



DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

Denial of Motor Vehicle Defect Petition, DP14-002

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Denial of petition for a defect investigation.

SUMMARY: This document denies a July 7, 2014 petition from Mr. Brian Rosa of Union, NJ, requesting that the agency open an investigation into an alleged defect resulting in engine stall without warning after refueling in a model year (MY) 2007 Dodge Grand Caravan minivan. The petitioner's vehicle is a Chrysler RS platform minivan. The RS platform includes MY 2003 through 2007 Dodge Grand Caravan, Dodge Caravan, Chrysler Town and Country and Chrysler Voyager minivans. NHTSA evaluated the petition by analyzing consumer complaints submitted to the Agency, analyzing field data and reviewing technical information provided by Chrysler in response to an information request letter from the Agency, and testing an RS minivan that was the subject of a post-refuel engine stall complaint to NHTSA. After completing this evaluation, NHTSA has concluded that further investigation of the alleged defect in the subject vehicles is unlikely to result in a determination that a safety-related defect exists. The agency accordingly denies the petition.

FOR FURTHER INFORMATION CONTACT: Mr. Paul Simmons, Vehicle Control Division, Office of Defects Investigation, NHTSA, 1200 New Jersey Avenue, SE, Washington, DC 20590. Telephone: (202) 366-2315.

SUPPLEMENTARY INFORMATION:

Alleged Defect

The petitioner alleges that his MY 2007 Dodge Grand Caravan vehicle experienced multiple incidents of engine stall without warning after refueling. The petitioner discovered that the

defective part is a valve that is integral to the fuel tank, requiring tank replacement to repair the problem. The petitioner alleged that stalling without warning is an unreasonable risk to motor vehicle safety and requests the agency take action by opening a Preliminary Evaluation fully evaluate the defect.

Engine Stall Defects

The United States Code for Motor Vehicle Safety (Title 49, Chapter 301) defines motor vehicle safety as “the performance of a motor vehicle or motor vehicle equipment in a way that protects the public against unreasonable risk of accidents occurring because of the design, construction, or performance of a motor vehicle, and against unreasonable risk of death or injury in an accident, and includes nonoperational safety of a motor vehicle.” NHTSA considers several factors when assessing the safety risk posed by conditions that may result in engine stall while driving. These include the speeds at which stalling may occur, the ability of the driver to restart the vehicle, the warning available to the driver prior to stalling, the effects of engine stall on vehicle controllability, when and where the stalling will occur and the effects of the condition on other safety systems of the vehicle. In general, conditions that result in engine stall during low-speed operation at idle, such as when slowing to a stop, and which do not affect the operator’s ability to immediately restart the engine are considered the least hazardous types of stalling problems and, absent other safety factors, are not considered to be unreasonable risks to safety.

Background (PE13-016)

On February 10, 2014, ODI closed an investigation of an alleged defect in approximately 153,817 MY 2006 Chrysler 300, Dodge Charger and Dodge Magnum vehicles (LX cars) that may result in engine stall shortly after refueling (PE13-016). In response to ODI’s information request for PE13-016, Chrysler identified a problem with the multifunction control valve (MFCV) fuel shutoff float integrated into 19-gallon fuel tanks in certain LX vehicles. According to Chrysler, the float may swell after exposure to fuels with high ethanol content, which may cause the valve to stick. A float valve that is stuck open during refueling, could result in fuel tank overfill and allow raw fuel to enter the purge line. This could result in problems with engine driveability (e.g., stumble or hesitation) or stall while driving in the brief period immediately after filling the fuel tank.

ODI's analysis of complaints related to this condition determined that most of the incidents of engine stall were occurring when the vehicles were stopped or travelling at low speeds and there were no reports of any difficulty restarting the engines after such incidents. No crashes or injuries were identified in the subject vehicles, which had been in service for 7 to 8 years. The investigation was closed with no safety recall due to the low safety risk associated with the alleged defect condition.

RS Minivan analysis

In response to ODI's information request letter for DP14-002, Chrysler indicated that the RS Minivans may experience a condition with MFCV float sticking similar to the one investigated in the LX Cars in PE13-016:

"The failure mechanism is a result of a swollen refueling float within the multifunction control valve. Studies have proven that elevated ethanol additives cause the float and housing to swell, which, in turn, causes the float to intermittently stick. Once stuck, a limited amount of fuel will pass beyond the refuel float and enter the vapor recovery system before the fill pressure threshold is reached and shuts the fuel nozzle off.

"Once fuel has entered into in the vapor recovery system, it can then be purged into the engine's intake system in place of anticipated vapor within the first minute of starting the engine. The result of fuel rather than vapor entering in the engine intake system will cause the engine to stumble or, when the vehicle is not in motion and/or the engine at idle, a stall can occur. The condition is often contained to a momentary engine stumble as the purge event is immediately turned off when a rich fuel condition is detected by the Powertrain Control Module.

"Chrysler believes there is no unreasonable risk to motor safety because an engine stumble or rough idle will occur at a low driving speed, and while a stall is most likely to occur at an idle or stop. There have been no reported accidents or property damage in over 1.8 million vehicles. Additionally, when a refuel valve does stick, there is sufficient back pressure in the fuel system to shut off the fuel pump and limit the amount of the fuel into the purge line."

ODI's analysis of complaints, field reports, legal claims and warranty data related to the alleged defect in Chrysler RS Minivans identified a total of 720 post-refueling engine stall incidents in approximately 1.8 million vehicles, resulting in an overall rate of 0.39 per incidents per thousand

vehicles (IPTV). Similar to the LX Car analysis in PE13-016, the engine stalls were mostly occurring when the vehicle was stopped or coasting to a stop at low speed. There were no allegations of difficulty restarting the engines immediately after the stalls occurred. There were no allegations of crash or injury.

Differences in tank design, exhaust routing and purge strategy may influence the incident rate at which the MFCV float sticking condition occurs and/or the potential for engine stall or other performance concerns. As a result, ODI's analysis examined incident rates over the full range of RS Minivan production to assess the effects of changes in tank design and purge control logic. This analysis identified an elevated incident rate for approximately 208,000 MY 2004 and 2005 RS Minivans built during a seventh month period from September 2003 through March 2004, which exhibited a failure rate similar to the LX Cars investigated in PE13-016. Table 1 summarizes the field data for DP14-002 and PE13-016.

NHTSA Inv. No.	Vehicles	Build Range	Population	Vehicle Age (Yrs)	Total Reports	Report Rate (IPTV)	Crashes/Injuries
PE13-016	LX cars, 2006	4/05 – 7/06	153,817	7-8	299	1.94	0/0
DP14-002	RS vans, 2003-04	7/02 – 8/03	425,544	11-12	34	0.08	0/0
	RS vans, 2004-05	9/03 – 3/04	208,419	10-11	445	2.14	0/0
	RS vans, 2005-07	4/04 – 5/07	1,221,370	7-10	241	0.20	0/0
	Total RS, 2003-07	7/02 – 5/07	1,855,333	7-12	720	0.39	0/0

Table 1. Summary of NHTSA complaints and Chrysler complaints, field reports and lawsuits.

Subject Vehicle Test Results

As part of its evaluation of this defect petition, NHTSA's Vehicle Research and Test Center (VRTC) conducted testing on a 2005 Chrysler Town & Country LMT (3.6L SFI, 20 gal. fuel tank) vehicle that was the subject of an ODI complaint (VOQ 10641603) that provided the following description of the problem:

After fill up, vehicle stalls, the engine cuts off and the vehicle loses all power and power steering. This happened first on a cross country trip and caused some serious safety concerns when attempting to exit the gas station and merge onto the highway. This problem has been occurring regularly from the first instance in 2011. When fueling, the van is never over filled; we fill until the pump clicks off. This seems to be a fairly common problem in this

generation of minivans as represented in online forums trying to diagnose the problem.

VRTC conducted tests on the complaint vehicle to assess engine performance after refueling, including the driving conditions and ease of engine restart associated with any observed engine stalls. When refueling the vehicle up to the initial shut-off of the filling station pump nozzle, the VRTC testing was able to reproduce stalling incidents when the vehicle was stopped or coasting to a stop at low speed. The vehicle did not stall 4 out of 5 times when travelling at 5 mph, but minor hesitation was noted. No stalls and only minor hesitation were occurred when travelling at 10 mph or above in tanks filled to the initial nozzle shut-off. Stalling was more likely to occur if the tank was overfilled (i.e., adding fuel past the initial fill nozzle shutoff). Testing after overfilling resulted in stalls in 4 of 5 tests at speeds up to 10 mph. Regardless of fill condition, the vehicle could always be immediately restarted after each engine stall.

Conclusion

In the Agency's view, additional investigation is unlikely to result in a finding that a defect related to motor vehicle safety exists given the limited conditions under which the subject condition may result in engine stall, the low failure rate in vehicles with approximately 8 to 13 years in service and the absence of any reports of crashes or injuries. Therefore, in view of the need to allocate and prioritize NHTSA limited resources to best accomplish the Agency's safety mission, the petition is denied. This action does not constitute a finding by NHTSA that a safety-related defect does not exist. The Agency will take further action if warranted by future circumstances.

Authority: 49 U.S.C. 30162(d); delegations of authority at CFR 1.50 and 501.8.

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