



# Service Bulletin

## PRELIMINARY INFORMATION

**Subject:** Diagnostic Tips For SES Light With DTCs P1516 P2101 P2119 And/Or P2176 When Colder Than - 10F (-23C)

**Models:** 2004-2007 Buick Rainier  
2002-2009 Chevrolet Trail Blazer  
2004-2012 Chevrolet Colorado  
2004-2012 GMC Canyon  
2002-2009 GMC Envoy  
2006-2012 Hummer H3  
2005-2009 Saab 97x  
with 2.8L, 2.9L, 3.5L, 3.7L, and 4.2L Inline Engines  
(RPO Codes LK5, LLV, L52, LLR, LL8)

*This PI was superseded to update Model Years and Diagnostic Information. Please discard PIP4573A.*

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

### Condition/Concern

A dealer may encounter a concern of an SES light and reduced engine power after cold starting their engine when the ambient temperature is approximately -10F (-23C).

Upon inspection, any of the following DTCs may be found: P1516, P2101, P2119, and/or P2176

In some instances, an oil leak may also be experienced from the front or rear crank seal, cam cover gasket, or dipstick tube as well.

This may be the result of excessive water/condensation in the crankcase and a frozen PCV system.

### Recommendation/Instructions

If this concern is experienced, determine if the concern is the result of a frozen PCV system:

**Note:** Excessive short trip driving can induce or aggravate this condition. A good practice in low ambient temperatures would be to allow the engine to reach operating temperature to reduce condensation in the crankcase.

Inline 4 & 5:

Disconnect the PCV vacuum pipe that is attached to the rear of cam cover and inspect the inside of it for ice, moisture, and/or sludge.

Do not try to disconnect the PCV vacuum pipe from the intake manifold because the pipe is molded to the intake manifold and intake manifold damage will occur.

Also inspect the engine oil dipstick and engine oil fill cap for moisture, sludge, and/or ice.

Inline 6:

Carefully disconnect the top or the bottom of the rubber PCV vacuum hose that is between the #3 and #4 intake runners and inspect for ice.

Use caution when disconnecting this hose if you just pulled the truck in from the cold because it may break if too much force is applied when it is very cold.

Also inspect the engine oil dipstick and engine oil fill cap for moisture, sludge, and/or ice.

If there is moisture, ice, and/or sludge in/on the oil fill cap, oil dipstick, and/or PCV vacuum tube, this is most likely the result of a frozen PCV system and the suggestions below should be followed.

If not, follow SI diagnosis and any other bulletins or PIs that apply to the vehicle you are working on

1. Clean any ice / sludge / water out of the PCV pipes / hoses and throttle body, and allow them to dry. If the throttle body is cleaned on a 2008 or newer Envoy, Trail Blazer, or 97x, also perform an idle learn reset with the Tech 2.
2. Determine when the thermostat is opening by feeling the upper radiator hose and watching the ECT parameter on the Tech 2 with the engine at idle. You will know when it opens because the upper radiator hose will get hot once the ECT sensor reaches 180F (82C) - 200F (93C). If the hose heats up slowly when it reaches this temperature range, replace the thermostat. Also replace the thermostat if it opens at the bottom of this temperature range. This is recommended because a thermostat that opens very slowly at the low side of this temperature range may be more likely to experience this concern than one that opens very quickly or at the high side of this temperature range.
3. Allow the engine to idle at operating temperature for at least 15 minutes, turn the engine off, and perform an oil and filter change. Allow the oil to drain for at least 15 minutes to remove all oil and condensation / water from the crankcase. Advise the customer to change their oil right before winter starts in order to prepare for the colder weather and to start changing it more frequently during the winter months.
4. Test the battery and replace it if it fails the test or if marginal test results are obtained. A weak battery may affect throttle plate operation when cold.
5. Check compression and cylinder leakdown as excessive blow by can contribute to moisture buildup in the crankcase and PCV system. If compression/leakdown is found to be excessive, identify root cause and repair / replace as needed.
6. Repair any oil leaks that were induced as a result of the frozen PCV system and excessive crankcase pressure.

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.

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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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