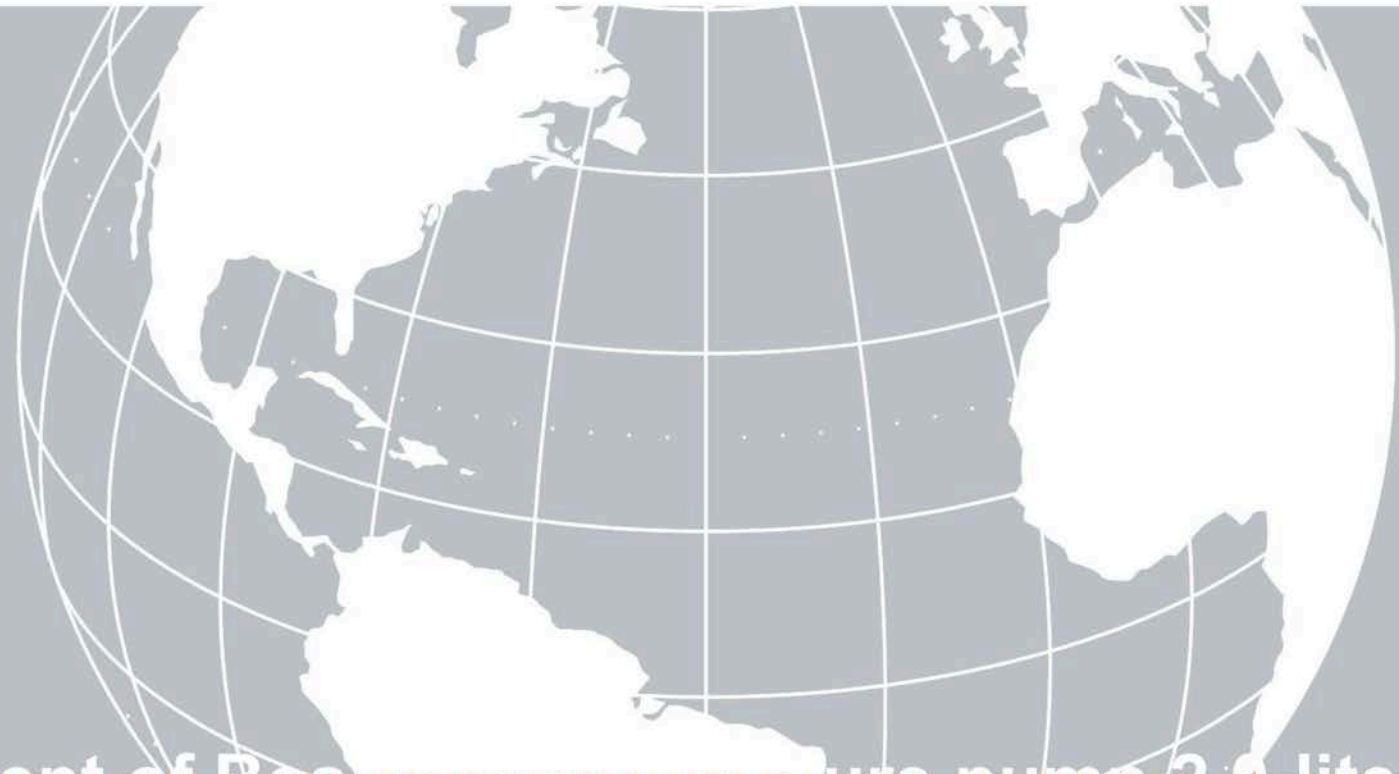


EA11003EN-00522[0]

**INFORMATION Redacted PURSUANT TO THE FREEDOM OF
INFORMATION ACT (FOIA), 5 U.S.C. 552(B)(6)**



Cleanliness concept of Bosch high-pressure pump 2.0-liter CR

Compliance with the VW standard 01134

Quality assurance component

06.07.2011

EA11003EN-00522[1]

Cleanliness concept of Bosch high-pressure pump 2.0-liter CR

Current situation:

Serial delivery is guaranteed by a deviation permit for TKU extended 5 times already (up to 2 particles of 200 - 400 μm in size) since SOP.

Problem:

Particles > 200 μm are found in the residual contamination analysis (Σ 0.5 particles per high-pressure pump).

Cause:

The particles are generated by the operation of the pump. (Abrasion in the inlet phase).

Measure:

According to Bosch's statement, no measures are possible due to design-related reasons!

EA11003EN-00522[2]

Cleanliness concept of Bosch high-pressure pump 2.0-liter CR

Statement by Bosch from 05.19.2011:

"According to current perspective, the VW standard 01 134 could be met with the current testing / measurement method to determine the technical cleanliness neither on 07.31.2011 nor at a later date. **The reason for this - according to Bosch's view - are particles which arise from the operation of the pump and are unavoidable with regards to production.** This type of residual contamination particles has not been found in failed pumps (non-starters) until now. Thus, it can be assumed from Bosch's opinion that these particles do not pose a risk of failure."

The design of the high-pressure fuel pump should be modified to avoid residual contamination particles > 200 µm

Status V6-TDI Bin5 – MY09 / MY10
Failure HPP in EC ER

WK 37/09

V6-TDI – Bin5 MY09/10**WK 40/09****HPP failures USA****▶ New vehicles**

1x Q7 MY09	Market USA – California	Mileage: 1,750 mls
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1x Touareg MY09	Market Non-responsive content removed	Mileage: 4,932 mls
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Analysis: In both cases, the visual inspection exhibits chips in the high-pressure pump and MU (metering unit). Detailed analysis at Bosch [REDACTED]

▶ EC ER

1x Q7 AU716 90229 MY10	Mileage: 89,543 mls (144,075 km)
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1x Q7 AU716 90390 MY10 (engine CAT 582)	mileage: 88,426 mls (141,925 km)
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Analysis: Drivetrain damage with suspected sluggish roller
 Minor signs of corrosion on tappet body and roller support
 Fuel filter and fuel sample have been set to [REDACTED] Lab for analysis.

▶ Preliminary analysis from Bosch:

Damage suspected to have been caused by water content in fuel.

V6-TDI – Bin5 MY09/10**WK 40/09****HPP failure in EC ER**

Vehicle: Q7 AU716 90229 MY10 (engine CAT 587) vehicle mileage: 89,766 mls (144,075 km)
 HPP mileage: 42,140 mls (67,635km)

The vehicle comes from the 1st batch Bin5 MY09 and was converted to MY10.

HPP: Pattern type for testing additional ruggedness measures

(optimized tappet assembly, non-ball blasted camshaft (as W24 and W36),

C2 layer (instead of C3) on roller dome)

driving profile: KL4: 29,979 km

WL1: 37,656 km

Problem: Loss of power on highway.
 Engine would no longer start after replacing ignition.

Analysis: Drivetrain damage with suspected sluggish roller

- Chips in high-pressure fuel pump and MU (metering unit).

- Minor traces of corrosion on tappet body and roller support

Maintenance of fuel filter was carried out in line with service interval:

- Replacement of fuel filter at 116,842 km, filter water removed at 131,631 km
 Visual check of fuel in fuel filter shows no deposits

Analysis of fuel sample from filter in [REDACTED] Lab

WK 42



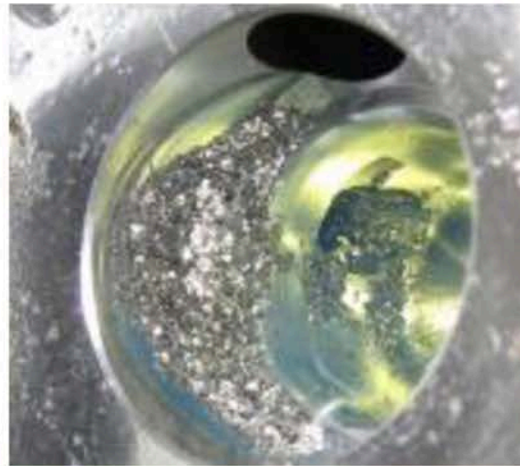
V6-TDI – Bin5 MY09/10

HPP failure in EC ER

Vehicle: Q7 AU716 90229 MY10

mileage: 89,543 mls (144,075 km)

WK 40/09

**Fuel samples:**

- Fuel filter
- Tank



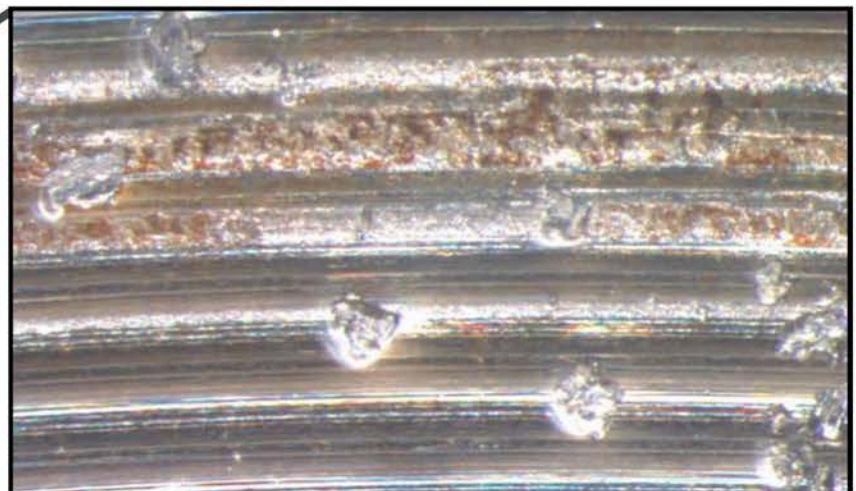
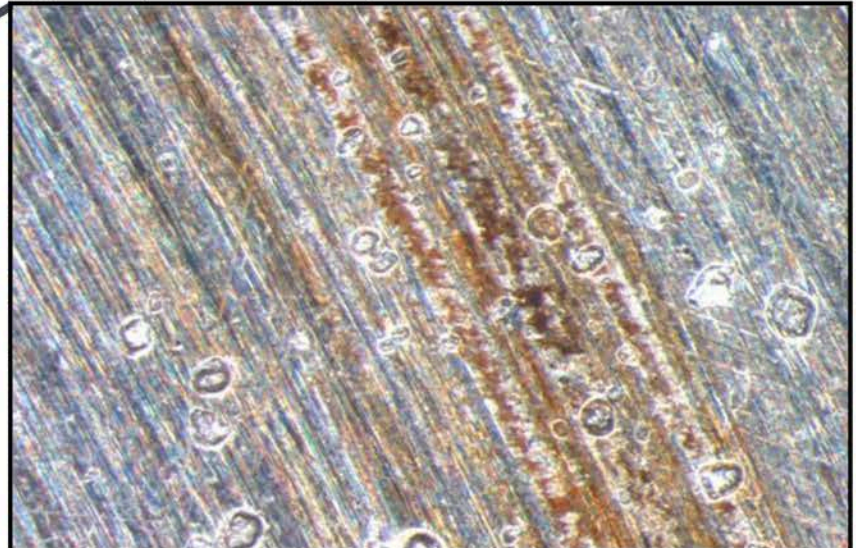
V6-TDI – Bin5 MY09/10

WK 40/09

HPP failure in EC ER

Vehicle: Q7 AU716 90229 MY10

mileage: 89,543 mls (144,075 km)



V6-TDI – Bin5 MY09/10**WK 40/09****HPP failure in EC ER**

Vehicle: Q7 AU716 90390 MY10 (engine CAT 582) mileage: mls (141,925 km)

The vehicle comes from the 1st batch Bin5 MY09 and was converted to MY10.

HPP: Date of manufacture April 08 (without straightedge test)

Driving profile:	NK6	48,907 km
	KL1	20,202 km
	KL4	28,623 km
	WL1	44,988 km

Problem: High-pressure fuel pump does not build up pressure.

Analysis: Drivetrain damage

- Chips in high-pressure fuel pump and MU (metering unit).
 - Minor traces of corrosion on tappet body and roller support
- Visual check of fuel in fuel filter shows no deposits

Analysis of fuel sample from filter in [REDACTED] Lab

WK 42

V6-TDI – Bin5 MY09/10

HPP failure in EC ER

Vehicle: Q7 AU716 90390 MY10

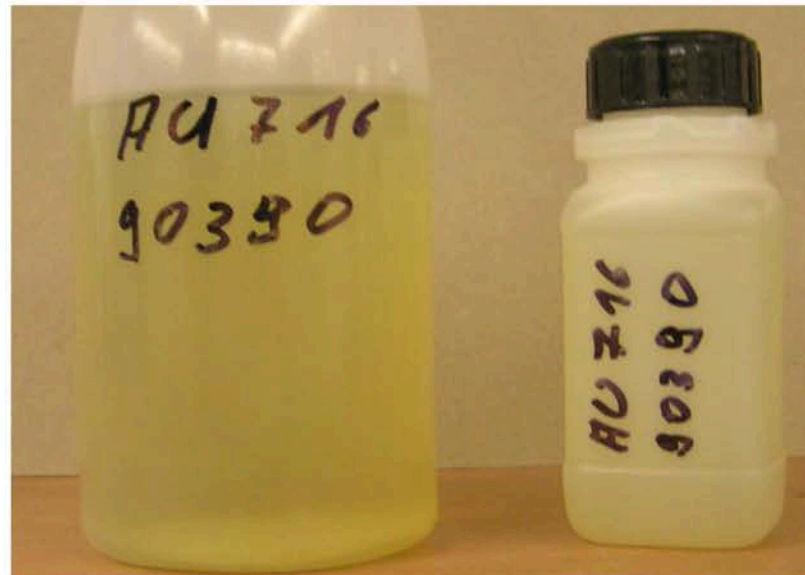
WK 40/09

mileage: 88,426 mls (141,925 km)



Fuel samples:

- Fuel filter



V6-TDI – Bin5 MY09/10

Backup

WK 40/09



V6-TDI – Bin5 MY09/10**HPP failure in EC ER MY09 (Nov. 08)**

Vehicle: Q7 AU716 E218 MY09 Mileage: 101,000 mls (162,000 km)

Driving profile: ■ mixed driving mode
USA: Cold test ■ hot test ■

Problem: FSP entries due to deviation of rail pressure

When analyzing engine, chips were found in the metering unit.

0445B20169_07 782-4254 (Procedure 2008-CP4_0897) DNA no. 2826

Result of analysis of HPP Bosch:

- Drivetrain damage confirmed
- Chips in high-pressure fuel pump and MU (metering unit).
- HPP “old” construction state
- Strong breakouts on cam track
- Both RS with middle C layer damage and 90° turners
- Coatings (suspected corrosion) on cam track (also non-sealed regions) and in intake valve bores/at intake valve
- > Suspected: failure due to water in diesel fuel

Measures:

Ruggedness analysis with diesel fuels that do not meet fuel standards by Bosch.

Bosch, ■