



# Preliminary Information

## PIP5734 Check Engine Light On With P0521 and/or P06DE, P06DD Models

Brand:	Model:	Model Years:	VIN:		Engine:	Transmissions:
			from	to		
Buick	Encore GX	2020	All	All	LIH (1.2L)	All
Chevrolet	Trailblazer	2021	All	All	LIH (1.2L)	All

Involved Region or Country	North America
Condition	MIL on P0521 and/or P06DE, P06DD
Cause	Potential Engine Oil Pump Pressure Control Issue

**Correction:**

A Technician may encounter one of the listed vehicles with a P0521 and/or P06DE, P06DD stored current or in history.

Perform the Engine Oil Pump Failure Screening Test.

Park the vehicle in a safe location, place the transmission in park and apply parking brake.

Connect GDS2 to the vehicle and delete any stored trouble codes.

Select: Module Diagnostics => [K20] Engine Control Module => Data Display => Engine Mechanical Data

Start and run engine for 15 minutes or until the engine coolant temperature reaches a minimum of 175 F.

1: Raise the engine RPM to 2000 and hold for 30 seconds.

2: Raise the engine RPM to 4000 and hold for 15 seconds.

3: Release the accelerator pedal and allow the engine to idle for 15 seconds.

Repeat steps 1 through 3 an additional 9 times for a total of 10 cycles from 2000 RPM to 4000 RPM and back to idle speed.

Check the DTC Display Tab for trouble codes P0521, and/or P06DE, P06DD.

Exit the Engine Mechanical Data screen to save session log.

If P0521, P06DE, and/or P06DD set, Engine Oil Pump replacement and Lower Crankcase Extension port inspections are required.

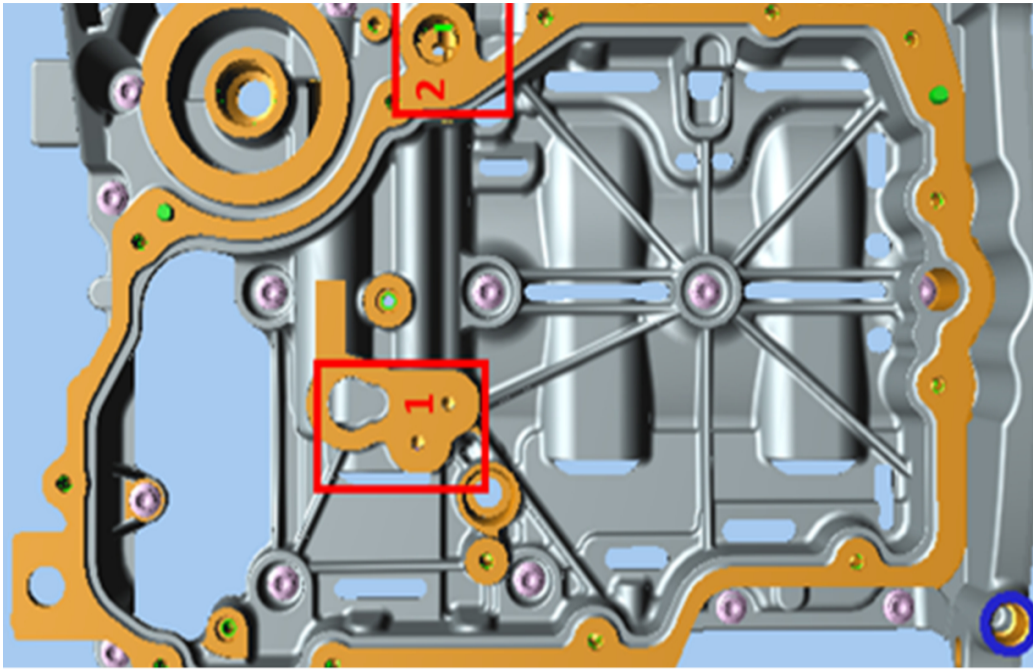
4: Refer to GSI for Oil Pump Replacement.

Once the Engine Oil Pan, Engine Oil Pressure Control Solenoid Valve, and Oil Pump have been removed, inspect the three oil pump ports (1) and the Engine Oil Pressure Control Solenoid Valve port (2) for debris.

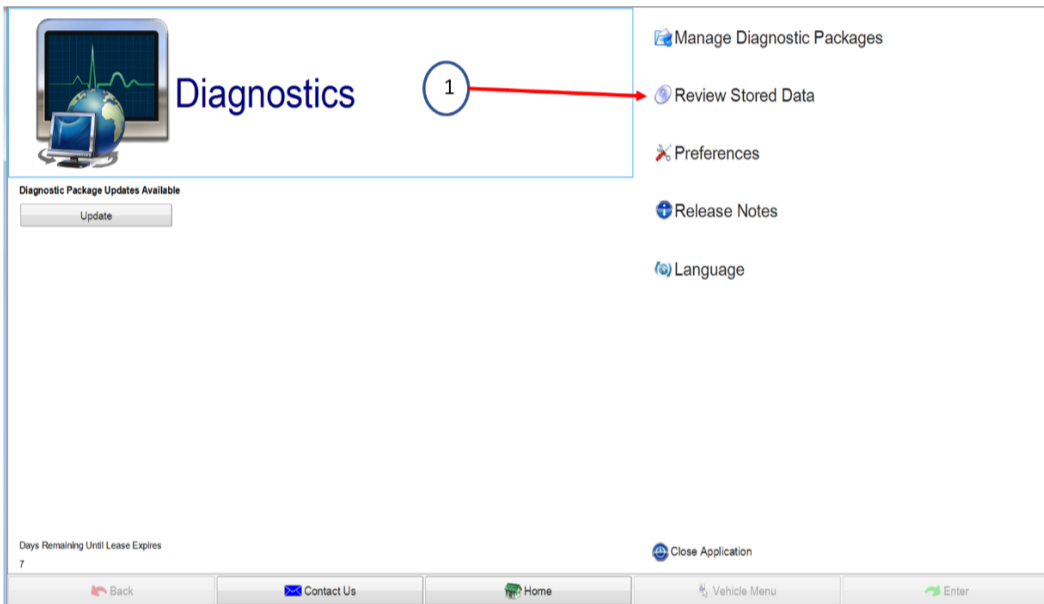
(See picture below)

If found, remove any debris from the ports using caution not to scratch or damage related surfaces.

Do not use brush type tools or cloth materials that may leave debris in the oiling circuit ports.



5: If P0521, P06DE, and/or P06DD did NOT set during this test, Review the GDS2 stored data to isolate a potential Oil Pump Pressure Control issue by following the directions below.



1: Select Review Stored Data (1).

Sessions					
VIN	Model Year	Make	Model	Timestamp	
KL4MMBS2XLB087330	2020	Buick	Encore	Apr 8, 2020 8:48:42 AM	
KL4MMBS28LB072535	2020	Buick	Encore	Mar 25, 2020 4:31:22 PM	
KL4MMBS23LB114349	2020	Buick	Encore	Mar 20, 2020 8:54:46 PM	
KL4MMBS22LB079528	2020	Buick	Encore	Mar 19, 2020 1:41:46 PM	
KL4MMBS25LB083508	2020	Buick	Encore	Mar 18, 2020 9:30:18 AM	
KL4MMDS27LB067838	2020	2020 Buick	Encore	Mar 13, 2020 1:47:12 PM	
NOVIN200313081535	2020	Buick	Encore	Mar 13, 2020 8:17:08 AM	
KL4MMDS21LB068421	2020	Buick	Encore	Mar 12, 2020 7:34:12 AM	
KL4MMBS24LB068759	2020	Buick	Encore	Mar 6, 2020 7:02:43 AM	

Stored Data					
Timestamp	Module Name	Application Type	Application Name	User Notes	Language
Mar 25, 2020 4:31:22 PM	Engine Control Module	Diagnostic Trouble Codes (DTC)	Specific DTC		ENGLISH
Mar 25, 2020 4:15:43 PM	Engine Control Module	Data Display	Data Display		ENGLISH
Mar 19, 2020 2:27:52 PM	Engine Control Module	Data Display	Data Display		ENGLISH
Mar 19, 2020 2:25:47 PM		Vehicle DTC Information	Vehicle DTC Information		ENGLISH
Mar 19, 2020 2:25:06 PM	Engine Control Module	Diagnostic Trouble Codes (DTC)	DTC Display		ENGLISH
Mar 19, 2020 2:24:15 PM	Engine Control Module	Data Display	Data Display		ENGLISH
Mar 19, 2020 2:23:44 PM	Engine Control Module	Data Display	Data Display		ENGLISH
Mar 19, 2020 11:52:27 AM	Engine Control Module	Control Functions	Engine Oil Pressure Control Sole...		ENGLISH

1: Highlight the VIN your are working with (1).

2: Highlight the Data to be displayed (2).

3: Select review (3).

Stored Data Review

Graphical Data Display Diagnostic Data Display Line Graph Bookmarks System Information Selected Vehicle Configuration RPO

Data List: Engine Mechanical Data

Parameter Name	Value	Unit	Control Module
Engine Oil Pressure Control Solenoid Valve Command			Engine Control Module
Ignition 1 Signal		V	Engine Control Module
Engine Controls Ignition Relay Feedback Signal		V	Engine Control Module
Engine Controls Ignition Relay Feedback 2 Signal		V	Engine Control Module
Engine Speed		RPM	Engine Control Module
Crankshaft Position Sensor		RPM	Engine Control Module
Camshaft Position Sensor		RPM	Engine Control Module
Engine Oil Pressure		PSI	Engine Control Module
Engine Oil Pressure Sensor	Engine Oil Pressure Sensor	PSI	Engine Control Module
Engine Oil Absolute Pressure Sensor		PSI	Engine Control Module
Calculated Engine Oil Pressure		PSI	Engine Control Module
Intake Manifold Pressure		PSI	Engine Control Module
MAP Sensor		PSI	Engine Control Module
Boost Pressure		PSI	Engine Control Module
BARO		PSI	Engine Control Module

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Insert Bookmark

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1: Highlight parameter Engine Oil Pressure Control Solenoid Valve Command (1).

2: Select the Lock Parameter ICON (2).

3: Highlight Engine Speed and Engine Oil Pressure and Lock (3).

Stored Data Review

Graphical Data Display Diagnostic Data Display Line Graph Bookmarks System Information Selected Vehicle Configuration RPO

Data List: Engine Mechanical Data

Parameter Name	Value	Unit	Control Module
Engine Oil Pressure Control Solenoid Valve Command			Engine Control Module
Engine Speed		RPM	Engine Control Module
Engine Oil Pressure		PSI	Engine Control Module

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Insert Bookmark

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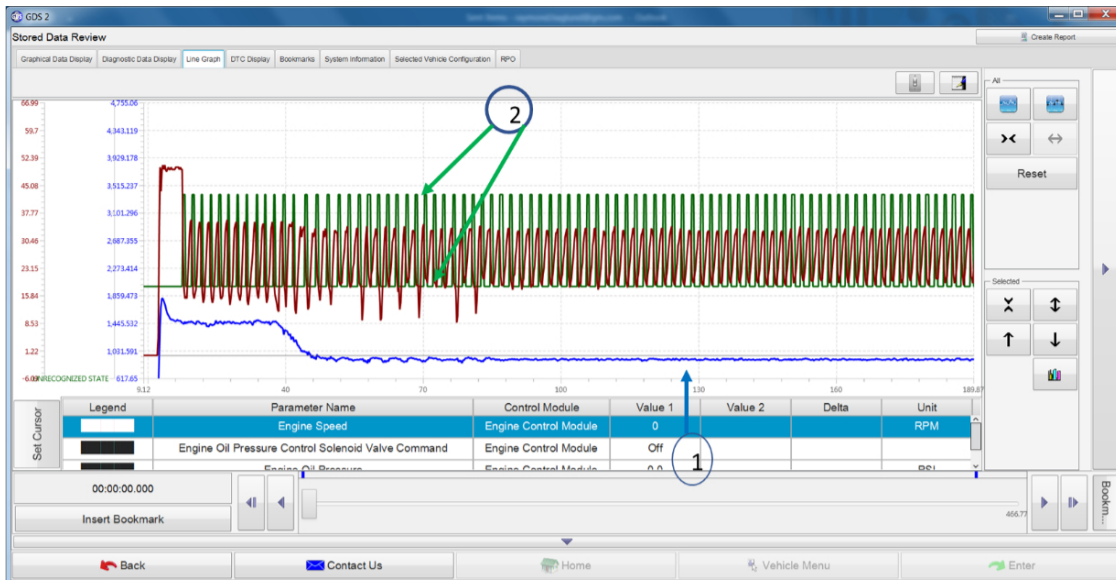
1: Select Line Graph to display the data (1).



In this example, each time that the engine RPM (1) is raised to 4000, the Engine Oil Pressure Control Solenoid Valve Command (2) moves from ON (low pressure) to OFF (high Pressure).

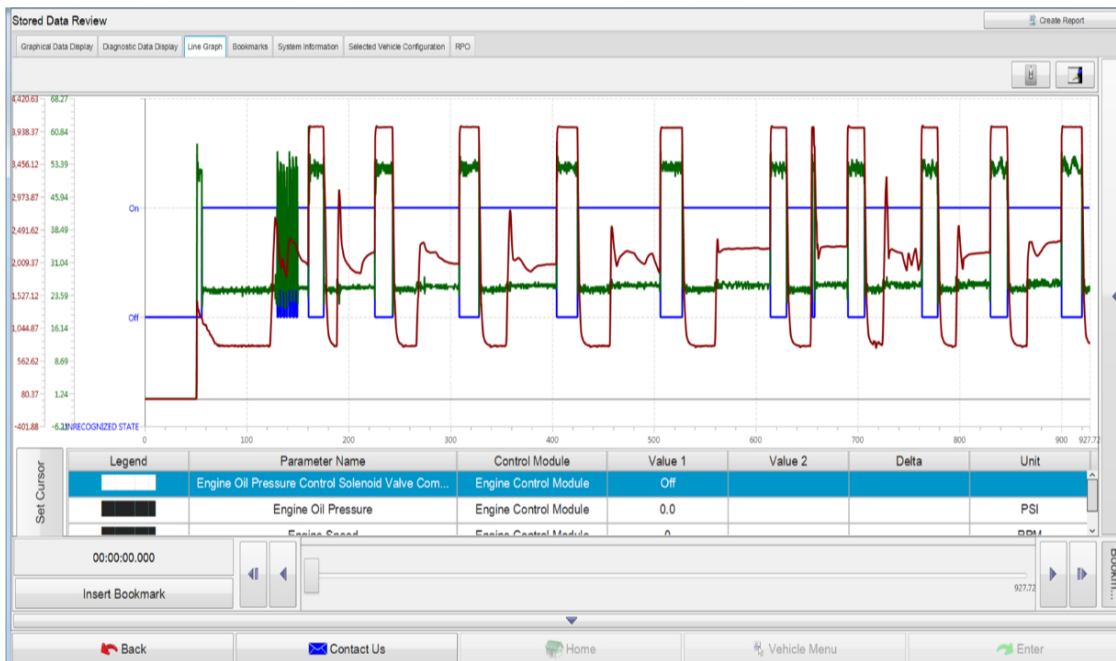
The actual engine oil pressure (3) moves up to a normal 45-55 PSI range.

This is a normal pattern.

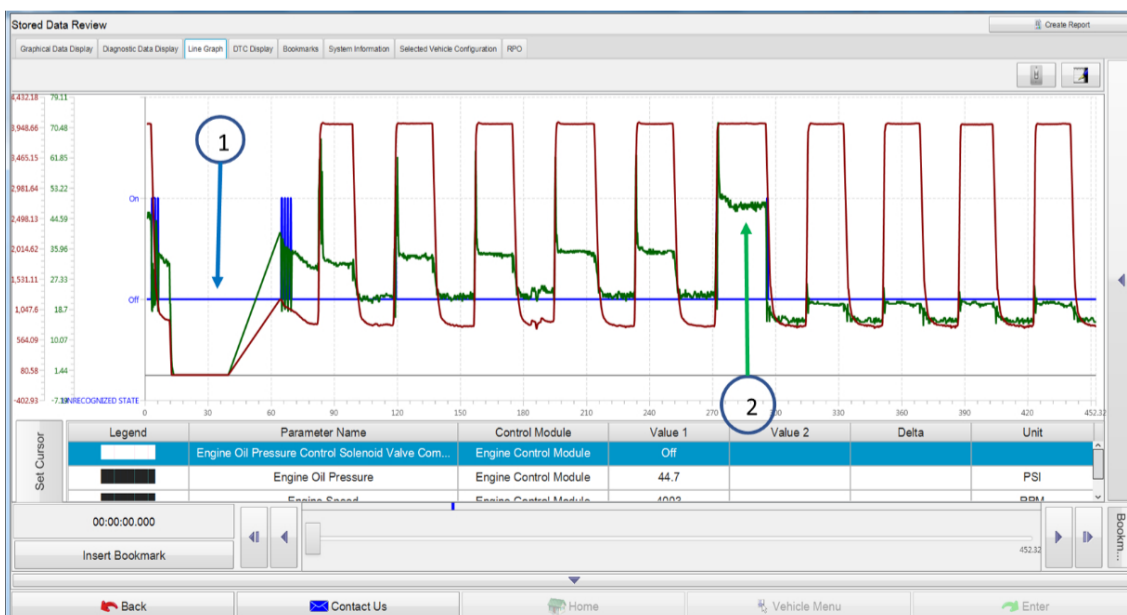


Anytime during engine idling (1) the Engine Oil Pressure Control Solenoid Valve Command may cycle rapidly between on and off (2).

This is a normal characteristic of the system and is not an indication of engine oil pump failure.



In this example you see a normal oil pump switching pattern thru ten 4000 RPM cycles.

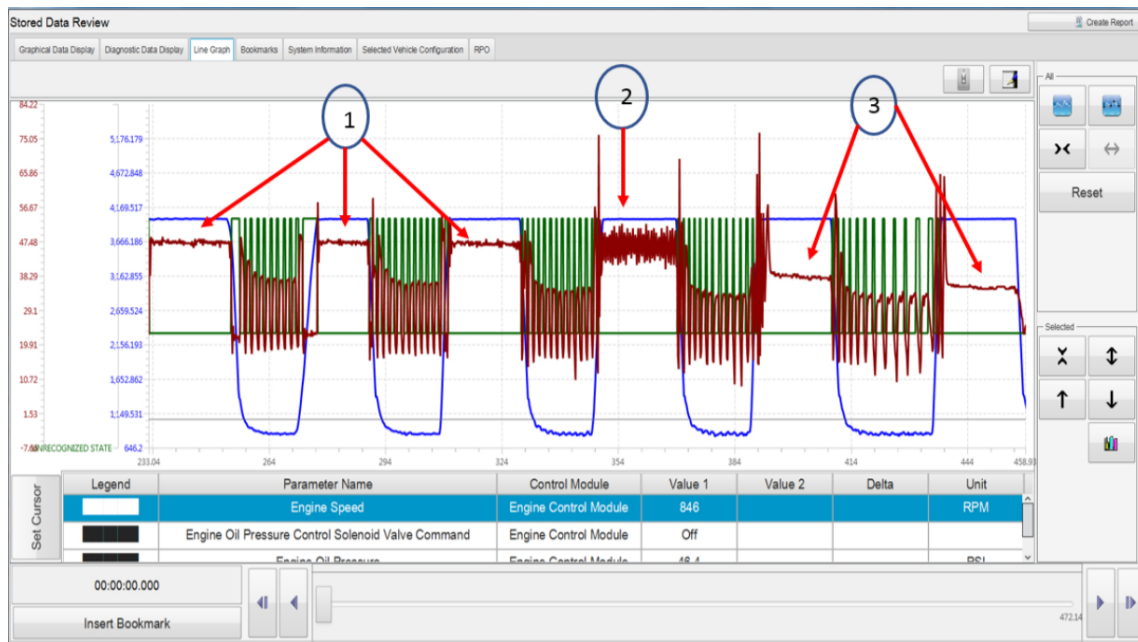


In this example you see Engine Oil Pressure Control Solenoid Valve Command defaulted to off (1) commanding high oil pressure at all times.



The oil pump only achieved a normal high pressure in one of the ten increases to 4000 RPM @ (2) indicating a failed engine oil pump.

Engine Oil Pump replacement and Lower Crankcase Extension port inspections are required. Refer to step #4.



In this example the Oil Pump made normal pressure on the first three switches from low to high (1).

The 4th switch shows an abnormal pattern (2) followed by failures to achieve normal pressure in the 5th and 6th switch (3) indicating a failed engine oil pump.

Engine Oil Pump replacement and Lower Crankcase Extension port inspections are required. Refer to step #4.

### Parts Information

Description	Part Number	Quantity
<b>PUMP ASM-OIL (W/ SCRN)</b>	<b>55503981</b>	1
<b>PAN ASM-LWR OIL</b>	<b>55509997</b>	1
<b>FILTER ASM-OIL</b>	<b>12696048</b>	1
<b>SEAL, OIL PUMP FLOW CONTROL VALVE</b>	<b>55502517</b>	1
<b>OIL-ENG (1 Quart) - DEXOS1 GEN2 5W30 (US)</b>	<b>88865926</b>	5
<b>OIL-ENG (1 Liter) - DEXOS1 GEN2 5W30 (Canada)</b>	<b>19353385</b>	4
<b>SEALER-OIL PAN (1217H) (US)</b>	<b>19369831</b>	1
<b>SEALER-OIL PAN (1217H) (Canada)</b>	<b>19369832</b>	1

### Warranty Information

For vehicles repaired under the Powertrain coverage, use the following labor operations. Reference the Applicable Warranties section of Investigate Vehicle History (IVH) for coverage information.

Labor Operation	Description	Labor Time
4087388	Engine Oil Pump Failure Screening Test and Data Review *	0.8
4066070	(Base) Oil Pump Replacement	1.2
ADD TIME:	Diagnosis Time (Excluding US/Canada) - You may claim up to the allowable labor hours depending on actual time to perform electrical diagnosis	0.0-0.3
ADD TIME:	Diagnosis Time (US/Canada only) - You may claim up to the allowable labor hours depending on actual time to perform electrical diagnosis	0.0-1.0

\*This is a unique Labor Operation for Bulletin use only. Labor Operations diagnostics for this issue are included in engine oil pump failure screening test and data \*If labor operation 4087388 is used, ADD TIME Not Allowed

### Version History

Version	1
Modified	06/10/2020 - Created on.



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