U.S. Department of Transportation

National Highway Traffic Safety Administration

ODI RESUME

OFFICE OF DEFECTS INVESTIGATION

NHTSA

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Investigation: EA 10-006
Prompted by:
Date Opened: 08/18/2010
Investigator: Chris Lash **Reviewer:** Steve Mchenry
Approver: Richard Boyd
Subject: Engine Stalling

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: TOYOTA MOTOR CORPORATION
Products: 2005 to 2007 Toyota Corolla and Corolla Matrix
Population: 1,186,448

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

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	163	950	1101**
Crashes/Fires:	0	6	6
Injury Incidents:	0	0	0
Fatality Incidents:	0	0	0
Other*:	0	4,211	4,211

***Description of Other:** MY 2005-07 Toyota Warranty for ECU/ECM replacements

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

ACTION / SUMMARY INFORMATION

Action: An Engineering Analysis has been opened

Summary:

On November 30, 2009, the Office of Defects Investigation (ODI) opened Preliminary Evaluation (PE09-054) to investigate alleged engine stalling, while driving 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 causes of production defects of the engine control units (ECU) used in MY 2005 through 2007 Toyota Corollas and Matrixs.

Failure mode A1 - BGA ball failure caused by improperly cured conformal coating applied to circuit boards. This can cause cracks to form in the soldered joints of some components. Failure mode A2 - varistor over heat, a glass coating is created on the surface of the varistor during its production process. In the case of an insufficient coating, a crack can occur in the surface of the glass coating. When ions are charged in the plating electrolytes after the glass coating process, the plating electrolytes can penetrate into the varistor through the glass crack then an electrical short occurs. With respect to these failures, if the condition arises, it can potentially lead to one or more of the following: MIL on, engine stall, engine no start, or harsh shifting.

An Engineering Analysis has been opened to further assess the scope, frequency and safety risks associated with the failure of the ECU that can result in engine stalling.