

Part 573 Safety Recall Report

18V-215

Manufacturer Name : Zero Motorcycles Inc.

Submission Date : APR 09, 2018

NHTSA Recall No. : 18V-215

Manufacturer Recall No. : SV-ZMC-018-383



Manufacturer Information :

Manufacturer Name : Zero Motorcycles Inc.

Address : 380 El Pueblo Road

Scotts Valley CA 95066

Company phone : 831-438-3500

Population :

Number of potentially involved : 218

Estimated percentage with defect : 100 %

Vehicle Information :

Vehicle 1 : 2012-2012 Zero Motorcycles Zero S, Zero DS, Zero DSP

Vehicle Type : MOTORCYCLES

Body Style : OTHER

Power Train : HYBRID ELECTRIC

Descriptive Information : This includes the entire 2012 model year of Zero S, Zero DS, and Zero DSP (police) motorcycles.

Production Dates : OCT 21, 2011 - JUL 23, 2012

VIN Range 1 : Begin : 538SD3M39CCB00002 End : 538SD3M38CCB00248 Not sequential

VIN Range 2 : Begin : 538SM3M32CCA00002 End : 538SM3M30CCA00337 Not sequential

VIN Range 3 : Begin : 538SD3M30CCB00003 End : 538SD3M34CCB00277 Not sequential

Description of Defect :

Description of the Defect : The cell pouches within the battery packs of the subject vehicles may wear against their holders, which may lead to a breach of their outer layers, potentially allowing humidity to penetrate the pouch.

FMVSS 1 : NR

FMVSS 2 : NR

Description of the Safety Risk : Should humidity penetrate a pouch, this may lead to cell separator decay, which could allow an internal short within the cell and the potential for a thermal event, which could lead to property damage or increase the risk of a crash.

Description of the Cause : Design defect by the manufacturer of the cells and their holders.

Identification of Any Warning that can Occur : Compromised cells may significantly decrease the power and range afforded to the vehicle by their battery packs.

Supplier Identification :**Component Manufacturer**

Name : Energy Innovation Group Ltd. ("EIG")

Address : #70 4sandan 3-ro

Jiksan-eup, Seobuk-gu, Cheonan-si Chuncheongnam-do FOREIGN STATES 331-814

Country : Korea, Republic of

Chronology :

On July 21, 2016, Zero Motorcycles was notified of a thermal event that occurred in Hong Kong while one of its 2012 Model Year Model S Police motorcycles was charging. Zero sent a contract Battery Technical Expert to Hong Kong, who reviewed both the motorcycle that suffered the incident and other motorcycles of the same model and model year in the affected police department's fleet. On August 23, 2016, after having completed his investigation and analysis, this expert concluded the event was caused by unexpected wear of a cell pouch against its holder, and the unusual corrosive environment in Hong Kong that penetrated the pouch and led to an internal short in the cell. No cells examined outside of Hong Kong demonstrated this condition. Zero notified the cell manufacturer, EIG, of both the event and the conclusions of its forensic analysis, and EIG responded by stating they had never seen this condition, nor were they able to reproduce it.

On October 2, 2017, Zero Motorcycles was notified of two thermal events in Canada and Texas that occurred while 2012 Model Year Model S motorcycles were being ridden. A detailed forensic analysis of these events conducted by both the individual contracted to conduct the Hong Kong investigation as well as Zero's internal Battery Technical Expert took place over the next several weeks. Since, due to the extensive damage to both vehicles, it was difficult to diagnose the thermal events with certainty, Zero's Battery Technical Expert conducted additional analysis of battery packs returned to Zero through Zero's Customer Service function and was eventually able to identify cells that exhibited this wear and humidity intrusion condition. EIG was asked to participate in this analysis but have not responded to this request.

The remainder of the chronology report is below in the Manufacturer Comments section.

Description of Remedy :

Description of Remedy Program :	Due to the fact that the design of these 2012 Model Year cells and their holders has not been changed by the manufacturer, EIG, relative to these specific concerns, and these cells and battery pack architecture are unique to the 2012 Model Year Zero Motorcycles Models S, DS and DSP, Zero is unable to replace the battery pack as a solution. As a result, Zero Motorcycles will offer affected owners a choice of either the repurchase of their motorcycle or a financial trade-assist towards a newer Model Year Zero Motorcycles motorcycle. In addition, since Zero Motorcycles will strongly urge that affected owners no longer ride or charge these motorcycles, they will be advised that Zero Motorcycles dealers will arrange for the collection of their affected motorcycle at no charge to them.
How Remedy Component Differs from Recalled Component :	The 2012 Model Year Zero S, DS and DSP recall battery packs have a unique architecture where the cells are allowed to move within their holders and are thus subject to their specific vehicle and battery pack dynamics. These cells are also exposed to atmosphere. Since Model Year 2013, Zero Motorcycles has used a different cell manufacturer and a completely different battery pack architecture, which has the cells permanently potted within modules, with no need for individual cell holders. Without the potential for relative motion against a holder or exposure to atmosphere, the cell protective layers cannot wear, nor can humidity come in contact with the cells.
Identify How/When Recall Condition was Corrected in Production :	Zero Motorcycles only used the suspect cell and cell holder manufacturer and battery pack architecture for its 2012 Model Year S, DS and DSP models, and switched to a completely different cell manufacturer and architecture for its 2013 and later Model Years.

Recall Schedule :

Description of Recall Schedule :	Assuming NHTSA approval timing permits, Zero Motorcycles expects to notify its dealer network no later than the week of April 16, 2018, and motorcycle owners no later than the week of April 30, 2018.
Planned Dealer Notification Date :	APR 16, 2018 - APR 20, 2018
Planned Owner Notification Date :	APR 30, 2018 - MAY 04, 2018

* NR - Not Reported