



ABS / AIR BAG 2004 USER GUIDE

ABS / Air Bag 2004

NEXT GENERATION INFORMATION SYSTEM



IMPORTANT NOTICES

SAFETY

All Danger, Warning and Important notes must be followed for your safety. These safety messages are in the following formats:

 **DANGER:**
Means you risk possible loss of life.

 **WARNING:**
Means you risk possible bodily harm.

IMPORTANT: Means that the information demands special attention or that you risk damage to the vehicle or the tool.

Note: are added to provide clarity and helpful tips.

These safety messages cover situations SPX is aware of. SPX cannot know, evaluate and advise you as to all of the possible hazards. You must be certain that any conditions or service procedures encountered do not jeopardize your personal safety.

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**ABS / AIR BAG 2004
SOFTWARE
for the
NEXT GENERATION
INFORMATION SYSTEM TOOL
USER GUIDE**



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Safety Precautions

Danger:

- When an engine is operating, keep the service area **WELL VENTILATED** or attach a building exhaust removal system to the engine exhaust system. Engines produce carbon monoxide, an odorless, poisonous gas that causes slower reaction time and can lead to serious injury or death.



Warning:

- When working with hydraulic or fuel lines, liquids under pressure may escape and create a dangerous condition. Never open a bleeder valve or loosen a hydraulic line while the ABS is pressurized. Use adequate ventilation and make sure there are no sparks or possibility of sparks present that may ignite any vapor.
- Wear an American National Standards Institute (ANSI) approved eye shield when testing or repairing vehicles. Objects propelled by whirling engine components or pressurized liquids escaping may cause personal injury.
- Set the parking brake and block the wheels before testing or repairing a vehicle. It is especially important to block the wheels on front-wheel drive vehicles because the parking brake does not hold the drive wheels.
- Do not drive the vehicle and operate the NGIS tool at the same time. Any distractions may cause an accident. Have one person operate the NGIS tool as another person drives the vehicle.
- Maintain adequate clearance around moving components or belts during testing. Moving components and belts can catch loose clothing, body parts, or test equipment and cause serious damage or personal injury.
- Automotive batteries contain sulfuric acid and produce explosive gases that can result in serious injury. To prevent ignition of gases, keep lighted cigarettes, sparks, flames, and other ignition sources away from the battery at all times. If you are using the battery as a power source, connect the RED (+) battery clip to the positive vehicle battery terminal and connect the BLACK (-) battery clip to a good ground away from the battery.
- Refer to the service manual for the vehicle being serviced and adhere to all diagnostic procedures and precautions. Failure to do so could result in air bag deployment, personal injury, or otherwise unneeded air bag system repairs.
- Only use specially designed replacement parts (brake hoses and lines) for ABS-equipped vehicles.
- After bleeding the brake system, check the brake pedal for excessive travel or a “spongy” feel. Bleed again if either condition is present.
- When installing transmitting devices (Citizen Band radio, telephone, etc.) on ABS-equipped vehicles, do not locate the antenna near the ABS control unit or any other control unit.



Important:

- To avoid damaging the NGIS tool or generating false data, make sure the vehicle battery is fully charged and the connection to the vehicle DLC is clean and secure.
- Never disconnect or reconnect any electrical connector while the ignition is on. Damage to the ABS control unit may result.
- Do not hammer speed rings into the hub or tap on speed sensor components (sensor, sensor rings, etc.). Speed rings must be pressed, not hammered, into the hub and striking or tapping speed sensor components can cause demagnetization or a loss of polarization, affecting the accuracy of the speed signal returning to the ABS control unit.
- Use the recommended anti-corrosion coating on speed sensor components: Do not contaminate with grease.
- When speed sensor components have been removed, be sure to check the sensor-to-ring gap, when applicable.
- Do not mix tire sizes. Increasing the width slightly is acceptable but rolling diameter must be identical for all tires. Some manufacturers recommend tires of the same brand, style, and type. Failure to follow this precaution may cause inaccurate wheel speed readings.
- Do not expose the ABS control unit to prolonged periods of high heat: 185 degrees F/85 degrees C for 2 hours is considered a maximum limit.
- Use a recommended brake fluid, do not use silicone brake fluids in an ABS-equipped vehicle.
- Before bleeding the brake system, make sure no diagnostic codes are present.
- Do not let the master cylinder run dry during the brake bleeding procedure.
- Do not allow brake fluid to contact the motor pack or the electrical connectors.

VW Problems:

- Be aware of the following issue regarding year 2000 and 2001 VW Golf, GTI, Jetta/Bora, and Beetle air bag controllers:
- There are reports of Air bag warning lights staying on permanently after scanning with a scan tool. The Air bag controller shows DTC number 65535, indicating an internal error which cannot be cleared. This problem seems to be limited to air bag controllers with the part number 6Q0-909-605-A. There are a number of different "index" or "color-code" variations of this controller and not all of them are affected. If you have a 2000 or 2001 Golf, Jetta/Bora, Beetle, or a similar SEAT or Skoda model, physically inspect the air bag controller and look at the part number. If it is not 6Q0-909-605-A, then it should be safe to test. If it is Q0-909-605-A, then it is at risk of this problem — avoid testing the air bag controller.

1: General Information

Introduction

ABS / Air Bag 2004 is a software program for the Next Generation Information System (NGIS) tool. With the software installed (and unlocked) in the NGIS tool, and with the tool properly connected to a vehicle's electronic control unit (ECU), you can use the software to read the vehicle's anti-lock brake system (ABS) and air bag information and to perform device control tests.

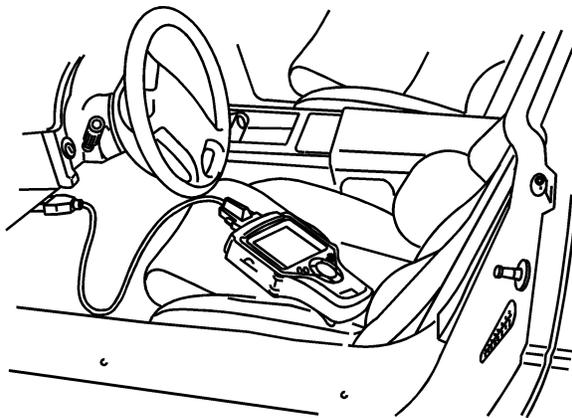


Figure 1.1: NGIS Tool Connected to Vehicle DLC

Some of the functions provided by the ABS / Air Bag 2004 software include the following:

- After you enter vehicle information into the NGIS tool, the software displays an illustration of the cables required for connecting the NGIS tool to the vehicle's ECU. After you connect the correct cables, the software automatically determines the tests available for that vehicle.
- The software automatically saves the most recently used vehicle setup for you to reuse quickly. You can also save vehicle setups for reuse.
- You can view "live" sensor and switch datastream information while it is being communicated from the vehicle's ECU.
- The tests let you read diagnostic trouble codes (DTCs) for air bags and anti-lock brake systems. (In addition, you can manually enter diagnostic codes for vehicles without readable electronic control units.)
- Record (Save) and Playback functions let you record and replay datastream DTC information similar to a video recorder function.
- An automatic diagnostic code triggered record function automatically creates a recording for playback and alerts you whenever a diagnostic code occurs during testing.
- A Post Collision test provides instructions for testing air bags after repair(s).
- Pathfinder and Vehicle Info functions let you view vehicle-specific information, such as technical service bulletin (TSB) references, vehicle specifications, repair instructions, ECU component location(s), and brake bleed procedures.
- The tests include programmed diagnostic procedures (special tests) you can use for bi-directional control tests on anti-lock brake systems.

Equipment Descriptions

Next Generation Information System (NGIS) Tool

The NGIS tool (purchased separately) is a portable, hand-held tool. The Pathfinder 2001 (or newer) software and the ABS / Air Bag 2004 software must be installed in the NGIS tool before you can use the NGIS tool for testing the air bag and brake systems.

This User Guide assumes you are familiar with using the NGIS tool. If necessary, refer to the User Guide for the NGIS tool. As a quick reference, the NGIS keys are listed below.

- **Function keys** (four of them) - each key executes a command that corresponds with an option listed at the bottom of the screen.
- **Direction key** (four directions: Up, Right, Down, and Left) - Up and Down select a menu option or a data field, or scroll through a screen of text. Left and Right move between fields or change the data entry within a field.
- **HELP** - displays helpful information about the currently-displayed screen.
- **ENTER** - executes a selected menu option or screen.
- **MENU** - displays the NGIS tool's main menu (the Application Manager screen).
- **EXIT** - moves back one screen.

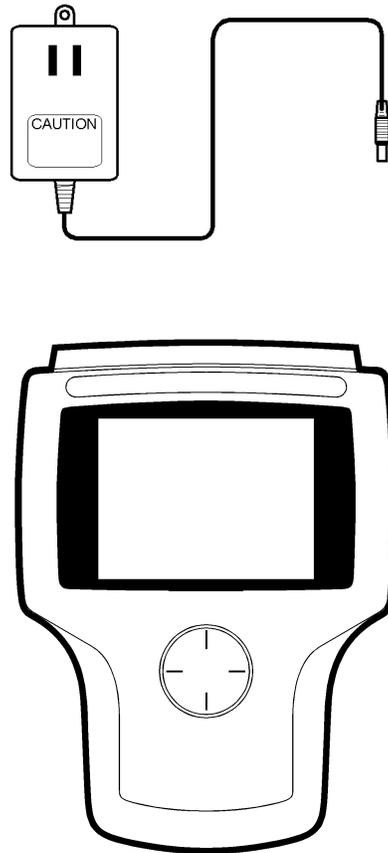


Figure 1.2: NGIS Tool

Cables

The cable used to connect the NGIS tool to the data link connector (DLC) of a vehicle's electronic control unit (ECU) depends on the type of vehicle being tested. The two most common cables are shown below. They are the System Smart 25-pin cable (3305-73) and the DB25 power cable (3305-72). An optional extension cable may also be used.

Note: The Air Bag / ABS software tells you which cable must be used for the vehicle you are testing. For details, refer to ["Step 1: Enter the Vehicle Information"](#) on [page 13](#).

System Smart 25-Pin Cable (3305-73)

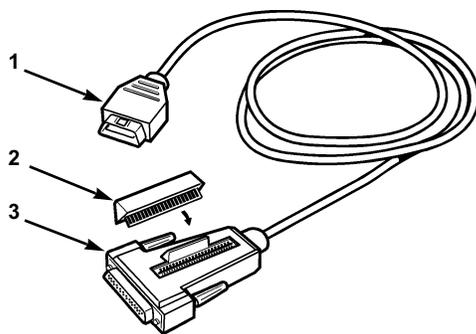


Figure 1.3: System Smart 25-Pin Cable

The System Smart 25-pin cable is for On Board Diagnostic II (OBD II) vehicles. The cable has the following components:

- Item 1 J-1962 Connector** - connects to the data link connector (DLC) of the vehicle's electronic control unit.
- Item 2 System Smart Insert (SSI)** - inserts into the port on the top of the 25-pin connector. There are several SSIs available (some are 3306-11, 3306-15, 3306-22). The SSI used depends on the vehicle being tested.
- Item 3 25-pin Male Connector** - connects to the DB25 port on the top of the NGIS tool. The 25-pin connector has a port on the top of it for inserting a System Smart Insert (SSI).

DB25 Power Cable (3305-72)

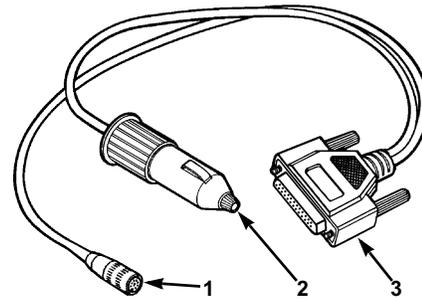


Figure 1.4: DB25 Power Cable

The DB25 power cable is for non-OBD II vehicles and some OBD II vehicles. The cable has the following components:

- Item 1 8-Pin Adapter Connector** - connects to the correct adapter for the vehicle being tested. (Refer to ["Vehicle Adapters"](#) on [page 4](#).) The adapter then connects to the data link connector (DLC) of the vehicle's electronic control unit.
- Item 2 Power Plug** - inserts into the vehicle's cigarette lighter receptacle. An optional Battery Adapter (212638) can be used to connect to the vehicle's battery instead of the cigarette lighter receptacle. (Refer to ["Battery Adapter \(212638\)"](#) on [page 5](#).)
- Item 3 25-pin Male Connector** - connects to the DB25 port on the top of the NGIS tool.

Extension Cable (3305-71)

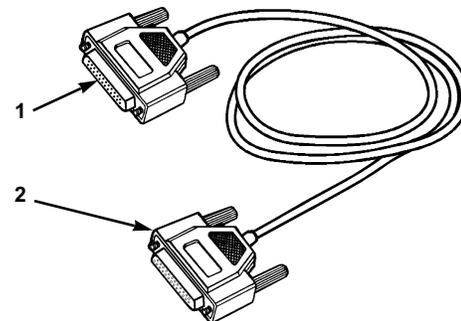


Figure 1.5: Optional Extension Cable

An optional extension cable (3305-71) is available. The cable has the following connectors:

- Item 1 25-pin Female Connector** - connects to the 25-pin male connector on the System Smart 25-pin cable, the DB25 power cable, or any other 25-pin cable being used.
- Item 2 25-pin Male Connector** - connects to the DB25 port on the top of the NGIS tool.

Vehicle Adapters

The vehicle adapters are used with the DB 25 power cable, shown on the previous page. The adapter used depends on the vehicle being tested. Some of the most common adapters are shown below.

Note: The Air Bag / ABS software tells you which adapter must be used for the vehicle you are testing. For details, refer to [“Step 1: Enter the Vehicle Information”](#) on [page 13](#).

Universal “B” Adapter (213486)

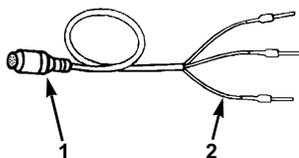


Figure 1.6: Universal “B” Adapter

The Universal “B” adapter is for vehicle’s equipped with Bosch, Teves, or Kelsey Hayes anti-lock brake systems. The adapter has the following components:

- Item 1 8-Pin Connector** - connects to the 8-pin connector on the DB 25 power cable.
- Item 2 Leads / Probes** - connect to the data link connector (DLC) of the vehicle’s electronic control unit.
- Item 3 Special Leads** (not shown) - special, add-on, leads (216094 and 3305-69) may be required for some vehicles.

Universal “C” Adapter (3305-74)

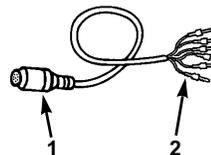


Figure 1.7: Universal “C” Adapter

The Universal “C” adapter is for vehicle’s equipped with Sumitomo anti-lock brake systems. The adapter has the following components:

- Item 1 8-Pin Connector** - connects to the 8-pin connector on the DB 25 power cable.
- Item 2 Leads / Probes** - connect to the data link connector (DLC) of the vehicle’s electronic control unit.

Ford II Adapter (3305-58)

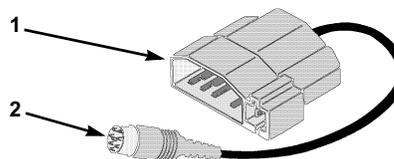


Figure 1.8: Ford II Adapter

The Ford II adapter is for vehicle’s equipped with MCU anti-lock brake systems. It is also for reading Ford EEC-IV slow codes. The adapter has the following components:

- Item 1 DLC CONNECTOR** - connects to the data link connector (DLC) of the vehicle’s electronic control unit.
- Item 2 8-Pin Connector** - connects to the 8-pin connector on the DB 25 power cable.

GM Adapter (212633)

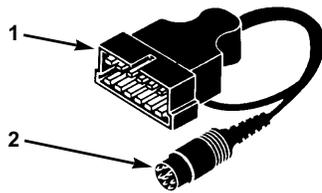


Figure 1.9: GM Adapter

The GM adapter is for GM vehicles. The adapter has the following components:

- Item 1 DLC Connector** - connects to the data link connector (DLC) of the vehicle's electronic control unit.
- Item 2 8-Pin Connector** - connects to the 8-pin connector on the DB 25 power cable.

Sumitomo Adapter (3305-19)

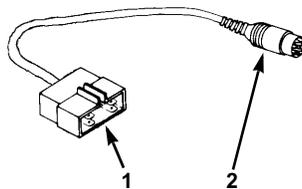


Figure 1.10: Sumitomo Adapter

The Sumitomo adapter is for vehicle's equipped with Sumitomo anti-lock brake systems. The adapter has the following components:

- Item 1 DLC Connector** - connects to the data link connector (DLC) of the vehicle's electronic control unit.
- Item 2 8-Pin Connector** - connects to the 8-pin connector on the DB 25 power cable.

Battery Adapter (212638)

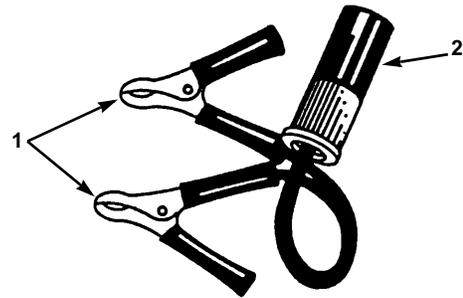


Figure 1.11: Battery Adapter

The battery adapter can be used with the DB25 power cable (shown on [page 3](#)) or other cables that have a battery power plug. The adapter has the following components:

- Item 1 Battery Clamps** - clamp to the battery's terminals.
- Item 2 Power Plug Connector** - connects to (fits over) the power plug on the DB25 power cable or other cables with a power plug.

Software Description

Software Installation

Before using the ABS / Air Bag 2004 software, the software must be installed in the NGIS tool and “unlocked” with a Smart Card. The software is either preinstalled in the NGIS tool, provided on a compact disc or flash, or can be downloaded from the SPX web site.

For complete installation instructions, refer to *NGIS Software Application Installation and Updates* (OTC p/n 529313) or *512 MB Memory Kit Installation* (OTC p/n 532140).

Software Screens

This section contains an overview of the main screens in the ABS / Air Bag 2004 software. Some of the screens contain menus and others contain test instructions or results.

Application Manager Screen

When you turn on the NGIS tool, the Application Manager screen appears. The Application manager screen contains a menu of the groups of software installed in the NGIS tool.

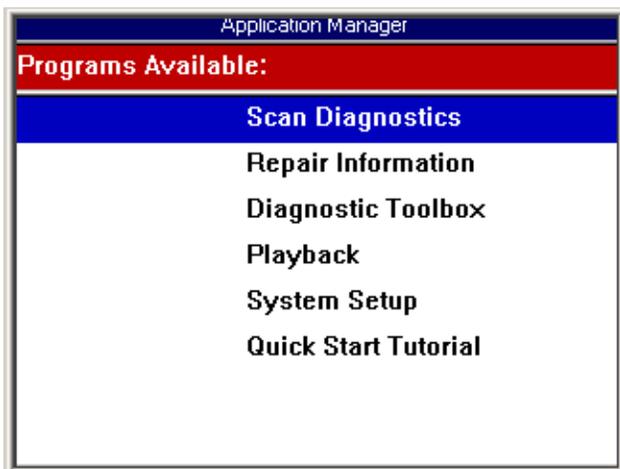


Figure 1.12: Application Manager Screen

From the Application Manager screen, you select Scan Diagnostics and then press the ENTER key. This displays the Scan Diagnostics screen, which contains a menu of the Scan Diagnostics software installed in the NGIS tool, as shown below.

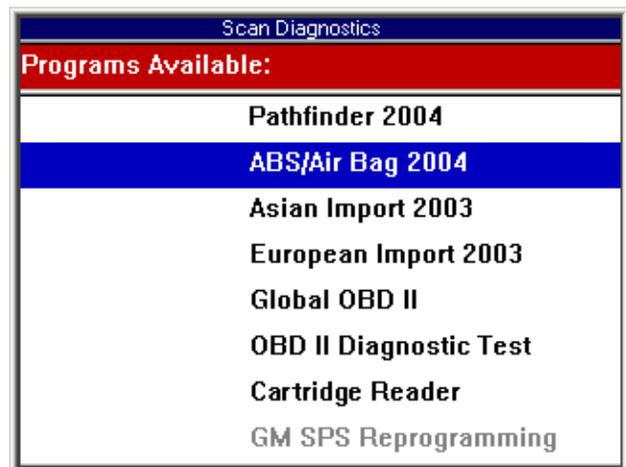


Figure 1.13: Scan Diagnostics Screen

To start the ABS / Airbag 2004 software from the Scan Diagnostics screen, you select ABS/Air Bag 2004 and then press the ENTER key. This displays the first Vehicle Identification screen, described on the next page.

Vehicle Identification Screen

When you select **ABS / Air Bag 2004** from the Scan Diagnostics menu, the first Vehicle Identification screen appears.

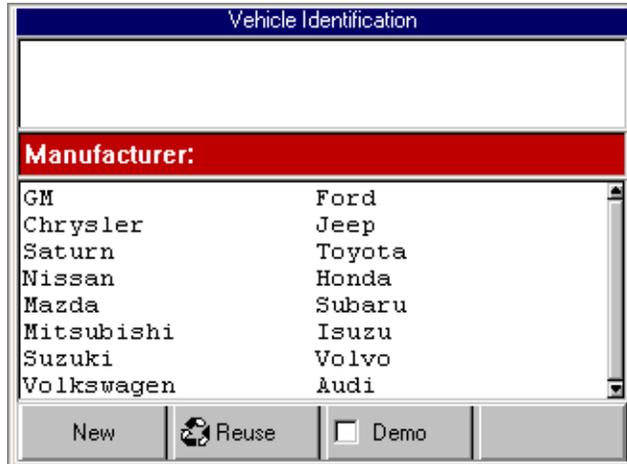


Figure 1.14: Vehicle Identification Screen

The Vehicle Identification screen has three sections as follows:

- **top section** - displays vehicle identification information as you select options from the middle section.
- **middle section** - contains options you select in order to enter identification information for a vehicle. When you select an option and press the ENTER key, the selected option appears in the top section and the middle section changes to the next group of selection options. For example, the middle section shown above is for selecting the manufacturer. After you select a manufacturer, the middle section changes to options for selecting the vehicle's year range. After you have entered all the information for a vehicle, the middle section displays the cable connections required for the vehicle (shown on the next page).
- **bottom section** - contains function keys for: 1) entering new information for a vehicle, 2) selecting and reusing information for a vehicle previously tested, and 3) viewing demonstration data.

For detailed information about using this screen, refer to "[Chapter 2: Start-up Steps](#)" on [page 13](#).

Vehicle Identification - Required Cables Screen

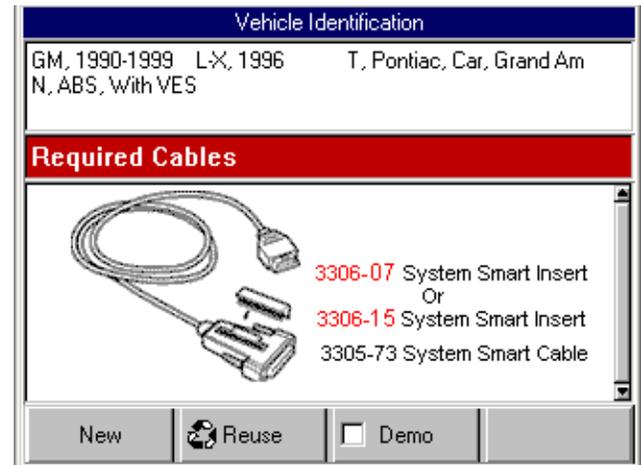


Figure 1.15: Vehicle Identification - Required Cables Screen

After you have entered all the information for a vehicle, the top section displays the vehicle information and the middle section displays the cable connections required for the vehicle (refer to "[Cables](#)" on [page 3](#)).

With this screen displayed, you make the cable connections to the NGIS tool and the vehicle and then press the ENTER key. This displays the Diagnostic Menu screen for the vehicle being tested, as described on the next page.

Diagnostic Menu Screen

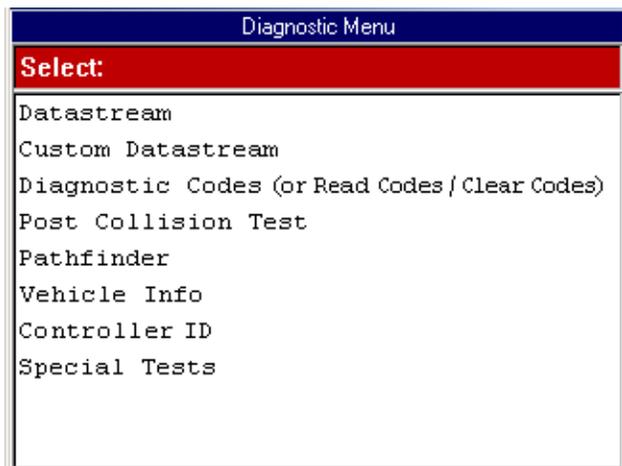


Figure 1.16: Diagnostic Menu Screen

The Diagnostic Menu screen contains a menu of the test options available for the vehicle being tested. The next few pages show and briefly describe each of the options on the Diagnostic menu.

Note: *The screen shown above is only an example. It shows all possible options that can appear on the Diagnostic menu. In reality, only the options available for the vehicle being tested will appear on this menu.*

Datastream

When you select **Datastream** from the Diagnostic menu, the following screen appears.

Vehicle Speed Sensor	311	kph
ABS Relay	On	
ABS Warning Light	On	
Brake Fluid	Ok	
Brake Switch	On	
Brake Warn Lamp Cmd	Off	
EBCM Batt Voltage	13.0	V
EBCM Ign Voltage	13.0	V
EVO Actuator Cmd	1036	mA
EVO Feedback DC	1036	mA
LF ABS Motor Command	10.4	Amp
LF ABS Motor Direct	Forward	

Frame: 1

Record Graph To Top More

Figure 1.17: Datastream Screen

This screen displays live data from the vehicle's electronic control unit (ECU). The data displays in a digital format. You can optionally view the data in an LED, analog, or graphical format. You can also change the units of measure from English to Metric units. From this screen, you can record, print, and sort the data.

For detailed information about using this screen, refer to "[Chapter 3: Datastream](#)" on [page 19](#).

Custom Datastream

When you select **Custom Datastream** from the Diagnostic menu, the following screen appears.

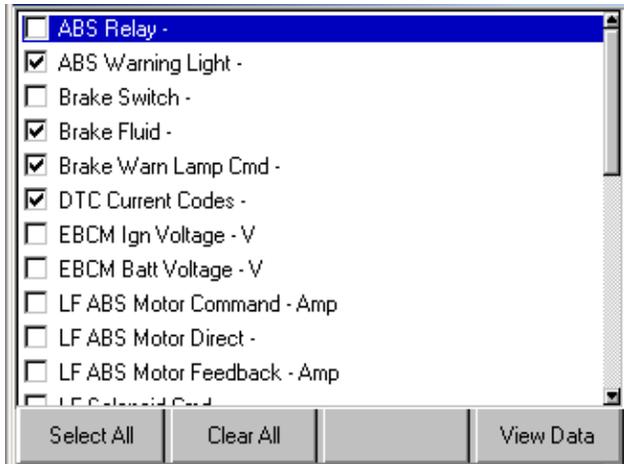


Figure 1.18: Custom Datastream Selection Screen - before selections

You use this screen to select specific (customized) data items you want to display on the standard Datastream screen.

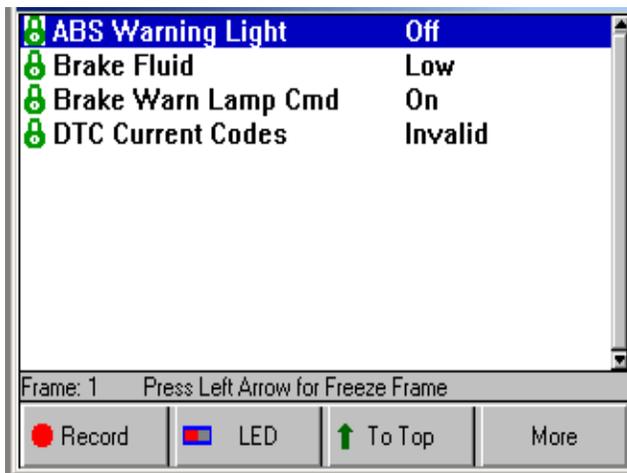


Figure 1.19: Custom Datastream Selection Screen - after selections

For detailed information about using the Custom Datastream menu option, refer to "[Chapter 4: Custom Datastream](#)" on [page 31](#).

Diagnostic Codes (or Read Codes and Clear Codes)

The diagnostic trouble code option(s) that appear on the Diagnostic Menu screen vary depending on the vehicle being tested. For some vehicles, the menu option is Diagnostic Codes; for other vehicles, there are two menu options: Read Codes and Clear Codes, as described below.

The **Diagnostic Codes** option appears on the Diagnostic Menu screen for vehicles that allow reading of diagnostic trouble codes (DTCs) with a scan tool.

The **Read Codes** and **Clear Codes** options appear on the Diagnostic Menu screen (instead of the Diagnostic Codes option) for vehicles that require reading of DTCs by visually viewing them as "flash codes." For this type of vehicle, you identify the vehicle's "flash code" numbers and manually enter the numbers into the NGIS tool to see their descriptions.

When you use the diagnostic trouble code options, a screen similar to the following screen appears. The screen displays diagnostic test code (DTC) numbers and descriptions.

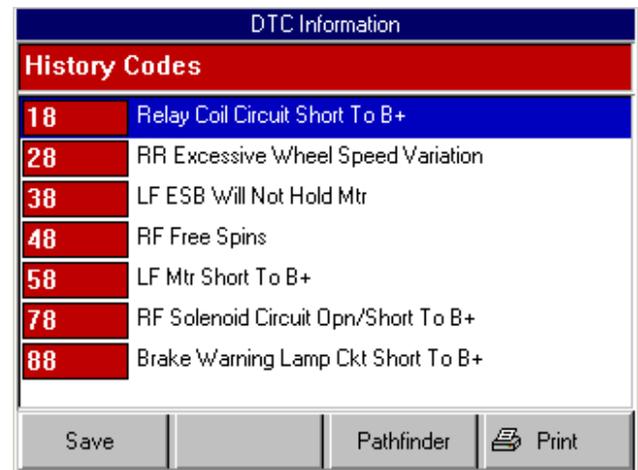


Figure 1.20: DTC Information Screen

For detailed information about using the diagnostic trouble code options, refer to "[Chapter 5: Diagnostic Codes \(Read / Clear Codes\)](#)" on [page 33](#).

Post Collision Test

When you select **Post Collision Test** from the Diagnostic menu, several step-by-step instruction screens, similar to the following screen, appear.



Figure 1.21: Post Collision Test Screen

The screens provide instructions for testing air bags after repair(s).

For detailed information about using the screens, refer to “[Chapter 6: Post Collision Test](#)” on [page 45](#).

Pathfinder

When you select **Pathfinder** from the Diagnostic menu, the following screen appears.

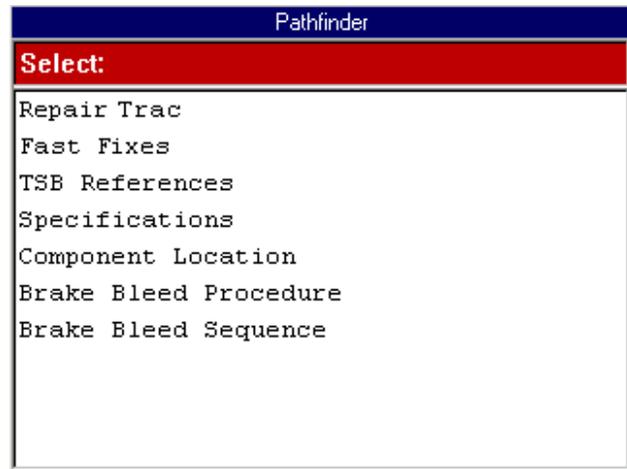


Figure 1.22: Pathfinder Screen

The Pathfinder screen contains menu options for viewing vehicle-specific information, such as technical service bulletin (TSB) references, vehicle specifications, ECU component location(s), and brake bleed procedures. You can also use this function to access the Repair Trac software or the Fast Fixes software from within the ABS / Air Bag software.

For detailed information about using this screen, refer to “[Chapter 7: Pathfinder](#)” on [page 47](#).

Vehicle Info

When you select **Vehicle Info** from the Diagnostic menu, the following screen appears.

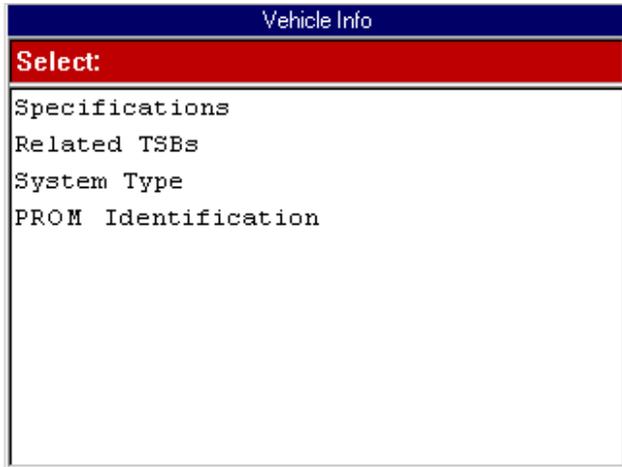


Figure 1.23: Vehicle Info Screen

The Vehicle Info screen contains menu options for viewing vehicle-specific information, such as vehicle specifications, technical service bulletin (TSB) references, and the vehicle description (system type).

For detailed information about using this screen, refer to "[Chapter 8: Vehicle Info](#)" on [page 55](#).

Controller ID

When you select **Controller ID** from the Diagnostic menu, the following screen appears.

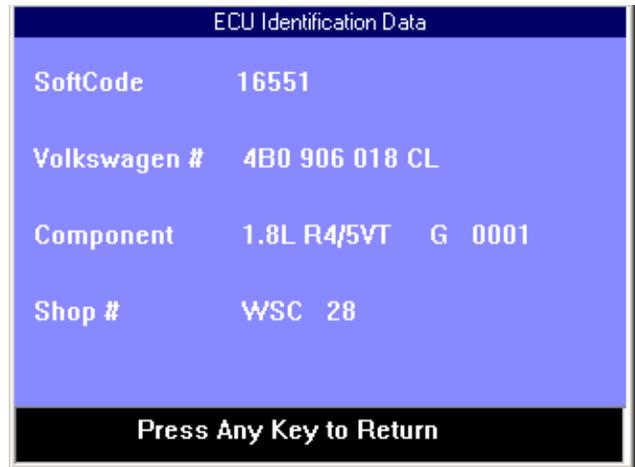


Figure 1.24: ECU Identification Data Screen

The ECU Identification screen contains information about the selected EUC (Audi and Volkswagen).

For detailed information about using this screen, refer to "[Chapter 9: Controller ID](#)" on [page 59](#).

Special Tests

When you select **Special Tests** from the Diagnostic menu, the following screen appears.

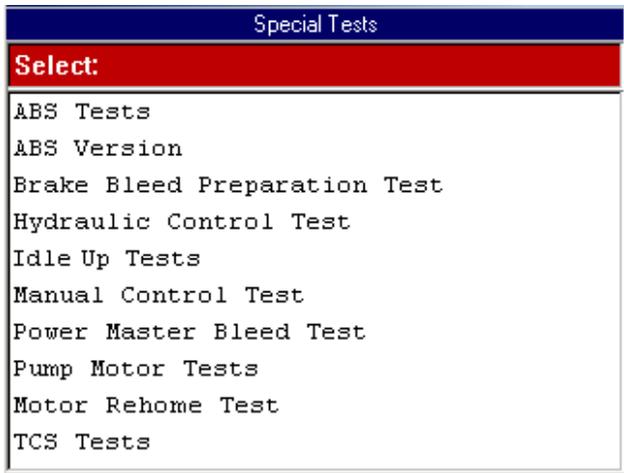


Figure 1.25: Special Tests Screen

The Special Tests screen contains menu options for performing special diagnostic tests. After you select a menu option, pre-programmed screens appear for the diagnostic test.

Note: The screen shown above is only an example. It shows only a few of the possible options that can appear on the screen.

For detailed information about using this screen, refer to "[Chapter 10: Special Tests](#)" on [page 61](#).

Vehicle Applications

The ABS / Air Bag Vehicle Applications Reference Guide is available as a portable document format (pdf) file that installs on the PC during the NGIS Software installation (see "[Software Installation](#)" on [page 6](#)). The Reference Guide contains a listing of the vehicles and ECUs that the ABS /Air Bag 2004 software works with.

To open the Reference Guide, double-click the *NGIS User Guide* icon on the Windows desktop. This displays a Select User Guide window. Click the *ABS / Air Bag 2004 Vehicle Applications* link to open the Reference Guide.

With the Reference Guide opened, notice the following:

- The left side of the Reference Guide window contains a Table of Contents. You click a topic to display its contents.
- The right side of the window displays the contents; you can right-click inside the contents to display a navigation menu.
- You can also print the Reference Guide.
- For help using the file, open Acrobat Reader from the Windows Start, Programs menu and then select Help, Reader Help from the main menu.

Note: To view the Guide, the Adobe Acrobat Reader software application must be installed on the PC. When you open the Guide, if an Open With box appears, click the Cancel button and do one of the following to install Acrobat Reader:

To install an English version, insert the NGIS CD into the PC's CD drive. When the installation Welcome window appears, click Cancel, then Yes, then Finish. Then click the Windows Start button and click Run to display the Run box. Click the Browse button and then select My Computer, The CD drive, and AcroReader51_ENU.exe. Click the Open button (or OK). Then click the OK button in the Run box and follow the on-screen instructions.

To install a version for another language, go to the website: http://www.adobe.com/products/acrobat/reader_archive.html#Win

Disclaimer: Acrobat Reader is licensed and copyrighted by Adobe Systems Incorporated. It is provided as a courtesy, not a license for use. If you install it, you must accept and abide by the terms of its license agreement, which display the first time you start the application.

2: Start-up Steps

Introduction

All vehicle setups require a specific cable connection to the vehicle Data Link Connector (DLC). To determine the specific cable required for a vehicle, you must first enter the vehicle information. After you have done this, the screen displays the specific cable information for the vehicle. You then use this information to connect the correct cable to the DLC and proceed with the vehicle diagnostics.

This chapter includes the following general steps to get you started:

- 1 Enter the vehicle information to determine the correct cable required.
- 2 Connect the required cable.
- 3 Select the diagnostic function you want to perform.

Step 1: Enter the Vehicle Information

Use the following steps to enter vehicle information and to determine which cable to use for the communication connection between the NGIS tool and the vehicle's electronic control unit (ECU).

To enter the vehicle information, follow these steps:

Note: Before doing these steps, make sure the NGIS tool's battery is charged.

- 1 Press the NGIS tool's power button to turn the tool on. This displays the Application Manager screen.

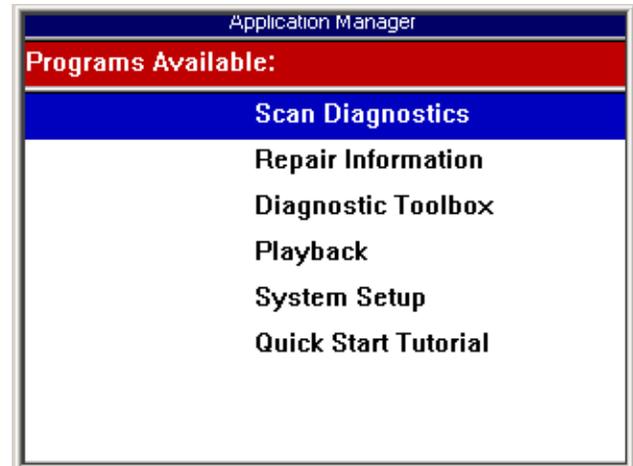


Figure 2.1: Application Manager Screen

- 2 Select **Scan Diagnostics** and press the **ENTER** key. This displays the Scan Diagnostics screen.

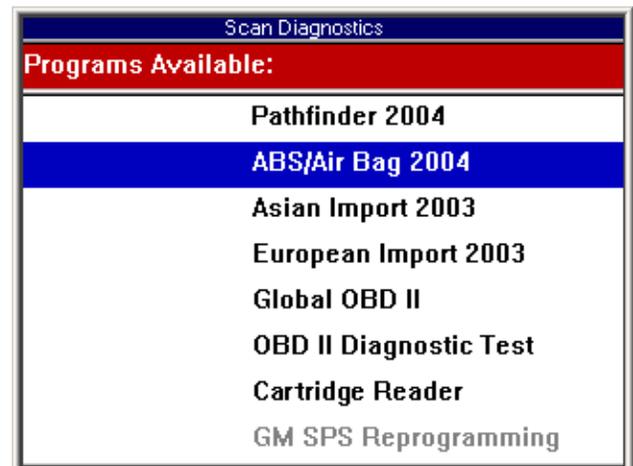


Figure 2.2: Scan Diagnostics Screen

- 3 Select **ABS / Air Bag 2004** and press the **ENTER** key. This displays the first Vehicle Information screen ([Figure 2.3](#) on [page 14](#)).

ABS / Air Bag 2004 User Guide

Step 1: Enter the Vehicle Information

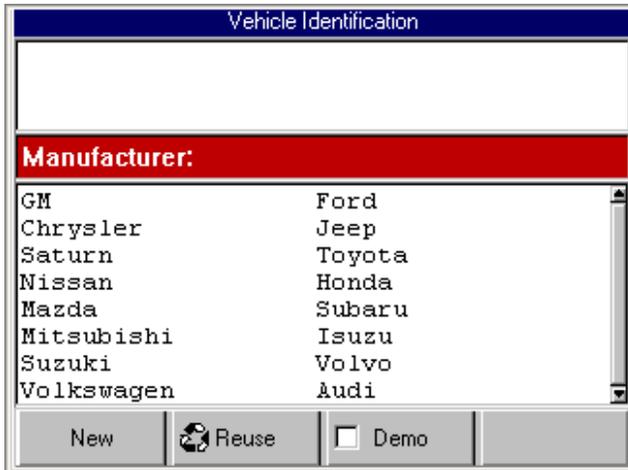


Figure 2.3: Vehicle Information - Manufacturer Screen

4 With the Vehicle Information screen displayed, you can enter new information for a vehicle or you can select and reuse saved information for a vehicle already tested. Do one of the following:

- To enter new information for a vehicle, go to step 4 and then step 6.
- To reuse saved information for a vehicle already tested go to step 5 and then step 6.

IMPORTANT: Be aware of the following issue regarding year 2000 and 2001 VW Golf, GTI, Jetta/Bora, and Beetle air bag controllers: There are reports of Air bag warning lights staying on permanently after scanning with a scan tool. The Air bag controller shows DTC number 65535, indicating an internal error which cannot be cleared. This problem seems to be limited to air bag controllers with the part number 6Q0-909-605-A. There are a number of different “index” or “color-code” variations of this controller and not all of them are affected. If you have a 2000 or 2001 Golf, Jetta/Bora, Beetle, or a similar SEAT or Skoda model, physically inspect the air bag controller and look at the part number. If it is not 6Q0-909-605-A, then it should be safe to test. If it is Q0-909-605-A, then it is at risk of this problem — avoid testing the air bag controller.

5 To enter new information for a vehicle, do the following:

- Select the vehicle manufacturer** and press the **ENTER** key. This displays the selected vehicle description in the top part of the screen and changes the middle part of the screen to the next screen of a series of screens, as shown below.

Note: The screens shown below are only examples. The screens that actually appear are different for each vehicle.

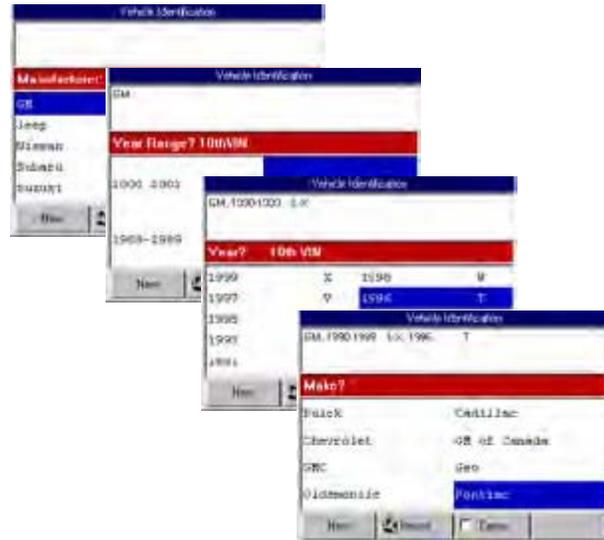


Figure 2.4: Vehicle Information - Series of Screens

- On each screen that appears, select the correct option** and then press the **ENTER** key. Do this until the complete vehicle information is entered and the illustration of the required cables appears, as shown in Step 6.

Note: On the Vehicle Information screens, you can press the **Demo** function key to display demonstration data in the software. The **Demo** function stays on until you press the function key again to turn it off. When the **Demo** function is on, a checkmark appears in the box on the function key.



- 6 To reuse saved information for a vehicle already tested, do the following:
 - a Press the **Reuse** function key. This displays the Reuse Vehicles screen, which contains a list of saved vehicle descriptions.

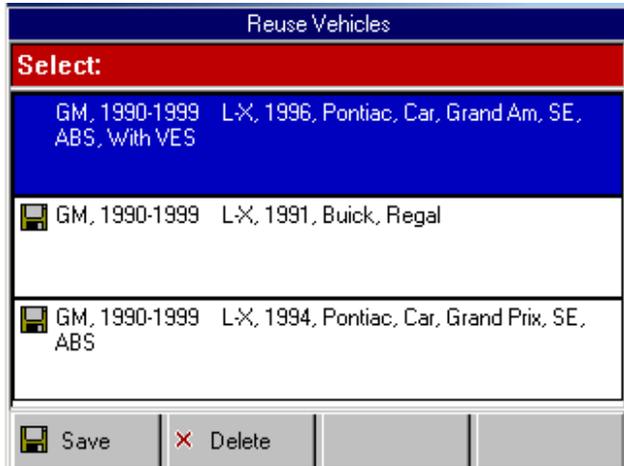


Figure 2.5: Reuse Vehicles Screen

- b **Select the vehicle description to use** and press the **ENTER** key. This displays the illustration of the required cables, as shown in Step 6.

Note: The Reuse Vehicles list holds 25 vehicle descriptions. When the list is full, old descriptions automatically delete as you enter new descriptions. To prevent a description from being automatically deleted, highlight the description and press the **Save** function key. This places a disk icon to the left of the file name and saves the description until you delete it. (Use the **Delete** function key to delete a selected description.)

- 7 After you have entered new vehicle information or selected a vehicle description to reuse, the Required Cables illustration displays on the Vehicle Identification screen. With this screen displayed, make the required cable connections. For specific steps, refer to the next section ("**Step 2: Connect the Cable**" on page 16).

Note: Some vehicles do not have an ECU and do not require a cable connection. For these vehicles, the screen states that no cable connection is required. If this happens, skip the next section and go to "**Step 3: Select the Diagnostic Function**" on page 18.

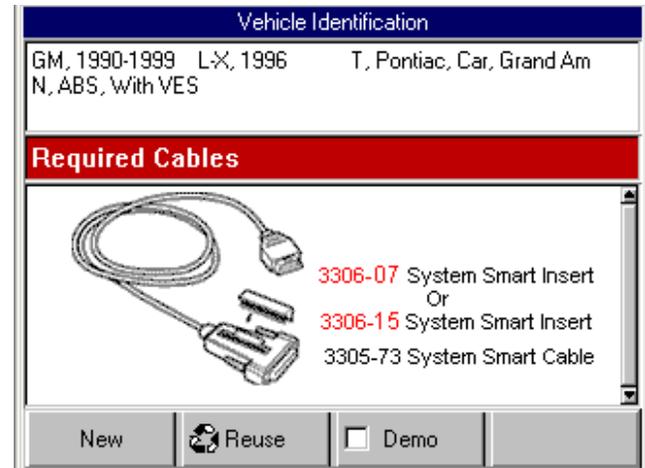


Figure 2.6: Vehicle Information - Required Cables Screen

Note: For some vehicles, this screen will illustrate the vehicle's Data Link Connector (DLC) test terminals rather than the required cables.

Step 2: Connect the Cable

The method used to connect the NGIS tool to a vehicle's electronic control unit (ECU) depends on the vehicle's configuration as follows:

- A vehicle equipped with an On Board Diagnostics Two (OBD II) vehicle management system supplies both communication and 12-volt power through a standardized J-1962 data link connection (DLC).
- A vehicle not equipped with an OBD II system supplies communication through a DLC connection and supplies 12-volt power through the cigarette lighter receptacle or a connection to the battery.

Note: Both connections described above charge the NGIS tool's battery while connected.

OBD II Vehicle Cable Connection

This type of connection generally requires the System Smart 25-pin cable (3305-73) and a System Smart Insert (SSI).

Note: For a description of the cables, refer to "[Cables](#)" on [page 3](#).

To connect the System Smart 25-pin cable, follow these steps:

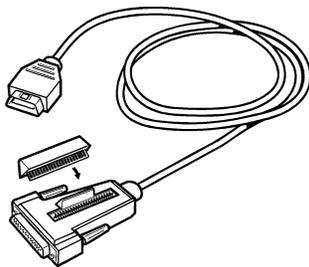


Figure 2.7: SSI and System Smart 25-pin Cable

- 1 Locate the required SSI and insert it into the port on the top of the cable's 25-pin connector.

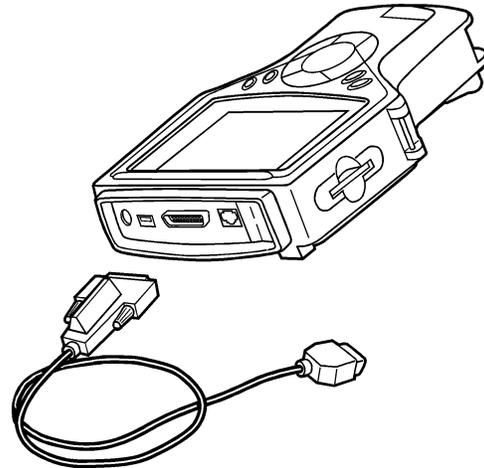


Figure 2.8: System Smart 25-pin Cable Connection to NGIS Tool

- 2 Connect the cable's 25-pin connector to the DB25 port on the top of the NGIS tool. Finger tighten the connecting screws.

Note: Extension cable (3305-71) can be used between the NGIS tool and the System Smart 25-pin cable. Refer to "[Extension Cable \(3305-71\)](#)" on [page 3](#).

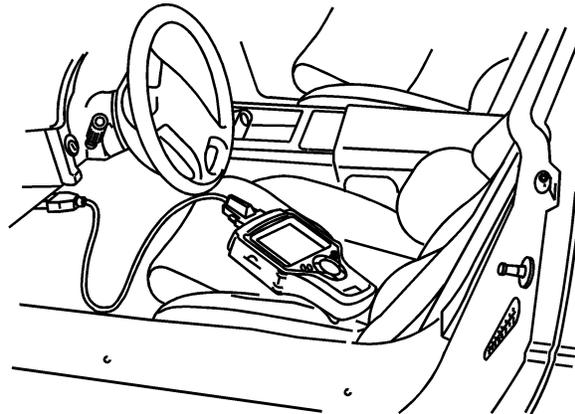


Figure 2.9: System Smart 25-pin Cable Connection to Vehicle's DLC

- 3 Connect the cables's J-1962 (16 pin) connector into the vehicle's J-1962 DLC (16 pin), located under the vehicle dash.
- 4 Continue with the next section, "[Step 3: Select the Diagnostic Function](#)" on [page 18](#).

Non-OBD II Vehicle Cable Connection

This type of connection generally requires the DB25 Power cable (3305-72) or another vehicle-specific cable.

Note: Some non-OBD II vehicles may require the System Smart 25-pin cable.

Note: For a description of the cables, refer to [“Cables”](#) on [page 3](#).

To connect the DB25 Power cable or another similar cable, follow these steps:

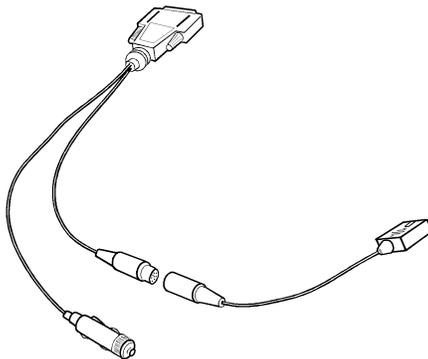


Figure 2.10: Adapter Connection to DB25 Power Cable

- 1 Locate the required adapter and connect the adapter's 8-pin connector to the cable's 8-pin connector. For a description of the adapters, refer to [“Vehicle Adapters”](#) on [page 4](#).

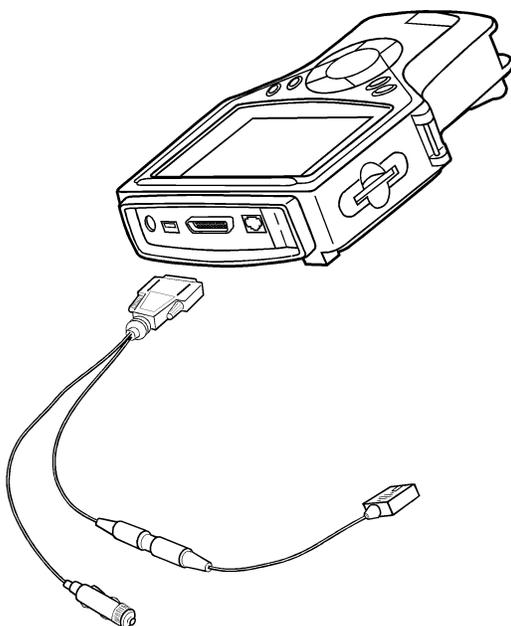


Figure 2.11: DB25 Power Cable Connection to NGIS Tool

- 2 Connect the cable's 25-pin connector to the DB25 port on the top of the NGIS tool. Finger tighten the connecting screws (see [Figure 2.11](#)).

Note: Extension cable (3305-71) can be used between the NGIS tool and the DB25 Power cable. Refer to [“Extension Cable \(3305-71\)”](#) on [page 3](#).

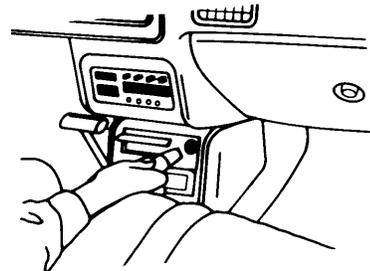


Figure 2.12: DB25 Power Cable Connection to Cigarette Lighter Receptacle

- 3 Connect the cables's power plug into the vehicle's cigarette lighter receptacle.

Note: Battery Adapter (212638) can be used to connect the cable's power plug to the vehicle's battery. Refer to [“Battery Adapter \(212638\)”](#) on [page 5](#).

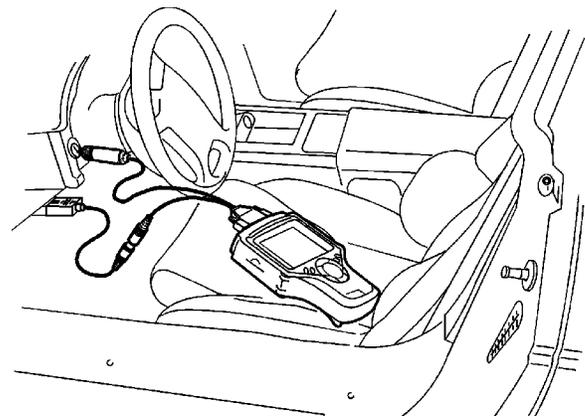


Figure 2.13: DB25 Power Cable Connection to Vehicle's DLC

- 4 Connect the adapter's connector to the vehicle's DLC.

Note: The vehicle's DLC is not always located under the dash as shown above.

Note: Some adapters may have more than one connector or may have test leads instead of a connector. Whatever the case, make the required connections to the vehicle's DLC.

- 5 Continue with the next section, [“Step 3: Select the Diagnostic Function”](#) on [page 18](#).

Step 3: Select the Diagnostic Function

After connecting the cable, the NGIS tool should still display the Vehicle Identification - Required Cables screen.

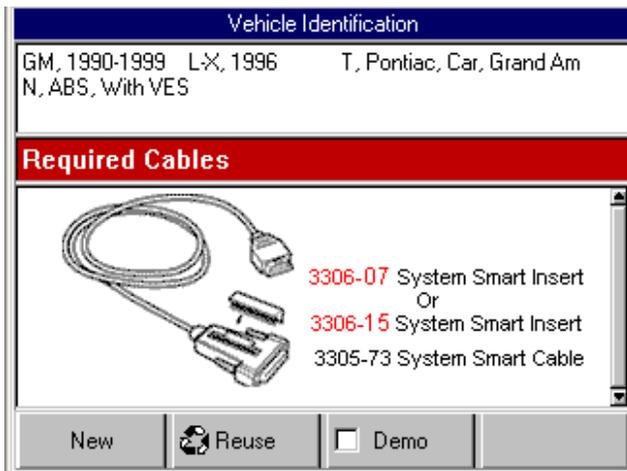


Figure 2.14: Vehicle Information - Required Cables Screen

To select the diagnostic function, follow these steps:

- 1 With the Required Cables (or Connectors) illustration still displayed, press the **ENTER** key.
- 2 One or more instruction screens may appear. If so, read each screen, follow the instructions, and press the **OK** function key to display the next screen. Do this until the Diagnostic Menu screen appears.

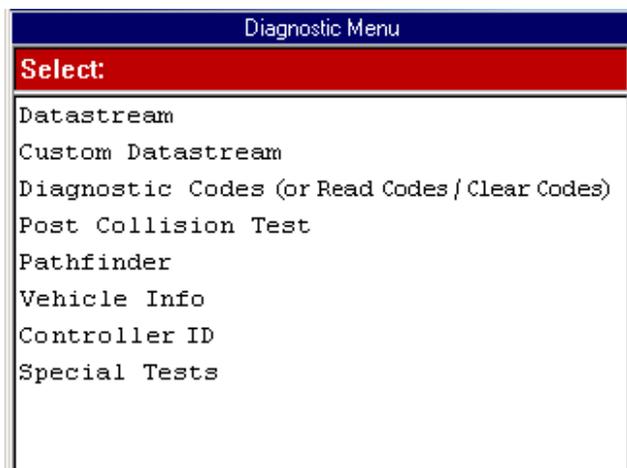


Figure 2.15: Diagnostic Menu Screen

Note: The screen shown above is only an example. It shows all possible options for the Diagnostic menu. During real testing, only the options available for the vehicle being tested will appear on this screen.

- 3 Select the option for the diagnostic function you want to perform and press the **ENTER** key.
- 4 For specific steps for each function, refer to the following chapters:
 - Datastream - "[Chapter 3: Datastream](#)" on [page 19](#).
 - Custom Datastream - "[Chapter 4: Custom Datastream](#)" on [page 31](#).
 - Diagnostic Codes (or Read and Clear Codes) - "[Chapter 5: Diagnostic Codes \(Read / Clear Codes\)](#)" on [page 33](#).
 - Post Collision Test - "[Chapter 6: Post Collision Test](#)" on [page 45](#).
 - Pathfinder - "[Chapter 7: Pathfinder](#)" on [page 47](#).
 - Vehicle Info - "[Chapter 8: Vehicle Info](#)" on [page 55](#).
 - Controller ID - "[Chapter 9: Controller ID](#)" on [page 59](#).
 - Special Tests - "[Chapter 10: Special Tests](#)" on [page 61](#).

WARNING:

Before performing any diagnostic functions, refer to the Safety Precautions and instructions provided in this User Guide and the warnings provided by the vehicle manufacturer. In addition, follow any warnings and descriptions provided on the NGIS tool screens.

3: Datastream

The Datastream function lets you view live ABS and air bag data from a vehicle's electronic control unit (ECU). This chapter describes how to use the Data-stream function.

About Datastream

Datastream is the communication of information between the sensors, computer, and actuators (switches) on a vehicle. The sensors monitor the vehicle systems and send data to the vehicle computer, the computer uses the data from the sensors to determine if any vehicle systems need adjusting. If so, the computer converts the data into commands and sends the commands to the actuators. The actuators then convert the commands to mechanical actions that adjust the vehicle systems.

As this stream of data is being communicated in the vehicle, the software can read the vehicle computer and display the data information in a readable format, called datastream. This lets you view "live" sensor and switch readings.

Automatic Diagnostic Code Triggered Record

The ABS Air Bag 2004 software has an automatic Diagnostic Code Triggered Record function. This function works automatically and does not appear as an option on any menu. If a diagnostic fault occurs while you are testing a vehicle, the software automatically creates a recording for playback and alerts you with a screen message. To replay these recordings, refer to "[Play-back a Data File](#)" on [page 21](#).

Basic Datastream Procedure

Use the following steps to obtain a basic understanding of how the Datastream function works.

Note: Before performing this procedure, follow the instructions in "[Chapter 2: Start-up Steps](#)" on [page 13](#).

To use the datastream function, follow these steps:

Note: Optionally, you can use Custom Datastream and select specific datastream items for viewing. For details, refer to "[Chapter 4: Custom Datastream](#)" on [page 31](#).

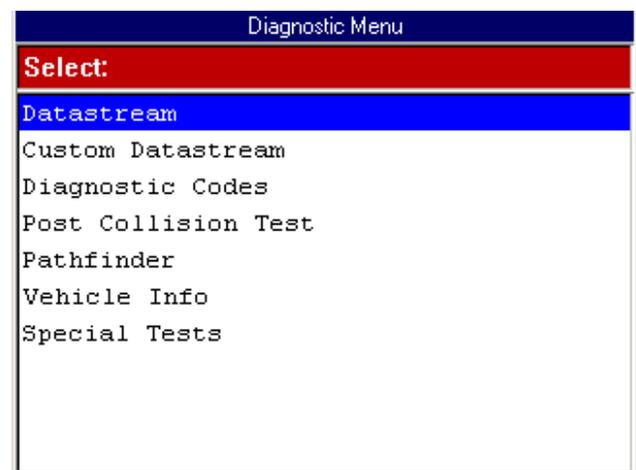


Figure 3.1: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Datastream** and press the **ENTER** key. This displays the Datastream screen (see [Figure 3.2](#) on [page 20](#)).

Note: If a group selection screen appears, select a group and press the **ENTER** key to display the Datastream screen.

ABS Ignition Volts	14.4	V
ABS Stop	Off	
ABS Warning Lamp	On	
Battery Volts	1.1	V
Brake Switch	Off	
Brake Switch Circuit	Ok	
Brake Telltale State	Off	
Brake Telltale Circuit	Open	
Brake Telltale Command	Off	
Brakes Available	Base	
Enable Relay Command	Off	
P/N TCC A/C Closed Open Rich Lean		
Frame: 1 Press Left Arrow for Freeze Frame		
Record	Graph	To Top
More		

Figure 3.2: Datastream Screen

- Notice the following about the Datastream screen:
 - Each line displays a data item. You use the Up and Down Direction keys to scroll through the data and to select lines.
 - The screen's data updates as the software reads from the vehicle's ECU. Each update is called a "frame" of data.
 - The function keys at the bottom of the screen let you perform several other functions on the screen. For details, refer to the next section, "[Datastream Functions](#)" on [page 20](#).
 - The status line above the function keys displays current software status information.
 - You can stop and start the live readings at any time. When you stop the readings, the data "freezes" on the screen. For details, refer to "[Freeze Frame](#)" on [page 25](#).
 - The LED bar, directly above the status line, appears only when you use the More function key, LED Bar option. For details, refer to "[Show / Hide LED Bar](#)" on [page 29](#).
- When you are finished using the screen, press the **EXIT** key to return to the Diagnostic Menu screen.

Datastream Functions

There are several functions you can use on the Datastream screen. Most of the functions are activated with the function keys at the bottom of the screen. These functions, described in detail on the next few pages, include the following:

- Record and Playback** – records the data for viewing again at a later time. (See [page 21](#).)
- Graph / Analog / LED / Digital** – depending on the type of data on a line, changes the view of a selected line from digital to graphical, analog, or LED. (See [page 22](#).)
- To Top** – moves a selected data item to the top of the screen. (See [page 24](#).)
- Lock** – locks selected data lines so they are always included when recording and printing, even if they are below the viewable area of the screen. (See [page 24](#).)
- Freeze Frame** – "freezes" the data acquisition and displays past data. (See [page 25](#).)

Note: The following functions are on the menu that appears when you press the More function key.

- Pathfinder** – provides quick access to the Pathfinder software's Quick Path functions from within the ABS / Air Bag software. (See [page 25](#).)
- Print** – prints the data in the viewable area of the current data display. (See [page 26](#).)
- Zoom** – enlarges the view of a data line. (See [page 26](#).)
- Sort** – rearranges the data alphabetically or with the LED and graphed lines at the top. (See [page 27](#).)
- English / Metric Units** – changes the units of measure for the data from English to Metric, or vice versa. (See [page 28](#).)
- Show / Hide LED Bar** – displays a row of LED readings directly above the status line and function keys. The LED readings are for frequently monitored switches. (See [page 29](#).)
- Show / Hide Analog** – when analog gauges are displayed at the top of the screen, temporarily hides the gauges or displays them again. (See [page 30](#).)

Record and Playback

The Record function lets you record up to 150 one-second frames of data (75 frames that occur before pressing the Record function key and 75 frames that occur after pressing the key). The Playback function lets you replay recorded data. You can also save and delete recordings.

Record a Data File

To record a data file, follow these steps:

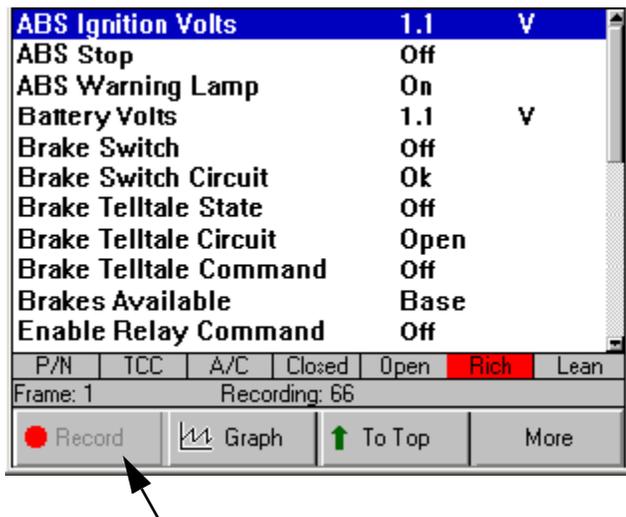


Figure 3.3: Datastream Screen - Record Function

- With the Datastream screen displayed, press the **Record** function key. This does the following:
 - Temporarily shades the Record function key.
 - Automatically records the past 75 frames of data that occurred before pressing the key and continues recording the next 75 frames of data as they occur.
 - Displays a countdown on the status line of the number of frames left to be recorded (from Recording: 75 to Recording:1). When the countdown reaches 1, the recorded data is saved as an Event file and placed in a Playback folder.

Note: To record less than 150 frames of data, press the EXIT key at any time. This stops the recording and saves only the frames already captured.
- When the recording completes, continue viewing live data or press the **EXIT** key to return to the Diagnostic Menu screen.
- Refer to the next section for playback steps.

Playback a Data File

To replay a recorded (saved) data file, follow these steps:

- Press the **MENU** key to display the Application Manager screen.
- From the Application Manager screen, select **Playback**. This displays the Events to Playback screen.

Note: The Events to Playback list holds the recordings. When the list is full, old recordings automatically delete as you make new recordings. To prevent a recording from being automatically deleted, highlight the recording and press the **Save** function key. This places a disk icon to the left of the file name and saves the recording until you delete it. (Use the **Delete** function key to delete a selected recording.)



Figure 3.4: Events to Playback Screen

- Select the recorded event to replay** and press the **ENTER** key. (The events are identified by the vehicle description, date, and time of the recording.) The recorded event displays on either the DTC display screen or the Datastream screen, depending on the type of recording (Fault Codes or Live Data).
- If the Datastream screen displays, use the **Left** and **Right Direction** keys to view the data. The Frame number in the status line changes as you move through the recording.

Note: There may be a **DTC** function key you can use to view a list of any DTCs that existed at the time of the recording. You can use the To Top function key to move a selected line to the top of the screen. You can also use other functions of the Datastream screen, such as Graph, Print, Zoom, and Sort. Refer to the steps for these on the next few pages.
- When you are finished viewing the recording, press the **EXIT** key to return to the Application Manager screen.

Graph / Analog / LED / Digital

The Graph/ Analog / LED / Digital function lets you change the display type for each line on the Datastream screen. Depending on the type of data on a line, you can change a selected line from digital to a graphical or LED display. You can also set some of the lines to display analog meters (gauges) at the top of the screen.

To change the display for each line, follow these steps:

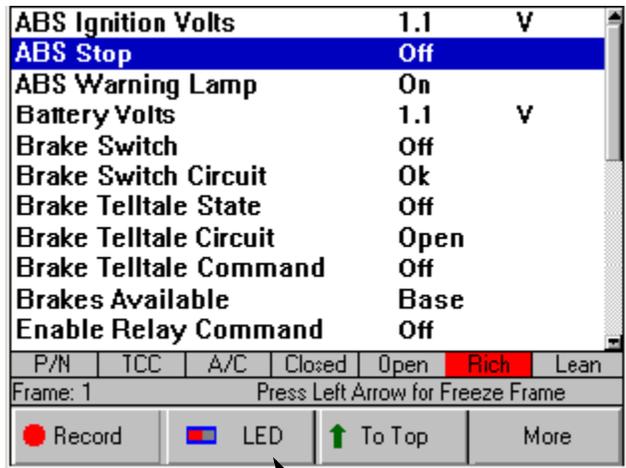


Figure 3.5: Datastream Screen - Digital Display

- 1 With the Datastream screen displayed, use the **Up** or **Down Direction** key to select the line to change.
- 2 Press the **Graph / Analog / LED / Digital** function key.
Note: This name of this function key changes each time you press the key. The name of the key represents the next display type that will appear when you press the key.
- 3 Repeat steps 1 and 2 for each line to change.

About Digital Display

When a line is displayed as Digital, its reading is a word or a number as shown for all the lines in [Figure 3.5](#).

You can change the display of the lines as follows:

- If the selected line's data reading is a word, such as On, Off, Open, Closed, etc., then you can change the line's display back and forth between LED and Digital.
- If the selected line's data reading is a number, such as 1.1 V, 23.3 Amps, etc., then you can change the line to also display as either a graph or an analog gauge.

About LED Display

If a selected line's data reading is a word (such as On, Off, Open), you can use the LED function key to change the line to display as an LED bar. For example, see [Figure 3.5](#) and [Figure 3.6](#). Notice how the function key changes to toggle back and forth between LED and Digital.

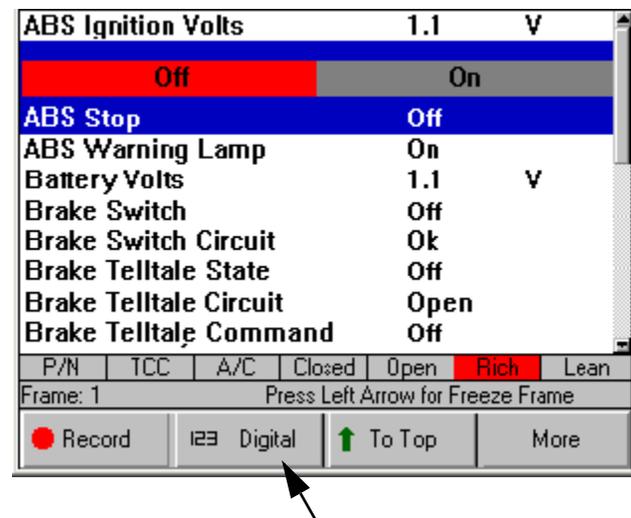


Figure 3.6: Datastream Screen - LED Display Function

About Graph Display

If a selected line's data reading is a number (such as 14.4 V, 1.1 V, or 23 Amps), you can use the Graph function key to display the line's data as a graph. For example, see [Figure 3.7](#) and [Figure 3.8](#). Notice how the function key changes to Analog so you can change the display to Analog (see the next section).

Note: The function key toggles from Graph to Analog to Digital and back to Graph.

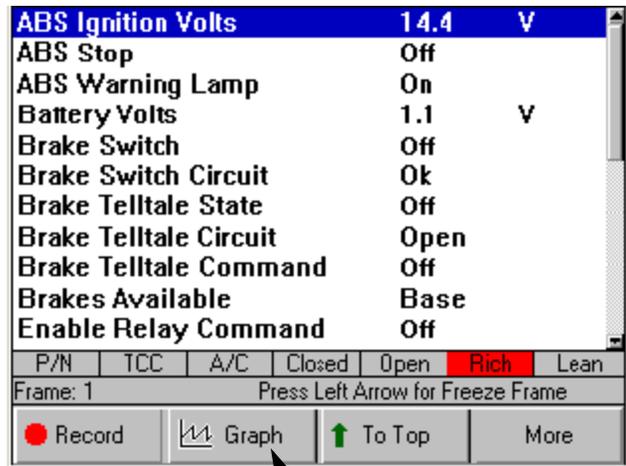


Figure 3.7: Datastream Screen - Digital Display

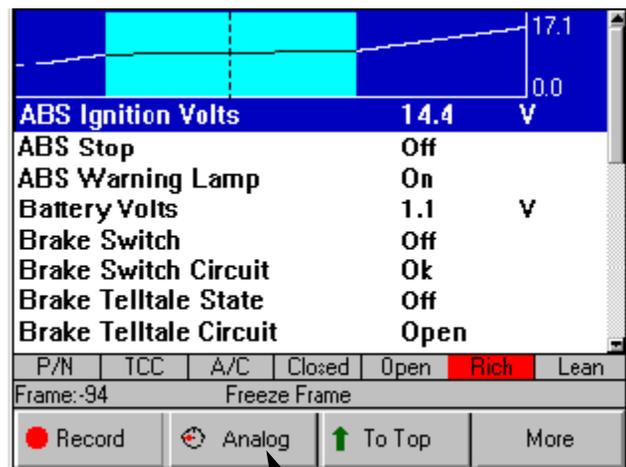


Figure 3.8: Datastream Screen - Graph Display

The graph has a past activity section and a magnified live activity window. The minimum and maximum measurements appear to the right of the graph and the digital reading is below the graph. You can use the Left and Right Direction keys to move the magnified window through the data. See [“Freeze Frame”](#) on [page 25](#).

About Analog Display

When a selected line's data reading is displayed as a graph (see [Figure 3.8](#)), you can use the Analog function key to display the line's data as an Analog gauge at the top of the screen (see [Figure 3.9](#)). When you display the gauge, the Digital data line remains displayed in its normal position in the list. Also, the function key changes from Analog to Digital so you can change the display to back to Digital only.

You can display up to three gauges at the top of the screen. When gauges are displayed, you can temporarily “hide” them. For details, refer to [“Show / Hide Analog”](#) on [page 30](#).

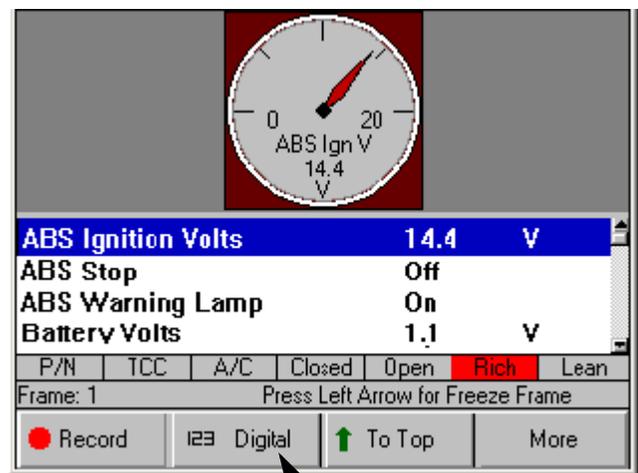


Figure 3.9: Datastream Screen - Analog Display

Lock

The Lock function lets you “lock” selected data lines so they are always included when recording and printing, even if they are below the viewable area of the screen.

Note: Generally, printing and recording include only the data items within the viewable area of the data display.

To lock data lines, follow these steps:

- 1 With the Datastream screen displayed, use the **Up** or **Down Direction** key to select the line to lock.
- 2 Press the **ENTER** key. A padlock icon appears on the left side of the line.

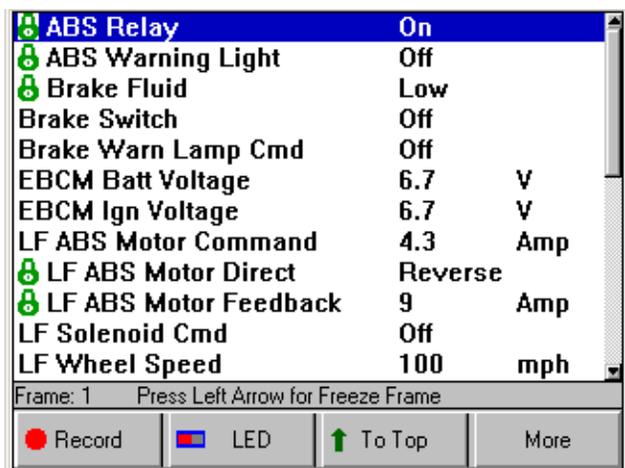


Figure 3.10: Datastream Screen - Sensor Lock Function

- 3 Repeat steps 1 and 2 for each line to lock.

Note: The lines remain locked for the selected vehicle until you unlock them, even if you exit the software.

- 4 To unlock a locked line, **select the locked line** and then press the **ENTER** key (see steps 1 and 2).

To Top

The To Top function lets you move a selected data line to the top of the Datastream screen.

Note: You can also use the Sort function to rearrange the data lines. For details, refer to “Sort” on [page 27](#).

To move a data line to the top of the screen, follow these steps:

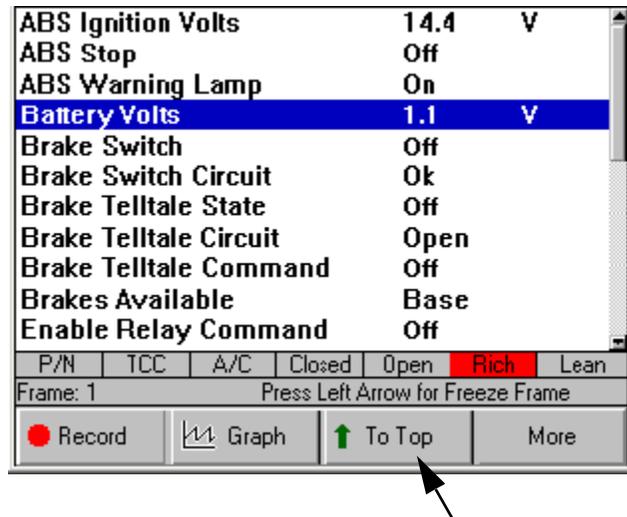


Figure 3.11: Datastream Screen - To Top Function

- 1 With the Datastream screen displayed, use the **Up** or **Down Direction** key to select the line to move.
- 2 Press the **To Top** function key. The selected line moves to the top of the screen.
- 3 Repeat steps 1 and 2 for each line to move.

Note: Any displayed analog gauges always remain at the top of the screen. Lines moved “To Top” appear below the analog gauges.

Freeze Frame

The Freeze Frame function lets you “freeze” the data display on the Datastream screen and lets you view past data frame-by-frame.

To “freeze” data, follow these steps:

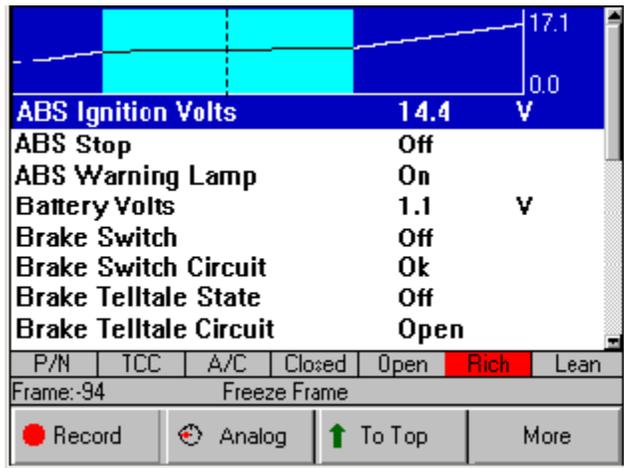


Figure 3.12: Datastream Screen - Freeze Frame Function

- 1 With the Datastream screen displayed, press the **Left Direction** key to begin the freeze function.
- 2 Repeatedly press the **Left Direction** key or press and hold the key to move backward through the data. As you do this, notice the following:
 - The Frame number (above the Record key) changes to show the frame number of the currently-displayed data.
 - The message next to the frame number flashes as “Freeze Frame” and “Exit to resume”.
 - On any displayed graphs, the vertical, dashed-line moves to display the past data for each frame.
 - On any displayed digital or LED lines, or analog gauges, the data changes to display the past data for each frame.
- 3 Use the **Left** or **Right Direction** keys to move backward or forward through the data, frame-by-frame.
- 4 When finished, press the **EXIT** key to return to the normal screen display and to resume reading data.

Pathfinder

The Pathfinder function on the Datastream screen’s More menu provides quick access to the Pathfinder software’s menu options. With these menu options, you can view vehicle-specific information, such as DTC descriptions, technical service bulletin (TSB) references, vehicle specifications, ECU component location(s), and brake bleed procedures. You can also use this function to access the Repair Trac or Fast Fixes software from within the ABS / Air Bag software.

To access the Pathfinder menu options from the Datastream screen, follow these steps:

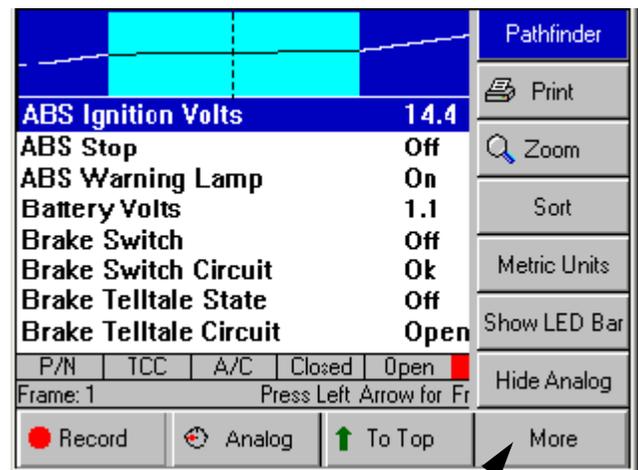


Figure 3.13: Datastream Screen - Pathfinder Function

- 1 With the Datastream screen displayed, press the **More** function key.
- 2 If necessary, use the **Up** or **Down Direction** key to select the **Pathfinder** function.
- 3 Press the **ENTER** key. This displays the Pathfinder screen.

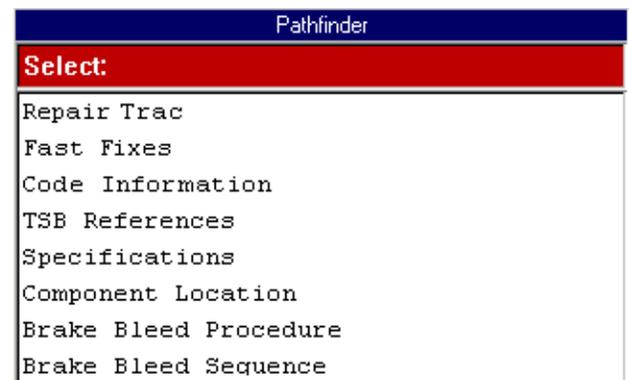


Figure 3.14: Pathfinder Screen

- 4 To use this screen, refer to “[Chapter 7: Pathfinder](#)” on [page 47](#).

Print

The Print function on the Datastream screen's More menu lets you print the data currently displayed on the screen.

To print the data, follow these steps:

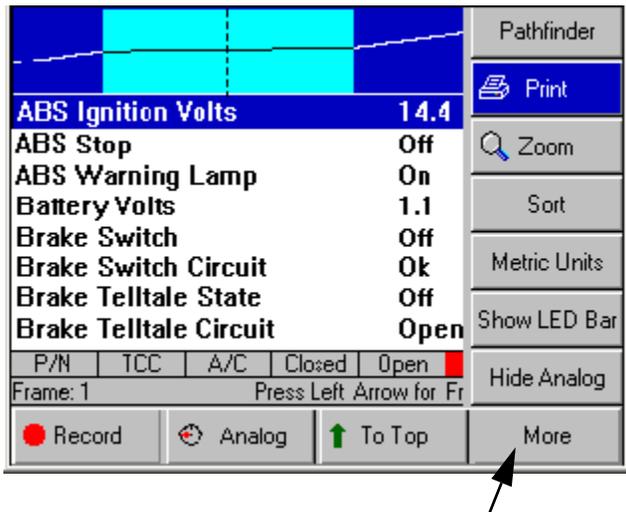


Figure 3.15: Datastream Screen - Print Function

- 1 With the Display Live Data screen displayed, press the **More** function key.
- 2 Use the **Down Direction** key to select the **Print** function.
- 3 The message "Print the current frame of data?" appears on a Print screen. Press the **OK** function key.

Zoom

The Zoom function on the Datastream screen's More menu lets you magnify the view of each data line on the Datastream screen.

Note: This function applies to digital, graph, and LED display lines. The function can be used for the normal display or for a "frozen" display.

To "zoom" the view of the data lines, follow these steps:

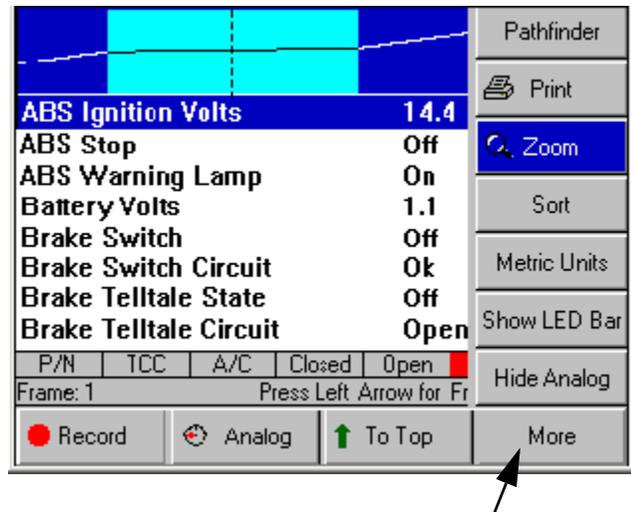


Figure 3.16: Datastream Screen - Zoom Function

- 1 With the Datastream screen displayed, use the **Up** or **Down Direction** key to **select the digital, LED, or graph line** to change.
- 2 Press the **More** function key.
- 3 Use the **Down Direction** key to select the **Zoom** function.
- 4 Press the **ENTER** key. This magnifies the selected line, as shown in [Figure 3.17](#).

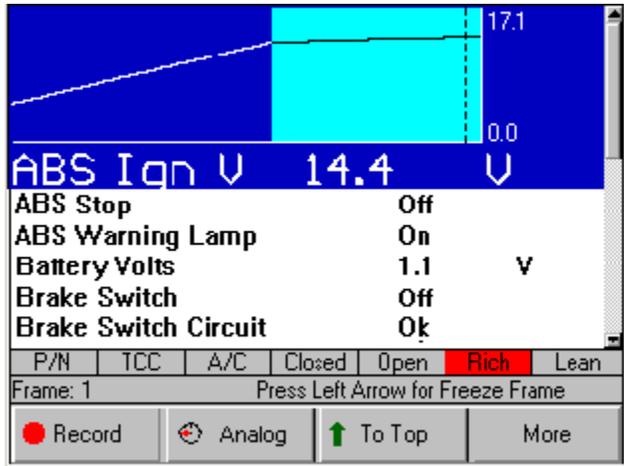


Figure 3.17: Datastream Screen - Zoom Function

- 5 Repeat steps 1 through 4 for each line to change.
- 6 To remove the “Zoom” view from a line, select the line with the “zoomed” view and then select the More, Zoom function again (see steps 2, 3, and 4).

Sort

The Sort function on the Datastream screen’s More menu lets you rearrange the data on the Datastream screen alphabetically or with either locked or graphed lines at the top of the screen.

Note: You can also use the To Top function to rearrange the data lines. For details, refer to “To Top” on page 24.

To sort the data lines, follow these steps:

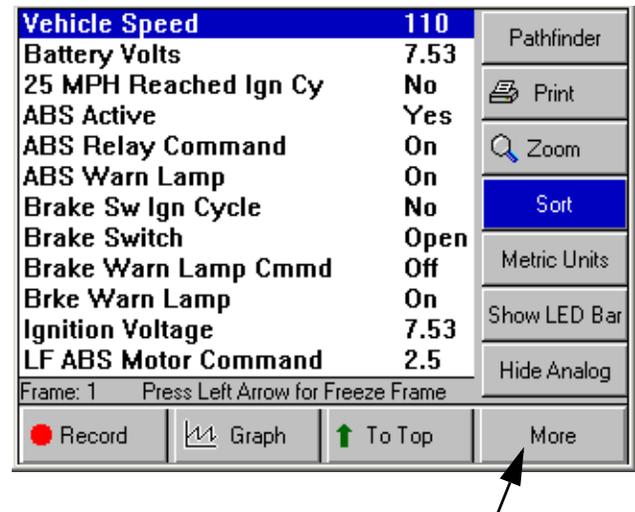


Figure 3.18: Datastream Screen - Sort Function

Note: Figure 3.18 shows all graphs disabled. To use the Sort by Graphed function, one or more graphs must be displayed. To use the Sort by Locked function, one or more lines must be locked.

- 1 With the Datastream screen displayed, press the **MORE** function key.
- 2 Use the **Down Direction** key to select the **Sort** function.
- 3 Press the **ENTER** key. This displays the Sort Options screen.

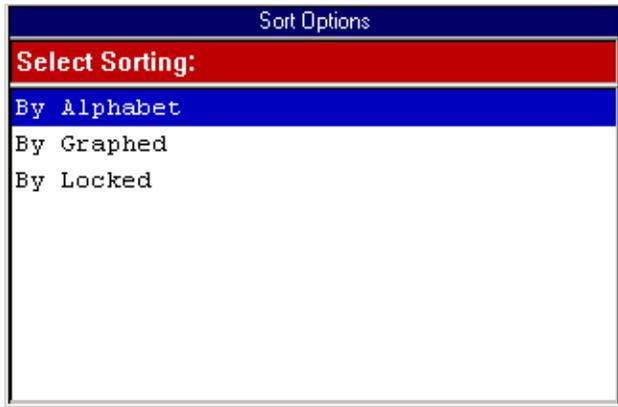


Figure 3.19: Sort Options Screen

- 4 From the Sort Options screen (Figure 3.18), select one of the following:
 - Select **By Alphabet** to sort the data alphabetically, or
 - Select **By Graphed** to sort the data with the graphs at the top of the screen.
 - Select **By Locked** to sort the data with the locked lines at the top of the screen.
- 5 After making the selection, the Datastream screen displays the rearranged lines (or graphs).

Note: Any displayed analog gauges always remain at the top of the screen.

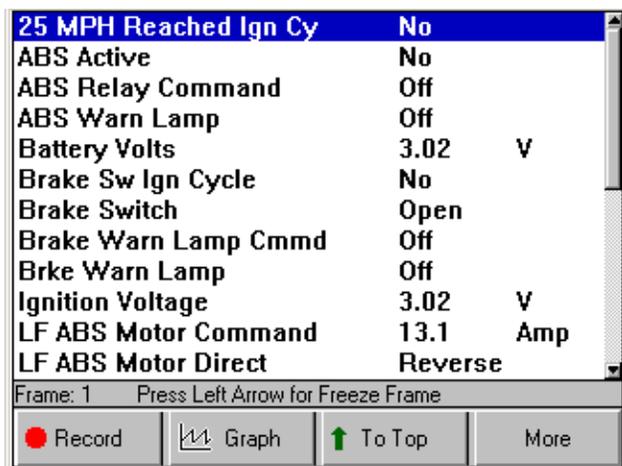


Figure 3.20: Datastream Screen - Sort by Alphabet Function

English / Metric Units

The English / Metric Units function on the Datastream screen's More menu lets you change the units of measure for the data from English to Metric, or vice versa.

To change the units of measure, follow these steps:

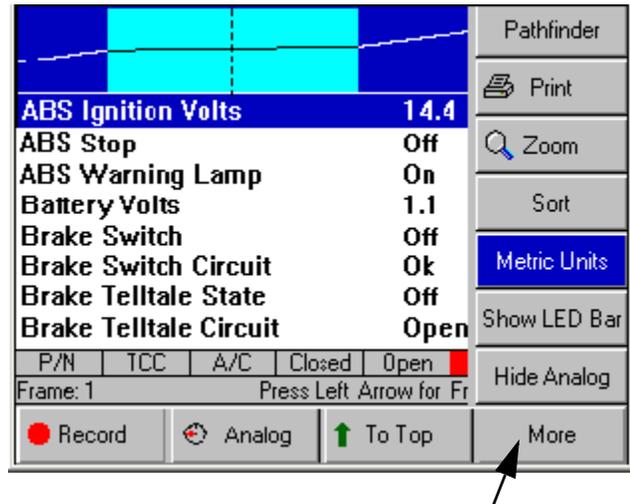


Figure 3.21: Datastream Screen - English / Metric Units Function

- 1 With the Datastream screen displayed, press the **MORE** function key.
- 2 Use the **Down Direction** key to select the **English Units** or **Metric Units** function.

Note: This name of this menu option changes each time you select it. It changes back and forth between English Units and Metric Units. The name of the option represents the units of measure that will appear after you select the option.
- 3 Press the **ENTER** key. This displays the data in the selected units of measure.

Show / Hide LED Bar

The Show / Hide LED Bar function on the Datastream screen's More menu lets you displays (or remove) a row of LED readings directly above the status line and function keys. The LED readings are for a predefined set of frequently monitored switches.

To show or hide the LED bar, follow these steps:

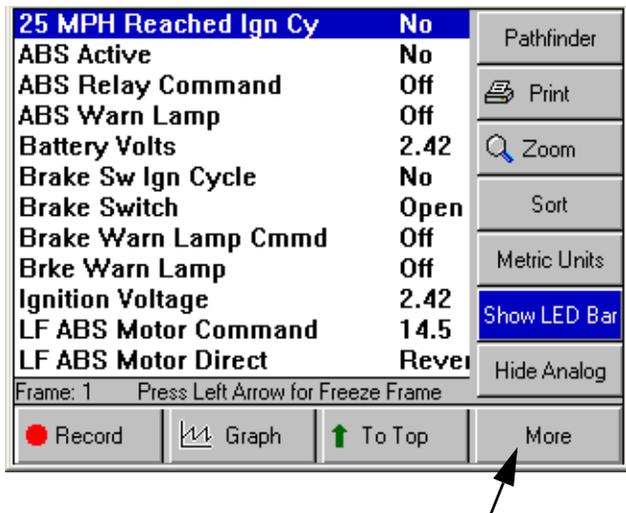


Figure 3.22: Datastream Screen - Show / Hide LED Bar Function

- 1 With the Datastream screen displayed, press the **MORE** function key.
- 2 Use the **Down Direction** key to select the **Show LED Bar** or **Hide LED Bar** function.

Note: This name of this menu option changes each time you select it. It changes back and forth between Show LED Bar and Hide LED Bar. Show LED Bar displays the LED bar and Hide LED Bar removes it.

- 3 Press the **ENTER** key. (See [Figure 3.23](#) on [page 29](#).)

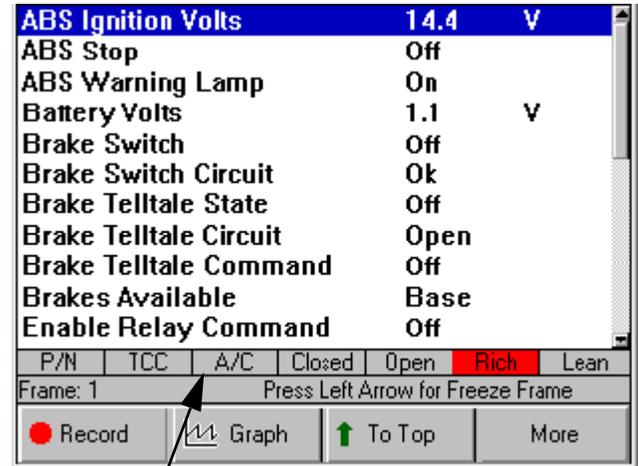


Figure 3.23: Datastream Screen - LED Bar Displayed

- 4 Notice the following about the LED bar:
 - **P/N** is the park / neutral indicator
 - **TCC** is the torque converter clutch indicator
 - **A/C** is the air conditioning indicator
 - **Closed** and **Open** are the operating loop indicators
 - **Rich** and **Lean** are the O2 sensor indicators

Show / Hide Analog

When analog gauges are displayed at the top of the Datastream screen, the Show / Hide Analog function on the More menu lets you temporarily hide the gauges or display them again.

Note: To originally display analog gauges, or to entirely turn them off, refer to "[Graph / Analog / LED / Digital](#)" on [page 22](#).

To hide or show the analog gauges, follow these steps:

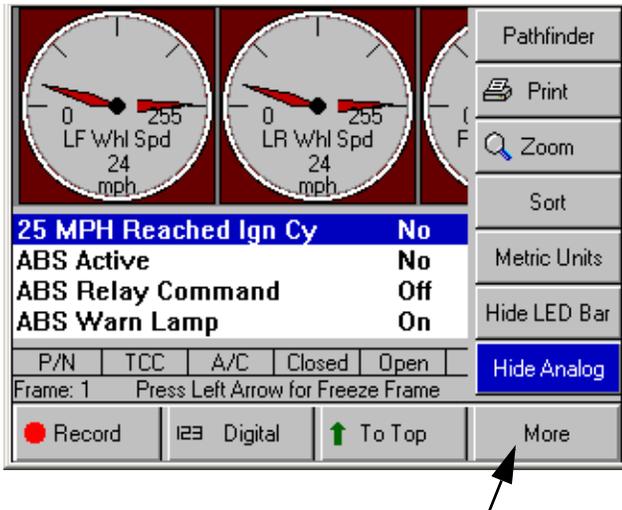


Figure 3.24: Datastream Screen - Show / Hide Analog Function

- 1 With the Datastream screen displayed, press the **MORE** function key.
- 2 Use the **Down Direction** key to select the **Hide Analog** or **Show Analog** function.

Note: This name of this menu option changes each time you select it. It changes back and forth between *Hide Analog* and *Show Analog*. *Hide Analog* temporarily removes the gauges and *Show Analog* displays the gauges again.

- 3 Press the **ENTER** key.

4: Custom Datastream

The Custom Datastream function lets you select specific data items to display on the standard Datastream screen.

To use the custom datastream function, follow these steps:

- 1 Follow the instructions in "[Chapter 2: Start-up Steps](#)" on [page 13](#) to display the Diagnostic Menu screen.

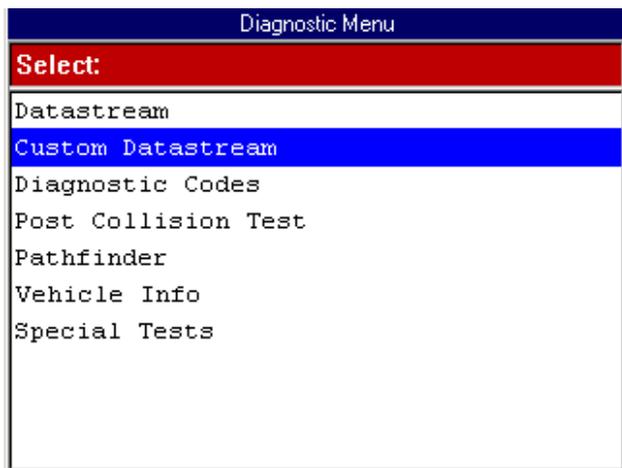


Figure 4.1: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Custom Datastream** and press the **ENTER** key. This displays the Custom Datastream selection screen.

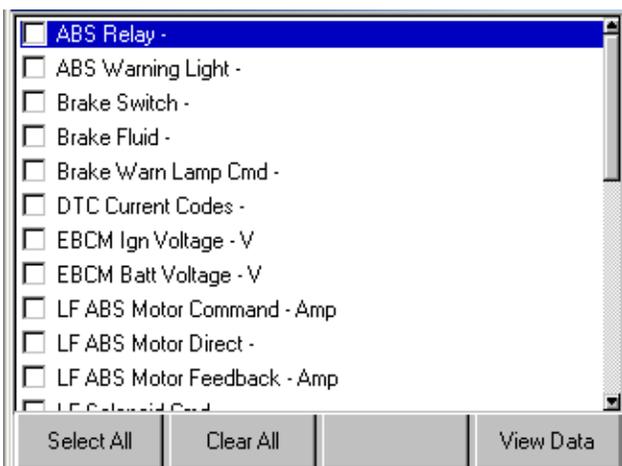


Figure 4.2: Custom Datastream Selection Screen - before selections

- 2 Select the data items to include in the Datastream display as follows:
 - a Use the **Up** and **Down Direction** key to select an item to include in the display.
 - b Press the **ENTER** key. A check mark appears in the box on the left side of the item.

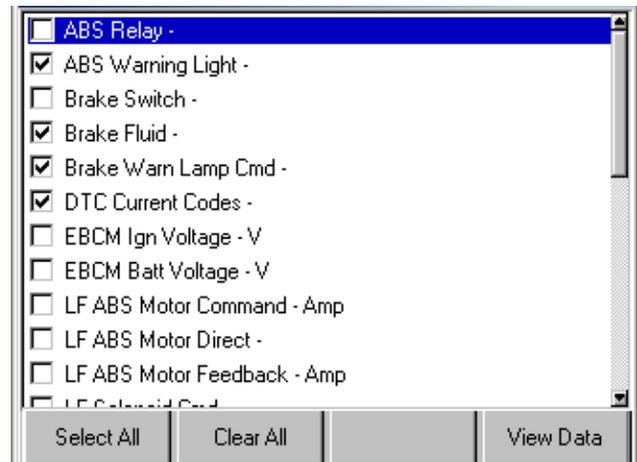


Figure 4.3: Custom Datastream Selection Screen - after selections

- c Repeat **a** and **b** for each item to include in the display.

Note: To deselect an item, select the item again and press the **ENTER** key. Optionally, use the **Select All** and **Clear All** function keys to select or deselect all of the items at once.

- 3 When finished selecting data items, press the **View Data** function key to display the selected items on the Datastream screen.

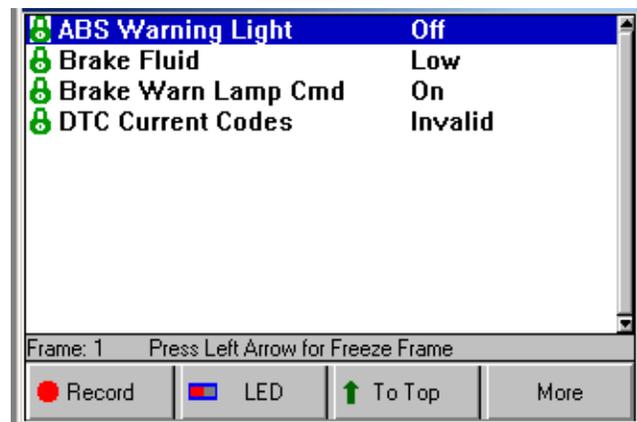


Figure 4.4: Datastream Screen

- 4 For details about the Datastream screen, refer to "[Chapter 3: Datastream](#)" on [page 19](#).

5: Diagnostic Codes (Read / Clear Codes)

The Diagnostics Codes (or Read Codes and Clear Codes) functions let you read, review, and clear diagnostic trouble codes (DTCs) for a vehicle.

The diagnostic trouble code option(s) that appear on the Diagnostic Menu screen vary depending on the vehicle being tested. For some vehicles, the menu option is Diagnostic Codes (see [Figure 5.1](#)); for other vehicles, there are two menu options: Read Codes and Clear Codes (see [Figure 5.2](#)).

The **Diagnostic Codes** option appears on the Diagnostic Menu screen for vehicles that allow reading of DTCs with a scan tool. This chapter includes the following procedures for using the Diagnostic Codes functions:

- “[Read Codes](#)” on [page 34](#)
- “[Review Codes](#)” on [page 37](#)
- “[Clear Codes](#)” on [page 38](#)
- “[Self Diagnostics](#)” on [page 39](#)
- “[Wiggle Test](#)” on [page 41](#)

The **Read Codes** and **Clear Codes** options appear on the Diagnostic Menu screen (instead of the Diagnostic Codes option) for vehicles that require reading of DTCs by visually viewing them as “flash codes.” For this type of vehicle, you identify the vehicle’s “flash code” numbers and manually enter the numbers into the NGIS tool to see their descriptions. This chapter includes the following procedures for using the Read Codes and Clear Codes options when they appear directly on the Diagnostic Menu screen:

- “[Read Codes \(Flash Codes\)](#)” on [page 42](#)
- “[Clear Codes \(Flash Codes\)](#)” on [page 44](#)

Note: Before performing the procedures in this chapter, follow the instructions in “[Chapter 2: Start-up Steps](#)” on [page 13](#).

Note: The ABS Air Bag 2004 software has an automatic Diagnostic Code Triggered Record function. For vehicles with datastream access, if a diagnostic fault occurs while you are testing a vehicle, the software automatically alerts you with a screen message and creates a recording for playback. To replay these recordings, refer to “[Playback a Data File](#)” on [page 21](#).

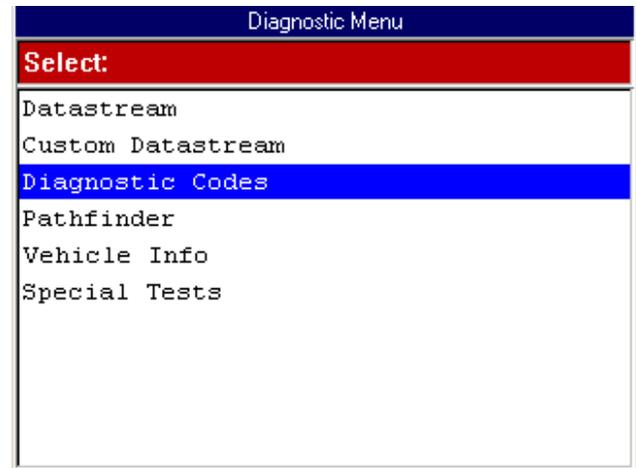


Figure 5.1: Diagnostic Menu Screen with Diagnostic Codes Option

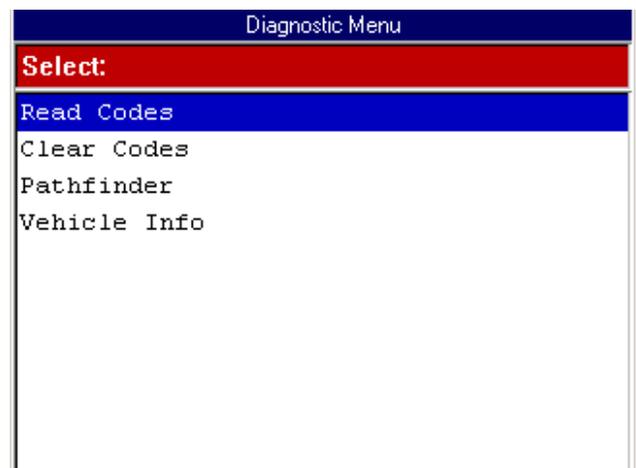


Figure 5.2: Diagnostic Menu Screen with Read Codes and Clear Codes Options

Read Codes

The Diagnostic Codes, Read Codes option lets you use the NGIS tool to read DTCs from a vehicle that allows access to the vehicle's electronic control unit (ECU) through a data link connection (DLC).

Depending on the vehicle being tested, the Read Codes procedure varies. This section includes two separate Read Codes procedures, as follows:

- **Read and Display Codes** (below) - this procedure reads and displays the DTCs in one procedure.
- **Read Codes Only** ([page 35](#))- this procedure only reads the DTCs. You have to use the Review Codes procedure ([page 37](#)) to view codes after reading them with this procedure.

Read and Display Codes

Use these steps to read and display DTCs for vehicles that allow reading and displaying of codes in one procedure.

Note: For vehicles that require reading of DTCs by visually viewing them as "flash codes," refer to "[Read Codes / Clear Codes \(Flash Codes\)](#)" on [page 42](#).

To read and display DTC codes, follow these steps:

Note: Before performing this procedure, make sure the vehicle's ignition key is in the On (Run) position with the engine off.

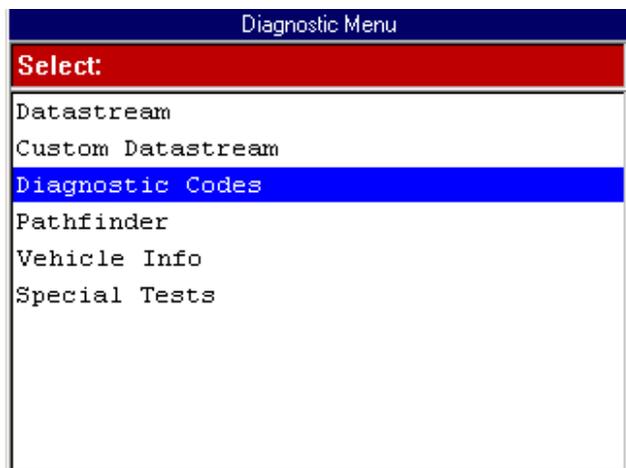


Figure 5.3: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Diagnostic Codes** and press the **ENTER** key. This displays the Diagnostic Trouble Codes menu screen.

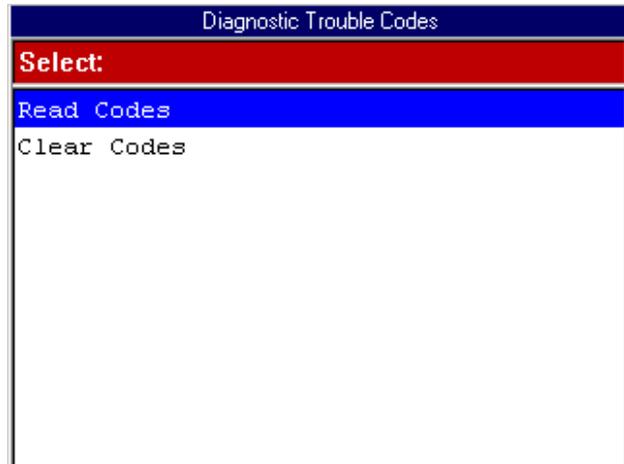


Figure 5.4: Diagnostic Trouble Codes Menu Screen

- 2 Select **Read Codes** and press the **ENTER** key. One of the following happens:
 - If the vehicle's ECU stores current and history codes, the Read Codes menu screen appears (see [Figure 5.5](#)). Continue with the next step.
 - If the vehicle's ECU stores only current codes, the DTC Information screen appears (see [Figure 5.6](#)). Go to Step 4.

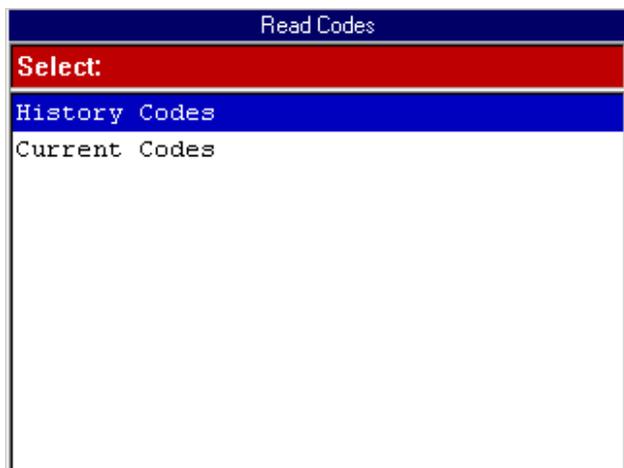


Figure 5.5: Read Codes Menu Screen



- 3 Select either History Codes or Current Code as follows:

Note: For some vehicles, the menu options may be Past and Present instead of History and Current.

- Select **History Codes** and press the **ENTER** key to display history (or past) codes for the vehicle. History Codes are diagnostic trouble codes that have occurred intermittently.
- Select **Current Codes** and press the **ENTER** key to display current (or present) codes for the vehicle. Current Codes are diagnostic trouble codes that have occurred a specified number of times.

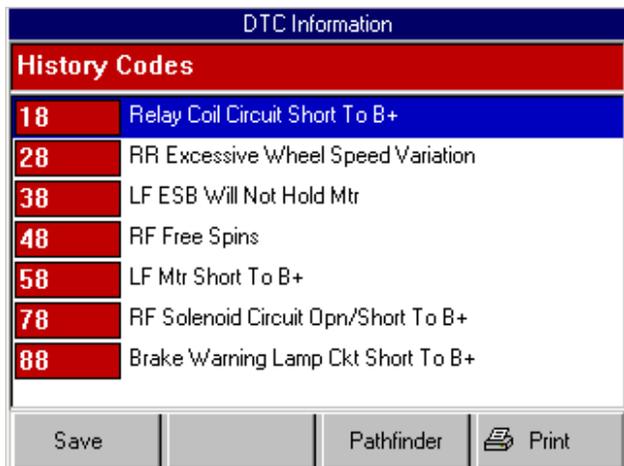


Figure 5.6: DTC Information Screen

Note: General Motors codes are generally listed as A, B, C, or D in order of importance for repair.

- 4 View the list and save or print it, if necessary. To view a saved file, refer to "[Playback a Data File](#)" on [page 21](#). For printing information, refer to "[Print](#)" on [page 26](#).

Note: For some vehicles, the DTC Info screen has a Pathfinder function key. This function key lets you access the Pathfinder software's Quick Path function from within the ABS / Air Bag software. For details, refer to "[Chapter 7: Pathfinder](#)" on [page 47](#).

- 5 Use the **EXIT** key to return to previous screens.

Note: Use the Clear Codes function to erase the codes from a vehicle's ECU. For details, refer to "[Clear Codes](#)" on [page 38](#).

Read Codes Only

Use these steps to read DTCs for vehicles that allow reading of codes as one procedure and viewing of codes as a separate procedure (review).

Note: These steps only read the DTCs. You have to use the Review Codes procedure ([page 37](#)) to view codes after reading them with this procedure.

Note: For vehicles that require reading of DTCs by visually viewing them as "flash codes," refer to "[Read Codes / Clear Codes \(Flash Codes\)](#)" on [page 42](#).

To read codes, follow these steps:

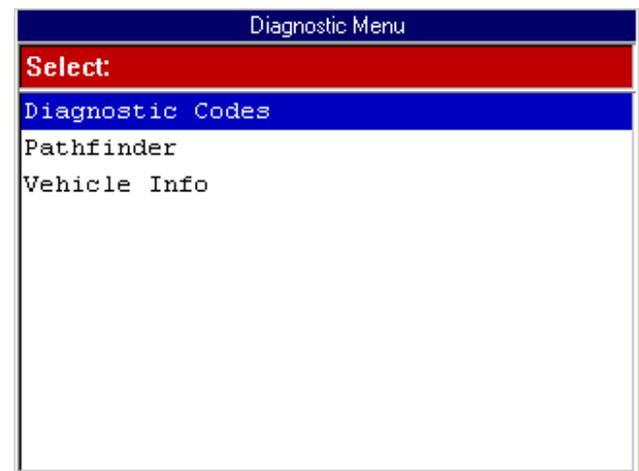


Figure 5.7: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Diagnostic Codes** and press the **ENTER** key. This displays the Diagnostic Trouble Codes menu screen (see [Figure 5.8](#) on [page 36](#)).

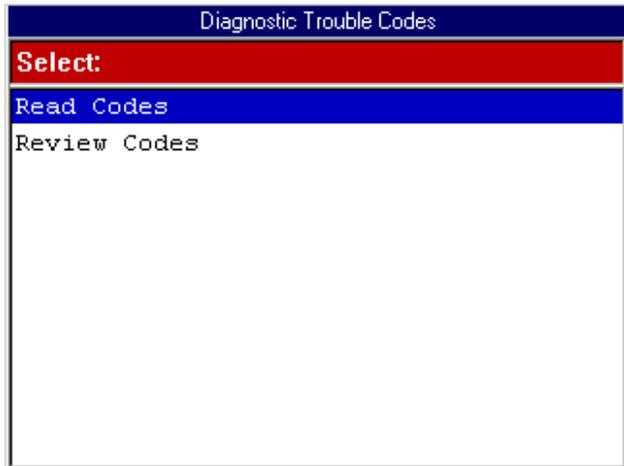


Figure 5.8: Diagnostic Trouble Codes Menu Screen

- 2 Select **Read Codes** and press the **ENTER** key. This displays an instruction or information screen, similar to the following screen.

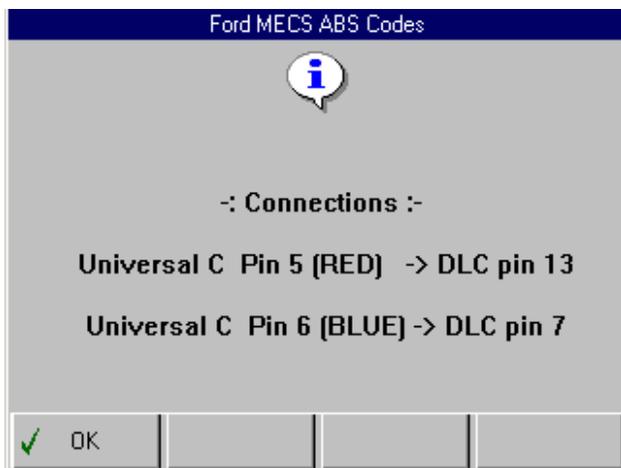


Figure 5.9: Information or Instruction Screen

Note: If connection information is provided (see [Figure 5.9](#)), use the information to connect the NGIS tool to the vehicle's DLC.

- 3 One or more information or instruction screens appear. Read the screens and follow all instructions. If necessary, use the **function keys** to answer any questions. Do this until the test screen appears (see [Figure 5.10](#)).

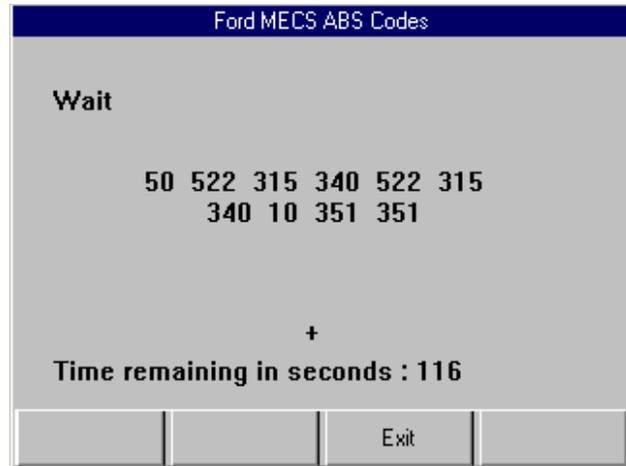


Figure 5.10: Read Codes Test Screen

- 4 The test screen displays the codes being read and the time remaining for the test. When the test is finished, the word "Wait" changes to "Test completed." When this happens, press the **EXIT function key** to continue. This displays the following screen.



Figure 5.11: Read Codes Completed Screen

- 5 Press the **OK** function key.
- 6 One or more instruction screens may appear telling you how to clear the codes from the vehicle. Read each screen and use the **function keys** to answer any questions.
- 7 When finished, use the **EXIT** key to return to previous screens.

Note: Use the Review Codes function to view a list of any codes that were read. For details, refer to "[Review Codes](#)" on [page 37](#).

Review Codes

For some vehicles, the Review Codes option appears on the Diagnostic Trouble Codes menu screen. This option lets you review trouble codes after initially reading them.

To review diagnostic trouble codes, follow these steps:

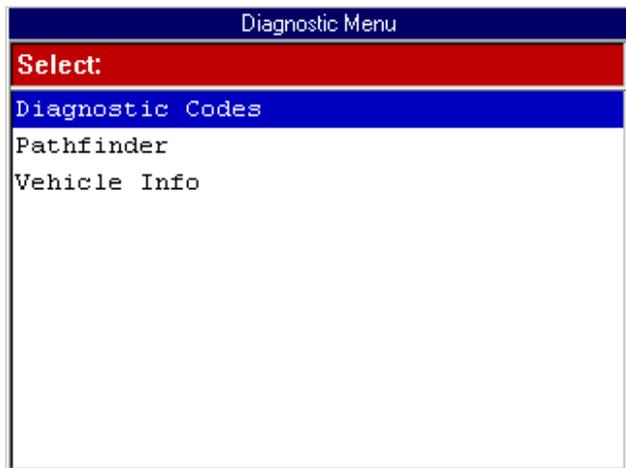


Figure 5.12: Diagnostic Menu Screen

- 1 Select **Diagnostic Codes** from the Diagnostic Menu screen. This displays the Diagnostic Trouble Codes menu screen.

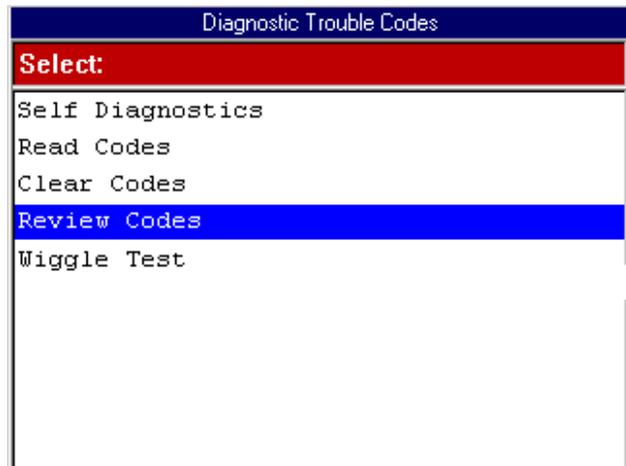


Figure 5.13: Diagnostic Trouble Codes Menu Screen

- 2 From the Diagnostic Trouble Codes screen, select **Review Codes** and press the **ENTER** key.

- 3 If another menu appears, select **KOEO on Demand** and press the **ENTER** key. This displays the list of codes on the Review Codes screen.

Note: If there are no codes to display, a message screen states that the code library is empty. If necessary, read the codes. Refer to "[Read Codes](#)" on [page 34](#).

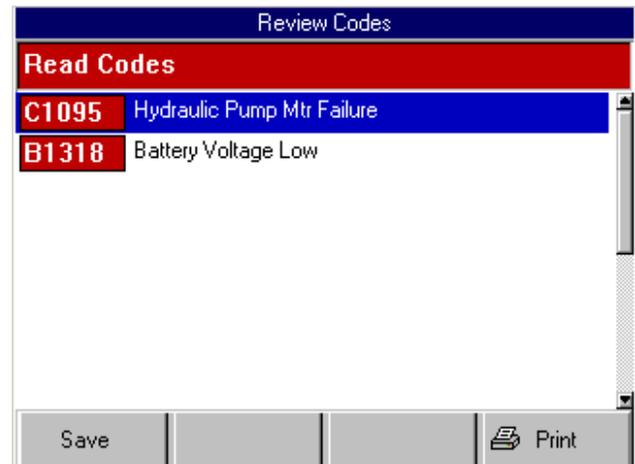


Figure 5.14: Review Codes Screen

- 4 View the list and save or print it, if necessary. To view a saved file, refer to "[Playback a Data File](#)" on [page 21](#). For printing information, refer to "[Print](#)" on [page 26](#).
- 5 Use the **EXIT** key to return to previous screens.

Note: After reviewing the codes, if necessary, clear the codes from the vehicle and the ABS / Air Bag software. Use any instructions that were provided when reading the codes. For some vehicles the Diagnostic Trouble Codes menu screen may have a Clear Codes option. If so, refer to "[Clear Codes](#)" on [page 38](#). If necessary, consult the manufacturer's service manual for the correct "clear code" method.

Clear Codes

For some vehicles, the Clear Codes option appears on the Diagnostic Trouble Codes menu screen. This option lets you clear DTC codes from a vehicle. For some vehicles, this procedure also clears codes stored in the ABS / Air Bag software.

After reading and / or reviewing the diagnostic trouble codes, use the following steps to clear the codes from the vehicle. If Clear Codes is not an available menu option, consult the manufacturer's service manual for the correct "clear code" method.

To clear the diagnostic trouble codes, follow these steps:

Note: Before performing this procedure, make sure the vehicle's ignition key is in the On (Run) position with the engine off.

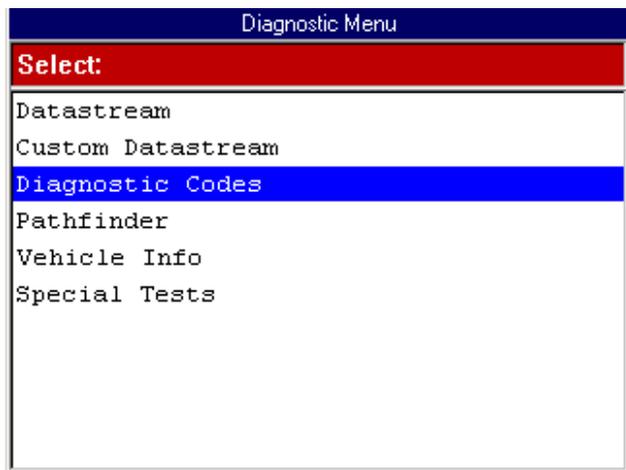


Figure 5.15: Diagnostic Menu Screen

- 1 Select **Diagnostic Codes** from the Diagnostic Menu screen. This displays the Diagnostic Trouble Codes menu screen.

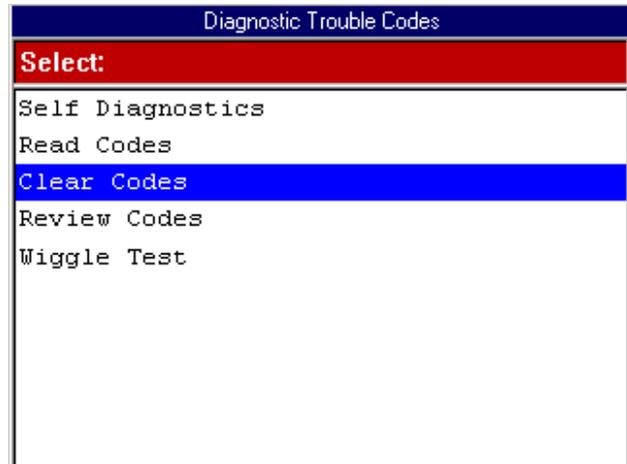


Figure 5.16: Diagnostic Trouble Codes Menu Screen

- 2 From the Diagnostic Trouble Codes menu screen, select **Clear Codes** and press the **ENTER** key. This displays a clear codes instruction screen similar to either [Figure 5.17](#) or [Figure 5.18](#).

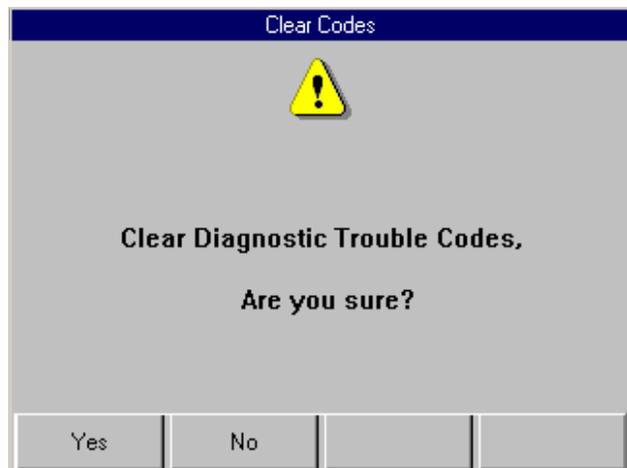


Figure 5.17: Clear Codes Instruction Screen

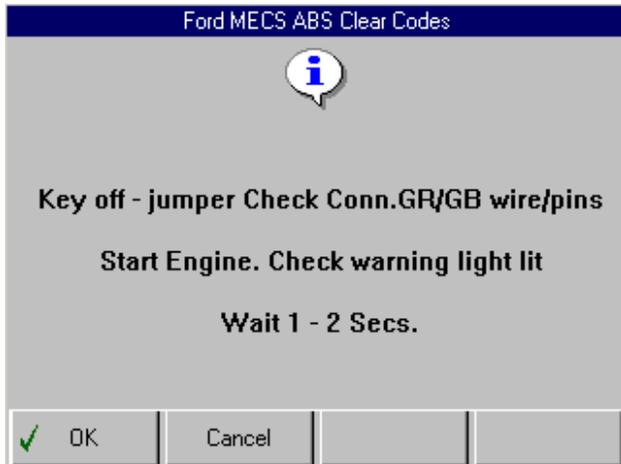


Figure 5.18: Clear Codes Instruction Screen

- 3 Read the screen and follow all instructions, if necessary. **Press the appropriate function key.**
- 4 After this, one or more information or instruction screens may appear. Read the screens and follow all instructions. If necessary, use the **function keys** to answer any questions. Do this until the Diagnostic Trouble Codes menu screen appears.
- 5 Use the **EXIT** key to return to previous screens.

Note: Check the codes again. If any codes remain, repeat the Clear Codes steps. Make sure the vehicle's ignition key is in the On (Run) position and the engine is off. (If codes remain, the problem may still exist in the vehicle.)

Note: GM supplemental inflatable restraint (SIR) code 52, which indicates the air bag has been deployed, cannot be cleared. All other codes clear and the SIR dash warning light turns off.

Self Diagnostics

For some vehicles (Ford), the Self Diagnostics option appears on the Diagnostic Trouble Codes menu screen. This function is a diagnostic test that is activated and managed by the vehicle. At the completion of the test, a list of diagnostic trouble codes displays on the screen.

Note: Before performing this procedure, make sure the vehicle's ignition key is in the On (Run) position with the engine off.

To perform a self diagnostic test, follow these steps:

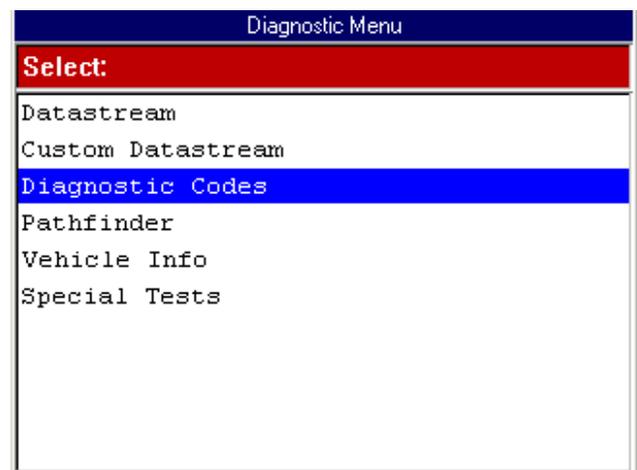


Figure 5.19: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Diagnostic Codes** and press the **ENTER** key. This displays the Diagnostic Trouble Codes menu screen.

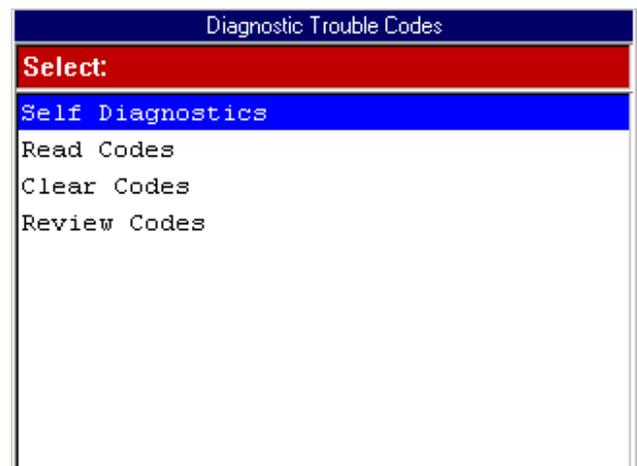


Figure 5.20: Diagnostic Trouble Codes Menu Screen

- 2 Select **Self Diagnostics** and press the **ENTER** key. This displays the Self Diagnostics menu screen.

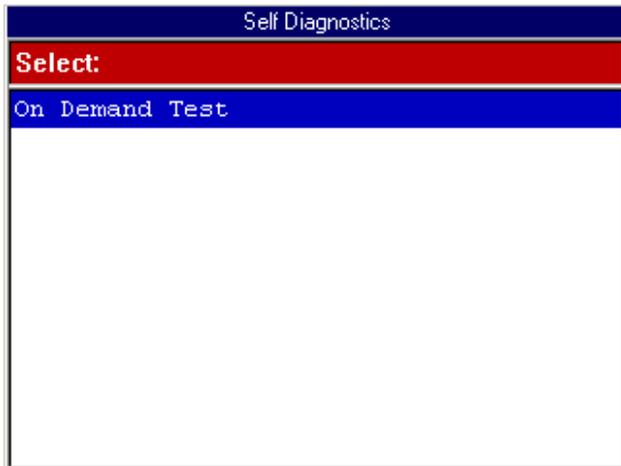


Figure 5.21: Self Diagnostics Menu Screen

- 3 Select **On Demand Test** and press the **ENTER** key. This displays the On Demand Test screen.

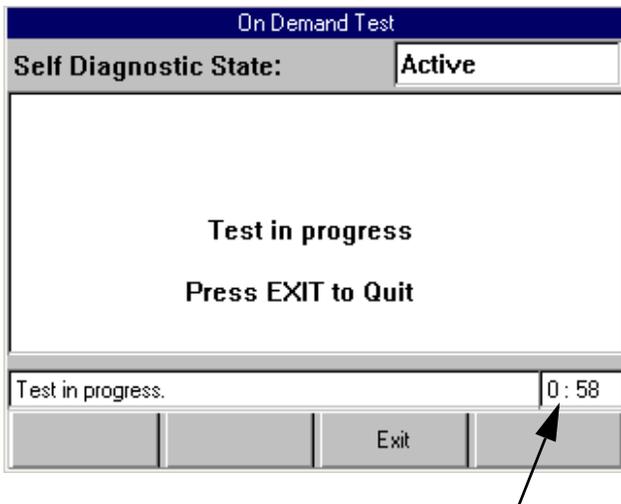


Figure 5.22: Self Diagnostic On Demand Test Screen

- 4 Wait for the test to start. While the test runs, a timer counts down the time remaining for the test. When the test is complete, an instruction screen (similar to [Figure 5.23](#)) may appear.

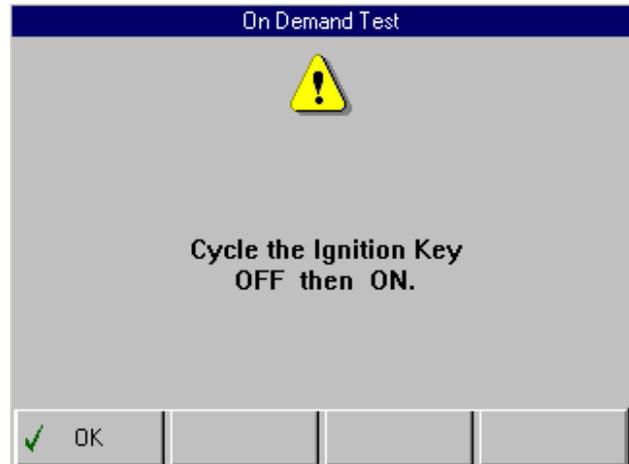


Figure 5.23: Self Diagnostic Test Instruction Screen

- 5 Read and follow the instructions on the screen and press the **OK** function key.
- 6 One or more instruction screens may appear. If so, read each screen and use the **function keys** to answer any questions. Do this until the list of codes appears on the DTC Info screen.

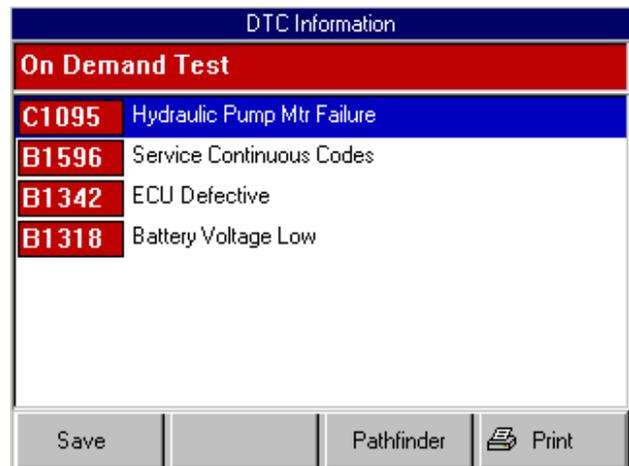


Figure 5.24: DTC Information Screen

- 7 View the list and save or print it, if necessary. To view a saved file, refer to "[Playback a Data File](#)" on [page 21](#). For printing information, refer to "[Print](#)" on [page 26](#).

Note: For some vehicles, the DTC Info screen has a Pathfinder function key. This function key lets you access the Pathfinder software's Quick Path function from within the ABS / Air Bag software. For details, refer to "[Chapter 7: Pathfinder](#)" on [page 47](#).

- 8 Use the **EXIT** key to return to previous screens.

Note: After viewing the codes, clear the codes. Refer to "[Clear Codes](#)" on [page 38](#).

Wiggle Test

For some vehicles (Ford), the Wiggle Test option appears on the Diagnostic Trouble Codes menu screen. This function checks for intermittent breaks in connections and for resulting DTCs. When a circuit break is detected, the NGIS tool beeps and places the DTC code in memory.

To perform a wiggle test, follow these steps:

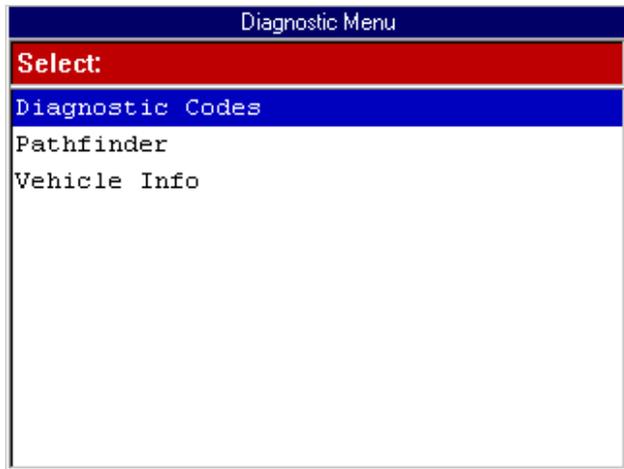


Figure 5.25: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Diagnostic Codes** and press the **ENTER** key. This displays the Diagnostic Trouble Codes menu screen.

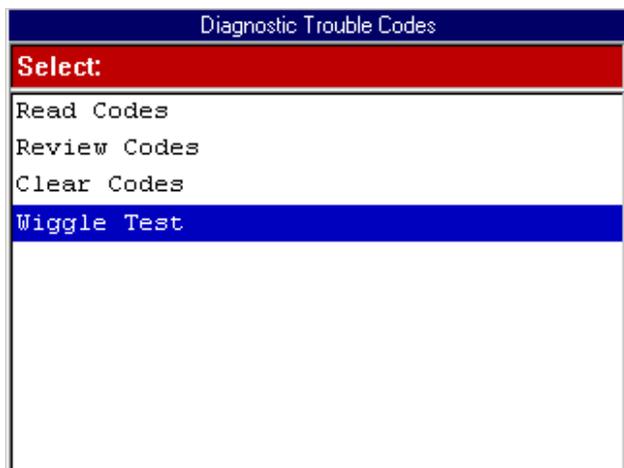


Figure 5.26: Diagnostic Trouble Codes Menu Screen

- 2 Select **Wiggle Test** and press the **ENTER** key.
- 3 One or more information or instruction screens may appear. Read the screens and follow all instructions. If necessary, use the **function keys** to answer any questions. Do this until the Wiggle Test screen appears.

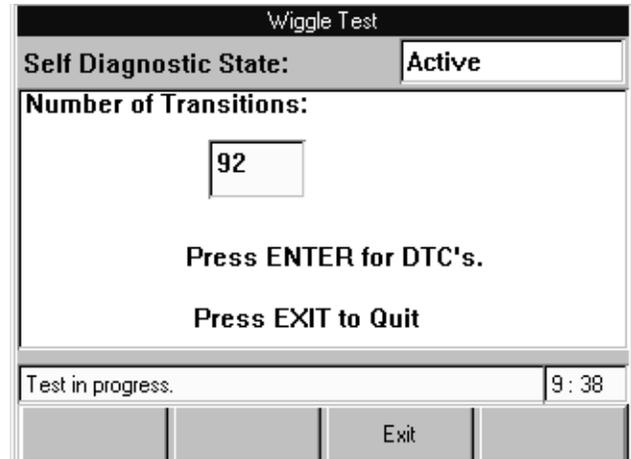


Figure 5.27: Wiggle Test Screen

- 4 The test screen displays the state of the test, the number of transitions (circuit breaks that occur), and the time remaining for the test. While the test is running, wiggle the wiring and wiring connections or drive the vehicle to recreate the intermittent failure condition suspected.

Note: To stop the test before the test time expires, press the **EXIT** function key.

- 5 To finish the test, press the **ENTER** key. This displays a list of any DTCs that occurred.

Note: One or more instruction screens may appear. If so, read each screen and use the **function keys** to answer any questions. Do this until the list of codes appears on the DTC Info screen.

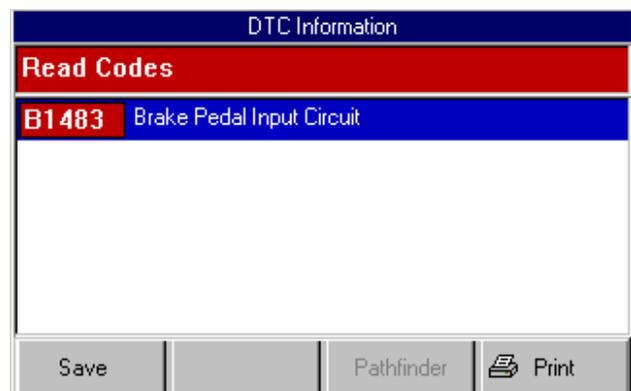


Figure 5.28: DTC Information Screen

- 6 View the list and save or print it, if necessary. To view a saved file, refer to [“Playback a Data File”](#) on [page 21](#). For printing information, refer to [“Print”](#) on [page 26](#).

- 7 Use the **EXIT** key to return to previous screens.

Note: After viewing the codes, clear the codes. Refer to [“Clear Codes”](#) on [page 38](#).

Read Codes / Clear Codes (Flash Codes)

If a vehicle requires that you read diagnostic trouble codes by visually viewing them as “flash codes,” the Read Codes and Clear Codes menu options appear directly on the Diagnostic Menu screen (instead of the Diagnostic Codes option).

For this type of vehicle, you identify the vehicle’s “flash code” numbers and manually enter the numbers into the NGIS tool to see their descriptions. The Read Codes function provides instructions for how to physically view the flash codes and lets you enter the code numbers to see their descriptions. The Clear Codes function provides instructions for how to manually clear flash codes from the vehicle.

Note: Flash codes are DTCs that you identify by: 1) grounding a pin on the vehicle’s check connector to trigger a specific indicator light to blink, and 2) viewing and counting the number of times the indicator light blinks.

This section includes the following procedures:

- [“Read Codes \(Flash Codes\)”](#) (in the next column)
- [“Clear Codes \(Flash Codes\)”](#) on [page 44](#)

Read Codes (Flash Codes)

When the Read Codes option appears on the Diagnostic Menu screen, use the option to: 1) view instructions for how to physically view flash codes from the vehicle, and 2) to enter the flash code numbers into the NGIS tool to see their descriptions.

To read flash codes, follow these steps:

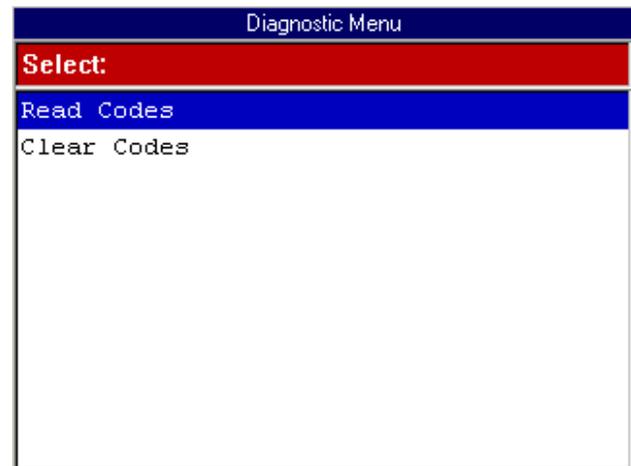


Figure 5.29: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Read Codes** and press the **ENTER** key. This displays the Connector Location screen.

Note: The Connector Location screen is not available for all vehicles. If this screen does not appear, go to Step 4.

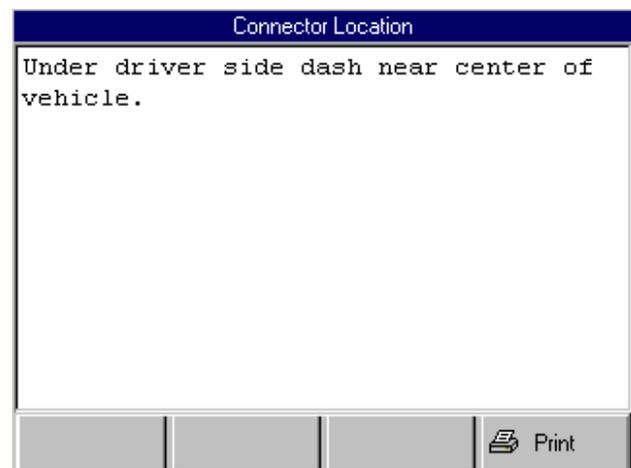


Figure 5.30: Connector Location Screen

- 2 View the information and print it, if necessary. For printing information, refer to [“Print”](#) on [page 26](#).
- 3 Press the **ENTER** key. This displays the DTC Retrieval Procedure screen.



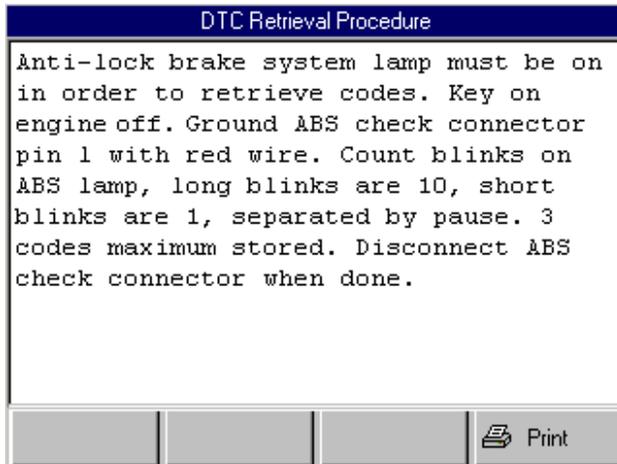


Figure 5.31: DTC Retrieval Procedure Screen

- 4 View the DTC retrieval procedure and print it, if necessary. For printing information, refer to [“Print”](#) on [page 26](#).
- 5 Use the connector location and DTC retrieval procedure to read the flash codes from the vehicle. When you know the codes, press the **ENTER** key. This displays the Possible Codes screen.

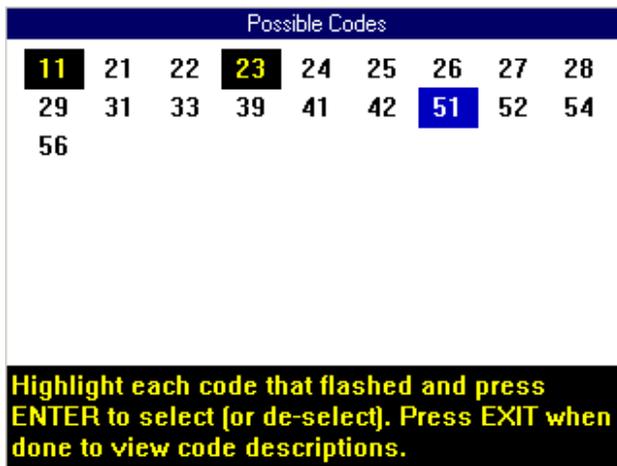


Figure 5.32: Possible Codes Screen

- 6 Use the Possible Codes screen to enter the flash codes as follows:
 - a Use the **Direction** keys to select (highlight) a code number. With the number selected, press the **ENTER** key.
 - b **Repeat step a** until all the flash codes are highlighted.
 - c Press the **EXIT** key to display the code descriptions. This displays the Review Codes screen.

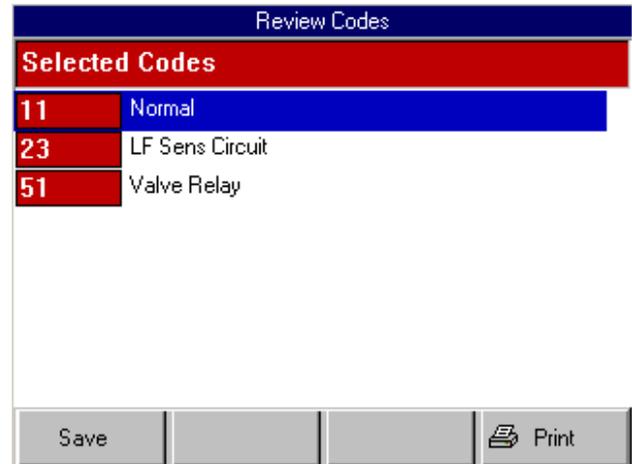


Figure 5.33: Review Codes Screen

- 7 View the list and save or print it, if necessary. To view a saved file, refer to [“Playback a Data File”](#) on [page 21](#). For printing information, refer to [“Print”](#) on [page 26](#).
- 8 Press the **EXIT** key to return to the Diagnostic Menu screen.
- 9 Clear the codes. Refer to [“Clear Codes \(Flash Codes\)”](#) on [page 44](#).

Clear Codes (Flash Codes)

After retrieving flash codes from a vehicle (refer to "[Read Codes \(Flash Codes\)](#)" on [page 42](#)), use the following steps to clear the codes from the vehicle.

Note: If necessary, consult the manufacturer's service manual for the correct "clear code" method.

To clear flash codes, follow these steps:

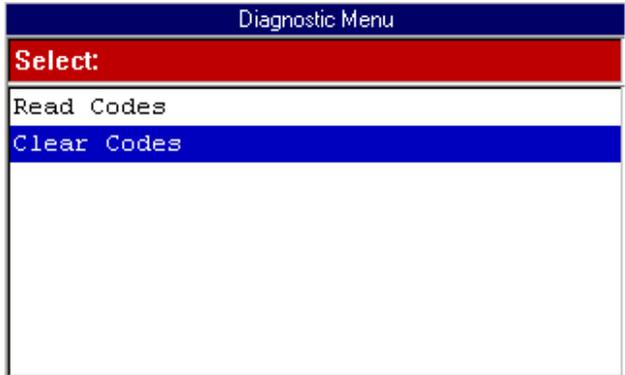


Figure 5.34: Diagnostic Menu Screen

- 1 From the Diagnostic Menu screen, select **Clear Codes** and press the **ENTER** key. This displays the Erase Procedure screen.

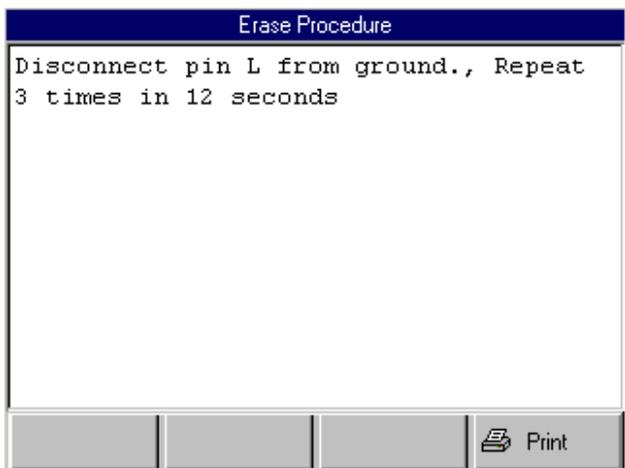


Figure 5.35: Erase Procedure Screen

- 2 View the information and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 3 Press the **EXIT** key to return to the Diagnostic Menu screen.
- 4 Use the erase procedure to clear the flash codes from the vehicle.

6: Post Collision Test

The Post Collision Test function is a preset test for testing air bags after repair.

Note: Before performing the test steps, follow the instructions in "[Chapter 2: Start-up Steps](#)" on [page 13](#).

To perform a Post Collision Test, follow these steps:

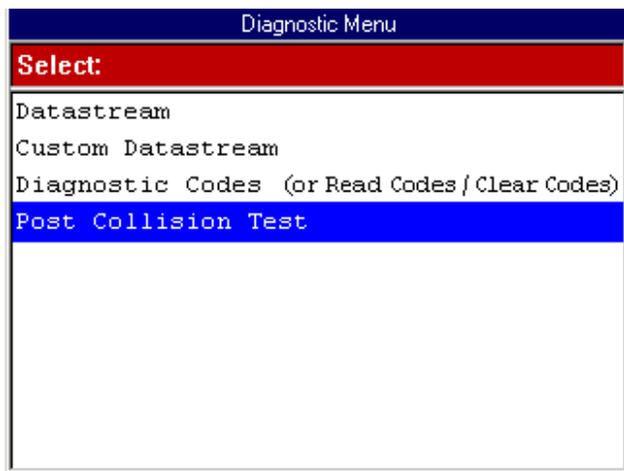


Figure 6.1: Diagnostic Menu Screen

Note: For some vehicles, the Post Collision Test option may be available only after first selecting Diagnostic Codes. The option then appears on the Diagnostic Trouble Codes menu screen.

- 1 Select **Post Collision Test** and press the **ENTER** key. This displays an instruction screen.



Figure 6.2: Post Collision Test Screen

- 2 Read the screen, follow the instructions, and press the **ENTER** key.
- 3 After this, several instruction screens appear. Read the screens and follow all instructions. Do this until the Diagnostic Trouble Codes menu screen appears.

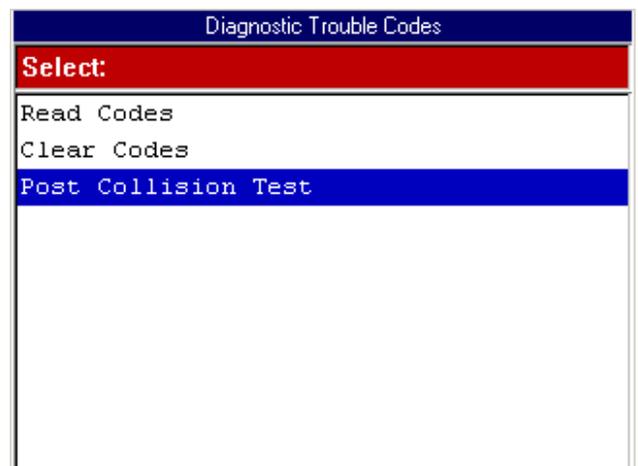


Figure 6.3: Diagnostic Trouble Codes Menu Screen

Note: The Post Collision Test option may not appear on the menu at this time.

- 4 Do one of the following:
 - If the SIR warning lamp is off, the procedure is complete. Use the **EXIT** key to return to previous screens.
 - If the SIR warning lamp is on, continue with the next step.

- 5 Select **Read Codes** from the Diagnostic Trouble Codes menu screen and press the **ENTER** key.

Note: If the Read Codes menu screen appears, select **Current Codes** from the menu and press the **ENTER** key.

This displays the DTC Information screen.

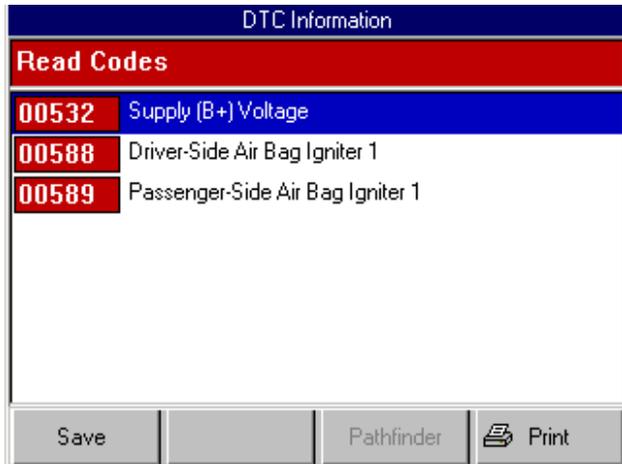


Figure 6.4: DTC Information Screen

- 6 View the list and save or print it, if necessary.
To view a saved file, refer to "[Playback a Data File](#)" on [page 21](#). For printing information, refer to "[Print](#)" on [page 26](#).
Note: For more information about DTCs and the DTC Information screen, refer to "[Chapter 5: Diagnostic Codes \(Read / Clear Codes\)](#)" on [page 33](#).
- 7 Use the **EXIT** key to return to previous screens.
- 8 If necessary, use the Clear Codes function to erase the codes from the vehicle's ECU. For details, refer to "[Clear Codes](#)" on [page 38](#).
- 9 Do any further air bag repairs and repeat the test.

7: Pathfinder

The Pathfinder function lets you access the Pathfinder software's functions from within the ABS / Air Bag software. This option lets you view vehicle-specific information for some 1988-2003 GM, Saturn, Ford, Chrysler, and Jeep vehicles.

Note: You can also access the Pathfinder functions from within the ABS / Air Bag software by doing one of the following:

- From the Datastream screen, press the More function key and select the Pathfinder option. For details, refer to "[Pathfinder](#)" on [page 25](#).
- From the DTC Information screen, press the Pathfinder function key. For details, refer to "[Read and Display Codes](#)" on [page 34](#).

This chapter includes procedures for using the following Pathfinder functions:

- **Repair Trac** - used to access the Repair Trac software from within the ABS / Air Bag software. (See the steps in the next column.)
- **Fast Fixes** - used to access the Fast Fixes software from within the ABS / Air Bag software. (See [page 48](#).)
- **TSB References** - used to view numbers and titles of technical service bulletins that apply to a vehicle. (See [page 50](#).)
- **Specifications** - used to view brake and ABS specifications for a vehicle. (See [page 51](#).)
- **Component Location** - used to view a description of the computer and connector locations for a vehicle. (See [page 52](#).)
- **Brake Bleed Procedure** - used to view instructions for bleeding a vehicle's brakes. (See [page 53](#).)
- **Brake Bleed Sequence** - used to view a description of the correct sequence for bleeding a vehicle's brakes. (See [page 54](#).)

Note: Before performing the procedures in this chapter, follow the instructions in "[Chapter 2: Start-up Steps](#)" on [page 13](#).

Repair Trac

The Repair Trac option lets you access the Repair Trac software from within the ABS / Air Bag software. The Repair Trac software contains repair instructions for hard-to-diagnose "pattern failures" on vehicles with 50,000 or more miles.

Note: You can also access the Repair Trac software from the NGIS tool's Repair Information menu, depending on the system version in the tool. If you do this, you will need to enter the vehicle information again.

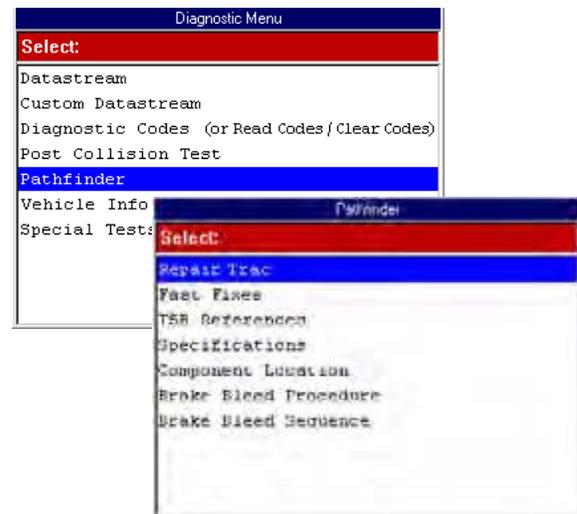


Figure 7.1: Diagnostic Menu Screen and Pathfinder Screen

- 1 From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- 2 From the Pathfinder screen, select **Repair Trac** and press the **ENTER** key. This displays the Repair Trac screen for the vehicle (see [Figure 7.2](#) on [page 48](#)).



Figure 7.2: Repair Trac Symptoms Screen

- From the list of symptoms, **select a symptom to view** and press the **ENTER** key. This displays the Repair Trac Problems and Fixes screen.

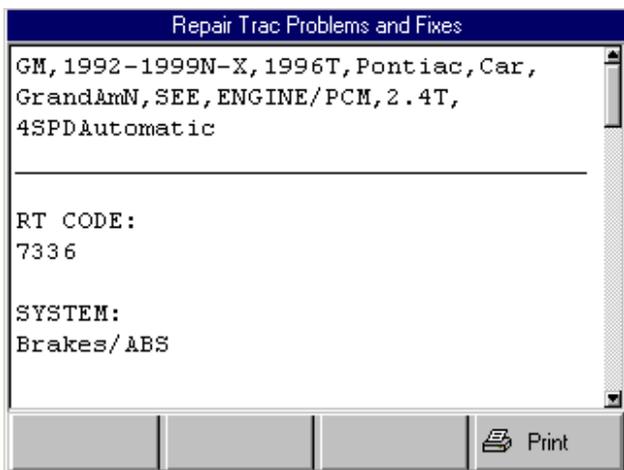


Figure 7.3: Repair Trac Problems and Fixes Screen

Note: The RT (Repair Trac) Code on this screen is a software code only. It is not a part of any diagnostic trouble code (DTC).

- View the description and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- When finished, use the **EXIT** key to return to previous screens.

Fast Fixes

The Fast Fixes option lets you access the Fast Fixes software from within the ABS / Air Bag software. The Fast Fixes software contains vehicle-specific repair solutions for many "likely" or "overlooked" causes of component problems.

Note: You can also access the Fast Fixes software from the NGIS tool's Application Manager main menu or the Repair Information menu, depending on the system version in the tool. If you do this, you will need to enter the vehicle information again.

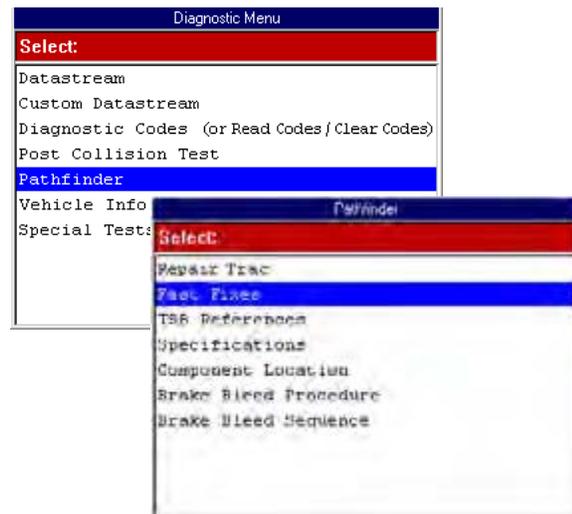


Figure 7.4: Diagnostic Menu Screen and Pathfinder Screen

- From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- From the Pathfinder screen, select **Fast Fixes** and press the **ENTER** key. This displays the Fast Fix Select Category screen for the vehicle (see [Figure 7.2](#) on [page 48](#)).

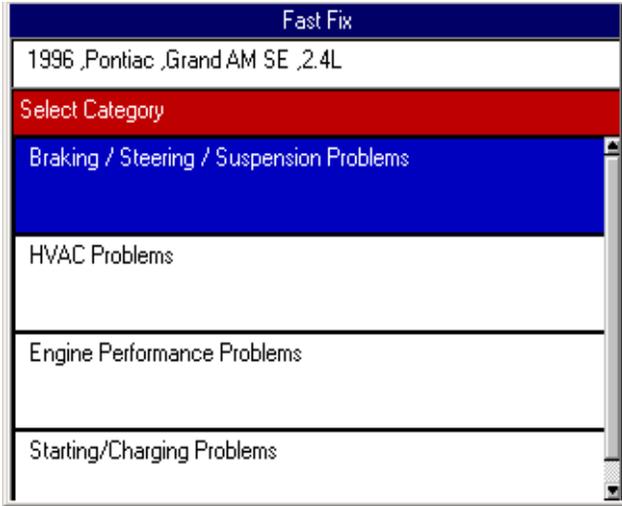


Figure 7.5: Fast Fix Select Category Screen

- From the list of categories, **select a category to view** and press **the ENTER** key. This displays the Fast Fix Select Symptom screen.

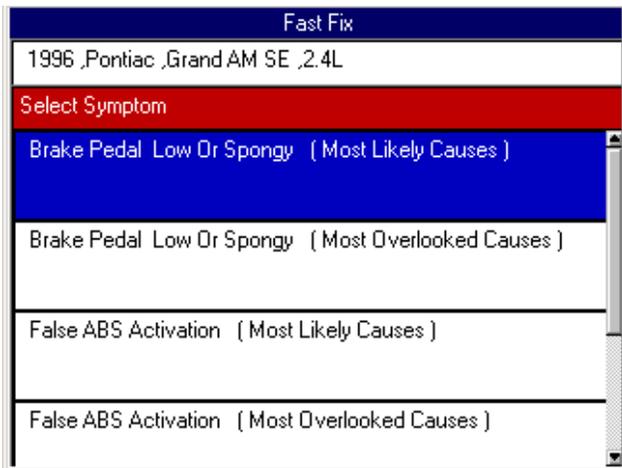


Figure 7.6: Fast Fix Select Symptom Screen

- From the list of symptoms, **select a symptom (cause) to view** and press **the ENTER** key. This displays the Fast Fix Select Component screen.

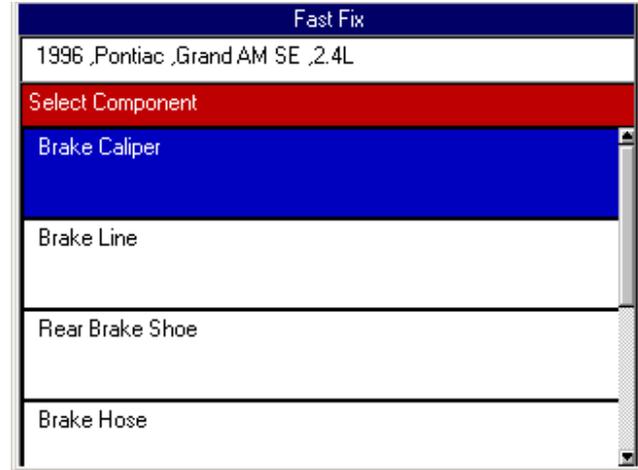


Figure 7.7: Fast Fix Select Component Screen

- From the list of components, **select a component to view** and press **the ENTER** key. This displays the Fast Fix symptoms and possible problems screen.

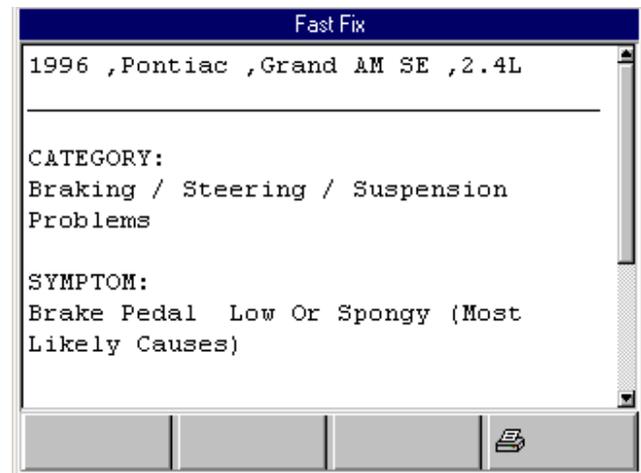


Figure 7.8: Fast Fix Symptoms and Possible Problems Screen

- View the description and print it, if necessary. For printing information, refer to **"Print"** on [page 26](#).
- When finished, use the **EXIT** key to return to previous screens.

TSB References

The TSB References option lets you look up the numbers and titles of technical service bulletins for a vehicle.

To view the TSB references, follow these steps:

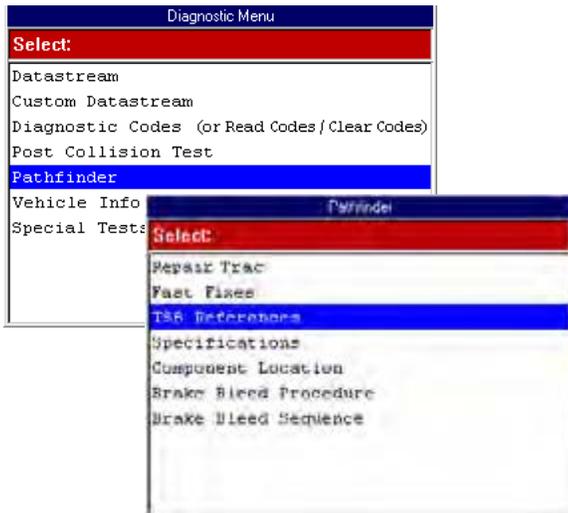


Figure 7.9: Diagnostic Menu Screen and Pathfinder Screen

- 1 From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- 2 From the Pathfinder screen, select **TSB References** and press the **ENTER** key. This displays the TSB References screen.

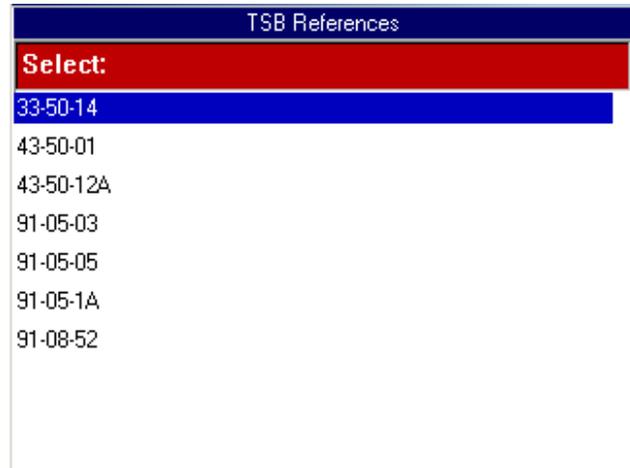


Figure 7.10: TSB References Screen

- 3 From the list of TSBs, **select a TSB to view** and press the **ENTER** key. This displays a brief description of the TSB.

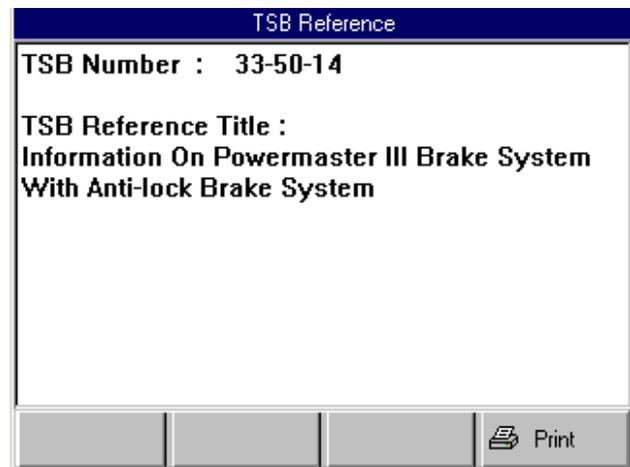


Figure 7.11: TSB Reference Screen

- 4 View the description and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 5 When finished, use the **EXIT** key to return to previous screens.

Specifications

The Specifications option lets you view tune-up, engine, and system specifications for a vehicle.

To view the vehicle specifications, follow these steps:



Figure 7.12: Diagnostic Menu Screen and Pathfinder Screen

- 1 From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- 2 Select **Specifications** and press the **ENTER** key. This displays the Specifications screen.

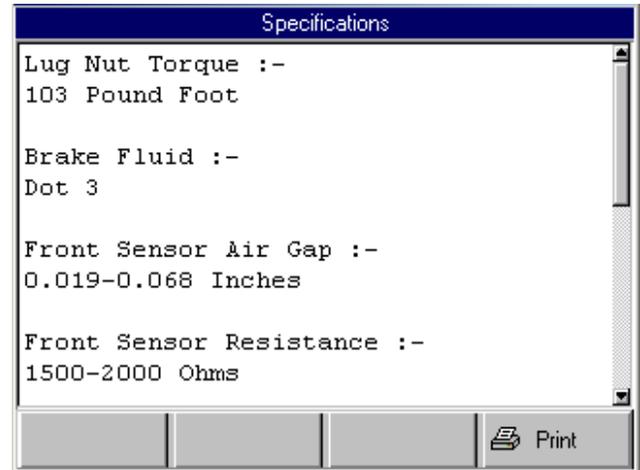


Figure 7.13: Specifications Screen

- 3 View the specifications and print them, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 4 When finished, use the **EXIT** key to return to previous screens.

Component Location

The Component Location option lets you view a description of the computer and connector locations for a vehicle.

To view the component locations, follow these steps:

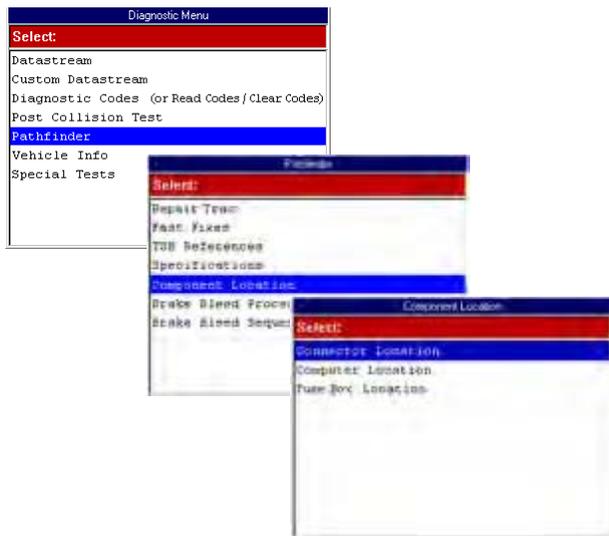


Figure 7.14: Diagnostic Menu Screen, Pathfinder Screen, and Component Location Screen

- 1 From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- 2 Select **Component Location** and press the **ENTER** key. This displays the Component Location screen.
- 3 Do one of the following:
 - Select **Connector Location** and press the **ENTER** key to view a description of where the vehicle's data link connector (DLC) is located. This displays the Connector Location screen (see [Figure 7.15](#)).
 - Select **Computer Location** and press the **ENTER** key to view a description of where the vehicle's electronic control unit (ECU) is located. This displays the Connector Location screen (see [Figure 7.16](#)).
 - Select **Fuse Box Location** and press the **ENTER** key to view a description of where the vehicle's fuse box(es) are located. This displays the Connector Location screen (not shown).

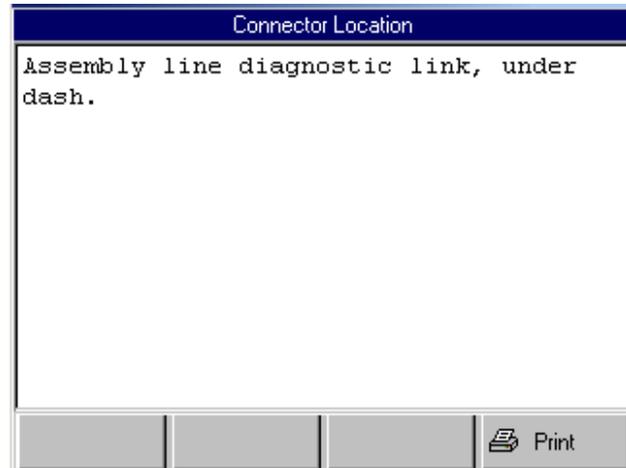


Figure 7.15: Connector Location Screen

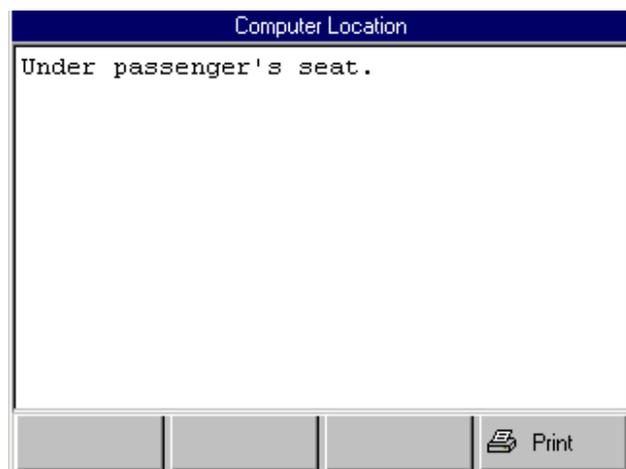


Figure 7.16: Computer Location Screen

- 4 View the description and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 5 When finished, use the **EXIT** key to return to previous screens.

Brake Bleed Procedure

The Brake Bleed Procedure option lets you view instructions for bleeding a vehicle's brakes.

To view the brake bleed procedure, follow these steps:

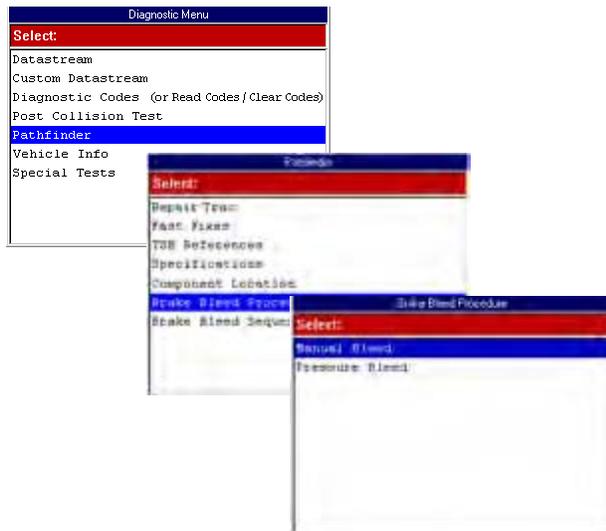


Figure 7.17: Diagnostic Menu Screen, Pathfinder Screen, and Brake Bleed Procedure Screen

- 1 From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- 2 Select **Brake Bleed Procedure** and press the **ENTER** key. This displays the Brake Bleed Procedure screen.
- 3 Select either **Manual Bleed** or **Pressure Bleed** and press the **ENTER** key. This displays either the Manual Bleed Procedure screen (see [Figure 7.18](#)) or the Pressure Bleed Procedure screen (see [Figure 7.19](#)).

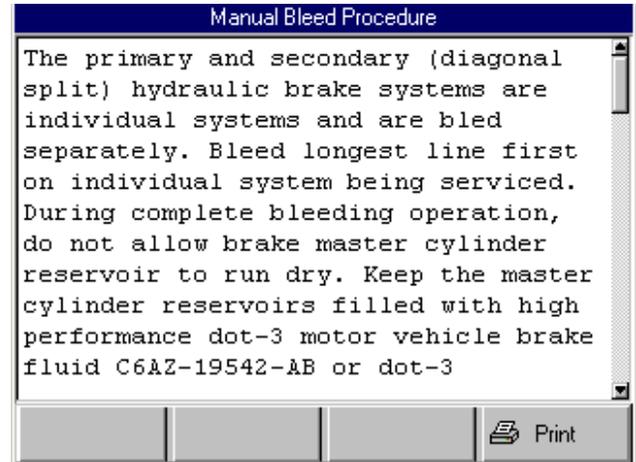


Figure 7.18: Manual Bleed Procedure Screen

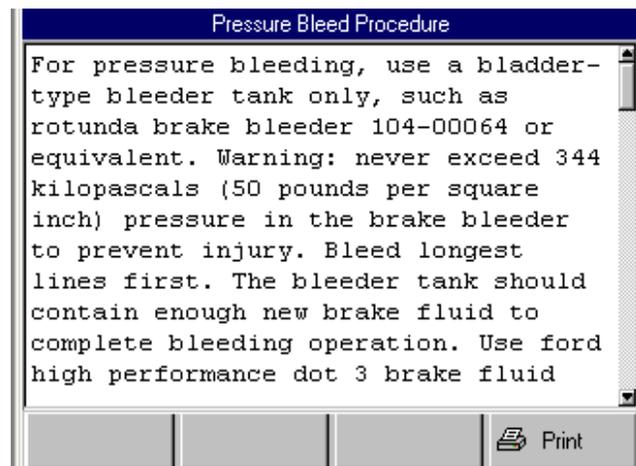


Figure 7.19: Pressure Bleed Procedure Screen

- 4 View the procedure and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 5 When finished, use the **EXIT** key to return to previous screens.

Brake Bleed Sequence

The Brake Bleed Sequence option lets you view a description of the correct sequence for bleeding a vehicle's brakes.

To view the brake bleed sequence, follow these steps:

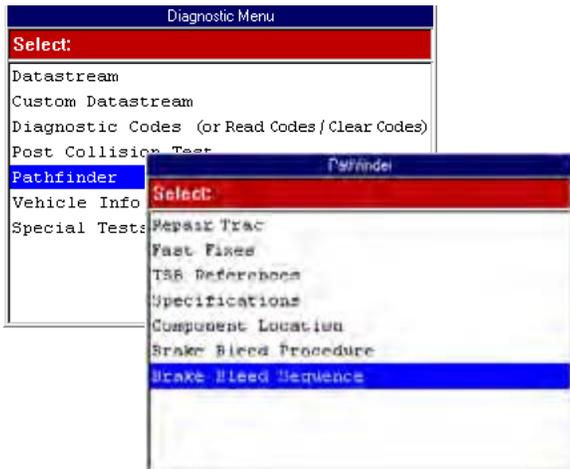


Figure 7.20: Diagnostic Menu Screen and Pathfinder Screen

- 1 From the Diagnostic Menu screen, select **Pathfinder** and press the **ENTER** key. This displays the Pathfinder screen.
- 2 Select **Brake Bleed Sequence** and press the **ENTER** key. This displays the Brake Bleed Sequence screen.

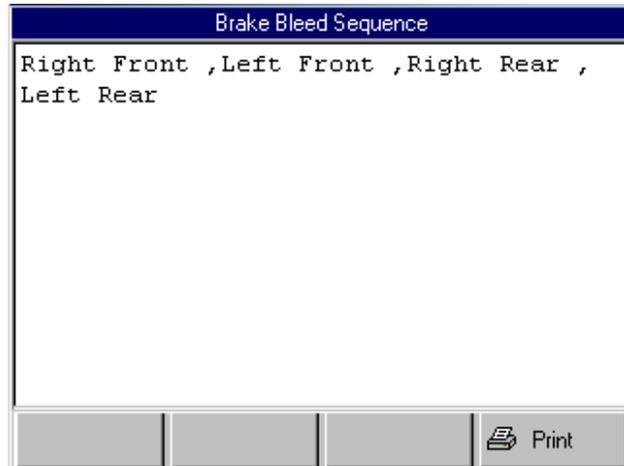


Figure 7.21: Brake Bleed Sequence Screen

- 3 View the description and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 4 When finished, use the **EXIT** key to return to previous screens.

8: Vehicle Info

The Vehicle Info function lets you view vehicle-specific information. This chapter includes procedures for using the following Vehicle Info functions:

- **Specifications** - used to view brake and ABS specifications for a vehicle. (See the steps below.)
- **Related TSBs** - used to view numbers and titles of technical service bulletins that apply to a vehicle. (See [page 56](#).)
- **System Type** - used to view the description of the vehicle being tested. (See [page 57](#).)
- **PROM Identification** - for some GM vehicles, used to view PROM information. (See [page 58](#).)

Note: Before performing the procedures in this chapter, follow the instructions in "[Chapter 2: Start-up Steps](#)" on [page 13](#).

Specifications

The Specifications option lets you view brake and ABS specifications.

To view the vehicle specifications, follow these steps:

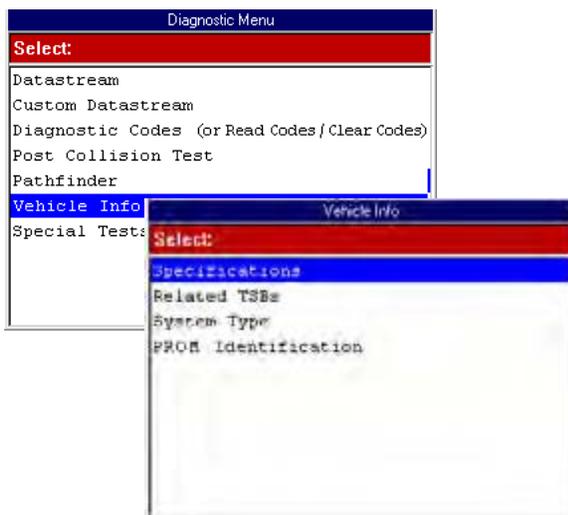


Figure 8.1: Diagnostic Menu Screen and Vehicle Info Screen

- 1 From the Diagnostic Menu screen, select **Vehicle Info** and press the **ENTER** key. This displays the Vehicle Info screen.
- 2 Select **Specifications** and press the **ENTER** key. This displays the Specifications screen.

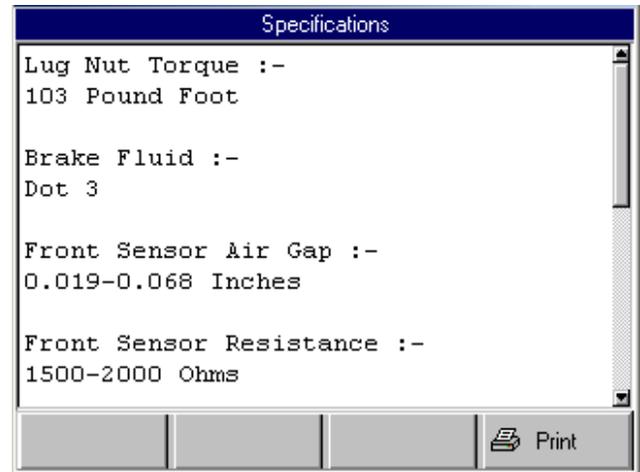


Figure 8.2: Specifications Screen

- 3 View the specifications and print them, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 4 When finished, use the **EXIT** key to return to previous screens.

Related TSBs

The Related TSBs option lets you look up the numbers and titles of technical service bulletins.

To view the related TSBs, follow these steps:

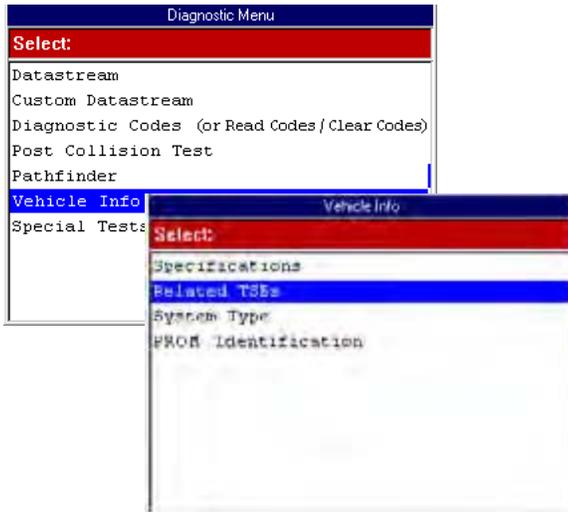


Figure 8.3: Diagnostic Menu Screen and Vehicle Info Screen

- 1 From the Diagnostic Menu screen, select **Vehicle Info** and press the **ENTER** key. This displays the Vehicle Info screen.
- 2 Select **Related TSBs** and press the **ENTER** key. This displays the TSB References screen.

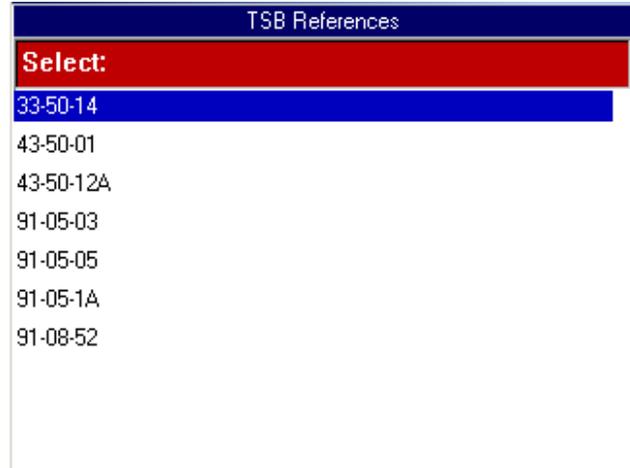


Figure 8.4: TSB References Screen

- 3 Select a **TSB to view** and press the **ENTER** key. This displays a brief description of the TSB.

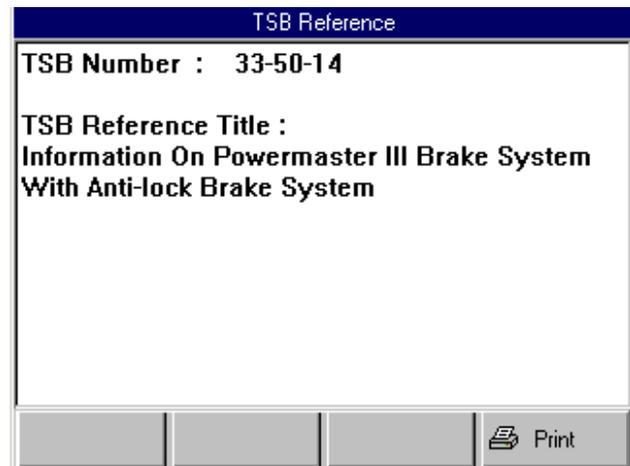


Figure 8.5: TSB Reference Screen

- 4 View the description and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 5 When finished, use the **EXIT** key to return to previous screens.

System Type

The System Type option lets you view the vehicle description.

To view the system type, follow these steps:

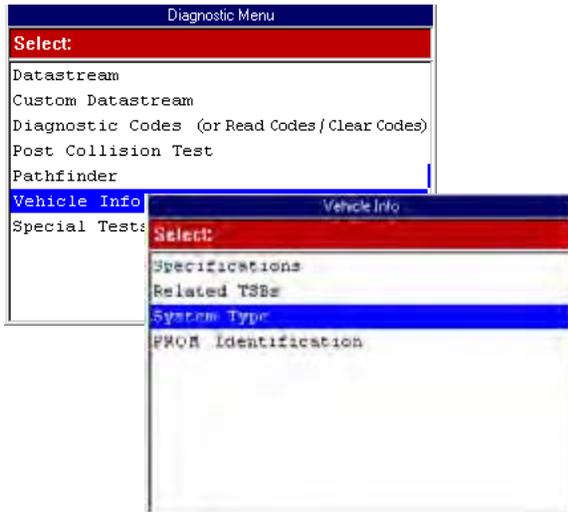


Figure 8.6: Diagnostic Menu Screen and Vehicle Info Screen

- 1 From the Diagnostic Menu screen, select **Vehicle Info** and press the **ENTER** key. This displays the Vehicle Info screen.
- 2 Select **System Type** and press the **ENTER** key. This displays the System Information screen.

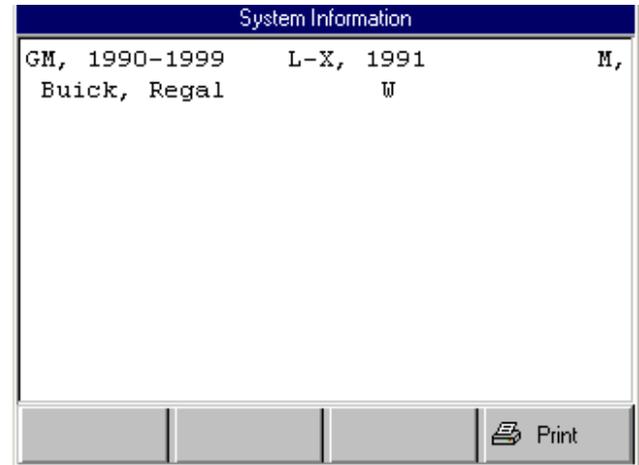


Figure 8.7: System Information Screen

- 3 View the information and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 4 When finished, use the **EXIT** key to return to previous screens.

PROM Identification

The PROM Identification option, which is available for some GM vehicles, lets you view the Programmable Read Only Memory (PROM) 4-digit identification number and additional PROM related information.

To view PROM information, follow these steps:

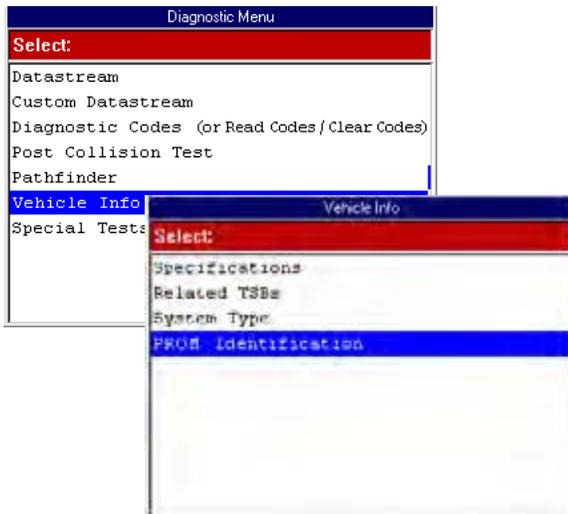


Figure 8.8: Diagnostic Menu Screen and Vehicle Info Screen

- 1 From the Diagnostic Menu screen, select **Vehicle Info** and press the **ENTER** key. This displays the Vehicle Info screen.
- 2 Select **PROM Identification** and press the **ENTER** key. This displays the PROM Identification screen.
- 3 View the information and print it, if necessary. For printing information, refer to "[Print](#)" on [page 26](#).
- 4 When finished, use the **EXIT** key to return to previous screens.

9: Controller ID

The Controller ID function displays identification information about the selected ECU (Audi and Volkswagen).

Note: Before performing the test steps, follow the instructions in "[Chapter 2: Start-up Steps](#)" on [page 13](#).

To display the Controller ID information, follow these steps:

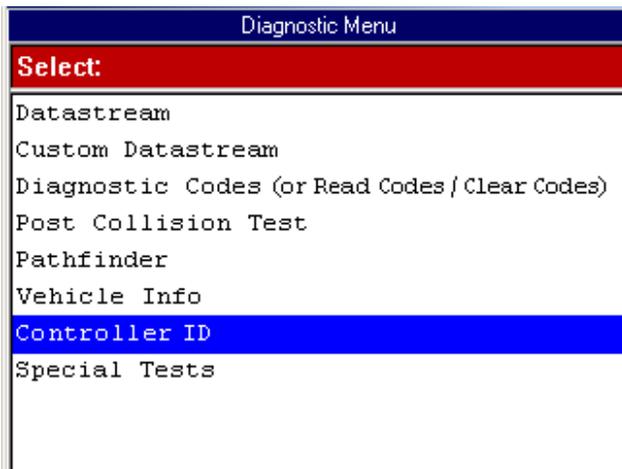


Figure 9.1: Diagnostic Menu Screen

- 1 Select **Controller ID** and press the **ENTER** key. This displays the ECU Identification Data screen.

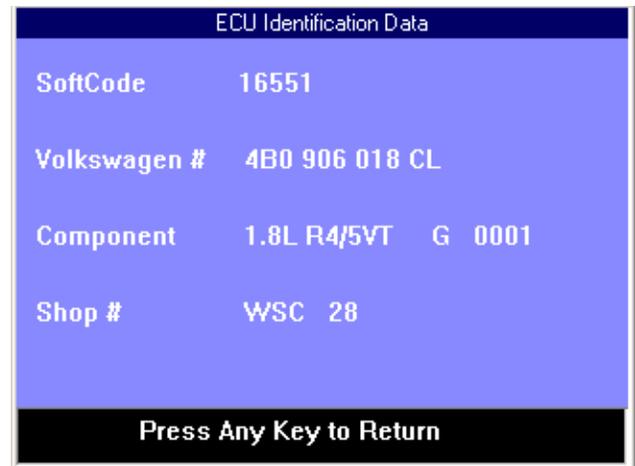


Figure 9.2: ECU Identification Screen

- 2 View the data.
- 3 When finished, use the **EXIT** key to return to previous screens.

10: Special Tests

The Special Tests function lets you perform special bi-directional diagnostic tests on anti-lock brake systems (ABS) and air bags. The tests let you use the NGIS tool to activate or control the system components.

Note: During a test, you use the tool to temporarily control a selected component. When you exit the test, the component returns to the normal setting.

This chapter includes a basic procedure for doing the special tests, brief descriptions of the special tests, and examples of common special test screens.

Note: While performing a special test, a Fault Code Detected screen may appear indicating a fault exists. Repair the problem and clear the diagnostic test code(s) before continuing the special test. For details about clearing codes, refer to "[Chapter 5: Diagnostic Codes \(Read / Clear Codes\)](#)".

Note: The ABS Air Bag 2004 software has an automatic Diagnostic Code Triggered Record function. If a diagnostic fault occurs while you are testing a vehicle, the software automatically alerts you with a screen message and creates a recording for playback. To replay these recordings, refer to "[Playback a Data File](#)" on [page 21](#).

WARNING:

Before performing any tests, refer to the Safety Precautions and instructions provided in this User Guide and the warnings provided by the vehicle manufacturer. In addition, follow any warnings and descriptions provided on the NGIS tool screens.

WARNING:

During active testing, bi-directional component activation is automatically "inhibited" when required to allow brake components adequate time to cool down. Do not bypass this cool-down period by restarting the test or by using any other means of bypassing the cool-down period.

Basic Special Test Procedure

The special tests vary for each vehicle, year, and component (ABS, Air Bag, etc.). This section provides basic steps for the special tests.

To perform special tests on a vehicle, follow these steps:

- 1 Perform the steps in "[Chapter 2: Start-up Steps](#)" to enter the vehicle information and display the Diagnostic Menu screen.

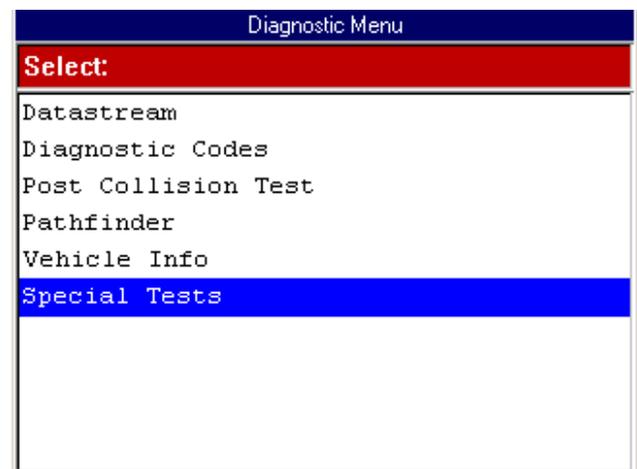


Figure 10.1: Diagnostic Menu Screen

- 2 From the Diagnostic Menu screen, select **Special Tests**. This displays the Special Tests menu screen ([Figure 10.2](#) on [page 62](#)).

Note: If an identification screen appears, review the screen and press the **ENTER** key to display the Special Tests menu screen.

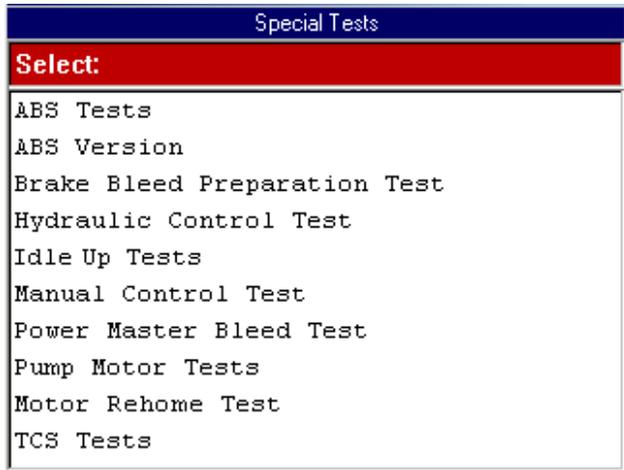


Figure 10.2: Special Tests Menu Screen

Note: The screen shown above is only an example. Actual screens vary by vehicle and component.

- 3 From the Special Tests menu screen, **select the test you want to perform** and press the **ENTER** key.
- 4 A group selection screen, test selection screen, several step-by-step instruction screens, or bi-directional control screen may appear. **Read the screens and follow all instructions.** If necessary, use the **function keys** to perform commands or answer any questions. Use the **ENTER** key as instructed. (See "[Special Test Screen Examples](#)" on [page 65](#).)
- 5 When finished, use the **EXIT** key to return to previous screens.

Special Test Descriptions

This section includes brief descriptions of many of the special tests. Actual tests vary by vehicle manufacturer, year, make, component, etc. For complete test instructions and specifications, refer to the vehicle service manual for the vehicle being tested.

ABS Manual Control Tests

Manual Control Tests let you use the NGIS tool to manually control the actuators in order to test the following: ABS motors, solenoids, solenoid enable relays, EMBs, and more.

You can confirm proper operation by comparing what you command with the NGIS tool to what the ECU sees as a response and to what the actual output is at the component.

ABS Motor Test

The Motor Test lets you use the NGIS tool to manually control the ABS pump motor. For some vehicles, the NGIS tool runs the test automatically; for other vehicles, the tool displays instructional screens for you to perform the test manually.

ABS Version Test

The ABS Version test displays the name of the brake system and the ABS controller version number, software ID, and sequence value.

Actuator Tests

The Actuator Tests let you use the NGIS tool to manually control the actuators in order to test the following: AYC valves, inlet valves, outlet valves, pump motors, TRACS valves.

You can confirm proper operation by comparing what you command with the NGIS tool to what the ECU sees as a response and to what the actual output is at the component.

Autobled Test, Automated Bleed, or Service Bleed

The bleed tests remove air from the internal brake fluid chambers after servicing the brakes. For some vehicles, the NGIS tool runs the test automatically; for other vehicles, the tool displays instructional screens for you to perform the test manually.

The test usually cycles the valve solenoids so you can use brake pedal feel to diagnose solenoid problems, pump output problems, and pedal feel complaints. The final phase of the test releases brake pressure from each hydraulic channel in sequence, allowing you to identify pedal travel problems, solenoid leakage, or internal problems.

IMPORTANT:

- Before bleeding the brake system, make sure no diagnostic codes are present.
- Do not let the master cylinder run dry during the brake bleeding procedure.
- Do not allow brake fluid to contact the motor pack or the electrical connectors.

IMPORTANT: Use a recommended brake fluid, do not use silicone brake fluids in an ABS-equipped vehicle.

⚠ WARNING: After bleeding the brake system, check the brake pedal for excessive travel or a “spongy” feel. Bleed again if either condition is present.

Automated Test

The Automated Test automatically commands each solenoid valve and the pump motor on and off to test for proper operation. If there is a malfunction, a diagnostic trouble code (DTC) is set in the vehicle.

Brake Bleed Preparation Test

The Brake Bleed Preparation Test prepares the brake lines for bleeding by clearing air from the modulator. The test rehomes all the ABS and TCS motors, cycles the TCS motors, and then returns all motors to the “home” position at the bottom of the bore.

Usually, the tool displays instructional screens for you to perform the test manually

Function Test

The Function Test automatically commands the ABS relay, valve solenoids, and pump motor on and off to test for proper operation. If there is a malfunction, a diagnostic trouble code (DTC) is set in the vehicle.

Gear Tension Relief Test

The Gear Tension Relief Test relieves tension from the ABS motor gears so you can separate the ABS motor pack from the ABS hydraulic modulator.

For some vehicles, the NGIS tool runs the test automatically; for other vehicles, the tool displays instructional screens for you to perform the test manually.

Hydraulic Control Tests

The Hydraulic Control Tests let you use the NGIS tool to manually engage and disengage the ABS solenoids for troubleshooting the hydraulic functions.

Idle Up Manual Control Test

The Idle Up Tests let you use the NGIS tool to manually control the idle up actuators.

Lamp Tests

The Lamp Tests lets you use the NGIS tool to manually control the ABS or TCS warning or indicator lamps.

Manual Control Test

See “[ABS Manual Control Tests](#)” on [page 62](#).

Motor Rehome Test

The Motor Rehome Test prepares the brake lines for bleeding by clearing air from the modulator. The test returns all ABS motors to their “home” positions.

For some vehicles, the NGIS tool runs the test automatically; for other vehicles, the tool displays instructional screens for you to perform the test manually.

IMPORTANT:

- Before rehomeing the brake system, make sure no diagnostic codes are present.
- Do not let the master cylinder run dry during the rehomeing or brake bleeding procedures.
- Do not allow brake fluid to contact the motor pack or the electrical connectors.

IMPORTANT: Use a recommended brake fluid, do not use silicone brake fluids in an ABS-equipped vehicle.

⚠ WARNING: After bleeding the brake system, check the brake pedal for excessive travel or a “spongy” feel. Bleed again if either condition is present.

Pump Motor Tests

The Pump Motor Tests lets you use the NGIS tool to manually control the pump motor. For some vehicles, the NGIS tool runs the test automatically; for other vehicles, the tool displays instructional screens for you to perform the test manually.

Relay Test

The Relay Test lets you use the NGIS tool to manually engage and disengage either the ABS or TCS relays in order to test relay operation.

Requested Torque Test

The Requested Torque Test lets you use the NGIS tool to manually control the engine torque to test for proper operation of the traction control system (TCS).

Setup SDM Serial Number (Air Bag Sensing and Diagnostic Module)

The Setup SDM Serial Number in DIM test lets you program a new air bag serial number into the dash integration module (DIM). You use this test after installing a new air bag; otherwise a diagnostic trouble code will be set when you turn on the ignition.

The tool displays instructional screens for you to perform the test manually

Solenoid Tests

The Solenoid Tests let you use the NGIS tool to manually control the inlet and output valve solenoids.

You can confirm proper operation by comparing what you command with the NGIS tool to what the ECU sees as a response and to what the actual output is at the solenoid.

System Identification

The System Identification test displays information about the brake system, the vehicle, and the ABS controller.

TCS Test

The TCS test lets you use the NGIS tool to control the pump motor in order to apply fluid pressure to the front wheel circuits.

Traction Control System (TCS) Manual Control Tests

The TCS Manual Control Tests let you use the NGIS tool to perform motor tests and an adjuster assembly control test. You can confirm proper operation by comparing what you command with the NGIS tool to what the ECU sees as a response and to what the actual output is at the component.

Voltage Load Test

The Voltage Load Test “loads” the ABS battery supply circuit to test for adequate battery capacity.

Special Test Screen Examples

There are two basic types of special test screens: instructional and bi-directional control.

Instructional Screen Example

Instructional screens contain step-by-step instructions for performing a special test. You simply follow the instructions provided on each screen.

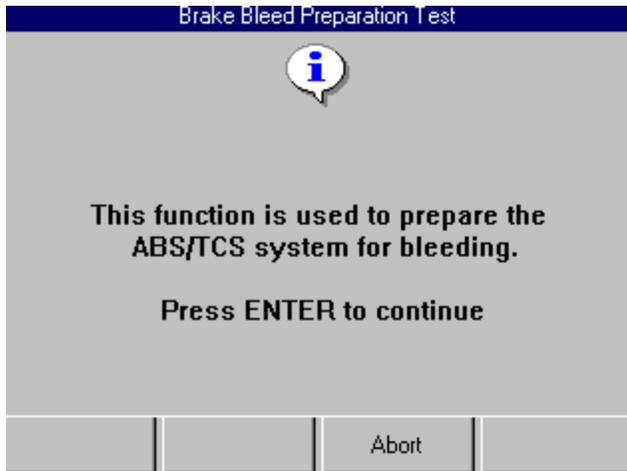


Figure 10.3: Instructional Screen Example

Bi-directional Control Screen Examples

The bi-directional control screens vary in appearance, but they all allow you to manually control the vehicle's relays, solenoids, lamps, and other components.

Basic Single Component Control Screen

The following screen is the basic manual control screen for a single component. You press the Start function key to begin and then use the On and Off function keys to control the component.

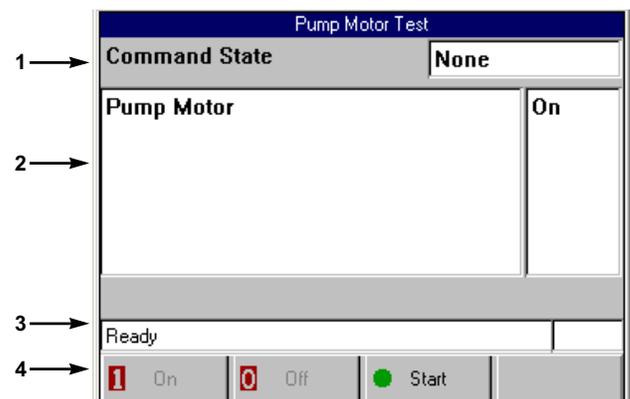


Figure 10.4: Single Component Control Screen Example

- Item 1** This area displays the command you have issued through the scan tool (On, Off).
- Item 2** This area displays the state of the component being read by the ECU. The bottom of this area may also contain special test instructions.
- Item 3** The status line displays the current status of the test.
- Item 4** The function keys let you manually control the component as necessary. Compare what is commanded by the NGIS tool to the state of the component being read by the ECU to the actual physical state of the component.

Basic Multiple Component Control Screen

The following screen is the basic manual control screen for multiple components. This screen allows control of more than one component and has a More function key menu for performing additional functions. You select a component and then press the Start function key to begin. You then use the On and Off function keys to control the selected component.

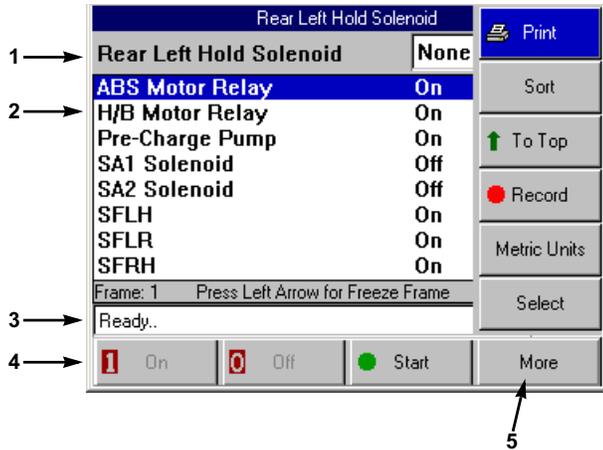


Figure 10.5: Multiple Component Control Screen Example

- Item 1** This area displays the command you have issued through the scan tool (On, Off).
- Item 2** This area displays the list of components you can control along with the state of each component being read by the ECU.
- Item 3** The status line displays the current status of the test.
- Item 4** The function keys let you manually control the component as necessary. Compare what is commanded by the NGIS tool to the state of the component being read by the ECU to the actual physical state of the component.
- Item 5** The More menu contains basic Datastream functions. For details, refer to "[Datastream Functions](#)" on [page 20](#).

Solenoid, Relay Controls Screen

The following screen is the basic manual control screen for a solenoid and enable relay. You press the Start function key to begin (when you press Start, the key name changes to Exit). You then use the Solenoid and Relay function keys to control the components.

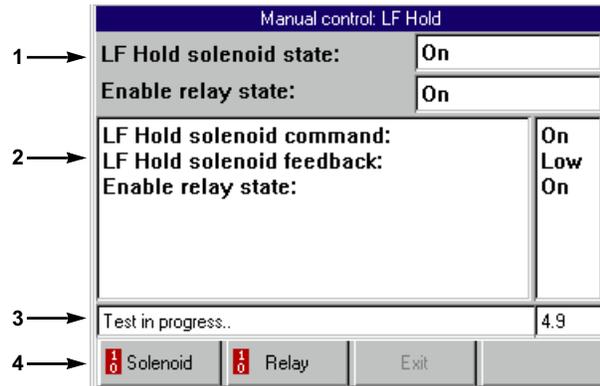


Figure 10.6: Solenoid, Relay Controls Screen Example

- Item 1** This area displays the commands you have issued through the scan tool (On, Off).
- Item 2** This area displays the states of the components being read by the ECU. The bottom of this area may also contain special test instructions.
- Item 3** The status line displays the current status of the test.
- Item 4** The function keys let you manually control the component as necessary. Compare what is commanded by the NGIS tool to the state of the component being read by the ECU to the actual physical state of the component.

Automatic Test Screen

The following screen is an example of an automatic test screen. You press the Start function key to begin the automatic test.

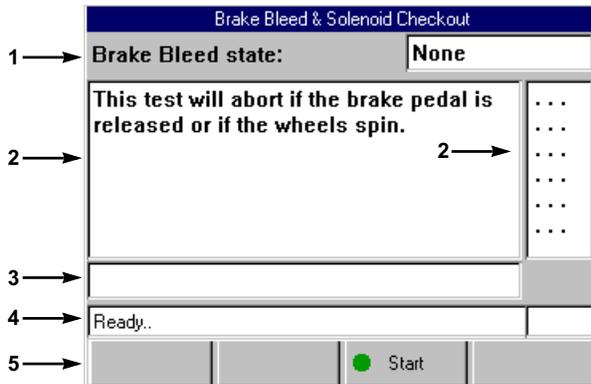


Figure 10.7: Automatic Test Screen Example

- Item 1** This area displays the state of the test commands being issued by the scan tool (On, Off).
- Item 2** This area displays each component. As the test runs, the brackets around the dots indicate the component(s) currently being tested.
Note: The bracket on the left side of the dot represents the command and the bracket on the right side represents the feedback. If one of the brackets is missing during the test, it indicates a problem.
- Item 3** This area may display special test instructions.
- Item 4** The status line displays the current status of the test.
- Item 5** The Start function key starts the test.

Activate/Deactivate Screen

The following screen is an example of a manual control screen with a toggle Activate/Deactivate function key. You use this function key to begin the test.

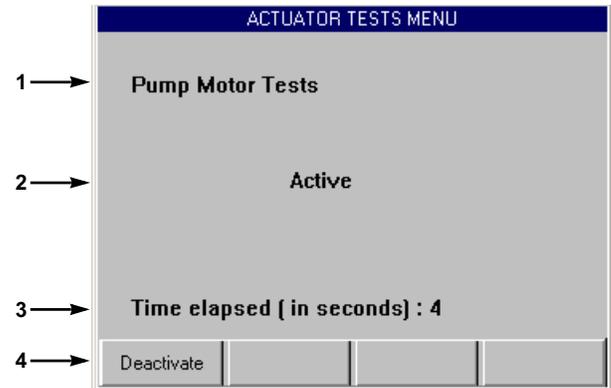


Figure 10.8: Activate/Deactivate Screen Example

- Item 1** This area displays the name of the component being tested.
- Item 2** This area displays the state of the component.
- Item 3** This area shows the time clock for the test.
- Item 4** The function keys let you manually control the component as necessary. Compare what is commanded by the NGIS tool to the state of the component being read by the ECU to the actual physical state of the component.
*Note: Press the **Activate** function key to turn on the component. This changes the component state to "On" and changes the function key to "Deactivate". Press the **Deactivate** function key to turn off the component.*

SPX Corporation Limited Warranty

THIS WARRANTY IS EXPRESSLY LIMITED TO ORIGINAL RETAIL BUYERS OF SPX ELECTRONIC DIAGNOSTIC TOOLS (“UNITS”).

SPX Units are warranted against defects in materials and workmanship for three years (36 months) from date of delivery. This warranty does not cover any Unit that has been abused, altered, used for a purpose other than that for which it was intended, or used in a manner inconsistent with instructions regarding use. The sole and exclusive remedy for any Unit found to be defective is repair or replacement, at the option of SPX. In no event shall SPX be liable for any direct, indirect, special, incidental or consequential damages (including lost profit) whether based on warranty, contract, tort or any other legal theory. The existence of a defect shall be determined by SPX in accordance with procedures established by SPX. No one is authorized to make any statement or representation altering the terms of this warranty.

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ORDER INFORMATION

Replacement and optional parts can be ordered directly from your SPX authorized tool supplier. Your order should include the following information:

- quantity
- part number
- item description

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If you have any questions about the operation of the product, please call (800) 533-6127.

Repair Service

When sending your SPX electronic product in for repair, please include the following information:

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- telephone number
- description of the problem
- proof-of-purchase for warranty repairs
- preferred method of payment for non-warranty repairs

For non-warranty repairs, payment can be made with Visa, Master Card, or with approved credit terms. To receive a credit application, please fax your request to the Credit Department at 800-962-8734.

Send the unit to:
SPX Service Solutions
2300 Park Drive
PO Box 994
Owatonna, MN 55060-0994
RGA: Repair Dept.



Service Solutions, A UNIT OF SPX CORPORATION

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