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By Recall Management Division at 11:03 am, Sep 17, 2012



September 13, 2012

Jennifer Timian  
Chief, Recall Management Division  
National Highway Traffic Safety Administration  
NVS-215, Room W46-421  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Ms. Timian,

The following information is submitted in accordance with National Highway Traffic Safety Administration's reporting regulations, 49CFR Part 573.6.

Zero Motorcycles Inc. has determined that a defect which relates to motor vehicle safety exists on certain model year 2012 Zero Motorcycles motorcycles.

**IDENTIFICATION OF EQUIPMENT POTENTIALLY CONTAINING THE DEFECT:**

The recall population of 315 motorcycles includes 2012 model year Zero S model motorcycles built January 12, 2012 through July 5, 2012; 2012 model year Zero DS motorcycles built January 13, 2012 through July 23, 2012. This covers the entire range of motorcycles potentially containing the subject defect.

**DESCRIPTION OF DEFECT:**

The subject motorcycles have a motor encoder position signal that may drift over the extended use of the motorcycle. Should the encoder signal drift too far, it could fall beyond the signal limits expected by the motor controller. This condition could cause the motor controller to shut off, resulting in the inadvertent loss of power of the motorcycle, which could lead to a possible crash and potential injury or death of the rider.

**CHRONOLOGY OF EVENTS:**

On 02/10/2012, Zero Motorcycles received a report of a 2012 Model Year (12MY) DS model motorcycle (538SD3M3XCC) that stopped running inadvertently. Zero Motorcycles Engineering was made aware of this issue and began an investigation in collaboration with Zero Motorcycles Customer Service department. At the time, the incident was attributed to a defective motor.

On 05/04/12, Zero Motorcycles received a report of a 12MY S model motorcycle (538SM3M34CC) that stopped running inadvertently. At the time, this incident was attributed to the condition that led to Zero Motorcycles' BMS weatherproofing recall (12V-310).

On 06/12/12, Zero Motorcycles received a report of a 12MY S model motorcycle (538SM3M32CC ) that stopped running inadvertently. With this incident, the investigation team became suspicious of properly understanding root cause. This specific case was investigated further and eventually traced to poor motor / controller timing. A re-timing procedure was put in place that appeared to resolve this occurrence.

On 07/06/12, Zero Motorcycles received a report of a 12MY S model motorcycle (538SM3M36CC ) that stopped running inadvertently. This incident was also traced to poor motor / controller timing, and the re-timing procedure was applied to this bike.

On 07/18/12, Zero Motorcycles received a report of a 12MY DS model motorcycle (538SD3M31CC ) that stopped running inadvertently. This incident was also traced to poor motor / controller timing, and the re-timing procedure was applied to this bike. However, although this repair appeared effective, Zero Motorcycles was later advised that the condition had recurred.

On 08/09/12, Zero Motorcycles received a report of a 12MY S model motorcycle (538SM3M30CC ) that stopped running inadvertently. This incident was also traced to poor motor / controller timing, and the re-timing procedure was applied to this bike. However, although this repair appeared effective, Zero Motorcycles was later advised that the condition had recurred.

On 08/13/12, Zero Motorcycles received a report of a 12MY S model motorcycle (538SM3M32CC ) that stopped running inadvertently. This incident was also traced to poor motor / controller timing, and the re-timing procedure was applied to this bike.

On 09/04/12, Zero Motorcycles received reports of a 12MY S and DS model motorcycles (538SM3M35CC and 538SD3M3XCC ) that stopped running inadvertently. Zero Motorcycles Customer Service advised both dealers of the ongoing investigation regarding the motor / controller timing condition and that a more definitive solution was being explored.

On 09/05/12, this concern was brought to the attention of Zero Motorcycles' Product Integrity Team. This group spent the next week analyzing all of the data and ensuring a good understanding of the concern and its possible effects.

On 09/05/12, Zero Motorcycles received a report of a 12MY DS model motorcycle (538SD3M36CC ) that stopped running inadvertently. Zero Motorcycles Customer Service advised the dealer of the ongoing investigation regarding the motor / controller timing condition and that a more definitive solution was being explored.

On 09/06/12, Zero Motorcycles received reports of a 12MY S and DS model motorcycles (538SM3M31CC and 538SD3M33CC ) that stopped running inadvertently. Zero Motorcycles Customer Service advised both dealers of the ongoing investigation regarding the motor / controller timing condition and that a more definitive solution was being explored.

On 09/12/12, Zero Motorcycles received a report of a 12MY S model motorcycle (538SM3M34CC ) that stopped running inadvertently. Zero Motorcycles Customer Service advised the dealer of the ongoing investigation regarding the motor / controller timing condition and that a more definitive solution was being explored.

On 09/12/2012, Zero Motorcycles completed its internal investigation of this issue and concluded that the encoder signal used on 12MY S and DS motorcycles built on or prior to July 23, 2012 could drift beyond the signal limits expected by the motor controller, which could lead to a quits-while-running situation. Zero Motorcycles executive management considered this information and determined that a defect related to motor vehicle safety existed.

Zero Motorcycles is not aware of any accidents or injuries caused by this condition.

**DESCRIPTION OF THE PROGRAM TO REMEDY THE DEFECT:**

The remedy of this defect is for authorized Zero Motorcycles dealers to reprogram the motorcycle's motor controller with a new firmware and configuration, which compensate for the possible drift of the motor encoder position signal to ensure it remains within the limits expected by the controller.

**SUPPLIER INFORMATION:**

Motenergy, Inc.  
3580 Slinger Road  
Slinger, WI 53806  
Tel: (262) 644-7525  
Fax: (262) 644-7527  
President: John Fiorenza  
Contact Person: John Fiorenza

**DEALER AND OWNER NOTIFICATION:**

Zero Motorcycles expects to notify its dealer network no later than the week of September 17, 2012 and the motorcycle owners no later than the week of September 24, 2012.

**Part 577 NOTICE LETTER:**

A draft of the owner notification letter is attached.

Please advise the undersigned of the campaign assigned by ODI to this recall.

Sincerely,



Richard Kenton  
Director of Customer Service  
Zero Motorcycles Inc.