NAVISTAR®

ServiceMaxx™ Overview and Snapshot Analysis

Study Guide

Course Code: 8798

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Course Introduction

System Requirements

If playback or course completion issues are experienced while viewing this course, Flash® Player may need to be updated to the latest version. The following instructions assume the user is using Internet Explorer® 9 or later.

- Go to get.adobe.com/flashplayer.
- Be sure to uncheck any checkboxes that appear under the OPTIONAL OFFERS heading to prevent unwanted software from being installed.
- Click the INSTALL NOW button on the right of the screen.
- A message should appear at the bottom of the screen to RUN or SAVE the file. Click RUN.
- Depending on the security settings, a message could appear asking: “Do you want to allow the following program to make changes to this computer?” Click YES.
- Choose the preferred Update Flash Player Preferences and click NEXT. Installation should begin.
- The user may be asked to close the browser in order to complete the installation process.
- Once the installation is complete, click FINISH. Internet Explorer® will open an Adobe® page with a message at the top confirming the installation.

The user may now log back in to OnCommand™ (the LMS).

Contact Us

If you have questions or concerns regarding this course, please contact Navistar® Service Education by submitting a case file (Dealer Personnel), or by calling 1-800-365-0088.

THE INFORMATION PROVIDED WITHIN THIS COURSE IS FOR TRAINING PURPOSES ONLY. ALWAYS CONSULT THE LATEST SERVICE, DIAGNOSTIC, AND TOOL INFORMATION, LOCATED ON NAVISTAR’S SERVICE PORTAL, PRIOR TO PERFORMING SERVICE ON NAVISTAR ENGINES, VEHICLES, AND EQUIPMENT.

Welcome

Welcome to the Navistar® training course: ServiceMaxx™ Overview and Snapshot Analysis. This course is intended to preview the features of ServiceMaxx™ and demonstrate the procedure to capture and review a snapshot.

Objectives

Upon completion of this course, the student will be able to:

- Identify a Session in ServiceMaxx™
- Select a pre-installed Session
- Record a Snapshot
- Open and Review a snapshot
- Use the filter feature
- View and Modify vehicle parameters.

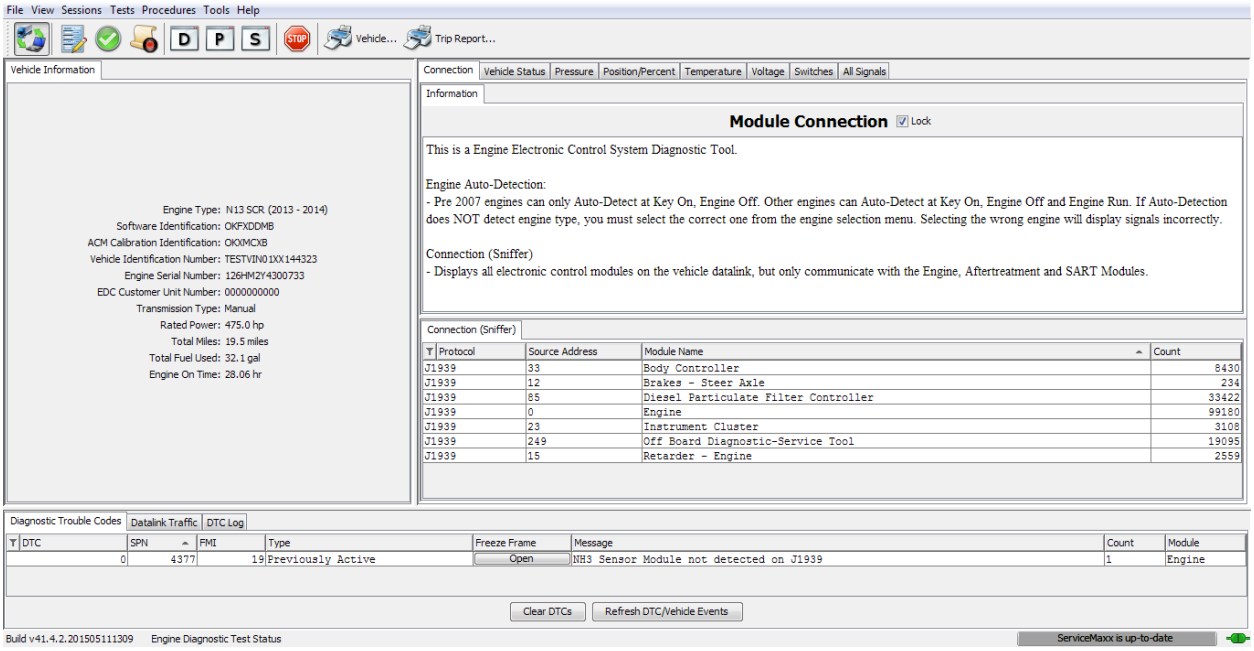
ServiceMaxx™ Overview

Launching ServiceMaxx™

ServiceMaxx™ is a computer based diagnostic and programming service tool for Navistar Engines. It can be launched from either the ServiceMaxx™ desktop icon, or from the Navistar® EZ-Tech® Launcher. Once the software has been launched, the user will be prompted for their log-in information. This enables any elevated features the user may have access to, based on their access level. If the user does not have valid log-in information, the DIAGNOSTIC option can be selected which will provide limited access.

Window Navigation

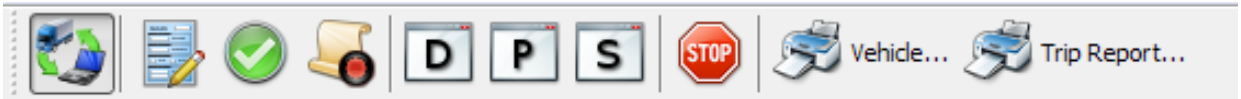
After logging into ServiceMaxx™ the DEFAULT session will load. This session is comprised of four main sections or Windows.



The VEHICLE INFORMATION window contains information such as Vehicle Identification Number and Engine Serial Number. The SIGNALS window contains multiple tabs that separate sensor values into different groups based on their unit of measure. This allows the user to view categories of sensors such as all temperature sensors, all pressure sensors, or all position sensors. The CONNECTION (SNIFFER) window displays real time information for the various modules on the vehicle's numerous networks that are communicating. The DIAGNOSTIC TROUBLE CODE Window allows the user to manage any Diagnostic Trouble Codes (DTCs) in the vehicles memory as well as read data link traffic. The DEFAULT session can be loaded at any time by selecting the DEFAULT session button in the Tool Bar.

Toolbar Buttons

The Tool Bar also contains other important buttons which are commonly used.



Activate Com Link

The ACTIVATE COM LINK button is used to begin and end communications between the vehicle and ServiceMaxx™.

Trigger Setup

NOTE

IT IS POSSIBLE TO VARY THE RECORDING RATE OF SNAPSHOTS. THIS FEATURE WILL BE COVERED LATER IN THIS COURSE.

The TRIGGER SETUP button allows ServiceMaxx™ to automatically start recording a snapshot when a pre-determined event occurs. The user can set multiple criteria to trigger a snapshot recording, such as when vehicle speed is above 15 miles per hour and engine load is above 80%. There are also settings for how long to record information before and after the trigger event occurs.

Trigger Arm / Disarm

The TRIGGER ARM/DISARM button arms and disarms the trigger to avoid accidental recording if the trigger criteria is too vague.

Data Record

The DATA RECORD button allows the user to manually record sensor information.

Default Session

The DEFAULT SESSION button loads the default session which can be used to view multiple performance related signals.

Parameters Session

The PARAMETERS SESSION button loads a pre-saved session that is ideal for viewing and adjusting parameters.

Signals Session

The SIGNALS SESSION button loads a pre-saved session that is ideal for viewing and graphing various sensor values.

Stop Tests

NOTE

TO STOP SCR TESTS, THE USER MUST CLICK THE END TEST BUTTON WHEN AVAILABLE.

The STOP TESTS button ends any non SCR related tests that are currently running.

Print Vehicle Information

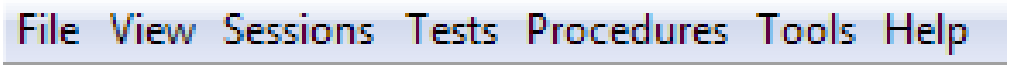
The PRINT VEHICLE INFORMATION button prints a report with vehicle information and current DTCs, signal values, and parameters.

Print Trip Report

The PRINT TRIP REPORT button prints information about the vehicle's last trip.

Menu Bar Navigation

The MENU BAR has several useful features that can be accessed once connected to a vehicle.



File

The FILE menu offers the ability to open snapshot recordings and print vehicle information.

View

The VIEW menu allows the user to decide which windows are visible to offer a customized experience. This can also be used to create a custom session.

Session

The SESSIONS menu contains a list of pre-saved window arrangements called Sessions. The pre-saved sessions are optimized to show information for common tests or procedures. There are also options to load a saved session, save the current session, or rename the current session.

Tests

NOTE

TO DETECT WEAK OR FAILING COMPONENTS, SOME TESTS IN SERVICEMAXX™ CAUSE SYSTEMS TO OPERATE UNDER SPECIALIZED CONDITIONS, WHICH MAY CAUSE CODES TO SET. IF A CODE SETS AS A RESULT OF A TEST IN SERVICEMAXX™, FOLLOW THE DIAGNOSTIC PROCEDURE FOR THE CODE.

The TESTS menu displays the engine specific tests that can be performed to ensure different components are operating correctly.

Procedures

The PROCEDURES menu displays the engine specific procedures that are performed to ensure different systems are operating correctly.

Tools

The TOOLS menu contains some of the tools from the Tool Bar as well as a Communication Link selector and engine specific tools.

There is also an option to set the Snapshot Recording Interval used for recording snapshots.

Help

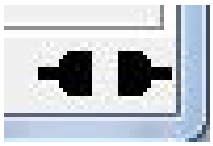
The HELP menu contains information that makes ServiceMaxx™ easier.

Connection Status Icon

NOTE

THE CONNECTION STATUS ICON DISPLAYS THE COMMUNICATION STATUS OF THE ENGINE CONTROL MODULE, NOT THE ENTIRE VEHICLE.

In the lower right corner of the ServiceMaxx™ screen, there is a connection status icon. This icon resembles a Data Link Connector (DLC) and a Communication Link. These icons are normally black, but will turn green when either ServiceMaxx™ or the engine is trying to communicate. A successful connection between ServiceMaxx™ and the engine is indicated by the two icons connecting and turning green.



ServiceMaxx™ Update Indicator

This indicator displays the current update status of ServiceMaxx™. When ServiceMaxx™ is opened, it will automatically check if an update is available. While this is happening, the indicator will display the message, “Checking for updates”. If an update is available, the download progress will be shown here as well. Once the update has been downloaded, the indicator turn green and display the message, “Please restart ServiceMaxx™”. If an update is not available, the indicator will remain grey and display the message, ServiceMaxx™ is up to date.

Connecting to a Vehicle

Selecting Com Link

To connect ServiceMaxx™ to a vehicle, you must first connect the proper communication link to the USB port of the computer running ServiceMaxx™. The communication link should then be connected to the vehicle's DLC. Before the devices can communicate with each other, the user will need to select the communication link from the TOOLS menu. Select the TOOLS menu, and then highlight SELECT COM LINK.

Navigate through the additional menus to select the connection device in use. ServiceMaxx™ will remember this selection the next time it is launched. A connection can now be initiated by turning the key to the on position. The ACTIVATE COM LINK button may need to be clicked if the connection is not made automatically.

Connection Indicator

A successful connection can be verified in multiple ways. The first is a solid green Connection Indicator Icon in the lower right corner of the screen. The left connection status icon will flash when ServiceMaxx™ is sending information to the engine, and the right connection status icon will flash when the engine is sending information to ServiceMaxx™. Similarly, if either connector is solid black or the connectors of the icon are disconnected, the modules cannot communicate. The second way to verify a connection is by a fully populated VEHICLE INFORMATION window.

Reading Fault Codes

Once connected to the vehicle, any Diagnostic Trouble Codes (DTCs) that are stored in the vehicle's memory will be displayed. The default columns show the DTC if applicable, Suspect Parameter Number (SPN), Failure Mode Indicator (FMI), Fault Code Type, Freeze Frame Button, Message, Count, and Module.

DTC

This field displays a coded number that corresponds to a specific failure on EPA 07 and older engines.

SPN

This field displays a coded number that corresponds to specific vehicle systems.

FMI

This field displays a coded number that corresponds to a specific type of fault, such as an open circuit.

Type

This field displays a description of the current status of the DTC.

Freeze Frame

This button allows the user to view the vehicle data at the time the DTC was set.

Message

This field displays a description of the DTC.

Count
This field lists the number of times the DTC has been detected since the first time the code was set.

Module
This field displays the module that set the DTC.

Clear DTCs

WHEN DIAGNOSING A FAULT, IT IS VERY IMPORTANT THAT THE TECHNICIAN DOES NOT CLEAR FAULT CODES UNLESS INSTRUCTED TO DO SO BY THE FAULT CODE ACTION PLAN (F-CAP) OR DIAGNOSTIC MANUAL. USEFUL DIAGNOSTIC DATA AND CODE HISTORY WILL BE LOST IF CODES ARE CLEARED AT THE WRONG TIME.

This button allows the user to clear the fault codes that are currently saved in the vehicle's memory, along with its freeze frame data.

Refresh DTC/Vehicle Events
This button allows the user to update the DTC list to find out if any new codes have been set or if the status of a fault code has changed.

Sessions

Creating a Custom Session
Pre-saved sessions can be opened from the SESSIONS menu at the top of the ServiceMaxx™ screen. Each session is optimized for a different function, which is typically described in the name of the session. Sessions are a collection and arrangement of windows within the ServiceMaxx™ screen. The user has the ability to add, resize, and remove windows to suit their needs. Resizing windows is useful for viewing more data, revealing graphs, or uncovering options that may be hidden.

Tabs within windows can be moved to become their own window as well. For instance, the user could view temperature and pressure data at the same time. The columns of data can also be resized to show more or less information.

There may be more data, or signals, available than what is displayed. ServiceMaxx™ has the ability to watch additional information that the user may want to have. To watch a signal, make sure the corresponding box in the WATCHED column is selected. If this column is not available, right click on one of the other column titles to open an options menu, and then select WATCHED to add the WATCHED column. Select the WATCHED option to continue.

Watching Specific Sensors

To view the other available signals, deselect the ONLY SHOW WATCHED box, which can be found by expanding the collapsed menu at that top of the window. This will populate the signals list with all of the available signals. After selecting the sensors to be watched, ensure the box at the top of the window labeled ONLY SHOW WATCHED is selected. All signals that are unchecked will be removed from the WATCHED list.

Searching for Signals

There are multiple ways to find a signal and add it to the WATCHED list. The first way is to scroll through the list and select it. Another option is to use the FILTER function built into ServiceMaxx™.

THE FILTER WILL SHOW ONLY ITEMS VIEWED IN THE TAB. IF THE ONLY SHOW WATCHED BOX IS CHECKED, THE FILTER FEATURE WILL SHOW ONLY THE SIGNALS AND PARAMETERS THAT ARE BEING WATCHED. IF THE BOX IS NOT CHECKED, ALL AVAILABLE VALUES CAN BE SELECTED USING THE FILTER FEATURE.

To use this function, click the filter icon at the left of all of the columns in a window, enter a keyword into the search field, such as MANIFOLD, to search for the Intake Manifold Pressure Sensor, and select OK. ServiceMaxx™ will then search through the names and abbreviations of all signals for the specified keyword. The signals with the word MANIFOLD in the title will then be grouped at the top of the list. This makes it easier to search for the signal of interest. Once the new signal has been selected, the ONLY SHOW WATCHED option can be selected again to hide the extra data.

Name	Value	Units	Watched
Desired Absolute IMP (Turbo Boost Limit)	22.09	psi	☑
Engine Oil Pressure	0	psi	☑
Fuel Delivery Pressure	0	psi	☑
Fuel Rail Pressure	3,217	psi	☑
Fuel Rail Pressure Desired	14,527	psi	☑
Intake Manifold Pressure	0.00	psi	☑
Intake Manifold Pressure Desired	7.8	psi	☑
TC1 Turbine Outlet Pressure	0.0	psi	☑
TC1 Turbine Outlet Pressure Desired	0.0	psi	☑
TC2 Comp. Inlet Pressure	-0.03	psi	☑

Saving a Graph

When a graph has all of the desired values displayed, it can be saved as an image, printed, or fine-tuned by right-clicking on the graph to open an options menu.

Saving and Opening Custom Sessions

CUSTOM SESSIONS MUST BE SAVED BEFORE A NEW SESSION OR TEST IS STARTED. IF THE CUSTOM SESSION IS EXITED WITHOUT SAVING, THE CHANGES WILL BE LOST.

If the new window arrangement is or will be used often, it can be saved as a custom session. To do this, open the SESSIONS menu at the top of the ServiceMaxx™ screen, and then select the SAVE SESSION… option. Name the session and click the SAVE button.

Loading a Custom Session

To load a previously saved session, open the SESSIONS menu at the top of the ServiceMaxx™ screen, and then select the LOAD SESSION… option. Navigate to, and select the desired session file to be opened. Click the OPEN button to load the session.

Closing a Session

The previous session is closed when the user starts a new session or test, or when the ServiceMaxx™ software is closed.

Snapshots

Recording a Snapshot

Many times it is necessary to look at sensor values while the vehicle is moving. ServiceMaxx™ makes it possible to safely collect data while driving the vehicle. This feature is called a SNAPSHOT. Snapshots are recordings of all vehicle data over a portion of time. These recordings can be saved and viewed at a later time.

Manual Recording

There are two ways to take a snapshot. The first is to manually start and stop the recording using the DATA RECORD button. Clicking this button once starts the recording. Data will be recorded until the button is clicked again or the session is closed. Once recording stops, the snapshot is automatically saved.

Triggered Recording

The second option is to take a snapshot by setting up a trigger. Triggers allow the user to record information based on sensor readings. For instance, if a customer complains of an issue that occurs at 35 MPH (56 Km/H) or faster, you can set a trigger to focus on data once that speed is reached. To set up a trigger, click the TRIGGER SETUP button.

Adding a Trigger

Add a new requirement by clicking the ADD CRITERIA button. A blank line will be added to the list of triggers. The user can select a sensor to monitor by clicking the blank cell in the SIGNAL column.

THE FILTER WILL SHOW ONLY ITEMS VIEWED IN THE TAB. IF THE ONLY SHOW WATCHED BOX IS CHECKED, THE FILTER FEATURE WILL SHOW ONLY THE SIGNALS AND PARAMETERS THAT ARE BEING WATCHED. IF THE BOX IS NOT CHECKED, ALL AVAILABLE VALUES CAN BE SELECTED USING THE FILTER FEATURE.

This opens a drop down menu with all of the available signals listed in alphabetical order. Scroll to the desired signal, which is VEHICLE SPEED in this case.

Configuring a Trigger

Selecting a signal adds it to the list and populates the UNIT column with the assigned unit and displays a REMOVE button to remove the trigger. To configure a trigger, the user must determine the logic, as well as a value for the trigger. Logic determines what condition of the value is desired. The logic options include greater than, equal to, not equal to, and less than.

Since the issue in this example only happens at or above 35 MPH (56 Km/H), the logic column should be set to GREATER THAN. The value should then be set to the desired reading, which is 35 MPH (56 Km/H) in this case. At this point, it is possible to add more criteria. For example, if an issue only happens once the engine coolant reaches a certain temperature or the engine is under a specific load range.

Pre- and Post-Trigger Settings

Once all of the triggers have been added, the Pre- and Post- trigger timers should be set to further narrow down the amount of information collected. The pre-trigger setting is used to determine how much information before the trigger event should be included in the snapshot. From the moment the trigger is armed, ServiceMaxx™ begins monitoring all signal data. The amount of pre-trigger data is then included in the snapshot based on the settings you choose when configuring the trigger.

This is useful when trying to identify what causes a trigger, such as a sudden loss of fuel pressure. The post-trigger setting is used to determine how much data should be recorded after the trigger event. This setting also stops the snapshot feature once the set time has been reached. After all settings have been configured as desired, click the SAVE button to confirm the settings.

Snapshot Recording Intervals

Before enabling the trigger, it is a good idea to adjust the SNAPSHOT RECORDING INTERVAL. This feature controls how often data is captured while recording a snapshot. This setting can be adjusted by opening the TOOLS menu, hovering the mouse over SNAPSHOT RECORDING INTERVAL, and then selecting the desired interval. A shorter recording interval means more data will be collected, more storage space is needed, and small changes can be easily identified. Longer recording intervals will collect data less often, require less memory for storage, and are ideal for identifying trends over a longer period of time.

Arming the Trigger

After setting up a trigger, and adjusting the recording interval, the trigger is ready to be armed by clicking the TRIGGER ARM button. Doing so disables the manual SNAPSHOT RECORD button and starts monitoring the vehicle data. Once a snapshot has ended, the file will automatically be saved into a SNAPSHOTS folder on the desktop.

Reviewing Saved Snapshots

ServiceMaxx™ also has the ability to review saved snapshots. To do this, start by opening the FILE menu. Select OPEN SNAPSHOT RECORDING FILE… to browse available snapshots. Then double click the desired snapshot to open it with ServiceMaxx™. Snapshots are opened in a separate window which contains a graph and a list of all available signals. Selecting signals from the list plots them on the graph, if possible, so that the information can be viewed and compared. The recorded information can be played back at the speed it was recorded or scrolled through manually. In the case of a triggered recording, the information before the beginning of the timeline can be viewed manually.

Parameters and Signals

Adjusting Parameters

It is also possible to modify parameters within ServiceMaxx™. The types of parameters that can be modified are dependent on the user's access level. To adjust parameters, select the PROGRAMMING session.

Numeric Changes

There are two basic ways to change a parameter. The first is by changing a numeric value. For example, on the PTO tab, it is possible to adjust the maximum speed for the auxiliary engine speed control. To change the parameter, click the current speed in the VALUE column. Once the current value is selected, enter the desired value and press ENTER on the keyboard. The updated parameter setting has been noted, but has not been programmed yet. The user can cancel the change by clicking the UNDO button.

Dropdown Changes

The second way to change a parameter is by selecting an option from a dropdown menu. Parameters such as Remote Pedal Mode can have two or more pre-determined options for setting the parameter. In this case, clicking on the value of a parameter enables the user to open a drop down menu. The drop down menu will list the available programming options for the parameter.

Programming the Engine

If another parameter needs to be changed, it can be done at this time. Once all of the parameters have been changed, select the PROGRAM ENGINE button towards the top of the screen. ServiceMaxx™ will ask the user to confirm that the new parameters should be programmed. Selecting YES starts the process of programming the changes.

Conclusion

This concludes the Navistar® training course: ServiceMaxx™ Overview and Snapshot Analysis.

Thank you for your participation.

NOTES