

SERVICE MANUAL

TRUCK SERVICE MANUAL

ServiceMaxx™ User's Guide

EGES-550

September 2011

EGES-550

Read all safety instructions in the "Safety Information" section of this Manual before doing any procedures.

Follow all warnings, cautions, and notes.

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Safety Information

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.

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 safety blocks 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.

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1. ServiceMaxx™ Diagnostic Software

NOTE: This section contains a brief overview of ServiceMaxx™ diagnostic software, and was current at the time of publishing. Due to the automatic updating function in ServiceMaxx™ software, screens and functions may differ from this manual.

1.1. Introduction

Navistar electronically controlled engines have a wide range of standard and optional features. ServiceMaxx™ software provides real-time data monitoring, enhanced diagnostic capabilities, and parameter programming.

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

ServiceMaxx™ diagnostic software provides the capability to:

- Monitor engine control system input and output signals.
- View and program selected Electronic Control Module (ECM) programmable parameters.
- Display and clear active and previously active Diagnostic Trouble Codes (DTCs).
- Create customized diagnostic sessions to enhance troubleshooting capabilities.
- Display maintenance information such as Total Engine Hours and Total Fuel Used.

- Detect active modules on various vehicle networks and easily identify communication problems.
- Record snapshots of live engine signals to be stored for later playback.
- Perform automated diagnostic tests to quickly identify faulty components.

1.2. 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
- NAVCoM - Navistar Advanced Vehicle Communication Module - dealers only
- SPN - Suspect Parameter Number
- MIN - Minimum
- MAX - Maximum

2. Installing ServiceMaxx™ Fleet Pro Software

2.1. Remove All Versions of JRE 6

- Click the Windows® Start menu.
- Click Control Panel.
- Click Add or Remove Programs.
- Remove all versions of Java™ from this menu if different than Java™ 6 Update 26.
 - Click on the version
 - Click Change/Remove
 - Follow instructions for removal

2.2. Installing JRE 6 Update 10

NOTE: If the JRE 6 Update 10 installation CD is not available, the program can be downloaded from the Internet. Refer to the following steps:

1. Go to <http://www.oracle.com/technetwork/java/javasebusiness/downloads/java-archive-downloads-javase6-419409.html>.
2. Click on Java SE Development Kit 6u10.

NOTE: Accept License Agreement must be selected before the download will begin.

3. Click on link labeled [ire-6u10-windows-i586-p.exe](#).
4. Click on Run in pop-up box.
5. Follow on screen installation instructions.

After ServiceMaxx™ software is loaded on the computer, the user will need to register the software by calling Nexiq @ 1-877-905-6716, by filling out the Fleet Software Authorization Form and faxing it to (248) 293-8211, or by e-mailing customer.service@nexiq.com. When this form is processed, a password will be provided that enables the software to be used on the corresponding computer.

NOTE: ServiceMaxx™ Lite is now available after the registration period expires. ServiceMaxx™ Lite has limited functionality when compared to ServiceMaxx™ Pro.

2.3. Starting ServiceMaxx™ Software From Desktop



Figure 1 ServiceMaxx™ Software Desktop Icon

1. Locate the ServiceMaxx™ software icon. The icon is placed on the desktop during the software installation process.

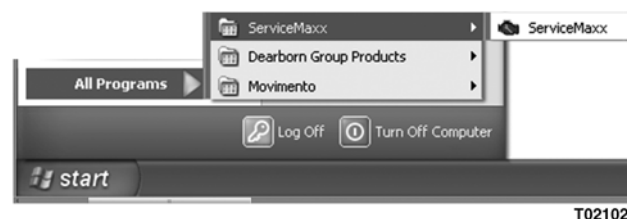


Figure 2 Windows Start Menu – ServiceMaxx™ Software

NOTE: If the ServiceMaxx™ software icon is not available on the desktop, the program can be easily started using the Windows® Start menu.

2. Click on the icon to start ServiceMaxx™ software.

2.4. ServiceMaxx™ Software Updates

ServiceMaxx™ software provides automatic software updates directly from Navistar any time the tool is connected to the Internet. Upon starting the program, the user may notice an update message prior to the software starting.

ServiceMaxx™ software is fully functional when the Electronic Service Tool (EST) is not connected to the Internet, but the EST should be connected often to check for available updates.



Figure 3 Update Notification Message

2.5. Language Change Settings

Windows 7

ServiceMaxx™ software is capable of displaying in certain foreign languages. This can be done by changing the settings of the computer's operating system.



Figure 4 Start Menu

1. From the Start menu, click on Control Panel.



Figure 5 Control Panel

2. Click on Region and Language.

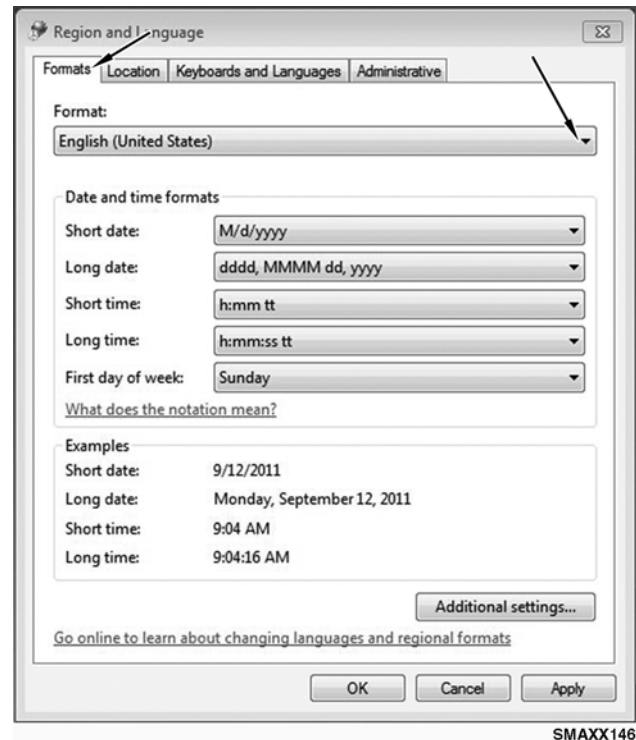


Figure 6 Region and Language

3. Click on Formats tab.
4. From the Format drop-down menu, select desired language.

Windows XP



Figure 7 Start Menu

1. From Start menu, click on Control Panel.



Figure 8 Control Panel

2. Click on Regional and Language Options.

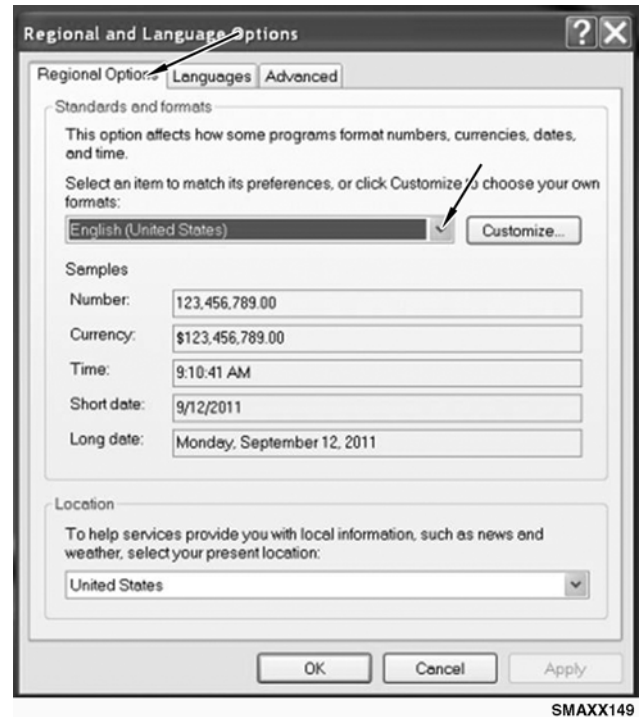


Figure 9 Region and Language

3. Click on Regional Options tab.
4. From the Format drop-down menu, select desired language.

3. Vehicle Connection

3.1. Diagnostic Interface Cable Information

The following communication adapters have been verified with all ServiceMaxx™ software:

- Movimento – NAV-Link
<http://www.nav-linkvci.com/>
- Dearborn Group Technologies – DPA 4 and DPA 4+
http://www.dgtech.com/products/diagnostic_truck_tools.html
- Movimento - NAVCoM (Navistar Advanced Vehicle Communication Module - dealers only)
<http://www.nav-linkvci.com/>

- 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/>

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.

3.2. Interface Device Selection

1. Using interface cable, connect EST to vehicle's diagnostic connector.
2. Start ServiceMaxx™ software.

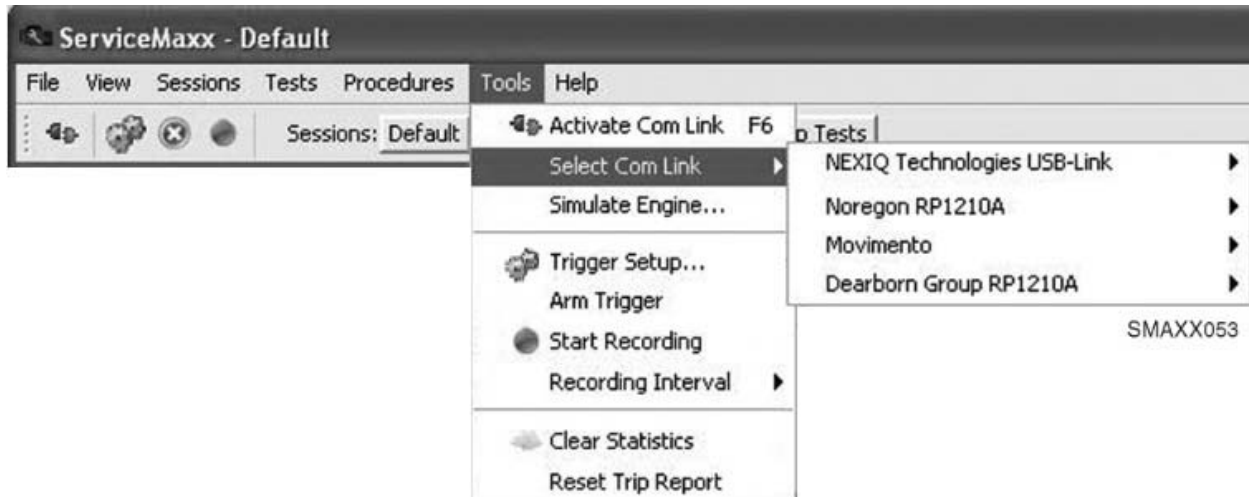


Figure 10 Select Com Link

NOTE: Beginning with release version 388, ServiceMaxx™ software will autoconnect to the vehicle without having the user select the protocol.

If ServiceMaxx™ software fails to autoconnect, use the following procedure:

3. From the Tools drop-down menu, go to Select Com Link.
 4. Select the cable/interface device.
 - a. NEXIQ Technologies
 - USB-Link
 - J1708 - All pre-MaxxForce® (pre-2007) electronic engines.
 - J1939 - All MaxxForce® engines (2007–2010).
 - b. Noregon
 - DLA, DLA USB
 - J1708 - All pre-MaxxForce® (pre-2007) electronic engines.
 - J1939 - All MaxxForce® engines (2007–2010).
 - c. Movimento
 - NAVCoM/NAV-Link, USB0
 - J1708 - All pre-MaxxForce® (pre-2007) electronic engines.
 - J1939 - All MaxxForce® engines (2007–2010).
 - Keyword 2000 - All MWM engines.
 - d. Dearborn Group
 - DG DPA 4/4 Plus USB, USB
 - J1708 - All pre-MaxxForce® (pre-2007) electronic engines.
 - J1939 - All MaxxForce® engines (2007–2010).
- If software is still unable to connect, see the troubleshooting documentation provided for the specific interface cable being used (provided from cable manufacturer).
 - If cable is not at fault, see CAN Communications or J1939 in the “Electronic Control Systems Diagnostics” section of applicable *Engine Diagnostics Manual*.

3.3. Connecting ServiceMaxx™ Software

1. Turn ignition switch to ON. Do not start engine.
2. Using interface cable, connect EST to vehicle's diagnostic connector.
3. Start ServiceMaxx™ software. After starting ServiceMaxx™ software and selecting the appropriate interface device (page 11), a detection process will begin and should connect automatically.
 - If ServiceMaxx™ software cannot detect the Engine Serial Number (ESN), then it may be necessary for the user to select the engine by clicking on Select Engine from the File drop-down menu. Then select engine from pop-up box.

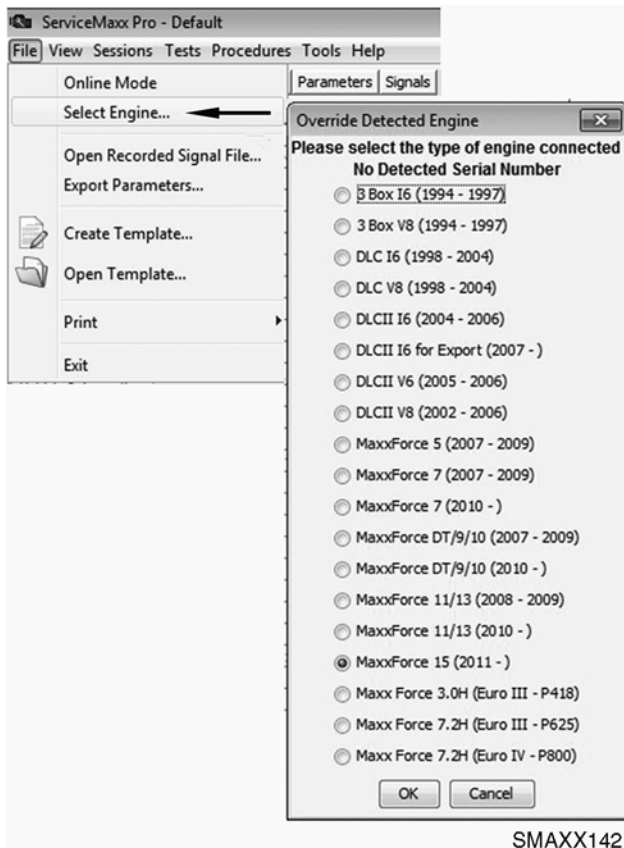


Figure 11 Select Engine

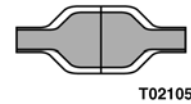


Figure 12 ECM Connected Icon

- If the software has connected to the ECM, active signals will populate the startup screen, and the ECM connected icon in the bottom right corner will show connected.



Figure 13 ECM Disconnected Icon

- When the software is unable to connect to the ECM, signals and vehicle information will not be displayed, and the ECM disconnected icon in the bottom right corner will show disconnected.
- If the software is unable to connect to the ECM, go to (Interface Device Selection, page 11).

4. ServiceMaxx™ Software

4.1. Using ServiceMaxx™ Software

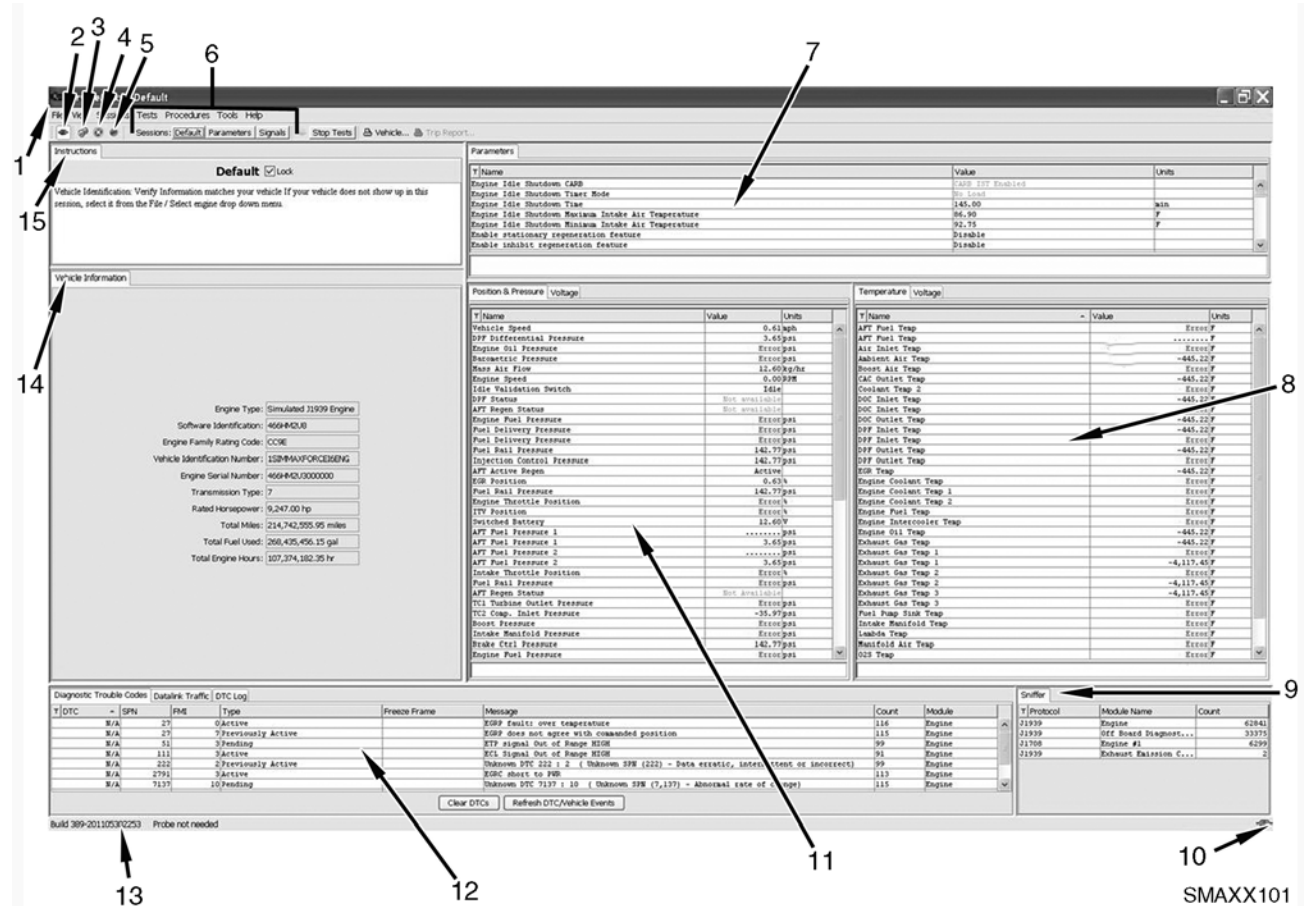


Figure 14 Default Session

1. Menu Bar
 - a. File
 - b. View
 - c. Sessions
 - d. Tests
 - e. Procedures
 - f. Tools
 - g. Help
2. Communication Control and Status Button
3. Trigger Setup Button
4. Trigger Arm/Disarm Button
5. Data Record Button
6. Sessions Buttons Bar
 - a. Default
 - b. Parameters
 - c. Signals
7. Parameters Window
8. Temperature Window
 - a. Voltage tab
9. Sniffer Window
10. ECM Connection Status Icon
11. Position & Pressure Window
 - a. Voltage tab
12. Diagnostic Trouble Codes Window
 - a. Datalink Traffic tab
 - b. DTC Log tab
13. Message Area
14. Vehicle Information Window
15. Instructions Window

4.2. Software Features

When ServiceMaxx™ software 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. Menu Bar

The menu bar at the top of the application window contains a row of seven menu titles. When a menu title is selected, a drop-down menu reveals a list of menu options. These options enable the user to perform various actions within the software. The seven menu titles are:

- **File** - Displays the following options: Online Mode, Select Engine, Open Recorded Signal File, Export Parameters, Create Template, Open Template, Print, and Exit.
- **View** - Displays the following options: Display Metric Units of Measure, Datalink Traffic, Diagnostic Trouble Codes, Permanent Diagnostic Trouble Codes, Instructions, Parameters, Signals, Sniffer, Stand Alone Real Time Clock, and Vehicle Information.
- **Sessions** - Displays the following options: Load Session, Save Session, Rename Session, Default, Driver Switch Controls, HD-OBD Monitors, Parameters, Programming, Signals, Simple, MWM Sessions, Continuous Monitor, Hard Start - No Start, Performance, Aftertreatment, Vehicle Events, and Vehicle Trip Report.
- **Tests** - Displays the following options: Load Test Specific Session, Engine Off Tests, Engine Running Tests, Aftertreatment Tests, 2008 BB Actuator Tests, Actuator Test, and Injector Disable Tests.
- **Procedures** - Displays the following options: Engine Off Procedures, Engine Running Procedures, and Aftertreatment Procedures.
- **Tools** - Displays the following options: Activate Com Link, Select Com Link, Simulate Engine, Trigger Setup, Arm Trigger, Start Recording, Recording Interval, Clear Statistics, Reset Trip Report, and Reset VETS.
- **Help** - Displays the following options: About, Messages, Detailed Logging, Registration, License Agreement, and View Log.

2. Communication Control and Status Button

The communication control and status button turns the connection to the ECM on and off and displays connection status.

3. Trigger Setup Button

The trigger setup button is used to record session data automatically, based on conditions determined by the user. The user is required to provide conditions when trigger setup is selected.

4. Trigger Arm/Disarm Button

The trigger arm/disarm button enables or disables triggered recording.

5. Data Record Button

The data record button records signal and parameter information using various recording intervals.

6. Sessions Button Bar

The Sessions button bar provides one click access to frequently used software controls.

- The Default session monitors all position, temperature, and pressure sensors.
- The Parameters session monitors vehicle events.
- The Signals session monitors specific signals.

10. 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.

13. Message Area

The message area displays tool information such as: what tests are running, completed, or aborted.

Default ServiceMaxx™ Panes

7. Parameters Window

The Parameters window displays a small list of parameters such as: Event logs, Engine Warn Protection System, Idle Shutdown, and Cruise Control enablers. All Parameters can be viewed by un-checking the Only Show Watched box.

8. Temperature Window

The Temperature window displays all ECM-monitored temperature sensor information for the engine.

- The Voltage tab in this window shows actual voltage values for each temperature sensor.

9. Sniffer Window

The Sniffer window provides real-time monitoring of the network activity for each module on the various data links. This window is used to identify if the individual modules are present and communicating on the vehicle networks.

11. Position & Pressure Window

The Position & Pressure window displays all ECM-monitored position and pressure sensors. System status information, such as Diesel Particulate Filter (DPF) Regen status and the Engine Shutdown timer, are also available.

- The Voltage tab in this window displays the actual voltage values of each of these sensors.

12. Diagnostic Trouble Code (DTC) Window

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

- Datalink Traffic displays messages that are on the datalink being used.
- DTC Log displays stored DTCs.

14. Vehicle Information Window

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

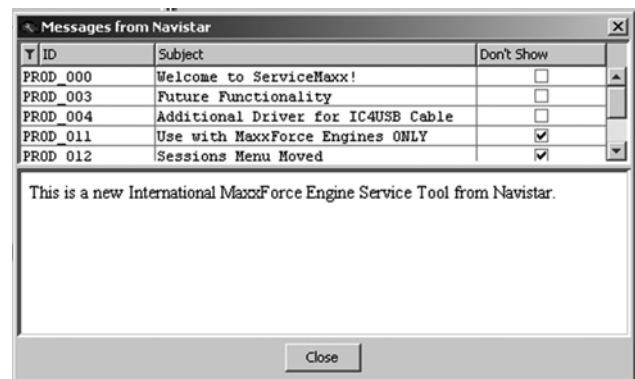
- Engine Type
- Software Identification
- Engine Family Rating Code
- Vehicle Identification Number

- Engine Serial Number
- Transmission Type
- Rated Horsepower
- Total Miles
- Total Fuel Used
- Total Engine Hours

15. Instructions Window

The Instructions window displays important instructions and information related to the currently selected session or test. Messages may include basic instructions, test alerts, and other useful information.

4.3. ServiceMaxx™ Service Messages



T02103

Figure 15 Service Messages From Navistar

After an update, important messages about this updated version are displayed. To disable a previous message and prevent it from being displayed in the future, select the box in the Don't Show column for the individual messages to be disabled.

To display messages that were previously disabled, select Messages from the Help drop-down menu.

5. Sessions

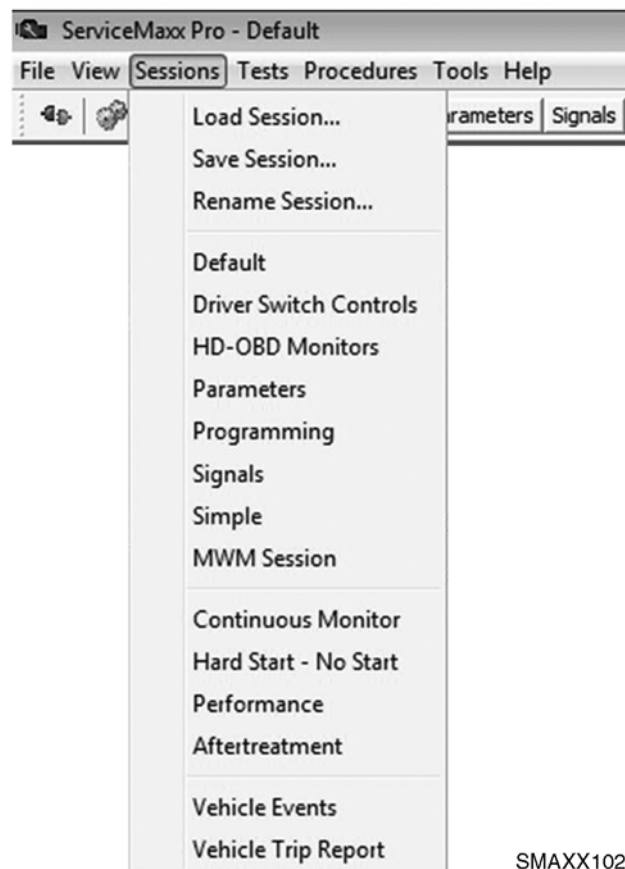
Sessions can display vehicle and engine information, such as: module calibration, sensor signals, and actuator command signals. Special engine and vehicle features can also be programmed using these sessions.

ServiceMaxx™ software 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 anytime.

ServiceMaxx™ software 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.

5.1. Sessions Menu



SMAXX102

Figure 16 Sessions Menu

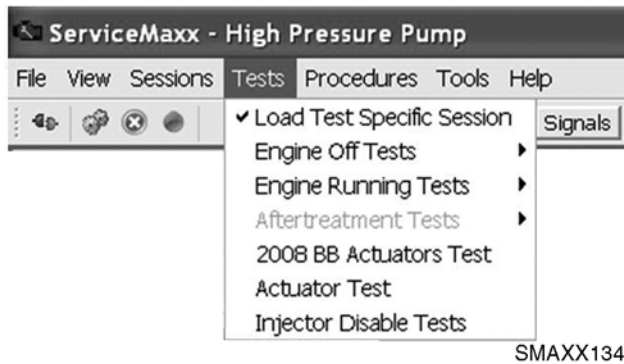


Figure 17 Load Test Specific Session

NOTE: The check mark indicates the session will automatically load.

Some of these 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 if wanting to run a test using a different session.

5.2. Building a Session

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

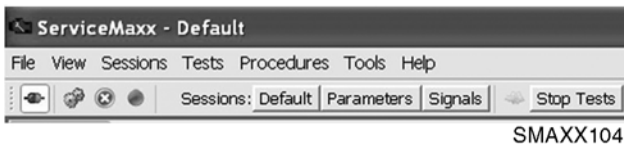


Figure 18 Menu Bar and Button Bar

1. Select the Parameters or Signals button from the button bar or return to the Default session.

2. Select desired signals by check marking 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.

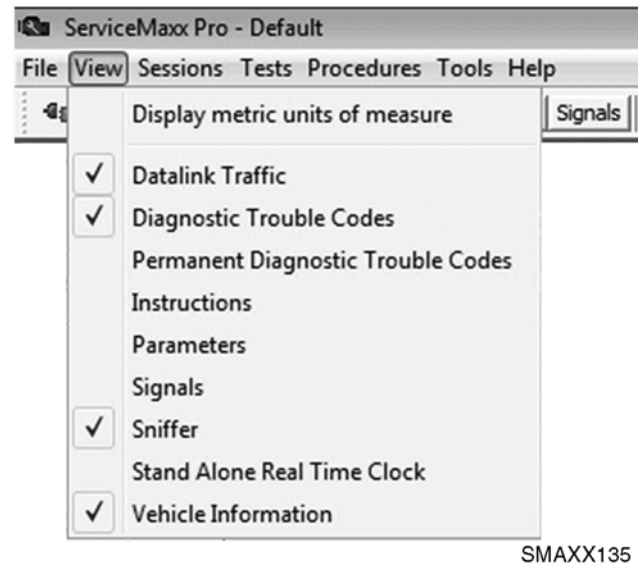
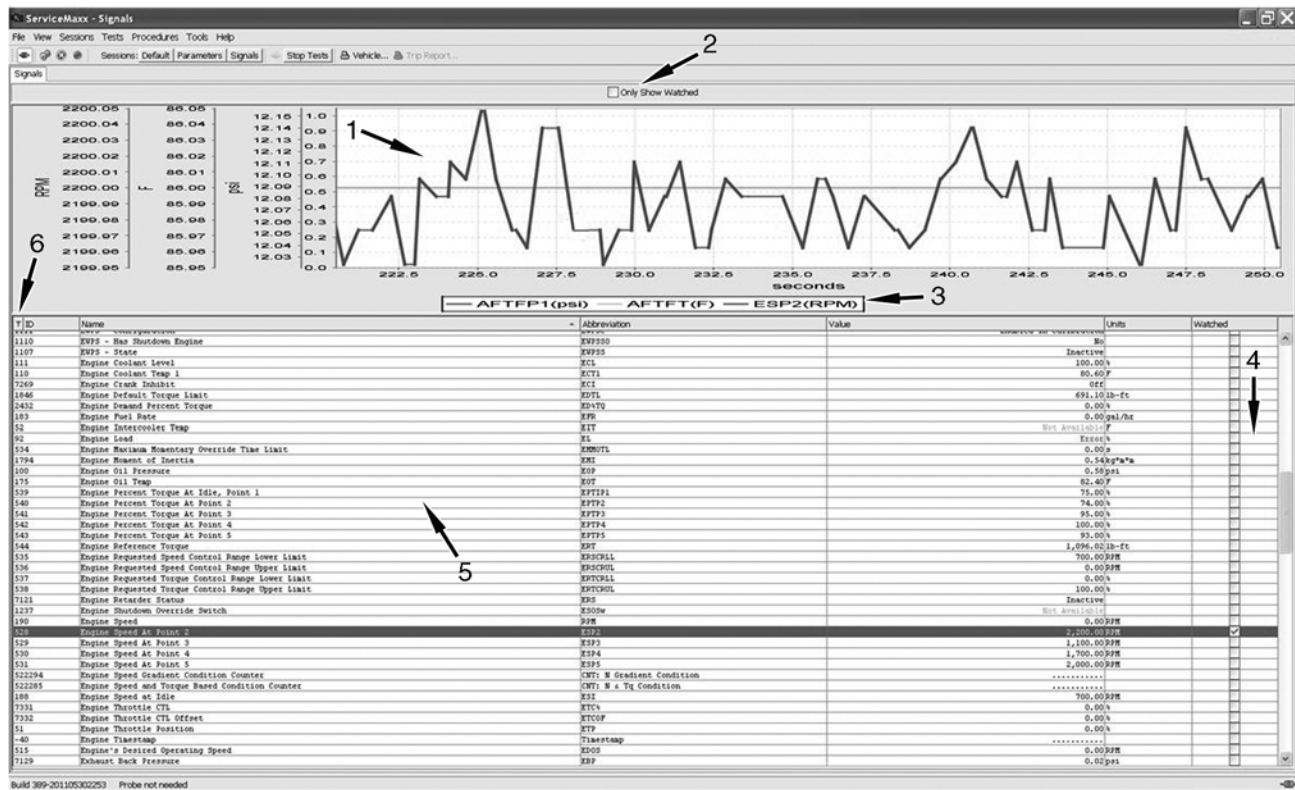


Figure 19 View Menu

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



SMAXX119

Figure 20 Signals Session

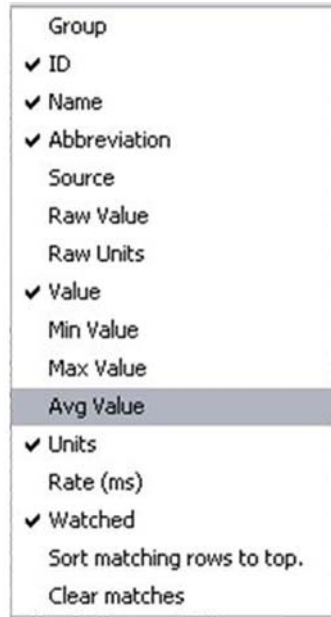
- | | | |
|--------------------------------|-------------------------|----------------------------|
| 1. Signal Graph Display Window | 3. Graph Legend | 5. Signal Selection Window |
| 2. Only Show Watched Box | 4. Watched Column Boxes | 6. Search Button |

NOTE: Displayed signals are represented by different colored graph lines. When multiple signals are displayed, signal identification can be made using the graph legend. Clicking on a Watched column box gives the user the option to show or hide the graph.

5.3. View and Clear Signal Value Statistics

ServiceMaxx™ software records minimum, maximum, and average values for every signal (when applicable). Use this procedure to view and reset those statistics.

1. Right click on the signal selection window header.



SMAXX092

Figure 21 Add Signal Value Statistics

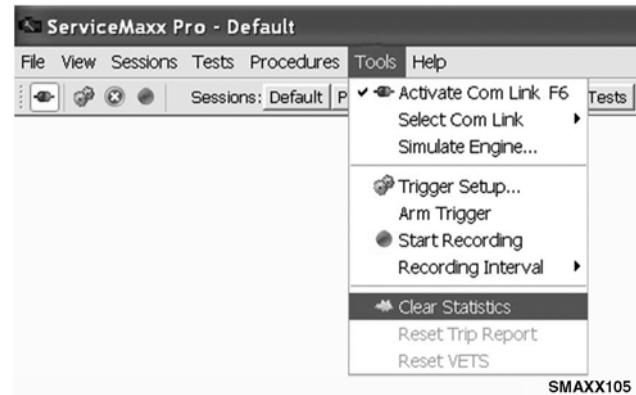
2. Select Min Value, Max Value, or Avg Value.

Value	Min Value	Max Value	Avg Value
-------	-----------	-----------	-----------

SMAXX093

Figure 22 Statistic Value Columns

NOTE: A new column will appear for each statistic added.

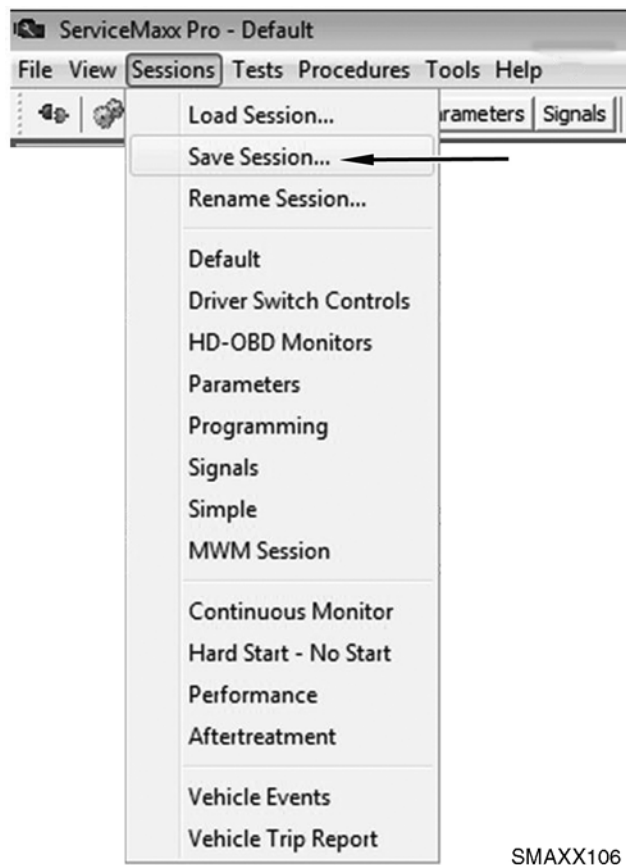


SMAXX105

Figure 23 Clear Statistics

3. From the Tools drop-down menu, select Clear Statistics. This will reset the minimum, maximum, and average values.

5.4. Saving Session Files



SMAXX106

Figure 24 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. Click on the Sessions drop-down menu and select Save Session.
2. Type in the desired session name in the file name box.
3. Save the session to the desired location on your computer by clicking on the Save button.

5.5. Loading a Saved Session

1. Click on the Sessions drop-down menu and select Load Session.



SMAXX045

Figure 25 Opening a Saved Session

2. Navigate to the previously saved session file and click on the Open button.

5.6. Recording Session Data (Snapshot)

ServiceMaxx™ software can record signal information using various data sample rates (Recording Intervals). Recording Intervals can be selected using the Tools drop-down menu.

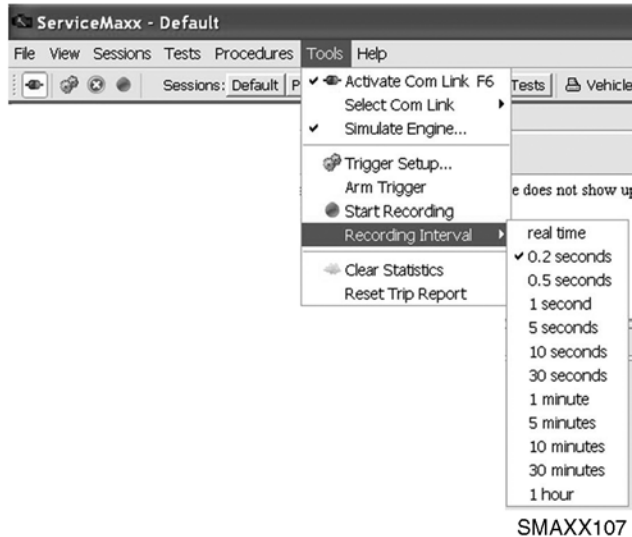


Figure 26 Recording Interval selection

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 27 Record Button

1. Click on the Record button to start recording the current session.



Figure 28 Recording Notification Message

NOTE: When the Recording function is active, a Recording alert is displayed in the message area.



Figure 29 Stop Button

2. Click on the stop button to stop recording.

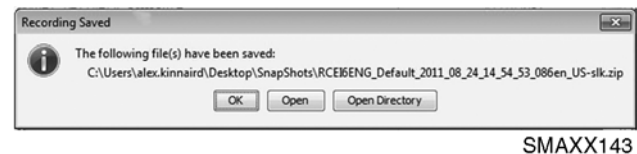


Figure 30 Recording Saved Confirmation Screen

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.

5.7. Triggered Recording

ServiceMaxx™ software 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.

Trigger Setup

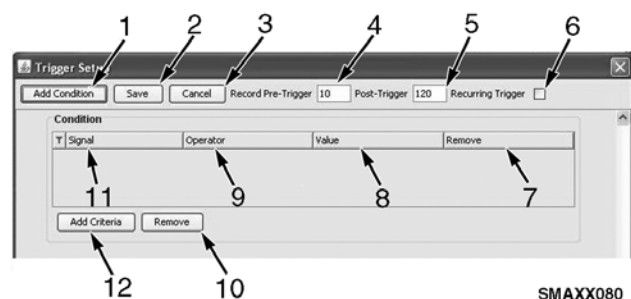


Figure 31 Trigger Setup

1. Add Condition Button
2. Save Button
3. Cancel Button
4. Record Pre-Trigger
5. Post-Trigger
6. Recurring Trigger
7. Remove Column
8. Value Column
9. Operator Column
10. Remove Button
11. Signal column
12. Add Criteria button

1. Add Condition Button

The Add Condition button is used to begin set-up for triggered recording.

2. Save Button

The Save button is used to save trigger set-up information for future use.

3. Cancel Button

The Cancel button is used to cancel triggered recording.

4. Record Pre-Trigger

Record Pre-Trigger is the number of seconds information is recorded before the trigger is set.

5. Post-Trigger

Post-Trigger is the number of seconds information is recorded after the trigger is set.

6. Recurring Trigger

Recurring Trigger is used to repeat recording every time the trigger is set. Recurring Trigger only repeats during the current session.

7. Remove Column

The Remove column is used to remove criteria.

8. Value Column

The Value column is used to provide the specification signal value for triggered recording.

9. Operator Column

The Operator column is used to indicate if the trigger should be set when signal value is less than, greater than, equal to, or not equal to the specification in the value column.

10. Remove Button

After criteria is added, the Remove button is used to remove the selected trigger signal.

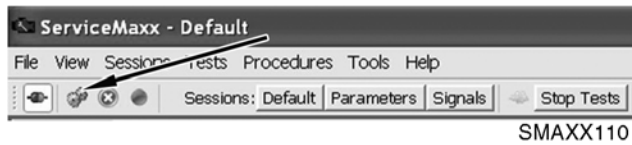
11. Signal Column

The Signal column is used to select what signals to trigger.

12. Add Criteria Button

After the Add Condition button is selected, the Add criteria button is used to add signals to trigger.

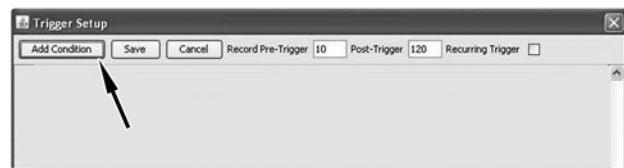
Using Triggered Recording



SMAXX110

Figure 32 Trigger Setup Button

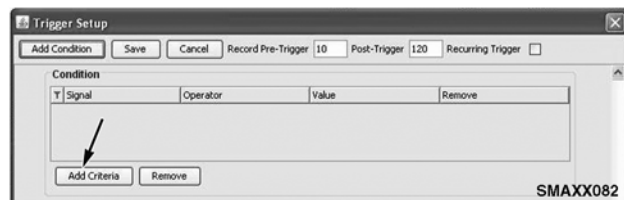
1. From the Default session main screen, click on the Trigger Setup button.



SMAXX111

Figure 33 Add Condition Button

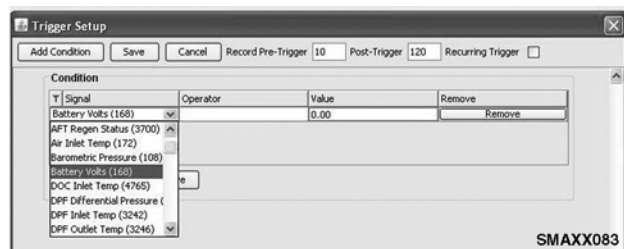
2. Click on the Add Condition button.



SMAXX082

Figure 34 Add Criteria Button

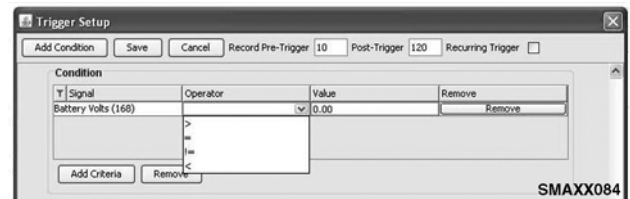
3. Click on the Add Criteria button.



SMAXX083

Figure 35 Selecting Signal

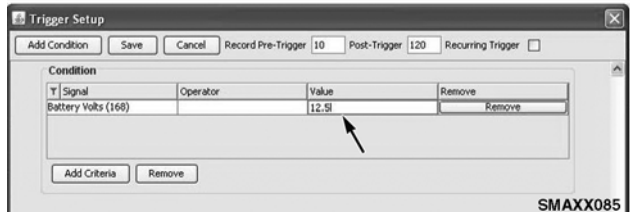
4. Select a signal to trigger.



SMAXX084

Figure 36 Selecting Trigger Operator

5. Select a trigger operator (greater than, less than, equal to, not equal to).



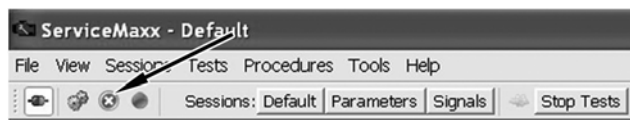
SMAXX085

Figure 37 Selecting Signal Value

6. Add a signal value.

NOTE: To trigger more than one signal, repeat steps 2 through 6.

7. Click on the Save button and return to Default session main screen.



SMAXX112

Figure 38 Trigger Arm/Disarm Button

8. To arm trigger, click on the Trigger Arm/Disarm button.

NOTE: Triggered recording begins automatically when the value and pre-trigger are met.

NOTE: To disable triggered recording, click on the Trigger Arm/Disarm button.

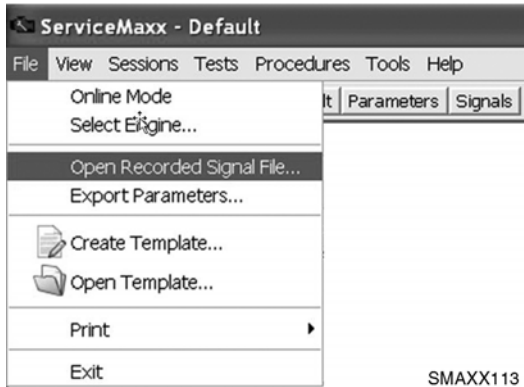
5.8. Viewing ServiceMaxx™ SnapShots



Figure 39 SnapShots Desktop Folder

A snapshot is engine data that is recorded at a preset interval, during a session, and saved.

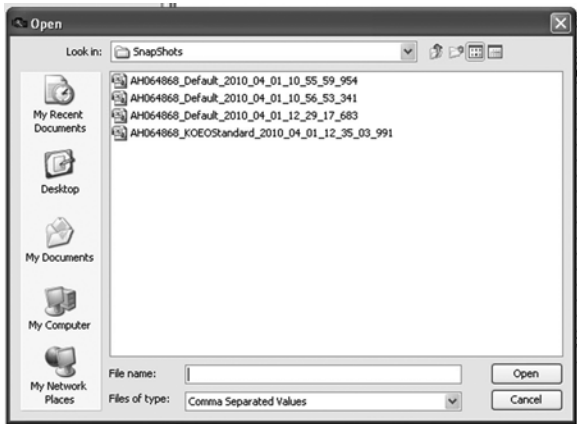
NOTE: ServiceMaxx™ snapshots can be viewed at any time by selecting Open Recorded Signal File from the File drop-down menu or through the desktop SnapShots folder.



SMAXX113

Figure 40 File Menu

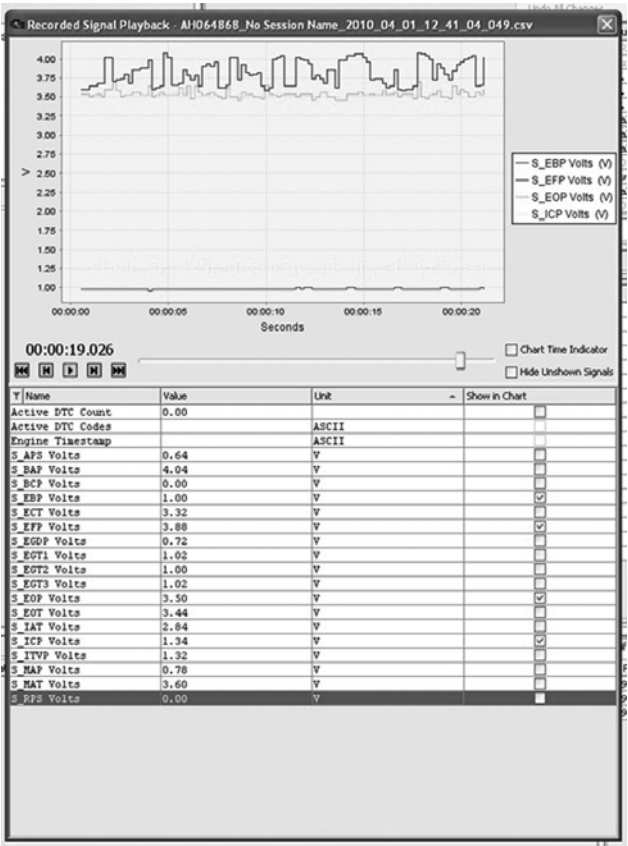
1. From the File drop-down menu, select Open Recorded Signal File.



SMAXX050

Figure 41 Opening Snapshot File

2. Select a previously recorded file from the Open window.



SMAXX051

Figure 42 Recorded Signal Playback

3. Select which signal(s) to view by clicking on the Show in Chart boxes.

6. Viewing Diagnostic Trouble Codes

6.1. DTC Window

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

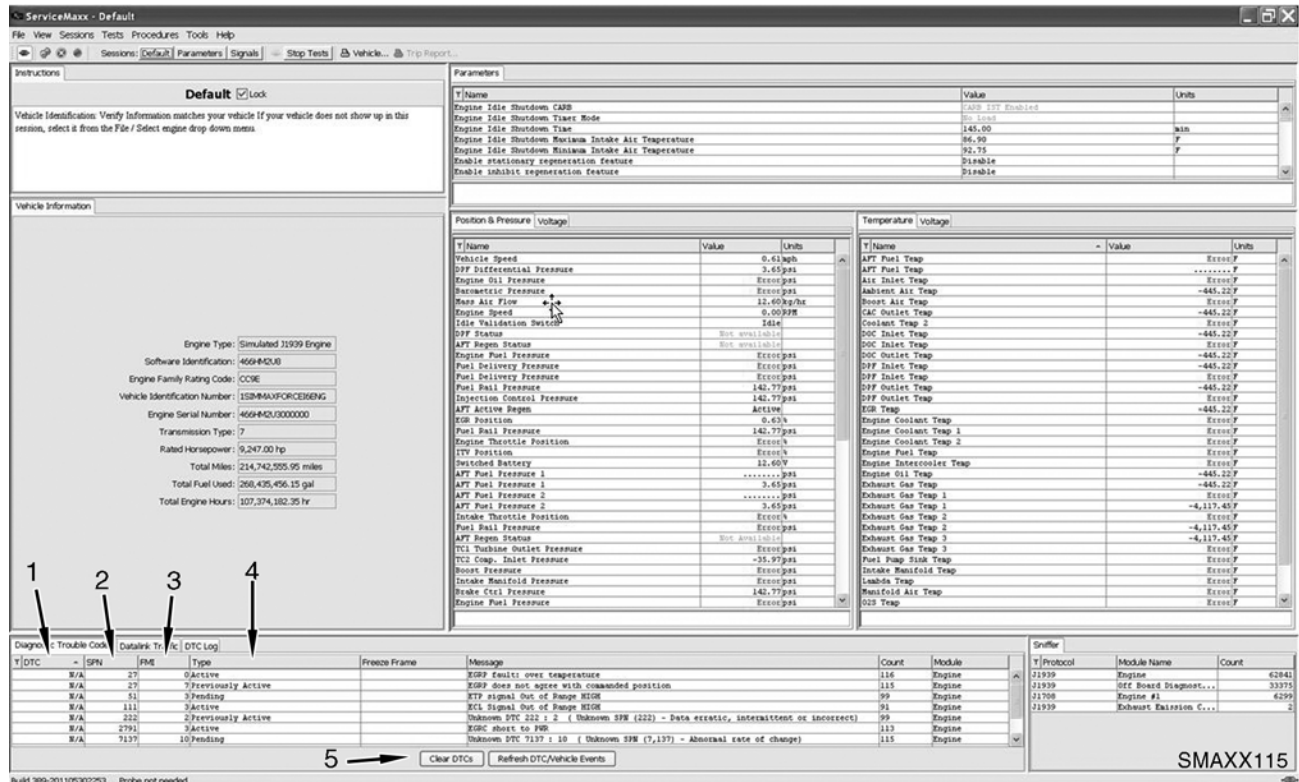


Figure 43 DTC Window

1. Diagnostic Trouble Code (DTC) Column (pre-2010)
2. Suspect Parameter Number (SPN) Column
3. Failure Mode Indicator (FMI) Column
4. Fault Code Active Column
5. Clear DTCs Button

6.2. 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.

1. Suspect Parameter Number (SPN)

The SPN identifies the individual component causing the DTC.

2. Failure Mode Indicator (FMI)

The FMI identifies the fault or condition effecting the individual component.

3. 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.

6.3. Active and Previously Active DTCs

- Active DTCs are faults that are currently present.
- Previously active DTCs are historical faults that may be set by intermittent conditions, or by an operating condition which is not currently present.
- All active DTCs will be indicated by a check mark in the Active column. Previously active DTCs are also displayed, but without a check mark.

6.4. Clearing DTCs

All active and previously active DTCs can be cleared from the ECM using the following procedure.

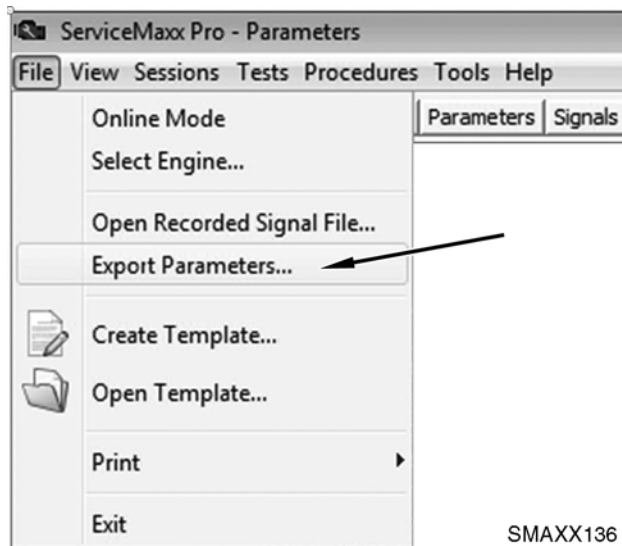
1. Click on the Clear DTCs button.
2. Cycle the ignition switch.

7. Parameters

NOTE: 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 to export parameters prior to programming any Navistar electronically controlled engine.

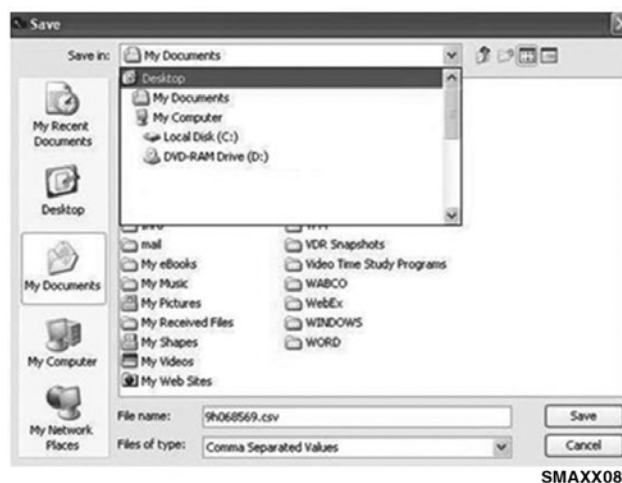
7.1. Export Parameters



SMAXX136

Figure 44 Export Parameters

1. Select Export Parameters from the File drop-down menu.



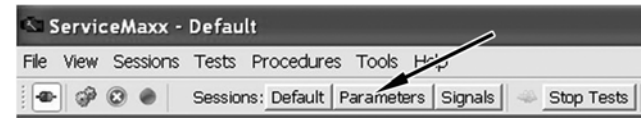
SMAXX089

Figure 45 Saving Exported Parameters

2. When prompted, save engine parameters on desktop.

NOTE: The engine parameter data file can be viewed using Microsoft Excel®.

7.2. View All Parameters

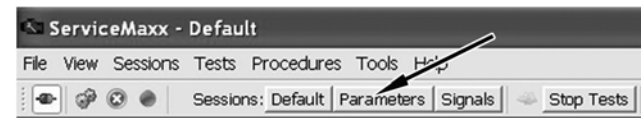


SMAXX114

Figure 46 Parameters Button

From the Default Session main screen, click on the Parameters button.

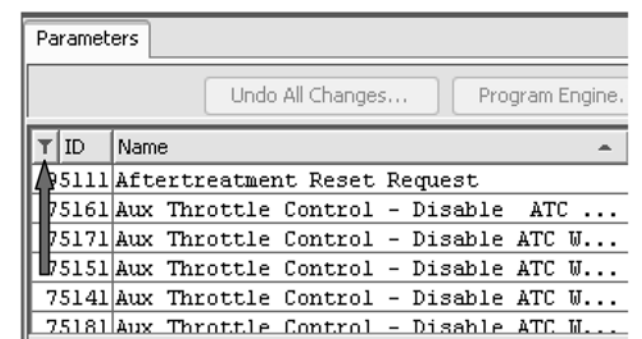
7.3. Search Parameters by Group



SMAXX114

Figure 47 Parameters Button

1. From the Default Session main screen, click on the Parameters button.



SMAXX056

Figure 48 Parameter Filter

2. Click on the filter icon next to the ID column.
3. Highlight the group and press OK.

ID	Name	Value
95022	Vehicle Distance Service Interval	14,301.01
95022	Engine Hour Service Interval	1,048.66
95012	Fuel Used Service Interval	13,235.55
95101	Service Interval Reset Request	Yes
95092	Change Oil Lamp Activation Time	0.00
95081	Change Oil Lamp Always On	Yes
95072	Service Soon Percent	0.35
95062	Vehicle Distance Starting Value	1,334,384.47
95052	Engine Hour Starting Value	596,523.24
95042	Fuel Used Starting Value	56,730,516.30
57271	Total Cruise Control Time	596,523.24
82301	Gear Number Calculation Gear 11	81.00
57401	Total Drive Time	596,523.24
82291	Gear Number Calculation Gear 10	54.00
83232	Trip PTO Device 3 Fuel Used	56,730,516.30
57251	Total Top Gear Fuel Used	10,034.92
57381	Total PTO Stationary Time	596,523.24

SMAXX137

Figure 49 Parameter Group

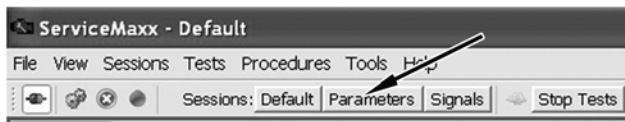
- The parameters in that group will be brought to the top of the list.



Figure 50 Clear Button

- Clear the search by clicking the filter icon and pressing the Clear button.

7.4. Search Parameters by Keyword(s)



SMAXX114

Figure 51 Parameters Button

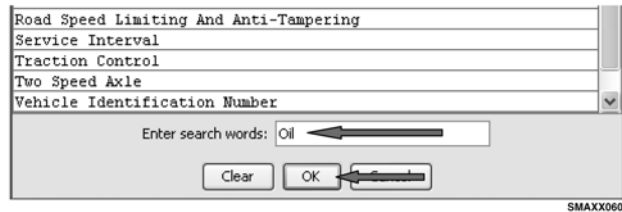
- From the Default Session main screen, click on the Parameters button.

ID	Name
95111	Aftertreatment Reset Request
75161	Aux Throttle Control - Disable ATC ...
75171	Aux Throttle Control - Disable ATC W...
75151	Aux Throttle Control - Disable ATC W...
75141	Aux Throttle Control - Disable ATC W...
75181	Aux Throttle Control - Disable ATC W...

SMAXX056

Figure 52 Parameter Filter

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



SMAXX060

Figure 53 Keyword(s) Box

- Type the keyword(s) in the box labeled "Enter search words" and press OK.

ID	Name	Value
95092	Change Oil Lamp Activation Time	0.00
95081	Change Oil Lamp Always On	Yes
77093	Engine Oil Critical Pressure for Region 1	3.15
77113	Engine Oil Critical Pressure for Region 3	2.22
77043	Engine Oil Warning Pressure for Region 1	1.22
77073	Engine Oil Warning Pressure for Region 2	0.67
77083	Engine Oil Warning Pressure for Region 3	0.90
77053	Engine Oil Pressure Engine RPM Boundary 3	49.50
77043	Engine Oil Pressure Engine RPM Boundary 2	157.50
77033	Engine Oil Pressure Engine RPM Boundary 1	221.00
57271	Total Cruise Control Time	596,523.24
82301	Gear Number Calculation Gear 11	81.00
57401	Total Drive Time	596,523.24
82291	Gear Number Calculation Gear 10	54.00
83232	Trip PTO Device 3 Fuel Used	56,730,516.30
57251	Total Top Gear Fuel Used	10,034.92
57381	Total PTO Stationary Time	596,523.24

SMAXX138

Figure 54 Parameters Grouped by Keyword(s)

- The parameters with the keyword(s) will be brought to the top of the list.



Figure 55 Clear Button

- Clear the search by clicking the filter icon and pressing the Clear button.

7.5. Change One Dealer or Customer Programmable Parameter

To prevent making unwanted changes to parameters, (Export Parameters, page 27) prior to making any changes.

NOTE: Non-Dealer or Customer Programmable Parameters cannot be changed. In future versions of ServiceMaxx™ software they will be grayed out to make it easier to distinguish.

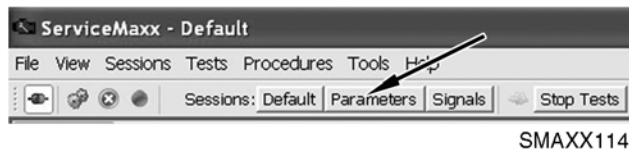


Figure 56 Parameters Button

1. From the Default Session main screen, click on the Parameters button.
2. Search for the parameter by group, keyword, or scroll through the list.
3. Change the parameter.

NOTE: There are two ways to change programmable parameters: Drop-down (Drop-Down, page 29) and Numerical Value (Numerical Value, page 30).



Figure 57 Program Engine Button

4. Click the Program Engine button.



Figure 58 Changed Parameters Prompt

5. Click on Yes.
 - ServiceMaxx™ software will attempt to use the default password. 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.



Figure 59 Engine Parameters Programmed Successfully

6. Click on OK.

7.6. Drop-Down

76021	Cruise Control Vehicle Speed Ramp...	19.88
87002	Customer Password	
93011	Driveline Status for Hydraulic Pr...	Neutral Operation
72011	EVRT Warm-up Enable	Off
99071	Enable inhibit regeneration feature	<input checked="" type="checkbox"/>

SMAXX065

Figure 60 Parameter Value

1. Click in the value field of the parameter that is being changed.

87002	Customer Password	
93011	Driveline Status for Hydraulic Pr...	Neutral Operation
72011	EVRT Warm-up Enable	Off
99071	Enable inhibit regeneration	Neutral Operation
99061	Enable stationary regen	Split Shaft

SMAXX066

Figure 61 Changing Parameter Value

2. Select the desired value for the parameter by placing the pointer over the icon and left-clicking the mouse.

76021	Cruise Control Vehicle Speed Ramp...	19.88
87002	Customer Password	
93011	Driveline Status for Hydraulic Pr...	Split Shaft
72011	EVRT Warm-up Enable	Off
99071	Enable inhibit regeneration feature	<input checked="" type="checkbox"/>
99061	Enable stationary regeneration fe...	

SMAXX067

Figure 62 Changed Parameter Value

3. Press the Enter key on the keyboard or click elsewhere on the screen.

7.7. Numerical Value

82031	High Idle Engine Speed	2,525.00
80051	Low Axle Ratio Pulses Per Mile Count	30,000.00
82021	Low Idle Engine Speed	700.00
79021	Max Vehicle Speed with Road Speed Limiting On	68.00
79011	Maximum Engine RPM with VSS Fault	2,500.00
91021	Radiator Shutter Closed Temperature	176.00

Figure 63 Changing Parameter Value

1. Click in the value field for the parameter.
2. Type the desired value for that parameter in the box including any decimal points.

79021	Max Vehicle Speed with Road Speed Limiting On	72
-------	---	----

Figure 64 Changed Parameter Value

3. Press the Enter key on the keyboard or click elsewhere on the screen.

7.8. Change Multiple Dealer or Customer Programmable Parameters

NOTE: If changing multiple parameters on multiple vehicles create a parameter template (Parameter Templates, page 32).

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

7.9. Undo Parameter Changes Before They Are Programmed

1. Undo All Changes...
 - a. Press the Undo All Changes button to undo all changes made to the programmable parameters.



Figure 65 Undo All Changes Button

2. Undo
 - a. Press the Undo button to undo the change for one parameter.



Figure 66 Undo Button

7.10. How to Change the Customer Password

NOTE: Not available on MWM engines.



Figure 67 Parameters Button

1. From the Default Session main screen, click on the Parameters button.

78031	Coolant Temperature Compensation	6.19	
78001	Coolant Temperature Compensation Mode		<input checked="" type="checkbox"/>
78011	Coolant Temperature to Begin Power D...	224.60 F	
87002	Customer Password		
93011	Driveline Status for Hydraulic Press...	Neutral...	
72011	EVRT Warn-up Enable	Off	

Figure 68 Customer Password

2. Search for the parameter 87002 "Customer Password".

87002	Customer Password	0000
-------	-------------------	------

Figure 69 Changing Customer Password

3. Change the value of the parameter.

87002	Customer Password	0000	Undo
-------	-------------------	------	------

Figure 70 Changed Customer Password

- a. Left-click in the Value field.
- b. Type the new password.
- c. Press the Enter key or click elsewhere on the screen.



Figure 71 Program Engine Button

4. Click the Program Engine button.



Figure 72 Changed Parameters Prompt



Figure 73 Engine Parameters Programmed Successfully

5. Click Yes.
6. Enter the current customer password and click OK (if prompted).

7. Click OK.

8. 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

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

Connected to Engine

To build a parameter template or a copy of a vehicle's parameter template, establish a connection with the vehicle before creating the template.

When connected to the engine, the current vehicle's engine parameters and values are available and can be modified as needed.

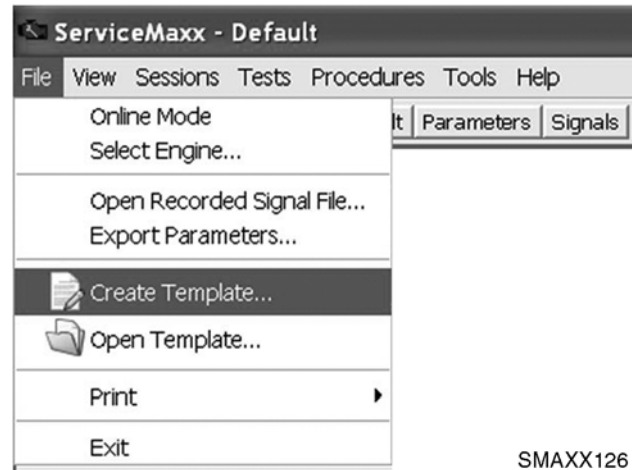
Not Connected to Engine

When not connected to an engine, the default template parameters and values are used. Default template parameters can be modified see (Changing Parameter Template Values, page 35).

When building a parameter template while not connected to engine, be sure to choose the appropriate engine family from the drop-down list.

NOTE: Save 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.

8.1. Creating Parameter Template

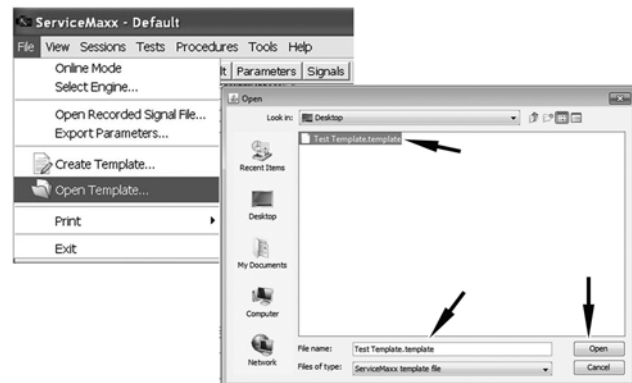


SMAXX126

Figure 74 Create Template

1. Click on Create Template from the File drop-down menu.

8.2. Opening Existing Parameter Template



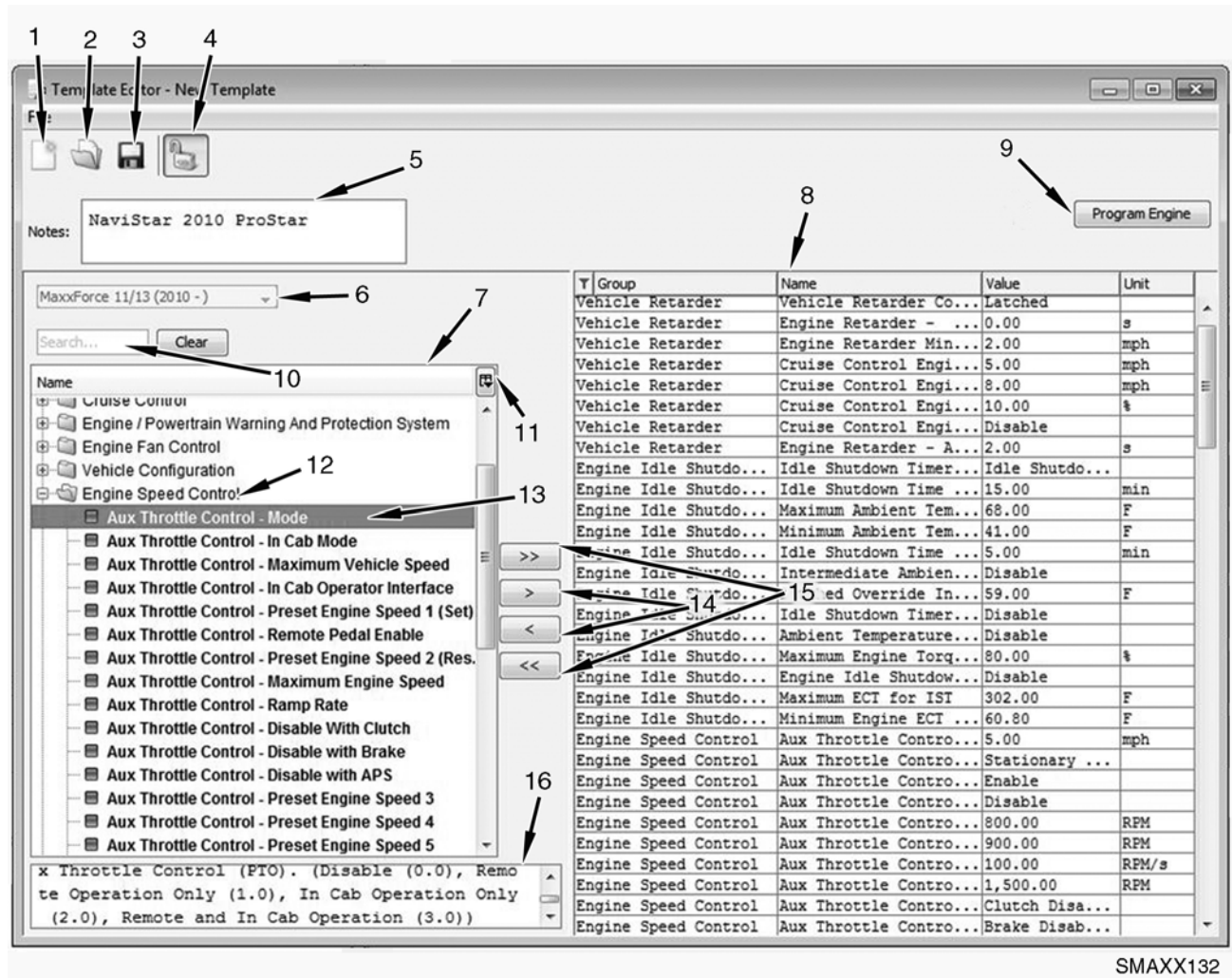
SMAXX127

Figure 75 Open Template

1. Click on Open Template from the File drop-down menu.
2. Browse for the template file on your computer.

NOTE: All parameter templates created with ServiceMaxx™ have the filename extension .template.

8.3. Parameter Template Features



SMAXX132

Figure 76 Template Editor

- | | | |
|----------------------------|----------------------------|-----------------------------|
| 1. Create Template | 7. Available Parameters | 13. Parameter Name |
| 2. Open Template | 8. Template Parameter List | 14. Move Selected Parameter |
| 3. Save Template | 9. Program Engine Button | 15. Move All Parameters |
| 4. Lock Template | 10. Parameter Search | 16. Parameter Details Box |
| 5. Template Notes | 11. Parameter Field Search | |
| 6. Engine Family Selection | 12. Parameter Category | |

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. Template Notes Box

Enter customer and/or vehicle information into this box to make the template easily identifiable.

6. Engine Family Selection Drop-Down Menu

Select desired engine family. Only available when not connected to the vehicle. When connected to vehicle, engine family automatically displays.

7. Available Parameters List

Lists available parameters.

8. Template Parameter List

Lists parameters that are selected from the Available Parameters list. These are the parameters that will be programmed to the vehicle after the Program Engine button is selected.

9. Program Engine Button

Programs the template's parameters to the vehicle. This button is only active when connected to the vehicle.

10. Parameter Search Box

This search field is used to search for a parameter by name. Type in the name or partial name and press enter. The Clear button clears the search results and search field.

11. Parameter Field Search

This button allows the display of other parameter fields, such as name, block, ID, abbreviation, and units.

12. Parameter Category

Parameters are grouped in folders by category. Click on the plus (+) sign next to category folder to expand it. Complete categories can be selected and moved to the template parameter list.

13. Parameter Name

Lists the name of the parameter and appears below the parameter category. Individual parameters can be selected and moved to the template parameters list.

14. Move Selected Parameter Button

Moves selected parameters to and from the template parameter list.

15. Move All Parameters Button

Moves all parameters to or from template parameter list.

16. Parameter Details Box

This box will display information about the selected parameter.

8.4. Changing Parameter Template Values

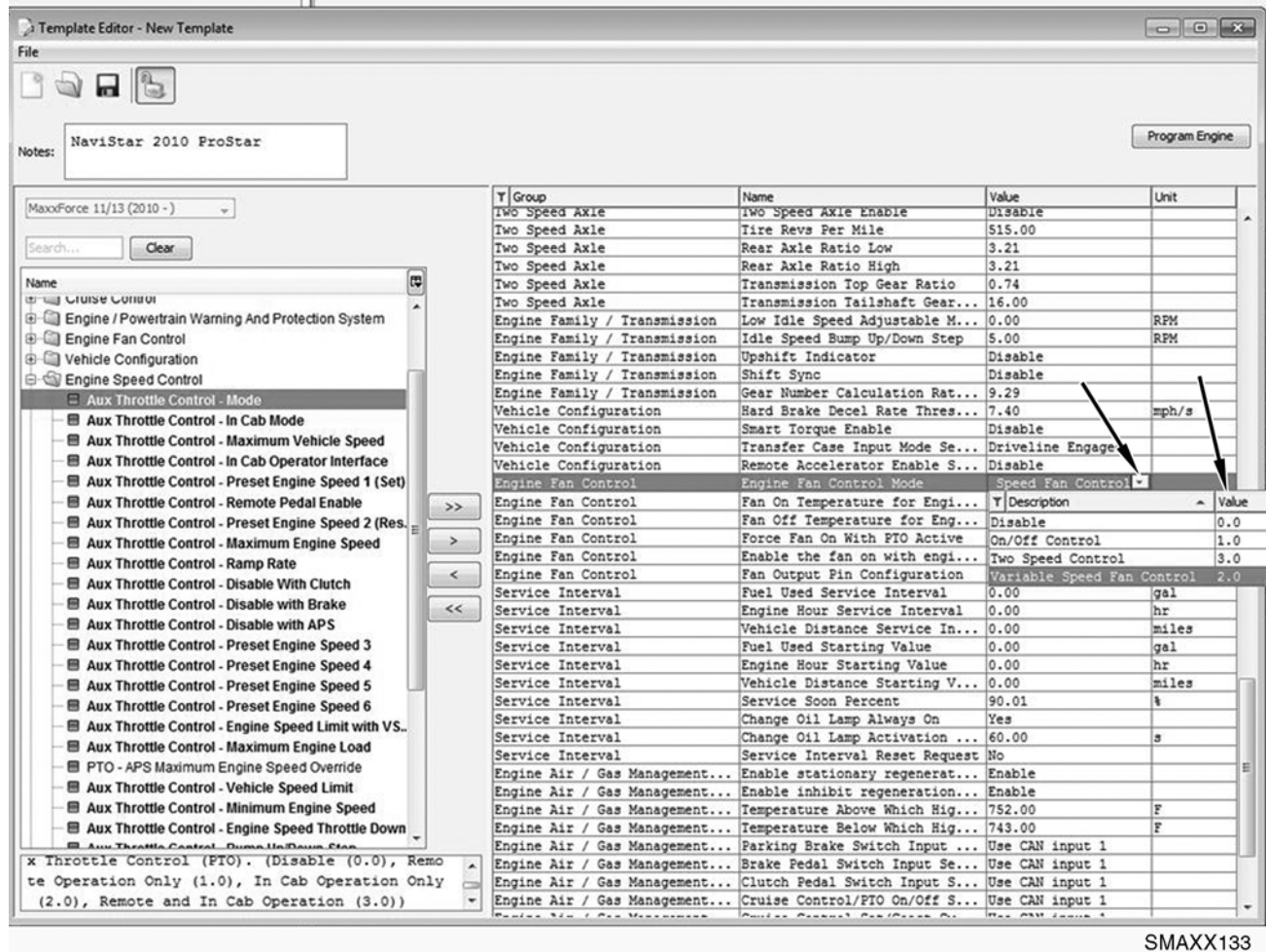


Figure 77 Template Editor

There are two ways to change a parameter value. Either click on the arrow at right edge of the parameter field and select desired specification or enter an exact value (including any decimal points) into the Value field.

NOTE: For additional information about changing parameters, see (Change One Dealer or Customer Programmable Parameter, page 28).

9. Vehicle Trip Report

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.

9.1. View Vehicle Trip Report



Figure 78 Vehicle Trip Report

From the Sessions drop-down menu, select Vehicle Trip Report.

9.2. View Activity Report

Activity Report shows a table of trip information for a single trip or for the life of the vehicle in an easy-to-print format.

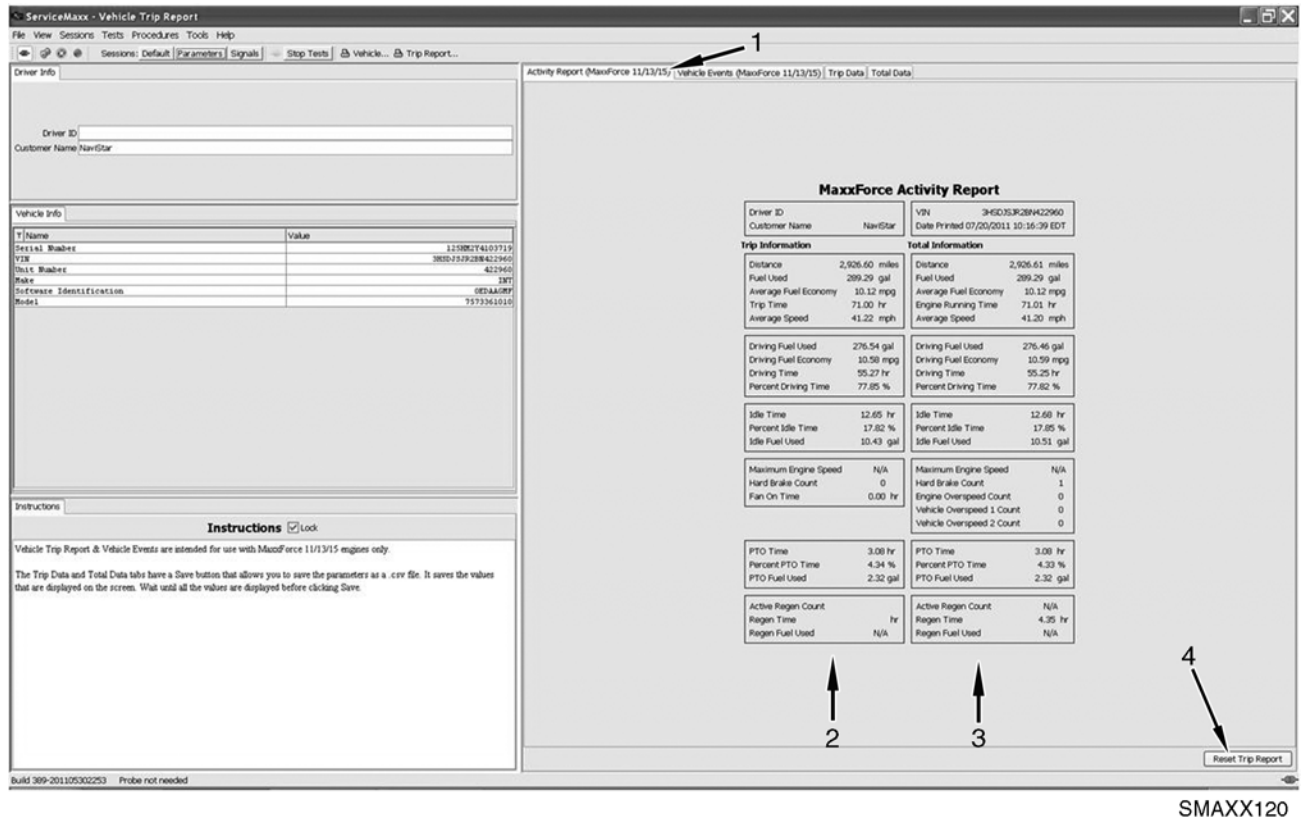


Figure 79 Activity Report

- | | |
|-----------------------------|---------------------------|
| 1. Activity Report Tab | 3. Total Trip Information |
| 2. Current Trip Information | 4. Reset Trip Report |

- Left-click on the Activity Report tab.
- The column on the left displays current trip information.
- The column on the right displays total trip information.
- Left-click on Reset Trip Report to reset vehicle trip report.

9.3. View Vehicle Events

Vehicle Events shows a chart of high values and recent values of vehicle events and how for long the event occurred.

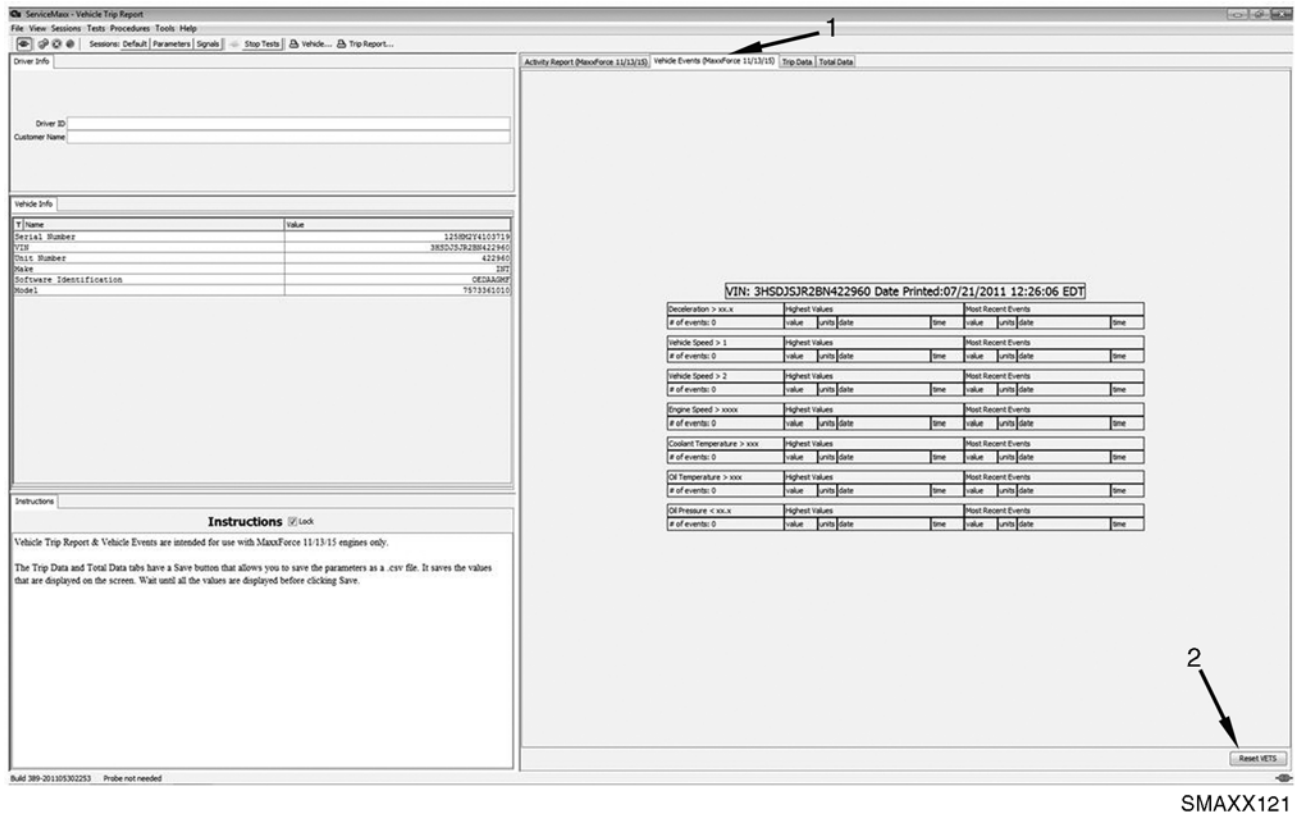


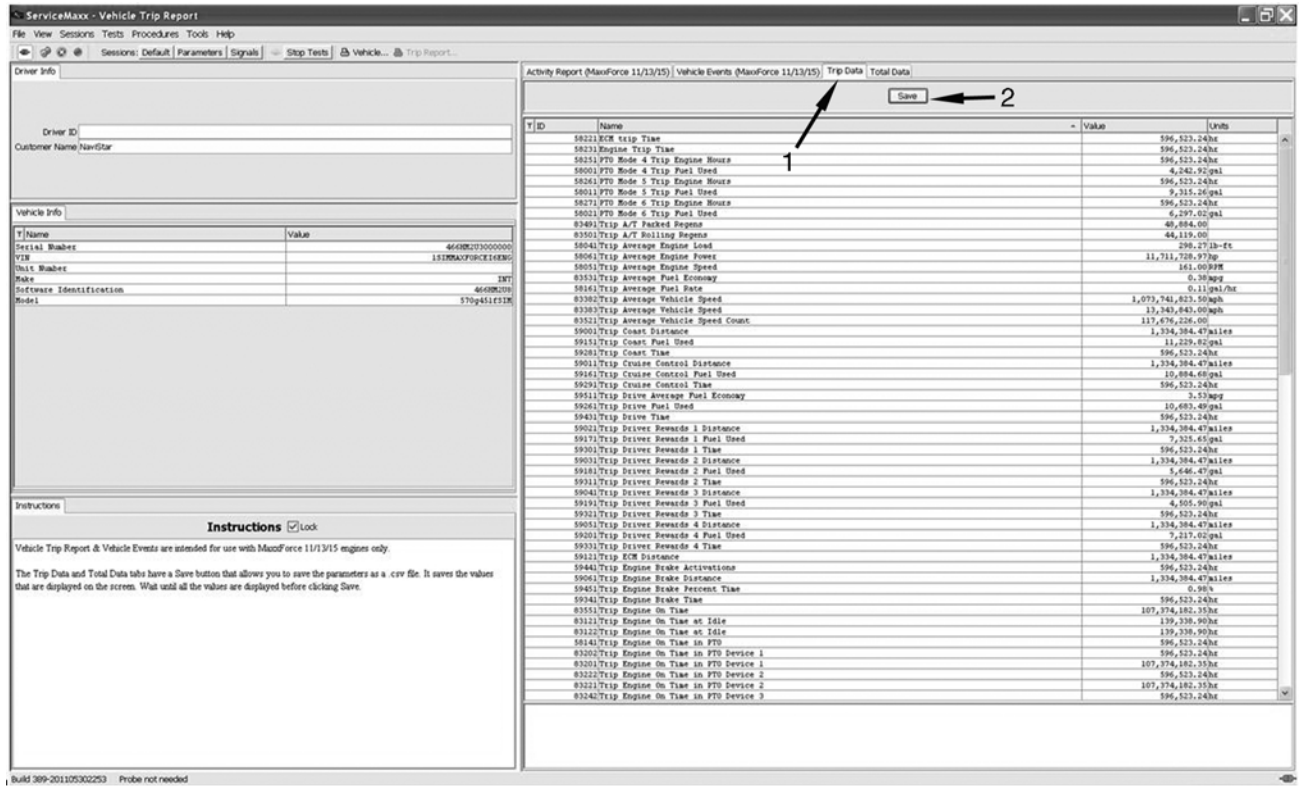
Figure 80 Vehicle Events

1. Vehicle Events Tab

2. Reset VETS Button
- Left-click on the Vehicle Events tab to view vehicle events.
 - The Vehicle Events tab shows recent and highest values of various parameters.
 - To reset vehicle events, click on the Reset VETS button.

9.4. View Trip Data

Trip Data shows a list of vehicle trip data since the trip was last reset.



SMAXX122

Figure 81 Trip Data

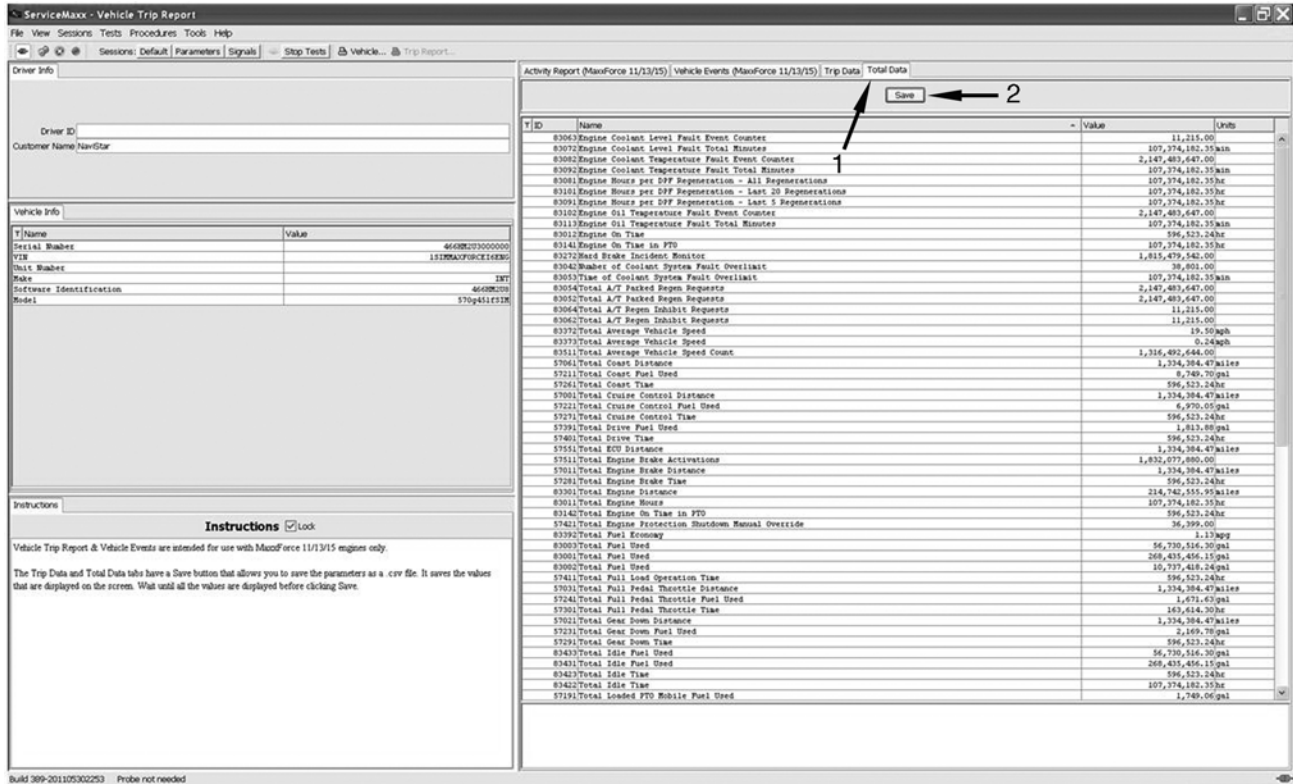
1. Trip Data Tab

2. Save Button

- Left-click on the Trip Data tab.
- The Trip Data tab shows all current vehicle trip information.
- Click on the Save button to save current vehicle trip information.

9.5. View Total Data

Total Data shows a list of vehicle data over the lifetime of the vehicle.



SMAXX123

Figure 82 Total Data

1. Total Data Tab
2. Save Button

- Left-click on the Total Data tab.
- Click on the Save button to save trip information for the life of the vehicle.
- The Total Data tab shows trip information for the life of the vehicle.

9.6. Search Trip Data by Keyword(s)

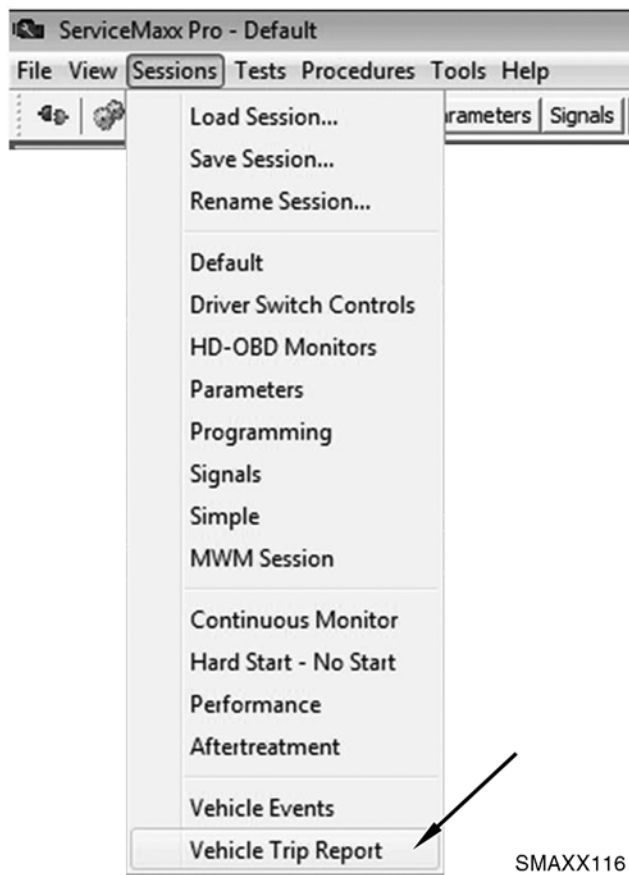


Figure 83 Sessions Drop Down Menu

From the Sessions drop-down menu, select Vehicle Trip Report.

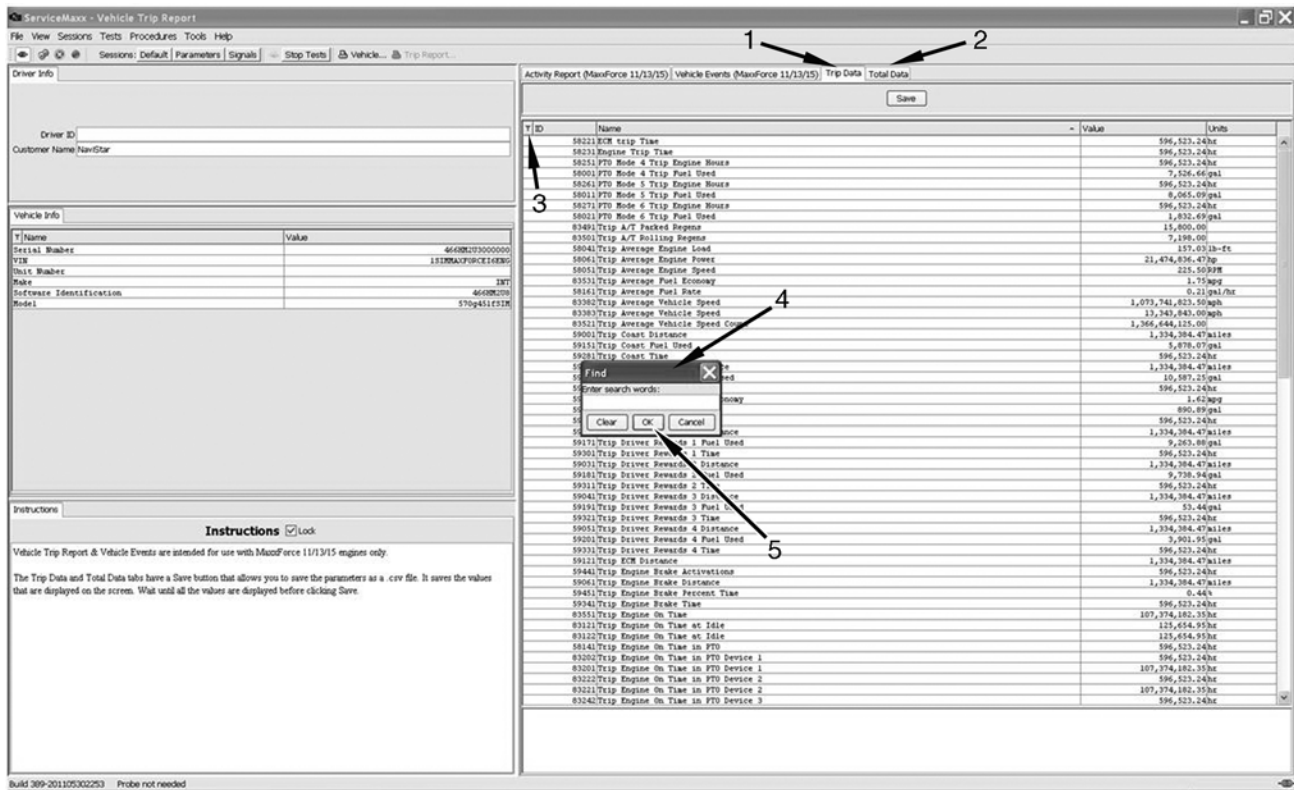


Figure 84 Trip Data

1. Trip Data Tab
2. Total Data Tab
3. Find Icon
4. Find Box
5. OK Button

- Left-click on either the Trip Data tab or Total Data tab.
- Left-click on Find icon.
- Enter an ID number or name into the Find box.
- Left-click on OK button.
- The searched item(s) appears as the first column on the screen.

9.7. Printing Vehicle Trip Reports

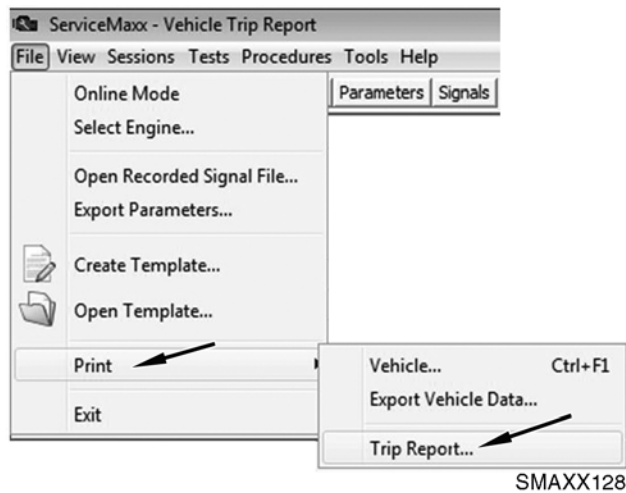


Figure 85 File Menu

- Click on Print from File drop-down menu.
- Click on Trip Report.

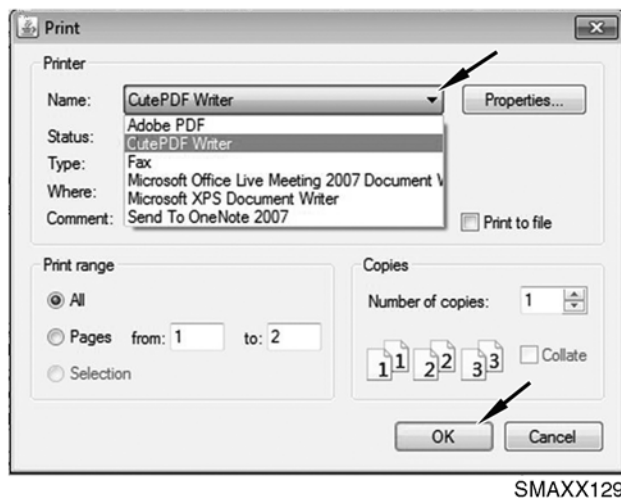


Figure 86 Print Options

- Select desired printer and click on OK.

9.8. Resetting Vehicle Trip Report

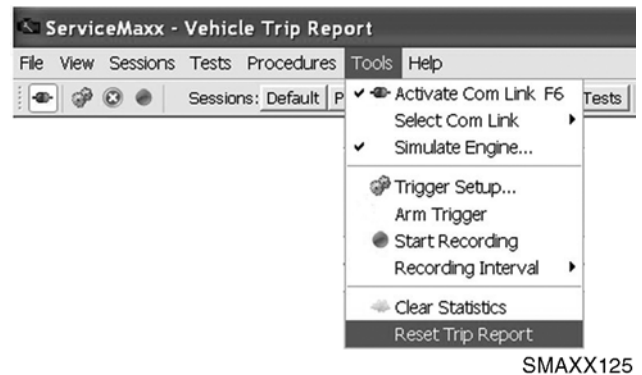


Figure 87 Tools Menu

- A Trip Report is the time between vehicle trip resets.
- To start a new Trip Report either:
 - Select Reset Trip Report from the Tools drop-down menu.
 - Select Reset Trip Report from the Activity Report in Vehicle Trip Report Session.

10. MWM Session

MWM Session displays vehicle signals in a chart but can be converted to show digital readouts or graphs of the vehicle signals.

NOTE: MWM Sessions is only available for vehicles equipped with MWM engines.

10.1. MWM Session

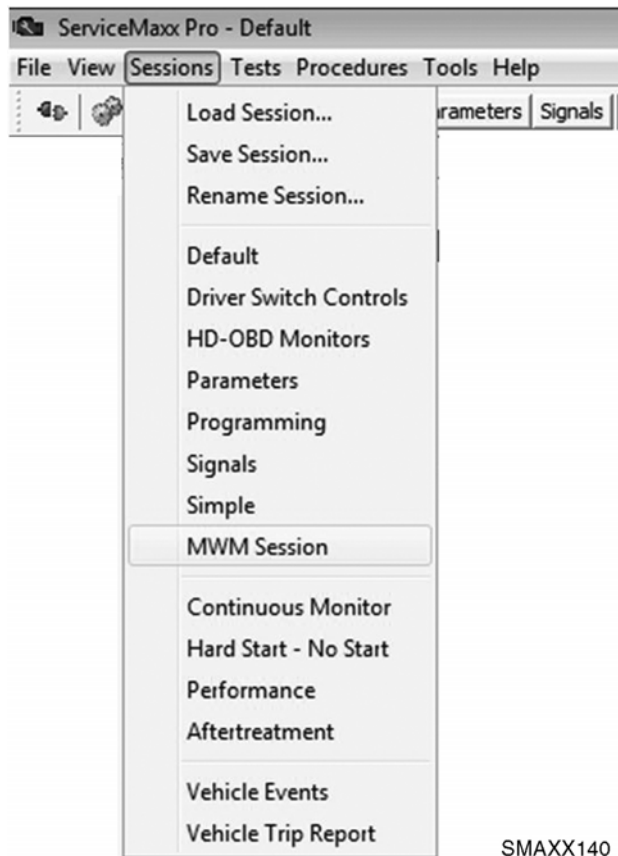
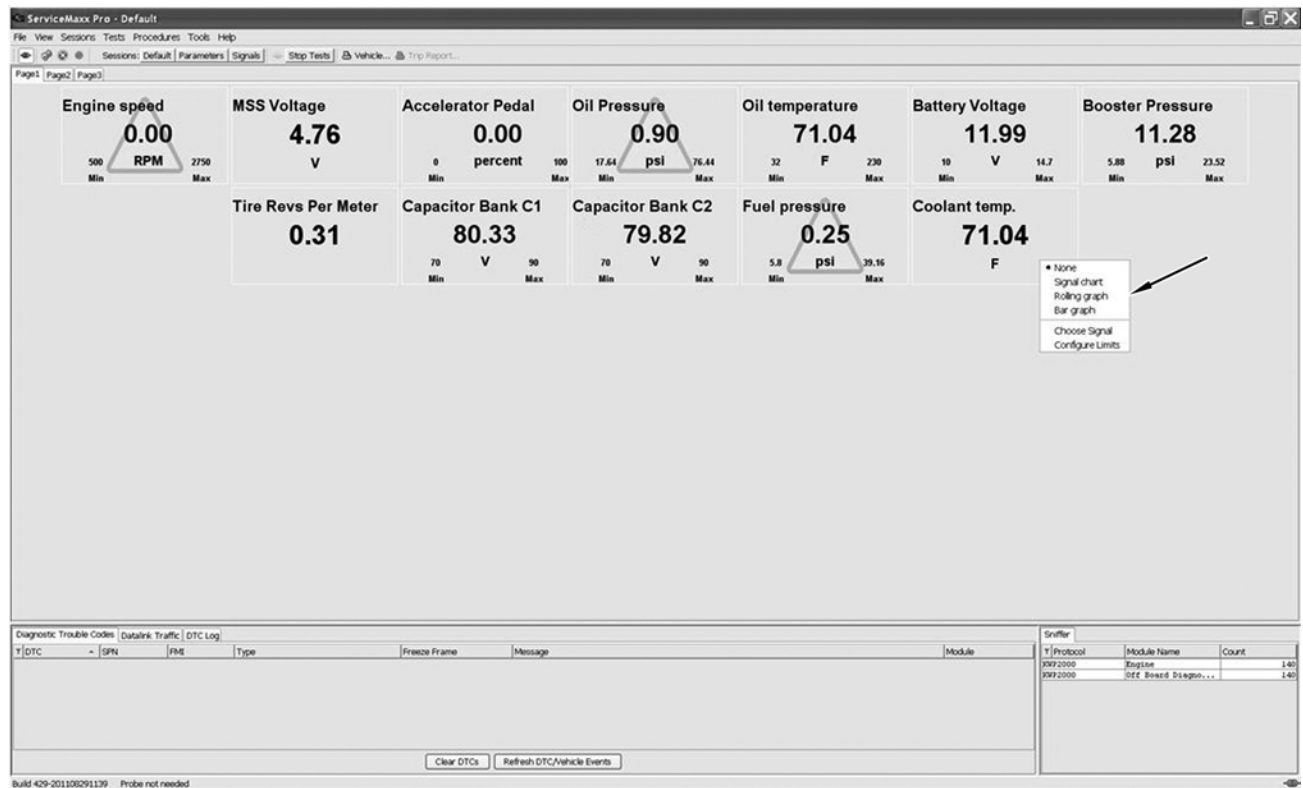


Figure 88 Sessions Menu

1. From the Sessions drop-down menu, select MWM Session.



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Figure 89 MWM Session

- A new screen appears showing minimum (MIN) and maximum (MAX) values for several vehicle signals.
- Right-click in each box to open a drop-down menu displaying the following options of Signal Chart, Rolling Graph, Bar Graph, and Choose Signal.
- Select Choose Signal to change or add a vehicle signal to the box.
- Select Bar Graph, Rolling Graph, or Signal Chart to graph the vehicle signal.
- There are three pages to select from at the top of the screen. Each page can be programmed with different vehicle signals.

11. Print

Vehicle information can be printed and exported by selecting Print from the File drop-down menu.

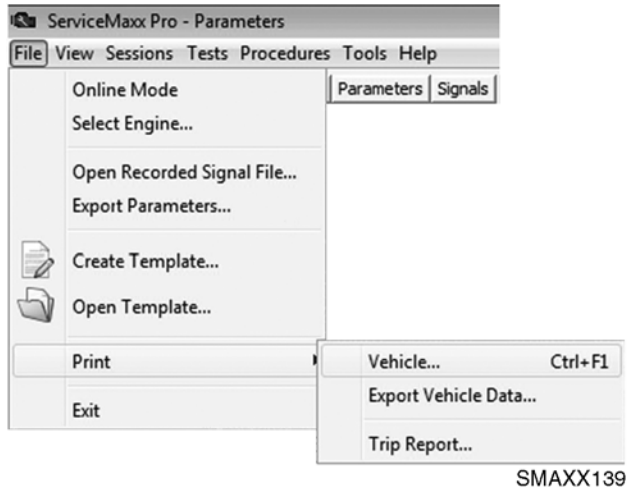


Figure 90 Print Options

11.1. Vehicle Information

Use this procedure to print vehicle information.

1. From the File drop-down menu, select Print.
2. Click on Vehicle.
3. Select printer.

11.2. Export Vehicle Data

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

1. From the File drop-down menu, select Print.
2. Click on Export Vehicle Data.
3. Select a location to save data.

11.3. Trip Report

Use this procedure to print vehicle activity report.

1. From the File drop-down menu, select Print.
2. Click on Trip Report.
3. Select printer.

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