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Author: Eric George

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Coding Information

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Title: NED A26 Misfire Detection Session Instructions

Applies To: All models with A26 Engines

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

07/07/2020 - Initial Article Release

DESCRIPTION

This document will guide the user through the proper use of the A26 Misfire Detection Session to determine cylinder misfire count related to the specific misfire DTCs.

This test usually requires a 20 minute steady state road test (for best results) .

SYMPTOM(s)

Diagnostic Trouble Code(s)

DTC/Light	Description
SPN 1322 FMI 14	Engine Misfire for Multiple Cylinders : Special Instructions
SPN 1322 FMI 31	Engine Misfire for Multiple Cylinders : Condition Exists
SPN 1323 -1328 FMI 31	Engine Misfire Cylinder #1- #6 : Condition Exists

Customer Observations or Concerns:

MIL Lamp

Engine performance - misfire

SPECIAL TOOL(s) / SOFTWARE

Tool Description		Instructions
Interface Cable (RP1210B-compliant supporting J1939 and J1708)		
Electronic Service Tool (EST) with Navistar® Engine Diagnostics		

[Tools Resource Center](#)

Test Report Viewing

This test automatically generates a PDF report if the computer is WIN10. If the test report is in XPS format (pre WIN10) and your computer will not open the report then install a viewer.

To install the XPS file viewer on Windows 10 to view reports created on older Windows:

1. Press the Microsoft Start button
2. Type "settings" enter
3. Apps
4. Apps and features
5. Manage optional features
6. Add feature
7. Go to the bottom and select XPS
8. Install

DIAGNOSTIC STEP(s)

WARNING:

Do NOT interact with NED or Laptop during Test Drive.

CAUTION:

Test in an area you're able to lawfully and safely operate steady speeds above 50 MPH (80 KPH)

1. NED Test Navigation top menu - Tests > KOER Tests > Misfire Test

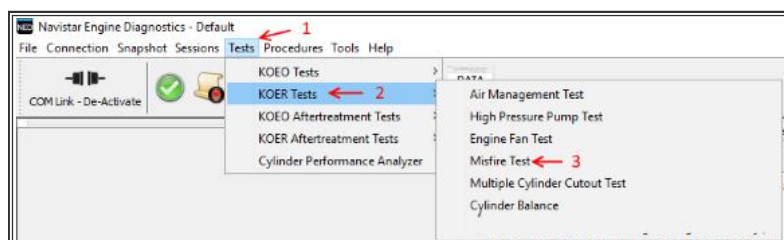


Figure 1 : Navigation

Item 1: Test
Item 2: KOER Tests
Item 3: Misfire Test

Misfire Test (1)

Please create a case file with Engine Technical Support for direction on use of this test.

Overview:
This is a supplemental diagnostic test related to the following Cylinder Misfire DTCs:

- 1322-14 Multiple Cylinder misfire
- 1322-31 Multiple Cylinder misfire
- 1323-31 through 1328-31 Misfire on Cylinder (#)

Pre-Test Warning:

- Do NOT interact with NED or Laptop during Test Drive.
- Test in an area you're able to lawfully and safely operate steady speeds above 50 MPH (80 KPH)

Procedure:
(1) Engine Running

Average (8)		Max (9)	
Name	Value	Name	Value
Misfire Cylinder 1 Ave...	0	Misfire Cylinder 1 Max	0
Misfire Cylinder 2 Ave...	0	Misfire Cylinder 2 Max	0
Misfire Cylinder 3 Ave...	0	Misfire Cylinder 3 Max	0
Misfire Cylinder 4 Ave...	0	Misfire Cylinder 4 Max	0
Misfire Cylinder 5 Ave...	0	Misfire Cylinder 5 Max	0
Misfire Cylinder 6 Ave...	0	Misfire Cylinder 6 Max	0

Misfire Test Drive Start Test End Drive 0:00

(2) (3)

Vehicle Speed (4)
0 mph

Time over 30 MPH (5)
Not Running

Time over 50 MPH (6)
Not Running

Total Test Time (7)
Not Running

Figure 2: Test Layout

Item 1: Instructions	Item 6: Time over 50 MPH
Item 2: Start Test	Item 7: Total Test Time
Item 3: End Drive	Item 8: Average Cylinder Misfire Counts by Cylinder #
Item 4: Current Vehicle Speed	Item 9: Maximum Cylinder Misfire Count by Cylinder #
Item 5: Time over 30 MPH	Item 10: Misfire Counter Data

Test Use:

This test can be used to supplement the diagnostics related to the following faults:

SPN 1322 FMI 14 Engine Misfire for Multiple Cylinders : Special Instructions

SPN 1322 FMI 31 Engine Misfire for Multiple Cylinders : Condition Exists

SPN 1323 -1328 FMI 31 Engine Misfire Cylinder #1- #6 : Condition Exists

This test can identify cylinder misfires during a road test where the engine is under load. Many misfires are not detectable in the bay without an engine load or engine brake operation.

This test can supplement or replace the Cylinder Balance Test that is performed in the bay without engine load.

This test can also be used to compare misfire counts before and after a repair is completed such as an injector replacement or valve / engine brake valve lash adjustment .

Determining if a repair has reduced the misfire count will help determine if the misfire was resolved.

This test can also be used to compare before and after Jake Brake assembly removal when attempting to determine if the Jake Brake is sticking for a specific Cylinder or Cylinders

Test Instructions :

Note: Snap acceleration can cause false misfire counts .

Please create a case file with Engine Technical Support for direction on use of this test.

Overview:

This is a supplemental diagnostic test related to the following Cylinder Misfire DTCs:

- 1322-14 Multiple Cylinder misfire
- 1322-31 Multiple Cylinder misfire
- 1323-31 through 1328-31 Misfire on Cylinder (#)

Procedure:

- (1) Engine Running.
- (2) Press Start Test. (**Key cycle is required before re-test in order to reset misfire counts to zero**).
- (3) Enable engine brake (if equipped), set to the highest setting.
- (4) Drive vehicle safely above 50 MPH steady speed for 20 minutes.
- (5) When drive is complete, Press End Drive. (Test timer will automatically End Drive at 30 minutes)

NED will Auto-Save 2 files in the Snapshot folder. (Attach files to Case File)

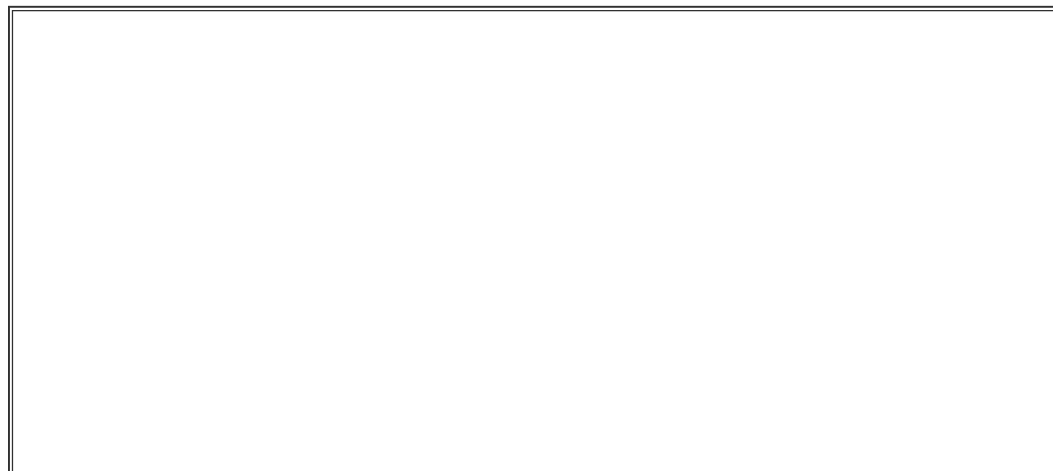
- VIN#_Misfire Test_Date#Time#.slk.zip
- VIN#_Misfire Test_Date#Time.PDF (or in some cases .xps)

Test Operation

1. Check the engine for mechanical damage (knock or valve train noise) that would cause this engine further damage if test driven .
2. Connect EZ-Tech and NED to 9 Pin Diagnostic connector.
3. Navigate to the Misfire test Figure 1
4. Before beginning the test drive make sure the engine brake controls are on and set at the highest level.
5. Locate a highway or road where the truck can be safely and lawfully test driven at steady state speeds greater than 50 MPH for 20 minutes. This can be 10 minutes out - turn around - 10 minutes return.
6. Safely drive the vehicle at speeds above 50 MPH at a steady state . Safely actuate the engine brake several times during this test drive.
7. At the end of the test drive select (Click) End Drive Button. This test will automatically save a snapshot and a result report to your desktop Snapshot folder.

Reviewing Test Results - NED

1. The NED Test Session screen will show the Average and Maximum Misfire Count by cylinder during the test drive items 4 and 5 in figure 3 below.
2. # 6 cylinder below has a high average and maximum count of misfires . This cylinder should be diagnosed further.
3. After diagnostics and repairs this test can be completed a second time to see if #6 numbers are reduced to acceptable levels and if any other cylinders have high misfire counts.
4. Note that the ECM will only report misfire counts when engine load is above 20%
5. This test has not been verified on engines running at idle or at engine loads below 20%



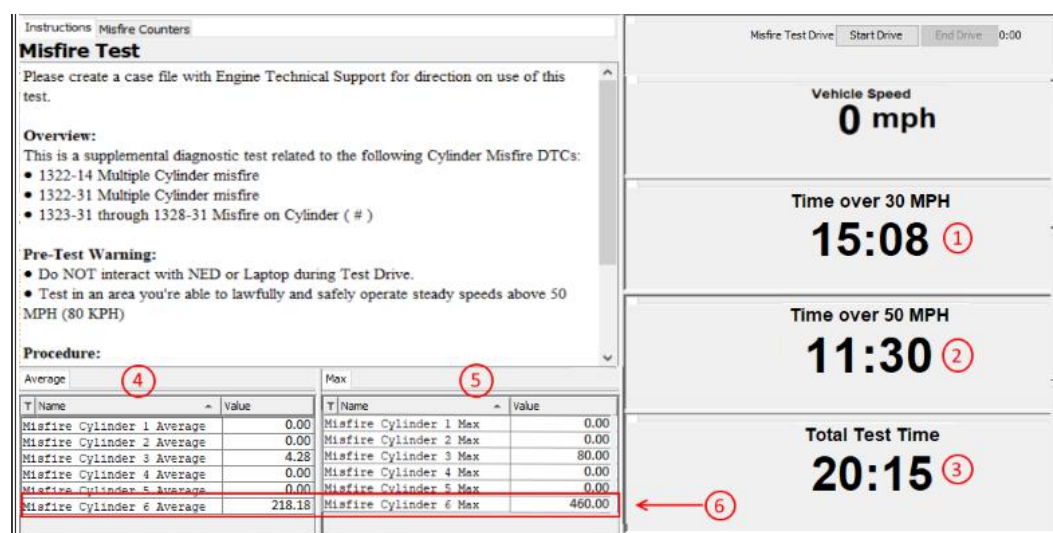


Figure 3: NED Test Results

Item 1: Time over 30MPH
Item 2: Time over 50 MPH
Item 3: Total Test Time

Item 4: Average Cylinder Misfire Counts by Cylinder #
Item 5: Maximum Cylinder Misfire Count by Cylinder #
Item 6: # 6 Cylinder has a high number of misfire counts

Reviewing Test Results - Reports

- From the Desktop SnapShots folder there will be 2 files saved .
 - One will be the snapshot file 9.zip) that can be attached to a case file for review or reviewed in the NED snapshot graphing tool.
 - The report file will be saved as either as a PDF (.pdf) or a XPS (xps) . For XPS viewing on Windows 10 PCs please refer to Test Results Viewing section of this article.
- Select and Open the PDF or XPS document.

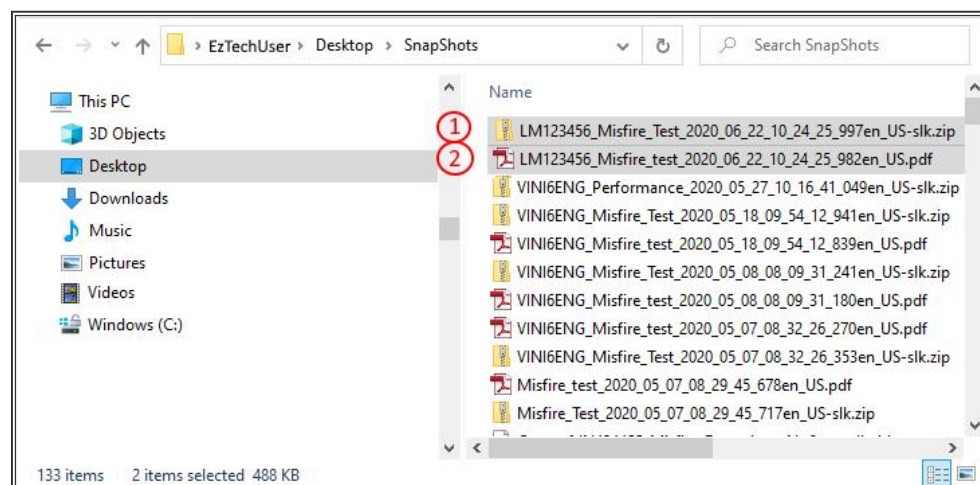


Figure #: SnapShot Folder - Test Reports

Item 1: Test Snapshot File
Item 2: Test Report - PDF or XPS.

Misfire test

Thu May 14 08:13:59 CDT 2020

Vehicle Info

Engine Type	International A26 (2017 -)
Software Identification	RADXSMC
Vehicle Identification Number	3HSDZTZR8JN657588
Engine Serial Number	124KM2Y4501988
Transmission Type	Manual
Rated Power	450.0 hp
Total Vehicle Distance (HR)	211,348.73 miles
Total Fuel Used	11,347.3 gal
Total Engine Hours	3,838.07 hr

Figure #: Report Page 1

Item 1: Vehicle Information

Cylinder Misfire

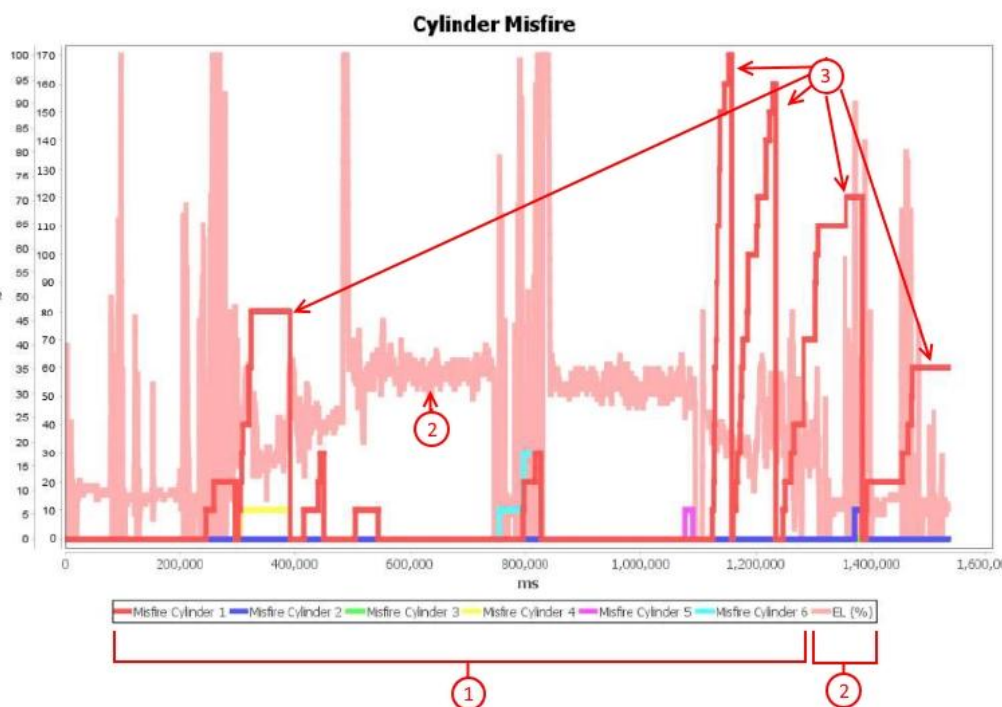


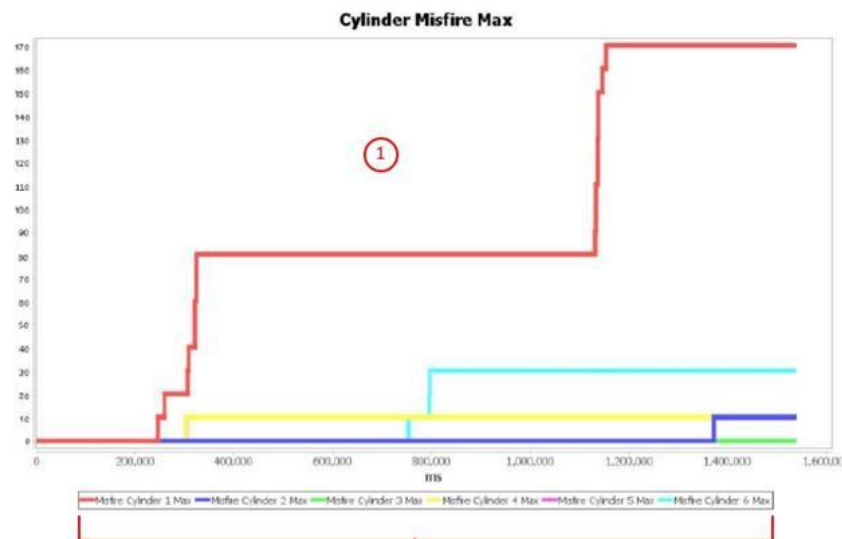
Figure #: Report Page 2 Mifire Count

Item 1: Graph Misfire Count by Cylinder

Item 2: Graph Engine Load

Item 3: Graph showing high misfire count # 1 cylinder

Cylinder Misfire Max



Test

3 4 5
Time Over 30 MPH Time Over 50 MPH Test Time

19:11 16:19 25:37

Max 6

Name	Value
Misfire Cylinder 1 Max	170
Misfire Cylinder 2 Max	1
Misfire Cylinder 3 Max	0
Misfire Cylinder 4 Max	1
Misfire Cylinder 5 Max	1
Misfire Cylinder 6 Max	3

Figure #: Report Page 3 - Maximum Misfire Count Misfire

- Item 1: Graphed Maximum Misfire Count
 Item 2: Graph Maximum Misfire Count by Cylinder
 Item 3: Test Time Over 30 MPH
 Item 4: Test Time Over 50 MPH
 Item 5: Total Test Time
 Item 6: Table by Cylinder - Maximum Misfire Count

Average ①

Name	Value
Misfire Cylinder 1 Average	22.6
Misfire Cylinder 2 Average	0.0065
Misfire Cylinder 3 Average	0
Misfire Cylinder 4 Average	0.064
Misfire Cylinder 5 Average	0.071
Misfire Cylinder 6 Average	0.079

Faults ②

DTC	SPN	FMI	Type	Message	Count	Module
N/A	1328	31	Pending	Engine Misfire Cylinder #5 : Condition exists	0	Engine Control Module

Figure #: Report Page Page 4

Item 1: Table- Average of Misfire Count by Cylinder
 Item 2: Fault Code List.

Example Reorts :

[Report # 6 Misfire](#)

[False Misfire Count Snap Acceleration](#)

[Misfire Cyl 4,5 and 6 - Jake Brake Applied \(Stuck\)](#)

OTHER RESOURCES

[Master Service Information Site](#)

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