



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

MAR 22 2012

1200 New Jersey Avenue SE.  
Washington, DC 20590

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

Mr. Jeff Cooper  
Assistant Secretary  
TRW Automotive  
12001 Tech Center Drive  
Livonia, Michigan 48150

NVS-212pco  
EA12-001

Dear Mr. Cooper:

The Office of Defects Investigation (ODI) is conducting an investigation (EA12-001) of inadvertent air bag deployments in Jeep Liberty vehicles containing TRW manufactured air bag electronic modules (ORC). To assist us at this stage of the investigation, we are requesting certain information concerning the ORC supplied by TRW for use in the Jeep vehicles, and potentially in other make or model vehicles sold in the United States.

ODI conducts investigations of potential safety defects in motor vehicles and items of motor vehicle equipment under the authority of the National Traffic and Motor Vehicle Safety Act of 1966, as amended, 49 U.S.C. Chapter 301 (49 U.S.C. § 30166). The purpose of these investigations is to determine whether manufacturers, suppliers or both should conduct defect notification and recall campaigns to reduce the potential for crashes, injuries and deaths, in accordance with 49 U.S.C. §§ 30118, 30120.

Unless otherwise stated in the text, the following definitions apply to this information request:

- **Subject component**: Any air bag electronic control (ORC) module(s) supplied by TRW, for use in any make or model vehicle sold in the United States, containing the same or similar TRW/National Semiconductor air bag squib diagnostic and deployment interface ASIC circuit (LMB4009) as was used in MY 2002 or MY 2003 Jeep Liberty vehicles sold in the United States.
- **TRW**: TRW Automotive, all of its past and present officers and employees, whether assigned to its principal offices or any other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and its 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 TRW (including all business units and persons previously referred to), who are or, in or after 2000, were

involved in any way with any of the following related to the problem condition in the subject component:

- 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.
- **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 TRW, 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 TRW 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,” “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 subject condition, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as TRW has previously provided a document to ODI, TRW 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 the response. After TRW’s response to the request, identify the source of the information and indicate the last date the information was gathered.

**In responding to all of the below requests, please furnish in electronic form any tabular/data response or responses that contain more than five records.** Such responses should be submitted in an editable spreadsheet/database format compatible with Microsoft Office 2007 components. Please display any date information in the following long date code format: day-month-year; Example: 01-Dec-1998.

1. Identify by make, model and model year, each motor vehicle sold in the United States since 2001 that contains, or may contain, the subject component supplied by TRW.
2. Separately, for each make, model and model year motor vehicle identified in Request 1, provide the following additional information in a tabular format similar to the table below:
  - a. Vehicle Make, Model, and Model Year;
  - b. ORC ID/ PN (OEM and TRW numbers) and its applicable revisions;
  - c. ASIC Part No (OEM and TRW numbers) and its applicable revisions;
  - d. Number of LMB4009 (or LMB4009 like) ASICs used in each ORC;
  - e. Function of ASIC(-1) FET1;
  - f. Function of ASIC(-1) FET2;
  - g. Function of ASIC(-1) FET3;
  - h. Function of ASIC(-1) FET4;
  - i. Function of ASIC(-2) FET1;
  - j. Function of ASIC(-2) FET2;

- k. Function of ASIC(-2) FET3;
  - l. Function of ASIC(-2) FET4 (add additional items as needed); and.  
Describe any differences in the use and design of the ASIC as compared to the LMB4009 as used in the MY2002 Jeep Liberty.
3. For the subject component, describe in detail TRW's strategy to eliminate or substantially attenuate unwanted or transient voltages/signals, which may negatively impact or otherwise adversely impact normal ORC operation, and that originate or occur; a) from within the ASIC circuit, b) from within the ORC module circuitry and/or c) from within a vehicle such itself (such as surges from other electrical equipment like the A/C, horn, and lights, etc).
  4. For the subject component, describe in detail TRW's strategy to prevent an unwanted "latch-up" condition that may, can, or will cause one of the FET circuit to "trigger." Describe any redundant circuitry or filter that specifically addresses this unwanted condition.
  5. Identified by make, model, model year, describe all hardware/software/algorithm modifications or changes made by TRW on each separately delineated subject component identified by TRW in response to Request No. 2, from the start of production to date. For each such modification or change, provide the following information:
    - a. the date, or approximate date on which the modification or change was available to the OEM manufacturer;
    - b. a description of the modification or change;
    - c. the reason for and/or the system parameter affected by the modification or change; and
    - d. the part number and/or software version and version name.
  6. Identify and provide copies of all documents reflecting any assessment, analyses, tests, test results, studies, survey, simulations, investigations inquiries and/or evaluations that relate or may relate to the incident(s) that can cause the air bag to deploy due to failure of or an improper signal (voltage or current) from the ORC/ASIC (LMB4009) circuit of the subject component.
  7. Provide the current name and address of the LMB4009 ASIC supplier (and any other similar ASIC as listed in Request No. 2) along with the PN (if other than LMB4009)
  8. Provide the following documents for the MY2002 Jeep Liberty ORC:
    - a. DV (Design Validation) and PV (Production Validation) Test Plan matrixes and final DV and PV Test Reports;
    - b. LMB4009 test characterization plan and IC FMEA (Failure Modes and Effect Analysis);
    - c. Any ORC or LMB4009 ASIC forensic or failure analysis reports (8D, 5-Whys, etc.);

- d. Any ORC or LMB4009 production and development revisions and/or any changes in its fabrication or assembly locations. Explain decision or rationale for any of the above revisions; and
  - e. Compare and contrast the ORC/LMB4009 circuit with ORC circuit using the ST microelectronics squib firing circuit filtering techniques (low/high pass filters, snubber circuits, ESD caps, etc.) on ORC's IGN R/O, IGN R/S, IGNP, VFIRE, VUP, SQB\_HI\_XX, and SQB\_LO\_XX circuit design features (see TRW drawing no. 206406- revision level used on Job 1 of MY2002 Jeep Liberty vehicles).
9. Provide copies of all documents reflecting any communication(s) between TRW and Chrysler (DaimlerChrysler Motors Company LLC, Chrysler Group, Chrysler LLC and/or Chrysler Group LLC) pertaining to inadvertent deployment(s) of air bags in a MY 2002 or MY 2003 Jeep Liberty and/or inadvertent deployment(s) of air bags in any other vehicle containing the subject component.

This letter is being sent to TRW 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. TRW's failure to respond promptly and fully to this letter could subject TRW 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.)

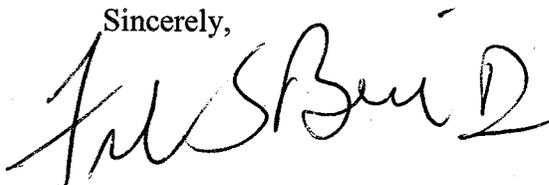
If TRW cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, TRW does not submit one or more requested documents or items of information in response to this information request, TRW 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.

TRW's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by May 18, 2012. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to EA12-001 in TRW's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. If TRW finds that it is unable to provide all of the information requested within the time allotted, TRW must request an extension from Mr. D. Scott Yon at (202) 366-0139 no later than five business days before the response due date. If TRW 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 TRW then has available, even if an extension has been granted.

If TRW 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, TRW 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, to the Office of Chief Counsel (NCC-111), National Highway Traffic Safety Administration, Room W41-227, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. TRW is required to **submit two copies of the documents containing allegedly confidential information (except only one copy of large format blueprints) and one copy of the documents from which information claimed to be confidential has been deleted.** Please remember that the word "CONFIDENTIAL BUSINESS INFORMATION" must appear at the top of each page containing information claimed to be confidential, and the information must be clearly identified in accordance with 5 U.S.C. § 512.6. If you submit a request for confidentiality for all or part of your response to this IR, that is in an electronic format (e.g., CD-ROM), your request and associated submission must conform to the new requirements in NHTSA's Confidential Business Information Rule regarding submissions in electronic formats (49 CFR 512.6(c)). See Federal Register, volume 72, page 59434 (October 19, 2007).

Please send email notification to Peter Ong ([peter.ong@dot.gov](mailto:peter.ong@dot.gov)) and to [ODI\\_IRresponse@dot.gov](mailto:ODI_IRresponse@dot.gov) when TRW sends its response to this office and indicate whether there is confidential information as part of TRW's response.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank S. Borris". The signature is written in a cursive, flowing style.

Frank S. Borris, Director  
Office of Defects Investigation  
Enforcement