

November 1, 2023

DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

Toyota Motor Corporation [“TMC”]
1, Toyota-cho, Toyota-city, Aichi-pref., 471-8571, Japan

Toyota Motor Manufacturing, Canada, Inc. [“TMMC”]
1055 Fountain Street North, Cambridge, Ontario, Canada N3H 5K2

Affiliated U.S. Sales Company:

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

Manufacturer of Battery Clamp Sub-Assembly:

Pacific Manufacturing Ohio
8955 Seward Road, Fairfield, OH 45011
Phone: 513-642-0055
Country of Origin: United States

Kyoho Machine Works, LTD.
6 Toyota-cho, Toyota-city, Aichi-pref. 471- 8515, JAPAN
Phone: +81-565-28-1881
Country of Origin: Japan

Manufacturer of Battery Tray:

Mitchell Plastics
301 Pike Street, Charlestown, IN 47111
Phone: 812-256-3351
Country of Origin: United States

Kojima Industries Corporation
 3-30 Shimoichiba-cho, Toyota-city, Aichi-pref., 471-8588, JAPAN
 Phone: +81-565-34-6868
 Country of Origin: Japan

2. Identification of Involved Vehicles and Affected Components:

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

Make/Car Line	Model Year	Manufacturer	Production Period
Toyota / RAV4	2013-2018	TMC	November 23, 2012 through October 22, 2018
		TMMC	December 21, 2012 through November 14, 2018

Applicability	Part Number	Part Name	Component Description
MY2013-2018 Toyota RAV4	74404-0R030	Clamp Sub-Assy, Battery	Battery Clamp Sub-Assembly
	74404-42190	Clamp Sub-Assy, Battery	Battery Clamp Sub-Assembly
	74431-0R040	Tray, Battery	Battery Tray
	74431-42120	Tray, Battery	Battery Tray

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

(2) This issue only affects 2013-2018MY RAV4 vehicles utilizing a specific battery hold-down assembly and battery tray described in Section 5 below. Other Toyota or Lexus vehicles sold in the U.S. are equipped with a different design of the battery hold down assembly and battery tray.

3. Total Number of Vehicles Potentially Involved:

1,853,568

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 movement of the battery occurs that will lead to contact between the positive terminal and the hold down bracket depends, in each case, on the variation in force produced on the battery while driving, the installation torque of the battery hold down assembly, the location of installation within the battery tray of the battery, and the top case dimensions of the replacement battery. However, as the NHTSA manufacturer portal requires an integer value be entered, Toyota has entered the value “1” in response to this question in the portal. For the purpose of this report, “1” means “unknown”.

5. Description of Problem:

SAE Group 35 is the specified 12-volt battery size for the subject vehicles. The battery is installed, in accordance with a process containing torque specifications for certain components, on a tray in the engine compartment, and is held in place by a hold down assembly. During driving that produces high levels of lateral G-force and where the battery has not been secured with the correct torque specified in the installation process, the battery hold down assembly may not sufficiently hold in place certain aftermarket SAE Group 35 batteries. These aftermarket batteries have a smaller top case dimension compared to the overall dimension of the battery. An oversized tray, together with reduced clamping force (resulting from using incorrect torque), can allow battery movement that is greater than the distance between the battery positive terminal and the bracket of the hold down assembly. This movement is possible for these batteries even if all parts of the battery hold down assembly are present. In this condition, a short circuit could occur, generating heat. If sufficient heat is generated, components within and around the battery can sustain thermal damage, increasing the risk of a fire.

6. Chronology of Principal Events:

February 2021 - July 2021

PE 21-005 was opened by NHTSA on February 25, 2021 to investigate allegations of non-crash thermal events originating in the engine compartment. Toyota investigated these allegations and found that aftermarket suppliers were recommending batteries of a size contrary to Toyota-published information for the subject vehicles. Toyota also conducted a review of field data, confirmed the design concept and manufacturing processes, and performed a comprehensive evaluation and performance analysis of the battery and hold down bracket hardware in the subject vehicles. Through these evaluations it was also found that replacement batteries were not being secured to meet the torque specifications provided by Toyota. In some cases, parts of the battery hold down hardware were not being used or were missing. No defect was found

in the vehicles. Toyota issued Consumer Advisory 21TG01 on July 15, 2021 to address the issues of incorrect battery size and incorrect installation.

August 2023 - September 2023

Toyota discussed the status of the investigation and met with NHTSA to discuss static evaluations that NHTSA conducted in relation to various aftermarket SAE Group 35 batteries, the size specified by Toyota for the subject vehicles. Some of these batteries had smaller top case dimensions than other Group 35 batteries Toyota had previously evaluated. In light of this additional information, Toyota began further evaluations.

October 2023

Toyota conducted dynamic testing with varying G-forces using Group 35 batteries with smaller top case dimensions that had not been previously evaluated. The dynamic testing accounted for installation of the battery hold down hardware with a torque specification less than the Toyota recommended value. The same dynamic evaluation was also conducted using the proper battery installation process. Toyota confirmed that movement of the battery was only possible during aggressive driving if the battery hold down hardware had not been installed to the specified torque.

However, during driving that produces high levels of lateral G-force and where the battery has not been secured with the correct torque specified in the installation process, the battery hold down assembly may not sufficiently hold in place certain aftermarket SAE Group 35 batteries that have a smaller top case dimension compared to the overall dimension of the battery because an oversized tray assembly and the reduced clamping force (resulting from using incorrect torque) can allow battery movement that is greater than the distance between the battery positive terminal and the bracket of the hold down assembly. This movement is possible for these batteries even if all parts of the battery hold down assembly are present. In this condition, a short circuit could occur, generating heat. If sufficient heat is generated, components within and around the battery can sustain thermal damage, increasing the risk of a fire.

Based on the results of this investigation, Toyota decided to conduct a voluntary safety recall campaign for the vehicles identified above on October 26, 2023.

As of October 11, 2023, based on a diligent review of records, Toyota's best engineering judgment is that there are twenty-two Toyota Field Technical Reports and zero warranty claims that have been received from U.S. sources that relate or may 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 to return their vehicles to a Toyota dealer. For all involved vehicles, Toyota dealers will replace the battery clamp sub-assembly, battery tray, and positive terminal cover with improved ones at no cost to owners.

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 December 31, 2023. A copy 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 on November 1, 2023. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer's Campaign Number:

[Interim / Remedy]: 23TB13 / 23TA13