



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA 10-006
Prompted by: PE09-054
Date Opened: 08/18/2010
Investigator: Chris Lash
Approver: Richard Boyd
Subject: Engine Stall

Date Closed: 09/16/2010
Reviewer: Jeff Quandt

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: GENERAL MOTORS CORP., TOYOTA MOTOR CORPORATION
Products: 2005 to 2008 Toyota Corolla, Corolla Matrix and Pontiac Vibe
Population: 1,290,413

Problem Description: The engine can stall at any speed without warning and not restart.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	240	950	1179**
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
Fatality Incidents:	0	0	0
Other*:	0	4,211	4,211

*Description of Other: Engine control module (ECM) replaced for stalling concern (MY 2005-07)

** Count indicates duplicate reports received by ODI and manufacturer.

ACTION / SUMMARY INFORMATION

Action: This investigation has been closed. NHTSA Recall No. 10V-384.

Summary:

On August 26, 2010, Toyota submitted a Defect Information Report to the National Highway Traffic Safety Administration (NHTSA) regarding problems with Engine Control Modules that could result in engine stall while driving in certain model year (MY) 2005 through 2008 Toyota Corolla, Corolla Matrix and Pontiac Vibe vehicles equipped with the 1ZZ-FE engine and two-wheel drive and manufactured between April 19, 2004 and January 2, 2008. Toyota's report indicated that cracks may develop at certain solder point or on varistors on the ECMs. According to Toyota, such cracks generally resulted in engine warning lamp illumination, harsh shifting or engine no-start. In some cases, if the cracking occurs on particular solder points or varistors, the engine could stop while the vehicle is being driven. Toyota will notify owners of subject vehicles that they should return their vehicles to a Toyota or Pontiac dealer. Dealers will be instructed to inspect the production number of the ECM for each vehicle and replace the ECM if necessary.

On November 30, 2009, the Office of Defects Investigation (ODI) opened a Preliminary Evaluation (PE09-054) to investigate alleged engine stall while driving in model year (MY) 2006 Toyota Corolla and Corolla Matrix vehicles. In its response to ODI's information request, submitted on March 2, 2010, Toyota indicated that it had identified two possible conditions with ECMs used in MY 2005 through 2007 Toyota Corolla and Matrix vehicles: 1) cracks forming between the IC and the board caused by an improperly cured conformal coating applied to the circuit boards after the soldering process is completed; and 2) cracks occurring in a variable resistor (varistor) due to overheating. During the manufacturing process a glass coating is created on the surface of the varistor.

Between March and August 2010, Toyota began collecting ECMs from the field to further investigate failure modes that may result in engine stall. Toyota also conducted durability testing on ECMs collected from in-use vehicles to assess whether the problems may be a continuing trend. In addition, they conducted durability testing in order to assess whether this problem was a continuing trend. Toyota found that 4 of 32 collected ECMs malfunctioned after

thermal shock testing. Toyota also confirmed that cracking could develop at solder points on the ECM circuit board that could lead to engine stall while driving and that this trend was likely to continue.

The manufacturer failure data in this resume is limited to MY 2005 through 2007 Toyota Corolla and Corolla Matrix vehicles. Based on Toyota's recall, this Engineering analysis has been closed.