

September 5, 2018

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 North America, Inc. [“TMNA”]
6565 Headquarters Drive, Plano, TX 75024

Manufacturer of Engine Wire Harness Assembly:

YAZAKI Corporation
17th Floor, Mita-Kokusai Bldg., 4-28 Mita 1-chome, Minato-ku, Tokyo, 108-8333 Japan
Phone: +81-3-3455-8811

Country of Origin: Japan

2. Identification of Involved Vehicles:

Make/Car Line	Model Year	Manufacturer	Production Period
Toyota / Prius	2016-2018	TMC	June 22, 2015 through May 15, 2018

Applicability	Part Number	Part Name	Component Description
MY2016-2018 Toyota Prius	82121-47170 82121-47171 82121-47172	Wire, Engine	Engine Wire Harness Assembly

NOTE: (1) Although the involved vehicles are within the above production period, not all vehicles in this range were sold in the U.S.

- (2) This issue only involves certain 2016-2018MY Toyota Prius vehicles, manufactured before May 16, 2018, that are equipped with a specific Power Control Unit (PCU) with a connected engine wire harness routed with a specific layout in the engine compartment. Prius vehicles manufactured on or after May 16, 2018 have a protective sleeve on the engine wire harness connected to the PCU. The 2017-2018MY Toyota Prius Prime vehicles use the same PCU but the layout of the engine wire harness is different. Other hybrid vehicles sold in the U.S. use a PCU of a different design with a different layout of the engine wire harness assembly. Other Toyota and Lexus vehicles sold in the U.S. are not equipped with a PCU.

3. Total Number of Vehicles Potentially Involved:

192,347

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

Unknown. Toyota is unable to provide an estimate of the percentage of vehicles to actually contain the defect. Whether the issue in each case will lead to damage of the wires in the engine wire harness assembly, creating an unreasonable risk to safety, depends on variation of the installation condition of the engine wire harness assembly and each vehicle's operating environment.

5. Description of Problem:

The subject vehicles have an engine wire harness which is connected to the hybrid vehicle Power Control Unit. The wire harness has a cover attached at this connection. Due to assembly variation, a portion of the wire harness could contact the cover. If dust has accumulated on the wire harness or the cover, vibration during vehicle use may cause the insulation on the wires to wear over time and expose the core wire, causing an electrical short circuit to occur between the damaged wires and generate heat. If sufficient heat is generated, there is an increased risk of a vehicle fire.

6. Chronology of Principal Events:

February 2018 - May 2018

In February 2018, Toyota received a call from a dealer in the Japan market concerning a customer's allegation about abnormal odor, smoke, and flames coming from the Power Control Unit (PCU) just after parking the vehicle. Toyota inspected the vehicle and found thermal damage on the engine wire harness assembly (hereinafter "wire harness") connected to the PCU and its peripheral components. It was also found that the power wire in the wire harness was broken with short marks at the edge of the broken wire. Because melting was observed on the resin cover of this vehicle, Toyota theorized that the wire harness wore on the cover, exposing

the wires, and further wear on the wire insulation caused the power core wire and ground core wire to become exposed, which resulted in a short circuit.

To investigate this theory, Toyota checked the installation condition of the wire harness at the vehicle assembly plant and observed that there is variation in the gap between the wire harness and the cover. Also, three of 635 vehicles inspected at the plant had no gap (defined as less than 1mm) between the wire harness and the cover.

Toyota then conducted vibration testing up to 1 million cycles with the wire harness firmly contacting the cover. Toyota was unable to duplicate the exposure of the core wires. Only slight wear was observed on the insulation of a single wire within the wire harness. At this time, it was undetermined whether any mechanism could lead to exposure of the core wire in the field. However, because of the possibility of the interference with the cover due to installation variation of the wire harness, a protective sleeve was added on the wire harness as an added precaution.

June 2018 - August 2018

In order to further investigate whether the excessive wear of the wire insulation in the incident in Japan was an isolated one, Toyota inspected 189 in-use vehicles in the Japan market; 49 of 189 vehicles had no gap between the wire harness and the cover. In one out of the 49 vehicles, the insulation of a certain wire in the wire harness was worn and the core wire was exposed. Toyota also observed that dust had collected on and near the connector of the PCU in this vehicle.

Based on this observation, additional vibration testing was conducted with contact between the wire harness and the cover in which dust was applied to the contact area after every 100,000 cycles. The exposure of the core wire was duplicated at 600,000 cycles. Toyota determined that this mechanism could cause the core wire of both the power wire and ground wire to become exposed, potentially resulting in a short circuit that could cause the wire harness and its peripheral components to become thermally damaged, possibly leading to a fire.

During this period, Toyota also confirmed that the same condition does not occur on a wire harness if there is an added protective sleeve under the same test conditions. In addition, Toyota reviewed the designs of wire harnesses of other hybrid vehicles and determined that the engine wire harnesses for other hybrid vehicles, which are connected to the PCU, have a protective sleeve on the wire harness with a different layout of the wire harness.

August 30, 2018

Based on the results of the above investigation, Toyota decided to conduct a voluntary safety recall campaign.

As of August 29, 2018, based on a diligent review of records, Toyota's best engineering judgment is that there are no Toyota Field Technical Reports and one alleged warranty claim that have been received from U.S. sources that relate to this condition and which were considered in the decision to submit this report.

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. Dealers will check the engine wire harness assembly. If a wire core is exposed, the engine wire harness assembly will be replaced with a new one, which includes a protective sleeve. If a wire core is not exposed, protective tape will be installed on the engine wire harness assembly.

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 owners of the affected vehicles will occur by November 4, 2018. A copy of the draft owner notification letter will be submitted as soon as available.

9. Distributor/Dealer Notification Schedule:

Notifications to distributors/dealers will be sent on September 5, 2018. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer's Campaign Number:

J0T