Techline Information System (TIS) 2000

TIS 2000 User's Guide

The TIS 2000 User's Guide provides a comprehensive overview of the Techline Information System (TIS) 2000 software application.

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2000

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Customer Support Overview

To obtain assistance with a question or problem concerning the operation of your Techline product and its attached products, or to arrange for warranty and non-warranty repairs, telephone Vetronix Corporation at 1-800-321-4889.

TIS 2000

TIS 2000 is actually a group of several programs that perform the following functions:

* Service Programming System (SPS)
* Tech 2 Updating
* Tech 2 Snapshot Uploading and Analysis

To launch TIS 2000, double-click its icon on the Windows 98 desktop. The TIS 2000 main screen (Figure I-1) will appear. It contains elements common to all Windows 98 applications. There s a title bar, menu bar, toolbar, task bar, and minimize/maximize/close icons. The most noticeable part of the screen is the working area in the middle. It contains icons for the TIS 2000 applications.

* **Service Programming System** is used to reprogram vehicle controllers.
* **Software Download** is used to update Tech 2 software.
* **Snapshot Upload** is used to view and analyze snapshot data that was captured by the Tech 2.

Figure I-1, TIS 2000 Main Screen (Application Selection)

TIS 2000 Toolbar

The following icons are located on the TIS 2000 toolbar (Figure I-2):

- **Exit TIS 2000.** Quits TIS 2000; returns to Windows¤ 98 desktop.
- **Selection Page.** Returns to TIS 2000 main screen; leaves current application open in background.
- **Vehicle Context.** Opens the Display Vehicle Data screen
- **Close Active Application.** Quits the current application; returns to TIS 2000 main screen.
- **Prints a screendump.** Produces a printout of whatever is on the screen.
- **TIS-2000 Newsletter.** Provides overview of CD contents and latest software changes.
- **Help.** Launches TIS 2000 built-in Help.

There is also a System Indicator light in the lower right corner of the screen. Green indicates the PC is ready for user input; Red means the PC is not ready for input.
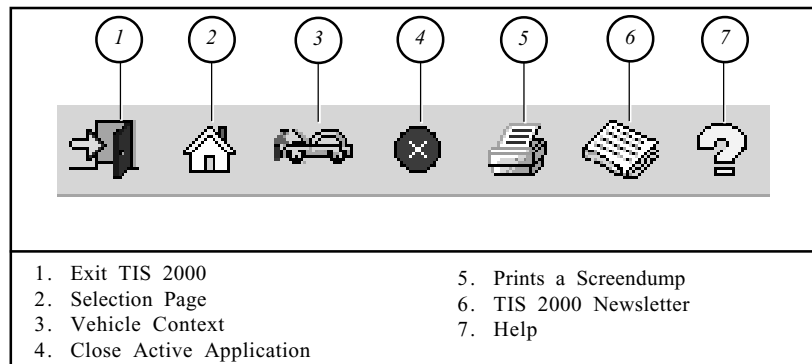

1. Exit TIS 2000
2. Selection Page
3. Vehicle Context
4. Close Active Application
5. Prints a Screendump
6. TIS 2000 Newsletter
7. Help

Figure I-2, TIS 2000 Toolbar Icons

The Service Programming System

The Service Programming System (SPS) updates the flash calibration files that are stored in a vehicle onboard controller (e.g. PCM, ABS, VTD). The calibration file custom-tailors a module to a certain vehicle. The calibration file contains data for things such as spark curves and fuel control. When troubleshooting a driveability problem, diagnosis may call for reprogramming the controller with newer calibration information to correct a customer concern.

VCI Number

A Vehicle Configuration Index (VCI) is a number representing a valid combination of parts and systems built in a vehicle, including optional equipment. Service Operations uses VCI numbers to identify a unique calibration or group of calibrations.

You will need a VCI number to access vehicle calibrations when reprogramming if the VIN of the vehicle is not on the TIS 2000 data CD or, depending on the vehicle, if it has been reconfigured from its original build specifications.

SECTION I

Keep in mind that many calibrations for reconfiguring vehicles (adding/changing options, such as fog lamps) have recently been made selectable in TIS 2000 and a VCI number is not necessary.

If the VIN is not on the TIS 2000 data CD that is currently loaded, a TIS 2000 error message will state that the VIN is incorrect or a VCI number is needed. If this is the case, make sure that the appropriate software version is loaded to your terminal.

To check which TIS 2000 version you are using, select the Help menu, then select TIS 2000 Main Help and click About TIS 2000. The current data CD version will be listed along with the blockpoint version for North American Operations.

A VCI number also allows you to program a reconfigured truck equiped with a VCM. This includes changes in tire sizes and axle ratios. When selecting Reconfigure from the Supported Controllers screen in TIS 2000, the calibrations that support various vehicles are presented as information only. To access those calibrations, you ll need a VCI number.

The VCI number provides access to all of the latest calibrations available for the vehicle, based on the VIN. You need to select the right calibration according to how the vehicle was reconfigured.

A VCI number does not allow you to access calibrations that are designated Not Selectable . It is important to make sure you have the correct VCI number to access the calibrations before reprogramming.

Selecting the Right Calibration

When reprogramming a vehicle, selecting the right calibration is critical. You will only see calibrations that are valid for the VIN that is entered. Be sure to check the history of each calibration. The history lists an explanation of the calibration file, telling what the calibration is for and if it supersedes any other calibrations.

Also read the latest bulletins to stay up to date on why certain calibrations have been released. Related bulletin numbers are listed along with the calibration files.

Based on the calibration history and bulletins, select the appropriate calibration file. For many vehicles equipped with VCMs, you ll also need to complete the multiple tab selections. Each tab is for a distinct calibration file contained in the VCM. An unchecked box on a system tab indicates that a necessary selection has not been made.

If a VCI number is needed, contact Vetronix Technical Support and have the full VIN along with your reason for the VCI request ready. Once you have the VCI number, it must be entered in the entry screen when requested by the SPS. Before entering the VCI number, delete the zero in the entry screen.

There are four SPS methods: Remote Programming, Pass-Thru Programming, Off-Board Remote Programming, and Off-Board Pass-Thru Programming.

> **NOTICE:**
>
> **Prior to performing SPS, it is important to heed the following precautions:**
>
> - **Using an outdated version could damage vehicle modules. The Tech 2 and the terminal must have the latest software.**
>
> - **Make sure the vehicle battery is fully charged. Battery voltage for SPS should be between 12.5 and 14 volts. However, make sure a battery charger IS NOT connected to the vehicle when using the Tech 2.**
>
> - **Make sure the cable connections are secure. A disconnected cable could cause controller failure.**

Remote SPS Programming

The Remote SPS method is a three-step process that involves:

1. Connecting the scan tool to the vehicle and obtaining information from the controller.
2. Connecting the scan tool to the PC and downloading a new calibration file from the PC to the scan tool s memory.
3. Reconnecting the scan tool to the vehicle and uploading the new calibration file to the controller.

> **IMPORTANT:**
>
> **TIS 2000 supports Service Programming with the Tech 2 scan tool *only*.**

Off-Board Programming

Off-Board Programming is used when a reprogrammable control module must be programmed away from the vehicle. This method requires the use of an Off-Board Programming Adapter (OBPA), J41207-C.

Performing Remote SPS

Perform remote SPS using TIS 2000 as follows:

Step 1: Obtain Vehicle Information (Request Info.)

NOTE: ECU to be programmed must be installed in the vehicle before beginning this process. Make sure the battery is fully charged.

1.1   With the Tech 2 and vehicle both off, connect the Tech 2 to the vehicle DLC (Figure I-3).
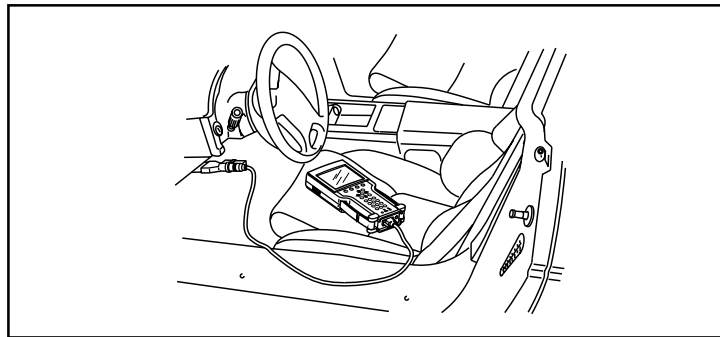

Figure I-3, Tech 2 to Vehicle Connection

1.2   Power on Tech 2. At the Tech 2 Title Screen, press Enter.

1.3   Turn the vehicle ignition to ON (engine not running).

1.4   At the Tech 2 Main Menu, select F1: Service Programming .

1.5   Press Request Info   (F0:) on the Tech 2.

NOTE: **If a VIN was previously stored in the Tech 2, press Request Info again (soft key), and follow the On Screen directions.**

1.6   Follow the On Screen directions. After the vehicle description is entered, turn off all power consuming devices, then press Continue (soft key).

1.7   The Tech 2 reads the VIN, then displays the VIN and calibrations. The Tech 2 will ask Is this VIN correct? Select Yes. (If the answer is No, write down the VIN number).

1.8   When complete, press Exit, power down, and disconnect the Tech 2 from the vehicle. Turn the vehicle ignition OFF.

Continue with step 2, *Transfer Data from the PC to the Tech 2.*

Step 2: Transfer Data from the PC to the Tech 2

2.1   Connect the Tech 2 to the terminal, as shown in Figure I-5.

2.2   At the terminal, launch TIS 2000.

2.3   From the TIS 2000 main screen (refer to Figure I-1), select the Service Programming System icon.

2.4   At the Select Diagnostic Tool and Programming Process screen (Figure I-4), make the appropriate selection for your procedure:

- Under Select Diagnostic Tool, select Tech 2. The Information Only is used to get calibrations for a particular vehicle without using the Tech 2. It also provides PROM data for vehicles that are not programmable. Pass-Thru performs SPS without disconnection from the vehicle or the terminal.

- Under Select Programming Process, identify whether an existing module is being reprogrammed or a module is being replaced with a new one.

- Under Select ECU Location, identify whether on-vehicle or off-board programming is being performed.

2.5   After making selections, select Next.
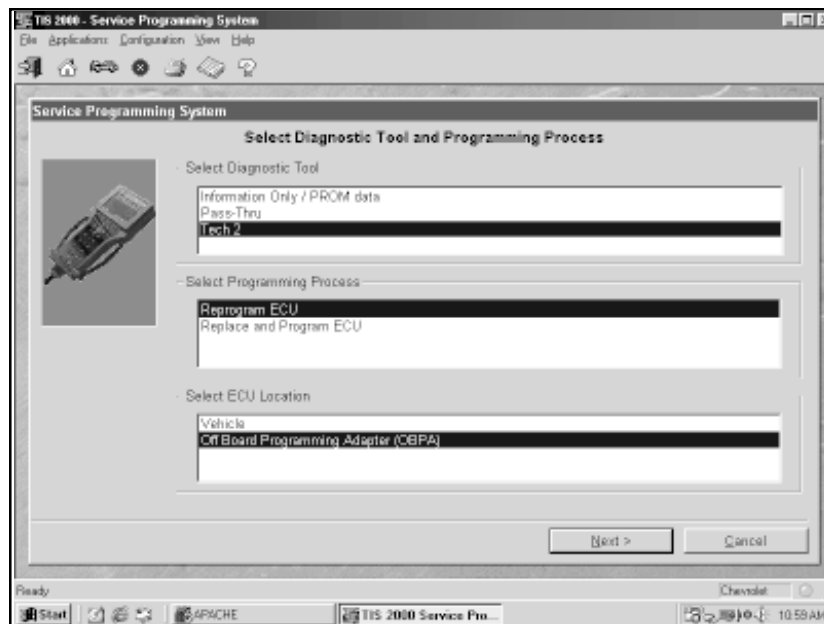

Figure I-4, Make SPS Selections
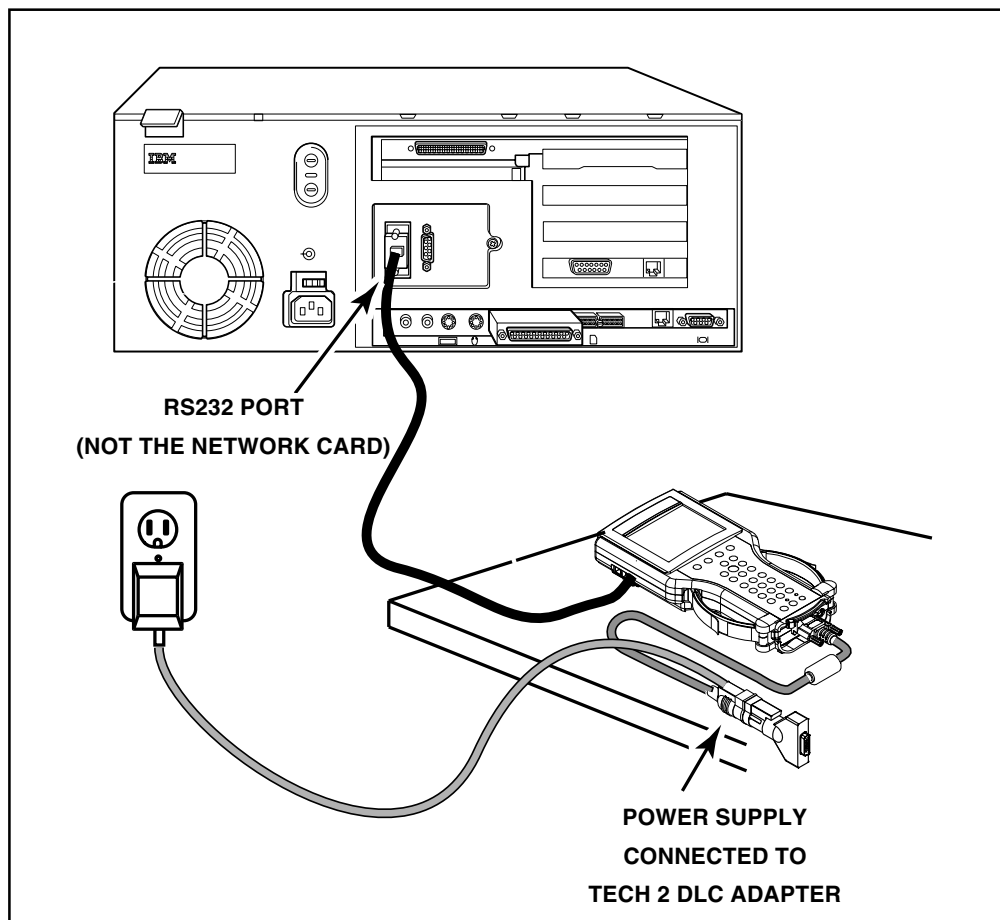
Figure I-5, Tech 2 to Computer Connection

Labels in figure:

RS232 PORT
(NOT THE NETWORK CARD)

POWER SUPPLY
CONNECTED TO
TECH 2 DLC ADAPTER

2.6 A reminder screen will appear for making the appropriate connections (Figure I-6). Select Next after confirming connections.
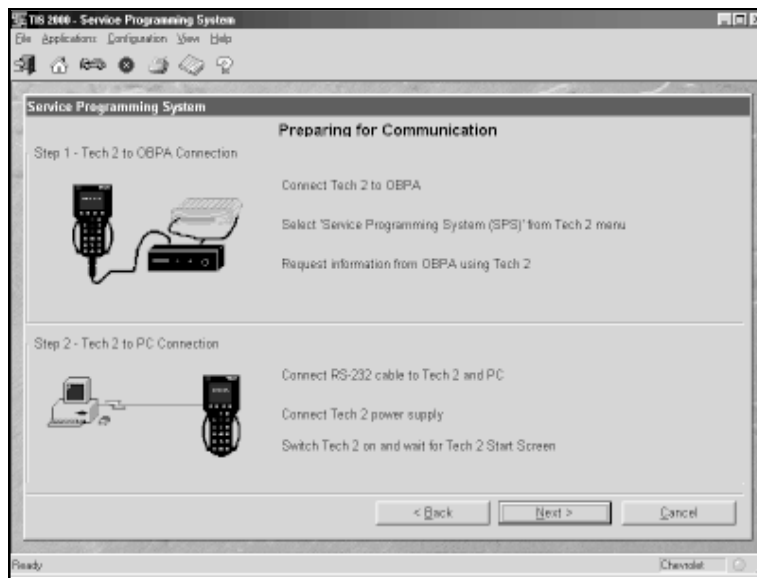

Figure I-6, Confirm Connections

NOTE: If you answered NO to the VIN Number is step 1.7, a box may appear stating The ECU could be a service ECU. Click OK .

2.7 A screen will appear asking to confirm the VIN (Figure I-7). After confirming/entering the correct VIN, select Next.
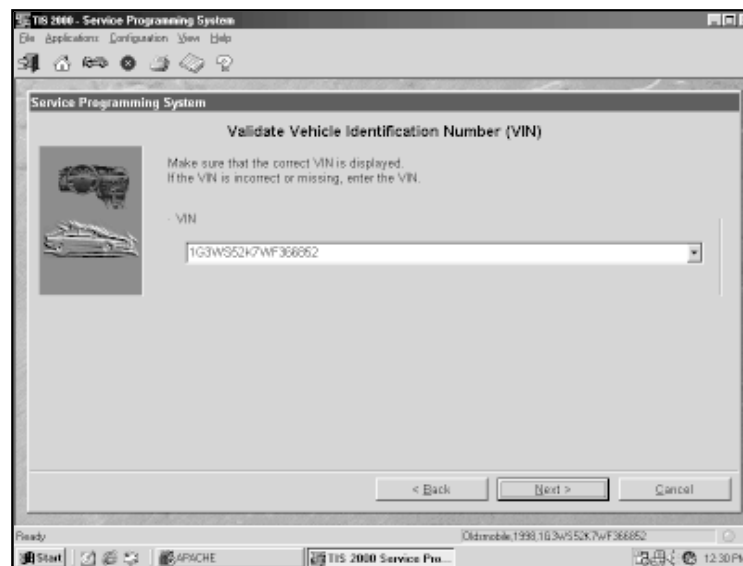

Figure I-7, Confirm VIN

2.8   A Supported Controllers screen (Figure I-8) will appear asking to identify the type of controller being programmed. Some vehicles may have more than one programmable controller   examples include PCM, BCM, IPC. Select the appropriate controller for the vehicle being serviced.

- After selecting the controller to be programmed, identify the type of programming to be performed.

  - Normal is used for updating an existing calibration or programming a new controller.

  - VCI (Vehicle Configuration Index) is also used for updating an existing controller or programming a new controller, but is used for newer vehicles whose VINs aren t yet in the database. For these vehicles, you will need to contact Vetronix Technical Support, at 1-800-321-4889, for assistance.

  - Reconfigure is used to reconfigure a vehicle, such as a truck, for changes in tire size and axle ratios.
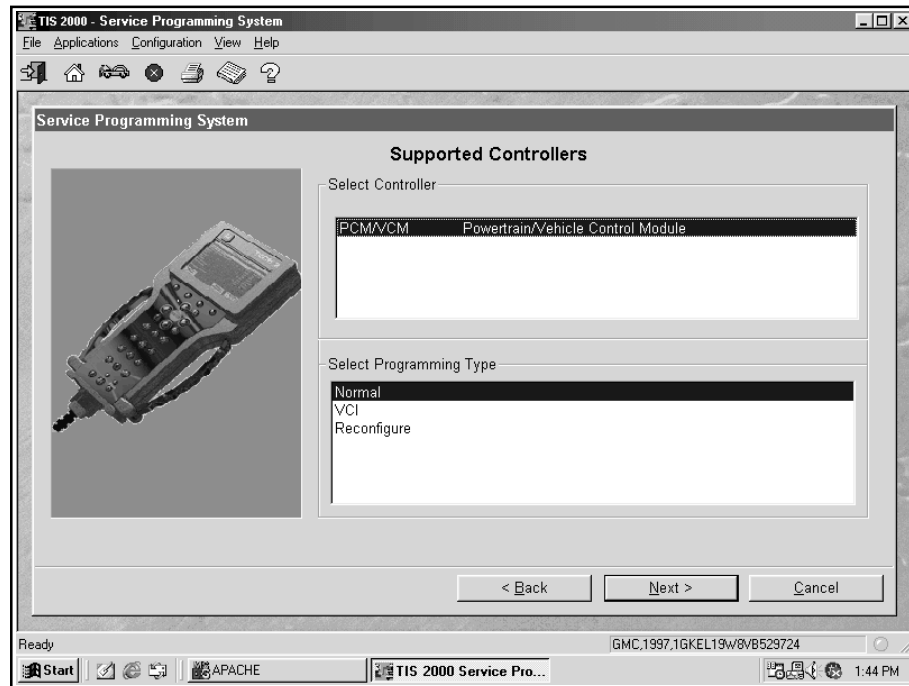

Figure I-8, Identify Controller Type
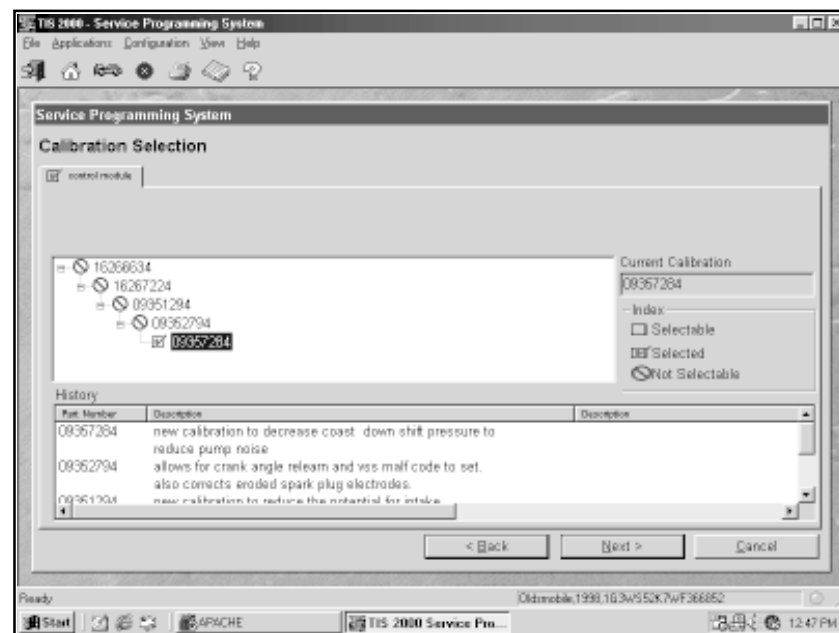
2.9   After making selections, select Next.

Figure I-9, PCM Calibration File Selection

2.10 A Calibration Selection screen will appear showing the calibration file history for the vehicle/controller being serviced. There are explanations of each calibration file. Based on the descriptions, select the appropriate file.

- Vehicles with PCMs will display a screen similar to the one shown in Figure I-9 (shown on previous page). It contains a single tab that summarizes all calibration files for the vehicle.

- Vehicles with VCMs will display a screen similar to the one shown in Figure I-10. It contains multiple tabs one for each distinct calibration file contained in the VCM. With these vehicles, it is necessary to make a selection within each tab, otherwise the system will display the message like the one shown in Figure I-11 indicating that not all selections have been made. (Notice the unchecked box in the System tab.)
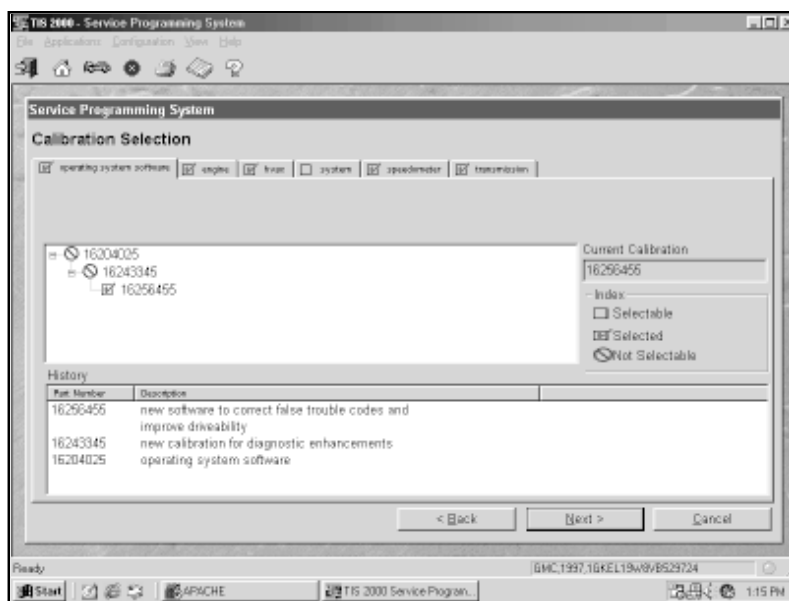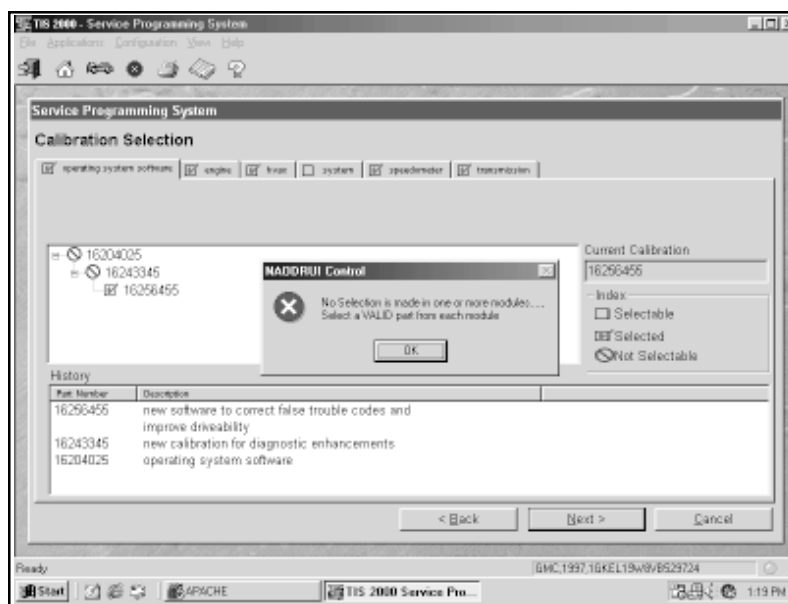

*Figure I-10, VCM Calibration File Selection*

Figure I-11, Calibration Selection Message

The following icons appear on the calibration selection screen(s):

• A circle with a slash (⊘) indicates a file that is not selectable.

• An open box (☐) indicates a file that is selectable.

• A box with a check mark (☑) indicates a valid file/option that has been selected.

• If service bulletins are listed along with the calibration files, the bulletins should be referred to before service programming is performed.

Then select Next.

2.11 After making the necessary selections, a Summary screen will appear (Figure I-12) allowing you to confirm your selection. Select Next to continue. If calibrations are the same, you get an NAODRUI control box stating Important: The calibration selected is already the current calibration in the control module. Reprogramming with the same download is not allowed. Click OK and back out, or click Cancel.
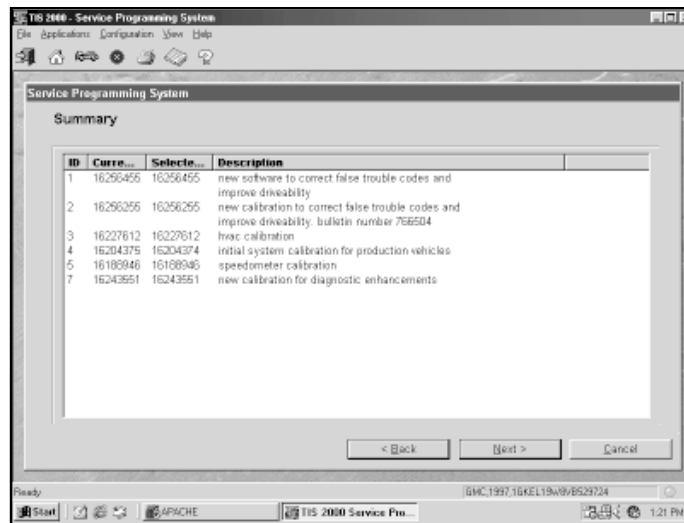
Figure I-12, Confirm Calibration

2.12 Most GM vehicles will require the Crankshaft Position Variation Relearn Procedure (Figure I-13) be performed after reprogramming the PCM/VCM. A box should appear directing you to use the Special Functions feature of the Tech 2 scan tool to perform this procedure. It may be necessary, even if this box does not appear during the reprogramming procedure. If Crankshaft Position Variation Relearn Procedure is listed under Special Functions, you need to perform the procedure. Click OK.
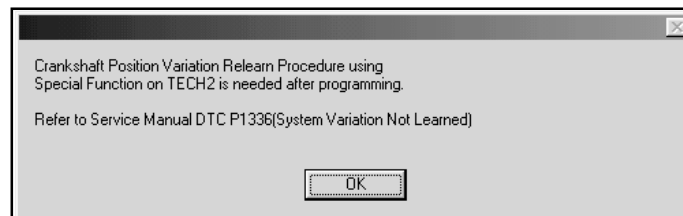
Figure I-13, Crankshaft Position Variation Relearn Procedure

2.13 A Transfer Data screen will appear (Figure I-14). The application will automatically initiate the download of the new calibration file to the Tech 2. The screen will track the progress of the download.
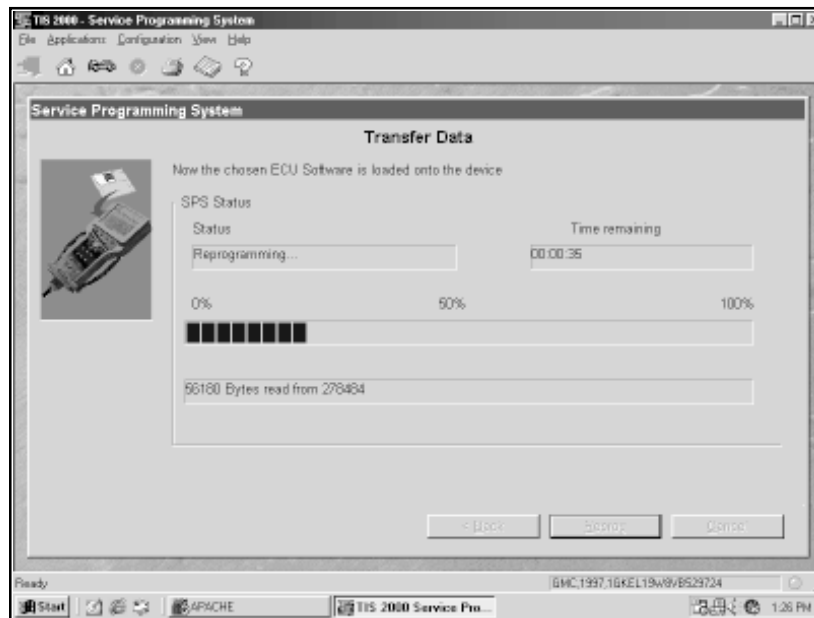
Figure I-14, Transfer Data

2.14 After the download is complete, a screen will appear with instructions for connecting the Tech 2 to the vehicle to complete the programming process (Figure I-15). Close the application to return to the TIS 2000 Application Selection screen, then power down and disconnect the Tech 2 from the PC.
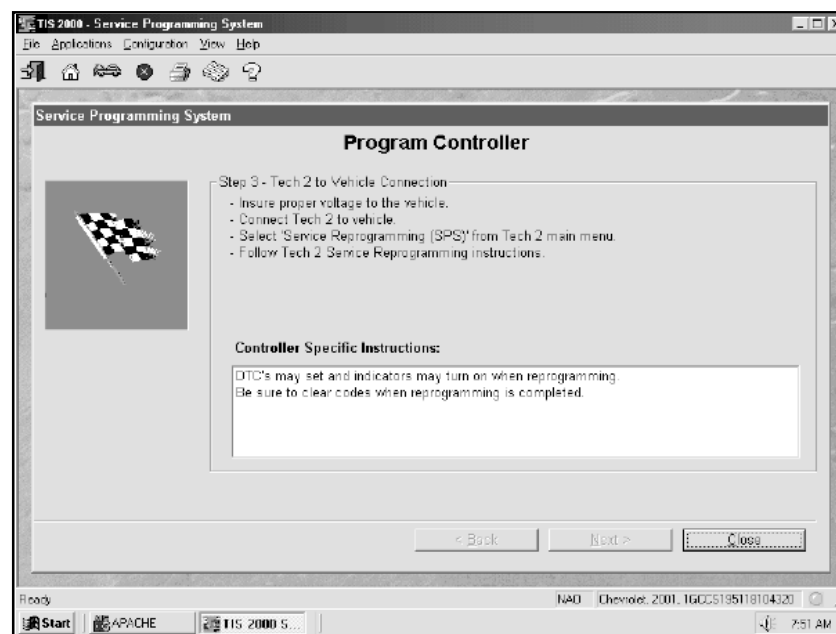
Figure I-15, Transfer Complete

Continue to *step 3, Transfer Data from the Tech 2 to the Control Module.*

Step 3: Transfer Data from the Tech 2 to the Control Module

3.1   With the Tech 2 and vehicle both off, connect the Tech 2 to the vehicle DLC (refer to Figure I-3).

3.2   Power on the Tech 2. At the Tech 2 Title Screen, press Enter.

3.3   Turn the ignition ON (engine not running).

3.4   At the Main Screen, select F1: Service Programming System .

3.5   Select the Program ECU Enter key or F1 key on the Tech 2. The Tech 2 will display VIN and calibration numbers. Verify, then select Continue (soft key) . Follow the on screen directions then press Continue (soft key) . The Tech 2 screen will display programming, line data, and a bar graph.

3.6   When the transfer is complete, the Tech 2 will display the message Programming was Successful. Press the Continue soft key to exit the program. Turn the vehicle ignition off first, then turn the Tech 2 off and disconnect it from the vehicle.

Be sure to verify successful reprogramming. Refer to the recommendations below.

Verifying Reprogramming

After any kind of control module programming, verify that programming was successful:

• Turn the ignition off, wait at least 30 seconds, then start the vehicle to confirm that reprogramming was successful. If the vehicle does not start or starts but runs rough, repeat the SPS procedure.

Important:
Some vehicles will require that Idle Learn, TP Learn, Theft Deterrent Relearn, or Crankshaft Variation Learn procedures be performed after programming. Consult the appropriate service information for these procedures.

Pass-Thru Programming

Pass-Thru programming simplifies SPS by eliminating the disconnect/reconnect process that is necessary to perform remote programming. The scan tool remains connected to the terminal via the RS-232 cable, and to the vehicle or Off-Board Programming Adapter (OBPA) via the Data Link Connector (DLC) cable throughout the programming process. The vehicle (or OBPA) must, however, be in close proximity to the terminal while using Pass-Thru. The connecting RS-232 cable should not be more than 25 feet long, in order to reduce potential for signal loss.

Performing Pass-Thru Programming

Perform Pass-Thru using TIS 2000 as follows:
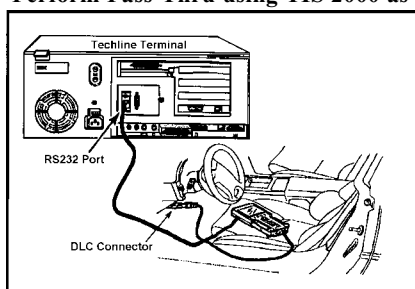
(Vehicle to Terminal Pass-thru Connection)

1. From the Win 95/98 desktop,

   Double-click the TIS 2000 icon.

The SPS Application Selection screen contains elements common to all Windows 98 applications. There s a title bar, menu bar, toolbar, task bar, and minimize/maximize/close icons. The SPS icon resides at the left side of the screen.

2. The TIS 2000 Application Selection screen appears. (Figure I-16)
   Click the SPS icon.
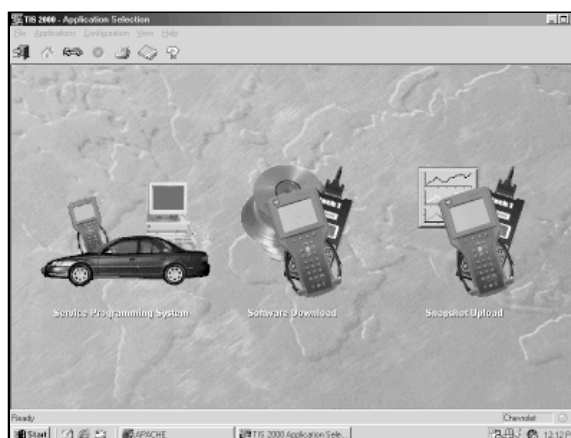
Figure I-16, Application Selection screen

3. The Select Diagnostic Tool and Programming Process screen appears.(Figure I-17)

- **Highlight** Pass-Thru
- **Highlight** Reprogram ECU
- **Highlight** Vehicle
- **Select** Next
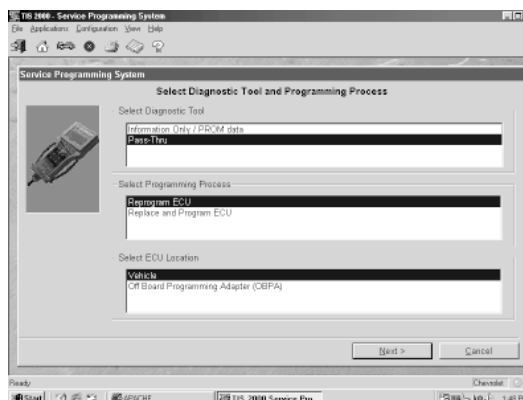
Figure I-17, Select Diagnostic Tool and Programming Process screen

4. At the Preparing for Communication/Determine Vehicle screen (Figure I-18) complete all terminal-directed data until Next is highlighted (vehicle data will vary).
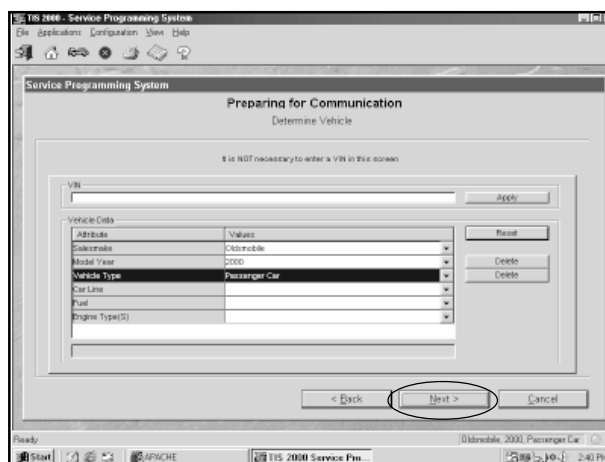
   Select Next.

Figure I-18, Preparing for Communication / Determine Vehicle screen

5. Follow the instructions in the Preparing for Communication screen. (Figure I-19)

   Select Next.
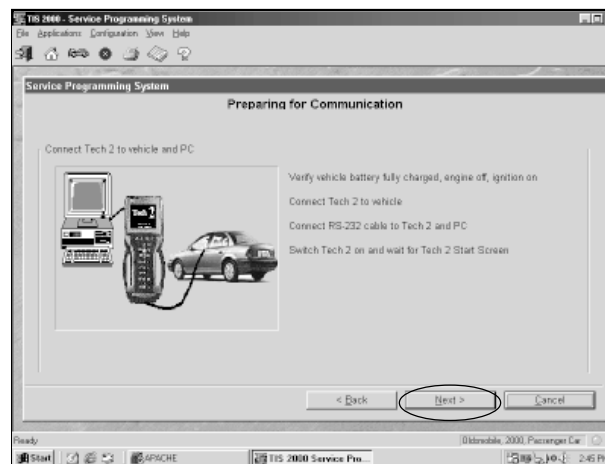
Figure I-19, Preparing for Communication screen

6. The Validate Vehicle Identification Number

   (VIN) screen appears. (Figure I-20)

   If Vehicle Identification Number (VIN) does not appear correctly, you must

   Enter the correct VIN number.

   Select Next.

   If the option screen appears:

   Enter all information, then

   Select Next.
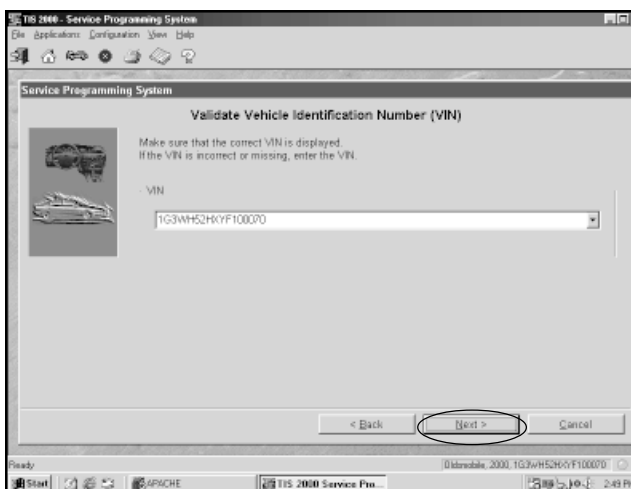
Figure I-20, Validate Vehicle Identification Number (VIN) screen

3

7. The Supported Controllers screen appears (Figure I-21).

Highlight the appropriate control module e.g. PCM/VCM Powertrain/Vehicle Control Module).

Highlight the appropriate programming type (Normal, VCI, or Reconfigure).

Options available in the Select Controller box will vary depending upon the VIN number entered at the previous screen.

Select Next.

Figure I-21, Supported Controllers screen

Note: If you select VCI for your programming type, then a VCI number entry box appears (Figure I-22).

Enter a valid VCI number for this vehicle (obtained from Technical Support).
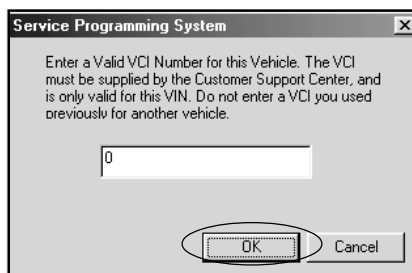
Select OK.

Figure I-22, VCI number entry box

Note: If you select Reconfigure for your programming type, the Reconfigure box appears (Figure I-23).

Highlight the correct tire size and axle ratio.

Select OK.

The VCI number entry box appears.

Enter a valid VCI number (obtained from Technical Support) .
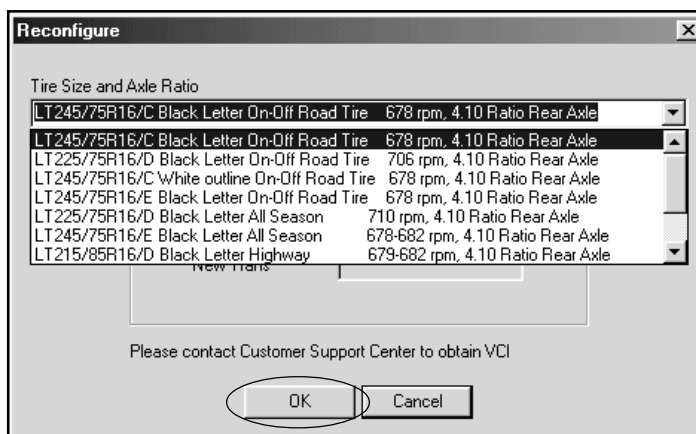
Select OK.

Figure I-23, Reconfigure box

8. The Calibration Selection screen appears (Figure I-24).

   Select the proper Calibrations.

   **Make sure <u>all folder tabs</u> have a green check mark.

   Select Next.
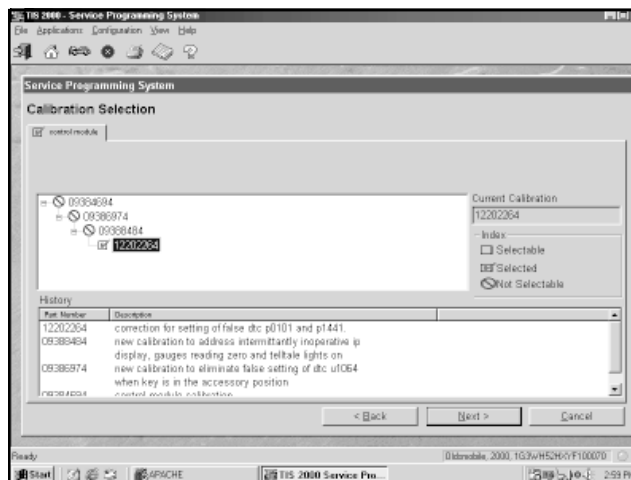
Figure I-24, Calibration Selection screen

9. The Summary screen prompt appears (Figure I-25).

   Verify current calibration(s) with selected calibration(s).

   Select Next.
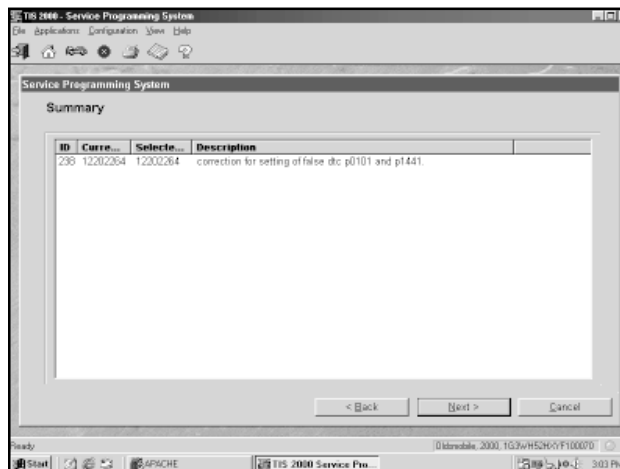
Figure I-25, Summary screen

Note: **If** calibrations are the same, **then** the NAODRUI Control box appears (Figure I-26) stating,   Important: The calibra-
tion selected is already the current calibration in the control module. Reprogramming with the same download file is not
allowed.
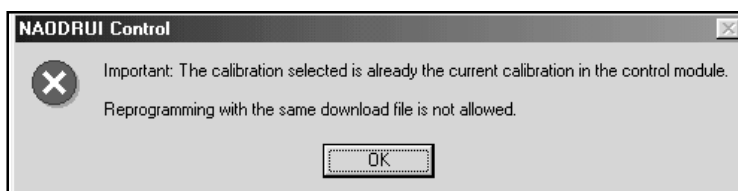
   Select OK.

Figure I-26, NAODRUI Control box

Note: On model year 96 and newer controllers, a crankshaft position relearn procedure box may appear (Figure I-27).

   Select OK.
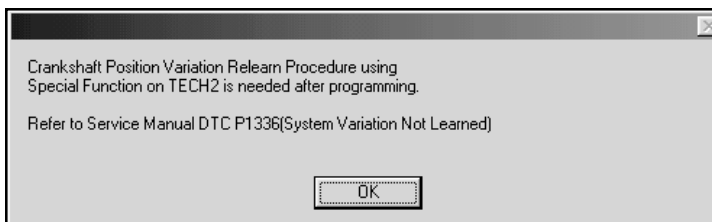
Figure I-27, Crankshaft Position Variation Relearn Procedure box

The Transfer Data screen appears (Figure I-28). Reprogramming begins; finishing when the percentage bar reaches 100 percent.
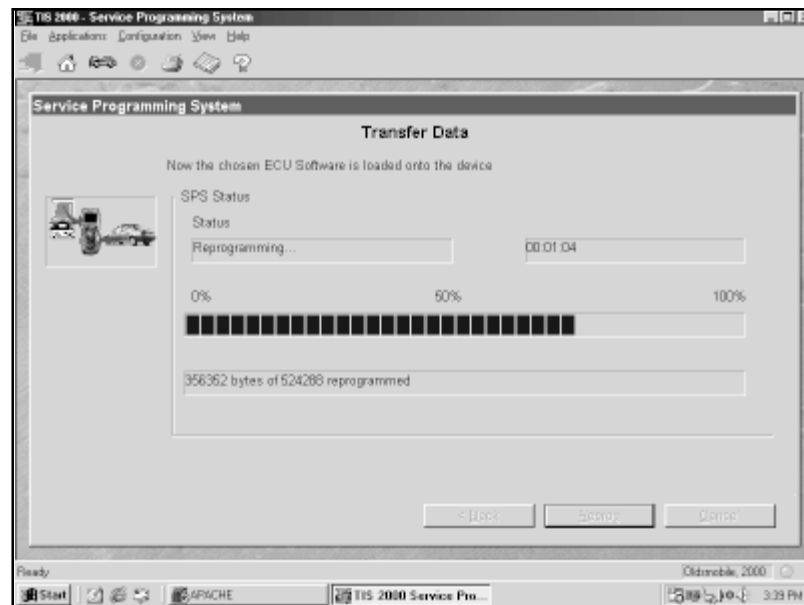
Figure I-28, Transfer Data screen

10. The Program Controller/Programming Complete screen appears (Figure I-29).

    Select Close. The program will return to the Application Selection screen. Be sure to verify successful reprogramming. Refer to Verifying Reprogramming , page I-12.

Figure I-29, Program Controller / Programming Complete screen

Off-Board Programming Adapter (OBPA) Remote SPS Procedure

The OBPA is used in situations where a module must be programmed without having the vehicle present. This need may arise, for example, when a dealership parts department sells a control module to a retail or aftermarket customer. To perform SPS in this scenario requires an Off-Board Programming Adapter. The adapter allows the module to be powered up and communicate with the scan tool. The part number for the OBPA kit is J 41207-C. It is available for purchase by calling 1-800-GM-TOOLS.

Notice:

Prior to performing SPS, it is important to heed the following precaution.

Ensure that the Tech 2 and the terminal are both equipped with the latest software.

To perform Off-Board Remote Programming:

1. Obtain VIN of the vehicle that the module is being programmed for.
2. Launch TIS 2000. Select the Service Programming System icon (Figure I-30).

Figure I-30, Application Selection Screen

3. At the first screen, select Tech 2, Reprogram ECU, and Off-Board Programming Adapter as the ECU location (Figure I-31). Select Next.
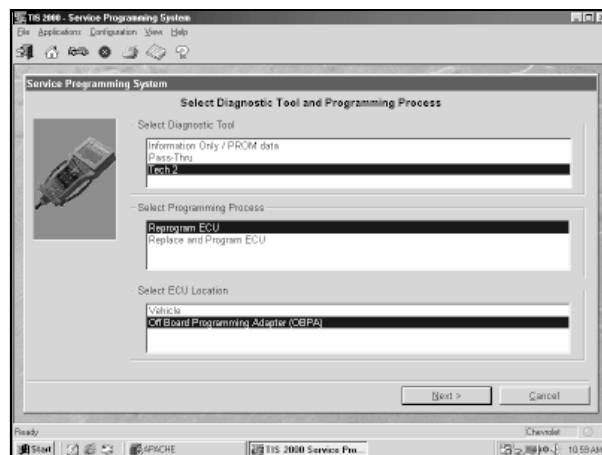
Figure I-31, Make SPS Selections

4. Follow the directions on the Preparing for Communication screen (Figure I-32) for connecting the control module, OBPA, and Tech 2. Be sure to use the correct connector for the control module. Refer to the chart on page I-22 for a listing of adapters and Figure I-40 for OBPA adapter hook-up.

5. With the connection screen still up on the PC, go to the Tech 2 and select the Service Programming Request Information function. Follow the Tech 2 instructions to obtain module data and security info.

6. After the Tech 2 has received data from the module, exit the Request Info mode and disconnect the Tech 2 from the OBPA. Power down the Tech 2.

7. Connect the Tech 2 to the PC (Figure I-33). Power up the Tech 2.
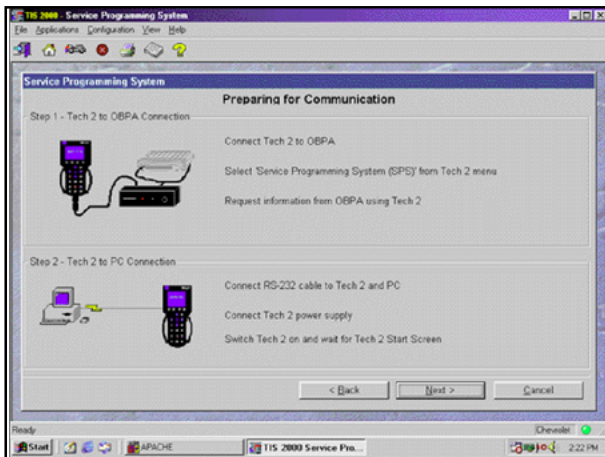
Figure I-32, Preparing for Communication
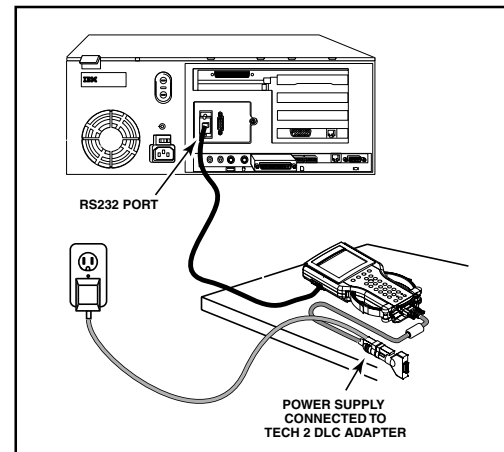
Figure I-33, Tech 2 to Computer Connection

8. After the Tech 2 start-up screen appears, select Next at the PC.

9. At the PC, enter the VIN of the vehicle that will be receiving the control module. Select Next.

10. The PC will display the message Please wait! Attaching to database.

11. The PC will display a screen asking you to select the type of programming to be performed: normal or VCI (Figure I-34). Select Next. If you select VCI, a series of screens will direct you through the process.
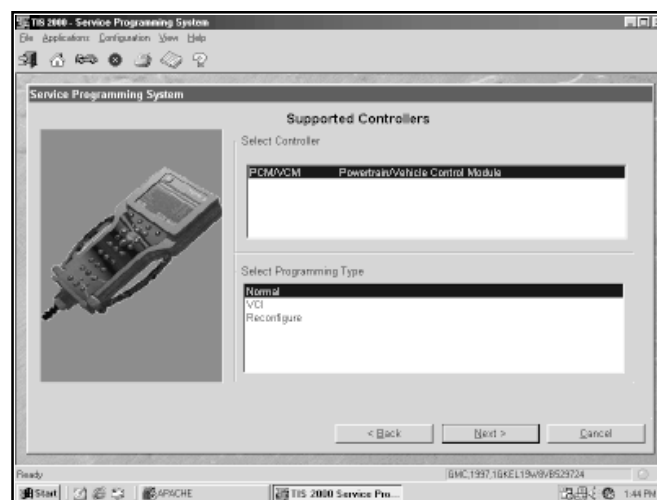
Figure I-34, Identify Controller

12. A Calibration Selection screen will appear showing the calibration to be used (Figure I-35). Make a calibration selection, if necessary. When all calibrations are selected, a green check mark will appear on each folder tab. Select Next.
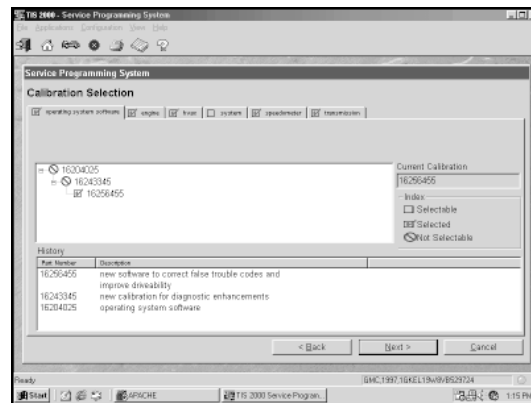
Figure I-35, VCM Calibration File Selection

13. A summary screen will appear that summarizes the current and selected calibrations of the control module. Confirm your choices (Figure I-36), then select Next.
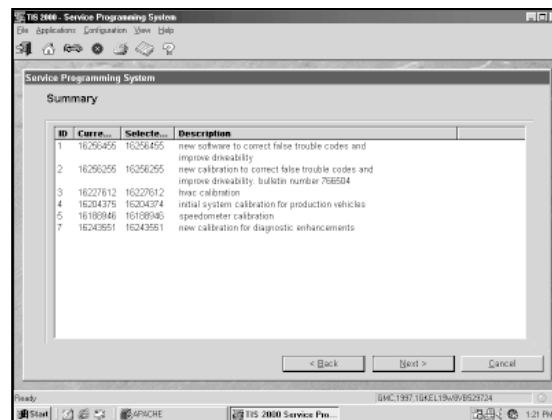
Figure I-36, Confirm Calibration

Note: **If** calibrations are the same, **then** the NAODRUI Control box appears (Figure I-37) stating,   Important: The calibration selected is already the current calibration in the control module. Reprogramming with the same download file is not allowed.
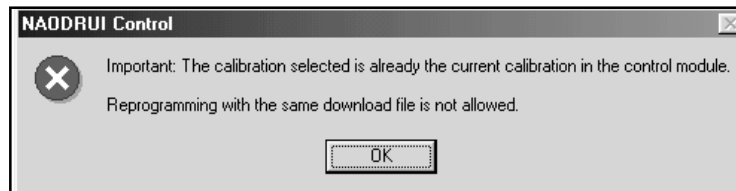
Select OK.

Figure I-37, NAODRUI Control box

Note: On model year 96 and newer controllers, a crankshaft position relearn procedure box may appear (Figure I-38).

Select OK.
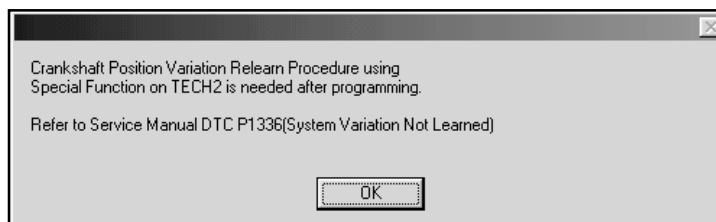
Figure I-38, Crankshaft Position Variation Relearn Procedure box

14.   A transfer data screen will appear (Figure I-39). The PC will automatically load the calibration into the Tech 2.
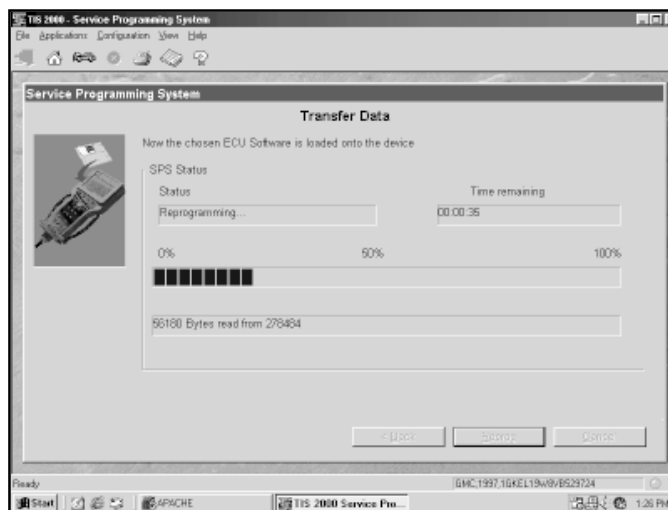
Figure I-39, Transfer Data

15.   After the download is complete, a Program Controller/Programming Complete screen appears. Follow the on-screen instructions (if any), then select Close and disconnect the Tech 2 from the PC.

NOTICE:

• **To help avoid possible controller failure, make sure all cable connections are secure.**

---

16.   Reconnect the Tech 2 to the OBPA. Enter the Tech 2 Service Programming function and download the calibration to the module by pressing the Program ECU Function (F1:). At the new programming data screen, press the continue soft key. Follow the Tech 2 on screen instructions, then press the continue soft key.

17.   When programming is complete, press Exit on the Tech 2, power OFF the OBPA, then power OFF the Tech 2

(Wait 30 seconds after OBPA is shut off before disconnecting the control module in order to allow the controller to reset).

1.   SPS Off-Board Programming Adapter J41207-C
2.   Reprogrammable Control Module (Flash EEPROM)
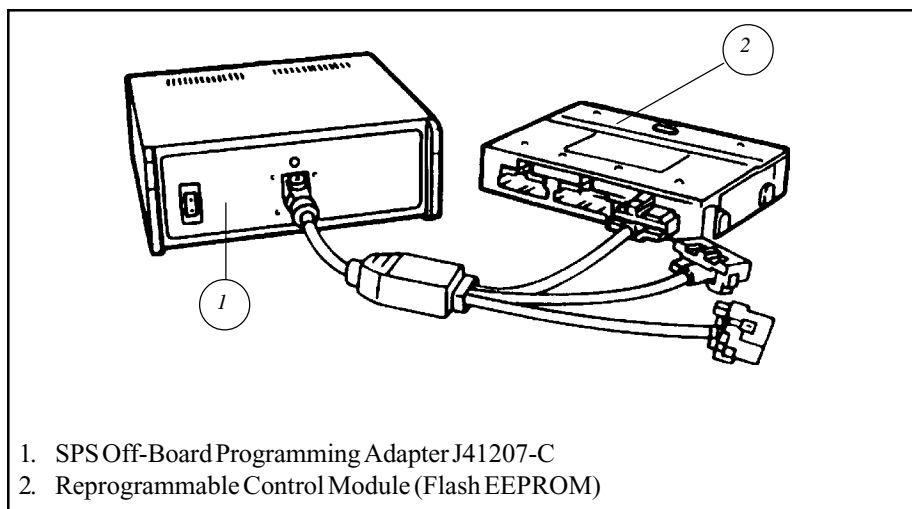
Figure I-40, OBPA Hook-Up

OBPA ADAPTER SELECTION

OBPA Cable	Adapter Color	Years	Body	Engine
Cable #1	Black	1990—94	R	1.6L LO1 VIN 6
		1991—94	R	1.8L LV6 VIN 8
	Clear	1996	A, J, L, S/T Truck	2.2L LN2 VIN 4
		1995	J	2.3L LD2 VIN D
		1996	J, N	2.4L LD9 VIN T
		1994—95	S/T Pickup	4.3L LB4 VIN Z
	Blue	1993	S/T Pickup	4.3L LB4 VIN Z
Cable #2	Blue & Smoke	1993	W	3.1L LH0 VIN T
		1994—95	L, N, W	3.1L L82 VIN M
		1993—95	F	3.4L L32 VIN S
		1994—96	B	4.3L L99 VIN W
		1994—96	B, D, Y	5.7L LT1 VIN P
		1996	Y	5.7L LT4 VIN 5
		1994—97	F	5.7L LT1 VIN P
	Pink	1992—93	A, J	2.2L LN2 VIN 4
		1993	L	2.2L LN2 VIN 4
Cable #3	Smoke	1995—97	S/T Truck	4.3L L35 VIN W
		1996—97	S/T Truck	4.3L LF6 VIN X
		1996—97	C/K, G, L/M, P Trk	4.3L L35 VIN W
		1996—97	C/K, G Truck	5.0L L30 VIN M
		1996—97	C/K, G, P Truck	5.7L L31 VIN R
		1996—97	C/K, G, P Truck	7.4L L29 VIN J
		1997	W4	5.7L L31 VIN R
Cable #4	Blue	1996	A, L, N, W	3.1L L82 VIN M
		1996—97	W	3.4L LQ1 VIN X
		1997	W	3.8L L67 VIN 1
		1997	N, W	3.1L L82 VIN M
		1997	J, S/T Truck	2.2L LN2 VIN 4
		1997	J, N	2.4L LD9 VIN T
		1996—97	U Van	3.4L LA1 VIN E
		1995-97	F	3.8L L36 VIN K
		1997	Y	5.7L LS1 VIN G
		1996—97	C, G, H, W	3.8L L36 VIN K
		1996—97	C, G, H	3.8L L67 VIN 1
		1996—97	G	4.0L L47 VIN C
		1996—97	E, K	4.6L LD8 VIN Y
		1996—97	E, K	4.6L L37 VIN 9
	Light Blue	1996—97	C/K, G, P Truck	6.5L L65 VIN F
		1996—97	C/K Truck	6.5L L56 VIN S
		1997	C6/C7, Pg/B7	6.5L L65 VIN F
		1997	Z	1.9L LLO VIN 7
		1997	Z	1.9L L24 VIN 8

* For years 1998 through 2000:
All truck VCM applications use Cable #3.
All other applications use Cable #4.

Beginning year 2001 and beyond, ALL applications use Cable #4.

Off-Board Programming Adapter (OBPA) Pass-Thru SPS Procedure

The OBPA is used in situations where a module must be programmed without having the vehicle present. This need may arise, for example, when a dealership parts department sells a control module to a retail or aftermarket customer. To perform SPS in this scenario requires an Off-Board Programming Adapter. The adapter allows the module to be powered up and communicate with the scan tool. The part number for the OBPA kit is J41207-C. It is available for purchase by calling 1-800-GM-TOOLS.
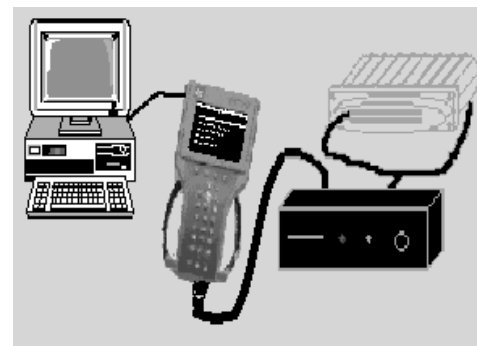
OBPA Connection

NOTICE:

- **Prior to performing SPS, make sure that the scan tool and the terminal are both equipped with the latest software**

- **To help avoid possible controller failure, make sure all cable connections are secure**

To perform Pass-Thru Off-Board Programming:

1. **Launch** TIS 2000. **Click** the Service Programming System icon (Figure I-41).

Figure I-41, Application Selection screen

2. At the Select Diagnostic Tool and Programming Process screen (Figure I-42), **select** Pass-Thru, Reprogram ECU, and Off-Board Programming Adapter as the ECU location. **Select** Next.
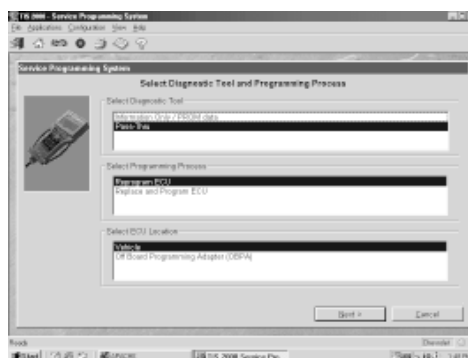
Figure I-42, Select Diagnostic Tool and Programming Process screen

3. At the Preparing for Communication/Determine Vehicle screen (Figure I-43), complete all terminal-directed data until Next is highlighted (vehicle data will vary). **Select** Next.
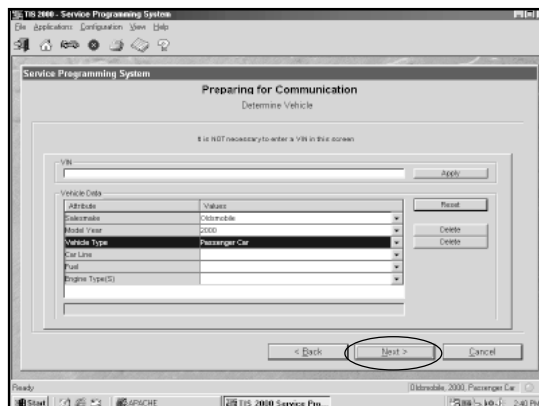
Figure I-43, Preparing for Communication / Determine Vehicle screen

4. Follow the on-screen directions for connecting the control module, OBPA, and scan tool (Figure I-44). Be sure to use the correct connector for the control module (refer to the chart on page 22 for a listing of adapters and Figure I-54 for OBPA adapter hook-up). **Select** Next.
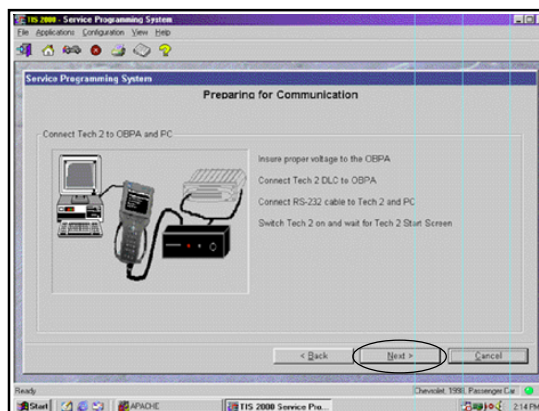
Figure I-44, Preparing for Communication screen

5.   Pass-Thru will display the VIN (Figure I-45) stored in the control module (or if programming a new control module, enter the correct VIN of the vehicle to be programmed). Select Next.
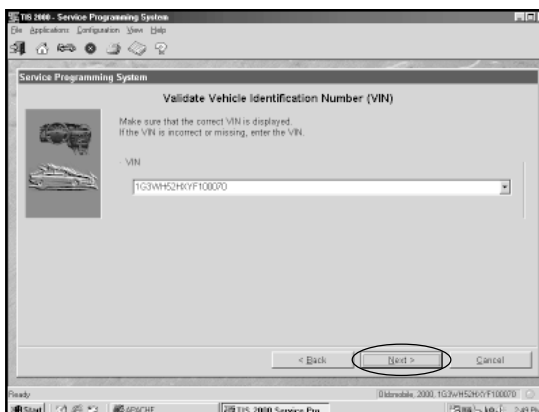
Figure I-45, Validate Vehicle Identification Number (VIN) screen

6.   If the Options screen appears (Figure I-46), **select** the appropriate options. **Select** Next.

Figure I-46, Options Screen

7.   The PC will display a screen asking you to select the type of programming to be performed: normal or VCI (Figure I-47). **Select** normal. If you select VCI, a series of screens will direct you through the process. **Select** Next.
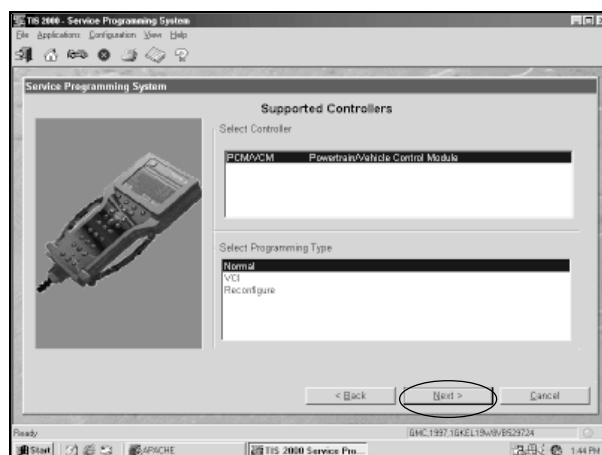
Figure I-47, Supported Controllers screen

8.   A Calibration Selection screen (Figure I-48) will appear showing the calibration to be used. Make a calibration selection, if necessary. When all calibrations are selected, a green check mark will appear on each folder tab. **Select** Next.
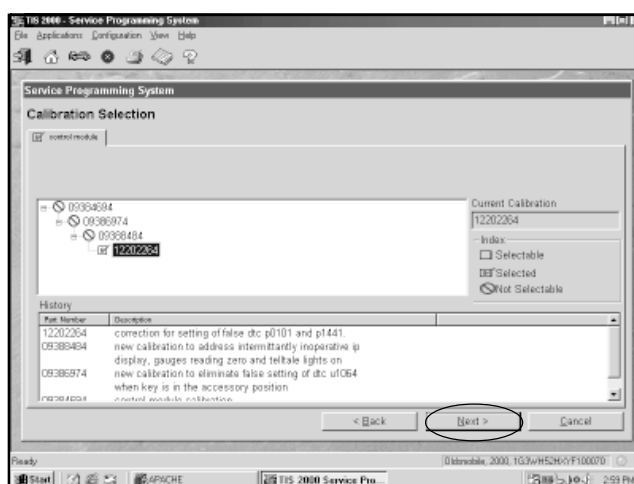
Figure I-48, Calibration Selection screen

9. A Summary screen (Figure I-49) will appear that summarizes the current and selected calibrations of the control module. Confirm your choices, then **select** Next.
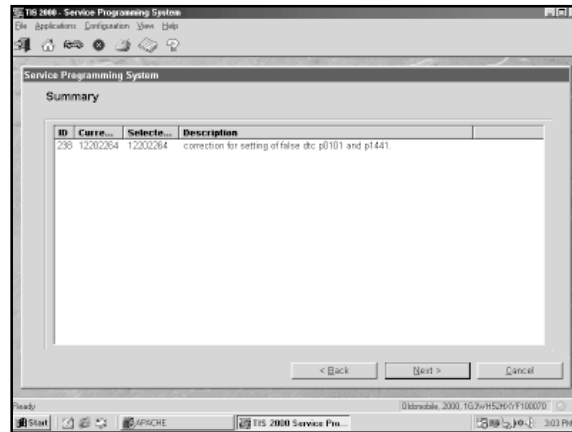
Figure I-49, Summary screen

Note: **If** calibrations are the same, **then** the NAODRUI Control box appears (Figure I-50) stating,   Important: The calibration selected is already the current calibration in the control module. Reprogramming with the same download file is not allowed.
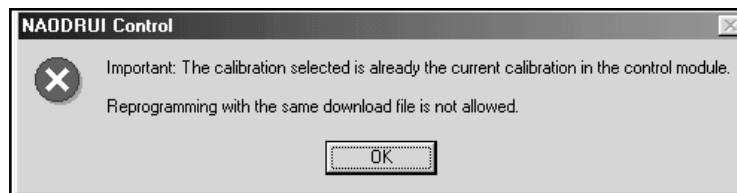
   Select OK.

Figure I-50, NAODRUI Control box

Note: On model year 96 and newer controllers, a crankshaft position relearn procedure box may appear (Figure I-51).

   Select OK.
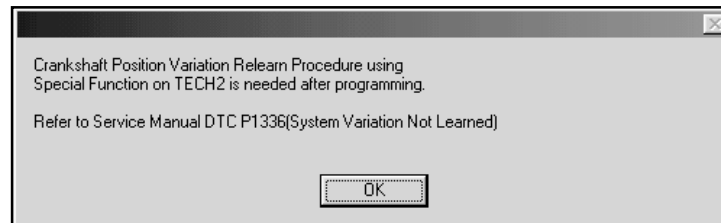
Figure I-51, Crankshaft Position Variation Relearn Procedure box

10. A Transfer Data screen will appear (Figure I-52). The PC will automatically load the calibration into the control module.
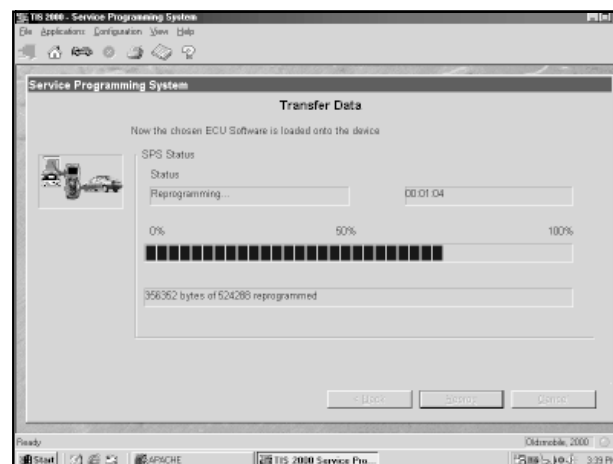
Figure I-52, Transfer Data screen

11. When programming is complete, a Program Controller/Programming Complete screen appears (Figure I-53). Follow the on-screen instructions (if any), then **select** Close.

Figure I-53, Program Controller / Programming Complete screen

12. **Power OFF** the OBPA, then **power OFF** the scan tool (wait 30 seconds after OBPA is shut off before disconnecting the control module in order to allow the controller to reset).

1. SPS Off-Board Programming Adapter J41207-C
2. Reprogrammable Control Module (Flash EEPROM)
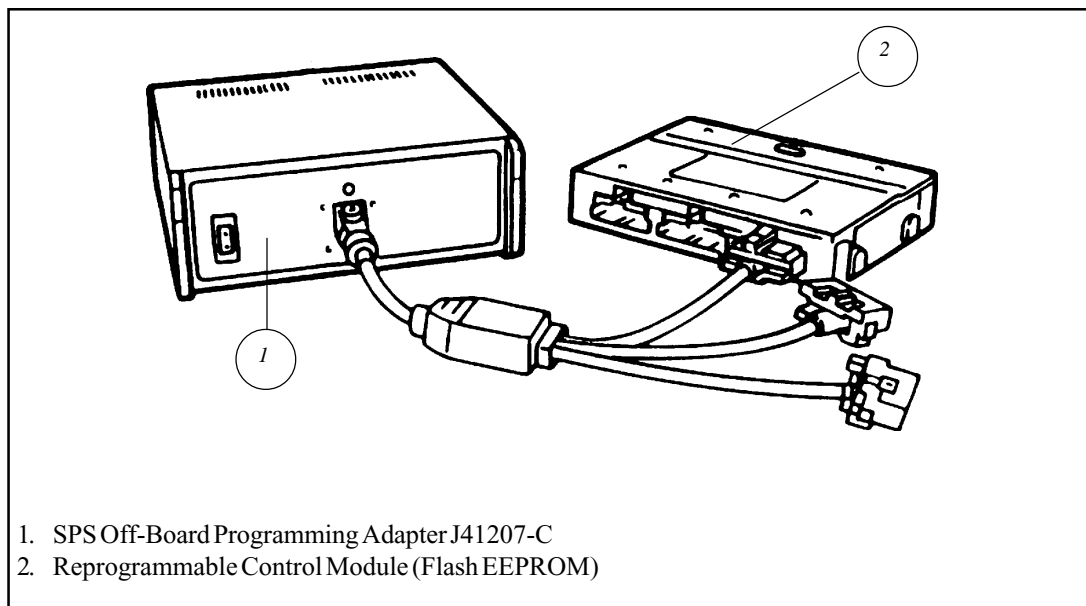
Figure I-54, OBPA Hook-up

OBPA ADAPTER SELECTION

OBPA Cable	Adapter Color	Years	Body	Engine
Cable #1	Black	1990—94	R	1.6L LO1 VIN 6
		1991—94	R	1.8L LV6 VIN 8
	Clear	1996	A, J, L, S/T Truck	2.2L LN2 VIN 4
		1995	J	2.3L LD2 VIN D
		1996	J, N	2.4L LD9 VIN T
		1994—95	S/T Pickup	4.3L LB4 VIN Z
	Blue	1993	S/T Pickup	4.3L LB4 VIN Z
Cable #2	Blue & Smoke	1993	W	3.1L LH0 VIN T
		1994—95	L, N, W	3.1L L82 VIN M
		1993—95	F	3.4L L32 VIN S
		1994—96	B	4.3L L99 VIN W
		1994—96	B, D, Y	5.7L LT1 VIN P
		1996	Y	5.7L LT4 VIN 5
		1994—97	F	5.7L LT1 VIN P
	Pink	1992—93	A, J	2.2L LN2 VIN 4
		1993	L	2.2L LN2 VIN 4
Cable #3	Smoke	1995—97	S/T Truck	4.3L L35 VIN W
		1996—97	S/T Truck	4.3L LF6 VIN X
		1996—97	C/K, G, L/M, P Trk	4.3L L35 VIN W
		1996—97	C/K, G Truck	5.0L L30 VIN M
		1996—97	C/K, G, P Truck	5.7L L31 VIN R
		1996—97	C/K, G, P Truck	7.4L L29 VIN J
		1997	W4	5.7L L31 VIN R
Cable #4	Blue	1996	A, L, N, W	3.1L L82 VIN M
		1996—97	W	3.4L LQ1 VIN X
		1997	W	3.8L L67 VIN 1
		1997	N, W	3.1L L82 VIN M
		1997	J, S/T Truck	2.2L LN2 VIN 4
		1997	J, N	2.4L LD9 VIN T
		1996—97	U Van	3.4L LA1 VIN E
		1995-97	F	3.8L L36 VIN K
		1997	Y	5.7L LS1 VIN G
		1996—97	C, G, H, W	3.8L L36 VIN K
		1996—97	C, G, H	3.8L L67 VIN 1
		1996—97	G	4.0L L47 VIN C
		1996—97	E, K	4.6L LD8 VIN Y
		1996—97	E, K	4.6L L37 VIN 9
	Light Blue	1996—97	C/K, G, P Truck	6.5L L65 VIN F
		1996—97	C/K Truck	6.5L L56 VIN S
		1997	C6/C7, Pg/B7	6.5L L65 VIN F
		1997	Z	1.9L LLO VIN 7
		1997	Z	1.9L L24 VIN 8

* For years 1998 through 2000:
All truck VCM applications use Cable #3.
All other applications use Cable #4.

Beginning year 2001 and beyond, ALL applications use Cable #4.

Software Download

The Software Download function of TIS 2000 is used to update Tech 2 Scan Tool software to the latest version. Like all computers, the Tech 2 scan tools each store software that determine how they run and what they can do. This software allows the scan tools to perform diagnostic routines on/for the following vehicle applications: Powertrain; Body; Chassis; and Service Programming.

Scan tool software is regularly updated to reflect changes in vehicle engineering or diagnostics. As changes to the scan tool software are developed. Scan tool software updates can include: new vehicle and system coverage; updates to original application releases; and fixes to known software concerns.

The Tech 2 PCMCIA Card

NOTICE:

The PCMCIA card is sensitive to magnetism and static electricity. Use care when handling.

IMPORTANT:

The PCMCIA card is accessed through a door on top of the Tech 2, and should only be removed if instructed by the Techline Customer Support Center. The card is ejected by pushing the arrow button pointing to card to be removed. Cards are notched to allow insertion only one way. When reinserting the card make sure that it fully seats into the Tech 2. The PCMCIA card fits into slot zero which is closest to the screen. There is a second slot for non North American Operations (NAO) vehicle software. The second slot is identified as slot one.

The Tech 2 software is stored on a Personal Computer Memory Card Industry Association (PCMCIA) card (Figure I-55). All of the applications share a single database of information on the Tech 2 s PCMCIA card.

The memory card has a capacity of 10 Megabytes. The card can store two snapshots and one Capture Info. data file. This allows analysis of intermittent conditions on a vehicle being serviced.

A write-protect slide mechanism is on the top edge of the card under a white plastic CPA-type device. The correct position is to the middle of the card (unlocked). If the write protect is in the locked position, snapshots and Capture Info. will not be able to be stored, and Service Programming will not work.
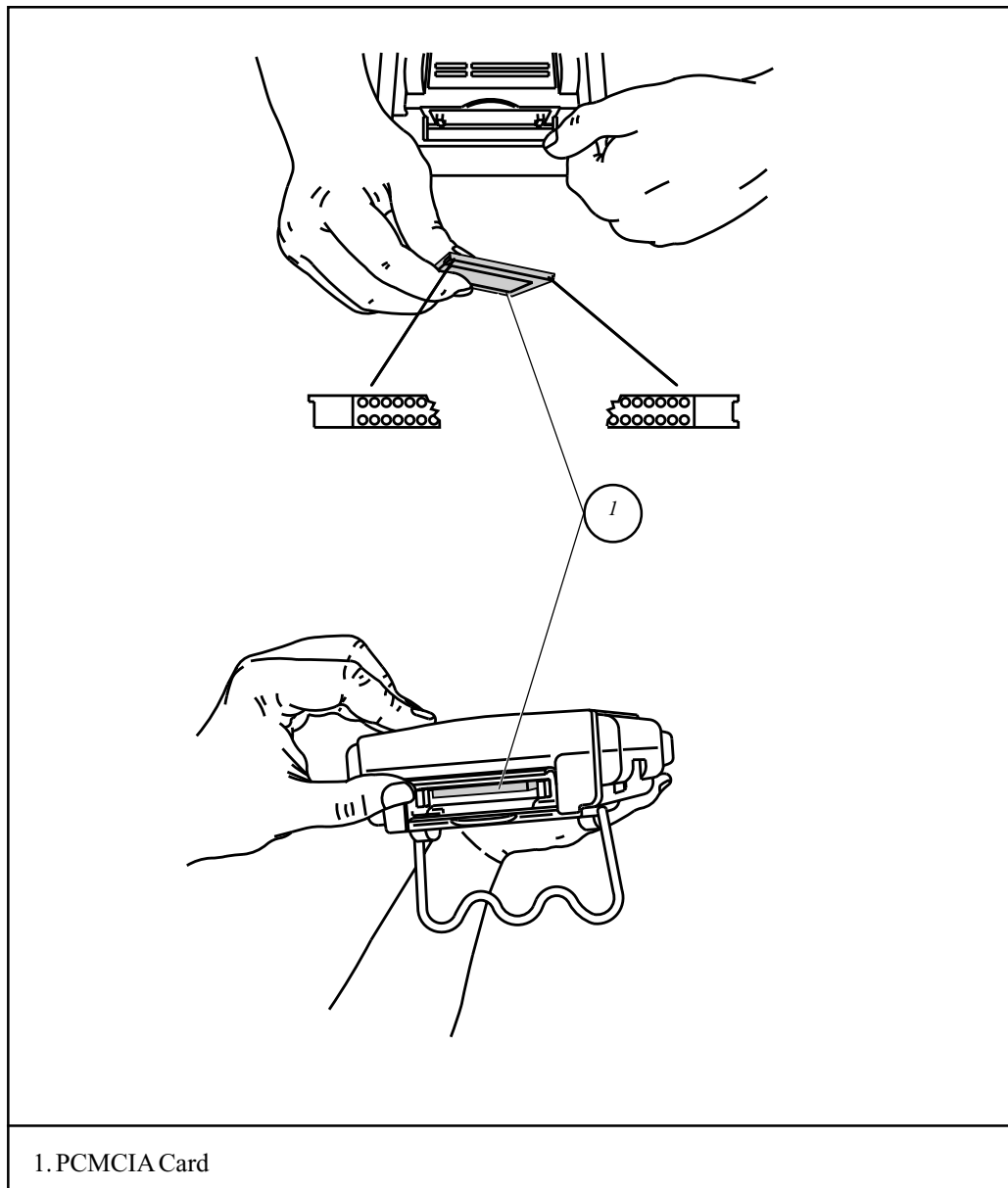
1. PCMCIA Card

Figure I-55, Tech 2 PCMCIA Card

The Tech 2 Update Procedure

The Software Download function of TIS 2000 allows updating of the Tech 2 scan tool with the latest service information. The Software Download function will transfer (download) updated scan tool software from the PC to the scan tool.

Standard Update

To perform a Standard Tech 2 update:

1. Connect the scan tool to the PC using the RS232 cable (refer to Figure I-5).
2. Power up the scan tool using the AC power supply that came with the tool (refer to Figure I-5).
3. At the PC, launch TIS 2000.
4. From the TIS 2000 main screen, select the Software Download icon.
5. At the Select Diagnostic Tool for Download screen, highlight standard (Figure I-56).

    • *Standard* installs the newest software onto the scan tool.

    Select Next. After confirming the selection, a message will appear indicating the PC is reading the contents of the diagnostic tool.

6. The PC will display a Confirm Software Change screen (Figure I-57) showing what the Tech 2 currently contains and what it will contain after the download. Click Next to continue.

NOTICE:

Clicking Next at the Confirm Software Change screen will initiate the download. Be sure the correct file has been selected before clicking Next.

---

7. A Performing the Software Download screen will appear (Figure I-58). It tracks the status of the download.
8. When the download is complete, a Download Finished screen appears (Figure I-59). Select Close to close the application. The scan tool now contains the latest software.
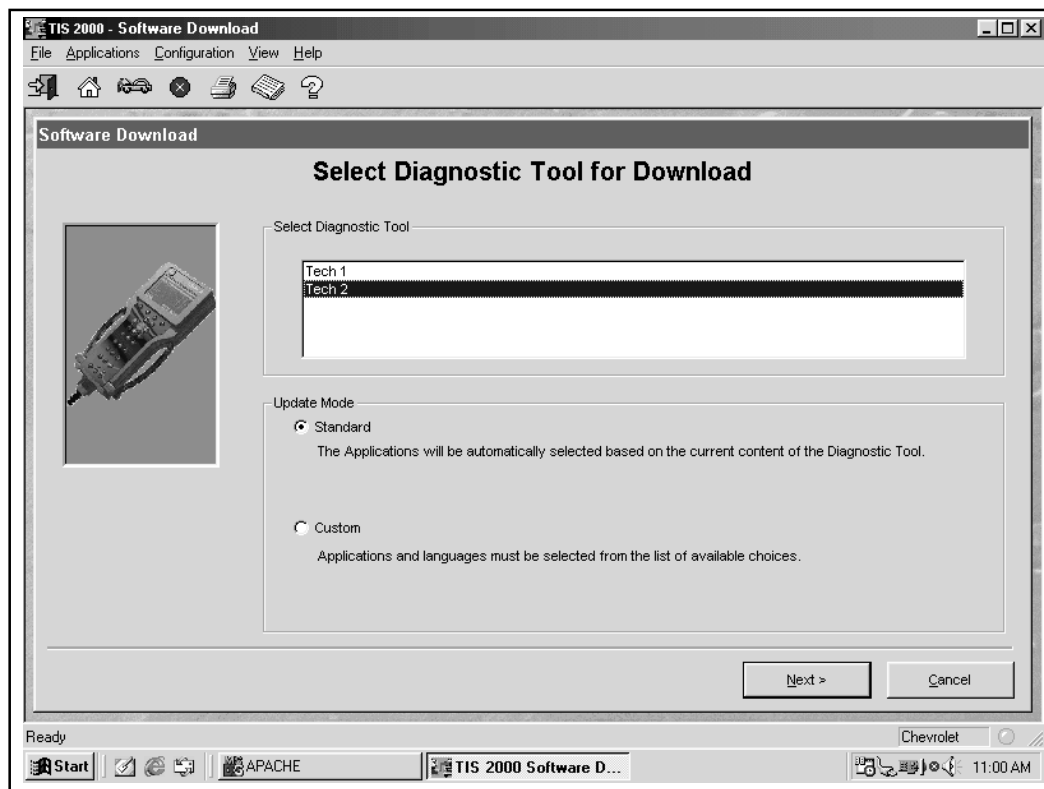
Figure I-56, Select Tool for Updating
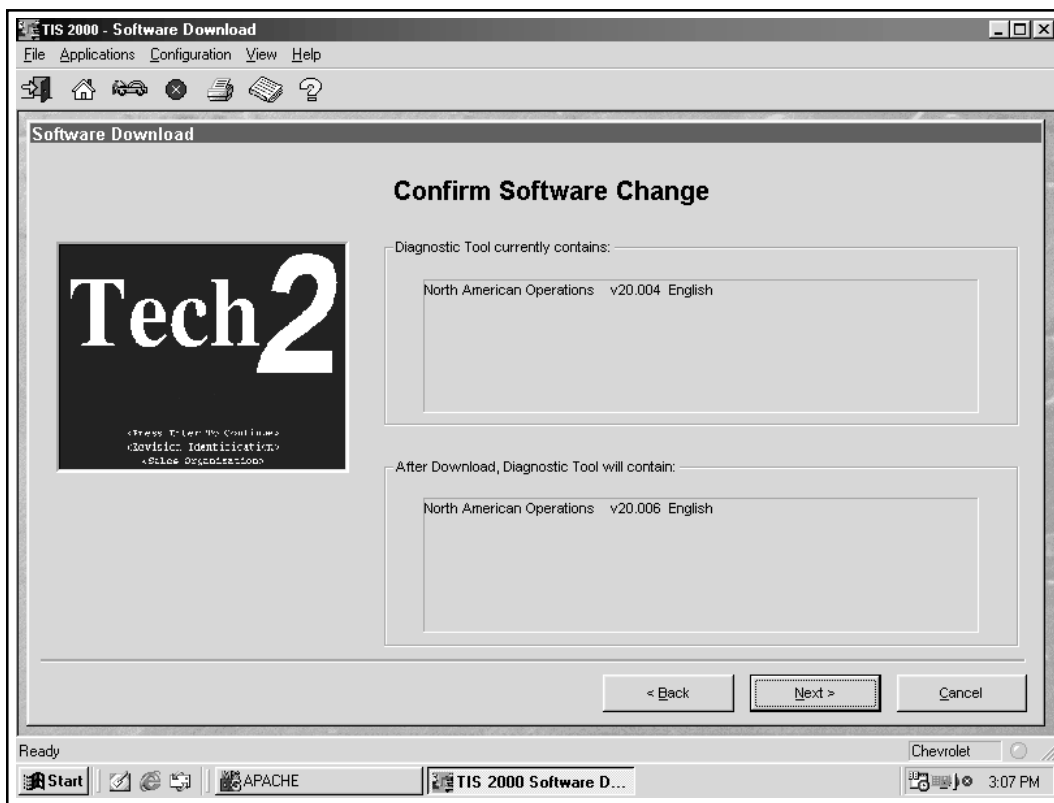
Figure I-57, Confirm Update File
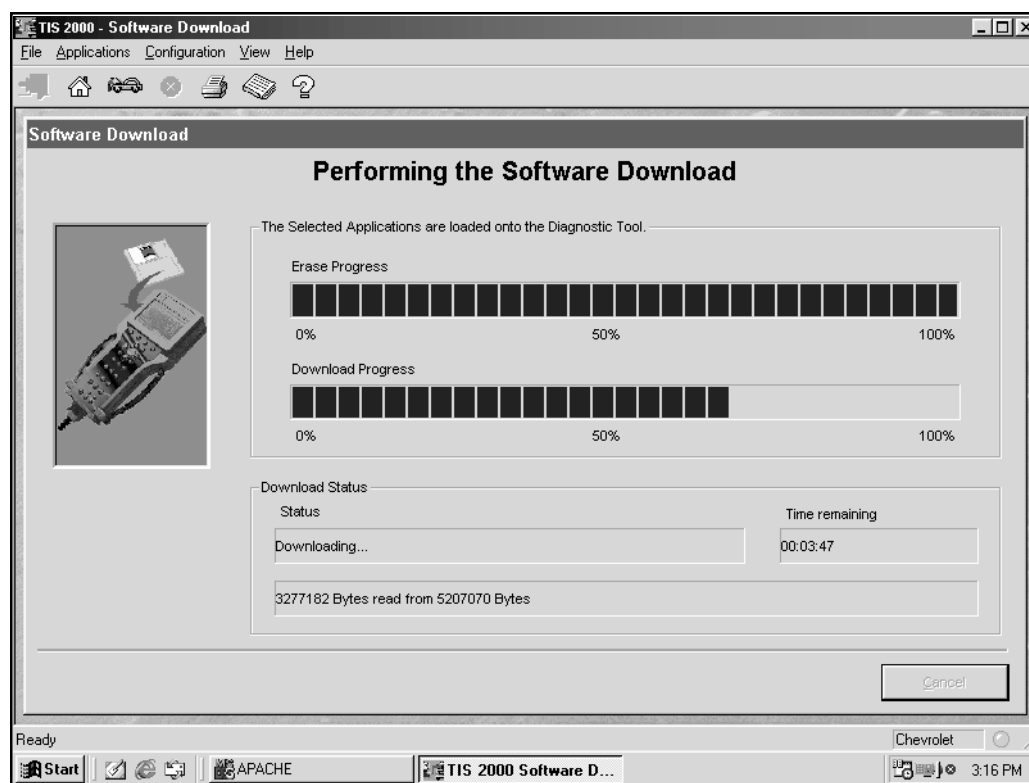
Figure I-58, Software Download Status
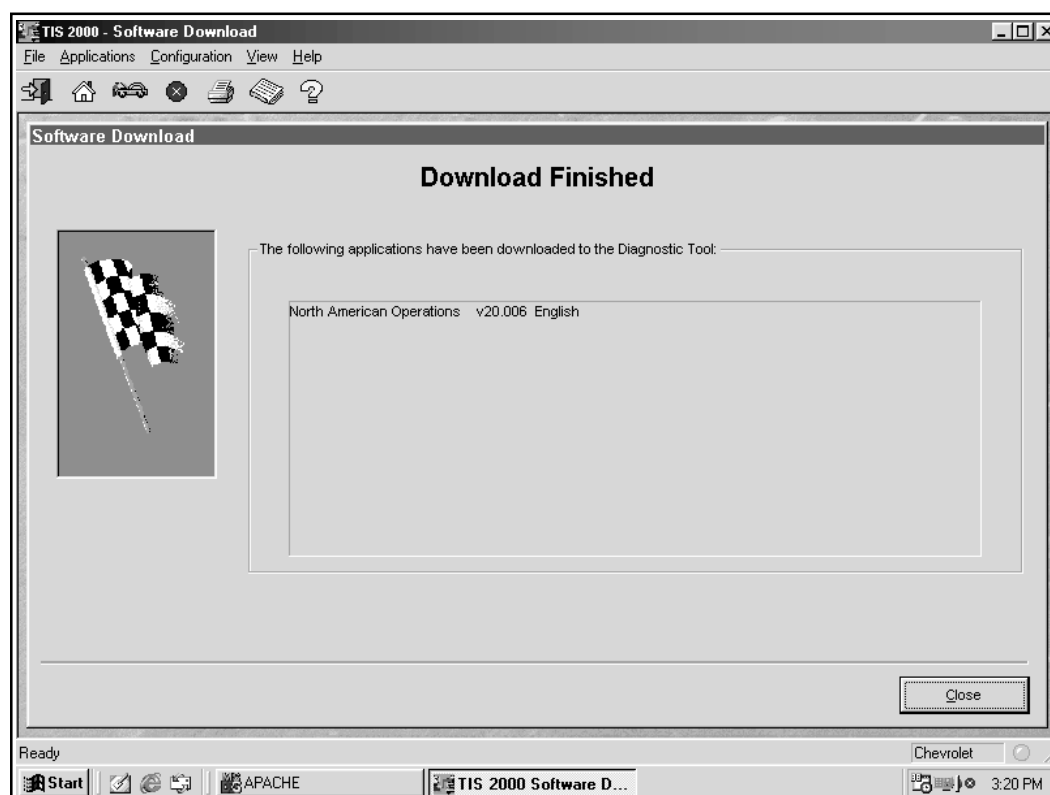
Figure I-59, Download Finished

Custom Update

A Custom update is used to backdate the scan tool or install different language software. To perform a
 Custom Tech 2 update:

1. Connect the scan tool to the PC using the RS232 cable (refer to Figure I-5).

2. Power up the scan tool using the AC power supply that came with the tool.

3. At the PC, launch TIS 2000.

4. From the TIS 2000 main screen, select the Software Download icon.

5. At the Select Diagnostic Tool for Download screen, highlight custom (Figure I-56).

    • *Custom* allows backdating or installing of non-NAO software onto the scan tool.

    After confirming the selection, click on Next. A message will appear indicating the PC is reading the
    contents of the diagnostic tool.

6. A Select the Applications screen (Figure I-60) will appear. The left side of the screen lists software release
    numbers. Select the + sign to see a list of different languages for each release (Figure I-61).

7. Select the desired software version and language by either double-clicking or highlighting the desired
    language file, then click Select. The selected software will appear in the right side of the screen (Figure I-
    61). To compare the current and selected scan tool software, click on the tabs on the right side of the screen
    (Figure I-62). Click Download.

8. A Performing the Software Download screen will appear (Figure I-58). It tracks the status of the download.

9. When the download is completed, a Download Finished screen appears. Click on the Close selection to
    close the application.
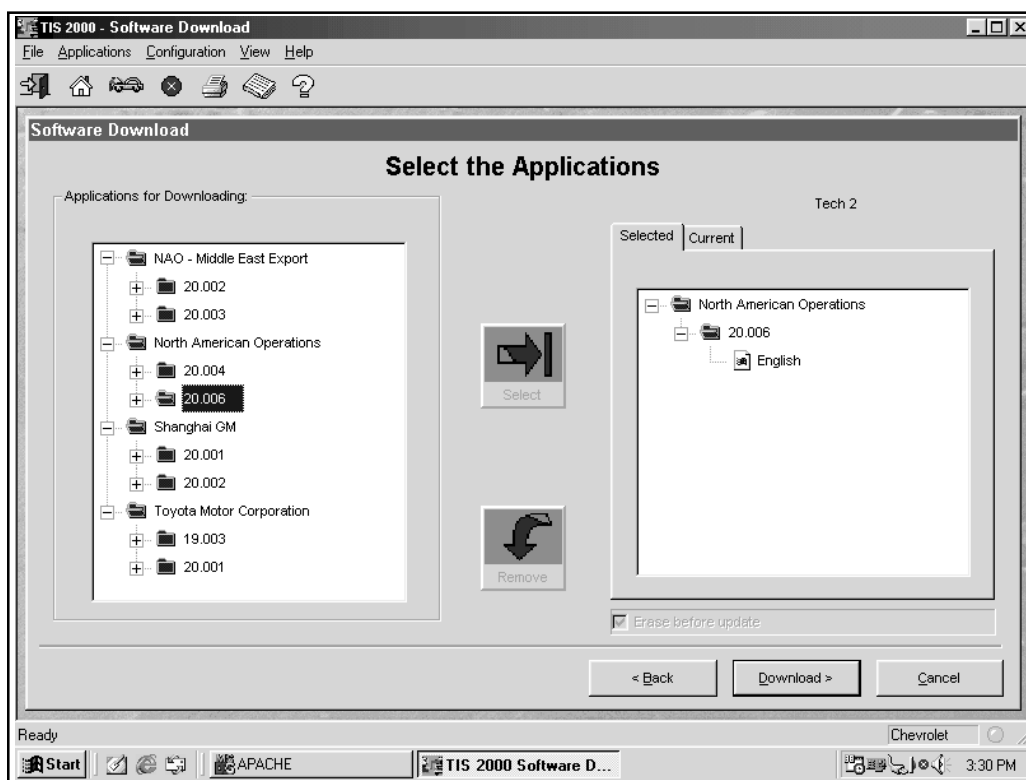
Figure I-60, Custom Download Selection
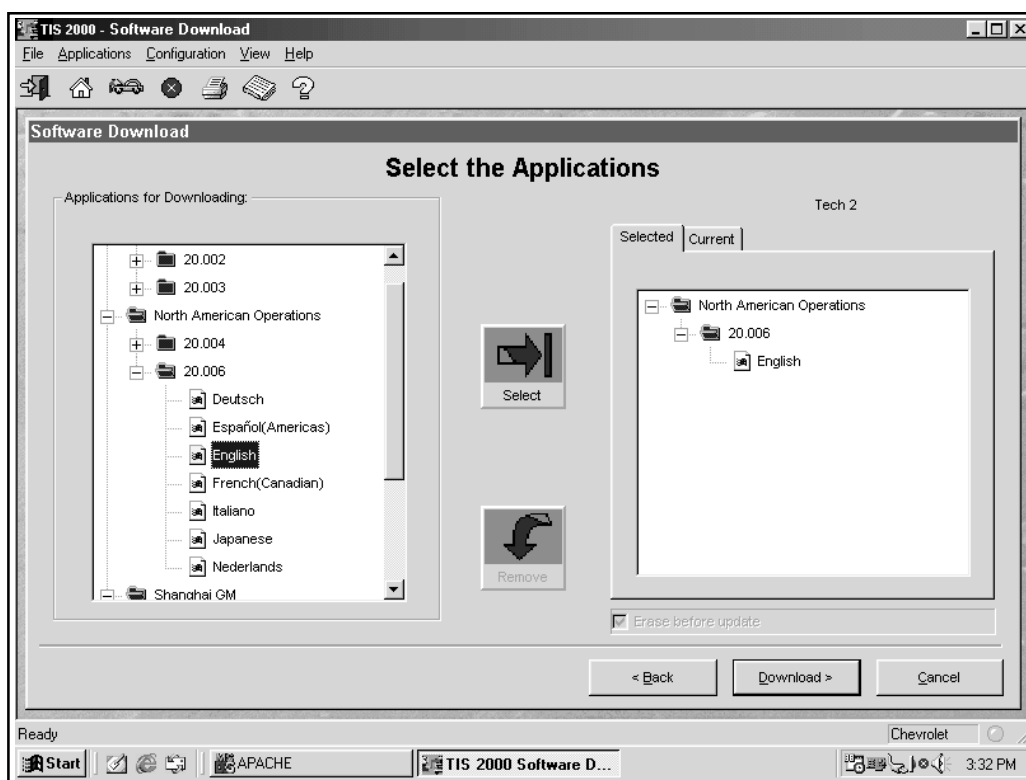
Figure I-61, Selecting Language File
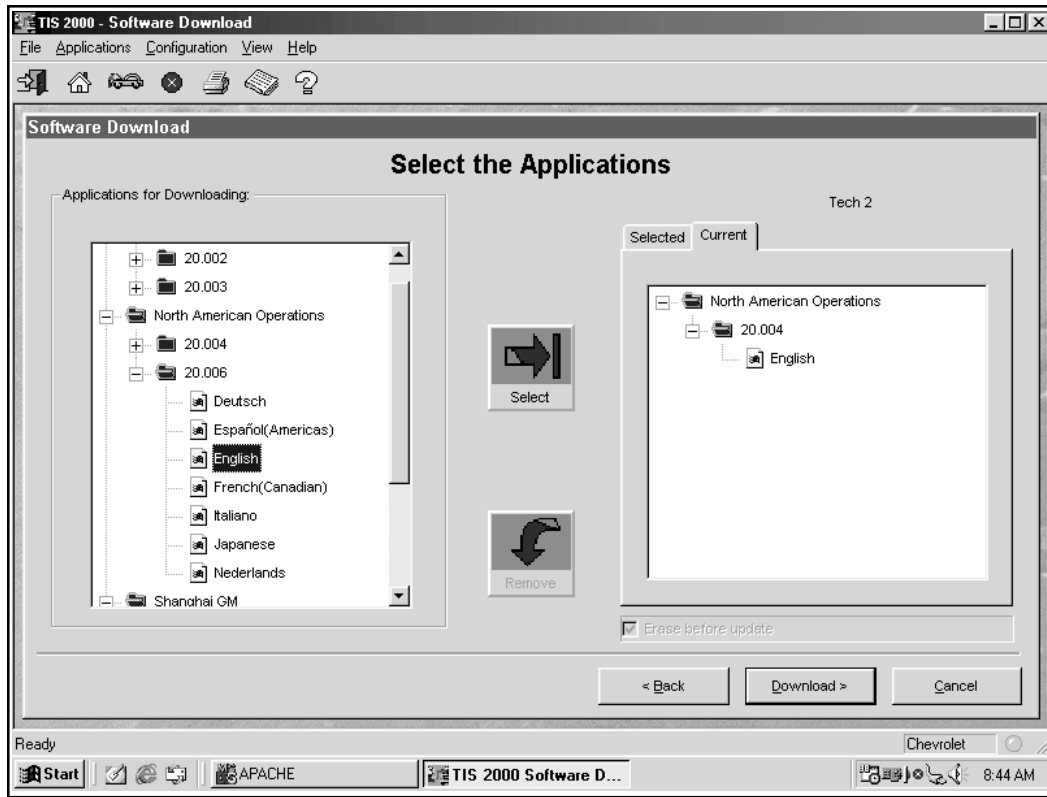
Figure I-62, Comparing Current/Selected Software

Snapshot Upload

The Snapshot Upload function of TIS 2000 provides a means for viewing scan tool snapshot data, as well as freeze frame and capture data info on the PC. This data can be analyzed in a variety of ways to determine when and where a fault may have occurred.

Using the Snapshot display feature involves three steps:

1. Capture snapshot(s) with the scan tool.
2. Upload the snapshot(s) to the terminal.
3. View the snapshot(s) using the TIS 2000 Snapshot Upload function.

The following procedures describe how to capture, upload and view a snapshot using TIS 2000 software.

Capturing a Snapshot of the Vehicle Data Stream

1. Connect the Tech 2 to the vehicle Data Link Connector (DLC) (refer to Figure I-3).
2. Power up the Tech 2 and press the ENTER key at the title screen.
3. From the Main Menu select FO: Diagnostics.
4. Enter all vehicle information as requested by the scan tool.
5. From the Application Menu, select F3: Snapshot.
    • At the next screen, select the desired system to snapshot (e.g. engine, transmission, etc.).
    • At the next screen, select the desired data list (e.g. Engine Data 1, Engine Data 2, etc.).
    • At the next screen, select trigger type and trigger point.
6. Press the Record Snapshot soft key. The Tech 2 screen will display the flashing message standby.
    • When the fault occurs, press the Trigger soft key
    • The Tech 2 will display the message triggered.
    • Allow the scan tool to record a sufficient amount of data, then press Exit to store the snapshot data.
    • Press the Continue soft key when the snapshot trigger type screen is displayed.
7. Exit to the Main Menu, then power down and disconnect the Tech 2 from the vehicle.

Uploading the Snapshot to the PC

After a snapshot has been successfully captured with the scan tool, perform the following steps to upload it from the scan tool to the computer.

1. Launch TIS 2000.

2. Select Snapshot Upload from the TIS 2000 main screen.

3. Select the Snapshot Upload icon from the Tool Bar (the first icon in the toolbar)   OR   select the Upload from Handheld box in the center of the screen (Figure I-63).

4. Select the Tech 2 scan tool and verify the Tech 2-to-terminal connection, then select OK (Figure I-64).

5. Select the snapshot to be uploaded, then select OK.

6. After the snapshot uploads, a list of data parameters will display on the monitor (see Figure I-65).

For instructions on viewing a snapshot after it has been uploaded, refer to the next section.
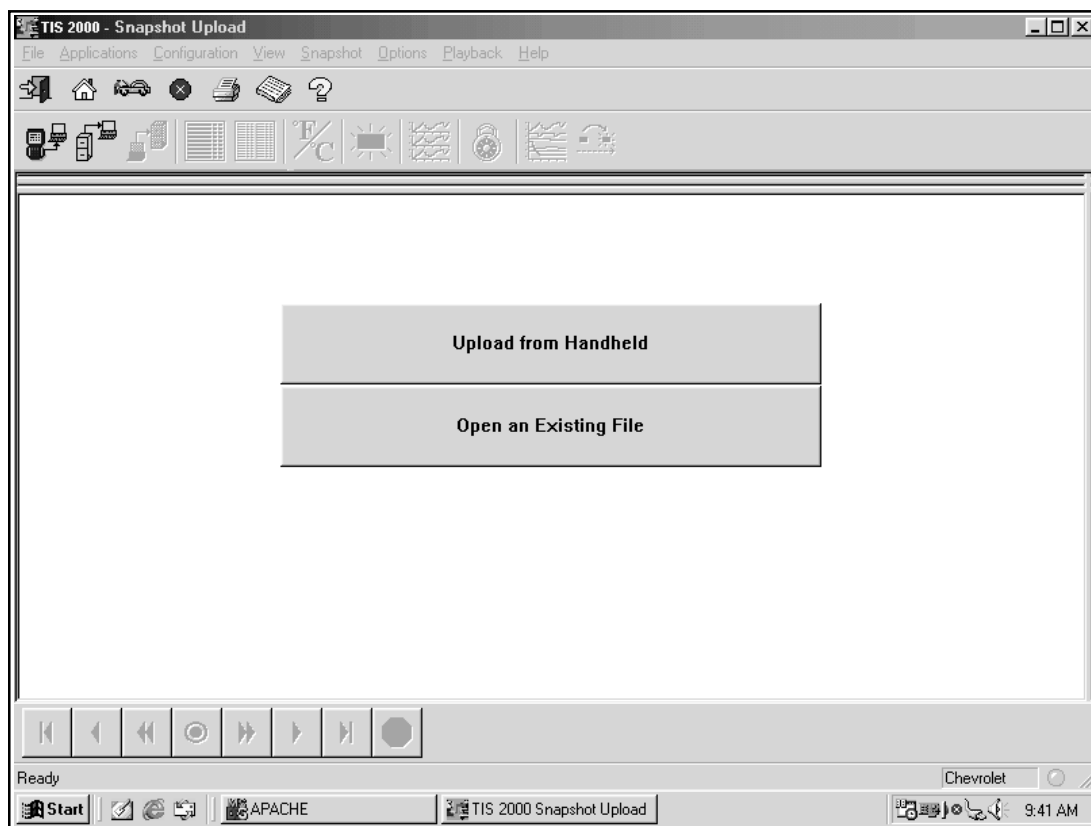
Figure I-63, Upload from Handheld Option
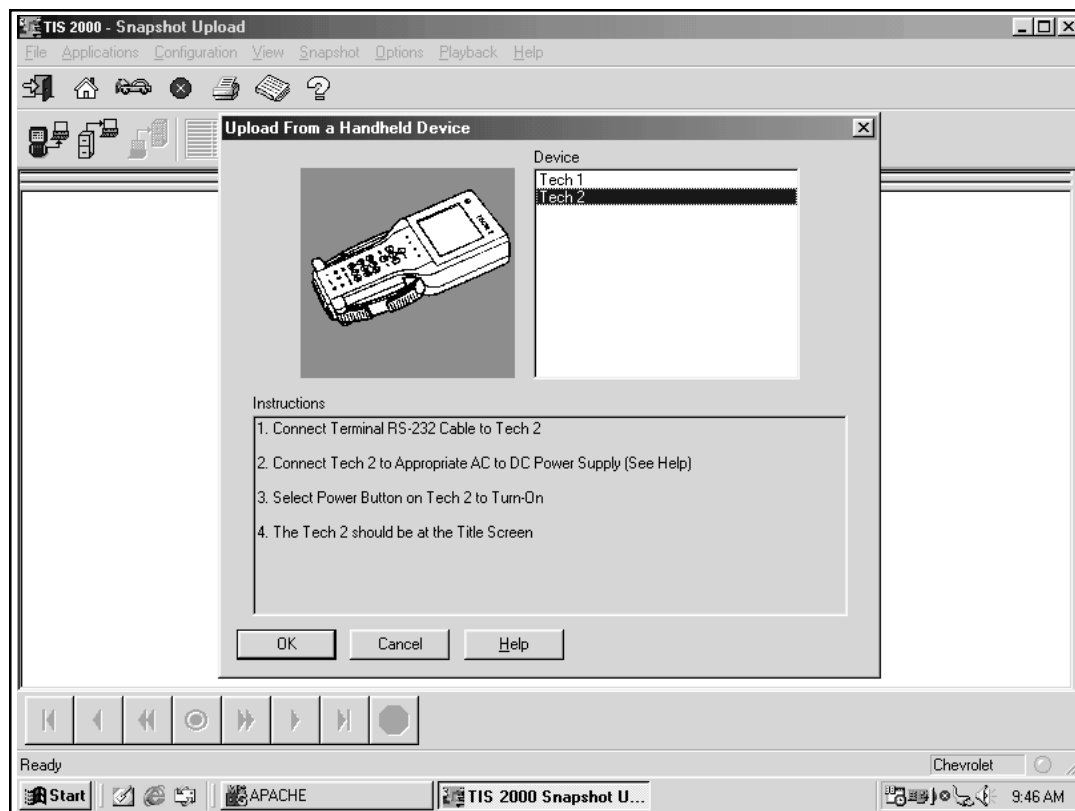
Figure I-64, Confirm Connection

Viewing the Snapshot

After a snapshot has been uploaded (either from disk or the scan tool), it can be viewed and analyzed in a variety of ways. Figure I-65 identifies the different display icons and replay selections.

Replaying the Snapshot

To replay a snapshot, use the display icons in the lower portion of the screen. The selections and their functions are as follows (refer to Figure I-65).

- **First Frame.** This selection will display the first frame of the snapshot, regardless of which frame was displayed prior to selecting the item

- **Reverse One Frame.** This will move the display to the frame immediately preceding the one currently displayed

- **Play in Reverse.** This selection will cause the snapshot to continuously play in reverse, until the first frame is displayed

- **Trigger Frame.** This selection will cause the display to move to the exact frame when the snapshot was triggered, regardless of which frame was displayed before the item was selected

- **Play Forward.** This selection will cause the snapshot to continuously play forward until the last frame is reached

- **Forward One Frame.** This will move the snapshot forward to the next frame

- **Last Frame.** This will take the snapshot to the very last frame

- **Stop Play.** This selection will cause a continuous play snapshot to stop at the frame when the item was selected
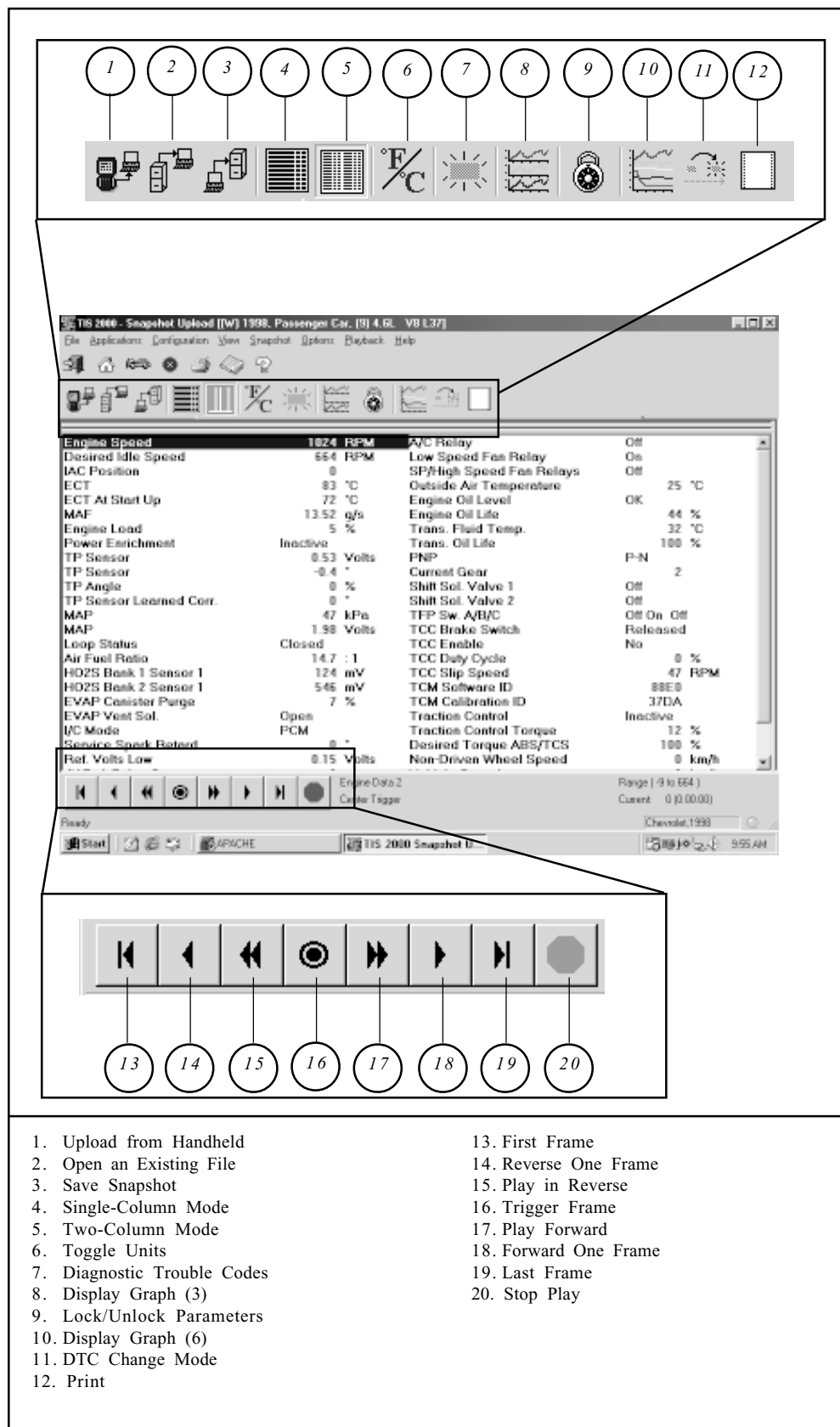
Figure I-65, Snapshot Display (Two-Column Mode shown)

1. Upload from Handheld
2. Open an Existing File
3. Save Snapshot
4. Single-Column Mode
5. Two-Column Mode
6. Toggle Units
7. Diagnostic Trouble Codes
8. Display Graph (3)
9. Lock/Unlock Parameters
10. Display Graph (6)
11. DTC Change Mode
12. Print

13. First Frame
14. Reverse One Frame
15. Play in Reverse
16. Trigger Frame
17. Play Forward
18. Forward One Frame
19. Last Frame
20. Stop Play

Single-Column vs. Two-Column Display

The Two-Column and Single-Column icons in the toolbar change the appearance of data parameters.

- **Two-Column** (refer to Figure I-65) displays a double-list. When using two-column mode, the maximum number of characters of any one line is 80.

- **Single-Column** (see Figure I-66) lists data parameters in a single column that uses larger type, which makes the data easier to read at a distance.

A default (Single or Two-Column mode) can be set by accessing Options from the menu bar.
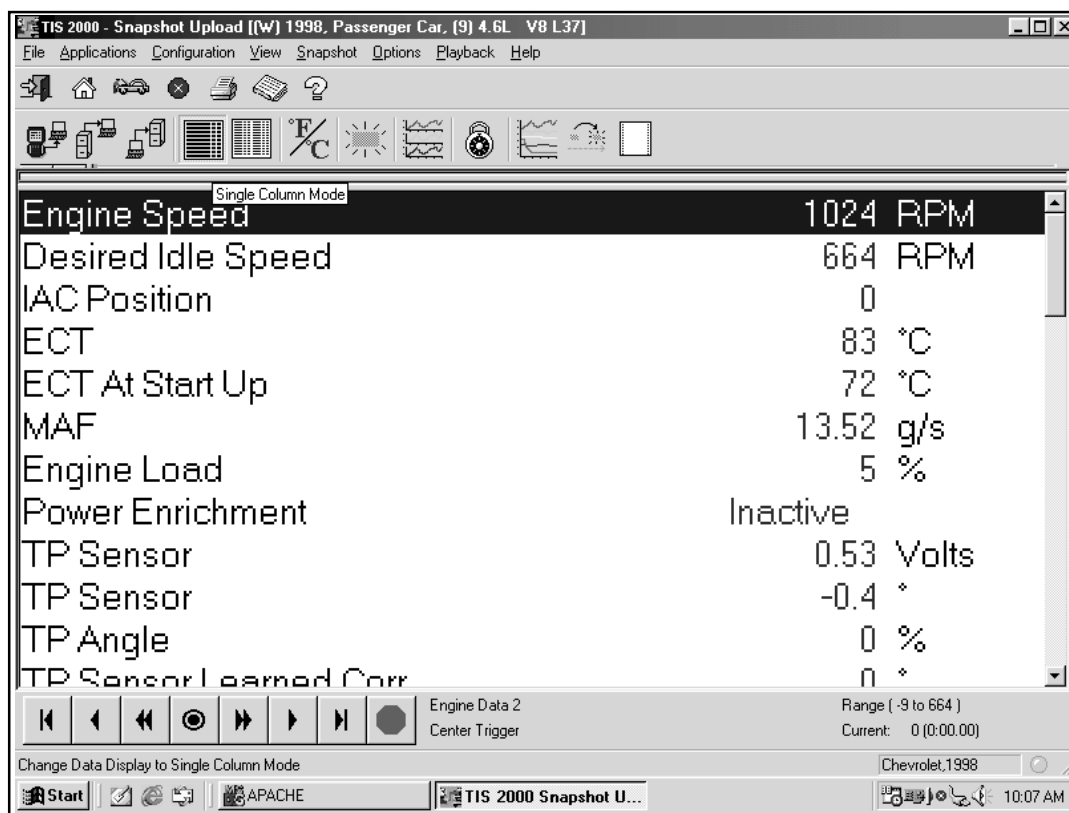
Figure I-66, Single-Column Display

Displaying Diagnostic Trouble Codes

The Diagnostic Trouble Code icon displays all relevant trouble code information for each individual frame of a snapshot. It is important to note that, when replaying a snapshot, every frame of the snapshot may not have a stored DTC.

To use the DTC display feature:

1. Select on the DTC icon in the toolbar. A box will appear near the top of the screen listing DTC information (Figure I-67). The following information is provided:

   • The first line indicates how many codes are in the frame   for example, 1 of 2, 2 of 2, etc. This is not the total number of DTCs stored in the entire snapshot, just in the individual frame being displayed.

   • The number and name of the DTC.

   • Diagnostic Test Status tells whether the test ran and whether it passed or failed.

   • DTC Status lists the DTC information. This is the status of the tests that were run and the related DTC messages that can be viewed by the technician. This information is based only on the DTC information listed, since some DTC information will not be available on all applications.
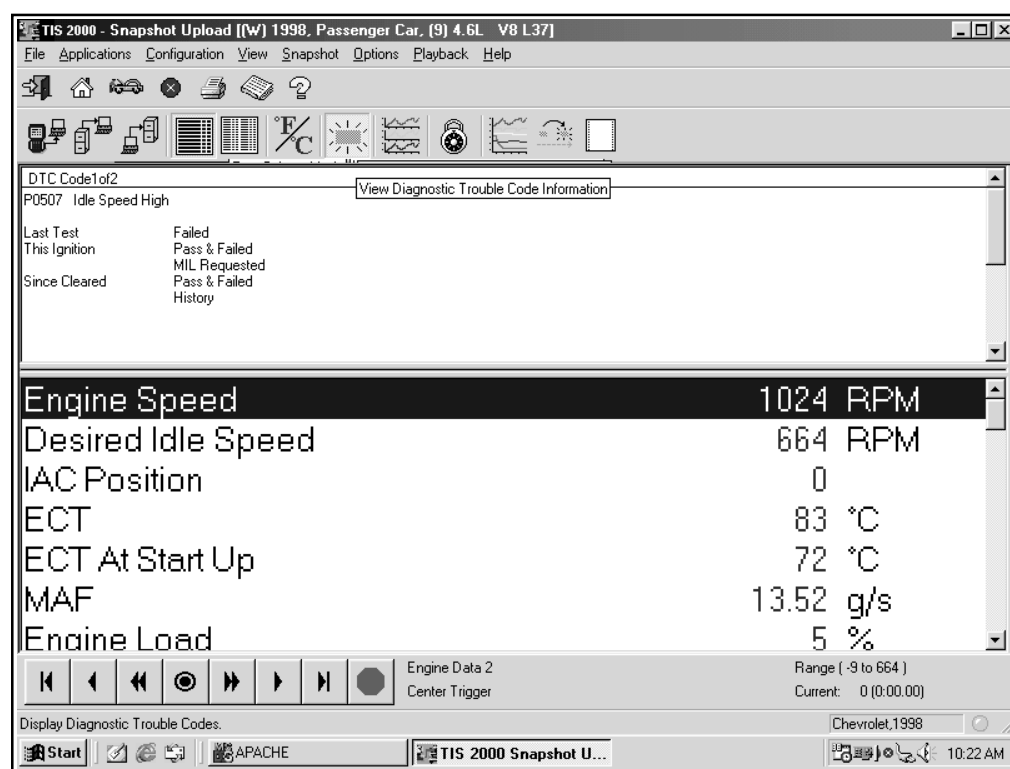
Figure I-67, DTC Display (1 of 2)
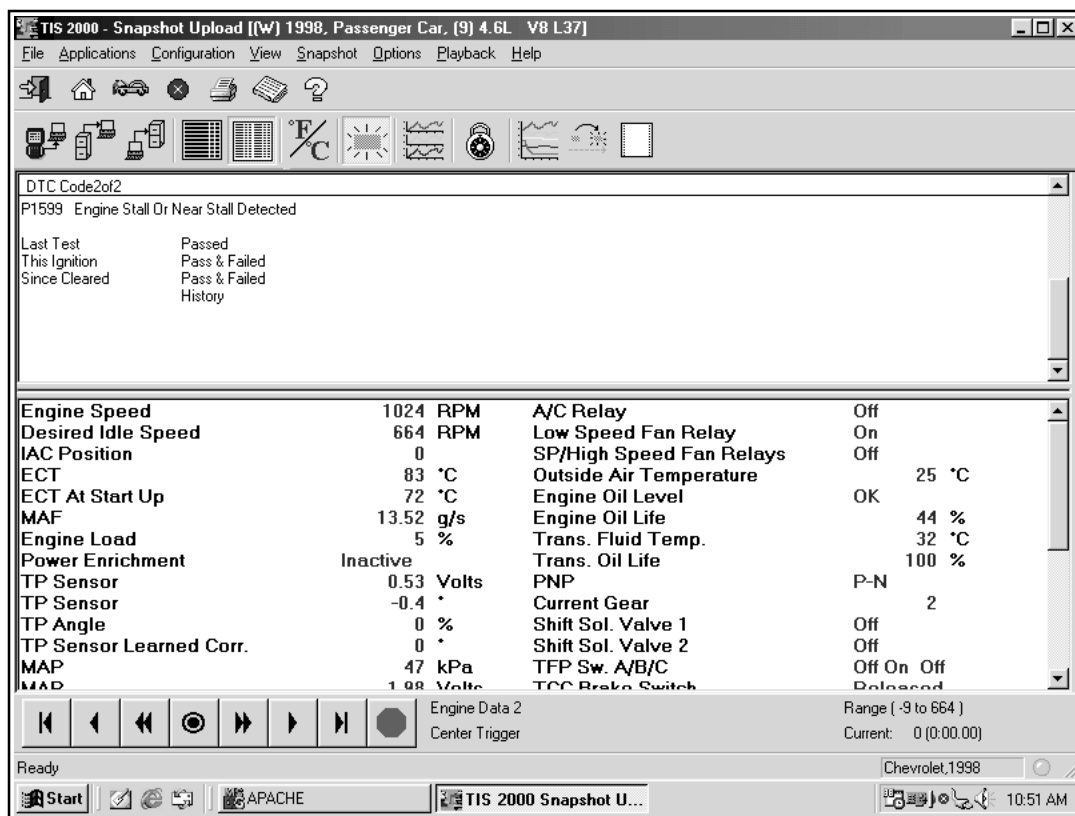
Figure I-68, DTC Display (2 of 2)
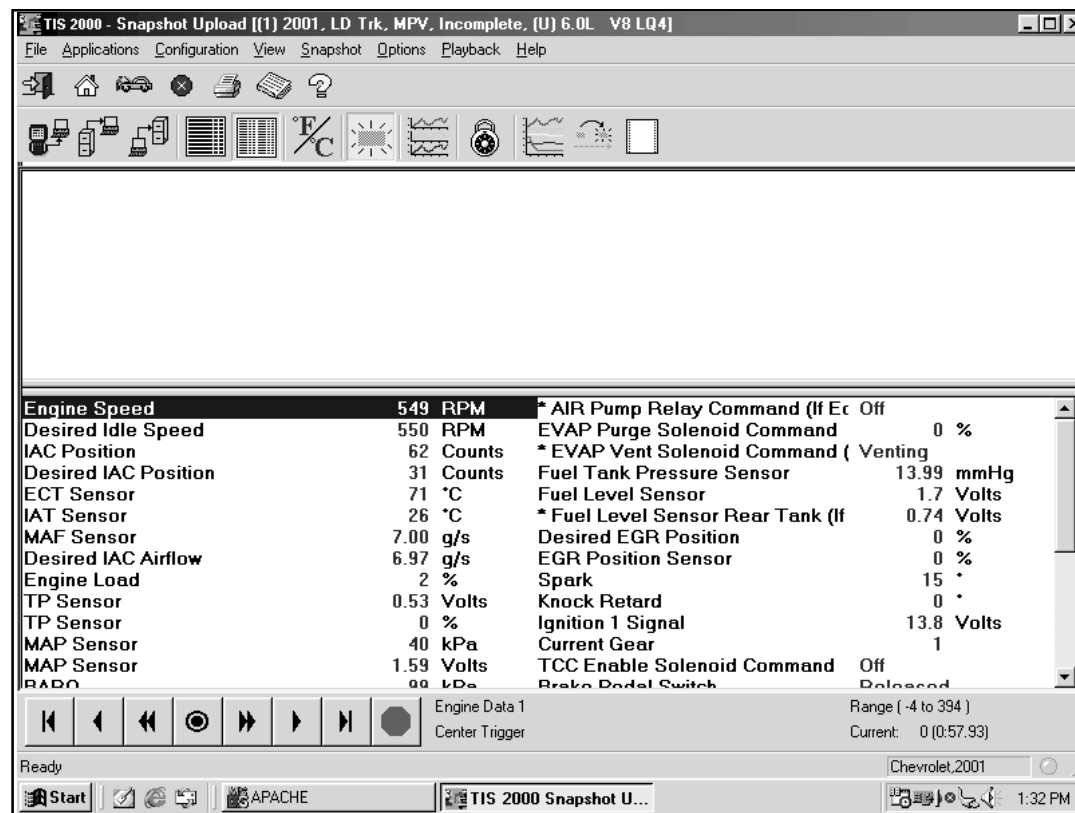
Figure I-69, No DTC Frame

2. If more than one DTC is set for a frame, scroll bars will appear at the
   right side of the DTC window. To view other DTCs (Figure I-68), click-and-drag the scroll box or use the
   scroll arrows.

3. To determine exactly when a DTC set during a snapshot, use the Play Forward and Play in Reverse
   selections to play the snapshot with the DTC window still in view. DTC information will continue to display
   for all the frames during which the DTC was set.

   • This information can be useful for diagnosing DTCs by displaying related data parameters at the point in
     time when the code was set.

   TIP
   **The DTC icon will be highlighted if a code was set during a snapshot. Select the DTC icon. This will
   show any and all DTCs set during the snapshot, since DTCs that set are stored for the duration of the
   snapshot.**

   ---

4. When a frame is reached for which there is no DTC, the message No Diagnostic Troubles for this data
   frame will display in the DTC window or the DTC window will be blank (Figure I-69).

   TIP
   **In most snapshots, DTCs set near the trigger frame. To quickly locate the frame where a DTC occurred,
   click on the Trigger Frame   selection. Then use the Forward 1 Frame or Reverse 1 Frame
   selections to view the frames just before and after the trigger frame. Chances are, the DTC will appear
   within these frames. If not, continue viewing the snapshot using the Play Forward or Play in Re-
   verse   selections.**

Diagnostic Trouble Code Change Mode

This feature allows the user to move from trouble code to trouble code within the snapshot. When in a snapshot if you select the DTC icon, the Snapshot application will display a split screen. This screen will consist of the DTC information on the upper half of the screen and the parameter data display on the lower half of the screen (Figure I-70). If the DTC was not set in the selected frame of the snapshot, the DTC information will not display until the snapshot is advanced to the first frame in which the DTC was set. Select the Diagnostic Trouble Code Change icon to advance to the first frame of the DTC. In Diagnostic Trouble Code Change Mode, selecting the forward or reverse arrows will move the application to only the frames in which a DTC was set.
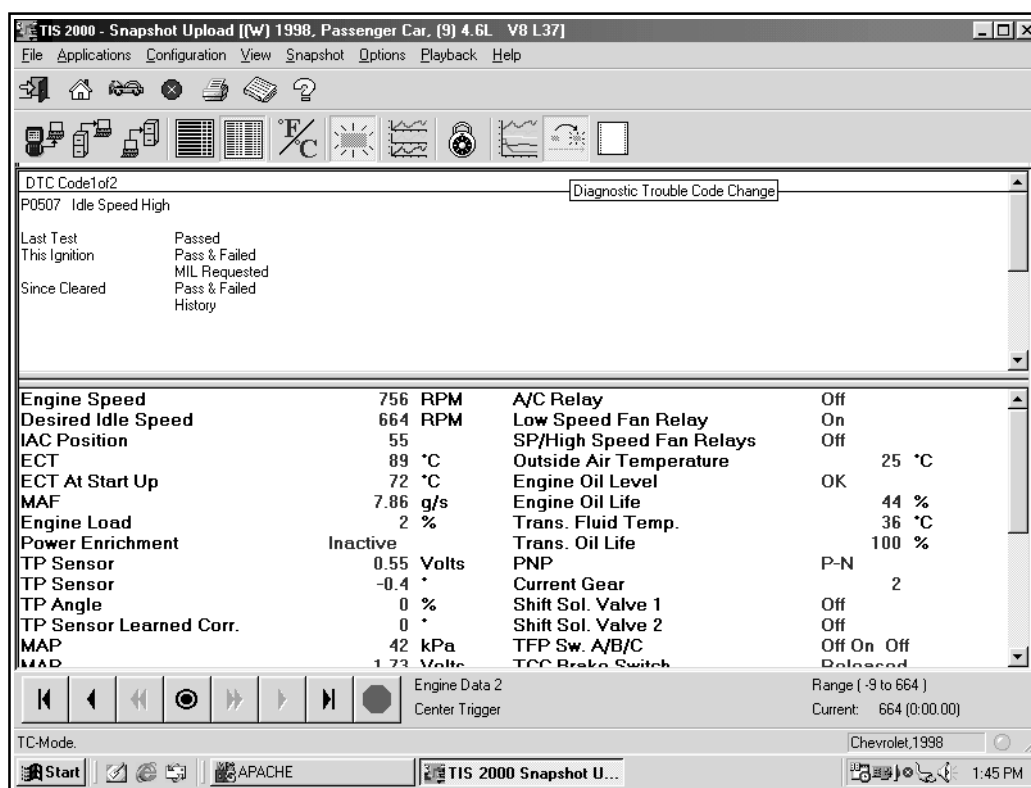
Figure I-70, TC Mode (1 of 2)
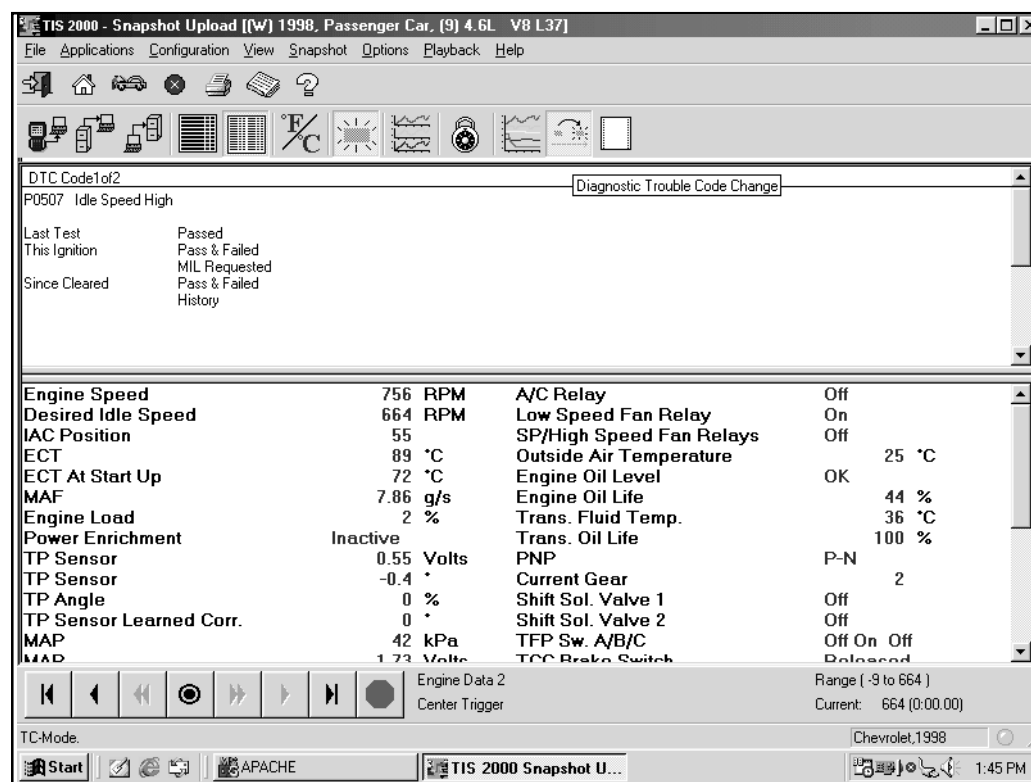
Figure I-71, TC Mode (2 of 2)

Displaying Graphs

A valuable function of snapshot display is the ability to view parameters in graph form. This allows you to see how a parameter is functioning over time. It also allows easy visual comparison of up to six parameters at a single time. There are two graph display modes: three-graph and six-graph.

Three-Graph Display

To access the 3-graph display mode:

1. Click on the leftmost Display Graph icon (Figure I-72). A Graph Parameters window will appear (Figure I-73).

2. Click on the first graph icon at the top of the graph parameters window, then select a parameter from the list in the lower portion of the box. The parameter name will appear next to the first graph icon (Figure I-73).

3. Select this procedure for the second and third graphs.

IMPORTANT:

When selecting parameters to be graphed, it is important to consider the values used to measure the parameter, and to correctly plot these on the graphs. This is done in the Min Y Axis Value and Max Y Axis Value fields. These may need to be adjusted to reflect the normal range of values for the parameter for example, 0 to 5 volts for MAP sensor.
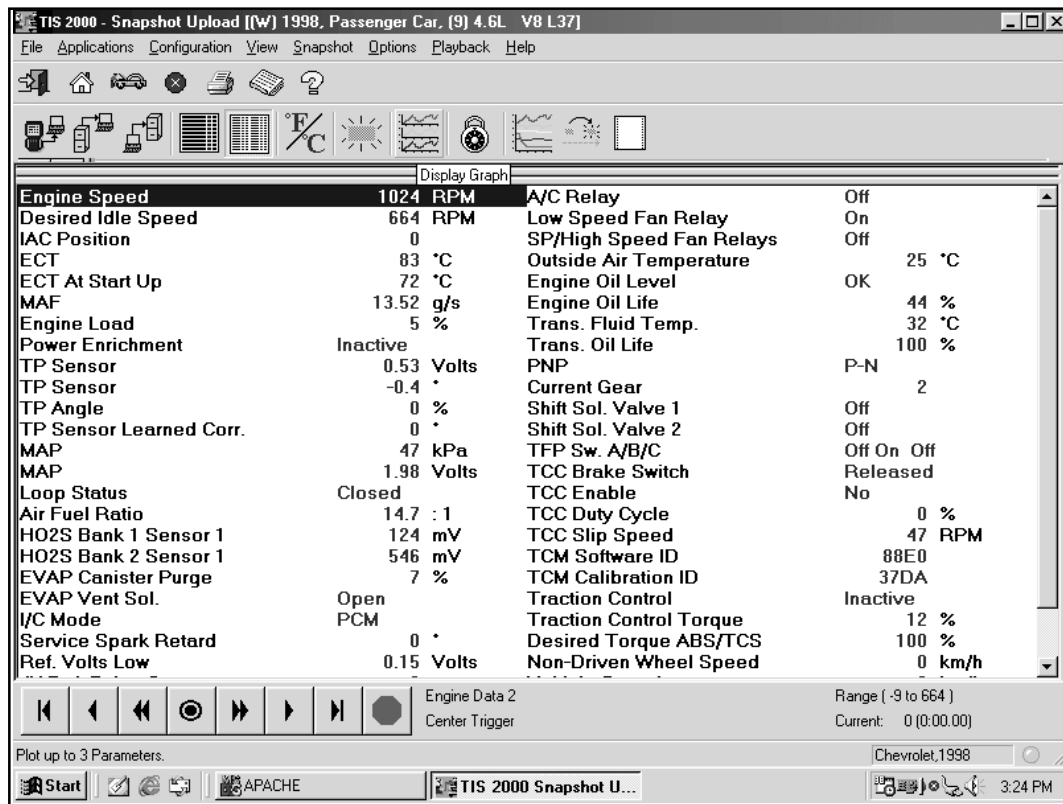
Figure I-72, Display Graph Icons

4. When three desired parameters have been selected, click the OK selection.

5. The screen changes to display the chosen parameters in graph form (Figure I-74).

   • Using the navigation icons, move through the parameters.

   • Click and drag on the arrow along the bottom of each graph (Figure I-74) to move through the graph. This arrow represents the current frame being viewed. It is useful for pinpointing precisely when a parameter change indicates a fault.

   • A data value corresponding to the frame the arrow is pointing to will be displayed in the upper left corner of each graph.

6. To select a different parameter to be graphed, simply click and hold on the parameter name in the data list, then drag the cursor over one of the existing graphs and release the mouse button. The new parameter will be graphed in place of the old one.

7. To view a graph at full-screen size, move the cursor over the graph. When the cursor changes to a magnifying glass, click on the graph. The graph will appear at full-screen size (Figure I-75). Single-click on the full size graph to return to the three-graph display.
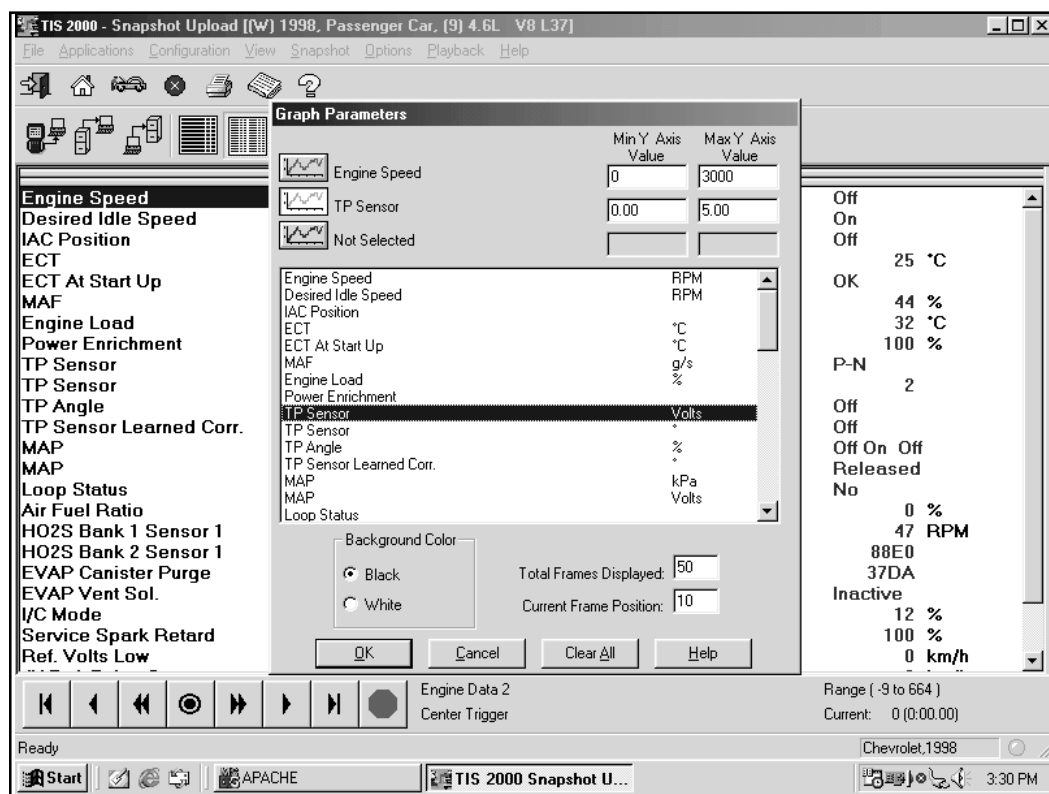
Figure I-73, Graph Parameters Window
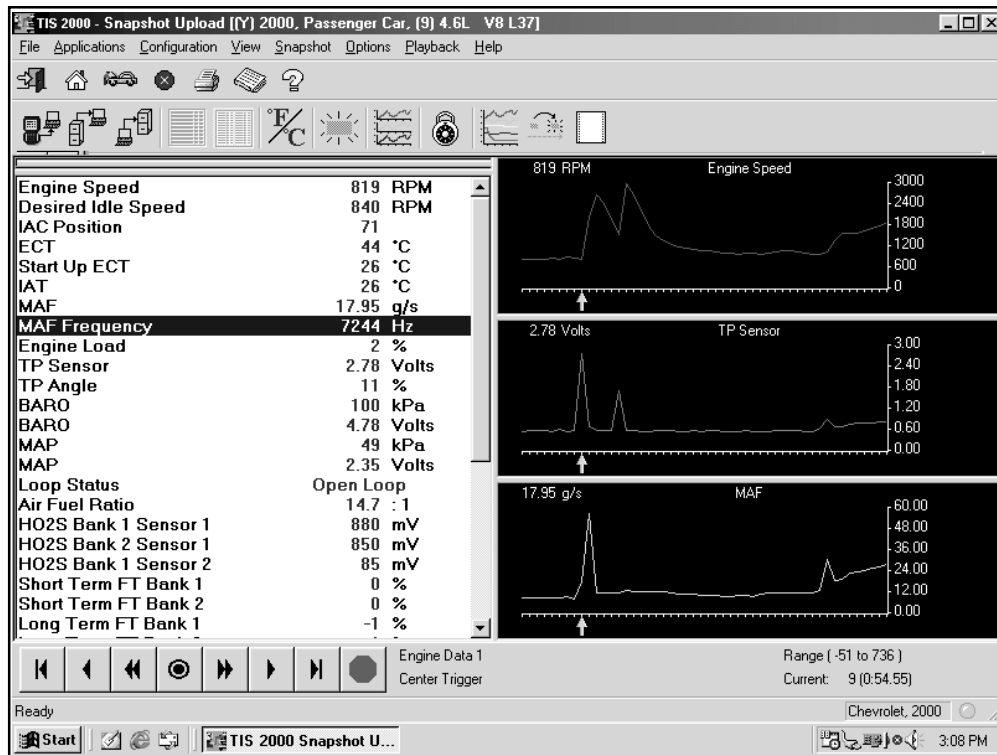
Figure I-74, Display Graph Screen
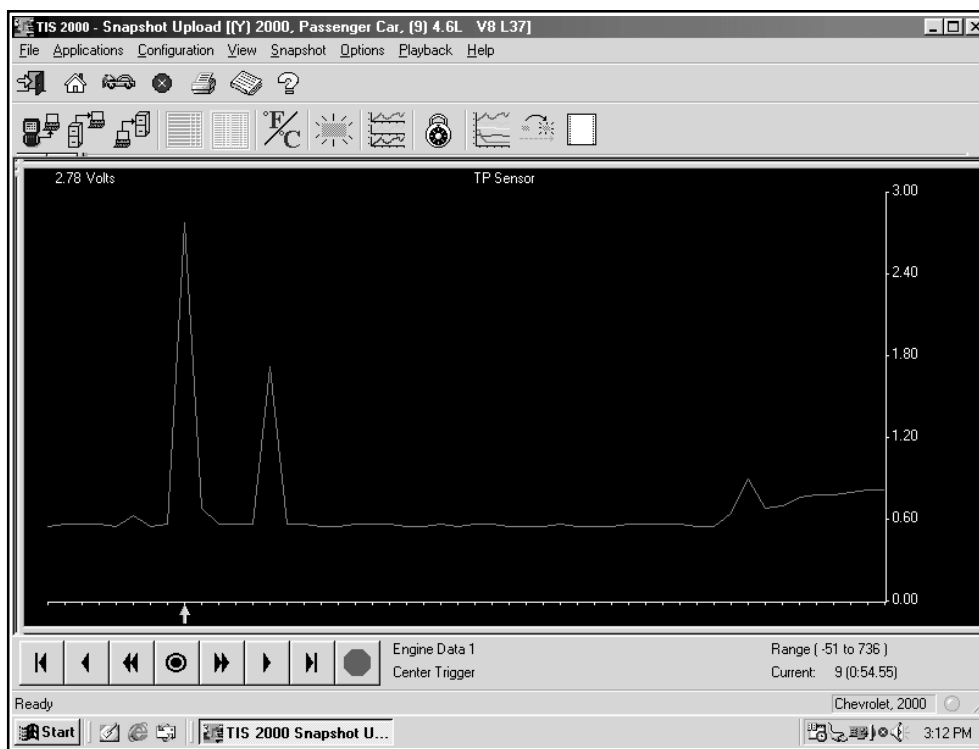
Figure I-75, Graph at Full Screen Size

Six-Graph Display

Up to six parameters can be displayed on the same graph. Parameters are selected in the same manner as previously described for three-graph display. When six parameters are selected, they are all displayed on a single graph. Each parameter is color-coded (Figure I-76).
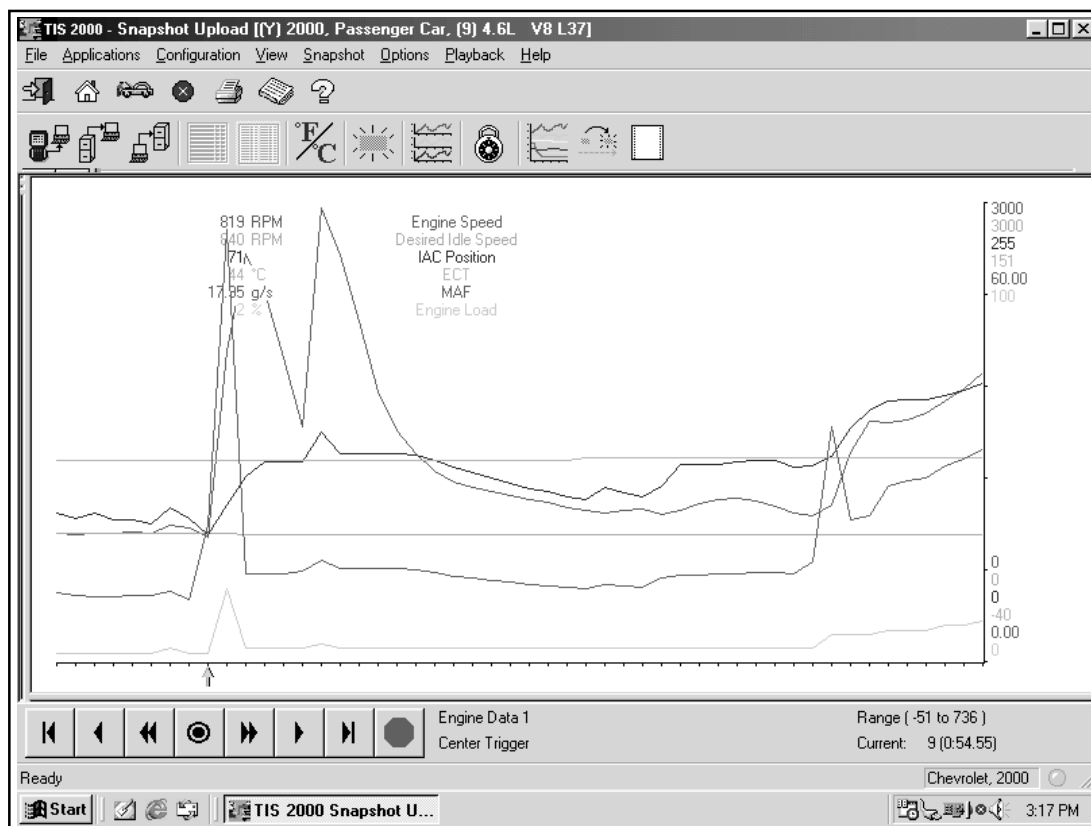
Figure I-76, Six Graph Display

Lock/Unlock Parameters

The Lock/Unlock Parameters function is used to isolate specific parameters so they can be viewed and compared more easily than if they were part of the larger parameters list.

To use this function:

1. Click on the desired parameter to highlight it, then click on the Lock/Unlock Parameters icon (Figure I-77). The selected parameter will appear at the top of the data list, above a lock line (Figure I-78).

2. To add other parameters, follow the same procedure. The locked parameters can then be viewed together to compare their data values. Parameters can also be locked by double-clicking on them in the data list.

3. To remove an item from the locked list, select it, then click the Lock/Unlock icon.The item will be removed from the list.

> **TIP**
> *Display modes can be used in various combinations to provide the most useful diagnostic capability. It is even possible to view DTC information, locked parameters, and graphed parameters simultaneously (Figure I-79). In multi-display mode, replay selections can be used, as previously described, to move through the snapshot.*
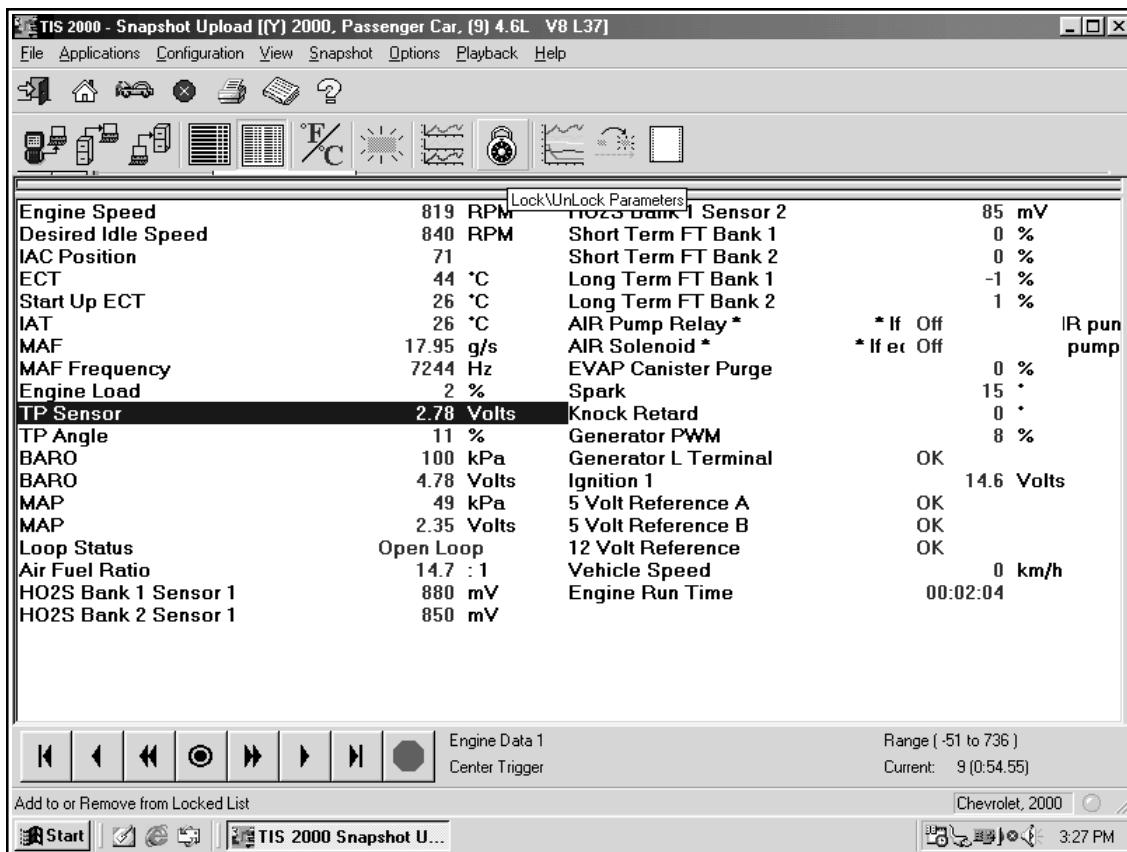
Figure I-77, Lock/Unlock Icon
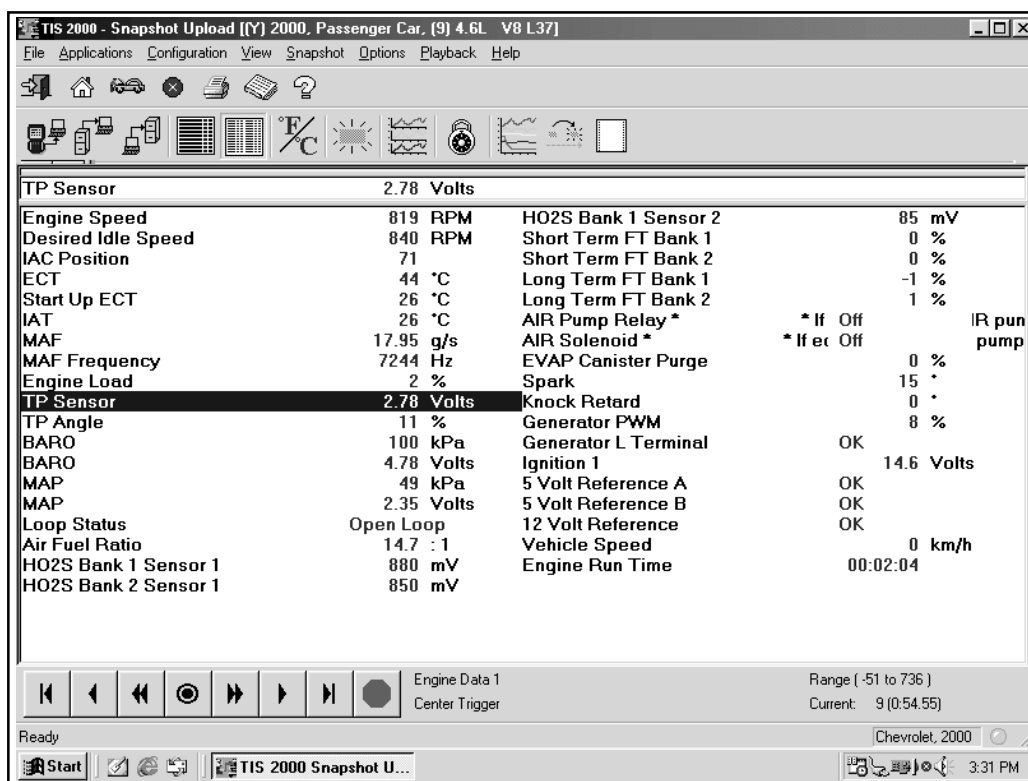
Figure I-78, Locked List
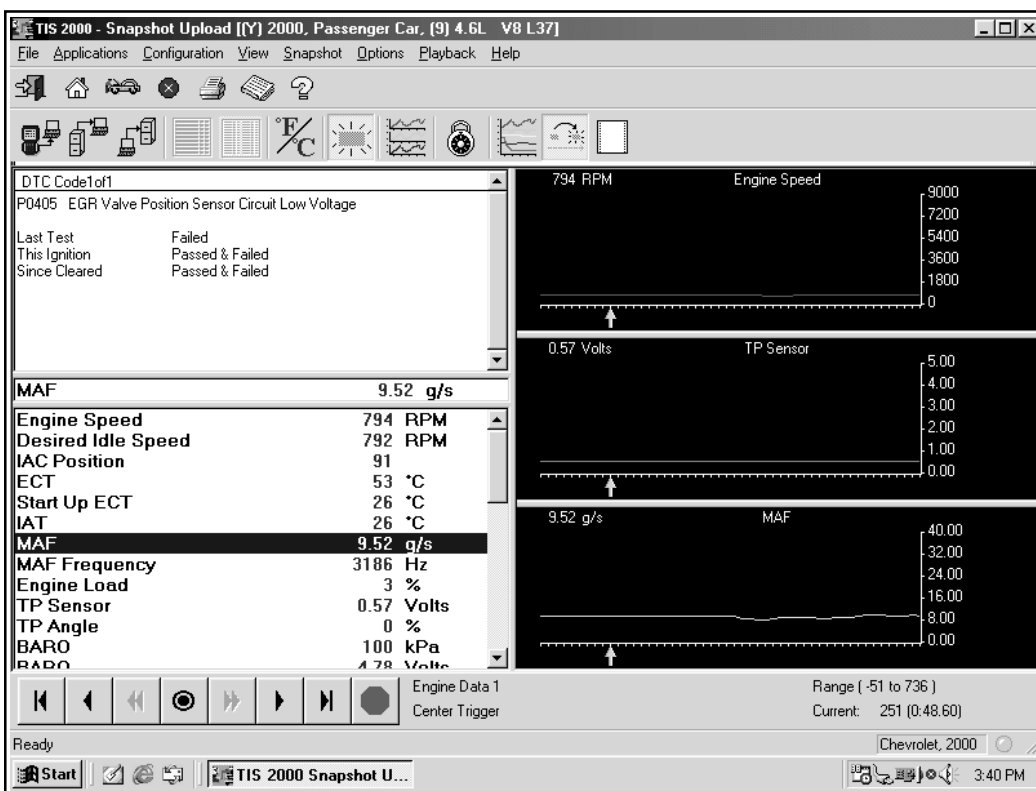
Figure I-79, Multiple Display Modes

Viewing Capture Info Data

Capture Info is a feature that allows the Tech 2 to retrieve DTCs, Freeze Frame and Failure Records from the vehicle s control module. This is a different function than snapshot display. Capture Info files consist of only one frame of data, whereas snapshots typically contain multiple frames of data.

When Capture Info is selected, the scan tool displays a menu selection that allows data from the control module to be stored to the Tech 2 PCMCIA card, or to refresh the PCMCIA card with new data from a control module.

> **IMPORTANT:**
>
> **A single code may be counted as two different codes in a Capture Info. file if it exists both in freeze frame and failure records (Figure I-80).**

To view DTCs, Freeze Frame or Failure Record data through TIS 2000 software, do the following:

1. Use the Tech 2 Capture Info function to retrieve data from a vehicle s control module.
2. Connect the Tech 2 to the computer (refer to Figure I-5).
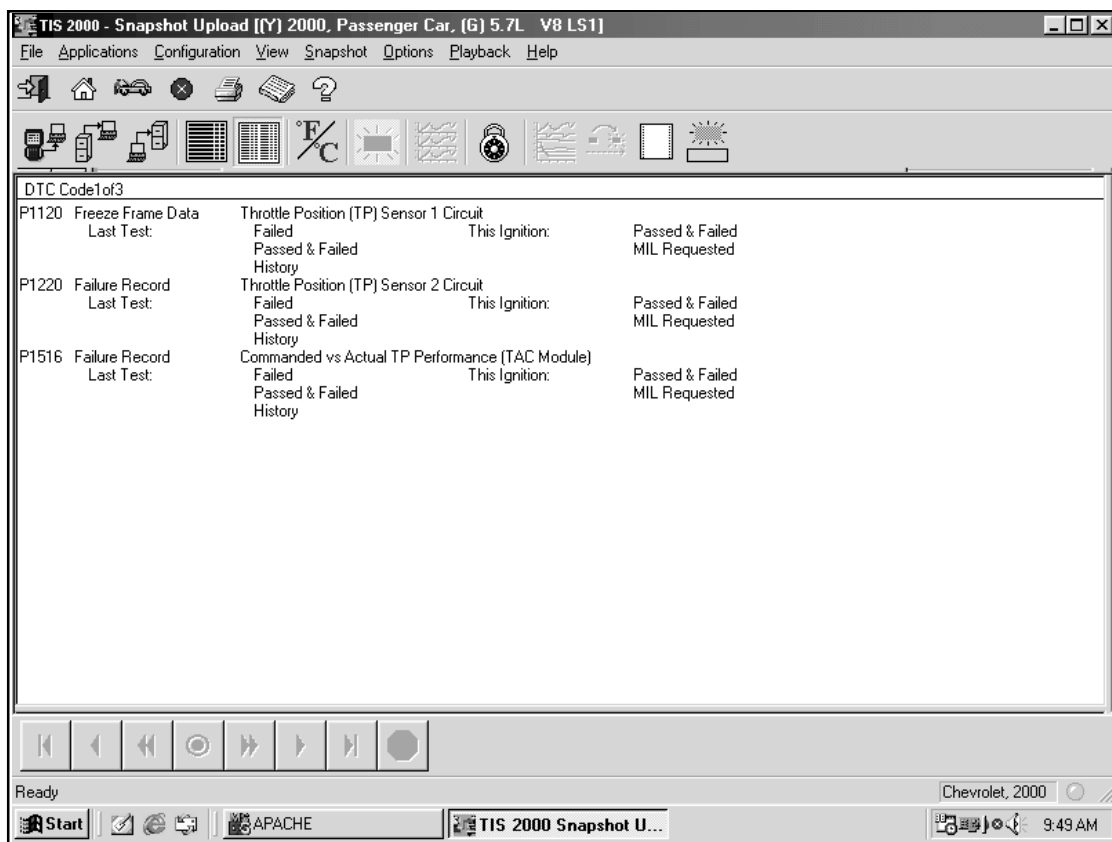
Figure I-80, Viewing Capture Info Data

3. Launch TIS 2000.

4. Select the Snapshot Upload application.

5. Click on the Upload from Handheld icon from the toolbar.

   • Select Tech 2, then click OK.

   • Select Capture Data from upload selection menu, then click OK.

6. The data will display on screen. The top of the screen lists DTCs that were stored in the control module. The lower portion of the screen lists captured freeze frame or fail record data for the selected DTC.

   • Notice that the navigation selections at the bottom of the screen are gray. This is because the data record consists of only one frame.

7. If more than one DTC is present, selecting a DTC in the list changes the Data List to match that DTC.

8. Capture Info. can be stored and printed by the PC. See pages 56 and 57 for saving and printing instructions.
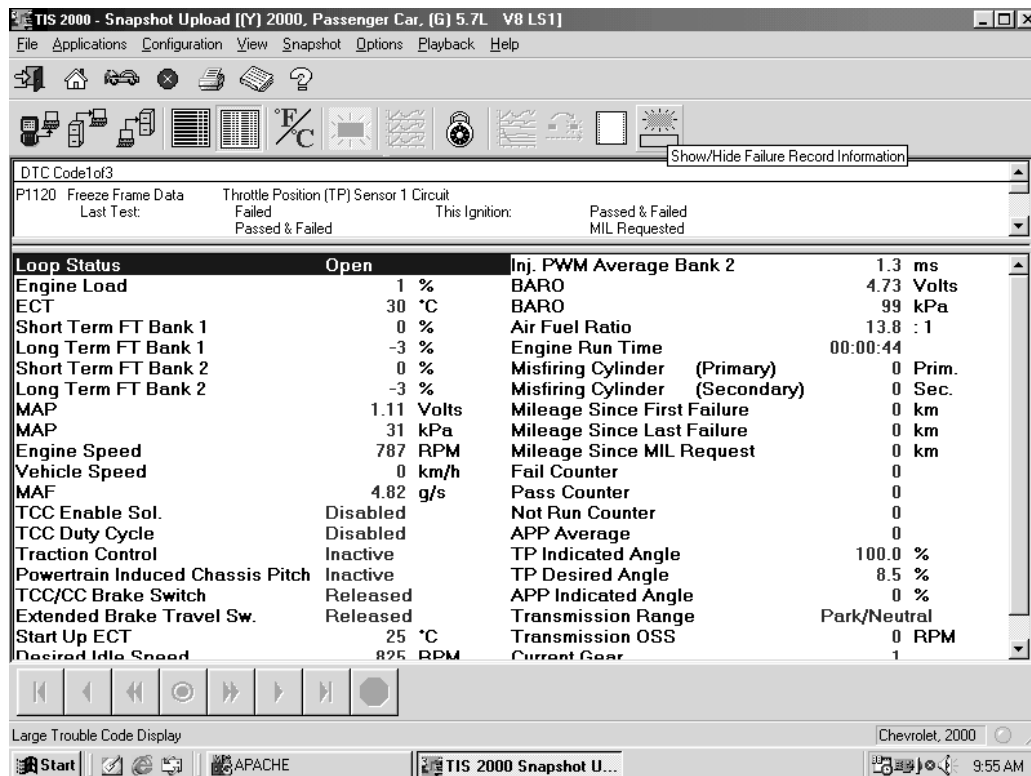
Figure I-81, Show/Hide Failure Record Information Screen

9. The user may toggle on/off the DTC(s) at the top of the screen in order to view only the freeze frame or fail record data by selecting the Show/Hide Failure Record Information icon (Figure I-81) on the toolbar. This icon is only active for the Capture Info Data Function.

Saving a Snapshot to Disk

If you ve opened a file and want to save it, choose the Save Snapshot icon from the toolbar (Figure I-82). You then have the option of saving the file to the terminal s hard drive, to a floppy disk.

> **IMPORTANT:**
> **When inserting a floppy disk into the PC, it is recommended to run a virus check on the disk. This will prevent computer viruses from getting onto the PC and possibly corrupting data. Windows 98 includes a virus checking utility. It is located in the Programs>Accessories>System Tools folder in the Start menu.**

When saving a snapshot, the program automatically identifies the file by vehicle description. This information isn t always enough to describe the snapshot. To help identify the snapshot, type in descriptive information about the snapshot when saving it (Figure I-83). This can include vehicle conditions, DTCs, symptoms, repair order, etc. The next time a file is opened, this information will aid in locating the correct file.

Printing a Snapshot

Printing can be accomplished in three ways:

1. Using the Print command in the File menu

2. Using the Print Screendump icon on the TIS 2000 toolbar (Figure I-2).

3. Using the Print icon on the snapshot toolbar (Figure I-65).

The Print command produces a text listing of data parameters. The Print screendump icon produces a full-page representation of what s displayed on the monitor.
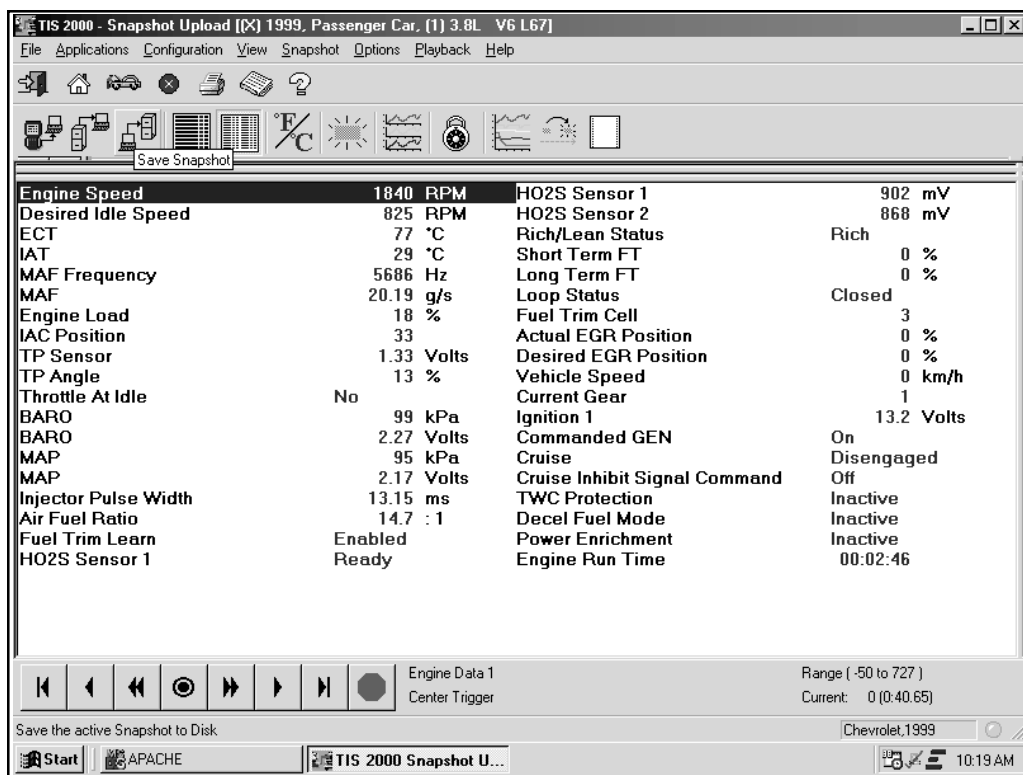
Figure I-82, Save Snapshot Icon
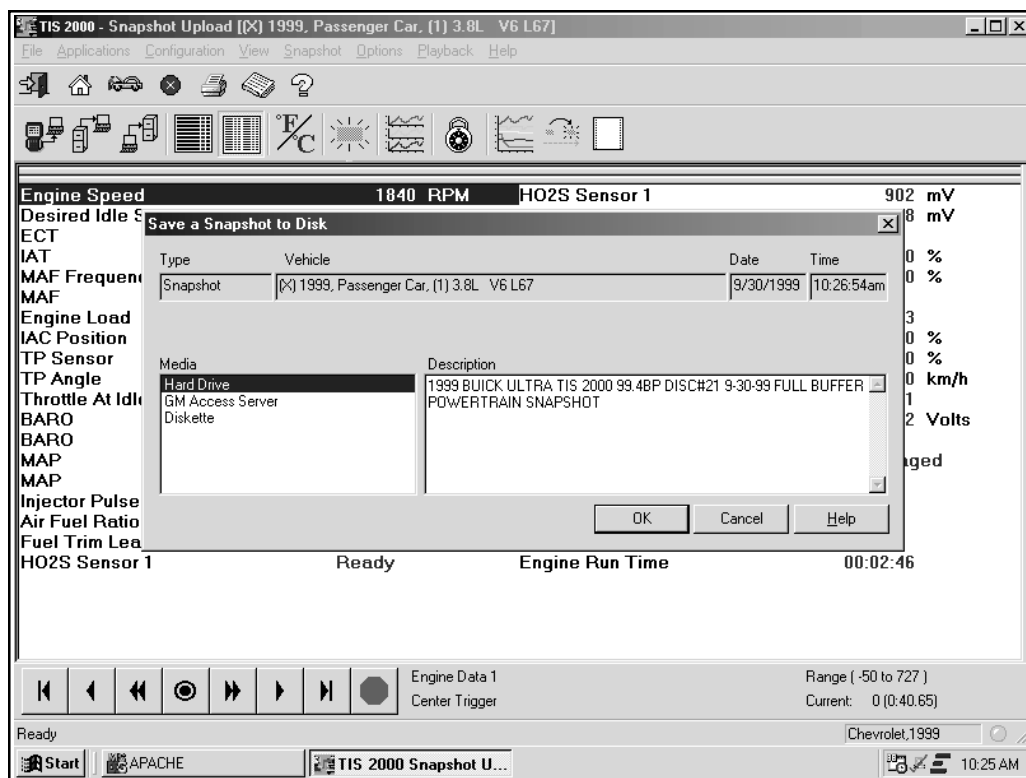
Figure I-83, Save Snapshot Window

Technician Notes

Acronyms/Abbreviations

Upper case = Acronyms

Lower case = Abbreviations

Term	Definition
3GR	third gear
4GR	fourth gear
4WAL	four-wheel antilock
4WD	four-wheel drive

A

Term	Definition
AAT	ambient air temperature
ABS	antilock brake system
A/C	air conditioning
accel	acceleration
accum	accumulator
accy	accessory
ACL	air cleaner
ACM	air conditioning module
act	actual
actv	activate
A/D	analog to digital
AD	accommodated device
adapt	adaptive
adapts	adapters
ADG	accommodated device gateway
adj	adjust
ADL	automatic door lock
ADS	auxiliary discriminating sensor
AFECM	alternative fuel engine control module
AFO	alternative fuel operation
A/F	air/fuel ratio
aft	after
ahrs	amp hours
AIR	secondary air injection
ALC	automatic lamp control
	automatic level control
ALDL	assembly line diagnostic link
ALM	automatic level module
Alt	alternative
AM	amplitude modulation
amp	amplifier
amps	amperages
APP	accelerator pedal position
Apr	April
ARS	adaptive receptive system
asm	assembly
ASM	alarm siren module
ASR	acceleration slip regulation
A/T	automatic transmission
ATC	active transfer case
	automatic transfer case
ATF	automatic transmission fluid
Aug	August
auto	automatic
aux	auxiliary
avg	average

Term	Definition
AWD	all-wheel drive

B

Term	Definition
B+	battery positive voltage
BARO	barometric pressure
BAS	brake apply sensor
batt	battery
BBV	brake booster vacuum
BCM	body control module
BFC	body function controller
blts	belts
BLW	brake lining wear
bn	bank
BPCM	battery pack control module
BPMV	brake pressure modulator valve
BPP	brake pedal position
BTCM	brake torque control module
BTSI	brake transmission shift interlock

C

Term	Definition
cal	calibration
calc	calculated
CAN	controller area network
CASE	crankshaft angle sense error
cass	cassette
CC	climate control
CCM	central control module
CCW	counter clockwise
CD	compact disc
CDX	compact disc changer
CKP	crankshaft position
CKT	circuit
CL	closed loop
cm	centimeter
cmd	command
cmmd	commanded
CMP	camshaft position
CNG	compressed natural gas
CO	carbon monoxide
CO2	carbon dioxide
combo	combination
comm	communication
compl	complete(d)
cond	condition
config	configuration
const	constant
COP	computer operating properly
CPP	clutch pedal position
CPS	childseat positioning sensor
CTD	content theft deterrent
CTP	closed throttle position
ctrl	control
ctsy	courtesy
CVRSS	continuously variable road sensing suspension
CVRTD	continuously variable real time damping
cyl	cylinder

Term	Definition

D

D	drive
DAB	delayed accessory bus
dB	decibels
dBm	decibel meter
DC	duty cycle
DCM	door control module
DDM	driver door module
DDS	driver door switch
Dec	December
dec	decrement
decel	decelerate
def	defrost
defog	defogger
deg	degrees
deg C	degrees Celsius
del	delivered
DERM	diagnostic energy reserve module
des	desired
desc	description
DI	distributor ignition
diag	diagnostic
DIC	driver information center
diff	differential
dig	digit
DIM	dash integration module
dis	disable
discon	disconnect
discrim	discriminate
disp	display
DLC	data link connector
DMCM	drive motor control module
DMM	digital multimeter
DNR	Dolby noise reduction
DOHC	dual overhead cam
dol	Dolby
dr	door
DRL	daytime running lights
DRP	dynamic rear proportion
drvr	driver
DSM	driver seat module
DSP	digital signal process
DTC	diagnostic trouble code
DVD	digital video disc
dwn	down

E

E&C	entertainment and comfort
EBCM	electronic brake control module
EBM	electronic brake module
EBTCM	electronic brake and traction control module
EC	engine control
ECC	electronic climate control
ECL	engine coolant level
ECM	electronic control module
	engine control module

Term	Definition
econ	economy
ECT	engine coolant temperature
ECU	electronic control unit
EEPROM	electrically erasable programmable read-only memory
EGR	exhaust gas recirculation
EHCU	electric hydraulic control unit
EI	electronic ignition
elec	electric
EMB	electromagnetic brake
enab	enabled
eng	engine
EOP	engine oil pressure
EOT	engine oil temperature
EPR	Exhaust pressure regultor
EQ	equalizer
ESB	expansion spring brake
ESC	electronic suspension control
ESD	electrostatic discharge
EST	electronic spark timing
ESO	engine shutoff
est	estimated
ETC	electronic temperature control
	electronic throttle control
	electronic timing control
ETS	enhanced traction system
EV	electric vehicle
EVAP	evaporative emission
evap	evaporator
EVO	electronic variable orifice
ext	extended

F

Term	Definition
F	Fahrenheit
F4WD	full-time four-wheel drive
FC	fan control
fdbk	feedback
Feb	February
FEDS	fuel enable data stream
FEIC	fuel economy integrated counter
FET	field effect transistor
FICM	Fuel injector control module
filt	filter
FL	front left
flr	floor
FM	frequency modulation
FP	fuel pump
FPR	fuel pressure regulator
FR	front right
freq	frequency
frnt	front
FRP	fuel rail pressure
FT	fuel trim
ft-lb	foot-pounds
fwd	forward
FWD	front-wheel drive

G

Term	Definition
g/cyl	grams per cylinder

Term	Definition
GEN	generator
GND	ground
GPS	global positioning system
GS	garage shift
GVW	gross vehicle weight

H

Term	Definition
HC	hydrocarbon(s)
HCM	heating control module
HD	heavy duty
hex	hexadecimal
HI	high
HID	high intensity discharge
hist	history
HO2S	heated oxygen sensor
horiz	horizontal
hr	hour
hrs	hours
HTCM	HVAC thermal control module
htr	heater
HUD	head-up display
HVAC	heating ventilation air conditioning
H/W	hardware
HW	heated windshield
hz	hertz

I

Term	Definition
IAC	idle air control
IAT	intake air temperature
IC	ignition control
ICCS	integrated chassis control system
ICDX	integrated compact disc changer
ICM	ignition control module
ICS	integrated chassis system
ID	identification
ign	ignition
illum	illumination
I/M	inspection and maintenance
IMDX	integrated mini disc changer
immo	immobilizer
in	inch(es)
inadv	inadvertent
inc	increment
incand	incandescent
infl	inflatable
info	information
init	initial
inj	injector
inst	instant
int	interior
I/O	in/out
I/P	instrument panel
IPC	instrument panel cluster
IPM	instrument panel module
IRQ	interrupt request
ISC	idle speed control
iso	isolation
ISS	input shaft speed

Term	Definition

J

Jan	January
Jul	July
Jun	June

K

KAM	keep alive memory
KDD	keyboard display driver
kg/h	kilograms per hour
km	kilometer
km/h	kilometers per hour
km/l	kilometers per liter
kpa	kilopascal
KS	knock sensor

L

LCD	liquid crystal display
LCM	lighting control module
LDCL	left door close locking
LDCM	left door control module
lduty	light duty
LED	light emitting diode
LF	left front
LFWS	left front wheel speed
LGM	lift gate module
LH	left hand
LMD	left mid door
LO	low
LPG	liquefied petroleum gas
LPS	low pressure sensor
L/R	left/right
LR	left rear
LRD	left rear door
lrn	learn
lt	left
LTPWS	low tire pressure warning system
lvl	level

M

MAF	mass airflow
malf	malfunction
MALL	multifunction alarm lighting and locking
man	manual
manufact	manufactures
MAP	manifold absolute pressure
Mar	March
MAT	manifold air temperature
max	maximum
MCU	microprocessor control unit
MD	mini disk
MDX	mini disc changer
med	medium
mem	memory
MFI	multiport fuel injection

Term	Definition
mgmt	management
mid	midrange
MIL	malfunction indicator lamp
min	minute(s)
mm3	cubic millimeters
mmhg	millimeters of mercury
M M M	memory mirror module
mod	module
mon	monitor
mpg	miles per gallon
mph	miles per hour
msg	message
MSM	memory seat module
MSVA	magnetic steering variable assist
M/T	manual transmission
mtr	motor
mult	multiple
mux	multiplex

N

Term	Definition
N	neutral
nav	navigation
NDH	navigation display head
NGO	natural gas operation
no	number
Nov	November
Nox	nitrogen oxides
NR	Noise reduction
NV	Night vision
NVRAM	non-volatile random access memory

O

Term	Definition
O2	oxygen
O2S	oxygen sensor
OAT	outside air temperature
OBD	on-board diagnostic
OBPA	off-board programming adapter
Oct	October
ODM	Output driver module
OEM	original equipment manufacturer
orig	original
OSC	oxygen storage capacity
Overtemp.	overtemperature
OSS	output shaft speed

P

Term	Definition
P	park
parms	parameters
Pass	passenger
PC	"pressure control (solenoid valve)" or " personal computer"
PCB	printed circuit board
PCM	powertrain control module
PCMCIA	personal computer memory card industry association
PCS	pressure control solenoid

Term	Definition
PCV	positive crankcase ventilation
PDIF	pressure differential
PDM	passenger door module
PDS	passenger door switch
PEB	power electronics bay
perf	performance
phn	phone
PID	parameter identification
PIN	personal identification number
PLL	phase locked loop
PMV	pressure modulator valve
PNP	park/neutral position
pos	position
PPS	passenger presence sensing
press	pressure
preten	pretensioner
prev	previous
prim	primary
PRNDL	park, reverse, neutral, drive, low
prog	program
PROM	programmable read-only memory
PS	power steering
PSCM	passenger seat control module
psgr	passenger
psi	pounds per square inch
PSIR	passenger supplemental inflatable restraint
PSP	power steering pressure
PTO	power take off
PWM	pulse width modulation
pwr	power
PZM	platform zone module

Q

Term	Definition
QDM	quad driver module

R

Term	Definition
R	reverse
R/A	resume or accelerate
RAC	remote accessory controller
RAM	random access memory
ran	random
RAP	retained accessory power
RCC	rear climate control
RDCM	right door control module
RDM	rear door module
RDS	radio display system
rec	receive
recal	recalibrate, recalibration
recep	receptacle
recirc	recirculation
recl	recline
ref	reference
refrig	refrigeration
regen	regenerate
req	request
resist	resistance
resync	resynchronize

Term	Definition
rev	reverse
RF	radio frequency
	right front
RFA	remote function actuator
RFI	radio frequency interference
RFWS	right front wheel speed
RH	right hand
RIM	radio interface module
	rear integration module
RKE	remote keyless entry
R/L	right/left
RMD	right mid door
ROM	read-only memory
RPA	Rear parking assist
RPM	revolutions per minute
RPO	regular production option
RR	right rear
RRD	right rear door
RSA	rear seat audio
RSS	road sensing suspension
rt	right
RTC	real-time clock
RTD	real-time damping
RTT	reconfigurable telltale
RWD	rear-wheel drive

S

Term	Definition
SBM	standard body module
SC	supercharger
SCV	speed controlled volume
SDL	serial data link
SDM	sensing and diagnostic module
sec	second(s)
sen	sensor
Sep	September
seq	sequence
ser	serial
SFI	sequential fuel injection
sig	signal
SIR	supplemental inflatable restraint
SIS	side impact sensor
SMCC	stepper motor cruise control
SOH	state of health
sol	solenoid
spd	speed
speedo	speedometer
SPI	serial peripheral interface
SPS	service programming system
	speed signal
SS	shift solenoid
SSS	speed sensitive steering
SSV	shift solenoid valve
stdby	standby
STL	service transmission lamp
SVS	Service vehicle soon!
S/W	software
sw	switch
SWC	steering wheel controls
Switz	Switzerland

Term	Definition
SWPS	steering wheel position sensor
SXR	serial transmit and receive
sync	synchronize
sys	system

T

Term	Definition
TA	Traffic announcement
TAC	throttle actuator control
tach	tachometer
TAP	throttle adaptive pressure
	transmission adaptive pressure
TAS	trap alert system
TAV	Transmission adaptive volume
TBC	truck body controller
TBI	throttle body fuel injection
TC	turbocharger
TCC	torque converter clutch
TCM	transmission control module
TCS	traction control system
TDC	top dead center
tele	telescope
temp	temperature
TFP	transmission fluid pressure
TFT	transmission fluid temperature
TIM	tire inflation monitor
TIS	Techline information system
torq	torque
TP	throttle position
TPM	tire pressure monitor
TR	transmission range
trac	traction
trans	transmission
transp	transponder
trk	truck
TSS	turbine shaft speed
TT	telltale lamp
TTM	tilt and telescope module
TVV	thermal vacuum valve
TWC	three-way catalytic converter
twtr	tweeter

U

Term	Definition
UART	universal asynchronous receiver transmitter
unlk	unlock

V

Term	Definition
vac	vacuum
VATS	vehicle anti-theft system
VCI	vehicle communications interface
VCM	vehicle control module
VDR	vehicle dealer recorder
veh	vehicle
ver	version
vert	vertical
VES	variable effort steering
VF	vacuum fluorescent

Term	Definition
VICS	vehicle information communication system
VIN	vehicle identification number
VIU	Vehicle Interface Unit
vlv	valve
VSES	vehicle stability enhancement system
VR	voltage regulator
vspd	vehicle speed
VSS	vehicle speed sensor
VSV	vacuum solenoid valve
VTD	vehicle theft deterrent

W

Term	Definition
warn	warning
w/o	without
WOT	wide open throttle

X

Term	Definition
xpress	express

This glossary contains definitions for many common computer terms, as well as automotive terms related to TIS 2000/Techline software. For complete discussions of terminology for your dealership s computer system, refer to the documentation that came with the system.

A

ACCESS: The GM ACCESS server network installed in GM dealerships connects dealership PCs. Applications used by the dealerships, including Techline applications, are stored on a main server. Users access these applications from their PC client workstations.

active window: The currently selected window, where the next command (or anything typed) will be applied. The active window is always on top of overlapping windows, its title bar has a visible title and its scroll bars are active.

alert box: A box that pops on screen, announced by one or more beeps, that gives information or a warning. Alert boxes don t require any information, but a button may have to be clicked, such as OK or Cancel. Also called a message box.

application: Software that does relatively complex tasks and allows the user to create, view, print and modify documents. Common application types include word processors, spreadsheets, database managers, and graphics programs. Most programs are called applications, unless they are utilities or system software.

archive: A copy of a file (often created with a compression utility) that is stored on a separate disk for safe keeping or as a backup.

B

backing up: Copying some or all of the files on your computer to disks or tape, so information won t be lost if the original versions are damaged, lost, or stolen. The copied files are called backups.

baud rate: A measure of the speed at which a modem sends and receives bits of data (in bits per second).

BCM: Body Control Module. An electronic device that controls vehicle body functions, such as door locks, windows, etc.

bit: Short for binary digit, this is the smallest unit of information the computer can work with. It can represent only one of two things: yes or no, on or off, 0 or 1 (as it s expressed in the binary numbers used by computers.) The computer usually groups bits together into bigger chunks such as bytes, kilobytes, and so forth.

bps: Bits per second, the correct way to express the data-transfer speed of a modem. Today s modems generally range from 14,400 bps to 56,000 bps.

byte: Eight bits of computer data. A byte typically represents one character on the computer screen.

C

Capture Info: When selected from the DTC menu function, the Tech 2 will gather stored information from the vehicle s PCM.

CD-ROM: Compact Disk, Read Only Memory. A type of storage disk that holds up to 650 MB of data. Data on a CD-ROM is permanent   it cannot be overwritten, nor can files be saved to a CD. There are CD-ROMs that can be written to, but these require special equipment that is not standard on most computer systems.

checkbox: A button that works as a toggle that is, if an option is turned on by clicking once in the empty checkbox (an x will appear), another click will turn it off.

chip: The most essential electronic component of a computer: a tiny piece of silicon (about the size of a baby s fingernail) with an electronic circuit embedded in it. RAM and ROM are examples of chips which are normally mounted on boards.

Class 2: The type of digital data stream utilized in GM OBD II diagnostic systems. Faster than UART, the data stream used on non-OBD II diagnostic systems. Class 2 uses two different pulse-widths and toggles between 0 (passive) and 7 volts (active).

clicking: Pressing and immediately releasing the mouse button. To click on something is to position the pointer over it and then click.

client: The name given to a personal computer (PC) that is connected to a server. Clients are also called workstations. A client computer uses files and/or applications that are stored on the server, as well as files stored on the PC itself. Client PCs are different than stand-alone PCs in that stand-alone units have all their applications and files stored on the hard drive of the machine. In GM ACCESS, the individual computers in the dealership, including the service department PC(s), are considered clients, or workstations.

close box: A small box at the upper right end of the title bar in the active window. Clicking it closes the window.

command: The generic name for anything the computer is told to do. Commands are usually listed on menus or are invoked using keyboard shortcuts.

contextual menus: A menu that is accessed by clicking the right mouse button in Win 98. These menus contain options related to the specific program they are in.

CPU: Central processing unit, the brain of the computer. The CPU interprets and executes the actual computing tasks; one measure of its performance is the clock rate. Sometimes the term CPU is used to mean the processor, motherboard, or the computer.

crash: A problem (often caused by a bug) that causes a program, or the entire operating system, to unexpectedly stop working.

cursor: The flashing line on the screen (usually seen when typing text information) that indicates placement. Often referred to as a pointer (little black arrow that indicates where to click).

D

data: The generic name of anything that is input into a computer, or anything it outputs to the user. It is the plural of datum, a single piece of information.

database: A file created by a database manager that contains a collection of information organized into records, each of which contains labeled categories (called fields).

DB9 Adapter: Allows connection of an RS232 cable to the Serial Port of a computer.

default: The option that will be used unless it is changed by the user.

default button: In a dialog box, the button with a heavy border that is activated when Enter is pressed.

desktop: Defined by the operating system, the menu bar, background pattern, icons, files, folders, etc.

device: Another word for hardware.

dialog box: A box that appears on the screen (often after a command is issued).

Digital Interface Unit (DIU): The control unit of the dealership s Pulsat equipment. it prepares incoming and outgoing signals for communication and allows compatible devices to talk with GM computers.

disk: A thin round platter on which computer data is stored in either magnetic or optical form. Although the disk is circular, its case is usually rectangular. The main types are floppy disks, hard disks, and CD-ROMs.

disk drive: See drive.

DLC: An acronym for Data Link Connector. Formerly referred to as the ALDL, this is the connector to which diagnostic scan tools will be connected. Under OBD II, the DLC will be a standardized 16-cavity connector and will have a standardized location under the driver-side instrument panel.

double-clicking: Clicking two times on a selection without moving the mouse between clicks. Double-clicking is a common way to initiate an action on a PC.

dpi: Dots per inch, a measure of the resolution of a printer, scanner, or monitor. It refers to the number of dots in a one-inch line. The more dots per inch, the higher the resolution.

drive: A motorized device that reads information from, and writes information onto, disks or tapes. The main types are floppy disk drives and hard disk drives, but there are also drives for CD-ROMs, removable media, and tape.

driver: A piece of software that tells the computer how to operate an external device, such as a printer, hard disk, CD-ROM drive, or scanner. For instance, it is not possible to print without a printer driver.

DTC: An acronym for Diagnostic Trouble Code. It is also referred to as a fault code or code. Any code stored in the PCM memory.

E-G

ECM: An acronym for Engine Control Module, the on-board computer that controls fuel and emissions, as well as diagnostics, for the vehicle s engine management system. In ESI, the ECM is referred to as an ECU.

ECU: See ECM.

EEPROM: Electronically Erasable Programmable Read Only Memory (double E PROM). This is a type of memory used in many computers such as the vehicle s engine controller and contains information that the computer needs to run. A EEPROM may have only sections of the memory reprogrammed.

e-mail: Electronic mail private messages sent between users on different computers, either over a network or via a modem connection to an on-line service.

file: A collection of information on a disk, usually a document or a program, that is lumped together and called by one name.

Flash EPROM: A type of electronically erased memory for computers. The entire memory of the EPROM must be erased before it may be reprogrammed.

floppy disk: A 3.5-inch removable disk that is flexible (although it s usually protected by a hard plastic case). Also called a diskette.

fragmentation: A condition in which parts of a file are stored in different locations on a disk. When a file is fragmented, the drive s read/write head has to jump from place to place to read the data; if many files are fragmented, it can slow the drive s performance.

GM ACCESS: The GM ACCESS server network installed in GM dealerships that connects dealership PCs. Applications used by the dealership, including GM service software applications, are stored on a main server. Users access these applications from their PC workstations.

gigabyte: A measure of computer memory, disk space, and the like that s equal to 1,024 megabytes (1,073,741,824 bytes), or about 179 million words. Sometimes a gigabyte is treated as an even billion bytes (giga means billion). Abbreviated G, GB, or gig.

GUI: Graphical User Interface.

H-K

hard disk: A rigid (usually nonremovable) disk, and/or the drive that houses it. Actually, hard disks usually have several disks (or platters), and they store much more data and access it more quickly than floppy disks do. Also called a hard drive or hard disk drive.

hardware: The actual physical parts of the computer system, such as hard disks, printers, modems, scanners, cards, keyboards, mice, and the computer itself.

hardware lock: A device, usually connected to the printer port of the PC, that acts as a security measure for allowing software to load and/or run. If a software application that requires the security hardware lock does not detect it, the software will not run. A hardware lock can also define the computer so that proper functions load during PC startup.

hierarchical menus: Menus that contain more than one level of listing. Hierarchical menus are identified with a small arrow to the right of the item name.

highlight: To make something stand out from its background in order to show that it s selected or active.

hyperlinking: A technique in computer documents for automatically linking related pieces of information. Generally, hyperlinked items are displayed in a different color on the screen. Clicking on the item causes the computer to call up whatever the item is linked to, either a graphic, text, or another document.

icon: The little picture that represents a file, folder, disk, or tool. Click it once to select it, double-click it to open a file, folder or disk.

input device: Anything that is used to directly input information to the computer: a mouse, keyboard, trackball, graphics tablet, joystick even a scanner or digital camera.

IPC: Instrument Panel Cluster.

keyboard shortcut: A combination of keystrokes (almost always involving Shift, Option, and/or Control) that executes a command without having to be chosen from a menu. Also called a key combination or keyboard equivalent.

L-N

load: Get something ready to use. It can mean install (as in loading new fonts) or open.

media: 1. The physical component of a floppy disk, hard disk, cartridge, tape or CD-ROM that stores computer data. The main storage strategies are magnetic and optical. 2. The various ways of communicating, including print, video, and audio.

megabyte: A measure of computer memory, disk space, application size, and the like that s equal to 1,024K (1,048,576 bytes) or about 175,000 words. Abbreviated MB or meg.

menu: A list of commands. To select one, drag down the menu until the desired command is highlighted, then release the mouse button. (If a command is unavailable, it will be dimmed.) Three types of menus include pop-up, pull-down and sub.

menu bar: The horizontal strip across the top of the screen that contains the menu titles.

MHz: An abbreviation for megahertz.

microprocessor: See processor.

modem: A piece of hardware that lets computers talk to each other over telephone lines (a communication program is also needed). The modem translates back and forth between the computer s digital data and the sounds carried over the phone lines. (The word is a contraction of modulator/demodulator.)

monitor: The piece of hardware that contains the screen that allows work to be viewed. It is also called a display or CRT and can be monochrome (black and white), grayscale, or color. It is connected to a display port or video card.

motherboard: The heart, soul and brains of the computer. This plastic board resembles a miniature city, but its buildings are actually chips for things like the processor, RAM, and ROM, and the tiny roads connecting them are circuit traces. Also called the logic board.

MSC: Mass Storage Cartridge.

network: In general, a group of computers set up to communicate to each other. A network can be a small system physically connected by cables (a LAN), or separate networks can be connected together to form larger networks (called WANs). The Internet, for example, is made up of thousands of individual networks.

O-P

on-line service: A commercial service that (for a price) provides goodies such as e-mail, discussion forums, tech support, software libraries, news, weather reports, stock prices, plane reservations, even electronic shopping malls. To access one, a modem is needed.

operating system: The basic software that runs the computer.

parallel port: A type of port that transmits data in parallel several bits side by side. These are common printer interfaces on PCs.

peripheral: A piece of hardware that is outside (peripheral to) the main computer. In practice, it usually refers to external hardware such as disk drives, printers and scanners sold by a third party.

PC: An acronym for Personal Computer. A PC is used by individual(s) to perform tasks. The PC can either be a stand-alone unit that contains all of the software it needs to run, or it can be connected to a network, such as GM ACCESS, in which case the PC is called a client or workstation.

PCM: An acronym for Powertrain Control Module, the on-board control module that monitors both engine and transmission/transaxle functions.

PCMCIA Card: An acronym for Personal Computer Memory Card Industry Association. This group has established a standard for the usage of memory cards in personal computers.

platform: Usually refers to a particular type of computer running a particular operating system. Windows is one platform, The Macintosh is another, and Unix is still another.

pop-up menu: A menu, typically found in a dialog box or palette, that pops up (or down or to the side) when the mouse button is pressed on its title (a box with a drop shadow around it).

port: Computerese for a socket (or jack) where cables are plugged in to connect devices together.

printer: A device that takes the text and graphics sent from the computer and puts them on a piece of paper. Most are computers in their own right, with CPUs and memory. The range of printer types includes laser, inkjet, dot-matrix, thermal-fusion, dye-sublimation and imagesetters.

processor: The all-important chip that contains the computer s brain, or CPU. Sometimes called a microprocessor, it is located on the motherboard.

program: Another word for software.

pull-down menu: The kind of menu found on the menu bar. It pops down when you click on its title.

Q-R

quitting: Leaving a program and returning to the desktop.

radio button: A group of buttons of which only one can be on at a time. When you select one radio button, the others are deselected. Compare to checkbox.

RAM: Random Access Memory. The chips in a computer that contain the computer s memory. RAM is the most common type of memory. It s where the computer stores software, files, and other temporary data it needs. RAM is volatile, meaning it is flushed clean each time the computer shuts down. RAM is measured in megabytes.

read/write head: The part of a drive that reads data off the disk platters.

reboot: To restart a computer.

removable media: Any storage media, including floppy disks, that can be inserted into and removed from the computer drive.

resolution: A measurement of size and/or clarity of an image. Usually stated in dots-per-inch (DPI) or pixels-per-inch (ppi). Used to describe printers, monitors and scanner.

ROM: Read-Only Memory. The portion of computer memory that stores start-up information for the computer. ROM is nonvolatile   it is not erased when the computer shuts down.

RS232: A computer industry standard connection which allows two computers to communicate with each other. On the Tech 2 this port is used to connect the Tech 2 to the PC.

RS-485: A computer industry standard connection which allows two computers to communicate with each other. On the Tech 2 this may be used for future add-on test capabilities.

S-T

save: To retain data by writing it to a disk.

scroll bar: Navigation tools that appear at the sides or bottom of a window. Using buttons and/or arrows, you can move around the window to see items hidden from display.

scrolling: Using the scroll bars to move through a window or document.

select: To use the mouse or keyboard to make a choice in a document, dialogue box, menu, or list. Generally, the left mouse button is used for making selections. With the keyboard, items can often be chosen by holding down the Alt key and pressing the underlined letter of the item s name.

serial data: Communication from a computer that comes in a series of bits of information (one bit at a time).

serial port: A type of connection that transmits data one bit at a time.

server: A powerful computer to which other computers (clients) connect to form a network. Rather than having files and applications stored on every computer on the network, the server can store files and/or applications that everyone can share. The GM ACCESS system uses a server.

SI 2000: Service Information 2000. GM s electronic service manual information. SI 2000 also has built-in service bulletin search capabilities.

SIMM: see chip.

software: Programs that a computer runs.

SPS: Service Programming System. A method for updating calibration files stored in a vehicle s on-board controller. SPS involves using the scan tool and computer terminal to download new calibration files from the PC to the scan tool, then to the controller.

stand-alone PC: A personal computer that is not connected to a network. A stand-alone unit contains all the programs it needs to run on its hard drive; it doesn t need files from a server. See *workstation* for a comparison.

submenu: A secondary menu that appears next to the primary menu. Usually indicated by an arrow appearing to the right of a menu item.

Techline Information System (TIS): See *TIS 2000.*

Tech 2: A handheld computer that allows technicians to interface with on-board controller(s) in order to perform diagnostics.

text file: A file containing words without any formatting.

TIS 2000: Also known as the Component Oriented Service Information Delivery System (COSIDS). A group of applications that allow technicians to perform SPS, update the Tech 2, and view Tech 2 snapshot data.

title bar: The horizontal bar running across the top of a window that contains the window name.

U-W

UART: An acronym for Universal Asynchronous Receive and Transmit. The type of data stream used on non-OBD II diagnostic systems. UART toggles between 5 volts (passive) and 0 volts (active).

Uninterruptable power supply (UPS): A device that guards against power loss at a PC or server. It houses several batteries that provide power to the computer in case of electrical outage.

upload: To send a file from one computer device to another, either using a modem or by directly connecting the devices, such as when the Tech 2 is connected to the terminal or the DLC during SPS.

user interface: The way in which a computer program is designed. See GUI.

VCI: An acronym for Vehicle Communication Interface. A module which fits into the lower end of the Tech 2. This module is an interface between a vehicle and the Tech 2 which allows the tool to communicate to the vehicle. Also an acronym for Vehicle Configuration Index, which may be used during Service Programming in special situations.

VCM: An acronym for Vehicle Control Module, the on-board computer that controls the engine management, transmission, and other systems such as antilock brakes.

video card: An add-on hardware component that controls the computer monitor. The video card is equipped with circuitry and video RAM (VRAM) that determine the number of colors and the resolution the monitor can display.

VTD: Vehicle Theft Deterrent.

window: An area on the screen that contains either a file, an application, a group of icons, or a list. The window has scroll bars, a title bar, and minimize/maximize/close boxes.

workstation: The name given to a personal computer (PC) that is connected to a server. A workstation uses files and/or applications that are stored on the server, as well as files stored on the workstation itself. Workstations are different than stand-alone PCs in that stand-alone units have all their applications and files stored on the hard drive of the machine. In GM ACCESS, the individual computers in the dealership, including the service department PC, are considered workstations. Workstations are also called clients.