

TOYOTA

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(5 pages)

**Toyota Motor Engineering &
Manufacturing North America, Inc.**

Vehicle Safety & Compliance
Liaison Office
Mail Code: S-104
19001 South Western Avenue
Torrance, CA 90501

July 3, 2013

Ms. Nancy Lummen Lewis
Associate Administrator for Enforcement
National Highway Traffic Safety Administration
Attn: Recall Management Division (NVS-215)
1200 New Jersey Ave, SE
Washington, D.C. 20590

Re: Certain Toyota Yaris Electric Power Steering Control Module
Part 573, Defect Information Report

Dear Ms. Lewis:

In accordance with the requirements of the National Traffic and Motor Vehicle Safety Act of 1966 and 49 CFR Part 573, on behalf of Toyota Motor Corporation ["TMC"], we hereby submit the attached Defect Information Report concerning a voluntary safety recall of certain Toyota Yaris vehicles to address an issue with the electric power steering control module.

Should you have any questions about this report, please contact me at (310) 468- 8555.

Sincerely,



Abbas Saadat
Vice President
Toyota Motor Engineering & Manufacturing
North America, Inc.

Enclosures
Part 573, Defect Information Report

DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

Toyota Motor Corporation ["TMC"]

1, Toyota-cho, Toyota-city, Aichi-pref., 471-8571, Japan

Affiliated U.S. Sales Company

Toyota Motor Sales, USA, Inc. ["TMS"]

19001 South Western Avenue, Torrance, CA 90501

Manufacturer of Electric Power Steering Control Module:

JTEKT CORPORATION

4-7-1 Meieki, Nakamura-ku, Nagoya 450-8515 Japan

Telephone: + 81-52-527-1900

Country of Origin: Japan

2. Identification of Involved Vehicles:

Based on production records, we have determined the involved vehicle population as in the table below.

Make/ Car Line	Model Year	Manufac- turer	VIN		Production Period
			VDS	VIS	
Toyota/ Yaris	2012	TMC	JTUD3# KTUD3#	CD500160 – CD500365	August 21, 2011*1 through August 31, 2011

*1: Start of production for the U.S.

Note: Although the involved vehicles are within the above VIN range, not all vehicles in this range were sold in the U.S.

No other Toyota or Lexus vehicles sold in the U.S. use an electric power steering control module that is susceptible to the formation of moisture as described further below.

3. Total Number of Vehicles Involved:

74 units

4. Percentage of Vehicles Estimated to Actually Contain the Defect:

Unknown

5. Description of Problem:

The subject vehicles are equipped with an electric power steering system consisting of a power steering control module and a steering column assembly with an attached power steering motor. A relay, which supplies power to the motor, is assembled onto the circuit board in the control module. This relay contains a coil wire, which could have been stored without proper humidity control during the manufacturing process. If such a coil is used in the relay, moisture absorbed by the wire could condense into water droplets on certain relay terminals. Due to the distance between the terminals, the water droplets could create a bridge between the terminals and cause a short circuit. If this occurs, the control module could detect abnormal voltage in the circuit and suspend power steering assist, causing an instrument panel warning lamp to illuminate and a buzzer to sound. Suspension of power steering assist results in increased steering effort and increases the risk of a crash at low speeds.

6. Chronology of Principal Events:

August 2011 - November 2011

Toyota received a field report from the Japan market indicating illumination of the power steering warning light and increased steering effort. Toyota and the supplier examined the returned electric power steering control module and observed a short circuit along with evidence of ion migration between the terminals of the power supply relay, which supplies power to the steering motor. Toyota and the supplier began investigating the manufacturing process and the design of the relay. It was found that some relay coil wires could have been stored without proper humidity control during the coil manufacturing process, and these wires could have absorbed moisture. In November 2011, the supplier implemented humidity control and an inspection process during manufacture to minimize the chance of coil wire moisture absorption. There were no reports of this issue from the U.S. market.

In addition, in November 2011, the specification for the space between terminals in the subject relay was changed by widening this distance.

December 2011 - June 2012

To further assess the potential scope and effect of this issue, Toyota conducted replication testing and confirmed the formation of water droplets in the power supply relay, which created a bridge between the terminals. However, it was also confirmed that, because of the

characteristics of the resin material used for the relay housing, moisture inside the relay housing would evaporate over time such that water droplets would not grow large enough to create a bridge between terminals. Toyota recovered relays from in-use vehicles from the Japan market and measured the moisture level in the relay housing. The results were consistent with the replication testing, and the amount of moisture inside the returned relay housings was insufficient to form droplets. In addition, during the investigation of the subject relays, it was found that the supplier had renewed the manufacturing die for the relay terminals in June 2011, creating a wider space between the terminals as a result. Based on the above and a declining occurrence trend, Toyota presumed the occurrence of this issue in the field would be concluded.

July 2012- late June 2013

In July 2012, the occurrence trend shifted upward, and investigation and analysis resumed. Toyota conducted replication tests under various conditions, such as driving and steering maneuvers (steering assist conditions) which could affect temperature fluctuation in the relay. It was discovered that, if full steering rotations (turning the steering wheel to the fully locked position) are less frequent, the temperature inside the relay housing would not rise enough to dispel moisture from the resin material of the relay. It was also confirmed that the water droplet bridge would not be created between terminals with the wider space in relays manufactured with the new die starting in June 2011.

June 27, 2013

Based on the above investigation, although there have been no reports of this incident from the U.S. market, Toyota decided to conduct a voluntary safety recall campaign on the subject vehicles to replace the electric power steering control module.

7. Description of Corrective Repair Action:

All known owners of the subject vehicles will be notified by first class mail to return their vehicles to a Toyota dealer for replacement of the electric power steering control module with an improved one.

Reimbursement Plan for pre-notification remedies

The owner letter will instruct vehicle owners who have paid to have this condition remedied prior to this campaign to seek reimbursement pursuant to Toyota's General Reimbursement Plan.

8. Recall Schedule:

Notifications to the owners will begin and be completed in late July, 2013. Copies of the draft owner notification will be submitted as soon as it is available.

9. Distributor/Dealer Notification Schedule:

Notifications to distributors/dealers will be sent in early July 2013. Copies of dealer communications will be submitted as they are issued.