

RECALL 205 ATTACHMENT A

CHRONOLOGY OF EVENTS LEADING UP TO DEFECT DECISION

- April 2018

HMA received a claim alleging an engine compartment fire on a model year 2014 Hyundai Santa Fe Sport vehicle in the U.S. market. HMA was able to inspect the vehicle; however, the source of the fire could not be determined due to the extent of damage to the engine and surrounding components. The ABS module was requested for inspection and analysis.
- May 2018

HMA searched internal records including warranty claims and identified four (4) additional incidents involving engine compartment fires on model year 2013-2014 Santa Fe Sport vehicles. HMA initiated recovery of ABS modules from all incident vehicles and began active monitoring of all engine compartment fires on 2013-2018 Santa Fe Sport vehicles.
- June 2018

HMA summarized its findings to date and issued a Quality Information Report (“QIR”) to HMC. Four (4) ABS modules recovered from incident vehicles were shipped to KMMG for further inspection.
- September 2018

KMMG reported to HMA that a potential root cause of the fire could not be determined based on parts inspection alone. KMMG dispositioned the parts to be delivered to the supplier, Mando Korea, for further analysis. A notice of a new incident involving a 2015 Santa Fe Sport vehicle was received and the ABS module was requested for recovery.
- April 2019

HMA and HMC conducted a joint inspection on a repurchased 2015 Santa Fe Sport vehicle. The source of the fire could not be determined due to the vehicle damage. The ABS module was recovered by HMC for further study by Mando.
- May 2019 – December 2019

HMA continued active monitoring of new incidents and recovery of all incident parts for analysis. During this time, four (4) incident parts were collected and sent to HMC. HMC and Mando inspected all incident parts received, but an approximate failure mechanism or root cause could not be determined.
- January 2020 – July 2020

HMA enlisted a third-party test laboratory to assist with analysis and testing of incident parts for the purposes of identifying an ABS module failure mechanism and relative root cause. During this time, eight (8) incident ABS modules were sent to Exponent. Through disassembly and examination of internal components, Exponent observed evidence of electrical shorting caused by corrosion on the ABS module ECU’s printed circuit board (“PCB”). Exponent also observed contaminating fluid, later identified as brake fluid, in the motor housing and hydraulic unit attached to the ECU. Exponent

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used this information to deduce a leak path of brake fluid from the ABS hydraulic unit to the PCB contained within the ECU through its connector, causing brake fluid to accumulate and corrode the PCB resulting in an electrical short. Further replication testing confirmed propagation of an electrical fire caused by this short.

- August 2020
Exponent reviewed its findings with HMA's NASO on August 5 and August 18, 2020. Based on the information received, HMA's NASO convened its North American Technical Committee on August 20, 2020 and decided to conduct safety recall 194 (20V-520) for affected vehicles in the U.S. market.
- November 2020 – March 2021
HMC focused on investigating robust alternatives for a final remedy aimed at enhancing the ABS module's protection against significant overcurrent and subsequent shorting that could result in a fire. After considering various options, HMC developed a new ABS module multi-fuse with a lower amperage rating and conducted replication testing to confirm its effectiveness in safeguarding the module from issues stemming from overcurrent.
- April 2021
HMC informed HMA's NASO of its investigation findings. Based on this information, NASO convened its North American Safety Decision Authority on April 21, 2021 and decided to conduct a new safety recall of vehicles involved in safety recall 20V-520, including those that received the original remedy.

To date, Hyundai is aware of eighteen (18) engine compartment fires related to this defect.