



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: PE09-042

Date Opened: 09/01/2009

Date Closed: 12/08/2009

Principal Investigator: Sonny Murianka

Subject: Alternator cable chafing

Manufacturer: Motor Coach Industries, Inc

Products: MCI MY 2005 – 2009 D Series Coaches w/C13 engines & 50DN Alternator

Population: 1,007

Problem Description: Alternator cable may cause chafe against engine brackets.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	0	3	3
Crashes/Fires:	0	1	1
Injury Incidents:	0	0	0
# Injuries:	0	0	0
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	1	0	1

*Description of Other: Service Bulletin.

Action: This investigation is closed. MCI has filed a Safety Recall (09V-446). A copy is attached.

Engineer: Sonny Murianka

Date: 12/08/2009

Div. Chief: Richard Boyd

Date: 12/08/2009

Office Dir.: Kathleen C. DeMeter

Date: 12/08/2009

Summary:

This investigation was prompted by a review of Service Bulletins provided by MCI to the agency.

Motor Coach Industries (MCI) submitted a service bulletin/product improvement campaign (#3016) in their 579.5 monthly submissions regarding an alternator cable chafing issue on "D" series coaches equipped with a caterpillar C13 engine and a 50DN Delco alternator. The bulletin reported "The cable can chafe against an engine bracket or as a result of movement within the cable clamps. The corrective action is to install a new cable and support brackets."

ODI believes that there is a high risk for a thermal event resulting from alternator cables chafing within the engine compartment. ODI places increased emphasis on preventing potential fires involving motor coaches and other vehicles which carry large numbers of passengers.

In November 2009, MCI filed a Safety Recall (09V-346) outlining their remedy program to resolve this issue. MCI will install a new cable with a heavy duty terminal that does not have a spiral loom over the cable passing through the cable clamps. Also, the new clamp and mounting bracket were changed to better align the cable as it passes through the cable clamp thus preventing a chafing condition.

The action taken by MCI resolves this investigation. Accordingly, this investigation is closed.

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MOTOR COACH INDUSTRIES

09V-446
(9 Pages)

RECEIVED

By Recall Management Division at 11:10 am, Nov 19, 2009

Timothy J. Nalepka
Senior Vice President & General Counsel

Direct Line: (847) 285-2085
Facsimile: (502) 318-8085

November 17, 2009

BY EMAIL AND
BY CERTIFIED MAIL

Associate Administrator for Enforcement
National Highway Traffic Safety Administration
Attention: Recall Management Division (NVS - 215)
1200 New Jersey Avenue, SE.
Washington, DC 20590

Re: **PART 573 NOTICE RE ALTERNATOR CABLE ASSEMBLY**

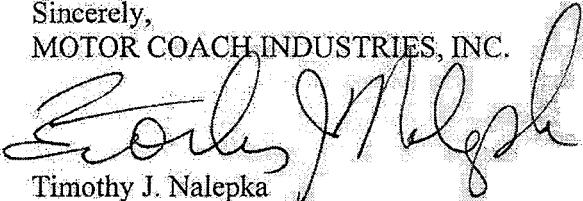
Dear Sir or Madam:

I have enclosed Motor Coach Industries, Inc.'s ("MCI") Part 573 Defect and Noncompliance Report, proposed customer notification letter, draft Service Bulletin 339, and sample envelope and mailing label to be used with the customer notification letters.

Please confirm receipt of this notice, provide NHTSA's reference number, and advise if the proposed customer notification letter, draft Service Bulletin 339, and sample envelope and mailing label are satisfactory.

Thanks for your assistance with this matter.

Sincerely,
MOTOR COACH INDUSTRIES, INC.


By: Timothy J. Nalepka
Senior Vice President &
General Counsel

Enclosures

c: Sonny Murianka (by email, w/ encls.)

1700 EAST GOLF ROAD, SUITE 300
SCHMIDT, ILLINOIS 60173
847 285 2000 PHONE
866 624 2622 TOLL FREE
WWW.MCICOACH.COM

Safety Defect and Noncompliance Report Guide for Vehicles
PART 573 Defect and Noncompliance Report

On November 4, 2009, Motor Coach Industries, Inc. decided that a defect which relates to motor vehicle safety exists in the motor vehicles listed below, and is furnishing notification to the National Highway Traffic Safety Administration in accordance with 49 CFR Part 573 Defect and Noncompliance Reports.

Date this report was prepared: November 17, 2009

Furnish the manufacturer's identification code for this recall (if applicable):

MCI Service Bulletin 339

1. Identify the full corporate name of the fabricating manufacturer of the vehicle being recalled. If the recalled vehicle is imported, provide the name and mailing address of the designated agent as prescribed by 49 U.S.C. §30164.

Motor Coach Industries, Inc.
1700 E. Golf Road
Suite 300
Schaumburg, IL 60173

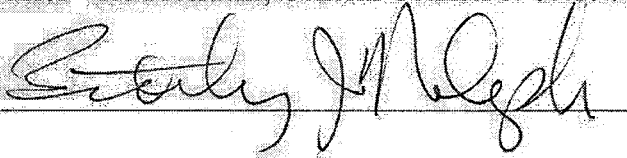
Identify the corporate official, by name and title, whom the agency should contact with respect to this recall.

Bryan Couch, Vice President, Engineering

Telephone Number: (204) 287-4447 Fax No.: (204) 478-2867

Name and Title of Person who prepared this report.

Timothy J. Nalepka
Senior Vice President, General Counsel & Secretary

Signed: 

I. Identify the Vehicle Models Involved in the Recall

2. Identify the Vehicles Involved in the Recall, for each make and model or applicable vehicle line (provide illustrations or photographs as necessary to describe the vehicle), provide:

Make(s):

MCI

Model Years and Models Involved:

1. 2005 thru 2008 D4000

2. 2005 thru 2009 D4500

3. 2005 thru 2009 D4505

Production Dates:

1. 2005 thru 2008 D4000

Beginning: November 2004

Ending: April 2008

2. 2005 thru 2009 D4500

Beginning: August 2004

Ending: December 2008

3. 2005 thru 2009 D4505

Beginning: April 2005

Ending: December 2008

VIN Range:

1. 2005 thru 2008 D4000

Beginning: 56495

Ending: 58600

2. 2005 thru 2009 D4500

Beginning: 56404

Ending: 58865

3. 2005 thru 2009 D4505

Beginning: 56599

Ending: 58879

56404 – 56405	56413 – 56421	56424 – 56435	56443 – 56450	56455 – 56478
56495 – 56505	56554	56591 – 56661	56663 – 56707	56720 – 56742
56798	56818 – 56892	56944 – 56993	57024	57071
57079 – 57145	57172 – 57192	57227 – 57237	57256 – 57288	57331 – 57332
57380 – 57399	57419 – 57429	57444	57450 – 57508	57525 – 57529
57534	57619 – 57626	57635 – 57694	57704	57708
57712	57716	57720	57724	57765 – 57803
57814	57820 – 57829	57878	57891 – 57917	57919 – 57949
57953 – 57954	57981	58114 – 58133	58159 – 58161	58179 – 58184

58197 – 58219	58221 – 58264	58352 – 58354	58356 – 58359	58373 – 58378
58392 – 58402	58404 – 58406	58425 – 58426	58508 – 58509	58511
58513 – 58521	58523	58600	58611 – 58636	58638
58640	58642	58644	58646	58648
58650	58652	58654	58656	58658 – 58674
58678	58680 – 58684	58686	58688	58690
58692 – 58694	58696 – 58706	58708	58710	58712
58714 – 58716	58720 – 58731	58811 – 58829	58863 – 58865	58879

Descriptive information which characterizes /distinguishes the recalled vehicles from those model vehicles not included in the recall:

The vehicles that are the subject of the recall are the D series coaches manufactured with a Caterpillar C13 engine and a 50DN alternator, and prior to the introduction of MCI's new alternator cable clamp and alternator cable design with VIN 58880.

Identify the approximate percentage of the production of all the recalled models manufactured by your company between the inclusive dates of manufacture provided above, that the recalled model population represents. For example, if the recall involved Widgets equipped with certain items of equipment from January 1, 1996 through April 1, 1997, then what was the percentage of the recalled Widgets of all Widgets manufactured during that time period.

The recalled D4000 model population represents approximately 15% of the total D4000 model coaches manufactured during the inclusive dates.

The recalled D4500 model population represents approximately 64% of the total D4500 model coaches manufactured during the inclusive dates.

The recalled D4505 model population represents approximately 3% of the total D4505 model coaches manufactured during the inclusive dates.

II. Identify the Recall Population

3. Furnish the total number of vehicles recalled potentially containing the defect or noncompliance.

<u>MODELS</u>	<u>MODEL YEARS</u>	<u>NUMBER OF VEHICLES POTENTIALLY INVOLVED</u>
D4000	2005	3
D4000	2006	2

D4000	2007	12
D4000	2008	7
D4500	2005	202
D4500	2006	259
D4500	2007	268
D4500	2008	197
D4500	2009	37
D4505	2005	1
D4505	2006	1
D4505	2007	2
D4505	2008	15
D4505	2009	1

Total Number Potentially Affected by the Recall: 1,007

4. Furnish the approximate percentage of the total number of vehicles estimated to actually contain the defect or noncompliance:

100% of the coaches specified above.

Identify and describe how the recall population was determined--in particular how the recalled models were selected and the basis for the beginning and final dates of manufacture of the recalled vehicles:

The recall population was determined by starting with the first D series coach manufactured with a Caterpillar C13 engine and 50DN alternator and ending with the last such coach manufactured prior to the introduction of MCI's new alternator cable clamp and alternator cable design.

III. Describe the Defect or Noncompliance

5. Describe the defect or noncompliance. The description should address the nature and physical location of the defect or noncompliance. Illustrations should be provided as appropriate.

Looseness between the alternator cable and the cable clamp may result in chafing of the cable loom and insulation, which in turn may allow the cable wires to become exposed and cause arcing, which in turn could result in a fire or other thermal event.

Describe the cause(s) of the defect or noncompliance condition.

The loom over the alternator cable may extrude from under the cable clamp as a result of clamping pressure on the loom. As a result, the cable within the clamp may become loose and chafe within the clamp, causing the cable's wires to become exposed and resulting in potential arcing and a fire or other thermal event.

Describe the consequence(s) of the defect or noncompliance condition.

The cable's wires may become exposed and result in potential arcing and a fire or other thermal event.

Identify any warning which can (a) precede or (b) occur:

Operators conducting normal required maintenance should be able to observe any loose or chafed alternator cables prior to any potential arcing, fire, or other thermal event.

If the defect or noncompliance is in a component or assembly purchased from a supplier, identify the supplier by corporate name and address.

Not applicable.

Identify the name and title of the chief executive officer or knowledgeable representative of the supplier:

Not applicable.

IV. Provide the Chronology in Determining the Defect/Noncompliance

If the recall is for a defect, complete item 6, otherwise item 7.

6. With respect to a defect, furnish a chronological summary (including dates) of all the principal events that were the basis for the determination of the defect. The summary should include, but not be limited to, the number of reports, accidents, injuries, fatalities, and warranty claims.

MCI received a report from a customer that on January 7, 2006, the customer's driver had been performing a pre-trip inspection and noticed a burning smell at the rear of the customer's 2006 D4500 coach (unit number 56979). The cause of the smell was the alternator cable terminal overheating, which caused melting of the heat shrink covering the alternator cable terminal crimp next to the positive connection of the alternator. The cause of the overheating was determined to be a loose connection of the alternator cable terminal to the positive stud on the alternator. This particular coach had been delivered to the customer only a few weeks earlier (December 14, 2005), and the coach was reported to have only 2,228 miles at the time of the incident. The loose connection was determined to have resulted from inadequate torquing during coach assembly of the alternator positive stud nut, which fastens the alternator cable to the alternator positive stud.

On November 7, 2007, MCI received an oral report from a customer advising of an electrical charging problem with respect to the customer's 2008 D4500 coach (unit 58224). It was determined that the cause of the charging problem was that the terminal on the alternator cable by which the cable is connected to the alternator positive connection stud

had cracked, thus disconnecting electrically the alternator cable from the alternator. The failed terminal had arced across the terminal crack causing alternator cable terminal heating and subsequent melting of the terminal along the crack. No other damage to the alternator cable was found. As a result of the customer concern for the issue found on this low mileage coach, a new cable with a heavy duty terminal was released for field service. Along with the new cable assembly, the clamp mounting bracket was changed to align the new cable as it passes through the cable clamp with the terminal on the alternator stud. MCI retrofitted this customer's affected coaches with the new cable assembly and bracket as a good will gesture.

On August 11, 2008, MCI received a report that a customer's 2007 D4500 (unit 58259) would not start due to dead batteries. Subsequent investigation found that the alternator cable had arced to the cable clamp mounting bracket and the alternator case as a result of cable insulation and terminal failure. The electrical connection failure of the cable and cable terminal was the cause of the batteries charging problem, since the alternator output was disconnected from the batteries. More specifically, MCI determined that the cable insulation had been damaged due to chafing between the cable clamp and the alternator cable insulation, exposing the cable wires and resulting in the arcing. Looseness between the alternator cable and the cable clamp, which allowed the chafing, was caused by the loom that had been originally installed over the insulated alternator cable and in-between the insulated cable and the clamp, having extruded from under the clamp, resulting in the clamp no longer being tight on the cable. The subsequent movement of the cable due to the loom loss under the clamp allowed the terminal to flex due to vibration, which caused the terminal failure.

On August 15, 2008, MCI initiated project number PR1-08-0009 to further investigate issues relating to reported failures involving the 50DN alternator cable at the mounting bracket. MCI subsequently decided to use a new clamp and alternator cable design on its new D model coach production effective with unit 58880. MCI issued a product improvement service bulletin (3016) on July 10, 2009, apprising owners of existing coaches of the availability of the new clamp and cable design, and reminding owners to thoroughly inspect alternator cables for chafing or other damage at the earlier to occur of every 6000 miles or oil change. NHTSA subsequently requested that MCI conduct a recall to replace the affected alternator cables and clamps, and MCI agreed to do so.

7. With respect to a noncompliance, identify and provide the test results or other data (in chronological order and including dates) on which the noncompliance was determined.

Not applicable.

V. Identify the Remedy

8. Furnish a description of the manufacturer's remedy for the defect or noncompliance. Clearly describe the differences between the recall condition and the remedy.

MCI will replace the alternator cable, clamp, and related hardware on affected coaches at no cost to the owners of the affected coaches.

Clearly describe the distinguishing characteristics of the remedy component/assembly versus the recalled component/assembly.

The new alternator cable has a heavier duty terminal and does not have a spiral loom over the portion of the cable passing through the cable clamp. The new clamp and mounting bracket were changed to better align the cable as it passes through the cable clamp. These improvements reduce the likelihood of cable chafing.

Identify and describe how and when the recall condition was corrected in production. If the production remedy was identical to the recall remedy in the field, so state. If the product was discontinued, so state.

MCI introduced the new alternator cable clamp and alternator cable design in production with VIN 58880.

VI. Identify the Recall Schedule

9. Furnish a schedule or agenda (with specific dates) for notification to other manufacturers, dealers/retailers, and purchasers. Please identify any foreseeable problems with implementing the recall.

MCI anticipates sending notifications to customers within one week after receiving approval by NHTSA of MCI's draft customer notification.

VII. Furnish Recall Communications

10. Furnish a final copy of all notices, bulletins, and other communications that relate directly to the defect or noncompliance and which are sent to more than one manufacturer, distributor, or purchaser. This includes all communications (including both original and follow-up) concerning this recall from the time your company determines the defect or noncompliance condition on, not just the initial notification. *A DRAFT copy of the notification documents should be submitted to this office by Fax (202-366-7882) for review prior to mailing.*

Note that these documents are to be submitted separately from those provided in accordance with Part 573.8 requirements.

Please see the attached proposed customer notification letter and Service Bulletin 339.