Ford Motor Company

James P. Vondale, Director
Automotive Safety Office
Environmental & Safety Engineering

December 2, 2003

Ms. Kathleen C. DeMeter, Director
Office of Defects Investigation Safety Assurance
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington D.C. 20590

Dear Ms. DeMeter:

Subject: PE03-044:NVS-213day

The Ford Motor Company (Ford) response to the agency's October 10, 2003 letter requesting information concerning allegations of accelerator pedal assembly failures on 1999 through 2003 F-Super Duty and Excursion vehicles equipped with diesel engines is attached. Answers to all requests are included in this response along with non-confidential documents and information. Confidential information and documents will be submitted under separate cover to the Office of the Chief Counsel in accordance with Part 579.

Ford has thoroughly investigated reports of electronic throttle control (ETC) accelerator pedal malfunctions and finds that there is no basis to conclude the identified condition constitutes a safety related defect. As was previously concluded in the investigation leading to Ford Field Service Action 03B03, and as evidenced by Ford's thorough investigation in the preparation of this response, an ETC accelerator pedal malfunction does not create an unreasonable risk of accidents or injuries. The field data consistently show that malfunction of an ETC accelerator pedal results in the throttle returning to idle, thus preserving power assist for braking and steering, as well as limp to the side of the road capability. The condition does not cause stall or unwanted acceleration. Further, the condition is normally resolved by allowing the pedal to return to the idle position.

Analysis of the data submitted to the agency gathered during this investigation has identified many potential conditions that can result in an ETC accelerator pedal system replacement on the subject vehicles. Those conditions may or may not include a verifiable malfunction of the accelerator pedal assembly and may or may not relate to engine performance. For example, the assembly may be replaced if a customer believes it is making noise or does not have a smooth feel.

Review of warranty claims indicates that accelerator pedals may also be replaced for a variety of engine performance reasons, sometimes appropriately and other times not. While good warranty practice requires a faithful examination of diagnostic codes prior to replacing powertrain control module (PCM) monitored components, the search for accelerator pedal codes is often not

referenced in warranty reports. Ford has found that accelerator pedals are often inappropriately replaced to resolve such concerns as no start, rough idle, engine surging, and lack of power. These inappropriate replacements are, in fact, verifiable from information available in warranty claims and several examples are included in this response.

Ford acknowledges that some of the AWS claims carry a diagnostic code consistent with a fault in the signal received by the PCM from the pedal. The fault code may indicate a permanent or intermittent failure in the pedal assembly that could cause the engine to go to idle. Engineering analysis has determined that conditions such as over travel of the pedal (i.e. excessive force on the pedal pad) can interrupt the pedal voltage signal and put the vehicle into an idle state. Excessive side loading of the accelerator pedal may also cause a similar condition. In most cases, these conditions are intermittent, with full pedal function restored after the pedal is returned to the idle position.

Ford does not believe there is any type of malfunction of the accelerator pedal assembly that can cause a vehicle stall condition. By design, the PCM manages fuel flow and there is no logic in its interaction with the accelerator pedal to stop fuel flow entirely. Ford also believes that allegations of unwanted acceleration cannot be attributed to a malfunction of the accelerator pedal assembly. An ETC system does not directly control engine speed. The PCM controls fuel flow based on the voltage signal supplied by the accelerator pedal and numerous other inputs. Only an increase in voltage from movement of the accelerator pedal, in proper relationship to the idle validation switch, can cause the PCM to increase fuel flow. While pedal assembly malfunctions may result in the engine returning to idle, they do not result in unwanted acceleration or stall.

After thoughtful consideration, Ford believes the lack of related accidents and injuries, in spite of the number of claims and reports, demonstrates that the alleged accelerator pedal malfunction does not identify a safety risk. While the number of claims and reports is an undesirable condition, the rate alone does not provide evidence of an unreasonable risk to motor vehicle safety.

Sincerely,

James P. Vondale

Attachment

ATTACHMENT
December 2, 2003

# FORD MOTOR COMPANY (FORD) RESPONSE TO PE03-044

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 every effort to provide thorough and accurate information, and we would be pleased to meet with agency personnel to discuss any aspect of this inquiry.

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, as more fully described in this response. 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.

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 October 10, 2003, the date of your inquiry. Ford has searched business units and/or affiliates within the following offices for responsive documents: Environmental and Safety Engineering, Ford Customer Service Division, Marketing and Sales Operation, Purchasing, Quality, Research, Global Core Engineering, Office of the General Counsel, and North American Truck 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. The part number of the pedal assembly the vehicle was manufactured with, or other description that can be used to distinguish the pedal assembly;
c. Date of manufacture;
d. Date warranty coverage commenced; and
e. 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 "ProductionDataResponse." See Enclosure 1, PE03-044 Data Submission Disc, for a pre-formatted table which provides further details regarding this response.

Answer

Ford records indicate that the approximate total number of subject 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 the Virgin Islands) are as follows:

| | 1999 MY | 2000 MY | 2001 MY | 2002 MY | 2003 MY |
|---|---|---|---|---|---|
| F Series Super Duty (fixed pedal) | 300,139 | 252,586 | 215,538 | 152,852 | 127,880 |
| F Series Super Duty (adj. Pedal) | N/A | N/A | N/A | 58,119* | 70,289* |
| Excursion (fixed pedal) | N/A | 14,672 | 13,103 | 856 | 723 |
| Excursion (adj. pedal) | N/A | N/A | N/A | 11,784* | 10,874* |

N/A = Not available
*Includes vehicles in Field Service Action (FSA) 03B03 (approximately 101,000 units).

The specific vehicle information requested by the agency has been provided electronically in Appendix A (file: 2003-11-21_Appendix_A) on the enclosed CD.

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 potentially involving the alleged defect and any related documents, Ford has gathered "owner reports" and "field reports" maintained by Ford Customer Service Division (FCSD), Intensified Customer Concern Definition (ICCD) data maintained by Ford's Quality Office, fleet reports maintained in a Fleet Test Database, 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 ICCD and the Fleet Test Database systems, and the criteria used to search each of these are provided electronically in Appendix B (file: 2003-11-21_Appendix_B) on the enclosed CD.

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

| Category | Allegation |
|---|---|
| A1 | The vehicle allegedly accelerates without the accelerator pedal being depressed or when pedal is released |
| A2 | Vehicle allegedly fails to accelerate (remains at idle, stalls) when the accelerator pedal is depressed |
| A3 | Vehicle allegedly decelerates (goes to idle, stalls) when accelerator pedal is depressed or held open |
| B | Allegation of unwanted idle, surge, stumble, hesitation, lost power, or stall when accelerator pedal is depressed or held open that cannot be determined to be attributed to the subject component* |

*We are providing electronic copies of these reports 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.

On February 26, 2003, Ford announced FSA 03B03 to replace adjustable accelerator pedals on F Super Duty and Excursion vehicles because of grease migration internal to that accelerator pedal assembly that could result in an accelerator pedal fault. The fault could direct the powertrain control module (PCM) to return the vehicle to an idle state, as designed. For expediency in preparing this response, except where noted, items responsive to subparts "a" through "f" of Request 2 that are related to vehicles included in the FSA are excluded from this response because any alleged malfunction related to that condition was previously addressed. We have, however, provided information concerning accidents allegedly related to accelerator pedal sensor malfunction on vehicles included in the FSA as discussed later in our response to this request. We will provide copies of these non-accident reports and claims upon request.

Owner Reports: The search and review of the Ford Master Owner Relations Systems (MORS) database records, as described in Appendix B, identified the following number of owner reports in accordance with the categories described above:

| Category | A1 | A2 | A3 |
|---|---|---|---|
| Reports | 4 | 93 | 16 |

Copies of these owner reports are provided in the MORS III portion(s) of the electronic database contained in Appendix C (file: 2003-11-21_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 is marked accordingly, and the group is 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, Litigation Prevention. To the extent that responsive (i.e., not ambiguous) owner reports reflect that they are Legal Contacts, Ford has gathered the related files that could be located from the Litigation Prevention section. Based on this search, six files were identified. Three of these six files are provided in Appendix D1. Two of the six files (Paychex and Grimes) are being provided under the VOQ data section of this response as these files relate to the VOQs for VIN 1FTNW21F21ED26258 and VIN 1FMSU43F22EB40332, respectively. Ford was not able to locate the Litigation Prevention file pertaining to James Buck Construction, VIN 1FTSW31F91EB71913. Ford further notes that the Paychex Litigation Prevention file and the Hudson and Pearah files from the lawsuit and claims log all relate to the same incident.

ICCD Information: A search of the ICCD database as described in Appendix B located five reports that may relate to the alleged defect, and 21 reports that are ambiguous as to whether they relate to the alleged defect. These reports are provided in Appendices E1 and E2, respectively.

Fleet Reports: In addition to fleet reports that may be contained in the owner reports or field reports identified in this response, Ford conducted a search of its Fleet Test Database as described in Appendix B for reports that may relate to the alleged defect in the subject vehicles. No fleet reports were identified in the search.

Field Reports: The search and review of the Ford Common Quality Indicator System (CQIS) and Unified Database (UDB) records, as described in Appendix B, identified the following number of field reports, excluding duplicates, in accordance with the categories described above:

CQIS

| Category | A1 | A2 | A3 |
|---|---|---|---|
| Reports | 0 | 322 | 56 |

Copies of these field reports are provided in the CQIS portion of the electronic database contained in Appendix C. 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 is marked accordingly, and the group is 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.

Unified Database: The Unified Database (UDB) was created to facilitate parts availability by tracking part sales and is not intended as a problem reporting system. However, because a small percentage of the records may contain verbatim comments that could potentially relate to the agency's inquiry, we are including these in response to Request 2. Nonetheless, a search of UDB, as described in Appendix B, was conducted. Copies of potentially relevant reports and ambiguous reports are provided in the UDB portion of the electronic database contained in Appendix C on the enclosed CD.

UDB

| Category | A1 | A2 | A3 |
|---|---|---|---|
| Reports | 0 | 725 | 100 |

The categorization of each report is identified in the "Category" field. When we were able to identify that responsive (i.e., not ambiguous) duplicate UDB reports for an alleged incident were received, each of these duplicate reports is marked accordingly, and the group is 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.

VOQ Data: This information request had an attachment that included six Vehicle Owner Questionnaires (VOQs), with five unique VINs. The agency later provided Ford with an additional ten VOQs, for a total of fifteen unique VINs. Ford made inquiries of its MORS database for customer contacts, and its CQIS database for field reports regarding the vehicles identified in the VOQs. Any reports located on a vehicle identified in the VOQs related to the alleged defect are included in the MORS and CQIS portions of the electronic database provided in Appendix C and have been identified by a "Y" in the "VOQ Dup" field.

Additionally, Ford located six Litigation Prevention files regarding the vehicles identified in the VOQs. Copies of these files are provided in Appendix D2. Ford notes that two of these files (Paychex and Grimes) are also referenced in the Legal Contacts section of this response.

Crash/Injury Incident Claims: For purposes of identifying alleged accidents or injuries potentially related to the alleged defect, Ford has reviewed responsive (i.e., not ambiguous) owner and field reports, lawsuits and claims, and warranty claims. Based on a reasonable and diligent search, Ford located five owner (MORS) reports [VINS: 1FMSU43F71EB37893, 1FTNX21F61EC08856, 1FTNW21F21ED26258 (Hudson), 1FTSW31F91EB71913, 1FDWX37F51EA34548], no field (CQIS) reports, no warranty claims, and three lawsuits and claims [VINS: 1FTNW21F21ED26258 (Hudson, one lawsuit and one claim), 1FTSF31F52EA50233], alleging an accident that may be related to the alleged defect. The owner and field reports and warranty claims are included in the MORS, CQIS, and Analytical Warranty System (AWS) portions of the electronic database provided in Appendix C. Lawsuit and claim information is provided as described below in "Claims, Lawsuits, and Arbitrations."

Additionally, Ford did review owner reports, field reports, warranty claims, and lawsuits and claims included in the FSA 03B03 population for allegations of an accident related to the alleged defect. Ford located four owner (MORS) reports in the FSA 03B03 population [VINS: 1FMSU43F22EB40332, 1FTSW31F42EB67561, 1FTSX31F02ED58052, 1FTSW31F33EA79344] alleging an accident that may be related to the alleged defect. Ford was able to locate one litigation prevention file and no lawsuits and claims. The owner reports are included in the electronic database provided in Appendix C1.

Claims, Lawsuits, and Arbitrations: For purposes of identifying incidents potentially related 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 two lawsuits and one claim that appear to relate to the alleged defect in the subject vehicles. Ford has also located other lawsuits, claims or consumer breach of warranty lawsuits each of which is ambiguous as to whether it meets the alleged defect criteria. We have included these lawsuits and claims as "non-specific allegations" for your review because of the broad scope of the request. Based on our engineering judgment, the information in these lawsuits and claims is insufficient to support a determination that they pertain to the alleged defect. We are providing the requested detailed information, where available, on the responsive and ambiguous lawsuits and claims, along with our Log of Lawsuits and Claims, as Appendix F. 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;
l. Number of alleged fatalities, if any; and
m. Summary.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "ResponseTwoData." See Enclosure 1, PE03-044 Data Submission Disc, for a pre-formatted table which provides further details regarding this response.

Answer

The requested information, to the extent available, is provided in Appendices C through F as discussed in response to Request 2.

Request 4

Produce copies of all documents within the scope of Request No. 2 that are related to items 'c' and 'd' only (crash, injury, fatality or property damage claims). Organize the documents separately by category (i.e., crash injury fatality, property damage.) and

describe the method Ford used for organizing the documents within the category (i.e., by file number, by incident date, etc).

Answer

Copies of reports and claims identified in our response to Request 2 are provided electronically, as identified below.

| Category | Method of Organization |
|---|---|
| Owner Reports | Appendix C (electronic) |
| Field Reports | Appendix C (electronic) |
| Unified Database Reports | Appendix C (electronic) |
| VOQ Data | Appendix C (electronic) |
| Legal Contacts | Appendices D1 and D2 |
| ICCD Reports | Appendices E1 and E2 |
| Non-privileged Lawsuit and Claim Information | Appendix F |

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 information:

a. Ford's claim number;
b. Vehicle owner or fleet name (and fleet contact person) and telephone number,
e. 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 "WarrantyResponse." See Enclosure 1, PE03-044 Data Submission Disc, for a pre-formatted table which provides further details regarding this response.

Answer

In responding to this information request, Ford electronically searched its Analytical Warranty System (AWS) for all claims meeting the criteria described in Appendix B. The resulting claims were then reviewed individually for allegations that may relate to the alleged defect. This search and review of the Ford AWS database records identified the following number of non-duplicative warranty claims in accordance with the categories described above:

| Category | A1 | A2 | A3 |
|---|---|---|---|
| Reports | 15 | 8287 | 1095 |

Electronic copies of these claims are provided in the AWS portion of the electronic database contained in Appendix C. 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 is marked accordingly and the group is 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.

As previously stated, except for accidents and injuries, Ford did not electronically search its Analytical Warranty System (AWS) for all claims meeting the criteria described in Appendix B for FSA 03B03. However, all claims were collected and are available upon the agency's request.

The requested customer concern codes and the warranty condition codes are provided in Appendix B.

Requests for "goodwill, field, or zone adjustments" received by Ford to date that relate to the alleged defect in the subject vehicles that were not honored, if any, would be indicated in the MORS reports identified above in response to Request 2. Requests for goodwill that were honored, if any, are contained 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. State by option (e.g., engine, transmission, etc), 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

The search criteria used by Ford to identify responsive claims is described in the AWS section of Appendix B.

All 1999 through 2003 model year F-Super Duty and Excursion vehicles include the following warranty coverages:

- 36 month/36,000 miles; bumper-to-bumper

- 60 month/50,000 miles; safety restraint system
- 60 month/unlimited mileage; corrosion (perforation only)
- 60 month/100,000 miles; limited PowerStroke diesel engine

Request 7

Further to the telephone conference held between ODI and ASO on September 24, 2003, provide a technical description of the different types of ETC systems used on the subject vehicles. Include in this response a description of how the overall ETC system works, a description of how the pedal assembly works (including any switches, sensors, and or potentiometers used in the assembly), the names or acronyms Ford uses to refer to the various systems and components that make up the systems, approximate dates where relevant system changes occurred (including supplier changes, new system introductions, and new component introductions including PAP), and any models other than the subject vehicles that also use the same (or similar) ETC system.

Answer

There are three types of electronic throttle control (ETC) systems used on the vehicles included in this IR. Each of these systems uses a potentiometer type sensor mounted in the accelerator pedal assembly. As the accelerator pedal is depressed, in each of the systems, the accelerator position (AP) sensor outputs a proportional voltage in relation to the movement of the pedal. The amount of fuel delivered to the engine is determined based on inputs from the pedal assembly and various other sources of input, such as engine temperature and ambient temperature, which are processed by the PCM.

In concert with the potentiometer is a control strategy to maintain the integrity of the voltage signal read by the PCM. As noted, in the Ford vehicles included in this IR, three varieties of ETC systems (known as generations) are used. They are described below:

The system used in the 1999 and 2000 model years, all of which are equipped with 7.3L diesel engines (1st generation system - all fixed pedals) consisted of an idle validation switch (IVS) and AP sensor (or potentiometer). In this mechanical IVS system a lever arm in the pedal assembly throws the switch to "closed" as it begins a sweep across the potentiometer. The switch returns to "open" when the pedal is released (i.e., pedal is in the idle position). The PCM will only act on the signal from the potentiometer when the switch is closed in the proper relationship to the AP. The 1st generation system processes electrical signals through two connectors (a two pin IVS and a three pin AP).

The system on vehicles from 2001 through early 2003 model year, all of which are equipped with 7.3L diesel engines, (2nd generation system) uses the same logic and controls as the 1st generation; however, the 2nd generation system uses an integrated, rather than independent IVS. These vehicles can be equipped with either fixed pedals, or beginning at Job #1, 2002, with optional adjustable pedals. In the 2nd generation design, a brush sweeps an arc across a circuit board much like the potentiometer. As the brush makes contact with conductive material (i.e., accelerator pedal is depressed), the switch is "closed" and the signal from the potentiometer is read. The switch returns to open when the pedal is released. The PCM will only act on the signal from the potentiometer when the switch is closed in the proper relationship to the AP. The 2nd generation system uses five pins of a single ten pin connector.

The 3rd generation system was introduced during the 2003 model year with the 6.0L diesel engine (November 5, 2002), and does not use an IVS but rather three potentiometers to output a proportional voltage relative to accelerator position to the PCM. This system is used on both the fixed and optional adjustable pedals. Voltage signals between the three potentiometers are constantly verified by strategy in the PCM. As long as the signals are in a specified range, the PCM acts on the signals from the pedal assembly and the appropriate amount of fuel is released. The 3rd generation system uses seven pins of a ten pin connector.

To comply with FMVSS 124, interruption of the AP or IVS signal in 1st or 2nd generation, or two AP signal interruptions in the 3rd generation of ETC system, will cause the vehicle engine to go to idle regardless of accelerator pedal position. With the 1st and 2nd generation systems, an IVS signal that reads open or a potentiometer voltage that reads out of range (high or low) will signal the system to go to idle. The 3rd generation system differs, in that as long as any two potentiometers continue to function within expected parameters, there is no interruption of fuel flow even though a signal fault is recognized. If a second potentiometer track malfunctions, the PCM will command the system to idle.

With any of the three generations of ETC systems, an intermittent fault will allow the pedal to reset when returned to the idle position. Normal function will be restored unless another fault is detected. Whenever the PCM detects a fault, a fault code is recorded and stored in the PCM memory for a limited number (40) of vehicle warm up cycles.

Other Ford products that use similar ETC designs are 1995 through 2004 Econoline vehicles with diesel engines (1st and 2nd generation), 2003 Lincoln LS and Thunderbird vehicles (3rd generation), and 2004 Ford F150 and Explorer/Mountaineer vehicles (3rd generation). Teleflex, who recently purchased Williams Controls, supplies both the fixed and adjustable pedal assemblies.

Request 8

> 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 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 the 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, Internal Service Messages, and the Field Review Committee files and the search criteria used are provided in Appendix B.

OASIS Messages: Ford has identified one SSM and no TSBs that may relate to the alleged defect in the subject vehicles and is providing a copy of it in Appendix G.

Internal Service Messages: Ford has identified no ISMs that may relate to the alleged defect in the subject vehicles.

Field Review Committee: Ford has identified one field service action communication (03B03) that may relate to the alleged defect in the subject vehicles and will be submitting said documents with a request for confidentiality under separate cover as Appendix H to the NHTSA's Office of the Chief Counsel pursuant to 49 CFR, Part 512.

Request 9

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. Include in this response any such actions related to the 03B03 ONP Ford is conducting. 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 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 documentation in Appendix I.

Ford notes that it is not producing certain confidential raw test data concerning infrared molecular vibrational spectra that may be responsive to this request, because the information cannot be viewed without the use of proprietary software, and because it is likely that an analysis of the raw data is included in other documents that have been or are being provided.

Ford is not providing documents responsive to this request that contain information protected by the attorney-client privilege and/or work-product doctrine. Such documents are described in a privilege log that will be provided at a later date under separate cover as Appendix J.

Ford also notes that it has produced, or likely will produce, certain additional documents in the Hudson litigation that primarily address issues beyond the scope of this inquiry. Should the agency wish to obtain such documents, Ford will produce them upon request.

Ford will be submitting additional documents (paper and electronic) with a request for confidentiality under separate cover as Appendix K to the NHTSA's Office of the Chief Counsel pursuant to 49 CFR, Part 512.

Request 10

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 components, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:

a. The date or approximate date on which the modification or change was incorporated into vehicle production;
b. A detailed description of the modification or change;
c. The reason(s) for the modification or change;
d. The part numbers (service and engineering) of the original component;
e. The part number (service and engineering) of the modified component;
f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
g. When the modified component was made available as a service component; and
h. Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that Ford is aware of which may be incorporated into vehicle production within the next 120 days.

Answer

Information concerning changes to the subject assembly is provided electronically as Appendix L (file: 2003-11-21_Appendix_L) on the enclosed CD.

Request 11

Produce one of each of the following:

a. Exemplar samples of each service part of the subject component, except for Ford service part numbers 2C3Z-9F836-DE and 1C3Z-9F836-BA;
b. Field return samples of subject components which are expected to exhibit the subject failure; and
c. Any kits that have been released, or developed, by Ford for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

Answer

Ford has included, with its submission, a sample of each of the three generations of fixed accelerator pedal assemblies covered in this inquiry. Also, Ford has requested parts from the field that exhibit the alleged condition and will send them at a future date. No kits have been released, or developed, by Ford for use in service repairs to the subject assembly.

Request 12

State the number of each of the following 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 sale (including the cut-off date for sales, if applicable):

a. Subject components; and
b. Any kits that have been released, or developed, by Ford for use in service repairs to the subject components/assemblies.

For each component part number identified, 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, 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 on which a particular part was installed, or the reason that the installation was made.

Ford is providing in electronic form in Appendix M (file: 2003-11-21_Appendix_M) on the enclosed CD the total number of Ford service replacement fixed and adjustable accelerator pedal assemblies for the 1999 through 2003 model year F-Super Duty and Excursion vehicles by part number and calendar year of sale. Service part sales by month are also provided where available. The supplier name and contact information is also provided in this appendix.

Based on information contained in Ford's Materials Management Process System that maintains parts sales and inventory information, none of the parts identified are sold in any other service kits, and no kits have been developed or released by Ford to service the subject components.

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 that it poses;
e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
f. The reports included with this inquiry.

Answer

Ford has thoroughly investigated reports of ETC accelerator pedal malfunctions and find that there is no basis to conclude the condition identified constitutes a safety related defect. As was previously concluded with FSA 03B03, an ETC accelerator pedal malfunction does not create

an unreasonable risk of accidents or injuries. The field data consistently shows that malfunction of an ETC accelerator pedal results in the throttle returning to idle, thus preserving power assist for braking and steering as well as limp to the side of the road capability. The condition does not cause stall or unwanted acceleration. Further, the normal function is typically restored by returning the pedal to the idle position.

As described in Ford's response to Request 7, depressing the accelerator pedal sends a voltage signal to the PCM, which then commands fuel flow from the fuel pump. If that voltage signal deviates from established parameters, the PCM directs the fuel pump to decrease fuel flow, which causes the engine to return to idle. This strategy is consistent with FMVSS 124 requirements that states, "The throttle shall return to the idle position from any accelerator position and from any speed whenever any one component of the accelerator control system is disconnected or severed at a single point."

Ford's analysis of the data submitted to the agency gathered during this investigation has identified many potential conditions that can result in an ETC accelerator pedal system replacement on the subject vehicles. Those conditions may or may not include a verifiable malfunction of the accelerator pedal assembly and may or may not relate to engine performance. For example, the assembly may be replaced if a customer believes it is making noise or does not have a smooth feel.

Ford's analysis of warranty claims indicates that accelerator pedals may also be replaced for a variety of engine performance reasons, sometimes appropriately and other times not. While good warranty practice requires a faithful examination of diagnostic codes prior to replacing PCM monitored components, the search for accelerator pedal codes is often not referenced in warranty reports. Ford has found that accelerator pedals are often inappropriately replaced to resolve such concerns as no start, rough idle, engine surging, and lack of power. These inappropriate replacements are, in fact, verifiable from information available in warranty claims.

For example: VIN 1FTNX21F8XEA03127, a 1999 F250 report indicated " CUST. STATES THAT VEHICLE IS RUNNING ROUGH. SEEMS TO SKIP AND SPUTTER." Multiple engine performance diagnostic codes were pulled from the PCM, and although none of them indicated an accelerator pedal fault, the pedal was replaced. Approximately 500 miles later the customer returned with the following comments, "CUST STATES VEHICLE SKIPS AND RUNS POOR." Powertrain components, including fuel injector nozzle assemblies, were then replaced. The vehicle ran 60,000 additional miles before any further warranty repair was performed for driveability concerns.

VIN 1FTNX20F01EA24627, a 2001 model year F250 report noted, " GAS PEDAL HAS VIB ABOVE 50 MPH." No fault codes related to the ETC were noted but the accelerator pedal was replaced. Over the next 500 miles, the customer returned twice with the same complaint. Subsequently, tires were replaced and wheels balanced. No further warranty was performed for this concern.
VIN 1FTNF20P03EC15401, a 2003MY F250 report commented "CHECK HESITATES ON ACCEL." The accelerator pedal was replaced. There was no indication that PCM diagnostics were run. Approximately 1,600 miles later the customer returned with the following comment: "CHECK TRUCK HAS SLOW ACCEL." The PCM was recalibrated on that occasion, with no pedal replacement. There were no subsequent comments for acceleration concerns in the warranty records.

Ford acknowledges that some of the AWS claims carry a diagnostic code consistent with a fault in the signal received by the PCM from the pedal. The fault code may indicate a permanent or intermittent failure in the pedal assembly that could cause the vehicle to go to idle. Engineering analysis has determined that conditions such as over travel of the pedal (i.e., excessive force on the pedal pad) can interrupt the pedal voltage signal and put the vehicle into an idle state. Excessive side loading of the accelerator pedal may also cause a similar condition. In most cases, these conditions are intermittent, with full pedal function restored after the pedal is returned to the idle position.

Earlier this year, investigations found that grease migration from the IVS to the potentiometer on adjustable pedals on certain 2002 and 2003 F Super Duty and Excursion vehicles equipped with the 2nd generation system could, over time, corrupt the voltage signal to the PCM, causing the system to return the engine to idle. Because of the rate of complaints, Ford initiated a field service action to address these issues (03B03) on February 26, 2003. As of the second week of November 2003, approximately 40% (41k of 103k vehicles) had received an accelerator pedal replacement under the program. The program continues through March 2004.

Other causal factors may generate accelerator fault codes, as well. For instance, certain 2002 model year Super Duty vehicles, with a build date prior to December 1, 2001, may exhibit accelerator fault codes for wire chafing in the 14401 wiring harness or damage to the accelerator pedal circuits at the connector (SSM 16913). There is also an engineered condition on the 7.3L diesel where, if the pedal is depressed during start up, the PCM will prevent rpm boost until the pedal is returned to the idle position. At start up, the 6.0L diesel will not accept any condition, other than idle, regardless of the pedal position. It takes subsequent movement of the pedal to boost rpm above idle. These start up conditions are intended operations of the system and do not produce fault codes; however, an operator may interpret such an occurrence as an intermittent malfunction.

Of the six VOQs submitted with this inquiry (one duplicative) and additional ten VOQ's subsequently provided by the agency, there were no allegations of a stall. VOQ 890604 alleged "VEHICLE HAS NO POWER." Warranty records show that diagnostic pedal codes were stored in the PCM of this customer's vehicle and the pedal was replaced. These codes are consistent with a sensor malfunction that would result in the engine returning to idle. Ford does not believe there is any type of malfunction of the accelerator pedal assembly that can cause a vehicle stall condition. By design, the PCM manages fuel flow, and there is no logic in its interaction with the accelerator pedal to stop fuel flow entirely. It is likely reports of stall are either driver interpretations of no accelerator pedal response or concerns of engine performance that are unrelated to the accelerator pedal.

It should be noted that none of the six VOQs (one duplicative) in the inquiry reported unwanted acceleration as the alleged vehicle failure. Of the additional ten VOQs sent to Ford, three alleged a condition of unwanted acceleration or lack of deceleration. Ford does not believe that any of these three are in any way related to a malfunction of the accelerator pedal assembly. Analysis of these three follows:

One customer alleged an inability to decelerate (VOQ 10023047) while the cruise control was engaged. The accelerator pedal signal is not actively involved in engine control when the vehicle is operating with the cruise control engaged. In this operation, the accelerator pedal rests in the idle position and the pedal signal is bypassed. The pedal assembly will not return to function until either the pedal is depressed enough to send a voltage signal in excess of the set cruise control speed or the cruise control is disengaged.

Regarding the other two VOQs alleging unwanted acceleration, on April 25, 2003 VOQ 10016885 stated, "THE TRUCK DID NOT MOVE, AND 1 SEC AFTER I LET GO OF THE GAS PEDAL THE TRUCK TOOK OFF BY ITS SELF." No accident was noted in the VOQ. Warranty records show that on April 28, 2003 the customer requested warranty work for drivability concerns. A fuel injector nozzle assembly and ICP sensor were replaced along with vehicle recalibration. The accelerator pedal was not replaced. On June 26, 2003 VOQ 10023867 alleged, "NO RESPONSE UNTIL YOU LET OFF, THEN THE VEHICLE LUNGES FORWARD...." Warranty record show that on June 30, 2003 the vehicle was in for warranty where a PCM recalibration was performed. The accelerator pedal was not serviced then, or during subsequent visits.

As evidenced by the circumstances of the events and repair work performed on the vehicles, Ford believes that allegations of unwanted acceleration, such as these, cannot be attributed to a malfunction of the accelerator pedal assembly. As previously mentioned the accelerator pedal in an ETC vehicle does not directly control engine speed. The PCM controls fuel flow based on the voltage signal supplied by the accelerator pedal. Only an increase in voltage from movement of the accelerator pedal, in proper relationship to the IVS, can cause the PCM to increase fuel flow. If that voltage signal exceeds the range of the accelerator potentiometer (i.e. wiring short to power) the logic of the system will cause the vehicle to go to an idle state. Ford has found no evidence to suggest that the system is not functioning as intended. While pedal assembly malfunctions do result in the engine returning to idle, they do not result in unwanted engine power.

When Ford determined field action was warranted for 2002/2003 model year F Super Duty and Excursion vehicles, the R/1000 rate for AWS claims on these vehicles was approximately 120 R/1000. The R/1000 rate for responsive AWS claims on the vehicles outside the FSA is approximately 8.2 R/1000 average, peaking in the 2002 model year with approximately 14.7 R/1000. While this rate may be higher than desired, it is significantly less than the R/1000 rate that led to the customer satisfaction program.

Ford has searched for responsive allegations of accidents, injuries, or fatalities on the subject vehicles. A word search of all MORS, CQIS, UDB, and AWS claims in both the non-recall and recall population revealed only one claim of serious accident or injury and it is not likely that the accident actually occurred as a result of any issue related to the accelerator pedal. The agency submitted this claim (Hudson, VIN 1FTNW21F21ED26258) with the additional ten VOQs filed with this inquiry. A review of the lawsuits and claims identified three responsive reports, two of which the Hudson case mentioned above.

With respect to the Hudson case, the driver of the vehicle attempted to turn left in front of oncoming traffic and was issued a citation for failure to yield. The vehicle was impounded for approximately five months before repair. The scope of the engine and body work done during the vehicle repairs suggest that the battery of the vehicle was disconnected, which would have cleared any diagnostic codes that may have been present at the time of the accident. After repairs were made, and before the vehicle was placed back in service, there was a report of an alleged failure to accelerate upon depressing the accelerator pedal. A service technician at the dealership discovered a malfunction code that indicates a problem in the electrical circuit that includes, among other things, the circuitry for the pedal assembly unit. Because of the loss of any stored PCM codes that may have existed prior to the accident and the extensive vehicle front end damage resulting from the accident, it is not presently known whether the diagnostic code indicating a possible malfunction in the accelerator pedal assembly was present

immediately before the accident, or if such a diagnostic code could have arisen as a result of damage sustained in the accident.

The other responsive claim represents a lemon law complaint related to customer dissatisfaction with the dealership's inability to correct the alleged problem to the customer's satisfaction.

After thoughtful consideration, Ford believes the lack of responsive lawsuits, accidents, and injuries, in spite of the number of claims and reports, demonstrates that the alleged accelerator pedal malfunction does not identify a safety risk. While the number of claims and reports is an undesirable condition, the rate alone does not provide evidence of an unreasonable risk to motor vehicle safety.

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