Tmp 5/15/06

DAIMLERCHRYSLER

August 11, 2006

DaimlerChrysler Corporation
Stephan J. Speth
Director
Vehicle Compliance & Safety Affairs

Kathleen C. DeMeter
Office of Defects Investigation
National Highway Traffic Safety Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Reference: NVS-212mjl; EA06-003

Dear Ms. DeMeter,

This document contains DaimlerChrysler Corporation's ("DCC") response to the referenced inquiry regarding alleged front airbag crash sensor failures on some 2005 and 2006 model year Dodge Caravan, Dodge Grand Caravan, and Chrysler Town & Country ("RS") vehicles. By providing the information contained herein, DCC is not waiving its claim to attorney work product and attorney-client privileged communications.

Per DCC's prior agreement with NHTSA ODI, the attached is the second part of the submission for EA06-003 and includes responses to IR questions 8, 9, 12, 13, 15 - 22 and their applicable enclosures. The first part was provided on July 21, 2006.

DCC does not believe the alleged defect poses an unreasonable risk to motor vehicle safety.

The up front sensors (UFS) are not essential to deploy the airbag in crashes in which an airbag deployment is necessary. If one or both of the UFSs becomes disabled, the crash detection system is still functional and an airbag will still deploy if necessary. The primary purpose of the UFSs is to adjust the performance of the airbag system in offset deformable barrier and angular crashes. These types of crashes are characterized by a relatively lower level of deceleration (severity) in the initial part of the impact. If the UFS detects the onset of such a crash, the occupant restraint controller (ORC) will adjust the deployment threshold.

DCC also believes the available field data demonstrates that motor vehicle safety is not being compromised as a result of the alleged condition in the subject vehicles. There are nearly one million subject vehicles in the field, yet DCC has received only a very limited number of complaints of airbag non-deployment / late deployment that may relate to the alleged condition (including complaints submitted

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800 Chrysler Drive CIMS 482-00-91
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in response to the IR for PE05-061). For each complaint for which DCC was provided the opportunity to follow up with a vehicle inspection, each vehicle, without exception, had no frame or other structural damage that would indicate that an airbag should have deployed.

Furthermore, DCC has compared the complaint rates of airbag non-deployment (or late deployment) for the subject vehicles and those of similar competitor vehicles. To DCC's knowledge, none of the competitor vehicles evaluated in the survey are involved in or have been the subject of an airbag sensor investigation. The data clearly show that the complaint rates for the subject vehicles are in the same low ranges as those of the peer vehicles.

Another factor that mitigates any possible safety consequences arising out of the alleged condition is the existence of the airbag malfunction indicator lamp (MIL), which alerts vehicle occupants immediately in the event of a UFS failure. Coupled with the warning in the owner's manual, the airbag MIL should motivate consumers to promptly bring their vehicles to a dealer for proper service.

DCC will continue to assess the alleged condition in the subject vehicles; however, for the foregoing reasons, DCC does not believe the alleged condition presents an unreasonable risk to motor vehicle safety.

Sincerely,

for Stephan J. Speth

Attachment and Enclosures

8. **Produce copies of all communications between DaimlerChrysler and the supplier of the subject components that relate to, or may relate to, the alleged defect in the subject vehicles. 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.**

A8. Many supplier communications are already referred to in responses to other questions, but DCC has conducted a reasonable search for any additional communications within the scope of this request. Note that per verbal directive on May 31, 2006 from Thomas Cooper, Chief of Vehicle Integrity Division at NHTSA ODI, no written transcripts of any oral communications were reconstructed. The additional supplier communications are provided in Enclosure 5A and Enclosure 5B – CONFIDENTIAL supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment.

9. **Describe the purpose of the frame rail-mounted front crash sensors in the 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.**

A9. The front crash sensing system in the subject vehicles consists of the occupant restraint controller (ORC) and two up front crash sensors (UFS). The ORC is mounted in the passenger compartment and includes diagnostic capability, the microprocessor, the crash sensing algorithm, and the main crash sensors. The ORC uses a predetermined threshold range to determine when to deploy the front seat belt pretensioners and the frontal airbags and at what deployment level. The UFSs provide input to the ORC that can modify this range for some types of impacts but they do not independently make the decision to deploy in any crash. The ORC also continuously monitors all of the passive restraint components including the UFSs and circuits and illuminates an airbag malfunction indicator lamp (MIL) to alert the occupants that a fault is present and the vehicle should be serviced promptly.

The UFSs are not essential to deploy the airbag in crashes in which an airbag deployment is necessary. If one or both of the UFSs becomes disabled, the crash detection system is still functional and an airbag will still deploy if necessary. For some types of crashes, however, there is a chance that the airbag may deploy at a different time (measured in milliseconds) and potentially at a different deployment level. It is also

important to note that the performance of the primary crash sensor in the ORC is not an issue in this investigation.

The primary purpose of the UFSs is to adjust the performance of the airbag system in offset deformable barrier and angular crashes. These types of crashes are characterized by a relatively lower level of deceleration (severity) in the initial part of the impact. If the UFS detects the onset of such a crash, the ORC will adjust the deployment threshold.

Airbag deployment times and deployment levels are not completely deterministic for any crash detection system including the system in the subject vehicles. Due to normal variation, there is typically a range of possibilities for both airbag times to fire and airbag deployment levels in any given crash. Therefore, rather than using absolute values to define these criteria, system operation is best described using probability distributions. There is a different probability distribution for deployment time and airbag deployment level for each crash type and both with and without the UFSs.

With regard to the subject vehicles, this analysis has been conducted, by the supplier of the subject UFSs, Robert Bosch Corporation. The data on which this analysis was derived is based on numerous simulations using acceleration data collected in actual DCC crash tests. The simulations are iterated to represent differences in data sampling and acceptable tolerances in the hardware. The outcomes of the different iterations are binned to create the probability distributions. DCC emphasizes that this is an engineering evaluation tool to assess possible trends and is not an actual representation of what would occur in the field for any crash mode. For more detail on how the simulations were conducted or the assumptions used, please contact Robert Bosch Corporation.

The results of the Bosch analysis are in Enclosure 6 – CONFIDENTIAL supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment. With regard to time to fire and airbag deployment level data, this information supersedes the preliminary analysis DCC supplied in the response to PE05-061 Enclosure 16.

It is important to note that for the subject vehicles in a given crash condition, the airbag deployment levels for the driver and passenger airbags are generally the same (when one deploys at the "high" level so will the other). The only exception is that the passenger side airbag does not have a "low" deployment level. Therefore, all data listing a "low" deployment will actually be "low" for the driver's side, but a "mid" deployment on the passenger side.

12. Produce copies of all documents relating to design and manufacturing specifications for the subject components in the subject vehicles.

A12. Documents relating to the design and manufacture of the subject components are supplied in Enclosure 9A and Enlclosure 9B - CONFIDENTIAL supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment.

13. 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 inflator 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 DaimlerChrysler or its suppliers (include in your responses whether each outcome is explicitly required, implicitly required, or not required).

A13. DCC is providing an internal document relating to crash sensing guidelines as well as some Bosch documents regarding mounting specifications for UFS. See Enclosure 10 - CONFIDENTIAL supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment. With regard to item 13 (a), the crash sensing logic and algorithms is proprietary to the UFS / ORC supplier Robert Bosch Corporation and not available to DCC. With respect to items 13(b) through 13(e), please refer to the response and enclosure supplied in response to question 9 of this IR. With respect to question 13(f), the following table indicates the injury criteria targets and FMVSS 208 requirements for frontal crashes utilized by DCC for the subject vehicles.

The DCC targets in the table are not mandatory requirements and may be adjusted at DCC's discretion depending on the application.

Injury Criteria	DCC Target		FMVSS 208	
	5th% Female	50th% Male	5th% Female	50th% Male
HIC	≤560	≤560	≤700	≤700
Thoracic Accel	≤48 g	≤48 g	≤60 g	≤60 g
Chest Comp	≤41.6 mm	≤50.4 mm	≤52 mm	≤63 mm
Femur Force	≤5,444 N	≤8,000 N	≤6,805 N	≤10,000 N
Nte	≤0.8	≤0.8	≤1.0	≤1.0
Ntf	≤0.8	≤0.8	≤1.0	≤1.0
Nce	≤0.8	≤0.8	≤1.0	≤1.0
Ncf	≤0.8	≤0.8	≤1.0	≤1.0
Peak Tens	≤2,096 N	≤3,336 N	≤2,620 N	≤4,170 N
Peak Comp	≤2,016 N	≤3,200 N	≤2,520 N	≤4,000 N

15. 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, DaimlerChrysler 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.

A15. As per prior written agreement (e-mail from NHTSA investigator Mike Lee dated May 26, 2006), the crash testing data being supplied is that which has been deemed by NHTSA most relevant to this investigation. There are also summaries provided from vehicle crash computer modeling with regard to the subject vehicles. These documents are provided in Enclosure 12A and Enclosure 12B – CONFIDENTIAL supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment. DCC also has identified 4 additional vehicle crash tests, all in the 40 mph IIHS test mode, that were inadvertently omitted from the list of tests previously provided. The data from these additional tests, identified as VC10729, VC10820, VC10884, and VC11407 are in the referenced enclosures.

16. 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, DaimlerChrysler. 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.

A16. The following are "actions" initiated by DCC that may relate to the alleged condition in the subject vehicles. This list of action items is in addition to those supplied in response to the IR for PE05-061. Items 3 through 14 have taken place subsequent to the submission of the response to PE05-061. Items 1 and 2 took place prior to submission of PE05-061 and were inadvertently omitted from that submission.

These actions are organized in approximate chronological order, not in order of importance.

1. UFS Splash Test
2. UFS Relocation Study
3. DCC Corrosion Test
4. DCC Process Review of Bosch UFS Manufacturing Facility
5. Returned Part Retention Initiative
6. Robert Bosch Corporation UFS Evaluations
7. DCC Materials Engineering Study
8. Shainin Blackbelt Study
9. Tyco Connector Evaluation
10. Snow Pack Test
11. Peer Review
12. Robert Bosch Corporation UFS Shield Concept
13. Warranty Studies
14. Safety Performance in a 25 mph ODB Crash Without a Functioning UFS
15. MADYMO Computer Simulations

A summary description of each action above is referred to ENCLOSURE 13 – Assessments Summary. The documents referred to in ENCLOSURE 13 are in ENCLOSURES 14 thru ENCLOSURE 27. With the exception of Enclosures 13, 18A and 24 all of these enclosures are CONFIDENTIAL and supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment.

17. Describe all modifications or changes made by, or on behalf of, DaimlerChrysler 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 DaimlerChrysler is aware of which may be incorporated into vehicle production within the next 120 days.

A17. A detailed summary of the design change information requested is being submitted as ENCLOSURE 28 – CONFIDENTIAL supplied to Office of the Chief Counsel, under separate cover with a request for confidential treatment.

18. 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 DaimlerChrysler for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

A18. DCC provided in response to PE05-061 a set of brass bushing UFS returned parts, 2 of the steel service kits (one for conical, one for riv-nuts) and a wiring repair kit. DCC is providing in this submission a set of Crastin material UFS service kits (two for conical and one for riv-nuts) and two returned steel bushing UFS. If ODI requires more samples, DCC will provide them.

At this time, DCC does not have any failed Crastin material UFSs in its possession, but should one become available DCC will forward the part to NHTSA at that time.

19. **State the number of each component/assembly of the subject components that DaimlerChrysler 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). Include any kits that have been released, or developed, by DaimlerChrysler for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.**

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 DaimlerChrysler is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

A19. The part sales information is included in ENCLOSURE 29. It is impossible to determine what these part sales are for. There are various circumstances (e.g. accident repair) that are not related to this alleged condition, yet still trigger sales / replacement of the subject components.

It is also important to note, that the dealer communication "tech tip 9000773" previously provided in response to Question 7 of the information request in PE05-061, specifically directs dealers to replace both UFSs even when only one had failed. This will cause the number of part sales to be artificially high.

The Chrysler Pacifica, starting in the 2004 model year, and the Chrysler PT Cruiser, starting in the 2005 model year use the same UFS as the subject vehicles. It is important to note that no problematic UFS issues have arisen on either of these makes / models.

For these reasons, DCC has concluded that part sales data cannot be used to determine any trend related to the alleged condition.

The supplier contact is:
Matthias Spaeth 248-553-9000.

The supplier address is:
Robert Bosch Corporation
38000 Hills Tech Drive
Farmington Hills, MI 48331

20. On December 5, 2001, DaimlerChrysler submitted to NHTSA a Defect Information Report stating its intent to recall approximately 102,000 MY 2002 Jeep Liberty vehicles (NHTSA Recall No. 01V-373) to remedy a front crash sensor wiring condition that may be susceptible to damage during severe frontal crashes such as the Insurance Institute for Highway Safety's 40-mph offset frontal crash test. DaimlerChrysler stated that its analysis showed that loss of the front crash sensor early in the crash can cause delayed air bag deployment.

Please explain any similarities and differences between the Jeep Liberty vehicles and the subject vehicles in terms of frontal air bag system performance and occupant protection with a nonfunctional front crash sensor in frontal crashes, including but not limited to, frontal offset and

frontal oblique crashes. Explain why DaimlerChrysler decided to recall the Jeep Liberty vehicles.

A20. The crash protection system of any vehicle is a complex system that includes the crash sensing system, the vehicle structural characteristics, and the interior restraint system (seat belts, airbags, etc.). It is difficult to predict and compare how the crash system in two different vehicles would perform if one input to one component of each system has malfunctioned.

There are some general similarities in the crash protection systems in the 2002 Jeep Liberty (KJ body) and the subject vehicles. Each utilizes a distributed crash sensing system to determine when to deploy the frontal airbags and seat belt pretensioners in a crash. Also, both systems are similar in that the main crash sensing unit is located in the vehicle interior and both have UFSs located remotely near the front of the vehicle. The primary purpose of the UFSs in each vehicle is to modify the deployment thresholds when appropriate.

There are some significant differences between the two systems. First, the 2002 KJ and the subject vehicles utilize different crash sensing component suppliers and each supplier has its own proprietary crash sensing technology (e.g. algorithms that determine when to deploy, accelerometer / circuit design, etc.). The 2002 KJ system is designed and manufactured by TRW and the subject vehicles utilize Robert Bosch Corporation as the supplier. The details of how each system detects a crash and deploys the airbag are proprietary and not available to DCC.

Additionally, the 2002 KJ uses a "dual threshold" sensing technology while the subject vehicles do not. A dual threshold system is one in which there is one set of airbag deployment thresholds for unbelted occupants and another set (lower) for occupants who are belted (the rationale is that in many crash scenarios belted occupants are less in need of an airbag deployment than unbelted occupants). This system is able to discriminate between belted and unbelted occupants via a sensor in the seat belt buckle. For this type of crash sensing system, there is already a higher deployment threshold by design for belted occupants.

The 2002 KJ was recalled to correct an issue whereby the crash event could sever the communication line from the UFS to the ORC prior to the ORC receiving any signal from the UFS. Such a failure occurs instantaneously and without warning. Also, the fault can happen in any crash severe enough to cause a bracket to cut the UFS wire. Conversely, for the subject vehicles, the UFS does not lose function until there has been significant corrosion. In addition, the airbag MIL light will invariably alert the occupants that corrective action is promptly needed. Specifically,

the owner's manual in the subject vehicles states: "WARNING: Ignoring the AIRBAG warning light in your instrument panel could mean you won't have the airbags to protect you in a collision. If the light does not come on, stays on after you start the vehicle, or if it comes on as you drive, have the airbag system checked right away."

DCC determines whether to do a recall via a methodical process that evaluates the specifics of each set of circumstances on its own merits. DCC continues to assess the alleged defect in the subject vehicles independent of any action that may or may not have been taken with respect to other vehicle models or components.

21. Furnish DaimlerChrysler'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.

A21. DCC has not come to a conclusion in its assessment of the failure progression of frame rail mounted UFS failures due to corrosion. However, the following observations can be made. Metal in a corrosive environment will eventually corrode over an extended period of time regardless of the protection applied to the metal. The byproducts of this corrosion typically have little effect on weather tight plastic molded housings that protect the internal components of a part from the environment. In this case, the plastic molded components can develop cracks in the plastic housing material and expose the internal components of the housing to the environment. One factor that has caused these initial cracks in the subject components is a UFS mounting issue described below. Another potential cause, suggested by Robert Bosch Corporation, is that corrosion of the bushing creates an alkali that attacks the plastic thereby creating an initial housing crack.

Regardless of what causes the initial crack, when water enters the crack, it will freeze and expand in cold weather climates. After the water melts, the process is repeated and the freeze-thaw action causes the crack to become larger and deeper. Eventually the water intrusion will reach the UFS's internal circuitry. The corrosion will begin to attack the metal in the circuit and eventually interrupt the circuit operation. The process is greatly accelerated if the water contains certain materials, such as road salt.

DCC has found that the UFS failures occur at different frequencies depending on the design level of the UFS and mating surface. The riv-nut

attaching feature, introduced as a mid-model year change in 2005, provides a flatter mounting surface and is much more resistant to the initial cracking that initiates the cracking described above. Also, the steel bushing UFSs are more resistant to the dissimilar metal corrosion that appears to expedite the corrosion process.

22. Furnish DaimlerChrysler'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;
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 has occurred, or subject component was malfunctioning or has malfunctioned; and
f. The reports included with this inquiry.

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.

A22: DCC believes that the alleged condition in the subject vehicles does not create an unreasonable risk to motor vehicle safety. In reaching this conclusion, DCC has reviewed the Bosch analysis of airbag deployment times and deployment levels in the absence of both UFSs. (As previously noted, this analysis is not necessarily a reflection of what would occur in the real world.) DCC recognizes that this Bosch analysis indicates that there is some possibility that the times to fire and the deployment levels of the airbags in the subject vehicles could be affected by the absence of the UFSs.

Although DCC has not completed its analysis of the effect of UFS malfunctions on the level of protection provided to vehicle occupants in crashes, it has made some initial assessments. Based on the Bosch analysis, the following frontal crash modes are being or have been assessed (see response to Question 9 for more details):

- 16 mph Flat Frontal
- 25 mph ODB

- 25 mph Left Angle
- 25 mph Flat Frontal
- 25 mph Right Angle

As explained previously, there is no "low" level deployment for the passenger airbag. In all crash conditions where the ORC calculates a "low deployment", there will be a "low" level deployment on the driver side and a "mid" level deployment on the passenger side.

The Bosch analysis indicates that a failure of the UFSs will also affect the deployment of the airbags in the 40 mph ODB test conducted by the IIHS. However, NHTSA has concluded, after extensive analysis, that it would be inappropriate to include this crash test mode in FMVSS No. 208. Therefore, DCC believes that "compliance" in this mode is not required to "meet the need for motor vehicle safety" within the meaning of the Safety Act.

DCC is currently in the process of evaluating the effect on occupant injury criteria as a result of these potential differences in airbag deployment for the following crash modes: 25 mph flat frontal, 25 mph left angle, and 25 mph right angle. Among other methods, DCC is using a MADYMO computer simulation model to conduct this analysis.

With regard to the 25 mph ODB mode, DCC has determined that this potential airbag deployment delay will not be problematic. An analysis of about a hundred tests in this crash mode developed by Transport Canada in the late 1990s demonstrates that there is little risk to an occupant from a deploying airbag in the times to fire set forth in the Bosch analysis for the subject vehicles without the UFSs. It is also noteworthy that the Transport Canada data reflects crashes of vehicles with single-stage airbags, many of which were manufactured with high-powered airbags rather than depowered airbags. (high-powered airbags are riskier in this out of position test)

DCC recognizes that the Transport Canada data are based on crash tests of non-subject vehicles. However, in crashes using an ODB, vehicle deceleration is primarily a function of the deformable barrier and not the individual vehicle structures. Therefore, it is reasonable to use the data from crashes involving non-subject vehicles as a proxy for what would occur in the subject vehicles.

DCC also believes the available field data demonstrates that motor vehicle safety is not being compromised as a result of the alleged condition in the subject vehicles. There are nearly one million subject vehicles in the field, yet DCC has received only a very limited number of complaints of airbag non-deployment / late deployment that may relate to the alleged condition (including complaints submitted in response to the IR for PE05-061). For

each complaint for which DCC was provided the opportunity to follow up with a vehicle inspection, each vehicle, without exception, had no frame or other structural damage that would indicate that an airbag should have deployed.

Furthermore, DCC has compared the complaint rates of airbag non-deployment (or late deployment) for the subject vehicles and those of similar competitor vehicles. To DCC's knowledge, none of the competitor vehicles evaluated in the survey are involved in or have been the subject of an airbag sensor investigation. The data clearly show that the complaint rates for the subject vehicles are in the same low ranges as those of the peer vehicles.

In the Engineering Analysis opening resume, ODI hypothesized that vehicle owners will not be aware of whether their airbag deployed late in a particular crash or at a lower deployment level than it should have. However, in DCC's experience consumers may complain that the airbag doesn't deploy and will complain if they believe it deploys late, or does not fill sufficiently. Indeed, the public has high expectations for this component, and it would seem that higher levels of complaints should result if the alleged defect is actually causing more injuries in the field.

Another factor that mitigates any possible safety consequences arising out of the alleged condition is the existence of the airbag MIL, which alerts vehicle occupants immediately in the event of a UFS failure. Coupled with the warning in the owner's manual, the airbag MIL should motivate consumers to promptly bring their vehicles to a dealer for proper service.

The prior discussion in response to this question has focused on the potential safety consequences of the alleged condition. However, DCC also wishes to emphasize that the scope of this Engineering Analysis is overbroad. The failure rates of the subject components have been drastically reduced following the substitution of steel bushings for the original brass bushings in February 2005, and the rates have fallen even lower as a result of the use of Crastin material beginning in February 2006.

DCC will continue to assess the alleged condition in the subject vehicles; however, for the foregoing reasons, DCC does not believe the alleged condition presents an unreasonable risk to motor vehicle safety.