



Preliminary Information

PIP5498M SES Lamp P050D P0300 Setting On A Cold Start And/Or a Run Rough Warm with No codes

Models

| Brand:    | Model:                     | Model Years: | VIN: |     | Engine:                                  | Transmissions: |
|-----------|----------------------------|--------------|------|-----|------------------------------------------|----------------|
|           |                            |              | from | to  |                                          |                |
| Cadillac  | CTS-V                      | 2016 - 2020  | All  | All | 6.2L LT4                                 | All            |
| Cadillac  | Escalade                   | 2015 - 2020  | All  | All | 6.2L L86                                 | All            |
| Chevrolet | Camaro                     | 2016 - 2020  | All  | All | 6.2L LT1 LT4                             | All            |
| Chevrolet | Corvette                   | 2016 - 2019  | All  | All | 6.2L LT1 LT4 LT5                         | All            |
| Chevrolet | Silverado LD               | 2014 - 2019  | All  | All | 4.3L, 5.3L, 6.2L L83, L8B, L86, LV1, LV3 | All            |
| Chevrolet | Silverado 1500 (New Model) | 2019 - 2020  | All  | All | 4.3L, 5.3L, 6.2L L82, L84, L87           | All            |
| Chevrolet | Suburban                   | 2015 - 2020  | All  | All | 5.3L L83                                 | All            |
| Chevrolet | Tahoe                      | 2015 - 2020  | All  | All | 5.3L L83                                 | All            |
| GMC       | Sierra                     | 2014 - 2020  | All  | All | 4.3L, 5.3L, 6.2L L83, L86, LV1, LV3      | All            |
| GMC       | Sierra 1500 (New Model)    | 2019 - 2020  | All  | All | 4.3L, 5.3L, 6.2L L82, L84, L87,          | All            |
| GMC       | Yukon Models               | 2015 - 2020  | All  | All | 5.3L, 6.2L L83, L86                      | All            |

Note: GM Technical Assistance continues to receive Dealer calls on a concern of DTC P050D and P0300 ,with the engine disassembled with a no trouble found.

|                            |                                                                                                                                                                                                                                                                                               |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Involved Region or Country | North America                                                                                                                                                                                                                                                                                 |
| Condition                  | <p>A vehicle may have a concern of DTC P050D setting along with a P0300 after a cold start up.</p> <p>White smoke and/or coolant odor may come from exhaust for an extended period of time at cold start as well.</p> <p>It may also Run rough when warm, slight knock, no codes setting.</p> |
| Cause                      | Coolant getting into the cylinders                                                                                                                                                                                                                                                            |

Correction:

Technical assistance 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 concerns 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 rates 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 drivability 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 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.



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

For 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 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 PQC per the latest version of [16-NA-338](#), if required, reference this PI 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.

Version History

| Version  | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modified | 05/15/2017 Created<br>06/14/2017 - Updated Concern Information<br>08/08/2017 - Updated Correction Information<br>10/31/2017 - Updated Correction Information<br>12/01/2017 - Updated Correction Information<br>12/11/2017 - Updated Model Years<br>03/22/2018 - Added Parts Note<br>05/16/2018 - Added the LT5 engine<br>06/06/2018 - Update the Correction information<br>06/12/2018 - update to follow Si. for the P0300<br>05/07/2019 - Updated Model Years<br>04/03/2020 - Updated Admin Details. |



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