



Preliminary Information

PIP4959F Cold Start Misfires

Models

Brand:	Model:	Model Years:	VIN:		Engine:	Transmissions:
			from	to		
Buick	Enclave	2009 - 2017	All	All	3.6L LLT	All
Buick	LaCrosse	2009 - 2016	All	All	3.0 LF1, LFW, 3.6 LFX, LLT	All
Cadillac	ATS	2013 - 2018	All	All	3.6 LFX, LF4	All
Cadillac	CTS	2010 - 2015	All	All	3.0 LF1, LFW, 3.6 LF3, LFX, LLT	All
Cadillac	SRX	2010 - 2015	All	All	2.8 LAU, 3.0 LF1, 3.6 LFX, LLT	All
Cadillac	XTS	2013 - 2018	All	All	3.6 If3, LFX	All
Chevrolet	Camaro	2010 - 2015	All	All	3.6 LFX, LLT	All
Chevrolet	Caprice PPV	2012 - 2014	All	All	3.6 LFX	All
Chevrolet	Captiva Sport	2012 - 2014	All	All	3.0 LF1, LFW	All
Chevrolet	Colorado	2015 - 2016	All	All	3.6 LFX	All
Chevrolet	Equinox	2010 - 2017	All	All	3.0 LF1, LFW, 3.6 LFX, LLT	All
Chevrolet	Impala	2012 - 2018	All	All	3.6 LFX	All
GMC	Canyon	2015 - 2016	All	All	3.6 LFX	All
GMC	Terrain	2010 - 2017	All	All	3.0 LF1, LFW, 3.6 LFX, LLT	All

Supersession Statement

This PI was superseded to update Models and Model Years. Please discard PIP4959E.

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

Condition / Concern

A customer may complain of misfires or roughness on cold start up. There may also be a P0300 code. For this PI to apply the misfires will be limited to 1 or 2 cylinders.

Recommendations / Instructions

Misfires on start up only with high miss fire rates always on one cylinder can be suspect for coolant entry at the liner to deck face casting.

To inspect for this concern, add coolant dye to the system, run engine through warm up, pressurize the cooling system on a cold soak engine(after being warmed up to operating temperature) and inspect the suspect cylinder with a borescope for coolant dye evidence.

At times it may be necessary to remove the head for inspection.

It is hard to see the actual source (pin hole) but it usually streams down the liner so that you can see it with a borescope.

Do not confuse residual fuel on the piston crown / surface as coolant.

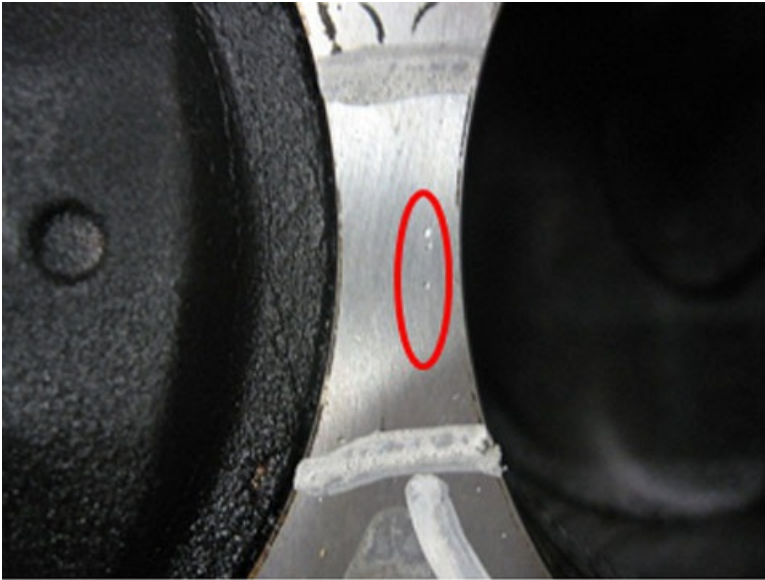
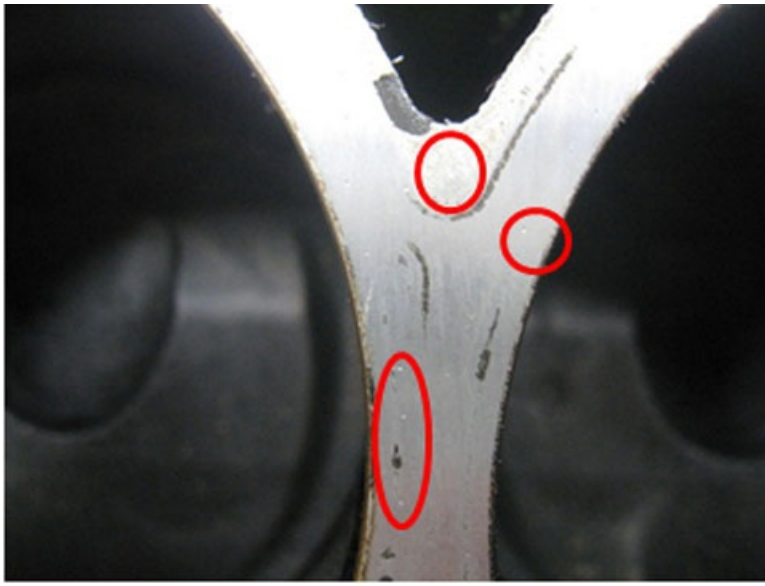
Some fuel residue may be present and can be mistaken as coolant (reason for the cooling system Dye to be added).

Use black light to confirm the liquid is coolant.

If this concern is present, do not replace the cylinder head because that will not repair this concern.

Call PQC per the latest version of [16-NA-338](#), if required, reference this PI and replace the engine.

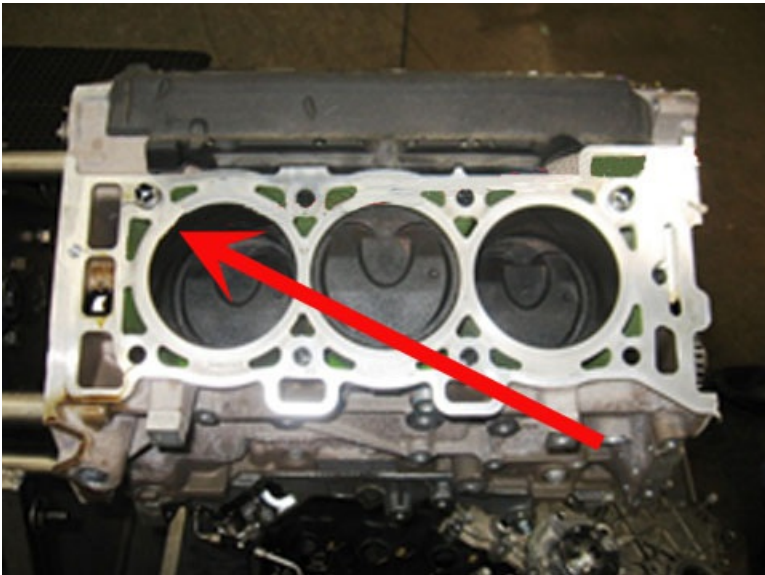
See pictures below for examples of deck pitting and actual porosity with leak path.



Small surface pock marks or pitting appearance on the deck surface is normal and engines should not be replaced for such appearance as they do not connect to coolant passages and cause a leak path that generate engine misfires.

During engine warranty analysis studies, engines are being replaced for small pitting in the deck face as described above, when the subject cylinder / piston is saturated with fuel and not coolant.

Engine replaced for subject pitting conditions will be returned to the dealership as non defective.





The photo above is an example of what true porosity is.

Location: # 5 at the 10:00 o'clock position.

Cylinder deck face to cylinder liner interface location can cause a leak path into the cylinder for rapid large counts of misfires when cold.

Such Porosity is rare, therefore technicians should inspect the subject cylinder and look for a break in the carbon ring.

Usually if porosity is present there will be a break in the carbon ring.

Coolant present in a cylinder cleans the area of entry and can be found by wiping the carbon ring dry with a clean soft towel, exposing the leak path. Only if true porosity is found would engine replacement become necessary.

Call PQC per the latest version of [16-NA-338](#), if required, reference this PI and replace the engine, ONLY in cases where porosity has been found to be the cause.

Warranty Information

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
4067490	Engine Replacement	Use Published Labor Operation Time

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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