



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation:	PE 19-006	Date Closed:	01/15/2021
Date Opened:	05/02/2019	Reviewer:	Jeff Quandt
Investigator:	Roy Nelson		
Approver:	Stephen Ridella		
Subject:	Inadvertent Curtain Air Bag Deployment		

MANUFACTURER & PRODUCT INFORMATION

Manufacturer:	Mazda Motor Corp.
Products:	2010-2013 Mazda CX-9
Population:	104,360

Problem Description: The side curtain air bags may inadvertently deploy while the vehicle is in motion despite no occurrence of a crash.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	5	6	11
Crashes/Fires:	0	0	0
Injury Incidents:	3	2	5
Number of Injuries:	7	3	10
Fatality Incidents:	0	0	0
Other*:	0	38	38

***Description of Other:** Warranty data related to Roll Rate Sensor faults that are not related to IAD events.

ACTION / SUMMARY INFORMATION

Action: This Preliminary Evaluation has been closed.

Summary:

The Office of Defects Investigation (ODI) opened this Preliminary Evaluation (PE19-006) on May 2, 2019 to investigate two Vehicle Owner Questionnaires (VOQs) and Early Warning Reporting data related to allegations of inadvertent deployment (IAD) of side curtain airbags in Model Year (MY) 2010 through 2013 Mazda CX-9 vehicles. ODI sent an Information Request (IR) to Mazda North America Operations, LLC. to gather information about the alleged defect in the subject vehicles. In the 20 months since opening the PE, ODI has received three additional VOQs. To date, there have been a total of 11 IAD incidents within the identified population of 104,360 vehicles. Of the 11 incidents, no serious injuries were reported. The last known incident occurred in December 2020.

Mazda's response to ODI's IR letter identified the root cause as a manufacturing issue of the Bosch SMG076 Roll Rate Sensor within the Restraint Control Module (RCM). During the manufacturing calibration process, small particles may be generated that could affect roll sensor capacitance, which could lead to a loss of curtain airbag protection or an erroneous deployment command. On November 19, 2012, a revised Roll Rate Sensor calibration process was launched, establishing a clean point for the issue.

In its responses to ODI, Mazda has assessed the condition as a low risk to motor vehicle safety, with low incident frequency not warranting action. Any RCM data indicating a malfunctioning Roll Rate Sensor will result in the illumination of the airbag warning light. In the event of an erroneous curtain airbag deployment, there is no contact with properly seated occupants. Additionally, the condition is not affected by deterioration or wear, and known incidents established a random pattern of occurrence.

During the investigation, ODI examined the injury risk to vehicle occupants from curtain airbag deployments. It was determined that the subject vehicles do not pose a substantial risk to out of position occupants, as testing data falls within Technical Working Group (TWG) reference values. Modeling simulation based on data provided by Mazda for properly seated occupants during static and dynamic airbag deployments indicated sufficient head clearance and no risk of brain injury.

ODI analysis reveals that inadvertent deployment incident rates of curtain airbags in the subject vehicles are low through approximately ten years in service. Incident frequency does not meet values warranting recall action, but rather align closely with baseline frequency of general inadvertent deployments which are known to occur in rare driving conditions. Additionally, warranty analysis of RCM failures resulting in a loss of curtain airbag protection revealed low claim rates.

Based on the analysis conducted, this investigation has been closed. The closing of this investigation does not foreclose the Agency from taking further action, if warranted, or the potential for a future finding that a safety-related defect exists, based upon additional information the Agency may receive.

The five ODI complaints cited above can be reviewed at [NHTSA.gov](https://www.nhtsa.gov) under the following identification numbers: 10905492, 11165925, 11270089, 11310044, 11385219.