Service Bulletin

Bulletin No.: 17-NA-393
Date: November, 2020

INFORMATION

Subject: Information On Poor DEF Quality Message Displayed on Driver Information Center (DIC) and/or Malfunction Indicator Lamp (MIL) Illuminated - DTC's P249D, P249E Set

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Chevrolet	Silverado 2500/3500	2017	2019	-	-	L5P	-
	Silverado 2500/3500 HD	2020	2021				
GMC	Sierra 2500/3500	2017	2019				
	Sierra 2500/3500 HD	2020	2021				

Involved Region or Country	North America and Israel
Condition	Some customers may comment on one or more of the following conditions: • DEF Quality Message displayed on the DIC • MIL illuminated The Technician may find one or more of the following DTC's set: • P249D • P249E
Information	This vehicle is equipped with a DEF Quality sensor that is integrated into the DEF tank. The value of this sensor can be read in the reductant data as the Reductant Concentration. If this concentration falls below 26%, the Exhaust Fluid Quality Poor message will be displayed on the DIC. The NOx Catalyst Reductant-Load Adaptive Value can be found in the Reductant System Data list in GDS2. This feature is the ECM's way to "close the loop" on the NOx Reduction System. The NOx Reduction System consists of the diesel exhaust fluid, DEF dosing hardware (Emission Reduction Fluid Injector, Emission Reduction Fluid Exhaust Front Pipe Injector Supply Pipe, Emission Reduction Fluid Tank, Emission Reduction Fluid Supply Pump Module, and Emission Reduction Fluid Controller), and the Warm Up NOx Catalytic Converter. The NOx Reduction System removes the NOx (Nitrogen Oxides) from the vehicles exhaust under various conditions. The ECM measures this reduction by looking at the NOx 1 and NOx 2 sensor readings. The ECM also looks at other sensors to predict what the NOx reduction should be. Certain things can influence how the system works, tolerances on sensors (Mass Airflow Sensor, Nitrogen Oxides Sensor, Emission Reduction Fluid Injector, Exhaust Temperature Sensor, etc.), Exhaust piping, Warm Up NOx Catalytic Converter brick, etc. Also intake or exhaust leaks can impact the performance of the NOx Reduction System. Under proper conditions the system will "adapt" when it sees an error in the predicted downstream NOx as compared to the actual downstream sensor reading. If a large enough error is measured between the two calculations over a time period, the NOx Catalyst Reductant-Load Adaptive Value changes to account for this. If the DEF injector is in tolerance, but is injecting on the low side of the spec. Eventually the system would be under loaded (not enough DEF on the SCR) and there will be an error between the model (or the predicted NOx 2 reading) and the measured NOx 2 sensor. ⇒ The NOx Catalyst Reductant-Load Adaptive Value will adapt to a value larger than one, (example 1.1). So when DEF dosing is requested, it will be multiplied by the NOx Catalyst Reductant-Load Adaptive Value factor or 1.1. If the NOx Catalyst Reductant-Load Adaptive Value is below 0.41 or above 1.99, code P249D or P249E will set.

Parts Information

No parts are required for this repair.

Version	3
Modified	Released December 08, 2017 Revised July 26, 2018 – Added 2019 Model Year. Revised October 26, 2020 – Added 2020–2021 Model Years.