Part 573 Safety Recall Report 18V-204

Manufacturer Name : Tesla, Inc.
Submission Date : JUL 02, 2019
NHTSA Recall No. : 18V-204
Manufacturer Recall No. : SB-18-32-002

Manufacturer Information :

Manufacturer Name : Tesla, Inc.
Address : 3500 Deer Creek Road
Palo Alto CA 94304
Company phone : 650-413-4000

Population :

Number of potentially involved : 70,421
Estimated percentage with defect : 2 %

Vehicle Information :

Vehicle 1 : 2012-2016 Tesla Model S
Vehicle Type : LIGHT VEHICLES
Body Style :
Power Train : NR
Descriptive Information : Tesla Model S Electric Vehicles built with Bosch steering racks
Production Dates : MAY 31, 2012 - APR 09, 2016
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Description of Defect :

Description of the Defect : Model S vehicles built prior to a mid-2016 front end refresh contain Bosch steering racks. When exposed to long-term, high-corrosion environments, the aluminum bolts that attach the power steering gear assist motor to the gear housing may corrode and weaken. If these bolts fracture, the power steering gear assist motor may move, causing the transmission belt to slip and resulting in reduced or lost power steering assist. Reduced or lost power steering assist would not affect steering control, but could require greater steering effort from the driver, particularly at low speeds.

FMVSS 1 : NR
FMVSS 2 : NR

Description of the Safety Risk : Steering gear motor power assist belt slippage or disconnection of the motor from the gear housing would cause reduced or lost power steering assist, but would not result in steering loss or separation of the steering power assist motor from the vehicle. The mechanical connection between the steering wheel and steering rack is maintained at all times. The steering system will deactivate electronic power assistance and will default to manual steering, allowing the vehicle to be steered in a safe and controlled manner. The amount of power steering assist supplied is inversely proportional to vehicle speed, with the highest levels of assist provided at lower vehicle speeds.

	Reduced or lost power steering assist would require greater steering effort, especially at lower speeds which may increase the risk of a low-speed crash. Tesla is not aware of any reports of accidents or injuries related to this condition.
Description of the Cause :	Vehicles that are operated long-term in highly corrosive environments, particularly those that are exposed to aggressive de-icing salts, may experience corrosion of the aluminum steering gear motor attachment bolts. This corrosion weakens the bolts and could lead to bolt fracture. If these bolts fracture, the power steering gear assist motor may move, causing the transmission belt to slip and resulting in reduced or lost power steering assist. This failure mode is most likely to occur when power assist is at its highest during low speed parking lot type maneuvers. The steering gear motor will not separate from the vehicle. Manual steering remains in all cases as the steering wheel remains attached to the steering gear via mechanical linkage.
Identification of Any Warning that can Occur :	The driver will likely experience significant noise, such as whining, screeching, or squeaking, and may experience an audible warning or visual warning in the vehicle instrument cluster, as well as a potential increase in steering efforts.

Supplier Identification :

Component Manufacturer

Name :	Robert Bosch LLC
Address :	15000 Haggerty Road Plymouth MICHIGAN 48170
Country :	United States

Chronology :

• July 2017 – Failure analysis investigation initiated after identifying an unexpected number of Bosch power steering rack replacements in high corrosion regions
• August 2017 – Beginning of collaboration with Bosch to identify root cause and explore hardware and software countermeasures.
• September 2017 to March 2018 – Continued monitoring of field replacement data, in parallel with continued development and validation of hardware and software countermeasures. There were fourteen failures at the end of 2017, and there have been no deaths, injuries or crashes in the US related to this recall.
• March 22, 2018 – Recall determination

Description of Remedy :

Description of Remedy Program :	Tesla will notify vehicle owners by mail and arrange a no charge repair. Steering gear mounting bolts will be replaced with coated steel bolts, and a corrosion-preventative sealer will be applied to the steering gear motor housing and motor connection bolts. If the mounting bolts are found to be broken or break during removal, a new steering gear will also be installed.
How Remedy Component Differs from Recalled Component :	The original bolts are aluminum and the replacement bolts are coated steel bolts. Additionally, for added protection, a corrosion-preventative sealer will be applied over the junction between the steering gear motor housing and motor connection bolts.
Identify How/When Recall Condition was Corrected in Production :	Beginning in April 2016, Tesla began producing an updated version of the Model S, which has a different steering gear design from a different supplier.

Recall Schedule :

Description of Recall Schedule :	All Tesla stores and service centers will be notified on or about March 29, 2018. Customers will be sent a courtesy email alerting them to the recall on or about March 29, 2018. Owner notification letters will be mailed out in accordance with 49 C.F.R. § 577.7.
Planned Dealer Notification Date :	MAR 29, 2018 - MAR 29, 2018
Planned Owner Notification Date :	MAR 29, 2018 - MAY 29, 2018

* NR - Not Reported