

October 18, 2017

## DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

Toyota Motor Manufacturing, Indiana, Inc. ["TMMI"]  
4000 Tulip Tree Drive, Princeton, IN 47670-4000

Affiliated U.S. Sales Company:

Toyota Motor Sales, USA, Inc. ["TMS"]  
19001 South Western Avenue, Torrance, CA 90501

Manufacturer of the Shift Lever Assembly:

TRAM, Inc.  
47200 Port Street, Plymouth, Michigan 48170, U.S.A  
Telephone: +1-734-254-8500

Country of Origin: USA

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/ Sienna	2005 2006 2007	TMMI	August 8, 2005 through March 5, 2007
	2009 2010		December 10, 2008 through January 4, 2010

Applicability	Part Number	Part Name	Component Description
MY2005 - 2007 MY2009 - 2010 Toyota Sienna	33560-08010	Unit Assy, Shift Lock Control	Shift Lever

- (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) Vehicles included in previous recall 13V-429, which are not included in this recall, are equipped with the same shift lever assembly. However, the 13V-429 recall remedy work instruction included removing the grease in the shift lever assembly and reapplying an appropriate amount of grease. Therefore, the issue discussed in this report does not occur on these vehicles.
- (3) No other Toyota or Lexus vehicles use a shift lever assembly with the same design.

3. Total Number of Vehicles Potentially Involved:

310,475

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. The grease application amount and location for each shift lever assembly was not recorded during the manufacturing process. Further, environmental conditions affect the rate of grease degradation. Thus, it is not possible to determine when and whether these conditions will, in fact, lead to the defect described in this report for each vehicle.

5. Description of Problem:

The subject vehicles are equipped with a shift lever assembly which contains a shift interlock system. The interlock system uses a shift lock solenoid that includes a slider and a stopper to prevent the shift lever from moving out of the "Park" position unless the ignition is "ON" and the brake pedal is depressed. There is a possibility that grease was applied improperly to the shift lever assembly and could transfer to the slider and stopper, deteriorate over time, and become more viscous. If these conditions occur, the slider and stopper could move together, allowing the shift lever to be moved out of the "Park" position without depressing the brake pedal. If this occurs when the parking brake is not engaged, it could lead to a vehicle rollaway and increase the risk of a crash.

6. Chronology of Principal Events:

Late September 2013

In September 2013, Toyota initiated a voluntary recall campaign (13V-429) concerning the shift interlock system on Sienna vehicles produced during two specific periods (January 10, 2003 - August 10, 2005 and February 20, 2007 - December 12, 2008). These vehicles were equipped with shift lock solenoids that had one of two potential production issues in the slider/stopper portions of the solenoid (either (1) a manufacturing variation in the dimensions of the stopper or (2) the existence of a burr on the slider). This could lead to damage and deformation on the stopper and permit the shift lever to be moved out of the "Park" position without depressing the brake pedal. In the absence of an activated parking brake, moving the shift lever out of park could result in vehicle rollaway.

Based on an analysis of parts produced before and after die updates, Toyota determined that vehicles not produced during these two specific production periods were not affected by these production issues. At that time, there was also no indication of any similar trend in the shift lever incidents involving the vehicles not produced during those two production periods.

#### Late October 2013 - May 2015

Toyota received a field technical report from the Canadian market indicating that the shift lever was moved out of the “Park” position on a vehicle not involved in the aforementioned recall. The vehicle inspection confirmed that the shift interlock system functioned properly and the shift lever could not be moved out of the “Park” position unless the ignition was “ON” and the brake pedal was depressed. There were no abnormalities found in any components related to the shift function at the vehicle inspection. The investigation recovered that shift lever assembly and later found that, while the shift interlock functioned properly under the normal shift operation, the stopper could move in sync with the slider if the shift lever is deliberately operated very slowly. Further investigation of the solenoid found no dimensional defects or burrs on the slider, but it was observed that grease applied to the shift lever had transferred to the solenoid. The grease contained metal debris and scratch marks were present on the surface of the stopper and slider. Because the synchronous movement did not occur when the metal debris was removed, Toyota believed that this was an isolated case caused by the foreign material.

As this report was received after our defect determination (but before commencing the owner mailing) for 13V-429, Toyota added in the remedy for 13V-429 an instruction to clean off any grease inside the shift lever assembly and apply an appropriate amount of grease to specific locations. Toyota decided to include this instruction as a precaution, although Toyota did not believe that there is any influence of grease on the shift interlock function.

In November 2013, Toyota received three field technical reports from the U.S. market indicating a similar phenomenon to the first report on vehicles not involved in the previous recall. The vehicles were inspected and no abnormalities were found in the shift interlock function. The shift lever assembly installed in one of the three vehicles was recovered and investigated. (The other two were not available for inspection.) No dimensional defects or burrs were found; however, the tip of the stopper had been damaged. It was theorized that excessive force was applied to the shift lever, causing the stopper to be damaged, allowing the shift lever to be moved out of the “Park” position. Toyota received four more field technical reports through May 2015. However, because no trend was identified among these cases, Toyota continued to monitor the field.

#### May 2017 - early October 2017

In 2017, Toyota received a customer complaint in May from the U.S. market and was able to inspect another vehicle in July. Both vehicles and shift lever assemblies were inspected. No abnormalities were found in the shift interlock function of the first vehicle, but during the July inspection, the shift lever could be moved out of park without the brake pedal depressed by using a deliberate, slow motion with force. Lubricating grease and dirt were observed on the solenoid and on the sliding surface of the stopper and slider of both assemblies. The shift lever assemblies of these vehicles were recovered and investigated. In one of the two solenoids, damage, which may have been caused by excessive force, was observed on the tip of the stopper. In addition, the recovered shift levers could not be moved out of the “Park” position under normal shift operation. However, in both assemblies, the stoppers could occasionally move downward together with the slider under deliberately slow shift operation.

July – September 2017, to investigate whether there is any influence of grease on the shift interlock function, Toyota also recovered shift lever assemblies from in-use vehicles in the field. Nineteen shift lever assemblies were recovered from in-use vehicles and similarly investigated. It was confirmed that none of the shift levers moved out of the “Park” position under normal shift operation. However, the stoppers in nine of them under deliberate slow shift operation, moved partially in sync with movement of the slider.

It was also observed in the recovered shift lever assemblies (linked to the customer complaint from May and the vehicle inspection in July of 2017) that grease applied to the shift lever had transferred to the sliding surface of the stopper and slider of each assembly. The analysis of the grease revealed that it was deteriorated by oxidization, causing it to become more viscous. Toyota then investigated the sliding resistance between the stopper and slider of the solenoids in the shift lever assemblies. It was confirmed that the sliding resistance between the stopper and slider with the deteriorated grease increased compared with a new solenoid without grease. If the sliding resistance increases, the stopper could move downward together with the slider under deliberately slow shift operation, and when the stopper is moved a certain amount, the shift lever could be moved out of the “Park” position without depressing the brake pedal. In addition, it was confirmed that, if new grease is applied to a new solenoid, the sliding resistance will not increase and the synchronous movement of the stopper will not occur.

#### October 12, 2017

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

As of October 10, 2017, based on a diligent review of records, Toyota’s best engineering judgment is that there are seven Toyota Field Technical Reports and four warranty claims linked to the reports that have been received from U.S. sources that relate to this condition and which were considered in the decision to submit this report. One additional Toyota Field Technical Report, was completed on October 13, 2017. However, its contents were considered during the course of Toyota’s investigation.

#### 7. Description of Corrective Repair Action:

All known owners of the involved vehicles will be notified by first class mail to return their vehicles to a Toyota dealer. Toyota dealers will replace the solenoid with a new one and will also remove the grease and reapply an appropriate amount of grease.

#### 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 17, 2017. A copy of the draft owner notification letter will be submitted as soon as available.

9. Distributor/Dealer Notification Schedule:

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

10. Manufacturer's Campaign Number:

HOV