



## 23-17-07 - Diesel Fuel System Diagnosis and Repair

Release date: 12/13/2023

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**Condition**

Applicable Vehicles					
Model(s)	Year	Eng. Code	Trans. Code	VIN Range From	VIN Range To
All	2013-2016	All with TDI	All	All	All

Revision Table			
Instance Number	Published Date	Version Number	Reason For Update
2041118/16	12/13/23	23-17-07	Removal of p/n 04L 130 216 from 2013-2014 Passat and 2015 Jetta, Beetle, Passat, Golf parts tables.
2041118/15	6/22/19	23-17-07	To remove duplicate bolt part number in parts table.
2041118/14	7/2/19	23-17-07	Add additional warranty claiming instruction.
2041118/13	6/12/19	23-17-07	Removal of fuel pre-analysis requirement.
2041118/1	6/24/15	V231501	Original publication.

One or more of the following fault codes may be stored in the ECM Fault Memory:

DTC	Description
P0087	Fuel Rail/System Pressure – Too Low
P0088	Fuel Rail/System Pressure – Too High
P0191	Fuel Rail Pressure Sensor “A” Circuit Range/Performance



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## Technical Background

### NOTICE

These vehicles are not covered by the Warranty Extension found within the Warranty Policies and Procedural Manual.

## Production Solution

Information Only.

## Service

### Initial Diagnosis of the High Pressure Fuel Pump (HPFP)

### NOTICE

Removing the -N290- Fuel Metering Valve to inspect for metallic particles should only be considered as a last step after all GFF diagnostic procedures have been performed. This includes testing supply pressure to the high pressure fuel pump (low pressure side), and checking for internal leakage from the injectors and the -N276- Pressure Regulating Valve.

### NOTICE

Prior to removing the -N290- Fuel Metering Valve, the area surrounding the valve (Figure 2) must be clean and dried with compressed air to remove ALL debris from the area. See Repair Manual Group 20 Fuel Supply, General Information, Clean Working Conditions in Elsa. If debris enters the fuel system, components may be damaged.



Clean and dry area.

Figure 2. Surrounding Area



1. Remove the **-N290-** Fuel Metering Valve and inspect the valve and valve bore for the presence of metallic particles (see **Figure 3**).

Figure 3. N290 Fuel Metering Valve and Valve Bore

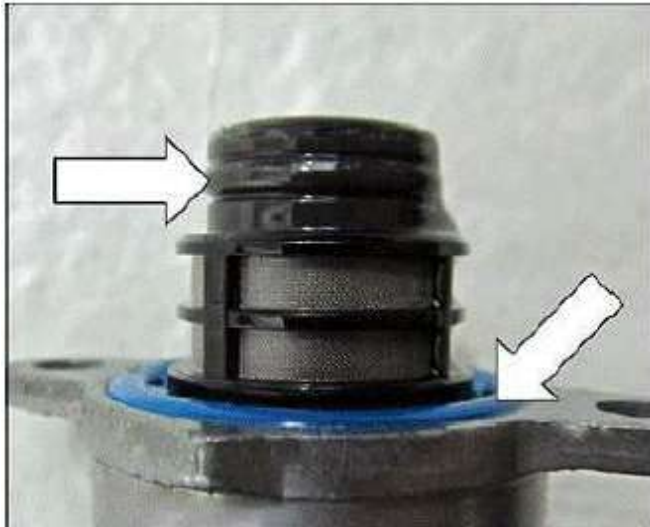
2. If metallic particles are found on the **-N290-** Fuel Metering Valve or in the valve bore, replacement of the high pressure fuel pump and major components in the fuel system is necessary. (See High Pressure Fuel Pump Replacement and Fuel System Repair section below).

3. If no metallic particles are found on the **-N290-** Fuel Metering Valve or in the valve bore, do not replace the high pressure fuel pump. Open a VTA case and contact the Volkswagen Technician's Helpline for further assistance diagnosing the vehicle, this bulletin does not apply.

**NOTICE**

To prevent fuel system damage, ensure that the **-N290-** Fuel Metering Valve is free of any contaminants before reinstalling.

- Prior to reinstallation of the **-N290-** Fuel Metering Valve, ensure that both O-rings are not damaged. If they are damaged, the high pressure fuel pump must be replaced.
- To prevent damaging the O-rings when reinstalling the **-N290-** Fuel Metering Valve, lubricate the O-rings with diesel fuel (see Figure 4).



**Figure 4. N290 Fuel Metering Valve O-rings**

4. Install the **-N290-** Fuel Metering Valve into the valve bore using light pressure.
5. 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.

### High Pressure Fuel Pump Replacement and Fuel System Repair

1. Always use the latest information in Elsa for detailed removal and replacement instructions of the components listed in this technical bulletin.
2. Remove in-tank fuel pump (Sending unit).
3. Drain and clean the fuel tank using the suction pump VAS5226.
4. Fill the fuel tank with **(1.3 gallons)** of fresh diesel fuel.
5. Drain and clean the tank completely using VAS5226.



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6. Replace the in-tank fuel pump (Sending unit).
  7. Flush the fuel lines (both feed and return) from the fuel tank to the bulk head, using either mineral spirits or brake clean with compressed air. Alternate from both ends of the lines while using a shop towel to catch any debris that may still be in the line. Verify all metal is removed from both lines before proceeding.
  8. Replace the following components as per Elsa: high pressure fuel pump, high pressure fuel lines, fuel rail (with both sensors included), all fuel injectors, fuel return lines (overflow lines), fuel filter, fuel filter housing, auxiliary fuel pump.

**NOTICE**

**The rubber fuel line insulators from the original injector supply lines should be transferred to the new lines.**

9. Once repairs are complete fuel the vehicle.
10. Ensure the fuel injector return lines are properly seated and sealed once it is installed.

**NOTICE**

**The “injector quantity calibration” and the “injector voltage calibration” for the new injectors must be programmed into the -J623- Engine/Motor Control Module after replacing one or more injectors. Refer to “Guided Functions” in the vehicle diagnostic tester.**

11. Using the VAS tester, perform the guided function “Vent Fuel System”. (see Elsa for additional information under “Fuel System, Filling and Bleeding”).

**NOTICE**

**If the test plan is unavailable through Guided Functions, switch to Self Diagnosis>Engine Electronics>Basic Settings>35 and perform the basic settings 3 times consecutively. For UDS vehicles, perform basic settings for initial fueling.**

12. Once the repairs are complete, test drive the vehicle.
13. Inspect for fuel seepage at the fuel injector return line connector. If seepage is found the condition MUST be corrected.



## Warranty



Always verify Extended Emission Warranty (EWW) coverage in Elsa.



### NOTICE

The Extended Emission Warranty must cover all parts and labor, as well as the cost or provision of a loaner vehicle for warranty service lasting longer than 3 hours for, among other things, repairs to the entire fuel system, including the fuel pumps, high pressure common rail, fuel injectors, and all sensors and actuators (DOJ 1<sup>st</sup> and 2nd Partial Consent Decrees, Appendix B, Section 3.9).

Please use appropriate labor operations from ELSA and parts from ETKA based on vehicle type.

To determine if this procedure is covered under Warranty, always refer to the Warranty Policies and Procedures Manual <sup>1)</sup>

Model(s)	Year(s)	Eng. Code(s)	Trans. Code(s)	VIN Range From	VIN Range To
Golf, Jetta, Jetta SportWagen, Beetle, Beetle Convertible	2013 - 2016	2.0L TDI	All	All	All
<b>SAGA Coding</b>					
<b>Claim Type:</b>	<b>Use applicable Claim Type <sup>1)</sup></b>				
<b>Service Number:</b>	<b>Damage Code</b>	<b>HST</b>	<b>Damage Location (Depends on Service No.)</b>		
2374	0010	--	--		
<b>Parts Manufacturer</b>	Golf, Jetta, Jetta SportWagen, Beetle, Beetle Convertible		BPY or BPT <sup>2)</sup>		
<b>Labor Operation <sup>3)</sup> : Fuel System Clean and Replacement</b>		23744299 = 750 TU			



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<b>Causal Part:</b> High Pressure Fuel Pump		*** 130 775* OR ***130 851**
<b>Outside Material:</b> Diesel Fuel		Part Number: DIESEL
<b>Diagnostic Time <sup>4)</sup></b>		
<b>GFF Time expenditure</b>	01500000 = As required	YES
<b>Road Test</b>	01210004 = 10 TU	YES
<b>Technical Diagnosis</b>	01320000 = As required	YES
<b>Claim Comment:</b> Input "As per Technical Bulletin 2041118" in comment section of Warranty Claim.		
<p><sup>1)</sup> Vehicle may be outside any Warranty in which case this Technical Bulletin is informational only.</p> <p><sup>2)</sup> Vendor code BPY or BPT must be recorded from the original High Pressure Fuel Pump.</p> <p><sup>3)</sup> Labor Time Units (TUs) are subject to change with ELSA updates.</p> <p><sup>4)</sup> Documentation required per Warranty Policies and Procedures Manual.</p>		

<b>To determine if this procedure is covered under Warranty, always refer to the Warranty Policies and Procedures Manual <sup>1)</sup></b>					
Model(s)	Year	Eng. Code	Trans. Code	VIN Range From	VIN Range To
Touareg	2013-2016	3.0L TDI (CNRB)	All	All	All
Passat	2013-2015	2.0L TDI (CKRA, CVCA)	All	All	All
<b>SAGA Coding</b>					
<b>Claim Type:</b>		<b>Use applicable Claim Type <sup>1)</sup></b>			
<b>Service Number:</b>		<b>Damage Code</b>	<b>HST</b>	<b>Damage Location (Depends on Service No.)</b>	
2374		0010	--	--	
<b>Parts Manufacturer</b>		Touareg, Passat		BPY or BPT <sup>2)</sup>	



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<b>Labor Operation</b> <sup>3)</sup> : Fuel System Clean and Replacement (Engine Code: CNRB)		23744299 = 1140 TU (Touareg)
<b>Labor Operation</b> <sup>3)</sup> : Fuel System Clean and Replacement		23744299 = 750 TU (Passat)
<b>Causal Part:</b> High Pressure Fuel Pump		*** 130 755 **
<b>Outside Material:</b> Diesel Fuel		Part Number: FUEL
<b>Diagnostic Time</b> <sup>4)</sup>		
<b>GFF Time expenditure</b>	01500000 = As required	YES
<b>Road Test</b>	01210004 = 10 TU	YES
<b>Technical Diagnosis</b>	01320000 = As required	YES
<b>Claim Comment:</b> Input "As per Technical Bulletin 2041118" in comment section of Warranty Claim.		
<p><sup>1)</sup> Vehicle may be outside any Warranty in which case this Technical Bulletin is informational only.</p> <p><sup>2)</sup> Vendor code BPY or BPT must be recorded from the original High Pressure Fuel Pump.</p> <p><sup>3)</sup> Labor Time Units (TUs) are subject to change with ELSA updates.</p> <p><sup>4)</sup> Documentation required per Warranty Policies and Procedures Manual.</p>		

## Required Parts and Tools

### 013-2014 Jetta, Golf, Beetle, Beetle Convertible

**NOTICE**

**Part numbers are for reference only: please consult ETKA by VIN for the most current information.**

Part No:	Part Description	Quantity
03L 130 851 AX	High pressure pump	1
03L 130 321	Line	1





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03L 130 301	Line	1
03L 130 301 R	Line	1
03L 130 301 B	Line	1
03L 130 301 C	Line	1
03L 130 089	Rail	1
5N0 130 307 J	Line	1
1K0 127 400 K	Filter complete	1
03L 130 235 S	Return Line	1
03L 130 277 A	Injectors	4
5N0 906 129 B	Auxiliary Pump	1
059 130 216 C	Plate	4
WHT 000 884	Seal	4
03L 201 360 G	Fuel Line	1
1K0 130 295 AH	Fuel Line	1
1K0 130 307 BJ	Fuel Hose	1
1K0 130 307 BG	Fuel Line	1
N 911 803 01	Bolt	3
WHT 002 494	Bolt	1
N 107 145 01	Bolt	2
N 910 488 02	Bolt	4
N 107 158 01	Bolt	3
038 109 454 A	Nut	1
1K0 919 050 AB	In-Tank fuel pump (sending Unit)	1



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	All torque to yield bolts must be replaced	All
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**2013-2014 Jetta SportWagen**

 <b>NOTICE</b> <b>Part numbers are for reference only: please consult ETKA by VIN for the most current information.</b>		
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Part No:	Part Description	Quantity
03L 130 851 AX	High pressure pump	1
03L 130 321	Line	1
03L 130 301	Line	1
03L 130 301 R	Line	1
03L 130 301 B	Line	1
03L 130 301 C	Line	1
03L 130 089	Rail	1
5N0 130 307 J	Line	1
1K0 127 400 K	Filter complete	1
03L 130 235 S	Return Line	1
03L 130 277 A	Injectors	4
5N0 906 129 B	Auxiliary Pump	1
059 130 216 C	Plate	4
WHT 000 884	Seal	4
03L 201 360 G	Fuel Line	1
1K0 130 295 AH	Fuel Line	1
1K0 130 307 BJ	Fuel Hose	1
1K0 130 307 BG	Fuel Line	1



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N 911 803 01	Bolt	3
WHT 002 494	Bolt	1
N 107 145 01	Bolt	2
N 910 488 02	Bolt	4
N 107 158 01	Bolt	3
038 109 454 A	Nut	1
1K0 919 050 AB	In-Tank fuel pump (sending Unit)	1
	All torque to yield bolts must be replaced	All

**2013-2014 Passat**

**NOTICE**

Part numbers are for reference only: please consult ETKA by VIN for the most current information.

Part No:	Part Description	Quantity
03L 130 851 HX	High Pressure Pump	1
03L 130 321 Q	Line	1
03L 130 301 AR	Line	1
03L 130 301 AS	Line	1
03L 130 301 AT	Line	1
03L 130 301 BA	Line	1
03L 201 360 AD	Fuel Line	1
03L 130 235 AD	Return Line	1
WHT 004 739	Bolt	2
03L 130 277 R	Injector	4
03L 130 089 J	Rail	1




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N 911 761 01	Bolt	3
N 107 145 01	Bolt	2
WHT 002 494	Bolt	1
N 910 488 04	Bolt	4
N 911 854 01	Bolt	3
038 109 454 A	Nut	1
7N0 127 400 D	Filter	1
561 130 307	Fuel Line	1
561 130 295 D	Fuel Line	1
561 130 307 B	Fuel Line	1
561 919 050 B	In-Tank Fuel pump	1
	All torque to yield must be replaced	All

**2013 - 2016 Touareg**

 **NOTICE**

**Part numbers are for reference only: please consult ETKA by VIN for the most current information.**

Part No:	Part Description	Quantity
059 130 755 CB Or 059 130 755 CD	High pressure pump	1
7P6 127 401	Filter	1
059 130 216 K	Plate	6
059 130 218 AM	Retention Valve	1
059 130 089 BT	Fuel Rail Left	1



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059 130 090 CN	Fuel Rail Right	1
059 130 277 EM	Injector	6
WHT 000 884	Injector O-Ring	6
059 130 241 CQ	Pressure Lines	2
059 130 241 CR	Pressure Lines	2
059 130 241 CS	Pressure Lines	2
059 130 310 BL	Fuel Line	1
059 130 309 CD	Fuel Line	1
059 130 299 AH	Fuel Line	1
7P0 130 295 L	Fuel Line	1
059 130 312 AC	Fuel Line	1
059 130 297 AD	Fuel Line	1
059 103 147 F	Gasket	1
059 145 757 AF	Gasket	1
059 121 149 E	Washer	1
N 908 091 02	Washer	1
7P6 201 905 A	Hose	1
WHT 004 923 B	Bolt	6
7P6 919 715 A	Suction Jet Pump	1
WHT 005 491	Turbocharger Mounting Nut	2
059 131 599 K	EGR Turbocharger Seal	1
N 911 962 01	EGR Turbocharger Bolt	2
4G0 253 115 A	Exhaust Gasket	1




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N 908 946 01	Nut	3
059 253 115 B	Exhaust Gasket	2
N 911 878 01	Bolt	6
059 129 717 N	Intake Manifold Seals	6
059 129 718 A	Intake Manifold Seals	6
059 131 815	Air Guide Pipe Seal	1
059 131 547 R	EGR Tube Seal	1
059 117 070 B	Oil Cooler Seal	1
059 121 149 B	Oil Cooler Seal	1
7P6 919 088 B	In-Tank fuel pump	1
8E0 919 133 B	Seal Ring (Inspect and replace only if damaged)	1
059 145 215 B	Air Pipe Gasket (Inspect and replace only if damaged)	1
Use G-13 (G 013A8J1G) for parts ordering. Use G 013A8JS0 for warranty claiming purposes.	Coolant	As required.
	All torque to yield bolts must be replaced	All

**2015 Jetta, Beetle, Beetle Convertible, Passat, Golf, Golf Sportwagen**

 <b>NOTICE</b>		
<b>Part numbers are for reference only: please consult ETKA by VIN for the most current information.</b>		
Part No:	Part Description	Quantity
04L 130 755 E	High pressure pump	1
04L 130 321	Line	1



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03L 130 301 AR	Line	1
03L 130 301 AS	Line	1
03L 130 301 AT	Line	1
03L 130 301 BA	Line	1
04L 130 089 G	Rail	1
04L 201 360 T	Line	1
1K0 127 400 N	Filter complete (Passat/Jetta/Beetle)	1
5Q0 127 400 F	Filter complete (Golf/Sportwagen)	1
04L 130 235 G	Return Line	1
04L 130 277 AC	Injectors	4
WHT 000 884	Seal	4
1K0 130 295 AP	Fuel Line (Passat/Jetta/Beetle)	1
1K0 130 307 BM	Fuel Line (Passat/Jetta/Beetle)	1
1K0 130 307 BN	Fuel Line (Passat/Jetta/Beetle)	1
5Q0 130 295 J	Fuel Line (Golf/Sportwagen)	1
5Q0 130 307 M	Fuel Line (Golf/Sportwagen)	1
5Q0 130 307 L	Fuel Line (Golf/Sportwagen)	1
561 919 050 B	In-Tank fuel pump (Passat)	1
WHT 005 478	Bolt	2
N 106 650 01	Bolt	2
N 107 145 01	Bolt	1
038 109 454 A	Nut	1
N 910 488 04	Bolt	4



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1K0 919 050 AD	In-Tank fuel pump (Jetta/Beetle)	1
5Q0 919 050 P	In-Tank fuel pump (Golf/Sportwagen)	1
	All torque to yield bolts must be replaced	All

Tool Description	Tool No:
Midtronics Battery Tester/Charger	GRX3000VAS or MTRMSP0702 battery maintainer/charger
VAS Diagnostic Tool	VAS 6150/X & VAS 6160/X with: ODIS Service with current online updates

**Additional Information**

All part and service references provided in this Technical Bulletin are subject to change and/or removal. Always check with your Parts Dept. and Repair Manuals for the latest information.