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By Recall Management Division at 2:54 pm, Dec 26, 2012

12V-555
(9 pages)
Amended

PART 573 Defect and Noncompliance Report

On August 9, 2012, Hino Motors Sales U.S.A., 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: August 9, 2012 (Original filing date). It has been updated with supplemental information on December 20, 2012.

Furnish the manufacturer's identification code for this recall (if applicable): A8310

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.

Hino Motors Sales U.S.A., Inc.
41180 Bridge Street
Novi, MI48375

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

George M. Daniels
Vice President, Service Operations

Telephone Number: 248-699-9330 **Fax No.:** 248-699-9310

Name and Title of Person who prepared this report: Geof Perrot Supervisor, Warranty Administration

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): Hino **Model Year(s) Involved:** 2005~2012, plus five pre-production 2013

Model(s): NA6J, NB6J, NC6J, ND8J, NE8J, NJ8J, NF8J, NV8J

Production Dates: Beginning: 8/18/03 **Ending:** 11/16/11

VIN Range: Beginning: JHBNV8JT651S10013 **Ending:** 5PVNV8JR7C4S50612

Vehicle Type: NA6J, NB6J, NC6J, ND8J, NE8J, NJ8J, NF8J, NV8J model vehicles.

Body style: N/A.

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

Vehicles subject to this recall were built between August 18, 2003 and November 16, 2011

Vehicles can be identified by the 10th digit of the VIN – (5, 6, 7, 8, 9, A, B, C)

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? 100%

2005 M Y		2006 M Y		2007 M Y		2008 M Y		2009 M Y	
NA6J	430	NA6J	189	NA6J	71	NA6J	215	NA6J	88
NB6J	306	NB6J	128	NB6J	51	NB6J	66	NB6J	21
NC6J	451	NC6J	270	NC6J	142	NC6J	209	NC6J	240
ND8J	175	ND8J	414	ND8J	855	ND8J	563	ND8J	129
NE8J	2022	NE8J	1760	NE8J	2722	NE8J	1199	NE8J	494
NJ8J	435	NJ8J	1449	NJ8J	2117	NJ8J	1854	NJ8J	1161
NV8J	546	NV8J	803	NV8J	1329	NV8J	1205	NV8J	706
Total	4365	Total	5013	Total	7287	Total	5311	Total	2839

2010 M Y		2011 M Y		2012 M Y		2013 M Y	
NA6J	8	NE8J	1092	NE8J	1027	NE8J	1
NB6J	24	NF8J	1	NF8J	0	NF8J	0
NC6J	184	NJ8J	1413	NJ8J	1672	NJ8J	2
ND8J	403	NV8J	696	NV8J	713	NV8J	2
NE8J	660	Total	3202	Total	3412	Total	5
NJ8J	1457						
NV8J	998						
Total	3734						

35168

II. Identify the Recall Population

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

Total Number Potentially Affected by the Recall: 35,168

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

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:

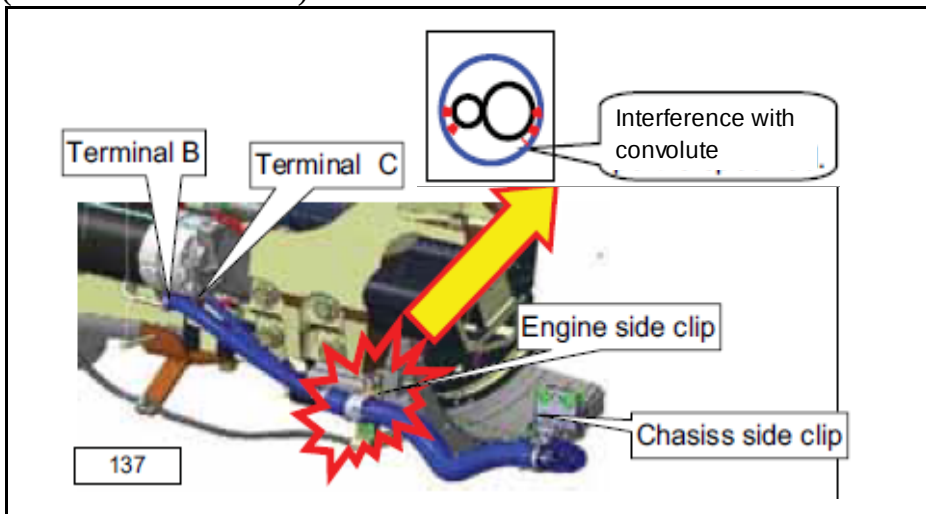
All conventional cab Hino trucks contain substantially the same parts and configuration with some differences between models and model years. The recalled vehicle population represents 100% of the trucks manufactured with these parts and configuration.

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.

The main B+ (Battery Positive) circuit from the battery to the starter could potentially short to ground due to wear that accumulates over time. The wear is the result of interference between the B+ circuit and the convoluted tubing.

(See Illustration Below)



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

The wear is the result of interference between the B+ and the convoluted tubing.

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

Potential short to ground, which could potentially lead to a fire.

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

Visual inspection may indicate wear if signs of corrosion are present. The area where the wear occurs may smell of electrical overload or smoke.

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

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

IV. Provide the Chronology in Determining the Defect/Noncompliance

In furtherance of your letter of December 7, 2012, Hino Motors Sales U.S.A., Inc. (HMS) has set forth below, a chronology of all the principal events that were the basis for the determination that a defect related to motor vehicle safety existed in the starter cable of 2005-2013 model year Hino trucks. Also included is a summary of the warranty claims with their date of receipt. There is one technical field report and no service reports.

In such regard, the company wishes to note that there is only a single incident of “smoke, arcing, and burning” involving a starter cable in an unmodified 2005 model year Hino vehicle that had been driven 609,167 miles. HMS learned of this incident in response to an inquiry by a HMS Technical Service Manager (TSM), from a dealer. The dealer advised that a customer in Barrington, NH, reported “smoke, arcing and burning” in a battery cable, although the cable was quickly disconnected from the battery.

In addition, in responding to the starter cable incident, Hino Motors Limited (HML) has conducted various tests to consider (i) the possible measures to increase the resistance of the insulation of the starter cable against chafing, (ii) the consequences of starter cable chafing, and (iii) the mechanism of starter cable chafing. Although running design changes 1 and 2, discussed in the chronology, were put into effect to enhance the performance of the insulation of the starter cable to resist chafing, the mechanism of starter cable chafing could not be identified. Therefore, HML has continued and is now continuing to evaluate the situation.

Further, in light of applicable laws and regulations, and despite the difficulty in determining that the starter cable performance presented a safety-related defect, HML opted on August 8, 2012 to make the final determination to file a 49 CFR § 573.6 Defect and noncompliance information report, and perform a recall of the starter cable in 2005 through 2013 model year Hino vehicles for the following reasons: (i) starter cable chafing could result in the inability to restart the vehicle’s engine; (ii) given the nature of the usage of some of the vehicles by customers, including the existence customer vehicle modifications, the possibility of chafing is increased; and (iii) the possibility of smoldering and ignition is, theoretically, not impossible, although extremely small;

PRELIMINARY NOTE: This chronology is based on information provided by HMS, Hino Motors Manufacturing U.S.A., Inc. (HMM) and HML.

At all times relevant to this chronology, the “starter cable” referred to contained the start signal wire and the battery cable which were covered by a split convoluted tubing. The starter cable was located on the driver’s side of the vehicle, mounted adjacent to the lower left side of the engine, and was approximately four feet in length. Also, as used here, “chafing” refers to rubbing of the starter signal wire insulation and the battery cable insulation, inside the split convoluted tube.

1/28/2011 – Waste Management (Parkersburg, WV) notified a Hino dealer of an alleged starter cable “fire” when one of its employees turned the battery disconnect switch to the “on” position on a 2005MY garbage truck (VIN# JHBNJ8JT351S10241) 204,189 miles (“WM Vehicle No. 1). The dealer, in turn, notified HMS.

WM Vehicle No. 1 contained an aftermarket, battery disconnect switch which was not assembled or installed by Hino.

At the time Waste Management notified the dealer, the customer also speculated that the alleged starter cable “fire” in WM Vehicle No. 1 may also have been the cause of a fire in another Waste Management truck in December 2010 (VIN# JHBNJ8JT451S10247) 227,476 miles (WM Vehicle No. 2). (As discussed below, investigation of the fire in WM Vehicle No. 2 showed it had nothing to do with the starter cable.) As was subsequently learned, WM Vehicle No. 2 also contained an aftermarket, battery disconnect switch which was not assembled or installed by Hino.

2/7/2011 – HMS and HMM quality assurance (QA) employees conducted an on-site inspection of both WM Vehicle No. 1 and WM Vehicle No. 2 at the Waste Management facility. In order to assist the investigation, HMS/HMM QA sought permission to take the allegedly damaged starter cables off-site for more extensive inspection and testing.

Waste Management refused. The inspection was inconclusive concerning the cause of the starter cable “fire,” including whether or not chafing was the cause, regarding both WM Vehicle No. 1 and WM Vehicle No. 2.

Feb.-March/2011 – As a result of the investigation of the Waste Management vehicles, during routine monthly visits with dealers, HMS TSM’s asked dealers if starter cables had been replaced, or if dealers had sold starter cable replacement parts to customers and, if so, TSM attempted to obtain the replaced cables.

3/15/2011 — In response to a TSM inquiry, a dealer reported that a customer in Barrington, NH, Carr Transportation (Carr), stated that “smoke, arcing and burning” had been noticed in a battery cable. The battery cable was then quickly disconnected from the battery. This VIN# JHBNE8JT451S10933 2005MY Vehicle (Carr Vehicle No. 1) had been driven 609,167 miles. The dealer also advised that Carr had purchased a new starter cable for another vehicle, VIN# 5PVNE8JT462S12427, MY 2006 (Carr Vehicle No. 2.) which had been driven 618,308 miles. (As noted below, an inspection of the starter cable from Carr Vehicle No. 2 showed only corrosion.)

4/7/2011 – HMS and HMM met and examined starter cables from four vehicles which had starter cables replaced: (i) VIN# JHBNE8JT451S10933, MY 2005 (Carr Vehicle No. 1); (ii) VIN# 5PVND8JP382S50594, MY 2008; (iii) VIN# 5PVNE8JM552S10113, MY 2005 and (iv) VIN# 5PVNE8JT462S12427, MY 2006 (Carr Vehicle No. 2);. HMM reported the results of the examinations to HML and indicated it would create a Technical Report (TR) and ship the starter cables to HML.

4/11/2011 –The TR created as a result of the 4/7/11 meeting was titled “Starter Cable Chaffing (sic) Issue” (HMM-110411-1). HMM sent the TR to HML through the Hino Quality Assurance System (HQA).

4/12/2011 – HML began its investigation of the four “replaced” starter cables from the above referenced vehicles (4/7/2011).

4/12/2011 – An HMM employee and Kyle Young, a Certified Fire Investigator from third party Scientific Expert Analysis Ltd. (SEA Ltd.), conducted a “visual” inspection at the Waste Management facility of WM Vehicle No. 2 (the truck that allegedly caught on fire in December 2010). The initial investigation was inconclusive concerning the cause of the fire, including whether or not its cause was chafing in the starter cable of WM Vehicle No. 2.

4/21/2011 – In its preliminary review of the TR and its investigation of the accompanying four replaced starter cables (identified above), HML hypothesized that the split convoluted tubing was susceptible to moisture, and road grit intrusion which could accelerate the wear of the cable insulation. HML informed HMM of a planned running change (“running change 1”) to the starter cable by adding twist tubing between the split convoluted tubing and the insulation of the cables. This running change was expected to enhance the performance of the

insulation of the cables to resist chafing. HML continued to investigate the mechanism of the cable chafing.

5/5/2011 – A comprehensive investigation regarding WM Vehicle No. 2 at the Waste Management facility in Parkersburg, WV was conducted by Aaron Butcher, Professional Engineer and Certified Fire and Explosion Investigator from SEA, Ltd. The investigation, however, was inconclusive as to the cause of the fire. Nevertheless, Engineer Butcher observed that the fire appeared to have started in the passenger side of the engine compartment and verbally advised both HMS and HMM of this fact. (As noted above, the starter cable is on the opposite side of the vehicle, adjacent to the lower left side of the engine).

5/10/2011 –. Reoccurrence testing was performed at HML. Three scenarios were tested: (i) Dead short with 100% cable conductor. Result: first the metal area on the clip generated heat and then the cable insulation ignited. (ii) Increasing resistance test. Current was applied to the battery cable and then the cable conductor was gradually reduced. Result: there was no ignition; rather, the remaining cable conductor melted and broke the current path. (iii) Tracking test with cable conductor exposed and using salt water as a secondary conductor. Testing started with a gap of 2.0mm between the cable conductor and the metal area of the clip. The gap was then reduced to 1.0mm. Result: with a gap of 1mm, the metal area of the clip generated heat; after 4 minutes the cable insulation ignited.

5/12/2011 – HML received durability test results concerning the running change proposed 4/21 (see above). The purpose of these tests was to confirm the performance enhancement of the insulation of the cables to resist chafing if twist tubing was added between split convoluted tubing and insulation of the cables. The testing confirmed a 40% increase in the insulation's resistance to chafing. Nevertheless, although the effectiveness of restraining chafing was confirmed, HML concluded that further performance enhancement was necessary to restrain chafing.

6/1/2011 – HMM started collecting starter cables from vehicles in the U.S. and Canada, for inspection by HML.

6/7/2011 – HML completed its investigation of the four cables submitted on 4/7/2011 in connection with the TR (HMM-110411-1). Results: (i) Two cables showed only "wear"; (ii) one cable showed corrosion (Carr Vehicle No. 2, mileage 618,308); and (iii) one cable showed a short (Carr Vehicle No. 1, mileage 609,167).

7/7/2011 – SEA Ltd. provided a formal written report from its investigations conducted in April and May 2011 at Waste Management. SEA Ltd., and confirmed the observation of Engineer Butcher with respect to WM Vehicle No. 2 that "the fire originated on the passenger's side of the engine compartment," but could not determine the cause of the fire. (Again, as noted above, the starter cable is located on the driver's side of the vehicle, adjacent to the lower left side of the engine). With respect to WM Vehicle No. 1, SEA Ltd. was unable to determine the cause of the alleged fire in the starter cable.

7/25/2011 – With respect to a second proposed design change involving a separate type of split convoluted tubing, HML completed tests which confirmed the further performance enhancement of the insulation of the cables to resist chafing. The resistance of the insulation of the cables to chafing would be increased by 525%, and would reduce insulation wear. However, the mechanism of the chafing still was not identified.

8/1/2011 – In connection with 2013 Model Year changes to the vehicle, HML informed HMM of "running change 2" to the starter cable to further increase the insulation's resistance to chafing. HML continued to investigate the cause of the cable chafing. Functionality of the redesigned starter cable was also utilized in spare part production for earlier model vehicles.

8/11/2011 – HMM completed the collection of 12 starter cables from vehicles in different regions of the U.S. and Canada, and with varying mileages. The cables were sent to HML.

8/11/2011 – Running change 1, (see above 4/21) was implemented for performance enhancement purpose.

10/26/2011 – HML completed its investigation of 12 starter cables from the North American market.

Results

[Wear is percentage of the insulation thickness. Thickness standard is 1.6mm].

- Three cables displayed no wear:
 - (i) MY 2009, 32,000 miles
 - (ii) MY 2008, 160,000 miles
 - (iii) MY 2008, 76,000 miles
- Eight cables displayed <25% wear:
 - (i) MY 2005, 188,000 miles
 - (ii) MY 2005, 122,000 miles
 - (iii) MY 2006, 151,000 miles
 - (iv) MY 2007, 230,000 miles
 - (v) MY 2007, 188,000 miles
 - (vi) MY 2008, 57,000 miles
 - (vii) MY 2008, 470,000 miles
 - (viii) MY 2008, 172,000 miles
- One cable displayed >90% wear:
 - (i) MY 2006, 313,000.

November-2011-February 2012 – Running change identified 8/1 (“running change 2”) was implemented for performance enhancement purposes.

12/12/2011 – Comprehensive bench testing was completed. HML started analysis of the bench test results, and continue to attempt to determine the mechanism of the chafing.

2/24/2012 – HMM began production of MY 2013 vehicle, which included the redesigned starter cable harness sourced from a U.S. vendor.

5/29-6/22/2012 – During a series of meetings, staff personal at HML evaluated the results of all of the investigation, and bench testing. They suggested that consideration be given to installing running change 2 on all 2005-2013 vehicles. The reasoning was based on several factors: chafing of the starter cable can result in the inability to restart the engine; given the usage of some of the vehicles by customers, including customer vehicle modifications, the possibility of chafing is increased; and there was a single incident involving a truck driven more than 609,000 miles (Carr Vehicle No. 1), thus the possibility of smoldering and ignition is, theoretically, not impossible.

6/27/2012 – HML QA, HMM and HMS held a face to face meeting in Michigan. Further discussion took place about results of the 5/29-6/22/2012 HML QA meetings.

8/6/2012 – HML QA, HMM, and HMS have another face to face meeting in Michigan and HMM advised HML that correspondence with relevant authority as soon as possible was necessary.

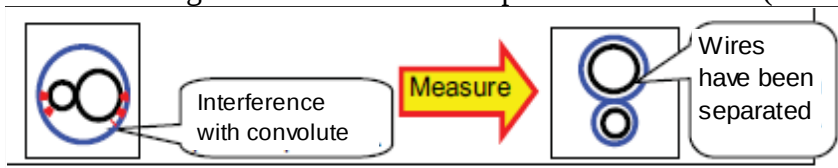
8/8/2012 – Official final decision to recall 2005-13 Model Year trucks was made by HML.

8/9/2012 – Rule 573 Notice of defect or noncompliance filed with Office of Defect Investigations.

V. Identify the Remedy

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

The cable design has been modified to prevent this defect. (See illustration)



LH drawing depicts the recall condition. RH drawing depicts the remedied condition. Manufacturer will replace the original cables with newly designed cables in which each cable is enclosed in its own separate convolute tube.

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

The original component contained two separate wires within a single convoluted tube.

The remedy component contains two separate wires within two separate pieces of convoluted tube.

(See illustration above)

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.

The remedy for production is the same as the field.

The final remedy was implemented in February, 2012 with the start of 2013MY production

VI. Identify the Recall Schedule

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.

January 15, 2013 - Dealers to be notified

January 15, 2013 – Customer notices scheduled to enter U.S. Mail

No problems were experienced with implementing this recall.

VII. Furnish Recall Communications

9. 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.