

October 18, 2017

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 Inverter

Toyota Motor Corporation ["TMC"]
1, Toyota-cho, Toyota-city, Aichi-pref., 471-8571, Japan
Telephone: +81-565-28-2121

Country of Origin: Japan

2. Identification of Involved Vehicles and Affected Components:

Based on production records, we have determined the involved vehicle population is six vehicles with the details listed below.

Make/Car Line	Model Year	Manufacturer	Production Period
Toyota/Prius	2016	TMC	December 9, 2015 through June 8, 2016

VIN of Involved Vehicle:

JTDKARFU1G3501072, JTDKARFU6G3507661, JTDKARFU8G3523733
JTDKBRFU2G3512983, JTDKBRFU5G3502769, JTDKBRFU7G3501607

Part Number	Part Name	Component Description
G9200-47240	Inverter Assy, with Converter	Inverter

Note: This issue only involves certain 2016MY Toyota Prius vehicles equipped with specific inverters which records show contain a capacitor that may not have been attached to the inverter housing due to an improper rework operation at the inverter assembly plant. Other Toyota or Lexus vehicles sold in the U.S. are not equipped with those inverters.

3. Total Number of Vehicles Potentially Involved:

6

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

Unknown. Toyota is unable to provide an estimate of the percentage of vehicles that actually contain the defect. Whether the manufacturing issue in this case will lead to a hybrid system shutdown, creating an unreasonable risk to safety depends on each vehicle's operating conditions over time and whether the damage to the resin portion of the other inverter component will lead to a permanent disconnect of the capacitor terminal.

5. Description of Problem:

The hybrid system of the subject vehicles includes an inverter assembly which contains a capacitor that may not have been properly bolted to the inverter housing. In this condition, the terminal of the capacitor could be damaged by vibration during normal vehicle operation. If the vehicle continues to be operated in this condition, the hybrid system could shut down, resulting in the loss of motive power (but not power steering and braking assist). Loss of motive power while driving at higher speeds could increase the risk of a crash.

6. Chronology of Principal Events:

April 2017 - July 2017

In April 2017, Toyota received a dealer report from the U.S. market indicating that a Toyota Prius vehicle did not enter "Ready On" and experienced illumination of warning lights (i.e., the customer's vehicle would not start). Toyota inspected the recovered inverter and found that the bolts mounting the capacitor to the inverter housing were missing and the terminal of the capacitor, which is bolted between the other terminal and the other inverter component, was damaged.

Toyota began investigating the cause of the missing bolts by reviewing the production history data and the capacitor installation process. It was found that the inverter was reworked in the capacitor installation process, and the bolts were not installed during the rework process. Toyota also confirmed that some other inverters were reworked and the bolts may not have been installed. The capacitor installation process was improved to prevent incorrect rework operation, which could cause the bolts to not be installed.

Toyota began replication testing to determine if the missing bolts could lead to the damage of the terminal and whether such damage could prevent a vehicle from entering “Ready On.” Vibration was applied to an inverter assembly without the capacitor mounting bolts, and it was found that the capacitor terminal could be damaged by vibration. Toyota also conducted drive testing and bench testing using a vehicle equipped with an inverter containing a damaged terminal. Vibration was applied to the vehicle, but an illumination of warning lights and not entering “Ready On” could not be duplicated.

August 2017 – Early October 2017

In August 2017, Toyota also received a field technical report from the European market indicating an illumination of warning lights and a loss of motive power while driving. In this case, warning lights illuminated, the vehicle was cycled once to “Ready Off” and then to “Ready On”, and then (after driving again normally) experienced illumination of warning lights a second time and a loss of motive power. Toyota investigated the recovered inverter from this case and observed that the bolts mounting the capacitor to the inverter housing were missing and the capacitor terminal was damaged. In addition, the resin portion of the other inverter component attached to the capacitor terminal had melted.

Toyota conducted additional testing to confirm if there was a possibility that the hybrid system could shut down when the capacitor terminal is damaged, and thus lead to a loss of motive power while driving. The inverter containing a damaged capacitor terminal was installed in a vehicle and a static impact force was repeatedly applied to the inverter directly. During this testing, warning lights illuminated and the hybrid system shut down. Toyota disassembled the inverter and found that, as observed in the inverter recovered from the European market, the resin portion of the other inverter component attached to the capacitor terminal had melted. Based on the results of the abovementioned investigations, Toyota concluded that there is a possibility that, if the capacitor mounting bolts are not installed, the capacitor terminal could be damaged and lead to momentary open circuit conditions. If the momentary open circuits repeatedly occur due to vibration during normal vehicle operation, the resin portion of the other inverter component that is attached to the capacitor terminal could be melted by electric arcing. This can lead to a complete disconnection of the capacitor terminal and a hybrid system shut down, resulting in the loss of motive power.

October 12, 2017

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

As of October 12, 2017 based on a diligent review of records, Toyota’s best engineering judgment is that there are no Toyota Field Technical Report and 1 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 that have not received the repair will be notified directly via telephone to return their vehicles to a Toyota dealer. The dealers will replace the inverter with a new one.

Reimbursement Plan for pre-notification remedies

As the owner notification will be conducted within the active period of the Toyota New Vehicle Limited Warranty (“Warranty”), all involved vehicle owners for this recall would have been provided a repair at no cost under Toyota’s Warranty.

8. Recall Schedule:

Notifications to owners of Toyota models via telephone will occur by late-October, 2017. Any owner whose vehicle has not been repaired by early-December, 2017 will be contacted via first class mail.

9. Distributor/Dealer Notification Schedule:

Notifications to distributors/dealers will be sent on October 18, 2017. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer’s Campaign Number:

H0U