



MST - MWM Service Tool
Customer

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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.

MWM SERVICE TOOL

NOTE: This section contains a brief overview of MWM SERVICE TOOL software and was current at the time of publishing. Due to the automatic update function in MWM SERVICE TOOL software, screens and functions may differ from this manual.

INTRODUCTION

MWM Service Tool is a diagnostic and programming service tool for MWM diesel engines. A fully-featured PC application. 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.

Software Capabilities

- View, Snapshot Recording, Save, Playing
- Diagnostic Trouble Codes, View, Clear
- Freeze Frame Data
- Cylinder Cutout Test
- High Pressure Pump Test
- Programmable Parameters
- Read, Write Programmable Parameters

ACRONYMS

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

DTC

Diagnostic Trouble Code

DCU

Electronic Control Module

ECM (ECU)

Electronic Control Module

ESN

Engine Serial Number

EST

Electronic Service Tool

FMI

Failure Mode Indicator

SPN

Suspect Parameter Number

MIN

Minimum

MAX

Maximum

GETTING STARTED

SYSTEM REQUIREMENTS

Minimum Requirements

- Microsoft® Windows® Vista, Windows 7, or Windows 10 64-bit
- 1 GHz Intel Core 2 Duo, AMD Athlon X2 or better
- 2GB (32-bit) or 4GB (64-bit) of RAM
- 300 MB of free hard disk space
- High speed Internet connection needed for software updates
- 1024 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 13)

Improved system performance will occur with the installation of increased RAM.

Communication Link Drivers

- MWM Service Tool uses standard RP1210A drivers for communication. The drivers are specific to the communications device and are not installed with MWM Service Tool.

INSTALLING THE MWM SERVICE TOOL 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 MWM Service Tool software. These programs interfere with the efficient operation of the MWM Service Tool.

To install the MWM Service Tool software:

1. Prior to installation, a MWM Service Tool 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 MWM Service Tool page on the Navistar Service Software site:

<https://www.navistarservicesoftware.com/index.php/mwm/>

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

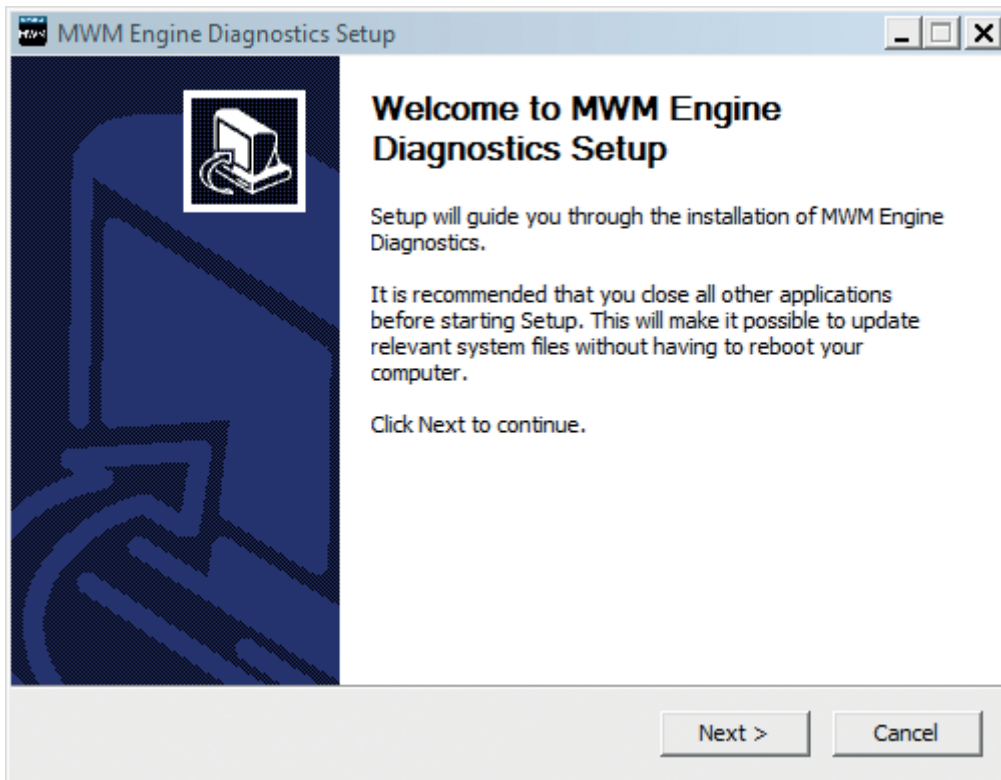


Figure 1 - Setup Wizard: Welcome

5. Click **NEXT**.

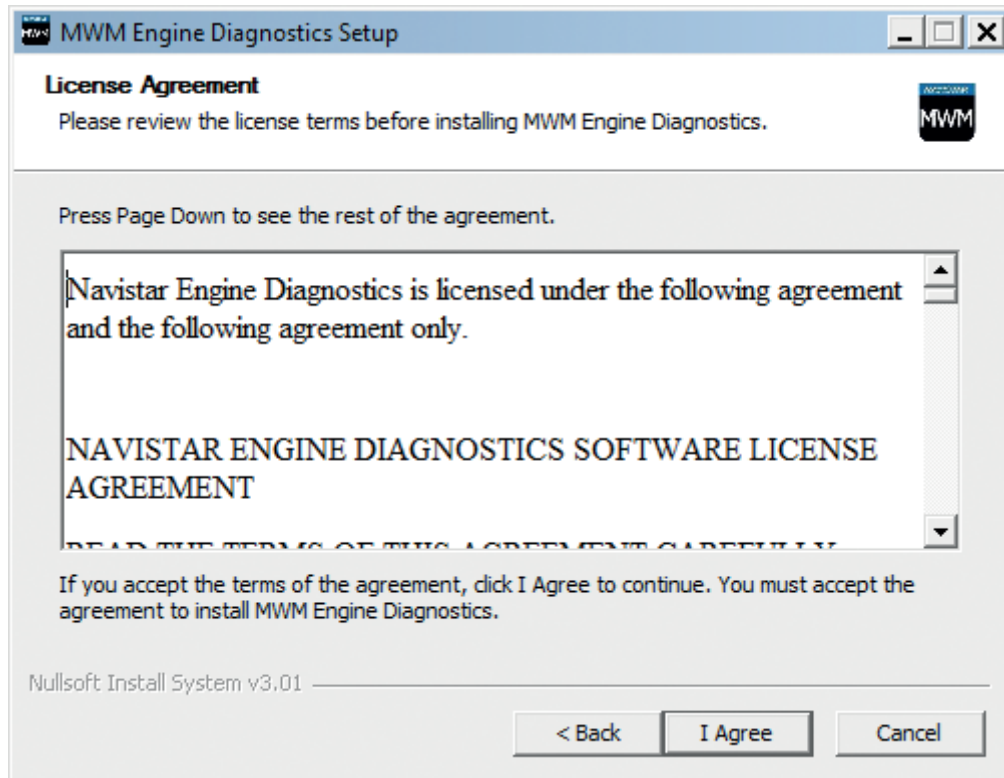


Figure 2 - Setup Wizard: License Agreement

6. Read through the License Agreement. When finished, click **I AGREE** to proceed with installation. When installation is complete, the final page of the wizard is displayed.

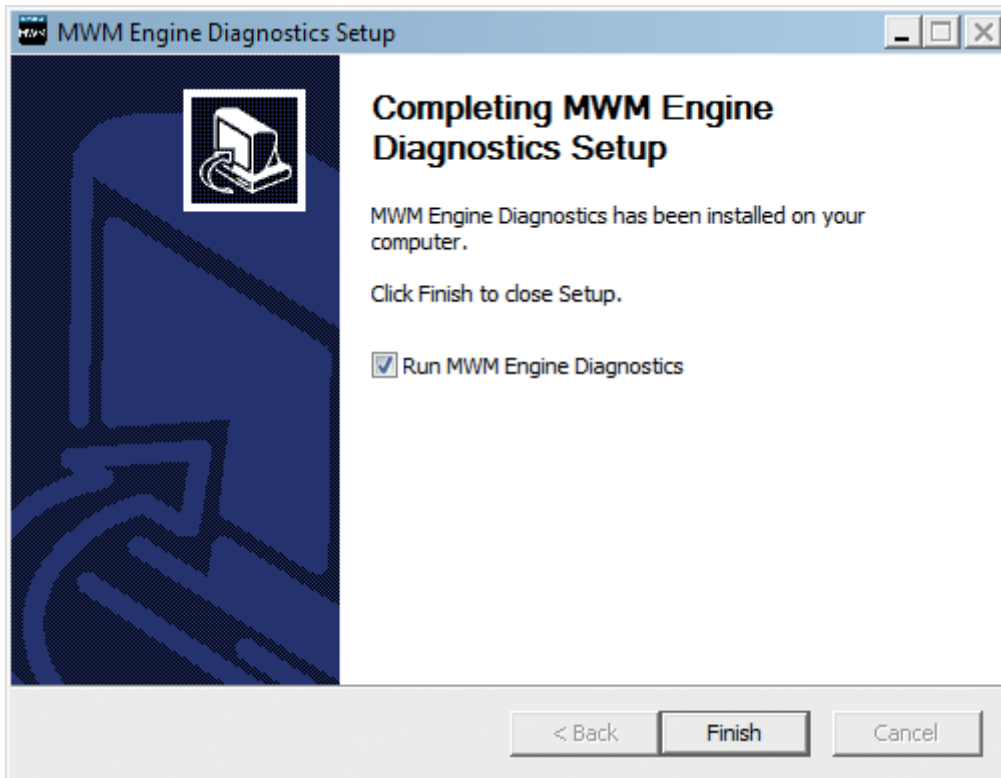


Figure 3 - Setup Wizard: Finish

7. Ensure that the **RUN MWM SERVICE TOOL** box is checked.
8. Click **FINISH** to launch the program.

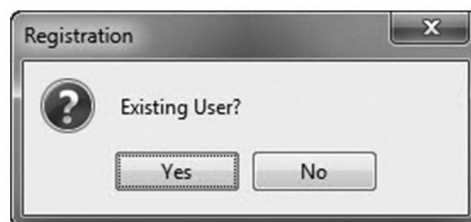
The first time MWM SERVICE TOOL is installed on a specific computer, you will be prompted to enter your product key.



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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 Diamond Logic® Builder (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 showing 'UNITED STATES'
- Phone Number***: Text input field with a format '() -'

Buttons: **OK**, **Cancel**. A note at the bottom right says '*Required fields'.

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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:

The image shows a 'Login Information' dialog box with the following content:

- Code: 818**
- Your Username has been successfully created.**
- Your Username and login information have been sent to the e-mail address you provided when registering this product. If you do not receive your Username and login email, please visit the Navistar Engine Diagnostic support page for assistance.
<http://www.navistarservicesoftware.com/index.php/navistar-engine-diagnostics/>
- NOTE: You must update your password at the link provided in the e-mail before logging into this application.**

Button: **OK**

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Figure 7 - Username Successfully Created

13. 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.

14. 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.

NOTE: The MWM Service Tool program will not function until you have successfully logged in at least once while connected to the network. You may need to consult with the technical computer support staff if the MWM Service Tool 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:

- *.navistar.com
- *.internationaldelivers.com
- *.amazonaws.com
- *.cloudfront.net

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 MWM Service Tool 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 MWM Service Tool 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 MWM Service Tool 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	An Internet connection to the MWM Service Tool 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 MWM Service Tool offline for 30 remaining days. If a connection to the MWM Service Tool Server cannot be established by then, your product will stop working. Verify that the following Navistar hosts are not blocked by a firewall or a web filter: <ul style="list-style-type: none"> • *.navistar.com • *.internationaldelivers.com • *.amazonaws.com • *.cloudfront.net
811	An Internet connection to the server could not be established, you must resolve this issue before the application can be used. This error occurs when the license key has expired due to being offline for 30 days or more.
812	An Internet connection to the server could not be established, you must resolve this issue before the application can be used. On some computers, MWM Service Tool has to be run in administrator mode. Follow these steps: <ol style="list-style-type: none"> 1. On the Windows desktop, right-click the MWM Service Tool icon. 2. In the right-click menu, select OPEN FILE LOCATION. 3. Right-click MWM Service Tool. 4. Select RUN AS ADMIN.

Code	Text
813	<p data-bbox="296 273 1476 338">Please enter your product key. If you do not have a product key, please visit the support page for assistance.</p> <p data-bbox="296 353 1476 421">The entered product key was not correct. Be sure to include the entire key. Which has be 19 characters total, not including dashes.</p>
814	<p data-bbox="296 430 1476 463">You have already activated your maximum number of Usernames permitted by your license.</p>
815	<p data-bbox="296 472 1476 506">A server side error has occurred and is being examined. Please visit the support page for assistance.</p>
816	<p data-bbox="296 515 1476 580">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 data-bbox="296 595 1476 685">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 data-bbox="296 694 1476 754">The Username or Password that you entered was incorrect. Please try again or visit the support page for assistance.</p>

DIAGNOSTIC INTERFACE CABLE INFORMATION

The following communication adapters have been verified with all MWM SERVICE TOOL software:

- Dearborn Group Technologies – DPA 5
- NEXIQ Technologies – USB-Link™ 1 and USB-Link™ 2
- Noregon Systems, Inc. – DLA, DLA USB

Other RP1210A compliant interface devices may work with MWM SERVICE TOOL.

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

USER INTERFACE

LAUNCHING MWM SERVICE TOOL

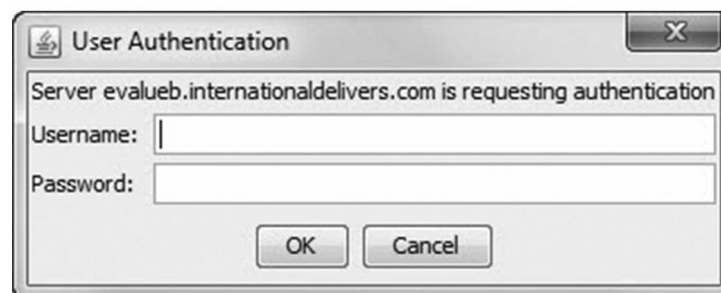
To Launch MWM SERVICE TOOL:

1. Start the application. There are three ways to do this:
 - Double-click the MWM Service Tool icon on your desktop.
 - Right-click on the MWM Service Tool icon on your desktop. Then, select OPEN.
 - From the Windows Start menu, select **Programs > MWM Service Tool > MW< Service Tool**.



Figure 9 - MWM Service Tool Icon

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



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Figure 10 - User Authentication Window

DEFAULT SESSION VIEW

When MWM Service Tool is started, a Default session displays as the opening screen. The following is a brief description of each area displayed in the Default session.

1

Información sobre el vehículo

System Supplier ECU software version number: P1090 V60
 System supplier ECU software Number: P_1090 V60
 Dataset Identification: P1090V60ITEC_ES_6C_06M_225cV08
 ECM SW Version: P1090V60ITEC_ES_6C_06M_225cV08
 MWM Dataset Part Number: DTA0002202

Factory Data: 10-07-1219-07-12 1037392468 1037377875

Engine Test Date:

Vehicle Identification Number - VIN:

Customer String 0:
 Customer String 3:
 Customer String 4:
 Customer String 5:

2

Connection Information

Module Connection

ServiceMaxx MWM is a Engine Electronic Control System Diagnostic Tool.

Engine Auto-Detection:
 The MWM engines can Auto-Detect at Key On, Engine Off and Engine Run. If Auto-Detection does NOT detect engine type, you must select the correct one from the engine selection menu. Selecting the wrong engine will display signals incorrectly or will not display any values.

Connection (Sniffer)
 - Displays all electronic control modules on the vehicle datalink, but only communicate with the Engine and Aftertreatment.

Protocolo	Dirección de fuente	Nombre del módulo	Total
U1939	250	Diagnóstico externo - Herramienta de se...	21775
U1939	0	Motor	699904
U1939	15	Retardador - motor	24913
U1939	241	Unidad de control de inyección eléctric...	341

3

Códigos de problemas de diagnóstico Tráfico de enlace de datos

DTC	SPN	FMI	Tipo	Marco de congelación	Mensaje	Conteo	Módulo	Dirección
P0504-0		597	2 Activa		Implausibilidad del pedal del freno en relac...	1	ECU	0

Borrar códigos DTC... Actualizar eventos de vehículos/DTC

Build MWM.v1.3 Reglas 05092019184255 Usuario actual: u027962 Estado de la prueba de diagnóstico del motor

Figure 11 - Panes in Default Session View

1. Vehicle Information Pane

The Vehicle Information pane provides vehicle information for the connected vehicle, such as:

- Engine Type
- Software Identification
- Factory Data
- Vehicle Identification Number
- Engine Serial Number
- Rated Power
- ECU Hardware Number
- ECU Software Version
- DataSet Identification
- DCU Hardware Number
- DCU Software Version

2. Default Session Overview

The default session contains a number of tabs that display information about the engine that is currently connected or being simulated. One of these tabs is the **Connection** tab.

- **Connection tab:** Provides information about engine auto-detection, viewing and clearing DTCs (Diagnostic Trouble Codes), and supported engines. Displays module activity on the public CAN network.

3. Diagnostic Trouble Code (DTC) Panel

The DTC Panel allows you to view, clear and request freeze frame data. The **REFRESH** button sends a DTC request for update. The **SHOW ALL MODULES** button displays DTCs for all modules (rather than just the ECM).

CONNECTION

Connection Procedure

1. Open and log into the MWM Service Tool software.
2. Using interface cable, connect Electronic Service Tool (EST) to vehicle diagnostic connector.

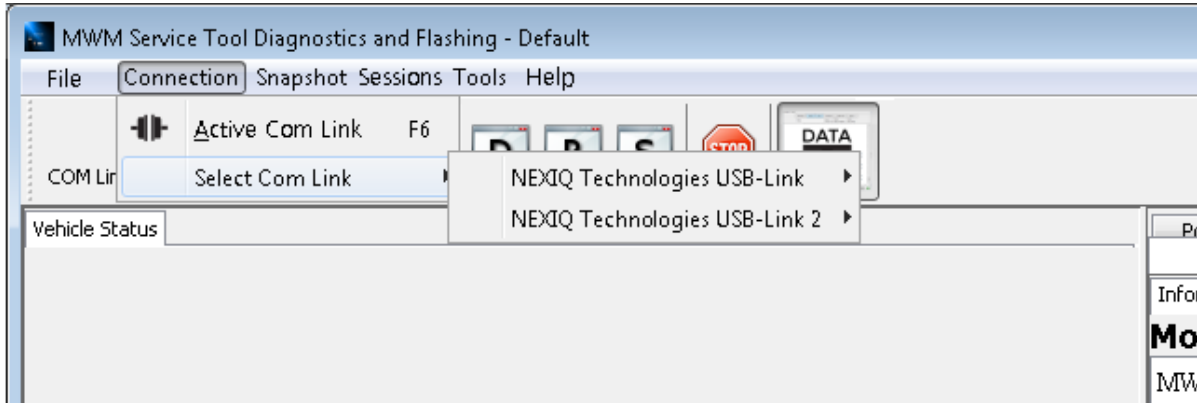


Figure 12 - Manual Cable Type Selection

3. If the interface cable is not automatically selected by the software, select **Connection > Select COM Link** then select the interface cable from the options listed.
4. Key ON, Engine OFF.

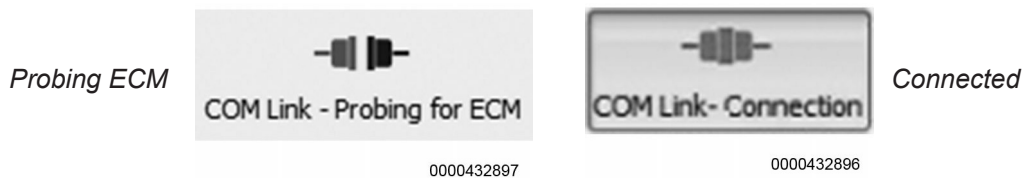


Figure 13 - COM Link Button

5. If the COM Link button does not indicate that the ECM is being probed, click COM Link button to probe and connect to engine.










Figure 14 - Communication Indicator

6. The communication indicator in the lower right corner of the window will indicate when the communication link has been established.
7. The software will start probing for a supported engine calibration ID. The displayed Engine Type and available features vary based on whether the engine is supported.

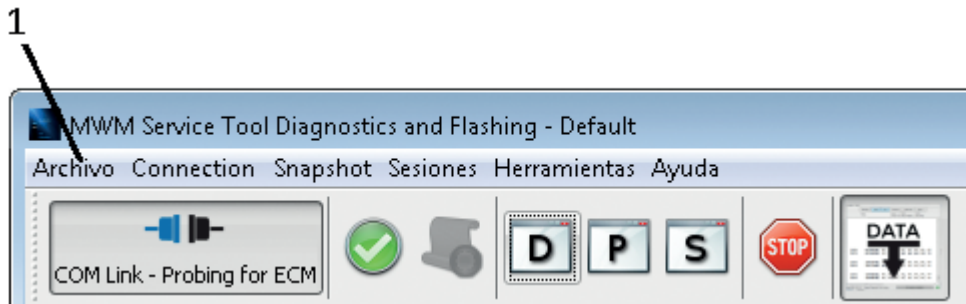
QUICK ACCESS BAR



Figure 15 - Quick Access Bar Icons

Item	Icon	Description
1	 COM Link - De-Activate	COM Link: Turns communication to the ECM on and off.
2		Trigger Arm / Disarm: Enables or disables triggered recording. (See Shapshots: Trigger Setup, page 40).
3		Record Session Signals: Starts a snapshot recording of signals within the current session. Click again to stop recording.(See Snapshots: Starting a Recording, page 38).
4		Default Session: Loads the Default session view, which monitors all position, temperature, and pressure sensors. (See Default Session View, page 15).
5		Programming Session: Loads the Programming session view, which displays all programmable parameters. (See Viewing Parameters, page 44).
6		Signals Session: Loads the Signals session view, which displays all signals available for the connected engine monitors specific and allows you to select which signals to watch and record.
7		Stop Tests: This will abort / stop any test or procedure that is currently running.

THE MENU BAR



1. Menu Bar

Figure 17 - Menu Bar

The menu bar (Figure 17, Item 1) contains a row of menu icons. Select a menu icons to display the options in that menu. Selecting an individual option allows you to perform a task within the software.

File Menu

The File menu is used to access files and reports and to create and edit engine templates.

Item	Description
Open Folder	Opens the folder in which Snapshots are stored. This allows easy copying and pasting saved files into case reports.
Reports	View, export, print, or reset a report. There are three reports available. <ul style="list-style-type: none">• Full Vehicle Report: includes vehicle information, signals, parameters, and signals, and DTCs with freeze frame data.• Activity Trip Route: includes driver activity, average speed, acceleration, braking, etc. The route also provides Print and Reset Trip functions.• Event Data Recorder: records data on vehicle normal and hard acceleration and deceleration events.
Exit	Close the MWM Service Tool software.

Connection Menu

The Connection menu provides connection choices, including selecting the type of interface cable, selecting the connected engine, and simulating a non-connected engine.

Item	Description
Activate COM Link	Start (or stop) communicating with the ECM.
Select COM Link	Manually select the type of interface cable used to connect to the vehicle.

Snapshot Menu

Item	Description
Start / Stop Recording	Starts recording the signals selected for the current session. Select this option again to stop recording. (See Snapshots: Starting a Recording, page 38).
Set Data Sample Rate	Sets the data sampling rate for recorded sessions. Longer recordings can be made by slowing the sample rate.
Trigger Setup	Opens the Snapshot Trigger Setup window. This window is used to specify the conditions (if any) that trigger automatic recording of session data. (See Snapshots: Trigger Setup, page 40).
Arm Trigger	If a trigger has been configured in the Snapshot Trigger Setup window, select this option to enable or disable triggered recording. (See Snapshots: Trigger Setup, page 40).
Playback Snapshot Recording	Allows you to open, view, print and playback previously recorded snapshots in text or graph view. (See SnapShot: Playback, page 42).

Sessions Menu

Selecting the name of a predefined session in this menu displays the panels that are included in that predefined session.

Item	Description
Default	Default session view, which monitors all position, temperature, and pressure sensors. (See Default Session View, page 15).
Programming	Programming session view, which displays several tabs that contain programmable parameters.
Signals	Signals session view, which monitors specific signals.
Flashing	Flashing session view, which evaluates the calibration software version.

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.

Item	Description
To open Test Session	
Cylinder Cutout Test	
High Pressure Test	

Tools Menu

The Tools menu contains a collection of helpful functions.

Item	Description
Display Metric Units of Measure	Check the first item in this menu to display metric values in MWM Service Tool. Uncheck this item to display English measures.
Clear Statistics	Reset the minimum, maximum and average values for all signals in the current session.
Session Tools	<p>This sub-menu contains all the session editing tools, including create, add content, rename, and load previously saved.</p> <ul style="list-style-type: none"> • Create Session: Opens a basic default session with a Signals panel and a DTC list. • Save Session: Saves the current session. (See Saving Session Files, page 36). • Load Session: Loads a previously saved session (See Loading a Saved Session, page 37). • Rename Session: Allows the current session to be renamed. This is useful for identifying what session a particular snapshot is taken from. • Session Register: • Recommended Views: • Test Specific Views: • Information About the Vehicle • Instructions • Signals • Parameter • Detector • Diagnostic troubles code

Help Menu

The Help menu displays detailed information about the MWM Service Tool software.

Item	Description
About	Displays version information. (See About MWM Service Tool, page 29).
Messages	Displays messages received from MWM. (See Messages from MWM, page 28).
DataBase	Displays information about DataBase.
Registration	Displays registration information for this installation of the software and other computers that use the same product key. If you have a multi-user license for this 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 end user license agreements for MWM Service Tool and its components.
View Log	Displays the data log. If you contact Navistar support, they may ask you to send them a copy of this log.
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.

STATUS BAR

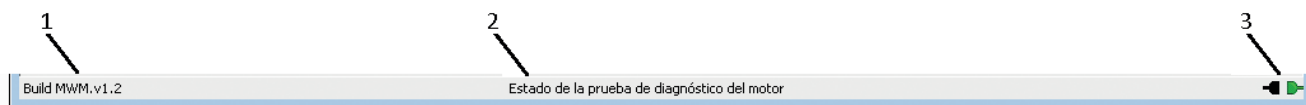


Figure 18 - Status Bar

1. Tool Version

Software version number. More version details are displayed in the **HELP > ABOUT** window.

2. Activity

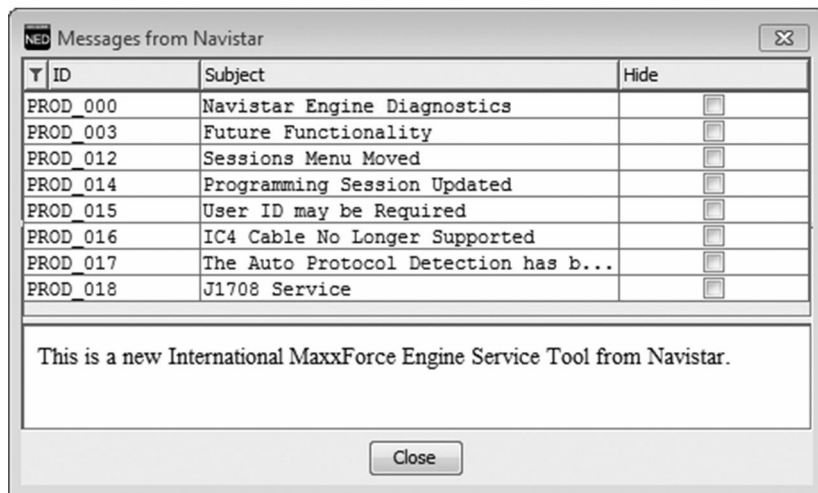
Shows communication between the software and the connected module.

3. ECM Connection Status Icon

Show connection status between the ECM and the EST.

- No Communication: icon is BLACK and separated.
- Communication: icon is GREEN and joined.

MESSAGES FROM NAVISTAR



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Figure 19 - Messages from Navistar

After an update, a Messages from Navistar window (Figure 19) 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 MWM SERVICE TOOL

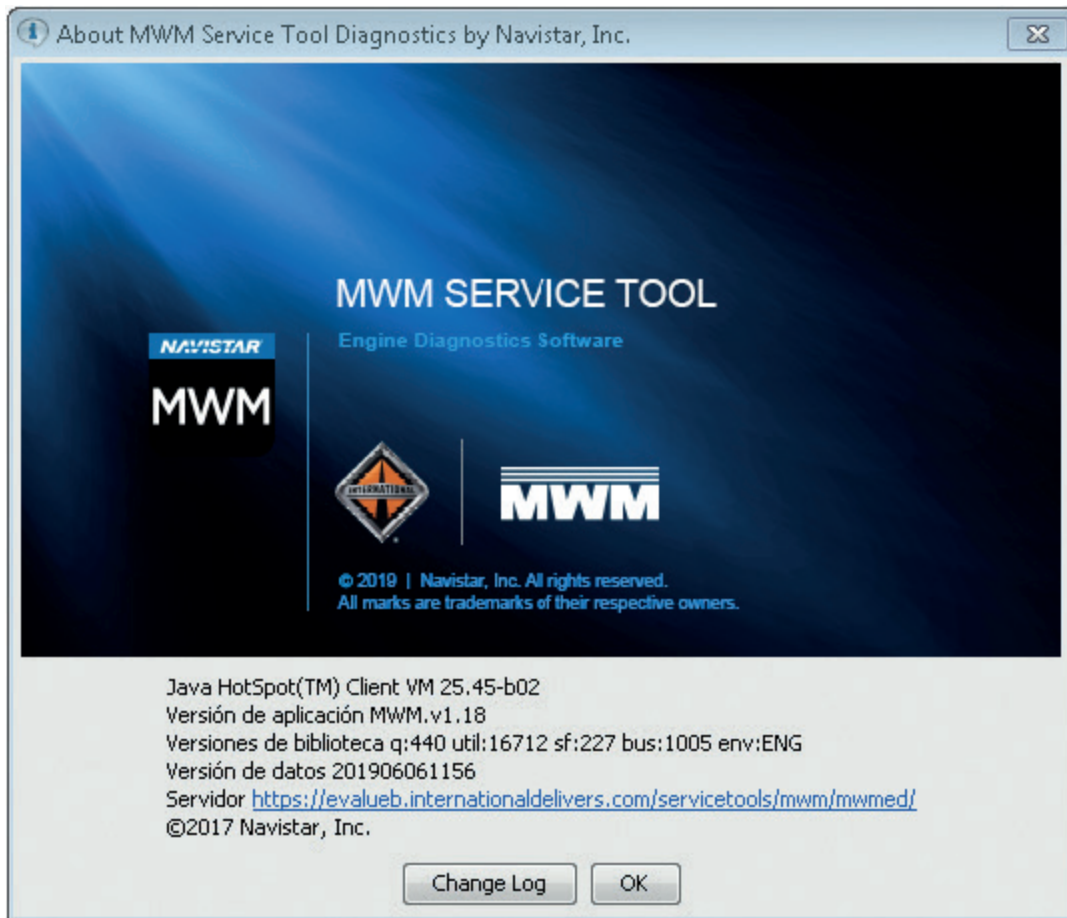


Figure 20 - About MWM Service Tool Window

The About MWM Service Tool window displays information about the current version of the MWM Service Tool software.

To open this window:

- Select **HELP > ABOUT** in the menu bar.

Viewing the Change Log

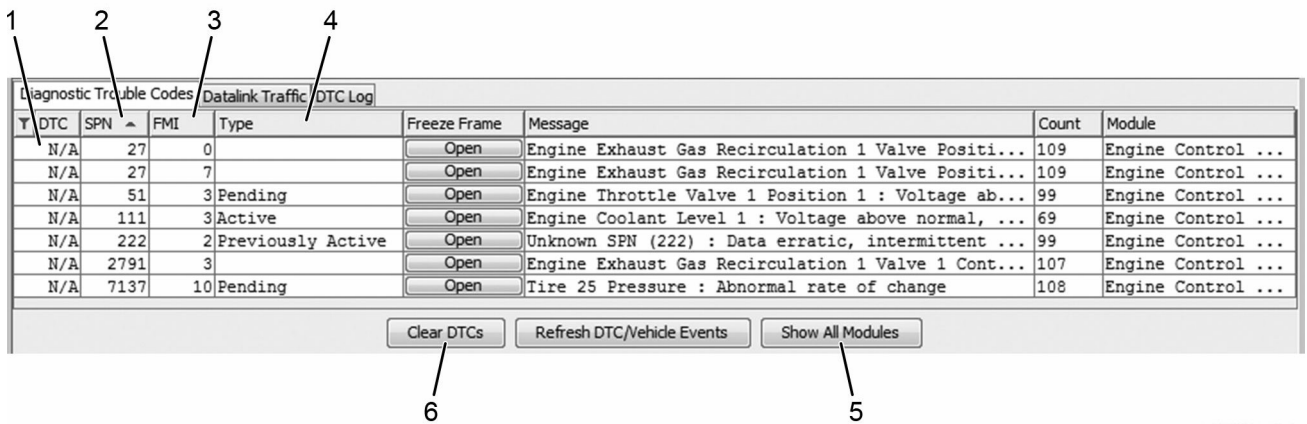
The change log contains information about the updated content in each version release. To view the change log:

- Click the **CHANGE LOG** button in the About MWM Service Tool window.

DIAGNOSTIC TROUBLE CODES

THE DTC PANEL

The Diagnostic Trouble Code (DTC) panel is able to read and clear DTCs from many different modules, as long as they are connected to the Public CAN Network and follow SAE specifications.



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

Figure 21 - DTC Panel

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 Panel.

Identifier Type	Description
Suspect Parameter Number (SPN)	SPN identifies the component or system in which the fault occurs.
Failure Mode Indicator (FMI)	FMI identifies the type of fault.
Diagnostic Trouble Code (DTC)	DTC was a unique number that loosely identified SPN / FMI in older (Pre-2010) engines.

DTC TYPE

DTC Type	Description
Active	<ul style="list-style-type: none"> • A single trip fault has been detected on the current drive cycle. • A two trip fault has been detected on two consecutive drive cycles. (Two trip faults must be detected more than once to be considered Active). • 2016 and later models: This status also includes faults that were detected up to three drive cycles ago.
Previously Active	Inactive faults that were active at least four, but not more than forty, drive cycles ago.
Healing	<p>This status indicates a fault that was active one to three drive cycles ago, but has not been detected on the current drive cycle.</p> <p>This status is used only for Euro V engines.</p>
Pending	<p>A two trip fault that occurred in one drive cycle. Such faults become Active if they are detected again on the following drive cycle.</p> <p>This status is used only for Euro V engines.</p>

CLEARING DTCS

When Only ECM Faults are Displayed

1. Key ON, Engine OFF.
2. Click **CLEAR DTCS**.

When All Modules are Displayed

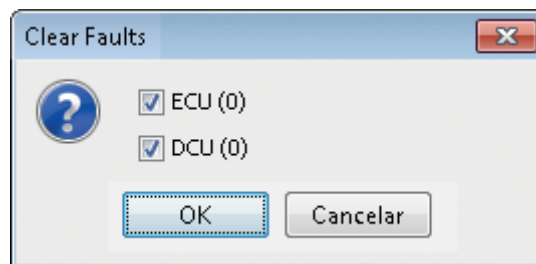


Figure 23 - Clear Faults Window

1. Key ON, Engine OFF.
2. Click **CLEAR DTCS**.
3. Select the module(s) whose faults you want to clear.
4. Click **OK**.

SESSIONS

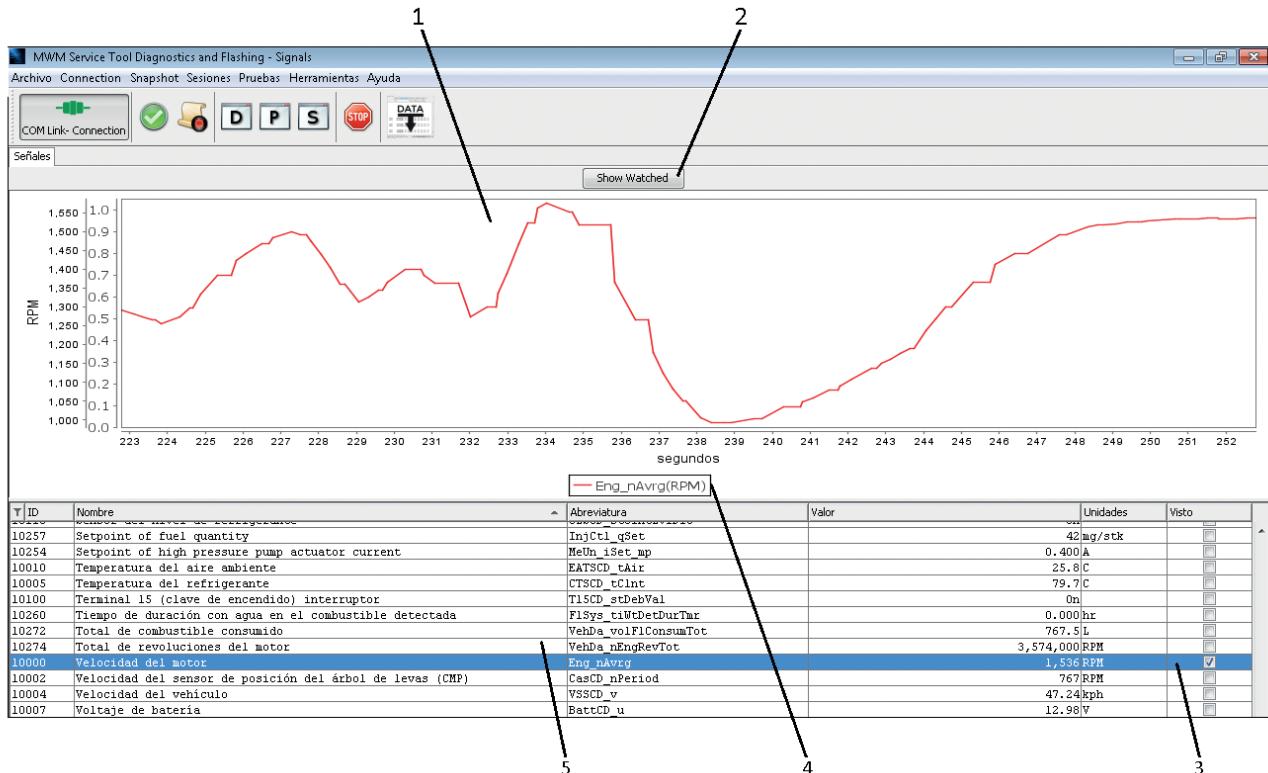
A session specifies which panels and tabs are displayed in the user interface. There are many different types of session, each of which provides information and controls for a particular task.

SESSIONS MENU

Select any item in the Sessions menu to load a predefined session. (See Sessions Menu, page 30).

BUILDING A CUSTOM SESSION

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



1. Signal graph display pane
2. Show Watched / Show All button
3. Watched column boxes
4. Graph legend
5. Signal list

Figure 24 - Signals Session

1. In the menu bar, select **Tools > Session Tools > Create Session**.
2. Select desired signals by checking the boxes in the Watched column.
3. Once all desired signals have been selected, click **Show Watched** to hide all signals that were not selected. To show all signals again, click the **Show All** button.

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

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.

SESSION DETAILS

Users can change which columns are displayed in the signal list, add tabs containing other information, and configure or rename the Sessions tab.

Adding and Removing Columns

1. Right-click on the title bar at the top of the signal list. The right-click menu for the list appears.
2. Check the box next to a listed item to add that information to the table. Each checked item will be displayed as a column in the signal list.

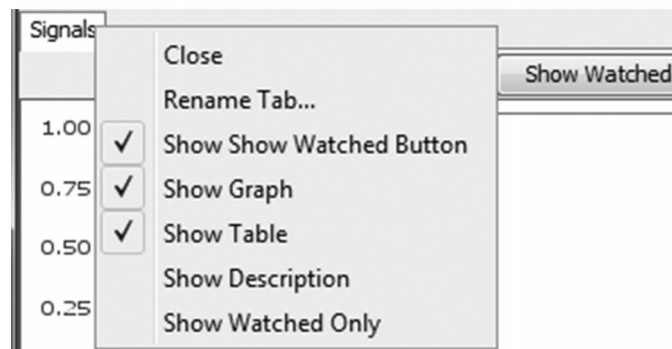
NOTE: A column can be moved by clicking the column header and dragging to the left or right.

Adding Tabs to the Session

Other tabs can be added to a session by selecting any item in the lower portion of the **Tools > Session Tools** sub-menu.

To move a tab to another pane, click the name of the tab and drag it into the desired pane.

Configuring and Renaming the Sessions Tab



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Figure 25 - Signals Right-Click Menu

Right-clicking on the name of the signals tab produces a menu that allows the tab to be configured. The options listed here include:

- Close: Close the Signals tab.
- Rename Tab: Change the name of the Signals tab.
- Show Show Watched Button: Show or hide the Show Watched / Show All button.
- Show Graph: Show or hide the signals graph.
- Show Table: Show or hide the signal list.
- Show Description: Show or hide the description.
- Show Watched Only: Same function as Show Watched / Show All button.

SAVING SESSION FILES

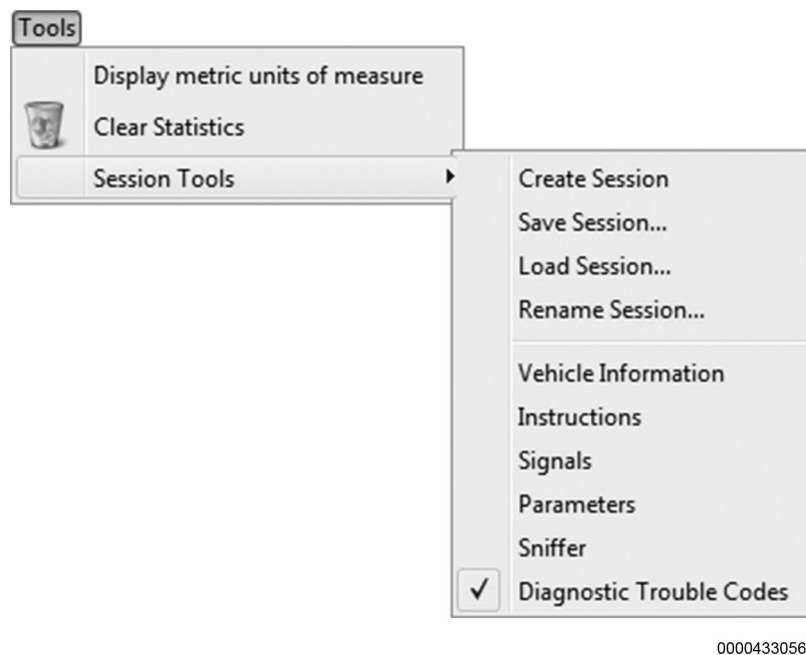


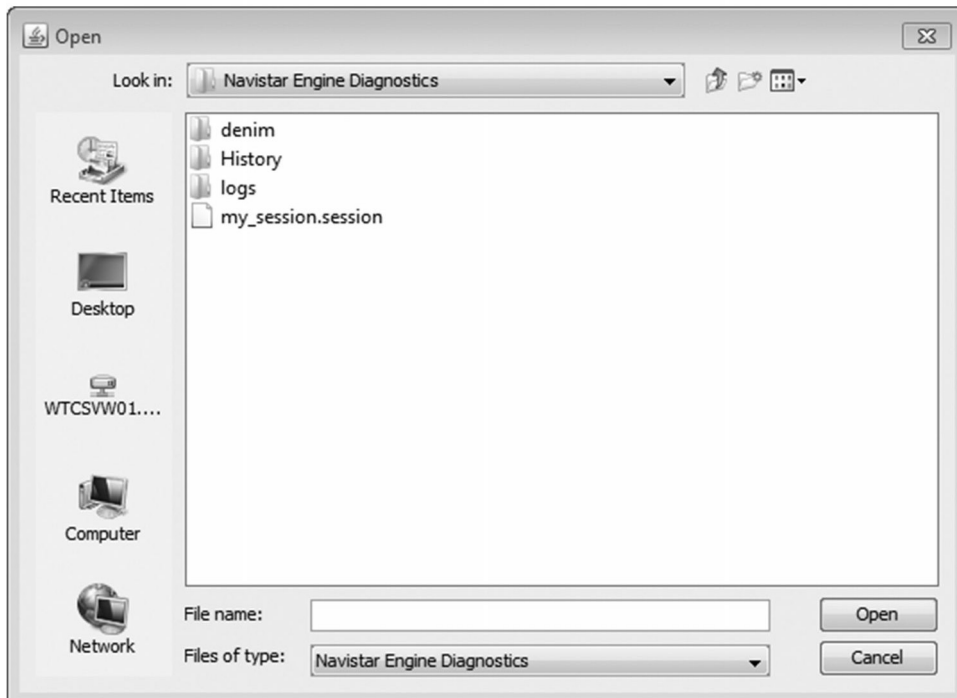
Figure 26 - Saving a Session File

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

1. In the menu bar, select **Tools > Session Tools > 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 **Tools > Session Tools > Load Session**.



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Figure 27 - Opening a Saved Session

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

SNAPSHOTS: STARTING A RECORDING

Snapshot recordings capture a large amount of data for later analysis.

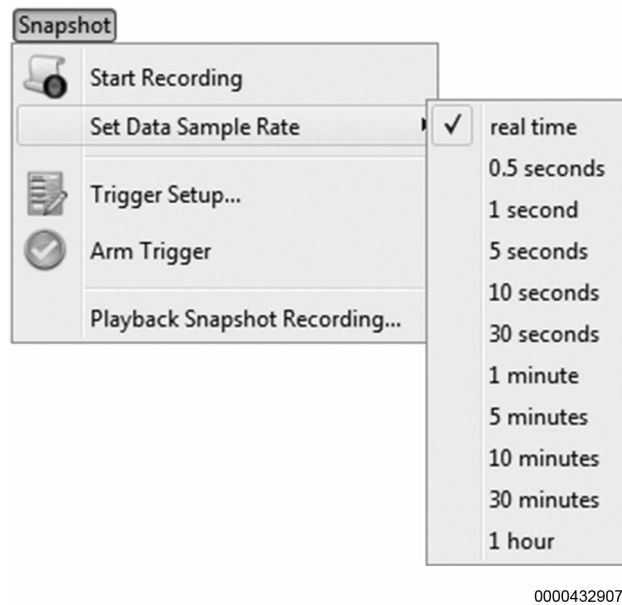


Figure 28 - Recording Interval Selection

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



Figure 29 - Record Buttons

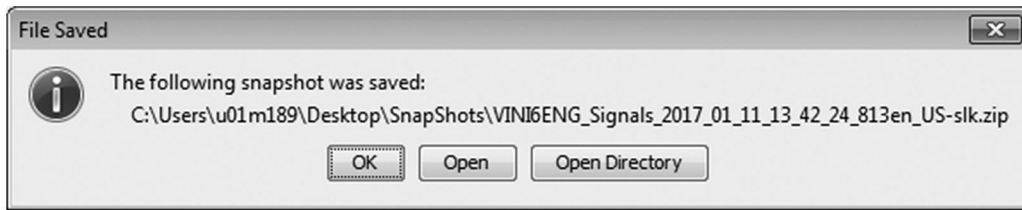
1. Click one of the **RECORD** buttons in the quick access bar to start a snapshot recording:
 - Record Session: for most common signal recording needs.
 - Record All: used to record all signals to find uncommon issues

NOTE: When the recording function is active, the record buttons display a Stop sign.



Figure 30 - Record Stop Button

2. Click the Record Stop button to stop recording.



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Figure 31 - Recording Saved Window

3. When recording is stopped, a pop up message alerts you to the name of the file and the location to which it was saved.

The default save location is the SnapShots folder on the Windows desktop.

Snapshot names will include the following information:

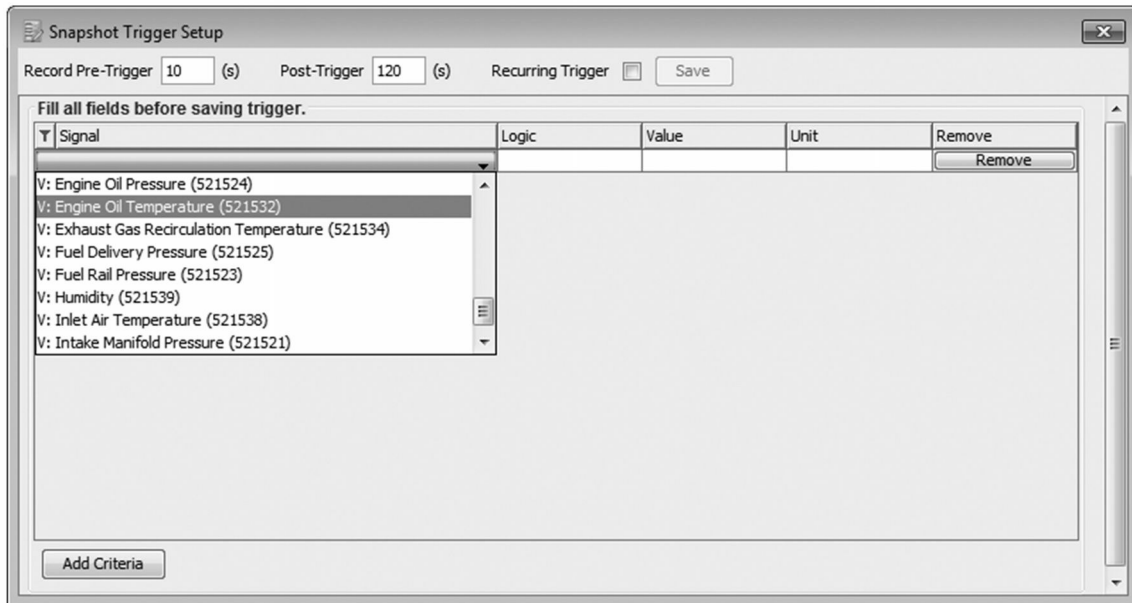
- Session Name
- Time Stamp (YYYY_MM_DD_MM_SS_SSS)
- Language
- File Type

SHAPSHOTS: TRIGGER SETUP

A trigger is a user-specified event that will start snapshot recording automatically. This is helpful in capturing the data generated at the moment the trigger event occurs.

Setting Up a Triggered Recording

1. In the menu bar, select **Snapshot > Trigger Setup**.



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Figure 32 - Snapshot Trigger Setup

2. In the Signal column, select a signal to monitor.
3. In the Logic column, specify whether the signal value must be greater than, less than, equal to, or not equal to the trigger value.
4. In the Value and Unit columns, specify the trigger value.
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 you want recording to begin before the trigger event occurs, enter the number of seconds to record before the trigger event in the Record Pre-Trigger box.
7. In the Post-Trigger box, enter the number of seconds to record after the trigger value is met.
8. If recording should occur every time the trigger value is met, check the Recurring Trigger box. Leave the box unchecked to record only the first occurrence.

9. Click SAVE.

NOTE: The saved trigger only applies to the current session. (Trigger setup will be lost if the session is changed.)

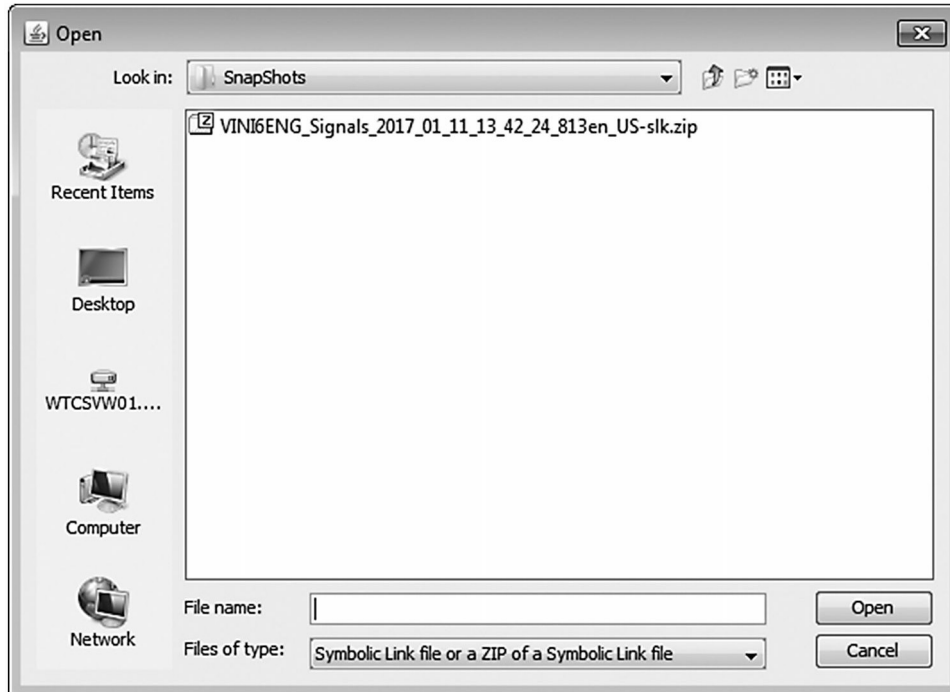


Figure 33 - Trigger Arm / Disarm Button

10. To arm the trigger, click the Trigger Arm / Disarm button in the Quick Access Bar.

SNAPSHOT: PLAYBACK

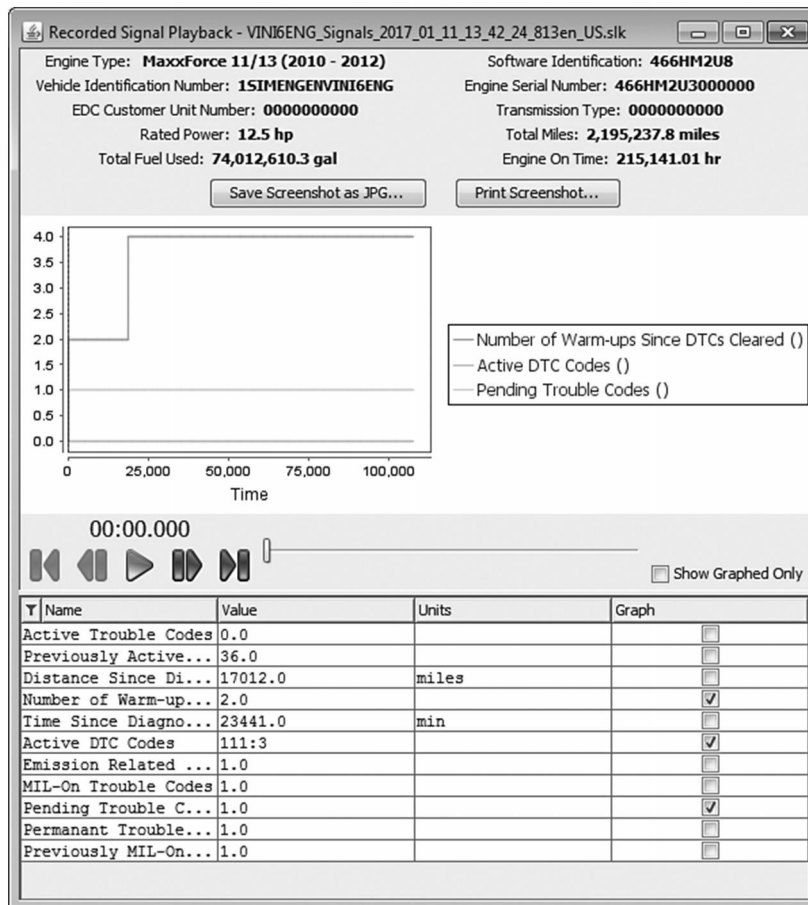
1. In the menu bar, select **Snapshot > Playback Snapshot Recording**.



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Figure 34 - Opening a Snapshot File

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



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Figure 35 - Recorded Signal Playback

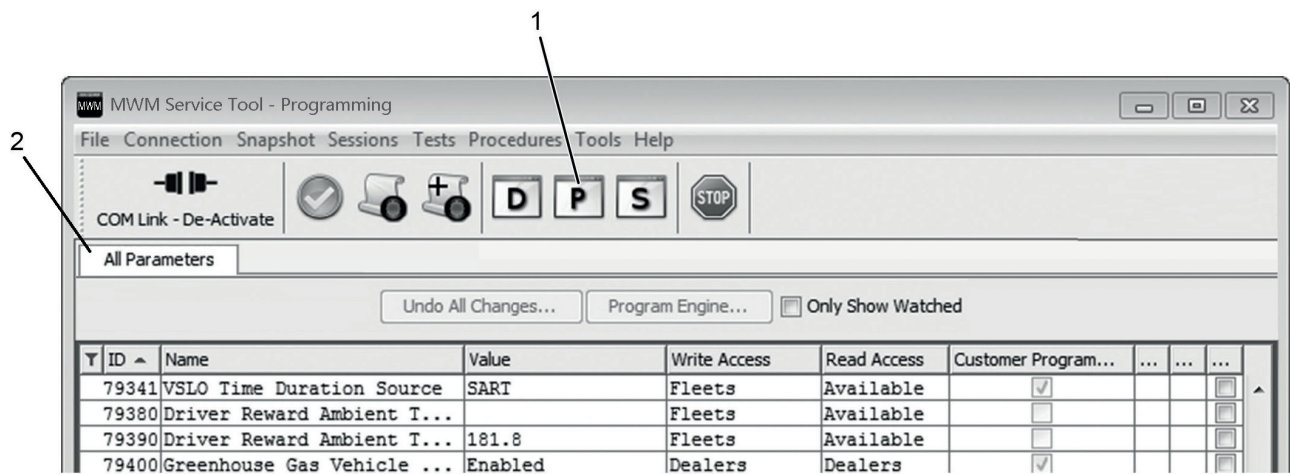
4. In the Graph column, put a check next to the signals you wish to view.

PARAMETERS

Engine parameters can be used:

- to configure the engine to chassis interface
- to add or remove features
- to reset accumulators for trip route and parts replacements
- to configure customer-programmable preferences

VIEWING PARAMETERS



1. Programming Session button

2. All Parameters tab

Figure 36 - Viewing Parameters

- In the menu bar, select **Session > Programming**.

The Programming session is divided into sub-system tabs to help find desired parameters quickly. Alternately, view all parameters available for the connected engine by selecting the All Parameters tab (Figure 36 Item 2).

SEARCHING FOR A PARAMETER

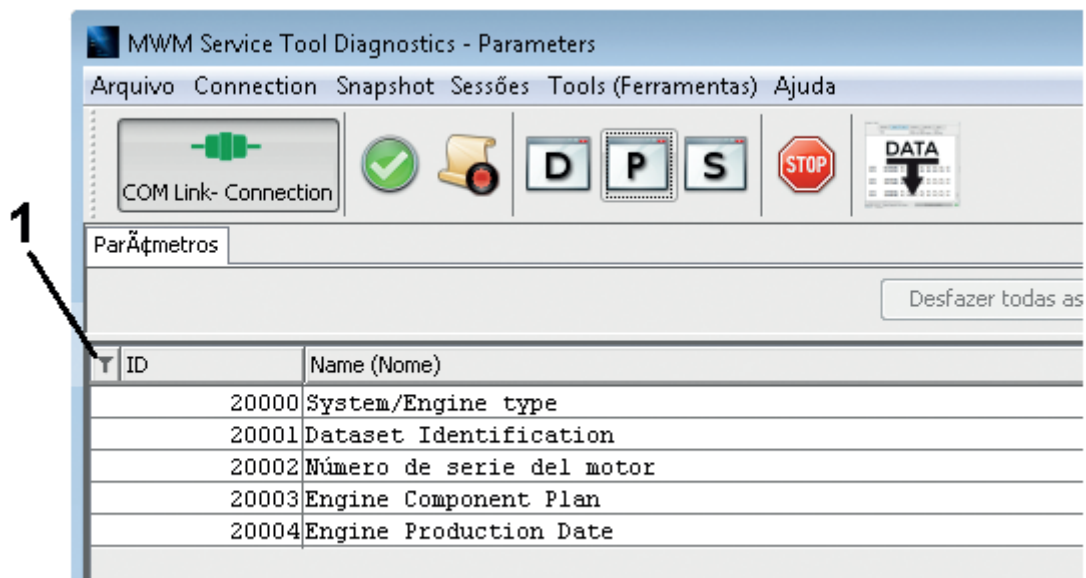
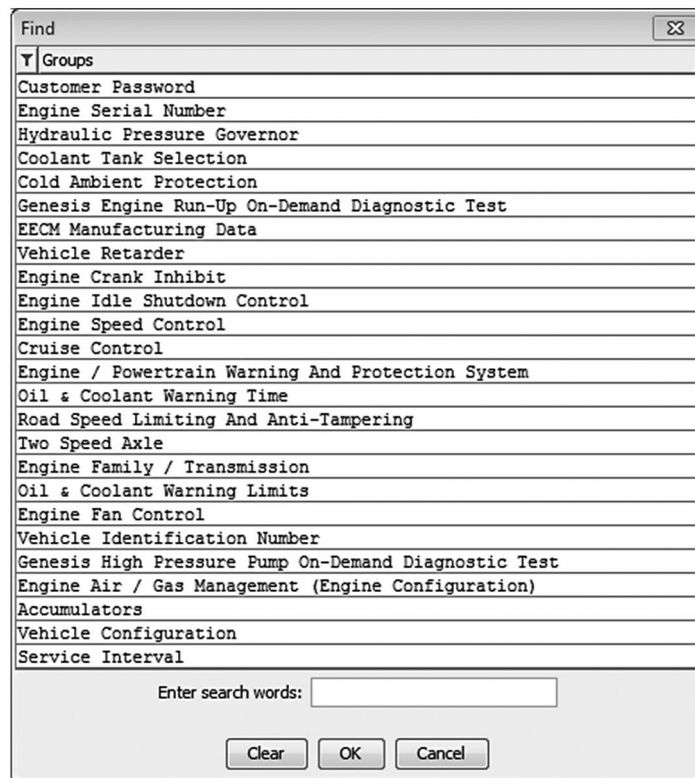


Figure 38 - Parameter Search Controls

1. Select the All Parameters tab (Figure 38, Item 2).



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Figure 39 - Parameter Group List

3. Select a group to search for or enter a search keyword.
4. Click **OK**. Parameters that match 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**.

PROGRAMMING

ID	Name	Value	Write Access	Read Access	Customer Programmable	Undo
74002	Idle Shutdown Timer Mode	Idle Shutd...	Fleets	Available	<input checked="" type="checkbox"/>	
74012	Idle Shutdown Time - No Park Brake Set		Fleets	Available	<input checked="" type="checkbox"/>	
74022	Maximum Ambient Temperature Override	126.7	Fleets	Available	<input checked="" type="checkbox"/>	
74032	Minimum Ambient Temperature Override	130.6	Fleets	Available	<input checked="" type="checkbox"/>	
74042	Idle Shutdown Time with Park Brake Set		Fleets	Available	<input checked="" type="checkbox"/>	
74051	Intermediate Ambient Temperature Override	Disable	Fleets	Available	<input checked="" type="checkbox"/>	Undo
74062	Latched Override Intermediate AIT	85.5	Fleets	Available	<input checked="" type="checkbox"/>	
74071	Idle Shutdown Timer - Override Enable	Enable	Fleets	Available	<input checked="" type="checkbox"/>	
74081	Ambient Temperature Override					
74092	Maximum Engine Torque (\$) for IST	Disable		0		
74102	Engine Idle Shutdown Auxiliary Engine ...	Enable		1		
74122	Maximum ECT for IST	95.0	Fleets	Available	<input checked="" type="checkbox"/>	

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- 1. Undo All Changes Button
- 2. Value Column
- 3. Program Engine Button
- 4. Undo Button

Figure 40 - Programming Interface

1. Click the Value column for the parameter to be changed.
2. Specify the desired value. Some fields allow direct entry of the value, some require that you select a value from a list.
3. Press the **ENTER** on the keyboard or click elsewhere in the application. An Undo button appears in the Undo column. (If this button does not appear, no programmable change has been made.)
4. Repeat Steps 1–3 for each additional parameter to be changed.

NOTE: An individual change can be undone by clicking a button in the Undo column. To undo all changes, click the UNDO ALL CHANGES button.

5. Click **PROGRAM ENGINE** and follow the popup messages.



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