



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: PE 19-013

Date Opened: 09/17/2019

Investigator: Jisan Xue

Approver: Stephen Ridella

Subject: Passenger Sensing System

Date Closed: 07/02/2021

Reviewer: Tanya Topka

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: General Motors, LLC

Products: 2012-2013 Chevrolet Volt

Population: 45,879 (Estimated)

Problem Description: The Passenger Sensing System for the front seat passenger frontal and knee airbags may malfunction, suppressing deployment of the frontal and knee airbags for that seating position.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	58	133	182**
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
Fatality Incidents:	0	0	0
Other*:	2	Confidential	Confidential

***Description of Other:** TREAD field reports and GM warranty claims related to Passenger Sensing System Malfunction.

**** Total eliminates duplicates received by ODI and manufacturer.**

ACTION / SUMMARY INFORMATION

Action: Close this Preliminary Evaluation (PE)

Summary:

In September 2019, the Office of Defects Investigation (ODI) opened PE19-013 to assess the potential safety related effects of a malfunction of the Passenger Sensing System (PSS) in 2012-2013 Model Year (MY) Chevrolet Volt vehicles. Consumers reported that due to a malfunction of the PSS, the air bag system malfunction indicator light (MIL) was activated. Many of the complaints noted the malfunction occurred after the warranty period expired and mentioned high repair costs as a major deterrent to the repair of the vehicle.

The PSS sensor mat is embedded in the front passenger seat cushion and is intended to detect child seats and small statured occupants who could be harmed by deployment of the frontal passenger air bag. The PSS may develop a malfunction due to bunching of the sensor mat in the seat trench. The bunching of the sensor mat could cause the mat to repeatedly fold in the same location. Over time, the repeated folding can cause an increased resistance in the sensor mat. An increased resistance in the PSS sensor mat is detected as a fault in the air bag system diagnostic. If this fault is detected, a diagnostic trouble code will be stored in the air bag control unit and the air bag MIL will illuminate. Further, if the fault is detected, the passenger frontal and knee air bags will be suppressed in a crash of sufficient severity to warrant a commanded deployment regardless of the nature of size of the occupant of the front passenger seat.

The report counts shown above include only those reports that specifically address the issue covered by this investigation, failure of the PSS sensor mat. Reports alleging only that the "air bag light is on" with no cause stated, or where a different cause was otherwise identified, were excluded as the air bag light could be illuminated for system

faults other than a PSS malfunction.

The subject vehicles have been in service for approximately ten (10) years. An analysis of General Motors (GM) warranty data for the subject vehicles, including a comparison with other agency and manufacturer data pertaining to similar occupant detection system failure investigations, indicates the subject vehicles experience a comparatively low complaint rate for this issue given the number of years the vehicles have been in service.

GM has instituted a cost reduction program for the repair/replacement of the PSS in the subject vehicles. Based on this cost reduction program as well as: 1) a comparatively low warranty rate; 2) no reported injuries, deaths or asymmetric deployments; and 3) the age of the vehicles; ODI is closing this Preliminary Evaluation. The closing of this investigation does not constitute a finding by NHTSA that a safety related defect does not exist. The agency reserves the right to take additional action if warranted by new circumstances.

The ODI complaints cited above can be viewed at www.nhtsa.gov under the following ODI identification numbers in a separate attachment.

PE19-013 Closing Resume VOQ List MY 2012-2013 Volt

11394449	11297558
11386798	11296647
11366134	11280867
11354820	11280829
11351794	11259100
11351559	11258430
11348485	11258259
11340613	11258042
11326717	11257955
11326427	11257605
11318598	11210834
11280480	11193963
11271247	11182059
11257970	11176661
11151914	11171650
11104087	11150221
11102492	11128360
11100339	11112772
11093957	11110642
11061616	11101927
11383683	11096766
11378608	11093379
11374312	11090377
11363916	11090221
11363589	11075996
11352604	11061403
11342479	11022955
11323784	11233125
11297781	11096638