

VERUS[®]

Navigation Guide



Snap-on

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1.1 Powering Up

Press the Power button to switch the unit on. The system boots up, then opens the VERUS Diagnostic Platform to the Home screen (Figure 1-1).













Figure 1-1 Sample VERUS Home screen

- 1— Module Buttons
- 2— VERUS Toolbar Button Legend
- 3— VERUS Toolbar

1.1.1 Module Buttons

The Module buttons configure the VERUS unit for the type of test to be performed. The table below gives brief descriptions of the function of each button:

Table 1-1 *Module buttons*





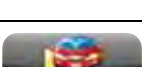
Name	Button	Description
Scanner		Configure to operate as a scan tool.
OBD Direct		Perform generic OBD-II system tests without identifying the specific vehicle.
Component Test		Open a diagnostic database of specific tests for the identified vehicle.
Scope Multimeter		Configure to operate as a lab scope, graphing multimeter, or digital multimeter.
Information		Provide the information needed to make repairs once you have made your diagnosis. The linked program varies by region.
Help		Open the on-line help for the system.
System Settings		This module is not used by VERUS.
Vehicle History		Identify the test vehicle; organize and manage work in progress and service records.
Data Manager		Open the organization system for saved data files.
Exit		Closes the VERUS Diagnostic Platform software and returns the display to the Windows desktop.

Use your finger or the stylus to tap the desired module and open that application.

1.1.2 VERUS Toolbar

Operation of the toolbar buttons located on the lower-left area of the screen are described below:

Table 1-2 Module buttons

Name	Button	Description
Home		Return to the VERUS Home screen from any test.
Windows Toolbar		Open and close the standard Windows toolbars at the top and bottom of the screen.
Menu		Open a menu that provides information on the screen being viewed.
Change Vehicle		The currently identified vehicle is shown to the right of the buttons, touching allows you to change the identified test vehicle.
New Record		Open an editable worksheet of vehicle records.

1.2 Powering Down

All vehicle communication must be terminated before shutting down the VERUS unit. Failure to do so may lead to ECM problems on some vehicles. Always exit the Scanner module before powering down the VERUS unit.



To power down the VERUS unit:

1. Select **Exit** from the Home screen to close the VERUS program.
2. Open the Windows **Start** menu or press the **Power** button to open the Windows Shutdown dialog box.
3. Select **Turn Off** computer.
4. Select **Turn Off** in the dialog box.

The open programs close and the power switches off.

1.2.1 Emergency Shutdown

In case of emergency, press and hold the Power button to force a shutdown.

2.1 Getting Started

The following steps get you started communicating with a vehicle:

1. Tap the Scanner icon on the Home screen to launch the Scanner software
2. Follow the screen instructions to identify the test vehicle
3. Connect the VERUS unit to the test vehicle with the data cable
4. Navigate through the Scanner menus to begin testing

2.2 Vehicle Identification

The Scanner information presented is provided by a direct link to the ECM of the vehicle being tested. Therefore, certain attributes of the test vehicle must be entered into the VERUS unit so that the data displays correctly. Vehicle identification information is carried over if you enter the Scanner module either from the Component Test module or from one of the records stored in the Vehicle History module. However, you may need to enter additional attributes in some instances.

The vehicle identification sequence is menu driven, you simply follow the screen prompts and make a series of choices. Each selection you make advances you to the next screen. A Back button in the upper left corner of the screen returns you to the previous screen. Exact procedures may vary somewhat by vehicle.



To identify a vehicle for Scanner testing:

1. Tap the **Scanner** module button from the Home screen.
A list of manufacturers displays ([Figure 2-1](#)).



Figure 2-1 Sample manufacturer list

2. Select the manufacturer of the test vehicle from the list.
A model year menu displays.



NOTE:

You can limit the number of manufacturers that appear on the list by selecting Configure Favorites from the toolbar. See [Creating a Favorites List on page 9](#) for details on how to set up a custom list of manufacturers.

3. Select the year of the test vehicle from the menu.
A list of vehicle types or models displays.



NOTE:

Several selections may be required to properly identify the vehicle type and model, follow the screen prompts and enter the required information.

- A confirmation dialog box displays once all the required data has been entered.
4. From the Confirm vehicle details dialog box, select:
 - a. **OK** to continue.
 - b. **Cancel** to return to the engine list.
 When Yes is selected list of systems available for testing on the identified vehicle displays.
 5. Select a test to continue ([Figure 2-2](#)).



Figure 2-2 Sample available tests list

The identification sequence is now complete.



NOTE:

If you return to the Home screen and select Component Test the vehicle identification entered here is carried over. However, additional information may be needed in some instances.

2.2.1 Creating a Favorites List

Once a Scanner database is loaded, a list of manufacturers displays. This list is often long and includes a number of makes not frequently used. A toolbar at the top of the screen allows you to custom configure the manufacturer list to display only the makes you frequently service.



Figure 2-3 Sample manufacturer list



To custom configure the manufacturer list:

1. Tap **Configure Favorites** on the toolbar.

A list that includes all available manufacturers displays (Figure 2-4). Touch and drag anywhere on the screen to scroll and view the entire list.



Figure 2-4 Sample Configure Favorites screen

**NOTE:**

Manufacturers appear on the favorites list in the order in which they are selected. Therefore, if you select the makes you work on most frequently first, they will appear at the top of the list.

2. Tap each manufacturer you want to include. Selected manufacturers are highlighted. Tap a highlighted manufacturer to deselect it.
3. Tap **Finished** on the toolbar once your selections have been made.
The screen returns to the manufacturer list, but only the makes you selected display. Note the "Favorites" toolbar selection now reads "Full list".
4. Tap **Full List** on the toolbar to view the complete list of manufacturers.
5. Tap **Back** on the toolbar at any time to return to the previous screen.

Your favorites list is what will display whenever a Component Test database is launched in the future. The list can be modified at any time by selecting Configure Favorites from the toolbar.

2.3 Navigation

This section describes how to navigate the Scanner interface and select scanner tests.

2.3.1 Scanner Screen Layout

When a Data selection is made, the screen displays the data list for the selected module. The items available for any control module vary from one vehicle to another. Data displays in a 2-column format. An abbreviated parameter name is at the left of each column and its value is at the right edge of the column. Parameters display in the order that they are transmitted by the ECM, so expect variation between vehicles.

The Scanner screens typically include three sections ([Figure 2-5](#)):



- 1— Scanner Toolbar
- 2— Main Body
- 3— Data Buffer Toolbar

Figure 2-5 Scanner module screen layout

The Graph button alongside a parameter name opens a data graph for the parameter (Figure 2-6).

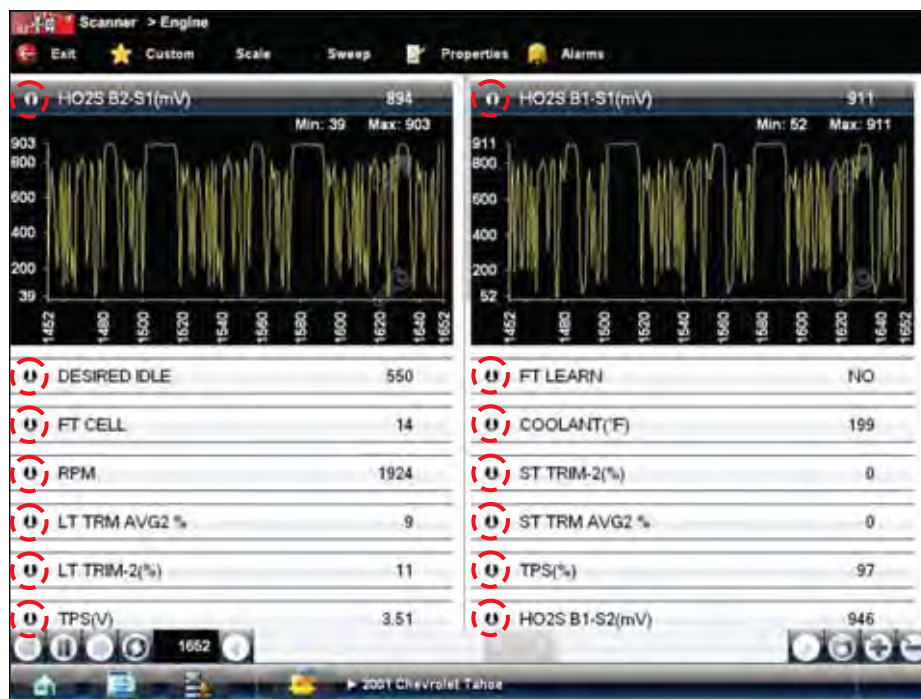


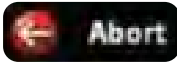


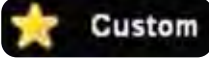



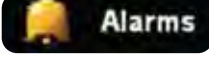

Figure 2-6 Sample graph view

Selecting a parameter for graph view moves it to the top of the list. Tap the Text button, the upward arrow to the left of a parameter name, to return to a text view. You can view up to six graphs at a time on the VERUS screen. If additional PIDs are selected, they may be viewed by scrolling the columns.

Scanner Toolbar

The Scanner toolbar contains a number of buttons that allow you to configure certain aspects of the displayed data and to exit. The table below provides a brief explanation of the Scanner toolbar button operations:

Table 2-1 Scanner toolbar buttons

Name	Button	Description
Abort		Cancel an active test and return to the original menu.
Exit		Close the current test and return to the menu.
Back		Return to the previously viewed screen.
Custom		Select parameters to display on the screen.
Scale		Toggle scale values on and off.
Sweep		Toggle sweep values on and off.
Properties		Adjust the display characteristics for all data screens.
Alarms		Set alarms on certain data parameters to sound a tone when the signal goes above or below the alarm setting.
Continue		Advance after a test has been aborted.

Main Body

The main body of the screen varies depending on the stage of operation. The main body can show vehicle identification selections, the main menu, test data, instructions, troubleshooting information, controls and other diagnostic information.

Data Buffer Toolbar

Whenever communication is established with a vehicle, the Scanner continuously records data transmitted by the ECM in the data buffer. The toolbar below the main body of the screen contains the buttons for navigating this buffered data.












The slider in the middle of the toolbar with the stylus to quickly move through paused data.



Figure 2-7 Sample data buffer slider

Use the toolbar buttons (Table 2-2) to more precisely navigate the data.

Table 2-2 Data buffer toolbar buttons

Name	Button	Description
Go To Start		Move to the first frame in the data buffer
Pause		Suspend data capture
Play		Start or resume data capture
Go To End		Move to the last frame in the data buffer
Clear		Erase data in the data buffer
Step Back		Move to the previous frame in the data buffer
Frame Counter		View the data buffer frame currently displayed
Step Forward		Move to the next frame in the data buffer
Snapshot		Arm the VERUS software to take a snapshot of vehicle data
Zoom In		Increase the scale of the graph
Zoom Out		Decrease the scale of the graph

2.3.2 Screen Messages

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

- 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.
- Warning messages inform you when completing the selected action may result in an irreversible change or loss of data.
- Error messages inform you when a system or procedural error has occurred.

2.3.3 Making Selections

The Scanner software is a menu driven program that presents a series of choices one at a time. As you select from a menu, the next menu in the series displays. Each selection narrows the focus and leads to the desired test. Use the stylus or your fingertip to make menu selections.

2.4 Exiting the Scanner

The Scanner remains open as long as there is an active communication link with the vehicle. You must disconnect this communication link in order to exit from Scanner tests and close the VERUS Diagnostic Platform software. A warning message displays if you attempt to shut down with the Scanner communicating.



NOTE:

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



To exit the Scanner:

1. From an active screen, select **Exit** from the Scanner Toolbar to return to the Systems Menu.
2. From the Systems Menu, select **Back** from the Scanner data menu.

A “stopping communications” message briefly displays followed by the Scanner main menu.

Now, the Scanner is no longer communicating with the vehicle and it is safe to return to the Home screen and exit the VERUS Diagnostic Platform.

3.1 Vehicle Identification

The component test information presented is specific to the vehicle being tested. Therefore, certain attributes of the test vehicle must be entered into the VERUS unit so that the correct data can be retrieved. Vehicle identification information is carried over if you enter the Component Test module either from the Scanner module or from one of the records stored in the Vehicle History module. However, you may need to enter additional attributes in some instances.

The vehicle identification sequence is menu driven, you simply follow the screen prompts and make a series of choices. Each selection you make advances you to the next screen.

**NOTE:**

You can limit the number of manufacturers that appear on the list by selecting Configure Favorites from the toolbar. See [“Creating a Favorites List” on page 9](#) for details on how to set up a custom list of manufacturers.

3.2 Component Information

Component Information provides details on specific vehicle components to provide a better understanding the components prior to diagnosis.

The Component Information screens contain information to assist you with testing. The screens are divided in sections to help quickly guide you to the correct information:

- **Operation**—provides a general description of normal component operation.
- **Connector**—displays the component connector and lists pin assignments.
- **Location**—identifies the component location and the best place for testing it.
- **Tech note**—provides component test-related tips (for example, common failures or faults) as well as update or recall information.

**To view component information:**

1. Select a component from the tests list.
2. Select **COMPONENT INFORMATION** from the component menu.

**NOTE:**

An additional selection, such as front or rear for an oxygen sensor (O2S), may be required before advancing to the component information screen.

The component information screen displays ([Figure 3-1](#)). A scroll bar along the right edge of the screen appears if there is additional information below what is currently on the screen.

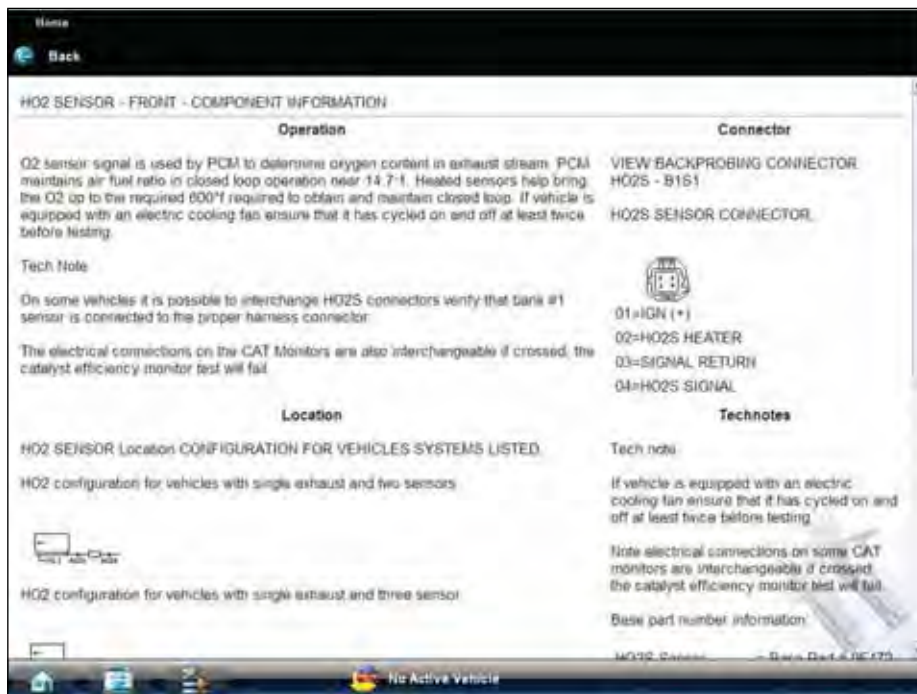


Figure 3-1 Sample Component Information screen

3. Drag the scroll bar to view any additional information.
4. Select **Back** at any time to return to the previous screen.

3.3 Tests

The Tests section guides you through the process of performing tests on a specific component. It also provides specifications, tips on how and where to connect the test meter leads, and also configures the multimeter or lab scope to perform the selected test.



To select a test:

1. Select a component from the list.
2. Select **TESTS** to open the submenu.
Some tests, such as O2S voltage, open an additional submenu when there is more than one option is available.
3. Select a test option and the test screen displays (Figure 3-2).



Figure 3-2 Sample Test screen

A position indicator along the right edge of the screen appears if there is additional information below what is currently on the screen.

4. Sweep your finger across the screen to view any additional information.
5. Select **Back** at any time to return to the previous screen.

4.1 Navigation

The following section describes how to navigate the screen interface.

4.1.1 Screen Layout

The screens typically include the following sections (Figure 4-1):




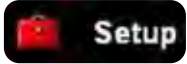
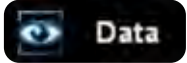
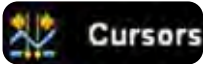
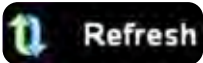

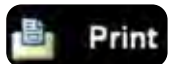
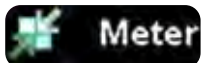
- 1— **Scope Multimeter toolbar**—allows you to configure the tool for the type of test and to adjust the settings for each channel, or trace.
- 2— **Main body**—displays test results. Options on the toolbar let you select how tests display on the screen.
- 3— **Trace Details**—displays trace sampling conditions, which can be adjusted or switched through the touch screen.
- 4— **Record/Playback Control toolbar**—allows you to record and navigate paused data.

Figure 4-1 Scope Multimeter screen layout

Scope Multimeter Toolbar

The Scope Multimeter toolbar is used to set up the tool for testing and to configure the settings for each trace. The table below gives brief descriptions of the control buttons on the toolbar:

Table 4-1 Scope Multimeter toolbar buttons

Name	Button	Description
Back		Return to the previously viewed screen.
Setup		Open dialog box to select personal preferences for viewing and saving data.
Data		Toggle trace information displayed on and off.
Cursors		Open dialog box to switch cursors on and off, and to reposition cursors on the screen.
Refresh		Update data on the viewing screen.
File		Open dialog box to select options for saving data.
Print		Open dialog box to configure and print data.
Meter		Toggle between half text and half meter screen and full meter screen.

Main Body of the Screen

The main body of the screen varies depending on what display options have been selected. Up to four traces, along with digital readouts of current signal values, signal status and triggering conditions, can be displayed simultaneously on the main body of the screen. Adjustments to the display are made through the scope toolbar as explained above.

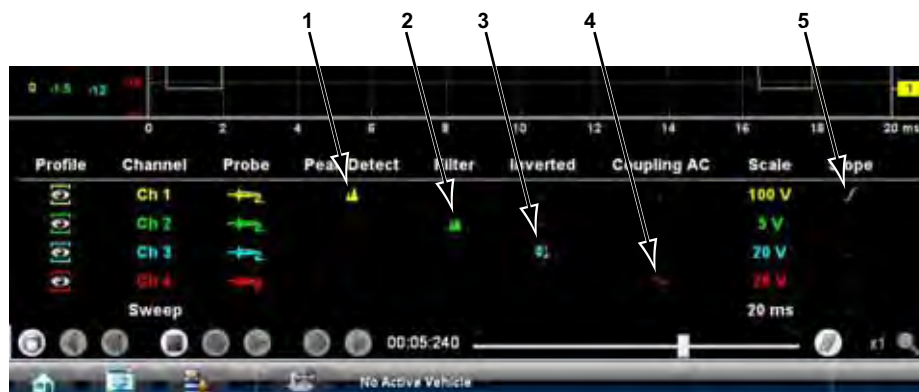
Each trace is displayed as voltage over time on a standard oscilloscope screen. Voltage level is recorded on the vertical, or “y”, axis and time is presented on the horizontal, or “x”, axis of the screen. Values are shown for each graduation on the scales.

When using the pressure transducers, the pressure being sensed by the transducer is converted into a voltage signal. However, the values are shown as pressure on the display screen rather than voltage.

Trace Details

The Trace Details section displayed at the base of the screen can be used to quickly adjust sampling characteristics for capturing the trace. The Trace details can be hidden by selecting the **Data** button on the toolbar.

The Touch and Grow button on the Playback toolbar expands the data viewing area of the screen and allows you to change the configuration settings for each individual trace. Adjustments are made by tapping the item to be changed on the touch screen. A dash (–) indicates a function that is not selected, and an icon displays to indicate an active function (Figure 4-2).



- 1— Peak Detect on
- 2— Filter on
- 3— Inverted trace
- 4— Coupling AC on
- 5— Trigger set on the rising edge

Figure 4-2 Sample data detail display

The following trace adjustments and settings are available:

- **Profile**—switches the trace for the selected channel on and off.
- **Probe**—opens a dialog box that allows you to select the type of test probe being used.
- **Peak Detect**—maximizes the signal sampling rate in order to capture fast events, such as spikes, glitches and other anomalies, that may normally be undetected.
- **Filter**—smooths out the trace when the signal is disrupted by noise or other interference.
- **Inverted**—switches the polarity of the displayed signal.
- **Coupling AC**—subtracts the average value of the waveform by blocking the DC portion of an input signal in order to amplify the AC portion. This allows small variations in the trace to become visible.
- **Scale**—opens a dialog box that allows you to select the scale, which is the total value displayed on the vertical axis of the display.
- **Slope**—only active when a trigger is set, indicates whether the trigger is set to activate on the rising or falling edge of the trace. Tapping the slope icon switches the slope.

Record/Playback Control Toolbar

The record/playback control toolbar at the base of the screen is for recording data and reviewing paused data files. Use the stylus or your finger tip to activate the buttons. A position counter in the toolbar displays a numerical value of where the current screen is in relation to the entire recorded file.

Use the slider in the middle of the toolbar to quickly move through paused data.

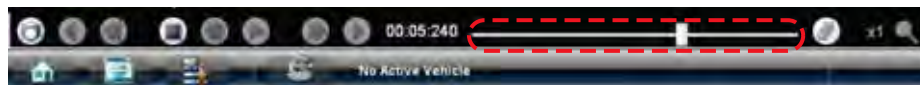


Figure 4-3 Sample record/playback control slider

Use the toolbar buttons (Table 4-2) to more precisely navigate the data.

Table 4-2 Record/Playback Control toolbar buttons

Name	Button	Description
Snapshot		Arm the VERUS software to take a snapshot of the sampled data.
Step Back		Move to the previous point in the recorded data.
Back 1 Frame		Move to the previous frame in the recorded buffer.
Stop		Stop recording data.
Record		Begin recording data.
Play Recording		Play the data recording in a continuous loop at actual speed.
Forward 1 Frame		Move to the next frame in the recorded buffer.
Step Forward		Move to the next point in the recorded buffer.
Frame Counter		Displays current data buffer frame.
Touch and Grow		Expand and collapse the Trace Detail area on the display screen for easier finger tip control.
Zoom		Increase or decrease the magnification of the graph.

4.1.2 Making Selections

Most selections for setting up and operating the scope are made using the stylus and the scope toolbar. The cursor lines, the trace zero line, and the trigger point indicator (+) can be repositioned by selecting and dragging them in the main body of the screen.

There are two basic types of controls on the toolbar:

- Switches
- Dialog boxes

A Switch changes states when tapped with the stylus. Changes happen immediately as the selection is made.

A dialog box opens as a separate window on the screen and typically includes a number of choices. Changes happen immediately, however, the dialog box must be closed to return to the main window and continue. Make a selection to close the dialog box.

4.2 Operations

This section describes configuring the scope or meter and performing tests. Selecting “View Meter” from a Component Test or Scanner screen saves time by automatically configuring the meter.

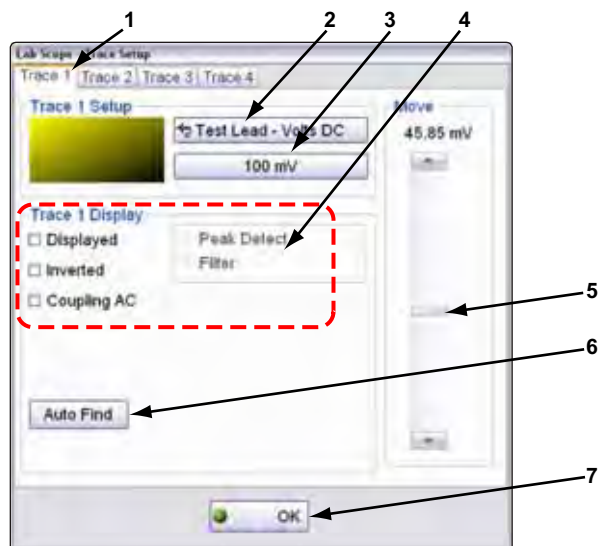
4.2.1 Trace Controls

The Trace controls are used to adjust individual characteristics of how the signal is sampled and displayed for each of the four traces.



To adjust trace controls:

1. Select **Setup** from the Scope Multimeter toolbar.
The Scope Multimeter Preferences dialog box opens.
2. Select **Traces** to open the submenu.
3. Select the tab for the trace to be configured from the submenu.
The traces dialog box displays (Figure 4-4).



- 1— Trace tabs
- 2— Trace Probe button
- 3— Trace Scale button
- 4— Trace characteristics check boxes
- 5— Baseline position
- 6— Auto Find button
- 7— OK button

Figure 4-4 Traces dialog box

4. Select the **Trace Probe** button to open the menu.
5. Highlight a probe on the list and tap **OK** close the window.
6. Select the **Trace Scale** button to adjust the vertical scale of the display. A dropdown menu opens. Menu options vary depending upon which test lead is selected.
7. Select a trace scale option, then close the window.
8. Select or deselect the trace characteristic items as needed:
 - **Displayed**—this trace is on screen when checked, and not visible when not checked.
 - **Inverted**—signal polarity is reversed when checked, normal when not checked.
 - **Coupling AC**—check when sampling an AC signal, uncheck for DC signals.
 - **Peak Detect**—use when trying to capture a fast event or signal glitch.
 - **Filter**—use when radio frequency interference (RFI) may be disrupting the signal.
9. The scope samples the signal and internally calculates the best way to display it when **Auto Find** is selected.
10. The baseline position is the zero line of the trace, use the slider and arrows to adjust it.
11. Select **OK** to exit the dialog box.
12. Select **Back** twice to close the Scope Multimeter Preferences dialog box.

4.2.2 Sweep Controls

Sweep is the amount of time represented by the screen, or the horizontal scale of the display.



To adjust Sweep controls:

1. Select **Setup** from the Scope Multimeter toolbar.
The Scope Multimeter Preferences dialog box opens.
2. Select **Sweep** button to open the sweep dialog box (Figure 4-5).

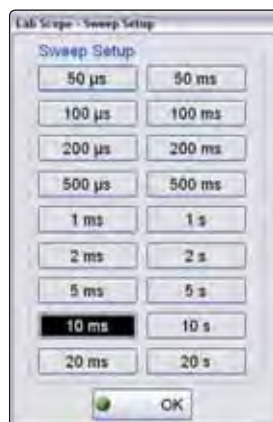


Figure 4-5 Sample Sweep Setup dialog box

3. Choose an option from the list.
4. Select **OK** to close the dialog box.
5. Select **Back** twice to close the Scope Multimeter Preferences dialog box.

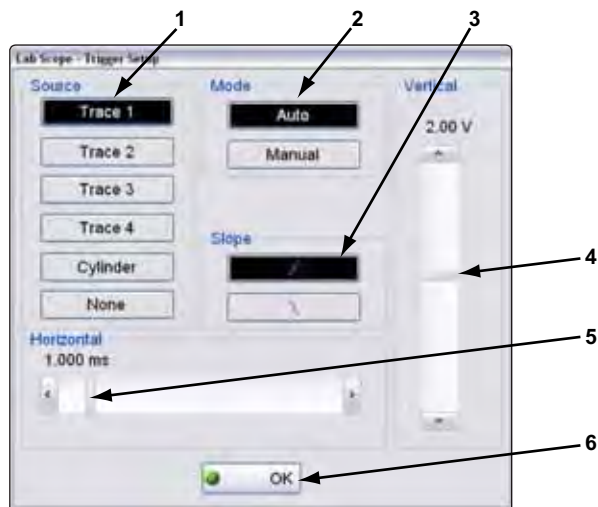
4.2.3 Trigger Controls

Triggering allows you to set the scope so that it only begins sampling and displaying a trace once predetermined signal conditions, or triggers, are met. The trigger point is indicated by a plus sign (+) on the scope grid. The plus sign can be dragged across the grid with the stylus to roughly position it. The trigger controls allow you to precisely position the trigger.



To adjust trigger controls:

1. Select **Setup** from the Scope Multimeter toolbar.
The Scope Multimeter Preferences dialog box opens.
2. Select **Trigger** to open the Trigger Setup dialog box (Figure 4-6).
3. Use the dialog box controls to establish the position for triggering.
4. Select **OK** to close the dialog box.
5. Select **Back** twice to close the Scope Multimeter Preferences dialog box.



- 1— Source**—selects the triggering event:
- Trace 1—sets conditions for the channel 1 signal.
 - Trace 2—sets conditions for the channel 2 signal.
 - Trace 3—sets conditions for the channel 3 signal.
 - Trace 4—sets conditions for the channel 4 signal.
 - Cylinder—sets triggering to the firing of a specific cylinder for ignition testing.
 - None—switches triggering off.
- 2— Mode**—sets the method of triggering:
- Auto (automatic)—if a trigger is found, the waveform displays. If a trigger is not found after several seconds, the waveform and a “trigger not found” message displays.
 - Manual—if a trigger is found, the waveform displays. If a trigger is not found, nothing displays (no waveform and no message).
- 3— Slope**—sets triggering to the rising or falling edge of the signal.
- 4— Vertical position**—moves the trigger position up and down on the grid.
- 5— Horizontal position**—moves the trigger timing left and right on the grid.
- 6— OK**—exits Trigger Setup.

Figure 4-6 Trigger controls

4.2.4 View Controls

Use the view controls to set display attributes.



To adjust view controls:

1. Select **Setup** from the Scope Multimeter toolbar.
The Scope Multimeter Preferences dialog box opens.
2. Select View to open a submenu.

Three types of adjustment are available on the submenu:

- **Display**—use to adjust what information displays and how it appears.
- **Layout**—use to set how many and how the traces display on the screen.
- **Units**—use to adjust time and voltage interval settings.

Selecting from the submenu opens a dialog box for that item. Dialog box options for each item are discussed in the following sections.

3. Make dialog box selections as needed.
4. Select **OK** to close the dialog box.
5. Select **Back** twice to close the Scope Multimeter Preferences dialog box.

Display Settings

Selecting **Display** from the View submenu opens the Display dialog box (Figure 4-7).



Figure 4-7 Sample Display dialog box

The following options are available from the Display dialog box:

- **Show RPM**—adds an engine speed field at the top of the screen (Figure 4-8).



Figure 4-8 Sample Show RPM selected

- **Show Grid**—switches grid lines on the screen off and on (Figure 4-9).

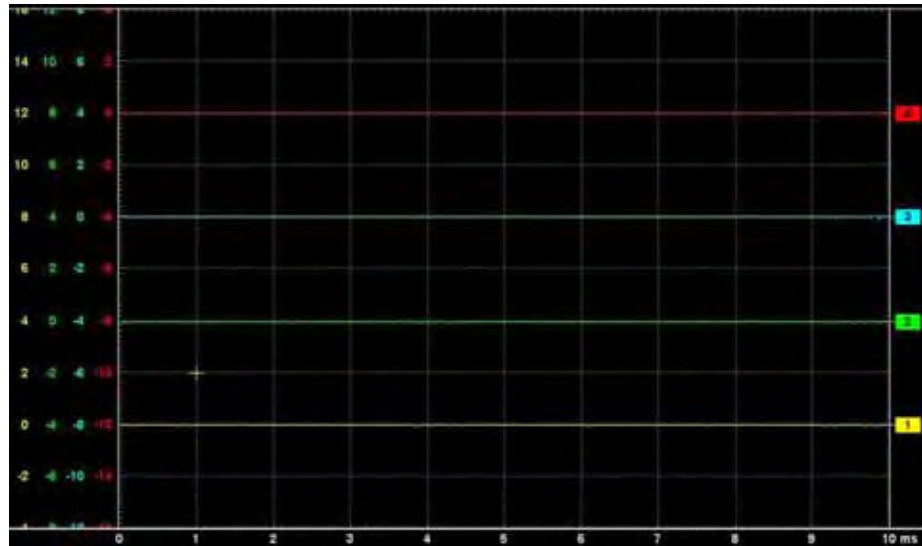


Figure 4-9 Sample grid selected

- **Invert Colors**—switches the screen background to white, this saves ink when printing (Figure 4-10).



Figure 4-10 Sample inverted colors

Layout Settings

The selected radio knob on the Layout dialog box shows which setting is active. Use the stylus to switch between settings:

- **1 Window**—shows all traces on the same screen (Figure 4-9).
- **2 Windows**—shows two separate traces in two ways: horizontal, one below another (Figure 4-11) or vertical, side-by-side (Figure 4-12).

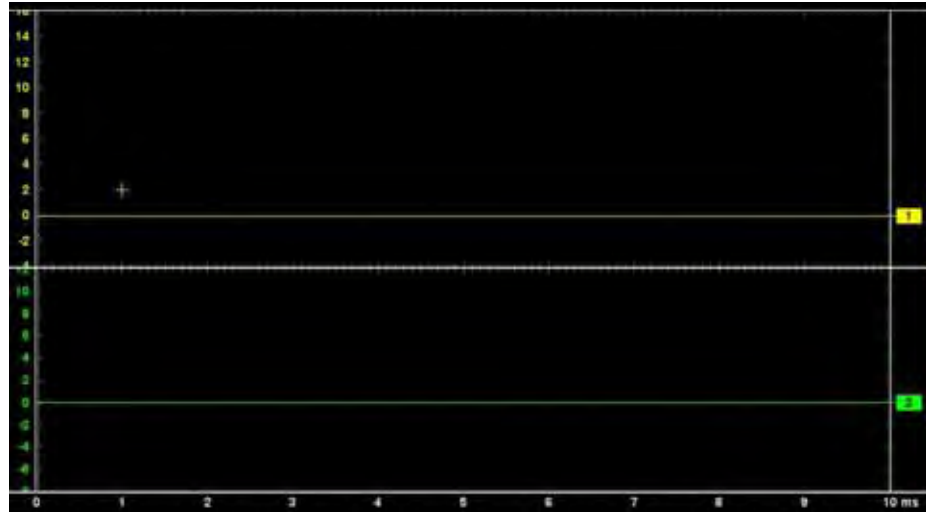


Figure 4-11 Sample 2 Windows horizontal display

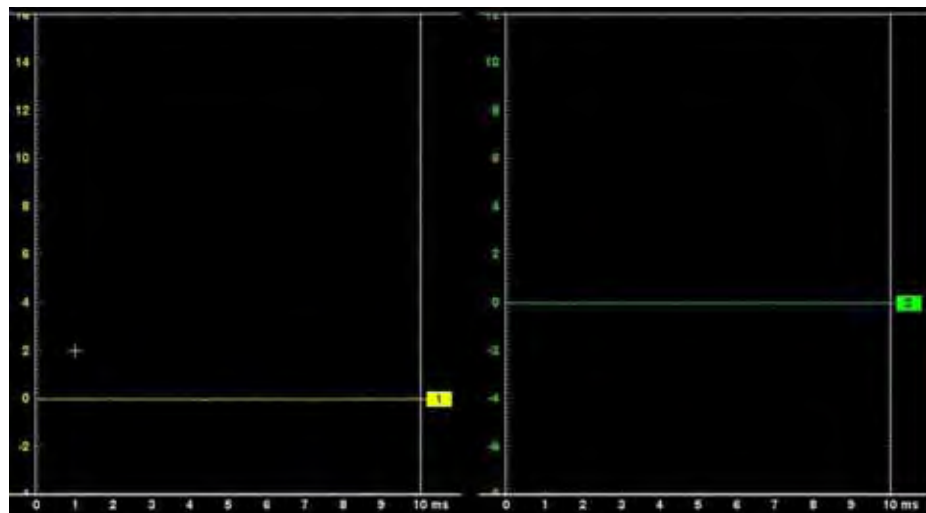


Figure 4-12 Sample 2 Windows vertical display

- **3 windows**—shows three traces, one below another, on the same screen (Figure 4-13).

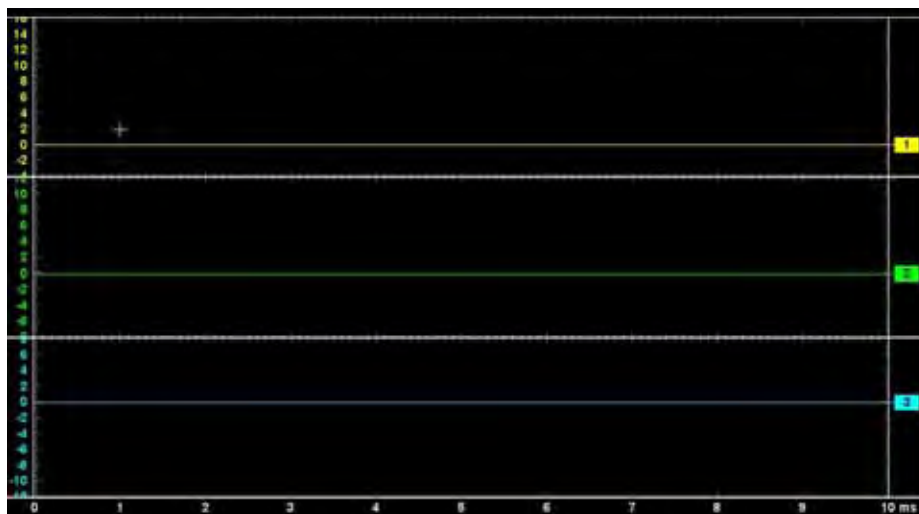


Figure 4-13 Sample 3 Windows display

- **4 windows**—shows four traces, one below another, on the same screen.

Units Settings

The Units dialog box allows you to switch between Full Scale or Per Division settings for the trace setup and the display settings. Selecting Full Scale configures the units to the full viewing area of the screen, while Per Division adjusts the units to a single division (one tenth) of the screen.

The selected radio knob on the Units dialog box shows which setting is active. Use the stylus to switch between settings (Figure 4-14).



Figure 4-14 Sample View Units dialog box

4.2.5 Setup Controls

Basic tool settings are adjusted here.



To adjust setup controls:

1. Select **Setup** from the Scope Multimeter toolbar.
The Scope Multimeter Preferences dialog box opens.

2. Select **Setup** from the dialog box.

A submenu of options displays:

- **Units**—use to set how measurement values display, US standard or metric.
- **Snapshot**—use to adjust the percentage of data captured following a trigger event.
- **Ignition**—use to configure the optional ignition scope and to display RPM values.

Selecting from the submenu opens a dialog box for that item. Dialog box options for each item are discussed in the following sections.

3. Make dialog box selections as needed.
4. Select **OK** to close the dialog box.
5. Select **Back** twice to close the Scope Multimeter Preferences dialog box.

Units

The units of measurement can be changed between US customary or metric units of measure for pressure and vacuum readings. The table below shows available unit values.

Abbreviation	Description
bar	bar
inHg	inches of mercury
kg/cm2	kilograms per centimeter squared
kPa	kilopascal
mmHg	millimeters of mercury
psi	pounds per square inch

Selecting Units opens the Setup dialog box. The selected radio knobs on the Setup dialog box show which settings are active (Figure 4-15).



Figure 4-15 Sample Setup Units dialog box

Snapshot

The Snapshot tab of the Setup dialog box opens a window that allows you to select the amount of data captured after a triggering event (Figure 4-16). Available selections, which range from ten to ninety percent in ten-percent increments, are shown as buttons with the current setting highlighted. Select a button, then select **OK** to close the dialog box.



Figure 4-16 Sample Snapshot dialog box

Refer to [“Trigger Controls” on page 27](#) for information on how to setup a trigger.

Ignition

The Ignition tab of the Setup dialog box is used to configure the scope for displaying secondary ignition patterns. There are two main selection fields (Type and Cylinders) and two fields that vary depending upon the type of ignition system selected in dialog box (Figure 4-17).



Figure 4-17 Sample Setup Ignition dialog box



To setup ignition tests

1. Select the **Setup** button to open the Setup dialog box.
2. Select the **Ignition** tab of the dialog box.
3. Highlight the ignition system for the test vehicle in the “Type” field:
 - **Standard**—use for systems with a distributor.
 - **Waste Spark**—use for coil pack systems that fire 2 plugs simultaneously.
 - **Direct**—use for coil-on-plug systems.
 - **Other**—use for systems that do not fit any of the above categories.
4. Select the number of cylinders for the test vehicle in the “Cylinders” field. Scroll through the list using the up and down arrows on either side of the number.
5. This step varies depending upon the type of ignition system:
 - If testing a Standard, Waste Spark or Direct system, select the Firing Order. Scroll through the list of available choices using the up and down arrows below the displayed firing order or RPM factor.
 - If testing an Other system, select the RPM Factor. Scroll through the list of available choices using the up and down arrows below the displayed firing order or RPM factor.
6. This step also varies depending upon the type of ignition system:
 - If testing a Standard or Direct system, choose between Coil and Plug for the Number 1 Trigger.
 - If testing a Waste Spark system, select the polarity of the firings using the +, –, and arrow buttons.
7. Select **OK** to accept the settings and close the dialog box.

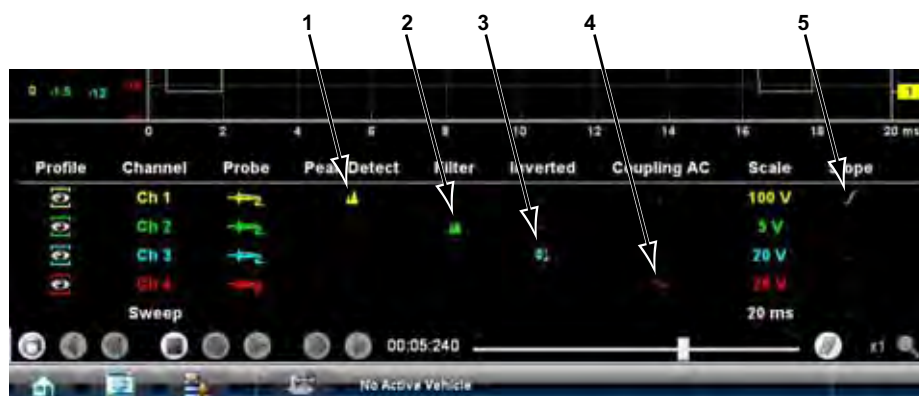
4.2.6 Data

The **Data** button on the toolbar switches the trace information displayed at the base of the screen on and off. (Figure 4-18)



Figure 4-18 Sample Show details selected

The Touch and Grow button on the Playback toolbar expands the data viewing area of the screen and allows you to change the configuration settings for each individual trace. Adjustments are made by tapping the item to be changed on the touch screen. A dash (–) indicates a function that is not selected, and an icon displays to indicate an active function (Figure 4-19).



- 1— Peak Detect on
- 2— Filter on
- 3— Inverted trace
- 4— Coupling AC on
- 5— Trigger set on the rising edge

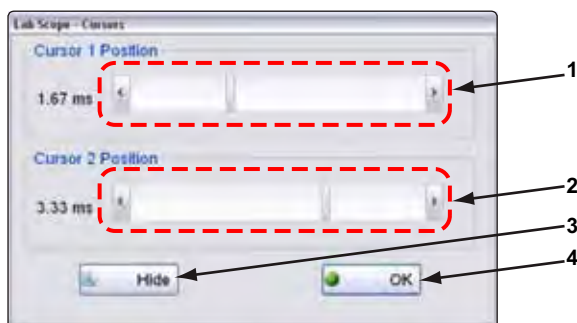
Figure 4-19 Sample data detail display

The following trace adjustments and settings are available:

- **Profile**—switches the trace for the selected channel on and off.
- **Probe**—opens a dialog box that allows you to select the type of test probe being used.
- **Peak Detect**—maximizes the signal sampling rate in order to capture fast events, such as spikes, glitches and other anomalies, that may normally be undetected.
- **Filter**—smooths out the trace when the signal is disrupted by noise or other interference.
- **Inverted**—switches the polarity of the displayed signal.
- **Coupling AC**—subtracts the average value of the waveform by blocking the DC portion of an input signal in order to amplify the AC portion. This allows small variations in the trace to become visible.
- **Scale**—opens a dialog box that allows you to select the scale, which is the total value displayed on the vertical axis of the display.
- **Slope**—only active when a trigger is set, indicates whether the trigger is set to activate on the rising or falling edge of the trace. Tapping the slope icon switches the slope.

4.2.7 Cursor Controls

The cursor controls include a Show Cursors check box plus a slide control and arrows for moving the cursor position left or right. Select **Cursors** from the toolbar to open the Cursors dialog box (Figure 4-20).



- 1— Cursor 1 controls
- 2— Cursor 2 controls
- 3— Hide button
- 4— OK button

Figure 4-20 Cursor controls

Cursor 1, the top slider and arrows, is the left-hand cursor on the screen. Cursor 2, the lower set of controls, is the right-hand cursor on the screen. Drag the slider or tap the arrows to position the cursors. Each tap of the stylus moves the cursor incrementally in the direction of the arrow.

Select **OK** to apply the changes and close the dialog box.

Select **Hide** to conceal the cursors and close the dialog box.

4.2.8 Refresh Controls

Selecting the **Refresh** button from the Scope Multimeter Toolbar clears the minimum and maximum digital values and updates the viewing screen.

4.2.9 File Controls

Selecting File from the toolbar opens a dialog box with a menu of save options:



Figure 4-21 Sample file setup dialog box

- **Save Configuration**—saves the current setup values as a preset.
- **Save Single Frame**—saves the data currently on the screen only.
- **Save All Frames**—saves the current screen plus all the data stored in the buffer.



To save a file or configuration:

1. Select **File** from the toolbar.
2. Select a save option from the dialog box.
The Save As dialog box and the virtual keyboard open.
3. Use the keyboard to name the file to be saved, then either select the **Save** button or tap **return** on the keyboard.
A configuration description dialog box opens.



NOTE:

The description entered here is what displays in the information panel of the Data Manager.

4. Use the keyboard to enter a description of the file to be saved.
5. Select the **OK** button or tap **return** on the keyboard.
6. Select **OK** to close the file setup dialog box.

Once a configuration is saved, it becomes available from the Presets tab on the scope toolbar. Saved files, single frame or all frames, are saved to the Scope Multimeter Data Folder and can be retrieved through the **Data Manager**.

4.2.10 Print Controls

Selecting Print from the toolbar opens a standard Windows Print dialog box set up to print the current screen. A printer must be connected and setup on the VERUS unit. If not, the “Add Printer Wizard” opens and guides you through the procedure. Select from the menus as needed.

After using the Scanner, Component Test and Scope Multimeter to diagnose and locate the source of problem, select **Information** on the Home screen to link to resources that help you fix the problem and get the vehicle back in service (Figure 5-1).



Figure 5-1 Sample Home screen Information button

The Information program varies by region, the following regional options are discussed here:

5.1 North America

ShopKey5 software is available as an option for North America. An internet connection is required. When installed, simply tap the Repair information toolbar button to launch the program. Refer to the on-line help within ShopKey5 for additional information.

5.2 United Kingdom

A built in repair information database is available for the United Kingdom. Simply tap the Repair information toolbar button to launch the program.

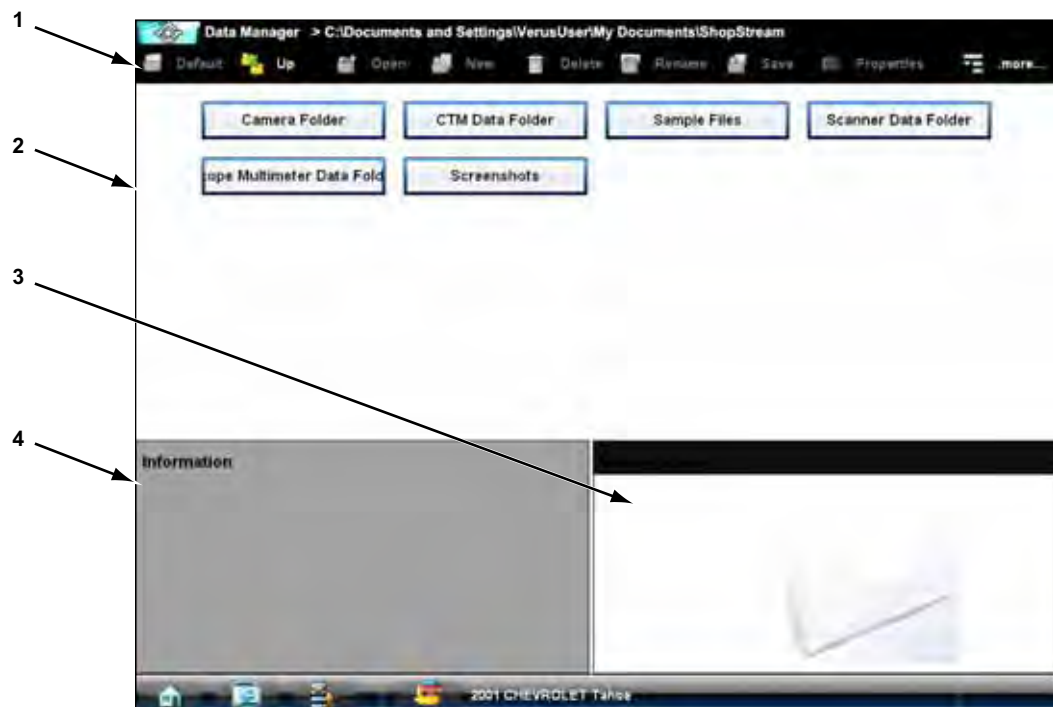
5.3 Australia

A built in repair information database is available for Australia. Simply tap the Repair information toolbar button to launch the program.

The Data Manager module is used to store, sort and review saved files. Most operations are controlled through the toolbar.

6.1 Screen Layout

Select Data Manager on the Module toolbar to open the file system. Use the toolbar at the top of the screen to navigate through the data. The folders panel below the toolbar displays the contents of the Windows “My Documents” folder. The information panel on the lower-left portion of the screen shows a summary of the saved file when available, and the preview panel on the lower right displays an image if the selected file is a graphic.



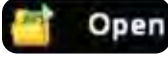

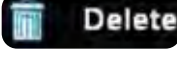
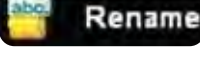

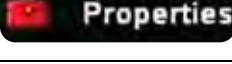
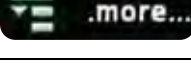


- 1— Data Manager Toolbar
- 2— Folders Panel
- 3— Information Panel
- 4— Preview Panel

Figure 6-1 Sample Data Manager main screen

The Data Manager module is used to store, sort and review saved files. Most operations are controlled through the toolbar. Toolbar functions are highlighted in the table below and explained in the following sections:

Table 6-1 Data Manager toolbar buttons

Name	Button	Description
My Data		Return the main screen to the original (My Documents) view.
Up		Move the displayed items in the folders panel up one level in the file structure.
Open		Open the highlighted folder or file.
New		Create a new folder.
Delete		Move the highlighted file or folder to the recycling bin.
Rename		Open a dialog box and virtual keyboard for renaming the selected file or folder.
Save		Save the selected file.
Properties		Open a dialog box and virtual keyboard for renaming the selected file or folder.
More		Open a menu of additional options.

6.1.1 My Data

The My Data button is a shortcut that quickly returns you to the main Data Manager screen. Tap the button at any time to instantly return. Note the location of the page being viewed is shown near the top of the screen just below the toolbar.

6.1.2 Open

The Open button is only active (displays in color) when an item in the folders panel is highlighted.



To open a folder:

1. Highlight the file to open in the folders panel.
2. Tap the **Open** button to load the highlighted file.

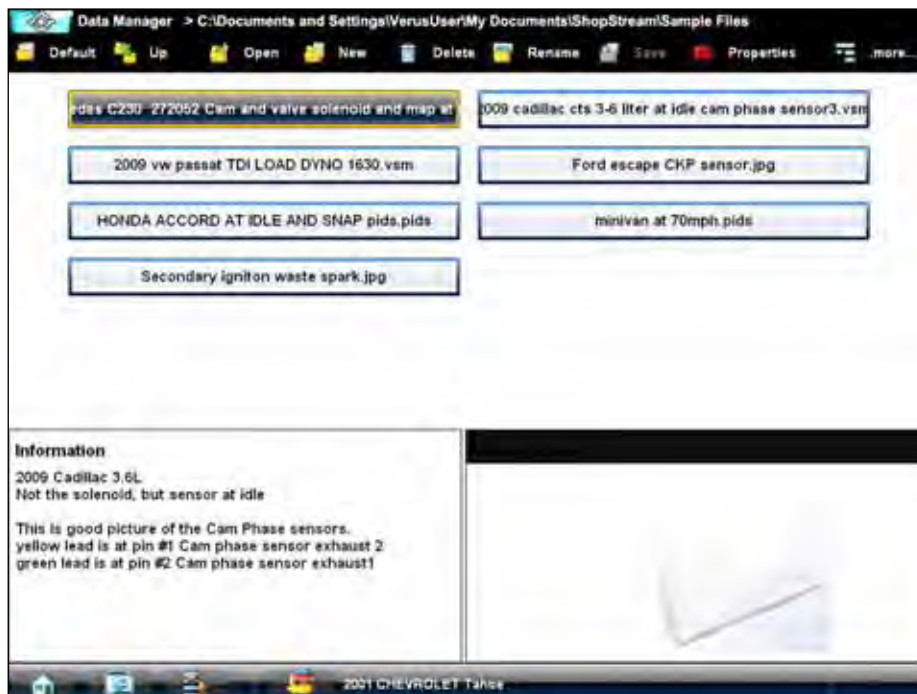


Figure 6-2 Sample open folder showing information

The screen advances and the contents of the open folder are shown in folders panel. Highlight an item in the folders panel and the information or preview displays if available (Figure 6-2).

3. To exit the current folder:
 - Tap **My Data** on the toolbar to return to the main Data Manager screen.
 - Tap **More > Up** on the toolbar to return to the previous page.

6.1.3 New

The New button allows you to create a new folder. This option is only available when the button displays in color.



To create a new folder:

1. Tap the **New** button on the toolbar.
The New Folder Name dialog box opens (Figure 6-3).
2. Touch the entry field on the dialog box to open the virtual keyboard.
3. Type a name for the new folder using the virtual keyboard.
4. Tap the **OK** button to create the new folder and return to the previous page. The Cancel button returns you to the previous page without creating a new folder.

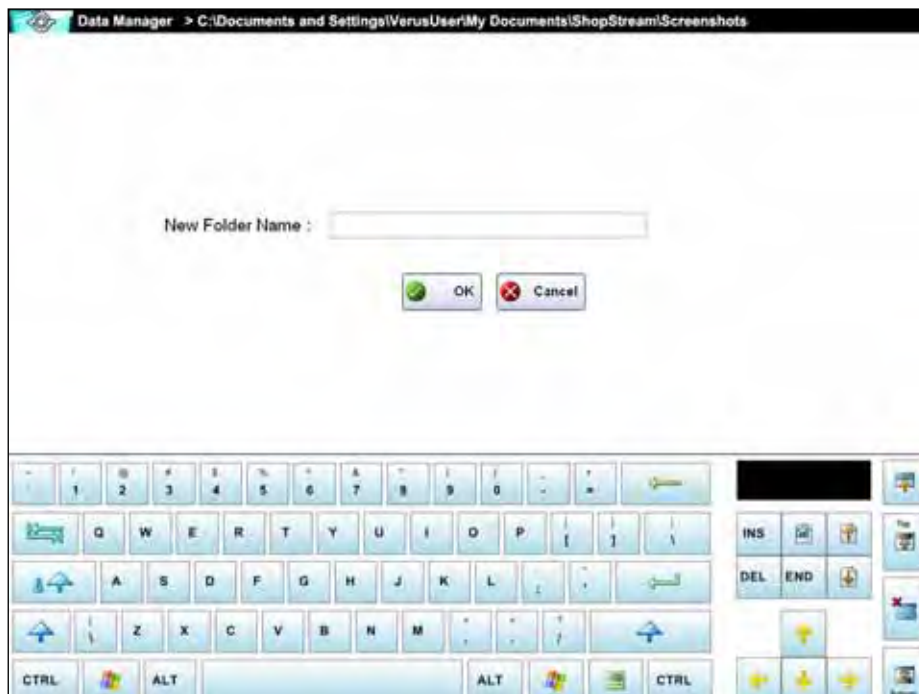


Figure 6-3 Sample New Folder name dialog box

6.1.4 Delete

The Delete button moves folders or items within folders to the Recycling bin.



To delete an item:

1. Touch to highlight the item or folder to be deleted.
2. Tap the Delete button on the toolbar.
A confirmation message displays (Figure 6-4).
3. Tap **Yes** to delete the selected item and return to the previous page. The No button returns you to the previous page without deleting the selected item.



Figure 6-4 Sample delete confirmation message

6.1.5 Rename

The Rename button allows you to change the name of a folder or items within a folder.



To rename an item:

1. Touch to highlight the item or folder to be renamed.
2. Tap the **Rename** button on the toolbar.

The New Name dialog box opens (Figure 6-3).



Figure 6-5 Sample new name dialog box

3. Touch the entry field on the dialog box to open the virtual keyboard.
4. Type the new name into the entry field using the virtual keyboard.
5. Tap the **OK** button to change the name and return to the previous page. The Cancel button returns you to the previous page without changing the name.

6.1.6 Properties

The Properties button function is the same as the Rename button at this time.

6.1.7 More

Selecting the More button opens a dropdown menu with two options:

- **Shortcut**—creates a shortcut to the highlighted item. A confirmation message that includes the address of where the shortcut will be installed displays when this option is selected.
- **Up**—moves the displayed item in the folders panel up one level in the file structure.

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VERUS

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