# Table of Contents

Safety Information ................................................................. v

Using This Manual ............................................................. vii

## Section 1: Quick Reference ............................................. 1

## Section 2: General Information ....................................... 2

- Basic Features ................................................................. 2
- Powering the Diagnostic Tool ........................................... 3
  - Vehicle Power .............................................................. 3
  - Internal Battery Pack .................................................. 3
- AC Power Supply ............................................................ 4

## Technical Specifications .................................................. 4

## Section 3: Basic Operation and Navigation ....................... 5

- Turning On/Off and Emergency Shutdown ....................... 5
  - Turning On ................................................................. 5
  - Turning Off ............................................................... 5
  - Emergency Shutdown ................................................ 5
- Control Buttons .............................................................. 6
- Basic Navigation ............................................................ 6
  - Home Screen Layout .................................................. 6
  - Home Screen Icons ..................................................... 7
- Title Bar ........................................................................... 7
- Common Toolbar Control Icons ...................................... 8
- Scroll Bar .......................................................................... 8

## Section 3: Basic Operation and Navigation ....................... 5

- Screen Messages ........................................................... 9
  - Snap-on Messages ....................................................... 9
- General System Messages ............................................... 9
- Vehicle Communication Messages ................................. 9

## Section 4: Scanner .......................................................... 10

- Basic Operation ............................................................ 10
- Scanner Overview ........................................................ 10
- Scanner Demonstration Mode ......................................... 11
- Scanner - Starting / Stopping ........................................... 11
- Features and Icons ........................................................ 12
- Scanner Features ........................................................... 12
- Scanner Control Icons ................................................... 12

## Section 5: Previous Vehicles and Data .............................. 32

- Previous Vehicles and Data Menu .................................. 32
  - Vehicle History ........................................................ 32
  - View Saved Data ....................................................... 33
  - Viewing Codes and Code Scan Results ......................... 33
  - Delete Saved Data ..................................................... 35

## Section 6: Tools .............................................................. 36

- Tools Menu ................................................................. 36
  - Connect-to-PC (File Transfer) ...................................... 37
  - Configure Shortcut Button ......................................... 37
  - System Information .................................................... 37
  - Settings ....................................................................... 38

## Section 7: Wi-Fi Connection / Troubleshooting .................. 44

- Checking if Wi-Fi is On/Off ........................................... 44
- Checking if Wi-Fi is Connected ................................. 44
- Wi-Fi Icons (Setup) ...................................................... 45
- Turning Wi-Fi On and Connecting to a Network ............. 45

Basic Scanner Operation (Quick Start) ............................. 13
Data Cable Connection ..................................................... 13
Vehicle Identification / System Selection ......................... 14
System Main Menu Options .............................................. 16
Codes - View / Scan / Save .............................................. 17
  - Viewing Codes .......................................................... 17
  - Clear Codes .............................................................. 17
  - Code Scan ............................................................... 17
Viewing and Saving Data .................................................. 20
  - About the Data Buffer ............................................... 20
  - About Cursors .......................................................... 21
  - Pausing and Reviewing Active Data ............................. 21
  - Saving Data Files ...................................................... 23
  - Using Zoom .............................................................. 24
  - Changing Data Views - PID List / Graphs ..................... 25
  - Selecting PIDs to Display (custom display) ................. 26
  - Locking PIDs (to always display at top) ....................... 26
  - Using Triggers ........................................................... 27

Functional Tests ............................................................. 30

Previous Vehicles and Data Menu ..................................... 32
Vehicle History ............................................................. 32
View Saved Data .......................................................... 33
Viewing Codes and Code Scan Results ......................... 33
Delete Saved Data ....................................................... 35

Tools Menu ................................................................. 36
Connect-to-PC (File Transfer) ......................................... 37
Configure Shortcut Button ............................................... 37
System Information ........................................................ 37
Settings ........................................................................... 38

Checking if Wi-Fi is On/Off ........................................... 44
Checking if Wi-Fi is Connected ........................................ 44
Wi-Fi Icons (Setup) ...................................................... 45
Turning Wi-Fi On and Connecting to a Network ............. 45
Add Network Advanced (Connecting to a hidden network) .........................46
Wi-Fi Testing................................................................................................46
Wi-Fi Troubleshooting and Status Messages ..............................................47

Section 8: ShopStream Connect ™..........................................................50
Using SSC (Connecting to your PC)..............................................................50
SSC Main Screen .....................................................................................51
Scanner DataViewer .................................................................................52
Image Viewer ............................................................................................52
Printing the Code Scan Report .................................................................53
Customizing the Code Scan Report............................................................54
Software Upgrades and Updates.................................................................55
End User License Agreement ....................................................................56

Section 9: Maintenance .........................................................................57
Cleaning and Inspecting the Diagnostic Tool .............................................57
Cleaning the Touch Screen .......................................................................57
Battery Pack Service ................................................................................57
Safety ....................................................................................................57
Ordering a New Battery Pack ...................................................................58
Removing / Installing the Battery Pack ..................................................58
Disposing of the Battery Pack .................................................................59

Legal Information ...................................................................................60
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 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 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
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://diagnostics.snapon.com

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.

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

Content

IMPORTANT

This manual is intended to be used for P1000 motorcycle scanner operations. For automotive operations, see the Ethos Edge user manual at: http://diagnostics.snapon.com/usermanuals

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 term “Vehicle” is used throughout this manual, and is used to describe or refer to a motorcycle in general terms.

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.
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 can also be viewed onscreen from the System Information screen (Tools > System Information) see System Information on page 37.

The diagnostic tool software version can be viewed onscreen from the System Information screen (Tools > System Information) see System Information on page 37.

Support Contact Information

Phone / E-mail - Technical Assistance
1-800-424-7226 / diagnostics_support@snapon.com
or use our online contact form
- https://www1.snapon.com/diagnostics/us/Contact

Website Links:

Snap-on Diagnostics and Information
http://diagnostics.snapon.com

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 at:
http://diagnostics.snapon.com/usermanuals

For technical assistance in all other markets, contact your selling agent.

ShopStream Connect

Download ShopStream Connect our free PC-based companion software used to print, transfer, save, manage, review, annotate, e-mail the saved or recorded files on your Snap-on diagnostic tool. See ShopStream Connect ™ on page 50

Website URL - http://diagnostics.snapon.com/ssc

Printing Data and Screenshots

Use ShopStream Connect to print code scan reports, data files and screenshots from the diagnostic tool. See ShopStream Connect ™ on page 50.

Accessories

Available Smart Vehicle Interface (SVI) adapters:

- HARLEY-DAVIDSON (HAR-2)
- BMW (BM-2)
- INDIAN and VICTORY (POL-1)
- DUCATI (DUC-1)
- SUZUKI (SUZ-1)
- HONDA (HON-2)
- KAWASAKI (KAW-1) and (KAW-2)
- YAMAHA (YAM-1)

NOTE

Items in the list above are subject to change, contact your sales representative to purchase Smart Vehicle Adapters (SVIs) for other Motorcycle manufacturers.

Find diagnostic tool accessories using our Interactive Accessories Catalog: visit http://diagnostics.snapon.com and enter "accessories catalog" in the Search field.
Section 2 General Information

The P1000™ is a multi-functional diagnostic tool designed for motorcycle and automotive use.

**IMPORTANT**

*This manual is intended to be used for P1000 motorcycle scanner operations. For automotive operations, see the Ethos Edge user manual at: [http://diagnostics.snapon.com/usermanuals](http://diagnostics.snapon.com/usermanuals)*

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

**Main Topic Links**

- **Basic Features** page 2
- **Powering the Diagnostic Tool** page 3
  - Vehicle Power page 3
  - Internal Battery Pack page 3
  - AC Power Supply page 4
- **Technical Specifications** page 4

### 2.1 Basic Features

![Figure 2-1 Front view](image)

1— Touch Screen
2— Control Panel

![Figure 2-2 Back view](image)

1— Built-in Stand
2— Battery Cover
3— Battery Cover Screw

**Figure 2-1 Front view**

**Figure 2-2 Back view**
Connectors and jacks for data communication cables and the AC power supply are located on the top of the diagnostic tool.

1— Power Supply Jack - AC power supply connection
2— Battery Status Indicator LED
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 motorcycle diagnostic connector.

![Figure 2-3 Top view](image)

### 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. Most motorcycles have vehicle battery power (B+) available on the motorcycle diagnostic connector. The diagnostic tool is powered through the Data Cable when connected to the motorcycle diagnostic connector.

A green LED indicator on the motorcycle diagnostic connector 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 motorcycle diagnostic connector power circuit. See *Data Cable Connection* on page 13 for additional data cable information.

Use the supplied power accessory cable when testing models that do not have battery power (B+) available on the motorcycle diagnostic connector.

**IMPORTANT**

Never connect the power accessory cable 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 58.

**Battery Pack Charging**

Battery charging occurs whenever the data cable is connected to a motorcycle diagnostic connector. 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 tool 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.

<table>
<thead>
<tr>
<th>Battery Status LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>battery is fully charged, or the diagnostic tool is being powered by the AC power supply.</td>
</tr>
<tr>
<td>Red</td>
<td>battery is charging</td>
</tr>
<tr>
<td>Amber</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 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.*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description / Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch Screen</td>
<td>Resistive Touch Panel</td>
</tr>
<tr>
<td>Display</td>
<td>5.6 inch diagonal, LCD TFT</td>
</tr>
<tr>
<td>Battery Pack</td>
<td>Rechargeable lithium-ion battery pack</td>
</tr>
<tr>
<td></td>
<td>Approximately 3 hour run time</td>
</tr>
<tr>
<td></td>
<td>Approximately 5 hour charge time</td>
</tr>
<tr>
<td>Operating System</td>
<td>SMX</td>
</tr>
<tr>
<td>Processor</td>
<td>Motorola</td>
</tr>
<tr>
<td>Input Operating Voltage</td>
<td>10 to 30VDC</td>
</tr>
<tr>
<td>AC Power Supply Rating</td>
<td>Input 110-240VAC, Output 15VDC - 2A</td>
</tr>
<tr>
<td>Width</td>
<td>8.90 in. (226 mm)</td>
</tr>
<tr>
<td>Height</td>
<td>5.67 in. (144 mm)</td>
</tr>
<tr>
<td>Depth</td>
<td>1.75 in. (44.5 mm)</td>
</tr>
<tr>
<td>Weight (including battery pack)</td>
<td>2.1 lb (952 g)</td>
</tr>
<tr>
<td>Operating Temperature Range (ambient)</td>
<td>At 0 to 90% relative humidity (non-condensing) 32 to 113°F (0 to 45°C)</td>
</tr>
<tr>
<td>Storage Temperature (ambient)</td>
<td>At 0 to 70% relative humidity (non-condensing) –4 to 140°F (–20 to 60°C)</td>
</tr>
<tr>
<td>Environmental Conditions</td>
<td>This product is intended for indoor use only</td>
</tr>
<tr>
<td></td>
<td>This product is rated for Pollution Degree 2 (normal conditions)</td>
</tr>
</tbody>
</table>
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.

### 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 motorcycle (that has 12VDC at the motorcycle diagnostic connector)

#### 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 control module problems on some models. Never disconnect the Data Cable when the diagnostic tool is communicating with the vehicle.

1. **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 motorcycle.
   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 may lead to control module problems on some models.

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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/Cancel - Push type button</td>
<td>To exit a menu or program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To close an open list and return to the previous menu or screen.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To answer “No” when a yes/no choice is given.</td>
</tr>
<tr>
<td>2</td>
<td>Y/Accept - Push type button</td>
<td>To confirm a selection from a menu or program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To select an item that was highlighted using the direction arrows.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To advance to the next screen in a series.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To answer “Yes” when a yes or no choice is given.</td>
</tr>
</tbody>
</table>

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.
### 3.3.2 Home Screen Icons

Each available diagnostic tool function is represented by an 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.

<table>
<thead>
<tr>
<th>Function Name</th>
<th>Function Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanner</td>
<td>![Scanner Icon]</td>
<td>Used to communicate with the control systems of a motorcycle. This function allows you to retrieve diagnostic trouble codes (DTCs), view PID data and perform diagnostic tests. See Scanner on page 10 for details.</td>
</tr>
<tr>
<td>OBD-II/EOBD</td>
<td>![OBD-II/EOBD Icon]</td>
<td>Allows you to access generic automotive OBD-II/EOBD data and tests without identifying the vehicle being tested. See the Ethos Edge user manual at: <a href="http://diagnostics.snapon.com/usermanuals">http://diagnostics.snapon.com/usermanuals</a> for instructions.</td>
</tr>
<tr>
<td>Previous Vehicles &amp; Data</td>
<td>![Previous Vehicles &amp; Data Icon]</td>
<td>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 32 for details.</td>
</tr>
<tr>
<td>Tools</td>
<td>![Tools Icon]</td>
<td>Allows you to adjust diagnostic tool settings to your personal preferences and perform other special functions. See Tools on page 36 for details.</td>
</tr>
</tbody>
</table>

### 3.3.3 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 motorcycle 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 41 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 motorcycle
- The name of the active menu or function
- The name of the test being performed

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Full Battery Charge Level Icon]</td>
<td>Full Battery Charge Level - Indicates power is being supplied by the internal battery pack. Horizontal bars diminish as the battery discharges.</td>
<td>![External Power Connected Icon]</td>
<td>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.</td>
</tr>
<tr>
<td>![Low Battery Charge Level Icon]</td>
<td>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.</td>
<td>![Wi-Fi Signal Strength Icon]</td>
<td>Wi-Fi Signal Strength - Indicates signal strength of the wireless network connection. 3 bars - full strength signal 1 bar - weak signal</td>
</tr>
</tbody>
</table>
3.3.4 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 \texttt{Y/Accept} button to select it.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Back Icon" /></td>
<td>\texttt{Back} - Returns to the previously viewed screen. Icon is located on the left-hand edge of the toolbar.</td>
</tr>
<tr>
<td><img src="image" alt="Home Icon" /></td>
<td>\texttt{Home} - Returns to the Home screen. Icon is located next to the Back icon on the left side of the toolbar.</td>
</tr>
<tr>
<td><img src="image" alt="Save Icon" /></td>
<td>\texttt{Save} - Writes data from buffer memory to a file. The saved “movie” file can be accessed for future reference by selecting \texttt{Previous Vehicles and Data &gt; View Saved Data.}</td>
</tr>
<tr>
<td><img src="image" alt="Tools Icon" /></td>
<td>\texttt{Tools} - Opens the tools menu.</td>
</tr>
<tr>
<td><img src="image" alt="Pause Icon" /></td>
<td>\texttt{Pause} - Indicates PID data from the motorcycle is being displayed. Selecting pauses data collection.</td>
</tr>
<tr>
<td><img src="image" alt="Record Icon" /></td>
<td>\texttt{Record} - Indicates the data being displayed is paused and not being updated. Selecting resumes data collection.</td>
</tr>
</tbody>
</table>

The icons below are used to navigate through paused or saved data (“movie”) files during review.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Step Forward Icon" /></td>
<td>\texttt{Step Forward} - allows forward movement in singular steps. (Note: To quickly step forward during Scanner data review, press and hold the icon down.)</td>
</tr>
<tr>
<td><img src="image" alt="Skip Forward Icon" /></td>
<td>\texttt{Skip Forward} - allows forward movement in multiple steps.</td>
</tr>
<tr>
<td><img src="image" alt="Step Back Icon" /></td>
<td>\texttt{Step Back} - allows backward movement in singular steps. (Note: To quickly step backward during Scanner data review, press and hold the icon down.)</td>
</tr>
<tr>
<td><img src="image" alt="Skip Back Icon" /></td>
<td>\texttt{Skip Back} - allows backward movement in multiple steps.</td>
</tr>
</tbody>
</table>

3.3.5 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](image)

1— \texttt{Beginning} - Moves to beginning of data displayed. 
2— \texttt{Step up} - Moves up one increment of the data displayed. 
3— \texttt{Slider (position indicator)} - Select and drag the \texttt{Slider} to scroll through data. The slider indicates the relative position of the current screen to the total available data. 
4— \texttt{Step down} - Moves down one increment of the data displayed. 
5— \texttt{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.

To receive messages from Snap-on, turn WiFi on, see Wi-Fi Connection / Troubleshooting on page 44.

3.4.2 General System Messages

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

<table>
<thead>
<tr>
<th>Message Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading and Connecting</td>
<td>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.</td>
</tr>
<tr>
<td>Confirmation</td>
<td>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.</td>
</tr>
<tr>
<td>Warning</td>
<td>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</td>
</tr>
<tr>
<td>Error</td>
<td>Error messages inform you when a system or procedural error has occurred, for example if the data cable becomes disconnected during operation.</td>
</tr>
</tbody>
</table>

3.4.3 Vehicle Communication Messages

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

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

- The diagnostic tool is unable to establish a communication link with the motorcycle.
- The motorcycle is not equipped with the system that was selected.
- There is a loose connection.
- There is a blown fuse.
- There is a wiring fault on the motorcycle.
- There is a circuit fault in the data cable or adapter.
- Incorrect motorcycle identification (make/model) was entered.
This section describes the basic operation of the Scanner function.

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.

IMPORTANT
This manual is intended to be used for P1000 motorcycle scanner operations. For automotive operations, see the Ethos Edge user manual at: http://diagnostics.snapon.com/usermanuals

4.1 Basic Operation
4.1.1 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.

Main Topic Links
- Scanner Overview page 10
- Scanner Demonstration Mode page 11
- Features and Icons page 12
- Scanner - Starting / Stopping page 11
- Scanner Control Icons page 12
- Basic Scanner Operation (Quick Start) page 13
- Data Cable Connection page 13
- Vehicle Identification / System Selection page 14
- System Main Menu Options page 16
- Codes - View / Scan / Save page 17
- Code Scan page 17
- Viewing and Saving Data page 20
- Using Triggers page 27
- Trigger Description and Features page 27
- Functional Tests page 30
4.1.2  Scanner Demonstration Mode

The Scanner demonstration mode allows you to interact with and explore Scanner functions without connecting to a motorcycle.

To use the Scanner Demonstration Mode:
1. Select Scanner from the Home screen.
2. Select Demonstration from the vehicle Make menu.

**IMPORTANT**

*Do not connect the diagnostic tool to a motorcycle while in Demonstration Mode.*

3. The simulated vehicle identification process starts. Follow the prompts to enter the motorcycle identification information and then select OK to confirm. The demo motorcycle is a 2017-H, CVO Limited (FLHTKSE)-TE 114 cu in. (Twin Cooled Milwaukee Eight)-F.
4. A warning message displays “Demo mode: Do not connect to vehicle.”. Select Continue.
5. Select a System (e.g. Engine, ABS, Body Control Module). The Systems menu shows all of the systems supported by the motorcycle for testing.
6. Select a Function/Test. Depending on which system is selected, different choices are available. Examples: Codes Menu - view trouble codes, Codes Scan - scan all systems for trouble codes, Data Display - view engine parameters (PIDs), Functional Tests - perform bi-directional tests on components.

4.1.3  Scanner - Starting / Stopping

**To start the Scanner function:**

1. From the Home screen, select the Scanner icon.
   The vehicle identification process starts. The motorcycle must be correctly identified for the diagnostic tool to communicate, and display data correctly.
2. Follow the onscreen instructions to identify the motorcycle and connect the data cable. See Vehicle Identification / System Selection on page 14.

**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.
4.2 Features and Icons

4.2.1 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 4-1 Scanner screen features

4.2.2 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.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="pause_icon.png" alt="Pause" /></td>
<td>Pause - Indicates PID data from the motorcycle is being displayed. Selecting pauses data collection.</td>
<td><img src="custom_data_list_icon.png" alt="Custom Data List" /></td>
<td>Custom Data List - Opens a menu for selecting which PIDs display in the list.</td>
</tr>
<tr>
<td><img src="clear_icon.png" alt="Clear" /></td>
<td>Clear - Erases all the PID data in the buffer and begins a new recording. Selecting opens a confirmation message.</td>
<td><img src="change_view_icon.png" alt="Change View" /></td>
<td>Change View - Changes display options between PID list or graph displays.</td>
</tr>
<tr>
<td><img src="trigger_icon.png" alt="Trigger" /></td>
<td>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.</td>
<td><img src="lock_unlock_icon.png" alt="Lock/Unlock" /></td>
<td>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.</td>
</tr>
<tr>
<td><img src="zoom_icon.png" alt="Zoom" /></td>
<td>Zoom - Incrementally increases and decreases the scale of the data being displayed.</td>
<td><img src="sort_icon.png" alt="Sort" /></td>
<td>Sort - Determines the order in which PIDs are listed on the screen.</td>
</tr>
</tbody>
</table>
4.2.3 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. Follow the prompts to identify the motorcycle (e.g. make, year, model), then select OK to confirm.
3. Follow the onscreen instructions to connect the DA-5 data cable and Smart Vehicle Interface (SVI) to the motorcycle diagnostic connector. See Data Cable Connection on page 13.
4. Turn the ignition on and move the “run” switch to on, or start the engine.

NOTE
Ensure the LEDs on the SVI and DA-5 cables are on when establishing communication between the motorcycle and diagnostic tool.

5. Follow the prompts to select a System (e.g. Engine, ABS, Radio).
6. Select a Function/Test (e.g. Codes Menu, Code Scan, Data Display, Functional Tests). See System Main Menu Options on page 16.

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

4.2.4 Data Cable Connection

NOTE
On-screen data cable connection instructions are provided.

As an example, Figure 4-2 shows a typical data cable connection using the supplied DA-5 data cable and the Harley-Davidson HAR-2 Smart Vehicle Interface (SVI), other manufacturers are similar.

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.
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 DA-5 data cable to the SVI and diagnostic tool.

Ensure the LEDs on the SVI and DA-5 cables are on when establishing communication between the motorcycle and diagnostic tool.

4.2.5 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.

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 4-3). If the vehicle information is correct, select OK to continue, then proceed to step 3.

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

Figure 4-3 confirmation screen
Depending on the motorcycle, a menu option to select a system list display type may be provided (Figure 4-4).

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.

3. A menu of available systems and/or options is displayed. Select a system or option (Figure 4-5) 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 4-5) to toggle the display between a categorized (Figure 4-5) and non-categorized (Figure 4-6) 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 16.

For Code Scan information, see Code Scan on page 17.
4.3 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 4-7) the system main menu (available tests).

- 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 17.
- **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 17.
- **Data**—displays PID data from the control modules. Selecting may open a submenu of viewing options. See Viewing and Saving Data on page 20.
- **Functional Tests**—provides specific subsystem tests. The tests vary depending on the manufacturer and model. See Functional Tests on page 30.
- **ECU ID**—provides specific ECU information for the selected module.
4.4 Codes - View / Scan / Save

4.4.1 Viewing Codes

After selecting a System, “Codes” may appear as a menu selection (Figure 4-7) 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 4-8).

Select the code or the Extended DTC Data icon (Figure 4-8) 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

4.4.2 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.

4.4.3 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 50.

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 4-9) starts an active scan of vehicle control modules, and opens the Code Scan results screen (Figure 4-10).

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:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Refresh" /></td>
<td>Refresh - Refreshes the code scan data (restarts the code scan)</td>
</tr>
<tr>
<td><img src="image" alt="System" /></td>
<td>System - Opens the main menu of the system selected (highlighted)</td>
</tr>
<tr>
<td><img src="image" alt="Save" /></td>
<td>Save - Saves the code scan results as an (.XML) file. See Viewing Codes and Code Scan Results on page 33.</td>
</tr>
</tbody>
</table>

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.
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 4-11).

Saving Codes and Code Scan Results

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Image" alt="Save Icon" /></td>
<td>Save - Saves the displayed code list results as an (.XML) file.</td>
</tr>
</tbody>
</table>

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 Reports on the Diagnostic Tool on page 33.

Printing Codes and Code Scan Results

The code scan report and saved codes can be printed using ShopStream Connect - See Printing the Code Scan Report on page 53.

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.
4.5 Viewing and Saving Data

Selecting **Data** or other similar data menu option (depending on the vehicle manufacturer) displays PID data for the selected system (**Figure 4-12**).

![Figure 4-12 Data display (PID List view)](image)

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 12** and **Common Toolbar Control Icons on page 8**.

---

4.5.1 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 its 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 4-13** 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 4-13](image)

The Data Buffer Position Counter (**Figure 4-13** right arrow) indicates:
- first value = the numerical position of the current frame of data (displayed) within buffer memory
- second value = indicates the maximum data buffer size value (e.g. 4000)

During data review (**Figure 4-14**), a slider on the bar graph indicates the position of the current frame of data (displayed) in relation to the entire memory buffer contents.

![Figure 4-14](image)
4.5.2 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.

4.5.3 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 4-15).

![Figure 4-15](image_url)
Toolbar control icons are described in Scanner Control Icons on page 12 and Common Toolbar Control Icons on page 8.

After Pause is pressed:

- Review control icons are displayed in the toolbar (Figure 4-16). Use the control icons to accurately move through the data and position the blue cursor.
- The blue (vertical cursor) (Figure 4-16) 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 4-16](image)

**NOTE**

The Shortcut icon can be set to perform the Pause/Play function. See Configure Shortcut Button on page 37 for additional information.

To resume data collection (after pausing):

- Select the Record icon.
  
The screen changes back to display data (Figure 4-17).
  
A vertical gray cursor is displayed on all PIDs, indicating where the data was paused (Figure 4-17).

![Figure 4-17](image)
4.5.4 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 37 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 4-18**).

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.

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 33 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 4-19**).

   Toolbar control icons are described in **Scanner Control Icons** on page 12 and **Common Toolbar Control Icons** on page 8.

   The blue (vertical cursor) (**Figure 4-19**) indicates your position in the data and is denoted by the current position value (**Figure 4-19**) in the counter display. The cursor displays in all PIDs.
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 4-19) indicating where the data was paused.

4.5.5 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)

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 50.
4.5.6 Changing Data Views - PID List / Graphs

Selecting the View icon (Figure 4-22) 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 4-22).

The 1, 2, and 4 Graph views divide the screen horizontally to simultaneously display data graphs for the indicated number of parameters (Figure 4-23).

In graph view the text block (Figure 4-24) to the left of the graph displays:

- Top - PID description
- Middle - Current value or state
- Bottom - Active minimum and maximum values
4.5.7 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 4-25) and selection icons appear. Check marks to the left of the parameter description indicate which parameters are selected for display.

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

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Select/Deselect icon]</td>
<td>Select/Deselect - hide or display individual PIDs in the list</td>
</tr>
<tr>
<td>![Select All/Deselect All icon]</td>
<td>Select All/Deselect All - hide or display all PIDs in the list</td>
</tr>
</tbody>
</table>

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

4.5.8 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 4-26). 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.

**NOTE**

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

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.

### 4.5.9 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 4-27).
Figure 4-27

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.

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 4-28) 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

3. Select Set Trigger.

A graph of the highlighted PID and setup icons display (Figure 4-29).

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

4. Use the plus (+) and minus (−) icons (Figure 4-29), 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.
The upper trigger line changes color to gray and the lower trigger line displays in red (Figure 4-30).

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.

The display returns to the PID data view and the trigger points appear as horizontal lines across the designated graph (Figure 4-31). 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.

**Arming triggers:**

1. Select the **Trigger** icon.
2. Select **Arm Triggers**.
   
   The trigger point lines change color to indicate an armed condition (Figure 4-32).

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.
About Activated Triggers

A trigger is activated 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.
- 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.

4.6 Functional Tests

The Functional Tests selection is used to access OEM model specific subsystem tests. Available tests vary by manufacturer, year, and model. Only the tests supported by the motorcycle are displayed in the menu.

Typical functional tests:

- **Information Tests**—read-only tests (e.g. displaying serial or identification numbers)
- **Toggle Tests**—switch a component, such as a solenoid, relay, or switch, between two operating states.
- **Variable Control Tests**—command a certain value for a system or component.
- **Reset Tests**—reset adaptive or learned values
- **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 4-33 Trigger activated](image)

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 4-34 (Typical) Functional test menu](image)
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, shown to the left, 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.
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 motorcycles and access saved data files.

Main Topic Links
- Vehicle History page 32
- View Saved Data page 33
- Viewing Codes and Code Scan Results page 33
- Delete Saved Data page 35

5.1 Previous Vehicles and Data Menu
The following options are available from the Previous Vehicles and Data menu:
- Vehicle History
- View Saved Data on page 33
- Delete Saved Data on page 35

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

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 motorcycles displays. Each record is given a unique file name. Scroll to view the entire list.
3. With the item to be opened highlighted, either select it or press the Y/✓ button.
   The vehicle confirmation screen displays.
4. Select OK or press the Y/✓ button to continue.
5.1.2 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.

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 50.

To connect to a PC, see Connect-to-PC (File Transfer) on page 37.

**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 37 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.

5.1.3 Viewing Codes and Code Scan Results

When code scan or single system code results are saved, they are saved in (.XML) file format (Figure 5-3).

Viewing Codes and Code Scan Reports on the Diagnostic Tool

Once saved, the code scan report can be viewed on the diagnostic tool in the same manner it was displayed originally.

To view saved codes and code scan report on the diagnostic tool:
1. Select Previous Vehicles and Data from the Home screen.
2. Select View Saved Data.
3. Select the code scan report .XML file from the list to view the file (Figure 5-3).
Selecting a system code or a code scan .XML file from the saved file list, opens that file onscreen (Figure 5-4).

**Figure 5-4 Typical - Code Scan Results (.XML file) viewed onscreen**

**Figure 5-5 Typical - (Engine System) Code Results (.XML file) viewed onscreen**

**Viewing / Printing the Code Scan Report**

Once saved, the code scan report can be viewed and printed using ShopStream Connect, see *Printing the Code Scan Report on page 53.*
5.1.4 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.

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.
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

- **Connect-to-PC (File Transfer)** page 37
- **Configure Shortcut Button** page 37
- **System Information** page 37
- **Settings** page 38
  - **Configure Wi-Fi** page 42
  - **Configuring Scanner** page 42
  - **Configure Units** page 43
  - **High Contrast Toolbar** page 39
  - **Brightness** page 38
  - **Color Theme** page 39
  - **Font Type** page 40
  - **Backlight Time** page 40
  - **Touch Screen Calibration** page 40
  - **Time Zone** page 41
  - **Clock Settings** page 41
  - **Daylight Savings Time** page 42
  - **Time Format** page 42
  - **Date Format** page 42

### 6.1 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)
- **Configure Shortcut Button** on page 37—use to change the function of the shortcut button
- **System Information** on page 37—use to view configuration information for the diagnostic tool
- **Settings** on page 38—use to configure certain characteristics of the diagnostic tool

![Figure 6-1 Tools menu](image-url)
6.1.1 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 50.

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.

6.1.2 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 Record/Pause**—programs the Shortcut button to work as the Pause and Play 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.

6.1.3 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.

![System Information](image)

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.
6.1.4 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 38
- Configure Wi-Fi - see Configure Wi-Fi on page 42
- Configure Scanner - see Configuring Scanner on page 42
- Configure Units - see Configure Units on page 43

**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 38**—adjusts the intensity of the screen back lighting.
- **Color Theme on page 39**—changes the background color of the screen display.
- **High Contrast Toolbar on page 39**—enhances toolbar graphics for poor lighting conditions.
- **Font Type on page 40**—switches between standard and bold text for better visibility.
- **Backlight Time on page 40**—adjusts how long the screen stays on with an idle diagnostic tool.
- **Touch Screen Calibration on page 40**—calibrates the touch screen display.

Date & Time options include:

- **Time Zone on page 41**—sets the internal clock to the local time standard.
- **Clock Settings on page 41**—sets the time on the internal clock.
- **Daylight Savings Time on page 42**—configures the clock for Daylight Savings Time.
- **Time Format on page 42**—switches the time displays between a 12 or 24 hour clock.
- **Date Format on page 42**—configures how the month, date, and year displays.

![DISPLAY (settings)](image)

**Brightness**

Selecting this option opens the brightness setting screen for adjusting the back lighting of the display (Figure 6-3).

![Figure 6-3 Brightness setting](image)

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.

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.

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.

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 \textit{Y/\checkmark} 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 \textit{Y/\checkmark} button to make a selection. Select \textbf{Back} or \textbf{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.

\textbf{IMPORTANT}

\textit{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 \textbf{Tools} from the Home screen.
2. Select \textbf{Settings>System Settings>Display>Touch Calibration}.
   The calibration screen opens (Figure 6-7).

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 6-8). 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 6-8) 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).

### 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 6-9).

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.

---

![Figure 6-8 Touch screen calibration - Passed](image1)

![Figure 6-9 Clock settings](image2)
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.

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 44.

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 6-10 Scales hidden (upper), displayed (lower)](image)

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.

![Configure Units](image)

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.
The diagnostic tool is equipped Wi-Fi connection capability, however the Wi-Fi connection is solely dedicated to our Snap-on Web Services Network.

Connecting to Wi-Fi allows the tool to periodically receive messages from Snap-on. These messages will be displayed to inform you of software updates and upgrades, as well as other important information.

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

Main Topic Links
- Checking if Wi-Fi is On/Off page 44
- Checking if Wi-Fi is Connected page 44
- Wi-Fi Icons (Setup) page 45
- Turning Wi-Fi On and Connecting to a Network page 45
- Add Network Advanced (Connecting to a hidden network) page 46
- Wi-Fi Testing page 46
- Wi-Fi Troubleshooting and Status Messages page 47

### 7.1 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 Wi-Fi On and Connecting to a Network on page 45 to turn it on and connect.

#### Wi-Fi On

![Wi-Fi On icon]

01:40AM

#### Wi-Fi Off

![Wi-Fi Off icon]

01:40AM

### 7.2 Checking if Wi-Fi is Connected

Check the Wi-Fi indicator in the title bar:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="on.png" alt="Wi-Fi icon" /></td>
<td>Wi-Fi is on and connected to a network (1 to 3 bars).</td>
</tr>
<tr>
<td><img src="off.png" alt="Wi-Fi icon" /></td>
<td>Wi-Fi is on, but not connected (zero bars). See Wi-Fi Troubleshooting and Status Messages on page 47.</td>
</tr>
</tbody>
</table>
7.3 Wi-Fi Icons (Setup)

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

<table>
<thead>
<tr>
<th>Wi-Fi Icon (toggle type)</th>
<th>Wi-Fi Test Icon</th>
<th>Wi-Fi Signal Strength Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Wi-Fi Icon" /></td>
<td><img src="image2" alt="Wi-Fi Test Icon" /></td>
<td><img src="image3" alt="Wi-Fi Signal Strength Indicator" /></td>
</tr>
</tbody>
</table>

Select to turn Wi-Fi ON  
Select to turn Wi-Fi OFF  
Select to open the Wi-Fi Test screen  
Zero bars indicate 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 |

7.4 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.

![Wi-Fi configuration screen](image4)

3. The Wi-Fi icon will change to ![Wi-Fi Icon](image1), 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 7-2)*.

   ![Wi-Fi configuration screen](image4)

   *Figure 7-1 Wi-Fi Icon (shown off)*

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.

   - If the status message “Not Connected” is displayed, retry the configuration process or see “Wi-Fi Testing” on page 46 for additional information.

   ![Wi-Fi configuration screen](image4)

   *Figure 7-2 Wi-Fi Configuration Screen*

   **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.
7.5 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.

7.6 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 45.
3. From the Wi-Fi configuration screen, select the Wi-Fi Test icon to open the network connection test screen (Figure 7-3).

Testing Connections

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 7-4).

Connectivity of the following systems are checked:

- Hardware
- Router
- Internet
- HTTP
- Web Services Network
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 7-5). 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 47 for additional information.

7.7 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 48.*
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 45.*

---

**General - Troubleshooting**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Services are not available</td>
<td>Access may be temporarily unavailable</td>
<td>Try to access at a later time as updates may be in process.</td>
</tr>
<tr>
<td></td>
<td>Wi-Fi radio is turned Off</td>
<td>1. From the Home screen, navigate to <strong>Tools &gt; Settings &gt; Configure Wi-Fi.</strong> 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 &quot;X&quot; mark icon indicating Wi-Fi radio is on. 3. Connect to a known good network.</td>
</tr>
<tr>
<td>Not connecting to a network</td>
<td></td>
<td>1. Clear saved Wi-Fi networks, see <em>Clearing Wi-Fi Networks on page 48.</em> 2. Connect to a network. 3. From the Configure Wi-Fi screen select the Wi-Fi Test icon and review the results. See <em>Connection Tests - Troubleshooting in the following table.</em></td>
</tr>
<tr>
<td>Wi-Fi connection drops off or disconnects intermittently</td>
<td>Wi-Fi Signal strength insufficient</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Router overloaded</td>
<td>Disconnect/disable other Wi-Fi devices connected to the router.</td>
</tr>
</tbody>
</table>
## Connection Tests - Troubleshooting

<table>
<thead>
<tr>
<th>Failed Test</th>
<th>Possible Cause (Displayed Tip Message*)</th>
<th>Corrective Action / Checks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
<td>Wi-Fi radio not responding and/or will not turn off</td>
<td>Contact Customer Support for assistance.</td>
</tr>
<tr>
<td></td>
<td>Wi-Fi radio not responding and/or will not initialize</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Missing or corrupt firmware file(s)</td>
<td></td>
</tr>
<tr>
<td><strong>Router</strong></td>
<td>This device is not connected to a router</td>
<td>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 48 for procedure.</td>
</tr>
<tr>
<td><strong>Internet</strong></td>
<td>This device is not connected to the Internet or has no DNS</td>
<td>Check router connection and setup. See Check Router Settings on page 48 for procedure.</td>
</tr>
<tr>
<td></td>
<td>Domain Name System (DNS) server not connected</td>
<td>Contact your Internet service provider (ISP).</td>
</tr>
<tr>
<td><strong>HTTP</strong></td>
<td>This device cannot communicate using HTTP</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Web Services Network</strong></td>
<td>Web Services may be temporarily unavailable or Not connecting to a network</td>
<td>Try to access at a later time as Web Services may be performing updates to the service. Check router connection and setup. See Check Router Settings on page 48 for procedure.</td>
</tr>
</tbody>
</table>

* See **Wi-Fi Testing** on page 46 for additional information.
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://diagnostics.snapon.com/ssc

Complete ShopStream Connect operation instructions can be found in the ShopStream Connect User Manual, located online at:
http://diagnostics.snapon.com/usermanuals

Main Topic Links
- Using SSC (Connecting to your PC) page 50
- SSC Main Screen page 51
- Scanner DataViewer page 52
- Image Viewer page 52
- Printing the Code Scan Report page 53
- Customizing the Code Scan Report page 54
- Software Upgrades and Updates page 55

8.1 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://diagnostics.snapon.com/ssc
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 8-1) and the ShopStream Connect software will open automatically on your PC (Figure 8-2).

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).
8.2 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 50.

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

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.
8.3 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 8-3). 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 8-3

8.4 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 8-4
8.5 Printing the Code Scan Report

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

To print the Code Scan Report using ShopStream Connect:

1. Double-click the code scan .XML file from the file list to open the Code Scan Report (Figure 8-5) in the Code Scan Viewer (Figure 8-6).

2. Select Print or Print Preview from the Code Scan Viewer menu to print or preview the report (Figure 8-6).

3. Selecting Print opens the Windows print dialog window (Figure 8-7). Select your printer from the list, then select Print to print the report.
8.6 Customizing the Code Scan Report

Select fields of the Code Scan Report can be edited using ShopStream Connect.

To edit the Shop Information (header) of the Code Scan Report:

1. From ShopStream Connect, select **Tools > Options > Edit Shop Info** (Figure 8-8).

![Figure 8-8](image)

2. The **Shop Info** dialog box opens (Figure 8-9) allowing you to enter the name address, and phone number for your shop. This information is included as a header on the report.

![Figure 8-9](image)

A preview panel at the bottom of the box shows how the information will appear on a print out (Figure 8-9).

3. Check the “Use Shop Info in Printout Header” box to show the Shop Info in the printout (Figure 8-9).

4. Check the “Use timestamp in Vehicle System Report” box to show the time the vehicle was scanned in the printout (Figure 8-9).

5. When you are finished editing, select **Save** (Figure 8-9) to save the information and close the dialog box.
8.7 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. P1000) from the Menu bar (Figure 8-10).

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

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 8-11).

**NOTE**

For additional information on ShopStream Connect software updates and upgrades, download the ShopStream Connect User Manual from our website: http://diagnostics.snapon.com/usermanuals
8.7.1 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 8-12) click the checkbox on the left side of the window, and then select Agree and Continue. The software will be installed automatically.

Figure 8-12 below represents a typical EULA acceptance agreement screen.

To Decline: at the screen prompt (Figure 8-12) select I Decline. A confirmation message is displayed providing options to Go Back or Exit the software installation (Figure 8-13).

![Figure 8-12 Typical EULA acceptance screen](image1)

![Figure 8-13 Typical EULA acceptance screen](image2)
Section 9  Maintenance

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

Main Topic Links
- Cleaning and Inspecting the Diagnostic Tool page 57
- Battery Pack Service page 57
- Cleaning the Touch Screen page 57
- Safety page 57
- Ordering a New Battery Pack page 58
- Removing / Installing the Battery Pack page 58
- Disposing of the Battery Pack page 59

9.1  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.

9.1.1  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.

9.2  Battery Pack Service

9.2.1  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.
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.

### 9.2.2 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.

### 9.2.3 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 battery cover screw, until the battery cover is loose from the housing (*Figure 9-1*).
2. Remove the battery pack cover.
3. Pull the bottom edge of the battery pack up then tilt it out to remove.

**To install the battery pack:**

1. Position the battery pack with the arrows (on the battery pack) facing up (*Figure 9-1*).
2. Tilt the top of the battery pack 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 pack cover screw.
9.2.4 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 **United States of America** contact:

- Rechargeable Battery Recycling Corporation (RBRC) at www.call2recycle.org
  - Phone - 800 822-8837

For additional information within **Canada** contact:

- Rechargeable Battery Recycling Corporation (RBRC) at www.call2recycle.ca
  - Phone - 888 224 9764

Products bearing the WEEE logo (**Figure 9-2**) are subject to European Union regulations.

Contact your sales representative for details.
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Use of Software is governed by the terms and conditions of the End User License Agreement. The End User License Agreement is provided with the diagnostic tool and the device 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 License Agreement 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 the diagnostic software version that was current at the time of publication. Some information within this manual may not be applicable to later 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.
FCC Compliance Statement

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

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

CAUTION

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC RF Radiation Exposure Statement

1. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device was tested for typical lap held operations with the device contacted directly to the human body to the back side of the Display Unit. To maintain compliance with FCC RF exposure compliance requirements, avoid direct contact to the transmitting antenna during transmitting.

3. According to FCC 15.407(e), the device is intended to operate in the frequency band of 5.15GHz to 5.25GHz under all conditions of normal operation. Normal operation of this device is restricted to indoor use only to reduce any potential for harmful interference to co-channel MSS operations.