

**MODIS™**

**Scanner™ Plug-in  
User Manual**

**August 2009**

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# Safety Information

For your own safety and the safety of others, and to prevent damage to the equipment and vehicles upon which it is used, it is important that the accompanying *Safety Information* be read and understood by all persons operating, or coming into contact with, the equipment. We suggest you store a copy the book near the unit in sight of the operator

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

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 automotive technician's responsibility 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 equipment only as described in this manual.

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

## Safety Message Conventions

Safety messages are provided to help prevent personal injury and equipment damage. All safety messages are introduced by a signal word indicating the hazard level.

### **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 messages contain 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.

Example:

 **WARNING**



Risk of unexpected vehicle movement.

- **Block drive wheels before performing a test with engine running.**

*A moving vehicle can cause injury.*

## Important Safety Instructions

For a complete list of safety messages, refer to the accompanying safety manual.

# SAVE THESE INSTRUCTIONS

# Table of Contents

<b>Safety Information</b> .....	<b>iii</b>
<b>Table of Contents</b> .....	<b>v</b>
<b>Chapter 1: Using This Manual</b> .....	<b>1</b>
Conventions.....	1
Bold Text.....	1
Symbols .....	1
Terminology .....	2
Note and Important Messages.....	2
Procedures.....	2
Additional Manuals .....	3
Tool Help .....	3
<b>Chapter 2: Introduction</b> .....	<b>4</b>
Connections.....	4
Technical Specifications .....	5
Cables .....	5
Power Supply .....	6
<b>Chapter 3: Getting Started</b> .....	<b>7</b>
Demonstration Mode .....	7
Connecting to Vehicle Power .....	8
Connecting to a Computer.....	9
<b>Chapter 4: Navigation</b> .....	<b>10</b>
Screen Layout .....	10
Upper Toolbar .....	10
Main Body .....	13
LED Indicators .....	13
Making Selections .....	13
<b>Chapter 5: Operations</b> .....	<b>14</b>
Selecting the Manufacturer.....	14
Identifying a Vehicle .....	16
Selecting a System.....	16
Connecting to a Vehicle.....	17
Selecting from the System Main Menu.....	18
Using the Scanner Functions .....	18
Data Display.....	18
Codes Menu.....	19
Functional Tests.....	22
Terminating Vehicle Communication .....	22
Exiting Scanner Mode .....	23
Viewing Data Graphically .....	23
Changing Screen Views.....	23

Pausing Data ..... 33  
Clearing the Buffer ..... 34  
Sorting the PID List ..... 35  
Using Cursors ..... 35  
Using Zoom..... 36  
Saving Captured Data ..... 36  
Viewing Saved Data ..... 39  
    Identifying Saved Files ..... 40  
    Loading Saved Files ..... 40  
    Editing Saved Data ..... 40  
    Reviewing Saved Data..... 41  
    Deleting Saved Files ..... 42  
    Copying and Moving Saved Data ..... 42  
    Selecting All Files..... 43  
    Setting a Destination for Saved Data..... 43  
Print Button..... 44  
Tools Button ..... 44  
    Custom Setup ..... 45  
    Save Data ..... 46  
    Custom Data List ..... 46  
    LED Setup..... 47  
  
**Chapter 6: Maintenance ..... 48**  
    Removing the Scanner™ Plug-in ..... 48  
    Installing the Scanner™ Plug-in ..... 48  
  
**Appendix A: Troubleshooting ..... 50**  
    No Communication Message ..... 50  
    Using Legacy Software..... 51  
  
**Index ..... 52**

This manual contains tool usage instructions.

Some of the illustrations shown in this manual may contain modules and optional equipment that are not included on your system. Contact a sales representative for availability of other modules and optional equipment.

The following conventions are used.

## 1.1 Conventions

### 1.1.1 Bold Text

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

Example:

- Press the **Y/✓** button.

### 1.1.2 Symbols

The following types of arrows are used.

The “greater than” arrow (>) indicates an abbreviated set of selection instructions.

Example:

- Select **Utilities > Tool Setup > Date**.

The above statement abbreviates the following procedure:

1. Navigate to the **Utilities** button.
2. Use the Thumb Pad to navigate to and highlight the **Tool Setup** submenu.
3. Use the Thumb Pad to navigate to and highlight the **Date** option from the submenu.
4. Press **Y/✓** to confirm the selection.

The solid arrows (◀, ▶, ▼, ▲) are navigational instructions referring to the four directions of the Thumb Pad.

Example:

- Press the down ▼ arrow.

### 1.1.3 Terminology

The term “select” means highlighting a button or menu item using the Thumb Pad and pressing the **Y/✓** button to confirm the selection.

Example:

- Select **Reset**.

The above statement abbreviates the following procedure:

1. Navigate to and highlight the **Reset** button.
2. Press the **Y/✓** button.

### 1.1.4 Note and Important Messages

The following messages are used.

#### Note

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 force the CompactFlash<sup>®</sup> card into the slot.

---

### 1.1.5 Procedures

An arrow icon indicates a procedure.

Example:

**To change screen views:**

1. Select **View**.  
The drop-down menu displays.
2. Select an option from the menu.  
The screen layout changes to the format you selected.



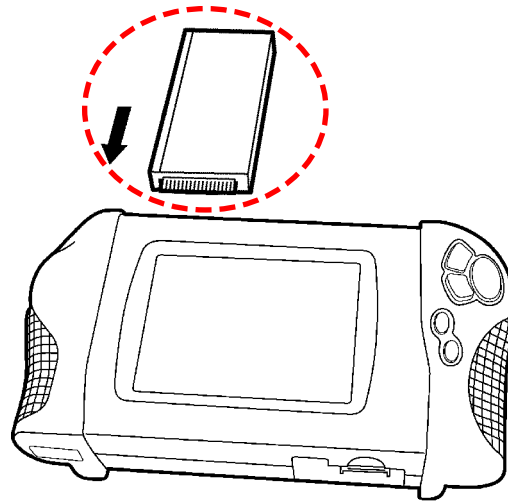
## 1.2 Additional Manuals

Tools that work in conjunction with various hardware and software modules have separate manuals available for each of the modules.

## 1.3 Tool Help

Your unit has Tool Help containing reference and procedural information found in this and other tool related user's manuals. From the main menu, access Tool Help on the Utilities menu.

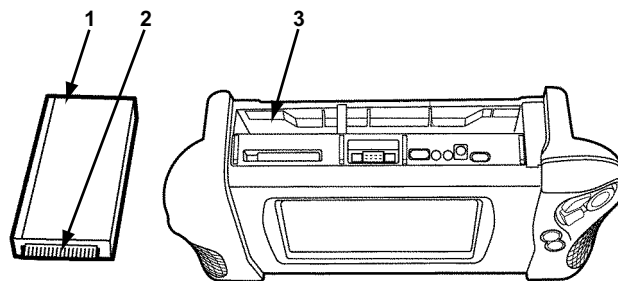
The Scanner™ Plug-in (Figure 2-1) provides a direct communication link to the electronic control modules (ECMs) on a vehicle and performs all of the standard functions of a scan tool.



**Figure 2-1** MODIS™ Scanner™ Plug-in

The Scanner™ Plug-in provides extensive vehicle-specific engine, transmission, antilock brake system (ABS) and airbag diagnostic trouble code (DTC) lists, functional tests, and troubleshooting information. The Scanner™ Plug-in can display data from the vehicle in text or graphical mode.

## 2.1 Connections



**1— Connector for the Scanner™ Plug-in data cable**

**2— Connector for the MODIS™ unit**

Slides into the Scanner™ Plug-in connector inside the MODIS™ unit.

**3— Scanner™ Plug-in slot**

**Figure 2-2** Top of the MODIS™ unit and Scanner™ Plug-in

## 2.2 Technical Specifications

**Dimensions:**

Height:

1 inch

22 mm

Width:

3 inches

75 mm

Depth:

6 inches

153 mm

**Weight:**

9.7 oz.

275 g

**Operating Temperature Range (ambient):**

At 0 to 90% relative humidity (non-condensing)

32 to 104°F

0 to 40°C

**Storage Temperature (ambient):**

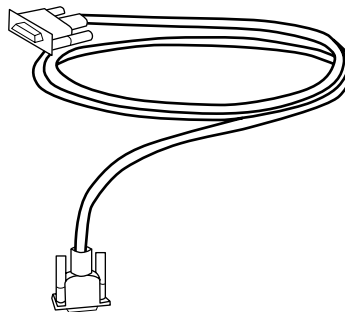
At 0 to 70% relative humidity (non-condensing)

-4 to 122°F

-20 to 50°C

## 2.3 Cables

The included data cable (Figure 2-3) uses interchangeable vehicle adapters for connecting the Scanner™ Plug-in to the diagnostic connectors of the test vehicle. Captive screws secure both data cable ends. An optional data cable extension is available.



**Figure 2-3** Data Cable

## 2.4 Power Supply

The MODIS™ unit can receive power from two sources when testing with the Scanner™ Plug-in:

- Vehicle power
- Battery pack power

We recommend that you use the rechargeable nickel-metal hydride battery pack as a backup power source when testing.

Refer to your *MODIS™ Display User Manual* for more information.

The following steps get you started using the Scanner Plug-in:

1. Familiarize yourself with MODIS™ controls and connections.
2. Supply power to the scan tool
3. Press the **Power** button to turn the scan tool on

Refer to your *MODIS™ Display User Manual* for more information.

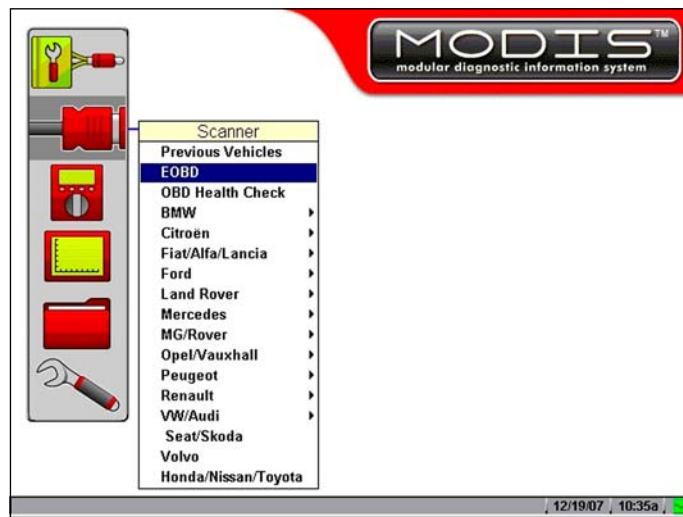
## 3.1 Demonstration Mode

The scan tool contains programs to demonstrate scan tool test capabilities without actually connecting to a vehicle. Sample vehicle data with mock test results are provided to help you become familiar with menus, navigation, and basic operations.



**To use the EOBD demonstration:**

1. Highlight EOBD on the scan tool Main Menu and press **Y/✓**.



**Figure 3-1** Global OBD-II/EOBD menu selection

2. Press **Y/✓** to open the EOBD database.
3. Highlight **OBD Training Mode** and press **Y/✓**.



**Figure 3-2** Sample OBD Training Mode selection

4. Highlight **Start Communication** on the Main Menu OBD, and Press **Y/✓** to select.
5. Press **Y/✓** when the vehicle connection message displays.
6. The ECU/Protocol Information screen displays, Press **Y/✓** to continue.
7. Highlight any of the item on the Select Service menu, and Press **Y/✓** to select.  
Simulated test data now displays.
8. To exit, press **N/X** until you return to the Main Menu OBD.
9. Highlight **End of Diagnose** at the bottom of the list and press **Y/✓**.
10. Highlight the **View** button on the upper toolbar and press **N/X** to return to the Main Menu.

## 3.2 Connecting to Vehicle Power

You need the following to connect the scan tool unit to vehicle power:

- Data cable
- Test adapter
- Auxiliary power cables (optional, see below)



### To connect to vehicle power:

1. Connect one end of the data cable to the data cable connector on the top of the MODIS™.
2. Connect the other end of the data cable to the appropriate test adapter. The Scanner displays relevant adapter and key usage for the identified vehicle.
3. Connect the test adapter to the vehicle diagnostic connector. The Scanner displays the location of the diagnostic connector.
4. Turn the ignition on.

For vehicles that do not supply power through the diagnostic connector, you must use the auxiliary power cables supplied with your MODIS™ unit.

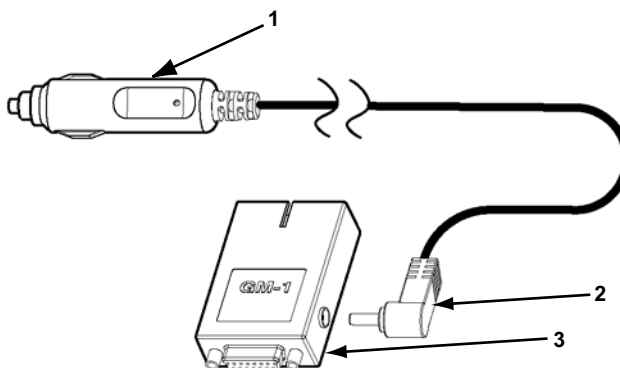
For vehicles that do not supply power through the diagnostic connector, you must use the optional auxiliary power cables.

**NOTE:**

Do not plug the Lighter Power Cable into the DC power input port on the top of the unit. Vehicle power must be supplied to the test adapter for the Scanner to communicate with the vehicle.

**To use auxiliary power cables:**

1. Connect the required test adapter to the data cable (Figure 3-3).



- 1— Lighter Power Cable, large end
- 2— Lighter Power Cable, small end
- 3— Vehicle test adapter

**Figure 3-3** Auxiliary power cable connections

2. Plug the small end of the Lighter Power Cable into the port on the test adapter.
3. Plug the large end of the Lighter Power Cable into the socket of the Battery Power Cable.
4. Connect the clamps of the Battery Power Cable to the vehicle battery. Be sure to observe correct polarity when connecting to the vehicle battery.

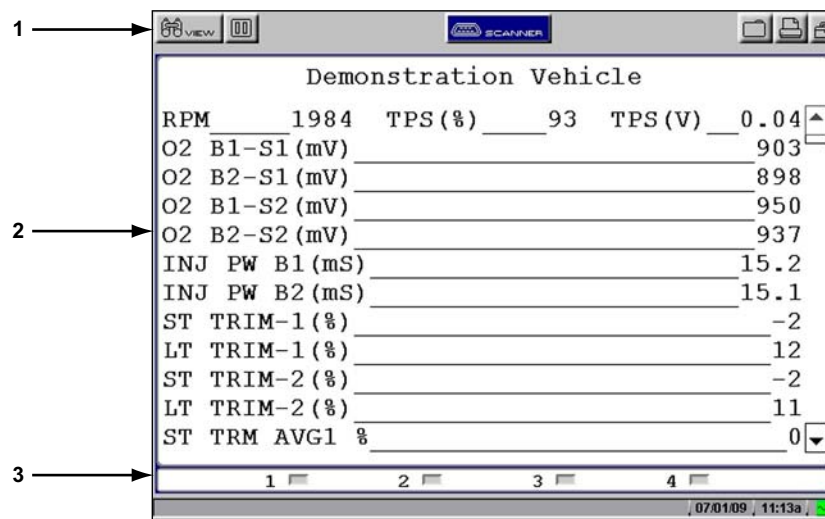
### 3.3 Connecting to a Computer

Connecting your scan tool to a computer for file sharing requires the use of the optional ShopStream Connect™ software. ShopStream Connect is a free software program that can be downloaded from the Internet at [software.snapon.com](http://software.snapon.com).

This section provides MODIS™ Scanner™ Plug-in software navigation information. For information on general MODIS™ navigation, refer to the *MODIS™ Display User's Manual*.

## 4.1 Screen Layout

A typical Scanner screen is comprised of an upper toolbar, a main body, and LED indicators (Figure 4-1). Buttons and controls vary depending on the mode and stage of operation.



- 1— Upper toolbar
- 2— Main body
- 3— LED indicators

Figure 4-1 Sample Scanner screen

### 4.1.1 Upper Toolbar

The upper toolbar (Figure 4-2 and Figure 4-3) controls vary depending on the mode and stage of operations (Table 4-1).
















Figure 4-2 Sample upper toolbar—Text view



Figure 4-3 Sample upper toolbar—Graph view



**Table 4-1** Upper toolbar controls

Name	Button	Description
View		Lets you change the way data displays
Pause		Stops data collection and lets you review the buffered data
Play		Continuously captures data and stores it in the Data Buffer
Clear		Erases all data from the Data Buffer
Sort		Lets you select the order in which data displays
Review		Lets you scroll through frames of paused or saved data
Scanner		Indicates when the Scanner screen is active
Cursor		Lets you make digital amplitude measurements of graph data
Zoom		Lets you change the magnification of the data in Graph View, or pick the number of PIDs displayed on-screen in PID List view
Snapshot		Lets you capture a snapshot using the PID Trigger or manual Snapshot
Save		Lets you store scanned vehicle data or save the current screen in memory
Print		Lets you print the displayed screen or a list of the current parameter values
Tools		Offers a shortcuts to Custom Setup, Save Data and Custom Data List. Custom Setup opens the Scanner Units dialog box, which lets you select how certain data values display. Save Data opens the Save Data dialog box that lets you configure how data is saved. Custom Data List lets you select which parameters are displayed.

### Scanner Button

When the Scanner button is selected, the background of the main body turns white, indicating that Text view is active (Figure 4-4) and the up ▲ and down ▼ arrows and the **Y/✓** and **N/X** buttons are used for screen navigation.

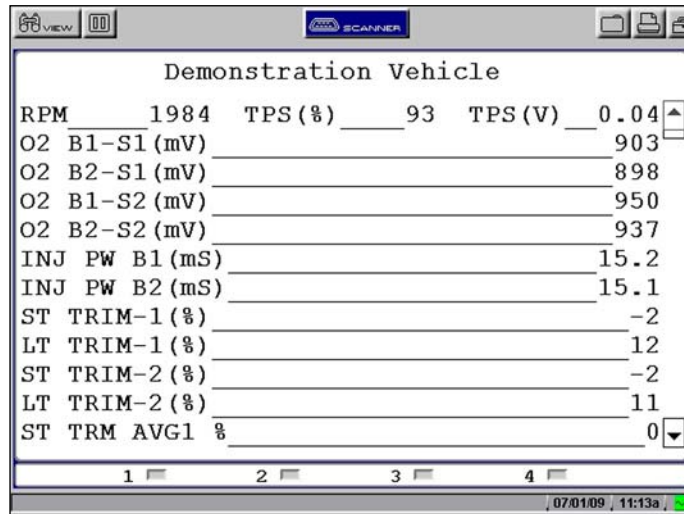


Figure 4-4 Active Scanner screen

When you select a different button from the upper toolbar using the left ◀ and right ▶ arrows in Text view, the background of the main body turns gray, indicating the screen is inactive (Figure 4-5). See “Terminating Vehicle Communication” on page 22 for more information.

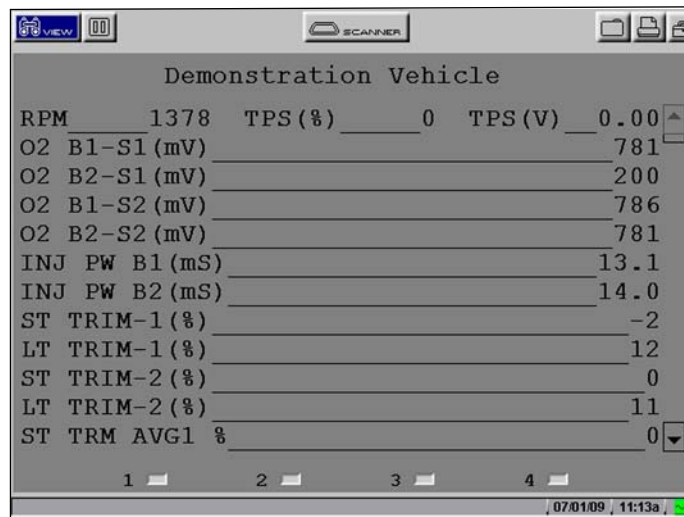


Figure 4-5 Inactive Scanner screen

Always exit Scanner mode before powering off. Exiting Scanner mode is different depending on the view option selected.

#### IMPORTANT:

Exiting Scanner mode does not ensure that you have safely terminated communication with a vehicle. See “Terminating Vehicle Communication” on page 22.



#### To exit Scanner mode from text screens:

1. Use right ▶ and left ◀ arrows to scroll the highlight off of the **Scanner** button.
2. Press **N/X** to return to the main menu.

**To exit Scanner mode from PID List or Graphs views:**

- Press **N/X** until you return to the main menu.

### 4.1.2 Main Body

The main body of the Scanner™ Plug-in screen provides prompts. The prompts guide you through vehicle identification and task selection. Once communication is established with an ECM, displays menus, parameter information, and tests.

### 4.1.3 LED Indicators

Four LED indicators appear at the bottom of the screen and show designated operating conditions. The LEDs can be programmed to show change of state for certain digital parameters, which vary by manufacturer.

## 4.2 Making Selections

Use the following procedures to navigate and make selections.

**To make selections:**

1. Highlight a button or menu option.
2. Press **Y/✓** to confirm the selection.

For more details, refer to the Navigation chapter in your *MODIS™ Display User Manual*.

This section explains general Scanner™ Plug-in operations and offers instructions for customizing certain functions. The following is an outline of basic Scanner operation.



---

**NOTE:**

The sequence of steps may vary depending on manufacturer or model of the test vehicle. See the manufacturer-specific vehicle communication software manuals for detailed procedures.

---

1. **Select the manufacturer**—Select and load the software database for the manufacturer of the test vehicle. See “Selecting the Manufacturer” on page 14.
2. **Identify the vehicle**—Identify the test vehicle to the Scanner™ Plug-in by entering VIN characters and answering questions. See “Identifying a Vehicle” on page 16.
3. **Select the system**—Enter the system to be tested (engine, transmission, ABS, etc.). See “Selecting a System” on page 16.
4. **Connect the Scanner™ Plug-in to the vehicle**—Follow the on-screen connection instructions to connect the Scanner™ Plug-in to the test vehicle. See “Connecting to a Vehicle” on page 17.
5. **Select the required test from the menu**—Select tests for the vehicle you have identified. See “Selecting from the System Main Menu” on page 18.

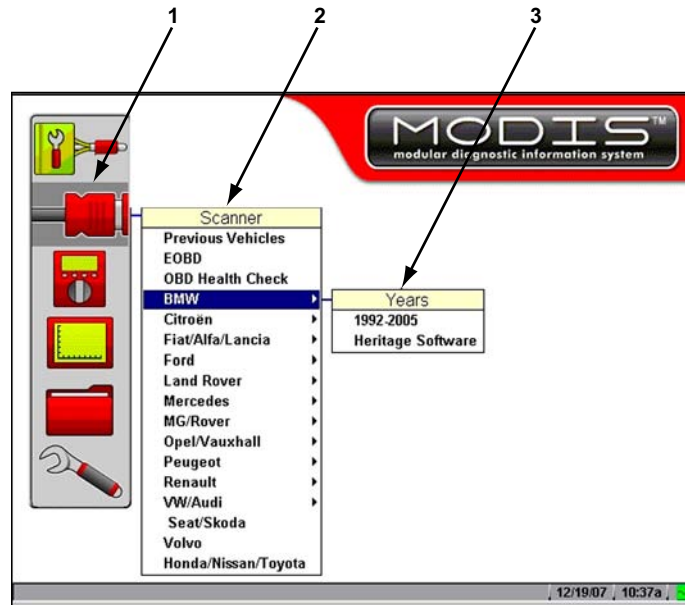
## 5.1 Selecting the Manufacturer

Vehicle manufacturers are organized into categories (Figure 5-1):

- Previous Vehicles—for recently tested vehicles
- Global OBDII—for any OBD-II/EOBD vehicle
- OBD Health Check—for any OBD-II/EOBD vehicle
- An alphabetical list of manufacturers

Previous vehicles provides a shortcut to a list of recently tested vehicles. Select to configure the scan tool to any of the vehicles on the list.

Selecting Global OBDII and OBD Health Check loads a software database that can be used to test any OBD-II/EOBD compliant vehicle regardless of manufacturer.



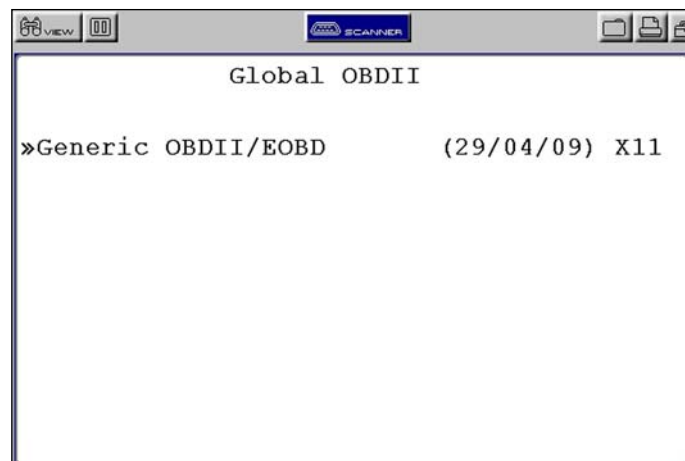
- 1— Scanner function
- 2— Scanner menu
- 3— Submenu

**Figure 5-1** Sample Scanner main menu software selection



**To select the manufacturer:**

1. From the main menu, select **Scanner**.  
The Scanner menu displays (Figure 5-1):
2. Select from the submenus as necessary.  
The database loads, then a confirmation screen displays (Figure 5-2).



**Figure 5-2** Sample confirmation screen

3. Press **Y/✓** to continue.

## 5.2 Identifying a Vehicle

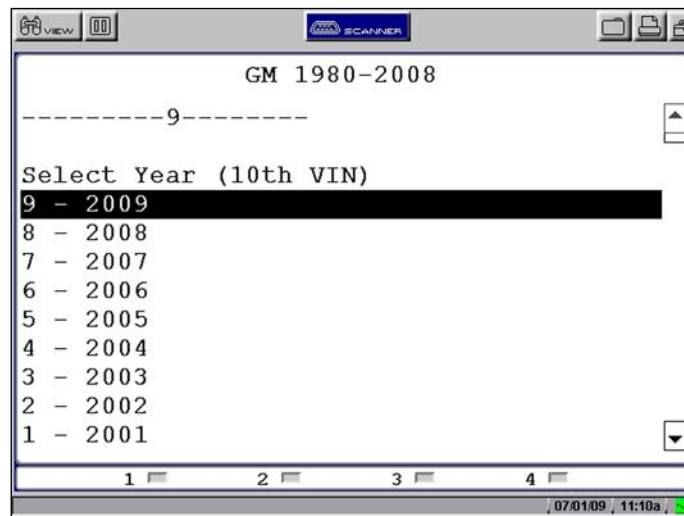
After you select the manufacturer, you are ready to identify the specific vehicle to be tested.

**NOTE:**

The exact procedure varies depending on the manufacturer. Screen prompts will guide you through the procedure.

**To identify a vehicle:**

1. Once the database loads, the first vehicle identification (ID) screen displays (Figure 5-3).



**Figure 5-3** Sample Vehicle ID screen

2. Press the up ▲ and down ▼ arrows on the Thumb Pad until the correct character is shown, then press **Y/✓**.
3. Continue by entering VIN characters and pressing **Y/✓** or **N/X** to answer the on-screen questions as necessary.

Once the vehicle identification is complete, a Select System menu displays (Figure 5-4).

## 5.3 Selecting a System

You must select the vehicle control system you wish to test (Figure 5-4).

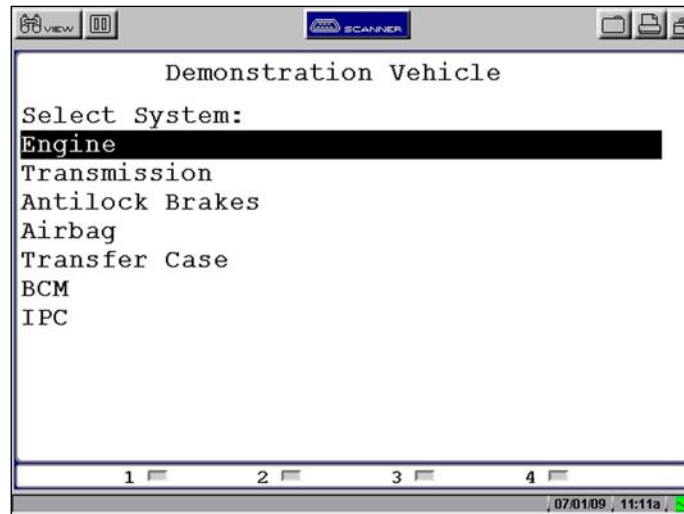


Figure 5-4 Sample system selection menu



**To select a system:**

1. Press the up ▲ and down ▼ arrows so the cursor is at the system you wish to test.
2. Press Y/✓ to select.

## 5.4 Connecting to a Vehicle

Connection instructions prompt you to connect the Scanner Plug-in to a vehicle diagnostic connector for testing (Figure 5-5). See the appropriate Vehicle Communication Software manual for details on connecting to a vehicle.

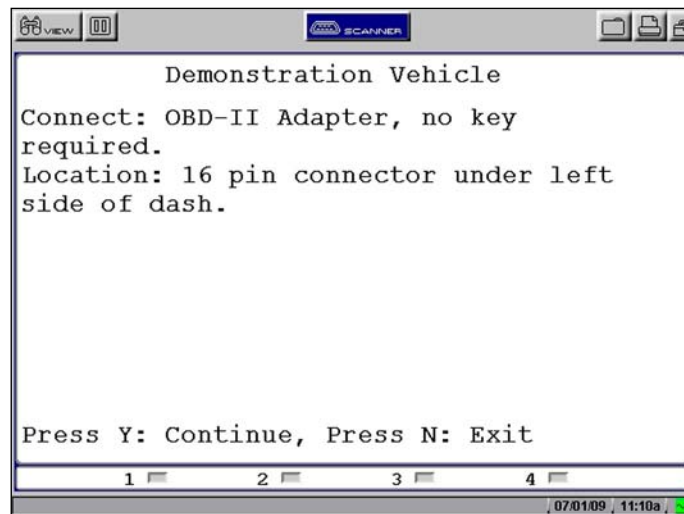


Figure 5-5 Sample connection instruction screen

## 5.5 Selecting from the System Main Menu

Depending on the vehicle, a number of options may be available on the system main menu (Figure 5-6).

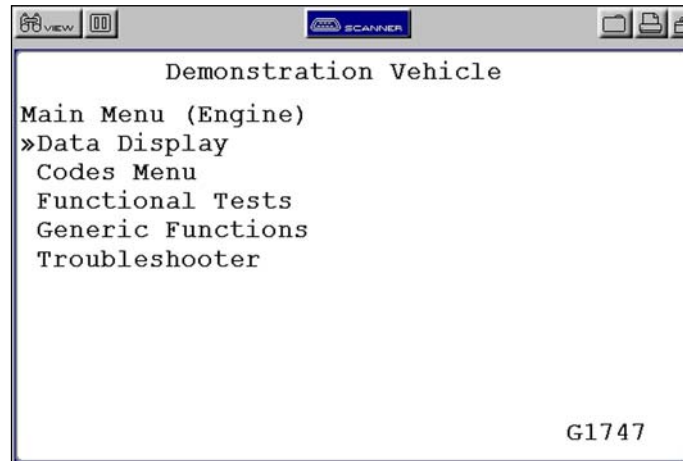


Figure 5-6 Sample system main menu

## 5.6 Using the Scanner Functions

System main menu options vary by make and model and may include the following:

- **Data Display**— displays data parameter information from the vehicle control module. selecting may open a submenu of viewing options.
- **Codes Menu**—displays diagnostic trouble code (DTC) records from the vehicle control module. selecting may open a submenu of viewing options.
- **Service Codes**—performs self-tests and displays codes after performing these tests.
- **Functional Tests**—provides specific subsystem and component tests. The tests vary depending on the manufacturer and model.
- **Actuator Tests**—similar to functional tests, these tests check the operation of certain actuators, such as solenoid valves and relays.
- **System Tests**—provides specific subsystem testing.
- **Generic Functions**—lets you access Generic OBD-II functions (1996 and later vehicles).

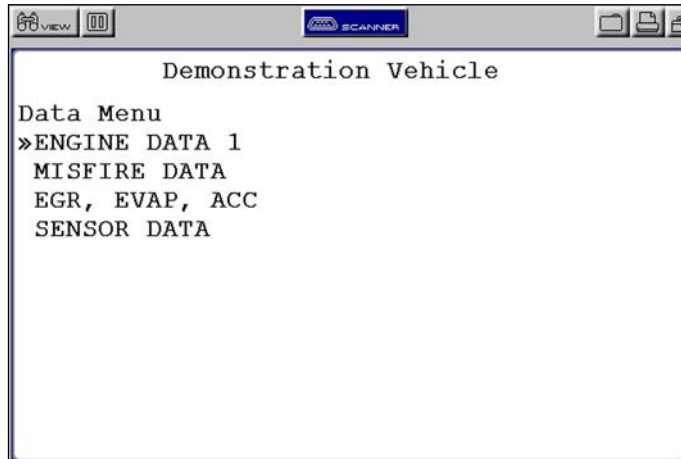
### 5.6.1 Data Display

Selecting **Data Display** on the system Main Menu has one of the following results:

- A submenu of data viewing choices displays.
- Vehicle data displays.

A submenu displays if more than one data viewing mode is available for the vehicle (Figure 5-7).

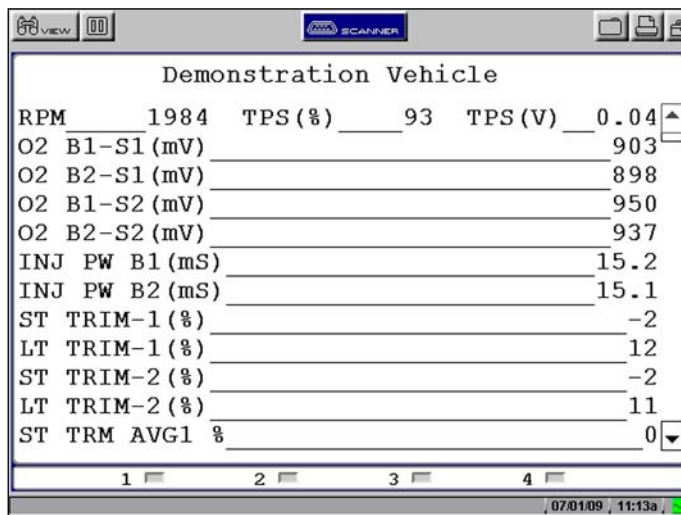




**Figure 5-7** Sample Data Display submenu

On some models, the engine must be started or cranked before data can be displayed. For these models, a "Waiting to Communicate" message displays if the engine was not cranked or started.

Once a selection is made, vehicle data displays (Figure 5-8).

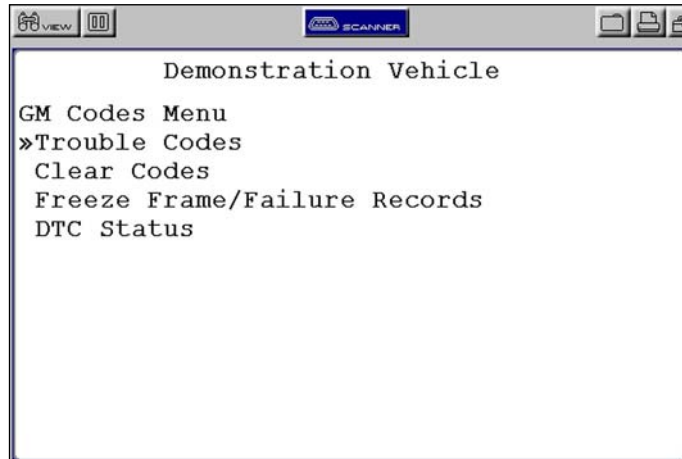


**Figure 5-8** Sample vehicle data screen

## 5.6.2 Codes Menu

Selecting **Codes Menu** from the system main menu opens a list of diagnostic trouble code (DTC) viewing options (Figure 5-9). Selections typically include:

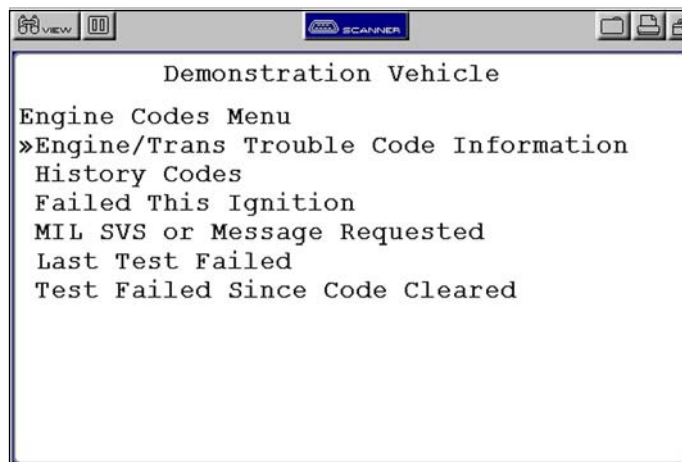
- Trouble Codes
- Clear Codes
- Freeze Frame/Failure Records
- DTC Status



**Figure 5-9** Sample Codes Menu viewing options

## Trouble Codes

Selecting Trouble Codes typically opens a menu of viewing options. Select from the list to view DTC data (Figure 5-10).



**Figure 5-10** Sample Trouble Codes menu screen

## Clear Codes

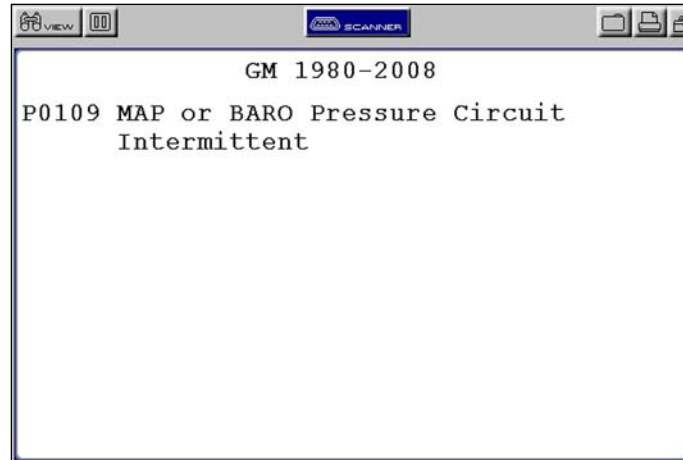
Selecting Clear Codes erases any DTCs that are stored in the selected control module of the vehicle. Once the DTCs are erased, a confirmation message displays.

## Freeze Frame/Failure Records

Freeze Frame/Failure Records allows you to view emissions related DTCs that caused the malfunction indicator lamp (MIL) to turn on, and parameter data that was recorded at the time the DTC set.

**To view freeze frame/failure records:**

1. Select **Freeze Frame/Failure Records** from the Codes Menu.  
The DTC that turned the MIL on displays (Figure 5-11).



**Figure 5-11** Sample Freeze Frame/Failure Records DTC display

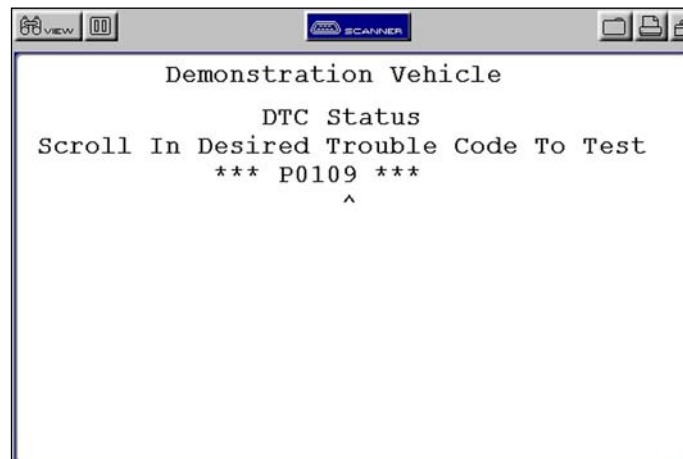
2. Press **Y/✓** to view the recorded data, which displays similar to live data.
3. Press **N/X** once to open the Exit menu.
4. Press **N/X** twice to return to the Codes Menu.

**DTC Status**

DTC Status allows you to view the condition of any available DTC. For example, a DTC whose setting conditions occurred once but must occur twice before the code actually sets would display as a pending code.

**To view DTC status:**

1. Select **DTC Status** from the Codes Menu.  
The DTC selection screen displays (Figure 5-12).



**Figure 5-12** Sample DTC Status selection screen

2. Press the up ▲ or down ▼ arrows until the first selectable character of the DTC displays.
3. Press **Y/✓** to confirm that character and advance to the next selectable position.
4. Repeat Steps 2 and 3 until the complete DTC displays.
5. Press **Y/✓** to view the status.

### 5.6.3 Functional Tests

The **Functional Tests** selection on the Scanner main menu is used to access vehicle-specific subsystem and component tests. Available tests vary by manufacturer, year, and model. Refer to the appropriate Vehicle Communication Software manual for information on conducting functional tests and test availability.

There are four general types of functional test operation:

- **Information Tests**—are read-only tests, like selecting VIN from a Functional Tests menu to display the VIN of the identified vehicle.
- **Toggle Tests**—switch a component, such as a solenoid, relay, or switch, between two operating states. The terms “on/off,” “open/clsd” (open/closed), “enab/disa” (enable/disable), and others may be used to identify the different states.
- **Variable Control Tests**—command a certain value for a system or component, such as varying the spark timing in increments of one degree (1°) or varying the duty cycle of the EGR valve in increments of 10%.
- **Reset Tests**—reset the adaptive, or learned, values that are stored in the control module.

### 5.6.4 Terminating Vehicle Communication

Once you have established communication with a vehicle, you must terminate communication with the vehicle control module in order to safely shut down the Scanner Plug-in. Use the following procedures to terminate correctly.

---

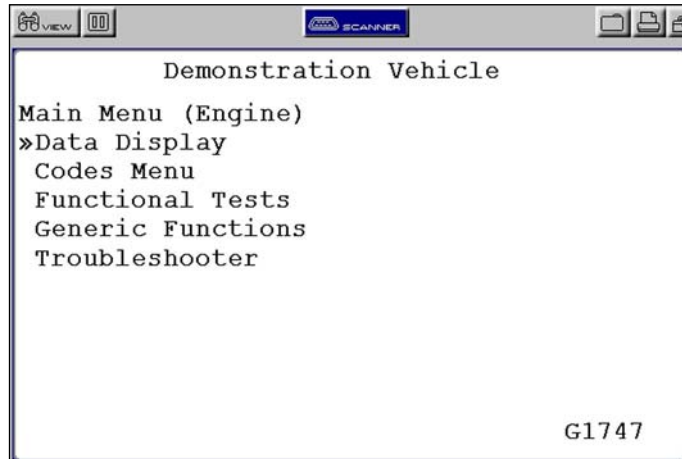
**IMPORTANT:**

Damage to the vehicle may occur if communication is abruptly terminated.

---

**To terminate communication from a manufacturer or Global OBD-II database:**

- Press **N/X** until you reach the main menu (Figure 5-13).



**Figure 5-13** Sample system main menu

A “stopping communication” message appears briefly before the main menu displays.

## 5.6.5 Exiting Scanner Mode

Always exit Scanner mode before powering off. Exiting Scanner mode is different depending on the view option selected.

---

### **IMPORTANT:**

Exiting Scanner mode does not ensure that you have safely terminated communication with a vehicle. See “Terminating Vehicle Communication” on page 22.

---



#### **To exit Scanner mode from text screens:**

1. Use right ► and left ◀ arrows to scroll the highlight off of the **Scanner** button.
2. Press **N/X**.  
You are returned to the main menu.



#### **To exit Scanner mode from PID List or Graphs views:**

- Press **N/X** until you return to the main menu.

## 5.7 Viewing Data Graphically

The Scanner provides multiple options for viewing and managing data.

### 5.7.1 Changing Screen Views

The **View** button on the upper toolbar lets you change how data displays (Figure 5-14).

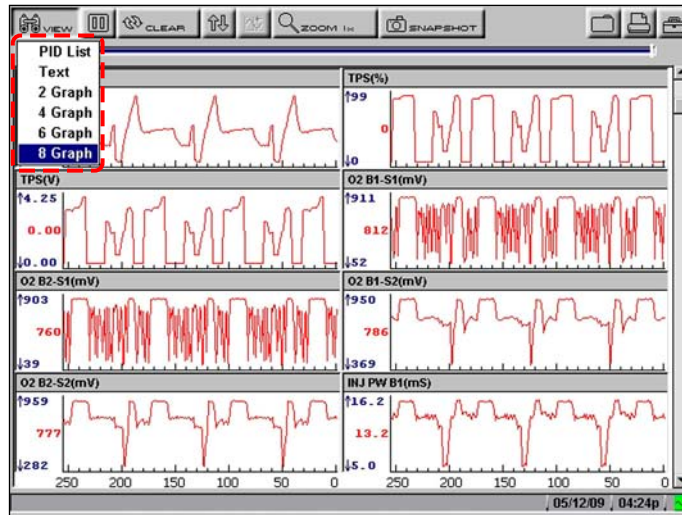


Figure 5-14 Sample View menu



**To change screen views:**

1. Select the **View** button.  
A dropdown menu displays (Figure 5-14).
2. Select an option from the menu and the screen layout changes to the selected format.

**PID List View**

The PID List view displays all parameters in a table format. As many as sixteen parameters (Figure 5-15) can be viewed on one screen depending on the zoom setting.

RPM	1480
TPS(%)	0
TPS(V)	0.00
O2 B1-S1(mV)	187
O2 B2-S1(mV)	625
O2 B1-S2(mV)	781
O2 B2-S2(mV)	790
INJ PW B1(mS)	13.9
INJ PW B2(mS)	13.8
ST TRIM-1(%)	-1
LT TRIM-1(%)	12
ST TRIM-2(%)	3
LT TRIM-2(%)	11
ST TRM AVG1 %	0
LT TRM AVG1 %	9
ST TRM AVG2 %	0

Figure 5-15 Sample PID List view



### To adjust the Zoom setting:

1. Select the **Zoom** button on the upper toolbar.  
The Zoom dropdown menu displays (Figure 5-16).

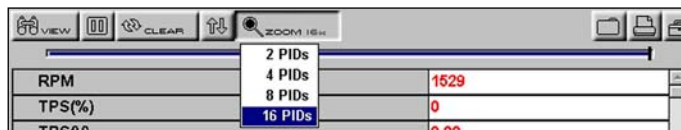


Figure 5-16 Sample Zoom dropdown menu

2. Highlight a menu item and press **Y/✓**.  
The menu closes and the display changes to show the selected number of PIDs.

## Reviewing PIDs

You can review collected PID data by pausing the screen (Figure 5-17). Once data collection is paused, all of the data being held in the buffer can be reviewed.



- 1— Pause/Play button
- 2— Review button
- 3— Parameter data

Figure 5-17 Sample paused upper toolbar in PID List view



### To review collected parameter data:

1. Select the **Pause** button to stop the data collection.
2. Select the **Review** button and use the thumb pad arrows to scroll through the data.
  - a. Right ► moves you backward one frame at a time.
  - b. Left ◀ moves you forward one frame at a time.
  - c. Up ▲ moves you forward, and the rate at which you move through the data accelerates if the button is held down.
  - d. Down ▼ moves you backward, and the rate at which you move through the data accelerates if the button is held down.
3. Press **N/X** to release the **Data Review** control.
4. Select the **Play** button to unfreeze the screen.

## Clearing the Buffer

The **Clear** button on the toolbar erases all of the data in the buffer.



**To clear the data buffer:**

1. Select **Clear** on the upper toolbar.  
A confirmation screen displays.
2. Press **Y/✓** to erase the data, **N/X** to cancel.  
New data begins saving after the buffer has been cleared.

**Sorting the PID List**

The Sort button on the toolbar allows you to arrange the parameter list three ways:

- Factory Sort—in the order transmitted by the electronic control module (ECM)
- A-Z Sort—in alphabetical ascending order
- Z-A Sort—in alphabetical descending order



**To sort the PID List:**

1. Select the **Sort** button on the upper toolbar.
2. Highlight an option on the drop-down menu.

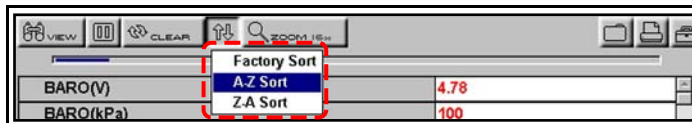


Figure 5-18 Sample sort drop-down menu

3. Press **Y/✓** to sort.



**NOTE:**

Any PIDs that were locked are unlocked whenever a selection is made from the Sort button.

**Locking Parameters**

You can lock parameters in place for customized list viewing.



**To lock a parameter:**

1. From the upper toolbar, press the down ▼ arrow.
2. Select the parameter you want to lock.  
The parameter menu displays (Figure 5-19).



Figure 5-19 Sample parameter menu

3. Select **Lock**.



A lock icon displays to the left of the parameter name (Figure 5-20) and the locked parameter stays in place when your scroll through the list.

Parameter Name	Value
RPM	1963
TPS(%)	0
TPS(V)	0.00
 O2 B1-S1(mV)	113
O2 B2-S1(mV)	95

**Figure 5-20** *Locked PID sample*

4. Repeat the above steps to lock multiple parameters.
5. Press **N/X** to return to the upper toolbar.



**To unlock parameters:**

1. Select a locked parameter and when the parameter menu displays, select **Unlock**.  
The lock icon disappears and the parameter can be scrolled as before.
2. Press **N/X** to return to the upper toolbar.



**To unlock all the parameters at once, do one of the following:**

- Select a locked parameter and when the parameter menu displays, select **Unlock All**.
- Select any option from the **Zoom** menu.

**Text View**

Text view displays parameters as plain text (Figure 5-21).

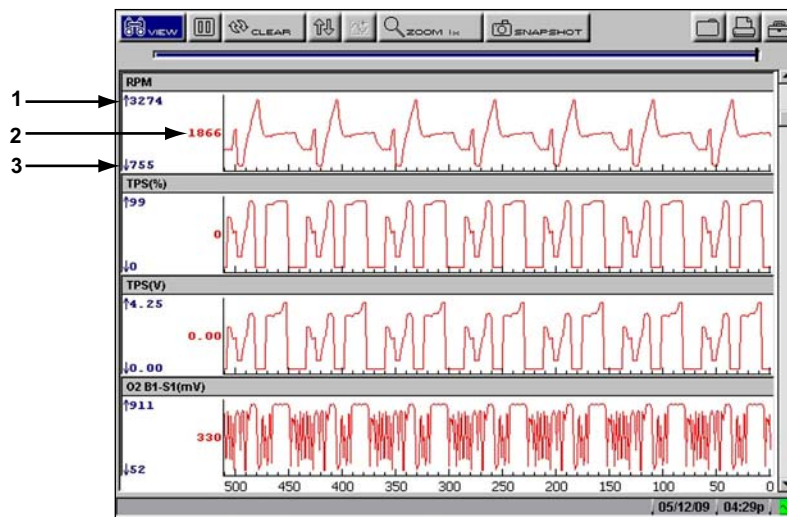
```

Demonstration Vehicle
RPM      1984   TPS (%)   93   TPS (V)  0.04
O2 B1-S1 (mV)      903
O2 B2-S1 (mV)      898
O2 B1-S2 (mV)      950
O2 B2-S2 (mV)      937
INJ PW B1 (mS)     15.2
INJ PW B2 (mS)     15.1
ST TRIM-1 (%)      -2
LT TRIM-1 (%)      12
ST TRIM-2 (%)      -2
LT TRIM-2 (%)      11
ST TRM AVG1 %      0
    
```

**Figure 5-21** *Sample Text view*

## Graph View

The Graph view let you view data in line graph format (Figure 5-22). You can view two, four, six, or eight graphs at a time depending on the option selected from the VIEW menu.



- 1— Maximum value of captured data
- 2— Current value
- 3— Minimum value of captured data

Figure 5-22 Sample Graph screen

## Parameter Menu

When viewing data in the Graph view, the scan tool offers a parameter menu (Figure 5-23) with the following options.

- **Lock**—lets you lock a parameter into position to compare readings.
- **Unlock**—lets you unlock a single parameter.
- **Unlock All**—lets you unlock all locked parameters.
- **Auto Scale**—lets you automatically rescale the minimum and maximum values of the selected graph captured within the last 2000 points.
- **Manual Scale**—lets you scale minimum and maximum values of the selected graph.
- **Scale All**—lets you scale the minimum and maximum values of all the graphs.
- **Set Trigger Levels**—lets you specify automatic screen-pausing conditions when **Snapshot > PID Trigger** is used.
- **Clear Trigger Levels**—lets you remove set trigger conditions from the selected parameter.
- **Clear All Trigger Levels**—lets you remove set trigger conditions from all parameters simultaneously.



### To lock a parameter:

1. From the upper toolbar, press the down ▼ arrow.  
The highlight moves to the first parameter graph.
2. Select the parameter you want to lock.  
The parameter menu displays (Figure 5-23).

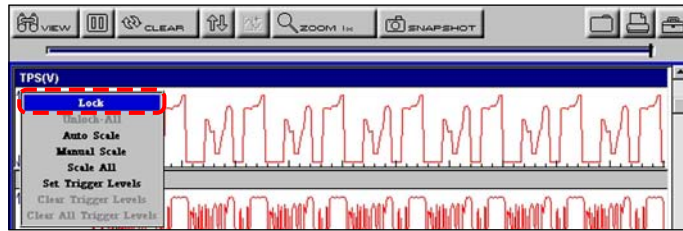


Figure 5-23 Sample parameter menu

3. Select **Lock**.

A lock icon displays and that graph does not move when you scroll the data (Figure 5-24).

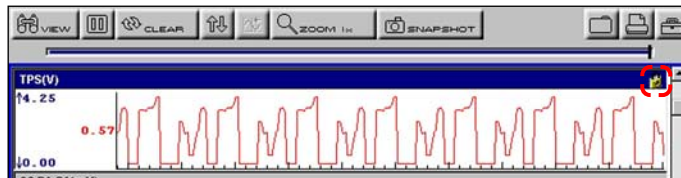


Figure 5-24 Lock icon indicating a locked parameter

4. Scroll other parameters into place to compare readings.



**To unlock a parameter:**

1. Select the locked parameter to open the parameter menu (Figure 5-25).

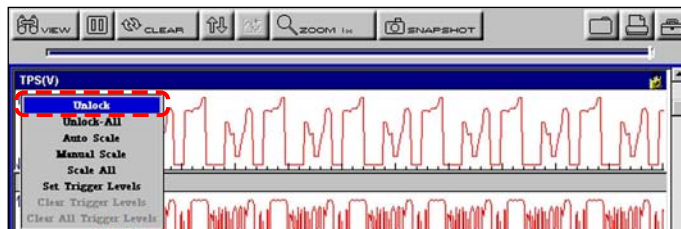


Figure 5-25 Sample parameter menu

2. Select **Unlock**.

The lock icon disappears and the parameter can be scrolled as before.



**To unlock all parameters:**

1. When a parameter is locked on-screen, select any parameter.

The parameter menu displays (Figure 5-26).

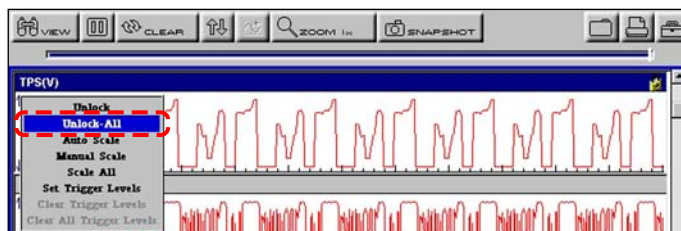


Figure 5-26 Sample parameter menu

2. Select **Unlock All**.  
All of the locked icons disappear and all of the parameters can be scrolled as before.



#### To automatically scale a parameter:

1. Select a parameter.  
The parameter menu displays (Figure 5-27).

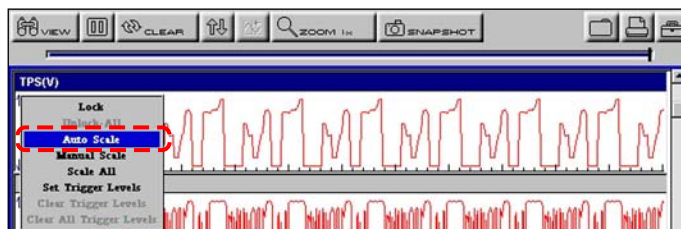


Figure 5-27 Sample parameter menu

2. Select **Auto Scale**.  
The minimum and maximum graph values are reset.



#### To manually scale a parameter:

1. Select a parameter to open the parameter menu.
2. Select **Manual Scale**.  
A line displays across the top of the graph along with a box that displays the maximum recorded value (Figure 5-28).

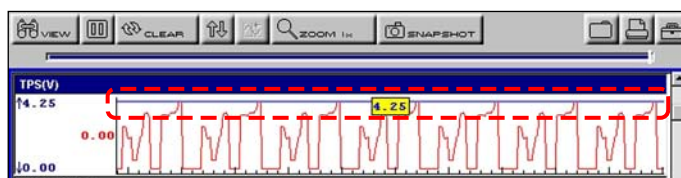


Figure 5-28 Sample manually scaling a parameter

3. Use the down ▼ arrow to move the maximum displayed value into position.
4. Press **Y/✓** to set the selected value.
5. Press **Y/✓** to scale the minimum value.
6. Use the up ▲ arrow to move the maximum displayed value into position.
7. Press **Y/✓** to set the selected value.
8. Press **N/X** to exit manual scale.  
The top and bottom of the graph is now clipped so that only the portion that falls between the selected minimum and maximum values displays.



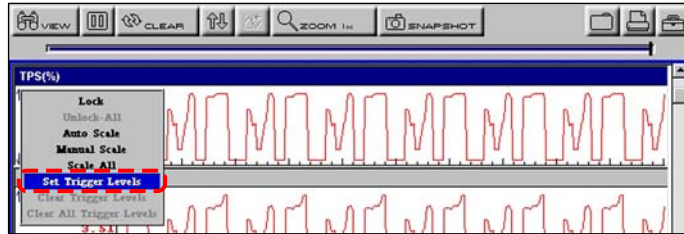
#### To scale all parameters

1. Select a parameter.  
The parameter menu displays.
2. Select **Scale All**.  
The minimum and maximum graph values are reset for all of the parameters.



**To set trigger levels:**

1. Select a parameter.  
The parameter menu displays (Figure 5-29).



**Figure 5-29** Sample parameter menu

2. Select **Set Trigger Levels**.

The active trigger level line displays as a solid black line together with an on-screen position value (Figure 5-30).

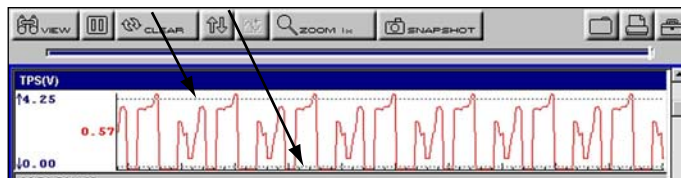


**Figure 5-30** Sample active trigger line

An upper and lower trigger level must be set.

3. Set the upper trigger level using the up ▲ and down ▼ arrows to place the trigger level line on the PID graph, and press **Y/✓**.

When set, the solid black line changes to a dotted line (Figure 5-31).



**Figure 5-31** Sample set trigger levels

4. Set the lower trigger level using the up ▲ and down ▼ arrows and press **Y/✓**.  
The area between the two trigger levels establishes the triggering condition. Any data points that register outside of your set condition trigger the on-screen graphing to freeze.
5. Press **Y/✓** if you want to switch between trigger level lines during the setting process.
6. When you finish setting your trigger level, press **N/X**.



**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.



**To arm PID Triggering:**

- From the upper toolbar, select **Snapshot > PID Trigger**.  
A check mark displays next to the menu option (Figure 5-32).



**Figure 5-32** Sample armed triggering

**Trigger Delay**

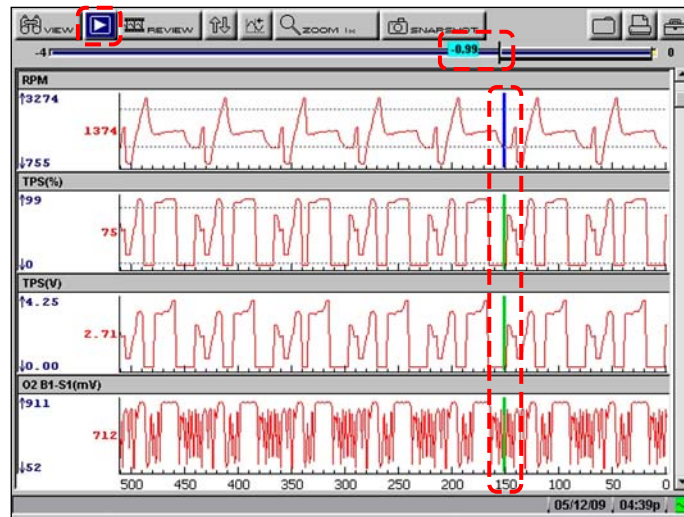
Once the trigger is detected, a collecting snapshot dialog box displays (Figure 5-33) and data after the trigger detection begins to collect.



**Figure 5-33** Sample collecting snapshot dialog box

The amount of data collected is specified by the **% After Trigger** setting, found in **Utilities > Tool Setup > Save Data**. You can manually stop the snapshot by pressing **Y** at any time during the data collection.

Once data collection is finished, graphing automatically stops and the screen changes as follows (Figure 5-34):



**Figure 5-34** Sample PID Triggering condition setting(s) met

- The Play button replaces the Pause button on the upper toolbar.
- A frame counter, showing the trigger point, displays on the buffer bar.

- A vertical line displays at the point where the trigger was detected on all of the parameter graphs. A different color is used for vertical line on the graph of the parameter that set the trigger, which makes it is easy to determine what condition caused the event.



**NOTE:**

When the Play button is selected to resume data collection the red and green trigger detection lines turn gray to indicate data collection was stopped at this point.



**To restart graphing:**

- Select the Play button (Figure 5-34).



**To clear trigger levels:**

1. Select a parameter.  
The parameter menu displays (Figure 5-35).



Figure 5-35 Sample parameter menu

2. Select a **Clear** option.
  - **Clear Trigger Levels**—removes the trigger settings from the selected parameter.
  - **Clear All Trigger Levels**—removes the trigger settings from all of the parameters.



**To disarm PID Triggering:**

- From the upper toolbar, select **Snapshot > PID Trigger**.  
The check mark next to the menu option disappears (Figure 5-36).



Figure 5-36 Sample armed triggering

### 5.7.2 Pausing Data

The **Pause** button temporarily stops, or “pauses”, data collection when viewing parameter data in the PID List or Graph views (Figure 5-37).



Figure 5-37 Pause button viewing “live-screen” data

When the Pause button is selected, it changes to the Play button, which resumes data collection. A frame counter now displays on the buffer bar. Select Play to resume viewing live data and a gray vertical line now appears on the graphs at the point where the data collection was paused.

The **Review** button on the toolbar becomes active when data collection is paused and the position indicator located just below the toolbar displays. The Review button allows you to scroll through and review frames of data.



#### To review paused data:

1. Select the **Review** button.

The Review button changes color to indicate it is selected (Figure 5-38).



Figure 5-38 Sample active Review button

2. Navigate through the paused data using the up ▲, down ▼, right ►, and left ◀ arrows on the thumb pad:
  - a. Up ▲ moves you forward one frame at a time.
  - b. Down ▼ moves you backward one frame at a time.
  - c. Right ► moves you backward one screen at a time.
  - d. Left ◀ moves you forward one screen at a time.

Scroll option are also available for reviewing the data.

3. With the **Review** button active, press **Y/✓** to change scroll options.

The Scroll options dropdown menu displays (Figure 5-39).

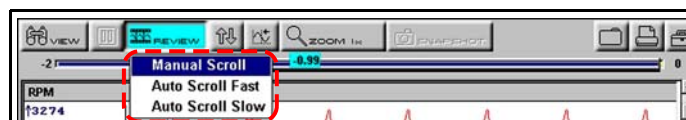


Figure 5-39 Sample Scroll options menu

The following choices are available:

- Manual Scroll—use the up ▲ and down ▼ arrows to move through the data, this is the default setting.
  - Auto Scroll Fast—automatically advances the data in a continuous loop at normal speed. This is the recording speed, which is the transmission speed of the ECM.
  - Auto Scroll Slow—automatically advances the data in a continuous loop at half speed.
4. Press **N/X** to deactivate the **Review** button.

### 5.7.3 Clearing the Buffer

The **Clear** button on the toolbar erases all of the data in the buffer. A confirmation screen displays when the clear button is selected.

New data begins saving after the buffer has been cleared.



### 5.7.4 Sorting the PID List

The Sort button on the toolbar allows you to arrange the parameter list three ways:

- Factory Sort—in the order transmitted by the electronic control module (ECM)
- A-Z Sort—in alphabetical ascending order
- Z-A Sort—in alphabetical descending order



**To sort the PID List:**

1. Select the **Sort** button on the upper toolbar.
2. Highlight an option on the drop-down menu (Figure 5-40).

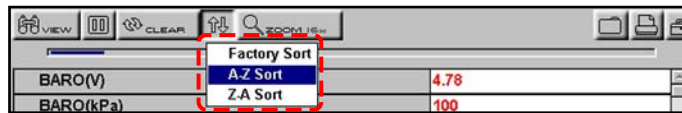


Figure 5-40 Sample sort drop-down menu

3. Press **Y/✓** to sort.



**NOTE:**

Any locked parameters are unlocked whenever a selection is made from the Sort button.

### 5.7.5 Using Cursors

When data is paused in Graph view, the **Cursor** button displays on the upper toolbar (Figure 5-41), which allows you to view digital amplitude measurements of frozen data.

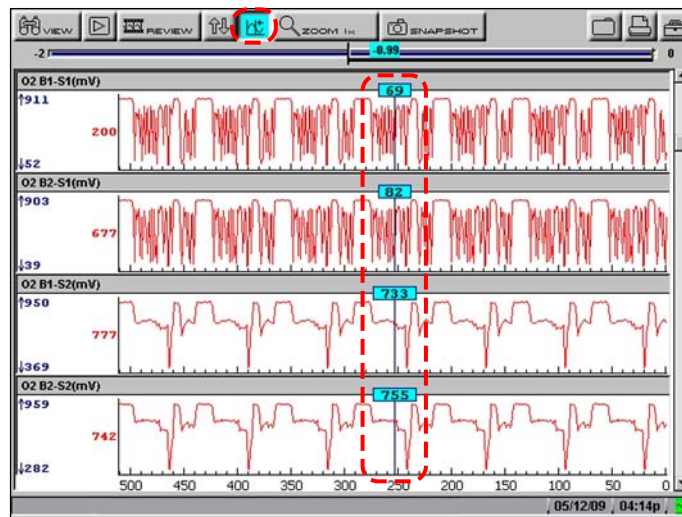


Figure 5-41 Sample frozen screen with Cursors active



### To use the Cursor:

1. Select the **Pause** button.
2. Select the **Cursor** button.  
Cursor lines display on the frozen data (Figure 5-41). The value where the cursor line intersects the frozen data displays above the cursor line.
3. Press the left ◀ and right ▶ arrows to move the cursor.
4. Press **N/X** to exit the Cursor mode.

## 5.7.6 Using Zoom

The **Zoom** button lets you choose the number of PIDs that display on-screen when used in the PID List view and lets you choose different levels of magnification when used in the Graph view (Figure 5-42).

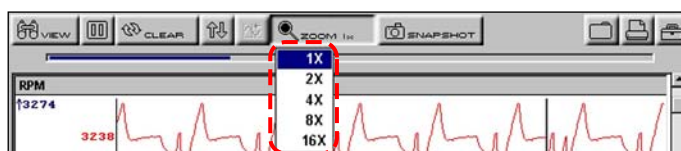


Figure 5-42 Sample Graph ZOOM options

When viewing paused data, a Zoom Out selection is available on the drop-down menu (Figure 5-43). Select Zoom Out and all of the data in the buffer displays on the graphs.

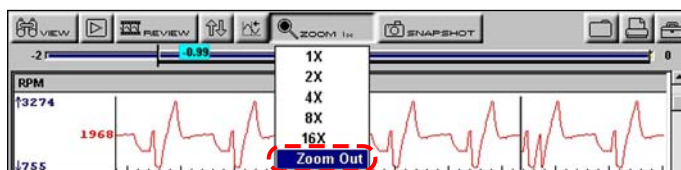


Figure 5-43 Sample ZOOM options on paused data

## 5.8 Saving Captured Data

The scan tool provides multiple options for saving and reviewing captured data:

- **Save Frame**—This feature allows you to save up to 512 frames of buffered data (data held in scan tool memory) for each parameter. Pages can be saved from the Text, PID, and Graph views, but can only be replayed in the Graph view.
- **Save Movie**—This feature allows you to save up to 2000 frames of data (buffered data plus data transmitted after triggering) for each available parameter. Files can be saved from the Text, PID, and Graph views, but can only be replayed in the Graph view.
- **Save Image**—This feature allows you to capture a single screen as an image. Image files can be opened with common computer programs, such as Microsoft Paint.



**To save a frame:**

1. Select the **Save** button from the toolbar.  
A dropdown menu of choices displays (Figure 5-44).



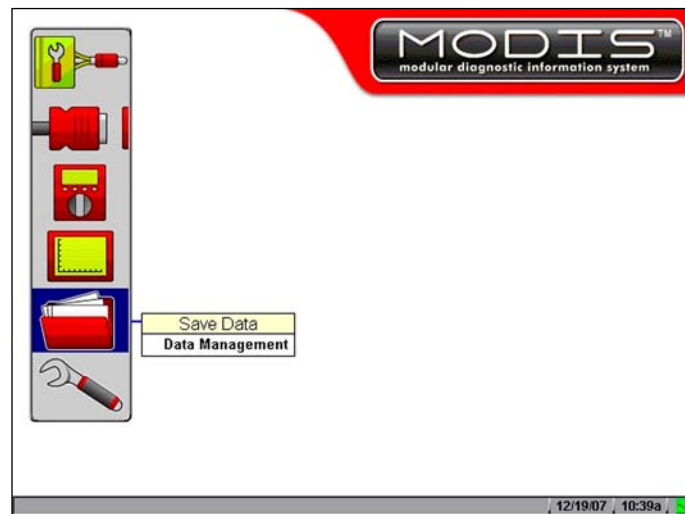
**Figure 5-44** Save button menu

2. Select **Save Frame** from the menu.  
The Setup Saved Data Notation dialog box displays.
3. Use the dropdown lists to enter vehicle information.
4. Select **Save** to close the dialog box.
5. A “saving scanner data” message displays while the file is being saved. Once the message clears, the file is ready for reviewing.



**To review a Save Frame file:**

1. Select the **Saved Data** button from the main menu.
2. Select the **Data Management** option (Figure 5-3).



**Figure 5-45** Data Management Menu Option

A list of all saved files displays.

3. Select the file that you would like to review.



**NOTE:**

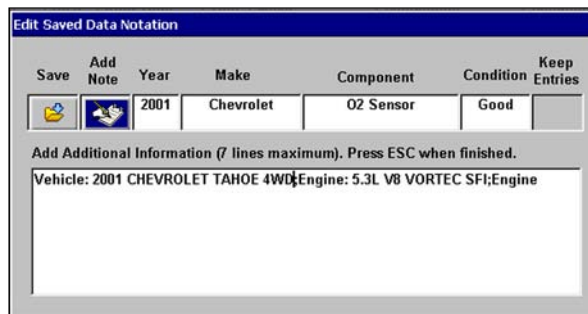
Frame files are saved with a SC(S) file type designation.



**To save a movie file:**

1. Select the **Save** button from the toolbar.  
A dropdown menu of choices displays (Figure 5-44).

2. Select **Save Movie** from the menu.  
The Setup Saved Data Notation dialog box displays (Figure 5-46).



**Figure 5-46** Sample Saved data dialog box

3. Use the dropdown lists to enter vehicle information.
4. Select **Save**.  
A "saving scanner data" message displays while the file is being saved. Once the message clears, the file is ready for reviewing.



**To review a movie file:**

1. Select the **Saved Data** button from the main menu.
2. Select the **Data Management** option (Figure 5-3).  
A list of all saved files displays.
3. Select the file that you would like to review (Figure 5-47).



**NOTE:**

All movie files are saved with a SC(M) file type designation.

4. Select the **Review** button to set the data viewing speed.



**To save an image file:**

1. Select the **Save** button from the toolbar.  
A dropdown menu of choices displays (Figure 5-44).
2. Select **Save Image** from the menu.  
The Saving screen image....message displays.



**To review a Bitmap file:**

1. Select the **Saved Data** button from the main menu.
2. Select the **Data Management** option (Figure 5-3).
3. A list of all saved files displays.
4. Select the file that you would like to review.

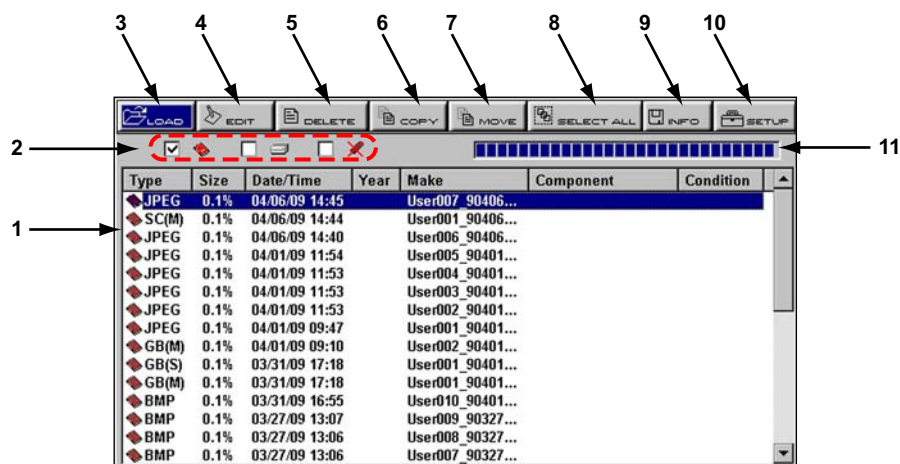


**NOTE:**

Image files are saved with either a BMP or JPG file type designation.

## 5.9 Viewing Saved Data

Use the Save Data button to access the Data Management screen option. Data Management allows you to access and manage all of the files you have saved (Figure 5-47).



### 1— Saved data files

The saved files available depend on the destination selected in the Setup menu.

### 2— Saved data location indicators

Displays where files are saved; a CF card, internal memory, or a USB storage device.

### 3— LOAD button

Opens the saved file selected.

### 4— EDIT button

This function opens the Setup Saved Data Notation dialog box and allows you to add year, make, component, and condition information to the file.

### 5— DELETE button

Erases the saved file(s) from storage memory.

### 6— COPY button

Lets you copy the selected file(s) from one CF slot to the other.

### 7— MOVE button

Lets you move the selected file(s) from one CF slot to the other.

### 8— SELECT ALL button

Selects all files.

### 9— Info (information) button

Displays the number of files saved and the amount of memory used and available.

### 10—SETUP button

Lets you set the location where files are saved.

### 11—Memory indicator

Displays the amount of CF card memory available.

**Figure 5-47** Sample Data Management screen

## 5.9.1 Identifying Saved Files

Saved files have the following characteristics:

- **Type** identifies the kind of saved data file:
  - **SC(M)**—movie file of up to 2000 data points saved using the **Save Movie** toolbar option.
  - **SC(S)**—frame file of up to 2000 data points saved using the **Save Frame** toolbar option.
  - **SC(P)**—snapshot file of one data stream transmission saved using the **Snapshot** button on the toolbar.
  - **BMP**—screen image saved using the **Brightness/Contrast** button. The button is set to **Save Image** with **BMP** (bitmap) selected as the File Type in the Save Data dialog box.
  - **JPG**—screen image saved using the **Brightness/Contrast** button. The button is set to **Save Image** and **JPEG** is selected as the File Type in the Save Data dialog box.
  - **SPS**—designates bitmap files saved prior to the 7.2 software update.
- **Size** is the percentage of available storage space used.
- **Date/Time** is the date and time that the data was saved.
- **Year** is the vehicle model year.
- **Make** is the vehicle manufacturer.
- **Component** is the component tested.
- **Condition** is for good, bad, or unknown status options.



**To exit the Data Management screen:**

- Press **N/X**.

## 5.9.2 Loading Saved Files

The **Load** button lets you review saved screen data and print the screen.



**To load data:**

1. Select **Save Data > Data Management**.  
The Data Management screen displays.
2. Select a file from the list.
3. Select **Load** from the upper toolbar.



**To exit the loaded screen:**

1. Press **N/X** to return to the Data Management screen.
2. Press **N/X** again to return to the main menu.

## 5.9.3 Editing Saved Data

The **Edit** button opens the Edit Saved Data Notation dialog box (Figure 5-48).

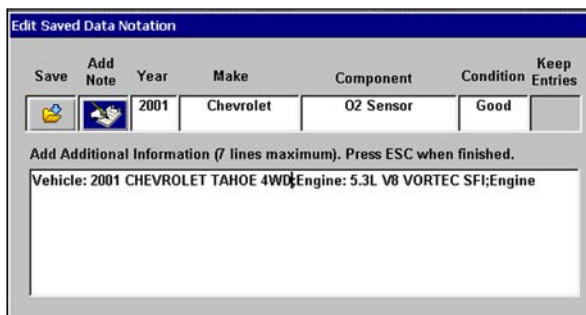


Figure 5-48 Sample Edit Saved Data Notation dialog box



**To edit saved data:**

1. Select **Edit** to open the Edit Saved Data Notation dialog box.
2. Use the dropdown lists to edit the file information.
3. Press **N/X** to exit.

## 5.9.4 Reviewing Saved Data

The **Review** button is used to review movie data files. There are two ways to review data files:

- Manually
- Automatically

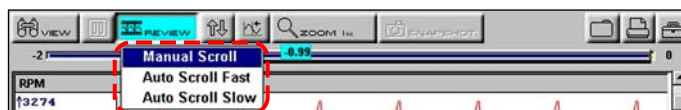


Figure 5-49 Save data review options



**To manually review data files:**

1. Select the **Review** button.
2. Use the Thumb Pad arrows to navigate through the data.
  - a. Up ▲ moves you forward one frame at a time.
  - b. Down ▼ moves you backward one frame at a time.
  - c. Right ► moves you forward one screen.
  - d. Left ◀ moves you backward one screen.



**To automatically scroll data files:**

1. Select the **Review** button.
2. Press **Y/✓** again to display the menu of scroll options.
3. From the **Review** menu, select an **Auto** option.
  - Auto Scroll Fast automatically scrolls the data at full-speed.
  - Auto Scroll Slow automatically scrolls the data at half-speed.
4. Press **N/X** to close the menu.

## 5.9.5 Deleting Saved Files

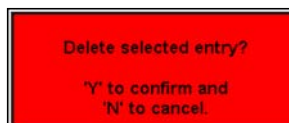
The **Delete** button lets you remove saved files from memory.

**NOTE:**

Factory-installed files cannot be deleted.

**To delete files:**

1. Select **Save Data > Data Management**.
2. Select a file from the list.
3. Select **Delete** from the upper toolbar.  
A confirmation message displays (Figure 5-50).



**Figure 5-50** Sample delete file confirmation message

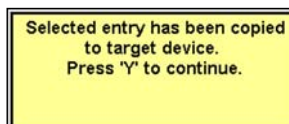
4. To permanently remove the data from memory, press **Y/✓**, or press **N/X** to keep the data and close the dialog box.  
After processing your delete request, you are returned to the Data Management screen.

## 5.9.6 Copying and Moving Saved Data

The **Copy** and **Move** functions let you transfer saved test data from one CF card to the other.

**To copy or move data:**

1. From the main menu, select **Save Data > Data Management**.  
The Data Management screen displays.
2. From the upper toolbar, select **Setup**.  
The Save Data dialog box displays.
3. Set **Top CF** as the **Save To** option and press **N/X** to close the dialog box.  
The test data saved to the top CF displays.
4. Use the up ▲ and down ▼ arrows to highlight a file from the list on-screen.
5. Use right ► and left ◀ arrows to select **Copy** or **Move** from the upper toolbar.  
A confirmation message displays (Figure 5-51).



**Figure 5-51** Sample copy file confirmation message

6. Press **Y/✓** to close the message box.  
You return to the Data Management screen.





**NOTE:**  
Factory installed files can not be deleted, copied or moved.

### 5.9.7 Selecting All Files

Use **Select All** to highlight all files on-screen so you can delete, copy, or move the files as needed (Figure 5-52).

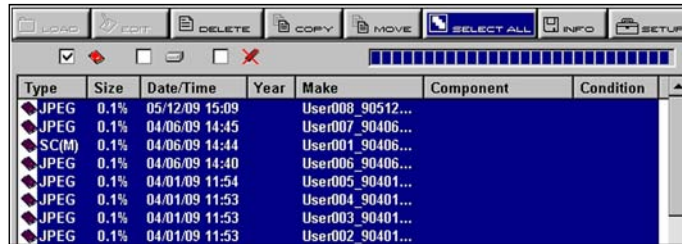


Figure 5-52 Sample Select All screen

### 5.9.8 Viewing Saved Data Information

Selecting the **Info** button on the toolbar opens a window that provides detailed information about the saved data files, such as the amount of storage memory used and the capacity of the memory storage media (“Sample Info button window”). Only details for the selected “Save to” destination display.

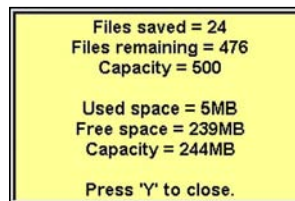


Figure 5-53 Sample Info button window

### 5.9.8 Setting a Destination for Saved Data

Use the **Setup** button on the upper toolbar to set the destination for saved files (Figure 5-54).

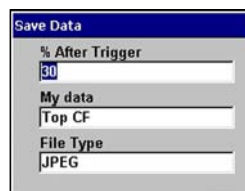


Figure 5-54 Sample Save Data dialog box



### To change the destination for saved files:

1. Select **Save Data > Data Management**.  
The Data Management screen displays.
2. Select the **Setup** button.  
The **Save Data** dialog box displays (Figure 5-54).
3. Select an option from the **My data** dropdown menu.
4. Press **N/X** to confirm your selection and close the dialog box.  
The box for the location you selected is checked (Figure 5-55).

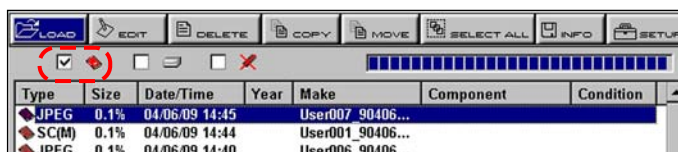


Figure 5-55 CF slot indicator checked

## 5.10 Print Button

The **Print** button is used to print what is displayed on the screen. The following printing options may be available:

- **Full Screen**—print only what is visible on the screen.
- **Full PID List**—prints the entire list of parameters.
- **Full Codes List**—prints the list of codes in vehicle memory when viewing codes.



### To print:

1. Verify that your printer and scan tool are set up properly for printing.
2. Select a print option from the dropdown menu (Figure 5-56).



Figure 5-56 Sample Print menu

When printing begins, an “Initializing printer...” message displays. The message box closes when printing is complete.

## 5.11 Tools Button

The **Tools** button on the upper toolbar provides a shortcut to commonly used scan tool configuration settings (Figure 5-57).

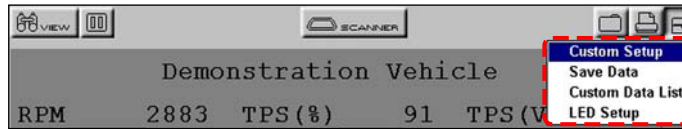


Figure 5-57 Sample Tools button menu

The following choices are available on a dropdown menu:

- Custom Setup
- Save Data
- Custom Data List
- LED Setup



**NOTE:**

The Custom Data List and LED Setup selections are only available when in the Text view mode, these menu selections do not display when in Graph or PID List modes.

### 5.11.1 Custom Setup

Selecting **Custom Setup** opens the Scanner Units dialog box. Scanner Units is used to change the units of measurement for certain parameters. You can choose between US Customary or metric units of measure for available data parameters.

All measurement units return to their default values when the internal batteries are disconnected or a different software database is selected.

Table 5-1 Units of measurement—defaults and options

Setting	Default	Option
Temperature	degrees Celsius (°C)	degrees Fahrenheit (°F)
Air Pressure (including manifold pressure)	kilopascals (kPa)	inches of mercury ("Hg)
Speed	kilometers per hour (kph)	miles per hour (mph)
Other Pressures	kilopascals (kPa)	pounds per square inch (psi)



**To change a setting:**

1. On the upper toolbar, select **Tool > Custom Setup**.  
The Scanner Units dialog box displays (Figure 5-58).

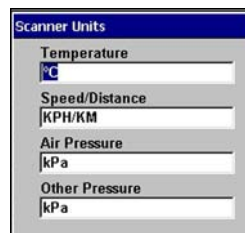


Figure 5-58 Sample Scanner Units Menu

2. Use right ► and left ◀ arrows to move between measurements, press **Y/✓** to open a dropdown menu for the item to be changed.
3. Select the desired measurement and the dropdown closes.
4. Press **N/X** to confirm your selections and return to the Tools Setup menu.

### 5.11.2 Save Data

Selecting **Save Data** from the dropdown menu opens the Save Data dialog box, which allows you to select where and how data is saved. Refer to “Setting a Destination for Saved Data” on page 43 for details.

### 5.11.3 Custom Data List

The **Custom Data List** selection, which is used to select specific data parameters to display, is only available in the Text view mode. This allows you to focus on any suspicious or symptom-specific data parameters and may allow for a faster display update rate.

Custom Data List selections are retained in the tool memory until a new vehicle ID is entered or another vehicle control system is selected for testing.



**NOTE:**

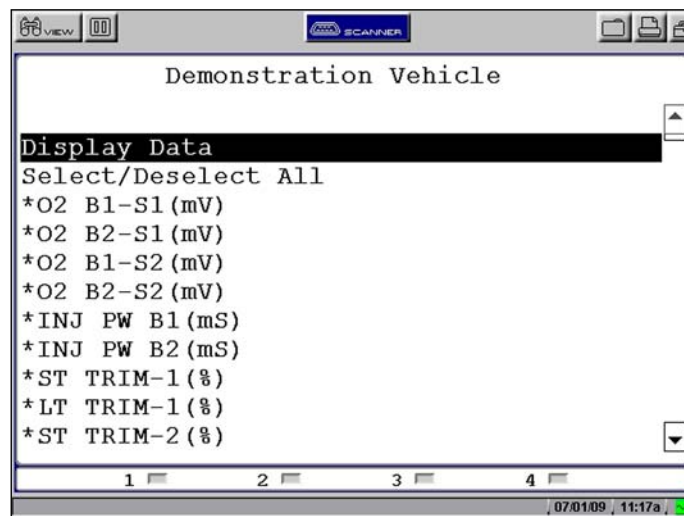
If a parameter is not selected for display in the Custom Data List, it will not be displayed when you enter Troubleshooter.



**To select a custom data list:**

1. From the upper toolbar, select **Tools > Custom Data List**.

The Data Selection screen displays. An asterisk (\*) next to a parameter title indicates that parameter is selected for display (Figure 5-59).



**Figure 5-59** Sample Data Selection screen

2. Select or deselect the desired parameters.
3. Select **Display Data** or press **N/X** to confirm your selections and return to the data display to view the customized data list.

### 5.11.4 LED Setup

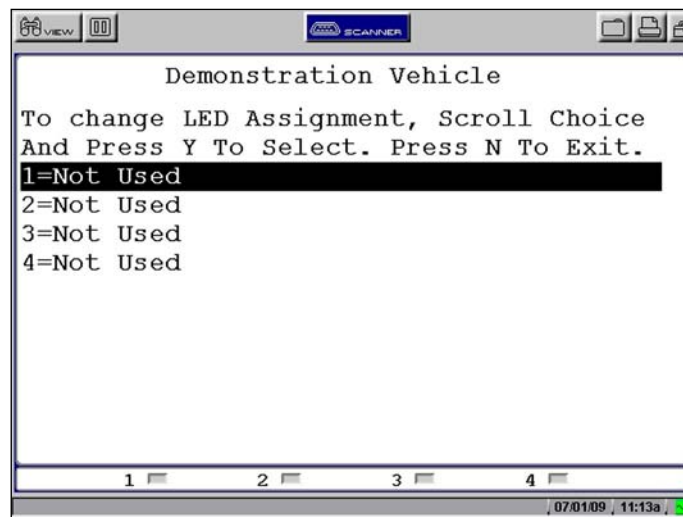
The LED Setup selection is used to program the operation of the four LEDs located just below the main body of the Scanner screen. The LEDs switch on and off to reflect a change of state for the assigned digital parameters. An LED turns red when switched on.



#### To program LED operation:

1. On the upper toolbar, select **Tools > LED Setup**.

The LED assignment menu opens with LED 1 highlighted (Figure 5-60).



**Figure 5-60** Sample LED assignment menu

2. Use the up ▲ and down ▼ arrows to scroll through the list of available parameters.
3. Press **Y/✓** to lock in a selection and move the highlight to the next LED.
4. Press **N/X** to close the menu and return to the data display once all the LEDs are assigned.

This section covers potential maintenance issues for the Scanner™ Plug-in.

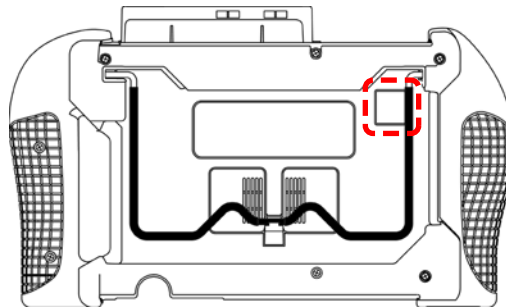
## 6.1 Removing the Scanner™ Plug-in

Your MODIS™ unit comes with the Scanner™ Plug-in installed. You should only need to remove the Scanner™ Plug-in when it needs to be replaced.



### To remove the Scanner™ Plug-in:

1. Exit the **SCANNER** module.
2. Power off your MODIS™ unit.
3. Remove all cables and the battery pack.
4. Hold down the release tab (Figure 6-1) and slide out the Scanner™ Plug-in.



**Figure 6-1** Release tab on back of the MODIS™ unit

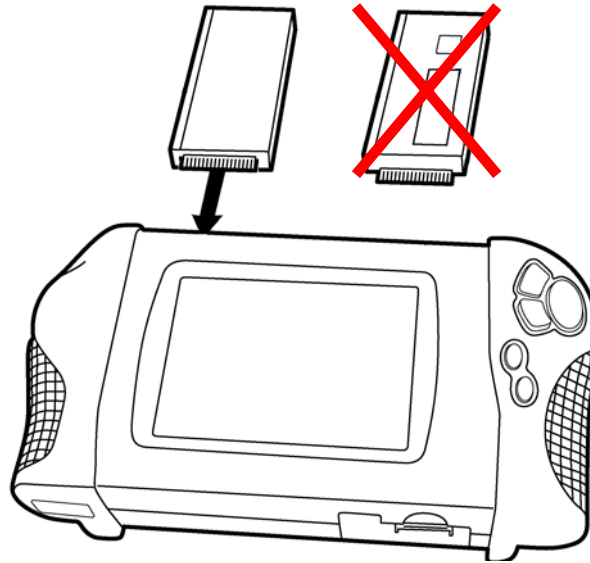
## 6.2 Installing the Scanner™ Plug-in

Installing the Scanner™ Plug-in is only necessary when you have removed an outdated Scanner™ Plug-in to replace it.



### To install the Scanner™ Plug-in:

1. Make sure that your MODIS™ unit is off.
2. Disconnect any external power adapters or cables.
3. Remove the MODIS™ battery pack.
4. Insert the Scanner™ Plug-in into its slot (Figure 6-2).

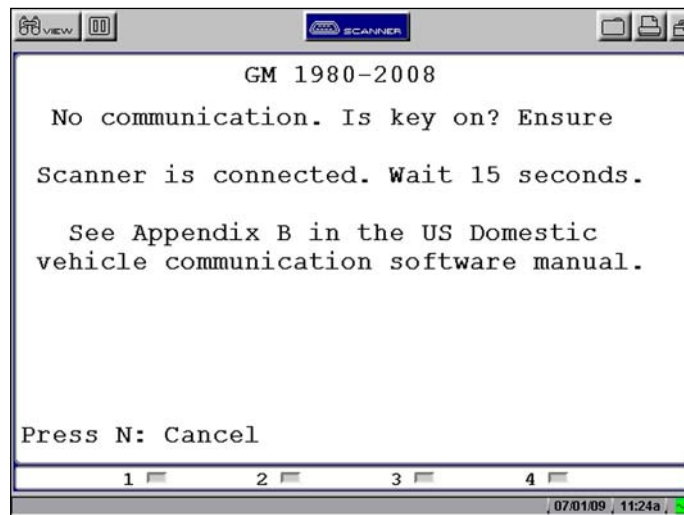


**Figure 6-2** Scanner™ Plug-in installation

The following are solutions for problems that can occur while using the Scanner™ Plug-in.

## A.1 No Communication Message

When the screen displays a “No Communication” (Figure A-1) message, it means the Scanner™ Plug-in and the vehicle control module cannot communicate with each other for some reason. Common problems that prevent the scan tool from communicating with a vehicle are addressed in this section. Manufacturer-specific problems are discussed in the applicable Vehicle Communication Software manual.



**Figure A-1** Sample “No Communication” message

The following conditions cause the Scanner™ Plug-in to display a “No Communication” message:

- The Scanner™ Plug-in is unable to establish a communication link with the vehicle.
- You are using the incorrect Personality Key with the test adapter.
- You selected a system for testing that the vehicle is not equipped with (for example, ABS).
- There is a loose connection.
- There is a blown vehicle fuse.
- There is a wiring fault on the vehicle.
- Incorrect vehicle identification was entered.



## A.2 Using Legacy Software

Occasionally, you may be unable to communicate with a particular vehicle because it is an older model or for some other reason it is not covered in the current database. Legacy Software also provides an alternate method of connecting to a vehicle when communication problems are encountered. The Legacy Software runs your scan tool using an obsolete version of the operating system software.

The Legacy Software option is available from the Utilities button on the MODIS™ main menu (Figure A-2). Scroll through the dropdown menus, then press **Y/✓** to load the software.

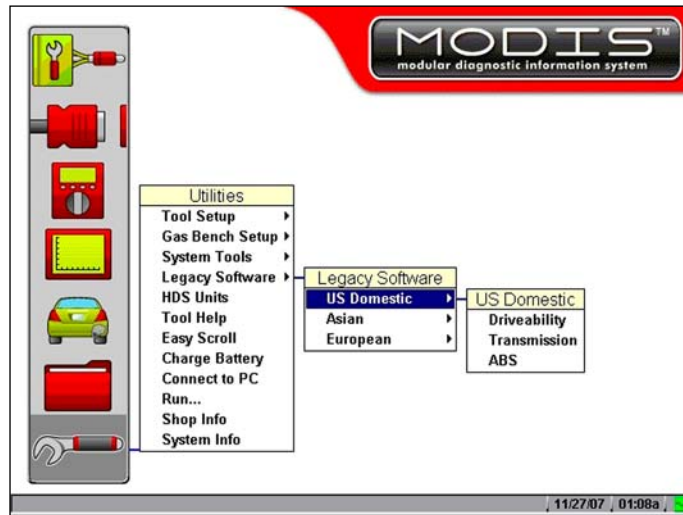


Figure A-2 Legacy Software selections

# Index

## A

adapters. See test adapters  
auto scroll 41  
auxiliary power cables  
vehicle power 8

## B

bold text 1

## C

cables  
data 4  
Clear Codes 20  
Codes Menu 19–22  
component tests 22  
connecting to a vehicle 14, 17  
connecting to vehicle power 8  
connections 4  
connectors 4  
copying data 42  
cursors 35  
Custom Setup 45

## D

Data buffer  
clearing 25, 34  
Data Display 18  
Data Management screen 39  
data parameters  
customizing list 46  
reviewing 25  
deleting saved files 42  
diagnostic trouble codes  
displaying 19  
DTC Status 21

## E

exiting Scanner mode 23

## F

Freeze Frame/Failure Records 20

## G

graphing data 28–36  
graphs 28–33  
parameter menu 28

## I

identifying a test vehicle 14  
identifying a vehicle 16  
information tests 22  
installing the plug-in 4

## L

Legacy Software 51  
loading saved data 40

## M

main body 13  
manual conventions 1–3  
Manual scale 30  
manuals, additional 3  
manufacturer  
selecting 14–15  
manufacturer selection (vehicle) 14  
messages 2  
important 2  
note 2  
moving saved data 42

## N

no communication message 50

## O

operations  
connecting to a vehicle 14, 17  
identifying a test vehicle 14  
selecting a system to test 14  
selecting software 14  
selecting tests 14, 18

## P

parameter menu 28–33  
clear all trigger levels 28  
clear trigger levels 28  
lock 28  
scale 28  
set trigger levels 28  
pausing data 25, 33  
Personality Key 50  
PID list  
sorting 26

PID lists 24  
locking 26  
reviewing 27  
unlocking 27  
PID trigger  
arm 32  
clear levels 33  
disarm 33  
set levels 31  
print button 44  
procedures 2

**R**

removing the plug-in 5, 48  
reset tests 22  
review 41

**S**

Safety iii–iv  
safety  
information iii  
Saved Data  
capturing 36  
saved data 39–43  
identifying 40  
saving data 36–38  
scanner button 11  
Scanner menu 15  
Scanner mode  
exiting 23  
Scanner units 45–46  
screen layout 10  
selecting a system 16  
selecting a system to test 14  
selecting tests 14  
selecting the manufacturer 14  
ShopStream Connect 9  
software  
exiting 22  
selecting 14  
specifications 5  
symbols 1  
System Main Menu 18

**T**

terminating vehicle communication 22  
terminology 2  
test adapters 8, 9, 50  
tests  
selecting 14, 18  
toggle tests 22  
tool help 3  
tools button 44–46  
trigger delay 32

trigger. See PID trigger  
Trouble Codes 20

**U**

upper toolbar  
buttons and functions 10  
Print button 44  
Tools button 44  
Utilities menu  
Legacy Software 51

**V**

variable control tests 22  
vehicle diagnostic connectors 8, 17  
view options 23  
  
PID list 24