



Countries: CANADA, MEXICO, UNITED STATES
Availability: ISIS, NotSIR
Major System: ENGINE
Current Language: English
Other Languages: NONE
Viewed: 166

Document ID: IK1201517
Revision: 0
Created: 6/4/2025
Last Modified: 9/17/2025
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Coding Information

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Title: Modifying the Breather Tube Outlet on S13 Engines to Prevent Icing

Applies To: All S13 Engines

CHANGE LOG

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

09/17/2025 - Initial Article Release

DESCRIPTION

This document will guide the user through the steps needed to modify the breather tube outlet on S13 engines. In rare instances, ice can form and plug the outlet in very cold climates resulting in high crankcase pressure and excess oil leaks.

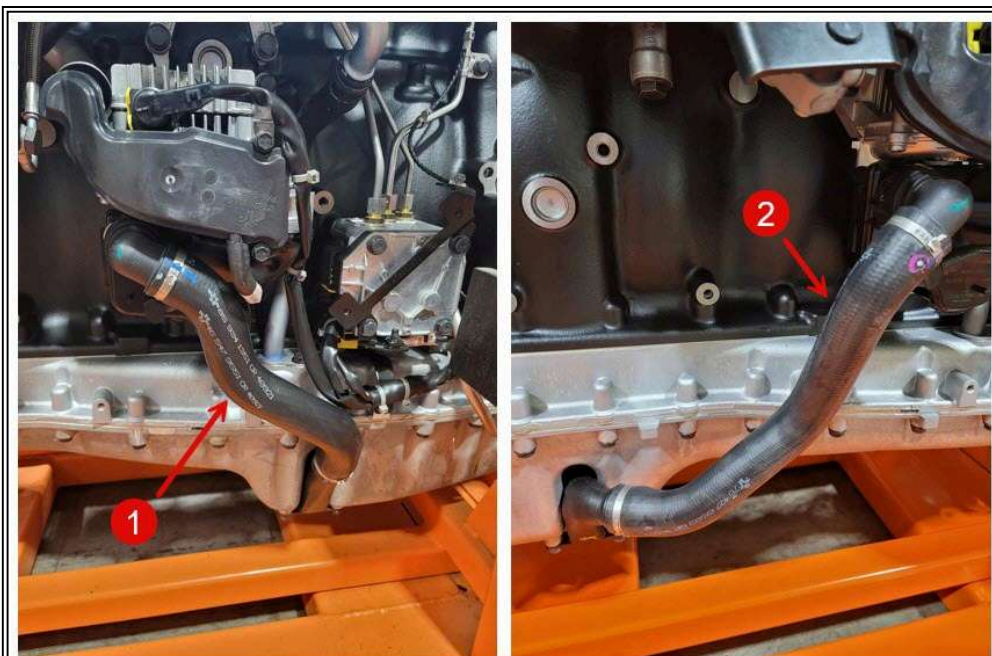


Figure #1: Lower Breather Tube Configurations

Item 1: Used with Front Sump Oil Pan Item 2: Used with Rear Sump Oil Pan

SYMPTOM(s)

If icing occurs, several DTC's may be present relating to the Crankcase Breather Oil Separator (CCBOS) accompanied by the MIL illuminating in the cluster.

Possible Diagnostic Trouble Code(s):

DTC	Description
SPN 4227 FMI 2	CCBOS: Data Erratic, Intermittent or Incorrect
SPN 4227 FMI 17	CCBOS: Data Valid but Below Normal Operating Range
SPN 4227 FMI 20	CCBOS: Data Drifted High
SPN 4227 FMI 21	CCBOS: Data Drifted Low
SPN 5444 FMI 7	Oil Mist Separator: Mechanical System Not Responding or Out of Adjustment
SPN 5444 FMI 21	Oil Mist Separator: Data Drifted Low

SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number	Comments	Instructions
N/A			

SERVICE PARTS INFORMATION

Kit Description	Part Number	Quantity Required	Notes
N/A			

REPAIR 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.

REMOVAL PROCEDURE:

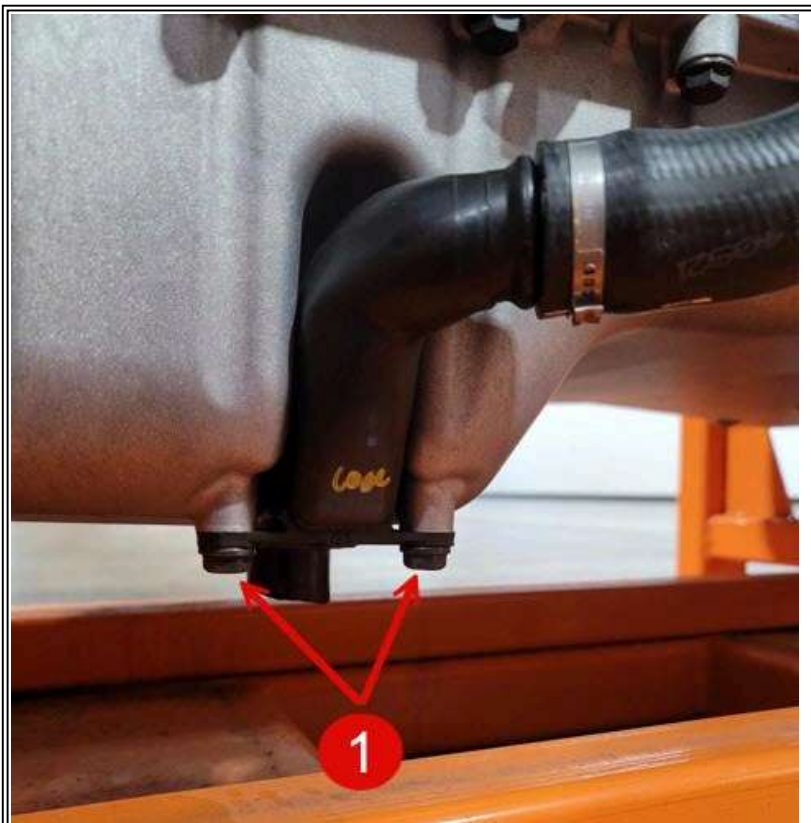


Figure #2: Lower Mounting Bolts at Oil Pan

Item 1: M8 x 20 Mpoint Bolts (102603N1)

1. Remove the two M8 x 20 bolts securing the lower breather tube to the oil pan (**Figure #2 Item 1**)

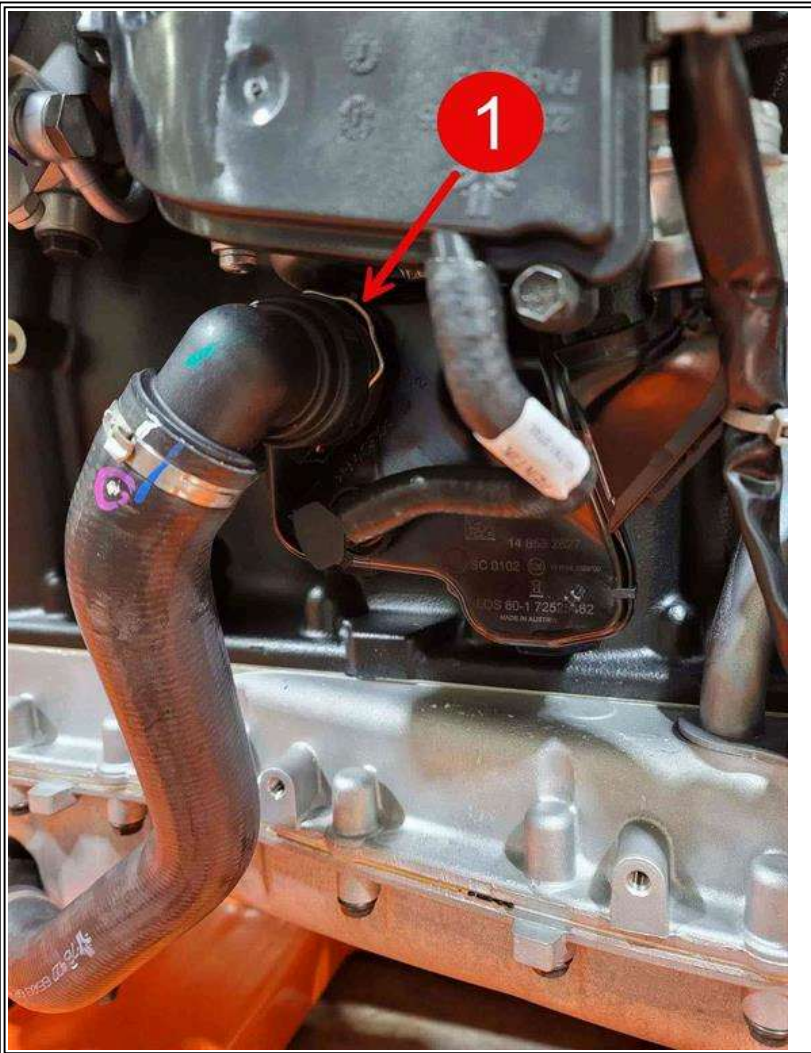


Figure #3: Retaining Clip at the Oil Mist Separator (OMS)

Item 1: Retaining Clip

2. Using a screwdriver or similar tool, slide the metal retaining clip (**Figure #3 Item 1**) upward to release the lower breather tube assembly from the Oil Mist Separator

MODIFICATION PROCEDURE:

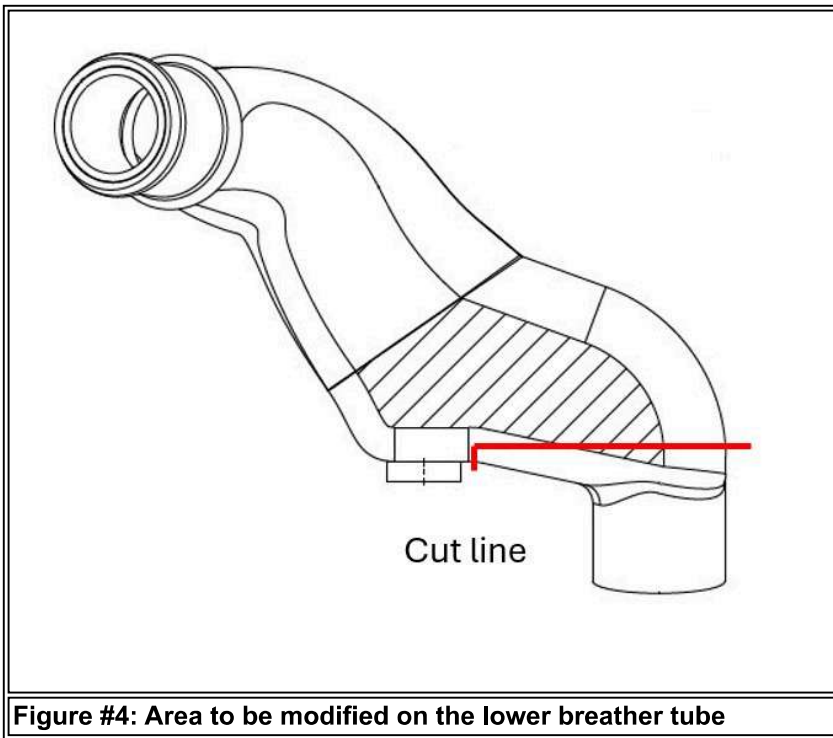


Figure #4: Area to be modified on the lower breather tube

3. The modification will consist of cutting off a portion of the lower breather tube outlet to provide a larger opening (**See Figure #4 and #5**)

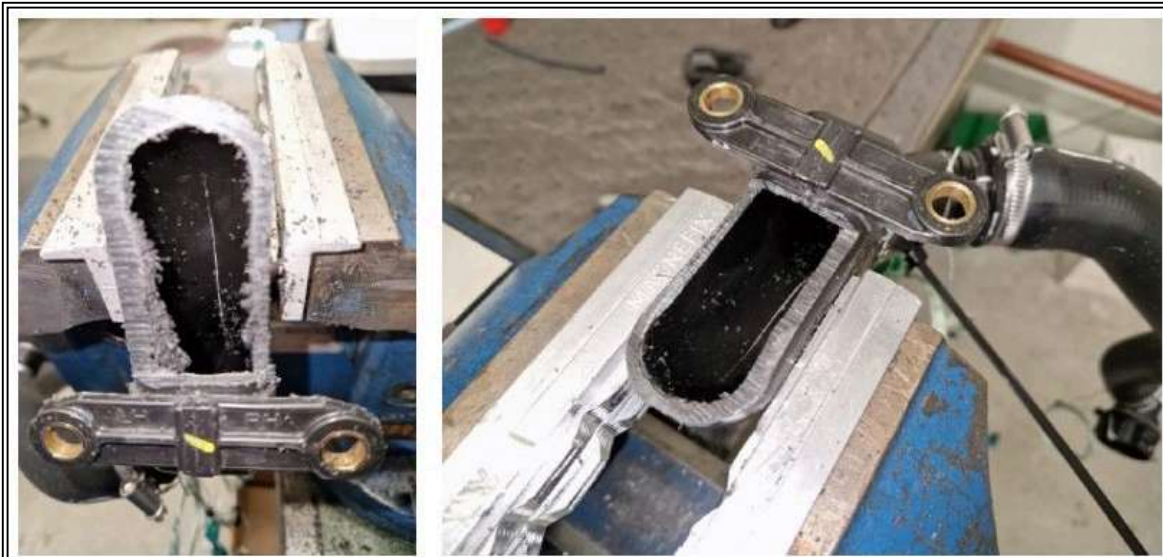


Figure #5: Cutting the Breather Outlet

4. Position the lower tube in a vice and lightly tighten it to secure the tube.
5. Using a hack saw or similar cutting tool, cut the lower portion of the breather tube as seen in **Figure #5** to enlarge the opening
6. After making the cut, clean any loose material from the face where the cut was made

INSTALLATION PROCEDURE:

7. Install the modified breather tube back on the engine, torque the two M8 x 20 bolts (**Figure #2 Item 1**) to 26 Nm

8. Secure the metal retaining clip back in place locking the upper end of the tube at the Oil Mist Separator (**Figure #3 Item 1**)



Figure #6: Completed repair

WARRANTY INFORMATION

Warranty Claim Coding:

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

Standard Repair Time(s):

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

OTHER RESOURCES

[Master Service Information Site](#)

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