



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

# ODI RESUME

**Investigation:** PE 19-003  
**Date Opened:** 03/29/2019  
**Investigator:** Nathan Ong  
**Approver:** Stephen Ridella  
**Subject:** Non-crash Vehicle Fires  
**Date Closed:** 12/22/2021  
**Reviewer:** Scott Yon

## MANUFACTURER & PRODUCT INFORMATION

**Manufacturer:** Hyundai Motor America  
**Products:** MY 2011-2014 Hyundai Sonata and Santa Fe  
**Population:** 1,298,220

**Problem Description:** Allegations of non-crash vehicle fires.

## FAILURE REPORT SUMMARY

|                            | ODI | Manufacturer | Total |
|----------------------------|-----|--------------|-------|
| <b>Complaints:</b>         | 302 | 2,254        | 2,556 |
| <b>Crashes/Fires:</b>      | 302 | 2,254        | 2,556 |
| <b>Injury Incidents:</b>   | 14  | 33           | 47    |
| <b>Number of Injuries:</b> | 21  | 34           | 55    |
| <b>Fatality Incidents:</b> | 0   | 0            | 0     |

## ACTION / SUMMARY INFORMATION

**Action:** This Preliminary Evaluation has been upgraded to an Engineering Analysis (EA) 21-003; reference NHTSA Recalls 20V-746 and 21V-727

### Summary:

During this Preliminary Evaluation (PE), the Office of Defects Investigation (ODI) assessed the scope, frequency and potential safety-related consequences of non-crash vehicle fires caused by both engine failures and failures of other vehicle systems/components in model year (MY) 2011-2014 Hyundai Sonata and Santa Fe vehicles equipped with Theta II and Lambda II engines (approximately 1.3 million vehicles). ODI also reviewed field data of other Hyundai vehicles equipped with Theta II, Gamma, Nu and Lambda engines (approximately 4.8 million).

As a result of this PE, Hyundai has issued NHTSA Recalls 20V-746 and 21V-727 to address potential engine failures and fires in certain Hyundai vehicles equipped with various engine types. Additional information on these and other related recall actions is available in the downloadable version of this resume available at [NHTSA.gov](http://NHTSA.gov).

In addition, ODI has upgraded this PE to an Engineering Analysis (EA) 21-003 which will focus on potential recall scope concerns and recall remedy concerns related to the engine failure related recalls mentioned above and conducted previously. See the EA21-003 Opening Resume available at [NHTSA.gov](http://NHTSA.gov) for more information.

Also available in the downloadable version of this resume is a list of the reference numbers for the 302 ODI reports, or Vehicle Owner Questionnaires (VOQs), cited above which ODI received through mid-November 2021. Note that the Manufacturer reports cited above are customer complaints received through March 2019.

## **PE19-003 Additional Summary**

In its 2019 response to ODI's information request under this PE, Hyundai provided a total of 3,670 reports of non-crash fires (both engine related and non-engine related) on all Hyundai vehicles equipped with the subject engines (total approximately 6.5 million). ODI's analysis of fire reports likely related to engine failures identified several combinations of models, model years and engine types having higher fire rates than other Hyundai vehicles and several peer vehicles of the Sonata and Santa Fe. As a result, Hyundai conducted two safety recalls (Recalls 20V-746 and 21V-727) to address the engine failures and fires in the following Hyundai vehicles: MY 2011-2013 Hyundai Sonata Hybrid with Theta II 2.4L MPI HEV engines, MY 2016-2017 Hyundai Sonata Hybrid with Nu 2.0L GDI HEV engines, MY 2012 Hyundai Santa Fe with Theta II 2.4L MPI engines, MY 2015-2016 Hyundai Veloster with Gamma 1.6L GDI engines, and MY 2017 Hyundai Tucson with 2.0L Nu GDI engines.

To summarize all field actions since 2017, Hyundai has issued the following safety recalls to address vehicles fires due to engine failures involving various engine types (Theta II GDI, Theta II MPI, Theta II MPI HEV, Nu GDI and Gamma GDI): Recall 17V-226, 19V-204, and the above-mentioned 20V-746 and 21V-727. The remedies for these recalls typically involve engine inspection (to detect existing damage), and if necessary, engine replacement. Additionally, Hyundai is installing an engine control software modification known as Knock Sensor Detection Software which is intended to detect impending engine failure, alert the driver, and limit engine power (to lessen likelihood of engine failure and fire).

In addition, during this PE investigation, ODI has influenced the following recalls to address various non-engine related fires: Recall 18V-934 (high pressure fuel pipe leak), 20V-061 (anti-lock brake system [ABS] module leak), 20V-393 (Accessory Power Outlet overheat), 20V-543 (ABS module leak), 20V-101 (low pressure fuel hose leak), 21V-303 (anti-lock brake system [ABS] module leak), and 20V-520 (ABS module leak). In summary, ODI has influenced ten safety recalls totaling almost 2.8 million vehicles for various causes of non-crash vehicles fires. During the investigation, Hyundai has also conducted several other recalls related to non-crash fires, which were not directly influenced by ODI.

## List of 302 VOQ numbers

10346874 10386128 10424306 10436180 10453009 10465924 10476823 10482868 10503081  
10534292 10546705 10547548 10553823 10555125 10558870 10560485 10610098 10633248  
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11436754 11437163 11438491 11439383 11440512