



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

# ODI RESUME

**Investigation:** EA 09-006  
**Prompted by:** PE08-072  
**Date Opened:** 04/08/2009 **Date Closed:** 05/12/2010  
**Principal Investigator:** Steve Mchenry  
**Subject:** ELECTRONIC STABILITY CONTROL

## MANUFACTURER & PRODUCT INFORMATION

**Manufacturer:** TOYOTA MOTOR NORTH AMERICA, INC., TOYOTA MOTOR CORPORATION  
**Products:** MY 2003 TOYOTA SEQUOIA  
**Population:** 50,000 (Estimated)  
**Problem Description:** INAPPROPRIATE BRAKE APPLICATION OF ONE OR MORE WHEELS AND/OR LOSS OF THROTTLE CONTROL MAY OCCUR SUDDENLY AND UNEXPECTEDLY DUE TO AN ELECTRONIC STABILITY CONTROL SYSTEM MALFUNCTION.

## FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
<b>Complaints:</b>	93	83	166**
<b>Crashes/Fires:</b>	0	0	0
<b>Injury Incidents:</b>	0	0	0
<b>Fatality Incidents:</b>	0	0	0
<b>Other*:</b>	0	14351	14351

\*Description of Other: Warranty replacements of the Skid Control Computer (unique vins).

\*\* Count indicates duplicate reports received by ODI and manufacturer.

## ACTION / SUMMARY INFORMATION

**Action:** This Engineering Analysis is closed. Recall 10V-176.

### Summary:

On April 28, 2010, Toyota Motor North America submitted a Defect Information Report (NHTSA Recall No. 10V-176) to NHTSA describing a problem in the Vehicle Stability Control (VSC) system in approximately 50,000 Model Year (MY) 2003 Toyota Sequoia vehicles. According to the report the centering position of the Steering Angle Sensor (SAS) in the MY 2003 vehicles may not be stored correctly due to a logic problem with the Skid Control Computer programming. The VSC system uses the information from the SAS to calculate the driver's intended vehicle direction. This information is cross referenced to sensors that tell the system which direction the vehicle is actually going and the system will, if it determines a variance indicating the vehicle is in a over-steer or under-steer condition, reduce throttle control and apply braking to make a correction in vehicle direction towards what the system believes is the driver's intended path. Toyota dealers will replace the Skid Control Electronic Control Unit in recalled vehicles.

Toyota has indicated to NHTSA that it does not believe that inappropriate activations of the VSC system present an unreasonable risk to safety because it believes the activations are rare and tend to occur at low speeds when the vehicle is fully controllable and that the activations do not last more than a few seconds.

Based on interviews with complainants ODI believes that the majority of the inappropriate activations of the VSC system occur when turning at low speeds, such as when a driver is pulling into or across the flow of oncoming traffic. Complainants report the effect produced by the malfunction of the VSC system is to leave the vehicle without the ability to accelerate up to speed, essentially leaving them creeping along exposed to oncoming traffic, because of the brake activation and reduction of throttle control caused by the VSC system. Complainants report that the events can last up to 10 seconds and some complaints report that oncoming traffic had to unexpectedly swerve or severely brake to avoid colliding with the malfunctioning Sequoia. During the VSC event the brake lights of the Sequoia are not

illuminated such that the following traffic is without indication that braking is occurring, nor would the following traffic expect the driver to be applying brakes in such a situation. Several near misses were reported. There were also reports of the VSC system malfunctioning and applying vehicle braking unexpectedly while traveling at highway speeds. Some complainants reported experiencing malfunction activations of the VSC at both low and higher speeds. ODI counted 140 incidents of lower speed inappropriate activations of the VSC system (approximately 10 mph or less - similar to an inappropriate traction control system activation) and 43 incidents of higher speed inappropriate activations of the VSC system (some as high as 60 mph). These numbers include complainants who experienced both types of failures.

This investigation is closed based on Toyota's recall.