



**Mack Models**

**Mack Model** LR , TE - TerraPro , AN - Anthem , GR - Granite , PI - Pinnacle

**Volvo Models**

**Volvo Model** VNL , VNR , VNX , VAH , VHD

**Engine family**

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

**Emission Standard**

Emission Standard US17+OBD16 , US17+OBD18 , US17+OBD19

**\*\* SOLUTION \*\***

**Title** Assembled Camshaft - Injector Lobe Rotation Inspection; Diagnostic Trouble Codes (DTC) P0257-00, P2A17-00, Or P2A1F-00, Possible Lack Of Power – **US17+OBD16 and Newer Emissions**

**Cause** Vehicles equipped with an assembled camshaft may present with DTCs P0257-00, P2A17-00, P2A1F-00 logging, and a possible report of instances of low power.  
  
It is possible that these conditions are created by a cam lobe that has rotated on the camshaft itself.

**Solution** **An eService case should be opened with a detailed description of the findings from the inspection steps below.**

**This procedure should be performed if the following conditions are present:**

- Fault codes listed below are present on a DTC Readout:

P0257	Injection Pump Fuel Metering Control "B" Range/Performance (Cam/Rotor/Injector)
P2A17	Injection Pump Fuel Metering Control "D" Range/Performance (Cam/Rotor/Injector)
P2A1F	Injection Pump Fuel Metering Control "F" Range/Performance (Cam/Rotor/Injector)

**Inspection Steps**

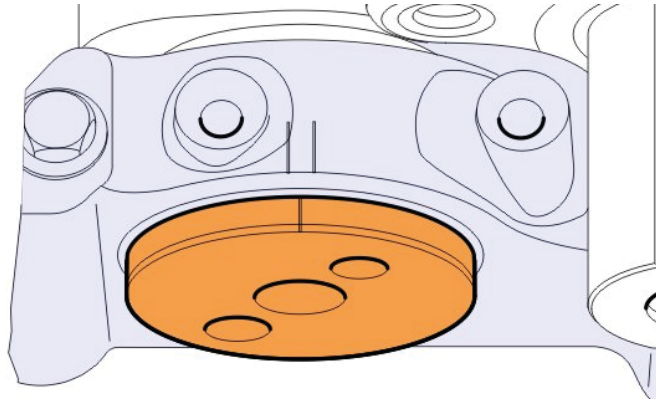
1. Rotate the engine with the turning tool in the normal direction of rotation until the timing marks are aligned for the Injector Pump(s). While the engine is being rotated, confirm each injector lobe is rotating with the camshaft and does not slip.

11L

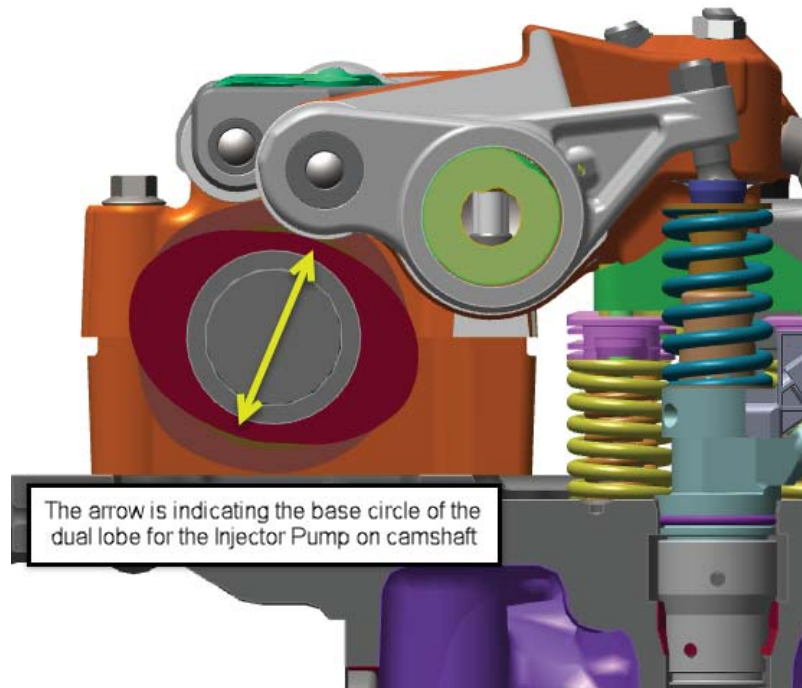
CAM POSITION	INLET	INJECTOR / PUMP	EXHAUST
TDC/V3	–	–	Cylinder 3
(P) 4	Cylinder 4	Pump 4	–
V5	–	–	Cylinder 5
(P) 2	Cylinder 2	Pump 2	–
V1	–	–	Cylinder 1
(P) 6	Cylinder 6	Pump 6	–
V4	–	–	Cylinder 4
3	Cylinder 3	–	–
V2	–	–	Cylinder 2
5	Cylinder 5	–	–
V6	–	–	Cylinder 6
1	Cylinder 1	–	–

13L

CAM POSITION	INLET	INJECTOR / PUMP	EXHAUST
5/PE6	Cylinder 5	Pump 6	Cylinder 6
3/PE2	Cylinder 3	Pump 2	Cylinder 2
6/PE4	Cylinder 6	Pump 4	Cylinder 4
2/E1	Cylinder 2	–	Cylinder 1
4/E5	Cylinder 4	–	Cylinder 5
1/E3	Cylinder 1	–	Cylinder 3



2. Once the timing marks are aligned for a specific Injector Pump, verify the injector rocker roller is on the base circle of the injector lobe. Refer to the illustration below.



**Note:** If an injector lobe rotates on the camshaft, the rotation is normally by 60 degrees. It takes approximately 15 degrees of rotation before potentially causing the faults codes listed previously or a fault for a pumping injector during the Common Rail Fuel System Test.

Solution visibility [Dealer distribution](#)

**Function(s)/component(s) affected**

Function affected injectors

**Function Group**

Function Group 214 valve mechanism , 237 injector and delivery pipe

**Customer effect**

Main customer effect power , fault code/display

**Fault code(s)**

OBDII Diagnostic Trouble Codes (2013- ) P0257-00 , P2A17-00 , P2A1F-00

**Conditions**

Frequency of occurrence of problem random

**Administration**

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Last modified by A084727

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