

PIP4919C: Black Smoke And Rough Idle On Cold Start - (Apr 25, 2014)

Subject: Black Smoke And Rough Idle On Cold Start

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

This PI was superseded to update model list. Please discard PIP4919B.

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 START UP ONLY.

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.

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 smooths out, this is considered normal operation and no repairs should be attempted.

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

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.

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.