

**VOLKSWAGEN**



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January 16, 2004

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

OFFICE OF DEFECTS  
INVESTIGATION

JAN 20 10 11 A

RECEIVED  
NVS-210

Subject: NVS212 - EA03-020

Dear Mr. Cooper,

Please find attached two copies of Volkswagen's response to EA-03-020, regarding the alleged detachment of the passenger supplemental inflatable restraint door during deployment.

Please contact me if you have any questions or require additional information.

Regards,

John Maddox  
Product Compliance  
VWofA

Encl. CD-ROM

OFFICE OF DEFECTS  
INVESTIGATION

JAN 20 10 11 A

RECEIVED  
NVS-210

**Request 1:**

State, by model and model year, the number of subject vehicles Volkswagen has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Volkswagen, 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
- h. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

**Response 1:**

In response to this inquiry, VW has not produced any additional subject vehicles to those provided in our response to PE 03-021.

Sources, Data Gathered:  
Vehicle Population Universe, November 30, 2003

**Request 2:**

State the number of each of the following, received by Volkswagen, or of which Volkswagen 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, injury, or fatality, based on claims against Volkswagen involving a death or injury, notices received by Volkswagen 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 Volkswagen is or was a party to the arbitration; and
- f. Lawsuits, both pending and closed, in which Volkswagen 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 Volkswagen's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "f" and "g," 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:**

- a. In response to this request, VW has not identified any consumer complaints or any complaints from a fleet operator related to the alleged defect in the subject vehicles.
- b. In response to this request, VW has not identified any field reports related to the alleged defect in the subject vehicles.
- c. In response to this request, VW has not identified any reports involving a crash, injury, or fatality related to the alleged defect in the subject vehicles.
- d. In response to this request, VW has not identified any property damage claims related to the alleged defect in the subject vehicles.
- e. In response to this request, VW has not identified any third-party arbitration proceedings related to the alleged defect in the subject vehicles.
- f. In response to this request, VW has not identified any lawsuits, either pending or closed, in which VW is a defendant or codefendant related to the alleged defect in the subject vehicles.

#### **Source, Data Gathered:**

- a) CR Listen Database, Data up to date of inquiry
- b) Product Support, Data up to date of inquiry
- c-f) Product Liaison, November 24, 2003

### **Request 3:**

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. Volkswagen'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 crash is alleged;
- j. Whether property damage is alleged;
- k. Number of alleged injuries, if any; and
- l. Number of alleged fatalities, if any.

**Response 3:**

**VW has not identified any reports for Request 2.**

**Source, Date Gathered: See Response 2**

**Request 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 Volkswagen used for organizing the documents.

**Response 4:**

**VW has not identified any reports for Request 2**

**Source, Date Gathered: See Response 2**

**Request 5:**

State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Volkswagen 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. Volkswagen'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.

**Response 5:**

In response to this inquiry, VW has not identified any warranty claims relating to the alleged defect in the subject vehicles.

Source, Data Gathered:  
Warranty Claims Universe, Data up to date of inquiry

**Request 6:**

Describe in detail the search criteria used by Volkswagen to identify the claims identified in response 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 Volkswagen 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) related to the alleged defect that Volkswagen 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, VW has used the following criteria to identify warranty claims:

- All warranty claims paid between January 1, 1997 through November 21, 2003
- Factory Model Year between 1998 - 2002
- New Sale Dealer within USA
- Part Identifier = 6950 (Passenger Air Bag Unit) & 7018 (Instrument Panel)
- All Passat and variant model vehicles

Each warranty claim identified with the above search criteria was reviewed individually for allegations related to the alleged defect in the subject vehicles.

The following labor operations and descriptions are applicable to the alleged defect in the subject vehicles:

Labor Operation	Labor Operation Description	Time Units
70 18 19000	Remove and Install Instrument Panel	250

Source, Data Gathered:  
VEBIS, June 23, 2003

Model Yr.	Warranty Terms	Systems
1998	2 years / 24,000 miles Passat	Bumper to Bumper
1999	2 years / 24,000 miles Passat	Bumper to Bumper
2000	2 years / 24,000 miles Passat	Bumper to Bumper
2001	2 years / 24,000 miles Passat	Bumper to Bumper
2002	3 years / 50,000 miles Passat	Bumper to Bumper

Volkswagen has not offered any extended warranty options on the subject vehicles pertaining to the alleged defect.

Source, Data Gathered:  
VEBIS - Warranty Policies and Procedures Manual, July 23, 2003

### **Request 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 Volkswagen 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 Volkswagen is planning to issue, or considering issuing within the next 120 days.

**Response 7:**

In response to the alleged defect, VW has not identified any documents, service or warranty, issued to dealers, regional zone offices, field offices, fleet purchasers, or other entities.

Source, Date Gathered:  
VEBIS, January 7, 2004

**Request 8:**

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, Volkswagen, that relate to, or may relate to the alleged defect, PSIR door, PSIR door assembly, and PSIR System in the subject vehicles. 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.

**Response 8:**

- a) Testing in response to EA03-020:  
AK030101, AK030102, AK030103, AK030104.
- b) December 22 - 23, 2003.
- c) The end date is TBD. The conclusion date depends on the successful simulation of the fracture of the attachment bolts and the reconstruction of the conditions which can enable that to happen, if possible.

- d) The testing is intended to determine how a fracture of the bolts can occur and whether there is a risk that the airbag door can be completely separated from the instrument panel and propelled into the passenger compartment. In addition, the testing is intended to determine whether attachment bolts, if fractured can be propelled into the passenger compartment and pose a risk to vehicle occupants. Three of these tests were conducted with 4.8 task-welded bolts that had been substantially sawed through and weakened virtually to the point of shear. In the first of three tests, the bolts nevertheless withstood the loading and the airbag door did not separate. In the subsequent two tests the bolts were not only substantially sawed through and weakened virtually to the point of shear, but the nuts were also over-torqued to increase the tensile load and assure that the bolts would shear during the deployment sequence. The weakened bolts thus failed very early in the deployment sequence and door separation occurred. In the fourth test 8.8 bolts were also substantially sawed through and weakened and the associated nuts were also over-torqued to assure that the bolts would shear during deployment. These weakened 8.8 bolts also sheared very early in the deployment sequence causing airbag door separation. It should be noted that the weakening caused the attachment bolts to shear and the airbag door to separate earlier than would be expected if forces had built up to the point that a bolt which had not been weakened in this manner was caused to shear. The movement of the parts separated in these tests described are not representative of "real-world conditions," and the results would be different if the bolts were to separate at a later time during the deployment sequence. Please also see remarks about these tests in Response 19.
- e) Volkswagen expects to conduct such testing at its own facilities in Germany, but cannot exclude the possibility that individual evaluations may be conducted with the assistance of the supplier Faurecia.
- f) At the present time, Volkswagen does not have definitive test results inasmuch as it has not been possible to reproduce the total separation of the passenger airbag door in a representative manner with original attachment bolts with the tensile strength classifications 4.8 and 8.8 that had been substantially sawed through and weakened.

The response shall include but not be limited to all tensile tests and fatigue tests of each design version of the PSIR bolts/studs under conditions prior to installation in the IP and after installed in the IP.

No tensile or fatigue testing has been conducted by Volkswagen to date on attachment bolts either before or after installation in the instrument panel



**of Passat vehicles.**

**The response shall include but not be limited to any and all test results of the weld bolt/stud related to potential for hydrogen embrittlement.**

**No testing with respect to hydrogen embrittlement related to welded bolts has been conducted by Volkswagen.**

**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.**

**Attachment 8-1 contains a tabular compilation of tests and results. Attachment 8-2 contains videos containing high speed views of the tests described above, and will be provided under separate cover to NHTSA's Office of Chief Counsel with a request for confidentiality.**

**Sources, Date Gathered:  
VWAG Clearing, January 12, 2004**

**Request 9:**

**Describe all modifications or changes made by, or on behalf of, Volkswagen in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, 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 numbers (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.**

**Also, provide the above information for any modification or change that Volkswagen is aware of which may be incorporated into vehicle production within the next 120 days.**

**Response 9:**

- a) On or about March 1, 2002
- b) The bolts that attached the airbag door to the instrument panel were initially tack welded to the sheet metal inlay of the instrument panel and were subsequently press-fitted. In the course of the change in the production process, the bolt material was changed from tensile strength class 4.8 (320N/mm<sup>2</sup>) to tensile strength class 8.8 (640 N/mm<sup>2</sup>).
- c) The change was made in the context of the contemplated use of a different passenger airbag module that was ultimately not introduced. In the course of the changeover, the manufacturing process was optimized through the deletion of the welding step and the use of bolts that could be press-fitted in place. The introduction of another airbag module was planned that would have generated cost saving production. Installation of the new airbag module was not able to be introduced because the supplier (an important sub-supplier to Faurecia) declared bankruptcy. Additional parallel measures initiated for cost and production optimization – including the changeover from tack welded bolts to a press-fit design – were not reversed after it was determined that the new passenger airbag module would not be introduced into production.
- d) There are no separate Volkswagen part numbers, the bolts are not a service part. The bolts are integral part of the instrument panel and are installed during the manufacture of the instrument panel, they cannot be replaced.
- e) There are no separate Volkswagen part numbers, the bolts are not a service part. The bolts are integral part of the instrument panel and cannot be replaced.
- f) The original instrument panel with welded bolts was superseded by the new version on or about March, 2002. These new instrument panels are also produced as replacement parts.
- g) Not applicable.
- h) No. The attachment bolts on the instrument panel frame are an integral part of the instrument panel and are installed during the manufacture of the instrument panel, they cannot be replaced.

Source, Date Gathered:  
VWAG Clearing, January 12, 2004

**Request 10:**

**Produce ten of each of the following:**

- a. Exemplar samples of each design version of the subject component (bolt assembly only);**
- b. Field return samples of the subject component exhibiting the subject failure mode;**
- c. A schematic of the PSIR door, PSIR system, and any associated assembly or part; and**
- d. Any kits that have been released, or developed, by Volkswagen for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.**

**Response 10:**

- a) VW has attempted to obtain 10 samples of each design version as requested. The previous-level parts have been out of production for 2 years and are no longer available. VW thus utilized instrument panel assemblies and attachment bolts that were specially manufactured in December 2003 to simulate the previous-level production stage to conduct the testing described in Response 8. VW has never released or stocked the previous 4.8 attachment bolts in question individually, but only as a part of the complete instrument panel assembly. These complete assemblies are no longer being produced, and consequently are also not available.**

**VW has requested 10 samples of the latest level fastener from its supplier in France and will forward those to NHTSA as soon as they are obtained.**

- b) VW has no field-return samples.**
- c) VW has previously supplied these schematics in response to PE03-021.**
- d) No service or repair kit have been released or developed by VW related to the subject components.**

**Source, Date Gathered:  
VWAG Clearing, January 12, 2004**

**Request 11:**

State the number of each of the following that Volkswagen has sold or otherwise provided to dealers that may be used in the subject vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale (including the cut-off date for sales, if applicable):

- a. Subject component;
- b. Any parts utilized in the PSIR assembly, including the PSIR Door; and
- c. Any that have been released, or developed, by Volkswagen for use in service repairs to the subject component/assembly.

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 Volkswagen 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:**

- a) Please reference the Microsoft Excel file entitled *PART SALES.xls*, hereto attached as **Exhibit to Response 11.**

Source, Date Gathered:  
VWCoA TRIS - 48 Month Part Sales Report, January 18, 2004

Volkswagen notes that these parts sales represent replacements for a wide variety of reasons, and is not aware of any part sales related to the alleged defect.

- b) The PSIR door is included in the instrument panel assembly provided in exhibit above.
- c) There are no kits or parts for service repair that have been developed and released by VW.

The contact information has not changed and was provided in our response to PE03-021.

VW is not aware of any other vehicle containing the identical component.

Source, Date Gathered:  
VWAG, July 24, 2003

**Exhibit to Response 11**

**Part Sales**

**Data is provided in MS Excel on EA03-020 Data Collection Disc**

**Request 12:**

In addition to the information requested by Request No. 11:

- a. Identify the supplier(s) of the metal sheet inlay of the PSIR door lid;
- b. Did Volkswagen change the supplier(s) of the metal sheet inlay of the PSIR during production of the subject vehicles? If so, please identify the supplier(s), dates the supplier(s) were used, and the basis for the supplier change; and

Identify and explain any modifications, by a supplier, on any part associated with the PSIR door assembly.

**Response 12:**

- a) Volkswagen has been informed that the sheet metal inlay in the instrument panel was manufactured by the supplier ENT 25 in France.
- b) Volkswagen does not manufacture the instrument panel, but rather sources it completely pre-assembled from its supplier, Faurecia. According to information provided by Faurecia, ENT 25 has manufactured the metal sheet inlay at its facilities in France since the start of production.
- c) In addition from using press-fitted bolts on the frame installed in the instrument panel (see response to question 9), Faurecia changed the tolerance specifications for the length of the straps (deletion of the minus tolerance and increases in the plus tolerance).

Source, Date Gathered:  
VWAO Clearing, January 12, 2004

**Request 13:**

Produce copies of all documents transmitted between Volkswagen and any supplier that relate to, or may relate to the alleged defect, PSIR assembly, and associated parts of the PSIR. For each document, also state the following information:

- a. The date(s) or approximate date(s) on which the document was created, delivered, and received; and,
- b. A description of the document.

Organize the documents chronologically by date of receipt.

**Response 13:**

- a) VW has had ongoing contact with its supplier since beginning of June 2003 after VW received its first notice of NHTSA's opening of PE03-021, and has received materials as described below.
- b) As a direct result of NHTSA inquiries, PE03-021 and EA03-020, Volkswagen has requested and received the following materials from its supplier:

A tabular compilation prepared at Volkswagen's request of any quality control tests involving static deployments of Passat passenger airbags conducted between 1998 and 2003 in which the supplier noted the breakage of one or more of the subject bolts. The document is undated, but was received in January 2004. (Attachment 13.b.1 will be provided under separate cover to NHTSA's Office of Chief Counsel with a request for confidentiality).

A design drawing of the 4.8 bolt that was tack welded to the sheet metal frame in the instrument panel that Volkswagen received in January 2004. (Attachment 13.b.2 will be provided under separate cover to NHTSA's Office of Chief Counsel with a request for confidentiality).

A design drawing of the 8.8 bolt that press-fitted to the sheet metal frame in the instrument panel that Volkswagen received in January 2004. (Attachment 13.b.3 will be provided under separate cover to NHTSA's Office of Chief Counsel with a request for confidentiality).

Two high-speed views of static deployments conducted by Faurecia in the course of its production surveillance testing depicting passenger side airbag door separation resulting from bolt shear. The tests were conducted on or about August 9, 2001. The test sequences were received by Volkswagen in December 2003. (Attachment 13.b.4 will be provided under separate cover to NHTSA's Office of Chief Counsel with a request for confidentiality).

Source, Date Gathered:  
VWAG Clearing, January 12, 2004

**Request 14:**

Do any of the subject models have adaptive air bags installed on the front passenger side?

**Response 14:**

The subject vehicles are not equipped with "adaptive airbags", assuming that "adaptive airbag" refers to airbags that deploy in more than one stage at various thresholds depending on impact severity.

Source, Date Gathered:  
VWAG Clearing, January 12, 2004.

**Request 15:**

What are the quality control standards for the bolt assemblies in the PSIR door assembly?

**Response 15:**

The attachment bolts in question are a proprietary development of and/or for the supplier, Faurecia, and were specially designed, developed and manufactured for this application. The attachment bolts corresponded to the classifications 4.8 (initial production) and 8.8 (production since March 2002). The standardized specifications for these classifications (DIN 267, ISO 898 part 1) were provided to NHTSA in Volkswagen's previous responses to questions posed in PE03-021.

During the assembly of the instrument panel, the tightening torque and tightening angle of each nut on each attachment bolt was recorded and documented for each airbag door.

Source, Date Gathered:  
VWAG Clearing, January 12, 2004

**Request 16:**

In addition to the information requested by Request No. 8, identify any destructive tests that are being performed, were performed, or will be performed within the next 120 days, on the Volkswagen PSIR assembly and system. Provide a brief summary of the test(s) (if applicable), and any results or conclusions of the test(s).



**Response 16:**

During the course of production surveillance, complete instrument panels including the passenger airbag and passenger airbag door are subjected to regular random testing that include the static deployment of the passenger airbag (destructive testing).

In December 2003, Faurecia informed Volkswagen on request that in 17 of approximately 1,500 deployments conducted during production surveillance testing of passenger airbags installed behind airbag doors in Passat instrument panels, one or more attachment bolts on the instrument panel frame sheared and in some cases resulted in detachment of the airbag door. According to Faurecia in all of these cases the airbag door was directed against the windshield and was not projected rearward into the passenger compartment. Approximately 98% of the instrument panels tested in static airbag deployments showed no bolt shear. (see attachments to Response 13). It is important to note that in 15 of these 17 tests - in which bolts shear was noted - the ambient temperature as well as the temperature of the pre-cooled instrument panels tested was between -25°C to -35 °C (-13° F to -31° F). Bolt shear was noted in only two out of approx. 1,500 static deployments above sub-zero temperatures, one at room temperature and the other at +85°C (+185° F).

In addition, Volkswagen AG conducted a total of 19 whole vehicle frontal barrier impact tests of 1998 through 2002 Passat vehicles. Airbag door attachment bolts did not shear in any of these tests. (Attachment 16 contains videos of these tests and will be provided under separate cover to NHTSA's Office of Chief Counsel with a request for confidentiality).

Source, Data Gathered:  
VWAG Clearing, January 12, 2004

**Request 17:**

Did the first design weld stud on the PSIR assembly have cut threads or rolled threads?

**Response 17:**

The threads of the attachment bolts have been rolled since the start of production.

Source, Date Gathered:  
VWAG Clearing, January 12, 2004

**Request 18:**

What are the torque specifications for the push bolt stud in the PSIR assembly?

**Response 18:**

According to information supplied by Faurecia, the nuts on the attachment bolts are tightened to a torque of 2.5 Nm (Newton meters). The torque and angle of the nuts on the attachment bolts on each individual instrument panel is checked and documented. (see response to question 16).

Source, Date Gathered:  
VWAG Clearing, January 12, 2004

**Request 19:**

Furnish Volkswagen'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 19:**

- a) At this time Volkswagen does not have a complete understanding of and cannot express a final opinion as to the factors that may contribute to the shearing of attachment bolts for the passenger airbag door which has been observed by NHTSA investigators on two isolated Passat vehicles. Volkswagen would like to examine these vehicles and bolts and requests that NHTSA make these available to VW.

Considering the results of the production surveillance testing, Volkswagen notes that of the total of 17 of approximately 1,500 static deployments conducted by Faurecia in which bolt shear was noted, 15 were conducted at low, sub-zero temperatures between  $-25^{\circ}\text{C}$  to  $-35^{\circ}\text{C}$  ( $-13^{\circ}\text{F}$  to  $-31^{\circ}\text{F}$ ). Even if a vehicle is subject to such low outside temperatures, the interior warms up after a very short period of time so that the temperatures in the vehicle interior in general, as well as in the area of the passenger airbag door, reach temperatures approaching normal room temperature. At such temperatures, those the temperatures generally prevailing inside a vehicle in daily use, or at an extremely high temperature of  $+85^{\circ}\text{C}$  ( $+185^{\circ}\text{F}$ ), bolt shear was noted only once respectively during the approximately 1,500 production surveillance tests conducted by Faurecia, that is equivalent to less than 0.07%.

- b) At this time Volkswagen does not have a complete understanding of and cannot express a final opinion regarding the possible mechanism which may cause the shearing of attachment bolts for the passenger airbag door on certain Passat vehicles. VW has not been able to demonstrate the alleged failure mode with real-world representative conditions.
- c) According to Volkswagen's current information, in rare, isolated cases during production surveillance testing individual attachment bolts that secure the bracket of the straps from the passenger airbag door to the frame (sheet metal inlay) in the instrument panel can shear (mostly at low, sub-zero temperatures).
- d) Two incidents involving Passat vehicles seen by NHTSA investigators in salvage yards in the United States on which airbag door attachment bolts had been sheared off were brought to Volkswagen's attention in the context of PE03-021.

However in this context, Volkswagen has no information that the occupants in these vehicles were injured by the sheared bolts or the passenger airbag door itself. Volkswagen is not aware of any incident anywhere in the world in which a vehicle occupant is alleged to have been injured by a sheared bolt or a passenger airbag door.

Even if a bolt were to shear during opening of the airbag door, this could only occur when a sufficiently high force is exerted on the bolts via the straps. If the passenger side airbag deploys in a frontal collision, the straps will cause the airbag door to pivot and rotate towards the windshield. That means that before the straps are under tension and before excessive forces can be applied to the attachment bolts that

could cause them to shear, the airbag door has already has been opened by the deploying airbag and rotated towards the windshield.

Based on these results, Volkswagen believes that even if one or more of the attachment bolts were to shear, the airbag door will be directed towards to windshield and will thereafter be in the space between the windshield and the deployed airbag. Volkswagen believes that there is no increased risk to vehicle occupants by a separated airbag door in the initial impact.

It is impossible to say with any degree of certainty, when and how the broken bolts found in the Passat vehicles inspected in a salvage yard - at a time and place remote from the scene of the respective collisions - ended up where they were found at the time of the subsequent inspection by NHTSA personnel.

Because of the sequences related to the opening of the airbag door and the loading of the attachment bolts described above, and the occupant kinematics in a frontal impact in which the passenger airbag deploys, Volkswagen believes that the risk of injury in the event of sheared bolts and a separated airbag door is negligible.

In none of the full scale frontal fixed barrier impacts that Volkswagen conducted on 1998 - 2002 Passat during production surveillance testing were attachment bolts sheared or passenger airbag doors separated from the instrument panel. In 99% of the production surveillance tests that were conducted by Faurecia, no sheared bolts and no separated airbag doors were noted. Even when the static deployments conducted by Faurecia are considered in which approximately 1% of which bolt shear was noted, Volkswagen does not believe that an unreasonable risk to traffic or occupant safety exists.

It is important to note that the overwhelming majority of the production surveillance static deployments in which bolt shear was noted were conducted at low, sub-zero temperatures that rarely, if ever, actually prevail inside a vehicle that is being used. While bolt shear was noted once at room temperature and once at an extremely high temperature, all of the full-scaled frontal fixed barrier impacts that Volkswagen conducted on 1998 - 2002 Passats showed no bolt shear and no airbag door separation. These tests were conducted at normal ambient temperatures.

- e) Tests with substantially weakened attachment bolts in question have demonstrated that it is improbable that the airbag door will be propelled into the passenger compartment.

In addition and as noted above, with respect to the 'alleged defect' that is the subject of this inquiry, Volkswagen has received:

- No Consumer complaints, including those from fleet operators;
- No Field reports, including dealer field reports;
- No Reports involving a crash, injury, or fatality, based on claims against Volkswagen involving a death or injury;
- No Notices alleging or proving that a death or injury was caused by the 'alleged defect' as described by NHTSA in a subject vehicle
- No Property damage claims;
- No Third-party arbitration proceedings where Volkswagen is or was a party to the arbitration; and
- No Lawsuits, either pending or closed, in which Volkswagen is or was a defendant, codefendant, or third party defendant.

Volkswagen believes that the testing conducted to date and the absence of incidents in the field including, but not limited to the total absence of customer complaints, field reports, claims or any kind, etc. clearly demonstrate that the condition that is the subject of this inquiry does not represent a defect and does not cause an unreasonable risk to the safety of vehicle occupants.

Sources: Data Gathered:  
VWAG Clearing, January 12, 2004