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June 8, 2007

Ms. Kathleen C. DeMeter, Director  
Office of Defects Investigation  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, S.E.  
Washington, D.C. 20590

Dear Ms. DeMeter:

Subject: PE07-019:NVS-213dlr

The Ford Motor Company (Ford) response to the agency's April 23, 2007, letter concerning reports of alleged failure of the front axle differential and/or front driveshaft in 2003 through 2005 model year Land Rover Ranger Rover vehicles is attached.

The primary cause for the majority of the reported front differential and/or driveshaft failures is misalignment of the joint between the front differential and the front driveshaft. The misalignment may result during assembly due to design tolerances of the constituent parts. Land Rover initiated a customer satisfaction campaign in June 2003, to address the potential for misalignment in the vehicles built prior to an in-plant alignment process improvement.

If there is front differential/driveshaft spline failure, a loud grinding noise from the drivetrain provides a clear indication that the vehicle needs to be pulled to the roadside and stopped. Power assisted braking, steering, and electrical function for components such as vehicle lighting remain functional and unaffected. Further, the vehicle does not abruptly decelerate but rather coasts, allowing a driver to maneuver to the roadside and provides other drivers the opportunity to slow down or safely maneuver around the vehicle.

The results of this investigation show that the driveline problems have not resulted in a risk of accidents or injuries. There have been more than 5,000 reports of driveshaft or differential related service. None of these reports concern accidents or related injuries. There is no evidence to support that taking a safety recall action would prevent even one accident or injury.

In consideration of the understandable customer dissatisfaction that results from failure of the front differential or driveshaft, a revised front differential and driveshaft are being released for service. The revised front differential and driveshaft is expected to be available within three to four months.

If you have any questions concerning this response, please feel free to contact me.

Sincerely,

James P. Vondale

Attachment



FORD MOTOR COMPANY (FORD) RESPONSE TO PE07-019

Ford's response to this Preliminary Evaluation information request was prepared pursuant to a diligent search for the information requested. While we have employed our best efforts to provide responsive information, the breadth of the agency's request and the requirement that information be provided on an expedited basis make this a difficult task. We nevertheless have made substantial effort to provide thorough and accurate information, and we would be pleased to meet with agency personnel to discuss any aspect of this Preliminary Evaluation.

The scope of Ford's investigation conducted to locate responsive information focused on Land Rover employees most likely to be knowledgeable about the subject matter of this inquiry and on review of Land Rover files in which responsive information ordinarily would be expected to be found and to which Ford ordinarily would refer. Ford notes that although electronic information was included within the scope of its search, Ford has not attempted to retrieve from computer storage electronic files that were overwritten or deleted. As the agency is aware, such files generally are unavailable to the computer user even if they still exist and are retrievable through expert means. To the extent that the agency's definition of Ford includes suppliers, contractors and affiliated enterprises for which Ford or Land Rover does not exercise day-to-day operational control, we note that information belonging to such entities ordinarily is not in Ford's or Land Rover's possession, custody or control.

Ford has construed this request as pertaining to vehicles manufactured for sale in the United States, its protectorates and territories.

In an April 24, 2007, telephone conversation and subsequent voicemail, Derek Rinehardt of the agency informed Ford personnel that the model years of the subject vehicles were revised to 2003 through 2005. The inquiry had initially specified the model years of the subject vehicles as 2002 through 2004.

Ford notes that some of the information being produced pursuant to this inquiry may contain personal information such as customer names, addresses, telephone numbers, and complete Vehicle Identification Numbers (VINs). Ford is producing such personal information in an unredacted form to facilitate the agency's investigation with the understanding that the agency will not make such personal information available to the public under FOIA Exemption 6, 5 U.S.C. 552(b)(6).

Answers to your specific questions are set forth below. As requested, after each numeric designation, we have set forth verbatim the request for information, followed by our response. Unless otherwise stated, Ford has undertaken to provide responsive documents dated up to and including April 23, 2007, the date of your inquiry. Ford has searched within the following Land Rover offices for responsive documents: Automotive Safety & Compliance Office, Purchasing, Marketing Sales and Service, Quality, Office of the General Counsel, Vehicle Operations, and Product Development.

Request 1

State, by model and model year, the number of subject vehicles Ford has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Ford, state the following:

- a. Vehicle identification number (VIN);
- b. Make;
- c. Model;
- d. Model Year;
- e. Date of manufacture;
- f. Date warranty coverage commenced; and
- g. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA." See Enclosure I, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

### Answer

Ford records indicate that the approximate total number of 2003 through 2005 Land Rover Range Rovers sold in the United States (the 50 states and the District of Columbia) and its protectorates and territories (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and Virgin Islands) is 36,910.

The number of subject vehicles sold in the United States by model and model year is shown below:

Model	2003 MY	2004 MY	2005 MY
Range Rover	13,852	14,870	8,188

The requested data for each subject vehicle is provided electronically in Appendix A (filename: 2007-06-08 Appendix A) on the enclosed CD.

Ford's response to subpart "a" includes two VIN columns labeled; "global VIN" and "North America VIN". The Land Rover Global VIN contains information unique to Land Rover's business needs and is referenced in the provided records. The North American VIN is the FMVSS Part 565 compliant VIN that is found on each vehicle.

### Request 2

State the number of each of the following, received by Ford, or of which Ford are otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:

- a. Consumer complaints, including those from fleet operators;
- b. Field reports, including dealer field reports;
- c. Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
- d. Property damage claims; and
- e. Third-party arbitration proceedings where Ford is or was a party to the arbitration; and
- f. Lawsuits, both pending and closed, in which Ford 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 causal and contributing factors and Ford'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.

### Answer

For purposes of identifying reports of incidents that may be related to the alleged defect and any related documents, Ford has gathered "owner reports" and "field reports" maintained by Land Rover's Customer Service Division and claim and lawsuit information maintained by Ford's Office of the General Counsel (OGC).

Descriptions of the owner and field report systems and the criteria used to search each of these are provided electronically in Appendix B (filename: 2007-06-08 Appendix B) on the enclosed CD.

As the agency is aware, Land Rover initiated a field service program (H121/B121) in 2005 to address a worn front driveshaft spline condition. Information relating to this program is provided in response to Request 7. The majority of reports identified in response to this information request relate to worn front differential/driveshaft splines. As the alleged defect is defined as "failure of the front axle differential and/or front driveshaft", some of the reports are ambiguous as to whether they relate to the worn differential/driveshaft spline condition or some other differential or driveshaft concern, though they still meet the broader definition of the alleged defect. Accordingly, the following categorizations were used in the review of reports located in each of these searches:

Category	Allegation
A	Allegation of front differential and/or driveshaft failure due to worn splines
B	Other or non-specific allegation of front differential and/or driveshaft failure

Owner Reports: Records identified in a search of the Land Rover Customer Assistance Tracking System (CATS), as described in Appendix B, were reviewed for relevance and categorized in accordance with the categories described above. The number and copies of relevant owner reports identified in this search that may relate to the agency's investigation are provided in the electronic databases contained in Appendix C (filenames: 2007-06-08 Appendix C-AWS-CQIS and 2007-06-08-Appendix C-CATS) on the enclosed CD. The categorization of each report is identified in the "Category" field. An additional eight responsive reports identified in CATS were not available in a database compatible format, therefore they are provided as a PDF file in Appendix C (filename: 2007-06-08 Appendix C-CATS-owner).

When we were able to identify that responsive (i.e., not ambiguous) duplicate owner reports for an alleged incident were received, each of these duplicate reports was marked accordingly, and the group counted as one report. In other cases, certain vehicles may have experienced more

than one incident and have more than one report associated with their VINs. These reports have been counted separately.

Legal Contacts: Ford is providing, in Appendix B, a description of Legal Contacts and the activity that is responsible for this information, Consumer Affairs. With regard to this specific inquiry, 25 Consumer Affairs reports are reflected in the counts of owner reports above. When we were able to identify that duplicate reports for an alleged incident were received, each of these duplicate reports was marked accordingly and the group counted as one report. In other cases, certain vehicles may have experienced more than once incident and may have more than one report associated with their VINs. These reports have been counted separately.

Field Reports: Records identified in a search of the Land Rover Electronic Product Quality Reports (EPQR), Infotrail based Electronic Product Reports (EPR's), Global Common Quality Indicator System (GCQIS) and Jaguar/Land Rover Critical Concern eTracker Database (JLRCCED) records, as described in Appendix B, were reviewed for relevance and categorized in accordance with the categories described above.

The number and copies of relevant field reports identified in this search that may relate to the agency's investigation are provided in the electronic databases contained in Appendix C on the enclosed CD. The categorization of each report is identified in the "Category" field. An additional four field reports in EPQR and two field reports in JLRCCED were not available in a database compatible format, therefore they are provided separately in an Excel spreadsheet in Appendix C (filenames: 2007-06-08 Appendix C-EPQR and 2007-06-08 Appendix C-JLRCCED).

When we were able to identify that responsive duplicate field reports for an alleged incident were received, each of these duplicate reports was marked accordingly, and the group counted as one report. In other cases, certain vehicles may have experienced more than one incident and have more than one report associated with their VINs. These reports have been counted separately. In addition, field reports that are duplicative of owner reports are provided in Appendix C but are not included in the field report count.

VOQ Data: This information request referenced 38 Vehicle Owner's Questionnaires (VOQs). Derek Rinehardt of the agency provided to Ford electronic copies of these plus an additional three VOQs with complete VIN information where available. Ford notes that one of the VOQs (Ref no. 10170601) relates to a vehicle in Ireland; this VOQ was not evaluated. Ford made inquiries of Land Rover's owner report databases for customer contacts, and its field report databases for field reports concerning the vehicles identified in these VOQs. In some instances where the VOQ does not contain the VIN, or contains a partial VIN, it is not possible to query the databases for warranty, owner, or field reports specifically corresponding to the VOQs. All related reports located on a vehicle identified in a VOQ with a complete VIN are provided in the electronic databases provided in Appendix C.

Crash/Injury Incident Claims: For purposes of identifying allegations of accidents or injuries that may have resulted from the alleged defect, Ford has reviewed responsive owner and field reports, and lawsuits and claims. Ford identified one owner report where the customer alleged that she suffered a broken thumbnail and whiplash, however this allegation was not mentioned until after several conversations with the Land Rover customer representative. There is no allegation of a collision with another vehicle or any objects and the circumstances relating to this allegation would not be expected to result in whiplash. The warranty claim corresponding to the incident states, "car towed in makes a grinding noise when putting in drive advise." The record

identification number for this report is 683153211 with a duplicate record identification number of 683153212. A copy of the report corresponding to the alleged incident is provided in the electronic database provided in Appendix C (filename: 2007-06-08 Appendix C-CATS).

Ford has not identified any owner or field reports alleging any type of accident relating to the alleged defect.

Claims, Lawsuits, and Arbitrations: For purposes of identifying incidents that may relate to the alleged defect, Ford has gathered claim and lawsuit information maintained by Ford's OGC. Ford's OGC is responsible for handling product liability lawsuits, claims, and consumer breach of warranty lawsuits and arbitrations against the Company.

Based on a reasonable and diligent search, Ford located no product liability lawsuits, no claims, and eight consumer lawsuits.

Documents gathered in this manner were reviewed for relevance and those consumer lawsuits that may relate to the agency's request are provided for your review as Appendix E2 (filename: 2007-06-08 Appendix E2). We are providing the requested detailed information, where available, in our Log of Lawsuits and Claims as Appendix E1 (filename: 2007-06-08 Appendix E1) on the enclosed CD. The number of relevant lawsuits and claims identified is also provided in this log. With regard to these lawsuits and claims, Ford has not undertaken to contact outside law firms to obtain additional documentation.

### Request 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. Ford'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 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," See Enclosure 1, Data Collection Disc, for a preformatted table which provides further details regarding this submission.

### Answer

Ford is providing owner and field reports in the electronic databases contained in Appendix C on the enclosed CD in response to Request 2. To the extent information sought in Request 3 is available for owner and field reports, it is provided in the database. To the extent information

sought in Request 3 is available for lawsuits and claims, it is provided in the Log of Lawsuits and Claims in Appendix E1. For the CQIS and CATS reports, in the databases contained in Appendix C, the "Source" field indicates the database source and the type of report (e.g., CQIS-owner, CQIS-field, CATS-owner, CATS-field, CATS-CA).

#### Request 4

Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Ford used for organizing the documents.

#### Answer

Ford is providing owner and field reports in the electronic databases contained in Appendix C on the enclosed CD in response to Request 2. Copies of complaints, first notices, or CATS reports relating to matters shown on the Log of Lawsuits and Claims (Appendix E1) are provided in Appendix E2. To the extent information sought in Request 4 is available, it is provided in the referenced appendices.

#### Request 5

State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Ford 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 reformation:

- a. Ford'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." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Answer

Records identified in a search of the AWS database, as described in Appendix B, were reviewed for relevance and categorized in accordance with the categories described below. An additional category, not included for field and owner reports, is included for warranty reports. The "C" category identifies all claims made for work completed under the H121/B121 "Front differential inspection and alignment" customer satisfaction campaign.

Category	Allegation
A	Allegation of front differential and/or driveshaft failure due to worn splines
B	Other or non-specific allegation of front differential and/or driveshaft failure
C	Warranty claims for completion of customer satisfaction campaign H121/B121

The number and copies of relevant warranty claims identified in this search that may relate to the agency's investigation are provided in the AWS portion of the electronic database contained in Appendix C (filename: 2007-06-08 Appendix C-AWS-CQIS) on the enclosed CD. The categorization of each report is identified in the "Category" field.

When we were able to identify that duplicate claims for an alleged incident were received, each of these duplicate claims was marked accordingly and the group counted as one report. In other cases, certain vehicles may have experienced more than one incident and have more than one claim associated with their VINs. These claims have been counted separately. Warranty claims that are duplicative of owner and field reports are provided in Appendix C but are not indicated in the report count above.

Requests for "goodwill, field or zone adjustments" received by Land Rover to date that relate to the alleged defect that were not honored, if any, would be included in the owner reports identified above in response to Request 2. Such claims that were honored are included in the warranty data provided.

Request 6

Describe in detail the search criteria used by Ford 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, by make and model year, the terms of the new vehicle warranty coverage offered by Ford 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) that Ford 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.

Answer

Detailed descriptions of the search criteria, including all pertinent parameters, used to identify the claims provided in response to Request 5 are described in Appendix B.

For 2003 through 2005 model year Land Rover Range Rover vehicles, the New Vehicle Limited Warranty, Bumper-to-Bumper Coverage begins at the warranty start date and lasts for 48 months or 50,000 miles, whichever occurs first.



Descriptions of the available extended warranty programs are provided electronically in Appendix D (folder: 2007-06-08 Appendix D) on the enclosed CD. As of the date of the information request, 2,744 extended warranties have been purchased on 2003 through 2005 model year Land Rover Range Rover vehicles.

#### Request 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 Ford 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 communication that Ford is planning to issue within the next 120 days.

#### Answer

For purposes of identifying communications to dealers, zone offices, or field offices pertaining, at least in part, to the alleged defect in the subject vehicles, Ford has reviewed the Land Rover Global Technical Reference (GTR) website, which is the general repository for all workshop manuals, technical service, and recall communications. In addition, the EPQR database was searched for Special Service Messages. We assume this request does not seek information related to electronic communications to Land Rover dealers regarding the order, delivery, or payment for replacement parts, so we have not included these kinds of information in our answer.

Seven technical information bulletins, five service alerts, and one parts alert were identified based on these searches. No special service messages were identified that are relevant to this subject. Copies of the bulletins and alerts are provided electronically in Appendix F (folder: 2007-06-08 Appendix F) on the enclosed CD.

Additional information relating to potential future communications is provided in response to Request 13.

#### 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, Ford. 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.

### Answer

Ford is construing this request broadly and is providing not only studies, surveys, and investigations related to the alleged defect, but also notes, correspondence, and other communications that were located pursuant to a diligent search for the requested information. Ford is providing the responsive non-confidential Land Rover documentation in Appendix F (folder: 2007-06-08 Appendix F).

To the extent that the information requested is available, it is included in the documents provided. If the agency should have questions concerning any of the documents, please advise.

Ford is submitting additional responsive documentation as Appendix G (folder: 2007-06-08 Appendix G) with a request for confidentiality under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512.

In the interest of ensuring a timely and meaningful submission, Ford is not producing non-responsive materials or items containing little substantive information. Examples of the types of materials not being produced are meeting notices, raw data lists (such as part numbers or VINs) without any analytical content, duplicate copies, non-responsive elements of responsive materials, and draft electronic files for which later versions of the materials are being submitted. Through this method, Ford is seeking to provide the agency with substantive responsive materials in our possession in the timing set forth for our response. We believe our response meets this goal. Should the agency request additional materials, Ford will cooperate with the request.

### Request 9

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

Answer

A table of the requested changes is provided electronically as Appendix H (filename: 2007-06-08 Appendix H) on the enclosed CD.

Request 10

Provide the following:

- a. Copies of all Design and/or Process Failure Mode Effects Analysis documents related to the subject components in the subject vehicles;
- b. Copies of all assembly plant process description documents related to the assembly of the driveshaft to the front axle differential; and
- c. A brief engineering/design explanation of the application of a flex coupling at the transfer case end of the front driveshaft and the reason why no similar application of a flex coupling was used at the front axle differential end of the front driveshaft.

Answer

A copy of the Process Failure Mode Effects Analysis (PFMEA) related to the subject components on the subject vehicles, as well as the assembly plant process documents are provided electronically in Appendix G (folder: 2007-06-08 Appendix G) with a request for confidentiality under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512.

A flex coupling used at the transfer case end of the front driveshaft to transmit torque may provide compensation for angular, parallel and axial misalignment between the two connected shafts thus minimizing the misalignment forces that are applied to the connected components. During the initial design of the vehicle, Land Rover was unable to incorporate a flex coupling at the front axle differential end of the front driveshaft because the flex coupling joint size required to accommodate the torque delivery from the transfer box in low range would not package on the differential end of the front driveshaft.

Request 11

Briefly describe how the four-wheel (or all-wheel) drive system(s) functions in the subject vehicles including the major components and their locations on the vehicle(s). If more than one system is available (e.g., part-time four-wheel drive, full-time four-wheel drive or all-wheel drive) briefly describe each system and the differences in functionality.

Answer

All 2003 through 2005 model year Land Rover Range Rover vehicles are equipped with a permanent four-wheel drive system. Portions of the workshop manual describing the function of the system and the location of the major components are provided electronically as Appendix I (filename: 2007-06-08 Appendix I) on the enclosed CD.

Request 12

State the number of subject components that Ford 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 the sale (including the cut-off date for sales, if applicable).

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

Answer

As the agency is aware, Land Rover service parts are sold in the U.S. to authorized dealers. Ford has no means by which to determine how many of the parts were actually installed on vehicles, the vehicle model or model year on which a particular part was installed, the reason for any given installation, or the purchaser's intended use of the components sold.

Ford is providing the total number of replacement front differentials and front driveshafts by part number and month/year of sale, where available, in electronic form in Appendix J (filename: 2007-06-08 Appendix J-Part Sales) on the enclosed CD. Information pertaining to supplier point of contact information, is included in Appendix J (filename: 2007-06-08 Appendix J-Supplier Contact).

Ford notes that the BMW Group owned Land Rover when the subject vehicle was designed. It is Ford's understanding that the BMW X5 was designed concurrently with the subject vehicle and may have incorporated a design that is the same or similar to that used in the subject vehicle.

Request 13

Furnish Ford's assessment of the alleged defect in the subject vehicle, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety of each failure mode;
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
- f. The reports included with this inquiry.

Answer

The Range Rover transfer box uses a Torsion® differential to proportion drive to both the front and rear differentials. For the transfer box to transmit drive to both differentials, a minimum level of torque reaction from both the front and rear driveshafts is required. When there is no torque reaction from the front driveshaft, such as can occur if a driveshaft fractures or splines shear, the transfer box directs all torque to the front driveshaft and no torque is transferred to the rear driveshaft.

With respect to the reports which form the basis for this Preliminary Evaluation, investigation by Land Rover has found that the primary cause for the majority of the reported front differential and/or driveshaft failures is misalignment of the joint between the front differential and the front driveshaft. Certain levels of misalignment typically result in uneven loading on each spline in the joint, and over time may result in uneven wear of the splines. Continued spline wear can eventually result in shearing of the splines and the inability of the driveshaft to transfer torque to the front differential.

Analysis has found that misalignment may result during assembly due to design tolerances of the constituent parts, specifically the front differential, engine sump, and engine. Land Rover introduced an in-plant procedure on July 17, 2003, to address the alignment of the front differential, engine sump, and engine, thereby improving the alignment of the joint between the front differential and driveshaft.

Concurrent with the enhanced in-plant alignment procedure, Land Rover initiated a customer satisfaction campaign to address the potential for misalignment in the vehicles built prior to that change. The customer satisfaction campaign sought to properly align the joint between the front differential and driveshaft consistent with the in-plant actions taken.

If the driveshaft joint spline shears, a loud grinding noise from the drivetrain provides the driver a clear indication that the vehicle needs to be pulled to the roadside and stopped. Power assisted braking, steering, and electrical function for components such as vehicle lighting, remain functional and unaffected. Further, the vehicle does not abruptly decelerate but rather coasts, allowing a driver to maneuver to the roadside and provides other drivers the opportunity to slow down or safely maneuver around the vehicle.

We do not believe that there is any evidence that supports a conclusion that this condition presents an unreasonable risk to motor vehicle safety as defined in Title 49 U.S.C. Ch. 30102:

... the performance of a motor vehicle or motor vehicle equipment in a way that protects the public against unreasonable risk of accidents occurring because of the design, construction, or performance of a motor vehicle, and against unreasonable risk of death or injury in an accident ...

The definition of motor vehicle safety focuses on an unreasonable risk of accidents and death or injury in those accidents.

The results of this investigation show that the driveline problems have not resulted in a risk of accidents or injuries. There have been more than 5,000 reports of driveshaft or differential related service. None of these reports concern accidents or related injuries. While it is possible to hypothesize or make conjectures about how any one of these events could have resulted in some sort of accident or injury, the evidence shows that such conjectures would not comport with the facts. The facts are that each and every time drivers experienced one of these events, the vehicle was controllable and the driver was able to safely bring the vehicle to a stop. Steering and braking are unaffected and the vehicle can be held in place by use of the parking brake. Vehicles may stall for any number of reasons and each cause must be considered for its potential affect on the safe operation of the vehicle. For the condition causing these reports, vehicle control is maintained resulting in no accidents or resulting injuries. Other conditions may have more effect on vehicle control resulting in an unreasonable risk to safety. With the experience of more than 5,000 reports, there is no evidence to support that taking a safety recall action would prevent even one accident or injury.

In consideration of the understandable customer dissatisfaction that results from failure of the front differential or driveshaft, a revised front differential and driveshaft are being released for service. The revised front differential and driveshaft is expected to be available within three to four months. At that time, a communication will be sent to dealers informing them of the revised parts for service repairs.

###