

#PIP4727: Cleaning Diesel Engine Injectors - (Nov 3, 2009)

Subject: Cleaning Diesel Engine Injectors

**Models: 2006-2010 Chevrolet Express, Kodiak, Silverado
 2006-2010 GMC Savana, Sierra, Topkick
 Equipped with the 6.6L diesel engines RPO code LBZ LLY and
 LMM**

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

Condition/Concern:

A dealer may encounter a customer concern of rough running, P0191, or a crank no start.

Poor fuel quality may have induced the rough running, P0191, or no start. A dealer may notice the vehicle has one or more cylinders with the injector balance rates out of specification, a DTC P0191, or a crank no start. When diagnosing a crank no start condition it is possible the injector pintles are stuck closed. A no start with clogged injectors will have sufficient pressure in the fuel rail when the engine is cranked. Cranking pressure will normally be around 4000-5000 psi or 27-34 MPA during a no start due to stuck injectors.

Recommendation/Instructions:

If a dealer encounters a vehicle with a rough running (high injector balance rate), a P0191, or a no start with sufficient pressure in the fuel rail, cleaning injectors may alleviate the condition.

Injector cleanings are only suggested when the dealer has found fuel contamination or suspects fuel contamination.

1. Clean injectors if injector balance rates are not within +4 mm³ and -6.9 mm³. Cleaning the injectors may free up a sticking pintle or clean the residue left by poor fuel.
2. Clean injectors if the engine is a no start, and the vehicle has sufficient pressure in the fuel rail to start. Cranking fuel rail pressure when all 8 injectors are clogged is approximately 4000-5000 psi or 27-34 MPA.
3. Clean injectors if P0191 has set due to a slow fuel rail pressure (FRP) decay rate. P0191 may set due to an accumulated but harmless varnish build-up on the fuel injectors. If servicing a 2006-2008 model year vehicle please see the newest version of bulletin 09-06-04-022 for P0191 ECM calibration information.

Injector Cleaning Procedure:

To clean the injectors the dealer will be using a mixture of GM Upper Engine Fuel Injector Cleaner p/n 88861802 (88861804 in Canada) and diesel fuel. The cleaner will be connected at the rear of engine fuel line quick disconnects. Use an approved one gallon diesel fuel can for this process. Two fuel lines (approved for use with diesel fuel) will also be needed. Remove the quick disconnects at the rear of the engine. Install the two rubber fuel lines in the place of the fuel suction and return lines. Make sure these hoses are long enough to reach the fuel can sitting safely on the floor next to the vehicle. Use 1/2 gallon of fresh clean number 2 diesel fuel (no bio-diesel) and 13 ounces of GM Upper Engine Fuel Injector Cleaner to complete this process.

Run the engine until the complete mixture has been cycled through the engine.

With a no start condition, try to start the engine multiple times until the mixture starts to flow through the system. Make sure not to overheat the starter during this process. Let the starter cool down between each engagement.

Note: If a heavy concentration of debris or contaminants quickly fills the fuel can (from the return side of the fuel system) do not continue to cycle it through the system. Any contaminated fuel removed from the vehicle will need to be disposed of following city and/or state guidelines.

Evaluate the customer concern after the injector cleaning process has been completed.

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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