



MDI *USER'S GUIDE*

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MDI User's Guide

The Multiple Diagnostic Interface User's Guide provides an overview of the MDI tool.

Everything contained in this manual is based on the latest product information available at the time of publication. The right is reserved to make changes at any time without notice.

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U.S.A.

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FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

VDE Certification (for European Use)

This equipment complies with the requirements of VDE 0871/6.78. Improper use or maintenance neglect may cause unacceptable radio or TV interference.

Using This Manual

To increase their effectiveness with the MDI, users should familiarize themselves with the format and information contained in this guide.

NOTE



If you are reading this guide online, note that the figures and illustrations are hyperlinked to the text. To view a figure, simply click on its reference, which is shown in blue text. After viewing the figure, click on the back button of your viewing software to return to your place in the manual.



Foreword

The Multiple Diagnostic Interface and host computer applications are designed for use by trained service personnel to diagnose and repair automotive electronic systems. Every attempt has been made to provide complete and accurate technical information based on factory service information available at the time of publication. However, the right is reserved to make changes at any time without notice.

To familiarize yourself with the Multiple Diagnostic Interface and host computer applications and their capabilities, and how to use them, please read through the User's Guides before putting the MDI to work.

The Multiple Diagnostic Interface and host computer applications provide the following capabilities:

- Data transfer and Electronic Control Unit (ECU) reprogramming
- Shop network communications (LAN and WLAN)
- Future expandability, including diagnostic applications

Location of Vehicle ECUs and Test Connectors

For the location of vehicle Electronic Control Units (ECUs) and Data Link Connectors (DLCs), refer to the Service Information for the vehicle being tested.



Customer Support Overview

To obtain assistance with a question or problem concerning the operation of your GM-Techline product and its attached products, or to arrange for warranty and non-warranty repairs, telephone your local Customer Support Center. To order replacement parts, contact GM Dealer Equipment.

Before Calling

Before making a call to your local Customer Support Center or GM Dealer Equipment, be sure to have the following information ready:

- Dealership name, address and dealer code number
- Serial number of MDI
- Name, part number, and quantity of the item to be requested
- Telephone number where the technician may be reached.

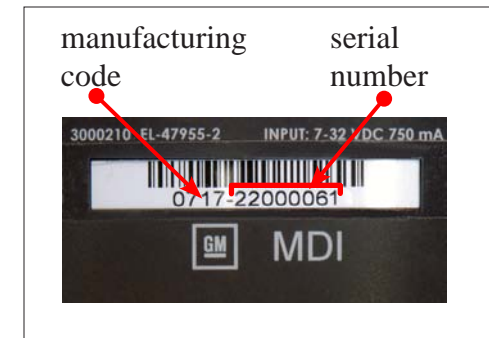
Prepare a brief description of the problem:

- Tell when the problem occurred
 - List any error codes displayed
 - Tell what accessories were being used when the problem occurred, and vehicle information
-

IDENTIFYING YOUR MDI

The GM MDI assembly label is located on the back of the unit. As shown in the illustration at the right, the assembly identification number has two parts: a manufacturing code for traceability and a unique serial number (22000061, in this example [Figure IV-1](#)). The serial number is used to identify the MDI in the software.

FIGURE IV-1.



Customer Support Overview continued on next page...

Section I – iv

Customer Support Overview *continued...*

Making the Call

The GM Service and Parts Operations **GM-Techline Customer Support Center** telephone lines operate from 8:00 a.m. to 8:00 p.m. (Eastern Standard Time) Monday to Friday.

In the **United States** and **Canada** to contact Customer Support, dial:

- English: 1-800-828-6860 (option 1) or 1-888-337-1010 (option 3)
- French: 1-800-503-3222
- Spanish: 1-248-265-0840 (option 2)
- Fax line: 1-248-265-9327*

To call GM Dealer Equipment, dial 1-800-GM-TOOLS (1-800-468-6657).

TCSC supports North America only. International customers can send questions or comments by fax, (U.S. country code) 248-265-9327, or use the following telephone numbers:

- | | | | |
|-----------------|----------------|----------------|---------------|
| • Latin America | 1-248-265-0840 | • Asia Pacific | 045-562-4483 |
| • Europe | 41-41-766-2940 | • Australia | 613-9544-6222 |

A GM-Techline Customer Support representative will come on the line or respond by fax to answer questions, make suggestions, and take repair and parts orders. To make sure every problem is resolved to the satisfaction of the caller, the GM-Techline Customer Support representative will record each problem, question, or suggestion into a special problem tracking system. Any problems that cannot be resolved over the phone will be directed to the appropriate group for resolution.

* You may also send a GM-Techline Product Assistance fax form to the Customer Support Center.



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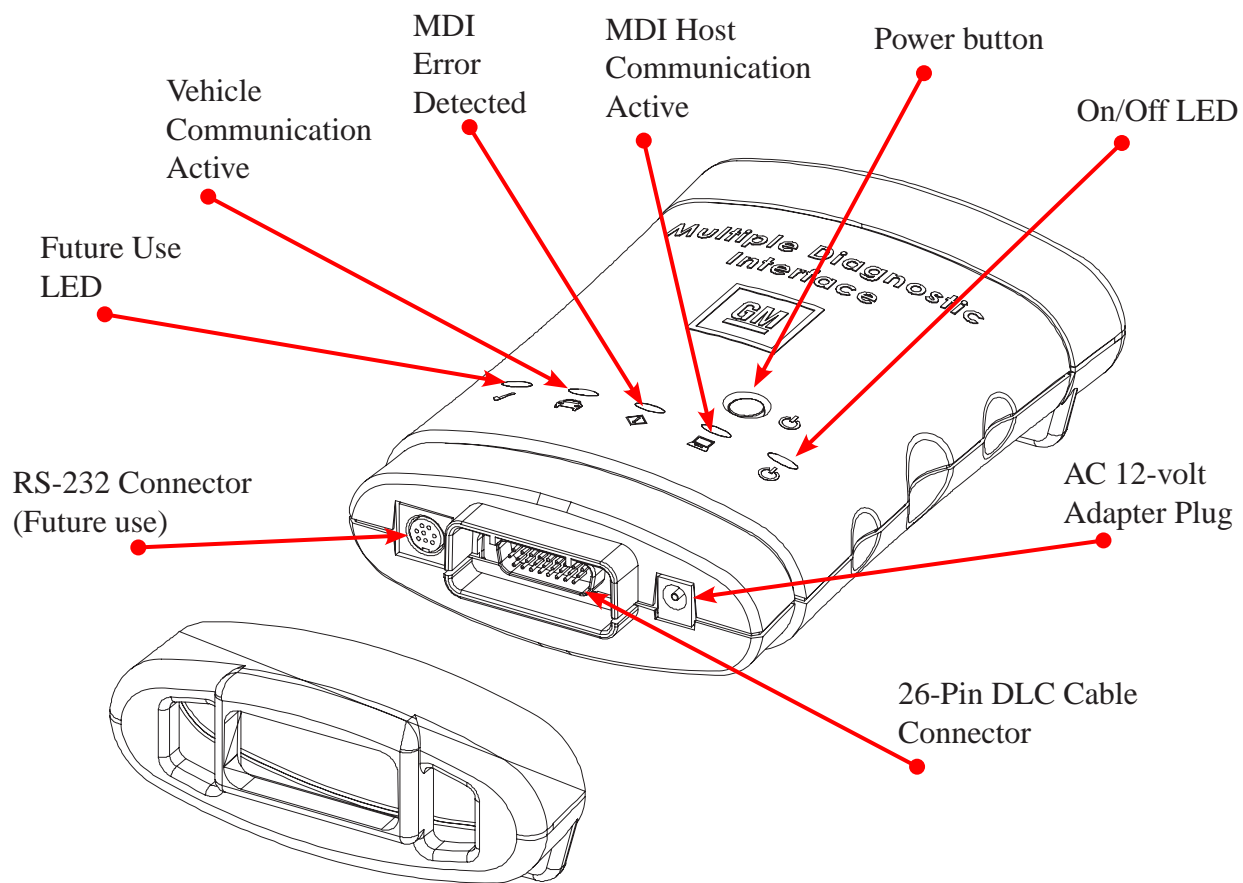
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THE MULTIPLE DIAGNOSTIC INTERFACE

The MDI is used by professional technicians as an aid in diagnosing and repairing automotive electrical and electronic systems. The MDI is designed to connect the vehicle to a TIS 2 Web PC computer application which then functions through the MDI for data transfer and Electronic Control Unit (ECU) reprogramming. See [Figure IV-2](#) for the location of the connectors and indicators (LEDs) on the MDI.

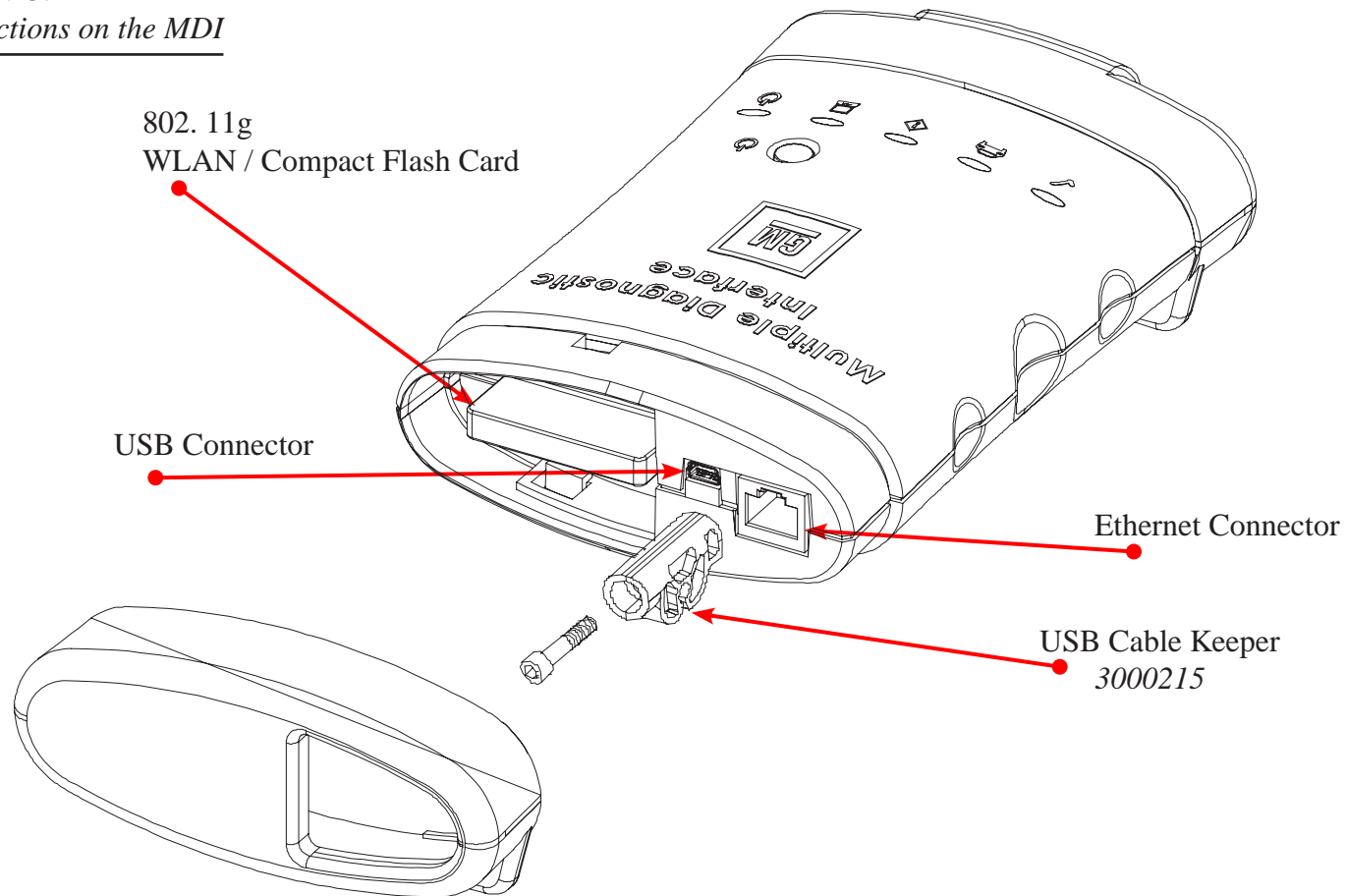
FIGURE IV-2.
Connectors and Indicators (LEDs) on the MDI



Host Computer Interface

Using the PC application MDI Manager software, you configure the MDI to communicate with a host computer. The MDI is capable of communicating over a USB cable, an ethernet cable (LAN), or wireless (WLAN). Refer to [Figure IV-3](#).

FIGURE IV-3.
PC Connections on the MDI



Minimum hardware requirements

Minimum hardware requirements: (refer to GM Online Support for further information.)

- Intel Pentium IV / 1.3 GHz

NOTE



Processors such as Celeron, Cyrix and AMD are NOT compatible with some GM software.

- System Memory (RAM)
- 256 MB SDRam
- Hard Disk Drive: 20 GB3 ATA or greater
- CD-ROM Drive / DVD combo drive
- RAM: 512 MB RAM or greater
- Parallel Port 1
- Serial Port 1
- USB Ports 1 or more Audio Adapter 16-Bit or greater
- Audio Speaker Yes
- Video Memory

PC Computer Application

The MDI functions with a PC computer applications (PC program) for testing specific vehicles and systems. The programs are upgraded periodically to include new vehicles, model years, systems, and functions. Specific operating instructions are provided within the PC computer application.

The MDI supports pass-thru programming of the flash calibration files that are stored in a vehicle onboard controller (e.g. PCM, ABS, VTD). Refer to [The Service Programming System \(SPS\)](#) guide located in this manual.



The Service Programming System (SPS)

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 such as spark curves and fuel control. When troubleshooting a driveability condition, diagnosis may call for reprogramming the controller with newer calibration information to correct a customer concern. The Multiple Diagnostic Interface (MDI) is your connection between your computer and the vehicle's J1962 DLC connector for pass-thru programming of the vehicle's ECU's.

The ECM/PCM controller can generally use four types of serial communications:

- UART (Universal Asynchronous Receive and Transmit)
- Class 2
- Keyword
- GM LAN



Selecting the Correct Calibration

NOTICE

Prior to performing SPS, it is important to heed the following precautions:

- Using an outdated version could damage vehicle modules. The Multiple Diagnostic Interface and the terminal must have the latest software.
- Make sure the vehicle battery is fully charged. Battery voltage for SPS should be between 12 and 14 volts. However, a battery charger must not be connected to the vehicle when using the MDI.
- Make sure the cable connections are secure. A disconnected cable MAY cause controller failure.
- In using a laptop computer/other display device (PDA etc.) for pass-thru programming, ensure that the power supply is properly connected. If powered by AC and the power cord becomes disconnected, it could interrupt programming and cause damage to the control module. If the laptop is operating from its internal power source (batteries), then make sure it is adequately charged to complete the SPS process.

NOTICE

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



Performing Pass-Thru Programming

Pass-thru programming requires that the MDI remain connected to the terminal and to the vehicle throughout the programming process. The vehicle must be in close proximity to the terminal while using pass-thru programming (see [Figure IV-4](#)).

IMPORTANT:

TIS 2 Web only supports Pass-Thru Programming with the MDI.

Pass-Thru Programming Procedure

1. Launch TIS 2 Web.
2. From the TIS 2 Web main screen ([Figure IV-5](#)), select the Service Programming System icon.
3. Connect MDI to vehicle ([Figure IV-4](#)) and Display device (e.g. PDA, PC screen) ([Figure IV-6](#)):
 - Power On MDI using ON/OFF button ([Figure IV-2](#)).
 - Key on, battery fully charged.
 - Select “Start SPS” ([Figure IV-7](#)).
 - SPS software version will appear on the screen. ([Figure IV-8](#)). If hardware screen does not appear, check software connections. This process could take some time depending upon you internet connection.
 - Select Diagnostic Tool ([Figure IV-9](#)) J2534 GM MDI.
 - Select Programming Process ([Figure IV-10](#)).
4. Select “Next” to “Sales Make” screen ([Figure IV-11](#)). Complete all terminal directed data until “Next” is highlighted (vehicle data will vary). Select “**Next.**” You may or may not get a pop-up screen ([Figure IV-12](#)). Make sure correct VIN is displayed. If VIN is incorrect or missing enter the correct VIN ([Figure IV-13](#)).

Pass-Thru Programming Procedure continued on next page...



Performing Pass-Thru Programming *continued...*

IMPORTANT

In order to reduce the potential for signal loss. The MDI should be configured for the most stable communication option at your location. You can choose from USB, Ethernet, or Wireless Ethernet.

5. At the “Supported Controllers” screen (Figure IV-14):

- Select the appropriate control module under “Select Controller,” e.g. PCM / VCM Control Module etc.
- Select the appropriate programming type (Figure IV-15) (Normal, VCI).
- Select **Next**. For VCI you will need to contact your local Customer Support Center

IMPORTANT

When selecting the vehicle configuration index (VCI) programming type, a valid VCI number for the vehicle must be entered. This number may be obtained from the Techline Customer Support Center.

The correct tire size and axle ratio must be highlighted and a valid VCI number entered if you select Reconfigure for your programming type.

Select **Cancel** if you receive a message stating that the calibration selected is already the current calibration in the control module and reprogramming with the same download is not recommended.

Pass-Thru Programming Procedure continued on next page...



Pass-Thru Programming Procedure *continued...*

6. During communication a “validate /select vehicle data” screen will appear (Figure IV-16). You may or may not get a pop-up screen (Figure IV-12).
7. At the Calibration Selection screen:
 - Select the appropriate calibration(s) (Figure IV-17).
 - Make sure **all folder tabs** have a green check mark.
 - Select **Next**.
8. At the Summary screen: (Figure IV-18)
 - Verify current calibration(s) with selected calibration(s).
 - Select **Next**.
 - At the Summary Screen, current calibration is displayed along with the new calibrations available for the selected vehicle. Diagnostic enhancements are listed for various DTC's. Multiple screens may be available. Calibration data may be printed from these screens.
 - The Transfer Data screen appears as reprogramming begins, finishing when the percentage bar reaches 100 percent. Time may vary depending upon calibration. (Figure IV-19). Estimated remaining programming time will appear on the screen.

Pass-Thru Programming Procedure continued on next page...



Pass-Thru Programming Procedure *continued...*

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.

9. The Program Controller “Programming Complete” screen appears ([Figure IV-20](#)).
10. Select “clear DTC’s” to erase history data. The program will return to the TIS 2 Web main screen. Be sure to verify successful reprogramming. Refer to Verifying Reprogramming on ([page III-7](#)).
 - A warranty claim code will appear if applicable.
 - A calibration module replacement must be changed on the vehicle for the claim code to appear. These may be “Post Programming “ and or controller specific instructions after programming is completed.
 - At the summary screen, current calibration is displayed along with the new calibrations available for the selected vehicle. Diagnostic enhancements are listed for various DTC’s. Multiple screens may be available. Calibration data may be printed from these screens.
11. Turn off the MDI by pressing the ON/OFF button. Refer to ([Figure IV-2](#)). Select Cancel.
12. Disconnect the MDI from the vehicle ([Figure IV-4](#)) for disconnect.

Pass-Thru Programming Procedure continued on next page...



Verifying Reprogramming

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

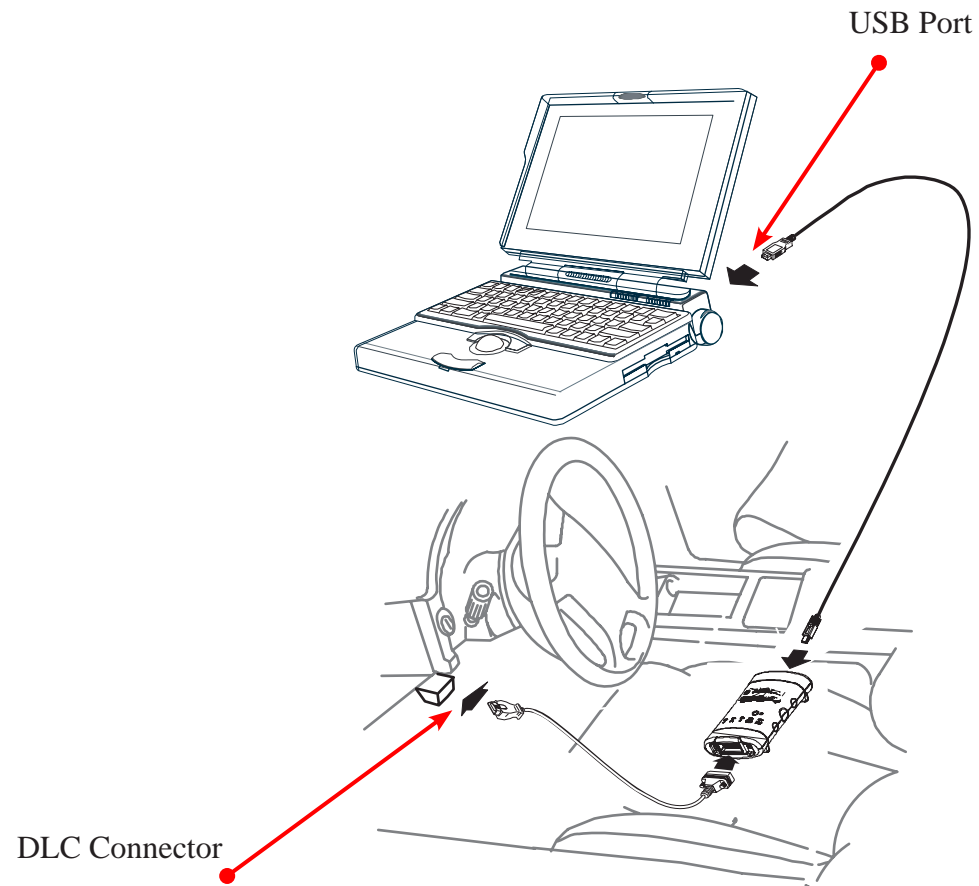
Turn the ignition off, wait at least 30 seconds, then start the vehicle to confirm that reprogramming was successful. If the vehicle does not repeat the SPS procedure.

**END OF TEXT PORTION OF DOCUMENT.
SCREENSHOTS AND FIGURES ARE IN THE NEXT SECTION.**



IV. Figures / Screenshots

Figure IV-4.
Vehicle to terminal pass-thru connection



IV. Figures / Screenshots

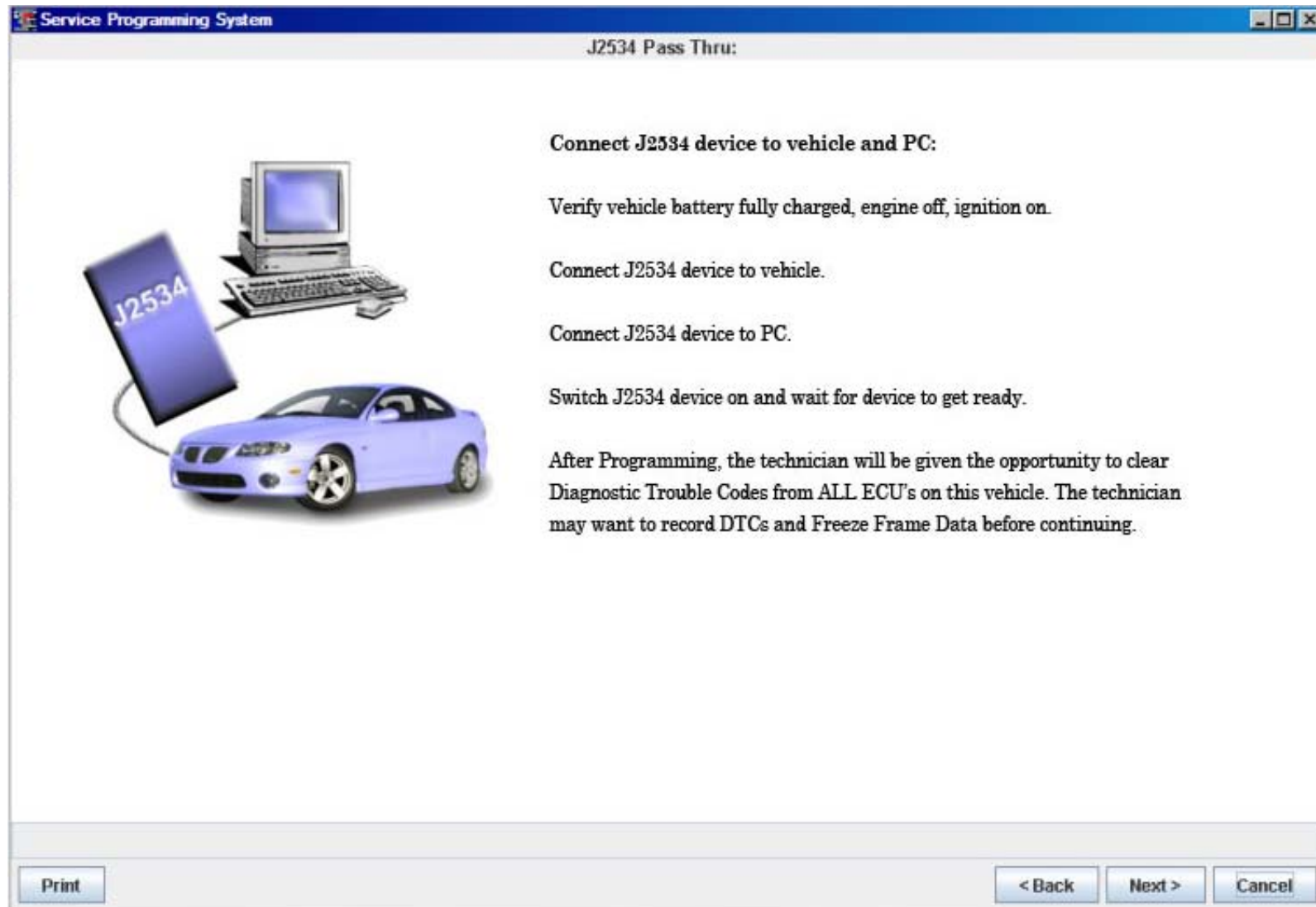
FIGURE IV-5.
TIS 2 Web main screen



IV. Figures / Screenshots

FIGURE IV-6.

Connect MDI (J2534) device to vehicle and PC



IV. Figures / Screenshots

FIGURE IV-7.
Start SPS



BEFORE YOU START!

The right Java software must be installed on your Techline PC for TIS-Online to work. Refer to the online help to download

SPS is going through several steps that might be time consuming depending on your connection speed. For further details please refer to the online help.



Please be patient if connected via slow modem lines ...

The TIS software application does not support the use of the browser's Forward and Back buttons. Errors will occur. Please only use the buttons that are displayed on the application screens and not on the toolbar.



IV. Figures / Screenshots

FIGURE IV-8.
SPS Software Version

Home SI LT SWDL SPS SPS Info Security Snap T2 View TL Print

Cadillac (GME) Service and Parts Operations

BEFORE YOU START!

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SPS is going through several steps that might be time consuming depending on your connection speed. For further details please refer to the online help.

Please be patient if connected via slow modem lines ...

The TIS software application does not support the use of the browser's back button. Only use the buttons that are displayed on the application screens and not on the toolbar.

Start SPS

SPS V. 1.0.23
GM SPO

PREVIOUS VIEW - RETURN MAIN MENU -

IV. Figures / Screenshots

FIGURE IV-9.
“Select Diagnostic Tool” screen

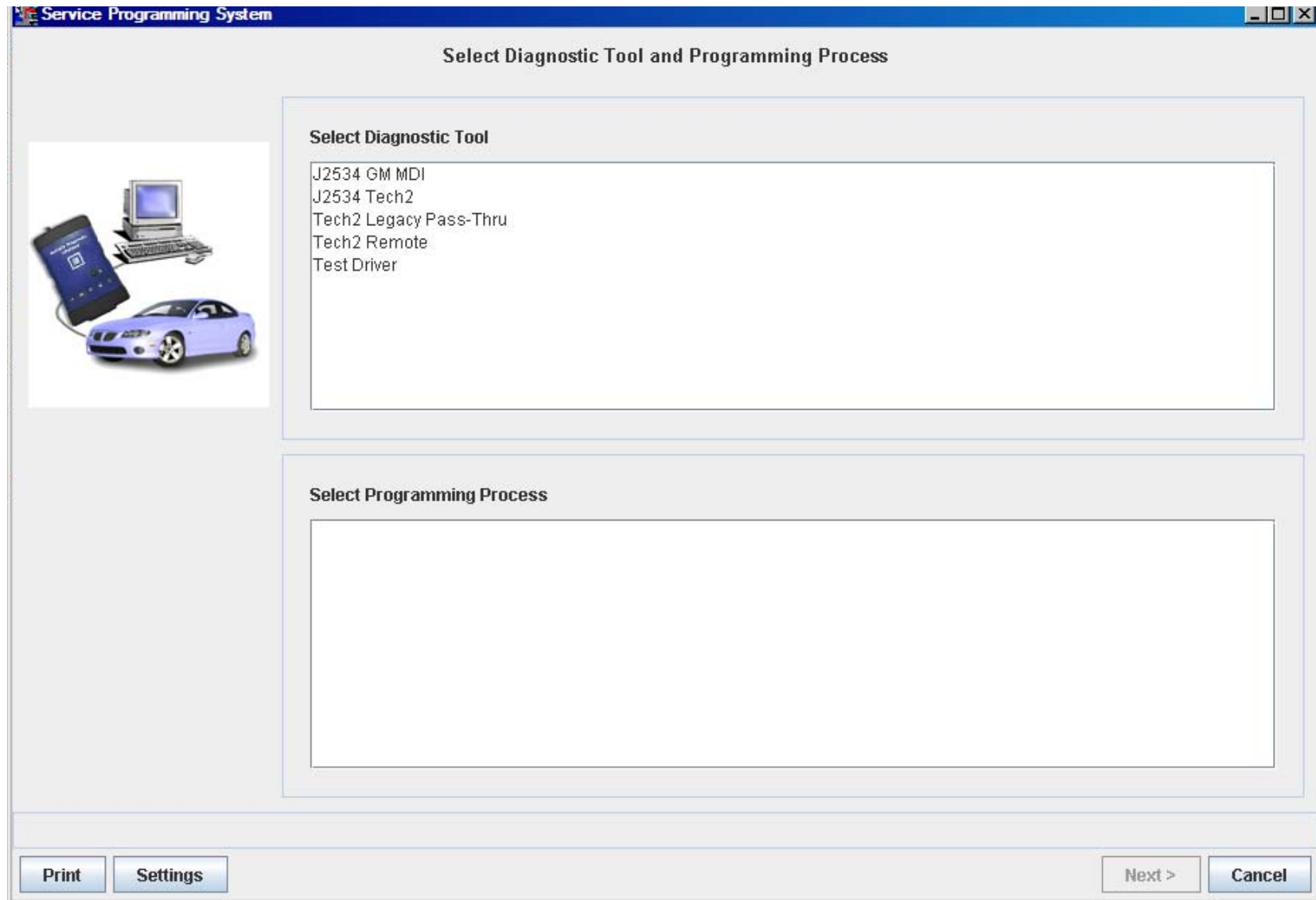


FIGURE IV-10.
Select Programming Process

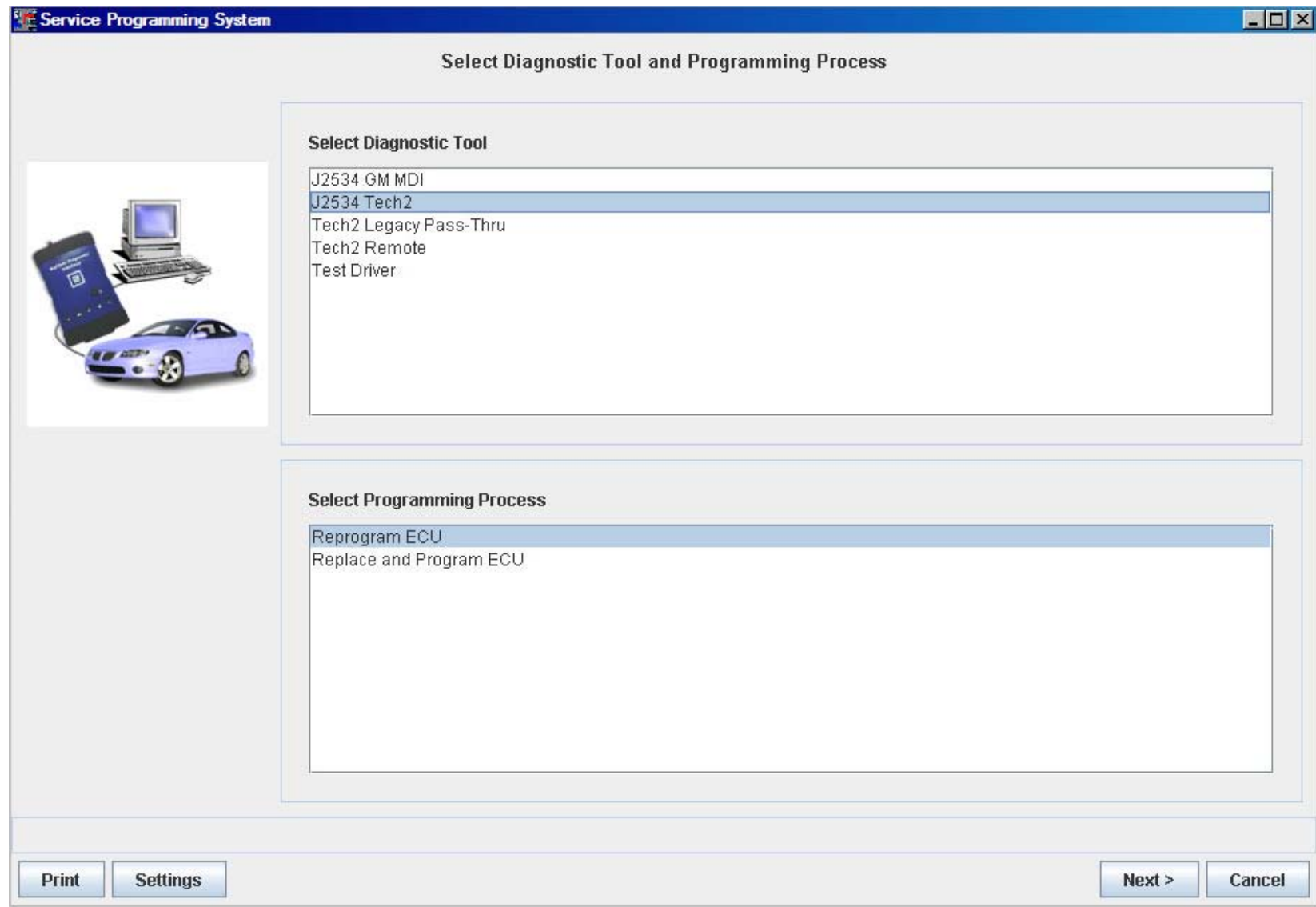
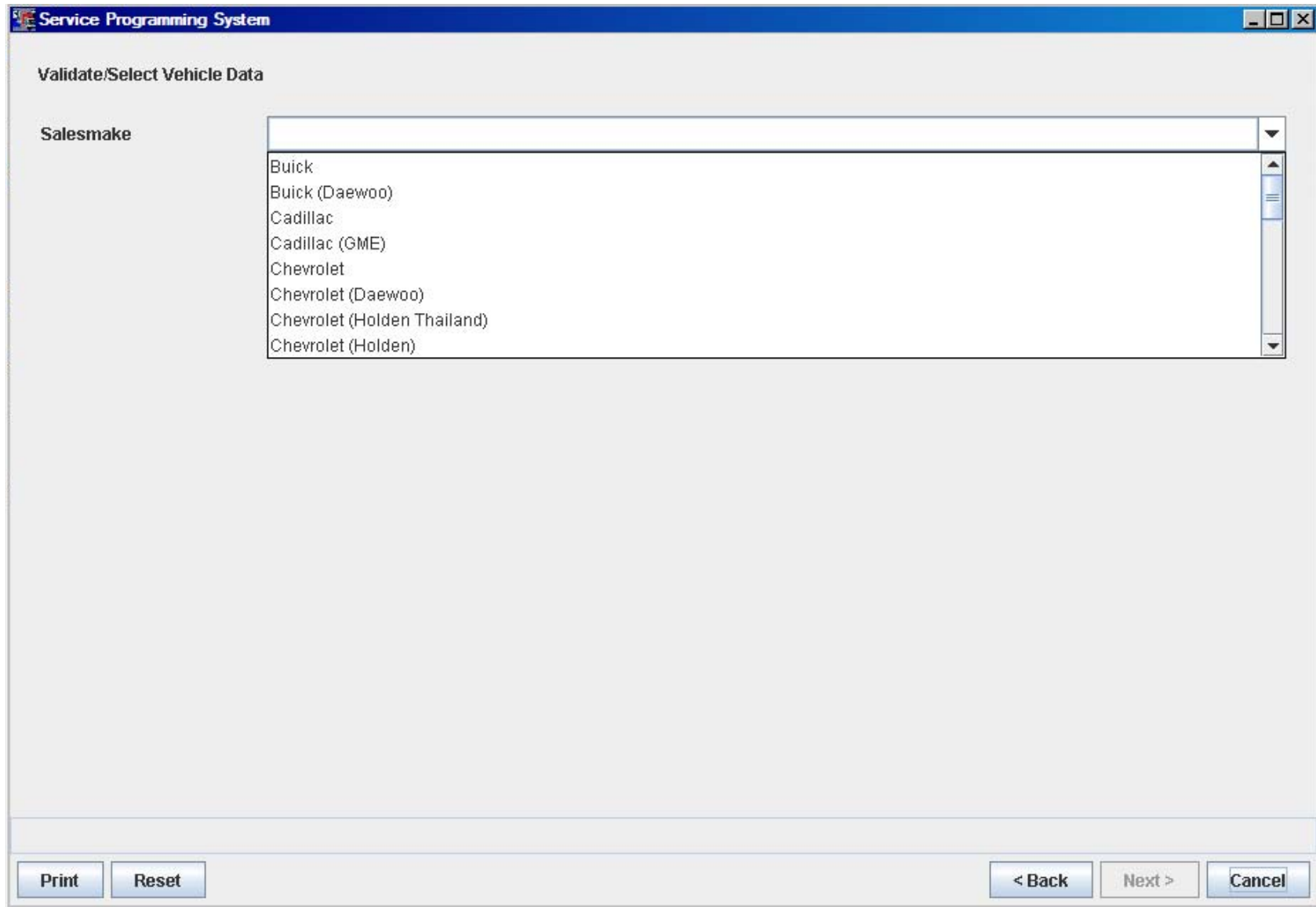


FIGURE IV-11.
Salesmake



IV. Figures / Screenshots

FIGURE IV-13.
Validate Vehicle Identification Number (VIN)

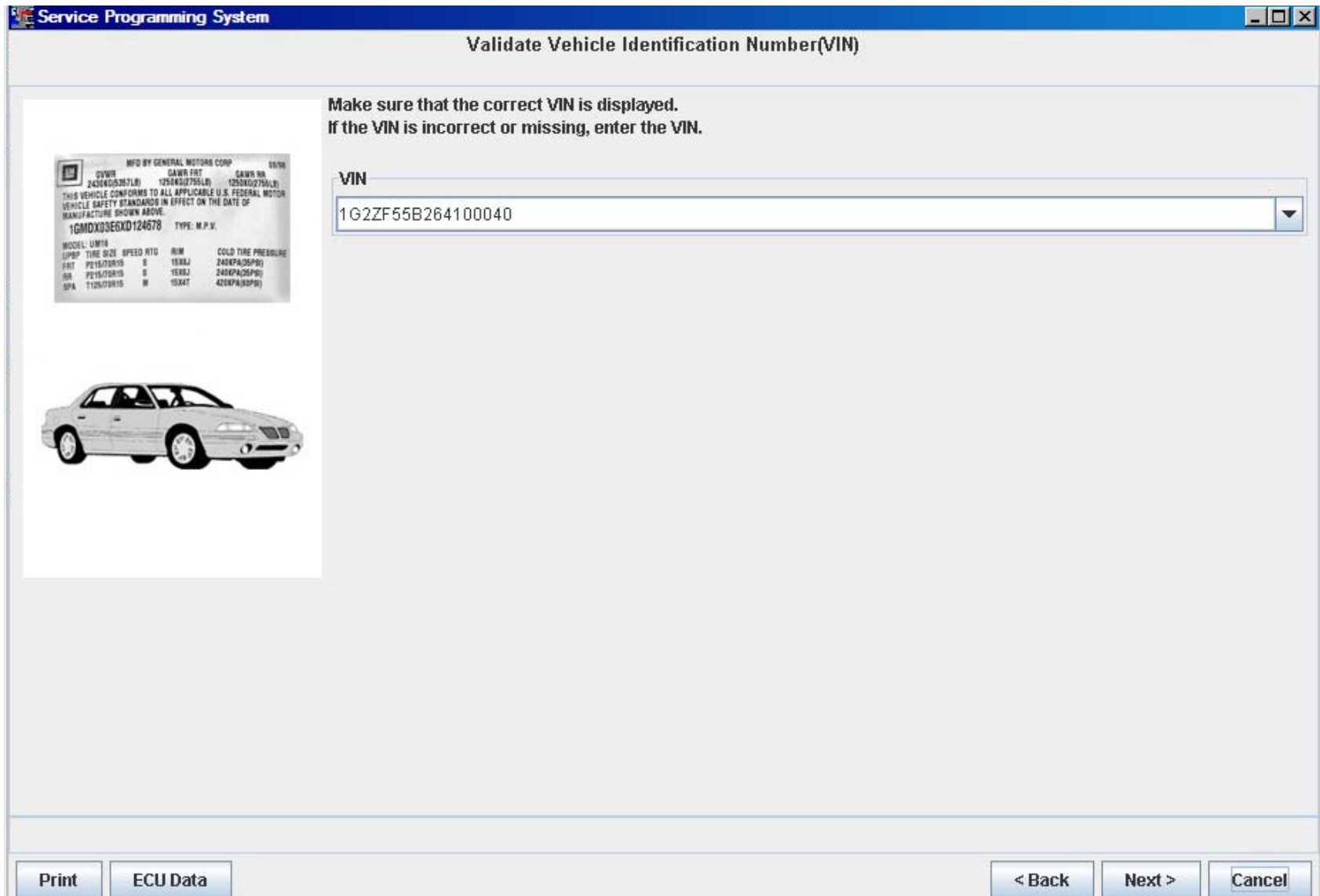


FIGURE IV-14.
Supported Controller

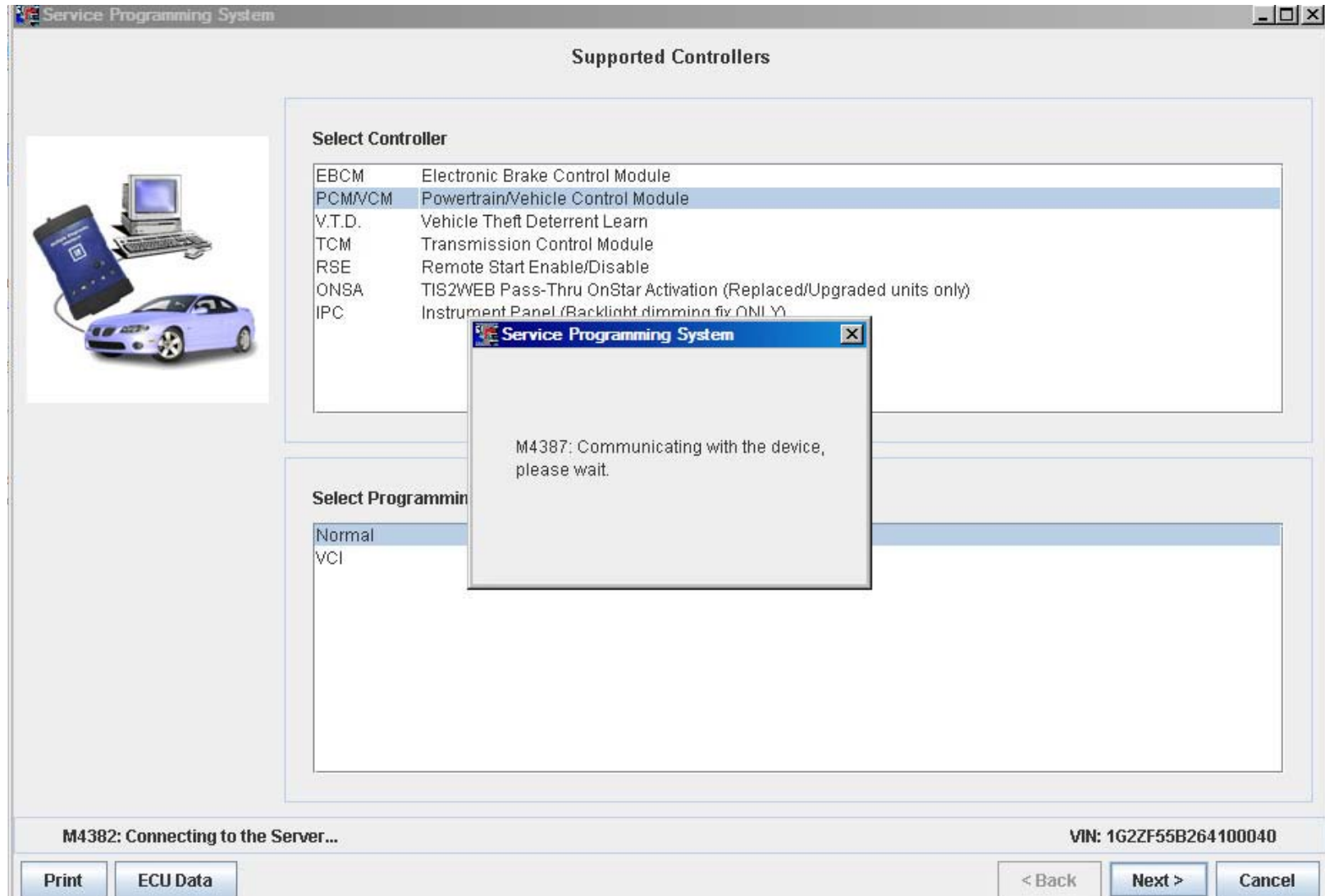


FIGURE IV-15
Select Programming Mode

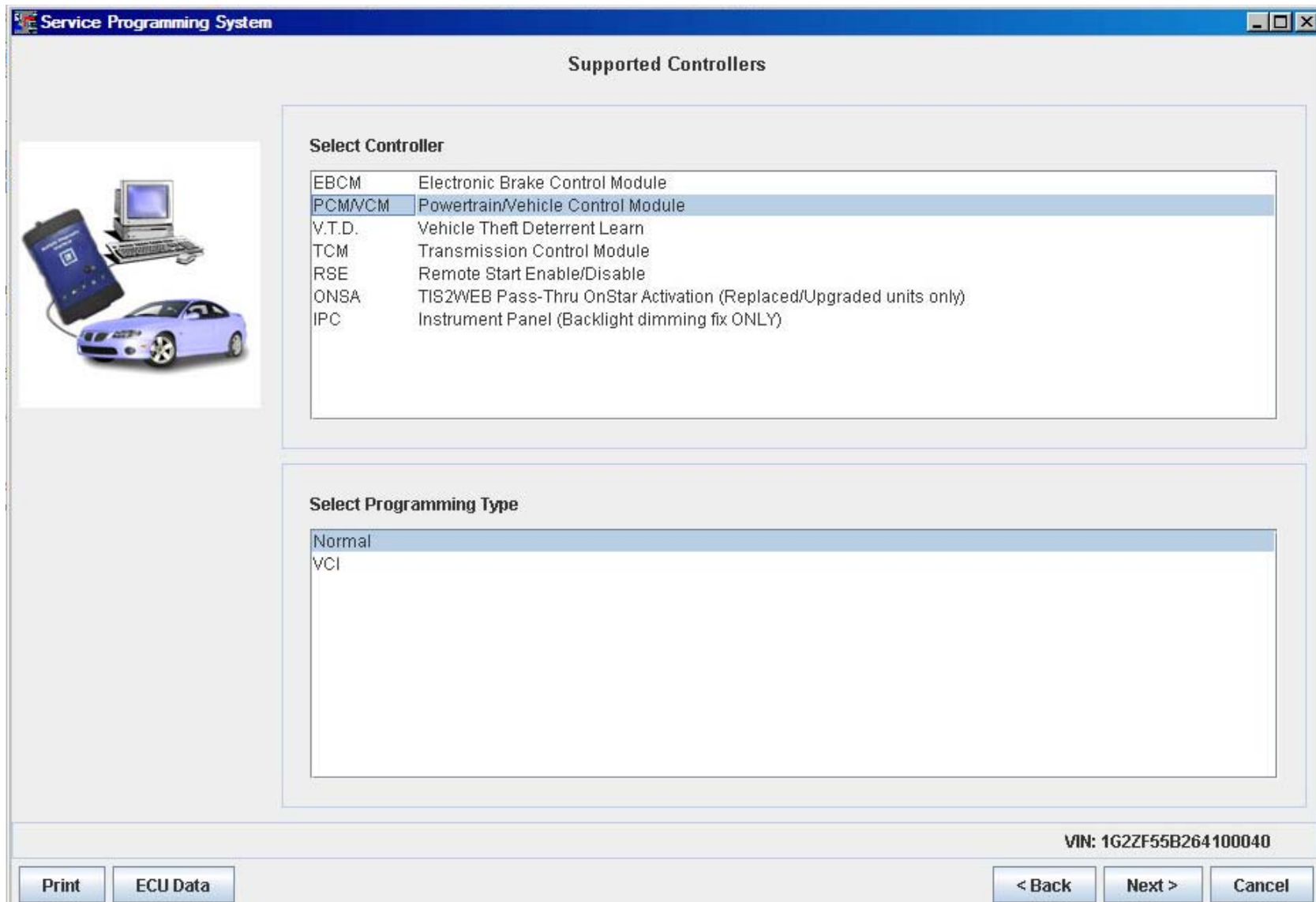


FIGURE I IV-12.
Programming Mode Message screen

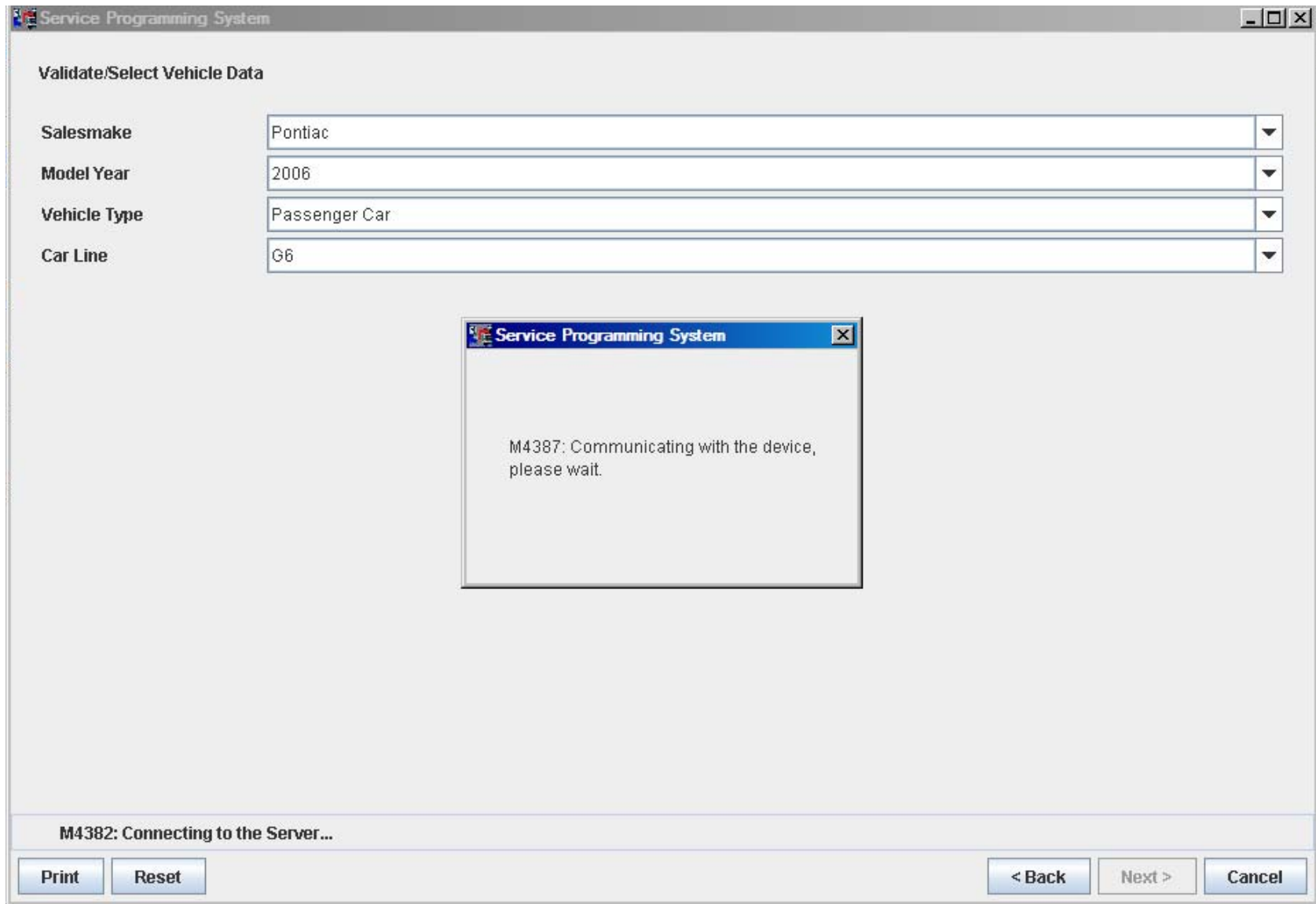


FIGURE IV-16.
Vehicle Data Selection screen

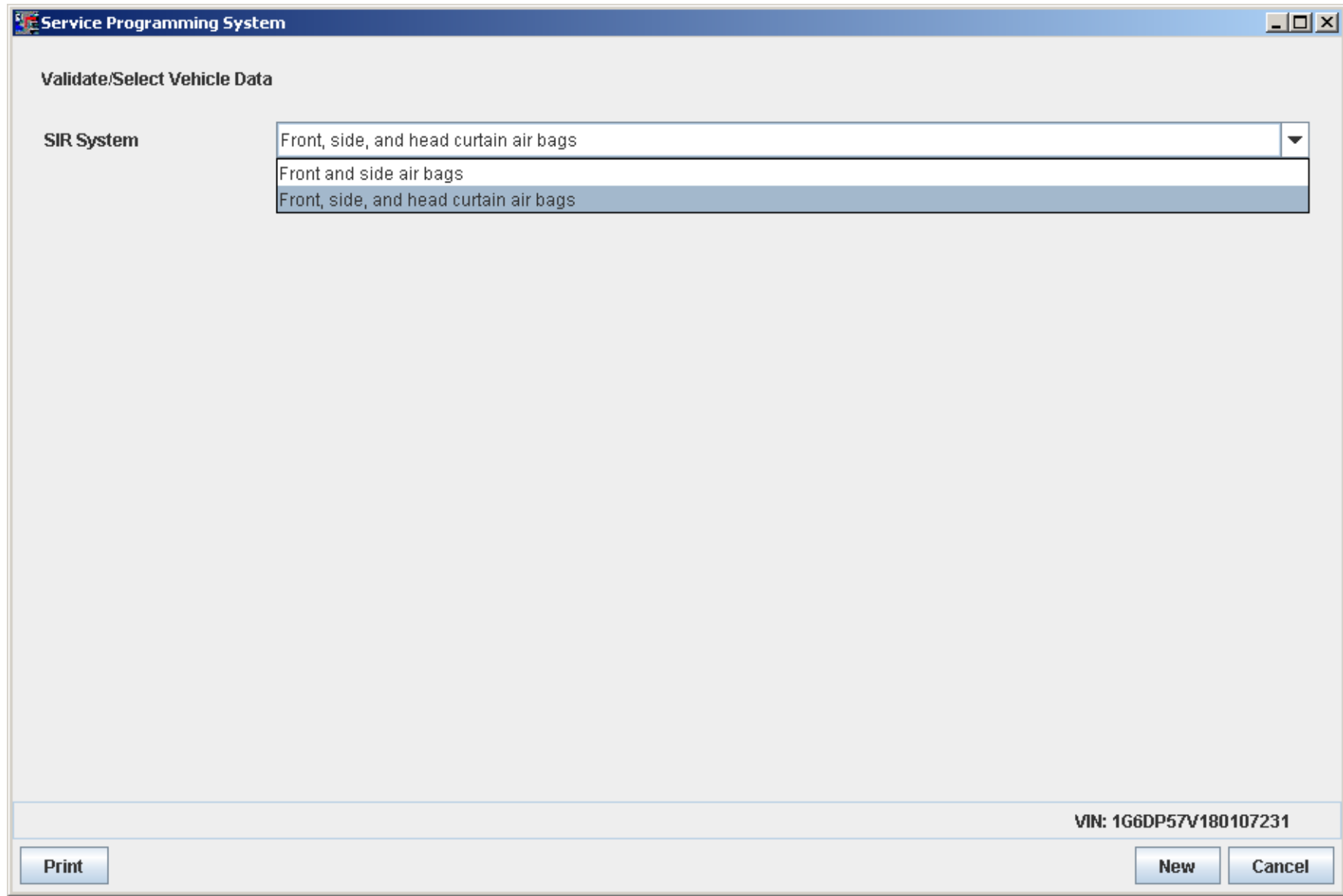
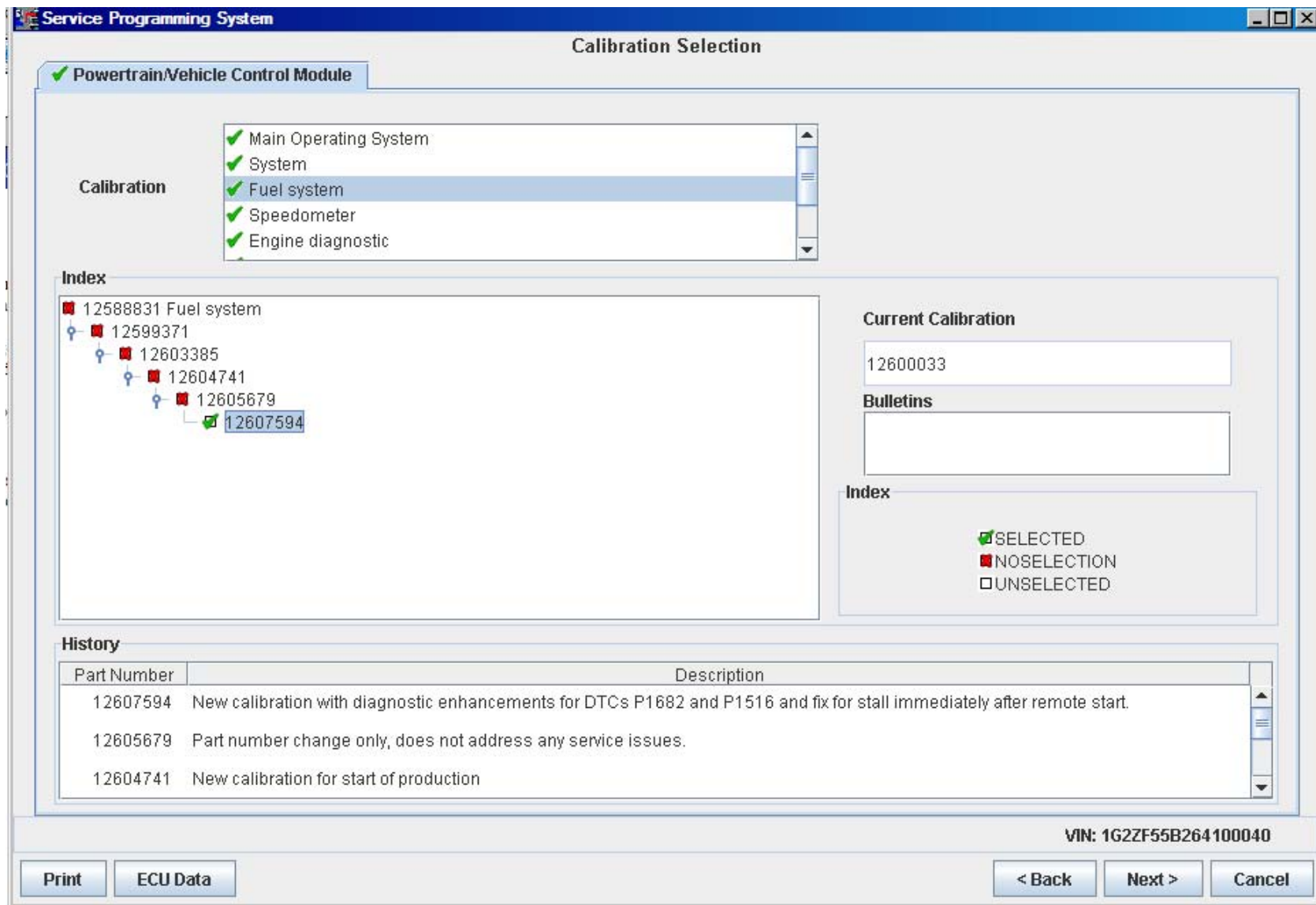


FIGURE IV-17.
Calibration Screen



IV. Figures / Screenshots

FIGURE IV-18.
Summary Screen

Controller	Id	Current #	Selected #	Description
PCM/VCM	1	12600029	12607442	Main Operating System. Replaces 12600942 (CVN 00003279), 12601392 (CVN 00003070), 12601719 (CVN 000082FC), 12602118 (CVN 000009A9), 12602748 (CVN 0000C85C), 12603381 (CVN 000009EF), 12604175 (CVN 00009D58), 12604676 (CVN 0000775F), 12605331 (CVN 0000228D)
	2	12600034	12607596	New calibration with diagnostic enhancements for DTCs P1682 and P1516 and fix for stall immediately after remote start.
	3	12600033	12607594	New calibration with diagnostic enhancements for DTCs P1682 and P1516 and fix for stall immediately after remote start.
	4	12600035	12607597	New calibration with diagnostic enhancements for DTCs P1682 and P1516 and fix for stall immediately after remote start.
	5	12600032	12607593	New calibration with diagnostic enhancements for DTCs P1682 and P1516 and fix for stall immediately after remote start.
	6	12600030	12607592	New calibration with diagnostic enhancements for DTCs P1682 and P1516 and fix for stall immediately after remote start.
	7	12600036	12607443	Slave Operating System. Replaces 12600036 (CVN 0000C34F), 12599605 (CVN 00009A10), 12598373 (CVN 0000933B), 12584175 (CVN 00000CBF)
	8	12600031	12607595	New calibration with diagnostic enhancements for DTCs P1682 and P1516 and fix for stall immediately after remote start.

Vehicle Data	
Attribute	Value

VIN: 1G2ZF55B264100040

Print < Back Next > Cancel

FIGURE IV-19.
Transfer Data

Service Programming System

Transfer Data

1. Download from Server
2. Load to ECU

Download from Server

Server Download Status	Estimated time remaining
Download completed	
0%	50%
finished	

Load ECU

Load ECU Status	Estimated time remaining
Reprogramming...	00:13:15
0%	50%
658456 Bytes reprogrammed (of 2061952)	

M4382: Connecting to the Server... VIN: 1G2ZF55B264100040

Print < Back Next > Cancel

FIGURE IV-20.
Programming Complete

