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 Major System: Fuel system Created: 1/27/2025  
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 Other Languages: NONE Author: Brandon Heisler  
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Coding Information

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Title: Supplemental 2017 A26 Fuel System Diagnostics

Applies To: 2017 A26 ESN 4500000 - 4599999

## CHANGE LOG

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

02/20/2026 - Fixed multiple broken manual links.  
 08/15/2025 - Correction to broken link to step 13.  
 02/17/2025 - Initial Article Release

## DESCRIPTION

This document will guide the user through supplemental fuel system diagnostics on **2017 A26 ESN 4500000 - 4599999**.

## SYMPTOM(s)

**NOTE:** Clicking on the symptoms below should take you to the applicable diagnostics for that symptom within this article.

- [Hard start](#)
- [No start](#)
- [Aftertreatment fuel diagnostics completed without resolution](#)
- [Multiple misfire fault diagnostics completed without resolution](#)
- [Multiple single-cylinder fault diagnostics completed without resolution](#)

For loss of prime diagnostics, see [IK1500108](#)

### Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

DTC/Light	Description
<a href="#">SPN 157 FMI 0</a>	Engine Fuel 1 Injector Metering Rail 1 Pressure: Data Valid But Above Normal Operational Range - Most Severe Level
<a href="#">SPN 157 FMI 1</a>	Engine Fuel 1 Injector Metering Rail 1 Pressure: Data Valid But Below Normal Operational Range - Most Severe Level

<a href="#">SPN 157 FMI 10</a>	Engine Fuel 1 Injector Metering Rail 1 Pressure: Abnormal Rate of Change
<a href="#">SPN 157 FMI 16</a>	Engine Fuel 1 Injector Metering Rail 1 Pressure: Data Valid But Above Normal Operating Range - Moderately Severe Level
<a href="#">SPN 157 FMI 18</a>	Engine Fuel 1 Injector Metering Rail 1 Pressure: Data Valid But Below Normal Operating Range - Moderately Severe Level
<a href="#">SPN 5585 FMI 1</a>	Engine Fuel 1 Injector Metering Rail 1 Cranking Pressure: Data Valid But Below Normal Operational Range - Most Severe Level
<a href="#">SPN 6653 FMI 16</a>	Engine Fuel 1 Injector Metering Rail 1 Cold Start Pressure: Data Valid But Above Normal Operating Range - Moderately Severe Level
<a href="#">SPN 6653 FMI 18</a>	Engine Fuel 1 Injector Metering Rail 1 Cold Start Pressure: Data Valid But Below Normal Operating Range - Moderately Severe Level
<a href="#">SPN 1322 FMI 31</a>	Engine Misfire for Multiple Cylinders: Condition Exists
<a href="#">SPN 3480 FMI 17</a>	Aftertreatment 1 Fuel Pressure 1: Data Valid But Below Normal Operating Range - Least Severe Level
<a href="#">SPN 3482 FMI 2</a>	Aftertreatment 1 Fuel Enable Actuator: Data Erratic, Intermittent, Or Incorrect
<a href="#">SPN 3482 FMI 7</a>	Aftertreatment 1 Fuel Enable Actuator: Mechanical System Not Responding Or Out Of Adjustment
<a href="#">SPN 3482 FMI 16</a>	Aftertreatment 1 Fuel Enable Actuator: Data Valid But Above Normal Operating Range - Most Severe Level

**Customer Observations or Concerns:**

- MIL
- Low Performance
- Misfire
- Rough Running
- Noise From the High-Pressure Fuel Pump

**SPECIAL TOOL(s) / SOFTWARE**

[Tools Resource Center](#)

**SERVICE PARTS INFORMATION**

Please review the applicable service information within the engine service manuals for repairs.

[2017 A26 Service Manual](#)

**DIAGNOSTIC STEP(s)**

**WARNING!** To prevent property damage, personal injury, and / or death, park vehicle on a hard, flat surface, turn the engine off, set the parking brake, and install wheel chocks to prevent the vehicle from moving in either direction.

**WARNING!** To prevent property damage, personal injury, and / or death, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.

**WARNING!** To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

**WARNING!** To prevent property damage, personal injury, and / or death, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases.

**WARNING!** To prevent property damage, personal injury, and / or death, remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last.

## **HARD START/NO START, MULTIPLE CYLINDER MISFIRES, ROUGH RUNNING**

**NOTE:** This article is intended to assist with fueling-related issues. Base diagnostics should be completed before moving onto supplemental steps like those provided here. Airflow-related failures can also cause hard start/no start, multiple cylinder misfires, and rough running complaints.

Step	Confirm base diagnostics have been completed.	Decision
#1	Review FCAP and operational checkout procedures:  Did the applicable FCAP or operational checkout procedure identify a repair path?  <b>NOTE:</b> Published diagnostics and operational checkout procedures should be followed before proceeding to step 2. If the fuel system operational checkout procedure, or starting system operational checkout procedure has not been performed, please perform them at this time. If you've followed them, but they are leading you in a circle, proceed to the next step.	Yes.  Follow the repair path established by the published diagnostics.
	<ul style="list-style-type: none"> <li><a href="#">2017 A26 Fuel System Operational Checkout Procedure</a></li> <li><a href="#">2017 A26 Engine Does Not Start Operational Checkout Procedure</a></li> <li><a href="#">2017 A26 Engine Hard to Start Operational Checkout Procedure</a></li> <li><a href="#">2017 A26 Engine Performance Problem Operational Checkout Procedure</a></li> <li><a href="#">2017 A26 Misfire / Rough Idle / Runs Rough</a></li> </ul>	No.  Proceed to step 2.

Step	Base diagnostic follow-on	Decision
#2	Confirm the base diagnostics are not leading you in a circle, between SPN 157 FMI 1 and 3.1 Engine Hard to Start (Long Crank Time):	Yes.

	<p>Is 157-1 and the checkout procedure leading you in a circle from step 5?</p> <p><b>NOTE: Step 5 of 157-1 leads you to the 3.1 checkout procedure, and then 3.1 checkout procedure leads you back to 157-1, and so on.</b></p>	<p>Proceed to step 6 of the SPN 157 FMI 1 diagnostic package. If the procedure does not lead to a repair path, proceed to step 3 of this article.</p>
		<p><b>No.</b></p> <p>Proceed to step 3.</p>

Step	Confirm the fuel is in good condition.	Decision
#3	<p><b>Pull a fuel sample in a clear and clean container. Allow the sample to sit for 1 hour. Proceed to step 3 while waiting for the sample to sit:</b></p> <p>Is the fuel in good condition, free from separation, cloudiness, gelling, or waxing?</p> <p><b>NOTE: <a href="#">IK1201406 A26 and S13 Fuel Gelling</a> can be referenced for inspections.</b></p>	<p><b>Yes.</b></p> <p>Proceed to step 4.</p>
	<p><b>No.</b></p> <p>Fuel contamination was found and the engine does not start, misfires, and/or runs rough. Replace the following fuel system components: fuel injectors, high-pressure fuel pump, high-pressure fuel rail, high-pressure fuel system pipes and lines, primary and secondary fuel filters, and flush low-pressure fuel lines and fuel tank. If equipped, replace the fuel heater. After repairs are complete, retest for fault code.</p>	

Step	Determine when the issue started.	Decision
#4	<p><b>Interview the customer/driver asking when the issue started:</b></p> <p>Did the issue start after performing a PM service, or other fuel system-related repairs?</p> <p><b>NOTE: If the International part number fuel filter is not used, the filter can be shorter and can cause starting and running issues. Be sure to validate the fuel filter part number used is the correct International part number.</b></p>	<p><b>Yes.</b></p> <p>Ensure all repairs were performed properly. If the secondary fuel filter was replaced, confirm the standpipe is still in place and not damaged, and the correct International part numbers were used. Perform the priming procedure using the priming tool and then re-test for your symptom.</p> <p><b>Note:</b> If the issue persists, proceed to step 5.</p> <p><a href="#">2017 A26 Priming Procedure</a></p>

		<b>No.</b> Proceed to step 5.
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Step	Verify your symptom aligns with this article.	Decision
#5	<p><b>Prime the fuel system using the priming tool. Start the unit to confirm it is operating/starting properly after primed. If it starts and runs properly, allow the unit to cold soak for 12 hours, and then re-test:</b></p> <p>Did the unit start and run properly after using the priming tool, and did it start and run properly after sitting for 12 hours?</p> <p><a href="#">2017 A26 Priming Procedure</a></p>	<p><b>Yes, the unit starts and runs properly.</b></p> <p>Re-test for the symptom. If needed, allow the unit to sit longer and re-test to confirm.</p>
		<p><b>No, the unit did not start properly and/or run after using the priming tool.</b></p> <p>Proceed to step 6.</p>
		<p><b>No, the unit started after priming but did not start after sitting.</b></p> <p>Follow diagnostics from <a href="#">IK1500105</a></p>

Step	Confirm fuel filter part numbers.	Decision
#6	<p><b>Validate the fuel filter part numbers are correct, filters in good condition, and the standpipe is in place. Remove the standpipe and inspect for damage, such as cracks or pinholes. Turn the standpipe upside down and fill it with fuel to check for leaks/pin-holes:</b></p> <p>Are the fuel filters in good condition, correct OEM filter part numbers, and the standpipe in place with no damage or leaks found?</p> <p><b>NOTE: While the filter is removed, ensure we are inspecting the filter bowls for debris. Wipe the bowl out with a clean white terry cloth or paper towel to check for debris/metal, and take note of the results for the next step.</b></p> <p><b>NOTE: If the International part number fuel filter is not used, the filter can be shorter and can cause starting and running issues. Be sure to validate the fuel filter part number used is the correct International part number.</b></p>	<p><b>Yes.</b></p> <p>Proceed to step 7.</p>
		<p><b>No.</b></p> <p>Install the correct OEM filter part number and/or replace the standpipe as needed. Once repairs are complete, re-test for your issue. If the issue persists, proceed to step 7.</p>

Step	Inspect for debris/metal.	Decision
#7	<ul style="list-style-type: none"> <li>• Insect the filter bowls for debris/metal. Wipe the bowl with a clean white terry cloth or paper towel.</li> <li>• Drag the fuel tanks with a clean magnet.</li> <li>• Remove EFA1 and inspect for debris:</li> </ul>	<p><b>Yes, debris was found on EFA1.</b></p> <p>Replace the high-pressure fuel pump, all 6 injectors, rail, filters, and high-pressure lines. Clean and flush the low-pressure lines, return lines, and fuel tanks, as well as clean the filter bowls.</p>

Was any debris found in the filter bowls, tanks, or EFA1?

[Image #1](#) example of EFA1 debris.

[Image #2](#) example of clean EFA1.

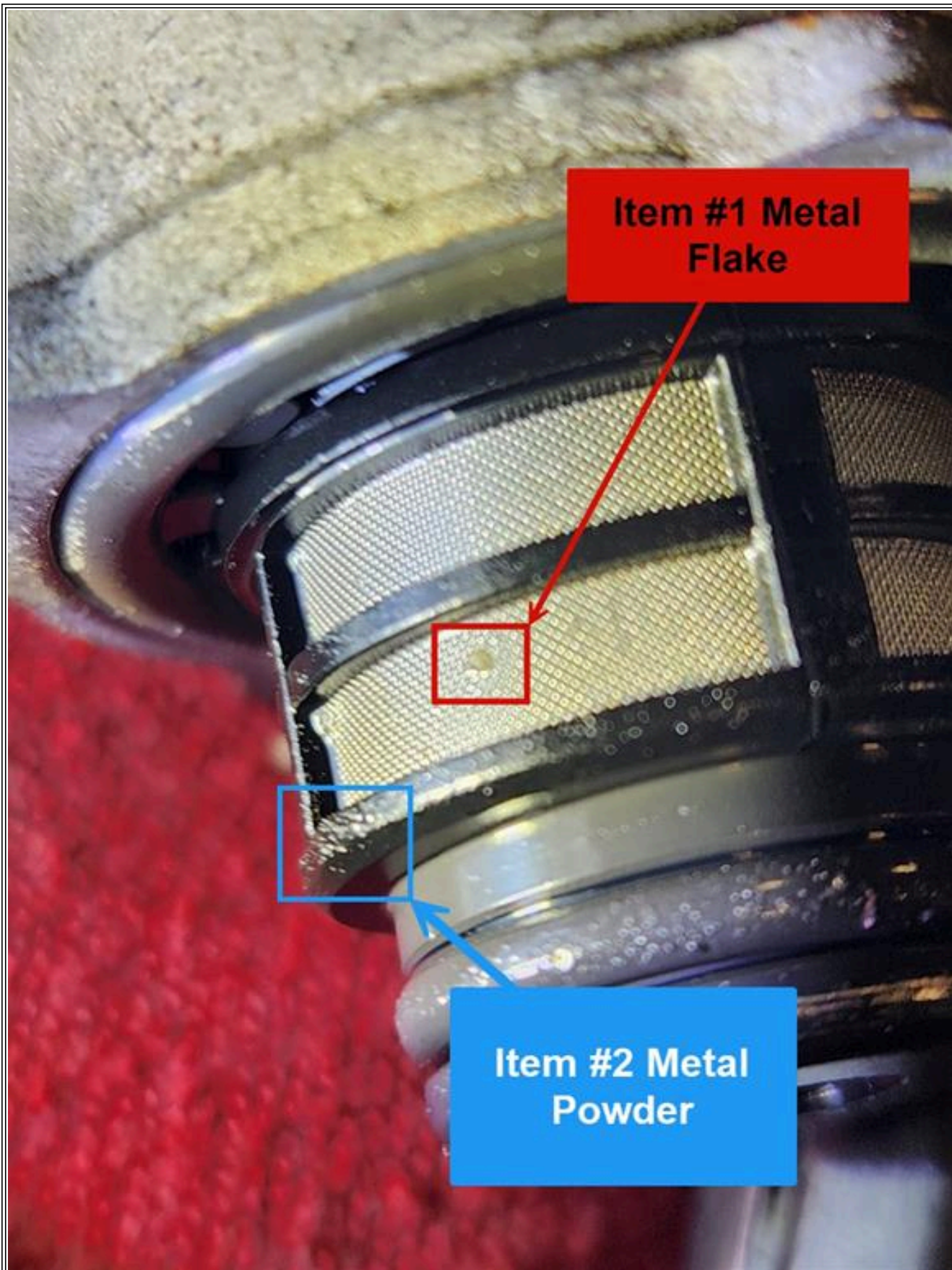
[Image #3](#) example of metal found within the tanks.

**Yes, debris was found within the fuel tanks and/or filter bowls.**

Proceed to step 8.

**No.**

Proceed to step 9.



**Step 3, Image #1: EFA1 Debris**

Item 1: Metal Flake

Item 2: Metal Powder



[Step 3](#), Image #2: Clean EFA1



**Step 3, Image #3: Fuel Tank Metal**

Step	Determine if debris/metal has entered the high-pressure fuel system.	Decision
#8	<p>1. Connect clean fuel source tool 15-631-01 to the low-pressure fuel inlet and high-pressure fuel return.</p> <p>2. Put a magnet in the clean fuel source tool fuel tank.</p> <p>3. Start the engine and run at idle for 5 minutes, while checking the return line discharge for debris/metal:</p> <p>Is debris/metal present in the clean fuel source tool discharge and/or clean fuel source tool fuel tank?</p> <p><b>NOTE: Once completed, please be sure to clean out the clean fuel source tool.</b></p>	<p><b>Yes.</b></p> <p>Replace the high-pressure fuel pump, all 6 injectors, rail, filters, and high-pressure lines. Clean and flush the low-pressure lines, return lines, and fuel tanks, as well as clean the filter bowls.</p> <p>Re-test for your symptoms. If the issue persists, proceed to step 9.</p> <p><b>No.</b></p>

		<p>Replace the high-pressure fuel pump and fuel filters. Clean the fuel filter bowls, and clean and flush the low-pressure fuel system and fuel tanks.</p> <p>Re-test for your symptoms. If the issue persists, proceed to step 9.</p>
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Step	Determine if the low-pressure fuel system is restricted or aerated.	Decision
#9	<p><b>Perform Fuel Restriction and Aeration Testing:</b></p> <p>Is the low-pressure fuel system restricted or aerated?</p> <p><b>NOTE: If the issue is intermittent, we should consider the following.</b></p> <ul style="list-style-type: none"> <li>While the cranking specification in the test shows to be 8-12 inHg, anything higher than 5-6inHg can cause intermittent issues within the fuel system.</li> <li>While the low-idle specification in the test shows to be 13-17 inHg, anything higher than 6-7inHg can cause intermittent issues with the fuel system.</li> </ul> <p><a href="#">2017 A26 Fuel Restriction Test</a></p> <p><a href="#">2017 A26 Fuel Aeration Test</a></p>	<p><b>Yes.</b></p> <p>Proceed to step 10.</p>
		<p><b>No.</b></p> <p>Proceed to step 11.</p>

Step	Systematically determine the source of the restriction or aeration.	Decision
#10	<p><b>Continue performing fuel restriction and/or aeration testing, bypass each component one at a time to determine the possible source:</b></p> <ol style="list-style-type: none"> <li><b>Visual inspections on both inlet and return fuel systems.</b></li> <li><b>Fuel Tank Vents - <a href="#">Vent Restriction Test</a></b></li> <li><b>Fuel-water separator.</b></li> <li><b>External fuel lines.</b> <ol style="list-style-type: none"> <li>Run a line from the engine inlet into a clean fuel source.</li> </ol> </li> <li><b>Hand-primer pump.</b></li> </ol> <p>Did restriction and/or aeration drop to an acceptable level with any of the components bypassed?</p>	<p><b>Yes.</b></p> <p>Repair or replace the last component bypassed and then re-test. If the issue persists, validate that fuel restriction and/or aeration is still in spec. and then proceed to step 11.</p>
		<p><b>No.</b></p> <p>Validate all testing and inspections to locate the source of the restriction. If nothing is found, proceed to step 11 to continue testing.</p>

Step	Determine if the rail and/or head are returning too much fuel.	Decision

<b>#11</b>	<b>Perform the Fuel Rail Pressure (FRP) Return Flow Test:</b> Is the Cylinder head returning more than 40 mL of fuel? Is the Fuel Rail returning more than a few drops of fuel? <a href="#">2017 A26 FRP Return Flow Test</a>	<b>Yes, the cylinder head is returning too much fuel.</b>  Proceed to step 12.
		<b>Yes, the fuel rail is returning too much fuel.</b>  Replace the fuel rail and re-test. If the issue persists, proceed to step 13.
		<b>No.</b>  Proceed to step 13.

Step	Determine which injector is causing excess return flow.	Decision
<b>#12</b>	<b>Perform the Fuel Rail Pressure (FRP) Leak Isolation Testing:</b> Was a repair path established by the testing performed? <a href="#">2017 A26 FRP Leak Isolation Testing</a>	<b>Yes.</b>  Proceed with repairs as identified and re-test. If the issue persists, proceed to step 13.
		<b>No.</b>  Proceed to step 13.

Step	Confirm fuel return pressure.	Decision
<b>#13</b>	<b>Perform High-Pressure Fuel Pump Return Pressure Tests from the manual:</b> Is return pressure greater than 13 psi?  <b>NOTE: The specification of 13 psi should be for high idle. If we experience return pressure greater than 8 psi at idle and 6 psi while cranking, it can cause intermittent fueling issues.</b> <a href="#">2017 A26 HP Pump Fuel Return Pressure Test</a>	<b>Yes.</b>  Proceed to step 14.
		<b>No.</b>  Open a tech service case file. Provide your step-by-step results with numerical readings for all diagnostics performed. Be sure to indicate what procedure or test those results correlate with.

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Step	Determine the source of the restriction.	Decision
#14	<p>Disconnect the tank return line from the t-fitting behind the secondary fuel filter assembly. Run the line into a bucket and perform return pressure testing again:</p> <p>Did return pressure drop below 13 psi at high-idle?</p>	<p><b>Yes.</b></p> <p>There should be a source of restriction between the t-fitting and the tank. Locate the source of the restriction, repair, and re-test.</p>
		<p><b>No.</b></p> <p>Re-connect the return line into the t-fitting and then proceed to step 15.</p>

Step	Determine the source of the restriction.	Decision
#15	<p>Disconnect the High-Pressure Fuel Pump return line and run it into a bucket. Perform return pressure tests again:</p> <p>Did return pressure drop below 13 psi at high-idle?</p>	<p><b>Yes.</b></p> <p>Replace the engine-mounted high-pressure pump return line. Perform repairs as needed, and then re-test.</p>
		<p><b>No.</b></p> <p>Replace the high-pressure fuel pump, as this should be the source of the high return pressure. Once repairs are completed re-test for the symptom.</p>

## **AFTERTREATMENT FUEL DIAGNOSTICS**

Step	Confirm base diagnostics have been completed.	Decision
#1	Review FCAP and operational checkout procedures:	<b>Yes.</b>

	<p>Did the applicable FCAP or operational checkout procedure identify a repair path?</p> <p><b>NOTE: Published diagnostics and operational checkout procedures should be followed before proceeding to step 2. If the fuel system operational checkout procedure, please perform it at this time.</b></p> <ul style="list-style-type: none"> <li>• <a href="#">2017 A26 Fuel System Operational Checkout Procedure</a></li> </ul>	<p>Follow the repair path established by the published diagnostics.</p>
		<p><b>No.</b></p> <p>Proceed to step 2.</p>

Step	Confirm fuel filter part numbers and condition.	Decision
#2	<p><b>Validate that the fuel filter part numbers are correct, and that the filters are clean and in good condition:</b></p> <p>Are the fuel filters installed with the correct OEM filter part numbers, and in good/clean condition?</p>	<p><b>Yes.</b></p> <p>Proceed to step 3.</p>
		<p><b>No.</b></p> <p>Install new correct OEM fuel filter part numbers. Once repairs are completed, re-test for your issue. If the issue persists, proceed to step 3.</p>

Step	Verify testing was completed from FCAP/GUIDE diagnostics.	Decision
#3	<p><b>Confirm the following tests have been performed during published diagnostic testing:</b></p> <ol style="list-style-type: none"> <li>1. Aftertreatment Fuel Supply Module Inlet Pressure Test</li> <li>2. AFT Dosing System Test</li> <li>3. AFT Fuel Enable Actuator Leak Test</li> <li>4. AFT Hydrocarbon Doser Leak Test</li> <li>5. Fuel Restriction Test</li> </ol> <p>Were each of these tests performed with no issues found, and the faults continue to return?</p>	<p><b>Yes.</b></p> <p>Replace the T-fitting/line, and banjo-bolt, that separates fuel from the secondary filter housing to the high-pressure fuel pump and AFT fuel supply module. Once repairs are completed, re-test for your fault/symptom. If the issue persists, open a tech service case file. Provide your step-by-step results with numerical readings from the published diagnostics and this article. Be sure to associate the results with the procedure.</p> <p><b>No.</b></p>

Perform and validate the results from these tests. If they are in spec., follow the "yes" answer results from this step.

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## **REPAIR STEP(s)**

Please see the service manual for current service and repair procedures.

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## **WARRANTY INFORMATION**

### **Warranty Claim Coding:**

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

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### **Standard Repair Time(s):**

Refer to the [SRT Manual](#) for Repair Times

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## **OTHER RESOURCES**

[Master Service Information Site](#)

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