



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA 04-010
 Prompted By: PE 03-052
 Date Opened: 03/30/2004 Date Closed: 10/21/2004
 Principal Investigator: Lee Strickland
 Subject: Driver Side Front Seat Overheats

Manufacturer: Volkswagen of America, Inc.
 Products: 2002-2003 Volkswagen Jetta
 Population: 153,776

Problem Description: Electric powered driver seat warmer may overheat and burn seat cover and driver clothing/skin while the vehicle is being operated.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	33	257	290
Crashes/Fires:	33	101	134
Injury Incidents:	9	68	77
# Injuries:	9	68	77
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	593	593

*Description of Other: Warranty claims submitted by dealers to manufacturer

Action: This Engineering Analysis has been closed.

Engineer: Leamon H. Strickland *LS*
 Div. Chief: Thomas Z. Cooper
 Office Dir.: Kathleen C. DeMeter

Date: 10/21/2004
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Summary:

This investigation concerns the electric seat heater installed in some MY 2002-2003 Volkswagen (VW) Jetta vehicles. Consumers allege that the seat heater may overheat, resulting in burn damage to the seat cover and to the driver's clothing and/or skin. This EA addresses whether such failures may pose a risk to motor vehicle safety.

ODI concludes that the driver-side seat heater may fail or malfunction due to normal vehicle use. (i.e., driver ingress and egress from the vehicle). The investigation disclosed that such failures do not pose a significant risk of injury or fire. ODI believes that further investigation would not likely identify a safety-related defect trend. Therefore, this EA has been closed. The closing of this investigation does not constitute a finding by NHTSA that a safety related defect does not exist. The agency will take further action if warranted by the circumstances. The attached Summary Report provides further detail concerning this EA.

12/21/04

SUMMARY REPORT

SUBJECT: Front Seat Heater Malfunctions/Overheats/Burns in MY 2002-2003
Volkswagen Jetta Vehicles

BASIS:

This Engineering Analysis was opened on March 30, 2004, upgraded from Preliminary Evaluation (PE)03-052. The PE disclosed that a significant number of consumer complaints that alleged burn damage, including some cases of personal burn injuries, as a result of overheating of the seat heater installed in the subject vehicles.

Based on information and data developed during the PE, the EA focused on failure of the driver-side seat heater element and specifically the left-side seat bolster. Failure or malfunction of the heater element creates a potential for burn damage to the fabric of the seat cover, the driver's clothing, and a possibility that a driver may sustain a burn of the skin. The EA was opened to assess the potential for property damage involving burning of occupant clothing or vehicle interior components, as well as to assess the nature and severity of burn injuries sustained by drivers.

The subject vehicles are model years (MY) 2002 and 2003 Volkswagen (VW) Jetta vehicles equipped with optional, electric-heated front seats. A population of 153,776 subject vehicles was produced by VW for sale or lease in the United States.

THE ALLEGED DEFECT:

The alleged defect is the failure of the front seat heater assembly, which may result in overheating. The overheating has the potential for burning the seat cover material or cushion, as well as the seat occupant's clothing or skin. It may also produce a potential for fire in the subject vehicles.

DESCRIPTION OF ELECTRIC SEAT HEATER AND POTENTIAL FAILURE MODE:

The front seats of the subject vehicles are equipped with an optional electric-powered heating (warming) element for driver comfort in cold weather. The heating element consists of an electric grid woven into the seat fabric, and is serviceable only by replacement of the seat cover. The grid is formed by two coated, sinusoidal-shaped wires

(bus bars) running front to back in the seating surface, with carbon filament strands patterned in an arrangement perpendicular to the bus bars. The bus bars provide the electrical connection to the 13-volt (d.c.) power supply, and the carbon filaments provide the heating function. The electrical connection between the bus bars and the carbon filaments is provided by the knitting process, which oversees the entire heater surface with elastic wires.

Breakage of the bus bar on the left side of the driver's seat due to repeated tension has not been established as a conclusive model of failure, but it is seen as a possible failure scenario. In the event of such a failure, high electric power consumption would occur in the localized vicinity of the break, and that power consumption would occur in the form of heat generated.

WARRANTY:

The original warranty offered by VW on the subject vehicles is 36-months or 50,000 mile bumper-to bumper coverage. No extended warranty coverage is available regarding the alleged defect in these vehicles. VW searched for warranty claims involving electrical malfunction and/or unsatisfactory appearance, i.e., burn damage to the seat cover.

A total of 107 applicable warranty claims were reported by VW in February 2004, based on claims filed through November 25, 2003. Additional data reported by VW in July 2004 covered the latest winter season and identified an additional 486 similar claims.

ANALYSIS:

ODI's analysis during PE03-052 disclosed inconsistencies in the details of many consumer complaints when compared to the key words used to summarize those complaints. For example, many consumer complaints indicated that the seat heater malfunction had caused a "fire," but further review of the details of the incidents disclosed that the overheat damage consisted of burning of a "dime-sized" hole in the seat cover fabric without an open flame. Similarly, consumer reports of "burn injuries" left open questions regarding the severity of the injuries and whether or not these injuries required medical attention. Resolution of those inconsistencies was one primary reason for upgrading the PE to the subject EA.

Another issue was the timing when this EA was opened in March 2004. The real-world data that ODI considered during the PE phase was accumulated through late November 2003. ODI deemed it prudent to update those data to include any new consumer complaints filed during the most recent winter season, and to search for more and additional evidence to address questions regarding the extent and potential safety risks posed by the alleged defect.

The investigation disclosed that 134 of the total 290 consumer complaints alleged that a fire occurred as a result of the alleged defect. Only one of these complaints alleged that "flames" were present, and three consumers reported having sought medical attention for their burn injuries. Seventy-seven of the consumer complaints indicated that their clothing had sustained burn damage. ODI found that the allegations of "fire" were found consistently to refer to visible and localized heat damage to the fabric of the seat cover, as opposed to the occurrence of flames.

A total of 77 consumer complaints indicated that burn injuries were sustained as a result of the alleged defect. ODI attempted to contact all of the consumers that reported burn injuries, and succeeded in interviewing 35 of them by telephone. Each consumer was asked to describe the nature and severity of their burn injuries, and whether or not medical attention was sought or received for those injuries. ODI found that only one of the consumers interviewed had received medical attention for a first-degree burn sustained when "molten" material from the seat stuck to her hand as she attempted to extinguish the "fire." The two other consumers who reported having sought medical attention could not be contacted by telephone for verification of this information. None of the other 32 consumers interviewed had received medical treatment and none stated that their burn injuries were severe enough to cause skin blistering.

The total of consumer complaints and warranty claims (through May 10, 2004) concerning the alleged defect disclosed that 883 seat heater malfunctions were reported for the population of 153,776 subject vehicles.

OTHER INFORMATION:

Transport Canada also opened an investigation of this problem on similar vehicle models sold in Canada, and that investigation is ongoing.

A concern voiced by Transport Canada referred to a safety recall initiated in February 2003, for seat heater malfunctions/overheating in MY 1990 through 1997 VW Passat vehicles. This recall involved a total population of 3,900 vehicles. VW stated that this problem occurred in the lower seat back of the Passat vehicles and that the construction and failure mode were different than that of the subject Jetta models. VW provided a complete description of those differences by letter to NHTSA dated July 13, 2004.

MANUFACTURER'S EVALUATION OF THE ALLEGED DEFECT:

VW states that its studies and analyses indicate that breakage of the heating grid electrode wires at the left rear of the outboard seat bolster in the driver seat cushion can occur when certain pressures and rotational loads are applied to the seat during driver ingress to and egress from the vehicle. Failure of the seat heater grid in this manner is a likely scenario, but it is described by VW as a temporary and self-limiting condition. VW states that localized overheating of the carbon grid results in electrical current flowing to a larger area of the grid, thereby reducing the heat generated in one small area. The seat heater is powered only when both the ignition switch and seat heater switch are on.

According to VW, the seat cover fabric is made from fire resistant materials and the potential for occurrence of an open flame is minimal. VW has no knowledge of "serious" injuries or fatalities associated with the alleged defect, and notes the absence of confirmed cases of medical attention sought for the burn injuries reported by consumers.

VW concludes from its field data, testing, and analyses that the alleged defect does not pose an unreasonable risk to motor vehicle safety.

REASON FOR CLOSING:

The electrically powered seat heater installed in the subject vehicles may contain a defect in that it has shown a propensity to fail due to normal vehicle use and wear, i.e., ingress and egress of the driver to and from the vehicle. ODI believes, however, that the information revealed during this investigation does not disclose a risk to safety that warrants a safety recall because the consumer reports of "fire" do not refer to a condition that poses a significant threat of igniting flammable vehicle components or driver clothing. Similarly, the consumer reports of "injury" consistently refer to localized skin warming of less severity than a typical first-degree burn. Therefore, ODI concludes that there is insufficient evidence to support a finding of a safety-related defect attributable to failure or malfunction of the electrically powered driver-side seat heater.

Based on ODI's findings, this Engineering Analysis is closed. The closing of this investigation does not constitute a finding by NHTSA that a safety-related defect does not exist. NHTSA reserves the right to take further action if warranted by the circumstances.