NAVISTAR®
EDUCATION

Service Diagnostics Solutions Overview

Study Guide

Course Code: 9294

Table of Contents

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Introduction

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

Welcome

Welcome to the Navistar® training course: Service Diagnostics Solutions Overview.

This course is intended to introduce service personnel to the Service Diagnostics Solutions software tool.

Objectives

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

- Certain features of the Service Diagnostics Solutions software
- How to connect to a vehicle
- and the layout and basic function of the Service Diagnostics Solutions software

Notes

Module 1: Overview

Navistar's Service Diagnostics Solutions software is an efficient and robust diagnostic and programming tool. Coverage includes all J-1939 International® electronic engine systems, allowing the user to run special tests, change parameters, and view and graph engine data.

It also includes certain features from NavKal, NED, and HeRo and even expands on some.

The Service Diagnostics Solutions, or SDS software, offers a crisp UI with streamlined navigation using industry standard icons. It also features links to FCAPs directly from health reports when online.

Please refer to the Navistar® Service Diagnostics Solutions user guide found on Service Portal℠ for detailed download and installation instructions.

Similar to other Navistar® diagnostic software applications, SDS is available in the EZ-TECH® Download Center.

Notes

Module 2: Connecting to a Vehicle

Prior to connecting to a vehicle, keep in mind that there are several communication adapters that can be used.

The following adapters have been verified for use with SDS:

- Nexiq USB Link™ 2
- Noregon® DLA+ Wireless
- Dearborn Group DPA5
- Drew Tech TVIT
- DrewLinQ®
- MDI 2

To connect to the vehicle, turn the ignition to the Key ON Engine OFF position.

Next, connect the interface cable between the laptop and the vehicle's 9 pin diagnostic connector.

AUTOMATIC SOFTWARE UPDATES ARE PROVIDED DIRECTLY FROM NAVISTAR® WHEN A NEWER VERSION IS AVAILABLE. SDS WILL CHECK FOR UPDATES DURING STARTUP WHEN CONNECTED TO THE INTERNET.

Open the Service Diagnostics Solutions software by double clicking the icon on the desktop.

Once the User Authentication window appears, enter your username and password, then click OK.

A detection process will begin and connect automatically.

It may be necessary to select the interface cable that is being used.

To do this, click on Menu, then Connection, and select the correct interface cable.

Notes

Module 3: Application Layout and Basic Functions

Home Session View

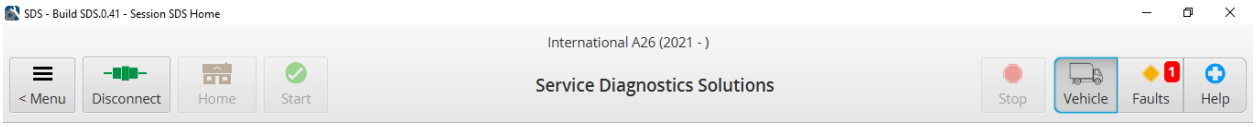
When Service Diagnostics Solutions opens, a default session is displayed and the Health Report Scan Checkpoint box appears. We will discuss the Health Report options a little later in this module. Let's first start with a brief description of each area shown in the default session.

The main SDS screen is made up of different sections. These are: the Action Bar; Session Window; Vehicle Information, Faults, and Help Window; and Filter Control.

Action Bar

The Action bar along the top includes the following:

- Menu
- Disconnect / Connect / Reconnect
- a multi-function Home button
- a multi-function Start button
- a multi-function Stop button
- Vehicle
- Faults
- and Help



Menu

When the Menu button is selected, a list of features appear. We will discuss some of these features later in this module.

Disconnect/ Connect

The Disconnect, Connect, Reconnect button is used to disconnect or reconnect the communication adapter.

Multi-function Buttons

The next three buttons in the Action Bar are multi-function buttons. These are Home, Start, and Stop. These buttons will change depending on what menu item or feature is currently being viewed.

Selecting the Home button will switch the view to the Home Session. In other views, the Home button will change to Revert All. Selecting this reverts all edits made to any parameter before they are programmed.

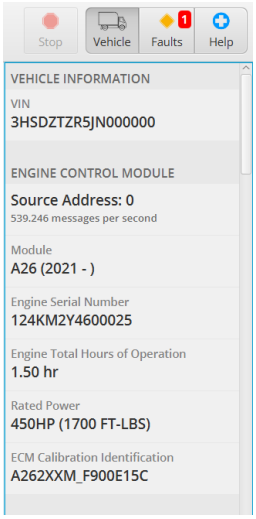
The Start button will change from Start….to Program…..to Start Test…..to Start Procedure….to Start Recording, again depending on which menu items or features are being viewed.

The Stop button will change from Stop…..to Cancel Test…..to Cancel Procedure…..to Stop Recording…..to Health Report, depending on which menu items or features are being viewed.

Vehicle Button

Selecting Vehicle displays the information of the connected vehicle in a window on the right.

Vehicle Information Panel

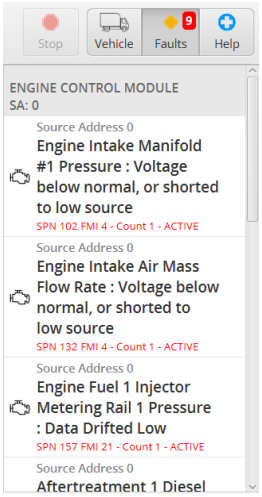


The Vehicle Information Window provides detailed information on the connected vehicle and all modules communicating on the Public CAN Network.

Some of the fields shown in the Vehicle Information Window are:

- Vehicle Identification Number (VIN)
- Engine Model
- Engine Serial Number
- Rated Power
- ECM Calibration
- And all other connected modules and software IDs

Faults



If active faults are detected, the number of faults will appear in a red square on the Faults button.

Selecting the Faults button opens a window which displays all faults from the connected modules, provided they follow SAE specifications.

Clicking on a fault code in the list will retrieve and display freeze frame data for that fault.

At the bottom of the faults window two options are available to clear faults. The first is Clear All Faults. This appears once the fault button is selected and will clear all faults from all connected modules once selected.

The second option is Clear Module Faults. This option appears once a fault code in the list is selected and clears only the faults of the selected module.

Help

Selecting Help opens the help window for the current session.

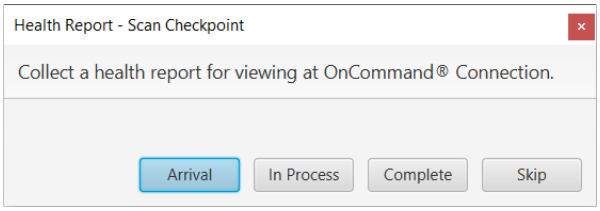
Menu Features

Next, let's take a look at some of the key features that appear in the menu.

Health Report

After initiating a connection, the Health Report Scan Checkpoint box appears. A Health Report can also be generated at any time by going to the menu and selecting Collect a Health Report.

Three options appear in the Checkpoint box that can initiate collecting a health report. These are Arrival, In Process, and Complete.



Arrival is the first health report taken by the technician.

In Process is used while the vehicle is being serviced.

Complete is the last health report generated after all repairs have been completed by the technician.

When a Health Report has been collected using any of these three options, a copy is automatically uploaded to Service Portal℠. A popup also appears with the option to view the report in a browser or to select done. To find the Health Report that was uploaded, navigate to Service Portal℠ and enter the VIN.

The fourth option that appears in the Checkpoint box is Skip. Selecting this option cancels the collection of a Health Report.

NOTE

THE HEALTH REPORT SCAN CHECKPOINT BOX WILL APPEAR WHENEVER SDS DETECTS THAT THE VIN CHANGES OR IF SELECTING MENU . . . COLLECT A HEALTH REPORT.

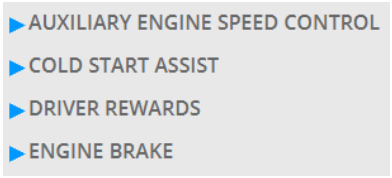
Monitor, Record, and Playback Features

SDS can monitor, record, and playback signals sent from the ECM. This section explains how to use some of these features.

Selecting the Show Graph icon displays a graph of the grouped signals.

List Expand/ Collapse

When viewing a list, if a blue triangle appears next to an item, the triangle can be selected to expand or collapse access to additional items.



Signal Settings

Clicking on the Settings icon above any signal table will display a list of view and format options. These are Column View, Grid View, Compact Format, and Detailed Format.

There is also an Edit button which allows the user to add signals or move select signals to the top of the list.

Units of Measurement

The unit of measurement can be changed from English to Metric by accessing the menu and scrolling down to Application. The SDS software will save the new setting as the default.

Search Field

The Search Field near the bottom of the screen will help filter the results down to what the search entry was.

DM24 Datastream Report

The Freeze Frame Report menu option creates a PDF of all signals on the DM24 Datastream. To create a Freeze Frame Report, with the DM24 Datastream running, open the menu and select Freeze Frame Report. Once selected, the menu will close and a blue bar will appear at the top of the DM24 Datastream window indicating that the report is being generated.

Saved Reports

All reports are saved in the desktop folder: SDS Saved Data / Reports.

Data Recordings

Service Diagnostics Solutions will automatically save recordings of any tests or procedures that are run. Signal Recordings can also be saved by using a Signal Data Monitoring session.

Saved Recordings

All recordings are saved in the desktop folder: SDS Saved Data / Recordings.

Record File Naming Convention

Recordings are named using the following method. The last 8 digits of the VIN, the test name, and the date and time.

Data Recording Playback

To play back a data recording, go the menu and select Data Recordings. Once the popup window opens, select a recording.

Select Add / Remove to select signals for the chart. Up to 10 can be selected.

Then, click Add Selected to populate the chart with the selected signals.

Signals can be removed by clicking the "X" next to the signal name.

A signal can be traced by clicking on the Signal Name.

Zoom In/ Zoom Out

The plus and minus buttons near the upper left of the graph window allow the user to zoom in or out on the graph. It is also possible to click and drag across the graph to zoom in on a selected area.

Using Filters

Filters can be added to any signal in the data recording playback.

To do this, click on the plus symbol next to the name. Then select a filter and enter any conditions.

Close the filter window. Filter information will be displayed below the signal name.

Click the filter icon to enable the filter. Click it again to disable the filter.

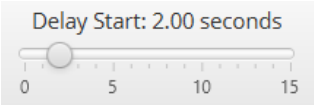
Test Session

Now let's take a look at a typical test session view. The Tests menu option is found in the Engine Control Module section and provides access to several different tests.

To begin a test, choose one from the list and select the Start Test button. Selecting this button also starts a recording of the test simultaneously.

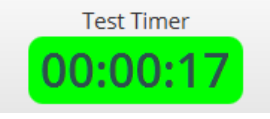
Delay Start

At the upper left there is a Delay Start slider. This feature allows the user to delay the start of a test by a certain number of seconds.



Test Timer

To the right of the Delay Start slider is the Test Timer. This changes to green once the test has started and displays the test's run time.



Test Input Parameters

Just below the Test Timer and Delay Start slider is the Test Input Parameters section. Some tests have input parameters that can be selected or edited in this section.

Help Window

If the Help button at the upper right is selected, information about the test will be displayed in the Help window on the right.

Programming

Next we'll cover the Programming menu option. This is also found in the Engine Control Module section of the menu.

Open the menu and select Programming and then Programming again from the submenu.

Parameters are used to configure the Engine Module to set all needed features to the connected vehicle.

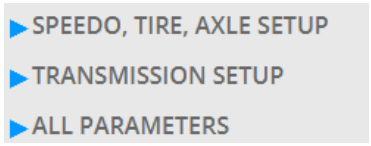
It is recommended to save the Parameter file before making any programming changes.

Programming Session

For convenience, parameters are divided up into sub-systems for easy programming of any select system.

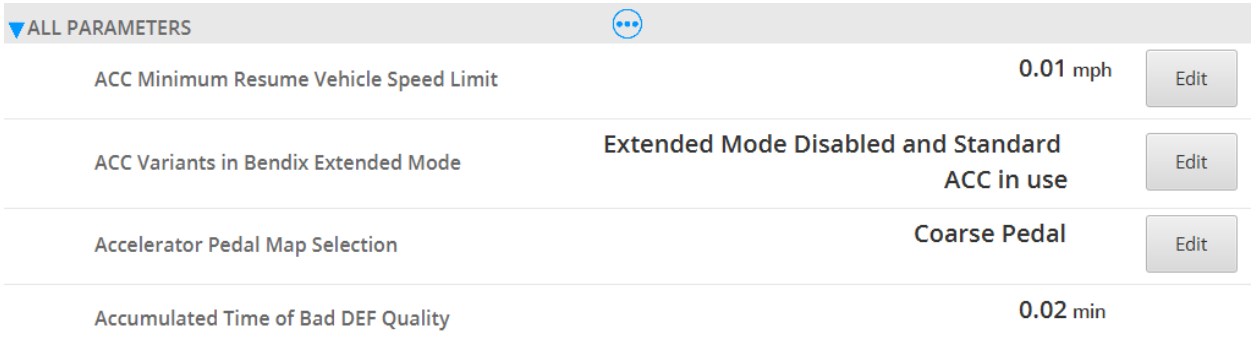
All Parameters Session

At the bottom of the list there is an All Parameters option. This is a listing of all parameters of the connected Engine Control Module.



Programming

To program a parameter, find it in the list. Then click Edit to change the parameter.



If selecting from a dropdown list, once an option is selected the Undo button will appear.

If changing the value of a number pressing enter on the keyboard will lock that value in and an Undo button will appear where the Edit button was.

If selecting from a dropdown list, once an option is selected, the Undo button will appear.

To undo all the edits that were made, select the Revert All button at the top of the screen. A pop up will appear asking to confirm the revert all process. To undo a single edit, select the undo button for that parameter. Please note that selecting Revert All or undoing a single edit, must be done prior to clicking the Program button.

When finished programming any parameters, select the Program button at the top of the screen. This will complete the programming.

Save Parameters to a File

To save parameters to a file, navigate to the Module Tools section of the menu and then select Save Parameters to File.

A popup window will display all connected modules that have parameters.

Add a checkmark to the modules to which the parameters should be saved.

Then, click the Save button.

Load Parameters to a File

To load parameters from a saved file, navigate to the Module Tools section of the menu and select Load Parameters from File.

A Select File window will open. Select a previously saved parameter file.

Next, add a check mark next to the desired modules to load a parameter into and then click Load Selected Modules.

The parameters are loaded into the All Parameters session.

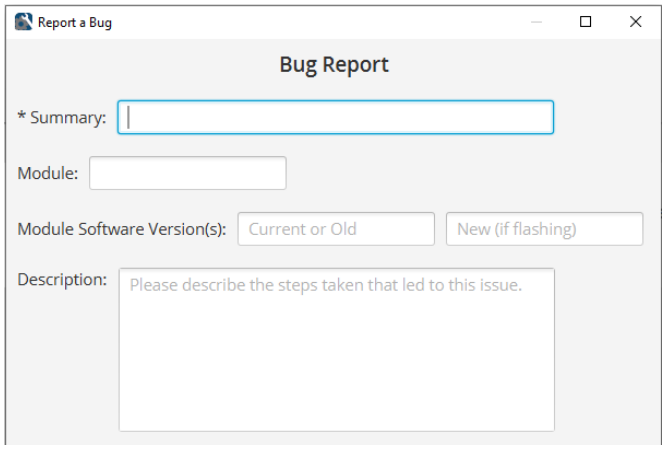
If all Parameters do not load, it’s possible the new calibration has removed some old parameters. Take note of what isn’t loaded for reference.

Then click the Program button.

Report a Bug

In the event the SDS software doesn't perform as it should, or displays any type of errors, please take the time to report it by filling out a Bug Report.

Open the Bug Report window by navigating to the Application section of the menu, and then to Report a Bug.



Once the window opens, fill in the fields provided and submit the report.

Please keep in mind that the menu items we've just reviewed are only some of the features of Service Diagnostics Solutions.

There are several additional features within SDS that can help the user perform efficient diagnostics and programming of Navistar® vehicles.

Notes

Conclusion

This concludes the Navistar® training course: Service Diagnostics Solutions Overview.

Thank you for your participation.

Notes