Service Bulletin

Bulletin No.: 17-NA-374
Date: September, 2022

INFORMATION

Subject: Information on Malfunction Indicator Lamp (MIL) Illuminated - DTC P2463 Set

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Chevrolet	Silverado	2017	2018			L5P	
	Silverado 2500/3500	2019	2023				
	Silverado 4500HD, 5500HD, 6500HD	2019	2023			L5D	
GMC	Sierra	2017	2018			L5P	
	Sierra 2500/3500	2019	2023				

Involved Region or Country	North America, Middle East, Israel, Palestine
Information	The following is a list of topics below that are included in the bulletin explaining DPF Soot Accumulation: • Reading The Soot Level In % Instead Of Grams • Service Regeneration vs Regeneration Enable and Drive Cycle • How To Identify If A Vehicle Idles More Than An Average Vehicle • How The Regeneration Should Occur • P2463 • Factors That Contribute To Generating High Levels Of Soot • If A Customer Asks, “What can I do to reduce the chance of this happening?”

Additional Information

Important: Service agents must comply with all International, Federal, State, Provincial, and/or Local laws applicable to the activities it performs under this bulletin, including but not limited to handling, deploying, preparing, classifying, packaging, marking, labeling, and shipping dangerous goods. In the event of a conflict between the procedures set forth in this bulletin and the laws that apply to your dealership, you must follow those applicable laws.

Reading The Soot Level In Percent Instead Of Grams

There has been a change in the values displayed in GDS 2. Beginning with the 2017 Silverado/Sierra, the DPF Soot Accumulation is measured in percent instead of grams. On vehicles equipped with a L5P engine, the ECM will not try to perform a regeneration until the DPF Soot Accumulation increases to approximately 100%. If the DPF Soot Accumulation increases to 115% and the system has not been able to regenerate, the “continue driving” message will be displayed on the DIC. If the DPF Soot Accumulation increases to 140%, DTC P2463 will set and will now require a service regeneration to clean the DPF. You may notice that there are two soot level readings in GDS2. One that uses the differential pressure sensor to calculate the soot in the DPF and one that uses other engine data. Whichever one of these reaches the threshold first (100%, 115%, or 140%) wins

Service Regeneration vs Regeneration Enable and Drive Cycle

A Service Regeneration is designed to lower the Soot Accumulation in the DPF in a very controlled way. It is not as effective at lowering the soot accumulated in the DPF as a Regeneration Enable followed by a drive.

Please perform a service regeneration if instructed to by service information. As a rule of thumb, if a vehicle has less than 70% DPF Soot Accumulation, do not perform a service regeneration unless instructed by Service Information.

Note: If you are concerned about the DPF Soot Accumulation, perform a regeneration enable and return the vehicle to the customer.

How To Identify If A Vehicle Idles More Than An Average Vehicle

Note: Use this formula as a diagnostic aid and in the administration of a maintenance schedule. It should NOT be used to determine warranty coverage.

Some vehicles may spend a lot of time idling, use the formula to aid in determining the equivalent mileage (kilometers):

- Check and record the total engine hours on the Drivers Information Center (DIC). You may need to go into the settings menu on the DIC to display the engine hours.
- Multiply this time by 33 miles or 53 km. This represents an average speed of 33 MPH or 53KM/H.
- The result should be close to or lower than the mileage on the odometer.
  - Example 1; If a vehicle has 1812.3 engine hours and 60,837 miles (97,908km) on the odometer, the engine run time would equate to about 59,806 miles (96,052 km) (1812.3 X 33 = 59,806) (1812.3 X 53 = 96,052)).

    Since the calculated mileage is less than the actual mileage, this vehicle does not spend an excessive amount of time idling.
  - Example 2; If the vehicle has 626.9 engine hours and 7,269 miles (11,698 km) on the odometer, the engine run time would equate to about 20,688 miles (33,226 km) (626.9 X 33 = 20,688 (626.9 X 53 = 33,226)).

    Since the calculated mileage is more than the actual mileage, this vehicle would be considered a vehicle that idles a lot and this information may be useful in diagnosing any issues.

How the Regeneration Should Occur

DPF is used to trap the soot generated as a part of the normal operation of a diesel engine so that it is not sent into the environment. The process of regeneration is the vehicle cleaning out the filter so it can trap more soot. There are four factors that determine when the ECM will try to perform a regeneration:

1. After approximately 36 gallons (136 L)of fuel used since the last regeneration.
2. A maximum distance of 800 miles (1287 km) have been traveled since the last regeneration.
3. A pre-determined number of engine hours since the last regeneration.
4. A calculated or measured soot mass of 100% in the particulate filter.

Whichever of the four above criteria is met first will signal the ECM to perform a regeneration as soon as all the correct conditions are met. If the ECM cannot perform a regeneration, the ECM will only look at the soot mass to determine if the continue driving message needs to be displayed or the code P2463 is set.

This is the criteria that the ECM is looking for to perform a regeneration:

- Vehicle in Drive
- BARO sensor 1 is more than 51 kPa (7.4 PSI)
- Engine speed between 500 and 4000 RPM
- Exhaust Gas Temperature Sensor 1 between 100 and 725 C
- Exhaust Gas Temperature Sensor 2 between 95 and 750 C
- Exhaust Gas Temperature Sensor 3 between 0 and 750 C
- Exhaust Gas Temperature Sensor 4 between 60 and 750 C
- Exhaust Gas Temperature Sensor 4 between 60 and 850 C
- Engine Coolant Temperature between 50 and 140 C
- Intake air temperature between -70 and 250 C
- Fueling from -1 to 165mm3
- Vehicle speed from -1 to 160 km/hr
- No active DTC related to EGR, Indirect injector, or Throttle (boost)

This vehicle does not have a soot level sensor to determine how much soot is in the DPF. Instead, it uses algorithms to calculate the soot mass. These algorithms rely on the fact that the vehicle is otherwise healthy to accurately determine how much soot is in the filter.

P2463

When this code sets, the ECM will no longer try to perform a driving regeneration and the vehicle will require the more controlled service regeneration. If this is the only code that set, we need to try to figure out why it set. Since this is the last component in the exhaust, there are quite a few different things that can cause this code to set. I have even fixed vehicles from setting this code by replacing the air filter or replacing TMAP sensor. Here are a few other things that can cause this code to set:

⇒ Driving style like binary driving with a high frequency

⇒ The driver Ignoring the keep driving messages

⇒ Leaks from intake or exhaust system

⇒ Poor fueling in the engine

⇒ Contaminated or bad fuel

⇒ Externally damaged or worn components.

⇒ Loose or improperly installed components

Factors That Contribute To Generating High Levels Of Soot

This is a list of things to look for:

– Charge air cooler (CAC) and Air induction system leaks. Perform the Full System Air Leak Test and then the Induction System Smoke Test. Refer to Charge Air Cooler Diagnosis – refer to Charge Air Cooler Diagnosis (Full System Air Leak Test). PIP5684, and PIP5468.

– A restricted air filter. Refer to PIP5489.

– Exhaust system leaks. An exhaust system leak may cause inaccurate Exhaust Gas Temperature sensor or Exhaust Pressure Differential sensor values - Refer to Exhaust Leakage.

- Failed, intermittent, improperly installed, mis wired, or loose Exhaust Gas Temperature sensors will cause inaccuracies in the soot model – Look at all temperature sensors when the vehicle is cold to make sure that they read close to each other.
- Improperly routed differential pressure lines—The exhaust differential pressure line should have a continuous downward gradient without any sharp bends or kinks from the sensor to the DPF.
- Leaks or internal restrictions from the Exhaust Pressure Differential sensor lines.
- A skewed or shifted Exhaust Pressure Differential sensor. A sensor that is skewed will cause inaccuracies in the soot model.
- A cracked or damaged MAF sensor housing.
- A skewed, stuck in range, or slow responding MAF sensor. Inspect the MAF sensor for contamination. Refer to DTC P0101-P0103.
- Indirect Fuel Injector leaking or restricted—Refer to Exhaust Aftertreatment Fuel Injector Diagnosis.
- Externally damaged or worn components.
- Loose or improperly installed components.
- Water in fuel contamination—Refer to Contaminants-in-Fuel Diagnosis.
- Engine mechanical condition, for example low compression. Refer to Symptoms - Engine Mechanical.
- Vehicle Modifications

If A Customer Asks, “What can I do to reduce the chance of this happening?”

When the “Continue Driving“ message is displayed, continue driving safely at a steady speed as close to the posted speed limit as possible, until the message turns off. This can take up to 30 minutes.

Drive with cruise control when possible. This should help with fuel economy as well as help the engine burn cleaner resulting in less regenerations.

Drive with a steady foot. Lots of tip in and tip outs every few seconds or aggressive driving with frequent WOTs will start and stop the turbo. This will cause the system to generate a lot of soot.

When descending an incline, use tow haul mode to help with the ability of the vehicle to perform a regeneration.

The use of the grade brake on declines will also help adjust the gearing to help allow the vehicle to perform a regeneration. NOTE: on 2020 model year vehicles the grade brake may not be as noticeable as in vehicles built prior to or after this model year. The use of the grade brake will help the vehicle be able to perform a regeneration.

Parts Information

No parts are required for this repair.

Version	7
Modified	Released November 22, 2017 Revised March 21, 2018 - Update Information section. Revised June 26, 2019 – Added 2019 and 2020 Model Years to 2500/3500 models. Revised July 22, 2020 - Revised Information and Additional Information sections. Revised October 16, 2020 - Added 2021 Model Years to 2500/3500 models and added 2019–2021 Silverado 4500, 5500 and 6500 HD Models. Revised January 06, 2022 - Removed Information On Diesel Exhaust System Configuration and DPF Soot Accumulation in Subject and Correction section and Added 2022 to Model Year. Revised September 09, 2022 — Added the 2023 Model Year and Important Statement.