



Service Bulletin

PRELIMINARY INFORMATION

Subject: Exhaust Fluid Quality Poor Message Displayed, Reductant Fluid Quality Test Status will Pass, Time Out, Fail or Interrupt

Models: 2010-2016 Chevrolet Express, Silverado 2500-3500
2010-2016 GMC Savana, Sierra 2500-3500
Equipped with Duramax® Diesel 6.6L Engine (RPO LGH or LML)

Attention: This PI also applies to any of the above models that may be Israel Export vehicles.

This PI has been revised to add the 2016 Model Year. Please discard PI1214A.

Condition/Concern

The purpose of this document is to provide the Service Personnel with a guide to determine which Service Information documents and scan tool parameters to reference when encountering an: Exhaust Fluid Quality Poor Message Displayed, and a Reductant Fluid Quality Test Status that will Pass, Time Out, Fail or Interrupt and other DEF Messages that may be observed.

Some customers may comment that the Exhaust Fluid Quality Poor message is displayed. This message may be accompanied by other Diesel Exhaust Fluid (DEF) messages.

⇒ If there are multiple messages, use the DIC as the guide to diagnose what needs to be corrected first.

An Exhaust Fluid Quality Poor message may be displayed with DTC P207F, P20EE and/or P2BAD, or without DTCs and may be difficult to clear.

⇒ If any other DTCs are observed, diagnose them first. Refer to Diagnostic Trouble Code (DTC) List - Vehicle.

The service Technician may attempt to Command the Reductant Fluid Quality Test and it will Pass, Time Out, Fail or Interrupt.

Depending on the Model Year, a Technician may observe on a scan tool one or more of the following DTCs:

- DTC P207F: Incorrect Reductant Composition
- DTC P20EE: NOx Catalyst Efficiency Below Threshold
- DTC P2BAD: Exhaust NOx Concentration High - Unknown Reason

Recommendation/Instructions

A Reductant Fluid Quality Test (RFQT) is required when an incorrect reductant composition is monitored, a DEF related hardware failure indicates DEF quality poor, or the NOx catalyst efficiency reaches a minimum threshold and a reductant quality warning is displayed on the driver information center (DIC).

When a Reductant Fluid Quality Test is commanded using the scan tool Output Controls, under the Reductant Fluid Quality Test Status, one or more of the following scan tool Display States will display, before and during the test:

Reductant Fluid Quality Test Status	Scan Tool Display State
—	Not Requested
—	Active

—	Passed
—	Failed
—	Interrupted
If the scan tool receives a reject message from the ECM for the test taking too long, the following will display to the user: Activation Timer Has Expired or Timed Out.	

Documents and Scan Tool Parameters to Reference

Notice:

- **If the RFQT will not start, check the IM Status for any DTCs.**
- **Verify that the scan tool and ECM are updated with the latest available software.**
- **DO NOT perform any “Resets” unless you are instructed to in a Service Procedure.**
- **Verify no DTCs Set in Another Module:** Verify that there are no DTCs set in any other module.
Perform the Diagnostic System Check - Vehicle and also refer to Inspection/Maintenance System Check.
- **DTC P207F or P20EE:** Before performing the RFQT, always refer to DTC P207F or P20EE even if there are no active DTCs. Be sure to review the Diagnostic Aids within the document.
Refer to Diagnostic Trouble Code (DTC) List - Vehicle. After referring to these DTCs, they must be cleared using the scan tool before Commanding the RFQT.
- **DTC P20EE or P2BAD:** Before performing the RFQT, always refer to DTC P20EE, P249D, P249E or P2BAD even if there are no active DTCs. Be sure to review the Diagnostic Aids within the document.
Refer to Diagnostic Trouble Code (DTC) List - Vehicle. After referring to these DTCs, they must be cleared using the scan tool **before** Commanding the RFQT.
- **Conditions for Running:** The Conditions for Running the RFQT **must** be met in order to enable (Command) the scan tool Reductant Fluid Quality Test.
Reference the Conditions for Running, by referring to the RFQT document for the specific Model Year and Vehicle.
- **Diagnostic Aids:** The RFQT will not be allowed or will be terminated if certain conditions or actions occur.
Reference the Diagnostic Aids, by referring to the RFQT document for the specific Model Year and Vehicle.
- **Frozen Tank Status:** If the vehicle has been in a cold climate condition of 20°F (–7°C) or less for several days, it may be in Frozen Tank status, which prevents the Reductant Fluid Quality Test from evaluating a result when triggered. The reductant tank temperature may be warmer after extended engine run time however, only the conditions at **key-on** are considered.
To exit Frozen Tank Status refer to the latest version of #PIP4864 and the latest version of Corporate Bulletin #10-06-04-013: Information on Diesel Exhaust Fluid (DEF) Filling Instructions, Frozen Tank Status and General Information
- **Reductant Range and DEF Level:** The Reductant Range must be greater than 0 mi (0 km) and the Reductant Level must be greater than 33% before beginning the test.
Use the scan tool to observe the Reductant Range parameter and the DEF Level parameter. To add reductant fluid and reset the Reductant Range and DEF Level, refer to the latest version of #PIP4864: Exhaust Fluid Low - Exhaust Fluid Empty - Exhaust Fluid Range and Service Exhaust Fluid Messages Difficult To Reset - Including Cold Weather Operation.
- **DEF Pump Pressure:** Observe the DEF Pump Pressure parameter on the scan tool. The DEF Pump Pressure parameter should always be at 500 kPa (+/- 10 kPa) when the RFQT is running.
Use the scan tool to monitor the DEF Pump Pressure parameter. It must remain within the specified range.
- **Ambient Temperature:** When parking the vehicle outside to complete the Reductant Fluid Quality Test, it is important to monitor the ambient temperature. If the mass air flow (MAF) sensor determines an intake ambient temperature colder than 20°F (–7°C) the test may Time Out or not Run correctly.
Use the scan tool to monitor the intake ambient temperature. It must remain at or warmer than 20°F (–7°C).
- **Intake System Air Leaks:** Verify that no intake system air leaks exist in the intake side (unboosted) and the boosted side of the air intake system.
Monitor the Air Leak Equivalency Ratio (ALER) scan tool parameter during the RFQT to make sure that it is at 1.0 +/- 0.05
Refer to both Charge Air Cooler Diagnosis documents.

- **Exhaust System Leaks:** There should not be any exhaust system leaks. Perform a visual inspection of the exhaust system. Monitor the Air Leak Equivalency Ratio (ALER) scan tool parameter during the RFQT to make sure that it is at 1.0 +/- 0.05
Refer to Symptoms - Engine Exhaust.
- **Exhaust Fluid Quality Poor Message Difficult to Clear:** The Service Personnel may encounter an Exhaust Fluid Quality Poor message displayed on the DIC and then have difficulty completing the RFQT and/or clearing the Exhaust Fluid Quality Poor Message.
Refer to the latest version of #PIP5007: Exhaust Fluid Quality Poor Message Difficult To Clear.
- **Contaminants-in-Diesel Exhaust Fluid:** While contamination may result from any number of fluids, it's more likely that contamination will involve common automotive fluids. Test a sample of fluid from the reductant fluid tank.
Refer to Contaminants-in-Diesel Exhaust Fluid Diagnosis.
- **Various Other DEF Messages:** In addition to the Exhaust Fluid Quality Poor message being displayed, it may be accompanied by other DEF messages.
Refer to the latest version of Corporate Bulletin Number 12-06-04-002: Information on Exhaust Fluid Range, Exhaust Fluid Quality Poor, Service Exhaust Fluid System or Service Emission System Driver Information Center Messages.
- **Non-GM ECM Calibration:** A Service Technician that has difficulty getting the RFQT to Pass, may suspect that a Non-GM ECM Calibration has been installed in the vehicle.
If a Non-GM calibration is suspected, refer to the latest version of Corporate Bulletin Number 08-06-04-006: Information for Identifying Non-GM ECM Calibration Use and Power-up Hardware Detection in Duramax Diesel Engines - Photograph scan tool Calibration IDs, Calibration Verification Numbers (CVNs) and Transmission Data Screen.
- **Exhaust Aftertreatment System Description:** The Service Personnel should be familiar with the operation and components of the Exhaust Aftertreatment System.
Refer to Exhaust Aftertreatment System Description for the specific Model Year and Vehicle.

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