



Wayne E. Bahr, Global Director
Automotive Safety Office
Sustainability, Environment & Safety Engineering

Fairlane Plaza South, Suite 400
330 Town Center Drive
Dearborn, MI 48126-2738

December 9, 2016

Mr. Michael Brown, Acting Director
Office of Defects Investigation
Office of Enforcement
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE, Room W48-336
Washington, DC 20590

Dear Mr. Brown:

Subject: RQ16-001:NEF-120mjl

The Ford Motor Company (Ford) response to the Agency's letter (received October 21, 2016) concerning reports of allegations of sudden loss of brake effectiveness on 2015 and 2016 model year Ford F-150 pickup trucks equipped with 3.5L GTDI engines (subject) and all other engines (peer) is attached.

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

Sincerely,

A handwritten signature in blue ink that reads "W. E. Bahr".

for Wayne E. Bahr

Attachment

FORD MOTOR COMPANY (FORD) RESPONSE TO RQ16-001

Ford's response to this Recall Query 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 Recall Query.

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.

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 October 21, 2016, the date we received your inquiry. Ford has searched within the following offices for responsive documents: Ford Customer Service Division, Office of the General Counsel, and North American Product Development.

Request 1

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

- a. Vehicle identification number (VIN);
- b. Make;
- c. Model;
- d. Engine (by displacement and company engine code);
- e. Model Year;
- f. Date of manufacture;

- g. Date warranty coverage commenced; and
- h. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide separate tables for the subject and peer vehicles in Microsoft Access 2010, or a compatible format, entitled "PRODUCTION DATA-SUBJECT VEHICLES" and "PRODUCTION DATA-PEER VEHICLES."

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) protectorates, and territories (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and Virgin Islands) is 294,969.

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

Model	2015 MY	2016 MY	Total
Ford F-150 w/ 3.5L V6 GTDI Ecoboost Engine	144,344	150,625	294,969

Ford records indicate that the approximate total number of peer vehicles sold in the United States, (the 50 states and the District of Columbia) protectorates, and territories (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and Virgin Islands) is 667,250.

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

Model	2015 MY	2016 MY	Total
Ford F-150 w/ All Other Engine Types	292,407	374,843	667,250

Brake fluid type DOT 4 was used throughout both 2015 and 2016 model years. The requested data tables in Microsoft Access are provided in Appendix A.

Request 2

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

- a. Consumer complaints, including those from fleet operators;
- b. Field reports, including dealer field reports;
- c. Reports involving a crash, injury, or fatality;
- d. Property damage claims;
- 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 "f," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and Ford's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "f," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

Answer

For purposes of identifying reports of incidents that may be related to the alleged defect and any related documents, Ford has gathered "owner reports" and "field reports" maintained by 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 and the criteria used to search each of these are provided in Appendix B.

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

Category	Allegation
A1	no brake function, no warning light, external master cylinder brake fluid leak
A2	no brake function, warning light, external master cylinder brake fluid leak
A3	no brake function, warning light, internal master cylinder brake fluid "by-pass"
A4	no brake function, no warning light, internal master cylinder brake fluid "by-pass"
A5	intermittent loss of brakes, no warning light, internal master cylinder brake fluid "by-pass"
B1	some brake function, no warning light, external master cylinder brake fluid leak
B2	some brake function, warning light, external master cylinder brake fluid leak
B3	some brake function, warning light, internal master cylinder brake fluid "by-pass"
B4	some brake function, no warning light, internal master cylinder brake fluid "by-pass"
B5	intermittent some brakes, no warning light, internal master cylinder brake fluid "by-pass"

Owner Reports: Records identified in a search of the FMC360 database, as described in Appendix B, were reviewed for relevance and sorted in accordance with the categories described above. The number and copies of relevant owner reports identified in this search for the alleged defect are provided in the FMC360 portion of the two databases, separated by subject and peer vehicles, in the respective 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 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. Ford has not identified any Legal Contacts that are responsive to the Agency's request.

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 sorted in accordance with the categories described above. The number and copies of relevant field reports identified in this search that allege failure of the brake booster seal resulting in brake fluid leakage from the master cylinder into the brake booster, extended brake pedal travel, and/or extended stopping distance in a subject or peer vehicle are provided in the CQIS portion of the database contained in Appendix C. 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 contained 48 unique Vehicle Owner Questionnaires (VOQs), all with full VINs. Ford made inquiries of its FMC360 database for customer contacts, its CQIS database for field reports, and its AWS system for warranty repairs regarding the vehicles identified on the VOQs with full VINs. Of the 48 unique VOQ reports provided by NHTSA, Ford identified 42 reports in its data.

Crash/Injury/Fatality Incident Claims: For subject vehicles, Ford identified two accident allegations with no alleged injuries; and one injury allegation with no alleged accident and no fatalities potentially related to this condition. For peer vehicles, Ford identified seven reports of accidents, two injuries and no fatalities potentially related to this condition. Ford notes that the alleged injuries were minor, and the accidents appear to be relatively low speed and low energy.

Claims, Lawsuits, and Arbitrations: For purposes of identifying incidents that may relate to the alleged defect in a subject vehicle, 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 for relevance and categorized in accordance with the categories described above. 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 in our Log of Lawsuits and Claims, provided in Appendix C in the Legal Claim/Lawsuits section. The number of relevant lawsuits and claims identified is also provided in this log. To the extent available, copies of complaints, first notices, or FMC360 reports relating to matters shown on the log are provided in Appendix D. With regard

to these lawsuits and claims, Ford has not undertaken to contact outside law firms to obtain additional documentation.

Request 3

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

- a. Ford's file number or other identifier used;
- b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
- c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
- d. Vehicle's VIN;
- e. Vehicle's make, model and model year;
- f. Vehicle's mileage at time of incident;
- g. Incident date;
- h. Report or claim date;
- i. Whether a crash is alleged;
- j. Whether property damage is alleged;
- k. Number of alleged injuries, if any; and
- l. Number of alleged fatalities, if any.

Provide this information in separate tables for the subject and peer vehicles in Microsoft Access 2010, or a compatible format, entitled "REQUEST NUMBER TWO DATA- SUBJECT VEHICLES" and "REQUEST NUMBER TWO DATA-PEER VEHICLES."

Answer

Ford is providing owner and field reports in a Microsoft Access database contained in Appendix C in response to Request 2. To the extent information sought in Request 3 is available for owner and field reports, it is provided in the database. To the extent information sought in Request 3 is available for lawsuits and claims, it is provided in the Log of Lawsuits and Claims provided in Appendix C in the Legal Claim/Lawsuits section.

Request 4

Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately for the subject and peer vehicles and by category (i.e., consumer complaints, field reports, etc.) and describe the method Ford used for organizing the documents. Describe in detail the search methods and search criteria used by Ford to identify the items in response to Request No. 2.

Answer

Detailed descriptions of the search criteria used by Ford to identify the items in response to Request 2 are described in Appendix B. Ford is providing owner and field reports in the database contained in Appendix C in response to Request 2. Copies of complaints, first notices, or FMC360 reports relating to matters shown on the Log of Lawsuits and Claims in

Appendix C are provided in the Legal Claim/Lawsuits section in Appendix D. To the extent information sought in Request 4 is available, it is provided in the referenced appendices.

Request 5

State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Ford on the subject components to date that relate to, or may relate to, the alleged defect in the subject and peer 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), street address, email address and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number(s);
- h. Problem code(s);
- i. Diagnostic Trouble Code(s);
- j. Replacement part number(s) and description(s);
- k. Whether there was a claim for a towing expenses on or near the date of the repairs to the subject components;
- l. Concern stated by customer;
- m. Cause as stated on the repair order;
- n. Correction as stated on the repair order; and
- o. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information separately for the subject and peer vehicles in Microsoft Access 2010, or a compatible format, entitled "WARRANTY DATA-SUBJECT VEHICLES" and "WARRANTY DATA-PEER VEHICLES."

Answer

Records identified in a search of the AWS database, as described in Appendix B, were reviewed for relevance and sorted 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 be related to the alleged defect in a subject or peer vehicle are provided in the AWS portion of the two databases contained in the respective Appendix C. The categorization of each report is identified in the "Category" field. All data is in a Microsoft Access format.

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 FMC360 reports identified above in response to Request 2. Such claims that were honored are included in the warranty data provided. Ford assumes that providing the warranty claims in the electronic database format meets the requirements of this request because the Agency can review or order the claims as desired.

Request 6

Describe in detail the search methods and search criteria used by Ford to identify the claims in response to Request No. 5, including the labor operations, problem codes, part numbers and any other pertinent parameters used.

Provide a list of all labor operations, labor operation descriptions, problem codes problem code descriptions applicable to the alleged defect in the subject and peer 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 and peer 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 2015-2016 model year Ford F-150 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) are available to cover various vehicle systems, time in service, and mileage increments. The details of the various plans are provided in Appendix E. As of the date of the information request, 97,479 new vehicle ESP policies had been purchased on 2015-2016 model year Ford F-150 subject and peer vehicles (39,612 subject, 57,867 peer).

Request 7

Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Ford has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Ford is planning to issue within the next 120 days.

Answer

For purposes of identifying communications to dealers, zone offices, or field offices pertaining, at least in part to the alleged defect, 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.

Internal Service Messages: Ford identified one ISM (04-05-037, issued 5-26-04 for all 1995-2015 MY vehicles with vacuum-assisted brake boosters / vacuum brake booster step through diagnosis) that may relate to the Agency's request.

Field Review Committee: Ford has not identified any additional field service action communications beyond NHTSA recall 16V-345.

Ford currently has no plans to issue communications related to the alleged defect that is the subject of NHTSA's investigation. A copy of Ford's Internal Service Message 04-05-037 is provided in Appendix F.

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 documentation in Appendix G.

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 in Appendix H with a request for confidentiality under separate cover to the Agency's Office of the Chief Counsel pursuant to 49 CFR Part 512. Redacted copies of the confidential documents will be provided under separate cover, on separate media, to the Agency's Office of Chief Counsel as Appendix H – Redacted.

In the interest of ensuring a timely and meaningful submission, Ford is not producing materials or items containing little or no 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. If the Agency would like additional materials, please advise.

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 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 number(s) (service and engineering) of the original component;
- e. The part number(s) (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

Ford is providing a table summarizing the requested information in Appendix I for the master cylinder and brake booster assemblies.

The subject brake master cylinder design was also used in certain 2013-2016 Expedition/Navigator vehicles and a summary table showing the part changes for these components is included in Appendix I.

Request 10

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 component/assembly.

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which Ford is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

Answer

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

Ford is providing the total number of Ford service replacement master cylinder and brake booster assemblies by part number (both service and engineering) and year of sale, where available, and supplier point of contact information in Appendix J.

Request 11

Provide a detailed description of the brake system design used in the subject and peer vehicles (i.e., all MY 2015 and 2016 F-150 vehicles). Your response should include descriptions of any similarities and/or differences between the systems.

Answer

Ford is providing information regarding the subject vehicle brake system, the subject components and the alleged defect condition detailed in Appendix K.

For the 2015 - 2016 model years, Hitachi manufactured the master cylinder assembly, and Bosch produced the brake booster assembly. The same parts were used on all 2015-2016 F-150 vehicles regardless of engine type.

Request 12

Provide a detailed description of the brake system design used in the subject vehicles and the vehicles covered by the subject recall (i.e., MY 2013-2016 F-150 vehicles equipped with 3.5L engines). Your response should include descriptions of any similarities and/or differences between the systems.

Answer

Ford is providing a summary table that describes the brake system design in Appendix K.

Request 13

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

- a. The root cause and all 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;
- f. The VOQ reports referenced in this inquiry; and
- g. How the alleged defect in the subject vehicles is similar or different than the defect identified in the subject recall.

Answer

The subject and peer vehicles are both equipped with a vacuum assisted hydraulic brake system. The Ford F-150 is equipped with a front to rear split brake system, where the front and rear brakes operate on separate hydraulic circuits in the master cylinder. In the event that a sufficient loss of brake fluid occurs, the operator will receive an audible chime, a full screen message center alert, and a red brake light in the instrument cluster – all indicating that brake system service is required. These indicators are activated when the brake fluid in the reservoir is depleted to a pre-determined level. Braking ability would still be unchanged at that time. If a vehicle continues to be operated and additional fluid is depleted, the driver may begin to experience a change in brake pedal travel and feel. In the event that a loss of brake fluid is substantial enough to reduce brake function to the front wheels, full braking function would remain in the rear wheel circuit. This is consistent with the reports indicating a brake light and/or warning, but no change in brake function.

In March 2016, the Agency opened PE16-003 to review reports of allegations of brake fluid leaking from the master cylinder into the brake booster, resulting in a loss of brake effectiveness in certain model year 2013 and 2014 F-150 vehicles equipped with 3.5L engines.

As a result of its ongoing investigation into reports associated with the condition, Ford identified a population of vehicles with an elevated report rate of brake fluid leaking into the brake booster. In May 2016, Ford approved a safety recall (16S24/16V345) for certain 2013 and 2014 model year vehicles produced between August 1, 2013, and August 31, 2014. Vehicles built within this production date range exhibited an elevated rate of reports compared to vehicles built outside of that date range.

In July 2016, the Agency closed PE16-003, and in its closing resume acknowledged Ford's safety action and indicated there were reports of the condition on vehicles outside the recall population, but the report rate was approximately 14% of the report rate in the recall population. This recall query relates to vehicles produced after the vehicles in the 16S24/16V345 recall population. Based on Ford's latest investigation, the report rate is

consistent with the low rate the Agency previously identified in the population outside of 16S24/16V345.

Both PE16-003 and this information request listed three conditions under the alleged defect. The first two conditions relate to loss of brake fluid from the brake system. The third condition relates to extended brake pedal travel with a corresponding loss of brake effectiveness. Ford notes that reports related to the third condition does not require a loss of brake fluid from the system, and based on Ford's engineering analysis and vehicle testing, extended brake pedal travel does not necessarily result in reduced brake effectiveness. As the Agency referenced in its closing resume for PE16-003, in some instances, there can be a condition where some brake fluid may leak internally past an internal seal to the master cylinder ("internal by-pass"). If this were to occur, brake fluid would not be lost from the system but the brake pedal may travel further than expected and provide a change in brake pedal feel to the operator. The by-pass condition can result from internal seals that may become compromised during assembly, potentially allowing fluid to migrate between chambers and recirculate within the circuits of the master cylinder. Based on Ford's assessment of the by-pass condition, including vehicle evaluation, testing, and field returned part analysis, the ability to bring the vehicle to a safe and complete stop is unaffected.

In summary, Ford believes that the rate of reports of brake fluid leaking into the booster on vehicles not included in 16S24/16V345 remains low and that the scope of that action remains appropriate. In addition, based on Ford's assessment of the by-pass condition, including vehicle evaluation, testing, and field returned part analysis, Ford believes that the ability to bring the vehicle to a safe and complete stop is unaffected. Ford continues to work with the supplier to ensure robustness of its manufacturing process and notes a declining trend in the field reports consistent with an internal seal by-pass, and does not believe this condition presents an unreasonable risk to motor vehicle safety.

###