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DEFECTS INVESTIGATION

**VOLKSWAGEN of America, Inc.**

Product Compliance  
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Phone: 1 (248) 754-5000  
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July 18, 2007

Kathleen Demeter  
Director, Office of Defects Investigation  
U.S. Department of Transportation  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue S.E.  
Washington, DC 20590

Subject: PE07-024 NVS-212lhs

Dear Ms. Demeter,

Attached is our response to your letter dated May 11, 2007 requesting information concerning the failure, malfunction, or otherwise unsatisfactory performance of the subject components which may potentially lead to vehicle fires: a) in the underhood or instrument panel/console areas of the subject vehicles, and b) in the vehicle undercarriage area in proximity to the catalytic converter on certain 2000-2003 Volkswagen Passat vehicles.

Thank you for your consideration in granting our requested extension to July 18, 2007.

For your convenience, each request is restated verbatim and then followed by our response.

Please contact me if you have any questions regarding this response.

Regards,



John Maddox  
Product Compliance/TREAD Officer  
Volkswagen of America

Attachments

**Request 1.**

State within the body of the response letter and in an electronic spreadsheet, by model and model year and by engine configuration, the number of subject vehicles VW has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by VW, state the following:

- a. Vehicle identification number (VIN);
- b. Make;
- c. Model;
- d. Model Year;
- e. Date of manufacture;
- f. Date warranty coverage commenced; and
- g. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA."

**Response 1.**

In response to this inquiry, Volkswagen has identified the following subject vehicle population:

	MY 2000	MY 2001	MY 2002	MY 2003
Passat	68,141	82,888	92,416	102,197

Our response to this request including subparagraphs a. through g. is provided in a Microsoft Access file entitled, "PRODUCTION DATA.mdb" attached hereto as Exhibit to Request 1.

Source: Business Objects

Date Gathered: Through the date of the inquiry

**Exhibit to Request 1**

**PRODUCTION DATA**

**Data is provided in Microsoft Access format on PE07-024 Data Collection Disc**

## **Request 2**

State the number by model year and engine configuration, each of the following, received by VW, or of which VW is otherwise aware, which relate to or may relate to, the alleged defect in the subject vehicles:

- a. Consumer complaints, including those from fleet operators;
- b. Field reports, including dealer field reports;
- c. Reports involving a crash, burn injury, or fatality, based on claims against the manufacturer involving a burn injury or death, notices received by the manufacturer alleging or proving that an injury or death was related to or resulted from the alleged defect in a subject vehicle;
- d. Property damage claims for vehicle fires in which the alleged defect was cited as a potential or probable cause;
- e. Third-party arbitration proceedings where VW is or was a party to the arbitration; and,
- f. Lawsuits, both pending and closed, in which VW is or was a defendant or codefendant.

For subparts "a" through "c," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and VW's assessment of the problem, with a summary of the significant underlying facts and evidence. For item "f," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

## **Response 2**

Volkswagen notes that NHTSA's definition of the alleged defect is extremely broad as it includes those "failure[s], malfunction[s], or otherwise unsatisfactory performance" of the subject components that "*may potentially lead to vehicle fires...*" Therefore Volkswagen has provided all reports/claims related to malfunction of coils (including for example misfire/lack of spark) in the subject vehicles, as Volkswagen is unable to determine, based on the face of the report, if they may or may not relate to a potential for underhood and/or undercarriage "fires" as defined in 49 CFR 579.4 (2007):

*"Combustion or burning of material in or from a vehicle as evidence [sic] by flame. The term also includes, but is not limited to, thermal events and fire-related phenomena such as smoke, sparks, or smoldering, but does not include events and phenomena associated with a normally functioning vehicle, such as combustion of fuel within an engine or exhaust from an engine."*

**Or as defined by pending amendment:**

*"Fire means combustion or burning of material in or from a vehicle as evidenced by flame. The term also includes, but is not limited to, thermal events and fire-related phenomena such as smoke and melting, but does not include events and phenomena associated with a normally functioning vehicle such as combustion of fuel within an engine or exhaust from an engine."*

- a. In response to your inquiry, Volkswagen has identified 14,850 Consumer complaints from 11,819 unique vehicles which may relate to the alleged defect in the subject vehicles.
- b. In response to your inquiry, Volkswagen has identified 221 Field Reports from 214 unique vehicles may relate to the alleged defect in the subject vehicles.
- c. In response to your inquiry, Volkswagen has identified three reports alleging a crash and one minor burn injury, which may relate to the alleged defect in the subject vehicles. Volkswagen notes that the allegations in all four reports appear to be minor in nature and did not include reports of the customers seeking medical attention. Volkswagen did not identify any reports of fatality, based on claims against the manufacturer involving a burn injury or death, notices received by the manufacturer alleging or proving that an injury or death was related to or resulted from the alleged defect in the subject vehicles.
- d. In response to this inquiry, Volkswagen has identified one property damage claim for vehicle fires in the subject vehicles in which the alleged defect was cited as a potential or probable cause.
- e. In response to your inquiry, Volkswagen has identified 4 subrogation claims for ignition coils in the subject vehicles, which may relate to the alleged defect in the subject vehicles where Volkswagen is or was a party to the arbitration.
- f. In response to your inquiry, Volkswagen has identified 58 breach of warranty lawsuits in the subject vehicles in which Volkswagen is or was a defendant or codefendant.

In response to the additional request for items "c" through "f", Volkswagen has not attempted to summarize the reports, but is submitting the entire report including all available information for the Agency's' review.

Source: LISTEN, PLE, FRED, TACS

Date Gathered: Through the date of the updated inquiry

### **Question 3**

For each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:

- a. VW's file number or other identifier used;
- b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
- c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
- d. Vehicle's VIN;
- e. Vehicle's make, model and model year;
- f. Vehicle's mileage at time of incident;
- g. Incident date;
- h. Report or claim date;
- i. Whether a crash is alleged;
- j. Whether property damage is alleged;
- k. Number and severity of alleged burn injuries, if any; and,
- l. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

### **Response 3**

**Responses to subparagraphs a. through l. are provided in REQUEST NUMBER TWO DATA folder attached hereto as Exhibit to Request 3. These cases are organized by category then by case number.**

**Source, Date Gathered: See Response Two**

**Exhibit to Request 3**

**REQUEST NUMBER TWO DATA**

**Data is provided in Microsoft Excel format in the REQUEST NUMBER TWO DATA folder on  
PE07-024 Data Collection Disc**

**Question 4**

Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method VW used for organizing the documents.

**Response 4**

**In response to this inquiry, Volkswagen is providing copies of documents identified for each item in Response 2. The documents are provided in an Adobe Acrobat file entitled "REQUEST NUMBER FOUR DATA.pdf" attached hereto as Exhibit to Request 4. These cases are organized by category then by case number.**

Source, Date Gathered: See Response Two



**Exhibit to Request 4**

**REQUEST NUMBER FOUR DATA**

**Data is provided in Adobe Acrobat format in the REQUEST NUMBER FOUR folder on  
PE07-024 Data Collection Disc**

### **Question 5**

State, by model year and engine configuration, total counts for all of the following categories of claims, collectively, that have been paid by VW to date that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. VW's claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number;
- h. Problem code;
- i. Replacement part number(s) and description(s);
- j. Concern stated by customer; and,
- k. Comment, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "WARRANTY DATA."

### **Response 5**

Volkswagen notes that NHTSA's definition of the alleged defect is extremely broad as it includes those "failure[s], malfunction[s], or otherwise unsatisfactory performance" of the subject components that "*may potentially lead to vehicle fires...*" Therefore Volkswagen has provided all reports/claims related to malfunction of coils (including for example misfire/lack of spark) in the subject vehicles, as Volkswagen is unable to determine based on the face of the claim, if they may or may not relate to a potential for underhood and/or undercarriage "fires" as defined in 49 CFR 579.4 (2007).

In response to this inquiry, Volkswagen has identified 65,686 warranty claims on 42,944 unique vehicles which have been paid by Volkswagen to date. Volkswagen also is providing a count of 131,342 campaign completions total to the customer satisfaction campaign WG.

Our response to this request is provided in Microsoft Access format in the REQUEST NUMBER FIVE DATA folder attached hereto as Exhibit to Request 5. These cases are organized by case number.

Source: Business Objects Warranty Claims Universe

Date Gathered: Through the date of the updated inquiry

**Exhibit to Request 5**

**WARRANTY DATA**

**Data is provided in Microsoft Excel format in the REQUEST NUMBER FIVE DATA folder on  
PE07-024 Data Collection Disc**

### **Question 6**

Describe in detail the search criteria used by VW to identify the claims identified in to Request No. 5, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by VW on the subject vehicles (i.e. the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that VW offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.

### **Response 6**

**In response to this inquiry, the following methods were used to identify paid Warranty claims in response to request number five.**

- 1. All model year 2000-2003 Passat subject vehicles manufactured for sale or lease in the United States**

**AND**

- 2. All warranty containing the following subject part numbers:**

**06B905115\***

**078905104\***

**In response to this inquiry, the following methods were used to identify Customer Satisfaction Campaign claims in response to request number five.**

- 1. All model year 2000-2003 Passat subject vehicles manufactured for sale or lease in the United States**

**AND**

- 2. All warranty claims containing the following part identifier:**

**Number:**

**WG\*\***

**Description:**

**Replace Ignition Coils**

**Volkswagen notes that the standard Labor Operation Number associated with removal and installation of the ignition coil is 28202000.**

**Volkswagen has identified from the resultant claims the following list of problem codes and problem code descriptions that were used in the submission of these claims:**

- 10 – Mechanical Defect**
- 11 – Incorrectly Adjusted**
- 14 – Burnt, slipping**
- 15 – Broken, cracked, torn**
- 16– Ineffective**
- 17 - Binding**
- 18 – Loose**
- 20 – Noisy**
- 33 – Corrosion**
- 40 – Electrical Defects**

50 – Leaking  
88 – Vehicle Towed in to Dealership

Volkswagen notes that service personnel may not consistently use the appropriate Damage Code when entering a warranty claim.

The following is a list, by make and model year, of the terms of the new vehicle warranty coverage offered by Volkswagen on the subject vehicles:

Model Year	Warranty Terms and Vehicle	Coverage Type
2000	2 Years / 24,000 miles: VW Passat	Bumper to Bumper
2001	2 Years / 24,000 miles: VW Passat	Bumper to Bumper
2002	4 Years / 50,000 miles: VW Passat	Bumper to Bumper
2003	4 Years / 50,000 miles: VW Passat	Bumper to Bumper

Source: VWoA

Date Gathered: Through the date of the updated inquiry

**Question 7**

Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that VW has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that VW is planning to issue within the next 120 days.

**Response 7**

**Volkswagen has identified 13 service documents (1-Technical Bulletin, 5- Campaign Circulars, 7-Warranty Service Circulars) related to the alleged defect in the subject vehicles and is providing copies in Adobe Acrobat format attached hereto as Exhibit to Request 7.**

**Volkswagen will be preparing a draft Technical Bulletin as noted in Response 13 in the next 120 days, and will provide a draft copy at the Agency's request.**

**Source: VWoA Product Support, VESIS    Date Gathered: Through the date of the inquiry**

**Exhibit to Request 7**

**REQUEST NUMBER SEVEN DATA**

**Data is provided in Adobe Acrobat format on the PE07-024 Data Collection Disc**

**Request 8:**

Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Volkswagen. For each such action, provide the following information:

- a. Action title or identifier;
- b. The actual or planned start date;
- c. The actual or expected end date;
- d. Brief summary of the subject and objective of the action;
- e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
- f. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

**Response 8:**

In response to this inquiry, Volkswagen is providing all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations which, on the face of the documents, appear to be related to the failure, malfunction, or otherwise unsatisfactory performance of the subject components potentially leading to vehicle "fires", as defined in 49 CFR 579.4 (2007).

The subject vehicles utilize three different ignition systems/coils: a 2.8l V6 engine (engine code ATQ) equipped with a ignition coil pack, a 1.8T engine with pencil coils from the supplier Hitachi (engine code ATW) and a re-designed 1.8T engine with pencil coils from the supplier Pulse (engine codes AUG and AWM).

The documents have been identified by ignition system type, if known.

**1.8T engines, engine codes AUG and AWM with Pulse GmbH pencil coils****Action A1**

- a. Analysen 1,8T.pdf [German original and English translation]
- b. N/A
- c. as of June 1, 2007
- d. Excel sheet containing analysis findings and details about defective ignition coils
- e. Quality Department VWAG
- f. Volkswagen has performed 356 analyses on ignition coils returned from the field from 302 individual vehicles. Approximately 154 of the analyses conclude no defect in/at the coil. 151 analyses state electrical shorts, 25 reports state mechanical damages or similar faults and 8 of those analyses are still pending. The failures of coils in these 1.8T vehicles were remedied with Volkswagen's service action "WG". None of those analyses contain indications of "fire". 18 coils have been analyzed with indication of component overheating. 9 of these 18 analyses have determined as cause that a capacitor was mechanically damaged. 1 analysis determined an external short being causal for the defect. Twice a short between primary and secondary core was determined and 2 of the 18 coils – both also with burnt coil head - are currently under analysis at the supplier but show a burnt electronics head in a preliminary analysis approach. None of the analyses contains indications of fire other than burns or melting localized around the pencil coil head.



**Action A2**

- a. **Miscellaneous E-mail Communications**
- b. **N/A**
- c. **N/A**
- d. **N/A**
- e. **N/A**
- f. **N/A**

**Action A3**

- a. **Ignition Coil Claim Tabulation**
- b. **N/A**
- c. **N/A**
- d. **Claim Analysis from the month of October 2004N/A**
- e. **N/A**

**Action A4 (Product Support)**

- a. **Presentation**
- b. **N/A**
- c. **N/A**
- d. **Claim Analysis / Production Changes N/A**
- e. **N/A**

**2.8l V6 engine, engine code ATQ with coil pack**

**Action B1**

- a. **Analysen 2,8l.pdf [German original and English translation]**
- b. **N/A**
- c. **as of June 1, 2007**
- d. **Excel sheet containing analysis findings and details about defective ignition coils**
- e. **Quality Department VWAG**
- f. **Volkswagen performed 56 analyses on 2.8l engine coils returned from the field. None of those contain indications of "fire."**

**Exhibit to Request 8**

**REQUEST NUMBER EIGHT DATA**

**Data is provided in Adobe Acrobat format in the REQUEST NUMBER EIGHT DATA folder on the  
PE07-024**

**Request 9:**

Provide a tabular listing of all engineering part numbers and corresponding service part numbers, for all configurations of the subject component issued by VW for OEM manufacture and service installations from the start of production to date for the subject components installed in the subject vehicles.

**Response 9:**

In response to this inquiry, Volkswagen is providing an Adobe Acrobat file entitled "REQUEST NUMBER NINE DATA.pdf" attached hereto as Exhibit to Request 9.

**Exhibit to Request 9**

**REQUEST NUMBER NINE DATA**

**Data is provided in Adobe Acrobat format on PE07-024 Data Collection Disc**

**Request 10:**

Describe all modifications or changes made by, or on behalf of, VW in the design, material composition, manufacture, quality control, supply, or installation of the subject components, from the start of production to date, which relate, or may relate, to the alleged defect in the subject vehicles. For each such modification or change, provide the following information:

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;
- b. A detailed description of the modification or change;
- c. The reason(s) for the modification or change;
- d. The part numbers (service and engineering) of the original component;
- e. The part number (service and engineering) of the modified component;
- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
- g. When the modified component was made available as a service component; and,
- h. Whether the modified component can be interchanged with earlier production components.
- i. Also, provide the above information for any modification or change that VW is aware of which may be incorporated into vehicle production within the next 120 days.

**Response 10:**

**In response to this inquiry, Volkswagen is providing an Adobe Acrobat file entitled "REQUEST NUMBER TEN DATA.pdf" attached hereto as Exhibit to Request 10.**

**In response to this inquiry, Volkswagen did not identify any modifications to the subject components to be incorporated into the vehicle production within the next 120 days.**

**Exhibit to Request 10**

**REQUEST NUMBER TEN DATA**

**Data is provided in Adobe Acrobat format on PE07-024 Data Collection Disc**

### **Request 11:**

Provide a complete engineering description and appropriate engineering specifications (including engineering drawings) of the subject components installed in the subject vehicles. For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which VW is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

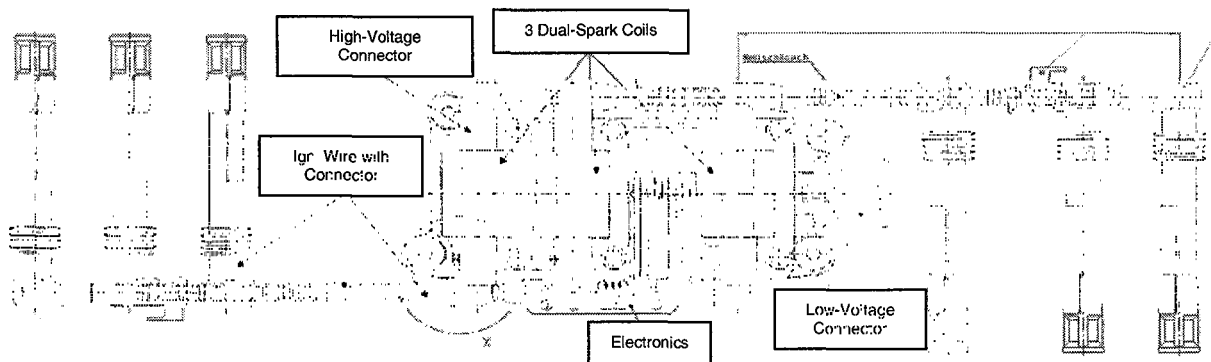
### **Response 11:**

In response to this inquiry, Volkswagen is providing the following engineering description of the coil system used in the subject vehicles:

#### **2.8I V6 engine coil pack (engine code ATQ)**

The ignition circuit consists of 3 Dual-Spark Ignition Coils encapsulated into one block and the ignition wires leading the high voltage from the block to the spark plug.

The coil pack is mounted on top of the engine, the ignition wires connect to the spark plug inside the engine with an SAE spark plug connector. Upon on-board voltage signal from the engine control module the electronics apply the voltage to primary coil. This induces a high voltage pulse on the secondary coil which is transferred to the spark plugs via high voltage ignition wires for ignition.

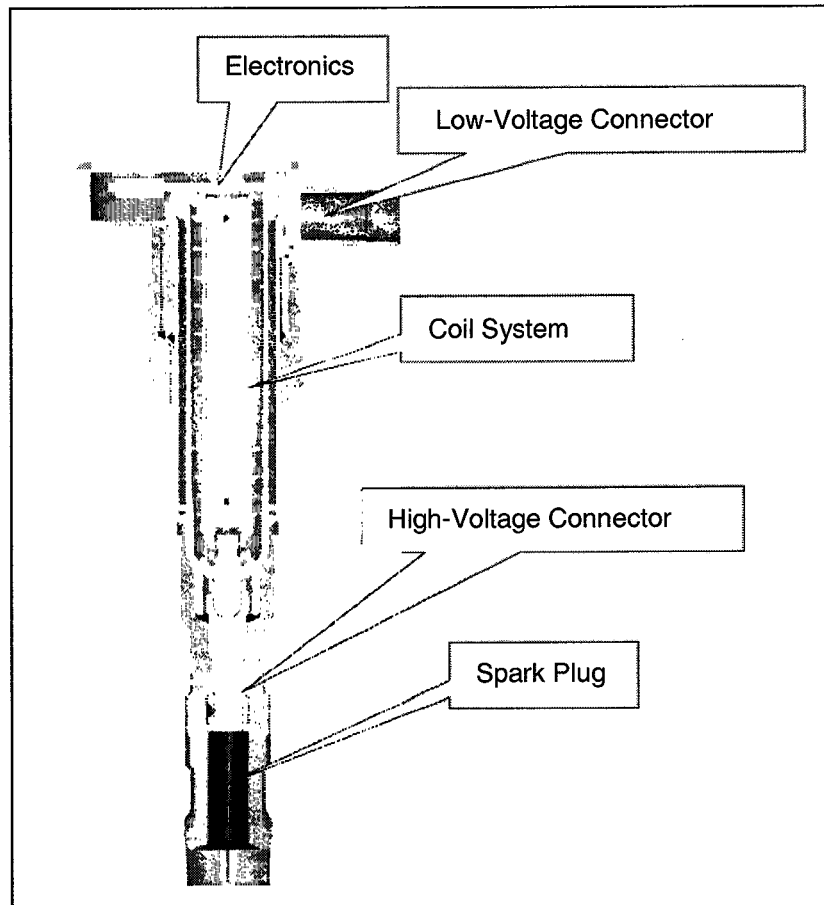


#### **1.8T pencil coils (engine codes AUG, AWM, ATW)**

The ignition circuit consists of one pencil coil and spark plug per cylinder. No high voltage ignition wiring is used. In this case the voltage transforming primary and secondary coils are placed directly above the spark plug in the cylinder head shaft. The pencil coil is directly connected to the spark plug with an SAE contact and no additional (high voltage) wiring.

The pencil coil itself consists of the electronics with low voltage connector, the coil system for generating high voltage and the SAE connector. Upon on-board voltage application from the engine control module the electronics apply voltage to the primary

coil inducing the high voltage pulse for ignition. The coil generates high voltage for the ignition directly at the spark plug without transferring the high voltage via electrical wiring.



In response to this inquiry Volkswagen is providing the engineering drawings containing the coil specifications as Attachment 11a.pdf, which will be submitted under a separate cover to NHTSA Office of Chief Counsel with Request for Confidentiality.

Volkswagen is providing a list of other vehicles which Volkswagen is aware that contain the identical component as Attachment 11b.pdf, and a list of supplier's name, address, and appropriate point of contact as Attachment 11c.pdf.



**Request 12:**

Provide the following information regarding each of the three Service Action Circulars (SAC) issued by VW, dated December 2003, June 2004, and September 2006, respectively, that apply to the subject components installed in all or some of the subject vehicles:

- a. Listing of the subject vehicles affected by each SAC, by engine configuration;
- b. Start and end dates of production of the vehicles affected;
- c. Basis for issuance of each SAC;
- d. Listing of the subject vehicles not affected by each SAC; and,
- e. Explanation of why each SAC did not affect all of the subject vehicles.

**Response 12:**

Volkswagen is providing two of the three Campaign Circulars (December 2003 and June 2004), plus three additionally identified publications (May 2003, January 2004, and June 2004) related to coil malfunctioning in the subject vehicles. Copies of all of these circulars are provided in Response 7. Volkswagen was not able to identify any subject service circular published in September 2006 that applies to any of the subject vehicles.

In summary, all Passat vehicles with AUG or AWM engines equipped with the affected part number have been included in the Customer satisfaction campaign WG; and all other Passat vehicles were not included because they did not use the affected components. The VIN range of the subject Passats remained unchanged through all updates, and the repair instructions regarding to the subject Passat vehicles also remained unchanged through all updates.

**a & b) Listing VIN ranges and production dates by Engine Configuration**

1.8T 170HP ULEV, Engine Code AWM (MY 2001-2003) (D in 5th position of VIN)

Production Plant Emden

WVW\_D\_3B\_1E000027 - WVW\_D\_3B\_3E [REDACTED] (Mar 13, 2000 - Jul 25, 2002)

Production Plant Mosel

WVW\_D\_3B\_1P054507 - WVW\_D\_3B\_3P [REDACTED] (Nov 15, 2000 - Oct 6, 2002)

1.8T 150HP ULEV, Engine Code AUG\* (only in MY 2001) (C in 5th position of VIN)

Production Plant Emden

WVW\_C\_3B\_1E000075 - WVW\_C\_3B\_1E [REDACTED] (May 26, 2000 – Sept 18, 2000)

Production Plant Mosel

WVW\_C\_3B\_1P001024 - WVW\_C\_3B\_1F [REDACTED] (May 20, 2000 – Aug 26, 2000)

\*Technically nearly identical to the engine with code AWM but with reduced power. The range from the SAC starts with the beginning of the model year, however the first US delivery was of a later VIN as shown here.

**c) Basis for Issuance of Circulars**

The different SACs have been issued because of changes in the work procedure for other affected vehicles, namely the Jetta and EuroVan, and Rialta vehicles. However, all SACs remain unchanged in respect to the subject vehicles.

**d) & e) Non-Affected Subject Vehicles by Engine Configuration**

1,8T 150HP LEV, Passat 1,8T with engine code ATW (MY2000)  
(A in 5th position of VIN)

Reason for not being affected by circular:

These vehicles use a different engine and coil (similar in principle, but different in design, parts, supplier and emission level). The coils affected from the WG campaign were not used in this engine configuration, and accordingly were never subject to the same defect addressed in the WG Customer Satisfaction Campaign. (Please also refer to answers to questions 9, 10, 11)

2,8l V6 190HP LEV, Passat V6 with engine code ATQ (MY2000-2003)  
(MY00: D or H in 5th position of VIN, MY01-03: H in 5th position)

Reason for not being affected by circular:

This engine uses a different ignition system (Coil Pack) without pencil coils and accordingly was never subject to the same defect addressed in the WG Customer Satisfaction Campaign. (Please also refer to answer to questions 9, 10, 11)

**Request 13:**

Provide VW's assessment of the alleged defect in the subject vehicle, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety that it poses;
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and,
- f. The reports included with this inquiry.

**Response 13:**

Volkswagen has reviewed the facts regarding the alleged defect in the subject vehicles and has not identified an unreasonable risk to motor vehicle safety.

Volkswagen notes that, although the overall subject coil failure and replacement rates have been high, the vast majority of these reports are related to the previously identified failure modes of misfire/lack of spark/reduced engine power, or the Customer Satisfaction Campaign (code WG) itself, and not related to underhood or underbody "fires" (as defined in 49 CFR 579.4 (2007)).

Of those reports not related to the campaign, the vast majority occurred before the campaign was implemented.

Volkswagen notes that a malfunctioning coil will likely result in significant and noticeable warning to the operator. A failing ignition coil/misfire condition will be brought to the driver's attention by an illuminated or even flashing MIL, most likely accompanied by rough idling, reduced power, inconstant acceleration, or otherwise resulting in a different vehicle velocity behavior than usual. In case of a flashing MIL, the driver is instructed in the owner's manual to continue driving only "with reduced power" (to prevent further damage to the engine) and is also instructed to "have the cause corrected right away".

Volkswagen notes that the majority of the referenced VOQs have been filed in January 2007 by a private investigation company (or companies) and not at the time of the incident by individual customers. These reported incidents reach back to CY 2002 and, therefore, Volkswagen does not believe that any useful analysis could be performed on these vehicles today regarding the condition of the engine management system, fuel/air mixture or ignition coils at the time of the incident. Thus Volkswagen is not able to verify the assessments made by the reporter(s) and is not able to assess or comment on these cases.

Because the subject vehicles include three different engine/coil designs, Volkswagen is describing its analysis separately as follows:

**1.8T engines with coils from the supplier Hitachi (engine code ATW)**

Volkswagen's analysis of warranty claims identified for this inquiry found 398 warranty claims for this engine in 36,203 subject vehicles, which results in an overall warranty rate of 10.9 R/1000. VW used a key word search to identify and analyze Customer Complaints, Field Reports, Third Party Arbitration Claims, and Lawsuits for allegations related to a "fire" as

defined in 49 CFR 579.4 (2007). Of these, two unique VINs had reports (0.05 R/1000) which contained allegations related to "fire".

Volkswagen did not identify any accidents, injuries, or fatalities related to the alleged defect in the subject vehicles with this engine.

Volkswagen believes this rate to be *de minimis* and does not constitute a safety related defect trend or an unreasonable risk to motor vehicle safety.

#### **1.8T engines with coils from the supplier Pulse GmbH (engine codes AUG and AWM)**

In calendar years 2002 – 2003 Volkswagen noted that the failure rate of these vehicles' pencil coils was quite high, resulting in misfiring, lack of spark, and reduced engine power, and therefore decided to conduct a Customer Satisfaction Campaign (code WG) to address the issue. Volkswagen implemented this action in 2003 for all affected vehicles, including the subject Passat vehicles equipped with pencil coils from the supplier Pulse GmbH. This campaign is currently at 97.2 % completion for the subject vehicles, and 96.7% for all affected vehicles.

Volkswagen's analysis of warranty claims identified for this inquiry found 63,400 warranty claims for this engine (exclusive of the campaign) in 166,910 subject vehicles, which results in a warranty rate of 379.8 R/1000. VW used a key word search to identify and analyze Customer Complaints, Field Reports, Third Party Arbitration Claims, and Lawsuits for allegations related to a "fire" as defined in 49 CFR 579.4 (2007). Of these, 385 unique VINs had reports containing some allegations related to "fire", resulting in an incident rate of 2.30 R/1000. The majority of these incidents occurred before the Customer Satisfaction Campaign was completed on the incident vehicle, and after implementation of the campaign this rate dropped significantly to 0.43 R/1000 vehicles.

Volkswagen did not identify any accidents or fatalities related to the "fire" allegations in the subject vehicles with this engine. Volkswagen notes that the one "burn injury" allegation related to a coil "fire" appears to be very minor and apparently did not require medical examination.

Volkswagen has not identified a correlation between the coil failure mode addressed in the campaign (misfire/lack of spark/reduced engine power) and engine compartment or underbody fires. Volkswagen notes that the high failure rate of the coil due to misfiring does not correlate to the very low rate of overheating and/or fires over the 4 - 7 years of service that the subject vehicles have been operated.

Volkswagen's analysis shows that of the 385 unique VINS, only 36 reports (0.22 R/1000) include allegations of a pencil coil failure has led to an engine compartment fire. The majority of these are known to involve coils of design levels prior to the service campaign, which have subsequently been removed from field service by the WG customer satisfaction campaign.

The remaining 349 reports (2.09 R/1000) of coils had localized overheating and/or smoldering around the head of the pencil coil. In the majority of these reported cases, coils of design levels prior to the service campaign were installed. As stated above, the majority of these incidents occurred before the Customer Satisfaction Campaign was completed on the incident vehicle, and after implementation of the campaign this rate dropped significantly.

Volkswagen believes that the very low overall incident rate is *de minimis*, especially since the implementation of the campaign. The incident rate and the complete lack of any crashes, significant injuries, or fatalities resulting from ignition coil caused fires, in conjunction with the lack of any proven connection between the known coil misfire failure mode and engine

compartment or underbody fires, indicate that there is no unreasonable risk to motor vehicle safety in those subject 1.8T vehicles with engine codes AUG and AWM.

In an abundance of caution, Volkswagen will conduct a follow-up reminder mailing to all remaining open subject WG vehicles that have an active vehicle registration on file with state agencies.

#### **2.8l engines with coil pack from the supplier Pulse GmbH**

Volkswagen's analysis of warranty claims identified for this inquiry found 1,960 warranty claims for this engine in 142,932 subject vehicles, which results in a warranty rate of 14 R/1000. VW used a key word search to identify and analyze Customer Complaints, Field Reports, Third Party Arbitration Claims, and Lawsuits for allegations related to a "fire" as defined in CFR 49 579.4. Of these, 17 (0.12 R/1000) unique VINs had reports containing contained allegations related to "fire". These cases appear to be limited to localized "arcing" or "melting" or "burning" of the coil, and do not contain any allegations of propagation or involvement of any other components.

Volkswagen believes that the very low overall incident rate and the complete lack of any crashes, injuries, or fatalities resulting from ignition coil caused fires indicate that there is no unreasonable risk to motor vehicle safety in those subject 2.8l vehicles.

Volkswagen notes that a number of the reported underbody fires have resulted after service to the catalytic converter or other underbody components in the area of the heat shield.

In an abundance of caution, Volkswagen will publish a Technical Bulletin reminding authorized VW and independent technicians about the importance of exhaust heat shielding including inspection and proper replacement of any damaged components when performing service work in the area of the exhaust system. At the agency's request, Volkswagen will provide a copy of this Technical Bulletin when it is available.

#### **Summary**

Based on the *de minimis* incident rates identified in response to this inquiry, the markedly declining trend since implementation of the WG campaign, the analyses conducted, and the complete lack of any significant injuries or fatalities, Volkswagen has not identified any unreasonable risk to motor vehicle safety related to the alleged defect in the subject vehicles including all three ignition systems/coil.