
SERVICE MANUAL

Navistar® Engine Diagnostics (NED)
User's Guide

Navistar, Inc.

2701 Navistar Drive, Lisle, IL 60532 USA

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SAFETY INFORMATION

This manual provides general and specific maintenance procedures essential for reliable engine operation and your safety. Since many variations in procedures, tools, and service parts are involved, advice for all possible safety conditions and hazards cannot be stated.

Read safety instructions before doing any service and test procedures for the engine or vehicle. See related application manuals for more information.

Obey Safety Instructions, Warnings, Cautions, and Notes in this manual. Not following Warnings, Cautions, and Notes can lead to injury, death, or damage to the engine or vehicle.

Safety Terminology

Terms are used to stress your safety and safe operation of the engine: Warning, Caution, and Note

Warning: A warning describes actions necessary to prevent or eliminate conditions, hazards, and unsafe practices that can cause personal injury.

Caution: A caution describes actions necessary to prevent or eliminate conditions that can cause damage to the engine or vehicle.

Note: A note describes actions necessary for correct, efficient operation.

Work Area

- Keep work area clean, dry, and organized.
- Keep tools and parts off the floor.
- Make sure the work area is ventilated and well lit.
- Make sure a First Aid Kit is available.

Protective Measures

- Wear protective safety glasses and shoes.
- Wear correct hearing protection.
- Wear cotton work clothing.
- Wear sleeved, heat protective gloves.
- Do not wear rings, watches, or other jewelry.
- Restrain long hair.

Vehicle

- Shift transmission to neutral, set parking brake, and block wheels before doing diagnostic or service procedures.
 - Clear the area before starting the engine.
-

Safety Equipment

- Use correct lifting devices.
- Use wheel chocks and stands.

Engine

- The engine should be operated or serviced only by qualified individuals.
- Provide necessary ventilation when operating engine in a closed area.
- Keep combustible material away from engine exhaust system and exhaust manifolds.
- Install all shields, guards, and access covers before operating engine.
- Do not run engine with unprotected air inlets or exhaust openings. If unavoidable for service reasons, put protective screens over all openings before servicing engine.
- Shut engine off and relieve all pressure in the system before removing panels, housing covers, and caps.
- If an engine is not safe to operate, tag the engine and ignition key.

Fire Prevention

- Make sure charged fire extinguishers are in the work area.

NOTE – Check the classification of each fire extinguisher to make sure that the following fire types can be extinguished:

1. Type A – Wood, paper, textiles, and rubbish
2. Type B – Flammable liquids
3. Type C – Electrical equipment

Batteries

- Always disconnect the main negative battery cable first.
 - Always connect the main negative battery cable last.
 - Avoid leaning over batteries.
 - Protect your eyes.
 - Do not expose batteries to flames or sparks.
 - Do not smoke in workplace.
-

NAVISTAR® ENGINE DIAGNOSTICS (NED)

NOTE – This section contains a brief overview of Navistar Engine Diagnostics software, and was current at the time of publishing. Due to the automatic updating function in Navistar Engine Diagnostics software, screens and functions may differ from this manual.

INTRODUCTION

Navistar® Engine Diagnostics is a diagnostic and programming service tool for Navistar® Engines. A fully-featured PC application, Navistar Engine Diagnostics is designed to meet the wide range of diagnostic challenges when servicing a mixed truck fleet. Coverage includes all J-1939 International electronic engine systems, allowing you to run special tests, change parameters and view and graph engine data. This is the top-of-the-line tool for dealers and fleets. The application updates periodically, enabling you to have the most up-to-date coverage.

NOTE – To diagnose specific electronic control system failures, always refer to the diagnostic manual for the system being serviced.

NOTE – NED cannot be used to program blank ECMs or update ECM calibrations.

Basic Features

- Read and clear diagnostic fault codes
- View signals and parameters
- Print trip and vehicle reports

Advanced Features

Diagnostics Tests:

- KOEO – Key On Engine Off
- KOER – Key On Engine Running
- KOEO – Injector Buzz Test
- KOER – Injector Contribution Test
- Cylinder Cutout Test (EPA 04' and newer)
- Injector Disable Tests (EPA 04' and newer)

Display and change configurable parameters:

- Crank Inhibit
- Fan Control
- Idle Shutdown Timer
- Warm-up Device
- Warning and Protection System
- Hydraulic Pressure Governor
- PTO Control
- Radiator Shutter

NAVISTAR® ENGINE DIAGNOSTICS (NED)

- Vehicle Speed Limit
- Vehicle Retarder
- Two Speed Axle
- Traction Control

ACRONYMS

Following is a list of acronyms and their meanings used in this document:

DPF

Diesel Particulate Filter

DTC

Diagnostic Trouble Code

ECM

Electronic Control Module

ESN

Engine Serial Number

EST

Electronic Service Tool

FMI

Failure Mode Indicator

SPN

Suspect Parameter Number

KOEO

Key On Engine Off

KEOR

Key On Engine Running

MIN

Minimum

MAX

Maximum

GETTING STARTED

SYSTEM REQUIREMENTS

Minimum Requirements

- 1 GHz Intel Core 2 Duo, AMD Athlon X2 or better
- Windows 2000® or greater
- 2GB (32-bit) or 4GB (64-bit) of RAM
- 300 MB of free hard disk space
- High speed Internet connection
- 11024 x 768 pixel (or better) display
- One or more RP1210A compatible communication devices with SAE J1708 and/or SAE J1939 support (See Diagnostic Interface Cable Information, page 14)

Improved system performance will occur with the installation of increased RAM

Communication Link Drivers

- Navistar Engine Diagnostics uses standard RP1210A drivers for communication. The drivers are specific to the communications device and are not installed with Navistar Engine Diagnostics.

INSTALLING THE NAVISTAR ENGINE DIAGNOSTICS (NED) SOFTWARE

It is strongly recommended that all Terminate and Stay Resident (TSR) programs like the Quicktime® program, CD player programs, or Pocket PC programs be terminated prior to loading or starting the Navistar Engine Diagnostics software. These programs interfere with the efficient operation of the Navistar Engine Diagnostics program.

To install the Navistar Engine Diagnostics software:

1. Prior to installation, a Navistar Engine Diagnostics product key must be obtained for each computer on which the software is to be installed. Product keys expire after a year and must be reactivated to allow access to the program.
2. Using the web browser of your choice, navigate to the Navistar Engine Diagnostics page on Navistar's service software site:

<http://www.navistarservicesoftware.com/index.php/navistar-engine-diagnostics/>

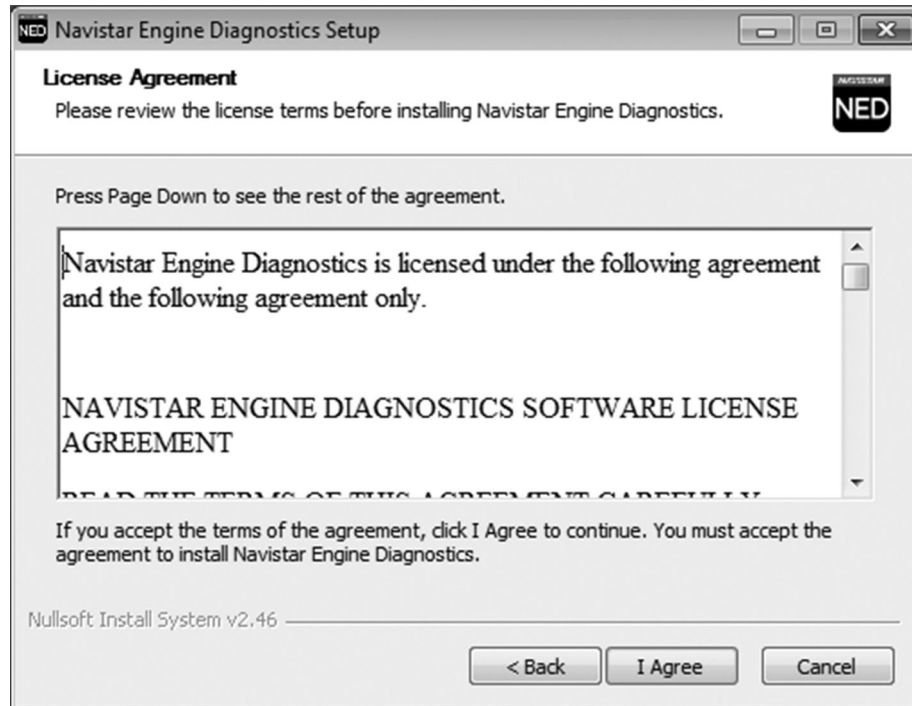
3. Select the DOWNLOAD button to download the Navistar Engine Diagnostics software.
4. When the file has finished downloading, run it (Navistar Engine Diagnostics Setup.exe) to begin installation. The first page of the Setup Wizard appears.



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Figure 1 Setup Wizard: Welcome

5. Click Next.



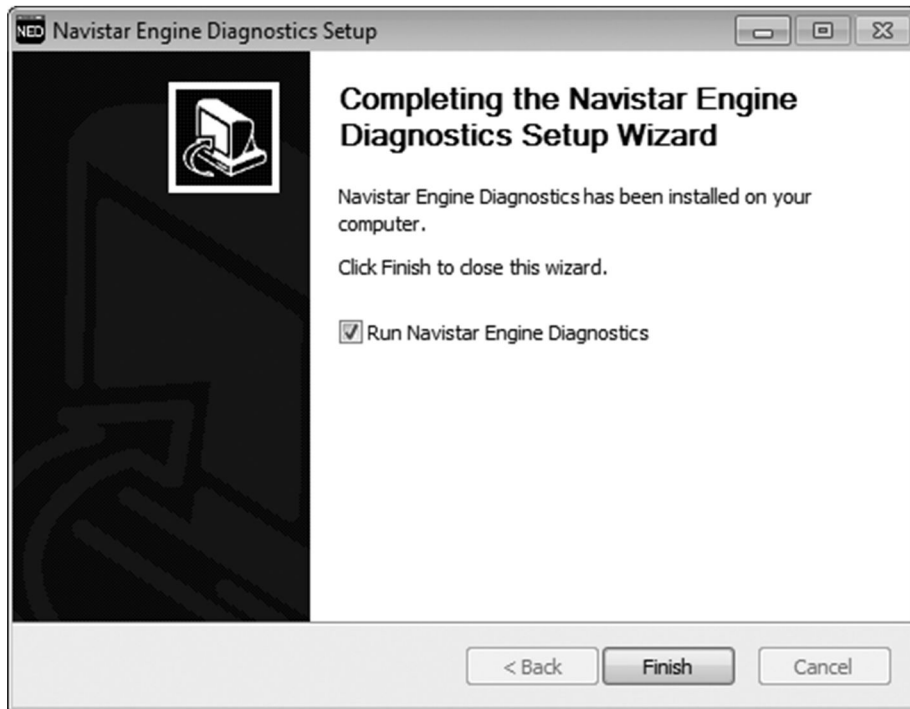
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Figure 2 Setup Wizard: License Agreement

6. Read through the License Agreement. When finished, click I Agree to proceed with installation.

GETTING STARTED

When installation is complete, the final page of the wizard is displayed.

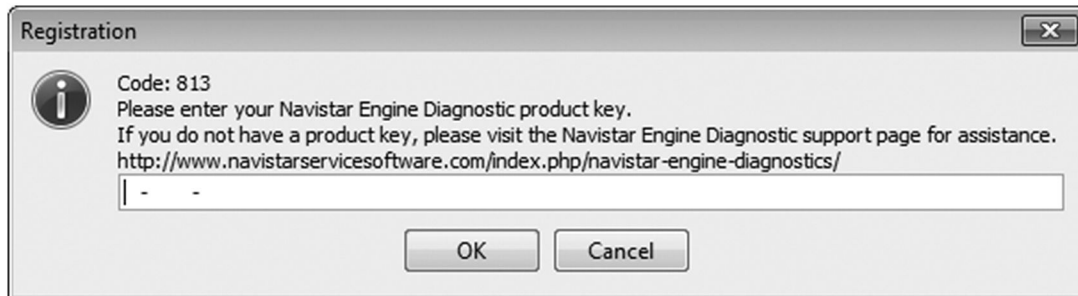


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Figure 3 Setup Wizard: Finish

7. Ensure that the RUN NAVISTAR ENGINE DIAGNOSTICS box is checked.
8. Click FINISH to launch the program.

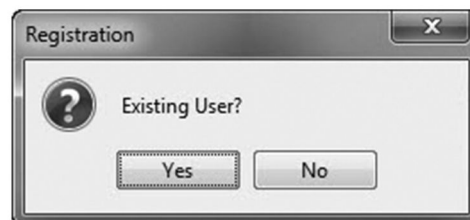
The first time Navistar Engine Diagnostics is installed on a specific computer, the user is prompted to enter their product key.



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Figure 4 Product Key Entry

9. Enter the product key obtained for this computer and then click OK.
 - If the key was not entered correctly (or there is some other problem), an error message will be displayed. Refer to Installation Error Messages (page 11) for more information. Resolve the issue indicated before proceeding.
 - If the key was entered correctly, the following window is displayed. Proceed to Step 11.



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Figure 5 Existing User Prompt

10. If you already have a Navistar-issued username and password for applications such as DLB, NavKal™ or Navistar Engine Diagnostics, click Yes and proceed to Step 15.

If you DO NOT already have a Navistar issued username and password, click No and proceed to Step 12.

The image shows a 'Registration' dialog box with the following fields and controls:

- E-mail***: Text input field
- Prefix**: Text input field
- First Name***: Text input field
- Middle Initial**: Text input field
- Last Name***: Text input field
- Suffix**: Text input field
- Company Name***: Text input field
- Street Address 1***: Text input field
- Street Address 2**: Text input field
- City***: Text input field
- State***: Text input field
- ZIP Code***: Text input field
- Country***: Dropdown menu with 'UNITED STATES' selected
- Phone Number***: Text input field with a placeholder '() -'

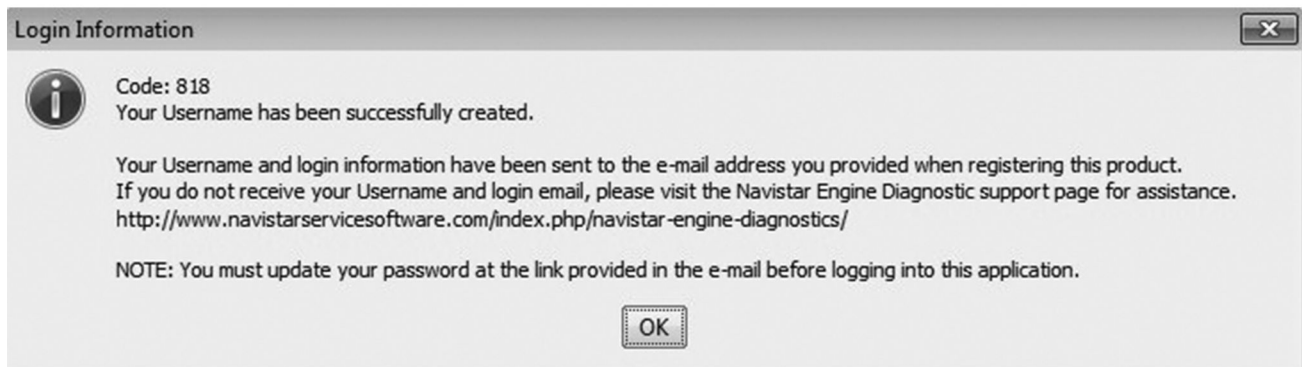
At the bottom right, there is a note: ***Required fields**. At the bottom center, there are two buttons: **OK** and **Cancel**.

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Figure 6 New User Registration

11. The Registration window appears. Fill in the information in this window. Required fields are indicated by an asterisk (*).
12. Click OK.

Once registration is completed successfully, the following message is displayed:



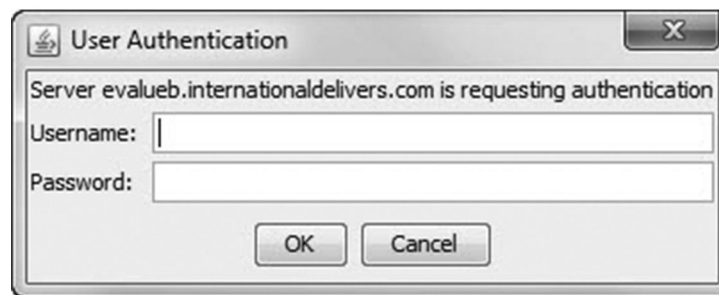
0000414103

Figure 7 Username Successfully Created

- An email will be sent to the address provided on the registration form. Follow the instructions provided in this email to complete the registration process. When finished, click OK in the window shown above.

NOTE – You MUST change your password by following the instructions provided in the email before proceeding. The default password cannot be used to log into the application.

- The User Authentication window appears. Enter your username and password and click OK.



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Figure 8 User Authentication Window

Once you are logged in for the first time, the software will start and begin to update itself.

GETTING STARTED

NOTE – The Navistar Engine Diagnostics program will not function until the user has successfully logged in at least once while connected to the network. The user may need to consult with the technical computer support staff if the Navistar Engine Diagnostics program cannot connect to the Navistar site. Error messages will be generated if connection to Navistar fails. Your Internet firewalls must be configured to allow two-way communication to the following Navistar host names:

- **d2mutuy95x2dyc.cloudfront.net**
- **evaluateb.internationaldelivers.com**

Be aware that the underlying IP addresses for these hosts are subject to change and may vary by region. When possible, grant access by host name rather than IP address.

Installation Error Messages

The error messages that may appear during the installation process typically contain explanatory text to help in troubleshooting. Some sample messages are shown in the table below. In some cases, the table also includes additional troubleshooting information. For the more information on resolving these messages, please visit the Navistar Service Software support website:

<http://www.navistarservicesoftware.com>

NOTE – Before attempting to register the software with a product key, please ensure that you have an active User ID with a password that has not expired.

Code	Text
800	The product key provided is terminated. Please visit the support page for assistance.
801	The product key provided does not match the software that you are attempting to activate. Please re-enter the product key to verify or visit the Navistar Engine Diagnostics support page for assistance.
802	Your product key has expired. Please visit the support page for assistance.
803	You've exceeded the number of registrations allowed for this product. Please visit the Navistar Engine Diagnostics support page for assistance.
804	An unknown error has occurred. Please visit the support page for assistance.
805	Application unsupported. Please visit the support page for assistance.
806	The prior product key provided is terminated. Please visit the support page for assistance.
807	The product key provided was not found. Please re-enter the product key to verify or visit the support page for assistance.
808	An error has occurred while attempting to register the software. Please visit the support page for assistance.
809	We're sorry, we can't connect to the server right now. Please check your connection and try again or visit the support page for assistance.
810	<p>An Internet connection to the Navistar Engine Diagnostics server could not be established; press 'OK' to continue in offline mode. Your license will be verified each time you log into the system. You can keep accessing Navistar Engine Diagnostics offline for 30 remaining days. If a connection to the Navistar Engine Diagnostics Server cannot be established by then, your product will stop working.</p> <p>Verify that the following Navistar hosts are not blocked by a firewall or a web filter:</p> <ul style="list-style-type: none"> • evaluateb.internationaldelivers.com • d2mutuy95x2dyc.cloudfront.net
811	<p>An Internet connection to the server could not be established, you must resolve this issue before the application can be used.</p> <p>This error occurs when the license key has expired due to being offline for 30 days or more.</p>

GETTING STARTED

Code	Text
812	<p>An Internet connection to the server could not be established, you must resolve this issue before the application can be used.</p> <p>On some computers, Navistar Engine Diagnostics has to be run in administrator mode. Follow these steps:</p> <ol style="list-style-type: none">1. On the Windows desktop, right-click the Navistar Engine Diagnostics icon.2. In the right-click menu, select OPEN FILE LOCATION.3. Right-click NAVISTAR ENGINE DIAGNOSTICS.EXE.4. Select RUN AS ADMIN.
813	<p>Please enter your product key. If you do not have a product key, please visit the support page for assistance.</p> <p>The entered product key was not correct. Be sure to include the entire key. (It should be 19 characters total, not including dashes.)</p>
814	<p>You have already activated your maximum number of Usernames permitted by your license.</p>
815	<p>A server side error has occurred and is being examined. Please visit the support page for assistance.</p>
816	<p>The provided key is a renewal key. Please re-enter a previous product key to continue or visit the support page for assistance.</p> <p>Renewal keys allow the license granted by a full key to the software to be extended past its original expiration date. They cannot be used by themselves (without a full product key). Enter the full product key whose expiration date is to be extended.</p>
817	<p>The Username or Password that you entered was incorrect. Please try again or visit the support page for assistance.</p>

LAUNCHING NAVISTAR ENGINE DIAGNOSTICS

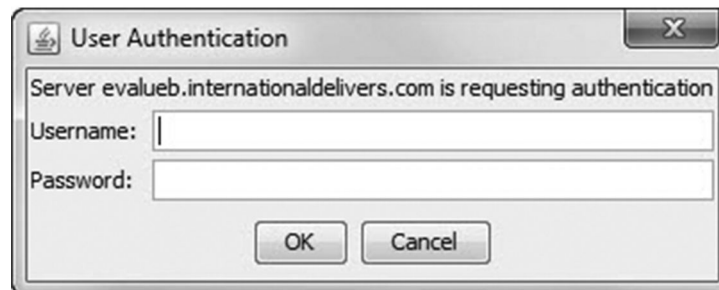
To Launch Navistar Engine Diagnostics:

1. Start the application. There are two ways to do this:
 - Double click the Navistar Engine Diagnostics icon on the Windows desktop.
 - In the Windows Start Menu, select PROGRAMS > > NAVISTAR ENGINE DIAGNOSTICS > NAVISTAR ENGINE DIAGNOSTICS.



Figure 9 Navistar Engine Diagnostics Icon

2. The User Authentication window appears. Enter your username and password and click OK.



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Figure 10 User Authentication Window

VEHICLE CONNECTION

DIAGNOSTIC INTERFACE CABLE INFORMATION

The following communication adapters have been verified with all Navistar Engine Diagnostics software:

- Dearborn Group Technologies – DPA 4 and DPA 4+
http://www.dgtech.com/products/diagnostic_truck_tools.html
- Nexiq Technologies – USB Link
http://www.nexiq.com/catalog/product_detail.asp?GID=6&=85
- Noregon Systems, Inc. – DLA, DLA USB
<http://www.noregon.com/>

Other RP1210A compliant interface devices may work with Navistar Engine Diagnostics.

NOTE – IC3 and IC4 USB cables are not reliable when connected to 2007 and newer Navistar® vehicles.

Please refer to each manufacturer's website for further information.

CONNECTING NAVISTAR ENGINE DIAGNOSTICS

1. Turn ignition switch to ON. Do not start engine.
2. Using interface cable, connect Electronic Service Tool (EST) to vehicle's diagnostic connector.
3. Start Navistar Engine Diagnostics software.
4. If this is the first time a particular interface cable is used with Navistar Engine Diagnostics, it is necessary to manually select the cable type. Refer to (See Manually Selecting the Interface Cable, page 16)



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Figure 11 ECM Connected Icon

5. The software should now automatically connect to the ECM. If successful, the active signals will populate the startup screen, and the ECM Connected icon will appear in the lower right corner of the window, indicating that the ECM is connected.



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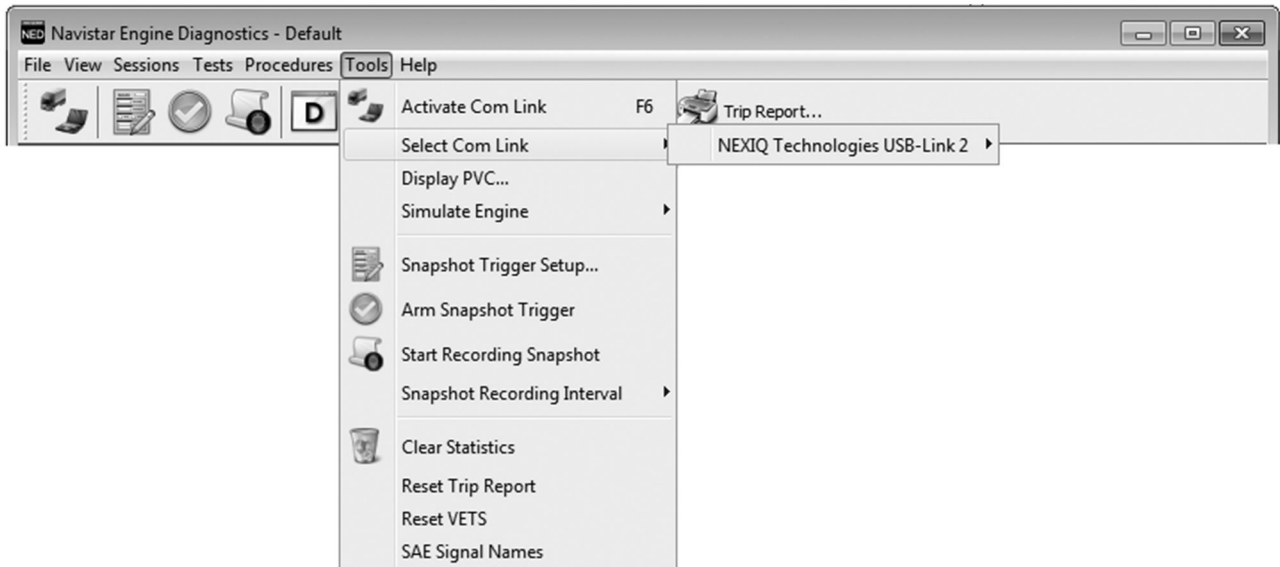
Figure 12 ECM Disconnected Icon

If the software is unable to connect to the ECM, signals and vehicle information will not be displayed, and the ECM Disconnected icon will be displayed in the lower right corner of the window.

6. Once the software has successfully established a connection to the ECM, the Engine Serial Number (ESN) of the connected vehicle should be displayed on the Vehicle Information tab. If it does not appear, it may be necessary to manually select the engine. Follow these steps to manually select the engine:
 - a. In the menu bar, select FILE > SELECT ENGINE. The Override Detected Engine window appears.
 - b. Select the type of engine in the connected vehicle.
 - c. Click OK.

MANUALLY SELECTING THE INTERFACE CABLE

Once the EST is connected to the vehicle with an appropriate interface cable, NED should autoconnect with the vehicle without having to select the protocol. If NED fails to autoconnect, follow these steps to manually select the interface cable:



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Figure 13 Manually Select Com Link

1. In the menu bar, select TOOS > SELECT COM LINK.
2. Select the interface cable being used
3. Select the protocol:
 - J1708 — All pre-2007 electronic engines
 - J1939 — All 2007–2010 electronic engines
4. If software is still unable to connect, see the troubleshooting documentation provided for the specific interface cable being used.
5. If cable is not at fault, see CAN Communications or J1939 in the “Electronic Control Systems Diagnostics” section of applicable Engine Diagnostics Manual.

USER INTERFACE

When Navistar Engine Diagnostics is started, a Default session displays as the opening screen. The following is a brief description of each area displayed in the Default session.

THE MENU BAR



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1. Menu Bar

2. Toolbar

Figure 14 Menu Bar and Toolbar

The menu bar (Figure 14, Item 1) contains a row of menus. Select a menu title to display the options in that menu. Selecting an individual option allows the user to perform a task within the software.

File Menu

The File menu contains various file management and print options as well as the option to manually select the type of engine connected.

Item	Description
Online Mode	Removing the check from this option puts the application in diagnostic only mode. This is largely for backward compatibility with an older method of licensing Navistar software, which allowed limited (diagnostic only) access to individuals who did not have a license. Since the current licensing model requires all users to have a license key, there is currently no need to check or uncheck this box. (Leave it checked.)
Select Engine	Used to manually select an engine (when an engine is not detected) or override the detected engine.
Open Snapshot Recording File	Opens a specified file containing recorded session data. (See Viewing Navistar Engine Diagnostics SnapShots, page 39)
Export Parameters	Export engine parameters to a file. (See Exporting Parameters, page 43)
Create Template	Creates a new parameter template. (See Creating a Parameter Template, page 56)
Open Template	Opens an existing parameter template. (See Opening an Existing Parameter Template, page 58)
Print	Prints the trip report or the vehicle trip report. Alternately, these reports can be exported to a file.
Exit	Close the Navistar Engine Diagnostics software.

USER INTERFACE

View Menu

The View menu specifies what data is displayed by Navistar Engine Diagnostics.

Check the first item in this menu, Display Metric Units of Measure, to display metric values in Navistar Engine Diagnostics. Uncheck this item to display English measures.

The remaining items in this menu enable or disable the display of individual tabs within the session view.

Sessions Menu

The Sessions menu allows sessions to be loaded and saved.

Item	Description
Load Session	Loads a previously saved session. (See Loading a Saved Session, page 34)
Save Session	Saves the current session. (See Saving Session Files, page 33)
Rename Session	Allows a new name to be entered for the current session.
Default	Switches to the Default session view, which monitors all position, temperature, and pressure sensors. (See Default Session View, page 23)
Parameters	Switches to Parameters session view, which monitors vehicle events. (See Viewing All Parameters, page 44)
Signals	Switches to Signals session view, which monitors specific signals.
The following items appear only when connected to a vehicle or simulating an engine.	
Driver Switch Controls	Displays a pre-defined session that monitors driver inputs such as whether cruise control has been switched on or how much the accelerator pedal has been depressed.
HD-OBD Monitors	Display a pre-defined session containing information about whether each of the fault monitors have completed their cycles.
Programming	Displays several tabs that contain programmable parameters.
Hard Start — No Start	Displays a pre-defined session with signals used to diagnose a hard start / no start complaint.
Performance	Displays a pre-defined session with signals related to performance issues.
Vehicle Events	Displays the Vehicle Events tab. (See Vehicle Events Tab, page 63)
Vehicle Trip Report	Displays the Vehicle Trip Report. (See Vehicle Trip Report, page 62)
Event Data Recorder	Displays information related to abrupt stops.

Tests Menu

The Tests menu displays a list of tests that can be initiated for the connected engine. If no engine is connected or no tests are available for the connected engine, this menu will not appear at all.

Item	Description
Load Test Specific Session	A check next to this option indicates that the current session will automatically load when a test is run.
KOEO Tests	The list of tests displayed in these submenus will vary depending on the type of engine connected. Consult the appropriate Engine Diagnostic Manual for information on running the tests that apply to a specific engine. Submenus that do not contain any tests for the connected engine will be hidden.
KOER Tests	
KOEO Aftertreatment Tests	
KEOR Aftertreatment Tests	
Cylinder Performance Analyzer	If Cylinder Performance Analyzer (CPA) is installed, selecting this option launches it. If CPA is not installed, this option is hidden.

Procedures Menu

The Procedures menu displays a list of procedures that can be initiated for the connected engine. If no engine is connected or no procedures are available for the connected engine, this menu will not appear at all.

Item	Description
KOEO Procedures	The list of procedures displayed in these submenus will vary depending on the type of engine connected. Consult the appropriate Engine Diagnostic Manual for information on executing the procedures that apply to a specific engine. Submenus that do not contain any procedures for the connected engine will be hidden.
KOER Procedures	
KOEO Aftertreatment Procedures	
KEOR Aftertreatment Procedures	

USER INTERFACE

Tools Menu

The Tools menu contains a collection of helpful functions.

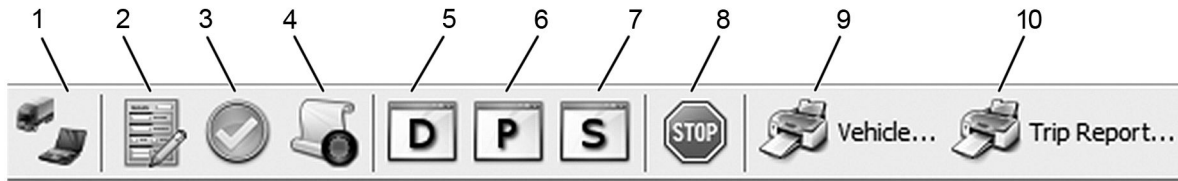
Item	Description
Activate Com Link	Turns the connection to the ECM on and off.
Select Com Link	Manually select the type of interface cable used to connect to the vehicle. (See Manually Selecting the Interface Cable, page 16)
Simulate Engine	Simulates the data that would be returned by a specified engine controller. Data received from any engine that is actually connected to Navistar Engine Diagnostics will be ignored. To resume receiving data from an engine that is physically connected to Navistar Engine Diagnostics, halt the simulation by unchecking this option or by restarting the application.
Snapshot Trigger Setup	Opens the Snapshot Trigger Setup window. This window is used to specify the conditions under which to begin recording session data. (See Triggered Recording, page 37)
Arm Snapshot Trigger	Enables or disables triggered recording. (See Triggered Recording, page 37)
Snapshot Recording Interval	Sets the data sampling rate for recorded sessions.
Clear Statistics	Resets the minimum, maximum and average values for all applicable signals.
Reset Trip Report	Resets the trip report. This permanently erases the information about the current trip from the engine.
Reset VETS	Resets vehicle events. This permanently erases vehicle event information from the engine.

Help Menu

The Help menu allows detailed information about the Navistar Engine Diagnostics software to be displayed.

Item	Description
About	Displays version information for the Navistar Engine Diagnostics software. (See About Navistar Engine Diagnostics, page 27)
Visit Website	Opens the Navistar Service Software website. https://www.navistarservicesoftware.com/
Messages	Displays messages received from Navistar. (See Messages from Navistar, page 26)
Detailed Logging	Select this item to enable detailed logging. (A check appears next to this item when detailed logging is enabled.) Select this item again to disable detailed logging.
Registration	Displays registration information for Navistar Engine Diagnostics on this system and other computers that use the same product key. If you have a multi-user license for the Navistar Engine Diagnostics software, the first user to install the software with your product key becomes the administrator for the individual user licenses. Some items on this menu are visible only to the administrator.
License Agreement	Displays the end user license agreements for Navistar Engine Diagnostics and its components.
Pending History Uploads	Displays a list of pending vehicle history uploads.
View Log	Displays the diagnostics log. If you contact Navistar support, they may ask you to send them a copy of this log.

THE TOOLBAR

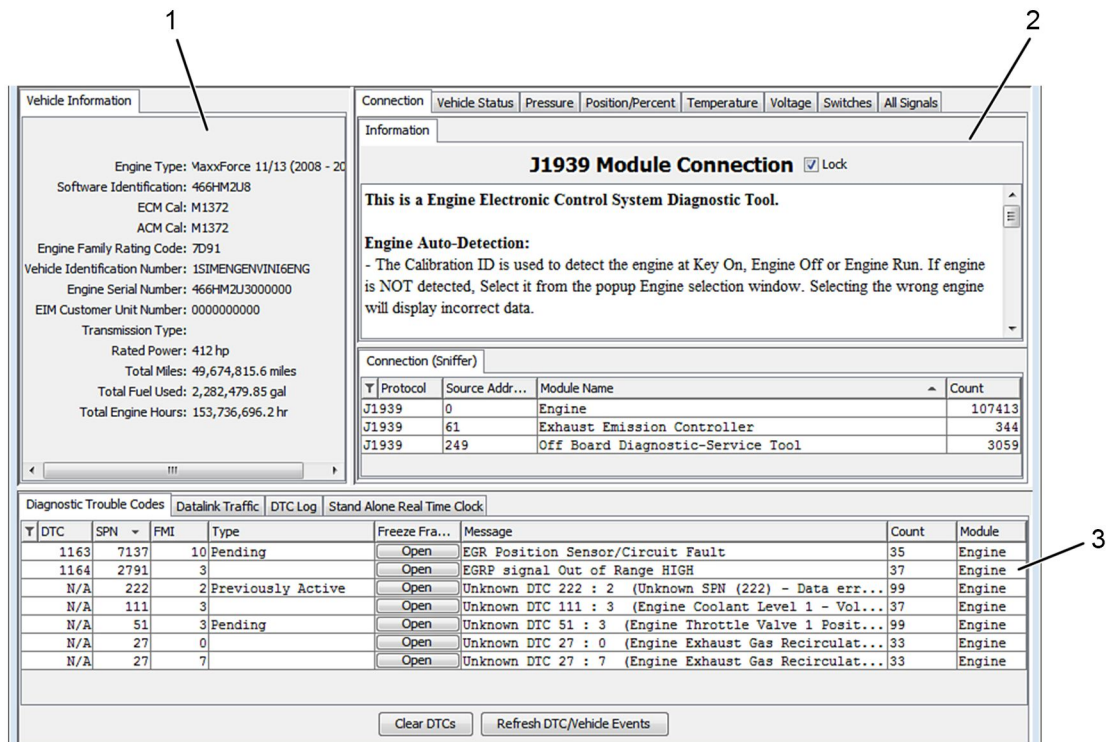


0000414018

Figure 15 Toolbar Icons

Item	Icon	Description
1		Communication Link Button. The communication link button turns the connection to the ECM on and off and displays connection status.
2		Trigger Setup Button. Opens the Snapshot Trigger Setup window. This window is used to specify the conditions under which to begin recording session data. (See Triggered Recording, page 37)
3		Trigger Arm / Disarm Button. The trigger arm / disarm button enables or disables triggered recording. (See Triggered Recording, page 37)
4		Data Record Button. The data record button records signal and parameter information using various recording intervals. (See Snapshots: Recording Session Data, page 35)
4		Default Session Button. Switches to the Default session view, which monitors all position, temperature, and pressure sensors. (See Default Session View, page 23)
6		Parameters Session Button. Switches to Parameters session view, which monitors vehicle events. (See Viewing All Parameters, page 44)
7		Signals Session Button. Switches to Signals session view, which monitors specific signals.
8		Stop Tests Button. This will stop any test that Navistar Engine Diagnostics is currently running. Such tests are initiated in the Tests menu.
9		Print Vehicle Diagnostics Button. Prints vehicle information.
10		Print Trip Report Button. Prints the vehicle activity report.

DEFAULT SESSION VIEW



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Figure 16 Panes in Default Session View

1. Vehicle Information Pane

The Vehicle Information pane provides vehicle information for the connected vehicle. Displayed information includes items similar to:

- Engine Type
- Software Identification
- ECM Cal
- ACM Cal
- Engine Family Rating Code
- Vehicle Identification Number
- Engine Serial Number
- EIM Customer Unit Number
- Transmission Type
- Rated Power
- Total Miles
- Total Fuel Used
- Total Engine Hours

2. Connection Pane

The connection pane contains a number of tabs that display current engine and vehicle data. The tabs include:

- Connection (Sniffer) Tab. This tab provides real-time monitoring of the network activity for each module on the various data links. The data presented here is used to identify if the individual modules are present and communicating on the vehicle networks.
- Vehicle Status Tab. This tab displays system status information, such as Diesel Particulate Filter (DPF) Regen status and the Engine Shutdown timer.
- Pressure Tab. This tab displays all ECM-monitored pressure sensors.
- Position / Percent Tab. This tab displays all ECM-monitored position sensors.
- Temperature Tab. This tab displays all ECM-monitored temperature sensor information for the engine.
- Voltage. This tab shows actual voltage values for each sensor.
- Switches. This tab displays the status of all monitored switches.

3. Diagnostic Trouble Code (DTC) Pane

The DTC pane displays all active or previously active ECM DTCs. DTCs can also be cleared in this pane. The DTC pane is displayed in all of the software Default sessions.

STATUS BAR

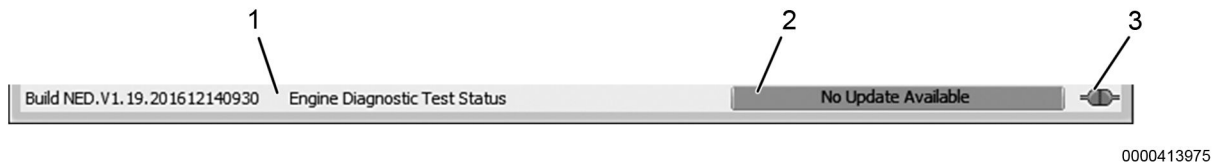


Figure 17 Status Bar

1. Tool Information Area

This area displays tool information such as what tests are running, which have been completed, and which have been aborted.

2. Update Information Area

This area displays information about updates to the Navistar Engine Diagnostics software.

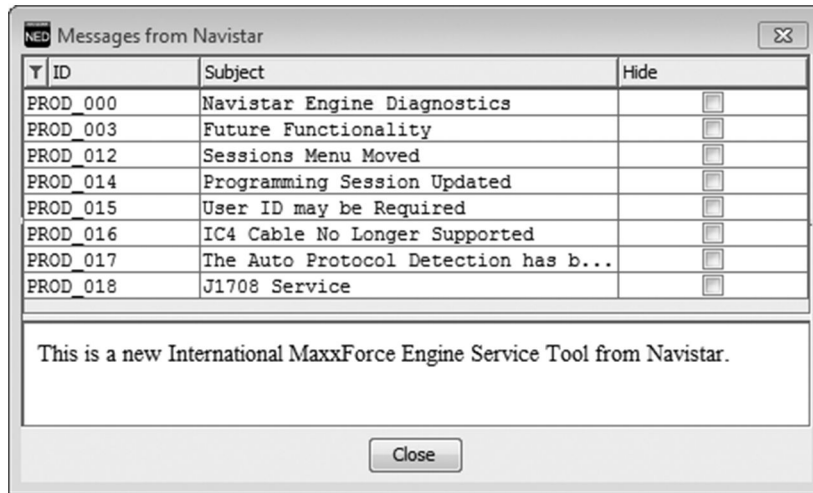
3. ECM Connection Status Icon

The ECM connection status icon is used to show connection status between the ECM and the EST. The left plug represents data traveling to the ECM. The right plug represents data traveling from the ECM. When both sides are green and connected, data is flowing between the ECM and EST. It separates when the ECM stops responding to requests.

Additional status information for Navistar Engine Diagnostics software can be found in the following locations:

- The Service Messages from Navistar window (See Messages from Navistar, page 26)
- The About Navistar Engine Diagnostics window (See About Navistar Engine Diagnostics, page 27)

MESSAGES FROM NAVISTAR



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Figure 18 Messages from Navistar

After an update, Messages from Navistar window (Figure 18) will pop up to display important messages about the updated version.

Suppressing the Display of Previously-Viewed Messages

To disable a message and prevent it from being displayed in the future, check the box in the Hide column of the message to be disabled.

Viewing Past Messages

To view past messages, select HELP > MESSAGES in the menu bar.

ABOUT NAVISTAR ENGINE DIAGNOSTICS



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Figure 19 About Navistar Engine Diagnostics Window

The About Navistar Engine Diagnostics window displays information about the current version of the Navistar Engine Diagnostics software.

To open this window, select **HELP > ABOUT** in the menu bar.

Viewing the Change Log

The change log contains information about the contents of each update to the Navistar Engine Diagnostics software. To view the change log:

1. In the menu bar, select **HELP > ABOUT**.
2. Click the **CHANGE LOG** button.

SESSIONS

Sessions can display vehicle and engine information, such as: module calibration, sensor signals, and actuator command signals. Special engine and vehicle features can also be programmed using these sessions.

Navistar Engine Diagnostics has many default sessions that load automatically when running any Service Bay Test or Service Tool Procedure. Users are not limited to any default session. Users are able to build their own session and save or load it at any time.

Navistar Engine Diagnostics also has a few added sessions that do not load automatically, but can be selected from the Sessions drop-down menu. These sessions are available to help diagnose common systems and program special features.

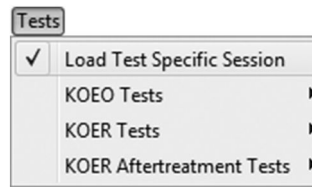
Predetermined sessions can be accessed from the Sessions drop-down menu.

SESSIONS MENU



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Figure 20 Sessions Menu (Connected to Vehicle)



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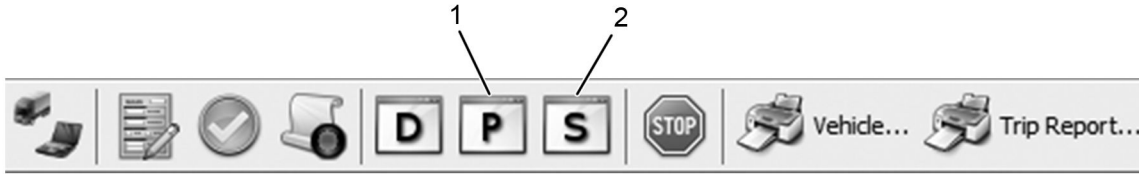
Figure 21 Load Test Specific Session

Some sessions are associated with service bay tests and will automatically load when a test is commanded. However, the user does have the option to disable the automatic load feature in order to run a test using a different session.

NOTE – A check mark next to the Load Test Specific Session menu option (Figure 20) indicates the session will automatically load.

BUILDING A SESSION

Users can build their own sessions to monitor specific parameters or signals not usually grouped together.



0000414155

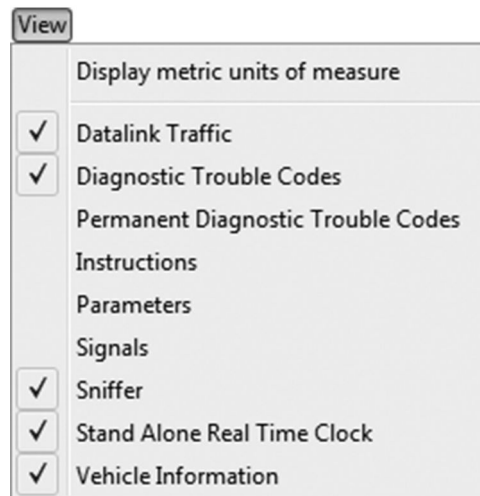
1. Parameters button

2. Session button

Figure 22 Menus and Toolbar

1. In the Toolbar, select either the Parameters button (Figure 22, Item 1) or the Signals button (Figure 22, Item 2).
2. Select desired signals by checking the boxes in the Watched column.
3. Once all desired signals have been selected, click on the Only Show Watched box to hide all signals that were not selected.

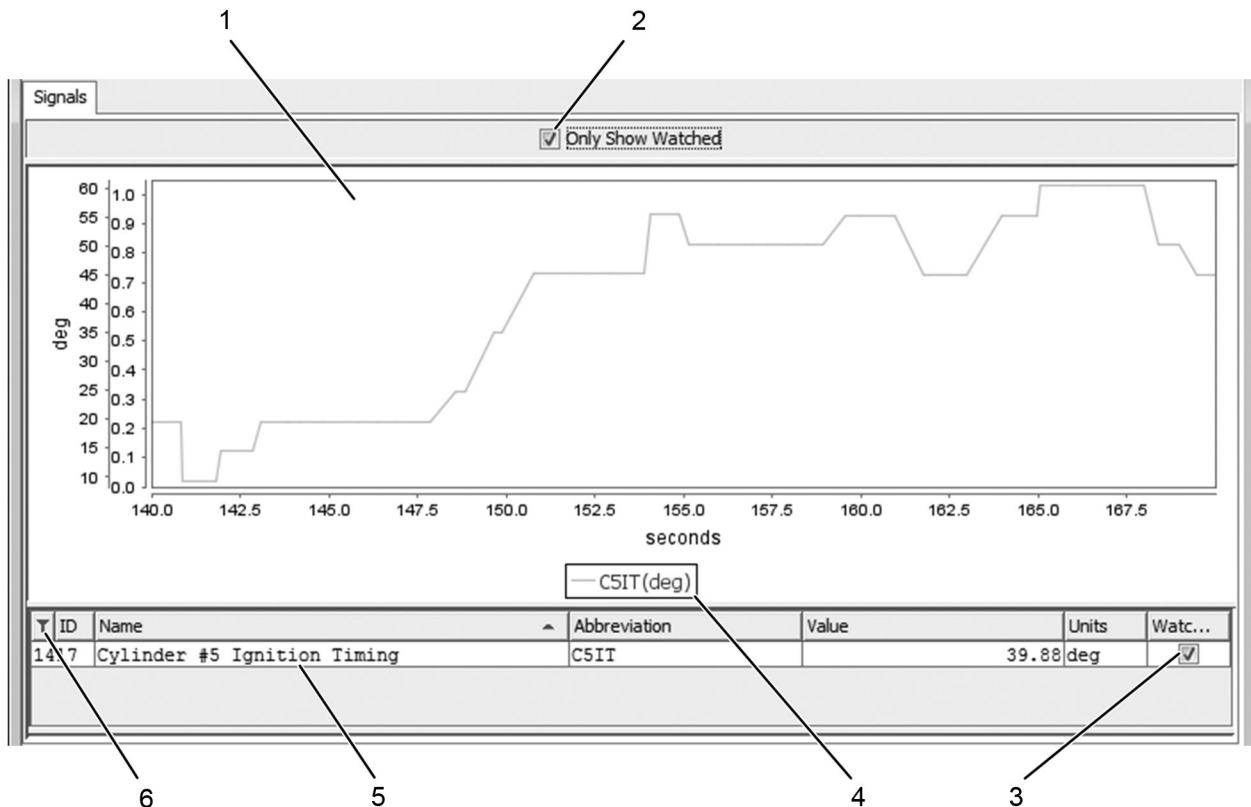
NOTE – The list may be scrolled up and down using the window scroll bar.



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Figure 23 View Menu

NOTE – Other information can be added to a session by selecting any of the items from the View menu. All columns displayed are moveable and configurable. Right-clicking on a column header allows the user to add or remove columns.



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- | | |
|------------------------------|------------------|
| 1. Signal graph display pane | 4. Graph legend |
| 2. Only show watched box | 5. Signal list |
| 3. Watched column boxes | 6. Filter button |

Figure 24 Signals Session

NOTE – Displayed signals are represented by different colored graph lines. When multiple signals are displayed, signal identification can be made using the graph legend. Check the box in the Watched column to show the graph for a desired signal. Uncheck the box to hide that signal's graph.

VIEWING AND CLEARING SIGNAL VALUE STATISTICS

Navistar Engine Diagnostics records minimum, maximum, and average values for every signal (when applicable).

ID	Name	Value	Abbreviation	Units	Watched
-30	Active DIC Codes	Group	1:3 DICS		<input type="checkbox"/>
27	EGR Position	<input checked="" type="checkbox"/> ID	5.83 EGRP	\$	<input type="checkbox"/>
51	Engine Throttle Position	<input checked="" type="checkbox"/> Name	8.4 ETP	\$	<input type="checkbox"/>
69	Two Speed Axle Switch	<input checked="" type="checkbox"/> Abbreviation	ange TSAS		<input type="checkbox"/>
70	Parking Brake Switch	Source	Set PBS		<input type="checkbox"/>
74	Maximum Vehicle Speed Li	Raw Value	58 MVSL	mph	<input type="checkbox"/>
84	Vehicle Speed	Raw Units	4.19 VSS	mph	<input type="checkbox"/>
86	Cruise Control Set Speed	<input checked="" type="checkbox"/> Value	0 CCSS	mph	<input type="checkbox"/>
87	Cruise Control High Set	Min Value	61 CCHSLS	mph	<input type="checkbox"/>
88	Cruise Control Low Set L	Max Value	62 CCLSLS	mph	<input type="checkbox"/>
91	Accelerator Pedal 1 Outp	Avg Value	0.8 APP1	\$	<input type="checkbox"/>
92	Engine Load	Units	6 EL	\$	<input type="checkbox"/>

0000414022

Figure 25 Signal List: Right-Click Menu

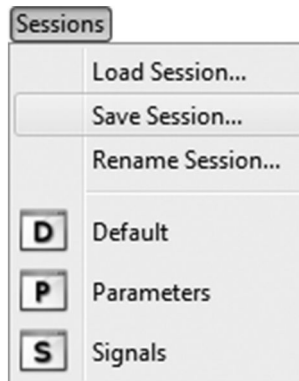
Viewing Signal Value Statistics

1. Right-click on the title bar at the top of the signal list. The right-click menu for the list appears (Figure 25).
2. Select (check) Min Value, Max Value, or Avg Value to add that statistic. Each checked item will be displayed as a column in the signal list.

Resetting Minimum, Maximum and Average Values

In the menu bar, select TOOLS > CLEAR STATISTICS.

SAVING SESSION FILES



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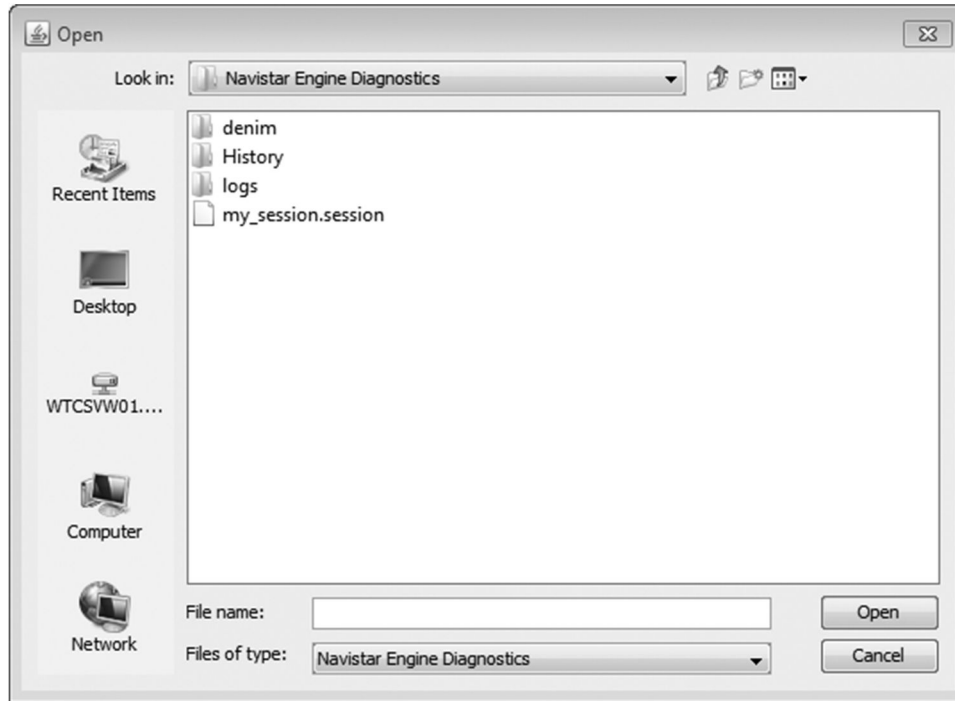
Figure 26 Saving a Session File

Built or modified session files can be saved to be loaded at a later time. This does not effect any of the software's pre-made sessions.

1. In the menu bar, select SESSIONS > SAVE SESSION.
2. Navigate to the folder in which you wish to save the session file.
3. Type the desired session name in the File name box.
4. Click Save.

LOADING A SAVED SESSION

1. In the menu bar, select SESSIONS > LOAD SESSION.



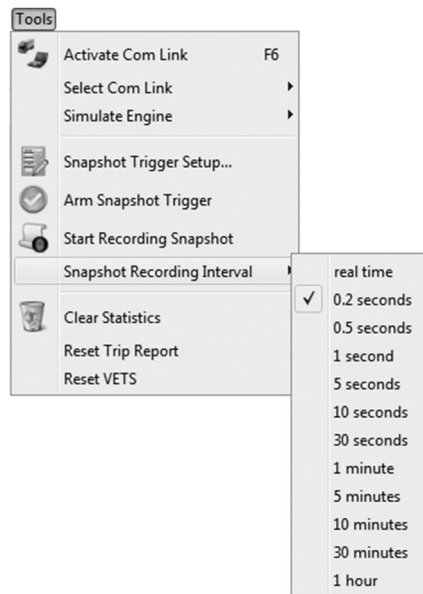
0000414021

Figure 27 Opening a Saved Session

2. Select the session file to be opened.
3. Click OPEN.

SNAPSHOTS: RECORDING SESSION DATA

Navistar Engine Diagnostics can record signal information using various data sample rates (Recording Intervals). Recording Intervals can be selected using the Tools menu.



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Figure 28 Recording Interval Selection

Using the Recording Interval scale, the user can adjust the amount of data being recorded in a snapshot. The default setting is 0.2 seconds.



Figure 29 Record Button

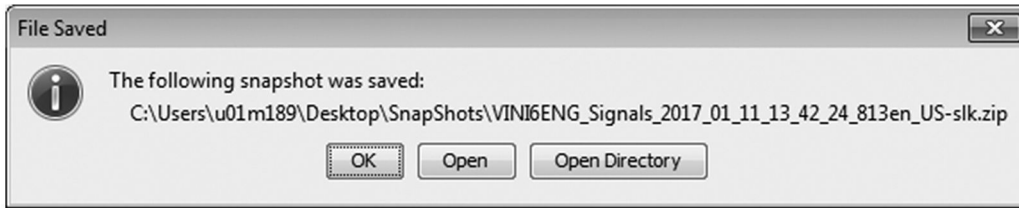
1. Click the Record button in the Toolbar to start recording the current session.

NOTE – When the Recording function is active, the Record button displays a Stop sign.



Figure 30 Record Stop Button

2. Click the Record Stop button to stop recording.



0000414026

Figure 31 Recording Saved Window

3. When recording is stopped, a pop up message alerts the user to the file name and location of the recorded snapshot. Files created with the recording function are saved in the SnapShots desktop folder.

TRIGGERED RECORDING

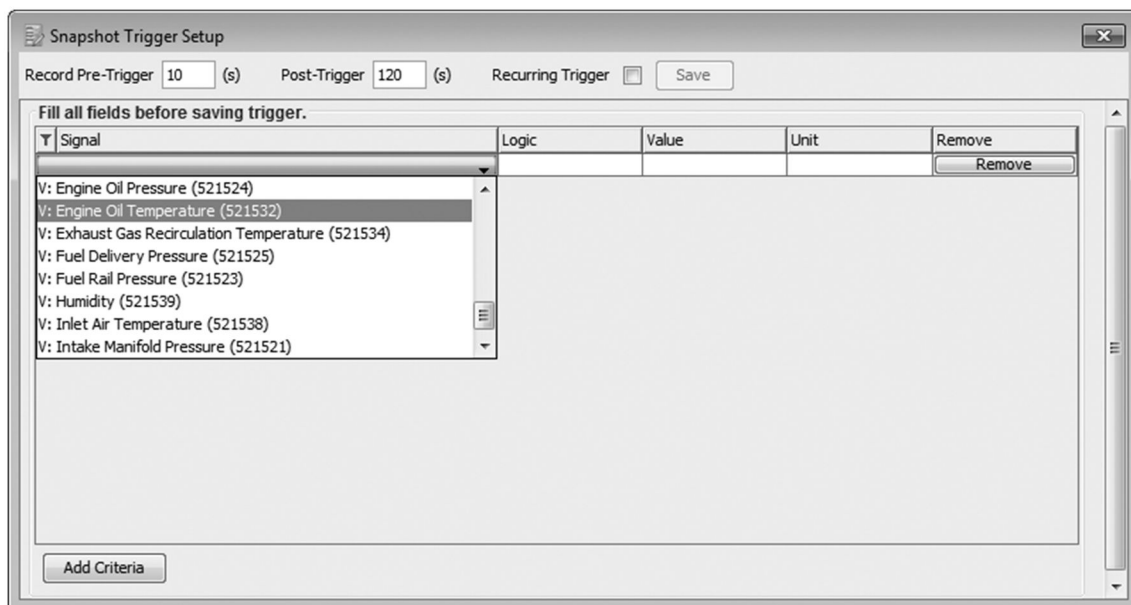
Navistar Engine Diagnostics uses triggered recording to record signal data automatically, based on conditions determined by the user. Triggered recording is helpful when recording snapshot information while trying to duplicate an operating condition. Once the condition is met (trigger is set), recording automatically begins.

Setting Up a Triggered Recording



Figure 32 Trigger Setup Button

1. Click the Trigger Setup button in the Toolbar.



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Figure 33 Selecting a Signal

2. In the Signal column, select a signal to trigger.
3. In the Logic column, select a trigger operator (greater than, less than, equal to, not equal to).
4. In the Value column, specify the value for this signal that will serve as the trigger.
5. If more than one signal will serve as a trigger, click the ADD CRITERIA button and repeat steps 2 to 4 for each desired signal.
6. If recording should begin prior to the trigger value being met, enter to the number of seconds to record prior to the trigger in the Record Pre-Trigger box.
7. In the Post-Trigger box, enter the number of seconds to continue recording after the trigger value is met.

SESSIONS

8. If recording should occur every time the trigger value is met during the current session, check the Recurring Trigger box. Leave the box unchecked if recording should occur only the first time the trigger value is met.
9. Click SAVE.



Figure 34 Trigger Arm / Disarm Button

10. To arm the trigger, click the Trigger Arm / Disarm button in the Toobar.

NOTE – Triggered recording begins automatically when the trigger value is met (or, if a Record Pre-Trigger value was entered, a number of seconds prior to the trigger being met).

NOTE – To disable triggered recording, click the Trigger Arm / Disarm button again.

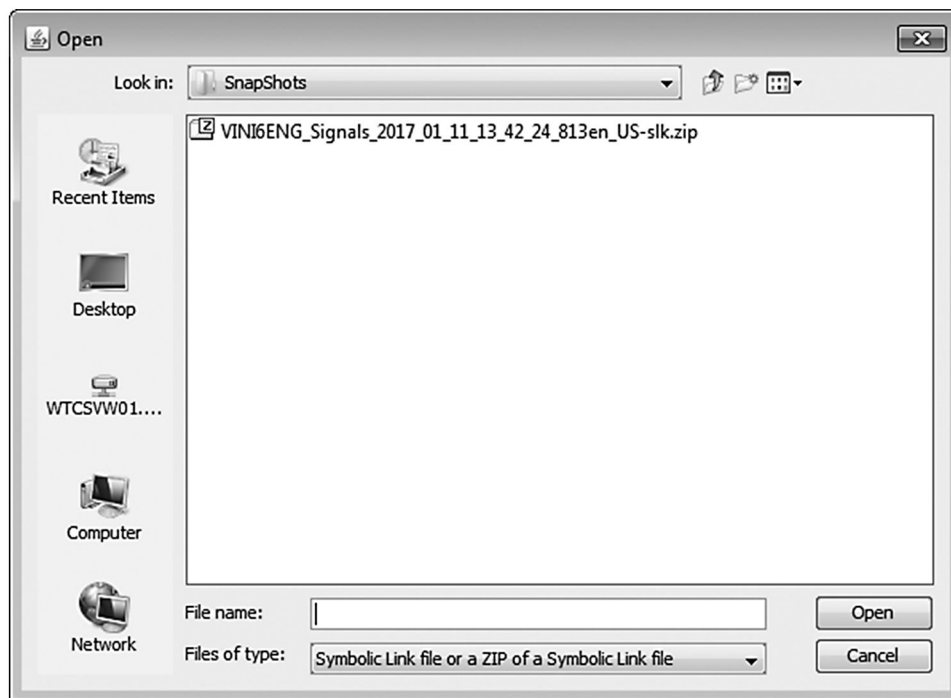
VIEWING NAVISTAR ENGINE DIAGNOSTICS SNAPSHOTS

A snapshot is engine data that is recorded at a preset interval, during a session, and saved. There are two ways to view a snapshot:

- In the menu bar, select FILE > OPEN SNAPSHOT RECORDING FILE.
- Open the SnapShots folder on the Windows desktop.

Viewing a Snapshot in Navistar Engine Diagnostics

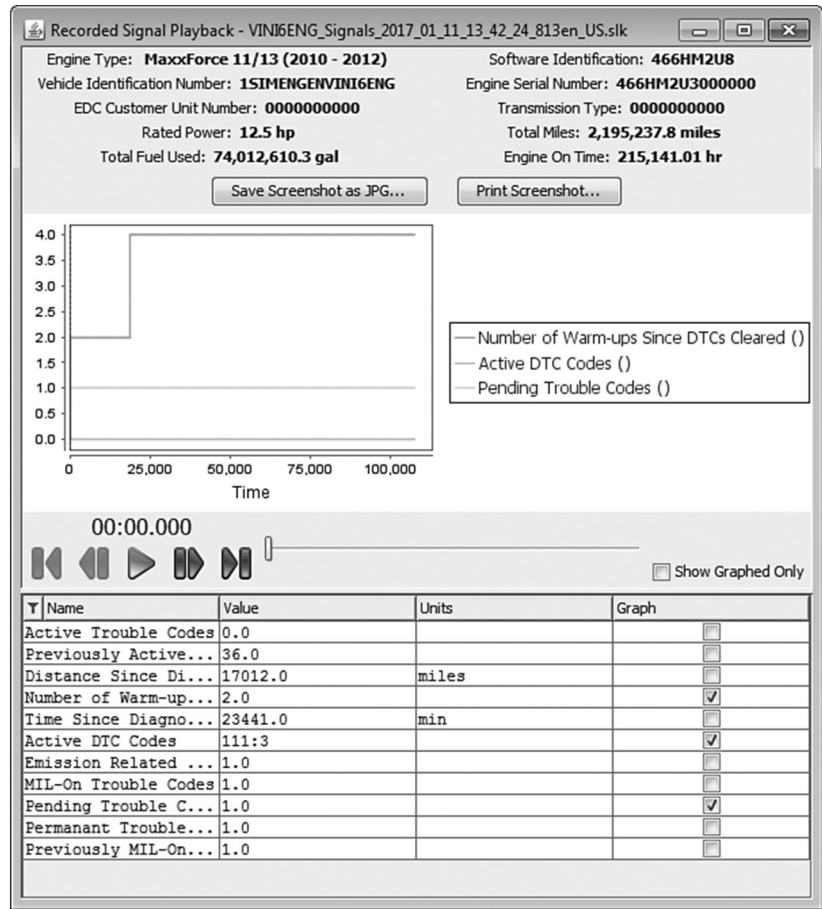
1. In the menu bar, select FILE > OPEN SNAPSHOT RECORDING FILE.



0000414006

Figure 35 Opening a Snapshot File

2. Select a previously recorded file.
3. Click OPEN.



0000414010

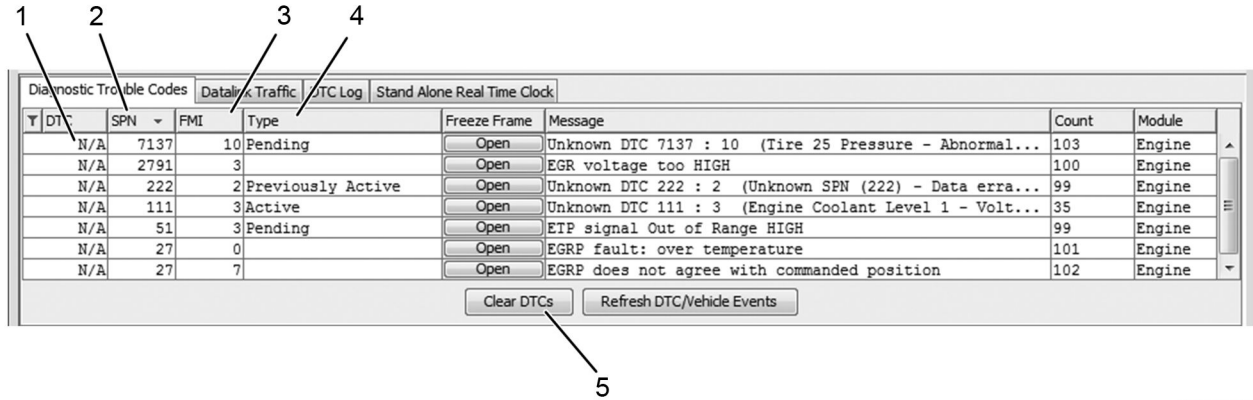
Figure 36 Recorded Signal Playback

4. Select which signal(s) to view by checking the desired boxes in the Graph column.

VIEWING DIAGNOSTIC TROUBLE CODES

THE DTC PANE

DTCs can be viewed can cleared from any session menu using the DTC pane.



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- | | |
|--|---|
| 1. Diagnostic Trouble Code (DTC) column (pre-2010) | 4. Type column (Active / Previously Active / Pending) |
| 2. Suspect Parameter Number (SPN) column | 5. Clear DTCs button |
| 3. Failure Mode Indicator (FMI) column | |

Figure 37 DTC Pane

DTC IDENTIFICATION

DTC identification is accomplished using two fault code identifiers. These two identifiers, known as the SPN and the FMI, are displayed in the DTC Window.

Identifier Type	Description
Suspect Parameter Number (SPN)	The SPN identifies the individual component causing the DTC.
Failure Mode Indicator (FMI)	The FMI identifies the fault or condition effecting the individual component.
Diagnostic Trouble Code (DTC)	The DTC is a 3-digit or 4-digit number used to identify DTCs. This 3-digit or 4-digit number is only used on pre-2010 engines.

NOTE – 2010 model year vehicles no longer utilize DTC identification by number. DTCs are now identified using the SPN and FMI only.

VIEWING DIAGNOSTIC TROUBLE CODES

DTC TYPE

DTC Type	Description
Active	Faults that are currently present.
Previously Active	Historical faults that may be set by intermittent conditions, or by an operating condition which is not currently present.
Pending	Faults that occurred on the first drive cycle. Such faults become Active if they are detected again on the second drive cycle
Healing)	Healing DTCs are previously active faults that were not detected on a subsequent drive cycle. If the same fault is not detected for three consecutive drive cycles, it becomes Previously Active. If it is detected again within three drive cycles, it returns to the Active state.

VIEWING FREEZE FRAME DATA

Freeze frame data is a snapshot of the engine operating condition at the time the fault was detected. To view freeze frame data for a particular fault, click the button in the Freeze Frame column.

CLEARING DTCS

All inactive DTCs can be cleared from the ECM using the following procedure.

1. Click Clear DTCs.
2. Cycle the ignition switch.

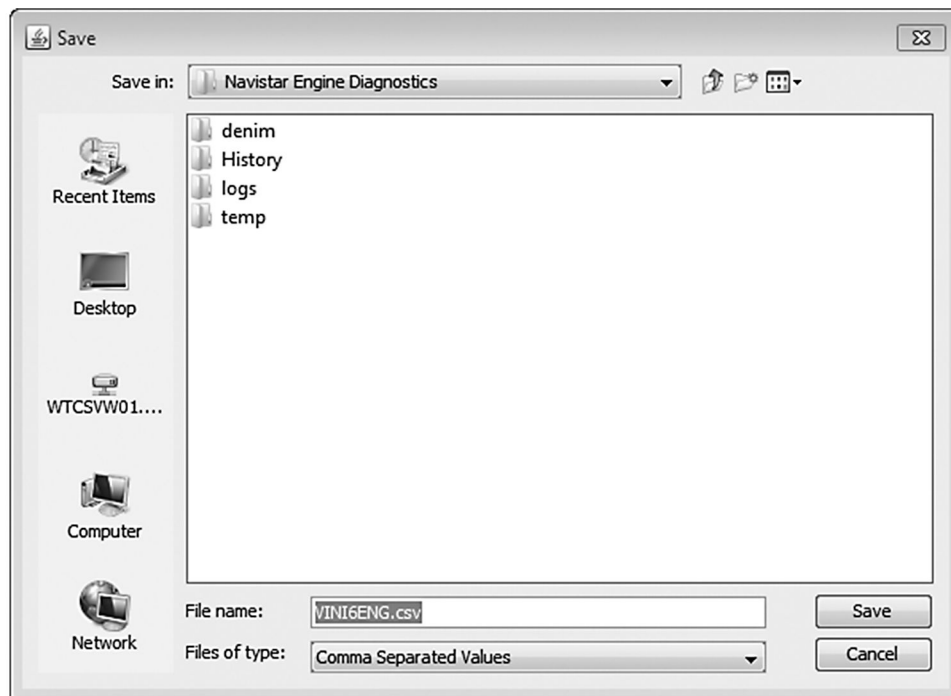
PARAMETERS

This section describes how to export and view all parameters, search parameters by group, search parameters by name, and change dealer programmable parameters.

NOTE – It is recommended that parameters be exported prior to programming any Navistar electronically controlled engine.

EXPORTING PARAMETERS

1. In the menu bar, select FILE > EXPORT PARAMETERS.



0000414015

Figure 38 Saving Exported Parameters

2. Enter a FILE NAME to use for the parameters to be saved.
3. Click SAVE.

NOTE – Engine parameter data files are saved as .csv files. This file type encodes data as text, with individual values separated by commas. This format is commonly used for importing data into spreadsheets such as Microsoft Excel® as well as other data manipulation tools.

PARAMETERS

VIEWING ALL PARAMETERS



Figure 39 Parameters Button

To view all parameters, click the Parameters button in the Toolbar. The Parameters pane appears.

Parameters						
<input type="button" value="Undo All Changes..."/> <input type="button" value="Program Engine..."/> <input type="checkbox"/> Only Show Watched						
ID	Name	Value	Units	Undo	Watc...	
75203	AESC - APS Maximum Engine Speed Override		RPM		<input type="checkbox"/>	
75342	AESC Disable with Parking Brake				<input type="checkbox"/>	
58251	AESC Mode 4 Trip Engine Hours	24,384.83	hr		<input type="checkbox"/>	
58001	AESC Mode 4 Trip Fuel Used	83,413,174.7	gal		<input type="checkbox"/>	
58261	AESC Mode 5 Trip Engine Hours	76,248.09	hr		<input type="checkbox"/>	
58011	AESC Mode 5 Trip Fuel Used	104,227,297.5	gal		<input type="checkbox"/>	
58271	AESC Mode 6 Trip Engine Hours	17,907.23	hr		<input type="checkbox"/>	
58021	AESC Mode 6 Trip Fuel Used	39,033,007.5	gal		<input type="checkbox"/>	
76102	Adaptive Cruise Control Enable	Vorad Enable			<input type="checkbox"/>	
74081	Ambient Temperature Override	Enable			<input type="checkbox"/>	
99312	Auxiliary Engine Shutdown Switch Input Selection	Use CAN input 1			<input type="checkbox"/>	
75253	Auxiliary Engine Speed Control - Bump Up/Down Step		RPM		<input type="checkbox"/>	
75102	Auxiliary Engine Speed Control - Disable With Clutch				<input type="checkbox"/>	
75132	Auxiliary Engine Speed Control - Disable with APS	APS is Ignored			<input type="checkbox"/>	
75112	Auxiliary Engine Speed Control - Disable with Brake				<input type="checkbox"/>	
75183	Auxiliary Engine Speed Control - Engine Speed Limit with VSS ...		RPM		<input type="checkbox"/>	
75243	Auxiliary Engine Speed Control - Engine Speed Throttle Down R...		RPM/s		<input type="checkbox"/>	
75021	Auxiliary Engine Speed Control - In Cab Mode	None			<input type="checkbox"/>	

0000414007

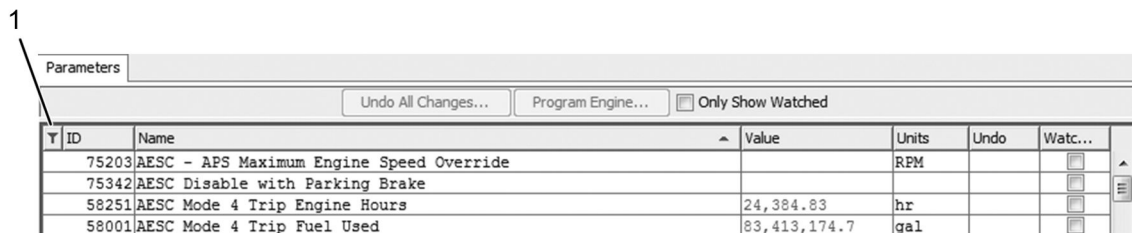
Figure 40 Parameters Pane

SEARCHING PARAMETERS BY GROUP



Figure 41 Parameters Button

1. Click the Parameters button in the Toolbar.



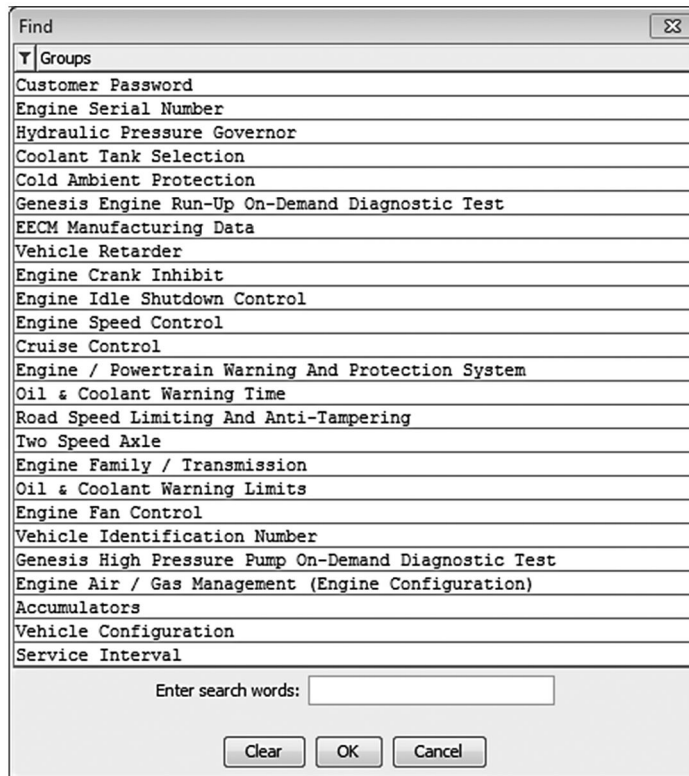
0000413965

1. Filter icon

Figure 42 Parameter Filter

2. Click on the filter icon (Figure 45, Item 1). A window that lists parameter groups appears.

PARAMETERS



0000414002

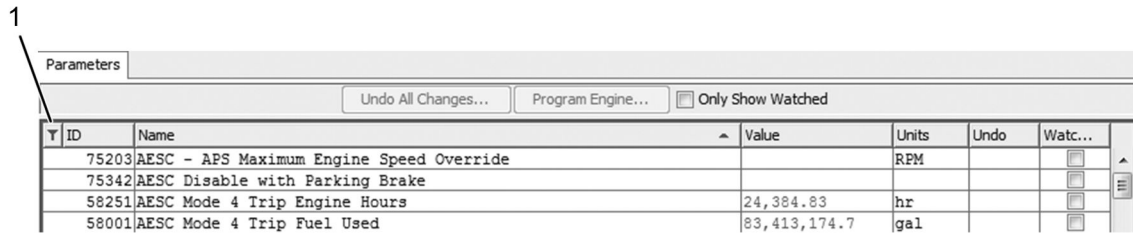
Figure 43 Parameter Group List

3. Select the group to be displayed.
4. Click OK. The parameters in the selected group will be brought to the top of the list.

NOTE – To clear the search and return the list to its original order, click the filter icon and then click Clear.

SEARCHING PARAMETERS BY KEYWORD(S)**Figure 44 Parameters Button**

1. Click the Parameters button in the Toolbar.



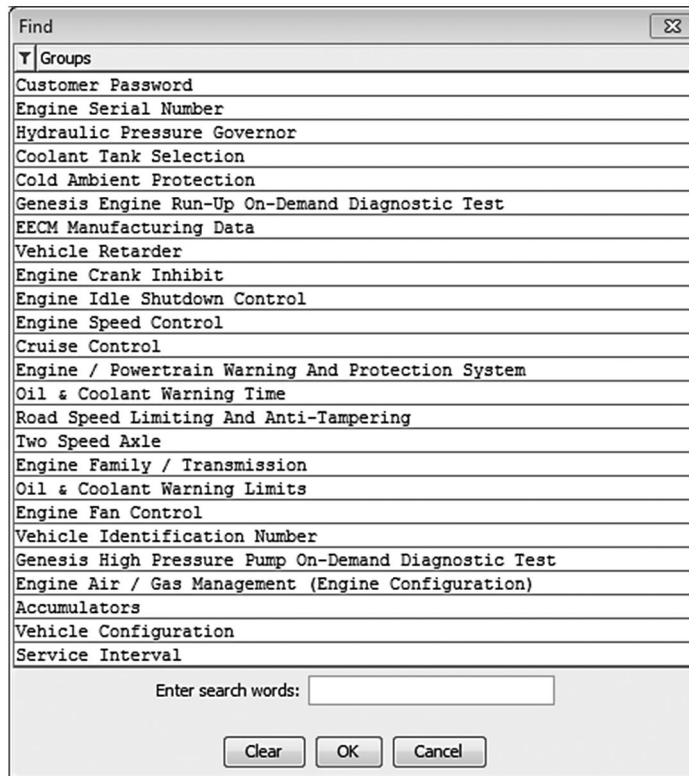
0000413965

1. Filter icon

Figure 45 Parameter Filter

2. Click on the filter icon next to the ID column.

PARAMETERS



0000414002

Figure 46 Parameter Group List

3. Type the keyword(s) in the box labeled ENTER SEARCH WORDS and click OK. The parameters with the keyword(s) will be brought to the top of the list.

NOTE – To clear the search and return the list to its original order, click the filter icon and then click Clear.

CHANGE ONE DEALER OR CUSTOMER PROGRAMMABLE PARAMETER

To prevent making unwanted changes to parameters, export parameters prior to making any changes. (See Exporting Parameters, page 43)

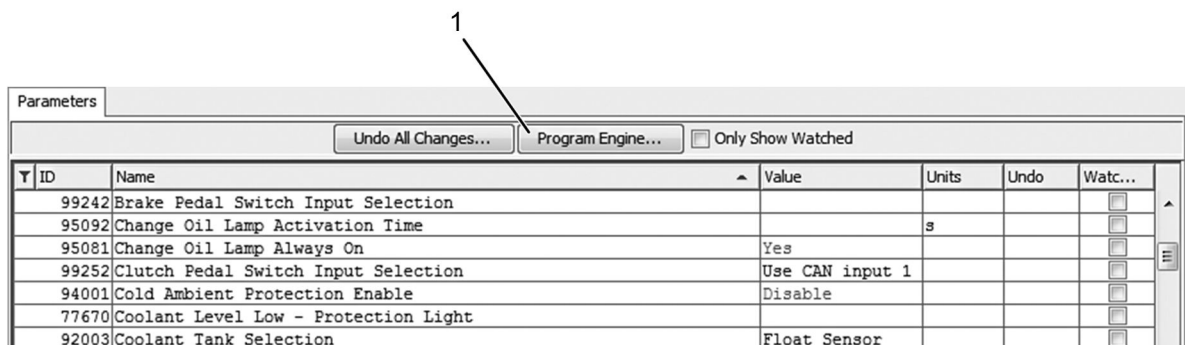
NOTE – Non-Dealer or Non-Customer Programmable Parameters cannot be changed. In future versions of Navistar Engine Diagnostics, they will be grayed out to make them easier to distinguish.

Changing a Parameter



Figure 47 Parameters Button

1. Click the Parameters button in the Toolbar.
2. Search for the parameter by group, keyword, or scroll through the list.
3. Change the parameter value. There are two types of programmable parameters:
 - Drop-down (See Changing a Drop-down Value, page 50)
 - Numerical (See Changing a Numerical Value, page 51)



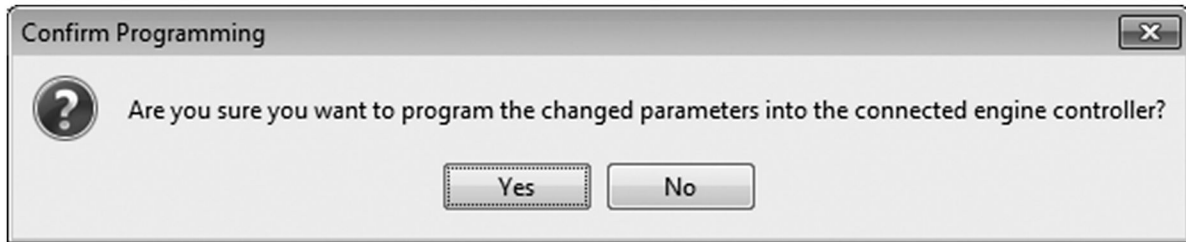
0000414008

1. Program Engine button

Figure 48 Parameters Panel

4. Click Program Engine.

PARAMETERS



0000413999

Figure 49 Changed Parameters Prompt

5. Click YES.
6. Navistar Engine Diagnostics will attempt to use the default password.
 - If the default password is accepted, you will not be prompted for one. Proceed to Step 7.
 - If the default password doesn't work, the software will ask for the customer password. Type the customer password in the field provided and press OK.
7. Click OK.

Changing a Drop-down Value

1. Click the VALUE field of the parameter to be changed. An arrow appears on the right end of the field.

Disable With Clutch					
Disable with APS	APS is Ignored				
Disable with Brake	Y	Description	^	Value	
Engine Speed Limit with VSS ...	APS Disable AESC			2	
Engine Speed Throttle Down R...	APS Overrides AESC Set Speed			1	
In Cab Mode	APS is Ignored			0	

0000414001

Figure 50 Value Pop-up

2. Click the arrow. A popup listing possible values for the selected field appears.
3. Select the desired value for the parameter.
4. Press the ENTER key on the keyboard or click elsewhere in the application.

Changing a Numerical Value

set Engine Speed				
set Engine Speed 1 (Set)	Disable			
set Engine Speed 2 (Resume)	4	2,671 RPM		
set Engine Speed 3		RPM		
set Engine Speed 4		RPM		

0000414003

Figure 51 Value Edit Box

1. Click the VALUE field of the parameter to be changed.
2. Type the desired value for that parameter in the box including any decimal points.
3. Press the ENTER key on the keyboard or click elsewhere in the application.

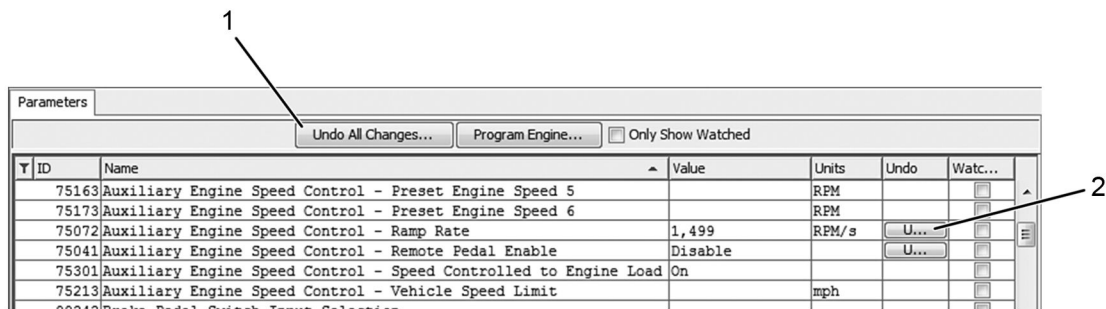
PARAMETERS

CHANGING MULTIPLE DEALER OR CUSTOMER PROGRAMMABLE PARAMETERS

NOTE – If changing multiple parameters on multiple vehicles create a parameter template. (See Parameter Templates, page 55)

1. Follow all steps from Change One Dealer or Customer Programmable Parameter.
2. Repeat procedure for additional parameters that need to be changed.

UNDOING PARAMETER CHANGES BEFORE THEY ARE PROGRAMMED



0000413952

1. Undo All Changes button

2. Undo button for individual changed parameter

Figure 52 Undo Buttons

There are two ways to undo changes:

- To undo changes to a single parameter, click the UNDO button for that parameter (Figure 52, Item 2).
- To undo changes made to ALL programmable parameters, click UNDO ALL CHANGES.(Figure 52, Item 1).

CHANGING THE CUSTOMER PASSWORD

NOTE – Not available on MWM engines.



Figure 53 Parameters Button

1. Click the Parameters button in the Toolbar.

Parameters				
		Undo All Changes...	Program Engine...	<input type="checkbox"/> Only Show Watched
Y	ID	Name	Value	Units
	76032	Cruise Control Vehicle Speed Low Limit		mph
	99262	Cruise Control/AESC On/Off Switch Input Selection	Use CAN input 1	
	87002	Customer Password	Global.set	
	88013	Customer Reference Number	00000000	
	66082	DOC Serial Number	0000000000000000	

0000414000

Figure 54 Customer Password Parameter

2. Search for the parameter 87002 “Customer Password”.
3. Click the button in the Value column. A window that allows entry of the new password appears.

PasswordPanel.program ✕

Please enter the new value for Customer Password (8 character limit).
Both fields must be the same before the OK button will be enabled.

Enter New Password

Re-enter New Password

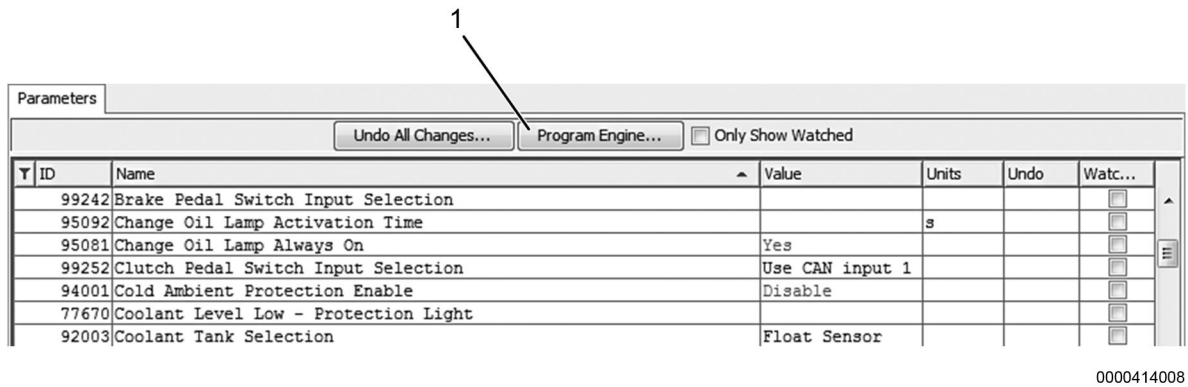
Show Password

0000414151

Figure 55 Changing Customer Password

4. Enter the new password in both of the provided fields. (The two entered passwords must match.)
5. Click OK.

PARAMETERS



1. Program Engine button

Figure 56 Parameters Panel

6. Click PROGRAM ENGINE.

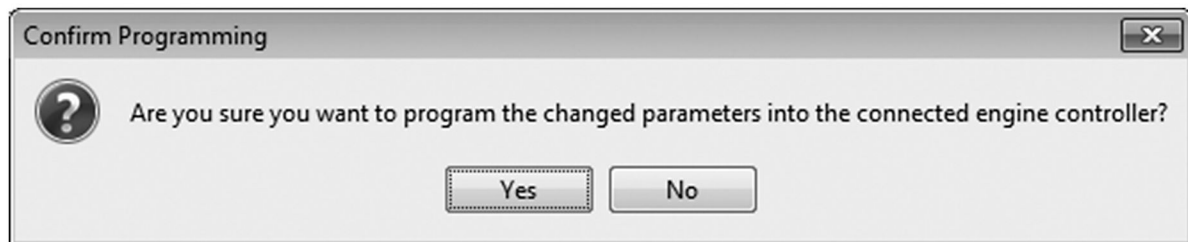


Figure 57 Changed Parameters Prompt

7. Click YES.
8. Enter the current customer password and click OK (if prompted).
9. Click OK.

PARAMETER TEMPLATES

A parameter template is used to easily program a group of chosen parameters and values into multiple vehicles within a short period of time.

A parameter template can also be used to copy a current list of configured parameter values or features from one vehicle to another.

Suggested uses of parameter templates:

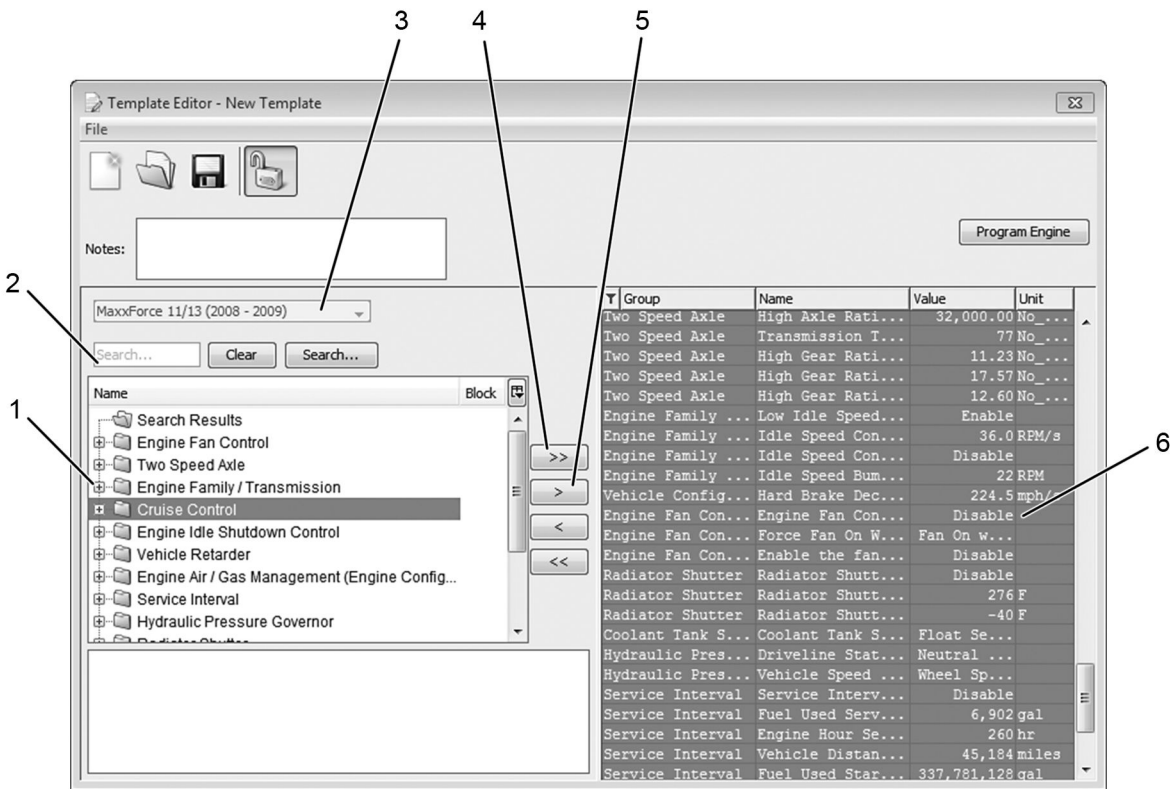
- PTO / remote throttle settings
- Driver reward settings
- Road and cruise speed settings
- Progressive shift
- Service interval settings

CREATING A PARAMETER TEMPLATE

There are two ways to create a parameter template: connected to the engine and not connected to the engine.

Creating a template when connected to an engine copies the current configuration of the connected vehicle into the template. This data becomes the starting point for the template's configuration.

To create a template when an engine is not connected, it is necessary to select the engine family to which this template will apply. The default template parameters for the selected engine family become the starting point for the new template.



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- 1. Available parameters list
- 2. Parameter search field
- 3. Engine family drop-down
- 4. Move all parameters button
- 5. Move selected parameter button
- 6. Selected parameters list

Figure 58 Template Editor Window

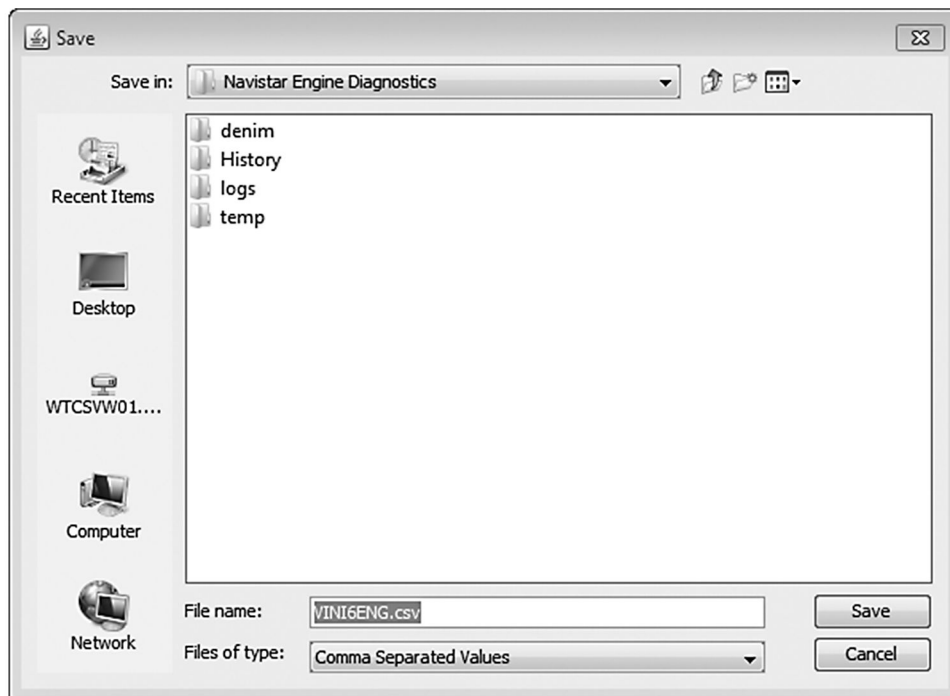
1. In the menu bar, select FILE > CREATE TEMPLATE. The Template Editor window appears.
2. If not connected to an engine, select the engine family to which this template will apply (Figure 58, Item 3).
If connected to an engine, the correct engine family will be pre-selected and cannot be changed.

3. Use the arrow buttons to move the parameters that will be included in the template to the list of selected parameters on the right side of the window:
 - To move all parameters, click the Move All Parameters button (Figure 58, Item 4).
 - To move a single parameter, select the parameter to move in the Available Parameters list. Then, click the Move Selected Parameter button (Figure 58, Item 5).
4. Specify values for the selected parameters by editing the entries in the Value column. These entered values will be saved in the template.



Figure 59 Save Template Button

5. Click the SAVE TEMPLATE button.



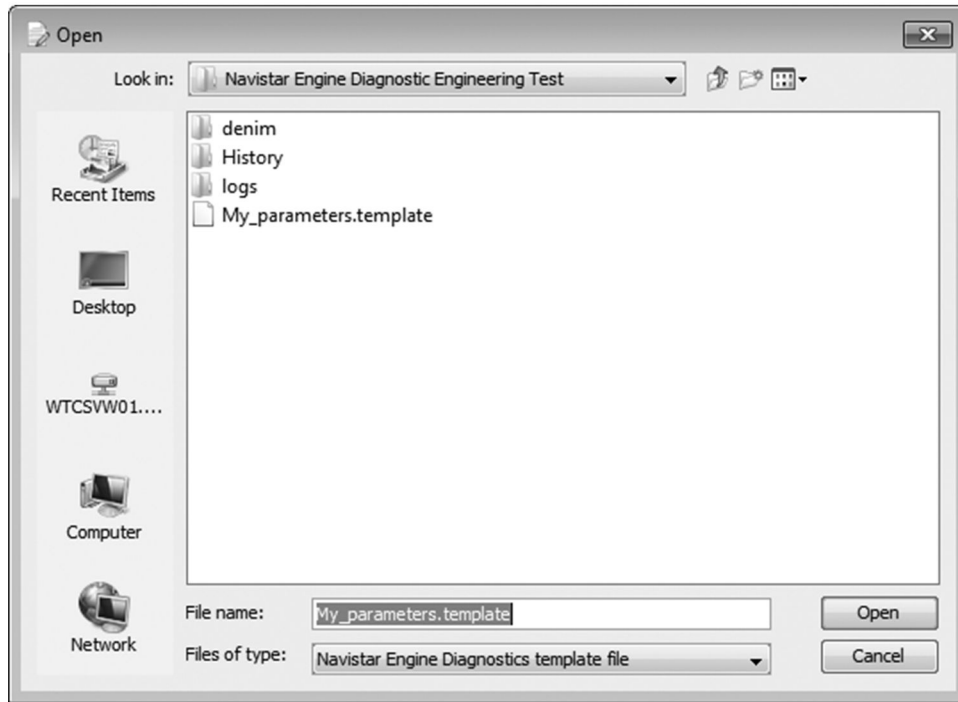
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Figure 60 Save Parameters

6. Enter a FILE NAME to use for the new template.
7. Click SAVE.

NOTE – Save the template before beginning programming. Templates can only be programmed in the same engine family, model, and year. Always check for the latest calibration using the calibration scorecard.

OPENING AN EXISTING PARAMETER TEMPLATE



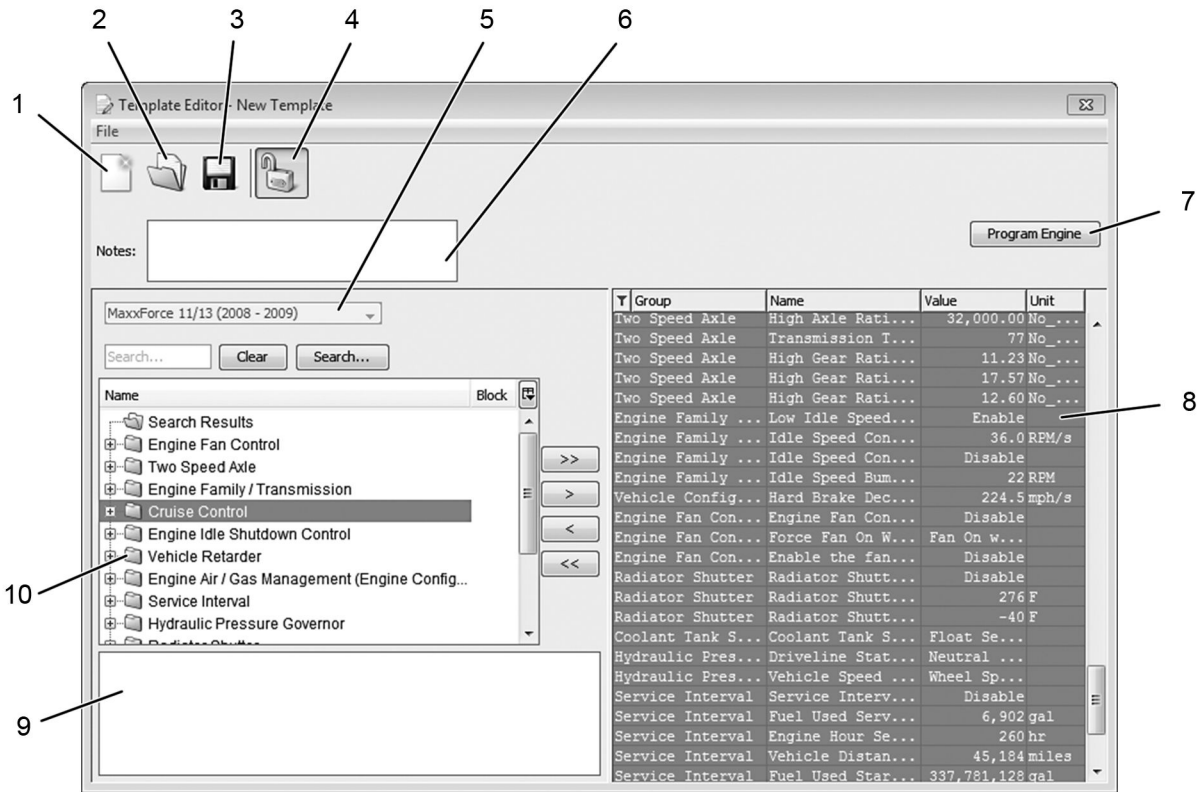
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Figure 61 Open Template

1. In the menu bar, select FILE > OPEN TEMPLATE.
2. Select the template file to be opened.
3. Click OPEN.

NOTE – All parameter templates created with Navistar Engine Diagnostics have the filename extension .template.

USING THE TEMPLATE EDITOR



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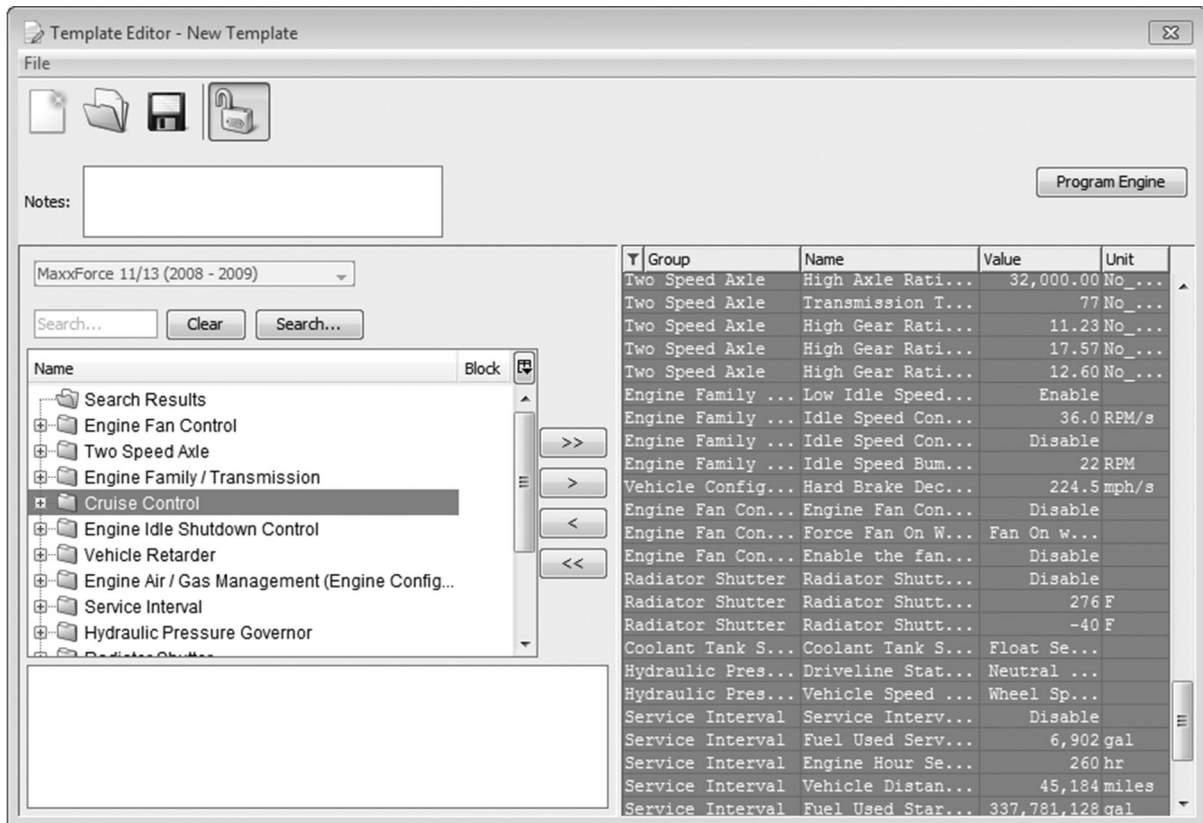
Figure 62 Template Editor

Item	Name	Description
1	Create Template Button	Starts a new blank template.
2	Open Template Button	Opens an existing template file.
3	Save Template Button	Saves the current template.
4	Lock Template Button	Password-protects the current template. A locked template cannot be edited without first unlocking with the password.
5	Engine Family Selection Drop-Down	Select desired engine family. Only available when not connected to the vehicle. When connected to vehicle, engine family automatically displays.
6	Template Notes Box	Customer and / or vehicle information may be entered here to make the template easily identifiable.
7	Program Engine Button	Programs the template's parameters to the vehicle. This button is only active when connected to a vehicle.
8	Selected Parameter List	Lists parameters that are selected from the Available Parameters list. These are the parameters that will be programmed to the vehicle when the Program Engine button is clicked.

PARAMETER TEMPLATES

Item	Name	Description
9	Parameter Details Box	This box will display information about the selected parameter.
10	Available Parameters List	Lists all available parameters for the engine family selected above.

CHANGING PARAMETER TEMPLATE VALUES



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Figure 63 Template Editor

1. Open the template whose default values are to be modified.
2. In the parameter list on the right side of the Template Editor window, locate the parameter whose value is to be modified.
3. In the Value column, specify the new value for the parameter. There are two types of parameter values:
 - Drop-down (See Changing a Drop-down Value, page 50)
 - Numerical (See Changing a Numerical Value, page 51)

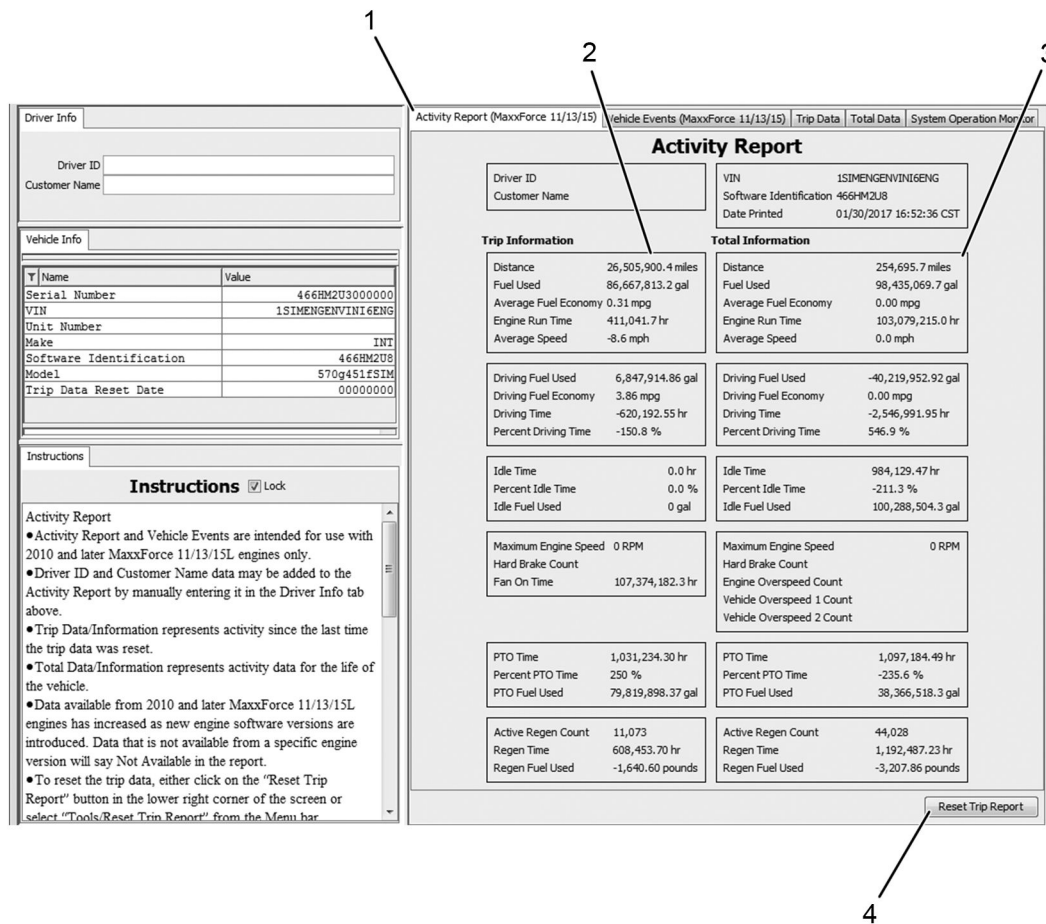
VEHICLE TRIP REPORT

The Vehicle Trip Report is used to view vehicle data during a trip.

NOTE – Vehicle Trip Report and Vehicle Events are intended for use with MaxxForce® 11, 13, and 15 liter engines only.

To view this window, select SESSIONS > VEHICLE TRIP REPORT in the menu bar.

ACTIVITY REPORT TAB



1. Activity Report Tab
2. Current Trip Information

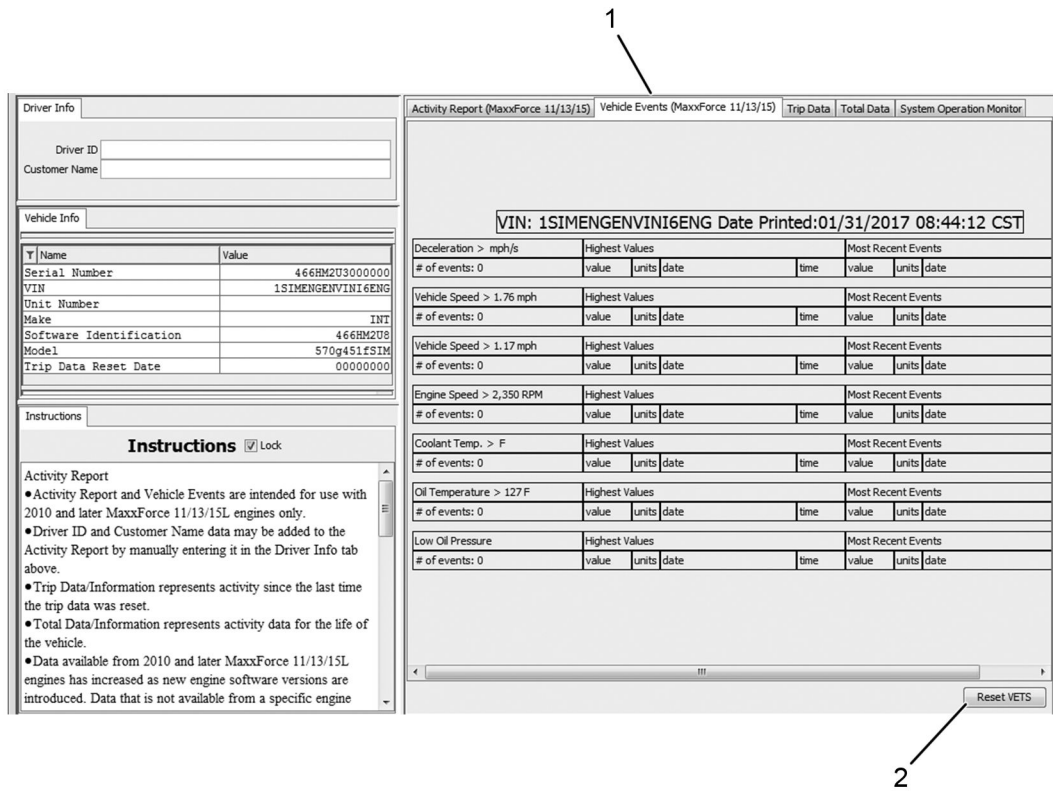
3. Total Trip Information
4. Reset Trip Report

Figure 64 Activity Report

The Activity Report tab (Figure 64, Item 1) shows a table of trip information for a single trip or for the life of the vehicle in an easy-to-print format.

- The column on the left (Figure 64, Item 2) displays current trip information.
- The column on the right (Figure 64, Item 3) displays total trip information.
- Click Reset Trip Report (Figure 64, Item 4) to reset vehicle trip report.

VEHICLE EVENTS TAB



1. Vehicle Events Tab

2. Reset VETS Button

Figure 65 Vehicle Events

The Vehicle Events tab (Figure 65, Item 1) shows a chart of high values and recent values of vehicle events and how for long the event occurred.

- To reset vehicle events, click the RESET VETS button. (Figure 65, Item 2)

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VEHICLE TRIP REPORT

VIEW TRIP DATA

The screenshot shows the 'Trip Data' tab selected in the top navigation bar. A 'Save' button is located above the table. The table contains the following data:

ID	Name	Value	Units
58251	AESC Mode 4 Trip Engine Hours	435,902.71	hr
58001	AESC Mode 4 Trip Fuel Used	4,693,942.6	gal
58261	AESC Mode 5 Trip Engine Hours	561,875.16	hr
58011	AESC Mode 5 Trip Fuel Used	106,315,325.1	gal
58271	AESC Mode 6 Trip Engine Hours	228,469.32	hr
58021	AESC Mode 6 Trip Fuel Used	17,233,805.4	gal
58221	ECM trip Time	567,792.81	hr
58231	Engine Trip Time	377,933.59	hr
83472	Total Engine Over Speed	3,875	RPM
83192	Trip AESC Device 1 Fuel Used	35,721,522.9	gal
83212	Trip AESC Device 2 Fuel Used	85,349,959.1	gal
83232	Trip AESC Device 3 Fuel Used	36,506,288.0	gal
58031	Trip AESC Fuel Used	101,340,320.8	gal
59501	Trip AESC Mobile Distance	20,993.73	miles
83182	Trip AESC Stationary Time	403,237.27	hr
58041	Trip Average Engine Load	-2,284.3	lb-ft
58061	Trip Average Engine Power	13,918,608.79	hp
58051	Trip Average Engine Speed	26,588	RPM
58161	Trip Average Fuel Rate	40.84	gal/hr
83383	Trip Average Vehicle Speed	322.36	mph
59001	Trip Coast Distance	1,329,313.63	miles
59151	Trip Coast Fuel Used	57,509,301.8	gal
59281	Trip Coast Time	87,537.68	hr
59011	Trip Cruise Control Distance	1,071,431.82	miles
59161	Trip Cruise Control Fuel Used	35,826,130.2	gal
59291	Trip Cruise Control Time	192,218.96	hr
59511	Trip Drive Average Fuel Economy	558.0	mpg
59261	Trip Drive Fuel Used	362,657.2	gal

Below the table, there is a note: "Trip AESC Mobile Distance Note: AESC is replacing PTO and ATC(Auxiliary Throttle Control)".

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1. Save button

2. Trip Data tab

Figure 66 Trip Data

The Trip Data tab (Figure 66, Item 1) shows a list of vehicle trip data since the trip was last reset.

- Select any item in the list to view a description of that item below.
- Click the SAVE button to save current vehicle trip information. (Figure 66, Item 2)

VIEW TOTAL DATA

The screenshot displays the 'Total Data' tab of the vehicle trip report software. On the left, there are sections for 'Driver Info' (with fields for Driver ID and Customer Name), 'Vehicle Info' (with a table of vehicle details), and 'Instructions' (with a 'Lock' checkbox). The main area is a table with columns for 'Y ID', 'Name', 'Value', and 'Units'. The table lists various engine and vehicle metrics such as 'Engine On Time', 'Hard Brake Incident Monitor', 'Total A/T Parked Regen Requests', and 'Total AESC Fuel Used'. A 'Save' button is located above the table. Callout 1 points to the 'Save' button, and callout 2 points to the 'Total Data' tab.

Y ID	Name	Value	Units
83012	Engine On Time	486,967.95	hr
83272	Hard Brake Incident Monitor		
83054	Total A/T Parked Regen Requests	20,551	
83064	Total A/T Regen Inhibit Requests	38,712	
83132	Total AESC Fuel Used	29,628,829.6	gal
57351	Total AESC Mobile Fuel Used	14,201,719.9	gal
57371	Total AESC Mobile Time	212,967.08	hr
57071	Total AESC Mode 1 Engine Hours	242,985.56	hr
57131	Total AESC Mode 1 Fuel Used	53,676,559.3	gal
57081	Total AESC Mode 2 Engine Hours	286,214.26	hr
57141	Total AESC Mode 2 Fuel Used	37,601,977.6	gal
57091	Total AESC Mode 3 Engine Hours	511,401.88	hr
57151	Total AESC Mode 3 Fuel Used	29,437,955.7	gal
57101	Total AESC Mode 4 Engine Hours	57,278.47	hr
57161	Total AESC Mode 4 Fuel Used	68,042,223.4	gal
57111	Total AESC Mode 5 Engine Hours	190,999.52	hr
57171	Total AESC Mode 5 Fuel Used	6,015,061.4	gal
57121	Total AESC Mode 6 Engine Hours	581,785.75	hr
57181	Total AESC Mode 6 Fuel Used	99,466,615.1	gal
57361	Total AESC Stationary Fuel Used	24,326,798.5	gal
57381	Total AESC Stationary Time	292,831.35	hr
83373	Total Average Vehicle Speed	292.91	mph
57061	Total Coast Distance	19,857.39	miles
57211	Total Coast Fuel Used	112,550,910.5	gal
57261	Total Coast Time	207,634.79	hr
57001	Total Cruise Control Distance	503,717.15	miles
57221	Total Cruise Control Fuel Used	39,600,438.3	gal
57271	Total Cruise Control Time	32,044.82	hr

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1. Save button

2. Total Data tab

Figure 67 Total Data

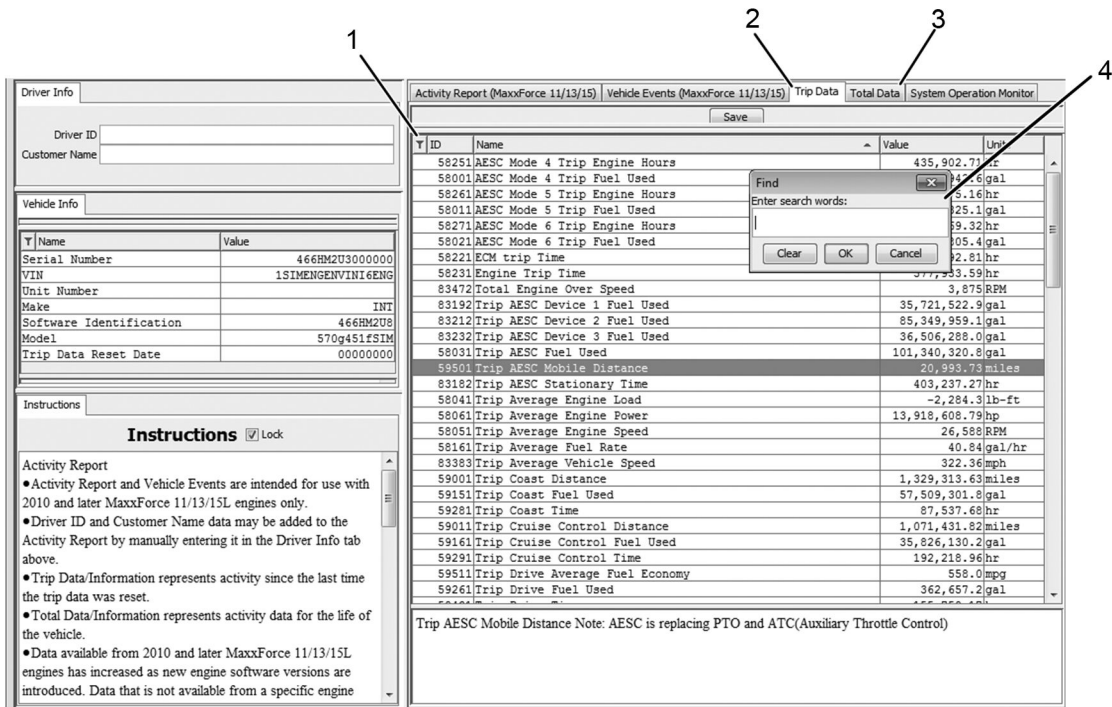
The Total Data tab shows (Figure 67, Item 1) a list of vehicle data over the lifetime of the vehicle.

- Select any item in the list to view a description of that item below.
- Click the SAVE button to save trip information for the life of the vehicle. (Figure 67, Item 2)

VEHICLE TRIP REPORT

SEARCH TRIP DATA BY KEYWORD(S)

1. In the menu bar, select SESSIONS > VEHICLE TRIP REPORT.



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1. Find icon
2. Trip Data tab
3. Total Data tab
4. Find window

Figure 68 Trip Data

2. Select either the TRIP DATA tab (Figure 68, Item 2) or the TOTAL DATA tab (Figure 68, Item 3).
3. Click the Find icon. (Figure 68, Item 1)
4. In the Find window (Figure 68, Item 4), enter the keywords to be searched for.
5. Click OK.

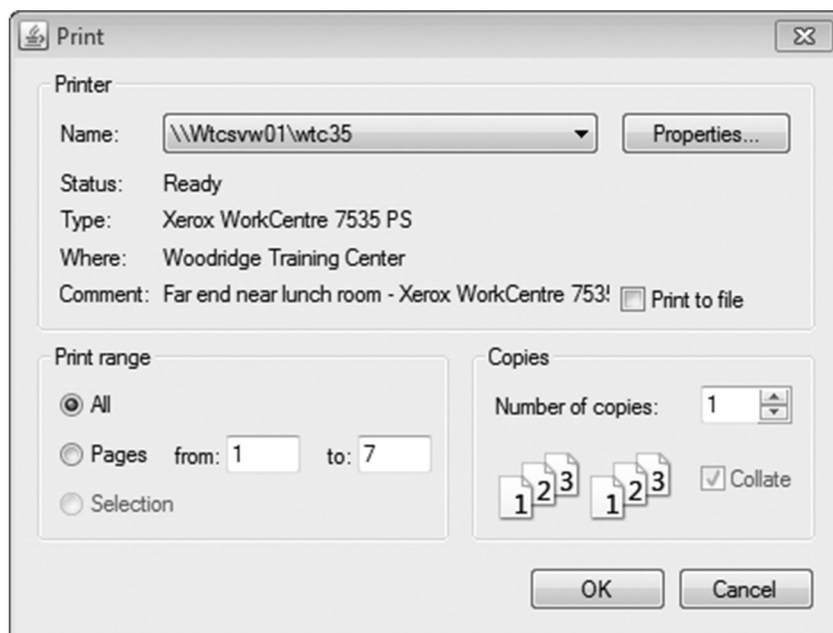
NOTE – The searched item(s) will now appear as the first column in the table.

PRINTING VEHICLE TRIP REPORTS



Figure 69 Trip Report Icon

1. There are two ways to print a vehicle trip report:
 - Click the Trip Report Icon in the Toolbar.
 - In the menu bar, select FILE > PRINT > TRIP REPORT.



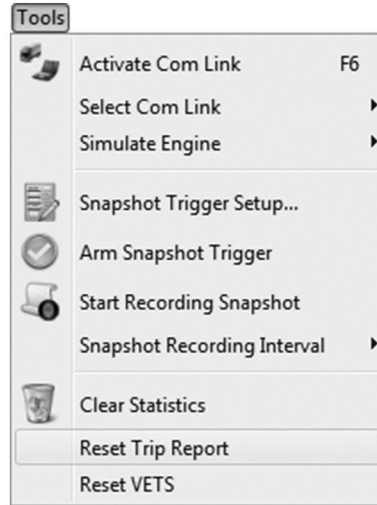
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Figure 70 Print Options

2. Select the desired printer.
3. Click OK.

RESETTING THE VEHICLE TRIP REPORT

A Trip Report is the time between vehicle trip resets.



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Figure 71 Tools Menu

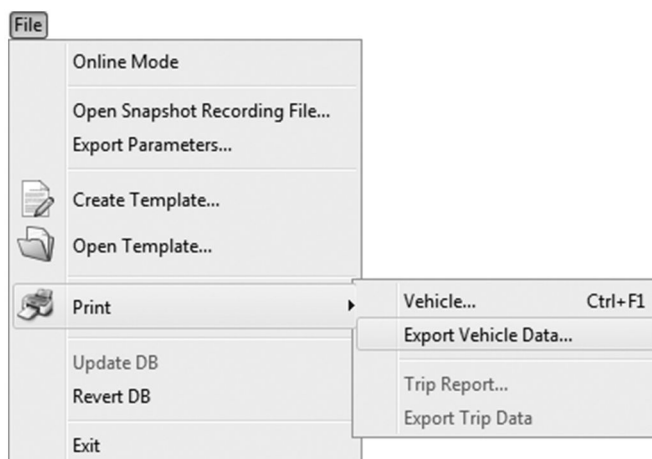
To start a new trip report, select TOOLS > RESET TRIP REPORT in the menu bar.

Alternately, reset the report from within a trip report session:

1. In the menu bar, select SESSIONS > VEHICLE TRIP REPORT.
2. Click the RESET TRIP REPORT button.

PRINTING

Vehicle information can be printed or exported by selecting the appropriate options in the File menu.



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Figure 72 Print Options

VEHICLE INFORMATION

Use this procedure to print vehicle information.

1. In the menu bar, select FILE > PRINT > VEHICLE.
2. Select the desired printer.
3. Click OK.

EXPORT VEHICLE DATA

Use this procedure to export vehicle information to a .txt file.

1. In the menu bar, select FILE > PRINT > EXPORT VEHICLE DATA.
2. Select the folder in which to save the data.
3. Click SAVE.

TRIP REPORT

Use this procedure to print vehicle activity report..

1. In the menu bar, select FILE > PRINT > TRIP REPORT.
2. Select the desired printer.
3. Click OK.