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BY HAND DELIVERY

Thomas Z. Cooper, Chief
Vehicle Integrity Division
Office of Defects Investigation
National Highway Traffic Safety Administration
400 Seventh St., S.W.
Washington, D.C. 20590

Re: NHTSA Request for Information in Preliminary Evaluation PE05-005 (Seat Warmers)

Dear Mr. Cooper:

This letter is submitted by Mercedes-Benz USA, LLC ("MBUSA") to the National Highway Traffic Safety Administration ("NHTSA" or "Agency") in response to the Office of Defect Investigation's February 8, 2005 request for information relating to the seat heaters installed as original equipment in MY 2003 Mercedes-Benz ML 320 vehicles.

MBUSA's responses to the Agency's specific requests for information are included below following a restatement of the Agency's original requests. Prior to setting forth MBUSA's responses, a short description of the factual background will assist in reviewing the data.

Factual Background

Failure of the seat warmer in the subject M-Class vehicles is related to the position of the bus wires in the seat, and the overall height of the vehicle. Due to the height of the vehicle, many drivers when entering and exiting the vehicle put all of their weight on the outboard seat bolster. The added repetitive weight on the bolster creates abnormal stress on the seat warmer bus wires located in that area of the seat. Repeated excess stress can, in a limited number of cases, eventually cause one or more of the seat warmer bus wires to break. When individual bus wires

break, current is still able to flow through the other wires, and the system remains energized. There are a total of seven wire strands in each bus. Only one bus wire strand is necessary to keep the seat warmer operating within specification, and without excessive heat build-up. The other six bus wires were added for redundancy. If, however, all seven bus wires break, the seat warmer fails to work as designed, and excessive heat build-up can occur under certain conditions. Upon failure of all seven bus wire strands in the same location, current attempts to move around the bus wire break by passing through the nearest carbon fiber, causing the temperature of this fiber to increase beyond normal operating temperatures. When such breakages occur, the seat heater will function normally below the location of the break, but excessive heat may build up at the point of the break. The level of heating at the point of bus wire breakage depends on the number of carbon fibers that are attempting to carry the current around the break point. In the unusual situation where a single carbon fiber is carrying the current around the break point due the location of the bus wire break in relation to the woven carbon mat, the greatest potential for heat build-up is created.

If a single carbon fiber scenario occurs, as the temperature of this carbon fiber increases, the heat causes the surrounding seat materials to interact with the carbon fiber thereby increasing the electrical resistance in the carbon fiber. This condition normally proceeds to the point where electricity can no longer flow through the affected carbon fiber and the seat heater fails to function at and beyond the break point. In an even smaller number of instances, the surrounding seat material does not immediately interact with the carbon to de-energize that mat and eliminate the heat build-up at the point of breakage.. In this situation, the continued charging of carbon fibers with energy beyond normal operating conditions can result in a hot spot, which can discolor the seat fabric at the point of seat contact or, in a limited number of cases, create a hole in the seat cover.

MBUSA does not believe that either manifestation of this failure poses a risk to motor vehicle safety. In normal circumstances, the driver's seat occupant will experience abnormal heat from the area in which the failure occurs for a short period before the surrounding seat materials fuse to the carbon and completely de-energize the hot-spot. This situation may be accompanied by an odor from the reaction of the seat materials being overheated. However, since the seat materials meet FMVSS 302, there is no possibility for a fire to result from the failure. In addition, this condition normally only results in seat function failure.

In the limited number of cases where a hole develops in the seat cover, and the affected carbon fiber becomes exposed to open air, the seat occupant can experience pain analogous to a bee sting before the seat heater shuts down due to increased resistance. As in the more typical manifestation of this failure, once the seat heater de-energizes in the area of the breakage due to the increased resistance, the heater is permanently disabled in this area and the over-heating- cannot re-occur. Moreover, it is worth noting that during the failure, and regardless of its manifestation, the seat occupant retains the ability to turn the seat heater off with the same switch that was used to turn the seat on, immediately stopping current flow and heat generation. Finally, MBUSA is not aware of any accidents or vehicle fires that have been caused by failure of the seat warmer.

Information for which MBUSA has requested confidential treatment is enclosed in brackets below.

1. *State, by model and model year, the number of subject vehicles MBUSA has manufactured for sale or lease in the United States. Also state, as a subset of the total production volume the number of the subject vehicles produced and equipped with a driver and/or passenger seat heater capability. Separately, for each subject vehicle manufactured to date by MBUSA, state the following:*

   a. *Vehicle identification number (VIN);*
   b. *Make;*
   c. *Model;*
   d. *Model Year;*
   e. *Date of manufacture;*
   f. *Date warranty coverage commenced;*
   g. *The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease); and*
   h. *Driver and passenger seat type (heated or not heated).*

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

Approximately [ ] MY 2003 ML 320 vehicles were produced with seat heaters by MBUSA's sister company, Mercedes Benz U.S. International

("MBUSI"). Because seat heaters of a similar design were also contained in M-Class vehicles built between September 23, 1999 and November 2, 2004, the attached production data file contains information on all [ ] potentially affected M-Class vehicles produced during that period. Approximately [ ] of those vehicles were equipped with driver and/or passenger seat heaters. The additional information requested in requests 1.a through 1.h is included in the attached Microsoft Access file entitled "PRODUCTION DATA."

2. *State the number of each of the following, received by MBUSA, or of which MBUSA 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, fire, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the MBUSA 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, including claims of burns of the driver/passenger's clothing or skin/ driver/passenger seat fire, or occupant compartment fire originating from the driver/passenger seat;*
   e. *Third-party arbitration proceedings where MBUSA is or was a party to the arbitration; and*
   f. *Lawsuits, both pending and closed, in which MBUSA is or was a defendant or codefendant.*

   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 casual and contributing factors and MBUSA' assessment of the problem, with a summary of the significant underlying facts and

evidence. For item "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.

MBUSA has received 140 customer complaints which may related to the alleged defect in the potentially affected vehicles. MBUSA has not identified any Field Reports, Crash/Injury Reports, claims, or arbitration proceedings responsive to requests numbered 2b-2e. In response to request 2f, MBUSA is aware of one lawsuit regarding failure of the seat heater in which it is a defendant. The suit, filed in the Supreme Court of the State of New York for New York County is captioned Marian H. Goodman, Plaintiff, versus Mercedes-Benz of Manhattan, Inc. and Mercedes-Benz USA, LLC. The suit was filed on February 1, 2005 and its docket number is 101692 / 05.

3. *For each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:*

   a. *MBUSA'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's 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 and severity of alleged burn 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."

Where this information is available, it is included in the text of the documentation provided at Attachment A in response to Request No. 4.

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 MBUSA used for organizing the documents.*

Copies of all documents related to the consumer complaints discussed in response to Request No. 2 are provided at Attachment A. The documents relating to the lawsuit referenced above are provided at Attachment B.

5. *State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by MBUSA to date that relate, 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. *MBUSA's claim number;*
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. *Replacement part number(s) and description(s);*
j. *Concern stated by customer; and*
k. *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."

MBUSA has received a total of 1,806 warranty claims on potentially affected MY 2000-2004 M-Class vehicles which could relate to the subject condition. The detailed information requested in requests numbered 5(a) though 5(k) is included in the enclosed Microsoft Access file entitled "WARRANTY DATA." This file contains two tabs. The first tab in this file, entitled "Claims Text" contains a row for each of the 1,806 warranty claim visits with two columns containing: 1) the VIN; and 2) the dealer text for each visit. The second tab, entitled "Claims Details," includes columns for all of the detailed information requested in subparts a-k. Where a warranty visit generated multiple problem codes, labor operations codes, or part numbers, a separate row was generated under this tab for each such code, even where those codes were generated during the same service visit. Accordingly, this tab contains more than 1,806 rows.

6. *Describe in detail the search criteria used by MBUSA 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. State the terms of the new vehicle warranty coverage offered by MBUSA on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) related to the alleged defect that MBUSA offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.*

The claims identified in response to Request No. 5 were identified by searching MBUSA's warranty claims database for all codes relating in any way to seat heater service or replacement, and then reviewing the dealer text associated with each claim to determine whether the claim could represent an instance of the "alleged defect."

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 MBUSA has issued to any 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, with the exception of standard shop manuals. Also include the latest draft copy of any such communication that MBUSA planning to issue within the next 120 days.

MBUSA has no documents responsive to this 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, MBUSA. 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.

MBUSA's review of the subject condition has included obtaining a technical assessment and description of the failure mode from the supplier, and review of the results of an inspection program on a sample of 160 warranty returned seat heaters. A technical assessment and description of the failure mode developed by the supplier, W.E.T. Automotive Systems AG, is included as Attachment C.

160 failed seat warmers were examined in an inspection program to determine the level of damage to the seat cover and thus the nature of the underlying failure. Of the 160 warranty-returned units evaluated, 22 units were found to have a hole in the seat cover (approximately 13.8%). The remaining heaters failed without creating a hole in the seat cover and exposing heated carbon fiber to the air. Of the 22 failures that resulted in a hole in the seat cover, 11 resulted in a hole of less than 5mm in diameter, and the remaining 11 resulted in a hole of less than 15 mm in diameter. Applying this failure rate to the entire population of vehicles would yield an estimated failure rate for seat cover hole damage of 0.6%.

9. *Describe all modifications or changes made by, or on behalf of, MBUSA in the design, material composition, manufacture, quality control, supply, or installation of the subject components, from the start of production to date, which relate, 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 GM is aware of which may be incorporated into vehicle production within the next 120 days.

The design of the seat heater in the M-class was changed for 2005, beginning with vehicles built after November 2, 2004. Diagrams comparing the new 2005 model year design to the previous design is included as Attachment D. For

the new design, the electrodes were moved in from the side bolsters towards the center of the seat where they are not subjected to the extreme flexing associated with entering and existing the vehicle. The carbon mesh is still used for heating in the center portion of the seat, however, heat is supplied to the side bolters by steel wires that are stronger and more resistant to fatigue than the copper electrode wires used in side bolsters of the pre-model year 2005 design.

10. *Provide a complete engineering description and appropriate engineering specifications (including engineering drawings) of the subject components installed 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 MBUSA is aware, equipped with identical seat heater assemblies as the subject vehicles, whether installed in production or in service, and state the applicable dates of production or service usage.*

The seat warmer in the M-Class uses a Carbotex design, where carbon fibers, woven into the seat cover, are heated by electricity carried through several copper bus wires/electrodes in the seat side bolsters. Prior to the model year 2005 design change, seven bus wires ran through the outboard seat bolster of the heated seats. The numerous carbon fibers draw small amounts of current from the bus wires, causing the fibers to heat up and warm the seat. The heater has two operating levels, high and low. If the seat warmer is set to the high setting, the current level at this setting is initially set at 9 amps for the complete seat, 5 amps for the cushion heater, and 4 amps for the backrest heater, with the seat switch automatically lowering the operating temperature setting to the low level after five minutes. The lower level operates on approximately one-half of the electrical current consumed at the higher level.

The W.E.T. analysis of the failure mode provide at Attachment C in response to information Request No. 8 includes depictions of the circuitry, and photographs of the Carbotex mat and bus wire assembly. MBUSA can provide additional engineering information regarding the seat warmer upon NHTSA's request. As indicated above, the same seat heater design was used from model year 2000 to model year 2004.

11. Provide MBUSA's assessment of the alleged defect in the subject vehicle, including:

a. The casual 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 nay, 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.

See "Factual Background" above.

In addition, MBUSA has reviewed the four Vehicle Owner Questionnaires ("VOQ") attached to NHTSA's letter. MBUSA believes the incidents described demonstrate no risk to motor vehicle safety and are consistent with the description noted above. To the extent that one VOQ indicated a second-degree burn, this is not consistent with the foregoing analysis, DCAG's field experience, or even the VOQ description, which also noted there was no damage to the seat itself. As such, MBUSA does not consider the only VOQ suggestion of injury as supported by the data.

If you have any additional questions regarding this matter, please do not hesitate to contact me at (202) 637-6567.

Sincerely,

Patrick M. Raher

cc: Frank Diertl
Gary Bowne
Dr. Turan Coratekin