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Ms. Bonnie Bass
Federal Motor Carrier Safety Administration
Office of Passenger Carrier Safety
400 7th Street, SW
Washington, DC 20590

Mr. Sonny Murianka
Senior Investigator, Analysis Branch
National Highway Traffic Safety Administration
Office of Defects Investigation (NSA-11)
400 7th Street, SW
Washington, DC 20590

Dear Bonnie and Sonny:

Dallas, TX
telephone
fax

This letter is in response to Bonnie's inquiry regarding Greyhound's experiences and observations on motor coach fires over the past few years. As discussed with Bonnie, during the Bus Industry Safety Council safety meeting in Nashville, Tennessee, Greyhound and other bus operators share a common concern regarding coach fire trends in the industry.

Based on its experience (in the US and Canada) of operating over 2,500 coaches manufactured from the 1980's through 2004, Greyhound suspects there are design and manufacturing issues with the newer buses that are directly contributing to these recent fires. When Greyhound identifies a manufacturing or parts issue with a bus model, which may contribute to the risk of fire, it contacts the manufacturer or supplier. Most times, this practice is successful at developing practical solutions. Sometimes, however, a manufacturer or supplier may not be fully cooperative.

- NHTSA Recall No. 03V411000 (October 20, 2003) states that early stress and fatigue cracks were found at the weld joining the tag axle swing arm to the pivot tube assembly. The cracked parts were subsequently re-welded or replaced to repair the cracks. See Attachment A – Tag Axle Recall Notice).
- Since this recall, Greyhound has seen failures of the tag axle bearing box due to “brinnelling” of the tag bearing into the spindle. A vibrating load being placed on two metal surfaces causes “brinnelling” to occur. Most recently, our bus #7276 experienced fire damage in New York City. Our preliminary observation is that this incident was due to a failure of the tag axle bearing box. See Attachment B – Tag Axle Drawing and Pictures for additional information.
- This same tag bearing assembly has undergone other manufacturers service campaigns since 2001.

Greyhound has attributed the following list of bus fires to wheel bearing failures on coaches.

| | | | | | | |
|-------|-----------|--|------------|--------|------|------------------|
| 7201 | 3BMXSMRA | | 7/11/2004 | G4500 | 2003 | Tag Axle Bearing |
| 7141 | 3BMXSMRA7 | | 11/10/2004 | G4500 | 2002 | Tag Axle Bearing |
| L6434 | 1M8PDMRA | | 12/27/2004 | 102DL3 | 2000 | Tag Axle Bearing |
| 7138 | 3BMXSMRA1 | | 4/8/2005 | G4500 | 2002 | Tag Axle Bearing |
| 7154 | 3BMXSMRA7 | | 8/22/2005 | G4500 | 2003 | Tag Axle Bearing |
| 6439 | 1M8PDMRA9 | | 12/1/2005 | 102DL3 | 2000 | Tag Axle Bearing |
| 6605 | 1M8PDMRA2 | | 10/31/2005 | D4500 | 2001 | Tag Axle Bearing |
| 6550 | 1M8PDMRA2 | | 1/22/2006 | 102DL3 | 2000 | Tag Axle Bearing |
| 7255 | 3BMXSMRA5 | | 4/1/2006 | G4500 | 2003 | Tag Axle Bearing |

Greyhound has notified [redacted] manufacturer of our concerns with the tag axle assembly and design. To date, not all of Greyhound's concerns have been resolved.

Given our observations and experience, Greyhound has taken the following preventative maintenance actions to avoid future wheel bearing related fires:

VIN
 I/M
 motor coach Ind.

| | | | | | |
|------|-----------|------------|--------|------|-------|
| 1037 | 1M8SDMTA8 | 1/9/2004 | 102D3 | 1997 | Turbo |
| 1169 | 1M8PDMPA3 | 12/16/2004 | 102DL3 | 2001 | Turbo |
| 1070 | 1M8SDMRA9 | 12/31/2004 | 102DL3 | 1999 | Turbo |
| 1088 | 1M8SDMRA8 | 2/28/2005 | 102D3 | 1998 | Turbo |
| 7116 | 3BMXSMPA7 | 6/8/2005 | G4500 | 2002 | Turbo |
| 7031 | 3BMXSMPA5 | 10/11/2005 | G4500 | 2002 | Turbo |
| 6401 | 1M8PDMRAX | 11/7/2005 | 102DL3 | 2000 | Turbo |
| 6404 | 1M8PDMRAX | 11/15/2005 | 102DL3 | 2000 | Turbo |
| 6074 | 1M8PDMRA0 | 11/16/2005 | 102DL3 | 1999 | Turbo |
| 7011 | 3BMXSMPA1 | 1/12/2006 | G4500 | 2001 | Turbo |
| 6306 | 1M8PDMRA0 | 3/21/2006 | 102DL3 | 1999 | Turbo |
| 6587 | 1M8PDMRA4 | 4/14/2006 | 102DL3 | 2001 | Turbo |

Greyhound contacted the manufacturer, Detroit Diesel, and worked with them to develop a corrective action for this problem. Detroit Diesel has indicated that it will install sensors on the turbo unit to detect the turbo charger failure. Once a sensor signals a failure, the bus's engine computer will initiate a safety shut down of the engine. The safety shutdown is designed to allow the driver enough power to safely park the coach after a failure occurs. Over the next six months, Detroit Diesel will retrofit approximately 2,000 buses with the sensors and make the required engine programming changes. We understand that Detroit Diesel is working on other corrective actions to the turbo unit.

Electrical System

Sparks caused by shorts and faulty electrical system components have been another reoccurring source of bus fires. It is our experience that many of these issues were addressed in the following safety campaigns.

- NHTSA Safety Campaign 02V284000 on the G-model coach dated October 25, 2002. This campaign repositioned and modified the B+ stud on the engine cradle. The cables were rubbing against the stud chafing the wires, which eventually could cause a short and pose the risk of a fire. MCI undertook corrective actions on this issue. However, since the campaign,

Greyhound has experienced fire incidents in this area of the coach and is assessing this issue further. See Attachment D – B+ Stud Recall Notice for more information.

- MCI Field Change Bulletin 229 on the G-model coach dated September 7, 2004. This bulletin increases the wire size on the parcel rack blower circuit. The replacement wires are larger and can handle more amperage. Greyhound is currently making these repairs to the affected coaches.

In addition, Greyhound also experienced electrical issues with the ballast and light assembly located in the stepwell. MCI corrected the issue in a service campaign.

The following is a list of electrical system related incidents.

| | | | | | | |
|------|-----------|--|------------|--------|------|-----------------------------------|
| 7214 | 3BMXSMRA | | 2/18/2004 | G4500 | 2003 | Stepwell Ballasta |
| 7129 | 3BMXSMRA | | 3/28/2005 | G4500 | 2002 | Center Circuit Board |
| 6501 | 1M8PDMRA3 | | 4/30/2005 | 102DL3 | 1998 | Seat Light Fixture |
| 6473 | 1M8PDMRA | | 5/28/2005 | 102DL3 | 2000 | Destination Sign |
| 7032 | 3BMXSMPA7 | | 8/7/2005 | G4500 | 2002 | Center Circuit Board |
| 7021 | 3BMXSMPA4 | | 6/20/2005 | G4500 | 2001 | Battery Compartment |
| 7106 | 3BMXSMPA4 | | 7/7/2005 | G4500 | 2002 | Battery Compartment |
| 6352 | 1M8PDMRAX | | 7/22/2005 | 102DL3 | 2000 | Electrical Wire |
| 7048 | 3BMXSMPA5 | | 10/13/2005 | G4500 | 2002 | Battery Compartment |
| 6246 | 1M8PDMRAX | | 11/16/2005 | 102DL3 | 1999 | Vanner Battery Monitor |
| 7117 | 3BMXSMPA7 | | 11/24/2005 | G4500 | 2001 | B+ Stud Area |
| 7078 | 3BMXSMPAX | | 1/30/2006 | G4500 | 2002 | Battery Compartment |
| 7098 | 3BMXSMPA5 | | 3/21/2006 | G4500 | 2002 | Electrical Panel near Baggage Bin |
| 6147 | 1M8PDMRA0 | | 4/7/2006 | 102DL3 | 1999 | Dash Area |

Greyhound is also monitoring other potential electrical system issues. Of particular concern are the center circuit board of MCI's G4500 bus model and the interior ballast lights of their 102DL3 model. We believe that design and manufacturing issues are responsible for the fires on 7032 and 7129, both of which originated at the same location and most likely were caused by an electrical short on the circuit board in the vicinity where the 24V cable is attached. MCI is aware of both these incidents. Issues with interior ballast lights were first reported to the industry by the New York

Passenger Transportation Safety Board in an advisory dated November 16, 2005. (See Attachment E – NY DOT Safety Advisory). Since receiving the advisory, we have identified similar incidents where the wiring became chafed by a sharp edge and a short circuit occurs.

In addition, as a preventative measure, Greyhound is replacing all Vanner battery monitors with new devices from Sure Power. After examining a failed monitor from #6246 and communicating with the manufacturer, it was determined the Vanner devices were not manufactured to be 100% moisture resistant, had been installed improperly and needed additional fuses to mitigate a short from causing more damage. As we retrofit our fleet, Greyhound is planning to install the devices so that gravity will prevent moisture from entering the unit, and we will add fuses in the circuit wires.

Brake System

The heat generated by the brake system is a fourth reoccurring source of fires. Incidents usually involve the brakes engaging and building friction heat as the coach is moving at highway speeds. The following list shows fires we believe originated at the brake system:

| | | | | | |
|-------|-----------|------------|----------|------|---------------------|
| 7236 | 3BMXSMWA | 8/1/2005 | G4500 | 2003 | Brakes (Air Valve) |
| 10702 | YE2CC12BX | 10/16/2005 | Van Hool | 2001 | Brakes (Air Valve) |
| 7288 | 2MX9SMPA2 | 10/29/2005 | G4500 | 2004 | Brakes (Park Brake) |
| 8165 | 1M8PDMRA2 | 12/13/2005 | 102DL3 | 1999 | Brakes (Unknown) |
| 6420 | 1M8PDMRA3 | 12/20/2006 | 102DL3 | 2000 | Brakes (Unknown) |
| 3147 | 1M8RCMUA1 | 1/27/2006 | MC-12 | 1998 | Brakes (Park Brake) |
| 7117 | 3BMXSMPA7 | 2/3/2006 | G4500 | 2001 | Brakes (Unknown) |
| 3094 | 1M8RCMUA8 | 2/8/2006 | MC-12 | 1998 | Brakes (Unknown) |
| 6032 | 1M8PDMRA3 | 3/15/2006 | 102DL3 | 1998 | Brakes (Unknown) |
| 7266 | 3BMXSMRA5 | 3/28/2006 | G4500 | 2003 | Brakes (Unknown) |
| 2834 | 1M8RCM7A0 | 3/30/2006 | MC-12 | 1996 | Brakes (Air Valve) |

Recently, Greyhound has experienced several incidents related to air brake valves. After examining the air brake valves and air system, we noticed corrosion from internal and external debris. Internal sources of corrosion include rust and debris within the air supply system and external debris actually plugging vent holes. Improper wiring of a Haldex unit and ill-fitting descant filters may have contributed to this problem. In addition, we have seen incidents where road debris has struck an air line, causing a release of air pressure. The drop in air pressure then causes the brake to engage. Lastly, we have observed instances of structural cracking on the slack adjuster support arm. See Attachment F – Brake Slack Adjuster Picture.

Greyhound is taking the following preventative measures to mitigate these brake related incidents.

- Performing visual and functional brake inspections every 12,000 miles
- Performing a full brake service and replacing brake shoes roughly every 100,000 miles
- Replacing all air valves every 400,000 miles

Along with maintenance actions, our driver training and safety department are also stressing to drivers and supervisors the importance of properly releasing the parking brake and conducting thorough pre-trip inspections in an attempt to mitigate this risk.

Fuel Heaters and Filters

We have also found ancillary fuel system components such as fuel heaters are another reoccurring source of bus fires. Typically, an electrical spark ignites diesel fuel in these incidents. We have experienced several incidents related to parts manufactured by Davco Technology LLC. The following list of buses experienced damage from this class of incidents.

| | | | | | | |
|------|----------|--|---------|--------|------|----------------------------------|
| 7245 | 3BMXSMRA | | 1/13/04 | G4500 | 2003 | Davco Proheat Pre-heater |
| 6961 | 1M8PDMRA | | 11/7/04 | 102DL3 | 2001 | Davco Fuel Pro 382 Heater Switch |
| 7251 | 3BMXSMRA | | 8/20/05 | G4500 | 2003 | Davco Fuel Pro Heater |

We have observed that:

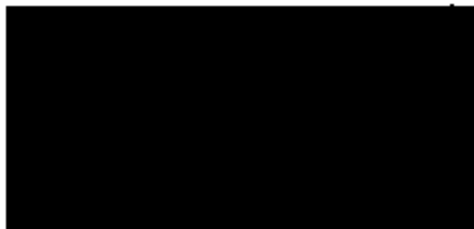
- The Proheat will backfire if any air gets into its fuel line.
- When the fuel filter is changed, there were no instructions or procedures in the MCI maintenance manual for purging the air from the fuel system before the Proheat is refired.
- A "T" fuel line fitting was originally installed in the "vertically upward" or 12 o'clock position. In this position, the "T" turns the Proheat into a default fuel-line air extractor.

After consultation with Davco, we were advised that the "T" should be installed in the "vertically downward" or 6 o'clock position. We notified MCI. They were to address this issue in a service campaign, but we subsequently learned that the appropriate corrective action was not completed. In late 2005, Greyhound issued a special service bulletin to all company garages instructing them to inspect the affected coaches and reposition the "T" valve if required. Since this service bulletin was issued and the corrective actions taken, we have seen no reoccurrence in this type of incident.

We hope the information we have provided gives you more insight into the sort of recurring issues that Greyhound has experienced, as well as highlighting some of the actions taken by Greyhound to mitigate and prevent these incidents from occurring. In cases where a design or manufacturing issue is present, the cooperation of the coach manufacturer or its supplier is needed for any remediation and corrective action.

If you have any questions or concerns, please do not hesitate to contact me directly.

Sincerely,



In addition, a Field Change Program bulletin providing instructions will be faxed and mailed to coach operators explaining the defect and proposed remedies to ensure that all affected vehicles are corrected.

MCI would appreciate NHTSA's prompt response in the assignment of a campaign number so that MCI can proceed with the release of a formal Field Change Program service bulletin.

Yours truly,
MOTOR COACH INDUSTRIES, INC.

[Redacted signature block]

By: [Redacted] Compliance Advisor

cc: [Redacted]



STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
ALBANY, NY 12232
www.dot.state.ny.us

[REDACTED]
ACTING COMMISSIONER

November 16, 2005

PTSB Safety Advisory

Attention PTSB Transit Bus Operators:

On July 8, 2005, NYSDOT Public Transportation Safety Board (PTSB) staff investigated a fire involving a 1999 Motor Coach Industries, Inc. (MCI) model DL-3, 45 foot, motor coach type transit bus, owned and operated by the MTA New York City Transit (NYCT). The fire originated in the end cap of the luggage rack located above and behind the driver compartment and spread to the interior of the front half of the bus causing severe damage.

The end cap contains the fluorescent light ballasts for the left front aisle and window lights. The wiring for the aisle lights is routed in an aluminum channel shaped like a "U" turned on its side with the open end of the "U" facing the windows of the bus. Individual lights are spliced into the main wire utilizing butt end connectors and no other insulating material is used to protect the splice. The wires are secured in the channel using blocks of foam rubber (the wires are placed in the channel and the foam is pushed in) at each butt connector.

The PTSB investigation found that the probable cause of the fire was a short to ground of the ballast for the aisle lights. During the PTSB investigation, it was learned that the bus driver had been driving in heavy rain and prior to the fire the ceiling of the bus had been leaking in the area of the ballast. The PTSB staff also found that water intrusion leading to corrosion and electrical failure was the probable cause of the short.

A fire of this nature and location is especially dangerous to this type of vehicle configuration concerning passenger evacuation. The ballast where the fire initiated is near the front of the bus, ahead of the passenger seating area and just behind the entrance/exit door. Roof hatches are not a reasonable means of escape from a burning upright bus and emergency windows require passengers to endure a 6+ foot drop to the road surface outside the bus. This model bus also had a wheelchair lift, which in an emergency, the door could be accessed for evacuation.

During the inspection process PTSB and MTA NYCT staffs examined several other MCI buses undergoing repairs or upgrades and found the following:

