PACCAR Inc
Law Department

March 2, 2009

Mr. Richard Boyd
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE
Washington, DC 20590

Re: PE09-002 Preliminary Evaluation Relating to Certain Horton Fan Hub Failures

Dear Mr. Boyd:

PACCAR acknowledges your January 9, 2009 letter indicating that NHTSA's Office of Defects Investigation (ODI) has opened a Preliminary Evaluation (PE09-002) to investigate Horton fan hub failures. The scope of ODI's inquiry concerns MY 2007 and 2008 Peterbilt 379, 387 and 388 trucks, as well as certain peer vehicles identified as MY 2007 and 2008 Peterbilt 389, 386, 384 trucks and 2007 and 2008 Kenworth T2000, W900, T800 and T600 trucks. As detailed below, the affected vehicle population for both divisions is 84,573 trucks.

ODI's letter describes two methods of potential failure: the shearing of the mounting bolts or the seizing of the bearings. ODI expresses concern that either of these potential failure modes may cause the fan to be drawn into the radiator, possibly resulting in personal injury or significant vehicle progressive damage. As ODI is aware, the former failure mode was identified by PACCAR in 2003 as a safety-related concern regarding the fan hubs in certain medium duty trucks. The problem was corrected through a recall and design changes were made going forward. Since such time, PACCAR has not seen the shearing of mounting bolts to be a continuing problem.

The bearings failures have been addressed recently by both PACCAR and the component manufacturer, Horton Worldwide, through a series of product improvements. For the reasons detailed in response to ODI's specific questions, PACCAR does not believe the premature bearing failures implicate motor vehicle safety.

Upon receipt, your letter was forwarded to representatives within Peterbilt Motors Company ("Peterbilt") and Kenworth Truck Company ("Kenworth") for review and investigation. Both divisions have investigated the issue. The investigation included a thorough review of the warranty and customer service databases, the legal database, project documentation and interviews with dealer service personnel.

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1. *State by make, model and model year, the number of subject and peer vehicles PACCAR has manufactured for sale or lease in the United States. Separately, for each vehicle manufactured to date by PACCAR, state the following:*
    a. *Vehicle identification number (VIN);*
    b. *Make;*
    c. *Model;*
    d. *Model Year;*
    e. *Date of manufacture;*
    f. *Date warranty coverage commenced;*
    g. *Fan Hub make and model;*
    h. *Engine make and model; and*
    i. *The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).*

RESPONSE: Kenworth has manufactured 42,173 of the subject and peer vehicles. Peterbilt has manufactured 42,400 of the subject and peer vehicles.

Please see the tabs of the Excel Spreadsheets entitled "PRODUCTION DATA SUMMARY" and "PRODUCTION DATA" for additional detail. Note that there are separate spreadsheets for Peterbilt and Kenworth data. The separate spreadsheets are necessary because each division operates independently of one another and has different databases.

2. *State the number of each of the following, received by PACCAR, or of which PACCAR 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, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;*
    d. *Reports involving a fire, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;*
    e. *Property damage claims;*
    f. *Third-party arbitration proceedings where PACCAR is or was a party to the arbitration; and*
    g. *Lawsuits, both pending and closed, in which PACCAR is or was a defendant or codefendant.*

RESPONSE: Kenworth has three (3) consumer complaints for the affected population. Peterbilt has three (3) consumer complaints for the affected population. Kenworth has ten (10) Field Reports and Peterbilt has eleven (11) Field Reports for the affected population.

There are no reported deaths, injuries, fires, lawsuits, third party property damage claims, arbitration claims, or other non-warranty claims relating to the alleged defect in the affected population.

Our review of the warranty data, including the consumer complaints and Field Reports, indicates that, in almost all cases, the partial or complete separation of the fan was contained by the fan shroud and radiator. Indeed, Peterbilt has a total of seven (7) incidents in which pieces of a damaged fan blade contacted the inside of the vehicle hood. Of the affected population of Peterbilt vehicles, this equates to a failure rate of 0.02%. Kenworth has only one (1) such incident from its affected population, equating to a failure rate of 0.002%. From our review of the records, we believe that each of the incidents in which the fan was damaged occurred during normal truck operation, while the vehicle was under load, and/or at elevated engine speed.

Please see the tabs of the Excel Spreadsheets entitled "REQUEST NUMBER TWO DATA," for further responsive information. The requested documents are attached to this response.

3. *Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, provide the following information:*
    a. *PACCAR'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. *Fan hub's make and model;*
    g. *Engine make and model;*
    h. *Vehicle's mileage at time of incident;*
    i. *Incident date;*
    j. *Report or claim date;*
    k. *Whether a crash is alleged;*
    l. *Whether fire is alleged;*
    m. *Whether property damage is alleged;*
    n. *Number of alleged injuries, if any; and*
    o. *Number of alleged fatalities, if any.*

RESPONSE: Please see the tabs of the Excel Spreadsheets entitled "REQUEST NUMBER THREE DATA," for responsive information. The requested documents are attached to this response.

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 PACCAR used for organizing the documents.*

RESPONSE: PACCAR has submitted the Field Reports and customer complaint records as attachments to this letter.

5. *State, by make, model, and model year, a total count for all of the following categories of claims, collectively, that have been paid by PACCAR 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 claim, state the following information:
   a. *PACCAR'S claim number;*
   b. *Vehicle owner or fleet name (and fleet contact person) and telephone number;*
   c. *VIN;*
   d. *Repair date;*
   e. *Vehicle mileage at time of repair;*
   f. *Repairing dealer's or facility's name, telephone number, city and state or ZIP code;*
   g. *Labor operation number;*
   h. *Problem code;*
   i. *Replacement part number(s) and description(s);*
   j. *Concern stated by customer; and*
   k. *Comment, if any, by dealer/technician relating to claim and/or repair.*

RESPONSE: PACCAR has submitted warranty claim records as attachments to this letter.

Please see the tabs of the Excel Spreadsheets entitled WARRANTY DATA SUMMARY, WARRANTY DETAILS, WARRANTY LABOR CODES and WARRANTY PART DETAILS (Kenworth Only tab) for responsive information.

6. *Describe in detail the search criteria used by PACCAR 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 and peer vehicles. State, by make, model and model year, the terms of the new vehicle warranty coverage offered by PACCAR on the subject and peer 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 PACCAR offered for the subject and peer vehicles and state by option, make, model, and model year, the number of vehicles that are covered under each such extended warranty. Additionally, provide documentation of any component warranty provided by Horton.

RESPONSE: Please see the tabs of the Excel Spreadsheets entitled "REQUEST NUMBER SIX DATA," for responsive information.

7. *Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject and peer vehicles, that PACCAR 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 PACCAR is planning to issue within the next 120 days.*

RESPONSE: The requested dealer bulletins are attached to this response. PACCAR is not planning to issue any communication relating to Horton fan hubs within the next 120 days.

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 and peer vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, PACCAR. 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 objection 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.*

RESPONSE: Please see the tabs of the Excel Spreadsheets entitled "REQUEST NUMBER EIGHT DATA," for a summary of the information related to this request. The corresponding documents are attached to this letter.

9. *Describe all modifications or changes made whether or not by, or on behalf of, PACCAR in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject and peer 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 (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. *Whether 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 PACCAR is aware of which may be incorporated into vehicle production within the next 120 days.

RESPONSE: Please see the tabs of the Excel Spreadsheets entitled "REQUEST NUMBER NINE DATA," for responsive information.

10. State the number of each of the following that PACCAR has sold that may be used in the subject or peer vehicles by component name, part number (both service and engineering/production), make, model and model year of the vehicle in which it is used and month/year of sale:
   a. *Subject component; and*
   b. *Any kits that have been released, or developed, 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 PACCAR is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

RESPONSE: Please see the tabs of the Excel Spreadsheets entitled "REQUEST NUMBER TEN DATA" for responsive information.

Column one of the data identifies the applicable part number. The following columns contain the description, the additional models, and the model years for which the applicable part is available, as well as the sales volumes detailed by calendar year and month. Notably, PACCAR cannot directly correlate parts sales with the affected population inasmuch as the parts and kits apply to other model year and make vehicles.

The kits shown for the subject and peer vehicles may also be used in the following Class 8 vehicles manufactured by the PACCAR divisions:

Peterbilt: MY 2007 and 2008 357, 365, 367, 378 and 320 trucks;
Kenworth: MY 2007 and 2008 C500 trucks.

All of the components are manufactured by Horton, 2565 Walnut Street, Roseville, MN 55113. PACCAR records reflect the Horton Account Manager is Jeff Wood. His contact telephone is (615) 967-6469.

11. Please provide PACCAR's explanation as to the rationale for conducting recall 03V-306 (August 2003) and recall 04V-169 (April 2004) and how those resolutions were derived whereas in the current matter, which seemingly is very similar or identical, only TSB's have been issued.

RESPONSE: In 2003 and 2004, Kenworth and Peterbilt voluntarily recalled the affected trucks in 03V-306 and 04V-169 (recall expansion) due to the possibility of a sudden and unexpected fan hub bolt failure resulting from vibration in the fan hub assembly. The shearing of multiple bolts could cause the fan hub assembly and fan blade to fall forward into the radiator, an event which could occur at any engine speed and without warning to an operator or mechanic.

In 2006, PACCAR published a total of four service bulletins (TIB 42-36, TIB 42-37, FSB0407a and FSB0407b) implementing Horton's product improvement campaign to replace the fan drive bearing sets on certain trucks with another bearing design.

Bearings are wear items that need to be replaced periodically over the life of the truck. Premature bearing wear-out is a customer satisfaction issue. PACCAR engineers concluded then, and continue to believe now, that the premature bearing failures do not represent a safety-related defect. A review of the warranty data, including the customer complaints and Field Reports, indicates only .02% of Peterbilt affected vehicle claims and .002% of Kenworth affected vehicle claims report pieces of a damaged fan blade coming into contact with the hood. In each of these cases, the hood was closed and the truck was being operated under load or at elevated engine speed (during normal engine operating speed, the fan blades experience between 5 and 13 times more kinetic energy than at idle).

In response to ODI's inquiry, PACCAR contacted a representative sample (20) of its dealerships and inquired of the experience of the mechanics. The service managers unanimously stated that the mechanics took appropriate precautions and did not view the premature bearing wear or possible fan separation as a safety-related issue.

12. Furnish PACCAR'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 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.*

RESPONSE: The shearing of fan hub bolts in the affected vehicle population is not a continuing problem. The warranty data of each division reflects only six (6) Peterbilt claims related to bolt shearing, a 0.01% failure rate and one (1) Kenworth claim, a 0.002% failure rate.

As discussed in response to Question 11, above, PACCAR does not believe that the condition of premature bearing failure is a safety-related defect.

a. The causal or contributory factor(s);

Horton's Fan Hub design utilized a bearing that has been proven to have insufficient resistance to high operating temperatures due to seal material, grease specification, bearing cage design/material and race hardness.

b. The failure mechanism(s)

PACCAR's investigation has shown that the failure mechanism may be the result of separation of the internal fan hub bearing lubricant to its oil and wax components. This may result in purging of the internal fan hub bearing lubricant.

c. The failure mode(s)

With regard to the bearings, PACCAR's analysis of its records shows the following possible failure modes:

(1) The fan clutch does not work;

(2) The fan clutch seizes;

(3) The fan clutch is noisy;

(4) The fan clutch pulley separates from the base;

(5) The fan clutch binds or sticks; and/or

(6) The fan is pulled into the radiator and shroud.

d. The risk to motor vehicle safety that it poses;

PACCAR does not believe that premature bearing failure poses a risk to motor vehicle safety. Please see PACCAR's response to Question 11 above for additional detail.

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;

Fan hub bearing failures are progressive and provide warning. The first stage is bearing overheating, causing a separation of the bearing lubricant to oil and wax within the bearing. The bearing lubricant is then able to purge from the bearing. With the loss of lubricant, the next stage is a period of continued operation with an audible high-pitched whining or squealing. The failing bearing noise can be heard at various engine speeds. An operator or mechanic would be able to hear the sound with the hood down and possibly while in the cab during operation of the vehicle.

If the operator hears and does not respond to the audible signals, the next stage in the progressive failure of the bearings is the misalignment of the fan hub pulley and/or seizing of the bearings. This can cause the drive belt to derail from the fan hub and/or accelerated drive belt wear. In addition to the auditory warnings described above, an operator may smell rubber caused by a drive belt running on a misaligned fan hub pulley. The initial stages of separation can also be confirmed physically in the fan hub geometry before fan blade separation occurs. The hub will be loose and can be moved (with the engine not running) by shaking the fan blades or the hub assembly.

All fan hub bearings will need to be replaced at some point during the life of the vehicle, regardless of component manufacturer and OEM.

f. The reports included with this inquiry.

ODI's letter included as attachments nine (9) National Service Records submitted by Peterbilt as part of its EWR data. The NSRs support PACCAR's position that no safety-related defect exists. In all the NSRs, the fan blades contacted the fan shroud and/or radiator assembly. None of the NSRs reported blades contacting the hood.

It is our hope that we have addressed all of your questions or concerns. If you have any additional questions or require further information, please feel free to contact me.

Yours truly,

Mike Walton
Counsel
PACCAR Inc