

23S56 - Certain 2021-22 model Ford Mustang Mach-E vehicles – High Voltage Battery Main Contactor Failure

Chronology of Defect: Submitted 13-Oct 2023

On **June 3, 2022**, Ford's Field Review Committee (FRC) approved a Field Service Action (FSA) 22S41 to address potential high voltage battery main contactor over-heating concerns on certain 2021-2022 Mustang Mach-E vehicles. The service fix for 22S41 is for dealers to update Secondary On-Board Diagnostic Control Module (SOBDMC) and the Battery Energy Control Module (BECM) software. The updated SOBDMC software monitors contactor temperature and intelligently reduces battery power to prevent further damage to the contactor. The updated BECM software monitors contactor resistance to identify a damaged contactor and will issue a diagnostic trouble code (DTC) and reduce vehicle power to prevent further damage.

At the time of this FSA approval, Ford's Critical Concern Review Group (CCRG) and Electrical Propulsion Engineering (EPE) teams judged the BECM and SOBDMC software updates to be an acceptable method of preventing the safety risk associated with a loss of motive power. The software update addressed the risk of loss of motive power by monitoring contactor resistance. Customers would receive a warning (described above) when resistance was measured higher than the threshold. In addition to this warning, the software would reduce power to prevent further damage to the contactors and address the risk of loss of motive power. The customer would still be able to accelerate to highway speeds safely with this power derate. This approach was also reviewed with the National Highway Traffic Safety Administration (NHTSA) at this time.

August - October 2023:

On **August 17, 2023**, National Highway Traffic Safety Administration (NHTSA) informed Ford that they had opened a Recall Query to assess the remedy of FSA 22S41. Specifically, for vehicles that alleged a loss of motive power after the completion of 22S41. Ford opened an investigation in CCRG to manage the Recall Query response to NHTSA.

In reviewing updated field data as part of Ford's ongoing monitor of recall effectiveness, CCRG and EPE reassessed their previous recommendations. Based on the new assessment, Extended Range and GT will receive a replacement Bussed Electrical Center (BEC) also referred to as the High Voltage Battery Junction Box (HVBJB).

The CCRG is not recommending any additional action on the Standard Range variants previously included in 22S41 because the Standard Range variation will see much less power at the contactors and has a much lower probability of latent contactor damage. Field data received after the completion of 22S41 shows that the remedy addressed the risk of loss of motive power for the Standard Range variants.

As of **October 4, 2023**, Ford is aware of 107 instances of high voltage contactor over-heating that resulted in a loss of motive power after completion of 22S41. 100 of these instances are on Extended Range or GT variants.

Ford is not aware of any accidents or injuries related to this concern.