

November 23, 2021

## DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

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

Toyota Motor Manufacturing, Texas, Inc. ["TMMTX"]  
1 Lone Star Pass, San Antonio, TX 78264-3413

Affiliated U.S. Sales Company:

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

Manufacturer of Steering Gear Assembly:

JTEKT North America Corporation  
7 Research Drive  
Greenville, SC 29607  
864-770-2100

2. Identification of Involved Vehicles and Affected Components:

Based on production records, we have determined the vehicle population in the table below was originally equipped with the steering gear assembly described in Section 5, below.

Make/Car Line	Model Year	Manufacturer	Production Period
Toyota / Tundra	2021	TMMTX	August 5, 2021 through October 18, 2021

Toyota / Sequoia	2021 2022	TMMI	July 28, 2021 through October 25, 2021
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Applicability	Part Number	Part Name	Component Description
Toyota / Tundra 2021	44250-0C131	Gear Assy, Power Steering	Hydraulic Rack & Pinion Steering Gear
Toyota / Sequoia 2021-2022	44250-0C121	Gear Assy, Power Steering	Hydraulic Rack & Pinion Steering Gear

- 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 concerns power steering gear assemblies that were machined by a specific piece of equipment at a specific supplier during a specific production period. The involved vehicles are the only production vehicles that may have been originally equipped with these steering gear assemblies. Whether service parts could be affected is still under investigation.

3. Total Number of Vehicles Potentially Originally Equipped with the Power Steering Gear Assembly:

Tundra: 21,234  
Sequoia: 1,228  
Total: 22,462

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

Toyota estimates that 25% of the involved vehicles may contain a groove of an incorrect shape where the circlip is installed because one of the four pieces of equipment that machine this groove had the damaged teeth on the cutting tool, as further described in this report. Whether this issue will cause a sufficient amount of power steering fluid leaking due to the circlip becoming disengaged from this groove and lead to a sudden loss of power steering assist depends on the vehicle driving conditions.

5. Description of Problem:

The subject vehicles are equipped with a power steering system where hydraulic pressure is applied through power steering fluid entering the steering gear assembly. An oil seal, an end stopper, and a circlip are used to contain the hydraulic fluid within the gear assembly. During a specific production period at the supplier, one of the four pieces of equipment that machine the groove in the gear assembly where the circlip is installed was not creating a groove of the correct shape. When the circlip is installed in a groove of an incorrect shape created by this piece of equipment, the circlip may not be able to hold the oil seal and end stopper in position. This can result in oil leaking from the gear assembly. After a sufficient amount of oil has leaked, it is possible that a sudden loss of power steering assist may occur. In this condition, the steering system will revert to manual steering mode, and steering control can be maintained at all times. However, suspension of power steering assist results in increased steering effort at low vehicle speeds and increases the risk of a crash.

6. Chronology of Principal Events:

**Late September 2021 – mid November 2021**

Beginning in late September, Toyota observed an increase in field reports and warranty claims alleging power steering fluid leak involving the subject vehicles. Toyota observed that these reports mainly involved vehicles produced during the months of August and September 2021. During this time, Toyota also began recovering parts involved in these reports and sending them to the supplier for their inspection.

In late October, Toyota began receiving responses from the supplier regarding their inspection into the recovered parts that Toyota had sent. In these inspections, the supplier found that the circlip, which holds the oil seal and end stopper in position at the end of the power steering rack housing, was disengaged from the groove machined in the rack housing and that the oil seal and the end stopper were moved from the correct position. Further investigation of the returned parts revealed that the groove where the circlip is installed was improperly machined leading to an incorrect groove shape.

Based on these findings, the supplier investigated their production process and identified that one of the four pieces of equipment that machines the groove in the rack housing was not creating a groove of the correct shape. The tool was inspected, it was found that certain teeth on the cutting tool, which creates the groove in the rack housing, were damaged.

By this time, the supplier had stopped manufacturing with the affected tool and had begun an internal inspection to attempt to stop the flow out of parts with the incorrect groove shape. Toyota also began holding and inspecting parts at the vehicle plants and parts distribution centers.

In addition, Toyota conducted duplication testing on additional recovered parts with the incorrect groove shape. In these tests, the circlip disengaged from the groove and the power steering fluid leaked during the continuous operation of the steering from lock-to-lock position when the vehicle was stationary. It was further observed that if the circlip disengages from the groove, the oil seal and end stopper can move from the correct position due to internal fluid pressure within the rack housing, which results in a power steering fluid leak from the rack housing. The testing also indicated that, after a sufficient amount of oil has leaked, it is possible that a sudden loss of power steering assist may occur. In this condition, the steering system will revert to manual steering mode, and steering control can be maintained at all times. However, suspension of power steering assist results in increased steering effort at low vehicle speeds and increases the risk of a crash.

### **November 17, 2021**

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

As of November 17, 2021, based on a diligent review of records, Toyota's best engineering judgement is that there are 35 Toyota Field Technical Reports (received between September 24, 2021 and November 16, 2021) and 181 warranty claims (received between September 3, 2021 and November 17, 2021) 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 inspect the power steering gear assembly and if necessary, replace it with a new one at no cost to customers.

#### Reimbursement Plan for pre-notification remedies

As the owner notification letters will be mailed out well 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 the affected vehicles will occur by January 22, 2022. 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 23, 2021. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer's Campaign Number:

[Interim / Remedy] 21TB10/21TA10