



Service Bulletin

PRELIMINARY INFORMATION

Subject: Poor Engine Performance P0089 P228D P0171 Whine Noise From High Pressure Fuel Pump

Models: 2010-2011 Buick LaCrosse
2011 Buick Regal
2010 - 2011 Chevrolet Equinox
2010-2011 GMC Terrain
Equipped with 4 cylinder engine (RPO LAF)

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

Condition/Concern

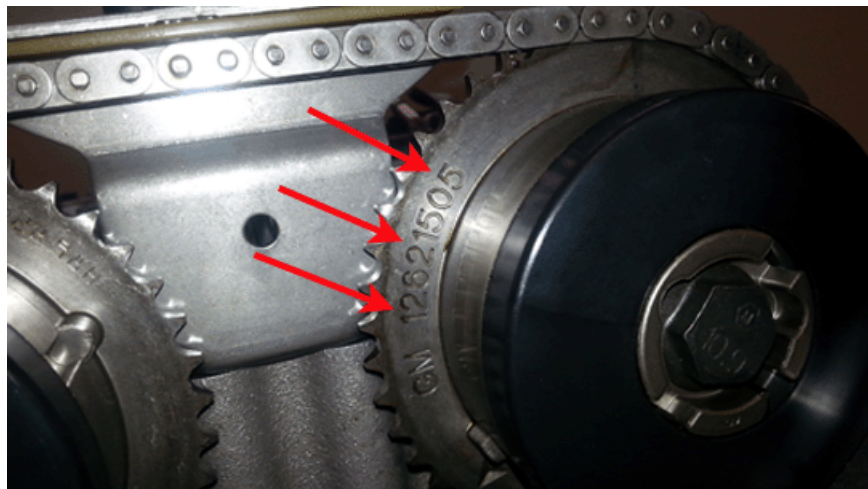
Some technicians may comment of a service engine soon light on, low engine power or rough idle after engine, intake camshaft or intake camshaft actuator replacement. Typically, they will find DTC's P0089 and P228D set in the ECM. The high side fuel pressure at idle will likely be high, around 2000-2500 PSI. The may also note a whine type noise from the high pressure fuel pump. These symptoms occur if the intake camshaft with actuator sprocket are not the correct parts for the vehicle build. A P0171 is also possible if the incorrect injectors were installed.

Recommendation/Instructions

If the symptoms above are noted after engine, intake camshaft or intake camshaft actuator replacement. It is likely the incorrect parts have been installed. This can be confirmed by removing the camshaft cover and noting the CMP actuator sprocket colors or part number on the actuator sprockets.

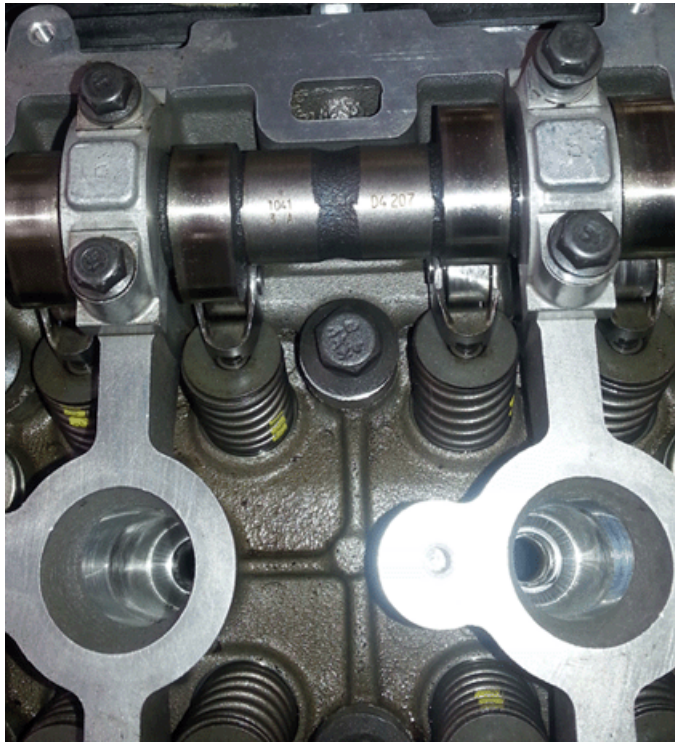
A 2010 engine has a black exhaust actuator sprocket and a gray intake actuator sprocket. Each camshaft actuator sprocket will have a different part number. A 2011 engine has black camshaft actuator sprockets for both the intake and exhaust camshafts. Both camshaft actuator sprockets will have the same part number.

Below is an example of a 2011 intake camshaft actuator part number 12621505 and black in color (plastic cover piece).



The camshafts can be identified by the last four digits of the part number located on a machined surface between the number 2 and number 3 cylinder camshaft lobes.

Below is an example of a 2011 intake camshaft part number 12634207.



Before a 2010 service engine was available, technicians were directed to install a 2011 service engine into a 2010 vehicle. It was necessary to swap parts from the old engine to the new engine to make it a 2010 build. These parts included the intake camshaft and actuator sprocket, and the fuel rail assembly with injectors. If these parts from the original engine were damaged, new parts designed for a 2010 vehicle were installed. When the intake camshaft and actuator sprocket are swapped, dealers should reference timing procedures for a 2010 model year vehicle. This is important because the intake actuator locating notch in the camshaft moves from about the 10:00 starting position on a 2011 engine to about the 5:00 starting position on a 2010 engine.

The fuel injectors have the part numbers on the injector body. When swapping the fuel rail, if the injectors are not removed from the rail, the retaining clips do not have to be replaced. The Teflon seals at the injector tips however, must be replaced whenever the injectors are reinstalled onto an engine.

The fuel pipe from the high pressure pump to the fuel rail must also be replaced whenever it is removed.

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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