SOLUS Legend™

User Manual

ZEESCAU336A Rev. A

Start

Contents

Quick Links

Click a Topic

Table of Contents

READ ALL INSTRUCTIONS

For your own safety, the safety of others, and to prevent damage to the product and vehicles upon which it is used, it is important that all instructions and safety messages in this manual and the accompanying *Important Safety Instructions* manual be read and understood by all persons operating, or coming into contact with the product, before operating. We suggest you store a copy of each manual near the product in sight of the operator.

For your safety, read all instructions. Use your diagnostic tools only as described in the tool user's manual. Use only manufacturer recommended parts and accessories with your diagnostic tools.

This product is intended for use by properly trained and skilled professional automotive technicians. The safety messages presented throughout this manual and the accompanying *Important Safety Instructions* manual are reminders to the operator to exercise extreme care when using this product.

There are many variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the individual doing the work. Because of the vast number of test applications and variations in the products that can be tested with this instrument, we cannot possibly anticipate or provide advice or safety messages to cover every situation. It is the responsibility of the automotive technician to be knowledgeable of the system being tested. It is essential to use proper service methods and test procedures. It is important to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the equipment being used, or the vehicle being tested.

It is assumed that the operator has a thorough understanding of vehicle systems before using this product. Understanding of these system principles and operating theories is necessary for competent, safe and accurate use of this instrument.

Before using the equipment, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested. Use the product only as described in it's user manual. Use only manufacturer recommended parts and accessories with your product.

Read, understand and follow all safety messages and instructions in this manual, the accompanying *Important Safety Instructions* manual, and on the test equipment.

Environmental Conditions:

- This product is intended for indoor use only
- This product is rated for Pollution Degree 2 (normal conditions)

Safety Signal Words

All safety messages contain a safety signal word that indicates the level of the hazard. An icon, when present, gives a graphical description of the hazard. Safety Signal words are:

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or to bystanders.

Safety Message Conventions

Safety messages are provided to help prevent personal injury and equipment damage. Safety messages communicate the hazard, hazard avoidance and possible consequences using three different type styles:

- Normal type states the hazard.
- **Bold** type states how to avoid the hazard.
- *Italic type states the possible consequences of not avoiding the hazard.*

An icon, when present, gives a graphical description of the potential hazard.

Safety Message Example

⚠ WARNING

Risk of electric shock.

- **Prior to recycling the battery pack, protect exposed terminals with heavy insulating tape to prevent shorting.**
- **Disconnect all test leads and turn diagnostic tools off before removing the battery pack.**
- **Do not attempt to disassemble the battery or remove any component projecting from or protecting the battery terminals.**
- **Do not expose the diagnostic tool or battery pack to rain, snow, or wet conditions.**
- **Do not short circuit the battery terminals.**

Electric shock can cause injury.

Important Safety Instructions

For a complete list of safety messages, refer to the accompanying *Important Safety Instructions manual*.

SAVE THESE INSTRUCTIONS

Using This Manual

Hyperlinks

Selectable hyperlinks are provided throughout this manual to quickly take you to related topics, procedures, and websites. Hyperlinks are identified by Blue colored text.

Text Hyperlink Example: **http://snapontools.com.au**

Page Navigation Controls

The following navigation controls are provided on the top of each page of the user manual. They can be used in addition to the viewer controls in the toolbar.

Icon	Description
Quick Links Menu 	Opens the Quick Links menu within the Table of Contents (TOC) section. From Quick Links you can link to most topics in this manual.
Jump Back 	Click to move back one page.
Jump Forward 	Click to move forward one page.

Content

This manual contains basic operating instructions and is structured in a manner to help you become familiar with your diagnostic tool features and perform basic operations.

The illustrations in this manual are intended as reference only and may not depict actual screen results, information, functions or standard equipment. Contact your sales representative for availability of other functions and optional equipment.

Conventions

The following conventions are used.

Terminology

The terms “Scanner” and “Scanner function” are used to describe the Scanner Function(s) of the diagnostic tool.

Examples:

- Select **Scanner** from the Home screen.
- From the Scanner main menu select **Continue**.
- The Scanner function provides many diagnostic tests.

The term “select” describes tapping/touching an icon on the touch screen, or highlighting an icon or menu choice and then selecting the confirmation menu choice such as **Continue, Accept**, **OK**, **Yes, or other similar** choice.

Abbreviated example for the following procedure: “Select **Brightness**”

1. Navigate to and highlight the **Brightness** selection.
2. Select **OK, or similar,** button.

Symbols

Different types of arrows are used. The “greater than” arrow (**>**) indicates an abbreviated set of selection (navigation) instructions.

Abbreviated example for the following procedure: “Select **Tools > Connect-to-PC**”

1. Select **Tools** from the home screen.
2. Highlight **Connect-to-PC** on the Tools menu.
3. Select **Connect-to-PC**.

The solid arrows (◄, ►, ▼, ▲) are navigational instructions for the four directions of the directional buttons.

Example: Press the down ▼ arrow.

Bold Text

Bold emphasis is used in procedures to highlight selectable items such as control buttons, icons and menu options.

Example: Press the **OK** button

Notes and Important Messages

The following messages are used.

Notes

A NOTE provides helpful information such as additional explanations, tips, and comments.

Example:

NOTE

For additional information refer to...

Important

IMPORTANT indicates a situation which, if not avoided, may result in damage to the test equipment or vehicle.

Example:

IMPORTANT

Do not disconnect the data cable while the diagnostic tool is communicating with the ECM.

IMPORTANT

Read all applicable Safety Information ***before using this diagnostic tool!***

Procedures

An arrow icon in the left-margin area indicates a procedure.

Example:

To change screen views:

1. Select the **Graph** icon.
   The dropdown menu displays.
2. Select an option from the menu.
   The screen layout changes to the format selected.

Section 1 Quick Reference

Finding the Diagnostic Tool Serial Number and Software Version

The diagnostic tool serial number is located on the back of the diagnostic tool housing. The serial number and software version can also be viewed onscreen from the System Information screen (**Tools > System Information**) see *System Information on page 61*,

Turning Wi-Fi On and Connecting to a Network

See *Turning Wi-Fi On and Connecting to a Network on page 69.*

Snap-on Cloud

This diagnostic tool includes a built-in Wi-Fi feature that automatically transfers code scan reports to the Snap-on Cloud.

The Snap-on Cloud is a mobile-friendly cloud-based application designed specifically for technicians to store, organize, share and print information. See *Snap-on Cloud on page 74* for additional information.

Printing Data and Screenshots

Use ShopStream Connect to print data files and screenshots from the diagnostic tool. See *ShopStream Connect ™ on page 86*.

Section 2 General Information

The SOLUS Legend™ is an automotive and motorcycle diagnostic scan tool.

This section describes basic feature locations, how the diagnostic tool is powered and basic specifications.

Main Topic Links

2.1 Basic Features

1— Touch Screen

2— Control Panel

Figure 2-1 *Front view*

Connectors and jacks for data communication cables and the AC power supply are located on the top of the diagnostic tool.

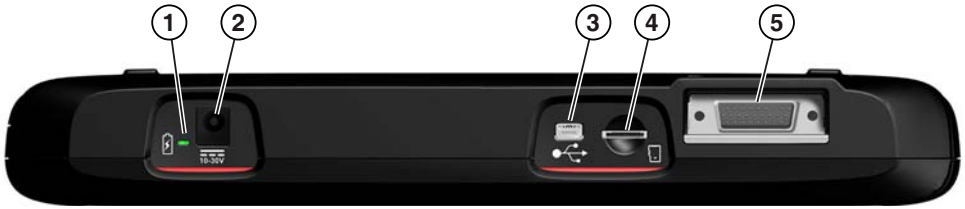


Figure 2-2 *Top view*

1— Battery Status Indicator LED

2— Power Supply Jack - AC power supply connection

3— Mini USB Jack - USB cable connection used to transfer saved data files to a personal computer

4— Micro secure digital (uSD) Card - contains operating system programming. ***IMPORTANT*** *The uSD card must be installed for the diagnostic tool to operate. Do not remove the uSD card while the diagnostic tool is powered on.*

5— Data Cable Connector - Data cable connection used to connect the diagnostic tool to a vehicle data link connector (DLC)

1— Built in-Stand

Figure 2-3 *Back view*

2.2 Powering the Diagnostic Tool

Your diagnostic tool can receive power from any of the following sources:

- Vehicle Power
- Internal Battery Pack
- AC Power Supply

2.2.1 Vehicle Power

The diagnostic tool is designed to be powered from the vehicle. All OBD-II/EOBD vehicles have vehicle battery power (B+) available on the data link connector (DLC). The diagnostic tool is powered through the Data Cable when connected to the vehicle DLC.

A green LED indicator on the DLC end of the data cable, illuminates when power is being supplied to the cable. If the LED fails to illuminate, check that the data cable is properly connected and then check the DLC power circuit. See *Data Cable Connection (Automotive) on page 10* for additional data cable information.

An optional power cable is required when testing non-OBD-II/EOBD or models that do not have vehicle battery power (B+) available on the DLC. Contact your sales representative for availability.

IMPORTANT

Never connect the optional power cable to the power supply input jack on the diagnostic tool when the diagnostic tool is communicating with a vehicle.

2.2.2 Internal Battery Pack

The diagnostic tool can be powered from the internal rechargeable battery pack. A fully charged battery pack provides sufficient power for about 3 hours of continuous operation. For battery pack removal and installation instructions see, *Removing / Installing the Battery Pack on page 95*.

Battery Pack Charging

Battery charging occurs whenever the data cable is connected to a vehicle DLC. Battery charging also occurs when the AC power supply is connected to a live AC power source, and connected to the diagnostic tool. Use the supplied AC power supply to charge the battery pack.

Insert the end of the AC power supply cable into the diagnostic too power supply jack, then connect the AC power supply to an approved AC power source.

IMPORTANT

Only use the supplied AC power supply. Never connect the power supply to the diagnostic tool when the tool is communicating with a vehicle.

The Battery Status Indicator LED (located next to the power supply jack) indicates battery status.

Battery Status LED	Description
	**Green** - battery is fully charged, or the diagnostic tool is being powered by the AC power supply.
	**Red** - battery is charging
	**Amber** - indicates a battery issue. This is usually caused by excessive battery temperature (above 104°F/40°C), which disables charging. Allow the diagnostic tool to cool down before continuing operation.

2.2.3 AC Power Supply

The diagnostic tool can be powered from a standard AC outlet using the AC power supply. The AC power supply converts alternating current (AC) to direct current (DC) to power the diagnostic tool. The connector on the end of the output cable of the AC power supply connects to the AC power supply jack on top of the diagnostic tool. Use only the AC power supply provided.

IMPORTANT

Never connect the AC power supply to the diagnostic tool when the diagnostic tool is communicating with a vehicle.

2.3 Technical Specifications

Item	Description / Specification
Touch Screen	Resistive Touch Panel
Display	8.0 inch diagonal, Color LCD
	800 x 480 resolution SWVGA
Battery	Rechargeable lithium-ion battery pack
	Approximately 3 hour run time
	Approximately 5 hour charge time
Power Supply	Supply Rating; 15VDC, 2A
DC Operating Voltage	10 to 30VDC
Width	11.06 in. (281.0 mm)
Height	6.29 in. (160.0 mm)
Depth	1.58 in. (40.3 mm)
Weight (including battery):	2.65 lb (1.20 kg)
Operating Temperature Range (ambient)	At 0 to 90% relative humidity (non-condensing) 32 to 113°F (0 to 45°C)
Storage Temperature (ambient)	At 0 to 70% relative humidity (non-condensing) –4 to 140°F (–20 to 60°C)
Operating Altitude	Maximum 2000 m
Environmental Conditions	This product is intended for indoor use only
	This product is rated for Pollution Degree 2 (normal conditions)

Section 3 Basic Operation and Navigation

This section describes basic diagnostic tool operation, navigation, screen layout, icon functions, and screen messages. Before you operate the diagnostic tool, make sure the battery pack is fully charged or the diagnostic tool is powered by the AC power supply.

Main Topic Links

3.1 Turning On/Off and Emergency Shutdown

The following sections describe how to turn the diagnostic tool on and off and how to perform an emergency shutdown.

3.1.1 Turning On

To manually turn on the diagnostic tool, press and release the **Power** button (*Figure 3-1*).

The diagnostic tool will automatically turn on when:

- a live AC power supply is connected to the diagnostic tool
- the Data Cable is connected to a vehicle (that has 12VDC at the data link connector (DLC))

3.1.2 Turning Off

IMPORTANT

All vehicle communication must be stopped BEFORE turning off the diagnostic tool. A warning message displays if you attempt to turn the diagnostic tool off while communicating with the vehicle. Forcing a shut down while communicating may lead to ECM problems on some vehicles. Never disconnect the Data Cable when the diagnostic tool is communicating with the vehicle ECM.

To turn off the diagnostic tool:

1. Press the **N/Cancel** button or select the **Back** or **Home** icon to navigate to the Home screen.

   If applicable, a “stopping communication” message appears briefly before the Home screen displays.
2. If applicable, disconnect the Data Cable from the vehicle.
3. Press and release the **Power** button.

   A confirmation screen displays.
4. Press the **Y/Accept** button or select **OK** from the menu to turn the diagnostic tool off. To continue operating, press the **N/Cancel** button or select **Cancel** from the menu.

3.1.3 Emergency Shutdown

IMPORTANT

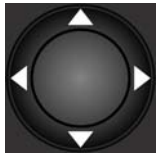
Using the emergency shutdown procedure while communicating with the vehicle ECM may lead to ECM problems on some vehicles.

During normal operation turn the diagnostic tool off using the *Turning Off* procedure above. The emergency shutdown procedure should only be used If the diagnostic tool does not respond to navigation or control buttons or exhibits erratic operation. To force an emergency shutdown, press and hold the **Power** button for five seconds until the diagnostic tool turns off.

3.2 Control Buttons

There are four “push type” control buttons and one “thumb pad rocker type” multi-directional button located on the right side of the diagnostic tool. All other diagnostic tool operations are controlled through the touch screen.

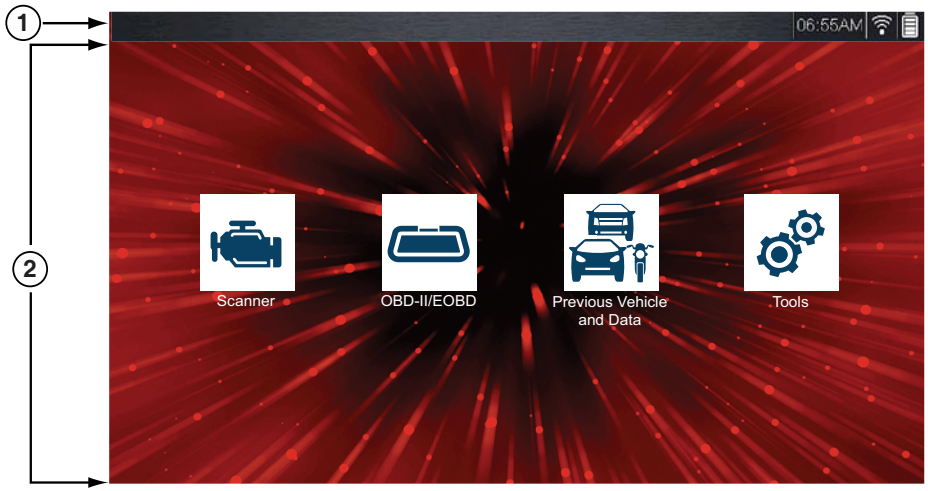
Figure 3-1 *Front view*

Item	Button	Description	
1		**N/Cancel** - Push type button	• To exit a menu or program. • To close an open list and return to the previous menu or screen. • To answer “No” when a yes/no choice is given.
2		**Y/Accept** - Push type button	• To confirm a selection from a menu or program. • To select an item that was highlighted using the direction arrows. • To advance to the next screen in a series. • To answer “Yes” when a yes or no choice is given.
3		**Directional** - Thumb pad rocker type buttons	Buttons move the cursor or highlight in their respective direction: • **Up** (▲) • **Down** (▼) • **Left** (◄) • **Right** (►)
4		**S (Shortcut)** - Push type button	Programmable function button that can provide a shortcut for performing a variety of routine tasks. Refer to *Configure Shortcut Button on page 61* for additional information.
5		**Power (On/ Off)** - Push type button	Turns the diagnostic tool on and off. Also, press and hold for 5 seconds for emergency shutdown.

3.3 Basic Navigation

3.3.1 Home Screen Layout

The Home screen includes a title bar and main body. The Home screen contains the primary diagnostic tool function icons.



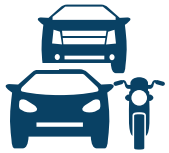
1— Title Bar

2— Main Body

Figure 3-2 *Home screen*

3.3.2 Home Screen Icons

Each available diagnostic tool function is represented by a icon on the Home screen. Select an icon from the Home screen to start a function. You can also use the control buttons to select an icon. Use the directional button to highlight the desired function and then press the **Y/Accept** to select it.

Function Name	Function Icon	Description
Scanner		Used to communicate with the electronic control systems of a vehicle. This function allows you to retrieve diagnostic trouble codes (DTCs), view PID data and perform diagnostic tests. See *Scanner - Automotive on page 12* for details.
OBD-II/EOBD		Allows you to access generic OBD-II/EOBD data and tests without identifying the vehicle being tested. See *OBD-II/EOBD on page 49* for details.
Previous Vehicles & Data		Allows you to quickly reconfigure the diagnostic tool to a recently tested vehicle and to access saved data files.See *Previous Vehicles and Data on page 56* for details.
Tools		Allows you to adjust diagnostic tool settings to your personal preferences and perform other special functions. See *Tools on page 59* for details.

3.3.3 WiFi Connection

See *Wi-Fi Connection / Troubleshooting on page 69*.

3.3.4 Title Bar

The title bar (*Figure 3-2*) at the top of the screen provides basic information about current diagnostic tool operating conditions. Title bar options vary depending upon vehicle make and model, what function is active, what test is being performed, or what menu is selected. The title bar contains information only, there are no selectable items.

Elements of the Title bar let you know at a glance:

- Which diagnostic tool function is active
- The current time
- Wi-Fi signal strength
- The source and status of the power being supplied to the diagnostic tool

A real time clock displays to the left of the power supply icon. The clock is powered by a dedicated internal battery, so the correct time is maintained even when the main battery pack is discharged. Use the Tools function to set the clock and format how time is displayed. See *Clock Settings on page 65* for additional information.

The Title bar displays other information that varies depending upon what functions are being performed. Other information may include:

- The identification (ID) of the test vehicle
- The name of the active menu or function
- The name of the test being performed

Icon	Function	Icon	Function
	**Full Battery Charge Level -** Indicates power is being supplied by the internal battery pack. Horizontal bars diminish as the battery discharges.		**External Power Connected -** Indicates power is being supplied through the data cable connection to a vehicle or by the AC Power Supply and charging the battery pack.
	**Low Battery Charge Level -** Indicates the internal battery pack is low and needs to be recharged immediately. A warning message will also display on the screen when the battery gets low.		**Wi-Fi Signal Strength -** Indicates signal strength of the wireless network connection. 3 bars - full strength signal 1 bar - weak signal

3.3.5 Common Toolbar Control Icons

Common control icon functions are described in the following table. Specific function control icons are described in their applicable sections. Displayed control icons vary depending on the active function or test.

Select a control icon to perform a function. You can also use the control buttons to select an icon. Use the directional button to highlight the desired function and then press the **Y/Accept** button to select it.

Icon	Function	Icon	Function
	**Back** - Returns to the previously viewed screen. Icon is located on the left-hand edge of the toolbar.		**Pause** - Pauses active data collection.
	**Home** - Returns to the Home screen. Icon is located next to the Back icon on the left side of the toolbar.		**Start (Capture)** - Resumes active data collection.
	**Save** - Writes data from buffer memory to a file. The saved “movie” file can be accessed for future reference by selecting **Previous Vehicles and Data > View Saved Data**.		**Tools** - Opens the Tools menu.

3.3.6 Scroll Bar

A vertical scroll bar appears along the right-hand edge of the screen when additional data expands above or below what is currently on the screen (*Figure 3-3*).

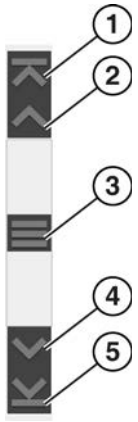


Figure 3-3 *Scroll bar*

1— Beginning - Moves to beginning of data displayed.

2— Step up - Moves up one increment of the data displayed.

3— Slider (position indicator) - Select and drag the **Slider** to scroll through data. The slider indicates the relative position of the current screen to the total available data.

4— Step down - Moves down one increment of the data displayed.

5— End - Moves to end of data displayed.

The Up and Down directional buttons can also be used to move through the data one line at a time. Press and hold a directional button to rapidly scroll through data.

3.4 Screen Messages

3.4.1 Snap-on Messages

Periodically messages will be displayed to inform you of software updates and upgrades, as well as other important information.

These messages require confirmation to resume tool operation. Select **Confirm** or **OK** to resume operation.

3.4.2 General System Messages

There are four types of general system messages that may be displayed:

Message Type	Description
Loading and Connecting	Loading and connecting messages display when the diagnostic tool is performing an internal operation, such as loading a database, establishing communications with the vehicle, or initiating a test. The message automatically clears once the internal operation is complete.
Confirmation	Confirmation messages inform you when you are about to perform an action that cannot be reversed or when an action has been initiated that requires a confirmation to continue.When a response is not required, the message displays briefly, then disappears.
Warning	Warning messages inform you when completing the selected action may result in an irreversible change or in the loss of data. A confirmation is required to continue
Error	Error messages inform you when a system or procedural error has occurred, for example if the data cable becomes disconnected during operation.

3.4.3 Vehicle Communication Messages

When “no communication” messages are displayed, it indicates the diagnostic tool and the vehicle electronic control module are not communicating.

The following conditions cause “no communication” messages to display:

- The diagnostic tool is unable to establish a communication link with the vehicle.
- The vehicle is not equipped with the system that was selected.
- There is a loose connection.
- There is a blown vehicle fuse.
- There is a wiring fault on the vehicle.
- There is a circuit fault in the data cable or adapter.
- Incorrect vehicle identification was entered.

Refer to the Vehicle Communication Software manuals for manufacturer-specific problems.

Section 4 Data Cable Connection (Automotive)

This section describes basic data cable connection for automotive applications.

NOTE

For motorcycle applications see, Data Cable Connection on page 37.

Connection of the data cable to the diagnostic tool and vehicle data link connector (DLC) is required for diagnostic tool operations that require communication with the vehicle.

Main Topic Links

- **Data Cable Connection (OBD-II/EOBD Vehicles) page 10**
- For motorcycles see, **Data Cable Connection page 37**

4.1 Data Cable Connection (OBD-II/EOBD Vehicles)

IMPORTANT

Only use original Snap-on data cables and accessories with your diagnostic tool. Total data cable length must not exceed 114.17 inches (2.9 meters).

Basic data cable connection procedure:

For OBD-II/EOBD compliant vehicles use the supplied DA-4 data cable.

1. Connect the data cable to the diagnostic tool (*Figure 4-1*).

Figure 4-1 *DA-4 data cable (26-pin end) connection to diagnostic tool*

2. After identifying the vehicle using the Scanner or OBD-II/EOBD function (see *Vehicle Identification on page 14*) review any on-screen information that may be provided for data cable connection, usage and DLC location (*Figure 4-2*).

NOTE

On-screen cable and adapter connection instructions may be provided while using the Scanner and OBD-II/EOBD functions. The instructions may also include the location of the vehicle DLC.

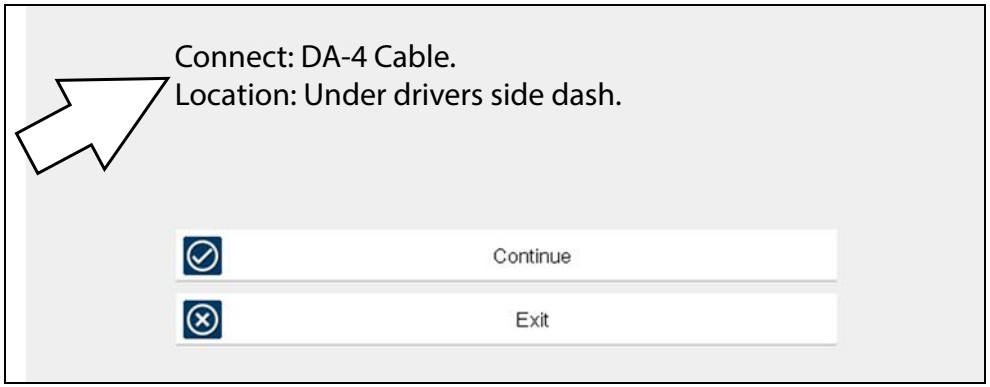


Figure 4-2 *Vehicle data cable connection information*

NOTE

The supplied 9 ft. (2.7 m) *DA-4 data cable, includes an LED flashlight on the vehicle DLC connector end (Figure 4-3). The LED flashlight is powered by the diagnostic tool battery.*

3. If needed, press the LED flashlight button switch on the end of the data cable to turn the LED flashlight on (*Figure 4-3*), and locate the DLC.

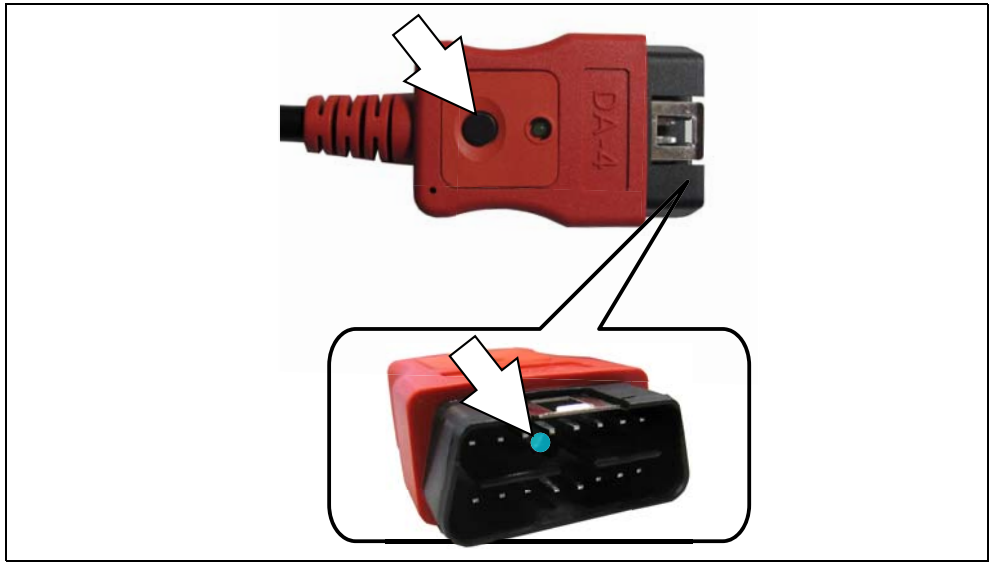


Figure 4-3 *DA-4 data cable LED flashlight*

4. Connect the16-pin (J-1962) end of DA-4 cable (*Figure 4-4*) to the vehicle DLC.

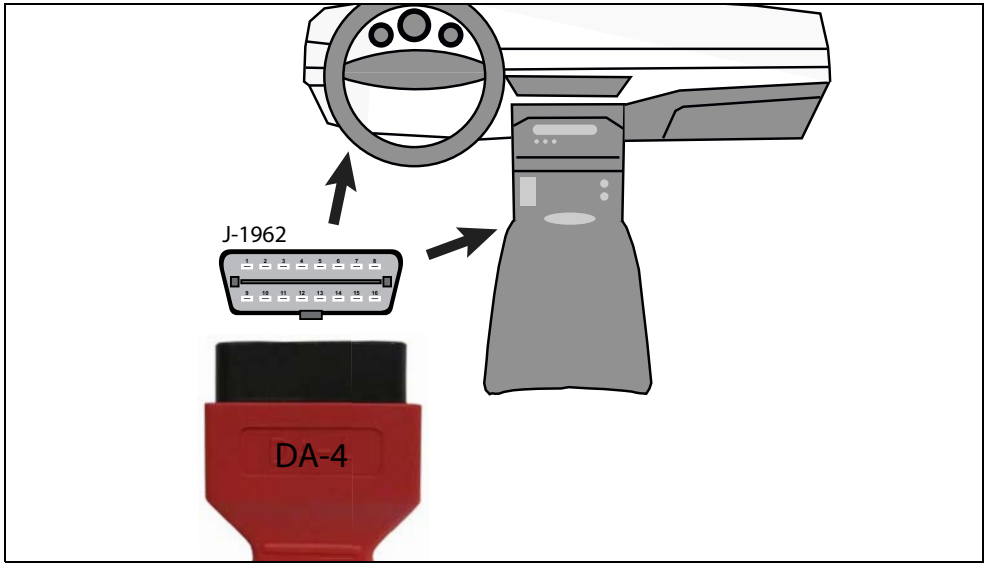


Figure 4-4 *DA-4 data cable (16-pin end) connection to vehicle DLC (typical DLC locations)*

5. Select **Continue** once the data cable is connected.

   The diagnostic tool establishes communication with the vehicle, then displays a list of available tests, see *Scanner - Automotive on page 12* for additional information.

Section 5 Scanner - Automotive

This section describes the basic operation of the Scanner function for automotive applications.

The **Scanner** icon is located on the Home screen.

The Scanner function allows your diagnostic tool to communicate with the electronic control modules (ECMs) of the vehicle being serviced. This allows you to perform tests, view diagnostic trouble codes (DTCs), and live data parameters from various vehicle systems such as the engine, transmission, antilock brake system (ABS) and more.

Main Topic Links

5.1 Basic Operation

5.1.1 Scanner Overview

Scanner is a menu driven application that communicates with vehicle control modules to access diagnostic trouble codes (DTCs), parameter data (PIDs), functional tests, and more. To navigate the application, use your fingertip or the control buttons to make onscreen menu selections to access the desired data, test or function.

Screen messages appear when additional input is needed before proceeding. There are three types of on-screen messages; confirmations, warnings, and errors.

- **Confirmation Messages** - Confirmation messages inform you when you are about to perform an action that cannot be reversed or when an action has been initiated and your confirmation is needed to continue. When a user-response is not required to continue, the message displays briefly before automatically disappearing.
- **Warning Messages** - Warning messages inform you when completing the selected action may result in an irreversible change or loss of data.
- **Error Messages** - Error messages inform you when a system or procedural error has occurred. Examples of possible errors include a disconnected cable or a peripheral, such as a printer, is powered off.

5.1.2 Scanner - Starting / Stopping

To start the Scanner function:

1. From the Home screen, select the **Scanner** icon.
2. Select **Automotive** or **Motorcycle**.

   The vehicle identification process starts. The vehicle must be correctly identified for the diagnostic tool to communicate, and display data correctly.

   For an introduction to using Scanner for Motorcycles, see *Scanner - Motorcycle on page 34*.
3. Follow the onscreen instructions to identify the vehicle and connect the data cable. See *Vehicle Identification on page 14*.

NOTE

Damage to the vehicle electronic control module (ECM) may occur if communication is disrupted. Make sure the data cable is properly connected at all times during testing. Exit all tests before disconnecting the data cable or powering down the diagnostic tool.

The Scanner function remains open as long as there is an active communication link with the vehicle. You must interrupt this communication link in order to exit from tests and power down the diagnostic tool. A warning message displays if you attempt to shut down while the diagnostic tool is communicating with the vehicle.

To exit the Scanner function:

1. From any active Scanner screen, select the **Back** icon on the toolbar.

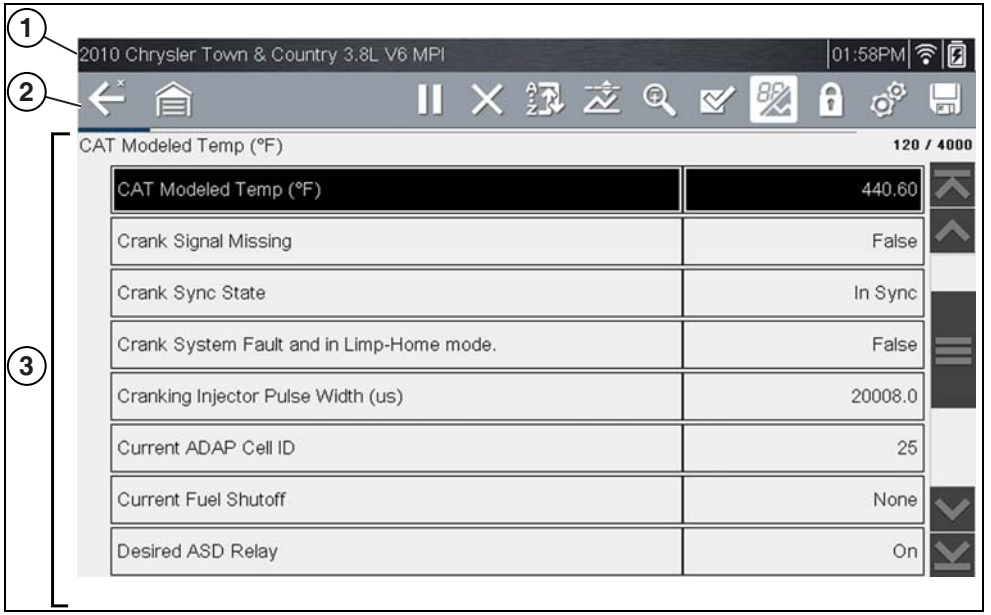
   The “stopping communications” message briefly displays followed by the Data menu.
2. From the Data Menu, select **Back** on the toolbar.

   The “stopping communications” message displays again, then the Main menu. Once the Main menu is displayed, communication has been terminated and it is safe to return to the Home screen and power down the diagnostic tool.

5.2 Features and Icons

The following general features and control icons apply to both the Scanner and the OBD-II/EOBD functions.

5.2.1 Scanner Features



1— Title bar—shows active test, vehicle and diagnostic tool status. The Title bar appears for all functions and displays information only, there are no selectable items. See *Title Bar on page 7*.

2— Toolbar—contains control icons

3— Main body—displays menus, code results, PIDs, etc.

Figure 5-1 *Scanner screen features*

5.2.2 Basic Scanner Operation (Quick Start)

This section lists the basic scanner operation steps, and is only intended as a quick-start reference. Refer to the supporting topics in this section for detailed operation information.

Getting Started (Basic Steps)

NOTE

Menus, options and procedures may vary by vehicle. The following instructions apply to most OBD-II vehicles. Not all vehicles support the Auto ID and, or Instant ID feature.

1. Turn the vehicle ignition switch on.
2. Connect the data cable to the vehicle DLC. See *Data Cable Connection (OBD-II/EOBD Vehicles) on page 10*.

   The diagnostic tool will turn on automatically when connected to the vehicle.
3. Select **Scanner** from the Home screen.

NOTE

While using the Scanner and OBD-II/EOBD functions, on-screen data cable connection instructions are provided. The instructions may include the location of the vehicle DLC.

4. Depending on the vehicle, Instant ID may occur. See *Instant ID on page 16* for additional information.
5. If Instant ID is not supported, after selecting vehicle make (and year if needed), choose **Automatic ID** or **Manual ID** and enter the vehicle information at the screen prompts to continue. See *Vehicle Identification on page 14*.

   If Automatic ID is selected, the identification process automatically completes (if supported by the vehicle).
6. Select a **Vehicle System** (e.g. Engine, Transmission).
7. Select a **Vehicle System Test/Function** (e.g. Codes Menu) to perform. See *System Main Menu Options on page 17*.

5.2.3 Vehicle Identification

The vehicle must be correctly identified for the diagnostic tool to communicate, and display data correctly. Menus and navigation will vary by vehicle.

Depending on the vehicle, the vehicle identification process may require manual entry of the vehicle information, or it may be automated. The following three Scanner functions are available to identify the vehicle:

Instant ID - Automatically completes the identification process upon initial communication between diagnostic tool and the vehicle using OBD-II VIN mode $09. Instant ID requires specific vehicle support and procedures, see *Instant ID on page 16* for additional information.

Auto ID - Automatically completes the identification process after the vehicle make and year are manually entered.

Manual ID - Allows for manual entry of all required vehicle identification criteria.

Use the following procedure to identify a vehicle.

NOTE

The following procedure applies to most OBD-II vehicles, and may vary depending on the vehicle. Not all vehicles support the Instant ID and/or Auto ID functions.

1. Connect the data cable to the diagnostic tool. See *Data Cable Connection (OBD-II/EOBD Vehicles) on page 10*.
2. Turn the vehicle ignition switch on.
3. Connect the data cable to the vehicle data link connector (DLC). See *Data Cable Connection (OBD-II/EOBD Vehicles) on page 10*.

NOTE

On-screen cable and adapter connection instructions may be provided while using the Scanner and OBD-II/EOBD functions. The instructions may also include the location of the vehicle DLC (Figure 5-2).

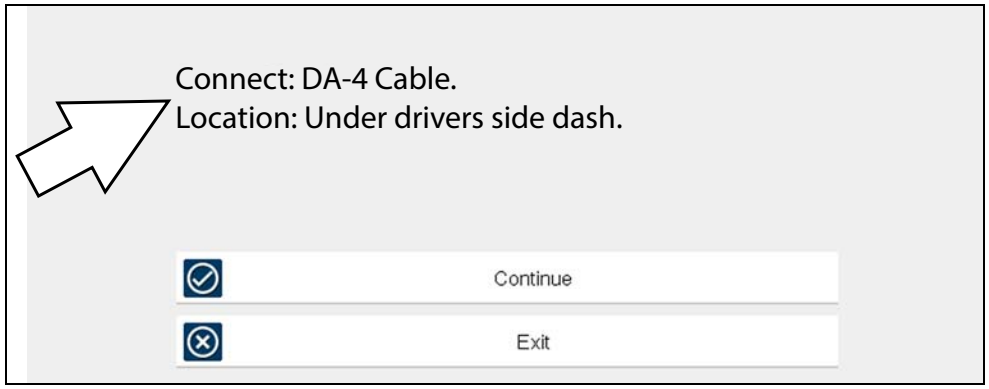


Figure 5-2 *Vehicle connection data cable message*

4. If the diagnostic tool is off, when the OBD-II data cable is connected to the vehicle DLC, the diagnostic tool should automatically turn on. If the tool did not turn on when the data cable was connected to the vehicle, check the vehicle DLC for power. Most OBD-II vehicles supply power to the DLC, which in-turn supplies power and turns on the diagnostic tool when the cable is connected.
5. If required, turn the diagnostic tool on.
6. Depending on the vehicle:

a. Instant ID may occur, as indicated by an audible "beep" approximately 6 seconds after boot-up. Select the **Scanner** icon, then wait for the vehicle confirmation screen (*Figure 5-3*) and select **OK** to continue. Then proceed to **step 6**. See *Instant ID on page 16*, for additional information about this function.

Figure 5-3 *Vehicle confirmation screen*

b. If Instant ID is not supported, you will be prompted to select the vehicle make and year (If needed). Then a menu option is displayed to choose either **Automatic ID** or **Manual ID**.

- Selecting **Automatic ID** (If supported by the vehicle) will briefly display a communications screen informing you that the diagnostic tool is attempting to establish communication with the vehicle and determine vehicle identification.

  Once the vehicle has been identified, the vehicle confirmation screen displays. If the vehicle information is correct, select **OK** to continue, then proceed to step 6.

  If the vehicle does not support Auto ID, the diagnostic tool will attempt to identify the vehicle and then display a message indicating that vehicle identification cannot be made. If this occurs, proceed to "**Selecting Manual ID**" next.
- **Selecting Manual ID** allows you to manually enter all the vehicle information to identify the vehicle.

  b1.) Follow the screen prompts to enter all the information required to identify the vehicle.
  b2.) Once the vehicle has been identified, the vehicle confirmation screen displays (*Figure 5-3*). If the vehicle information is correct, select **OK** to continue, then proceed to step 6.

7. After the vehicle is identified, a menu of available systems, and options are displayed. Select a system or option (*Figure 5-4*).

NOTE

Only the systems and options supported for the vehicle are included in the menu list.

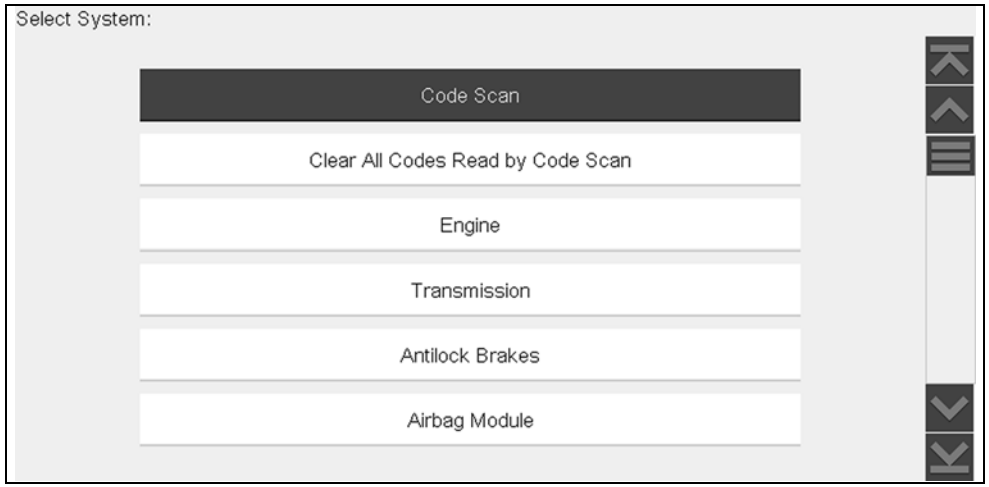


Figure 5-4 *Typical systems menu*

If a system (e.g. Engine, Transmission, Antilock Brakes, etc) is selected, the diagnostic tool may establish communication with the vehicle, then display the system main menu (available tests) (*Figure 5-5*). For sub-menu option information, see *System Main Menu Options on page 17*.

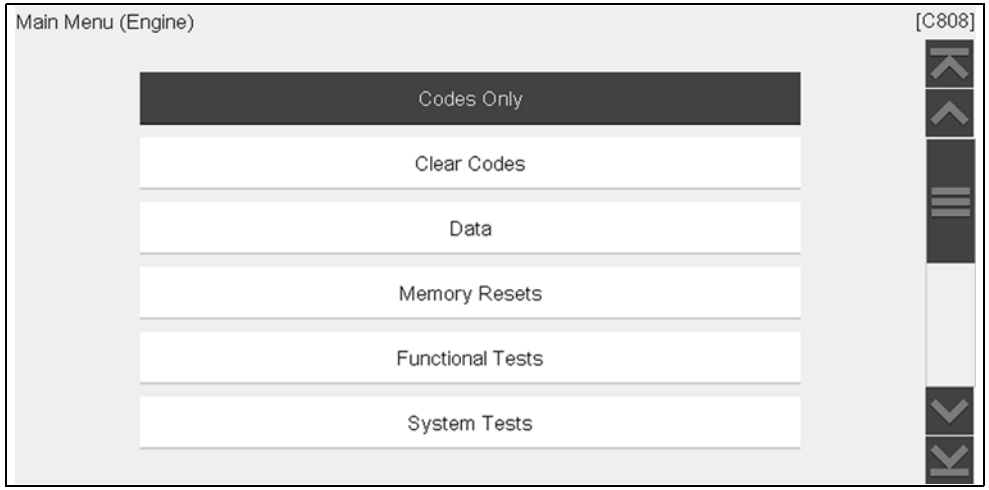


Figure 5-5 *System main menu*

Instant ID

The Instant ID function, can save time when initially identifying a vehicle, by automatically communicating with the vehicle to complete the vehicle identification process.

This function requires specific vehicle support requirements, and connection procedures to operate.

- **Vehicle requirements**:
  - Vehicle must support Mode $09 VIN.
    - **Note:** *Mode $09 VIN is mandated on 2008 and newer vehicles.*
  - Vehicle must be equipped with Hi Speed CAN or J1850 communication protocol.
- **Connection procedure requirements:**

1.) Turn the vehicle ignition on.

2.) Connect the data cable to the diagnostic tool.

3.) Connect the data cable to the vehicle data link connector (DLC).

4.) The diagnostic tool should turn on automatically. If required, turn the diagnostic tool on.

An audible "beep" will sound approximately 6 seconds after boot-up, if the VIN is read.

Note: *No visual confirmation is displayed.*

5.) Select **Scanner**.

When Scanner is selected, a screen may briefly appear informing you the diagnostic tool is attempting to automatically complete the vehicle identification process.

6.) After the vehicle has been identified, the vehicle confirmation screen displays. If the vehicle information is correct, select **OK** to continue.

NOTE

Depending on the vehicle, Instant ID may occur automatically and only ask you to confirm the vehicle, or additional screen prompts may be displayed to enter vehicle information.

NOTE

If the Scanner feature is exited during the session that Instant ID was used, selecting Scanner again, will not ID the vehicle again. To quickly ID the vehicle again, select it from ***Previous Vehicles and Data > Vehicle History.***

If the vehicle is not automatically identified, follow the screen prompts to enter the information required to identify the vehicle.

Alternative Vehicle Identification

Occasionally, you may try to identify a test vehicle that the Scanner does not recognize, the database does not support, or has some unique characteristics that prevents it from communicating with the Scanner. In these instances, there is an alternate choice that allows you to establish communication with the vehicle:

- **OBDII/EOBD Function**—this function allows you to connect to the OBDII equipped vehicle and perform basic OBD-II or EOBD diagnostic functions, see *OBD-II/EOBD on page 49* for additional information.

5.2.4 System Main Menu Options

Once a System is selected (e.g. Engine, Transmission, Antilock Brakes, etc) is selected, the diagnostic tool may establish communication with the vehicle, then display the System Main Menu (available tests).

NOTE

Menus and navigation will vary by vehicle.

The System Main Menu may include:

- **Codes Menu**—displays diagnostic trouble code (DTC) records from the vehicle electronic control module. Selecting may open a submenu of viewing options.
- **Clear Codes**—erases DTC records and other data from the ECM. This selection is found on a Codes submenu for some models.
- **Data Display**— displays PID data from the vehicle electronic control module. Selecting may open a submenu of viewing options.
- **Functional Tests**—provides specific subsystem tests. The tests vary depending on the manufacturer and model.
- **Actuator Tests**—similar to functional tests, checks the operation of certain actuators, such as solenoid valves and relays.
- **Memory Resets**—allows you to reprogram adaptive values for certain components after making repairs. Selecting opens a submenu. These options are found on the Functional Tests Menu for some models.
- **System Tests**—provides specific subsystem testing. Performing these tests is similar to functional tests.
- **Generic Functions**—lets you access certain available Generic OBD II functions from a proprietary menu (1996 and newer vehicles only).
- **Troubleshooter**—provides step-by-step procedures, integrating PIDs and retrieving trouble codes when appropriate, for specific symptoms of the identified vehicle.

The following sections, describe some of the System Main Menu items listed above.

5.3 Codes - View / Save

5.3.1 Codes Menu

After selecting a System, this selection “Codes Menu” may appear as a different name (e.g Codes, Codes Menu, Codes Only, Codes (No Data), Service Codes) or something similar depending on the vehicle manufacturer. Options may include:

Display Codes

This function opens either a list of diagnostic trouble codes (DTCs) stored in the selected vehicle electronic control module (ECM), or a submenu of DTC viewing options. The code list includes the DTC and a brief description.

Submenu options may include:

- **Trouble Code Information**—opens a list of codes in ECM memory
- **History Codes**—opens a list of codes whose symptoms are not currently present. History codes indicate an intermittently occurring problem.
- **Failed This Ignition**—opens a list of codes that set during the current ignition cycle.
- **MIL SVS or Message Requested**—displays ECM requests to turn on the malfunction indicator lamp (MIL) or service vehicle soon (SVS) lamp, or display a driver information alert.
- **Last Test Failed**—displays a complete list of failed tests.
- **Test Failed Since Code Cleared**—displays a list of tests that failed since the last time codes were cleared from ECM memory.

Clear Codes

The diagnostic tool clears codes from the vehicle electronic control module memory on most vehicles. If this function is not available on the test vehicle, Clear Codes does not appear as a menu option.

To clear codes:

1. Select **Clear Codes** from the Codes Menu.

   A confirmation message displays.
2. Make sure any conditions shown on the confirmation message are met, then select **Yes**.

   A “codes cleared” message displays once the operation is complete.
3. Select **Continue** to return to the Codes Menu.

IMPORTANT

Clearing codes erases all temporary ECM information, including Freeze Frame/Failure Records. Make sure no vital diagnostic information will be lost before clearing codes.

Freeze Frame/Failure Records

Selecting **Freeze Frame/Failure Records**, displays the DTC that was set.

Then when the Freeze Frame icon (*Figure 5-6*) is selected, the corresponding Freeze Frame data that was captured when the ECM commanded the malfunction indicator lamp (MIL) to turn on, is displayed.

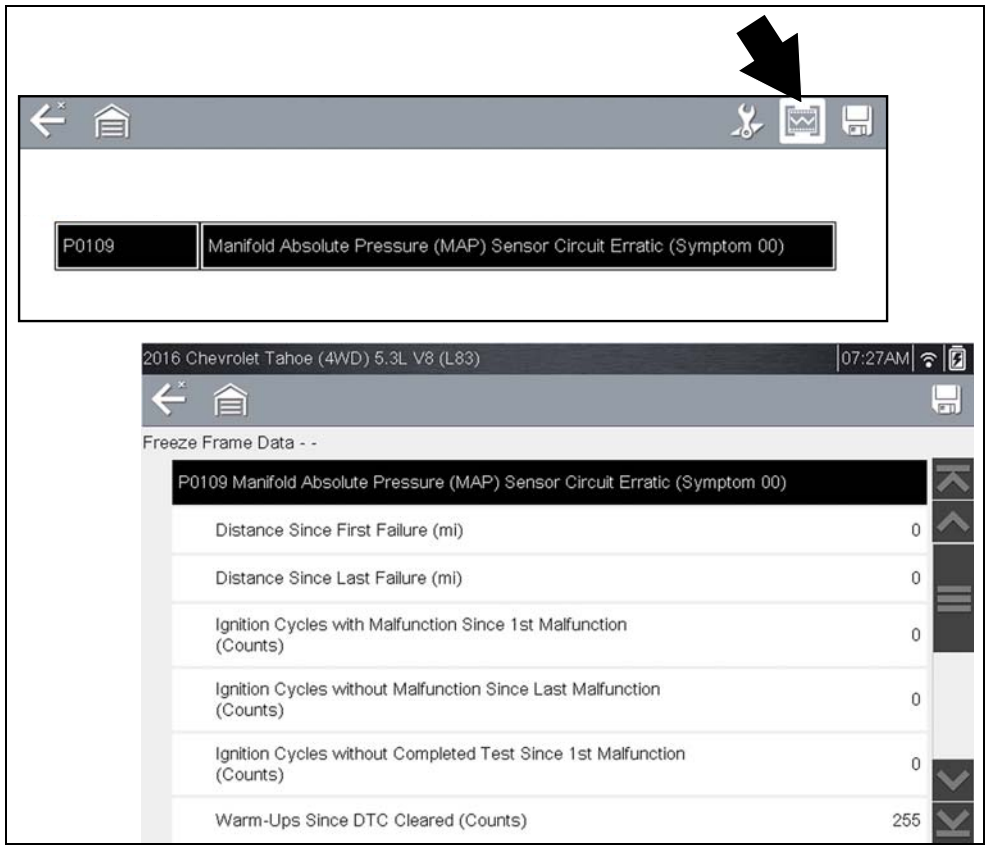


Figure 5-6

5.3.2 Code Scan (with Vehicle System Report/Snap-on Cloud)

Code Scan is available from the Vehicle System menu, and when selected it scans the vehicle control modules for codes. For detailed information see *Vehicle Code Scan / (Snap-on Cloud) on page 44*.

5.4 Viewing and Saving Data (PIDs)

Selecting **Data** or other similar data menu option (depending on the vehicle manufacturer) displays PID data for the selected system (*Figure 5-7*).

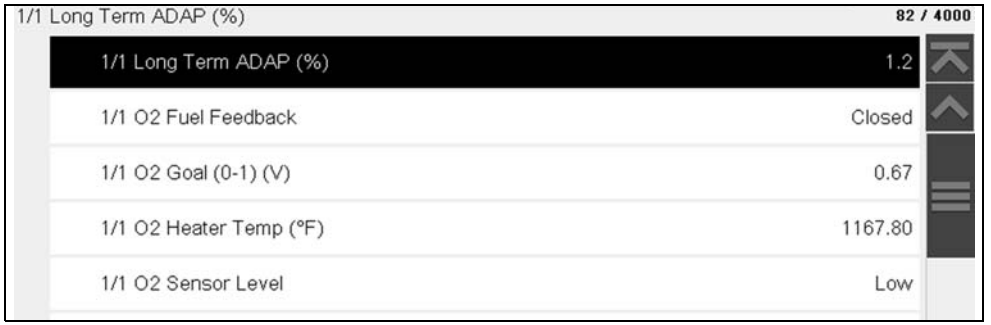


Figure 5-7 *Data display (PID List view)*

During data display the main body of the screen is divided into two columns; the left-hand column has a description of the parameter and the right-hand column shows the current parameter value or state. PIDs are listed in the order in which they are transmitted by the ECM, so variations between years, makes, and models will occur. The toolbar control icons are described in *Scanner Control Icons on page 20* and *Common Toolbar Control Icons on page 8*.

To display the next data list, select the **Right Arrow** icon (*Figure 5-8*).

Figure 5-8

5.4.1 Scanner Control Icons

The scanner toolbar contains control icons. Control icons may vary depending on the active function or test. An inverted (highlighted) icon indicates it is selected. Other control icons (not shown) are described in *Common Toolbar Control Icons on page 8*.

Icon	Function	Icon	Function
	Start (Capture) - Resumes active data collection.		**Save** - Writes data from buffer memory to a file. The saved "movie" file can be accessed for future reference by selecting **Previous Vehicles and Data > View Saved Data**.
	Pause - Pauses active data collection.		**Custom Data List** - Opens a menu for selecting which PIDs display in the list.
	Clear - Erases all the PID data in the buffer and begins a new recording. Selecting opens a confirmation message.		**Change View** - Changes display options between PID list or graph displays.
	Trigger - Opens a menu that allows you to set, arm, and clear threshold values that automatically trigger PID data to be saved from buffer memory to a file.		**Lock/Unlock** - Locks or unlocks the highlighted parameter. Locked PIDs move to the top of the list and do not scroll as you move through the data.
	Zoom - Incrementally increases and decreases the scale of the data being displayed.		**Sort** - Determines the order in which PIDs are listed on the screen.
	Step Forward - Allows forward movement in singular steps. (*Note: To quickly step forward during Scanner data review, press and hold the icon down.*)		**Step Back** - Allows backward movement in singular steps. (*Note: To quickly step backward during Scanner data review, press and hold the icon down.*)
	Skip Forward - Allows forward movement in multiple steps.		**Skip Back** - Allows backward movement in multiple steps.

5.4.2 About the Data Buffer

The diagnostic tool has the capability to collect, store and save PID data utilizing internal storage memory and buffer memory.

When Data is displayed onscreen, a data buffer automatically starts to store it in buffer memory. The data buffer runs continuously (storing data) until the Pause, Clear, or Save icon is selected.

Buffer memory is limited to a predetermined "total" size. When buffer memory reaches it's full capacity, the data buffer will continue to store new data, however earlier stored data will be removed to allow room for the new data being stored.

The most recent data is always available for review when Pause is pressed, and can be reviewed using the toolbar controls.

The Data Buffer Indicator (*Figure 5-9* left arrow) can be used to visually see the amount of stored buffer data. This graphical indicator uses a bar graph to show how much stored data is in the memory buffer.

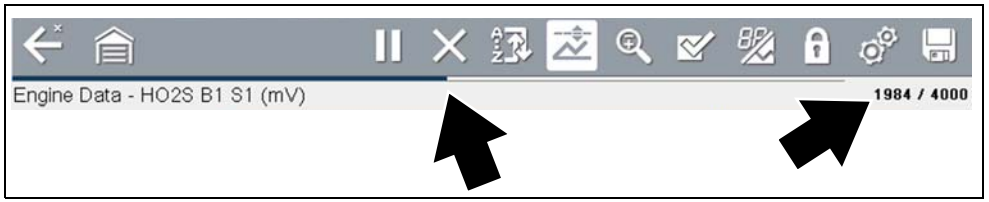


Figure 5-9

The Data Buffer Position Counter (*Figure 5-9* right arrow and *Figure 5-10*) indicates:

- first value = the numerical position of the active data point as displayed within buffer memory
- second value = indicates the maximum data buffer size value (e.g. 4000)

Figure 5-10 (right arrows) shows the relationship between the graph scale and the first value in the Position Counter.

During data review a slider on the bar graph (*Figure 5-10* left arrow), indicates the position of the current data point as displayed in relation to the entire memory buffer contents.

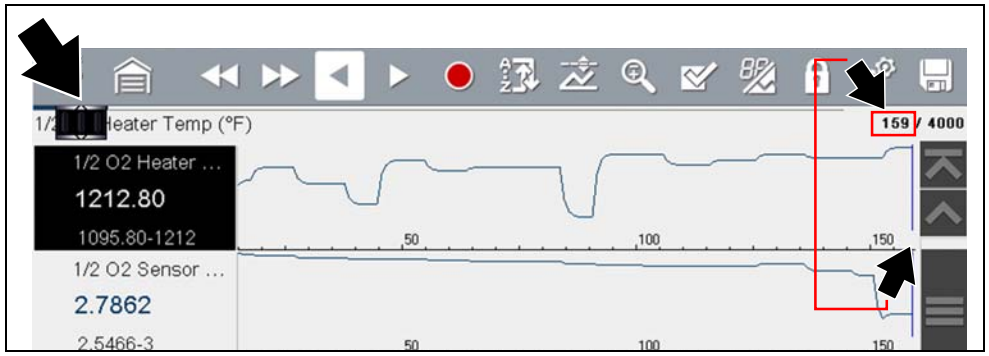


Figure 5-10

5.4.3 About Cursors

Vertical cursors are automatically displayed (in graphical PID views) to mark specific data reference points.

Gray (Pause/Save) - If you select Pause or Save while collecting data, a vertical gray cursor is automatically placed at that point in the data to indicate where the data was paused or saved.

- Each time Pause is pressed an additional cursor is added, and appears when Record is pressed to resume data collection.
- Each time Save is pressed an additional cursor is added, and appears when the data starts again after a slight pause to save the file.
- Cursors are displayed in all PIDs as reference markers.
- Cursors are retained and appear in saved data files.

Blue (Current Position) - If you select Pause while collecting data, a vertical blue cursor is displayed as an indicator to your position in the data and is denoted by the current position value in the counter display.

- Cursors are displayed in all PIDs as reference markers.
- Depending on the amount of data saved the blue cursor may be initially located on the far left next to the description, or the far right next to the scroll bar making it difficult to see. If this happens, use the control icons (Step/Skip) to move the data until you can see the cursor.

Red (Triggered PID Activation Point) - When using triggers, a vertical red cursor is displayed in the data of the triggered PID at the point where the trigger was activated.

- When multiple PIDs are armed, only the PID that is triggered first will display a red cursor.

Green (Trigger Activation Reference Point) - When using triggers, green vertical cursors are displayed in all PIDs (except the PID that was triggered) as reference to the triggered PID activation point.

- When a trigger is activated the displayed red and green cursors are all vertically aligned in the graphed data to show the relationship of the trigger point in all PIDs.

5.4.4 Pausing and Reviewing Active Data

During normal operation, data from the vehicle's ECM is continuously being stored in buffer memory as it is displayed onscreen. The Pause icon, allows you to temporarily pause data collection to review it in detail.

To pause and review active data:

While collecting data, select the **Pause** icon (*Figure 5-11*).

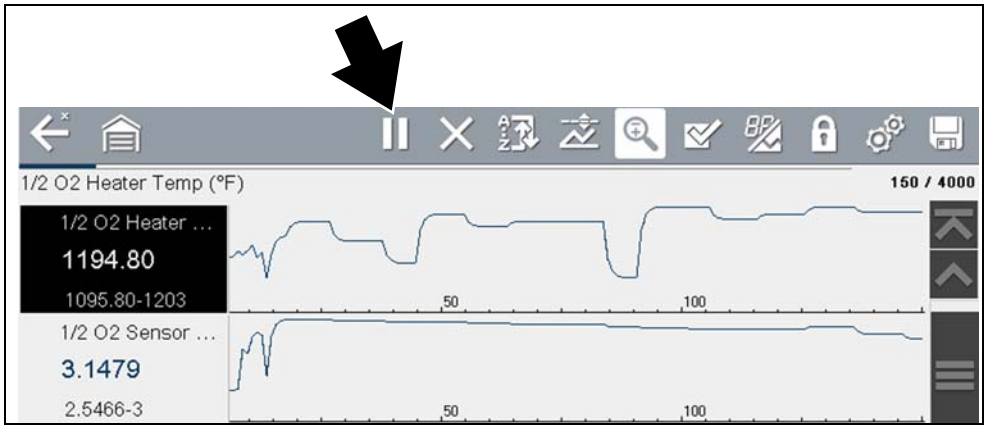


Figure 5-11

Toolbar control icons are described in *Scanner Control Icons on page 20* and *Common Toolbar Control Icons on page 8*.

After Pause is pressed:

- Review control icons are displayed in the toolbar (*Figure 5-12*). Use the control icons to accurately move through the data.
- The blue (vertical cursor) (*Figure 5-12*) indicates your position in the data and is denoted by the current position value in the counter display. This cursor displays in all PIDs.

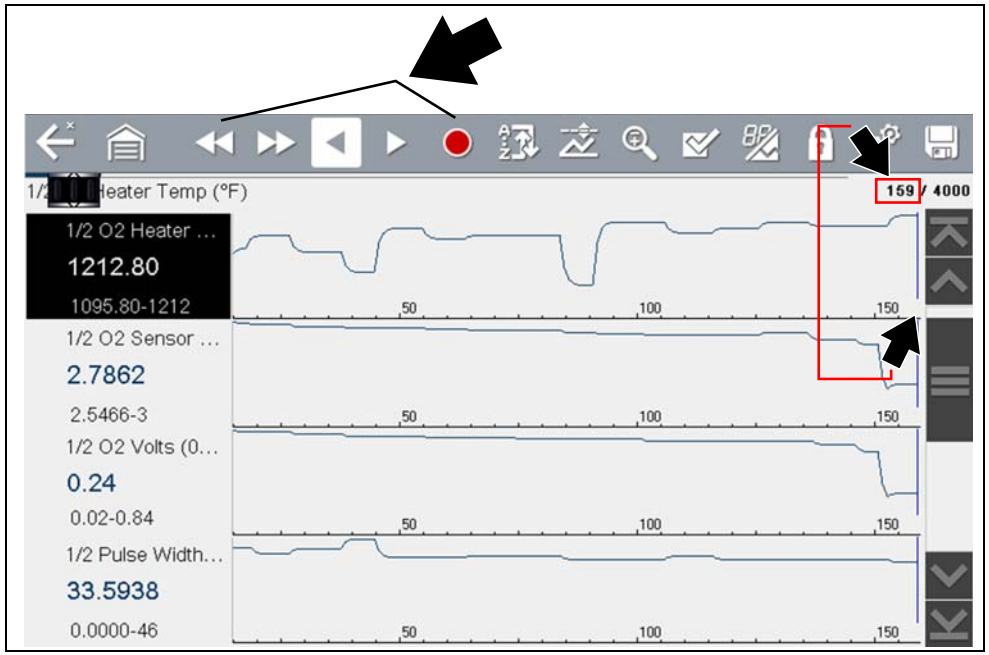


Figure 5-12

NOTE

*The **Shortcut** icon can be set to perform the Pause/Play function. See Configure Shortcut Button on page 61 for additional information.*

To resume data collection (after pausing):

- Select the **Start** icon .

The screen changes back to display data (*Figure 5-13*).

A vertical gray cursor is displayed on all PIDs, indicating where the data was paused (*Figure 5-13*).

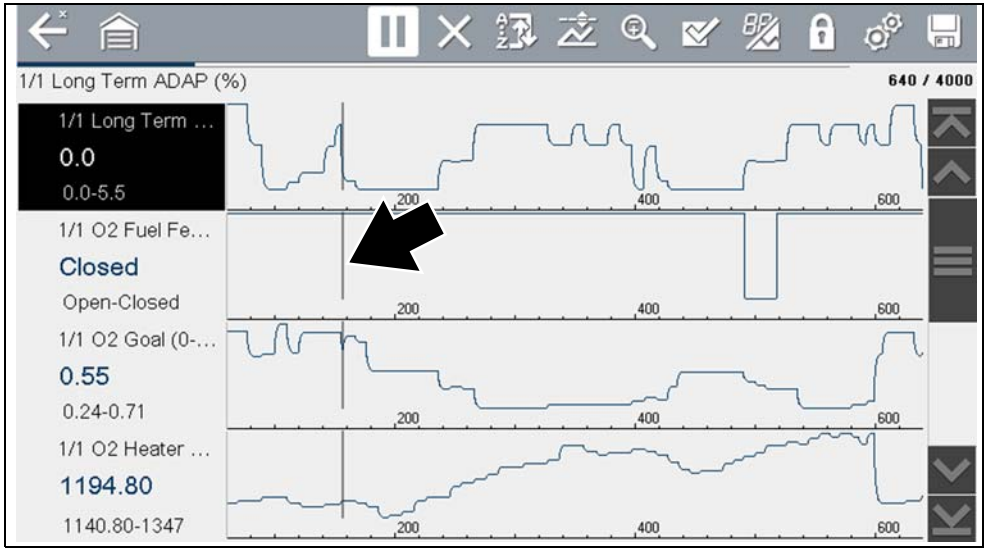


Figure 5-13

5.4.5 Saving Data Files

Saving data is useful when trying to isolate an intermittent problem or to verify a repair. During normal operation, data from the vehicle's ECM is continuously being stored in buffer memory as it is displayed onscreen. Selecting **Save** writes stored buffer memory to a file.

NOTE

*The **Save icon** performs the same function as "Save Movie" function choice for the programmable **Shortcut** button, see Configure Shortcut Button on page 61 for details.*

To save data:

While capturing or reviewing data, select the **Save** icon.

An onscreen message is displayed to indicate the data file is being saved (*Figure 5-14*).

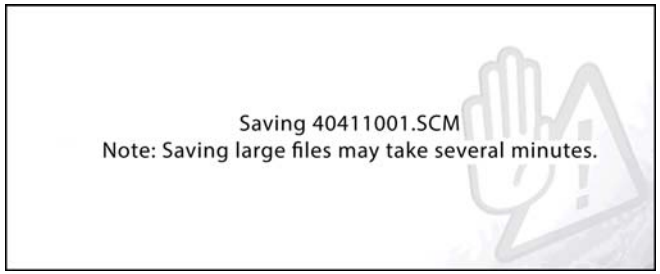


Figure 5-14 *Save dialog box*

To view saved data (on the diagnostic tool):

The saved file can be viewed by selecting **Previous Vehicles and Data > View Saved Data**. See *View Saved Data on page 57* for basic navigation.

1. Select the desired data file (.SCM file extension).
2. Change the view type and zoom levels as needed.
3. In graph view, use the control icons to move through the data (*Figure 5-15*).

   Toolbar control icons are described in *Scanner Control Icons on page 20* and *Common Toolbar Control Icons on page 8*.

   The blue (vertical cursor) (*Figure 5-15*) indicates your position in the data and is denoted by the current position value (*Figure 5-15*) in the counter display. The cursor displays in all PIDs.

   Depending on the amount of data saved the cursor may be initially located on the far left next to the description, or the far right next to the scroll bar making it difficult to see. If this happens, use the control icons to move the data until you can see the cursor.

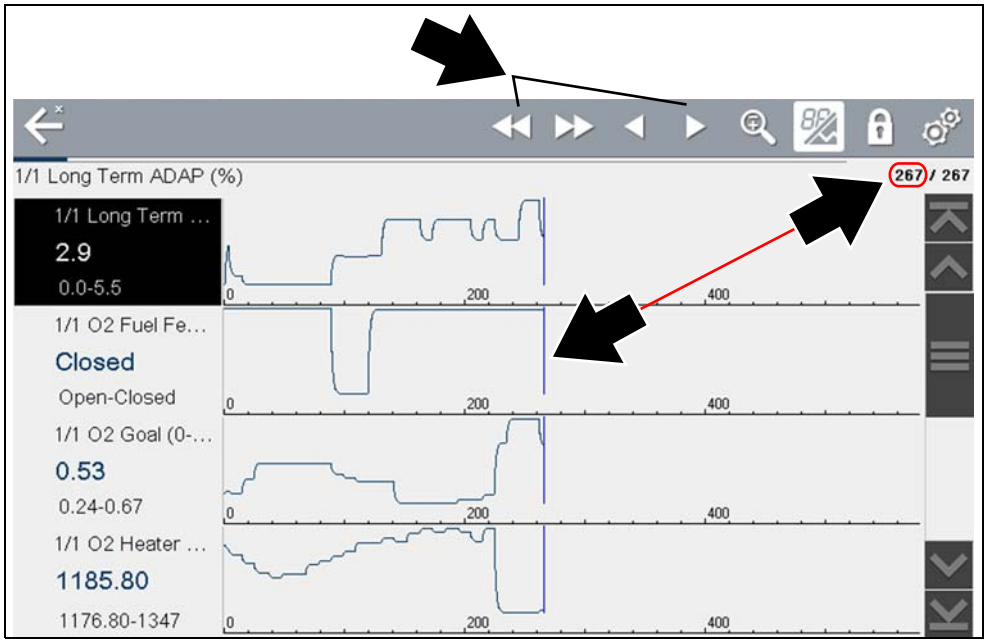


Figure 5-15

Pressing the Save icon more than once in the same data collection session will create multiple (.SCM) files. Each file will contain gray (vertical cursors) (*Figure 5-15*) indicating where the data was paused.

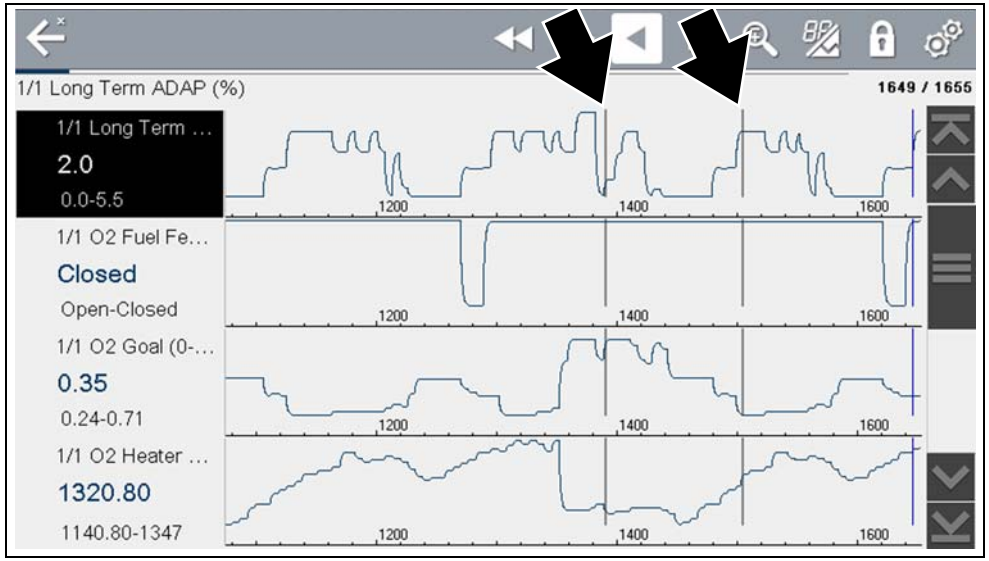


Figure 5-16

To view saved data (on a PC)

Saved data files can also be downloaded to a personal computer (PC) using the Mini USB jack. Once connected to the PC, the data files can be printed, transferred, and copied using ShopStream Connect. ShopStream Connect is an application that creates an interface between the diagnostic tool and a PC. The ShopStream Connect application is available free online, see *ShopStream Connect ™ on page 86*.

5.4.6 Using Zoom

The zoom function allows you to change the magnification level of the graphed data during data collection and review. Changing magnification levels allows you to compress or expand the displayed data to quickly find glitches, or signal losses.

When the **Zoom** icon is selected the dropdown menu allows you to select the display magnification level from a range of -2X to +8X. The "Zoom Out" option displays up to half of the maximum amount of data that can be collected, on one screen. The default magnification level is 1x.

Examples: Top (+4X), Middle (1X), Bottom (Zoom Out)

Figure 5-17 *Zoom examples*

5.4.7 Changing Data Views - PID List / Graphs

Selecting the **View** icon (*Figure 5-18*) opens a drop-down menu of viewing options:

- PID List
- 1 Graph
- 2 Graphs
- 4 Graphs

The PID List view is a 2-column display with the name of the parameters in the left column and their current values in the right column (*Figure 5-18*).

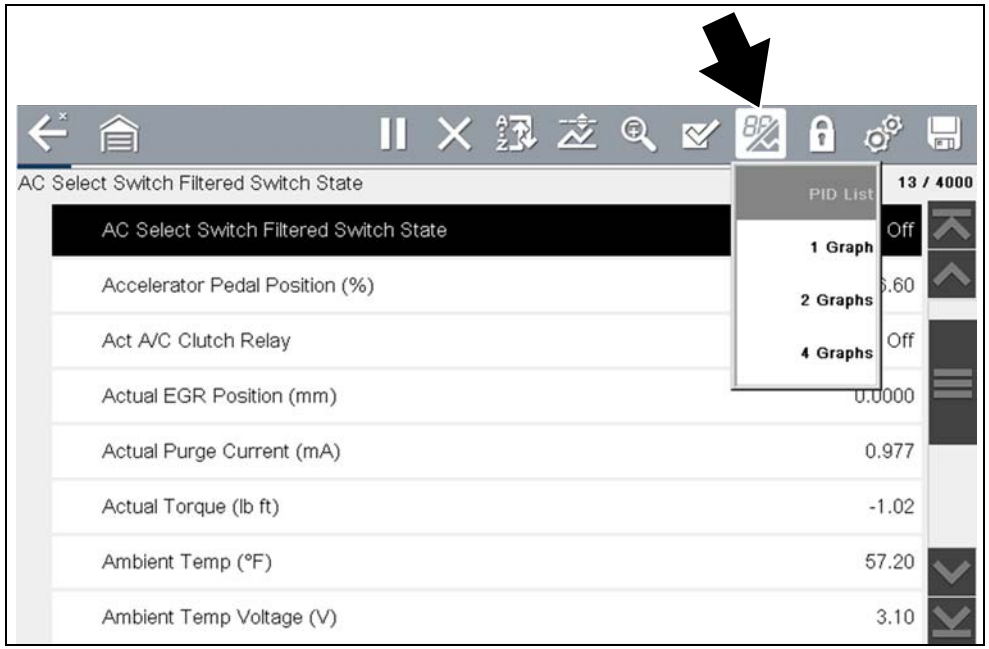


Figure 5-18 *PID List view*

The 1, 2, and 4 Graph views divide the screen horizontally to simultaneously display data graphs for the indicated number of parameters (*Figure 5-19*).

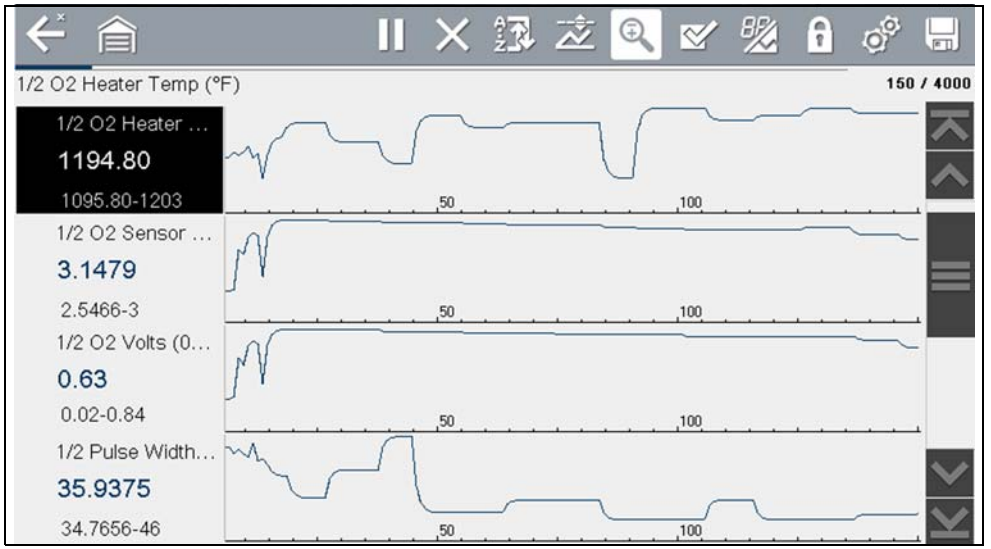


Figure 5-19 *Four graph view*

In graph view the text block (*Figure 5-20*) to the left of the graph displays:

- Top - PID description
- Middle - Current value or state
- Bottom - Active minimum and maximum values

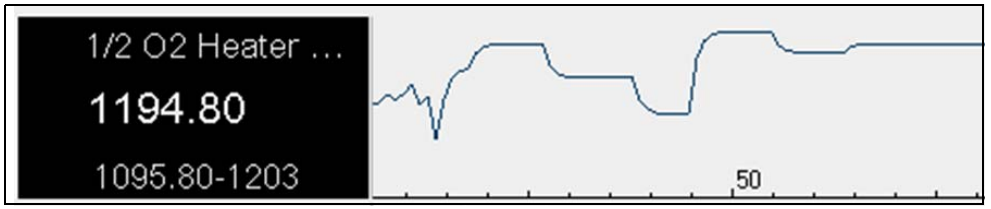


Figure 5-20

5.4.8 Selecting PIDs to Display (custom display)

The **Custom Data List** icon on the toolbar is used to select which PIDs to display. Minimizing the number of PIDS displayed allows you to focus on any suspicious or symptom-specific data parameters. You can add or remove most PIDs from the list, as certain vital PIDs may not be removed. These appear in gray at the top of the list along with a lock icon, and they cannot be selected.

NOTE

Limiting the number of parameters that display to those that apply to a particular situation results in a faster data refresh rate, and reduces the amount of memory used for saved files.

To create a custom data list:

1. Select the **Custom Data List** icon on the toolbar.
   The data selection screen displays (*Figure 5-21*) and selection icons appear. Check marks to the left of the parameter description indicate which parameters are selected for display.

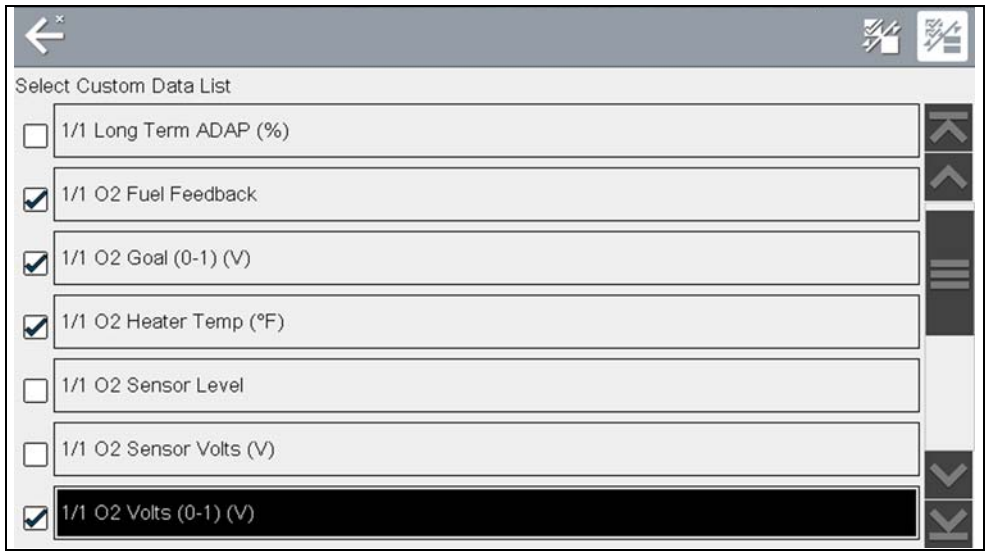


Figure 5-21 *Data custom PID selection*

The toolbar icons provide options for selecting and deselecting parameters to include or remove from the custom data list:

Icon	Description
	Select/Deselect - hide or display individual PIDs in the list
	Select All/Deselect All - hide or display all PIDs in the list.

2. Create a custom data list by selecting (check mark) the parameters to include.
3. Select **Back** to display the updated data list.

5.4.9 Locking PIDs (to always display at top)

Use the **Lock/Unlock** icon to hold selected lines of the data in place and prevent them from scrolling, or to release previously locked lines of data. Up to three lines of data may be held at a time. This feature allows you to position related parameters together, making it easier to monitor their values and spot inconsistencies.

Locked parameters display as the top frames on the main body of the display screen, as well as at their usual position within the data list (*Figure 5-22*). A lock icon appears to the left of the parameter name to indicate it is locked.

To lock parameters:

1. Highlight the parameter to be locked.
2. Select the **Lock/Unlock** icon on the toolbar to lock it.
   A copy of the locked parameter is now shown at the top of the data list, and a lock icon appears alongside the parameter name.
3. Highlight and select additional parameters to lock.

Up to three parameters can be locked at a time. Once locked, a parameter remains locked until it is manually unlocked, or communication with the vehicle is stopped.

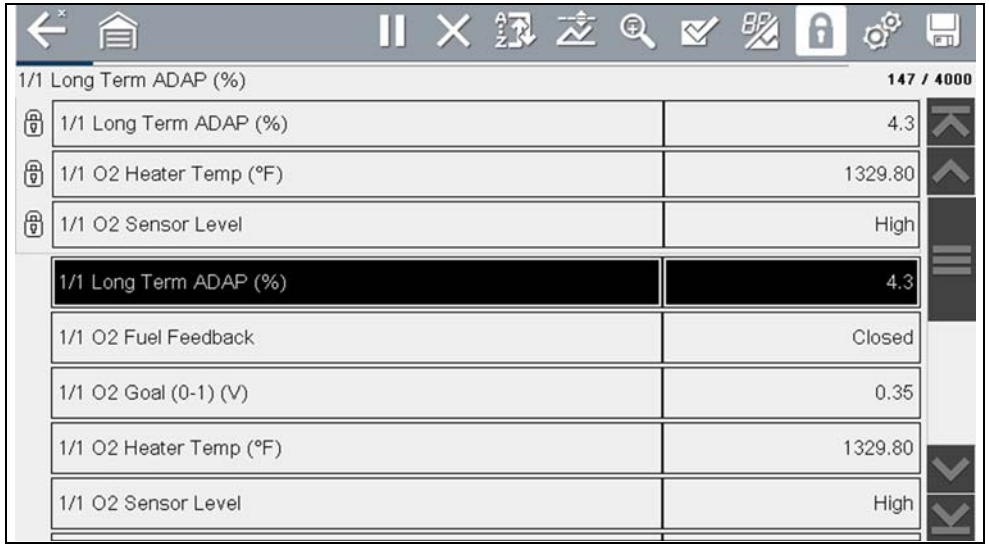


Figure 5-22 *Locked parameters*

NOTE

If three parameters are locked, one of them must first be unlocked before another parameter can be locked.

To unlock parameters:

1. Scroll through the data list and highlight the parameter to be unlocked, or released.
2. Select the **Lock/Unlock** icon on the toolbar.

   The released parameter and the lock icon disappear from the list at the top of the data list.
3. Repeat Step 1 and Step 2 to release other parameters if needed.

5.4.10 Using Triggers

Trigger Description and Features

Setting PID triggers allows you to configure the diagnostic tool to automatically save PID data to a file, when a PID value meets an upper/lower limit (trigger point).

When a PID value meets the trigger point it activates the trigger which captures a short recording of all available PID data and saves it as a data file.

You can review the saved data file to closely evaluate not only the PID that triggered the event, but all the PIDs being monitored to collectively see what was happening at the time of the event.

Examples of the following trigger states (Armed / Not Activated - upper image) and (Activated - lower image) are shown in (*Figure 5-23*).

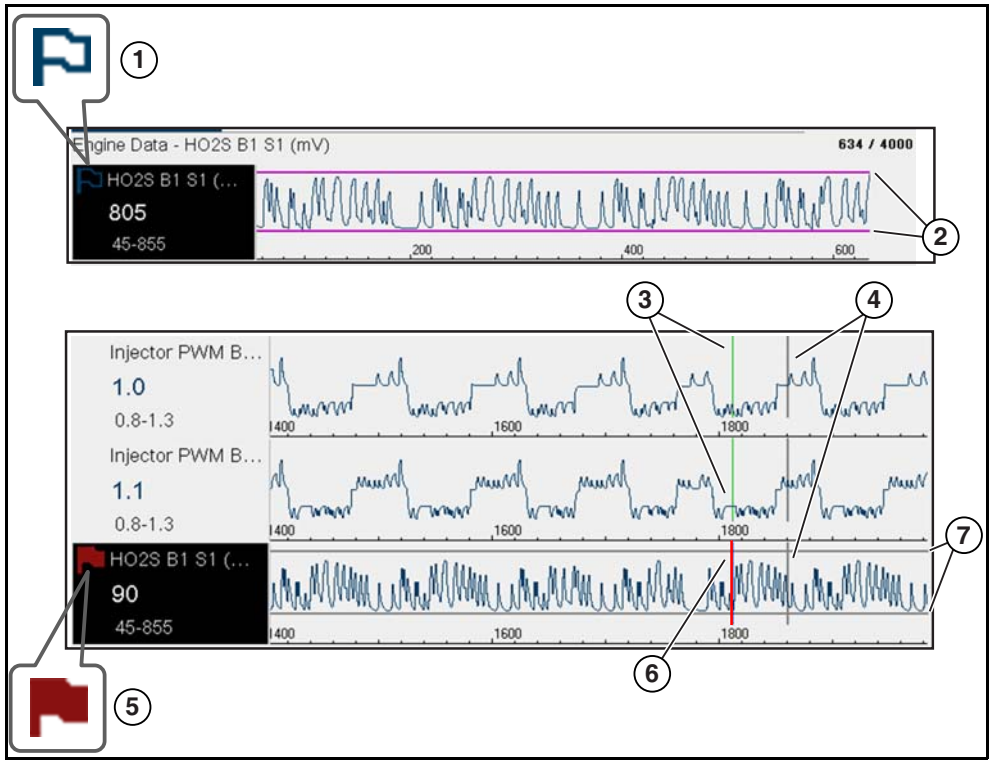


Figure 5-23

1— Armed PID Trigger Indicator - A blue outlined flag indicates the PID trigger is armed.

2— Upper and Lower Limit Lines (Armed) - Colored limit lines indicate the trigger is armed but not activated.

3— Trigger Activation Point Reference Cursor - Green cursors lines are displayed on all the other PID graphs to indicate their relationship to where the trigger occurred.

4— Pause Cursor - A vertical gray cursor line is displayed (all PIDs) as a marker in the where the data was paused and the file was saved.

5— Activated PID Trigger Indicator - A red flag indicates the PID trigger has activated.

6— Trigger Activation Point Cursor - A red cursor line is displayed in the PID data where the trigger was activated.

7— Upper and Lower Limit Lines (Not Armed and Activated) - Gray limit lines are displayed when the trigger is armed but not activated and after the trigger has been activated.

PID Trigger Status Icons

The icons (below) are used to help you quickly identify the status of individual PID triggers:

Icon	Description
Trigger Armed 	Trigger has been set (configured) and is armed.
Trigger Activated 	Trigger has been activated (upper or lower limit has been met).

Setting triggers:

To use triggers, they must be turned on (set/configured), and then armed. Use the following procedures to setup PID triggers.

1. Highlight the PID to setup with a trigger.
2. Select the **Trigger** icon.

   Selecting the **Trigger** icon (*Figure 5-24*) displays trigger menu options:
   - **Set Trigger**—opens setup screen for upper/lower limits (trigger points)
   - **Arm Trigger**—arms the trigger to capture data
   - **Clear All Triggers**—deletes all previously set triggers

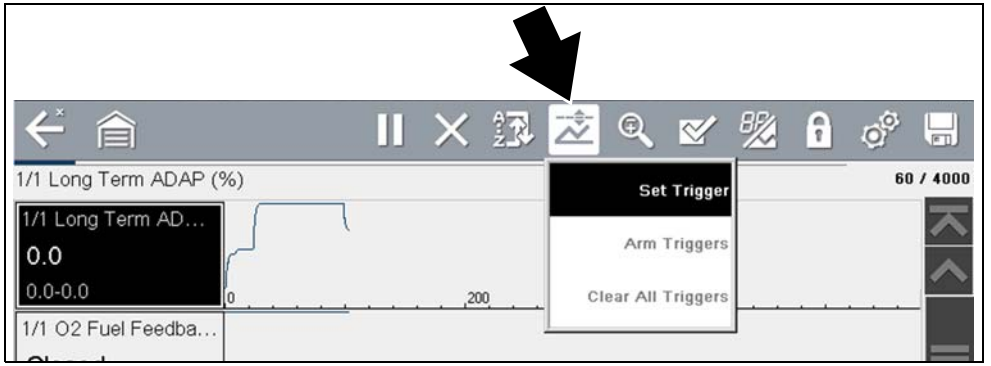


Figure 5-24 *Trigger menu*

If triggers are already set, the menu options are:

- **Clear Trigger**—deletes the highlighted trigger
- **Disarm Trigger**—disarms the highlighted trigger
- **Clear All Triggers**—deletes all set triggers

3. Select **Set Trigger**.

   A graph of the highlighted PID and setup icons display (*Figure 5-25*).

   The upper trigger point must be set first. A red horizontal line is displayed across the data graph (*Figure 5-25*) representing the upper trigger point.
4. Use the plus (**+**) and minus (**–**) icons (*Figure 5-25*), or the up ▲ and down ▼ arrow buttons to change the position of the upper trigger point.
5. Select ✓, or press the **Y/**✓ button, to set the upper trigger point.

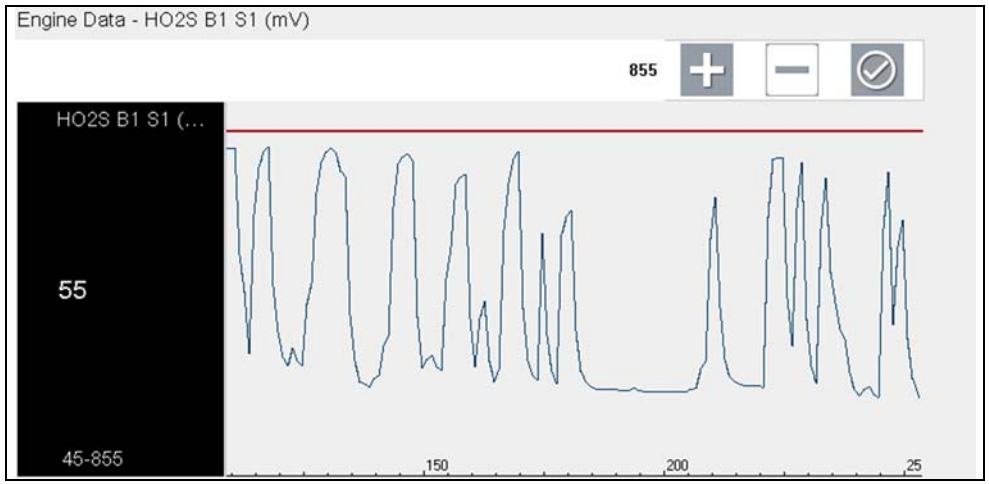


Figure 5-25 *Trigger setup - upper limit*

The upper trigger line changes color to gray and the lower trigger line displays in red (*Figure 5-26*).

6. Change the position of the lower trigger line in the same manner as the upper.
7. When finished, select ✓, or press the **Y/**✓ button, to set the lower trigger level.

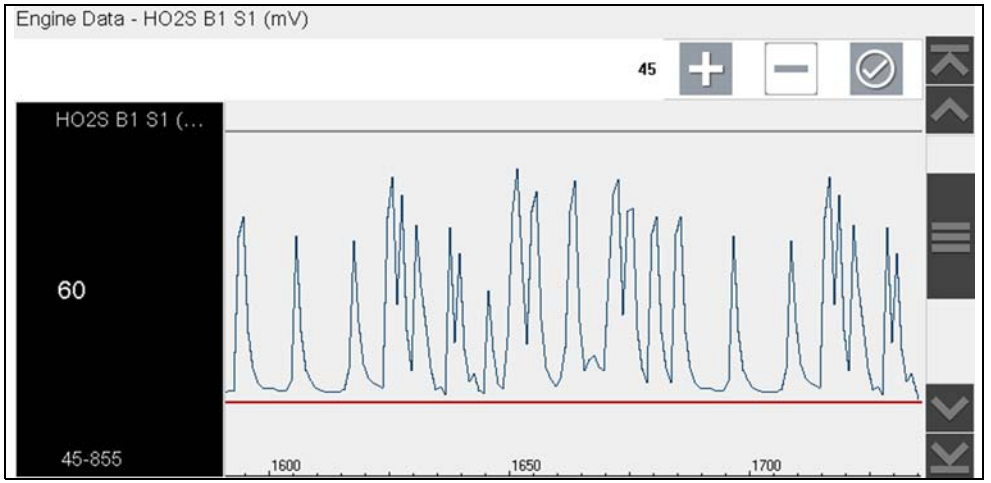


Figure 5-26 *Trigger setup - lower limit*

The display returns to the PID data view and the trigger points appear as horizontal lines across the designated graph (*Figure 5-27*). Repeat this procedure to establish trigger points for other parameters (up to three) if desired.

NOTE

Only three parameters can have trigger levels set at one time, but only one of the conditions needs to be satisfied for triggering to occur.

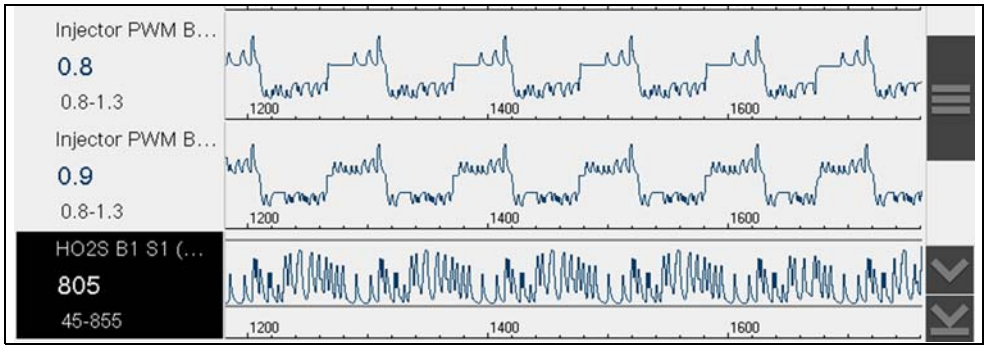


Figure 5-27 *Trigger set (not armed)*

Arming triggers:

1. Select the **Trigger** icon.
2. Select **Arm Triggers**.

   The trigger point lines change color to indicate an armed condition (*Figure 5-28*).

All set PID triggers are armed simultaneously (if more that one is set). Once armed it remains armed until you clear it or the trigger is activated.

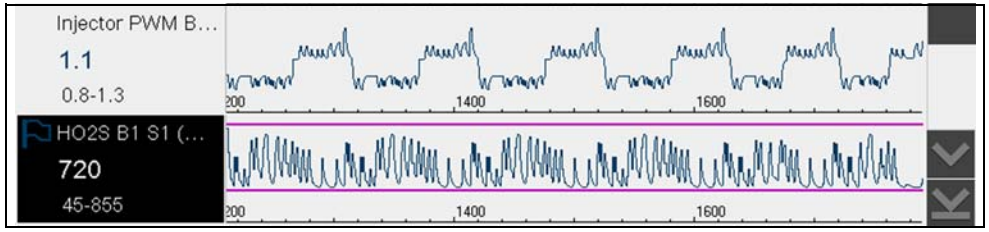


Figure 5-28 *Trigger armed*

About Activated Triggers

A trigger is activated (displays red flag) when a PID value meets an upper/lower limit (trigger point).

When a trigger is activated:

- Data collection is briefly paused as the Scanner captures a recording of all available PID data, and saves it as a data file.
- A gray cursor line is displayed to indicate the point at which the data was paused or saved.
- An audible alarm is sounded
- A message displays indicating a data file was saved.
- Data collection continues.
- The activated PID trigger is disarmed. ***Note*** - if a different PID trigger is activated subsequently, an additional data file will be recorded.
- A red cursor line is displayed on the graph of the PID with the activated trigger to indicate where the trigger occurred. A green cursor line is displayed on all the other PID graphs to indicate their relationship to where the trigger occurred.

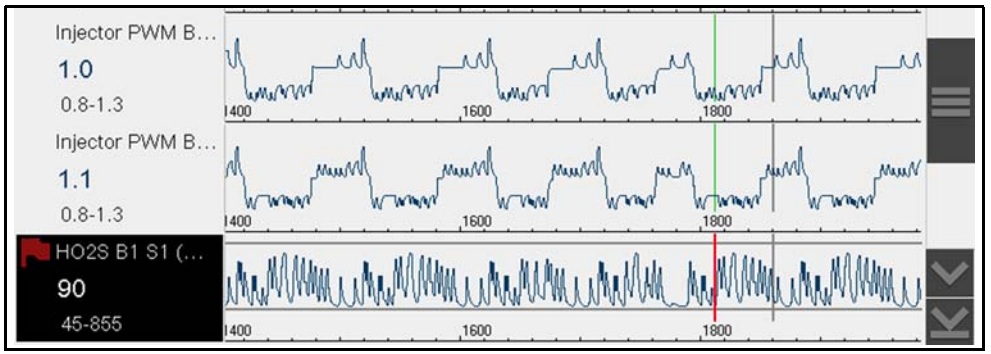


Figure 5-29 *Trigger activated*

5.5 Functional Tests

The **Functional Tests** selection is used to access vehicle-specific subsystem tests. Available tests vary by manufacturer, year, and model. Only the tests available for the identified vehicle display in the menu.

There are several types of functional tests:

- **Information Tests**—these are read-only tests, like selecting “VIN” from a Functional Tests menu to display the VIN of the identified vehicle.
- **Toggle Tests**—these tests switch a component, such as a solenoid, relay, or switch, between two operating states.
- **Variable Control Tests**—these tests command a certain value for a system or component, such as varying spark timing in 1° increments or EGR valve duty cycle in 10% increments.
- **Reset Tests**—these tests reset the adaptive, or learned, values that are stored in the vehicle electronic control module memory.
- **Scripted Tests**—these tests are software routines that place the vehicle into special operating modes for performing certain repairs, such as bleeding brakes with ABS.

Selecting Functional Tests opens a menu of test options that varies by make, year, and model. Selecting a menu option either activates the test or opens a submenu of additional choices. Follow all screen instructions while performing tests. How and what information is presented on the screen varies according to the type of test being performed and the vehicle being serviced.

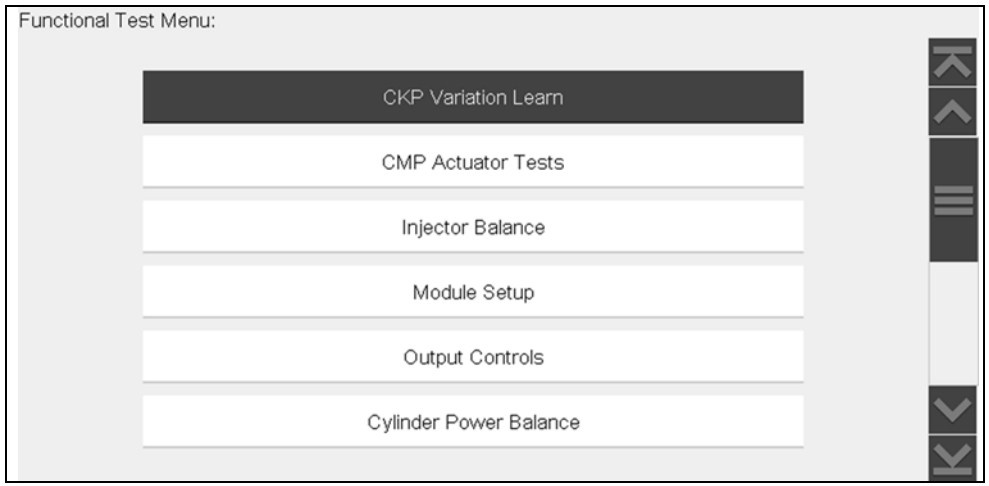


Figure 5-30 *Functional test menu*

Toggle and variable control tests often display functional test controls on the toolbar at the top of the screen with PID data in the main body.

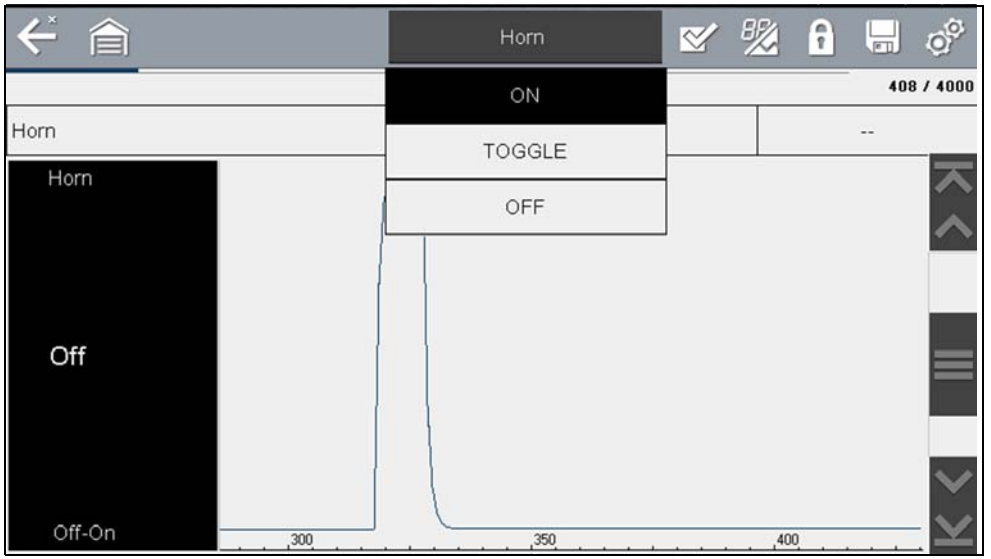


Figure 5-31 *Functional test example*

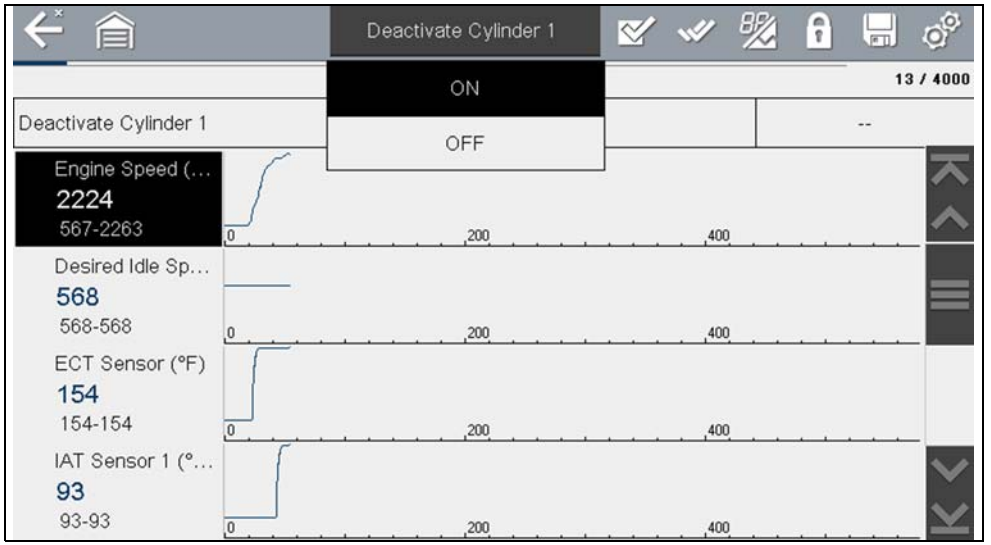


Figure 5-32 *Functional test example*

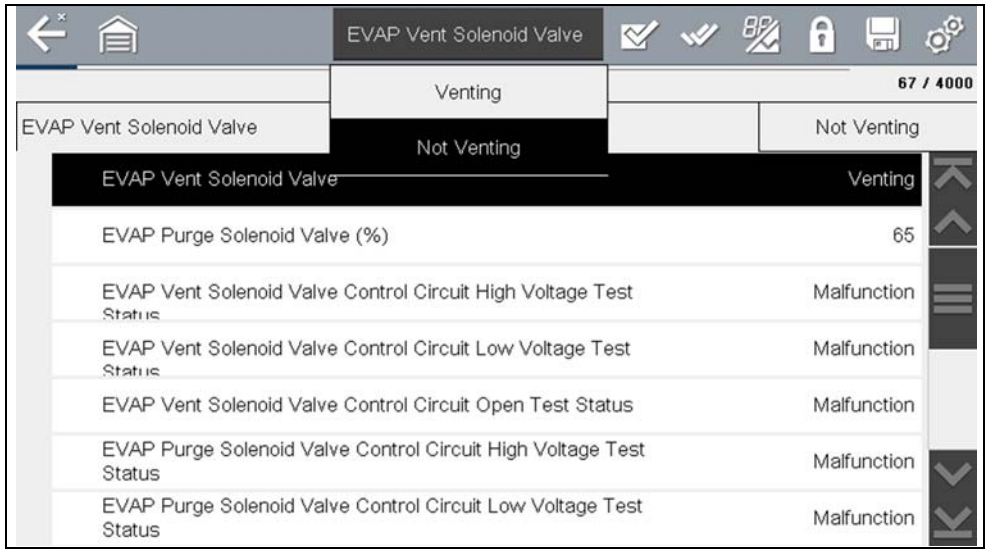


Figure 5-33 *Functional test example*

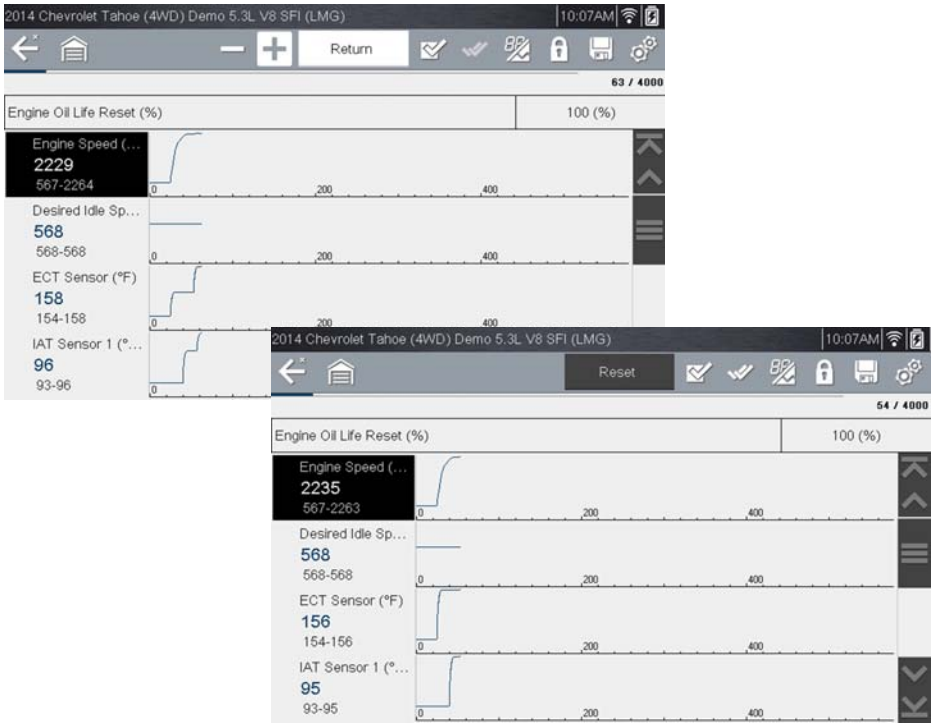


Figure 5-34 *Functional test example*

A Test icon on the toolbar activates the test, and a Return, or similarly named, icon cancels the test. For variable control tests, the variable value displays between the main body and the toolbar. Plus and Minus icons on the toolbar increase and decrease the variable value.

A Data List icon, is available on the toolbar for some tests. This feature allows you to change which data list displays in the main body without exiting the functional test. The icon is only available when the test is inactive.

5.6 Troubleshooter

NOTE

Troubleshooter appears in a Scanner Main Menu only if tips are available for the system selected on the identified vehicle.

Troubleshooter is a database of experience-based repair strategies and information, that has been compiled and validated by experienced technicians. Troubleshooter simplifies the diagnosis process, as it contains information on virtually all common diagnostic trouble code (DTC) problems and driveability symptoms.

Troubleshooter information is organized into a series of diagnostic tips that are designed to quickly lead you to the root cause of a particular problem. The tips are vehicle-specific, which means only tips that relate to the identified vehicle are presented. Selecting opens a menu that may include:

- **Code Tips**—provides detailed information on setting conditions, testing, and interpreting test results for specific codes (*Figure 5-35* and *Figure 5-36*).
- **Symptom Tips**—provides diagnostic tests and procedures based on vehicle operation.
- **Time Savers**—provides supplemental information, such as firing order and #1 cylinder location, that may be needed to make a diagnosis.
- **Common Problems**—provides advice and remedies for certain “pattern failures” that have been experienced on vehicles of the same model.
- **Tests and Procedures**—explains how to perform certain tests on the specific test vehicle. Some tips provide specifications and installation information as well.

- **Fast-Track Data Scan**—contains information and guidelines on how to validate data readings for certain sensors and actuators, PID data values are provided.
- **Fast-Track Fixes**—provides actual repair information for related repairs.

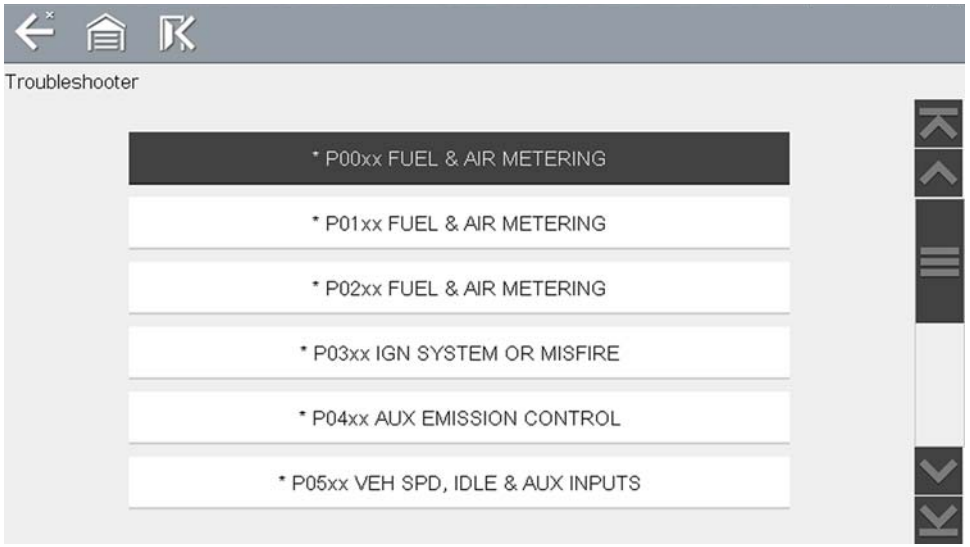


Figure 5-35 *Troubleshooter code tip menu*

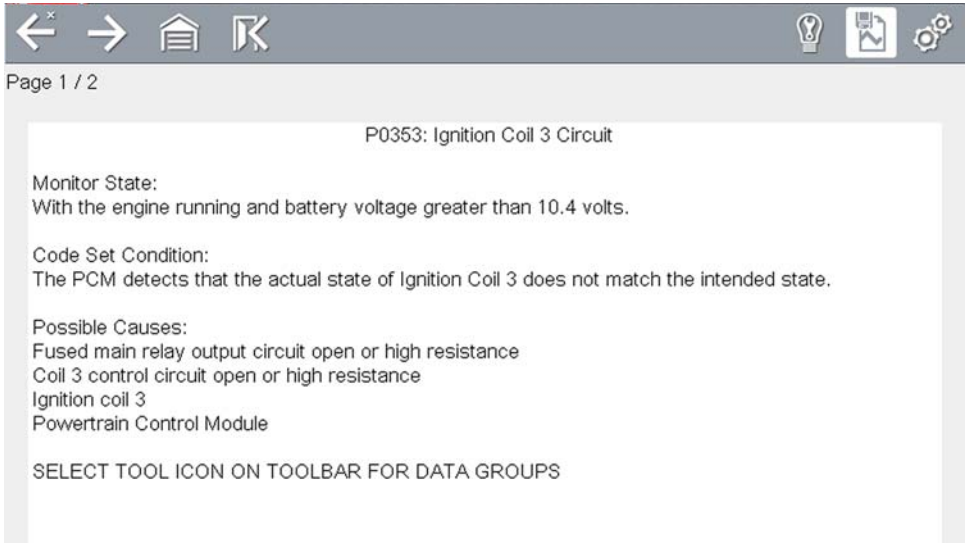


Figure 5-36 *Troubleshooter tip (Example: P0353)*

Section 6 Scanner - Motorcycle

This section describes basic Scanner functions including data cable connection, and how to display diagnostic trouble codes for motorcycle applications. Many of the Scanner functions are similar or identical in operation as the automotive Scanner, for Scanner operations not listed in this section see *Scanner - Automotive on page 12*.

The **Scanner** icon is located on the Home screen.

The Scanner function allows your diagnostic tool to communicate with the control modules of the motorcycle being serviced. This allows you to perform tests, view diagnostic trouble codes (DTCs), and live data parameters from various vehicle systems such as the engine, antilock brakes (ABS), body control module and more.

Main Topic Links

6.1 Basic Operation

6.1.1 Scanner Overview

Scanner is a menu driven application that communicates with control modules to access diagnostic trouble codes (DTCs), parameter data (PIDs), functional tests, and more. To navigate the application, use your fingertip or the control buttons to make onscreen menu selections to access the desired data, test or function.

Screen messages appear when additional input is needed before proceeding. There are three types of on-screen messages; confirmations, warnings, and errors.

- **Confirmation Messages** - Confirmation messages inform you when you are about to perform an action that cannot be reversed or when an action has been initiated and your confirmation is needed to continue. When a user-response is not required to continue, the message displays briefly before automatically disappearing.
- **Warning Messages** - Warning messages inform you when completing the selected action may result in an irreversible change or loss of data.
- **Error Messages** - Error messages inform you when a system or procedural error has occurred.

6.1.2 Scanner - Starting / Stopping

To start the Scanner function:

1. From the Home screen, select the **Scanner** icon.
2. Select **Motorcycle**.

   The vehicle identification process starts. The motorcycle must be correctly identified for the diagnostic tool to communicate, and display data correctly.
3. Follow the onsceen instructions to identify the motorcycle and connect the data cable. See *Vehicle Identification / System Selection on page 38*.

NOTE

Damage to electronic control modules may occur if communication is disrupted. Make sure the data cable is properly connected at all times during testing. Exit all tests before disconnecting the data cable or powering down the diagnostic tool.

The Scanner function remains open as long as there is an active communication link with the motorcycle. You must interrupt this communication link in order to exit from tests and power down the diagnostic tool. A warning message displays if you attempt to shut down while the diagnostic tool is communicating with the motorcycle.

To exit the Scanner function:

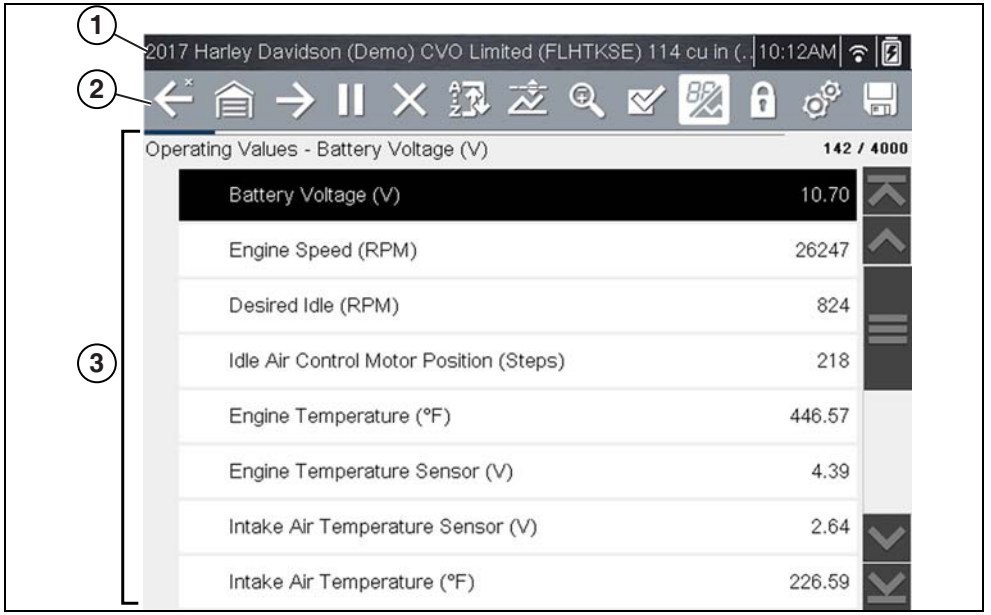
1. From any active Scanner screen, select the **Back** icon on the toolbar.

   The “stopping communications” message briefly displays followed by the Data menu.
2. From the Data Menu, select **Back** on the toolbar.

   The “stopping communications” message displays again, then the Main menu. Once the Main menu is displayed, communication has been terminated and it is safe to return to the Home screen and power down the diagnostic tool.

6.2 Features and Icons

6.2.1 Scanner Features



1— Title bar—shows active test, vehicle and diagnostic tool status. The Title bar appears for all functions and displays information only, there are no selectable items. See *Title Bar on page 7*.

2— Toolbar—contains control icons

3— Main body—displays menus, code results, PIDs, etc.

Figure 6-1 *Scanner screen features*

6.2.2 Scanner Control Icons

The scanner toolbar contains control icons. Control icons may vary depending on the active function or test. An inverted (highlighted) icon indicates it is selected. Other control icons (not shown) are described in *Common Toolbar Control Icons on page 8*.

Icon	Function	Icon	Function
	**Start (Capture)** - Resumes active data collection.		**Save** - Writes data from buffer memory to a file. The saved "movie" file can be accessed for future reference by selecting **Previous Vehicles and Data > View Saved Data**.
	**Pause** - Pauses active data collection.		**Custom Data List** - Opens a menu for selecting which PIDs display in the list.
	**Clear** - Erases all the PID data in the buffer and begins a new recording. Selecting opens a confirmation message.		**Change View** - Changes display options between PID list or graph displays.
	**Trigger** - Opens a menu that allows you to set, arm, and clear threshold values that automatically trigger PID data to be saved from buffer memory to a file.		**Lock/Unlock** - Locks or unlocks the highlighted parameter. Locked PIDs move to the top of the list and do not scroll as you move through the data.
	**Zoom** - Incrementally increases and decreases the scale of the data being displayed.		**Sort** - Determines the order in which PIDs are listed on the screen.
	**Step Forward** - Allows forward movement in singular steps. (*Note: To quickly step forward during Scanner data review, press and hold the icon down.*)		**Step Back** - Allows backward movement in singular steps. (*Note: To quickly step backward during Scanner data review, press and hold the icon down*.)
	**Skip Forward** - Allows forward movement in multiple steps.		**Skip Back** - Allows backward movement in multiple steps.

6.2.3 Basic Scanner Operation (Quick Start)

This section lists the basic scanner operation steps, and is only intended as a quick-start reference. Refer to the supporting topics in this section for detailed operation information.

Getting Started (Basic Steps)

NOTE

Menus, options and procedures will vary across motorcycle manufacturers and models.

1. Select **Scanner** from the Home screen.
2. Select **Motorcycle**.
3. Follow the prompts to identify the motorcycle (e.g. make, year, model), then select **OK** to confirm.
4. Connect the SVI to the DA-5 adaptor.
5. Connect the DA-5 adaptor to the DA-4 data cable, and then the DA-4 to the diagnostic tool.
6. Follow the onscreen instructions to connect the **Smart Vehicle Interface** (SVI) to the motorcycle diagnostic connector. See *Data Cable Connection on page 37*.
7. Turn the ignition on and move the "run" switch to on, or start the engine.

NOTE

Ensure the LED on the SVI is on when establishing communication between the motorcycle and diagnostic tool.

8. Follow the prompts to select a **System** (e.g. Engine, ABS, Radio).
9. Select a **Function/Test** (e.g. Codes Menu, Code Scan, Data Display, Functional Tests). See *System Main Menu Options on page 40*.

NOTE

When the diagnostic tool is communicating with a motorcycle an icon is displayed in the title bar.

Icon	Function
	Indicates active Scanner communication (displayed in title bar)

6.2.4 Data Cable Connection

NOTE

On-screen data cable connection instructions are provided.

As an example, *Figure 6-2* shows a typical data cable connection using the supplied DA-5 adaptor and the Harley-Davidson HAR-2 Smart Vehicle Interface (SVI), other manufacturers are similar.

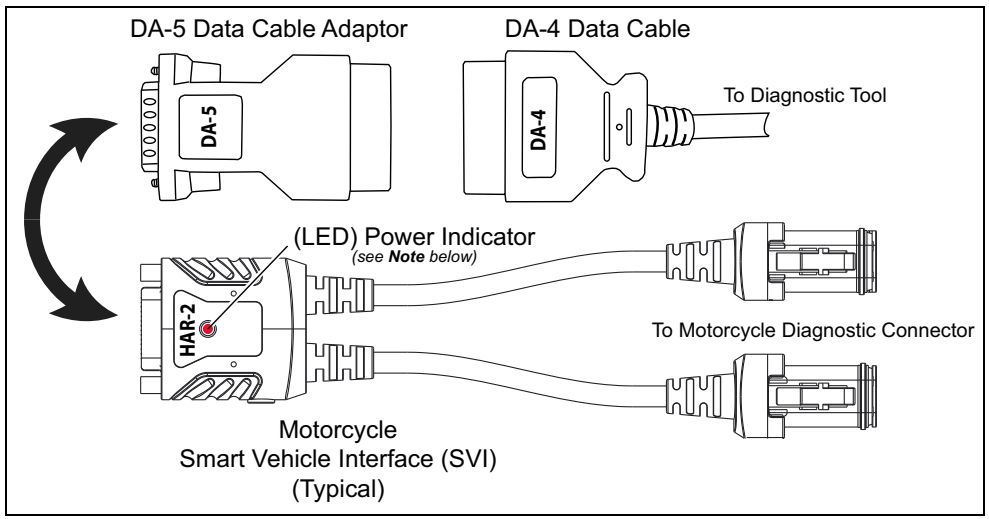


Figure 6-2

NOTE

Contact your sales representative to purchase additional Smart Vehicle Adapters (SVIs) for other Motorcycle manufacturers.

1. Follow the onscreen instructions to connect the **Smart Vehicle Interface** (SVI) to the motorcycle diagnostic connector.

NOTE

The SVI requires 12VDC power to communicate. Power is normally supplied through the motorcycle diagnostic connector, however the supplied 12VDC power accessory cable (not shown) can be used when power is needed. When the LED is on, the SVI is being powered.

2. Connect the **SVI** to the **DA-5** adaptor.
3. Connect the **DA-5** adaptor to the **DA-4** data cable and then to the diagnostic tool.

NOTE

Ensure the LED on the SVI is on when establishing communication between the motorcycle and diagnostic tool.

6.2.5 Vehicle Identification / System Selection

The motorcycle must be correctly identified for the diagnostic tool to communicate, and display data correctly. Menus and navigation will vary by make and model.

Depending on the motorcycle, the identification process may require manual entry of the motorcycle information, or it may be automated. The following Scanner functions are available to identify the motorcycle:

Auto ID - Automatically completes the identification process after the motorcycle make and year are manually entered.

Manual ID - Allows for manual entry of all required motorcycle identification criteria.

Use the following procedure to identify a motorcycle.

NOTE

The following procedure applies to most motorcycles, and may vary depending on the motorcycle. Not all motorcycles support the Auto ID feature.

1. Select **Scanner** from the Home screen.
2. Follow the prompts to identify the motorcycle (e.g. make, year, model).

A menu option may be displayed to choose either **Automatic ID** or **Manual ID**.

- Selecting **Automatic ID** (If supported) will briefly display a communications screen informing you that the diagnostic tool is attempting to establish communication and determine vehicle identification.

  Once the vehicle has been identified, the vehicle confirmation screen displays. If the vehicle information is correct, select **OK** to continue, then proceed to step 3.

  If the vehicle does not support Auto ID, the diagnostic tool will attempt to identify the vehicle and then display a message indicating that vehicle identification cannot be made. If this occurs, proceed to "**Selecting Manual ID**" next.
- Selecting **Manual ID** allows you to manually enter all the vehicle information to identify the vehicle.
  Follow the screen prompts to enter all the information required to identify the vehicle. Once the vehicle has been identified, the vehicle confirmation screen displays (*Figure 6-3*). If the vehicle information is correct, select **OK** to continue, then proceed to step 3.

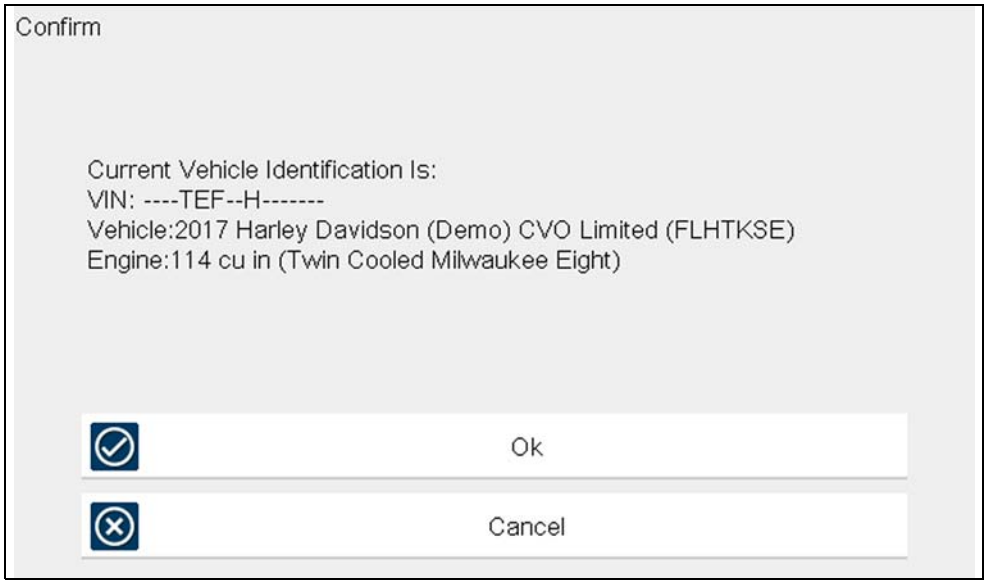


Figure 6-3 *confirmation screen*

After the motorcycle is identified, prompts will indicate to turn the motorcycle ignition on and connect the data cable.

Depending on the motorcycle, a menu option to select a system list display type may be provided (*Figure 6-4*).

Some motorcycles may support a "Fitted Systems" display type. In this situation a menu option is provided to display the fitted systems or all systems. Selecting Fitted Systems will only display systems that the diagnostic tool is communicating with. Selecting All Systems will display every system possibly supported.

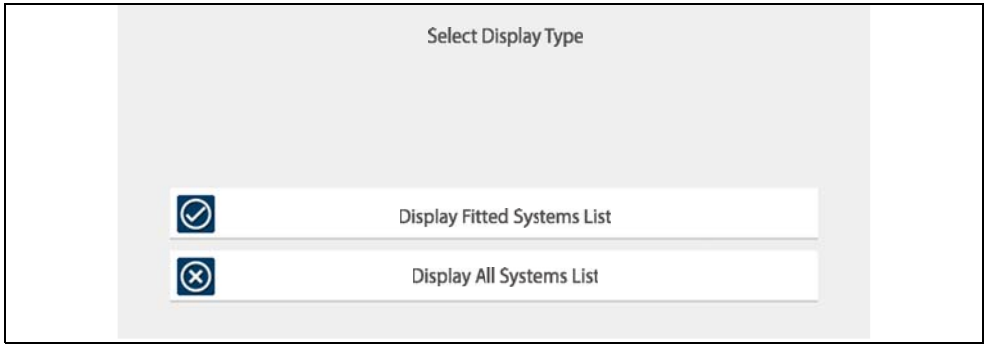


Figure 6-4

3. A menu of available systems and/or options is displayed. Select a system or option (*Figure 6-5*) to continue.

   By default, System options are displayed by category (e.g. Audio/Video, Body Controls, Instruments, etc.). In this mode commonly used selections are at the top of the list.

   Depending on your preference, select the icon (*arrow in Figure 6-5*) to toggle the display between a categorized (*Figure 6-5*) and non-categorized (*Figure 6-6*) list.

   When a system (e.g. Engine, Antilock Brakes, etc) is selected, the diagnostic tool will attempt to establish communication with that motorcycle system, then (once connected) will display that system's main menu, see *System Main Menu Options on page 40*.

   For Code Scan information, see *Code Scan on page 41*.

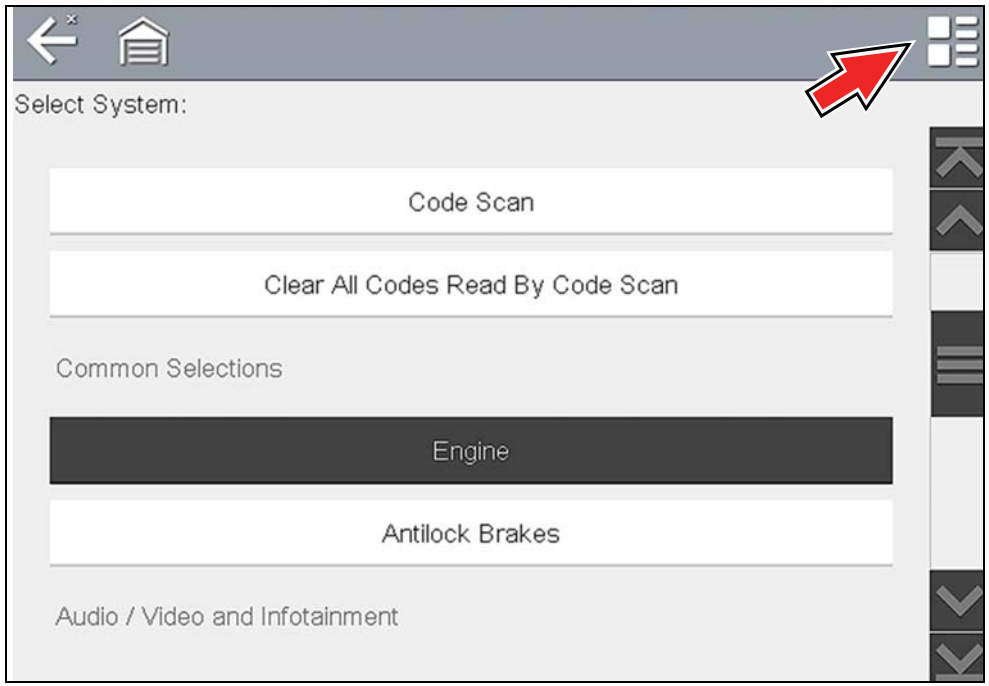


Figure 6-5 *Typical systems menu (categorized list view)*

Figure 6-6 *Typical systems menu (non-categorized list view)*

6.3 System Main Menu Options

Once a System is selected (e.g. Engine, Antilock Brakes, etc) is selected, the diagnostic tool will attempt to establish communication with the motorcycle, then (once connected) will display (*Figure 6-7*) the system main menu (available tests).

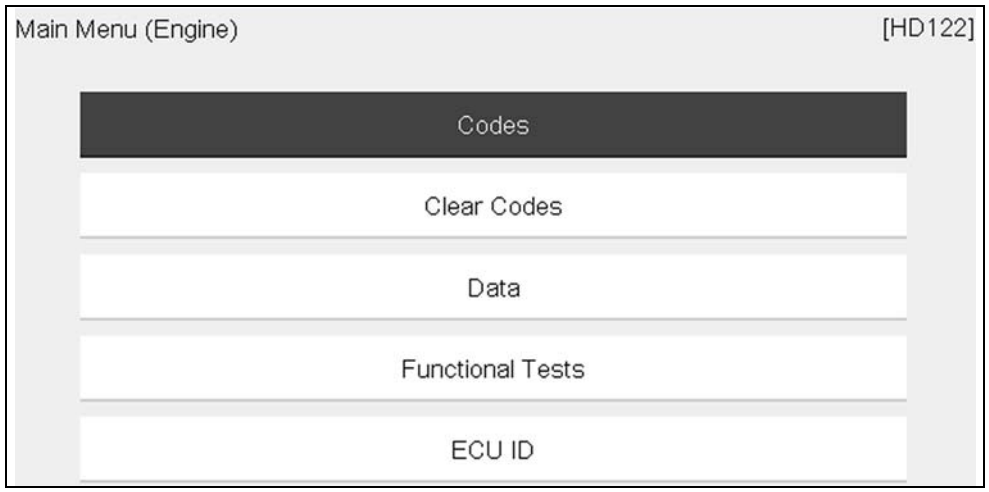


Figure 6-7 *Typical (Engine) main menu*

– Menus and navigation will vary by motorcycle make and model.

The System Main Menu may include these typical selections:

- **Codes**—displays diagnostic trouble code (DTC) records from the control modules. Selecting may open a submenu of viewing options. See *Viewing Codes on page 40*.
- **Clear Codes**—erases DTC records and other data from the ECM. This selection is found on a Codes submenu for some models. See *Clear Codes on page 41*.
- **Data**— displays PID data from the control modules. Selecting may open a submenu of viewing options. See *View Saved Data on page 57*.
- **Functional Tests**—provides specific subsystem tests. The tests vary depending on the manufacturer and model. See *Functional Tests on page 31*.
- **ECU ID**—provides specific ECU information for the selected module.

6.4 Codes - View / Scan / Save

6.4.1 Viewing Codes

After selecting a System, “Codes” may appear as a menu selection (*Figure 6-7*) from the Main System Menu. Depending on the motorcycle manufacturer, a different name may be used (e.g. Codes Menu, Codes Only, Codes (No Data), Service Codes, etc).

Selecting this function opens a list of diagnostic trouble codes (DTCs) stored in the selected control module. The code list includes the DTC and a brief description (*Figure 6-8*).

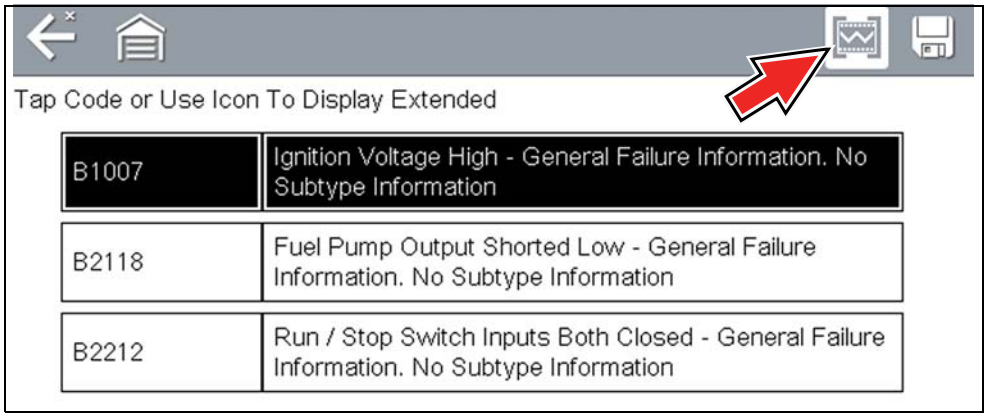


Figure 6-8 *DTC results*

Select the code or the Extended DTC Data icon (*Figure 6-8*) for additional information.The Extended DTC Data icon only displays if the motorcycle supports this feature and information is available.

Extended DTC Data may include:

- **Odometer Mileage**
- **Occurrence**
- **Trips Since First Failure**
- **Trips Since Last Failure**

6.4.2 Clear Codes

The diagnostic tool can clear codes from the electronic control module(s). This selection only displays if the motorcycle supports this feature.

To clear codes:

1. Select **Clear Codes** from the Codes Menu.
   A confirmation message displays.
2. Make sure any conditions shown on the confirmation message are met, then select **Yes**.
   A “codes cleared” message displays once the operation is complete.
3. Select **Continue** to return to the Codes Menu.

IMPORTANT

Clearing codes erases all temporary ECM information. Make sure no vital diagnostic information will be lost before clearing codes.

6.4.3 Code Scan

Code Scan is available from the Main System Menu, and when selected it scans the control modules for codes. The results of the scan are configured into a report that is accessible and printable using ShopStream Connect™. The report can be printed, downloaded, attached to an e-mail or other social media app to share with others. For additional information on using ShopStream Connect, see *ShopStream Connect ™ on page 86*.

IMPORTANT

PRE / POST Scan Importance - As many systems do not turn on the check engine light or other indicator, performing a code scan before making any repairs may help in troubleshooting, by identifying possible unknown issues that may be related to the present symptoms.

Performing pre and post scans also allows you to record in report format the pre-condition of the vehicle and compare the post scan after work is complete to confirm the repairs were completed properly.

NOTES

The Code Scan function and results are dependent upon the vehicle. Not all vehicles may support this function.

Selecting **Code Scan** from the Vehicle System menu (*Figure 6-9*) starts an active scan of vehicle control modules, and opens the Code Scan results screen (*Figure 6-10*).

Figure 6-9 *Code Scan*

When initially started, progress status is shown at the top indicating the active scanning progress. Once completed, code results are displayed by system.

The following are displayed as the modules are scanned and are described in the following sections.

- Code Scan Toolbar
- Total Number of Systems (modules) Analyzed
- List of All the Systems Analyzed with DTCs Totals

Code Scan Toolbar

The following Code Scan related control icons are used:

Icon	Function
	**Refresh** - Refreshes the code scan data (restarts the code scan)
	**System** - Opens the main menu of the system selected (highlighted)
	**Save** - Saves the code scan results as an (.XML) file. See *Viewing Codes and Code Scan Results on page 57*.

Total Number of Systems (modules) Analyzed

The total number of systems analyzed is actively displayed at the top of the screen as they are scanned.

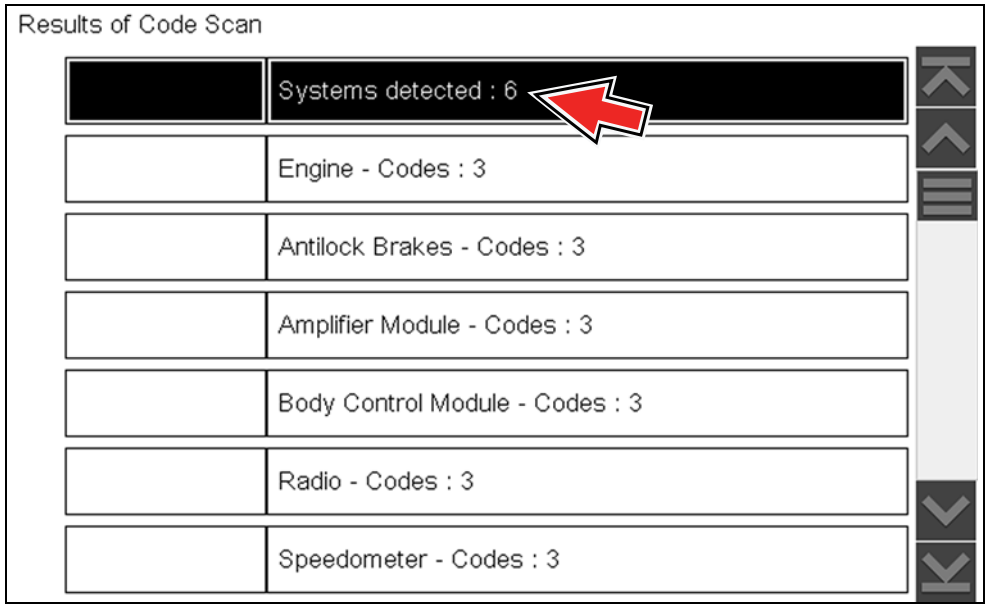


Figure 6-10 *Code Scan systems analyzed result total*

List of All the Systems Analyzed with DTCs Totals

A categorized system list with DTC totals is displayed in the order they are scanned. To view the main menu for a system in the list, select the system, then select the **System** icon (*Figure 6-11*).

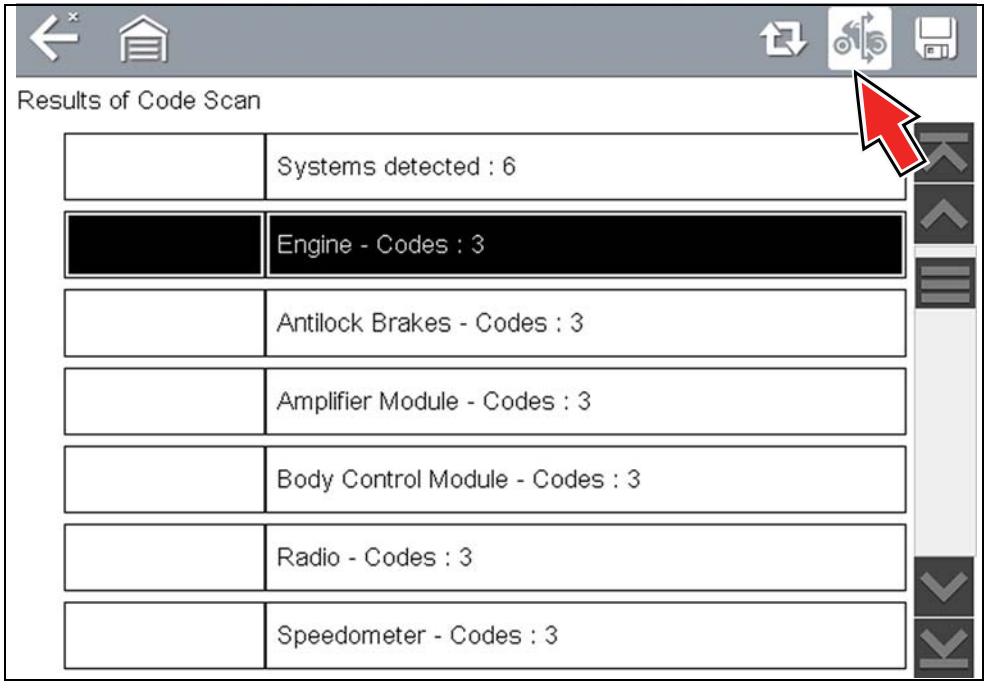


Figure 6-11 *System icon (opens Main Menu)*

Saving Codes and Code Scan Results

Icon	Function
	**Save** - Saves the displayed code list results as an (.XML) file.

When using the code scan feature, or when viewing individual system codes (e.g. engine, antilock brakes) selecting the **Save** icon from the toolbar saves the results as a report formatted file.

To manually save the code scan report:

1. Perform a code scan.
2. After the code scan has completed, select **Save**.

   A confirmation message is displayed indicating that the file was saved.

   Message Example: “Saving A2810005.XML”

The saved file(s) can be viewed on the diagnostic tool - See *Viewing Codes and Code Scan Results on page 57*.

Printing Codes and Code Scan Results

The code scan report and saved codes can be printed using ShopStream Connect - See *Printing the (Code Scan) Vehicle System Report on page 89*.

Clear All Codes Read by Code Scan

Selecting **Clear All Codes Read by Code Scan** erases all DTCs from all vehicle system modules that were read by Code Scan.

Vehicle Code Scan / (Snap-on Cloud)

Code Scan allows you to quickly scan all supported vehicle control modules for codes. In addition, Global OBD-II codes and Readiness Monitors are scanned giving you a complete health check of vehicle systems.

One of the benefits of performing a code scan is that you can quickly show your customer diagnostic related issues with a pre scan report, and then after repairing the issues you can use the post scan report to show that the repairs were completed (*Figure 7-1*). In addition, code scans are automatically configured into a Vehicle System Report and uploaded to your Snap-on Cloud account. From the Snap-on Cloud you can print, save and transfer the report, for more information, see *Vehicle System Report (Snap-on Cloud) on page 48*.

IMPORTANT

PRE / POST Scan Importance - As many systems do not turn on the check engine light or other indicator, performing a vehicle code scan before making any repairs may help in troubleshooting, by identifying possible unknown issues that may be related to the present symptoms.

Performing pre and post scans also allows you to record in report format the pre-condition of the vehicle and compare the post scan after work is complete to confirm the repairs were completed properly.

Pre and post scan is required by some manufacturers for pre and post collision work as well as by some insurance companies.

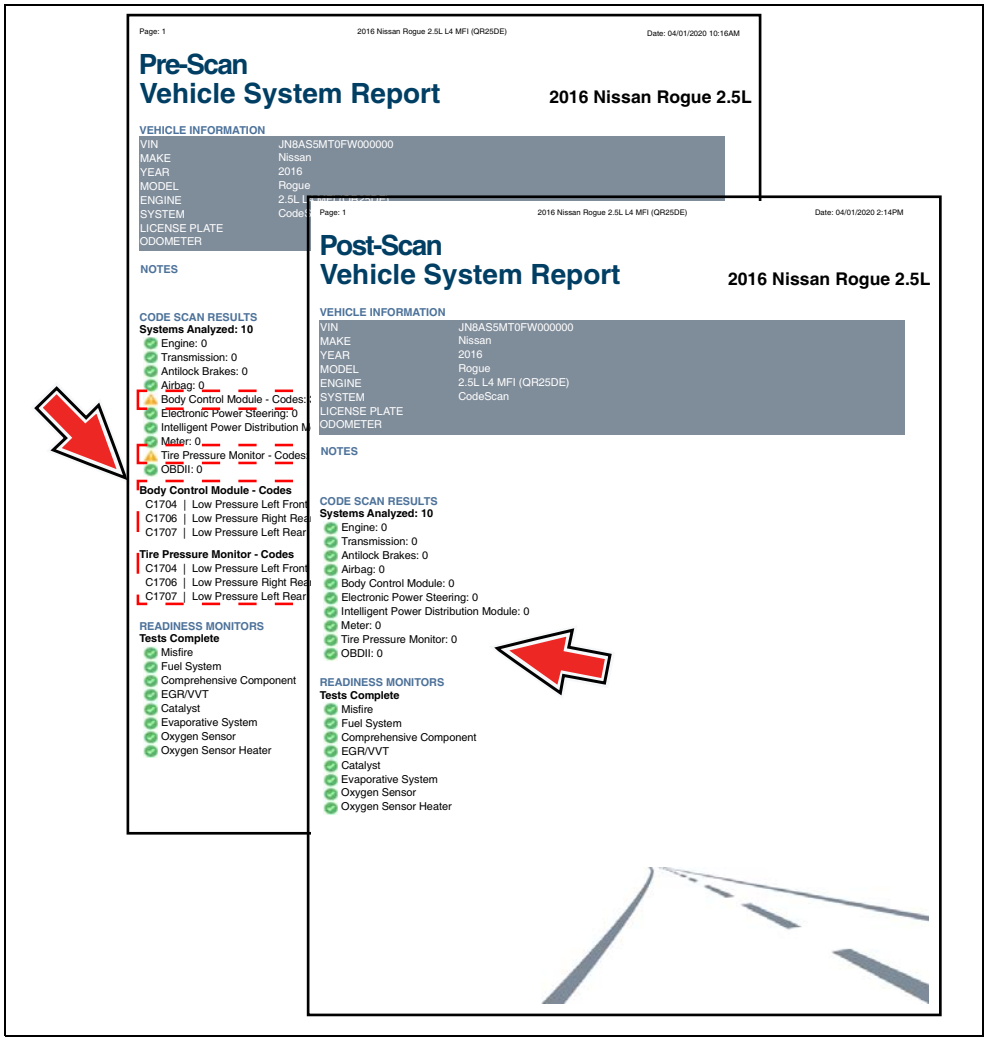


Figure 7-1

Main Topic Links

7.1 Using Code Scan

NOTE

The Code Scan function and results are dependent upon the vehicle. Not all vehicles may support this function.

After you have connected and identified a vehicle through Scanner, Code Scan is available from the Vehicle System menu.

Selecting **Code Scan** from the Vehicle System menu (*Figure 7-2*) starts an active scan of vehicle control modules, and opens the Code Scan results screen (*Figure 7-3*).

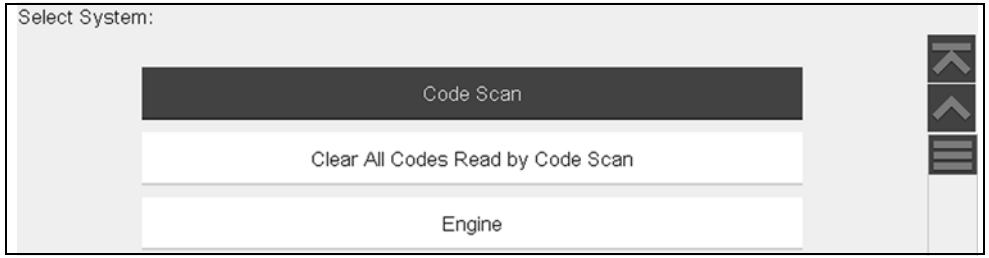


Figure 7-2

NOTE

*Selecting **Clear All Codes Read by Code Scan** (Figure 7-2) erases all DTCs from all vehicle system modules that were read by Code Scan. Selecting this function may not clear global OBD-II codes on some vehicles.*

When initially opened (*Figure 7-3*), a progress bar is shown at the top indicating the active scanning progress. Once completed, code results are displayed by system.

The following results are displayed as the modules are scanned and are described in the following sections.

- Total Number of Systems (modules) Analyzed
- List of All the Systems Analyzed with DTCs Totals
- Global OBDII DTCs
- Readiness Monitor Test Status

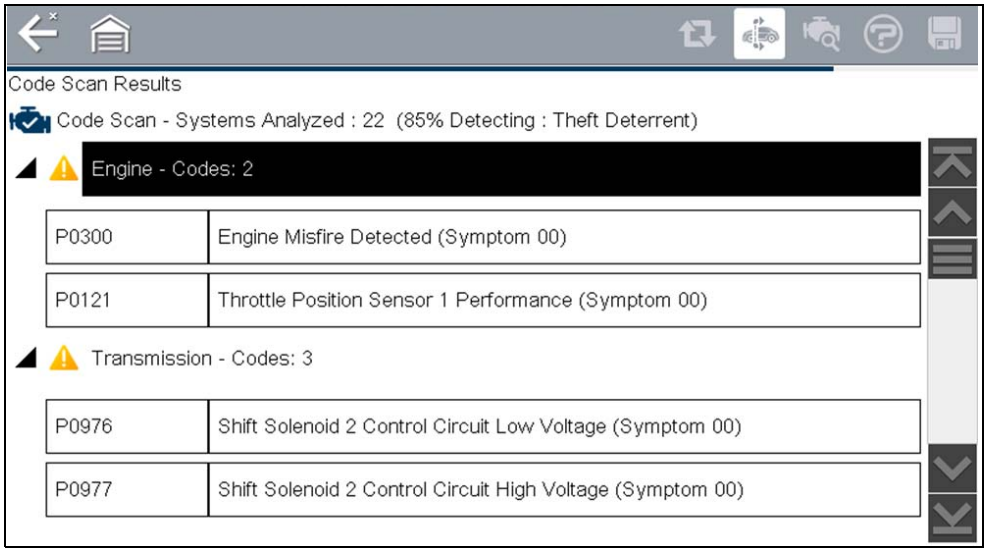


Figure 7-3 *Code Scan in process*

Code Scan control icons are located on the upper toolbar (*Figure 7-3*), and provide the following functions.

Icon	Function
	**Refresh** - Refreshes the code scan data (restarts the code scan)
	**System** - Opens the main menu of the system selected (highlighted)
	**Diagnose** - Opens Intelligent Diagnostics for the code selected (highlighted)
	**Save** - Saves the code scan results as an (.XML) file. See *Viewing Codes and Code Scan Results on page 57*.

After the code scan has competed it is automatically saved as an .XML file on the diagnostic tool, and is uploaded to your account on the Snap-on Cloud (if registered and connected).

A confirmation message is displayed indicating that the file was saved (e.g. ***Message Example:*** “Saving A2810005.XML”).

To view the report on the diagnostic tool, see *Viewing Codes and Code Scan Results on page 57*.

To view/print the report on the Snap-on Cloud, see *Vehicle System Report (Snap-on Cloud) on page 48*.

NOTE

*The code scan can also be saved manually by selecting the **Save** icon.*

7.1.1 Total Number of Systems (modules) Analyzed

The total number of systems analyzed is actively displayed at the top of the screen as they are scanned.

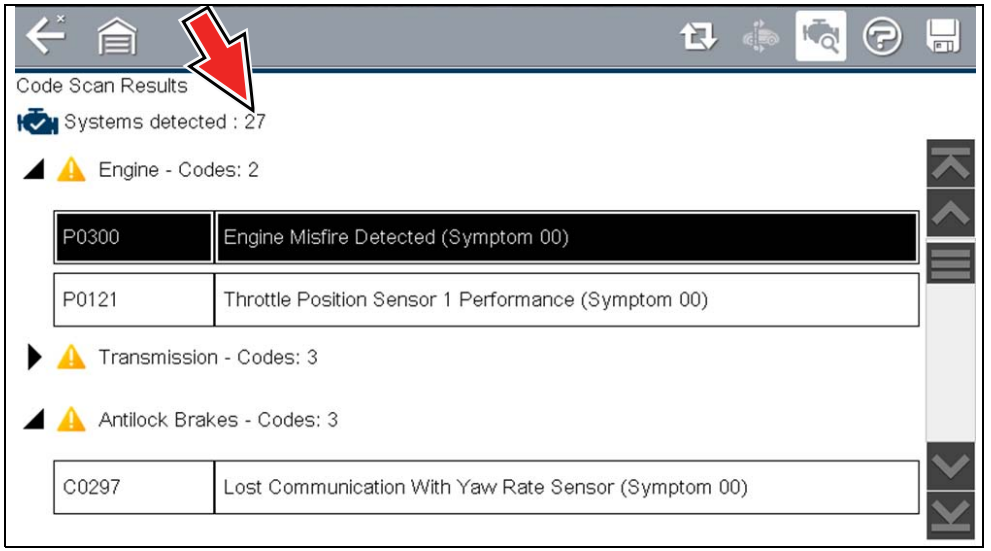


Figure 7-4 *Code Scan systems analyzed result total*

7.1.2 List of All the Systems Analyzed with DTCs Totals

A categorized system list with DTC totals is displayed in the order they are scanned. To view the main menu for a system in the list, select the system, then select the **System** icon (*Figure 7-5*).

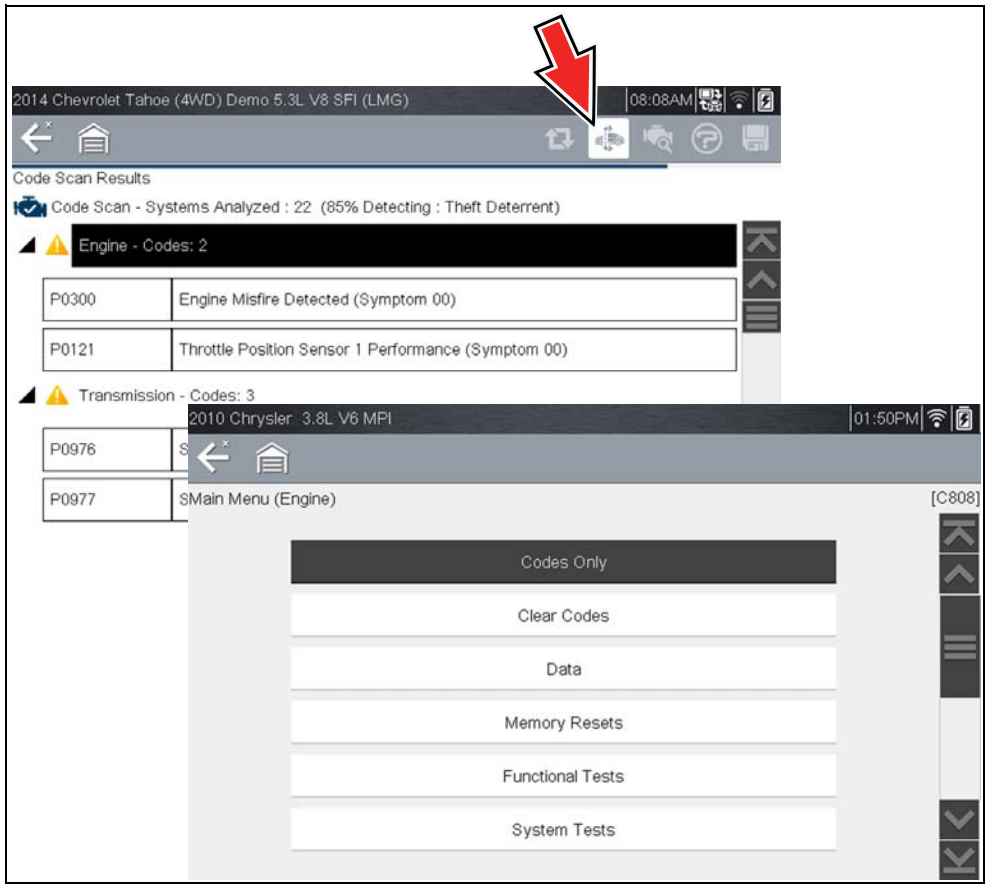


Figure 7-5 *System icon (opens Main Menu)*

Select the **expand/collapse** icon (*Figure 7-6*) on the left side of a system category title to expand or collapse a systems' DTC list.

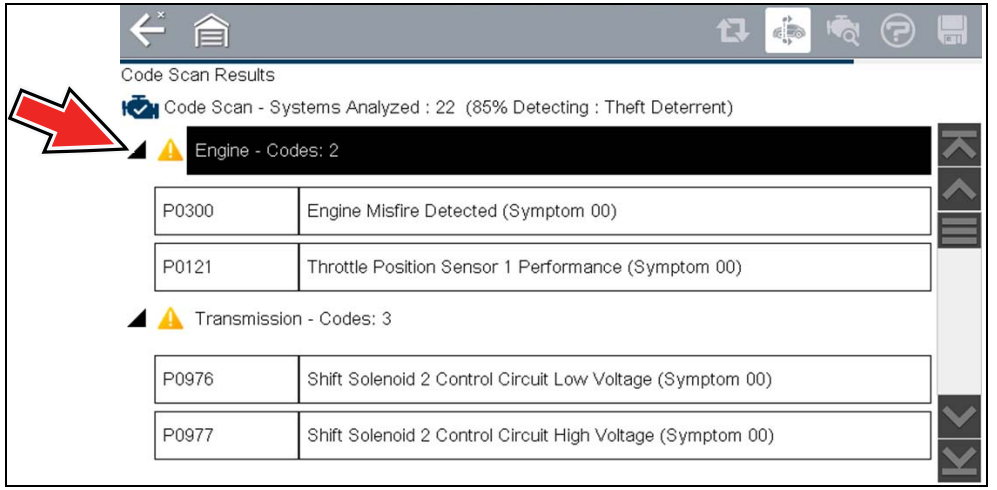


Figure 7-6 *Expand/Collapse Icon (expanded result)*

7.1.3 Global OBDII DTCs

Towards the end of the Code Scan list Global OBDII DTCs are displayed.

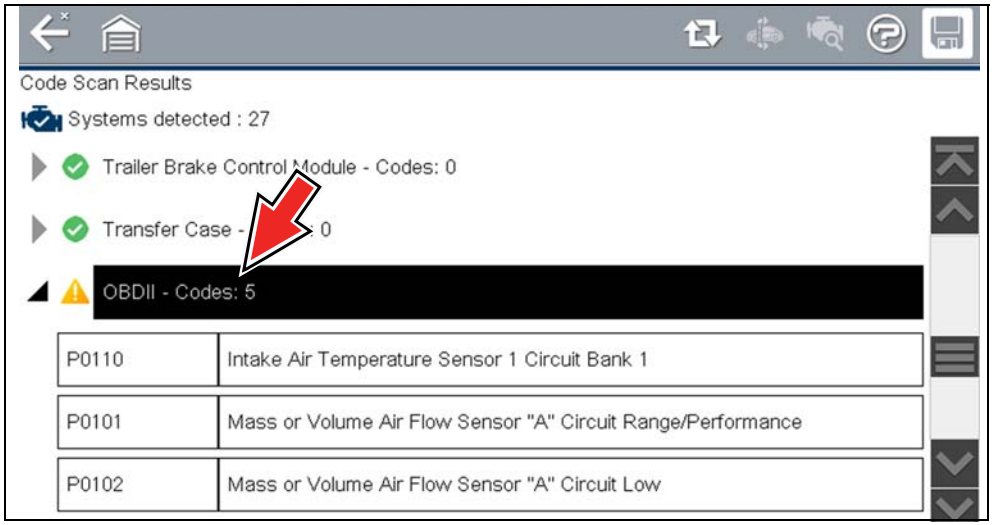


Figure 7-7

NOTE

Some 2005 to 2008 vehicles may not display global OBD-II information in the Code Scan list. A message will be displayed to inform you the OBD-II - codes and monitors for this vehicle may be accessed using the global OBD-II function. See OBD-II/EOBD on page 49.

7.1.4 Readiness Monitor Test Status

At the end of the Code Scan list, readiness monitor test results are displayed as “Tests Complete” or “Not Complete”.

Quick reference indicators are used to show monitor status.

Green icon “✓” mark - Monitor test is complete

- **Grey icon “—” mark** - Monitor test is not complete

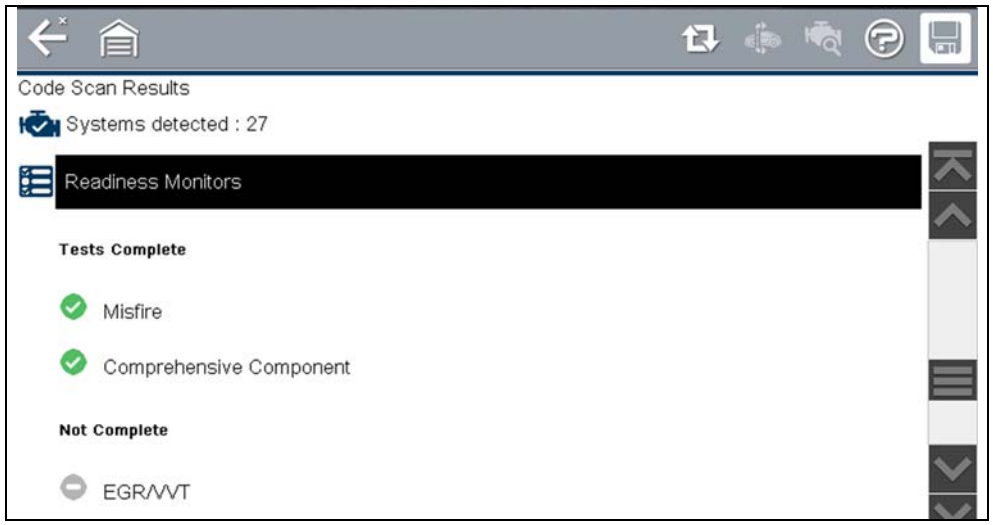


Figure 7-8

NOTE

Monitors that are not supported by the vehicle are not displayed in Code Scan.

7.2 Vehicle System Report (Snap-on Cloud)

After a code scan is completed the results of the scan are automatically configured into a Vehicle System Report that is uploaded and saved to your Snap-on Cloud account (if registered and connected). Report examples are shown in *Figure 7-1*.

From the Snap-on Cloud the report can be printed, downloaded, attached to an e-mail or other social media app to share with others. For additional information, see *Snap-on Cloud on page 74*.

NOTE

Code scan reports are automatically saved to the Snap-on Cloud each time a code scan is performed.

The code scan/vehicle system report includes:

- Basic vehicle information
- A list of the code scan results by system
- Individual system DTCs with a brief description
- Global OBD codes
- Readiness monitor test status

7.2.1 Printing the Vehicle System Report

Use the Snap-on Cloud to print the vehicle system report from your PC or mobile device, see *Quick Reference (print / download / share) on page 76*.

The vehicle system report can also be customized and printed using ShopStream Connect - See *Printing the (Code Scan) Vehicle System Report on page 89*.

Section 8 OBD-II/EOBD

This section describes the basic operation of the OBD-II/EOBD function.

The **OBD-II/EOBD** icon is located on the Home screen.

The OBD-II/EOBD function allows you to access “generic” OBD-II/EOBD data.
Generic OBD-II/EOBD data is data limited to emission related diagnostics such as:

- Checking for emissions-related diagnostic trouble codes (DTCs)
- Checking the cause of an illuminated malfunction indicator lamp (MIL)
- Checking monitor status prior to emissions certification testing

To access other available electronic control module (ECM) data for vehicle specific systems, parameters or enhanced diagnostics use the Scanner function, see “Scanner - Automotive” on page 12.

NOTE

The OBD-II/EOBD function can also be used to access “generic” OBD-II/EOBD data for OBD-II/EOBD compliant vehicles that are not included in the Scanner function databases.

Main Topic Links

8.1 Basic Operations

8.1.1 Screen Layout and Toolbar Controls

Screen layout and toolbar controls are similar to the Scanner function, see *Scanner Control Icons on page 20*.

8.1.2 Connecting the Data Cable

Connection of the data cable to the diagnostic tool and vehicle DLC is required for OBD-II/EOBD testing, see *Data Cable Connection (OBD-II/EOBD Vehicles) on page 10*.

8.1.3 Saving and Reviewing Data Files

Save and Pause control icon operation and data review procedures are the same as used for the Scanner function, see *Scanner - Automotive on page 12*.

8.2 OBD-II/EOBD Menu

The following options are available from the OBD-II/EOBD menu:

- OBD Health Check
- OBD Direct

8.2.1 OBD Health Check

The OBD-II Health Check offers a way to quickly check for and clear emissions-related diagnostic trouble codes (DTCs), and to check readiness monitors for emissions testing. Selecting opens a connection message. Select **Continue** or press the **Y/✓** button to open a submenu of test options (*Figure 8-1*).

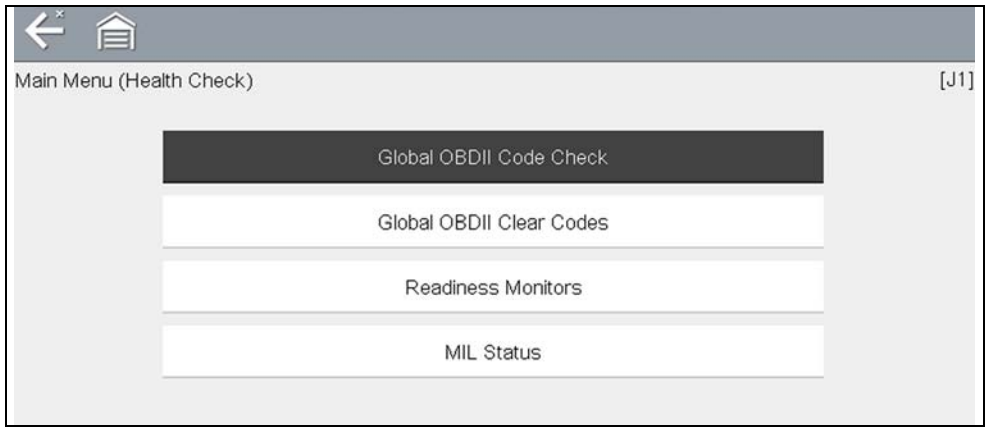


Figure 8-1 *OBD Health Check menu*

Global OBD II Code Check

Global OBDII Code Check displays stored emission related generic DTCs reported by the ECM. Selecting opens a submenu with two choices: Codes and Pending Codes. Either option opens a code list (*Figure 8-2*).

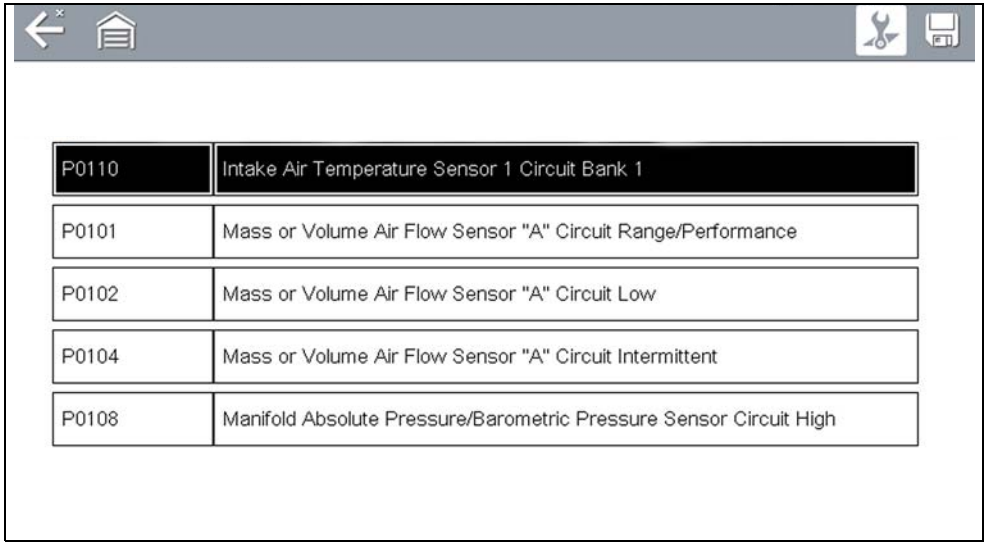


Figure 8-2 *DTC Results Screen*

Codes

The Codes option displays a list of current emission related DTCs.

OBD-II/EOBD Codes have a priority according to their emission severity. The priority of the code determines the illumination of the MIL and the code erase procedure. Vehicle manufacturers have implemented the ranking differently, so there are differences between makes.

Pending Codes

The purpose of this service is to enable the diagnostic tool to obtain “pending” or maturing diagnostic trouble codes. These are codes whose setting conditions were met during the last drive cycle, but need to be met on two or more consecutive drive cycles before the DTC actually sets.

NOTE

Save valuable time by using this service to verify test results after a single drive cycle following a vehicle repair and code clearing procedure.

- If a test failed during the drive cycle, the DTC associated with that test is reported. If the pending fault does not occur again within 40 to 80 warm-up cycles, the fault is automatically cleared from memory.
- Test results reported by this service do not necessarily indicate a faulty component or system. If test results indicate another failure after additional driving, then a DTC is set to indicate a faulty component or system, and the MIL is illuminated.

Refer to the *Global OBD Vehicle Communication Software Manual* for additional information.

Global OBD II Clear Codes

This option is used to clear all emission related diagnostic data, such as DTCs, freeze frame data, and test results, from the memory of the selected ECM. Although OBD-II/EOBD displays generic OBD-II/EOBD data only, clearing codes erases all of the stored data, including any enhanced codes and freeze frame information.

A confirmation screen displays when the clear codes option is selected to prevent accidental loss of data. Select to continue from the confirmation screen. Refer to the *Global OBD Vehicle Communication Software Manual* for additional information.

Readiness Monitors

This test checks the status of the readiness monitoring system. An OBD-II /EOBD control system runs continuous and periodic tests to check the status of emission-related subsystems to gauge the integrity of the electronic operations. Two options are available for Readiness Monitors:

- **Monitors Complete Since DTC Cleared**—displays the status of all monitors that have run since the last time ECM memory was erased.
- **Monitors Complete This Cycle**—displays the status of the monitors that ran during the current drive cycle only.

Selection of either option displays test results as shown in the data viewer (*Figure 8-3*).

Quick reference indicators are used to show monitor status on the left side of the screen (*Figure 8-3*):

- **Green icon "✓" mark** - Monitor test is complete
- **Gray icon "—" mark** - Monitor test is not complete
- **Red icon "X" mark** - Monitor test is not supported by vehicle

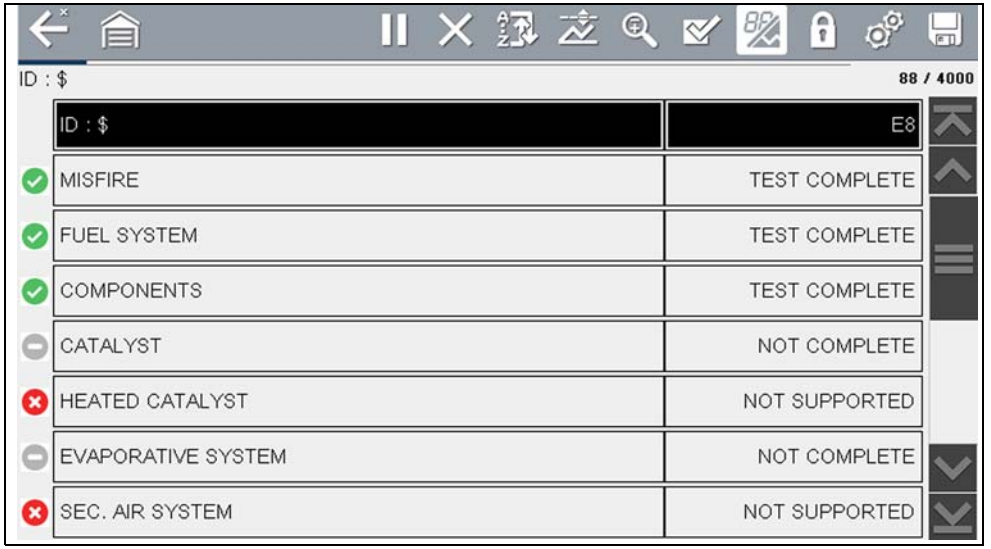


Figure 8-3 *Readiness monitor test report*

Use the scroll bar to view the entire list of Readiness Monitors.

Selecting **Save** from the toolbar saves the monitor data as an .SCM file for review at a later time. See *View Saved Data on page 57* for additional information.

MIL Status

This test checks the ECM commanded state (on or off) if the malfunction indicator lamp.

8.2.2 OBD Direct

OBD Direct includes the following menu and submenu choices:

- **OBD Diagnose**
  - **Start Communication** - initiates a test session
  - **Connector Information** - provides DLC location details
  - **Manual Protocol Selection** - provides choices for communication protocol
- **OBD Training Mode** - allows you to familiarize yourself with the capabilities of OBD-II/EOBD while navigating through menus without being connected to a vehicle.

Start Communication

Use the following procedure to begin an OBD-II/EOBD test session:

To perform an OBD-II/EOBD Test:

1. Connect the data cable to the test vehicle.
2. Select **Start Communications** from the OBD-II/EOBD menu.

   A series of messages are displayed indicating automatic detection of vehicle type (12 or 24 V) has occurred and then the detected controllers are displayed.

   The diagnostic tool establishes a communication link with the test vehicle, then opens an information screen (*Figure 8-4*).

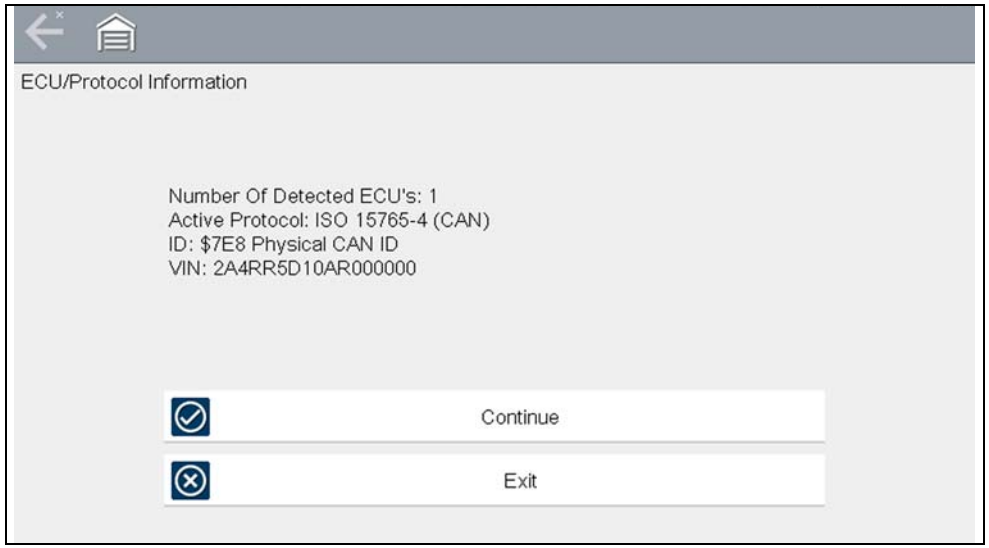


Figure 8-4 *Protocol information*

The information screen shows how many control modules were detected, which ECM is communicating, and which communication protocol is being used.

3. Select **Continue**.

   A Select Service menu of available tests opens:
   - *Readiness Monitors* on page 53
   - *MIL Status* on page 53
   - *Fast-Track Troubleshooter* on page 53
   - *($01) Display Current Data* on page 53
   - *($02) Display Freeze Frame Data* on page 53
   - *($03) Display Trouble Codes* on page 53
   - *($04) Clear Emissions Related Data* on page 53
   - *($05, 06, 07) Display Test param./Results* on page 54
   - *($08) Request Control of On-board System* on page 54
   - *($09) Read Vehicle Identification* on page 54
   - *($09) In-use Performance Tracking* on page 54
   - *($0A) Emission Related DTC with Permanent Status* on page 55

IMPORTANT

All service modes are not supported by all vehicles, so the available menu selections will vary.

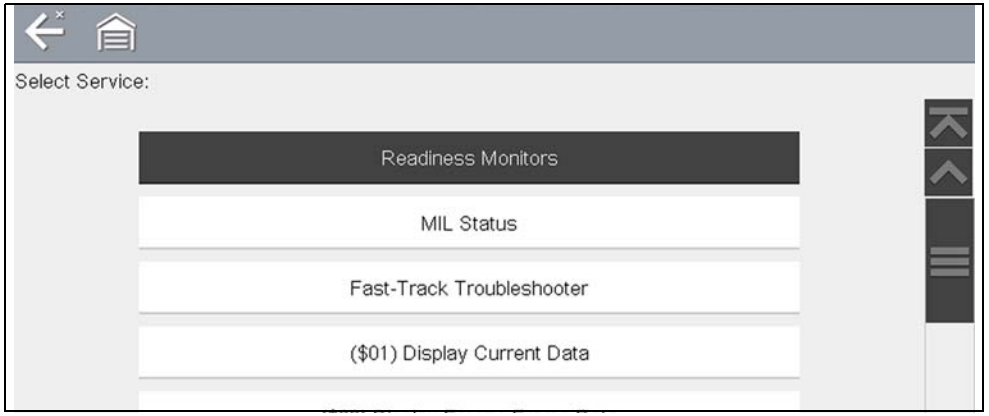


Figure 8-5 *Service mode menu*

4. Select a test to continue.

Readiness Monitors

Use this menu item to check the readiness of the monitoring system. Monitors not supported will display “not supported”. Scroll, if needed, to view the entire list of monitors (*Figure 8-3*). Selecting Readiness Monitors opens a submenu with two choices:

- **Monitors Complete Since DTC Cleared**—displays the results of all monitor tests that have run since the last time the vehicle electronic control module (ECM) memory was cleared.
- **Monitors Complete This Cycle**—displays only the results of monitor tests that ran during the current drive cycle, they reset when the ignition is switched off.

MIL Status

This item is used to check the current condition of the malfunction indicator lamp (MIL). Additional information, such as which ECM commanded the MIL on and the distance driven while the MIL is on (if supported), can also be displayed.

Fast-Track Troubleshooter

Fast-Track® Troubleshooter is a database of experience-based repair strategies and information, that has been compiled and validated by top-notch technicians. The Troubleshooter system simplifies the diagnosis process, as it contains information on virtually all common diagnostic trouble code (DTC) problems and driveability symptoms for most vehicles covered by the vehicle communication software.

($01) Display Current Data

Use this test to display the serial data transmitted by the selected vehicle electronic control module (ECM). The main body of the screen has two columns; the left-hand column is a description of the parameter and the right-hand column is the parameter value or state. Viewing options and operations are the same as the Scanner function, see *Scanner - Automotive on page 12* for more information.

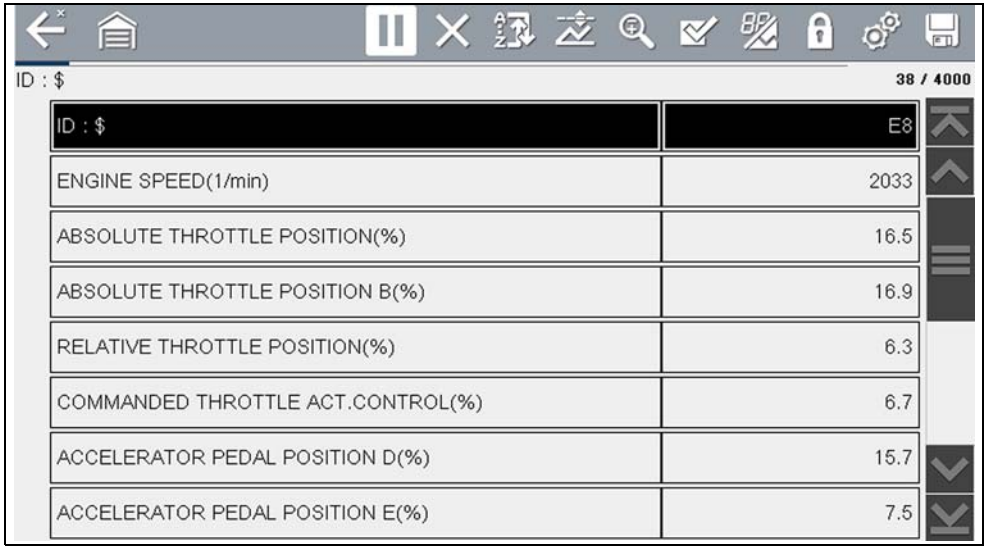


Figure 8-6 *Current data display*

($02) Display Freeze Frame Data

Freeze frame data provides a “snapshot” of critical parameter values at the time a DTC set.

This item is used to display freeze fame data for any stored emission related diagnostic trouble codes (DTCs). In most cases the stored frame is the last DTC that occurred. Certain DTCs, those that have a greater impact on vehicle emissions, have a higher priority. In these cases, the highest priority DTC is the one for which the freeze frame records are retained.

($03) Display Trouble Codes

This is used to display any stored emission related DTCs reported by the ECM. The display is similar to the Scanner function code display (see *Codes - View / Save on page 18* for details). The list does not include enhanced DTCs in this mode.

($04) Clear Emissions Related Data

This item is used to clear all emission related diagnostic data, such as DTCs, freeze frame data, and test results, from the memory of the selected ECM.

To clear emission related Data:

1. Select **Clear Emissions Related Data** from the menu.

   A confirmation message displays to help prevent loss of any vital data (*Figure 8-7*).

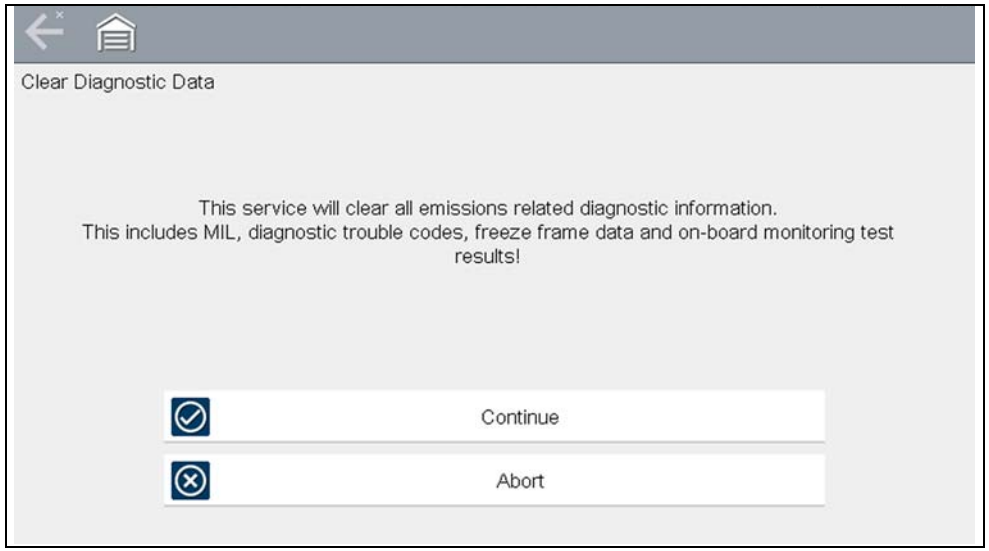


Figure 8-7 *Clear codes confirmation message*

2. Continue from the confirmation message.

   The screen updates several times as ECM memory is erased, then a “data has been cleared” message displays.

3. Select **Continue** to return to the Select Service menu.

($05, 06, 07) Display Test param./Results

This option opens a submenu of parameters and test results from various sensors, monitor test results, and a record of DTC setting conditions detected during the last drive cycle. The submenu includes:

- ($05) Oxygen Sensor Monitoring
- ($06) On-board Monitored Systems
- ($07) DTCs Detected During Last Drive

($05) Oxygen Sensor Monitoring

This option opens a menu of tests available for checking the integrity of the oxygen (O2) sensors. Making a selection displays all of the pertinent O2 sensor parameters for the specific test. The test identification (ID) displays at the top of the data list.

($06) On-board Monitored Systems

This option opens a menu of tests from the monitored systems. The available data is for specific systems and components that the on-board diagnostic system monitors continuously, such as misfire, or non-continuously, such as the catalyst system. Making a menu selection displays the test results.

($07) DTCs Detected During Last Drive

This test opens a record of any DTCs that set during the last completed drive cycle. Select to open the DTC list.

($08) Request Control of On-board System

This service enables bidirectional control of the ECM. This service allows the diagnostic tool to control the operation of an on-board system, test, or component.

($09) Read Vehicle Identification

The purpose of this service is to enable the diagnostic tool to request and display vehicle-specific information, such as the vehicle identification number (VIN), the calibration identification, and the calibration verification number (CVN), of the test vehicle. Select a menu item to retrieve the information. Select **Return** to go back to the menu.

($09) In-use Performance Tracking

This option displays the “In-use Performance Tracking” of data. It is a record of the number of times each of the monitor tests have been completed. Select **Return** to go back to the menu.

($0A) Emission Related DTC with Permanent Status

This option displays a record of any “permanent” codes. A permanent status DTC is one that was severe enough to illuminate the MIL at some point, but the MIL may not be on at the present time.

Whether the MIL was switched off by clearing codes or because the setting conditions did not repeat after a specified number of drive cycles, a record of the DTC is retained by the ECM. Permanent status codes automatically clear after repairs have been made and the related system monitor runs successfully.

Connector Information

This option opens a database of vehicle diagnostic connector locations that includes most makes and models. The menu driven interface leads you quickly to difficult to find test connectors.

To locate a vehicle diagnostic connector:

1. Select **Connector Information** from the System menu.
   A list of vehicle manufacturers displays.
2. Select a manufacturer from the list.
   A list of models available from the selected manufacturer displays.
3. Select a model from the list.
   If a cable adapter is needed, which one and how to connect it displays.
4. Select **Continue**.
   Information on where to locate the vehicle diagnostic connector displays.
5. Select **Continue** to return to the System menu.

Manual Protocol Selection

Communication protocol is a standardized way of transferring data between an ECM and a diagnostic tool. Global OBD may use the following communication protocols:

- ISO 15765-4 (CAN)
- ISO 27145 (WWHOBD CAN)
- ISO J1939 (CAN)
- ISO 9141-2 (K-LINE)
- SAE J1850 PWM (Pulse Width Modulation)
- SAE J1850 VPW (Variable Pulse Width)
- ISO 14230-4 (Keyword Protocol 2000)
- SAE J2284/ISO 15765-4 (CAN)

When initially attempting to establish communication with the ECM the diagnostic tool attempts to communicate trying each protocol in order to determine which one is being used. During normal operation the communication protocol is automatically detected. If automatic detection fails, communication protocol can be manually selected.

IMPORTANT

Using unsupported OBD communication protocols may activate warning lights and can set network related faults. Only use the manual selection option when OBD protocol is already known.

Select **Manual Protocol Selection** to open a menu of options (*Figure 8-8*).

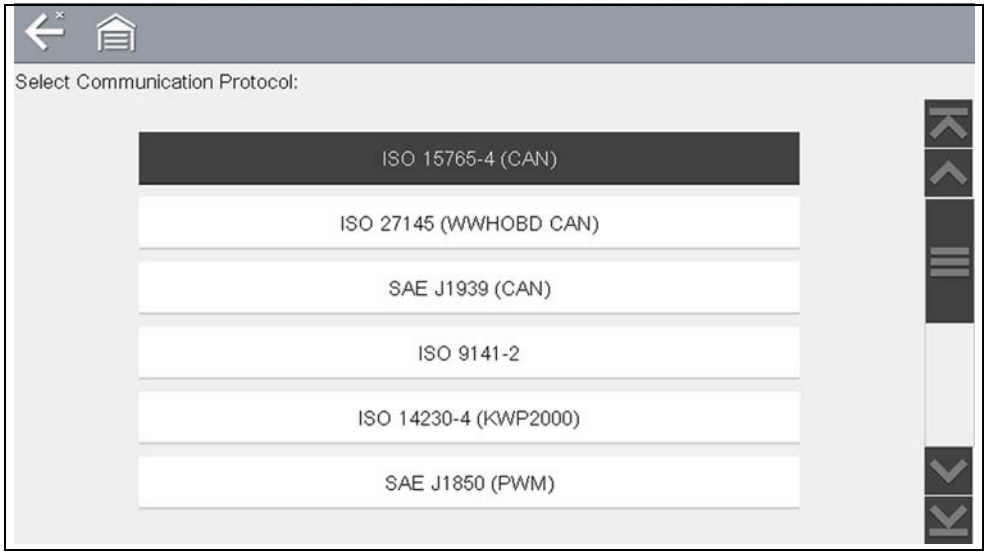
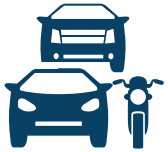


Figure 8-8 *Manual protocol selection menu*

Select the **Back** icon or press the **N/X** button to return to the OBD-II/EOBD Main menu.

Section 9 Previous Vehicles and Data

This section describes the basic operation of the Previous Vehicles and Data function.



The **Previous Vehicles and Data** icon is located on the Home screen. This function allows you to select recently tested vehicles and access saved data files.

Main Topic Links

9.1 Previous Vehicles and Data Menu

The following options are available from the Previous Vehicles and Data menu:

9.1.1 Vehicle History

The diagnostic tool stores the identification of the last twenty-five vehicles tested, so there is no need to go through the complete vehicle identification sequence when performing a retest after repairs have been made. The oldest vehicle record is deleted when a new vehicle is identified once there are twenty-five vehicles on file.

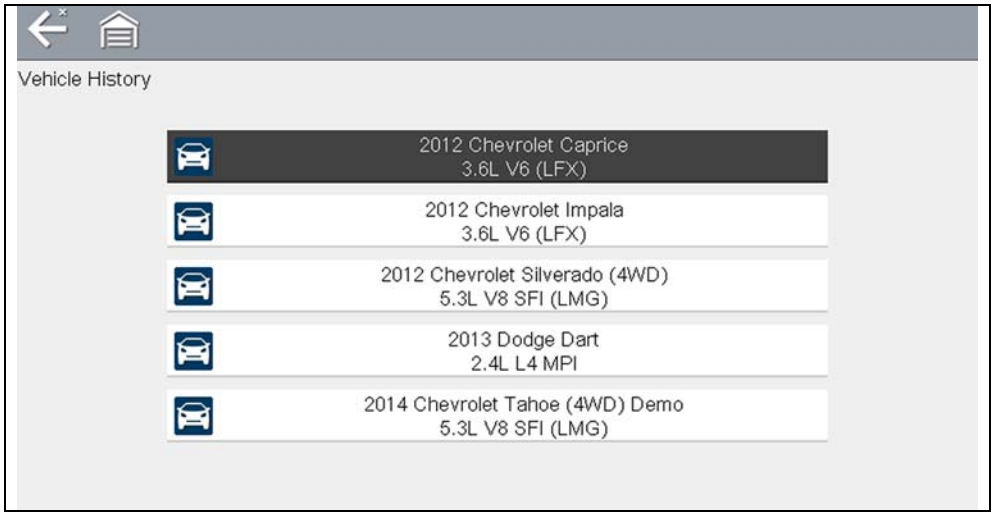


Figure 9-1 *Vehicle history list*

To select from the vehicle History:

1. Select **Previous Vehicles and Data** from the Home screen.
2. Select **Vehicle History** from the menu.

   A list of up to 25 previously tested vehicles displays. Each vehicle is given a unique file name. Scroll to view the entire list.
3. With the item to be opened highlighted, either select the vehicle ID or press the **Y/✓** button.

   The appropriate software loads and a vehicle ID confirmation screen displays.
4. Select **OK** or press the **Y/✓** button to continue.

   The System Menu for the selected vehicle displays.

9.1.2 View Saved Data

Selecting the **View Saved Data** menu option opens a list of all the saved data (movie) files and screen images that are stored in memory. Saved files are listed in chronological order by the date and time that they were created with the most recent files are at the top of the list.

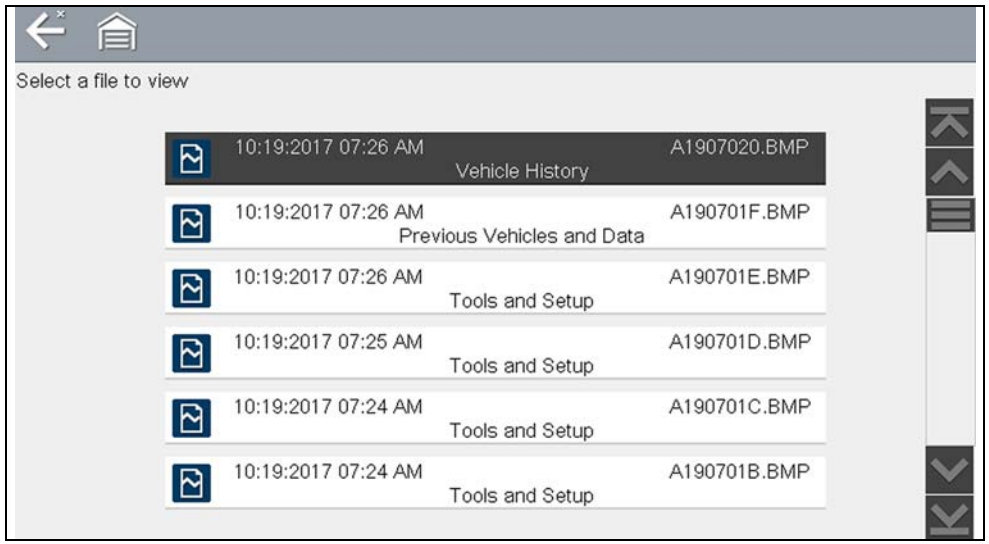


Figure 9-2 *Saved data list*

Selecting a file from the list, opens the file.

Saved data files can also be downloaded to a personal computer (PC) using the Mini USB jack. Once connected to the PC, the data files can be printed, transferred, and copied using ShopStream Connect. ShopStream Connect is a PC application that creates an interface between the diagnostic tool and a PC. See *ShopStream Connect ™ on page 86*.

To connect to a PC, see *Connect-to-PC (File Transfer) on page 60*.

NOTE

A maximum of 50 files are displayed. To view all (if more than 50) files stored, transfer the files to a PC and use ShopStream Connect. See Connect-to-PC (File Transfer) on page 60 for additional information.

To review a saved data file or image:

1. Select **Previous Vehicles and Data** from the Home screen.
2. Select **View Saved Data** from the menu.
3. Select a file to review from the list.

9.1.3 Viewing Codes and Code Scan Results

When code scan or single system code results are saved, they are saved in (.XML) file format (*Figure 9-3*).

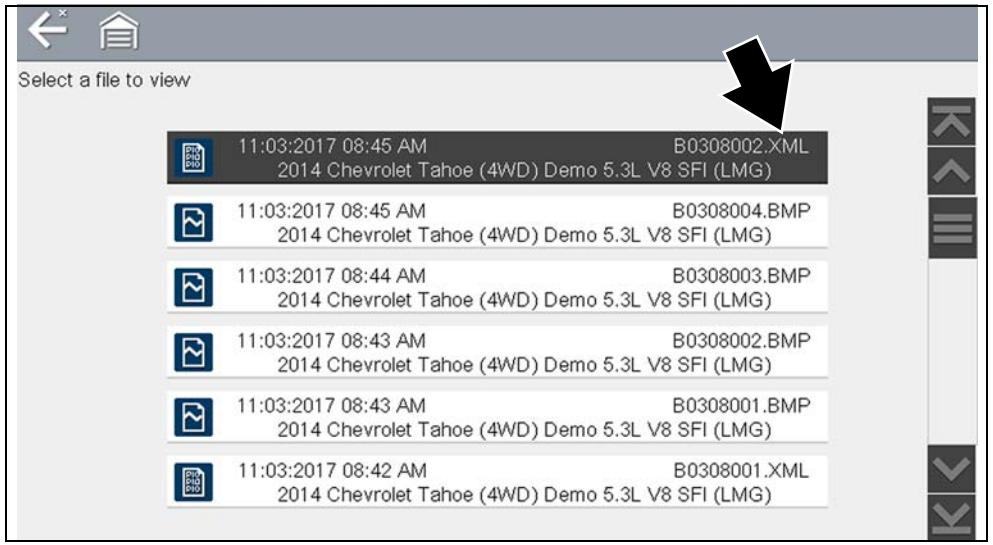


Figure 9-3 *Typical - Code Results (.XML) file*

The saved (.XML) file(s) can be viewed using two methods:

- On the diagnostic tool - See *Viewing Code Results on the diagnostic tool on page 58*.
- In ShopStream Connect - See *Viewing Codes and Code Scan Results on page 57*, and *ShopStream Connect ™ on page 86*.

Viewing Code Results on the diagnostic tool

Selecting a system code or a code scan .XML file from the saved file list, opens that file onscreen (*Figure 9-4*).

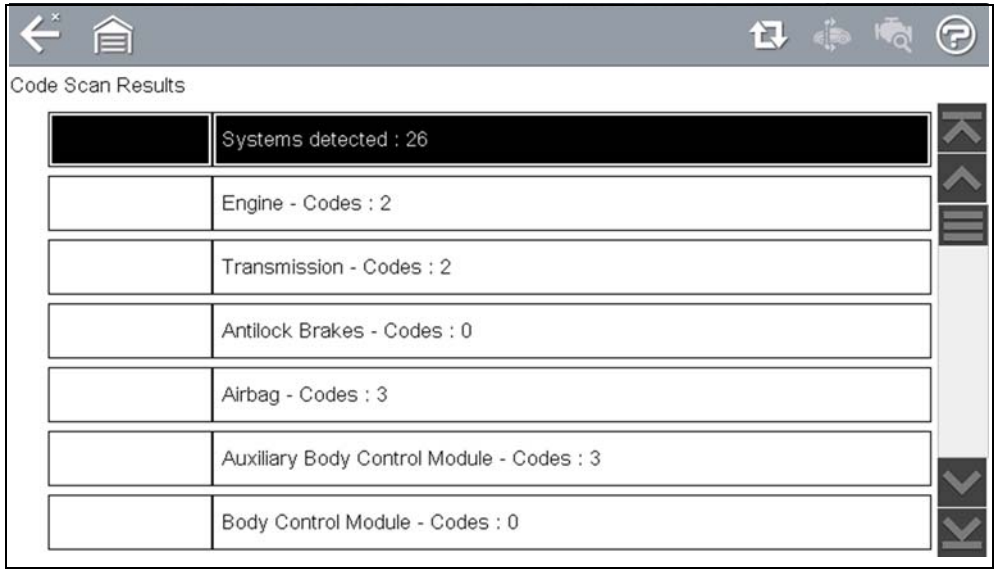


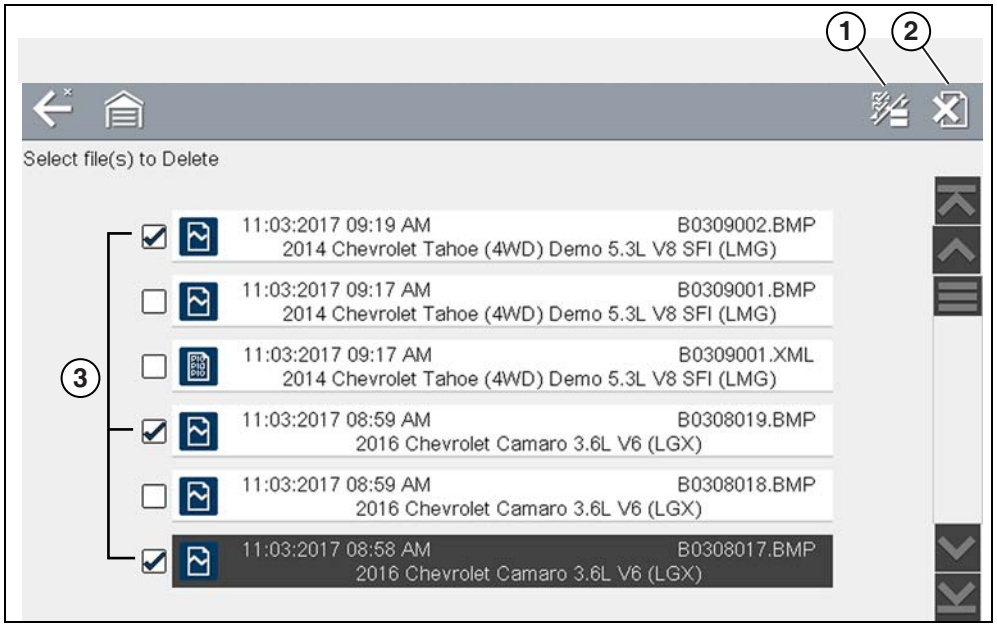
Figure 9-4 *Typical - Code Scan Results (.XML file) viewed onscreen*

9.1.4 Delete Saved Data

This menu option is used to permanently erase saved files from memory.

To delete a saved file:

1. Select **Previous Vehicles and Data > Delete Saved Data**.
   The list of saved files displays.
   Select the file(s) to be deleted using the checkboxes.
   Use the **Select All / Deselect All** icon as necessary.



1— Select All / Deselect All Icon

2— Delete Icon

3— Selected files to be deleted

Figure 9-5

2. The files with checkboxes will be deleted. To delete the files select the **Delete** icon.
3. A confirmation message displays. Select an option:
   - **OK**—permanently deletes the selected file
   - **Cancel**—returns to the saved files list without deleting the selected file.

Section 10 Tools

This section describes the basic operation of the Tools function.

The **Tools** icon is located on the Home screen. This function allows you to configure diagnostic tool settings to your preferences.

Main Topic Links

10.1 Tools Menu

The following options are available from the Tools menu:

- Connect-to-PC (File Transfer)—use to transfer and share files with a personal computer (PC)
- Get Connected—use to transfer and share files with a personal computer (PC)
- *Configure Shortcut Button on page 61*—use to change the function of the shortcut button
- *System Information on page 61*—use to view configuration information for the diagnostic tool
- *Settings on page 62*—use to configure certain characteristics of the diagnostic tool

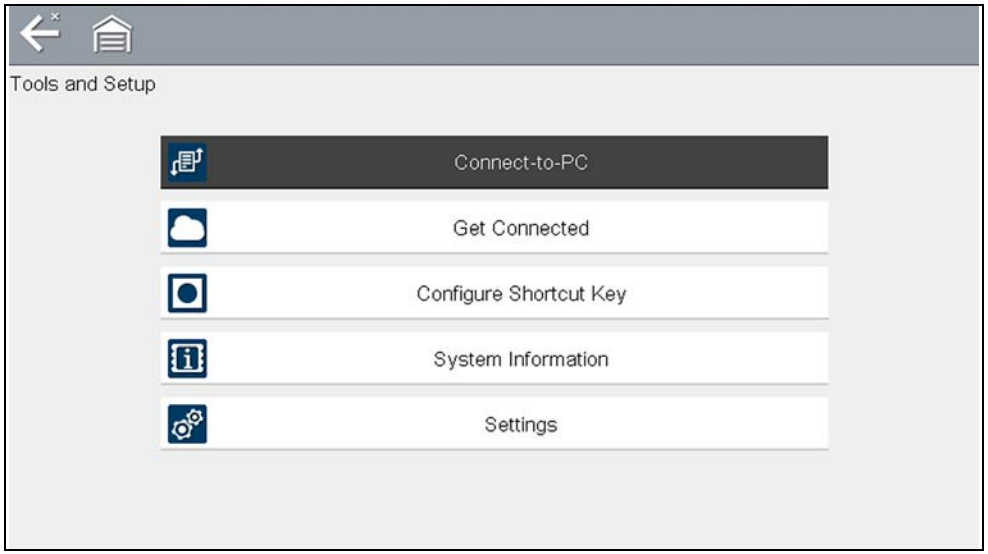


Figure 10-1 *Tools menu*

10.1.1 Connect-to-PC (File Transfer)

Connect-to-PC allows you to transfer saved data files on your diagnostic tool to your personal computer using a USB cable.

The optional ShopStream Connect™ PC software allows you to view, print and save data files on your PC. In addition, you can download software updates from the PC to the diagnostic tool. These features provide an ideal way to manage saved data files. The ShopStream Connect application is available free online, see *ShopStream Connect ™ on page 86*.

To connect the diagnostic tool to a PC:

1. Select **Tools** from the Home screen.
2. Select **Connect-to-PC**.

   A screen message displays stating that the diagnostic tool is in Connect-to-PC mode.
3. Connect the supplied USB cable to the diagnostic tool and then to the PC.

   The diagnostic tool, displays as an external drive. Using Windows File Explorer locate the “USERDATA” folder to find saved screenshots (.BMP), code files (.XML), and data files (.SCM).
4. When finished, select **Exit** to return to the Tool menu, and disconnect the USB cable.

10.1.2 Get Connected

Get Connected allows you view (*Figure 10-2*) the diagnostic tool serial number, PIN and Code needed for Snap-on Cloud registration. See *Snap-on Cloud on page 74* for more information.

NOTE

The PIN and Code numbers will change each time you view the Get Connected screen (Figure 10-2). This is normal, any displayed set of PIN and Code numbers may be used to register.

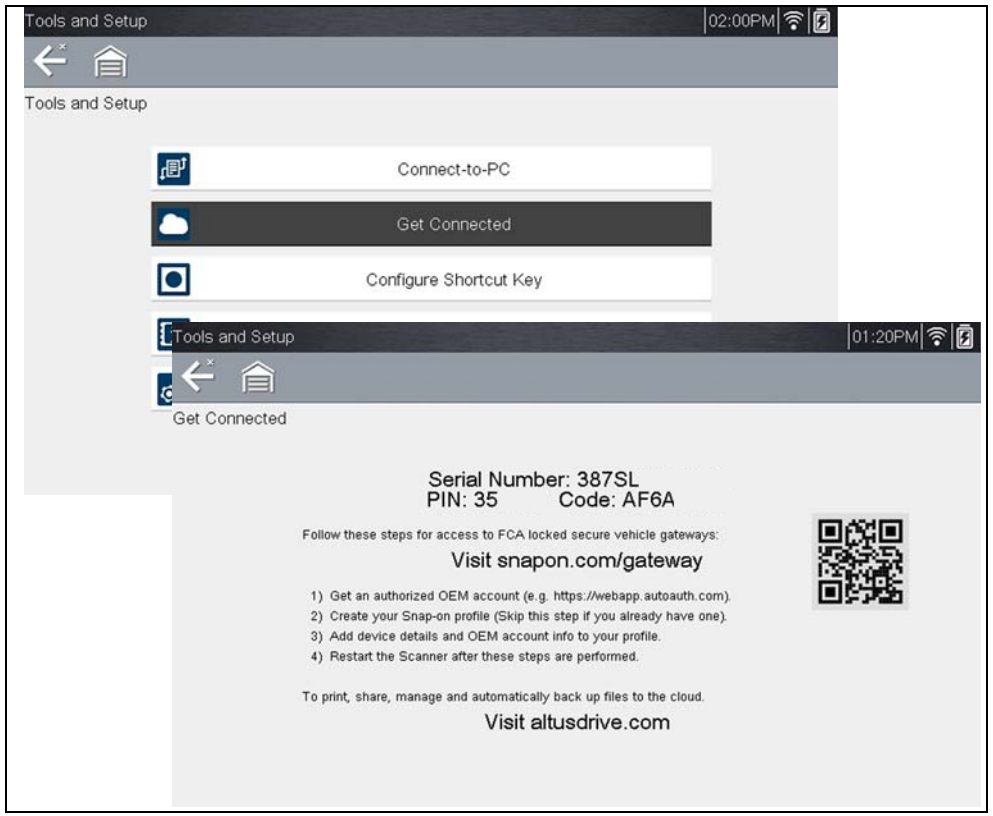


Figure 10-2

10.1.3 Configure Shortcut Button

This feature allows you to change the function of the **Shortcut** button. Options are:

- **Brightness**—opens the brightness setting screen.
- **Save Screen**—saves a bitmap image of the visible screen.
- **Save Movie**—writes PID data from buffer memory to a file for future playback.
- **Show Shortcut Menu**—opens the menu so you can quickly select from any of the functions.
- **Toggle Start/Pause**—programs the Shortcut button to work as the Pause and Start icons.

To assign a function to the Shortcut button:

1. Select **Tools** from the Home screen.
   The Tools menu opens.
2. Select **Configure Shortcut button** from the menu.
3. Select a function from the menu.
4. Select the **Back** on the toolbar or press the **N/X** button to return to the options menu.

10.1.4 System Information

System Information allows you to view patent information and system information, such as the software version and serial number of your diagnostic tool.

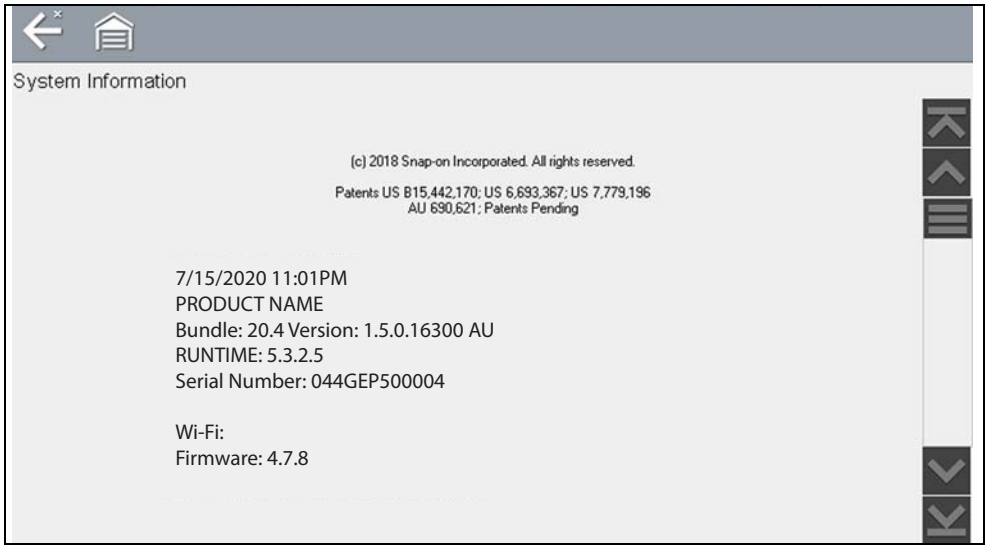


Figure 10-3 *System information*

To display the System information screen:

1. Select **Tools** from the Home screen to open the menu.
2. Select **System Information** from the menu.
   The System Information screen displays.
3. Scroll as needed to view all of the data.
4. Select **Back** on the toolbar or press the **N/X** button to return to the options menu.

10.1.5 Settings

This Tools selection allows you to adjust certain basic diagnostic tool functions to your personal preferences. Selecting opens an additional menu that offers the following:

- System Settings - see *System Settings on page 62*
- Configure Wi-Fi - see *Wi-Fi Connection / Troubleshooting on page 68*
- Configure Scanner - see *Configuring Scanner on page 66*
- Configure Units - see *Configure Units on page 67*

System Settings

Selecting System Settings opens a menu with three options; Display, Date & Time and Auto VIN. Selecting either Display or Date & Time opens an additional menu (see below). Selecting Auto VIN provides the option to turn the Instant Vehicle ID feature on/off.

Display options include:

- *Brightness on page 62*—adjusts the intensity of the screen back lighting.
- *Color Theme on page 63*—changes the background color of the screen display.
- *High Contrast Toolbar on page 63*—enhances toolbar graphics for poor lighting conditions.
- *Font Type on page 64*—switches between standard and bold text for better visibility.
- *Backlight Time on page 64*—adjusts how long the screen stays on with an idle diagnostic tool.
- *Touch Screen Calibration on page 64*—calibrates the touch screen display.

Date & Time options include:

- *Time Zone on page 65*—sets the internal clock to the local time standard.
- *Clock Settings on page 65*—sets the time on the internal clock.
- *Daylight Savings Time on page 65*—configures the clock for Daylight Savings Time.
- *Time Format on page 66*—switches the time displays between a 12 or 24 hour clock.
- *Date Format on page 66*—configures how the month, date, and year displays.

Auto VIN — to turn Instant Vehicle ID feature on/off, see *AUTO VIN on page 66*

DISPLAY (settings)

Brightness

Selecting this option opens the brightness setting screen for adjusting the back lighting of the display (*Figure 10-4*).

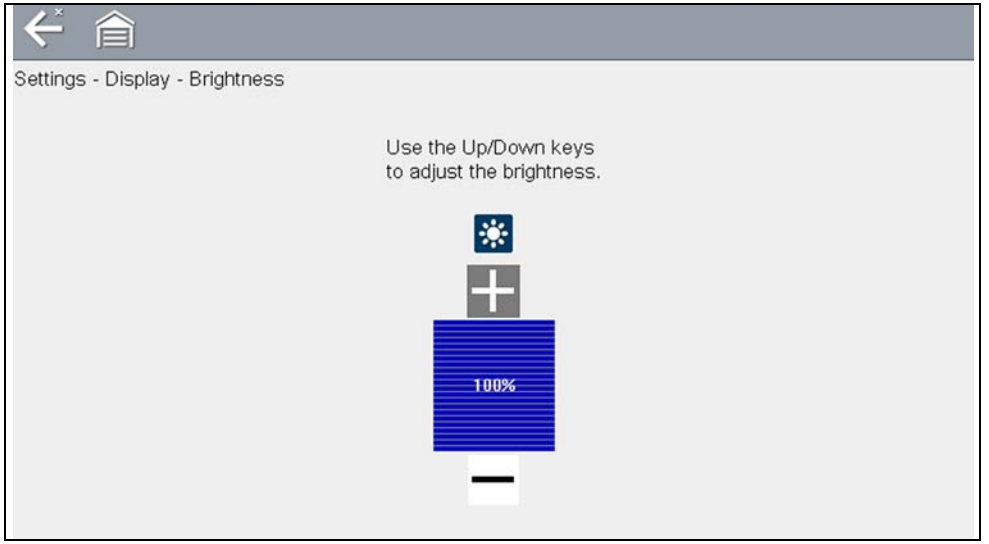


Figure 10-4 *Brightness setting*

Each push of the **Plus** and **Minus** icons, or the up (▲) and down (▼) arrows, incrementally changes the back lighting up or down respectively.

Select **Back** from the toolbar or press the **N/X** button to exit.

Color Theme

This option allows you to select between a white and black background for the screen. The black background can be beneficial when working under poor lighting conditions.

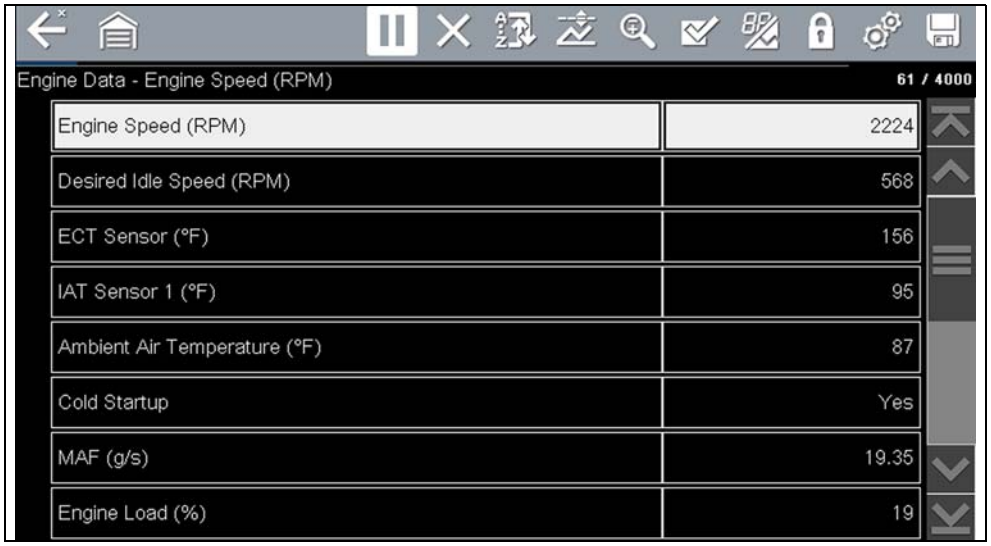


Figure 10-5 *Night Theme*

Selecting opens a menu with two choices: **Day Theme** (white background) and **Night Theme** (black background). Make a selection and a “please wait” message momentarily displays followed by the Home screen. The new toolbar setting is now active.

High Contrast Toolbar

This option allows you to switch to a high contrast toolbar. This toolbar features black and white icons with crisp graphics that are easier to see in poor lighting conditions or bright sunlight.

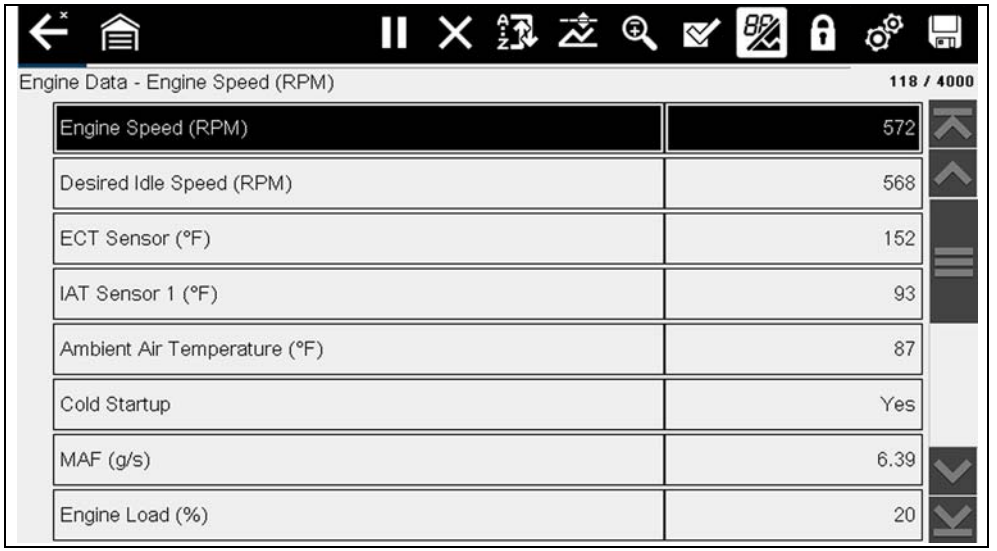


Figure 10-6 *High-contrast toolbar*

Selecting opens a menu with two choices; Color Toolbar and High Contrast Toolbar. Select and a “please wait” message displays followed by the Home screen. The new setting is now active.

Font Type

This option allows you to select between standard and bold faced type for the display screen. Bold type makes screen writing more legible under poor lighting or bright sunlight conditions.

Selecting opens a menu with two choices: Normal Font and Bold Font. Select a menu item or scroll and then press the **Y/✓** button to make a selection. The change is instantaneous. Select the Back or Home icon on the toolbar to return to either the Settings menu or the Home screen.

Backlight Time

This option allows you to configure how long the screen backlight remains on when the diagnostic tool is inactive. The following choices are available:

- Always On
- 15 Seconds
- 30 Seconds
- 45 Seconds
- 60 Seconds

Select the menu item desired, or scroll and then press the **Y/✓** button to make a selection. Select **Back** or **Home** on the toolbar to return to either the Settings menu or the Home screen.

Touch Screen Calibration

Calibrating the touch screen maintains the accuracy of the touch-sensitive display.

IMPORTANT

To avoid serious damage to the diagnostic tool, always complete the touch screen calibration sequence once it has begun. Never turn off the diagnostic tool while a screen calibration is in process.

To calibrate the touch screen:

1. Select **Tools** from the Home screen.
2. Select **Settings>System Settings>Display>Touch Calibration**.
   The calibration screen opens (*Figure 10-7*).

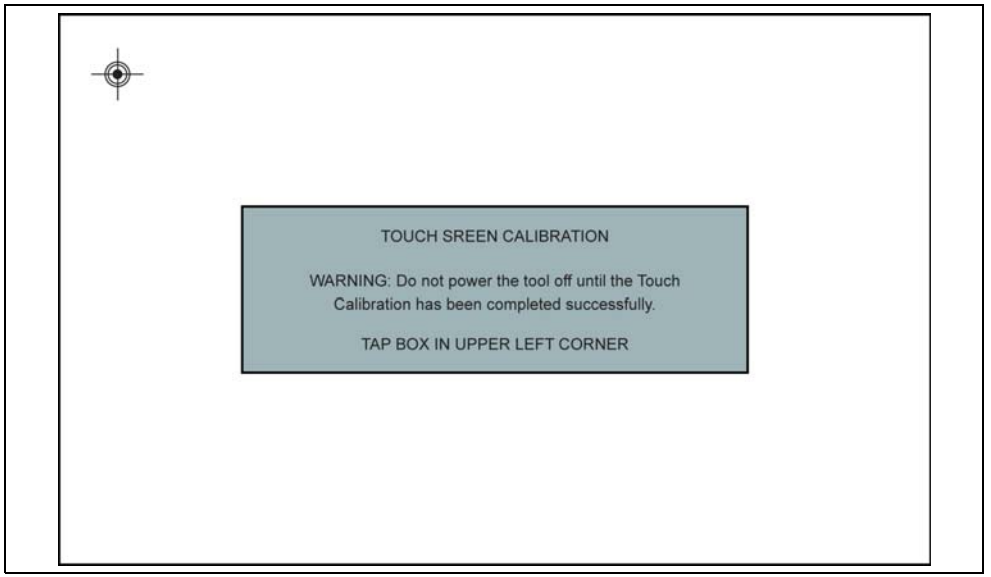


Figure 10-7 *Touch screen calibration*

3. Select the center of each alignment indicator on the screen as they display in the corners of the screen, starting in the upper left corner.
4. Once all four indicators have been selected, the verification process starts the procedure again. Select the center of each alignment indicator when prompted.
   - If the calibration is successful, the “Touch Calibration Results - Passed” screen is displayed (*Figure 10-8*). Press the **Y** button to complete the process and return to the Display menu.
   - If the calibration is not successful, the “Touch Calibration Results - Failed” screen is displayed. Press the **Y** button to perform the procedure again.

   The results screen (*Figure 10-8*) shows the entered calibration of each indicator. Ideal calibration would be to select each indicator exactly in the center, however selection inside the displayed circle is acceptable. If selecting the center is difficult using your finger, use a touch screen stylus (not included).

Figure 10-8 *Touch screen calibration - Passed*

DATE & TIME (settings)

Time Zone

This option opens a menu of time zone settings. Scroll to highlight, then select the local time zone. The display returns to the Settings menu once a time zone is selected.

Clock Settings

This option opens a window for resetting the time on the real-time clock.

To set the clock:

1. Select **Tools** from the Home screen to open the menu.
2. Select **Settings** from the menu.
3. Select **Clock Settings** from the menu.

   A warning message briefly displays followed by the Clock Settings screen (*Figure 10-9*).

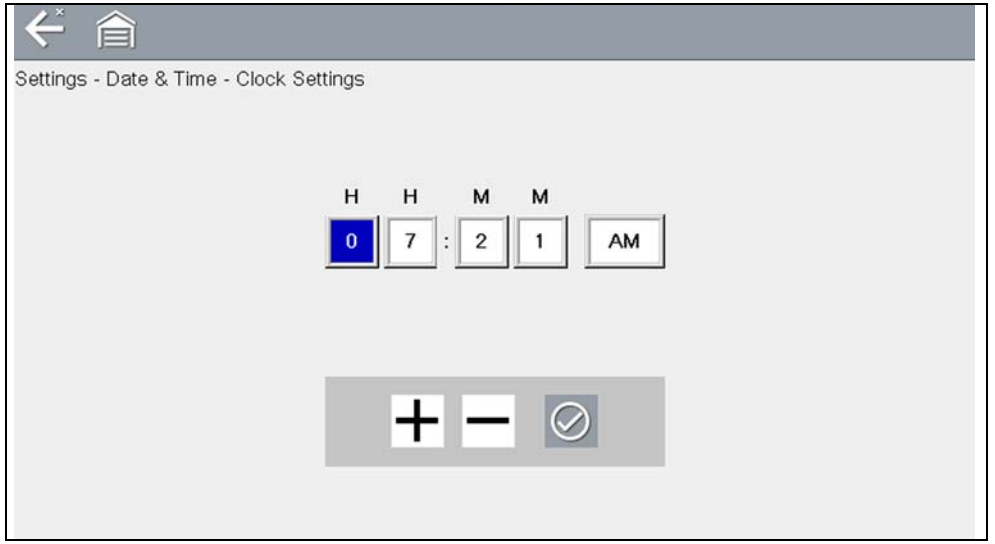


Figure 10-9 *Clock settings*

4. Select the **up** (**+**) icon on the screen or press the **up** (▲) button to incrementally increase the number in the highlighted field. Select the **down** (**–**) icon on the screen or press the down (▼) button to incrementally decrease the number.
5. Select the **check** (✓) icon on the screen or press the **Y/✓** button to move the highlight to the next field.
6. Repeat Step 4 and Step 5 until the correct time is displayed.
7. Select the **Back** icon on the toolbar or press the **N/X** button to close the Clock Settings window and return to the Settings menu.

Daylight Savings Time

This option opens a menu to configure the internal clock for Daylight Savings Time. Choose from:

- **ON**—sets the clock for Daylight Savings time.
- **OFF**—sets the clock for standard time.

Make either selection, then select the **Back** icon or press the **N/X** button to return to the menu.

Time Format

This option determines whether time is displayed on a 12 or 24 hour clock. Selecting opens a menu with two choices:

- **24 Hour Format**
- **12 Hour Format**

Make either selection, then select the **Back** icon or press the **N/X** button to return to the menu.

Date Format

This option allows you to select how date information is displayed. Select from:

- **(MM_DD_YYYY)**—Month, Day, Year
- **(DD_MM_YYYY)**—Day, Month, Year
- **(YYYY_MM_DD)**—Year, Month, Day

Make a selection, then select the **Back** icon or press the **N/X** button to return to the menu.

AUTO VIN

This option allows you to turn on/off the Instant Vehicle ID feature. See *Instant ID on page 16* for information on using the Instant ID feature.

Configure Wi-Fi

Selecting Configure Wi-Fi allows you to configure and troubleshoot the diagnostic tool Wi-Fi connection, see *Wi-Fi Connection / Troubleshooting on page 69*.

Configuring Scanner

This option allows you to change the scanner display to toggle scales on and off. Scales are the graduations and values that display on the horizontal axis at the base of the parameter graphs. The waveform fills the entire graph area with scales switched off.

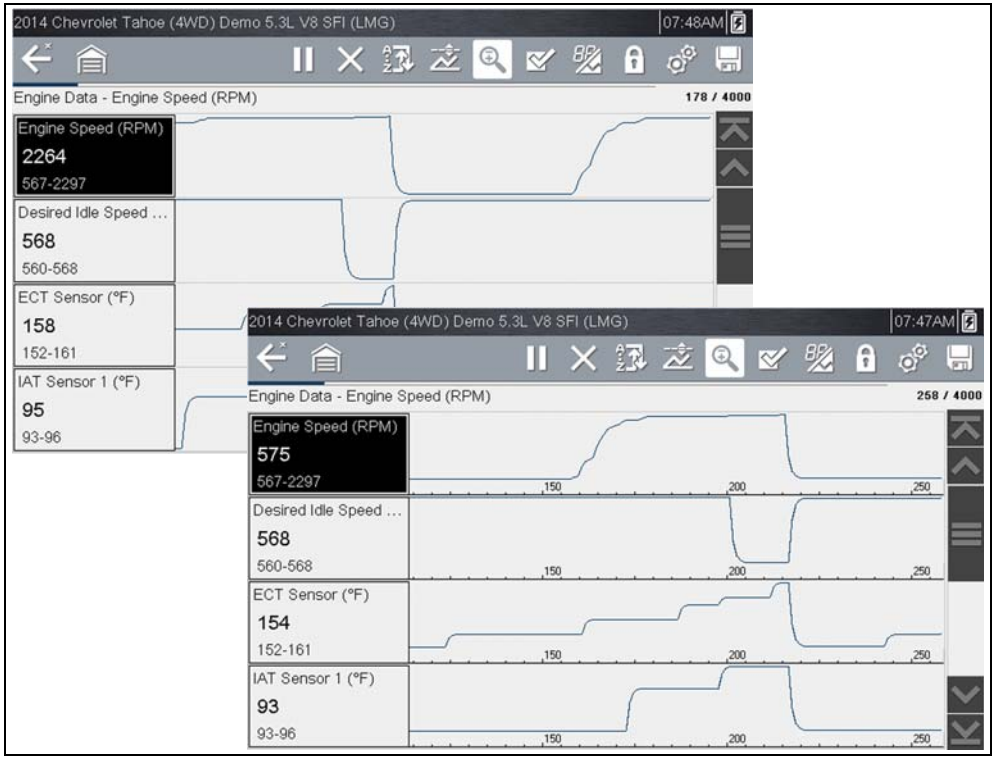


Figure 10-10 *Scales hidden (upper), displayed (lower)*

To change hide/show scales:

1. Select **Tools** from the Home screen.
2. Select **Settings** from the Tools and Setup menu.
3. Select **Configure Scanner** from the Settings menu.
4. Highlight either menu entry to make a selection:
   - **Show Graph Scale**—to switch the scales on.
   - **Hide Graph Scale**—to switch the scales off.
5. Select the **Back** icon or press the **N/X** button to return to the Settings menu.

Configure Units

Selecting opens a dialog box that allows you to choose between US customary or metric units of measure for various units.

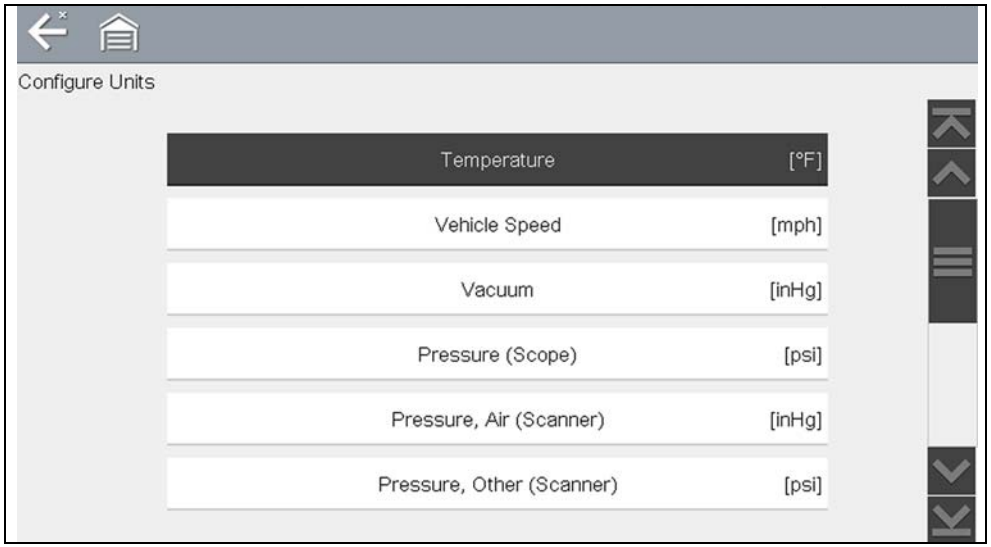


Figure 10-11 *Configure units menu*

To change the units setup:

1. Select **Tools** from the Home screen to open the menu.
2. Select **Configure Units** to open the menu.
3. Select an item from the Configure Units menu.
4. Select a setting from the listed choices.
5. Select **Back** on the toolbar or press the **N/X** button to return to the options menu.

Section 11 Wi-Fi Connection / Troubleshooting

The diagnostic tool is equipped with many features that require Wi-Fi connection.

The Wi-Fi connection is solely dedicated to our Snap-on Web Services Network.

To use features like the Snap-on Cloud a Wi-Fi connection is required. Authorization and registration is also required to use some of these features.

This section includes information on Wi-Fi connection and troubleshooting.

Main Topic Links

11.1 Checking if Wi-Fi is On/Off

If the Wi-Fi indicator is displayed in the title bar, Wi-Fi is on. If Wi-Fi is off, see *Turning On Wi-Fi and Connecting to a Network* to turn it on and connect.

11.2 Checking if Wi-Fi is Connected

Check the Wi-Fi indicator in the title bar:

	Wi-Fi is on and connected to a network (1 to 3 bars).
	Wi-Fi is on, but not connected (zero bars). See *Wi-Fi Troubleshooting and Status Messages on page 71*.

11.3 Wi-Fi Icons (Setup)

Familiarize yourself with the following Wi-Fi icons and indicators from the Wi-Fi configuration screen.

Wi-Fi Icon (toggle type)		Wi-Fi Test Icon	Wi-Fi Signal Strength Indicator	
				
Select to turn Wi-Fi ON	Select to turn Wi-Fi OFF	Select to open the Wi-Fi Test screen	Zero bars indicates no signal	Three bars indicate full strength signal
Displayed on Wi-Fi configuration screen only			Displayed on the title bar next to the battery level indicator	

11.4 Turning Wi-Fi On and Connecting to a Network

1. From the Home screen, select **Tools > Settings > Configure Wi-Fi**.
2. Select the **Wi-Fi** icon  to turn Wi-Fi on.

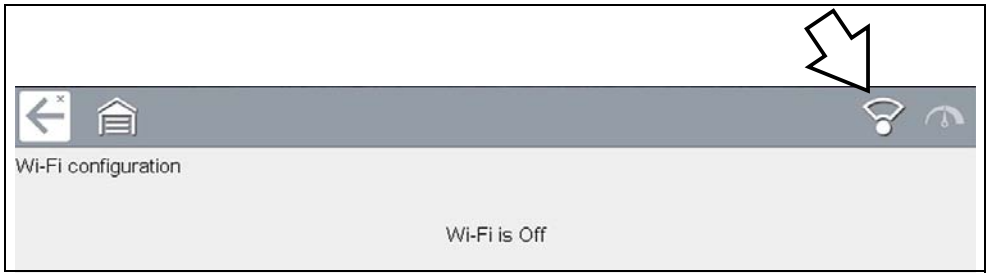


Figure 11-1 *Wi-Fi Icon (shown off)*

3. The Wi-Fi icon will change to  , indicating Wi-Fi is on.

   The screen will change to display available supported network connections.
4. Select your network. Use the scroll feature to show all active connections (*Figure 11-2*).

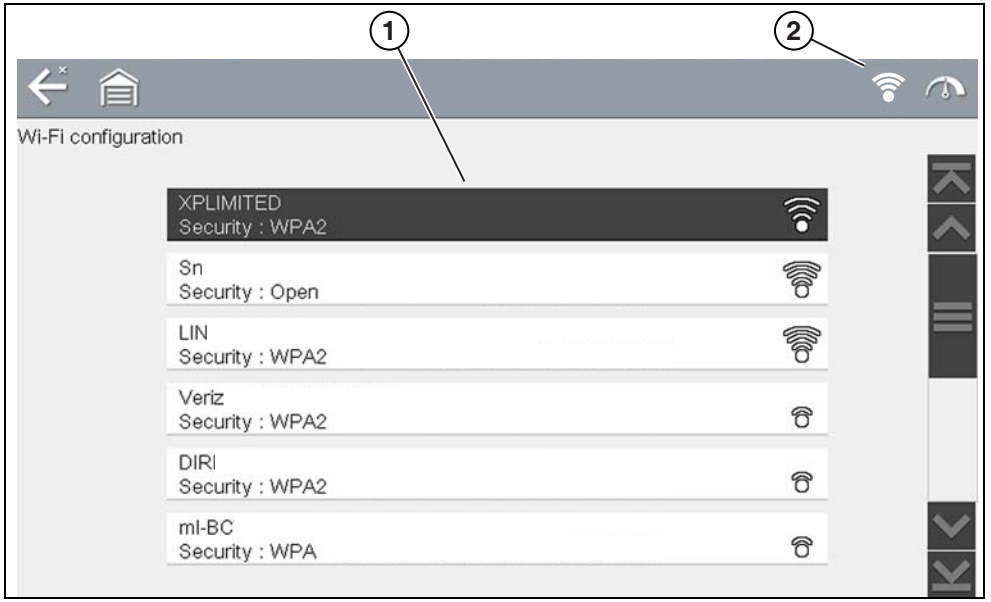


Figure 11-2 *Wi-Fi Configuration Screen*

1— Available Network Connections

2— Wi-Fi Icon (Wi-Fi shown on)

NOTES

A password is required when choosing a secured (protected) network. Enter the password using the on-screen keyboard and then select the check mark on the keyboard to continue.

Networks with a proxy, challenge page, or that require the user to accept terms of usage are not supported.

Wi-Fi performance varies depending on your wireless network equipment and ISP.

5. Select **Connect** to connect to your desired network or **Cancel** to cancel the request.
6. From the Connect confirmation screen select **OK** to continue using this connection or **Forget** to disconnect this connection.

- The screen will change to display your confirmed network connection and Snap-on Cloud registration information. For Snap-on Cloud registration information see *Snap-on Cloud on page 74*.

- If the status message “Not Connected” is displayed, retry the configuration process or see “Wi-Fi Testing” on page 70 for additional information.

11.5 Add Network Advanced (Connecting to a hidden network)

The Add Network selection allows you to connect to a network that is not broadcasting its name (not visible in the displayed network list). These networks are also known as "hidden" networks.

To connect to a hidden network you will first need to know the following:

- Network Security Type
  - Open (only need SSID)
  - WPA or WPA2 (Pre-shared key)
  - WEP (WEP key)
- Network name or SSID (Service Set Identifier)
- Network Password

Connecting to a Hidden Wi-Fi Network

1. From the Home screen, navigate to **Tools > Settings > Configure Wi-Fi**.
2. Select **Add Network Advanced** from the network list (scroll to end of list).
3. Select security type Open, WPA, WPA2, or WEP. Refer to the router user manual or your IT administrator to determine the type.
4. Enter the network name or SSID
5. Enter the network password.
6. Select **Connect** at the prompt to connect to the network.
7. Select **OK** at the confirmation screen to continue using this connection, or Forget to disconnect this connection.

11.6 Wi-Fi Testing

If you are experiencing network connection issues, an automated testing feature is available to quickly test your network connection.

Testing Connections

1. Before you start the automated testing procedure, turn off the diagnostic tool and then turn it on. This clears previous testing messages from memory.
2. Connect to your desired network, see “Turning Wi-Fi On and Connecting to a Network” on page 69.
3. From the Wi-Fi configuration screen, select the **Wi-Fi Test** icon to open the network connection test screen (*Figure 11-3*).

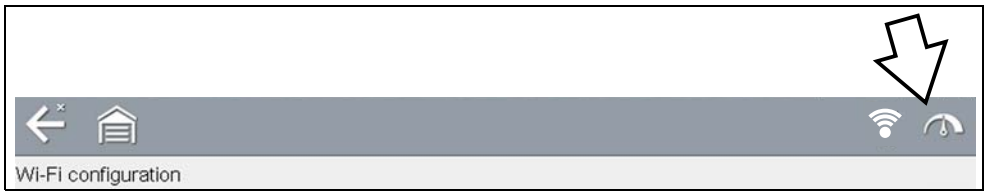


Figure 11-3 *Wi-Fi Test Icon*

The network connection test is an automated test that begins when the screen is displayed. Network connection systems are tested in sequence and display a status indicator
(Red = test failed, Yellow = test is process, or Green = test completed satisfactorily) when finished (*Figure 11-4*).

Connectivity of the following systems are checked:

- **Hardware**
- **Router**
- **Internet**
- **HTTP**
- **Web Services Network**

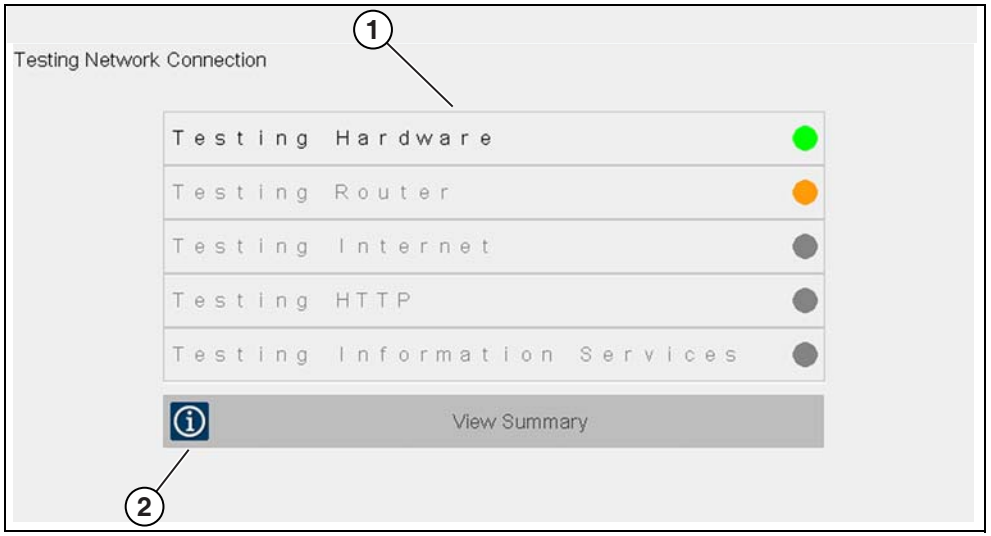


Figure 11-4 *Connection Tests*

1— Connection Tests

2— View Summary

4. If a connection issue(s) is present, select **View Summary** to review the results. The summary information is helpful if you are experiencing difficulties with your connection (*Figure 11-5*). Scroll through the summary information to review the test results for each system and Tip messages for the current connection issue. See *Connection Tests - Troubleshooting* chart in "Wi-Fi Troubleshooting and Status Messages" on page 71 for additional information.

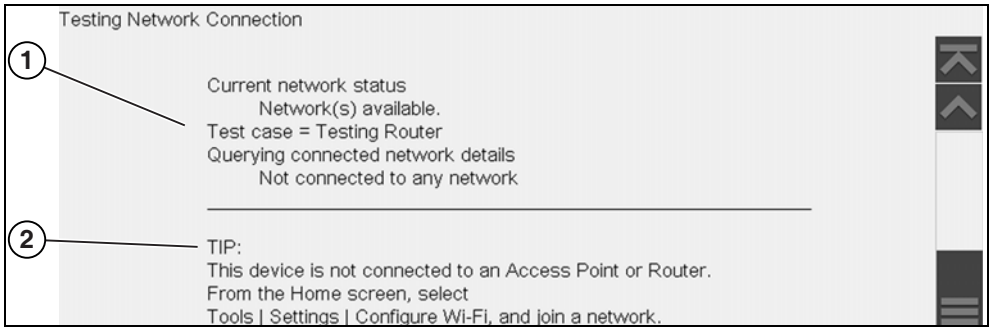


Figure 11-5 *View Summary*

1— Connection Test Results

2— Connection Issue Tip Message

11.7 Wi-Fi Troubleshooting and Status Messages

The following troubleshooting information is not inclusive and is meant as a guide only. Other issues and solutions may arise that are not stated here. The following description of terms are provided for reference as used in the following troubleshooting chart:

- **Router -** The data transmission device directly connected to your ISP.
- **Remote Wireless Access Point -** A wireless connection device between the router and your diagnostic tool.
- **Wi-Fi Radio -** The internal diagnostic tool radio transmitting and receiving Wi-Fi signals.
- **Network Connection -** Also called Wi-Fi connection. The configured Wi-Fi router connection the diagnostic tool connects to. This connection can be secured (password protected) or unsecured (open).

Router Information

Router compatibility and setup are important factors to check when trying to determine connectivity problems. Although we have tested this device at the factory to verify connectivity, we cannot guaranty its connectivity with your specific equipment. There may be some situations that require your time for router connection troubleshooting and/or additional consultation and equipment. Snap-on Incorporated is not responsible for any costs incurred for any additional equipment, labor or consultation charges or any other costs that may result from correcting non-connectivity issues with this device.

Check Router Settings

Verify the following router settings **BEFORE** you begin troubleshooting a non-connectivity or “No Connection” problem. After each check, make any corrections as necessary then retest for connectivity. ***Contact your IT administrator or ISP for assistance.***

1. Check your router connection and if applicable, the remote wireless access point connection.
2. Clear saved Wi-Fi networks, see *Clearing Wi-Fi Networks on page 72*.
3. Verify:
   (a). Router is configured to use Dynamic Host Configuration Protocol (DHCP), not a static IP address.

   (b). Router and/or settings for this device are configured to 2.4GHz. 5GHz is not supported.

   (c). Router is configured to B/G and/or N standard wireless networks to 2.4GHz. 5GHz is not supported. See your router "User Guide" for setup, connection and troubleshooting procedures.
4. Check for router firmware and update to current version, if applicable.
5. Restart or reset the router. See your router "User Guide" for procedures.
6. Connect to a different router.

Clearing Wi-Fi Networks

1. Select the Wi-Fi network that you are trying to connect to from the list of saved networks on the Wi-Fi configuration menu.

   The Wi-Fi Summary page displays.
2. Select **FORGET**

   The Wi-Fi Configuration menu displays.
3. Repeat steps (1) and (2) for ALL saved Wi-Fi networks.
4. Once all saved Wi-Fi networks have been deleted (forgotten) turn off the diagnostic tool.
5. Turn on the diagnostic tool and connect to the desired Wi-Fi network, see *Turning Wi-Fi On and Connecting to a Network on page 69*.

General -Troubleshooting		
Problem	**Possible Cause**	**Corrective Action**
Information Services are not available	Access has expired	Contact your sales representative.
	Access may be temporarily unavailable	Try to access the function at a later time as updates may be in process.
	Wi-Fi radio is turned Off	1. From the Home screen, navigate to **Tools > Settings > Configure Wi-Fi.** 2. Select the **Wi-Fi** icon and turn the Wi-Fi radio on. The Wi-Fi icon will change from a green check mark icon to red "X" mark icon indicating Wi-Fi radio is on. 3. Connect to a known good network.
	Not connecting to a network	1. Clear saved Wi-Fi networks, see *Clearing Wi-Fi Networks on page 72*. 2. Connect to a network. 3. From the Configure Wi-Fi screen select the **Wi-Fi Test** icon and review the results. See ***Connection Tests - Troubleshooting*** *in the following table*.
Wi-Fi connection drops off or disconnects intermittently	Wi-Fi Signal strength insufficient	Check Wi-Fi signal strength - out of range or interference. Move closer (within 50 Ft. (15 M) or into a direct open sight-line of the router or if applicable, remote wireless access point. Eliminate interference from overhead lights, windows, walls, other wireless devices, metal objects and devices that emit electrostatic discharge.
	Router overloaded	Disconnect/disable other Wi-Fi devices connected to the router.

Connection Tests - Troubleshooting		
Failed Test	**Possible Cause (Displayed Tip Message*)**	**Corrective Action / Checks**
Hardware	Wi-Fi radio not responding and/or will not turn off	Contact Customer Support for assistance.
	Wi-Fi radio not responding and/or will not initialize	
	Missing or corrupt firmware file(s)	
Router	This device is not connected to a router	Check Wi-Fi signal strength - out of range or interference. Move closer (within 50 Ft. (15 M) or into a direct open sight-line of the router or if applicable, remote wireless access point. Eliminate interference from overhead lights, windows, walls, other wireless devices, metal objects and devices that emit electrostatic discharge.
		Check router connection and setup. See *Check Router Settings on page 72* for procedure.
Internet	This device is not connected to the Internet or has no DNS	Check router connection and setup. See *Check Router Settings on page 72* for procedure.
		Domain Name System (DNS) server not connected. Contact your Internet service provider (ISP).
HTTP	This device cannot communicate using HTTP	Check if your Internet access uses a “Proxy” or “Accepting terms in a browser” protocol, or uses a challenge page. These protocols are not supported by this device. Contact your IT administrator or ISP for options.
Information Services	Your access has expired	Contact your sales representative.
	Repair Information Services may be temporarily unavailable or Not connecting to a network	Try to access at a later time as Repair Information Services may be performing updates to the service.
		Check router connection and setup. See *Check Router Settings on page 72* for procedure.
* See *Wi-Fi Testing on page 70* for additional information.		

11.7.1 Informative Messages

Messages may be displayed to inform you of pending issues or general status. Depending on your access and connection status, the following are typical messages that may be displayed:

- **Content May Be Available! -** indicates content may be available, however you are not currently connected to the Web Services Network. This message may be caused by a Wi-Fi connection issue, or you do not have access to the feature. See *Wi-Fi Troubleshooting and Status Messages on page 71* for Troubleshooting information.
- **No connection. Please try again later. -** indicates you are not currently connected to the Web Services Network, except when displayed in the OBD/EOBD function as Repair Information Applications are not accessible in OBD/EOBD mode. If this message is displayed in the Scanner function, it may be caused by a Wi-Fi connection issue, or you do not have access to the feature. See *Wi-Fi Troubleshooting and Status Messages on page 71* for Troubleshooting information.
- **Loading content -** indicates information is being accessed from the Web Services Network.
- **A new diagnostic software upgrade is available. Contact your sales representative for details.**
- **Your access has expired. See your Sales representative to renew. -** indicates your access to the Web Services Network has expired and you should contact your sales representative.

Section 12 Snap-on Cloud

This diagnostic tool includes a built-in feature that automatically transfers code scan reports to the Snap-on Cloud (ALTUSDRIVE.com).

Snap-on Cloud is a mobile-friendly cloud-based application designed specifically for technicians to store, organize and share information.

See *Vehicle Code Scan / (Snap-on Cloud) on page 44* for information on using Code Scan.

Main Topic Links

12.1 Key Features

- Automatically transfer code scan reports to the Snap-on Cloud.
- Access and manage your Snap-on Cloud account, using your mobile device or PC.
- Share/send report files via e-mail, or other mobile apps.
- Tag reports (attach a descriptive key-name) to help you organize and search report files.
- Use the Search function to quickly find files by Tag, Description and Title.

12.2 Important Notes

- To use the Snap-on Cloud, account setup and diagnostic tool Wi-Fi connection is required.
- The diagnostic tool only transfers code scan reports to the Snap-on Cloud.
- Snap-on Cloud is continuously monitored for inappropriate content. Abuse (as determined by moderator) will result in account deactivation.

12.3 Registration - Getting Started

To use the Snap-on Cloud:

- The diagnostic tool must be connected to a Wi-Fi network
- Account registration is required online
  - If you are a new user, you will need to create a new account, see Snap-on Cloud - New User Registration.

12.3.1 Snap-on Cloud - New User Registration

If you are a new user, follow these steps to register and create a new account:

NOTE

Account setup is only required one time.

1. Connect the diagnostic tool to a Wi-Fi network, see *Wi-Fi Connection / Troubleshooting on page 145*.
2. Write down the Serial Number, PIN and Code that are displayed when the device connects to the Wi-Fi network (*Figure 12-1*), or leave the screen displayed. Registration information can also be found in the Tools menu, see *Snap-on Cloud Setup Information Screen on page 76*.

Figure 12-1

NOTE

The PIN and Code numbers will change each time you view the Snap-on Cloud Get Connected screen (Figure 12-2 and Figure 12-1). This is normal, any displayed set of PIN and Code numbers may be used to register.

3. Using a mobile device or PC, visit https://ALTUSDRIVE.com and select **Create Individual Account** from the Login screen.
4. Enter the required information and create a **Username** and **Password,** then select **Create**.
5. At the “Success” confirmation screen, select **Done**.
6. Log in using your **Username** and **Password**.
7. Answer the security questions, then select **Submit**.
8. From Technician Profile Manager select the **Device Management** tab.
9. Select **Add Device**, then enter your **Serial Number**, **PIN**, **Code**, and Device Name and select Save when done.
10. Log out of Profile Manager, then select the **ALTUS Home Page** browser tab to get started.
11. Turn the diagnostic tool off, and then on.
12. See Using the Snap-on Cloud.

Your diagnostic tool is now registered to your Snap-on Cloud online account. Code scan reports will be automatically sent (only when connected to Wi-Fi) to your online account from the device.

NOTE

If the device is not connected to a Wi-Fi network when the code scan is performed, the report will not be sent to your Snap-on Cloud account. Wi-Fi connection is required to upload the report.

12.3.2 Snap-on Cloud Setup Information Screen

From the Home screen, selecting **Tools > Get Connected** allows you view (*Figure 12-2*) the diagnostic tool serial number, PIN and Code needed to register.

NOTE

The PIN and Code numbers will change each time you view the Snap-on Cloud Get Connected screen (Figure 12-2 and Figure 12-1). This is normal, any displayed set of PIN and Code numbers may be used to register.

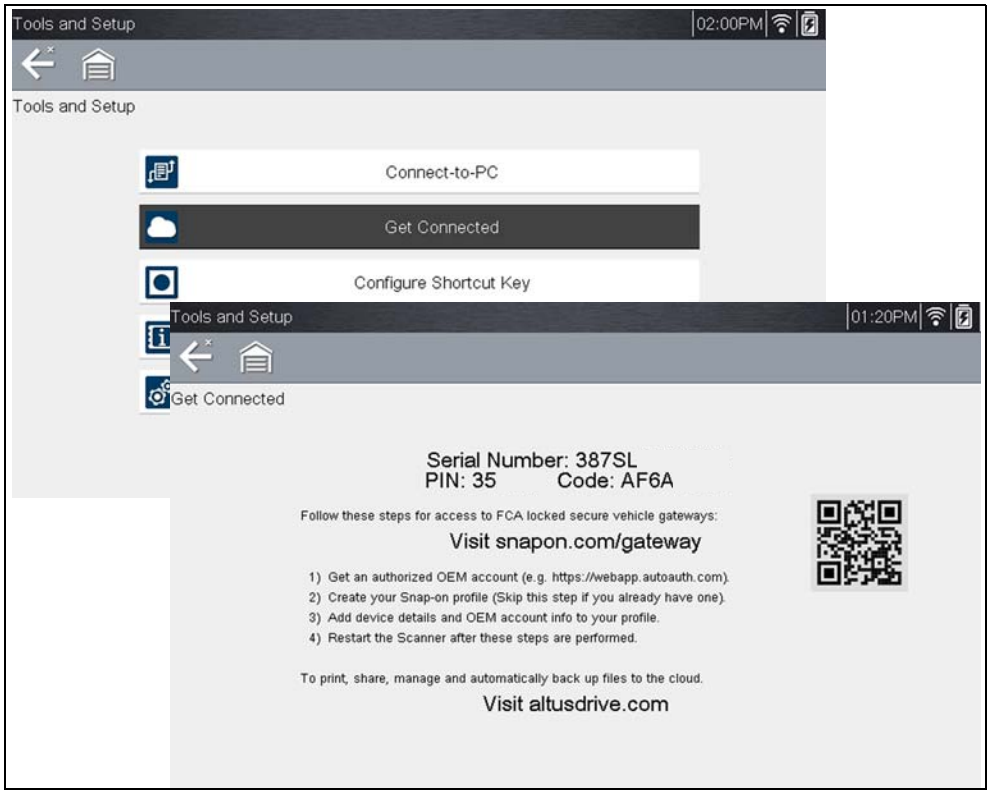


Figure 12-2

12.4 Using the Snap-on Cloud

To use the Snap-on Cloud:

- A Snap-on Cloud account is required, see *Registration - Getting Started on page 74*.
- The diagnostic tool must be connected to a Wi-Fi network, see *Wi-Fi Connection / Troubleshooting on page 145*.

12.4.1 Quick Reference (print / download / share)

- **Downloading Files** - Select the menu icon on the file card (upper right), then select **Download** from the menu options. See (callout #4) in *My Files on page 78*.
- **Printing Files** - Select the menu icon on the file card (upper right), then select **Download** from the menu options (see callout #4 in *My Files on page 78*), once downloaded print the file from your device. Alternate Method - open the file in a new browser tab (see *File Detail (Tags) on page 79*) and use the browser viewer tools to print the file. ***Note**: All browsers may not support this feature*.
- **Sharing Individual Files** - Select the link icon on the file card (lower center), then select **Copy to Clipboard** from the pop-up window. See *Sharing/E-mail an Individual Report (Link icon) on page 80*.
- **Sharing the Entire Gallery of Files** - Select the menu icon from the upper toolbar (upper right), then select **Copy to Clipboard** from the pop-up window. See *Sharing all Reports (Share My Gallery) on page 80*.

12.4.2 Logging in to the Snap-on Cloud (registered user)

Logging in to the Snap-on Cloud (registered user):

1. Using your mobile device or PC visit ALTUSDRIVE.com.
2. Select the **Login** icon (*Figure 12-3*).

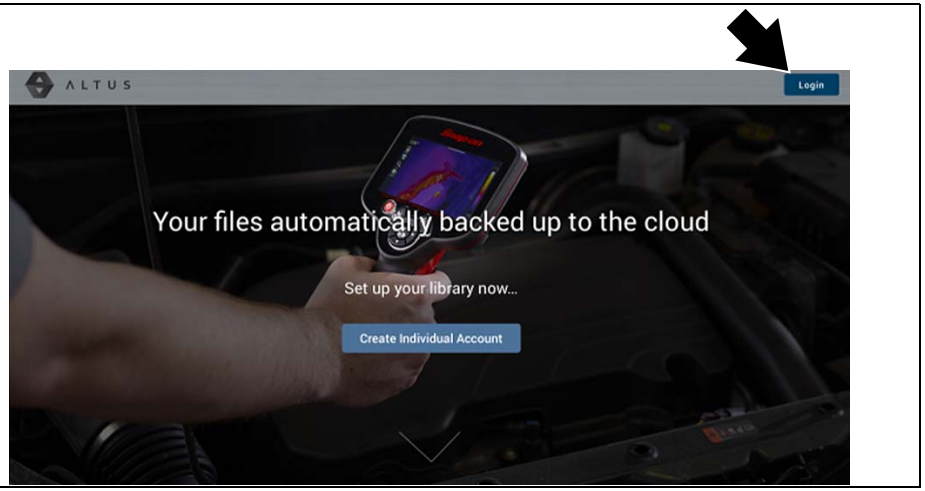


Figure 12-3

3. Log in using your **Username** and **Password** (*Figure 12-4*).

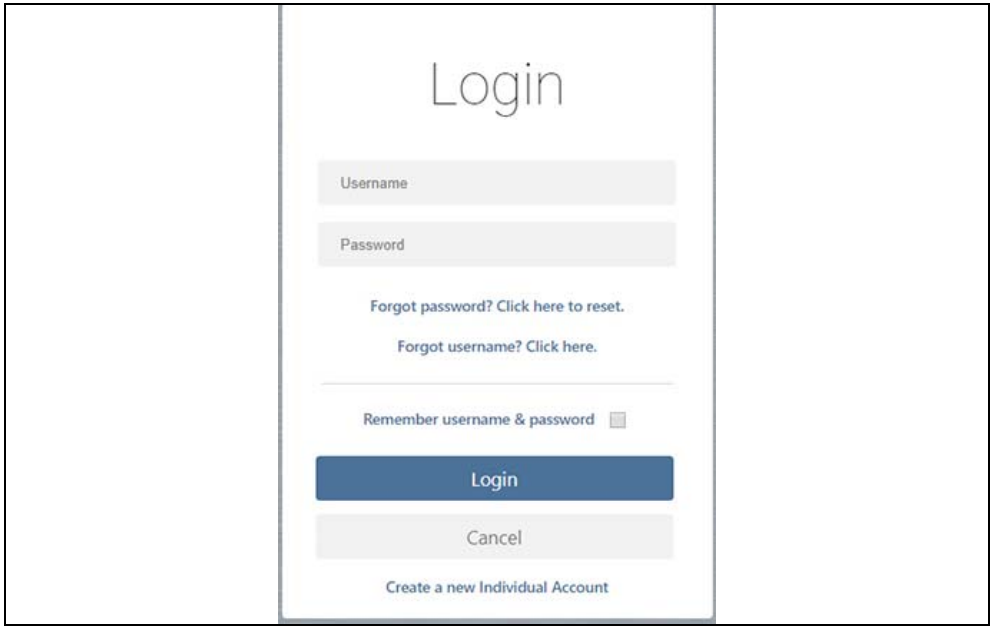


Figure 12-4

12.4.3 Navigating the Snap-on Cloud (Toolbars)

The upper and lower toolbars are available from all screens.

The upper toolbar includes a menu icon (right side) (*Figure 12-5*). This menu allows you to share your entire gallery, see *Sharing all Reports (Share My Gallery) on page 80*.

Figure 12-5

The lower toolbar (*Figure 12-6*) includes the following links:

- My Files, see *page 78*
- Search, see *page 81*
- Favorites, see *page 81*
- Profile, see *page 82*

Figure 12-6

12.4.4 My Files

My Files displays all the code scan reports uploaded from the diagnostic tool (*Figure 12-7*). Each report is displayed in a navigation card.

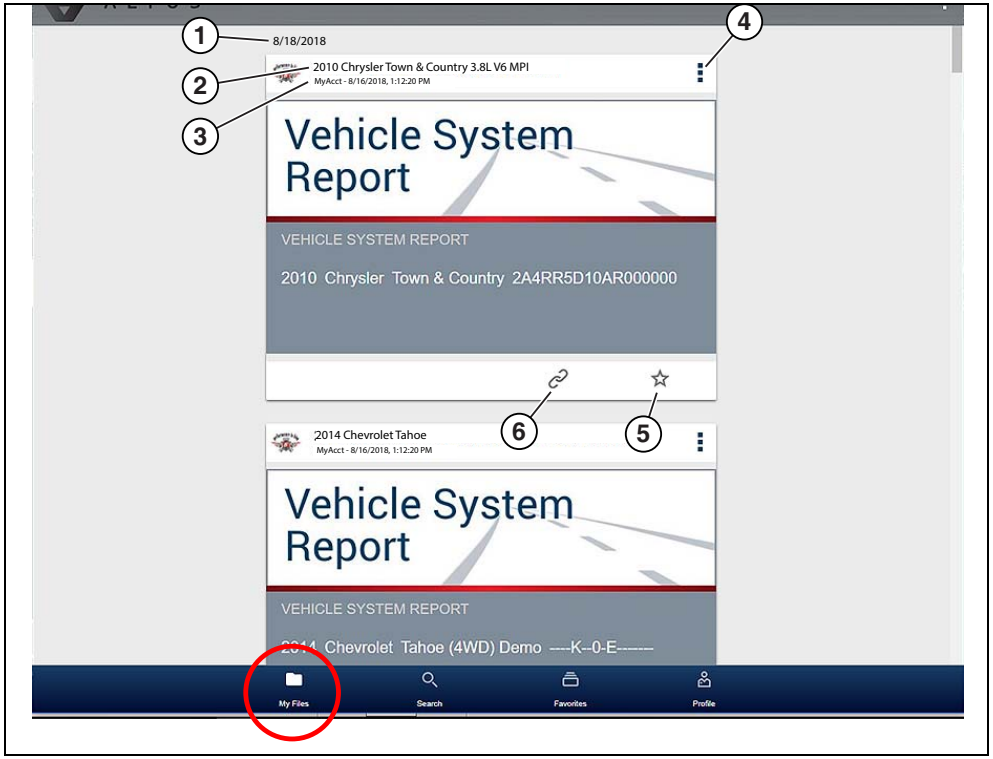


Figure 12-7

1— Report Upload Date - Reports are displayed with the most recent uploads at the top. The Report upload date is displayed at the upper left.
The date is shown once at the top of the series of reports, scroll up / down to see all files within a specific date.

2— Report File Name - See *File Detail (Tags) on page 79* for additional information.

3— Your Account Username (and timestamp) - See *Account on page 83* for additional information. The timestamp indicates the date/time the file posted.

4— Menu Icon - options:

- **Download** - Select to download the report to your device.
- **Delete** - Select to delete the report.

5— Favorites Icon - See *Favorites on page 81* for additional information.

6— Link icon - See *Sharing/E-mail an Individual Report (Link icon) on page 80* for additional information.

Selecting a report opens the report File Details. The File Detail screen allows you to edit report file metadata. See *File Detail (Tags) on page 79*.

File Detail (Tags)

As shown in *Figure 12-9* selecting (touching) a report from My Files opens the report File Detail card. Selecting the report again opens that report in a new browser tab.

NOTE

Opening the file in a separate browser tab may allow you to use the browser viewer tools to print or download the file. This feature may not be available in all browsers.

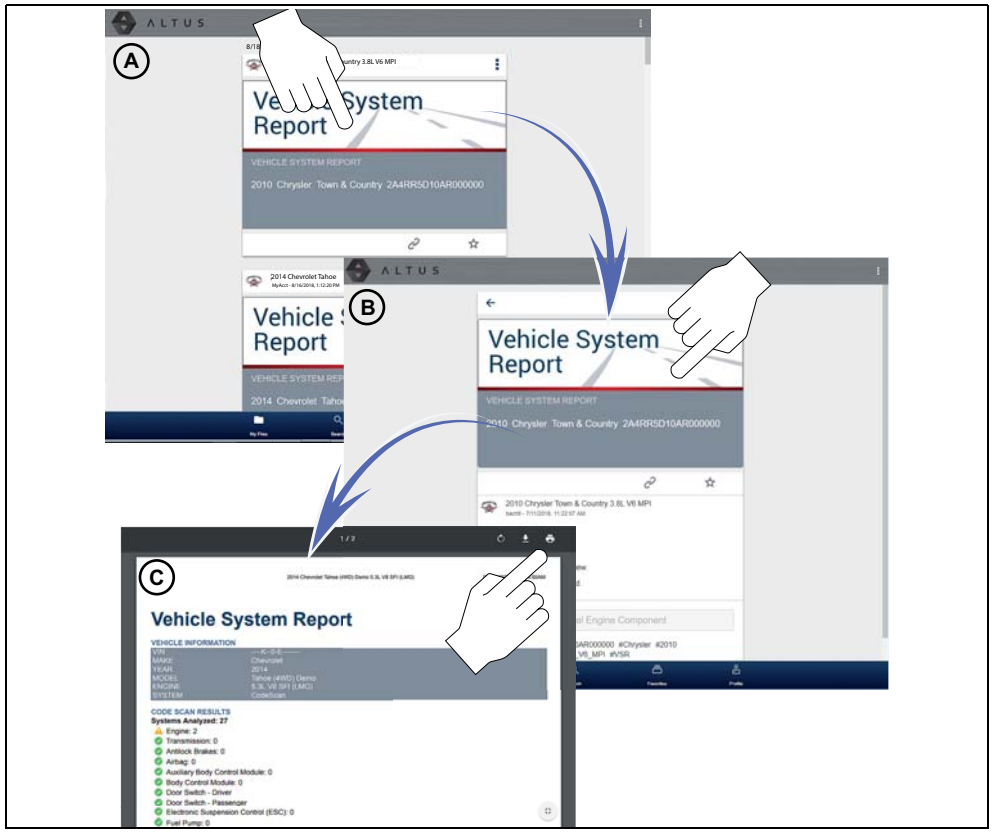


Figure 12-8

The following describes File Detail card features.

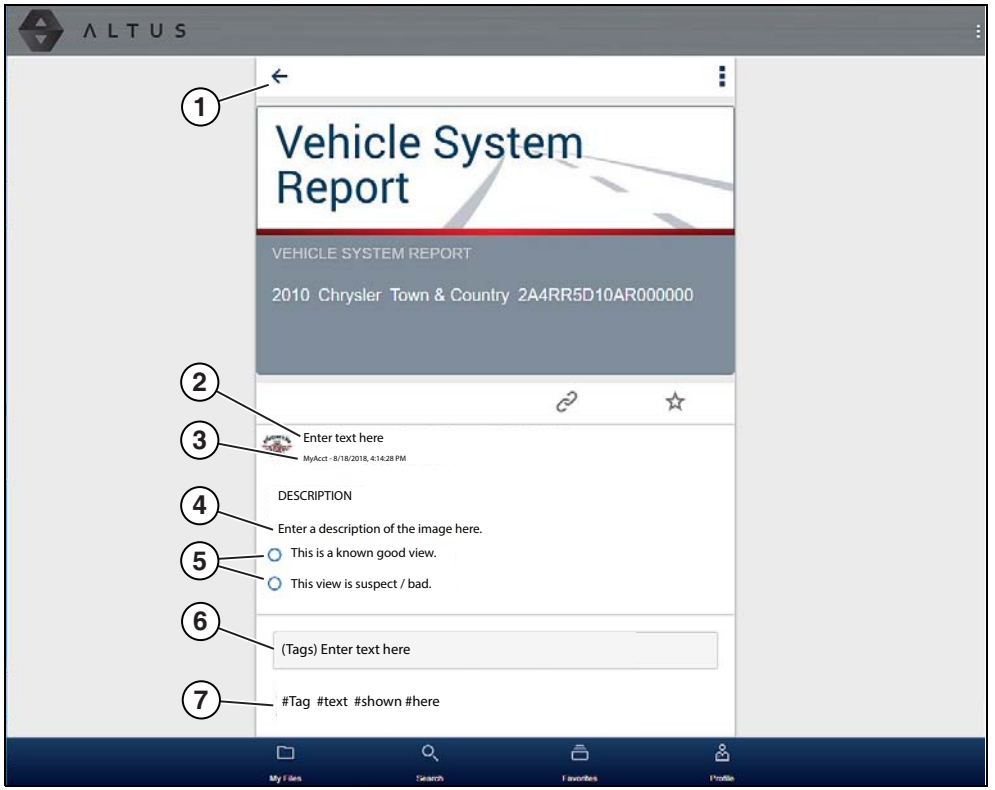


Figure 12-9

1— Back Icon - Returns to My Files

2— Report Name (user entered searchable text) - Select the report file name to open the editor. Enter text (alphanumeric) in the field as desired.

3— Your Account Username (and timestamp) - See *Account on page 83* **for additional information.** The timestamp indicates the date/time the file posted.

4— Description (user entered searchable text) - Enter text (alphanumeric) in the description field as desired.

5— Known Good / Bad Checkboxes (user defined and searchable) - Selecting a checkbox automatically creates a tag (e.g. #good) and is displayed in the Active Tag(s) field.

6— Tag (user entered searchable text) - Enter text (alphanumeric) in this field as desired. Tagging a report allows you to associate (tag) descriptive text to a report. Tagging can be used to associate multiple reports with a common tag.

The tag text then can be used when performing a search to find all reports with the same tag. Each text entry (word) that is separated by a space (return) is added as a tag, and is displayed in the Active Tag field.

7— **Active Tag(s)** - Displays the active tag(s). Tags can include the “good” or “bad” entry from the Known Good / Bad checkboxes, and text entered in the report Name, Description and Tag fields. Each entry is automatically preceded with the “#” symbol.

Sharing/E-mail an Individual Report (Link icon)

To share a report:

1. Select the **Link icon** (*Figure 12-10*) on the report card.

Figure 12-10

2. Select **Copy to Clipboard** (*Figure 12-11*) from the pop-up window.

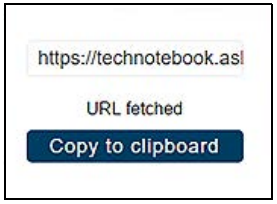


Figure 12-11

3. Open your (e-mail, text, social media, etc.) app and paste the URL into a message to share with others.

The URL link that is sent only displays:

- The Report
- Report Name
- Your User Name
- Date Report was posted
- Report Description

Sharing all Reports (Share My Gallery)

To share your entire gallery (all files in My Files):

1. Select the **Menu** icon (*Figure 12-13*) from the upper toolbar.

Figure 12-12

2. Select **Share My Gallery**.
3. Select **Copy to Clipboard** (*Figure 12-13*) from the pop-up window.

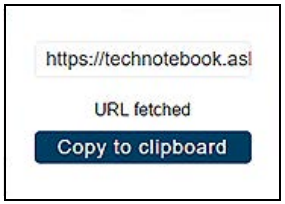


Figure 12-13

4. Open your (e-mail, text, social media, etc) app and paste the URL into a message to share with others.

The URL link that is sent is only displays:

- The Reports
- Report Names
- Your User Name
- Date the Reports were posted
- Report Descriptions

12.4.5 Search

The Search screen allows you to perform text searches on all uploaded files and view the results.

To search for a specific file or set of files, enter a **search term** in the search box and select the **magnifying glass** icon (*Figure 12-14*) (or press Enter).

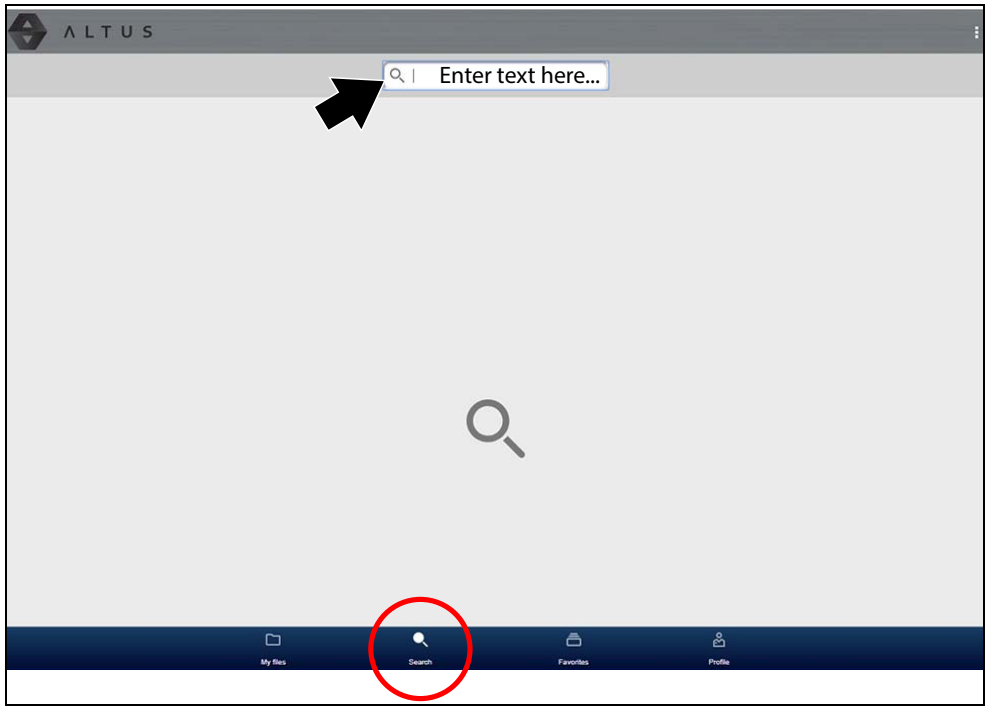


Figure 12-14

Search queries the following to find results:

- **Report File Name** - name can be either system assigned or user assigned
- **Known Good / Bad Checkboxes** - selecting a checkbox automatically creates a searchable tag (e.g. good or bad)
- **Description** - user entered text
- **Tag** - user entered text

See *File Detail (Tags) on page 79* for additional information on the above “user entered” text.

12.4.6 Favorites

The Favorites screen displays all the reports selected as favorites (*Figure 12-13*).

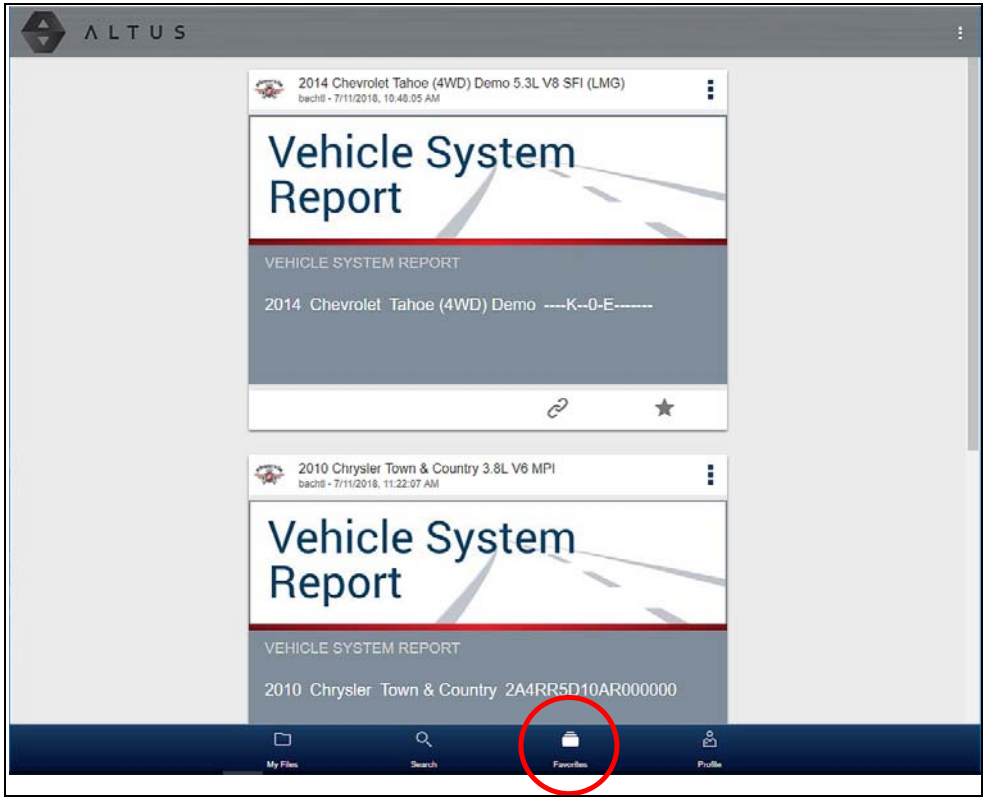


Figure 12-15

To set a file as a ”Favorite”, select the **Favorite** icon (star symbol) to highlight the icon.

Description	Icon
Favorite (on)	★
Favorite (off)	☆

The Favorites icon can be selected/deselected at anytime when displaying files.

12.4.7 Profile

The Profile screen allows you to:

- Open Profile Manager (*Figure 12-16*), see *Using Profile Manager on page 82*
- Logout of the Snap-on Cloud, see *Logging Out of the Snap-on Cloud on page 85*

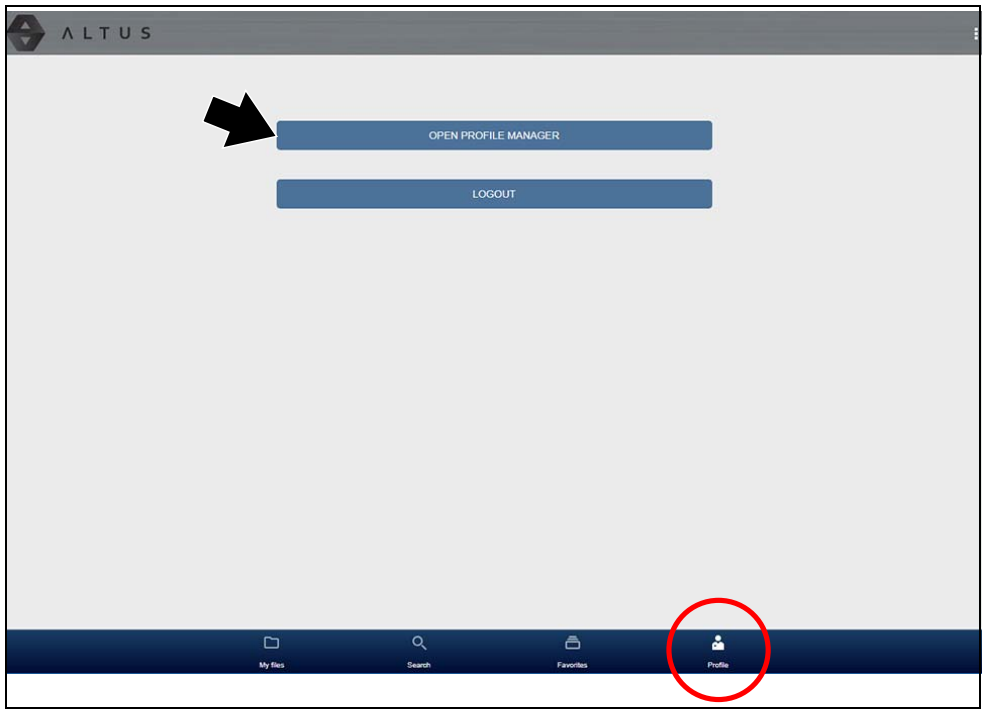


Figure 12-16

Using Profile Manager

To open the Profile Manager screen, select **Profile** from lower toolbar, then select **Open Profile Manager** (*Figure 12-16*).

NOTE

Profile Manager opens a new browser tab. To return to the Snap-on Cloud after logging out of Profile Manager, you must select the ALTUS Home Page browser tab.

Enter your **Username** and **Password** at the Login screen.

Profile Manager includes five tabbed categories to help you manage your account information:

- *Account on page 83*
- *Personal Information on page 83*
- *Profile Picture on page 83*
- *Device Management on page 84*

Account

This screen manages the following account information (*Figure 12-17*):

- Authorization Key (not required for Snap-on Cloud account registration)
- Account Expiration Date
- Shop Nickname
- Email
- Username
- Password

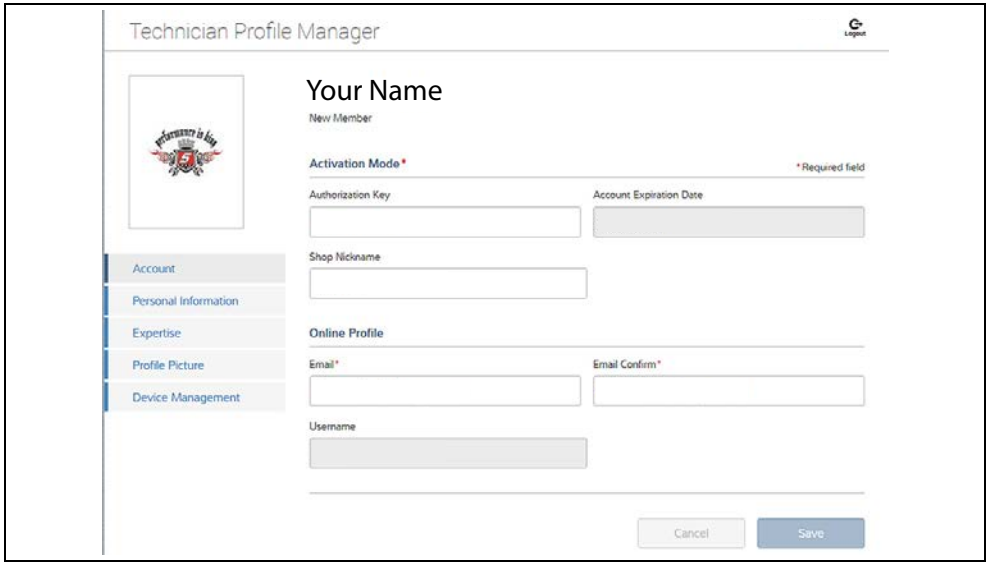


Figure 12-17

Personal Information

This screen manages the following personal account information (*Figure 12-18*):

- First Name
- Last Name
- City
- State
- Zip Code

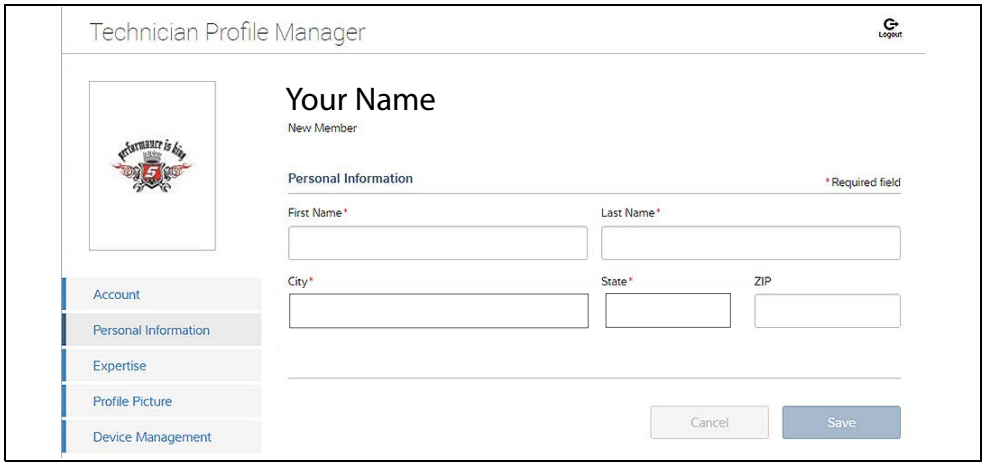


Figure 12-18

Profile Picture

This screen allows you to personalize your profile picture, by selecting one of the provided images.

Shop Information

Shop Information allows you to enter the name address, and phone number for your shop. This information is included as a header on the report.

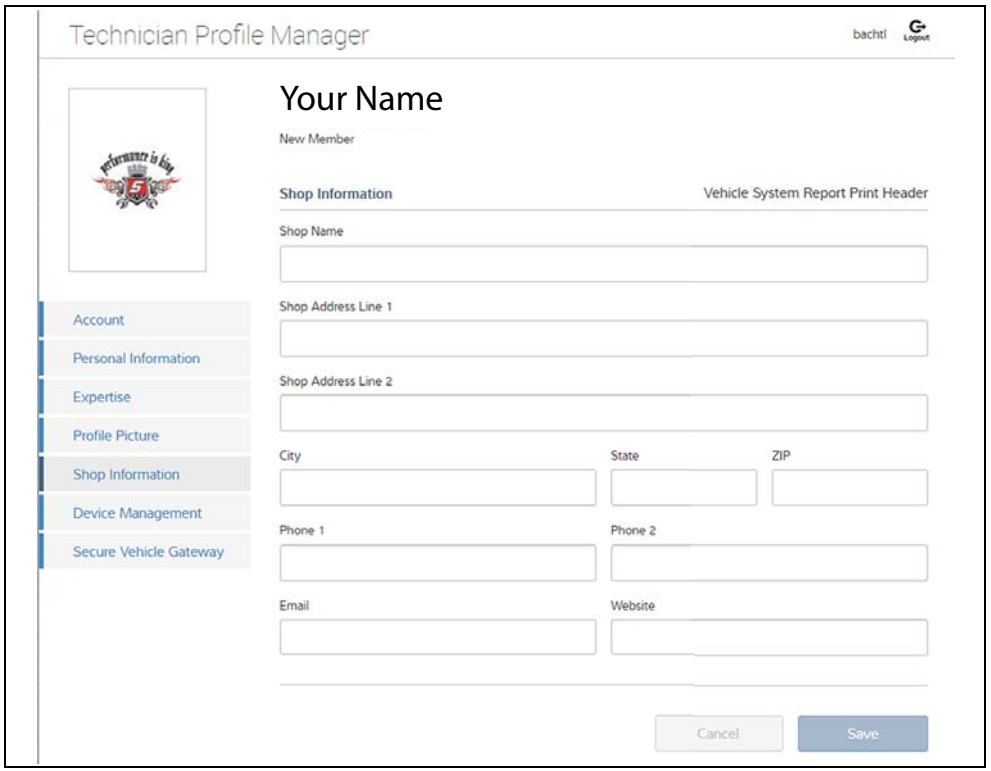


Figure 12-19

Device Management

This screen manages devices associated with your account (*Figure 12-20*):

Select **Add a Device** to setup and add an authorized device (e.g. diagnostic tool or Diagnostic Tool).

Enter the device:

- **Serial Number** - serial number of the device
- **PIN** - specific PIN associated to the device
- **Code** - authorization code specific to the device

Device Name - user define name

When finished select **Save** to save and link the device to your account.

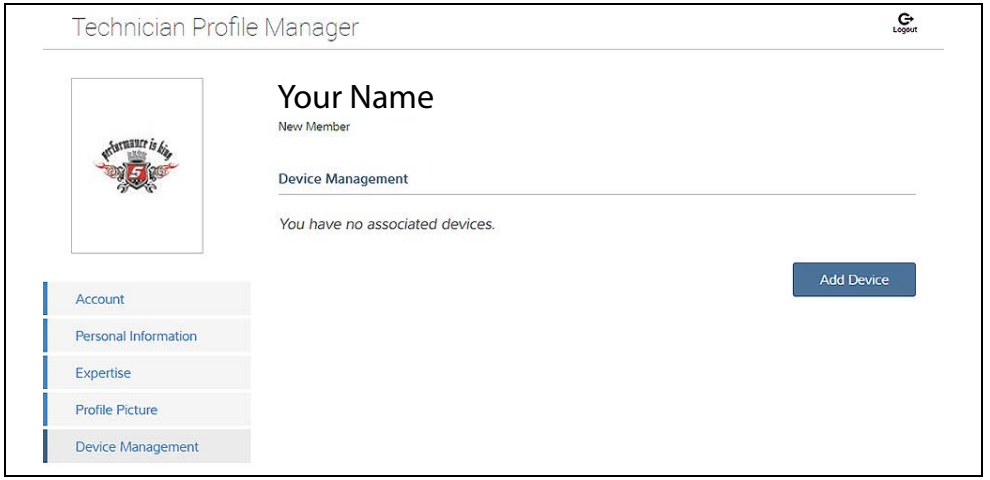


Figure 12-20

Logging Out of Profile Manager

Select the **logout** icon (upper right screen) to log out of Profile Manager (*Figure 12-21*).

Figure 12-21

NOTE

Profile Manager opens a new browser tab. To return to the Snap-on Cloud after logging out of Profile Manager, you must select the ALTUS Home Page browser tab.

Logging Out of the Snap-on Cloud

To log out of the Snap-on Cloud select **Profile** from lower toolbar, then select **Logout** (*Figure 12-22*).

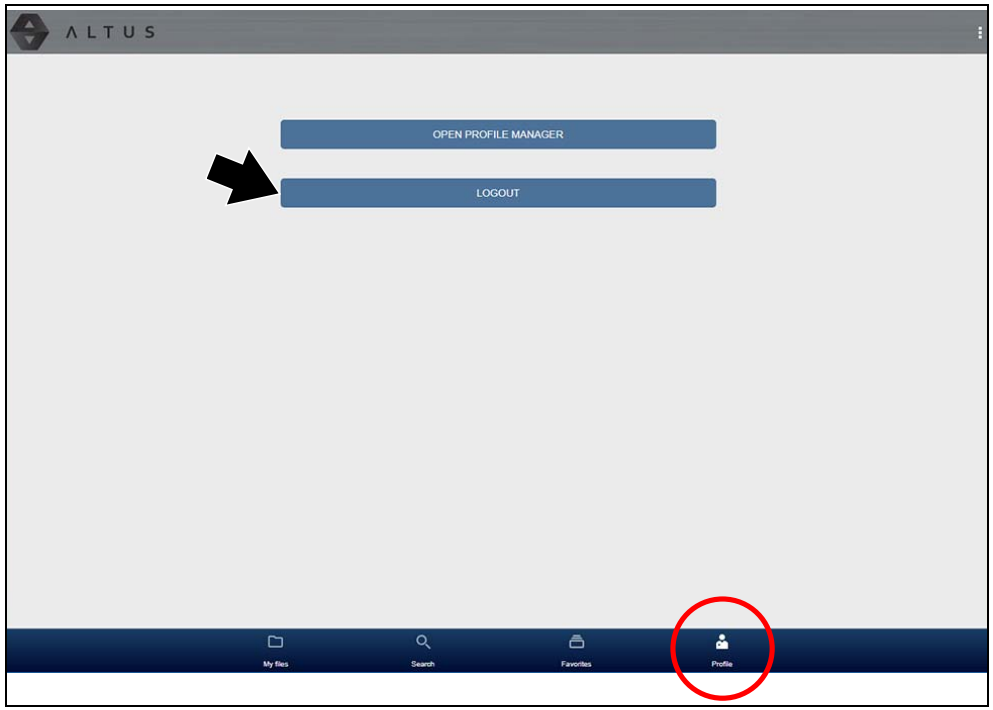


Figure 12-22

Section 13 ShopStream Connect ™

Introduction

This section provides a brief introduction to the features and operation of ShopStream Connect (SSC).

SSC is a companion PC application (provided at no charge) that extends the capabilities of your diagnostic tool, by connecting to your PC.

SSC allows you to:

- Print data files, screenshots and code scan reports
- Download software upgrades and updates to your PC, and then install them on to your diagnostic tool.
- Transfer data files bi-directionally between your diagnostic tool and your PC.
- View, save and manage your data files on your PC.
- Add or edit notes and comments to your data files.

The ShopStream Connect (SSC) software is available online at:

http://snapontools.com.au/diagnostics/downloads

Main Topic Links

13.1 Using SSC (Connecting to your PC)

To connect and use SSC with your diagnostic tool:

1. Download and install SSC on your PC from:
   http://snapontools.com.au/diagnostics/downloads
2. Turn your diagnostic tool on.
3. Connect the supplied USB cable from the USB jack on your diagnostic tool to your PC:
4. From the diagnostic tool Home screen, select **Tools > Connect-to-PC**.

The **"Device is now in Connect-to-PC mode"** screen message is displayed (*Figure 13-1*) and the ShopStream Connect software will open automatically on your PC (*Figure 13-2*).

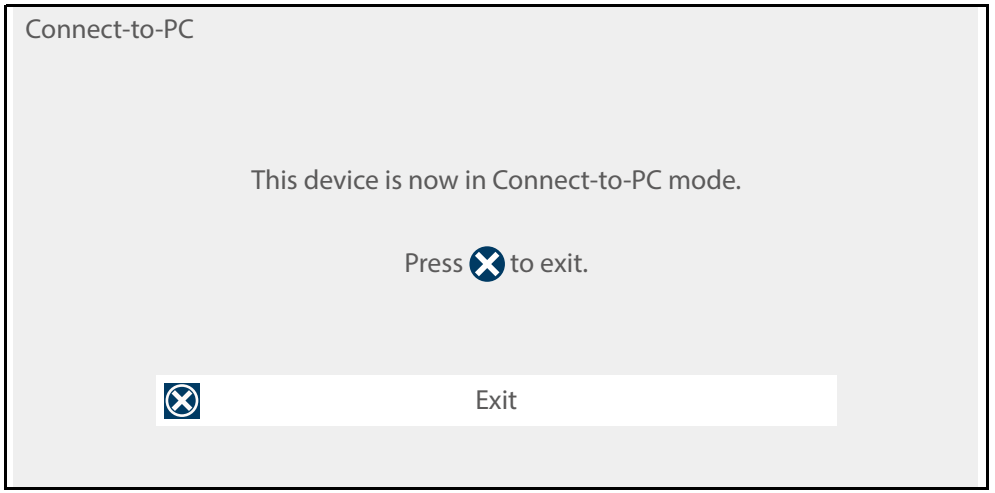


Figure 13-1

If the ShopStream Connect software does not open, open it from the Windows Start menu or use the ShopStream Connect shortcut icon on the Windows desktop (automatically created during installation).

13.2 SSC Main Screen

The ShopStream Connect software will open automatically when you connect the diagnostic tool to your PC USB connection, *Using SSC (Connecting to your PC) on page 86*.

The following shows the main screen layout for ShopStream Connect software.

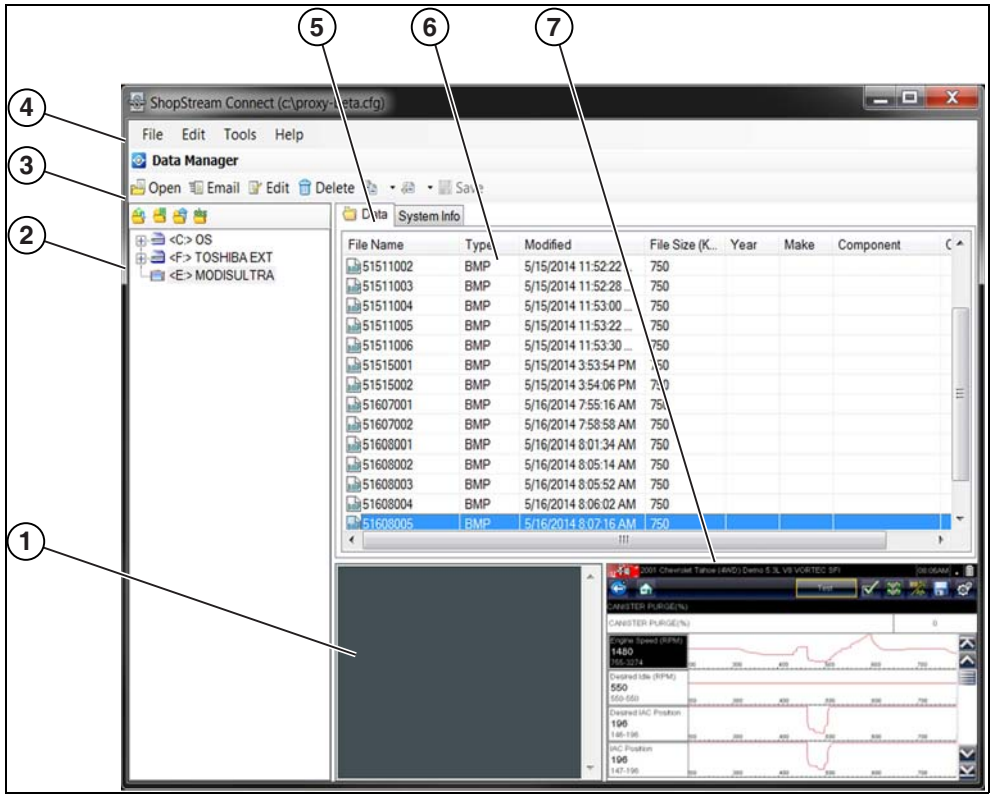


Figure 13-2

1— Notes Window—allows you add notes to select data files. Select Save from the menu bar to save your notes. *NOTE: Not all file types allow notes, the Notes window will be grayed out when a file type that does not support notes is highlighted. Some image files may display notes for reference purposes (the notes are grayed out and not editable).*

2— File directory structure—displays the file directory structure of your PC in standard Windows format, and shows any connected diagnostic tools at the bottom of the data list.

3— Data Manager Toolbar—provides control icons that perform a variety of operations on data files.

4— Main Menu bar—contains **File, Edit**, **Tools**, and **Help** menus.

5— Tabs—provides access to data files and presets stored on the diagnostic tool or on the PC, and also allows viewing of software revision details of the diagnostic tool.

6— Main display—shows stored data files details. *NOTE: The files listed are sortable (ascending/descending) by clicking on the column tab at the top (e.g. File Name, Type, etc.) Sort preferences are saved when the ShopStream Connect program is closed.*

7— Preview—displays a sample of the file if the selected file is a image file.

13.3 Scanner DataViewer

SSC allows you to view data files recorded with your diagnostic tool, on your PC. When a Scanner data file is selected, it opens and displays in the Scanner DataViewer (*Figure 13-3*). Scanner DataViewer allows you play the data file and custom configure the data in a number of ways.

1— Menu bar
2— Display toolbar
3— Graph display
4— Properties icon
5— Vertical Scroll bar
6— Zoom controls
7— Slider bar
8— Navigation toolbar
9— Parameter text list
10—Highlighted PIDs - indicates graphs currently displayed
11—Parameter configuration tabs

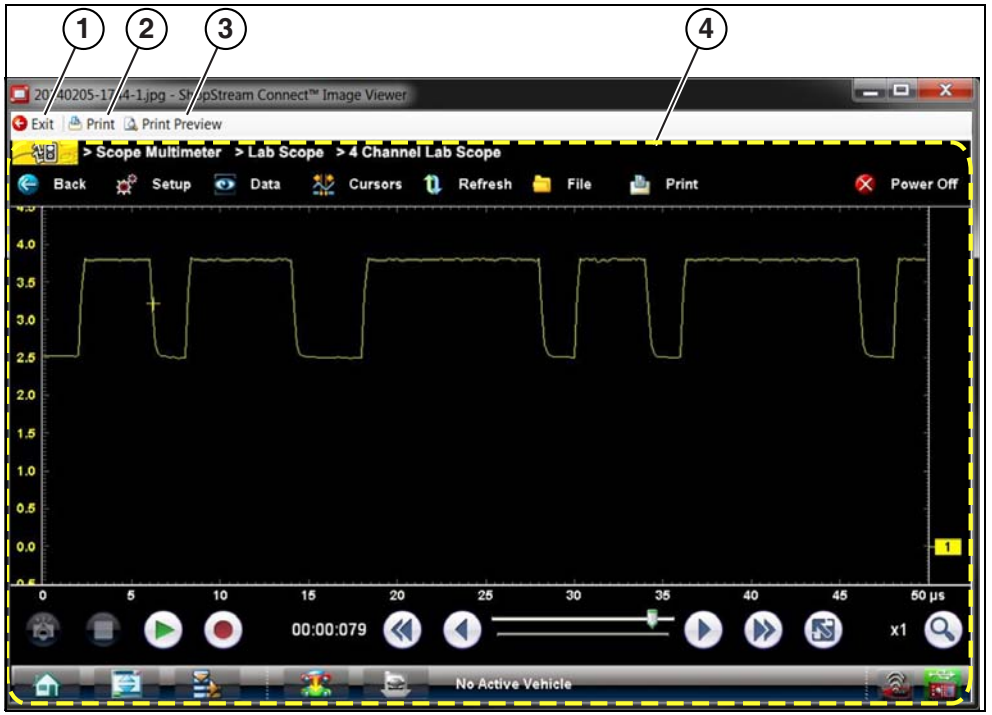
Figure 13-3

13.4 Image Viewer

SSC allows you to view and print .bmp, .jpg and .sps image files (screenshots) saved on your diagnostic tool, with your PC.

NOTE

File extension types vary depending on the diagnostic tool. Not all the file extensions described here may be available on your diagnostic tool.



1— Exit - closes the Image Viewer
2— Print - prints the image
3— Print Preview - allows the image to be previewed before printing
4— Captured Screen Image

Figure 13-4

13.5 Printing the (Code Scan) Vehicle System Report

To print the Vehicle System Report, the saved code scan .XML file must be opened using ShopStream Connect.

To print the Vehicle System Report using ShopStream Connect:

1. Double-click the code scan .XML file from the file list to open the Vehicle System Report (*Figure 13-5*) in the Code Scan Viewer (*Figure 13-6*).

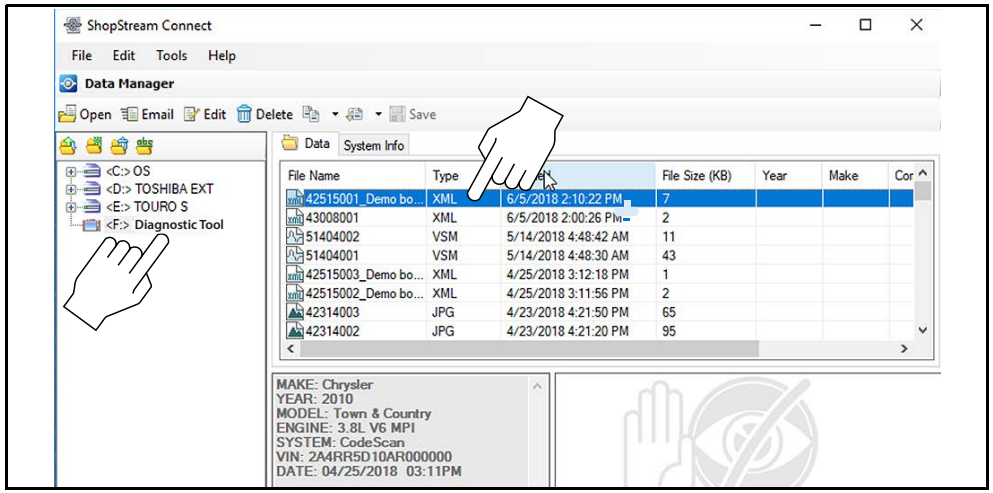


Figure 13-5

2. Select **Print** or **Print Preview** from the Code Scan Viewer menu to print or preview the Vehicle System Report (*Figure 13-6*).

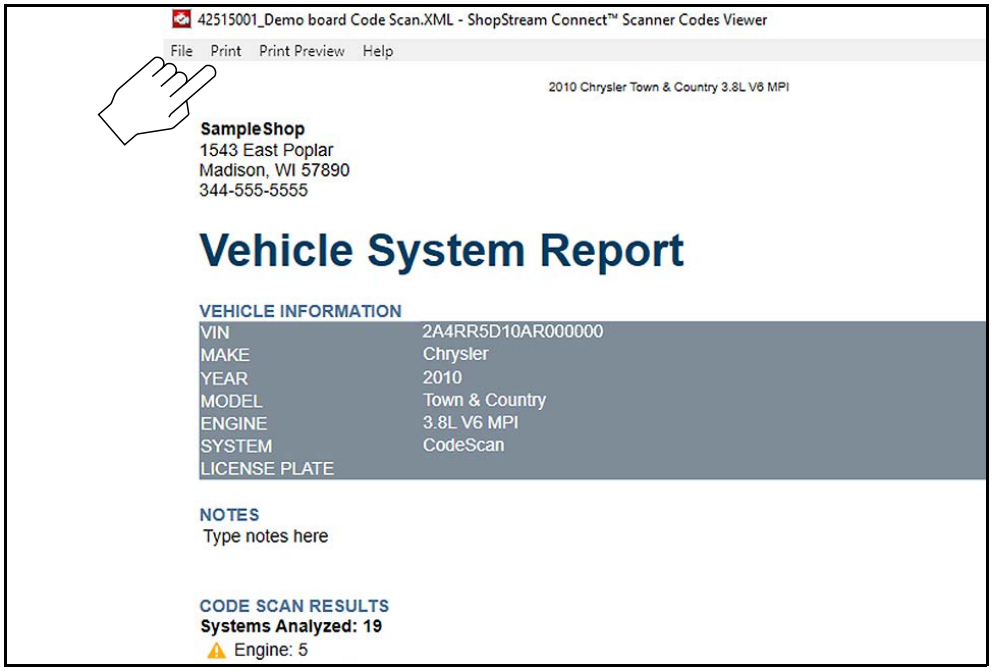


Figure 13-6

Selecting **Print** opens the Windows print dialog window (*Figure 13-7*). Select your printer from the list, then select **Print** to print the report.

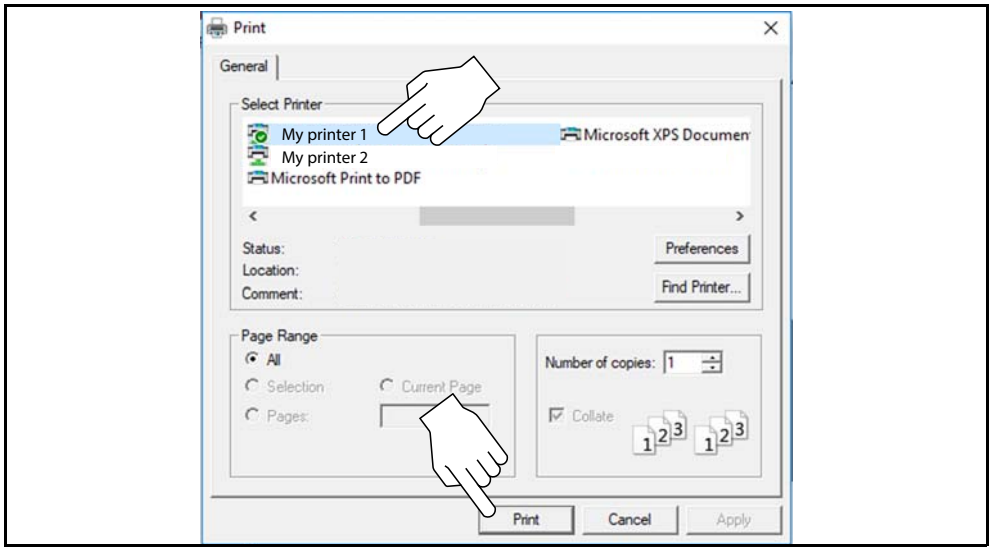


Figure 13-7

13.6 Customizing the (Code Scan) Vehicle System Report

Select fields of the Vehicle System Report can be edited, and you can also add notes to the report using ShopStream Connect.

To add Pre Scan or Post Scan to the report header:

1. Double-click the code scan .XML file from the file list to open the Vehicle System Report (*Figure 13-8*) in the Code Scan Viewer.
2. Hover the cursor over the area shown in *Figure 13-8*, and select the desired option to add to the report header.

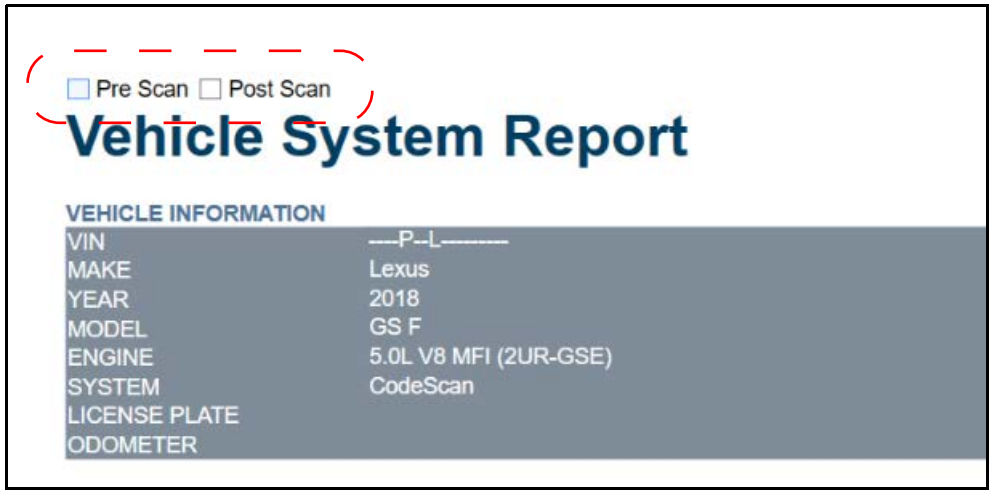


Figure 13-8

To edit the Shop Information (header) of the Vehicle System Report:

1. From ShopStream Connect, select **Tools** > **Options** > **Edit Shop Info** (*Figure 13-9*).

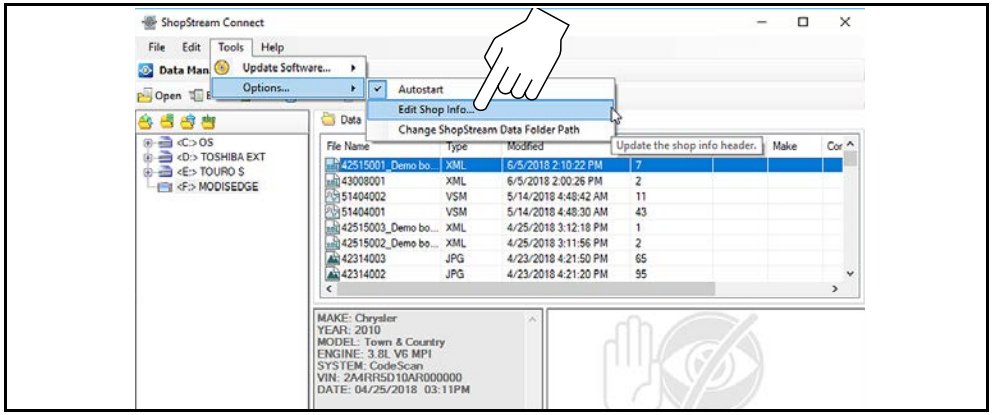


Figure 13-9

2. The **Shop Info** dialog box opens (*Figure 13-10*) allowing you to enter the name address, and phone number for your shop. This information is included as a header on the report.

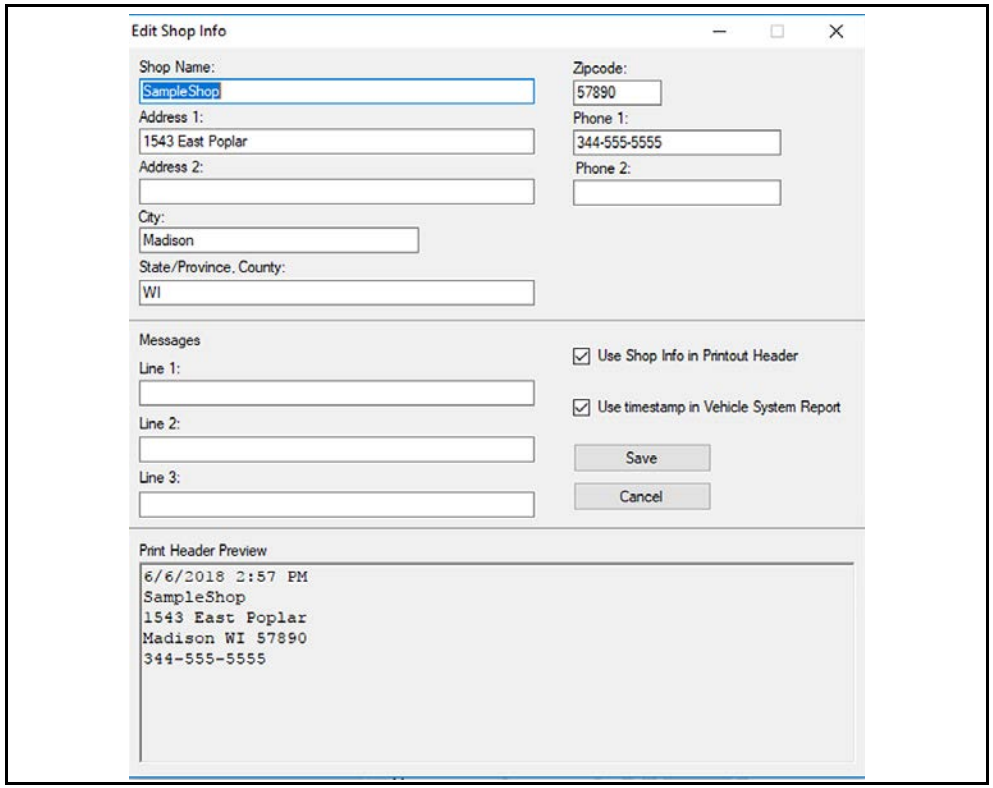


Figure 13-10

A preview panel at the bottom of the box shows how the information will appear on a print out (*Figure 13-10*).

3. Check the "**Use Shop Info in Printout Header**" box to show the Shop Info in the printout (*Figure 13-10*).

4. Check the "**Use timestamp in Vehicle System Report**" box to show the time the vehicle was scanned in the printout (*Figure 13-10*).

5. When you are finished editing, select **Save** (*Figure 13-10*) to save the information and close the dialog box.

To edit the VIN and License Plate fields, and/or add notes to the Vehicle System Report:

1. From ShopStream Connect, open the code scan .XML file to be edited (*Figure 13-11*).

2. Click in the editable fields as shown in (*Figure 13-11*) to change the values or add notes.

3. Check the "**Add the notes to the printed copy"** box to show the notes in the printout (*Figure 13-11*).

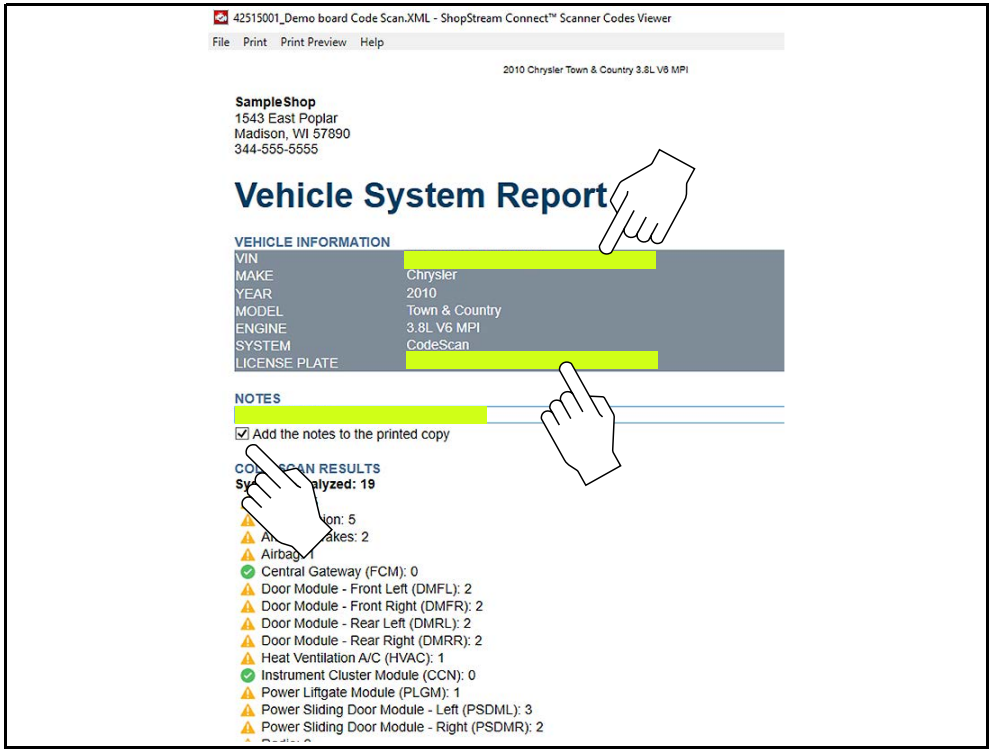


Figure 13-11

13.7 Software Upgrades and Updates

Upgrade/Update Descriptions:

- **Software Upgrade** - a software upgrade is a new software version (contact your sales representative for purchase information).
- **Software Update** - a software update is a service release for installed software. These are available free of charge, and are provided as necessary to update installed software. When your diagnostic tool is connected to a PC using SSC, the SSC software will automatically check for updates, and if an update is available, it will provide installation instructions. Follow the screen prompts to accept, download and install the software.

NOTE

To receive updates or upgrades, SSC software must be installed on your PC and have connection to the Internet.

Example - Updating diagnostic tool software:

1. Select **Tools** > **Update Software** > (**diagnostic tool type - e.g. ETHOS Edge, MODIS Edge, SOLUS Edge, etc.)** from the Menu bar (*Figure 13-12*).

The software checks the Snap-on web server for available updates.

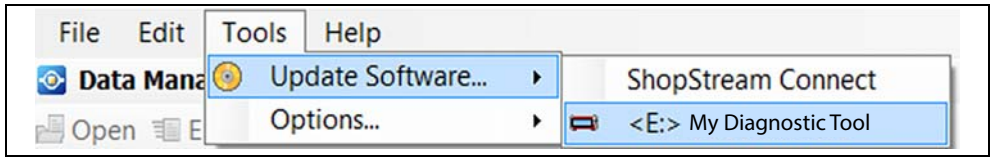


Figure 13-12

2. If service release updates are available, select **Next** to continue, then select **Download** and follow the on-screen instructions to complete the installation (*Figure 13-13*).

Figure 13-13

NOTE

For additional information on ShopStream Connect software updates and upgrades, download the ShopStream Connect User Manual from our website: **http://snapontools.com.au**

13.7.1 End User License Agreement

Before software installation at initial purchase, and before all subsequent software updates/upgrades installations End User License Agreement (EULA) acceptance is required.

IMPORTANT

Use of Software is governed by the terms and conditions of the End User License Agreement. The diagnostic tool should not be initially operated until the End User License Agreement is read. Use of the device acknowledges your acceptance of the End User License Agreement. The Snap-on Incorporated Software End User License Agreement is available at: https://eula.snapon.com/diagnostics

To Accept: at the screen prompt (*Figure 13-14*) click the checkbox on the left side of the window, and then select **Agree and Continue**. The software will be installed automatically.

Figure 13-14 below represents a typical EULA acceptance agreement screen.

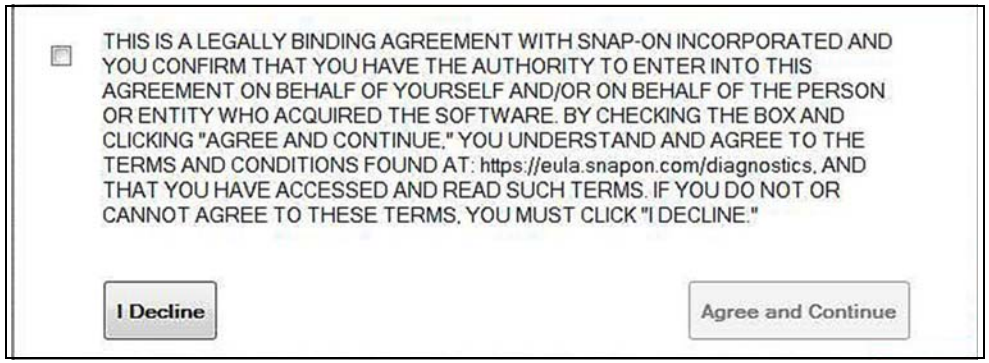


Figure 13-14 *Typical EULA acceptance screen*

To Decline: at the screen prompt (*Figure 13-14*) select **I Decline**. A confirmation message is displayed providing options to Go Back or Exit the software installation (*Figure 13-15*).

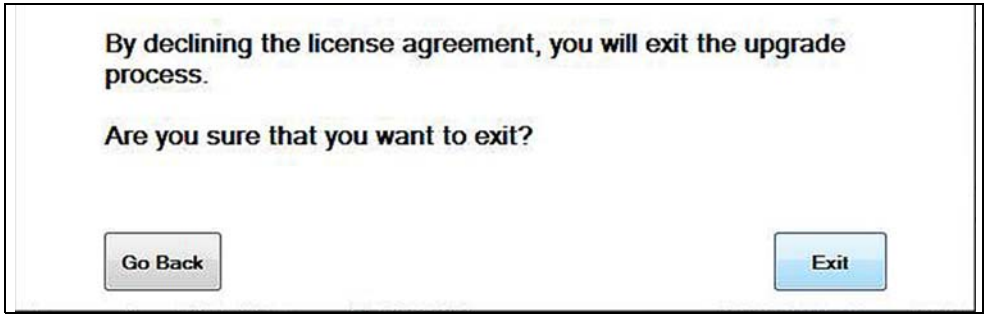


Figure 13-15 *Typical EULA acceptance screen*

Section 14 Maintenance

This section describes basic cleaning and battery replacement procedures for your diagnostic tool.

Main Topic Links

14.1 Cleaning and Inspecting the Diagnostic Tool

Periodically perform the following tasks to keep your diagnostic tool in proper working order:

- Check the housing, cables and connectors for dirt and damage before and after each use.
- At the end of each work day, wipe the diagnostic tool housing, cables and connectors clean with a damp cloth.

IMPORTANT

Do not use any abrasive cleansers or automotive chemicals on the diagnostic tool.

14.1.1 Cleaning the Touch Screen

The touch screen can be cleaned with a soft cloth and a mild window cleaner.

IMPORTANT

Do not use any abrasive cleansers or automotive chemicals on the touch screen.

14.2 Battery Pack Service

14.2.1 Safety

Follow all safety guidelines when handling the battery pack.

WARNING

Risk of electric shock.

- **Prior to recycling the battery pack, protect exposed terminals with heavy insulating tape to prevent shorting.**
- **Disconnect all test leads and turn diagnostic tools off before removing the battery pack.**
- **Do not attempt to disassemble the battery or remove any component projecting from or protecting the battery terminals.**
- **Do not expose the diagnostic tool or battery pack to rain, snow, or wet conditions.**
- **Do not short circuit the battery terminals.**

Electric shock can cause injury.

⚠ WARNING

Risk of explosion.

- **The Lithium battery is factory replaceable only, incorrect replacement or tampering with the battery pack may cause an explosion.**

Explosion can cause death or serious injury.

IMPORTANT

The battery pack contains no user serviceable components. Tampering with the battery pack terminals or housing will void the product warranty.

Keep the following in mind when using and handling the battery pack:

- Do not short circuit battery pack terminals.
- Do not immerse the diagnostic tool or battery pack in water, or allow water to enter the diagnostic tool or battery pack.
- Do not crush, disassemble, or tamper with the battery pack.
- Do not heat the battery pack to over 100°C (212°F), or dispose of it in a fire.
- Do not expose the battery pack to excessive physical shock or vibration.
- Keep the battery pack out of reach of children.
- Do not use a battery pack that appears to have suffered abuse or damage.
- Charge the battery pack in the appropriate charger only.
- Do not use a battery charger that has been modified or damaged.
- Use the battery pack for the specified product only.
- Store the battery pack in a cool, dry, well ventilated area.

NOTE

The battery pack should be used within a short period of time (about 30 days) after charging to prevent loss of capacity due to self-discharging.

If long-term storage of the battery pack is necessary, it should be stored in a in a cool, dry, well ventilated place with a 30 to 75 percent state of charge to prevent loss of characteristics.

To prolong the life of your battery, turn off the diagnostic tool when not in use. The diagnostic tool has a built in charger that recharges the battery on demand whenever it is connected to a power source.

14.2.2 Ordering a New Battery Pack

If the battery pack needs to be replaced, contact your sales representative to order a new battery pack.

IMPORTANT

Only use the recommended Snap-on replacement battery pack.

14.2.3 Removing / Installing the Battery Pack

IMPORTANT

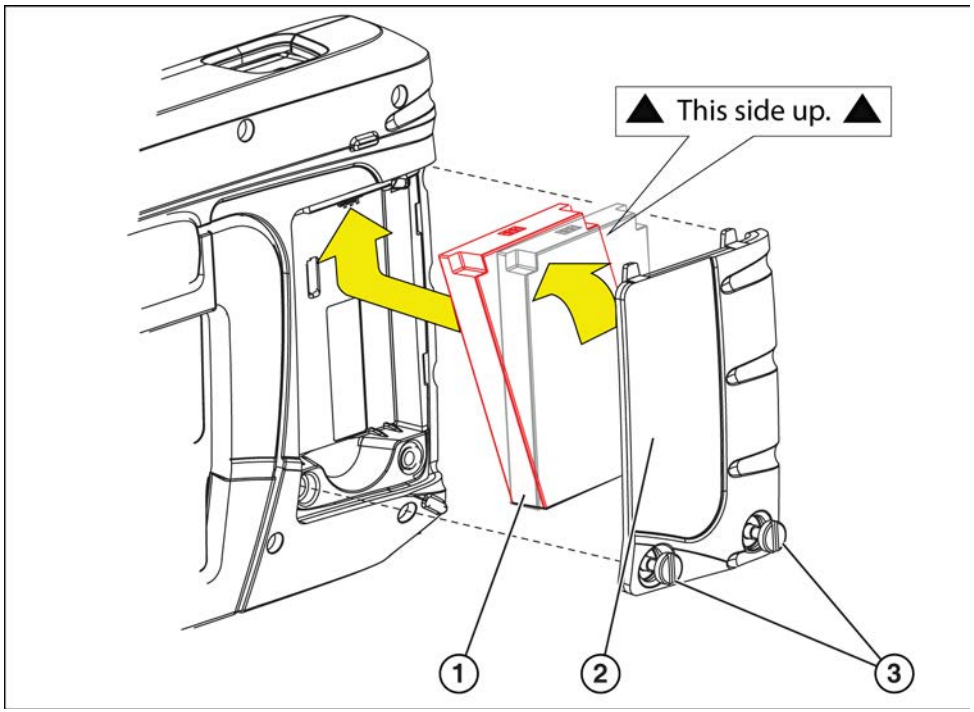
If replacing the battery pack, only use the recommended Snap-on replacement battery pack.

To remove the battery pack:

1. Loosen the two battery cover screws on the back-side of the diagnostic tool (*Figure 14-1*).
2. Pull up and out on the lower edge of the battery cover to release it.
3. Remove the battery pack in the same manner as the battery cover, pulling the bottom edge up and tilting out.

To install the battery pack:

1. Position the battery pack as shown below with the arrows facing up (*Figure 14-1*).
2. Tilt the top of the battery in to align the tabs, then down to install into place.
3. Install the battery pack cover, in the opposite manner as removal, aligning the tabs and tilting down and in, into place.
4. Tighten the battery cover screws. ***Do not overtighten the screws!***



1— Battery Pack
2— Battery Cover
3— Battery Cover Screws

Figure 14-1 *Battery pack*

14.2.4 Disposing of the Battery Pack

Always dispose of the battery pack according to local regulations, which vary for different countries and regions. The battery pack, while non-hazardous waste, does contain recyclable materials. If shipping is required, ship the battery pack to a recycling facility in accordance with local, national, and international regulations.

IMPORTANT

Always dispose of materials according to local regulations.

For additional information within the **Australia** contact:

- Australian Battery Recycling Initiative http://www.batteryrecycling.org.au

For additional information within **New Zealand** contact:

- Ministry for the Environment https://www.mfe.govt.nz/issues/waste/streams/batteries.html

Products bearing the WEEE logo (*Figure 14-2*) are subject to European Union regulations.

Figure 14-2 *WEEE logo*

Contact your sales representative for details.

Customer Support / Training

Support Contact Information

Phone / E-mail - Technical Assistance

(**Australia**) 1800 810 581 (**New Zealand)** 0800 762 766 /
sota.diagnostics@snapon.com

Website:

Snap-on Diagnostics and Information

- **http://snapontools.com.au**

Manuals / Technical Documentation - The information in this manual is periodically revised to ensure the latest information is included. Download the latest version of this manual and other related technical documentation from our website.

Accessories - Find diagnostic tool accessories on our website. Contact your sales representative to purchase product accessories**.**

Product Training Videos

Diagnostic tool specific training videos are available on our website. Follow along and learn the basics of diagnostic tool operation with our free training videos.

Videos are product specific and are available at:

http://diagnostics.snapon.com - Click on the “Training & Support” tab, select the applicable diagnostic tool, then select “See Training”.

NOTE

Sample titles are listed below. Not all titles may be available for all diagnostic tools, and are subject to change.

Snap-on® Training Solutions® - Training Videos (examples)	
Introduction and Navigation	Global OBD-II
Scanner Codes	Digital Multimeter
Scanner Data in PID View	Graphing Multimeter & Lab Scope
Scanner Data in Graphing View	Guided Component Tests
Fast-Track® Troubleshooter	Vehicle Specs & Resets
Functional Tests	SureTrack® & Wi-Fi

Diagnostic Quick Tips - Video Series

Snap-on Diagnostic Quick Tips videos are available at no charge on our website and on our YouTube channel. These videos are developed from real repair case studies to help professional technicians use diagnostic tools to solve specific vehicle problems (e.g. performing a Ford Relative Injector Flow Test).

Additional videos are also available showing specific diagnostic tool features (e.g. ShopStream Connect - Software Updates).

Figure 15-1

Videos are available at:

http://diagnostics.snapon.com - Click on the “Training & Support” tab, select the applicable diagnostic tool, then select “See Quick Tips”

https://www.youtube.com/user/snaponscanner/videos - Use the search function to find a title, or enter “Diagnostic Quick Tips” in the search field to see a list of all applicable titles.

NOTES

URL links (above) and titles listed (below) are subject to change and may not be available in all markets.

A sample list of titles are listed below, other titles may be available.

Some videos may not applicable for use with all diagnostic tools.

Snap-on® Training Solutions® - Diagnostic Quick Tips Videos (examples)	
Air/Fuel Ratio Sensor Test	Fuel Injector Voltage and Current Tests (Scope)
Alternator Ripple Test (Scope)	Fuel Pump Current Ramp Test (Scope)
BMW® Rain Sensor Calibration	Harley-Davidson® ABS Brake Bleed
CAN Bus Diagnostics (Scope)	Harley-Davidson® Functional Tests
Chevrolet® Volt Coolant Pump Bleed	Harley-Davidson® Key Fob Programming
Chrysler HVAC Test	Hyundai Blind Spot Detection System Calibration
Chrysler VVT System Cleaning	Hyundai Occupant Detection System Reset
Chrysler Wheel & Tire Calibrations	Ignition Coil Current and Voltage Comparison
COP Ignition Test	Ignition Coil Current Ramp Test
Dual Screen Diagnostics: Scanner vs. Scope	Ignition Coil Primary Voltage Test
Electronic Throttle Control System Diagnostics	Ignition System Diagnostics Using the SIA2000 (Scope)
FIAT® 500 Proxi Alignment	MINI Battery Relearn
FIAT® 500 Throttle Body Relearn	Multi Channel Cam / Crank Correlation
Flex Ray Bus Diagnostics	OBD-II Mode 10 Permanent Codes
Ford Battery Monitor System	Oil Specs & Service Light Resets
Ford Coil Current RFI Test (Scope)	PID Trigger Functions (Scanner)
Ford Flash Reprogramming	Piezo Injectors Signature Test
Ford Misfire Monitor Neutral Profile Correction (Scanner)	Relative Compression Test (Scope)
Ford PATS Key Programming	ShopStream Connect - Data Manipulation
Ford Relative Compression Test	ShopStream Connect - Software Updates

Snap-on® Training Solutions® - Diagnostic Quick Tips Videos (examples)	
Ford Relative Injector Flow Test	Speed Up Your Diagnostics (Scanner)
Ford TPMS Reprogramming	The Power of Troubleshooter Tips (Scanner)
Ford® 6.7L Transmission Solenoid Characterization	Top Level Menus: Built In Scope Training
Ford® Diesel Injector Coding	Toyota EVAP Test
VW / Audi Flexible Service Reset (Scanner)	Toyota Multiple Freeze Frame (Scanner)
	Toyota Transmission Compensation Coding

Legal Information

Trademarks

Snap-on is a trademark registered in the United States and other countries of Snap-on Incorporated. All other marks are trademarks or registered trademarks of their respective holders.

Copyright Information

Software License Information

Use of Software is governed by the terms and conditions of the End User License Agreement. The diagnostic tool should not be initially operated until the End User License Agreement is read. Use of the device acknowledges your acceptance of the End User License Agreement. The Snap-on Incorporated Software End User License Agreement may be provided with the diagnostic tool, and is available at: https://eula.snapon.com/diagnostics

Patent Information

For a listing of Snap-on products that are protected by patents in the United States and elsewhere, visit: https://patents.snapon.com

Manual Application

This manual includes information and images applicable to diagnostic software version 20.4. Some information within this manual may not be applicable to other diagnostic software versions.

Disclaimer of Warranties and Limitation of Liabilities

All pictures and illustrations shown are for reference purposes only. All information, specifications and illustrations in this manual are based on the latest information available at the time of printing and are subject to change without notice. While the authors have taken due care in the preparation of this manual, nothing contained herein:

- Modifies or alters in any way the standard terms and conditions of the purchase, lease, or rental agreement under the terms of which the equipment to which this manual relates was acquired.
- Increases in any way the liability to the customer or to third parties.

Snap-on® reserves the right to make changes at any time without notice.

IMPORTANT

Before operating or maintaining this unit, please read this manual carefully paying extra attention to the safety warnings and precautions.

Manuals / Technical Documentation - The information in this manual is periodically revised to ensure the latest information is included. Download the latest version of this manual and other related technical documentation from the Snap-on Diagnostics website.