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OFFICE OF DEFECTS
INVESTIGATION

3800 Hamlin Road
Auburn Hills, MI 48326
Tel. (248) 754-5000

July 13, 2004

Thomas Z. Cooper, Chief
Office of Defects Investigation
US Department of Transportation
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, DC 20590

Subject: EA04-010 NVS-212hs; Front Seat Overheats

Dear Mr. Cooper,

Attached is our response to your letter dated May 10, 2004 requesting additional information concerning overheat conditions for certain 2002-2003 model year Volkswagen Jetta vehicles.

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
Compliance Officer
Volkswagen of America
248.754.5262

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2004 JUL 14 P 1:00
OFFICE OF DEFECTS
INVESTIGATION

Attachments

Request 1. Update to current status and state, separately for each MY of the subject vehicles the number of 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 fire, crash, injury, or fatality, based on claims against VW involving a death or injury, notices received by VW alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
- d. Property damage claims;
- 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, codefendant, or third party defendant.

For subparts "a" through "f" 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 underlying problems, causal and contributing factors, and VW's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "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 1.

- a. In response to your inquiry, VW has identified 155 consumer complaints involving 144 vehicles, none of which are from fleet operators, which relate to the alleged defect in the subject vehicles;
- b. In response to your inquiry, VW has identified 30 field reports, which relate to the alleged defect in the subject vehicles;
- c. In response to your inquiry, VW has identified 101 reports with allegations of "fire" as defined by NHTSA, 1 report with allegation of a crash (which was previously reported in response to PE03-052), 41 reports alleging injury, and no reports of fatality, based on claims against VW involving a death or injury, notices received by VW alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports, which relate to the alleged defect in the subject vehicles. VW notes that these allegations of "fire" do not include sustained combustion or any danger to other parts of the vehicle. VW also notes that none of the reports include allegations of serious injury;
- d. In response to your inquiry, VW has identified 74 property damage claims, which relate to the alleged defect in the subject vehicles. VW notes that all of the claims are for discolored or otherwise damaged clothing;
- e. In response to your inquiry, VW has not identified any third-party arbitration proceedings where VW is or was a party to the arbitration, which relate to the alleged defect in the subject vehicles; and
- f. In response to your inquiry, VW has not identified any lawsuits, either pending or closed, in which VW is or was a defendant, codefendant, or third party defendant, which relate to the alleged defect in the subject vehicles.

A summary of these reports is described in response 2. Causal and contributing factors and VW's assessment of the problem is covered in response 9.

Source, Date Gathered:
Listen/ Product Liaison, 5/10/04

Request 2. Separately, for each item (complaint, report, claim, notice, or other 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 Identification Number (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 fire is alleged;
- j. Whether a crash is alleged;
- k. Whether property damage is alleged and if so, the type of property damage;
- l. Number of alleged injuries, if any and the type of injury alleged;
- m. Whether medical attention was sought, the medical result/diagnosis; and
- n. Number of alleged fatalities, if any.

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

Response 2.

Our responses to subparagraphs a. through n. are provided in a Microsoft Excel table entitled "REQUEST NUMBER TWO DATA.xls" attached hereto as Exhibit to Request 2.

**Source, Date Gathered:
See Above**

Exhibit to Request 2

REQUEST NUMBER TWO DATA

Data is provided in Microsoft Excel format on EA04-010 Data Collection Disc

Request 3. 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 3.

Our response is provided in Adobe Acrobat format entitled "*REQUEST NUMBER THREE DATA.pdf*" attached hereto as Exhibit to Request 3 on EA04-010 Data Disc.

Source, Date Gathered:
See Above

Exhibit to Request 3

REQUEST NUMBER THREE DATA

Data is provided in Adobe Acrobat format on EA04-010 Data Collection Disc

Request 4. Separately, for each MY of the subject vehicles, update to current status and state the numbers of 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. Vehicle Identification Number (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 4.

In response to your inquiry, VW has identified 486 Warranty claims involving 484 vehicles, which relate to the alleged defect in the subject vehicles, as shown in the table below.

Model Yr.	# Of Claims
2002	335
2003	151

Our responses to subparagraphs a. through k. are provided in a Microsoft Excel table entitled "WARRANTY DATA.xls" attached hereto as Exhibit to Request 4.

Source, Date Gathered:
Business Objects Warranty Universe, 5/10/04

Exhibit to Request 4

WARRANTY DATA

Data is provided in Microsoft Excel format on EA04-010 Data Collection Disc

Request 5. 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, or considering issuing within the next 120 days.

Response 5.

In response to your inquiry, VW has not identified any service or warranty documents that relate or may relate to the alleged defect in the subject vehicles.

Source, Date Gathered:
VWoA Legal, 5/10/04

Request 6. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that have been conducted, are being conducted, are planned, or being planned by, or for, VW, that relate to, or may relate to the alleged defect, and not previously reported to ODI under PE03-052. For each action or category, 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.

Response 6.

Action I

- a. **Action Title:** Measurement of Pressure Profiles
- b. **Start Date:** February 2004
- c. **End Date:** March 2004
- d. **Brief Summary:** Pressure loading at various parts of the seat.
- e. **Responsible Engineering Group:** WET (Supplier)
- f. **Summary:** Found highest load occurs in bolster area.

Action II

- a. **Action Title:** Robot Bench Testing
- b. **Start Date:** February 2004
- c. **End Date:** March 2004
- d. **Brief Summary:** Dynamic tests including ingress and egress endurances for seat.
- e. **Responsible Engineering Group:** WET (Supplier)
- f. **Summary:** Damage to heating element was simulated. The test was so extreme that the seat was damaged to an extent not observed in field.

Action III

- a. **Action Title:** Part Analysis
- b. **Start Date:** February 2004
- c. **End Date:** Ongoing
- d. **Brief Summary:** Computer tomography and scanning electron microscopy (SEM) used to examine heating elements. Elements tested include new parts, parts from field, and test fleet vehicles.
- e. **Responsible Engineering Group:** WET (Supplier)

- f. **Summary:** Found no broken electrodes in new parts. Field samples demonstrated damage to electrode wires located in driver's side rear outboard bolster area. One test fleet vehicle was observed to have a single electrode (of seven) broken.

Action IV

- a. **Action Title:** Analysis of Electrode Wire Breakage
b. **Start Date:** February 2004
c. **End Date:** Ongoing
d. **Brief Summary:** Scanning electron microscopy used to examine nature of wire breakage.
e. **Responsible Engineering Group:** VW
f. **Summary:** Breakage determined to be fatigue fracture

Source, Date Gathered:
VWAG Clearing, 5/10/04

Request 7. Identify any and all service repair parts kits developed and released for production by or for VW that relate, or may relate, to the alleged defect in the subject vehicles. Include all service kit part numbers and for each such part number, state the date of first shipment to dealers, the number of kits sold, and a complete engineering description of each individual part within that kit.

Response 7.

In response to your inquiry, no service repair parts kits have been developed and released for production.

Source, Date Gathered:
VWAG Clearing, 5/10/04

Request 8. In December 2002, Volkswagen Canada Incorporated issued a notification to recall and correct a safety related condition involving some 3,900 Passat models in Canada. The recall resulted from the possibility that the front seat back heater could supply concentrated heat in a localized area of the seat back or produce excessive heat and in some instances, injuring the seat occupant. Provide a complete comparison of the safety issues in the recalled Canadian models with the similar issues in the subject vehicles. Explain how the issues in the two cases are different to the extent that the Canadian vehicles were recalled as a safety-related matter, as opposed to the subject vehicles, for which VW has not to date identified a safety related defect.

Response 8.

In December 2002, VW recalled 1990 - 1997 Passat vehicles with cloth-covered heated seats to replace the backrest heating element.

The issues relating to the 1990 - 1997 Passat vehicles were entirely different from the situation on the subject vehicles. In the 1990 - 1997 Passat vehicles, the backrest and seat cushion heating mat consisted of a cotton fleece panel with integrated copper heating elements.

The backrest heating mat was held in position by means of slots that passed over and around the anchorages for the head restraint under the seat upholstery covering and was then affixed to the backrest padding with an additional adhesive strip.

In some cases, the attachment points around the head restraint anchorages could tear open enabling the heating mat to gradually slide downwards under the seat cover, eventually separating the additional attachment provided by the adhesive strip. Ultimately, this permitted the heating mat to slide

down to the bottom of the backrest where it could bunch up and be compressed in a comparatively small area in the lower portion of the backrest. In this position, the heating element continued to conduct electrical current, and thus the entire heating capacity of the mat was concentrated in one area of the backrest. The heat build-up could continue unabated, unless the switch was turned off.

This chain of events, and thus also the recall in Canada, was limited to seats with cloth upholstery in a defined model year range of Passat vehicles. Cloth, in contrast to leather upholstery, permits moisture including perspiration to pass through the cloth cover and reach the fleece carrier for the heating elements thereby degrading the fleece backing material.

Leather upholstery significantly resists moisture and better insulates the mat from the potential for mechanical displacement through the lower coefficient of friction between the occupant and the seat when the occupant moves about and over the surface of the backrest. The higher coefficient of friction that characterizes cloth upholstery can transfer higher forces to the fleece and to the upper attachment points. Thus the phenomenon observed on some seats with cloth upholstery is significantly less likely to occur in seats with leather upholstery.

The issues relating to the 1990 - 1997 Passat vehicles are significantly different from those relating to the incidents involving the subject vehicles. The "one-piece carbon fiber heating mat" installed in the 2002 - 2003 Jetta vehicles with "comfort" seats is firmly sewn to the inside of the seat upholstery, and it is highly unlikely the mat can slip out of its design position.

VW conducted the recall in Canada pursuant to applicable Canadian law after discussion with Canadian authorities. In the course of these discussions, VW clearly stated its view that the situation did not constitute a safety defect within the meaning of applicable law, but agreed to conduct the recall to avoid a protracted discussion. VW's belief remains unchanged and is not in conflict with its belief in the context of the situation that underlies this matter.

Source, Date Gathered:
VWAG Clearing, 5/10/04

Request 9. In consideration of any additional information accumulated and evaluated in the preparation of VW's response to this letter, furnish an update of VW's assessment of the alleged defect in the subject vehicles, 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; and
- e. The reports included with this inquiry.

Response 9.

a-c. The seat heater is powered only when both the ignition switch and seat heater switch are turned on. Sufficient pressure in combination with rotational loadings exerted on the left rear portion of the outboard bolster of the driver seat during repeated ingress/egress cycles can lead to breakage of electrode wires that carry current to the one-piece, carbon heating mat.

If breakage of the electrode wires occurs, a brief current spike can occur that causes a localized temporary increase of the heat in the carbon grid at the left side at the back of the outboard bolster of the driver seat cushion. This spike is generated by the passage of current over the higher resistance on its way to the ground pole and leads to a very short, localized temperature increase that can damage the seat covering in that immediate area.

This condition is temporary and self-limiting, as the local overheating of the carbon network will lead to current flowing through a larger area of the grid, thereby reducing the heat generated in any one area.

- d. VW is not aware of any serious injuries or fatalities associated with any incidents that has investigated or that have otherwise been brought to its attention. VW notes that all allegations of injury either did not seek medical attention, or were very minor. The overheating condition is temporary and can be immediately stopped by turning off the seat heater switch, or turning off the ignition switch, and in addition the driver may avoid discomfort by shifting weight away from the site of overheating. VW notes that this condition is self-limiting and very localized, and there are no reports of sustained combustion of the seat, or items on the seat. Sustained combustion of the subject components is prevented through the use of fire resistant materials. VW notes there is no risk of overheating when the ignition is switched off. Based on field data, testing, analyses and investigations conducted to date, VW does not believe that an unreasonable risk to motor vehicle safety exists in the subject vehicles.**
- e. VW's investigation and analyses indicate that breakage of heating mat electrode wires at the left rear of the outboard bolster in the driver seat cushion installed only in the deluxe "Comfort" seats can occur when certain pressures and rotational loadings are applied to the seat during driver ingress and egress from the vehicle.**

Based on the field data, testing, analyses and investigations conducted to date, VW does not believe that an unreasonable risk to motor vehicle safety exists in the subject vehicles.

VW will continue to monitor these vehicles in the field.

**Source, Date Gathered:
VWAG Clearing, 5/10/04**