



Service Bulletin

Bulletin No.: 20-NA-166

Date: December, 2021

INFORMATION

Subject: Information on Malfunction Indicator Lamp (MIL) Illuminated – DTCs P050D and/or P0300 Setting on a Cold Start and/or Engine Runs Rough when Warm with No Codes

This bulletin replaces PIP5498M. Please discard all versions of PIP5498.

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Cadillac	CTS	2016	2019	—	—	LT4	—
	Escalade	2015	2022			L86, L87	
Chevrolet	Camaro	2016	2022			LT1, LT4	
	Corvette	2016	2019			LT1, LT4, LT5	
	Silverado	2014	2018			L83, L86	
	Silverado 1500 (New Model)	2019	2022			L82, L84, L87	
	Silverado LD	2019	2019			L83	
	Suburban	2015	2022			L83, L84, L87	
	Tahoe	2015	2022			L83, L84, L87	
GMC	Sierra	2014	2018			L83, L86	
	Sierra 1500 (New Model)	2019	2022	L82, L84, L87			
	Sierra Limited	2019	2019	L83			
	Yukon	2015	2022	L83, L86, L84, L87			

Involved Region or Country	North America, Europe, Russia, Middle East, Israel, Argentina, Chile, Colombia, Ecuador, Venezuela, Japan, Cadillac Korea (South Korea), China, Taiwan, Thailand, Singapore, Philippines, Other Africa, Australia/New Zealand
Condition	Some customers may comment on one or more of the following conditions: <ul style="list-style-type: none"> • The MIL is illuminated. • Engine runs rough when warm. Some technicians may find DTCs P050D and/or P0300 setting on a cold start.
Cause	This condition may be caused by coolant getting into the cylinders.
Correction	Validation will be required for possible internal coolant leaking into the cylinders. Refer to the Service Procedure below.

Service Procedure

Technical Assistance (TAC) is currently receiving calls after the engine has been disassembled with no trouble found before completing SI diagnostics for DTC P0300 and P050D.

Note: PLEASE BE SURE TO FIRST FOLLOW SI DIAGNOSTICS for P0300 and P050D THEN, IF DTC P050D FLOWCHART DOES NOT ISOLATE THE CONCERN, THEN THE FOLLOWING MAY BE HELPFUL:

- Follow the flow chart for the P0300 to validate that there is not an ignition or mechanical concern with or without the P0300 set.
- When completing the flow P050D chart, be sure you are checking the injector balance rates while the engine is cold.
- Be sure to record the injector balance rates and attach to the work order.
- If an injector concern is found, replace only the affected injector.

Note: This will need to be done before the engine is disassembled.

Note: If the injectors are being replaced on L86, LT1, LT4 or LT5, there are three different flow rate injectors offered. Be sure to install the same flow rate injectors back into the engine by checking the part number on the injector housing. Mixing the flow rates will cause driveability concerns, DTC setting and repeat injector replacements.

Code P050D Description

During a cold start, the engine control module (ECM) commands dual-pulse mode during Open Loop operation to improve cold start emissions. In dual-pulse mode, the fuel injectors are energized twice during each injection event. As with misfire diagnosis, in dual-pulse mode the ECM monitors the crankshaft position sensor and the camshaft position sensor to calculate crankshaft rotation speed.

In normal operation, optimum fuel delivery during dual-pulse mode produces a steady crankshaft rotation speed. If the variations of crankshaft rotation speed exceed a calibrated value, the code P050D will be set.

Misfires on start up only, with high rates always on one cylinder, can be suspect for coolant entry at the liner to deck face casting or the casting line in the intake port of the cylinder head.

To inspect for this concern, add coolant dye to the system, run the engine through warm up, pressurize the cooling system after warming the engine to operating temperature (let the engine cool overnight) and inspect the suspect cylinder with a borescope for coolant dye evidence.

At times it may be necessary to remove the head for inspection.

If the head casting line is the concern, the intake port will be wet with a coolant oil mix.

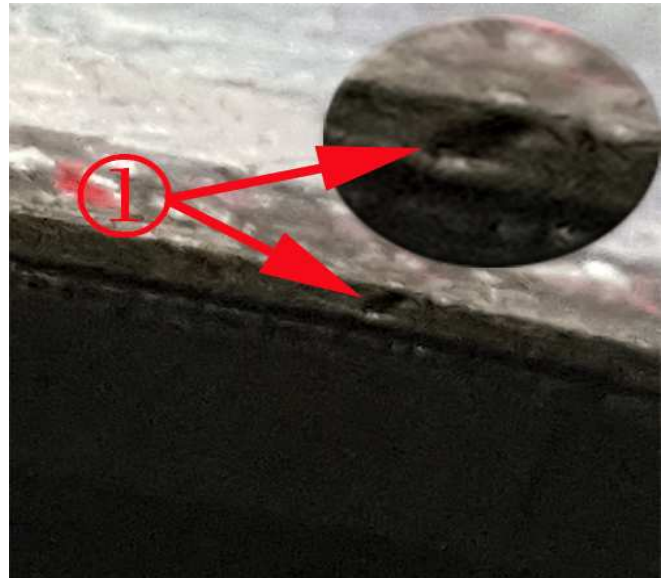
This could be the cause of a running rough warm concern with or without codes.

The location of where the coolant is running down in the port will also look washed down.



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If this is found, the cylinder head will need to be replaced.



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It is also possible to have coolant entry at the liner to deck face casting of the cylinder bore. It is hard to see the actual source (pin hole), but it usually streams down the liner so that you can see it with a borescope. (Sometimes) The top of the piston will be steam cleaned.

Do not confuse residual fuel on the piston crown / surface as coolant. Some fuel residue may be present and can be mistaken as coolant (reason for the cooling system Dye to be added). Use a black light to confirm the liquid is coolant. If this concern is present, do not replace the cylinder head because that will not repair this concern. Call the Product Quality Center (PQC) per Service Bulletins 20-NA-138 (U.S.) or 16-NA-338 (Canada), if required, reference this bulletin and replace the engine.

Small surface pock marks or pitting appearance on the deck surface is normal and engines should not be replaced for such appearance as they do not connect to coolant passages and cause a leak path that generate engine misfires. During engine warranty analysis studies, engines are being replaced for small pitting in the deck face as described above, when the subject cylinder / piston is saturated with fuel and not coolant.

Engines replaced for light / shallow pitting conditions will be returned to the dealership as non-defective.

Parts Information

No parts are required for this repair.

Version	2
Modified	Released August 21, 2020 December 09, 2021 – Added the 2021-2022 Model Years and Australia/New Zealand to Involved Region or Country section.

