

Ford Motor Company

Automotive Safety Office
Environmental and Safety Engineering

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OFFICE OF DEFECTS

February 24, 2009

Ms. Kathleen C. DeMeter, Director
Office of Defects Investigation Safety Assurance
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E. W45-302
Washington, D.C. 20590

Dear Ms. DeMeter:

Subject: PE08-070:NVS-213swmc

The Ford Motor Company (Ford) response to the agency's January 5, 2009, letter concerning reports of alleged steel wheel rim fractures adjacent to the circumferential rim weld on 2004 through 2006 Ford Expedition vehicles is attached.

In its January 5, 2009, information request, the agency indicated that it had received three complaints from customers with Expedition Special Service Vehicles (SSV) that alleged steel wheel rim fractures. The agency stated that the complainants, when interviewed, reported "the Expedition vehicles experiencing the rim fractures are used in normal police enforcement activities and, when necessary, in emergency response situations and pursuits." Ford specifically and clearly states in its sales literature that Expedition vehicles equipped with the SSV package are not to be used for high speed pursuit type driving. This type of application often involves extreme maneuvers, excessive speeds, limit handling, and severe usage for which an Expedition, even those equipped with the SSV package, is not designed, tested, intended, or marketed.

Independent law enforcement agencies have also officially recognized the difference between vehicles designed and intended for high speed pursuit applications versus "Special Service Vehicles" that have cargo carrying capability and other attributes, but do not require high performance capabilities. Since 1981, the National Institute of Justice, through its National Law Enforcement and Corrections Technology Center system, has sponsored vehicle evaluations through a partnership with the Michigan State Police in order to ensure that vehicles used by law enforcement agencies provide reliable and safe performance. Recognizing that police vehicles are designed for specific applications, the publication includes a specific "Special Service Vehicle" section that provides guidance that SSVs are not engineered for high speed or pursuit driving.

Ford acknowledges that it has received a small number of reports of cracked wheels on Expedition SSVs. A review of the reports provided with this response finds that they relate to slow loss of air pressure and, sometimes, vibration or steering wheel nibble, providing clear indication that service is required. Analysis of wheels found some that exhibited fatigue cracking at the circumferential weld. Such slow loss of pressure is typical of Ford's experience with this subject. Ford identified a total of 47 reports where a



wheel was replaced due to a wheel crack. Of these, 22 reports do not mention air loss, 19 simply mention air loss with no indication of any sudden or rapid deflation, and five reports mention slow air loss from a cracked wheel. Only one, a warranty claim, describes a "blowout" due to a cracked wheel. For this claim, the customer states the tire "keeps blowing out," which implies that the condition was not, in fact, a blowout or rapid loss of air if the pressure loss was as repeatable as indicated.

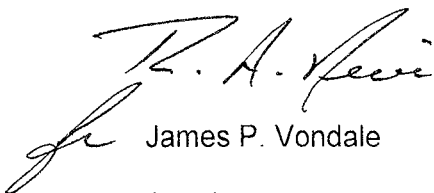
In 2006, the Fresno County Sheriff's Department contacted Ford concerning slow air leakage attributed to the steel wheels on their Expedition SSVs. While cracked wheels were identified, reports characterized the air loss as slow in nature. Importantly, Ford found that the OEM P-metric tires on the vehicles had been replaced with LT tires. Ford specifies only P-rated tires for use on these vehicles. Testing found that the LT-rated tire, with its stiffer sidewall construction, creates a 20% greater stress into the wheel rim. The higher associated load increases the potential for these wheels to crack.

While Ford believes that wheel cracks may lead to customer dissatisfaction, this condition does not pose an unreasonable risk to motor vehicle safety in these vehicles. A wheel crack may result in slow, repeated air loss and vibration or steering wheel nibble indicating that service is needed. Even if a vehicle continues to be operated with a cracked wheel, the crack may continue to slowly propagate, and the rate of air loss may increase, though still providing indication that service is needed. The lack of reports of rapid air loss or related accidents support this assessment.

As the agency is aware, Ford previously conducted a recall for steel wheels installed on certain CVPI vehicles. Though Ford had not identified an unreasonable risk to safety in that lengthy and thorough investigation, Ford recalled wheels used specifically in severe service conditions such as high speed police pursuit driving that involve extreme maneuvers, excessive speeds, limit handling, and severe usage. The Expedition SSV is not designed or intended to be used in these types of applications and is distinctly different from CVPI vehicles recalled by Ford. Though a cracked wheel may occasionally occur on these vehicles during usage for which they were intended, the reports clearly indicate that it manifests itself in a manner that is identifiable to a driver well before the risk of more rapid air loss may occur. Consideration of each of these factors supports a conclusion that this condition in these vehicles does not present an unreasonable risk to safety.

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 PE08-070

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 Ford employees most likely to be knowledgeable about the subject matter of this inquiry and on review of Ford 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 does not exercise day-to-day operational control, we note that information belonging to such entities ordinarily is not in Ford'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 a January 16, 2009, telephone conversation, Jeffery Quandt of the agency informed Ford personnel that the subject vehicles include 2004 model year Ford Expedition vehicles.

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 January 5, 2009, the date of your inquiry. Ford has searched within the following offices for responsive documents: Sustainability, Environmental, and Safety Engineering, Ford Customer Service Division, Marketing and Sales Operations, and Product Development.

Request 1

State, by service application (e.g., special service vehicles, non-police vehicles) 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. Model Year;

- c. Whether the vehicles was manufactured or sold for use as a police or emergency response vehicle;
- d. Wheel option;
- 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 2004 through 2006 model year Ford Expedition vehicles 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 378,967.

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

Model	2004 MY	2005 MY	2006 MY
Special Service Vehicles (SSV)	2,481	2,131	3,639
Non-SSV Vehicles	178,615	104,008	88,093
Total	181,096	106,139	91,732

The requested data for each subject vehicle is provided electronically in Appendix A on the enclosed CD.

Request 2

State, by service application and model year, 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. Reports involving a fire, 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;
- e. Property damage claims; and
- f. Third-party arbitration proceedings where Ford is or was a party to the arbitration; and
- g. Lawsuits, both pending and closed, in which Ford is or was a defendant or codefendant.

For subparts "a" through "e," 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 "g," 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 "f" and "g," 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 Ford Customer Service Division (FCSD), and claim and lawsuit information maintained by Ford's Office of the General Counsel (OGC).

Descriptions of the FCSD owner and field report systems, the Fleet Test Database, and the criteria used to search each of these are provided electronically in Appendix B on the enclosed CD.

The following categorizations were used in the review of reports located in each of these searches:

Category	Allegation
A1A	Alleged steel wheel crack or split with instant air loss
A1B	Alleged steel wheel crack or split with slow deflation
A1C	Alleged steel wheel crack or split with unspecified air loss rate
A2	Alleged steel wheel crack with no reported loss of inflation pressure
B	Alleged steel wheel issue that is non-specific with respect to the nature of the concern.

Based on the definitions in the agency's May, 2003, closing resume for EA02-007 regarding Mitsubishi Wheels, Ford has used the following definitions:

- Slow deflation - fully deflated in an hour to overnight.
- Rapid deflation - pressure loss within a mile or a few seconds.
- Blowout or instant air loss - instantaneous loss of tire pressure.

We are providing electronic copies of reports categorized as "B" as "non-specific allegations" for your review because of the broad scope of the request. Based on our engineering judgment, the information in these reports is insufficient to support a determination that they pertain to the alleged defect.

Owner Reports: Records identified in a search of the Master Owner Relations System (MORS) database, 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

MORS III portion of the electronic database contained in Appendix C on the enclosed CD. The categorization of each report is identified in the "Category" field.

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, OGC. Ford notes that no Legal Contacts that may relate to the agency's investigation were identified.

Field Reports: Records identified in a search of the Common Quality Indicator System (CQIS) database, 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 CQIS portion of the electronic database contained in Appendix C on the enclosed CD. The categorization of each report is identified in the "Category" field.

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 had an attachment that included three Vehicle Owner's Questionnaires (VOQs). One report (#10247221) was duplicative of a warranty claim, a MORS report, and a CQIS report. Any reports or claims located on a vehicle identified in the VOQs related to the alleged defect are included in the AWS, MORS and CQIS portions of the electronic database provided in Appendix C and have been identified by a "Y" in the "VOQ Dup" field.

Crash/Injury Incident Claims: For the 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. No allegations of accidents or injuries that may have resulted from the alleged defect have been identified.

Claims, Lawsuits, and Arbitrations: For the 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.

Lawsuits and claims gathered in this manner were reviewed and there are no responsive lawsuits or claims.

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 model and model year;
- f. Vehicle's mileage at time of incident;
- g. Wheel option and part number;
- h. Incident date;
- i. Report or claim date;
- j. Whether a crash is alleged;
- k. Whether property damage is alleged;
- l. Number of alleged injuries, if any; and
- m. 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 database 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.

Request 4

Produce electronic 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 database contained in Appendix C on the enclosed CD in response to Request 2. To the extent information sought in Request 4 is available, it is provided in the referenced appendix.

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. Model Year;
- e. Repair date;
- f. Vehicle mileage at time of repair;
- g. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- h. Labor operation number;
- i. Problem code;
- j. Failed wheel part number(s) and description(s);
- k. Replacement part number(s) and description(s);
- l. Whether on or more tire damage claims were ever received for the claim vehicle (submit summaries of all such claims in a separate enclosure – including claim number, VIN, repair date, repair mileage, tire position, and description of the damage);
- m. Concern stated by customer;
- n. Cause and correction; and
- o. Additional 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 in the response to Request 2. 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 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 included in the report count above.

Requests for "goodwill, field or zone adjustments" received by Ford to date that relate to the alleged defect that were not honored, if any, would be included in the MORS 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 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 2004 through 2006 model year Ford Expedition vehicles, the New Vehicle Limited Warranty, Bumper-to-Bumper Coverage begins at the warranty start date and lasts for three years or 36,000 miles, whichever occurs first. Optional Extended Service Plans (ESPs) were available to cover various vehicle systems, time in service and mileage increments. The details of the various plans are provided electronically in Appendix D on the enclosed CD. As of the date of the information request, 56,285 new vehicle ESP policies had been purchased on 2004 through 2006 model year Ford Expedition 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 steel wheel rim fractures adjacent to the circumferential rim weld, Ford has reviewed the following FCSD databases and files: The On-Line Automotive Service Information System (OASIS) containing Technical Service Bulletins (TSBs) and Special Service Messages (SSMs); Internal Service Messages (ISMs) contained in CQIS; and Field Review Committee (FRC) files. We assume this request does not seek information related to electronic communications between Ford and its dealers regarding the order, delivery, or payment for replacement parts, so we have not included these kinds of information in our answer.

A description of Ford's OASIS messages, ISMs, and the Field Review Committee files and the search criteria used are provided in Appendix B.

OASIS Messages: Ford has not identified any SSMS or TSBs that may relate to the alleged defect in the subject vehicles.

Internal Service Messages: Ford has not identified any ISMs that may relate to the alleged defect in the subject vehicles.

Field Review Committee: Ford has not identified any field service action communications that may relate to the alleged defect in the subject vehicles.

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 Ford documentation in Appendix E on the enclosed CD.

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 F with a request for confidentiality under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512.

Additionally during its search, Ford has identified responsive privileged documents, which are summarized in our Log of Privileged Documents in Appendix G on the enclosed CD.

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 on the enclosed CD.

Request 10

Provide the following information comparing the alleged defect in the subject vehicles to the defect conditions addressed by Ford in safety recalls 03V-279 and 07V-079:

- a. Frequencies of cracked wheels at 1, 2, 3, and 4 years in service;
- b. Provide summaries of all wheel durability tests and all Weibull analyses performed using test results;
- c. Provide the following comparisons using information from cracked wheels collected as warranty returns, or through other means, and then inspected by, or for, Ford or the wheel supplier;
 - i) Percentage of cracked wheels with multiple cracks;
 - ii) Percentages of cracked wheels with cracks covering less than 90 degrees of the wheel circumference;
 - iii) Percentages of cracked wheels with cracks covering 90 to 180 degrees of the wheel circumference; and
 - iv) Percentages of cracked wheels with cracks covering more than 180 degrees of the wheel circumference;

- d. Ford's assessment of the potential for rapid air-loss to occur as a result of the alleged defect in each population (state the basis for the assessment – e.g., crack mapping in wheel returns);
- e. The effects on vehicle control/dynamics of the alleged defect and/or operation with a deflated tire, whether from slow or rapid air loss, located front or rear. Include in your response a detailed description of Ford's method(s) for measuring/assessing the effects of the alleged defect (and tire/wheel failure modes in general) on the vehicle dynamics/control and the parameters Ford considers the best indices for such comparisons/evaluations.

Answer

Incident Rate Comparison

Ford's investigation into reports of cracked wheels on CVPI vehicles included analysis of report rates (R/1000) versus months of vehicle service for each specific wheel design level. As the agency is aware, that investigation involved four unique wheel design levels. That rate data relating to CVPI steel wheels was shared with the agency in September, 2004, and again in June, 2006. A copy of that data is provided in Appendix I with the filename CVPI_Rate. Similar analysis of Expedition SSV report rates is also provided in Appendix I with the filename SSV_Rate.

At 17 months of vehicle service, the report rate for the subject vehicles is half that of the earlier investigation. Further, at 30 months of vehicle service, the incident rate for the subject vehicles is still significantly lower than Crown Victoria vehicles at 17 months of service.

Expedition Steel Wheels

During July-August, 2006, Ford and the wheel supplier (Hayes-Lemmerz) collected 136 full face steel wheels from the Fresno County Sheriff's Department fleet to evaluate the existence of fracture in the circumferential rim weld. The Fresno County Sheriff's Department had contacted Ford regarding slow air leakage attributed to cracked steel wheels on their Expedition SSVs. Hayes-Lemmerz (HL) visually inspected each wheel for fracture, performed a leak test, and measured uniformity using the Akron standard. Visual inspection identified two wheels with a single crack and two wheels with two cracks. HL then subjected the remaining wheels to leak testing that identified 13 additional wheels with cracks. Of these, HL did not identify discrepancies in uniformity in the Akron standard tests. Detailed inspection, leak test, Akron standard test results and other analyses based on these evaluations are provided in Appendix E Engineering Review (Bates numbers 0091-0094.) Ford's assessment of the potential for rapid air loss from a cracked wheel is addressed in response to Request 12.

The 2004 through 2006 model year Expedition SSVs were built with P265/70R17 All Season and All Terrain tires as original equipment. During Ford's wheel evaluation it was found that the Fresno County Sheriff's Department retrofitted these vehicles with an LT-rated tire, reportedly for its durability, load carrying capability, and performance in off-road driving situations. LT-rated tires are constructed with a stiffer sidewall than P-rated tires to improve their load capacity. However as a consequence, the stiffer sidewall construction of the LT tire introduces a higher load and stress into the wheel where the tire bead seats. The wheels installed on these Expedition SSVs were designed for P-metric tires, not LT-rated tires. The Owner Guide provided with each Expedition specifies that only P-rated replacement tires of similar design and construction to those originally installed on these vehicles should be used.

HL conducted A-to-B tests comparing wheels equipped with LT-rated tires to those equipped with P-metric tires and measured a 20% increase in load and a 20% reduction in B10 life (50% confidence) versus an equivalent size P-metric tire. All wheels were tested to failure and the failure mode observed from the Fresno County Sheriff Department's wheels was reproduced. Tire pressure was also monitored during the tests and only slow losses in pressure were observed – no rapid pressure losses were found.

Request 11

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), and month/year of 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), and the address(es) where the components are/were manufactured. 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, Ford service parts are sold in the U.S. to authorized Ford and Lincoln-Mercury 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 requested information electronically as Appendix J on the enclosed CD.

Request 12

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 that is 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 subject component was malfunctioning; and
- f. The reports included with this inquiry.

Answer

In its January 5, 2009, information request, the agency indicated that it had received three complaints from customers with Expedition SSVs that alleged steel wheel rim fractures. The agency stated that the complainants, when interviewed, reported "the Expedition vehicles experiencing the rim fractures are used in normal police enforcement activities and, when necessary, in emergency response situations and pursuits." Ford specifically and clearly states

in its sales literature that Expedition vehicles equipped with the SSV package are not to be used for high speed pursuit type driving. This type of application often involves extreme maneuvers, excessive speeds, limit handling, and severe usage for which an Expedition, even those equipped the SSV package, is not designed, tested, intended or marketed.

Vehicles designed for high speed law enforcement applications are specifically engineered with additional features to enhance vehicle performance for such usage, including vehicle handling and durability characteristics required by these specific customers. The Ford Crown Victoria Police Interceptor (CVPI), for example, was designed and tested with upgraded brakes, and heavy duty springs and shocks for improved handling at high speeds. The CVPI also incorporates enhanced engine and transmission cooling equipment, heavy duty body mounts, and a reinforced frame for improved durability given the severe usage to which these vehicles are subjected. "Special Service Vehicles," on the other hand, are not engineered or intended for these severe usage applications and do not incorporate enhancements for vehicle handling, durability or performance under these more extreme conditions. Customers that use Expedition SSVs for pursuit purposes, for example, are operating their vehicle in direct contradiction to Ford's unequivocal instructions.

Ford is not alone in this vehicle usage profile distinction, as other vehicle manufacturers also offer similar, usage-specific vehicle packages. For example, a version of the Chevrolet Impala is specifically marketed as a vehicle "designed for police work up to and including high speed emergency vehicle operations." In contrast, a "Special Service" version of the Tahoe is marketed with the following caveat: "This vehicle is not designed nor intended for use in high speed emergency vehicle operations."

Independent law enforcement agencies have also officially recognized the difference between vehicles designed and intended for high speed pursuit applications versus "Special Service Vehicles" that have cargo carrying capability and other attributes, but do not require high performance capabilities. Since 1981, the National Institute of Justice, through its National Law Enforcement and Corrections Technology Center system, has sponsored vehicle evaluations through a partnership with the Michigan State Police in order to ensure that vehicles used by law enforcement agencies provide reliable and safe performance. The results are disseminated to, and used by, state and local law enforcement agencies in an annual "Police Vehicle Evaluation" publication. Law enforcement agencies throughout the country use this independent guide when determining their vehicle purchases.

Recognizing that police vehicles are designed for specific applications, the publication includes a specific "Special Service Vehicle" section where the Michigan State Police provide guidance regarding the use of these vehicles. The preface in this section includes the following excerpt:

"...some law enforcement agencies need a vehicle that has cargo capacity and other attributes, but does not require pursuit capabilities. For this, the manufacturers offer "special service" vehicles. The Michigan Department of State Police presents this information on "special service" vehicles with the caveat that the reader is aware that these vehicles are not engineered for high speed or pursuit driving."

At the top of each individual "special service" vehicle review, readers are again reminded that these vehicles are not designed for high speed or pursuit driving. The 2004 edition of the Police Vehicle Evaluation brochure is included in Appendix K as an example.

Consistent with the Expedition SSV's design and intended use, Ford's experience with fleet customers is that fleets typically use these as support vehicles (e.g., traffic accident scene investigation, K-9 unit transport, moving people and equipment to and from an accident investigation or fire investigation), but not for pursuit.

Expedition Reports

Ford acknowledges that it has received a small number of reports of cracked wheels on Expedition SSVs. A review of the reports provided with this response finds that they relate to slow loss of air pressure and, sometimes, vibration or steering wheel nibble, providing clear indication that service is required. Analysis of wheels found some that exhibited fatigue cracking at the circumferential weld. Such slow loss of pressure is typical of Ford's experience with this subject. Previous investigations by Ford on CVPI vehicles regarding cracked wheels have shown that there is typically slow loss of air pressure providing clear indication that service is required well before any risk of sudden or instant air loss.

Analysis of the reports included in this response finds the same to be true on Expedition SSVs. Ford identified a total of 47 reports where a wheel was replaced due to a wheel crack. Of these, 22 reports do not mention air loss, 19 simply mention air loss with no indication of any sudden or rapid deflation, and five reports mention slow air loss from a cracked wheel. Only one, a warranty claim, describes a "blowout" due to a cracked wheel. For this claim, the customer states the tire "keeps blowing out," which implies that the condition was not, in fact, a blowout or rapid loss of air if the pressure loss was as repeatable as indicated.

Engineering Investigation w/Fresno County Sheriff

As previously indicated, the Fresno County Sheriff's Department contacted Ford concerning slow air leakage attributed to the steel wheels on their Expedition SSVs. While cracked wheels were identified, reports characterized the air loss as slow in nature. Importantly, Ford found that the OEM P-metric tires on the vehicles had been replaced with LT tires. Ford specifies only P-rated tires for use on these vehicles. Testing found that the LT-rated tire, with its stiffer sidewall construction, creates a 20% greater stress into the wheel rim. The higher associated load increases the potential for these wheels to crack.

Summary

While Ford believes that wheel cracks may lead to customer dissatisfaction, this condition does not pose an unreasonable risk to motor vehicle safety in these vehicles. A wheel crack may result in slow, repeated air loss and vibration or steering wheel nibble indicating that service is needed. Even if a vehicle continues to be operated with a cracked wheel, the crack may continue to slowly propagate, and the rate of air loss may increase, though still providing indication that service is needed. The lack of reports of rapid air loss or related accidents supports this assessment.

As the agency is aware, Ford previously conducted a recall for steel wheels installed on certain CVPI vehicles. Though Ford had not identified an unreasonable risk to safety in that lengthy and thorough investigation, Ford recalled wheels used specifically in severe service conditions such as high speed police pursuit driving that involve extreme maneuvers, excessive speeds, limit handling, and severe usage. As stated above, the Expedition SSV is not designed or intended to be used in these types of applications and is distinctly different from CVPI vehicles recalled by Ford. The Expedition SSV is not designed, tested, intended, or marketed for such use. Though a cracked wheel may occasionally occur on these vehicles during usage for which they were intended, the reports clearly indicate that it manifests itself in a manner that is

identifiable to a driver well before the risk of more rapid air loss to occur. Consideration of each of these factors supports a conclusion that this condition in these vehicles does not present an unreasonable risk to safety.

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