TOYOTA

RECEIVED
By Recall Management Division at 9:10 am, Nov 14, 2012

12V-537
(5 pages)

Toyota Motor Engineering & Manufacturing North America, Inc.

Vehicle Safety & Compliance
Liaison Office
Mail Code: S-104
19001 South Western Avenue
Torrance, CA 90501

November 14, 2012

Ms. Nancy Lummen Lewis
Associate Administrator for Enforcement
National Highway Traffic Safety Administration
Attn: Recall Management Division (NVS-215)
1200 New Jersey Ave, SE
Washington, D.C. 20590

Re: Certain Toyota Prius Steering Intermediate Extension Shaft Assembly
Part 573, Defect Information Report

Dear Ms. Lewis:

In accordance with the requirements of the National Traffic and Motor Vehicle Safety Act of 1966 and 49 CFR Part 573, on behalf of Toyota Motor Corporation ["TMC"], we hereby submit the attached Defect Information Report concerning a voluntary safety recall of certain Toyota Prius vehicles to address an issue with the Steering Intermediate Extension Shaft Assembly.

Should you have any questions about this report, please contact me at (310) 468-8551.

Sincerely,

V. Venugopal

Vinnie Venugopal
General Manager
Toyota Motor Engineering & Manufacturing
North America, Inc.

Enclosures
Part 573, Defect Information Report

DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

Toyota Motor Corporation ["TMC"]
1, Toyota-cho, Toyota-shi, Aichi 471-8571, Japan

Affiliated U.S. Sales Company

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

Manufacturer of Steering Intermediate Extension Shaft Assembly:

JTEKT CORPORATION
1–1 Kotobuki-cho, Toyota-city, Aichi 471–0834 Japan
Telephone: +81-565-28-2219
Country of Origin: Japan

2. Identification of Affected Vehicles:

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

Make/ Car Line	Model Year	Manufac-turer	VIN		Production Period
			VDS	VIS	
Toyota/ Prius	2004 - 2009	TMC	KB2#U	40001086 – 50133248 53000000 – 93546425 57003414 – 97894047	August 5, 2003 through March 30, 2009

Note: Although the involved vehicles are within the above VIN range, not all vehicles in this range were sold in the U.S. and are equipped with the extension shaft produced by JTEKT.
No other Toyota or Lexus vehicles in the U.S. use the same intermediate extension shaft assembly as the subject vehicles.

3. Total Number of Vehicles Potentially Affected:

669,705

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

Unknown

5. Description of Problem:

The steering shaft system of the subject vehicles consists of a steering intermediate shaft assembly, steering sliding yoke sub assembly, and steering intermediate extension shaft assembly. Due to insufficient hardness of the extension shaft supplied by JTEKT, the splines which connect the extension shaft to the steering gear box may deform if the steering wheel is frequently and forcefully turned to the full-lock position while driving at a slow speed. This may create an increased backlash, and splines may eventually wear out over time, which could result in loss of steering ability.

6. Chronology of Principal Events:

February 2010 – June 2010

Toyota received a field report from the Japan market indicating the vehicle lost its steering ability while parking. The investigation of the returned part revealed that the splines on the extension shaft, which provide the connection to the steering gear box, were excessively worn. No other abnormality was observed.

Toyota conducted a replication test to attempt to duplicate a condition where the extension shaft receives an impact, similar to a tire hitting a roadside curb while driving. A section of the splines on the extension shaft deformed and increased backlash developed in the connection with the gear box.

In order to confirm whether this type of failure could have also resulted from normal usage, Toyota started to recover working extension shafts from in-use vehicles from the Japan market.

July 2010 – February 2011

Toyota investigated 68 recovered extension shafts and no abnormalities were observed. Based on the replication test, Toyota presumed that the wear in the splines of the extension shaft occurred due to an excessive impact, possibly to the front wheel. Two additional field reports were received from the Japan market. However, for these two vehicles, Toyota could not confirm any past events of impact to the front wheel. Toyota continued to recover working extension shafts from in-use vehicles to learn if any additional shafts with abnormalities could be found.

March 2011 – May 2012

An additional 84 extension shafts were recovered from the Japan market, and spline deformation was observed on 7. Toyota confirmed the supplier and production date of these recovered shafts and found that 6 of the 7 extension shafts were produced by JTEKT. The one

remaining extension shaft was produced by another supplier before June 2003 (these extension shafts were not used for the subject vehicle).

In February 2012 Toyota received its first dealer report from the U.S. market indicating the vehicle lost its steering ability while driving. Toyota could not investigate the failed part because the part was not returned.

While investigating extension shaft warranty returns due to complaints of noise, Toyota noticed that areas of the splines were worn and some of the splines were deformed. The condition of the splines was different from the other recovered parts and the parts which were tested. Toyota theorized that spline damage may be caused by a combination of forceful full-lock turns and the relative interactions of the splines on the steering shaft and gear box. Toyota began new replication testing in an attempt to duplicate the spline wear.

June 2012 – early November 2012

The excessive wear condition was duplicated after durability testing using a combination of multiple variables such as forceful full-lock turns, rough road driving, and turning at an intersection. It was determined that the hardness of the extension shaft produced by JTEKT in the subject vehicles was insufficient to withstand the loads associated with these types of driving maneuvers. Therefore, excessive wear could occur in the extension shaft splines over time.

In addition, it was found that the hardness of extension shafts produced before June 2003 by the other supplier was also insufficient. The subject vehicles were equipped with extension shafts produced by JTEKT or the other supplier. However, the other supplier began supplying extension shafts for the subject vehicle after June 2003, and those extension shafts have sufficient hardness to prevent excessive wear.

November 9, 2012

Toyota decided to conduct a voluntary safety recall campaign to address this issue.

7. Description of Corrective Repair Action:

All known owners of the subject vehicles will be notified by first class mail to return their vehicles to a Toyota dealer for inspection. The dealer will inspect the extension shaft, and, if the vehicle is equipped with an extension shaft produced by JTEKT, the dealer will replace it with an improved one.

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:

Toyota is currently developing the notification schedule for owners. We anticipate the owner notification will begin in December, 2012. A schedule will be submitted to the agency along with a draft of the owner notification as soon as they are available.

9. Distributor/Dealer Notification Schedule:

Toyota is currently preparing the remedy. A notification schedule will be provided as soon as it is available.
Copies of dealer communications will be submitted as they are issued.