in the VW526 as

This week.

vehicle shall be

Non-responsive content removed From: To: CC: 9/21/2010, 3:22:32 PM Date: Subject: Subject: Teleconference on the topic "HPP failure V6 TDI in USA" Attachments: For your information Non-responsive content r emoved AUDI AG 74148 Neckarsulm Non-responsive content remove From: Non-responsive content removed Sent: Tuesday September 21 2010 4:05 PM Non-responsive content removed Subject: Subject: Teleconference on the topic "HPP failure V6 TDI in USA" Importance: High FYI From: Non-responsive content removed Sent: Tuesday, September 21, 2010, 3:33 PM Non-responsive content removed Subject: Re: Teleconference on the topic "HPP failure V6 TDI in USA" Importance: High Hello everyone, As a result of the teleconference, VW views the attempt in and USA with Gen1 and without AWP2

extremely critical and calls for an additional broad verification and speedy implementation with Gen1.

intends to bring along the samples E. The complete LP area (incl. tank) in the

The analysis of the affected vehicle is open. Both the tank (fuel quality) and the chips are open.

accordingly has stopped further delivery ex BA with the attached email.

EA11003EN-00088[1] affected.

VW requires a summary of the information for the failures to date and for the AWP2 implementation. Furthermore, a changeover scenario of built vehicles is being tested. If possible, the USA endurance run should be converted to AWP2. Under inspection by

The fact that a Q7 with 1st generation in USA is without AWP2 in series, did not change anything in the decision making.

With best regards

Best regards

Non-responsive content removed

AUDI AG Non-responsive content removed

74148 Neckarsulm

Non-responsive content removed

Sitz/Domicile: Ingolstadt

Registergericht/Court of Registry: Local District Court Ingolstadt

HRB Nr./Commercial Register No.: 1

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From: Non-responsive content removed

Sent: Tuesday, September 21, 2010, 9:53 AM

Non-responsive content removed

Subject: Teleconference on the topic "HPP failure V6 TDI in USA"

time: Tuesday, September 21, 2010 2:30-3:30 PM (GMT+01:00) Amsterdam, Berlin, Bern, Rome,

Stockholm, Vienna. Location: Telcon dial-in EA11003EN-00088[2] Hello,

A HPP failure (059 130 755 BC) has occurred within the framework of MAF-USA.

The next steps for this complaint should be clarified in this teleconference.

The complaint shall become part of the focus list.

< File: SWP VW526\_\_BD174-0S Liegenbleiber.pdf >>

Request for participation or delegation of a significant representative.

Dial-in data:

internal: 640111 or external: +49 53619 640111

PIN: 234574#

Dial the internal access number: 640111 or external: +49 53619 640111 and follow the instructions. Enter the access PIN 234574 after the prompt and confirm the entry with # key. If your conference call is unexpectedly disconnected, you can repeat the dial-in and join in the conference with the PIN entry 234574#.

Best regards

Non-responsive content removed

Volkswagen Aktiengesellschaft

torr reaponsive denterit removed

D-38436 Wolfsburg

Non-responsive content removed

www.volkswagen.de

Volkswagen Aktiengesellschaft

Domicile: Wolfsburg

Court of Registry: Local District Court Braunschweig

Commercial Register no.: 100484

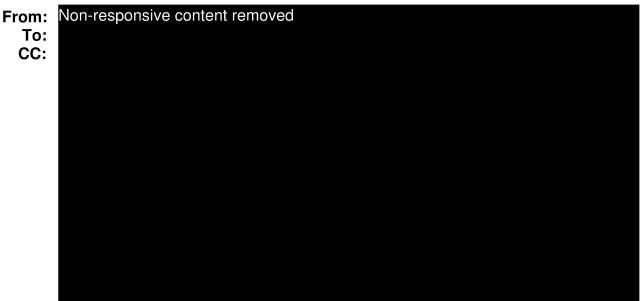
Chairman of the Supervisory Board: Ferdinand Piëch

Executive Board: Martin Winterkorn (Chairman), Francisco J. Garcia Sanz, Jochem Heizmann,

Horst Neumann, Hans Dieter Pötsch

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### EA11003EN-00089[0]



**Date:** 9/21/2010, 2:21:13 PM

Subject: Breakdown verification run V6TDI Gen II BIN5

Hello

In the past few days, we had to diagnose two breakdowns V6 TDI Touareg BIN 5 with seized high-pressure fuel pumps.

Based on the results of the recent telephone conference and the resulting consequences, I request immediate suspension of delivery of the Touareg successor vehicles USA BIN5 3.0ltr V6TDI.

The situation shall improve only with a new anti-wear package 2 in WK 45/10.

Unfortunately, this package has not yet been sufficiently secured in vehicles in USA, don-responsive content remove in (affected markets).

In this regard, we shall have a plan ready by Friday.

Best regards

Non-responsive content remove

### EA11003EN-00098[0]

From: Non-responsive content removed

To: CC:

Date: 9/12/2008, 1:51:28 PM

**Subject:** Re: CP4.1 vs. CP4.2, striking features in the fuel

Hello Mr

I'm skeptic about your statements on 1).

Is it really like that?

Is it for instance the first-filled fuel delivered from Heide for the plant in the believing

As for the subject of counting points, I was thinking more of a European framework Non-responsive content removed

The first filling specification also applies particularly well for Non-responsive content removed

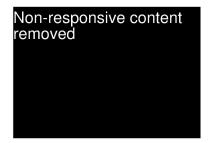
Our experiences according to the work with

I doubt very much if the above mentioned first filling specifications are met 100 % in the individual plants in rather remote locations.

As a result of the problems of from Heide.

Furthermore, the question about the quality control of the fuels used has not been answered. We buy all fuels according to specification from independently tested suppliers with a certificate of conformity. There has been no routine monitoring of the receipt of purchase parts ( = operating supplies) since 1990 anywhere. Specific tests are only conducted if necessary.

Best regards



Sitz/Domicile: Ingolstadt

Registergericht/Court of Registry: Local District Court Ingolstadt

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From: Non-responsive content removed

Sent: Friday, September 12, 2008, 11:56 AM

To: Non-responsive content removed

**Subject:** Re: CP4.1 vs. CP4.2, striking features in the fuel

### EA11003EN-00098[1]

Dear Sir,

1.) the initial fuelling of the vehicle

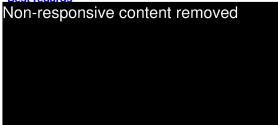
in the entire VW-group uses the same fuel quality, from the same manufacturer, delivered from the same refinery Initial fuelling DK TL 788 X Non-responsive content removed

The quality specifications according to TL 788 X:

All-season suitable for winter use, no biogenic additives permitted, HFRR < 400  $\mu m$ 

2.) Different for the engine inlet in the factories building engines, these factories use <u>a local</u>, commercially available diesel fuel according to TL 788 C, however, with the quality specifications according to TL 788 C: HFRR < 400  $\mu$ m If there are different manufacturing sites, one can imagine that there are different diesel fuels in the context of EN 590 e.g. with or without FAME.

Best regards



From: Non-responsive content removed

Sent: Thursday, September 04, 2008, 3:57 PM

**To:** Non-responsive content removed

Cc:

**Subject:** Re: CP4.1 vs. CP4.2, striking features in the fuel

Hi all,

4- and 6-cylinder engines run on different lines and are filled at these lines.

The respective vehicle types run over the same line in the vehicle plants, regardless if it involves 4- or 6-cylinder vehicles.

Non-responsive content remov ed could you please answer the question about the quality control.

Best regards



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# EA11003EN-00098[2]

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From: Non-responsive content removed

Sent: Thursday, September 04, 2008, 1:58 PM

To: Non-responsive content removed

**Subject:** CP4.1 vs. CP4.2, striking features in the fuel

Hello Mr Non-responsive content removed

the 4-cylinder engines/vehicles run on the same line as the 6-cylinder ones. Engines/vehicles are manufactured and filled with fuel, respectively, or are all of these connected to a collector tank?

Are the fuels, which the engines/vehicles are filled with, subjected to a quality control by you?

Do you know of any striking features?

Thank you.

Best regards

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Domicile: Stuttgart

Court of Registry: Local District Court Stuttgart Commercial Register no. 14000

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

### EA11003EN-00117[0]

From: To: Non-responsive content removed

CC:

**Date:** 12/2/2008, 12:47:00 PM

**Subject:** Wrong fueling of petrol in diesel

Attachments: EHC 511 CP4 FG Audi Benzin im Diesel 25-11-2008.ppt

Hello , hello Non-responsive content removed

I think that we should not be as restrictive in case of a wrong fueling of the customer, and we should always immediately change the pump and, if applicable, the entire system when I use the positive result of the 50th: 50 trial over a 50-hour period of full load ( = 5,000 km at 100 km/h). I think that testing the metering unit (screen) is a good indicator. or?

# >With best regards

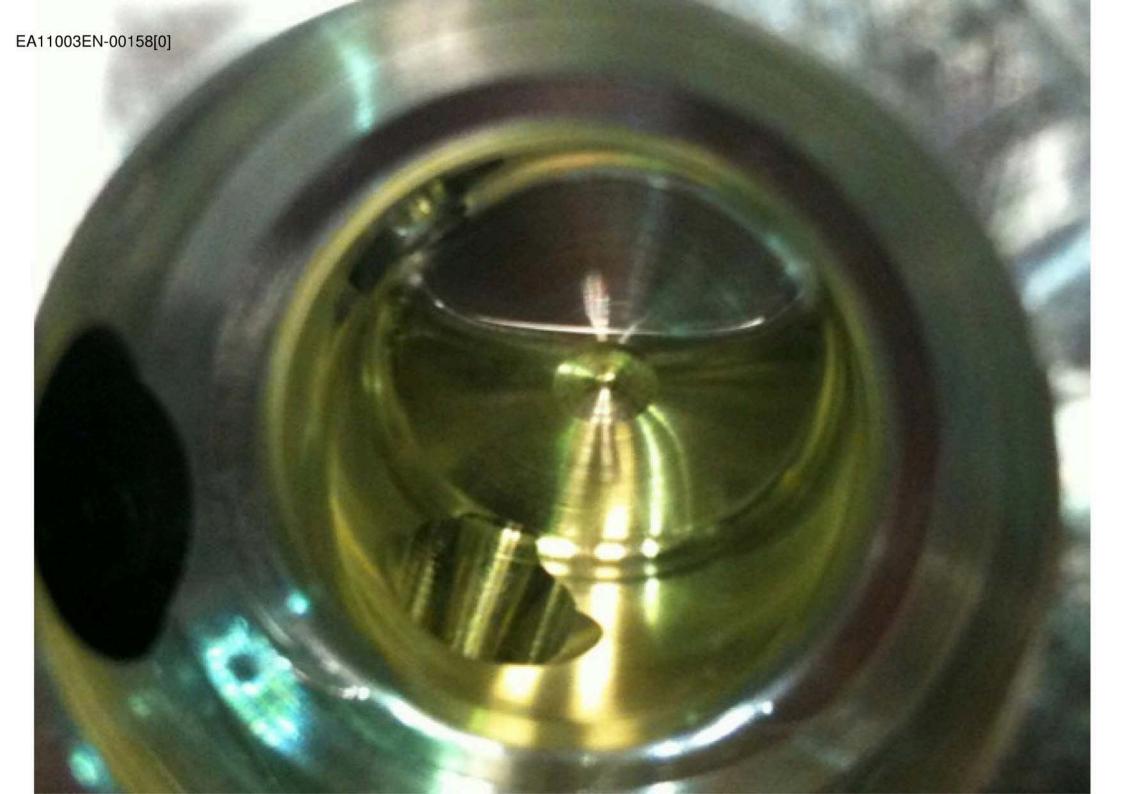
>

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AUDI AG

85045 Ingolstadt

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# EA11003EN-00163[0]

Non-responsive content removed

cc:

Date: 10/27/2010, 3:30:21 PM Subject: Top Meeting Documents

Attachments: 1436 V03 EHP4 RB - Audi Top Gespräch 28-10-2010, 27-10-2010, ppt

Hello,

Attached is the agreed set of slides.

Best regards

Non-responsive content remo

Robert Bosch GmbH

Non-responsive content removed

70442 Stuttgart GERMANY www.bosch.com

## Non-responsive content removed

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From: Non-responsive content removed

Sent: Wednesday, October 27, 2010, 2:11 PM

To: Non-responsive content removed

Subject: Top Meeting documents for consultation

< File: 1436\_V02\_EHP4\_ Top Gespräch.pdf >>

Best regards

Robert Bosch GmbH
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From: Non-responsive content removed

To:

CC:

Date: 3/22/2011, 6:16:55 PM Subject: Alternative root-cause sheet

Attachments: Qualität Bosch.ppt

Hi all.

for review tomorrow, we now have an alternative root-cause sheet in "raw form".

I'll finalize the design by tomorrow.

# Best regards

Sitz/Domicile: Ingolstadt

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HRB Nr./Commercial Register No.: 1

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# EA11003EN-00167[0]

From: Non-responsive content removed

To:

CC:

Date: 6/16/2011, 4:44:58 PM
Subject: Filteranalytik\_USA.xlsx
Attachments: Filteranalytik\_USA.xlsx

Hello,

Recently, the fuel filter from the US were analyzed by SGS using ICP. For the analysis results, please refer to the appendix.

The idea behind the analysis carried out so far was to demonstrate typical problems (e.g. wrong fueling with petrol).

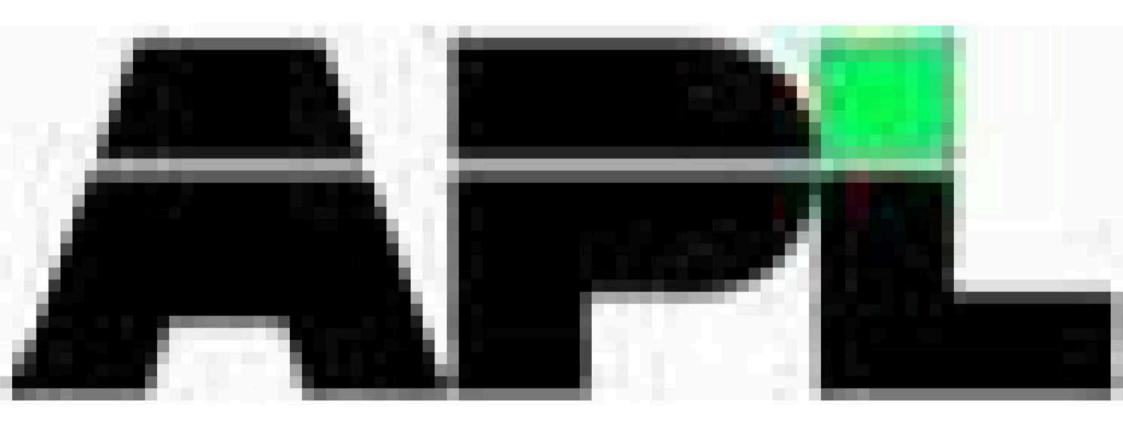
Should we proceed further with this analysis according to your view, or is it not productive? What alternative methods can you suggest that we could use for further testing?

#### Best regards

Non-responsive content rem oved

Cutomobil-Prüftechnik GmbH
Wolfsburg/Ehmen Office
Kohlland 8
38442 Wolfsburg/Ehmen
Internet: << hr s http://www.apl-landau.de/

Non-responsive content remov



## EA11003EN-00172[0]

From:

Non-responsive content removed

To:

CC:

Date: 10/7/2010, 2:42:28 PM

Subject: Subject: Update initial filling and EFT for V6 TD1 EU5 engines with CP4.2

Attachments: 8810075d Wo Audi V6 TDI EU5 CO2 - Erstinbetriebnahme CP4-2 und Kalttest im

Motorenwerk pdf

Hello

The initial commissioning indications still apply here for W19 EU5 gen. 1 with 2 bar LPF.

Best regards

Robert Bosch GmbH Diesel Systems, Common Rail Passenger Cars Non-responsive content removed

Postfach 30 02 20 70442 Stuttgart **GERMANY** 

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Non-responsive content removed

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Bernd Bohr, Rudolf Colm, Volkmar Denner, Wolfgang Malchow, Peter Marks, Peter Tyroller; Stefan Asenkerschbaumer, Uwe Raschke, Wolf-Henning Scheider

From: Non-responsive content removed

Sent: Tuesday, January 29, 2008, 5:24 PM

Non-responsive content removed

Hello,

with this mail you will receive an update on the start-up instructions for EU5 engines with CP4.2 and EFP system for initial filling and EFT in the engine plant in Györ.

I request you to distribute the set of slides, while ensuring that existing sets of slides (7830213d Wo from 03.08.2007 and 7870730d Wo from 07.19.2007) are EA11003EN-00172[1] no longer used.

The change compared to the previous set of slides is the supplementation of the start-up by a maximum allowable negative CP4 engine speed gradient (reduction in engine speed).

This will not fall below the minimum limit according to the measurement plot recorded during the launch of the V6 engine;

therefore, no action is required and it deals only with updating the commissioning documents to the current state of component development.

## Best regards

Non-responsive content removed

Robert Bosch GmbH Diesel systems Common Rail Passenger Cars

Non-responsive content removed

PO box 30 02 20 70442 Stuttgart GERMANY

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# Non-responsive content removed

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Peter Marks, Volkmar Denner, Peter Tyroller

#### EA11003EN-00181[0]

From: Non-responsive content removed

CC:

Date: 01.29.2008 05:24:23 PM

Subject: Update initial filling and EFT for V6 TD1 EU5 engines with CP4.2

Attachments: 8810075d Wo Audi V6 TDI EU5 CO2 - Erstinbetriebnahme CP4-2 und Kalttest im

Non-responsive content removed pdf

Hello.

with this mail you will receive an update on the start-up instructions for EU5 engines with CP4.2 and EFP system for initial filling and EFT in the Non-responsive content rem

<<8810075d Wo Audi V6 TDI EU5 CO2 - Erstinbetriebnahme CP4-2 und Kalttest im

lon-responsive content removed . pdf>>

I request you to distribute the set of slides, while ensuring that existing sets of slides (7830213d\_Wo from 03.08.2007 and 7870730d Wo from 07.19.2007) are not used anymore.

The change compared to the previous set of slides is the supplementation of the start-up by a maximum allowable negative CP4 engine speed gradient (reduction in engine speed).

This will not fall below the minimum limit according to the measurement plot recorded during the launch of the V6 engine; no action is required and it deals only with updating the start-up documents to the current state of component development.

Best regards

Non-responsive content r

Robert Bosch GmbH Diesel systems

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

EA11003EN-00199[0]

From: Non-responsive content removed To:

CC:

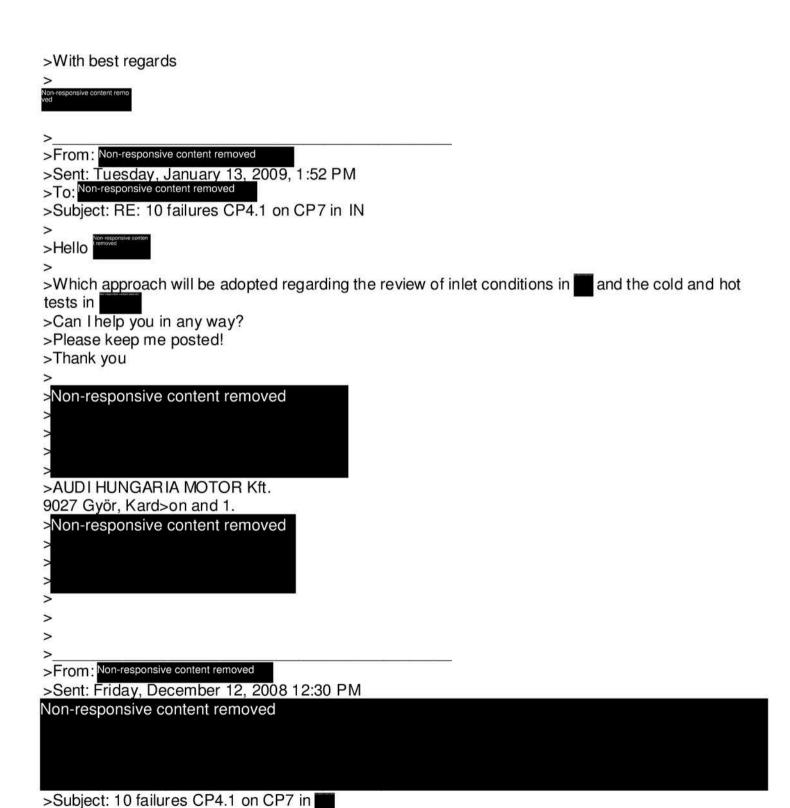
Date: 1/14/2009, 5:41:00 PM

Subject: Re: 10 failures CP4.1 on CP7 in

Attachments: FW Vorbefüllzeiten 2.0l TDI, Problemsuche wg. erhöhten Anzahl Ausfälle HDP

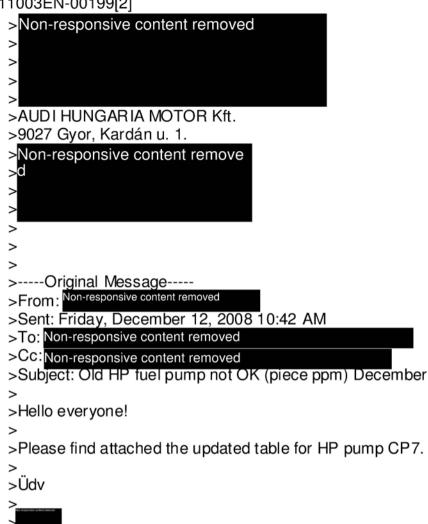
10.08-12.08 in Non-responsive content rem .msg

Tomorrow, there will be a meeting with the colleagues from Treimetten and Hamm.



```
>Hello Non-responsive content
>Since 14 October, we have 10 failures in high-pressure diesel pumps CP4.1 (2.0 I R4-CR) on CP7
(All 10 x - see table)!
>There are currently no other failures on CP7 worldwide.
>We will clarify no later than Monday as to which relate to CP4 drivetrain damage and which do not, i.e.
which of them may have a "start-up problem".
> << File: HD-Pumpe niO (Stk ppm)december.xls >>
>As priority 1, I see the review of the inlet conditions in then we repeat the analysis in
                                                                                                on cold
and hot test.
>Could you please check for the last 10 cases in the list, whether there were any errors or rework, except
the repair on the CP4?
>Was the inlet regulation (verifiable) met?
>
Can you and through your partners from the Planning help me to determine the first
starting times?
on responsive content remove, please send the current "inlet regulation" for the vehicle line to those in the distribution list
once again, is the "1 minute pre-filling time" still valid at your place? (Wherein, other plants do not have
any problem with it).
>Our specification for V6 TDI is "filling time of 4 minutes!"
> == > The goal is to also increase R4-CR without incurring any costs, if no inlet faults are detected.
>With best regards
>Non-responsive content rem
>oved
>AUDI AG
>85045 Ingolstadt
>Non-responsive content rem
>oved
----Original message----
From: Non-responsive content removed
>Sent: Friday, December 12, 2008, 10:56 AM
>Non-responsive content removed
>Subject: New HPP failure
> Dear Sir,
>Yesterday, another HPP failed in
>CAH 021414
>QTS: IN: 3233204, AHM: 3233344
>Kind regards,
```

# EA11003EN-00199[2]



| E           | A11003EN-00200101<br>To: Non-responsive content removed  |
|-------------|--|
|             | CC: Date: 01.14.2009 17:37:00 Subject: Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in Attachments: HD-Pumpe niO  |
|             | Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed Location: Office Non-responsive content removed   |
|             | *~*~***********  Lollo Non-responsive content removed  |
|             | nello and a servicio de la companya   |
|             | Can someone participate in the meeting on 01.15.09, 13:30 hours? In recent times, we have had only in IN, and that too only with R4, TDI failures with drivetrain damage on high-pressure fuel pumps (7-8 cases in about 2-3 weeks). We need to know, whether the pre-filling was OK and whether we could possibly increase the pre-filling time from 1 minute with R4 TDI without cycle time losses (similar for V6 TDI).   |
|             | Thank you.   |
|             | >With best regards   |
| W 2500 W 25 | Non-responsive content removed   |
| i           | AUDI AG  |
| - 0         | 85045 Ingolstadt   |
| 10000000    | Non-responsive content tremoved  |
| 31          | >From:   |
|             | >Sent: Thursday, December 18, 2008 3:23 PM >To: Non-responsive content removed   |
|             | See and the second of the seco |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in  >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed  >Location: Non-responsive content removed  >   |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in<br>>Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed<br>>Location: Non-responsive content removed  |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in  >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed  >Location: Non-responsive content removed  > Hi all,   |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed > Hi all, > Due to the problems of failed HFPFTDI since October, particularly in we should jointly try to analyze the causes. > I think, we can answer open questions during this meeting.   |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed > Hi all, > Due to the problems of failed HFPFTDI since October, particularly in we should jointly try to analyze the causes.  |
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|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed >Hi all, >Due to the problems of failed HFPF TDI since October, particularly in think, we can answer open questions during this meeting. >With best regards >Non-responsive content removed >AUDI AG >85045 Ingolstadt   |
|             | >Subject: Pre-filling times 2.0l TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed >Hi all, >Due to the problems of failed HFPFTDI since October, particularly in Due to the problems of failed HFPFTDI since October, particularly in We should jointly try to analyze the causes. > I think, we can answer open questions during this meeting. > With best regards > Non-responsive content remo > Ved > AUDI AG  |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed >Hi all, >Due to the problems of failed HFPFTDI since October, particularly in   |
|             | > Subject: Pre-filling times 2.0l T DI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in > Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed > Location: Non-responsive content removed > Hi all, > Due to the problems of failed HFPF T DI since October, particularly in the should jointly try to analyze the causes.  I think, we can answer open questions during this meeting. > With best regards > Non-responsive content removed > AUDI AG > 85045 Ingolstadt Non-responsive content removed > http://www.audi.com  |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed >H all, >Due to the problems of failed HFPFTDI since October, particularly in think, we can answer open questions during this meeting. >With best regards >With best regards >Non-responsive content removed >AUDI AG  |
|             | >Subject: Pre-filling times 2.0I TDI, Troubleshooting due to increased number of HFPF failures 08.10-08.12 in >Time: Tuesday, January 15, 2009 13:30-14:30 (GMT+01:00) Non-responsive content removed >Location: Non-responsive content removed >H all, >Due to the problems of failed HFPF TDI since October, particularly in   |

### EA11003EN-00204[0]

From:

Non-responsive content removed

To:

CC:

1/30/2009, 12:51:22 PM Date:

Subject: R4 2.0 TD1 in the A4 engine does not start SF breakdown Subject:

Attachments: Neueste Ausfall-Liste Stand 27.01.2009.msg

Non-responsive content removed

Hello Wed

This is a process issue. Request for a review of the ventilation steps in the Neckarsulm segments B/C and feedback to the distributor.

Thank you.

Best regards

Non-responsive content removed

Audi AG

Non-responsive content remove

D-74148 Neckarsulm

Non-responsive content removed

http://:www.audi.com

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

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>In this regard, read the proposal of

test up to first start-up in and moved

>We will retest the process chain in cooperation with Bosch from the cold test of

through the hot

(the basis should be the tests from spring of last year).

>

### EA11003EN-00204[3]

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> << File: 4887001-Motor Funktion.pdf >>
> With best regards
> Non-responsive content removed
> AUD I AG
> Non-responsive content
> removed
> 74148 Neckarsulm
> Non-responsive content removed
> >

>http://www.audi.com

>Domicile: Ingolstadt

>Court of Registry: Local District Court Ingolstadt

>Commercial Register No.: 1

>Chairman of the Supervisory Board: Martin Winterkorn

>Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulf Berkenhagen, Michael

Dick, Frank Dreves, Peter Schwarzenbauer, Axel Strotbek, Werner Widuckel>

# EA11003EN-00204[4]

\_

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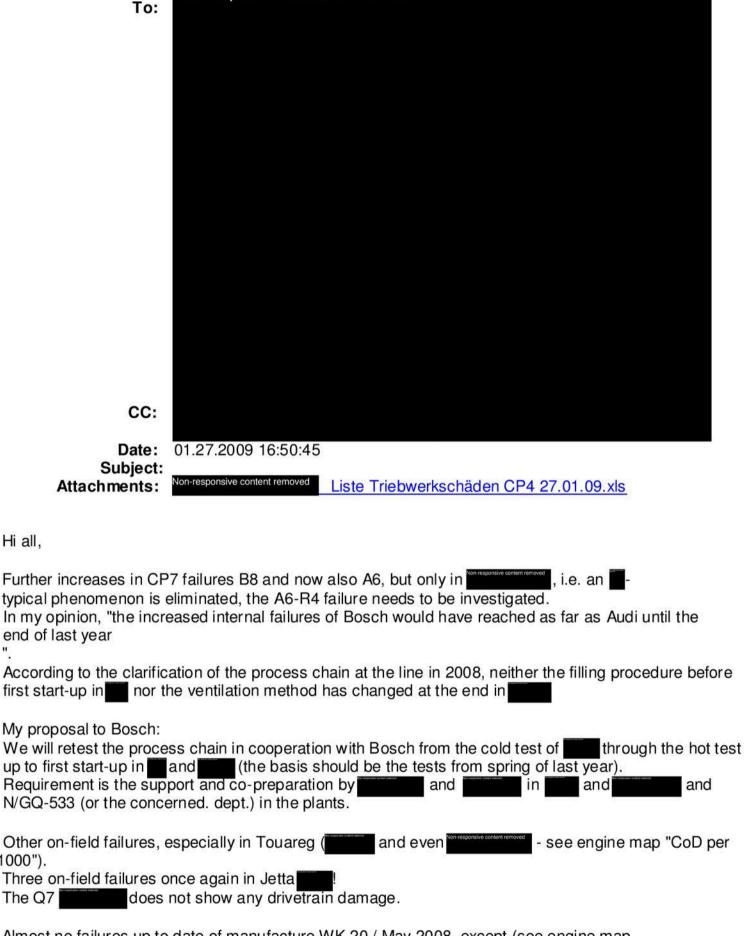
>

Hi all,

1000").

From:

Non-responsive content removed



Almost no failures up to date of manufacture WK 20 / May 2008, except (see engine map

# EA11003EN-00208[1] Effectiveness of actions): 1 x A4 R4-TDI Non-responsive content 1 x Q7 V6-TDI removed 1 x Q7 V6-TDI 1 x A5 V6 TDI 7 x CP7 2-3 x CP7 Non-respo >With best regards Non-responsive content remo ved **AUDIAG** 85045 Ingolstadt Non-responsive content remo From: Non-responsive content removed >Sent: Tuesday, January 20, 2009, 6:31 PM Non-responsive content removed >Subject: Re: Latest list of failures as of 01.20.2009 >Hi all, >Find attached the latest list of failures.> >Several VW pumps (messages) have been added to it over the holidays, also EG Failure 162,000 km. >I redid the sorting (pump type, country, vehicle identification no.), so that the pumps are easier to find. >I had to update the various tables and graphics as well. >The measures effective from date of manufacture May 8 is further confirmed; some individual on-field cases (low mileage), but especially CP7 IN failures in IV / 2008 are available. process further as discussed and consider in Friday's weekly report. >< File: Non-responsive content removed Liste Triebwerkschäden CP4 20.01.09.xls >> > >With best regards

# EA11003EN-00208[2]



# EA11003EN-00212[0]

Non-responsive content removed

CC:

From:

To:

Date: 8/12/2010, 5:23:54 AM

Subject:

Attachments: Protokoll- o Stand 2010-08-12.doc

2.7 TDI Worksheet KW32.xls

### Colleagues,

Please find attached the updated minutes of today's teleconference. You will also find the start times in the attachment.

Kind regards, Non-responsive con tent removed From: Non-responsive content removed

To: CC:

Date: 1/12/2010, 4:03:00 PM

Subject: Re: Review 2009

Attachments: 13.Wochenbericht Kolbenfresser .msg

# Hello Non-responsive content remo

that is my last status; a new status should arrive on 01.15.10.

Please ask for it from Bosch once again, so that you receive it on time.

Specific measures were about 7 pieces at Bosch, but this slide is missing in the status report, please ask Bosch.

# >With best regards



>From: Non-responsive content removed

>Sent: Tuesday, January 12, 2010, 1:51 PM

>To: Non-responsive content rem

>Cc:oved

>Subject: Review 2009

>Hello

>We will review 2009 on Thursday. During preparation, I noticed that proper completion of the piston seizure matter is still pending.

>Do you have an overview of the actually implemented measures that bring about the current failsafe state? A final status?

>Regards

### EA11003EN-00225[0]

From: To:

Non-responsive content removed

CC:

Date: 12.09.2009 09:29:11

Subject: 13th weekly report on "piston seizure"

Attachments: Ishikawa 08.12.2009.pdf

Maßnahmenliste Mikrosa Ishikawa 08.12.2009.pdf Roll Out Lessons learned Stand 23.10.2009.pdf

Schwingungsanalyse Zusammenfassung 08 12 09.pdf

Wiederfreigabe FeP Pumpenkolben.pdf

4VW280.pdf

Dear Sir/Madam,

Please find attached the updated weekly report on "piston seizure". The changes and new information are marked with a blue font. Please excuse me for the delay in sending.

- 1) Ishikawa:
- 2) The measures package by Mikrosa Ishikawa:
- 3) Roll-out Lessons Learned, vibration analysis summary and re-approval of Feuerbach plant pump piston:
- 4) New 0-km complaint with fault pattern: Cylinder head of piston seized

Pump 03L 130 755 J (0 445 010 520) Date of manufacture: 09.30.2009 No roundness fault

Analysis of the cylinder head or piston is in progress

Date of next update: 1/15/2010
I wish you a merry Christmas and New Year.

# EA11003EN-00225[1] Best regards

Non-responsive content rem oved

Robert Bosch GmbH Non-responsive content removed

70442 Stuttgart GERMANY

Non-responsive content removed

Non-responsive content removed

Domicile: Stuttgart, Court of Registry: Local District Court Stuttgart Commercial Register no. 14000 Chairman of the Supervisory Board: Hermann Scholl; Board of Management: Franz Fehrenbach, Siegfried Dais; Bernd Bohr, Rudolf Colm, Volkmar Denner, Gerhard Kümmel, Wolfgang Malchow, Peter Marks, Peter Tyroller; Uwe Raschke

#### EA11003EN-00232[0]

From: Non-responsive content removed

To:

CC:

Date: 6/30/2011, 10:43:33 AM

Subject: QA Statement Pump piston damage

Attachments: 03L..755 755A Tab Beanst Pumpenkolben.xls

Hello



Please find attached, as discussed in the PG, the evaluation of pump piston damage.

There are failures in this case.

So, it must be checked carefully whether it makes sense to omit the coating.

From QA perspective, I am strictly against it.

For Bosch, this is obviously very lucrative in terms of the warranty costs.

If we face damage, Bosch need not be liable for it anymore.

And one thing is certain, low-quality fuel will be increasingly occurring in the world!

#### Regards

Non-responsive content removed

Volkswagen Aktiengesellschaft

D-38231 Salzgitter

Non-responsive content rem oved

Volkswagen Aktiengesellschaft

Domicile: Wolfsburg

Court of Registry: Local District Court Braunschweig

Commercial Register no.: 100484

Chairman of the Supervisory Board: Ferdinand K. Piëch Board of Management: Martin Winterkorn (Chairman),

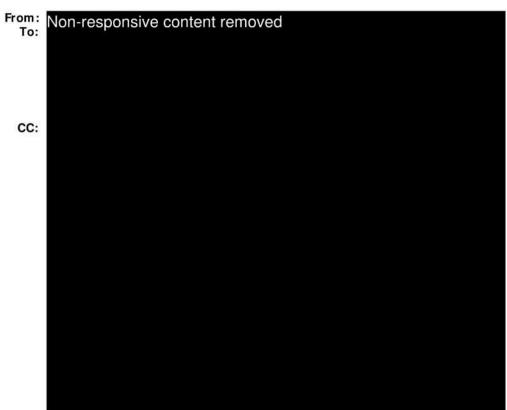
Francisco J. Garcia Sanz, Jochem Heizmann, Christian Klingler, Michael Macht, Horst Neumann,

Hans Dieter Pötsch, Rupert Stadler

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EA11003EN-00234[0]



Date: 8/5/2011, 10:31:29 AM

Subject: Slides in the CP4 expert meeting

Attachments: 1918 EHC1 Drehschwingungsmessungen am W19 Motor 03-08-2011 V01.pdf

1919 EHC1 BOCLE Test, 03-08-2011.pdf

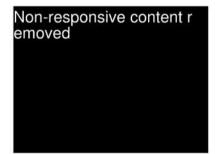
Non-responsive content removed

Analyseergebnis.pdf

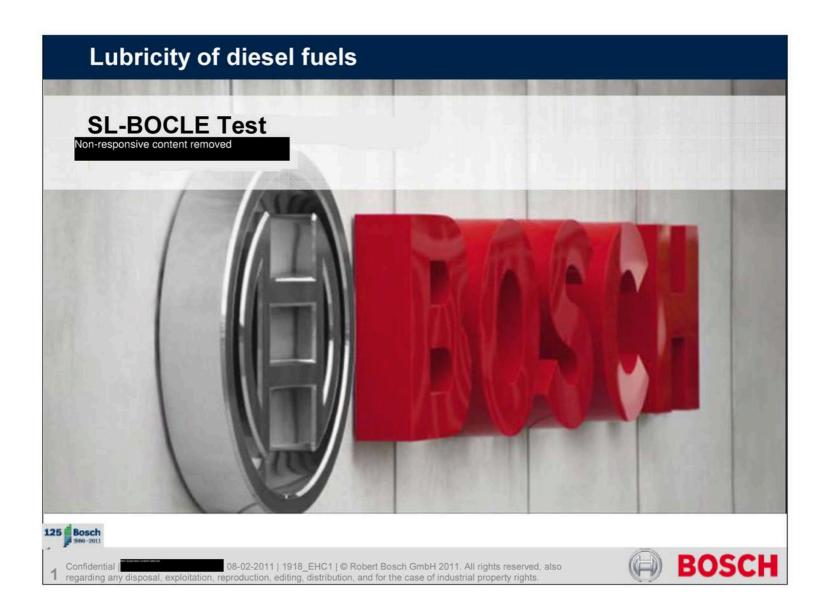
Hello,

After repeated request, I am sending to you my slides presented in the CP4 expert meeting in advance.

- 1) Torsional vibrations
- 2) SL-BOCLE Test
- 3 4) Best regards



Domicile: Stuttgart, Court of Registry: Local District Court Stuttgart Commercial Register no. 14000 Chairman of the Supervisory Board: Hermann Scholl; Board of Management: Franz Fehrenbach, Siegfried Dais; Stefan Asenkerschbaumer, Bernd Bohr, Rudolf Colm, Volkmar Denner, Wolfgang Malchow, Peter Marks, Uwe Raschke, Wolf-Henning Scheider, Peter Tyroller



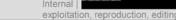
104 1931

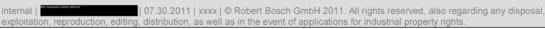
## **Lubricity test methods**

- → The lubricity of diesel fuels is determined indirectly by two standardized methods
  - HFRR (High Frequency Reciprocating Rig), ISO 12156, ASTM D6079
  - SL-BOCLE (Scuffing Load BOCLE), ASTM D6078
- → High HFRR value means poor lubricity
- High SL BOCLE value means high adhesion protection
- Fuel with high HFRR & high SL BOCLE value leads to failure due to wear.
- Fuel with low HFRR & low SL BOCLE value leads to failure due to adhesion.



**Diesel systems** 









104 1931

# Important property of fuel - lubricity

lubricity of fuel is a characteristic that can be assessed only by its effect (not directly as density, viscosity etc.)

→ 3 main standards exist

for diesel fuels

**HFRR** test (High Frequency Reciprocating Rig) ISO 12156, ASTM D6079

SL-BOCLE test (Scuffing Load BOCLE) **ASTM D6078** 



#### for jet fuels

**BOCLE** test (Ball On Cylinder Lubricity Evaluator) **ASTM D5001** 



Diesel systems





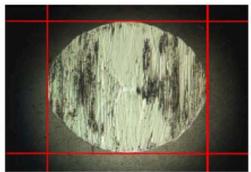
104 1931

# Important properties of fuel

lubricity - HFRR test

- → HFRR is specified in most Diesel fuel standards (460µm respectively 520µm)
- → test setup is a reciprocating (1mm stroke, 50Hz) ball on a plate (75min, 60°C)
- > the tribological contact is lubricated by the fuel
- → lubricity is assessed by the wear scar diameter of the ball in [µm] (high HFRR value -> high wear -> low lubricity)
- → does not work with high volatile fuels (open system, fuel would evaporate)





microscopic view of the worn ball



source: PCS instruments

Diesel systems







104 1931

# Important properties of fuel

lubricity - SL-BOCLE test

- → SL-BOCLE is currently not included in any Diesel fuel standard
- → test setup is a ball on a rotating (525rpm) cylinder (25°C, 50% rh)
- → the tribological contact is lubricated by the fuel
- → seizure is detected by continuously evaluated friction coefficient
- → seizure load is assessed by weight placed on ball in [g] (high SL-BOCLE value -> high seizure load -> good seizure protection)



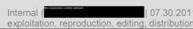


batch of weights for regulating seizure load



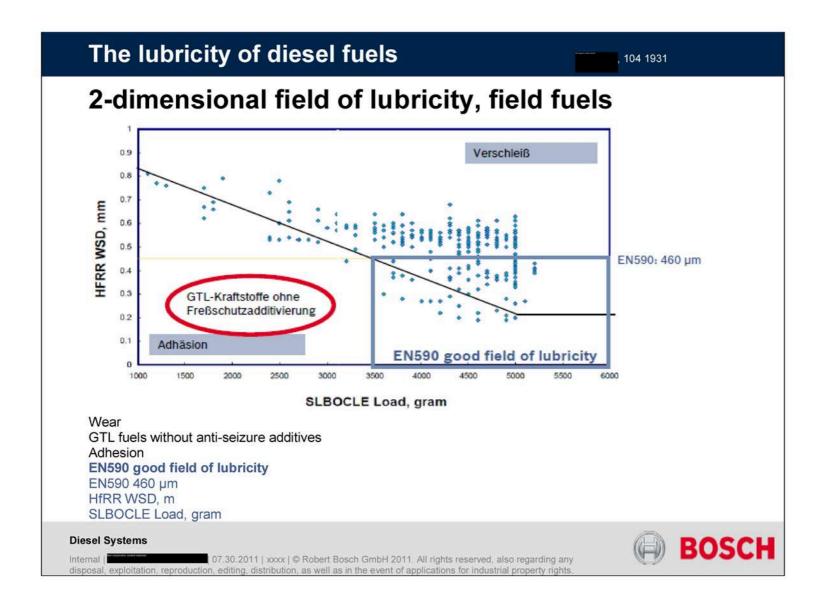
source: PCS instruments



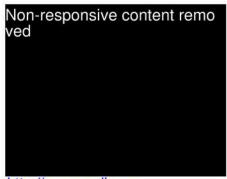








EA11003EN-00257[0] From: Non-responsive content removed CC: Date: 6/16/2011, 8:30:00 AM Subject: FW: Overheads for Management Board meeting for CP4.2 Attachments: Status CP4.2 KW24 01.pdf Agenda Vorstandstermin zur CP4.2.pdf Hello Mr. hello Here is the final (I hope) version for the meeting. Please do not distribute further! (request from It differs widely from Mr. draft from yesterday, which means I have to describe the field situation in more detail after all. Best regards From: Non-responsive content removed Sent: Wednesday, June 15, 2011, 8:06 PM To: Non-responsive content removed Cc: Subject: Overheads for Management Board meeting for CP4.2 Dear Mr. Please find attached the agenda and overheads for the Management Board meeting on the HP pump on 06/21/2011. Sincerely,



http://www.audi.com Domicile/Sitz: Ingolstadt

Court of Registry/Registergericht: Local district Court Ingolstadt

Commercial Register No./HRB Nr.: 1

Chairman of the Supervisory Board/Vorsitzender des Aufsichtsrats: Martin Winterkorn

Vorstand/Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulf Berkenhagen, Michael Dick, Frank Dreves, Peter Schwarzenbauer, Thomas Sigi, Axel Strotbek

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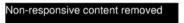
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# Agenda: Management Board Meeting on Bosch HP Pump 6/21/2011

▶ Field Situation CP4.2

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- ► Further measures to increase CP4.2 robustness
  - Overview of measure packages
  - ► Development level
- Approval of RdW markets by Bosch



Bosch Mr. Non-responsive content removed



#### EA11003EN-00323[0]

From: Non-responsive content removed To:

CC:

**Date:** 10/19/2009, 4:16:00 PM

Subject: In advance from Non-responsive content remove Overheads for Q conference

Attachments:

... In advance from for agenda item Q reliability on 10/27/09

I think we should wait to distribute it further until after the technical meeting on Wednesday, 10/21.

Best regards

From: Non-responsive content removed

**Sent:** Monday, October 19, 2009, 3:36 PM

Non-responsive content removed

**Subject:** Overheads for Q conference

Here is my suggestion for the anti-wear package for CP4 I hope you can see that we aren't just thinking about water

Aside from minor changes that could come from the overheads have been approved. We do not plan to shift the subject to Audi; we are interested in improving and supporting Audi in selling their vehicles successfully, including RoW

Best regards / mit freundlichen Grüßen

Non-responsive content removed

Robert Bosch GmbH

Non-responsive content removed

70442 Stuttgart GERMANY www.bosch.com

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Domicile: Stuttgart, Court of Registry: Local District Court Stuttgart, Commercial Register No. 14000; Chairman of the Supervisory Board: Hermann Scholl; Management: Franz Fehrenbach, Siegfried Dais; Bernd Bohr, Rudolf Colm, Volkmar Denner, Gerhard Kümmel, Wolfgang Malchow, Peter Marks, Peter Tyroller; Uwe Raschke

From: Non-responsive content removed

#### EA11003EN-00323[1]

**Sent:** Monday, October 19, 2009, 1:57 PM

Non-responsive content removed

Subject: Re: 3.0L TDI High Pressure Pump

The attachment was in the mail.

I don't mean gasoline to diesel; <u>quite simply</u>: correlation within diesel (visco to HFRR); please involve an expert if you aren't one.

#### Is the subject of water in diesel now subject no. 1 for the CP4?

Wouldn't we have to have found water in it by now after all the samples?

The water doesn't always behave and stay on the tank floor; it also causes damage to the pump.

I am well aware that when I have a workshop failure (vehicle breakdown), that the water will be primarily on the tank floor (recommendation to CS: pump with vehicle EFP and capture it again afterwards).

<u>I wish to once again state</u>: when the CP4 is damaged by a little bit of water that we do <u>not</u> find, during sampling, then the pump is simply unsuitable for the overall market.

And we would have to find dissolved water, even if it "is divided into tiny molecules by the EFP.

I repeat: We use water separators in the U.S. and but that hasn't saved us from damage there yet.

But we probably have the wrong filter, too.

The whole thing sounds a lot like "shift the problem to Audi", because we don't have water separators in etc.

The mood is improving, I'm sure the day after tomorrow will be interesting.

Best regards

From: Non-responsive content removed

**Sent:** Monday, October 19, 2009, 11:52 AM

Non-responsive content removed

Subject: Re: 3.0L TDI High Pressure Pump

Hello

Can you please help me with the analysis?

I'm not an expert, but I don't think there's a correlation between viscosity and lubricity.

For example, gasoline has good HFRR but low viscosity.

You need "luck" to find water in the fuel sample (for example, when there is water in the tank and the sample is drawn cleanly from the floor).

Personally, I think the information as to whether water - if any - was found in the water separator is at least as important, if not more.

We examined the CP4 with drivetrain damage for corrosion traces - however, biodiesel and/or fuels with corrosion protection additives reduce corrosion.

Best regards / mit freundlichen Grüßen

Non-responsive content removed

Robert Bosch GmbH

Non-responsive content removed

## EA11003EN-00323[2]

70442 Stuttgart GERMANY www.bosch.com

#### Non-responsive content re moved

Domicile: Stuttgart, Court of Registry: Local District Court Stuttgart, Commercial Register No. 14000; Chairman of the Supervisory Board: Hermann Scholl; Management: Franz Fehrenbach, Siegfried Dais; Bernd Bohr, Rudolf Colm, Volkmar Denner, Gerhard Kümmel, Wolfgang Malchow, Peter Marks, Peter Tyroller; Uwe Raschke

From: Non-responsive content removed

**Sent:** Monday, October 19, 2009, 10:44 AM

Non-responsive content removed

Cc:

**Subject:** FW: 3.0L TDI High Pressure Pump

Hello Dr Non-responsive content removed

Do you think the analysis of the sample is sufficient?

With an HFRR value of 350, we're in the green range; the viscosity can't be bad (is there a true correlation?).

And they classify the water content as OK.

With the problems that VW has with sending the fuel, I think we should leave it at that.

The pump and filter come with the complete engine, if I understood it correctly.

Can you confirm that Non-responsive content removed

Best regards

Non-responsive content removed

**AUDI AG** 

85045 Ingolstadt

From: Non-responsive content removed

Sent: Friday, October 16, 2009, 5:59 PM

To: Non-responsive content removed

Cc:

**Subject:** FW: 3.0L TDI High Pressure Pump

Hello

VW had some fuel analyzed in a local laboratory, please see results attached. Do you still need them to send you another one-liter sample? Please advise, as we are not sure if VW has anyone who is certified for Haz-Mat shipping, so we might have to hire an outside company to do so. If you have any questions please let us know, thanks.

Regards

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#### EA11003EN-00323[3]

Non-responsive content removed

Volkswagen AG D-38346 Wolfsburg

Germany

Non-responsive content removed

www.volkswagen.com

From: Non-responsive conter

**Sent:** Friday, October 16, 2009, 5:30 PM

To: Non-responsive content removed

**Subject:** RE: 3.0L TDI High Pressure Pump

Hi 💮

Please review the attachments, picture of pump tag and fuel testing results.

Vehicle #2 Diesel fuel ULSD 7936 KMS

WVGDM67L29D

3.0 TDI

The fuel filter and pump will be shipped with the engine assembly.

Non-responsive content removed

Volkswagen Group Canada Inc. 777 Bayly St W. Ajax ON, L1S 7G7 Canada

ENDOLONGE ROCKETS CONTRACTOR

From: Non-responsive content removed

Sent: Friday, October 16, 2009 10:14 AM

To: Non-responsive content removed

Subject: WG: 3.0L TDI High Pressure Pump

Hi Esse

Regarding the Touareg which will get a High Pressure Pump replaced, could you also please get a fuel-sample (1lt) and the fuel filter before the vehicle leaves the shop? Please advise, thanks.

Regards

Ramón

From: Non-responsive content removed

**Sent:** Friday, October 16, 2009, 1:36 PM

To: Non-responsive content removed

**Subject:** FW: 3.0L TDI High Pressure Pump

Hello Ramón,

Can you please obtain a fuel sample and the filter before the repaired vehicle leaves the workshop?

#### EA11003EN-00323[4]

Regards,

From:

Sent:

Friday, October 16, 2009, 1:06 PM

Non-responsive content removed

Subject:

FW: 3.0L TDI High Pressure Pump

Hello Mr.

Could we also get a fuel sample (1 liter) and the fuel filter?

Best regards

From:

Non-responsive content removed

Sent: Friday, October 16, 2009, 9:23 AM To: Non-responsive content removed

Subject:

FW: 3.0L TDI High Pressure Pump

Hello Mr.



Information regarding the desired pump.

VW



From:

Sent:

Thursday, October 15, 2009, 4:52 PM

To Non-responsive content removed

Subject:

RE: 3.0L TDI High Pressure Pump

Hello to all.

Touareg 3.0 TDI

I Spoke with

Non-responsive content removed

Mario stated he will have the engine and pump shipped to VGCA when the vehicle is repaired. Repairs should be completed by the end of this week. Fri Oct/16/2009

The engine and pump will be shipped from VGCA to we will forward the tracking information at that time.

on-responsive content removed

Volkswagen Group Canada Inc. 777 Bayly St W. Ajax ON, L1S 7G7 Canada



From: Non-responsive content removed

Sent: Thursday, October 15, 2009 9:11 AM

To: Non-responsive content removed

Cc:

Subject: 3.0L TDI High Pressure Pump



We are looking for a claimed High Pressure Pump from a 3.0L TDI Touareg from Canada that was supposed to be shipped to us. Do you have any information on where such pump could be? Please advise, thanks.

Regards

Non-responsive content removed

Volkswagen AG D-38346 Wolfsburg Germany

Non-responsive content removed

www.volkswagen.com

## EA11003EN-00331[0]

From: Non-responsive content removed

To:

CC:

Date: 4/9/2010, 12:32:54 PM

Subject: .pdf

Attachments: Bisherige Erkenntnisse II Februar 2010.pdf

Hi all,

Here are the pictures from this morning, with alignment.

## Regards

Non-responsive content removed

Volkswagen Aktiengesellschaft

Non-responsive content removed

D-38436 Wolfsburg

Non-responsive content remo

ved

## EA11003EN-00334[0]

From: Non-responsive content removed

To:

CC:

**Date:** 5/19/2010, 1:14:32 PM

Subject: Status of water separation: Excerpt
Attachments: 2010 05 12 Runde - Auszug.pdf

Hello

Here is a selection of the overheads that were just prevented. Summary on Page 13.

Regards

[Remark: Typo, should read "presented"]

Non-responsive content removed

Volkswagen Aktiengesellschaft Non-responsive content removed

D-38436 Wolfsburg

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## EA11003EN-00336[0]

From: Non-responsive content removed

To:

CC:

Date: 9/17/2010, 9:35:32 AM

Subject: E-mail to: Filter-Entwässerung Status.pdf

Attachments: Filter-Entwässerung Status.pdf

The message can now be sent with the following file or link as attachment:

Filter-Entwässerung Status.pdf

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#### EA11003EN-00340[0]

From: Non-responsive content removed

To:

CC:

Date: 3/12/2009, 2:42:59 PM

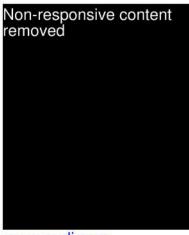
Subject: Documents: water separation Attachments: AUDI NSU 20070122.pdf

Wasserabscheidung Diesel-Kraftstoffsystem 060309.ppt

Hello gentlemen,

Please find attached the documents on water separation, as discussed today.

With best regards,



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Domicile/Sitz: Ingolstadt

Court of Registry/Registergericht: Local District Court Ingolstadt

Commercial Register No./HRB Nr.: 1

Chairman of the Supervisory Board/Vorsitzender des Aufsichtsrats: Martin Winterkorn

Vorstand/Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulf Berkenhagen, Michael

Dick, Frank Dreves, Peter Schwarzenbauer, Axel Strotbek, Werner Widuckel

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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.

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auf den Rechtscharakter

der E-Mail zu.

EA11003EN-00343[0]

| From:<br>To: | Non-responsive content removed |
|--------------|--------------------------------|
|              |                                |
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| CC.          |                                |
| CC:          |                                |
|              |                                |

**Date:** 5/27/2011, 7:00:48 AM

Subject: Non-responsive content rem oved meeting 2011 05 26.ppt meeting 2011 05 26.ppt

Dear colleagues,

Here is the draft for the technical meeting. We may have to abbreviate it and, in particular provide more details for the last overheads.

Best regards,

#### EA11003EN-00582[0]

From:

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To:

**Date:** 05.09.2011 09:25:00 AM

Subject: RE: R4 TDI 2,0L longitudinal drivetrain damage

Attachments: Subject-Overview Task Force.xlsx

... the common particles are normally not our problem (if so, then solid sticky C-coating- particles on the roller / roller support / cams etc.)

I have already attempted to show an overview of the action areas with our colleagues in development (unfortunately these are numerous, many of which are probably not be implemented):

Best regards,

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From: Non-responsive content removed

Sent: Friday, 6 May 2011 13:24
To: Non-responsive content removed

Subject: RE: R4 TDI 2,0L longitudinal drivetrain damage

A large circle of people had to swallow the bitter pill that the next measure against drivetrain damage is the strainer

Should I now understand that particles cannot lead to damage. Not even if they come from between the roller support, roller, and cams or if the particle based intake valve causes the build-up of the fuel pressure to fail?

From: Non-responsive content removed

Sent: Friday, May 06, 2011 1:05 PM
To: Non-responsive content removed

Subject: RE: R4 TDI 2,0L longitudinal drivetrain damage

..the intake valve, however, does not help to prevent drivetrain damage; it only helps to prevent the particle accumulation.

Best regards,

NATIONAL SCHOOL TOTATION

From: Non-responsive content removed

Sent: Friday, 6 May 2011 8:57 AM

To: Non-responsive content removed

Cc:

00.

Subject: FW: R4 TDI 2,0L longitudinal drivetrain damage

Hello Mr. Man disposition control and a second seco

Enclosed please find a current complaint and a current complaint. Can you determine whether this pump already has a screen upstream of the intake valve? We will be sending the pump directly to you.

Best wishes,

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AUDI HUNGARIA MOTOR Kft. Non-responsive content remove d

From: Non-responsive content removed

Sent: Friday, May 06, 2011 7:33 AM

Non-responsive content removed

Subject: R4 TDI 2,0L longitudinal drivetrain damage

Hello Colleagues,

A 2.0L Bosch high-pressure fuel pump has once again caused drivetrain damage. The motor's fuel system was replaced.

QTS 4030362

< File: IMG\_3888.JPG >> < file: IMG\_3890.JPG >> < file: IMG\_3889.JPG >> We request feedback as to what course of action should be taken with the pump. Kind regards,

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AUDI HUNGÁRIA MOTOR Kft. Non-responsive content rem oved

