



Preliminary Information

PIP5798 Vibration or Rough idle while in Drive or Park

Models

Brand:	Model:	Model Years:	VIN:		Engine:	Transmissions:
			from	to		
Chevrolet	Silverado 1500	2019 - 2021	All	All	5.3L L82, L84 6.2L L87	All
GMC	Siarra1500	2019 - 2021	All	All	5.3L L82, L84 6.2L L87	All

Involved Region or Country	North America
Condition	Some customers may comment about a rough idle and/or vibration at idle. This condition may be most noticeable when the engine is completely warmed up and accessories are off, you may also feel this while idling at a stop in Drive. May feel like a misfire, stumble, lumpy or lumpy idle or may be described as a low idle.
Cause	<p>This concern may be caused by several potential causes:</p> <ul style="list-style-type: none"> • Misfire and/or base engine concern • Wrong fuel used (regular instead of premium when required) • Idle speed fluctuation • Engine mount pre-load

Correction:

Important: Familiarize yourself with this entire PI before proceeding to ensure you are diagnosing and focusing on the correct issue by frequency measured with Pico scope.

To correct this concern follow the steps below.

1. Ensure there are no stored DTC's. If there are any DTC's refer to the applicable service procedure in service information and fix those first.
2. Confirm there are no other warning lights active
3. Monitor fuel trim readings and cylinder misfires to confirm there are no concerns. Also make note of the engine idle speed.
4. Ensure premium fuel is being used (if required)
5. Perform PICO analysis at the driver's seat track, refer to the Service Procedure section below. Record and save your file as this will be requested by TAC.
6. If PICO measurement at E1.5 is above 4mg threshold, perform the "engine and trans mount settling process" below.
7. Re-measure seat track vibration after following the "engine and trans mount settling process". Record and save your file as this will be requested by TAC.
8. If E1.5 measurement does not improve, replace powertrain mounts, then re-measure to confirm mount replacement improved the E1.5 seat track vibration to a value below 4 mg. Record and save your file as this will be requested by TAC.

NOTE: If after settling the engine mounts or replacing them and you find the vibration condition is still not acceptable it will be necessary to open a TAC case and attached your files to the case. Reference [PIP5601A](#) for further instructions on how to upload the files. If the condition was corrected following one of the procedures above print and attach your "before and after" PICO results to the repair order.

Note: Before replacing engine mounts ensure the exhaust system is not bound up and the rear transmission mount is clear of any debris and not damaged. Either of these can result in a higher than normal pico result.



(TA183 single axis pico sensor shown / TA143 is tri-axis sensor)

Add E1.5 to the displayed data and turn Off T and P related data (under Add Vibration in Pico) since issue occurs with vehicle stationary.



Note: Amplitude (mg) readings from a single-axis pico sensor will be approximately 10% lower than with a tri-axis sensor. For example, a reading of 4 mg using a tri-axis sensor, would likely measure as about 3.6 mg on a single-axis sensor.

If the disturbance frequency measures at the seat track as E1.5 with amplitude of approximately 2 mg or higher using a tri-axis sensor, continue with steps in this bulletin to reduce the amplitude (mg) of the disturbance, then exercise the vehicle and re-measure using Pico to determine level of improvement.

Engine and Trans Mount Settling Process

Important: For any engine mount to frame bolts removed during this process. Replace the engine mount to frame bolts with **NEW** bolts.

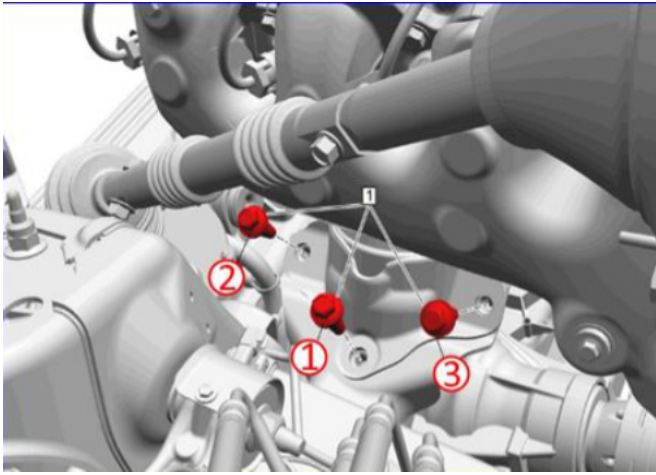
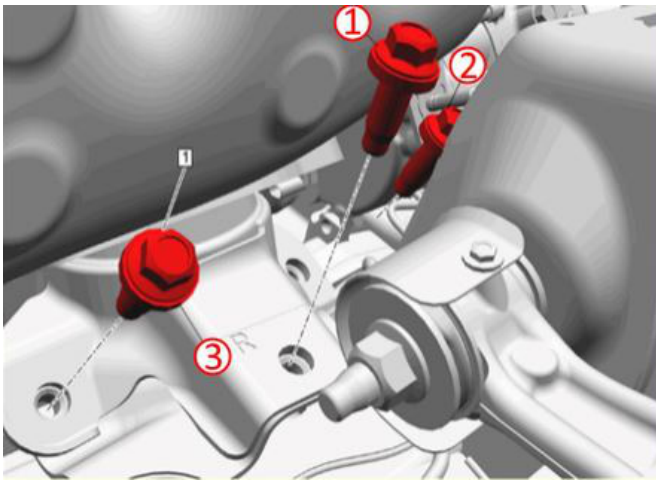
Important: Do Not use Impact wrenches when tightening the engine mount to frame bolts, or damage to threads in the frame may result.

Important: Both LH and RH engine mounts need to be seated to the vehicle frame **At the Same Time** to help ensure best alignment.

Note: Initial removal of the engine mounts will require the removal of the exhaust manifolds.

Summarized below are key notes for engine mount replacement for rough idle:

1. Replace both engine mounts (1). Refer to *Engine Mount Replacement – Left and Right Engine Mount Replacement* in SI.
2. Install but do **NOT** tighten the mount to frame bolts.
3. Settle all mounts as follows:
 1. Ensure the engine mount to frame bolts on both LH and RH sides are loosened a couple turns.
 2. Ensure, the transmission/transfer case mount to frame crossmember nuts are loosened a couple of turns.
 3. Have assistant set park brake and apply base brake.
 4. Have assistant turn Traction Control Off, and brake torque in Drive and Reverse with the engine at operating temperature, then place in Neutral and turn engine Off.



1. In Neutral, with engine Off, using Only Hand Tools, torque all the new engine mount to frame bolts (1) in sequence shown.
- 80 Nm + 35-40 degrees
2. Torque the transmission/transfer case mount to crossmember nuts to 115 Nm (85 lb ft).
3. Re-evaluate the rough idle vibration – repeating steps 1-4 under Initial Set-up / Duplication / Evaluation.
4. Monitor fuel trim readings and cylinder misfires to confirm there are no concerns. Also make note of the engine idle speed.
5. Ensure premium fuel is being used (if required)
6. Perform PICO analysis at the driver's seat track, refer to the Service Procedure section below. Record and save your file as this will be requested by TAC.
7. If PICO measurement at E1.5 is above 4mg threshold, perform the "engine and trans mount settling process" below.
8. Re-measure seat track vibration after following the "engine and trans mount settling process". Record and save your file as this will be requested by TAC.
9. If E1.5 measurement does not improve, replace powertrain mounts, then re-measure to confirm mount replacement improved the E1.5 seat track vibration to a value below 4 mg. Record and save your file as this will be requested by TAC.

NOTE: If after settling the engine mounts or replacing them and you find the vibration condition is still not acceptable it will be necessary to open a TAC case and attached your files to the case. Reference PIP5601A for further instructions on how to upload the files. If the condition was corrected following one of the procedures above print and attach your "before and after" PICO results to the repair order.

Note: Before replacing engine mounts ensure the exhaust system is not bound up and the rear transmission mount is clear of any debris and not damaged. Either of these can result in a higher than normal pico result.

Note: The 6.2L engine has a characteristic E1 which can be felt and may be described as a lopey idle. V-8 engine firing frequency produces E4 which will typically be very low frequency at the seat track. Do not confuse 6.2L E1 characteristic, with E1.5 (engine roll frequency) normal idle characteristics being transmitted into the truck.

Service Procedure:

Initial Setup / Duplication / Evaluation:

Measure the vibration disturbance using the vibration analyzer, CH-51450-A (Pico Oscilloscope), to qualify whether the issue frequency is E1.5 as opposed to E1 or E4.

Note: If using a single-axis pico sensor, mount, and test both vertically and horizontally – E1.5 rough idle vibration will usually be horizontal / lateral at the seat track.

If the E1.5 disturbance measures approximately 4 mg or lower using the Pico tri-axis sensor as indicated – the vehicle is considered acceptable.

1. Place tri-axis pico sensor on the inboard seat track forward-most location to record measurement of the rough idle vibration concern.
Note: Most rough idle in Drive concerns are temperature dependent and can be difficult to re-create at times.
2. With A/C On, perform several short heavy launch events from stop to stop to bring the temperatures back up while attempting to re-create the rough idle vibration in Drive with Pico sensor placed on inboard seat track; while the vibration is active – Record Pico reading. This method seems to provide better results than extended test drives.
3. If the Pico reading for E1.5, with vibration active, at the inboard forward seat track location measures approximately 4 mg or higher – continue following steps in this bulletin to perform the *engine and trans mount settling process*. If after performing the mount settling process and the Pico reading the E1.5 has not improved, then it will be necessary to replace the engine mounts. Please refer to engine mount replacement procedure in service information.

If the Pico reading for E1.5, with vibration active, at specified seat track location measures close to 4 mg or less – investigate other sources of the rough idle / vibration concern using SI diagnostics.

If the E1.5 idle vibration at inboard seat track forward location has been reduced to 4 mg or less – the vehicle is considered acceptable.

This Pi will be updated and information is learned

Parts Information

Description	Part Number	Quantity
Mount, Engine	Refer to EPC	1 Set
BOLT, ENG MT FRM SI	Refer to EPC	3
GASKET, EXH MANIF	Refer to EPC	1 Per Side
BOLT, EXH MANIF	Refer to EPC	5 Per Side
SEAL, EXH SYS L	Refer to EPC	1
SEAL, EXH SYS R	Refer to EPC	1

Warranty Information

For vehicles repaired under the Bumper-to-Bumper coverage (Canada Base Warranty coverage), use the following labor operation. Reference the Applicable Warranties section of Investigate Vehicle History (IVH) for coverage information.

Labor Operation	Description	Labor Time
4087928*	Engine Mount Settling Procedure includes Perform Pico Scope Idle Vibration Measurements	2.0 Hours
4087948*	Engine Mount Replacement	13.4 Hours
*This is a unique Labor Operation for Bulletin use only.		

Version History

Version	1
Modified	03/31/2021 - Created on.



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