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Ford Issues Software Recall on Electric Vehicle Batteries: Studying Recent Software Recalls to Mitigate Future Defects

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With the emergence of electric vehicles and truly connected cars, automotive technology has become reliant on the integration and operation of software. But with an increase in software applications comes an increase in recalls.

On June 10, 2022, Ford Motor Company filed a Part 573 Safety Recall Report related to the 2021-22 Ford Mustang Mach-E. This recall focused on the software in two control modules (the secondary on-board diagnostic control module and the battery energy control module). The filing describes the defect as "Direct Current ("DC") fast charging and repeated wide open pedal events can cause the high voltage battery main contactors to overheat." In its response plan, Ford notified NHTSA that it would provide an Over the Air ("OTA") update to address the software issue. Vehicle owners could also take their vehicle to a dealership for service.

But Ford isn't the only company performing software related recalls. In April, Toyota and Lexus recalled over 400,000 vehicles due to a stability control software issue where vehicles wouldn't turn the stability control back on automatically if a driver disabled it and turned the vehicle off. Earlier in the year, Tesla recalled certain Model S, X, 3 and Y vehicles equipped with a certain version of the Full Self-Driving Beta software that would allow the vehicle to perform a "rolling stop" at intersections without ever coming to a complete stop.

Additionally, NHTSA moved forward to upgrade its Preliminary Evaluation to an Engineering Analysis on June 8, 2022, as it continued to investigate Tesla's Autopilot system and its software. In the action, NHTSA sought to "extend the existing crash analysis, evaluate additional data sets, perform vehicle evaluations, and to explore the degree to which Autopilot and associated Tesla systems may exacerbate human factors or

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behavioral safety risks by undermining the effectiveness of the driver's supervision. In doing so, NHTSA plans to continue its assessment of vehicle control authority, driver engagement technologies, and related human factors considerations."

It's clear that software recalls are on the rise, whether they're related to electric vehicle batteries, semi-automated driving features or even more traditional vehicle features and functions. This suggests that it's time to take action to mitigate future risks by understanding these newsworthy reports.

What should the supplier community do in light of these software recalls?

For any supplier that creates software or is heavily reliant on its use with its supplied component, thinking about mitigating potential recalls and product liability risk is critical. Whether you are in the early phases and working through a system design or are already in production, take note of the following opportunities to reflect on the lessons learned from these and other software recalls.

- ***Negotiate Terms and Conditions Carefully***: As you enter into that initial relationship with your OEM, pay close attention to the terms and conditions. Software can create unique challenges in the discovery of defects and potential root causes that should be part of the discussion surrounding warranty and recall terms. Additionally, with the increasing frequency of OTA in repairs, companies should consider discussions regarding corrective actions and how these will be implemented while negotiating the terms.

- ***Be Firm on Detailed Specifications***: Getting detailed information from your OEM is critical. When providing software or an interfacing component, you may face challenges if you are unaware of the full scope of the setting in which your product is to be used. Whether it is vehicle architecture, competing signals, interfaces, or any number of potential risks, the design team must work diligently to get the clearest understanding possible of the vehicle system in which the technology will be employed.

- ***Software Failure Mode Effects Analysis (SFMEA) and Design FMEA (DFMEA) Should Be Living Documents***: As more software recalls make it to the top of our news feed, the potential exists for those stories to be filled with lessons learned that would easily convert to line items in our SFMEAs and DFMEAs. Diligent work in creating and maintaining these as living documents can help quickly identify and address potential issues in current and future programs.

In a time where software recalls are becoming more commonplace, a supplier should have a robust approach to software and component design and defect mitigation. We routinely assist clients with assessing terms and conditions and training teams in product risk mitigation. Contact the authors of this Alert or your Butzel Attorney for further assistance.

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