



Preliminary Information

PIP5417C Diagnostic Tip - Oil Leak From Crankshaft Rear Oil Seal or DTC P1101

Models

Brand:	Model:	Model Years:	VIN:		Engine:	Transmissions:
			from	to		
Buick	Encore	2016 - 2019	All	All	1.4L (RPO LE2)	All
Chevrolet	Cruze	2016 - 2019	All	All	1.4L (RPO LE2)	All
Chevrolet	Equinox	2018 - 2020	All	All	1.5L (RPO LYX)	All
Chevrolet	Malibu	2016 - 2020	All	All	1.5L (RPO LFV)	All
Chevrolet	Volt	2016 - 2019	All	All	1.5L (RPO L3A)	All
GMC	Terrain	2018 - 2020	All	All	1.5L (RPO LYX)	All

Involved Region or Country	USA, Canada
Condition	Positive or Negative crankcase pressures outside of the normal range may contribute to engine oil leaks at the Crankshaft Rear Oil Seal or DTC P1101.
Cause	Abnormal crankcase pressures may be caused by a restriction in the any of the induction system components.

Correction:

While performing Strategy Based Diagnostics for engine oil leaks on the listed engines, testing for excessively negative or positive crankcase pressures is necessary for root cause isolation.

Service Procedure:

Use the Evaporative Emissions System Tester (EEST) to record the crankcase pressure.

See pictures below for connection of EEST at the engine oil dipstick port and related readings.

EEST hose adaptor.



EEST Gage at 0 reading.



Note: The connection must be made with the engine off. The engine is then started and the pressure reading is recorded.

Normal crankcase pressure readings for the L3A, LE2, LFV and LYX are between -1 & -5 inches of water in park at hot idle.



If the crankcase pressure is in the proper range, follow Strategy Based Diagnostics for engine oil leaks.

If the crankcase pressure is excessively positive, above 0 inches of water (0 inches of HG / vacuum) then a positive crankcase pressure concern exists requiring further diagnostics.

If diagnosing DTC p1101 with no engine oil leaks and excessive positive crankcase pressure exist an obstructed PCV orifice would be suspect (photo below) requiring camshaft cover replacement as the PCV orifice is not currently serviced.



When diagnosing higher than normal crankcase pressure with an engine oil leak present perform a compression test per service information and record cylinder leakage readings.

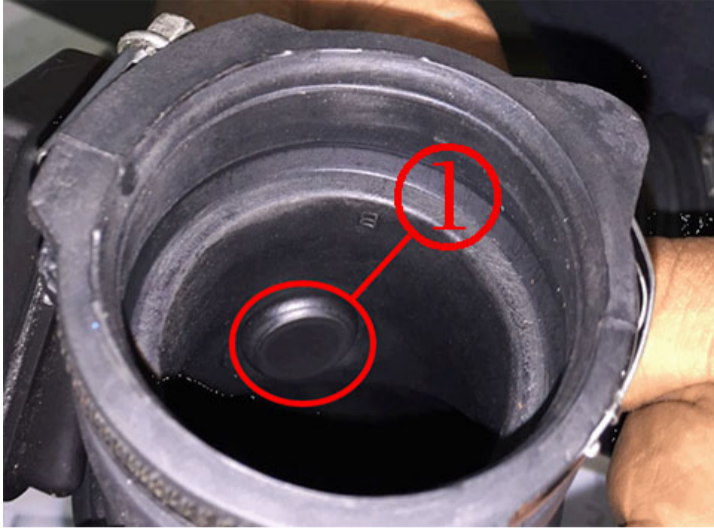
Note: Refer to PIP5517C for further oil leak diagnosis.

If the crankcase pressure is excessively negative, below -16 inches of water (-1 inches of HG / vacuum) then a negative crankcase pressure concern exists requiring further diagnostics.

Inspect for any air induction restrictions in the Front Air Intake Duct to Air Cleaner Housing or in the Air Cleaner Housing. (nesting materials, water intrusion, kinked PCV tube or modifications to the Air Induction system).

Inspect the Air Cleaner Outlet Duct for a blocked PCV fresh air port. (see picture below)

Air Cleaner Housing Outlet Duct with port closed causing excessive negative crankcase pressure.



If the port is not blocked, then replace the camshaft cover assembly and retest for proper crankcase pressure.

Version History

Version	4
	08-16-2016- Created on 03/10/2017 Correcting verbiage in recommended instructions 12/05/2017 adding 2018 Chevrolet Equinox and GMC Terrain 02/07/2020 - Updated to include 2020 MY and DTC P1101



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