VOLKSWAGEN

AKTIENGESELLSCHAFT

11-Z-10-05149

Part no.: 03L.130.755.D

Intake valve and HP piston from CP4.1, run in [redacted]

Task:
The delivered intake valve disk and the HP piston show damage and scoring. They were operated in a vehicle in India with the local fuel. The piston is an uncoated component.

Mileage 55,183 km; Engine no. CAH0000315; Audi 8R96 E292

Result:

1. HP piston:

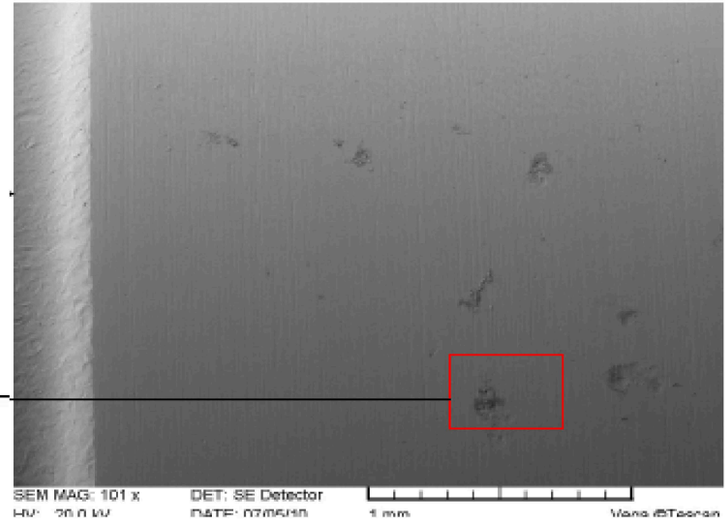
The piston rod shows scoring over the entire length in the circumferential direction, in which jagged ruptures on one is not OK. Indicate treatment. A correlation with the fuel cannot be detected here. Corrosion occurs in the upper part of the piston rod, which is probably fuel-related.

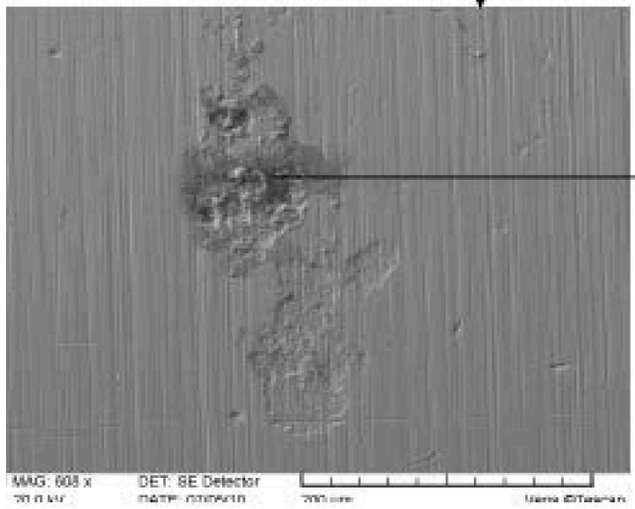
2. Intake valve disk:

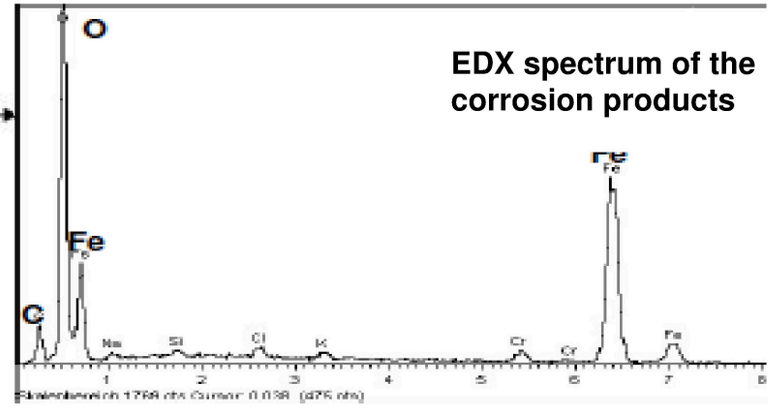
The probable damage inside the intake valve disk involves shear-marks from the stamping process.

HP piston: Corrosion

HP piston with corrosion in the up section of the piston rod





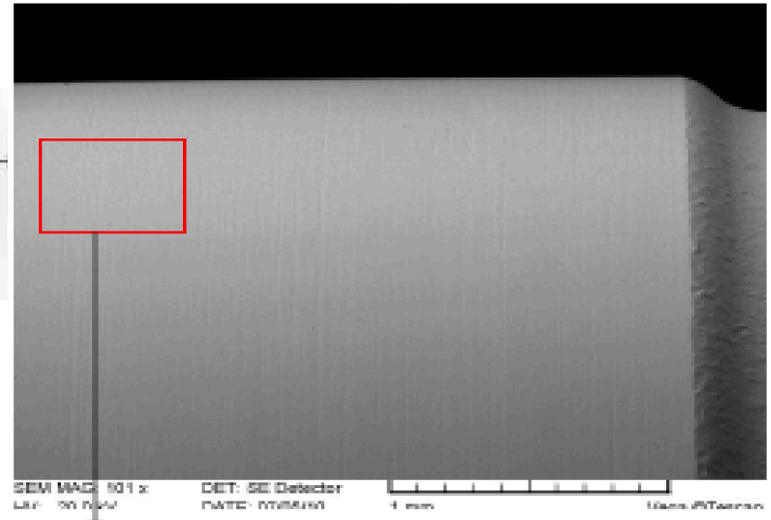


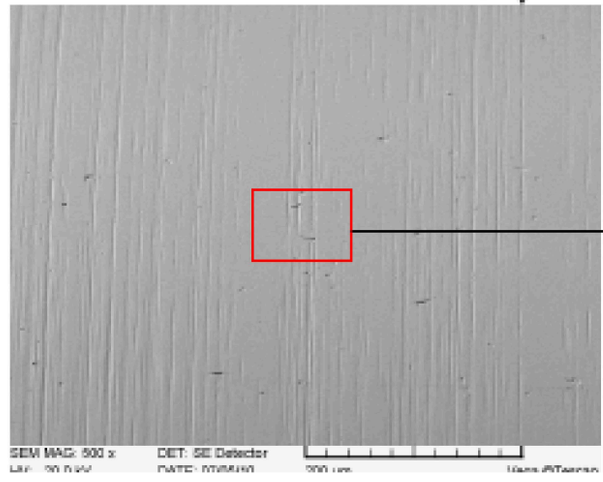
EDX spectrum of the corrosion products

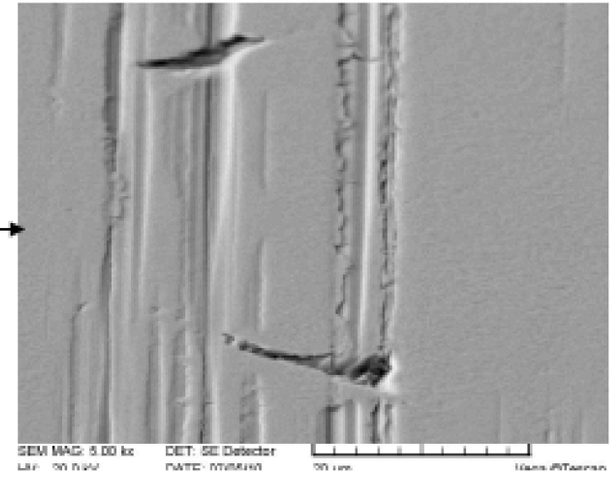
Scale range 1769 cts Cursor: 0.038 (475 cts)

HP piston: Scoring

HP pistons with scoring in the circumferential direction on the piston rod



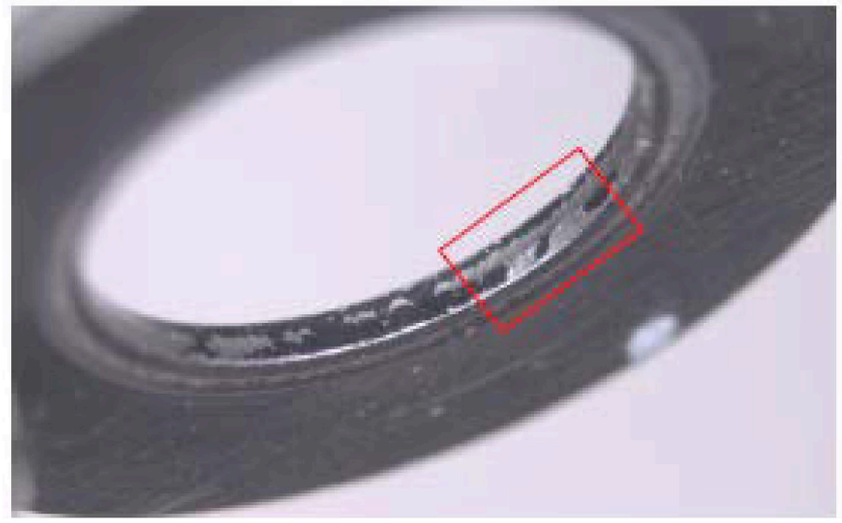




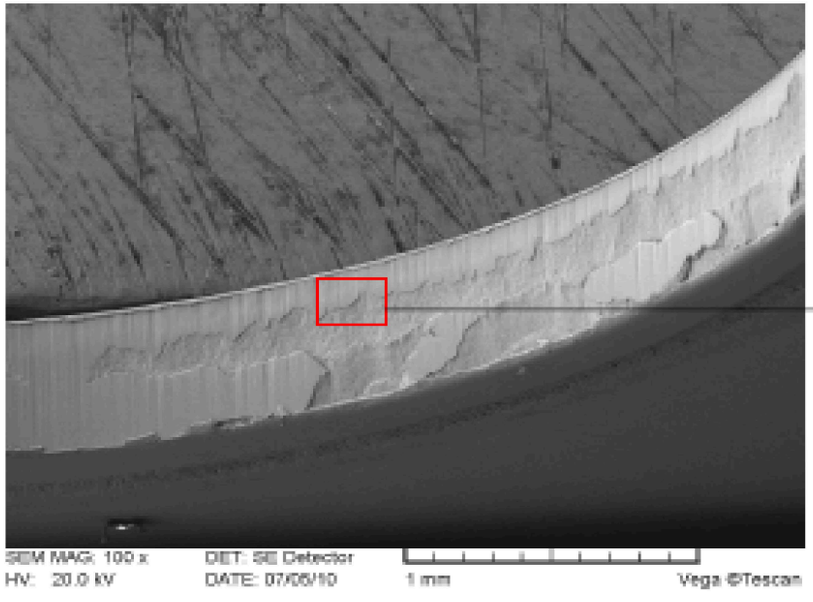
jagged ruptures in the vicinity of the grooves indicate faulty treatment

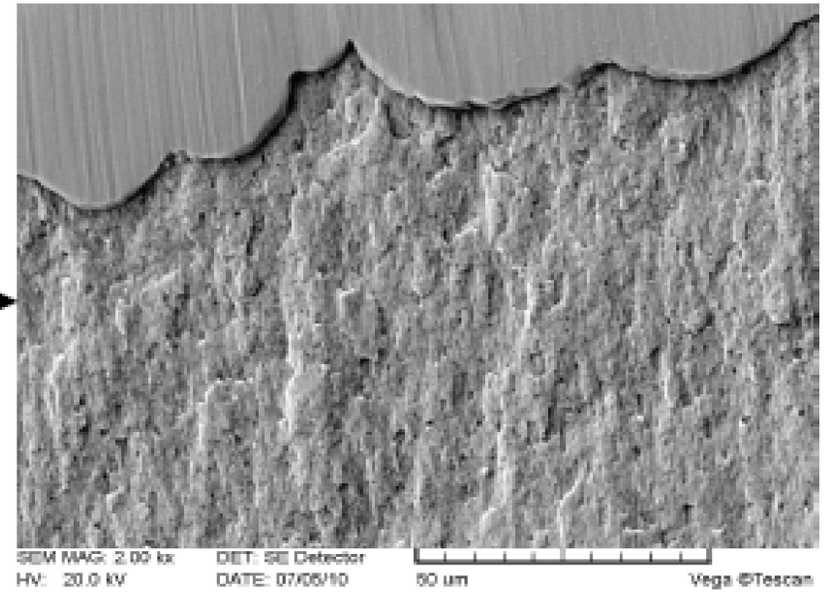
ENTIRE PAGE CONFIDENTIAL

Intake valve disk



Intake valve disk with shear-marks on the interior surface from the stamping process





ENTIRE PAGE CONFIDENTIAL

EA11003EN-00069[0]

Country	Car Number	Description	Labeling	Mileage	Sampling Date	Arrival Date	Sample Amount	Sample Number	Sample Number-CCLAS	Optical assessment visual [ml water] %]
-	-	-	-	-	-	-		-	-	
-	-	-	-	-	-	-		-	-	
-	-	-	-	-	-	-		-	-	
USA	VW 351780084:	16000 km Sample		16000 km	3/19/2007	4/23/2007	100 ml	PRO 4228	PRO07-00541.001	-
USA	VW 351780091:	16000 km Sample	16K, New Motor	16000 km	3/9/2007	4/23/2007	100 ml	PRO 4233	PRO07-00541.002	-
USA	VW 351780091:	32000 km Sample	32K	32038 km	Not applicable	4/23/2007	100 ml	PRO 4234	PRO07-00541.003	-
USA	VW 351780091:	48000 km Sample	48K	43952 km	4/4/2007	4/23/2007	100 ml	PRO 4235	PRO07-00541.004	-
USA	31 35 180082	water/ Fuel Filter drain	KL 4	16843 km	3/7/2007	4/30/2007	100 ml	PRO 4274	PRO07-00544.001	c+b, no free water
USA	31 35 1780085	Fuel Drain	16 K	17189 km	3/9/2007	4/30/2007	100 ml	PRO 4275	PRO07-00544.002	c+b, no free water
USA	31 35 1780085	Fuel Sample	30 K	31829 km	3/30/2007	4/30/2007	100 ml	PRO 4276	PRO07-00544.003	c+b, no free water
USA	31 35 1780085	Fuel Sample	32 K	33855 km	4/4/2007	4/30/2007	100 ml	PRO 4277	PRO07-00544.004	c+b, no free water
USA	VW35/1780088	Fuel Sample	16 K	22971 km	3/13/2007	4/30/2007	100 ml	PRO 4278	PRO07-00544.005	c+b, sediments, no free water
USA	VW35/1780088	Fuel Filter Sample	24 K	32896 km	4/3/2007	4/30/2007	100 ml	PRO-4279	PRO07-00544.006	c+b, no free water
USA	VW35/1780088	Fuel from Filter	32 K/ WLI	41936 km	4/19/2007	4/30/2007	100 ml	PRO-4280	PRO07-00544.007	c+b, no free water
USA	VW35/1780090	Fuel Sample	16 k	18973 km	3/7/2007	4/30/2007	100 ml	PRO 4281	PRO07-00544.008	c+b, no free water
USA	VW35/71780092	Fuel Sample	before eng. Change	33641 km	1/19/2007	4/30/2007	100 ml	PRO 4282	PRO07-00544.009	c+b, no free water
USA	VW35/71780092	Fuel Sample	3Okser 48,0000 km/ 8 k	48191 km	2/20/2007	4/30/2007	100 ml	PRO 4283	PRO07-00544.010	c+b, sediments, no free water
USA	VW35/1780092	Fuchs Titan 5W-30	24 K7 WL 1	65634 km	3/9/2007	4/30/2007	100 ml	PRO 4284	fPRO07-00544.011	c+b, sediments, no free water
USA	VW35/1780092	Fuel Sample	40 K	79893 km	3/30/2007	4/30/2007	100 ml	PRO 4285	PRO07-00544.012	c+b, sediments, no free water
USA	VW35/1780092	Fuel Filter Sample	48 K	89418 km	4/16/2007	4/30/2007	100 ml	PRO 4286	PRO07-00544.013	c+b, sediments, no free water
USA	VW35/1780092	Fuel Filter Drain	8 K	48811 km	Not applicable	4/30/2007	100 ml	PRO 4287	PRO07-00544.014	c+b, sediments, no free water
USA	VW35/1780093	Fuel Sample	16 K	15873 km	2/22/2007	4/30/2007	100 ml	PRO 4288	PRO07-00544.015	c+b, no free water
USA	VW35/1780093	Fuel Sample	32 K	31976 km	3/16/2007	4/30/2007	100 ml	PRO 4289	PRO07-00544.016	c+b, free water (<1%)
USA	APG Station	Ultra Low Sulfur	WL 1/ Phoenix	-	3/28/2007	4/30/2007	1000 ml	PRO 4290	PRO07-00542.001	c+b, no free water
USA	Tesorno Station	Ultra Low Sulfur	KL4/ Alaska	-	3/29/2007	4/30/2007	1000 ml	PRO 4291	PRO07-00542.002	c+b, no free water
USA	Fox General Store	Unknown content diesel fuel sample	KL4/Tesoro Brand/2226 Old Steese Hwy/Fox, AK 99701	-	6/11/2012	5/14/2007	1000 ml	PRO 4345	PRO07-00544.017	c+b, no free water
USA	Holiday Station Store	Ultra low sulfur diesel fuel sample	KL4/Unknown Brand/4105 Geist Rd./Fairbanks, AK 99701	-	6/11/2012	5/14/2007	1000 ml	PRO 4346	PRO07-00543.001	c+b, no free water
USA	Alaska Chevron	Ultra low sulfur diesel fuel sample	KL4/Unknown Brand(Prob. Sourdough)/333 Illinois/Fairbanks, AK99701	-	6/11/2012	5/14/2007	1000 ml	PRO 4347	PRO07-00543.002	c+b, no free water
USA	Keith´s Healy Service	Ultra low sulfur diesel fuel sample	KL4/Tesoro Fuel Brand/Mile 249.5 Parks Hwy/Healy, AK99743	-	6/11/2012	5/14/2007	1000 ml	PRO 4348	PRO07-00543.003	c+b, no free water
USA	Our Primary Tesoro Station	Ultra low sulfur diesel fuel sample	KL4/Tesoro Brand/3569 Cushman@van Horn/Fairbanks, AK99701	-	6/11/2012	5/14/2007	1000 ml	PRO 4349	PRO07-00543.004	c+b, no free water
USA	Tanana Trading Post	Ultra low sulfur diesel fuel sample	KL4/Tesoro Fuel Brand/5449 Richardson Hwy(Mile 275)/Delta Junction, AK99737	-	6/11/2012	5/14/2007	1000 ml	PRO 4350	PRO07-00543.005	c+b, no free water
USA	-	Fuel Sample Representative	from Phx before Etest @ beginning	-	6/11/2012	5/14/2007	1000 ml	PRO 4351	PRO07-00543.006	c+b, no free water
USA	Sinclair Station	Pump II / Ultra Low Sulfur	Page A2/Lake Parvell/South Navazo/1st Fill on Road	-	11/29/2006	5/14/2007	1000 ml	PRO 4352	fPRO07-00543.007	c+b, no free water
USA	VW351780091	-	Valero #2/Baker Ca./F2G (3.ogal)	-	11/30/2006	5/14/2007	1000 ml	PRO 4353	PRO07-00543.008	c+b, no free water
USA	-	Representative	from last Fueling outside barstow/ before Etest at beginning	-	6/11/2012	5/14/2007	1000 ml	PRO 4354	PRO07-00543.009	c+b, no free water
USA	1st Qtr	ULS diesel fuel	APG 30 March 2007	-	3/30/2007	5/14/2007	1000 ml	PRO 4355	PRO07-00543.010	c+b, no free water
USA	VW351-78-0090	Diesel Sample	KL4/Giese EAD/Tesoro workshop	-	4/17/2007	5/14/2007	1000 ml	PRO 4356	PRO07-00543.011	c+b, no free water
USA	VW351-78-082	Diesel Sample	KL4/Giese AED/Holiday FA	-	4/18/2007	5/14/2007	1000 ml	PRO 4357	PRO07-00543.012	c+b, no free water
USA	VW351780082	-	Engine no. 3LD/17624 / KL4	31515	4/11/2007	5/14/2007	150 ml	PRO 4358	PRO07-00544.018	c+b, sediments, free water
USA	VW351780085	Fuel Sample from filter water drain	Engine no. 3LD/16933 / WL1	47899 km	5/7/2007	5/14/2007	100 ml	PRO 4359	PRO07-00544.019	c+b, no free water
USA	VW351780091	Fuel Tank	Engine no. 3LDP18101/ WL1/ 30000 ml before Etest	58831 km	5/1/2007	5/14/2007	1000 ml	PRO 4360	PRO07-00543.013	c+b, no free water
USA	VW351780091	Fuel Filter	Engine no. 3LDP18101/ WL1	58831 km	5/1/2007	5/14/2007	100 ml	PRO 4361	PRO07-00544.020	c+b, no free water
USA	VW351780093	Fuel Filter	Engine no. 3LD/17088 / KL4	47635	4/9/2007	5/14/2007	100 ml	PRO 4362	PRO07-00544.021	c+b, no free water
USA	-	-	-	-	-	-	-	PRO 4419		c+b, sediments, no free water

FUEL [redacted]
fine droplet not quantifiable.

FUEL [redacted]
0.4ml water in 175 ml Prove, corresponds to 0.7 %

Country USA	Car Number	Description	Labeling	Mileage	Sampling Date	Arrival Date 6/12/2007	Sample Amount 500 ml	Sample Number PRO 4470	Sample Number-CCLAS	Optical assessment visual [in water] %]
-	-	-	-	-	-	-		-	-	
-	-	-	-	-	-	-		-	-	
-	-	-	-	-	-	-		-	-	
USA	VW351780082	Fuel from Tank	Engine no. 3LDB17284 / WL1	49759 km	5/29/2007	6/4/2007	1000 ml	PRO 4439		c+b, no free water
USA	VW351780082	Fuel from Filter	Engine no. 3LDB17284 / WL1	49759 km	5/29/2007	6/4/2007	100 ml	PRO 4440		c+b, sediments, no free water
USA	VW351780085	Fuel Sample	Engine no. 03LD/16933 / before Filter / before Emissions Test / LAB	51727 km	5/14/2007	6/4/2007	1000 ml	PRO 4441		c+b, no free water
USA	VW351780085	Fuel Sample at water drain in Filter	Engine no. 3LD/16933	51727 km	5/14/2007	6/4/2007	100 ml	PRO 4442		c+b, sediments, no free water
USA	VW351780088	From Fuel Filter	Engine no. 3LDP18102 / WL1	47400 km	5/11/2007	6/4/2007	100 ml	PRO 4443		c+b, sediments, no free water
USA	VW351780089	Fuel from Filter	Engine no. 3LDB17267 / WL1	33885 km	5/9/2007	6/4/2007	100 ml	PRO 4444		c+b, sediments, no free water
USA	VW351780089	Fuel from Tank	Engine no. 3LDB17267 / WL1	49872 km	5/22/2007	6/4/2007	1000 ml	PRO 4445		c+b, no free water
USA	VW351780089	Fuel from Filter	Engine no. 3LDB17267 / WL1	49872 km	5/22/2007	6/4/2007	100 ml	PRO 4446		c+b, no free water
USA	VW351780090	Fuel Sample before Filter	Engine no. 3LD/17084 / 30KSer before Emissions Test	49262 km	5/9/2007	6/4/2007	1000 ml	PRO 4447		c+b, no free water
USA	VW351780090	Fuel Sample at water drain	Engine no. 3LD/17084	49262 km	5/9/2007	6/4/2007	100 ml	PRO 4448		c+b, no free water
USA	VW351780091	Diesel Fuel Sample	WL1	63146 km	5/8/2007	6/4/2007	150 ml	PRO 4449		c+b, sediments, no free water
USA	VW351780093	Fuel Sample before Filter	at service before Emissions Test / WL1	54029	5/16/2007	6/4/2007	1000 ml	PRO 4450		c+b, no free water
USA	VW351780093	Fuel Sample before Filter	WL1	54029	5/16/2007	6/4/2007	100 ml	PRO 4451		c+b, sediments, no free water
USA	-	-	-	-	-	6/12/2007	500 ml	PRO 4470		c+b, sediments, no free water
USA										
USA										
USA										
USA										
USA										
USA										
USA										
USA										
USA										
USA										
USA	31 35 1780085	Fuel Drain	16 K	17189 km	3/9/2007	4/30/2007	100 ml	PRO 4275	PRO07-00544.002	-
USA	31 35 1780085	Fuel Sample	30 K	31829 km	3/30/2007	4/30/2007	100 ml	PRO 4276	PRO07-00544.003	-
USA	31 35 1780085	Fuel Sample	32 K	33855 km	4/4/2007	4/30/2007	100 ml	PRO 4277	PRO07-00544.004	-
USA	31 35 180082	water/ Fuel Filter Drain	KL 4	16843 km	3/7/2007	4/30/2007	100 ml	PRO 4274	PRO07-00544.001	c+b, no free water
USA	VW 351780084:	16000 km Sample		16000 km	3/19/2007	4/23/2007	100 ml	PRO 4228	PRO07-00541.001	c+b, no free water
USA	VW 351780091:	16000 km Sample	16K, New Motor	16000 km	3/9/2007	4/23/2007	100 ml	PRO 4233	PRO07-00541.002	c+b, no free water
USA	VW 351780091:	32000 km Sample	32K	32038 km	Not applicable	4/23/2007	100 ml	PRO 4234	PRO07-00541.003	c+b, no free water
USA	VW 351780091:	48000 km Sample	48K	43952 km	4/4/2007	4/23/2007	100 ml	PRO 4235	PRO07-00541.004	c+b, sediments, no free water
USA	VW35/1780088	Fuel Sample	16 K	22971 km	3/13/2007	4/30/2007	100 ml	PRO 4278	PRO07-00544.005	c+b, no free water
USA	VW35/1780088	Fuel Filter Sample	24 K	32896 km	4/3/2007	4/30/2007	100 ml	PRO-4279	PRO07-00544.006	c+b, no free water
USA	VW35/1780088	Fuel from Filter	32 K/ WLI	41936 km	4/19/2007	4/30/2007	100 ml	PRO-4280	PRO07-00544.007	c+b, no free water
USA	VW35/1780090	Fuel Sample	16 k	18973 km	3/7/2007	4/30/2007	100 ml	PRO 4281	PRO07-00544.008	c+b, no free water
USA	VW35/1780092	Fuel Filter Drain	8 K	48811 km	Not applicable	4/30/2007	100 ml	PRO 4287	PRO07-00544.014	c+b, sediments, no free water
USA	VW35/1780092	Fuchs Titan 5W-30	24 K7 WL 1	65634 km	3/9/2007	4/30/2007	100 ml	PRO 4284	fPRO07-00544.011	c+b, sediments, no free water
USA	VW35/1780092	Fuel Sample	40 K	79893 km	3/30/2007	4/30/2007	100 ml	PRO 4285	PRO07-00544.012	c+b, sediments, no free water
USA	VW35/1780092	Fuel Filter Sample	48 K	89418 km	4/16/2007	4/30/2007	100 ml	PRO 4286	PRO07-00544.013	c+b, sediments, no free water
USA	VW35/1780093	Fuel Sample	16 K	15873 km	2/22/2007	4/30/2007	100 ml	PRO 4288	PRO07-00544.015	c+b, sediments, no free water

EA11003EN-00069[2]

															Optical assessment visual [in water] %]
USA	VW35/1780093	Fuel Sample	32 K	31976 km	3/16/2007	4/30/2007	100 ml	PRO 4289	PRO07-00544.016						c+b, no free water
USA	VW35/71780092	Fuel Sample	before eng. Change	33641 km	1/19/2007	4/30/2007	100 ml	PRO 4282	PRO07-00544.009						c+b, free water (<1%
USA	VW35/71780092	Fuel Sample	3Okser 48,0000 km/ 8 k	48191 km	2/20/2007	4/30/2007	100 ml	PRO 4283	PRO07-00544.010						c+b, no free water
USA	VW351780082	-	Engine no. 3LD/17624 / KL4	31515 km	4/11/2007	5/14/2007	150 ml	PRO 4358	PRO07-00544.018						c+b, no free water
USA	VW351780082	Fuel from Tank	Engine no. 3LDB17284 / WL1	49759 km	5/29/2007	6/4/2007	1000 ml	PRO 4439							c+b, sediments, free wat
USA	VW351780082	Fuel from Filter	Engine no. 3LDB17284 / WL1	49759 km	5/29/2007	6/4/2007	100 ml	PRO 4440							c+b, no free water
USA	VW351780085	Fuel Sample from filter water drain	Engine no. 3LD/16933 / WL1	47899 km	5/7/2007	5/14/2007	100 ml	PRO 4359	PRO07-00544.019						c+b, no free water
USA	VW351780085	Fuel Sample	Engine no. 03LD/16933 / before Filter / before Emissions Test / LAB	51727 km	5/14/2007	6/4/2007	1000 ml	PRO 4441							c+b, no free water
USA	VW351780085	Fuel Sample at water drain in Filter	Engine no. 3LD/16933	51727 km	5/14/2007	6/4/2007	100 ml	PRO 4442							c+b, no free water
USA	VW351780088	From Fuel Filter	Engine no. 3LDP18102 / WL1	47400 km	5/11/2007	6/4/2007	100 ml	PRO 4443							c+b, no free water
USA	VW351780089	Fuel from Filter	Engine no. 3LDB17267 / WL1	33885 km	5/9/2007	6/4/2007	100 ml	PRO 4444							c+b, sediments, no free water
USA	VW351780089	Fuel from Tank	Engine no. 3LDB17267 / WL1	49872 km	5/22/2007	6/4/2007	1000 ml	PRO 4445							c+b, no free water
USA	VW351780089	Fuel from Filter	Engine no. 3LDB17267 / WL1	49872 km	5/22/2007	6/4/2007	100 ml	PRO 4446							c+b, sediments, no free water
USA	VW351780090	Fuel Sample before Filter	Engine no. 3LD/17084 / 30KSer before Emissions Test	49262 km	5/9/2007	6/4/2007	1000 ml	PRO 4447							c+b, sediments, no free water
USA	VW351780090	Fuel Sample at water drain	Engine no. 3LD/17084	49262 km	5/9/2007	6/4/2007	100 ml	PRO 4448							c+b, sediments, no free water
USA	VW351-78-0090	Diesel Sample	KL4/Giese EAD/Tesoro workshop	-	4/17/2007	5/14/2007	1000 ml	PRO 4356	PRO07-00543.011						c+b, no free water
USA	VW351780091	Fuel Tank	Engine no. 3LDP18101/ WL1/ 30000 ml before Etest	58831 km	5/1/2007	5/14/2007	1000 ml	PRO 4360	PRO07-00543.013						c+b, no free water
USA	VW351780091	Fuel Filter	Engine no. 3LDP18101/ WL1	58831 km	5/1/2007	5/14/2007	100 ml	PRO 4361	PRO07-00544.020						c+b, no free water
USA	VW351780091	Diesel Fuel Sample	WL1	63146 km	5/8/2007	6/4/2007	150 ml	PRO 4449							c+b, no free water
USA	VW351780093	Fuel Filter	Engine no. 3LD/17088 / KL4	47635	4/9/2007	5/14/2007	100 ml	PRO 4362	PRO07-00544.021						c+b, sediments, no free water
USA	VW351780093	Fuel Sample before Filter	at service before Emissions Test / WL1	54029	5/16/2007	6/4/2007	1000 ml	PRO 4450							c+b, no free water
USA	VW351780093	Fuel Sample before Filter	WL1	54029	5/16/2007	6/4/2007	100 ml	PRO 4451							c+b, sediments, no free water
USA	VW351-78-082	Diesel Sample	KL4/Giese AED/Holiday FA	-	4/18/2007	5/14/2007	1000 ml	PRO 4357	PRO07-00543.012						c+b, sediments, no free water
USA															
USA															
USA															
USA															
USA															
USA															
USA															
USA															
USA															
USA															

Non-responsive content removed

FUEL [redacted]

fine droplet not quantifiable.

Non-responsive content removed

FUEL [redacted]

0.4ml water in 175 ml Prove, corresponds to 0.7 %

ENTIRE PAGE CONFIDENTIAL

Country	Vehicle number	Mileage				Sample quantity	Optical assessment visual [ml Water; %]
USA	VW 35/1780085	17189 km	31829 km	33855 km	---	100 ml	-
USA	VW 35/180082	16843 km	---	---	---	100 ml	c+b, no free water
USA	VW 35/351780084	16000 km	---	---	---	100 ml	c+b, no free water
USA	VW 35/351780091	16000 km	32038 km	43952 km	---	100 ml	c+b, no free water
USA	VW35/1780088	22971 km	32896 km	41936 km	---	100 ml	c+b, no free water
USA	VW35/1780090	18973 km	---	---	---	100 ml	c+b, no free water
USA	VW35/1780092	48811 km	65634 km	79893 km	89418 km	100 ml	c+b, Sediments, no free water
USA	VW35/1780093	15873 km	31976 km	---	---	100 ml	c+b, Sediments, no free water
USA	VW35/71780092	33641 km	48191 km	---	---	100 ml	c+b, free water (<1%)
USA	VW35/351780082	31515 km	49759 km	49759 km	---	150 ml	c+b, Sediments, free water (0.7%)
USA	VW35/351780085	47899 km	51727 km	51727 km	---	100 ml	c+b, no free water
USA	VW35/351780088	47400 km	---	---	---	100 ml	c+b, no free water
USA	VW35/351780089	33885 km	49872 km	49872 km	---	100 ml	c+b, Sediments, no free water
USA	VW35/351780090	49262 km	49262 km	---	---	1000 ml	c+b, Sediments, no free water
USA	VW35/351780091	58831 km	58831 km	63146 km	---	1000 ml	c+b, no free water
USA	VW35/351780093	47635	54029	54029	---	100 ml	c+b, Sediments, no free water

Sample with free water

FUEL / [redacted]
fine droplet not quantifiable.

FUEL / [redacted]
0.4 ml water in 175 ml Prove,
corresponds to 0.7%

EA11003EN-00072[0]

From: Non-responsive content removed
To:
CC:

Date: 7/7/2008, 1:22:09 PM
Subject: Re: Maintenance on GQ-AL vehicles.
Attachments: WG _ CP4 BIN5 3. und 4. Ausfall in USA.msg

The men have also done it, and no water was detected

Best regards

Non-responsive content removed

AUDI AG
Non-responsive content removed
85045 Ingolstadt
Non-responsive content removed
www.audi.com

>_____
>From: Non-responsive content removed
>Sent: Monday, July 07, 2008, 2:09 PM
>To: Non-responsive content removed
>Cc
>Subject: Re: Maintenance on GQ-AL vehicles.
>
>Hello
>
>I would like to clarify once again, that it was agreed upon to regularly
check the diesel filter in NAR. -See emails in appendix.
> Besides, in my opinion, one must (like the oil filter replacement also) include that in the life cycle, otherwise

afterwards anyone can claim that this was done or not done (as I am now doing!).

> SECTION CONFIDENTIAL

>In order to gain future clarity concerning all my points, which affect me,
we could finalize from today's diesel round with Messrs. [redacted] the following once again to finalize; Details to be discussed with [redacted]
>*Check for water in the diesel filter by suctioning with a hand pump every 10K miles (You will have received the CS instruction) and document the measured quantity of water
>*Change the diesel filter insert for every 20k miles (prior water check); clarification with [redacted] whether diesel filter insert should be analyzed.
>* Read-out the Zero Quantity Calibration and Zero Voltage Calibration values in the engine control unit (MWB clarification with [redacted] every 10k miles and document in the list or via tester log
>*regular check of SCR dosing module flange on depositions and document by image and life cycle; Proposal: about every 30k miles
>*regular reading of the fault memory (operates anyway); Info regarding faults in the region of glow plugs and injection system also to be forwarded to me.

>
> < Message: Re: BIN5 water separator verification >> <Message: Subject: BIN5 water separator verification >> >
>
>Thank you.
>
>
>With best regards
>
>[redacted]
>
>AUDI AG
>[redacted]
>85045 Ingolstadt
>[redacted]
>
>From: [redacted]
>Sent: Monday, July 07, 2008, 11:01 AM
>To [redacted]
>Subject: Re: Maintenance on GQ-AL vehicles.
>
>????????
>
>I don't know what the specifications are, or what you have previously agreed upon!
>
>With best regards
>
>[redacted]
>
>AUDI AG
>[redacted]
>85045 Ingolstadt
>[redacted]
>

EA11003EN-00072[2]

>_____
>From: Non-responsive content removed
>Sent: Monday, July 07, 2008, 10:54 AM
>To: Non-responsive content removed
>Cc:
>Subject: Maintenance on GQ-AL vehicles.
>
>Hello Non-responsive content removed
>
>I have checked both life cycles for maintenance on the diesel filter etc. and marked relevant text in "red".
> If I have read it correctly, then:
>- for 98018 nothing was done in this regard
>- 98017 at 32,129 km (20k miles) the diesel filter was checked.
>
> Did we not lay down the guideline like in the CS, to check every 10k miles and
to replace the diesel filter every 20k miles?
>
>With best regards
>
>Non-responsive content rem
>oved
>
>
>AUDI AG
>
>85045 Ingolstadt
>Non-responsive content rem
>oved
>
>
>_____
>From: Non-responsive content removed
>Sent: Friday, July 04, 2008, 5:13 PM
>To: Non-responsive content removed
>Subject:
>
> < File: AU716-9-8018_F_Reparaturdaten.xls >> < File: AU716-9-8017_F_Reparaturdaten.xls
>>
>
>Both or not?
>
>With best regards
>
>Non-responsive content remov
ed
>
>
>AUDI AG
>
>85045 Ingolstadt
>Non-responsive content remo
>ved
>
>
>www.audi.com

EA11003EN-00072[3]

>
>Sitz/Domicile: Ingolstadt
>Registergericht/Court of Registry: Local District Court Ingolstadt
>HRB Nr./Commercial Register No.: 1
>Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Winterkorn
>Vorstand/Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulf Berkenhagen, Michael Dick, Frank Dreves, Peter Schwarzenbauer, Axel Strotbek, Werner Widuckel
>
>Important notice: The above information is automatically added to this e-mail. This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding upon Volkswagen AG.
>Important Notice: The above information is automatically added to this e-mail. This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding upon AUDI AG.
>

V6-TDI – Bin5 MY09/10

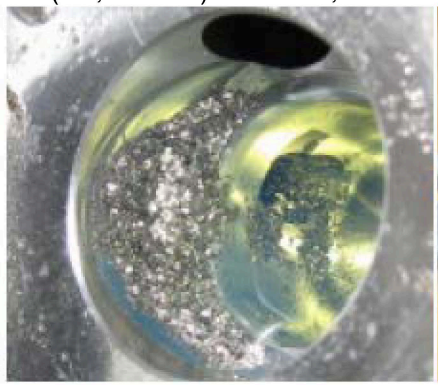
WK 42/09

HPP failure in [redacted]

Vehicle: Q7 AU716 90229 MY10 (Motor CAT 587)

Vehicle mileage: 89,766 mls (144,075 km)

HPP mileage: 42,140 mls (67,635km) KL4: 29,979 km, WL1: 37,656 km



Fuel samples:

- Fuel filter
- Tank

V6-TDI – Bin5 MY09/10

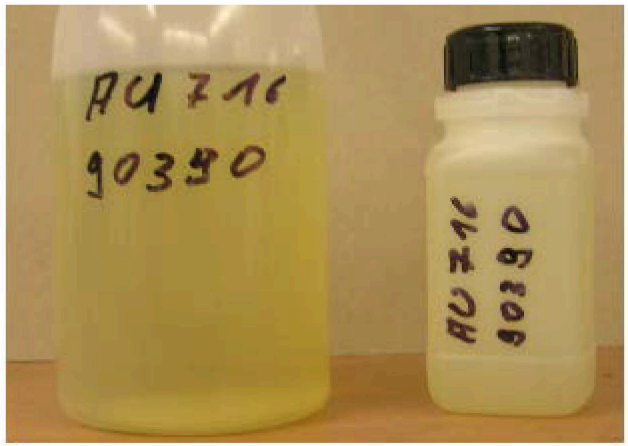
WK 42/09

HPP failure in [Non-responsive content removed]

Vehicle: Q7 AU716 90390 MY10 (Motor CAT 582) mileage: 88,427 mls (141,925 km)
Driving profile: NK6 48.907 km, KL1 20.202 km, KL4 28.623 km, WL1 44,988 km

Fuel samples:

- Fuel filter



EA11003EN-00092[0]

From: [redacted]
To: [redacted]
CC: [redacted]
Date: 7/25/2008, 2:42:07 PM
Subject: RE: Address for Audi CP4 Pump exchange
Attachments: WA1ZZZ4L89D[redacted]24.07.08_16.05_Eingang.txt
WA1ZZZ4L89D[redacted]25.07.2008_Ausgang.txt
WA1ZZZ4L89D[redacted]23.07.08_08.38_Eingang.txt
WA1ZZZ4L89D[redacted]25.07.08_Ausgang.txt

Hello colleagues,

A analysis report from BOSCH for each pump with concrete information shall follow (resp. Weigand) Affected pumps are from the following vehicle:
WA1ZZZ4L89D[redacted] Mileage 42325 miles (AU716 98020)

Please find attached once again the summarized information for "pit stop". Both vehicles were driven overnight between initial and final measurement, after pump replacement.
Idler pulley p/n 059 109 243 P installed on both vehicles.

1. WA1ZZZ4L89[redacted] Mileage 42325 miles

- Fault memory in the attachment at arrival and departure
- Loose precatalyst probe, without gasket (see photo)
- Cover toothed belt with scuff mark (see photo) - CP4 according to information from BOSCH with insufficient flow rate

2. WA1ZZZ4L89D[redacted] Mileage 45497 miles

- Fault memory at arrival and departure in the attachment
- Oil sweat on boost pressure pipe
- CP4 acc. to BOSCH OK

Regards

Regards

[redacted]

From: [redacted]
Sent: Friday, July 25, 2008 3:29 AM:
To: [redacted]
Cc:
Subject: Re: Address for Audi CP4 Pump exchange

[redacted]

Please provide the vehicle number incl. the mileage of the pump replacement.

Stefan: That sounds again like the next bomb to me, if I lose significantly on flow due to mileage. Does Bosch have a final measurement for the pump?

If yes, what does it look like?

Best regards

[redacted]

www.audi.com

Sitz/Domicile: Ingolstadt Registergericht/Court of Registry: Local District Court Ingolstadt

HRB Nr./Commercial Register no.: 1

From: [redacted]
Sent: Thursday, July 24, 2008, 11:10 PM
To: Non-responsive content removed

Subject: FW: Address for Audi CP4 Pump exchange

Hello Mr [redacted]

brief status for both the verification vehicles, detailed analysis report by BOSCH follows:

-both pumps were opened by BOSCH employees and metering units, tappets, rollers and cams examined - without any striking features, analysis report shall be created by BOSCH

- Further, both pumps were surveyed on the test bench at BOSCH SECTION CONFIDENTIAL

- One pump had in the operating point 5000 rpm and 2000 bar, flow rate only of 99 l/h (TARGET 113 l/h, plus/minus 7 l/h according to BOSCH test regulation for new pumps), according to BOSCH possible metering unit defect

- Not OK, according to the consultation Non-responsive content removed as recommended by BOSCH Pump replaced with a new part.

- Second pump on test bench OK, Re-install in vehicle

- Both vehicles shall leave tomorrow starting at 7.00 am after repeated visual check in the direction of Auburn Hills Q-AL stations

In case of queries, please revert.

Note: 1. Both vehicles showed oil sweat in the region of the boost pressure pipe on vehicle underside
2. One vehicle with loose precatalyst Lambda probe and missing sealing ring

Images incl. data storage excerpts will be sent tomorrow.

Regards

Non-responsive conten
t removed

From: [redacted]
Sent: Thursday, July 17, 2008 4:59 PM
Non-responsive content removed
Subject: RE: Address for Audi CP4 Pump exchange

Hello Mr. [redacted]
Following procedure has been agreed upon with Mr. Schiele

- Please have two vehicles delivered (driven) to the following address in Auburn Hills:

Non-responsive content removed

- Taking into account all resources in teamwork, the pumps shall be installed and removed by EA(EEO) and PQA.

- Analysis of the pumps at Bosch in Farmington Hills

EA11003EN-00092[2]

- Pickup of vehicle after successful verification (disassembly / assembly)

Please let us know the delivery time.

Regards

Non-responsive content removed

From: Non-responsive content removed
Sent: Thursday, July 17, 2008 4:59 PM
Non-responsive content removed

Subject: Subject: Address for Audi CP4 Pump exchange
Importance: High

Hello Mr.

We would like to organize the following on short notice:

We have 3 pump damages in 2 vehicles Q7 and 1 x Touareg BIN5; Perhaps, you already know that for 2 of our 8 Q verification vehicles, the high pressure fuel pumps are to be removed at your station in Auburn Hills

Non-responsive content removed, Farmington Hills shall pick up both the pumps from you and deliver them again after inspection
They will be checked by an expert from Stuttgart at Bosch in Farmington
Re-install the pumps at your station and send the vehicles back to Q-AL station

Would you be able to do it?

When is it possible at the earliest?
Time required for checking at Bosch is about 1 day
Do you have the CS literature for pump replacement?
Exact name, address, telephone number/ mobile number and directions for our station
Is included for this?
Have I left anything out?

Please call me today on my mobile at about 17:00 hours (CEST).
Thank you.

Non-responsive content removed

From:
Sent: Non-responsive content removed

Cc: Non-responsive content removed
Subject: Address for Audi CP4 Pump exchange

Hello Mr.

The contact data for RB employee in USA
<Non-responsive content removed>

Hello Mr.

Please also send your mobile number to everyone on the distribution list thank you.

from RB shall coordinate the replacement.

Best regards

Non-responsive content removed

Non-responsive content removed

Domicile: Stuttgart
Court of Registry: Local District Court of Stuttgart Commercial Register no. 140000 Chairman of the Supervisory Board: Hermann Scholl;

Board of Management: Franz Fehrenbach, Siegfried Dais;
Bernd Bohr, Rudolf Colm, Gerhard Kümmel, Wolfgang Malchow, Peter Marks;
Volkmar Denner, Uwe Raschke, Peter Tyroller

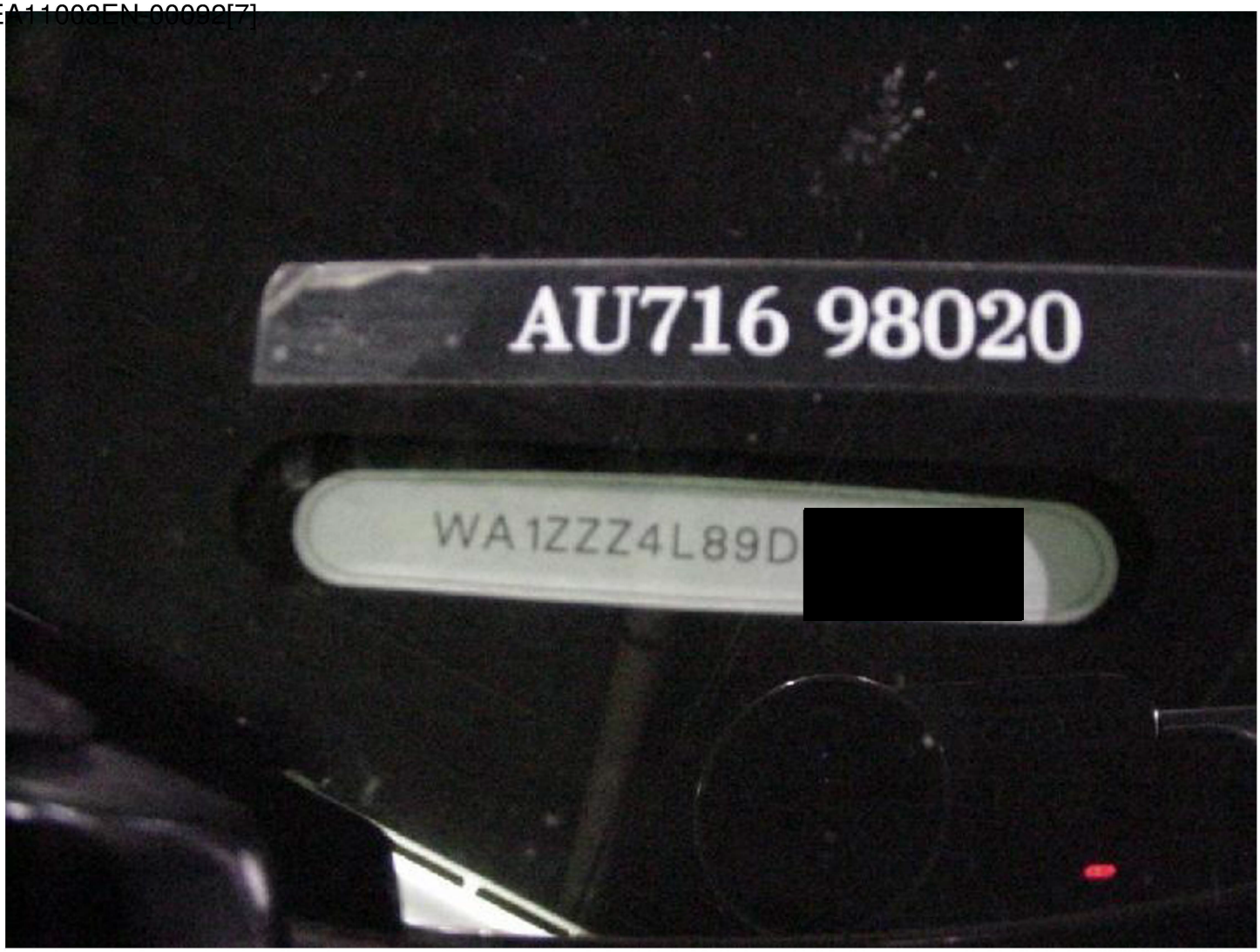
Non-responsive content removed

Non-responsive content removed

Non-responsive content removed

Non-responsive content removed

EA11003EN-00092[7]



ENTIRE PAGE CONFIDENTIAL

EA11003EN-00099[0]

From: Non-responsive content removed
To:
CC:
Date: 11/7/2008, 4:53:23 PM
Subject: Re: Fuel pre-filling B8-manufacturing
Attachments: [redacted] 2008-11-05.ppt

Hi all,

I have requested the presupply times again at the manufacturing lines of the VW Phaeton and Touareg/Q7. These have been determined through measurements on the vehicles.

Presupply times Touareg: 288 sec.
Presupply times Q7: 320 sec
Presupply times Phaeton: 360 sec.

Please find enclosed also an overview of the current first start times. This also shows the start times for the B8 at 60 and 120 sec.

Best regards

Non-responsive content removed

EA11003EN-00099[1]

legally binding upon Non-responsive content removed

>_____
>From: Non-responsive content removed
>Sent: Friday, November 07, 2008, 11:52 AM
>To: Non-responsive content removed
>Cc:
>Subject: Re: Fuel pre-filling B8-manufacturing
>
>Hello Non-responsive content removed
>
>Mr. Non-responsive content removed and I have spoken with Non-responsive content removed about that yesterday and have given our okay.
>Do you actually also have current start times and pre-filling times from Non-responsive content removed
>What is the status of the subject Non-responsive content removed
>
>With best regards
>
>Non-responsive content removed
>
>
>Non-responsive content removed
>
>
>
>
>
>_____
>From: Non-responsive content removed
>Sent: Thursday, November 06, 2008, 8:46 AM
>To: Non-responsive content removed
>
>Cc:
>
>Subject: Fuel pre-filling B8-manufacturing
>
>
>Hi all,
>
>Presently, master datasets are available for the following projects, which enable
a fuel prefilling of 240 sec via the routine "First Filling of Fuel System".
>
>Project model approval date
>B8 3.0l CO2 176 kW ML 8K0 907 401 S -> N (with all-road) BMG WK44/08 -> SOP WK03/09
>Q5/conv. 3.0l 176kW ER 8R0 907 401 C -> E (with all-road) BMG WK45/08 -> SOP WK03/09
>Q5 3.0l CO2 155kW ER 8R0 907 401 D WK45/08
>Q5 3.0l CO2 EU3 ER 8R0 907 401 A WK45/08
>B8 2.7l CO2 140kW VL/ML 8K1 907 401 H/B -> E (with convertible) WK43/08 -> SOP WK03/09
>
>
>
>As for the non-listed B8-/Q5-projects, master datasets are created as fast as possible,
which adjusts the limit of this function again to 60 sec. The complete conversion

takes place at the latest by WK 22/09 with the availability of the master dataset of the [redacted] variant of the B8 that is very low in quantity (2.7l CO2 120 WK VL with 120 kW).

>

>The causes of the current persistent failures of the high-pressure pumps in the field have not been conclusively clarified and understood. However, preliminary damage of the high-pressure pump during the start-up due to a dry run and delayed rail pressure build-up, as a result of which the HPP is operated with a lower load for a longer period of time, is a probable and likely cause of the damage.

>Risk assessments based on current first start times of all manufacturing lines with installation of the V6 TDI with a sufficient fuel prefilling of 240 sec, do not produce any significant striking features in comparison with the B8 production.

>Hence, we can accept the current pre-filling times of > = 120 sec for the transition period until the fuel prefilling of 240 sec is completely guaranteed again on correction of the versions. The temporary measures (additional change of the ignition), which are introduced in the manufacturing in Neckarsulm, can be adjusted.

>We will closely monitor the first start times during this transition period so that we can react quickly in case of abnormalities. In order to exclude the risk of preliminary damage of the HPP during the first start-up, we are anxious to return to the required pre-filling times of 240 sec as quickly as possible.

>

>The fuel pre-filling times of 240 sec that have been implemented in the process of the C6, Q7, VW D1 and VW Touareg remain unchanged.

>

>In order to be able to monitor the start-up behavior, I kindly ask that you send me first start times at regular intervals (every two weeks).

>

>

>

>

>With best regards

>

Non-responsive content removed

>http://www.audi.com

>

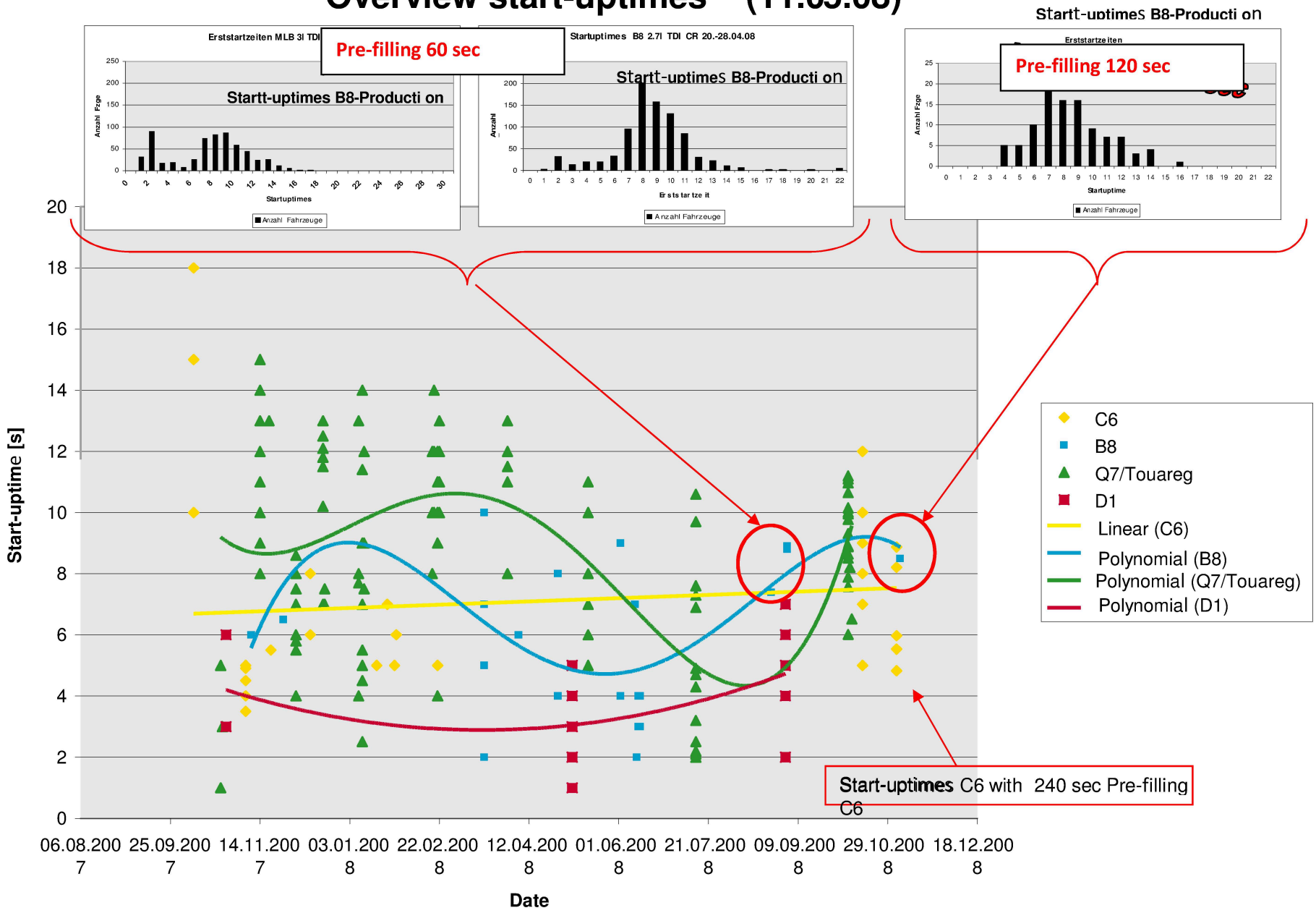
>

ENTIRE PAGE CONFIDENTIAL

EA11003EN-00099[3]

>Important notice: The above information is automatically added to every email.
This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding.
>Important Notice: The above information is automatically added to this e-mail. This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding upon Non-responsive content removed

Overview start-uptimes (11.05.08)



EA11003EN-00103[0]

From: Non-responsive content removed
To:
CC:
Date: 2/16/2009, 7:00:00 PM
Subject: Re: CP4 pre-filling / first start-up at the belt in Non-responsive content removed
Attachments: ZP7 .xls

Hi all,

who will provide me the data from
Non-responsive content removed
Non-responsive content removed
Please support Mr. with vehicle no., etc. and pumps (old cases).
Non-responsive content removed - can we leave that out as well!

Thank you.

>With best regards
>

Non-responsive content removed

Sitz/Domicile: Ingolstadt
Registergericht/Court of Registry: Local District Court Ingolstadt

EA11003EN-00103[1]

>
Non-responsive content removed

>Subject: CP4 pre-filling / first start-up at the belt in Non-responsive content removed
>Importance: High
>
>Hi all,
>
>
>here is the report; participant, see appendix...
>
>The assembly lines for both B8 (Audi A4, A5, etc.) and C6 (Audi A6) are assessed.>
>
>According to the issued manufacturing layout (see appendix), the following pre-filling times in Non-responsive content removed are observed and measured, respectively; unfortunately, it is not possible to store the actual start times due to missing measurement technology at the belt section contrary to [redacted] measured start times, see appendix.
>
> < Message: Non-responsive content removed pre-filling / first start-up >>
>
> < OLE object: Microsoft Excel worksheet >>
>
>

SECTION CONFIDENTIAL

>The following points are clarified:
>* how long does it take from the point in time "EFP_ON" until the fuel reaches CP4; measured at the actual closed fuel system V6-TDI = > Mr. Non-responsive content removed
>*Bosch requires 60 sec. of pre-filling from the point in time "Fuel at CP4_Inlet" (addendum: according to Non-responsive content removed new requirement) = > Mr. Non-responsive content removed
>* derived from that, the minimum required pre-filling time must be calculated for every type of vehicle (note: a certain reliability must be taken into account) = > Mr Non-responsive content removed Non-responsive content removed
>* starting around the end of WK03/09, the start times for R4-Common-Rail have been cut in half in Non-responsive content removed average value approx. 6-7 sec. (was approx. 12-14 sec) = > see next point!

EA11003EN-00103[2]

>*at CP4.1 for R4-Common-Rail, Bosch decided to reduce the opening pressure of the HP non-return valve in the 4th quarter of '08. Consequently, the vehicle electric fuel pump is able to securely open
intake and non-return valves independent of the actual tolerance position = > Mr. [redacted] clarifies when this has begun and pumps were delivered to Audi;
[redacted] please give the delivery time/engine no. of the engines for [redacted] (A3 and A4), [redacted] and [redacted]
>* it is tested if the mass balance for W36 allows a reduction of the opening pressure of the HP non-return valve (W37 definitely not) = > [redacted]
>* all participants do not regard the operations in as the cause for the actual drivetrain damage in [redacted] all possible influences have to be investigated to perform additional checks = > [redacted] requests the relevant data and parameters via a list of breakdowns that occurred at the corresponding sites (tank content, reworking, entries in vehicle test card, first start time, opening pressure of the intake valve and non-return valve, reworking and particularities RB-manufacturing).

SECTION CONFIDENTIAL

>* Development [redacted] creates an updated pre-filling and inlet specification for all engines at Audi from the R4-CR to V12-TDI engines, which is declared mandatory hereinafter as PDM sheet for the vehicle plants = > [redacted]
>* since 02.02.09, the V6-TDI engines are air-cleaned in [redacted] with 4 bar overpressure via inflow and simultaneously extracted on the return hose with -0.5 bar 15 sec.
(extract >> blow); starting February 5, 2009, the pressure control valve on the rail is closed = > Mr. [redacted] will find out how
the air is filtered; ask Mr. [redacted] to confirm the permissibility of this measure.

>

>PS: The next date to inspect the belt takes place in WK10 in [redacted] (Wednesday or early Friday).

>

>

>With best regards

>

[redacted]

EA11003EN-00105[0]

From: Non-responsive content removed
To:
CC:

Date: Friday, 03.13.2009 11:46:33 AM
Subject: Re: CP4 pre-filling / first start-up at the belt in Non-responsive content removed
Attachments: OP [redacted]RSV-pö.msg

Hello Mr. [redacted]

the launch date of the non-return valve with lowered opening pressure in the CP4.1 for the R4-engine (pump 03L 130 755 and….755 A, respectively) was 12.10.2008. No deliveries were made from the third week of December until the second week of January
(plant shutdown). Taking into account a transition phase with exhaustion of non-return valves with high opening pressure, there should a noticeable reduction of the start time at the earliest from mid-February until the end of February

Does that suffice for you or do you want the actual delivery slip number?

Best regards

Non-responsive content removed

From: Non-responsive content removed
Sent:
To:
Cc:
Subject: FW: CP4 pre-filling / first start-up at the belt in Neckarsulm

Hello Mr [redacted]

The information with respect to the first delivery slip number or other identification data on the pump required for changing the opening pressure of the HP non-return valve has not reached us so far.

Can you hand in this information later?!

Regards

Non-responsive content removed

Kép (metafájl)

From: Non-responsive content removed
Sent:
To:
Cc:
Subject: RE: CP4 pre-filling / first start-up at the belt in Neckarsulm

Hello Mr [redacted]

have you already been able to identify the deliveries to [redacted] that Mr [redacted] mentioned?

Regards

Non-responsive content removed

Non-responsive content removed

Subject: CP4 pre-filling / first start-up at the belt in [redacted]
Importance: High

Hi all,

EA11003EN-00105[2]

here is the report; participant, see appendix...

The assembly lines for both B8 (Audi A4, A5, etc.) and C6 (Audi A6) were assessed.

According to the issued **manufacturing layout (see appendix),** the following **pre-filling times** in [redacted] are observed and measured, respectively; unfortunately, it is not possible to store the actual **start times** due to missing measurement technology at the belt section contrary to [redacted] measured start times, see appendix.

<< Message: [redacted] pre-filling / first start-up >>

<< OLE Object: Microsoft Excel worksheet >>

The following points are clarified: SECTION CONFIDENTIAL

how long does it take from the point in time "EFP_ON" until the fuel reaches CP4; measured at the actual closed fuel system V6-TDI = > [redacted]
*Bosch requires 60 sec. of pre-filling from the point in time "Fuel at CP4_Inlet" (addendum : according to Mr. [redacted] new requirement) = > [redacted]
derived from that, the minimum required pre-filling time must be calculated for every type of vehicle (note: a certain_ reliability must be taken into account) = > [redacted]
starting around the end of WK03/09, the start times for R4-Common-Rail have been cut in half in [redacted]; average value approx. 6-7 sec. (was approx. 12-14 sec) = > see next point!
at CP4.1 for R4-Common-Rail, Bosch decided to reduce the opening pressure of the HP non-return valve in the 4th quarter of '08.
Consequently, the vehicle electric fuel pump can securely open the intake and non-return valves independent of the actual tolerance position = > [redacted] clarifies, when this has begun and pumps were delivered to [redacted] please given the delivery time/engine no. of the engines for [redacted] (A3 and A4), [redacted]
it is tested if the mass balance for W36 allows a reduction of the opening pressure of the HP non-return valve (W37 definitely not) = > [redacted]
all participants do not regard the operations in [redacted] as the cause for the actual drivetrain damage in Neckarsulm;
all possible influences have to be investigated to perform additional checks = > = > **Mr.** [redacted] requests the relevant data and parameters via a list of breakdowns that occurred at the corresponding sites (tank content, reworking, vehicle test card, first start time, opening pressure of the intake and non-return valve, reworking and particularities RB-manufacturing).
Development [redacted] creates an updated pre-filling and inlet specification for all engines at Audi from the R4-CR to V12-TDI engines, which is declared mandatory hereinafter as PDM sheet for the vehicle plants = > [redacted]
Mr. = [redacted]
since 02.02.09, the V6-TDI engines are air-cleaned in [redacted] with 4 bar overpressure via inflow and simultaneously evacuated at the return hose with -0.5 bar for 15 sec (exhaust >> blow); the pressure control valve on the rail is closed as of 05.02.09 = >
the pressure control valve on the rail is closed = > **Mr.** [redacted] announces how the air is filtered:
please ask Mr. [redacted]
please confirm the permissibility of this measure.

P.S.: The next date to inspect the belt takes place in WK10 in [redacted] (Wednesday or early Friday).

Yours sincerely,

[redacted]

EA11003EN-00105[3]

VOLKSWAGEN

CP4 Assessment

Series	4.1	date	8/25/2009
Bosch Type no.	0445010507	Name	[redacted]
VW Type no.	03L130755		
Serial no.:	0024	Vehicle / test rig	VW469 8-0137
Date of manufacture	280409	Running time:	200 km
Revision suffix	0007	Engine no.	
Manufacturing site	011	Operating mode	
Complaint: Analysis:	2. Water trial 2% water in the diesel and 4 weeks stand time		

Component	**Assessment**		**Remark**
	OK	**Not OK**	
housing			
Drive shaft	X		
Tappet / roller support	X		
Roller	X		
Tappet hole	X		
HD piston	X		
Spring washer / anti-friction coating	X		
Shaft seal / seal-tightness	X		
Corrosion	X		Corrosion in the area of the O-rings HP-head / housing
Bearing	X		
Connections LP/HP	X		
Hydraulic function			
Delivery rate			
Injection pressure			
Drive power			
Seal-tightness under load			
Pressure valve / intake valve	X		
Overflow valve	X		
Dirt / chips			
Electrical function			
Plug contacts			
MU (metering unit)			

VOLKSWAGEN

CP4 Assessment

Series	4.1	Date	8/25/2009
Bosch Type no.	0445010507	Name	[redacted]
VW Type no.	03L130755		
Serial no.:	0028	Vehicle / test rig	VW469 8-0141
Date of manufacture	280409	Running time:	200 km
Revision suffix	0007	Engine no.	
Manufacturing site	011	Operating mode	
Complaint: Analysis:	2. Water trial 2% water in the diesel and 4 weeks stand time		

Component	**Assessment**		**Remark**
	OK	**Not OK**	
housing			
Drive shaft		X	Corrosion on the cam track
Tappet / roller support	X		
Roller		X	Corrosion on the roller
Tappet hole	X		
HD piston	X		
Spring washer / anti-friction coating	X		
Shaft seal / seal-tightness	X		
Corrosion	X		Corrosion in the area of the O-rings HP-head / housing
Bearing	X		
Connections LP/HP	X		
Hydraulic function			
Delivery rate			
Injection pressure			
Drive power			
Seal-tightness under load			
Pressure valve / intake valve	X		
Overflow valve	X		
Dirt / chips			
Electrical function			
Plug contacts			
MU (Metering Unit)			

EA11003EN-00125[0]

From: Non-responsive content removed
To:
CC:
Date: 04.13.2010, 9:36:00 AM
Subject: Subject: Specification Arctic diesel
Attachments: [redacted]pdf
06_X000556_1_0.PDF

e.g.:

Regarding the so-called **Q-ALT-Test** with Arctic diesel @ 600 rpm / 2300 bar / 90°C inflow (different running times; e.g. 150 h or End of Life) This test should also become a series-accompanying test with lower running time (e.g. 50 hrs) to detect manufacturing faults, which Bosch calls the **QZ test** .
Hence, the **RP1-endurance runs** (with a fuel change interval less than 200 hrs!) are repeated and intermediate findings are determined after 50 hrs, 100 hrs, 150 hrs, etc.

Best regards

[redacted]

SECTION CONFIDENTIAL

From: Non-responsive content removed
Sent: Tuesday, April 13, 2010, 10:16 AM
To:
Cc: Non-responsive content removed
Subject: Subject: Specification Arctic diesel

For information
Please find enclose the specifications of the arctic diesel from the Q-HALT-test.

Kind regards,

Best regards

Non-responsive content removed

AUDI AG
[redacted]
74148 Neckarsulm
Non-responsive content removed

From: Non-responsive content removed
Sent: Tuesday, April 13, 2010, 9:58 AM
To: Non-responsive content removed
Subject: Subject: Specification Arctic diesel

Hello Mr [redacted]

I have found another open instance here.

Enclosed is our arctic diesel specification.

Best regards

[redacted]

Robert Bosch GmbH
Non-responsive content removed
70442 Stuttgart
GERMANY
www.bosch.com

Non-responsive content r
emoved

EA11003EN-00155[0]

Audi
Vorsprung durch Technik

V6TDI Gen1 - status HPFP failures in the Touareg Bin5 MY11

V6 TDI Gen1 - TouNF Bin5 MY11 HPFP failures

CW 39/10

Analysis of difference between fuel presupply of master 04 and master 03

- Fuel temperature in the inlet of HPFP in GQ-AL:
  - Average about 50 °C at 35 °C outside temperature
  - Maximum temperature peaks up to about 90 °C in the post heating
- Flush volume in the fuel return flow with two master stands meets the TCD specification
  - Bosch TCD at 50 °C = 66 l/h
  - measured with master 03: approx. 75 l/h
  - measured with master 04: approx. 105 l/h,
- Presupply volume of the EFP (electric fuel pump) tank at engine start:
  - Master 03: Maximum delivery
  - Master 04: demand-controlled supply
  - Short breaks in the EFP desired value specification were partly found in both masters at the start. Impact on the delivery rate at master 04 is stronger.
- A link to the HPFP failure is being clarified. The first statement E CW 39

V6 TDI Gen1 - TouNF Bin5 MY11 HPFP failures

CW 39/10

Analysis of fuel presupply

MY09/10: Maximum delivery via inline EFP at engine speed > 20 rpm

MY11: Regulated tank pump with 6 bar tank system

To avoid maximum delivery in the partial load (CO_2 reduction)

The volume-flow requirement consists of:

Engine requirement
+ Cooling and lubrication requirements depending on the fuel temperature
+ Tolerance clearance to ensure the volume-flow requirement over the running time

Problem Master 03: Tolerance clearance was inputted with 1 l/h

Measure: In master 04, the entry was accepted from Tou EU5
The tolerance clearance is 30 l/h

Inputting differences Q7 and Tou:

	Q7	**Tou**	
		Master 03:	**Master 04 = EU5**
Engine start	Maximum delivery	Maximum delivery	demand-controlled
Fuel temperature			
30°C to 70°C	TCD Bosch + 30l/h tolerance clearance	TCD without tolerance clearance	TCD + 30 l/h tolerance clearance
> 70°C	Maximum delivery	Maximum delivery	TCD + 30l/h tolerance clearance

V6 TDI 1st generation - TouNF Bin5 MY11 HPFP failures

CW 39/10

Backup

V6 TDI 1st generation - TouNF Bin5 MY11 HPFP failures

CW 39/10

Overview of tank system

Low-pressure fuel system for BOSCH CRS (common rail system) 3.2

Target LP system in all Group vehicles with this CRS

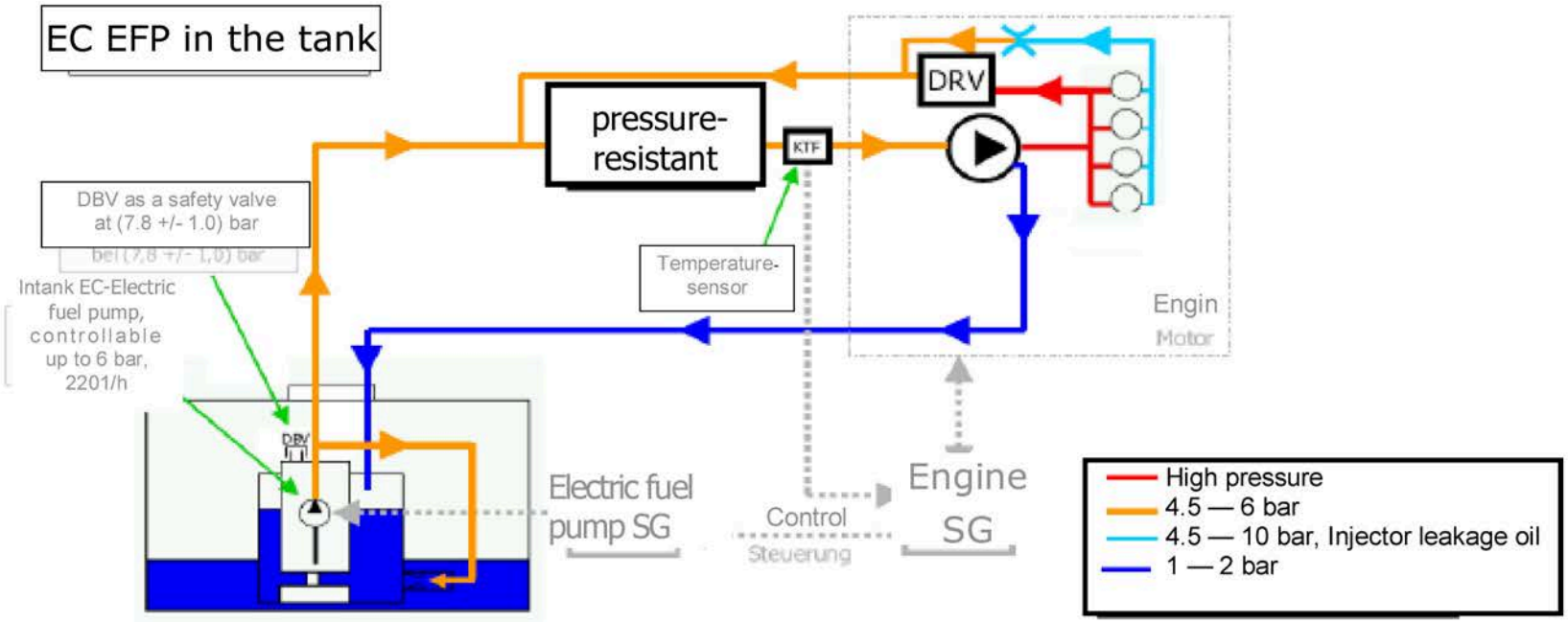
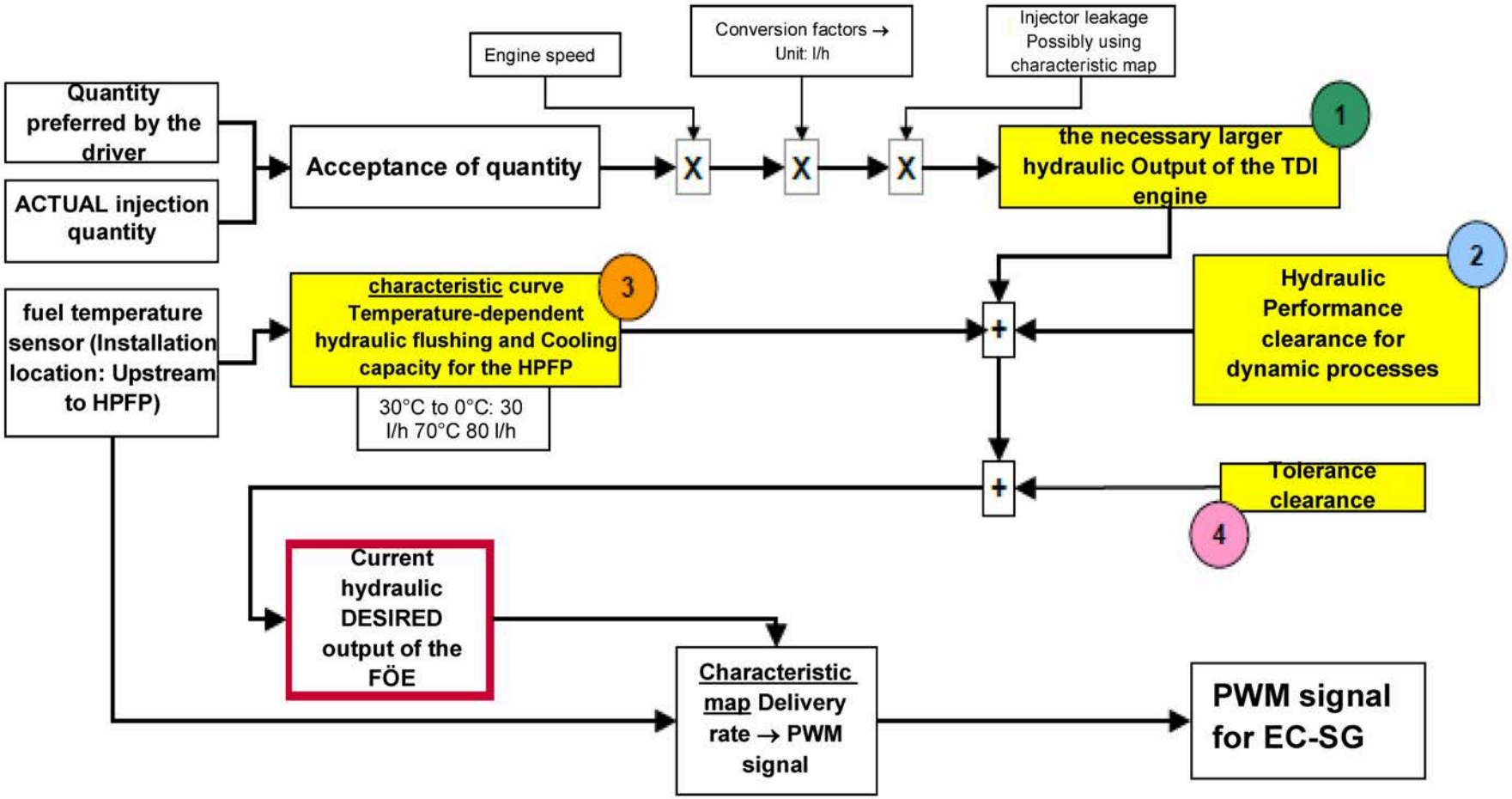


Fig 6: Schematic representation of a LP system with controlled in-tank EC EFP with 6bar-PCV (Pressure Control Valve)

V6 TDI Gen1 - TouNF Bin5 MY11 HPFP failures

CW 39/10

Calculation of desired volume flow for tank feed pump



V6 TDI Gen1 - TouNF Bin5 MY11 HPFP failures

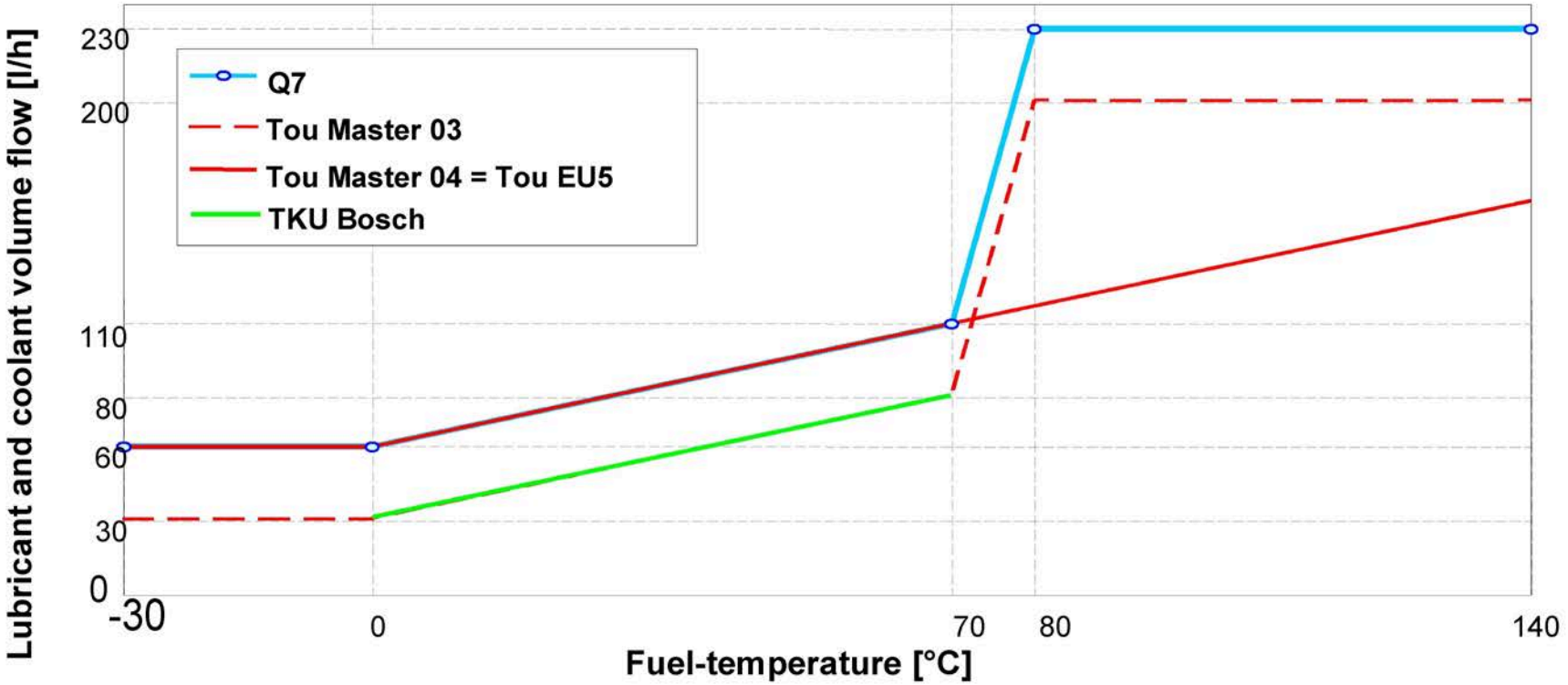
CW 39/10

Calculation of desired volume-flow for tank feed pump

1 Engine fuel demand — 0 – approx.60 l/h

2 Clearance for dynamic change in quantity — 0 – 50 l/h

2 + 4 Cooling and lubrication requirements depending on the fuel temperature:



V6 TDI Gen1 - TouNF Bin5 MY11 HPFP failures

CW 39/10

HPFP failures in the AL TouNF with V6TDI Bin5 MY11

Problem: 3x HPP failures in the GQ-AL Tou with V6TDI Bin5 MY11
Fault memory entry: "Rail pressure too low" and engine check lamp

Analysis:

VW526_BD174

LL 45,066 km (10,000 km with master 04 in FL) Failure on 9.15.2010
Breakdown, HPFP seized, chips in pump and tank
HPFP with RP-1 059 130 755 BC
Analysis of HPFP at BOSCH with [redacted] on 09.27.2010
Changing the fuel filter after 20,332 miles (09.01.10)

VW526_BD105

Mileage about 90,000 km (10,000 km with master 04 in FL) Failure on 09.25.10
Breakdown, HPFP seizure.
HPFP without RP-1 059 130 755 AL
Analysis of HPFP at [redacted] in Wolfsburg on 09.27.2010
Changing the fuel filter after 39,691 miles (08.17.10)

VW526_BD108

LL 71,740km (10,000 km with master 04 in FL) Failure on 09.14.2010
Sporadic fault memory entry, MIL on, vehicle ready for driving
HPFP without RP-1 059 130 755 AL
Analysis of HPFP at BOSCH with [redacted] on 09.27.2010
Changing the fuel filter after 20,525 miles (06.30.10) and 40,508 miles (09.07.10)

EA11003EN-00174[0]

From: Non-responsive content removed
To:
CC:
Date: 3/10/2011, 6:46:00 PM
Subject: Re: Visit of 15. - 12.17.2010 in the vehicle plant VW Non-responsive content removed
Attachments: 1010004d_Wo_CP4-TF-Messungen_CP4-Einlaufb_Fzgwerk [redacted].pdf
Foto-Typenschild-Filter.pdf
Messdaten-[redacted].pdf
Protokoll [redacted]_Besuch_14-18-12-2010_V2.pdf

Hello Non-responsive content removed

review dates of our task force CP4 are set for 16.03 and 03.23.2011.

Please comment on my summary for you (2-3 essential points; see below).

Thank you.

Best regards

Non-responsive content removed
Diesel Injection Systems

AUDI AG
Non-responsive content removed
85045 Ingolstadt
Non-responsive content removed

From: Non-responsive content removed
Sent: Thursday, February 17, 2011, 3:25 PM
Non-responsive content removed

EA11003EN-00174[1]

Hello [redacted]

please find enclosed the final edited report (see appendix 4) on the visit of Audi and Bosch employees of the CP4 task force in the VW plant of [redacted] in December.

The main demand of the task force is to switch over the local SKD fuel to CKD fuel from Shell Germany!

Reason: It is clearly proven in the documents of their laboratory that the specified fuel quality often cannot be guaranteed by local suppliers.

Furthermore, important parameters such as lubricity and viscosity "simply" cannot be tested onsite; this is guaranteed for CKD fuel (if it is not changed).

Furthermore, the Shell CKD fuel according to TL788X has the advantage that it is definitely suitable for winter use.

SECTION CONFIDENTIAL

In our opinion, there is also potential for optimization for the EFP that is controlled at 100% for 240 sec and for the replacement filter of the pump station in the SKD-hall.

To this end, I have recently asked [redacted] for clarification on the filter mesh size and provision of the finest spin-on filter elements of the company FAUDI (with contact information).

We have extensively discussed the EFP activation, which is interrupted multiple times (see table), with their "pilot hall electricians" onsite.

We kindly ask that you give us a summary report on the individual items concerning VW [redacted]

Please inform us promptly prior to relaunching the semi-knocked down (SKD) production for Audi vehicles (in 2011).

We would like to thank you on behalf of the task force CP4 for being treated in an open and friendly manner in your plant.

THANK YOU to all employees involved!!!

Best regards

[redacted]

EA11003EN-00177[0]

ENTIRE PAGE CONFIDENTIAL

EFP pre-filling time and first start-up time measurements on SKD vehicle in [redacted]

No.	Vehicle	Vehicle identification no:	Engine	Pump	EFP pre-filling time (s)	EFP current for inline EFP (A)	Visible foam in EFP filling (s)	Start time (s)	Foam during first start-up	EFP-current at first start-up (A)	Mileage (km)	Remark
1.	Touareg	XWBZZZ7PZBG[redacted]	V6	RP2	120	-	90	1	80	-	-	No external energization in general Air inclusions occur due to loose hose clamp
2.	Touareg	XWBZZZ7PZBG[redacted]	V6	RP1	60	7	60	-		-	-	First EFP filling cycle
2.1					53	7.5	53	-		-	-	Second EFP filling cycle
2.2					192	10.47	-	1	-			Third EFP filling cycle
3.	Touareg	XWBZZZ7PZWG[redacted]	V6	RP2	120	10	-	1	-	4.5	10	
4.	Touareg	XWBZZZ7PZBG[redacted]	V8 (Gen2)		60	7.5	-	-			34	First EFP filling cycle
4.1					45	7.5	-	-				Second EFP filling cycle
4.2					60	7.5	-	1				Third EFP filling cycle
5.	Touareg	XWBZZZ7PZBG[redacted]	V6 (Gen1)	RP1	120	10.5	-	2		4.2	10	Without transparent hose
6.	Touareg	XWBZZZ7PZBG[redacted]	V6 (Gen1)	RP1	240	10.1	-	1		4		Instrumentation & measurement [redacted] measurement technology of continuous voltage supply, trunk of second vehicle; 331 fuel tank capacity;
7.	Touareg	XWBZZZ7PZWG[redacted]	V6 (Gen1)	RP2	240	10.5	80					First EFP filling cycle
					240	10.5	-	1	10			second EFP filling cycle and start