



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

400 Seventh St., S.W.  
Washington, D.C. 20560

MAY 17 2006

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Mr. Matthias Spaeth  
Vice President of Quality  
Body, Electrical and Electronics Division  
Robert Bosch Corporation  
38000 Hills Tech Drive  
Farmington Hills, MI 48331

NVS-212mjl  
EA06-003

Dear Mr. Spaeth:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has upgraded the Preliminary Evaluation (PE05-061) to an Engineering Analysis (EA06-003) to investigate allegations of frame rail-mounted front air bag crash sensor failures due to corrosion on model year (MY) 2005 and 2006 DaimlerChrysler Minivans. At this time, it is our assessment that the front crash sensor failures can potentially result in either no deployment or delayed deployment of frontal air bags and improperly reduced level of air bag inflation in certain frontal crashes such as frontal offset and angular crashes in which the role of the front crash sensor may be critical.

This office has received 26 reports of alleged front air bag crash sensor failures or frontal air bag non-deployment in crashes involving MY 2005 and 2006 DaimlerChrysler Minivans since we last wrote to DaimlerChrysler. Many of the reports on front crash sensor failures indicate that the air bag warning lamp illuminated and the dealers replaced the front crash sensors to remedy the problem. An electronic image of each Vehicle Owner's Questionnaire report has been e-mailed to your office. A list of the reference number of each report is shown at the end of this letter.

DaimlerChrysler has informed this office that Robert Bosch Corporation is the supplier of the frame rail-mounted front air bag crash sensors in the MY 2005 DaimlerChrysler Minivans. To assist in our investigation, we ask that you respond to the questions set forth below.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles:** All MY 2005 and 2006 DaimlerChrysler Minivans (e.g., Dodge Caravan, Dodge Grand Caravan, and Chrysler Town and Country), and all other vehicles sold in the U.S. equipped with front air bag crash sensors that are identical in design as the frame rail-mounted front crash sensor design used in MY 2005 or 2006 DaimlerChrysler Minivans.



VEHICLE SAFETY HOTLINE  
888-327-4236

- **Subject components:** Front air bag crash sensors, including their connectors, located in front portion of the vehicle.
- **Bosch:** Robert Bosch Corporation, all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of their divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Bosch (including all business units and persons previously referred to), who are or, in or after 2002, were involved in any way with any of the following related to the alleged defect in the subject vehicles:
  - a. Design, engineering, analysis, modification or production (e.g., quality control);
  - b. Testing, assessment or evaluation;
  - c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
  - d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.
- **Alleged defect:** Any one or more of the following: alleged failure or malfunction of one or more subject components; unexpected illumination of the air bag warning lamp (unless it can be clearly shown that the subject component was not the cause of air bag warning lamp illumination); and allegation of non-deployment, delayed deployment and/or improperly reduced level of air bag inflation during a crash.
- **Document:** "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers,

including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by Bosch, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document, which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document, shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by Bosch or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "fire," "fleet," "good will," "make," "model," "model year," "notice," "property damage," "property damage claim," "rollover," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or in plural form, have the same meaning as found in 49 CFR 579.4.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as Bosch has previously provided a document to ODI, Bosch may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After Bosch's response to each request, identify the source of the information and indicate the last date the information was gathered.

1. State the number of the subject components Bosch has sold for use in the subject vehicles as production components, by vehicle manufacturer, make, model, model year, component name, and part number. Separately, for each such subject component manufactured to date by Bosch, state the following:
  - a. Serial number;
  - b. Lot number associated with the subject component;
  - c. Component name;
  - d. Part number;
  - e. Date of manufacture;

- f. Manufacturing plant; and
- g. Model and model year of vehicle in which it was to be used.

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

2. State, by manufacturer, make, model and model year, the number of each of the following, received by Bosch, or of which Bosch 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;
  - e. Third-party arbitration proceedings where Bosch is or was a party to the arbitration; and
  - f. Lawsuits, both pending and closed, in which Bosch is or was a defendant or codefendant.

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 problem and causal and contributing factors and Bosch'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.

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:
  - a. Bosch'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 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.

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

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 Bosch used for organizing the documents.
5. State, by manufacturer, make, model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Bosch 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. Bosch's claim number or other identifier used;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number;
- h. Problem code;
- i. Serial number of original subject component;
- j. Part number and description of replacement part;
- k. Concern stated by customer; and
- l. 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."

6. Describe in detail the search criteria used by Bosch 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.
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 Bosch has issued to any manufacturers, 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. Also include the latest draft copy of any communication that Bosch is planning to issue within the next 120 days.

8. Produce copies of all communications between Bosch and each vehicle manufacturer that relate to, or may relate to, the alleged defect in the subject vehicles, separately by vehicle manufacturer. If any communications on this subject were oral, provide a written transcript or summary of each such communication, and include a statement that identifies all participants and the date of the communication.
9. Identify and describe all components manufactured by, or on behalf of, Bosch that are involved in the deployment of the frontal air bags in the subject vehicles. Explain how these components interact with each other to determine the appropriate deployment times and inflation levels. For the air bag system as a whole, identify and describe any built-in fail-safe or redundancies that are designed to compensate for the loss of one or both frame rail-mounted front crash sensors.
10. Describe the purpose of the frame rail-mounted front crash sensors in the DaimlerChrysler Minivans and other applicable subject vehicles. Your response should include all types and severities of vehicle crashes in which the sensors are designed to perform, or may perform, a role in detecting a crash and, with respect to each crash type and severity, provide all time-to-fire measurements or calculations that have been made both with and without the sensors. Please organize your response by crash type and speed.
11. List and describe in detail all fault codes or diagnostic codes associated with a failure or malfunction of the subject components in the subject vehicles that could be stored in the air bag control module (i.e., Occupant Restraint Controller). State whether and how each such fault code can illuminate the air bag warning lamp intermittently, and whether and how it can illuminate the air bag warning lamp constantly. Also, describe the operation and functionality of a failed or affected front crash sensor while the air bag warning lamp is illuminating intermittently and while it is illuminating constantly.
12. List and describe in detail all restraint, crash and occupant data (e.g., air bag deployment status, deployed air bag inflator stages/levels, seat belt usage, vehicle deceleration, delta-V, occupant classification, air bag suppression status, etc.) stored by Occupant Restraint Controllers in the subject vehicles.
13. Produce copies of all documents relating to all design and manufacturing specifications written by or for Bosch for the subject components in the subject vehicles.
14. Produce copies of all documents relating to all durability and environmental testing of the subject components conducted Bosch or on its behalf.
15. Produce copies of all documents relating to design and performance requirements and/or guidelines that involve the subject components, frontal crash sensing, frontal air bag deployment/inflation levels, and/or frontal air bag occupant protection in the subject vehicles.

Separately, describe or state, and provide all documents related to the following:

- a. Crash sensing logic and algorithms;

- b. Frontal air bag inflator stage and/or combination of inflator stages and any time delay between successive inflator stages used;
- c. Air bag deployment thresholds in terms of change in velocity (delta-V), barrier equivalent velocity (BEV) and crash test mode;
- d. Time-to-fire for each deployment threshold and each crash test mode;
- e. Frontal air bag deployment/inflation levels by delta-V, BEV and crash test mode; and
- f. All driver and passenger injury criteria.

In addition, for items "c" through "f," your response should include each performance target regardless of whether it is required, or not, by Bosch or vehicle manufacturer (include in your responses whether each outcome is explicitly required, implicitly required, or not required).

16. Describe and identify all vehicle tests, whether crash, sled, computer crash simulations, or otherwise, involving frontal crashes—except for air bag suppression and low risk deployment testing—conducted by, or for, Bosch and that were used to develop or evaluate, for any reason, the frontal air bag systems in the subject vehicles. This should include, but is not limited to, all certification test data related to FMVSS 208, frontal offset, and frontal oblique testing conditions. For each such test, provide the following information:
- a. Test number;
  - b. Test date;
  - c. Test vehicle or vehicle analyzed (state model, model year, VIN and date of manufacture);
  - d. Summary of the subject and objective of the test;
  - e. Engineering group(s)/supplier(s) responsible for designing and for conducting the test or analysis; and
  - f. Summary of the findings and/or conclusions resulting from the test, including but not limited to, all crash dummy injury measurements.

For each test identified, provide copies of all documents related to the test, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action. If a test is not complete, provide a detailed schedule for the work to be done, tentative findings and/or conclusions, and provide an update within 10 days of completion of the test.

17. 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, Bosch. 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. If an action is not complete, provide a detailed schedule for the work to be done, tentative findings and/or conclusions, and provide an update within 10 days of completion of the action.

18. Describe all modifications or changes made by, or on behalf of, Bosch in the design, material composition, manufacture, quality control, supply, or installation of the subject components, 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 number (service and engineering) of the modified component;
  - f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
  - g. When the modified component was made available as a service component; and
  - h. Whether the modified component can be interchanged with earlier production components.

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

19. Produce two of each of the following:
  - a. Exemplar samples of each design version of the subject components;
  - b. Field-returned samples of the subject components exhibiting the subject failure mode; and
  - c. Any kits that have been released, or developed, by Bosch for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.
20. State the number of each component/assembly of the subject components that Bosch has sold that may be used in the subject vehicles by component name, part number (both service and engineering/production), make, 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). Include any kits that have been released, or developed, by Bosch for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.
21. On July 28, 2005, Honda Motor Co., Ltd. (Honda) submitted to NHTSA a Defect Information Report stating its intent to recall 85,154 MY 2005 Honda Odyssey vehicles to remedy frontal air bag system impact sensors that were insufficiently sealed during manufacturing (NHTSA Recall No. 05V-344). According to Honda, the impact sensors, manufactured by Bosch, can corrode and short-circuit, resulting in delayed, or loss of, frontal



air bag deployment, which the company concluded can increase the risk of injury in a frontal crash.

Please explain any similarities and differences between the Honda Odysseys and the DaimlerChrysler Minivans in terms of causal or contributory factors, failure mechanisms, failure modes, and/or the risk to motor vehicle safety that the above defect in the Honda Odysseys and the alleged defect in the DaimlerChrysler Minivans pose. Also, produce two exemplar samples of the defective frontal impact sensors originally used in the Honda Odysseys and the redesigned frontal impact sensors used as recall remedy parts.

22. Furnish Bosch's assessment of the failure progression of frame rail-mounted sensor failures due to corrosion. Your response should include, but not be limited to, a discussion explaining the causes of corrosion on the bushings and the effects of corrosion on the bushing, adjacent to the electrical terminal housing, and on the plastic sensor body near the bushing, including the plastic terminal housing.
23. Furnish Bosch's assessment of the alleged defect in the subject vehicles, including:
- The causal or contributory factor(s);
  - The failure mechanism(s);
  - The failure mode(s);
  - The risk to motor vehicle safety that it poses; and
  - 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.

For items "d" and "e," your response should include a discussion explaining the potential non-deployment, delayed deployment, and reduced inflation levels of the frontal air bags when one or both frame rail-mounted front crash sensors in the subject vehicles are not functional or malfunctioning. Also, given that the occupants of subject vehicles involved in a crash may be unaware of delayed deployment or reduced air bag inflation levels, please explain whether and how field performance of the subject vehicles can be reliably evaluated.

This letter is being sent to Bosch pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports and the production of things. It constitutes a new request for information. Bosch's failure to respond promptly and fully to this letter could subject Bosch to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) Please note that maximum civil penalties under 49 U.S.C. § 30165 have increased as a result of the recent enactment of the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act, Public Law No. 106-414 (signed November 1, 2000). Section 5(a) of the TREAD Act, codified at 49 U.S.C. § 30165(b), provides for civil penalties of up to \$5,000 per day, with a maximum of \$16,050,000 for a related series of violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. This includes failing to respond to ODI information requests.


If Bosch cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Bosch does not submit one or more requested documents or items of information in response to this information request, Bosch must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

Bosch's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by July 7, 2006. Please refer to EA06-003 in Bosch's response to this letter. If Bosch finds that it is unable to provide all of the information requested within the time allotted, Bosch must request an extension from Mr. Thomas Cooper at (202) 366-5218, no later than five business days before the response due date. If Bosch is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Bosch then has available, even if an extension has been granted.

If Bosch claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, Bosch must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512, as amended (70 Fed. Reg. 53308 (Sept. 8, 2005)), to the Office of Chief Counsel (NCC-113), National Highway Traffic Safety Administration, Room 5219, 400 Seventh Street, S.W., Washington, D.C. 20590. Bosch is required to submit two copies of the documents containing allegedly confidential information (except only one copy of blueprints) and one copy of the documents from which information claimed to be confidential has been deleted.

If you have any technical questions concerning this matter, please call Mr. Michael Lee of my staff at (202) 366-5236.

Sincerely,



Kathleen C. DeMeter, Director  
Office of Defects Investigation  
Office of Enforcement

VOQ Reference Nos.:

10154856	10154177	10153991	10153683	10153210	10152745	10152248	10152216
10151990	10148278	10147343	10142858	10142734	10139243	10124004	10120375
10115160	10110820	10142711	10146730	10143623	10138152	10132801	10109149
10104550	10076042						