



May 22, 2008

Mr. Thomas Z. Cooper
Chief, Vehicle Integrity Division
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, D.C. 20590

RE: NVS-212.pco, PE08-017

Dear Mr. Cooper:

This letter provides a second response to your above referenced request for information, dated March 14, 2008. Complete responses were previously provided with a letter dated May 1, 2008 for Requests 1, 2a, 2b, 2c, 2d, 3, 5, 6, 7, 12a, 12c, 13a, and 13b. Partial responses were also provided with that letter for Requests 2e, 2f, and 4. NHTSA granted an extension until May 23, 2008 to provide responses to Requests 8, 9, 10, 11, 12b, and 14 as well as additional information relevant to 2e, 2f, 4, and 13. Responses to those requests are provided with this letter.

Prior to responding to the request, Hyundai objects to NHTSA's boilerplate definition of "Document" as vague, incomprehensible, overly broad and unduly burdensome. Hyundai has made a good faith, reasonable attempt to search for materials responsive to each request in the time frame provided.

Request 2.

State the number of each of the following, received by Hyundai, or of which Hyundai 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 the manufacturer involving a death or injury, notices received by the manufacturer 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; and
- e. Third-party arbitration proceedings where Hyundai is or was a party to the arbitration; and
- f. Lawsuits, both pending and closed, in which Hyundai is or was a defendant or codefendant.

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HATCI is an authorized representative of both Hyundai Motor Company and Kia Motors Corporation; which are separate and distinct automotive manufacturers.

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For subparts "a" through "d" 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 Hyundai'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 to Request 2.

- a. Response provided with the letter dated May 1, 2008.
- b. Response provided with the letter dated May 1, 2008.
- c. Response provided with the letter dated May 1, 2008.
- d. Response provided with the letter dated May 1, 2008.
- e. Third-party arbitration proceedings where Hyundai is or was a party to the arbitration; and

The numbers of arbitrations that were provided with Hyundai's response dated May 1, 2008 were based upon indications contained in customer contact records. However, an arbitration did not occur in every instance where there was an indication about an arbitration in the customer contact records. The corrected quantities appear below.

Model / Model Year	2001	2002	2003	2004	2005	2006
Elantra	17 (All 17 also referenced in a consumer complaint)	2 (Both also referenced in a consumer complaint)	None	None	1	None

- f. Lawsuits, both pending and closed, in which Hyundai is or was a defendant or codefendant.

No change from the information provided with the letter dated May 1, 2008.

Attachment A was provided with the letter dated May 1, 2008 for requested summary information in response to requests 2c, 2d, and 2f.

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See Attachment G for requested summary information in response to request 2e regarding arbitrations.

Source: Hyundai Motor America
Information as of May 9, 2008 for 2e.

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 Hyundai used for organizing the documents.

Response to Request 4.

Attachments B and B1 were provided for requested consumer complaint information with the letter dated May 1, 2008.

Attachment C was provided for requested field report information with the letter dated May 1, 2008.

See Attachment H for requested information in response to requests 2c and 2f. Attachment H is organized by VIN number.

Source: Hyundai Motor America
Information as of May 6, 2008 for 2c and 2f.

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, Hyundai. 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 to Request 8.

See Attachment I for requested information. Attachment I contains Quality Information Reports

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and a summary of those reports. Attachment I reports are organized by report number.

Source: Hyundai Motor Company
Information as of May 14, 2008

Request 9.

Describe all modifications or changes made by, or on behalf of, Hyundai 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 including any addition of a splash/spill shield over the air bag control module. 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 number(s) (service and engineering) of the original component;
- e. The part number(s) (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 Hyundai is aware of which may be incorporated into vehicle production within the next 120 days.

Response to Request 9.

I. A change was made under the center console to extend the floor carpet to cover the airbag control module connector.

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;

The change was incorporated in production on April 25, 2001.

- b. A detailed description of the modification or change;

See Attachment J for requested information.

- c. The reason(s) for the modification or change;

The change was made to enhance vehicle quality and to reduce the possibility that liquids may contaminate the airbag control module connector. Hyundai was not aware of any

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accidents where the airbags did not deploy as a result of this condition at the time that the carpet change was made on April 25, 2001.

- d. The part number(s) (service and engineering) of the original component;

Floor Carpet Assembly Part Numbers 84260-2D500OH and 84260-2D500ZZ

- e. The part number(s) (service and engineering) of the modified component;

No changes were made to part numbers effective with the April 25, 2001 production running change.

- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;

The change was incorporated in production on April 25, 2001. Replacement parts also reflected this change at approximately the same time.

- g. When the modified component was made available as a service component; and

Replacement parts also reflected this change at approximately the same time.

- g. Whether the modified component can be interchanged with earlier production components.

The floor carpets are physically interchangeable.

- II. Three changes were made to secure the side airbag wiring harness under the front seat cushions.

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;

The side airbag connector attachment clip was changed on September 4, 2001. A side airbag wiring attachment clip was added on November 1, 2001. A cable band was added to secure the wiring under the seat on December 14, 2001.

- b. A detailed description of the modification or change;

See Attachment K for requested information.

- c. The reason(s) for the modification or change;

The changes were made to enhance vehicle quality and to reduce the possibility of movement between the side airbag wiring and the connector mounted under the seat. Hyundai was not aware of any accidents where the airbags did not deploy as a result of this condition at the time that the changes were completed on December 14, 2001.

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- d. The part number(s) (service and engineering) of the original component;

Part Number 88912-38760, Connector Clip – Front Seat

- e. The part number(s) (service and engineering) of the modified component;

Part Number 88912-38761, Connector Clip – Front Seat was installed beginning on September 4, 2001.

Part Number 88145-2C000, Holder – Front Seat Wiring was added on November 1, 2001.

Part Number 17998-15207, Band – Cable was added on December 14, 2001.

- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;

The changes were incorporated in production on the dates provided in “Response II a.” above. Replacement parts also reflected this change at approximately the same time.

- g. When the modified component was made available as a service component; and

Replacement parts also reflected this change at approximately the same time.

- h. Whether the modified component can be interchanged with earlier production components.

The attachment clips are physically interchangeable.

Source: Hyundai Motor Company
Information as of May 21, 2008

Request 10.

Provide the electrical circuit diagram of the main air bag module connector interface including the relative location and function of each pin and the power status during vehicle operation (i.e. 12V supply power, module ground, positive to driver air bag etc...) and a diagram showing the relative location and distances of the air bag control module and module main connector(s) in relationship to the parking brake opening and the nearest cup holder cavity in the center control console.

Response to Request 10.

See Attachment L for requested information.

Source: Hyundai Motor Company
Information as of May 16, 2008

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Request 11.

Provide an assessment of the air bag operation when the air bag light is illuminated (illuminated intermittently or constant ON) due to a loose wire/connector condition and its ability to deploy in the event of a valid crash event. Provide a description of all possible fault codes and definitions for each related to the alleged defect.

Response to Request 11.

The airbag light will illuminate if a wiring connector condition results in resistance that is too high. Detection of a high resistance condition in an airbag's circuit does not inhibit the airbag control module's ability to detect and command a deployment when the appropriate conditions have been met. If the high resistance condition that caused the airbag light illumination is excessive and present at the time of an event that results in a command for airbag deployment, the airbag affected by the condition may not deploy. The condition may, however, be temporary with the resistance quickly returning to specified values. In such cases, the airbag would be able to deploy if commanded, even if the airbag warning light remains illuminated, while the airbag control module self diagnostic function monitors the circuitry readiness.

Relevant codes and definitions would be:

- B1378, Driver side airbag (DSAB), Resistance too high
- B1382, Passenger side airbag (PSAB), Resistance too high

Source: Hyundai Motor Company
Information as of May 19, 2008

Request 12.

Provide two of each of the following:

- a. Exemplar samples of each design version of the subject component including the air bag module, air bag control module wiring harness(s), center console and the loose wiring harness;
- b. Field return samples of the subject component exhibiting the subject failure mode; and
- c. Any kits that have been released, or developed, by Hyundai for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

Response to Request 12.

- a. Response provided with letter dated May 1, 2008.
- b. Available samples of field return air bag control modules and air bag control module wiring harness(s) shipped separately as Attachment M.

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Source: Hyundai Motor America
Information as of May 21, 2008

- c. Response provided with letter dated May 1, 2008.

Request 13.

State the number of each of the following that Hyundai has sold 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 (air bag control module & wiring harnesses only); and
- b. Any kits that have been released, or developed, by Hyundai 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 Hyundai 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 to Request 13.

- a. Response provided with letter dated May 1, 2008.
- b. Response provided with letter dated May 1, 2008.

Air Bag Control Module Suppliers:

Model	Model Year	Supplier	Address	Contact	Telephone Number
Elantra	2001-2003	Delphi Korea Corporation	408-1, Mabuk-dong, Giheung-gu, Yongin-si, Korea	Electronics and Safety Team	82-31-899-5328
Elantra	2004-2006	Key Safety Systems Korea, Ltd.	ZIP Code: 135-080 609-23 Yeoksamdong, Kangnamku, Seoul, Korea	Quality Assurance Team	82-2-6931-3404

Air Bag Wiring Supplier:

Model	Model Year	Supplier	Street Address	Contact	Telephone Number
Elantra	2001-2006	Kyungshin Industrial Co., Ltd.	7-1 Songdo-dong, Yeonsu-gu, Incheon, Korea	Quality Assurance Team	82-32-714-7253

Source: Hyundai Motor Company
Information as of May 20, 2008

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Request 14.

Furnish Hyundai'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 to Request 14.

- a. The causal or contributory factor(s);

The airbag system is highly complex and, as such, there are many potential causes for airbag warning light illumination. The warning light illuminates when battery voltage is either too high or too low. The warning light illuminates when a driver airbag, passenger airbag, side airbag, or seat belt pretensioner has resistance that is either too high or too low or when that component has a short circuit. The airbag warning light illuminates if there is a front impact sensor or side airbag satellite sensor malfunction or a Passenger Presence Detection or Occupant Classification System malfunction. The warning light illuminates when there is a seat track position sensor or seat belt buckle switch malfunction. The airbag warning light illuminates to indicate that a crash occurred that was sufficient to merit airbag deployment or seat belt pretensioner deployment. The warning lamp illuminates if there is a malfunction of the airbag control module.

Information gathered in response to this inquiry indicates that customer complaints and repair attempts related to airbag warning light illumination have occurred primarily for two reasons, which are related to liquid spillage that may have contaminated the airbag control module connector and the electrical resistance of side airbag wiring harness connectors that mount under the front seats.

- b. The failure mechanism(s);

In some instances, the vehicle operator or passenger may have spilled a liquid in the area of the cupholder on the center console. Spilled liquid may have seeped through the console opening for the parking brake lever and then dripped onto the airbag control module connector that is located under the center console. A contaminated airbag control module connector would result in airbag warning light illumination, notifying the driver that the airbag system required service.

In other instances, movement of the side airbag wiring harness mounted under each front seat, possibly caused by contact from materials placed under the seat, may result in an

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electrical resistance that would result in airbag warning light illumination, notifying the driver that the airbag system required service.

c. The failure mode(s);

A contaminated airbag control module connector would result in airbag warning light illumination, notifying the driver that the airbag system required service.

A high electrical resistance in the side airbag wiring harness mounted under each front seat would result in airbag warning light illumination, notifying the driver that the airbag system required service.

d. The risk to motor vehicle safety that it poses;

Hyundai does not believe that the alleged defect poses an unreasonable risk to motor vehicle safety. Although the airbag system may experience a malfunction, the driver receives a warning of the malfunction through the self-diagnostics performed by the airbag system. When a malfunction is detected by the airbag system, the "AIR BAG" warning lamp in the instrument cluster, required by FMVSS 208, fulfills its intended purpose by illuminating. Illumination of the "AIR BAG" warning lamp indicates that the airbag system needs to be inspected by a Hyundai dealer as soon as possible, as indicated in the vehicles' Owner's Manual.

On safercar.gov, NHTSA also indicates that illumination of the "AIR BAG" warning lamp requires the vehicle operator to take responsibility for having the vehicle serviced. The safercar.gov section concerning advanced frontal airbags states, "The *air bag readiness* indicator light illuminates or flashes when the air bag diagnostic system detects a fault in your vehicle's air bag system, such as a system or component failure, informing you that service is immediately required." Thus, NHTSA indicates that after the airbag system has detected a deficiency and has illuminated the "AIR BAG" warning lamp, there is responsibility on the part of the vehicle operator to recognize that a problem exists that requires "immediate" service.

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

Persons inside the vehicle would be aware of a malfunction of the airbag system because the "AIR BAG" warning lamp in the instrument cluster, required by FMVSS 208, would fulfill its intended purpose by illuminating. Illumination of the "AIR BAG" warning lamp indicates that the airbag system needs to be inspected by a Hyundai dealer as soon as possible, as indicated in the vehicles' Owner's Manual. Persons outside the vehicle would not be aware of the alleged defect.

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As noted above in the response to Request 14d, on safecar.gov, NHTSA indicates that illumination of the "AIR BAG" warning lamp requires the vehicle operator to take responsibility for having the vehicle serviced in the statement, "The *air bag readiness* indicator light illuminates or flashes when the air bag diagnostic system detects a fault in your vehicle's air bag system, such as a system or component failure, informing you that service is immediately required." NHTSA therefore indicates that after the airbag system has detected a deficiency and has illuminated the "AIR BAG" warning lamp, the vehicle operator has a responsibility to recognize that a problem exists that requires "immediate" service.

- f. The reports included with this inquiry.

Of the thirty five VOQ reports that NHTSA included with the inquiry, twenty six reference the 2001 model year. Five of those allege a problem related to a connector, five others allege that airbag light illumination was the result of liquid spillage, while one more alleges moisture inside the vehicle and another alleges airbag control module corrosion. Eleven did not allege a cause, while the three others allege that the airbag dried out, the vehicle's electrical system was damaged by alternator overcharging, or a satellite sensor failed.

Five of the VOQ reports reference the 2002 model year. One of those alleges a problem related to a connector, one other alleges that airbag light illumination was the result of liquid spillage, while three others did not allege a cause.

Four of the VOQ reports reference the 2003 model year. One of those alleges that the airbag control module was replaced, two others allege that airbag light illumination was the result of liquid spillage, while the fourth did not allege a cause.

One owner of a 2001 model year vehicle alleges that a crash was experienced and the airbags did not deploy, but she stated that she was hit from the back, which is not the type of collision in which airbag deployment would occur.

One owner of a 2002 model year vehicle alleges that the airbags activated and caused the driver to lose control of the vehicle and also alleges that two undefined injuries resulted. No other information was provided relating to whether airbag light illumination occurred prior to the alleged crash or the cause of the alleged airbag deployment prior to the crash.

No VOQ reports were provided by NHTSA for 2004, 2005, or 2006 model year vehicles.

In the Opening Resume for PE08-017, NHTSA made reference to two crashes of 2001 model year Elantras that were investigated by the Office of Special Crash Investigations. Hyundai was not aware of either of these two accidents prior to receiving the information provided by NHTSA with the PE08-017 information request.

NHTSA provided Hyundai with a report for CA03-046, which was prepared for NHTSA by a contractor. The report incorrectly notes that the 2001 Elantra that was the subject of the report was equipped with an "Advanced Occupant Protection System", as the 2001 Elantra was not manufactured with an airbag system designed to meet the advanced airbag requirements of

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FMVSS 208. The report notes that the driver's wife reported that although the airbag lamp in the instrument cluster had been illuminating periodically for one to two months prior to the crash, they had not taken the vehicle for service. There is no other information in the report to indicate that there was a malfunction of the airbag system, or what malfunction may have occurred, or whether the airbag light was illuminated at the time of the crash. For CA08-003, NHTSA has provided only a police accident report to Hyundai.

Hyundai believes that the causes for airbag nondeployment in the two Office of Special Crash Investigations accidents is inconclusive based upon the information available to Hyundai at this time.

Source: Hyundai Motor Company
Information as of May 21, 2008

Sincerely,



Robert Babcock
Senior Manager, Certification and Compliance Affairs

Attachments:

Two CDs, each containing:

- Attachment G Arbitration Information.xls;
- Attachment H 2c and 2f Files;
- Attachment I Quality Information Reports;
- Attachment J Floor Carpet Change.ppt;
- Attachment K Side Airbag Wiring Harness.ppt;
- Attachment L Diagrams.ppt;

Note: Attachment M Shipped Separately