOTH** connectors. Press  **POWER.LINK** to turn the Scan Tool ON, then press **ENTER**  to continue.

3. The Ford OBD1 System Menu displays.
4. Highlight **Cylinder Balance Test**, then press **ENTER** .
 - An advisory message displays. If the vehicle is not equipped with Sequential Electronic Fuel Injection (SEFI), press to exit. Otherwise, press **ENTER**  to continue.
5. An “instructional” message display. Start and warm the engine to normal operating temperature. Press **ENTER**  to continue.
6. When prompted, turn off all vehicle accessories, turn the ignition key **OFF** and wait for the on-screen prompt. If you wish to exit the Cylinder Balance test currently, press the **SYSTEM MENU**  button.
7. When instructed, start the engine, and press the **ENTER**  button.
 - A “One moment please preparation for test is in progress...” message shows temporarily.
8. When prompted, lightly press the accelerator pedal halfway and release to activate the cylinder balance test.



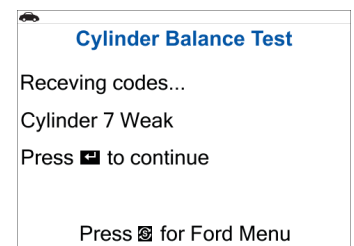
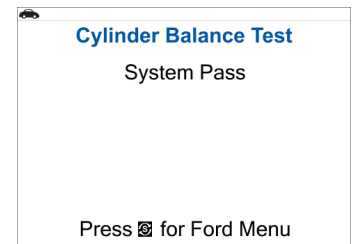
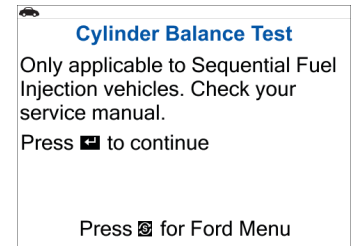
NOTE: For 1986 models ONLY: Fully press accelerator once and release.

- The computer is now in Cylinder Balance Test mode and will start cutting fuel to each cylinder in sequence to determine if all the cylinders are contributing equally. It may take up to five minutes before the test results are transmitted to the scan tool.
9. If the vehicle’s computer fails to enter Cylinder Balance Test mode, do the following:
 - Lightly press the accelerator pedal again as described in step 7.
 10. After the Cylinder Balance Test is completed, the test results are sent to the scan tool.
 11. If all cylinders are contributing equally, a “System Pass” message displays.



NOTE: If the computer detects a problem with a cylinder(s) when performing the initial Cylinder Balance Test, it needs to repeat the test two more times to properly determine which cylinder or cylinders are malfunctioning.

12. If a cylinder is not contributing at the same level as the other cylinders, the computer prompts you to repeat the test two more times by displaying the “Lightly press the accelerator halfway and release” message again. Each time the message displays, perform the procedures as instructed.
13. After the Cylinder Balance tests have completed, the computer will identify and display which cylinder (or cylinders) are not contributing equally.
 - If any weak cylinders are identified, consult the vehicle service repair manual to perform further testing and/or repairs.



RELAY AND SOLENOID TEST (OUTPUT STATE CHECK)

The “Output State Check” lets you energize (turn ON) and de-energize (turn OFF), on command, most of the actuators (relays and solenoids) that are controlled by the vehicle’s computer.

Use this test to check computer output voltages and relay/solenoid operation.



NOTE: The fuel injectors and fuel pump are not energized during this test.



NOTE: Check your vehicle thoroughly before performing any test.









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

1. Locate the vehicle's Data Link Connector (DLC).



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

2. Connect the Scan Tool (with the **Ford Connector Cable Adaptor** attached) to the vehicle's DLC. Connect the Scan Tool to **BOTH** connectors. Press  **POWER.LINK** to turn the Scan Tool ON, then press **ENTER**  to continue.
3. The Ford OBD1 System Menu displays.
4. Highlight **Output State Test**, then press **ENTER** .
5. The message "Warm up engine to operating temperature" displays. Start and warm the engine to normal operating temperature. Press **ENTER**  to continue.
6. When prompted, turn the ignition key **OFF** and wait for the on-screen prompt. If you wish to exit the Output State Check currently, press the **ENTER**  button.
7. When prompted, turn the ignition **ON**. **DO NOT** start the engine. If your vehicle is equipped with one of the following engine types, perform the added procedures described below:
 - **For 4.9L engines with standard transmission:** Press and hold the clutch until the "Output State Check Active" screen displays.
 - **For 7.3L diesel engines:** Press and hold accelerator until the "Output State Check Active" screen displays.
 - **For 2L turbo engines with octane switch:** Put switch in premium position.
8. Press **ENTER**  to continue.
9. A "One moment please test is in progress..." message shows.



NOTE: When the ignition is turned "on", the vehicle's computer enters the Self-Test mode. Clicking sounds will be heard. This is normal.



WARNING: On some vehicles equipped with an Electric Cooling Fan, the computer activates the cooling fan to check its operation. To avoid injury, keep your hands or any part of your body a safe distance from the engine during this test.

- If the Scan Tool fails to link to the vehicle's computer, a "Vehicle is not responding" message shows.
 - Verify the ignition is ON.
 - Check the cable connections at the Scan Tool and at the vehicle's DLC.

- Turn the ignition OFF, wait 10 seconds, then turn back ON to reset the computer.



NOTE: BE SURE to perform the added procedures in step 6, if appropriate, BEFORE turning the ignition ON.

- Press **ENTER**  to continue.

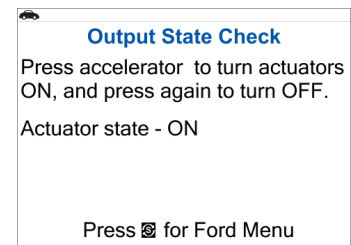
- If the Scan Tool **cannot** link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.

- If the Scan Tool was able to link to the vehicle successfully an "Output State check active..." message shows temporary, followed by a display that instructs you how to perform the test.
- When prompted, press the accelerator pedal once, then release. This activates the Output State Check and energizes most of the actuators (relays and solenoids) that are controlled by the vehicle's computer.



NOTE: If your vehicle is equipped with an Integrated Vehicle Speed Control, disconnect the vacuum supply hose from the speed control servo before pressing the accelerator. Reconnect vacuum hose after test.

- To de-energize the actuators, press the accelerator pedal again and release.
- The procedure can be repeated as many times as desired by pressing and releasing the accelerator pedal.
- Consult the vehicle's service repair manual for a list of actuators (solenoids and relays) controlled by the computer that apply to the vehicle under test, and which actuators should energize and de-energize when performing the Output State Check. All applicable actuators should be on when energized and off when de-energized.
- If an actuator is not responding to the Output State Check, follow the procedures described in the vehicle's service manual to check computer actuator output circuit voltages and/or grounds.
- To quit the Output State Check, turn the ignition **OFF** and disconnect the Scan Tool from the vehicle.



WIGGLE TEST



NOTE: Since any DTCs from Wiggle Test results are saved in Continuous Memory, it is suggested that you clear any DTCs in Continuous Memory before performing Wiggle Test.

Use this test to check for intermittent faults in some circuits.

Circuits Tested:

- **1984 & Newer** - Air Charge Temp Sensor (ACT), Barometer Pressure Sensor (BP), Engine Coolant Temp Sensor (ECT), Exhaust Gas Oxygen Sensor (EGO), EGR Valve Position Sensor (EVP), Manifold Absolute Pressure (MAP), Throttle Position Sensor (TP), Vane Air Temp Sensor (VAT).
- **1985 & Newer** - Vane Air Flow Sensor (VAF).

- ❑ **1986 & Newer** - Pressure Feedback EGR Sensor (PFE).
- ❑ **1990 & Newer** - Exhaust Gas Oxygen Sensor (EGO), Ignition Diagnostic Monitor (IDM) (DIS or Dual Plug DIS only), Idle Tracking Switch (ITS), Mass Air Flow Sensor (MAF).



NOTE: Check your vehicle thoroughly before performing any test.



NOTE: **ALWAYS** observe safety precautions whenever working on a vehicle.

1. Locate the vehicle's Data Link Connector (DLC).



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

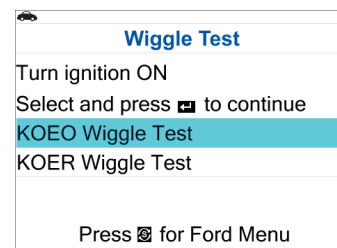
2. Connect the Scan Tool (with the **Ford Connector Cable Adaptor** attached) to the vehicle's DLC. Connect the Scan Tool to **BOTH** connectors. Press **POWER.LINK** to turn the Scan Tool ON, then press **ENTER** to continue.
3. The Ford OBD1 System Menu displays.
4. Highlight **Wiggle Test**, then press **ENTER** .
5. The message "Warm up engine to operating temperature" displays. Start and warm the engine to normal operating temperature. Press **ENTER** to continue.
6. When prompted, turn the ignition key **OFF** and wait for the on-screen prompt. If you wish to exit the Wiggle Test currently, press the **ENTER** button.
7. Select the desired Wiggle Test from the menu displayed.

- **To perform the KOEO Wiggle Test:**

- Highlight **KOEO Wiggle Test**.
- Turn the ignition ON. DO NOT START THE ENGINE.
- Press the **ENTER** button to continue.

- **To perform the KOER Wiggle Test:**

- Highlight **KOER Wiggle Test**.
- Turn the ignition ON and start the engine.
- Press the **ENTER** button to continue.





8. A "One moment please test is in progress" message shows temporarily.
 - If the Scan Tool fails to link to the vehicle's computer, a "Vehicle is not responding" message shows.

For KOEO Wiggle Test:

- Verify the ignition is ON.
- Turn the ignition OFF, wait 10 seconds, then turn back ON to reset the computer. Press the **ENTER** button to continue.

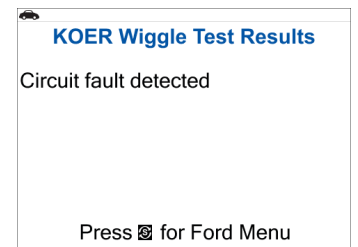
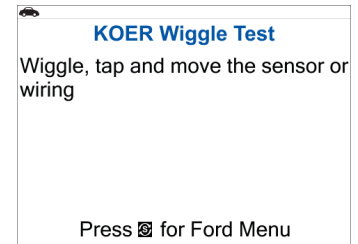
For KOER Wiggle Test:

- Turn the ignition OFF, wait 10 seconds, then turn back ON to reset the computer. Press the **ENTER**  button to continue.
 - If the Scan Tool cannot link to the vehicle's computer after three attempts, the message "Contact Technical Support" displays.
- 9. If the Scan Tool was able to link to the vehicle successfully, a "Wiggle test is active..." message shows temporarily, followed by a message instructing you how to perform the test.
 - Press the **SYSTEM MENU**  button if you wish to exit the Wiggle Test at this time.
- 10. Wiggle, tap and move the suspected sensor or wiring.
 - If no faults are detected, a "System Pass" message displays.
 - If a fault is detected, a "Circuit Fault detected" message displays.



NOTE: If the Wiggle Test detects any problems, the related DTC will be stored by the computer in "Continuous Memory". To view any Wiggle Test DTCs you must perform the KOEO Test.

- 11. Follow the procedures in the vehicle's service repair manual to perform troubleshooting and repairs for Wiggle Test results.
- 12. The Wiggle Test will stay active as long as desired. To quit the Wiggle Test, turn the ignition **OFF** and disconnect the Scan Tool.



GM OBD1 SYSTEMS

This Scan Tool may be used to retrieve engine service codes from most General Motors (GM) domestic cars and trucks (EXCEPT Geo, Nova, Saturn, and Sprint).



NOTE: Check your vehicle thoroughly before performing any test.












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

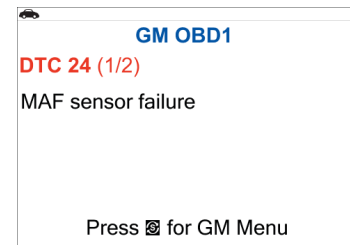
1. Locate the vehicle's Data Link Connector (DLC).







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



2. Connect the Scan Tool (with the **GM Connector Cable Adaptor** attached) to the vehicle's DLC. Press the **Power** button to turn the Scan Tool ON, then press the **ENTER**  button to continue.
 - An "instructional" message shows on the Scan Tool's display.
3. Turn the ignition ON. Turn all vehicle accessories OFF. Select **Continue**, then press the **ENTER**  button.
 - The Select Vehicle Year screen displays.

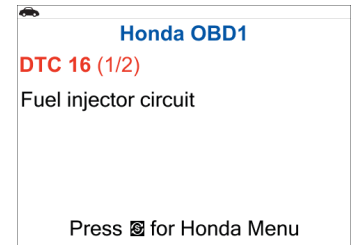
- Highlight the **desired year**, then press **ENTER** ; the Enter 8th VIN menu displays.
4. Highlight the **8th digit** of the vehicle's VIN, then press **ENTER** .
 -  **NOTE:** If the "Enter 4th VIN Digit" screen displays (not applicable to all vehicles), highlight the 4th digit of the vehicle's VIN, then press **ENTER** .
 -  **NOTE:** If the "Truck" screen displays (not applicable to all vehicles), highlight Yes or No, as appropriate, then press **ENTER** .
 5. When the Scan Tool is in the process of retrieving codes, a "One moment please..." message shows.
 - If the Scan Tool fails to link to the vehicle's computer, a "Communication Error" screen shows.
 - Verify the ignition is ON.
 - Check the cable connections at the Scan Tool and at the vehicle's DLC.
 - Turn the ignition OFF, wait 10-12 seconds, then turn back ON to reset the computer.
 - Press the  **POWER.LINK** button.
 6. If the Scan Tool was able to link to the vehicle successfully, the Scan Tool displays the retrieved DTCs.
 - The Scan Tool will display a code only if codes are present in the vehicle's computer memory. If no codes are present, a "No DTCs are presently stored in the vehicle's computer" message is displayed.
 7. Code 12 will always be present, and it has one of the following meanings:
 - If code 12 is the only DTC retrieved and your vehicle "STARTS OK" then code 12 indicates system "PASS", and all computer control systems are functioning properly.
 - If code 12 is present and your vehicle "DOES NOT START", then it may indicate a problem with the ignition control system.
 8. Select the **Erase DTCs** button to erase **ALL** retrieved Diagnostic Trouble Codes (DTCs).



HONDA OBD1 SYSTEMS

-  **NOTE:** Check your vehicle thoroughly before performing any test.
 -  **NOTE:** **ALWAYS** observe safety precautions whenever working on a vehicle.
1. Locate the vehicle's Data Link Connector (DLC).
 -  **NOTE:** Some DLCs have a plastic cover that must be removed before connecting to the Scan Tool.
 2. Connect the Scan Tool (with the **Honda Connector Cable Adaptor** attached) to the vehicle's DLC. Press the **Power** button to turn the Scan Tool ON, then press the **ENTER**  button to continue.

- An “instructional” message shows on the Scan Tool’s display.
 - Turn the Ignition key “ON”.
 - Make sure the throttle is fully closed.
 - Make sure the emergency brake is applied.
 - Place the transmission in neutral.
 - Turn all vehicle accessories “OFF.”
- 3. Highlight the **Read DTCs** and press **ENTER**  to continue.
- 4. When the Scan Tool is in the process of retrieving codes, a “One moment please...” message shows.
 - If the Scan Tool fails to link to the vehicle’s computer, a “Communication Error” screen shows.
 - Verify the ignition is ON.
 - Check the cable connections at the Scan Tool and at the vehicle’s DLC.
 - Turn the ignition OFF, wait 10-12 seconds, then turn back ON to reset the computer.
 - Press the  **POWER.LINK** button and repeat **step 2** as necessary.
- 5. If the Scan Tool was able to link to the vehicle successfully, the Scan Tool displays the retrieved DTCs.
 - The Scan Tool will display a code only if codes are present in the vehicle’s computer memory. If no codes are present, a “No DTCs are presently stored in the vehicle’s computer” message is displayed.
- 6. Select **Erase DTCs** button to erase **ALL** retrieved Diagnostic Trouble Codes (DTCs).



TOYOTA OBD1 SYSTEMS



NOTE: Check your vehicle thoroughly before performing any test.





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

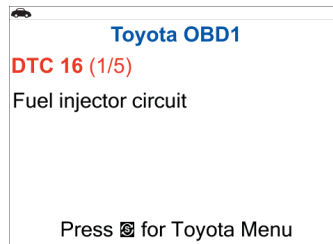
1. Locate the vehicle’s Data Link Connector (DLC).



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

2. Connect the scan tool (with the **Toyota Connector Cable Adaptor** attached) to the vehicle’s DLC.
 - An “instructional” message shows on the Scan Tool’s display.
 - Turn the Ignition key “ON” and start the engine. Warm engine to operating temperature. (Shut engine off after warming up, then turn the ignition back ON).
 - Make sure the throttle is fully closed.

- Set gear lever in “park” (for automatic transmissions) or “neutral” for manual transmissions.
 - Turn all vehicle accessories “OFF.”
3. Highlight the **Read DTCs** and press **ENTER**  to continue.
 4. When the Scan Tool is in the process of retrieving codes, a “One moment please...” message shows.
 - If the Scan Tool fails to link to the vehicle’s computer, a “Vehicle is not responding” message shows.
 - Verify the ignition is ON.
 - Check the cable connections at the Scan Tool and at the vehicle’s DLC.
 - Turn the ignition OFF, wait 10-12 seconds, then turn back ON to reset the computer.
 - Press the  **POWER.LINK** button and repeat step 2 as necessary.
 5. If the Scan Tool was able to link to the vehicle successfully, the Scan Tool displays the retrieved DTCs.



- The Scan Tool will display a code only if codes are present in the vehicle’s computer memory. If no codes are present, a “No DTCs are presently stored in the vehicle’s computer” message is displayed.
6. Press the **Erase DTCs** button to erase **ALL** retrieved Diagnostic Trouble Codes (DTCs).

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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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