



Kia Motors America, Inc.
Corporate Headquarters

[REDACTED] Irvine, CA [REDACTED] USA
[REDACTED]

October 31, 2018

VIA FEDERAL EXPRESS

Paul Simmons, Chief
Vehicle Defect Division C
Office of Defects Investigation
U.S. Department of Transportation
National Highway Traffic Safety Administration
[REDACTED]
Washington D.C. [REDACTED]

Re: **Defect Petition (DP18-003)**
Non-Crash Fires (MY) 2011-2014 Kia Optima and Sorento

Dear Mr. Simmons:

Pursuant to the extension you granted Kia on October 10, 2018, this letter contains Kia's responses to Request Nos. 8, 9 and 10 of your letter dated September 4, 2018, sent to Kia Motors America, Inc. ("Kia") (Reference NEF-103mjl/DP18-003). In addition, Kia is also submitting supplemental responses to Request Nos. 2, 3, 5 and 7.

REQUEST NO. 2:

State, by model, model year, and alleged defect category (i.e., A, B, C and D), the number of each of the following, received by Kia, or of which Kia is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:

- a. Consumer complaints, including those from fleet operators;
- b. Field reports, including dealer field reports;
- c. Reports involving a fire, crash, injury or fatality;
- d. Property damage claims; and
- e. Third-party arbitration proceedings where Kia is or was a party to the arbitration; and
- f. Lawsuits, both pending and closed, in which Kia is or was a defendant or codefendant.

For subparts "a" through "f", state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a

consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items “c” through “f,” provide a summary description of the alleged problem and causal and contributing factors and Kia’s assessment of the problem, with a summary of the significant underlying facts and evidence. For items “e and “f” identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

RESPONSE TO REQUEST NO. 2:

A chart summarizing the total of each of the items requested in 2(a) through (f) is being submitted contemporaneously with this response. **TAB 2.**

Pursuant to the extension granted by Paul Simmons on October 10, 2018, any Assessments associated with items 2(c) through (f) will be provided on October 31, 2018.

SUPPLEMENTAL RESPONSE TO REQUEST NO. 2:

An updated and corrected chart summarizing the total of each of the items requested in 2(a) through (f) is being submitted contemporaneously with this response. **TAB 2.1.**

The assessments associated with items 2 (c) through (f) have been included in the files titled “CORRECTED_REQUEST NUMBER TWO DATA_CONSUMER COMPLAINTS” and “UPDATED_REQUEST NUMBER TWO DATA_LAWSUITS”.

REQUEST NO. 3:

Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:

- a. Alleged defect category (i.e., A, B, C or D);
- b. Kia’s file number or other identifier used;
- c. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
- d. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- e. Vehicle’s VIN;
- f. Vehicle’s make, model and model year;
- g. Vehicle’s mileage at time of incident;
- h. Incident date;
- i. Report or claim date;
- j. Whether property damage is alleged;
- k. Number of alleged injuries, if any;

- l. Number of alleged fatalities, if any, and;
- m. For property damage claims, the amount paid and, expressed as a percentage, the ratio of the amount paid to the amount claimed in the original demand.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

RESPONSE TO REQUEST NO. 3:

A list of the responsive communications is provided on the data collection file under category "COMPLAINT DATA" and is submitted contemporaneously with this response.

SUPPLEMENTAL RESPONSE TO REQUEST NO. 3:

An updated and corrected list of the responsive communications as it relates to Kia's Consumer Assistance Case files is provided under the category "CORRECTED_REQUEST NUMBER TWO DATA_CONSUMER COMPLAINTS".

REQUEST NO. 5:

State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Kia that relate to, or may relate to, the alleged defects in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. Kia's claim number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number(s);
- h. Problem code(s);
- i. Diagnostic trouble code(s);
- j. Replacement part number(s) and description(s);
- k. Whether there was a claim for a towing expense on or near the date of the repairs to the subject components;
- l. Concern stated by customer;
- m. Cause as stated on the repair order;
- n. Correction as stated on the repair order; and

- o. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2010, or a compatible format, entitled “WARRANTY DATA.”

RESPONSE TO REQUEST NO. 5:

A list of the Warranty claims identified as a result of the search specified in Kia’s response to Request No. 6 is provided on the data collection file under the category “WARRANTY DATA” and is submitted contemporaneously with this response.

SUPPLEMENTAL RESPONSE TO REQUEST NO. 5:

In addition to the list of warranty claims submitted on October 15, 2018, Kia is also providing a list of goodwill claims approved by the KMA Consumer Affairs Department. This list is provided under the category WARRANTY DATA_2 and is submitted contemporaneously with this supplemental response.

REQUEST NO. 7:

Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defects in the subject vehicles, that Kia has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Kia is planning to issue within the next 120 days.

RESPONSE TO REQUEST NO. 7:

Copies of the documents responsive to this request are provided. **TABS 3-8.**

SUPPLEMENTAL RESPONSE TO REQUEST NO. 7:

Copies of additional documents responsive to this request are submitted contemporaneously with this response. **TABS 9-11.**

REQUEST NO. 8:

Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, “actions”) that relate to, or may relate to, the alleged defects in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Kia. For each such action, provide the following information:

- a. Action title or identifier;

- b. The actual or planned start date;
- c. The actual or expected end date;
- d. Brief summary of the subject and objective of the action;
- e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action;
and
- f. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified¹², provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

RESPONSE TO REQUEST NO. 8:

A summary chart of the actions in response to this request is submitted contemporaneously with this response. **Tab 12.**

REQUEST NO. 9:

Describe all modifications or changes made by, or on behalf of, Kia in the design, material composition, manufacture, quality control, supply, or installation of the engine compartment components, from the start of production to date, which relate to, or may relate to, alleged defects B and C in the subject vehicles and either directly or indirectly reduce or mitigate the risk of fire or thermal events. For each such modification or change, provide the following information:

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;
- b. A detailed description of the modification or change;
- c. The reason(s) for the modification or change;
- d. The part number(s) (service and engineering) of the original component;
- e. The part number(s) (service and engineering) of the modified component;
- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
- g. When the modified component was made available as a service component; and
- h. Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that Kia is aware of which may be incorporated into vehicle production within the next 120 days.

RESPONSE TO REQUEST NO. 9:

A chart identifying the information responsive to this request is submitted contemporaneously with this response. **Tab 13.**

REQUEST NO. 10:

Furnish Kia's assessment of the alleged defects in the subject vehicles, including:

- a. The root cause and all contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety that it poses;
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
- f. The VOQ reports referenced in this inquiry.

RESPONSE TO REQUEST NO. 10 (a)-(f):

Kia has provided information relating to non-collision fires. The term "fire" as defined in 49 CFR Part 579.4 includes all thermal events regardless of whether they result in a fire or not, such as smoke or melting incidents. Consequently, the data provided includes many thermal events in which the customer's vehicle did not experience a fire as it is commonly understood by the public. As a result, you may later see Kia discussing and providing documentation regarding actual fires, which are far fewer than the thermal events which NHTSA has requested. Notwithstanding that Kia has included the requested full range of thermal events specified by the Agency, Kia's complaint rates for such a broad range of thermal events are low. Regardless of the type of thermal event, including actual fires, none of these events have caused or resulted in a fatality in the subject vehicles.

The Agency has requested that Kia categorize its alleged fire and thermal events into four (4) separate categories: (a) engine thermal events ("fires") that are or may be related to Recall 17v224; (b) engine thermal events ("fires") not related to Recall 17v224; (c) thermal events ("fires") outside of the engine compartment; and (d) thermal events ("fires") with unknown cause or origin. Because NHTSA's defect definitions focus on the origin of the fire rather than on a particular causal part, Kia's assessment has been focused on customer complaints, as they tend to contain more detail about the circumstances leading up to, and after, an alleged fire and thus are more likely to assist in identifying the fire origin than are other data sources.¹ Kia has identified 1,139 customer complaints (909 actual fires; 230 non-fire events but within NHTSA "fire" definition) involving a non-collision vehicle fire or thermal event, for an approximate complaint rate of 0.1%.

Consistent with publicly available information, the majority of Kia's vehicle thermal events ("fires") have originated within the engine compartment. Of the 1,139 alleged events,

¹ As indicated in our October 15, 2018 response, the warranty claim data is not easily categorized into the alleged defect structure proposed by the information request. The warranty claim data also contain multiple claims related to a single incident and therefore are not reliable for evaluating incident rates since no single component is the focus of the Agency's requests.

approximately 76% (870) of these incidents have been identified as originating within the engine compartment. Approximately 70% of these occurred in vehicles with a VIN within the scope of 17v224. Although 17v224 focuses on the risk of stalling from an engine seizure, there are certain circumstances in which an engine seizure can cause an engine fire. Our review of the data has identified the following common factual circumstances:

1. While the vehicle is in a drive cycle, the engine seizes at one or more journal locations, resulting in one or more connecting rod failures. The broken connecting rod can rupture the engine block or oil pan. If that occurs, the resulting hole in the engine block or oil pan allows a release of engine oil. This oil can contact hot exhaust system surfaces, resulting, typically in smoke, but also allowing the oil to ignite under some circumstances.
2. While the vehicle is in a drive cycle, the engine seizes at one or more journal locations without connecting rod breakage, resulting in engine stall. Experiencing an engine that will not start, a vehicle operator may choose to make prolonged attempts to start the engine. Such use of the starter naturally causes heat, and if the starter is used for a sufficiently prolonged period of time, that heat buildup can result in ignition in the starter and associated wiring fire.
3. In some instances, the operator of a subject vehicle completes a drive cycle just prior to engine seizure. While at rest, the engine components and oil cool such that the static friction at one or more of the connecting rod bearing/crankpin interfaces exceeds the starter's torque capacity. Similar to Scenario 2 above, the operator then makes one or more attempts to start the engine but, due to an inability to rotate, the resulting heat buildup in the starter and associated wiring, may result in a fire.

Kia testing and general field experience, demonstrates that typically, the engine in the subject recall vehicles will produce a loud knocking noise and/or activate the illumination of the engine warning and/or oil pressure warning lamps prior to engine stall and/or subsequent thermal event.

As they relate thermal events ("fires") not associated with the recall conditions described above, 35%² of the customer complaints involve thermal events related to an identifiable failure within the engine compartment. As indicated by the U.S. Fire Administration (USFA), the vast majority (62%) of all vehicle fires originate within the engine, running gear, or wheel areas of the vehicle. This is consistent with the reality that vehicle engine compartments house a high density of complex electrical and mechanical components, piping systems and reservoirs containing flammable liquids, multiple heat sources that can initiate ignition, and various combustible materials. As with other manufacturers, our review of available data identifies

² The 35% figure includes vehicles within the scope of 17v224. We note that some of the vehicles within the recall scope have experienced the same mechanical and/or electronic component failures, resulting in fire/thermal events as described in this paragraph. These events, however, are varied in nature in the same manner as occurrences in vehicles unaffected by the recall.

varied mechanical and electrical failures (not associated with the recall related engine seizures) which result in thermal events. These include failures related to the fuel pump; hose and piping failures causing fuel to be expelled in the presence of a hot surface; coolant hose leaks; electrical wiring or other power transmission failures related to lighting; ignition; cooling fans and air conditioning; installation/repair issues; and lack of maintenance. None of the failure conditions identified by Kia until now, however, have been found to indicate a safety defect trend.

In relation to customer complaints involving non-engine compartment thermal events (“fires”), Kia has not identified a common root cause for fires occurring outside of the engine compartment. Rather, Kia has identified a series of causes of thermal incidents, including but not limited to door panel wiring, door sill lighting, fuse box, seat heaters, dash panel wiring, and aftermarket accessories. These non-engine compartment thermal events account for approximately 9% of the overall number of reported customer complaints to Kia.

While Kia has made significant efforts to determine the cause and/or origin of particular vehicle fires, the very nature of fires creates investigation obstacles and challenges. This is reflected in a recent study conducted by USFA, which notes that 23% of highway vehicle fires lack a causal determination after an investigation. This is due to extensive vehicle damage caused by fires which frequently consume critical evidence necessary to identify cause and origin. Consistently, the causes of approximately 37% of the fire incidents reviewed and/or inspected by KMA cannot be identified. However, Kia believes it is likely that some number of events of unknown origin could be found to be attributable to the defect addressed by 17v224.

In order to place Kia’s thermal events into context, KMA conducted research to determine how its vehicles compare to other vehicles of similar vintage and to better understand highway vehicle fire trends nationwide. According to the National Fire Protection Association’s annual report, *Fire Loss in the United States 2017*, there were an estimated 168,000 fires in highway type vehicles in 2017, which represented a decrease of 3% from the prior year’s report. This equates to an average of one fire every 3 minutes and 8 seconds, or a registered vehicle fleet fire rate of 0.63/1000 vehicles. These events cover the full range of vehicle makes and models.

To give context to the perceived risk of fire in the subject Kia vehicles relative to other passenger vehicles, KMA reviewed reports produced by the Highway Loss Data Institute (HLDI) of the Insurance Institute for Highway Safety. With regular frequency, HLDI produces publicly available reports³ for NHTSA comprehensively addressing non-crash fire losses. The reports typically cover three model years of production, and the September report represents the most comprehensive coverage of exposure (expressed in insured vehicle years).⁴ The September 2015 report captures fire claims data for model years 2012-2014, three of the four Kia model years that are the subject of this investigation. The report shows a relative claims frequency of 133 (or

³ Highway Loss Data Institute (HLDI) Insurance Report, “Non-crash Fire Losses; Prepared by HLDI for NHTSA.”

⁴ Exposure is expressed in insured vehicle years. One insured vehicle year may consist of one vehicle insured for 365 days, or 2 vehicles insured for 6 months, or 365 vehicles insured for one day or any combination of vehicles and days that adds up to 365 days.

33% above the average result of 100 for all passenger vehicles) for the 2012-2014 Optima. There are 8 other midsize competitor models listed in the report with relative claim frequencies greater than that of the 2012-2014 Optima. Similarly, the report shows 4 competitor models with higher relative claims frequencies than the Sorento 4dr 2wd (101), and 5 competitor models that exceed the Sorento 4dr 4WD relative claims frequency (116). A review of the HLDI report for September 2014 captures the relative non-crash fire claim frequencies for model years 2011-2014. Similar to the observations above, this report identifies 16 competitor vehicle models with higher relative claim frequencies than the Optima, 3 higher than the Sorento 4dr 2WD, and 5 higher than the Sorento 4dr 4WD.

KMA's recall to address the risk of engine seizure in the 2011-2014 subject vehicles will satisfactorily reduce the risk of both engine stalls and the less frequent thermal events associated with Alleged Defect A. To address the engine risk not associated with recall engine seizure (Alleged Defect B) and with non-engine events (Alleged Defect C), KMA has taken several aggressive steps to investigate, analyze, and if necessary, take field actions and recalls, as needed. Specifics include: KMA has developed a dedicated portion of its customer assistance call center to manage every allegation of fire received. Each representative is equipped with a standardized protocol to capture key details of the alleged incident and compile a dossier of information on the vehicle, including witness observations, before routing the data package to Kia's new fire analysis management team for disposition. As noted above, the USFA has determined that 23% of highway vehicle fires lack a casual determination after an investigation. KMA seeks to materially improve this percentage, and to that end has acquired the services of a selected team of vehicle fire forensic investigators placed throughout the United States to promptly respond to any future reported fires (usually those involving ignition events) where we believe an opportunity exists to collect meaningful data. KMA is also dedicating significant resources to maximize the recall completion rate of SC147 and that effort will thus address the overall risk of thermal events in the subject vehicles. In addition, KMA has enhanced the depth and thoroughness of its investigation efforts by retaining the services of an industry-respected expert automotive fire investigator and a former NHTSA Defect Senior Executive with over 20 years of safety defect investigation experience and management. KMA's objective is to maximize the collection of quality vehicle fire field data over the next few months in order to augment its ongoing analysis of all available data. As new insights become available from the field they are shared in real-time with Kia's team of field investigators and data analysts. KMA is also working closely with the Agency through weekly communications regarding vehicle inspections that have been conducted or will be conducted in the future. This allows both KMA and NHTSA to share information in real time regarding inspection results and potential defect trends. Kia's goal is to promptly identify the existence of any common root cause of fires beyond those already known, communicate and discuss these with NHTSA and take appropriate field action, including recalls to protect the safety of its customers.

Paul Simmons, Chief
Vehicle Defect Division C
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October 31, 2018
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Kia's assessment of the VOQs referenced in your letter is submitted contemporaneously with this response. **TAB 14.**

Sincerely,



J.S. (Jurassic) Park
Vice President, Product Litigation &
Regulatory Compliance
Kia Motors America, Inc.