

TECHNICAL BULLETIN
LTB00730NAS1
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NOTE: The information in Technical Bulletins is intended for use by trained, professional Technicians with the knowledge, tools, and equipment required to do the job properly and safely. It informs these Technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by 'do-it-yourselfers'. If you are not a Retailer, do not assume that a condition described affects your vehicle. Contact an authorized Land Rover service facility to determine whether this bulletin applies to a specific vehicle.

SECTION: 303-04

Engine MIL Illuminated With DTC P00C6 and P228D-00 or P228C-77 Stored

AFFECTED VEHICLE RANGE:

LR2 (LF)

Model Year: 2013-2014

VIN: DH311358-EH439912

Range Rover Evoque (LV)

Model Year: 2012-2014

VIN: CH000447-EH955856

MARKETS:

NAS

CONDITION SUMMARY:

Situation: The engine Malfunction Indicator Lamp (MIL) may be illuminated with Diagnostic Trouble Codes (DTC) P00C6 and P228D-00 or P228C-77 stored in the Engine Control Module (ECM). Additionally, the engine may experience rough running, hard starting, a rough idle, or misfires and one or more misfire DTCs (P0300, P0301, P0302, P0303, P0304, and P1315) stored in the ECM.

Cause: This may be caused by an internal fault with the metering valve in the high pressure fuel pump.

Action: Should a customer express this concern, follow the Service Instruction outlined below.

PARTS:

No parts required; information only

Quantity: -

TOOLS:

SDD with latest DVD and Calibration File
Jaguar Land Rover-approved Midtronics battery power supply

WARRANTY:

 **NOTE: Repair procedures are under constant review, and therefore times are subject to change; those quoted here must be taken as guidance only. Always refer to TOPIx to obtain the latest repair time.**

 **NOTE: DDW requires the use of causal part numbers. Labor only claims must show the causal part number with a quantity of zero.**

| DESCRIPTION | SRO | TIME (HOURS) | CONDITION CODE | CAUSAL PART |
|------------------|-----|--------------|----------------|-------------|
| Information only | - | 0 | - | - |

 **NOTE: Normal Warranty procedures apply.**

SERVICE INFORMATION:



NOTE: the Engine Control Module (ECM) may also be referred to as Powertrain Control Module (PCM).



NOTE: this is an information only bulletin to be used as a guide to the correct diagnosis of a high pressure fuel pump with a faulty fuel metering valve. Any components found to be faulty should be processed as a separate Warranty claim.



NOTE: only follow this technical bulletin if Diagnostic Trouble Code (DTC) P228D-00 or P228C-77 are stored in the Engine Control Module (ECM). If any low pressure system DTCs are present, investigate and rectify faults accordingly.

Vehicle Symptoms When Stationary:

From a cold start the engine cuts out. After several engine starts (and stalls), the engine will idle and the speed can be increased but it will not exceed approximately 4,000 rpm. A stutter/misfire may be felt.

Vehicle Symptoms When Driving:

If the vehicle is driven under light throttle it may gently accelerate. At wide open throttle, the engine will accelerate up to approximately 2,000rpm then begin to misfire. If maximum throttle is maintained, 'Restricted Performance' may be displayed on the Instrument Cluster.

Test Procedure:

A faulty high pressure fuel pump can also be identified with the following checks: Open the hood and start the engine. Listen to the high pressure fuel pump. During normal operation a metallic rattle/chatter **can** be heard from the pump. If the pump has the internal fault with the fuel control valve, then the rattle/chatter **will not** be heard.

1. Connect the Jaguar Land Rover-approved Midtronics battery power supply to the vehicle battery.
2. Turn ignition 'ON' (engine not running).
3. Connect the Symptom Driven Diagnostics (SDD) system to the vehicle and begin a new session.
4. Follow the on-screen prompts, allowing SDD to read the VIN and identify the vehicle and initiating the data collect sequence.
5. A high pressure fuel pump with a fuel metering valve fault will cause one of the following DTCs.
 - **P228D-00 Fuel pressure regulator 1 exceeded control limits - pressure too high**
 - **P228C-77 Fuel pressure regulator 1 exceeded control limits**
6. The following DTCs may be present.
 - **P00C6 Fuel Rail Pressure Too Low - Engine Cranking - No sub type information**
 - **P0300 Random misfire detected - No sub type information**
 - **P0301, P0302, P0303 and/or P0304 Cylinder 1, 2, 3, 4 misfire detected- No sub type information**
 - **P1315 Persistent misfire - No sub type information**
7. Use Datalogger to view the following signals.
 - **Fuel rail pressure - Low range sensor (ECM)**
 - **Fuel rail pressure (ECM)**

8. Before testing the high pressure pump, carry out the following checks to ensure the low pressure fuel system is operating as expected. **Faults on the low pressure fuel system could affect the high pressure pump behavior and result in mis-diagnosis.**

Low Pressure Fuel System Check

9. Select Park (P), start the engine and idle for 60 seconds and monitor the **Fuel rail pressure - Low range sensor** signal during the following.
 - **Phase 1 - First 30 seconds after initial engine start the low range sensor should read around 3.0v (± 0.15) if the vehicle is working to design intent (may not occur if the engine is already hot).**
 - **Phase 2 - Second 30 seconds - Engine speed will drop and reading will drop to 2.3v (± 0.15) [may take longer to occur if the engine is cold]].**

If these characteristics are not observed then investigate the low pressure fuel system for faults.

High Pressure Fuel Pump Test

10. With the engine running, monitor the signal Fuel rail pressure (ECM). If the pump is working correctly, the signal for the rail pressure sensor (high pressure) will be approximately **3.0-8.0 MPa** depending on engine temperature. This **will** increase with engine speed.
11. If the vehicle has a faulty high pressure fuel pump the rail pressure (high pressure) will read approximately **700-900 KPa** and **will not** increase with engine speed. **If these characteristics are observed, replace the high pressure fuel pump.**
12. When all tasks are complete, exit Datalogger and close the current session by selecting the Session tab and then selecting the Close Session option.
13. Disconnect the SDD and the battery power supply from the vehicle.