

JULY 20, 2022

**The Honorable Pete Buttigieg, Secretary**

United States Department of Transportation (U.S. DOT)  
1200 New Jersey Ave, SE  
Washington, DC 20590

**Dr. Steven Cliff, Administrator**

National Highway Traffic Safety Administration (NHTSA)  
Office of Defects Investigation (NVS-210)  
United States Department of Transportation (U.S. DOT)  
1200 New Jersey Avenue SE, West Building  
Washington, DC 20590

**RE: Amended Petition for Defect Investigation of Hyundai and KIA  
Petition for Public Meeting / Hearing / Proceeding**

U.S. Secretary Buttigieg and NHTSA Administrator Dr. Cliff:

We filed **Defect Petition DP21-003** with NHTSA on October 10, 2021. The Office of Defects Investigation (ODI) officially opened the NHTSA Resume on November 12, 2021. Therefore, the NHTSA has had at least 250 days (more than twice the statutory deadline of 120 days) to review, evaluate and appropriately respond to this pending Defect Petition.<sup>1</sup>

As you are likely aware, several troubling issues have recently been publicly overcovered regarding Hyundai/Kia:

- Hyundai and Kia were recently **raided by German federal prosecutors** in June 2022.<sup>2</sup>
- U.S. NHTSA stepped up probe and investigations of Hyundai-Kia in December 2021.<sup>3</sup>
- Hyundai admitted to defects causing **unintended acceleration** with 2017-2019 Ioniq models in December 2021 (NHTSA Recall Campaign 21V944000).<sup>4</sup>
- NHTSA awarded a former Hyundai employee \$24 million whistleblower award in November 2021 related to Hyundai and Kia's violations of the U.S. Safety Act.<sup>5</sup>
- Hyundai/Kia continue to be bound by Consent Orders with NHTSA since executed in November 2020 due to **untimely recalls and inaccurately reporting information to NHTSA**.<sup>6</sup>
- South Korean prosecutors are still investigating Hyundai/Kia since they raided Hyundai's offices in 2019 recall probe due to **allegations of concealing defects**.<sup>7</sup>

<sup>1</sup> NHTSA Office of Defects Investigation (ODI) VOQ number 11439675

<sup>2</sup> <http://www.businesskorea.co.kr/news/articleView.html?idxno=95828>

<sup>3</sup> <https://abcnews.go.com/US/wireStory/us-steps-probe-hyundai-kia-engine-failures-fires-81954665>

<sup>4</sup> <https://static.nhtsa.gov/odi/rcl/2021/RCLRPT-21V944-3861.PDF>

<sup>5</sup> <https://www.nhtsa.gov/press-releases/first-whistleblower-award>

<sup>6</sup> <https://www.nhtsa.gov/press-releases/nhtsa-announces-consent-orders-hyundai-and-kia-over-theta-ii-recall>

<sup>7</sup> <https://www.reuters.com/article/us-hyundai-motor-raid/south-korean-prosecutors-raid-hyundais-office-in-recall-probe-chosun-biz-idUSKCN1Q9071>

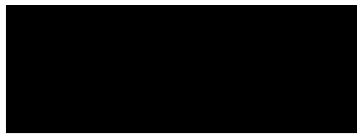
Since filing DP21-003, over **400 additional Americans expressed support of NHTSA granting** this petition.<sup>8</sup> In line with NHTSA's mission and regulatory authority, we respectfully submit this **Amended Petition for Defect Investigation** to your attention and request that NHTSA grant the petition. Petitioners have unique knowledge from decades of automotive product liability experience. This experience includes extensive litigation against Hyundai and Kia. It is petitioners' opinion that this petition describes some of the most egregious violations of the U.S. Federal Motor Vehicle Safety Standards (FMVSS).

Upon information and belief, the subject population of Hyundai-Kia vehicles have a dangerous vulnerability with their electronic throttle control systems and that resulting runaway throttle conditions clearly pose an unreasonable risk to safety. These safety-related defects with the accelerator control systems described herein relate to design, manufacturing and performance problems that pose an unreasonable risk of accidents occurring. **Petitioners are aware of at least eight fatalities and numerous documented serious injuries directly caused by these defects.** From thousands of internal documents produced by these manufacturers during litigation discovery, petitioners have personal knowledge of substantial evidence of known defects. Petitioners have reviewed expansive internal confidential information that supports this petition and demonstrates that Hyundai / Kia have been aware for over a decade.

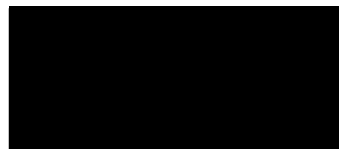
This petition also requests that, per 49 USC 30162(c) and 49 CFR 552.7, the U.S. Secretary of Transportation and Associate Administrator hold **a public meeting, hearing or proceeding to allow parties to submit evidence and testify as to the reasons to grant the petition and conduct a formal investigation.** ("Any interested person also shall be given an opportunity to present information, views, and arguments.")

Petitioners again respectfully request that NHTSA perform a comprehensive evaluation of defect trends, technical review, engineering analysis and formal investigation of these safety-related defects in the subject generations of Kia and Hyundai vehicles. Petitioners reserve the right to amend this second petition with additional information. We ask NHTSA to timely grant this defect petition and fully investigate this undeniable safety defect trend.

Sincerely,



Tom Murray



Byron Bloch

Encl. Petition for Defect Investigation and Addendums per § 49 U.S.C. 30162 and 49 C.F.R. §552 and Petition for Public Meeting/Hearing per § 49 U.S.C. 30162(c) and 49 C.F.R. §552.7

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<sup>8</sup> <https://www.change.org/NHTSADefectPetition>



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

# ODI RESUME



**Investigation:** DP 21-003  
**Prompted by:** VOQ requesting a Defect Petition  
**Date Opened:** 11/12/2021  
**Investigator:** Jianqing Xue **Reviewer:** Scott Yon  
**Approver:** Stephen Ridella  
**Subject:** Throttle control system vulnerabilities

## MANUFACTURER & PRODUCT INFORMATION

**Manufacturer:** Kia Motors America, Hyundai Motor America  
**Products:** Various Model/Model Year Hyundai and Kia Vehicles  
**Population:** 6,000,000 (Estimated)  
**Problem Description:** Petitioners alleged throttle control system defects produce sudden uncommanded acceleration (SUA), runaway throttle conditions, surging, stalling and loss of motive power.

## FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
<b>Complaints:</b>	1	TBD	TBD
<b>Crashes/Fires:</b>	0	TBD	TBD
<b>Injury Incidents:</b>	0	TBD	TBD
<b>Number of Injuries:</b>	0	TBD	TBD
<b>Fatality Incidents:</b>	0	TBD	TBD
<b>Number of Fatalities:</b>	0	TBD	TBD

## ACTION / SUMMARY INFORMATION

**Action:** Open the Defect Petition for a grant or deny decision

**Summary:**

The Office of Defects Investigation of the National Highway Traffic Safety Administration received a petition letter dated October 10, 2021 requesting an investigation of an alleged defect(s) in the electronic throttle control system in certain Model Year (MY) 2005-2016 Kia Optima/K5, MY 2006-2015 Kia Sorento, MY 2007-2016 Hyundai Elantra, MY 2007-2016 Hyundai Santa Fe, MY 2006-2015 Hyundai Sonata vehicles. The petition was filed as a Vehicle Owner Questionnaire that can be reviewed at [NHTSA.gov](http://NHTSA.gov) under reference (ODI) number 11439675.

The petitioners allege the subject vehicles exhibit a range of dangerous vehicle speed control problems including sudden uncommanded acceleration, runaway throttle conditions, surging, stalling and loss of motive power, all due to various defects and vulnerabilities in the electronic throttle control system.

This defect petition has been opened to evaluate the allegation and determine whether to grant or deny the petitioners' request.

## Hyundai Implements Throttle Override Capability in Advance of Pending Government Mandate

Posted on May 2, 2012 by

**COSTA MESA, Calif.** — Hyundai continues its practice of providing critical safety technologies to its customers well before government mandates come into effect with all models now offering brake pedal electronic throttle override capability. With virtually all cars using electronic throttle control today, there remains the remote possibility for an unforeseen electronic throttle control malfunction, causing a vehicle to accelerate contrary to driver input. Although very unlikely due to various built-in electronic safety protocols, unforeseen circumstances could still exist that could cause this type of malfunction.

"With Hyundai's brake pedal throttle override capability, any brake pedal input by the driver, even with a runaway throttle condition, completely overrides any throttle malfunction," said Robert Babcock, director of certification and compliance affairs for Hyundai's technical center. "It is no longer possible to have increasing engine power once the brake pedal is depressed by the driver. This adds a reassuring, incremental safeguard of control for Hyundai drivers."

The government mandate for brake pedal throttle override capability, a component of FMVSS 124 (Accelerator Control Systems), has been under consideration by the National Highway Traffic Safety Administration (NHTSA) since April 16, 2012. However, its final approval and subsequent timing have yet to be determined. Hyundai development teams have been less concerned about final government mandate timing, focusing instead on the immediate safety and assurance of their customers.

Beginning with May production, fully 100 percent of all U.S. Hyundai models now provide the assuring safeguard of brake pedal throttle override capability. This advanced safety feature implementation by Hyundai remains many months and possibly years before the final government mandate, if approved.

### HYUNDAI MOTOR AMERICA

Hyundai Motor America, headquartered in Costa Mesa, Calif., is a subsidiary of Hyundai Motor Co. of Korea. Hyundai vehicles are distributed throughout the United States by Hyundai Motor America and are sold and serviced through more than 800 dealerships nationwide. All Hyundai vehicles sold in the U.S. are covered by the **Hyundai Assurance** program, which includes the 5-year/60,000-mile fully transferable new vehicle warranty, Hyundai's 10-year/100,000-mile powertrain warranty, and five years of complimentary Roadside Assistance.

For more details on Hyundai Assurance, please visit [www.HyundaiAssurance.com](http://www.HyundaiAssurance.com)

SOURCE Hyundai Motor America

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Secretary

United States Department of Transportation (DOT)

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**AMENDED PETITION for DEFECT INVESTIGATION**  
**and REQUEST for PROCEEDINGS / PUBLIC MEETING**  
**NHTSA DEFECT PETITION DP21-003**<sup>1</sup>

NHTSA Administrator:

In accordance with 49 U.S.C. § 30162 and 49 C.F.R. § 552, petitioners, on behalf of all Americans who own, lease and share the road with various model years (MY) 2004-2022 Kia and Hyundai vehicles (via Defect Petition DP21-003<sup>2</sup>) the U.S. National Highway Traffic Safety Administration (NHTSA) to initiate a formal safety defect investigation into the excessive number of vehicle speed control issues and numerous serious **“runaway throttle condition”** incidents the owners and operators of these vehicles suffer. Petitioners provide substantial evidence that the accelerator control systems in the subject vehicle populations fail to meet standards, including U.S. Federal Motor Vehicle Safety Standards (e.g., FMVSS § 124), and contain defects which relate to motor vehicle safety.

Upon information and belief, **petitioners are aware of at least eight documented U.S. fatalities and numerous injuries that have been directly caused by related runaway throttle condition occurrences resulting in crashes with these Kia and Hyundai vehicles.** Numerous media reports of relevant cases describe some of the more severe incidents in the U.S., Korea and other jurisdictions. As described herein, American consumers provided NHTSA with hundreds of vehicle owner questionnaires (VOQs). Hyundai and Kia American dealerships

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<sup>1</sup> Defect Petition DP21-003 info on NHTSA Website: <https://www.nhtsa.gov/recalls?nhtsaId=%20dp21003>

<sup>2</sup> USDOT NHTSA Defect Petition DP21-003 - <https://static.nhtsa.gov/odi/inv/2021/INOA-DP21003-6161.PDF>

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received **countless related complaints from concerned customers with throttle control issues**. Upon information and belief, Hyundai-Kia's corporate headquarters and domestic U.S. central offices have received thousands of such complaints.

In a public press release<sup>3</sup> dated May 2, 2012, **Hyundai-Kia admitted, "With virtually all cars using electronic throttle control, there remains a remote possibility for an unforeseen electronic throttle control malfunction, causing a vehicle to accelerate contrary to driver input."**<sup>4</sup> "With Hyundai's brake pedal throttle override capability, any brake pedal input by the driver, even with a **runaway throttle condition**, completely **overrides any throttle malfunction**", said Robert Babcock, director of certification and compliance affairs for the Hyundai-Kia America Technical Center, Inc. (HATCI). "It is no longer possible to have increasing engine power once the brake pedal is depressed by the drivers."<sup>5</sup> This public press release has since been suspiciously removed from both the Hyundai USA<sup>6</sup> and Hyundai Worldwide press release websites<sup>7</sup>.

They Hyundai/Kia engine management systems (EMS) have well established known problems, chronic failures, including seizing and even non-collision engine fires.<sup>8</sup> Upon information and belief, it was recently uncovered that these Hyundai and Kia vehicles were known to be vulnerable to a failure to detect a software error may result in unintended acceleration, unintended deceleration, or unintended vehicle movement, and depending on the software error, the failure may or may not be accompanied by a malfunction indicator lamp (MIL) or a "wrench" service engine light.

South Korean manufacturers Kia and Hyundai have failed to meet the U.S. regulatory obligations, including 49 C.F.R. § 573.6. The known vulnerabilities of their Electronic Throttle Control (ETC) technology challenge these manufacturers to take action and address these unreasonable risks to safety. This petition will describe some of the relevant specific events, but more importantly, provides NHTSA with the sources of more comprehensive information and sufficient evidence to formally investigate the extensive nature and scope of these exceptionally dangerous safety-related chronic defect problems.

NHTSA is authorized to issue an order requiring notification and remedy of a defect if the Agency's investigation shows a defect in design, construction, or performance of a motor vehicle that presents an unreasonable risk to safety. 49 U.S.C. §§ 30102(a)(9), 30118.

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<sup>3</sup> <https://www.wsj.com/articles/BL-DSB-8813> - "Hyundai to Equip Its Cars With Throttle-Override System"

<sup>4</sup> <https://www.roadandtrack.com/new-cars/car-technology/news/a21768/hyundai-helps-halt-unintended-acceleration-34353/>

<sup>5</sup> <https://www.digitaldealer.com/everyone/hyundai-implements-throttle-override-capability-in-advance-of-pending-government-mandate/>

<sup>6</sup> <https://www.hyundaiusa.com/us/en/news>

<sup>7</sup> <https://www.hyundai.com/worldwide/en/company/newsroom.release.all.2012>

<sup>8</sup> <https://www.consumerreports.org/car-recalls-defects/park-recalled-hyundai-kia-vehicles-outside-due-to-fire-risk-a1002120529/>

**NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia**

**STATEMENT OF FACTS**

**DESCRIPTION OF DEFECTS AND NONCOMPLIANCE**

Expanded Subject Vehicle Population included in this Defect Petition  
(model generation and approximate model years ‘MY’)\*

<b>MAKE</b>	<b>MODEL</b>	<b>Gen/Model Years</b>	<b>Gen/ Model Years</b>	<b>Gen / Model Years</b>
Hyundai	Elantra / Avante	HD 2007-2010	MD/UD 2011-2016	AD 2016-2020
Hyundai	Genesis / G80			DH 2015-2020
Hyundai	Grandeur	TG 2005-2011	HG 2011-2017	IG 2016-2022
Hyundai	Ioniq / Ioniq 5			AE 2017-2022
Hyundai	Palisade			LX2 2020-2022
Hyundai	Santa Fe	CM 2006-2012	DM/NC 2012-2018	TM 2018 - 2022
Hyundai	Sonata	NF 2005-2010	YF 2011-2015	LF/DN8 2014-2022
Hyundai	Tucson		LM 2009-2025	TL 2015-2021
KIA	Amanti / Oprius	2004-2009		
KIA	Forte	TD 2008-2012	YD 2012-2018	BD 2018-2022
KIA	K900		KH 2012-2018	RJ 2018-2022
KIA	Niro			2017-2022
KIA	Optima/K5/ Magentis/Lotze	MG 2005-2010	TF 2010-2016	JF 2016-2020
KIA	Rondo		UN 2006-2013	RP 2013-2019
KIA	Sedona	VQ 2005-2014	YP 2014-2021	KA4 2020-2022
KIA	Sorento	BL 2006-2009	XM 2009-2015	UM/MQ4 2014-2022
KIA	Soul	AM 2008-2013	PS 2013-2019	SK3 2019-2022
KIA	Sportage	JE/KM 2004-2010	SL 2010-2016	QL 2015-2022
KIA	Telluride			ON 2020-2022

\*Upon information and belief, additional Hyundai/KIA Models  
and Model Years (MY) may also be defective.

Hyundai and KIA are closely affiliated manufacturers or “corporate cousins  
both under the South Korean entity Hyundai Motor Group (HMG).

Hyundai and Kia share vehicle platforms, powertrains, components,  
research & development and manufacturing facilities.



# NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia

## Summary of Alleged Defects with Kia and Hyundai Vehicles

According to NHTSA, “Acceleration control is one of the fundamental aspects of the driving task and is critical for the safe operation of a motor vehicle. Traditionally, a driver uses a pedal to control the amount of engine torque provided to accelerate the vehicle and maintain a desired speed, as well as to reduce or remove torque to slow the vehicle. Loss of acceleration control, which includes ‘unintended acceleration’ (UA), can have serious safety consequences.”<sup>9</sup>

### *Vehicle Speed Control Problems*

This petition provides a range of dangerous vehicle speed control problems with the subject population of Hyundai and Kia vehicles including sudden uncommanded acceleration (SUA), runaway throttle conditions, surging, stalling and loss of motive power. A pattern of public complaints is justified by the contents of internal documents demonstrating a clear picture of systemic problems. The complex, interrelated nature of the Electronic Throttle Control (ETC) system and componentry in these vehicles is believed to be the primary source of the defective conditions. The engineering and key componentry of the subject population vehicles are sometimes the same and installed across a range of various vehicle models and “corporate cousins” (e.g., Hyundai Santa Fe = Kia Sorento; Hyundai Sonata = Kia Optima).

### *Electronic Throttle Control (ETC) System in the Subject Kia and Hyundai Vehicles*

According to the manufacturers’ documentation, the Hyundai-Kia “Electronic Throttle Control (ETC) System consists of a throttle body with an integrated control motor and throttle position sensor (TPS). Instead of the traditional throttle cable, an Accelerator Position Sensor (APS) is used to receive driver input. The Engine Control Module (ECM) uses the APS signal to calculate the target throttle angle; the position of the throttle is then adjusted via ECM control of the ETC motor. The TPS signal is used to provide feedback regarding throttle position to the ECM. Using ETC, precise control over throttle position is possible; the need for external cruise control modules/cables is eliminated.” As NHTSA is aware, there are numerous standards for Automotive Electronic Control Systems; the ETC system has a range of electrical, electronic, mechanical and software elements.<sup>10</sup>

Hyundai-Kia’s engineering standards for their **Electronic Throttle Control (ETC) systems** include the phrase: “The monitoring concept has to prevent an ETC system from dangerous behavior like sudden unintended acceleration against the driver’s intent.” It specifies that “the ETC must have a failsafe function in hardware and software” to address “any faults that would cause a sudden acceleration or deceleration of the vehicle that the driver does not intend.” ETC systems are designed with certain failsafe features, including redundant sensors and self-diagnostic capabilities. Petitioners provide evidence that the Hyundai-Kia ETC system failed to properly have these critical safety functions.

Hyundai-Kia and suppliers produced Failure Modes and Effects Analyses (FMEAs) that clearly indicate that failures of the Engine management system (EMS) and ETC system arise to a

<sup>9</sup> Source: NHTSA-2012-0038: [https://www.nhtsa.gov/sites/nhtsa.gov/files/finvss\\_124\\_bto\\_nprm\\_final.pdf](https://www.nhtsa.gov/sites/nhtsa.gov/files/finvss_124_bto_nprm_final.pdf)

<sup>10</sup> [https://www.nhtsa.gov/sites/nhtsa.gov/files/812285\\_electronicsreliabilityreport.pdf](https://www.nhtsa.gov/sites/nhtsa.gov/files/812285_electronicsreliabilityreport.pdf)



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level 10 severity – translating to a dangerous and potential for great harm or death. An FMEA level 10 on the severity evaluation criteria states that a potential failure mode affects safe vehicle operation and/or involves noncompliance with government regulation without warning. Petitioners believe these specific alleged defects meet NHTSA’s criteria for granting a defect petition.

### ***Sudden Uncommanded Acceleration (SUA) – Surging – Runaway Throttle Conditions***

The term “unintended acceleration” refers broadly to any vehicle acceleration a driver did not purposely cause to occur. As used here, SUA is a broad term that encompasses any uncommanded acceleration, such as incidents at higher speeds and incidents where brakes were either ineffective, or partially or fully effective. These include occurrences at or near full throttle and high speeds and incidents of lesser throttle openings at various speeds. Essentially, this petition includes all incidents where the driver does not command the vehicle to accelerate or decelerate – but the vehicle (and ETC system) does so in a manner not commanded by the driver.

NHTSA has extensive knowledge from prior SUA investigations, including the issues surrounding Toyota and other manufacturers.<sup>11</sup> There are startling similarities. For example, Hyundai maintains records indicating that **no later than 2009, Hyundai was informed of a “potentially dangerous and possibly fatal fault with the throttle sensor assembly.”** Hyundai-Kia’s own documents show vehicles hesitate on acceleration and surge during steady throttle with no Diagnostic Trouble Codes (DTCs). Hyundai dealership employees have verified allegations.<sup>12</sup> Hyundai-Kia’s technicians have replicated such a surge in a Hyundai-Kia vehicle.<sup>13</sup> Internal documents demonstrate that electronic faults result in throttle increases and decreases. **By 2012, at the latest, Hyundai-Kia had undeniable knowledge of significant intermittent problems with their electronic throttle control (ETC) system in numerous models.**<sup>14</sup>

There are some instances where it is believed that a physically stuck throttle or accelerator entrapment condition occurs. These include entrapment of the accelerator pedal and the physical ETC throttle plate. To be clear, these don’t include the allegations of floor mats or foreign objects entrapping the accelerator pedal. Petitioners anticipate that Hyundai-Kia will respond with the tired excuses that driver error, pedal misapplication, or pedal entrapment due to external objects are the likely cause of SUA incidents with their vehicles.

**Independent studies of Hyundai-Kia vehicles have shown surges greater than normal idle speed control with no input to the accelerator pedal.**<sup>15</sup> These incidents are well

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<sup>11</sup> <https://one.nhtsa.gov/About-NHTSA/Press-Releases/ci.NHTSA%E2%80%93Study-of-Unintended-Acceleration-in-Toyota-Vehicles.print>

<sup>12</sup> Example: VOQ No. 10277696 – “Dealer test drove the vehicle and confirmed the failure.”

<sup>13</sup> Example: VOQ No. 11093587 – Hyundai tech confirmed the complainant’s concerns

Examples: VOQ No. 10547190; Example: VOQ No. 10547363

<sup>14</sup> Autowise.com (Oct. 16, 2012) – “Hyundai’s Secret Acceleration Problems” - <https://autowise.com/hyundais-secret-acceleration-problems/>

<sup>15</sup> Republic of Korea National Forensic Service (NFS) gave an oral presentation entitled, “*Experimental Study of Reappearance of Sudden Acceleration Incidents.*”

## NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia

documented to show percent of throttle increase, duration and effect on vehicle dynamics.<sup>16</sup> Petitioners request that these independent studies be included in support of this petition for defect investigation.

### *Loss of Motive Power – Stalling at Speed – Sudden Uncommanded Deceleration*

Public complaints and class action lawsuits claim that the subject Hyundai-Kia vehicles suffer from defects that can cause engine seizure, stalling, engine failure, and even non-collision engine fires. The manufacturers also have numerous records where drivers describe, while driving, a significant loss of motive power while in motion at any speed without warning to the driver. It is believed that some of these incidents are caused by problems identified by the ETC monitoring concept (described above). Some complaints describe dangerous conditions of loss of motive power at high speed while on a highway. These numerous sudden uncommanded deceleration events (600+ VOQs) demonstrate a known failure in the subject vehicles.

### Specific Componentry Susceptible to Related Defects

The manufacturers' internal records demonstrate confirmed defects in the Electronic Throttle Control system (including ETC components, wiring harnesses, CAN bus, cruise control and idle speed control) resulting in unrequested throttle increase, or failure to decrease or sustain throttle, stuck at large throttle opening with no override available to driver. Some specific potential defects identified in vehicle owner questionnaires (VOQs) to NHTSA and the manufacturers' documentation include, but are not limited to, the following concerns that may be contributing factors to the defective conditions:

- Faulty accelerator pedal assembly (including “sticky pedal”) – VOQ No. 10386844
- Faulty accelerator position sensor (APS)<sup>17</sup> – VOQ No. 11184591\
- Faulty engine control module (ECM) / powertrain control module (PCM)
- Faulty transmission torque converter – VOQ No. 11243941
- Faulty throttle actuator control module (TAC), air throttle plate actuator motor
- Faulty electronic throttle body (ETB) – VOQ 11005375, 10386844
- Faulty throttle position sensor (TPS) – TSBs and numerous VOQs, 10226077
- Open or short in wiring harness, poor connection or damaged harness
- Faulty vehicle speed sensor – VOQ No. 11228479
- Faulty Stop Lamp Switch (brake lamp switch) – TSBs and numerous VOQs
  - Kia service campaigns SC85/SC098, Hyundai safety recall campaigns 092/110
- Faulty Electronic Stability Control (ESC) – and ESC MIL light activation
- Faulty Clock Spring spiral cable assembly wiring harness – VOQ No. 1139433
- Faulty cruise remote control switch – VOQ Nos. 10610963, 10351699

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<sup>16</sup> *Forensic Science International* entitled, “Experimental study for the reproduction of sudden unintended acceleration incidents.”

<sup>17</sup> [https://www.washingtonpost.com/cars/2016-kia-sorento-recalled-for-malfunctioning-gas-pedal/2015/03/03/9ba5de6c-c1cb-11e4-a188-8e4971d37a8d\\_story.html](https://www.washingtonpost.com/cars/2016-kia-sorento-recalled-for-malfunctioning-gas-pedal/2015/03/03/9ba5de6c-c1cb-11e4-a188-8e4971d37a8d_story.html)

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- Voltage drop, erratic voltage signals, crosstalk<sup>18</sup>
- **Faulty CAN bus, including failure to properly ground – Recall 21V9444000**
- The powertrain control module (PCM) functional safety software may fail to detect a software error, resulting in unintended acceleration, unintended deceleration, or a loss of drive power. – Example: Recall 22V333000
- Intermittent electrical faults with any of the above. Hyundai/Kia terminology:
- “Fault is intermittent caused by poor contact in the sensor's and/or PCM's connector or was repaired and PCM memory was not cleared.”
- “Faulty connectors related to looseness, poor connection, ending, corrosion, contamination, deterioration, or damage.”
- “Many malfunctions in the electrical system are caused by poor harness and terminals”
- “Faults can also be caused by interference from other electrical systems, and mechanical or chemical damage.”
- Loss of electronic compatibility resulting in a runaway throttle condition
- Faulty software/diagnostics, including failure of the software to detect issues and appropriately register diagnostic trouble codes (DTC) and responsive safety measures

### Available Remedies / Feasible Alternative Design: Brake Throttle Override (BTO)

Petitioners allege that many of the subject population vehicles lack the necessary critical failsafe(s) available as alternative designs (e.g. “Smart Pedal” brake throttle override capability). Brake Throttle Override (BTO) gives the brake authority over the accelerator pedal to mitigate engine power. Kia and Hyundai have been aware of the brake over accelerator throttle technology available since the early 2000s.<sup>19</sup>

Kia and Hyundai apparently included brake throttle override (“Smart Pedal”) technology in all their U.S. bound vehicles in May 2012.<sup>20</sup> Corporate representatives from the Hyundai Kia Research and Design Center in South Korea testified under oath that this was due to concerns about the U.S. investigation into Toyota’s SUA issues and proposed new standards by the U.S. government. The actual effectiveness of the Hyundai-Kia BTO technology is unknown; rather, the novel technology may be a cause of the loss of motive power and sudden uncommanded deceleration.

As stated before, a deleted prior public press release dated May 2, 2012, Hyundai-Kia admitted, “With virtually all cars using electronic throttle control, there remains a remote possibility for an unforeseen electronic throttle control malfunction, causing a vehicle to accelerate contrary to driver input.”<sup>21</sup> “With Hyundai’s brake pedal throttle override capability, any brake pedal input by the driver, even with a runaway throttle condition, completely overrides any throttle malfunction”, said Robert Babcock, director of certification and compliance affairs

<sup>18</sup> <https://pubmed.ncbi.nlm.nih.gov/27552700/>

<sup>19</sup> <https://www.cars.com/articles/all-new-hyundai-models-will-have-brake-override-system-1420663119493/>

<sup>20</sup> <https://hyundainews.com/us/en-us/Media/PressRelease.aspx?mediaid=35892&title=hyundai-implements-throttle-override-capability-in-advance-of-pending-government-mandate>

<sup>21</sup> <https://www.roadandtrack.com/new-cars/car-technology/news/a21768/hyundai-helps-halt-unintended-acceleration-34353/>

## NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia

for the Hyundai-Kia America Technical Center, Inc. (HATCI). "It is no longer possible to have increasing engine power once the brake pedal is depressed by the drivers."<sup>22</sup>

Upon information and belief, Hyundai and Kia's current actions addressing these alleged defects are grossly insufficient.<sup>23</sup> They have utterly failed to take any responsible actions and be accountable to their customers. Current TSBs and recalls are clearly inadequate, and petitioners request **NHTSA investigate for scope and timeliness.**

### Noncompliance with Federal Motor Vehicle Safety Standards (e.g. FMVSS No. 124)

The FMVSS clearly establishes requirements for the return of a vehicle's throttle to the idle position when the driver removes the actuating force from the accelerator control, or in the event of a severance or disconnection in the accelerator control system. The stated purpose of this standard is to reduce deaths and injuries resulting from engine overspeed caused by malfunctions in the accelerator control system.

Petitioners and numerous independent consultants and vehicle safety experts have reviewed copious evidence and believe that certain model year (MY) 2005-2022 Hyundai and Kia motor vehicles do not fully comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 124, Accelerator Control Systems.<sup>24</sup>

### EXTERNAL SOURCES OF RELEVANT INFORMATION PERTAINING TO DEFECT

The severity of these runaway throttle incidents has been covered by dozens of media articles and news reports.<sup>25</sup> Incredibly, some of the more serious incidents include uncommanded wide-open throttle (WOT) incidents caused by runaway throttle conditions that lasted twenty (20) minutes or more at speeds exceeding one hundred (100) miles per hour (MPH).<sup>26 27</sup> Numerous videos from alleged SUA incidents are included as an addendum.

NHTSA has already received a compendium of approximately **1,200+ vehicle owner questionnaires (VOQs) pertaining to vehicle speed control** with the original population of U.S. vehicles. Petitioners share that countless more exist with the new population and thousands of these VOQs appear highly relevant based on the limited information publicly available.<sup>28</sup>

Related consumer complaints have also been logged on various public customer websites. These include CarComplaints.com, CarGurus.com<sup>29</sup>, CarProblemZoo.com<sup>30</sup>, Edmunds.com and

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<sup>22</sup> <https://www.digitaldealer.com/everyone/hyundai-implements-throttle-override-capability-in-advance-of-pending-government-mandate/>

<sup>23</sup> <https://autoservice.hyundaiusa.com/campaignhome/>

<sup>24</sup> Federal Motor Vehicle Safety Standard (FMVSS) 124: <https://www.law.cornell.edu/cfr/text/49/571.124>

<sup>25</sup> <https://www.today.com/video/stuck-accelerator-takes-woman-on-terrifying-ride-44552771898>

<sup>26</sup> <https://abcnews.go.com/blogs/headlines/2012/08/stuck-accelerator-leads-iowa-woman-on-real-life-horror-ride>

<sup>27</sup> <https://abcnews.go.com/blogs/headlines/2013/02/hyundai-allegedly-takes-teen-on-nightmare-ride>

<sup>28</sup> See NHTSA consumer complaint automated database of vehicle speed control and other VOQs

<sup>29</sup> [https://www.cargurus.com/Cars/Discussion-c15455\\_ds515275](https://www.cargurus.com/Cars/Discussion-c15455_ds515275)

<sup>30</sup> <https://www.carproblemzoo.com/hyundai/sonata/car-accelerates-on-its-own-problems.php>

## NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia

HyundaiProblems.com, Kia-forums.com<sup>31</sup>. For example, relevant original generations of the Sonata, Elantra and Santa Fe were rated the “Worst Generations’ and “Least Reliable Hyundai Models” on the HyundaiProblems.com public website.<sup>32</sup> While there are numerous other recent recalls<sup>33 34</sup>, there are none directly addressing these allegations.<sup>35</sup>

### **Petitioners also request that NHTSA seek and review related documentation from other government agencies and organizations, including the:**

- Korea Automobile Testing & Research Institute (KATRI)
- Korea Automotive Technology Institute (KATECH)
- Korea Consumer Agency
- Korean Consumer Safety Organization
- Korean Fair Trade Commission
- Korean Ministry of Justice
- Korean National Forensic Service
- Korea Transportation Safety Authority
- Republic of Korea Ministry of Land Infrastructure and Transport (MOLIT)
- Republic of Korea Prosecutors Office, and the
- Seoul Central District Prosecutors Office<sup>36</sup>.
- In addition, Singapore’s Land Transport Authority (LTA) conducted an investigation regarding Hyundai vehicles following numerous reports of accidents involving sudden unintended acceleration (SUA).<sup>37</sup>

NHTSA may also find independent university research and studies related to SUA useful in the analysis of this petition. Specifically, petitioners refer NHTSA to Daejeon Health Science College, Daejeon, Republic of Korea, Daelim University College, Seowon University, and Kookmin University, Seoul, Republic of Korea, as well as Clemson University, Department of Automotive Engineering, in Greenville, South Carolina. Petitioners ask NHTSA to review the research and findings of the Vehicle Sudden Unintended Acceleration Research Group in South Korea. This type of independent research and advocacy efforts should qualify for NHTSA’s Whistleblower Program.<sup>38</sup>

The tremendous amount of public research on these issues supports the propounded concerns of motor vehicle safety defects, noncompliance with the Federal Motor Vehicle Safety Standards (FMVSS), and violations of the U.S. Vehicle Safety Act.

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<sup>31</sup> <https://www.kia-forums.com/threads/sudden-acceleration.334510/>

<sup>32</sup> <http://www.hyundaiproblems.com/worst/#by-generation>

<sup>33</sup> <https://www.cbsnews.com/news/hyundai-recall-engine-fires-390k-vehicles/>

<sup>34</sup> <https://jalopnik.com/there-are-now-five-different-recalls-on-the-hyundai-son-1847821224>

<sup>35</sup> <https://www.abcactionnews.com/news/local-news/up-in-flames/kias-and-hyundais-continue-to-burn-after-5-8-million-cars-and-suvscalled#>

<sup>36</sup> <https://www.reuters.com/article/us-hyundai-motor-raid-idUSKCN1Q9071>

<sup>37</sup> <https://www.straitstimes.com/singapore/transport/lta-probes-unintended-acceleration-in-hyundai-cars>

<sup>38</sup> <https://www.nhtsa.gov/laws-regulations/whistleblower-program>

# NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia

## INTERNAL SOURCES OF RELEVANT INFORMATION PERTAINING TO DEFECT

This defect petition names specific entities involved with the design, manufacturing, testing, safety and compliance of the subject population Kia and Hyundai vehicles. Specifically, petitioners name this group of Hyundai/Kia organizations as manufacturers and responsible parties:

- Hyundai Motor Company (HMC)
- Hyundai Motor America (HMA)
- Hyundai Motor Manufacturing Alabama (HMMA)
- Kia Motors Corporation (KMC)
- Kia America (KA)
- Kia Motors America (KMA)
- Kia Motors North America (KMNA)
- Kia Motors Manufacturing Georgia (KMMG)
- and the Hyundai-Kia America Technical Center, Inc. (HATCI)

as well as **Tier 1 Component Suppliers:**

- ALPS
- BorgWarner
- Bosch
- Continental
- Delphi
- Denso
- Donghee
- Hyundai-KEFICO
- Hyundai Glovis
- Hyundai MOBIS
- Hyundai Transis
- KSR International
- Truwin and others.

Upon information and belief, these automobile manufacturers and suppliers are clearly aware of these accelerator control issues and ETC component problems through various product quality reports, warranty claims and change orders from Hyundai/Kia.<sup>39</sup>

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<sup>39</sup> <https://www.usatoday.com/story/money/cars/2013/11/11/hyundai-executives-resign-quality-problems-recalls/3501631/>

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Upon information and belief, the various Hyundai and Kia entities possess documentation and substantial evidence of the **Root Causes** of these throttle problems and speed control issues. Petitioners request that NHTSA include these specific sources in the **Information Requests** sent to the Kia and Hyundai manufacturers. To summarize, these resources include:

- Consumer Affairs complaints and communications
- Techline records and Technical Assistance Case Reports
- Warranty claims – acceptances and denials
- Media reports, videos and the manufacturers’ press releases and “fact sheets”
- Failure Modes and Effects Analyses (FMEAs) – design FMEAs, etc.
- Design, engineering, analysis, modification, and production documents
- Testing, assessment or evaluation documents
- Investigation and Verification Testing Schedules – feasibility studies
- Procedures to Investigate “Alleged Unintended Acceleration Case Handling”
- Procedures to Investigate “Alleged Brake Failure Handling”
- Checklists and protocols regarding SUA for dealerships and field engineers
- Field Reports (Field Service Engineering FSE) – possible field actions
- Case Summary Complaints
- Service Campaigns and Product Improvement Campaigns
- Legal Claims and related Litigation (incl. Class Actions)
- Preliminary Investigation Reports
- Settlements and Non-Disclosure Agreements (NDAs)
- Consent Orders and Deferred Prosecution Agreements (DPAs)
- Quality Assessments and Audit Reports
- Dealer Audits and communication with U.S. dealers
- Dealer advisory letters and attachments
- Quality Control documentation and high repair trends
- Quality Information Reports (QIRs) and quality data
- Product Quality Technical Reports (PQTR) and supporting data



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- Quality defect notices to suppliers
- Change Orders, modifications and upgrades to ETC componentry
- Patents and patent applications – notes related to SUA issues and improvements
- Technical Service Bulletins (TSBs) and draft TSBs
- Early Warning Reports (EWR) and TREAD data
- Company memos and emails between relevant departments

Hyundai and Kia clearly have extensive relevant internal documentation that should be shared with NHTSA as part of the ongoing **Information Request** process for this defect investigation.

### PROPOSED REMEDIAL ACTIONS

Petitioners have a supported good faith belief that the existence of these defects poses an unreasonable risk to motor vehicle safety and, therefore, NHTSA should order the Kia and Hyundai manufacturers to conduct a comprehensive safety recall.<sup>40</sup> NHTSA should send a Recall Request Letter to Hyundai/Kia to issue a recall order pursuant to 49 U.S.C. §§ 30118, 30119, and 30120. As the data clearly shows, these are not “isolated incidents.” A proper investigation will determine that the ETC system and componentry in the affected vehicles may intermittently malfunction. **Hyundai and Kia have apparently attempted to cover up these defects and avoid the financial expenses related to such a recall.** There is overwhelming objective evidence of these issues as outlined in this petition, appendices, public information and expansive internal information in the possession of Hyundai and Kia.

In the meantime, Hyundai and Kia have the knowledge and resources to immediately provide reasonable remedial solutions to address these problems related to loss of acceleration control. The manufacturers’ Consumer Affairs, Safety, Parts, Legal, and Warranty departments can take preventative measures to mitigate potential risks and reduce the likelihood of future incidents. Petitioners hope Hyundai-Kia will take immediate comprehensive action.

Per the **November 2020 Consent Orders**<sup>41</sup>, Hyundai and Kia should conduct an independent product safety and compliance committee to investigate the possible causes and scope of these issues along with identification of vehicles which may be affected. Hyundai-Kia should immediately notify their Chief Safety Officer, Director of Quality and Service Engineering, the **North America Safety Office (NASO)** and **North American Safety Decision Authority (NASDA)**. The subject matter of this petition should be immediately evaluated by the relevant Hyundai-Kia Technical Review Committees (TRC) and Data Analytics (DA) teams. The safety data analytics infrastructure and test and inspection laboratories should assist with a

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<sup>40</sup> [https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/14895\\_odi\\_defectsrecallspublicdoc\\_110520-v6a-tag.pdf](https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/14895_odi_defectsrecallspublicdoc_110520-v6a-tag.pdf)

<sup>41</sup> <https://www.nhtsa.gov/press-releases/nhtsa-announces-consent-orders-hyundai-and-kia-over-theta-ii-recall>

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Product Improvement Campaign. Hyundai and Kia must file a safety recall notice and publish visible notices (example below from other Hyundai/Kia recall)<sup>42</sup> :

### **URGENT: FIRE RISK WHEN PARKED**

An urgent safety recall has been issued for this vehicle due to the risk of a fire. Use our [VIN lookup tool](#) to see if your vehicle is part of this recall.

If your vehicle is part of this recall, the manufacturer has recommended that **you follow their instructions on how and where to park this vehicle.**

More information is available under

- [NHTSA Recall Number 21V137000.](#)

The field data analysis and supporting documentation in this petition will allow the manufacturers and suppliers to **analyze specific trends and pinpoint root causes and defects.** Kia and Hyundai should file a Defect and Noncompliance Information Report (“DIR”), per 49 U.S.C. § 30118(c) and 49 C.F.R. § 573.6. The manufacturers should make best efforts through a customer awareness campaign. Kia and Hyundai should extend applicable warranties to cover all electronic throttle control (ETC) system componentry that poses a critical safety risk and issue a Recall Service Campaign to **provide a repair remedy free of charge to the vehicle owners.** The Hyundai and Kia should be required to provide reimbursements for certain costs incurred by owners to remedy safety defect conditions prior to the recalls.

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<sup>42</sup> <https://www.nhtsa.gov/press-releases/consumer-alert-kia-and-hyundai-issue-park-outside-orders-select-sportage-k900-and>

# NHTSA Amended Petition DP21-003 for Defect Investigation of Hyundai and Kia

## CONCLUSION

In conclusion, petitioners request that the National Highway Traffic Safety Administration (NHTSA) perform a comprehensive evaluation of these defect trends, technical review, engineering analysis and formal investigation of these safety-related defects in the subject generations of Kia and Hyundai vehicles. Petitioners specifically request that NHTSA open a Preliminary Evaluation (PE) as soon as possible to assess the scope, frequency, root causes and potential safety-related consequences of the alleged defects relating to accelerator control systems in the Model Years (MY) 2004-2022 Hyundai and Kia vehicles in the U.S.

This petition is to also request that, per 49 U.S.C. § 30162(c) and 49 C.F.R. §552.7, the U.S. Secretary of Transportation and Associate Administrator hold a public meeting, hearing or proceeding to allow parties to submit evidence and testify as to the reasons to grant the petition and conduct a formal investigation. Please contact petitioners regarding the identities of potential independent experts, consultants and other witnesses that can testify to the subjects summarized in the petition and provide additional information to demonstrate that Kia and Hyundai have materially violated the U.S. Federal Motor Vehicle Safety Act.

While NHTSA and its Office of Defects Investigation (ODI) are responsible for investigating potential vehicle safety defects, petitioners respectfully request that this information be shared with other NHTSA departments (such as NHTSA's Trends Analysis Division (TAD), Automotive Electronics Reliability Research Program) and any other relevant State and Federal government agencies. Pursuant to 49 U.S.C. § 30162(d), petitioners formally request NHTSA respond to this amended petition within 120 days.

In the meantime, petitioners will continue to do their part to inform the public of the dangerous risk these vehicles present and the need for Kia and Hyundai to recall and repair them as quickly as possible. Based on ODI's thorough review of the applicable materials, including the responses to **Information Requests** sent to multiple manufacturers and component suppliers, Vehicle Owner Questionnaires (VOQ), Consumer complaints and Early Warning TREAD Data, **petitioners respectfully request that NHTSA grant the petition.**

Thank you for the efforts of NHTSA to protect the public and your consideration of this petition. Please feel free to contact petitioners with any questions or if we may assist with any additional information.

Respectfully resubmitted,

**Sincerely,**

**Tom Murray**  
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**Byron Bloch**, Auto Safety Expert  
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ADDENDUM 3 (v2): Representative SUA Incident Examples List in support of DP21-003

DATE OF INCIDENT	ODI No.	NHTSA YEAR (MY)	MAKE	MODEL	FIRST NAME	LAST NAME	CITY	STATE	COUNTRY	SUA DESCRIPTION
2012-08-19	10473983	2011	KIA	Sorento			Ames Rockwall County	IA	USA	SUA for 59 miles at 120 mph, lasted 35 minutes
2012-12-02	n/a	2011	Hyundai	Elantra			Daegu	TX	South Korea	SUA for 120 miles, over 100 mph, serious crash
2012-05-06	n/a	2009	Hyundai	Sonata	unknown	unknown	Fort Worth	South Korea	USA	SUA at 80 mph, 17 people injured, serious crash
2013-01-04	10492316	2012	Hyundai	Santa Fe			Mocksville	TX	USA	SUA in traffic, complained to TX Attorney General
2013-07-31	10533629	2008	Hyundai	Santa Fe			St. Louis	NC	USA	SUA crash into tree, serious injuries, accelerated
2015-03-13	n/a	2007	Hyundai	Santa Fe			Sacramento	MO	USA	SUA on highway, 90 mph, Hyundai inspected
2015-08-23	10787453	2007	Hyundai	Santa Fe			Winchester	CA	USA	Fatal SUA, 2 fatalities, at 72 mph, runaway through
2015-12-31	10838313	2008	KIA	Optima			Cocoonut Creek	TN	USA	Fatal SUA, 3 fatalities, at 93 mph, runaway through
2016-03-01	10839639	2013	Hyundai	Elantra			Billings	FL	USA	SUA, over cement barrier, moderate crash into tree
2016-07-14	10958268	2008	Hyundai	Santa Fe			Busan	MT	USA	SUA, 3 instances, finally had TPS replaced, no fatalities
2016-08-01	n/a	n/a	Hyundai	Santa Fe			New Orleans	South Korea	USA	Fatal SUA, 4 fatalities, severe crash in Busan, South Korea
2016-10-06	10918950	2015	Hyundai	Tuscon			Erie	LA	USA	SUA, car shot off in parking garage, crash into wall
2017-07-07	11386678	2009	Hyundai	Santa Fe	n/a	n/a	Warner Robins	PA	USA	Fatal SUA, 3 fatalities, at 92 mph, runaway through
2019-12-14	11289671	2016	Hyundai	Elantra	unknown	unknown		GA	USA	SUA, several times, lurch forward, RPMs 4,000
2020-07-03	11436935	2011	KIA	Sorento				GA	USA	SUA, without warning, in parking lot, serious accident
2020-10-31	n/a	2020	Hyundai	Elantra				NJ	USA	SUA, 5 different incidents, minor crash
2021-06-08	Recall 21V-944	2017-19	Hyundai	Ioniq	unknown	unknown		South Korea	USA	SUA incident reported in 573 report dated December
2021-08-18	n/a	n/a	Genesis	G80	unknown	unknown	Gyeongju	South Korea	USA	<a href="http://www.businesskorea.co.kr/news/articleView.t">http://www.businesskorea.co.kr/news/articleView.t</a>
2021-12-17	11445295	2015	KIA	Optima			Sun City West	AZ	USA	SUA, 4 separate incidents, after fueling at gas station
2022-02-22	n/a	2022	KIA	Niro EV			Santa Rosa	CA	USA	SUA, caused crash. Foot not on accelerator
2022-02-23	n/a	2011	KIA	Sorento			Tuscon	AZ	USA	SUA, accel jerks forward, stalls with no accel, no
2022-05-18	11471608	2020	Hyundai	Santa Fe			Chocotow	OK	USA	SUA, engine severely revved, caused crash into bus
2022-06-23	11470610	2019	Hyundai	Ioniq	unknown	unknown	Lake Oswego	OR	USA	SUA, uncontrollably accelerated, expand recall 2

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