

<b>Reference</b>	SSM73330
<b>Models</b>	Range Rover / L405 Range Rover Sport / L494
<b>Title</b>	Incorrect Diesel Exhaust Fluid Quality Warning Message DTC P2BA9
<b>Category</b>	Engine
<b>Last modified</b>	07-Apr-2017 00:00:00
<b>Symptom</b>	403000 Exhaust System Concerns
<b>Attachments</b>	NAS DEF SSM FILE.pdf (NAS DEF SSM FILE.pdf)
<b>Content</b>	<p><b><u>Issue:</u></b> Reports of 'No Engine Restarts in XXX miles. 'Incorrect Diesel Exhaust Fluid Quality Detected' warning message displayed on the Instrument Cluster (IC) and Diagnostic Trouble Code (DTC) P2BA9-00 and/or P2BA9-92 stored in the Powertrain Control Module (PCM) which may be accompanied by DTCs P2BAE and P2BAF.</p> <p><b><u>Cause:</u></b> Various, investigation work is ongoing.</p> <p><b><u>Action:</u></b></p> <ol style="list-style-type: none"> <li>1) Check the PCM (Powertrain Control Module) has the latest level of software loaded, i.e. SDD/Pathfinder reports no ECU update available.</li> <li>2) Carry out a visual inspection of both the upstream and downstream NOx sensor(s) fitted in the exhaust system. Check for damage, incorrect mounting of sensors, blocked sensors.</li> <li>3) Using the Diesel Exhaust Fluid (DEF) quality hydrometer (tool number: JLR-44-862) check the Diesel Exhaust Fluid is within tolerance.</li> <li>4) a) Remove the Diesel Exhaust Fluid (DEF) injector and check for any heavy deposit build-up at the injector seat location. Refer to picture A on the attached file. b) With the Diesel Exhaust Fluid (DEF) injector removed proceed with a borescope inspection of the Selective Catalytic Reduction (SCR) catalytic converter (through the injector hole). Check for deposit stains on the mixer brick. Refer to picture B on the attached file.</li> </ol> <p><b>NOTE - Presence of heavy deposits is a sign of high dosing rates that may result from air leaks on the engine side. Carry out step 5.</b></p> <ol style="list-style-type: none"> <li>5) Using the approved high pressure diagnostic leak detector (tool number: 95-0106) smoke test the complete intake and exhaust system and monitor for any leaks. Leaks have been found around the induction system post the MAF (Mass Air Flow) sensor and</li> </ol>

pre the turbocharger and around the charge air cooler clamps. Also pay careful attention to the low pressure EGR cooler joint as a leak was found from this area during a recent engineering visit to a Retailer. Refer to picture C on the attached file.

**NOTE - The flow of smoke is regulated by the operator and can be monitored from the front of the unit; the technician must use the high-intensity halogen lamp supplied with the kit to look for escaping smoke indicating a leak. A minimum of 1 Bar or 15 psi of pressure is required in the system to aid the check.**

If a defect is found rectify as necessary and using the approved diagnostic tool reset the selective catalyst reduction quality monitor and raise a Quality Report detailing the error state found. **NOTE - Once the reset selective catalyst reduction quality monitor has been successfully executed the warning message in the instrument cluster will extinguish. The remaining inducement DTCs (P2BAE/P2BAF) can now be cleared from the PCM.**

If no defect can be found after this SSM has been carried out please raise an escalated TA for engineering assistance.

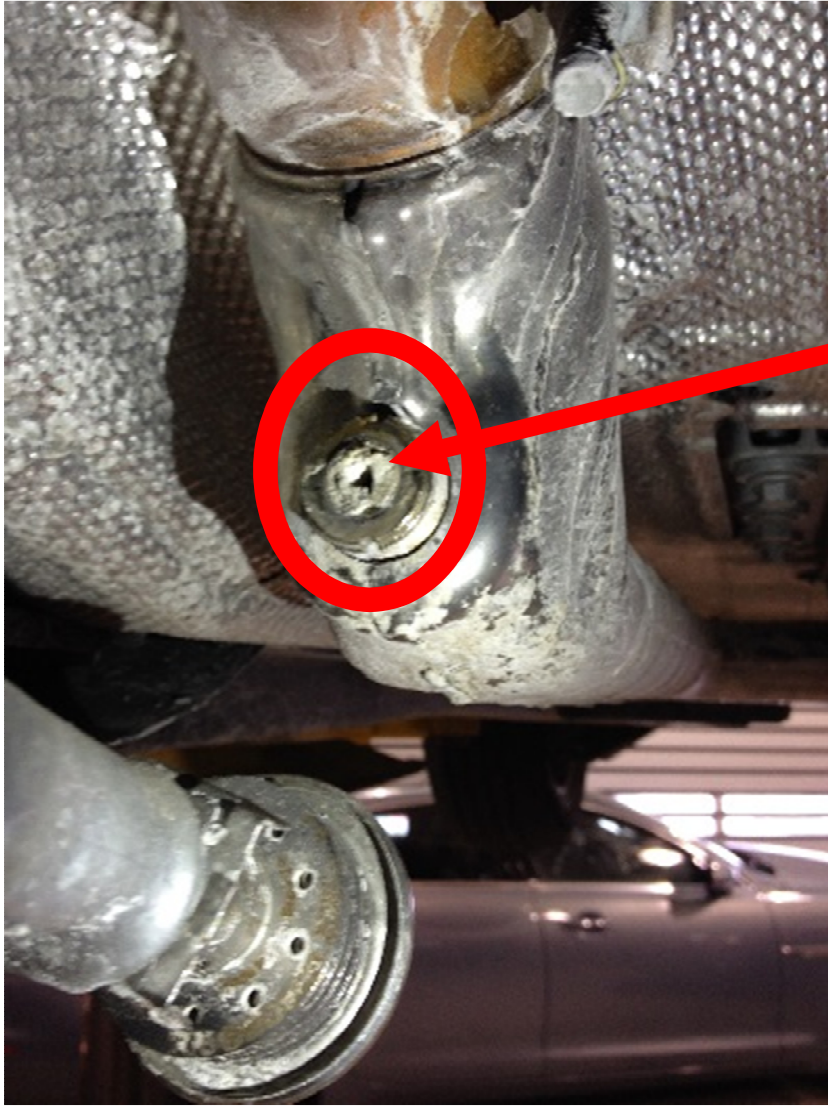
Technicians - Please rate this SSM and provide comments so that future communications can be improved.

1 = Poor – Basic information provided – The SSM does not help me resolve the customer concern.

3 = Average – Adequate information provided – The SSM partially helps me resolve the customer concern.

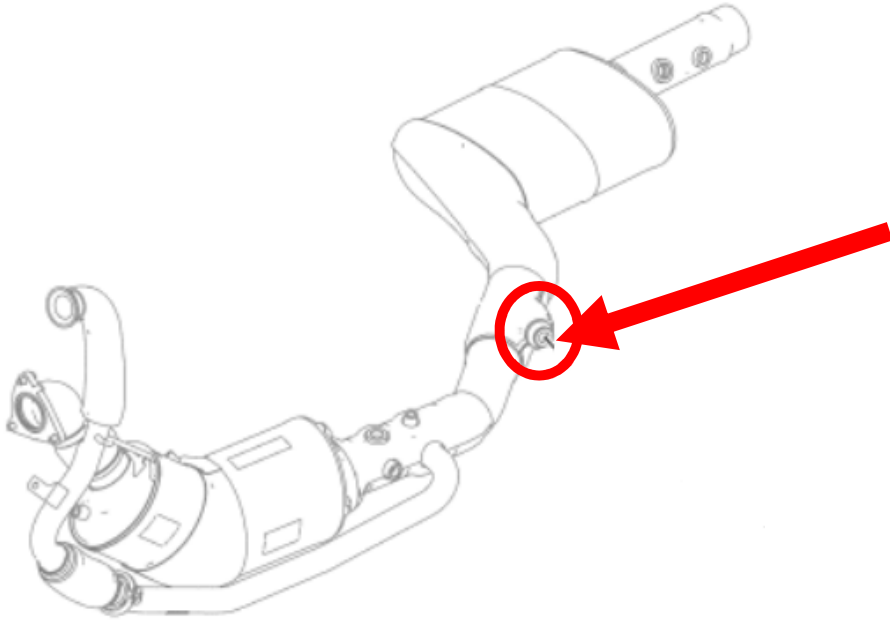
5 = Excellent – All required information provided to resolve the customer concern.

# Picture A



Check for any heavy deposits build-up at the injector seat.

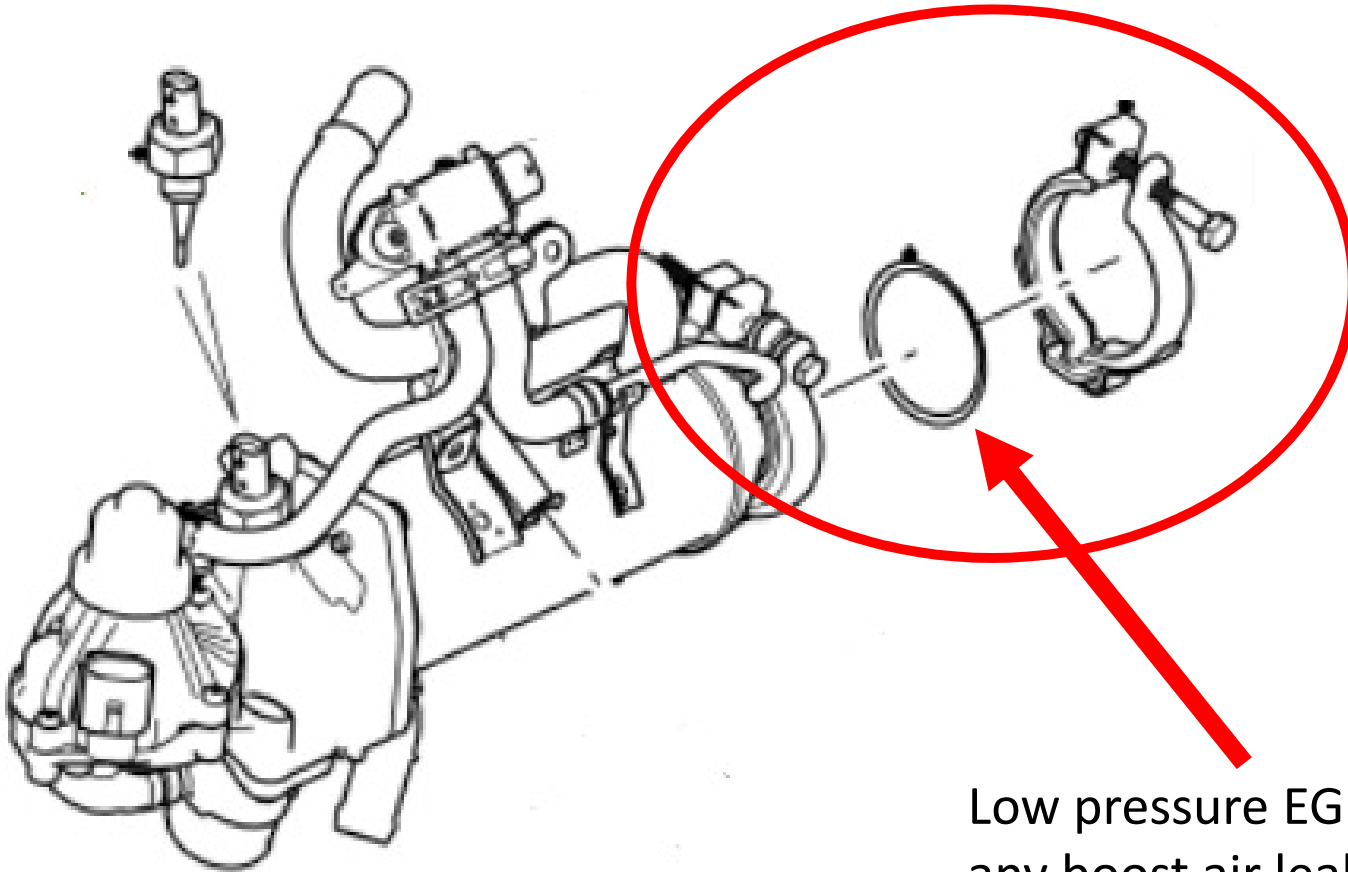
# Picture B



Borescope inspection of the Selective Catalytic Reduction (SCR) catalytic converter (through the DEF injector hole). Check for deposit stains on the mixer brick as shown below.



# Picture C



Low pressure EGR cooler joint, carefully check for any boost air leaks using the high pressure diagnostic leak detector approved kit.