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The Heavy Truck Specialists

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Department of Transportation
400 Seventh Street, SW
Washington, DC 20590

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Via Email: kelly.schuler@dot.gov

PART 573 Defect and Noncompliance Report

Date: February 1, 2012

This report serves as Crane Carrier Company's notification to the U.S. Department of Transportation, National Highway Traffic Safety Administration that a defect related to motor vehicle safety exists in certain Crane Carrier Hybrid Series Electric Vehicles. Crane Carrier decided that this defect existed in these vehicles on January 27, 2012.

I. Manufacturer

Manufacturer: Crane Carrier Company
1925 N. Sheridan Rd.
Tulsa, OK 74158

Contact: Jeffrey L. Carpenter
Director of Service
Phone: (918) 832-7305
Fax: (918) 832-7333

This recall involves a defective Siemens electric drive motor supplied by our vendor:

Bluways USA, Inc.
12302 Kerran Street
Poway, CA 92064

Contact: Harry Meyer
Director, Service and Support
Bluways USA, Inc.
12302 Kerran St
Poway Ca. 92064
office 858 413 1738
mobile 619 922 5216
www.bluways.com



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II. Identify the Recall Population and Its Size

Vehicles involved in the recall:

Make:	Crane Carrier
Models:	LET2 HEV
Model year involved:	2009
Production Dates:	Beginning: 04/24/2009 Ending: 09 /15/2009
VIN Range:	Beginning: Ending:
Vehicle Type:	Cab and Chassis
Body style:	Refuse
Total number of vehicles:	3

Total number potentially affected by the recall: 3

The recall population was identified as three (3) specialty cab and chassis' built with an ISE Corporation series electric hybrid drive system. These are the only vehicles built by Crane Carrier with this hybrid drive system and all belong to the same customer.

The percentage of vehicles recalled estimated to actually contain the defect: 1%

The recall population was identified by computer search of all cab and chassis' built containing a specific part number. This search identified all cab and chassis' containing the drive motor identified as containing the defect.

III. Describe the Defect

Description of the Defect:

The defect relates to the ELFA traction drive motor manufactured by Siemens AG and installed in our series electric hybrid vehicles. These motors contain a speed sensor that under very specific conditions, may send a distorted signal which can be interpreted by the controller as motor rotation and may result in the vehicle launch from a stop in the opposite direction of the range selected with the shifter. If REVERSE is selected the potential exists for the vehicle to start from a stop in a forward direction and if DRIVE is selected the potential exists for the vehicle to start from a stop in a rearward direction. This condition can only occur when the vehicle is stationary and affects only the launch of the vehicle. No reports of this failure have been received in the United States.

The unintended movement of the vehicle may cause the vehicle to collide with a person or object resulting in property damage, personal injury or death.



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There are no warnings that precede the occurrence.

IV. Chronology in Determining the Defect

On January 26, 2012, I received an email from Harry Meyer of Bluways USA with 2 attachments, one field service report and the other a Siemens document titled Problem Notification. The Siemens document was not mentioned in the email and was unclear but appeared to indicate that vehicle launch may potentially occur in the opposite direction of the range selected and I responded to the email requesting clarification. I also placed a call to Siemens requesting information. The following day Friday, 1/27/2012, Bluways responded that yes, the document does indicate that potential exists. Also on Friday I received a return call from Siemens verifying this information and indicating only one (1) report of this has occurred to date and that was not in the US.

V. Identify the Remedy

Description of Manufacturer's remedy for the Defect:

The remedy is unknown at this time. Siemens is currently investigating the problem and working on a solution.

VI. Identify the Recall Schedule

All vehicles involved in the recall were identified by January 26, 2012. The owner of the 3 vehicles was notified in a phone conversation I placed myself.

VII. Furnish Recall Communications

Problem Notification

PEM motor speed sensor problem:

During our continuous testing activities we have noticed that the speed sensor in use shows an unintended behavior regarding the speed sensor signal under very specific conditions. The unintended behavior may occur during vehicle standstill and neutral gear position with terminal 15 on when the sensor is exposed to intensive vibrations.

This problem may lead to an incorrect processing of the speed sensor signal within the ELFA system. The inverter signal processing unit interprets the defective sensor signal as the feedback of a rotating motor, in consequence, the inverter may lose the correct field orientation of the machine. That means that the rotating direction of the motor may be controlled in the wrong direction. This behavior occurs only in standstill and affects only the acceleration situation of the vehicle from the standstill position.

We assume that the driver can handle the situation in case of appearance by immediately pressing the footbrake, switch to Neutral and recycle the Key Switch.

In the course of our problem management process we have defined measures to eliminate the above mentioned behavior.

One measure will be that we will change the speed sensor(s). We consider using a compatible sensor which shows a better robustness against the problem root causes mentioned above.

More over we work in any case on an additional software detection method to recognize respectively eliminate the problematical behavior just in case that the above mentioned measures will not cover the conspicuous behavior up to 100 percent. The software detection algorithm will react on that behavior with an appropriate safe reaction.

A short-term SW solution* will be available until KW 03/12. A second final SW solution (improved detection and reaction) will be available until KW 09/12.

Concerning the next steps we will inform you as soon as possible.

Please forward this information to all responsible persons.

If you have further questions, do not hesitate to contact us.

* Every time the DNR switch changes from N to D or N to R the orientation of the motor will be new evaluated.
If $M > 0$ and $n < \text{Lim_RPM}$ (e.g. 50rpm) the system will be deactivated.