



Service Bulletin

PRELIMINARY INFORMATION

Subject: Belt Noise Rough Idle and/or SES Light with DTC P0014 and/or P0017 - Inspect CMP Actuator Solenoid And Crankshaft End Play

Models: 2004-2009 Chevrolet TrailBlazer
2004-2012 Chevrolet Colorado
2004-2011 GMC Envoy
2004-2012 GMC Canyon
2004-2009 Hummer H3
with an Inline 4, 5, or 6 Cylinder Engine
(RPO Codes L52, LK5 LL8 LLR LLV)

This PI was superseded to update Models. Please discard PIP3694E.

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

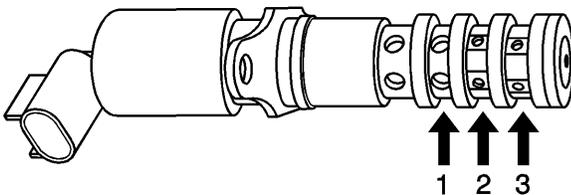
Condition/Concern

Some customers may complain of an engine belt noise, rough idle, and/or SES light with DTC P0014 and/or P0017. If a rough idle is experienced, a P0106 may also be stored.

Recommendation/Instructions

If the SI diagnosis does not isolate the cause of this concern, perform the steps below:

1. Inspect the camshaft actuator solenoid screens below:



(1) Screen for Advance Pressure to Camshaft Actuator

- (2) Screen for Pressurized Oil from Oil Pump
- (3) Screen for Retard Pressure to Camshaft Actuator

If any of these screens are missing, replace the camshaft actuator solenoid, change the engine oil and filter, and re-evaluate the concern. If none of the screens are missing, proceed to step 2 below.

2. Measure the crankshaft end play to determine if it is within the specification of 0.0044in - 0.0153in (0.112 - 0.388 mm). If the crankshaft end play is only .001in or so above specification, it is probably not causing this concern. Typically, if excessive crankshaft end play is causing this concern, it will be obviously out of specification by as much as .050in or more when a pry bar is used to move the crankshaft back and forth. Normally it is so obvious that you can see the excessive movement without using a dial indicator.
 - 2.1) If crankshaft end play is acceptable, replace the camshaft actuator solenoid and re-evaluate the concern.
 - 2.2) If the crankshaft end play is obviously out of specification, engine replacement is suggested to prevent DTCs P0014 and/or P0017 from returning again due to trace amounts of thrust bearing debris that may remain inside of the engine during alternate repairs, such as crankshaft and bearing replacement. If the vehicle is under warranty contact the PQC (Product Quality Center) with the engine unit numbers and an engine replacement estimate at 1-866-654-7654 before replacing the engine.
 - 2.3) If you prefer to repair the engine instead of replace it due to special circumstances, such as an engine backorder situation, no warranty coverage left, or the customer would prefer to have their original engine repaired, you may replace the crankshaft and bearings if the engine block is repairable and it is more cost-effective to repair the engine.

Note: Due to the sensitivity of the CMP actuator system and the tight clearances in the Cam Actuator, the vehicle may return with DTCs P0014 and/or P0017 if you do not get 100% of the old thrust bearing debris out of the engine when the repairs are made.

If you decide to replace the crankshaft and bearings for this concern, first remove the oil pan to inspect the engine block and determine if it has been damaged by the crankshaft.

If engine block damage is present, replace the engine.

If no engine block damage is present, completely disassemble the engine and inspect everything that could have been damaged by the thrust bearing debris, such as the cam bearing journals, cam lobes, cam followers, lash adjusters, timing chain and guides, oil pump, etc...

The CMP actuator solenoid and sprocket assembly should be replaced due to thrust bearing material that may be trapped inside of either component.

Before replacing the damaged/contaminated components and reassembling the engine, thoroughly clean all of the cylinder head and engine block oil galleys with oil galley brushes and soapy water. Also, thoroughly clean all other areas of the engine that would have contacted the old oil and thrust bearing debris, such as the inside of the cam cover, front cover, rear cover, timing chain guides, oil pan, oil galleys in the nose of the exhaust camshaft, etc..

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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