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13E-011
(5 pages)

BOSCH

Robert Bosch LLC
38000 Hills Tech Drive
Farmington Hills, MI 48331-3417

February 25, 2013

Via U.S. Mail

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

Re: Defect Information Report
Pursuant to 49 CFR 573.6(c)
Dear Associate Administrator:

This defect information report is being submitted by Robert Bosch LLC pursuant to Part 573.6 (c).

1. *Manufacturer's name (573.6 (c)(1):*
Robert Bosch LLC

2. *Identification of motor vehicle equipment (573.6 (c)(2):*
Hydro-Max® master cylinders with 2.0 inch bore and 84 cubic inch reservoir containing fluid level indicator switch and without differential pressure switch manufactured between July 1, 2011 and April 12, 2012 sold to one vehicle manufacturer and also supplied as service parts (hereinafter referred to as "subject Hydro-Max® master cylinders"). The list of customers and number of the subject Hydro-Max® master cylinders purchased by each customer is listed below in section 3.

3. *The total number of items of equipment (573.6 (c)(3):*

(a) Navistar located at 2701 Navistar Dr. Lisle, Il 60532 and with a telephone number of (331) 332 5000, purchased 2,184 of the subject Hydro-Max® master cylinders as original equipment under customer number W0010642. Navistar issued a recall notice on February 20, 2013.

(b) UpTime LLC, located at 385 Fenton lane, Unit A, West Chicago, IL 60185 and with a telephone number of (630) 231-1249, purchased 63 of the subject Hydro-Max® master cylinders under customer part number W8005169

(c) General Motors Customer Care & After sales (GMCCA), located at 6200 Grand Pointe Dr. Grand Blanc, Mi 48439 and with a telephone number of (810) 606 2001, purchased 3,431 of the subject Hydro-Max® master cylinders customer part number 15142243 and 15716128

(d) Affinia Global Brake and Chassis, located at 4400 Prime Pkwy, McHenry, IL 60050 and with a telephone number of (815) 363-9000, purchased 624 of the subject Hydro-Max® master cylinders customer part number 63-390565

(e) Centric Parts, located at 14528 Bonelli St., City of Industry, CA 91746 and with a telephone number of (626) 961-5775, purchased 240 of the subject Hydro-Max® master cylinders under customer part numbers BX2234451 and BX2239671

(f) Dorman Products located at 3400 E. Walnut St., Colmar, PA 18915 and with a telephone number of (215) 997-1800, purchased 7 of the subject Hydro-Max® master cylinders under customer part number BX2239671

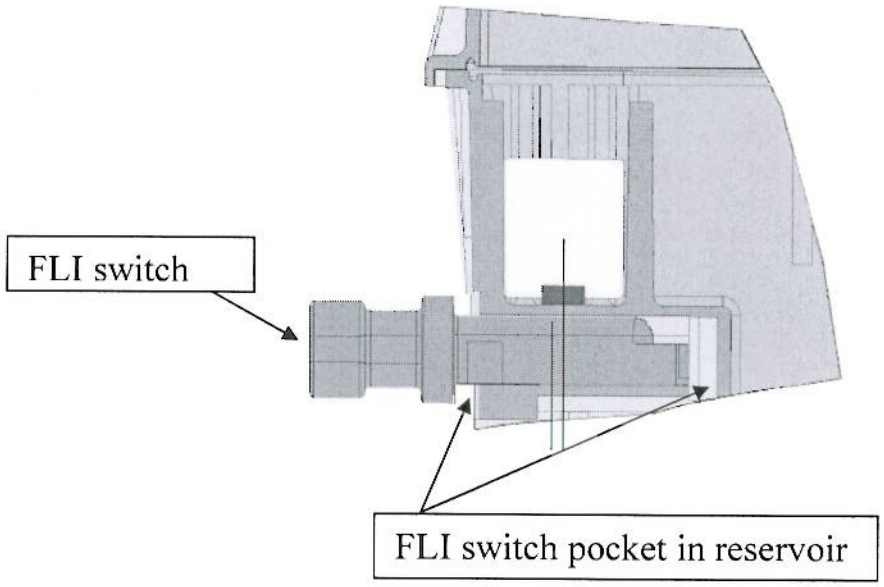
4. *The percentages of items of equipment estimated to contain the defect (573.6 (c)(4)):*
The occurrence of the defective condition is dependent upon both the location of the FLI switch and the magnetism of the float magnet. In order for this condition to occur, the FLI switch must have moved into an outward position and the float magnet must be on the lower level allowed by the specification. The switch is in an inboard position when it leaves the Bosch manufacturing facility. Bosch vehicle testing with the subject Hydro-Max® master cylinder did not result in the FLI switch moving to an outward position and functionality was maintained. Bosch has not received any complaints related to this issue, and does not know the likelihood of the preconditions simultaneously occurring in the field.

5. *A description of the defect (573.6 (c)(5):*

Parts manufactured by Bosch since July 1, 2011 incorporate a reservoir switch pocket with additional clearance to more efficiently install and latch the FLI switch. The added clearance created a condition in which the FLI switch has the potential to move outward, but remain within the reservoir switch pocket. If the FLI switch were to move outward on parts manufactured between July 1, 2011 to April 12, 2012 and the float magnet is on the lower allowed level, the FLI may not be close enough to the float magnet to activate in the event of low brake fluid. If the low brake fluid level is caused by an external leak resulting in the escape of fluid from the brake system, it can result in increased pedal travel. If this condition goes unheeded it can result in a reduction of hydraulic pressure to the disk brake calipers or wheel cylinders and lessen the braking force available. A reduction in braking

force can cause an increase in stopping distance and a vehicle crash may occur. An illustration of the subject Hydro-Max® master cylinder is below:

Cutaway view of reservoir with switch pulled outward



6. *A chronology of events (573.6 (c)(6):*

Date	Activity
July 1, 2011	Bosch begins using new reservoirs in production with master cylinder

	assembly date code 1182
April 13, 2012	Bosch discovers during a validation test for a proposed float supplier change that the position of the FLI switch was affecting the test result. The FLI did not function properly when the FLI switch was pulled fully outward.
April 13, 2012	Bosch adds production test to verify proper function if switch is pulled fully outward. A certification mark is applied to reservoir immediately left of FLI switch to identify part passed test.
April 24, 2012	Bosch conducts vehicle level tests on two assemblies to determine if the FLI switch moves during driving. With switch pushed fully in, as it is following assembly, no movement was found. With switch pulled fully out, switch moved inward 0.010 inch
May 2012- Nov 2012	Bosch monitors field and warranty returns. No reports or indications from warranty of field issues. Bosch commences work on product improvement redesign of FLI switch.
Nov 2012	Bosch completes redesign of FLI switch
Dec 2012	Bosch notifies customers of issue and requests inspection and return of non certified material.
Jan 2013	Bosch receives production parts production validation and starts testing of redesigned FLI switch
February 14, 2013	Navistar informs Bosch that it will issue a safety recall
February 19, 2013	Bosch decides to conduct safety recall

7. *A program to remedy the defect (573.6 (c)(8):*

As a remedy in the field, Bosch is working with its customers to develop a notification process for their customers. An inspection procedure for the subject master cylinders will be provided. If no certification mark is present and the reservoir date code is equal to 1151 or later (higher) the gray colored FLI switch (Bosch P/N 0 204 232 939) would be removed and replaced without charge with a redesigned brown colored FLI switch, (Bosch P/N 0 204 232 107). At this time, the redesigned switch is not available for distribution. Bosch is not aware of any customer complaints or warranty related to the subject issue. However, if a customer has replaced a master cylinder with one involving the subject issue, Bosch will reimburse the customer for the new switch and cost of repair.

8. *Representative copy of all notices and bulletins (573.6 (c)(10):*

A copy of all notices and bulletins will be provided to NHTSA when they become available.

9. Manufacturer's campaign number (573.6 (c)(11):

Bosch has not issued a campaign number. Bosch intends to use NHTSA's campaign number.

If you have any questions regarding this report, please contact Robert Bosch LLC, Attn.: Mr. Michael Burrill, Director – Quality, 38000 Hills Tech Drive, Farmington Hills, Michigan 48331.

Sincerely,

ROBERT BOSCH LLC

Michael Burrill
Director of Quality – Chassis Control

cc. Kelly Schuler, e-mail