



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

JUN 21 2016

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Abbas Saadat, Vice President
Automotive Safety Office
Vehicle Safety and Compliance
Toyota Motor North America, Inc.
601 Thirteen Street, NW, Suite 910
Washington, DC 20005

NEF-130krh
PE16-006

Dear Mr. Saadat:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened Preliminary Evaluation PE16-006 to investigate incidents of yaw rate sensor malfunction resulting in steering pull while driving in model year 2001 and 2002 Toyota Sequoia vehicles manufactured by Toyota Motor Corporation, and to request information to assist us in our investigation.

This office has identified 135 complaints alleging incidents of unexpected steering pull while driving due to inappropriate Vehicle Stability Control (VSC) brake interventions in model year 2001 and 2002 Toyota Sequoia vehicles. Approximately half of the complaints indicate that a faulty yaw rate sensor was diagnosed as the cause of the VSC activations and the remaining complaints report similar symptoms and driving conditions. Approximately 60 percent reported a vehicle pull to the right at highway speeds. Many of the complaints allege experiencing multiple incidents with some involving little to no pull lasting several seconds and others involving greater pull for short duration, frequently described as feeling like a "jerk" to the steering wheel. A copy of each of the reports is enclosed for your information.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles:** all MY 2001 through 2002 Toyota Sequoia vehicles manufactured for sale or lease in the United States and federalized territories.
- **Subject component:** All yaw rate sensors manufactured for use as original equipment or service parts in the subject vehicles.
- **Subject system:** The Vehicle Stability Control (VSC) system used in the subject vehicles.

- **Toyota:** Toyota Motor Corporation, (collectively, Toyota), all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Toyota (including all business units and persons previously referred to), who are or, in or after January 1, 2000, were involved in any way with any of the following related to the alleged defect in the subject vehicles:
 - a. Design, engineering, analysis, modification or production (e.g. quality control);
 - b. Testing, assessment or evaluation;
 - c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
 - d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.

- **Alleged defect:** The alleged defect includes all allegations of inappropriate VSC activation(s) while driving at speeds greater than 20 mph allegedly resulting in vehicle direction change(s) (e.g., veering, swerving, lane/road departures), reduced stability (e.g., skidding, fishtailing), or steering pull; and all other allegations of yaw rate sensor malfunction.

- **Document:** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletin, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar

to any of the foregoing, however denominated by Toyota, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by Toyota or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "fire," "fleet," "good will," "make," "model," "model year," "notice," "property damage," "property damage claim," "rollover," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or in plural form, have the same meaning as found in 49 CFR 579.4.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as Toyota has previously provided a document to ODI, Toyota may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After Toyota's response to each request, identify the source of the information and indicate the last date the information was gathered.

1. State the number of subject vehicles Toyota has manufactured for sale or lease in the United States and federalized territories. Separately, for each subject vehicle manufactured to date by Toyota, state the following:
 - a. Vehicle identification number (VIN);
 - b. Model;
 - c. Model Year;
 - d. Date of manufacture;
 - e. Date warranty coverage commenced; and
 - f. The State in the United States, or the federalized territory, where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2003, 2007, or a compatible format, entitled "PE16_006_PRODUCTION DATA."

2. State, by model and model year, the number of subject vehicles Toyota has manufactured for sale or lease in the United States and federalized territories for which Toyota has sold an extended service plan. For vehicles with more than one extended service plan, list the vehicle separately for each plan. Separately, for each vehicle, state the following:
 - a. Vehicle Identification number (VIN);
 - b. Model;
 - c. Model Year;
 - d. Name of extended service plan;
 - e. Mileage at which the extended service plan expires; and
 - f. The number of months from the warranty start date at which the extended service plan expires.

Provide the table in Microsoft Access 2003, 2007, 2010, or a compatible format, entitled "PE16_006 SERVICE PLAN DATA."

3. State the number of each of the following, received by Toyota, or of which Toyota is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
 - d. Property damage claims;
 - e. Third-party arbitration proceedings where Toyota is or was a party to the arbitration; and
 - f. Lawsuits, both pending and closed, in which Toyota is or was a defendant or codefendant.

For subparts "a" through "d," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a detailed description of the alleged problem and causal and contributing factors and Toyota's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "f," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

4. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 3, state the following information:
 - a. Toyota's file number or other identifier used;
 - b. The category of the item, as identified in Request No. 3 (i.e., consumer complaint, field report, etc.);
 - c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
 - d. Vehicle's VIN;
 - e. Vehicle's model and model year;
 - f. Vehicle's mileage at time of incident;
 - g. Incident date;
 - h. Report or claim date;
 - i. The alleged defect category or failure mode(s) involved (i.e., the symptoms/conditions as listed in the alleged defect definition);
 - j. Diagnostic Trouble Code (DTC) and description;
 - k. Whether a crash is alleged;
 - l. Whether property damage is alleged;
 - m. Number of alleged injuries, if any; and
 - n. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2003 or 2007, or a compatible format, entitled "PE16_006_REQUEST NUMBER FOUR DATA."

5. Produce copies of all documents related to each item within the scope of Request No. 3. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Toyota used for organizing the documents.
6. State total counts for all of the following categories of claims, collectively, that have been paid by Toyota to date on each of the subject components that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. Toyota's claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Repair date;
- e. Whether a claim for towing was made within five days of the claim date;
- f. Vehicle mileage at time of repair;
- g. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- h. Labor operation number and description;
- i. Problem code and description;
- j. Diagnostic Trouble Code (DTC) and description;
- k. Replacement part number(s);
- l. Replacement part supplier and description;

- m. Concern stated by customer;
- n. Cause and Correction stated by dealer/technician; and
- o. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2003 or 2007, or a compatible format, entitled "PE16_006_WARRANTY DATA."

7. Describe in detail the search criteria used by Toyota to identify the claims identified in response to Request No. 6, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by Toyota on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered).
8. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Toyota has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletin, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Toyota is planning to issue within the next 120 days.
9. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to the alleged defect that have been conducted, are being conducted, are planned, or are being planned by, or for, Toyota. For each such action, provide the following information:
 - a. Action title or identifier;
 - b. The actual or planned start date;
 - c. The actual or expected end date;
 - d. Brief summary of the subject and objective of the action;
 - e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
 - f. A brief summary of the findings and/or conclusions resulting from the action.

The response to this request should include a detailed description of all past, present and future actions by any and all engineering working groups (e.g., vehicle dynamics control task force) of which Toyota is an active member or is otherwise aware. This includes, at a minimum, all of the information requested in items "a" through "f."

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

10. Describe all modifications or changes made by, or on behalf of, Toyota in the design, material composition, manufacture, quality control, supply, or installation of the subject components, from the start of production to date, which relate to, or may relate to, the alleged

defect in the subject vehicles. For each such modification or change, provide the following information:

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;
- b. A detailed description of the modification or change;
- c. The reason(s) for the modification or change;
- d. The part number(s) (service and engineering) of the original component;
- e. The part number(s) (service and engineering) of the modified component;
- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when; and
- g. When the modified component was made available as a service component.

Also, provide the above information for any modification or change that Toyota is aware of which may be incorporated into vehicle production within the next 120 days.

11. State the number of the following components that Toyota has sold for use in the subject vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale (including the cut-off date for sales, if applicable).
 - a. Yaw rate sensor; and
 - b. Other sensors and control units used in the subject system.

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which Toyota is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

12. Provide the following sample parts:
 - a. Two exemplar yaw rate sensors; and
 - b. Three field return yaw rate sensors for each failure mechanism identified by Toyota for the subject components that are representative of the worst case condition for the alleged defect (i.e., most likely to produce the greatest braking forces and steering effects).

Include the following information about the parts provided in response to this request: (1) the vehicle identification number; (2) the repair claim number; and (3) copies of all documents related to analysis of the part.

13. Provide the following design, development and test information related to the subject system and component:
 - a. Yaw rate sensor datasheet, specifications, bill of materials (BOM), PCB (printed circuit board) drawings including stencil, layout, assembly, and electrical schematic PDF files;
 - b. VSC system components fault tree analysis (FTA), design failure mode and effect analysis (DFMEA), and/or design review based on failure mode (DRBFM) documents;

- c. VSC specification requirements including all system diagnostic trouble codes (DTC), DTC storage and erasing, diagnostic detection thresholds and timing for failure judgements and all software test cycles performed at initial vehicle power-up and drive cycle;
 - d. A detailed description of all VSC system plausibility logic that may affect the duration of inadvertent brake activations resulting from faulty yaw rate sensor signals, including all factors that affect the time required for the system to detect the fault condition(s);
 - e. VSC system control documents and vehicle-level testing requirements including system operation timing charts, target design parameters (e.g. wheel speed), and vehicle behavior confirmation during fault injection;
 - f. VSC system controllers PCB (printed circuit board) drawings including stencil, layout, assembly, and electrical schematic PDF files; and
 - g. Describe any design variations between the subject vehicle yaw rate sensors and yaw sensors installed across MY 2001-2002 Toyota vehicles including the following Sequoia model years.
13. Furnish Toyota's assessment of the alleged defect in the subject vehicles. Provide separate responses for each condition that may result in malfunction of the subject component. Include the following information for each condition:
- a. Detailed descriptions of the root cause(s) and contributory factor(s);
 - b. The failure mechanism(s), including detailed descriptions of how the conditions effect the yaw rate sensor signal, the range of those effects when the condition(s) are first evident and how the effects can change over time;
 - c. The failure mode(s), including the specific operating conditions (e.g., vehicle speed, steering angle);
 - d. The risk to motor vehicle safety that it poses, including:
 - i) The maximum yaw rate sensor offset that may result from each condition;
 - ii) The maximum braking that may result from a faulty yaw rate sensor signal as a function of the yaw rate sensor offset;
 - iii) The maximum duration of braking that may result from a faulty yaw rate sensor signal as a function of yaw rate sensor offset;
 - iv) The worst case combination of braking force and duration that could result from a faulty yaw rate sensor signal, including a detailed explanation of how the worst case condition was determined;
 - e. The effects of the failure conditions on vehicle handling and control, including:
 - i) The maximum deceleration and change in vehicle speed that could result from a worst case failure event as described in 13.d.iv;
 - ii) The maximum change in vehicle direction that could result from a worst case failure event as described in 13.d.iv with no action by the driver;
 - iii) The actions required by the driver to maintain vehicle direction and stability in response to a worst case failure event as described in 13.d.iv (e.g., steering wheel rim force and angle); and
 - f. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the system may be about to malfunction **before** the vehicle activates braking.

Legal Authority for This Request

This letter is being sent to Toyota pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports and the production of things. It constitutes a new request for information.

Civil Penalties

Toyota's failure to respond promptly and fully to this letter could subject Toyota to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) The Vehicle Safety Act, as amended, 49 U.S.C. § 30165(b), provides for civil penalties of up to \$7,000 per day, with a maximum of \$17,350,000 for a related series of violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. *See* 49 CFR 578.6 (as amended by 77 Fed. Reg. 70710 (November 27, 2012)). This includes failing to respond completely to ODI information requests.

If Toyota cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Toyota does not submit one or more requested documents or items of information in response to this information request, Toyota must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

Confidential Business Information

All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office. In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to PE16-006 in Toyota's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel.

If Toyota claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, Toyota must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512, as amended, to the Office of Chief Counsel (NCC-111), National Highway Traffic Safety Administration, Room W41-227, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. Toyota is required to **submit two copies of the documents containing allegedly confidential information (except only one copy of blueprints) and one copy of the documents from which information claimed to be confidential has been deleted.** Please remember that the phrase "ENTIRE PAGE CONFIDENTIAL BUSINESS INFORMATION" or "CONTAINS CONFIDENTIAL

BUSINESS INFORMATION” (as appropriate) must appear at the top of each page containing information claimed to be confidential, and the information must be clearly identified in accordance with 49 CFR 512.6. If you submit a request for confidentiality for all or part of your response to this IR, that is in an electronic format (e.g., CD-ROM), your request and associated submission must conform to the new requirements in NHTSA's Confidential Business Information Rule regarding submissions in electronic formats. *See* 49 CFR 512.6(c) (as amended by 72 Fed. Reg. 59434 (October 19, 2007)).

If you have any questions regarding submission of a request for confidential treatment, contact Otto Matheke, Senior Attorney, Office of Chief Counsel at otto.matheke@dot.gov or (202) 366-5253.

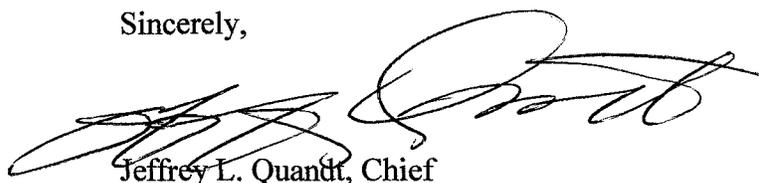
Due Date

Toyota's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by **August 4, 2016**. If Toyota finds that it is unable to provide all of the information requested within the time allotted, Toyota must request an extension from Jeff Quandt at (202) 366-5207 no later than five business days before the response due date. If Toyota is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Toyota then has available, even if an extension has been granted.

Please send email notification to Kareem Habib at Kareem.Habib@DOT.gov and to ODI_IRresponse@dot.gov when Toyota sends its response to this office and indicate whether there is confidential information as part of Toyota's response.

If you have any technical questions concerning this matter, please call Kareem Habib of my staff at (202) 366-8703.

Sincerely,



Jeffrey L. Quandt, Chief
Vehicle Control Division
Office of Defects Investigation

Enclosure 1, one CD-ROM titled Data Collection Disc containing four Microsoft Access database template files and electronic copies of the subject reports referenced above in the second paragraph of this letter identified by the following ODI reference numbers:

10870753, 10865587, 10865303, 10862787, 10860250, 10855618, 10838509, 10836713, 10822732, 10816792, 10789869, 10785944, 10783037, 10765299, 10762033, 10759414, 10748894, 10735983, 10735958, 10734673, 10731635, 10731062, 10725403, 10723782,

10722542, 10721840, 10715759, 10715406, 10712903, 10692211, 10680083, 10676233, 10671957, 10649475, 10648921, 10639128, 10638442, 10632788, 10628214, 10626485, 10622590, 10615491, 10615167, 10609313, 10607843, 10606484, 10604887, 10598410, 10598228, 10594348, 10586493, 10585822, 10574622, 10563106, 10562563, 10557541, 10554761, 10553756, 10548390, 10548121, 10546430, 10545651, 10545390, 10544345, 10538429, 10538259, 10536498, 10533611, 10532776, 10524511, 10519417, 10519373, 10515727, 10512744, 10504909 (10363807 & 10238578), 10502275, 10493352, 10492321, 10490568, 10484951, 10470780, 10469248, 10468481, 10467877, 10466862, 10465160, 10461749 (10461748), 10461478 (10428158), 10460771, 10459819, 10459160, 10457214, 10456979, 10454205, 10452949, 10446216, 10443162, 10428170, 10423033, 10422611, 10422228, 10415928, 10414662, 10413334, 10410758, 10410211, 10405657, 10394361, 10393560, 10382828, 10372559 (10307457), 10367931, 10365058, 10363694, 10362837, 10350806, 10346862, 10346267, 10345425, 10336461, 10336305, 10328193, 10328039, 10322783, 10293341, 10283454, 10277283, 10277153, 10266864, 10250448, 10233745, 10232169, 10139641, 10137681, 10049104.

(VOQs in parentheses involve multiple complaints on a common vehicle).

The following VOQ numbers are associated with the 26 complaints listed under OTHER:

10825460, 10816351 (10761804), 10794540, 10760105, 10632010, 10627946, 10606105, 10604499, 10547393, 10440213, 10417138, 10402588, 10398012, 10372308, 10369049, 10365937, 10340336, 10335253, 10332273, 10326046, 10313456, 10280989, 10268705, 10251654, 10166473, 10166357.