

Toyota Motor North America, Inc.

Vehicle Safety & Compliance
Liaison Office
Mail Stop: W4-2D
6565 Headquarters Drive
Plano, TX 75024

December 23, 2021

AMENDED DEFECT INFORMATION REPORT

21V-920

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 may have been equipped with the steering gear assembly described in Section 5, below.

| Make/Car Line | Model Year | Manufacturer | Production Period |
|------------------|---|--------------|---|
| Toyota / Tundra | 2007 - 2021 | TMMTX | January 19, 2007 through October 18, 2021 |
| Toyota / Sequoia | 2008, 2010-2015, 2017, 2019, 2021 2022 | TMMI | February 4, 2008 through October 25, 2021 |

| Applicability | Part Number | Part Name | Component Description |
|--------------------------------|---|------------------------------|--|
| Toyota / Tundra 2007 - 2021 | 44250-0C170 44250-0C160 44250-0C131 | Gear Assy, Power Steering | Hydraulic Rack & Pinion Steering Gear |
| Toyota / Sequoia 2008-2022 | 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 vehicles that may have been originally equipped with or have service records of being repaired with these steering gear assemblies.

3. Total Number of vehicles covered by this safety recall:

Tundra: 21,405

Sequoia: 1,251

Total: 22,656

[NOTE: This amended population adds 171 Tundra and 23 Sequoia vehicles which have service records of being repaired with these steering gear assemblies.]

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 (on the production vehicles covered by this safety recall on November 23, 2021) and which were considered in the decision to submit this report.

November 23, 2021

Toyota filed a Part 573 Defect Information Report.

November – December 2021

Toyota continued its investigation to determine whether service replacement parts that may

contain the defect were distributed to dealers and were used for vehicle repairs. On November 16, Toyota received a dealer product report regarding a vehicle that had been repaired with a service part steering gear assembly, which experienced a sudden loss of power steering assist and a fluid leak from the gear assembly. Toyota recovered the part and sent it to the supplier for investigation. The supplier later reported that the service part contained the same defect. Concurrently, Toyota conducted a further review of its records and identified that service parts were ordered and shipped to dealers and distributors. In addition, based on a review of service history, Toyota identified that some of those affected service parts had been used in vehicle repairs for vehicles not previously covered by this safety recall.

Based on this information, it was determined that 194 additional vehicles could be identified outside of the previous 21V-920 population that received a potentially involved service part.

December 21, 2021

Based on the new information explained above, Toyota decided to amend the vehicle population in recall 21V-920 to include the 194 additional vehicles that could be identified as having received a potentially affected service part. A separate Defect Information Report is being filed to cover service parts for which Toyota does not have information as to whether they were installed in any vehicle.

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 owners.

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”) or the Limited Warranty for Parts and Accessories, applicable to involved service parts, 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 had been sent on November 23, 2021. Additional notices about the amended vehicle population will be sent on December 23, 2021. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer's Campaign Number:

[Interim / Remedy] 21TB10/21TA10