INTERNATIONAL TRUCK AND ENGINE CORPORATION

3033 WAYNE TRACE, P.O. BOX 10088, FORT WAYNE, IN 46850-0088

August 24, 2007

Richard Boyd, Chief
Medium and Heavy Duty Vehicle Division
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Ave S.E.
Washington, DC 20590

Ref.: NSA-14sjm
PE07-034

Subject: Dash/Heater Fire on CE School Buses

Dear Mr. Boyd:

This letter is in response to your electronic letter received July 17, 2007, concerning the request for information regarding step well heater fires on International Truck and Engine Corporation's 2005 through 2007 model year CE school buses manufactured by IC Corporation.

The following information is submitted in itemized format corresponding to your numeric requests:

Item 1. *State, by model year, model and engine, the number of subject vehicles International has manufactured for sale or lease in the United States.*

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA."

Response 1.
The matrix below includes both the subject vehicles and those vehicles which use the same electrical heater blower components as referred to in item 7. Therefore this matrix includes by model year, all 2005 to 2007 BE and CE buses built with subject components. The production data that makes up this chart is included as a Microsoft Access file.

MODEL YEAR 2005

	MDL_DESCR		
ENGINE DESCR	CE C BUS	CE S BUS	Grand Total
INTERNATIONAL DT466 210HP/2600 GOV 50ST		1,448	1,448
INTERNATIONAL DT466 220HP/2600 GOV 50ST		665	665
INTERNATIONAL DT466 255HP/2600 GOV 50ST	1	14	15
INTERNATIONAL DT466 HT 225HP/2400 GOV 50ST		281	281
INTERNATIONAL DT466 HT 245HP/2400 GOV 50ST		94	94
INTERNATIONAL VT365 175HP/175HP PEAK 2800 GOV		361	361
INTERNATIONAL VT365 200HP/200HP PEAK 2800 GOV	5	1,758	1,763
INTERNATIONAL VT365 215HP/215HP PEAK 2800 GOV		822	822
Grand Total	6	5,443	5,449

MODEL YEAR 2006

	MDL_DESCR			
ENGINE DESCR	BE S BUS	CE C BUS	CE S BUS	Grand Total
INTERNATIONAL DT466 210HP/2600 GOV 50ST		6	2,153	2,159
INTERNATIONAL DT466 220HP/2600 GOV 50ST		4	1,139	1,143
INTERNATIONAL DT466 225HP/2600 GOV 50ST			26	26
INTERNATIONAL DT466 255HP/2600 GOV 50ST		1	40	41
INTERNATIONAL DT466 HT 225HP/2400 GOV 50ST		2	438	440
INTERNATIONAL DT466 HT 245HP/2400 GOV 50ST			183	183
INTERNATIONAL VT365 175HP/175HP PEAK 2800 GOV	3	3	301	307
INTERNATIONAL VT365 200HP/200HP PEAK 2800 GOV	1	10	4,070	4,081
INTERNATIONAL VT365 215HP/215HP PEAK 2800 GOV		7	1,132	1,139
INTERNATIONAL VT365 230HP 2800 GOV 230HP PEAK			28	28
Grand Total	4	33	9,510	9,547

MODEL YEAR 2007

	MDL_DESCR				
ENGINE DESCR	BE C BUS	BE S BUS	CE C BUS	CE S BUS	Grand Total
INTERNATIONAL DT466 210HP/2600 GOV 50ST			4	2,428	2,432
INTERNATIONAL DT466 220HP/2600 GOV 50ST			2	902	904
INTERNATIONAL DT466 225HP/2600 GOV 50ST				87	87
INTERNATIONAL DT466 255HP/2600 GOV 50ST			2	18	20
INTERNATIONAL DT466 HT 225HP/2400 GOV 50ST			4	364	368
INTERNATIONAL DT466 HT 245HP/2400 GOV 50ST			6	171	177
INTERNATIONAL MAXXFORCE 7 200HP/200HP PEAK 2800 GOV		1			1
INTERNATIONAL MAXXFORCE 7 215HP/215HP PEAK 2800 GOV				1	1
INTERNATIONAL MAXXFORCE DT 210HP/2600 GOV 50ST				1	1
INTERNATIONAL MAXXFORCE DT 225HP/2600 GOV 50ST				2	2
INTERNATIONAL VT365 175HP/175HP PEAK 2800 GOV		435		115	550
INTERNATIONAL VT365 200HP/200HP PEAK 2800 GOV	1	157	23	2,773	2,954
INTERNATIONAL VT365 215HP/215HP PEAK 2800 GOV			7	800	807
INTERNATIONAL VT365 230HP 2800 GOV 230HP PEAK			2	31	33
Grand Total	1	593	50	7,693	8,337

Item 2. *State, by model year, and model, the total number of each of the following, received by International, or of which International is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles. Provide a copy of each such claim:*

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;*
e. *Third-party arbitration proceedings where International is or was a party to the arbitration; and*
f. *Lawsuits, both pending and closed, in which International 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 International'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 2.

International has received the following information related to the BE and CE bus:

a. International has received no consumer complaints or fleet complaints related to the subject vehicles.
b. There were a total of 64 dealer reports that relate either to the electrical system or heater system. There were no reports of smoke, fire, or burned components.
c. International has received no reports involving crash, injury, or fatality relating to the alleged defect in the subject vehicles.
d. International has received no property damage claims relating to the alleged defect in the subject vehicles. International will respond to the three known fires and our investigation of those fires in "Response 3".
e. International has not been a party to any arbitration proceedings relating to the alleged defect on the subject vehicles.
f. International is not aware of any lawsuits pending or closed relating to the alleged defect on the subject vehicles.

Item 3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, and including the three thermal events that ODI is aware of, state the following information;

a. International'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, model year, and engine;
f. Vehicle's mileage at time of incident;
g. Incident date;
h. Report or claim date;
i. Whether a fire is alleged;
j. Whether property damage is alleged and the extent of any fire damage;
k. Number of alleged injuries, if any;
l. Number of alleged fatalities, if any;
m. Summary description of the complaints; and,

n. International's opinion/assessment of the incidents. Provide a copy of the claim or repair order, any/all field reports and any documents related to or produced by International during their evaluation of this issue.

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

Response 3

There were no reports of fire, property damage claims, injuries or fatalities reported in any of the 64 dealer reports. International is aware of three fire incidents in which some property damage occurred, however no formal claims were received. International's assessment of the information received during the investigation of these claims is provided in the following paragraphs. Individual documents regarding these three incidents are provided in "Response 4" below.

International first became aware of the alleged defect when our customer service engineer notified us of a fire in the step-well heater area on CE bus VIN [redacted] in the [redacted] Illinois school district on February 27. On March 5, 2007, International sent a fire investigator to inspect the bus. During the initial investigation of this fire, the origin of the fire was believed to be in the right front side of the bus in the area of the step-well heater. At the time our fire investigator concluded that the cause of the fire was a result of a can of degreaser that had exploded due to exposure to heat. The investigator noted that at this time each bus in the fleet had a can of degreaser stored on the buses. The can was stored behind the step-well heater and was in direct contact with the heater housing. At the time of the first investigation, International representatives informed the school district of its findings and requested the degreaser be removed from the buses. [redacted] personnel indicated that they would remove the degreaser from the units.

International was informed of the second fire incident through a customer service engineer on February 28. This fire had occurred on Tuesday, Feb. 27th on CE bus VIN [redacted] in the St. Paul, Minnesota area. On March 7, 2007, International investigators visited [redacted] Public Schools to inspect the cause of the fire on CE bus VIN [redacted]. The origin of the fire was believed to be in an area left of the step well heater; the hot spot shown on the cowl was above the mounting point of the body controller or Electrical System Controller (ESC) just to the left of the step-well heater area. No conclusions were reached as to cause. International made a request to have the ESC returned for analysis since this component was located in the approximate area of the fire. Analysis of the ESC was difficult because of the severe damage. No definite conclusions could be reached, however some observations were made. First, the main buss bar was intact within the ESC and still attached to the power cable. Second, the high power field effect transistors were all intact and still soldered to the copper tracts – there was no melting and there were no holes burned in these

components. Third, the fiberglass substrate itself was intact, small components were missing, but the main structure was not delaminated and did not show any evidence of melting. These observations may indicate that the ESC damage was a result of the fire and not the cause. Finally it should be noted that the ESC had too much fire damage to be able to read any software codes. Therefore no definite conclusions could be reached.

The third fire occurred on May 18, 2007. This was the second occurrence on an [redacted]. A different International investigator went out to inspect this fire on May 24, 2007. This fire was extinguished much sooner then the other two reported incidents; therefore much more information could be obtained from the inspection. It was determined based on the burn patterns that the second fire originated at the step-well heater blower motor area – however, cause was undetermined. The International team also inspected the first [redacted] unit again and saw similar burn patterns. International concluded during this visit, that the first fire also originated in the step-well heater area near the blower motor. International made arrangements to get both step-well heaters sent to Fort Wayne for analysis.

On July 11, 2007 International conducted a joint inspection in Fort Wayne with Bergstrom, the manufacturer of the heater, and Fasco, the manufacturer of the blower, to try to determine cause of the fires. After reviewing all three step-well heater assemblies the following observations were made. First, the burn patterns on the sheet metal of the two [redacted] step-well heater units are similar indicating the origin of both fires was in the blower motor area. The burn pattern on the [redacted] unit was much different indicating that that fire did not originate in the step-well heater assembly. Second, after disassembling the motors, it appears all three shafts were moving at the time of failure because the shaft appeared polished in the bearing area. Third, although all three units had a polished surface at the bearing, the [redacted] shafts had a rougher surface (these units are also approximately two years older). Fourth, the Mylar tape attached to the motor assembly was not melted on the second [redacted] unit. The cause of the fires was still undetermined. The group put an action plan together to obtain addition information. The results of these findings will be reported in "Response 14".

Item 4. *Produce copies of all documents related to each item within the scope of Request No. 2. If International has a "Cause and Origin Report" concerning the three fires discussed, please provide a copy of such report. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method International used for organizing the documents. Indicate whether or not International concurs with each of the "Cause and Origin" findings.*

Response 4.
The dealer reports identified in "Response 2" did not relate to the alleged defect. Therefore International has no additional documents to report relating to Request No. 2. Copies of documents regarding the investigation of the three known fire incidents originating in the step-well are given in the attachment for "Response 4" (note: pictures are included on the CD, investigation documents are in hard copy form).

Item 5. *State, by model year, model and engine, a total count for all of the following categories of claims, collectively, that have been paid by International to date that relate to, or may relate to, the alleged defect in the subject vehicle*

a. Warranty claims;
b. Extended warranty claims;
c. Claims for good will services that were provided;
d. Field, zone, or similar adjustments and reimbursements; and
e. 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 documentation/information:

a. International's claim number;
b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
c. VIN; Repair date;
d. Vehicle mileage at time of repair;
e. Repairing dealer or facility's name, telephone number, city and state or ZIP code;
f. Labor operation number;
g. Problem code;
h. Replacement part number(s) and description(s);
i. Concern stated by customer;
j. The extent of the fire damage and location:
k. Provide a copy of any document including the claim or repair order;
l. Comment, if any, by dealer/technician relating to claim and/or repair; and
m. International's assessment as to what caused the issue.

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

Response 5.
Warranty counts and source data requested in items "a" through "e" are provided in the attachment for "Response 5" (Warranty data.xls) for all CE Bus products. The data is formatted as requested in items "a" through "m". International's review of the warranty data attached found three claims that could relate to the alleged defect. Two claims dealt with step-well heater blower motor burn out and one claim dealt with the step-well heater blower switch melting. None of these warranty claims indicate fires or additional property damage.

Item 6. *Describe in detail the search criteria used by International to identify the claims identified in response to Request No. 2 and 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 make and model year, the terms of the new vehicle warranty coverage offered by International 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 International 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 6.

International first conducted a vehicle search to determine which VINs were included in the "subject vehicles" population. The search criteria included: all plants, with buses built between 1/1/2004 and 7/20/07, property code 048PMS (step-well heater code), and model codes PB/PC10500 for CE and PB/PC40500 for BE.

International performed a warranty search based on the subject VINs and then used the following criteria to query International's warranty system for the response to Question 5:

Vehicle Model:	CE Bus
Vehicle Build Dates:	6/25/2003 thru 9/11/2006
Claim Process Dates:	9/25/2003 thru 7/25/2007
Warranty Code:	01- Regular Warranty – and - 03 – Prior to Delivery (PTD) Warranty – and – 39 – Service Contract (Extended Warranty) – and – 40 – Field Campaigns – and - 98 – Beyond Warranty (out of warranty good will)
Major Warranty Group:	08 – Electrical 22 – IC Corp Bus Body
Warranty Group Codes:	8000 – Electrical 22000 – IC Corp Bus Body
Warranty Noun Codes:	08-105 – FAN, DEFROSTER 08-223 – CIRCUIT BOARD 08-225 – PNL, CIRC BRK/REL 08-226 – MTG, CIRC BRK/REL 08-251 – HARNESS, COILED RIB 08-374 – CIRCUIT HOUSING, SP 08-379 – FUSE/CIRCUIT BRKR 08-418 – REGULATOR & MOTOR 08-595 – MODULE/CONTROLLER

08-596 – MODULE, VEHICLE SEN
08-624 – SWITCH, RADIO
08-693 – MOTOR
08-779 – HARNESS, DOOR
08-801 – MODULE, ELECTRONIC
08-811 – RELAY/MAGNETIC SW
08-815 – SWITCH, KEY/IGN
08-854 – CONTROLLER, ESC
08-855 – DASH MTD SWITCH
08-872 – SWITCH, PARK BRAKE
08-908 – SWITCH PACK (BASE)
08-909 – HARNESS, CAB
08-921 – HARNESS, OTHER
08-940 – HARNESS, PDM DIST
08-990 – WIRING
22-106 - DEFROSTER
22-200 - WIRE ACCESS COMPT
22-241 - CONTROLS ELECTRIC
22-280 - DISCONNECT, MASTER
22-281 - ELECTRIC PANEL
22-282 - HARNESSES
22-283 - FUSE PANEL
22-285 - RELAYS/SOLENOIDS
22-296 - SWITCHES
22-418 - GLASS, STNRY.EMER.
22-446 - DRIVER'S HEATER
22-449 - MOTORS
22-450 - STEPWELL HEATER
22-456 - DEFROSTER
22-460 - HARNESS, FRONT END
22-465 - HARNESS, LH SW PANEL
22-466 - HARNESS, RH SW PANEL
22-467 - HARNESS, OH SW PANEL
22-471 - HARNESS, POWER DIST
22-501 - HARNESS, DASH
22-564 - HEATED MIRROR
22-656 - FUSES
22-810 - MOTOR, DRIVE

Once a general population of warranty claims was extracted, a match to the VIN data obtained for "Response 1" was performed. This removed any warranty claims filed on Canadian, Mexican or Export vehicles.

The warranty claims for the subject vehicle were then filtered thru a computer logic program to extract only those claims that may have contributed to or resulted in a fire.

International has two types of warranty. The first is simply the standard warranty coverage of the vehicle for a certain period of time. The second type is custom warranty coverage, or what International refers to as service contracts, which can cover the entire vehicle or any component or system the customer desires. For the suspect population involved, there are over 500 service contracts. The type of contract is included in the file, "extended warranty counts.xls" that is part of the attachment for "Response 6". Also included in this attachment are the standard warranty coverage documents for the suspect population model years.

Item 7. *State, by model, and model year, the number of buses, excluding subject vehicles, that utilize the same electrical heater and blower components as the subject vehicles that International has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by International, state the following:*

a. *Vehicle identification number (VIN);*
b. *Make;*
c. *Model;*
d. *Model Year;*
e. *Engine;*
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).*
i. *Were there any reported fires on these model buses?*

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA."

Response 7.
Refer to "Response 1" for model and model year data relating to vehicles that use the same electrical heater and blower components.

Item 8. *Provide the same data requested in question Number 2 and question Number 5 for any vehicles identify in question Number 7.*

Response 8.
Warranty counts and source data requested in items 'a" through "e" are provided in the attachment for "Response 8" (Warranty data.xls) for all BE Bus product. A total of two claims are reported for the BE bus. This vehicle is the only other product that uses the same electrical heater and blower components. One of these two claims could relate to the alleged defect. However the report is for a driver's heater and based on the warranty claim description appears to be related to shorted wires.

There are a total of five dealer reports that relate either to the electrical system or heater system for the BE bus. There were no reports relating to the step-well heater. There were no reports of smoke, fire, or burned components. The counts and detail of each report is in the attachment titled "Response 2".

Item 9. *Describe how International first became aware of the alleged defect and state the date on which International first became aware of the possibility of the alleged defect. Provide a detailed* ***chronology*** *of all known thermal events regarding the subject defect, starting from the time International first became aware of this issue to present. Include all information and provide a copy of any document used at any internal/external meeting(s), meetings with the part supplier, or other manufacturers.*

Response 9.

February 27, 2007 - International first became aware of the [redacted] School District fire when our customer service engineer notified us of a fire in the step-well heater area on CE bus VIN [redacted]

February 28, 2007 – International's customer support engineer [redacted] Director of Transportation at School [redacted] and discussed vehicle inspections. They made arrangements to make a visit and take photos.

February 28, 2007 - International Field Service Engineer notified International investigator of the St. Paul fire. The fire occurred on Tuesday, Feb. 27th on CE bus VIN [redacted]. Later that day, International received contact information for the school and the bus dealer [redacted]. International called [redacted] Director of Transportation the same day at [redacted] Public Schools to offer assistance with the investigation. At that time, Harold was being told by the Minnesota DOT to keep everyone away from the vehicle so he didn't feel comfortable sharing any information with International representatives.

March 2, 2007 – International received customer support engineer's photos of [redacted] unit.

March 2, 2007 - Mr. [redacted] got the OK from Minnesota DOT and invited the International investigator to inspect the unit in [redacted] Minnesota.

March 5, 2007 - International sent a fire investigator and electrical engineer to [redacted] Schools to inspect CE bus VIN [redacted]. The origin of the fire appeared to be in the area of the step-well heater. Initial conclusion was that the fire was caused by cans of degreaser that were stored immediately behind the step-well heater.

March 7, 2007 - International investigators visited [redacted] Public Schools to inspect the CE bus VIN [redacted] there. The origin of the fire appeared to be in an area left of the step well heater; the hot spot shown on the cowl was above the mounting point of the body controller or ESC. No conclusions were reached as to cause. International made request to have the ESC returned for analysis.

March 12, 2007 – International summarized the first visit to the [redacted] school district and sent it to NHTSA for information.

May 18, 2007 - Second [redacted] School District fire occurred on CE bus VIN [redacted].

May 22, 2007 – NHTSA provided driver comments regarding the May 18 fire incident to International for information.

May 24, 2007 – International sent two representatives to inspect the second unit and determine the cause of fire. [redacted] representatives also took part in the inspections. It was determined based on the burn patterns that the second fire originated at the step-well heater blower motor area although the cause was undetermined. They also inspected the first [redacted] unit and saw similar burn patterns. International concluded that the first fire also originated in the step-well heater area. This was contrary to the first inspection. International made arrangements to get both step-well heaters sent to Fort Wayne for analysis.

May 30, 2007 – International provided an email report to NHTSA explaining what was found during the May 24 visit to [redacted] to investigate the second fire.

June 27, 2007 – International's technical team first met with the step-well heater supplier, Bergstrom, for the purpose of determining the causes of the three reported fires in the dash area on CE bus to date. Dash area fires reported to date are summarized below:

Vehicle Fires Reported:

Bus Heater Motor Investigation

VIN	Model	Build Date	DTU Date	Fire Date	Mileage	Months in Service	Customer/Location
[redacted]	CE Bus	5/25/2004	8/23/2004	2/26/2007	38485	31	[redacted]
	CE Bus	5/13/2004	8/23/2004	5/18/2007	49162	33	
	CE Bus	7/25/2006	8/30/2004	2/27/2007	6000	6	

The two [redacted] units and the one Minnesota unit were all returned to International. All three were available for this meeting. Based on the burn patterns on the returned units and the photos taken at the customer locations, the team concluded that the fire on the two Elgin units originated at the step-well heater in the motor area. However, there were no conclusions made as to why or how it started. The team was not able to determine the cause of the Minnesota fire, but was able to conclude that the fire did not originate in the step-well heater based on the burn patterns on the heater.

July 2, 2007 - Bergstrom, [redacted], and International Field Service visited [redacted] School district and removed two additional step-well heater units and replaced them with new units for the purpose of analyzing units with similar usage that had not been damaged. Two observations were noted. First, the buses were being cleaned on the interior with a garden hose and spray nozzle. It could not be determined if chemicals were being used. Second, one of the units had significant amounts of paper and misc. debris in and around the step-well heater.

July 12, 2007 – International met with Bergstrom and [redacted] to determine the cause of the dash fires on the three units reported above. All 3 motors were running when the fires occurred, bearings were polished. [redacted] shafts appear to have rougher shaft surface than the [redacted] unit. Fasco noted that there did not appear to be bearing wear on any of the three. Fasco also noted that the Mylar tape inside and outside the motor was not melted on Elgin #2, which could indicate that the temperature around the motor was not extreme. Further analysis of the components was necessary to determine cause of motor failure on the two [redacted] units.

July 23, 2007 – International met to determine status on existing action items related to understanding the cause of the motor failures on the two [redacted] units. Drawing specs on motor components were requested from suppliers. No conclusions as to root cause have been determined yet.

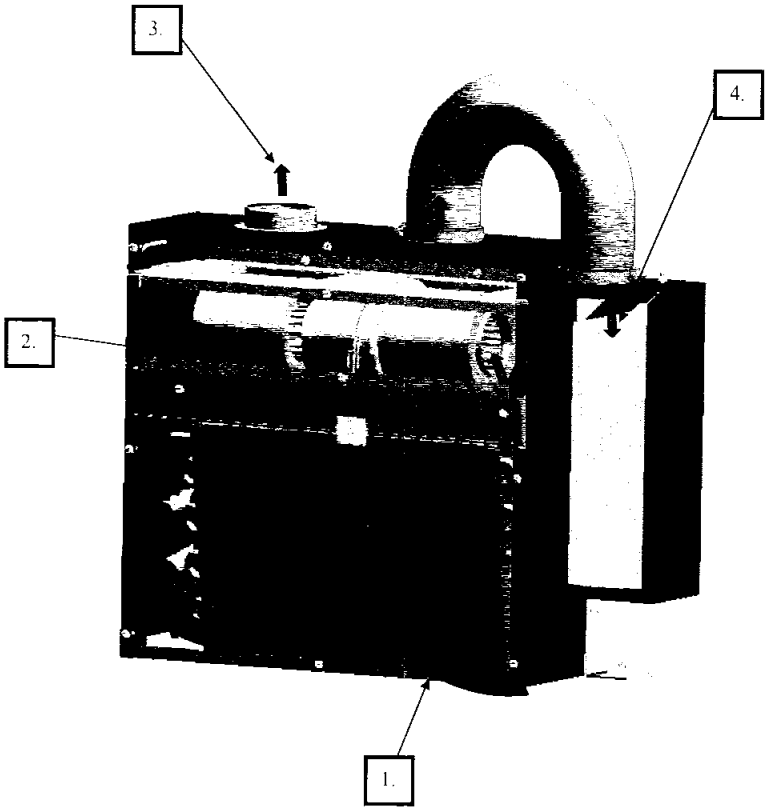
Meetings after this date have related to gathering data for action items from the above meetings and for responding to PE07-034. As of the date of this response, International has received no reports of fire relating to the alleged defect on the subject vehicles other than the three known incidents described above Documents relating to the above chronology of events are included in "Response 9". Technical data gathered during the investigation process is included in "Response 14".

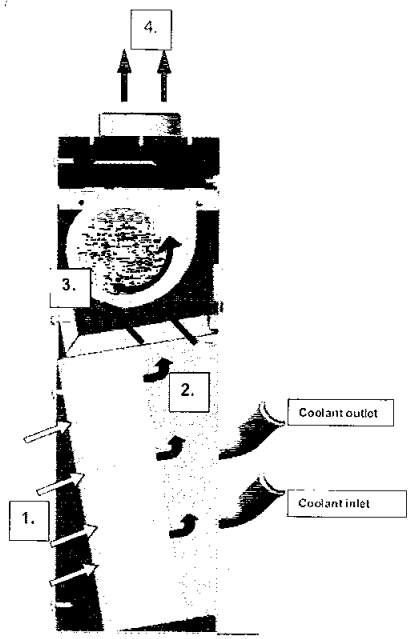
Item 10. *Identify the supplier of the heater system utilized in the subject vehicle and provide a complete schematic of the heater components and electrical system. Provide a clear description as to the routing of the incoming air supplied to the heater/blower. Include the options available to the driver such as, recirculation inside air versus air being drawn through the cowling area.*

Response 10.

The tier one supplier of the heater system to International is Bergstrom, 2390 Blackhawk Road, Rockford Ill. The tier two supplier of the blower motor to Bergstrom is Fasco, 505 Conestoga Blvd. Cambridge Ontario. A schematic of the step-well heater air flow is given in the diagram below:

Schematic of Step-well Heater, BE & CE Bus





1. Ambient air enters the unit through the recirculation grill in the cover. It is pulled through the heater core by the blower package (530277) above.

2. Treated air is pulled into the blower package at (4) positions.

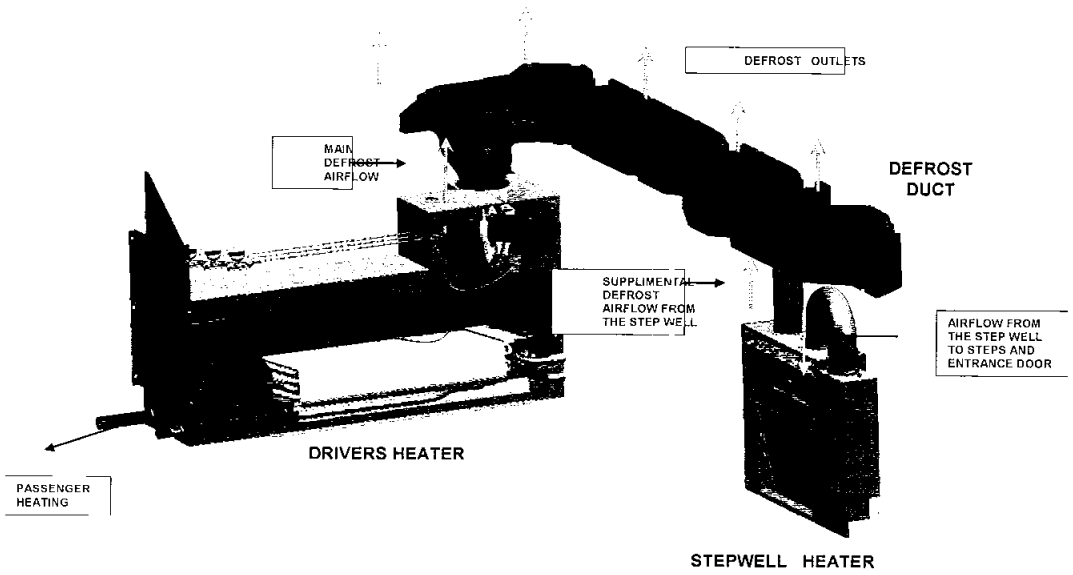
3. Treated air directed to defrost plenum.

4. Treated air directed to steps and door area (grill work is in the cover).

1. Recirculated air in
2. Treated air (post heater core)
3. Air pulled into blower scroll
4. Air distributed to defrost plenum and outlet for steps.

An electrical schematic is given in the attachment to "Response 10". A diagram of the complete heater defroster system is given on the next page:

BUS HEATING SYSTEM



Step Well Air Path:

The step well heater consists of a double shafted motor, each end having an air mover (blower wheel) attached. This blower motor is harnessed to have two speeds and an off position. In either high or low speed, ambient air enters the recirculation grill area in the lower front face. The air is pulled through the heater core and then into the blower wheels. The step well heater can only intake recirculated air.

Viewing the unit from inside the bus, the left side of the blower motor assembly pushes air into the defrost duct, aiding the main driver heater in defrost. The right side of the blower motor assembly pushes air into a flexible duct that feeds air to the steps and the entrance door. Both the left and right side of the blower assembly work in concert. Neither function is independent of the other.

The driver heater unit has multiple areas it supplies heat to. The only time it can interact with the step well is when it is in defrost mode, thus supplying air to the defrost duct shared by the left side of the blower motor assembly of the step well. The driver heater can intake recirculated air or fresh air.

Item 11. *For each known fire, identify what positions the heater blower controls were in prior to the initial fire/thermal event. Please include whether the heater was "recirculating," or was "outside air" selected.*

Response 11.
For the fire on the first [redacted] unit, the switch was severely melted and difficult to determine the switch position. International did remove the remains of the switch and based on the position of the switch arm within the switch, it appears to be in the center position, which would indicate the switch was on low speed. The switch position of the [redacted] unit was not determined due to the extensive damage in the switch panel area. In the second [redacted] fire the switch was found in the low position. The circuit breaker on both [redacted] units was tripped. International was not able to determine if the tripped breaker occurred prior to the fires or because of the fires.

Item 12. *Produce copies of any/all service bulletins, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that International 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 International is planning to issue within the next 120 days.*

Response 12.
International has no documents responsive to this request.

Item 13. *For each such document provide in responding to question 12, provide a detail explanation as to what precipitated the issuance of the service bulletin/document and it relevancy to the alleged defect.*

Response 13.
Not applicable. See International's response to item 12.

Item 14. 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, International. 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.

Response 14.

International did not begin its formal assessment of the three incidents until following the second fire that it investigated on May 24, 2007 at the [redacted] School District. Prior to that time, it was believed that the first [redacted] fire and the [redacted] fire were unrelated and isolated occurrences, which we still believe to be the case. In the next few weeks following the inspection of the second [redacted] unit, International worked with the school districts to get all three step-well heater assemblies returned for analysis.

June 27, International and Bergstrom had a meeting at Fort Wayne Truck Reliability Center to share what the fire investigators found during their inspections, and to review the step-well heaters to determine cause.

> Summary - Based on the burn patterns on the returned units and the photos taken at the customer locations, the team concluded that the fire on the two [redacted] units originated in the step-well heater in the blower motor area. However, there were no conclusions made as to why or how it started. The team was not able to determine the cause of the Minnesota fire, but was able to conclude that the fire did not originate in the step-well heater based on the burn patterns on the heater. The motor supplier, Fasco, was not present at this meeting, therefore motor disassembly was postponed.
>
> Key actions – 1) Setup second meeting with Bergstrom and Fasco to tear down the three blower motors from the subject heaters - International. 2) Obtain step-well heater/ blower motor build records - Bergstrom. 3) Obtain field reports and warranty on all units with the step-well heater – International, Bergstrom. 4) Perform Lock-up test analysis of blower motor – Bergstrom, Fasco. 5) share drawing changes associated with blower motor, step-well heater, and heater electrical changes in the body – Fasco, Bergstrom, International 6) Make arrangements with the Elgin School district to remove and replace two more units in the same build population to help determine cause – International Bergstrom. Next meeting scheduled later based on Fasco availability for July 12, 2007.

July 2, International, Bergstrom, and Fasco reps. visited the [redacted] School district for the purpose of finding similar mileage step-well heaters for analysis, and replacing them with new units.

Summary, the two units were changed out without incident. Two observations were noted. First, some of the buses were being cleaned on the inside with a garden hose and spray nozzle in the step-well area of the bus. It could not be determined if chemicals were being used. Second, one of the two units replaced had significant amounts of paper and miscellaneous debris in and around the step-well heater.

Key Actions - analyze the two units removed and provide failure report.

July 11, International, Bergstrom, and Fasco met with the primary goal of determining the causes of the three fires and disassembly of the three blower motors.

Summary, All 3 motors were running when the fires occurred. During the inspections the shafts rotated freely. Also, the bearings were polished, which indicates the motors were not locked up. [redacted] shafts appear to have rougher shaft surface than the [redacted] unit. Fasco noted that there did not appear to be bearing wear on any of the three. Fasco also noted that the Mylar tape inside and outside the motor was not melted on [redacted] #2, which could indicate that the temperature around the motor was not extreme. Further analysis of the components is necessary.

Key Actions – 1) determine critical dimensions, surface finish, hardness, and SCM photos for the three blower motors in question. Fasco is to provide dimensions and specifications so that International met-lab can provide analysis. 2) Perform amp draw and balancing test on units removed from July 2 [redacted] unit. Fasco and Bergstrom are to perform. 3) Obtain driver comments from [redacted] #1, International. 4) Determine degreaser type and send information to Met-lab, International.

July 23, International and Bergstrom representatives began weekly meetings to gather and share results of above actions, and to assign actions for responding to PE07-034.

Overall summary of actions

Summary of fire origin – The origin of the fire for the [redacted] unit was in the front dash area of the bus to the left of the step-well heater based on inspection and photo's showing the burn patterns. The burn patterns are in the same general area as the body electronic system controller (ESC). The origins of the two [redacted] fires were in the step-well heater area specifically near the blower motor area based on the inspections and burn patterns. No other reports of fire were found during this documentation review. Photos of the heater assemblies and the motor tear down are found in the folder titled "photos" in the attachment to "Response 14".

Metallurgy report summary – Material properties were reviewed for the three subject motors and their components. The shaft materials from the two [redacted] fires and one additional motor obtained from an [redacted] visit contained less carbon than the specified C1144 material. Their hardness of 13 to 14.5 HRC is below minimum requirements of 15 HRC for this material. The [redacted] shaft was within hardness specifications. The motor bushing material is powdered metal with approximately 15% graphite and 15% porosity by volume, which meets the specification. Significant corrosion is present on the motor shafts, assembly bolts, housing, and metal balance weight on blower wheel. The shaft / bushing interface showed an adhesive wear condition. No perceivable lubrication oil was left in the bushing and in the felt washer. The presence of residual oil was not detected by visual inspection or light microscopy. Residual oil was only barely detectable under high vacuum in an SEM.

Stall/running amp draw test report summary - Bergstrom and Fasco performed a dynamic and stall test on 3 blower motors from sister units on the [redacted] bus fleet and compared the reading to a new motor. Current draw at the different motor speeds and the current draw at stall all are comparable to a new unit. See summary chart below:

Parameter	Unit of Measure	Elgin 3	Elgin 4	Elgin 6 TICK	Blue Wheel	New Unit Ref.
Performance		Above may be due to heavy contamination				
Amp Draw Hi Speed	AMPS	15.1	15.4	16.3	N/A	17.5
Amp Draw Medium Speed	AMPS	7.7	7.7	8.3	N/A	8.8
Amp Draw Low Speed	AMPS	5.5	5.6	6	N/A	6.2
Rotor Lock Up Amp Draw Hi Speed	AMPS	53	55	53	N/A	55
Rotor Lock Up Amp Draw Med Speed	AMPS	16	16.6	17.2	N/A	16.5
Rotor Lock Up Amp Draw Low Speed	AMPS	9.4	9.6	10	N/A	9.7
Motor Date code		1804	1804	4305	1303	2607

International fused this circuit with a 20 amp breaker. Refer to the attachment to "Response 10" for the circuit diagram for the step-well heater – note that International only uses low and high speeds for the blower circuit. If a locked condition would go undetected on low speed, the motor winding would eventually fail and open the circuit. On high speed, a stalled motor condition would trip the breaker.

Critical dimensions and general condition – Bergstrom and Fasco performed numerous checks during their inspection of the motor components for the sister units obtained from [redacted] Schools (referred to as [redacted] #3, 4, 6). Nothing out of the ordinary was found in this review. The complete list of checks is found in the attachment for this response.

Drawing and change notice summary – Although there were some changes to the step-well heater assembly over the last few years, it is International's assessment that none of these changes are related to the three alleged fires. The detailed changes from this summary are provided in "Response 15" below.

Warranty and field report summary - International's review of the warranty data attached found three claims that could relate to the alleged defect. Two claims dealt with step-well heater blower motor burn out and one claim dealt with the step-well heater blower switch melting. None of these warranty claims indicate fires or additional property damage to the bus. Similarly, the review of the 64 applicable dealer reports had no reference to smoke, fire, or burned components. International's assessment of this data is that there are no trends that would relate to the alleged defect.

Step-well heater/ blower motor build history – International through IC corp. has purchased 38,063 blower assemblies from the beginning of 2004 through June of this year from Bergstrom. For the entire industry, Bergstrom shipped a total of 72,245 of these same or similar blower assemblies. Aftermarket shipments for International for the period are 8884, with total industry shipments totaled 14,272, for an overall total of motors shipped in the suspect date range of 86,517. Bergstrom had no reports of fire relating to this blower motor from their other manufacturers. Comparing these numbers to the three known incidents, indicate that these failures are isolated incidents related to a single school district.

Documents relating to the meetings, tests, and simulations described above are provided in the attachment for "Response 14".

Item 15. *Describe all modifications or changes made by, or on behalf of, International in the design, material composition, manufacture, quality control, supply, or heater /blower motor assembly of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:*

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

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

Response 15.

While International has not determined the cause of these fires, below is a listing of all drawing changes that International is aware of relating to the step well heater area and associated electrical components you have requested. We have no basis to conclude that any of the changes below relate in any way to the alleged defect.

International / IC Changes

Date	Release	Item Ref.	Description	Change notes
9/9/2004	59005N	3594934C1 rev-	RELEASE FOLLOWING TOOLING CHANGES INTO IP SYSTEM/PARTS TO RESOLVE MFG ISSUES	1. ADD CHRISTMAS TREE ATTACHMENT POINT DOOR SIDE IP TO MAIN BODY. 2. ROTATE COWL MOUNTING SLOTS 90 DEG TO RESOLVE BEZEL GAPING. 3. INCREASE NOTCH AROUND HEATER BOX TO RESOLVE INTERFERENCE. 4. INCORPORATE LOGO CHANGE DEMANDED PER STYLING. 5. RELEASE AIR DOOR DUMP OPTION ON MAIN BODY IP WING AREA. 6. RELEASE CHRISTMAS TREE FOR MAIN BODY IP TO DOOR SIDE IP ATTACHMENT
12/30/2004	59120K	3594934C1 revA	DRIVE+ BUS PRODUCTION CLEAN UP CLOSE OUT PANELS AND HEATERS	1) RELEASE REVISED HEATER CLOSE OUT PANELS W/O STEPWELL TO IMPROVE ACCESS TO ESC FOR CE BUS. DCR 26519 2) RELEASE REVISED DRAWING FOR STEPWELL HEATER TO REPLACE FLY SHEET. DCR 27303 3) RELEASE REVISED DRIVER HEATER TO RESOLVE FLOOR MOUNTING ISSUES 4) REDESIGN FEATURE 48PVZ FOR FLORIDA VENT OPTION. DCR 27307
4/14/2007	60634F	3594934C2 revB	UPDATE BERGSTROM STEP WELL HEATER DRAWING 3594934C1 TO SHOW NEW INSULATION. THIS INSULATION IS BEING ADDED BY THE VENDOR TO REDUCE SURFACE TEMPERATURE OF THE HEATER CABINET.	RAISE 3594934C1 TO C2. UPDATE STEPWELL HEATER INSTALLATION.
6/5/2007	60870H	3594934C3 revC	THIS RELEASE UPDATES DRIVER'S HEATER 2208088C94 AND STEPWELL HEATER 3594934C3. BERGSTROM HAS MADE CHANGES TO THE TEMPERATURE HEATER CONTROL VALVE (DRIVER'S HEATER) AND ADDED A BACKDRAFT DEVICE TO THE STEPWELL HEATER.	MODELS AFFECTED: PB10500, PC10500, PB40500, PC40500 INSTALLATIONS AFFECTED: B446411001, B446360001

Bergstrom Changes

12//29/03 - Bergstrom assembly p/n 782517, Initial release of 50K step-well heater by Bergstrom for use in CE bus.

1/19/04 - Bergstrom assembly p/n 782517, revision A of 50K step-well heater by Bergstrom for use in CE bus. Bergstrom changed connector type from 9 pin to 4 pin connector at International's request. (This change was made to match International's initial release of the new CE Bus for the 2004 model year, which included a new electrical system.)

12/19/06 - Bergstrom assembly p/n 782517, changed by Bergstrom to add cover gaskets to step-well heater. This is to reduce cover surface temperature on models with the optional. Bergstrom also removed two center louvers on cover to reduce air on handle per International's request.

5/10/07 - Bergstrom assembly p/n 782517 changed to new part number 1000010115, because back draft flap was added to the defrost duct to prevent back draft heating to the step-well from the main defrost when the step-well blower was off.

6/6/07 - Bergstrom assembly p/n 1000010115 revised tolerances to tubing, revised notes to hose standard, and changed tolerances on the back draft flap.

Fasco Changes

Date	Item Ref.	Description	Change notes
	Motor 2807-510-208A	Motor	BOM structure changes only
Dec-05	C9-0468XXXXX	FIELD ASSY-HOOKUP DRAWING	New drawing Dec 2005. Clarifying where wires go in hookup drawing.
Dec-05	A3-0039-0000	SOLDER BAR 123 VALLULOY	Dec 2005 went to lead free solder
Jun-07	C9-0354XXXXX	FIELD DRAWING (Mylar Insulators)	June 2007 went to 2 pc insulator, was 4 pc
Sep-04	B8-0167-0000	POLYESTER FILM COIL 4.535 WIDE	Sept 2004 Changed size of roll insulation material came in on
Oct-05	D9-5066-0001	LEAD HARNESS 14GA GPT 105 C LEAD	Oct 2005, adjusted lead length shorter by 1"
Aug-04	- G5-0637-0205	COVER ASSY COMPONENTS OCE .3125	Aug 2004 Changed to Permawick oil P2A0350
Dec-06	B5-0296XXXXX	ARMATURE ASSY DRAWING	Dec 2006 deleted washer between comm and end fiber
Dec-06	E2-0013-0002	END FIBRE .3125 X .545 LG MINLON	Dec 2006 added length to end fiber spacer tube
Feb-07	D4-0152-0002	OIL THROW WASHER	Feb 2007 added note clarifying moisture content
Nov-06	C4-0021-0003	GASKET CARY 789 RUBBER	Nov 2006 adjusted dimension on gasket length
Jan-05	J5-0027-0003	WHEEL 40.900.01 WITH CLIP 4901	Jan 2005 added clip to wheel hub, Dec 2003 material changed to Nylon

Detail engineering documents relating to this response are included in the attachment for "Response 15".

Item 16. *Furnish International'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. *Separately, each report that has been reported to international.*

Response 16.

a.) Other than the three fire claims mentioned in this PE, International has not found any other reports of fire relating to the alleged defect for the 23,000 buses produced in the subject time frame. In the few other claims that were found, there was no indication of fire or damage beyond a normal part failure. With regard to the three fires identified, International was only able to determine that the origin of the two [redacted] fires occurred in the area of the step-well heater around the blower motor area. The origin of the St. Paul fire was not in the area of the step-well heater; and based on the burn patterns of this unit, the fire originated to the left of the step-well heater. However in the St. Paul fire, International was unable to determine the exact origin beyond the general location.

b, c.) During this investigation International was unable to determine the cause of these 3 fires. Numerous tests were conducted in an attempt to determine cause. Based on the origin of the fire on the [redacted] unit, the only component mounted in the same general area of the origin of the fire was the body electronic system controller (ESC), however subsequent tear down of the ESC revealed evidence that the ESC was not the cause of the fire (refer to "Response 3").

For the two [redacted] units a complete analysis of the heater assembly and the blower motor assembly, as well as all its components, did not reveal any obvious possible causes (refer to "Response 3" and "Response 14"). The photos for [redacted] #2 show that one end of the blower assembly was burned and melted, but the other side was intact; wiring to the motor was also intact. A blower motor generally doesn't last the life of the bus; it is considered a serviceable item. The aftermarket sales of this blower motor indicates that for International/IC the average sales for 2004 though 2006 is approximately 3000 per year; as "Response 2" through "Response 5" demonstrate; the warranty and field report data do not reveal any type of problems with motors causing a fire when they stop working. International cannot identify any cause based on component parts tested to date.

The degreaser cans that were present in all the [redacted] units during the first fire investigation were unique to the [redacted] fleet. This could be considered a contributing factor if the degreaser is sprayed near the defroster ducts or the heater intake grill – note that it is not possible to spray degreaser directly on or near the motor. International believes that the [redacted] fleet personnel did remove the cans at the suggestion of the International representatives after the first fire. At the time of the second International inspection, no degreaser can was found in the second bus. However, if the degreaser was still being used for cleaning in this area of the bus, it could still be considered a possible cause. It was also observed during tear downs of the two sister step-well heaters ([redacted] #3, #4) from [redacted] that some debris such as paper and lint were found inside the assembly, International does not believe this by itself would be the sole cause of the fire but may be a contributing factor.

d.) This investigation has not turned up any information through warranty, field reports, lab reports, dimensional checks, motor performance checks, fire investigations, and drawing changes that would suggest a design or manufacturing defect exists.

e.) Since International has as yet been unable to determine the causes of the three fires, it is difficult to comment on symptoms that would provide warning. Since the only evidence we have indicates the origin of the fire is in the area of the step-well blower motor, we can briefly comment on typical motor failures. Excessive noise from the area of the motor, no noise or air flow when the switch is on low speed, or no noise or air flow when the switch is in high speed could all be indicators to the driver that the blower motor is not functioning properly.

f.) Provided in "Response 3".

Item 17. *Identify what action International intends to take in this matter.*

Response 17.
International plans to continue to monitor field reports and warranty claims related to the step-well heater and the front electrical system. It is International's assessment at this time that even though three fires in the same general area occurred within three months of each other, the incidents are not related to any inherent product defect. The [redacted] incident is significantly different from two incidents in [redacted]. No field action of any kind is planned at this time. However International is continuing the investigation with regard to the [redacted] buses to try to understand root cause of their two incidents.

If you have questions or require additional information, do not hesitate to contact me at 260-461-1890.

Respectfully submitted,

R.L. Van Laar
Product Compliance Manager
INTERNATIONAL TRUCK & ENGINE CORPORATION

Cc: T. E. Nelson

Attachments