

## **USER GUIDE**

### **HeRo™ Diagnostic Software**

**Navistar, Inc.**

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**Table 1 Summary of Changes**

<b>Section</b>	<b>Description</b>	<b>Revision Number</b>
Getting Started	Updated note on firewall configuration	3
	Added information on entering dealer information	2
HeRo™ Software	Added information on scan checkpoints	2

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## **SAFETY INFORMATION**

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

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

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

### **Safety Terminology**

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

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

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

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

### **Work Area**

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

### **Protective Measures**

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

### **Vehicle**

- Shift transmission to Neutral, set parking brake, and install wheel chocks before doing diagnostic or service procedures.
  - Clear the area before starting the engine.
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## **Safety Equipment**

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

## **Engine**

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

## **Fire Prevention**

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

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

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

## **Batteries**

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

## **HERO™ DIAGNOSTIC SOFTWARE**

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

### **INTRODUCTION**

HeRo diagnostic software provides the capability to:

- Scan Navistar powered engines.
- Scan non-Navistar powered engines.
- Display and clear active and previously active Diagnostic Trouble Codes (DTCs).

### **ACRONYMS**

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

- DTC - Diagnostic Trouble Code
- ECM - Engine Control Module
- EST - Electronic Service Tool
- FMI - Failure Mode Indicator
- SPN - Suspect Parameter Number



## GETTING STARTED

### INSTALLING SOFTWARE

It is strongly recommended that all Terminate and Stay Resident (TSR) programs like the Quicktime® program, CD player programs, or Pocket PC programs be terminated prior to loading or starting the HeRo software. These programs interfere with the efficient operation of the HeRo program and can cause errors reading modules on the datalink.

To install the HeRo software:

1. Prior to installation, a HeRo product key must be obtained for each computer on which the HeRo software is to be installed. Product keys are perpetual, and will not expire.
2. Using the web browser of your choice, navigate to the HeRo page on Navistar's service software site:  
  
<http://www.navistarservicesoftware.com/index.php/hero/>
3. Click the **Download** button to download the HeRo software.
4. When the file has finished downloading, click **HeRo Setup.exe** to run the software and begin installation. The first page of the Setup Wizard appears.



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Figure 1 Setup Wizard, Page 1

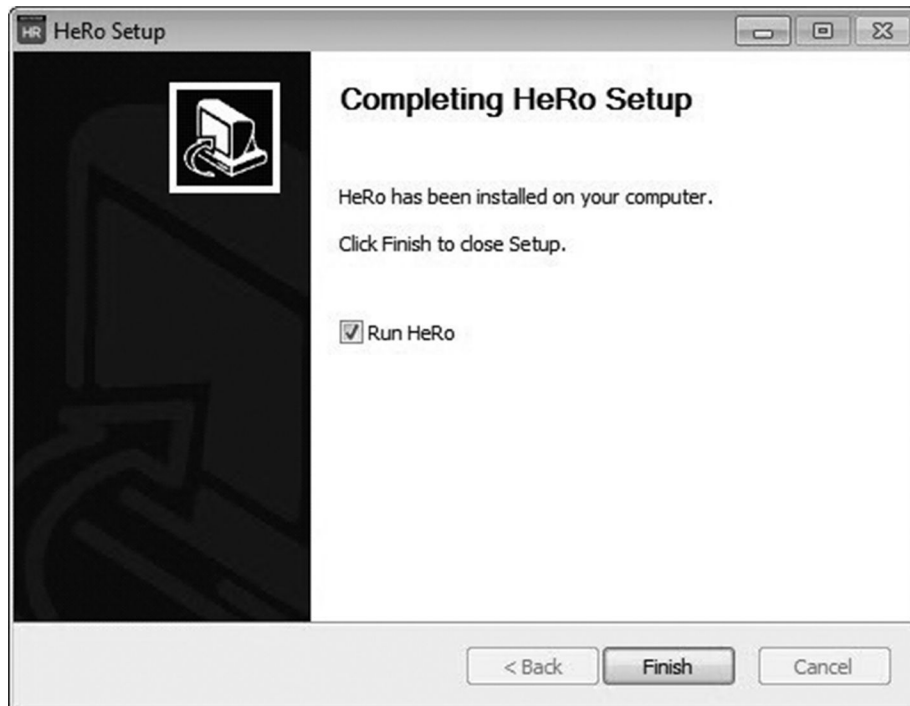
5. Click **Next** to continue.



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**Figure 2 Setup Wizard, Page 2**

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



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**Figure 3 Setup Wizard, Page 3**

7. Ensure that the **Run HeRo** box is checked.
8. Click **Finish** to launch the program.

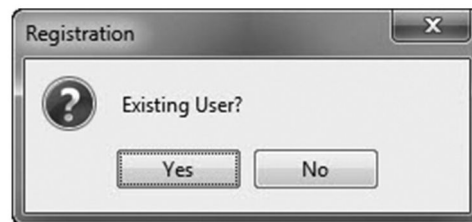
**NOTE – The first time HeRo is installed on a specific computer, the user is prompted to enter the product key.**



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**Figure 4 Product Key Entry**

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




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**Figure 5 Existing User Prompt**

10. Choose **Yes** or **No** in the user prompt window (Figure 5).
  - a. If you already have a Navistar-issued username and password for applications such as Diamond Logic Builder® (DLB) or Navistar Engine Diagnostics (NED), click **Yes** and proceed to Step 14.
  - b. If you DO NOT already have a Navistar-issued username and password, click **No** and proceed to Step 11.

## GETTING STARTED

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The image shows a 'Registration' dialog box with the following fields: E-mail\*, Prefix, First Name\*, Middle Initial, Last Name\*, Suffix, Company Name\*, Street Address 1\*, Street Address 2, City\*, State\*, ZIP Code\*, Country\* (set to UNITED STATES), and Phone Number\*. Asterisks indicate required fields. There are 'OK' and 'Cancel' buttons at the bottom. A '\*Required fields' note is located at the bottom right of the form area.

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**Figure 6 Registration**

11. Enter required information in the Registration window (Figure 6). Required fields are indicated by an asterisk (\*).
12. Click **OK**. When registration is completed successfully, the following message is displayed.



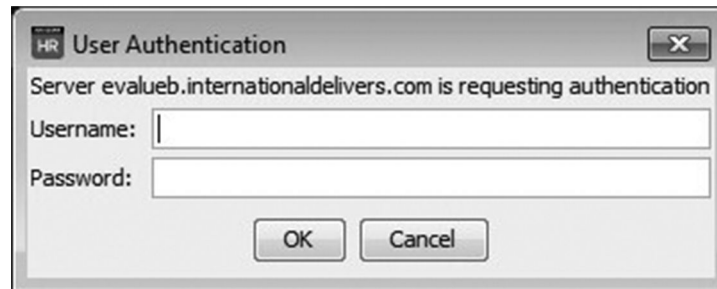
The image shows a 'Login Information' dialog box with the following text: 'Your Username has been successfully created.' 'Your Username and login information have been sent to the e-mail address you provided when registering this product. If you do not receive your Username and login email, please visit the following Health Report Tool Support page for assistance: <http://www.navistarservicesoftware.com/index.php/hero/>' 'NOTE: You must update your password at the link provided in the e-mail before logging into this application.' There is an 'OK' button at the bottom center and '(Code: 818)' at the bottom right.

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**Figure 7 Username Successfully Created**

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

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



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**Figure 8 User Authentication Window**

14. The User Authentication window (Figure 8) appears. Enter your username and password and click **OK**.

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

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

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

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

## GETTING STARTED

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### Installation Error Messages

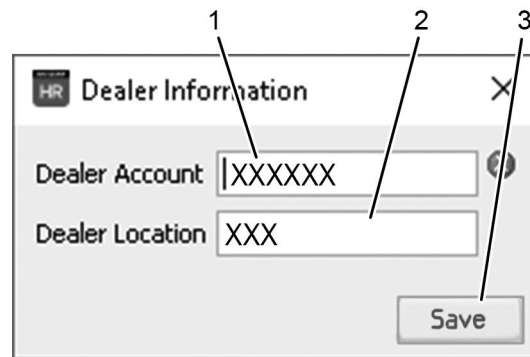
The error messages that may appear during the installation process are self explanatory. Some sample messages are included in the table below:

Code	Text
801	The product key provided does not match the software that you are attempting to activate. Please re-enter the product key to verify or visit the HeRo support page for assistance.  <a href="http://www.navistarservicesoftware.com/index.php/hero/">http://www.navistarservicesoftware.com/index.php/hero/</a>
803	You've exceeded the number of registrations allowed for this product. Please visit the HeRo support page for assistance.  <a href="http://www.navistarservicesoftware.com/index.php/hero/">http://www.navistarservicesoftware.com/index.php/hero/</a>
810	An Internet connection to the HeRo server could not be established; press 'OK' to continue in offline mode. Your license will be verified each time you log into the system. You can keep accessing HeRo offline for 30 remaining days. If a connection to the HeRo Server cannot be established by then, your product will stop working.
812	On some computers, HeRo has to be run in administrator mode. Follow these steps:  1. On the Windows desktop, right-click the HeRo icon.  2. In the right-click menu, select <b>Open File Location</b> .  3. Right-click HeRo.exe.  4. Select <b>Run as Admin</b> .
814	You have already activated the maximum number of usernames permitted by your license.

**NOTE – Refer to <http://www.navistarservicesoftware.com/index.php/800-codes/> for additional error codes.**







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1. Dealer Account entry field
2. Dealer Location entry field

3. Save button

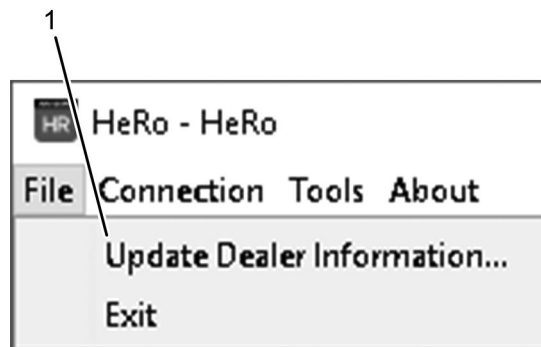
**Figure 9 Dealer Information**

### Dealer Information

When using HeRo for the first time, the Dealer Information screen is automatically displayed (Figure 9).

Do the following:

1. Enter 6–digit Dealer Account number (Figure 9, Item 1)
2. Enter 3-digit Dealer Location number (Figure 9, Item 2).
3. Select **Save**. (Figure 9, Item 3)



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1. Update Dealer Information selection

**Figure 10 HeRo File Menu**

If Dealer information has been previously entered and saved in HeRo (or any Navistar service application) HeRo will not prompt you to enter the information when you open the software.

Existing Dealer information can be updated:

1. Select **Update Dealer Information** in the File menu (Figure 10, Item 1).
2. Update 6–digit Dealer Account number (Figure 9, Item 1)
3. Update 3-digit Dealer Location number (Figure 9, Item 2).
4. Select **Save** (Figure 9, Item 3).

## SOFTWARE UPDATES

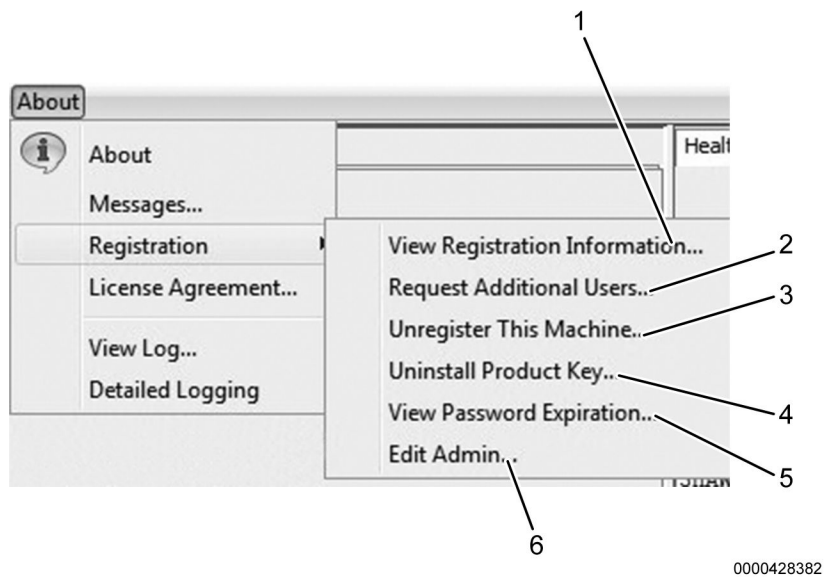
HeRo software provides automatic software updates directly from Navistar any time the tool is connected to the Internet. Upon starting the program, the user may notice an update message that HeRo will require a restart after updates have been completed. HeRo software is fully functional when the Electronic Service Tool (EST) is not connected to the Internet, but the EST should be connected often to check for available updates, and upload pending health reports.

## LICENSING

HeRo's license does not expire. When the license key is entered, there will be no need for an additional license.

### Registration Menu

The Registration Menu provides options to manage Registration, Passwords and Product Keys.

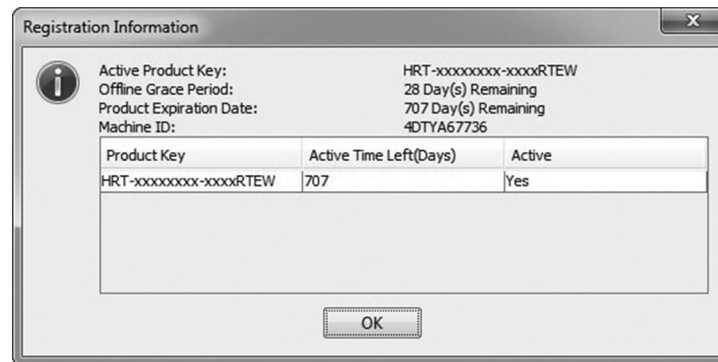


- |                                  |                             |
|----------------------------------|-----------------------------|
| 1. View Registration Information | 4. Uninstall Product Key    |
| 2. Request Additional Users      | 5. View Password Expiration |
| 3. Unregister This Machine       | 6. Edit Admin               |

Figure 11 Registration Menu

### View Registration Information

Select **View Registration Information** menu option (Figure 11, Item 1) to display Registration Information window.



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**Figure 12 Registration Information Window**

Registration Information window (Figure 12) provides a listing of current license(s) installed on the computer.

### Request Additional Users

To request additional users, select **Request Additional Users** in the About menu (Figure 11, Item 2) to open the Registration Information window and complete required fields. An email will be sent with a new username and temporary password.

### Unregister This Machine

To unregister a machine, select **Unregister This Machine** in the About menu (Figure 11, Item 3) to open the Unregister This Machine window.

**IMPORTANT** – Click **OK** to unregister this machine. Unregistering a machine will allow a new machine to be registered with the Product Key. To register a new machine, proceed to Section 2.1 Installing Software.

### Uninstall Product Key

Select **Uninstall Product Key** in the About menu (Figure 11, Item 4) to uninstall HeRo. When prompted, click **Yes** to proceed with product key uninstall. When product key is uninstalled, software will close.

**NOTE** – A product key is required when software is relaunched.

### View Password Expiration

Select **View Password Expiration** in the About menu (Figure 11, Item 5) to display password expiration information.

### Edit Admin

Select **Edit Admin** in the About menu (Figure 11, Item 6) to display the list of usernames.

**NOTE** – The first user to log into the application after it has been registered is the administrator. Only this person can perform administrative actions until additional user names are added.

## VEHICLE CONNECTION

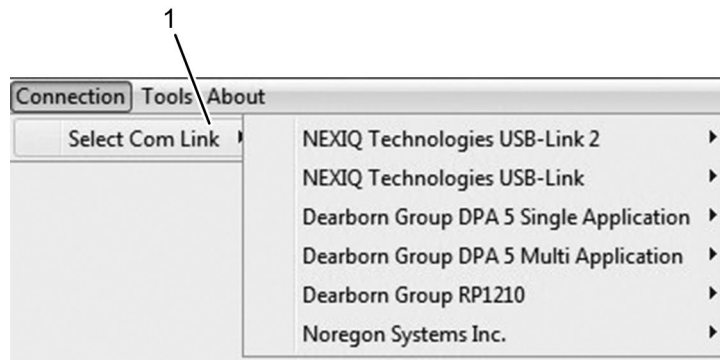
### DIAGNOSTIC INTERFACE CABLE INFORMATION

The following communication adapters have been verified with HeRo software:

- Nexiq Technologies – USB Link, USB Link 2
- Noregon Systems, Inc. – DLA+, DLA+ Wireless
- Dearborn Group – DPA4+, DPA5+

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

### INTERFACE DEVICE SELECTION



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1. Select Com Link menu

**Figure 13 Select Com Link**

1. Start HeRo software.
2. From Tools drop-down menu, go to **Select Com Link** (Figure 13, Item 1).
3. Select cable / interface device.
  - a. NEXIQ Technologies
    - USB-Link
      - J1708 – All pre-Navistar® (pre - 2007) electronic engines
      - J1939 – All Navistar® engines (2007 - present)
    - USB-Link 2
      - J1708 – All pre-Navistar® (pre - 2007) electronic engines
      - J1939 – All Navistar® engines (2007 - present)

b. Noregon

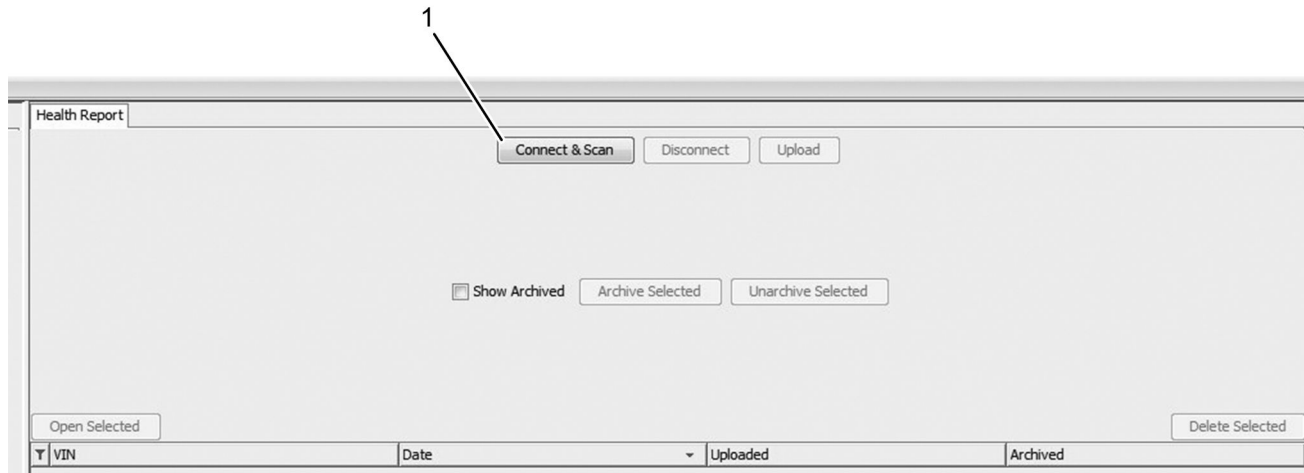
- DLA+, DLA+, USB
  - J1708 – All pre-Navistar® (pre - 2007) electronic engines.
  - J1939 – All Navistar® engines (2007 - present)

c. Dearborn Group

- DG DPA 4/4 Plus USB, USB, DPA5
  - J1708 – All pre-Navistar® (pre - 2007) electronic engines
  - J1939 – All Navistar® engines (2007 - present)

# HERO™ SOFTWARE

## USING SOFTWARE



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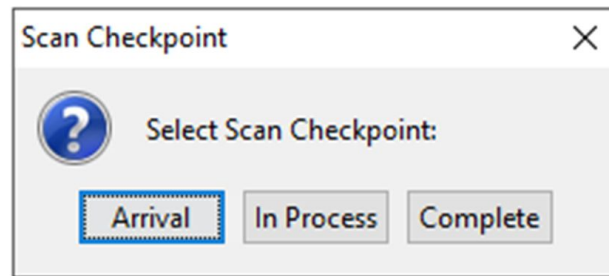
1. Connect & Scan button

**Figure 14 Health Report Window**

To create a Health Report:

1. Key ON, Engine OFF.
2. Using interface cable, connect EST to PC and vehicle's diagnostic connector.
3. Start HeRo software.
4. Select the appropriate interface device (refer to Interface Device Section).
5. Click **Connect & Scan**.





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**Figure 15 Scan Checkpoint Box**

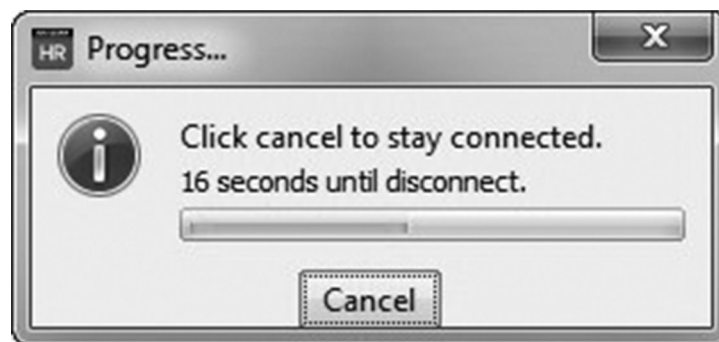
6. After initiating a scan, the Scan Checkpoint box appears (Figure 15). This information is added to the health report to assist the Warranty group.
- Arrival — The first health report taken by technician.
  - In Process — Used when the vehicle is in the dealership for service, and may be having work done.
  - Complete — The last health report after all repairs have been completed by the technician.

**NOTE – Failure to click disconnect may cause a program failure when attempting to connect to subsequent vehicles.**

7. Click **Disconnect** while connected to vehicle.

**NOTE – Indicator located in bottom right hand corner displays connection status.**

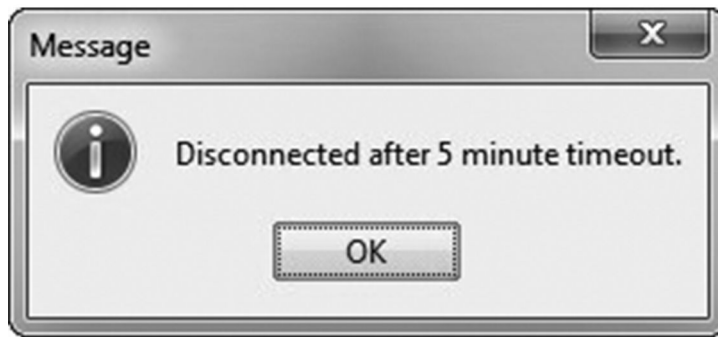
**NOTE – HeRo will automatically disconnect from the vehicle after 5 minutes of no activity.**



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**Figure 16 Timeout Window**

HeRo will automatically display a 30 second countdown in a timeout window (Figure 16) after five minutes of no activity. To remain connected, click **Cancel** (Figure 16) to stop 30 second countdown and resume using HeRo.



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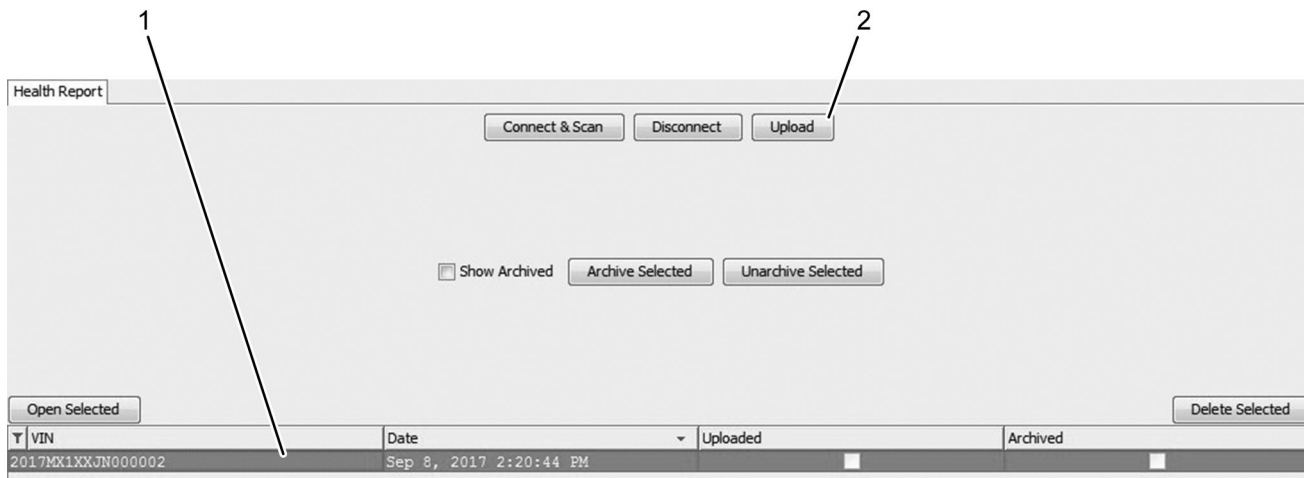
**Figure 17 Message Window**

If 30 second countdown is not canceled, HeRo will display a Message window (Figure 17) with disconnection status. To resume using HeRo proceed to Section 4.1 Using Software.

## FEATURES

### 1. Upload Pending Health Reports

**NOTE –** When an Internet connection is active, the HeRo software uploads all Health Reports automatically. If there is an Internet issue, you must manually upload the Health Report after the Internet issue is corrected. Pending Health Reports can also be uploaded by scanning another vehicle while connected to the Internet. A pending Health Report will not show a check box in the Uploaded column.



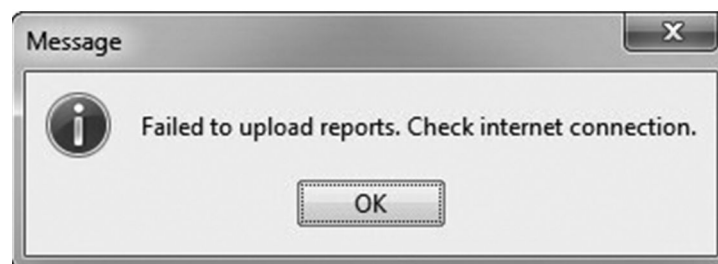
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1. Pending health report

2. Upload button

**Figure 18 Pending Health Report**

1. Select the health report(s) (Figure 18, Item 1) to be uploaded.
2. Click **Upload** (Figure 18, Item 2).

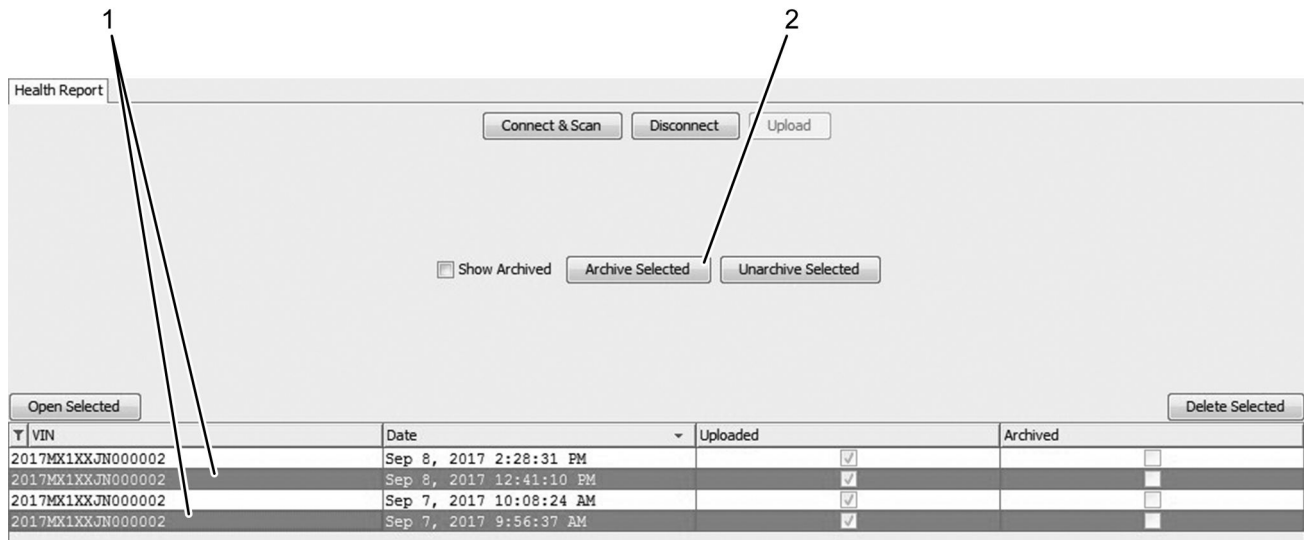


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**Figure 19 Upload Failure**

**NOTE –** Internet connection issues may cause a health report upload failure and a message box (Figure 19) to appear. Correct issue and retry.

## 2. Archive Health Report



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1. Health report(s) selected

2. Archived Selected button

**Figure 20 Archive Health Report**

1. Select the health report(s) (Figure 20, Item 1) to be archived.
2. Click **Archived Selected** button (Figure 20, Item 2).

### 3. Unarchive Health Report

The screenshot shows the 'Health Report' management interface. At the top, there are buttons for 'Connect & Scan', 'Disconnect', and 'Upload'. Below these are a 'Show Archived' checkbox (checked), 'Archive Selected', and 'Unarchive Selected' buttons. At the bottom right is a 'Delete Selected' button. A table below lists health reports with columns for VIN, Date, Uploaded, and Archived. The table contains 13 rows of data. Four numbered callouts point to the 'Show Archived' checkbox (2), the 'Unarchive Selected' button (3), and the 'Delete Selected' button (4). Callout 1 points to the first three rows of the table.

Y	VIN	Date	Uploaded	Archived
	2017MX1XXJN000002	Sep 8, 2017 3:04:22 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2017MX1XXJN000002	Sep 8, 2017 3:03:50 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2017MX1XXJN000002	Sep 8, 2017 2:28:31 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2017MX1XXJN000002	Sep 8, 2017 12:41:10 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 10:08:24 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 9:56:37 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 9:53:48 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 9:46:05 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 9:39:21 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 9:12:50 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2017MX1XXJN000002	Sep 7, 2017 9:08:40 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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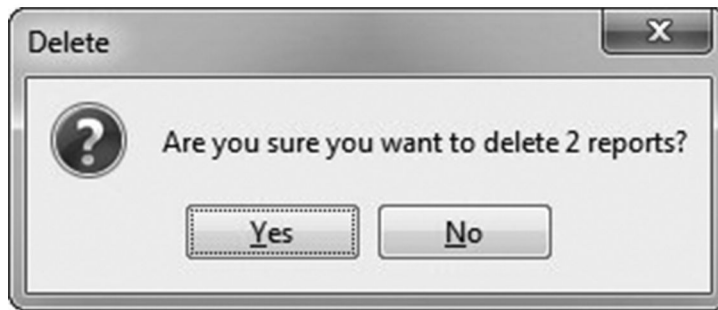
1. Health report(s) selected
2. Show Archived check box

3. Unarchive Selected button
4. Delete Selected button

**Figure 21 Unarchived Health Report**

1. Check the **Show Archived** box (Figure 21, Item 2).
2. Click health report(s) (Figure 21, Item 1) to be archived.
3. Click **Unarchive Selected** (Figure 21, Item 3).

#### 4. Delete Health Report



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**Figure 22 Delete**

1. Select the health report(s) to delete.
2. Click **Delete Selected** (Figure 21, Item 4).
3. Click **Yes** (Figure 21) to delete the selected health report(s).

## 5. Sniffer Tab

Sniffer			
Source Address	Module Name	Time	Messages Per Second
0	Engine Control Module	03:24:58:466	503.474
15	Retarder - Engine	03:24:58:373	10.182
172	Trailer #5 Cargo	03:03:29:798	77.936
249	Off Board Diagnostic-Service Tool	03:24:58:332	2.118

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**Figure 23 Sniffer Tab**

The Sniffer tab (Figure 23) provides real-time monitoring of the network activity for each module on the various data links. This tab is used to identify if the individual modules are present and communicating on the vehicle networks.

## 6. Diagnostic Trouble Code (DTC) Window

Diagnostic Trouble Codes							
Y DTC	SPN	FMI	Type	Freeze Frame	Count	Message	Module
N/A	629	14	Active	Open	1	Controller #1 : Special instructions, see module documentation	Engine Control Module
N/A	91	4	Active	Open	1	Accelerator Pedal Position 1 : Voltage below normal, or shorted to low source	Engine Control Module
N/A	2623	4	Active	Open	1	Accelerator Pedal #1 Channel 2 : Voltage below normal, or shorted to low source	Engine Control Module
N/A	157	3	Active	Open	1	Engine Fuel 1 Injector Metering Rail 1 Pressure : Voltage above normal, or shorted to high source	Engine Control Module
N/A	651	5	Active	Open	1	Engine Fuel 1 Injector Cylinder 1 : Current below normal or open circuit	Engine Control Module
N/A	653	5	Active	Open	1	Engine Fuel 1 Injector Cylinder 3 : Current below normal or open circuit	Engine Control Module
N/A	656	5	Active	Open	1	Engine Fuel 1 Injector Cylinder 6 : Current below normal or open circuit	Engine Control Module
N/A	652	5	Active	Open	1	Engine Fuel 1 Injector Cylinder 2 : Current below normal or open circuit	Engine Control Module
N/A	654	5	Active	Open	1	Engine Fuel 1 Injector Cylinder 4 : Current below normal or open circuit	Engine Control Module
N/A	655	5	Active	Open	1	Engine Fuel 1 Injector Cylinder 5 : Current below normal or open circuit	Engine Control Module

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**Figure 24 DTC Window**

The DTC window (Figure 24) displays all active or previously active DTCs from all connected modules on the datalink. It also displays pending DTCs. DTCs can also be cleared in this window.

The DTC window allows you to:

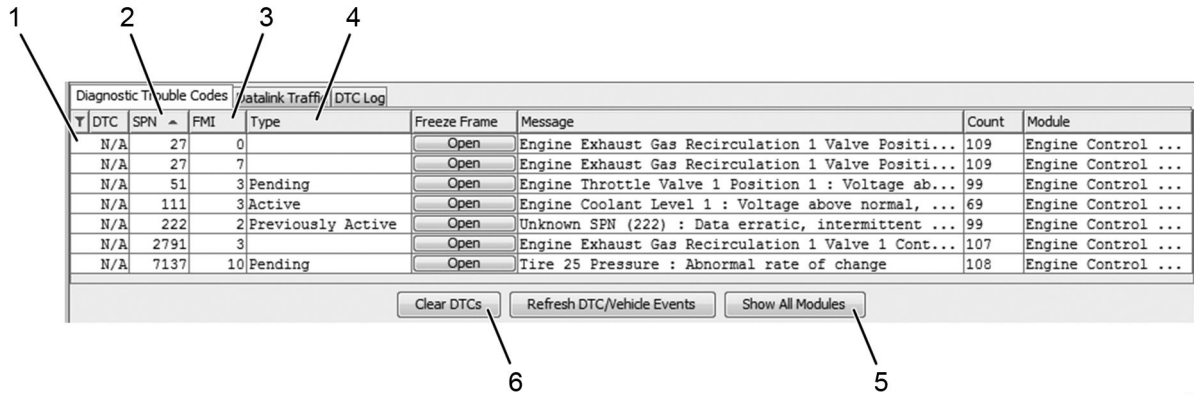
- View active DTCs
- View previously active DTCs
- View healing DTCs
- View pending DTCs
- Clear DTCs
- Refresh DTC / Vehicle Events



## DIAGNOSTIC TROUBLE CODES

### DTC TAB

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



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- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1. Diagnostic Trouble Code (DTC) column (pre-2010)</li> <li>2. Suspect Parameter Number (SPN) column</li> <li>3. Failure Mode Indicator (FMI) column</li> </ul> | <ul style="list-style-type: none"> <li>4. Type column (Active / Previously Active / Pending)</li> <li>5. Show All Modules button</li> <li>6. Clear DTCs button</li> </ul> |
|--|---|

Figure 25 DTC Tab

### 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 tab.

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

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

## DIAGNOSTIC TROUBLE CODES

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### DTC TYPE

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

### VIEWING FREEZE FRAME DATA

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

### CLEARING DTCS

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

1. Click **Clear DTCs**.
2. Check the box next to each module whose inactive DTCs should be cleared.
3. Click **OK**.
4. Cycle the ignition switch.