

EA11003EN-01864[0]

From: Non-responsive content removed
To: [Redacted]
CC: [Redacted]

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

Date: 1/13/2011, 11:12:00 AM

Subject: Re: Results of samples from [Redacted] with defined specifications

Attachments: [Redacted] Kraftstoffproben.xls
[Ausfälle Hochdruckpumpe CP4.2 13.01.2011.ppt](#)

Hello [Redacted]

As a follow-up to the [Redacted] meeting with [Redacted] and [Redacted] in week 50, please find attached the evaluation of the fuel samples from the [Redacted] field trip, which we discussed yesterday at the task force meeting. See comments from [Redacted] below.

I should add that only 1 of the vehicles (Q5) currently had drivetrain damage during the on-site visit.

The other vehicles were called in because they had had multiple cases of drivetrain damage previously.

The samples without vehicle numbers are from the gas stations. ** Overall, fuel quality in [Redacted] is highly variable; it is often poor in the region [Redacted]

The objective is to improve the CP4.2 through anti-wear packages so it can (better) deal with such fuels.

In my personal opinion, we will never be entirely clean in [Redacted] because the fuels are simply too poor for this pump type; see the 13 V12 failures and 2 V8 failures in [Redacted] which already have anti-wear package 2 (13 x without RP1; 2 x with RP1) in general (counterclockwise CP4)

- One possible workaround is the use of the CP1H predecessor pump in EU4 engines. Their development should now begin for [Redacted] use.

- If there were pressure from your side, I believe this would speed up the development. The engine should then also be used in [Redacted] in my opinion.

I have attached the current failure rates for CP4.2 according to SAGA 01/11/2011 for the Audi V6/V8/V12.

With best regards

Non-responsive content removed

85045 Ingolstadt

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Sent: Wednesday, January 12, 2011, 6:24 PM

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

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Hi all,

I have reworked the file a bit for the meeting today - see attached.

Summary: The samples are all within the defined framework for [Redacted], but [Redacted] is a special case.

Of the 7 analyzed samples in [Redacted] 4 are striking due to either viscosity, flashpoint, lubricity or vaporization point. In [Redacted] it is only 1 of 6 and in [Redacted] only 1 of 4.

Si, an indicator of defoamers, is only present in 2 of 17 analyzed samples.

In general, such analyses must always be treated with caution, because they are only a snapshot.

Best regards

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AUDI AG

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74148 Neckarsulm [Redacted]



Status of the CP4.2 high-pressure fuel pump

WK02/11

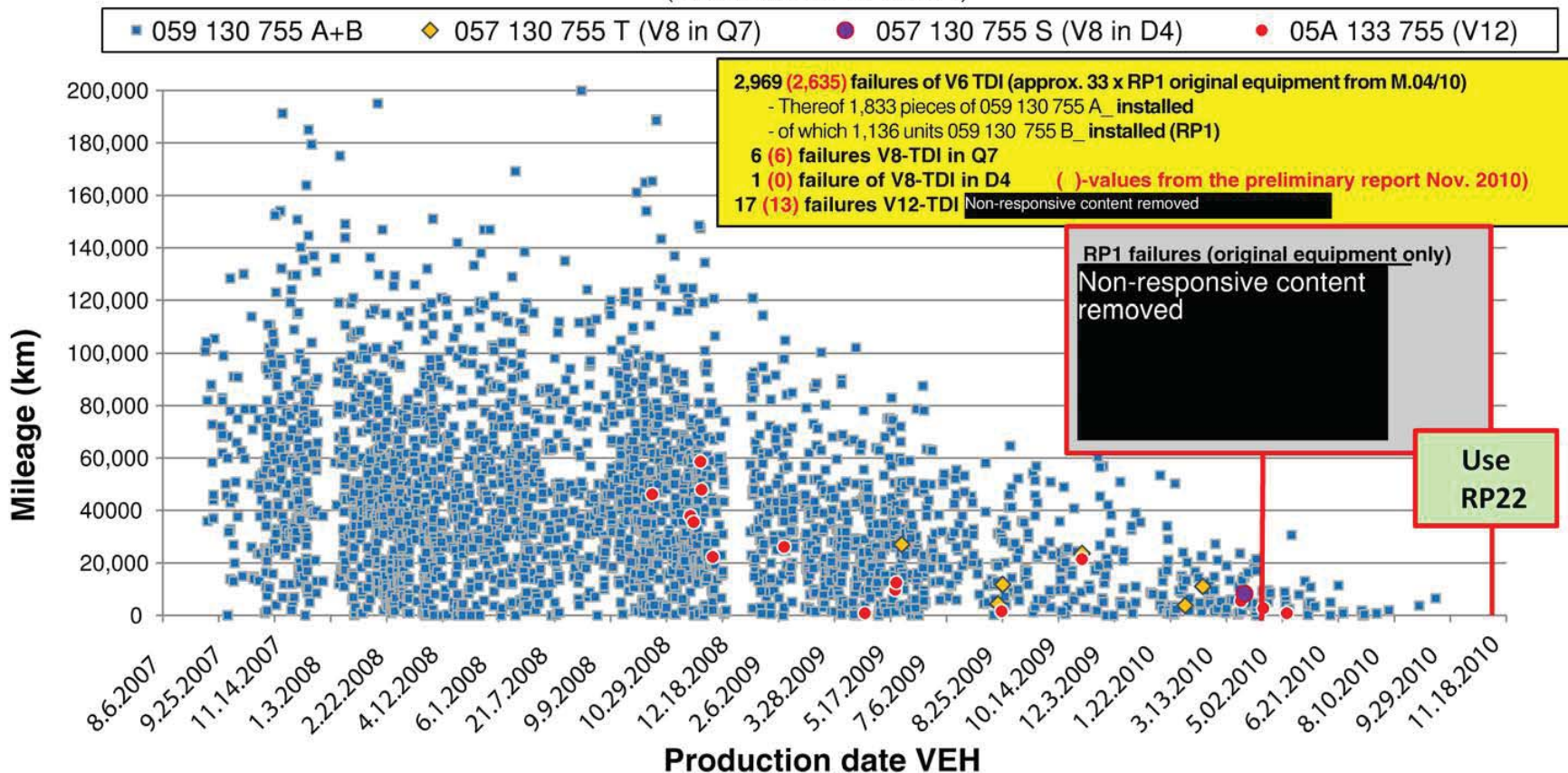
Non-responsive content removed

/01.13.2011

Status of the CP4.2 high-pressure fuel pump Non-responsive content removed

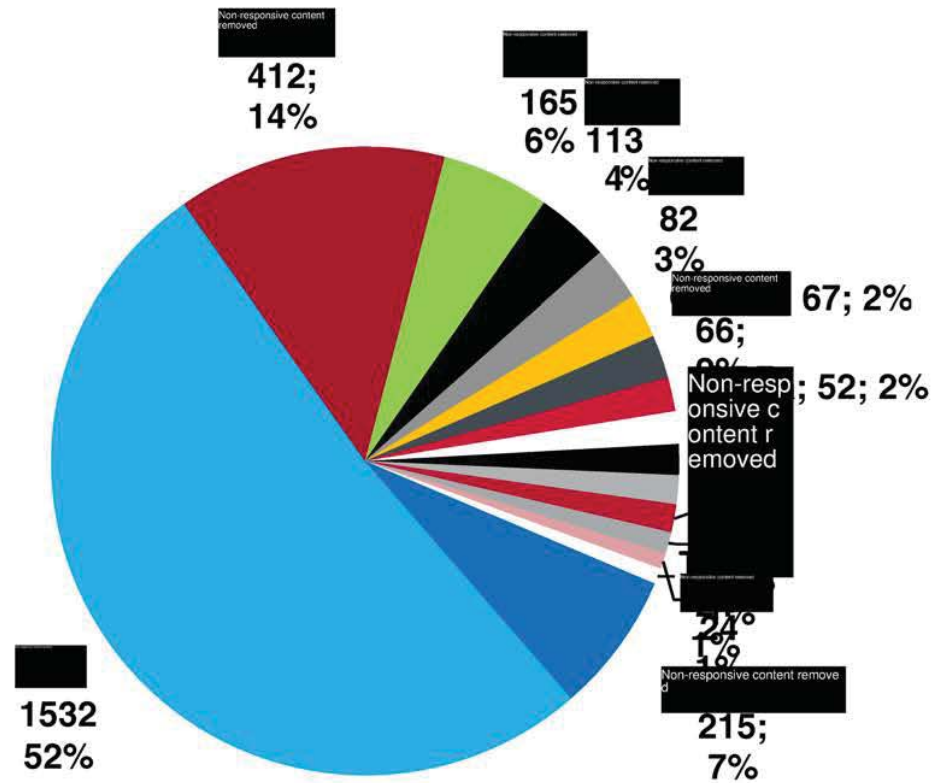
All settlements for high-pressure fuel pumps V6/V8/V12-TDI Audi

(SAGA as of 01.11.2011)

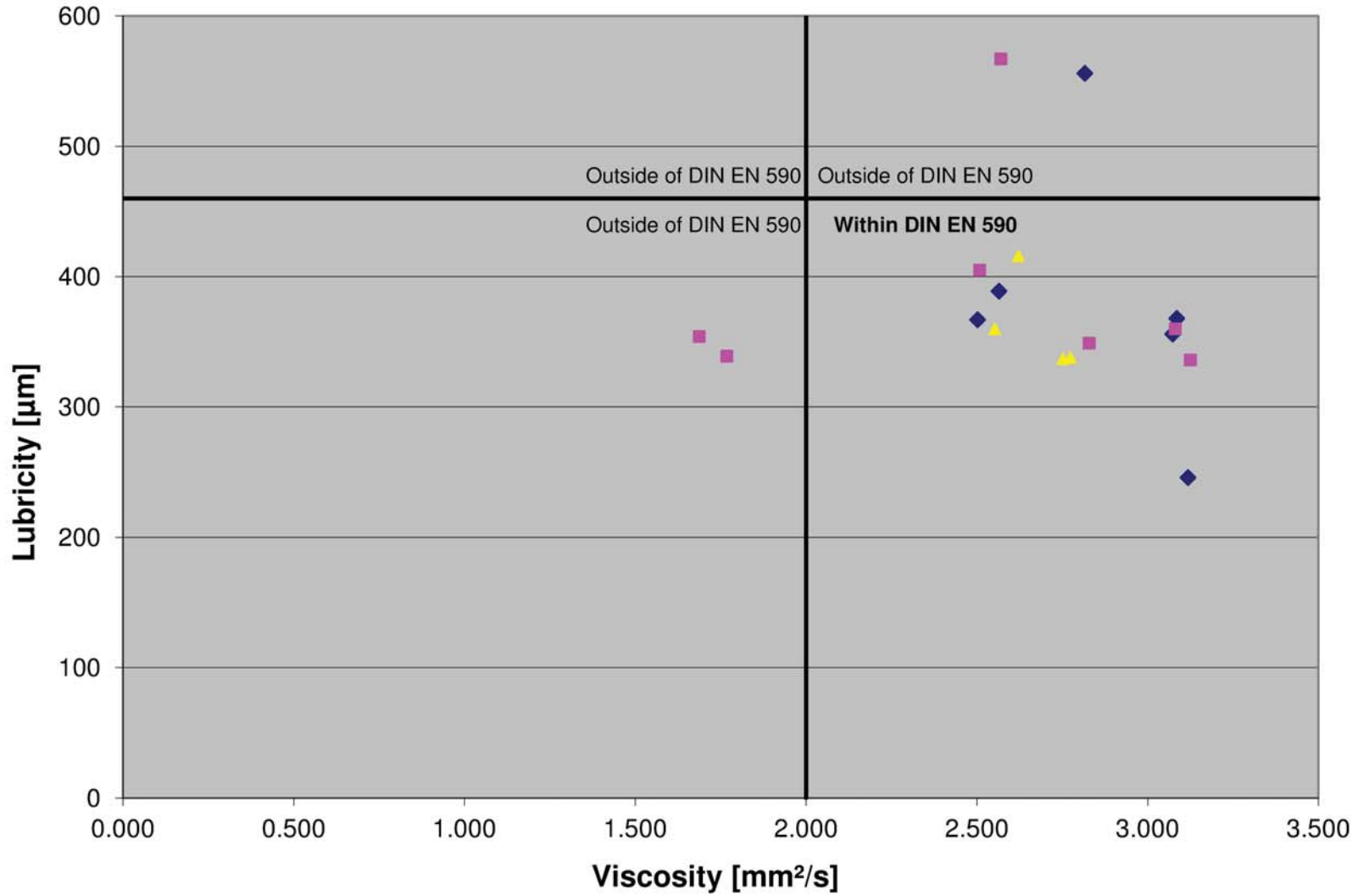


Status of the CP4.2 high-pressure fuel pump

All settlements of high-pressure fuel pumps V6 TDI worldwide by country (SAGA status: 1/11/2011)



EA11003EN-01866[0]



ENTIRE PAGE CONFIDENTIAL

EA11003EN-01866[1]

The image shows a horizontal strip of a spreadsheet or data table. The top row is highlighted in light green. The main body of the table is grey. On the left side, there is a black rectangular box. Two yellow vertical bars are positioned within the table area. Two black vertical bars are also present. The table contains numerous columns and rows, but the content is mostly obscured or illegible due to the low resolution and the 'CONFIDENTIAL' watermark.

EA11003EN-01868[0]

From: Non-responsive content removed**To:****CC:****Date:** 2/9/2011, 4:19:26 PM**Subject:** RE: [REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls**Attachments:** [AW_12V586M_EU5-DPF_DIESEL_MARKT \[REDACTED\].msg](#)

Hello Mr. [REDACTED]

The following applies to diesel engines with Bosch HPP:

As developers, we cannot block them. Only quality assurance can do that. We still see the [REDACTED] market as critical for releases because of the lack of robustness of the high-pressure fuel pumps in relation to the poor lubricity of the fuel available on the market. This is particularly the case in winter when the fuel is mixed with kerosene or petrol, causing a further deterioration in the viscosity/lubricity.

We also believe that the desire to serve a market with different diesel engine concepts (EU3, EU4, EU5) as problematic because it is not possible to ensure the necessary quality when fueling. We believe that the EU4 high-pressure fuel pump currently undergoing validation (AWP = RP0+RP1) is closer to the necessary robustness, however robustness measure "RP0" is not planned in the EU5 HPP. The further development of the RP1 (currently in EU4 HPP) to RP1+ (then for EU4 and EU5 HPP) should go into serial production in March 2011. We are working on a strategy involving a unitary HPP with the same robustness for all diesel engines with Bosch HPP.

Also see the attached mail.

Best regards

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VOLKSWAGEN

AG

D-38436 Wolfsburg

Germany

Non-responsive content removed

-----Original message-----

From: Non-responsive content removed**Sent:** Wednesday, February 09, 2011, 7:52 AM**To:** Non-responsive content removed**Cc:** removed**Subject:** FW: [REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls
Importance: High

EA11003EN-01868[1]

Hello [Non-responsive content removed]

Could you please provide an answer?

Thank you.

[Non-responsive content removed] Mit freundlichen Grüßen, With best regards,

[Non-responsive content removed]

Škoda - Simply clever.

-----Original Message-----

From: [Non-responsive content removed]
Sent: Monday, January 17, 2011 9:46 AM
To: [Non-responsive content removed]
Subject: FW: [Redacted] Variante Dieselliste_28 [Redacted] - Entwurfsstand Stand 23.11.2010.xls Importance: High

Hello [Non-responsive content removed]

Please let me know whether VW really implemented a block of the diesel engines for [Non-responsive content removed]

Thank you for your reply and regards from [Non-responsive content removed]

[Non-responsive content removed]
Mit freundlichen Grüßen, With best regards,

[Non-responsive content removed]

Škoda - Simply clever.

-----Original Message-----

From: [Non-responsive content removed]
Sent: Friday, December 10, 2010 2:38 PM
To: [Non-responsive content removed]
Subject: FW: [Redacted] Variante Dieselliste_28 [Redacted] - Entwurfsstand Stand 23.11.2010.xls

Hello [Non-responsive content removed]

Thank you for your call, it was very helpful. As we discussed, I would like to know when VW will really implement a block for CR diesel for [Redacted] (it would help us in our argumentation as well...).

EA11003EN-01868[2]

Thank you for your efforts and your understanding,

Non-responsive content removed

Mit freundlichen Grüßen, With best regards,

Non-responsive content removed

Škoda - Simply clever.

-----Original Message-----

From: Non-responsive content removed

Sent: Friday, December 10, 2010 2:38 PM

To: Non-responsive content removed

Subject: FW: Variante Dieselliste_28 - Entwurfsstand Stand 23.11.2010.xls

Hello

Please let me know whether you can provide the information below. It would really help us.

Thanks in advance,

Non-responsive content removed

Non-responsive content removed Mit freundlichen Grüßen, With best regards,

Non-responsive content removed

Škoda - Simply clever.

-----Original Message-----

From: Non-responsive content removed

Sent: Wednesday, December 08, 2010 1:46 PM

To: Non-responsive content removed

Cc: removed

Subject: ANS: Variante Dieselliste_28 Entwurfsstand Stand 23.11.2010.xls

Dear

The person responsible for these components (among others) is (see Cc). I'm sure he will be happy to help you. I do not have any documents about the specific realization of the individual AWP's.

Best regards

EA11003EN-01868[3]

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Non-responsive content removed

www.volkswagen.com

-----Original message-----

From: Non-responsive content removed

Sent: Wednesday, December 08, 2010, 12:53 PM

To: Non-responsive content removed

Subject: FW: [REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls

Hello Non-responsive content removed

Can you please provide feedback on the matter described below?

Thank you for your reply,

Regards,

Non-responsive content removed

Non-responsive content removed Mit freundlichen Grüßen, With best regards,

Non-responsive content removed

Š

Skoda - Simply clever.

-----Original Message-----

From: Non-responsive content removed

Sent: Friday, November 26, 2010 10:41 AM

To: Non-responsive content removed

Subject: FW: [REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls

Hello Non-responsive content removed

I am responsible for product optimization at Skoda. One of my tasks is the approval of engines (for customer service) for countries with poor fuel quality. I received the attached table from Non-responsive content removed yesterday.

I have a question regarding it: columns AB - AD contain information regarding the injection system (basic pump, AWP, AWP1, AWP2). Would it be possible to receive information as to the individual measures contained in AWP, AWP1, and AWP2?

Thanks in advance for your feedback.

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Mit freundlichen Grüßen, With best regards,

Non-responsive content removed

Škoda - Simply clever.

-----Original Message-----

From: Non-responsive content removed

Sent: Thursday, November 25, 2010 5:07 PM

To: Non-responsive content removed

Subject: FW: [REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls

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[REDACTED]

Non-responsive content removed

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-----Original Message-----

From: Non-responsive content removed

Sent: Wednesday, November 24, 2010 9:28 AM

To: Non-responsive content removed

Subject: [REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls

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

[REDACTED] Variante Dieselliste_28 [REDACTED] - Entwurfsstand Stand 23.11.2010.xls

Note: E-mail programs may prevent the sending or receipt of certain file types due to computer viruses. Check your e-mail security settings to find out how attachments are managed.

EA11003EN-01869[0]

From: Non-responsive content removed
To:

CC:

Date: 2/9/2011, 1:44:34 PM

Subject: ANS: 12V586M: EU5-DPF DIESEL MARKET

Attachments: [.pdf](#)
[12V586M.pdf](#)

Hello,

sees a requirement for an anti-wear package for the HPP (high-pressure fuel pump) from Bosch - that is, we need a level of robustness for fuel-lubricated injection components for global markets, to deal with the extremely heterogeneous fuel qualities within a given country. In particular, the desulfurization of the diesel fuels required for DPF use can often result in a considerable reduction in lubricity.

The wear-reducing version of the high-pressure fuel pump is not currently available for the EU5 market (with DPF).

The implementation of these measures has been initiated. A potential schedule is being clarified.

From perspective, there is currently a special release for the market for the diesel grades Diesel 50 Extra, Gasoil 50; it contains a fuel notice label (low-sulphur fuel). A release should be coordinated together with the Type Checking and Quality Assurance departments.

General comment for exhaust markets EU3, EU4 without DPF // EU5 with DPF:

The different diesel engine concepts have defined requirements of the fuel and oil qualities that must be used.

If there are different fuel grades in the target market, the respective engine concept

EA11003EN-01869[1]

must ensure that the corresponding fuel and oil grades are widely available.

If these quality requirements are NOT met, there is a significant risk of increased failure rates and warranty costs.

Excerpt from the [REDACTED] country list for [REDACTED]

Note

To deal with the countless number of inquiries involving country variants and country releases, the coordinated [REDACTED] country list "Version 28" has been drawn up.

Therefore, any further inquiries should be handled by the [REDACTED] user group speaker.

>Best regards

>

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>

>VOLKSWAGEN AG>

>Sitz/Domicile: Wolfsburg

>Registergericht/Court of Registry: Local District Court Braunschweig

>HRB no./ Commercial Register No.: 100484

>Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Ferdinand Piëch >Vorstand/
Board of Management: Martin Winterkorn (Vorsitzender/Chairman), Francisco J. Garcia Sanz,
Jochem Heizmann, Horst Neumann, Hans Dieter Pötsch

>

>Wichtiger Hinweis: Die vorgenannten Angaben werden jeder E-Mail automatisch hinzugefügt und lassen keine Rückschlüsse auf den Rechtscharakter der E-Mail zu.

>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.

>

>

>

>

>From: [REDACTED]

>Sent: Tuesday, February 08, 2011, 10:43 AM

[REDACTED]

>Subject: Re: 12V586M: EU5-DPF DIESEL MARKET [REDACTED]

>

>

>Hello gentlemen,

>

>I was given a job last Friday: I was supposed to clarify why EU-5

EA11003EN-01869[2]

must be implicitly offered in [REDACTED] and what the planned volumes were.

>

>Here are the answers from Sales. (see below)

>

>Mit freundlichen Grüßen / best regards / med venlig hilsen

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>Non-responsive content removed

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>

>

>VOLKSWAGEN AG

>D-38436 Wolfsburg

>Germany

>Non-responsive content removed

>

>

>

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>

>

>From: [REDACTED]

>Sent: Tuesday, February 08, 2011, 10:27 AM

>To: [REDACTED]

>Cc:

>Subject: ANS: 12V586M: EU5-DPF DIESEL MARKET

>

>Hello Mr. [REDACTED]

>

>

>The product application clearly states why deployment is sensible and what we expect of it!

>

>

>In light of the EU-4/5/ DPF release promised for the [REDACTED] market by Technology, we request release for the applied-for engines. The [REDACTED]

>market is experiencing continuous growth with regard to model, version and engine variety. In addition, as a result of product and customs harmonization with the European market (particularly [REDACTED]), these engines are being increasingly demanded by customers. Currently, failure to meet this requirement is having a negative impact on customer satisfaction, which - as part of the [REDACTED] strategy

>approved by the senior brand manager - represents an important component of the 2018 strategy for this sales area. Therefore, the described volumes are meant as on-top volumes.

>

>Best regards,

>[REDACTED]

>

>From: [REDACTED]

>Sent: Friday, February 04, 2011, 2:35 PM

>To: [REDACTED]

>Subject: 12V586M: EU5-DPF DIESEL MARKET

>

EA11003EN-01869[3]

>

>Hello Non-responsive content removed

>

>The question here is: Why does it have to be EU5 for these countries and what do you expect of it (sales figures)?

>

>According to my information, not a single vehicle with EU5 has been sold yet!

>

>Mit freundlichen Grüßen / best regards / med venlig hilsen

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>

>VOLKSWAGEN AG

>D-38436 Wolfsburg

>Germany

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>

>www.volkswagen.com

>

Product assessment sheet: **Passat B7 Team**

Project: VW Passat 2.0l 125kW TDI DSG EU5 **SOP:** asap.
Model update point: [redacted] **Status:** t.b.d.

Product application (Product Marketing / --) **Name:** [redacted]

Description: In light of the EU-4/5/ DPF release promised for the [redacted] market by Technology, we request release for the applied-for engines.
 The [redacted] market is experiencing continuous growth with regard to model, version and engine variety. In addition, as a result of product and customs harmonization with the European market (particularly [redacted] these engines are being increasingly demanded by customers. Currently, failure to meet this requirement is having a negative impact on customer satisfaction, which - as part of the [redacted] strategy approved by the senior brand manager - represents an important component of the 2018 strategy for this sales area. Therefore, the described volumes are meant as on-top volumes.

•Vehicles:	Passat B7	•Engines/ Emission standard:	EU-5							
•Market:	[redacted]	•Price (WLP):	[redacted]							
•PR. no.:	36248Y									
• Volume	•EBR [redacted]									
Vehicles	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
	[redacted]									
Total	[redacted]									
•Additional volume:	[redacted]	•Substitution from:	[redacted]	0						

Feasibility assessment (Passat B7 Team)

•Technical short text (solution): [redacted]		
•Technically feasible	[redacted]	•Schedule feasible [redacted]
•Necessary activities	Responsibility	Deadline
TPD: BOM change Tool conveyance MBT MBV Verification: TPPA scheduling:	[redacted]	[redacted]

Financial assessment (Passat B7 Team)

•Revenue	EUR/Veh	[redacted]	•Unit costs	EUR/Veh	[redacted]
•Expenses Total	Mil. EUR	[redacted]	P invest.	Mil. EUR	[redacted]
Development costs	Mil. EUR	[redacted]	Q invest.	Mil. EUR	[redacted]
B invest.	Mil. EUR	[redacted]	Start-up costs	Mil. EUR	[redacted]
•DB per veh.	Mil. EUR	[redacted]	•DB total	Mil. EUR	[redacted]
•DB total	Mil. EUR	[redacted]	•Result	Mil. EUR	[redacted]

Decision

•Opinion: [redacted]
•Body: A6 Team **•Date:** [redacted]

ENTIRE PAGE CONFIDENTIAL

EA11003EN-01871[0]

Country / Collector				Altitude information		Emission laws	Exhaust aftertreatment			Injection system (Validation in cooperation with [redacted] required)		Maintenance				Sulphur content [mg/kg]		Cetane number [number]		Lubricity WSD (60°C) [µm]		Density (15°C) [kg/m³]		Viscosity 40°C [mm²/s]								
Country (if collector)	Model test country VW old (valid to 2212)	Model test country new	Fuel grade	Spec. (if visible at gas station)	Basis for decision (report)	Remarks:	Drivable altitude (m)	Altitude applications/passes (m)	Required car emission standard (Source: 01 10 10)	Next car emission level (year)	Use of EU3-compliant (EU4 for oxy-cat for light vehicles)	PMS for EU4 CR	Use of DPF for EU5	Water separator	Initial fuelling according to TG 788 X	Bosch (2.0 L TD) Orange = risk Violet = signitr. risk	Maximum approvable maintenance intervals for car diesel engines	Recommendation from [redacted]	Maximum approvable maintenance intervals for truck diesel engines	Recommendation from [redacted]	Required engine oils (service)	Required engine oils (first filling)	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
[redacted]	[redacted]	[redacted]	Special grades diesel 50 Extra and Gasoil 50		W 09/10 SGS		[redacted] - 2260	Europe application sufficient	n/a		Yes	Yes	Yes	No	5 L alter TL 788 X	AWP	30,000 km or 2 years	[redacted]	30,000 km or 2 years	[redacted]	VW 50700	TL 52 195	7	46	52.9	56.2	368	400	825.6	834.1	2.70	2.96



Initial results of Non-responsive content removed field analysis

Preliminary conclusions

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Initial results of Non-responsive content removed field analysis

- ▶ Preliminary conclusions:
 - ▶ No apparent fault with fuel low-pressure system, tank, or fuels
 - Striking features:
 - ▶ Dust load on tank external side
 - ▶ Particles in tank
 - ▶ Report on customers' fueling behavior (kerosene/gasoline addition possible)
 - Fuel samples taken from 7 vehicles and 4 gas stations for analysis
 - ▶ Quality of workshops and workshop processes varies
 - High-pressure fuel pumps are not installed oriented when exchanged
 - HP and low-pressure components are not exchanged at times
 - But this explains repeat repairs at best, not the initial failures
 - ▶ In individual cases, suspicion of electronic manipulation
 - Flash counter implausible
 - Tuning protection clip removed
 - Electronic theft protection retrofitted with second main relay
- > No obvious explanation for the large number of failures to date.**

Initial results of Non-responsive content removed field analysis

- ▶ High-pressure system
 - ▶ Only one of the examined vehicles had anything of note on the high-pressure fuel pump: slippage and stop flattening



Initial results of Non-responsive content removed field analysis

▶ Low-pressure system:

- ▶ An analysis of the examined low-pressure fuel systems did not show any variances in delivery volume or presupply pressure during driving states idle, partial load, and full load.

A detailed examination of the start processes is still needed.

- ▶ Extended measurement of the low-pressure system was carried out for two vehicles (Q7 and A6).

Result: Nothing of note

Neither the pump interior nor the return line were emptied.

After shutdown, an air bubble approx. 5 cm long formed and remained at the highest point.

A measurement of pressure in the return line showed suction of approx. 50 mbar in both vehicles after cooling down from approx. 50 to approx. 6 degrees C.

Initial results of Non-responsive content removed field analysis

▶ Tank system:

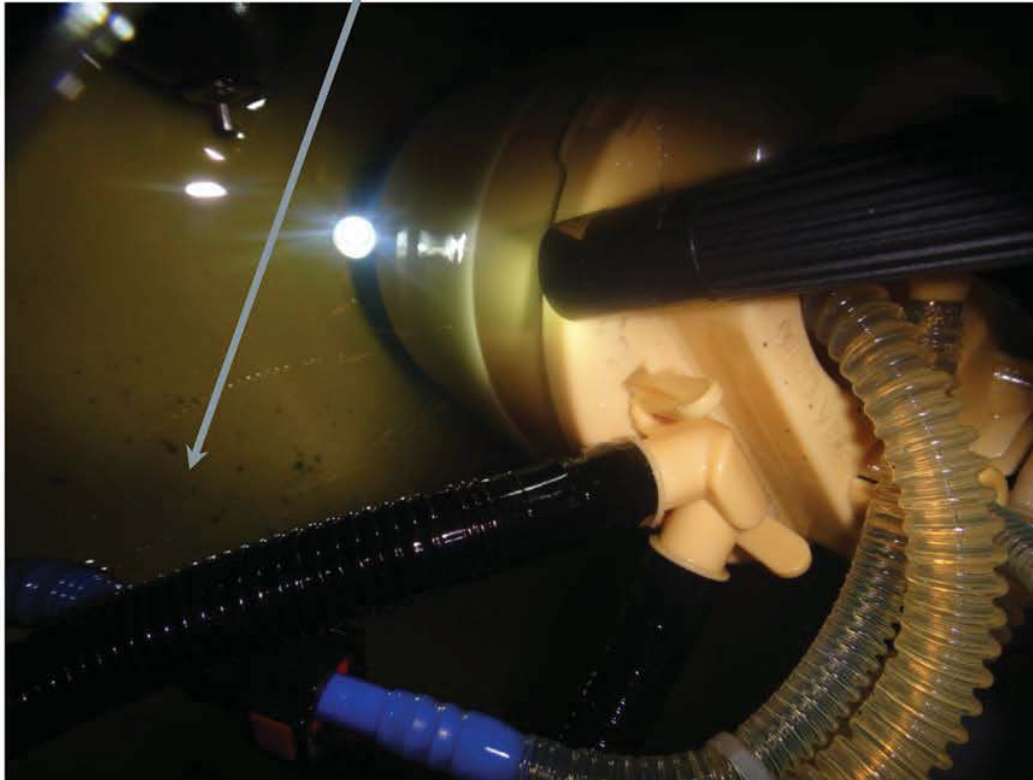
- ▶ The tank modules are sometimes exposed to extreme dust/dirt loads.
- ▶ A vacuum measurement of the Q5 tank system should be carried out in [REDACTED] to determine the opening pressure of the tank venting valve.
- ▶ Particles of different sizes and properties observed on the tank floor in several cases, including those with metallic origin.
No particles found behind the fuel filter to date.

▶ Fuels:

- ▶ The fuels found in the vehicles have not revealed anything of note yet (water, discoloration, deposit formation on the components...). The SGS analysis must provide more exact information about the fuel samples. In total, fuel samples have now been taken from **7** vehicles and **4** filling stations.
- ▶ The fuel filter was removed from 3 vehicles for analysis.

Initial results of Non-responsive content removed field analysis

Particles in tank



6 Non-responsive content removed



Dust load on dismantled tank

Initial results of Non-responsive content removed field analysis

- ▶ Fuel quality varies widely, even from the same vendor (samples were taken)
- ▶ Fueling habits vary widely (mixing of kerosene, gasoline, heating oil cannot be ruled out), particularly in the cold seasons
- ▶ The use of additives is unknown
- ▶ Workshop employees see a connection between the changeover from summer gasoline to winter diesel and the drivetrain failures

- ▶ Driving patterns are highly dynamic, even in urban, heavy traffic (digital)

- ▶ Indications of manipulation of the vehicle electronics:
 - ▶ Flash counter does not match documented flash activities (1 vehicle)
 - ▶ Tuning protection clip removed, no work on ECU documented (2 vehicles)
 - ▶ Unauthorized theft protection system retrofitted with second main relay (1 vehicle)

Initial results of Non-responsive content removed field analysis

- ▶ There are no clear instructions on the procedure, neither in ELSA or as a TSB, that ensure the quality of the entire remodeling process in uniform repair instructions. Such repair instructions must be written.
- ▶ Tracking of the examined vehicles must be ensured (IQIS, DISS, for example); a mail was sent to Non-responsive content removed to this end.
- ▶ Transportation paths of spare parts pumps: possible preliminary damage to the pumps during transportation from production site to installation site must be examined (formation of condensation water due to large temperature fluctuations, etc.)

Initial results of Non-responsive content removed field analysis

- ▶ Backup
 - ▶ Situation in the workshops

Initial results of [Non-responsive content removed] field analysis

- ▶ [Non-responsive content removed] Audi:
Equipment, workshop structure and organization, work safety at a good level
- ▶ [Non-responsive content removed] Audi:
Equipment, workshop structure and organization, work safety at a good level

- ▶ [Non-responsive content removed] VW:
The level of the authorized VW dealer in [Non-responsive content removed] deviates clearly.
In particular, during repairs after drivetrain damage, components were only selectively exchanged (injectors) or rinsed (rails, lines).
In the examined Touareg, the original presupply hose was still there after 3 cases of drivetrain damage; damaged connection points were corrected through shortening. The processing tracks of the repair work do not indicate appropriate caution (damaged and broken holders...)

Initial results of Non-responsive content removed field analysis

▶ [REDACTED] Audi:

The overall impression with regard to equipment (vacuuming, cleanliness, storekeeping), workshop structure, organization and work safety, this workshop differs significantly from the previous Audi workshops.

Dealer in “transition status” (Audi service); not an Audi Center. The dealer works on a 12-hour shift system 7 days a week. (The background for this, among other factors, is strict consumer protection laws that give customers a right of rescission after their cars have been in the workshop for 30 days).

At the workshop in [REDACTED] the maintenance work is divided: one or more mechanics replace the faulty components and a service technician then takes over the commissioning.

There are particular concerns during commissioning, first filing, etc.

From: Non-responsive content removed
EA1100

CC:
Date: 7/31/2008, 8:22:22 AM
Subject: ANS: PCC 2008-0197 / KD-Nr. 2045 / Typ 7L - Car suddenly stops. Engine doesn't start, engine warn light is active.

>
>From: Non-responsive content removed
>Sent: Wednesday, June 25, 2008, 6:32 PM
>To: Non-responsive content removed
>Cc:
>Subject: RE: PCC 2008-0197 / KD-Nr. 2045 / Typ 7L - Car suddenly stops. Engine doesn't start, engine warn light is active.

>Hello
>
>The generally have very good diesel, the HFRR value is also very good.
>
>There is one striking feature, however: The biodiesel content is imported. There have been (are ???) various problems with contamination.
>(steroylglucosides). Are you familiar with the damage? It could be follow-on damage from clogged fuel filters (in any case, the engine malfunction indicator lamp lights up very quickly due to the risk of leakage; the pump/nozzle unit gets slower and only in extreme cases dies of "exhaustion"). If so, can the filters be obtained?
>Are there any customer surveys to find out which gas stations the customers fueled at?

> Regards,

> Non-responsive content removed

>
>
>
>From: Non-responsive content removed
>Sent: Wednesday, June 25, 2008, 1:56 PM
>To: Non-responsive content removed
>Cc:
>Subject: RE: PCC 2008-0197 / KD-Nr. 2045 / Typ 7L - Car suddenly stops. Engine doesn't start, engine warn light is active.

>Hi all,
>
>According to the official list of the central laboratory, has very good diesel fuel.
>Lubricity is maximum 310 µm (460 µm is allowed according to EN590).

> Non-responsive content removed do you know of any current problems with diesel?

>With best wishes

> Non-responsive content removed

>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

>Wichtiger Hinweis: Die vorgenannten Angaben werden jeder E-Mail automatisch hinzugefügt und lassen keine Rückschlüsse auf den Rechtscharakter der E-Mail zu.

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Bosch CP4.1 Claim plausibility check (2.0l TDI BIN5)

- **Listed claims:**
 - MY 2009 = 99 vehicles
 - MY 2010 = 12 vehicles

- **Plausibility check:**
 - 12 x double bookings
 - 17 x costs < [REDACTED] (no HPP change)
 - 11 x costs [REDACTED] - [REDACTED] (no injection system change, therefore no HPP drivetrain damage)
 - 71 x costs [REDACTED] - [REDACTED] (⇒ injection system change)
 - ⇒ Large price range for system change implausible!

- ⇒ **71 potential, but not yet confirmed, cases of CP4.1 drivetrain damage**

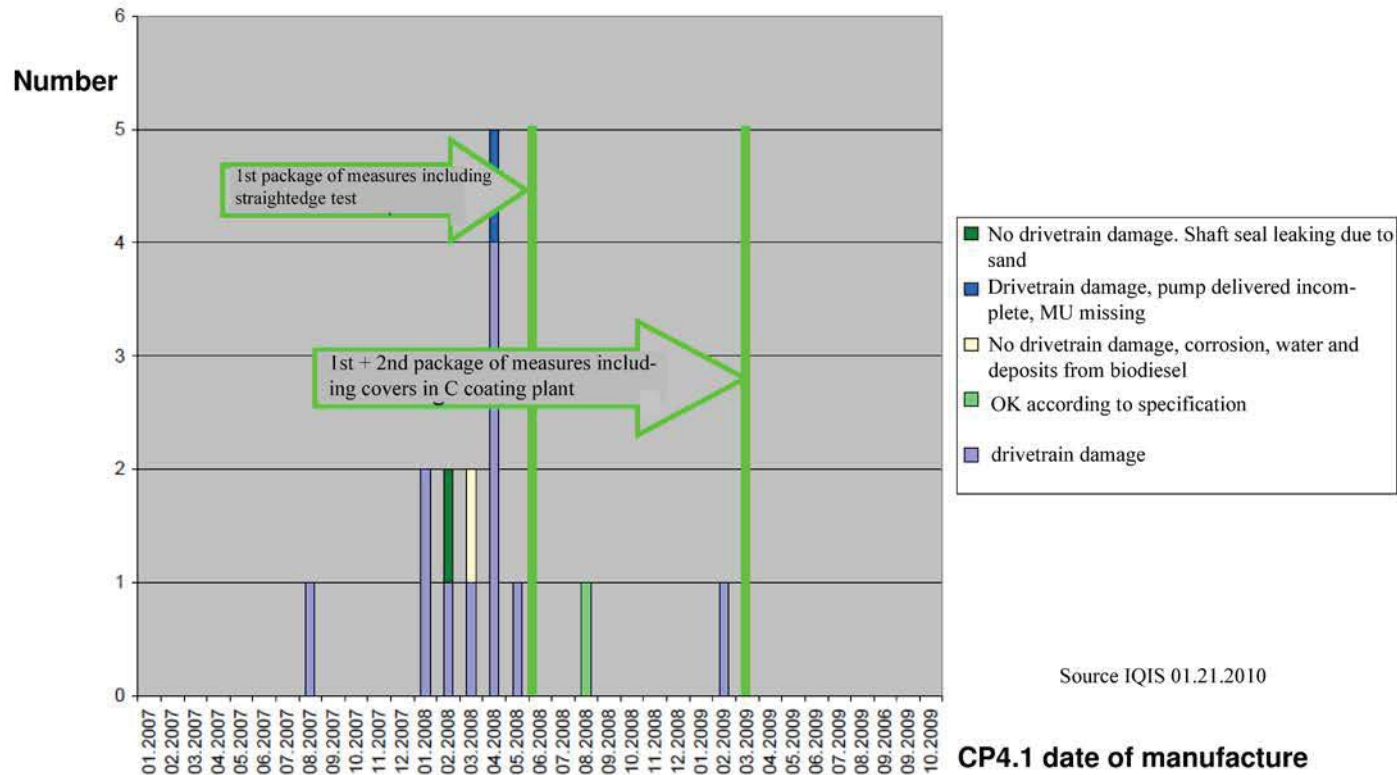
- **Diagnosis result (return of 15 high pressure fuel pumps in total):**
 - 1 x no defect
 - 1 x radial shaft seal camshaft leaking
 - 13 x HPP drivetrain damage



Bosch CP4.1 Claim plausibility check (2.0l TDI BIN5)


VW CP4.1 Field complaints from USA (0L 130 755A)

CP4.1 Field complaints from USA, status10, 21, 2010



Source IQIS 01.21.2010

1 Diesel Systems
 Confidential [redacted] 01/21/2010 | Auswertung USA: Triebwerkschaden 21.01.2010.ppt | © Robert Bosch GmbH 2009. All rights reserved. also regarding any disposal, exploitation, reproduction, processing, distribution, as well as for the registration of special industrial property rights.



Engine development

Engine test center • Drive electronics • Power train management • Diesel engine development • Gearbox development • Petrol engine development



EA11003EN-01880[0]

From: Non-responsive content removed**To:****CC:****Date:** 8/17/2010, 10:12:57 AM**Subject:** Re: 2374 High pressure fuel pump US07_comments VVoA Management Report_July 2010**Attachments:** Auswertung USA Feldbeanstandungen_21_01_10.pdf

Hello

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Do you have the current data on the BOSCH package of measures for the topic of "turned tappet?"

The latest document I have is from 01/21/10.

The same applies to the fault pattern "particles in non-return valve"

Could you please send me the documents?

>Regards

>

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>

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>

>Volkswagen Aktiengesellschaft

>

>D-38231 Salzgitter

>

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>

>www.volkswagen.de

>

>Volkswagen Aktiengesellschaft

>Headquarters: Wolfsburg

>Court of Registry: Local District Court Braunschweig

>Registry no.: 100484

>Chairman of the Supervisory Board: Ferdinand Piëch

>Board of Management: Martin Winterkorn (Chairman), Francisco J. Garcia Sanz, Jochem Heizmann, Christian Klingler, Horst Neumann, Hans Dieter Pötsch, Rupert Stadler

>Wichtiger Hinweis: Die vorgenannten Angaben werden jeder E-Mail automatisch hinzugefügt und lassen keine Rückschlüsse auf den Rechtscharakter der E-Mail zu.

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>From: Non-responsive content removed

>Sent: Wednesday, August 04, 2010, 3:13 PM

>To: Non-responsive content removed

>Cc:

>Subject: 2374 High pressure fuel pump US07_comments VVoA Management Report_July 2010

>

EA11003EN-01880[1]

>

>Dear Non-responsive content removed

>

>Could you please let us know the last BOSCH package of measures on the subject of "turned tappet"; which clean date is available?

>Are there any measures for fault pattern "particles in non-return valve"?

>

>

>Open Issues Within Top 20 – Engine MY'10 (yellow light)

>2.0l TDI CR

>(CJAA) Engine malfunction indicator lamp lights up CNR / Component: 2374 high-pressure fuel pump 20 CoD >(part no. 03L.130.755.A) (of which 7 breakdowns) Status

>Complaint: starter turns, engine does not start (13x); reduced power (3x); MIL on (1x) >Comment: All cases after engine clean date (CJAA 005303)

>Causes/

>Analyses:

>Workshop: - Fuel system soiled by metal shavings from the high-pressure fuel pump

> - No indication of improper refueling

> - High-pressure fuel pumps and fuel components replaced 17x

>

>

>Note: - 3x defects were remedied on site by the workshop (electrical faults, other components)

> - 12 HPP delivered for analysis:

>

>Analysis of 2 parts at [REDACTED]: 1x Particles in the non-return valve

>(05/21/2010) 1x drivetrain damage possibly due to poor fuel

>

>Analysis of further 10 parts at Bosch: a) 4x drivetrain damage (cause: "turned tappet")

>(06/30/2010) b) 1x tension pin on cone of drive shaft damaged - pump OK

> c) 2x Caused by (poor) fuel quality (water content too high, deposits caused by possible fuel additives)

> d) 3x NTF Non-responsive content removed

>

>Next step: Pursue in NAR damage discussion. Non-responsive content removed

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>1

>Measure/

>Series: a) Bosch remediation measures include straightedge check, visual inspection catalog, roller support

EA11003EN-01880[2]

>b) Assembly damage VW

>c-d) omitted

>

>

>

>Viele Grüße / Best regards

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EA11003EN-01882[0]

From: Non-responsive content removed
To: [Redacted]
CC: [Redacted]
Date: 8/30/2010, 1:52:13 PM
Subject: Re: Complaint HP fuel pumps US07 engines
Attachments: 30.08.10--Hochdruckpumpe-gem_doc.pdf

FYI

>
> From: Non-responsive content removed
> Sent: Monday, August 30, 2010, 2:47 PM
> To: Non-responsive content removed
> Subject: Re: Complaint HP fuel pumps US07 engines

>
>
>
>
>
> From: Non-responsive content removed
> Sent: Monday, August 30, 2010, 2:42 PM
> To: Non-responsive content removed
> Cc: [Redacted]
> Subject: Complaint HP fuel pumps US07 engines

>
> Hello [Redacted]
>
> Attached is the latest information on the HP complaints in the Jetta 2.0l 103kW TDI CR

>
>
>
> All other HP fuel pumps were analyzed in [Redacted] with Bosch.
>
> 3 pumps from the U.S. are currently in Chemnitz for analysis. A preliminary analysis of these pumps will take place by 09/01/10.
> The subsequent analysis at Bosch (8D report) will follow and has already been coordinated.
>
> >With best wishes

> Non-responsive content removed
> [Redacted]
> [Redacted]
> [Redacted]
> [Redacted]
> [Redacted]
> [Redacted]

> Volkswagen Sachsen GmbH
> Sitz/Domicile: Zwickau
> Registergericht/Court of Registry: Local District Court Chemnitz
> HRB no./ Commercial Register No.: 1666
> Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Jochem Heizmann
> Geschäftsführer/Executive Directors: Frank Löschmann (Sprecher/Managing Director), Henry Mehnert, Robert Stauß
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EA11003EN-01883[0]
2.0l TDI CR
(CJAA)

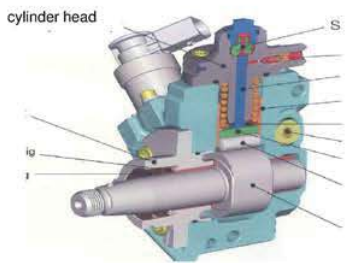
Engine malfunction indicator light	CUST NO / part: 2374 High-pressure fuel pump (part no. 03L.130.755.A)	15 CoD	Status
-------------------------------------------	---------------------------------------------------------------------------------	---------------	--------

Complaint: Starter turns, engine does not start or is difficult to start **(12x)**, reduced performance **(2x)**; MIL on **(1x)**

Causes/analyses:

Workshop: - Fuel system soiled by metal shavings from the high-pressure fuel pump
 - No indication of improper refueling
 - High-pressure fuel pumps and fuel components are replaced

Note: - 12 HP fuel pumps were provided for analysis
 - 3x errors were remedied on site by the workshop (electrical faults, other components)



Analysis of 2 parts at [REDACTED] (5/21/2010)

- 1x** Particles in the non-return valve
- 1x** drivetrain damage possibly due to poor fuel

Analysis of an additional 10 parts at BOSCH: (6/30/2010)

- 4 x** drivetrain damage (cause "turned tappets"; Bosch remediation measures among others, straightedge testing, visual inspection catalog, roller support etc.)
- 2 x** caused by fuel quality (excessive water content, deposits from poss.impurities in the fuel)
- 3 x** no errors established -HP fuel pump OK
- 1 x** tension pin on cone of the drive shaft damaged - pump OK (installation damage VW, drive shaft pinion not provided for analysis)

Next step: Continued tracking in NAR - damage discussion

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 R: [REDACTED]

2

Measure/Series: Measures implemented - Bosch - ("turned tappets.. / . Bosch package of measures)



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EA11003EN-01884[0]

From: Non-responsive content removed**To:****CC:****Date:** 9/23/2010, 7:19:49 PM**Subject:** Re: NHTSA inquiry Jetta TDI DM 2009**Attachments:** [20100922152411144.pdf](#)

Hello

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Here are the SNs for the item of the failed 20l CR pumps (BOSCH CP4.1) in the U.S. in tomorrow's APS. None of us have been able to inspect any of the affected HP fuel pumps yet, and as a result do not know why the vehicles ultimately failed. From a technical perspective, the sudden stopping of the engine due to an HPP defect can only be explained if shavings settle in the intake valve and it remains open as a result, which has a very rapid effect on the rail pressure. We already have a strainer before the high-pressure part on the MU, which would have to be bypassed in this assumed case. We do not have any indication of this from the available workshop information. In future (from WK45), we will use another strainer directly before the intake valve in the CP4.1, to avoid 0km failures due to original soiling from the manufacturing process. This would provide double protection for this failure hypothesis as well.

Based on the damage reports from the respective workshops, we assume that a wide range of different defects in the fuel system resulted in emergency running of the affected vehicles. In one case, an Internet reference from an affected customer even pointed to a defective in-tank pump in connection with contaminated fuel. In addition, the HPPs were only exchanged in 3 of the 5 cases linked to this complaint. Since drivetrain damage in an HPP never comes suddenly, but instead continued driving in emergency running is possible, then at least "limping" is possible, so we do not assume a fast breakdown based on the available information.

The affected customers in the U.S. were left with the diagnosis "contaminated fuel" and extremely high workshop invoices, which understandably resulted in displeasure.

Regards,


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Memo from 

Official inquiry from the NHTSA PE10-034 - Diesel high-pressure fuel pump

NHTSA launched an investigation due to 7 customer complaints (VQQs) addressed to the agency. The customers complained about breakdowns with sudden loss of drive (the vehicles had to be towed). The scope of the inquiry corresponds to that of a "usual" preliminary investigation (PE). The questions involve the affected and comparable vehicles.

<u>Affected vehicles:</u>	Jetta TDI MY2009, U.S. market (approx. 38,000 vehicles)
<u>Comparison vehicles:</u>	Jetta TDI from MY2005-2008 and 2010, U.S. market
<u>Affected component:</u>	All components of the fuel system / TDI vehicles
<u>Accusation:</u>	Engine stalling and loss of power

In particular, the investigation is inquiring about the reasons for contamination of the fuel system, because according to the customer complaints, the stalls/breakdowns have resulted in extremely high repair costs (up to \$ ). This definition indicates the focus of the investigation will be "Common rail TDI high-pressure fuel pump".

The submission date for this NHTSA investigation is November 3, 2010.

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ontent removed



22.09.2010

From: Non-responsive content removed

To:

CC:

Date: 8/3/2010, 9:36:00 AM

Subject: RE: AoA Q7 TDI Launch ConCall

Attachments: [SCR Dossiermodul USA QTS 3728206.msg](#)

... 21 is far too many HPP failures !!!
although half of them were the fault of customers or dealers.

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With best regards

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-----Original schedule-----

From: Non-responsive content removed

Sent: Tuesday, August 03, 2010, 8:00 AM

To: Non-responsive content removed

Subject: Re: AoA Q7 TDI Launch telco

Time: Tuesday, August 3 2010 3:30-4:30 PM (GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.

Location:

Hello

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FYI see pump damage. I have never seen so many before.

Regards,

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From: Non-responsive content removed

Sent: Tuesday, August 03, 2010, 12:17 AM

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EA11 Non-responsive content removed

Subject: AoA Q7 TDI Launch telco

Time: Tuesday, August 03, 2010 3:30 PM-16:30 (GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.

Location:

Meeting will be changed to every other week starting Monday March 10. Meeting data will be sent beforehand.

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Repair Authorization (obligation to inform) is now over!

< File: TDI High Pressure Fuel Pump Failures.xls >>

Agenda for WK31

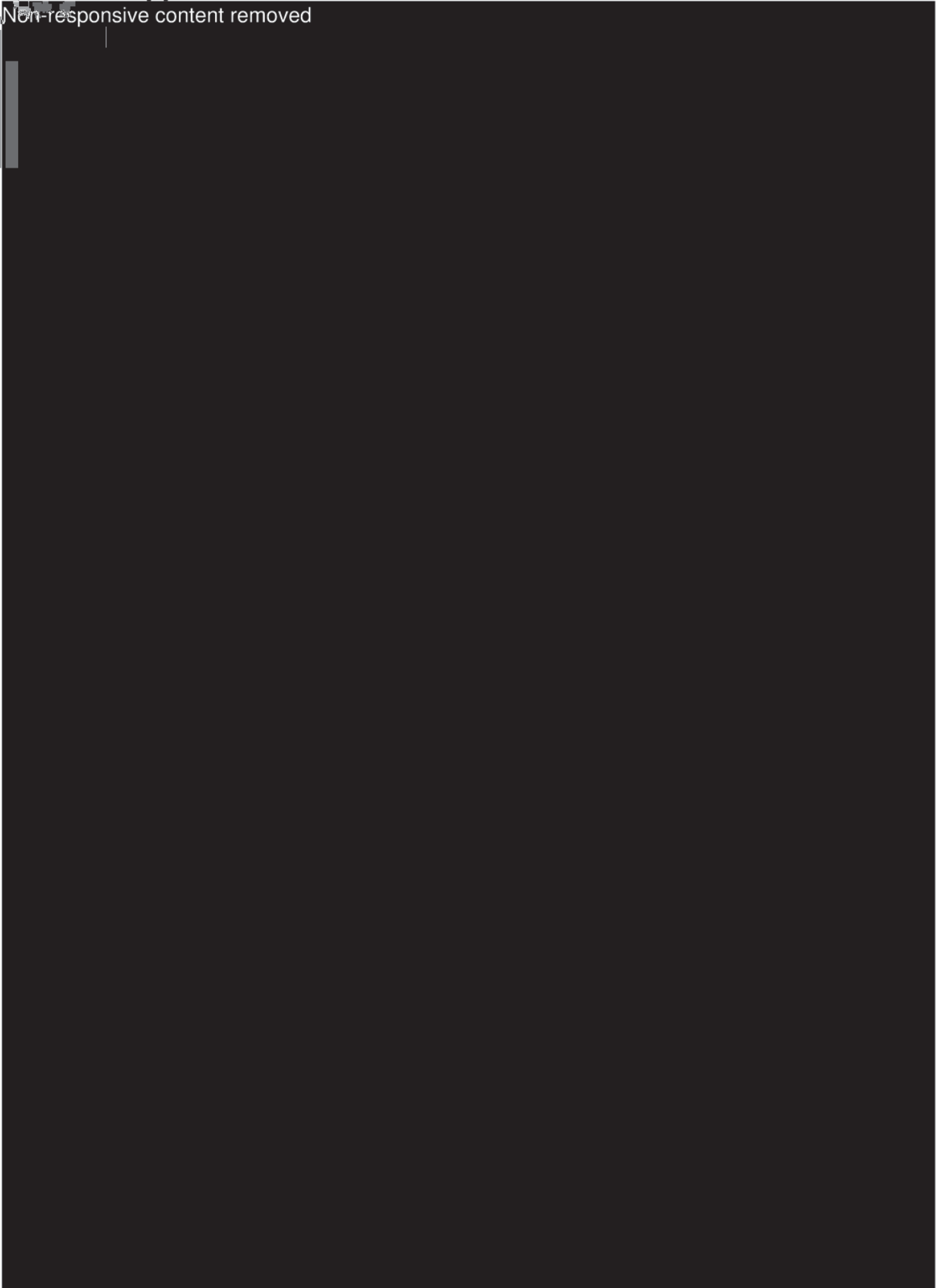
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See attached Excel Lists for fuel pump, Non-responsive content removed


Engine

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9 x High pressure fuel pump failure, TOW IN, 1790 miles, no DTC, WA1AM74L89D [REDACTED]
WA1AM74LX9D [REDACTED] (9237 miles) , WA1VMAFE3AD [REDACTED] (5904 miles, MY10, metal shavings in filter, under investigation), WA1VMAFE3AD [REDACTED], 5904 miles, MY10, under investigation, WA1AM74LX9D [REDACTED] 10705, under investigation, WA1VMAFE9AD [REDACTED] under investigation,

no signs of contaminated fuel, metal found in fuel system). NEW WA1VMAFE7AD [REDACTED] metal found in filter and Mprop, no signs of fuel contamination WARRANTY CLAIM, WA1CM74L69D [REDACTED] rust, sand, and metal found in filter housing, Will not be claimed under warranty. WA1AM74L99D [REDACTED], metal found in filter, checking Mprop, WARRANTY CLAIM


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From processor

Tel

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6/19/2008

Log

Recipients, see participants

Info: Non-responsive content removed

Host

Participants VW

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Head

Minutes

Organiz.

Date/location 06/12/2008, 12:00 PM - 2:00 PM, Bosch

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Topic

Review field launch support R4 2.0L CRS3.2

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Summary

The field deployments to date in the framework of the shared launch support of the R4 2.0L gen.1 were introduced and discussed. A continuation of the collaboration between the VW field launch team and the Bosch Field Competence Team for subsequent launches was agreed upon. In addition, in preparation for future launches, VW- and Bosch-FCT will already receive support with problems in the framework of development and Q verification endurance runs.

Detailed minutes**Info in field complaints without reports to FCT (Attachment 1, Page 4)**

- Vehicle. ID VWGZZZ5NZ8W Pump was exchanged in framework of MU exchange campaign, but was OK

Notes on field deployments in R4, 2l launch (Attachment 1)

- Note on case 5 (Pages 15-16): Workshop will exchange the control unit. If this corrects the fault, the CU will be sent to Bosch for diagnosis through standard channels; feedback to Bosch FCT
- GFF is broken off in workshops in some cases. Reason unclear.

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From processor

Tel

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6/19/2008

Log

Review field launch support R4 2.0L CRS3.2

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Further information on improving diagnosis in VW workshops

- Extend guided fault finding to low pressure circuit
- Start GFF from tank
- Check of low pressure circuit and pressure before PRV should be integrated in standard diagnosis => Simple check with potential to prevent expensive incorrect dismantling of turbocharger and high-pressure pump in case of certain PRV defects (for example, Attachment 1, Pages 17-18, case 6).
Suitable diagnostic tools (LP case, HP case, return volume measurement device) were introduced by Bosch (Attachment 2)
- Implementation of improvements in GFF are responsibility of VW; already in process according to VW

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Follow-on launches

- The subsequent launches, particularly with reporting requirements for complaints involving the fuel system (Passat CC, Golf 6-Wk45/08, Scirocco-Wk48/08) were introduced (Attachment 3).
- Continuation of the previous collaboration for subsequent launches was agreed upon.
- Support for the Bosch FCT after the end of the required reporting period was promised for serious complaints.
- Bosch proposed to expand support by VW-██████████ and Bosch-FCT for relaunches to test endurance runs and Q assurance endurance runs (particularly CRS2.5). This support should start around 3 months before market launch and serves to establish expertise for the series launch.
This suggestion was received positively by VW and will be implemented as needed.

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From processor

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6/19/2008

Log

Review field launch support R4 2.0L CRS3.2

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General

- The VW FAT/Bosch FCT collaboration was assessed very positively by both houses, both individually and as a concept.
- In the case of preliminary examinations of Bosch CR components through field complaints by VW, the participation of Bosch employees is agreed upon in advance
- VW requested that Bosch FCT hold spare parts ready during deployments, to supply the affected workshop in case of bottlenecks in VW spare parts supply.
Bosch pointed out that eliminating the causes in the supply chain would be more effective. The FCT's task in collaboration with the VW field launch team is to improve diagnosis in the VW workshop.
- VW employees [REDACTED] have already contributed knowledge from the Bosch CRS diagnosis training course in [REDACTED] to the VW GFF
- VW requests that Bosch check whether the CRS diagnosis training course can be held in WOB.
This is not currently possible due to capacity bottlenecks among the instructors. As a result, synergy effects through interchange with participants from other OEMs (rated very positively by previous participants) would be excluded.
- Series launch US07 (Jetta) in the U.S. will take place without direct support by the VW field launch team.

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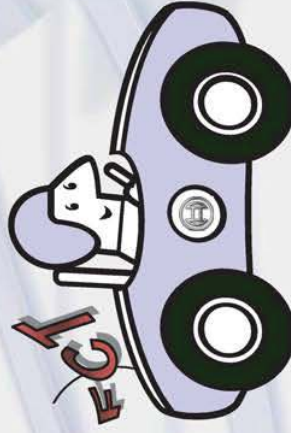
The next meeting will take place after the end of the mandatory reporting period for the Golf 6 (E2008/A2009) or as needed to discuss new on-site deployments.

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1. Review Field Launch Support

VW-BOSCH for R4 2.0I CRS 3.2



06/12/2008
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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Agenda

1. Presentation of FCT activities from **Non-responsive content removed** and **Non-responsive content removed** Bosch, VW
2. Discussion of detected optimization options in repair shop diagnostics Bosch, VW
3. Roadmap for further VW launches with mandatory reporting VW
4. Agreement to further cooperation VW, Bosch
Field Launch Team, VW and Bosch FCT
 - Series: **Non-responsive content removed**
 - Non-series, e.g. ER support development, quality validation



1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Summary of FCT cases for VW R4 engine

- Because of the good start with the R4, there were few field complaints in the period under review.
6 cases were reported to FCT (in 2 cases the HPP was examined by VW Development and only presented to Bosch in dismantled form).
3 additional cases are only documented in the Bosch warranty data-base (IQIS), which means a total of 9 cases are known

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1. Review Field Launch VW-BOSCH for R4 2.0l CRS 3.2

R4 field failures up to 06.09.08 (from Bosch warranty system) VW failures

VW failures

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CP4.1 failures												
QC no.	QC issue date	RB Customer	Customer Material	Material	Date of manufacture	Date/purchase	Date of failure	Mileage KM VIN	Vehicle model(keyword)	Customer complaint	Decision	Remark:
230001915354	09.01.2008	VW	03L130755	0445010507	10.05.2007	12.07.2007	12.14.2007	14	5N8W010285	The Cling of the MU has sheared off	Bosch's responsibility	No info to FCT
230001933956	01.28.2008	VW	03L130755	0445010507	10.20.2007	12.07.2007	01.04.2008	396	WVGZZZ5NZ28	Mechanical fault	OK according to specification	No info to FCT

Audi failures

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CP4.1 failures												
QC no.	QC issue date	RB Customer	Customer Material	Material	Date of manufacture	Date/purchase	Date of failure	Mileage KM VIN	Vehicle model(keyword)	Customer complaint	Decision	Remark:
230001917421	1/10/2008	AUDI	03L130755	0445010507	18/17/2007	12/11/2007	11/4/2008	350	WUZZZ28K48A	Fail pressure not OK	Bosch responsibility	Info to FCT
230001930606	1/23/2008	AUDI	03L130755	0445010507	5/1/2007	12/6/2007	12/13/2007	365	BK08A002485	Mechanical fault	Bosch responsibility	Info to FCT
230001992667	3/13/2008	AUDI	03L130755	0445010507	1/18/2007	3/4/2007	3/12/2008	6733	BK69A000578	Leak	Bosch responsibility	Info to FCT
230002070696	4/14/2008	AUDI	03L130277	0445010507	1/11/2008	3/26/2008	3/26/2008	25	WUZZZ28K48	Engine will not start.	Bosch responsibility	Info to FCT
230002125197	5/28/2008	AUDI	03L130755	0445010507	3/12/2008	4/17/2008	5/5/2008	1584	BK18A035821	Preheat light lights up, vehicle stopped	Not classified	Info to FCT

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

VW R4 field failures (reported to FCT)

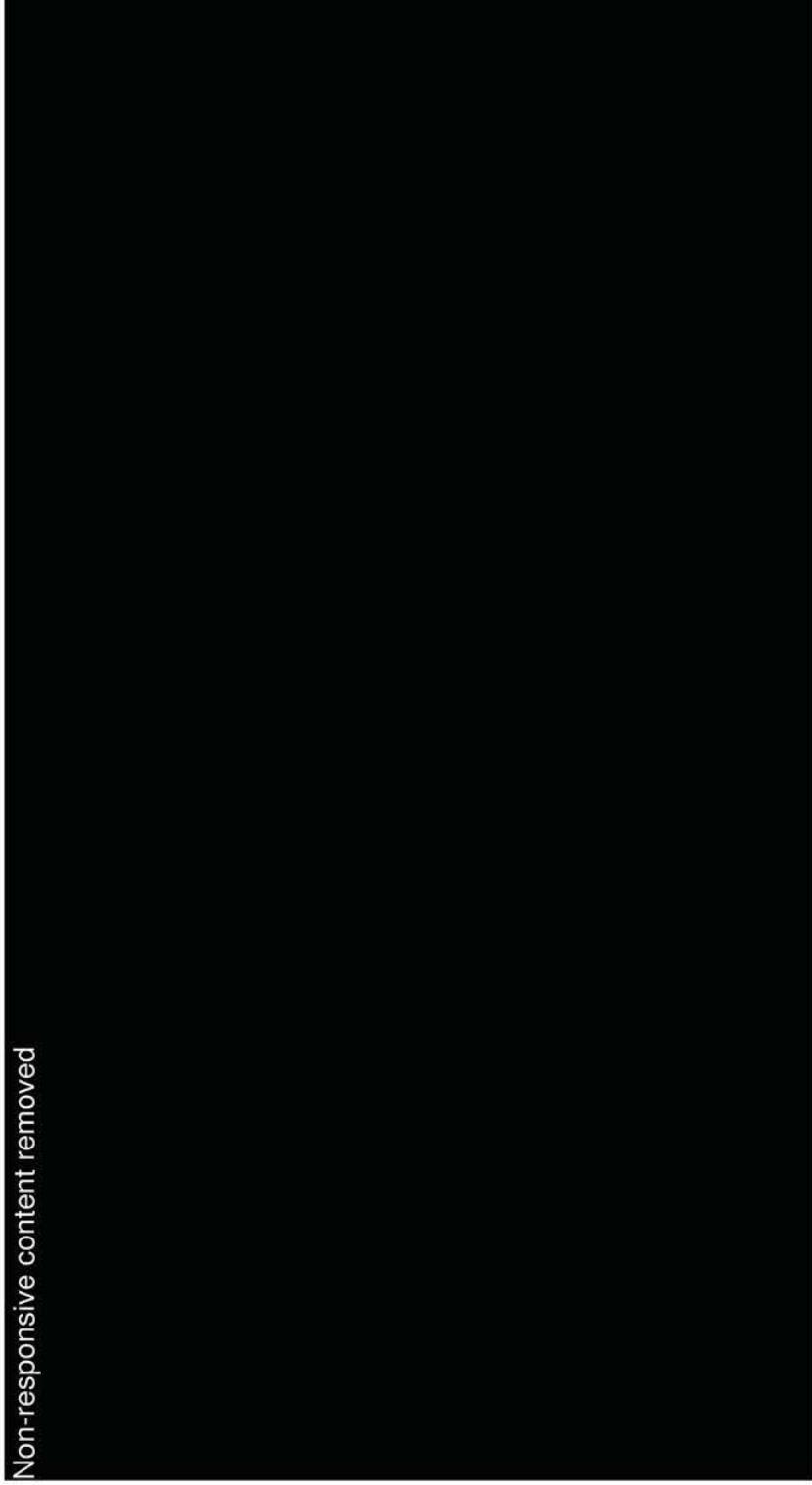
No. customer	VIN:	VOT no:	Case date:	QC number:	Location:	Eng. typ	Part:	Remark:
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2	VW 5NZ8W003205	1558	1/15/2008			R4	CP4.1	Chip in intake valve HPP analysis from VW Development
3	VW 5NZ8W004458	1605	2/21/2008			R4	CP4.1	After replacement of CP4 vehicle OK, HPP analysis at VW Development --> Chip in intake valve (see report)
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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 1: d

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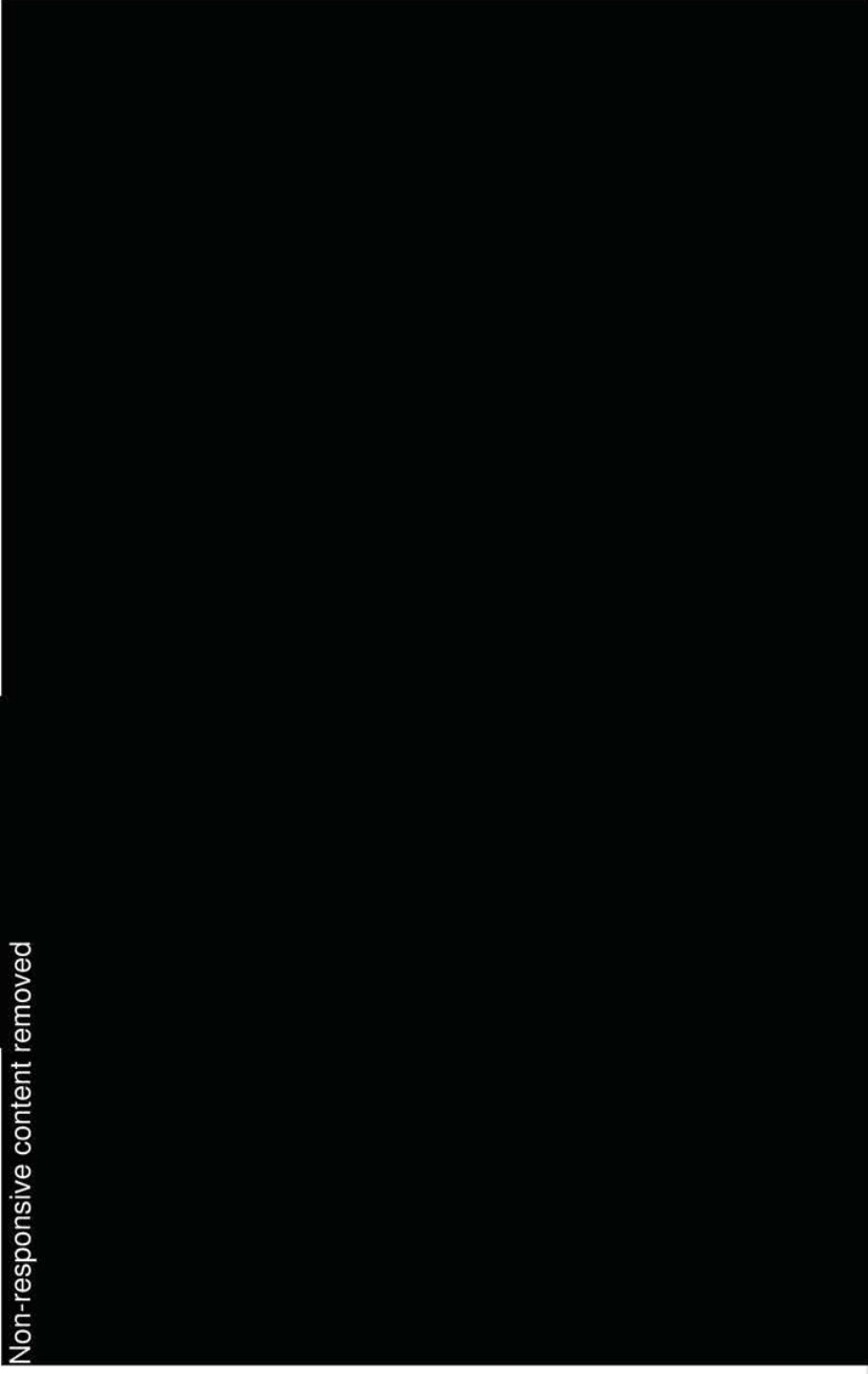
BOSCH

1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 1:

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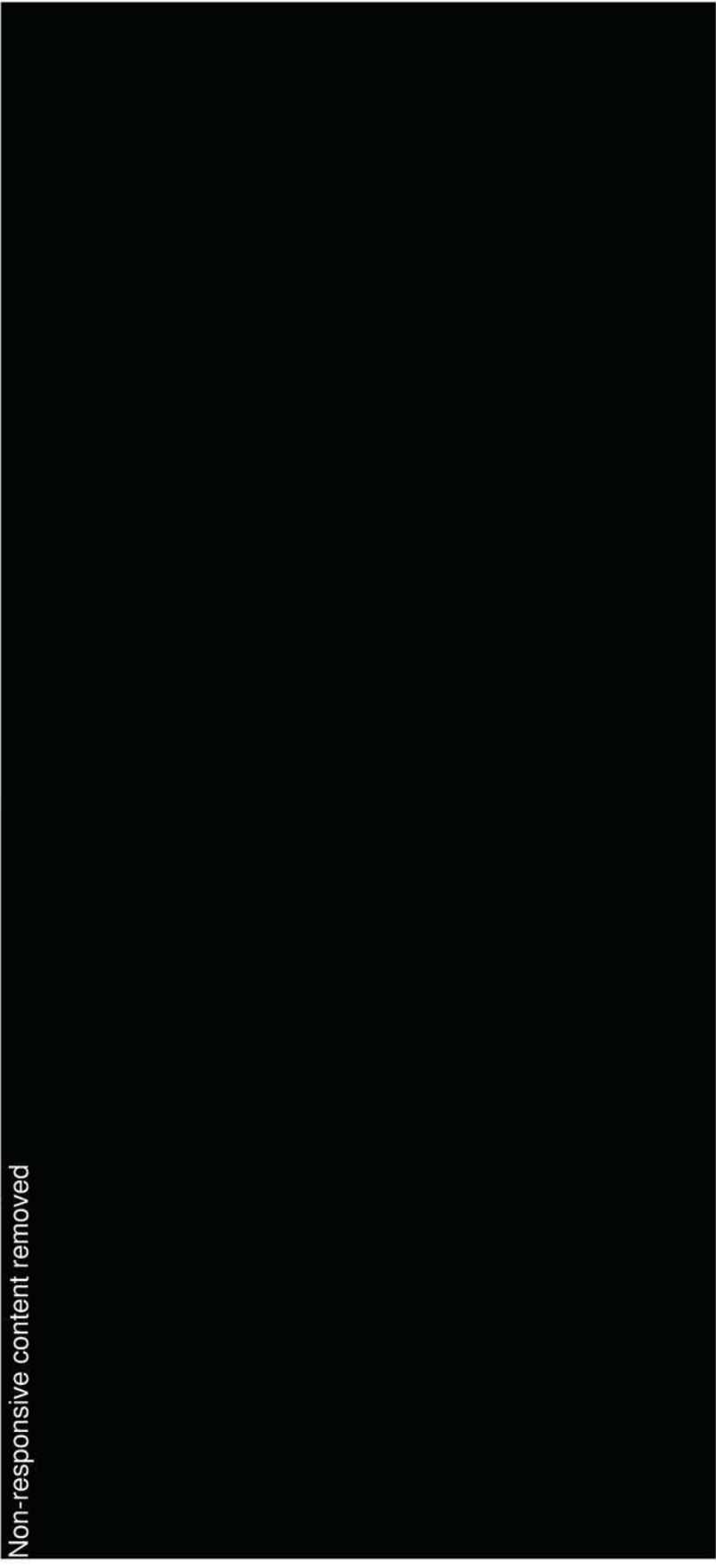
BOSCH

1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 1:

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BOSCH

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 2:

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Vehicle data

Delivery date:

1/4/2008

Chassis number:

5NZ8W003205

MILEAGE:

35 kilometers

Report date WS to TSC:

1/8/2008

Report date to FCT:

1/15/2008

FCT deployed on:

1/16/2007

Involved:

VW

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Complaint data/ error code

Vehicle stopped while going and would not restart, error code: P0087

Fuel rail/system pressure too low

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1. Review Field Launch VW-BOSCH for R4 2.0l CRS 3.2

Case 2:

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Symptoms reason for failure/ cause:

Cause of failure: HPP cannot build up pressure due to particles in intake valve.
Analysis by VW Development.
Notes: The component causing the problem was clearly determined using the HP case
The VW GFF for error memory entry “Fuel rail/system pressure too low” could not be carried out because the engine operating temperature (target 50°C; actual <50°C [engine doesn’t run]).

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 3: Non-responsive content removed

Vehicle data

Delivery date: 11/15/2007
Chassis number: 5NZ8W004458
MILEAGE: 2,493 kilometers
Report date WS to TSC: 2/20/2008
Report date to FCT: 2/21/2008
Telephone support on: 2/21/2008

No FCT deployment at local level because HPP already replaced before reporting to FCT.

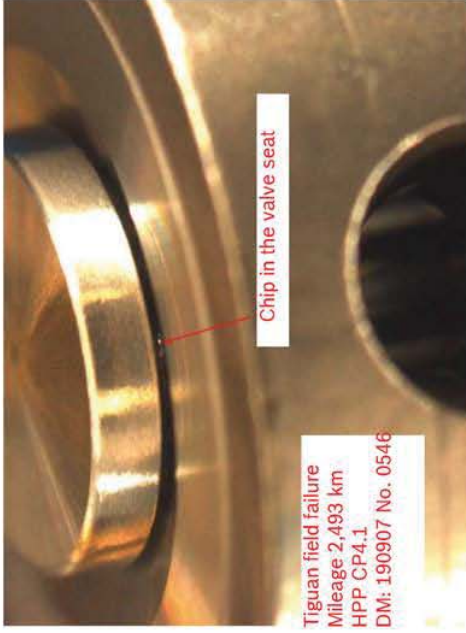
Complaint data/ error code

Vehicle stopped and will not start
Error code: none



1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 3: Non-responsive content removed



Symptom reason for failure/ cause

Cause of failure: HPP cannot build up pressure due to particles in intake valve. Analysis by VW Development.

Notes: None

1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 4: Non-responsive content removed

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 4:

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 5:

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 5: Non-responsive content removed

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BOSCH

1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 6: Non-responsive content removed

Vehicle data

Delivery date:

Chassis no.: - 3CZ8E232070

Mileage: 218 kilometers

Report date WS to TSC: 5/28/2008

Report date to FCT 5/28/2008

FCT deployed on: 5/29/2008

Involved: VW

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RB

Complaint data/ error code

Loss of performance at approx. 2900 rpm, under load.

Error code: Non-responsive content removed

P0088 Fuel rail/system pressure too high

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Case 6:

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1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Conclusions

- Good cooperation with VW in the cases listed
 - Open communication with [REDACTED] and workshop.
- Swift reaction from FCT
 - Max. 1 day to deployment

Potential for improvement in cooperation

- Earlier consultation with Bosch can help reduce examination and repair time => high level of customer satisfaction
- Incorporate FCT in all cases.
- Submit all damaged parts via RB standard examination channel.



1. Review Field Launch VW-BOSCH for R4 2.0I CRS 3.2

Possible improvements when diagnosing rail pressure errors

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- Examination of the pre-conveyor pumps for pressure and conveying volume.

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Service tools for Bosch Common Rail Piezo System

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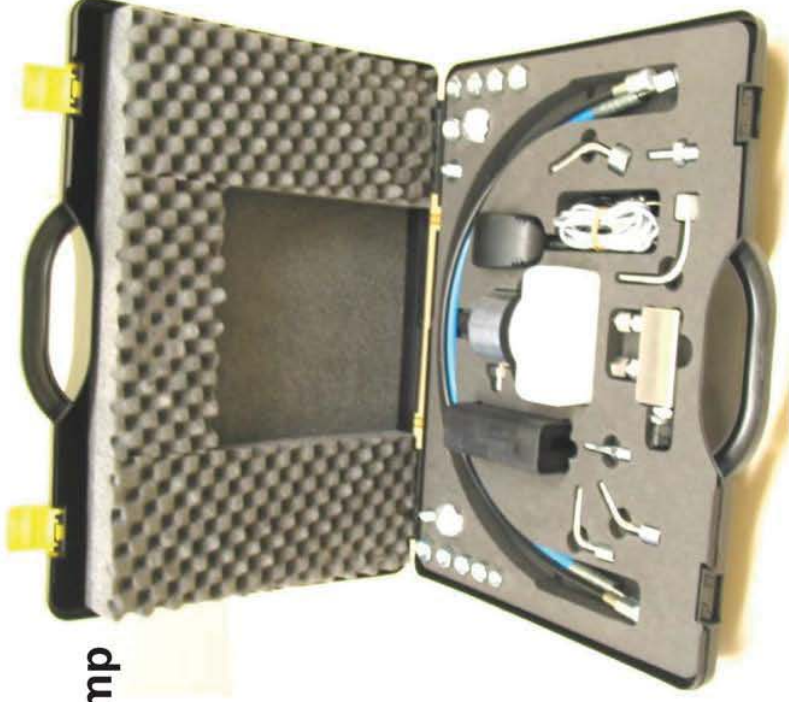


BOSCH

Service tools for Bosch Common Rail Piezo System

Case: Diesel Set 3

**Bosch order number:
0 986 613 100**



- **To test pressure build-up of CR pump**
- **For RDS comparison check**

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Pressure build-up check

➤ Description

The test unit, consisting of pressure build-up test device and display unit is used to **check the pressure build-up of the high-pressure fuel pump** in common rail (CR) systems. The determined values for the pressure level represent a measure for the pressure build-up capacity of the pump under engine start conditions

➤ How it works

The test device with catch tank is connected directly to the high-pressure connector of the diesel high-pressure fuel pump. To do so, the high-pressure line between pump and rail is detached and the test device is connected to the high-pressure fuel pump through a test line. The engine cannot be started in this condition. While the starter is pressed, the delivered volume is collected in the pressure chamber. The overflow volume flows into the catch tank. The determined pressure value is shown on the corresponding digital display. To protect the pump, the overflow valve is activated when pressure > 500 bar is reached, for pressure relief.

➤ Notes

Adaptation for all widespread CR systems is possible; it could also be used in conventional systems, as well as low-pressure and gasoline systems. *)



*) Applicability must be checked individually

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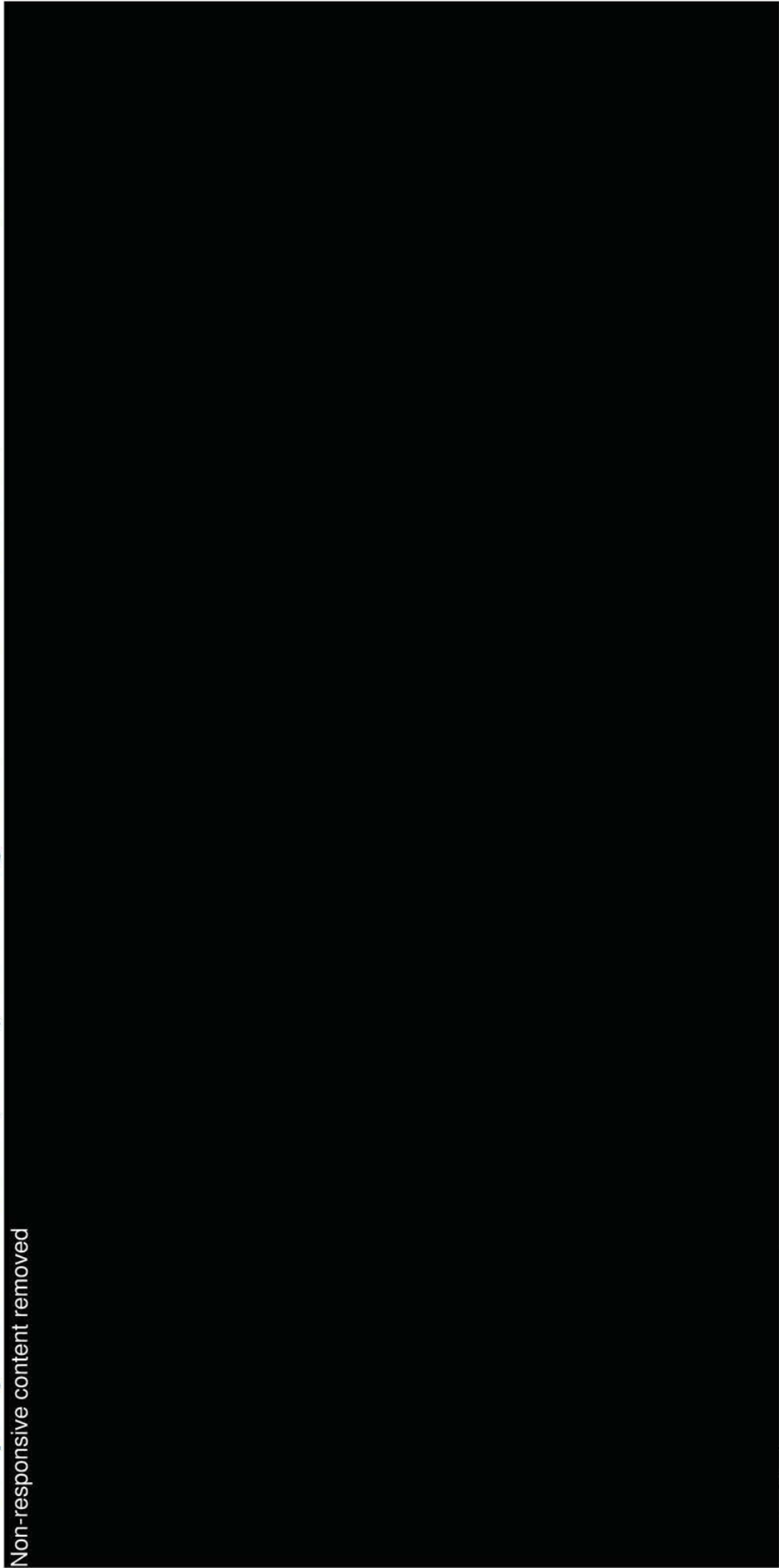
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VOLKSWAGEN
AKTIENGESELLSCHAFT

Deployment dates (ZP4) CR engines in the vehicles 2008

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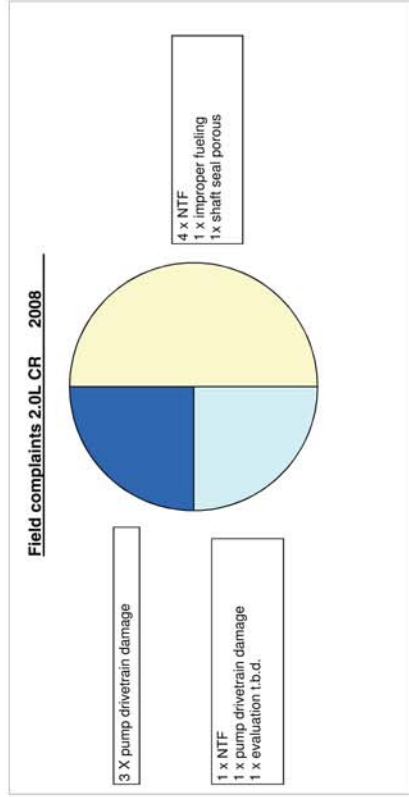
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COMPONENT PLANNING



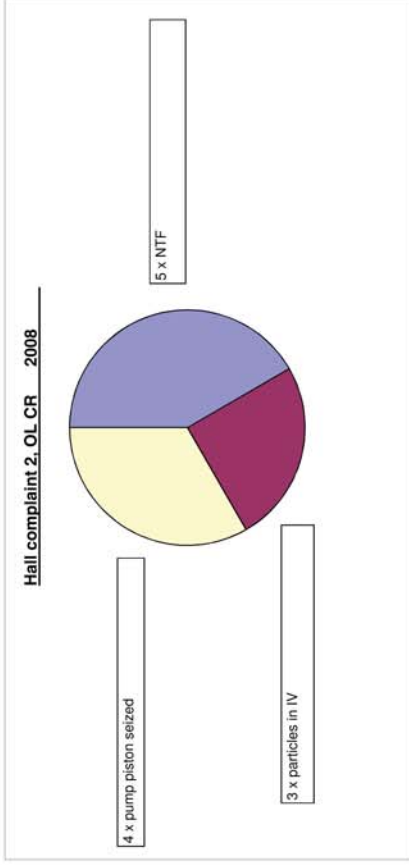
– Status: 06/11/2008 – 1

EA11003EN-01901[1]

Tiguan improper fueling	5
Tiguan shaft seal porous	3
Tiguan NTF	3
Passat NTF	3
Passat pump drivetrain damage	4
Passat t.b.d.	
Jetta pump drivetrain damage	3



Passat NTF	5
Passat particles IV	3
Passat pump piston seized	4



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Quality Campaign 2.0I TDI BIN5

Subject: **Q campaign 2.0I TDI BIN5**

- Consistent tracking of all damage topics by the named persons responsible
- Weekly topic tracking and consolidation of focal points
- Formation of an on-site task force similar to launch
- Definition of remedial measures and deadlines
- Regular reporting to management
- Transfer of results to subsequent projects
- Analysis of internal “weaknesses” (communication, testing, analysis)
- Development of a concept for improving verification / testing (e.g., location, driving style, courses, intensity, etc.)

Engine development

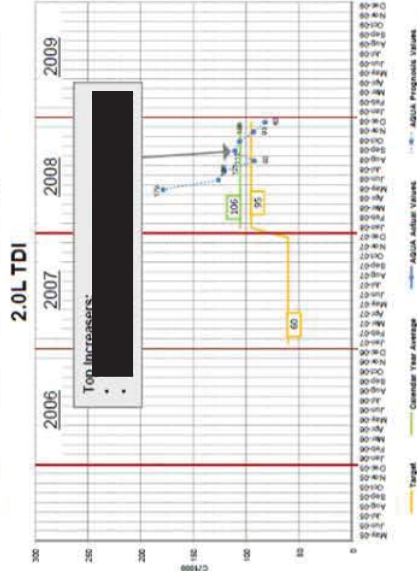


Overview of total number of damage cases / engine

VW Brand Engine Quality – 12 Month of Ownership – Actual/FPQ Prognosis
00P30FPQ [redacted] (Calendar Year 2005 – 2008)

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Source: AQUA
November 2009

Page 44

Engine development

Engine Test Center • Drivetrain Electronics • Power Train Management • Diesel Engine Development • Gearbox Development • Petrol Engine Development



Overview of failures MY2009

2.0L Diesel Engine Code:(CBEA) - TOP 25 PID

Checkpoint 4 MY 2009 - paid claims as of:

04 JAN 2010

Vehicles Sold with Engine:

37,850

PAID RANK	PID	DESCRIPTION	PAID CLMS	C/1000	REPL PCT	PAID \$/CLM	PAID TOTAL \$	FACTORY STATUS	SERVICE STATUS
-----------	-----	-------------	-----------	--------	----------	-------------	---------------	----------------	----------------

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19	2045	FUEL PUMP	51	1.35	58.82%				
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Engine development

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Overview of failures MY2010

2.0L Diesel Engine Code:(CJAA) - TOP 25 PID

Checkpoint 4 MY 2010 - paid claims as of:

04 JAN 2010

Vehicles Sold with Engine:

13,086

PAID RANK	PID	DESCRIPTION	PAID CLMS	C/1000	REPL PCT	PAID \$/CLM	PAID TOTAL \$	FACTORY STATUS	SERVICE STATUS
-----------	-----	-------------	-----------	--------	----------	-------------	---------------	----------------	----------------

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14	2374	HIGH-PRESSURE PUMP	12	0.92	100.00%				
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Engine development



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Quality Campaign 2.0I TDI BIN5

Topic overview Responsibility

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7.	HP-Pump	
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14.		

Engine development



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Quality Campaign 2.0I TDI BIN5

Total Claims in MY
2009: **xx** 2010: **xx**

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Engine development

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Quality Campaign 2.0I TDI BIN5

Total Claims in MY
2009: Non-responsive content removed
2010: Non-responsive content removed

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Engine development



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Quality Campaign 2.0I TDI BIN5

Total Claims in MY
2009: -- 2010: 

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Engine development

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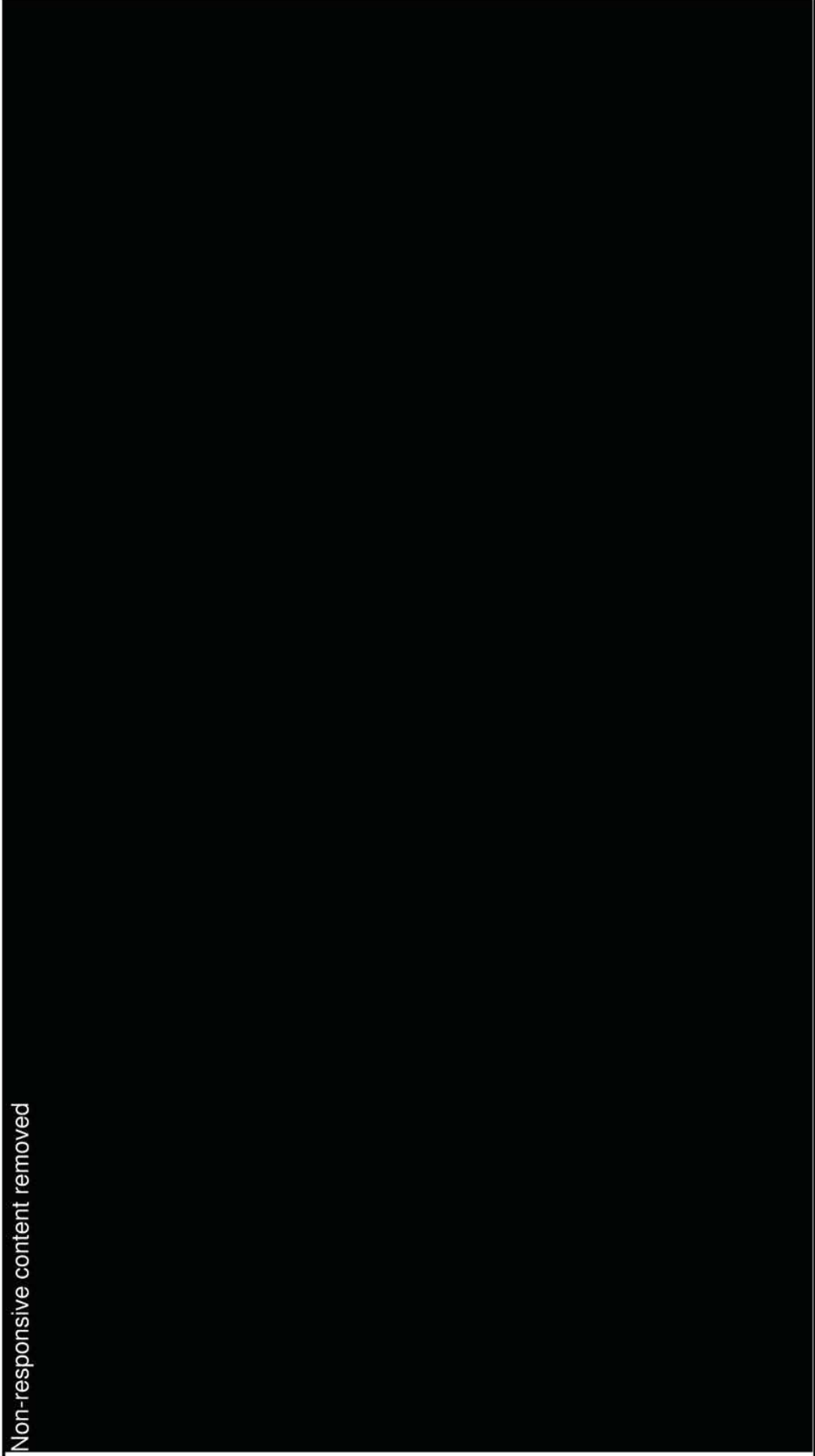
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Quality Campaign 2.0I TDI BIN5

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Engine development



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Quality Campaign 2.0I TDI BIN5

Total Claims in MY
2009: [redacted] 2010: [redacted]

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Quality Campaign 2.0I TDI BIN5

Total Claims in MY
2009: [redacted] 2010: [redacted]

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Quality Campaign 2.0I TDI BIN5

Field failures BIN5		
Topic	Cause	Responsibility
HPP CP4.1 Bosch	Failures drivetrain damage	Non-responsive content removed

Team	
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Problem:

HPP failures due to stiff rollers (tribo system: roller support, roller, camshaft)

Cause:

- Q problems RB (tolerances, friction pairing, etc)
- Fuel properties (HFRR, water content, etc)

Measures:

- See list of measures RB,
- Task Force
- Validation of anti-wear package 1 for CP 4.1 in NMS/ NCS
- Requirement: Incorrect fueling guard in tank connector for NMS, NCS and all subsequent CR installations

Deadline:

ongoing

Engine development



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Quality Campaign 2.0l TDI BIN5

Total Claims in MY:
2009: 2010:

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Engine development

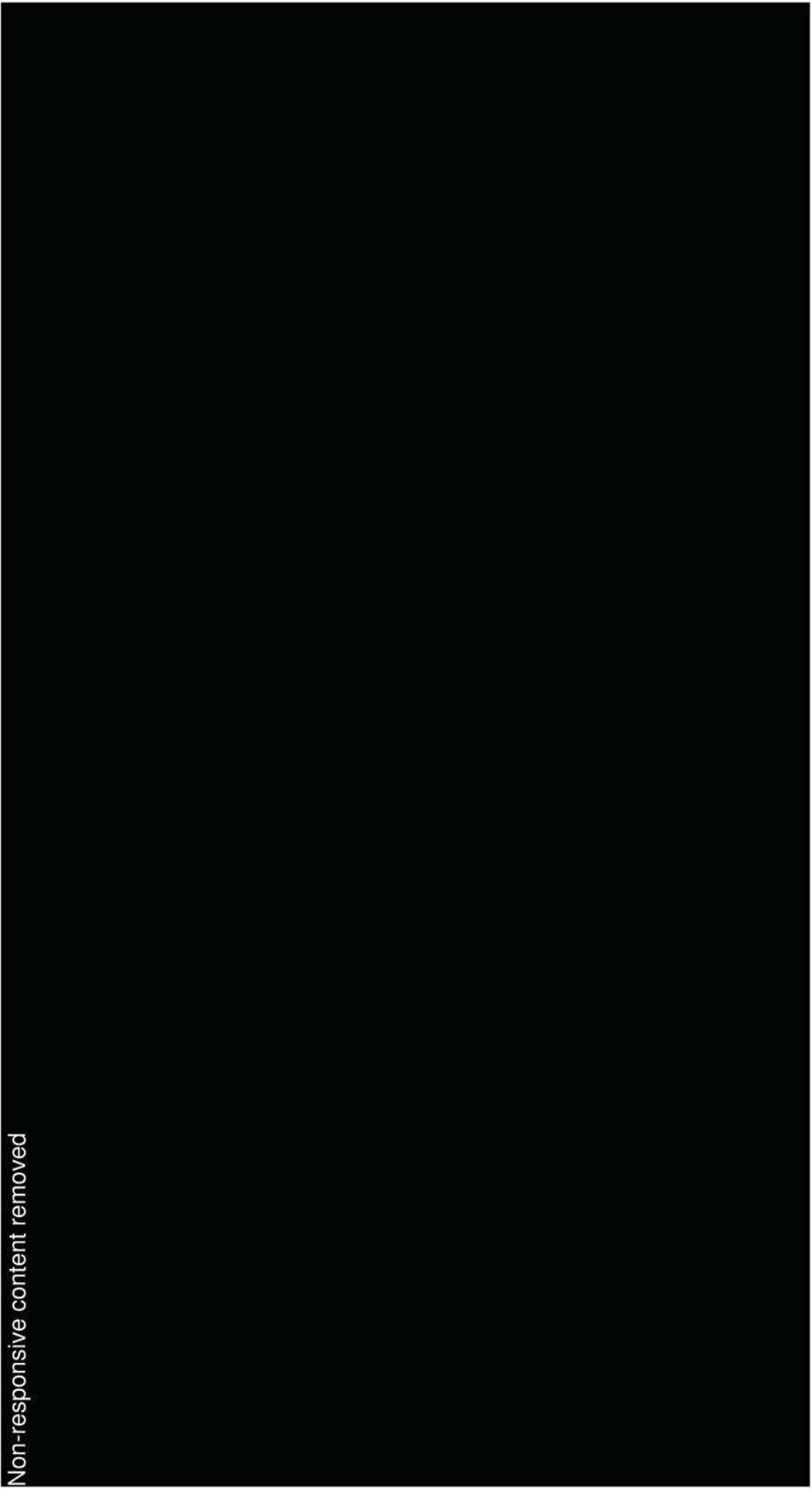
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Total Claims in MY
2009: xx 2010: xx

Quality Campaign 2.0l TDI BIN5



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Engine development



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Quality Campaign 2.0I TDI BIN5

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Engine development

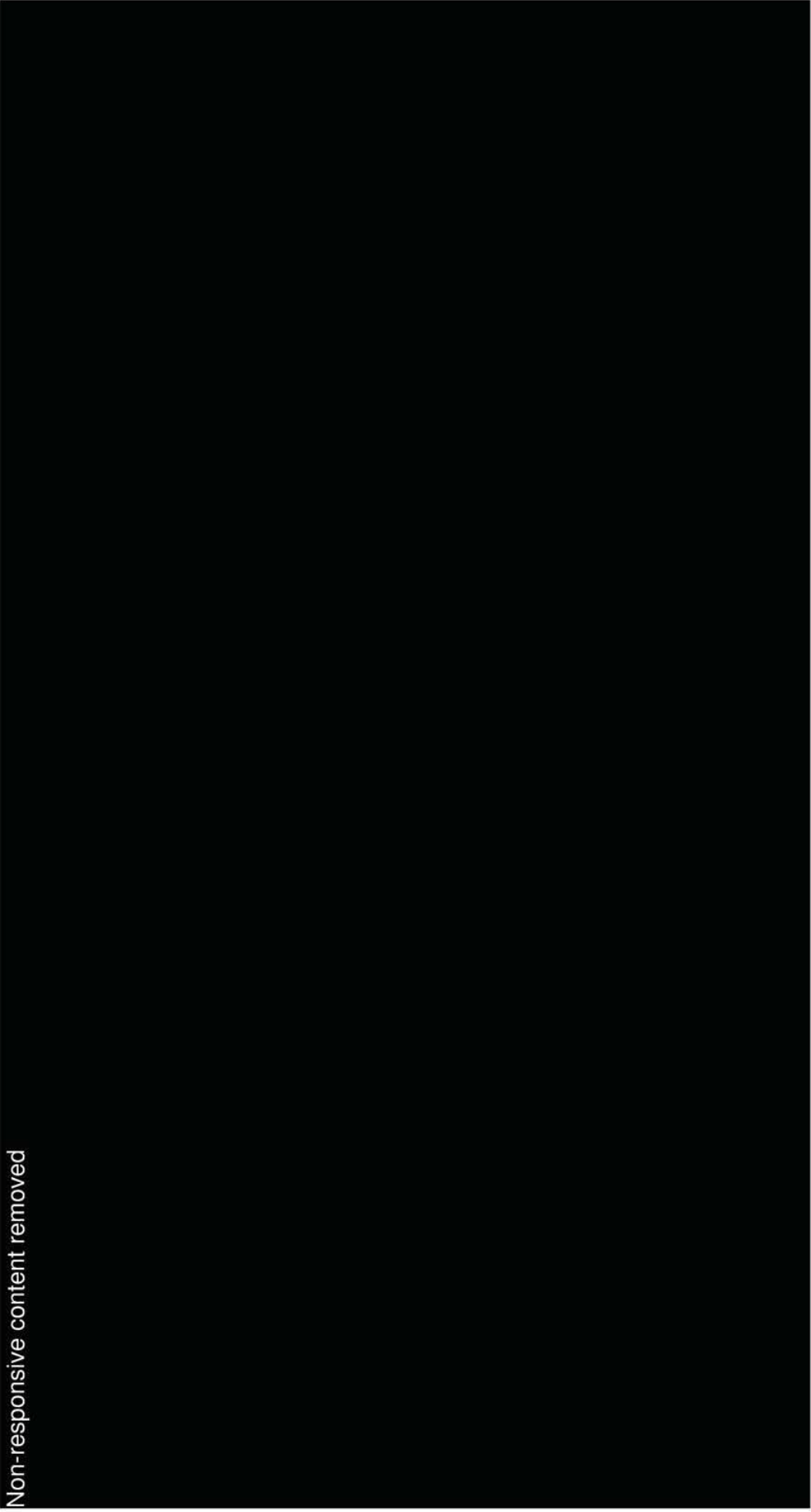
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Rework

Quality Campaign 2.0I TDI BIN5

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Engine development



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Quality Campaign 2.0l TDI BIN5

Total Claims in MY
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Engine development

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Quality Campaign 2.0l TDI BIN5

Total Claims in MY
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2010: Non-responsive content removed

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Engine development

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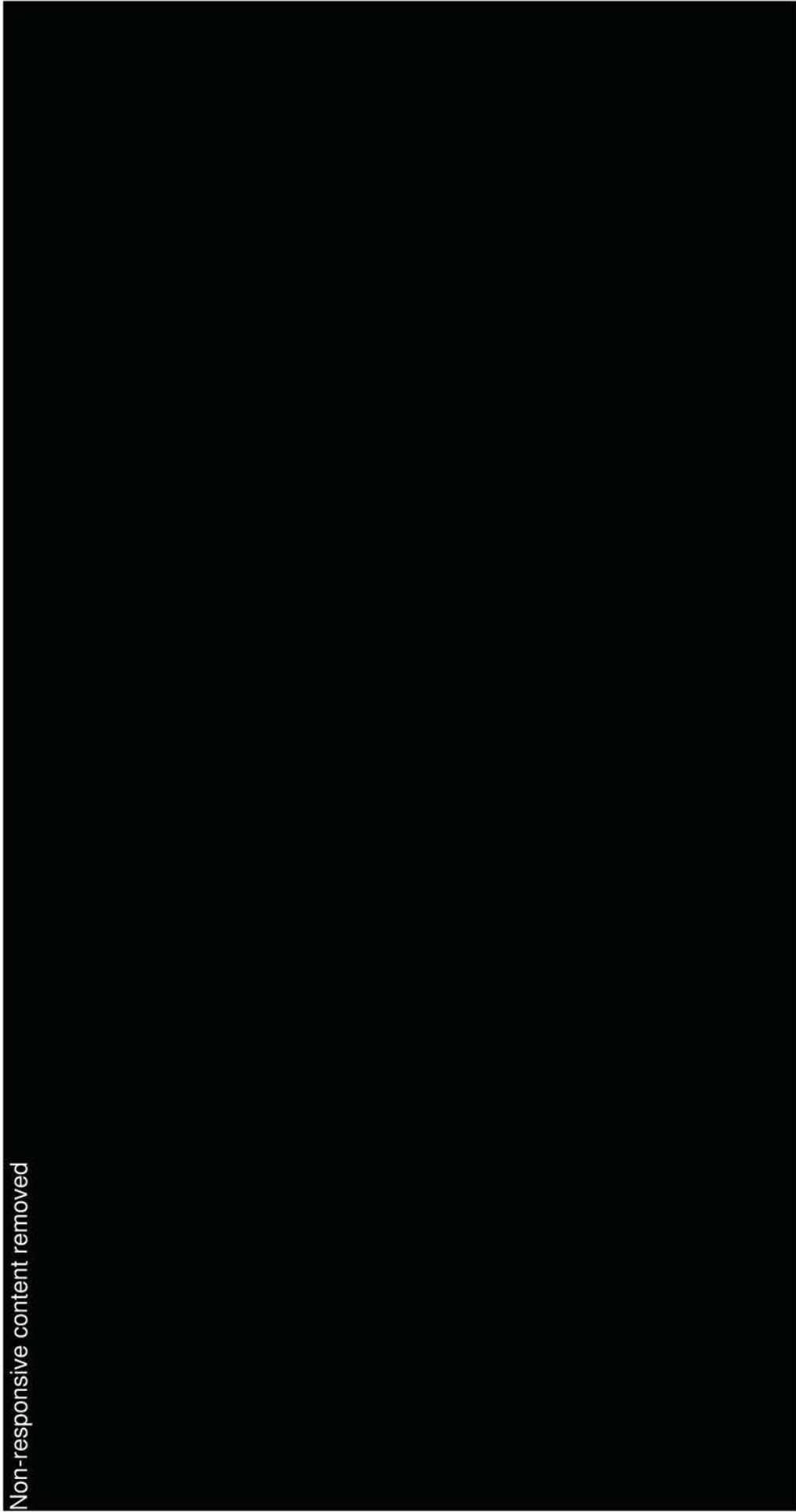
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Quality Campaign 2.0I TDI BIN5

Total Claims in MY
2009: [redacted] 2010: [redacted]

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Engine development

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Bosch CP4.1 Claim plausibility check (2.0l TDI BIN5)

- **Listed claims:**
 - MY 2009 = 99 vehicles
 - MY 2010 = 12 vehicles
- **Plausibility check:**
 - 12 x double bookings
 - 17 x costs < [redacted] (no HPP change)
 - 11 x costs [redacted] - [redacted] (no injection system change, therefore no HPP drivetrain damage)
 - 71 x costs [redacted] - [redacted] (⇒ injection system change)
⇒ Large price range for system change implausible!
- ⇒ **71 potential, but not yet confirmed, cases of CP4.1 drivetrain damage**
- **Diagnosis result (return of 15 high pressure fuel pumps in total):**
 - 1 x no defect
 - 1 x radial shaft seal camshaft leaking
 - 13 x HPP drivetrain damage

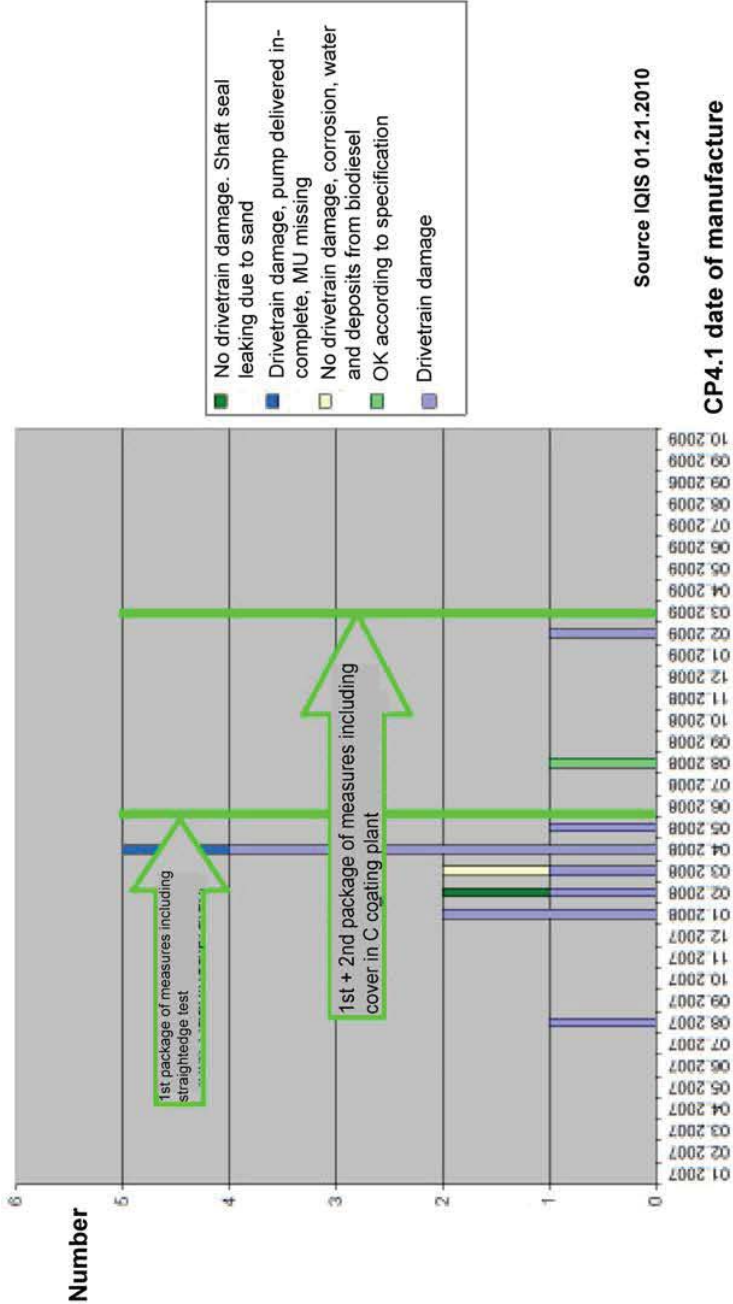


Bosch CP4.1 Claim plausibility check (2.0l TDI BIN5)

VW CP4.1 field complaints from U.S. (0L 130 755A)

CP4.1 Field complaints from U.S.

Status 10.21.2010






1 Diesel Systems [01.21.2010] Auswertung USA Triebwerkschaden 21.01.2010.ppt | © Robert Bosch GmbH 2009. All rights reserved, also regarding any disposal, exploitation, reproduction, processing, distribution, as well as for the registration of special industrial property rights.

BOSCH

Engine development

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		Damage discussion engine USA		Non-responsive content removed	
on: 5/10/2010				3:00 - 4:00 PM	
3:00 - 3:05 PM		Introduction			
Time	CNR	Topic	(A)ssignment (I)nformation Date	Responsible	Dept.
3:00 PM 3:05 PM		Introduction			

Agenda

Damage discussion engine USA

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Agenda

Damage discussion engine USA

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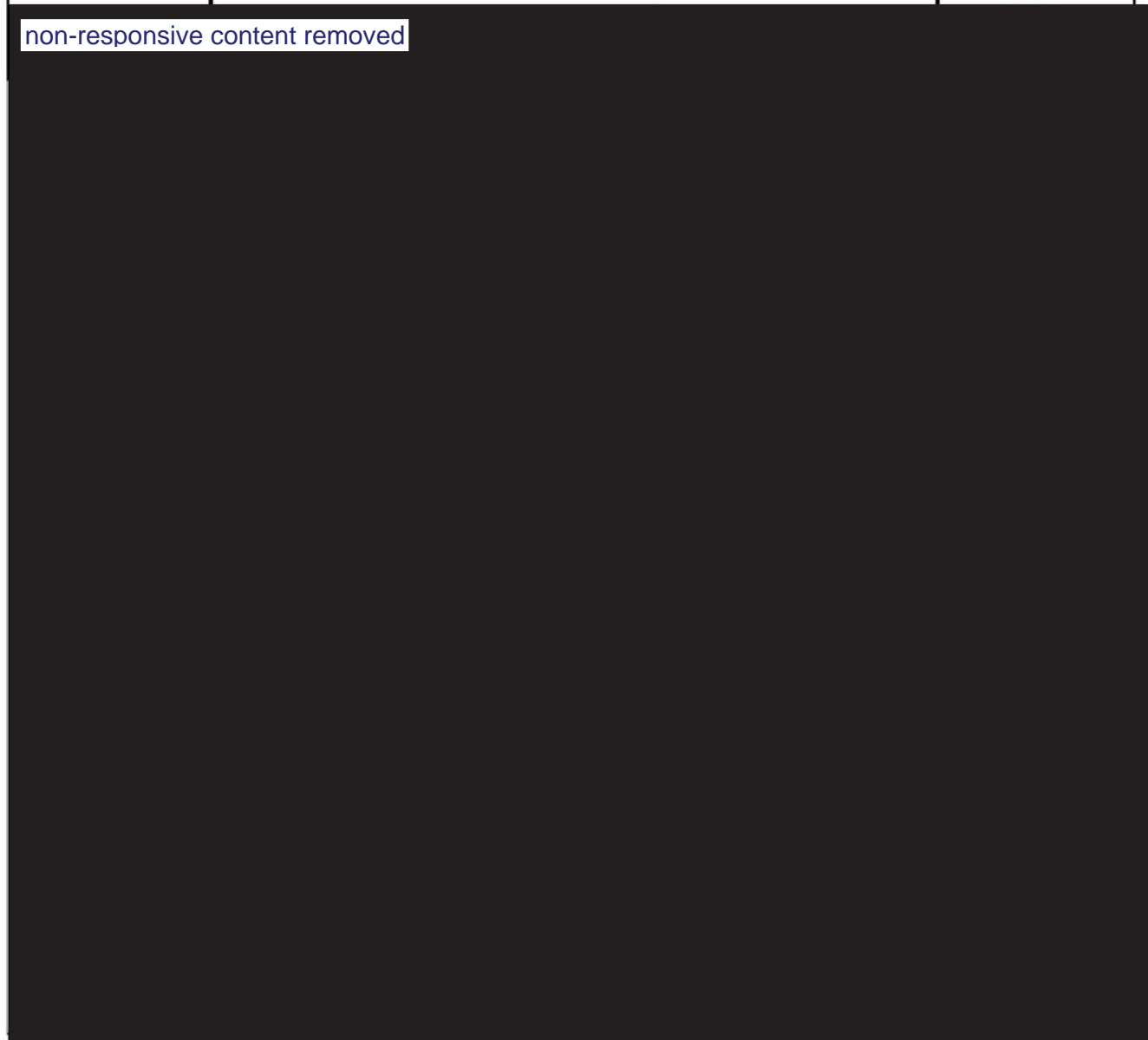
Agenda



Damage discussion engine USA

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 <p>VOLKSWAGEN ARTIERGESELLSCHAFT</p>	<p style="text-align: center;">Agenda</p> <p>Damage discussion engine USA</p>		
<p>on: 5/10/2010 [redacted] 3:00 - 4:00 PM</p>			
<p>3. 3:15 PM 3:20 PM</p>	<p>High-pressure fuel pump</p> <p>[redacted]</p> <p>5137253 KPM-Status: 1 LB PCC: 426 <u>Customer Complaint:</u></p> <ul style="list-style-type: none"> - Engine will not start - Lack of power <p><u>Workshop findings:</u></p> <ul style="list-style-type: none"> - Confirmed customer complaint, found metal in fuel system - Replace high pressure fuel pump (03L.130.755A) and fuel system components <p>All claims after June.2009 improvement measures (engine number CJAA 005303)</p> <p><u>Analysis:</u> open</p> <p><u>Factory Solution:</u> Open</p> <p><u>Service Solution:</u> Open</p> <p>Analysis Results of pumps sent to [redacted]</p>	<p>EA189 2,0L TDI-CR</p> <p>A: 5/10/2010</p>	<p>Non-responsive content removed</p> <p>Non-responsive content removed</p>

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DRAFT

VWoA Technical Service & Quality Analysis

Field Quality – U.S. Market

Monthly Management Report – May 2010



Touareg



Tiguan



GTI / Golf



CC



Passat



Jetta



New Beetle



Eos



Routan

Volkswagen of America



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General Information

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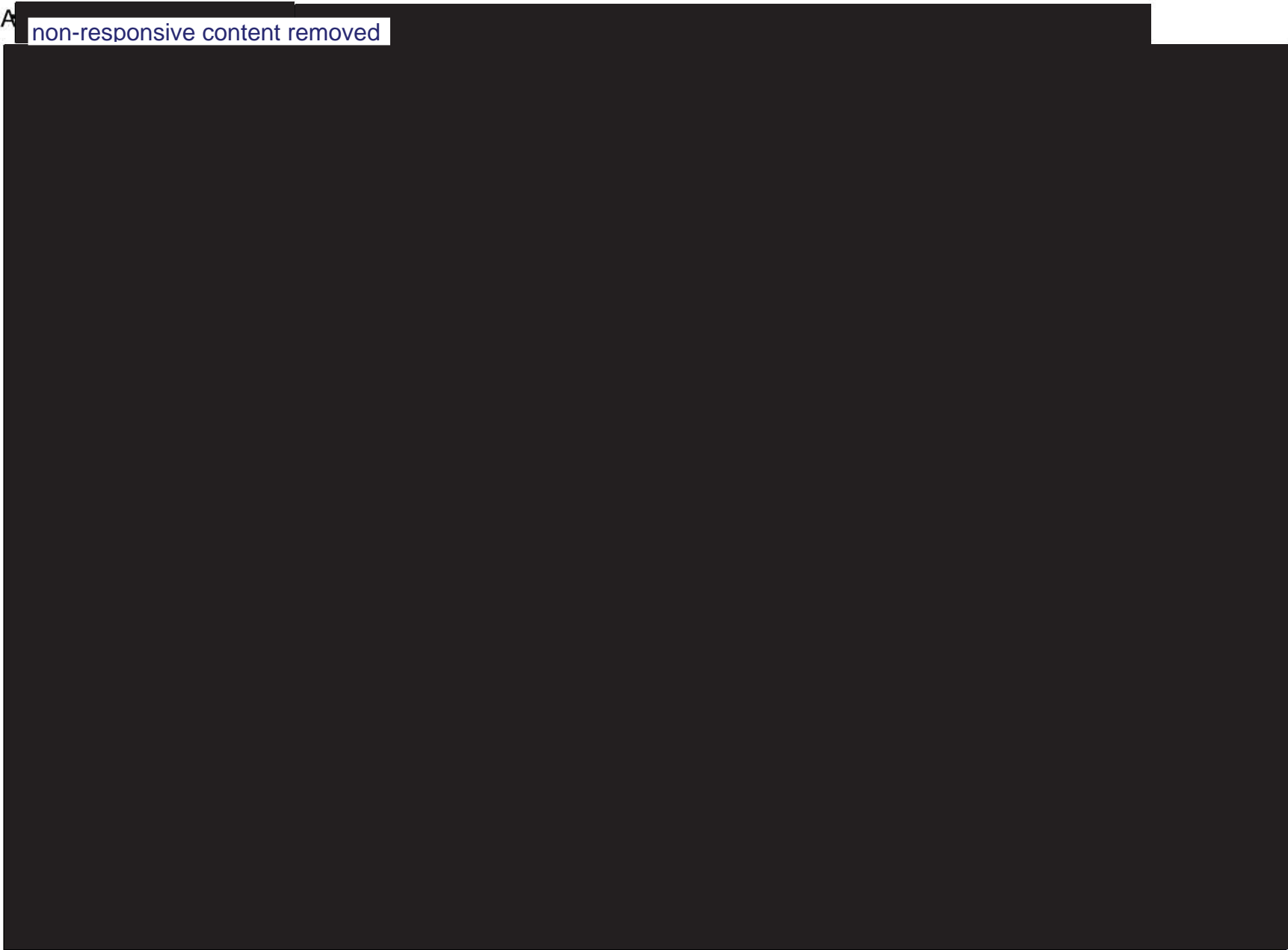


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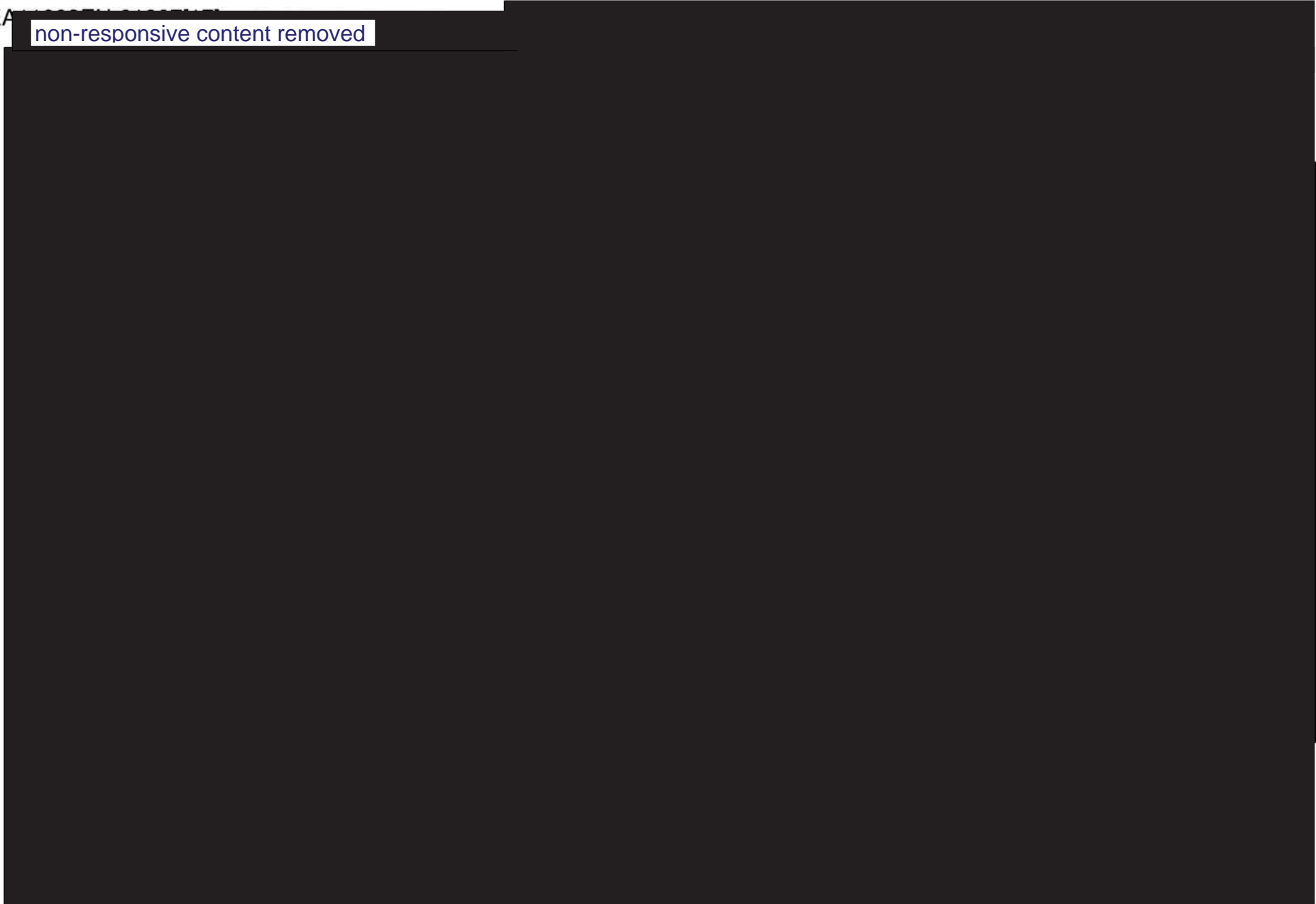
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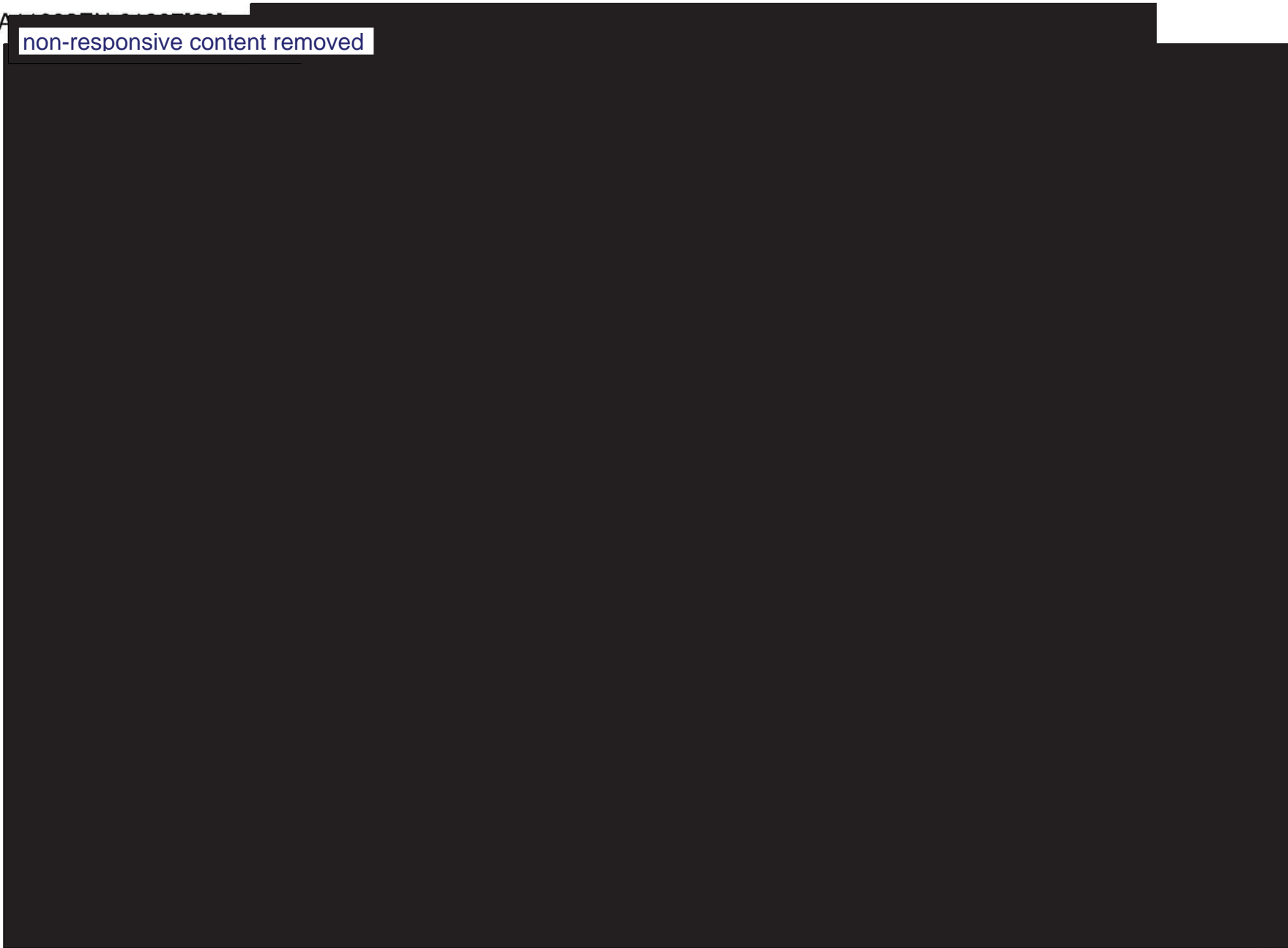


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To: [Redacted]

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CC: Non-responsive content removed
Date: 14.07.2010 12:08:55
Thema: WG: Field Quality U.S. Market - June 2010
Attachments: [Summary U.S. June 2010 Management Report.pdf](#)
[U.S. June 2010 Management Report.pdf](#)

Mit freundlichem Gruß

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Volkswagen AG

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>
>Von: Non-responsive content removed
>Gesendet: Montag, 12. Juli 2010 21:44
>An: Non-responsive content removed
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>Betreff: Field Quality U.S. Market - June 2010

>
>
>Ladies and Gentlemen,>

>Field Quality U.S. Market - June 2010

>Attached, please find the following two Monthly Reports:-

>1. Summary Report – Quality trend and Top open issues

>2. Field Quality U.S. Market Management Report - detailed report per car line

>Best regards,

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VWoA Technical Service & Quality Analysis

Field Quality – U.S. Market

Monthly Management Report – June 2010



Touareg



Tiguan



GTI / Golf



CC



Passat



Jetta



New Beetle



Eos



Routan

Volkswagen of America



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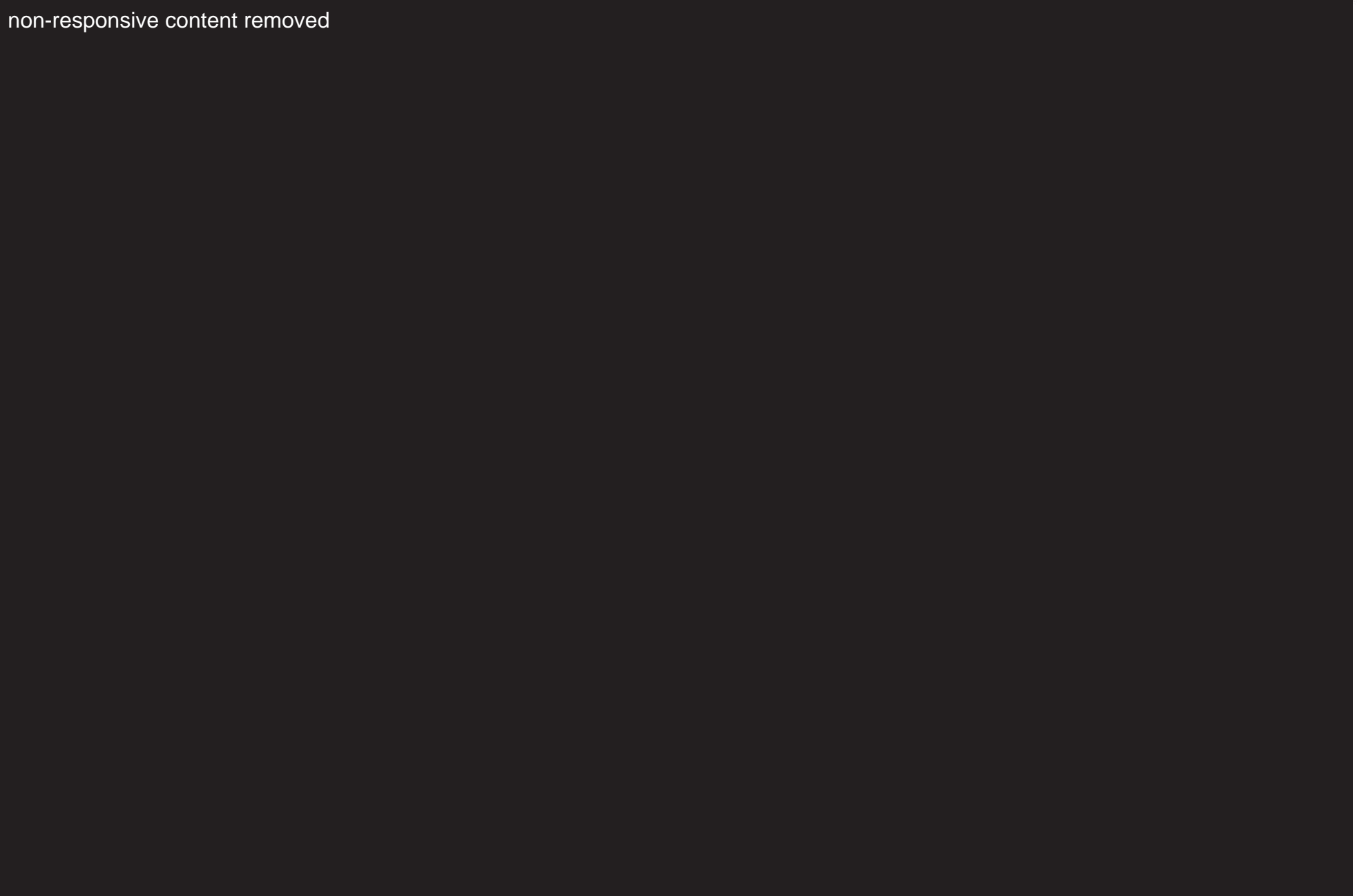
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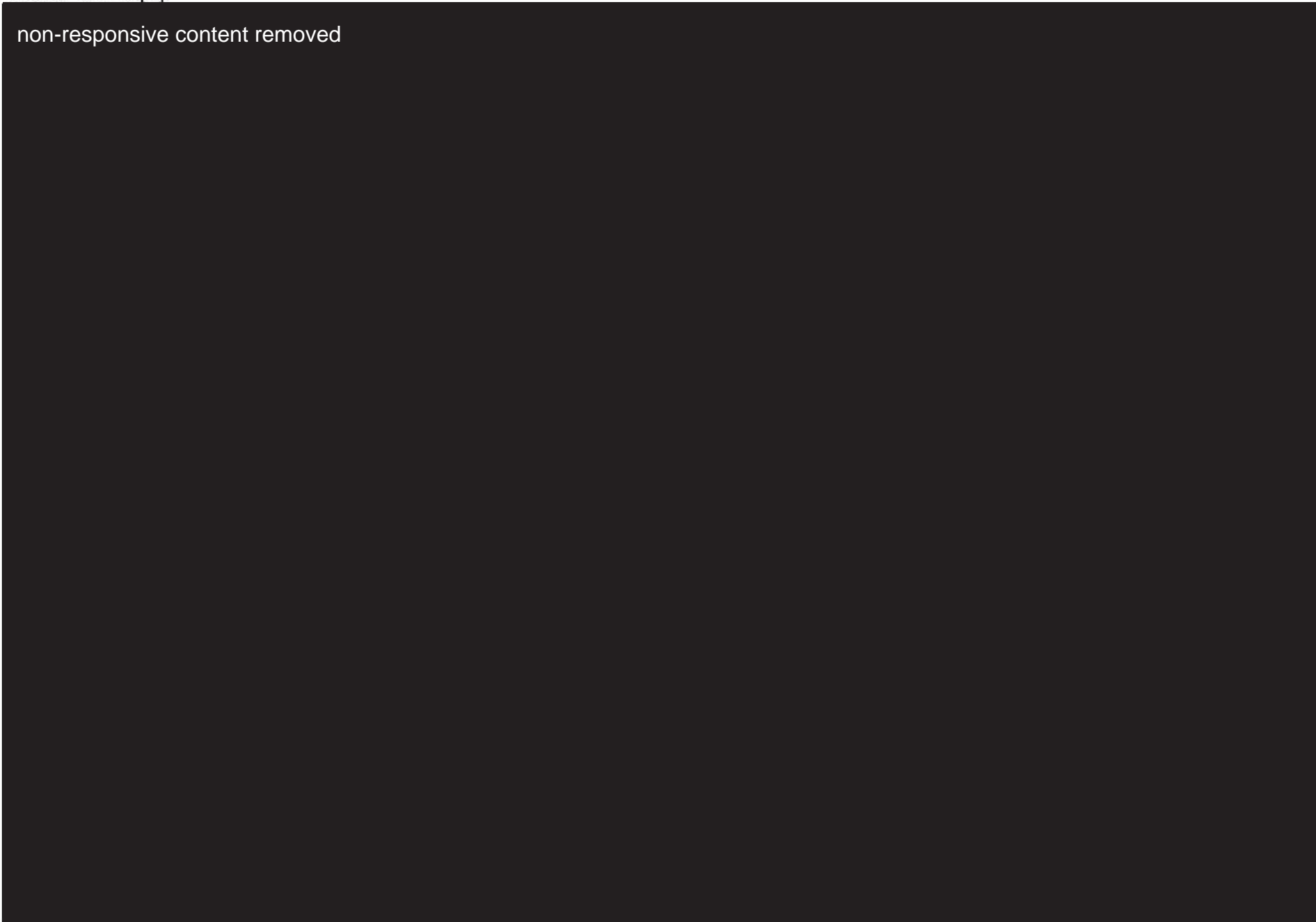
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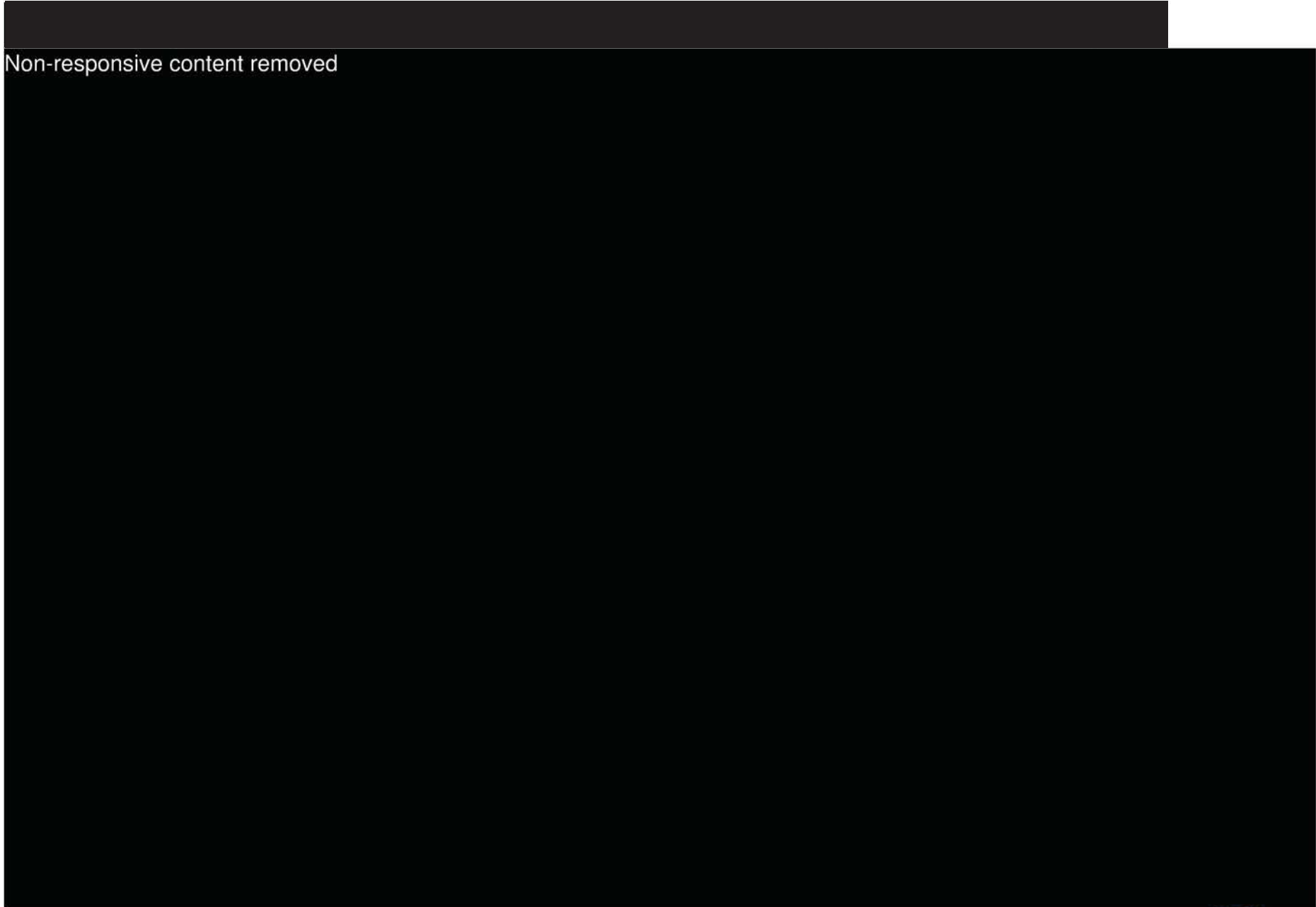
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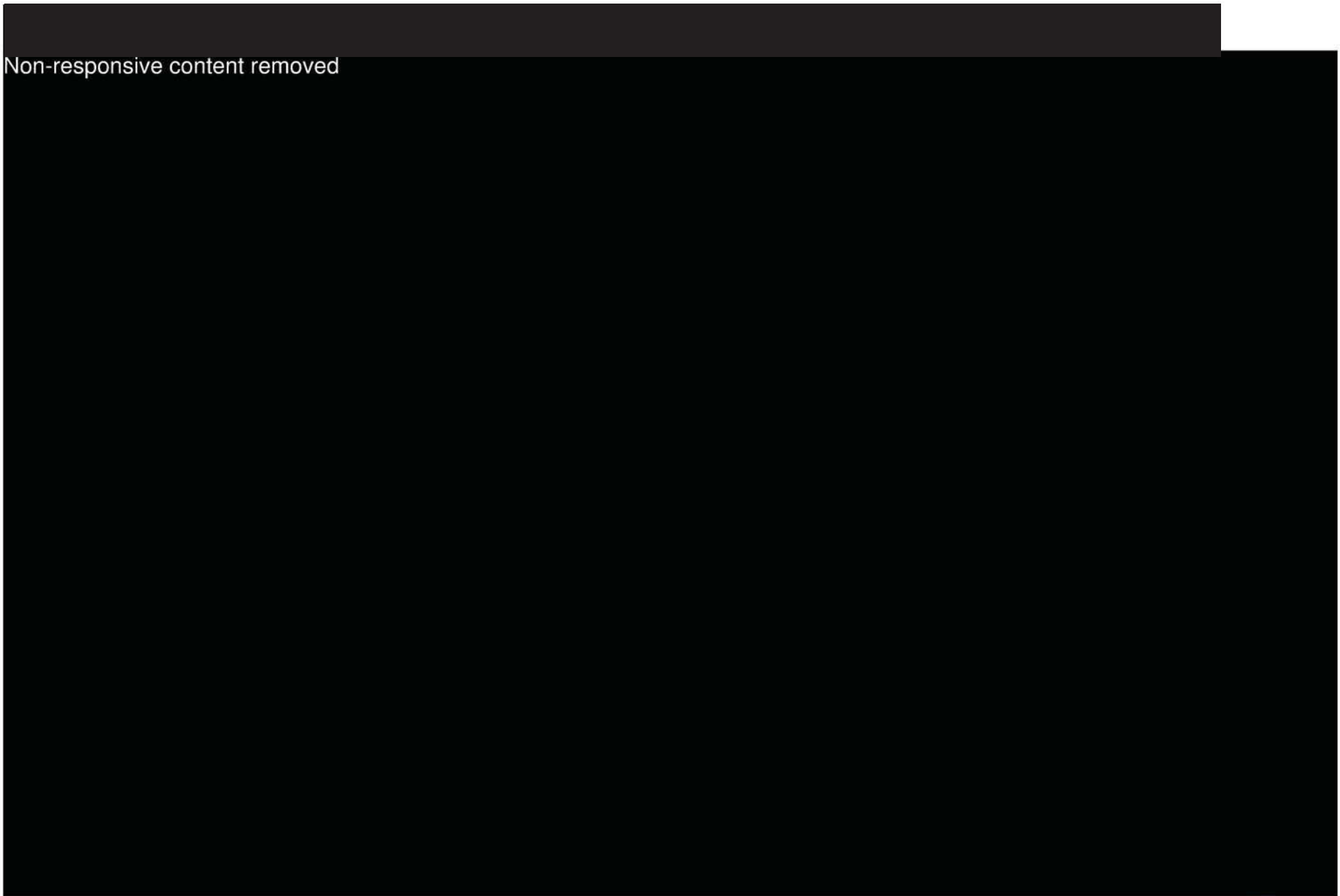


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Note: *Solution will be implemented with model successor



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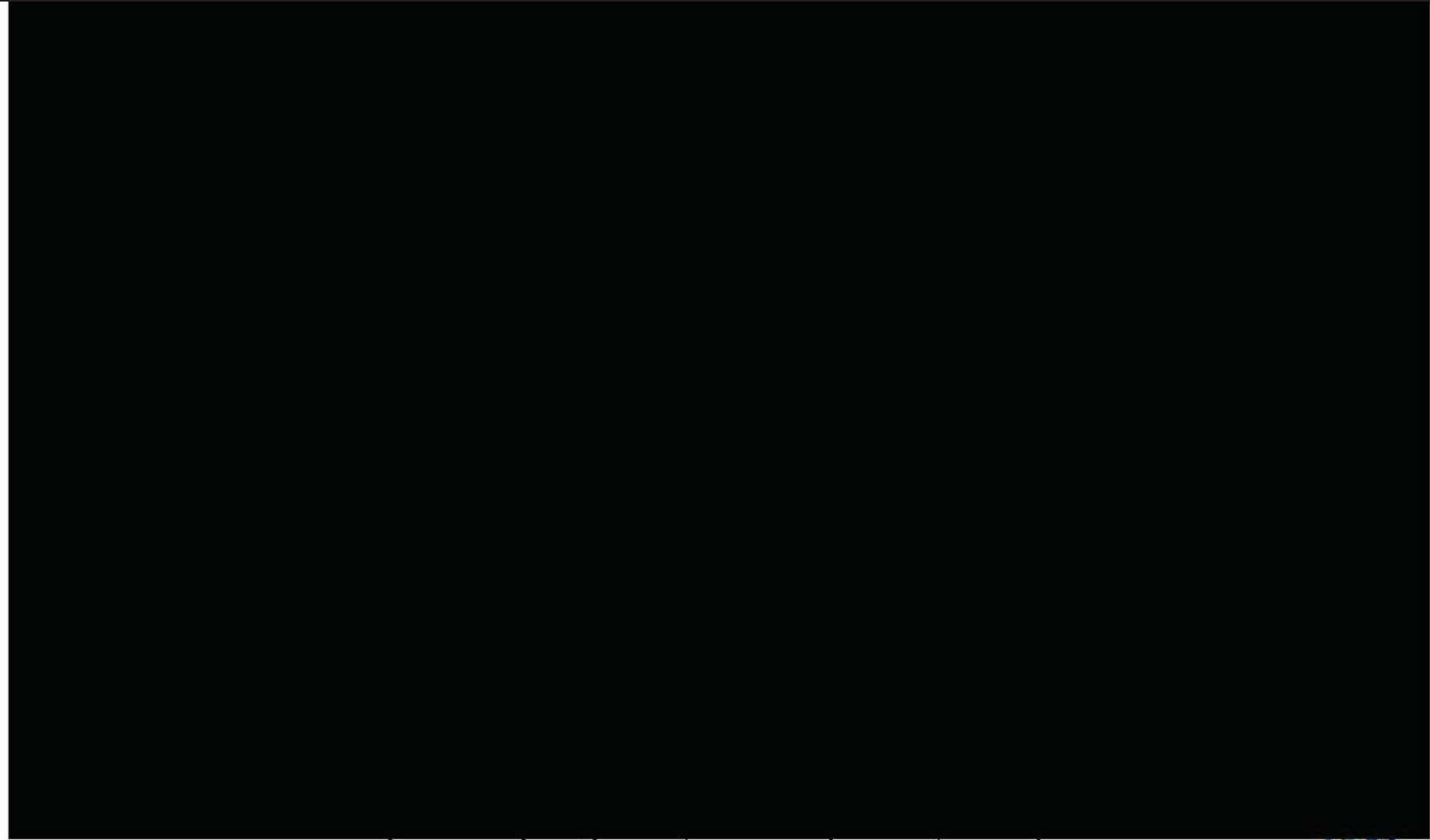




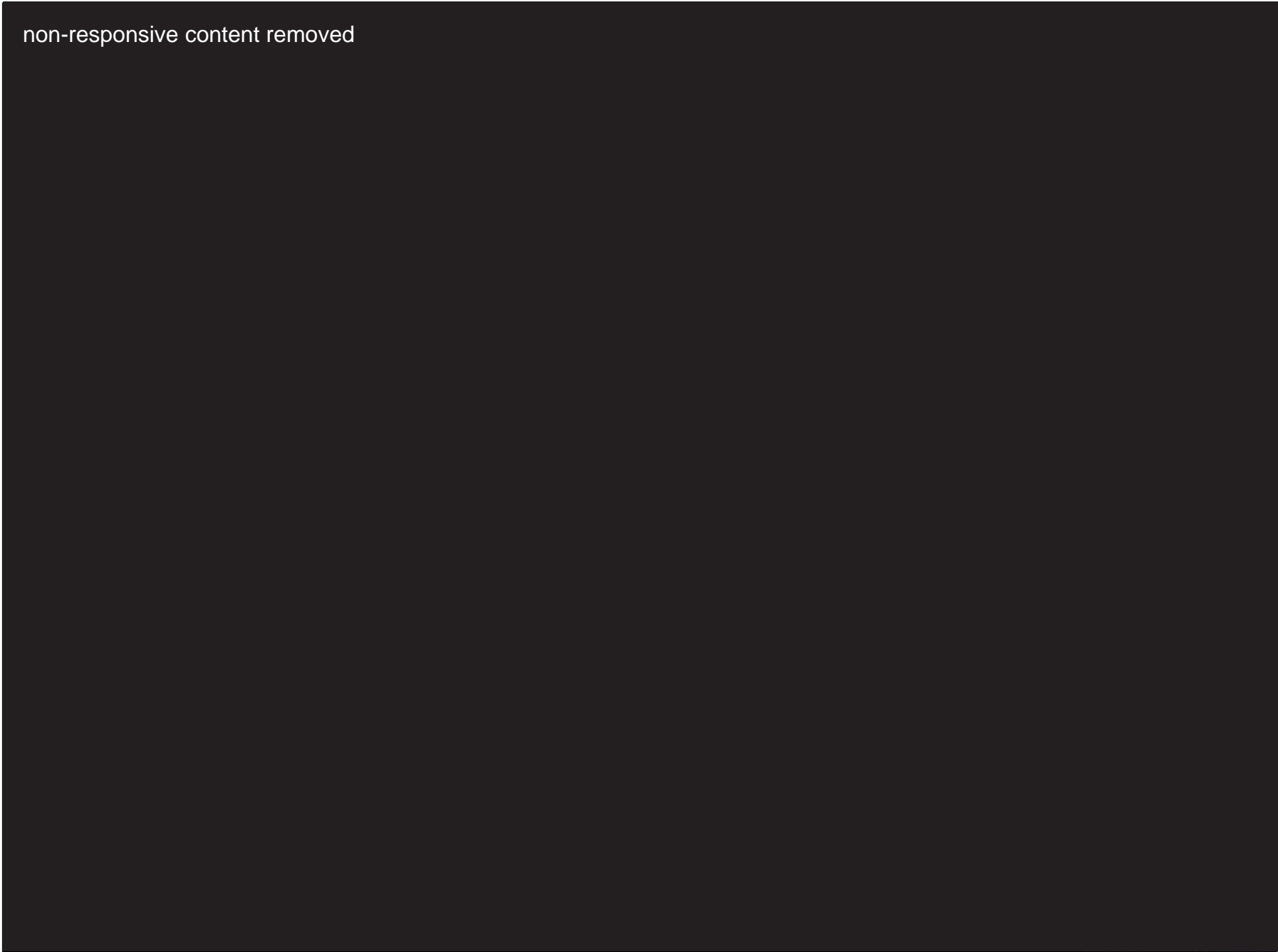
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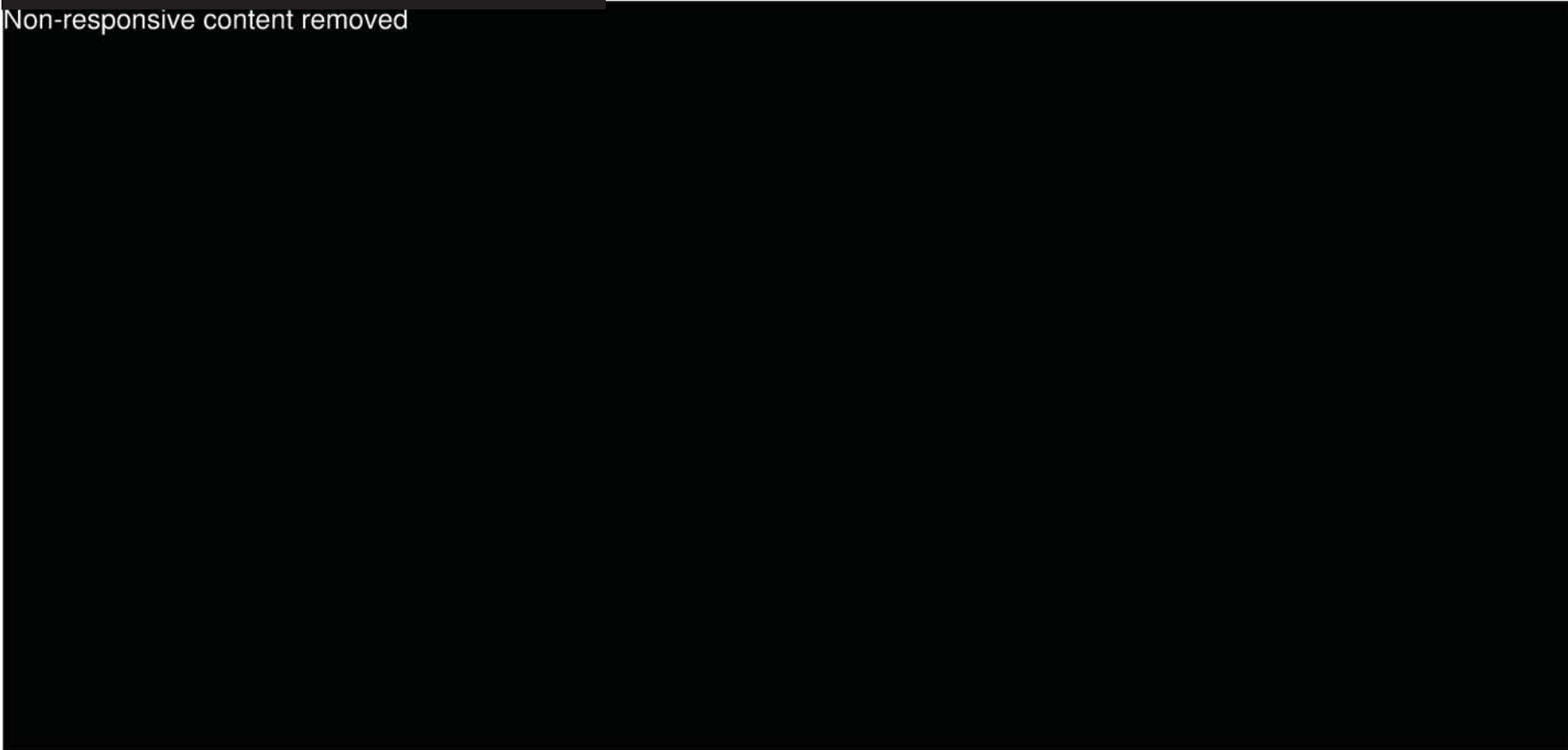


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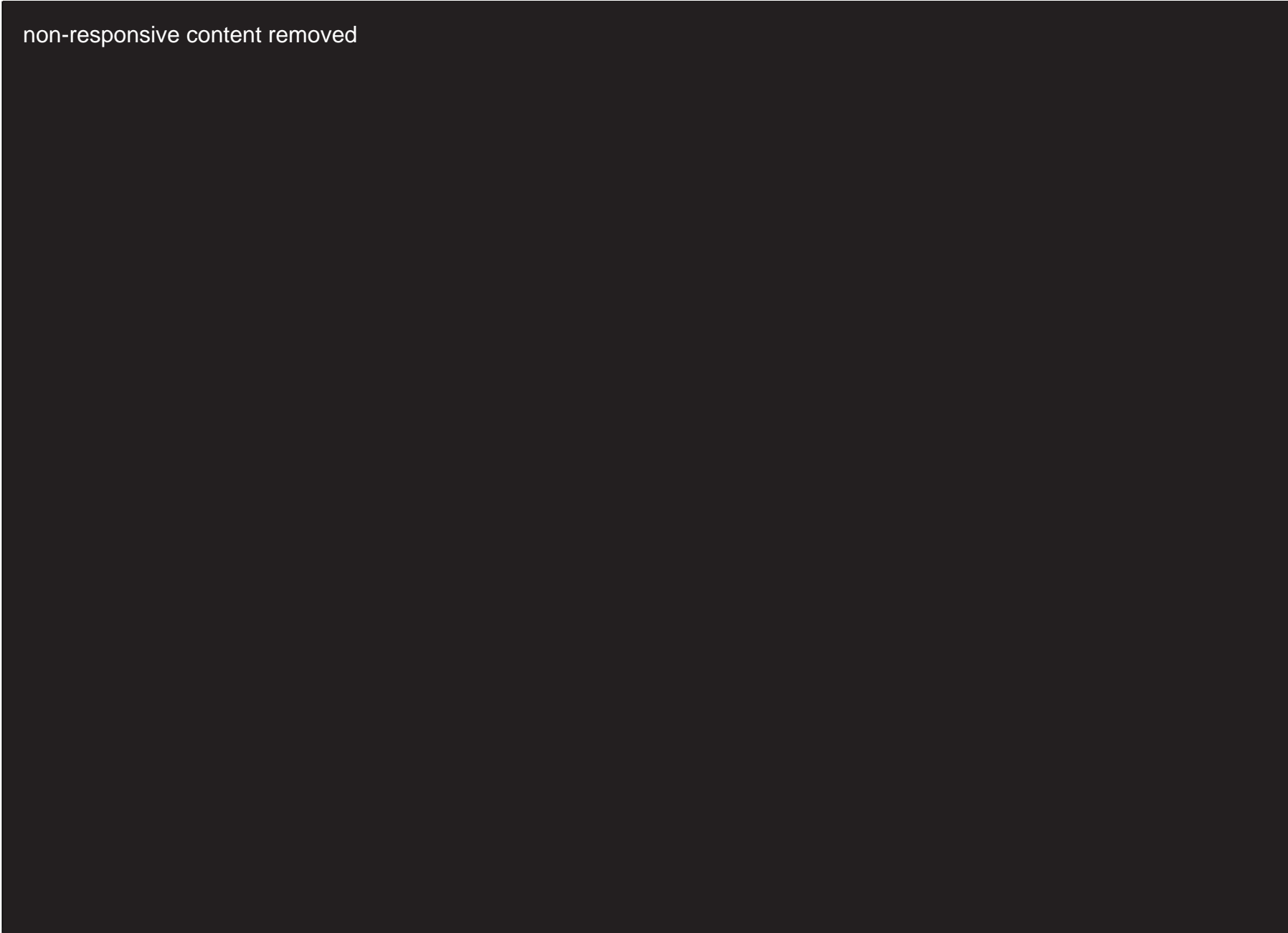




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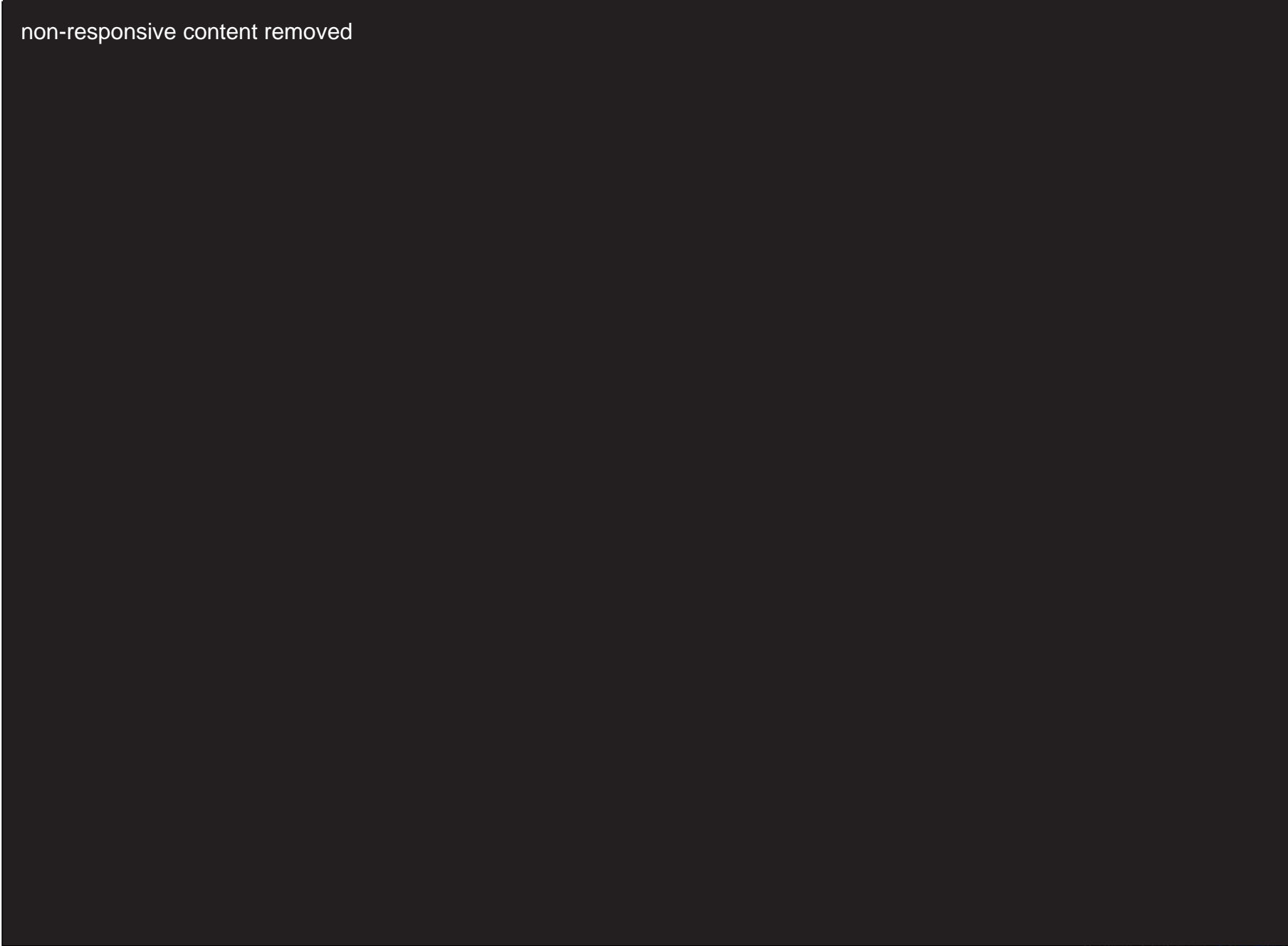




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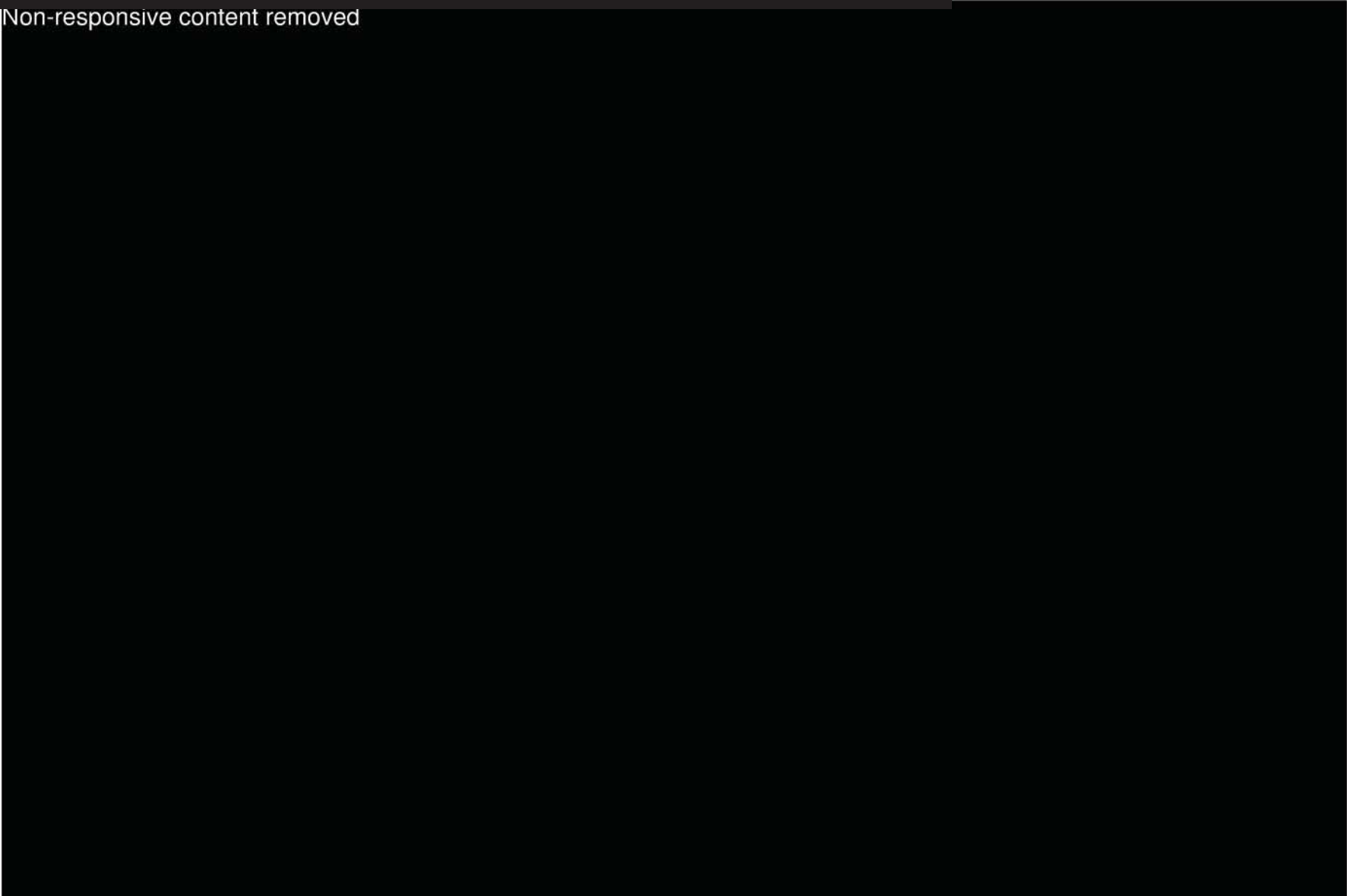


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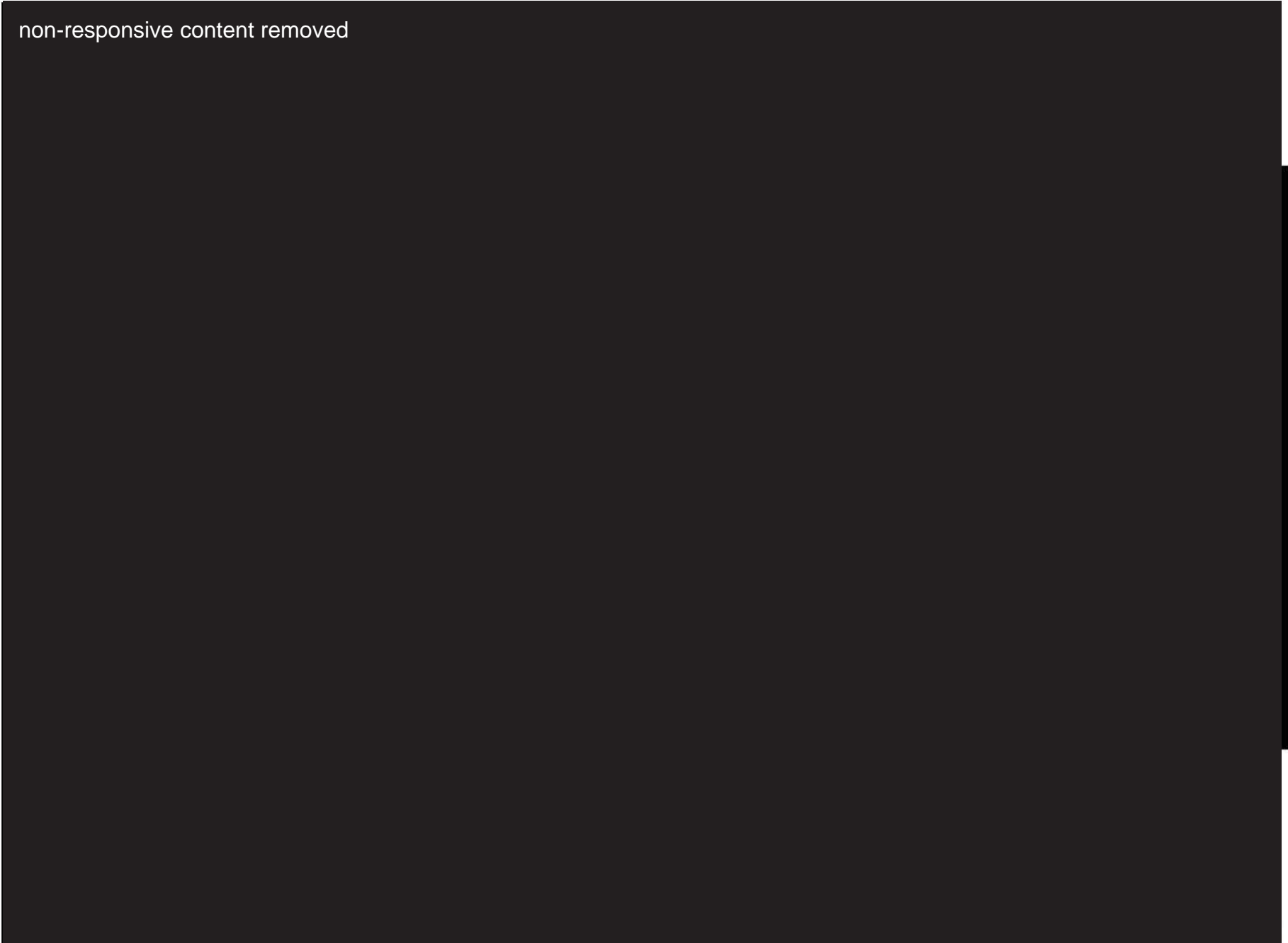




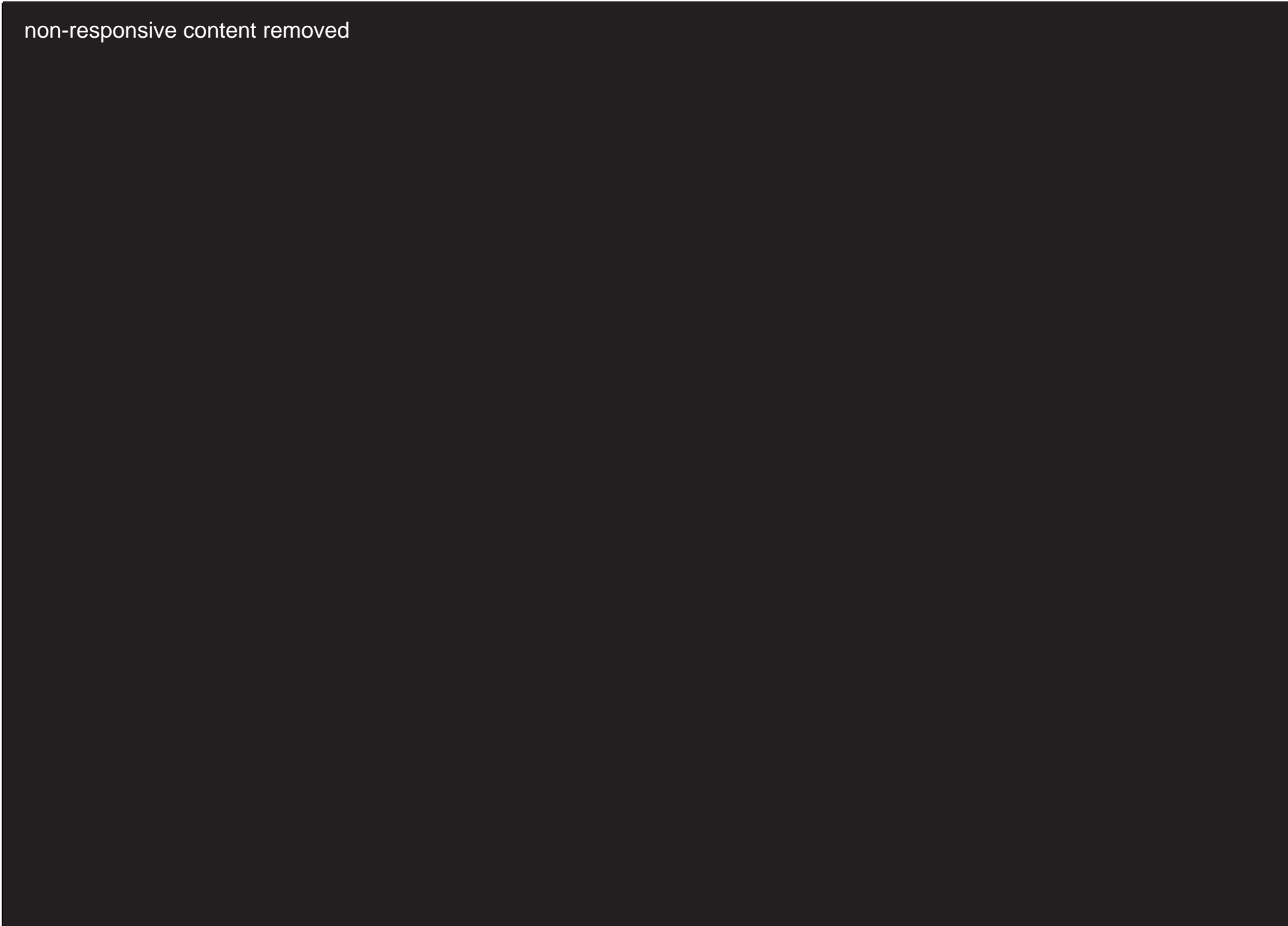
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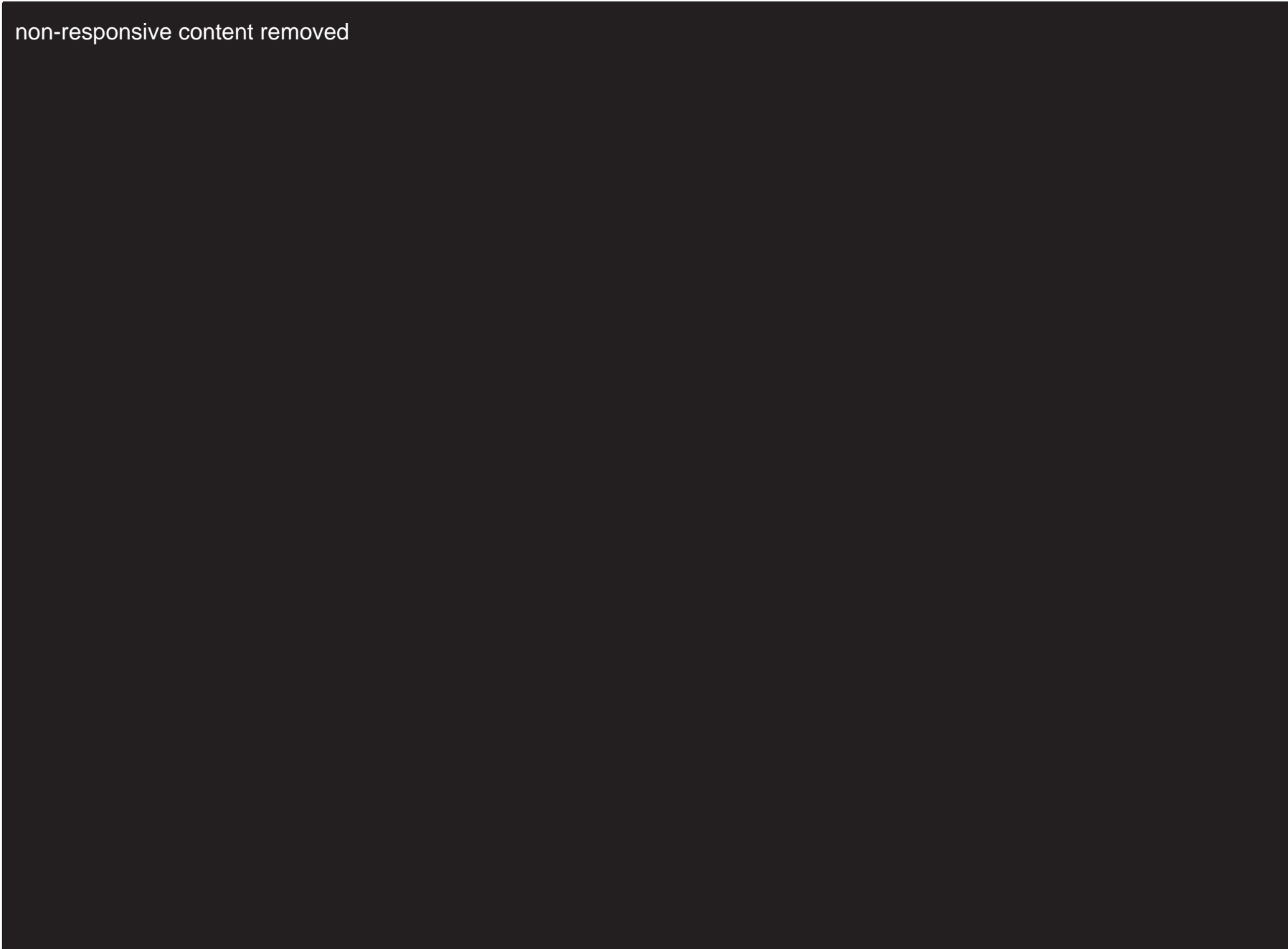


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Status Overview of Top 20 – Engine MY10

2.0L TDI
(CJAA)

Vehicles Sold with Engine:

CJAA: 30,956

PAID RANK	PID	DESCRIPTION	PAID CLMS	C/1000	REPL PCT	PAID \$/CLM	PAID TOTAL \$	FACTORY STATUS	SERVICE STATUS	MANAGEMENT ATTENTION
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17	2374	HIGH-PRESSURE PUMP	30	0.97	97 %			1	1	
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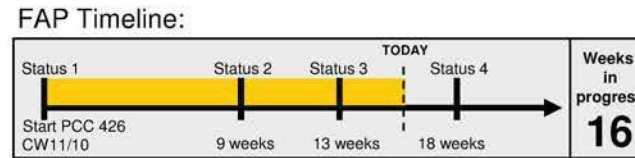
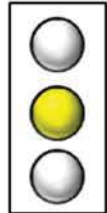
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Open Issues Outside Top 5 – Engine MY10

2374 – High Pressure Pump (2.0L TDI CJAA) (Top 17) – Status 1

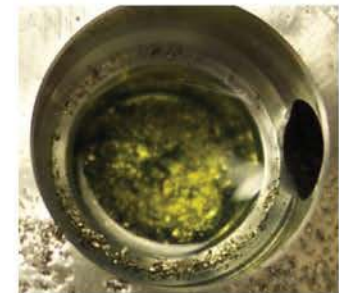
KPM – 5137253



- Customer Complaint:
 - Car cranks but does not start (x12)
 - Reduced performance (x2)
 - MIL on (x1)
 - **Note:**
 - **Tow-ins (x5)**
 - **All claims after engine break, CJAA 005303**
- Workshop Findings:
 - Fuel system contaminated with metal debris from high pressure pump
 - No evidence of mis-fueling
 - Replace fuel system (x15)
- Analysis (████████):
 - Deposits in control valve, suspect fuel quality (x2)
 - Worn roll-pin (x1)
 - NTF (x1)
- Countermeasure:
 - Open
- **Next Steps:**
 - **Analysis results of 4 parts sent to Bosch, CW30/10**
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High pressure fuel pump



Metal in high pressure pump



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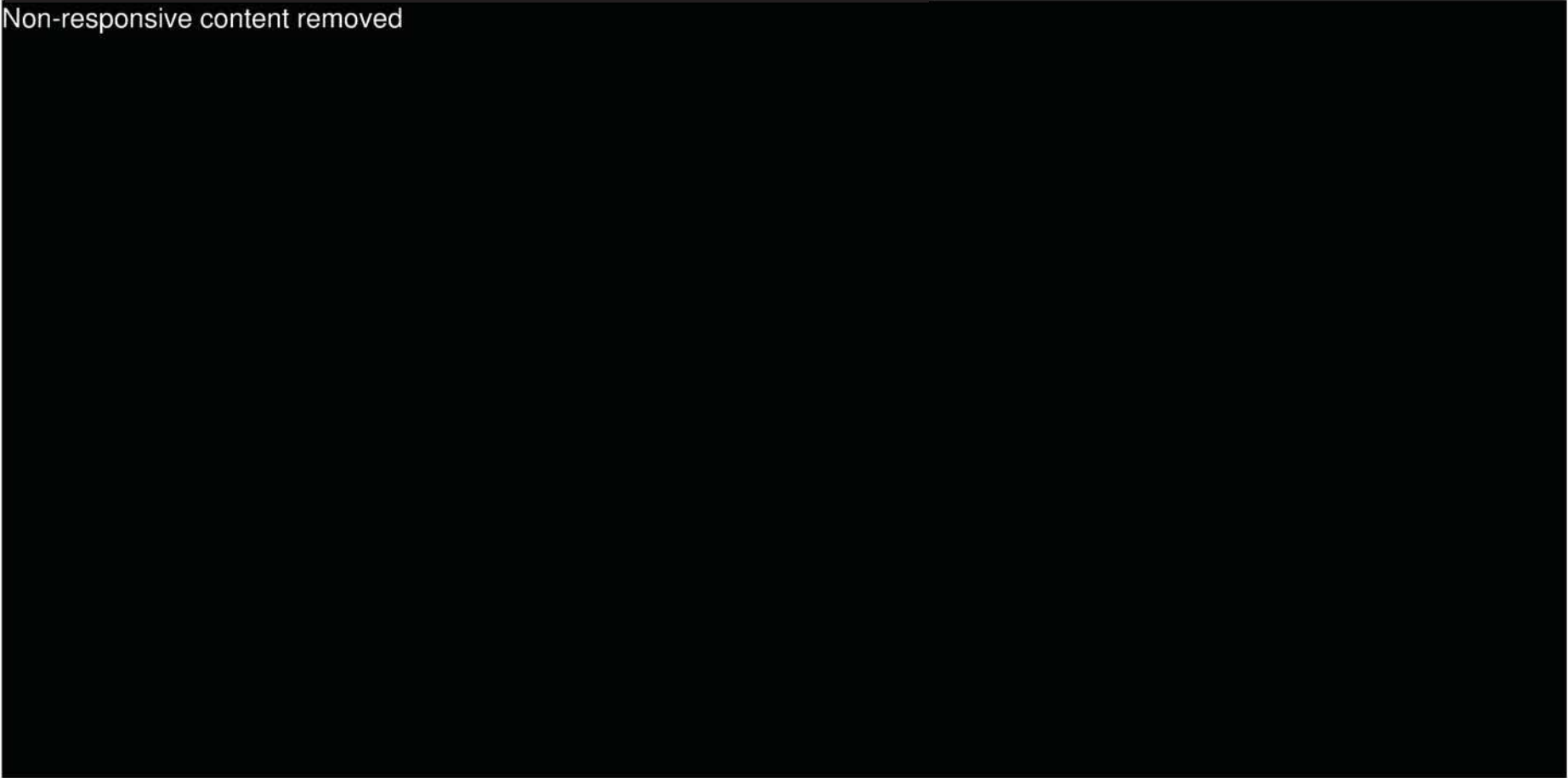


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Introduction					
Pos	CNR	Topic	(A)ssignment (I)nformation Date	Responsible	Dept.
		Introduction Note: Two topics that were not in agenda were discussed. Please consult last page of this protocoll for details.			



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6 .	<p>High-pressure fuel pump</p> <p>5137253</p> <p>KPM-Status: 1</p> <p>LB PCC: 426 USA 11 claims* (4 Tow-in) after last known improvement measures</p> <p>Customer Complaint:</p> <ul style="list-style-type: none"> - Engine will not start - Lack of power <p>Workshop findings:</p> <ul style="list-style-type: none"> - Confirmed customer complaint, found metal in fuel system - Replace high pressure fuel pump (03L.130.755A) and fuel system components <p>All claims after June.2009 improvement measures (engine number CJAA 005303)</p> <p>Analysis:</p> <p>open</p> <p>Factory Solution:</p> <p>Open</p> <p>Service Solution:</p> <p>Open</p> <p>Analysis Results of pumps sent to [Non-responsive content removed]</p> <ul style="list-style-type: none"> • Results to two pumps were provided by [redacted] (x1 NTF, x1 rust due to poor fuel quality, will be considered outside influence unless fuel-sample analysis from [redacted] proves otherwise). <p>Analysis-results for remaining parts (x5) should be available end-of CW23/10</p> <p>Analysis Results of x5 pumps after last known clean-date (CJAA005303) sent to Salzgitter in CW15 and 19/10 are pending.</p> <ul style="list-style-type: none"> • Parts shipped in CW15/10 were found in [redacted] (CW23/10), analysis will be made and results provided CW27/10 • Management in [redacted] has been made aware of the situation and topic will also be followed-up in Q-Offensive <p>MY10 Pumps analyzed:</p> <p>3VWAL7AJ4AM [redacted] NTF</p> <p>3VWTL7AJ8AM [redacted] NTF, mounting failure at [redacted]</p> <p>3VWTL7AJ9AM [redacted] Damaged drive-unit, deposits in SV, SV-plate, outside cyl.head-neck/flange Burr collected in SV's screen. Customer responsibility (poor fuel quality)</p> <p>3VWRL7AJ0AM [redacted] Press.relief-valve sticking, strong deposits in control valve, pressure sping, vol-cont-valve and flange. Deposits in cam follower. Sluggish roller (-> hardened/resinified?).</p> <p>No evidence of damaged drive unit. Customer responsibility, poor fuel quality</p> <p>=> Suggest to put topic in status 6 and re-open when we get enough MY10 claims and analysis results show failures are not customer-induced.</p> <ul style="list-style-type: none"> • to-date x9 MY10 pumps have been received for analysis, from which: <p>x2 before Jun.2009 clean-date (x1 NTF, x1 NTF pending final 8D report)</p> <p>x7 after Jun.2009 clean-date:</p> <ul style="list-style-type: none"> x2 damage due to poor fuel quality x1 NTF x2 Debris found, final 8D report pending 	EA189 2,0L TDI-CR	Non-responsive content removed
		A: 5/10/2010	Non-responsive content removed
		A: 5/10/2010	
		A: 6/7/2010	
		A: 6/7/2010	
		I: 6/7/2010	
		I: 8/5/2010	
		A: 8/30/2010	
		I: 8/30/2010	

 <p>VOLKSWAGEN ARTIENGESELLSCHAFT</p>	<p>Report: 9/13/2010</p> <p>Damage discussion engine USA</p> <p>Non-responsive content removed</p>		
	<p>x2 pre-analysis shows NTF, final 8D report pending</p> <ul style="list-style-type: none"> • More MY10 parts need to be collected to increase sample-size • RP1 improvement package will go into production in CW04/11 • Three more claimed pumps were sent to [REDACTED] in CW37/10. Analysis-results will be provided by [REDACTED] as soon as available • [REDACTED] should collect fuel-samples and Fuel-Filters (complete) from claimed vehicles so they can be tested and documented. • The risk of current fuel being OK and possible damage caused by previous fuel-charges was acknowledged, therefore, [REDACTED] requested to get complete Fuel-Filter assemblies if possible, so a more accurate analysis can be made. • [REDACTED] will provide desired fuel-testing-parameters and cost-information on fuel-testing in Germany, so a decision can be made if fuel-testing should be conducted in German or the USA. If necessary, [REDACTED] will provide a Cost-Acceptance Form to help with fuel-testing expenses in the USA. • Allowable Fuel-content specifications were discussed, as samples with 7,000 PPM water have been found by [REDACTED] using Audi's fuel-tester: <ul style="list-style-type: none"> - Outside meeting [REDACTED] explained that diesel fuels need to be tested against ASTM-975 standard. • [REDACTED] will investigate if the repair procedure for vehicles with gasoline or metal particles in system can be optimized to reduce unnecessary parts replacements or costs • [REDACTED] explained the fuel stations in some states (e.g.: Illinois) get tax-incentives for selling fuel with higher biodiesel concentrations than 5-7%, and the tendency is for other states to follow. [REDACTED] requests [REDACTED] to make provisions for this, so TDI vehicles can continue to be sold in all U.S. states. • [REDACTED] found case in internet where customer claims that dealer told him/her that cylinder-head needed to be removed to inspect for possible damage from metallic debris in fuel. [REDACTED] stated that such damage is not possible and asked [REDACTED] to investigate if this is common practice among US dealers or just a single-incidence. <p>This will be presented again in WK 39/2010</p>	<p>A: 9/13/2010</p> <p>A: 9/13/2010</p> <p>A: 9/13/2010</p> <p>A: 9/13/2010</p> <p>A: 9/13/2010</p> <p>9/27/2010</p>	<p>Non-responsive content removed</p> <p>Non-responsive content removed</p>



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