



** SOLUTION **

Title Mack Chassis - LEU, MRU, LR - Frequent Requests For Regeneration, (Hourly To Daily); Possible High Soot Load Warnings And Fault Codes Or Accelerated Soot Accumulation - Previously Tech Tip TT-020-2015 - US10 And Newer (Includes GHG17 /US17, Common Rail) Emissions, Common Model Years 2011 And Newer

Mack Models

Mack Model LEU , LR , MRU - TerraPro

Emission Standard

Emission Standard US10 , US10+OBD13 , US14 , US14+OBD15 , US14+OBD16 , US14 CNG , US17 , US17+OBD16 , US17+OBD18

Engine family

Engine family MP7 , MP8

** SOLUTION **

Cause Cabover vehicles equipped with a Selective Catalytic Reduction (SCR) muffler may experience frequent requests for parked regens, high soot load warnings, fault codes for soot level, or a combination of all three.

Other common symptoms include:

- High inlet (T1) exhaust temperatures during high engine load, most commonly during highway operation.
• Temperatures of 840 °F (450 °C) or greater would be considered excessive.
- Following Fault codes are possible, P111C-00, P1151-00, P2201-64, Soot related codes (P10FE-00, P24A4-00, P2463-00, P244B-00, P10E1-00 and P2459-00).
- Low NOx levels at the Inlet NOx Sensor (Sensor 1) during high engine load, most commonly during highway operation.
• NOTE: It is not possible to observe the inlet NOx value for US10 chassis (Common model years 2011 to 2013, models with a 9-pin diagnostic connector). The parameter does not return any sensor values when monitored during a road test. Other symptoms will need to be used to confirm an issue for these chassis.
- High Diesel Particulate Filter (DPF) differential pressure (dP, delta-P) within 30 min of performing a successful regen or reinstalling a cleaned/new filter,

1. Check the orientation of the exhaust stack screen.

- One of the common causes of frequent regen requests is exhaust mixing with fresh intake air.
- The exhaust stack screen should be pointed outward, away from the vehicle. A screen that is turned to the front, the

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inward can cause a buildup of exhaust gases near the intake that can be pulled in with fresh air. The photos below provide examples of properly and improperly oriented exhaust screens:



Correct



Incorrect

2. Check the intake scoop

- Make sure the scoop is not secured too low on the intake pipe, creating an airflow restriction

3. Check the exhaust piping

- Aside from the screen orientation, ensure that there are no leaks in the exhaust piping and connections

4. Look for any wiring issues (fretting, paint etc) in the Diesel Particulate Filter (DPF) harness

- Wiring and connections should be checked all of the way from the sensors to the ACM for any damage, corrosion or paint, etc.

5. Perform a snap throttle test

- If the test results in a puff of smoke that clears quickly, the injectors can be eliminated as a possible cause.

6. Monitor exhaust backpressure

1. Install a transducer into the test port located at the DOC inlet
2. Observe the transducer readings with a multimeter set to millivolts. The reading translates directly into pounds square inch gauge (psig, this is the notation for a difference in pressure).
3. Monitor the reading during a short road test that includes approximately 15 seconds of 100% throttle.

- If the maximum system back pressure never exceeds 3 psig (after a regen or clean DPF) the DOC and SCR can be eliminated as possible causes of high soot load.

7. Monitor DPF differential pressure

- During the road test in Step 6, if the DPF differential pressure never exceeds 1.2 psig, the DPF itself can be considered to be good.

8. Recommendations

- Always perform a basic physical inspection of the intake and exhaust systems when frequent regenerations are

observed.

- Do not replace components that have been eliminated as possible causes (as per the tests above).

Solution visibility

Dealer distribution

Function(s)/component(s) affected

Function affected

TT , exhaust , SCR , DOC

Function Group

Function Group

252 silencer and exhaust pipe , 254 catalytic converter; exhaust emission control equipment , 256 air cleaner and throttle housing; air prefilter , 258 emissions after-treatment

Customer effect

Main customer effect

regeneration , diagnostics/methodology , efficiency/abnormal behavior , power

Fluid implicated

Air

Fault Codes And Error Codes

OBDII Diagnostic Trouble Codes (P, U, B Format)

P10FE , P2201

Conditions

Vehicle operating mode

when driving , when stationary

Frequency of occurrence of problem

More than normal

Administration

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