

Pierce Manufacturing Inc.

AN OSHKOSH CORPORATION COMPANY • ISO 9001:2008 CERTIFIED

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April 11, 2011

Mr. Peter Kivett
Office of Defects Investigation
National Highway Traffic Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington DC 20590

SUBJECT: PE11-001 RPM's Surging During Pump Mode

Dear Mr. Kivett:

The responses to the requests for this Preliminary Evaluation to investigate allegations of engine RPM fluctuation while the fire truck is in the water pumping mode, thus causing changes in water pressure at hose nozzle, are described in the body of this document. All responses are given to the best of our knowledge as of the date of this document. The requests are stated as written in the letter received from Mr. Richard Boyd dated February 24, 2011.

1. State, by model and model year, the number of the subject and peer vehicles PIERCE has manufactured for sale or lease in the United States. Separately, for each vehicle manufactured to date by PIERCE, state the following:
 - a. Vehicle identification number (VIN);
 - b. Make;
 - c. Model;
 - d. Model Year;
 - e. Date of manufacture;
 - f. Water pump part number;
 - 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 the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA."

RESPONSE: There were 107 subject vehicles in MY2007. 36 of these vehicles were Pierce Custom Contenders; 46 vehicles were Pierce Enforcers; one vehicle was a Sterling; one vehicle was a Freightliner M2, 106MD; one vehicle was a Freightliner M2, 112MD; 22 vehicles were Pierce Sabers.

The requested data was provided in a Microsoft Excel spreadsheet entitled "PE11-001 request items_110408" under a worksheet entitled "PRODUCTION DATA".

Source: Pierce customer data base
Last date information gathered: April 7, 2011.

2. State, by model and model year, the number of each of the following, received by PIERCE, or of which PIERCE is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving an 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;
 - e. Third-party arbitration proceedings where PIERCE is or was a party to the arbitration; and
 - f. Lawsuits, both pending and closed, in which PIERCE 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 PIERCE'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.

RESPONSE: For subpart a. there were eleven Pierce customer complaints and two Caterpillar customer complaints. All complaints involved Pierce Custom Contenders. Three complaints were MY2006, nine MY2007 and one MY2008.

For subpart b. there were 4 reports from the Sherwood Fire Department. All reports involved Pierce Custom contenders. Three reports were MY2007 and one report was MY2008.

Subparts c. through f. did not apply. There were no injury or fatality reports, property damage claims, third-party arbitration proceedings or lawsuits.

Source: Pierce and Caterpillar Customer Service data base.

Last date information gathered: April 6, 2011.

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. PIERCE'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 property damage is alleged;

- j. Number of alleged injuries, if any; and
- k. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

RESPONSE: The requested data was provided in a Microsoft Excel spreadsheet entitled "PE11-001 request items_110408" under a worksheet entitled "REQUEST NUMBER TWO DATA".

Source: Pierce and Caterpillar Customer Service data base.

Last date information gathered: April 6, 2011.

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

RESPONSE: The consumer complaint document copies were sorted by Pierce job number in chronological order in the file entitled "C9 questionnaire documents 110408". Job 18435 is labeled #1, job 18506 is labeled #2 and Job 19654 is labeled #3. The report copies are labeled #4, #5 and #6.

Source: Pierce Customer Service data base.

Last date information gathered: April 5, 2011.

- 5. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by PIERCE 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 (TSB) or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. PIERCE's claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. Vehicle's VIN;
- d. Repair date;
- e. Engine Software version;
- 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. Replacement part number(s) and description(s);
- k. Concern stated by customer; and
- l. 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."

RESPONSE: There was one MY2006 and one MY2007 Custom Contender warranty claim paid by Pierce, a total of two claims.

Caterpillar Inc. paid 19 total warranty claims on 15 MY2006 Pierce Contenders, two MY2007 Pierce Contenders and two MY2008 Pierce Contenders.

The requested data was provided in a Microsoft Excel spreadsheet entitled "PE11-001 request items_110408" under a worksheet entitled "WARRANTY DATA".

Source: Pierce and Caterpillar Warranty data base.

Last date information gathered: April 7, 2011.

6. Describe in detail the search criteria used by PIERCE to identify the claims identified in response to Request No. 5, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by model and model year, the terms of the new vehicle warranty coverage offered by PIERCE 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 PIERCE 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.

RESPONSE: The only consumers that provided complaints to Pierce were the Little Rock Fire Department, the Sherwood Fire Department and the Rainbow City Fire Department. A search was done on those Pierce job numbers to arrive at the warranty data.

The standard Pierce warranty is one year, parts & labor. See Pierce warranty certificate labeled #7 in the file entitled "C9 questionnaire documents 110408". Extended warranties are available for up to ten years. The standard warranty terms remain the same, just extended out for the number of years desired. Two Pierce Enforcer MY2007 chose a 2 year extended warranty; one Pierce Enforcer MY2007 chose a 3 year extended warranty and one Pierce Enforcer MY2007 chose a 5 year extended warranty.

Caterpillar offered a 5 year standard engine warranty with several optional extended warranties on the C9 engine. Nine customers chose the 3 year extended warranty: five Pierce Enforcer MY2007, two Pierce Custom Contender MY2007 and two Pierce Saber MY2007. Ten customers chose the 5 year extended warranty: six Pierce Enforcer MY2007, three Pierce Custom Contender MY2007 and one Pierce Saber MY2007.

The extended warranty data is included in the Microsoft Excel spreadsheet entitled "PE11-001 request items_110408" under a worksheet entitled "PRODUCTION DATA".

Source: Pierce and Caterpillar Warranty data base.

Last date information gathered: April 7, 2011.

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 PIERCE 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 PIERCE is planning to issue within the next 120 days.

RESPONSE: Pierce has not issued any documents related to the alleged defect in the subject vehicles. Caterpillar released a Service Letter Product Improvement Program for installing 365-6842 engine software on certain C9 engines installed in Pierce fire trucks. A copy of this letter is labeled #8 in the file entitled "C9 questionnaire documents 110408".

Source: Caterpillar Inc.

Last date information gathered: April 7, 2011.

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, PIERCE. 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. 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. If an action is not complete, provide a detailed schedule for the work to be done, tentative findings and/or conclusions, and provide an update within 10 days of completion of the action.

RESPONSE: Pierce did not perform any investigations or analysis on the alleged defect in the subject vehicles. Pierce did compile a Caterpillar C9 Engine Surging summary document on March 14, 2011. This document was personally presented to Peter Kivett on March 15, 2011. This document is labeled #9 in the file entitled "C9 questionnaire documents 110408".

Caterpillar Inc. conducted an ongoing analysis beginning on November 11, 2008 and concluding on July 14, 2009. At this point Caterpillar reviewed the software changes internally. Based on this review, the software was simplified to maintain steady fuel delivery while in active PTO operation. A test file was created and sent to the field. After successful field validation, the software was released to production. The production engine software was installed in the Sherwood, Little Rock and Rainbow City vehicles equipped with the Caterpillar C9 engine, between August and December 2010. See Caterpillar document labeled #10 in the file entitled "C9 questionnaire documents 110408".

Source: Caterpillar Inc.

Last date information gathered: April 8, 2011.

9. Describe all modifications or changes made by, or on behalf of, PIERCE 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 including software;
- e. The part number (service and engineering) of the modified component including software;
- f. Whether the original unmodified component/software was withdrawn from production and/or sale, and if so, when;
- g. When the modified component/software was made available as a service component; and
- h. Whether the modified component/software can be interchanged with earlier production components.

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

RESPONSE: There have been no modifications or changes to the water pump relating to the alleged defect in the subject vehicles. The only changes have been to the Caterpillar engine control software as described in Request 8 on the Sherwood, Little Rock and Rainbow City fire apparatus.

Supplied by Caterpillar Inc.

- a. The "04" certified C9 was out of production prior to the software being released.
- b. The following engine software was modified for the engines in Pierce equipment when operated in the Little Rock, Sherwood and Rainbow City pumping applications. This resolved mid-range speed and load instability. The engine software was modified to control mode changes due to step changes in desired engine speed. There were also changes made to the programmable PTO step and ramp rate to provide consistent engine mode changes. Variable tuning was completed for this new strategy to maintain a steady fuel delivery mode.
- c. To provide for engine stability during PTO operation (fire fighting) of fire trucks that are equipped with certain dual stage water pumps when operated in the Little Rock and Sherwood pumping applications.
- d. Caterpillar Software Part Numbers 2405302, 2531274, 2582348, 2828993, 2909008, 3057973, 3200330, 3411066, 3416041.
- e. Caterpillar Software Part Number 365-6842.
- f. No.
- g. Caterpillar software part number 365-6842 was made available on 18 August 2010.
- h. With Caterpillar approval the software could be interchanged with earlier production engines.

Source: Caterpillar Inc.

Last date information gathered: April 8, 2011.

- 10. State the number of the subject components that PIERCE 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). Include any kits that have been released, or developed, by PIERCE for use in

service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number).

RESPONSE: The only subject components that Pierce has sold are the original equipment water pumps and engine/vehicle software listed in the "PRODUCTION DATA" worksheet supplied for Request 1. There were 107 MY2007 subject vehicles sold with the Caterpillar C9. Only 95 MY2007 subject vehicles were equipped with a water pump.

Pierce has not released, developed or sold any kits for service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

Supplier contacts:

Water pumps -

Waterous Company, 125 Hardman Avenue South, South St. Paul, Minnesota
55075-2456

Mr. Mike Sterbentz, Applications/OEM Manager, 651-450-5232

Hale Products, Inc., 700 Spring Mill Avenue, Conshohocken, PA 19428

Mr. Rod Riska, OEM Accounts Manager, Midwest Operations, 920-419-6905

Engine -

Caterpillar Inc., 100 NE Adams Street, Peoria, IL 61629

Mr. Tom S. Lane, On-Highway Safety & Compliance Manager, 309-675-6496

Source: Pierce customer data base.

Last date information gathered: April 7, 2011.

11. Furnish PIERCE's assessment of the alleged defect in the subject vehicles, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to fire fighting safety that it poses;
- e. What warnings, if any, the operator would have that the alleged defect was occurring or subject component was malfunctioning; and
- f. The reports included with this inquiry.

RESPONSE: It is Caterpillar's data-based technical conclusion that this surging issue was related to harmonics that are unique to the Sherwood and Little Rock configurations. The service bulletin they wrote was intended to be applicable to these units only, and they do not have data to support a field campaign of other fire apparatus powered by C9 engines. They have informed Pierce that they have no further data that would justify updating software in any other Pierce products.

Source: R. Lackore summary dated March 14, 2011. Document #9 in the file entitled

"C9 questionnaire documents 110408".

Sincerely,

A handwritten signature in black ink, reading "Kenneth V. Kamprath". The signature is fluid and cursive, with the first name "Kenneth" and last name "Kamprath" clearly legible, and a middle initial "V." in between.

Kenneth V. Kamprath
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