



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA06-016
Date Opened: 09/14/2006 Date Closed: 11/09/2007
Principal Investigator: Derek Rinehardt
Subject: Crank Position Sensor Failure - Stall

Manufacturer: General Motors Corporation
Products: MY 2001 Chevrolet and GMC 2500/3500 Series W/8.1L Engine
Population: 11,974

Problem Description: Crank position sensor failure may result in sudden engine shutdown, with no restart or delayed restart.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	2	382	384
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
Fatality Incidents:	0	0	0
Other*:	0	959	959

*Description of Other: - Warranty claims.

Action: This Engineering Analysis (EA) is closed, Safety Recall 07V-521.

Engineer: Derek Rinehardt *DR* Date: 11/09/2007
Div. Chief: Jeffrey L. Quandt Date: 11/09/2007
Office Dir.: Kathleen C. DeMeter Date: 11/09/2007

Summary: In a letter dated November 7, 2007, General Motors (GM) reported to the Office of Defects Investigation (ODI) that it will conduct a safety recall (07V-521) to replace the crank position sensor (CKP) in approximately 12,000 model year (MY) 2001 Chevrolet Silverado, Chevrolet Suburban, GMC Yukon, and GMC Sierra vehicles equipped with 8.1 liter engines manufactured on or before November 15, 2000. According to GM, the CKP can fail intermittently or permanently. A permanent CKP failure would result in an engine stall without restart. An intermittent CKP failure could cause the service engine soon light to illuminate, the vehicle to run rough or the engine to stall but allows restart. As a remedy, an improved CKP will be installed in the subject vehicles. The recall campaign will start in December 2007.

During the Preliminary Evaluation (PE06-016), and this EA investigation, GM and ODI independently conducted detailed reviews of certain field data to understand the nature and rate of subject vehicle stalling due to CKP failures.

GM and ODI reviewed GM's warranty claims for the CKP with the objective of ascertaining an estimate of those claims representing an engine stall while driving. The CKP warranty claims without verbatim text were the largest segment of warranty claims. Using those claims, GM surveyed vehicle owners to gather additional information to determine if the claim was associated with a stall while driving event. Based on

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the survey, GM estimated that approximately 49% of all warranty repairs for the CKP involved a stall while driving. ODI's review of GM's survey data produced a higher estimate (71%) for stall while driving. GM further estimated the rate of stall while driving for the subject vehicles over time. It estimated stalling while driving rates of 1.6%, 4.6% and 8.9% at 1, 3 and 6 years in service respectively. ODI's review of the GM's survey data finds higher estimated stall while driving rates of 2.2%, 6.8% and 13% at 1, 3 and 6 years in service respectively.

ODI also conducted a survey of vehicle owners using consumer complaints reported to both ODI and GM. The objective was to ascertain the potential safety consequences of an engine stall due to the alleged defect. With respect to the ability to restart the vehicle after a stall, 11% reported immediate restart, 69% reported delayed restart and 20% reported no restart. Over half noted at least one engine stall incident at speeds in excess of 40mph. About one-third noted the vehicle was stranded either partially or fully in a lane of traffic after the engine stall. All of the consumers surveyed noted multiple stalling events prior to proper diagnosis and replacement of the CKP.

Based on GM's decision to conduct a safety recall, this investigation is closed.

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