# TOYOTA

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# TOYOTA MOTOR NORTH AMERICA, INC.

WASHINGTON OFFICE

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July 29, 2010

10V-345 (4 Pages

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Mr. Daniel C. Smith Associate Administrator for Enforcement National Highway Traffic Safety Administration 1200 New Jersey Avenue, SE Washington, DC 20590

Re: 2000- 2004 MY Toyota Avalon Steering Column Upper Bracket Assembly

Part 573, Defect Information Report

Dear Mr. Smith:

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 recall of certain Toyota Avalon vehicles to address an issue with the steering column upper bracket assembly.

Should you have any questions about this report, please contact me at (202) 775-1707.

Sincerely,

TOYOTA MOTOR NORTH AMERICA, INC.

Chris Santucci, Manager

Technical & Regulatory Affairs

CS:mh Attachment

# **DEFECT INFORMATION REPORT**

# 1. Vehicle Manufacturer Name:

Toyota Motor Manufacturing, Kentucky, Inc. ["TMMK"] 1001 Cherry Blossom Way Georgetown, Kentucky, 40324

# Affiliated U.S. Sales Company

Toyota Motor Sales, USA, Inc. ["TMS"]
19001 South Western Avenue, Torrance, CA 90509

# Component containing Defect

Steering Column Upper Bracket Assembly TOKAI RIKA CO., LTD. Oguchi-cho, Niwa-gun, Aichi, 480-0195 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
			VDS	VIS	Period
Toyota/ Avalon	2000- 2004	TMMK	BF28B	U001015-U391317	April 28, 1999 through December 20, 2004

Note: Although the involved vehicles are within the above VIN range, not all vehicles in this range were sold in the U.S.

No other Toyota vehicles sold in the United States use the same steering interlock assembly with the affected lock bars.

# 3. Total Number of Vehicles Potentially Affected:

372,593

# 4. Percentage of Vehicles Estimated to Actually Experience Malfunction:

Unknown

# 5. Description of Problem:

In the steering interlock system of the subject vehicles, which is integrated with the ignition key cylinder, due to improper casting of the steering lock bar, there is a possibility that a minute crack may develop on the surface of the lock bar. Such a crack may expand over a long period of repeated lock and unlock operations, and eventually the lock bar could break. If this occurs, the interlock system may become difficult to unlock when stationary. If the vehicle while being driven is steered to the right with sufficient lateral acceleration, a broken and loose lock bar may move toward the steering shaft. If the engagement hole in the shaft happens to line up at the specific time the broken lock bar has moved, this could cause the steering wheel lock bar to engage.

# 6. Chronology of Principal Events:

### October 2007 - November 2008

Toyota received a field technical report from the Japan market which indicated that the steering wheel locked up after it was turned to the right. Toyota investigated the returned steering interlock device from this vehicle. It was found that the steering lock bar fractured as a result of fatigue and there was a "hot crack" at the starting point of the fracture (a "hot crack" is one that occurs when the casting material is pressed into the casting die and solidifies unevenly). Toyota investigated the production process and it was found that the hot crack likely developed on a preproduction lock bar cast with a lower temperature casting die before mass production. Toyota believed that this was an isolated case caused by mistakenly mixing a preproduction bar, which is routinely discarded, with the mass production bars.

# December 2008

Toyota received a field technical report from the U.S. market and investigated the returned part. A crack similar to the one previously investigated was observed. Toyota believed that this was another isolated case caused by mixing a preproduction bar with the mass production bars.

#### March 2009-early April 2010

Toyota received a field technical report from the Japan market in March 2009. It investigated the returned part and observed a similar crack on the lock bar. Toyota began a new investigation to identify the cause of the cracking. The investigation included the collection of steering interlock devices from in-use vehicles. By the end of 2009, 38 parts had been collected, but no cracks were found in the lock bars. Also by the end of 2009, three additional field technical reports had been received from the U.S. market.

Investigation of the equipment and processes of the component supplier was also undertaken. It was found that the rings attached to the piston, which is used for pressing the melted material into the casting die of the lock bar, may wear during production, causing the casting pressure to decrease, and increasing the likelihood that a "hot crack" could develop.

# Mid April 2010 - July 2010

Toyota conducted duplication and durability testing using lock bars with "hot cracks" to assess the frequency of potential breakage and the age at which a bar may break. The lock bars did not break in the durability testing under normal operation of the ignition key. However, it was found that, if the steering is repeatedly locked and unlocked, a crack may expand and eventually the lock bar could break. This was estimated to occur at high mileage and late in vehicle life, which was consistent with the field technical reports and parts that had been collected.

In addition, as a result of the investigation on the collected parts from in-use vehicles, only three of the 110 in-use parts were found to have "hot cracks", but none of these three had fractured.

# July 23, 2010

Based on the results of the investigation, Toyota concluded that this problem would likely continue to occur and, therefore, decided to conduct a voluntary safety recall of all vehicles within the affected range.

# 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 any Toyota dealer for replacement of the steering interlock device.

# Reimbursement Plan for pre-notification remedies for Toyota

The owner letter will instruct vehicle owners who have had the steering interlock device replaced for this condition prior to this campaign to seek reimbursement by mailing a copy of their repair order, proof-of-payment, and proof-of-ownership for reimbursement consideration.

# 8. Recall Schedule:

Toyota's mailing of the owner notifications will commence in late August and be completed in the end of December, 2010.

Copies of the owner notification and dealer instructions will be submitted as soon as they are available.

#### 9. Distributor/Dealer Notification Schedule:

Toyota's notifications to distributors/dealers will be sent in late August 2010.