

FCA US LLC Chronology
Certain 2014 KL Vehicles
BCM Electro-Static Discharge
Submitted on August 11, 2015

- On January 30, 2015, the FCA US LLC (“FCA US”) Vehicle Safety and Regulatory Compliance (“VSRC”) department was informed by FCA US Electrical Engineering of reported instances where the front wiper system became inoperative.
- In early February 2015, warranty claims where the front wiper system had stopped functioning were analyzed. When FCA US dealers saw this failure mode, they were replacing the wiper motor and BCM to repair the vehicles.
- On February 10, 2015, warranty returned Body Control Modules (“BCM”) were reviewed at the FCA US Quality Engineering Center by the supplier Magnetti Marelli. The evaluation determined, in all cases where the front wiper had stopped functioning, that the high-side driver on the Printed Circuit Board was damaged.
- On February 13, 2015, after additional analysis of warranty returned BCMs, the supplier reported that the high-side driver was damaged by an electrical overstress.
- The FCA US Warranty Parts Return Analysis System was reviewed for all available data related to wiper motor warranty claims. The analysis of the wiper motor returns indicated “No Trouble Found”.
- In early March 2015, further warranty analysis identified 26 claims, which relate to or may relate to the inoperable front wipers and the BCM, in vehicles in the eastern half of the United States. A small number of claims were also identified in western states.
- On March 12, 2015, the FCA US VSRC and Engineering teams met with the FCA US Electro Magnetic Compatibility (“EMC”) department to develop a test plan to reproduce the issue and find a solution. Testing would require vehicles of both left hand drive (“LHD”) and right hand drive (“RHD”) configurations for each of the BCM configurations.
- On March 18, 2015, testing to duplicate damage to the BCM began in the FCA US EMC department. A 17-20 kV pulse to the wiper system was shown to duplicate the damage seen on the warranty returned BCMs.
- By April 2, 2015, the FCA US EMC department testing indicated a significant Electro-Static Discharge (“ESD”) pulse could be generated by the rubber windshield wipers running on a dry windshield. It was also noted that winter conditions produce the greatest amount of windshield wiper ESD pulse.
- Root cause was traced to an electro-static build-up from the wipers on the windshield, which results in an ESD that passes through the wiper motor and into the Body Control Module.
- In mid-May 2015, the FCA US EMC department attempted to duplicate the results of the LHD testing on a 2014 MY Jeep Cherokee (“KL”) RHD vehicle. When tested in the same manner as the LHD vehicle, the RHD vehicle’s BCM could not be damaged and the windshield wipers could not be rendered inoperable resulting from an ESD pulse.
- The testing concluded that the RHD vehicle’s BCM and electrical architecture, which are different from the LHD vehicle, provide an adequate ground path for ESD and will not damage the BCM.
- In mid-May 2015, testing on LHD vehicles showed the addition of a ground strap, between the windshield wiper mechanism and the body, channeled the ESD away from the BCM. It should be noted that we were unable to duplicate the input found in the field however the failure to the BCM was duplicated during testing.
- June we ran simulations to insure we were addressing the failure that was created by the ESD pulse to the BCM due to minimum and maximum ESD pulse inputs to the wiper system to determine the threshold to failure.
- On July 15, 2015, the FCA US Investigation Steering Group recommended the issue be taken to the August 4, 2015 FCA US Vehicle Regulations Committee. The front wiper systems are compliant to Federal Motor Vehicle Safety Standard 104 as built and shipped, but can be affected during use, causing a potential safety concern.
- As of July 15, 2015, FCA US is aware of 61 warranty reports which relate to or may relate to this issue. Approximately 31 of the reported failures occurred in the time frame of December 2014 through March 2015 in the eastern half of the United States and Canada.
- As of August 4, 2015, there are approximately three CAIRs, zero VOQs and 61 QNA related field reports.
- FCA US is not aware of any accidents or injuries related to this issue.
- On August 4, 2015, FCA US determined, through the Vehicle Regulations Committee, to conduct a voluntary safety recall of the affected vehicles.