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Coding Information

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Title: PSI 8.8L Camshaft Inspection and Repair vs Engine Replacement

Applies To: PSI 8.8L LPG and Gasoline Engines

Change Log

Please refer to the change log text box below for recent changes to this article:

03/11/2024 - Initial Article Release.

Description

The purpose of this article is to provide updated guidance regarding PSI 8.8L engine repair versus engine replacement. When a camshaft or lifter(s) have failed, technicians should pursue the engine repair process, following the inspection guidelines below, instead of engine replacement.

*****NOTE***** This article is only to be followed if there is suspicion of internal engine damage.

Symptoms

Diagnostic Trouble Codes & Dashboard Indicator Lights:

DTC/Light	
1322 - 31	Random/Multiple Cylinder Misfire Detected
1323 - 31	Cylinder 1 Misfire Detected
1324 - 31	Cylinder 2 Misfire Detected
1325 - 31	Cylinder 3 Misfire Detected
1326 - 31	Cylinder 4 Misfire Detected
1327 - 31	Cylinder 5 Misfire Detected
1328 - 31	Cylinder 6 Misfire Detected
1329 - 31	Cylinder 7 Misfire Detected
1330 - 31	Cylinder 8 Misfire Detected

Customer Observations or Concerns:

- Low power complaints
- Rough running
- Misfire condition

- Abnormal engine noises
- No start condition/engine lock-up

Special Tools / Software

Tool Description	Tool Number	Comments	Instructions
Not Applicable			

Service Parts Information

Kit Description	Part Number	Quantity Required	Notes
Hydraulic Valve Lifter	PSI80000145	16	
Camshaft	2516875C1 / 80000923	1	
Oil Filter and Oil			
Replace any other damaged or one-time-use components	example: bent push rods, gaskets used for reassembly		

Diagnostic Steps

Step	Action	Decision
1	<p>DIAGNOSTIC:</p> <p>Identify if there is potential for internal engine damage with possible conditions of:</p> <p>Misfires, Rough Running, Knocking/Abnormal Engine Noises, No Start/Engine Lock-Up</p> <p>YES/NO QUESTION?</p> <p>Is there suspicion of internal engine damage and have other engine performance-based diagnostics been completed?</p>	<p>Yes: Go to Step 2</p>
		<p>No: Follow available PSI diagnostics to determine the root cause of the condition present</p>

Step	Action	Decision
2	<p>DIAGNOSTIC:</p> <p>Verify if the engine can be rotated by the starter</p> <p>YES/NO QUESTION?</p> <p>Does the engine crank and/or start with the key in the crank position?</p>	<p>Yes: Go to Step 4</p>
		<p>No: Go to Step 3</p>

Step	Action	Decision

3	DIAGNOSTIC: Verify if the engine can be rotated by hand	Yes: Follow diagnostics for the no-crank condition in the PSI diagnostics manual
	YES/NO QUESTION? Can the engine be rotated manually?	No: Go to Step 6

Step	Action	Decision
4	DIAGNOSTIC: Perform and record values for Cylinder Compression test following PSI 8.8L engine manual	Yes: Go to Step 6
	YES/NO QUESTION? Is the Engine Compression Test within specification?	No: Go to Step 5

Step	Action	Decision
5	DIAGNOSTIC: Perform and record values for the Cylinder Leakdown Test following the PSI 8.8L engine manual	Yes: Go to Step 6
	YES/NO QUESTION? Is the Leakdown Test within specification?	No: Open a Technical Support casefile and provide the recorded values from the compression test and leak-down test

Step	Action	Decision
6	DIAGNOSTIC: Remove the Intake, Valve Cover, and Valley pan to verify the condition of the camshaft and valvetrain	Yes: Go to Step 7
	YES/NO QUESTION? Is there any damage observed to the camshaft, valvetrain, push rods, or lifters?	No: Return engine to operating condition and follow appropriate PSI diagnostics to determine to cause of abnormal engine operation

Step	Action	Decision
7	DIAGNOSTIC: Remove the oil pan to inspect for any metal	Yes: Go to Step 8
	YES/NO QUESTION? Is any metal debris found in the oil pan?	No: Go to Step 9

Step	Action	Decision
8	DIAGNOSTIC: Remove the front and second to last main bearings for inspection of any metal passing through	Yes: Open a Technical Support casefile and provide pictures
	NOTE - Do not remove the most rear bearing as this may result in an oil leak later in life YES/NO QUESTION? Using Figures 1 and 2 below, do the bearing(s) and crankshaft show any signs of damage/scoring?	No: Go to Step 9

Figure 1

Bearing contamination



Scoring on crankshaft journal

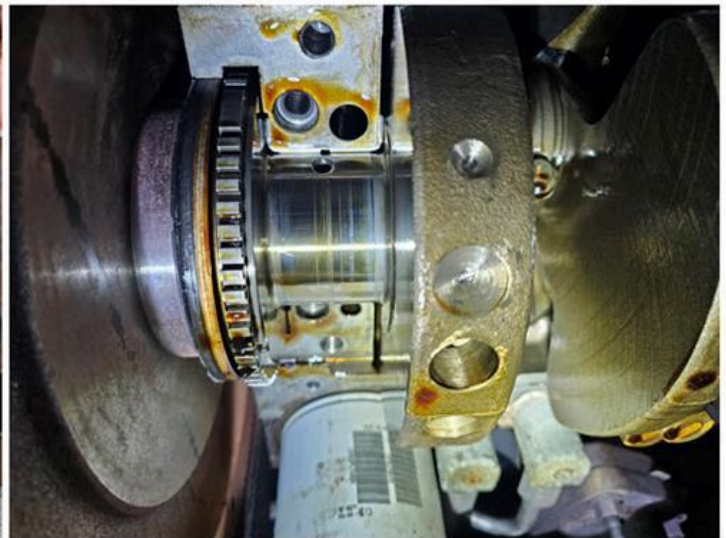
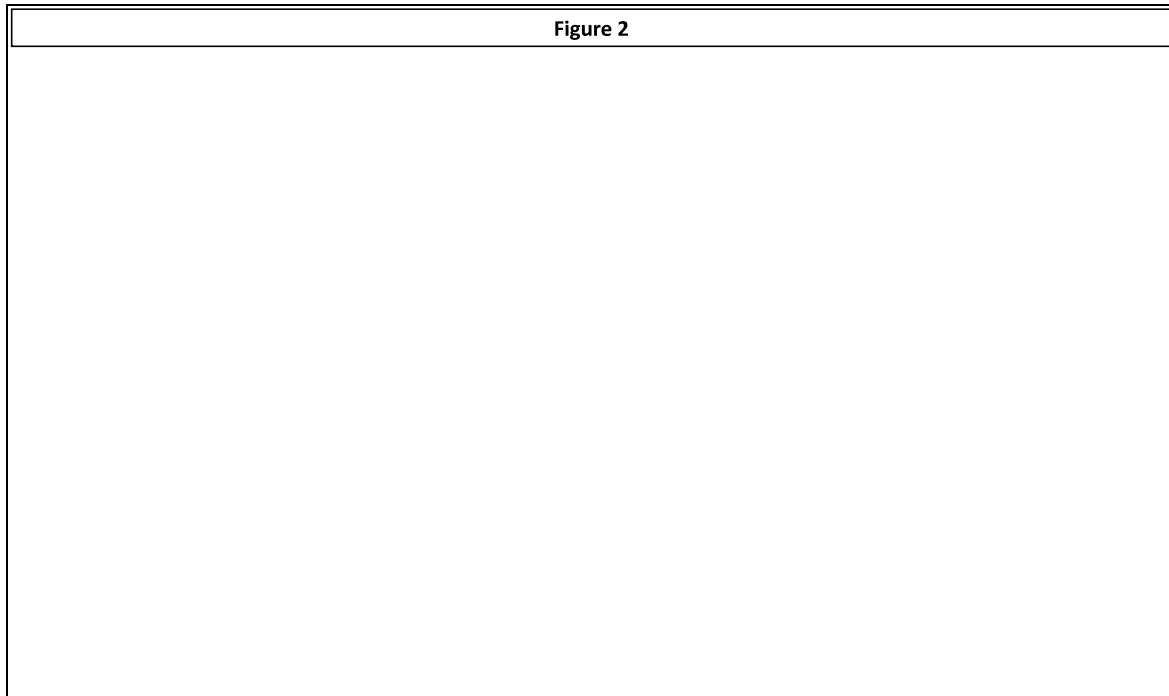


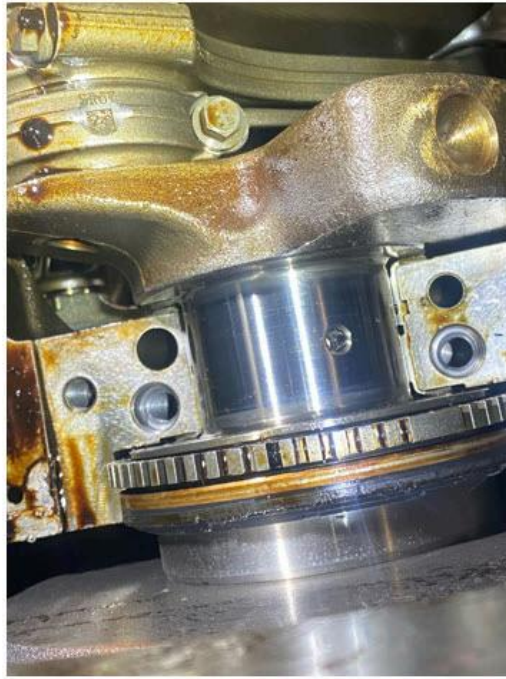
Figure 2



Undamaged main bearing



Undamaged crankshaft journal



Step	Action	Decision
9	DIAGNOSTIC: Inspect camshaft bearings for any damage Follow the available PSI 8.8L Engine manual for the camshaft removal procedure	Yes: Open a Technical Support casefile and provide pictures
	YES/NO QUESTION? Using Figures 3 and 4 below, do the camshaft bearing(s) show any signs of damage?	No: Go to Repair Steps below

Figure 3

Example Images (Bad Camshaft Bearings)



Figure 4

Example Images (ACCEPTABLE Camshaft Bearings)



Repair Step(s)

Follow the below steps for the camshaft repair instead of the engine replacement

Repair Direction:

1. Replace camshaft
2. Replace all lifters
3. Replace the oil filter and oil
4. Replace any other damaged or one-time-use components (example: bent push rods, and gaskets used for reassembly)

NOTE - Reference supporting information for the link to the PSI Engine Manual and to the PSI Camshaft Repair bulletin

Supporting information:

1. [PSI 8.8L Camshaft & Lifter Repair Process Bulletin](#)
2. [2018 PSI 8.8L Gasoline Engine Diagnostic Manual](#)
3. [2019 PSI 8.8L Propane Engine Diagnostic Manual \(Gen II\)](#)
4. [2015 PSI 8.8L Propane Engine Diagnostic Manual \(Gen I\)](#)
5. [2015 PSI 8.8L Propane / 2018 PSI 8.8 Gasoline Engine Service Manual](#)
6. [2019 PSI 8.8L Propane Engine Service Manual \(Gen II\).\(For engine serial numbers starting with 8.8W\).\(Weichai Block\)](#)
7. [2019 PSI 8.8L Propane Engine Service Manual \(Gen II\).\(Dalton Block\)](#)

Warranty Information

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

Other Resources

[Master Service Information Site](#)

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		Viewed: 304	
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Staff ID	Client ID	Comments	Created Date
	DY20368	You received the following feedback From: DY20368 - Margaret Ewain Email Address: mewain@wolfington.com Job Classification: AD003, Warranty Administrator Dealer: WOLFINGTON BODY CO INC Feedback: You know longer at the SRT but just a link - note the PSI bulletin put's the SRT in as GY12-1357LG .3. I am pretty sure that it takes longer than .3 to replace the cam shaft, need to remove timing cover and timing chain. • Remove intake manifold, rocker arm covers, and lifters. • Remove valley cover • Remove oil pan • Remove oil pump drive, and replace lifters, camshaft and potentially bent rods?	3/7/2024 5:32:11 AM