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R. L. Van Laar  
Compliance Manager

September 15, 2010

09V-110  
(5 pages) Revision 3

Associate Administrator for Enforcement  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, SE  
Washington D.C. 20590

Subject: Defect Information Report – Revision 3  
Navistar Campaigns 50901-C & 51101-C (NHTSA 09V-110)

Dear Associate Administrator:

Navistar is submitting this revised defect information report on behalf of Workhorse Custom Chassis, a wholly owned subsidiary and for Monaco RV, a wholly owned affiliate. Specifically, sections 1, 3, 7 and 9 were revised to report those Monaco RV vehicles that were part of the original vehicle population.

*(1) IDENTIFICATION OF VEHICLES [Part 573.6(c)(2)]*

- Vehicle Make \ Model \ Model Years Involved:
  - Workhorse \ W20 Chassis \ 2010-2011
  - Workhorse \ W21 Chassis \ 2007-2008
  - Workhorse \ W22 Chassis \ 2001-2009, 2011

The suspect Workhorse chassis was used in the manufacture of the following Monaco RV vehicles:

- Monaco RV \ Admiral \ 2010
  - Monaco RV \ Arista \ 2009, 2010
  - Monaco RV \ Monarch \ 2010, 2011
  - Monaco RV \ Riptide \ 2009, 2010
- Vehicle Manufacturing Dates:
    - Workhorse chassis – 7/25/00 thru 8/2/10
    - Monaco RV vehicles – 11/10/08 thru 7/30/10
  - Other Identification Necessary to Describe Vehicles:
    - Equipped with axles that include Bosch ZOPS or Bosch ZOHT Pin Slide hydraulic disc brakes.

*(2) COMPONENT MANUFACTURER [Part 573.6(c)(2)(iv)]*

- This report relates only to a component Robert Bosch Corporation Automotive Group supplied, designed, manufactured, approved and certified to meet the requirements of FMVSS 105 in motor home applications. Contact information is:

Elie Azzi  
Director, Product Warranty  
Bosch Braking Systems Corporation  
401 North Bendix Drive  
South Bend, Indiana 46628  
Phone: 574-237-3104

*(3) VEHICLE POPULATION INVOLVED [Part 573.6 (c)(3)]*

Workhorse Chassis:

| Model          | Number of Suspect Vehicles |        |        |
|----------------|----------------------------|--------|--------|
|                | United States              | Canada | Export |
| W20            | 15,420                     | 570    | 43     |
| W21            | 791                        | 62     | 7      |
| W22            | 32,620                     | 1850   | 51     |
| Total Vehicles | 48,831                     | 2482   | 101    |

Monaco RV vehicles:

| Model          | Number of Suspect Vehicles |        |        |
|----------------|----------------------------|--------|--------|
|                | United States              | Canada | Export |
| Admiral        | 17                         | 17     | 0      |
| Arista         | 4                          | 0      | 0      |
| Monarch        | 23                         | 12     | 1      |
| Riptide        | 1                          | 3      | 0      |
| Total Vehicles | 45                         | 32     | 1      |

*(4) PERCENTAGE OF VEHICLES ESTIMATED TO CONTAIN THE DEFECT [Part 573.6 (c)(4)]*

- It is estimated that 10% of the vehicles in suspect population could exhibit a brake-related issue caused by defect.

*(5) DESCRIPTION OF DEFECT [Part 573.6 (c)(5)]*

- Certain RV applications equipped with axles that include Bosch ZOPS or Bosch ZOHT Pin Slide hydraulic disc brakes when combined with occasional or seasonal vehicle operation may experience calipers sticking in the applied position. This can result in abnormal heat generation at the wheel end causing brake drag. Although the driver would normally have warning of the brake drag - if undetected by the driver, the temperature increase at the wheel end can eventually lead to soft pedal conditions due to brake fluid boil, and possible extended stopping distance.

*(6) CHRONOLOGY OF PRINCIPAL EVENTS WHICH LED TO DETERMINATION OF A SAFETY DEFECT or TEST RESULTS THAT LED TO DETERMINATION OF NONCOMPLIANCE [Part 573.6 (c)(6)/(7)]*

- 6/27/07 WCC received PE07-032 from NHTSA – alleged overheating disc brake calipers on MY2000 – 2005 WCC motor-home chassis. WCC initiated gathering of warranty and field report data.
- 8/10/07 WCC provided partial response to PE07-032, including documents requested (warranty, field reports, etc.).
- 9/14/07 WCC submitted complete response to PE07-032.
- 11/16/07 NHTSA elevated the investigation to EA07-016 to perform an in-depth analysis of the issue.
- 11/07 – 3/08 At the request of NHTSA, Bosch, WCC, and NHTSA participated in the inspections of customer vehicles with reported brake drag complaints. Bosch installed measurement equipment on identified complaint vehicles. In some cases overheating on certain wheel ends was recorded.
- 3/08 – 11/08 Suspect brake calipers from field investigations were returned to Bosch Engineering for analysis. The Bosch analysis included functional testing and dimensional checks of all components. The Bosch analysis revealed examples of piston growth. NHTSA conducted an independent piston growth study using several different piston materials (including the Bosch phenolic piston) and made measurements after subjecting the pistons to humidity, temperature and pressure cycles. These tests also revealed piston growth (NHTSA test still ongoing). Test results from both Bosch and NHTSA indicate piston hang up in the caliper bore is a result of piston growth due to moisture ingress over long periods of time in the RV chassis application. Piston hang up can cause overheating at the wheel end, which can cause the brake fluid to overheat with a resulting increase in braking distance.
- 12/08 WCC voluntarily provided updated warranty and field report data to NHTSA for analysis.
- 2/24/09 WCC and Navistar met with NHTSA and an analysis of WCC and NHTSA data revealed approximately 120 reports of apparent brake fluid boil due to pistons sticking in the caliper bore.
- 2/25/09 – 3/24/09 WCC and Navistar initiated an in-depth analysis of WCC and NHTSA complaint data.
- 3/23/09 WCC determined the extent of the suspect vehicle population.
- 3/25/09 WCC/Navistar declared safety recall 50901-C

*(7) PROGRAM TO REMEDY DEFECT [Part 573.6 (c)(8)]*

- The final remedy will require the installation of new redesigned brake calipers.
- Timeline of activities leading up to release of final remedy:
  - From March 2009 through November 2009 Bosch, Workhorse, and Navistar performed extensive vehicle testing and considered a number of remedy options.
  - The final remedy recommendation was proposed by Bosch and approved in December 2009. The revised design includes added clearance between the brake caliper bore and the piston, as well as a revised piston material.
  - Bosch initiated part tooling changes in January 2010.
  - Production of the revised caliper at Bosch began in June 2010.
  - Workhorse began chassis production with the revised caliper on August 2, 2010.
- Workhorse Custom Chassis will notify owners and administer the recall on behalf of Monaco RV.

*(8) PLAN FOR REIMBURSEMENT [Part 573.6 (c)(8)(i)]*

- Some of the vehicles in this recall fall outside the warranty period; therefore, Navistar's plan for reimbursement of pre-notification remedies, on file and dated 1/7/2007, applies and instructions will be included in the customer notification.

*(9) SCHEDULE FOR RECALL NOTIFICATION [Part 573.6 (c)(8)(i)]*

- It is estimated that the owner notification letter for the final remedy will be mailed by 9/17/10.

*(10) RECALL NUMBER [Part 573.6 (c)(11)]*

- Navistar will be administering the final remedy for NHTSA recall 09V110 under recall number 51101-C.
- Navistar is currently administering an interim action for NHTSA recall 09V110 under recall number 50901-C.
- At the time the final remedy is released to customers, the interim action reported under Navistar recall 50901-C will be suspended.

The undersigned should be contacted for any additional information regarding this recall at (260) 461-1890.

Sincerely,

A handwritten signature in black ink, reading "R. L. Van Laar". The signature is written in a cursive style with a large, stylized "L" and a trailing flourish.

R. L. Van Laar  
Compliance Manager  
Navistar, Inc.

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