



Service Bulletin

PRELIMINARY INFORMATION

Subject: Black Smoke And Rough Idle On Cold Start

Models: 2009-2016 Buick Enclave
2009-2016 Buick Lacrosse
2013-2016 Cadillac ATS XTS
2008-2016 Cadillac CTS SRX
2014-2015 Cadillac CTS (VIN A)
2008-2011 Cadillac STS
2010-2015 Chevrolet Camaro
2015-2016 Chevrolet Colorado
2009-2016 Chevrolet Equinox
2012-2016 Chevrolet Impala (Limited)
2014-2016 Chevrolet Impala
2009-2016 Chevrolet Traverse
2009-2016 GMC Acadia
2015-2016 GMC Canyon
2010-2015 GMC Terrain
2009-2010 Saturn Outlook
2009-2010 Saturn Vue
with 3.0L LF1, LFW and 3.6L LLT, LFX, LF3, LF4 engines only

This PI was superseded to update Condition/Concern and Model Years. Please discard PIP4919D.

The following diagnosis might be helpful if the vehicle exhibits the symptom(s) described in this PI.

Condition/Concern

Concern: Black smoke, rough idle, and minimal misfires on cold start with no MIL.

With the introduction of direct fuel injection systems, GM has revised the cold start control system to reduce cold start emissions.

Quicker catalytic converter heating helps meet the ever changing emission requirements and improve fuel economy.

Also, there is a fuel pump test that runs once per ignition cycle after a cold start that can cause a short term rough idle.

Recommendation/Instructions

A dual-pulse injection strategy is utilized during engine cold start to reduce the time required to bring the catalytic converter up to operating temperature.

This split injection strategy lasts for about 60 seconds on cold start.

This process will cause the customer to see increased black smoke, soot, rough idle, or minimal misfires during cold start and should be considered normal.

To verify that the dual-pulse injection is causing the roughness or misfires with no codes set, you should watch injector pulse width with the scan tool during the

concern.

Dual pulse injector pulse width will be nearly double that of normal idle.

If the pulse width on the injectors drops by about 50% and the engine then smooth's out, this is considered normal operation and no repairs should be attempted.

This cold start strategy is enabled upon start up after the engine has soaked for sufficient time such that the catalytic converter requires rapid reactivation.

The high pressure fuel pump test will run either, as soon as the dual pulse injection is completed, or during the first stop after the engine is warmed up above about 155°F.

This can feel like a slight idle roughness as the high pressure fuel pump is commanded to max pressure and then shut off to measure pressure decay.

Note: The use of TOP TIER fuels lessens the rough idle condition effects during dual pulse injection and the fuel pump test by reducing the amount of carbon or valve train components and a more complete combustion leading to cleaner burn.

All of these concerns are considered normal and no repair attempts should be made

Please follow this diagnostic or repair process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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