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Coding Information

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Title: LeakLocator Diagnostic Procedure - Heavy Duty

Applies To: MaxxForce 11/13L, N13A, N13B

CHANGE LOG

2016/02/02 - Added commonly misdiagnosed EGR Valve issue
2015/08/12 - Fixed spelling error
2015/01/28 - Removed Tool number 19-700-01-01-26. It is not available outside the main kit number 19-700-01.
2015/01/12 - Added SRT Information
2015/01/05 - Edited important notes section

DESCRIPTION

This document will aid a user in effective use of the Navistar Leak Locator tool. When used properly, the Leak Locator will significantly reduce diagnostic time and promote more effective repairs for air leaks (including the intake, exhaust, and aftertreatment systems) leading to regen, power and/or exhaust odor concerns.

The following information has been tailored to the 2007+ Emissions MaxxForce® 11 and 13, and N13 engines.

NOTE: For medium duty (MaxxForce 7-10, DT), please reference [IK1201142](#).

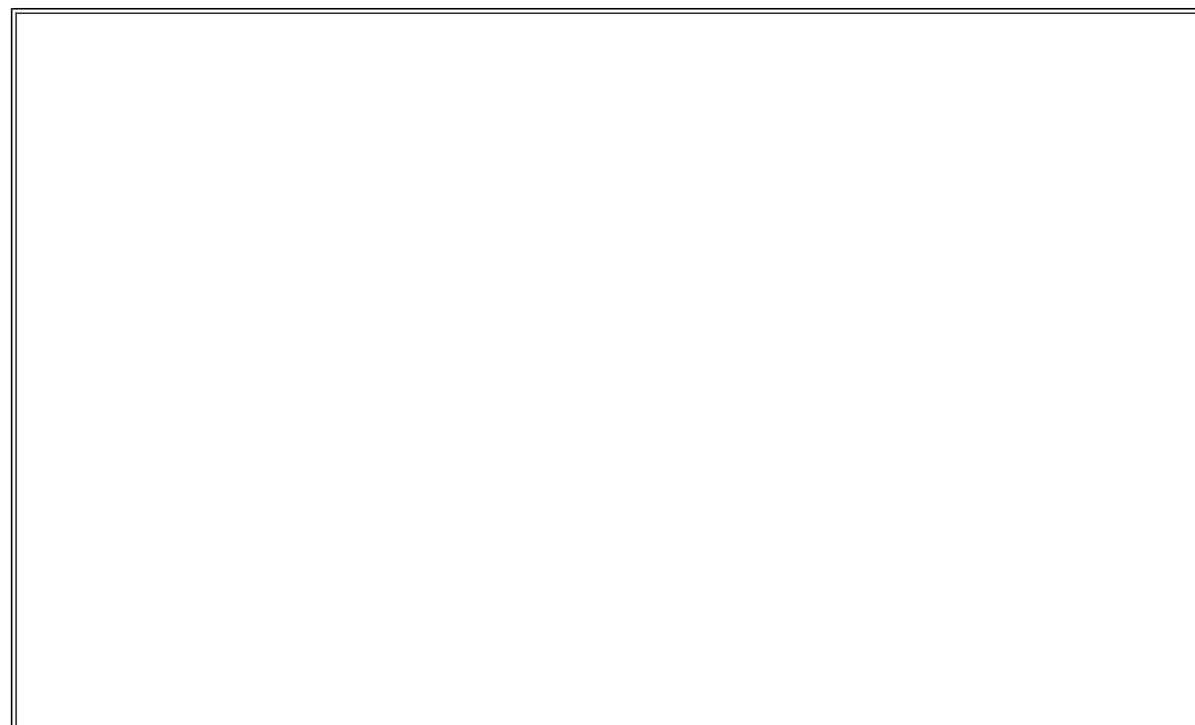




Figure 1: Navistar Leak Locator and accessory kit

SYMPTOMS

- Low power or performance concerns
- Frequent regens or aftertreatment issues
- Unwanted cabin odors

SPECIAL TOOLS

Tool Description	Tool Number
Navistar® LeakLocator	19-700-01
Tool Instruction Sheet	4328229R1

OVERVIEW

**WARNING:**

To prevent personal injury or death, read all safety instructions in the "Safety Information" section of the Engine Diagnostic Manual or Engine Service manual.

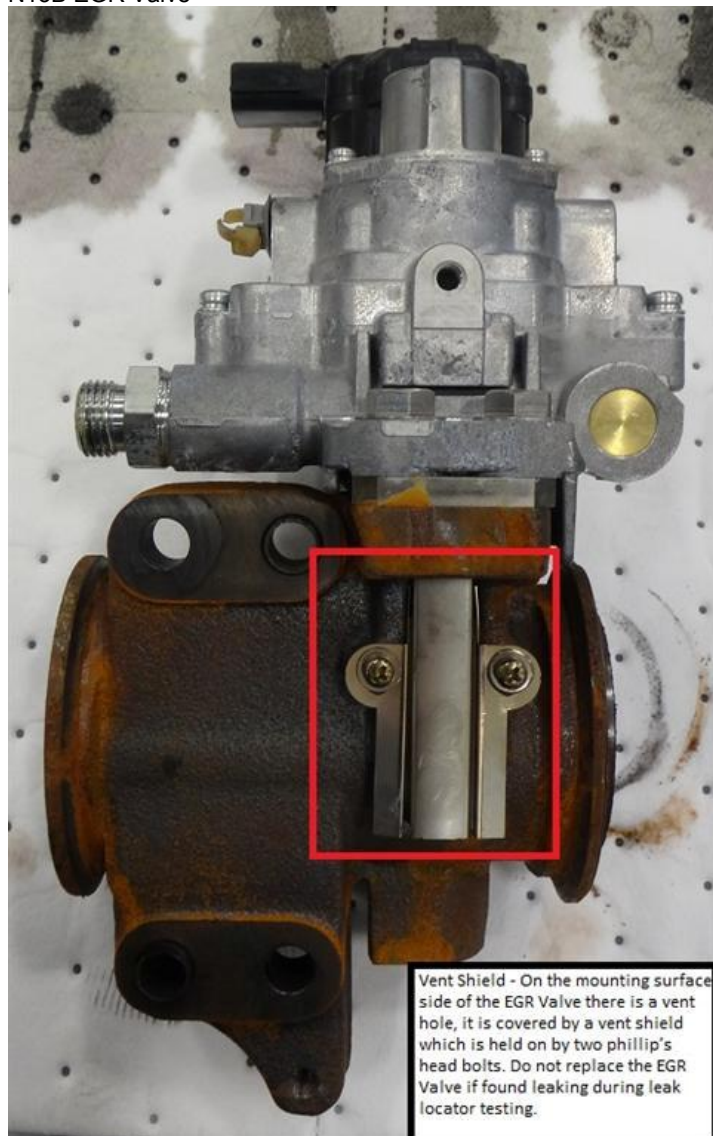
IMPORTANT NOTES:

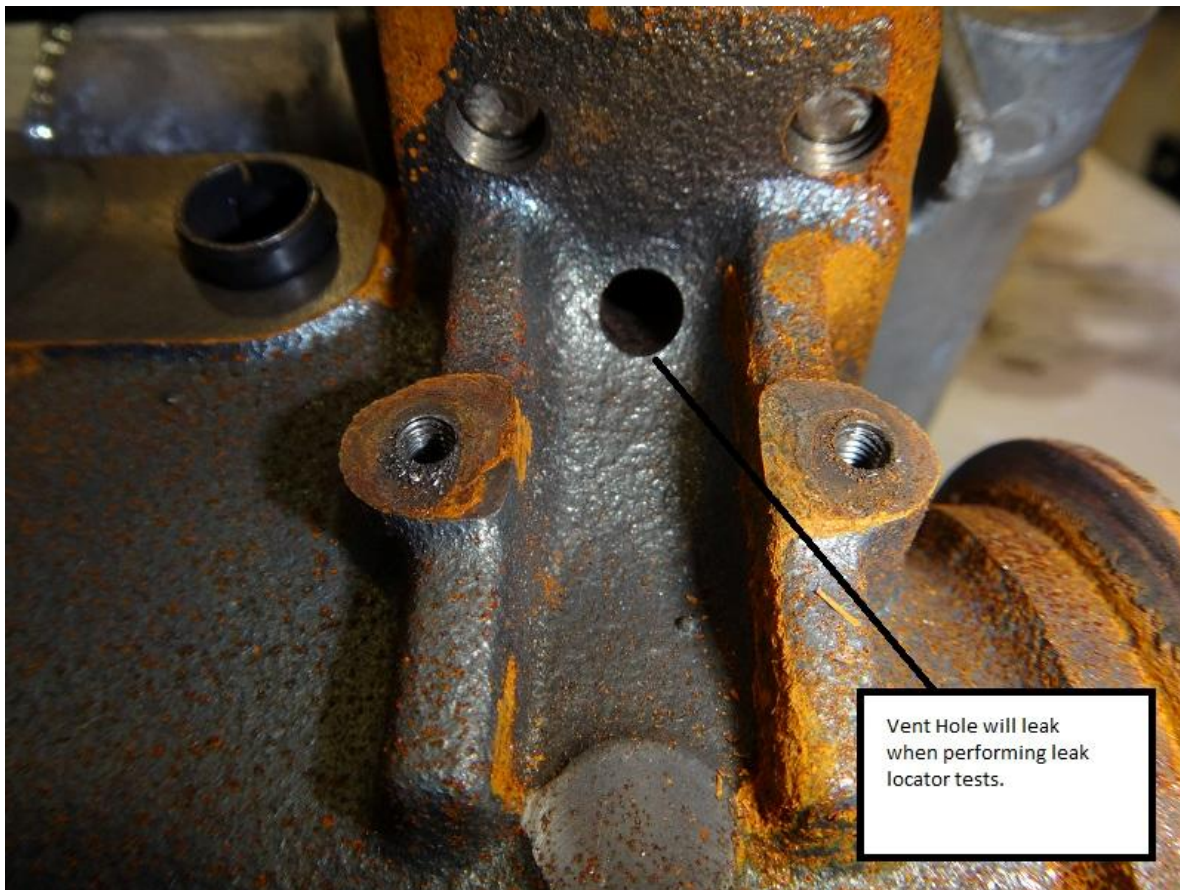
- Due to the size of some engine components (as well as wide temperature ranges encountered during normal operation), "pinhole" leaks can occur at some sealing surfaces. Generally, pinhole leaks do not result in odors or performance issues-- focus on (relatively) large leaks first.
- Do not exceed 5 psi pressure, with the tool. Higher smoke pressures can obscure test results as the fast-moving smoke can be difficult to see. At lower pressures, smoke trails "curl" out smoothly and remain visible much longer.
- If/when testing the exhaust section, pre-DPF and post-DPF must be tested separately. The smoke machine testing is **NOT** to be used to evaluate the condition of a DPF.
- Some components (for example the High Pressure Charge Air Cooler-HPCAC) have slight air leaks, by design. For these components, it is necessary to perform a leak decay test (outlined in the Diagnostic Manual) to deem the part non-conforming.

DIAGNOSTIC PROCEDURE

The diagnostics are split into three sections; Intake, [Exhaust](#) and [Aftertreatment](#), and are hyperlinked accordingly. Perform the necessary diagnostics relative to the customer/performance concern.

N13B EGR Valve





INTAKE TESTING:

Using the Leak Locator on the intake system provides many benefits over soapy water or audible testing, especially around the turbochargers and when there are multiple leak points. It will allow a user to pinpoint leaks in the intermediate pipes, LP and HP CAC connections, and Engine Throttle Valve (ETV).

1. Remove intake piping
2. Install intake adapter into air intake piping
3. Using air intake piping clamp, tighten clamp around adapter
4. Connect Navistar Leak Locator line to intake adapter



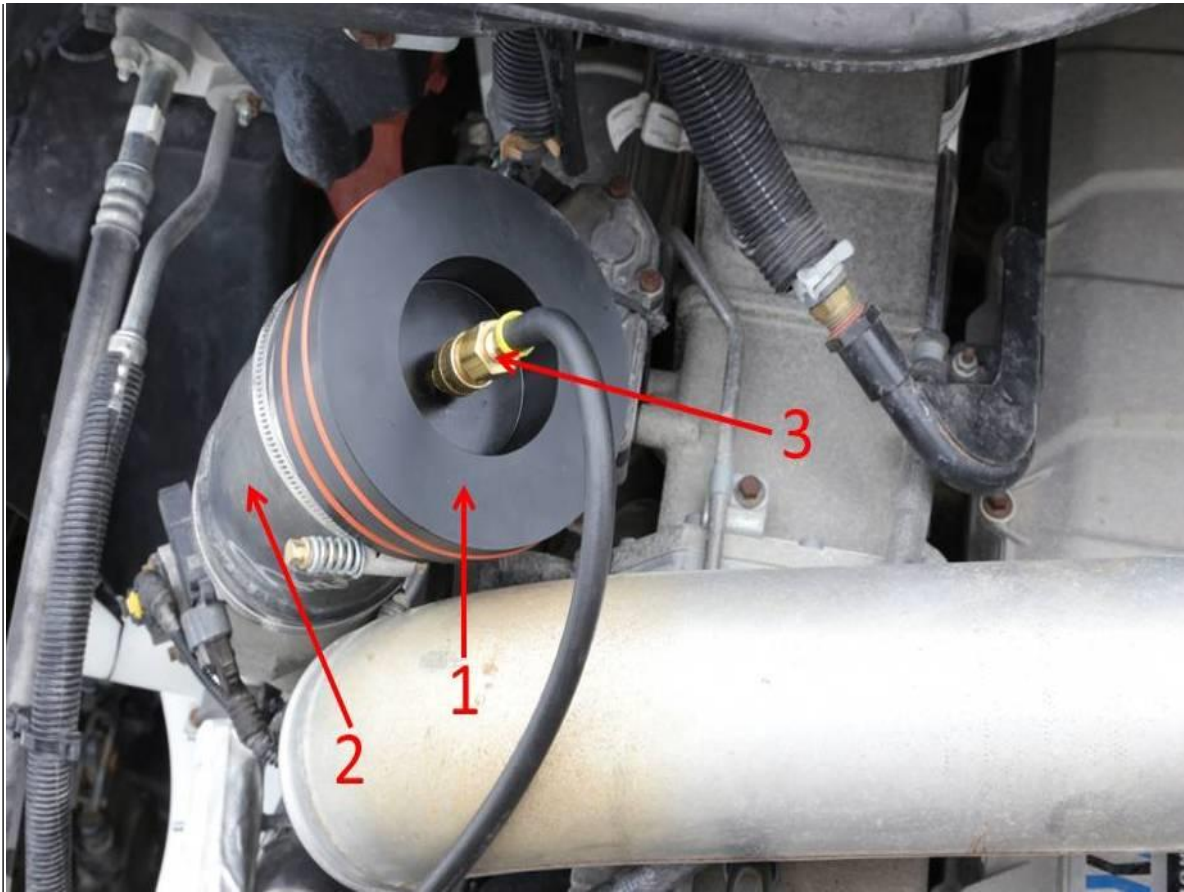


Figure 2: Maxxforce 11 and 13L Intake adapter installed

Item 1: Intake Adapter
Item 2: Air intake piping
Item 3: Navistar leak locator line

5. Initiate pressurized smoke (3-5 psi is recommended)
6. Carefully inspect entire intake system for leaks
7. Once leak is found, remove tooling, repair leak and install removed items. Follow the service manual for correct repair procedures.

EXHAUST TESTING

Areas of emphasis with the exhaust system are the exhaust manifold and EGR tubes--components in close proximity that can be difficult to differentiate. The tool will allow users to focus on the specific failed component without pulling shields or impeding parts.

1. Remove intake piping/air cleaner
2. Install intake adapter into air intake piping
3. Using air intake piping clamp, tighten clamp around intake adapter
4. Install plug/block off onto the intake adapter

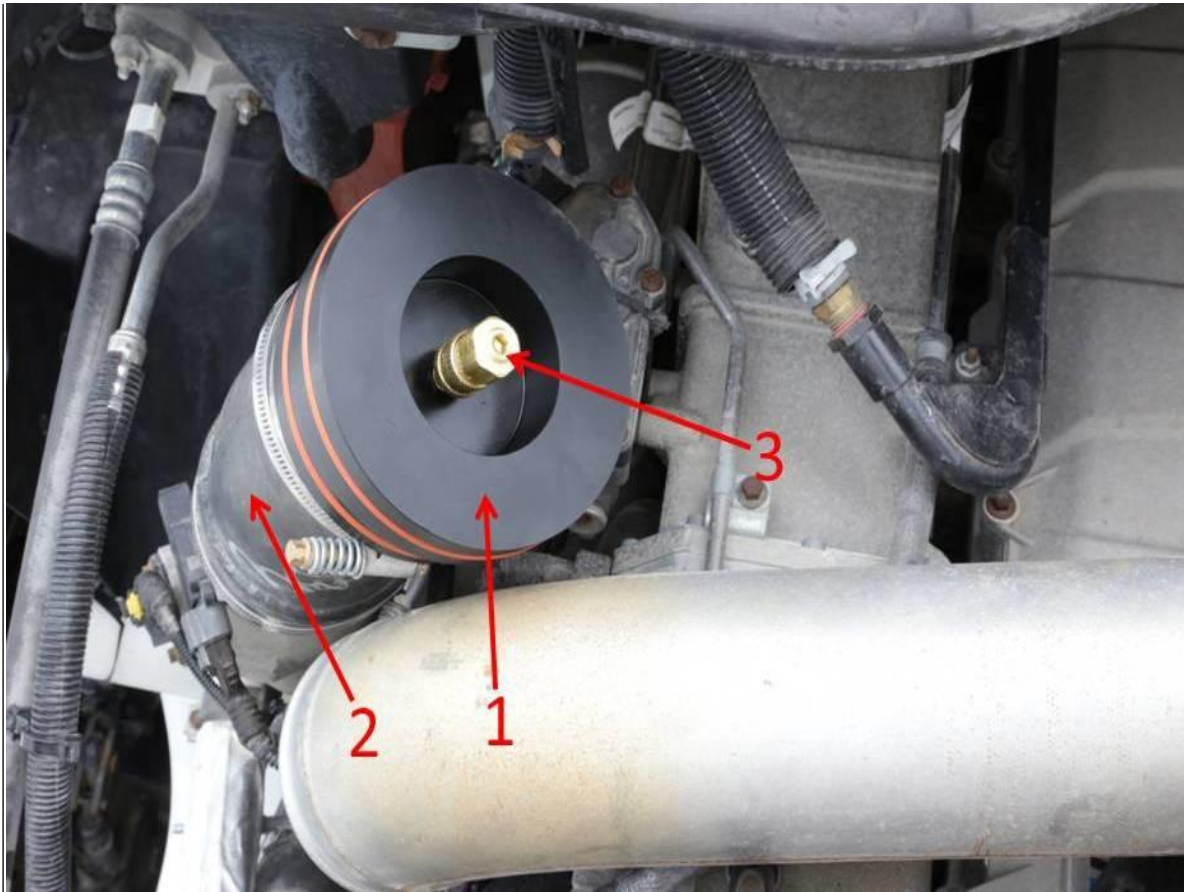


Figure 3: Power smoke adapter (2.9inch) in exhaust piping

Item 1: Intake adapter
Item 2: Air intake piping
Item 3: Plug/block off

5. Remove DOC inlet clamp and install Powersmoke Adapter 2.9in into the exhaust pipe (DOC inlet side) and inflate per Navistar Leak Locator Operation Manual

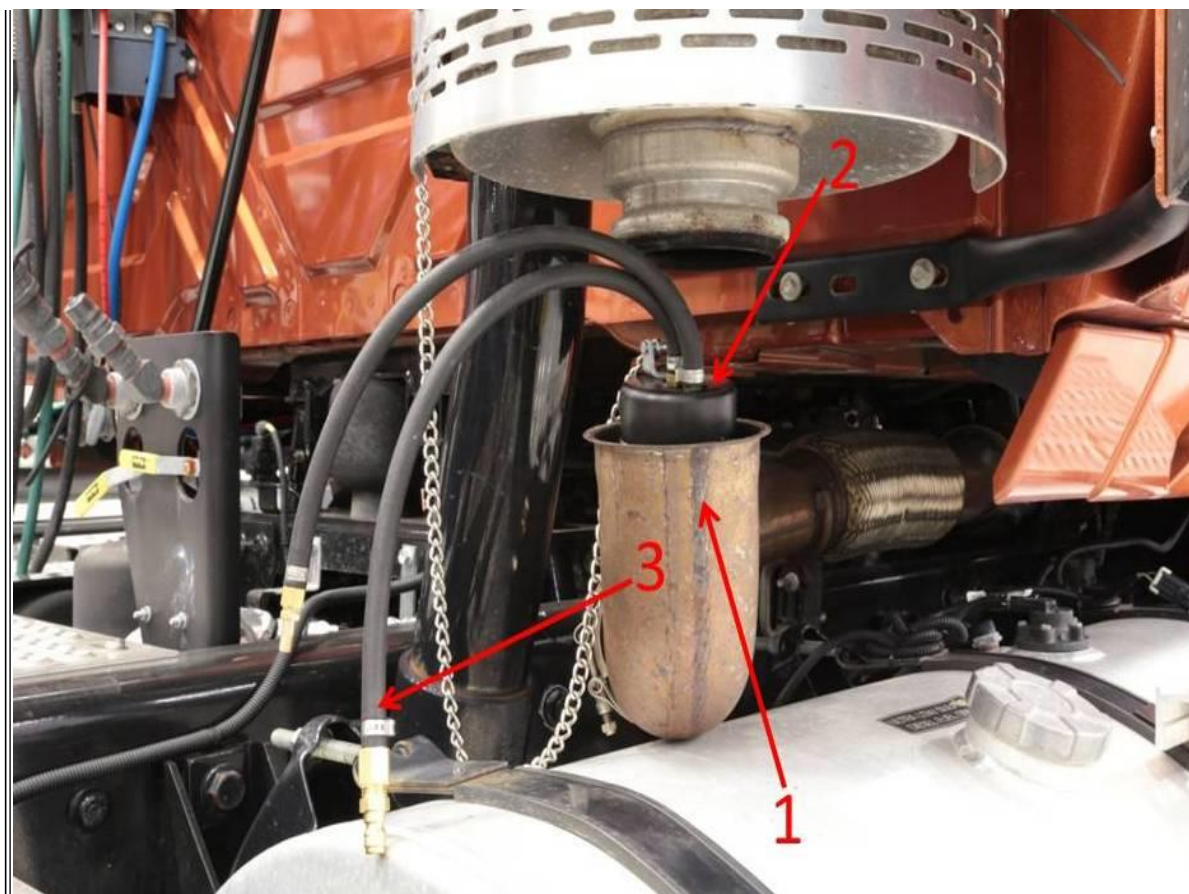


Figure 4: Power smoke adapter (2.9inch) in exhaust piping

Item 1: DOC Inlet exhaust piping

Item 2: Power smoke adapter (2.9 inch) inserted into tail pipe

Item 3: Navistar Leak Locator supply line



WARNING:

To prevent personal injury or death, connect the chain on the Powersmoke Adapter to a secure location.

6. Initiate pressurized smoke (3-5 psi is recommended)
7. Carefully inspect entire exhaust system for leaks
8. Once leak is found, remove tooling, repair leak and install removed items. Follow the service manual for correct repair procedures.

AFTERTREATMENT TESTING

Aftertreatment leaks can be difficult to find visually, as there doesn't tend to be soot. The leak locator works especially well on the joint (DOC/DPF) and sensor port, leaks.

1. Insert the 3.9in adapter in the outlet of the exhaust and inflate
2. Connect hose plug to 3.9in adapter

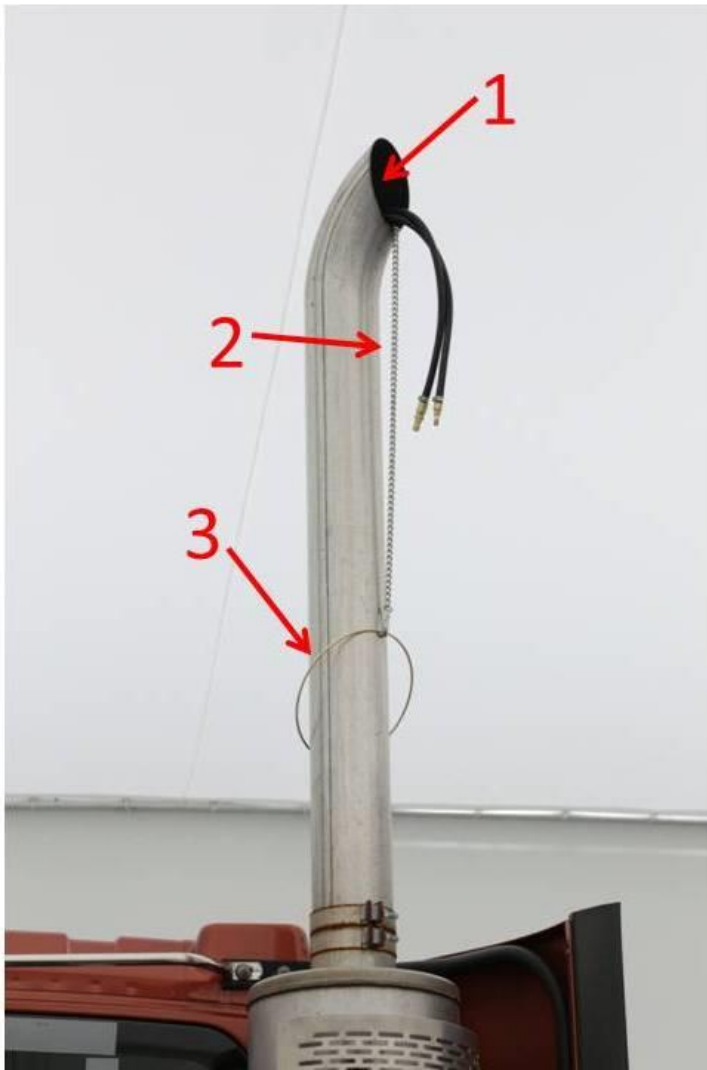


Figure 5: MaxxForce 11/13L vertical exhaust with Powersmoke™ Adapter 3.9 in installed

3. Remove exhaust pipe from DOC, install Powersmoke Adapter (2.9in) into the tail pipe and inflate per Navistar Leak Locator Operation Manual



Figure 6: MaxxFace 11/13L vertical exhaust with Powersmoke™ Adapter 2.9 in installed

4. Connect Navistar Leak Locator supply line to Powersmoke Adapter (2.9in)
5. Initiate pressurized smoke (3-5 psi is recommended)
6. Carefully inspect aftertreatment system for leaks
7. Once leak is found, remove tooling, repair leak and install removed items. Follow the service manual for correct repair procedures.

WARRANTY INFORMATION

Warranty Claim Coding:

Due to the amount of components this repair can diagnose, please reference the coding manual for claim coding guidelines.

STANDARD REPAIR TIMES:

Step	Description	Chassis	Engine	SRT	Hours
All	Smoke Machine Testing, Perform	All	All	A12-2999A	1.1

OTHER RESOURCES

[Master Service Information](#)

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