



Technical Service Bulletin

23 MIL on, no start or rough running (DTCs P0087, P0088, P0191)

23 17 41 2040752/7 April 18, 2017. Supersedes Technical Service Bulletin Group 23 number 17-39 dated February 13, 2017 for reasons listed below.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
A3	2010 - 2012	All	TDI clean diesel
Q7	2009 - 2012	All	TDI clean diesel

Condition

REVISION HISTORY		
Revision	Date	Purpose
7	-	Revised <i>Service</i> (Updated fuel sample analysis procedure) Revised <i>Required Parts and Tools</i> (Updated part numbers)
6	02/13/2017	Revised <i>Service</i> (Added information on fuel sampling and analysis) Revised <i>Required Parts and Tools</i> (Updated part numbers)
5	11/20/2015	Revised <i>Service</i> (Completely revised step 5 under <i>High pressure fuel pump replacement and fuel system repair</i>) Revised <i>Warranty</i> (Added labor operation 2050 1901 under Q7) Revised <i>Required Parts and Tools</i> (Added Fuel delivery unit and fuel gauge sender under A3; added suction pump and updated quantity of seal rings under Q7)

- MIL on.
- Vehicle either runs roughly or does not start.

One or more of the following DTCs is stored in the engine control module (ECM), J623 (address word 0001):

- **DTC P0087** (Fuel rail/system pressure - too low)
- **DTC P0088** (Fuel rail/system pressure - too high)
- **DTC P0191** (Fuel rail pressure sensor "A" circuit range/performance)

Technical Service Bulletin

Technical Background

Metallic particles in the high pressure fuel pump may cause the condition.

Production Solution

Not applicable.

Service



Note:

Before proceeding, perform all GFF diagnostic procedures and check all components to determine a root cause of the condition, including testing supply pressure to the high pressure fuel pump (low pressure side) and checking for internal leakage from the injectors and N276 pressure regulating valve.

If no root cause can be found, use the following procedure to check for metallic particles in the high pressure fuel pump.

Initial diagnosis of high pressure fuel pump:

1. Prepare to remove the N290 fuel metering valve by first cleaning the area around the valve then drying the area using compressed air (Figure 1). All debris must be removed from the area to ensure that no debris enters the fuel system and causes damage.

More information is available in the Elsa Repair Manual at *Engine >> Fuel Supply System >> General Repair Information >> Clean Working Conditions*.

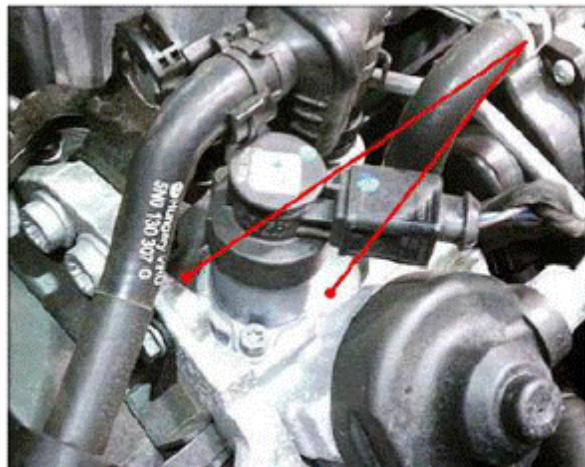


Figure 1. Area surrounding N290 fuel metering valve.

Technical Service Bulletin

2. Remove the N290 fuel metering valve, and inspect both the valve and valve bore for metallic particles (Figure 2).

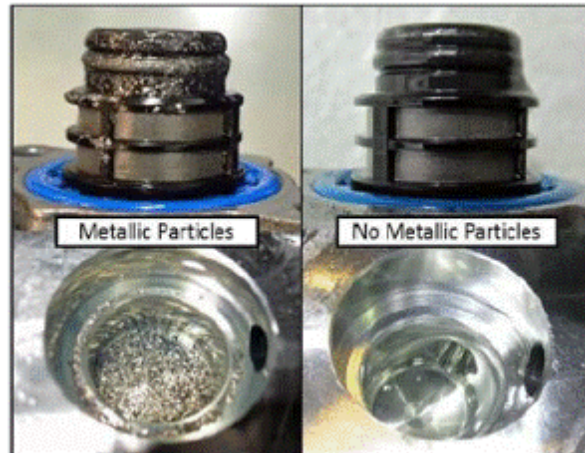


Figure 2. N290 fuel metering valve and valve bore shown with and without metallic particles.

3. **If metallic particles are found:**

- This bulletin applies.
- The high pressure fuel pump and major components of the fuel system will need to be replaced. Proceed to the next section for instructions.

If metallic particles are not found:

- This bulletin does not apply.
- Reinstall the N290 fuel metering valve using light pressure. Before reinstalling, ensure that the valve is free of contaminants.
- Install and hand-tighten both M5 fasteners, ensuring that the threads are clean and dry (pre-tighten to 2 Nm, then to 6.5 - 7 Nm).

 **Note:**

Before reinstalling the N290 fuel metering valve, check the O-rings for damage (Figure 3). If any damage is found, the high fuel pressure pump must be replaced outside of this bulletin.

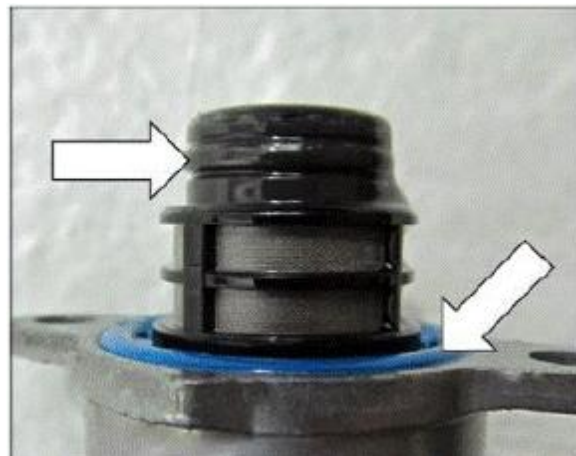


Figure 3. N290 fuel metering valve O-rings.

Technical Service Bulletin

To prevent damage to the O-rings during reinstallation of the valve, lubricate the O-rings with diesel fuel.

Fuel sampling and analysis:

 **Note:**

A fuel sample must be taken and analyzed using the VAS 6774 tool before performing further repairs to the vehicle.

Please review the instructional DVD included in the tool case titled 'Fuel-Identification Kit VAS 6774'. Here you will find a user manual, an FAQ, and a video that will describe the proper way to use, clean, and maintain this tool. The instructions are also posted to ServiceNet by going to *ServiceNet >> Workshop Equipment >> Tool Information >> Instruction Manuals & Videos >> Manuals >> VAS 6774 Fuel Identification Unit Operating Instructions*.

 **Note:**

It is important that the specific gravity of the fuel sample be tested first before proceeding with sensor head testing. Fuels with a specific gravity of 6.5 or lower cannot be tested using the VAS 6774 under any circumstances. For this reason please disregard the order of testing as seen in the video and follow the order in the manual that came with the tool.

1. Obtain a 500 mL fuel sample from the vehicle.

Technical Service Bulletin

2. Following the instructions included with the VAS 6774 kit, test the specific gravity of the fuel sample. A correct specific gravity measurement is any reading between 9 and 13 (Figure 4). If the specific gravity reading falls outside of those numbers proceed to section C, **Warranty Coverage Does Not Apply**. If the specific gravity is between 9 and 13 proceed to step 3.

Measurement result	interpretation	
below 0	case for the fuel laboratory (neither petroleum nor diesel fuel)	
0 - 5.5	petroleum fuel EN 228	
4.5 - 6.5	E 85 (85 % Ethanol, 15 % petroleum fuel)	
Approx. 7	E 100 (pure Ethanol)	
7 - 9	case for a fuel laboratory (neither petroleum nor diesel fuel)	
9 - 11	Diesel in Asia (Russia, India)	Diesel in USA (typical value, density is NOT specified in D-975)
10 - 13	Diesel in accordance with EN 590 (Europe)	
13 - 15	case for a fuel laboratory	
15 - 17	Biodiesel case for a fuel laboratory	
greater than 17	case for a fuel laboratory	

Figure 4. Gravity measurement.

If the specific gravity test results in a reading between 9 and 13 a sensor head test is required to check for gasoline particles.

 **Note:**

If the specific gravity test results in a "Fail", **Warranty Coverage Does Not Apply**.

Fuel samples which have a specific density between 0 and 6.5 indicate a fuel mixture which might be flammable under certain conditions. If the specific gravity of the fuel sample is 6.5 or lower DO NOT use the VAS 6774/7 to perform a sensor head test, **Warranty Coverage Does Not Apply**.

3. A sensor head test must be performed next to check the fuel for gasoline residue. Follow the instructions included with the tool to perform a

Technical Service Bulletin

sensor head test. If the sensor head test results in a “Pass” continue to step 3. If the sensor head results in a “Fail”, **Warranty Coverage Does Not Apply**.

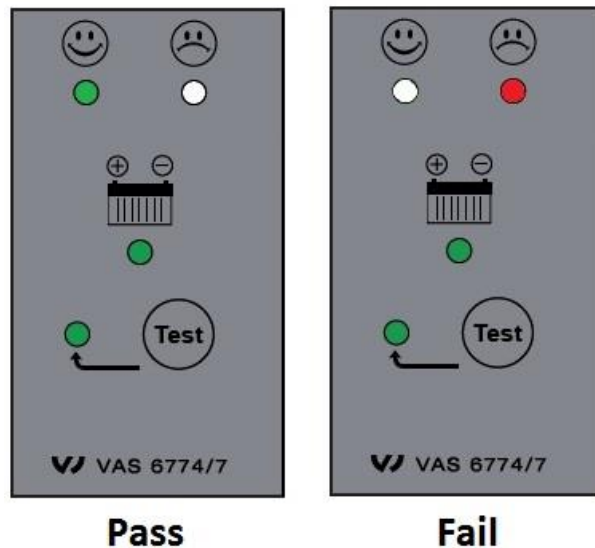


Figure 5. Sensor head test results.

If the sensor head test results in a “Pass” and the specific gravity test results in a reading between 9 and 13 you may proceed with High Pressure Fuel Pump Replacement and Fuel System Repair.

High pressure fuel pump replacement and fuel system repair:


Before proceeding, check ElsaPro for the latest information and detailed instructions for removal and replacement of the components listed in this TSB.

1. Use suction pump VAS5226 to clean the fuel delivery unit and fuel tank.
2. Fill the fuel tank with five liters of fresh diesel fuel.
3. Use suction pump VAS5226 to completely drain the fuel tank.
4. Replace the in-tank fuel pump.
5. Replace the suction jet pump.
6. Following the instructions in the Elsa repair manual, replace the following components:
 - High pressure fuel pump (*note that the supply and return line orientation for the HPFP may be reversed on updated pumps installed on vehicles manufactured before 05/25/2010*)



Technical Service Bulletin

- High pressure fuel lines
 - Fuel rail (with both sensors included)
 - All fuel injectors
 - Fuel return lines (overflow oil lines)
 - Fuel filter
 - Fuel filter housing
 - Auxiliary fuel pump
7. After replacements are complete, fuel the vehicle.
 8. Ensure that the fuel injector return line is properly seated and sealed.
 9. Using the VAS tester, perform the “Vent Fuel System” Guided Function. See the Elsa repair manual at *Engine>>Fuel Supply System>>20 Fuel Supply>>Fuel System, Bleeding* for additional information.

 **Tip:** If the test plan is unavailable through Guided Functions, switch to *Self Diagnosis >> Engine Electronics >> Basic Settings >> 35*, and perform the basic settings three times consecutively. For UDS vehicles, perform basic settings for initial fueling.
 10. Once the repairs are complete, test drive the vehicle.
 11. Inspect for fuel seepage at the fuel injector return line connector. If seepage is found, the condition must be corrected.

Warranty

Claim Type:	<ul style="list-style-type: none"> • 110 – Verify Vehicle Warranty Coverage. • G10 for CPO Covered Vehicles – Verify Owner. • If vehicle is outside any warranty, this Technical Service Bulletin is informational only.
Service Number:	2374
Damage Code:	0010
Labor Operations:	For Q7:



Technical Service Bulletin

Fuel bleed	2003 0750	10 TU
Fuel tank cleaned	2010 2999	50 TU
Diesel fuel filter remove + reinstall	2034 1900	40 TU
Supply line cleaned	2038 2999	10 TU
Return line cleaned	2039 2999	10 TU
2 electric fuel pump remove + reinstall	2066 2000	190 TU
Suction jet pump remove + reinstall	2050 1901	190 TU
2 distribution rail remove + reinstall	2373 2047	130 TU
6 injector remove + reinstall	2340 2047	340 TU
High-pressure pump remove + reinstall	2374 1947	220 TU
VAS 6774 Fuel analysis	0132 0000	20 TU
For A3:		
Fuel bleed	2003 0750	10 TU
Fuel tank cleaned	2010 2999	50 TU
Diesel fuel filter remove + reinstall	2034 1951	20 TU
Supply line cleaned	2038 2999	10 TU
Return line cleaned	2039 2999	10 TU
Electric fuel pump remove + reinstall	2066 1900	110 TU



Technical Service Bulletin

	Electric fuel pump (aux) remove + reinstall	2066 1902	50 TU
	Distribution rail remove + reinstall	2373 1912	110 TU
	4 injector remove + reinstall	2340 2012	220 TU
	Toothed belt remove + reinstall	1524 1912	190 TU
	High pressure pump remove + reinstall	2374 1962	70 TU
	VAS 6774 Fuel analysis	0132 0000	20 TU
Diagnostic Time:	GFF	0150 0000	Time stated on diagnostic protocol (Q7: Max 80 TU) (A3: Max 70 TU)
	Road test prior to service procedure	No allowance	0 TU
	Road test after service procedure	0121 0004	10 TU
	Technical diagnosis at dealer's discretion (Refer to Section 2.2.1.2 and Audi Warranty Online for DADP allowance details)		
Claim Comment:	As per TSB #2040752/7		

All warranty claims submitted for payment must be in accordance with the *Audi Warranty Policies and Procedures Manual*. Claims are subject to review or audit by Audi Warranty.



Technical Service Bulletin

Required Parts and Tools

For A3:

Part Number	Part Description	Quantity
03L130755A	High pressure fuel pump	1
03L130321	Fuel line	1
03L130089	Fuel rail (sensors)	1
03L130277A	Fuel injector	4
059130519	Seal ring (Fuel injector)	4
WHT000884	O-ring (Fuel injector)	4
03L130301 03L130301R 03L130301B 03L130301C	Pressure pipe	4
059130216C	Tensioning plate (Injector)	4
3C0127400C	Fuel filter/housing	1
1K0130307CE	Fuel line	1
03L201360G	Fuel line	1
1K0130295AQ	Fuel line	1
1K0130307BK	Fuel line	1
5N0130307CC	Fuel line	1
1K0919050AB	Fuel delivery unit and fuel gauge sender	1
5N0906129B	Auxiliary fuel pump	1

For Q7:



Technical Service Bulletin

Part Number	Part Description	Quantity
059130755BT	High pressure fuel pump	1
059130300EC	Fuel line set	1
N 90770201	Spring clip	2
N 90926401	Spring clip	1
4B0422379	Spring clip	4
7L6201906A	Fuel hose (return)	1
7L6201905	Fuel hose (supply)	1
7L6130295AC	Fuel line (return)	1
7L6130295AT	Fuel hose (supply)	1
7L6130295BB	Fuel hose (return)	1
059130300DF	1 set of fuel lines	1
059130310AK	Fuel line	1
059130089AM	Fuel rail (left)	1
059130090AQ (MY09-10) 059130090BR (MY11-12)	Fuel rail (right)	1
N 0138128	Seal ring (Fuel rail/fuel line)	2
059130131H (MY09-10) 059130218AF (MY11-12)	Fuel line/hose	1
059130309AT	Fuel line	1
059130277AM	Fuel injector	6
WHT000884	O-ring (injector)	6
059130241CD	Pressure pipe	6



Technical Service Bulletin

059130216C	Tensioning plate (Injector)	6
059130312K	Fuel line	1
7L6127401H (MY09-10) 8T0127401A (MY11-12)	Fuel filter	1
059103113G	Sealing cap (Cylinder head cover)	6
7L6919088F (MY09-10) 7P6919088B (MY11-12)	Fuel supply module	1
4L0919715B (see ETKA) 4L0919715C (see ETKA) 4L0919715D (see ETKA)	Suction pump	1
8E0919133B	Seal ring (Fuel supply module)	2
7L6203491D	Fuel radiator	1
1K0906089C (MY09-10)	Auxiliary fuel pump	1

Additional Information

All parts and service references provided in this TSB (2040752) are subject to change and/or removal. Always check with your Parts Department and service manuals for the latest information.

©2017 Audi of America, Inc. All rights reserved. Information contained in this document is based on the latest information available at the time of printing and is subject to the copyright and other intellectual property rights of Audi of America, Inc., its affiliated companies and its licensors. All rights are reserved to make changes at any time without notice. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, nor may these materials be modified or reposted to other sites without the prior expressed written permission of the publisher.