

**Mack Models**

Mack Model LR , MRU , AN-Anthem , CHU , CXU , GU

Volvo Models

Volvo Model VNR , VNL , VNM , VHD , VAH

Engine family

Engine family 11L Engine , 13L Engine , MP7 , MP8

Emission Standard

Emission Standard 2018 , OBD2017 , US17 GHG

**** SOLUTION ****

Title Common Rail Fuel System - Diagnostic Trouble Code (DTC) P0094-00 Fuel System Leak Detected, Small Leak, Diagnostic Information - [US17+OBD16 And US17+OBD18 Emissions, Common Model Years 2018 And 2019](#)

Cause Diagnostic information for P0094 when generated by a chassis equipped with a common rail fuel system.

Solution **For a vehicle equipped with a common rail fuel system and generating DTC P0094:**

A. Check software level

A software update has been released that improves monitoring of the parameters that trigger P0094 and reduces unnecessary code occurrences

1. Use Operation [1700-08-03-38 Product Information](#) to review the Main Software (MSW) Part Number for the Engine Control Module (EMS).

2. If the MSW part number is lower than the one shown for the correct engine below, EMS software should be updated.

Engine	MSW
11L with Variable Geometry Turbo (VGT)	23398790
13L with Variable Geometry Turbo (VGT)	23398790
13L with Turbo Compound (TC)	23399381

- If the MSW is less than the corresponding number listed above, update the EMS software

- If the MSW is equal to or greater than the number above, skip to Step 8.

4. Perform a DTC Clear when programming is complete.

5. Start and run the engine until coolant temperature reaches approximately 75°C (167°F).

6. After engine coolant reaches the correct temperature, several startup and shutdown cycles will need to be completed.

- a. Start the engine
- b. Allow the engine to run for 70 seconds. **The engine must run for a minimum of 60 seconds and should not be shut off early.**
- c. Shut the engine down
- d. **Repeat this cycle 10-15 times.**

7. Review the DTC Readout.

- **If P0094 is not present after the repeated run/shutdown cycles**, the vehicle can be released to the customer.
- **If P0094 returns during the run cycles**, proceed to the next step.

8. Inspect the engine oil for fuel dilution (fuel smell in oil, oil level above full, etc.)

- **If there are signs of fuel in the oil, or there are high pressure fuel system leak faults (P016F, P228F) accompanying P0094**, perform a dye test to determine the source of the leak.
 - The dye test procedure can be found in CBR [Solution K12213022](#).
- **If there are no signs of fuel in the oil**, continue to Section B.

B. Fuel System Checks

9. Check the fuel tank vent filters and the fuel filter secondary lip seal as outlined in CBR [Solution K01029637](#).

- **If the lip seal is found to be damaged or filters are found damaged or clogged**, an eService case must be opened for further repair guidance. The following information must be included:
 - A complete DTC Readout from the time of the vehicle's arrival
 - A thorough, detailed description of all diagnostic steps performed and numerical results where applicable.
 - "Followed GD" does not provide any useful information to Dealer Technical Support.
 - "In spec", "Good", "Okay" and similar terms are not acceptable values.
 - The number of this solution should be included in the description.
 - Any information required from other Solutions reviewed.
- **If no issue is found**, proceed to Step 10.

10. Check for Diesel Exhaust Fluid (DEF) in the Fuel using the checks specified in CBR [Solution K40331909](#).

- **If DEF is found in the fuel system**, open an eService case for further repair direction. The following information must be included:

- A complete DTC Readout from the time of the vehicle's arrival
- A thorough, detailed description of all diagnostic steps performed and numerical results where applicable.

"Followed GD" does not provide any useful information to Dealer Technical Support.

"In spec", "Good", "Okay" and similar terms are not acceptable values.

- The number of this solution should be included in the description.
- Any information required from other Solutions reviewed.

- **If no issue is found**, continue to Section C.

C. Open an eService Case for further assistance.

This section should be used only if all of the previous steps do not reveal the source of the issue.

11. Perform an OBD/LVD upload using Premium Tech Tool.

- The OBD/LVD upload button can be found at the middle-top of the Product screen.

12. The eService case must include:

- A complete DTC Readout from the time of the vehicle's arrival
- A thorough, detailed description of all diagnostic steps performed and numerical results where applicable.
 - "Followed GD" does not provide any useful information to Dealer Technical Support.
 - "In spec", "Good", "Okay" and similar terms are not acceptable values.
- The number of this solution should be included in the description.
- Any information required from other Solutions reviewed.

Internal comments (BO)

For cases submitted concerning this Solution:

- Verify with technician all steps above have been completed and results were correct.
- Verify that fault code has set since the software has been updated to MSW part number listed in CBR. (Use Insight)
- Perform the EPRV leak test per **Back Office ONLY** CBR [Solution K42243402](#).

If all steps have been performed and no issue observed, replace the following:

- All 6 injectors
 - All 6 high pressure fuel lines
 - The 3 pumping injector adjusting screws
 - The Volvo Compression Brake (VCB) oil tube
 - Fuel filters
 - Any other necessary parts
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Solution visibility

Dealer distribution

Function(s)/component(s) affected

Function affected fuel supply , fuel system , 1 1 0 EMS

Function Group

Function Group 23 fuel system, excluding gas propulsion , 284 control system, fuel supply

Customer effect

Main customer effect diagnostics/methodology , fault code/display

Fluid problem leak

Fluid implicated fuel

Fluid pressure low pressure

Fault code(s)

OBD 2013 Diagnostic Trouble Codes P0094

Conditions

Frequency of occurrence of problem random

Engine temperature 70-100 °C (158-212°F)

Administration

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