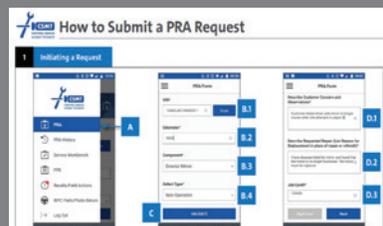


Engine Wiring Harness Chafing Repairs



Several engine wiring harness chafing conditions may be found on some 2019-2021 Silverado and Sierra models as well as some 2021 Tahoe, Suburban, Yukon and Escalade models.

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CSMT Mobile App Update and Job Aids

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Engine Wiring Harness Chafing Repairs

Several engine wiring harness chafing conditions may be found on some 2019-2021 Silverado and Sierra models as well as some 2021 Tahoe, Suburban, Yukon and Escalade models. Depending on the extent of the harness chafing for the engine application, the Check Engine MIL may be illuminated along with a possible no start or no crank condition or other performance conditions, several blown fuses, or a number of DTCs set.

Here's a summary of some of the engine wiring harness conditions that may be found. Refer to Bulletin #21-NA-149 for complete details.

2.7L ENGINE

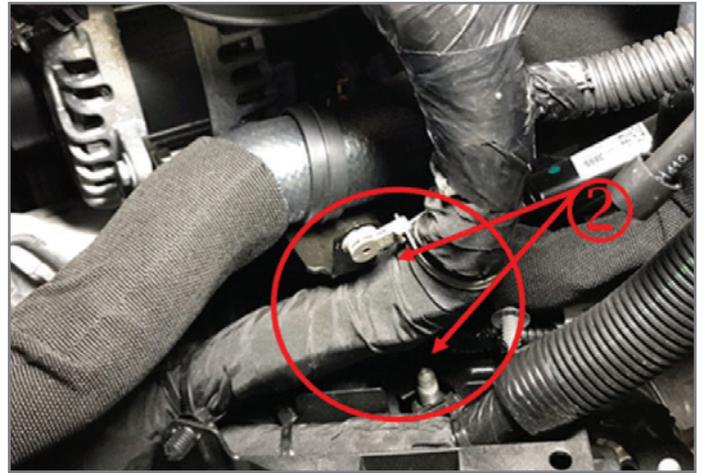
The engine wiring harness on the 2.7L engine (RPO L3B) on some 2019-2021 Silverado and Sierra models may contact several underhood components. Inspect the harness for any damage where it crosses over the top of the camshaft carrier cover.

In addition, inspect the engine harness at the lower air cleaner housing, the generator bracket and left-front coil spring stud, and the left-front upper control arm bushing.



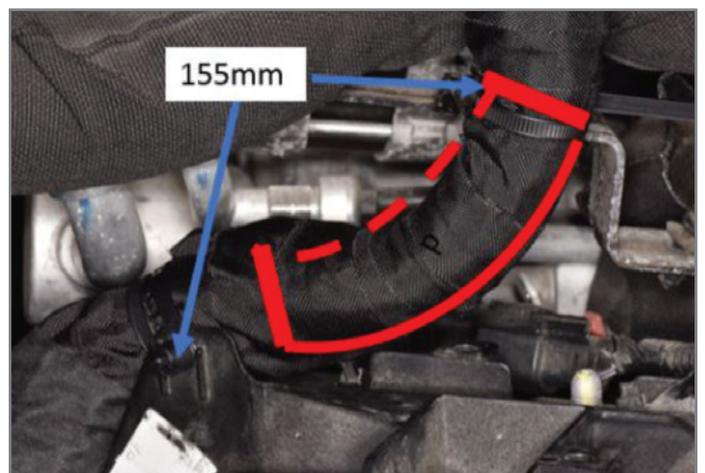
Harness over the top of the camshaft carrier cover

Under normal driving conditions, the engine will rock back-and-forth in its mounts, which may result in harness contact with the generator bracket that may not be present with the engine off. It may be necessary to disconnect several engine harness connections to reposition the harness for inspection.



Check for harness contact with the generator bracket.

If engine wiring harness contact is isolated during the inspection, carefully inspect for internal wiring damage and repair any wiring as needed following the wiring repair procedures in the appropriate Service Information. Once the inspections or repairs have been made, protect the engine wiring harness from future damage using the appropriate Zip Tie Fir Tree Clip and/or Kevlar Velcro Sleeve.



Position the wiring harness to protect it from future damage.

CONTINUED ON PAGE 3

4.3L ENGINE

On the 4.3L engine (RPO LV3) on some 2019-2021 Silverado and Sierra models, check the engine wiring harness for any rubbing on the front corner of the left cylinder head or drive belt idler bracket and shorting any number of circuits to ground. Due to the number of circuits in the harness, there may be a wide variety of different symptoms that may occur, depending on the circuit that is damaged.



Contact at the front corner of the left cylinder head.

Repair any damaged wiring found by following the wiring repair procedures in the appropriate Service Information. Once repairs are completed, protect and reposition the engine wiring harness to prevent future damage.

3.0L DIESEL ENGINE

The 3.0L diesel engine (RPO LM2) on some 2019-2021 Silverado, Sierra; 2021 Tahoe, Suburban, Yukon and Escalade models may have a pinched or chafed wiring harness at approximately 18



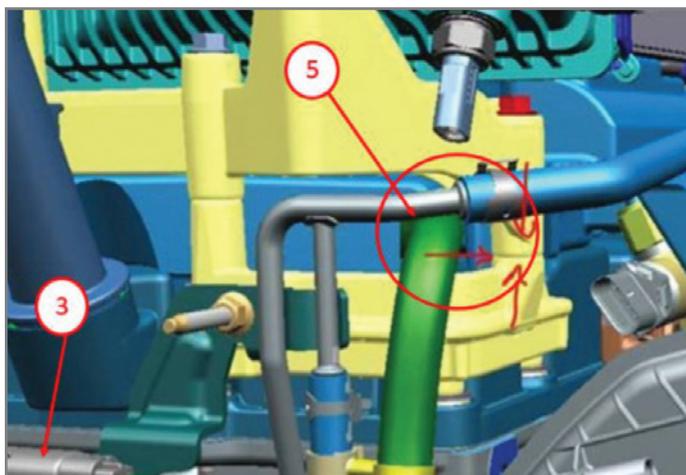
PVC hose clamp at the crankcase pressure regulator

inches (46 cm) from the ECM connectors and on top of the generator, or at the PVC hose clamp at the crankcase pressure regulator that is approximately 4 inches (10 cm) from the crankcase sensor connector pigtail harness breakout.

There may be a number of different symptoms that may be present, depending on the damaged circuit.

If DTCs P0201, P0202, P0203, P0204, P0205, P0206, and/or P0216 are set, inspect for poor terminal tension at connector X160 and that the terminal locking feature is not missing. Also inspect the fuel injector connectors to make sure they are fully connected/seated and for damage to the fuel injector wiring harness near the X160 connector.

Do not replace ECM for these concerns without thoroughly inspecting the engine wiring harness. If any concerns are found, follow the wiring repair procedures in the appropriate Service Information



Inspect the fuel injector wiring harness near the X160 connector.

2.7L ENGINE, 3.0L DIESEL ENGINE, 4.3L ENGINE, 5.3L ENGINE AND 6.2L ENGINE

The engine wiring harness on the 2.7L engine (RPO L3B), 3.0L diesel engine (RPO LM2), 4.3L engine (RPO LV3), 5.3L engine (RPO L82, L84) and 6.2L engine (RPO L87) may be contacting the ECM/TCM bracket, driver-side upper control arm and/or the shock tower bolt due to engine vibration. Harness sleeves, anti-abrasion tape and zip ties should be used to secure the harness from these contact points.

At the ECM/TCM bracket, wrap the harness using a harness sleeve and secure with zip ties to prevent movement.

CONTINUED ON PAGE 4



Dipstick Tube O-Ring Oil Leak

When diagnosing engine oil leaks on 2019-2022 Silverado, Sierra; and 2020-2022 CT4-V models equipped with the 2.7L turbocharged 4-cylinder engine (RPO L3B), inspect the dipstick tube (indicator tube) O-ring and areas above the composite oil pan sealing surface. These potential oil leak areas should be checked before determining the lower composite oil pan as the source of the engine oil leak. The oil leak may have a similar appearance to an engine oil cooler leak.

Signs of oil spray may be seen on the left side of the engine or the oil leak may only occur after a road test on the left side of the engine.

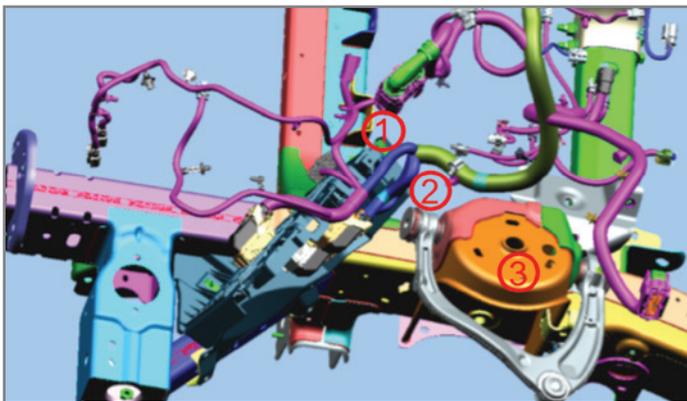
Check for an oil leak from the dipstick tube O-ring with an inspection mirror. There may not be any oil residue around the dipstick tube O-ring area.



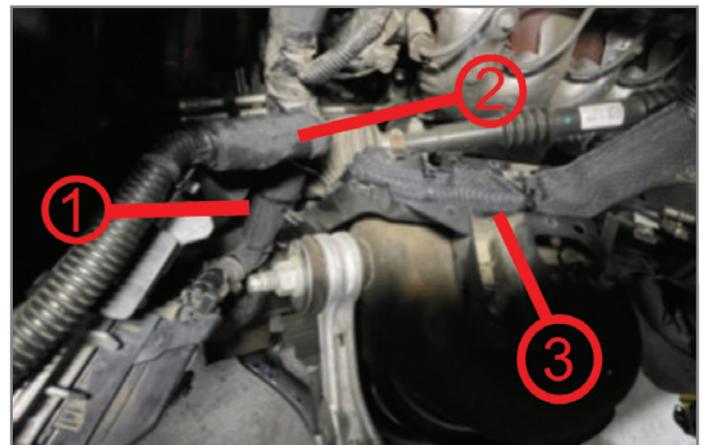
2.7L turbocharged engine

CONTINUED ON PAGE 5

Engine Wiring Harness Chafing Repairs CONTINUED FROM PAGE 3



1. ECM/TCM bracket
2. Upper control arm
3. Shock tower bolt



Secure the wiring harness at all three points.

For upper control arm contact, wrap the wiring harness in the harness sleeve and anti-abrasion tape. Secure the harness to the harness clip above the ECM/TCM bracket.

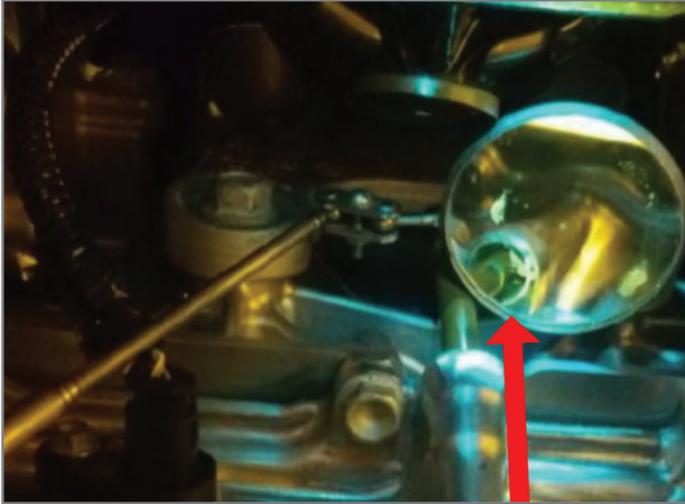
At the shock tower, there is a wire harness canal where the harness should be positioned. Insert the harness sleeve and secure the harness to the canal using zip ties.

Verify the wiring harness is secure at all three points.

For additional information about the repair procedures and the required part numbers, refer to Bulletin #21-NA-149.

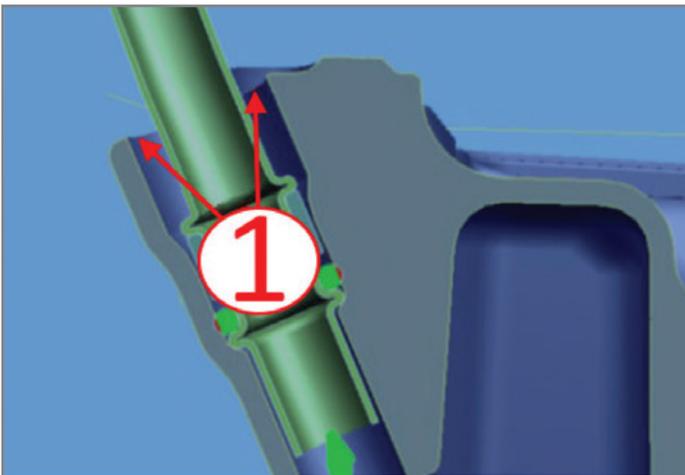
► Thanks to Dave MacGillis

Remove the dipstick tube and inspect the dipstick tube O-ring for damage. Replace as necessary. Use extra care when replacing the dipstick tube. There may be sharp edges on the lower crankcase extension that could potentially damage the O-ring during installation.



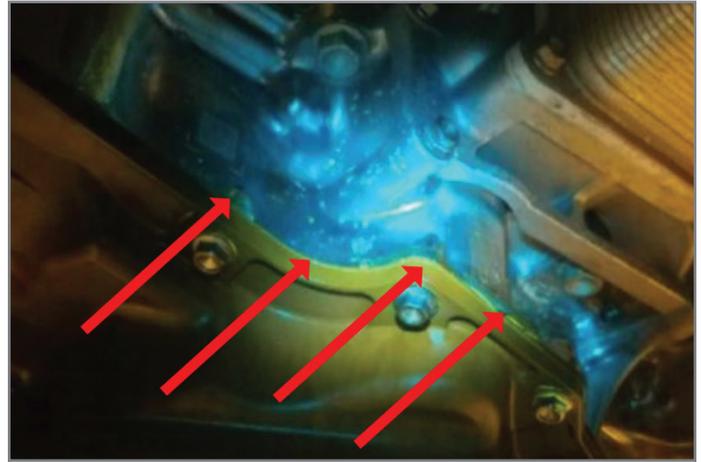
Check for an oil leak from the dipstick tube O-ring.

Verify that the dipstick tube does not show any signs of damage or leaks to the seal before replacing the oil pan gasket. A black light and tracer dye can be used to identify an oil leak from the composite oil pan sealing surface.



Look for sharp edges on the lower crankcase extension during O-ring installation.

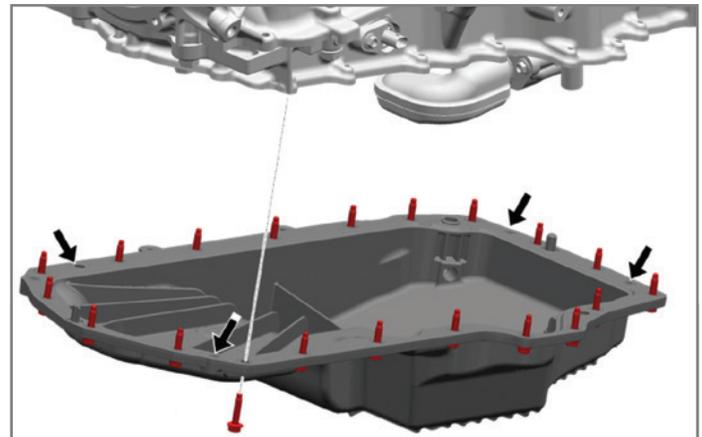
TIP: The use of engine oil dye and trace powders are recommended to assist with isolating engine oil leak points. Be sure to clean suspected leak areas thoroughly before using trace powders.



Black light and tracer dye identify an oil leak from the composite oil pan sealing surface.

LOWER OIL PAN

The composite oil pan is attached at the engine block lower structural extension (LCE). The oil pan incorporates four jack screws (threaded inserts) that need to be used during the removal procedure. Tighten the jack screw by hand 1 to 2 turns. Turn each uniformly and move to the next screw until the oil pan has full separation from the LCE. Do not pry on the oil pan to LCE or the sealing surface may be damaged.



The oil pan incorporates four jack screws to help with removal.

Refer to Bulletin #21-NA-231 for additional information.

► Thanks to Marcus Plant

CSMT Mobile App Update and Job Aids

New resources are now available to U.S. dealerships to help with submitting or reworking warranty approval requests using the Pre-Repair Authorization (PRA) application in the Certified Service Mobile Toolbox (CSMT). The CSMT PRA tool is used to request GM pre-approval for warranty replacement of wheels, exterior mirror assemblies, seat covers, steering wheels, interior door trim, upper control arms, assist steps and specified recalls. PRA request decisions are communicated directly in the app so users can quickly get a message on their device as soon as a decision has been made.

How to Submit a PRA Request

1 Initiating a Request

A. Navigate to PRA. Log into CSMT, open the menu and select "PRA".

2. Enter all required information.

1. Enter or scan the **VIN**.
2. Enter the current **odometer** reading.
3. Select the **component** needing replacement.

3. Enter all required information.

1. Describe the **customer's concern** and **your observations** (including details that might not be visible in photos).

NOTE: If submitting a request for...

The PRA feature can be used to request pre-approval of some warranty repairs.

In addition to the PRA portion of the app, the CSMT app includes Field Product Reporting (FPR) for U.S. dealerships or Product Information Reporting (PIR) for Canadian dealerships; and Field Action notifications.

NEW PRA JOB AIDS

To view the job aids (U.S. only), go to the Warranty Administration Resource Center app (available under the App Center tab) on GlobalConnect. Select the Training Materials link at the top of the home page to view or download the CSMT PRA job aids.

The new job aids provide tips on:

- How to submit a PRA request
- Guidelines for uploading media for PRA requests
- Reviewing and reworking PRA submissions
- PRA request FAQs (Android/Apple)

Select the Training Materials link from the Warranty Administration Resource Center home page to view the new job aids.

SOFTWARE UPDATE AVAILABLE

As of November 3, 2021, the latest version of the CSMT app is available for download on Android and iPhone devices. If you do not have your device set to perform "automatic updates," perform the update manually through the App Store (Apple) or Google Play Store (Android). Once downloaded, you can log in using your GlobalConnect ID and Password.

New enhancements available with the latest update include:

- WPC Photo Parts Return (currently used by North Central Region dealerships and rolling out to other dealerships in early 2022)
- Replacement Parts Traceability
- Recalls/Field Actions
- VIN Scan Validation

For further details about these new features, U.S. dealerships can review GlobalConnect message GCUS-9-12171.

To check the version of your operating system, for Apple devices, go to Settings/General/About/Software Version, and for Android devices, go to Settings/About Phone/Software Information/Android Version.

Insufficient Heating Performance Due to Exhaust Manifold Outlet Pipe

Some 2020-2021 Encore GX and Trailblazer models equipped with the 1.3L turbo engine (RPO L3T) may have insufficient heat or no heat in the cabin after driving for several minutes.

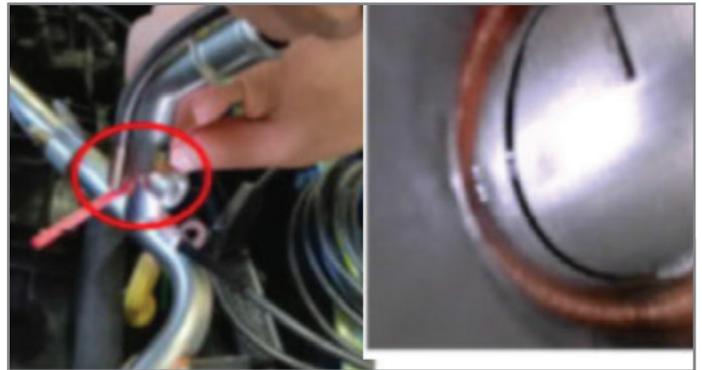
During diagnosis, GDS 2 Engine Cooling and HVAC Data may show that the temperature difference between the heater inlet (ECT sensor 3) and heater outlet (ECT sensor 4) is over 30°C (86°F) when the engine is warmed fully. If this temperature difference between the heater inlet (ECT sensor 3) and heater outlet (ECT sensor 4) is found, use a general boroscope to check for a blocked exhaust manifold outlet pipe. Allow enough time for the engine cooling system to cool before opening.

An internal blockage of the exhaust manifold outlet pipe may result in insufficient heating performance. If the pipe is blocked, replace the pipe. Refer to Exhaust Manifold Outlet Pipe Replacement in the appropriate Service Information.

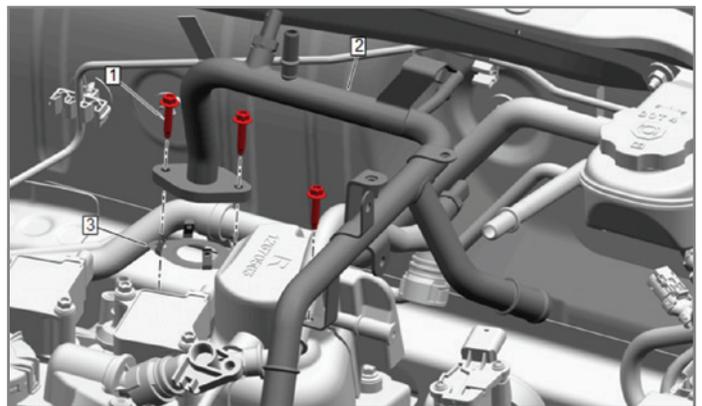
After the new exhaust manifold outlet pipe is installed, run the engine to raise the engine coolant temperature and check the GDS 2 Engine Cooling and HVAC Data menu. The temperature of the heater inlet (ECT sensor 3) and heater outlet (ECT sensor 4) should be similar.

For additional information and part numbers, refer to Bulletin #21-NA-223.

► Thanks to Frank Jakubiec



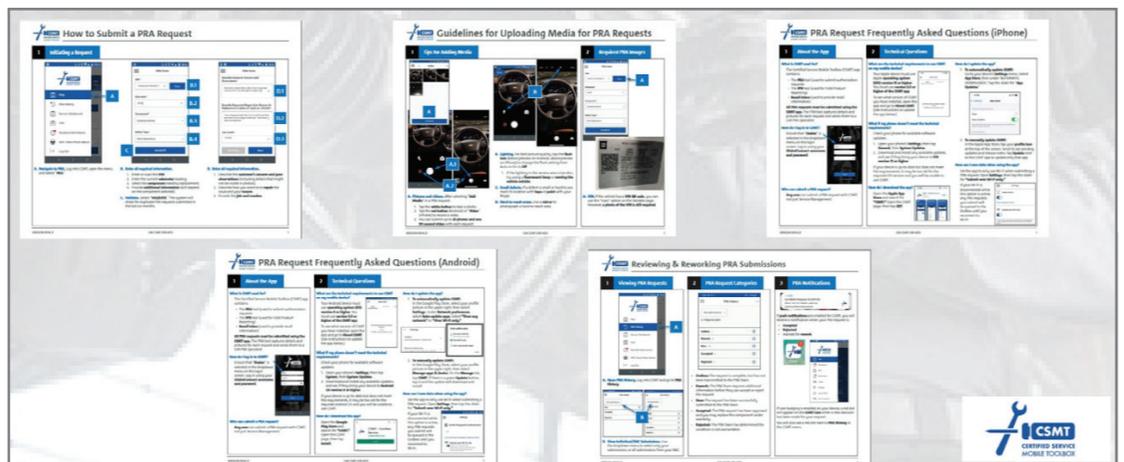
Use a general boroscope to check for a blocked exhaust manifold outlet pipe.



Exhaust manifold outlet pipe

For technical assistance with the CSMT app in the U.S., contact the GlobalConnect Helpdesk at 1-888-337-1010 prompt 1, sub prompt 2.

► Thanks to Carrie King and Misty McKay

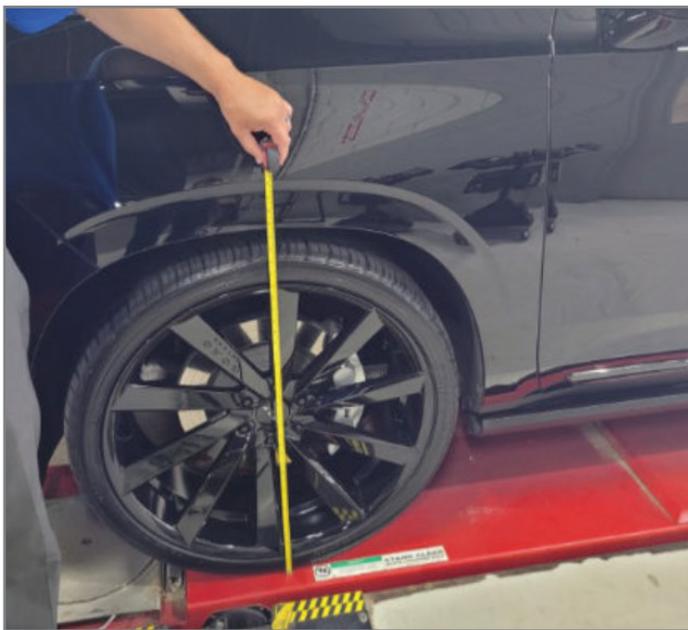


Five job aids are now available for Android and Apple devices.

Service Leveling System Message

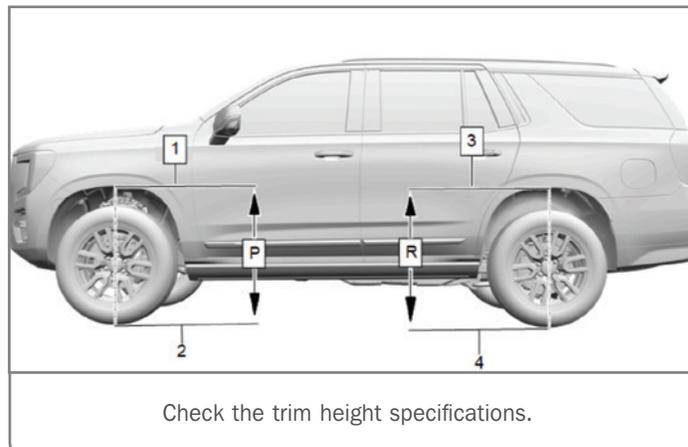
DUE TO AFTERMARKET MODIFICATIONS

A Service Leveling System message or Speed Limited message on the Driver Information Center (DIC) on some 2021 Tahoe, Suburban, Yukon and Escalade models may be due to aftermarket modifications. If an aftermarket lowering kit is installed on these models, it may cause an incorrect vehicle ride height variance, which may be indicated by a decreased distance between the top of the tire and the fender well.



Incorrect vehicle ride height

If these DIC messages are displayed, check if the vehicle ride height has been altered. Refer to the Trim Height Inspection procedure in the appropriate Service Information. Trim height is a predetermined measurement relating to vehicle ride height and incorrect trim heights can cause the vehicle to bottom over bumps, damage the suspension components, and show symptoms similar to wheel alignment problems. Always check the trim heights when diagnosing suspension concerns and before checking the wheel alignment.



Check the trim height specifications.

An aftermarket lowering kit may cause premature wear to the air suspension components, tires and CV joint. It also may affect proper headlamp aiming.

Once the suspension has been found to be lower than the factory specifications, check for installed aftermarket adjustable suspension height sensor links.

The original factory suspension height sensor links are not adjustable.



Aftermarket adjustable suspension height sensor links

CONTINUED ON PAGE 9



The factory suspension height sensor links are not adjustable.



Changed angle of rear axle drive shaft

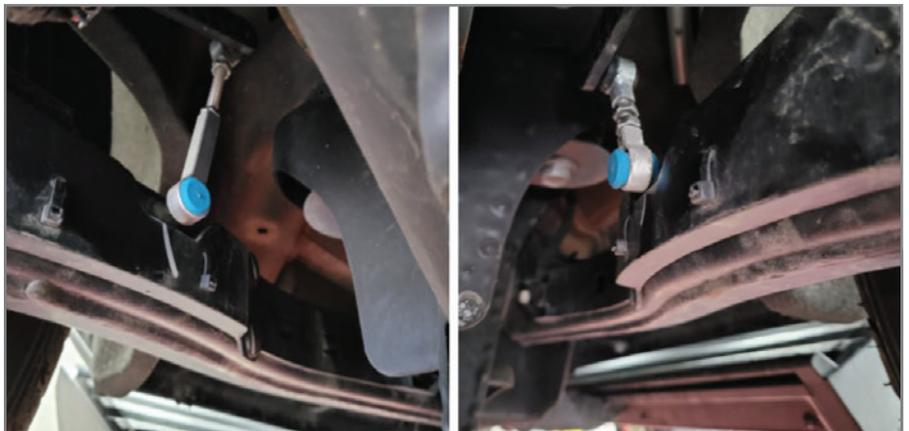
Aftermarket adjustable height sensor links that are incorrectly adjusted side-to-side or not secured properly will result in inaccurate height sensor readings.

In addition, the aftermarket adjustable height sensor links also will change the angle of the rear axle drive shaft due to the suspension being lowered.

Any damage or performance concerns that occur as a result of these vehicle modifications may not be covered under the new vehicle limited warranty. Refer to the Bulletin #09-00-89-016 for additional information about suspected tampering or vehicle modifications.

Refer to #PIT5854 for more information.

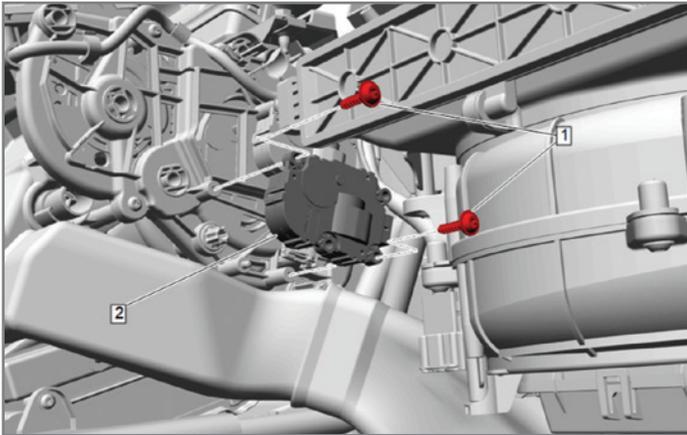
► Thanks to Scott Fibranz



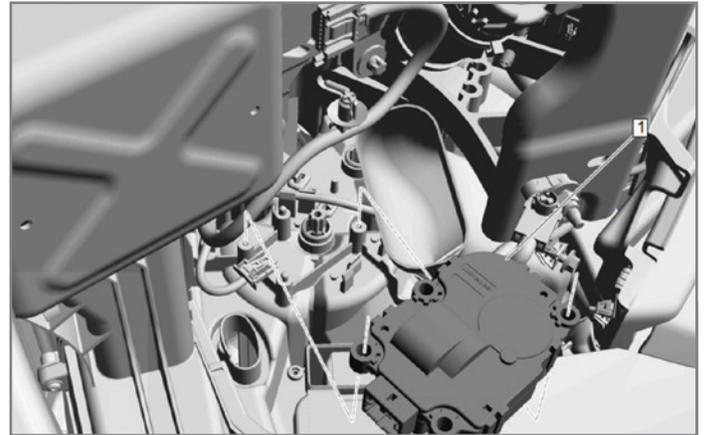
Links incorrectly adjusted side-to-side

HVAC Temperature Actuator Operation at Low Temperatures

The Check Engine MIL may be illuminated on some 2020-2021 CT4 models equipped with the 2.0L engine (RPO LSY) or 2.7L engine (RPO L3B) and some 2020-2021 CT5 models equipped with the 3.0L engine (RPO LGY) when operated in cold climates. The HVAC module temperature actuators stall detection can be unstable at times in cold climates (less than 59°F or 15°C), resulting in incorrect stall detection and several DTCs set.



Programmable temperature valve actuator – right side on the 3.0L engine



Programmable temperature valve actuator – left side on the 3.0L engine

Actuator Replacement procedure for the left or right side in the appropriate Service Information.

ACTUATOR RECALIBRATION

The actuator recalibration procedure for the Body Control Module must be performed after replacing the temperature valve actuator on the left side. Do not operate any HVAC controls while the system is calibrating, which may interrupt the process and result in improper HVAC performance.

For more information, including part numbers, refer to Bulletin #21-NA-133.

► Thanks to Blake Streling

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