TOYOTA
TOYOTA MOTOR NORTH AMERICA, INC.

WASHINGTON OFFICE
1850 M STREET, NW, SUITE 800, WASHINGTON, DC 20036

TEL: (202) 775-1707
FAX: (202) 463-8513

October 22, 2003

Ms. Kathleen DeMeter, Director
Office of Defects Investigation – NVS-210
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Room 5326
Washington, D.C. 20590

Re: NVS-213cla; EA03-004

Dear Ms. DeMeter

This letter is being sent in response to your August 26, 2003 letter regarding EA03-004. Toyota is pleased to assist you by providing peer information regarding the Toyota Sienna vehicle for your investigation into the Ford Windstar (EA03-004). Please note that we are requesting confidential treatment of the technical information contained in Attachment 6 as well as the detailed drawings of the subject components. A confidential version of this submission is being submitted to the Chief Counsel's office.

Should you have any questions about this response, please contact either Mr. Chris Santucci or myself at (202) 775-1707.

Sincerely,

TOYOTA MOTOR NORTH AMERICA, INC.

for T. Yokoi
Chris Tinto
Director

CT: cs

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

   Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA." See Enclosure, Data Collection Disk, for a pre-formatted table that provides further details regarding this submission.

Response 1

The number of subject peer vehicles Toyota has manufactured for sale or lease in the United States by model, wheel type and model year is as follows.

Model	Wheel Type	MY	Number of vehicle	Total
Sienna	15 x 6.5 JJ Steel	1998	27,406	236,553
		1999	34,863	
		2000	62,127	
		2001	42,825	
		2002	44,404	
		2003	24,928	
	15 x 6.5 JJ Alloy	1998	43,616	249,105
		1999	34,693	
		2000	69,303	
		2001	43,051	
		2002	40,679	
		2003	17,763	
	Unknown	1998	2,755	2,755
Total				488,413

In addition, detailed information for each peer vehicle is provided electronically on CD-ROM, in a Microsoft Access 2000 format file entitled "PRODUCTION DATA.mdb".

2. State the number of each of the following, receive by Toyota, or of which Toyota is otherwise aware for the peer vehicles, 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 the alleged defect in a subject vehicle, property damage claims, consumer complaints, or field reports; Property damage claims and
d. Third-party arbitration proceedings where Toyota is or was a party to the arbitration; and
e. Lawsuits, both pending and closed, in which Toyota is or was 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" and "d" provide a summary 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 complaint or other document initiating the action was field.

Response 2

There are ten (10) consumer complaints (1 written, 1 e-mail, and 8 verbal complaints) and one field report that may pertain to the alleged defect.

There are no reports involving a crash, an injury or a fatality, any third-party arbitration proceedings where Toyota is or was a party to the arbitration, or lawsuits, both pending and closed, in which Toyota is or was a defendant or a codefendant, which may have occurred due to circumstances, conditions, or problems caused by the alleged defect in the subject peer vehicles.

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:
   a. Toyota's file number or other identifier used;
   b. The category of the item, as identified in Request No. 2 (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 make, model and model year;
   f. Vehicle's mileage at time of incident;
   g. Incident date;
   h. Report or claim date;
   i. Whether a crash is alleged;
   j. Whether property damage is alleged;
   k. Number of alleged injuries, if any; and
   l. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO DATA." See Enclosure, Date Collection Disc, for a pre-formatted table that provides further details regarding this submission.

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 complaint, field reports, etc.) and describe the method Toyota used for organizing the documents.

Response 3

The information for each item (complaint, report, claim, notice, or matter) is provided electronically on CD-ROM, in Microsoft Access 2000 format entitled "REQUEST NUMBER TWO DATA.mdb".

Copies of all consumer complaints stored in the database are provided electronically on CD-ROM, in Microsoft Excel 2000 format, and submitted as Attachment 1. In addition, copies of the written/e-mail consumer complaint, that is listed in Attachment 1 with ID# 200202071197 (email) and 200205091058 (written), and the field report are submitted as Attachment 2. These documents are organized by category and within each category by order of claim date.

4. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Toyota to date for the peer vehicles that related 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 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. Vehicle mileage at time of repair;
   f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
   g. Labor operation number;
   h. Problem code;
   i. Replacement part number(s) and description(s);
   j. Concern stated by customer; and
   k. Comment, if any, by dealer/technician relating to claim and/or repair.

   Provide this information in Microsoft Access 2000, or compatible format, entitled "WARRANTY DATA." See Enclosure, Data Collection Disk, for a pre-formatted table that provides further details regarding submission.

Response 4

Total counts for warranty claims and claims for good will service paid by Toyota for the peer vehicles that may relate to the alleged defect are as follows.
Please note that Toyota's extended warranty policy does not cover the wheel stud, and therefore there are no reported extended warranty claims.

Sienna	1998	101
	1999	87
	2000	148
	2001	48
	2002	27
	2003	1
Total count		412

The information for each claim is provided electronically on CD-ROM, in Microsoft Access 2000 format entitled "WARRANTY DATA.mdb".

5. Describe in detail the search criteria used by Toyota to identify the claims identified in response to Request No. 4, 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 code, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms that Toyota offers for new vehicle warranty coverage on the peer vehicles (i.e., the number of months and mileage for which coverage is provides and the vehicle systems that are covered.) Describe any extended warranty coverage option(s) related to the alleged defect that Toyota offered for the subject vehicles and state by option, model, model year, the number of vehicles that are covered under each such extended warranty.

Response 5

➢ Search criteria for warranty claims and claims for good will service:

Labor operation	All	All
Problem code	12, 81	12, 81
Part number	Front: 90942-02049 Rear: 90942-02047	
Others	All	

➢ Labor operation/description and Problem codes/descriptions:

Labor Operation	42009	Tire-Wheel/Wheel Disk or Tire R&R
	42099	Tire-Wheel/Others
	42101	Rear Axle Shaft/Hub Bolt R&R
	42199	Rear Axle Shaft/Others
	43199	Front Suspension (Strut Type)/Others
	43411	Front Axle/Hub Bolts R&R
	43499	Front Axle/Others
	47299	Brake Shoe-Drum/Others
	47399	Disk Brake/Others
Problem Code	12	Broken, Split, Torn
	81	Poor Tightening (Loose Bolt or Nut, Broken Bolt, etc.)

➢ The terms that Toyota offers for new vehicle warranty coverage on all peer vehicles is 36 months or 36,000 miles from the vehicle's date-of-first-use (DFU), whichever occurs first.

6. 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 for the peer vehicles to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals.

Response 6

There are two (2) service bulletins that may relate to, the alleged defect, that Toyota has issued for the peer vehicles. Copies of the service bulletins are submitted as Attachment 3.

7. State the number of each of the following, components that Toyota has sold for use or possible use in the peer vehicles by part 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:
   a. Wheel studs;
   b. Wheel Nuts;
   c. Front wheel hubs; and
   d. Any kit that have been released, or developed, by Toyota for use in service repairs to the subject component/assembly.

   For each components 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 components, whether installed in production or in service, and state the applicable dates of production or service usage.

Response 7

The number of each the requested component that Toyota has sold by part name, part number, and month/year of sale is provided electronically on CD-ROM, in Microsoft Excel 2000 format, as Attachment 4. Please note that Toyota's part sales database does not have the data on the model, model year of the vehicle in which the sold component is used, therefore, the sales data in Attachment 4 includes the number of the component sold for use not only in the peer vehicles but also in the vehicles that contain the identical components installed in production or in service. The lists of any other vehicles that contain the identical components are provided as Attachment 5.

The information on the supplier for each components parts number is as follows.

Table of part names, part numbers and suppliers:

a. Wheel studs	Bolt, Hub	Front: 90942-02049 Rear: 90942-02047	Toyota Motor Corporation (Miyoshi plant)
b. Wheel nuts	Nut, Hub	90080-17035*	Meclean Vehicle Systems
		90942-01104*	SUGIURA SEISAKUSHO Co., LTD
	Nut, Hub W/Washer	90080-17097	Meclean Vehicle Systems
		90942-01062	SUGIURA SEISAKUSHO Co., LTD
c. Front wheel hubs	Hub Sub-Assy, Ft Axle	43502-06020	Toyota Manufacturing Kentucky, Inc.
		43502-33010	Toyota Motor Corporation (Tsutsumi plant)

* Except 90080-17035 and 90942-01104, these part numbers are applicable to 1997MY through 2003MY Sienna. 90080-17035 is applicable to 1997MY through 2000MY Sienna. 90942-01104 is applicable to 2001MY through 2003MY Sienna.

Contact point of each supplier:

Toyota Motor Corporation
Address: 1, Toyota-Cho, Toyota City, Aichi, 471-8571, Japan
Name/Title: Mr. Morikazu Tsuji/ General Manager Quality Audit Dept., Quality Div.
Phone#: +81-565-23-3330

Maclean Vehicle Systems
Address: 2708 Brenda St., Thompson Station, TN 37179
Name/Title: Mr. Pete Halvorson/ Director New Domestic Sales
Phone#: 615-599-3538

or

Address: 3200 West Fourteen Mile Road, Royal Oak, MI 48073
Name/Title: Mr. Larry Wilson/ Director Engineering
Phone#: 248-280-0880

SUGIURA SEISAKUSHO Co., Ltd

Address: 22 Miyakoshi, Terazu, Nishio, Aichi, 444-0393, Japan
Name/Title: Mr. Shigeki Koyama/ General Manager Quality Assurance Dept.
Phone#: +81-563-59-0728

Toyota Motor Manufacturing Kentucky, Inc.

Address: 1001, Cherry Blossom Way, Georgetown, KY 40324
Name/Title: Mr. Jeff Podsedly/ Manager Quality Engineering Powertrain
Phone#: 502-868-2462

Response 8-11

Per the agreement with Jeffrey Quandt, Chief, Vehicle Controls Division, the responses to questions 8 through 11 are provided by the information that is enclosed in Attachment 6. See Attachment 6.

Attachment 1

Copies of all consumer complaints stored in the database are provided electronically on CD-ROM.

Attachment 2

Copies of field report and written/e-mail consumer complaints

Attachment 2-1

Copy of field report

TMS use
REF# Y8102
SC: 360 PC: BU

TECHNICAL ASSURANCE PRODUCT REPORT

MC受領日：2000-09-04

秘

5344 Model Number	BOLTS Part Name	16-F -00-08-70 08-30-00 Product Report Number / Date
4T3ZF13C6YU265675 (MCL10) Vehicle Identification Number	90942-02049 Part Number	TMS - NEW YORK Dealer Name
01-00 05-31-00 Prod. Date / Delivery Date	Part ID Number	29018 Dealer Code
12,564 08-30-00 Mileage / Repair Date	Engine or Trans Number	WEST CALDWELL NJ City, State
ATTACHEMENTS: ☐ Photo ☐ Part ☐ Other	PERSONALLY INSPECTED: Y	VINCE LUFFINO Originator ☐ DSM

SUBJECT:
WHEEL STUDS

CONDITION
WHILE TORQUING FRONT WHEEL LUG NUTS. TWO STUDS BROKE
ANALYSIS
CAUSE UNKNOWN. BRANT BAIRD HAS STUDS
ACTION
REPLACED WHEEL STUDS

Attachment 2-2

Copy of written/e-mail consumer complaint

Id Number: 200105091058

Toyota Motor Sales U.S.A., Inc.
19001 South Western Ave., Dept. A102
Torrance, CA 90509

10 Mar 01

Dear Sirs,

This letter is in regards to what might be considered a minor problem (although a major nuisance) on the surface but, depending on its root cause and frequency of occurrence, could represent a significant safety issue. The subject vehicle is my 2000 Sienna (VIN 4T3ZF13C7YU266883).

Before I get into the details of my problem, let me first say that I believe you've made a first rate product. I've had the car for just about a year now and I love it. That's not to say there aren't some improvements needed...but that's another letter. (I'm a Quality Engineer with 13 years experience in design & manufacturing of products ranging from microcircuits to complex medical devices. I've cataloged a number of design flaws and areas that could be improved in your product and I'd be happy to share them if you had someone who was willing to listen. You can contact me about this if you wish, but it would have to be after some resolution to my current problem.)

On 28 Dec 00 I discovered that my van had a flat tire (front, passenger) as I was leaving my driveway. I changed the flat and installed the spare and then drove to the local Discount Tire Store to have the flat repaired. They fixed the flat but reported to me that they broke two of the wheel studs when they were re-installing the wheel. They were very apologetic about it and explained to me that they've had this happen fairly frequently with the Sienna, a Lexus model and the Isuzu Trooper. They explained that they only use torque wrenches to complete the final setting of the hardware and that the subject studs broke well before they had reached the 75 ft.-lbs setting that they had dialed in. (They also reported that a third stud was getting ready to break but that they stopped tightening it because they sensed the problem.) They immediately offered to have the studs replaced at no cost to me but I was a little upset, and then worried, that such a thing should happen to a 9 month-old car with 14,000 miles on it.

I drove carefully to the dealer that sold me the vehicle and showed them the broken studs. (A portion of each broken stud was left on the vehicle while the remaining piece of each broken stud was left captured in the lug nut.) They treated me pretty poorly (another story I won't go into now) and pretty much dismissed my concern after spending no more than 5 seconds looking at the failed studs. The service manager's response was, "this is clearly the result of overstress caused by careless use of an air-driven impact wrench and, since that's not our fault, there's nothing more to discuss unless you're ready to pay for the repair".

Firstly, Discount Tire had already agreed to pay for the replacement so I wasn't there to argue about money. I was more concerned about driving around in a car that had already suffered failure of 3 out of 5 studs on <u>one</u> of its wheels.

Secondly, the Service Manager was clearly no metallurgist and, even if she was, there was no way she could reach a valid conclusion regarding the root cause of failure after less than a 5 second cursory inspection of the failed samples. She had no business dismissing my request for an investigation and was even more careless in ignoring what I tried to explain to her could represent a significant safety risk: wheel studs failing at a 60% rate! (I hope I don't need to point out the stupidity of saying that the failure was due to overstress. Don't things that fail most frequently fail as a result of overstress?) The issue is not whether or not they were overstressed. The issue is whether the stress level at which they yielded was unreasonably low or normal and, if it was normal, how was such a stress developed and is the "as designed" yield strength adequate for such an application?

Mr. Byron Rose, the owner of the dealership, was a little more open to my suggestion of a potential problem and agreed to contact and put me in touch with a factory representative the next time one was in town. But it now seems that he was just placating me because it's been over two months and I have yet to hear from any representative of Toyota.

I had the three failed studs and the two other studs replaced by an agent of Discount Tire the same day. I was furious that the exercise had cost me a whole day and have since promised myself that I will never again do business with Rose Toyota. I remained troubled by the potential risk associated with the subject failure but I did not have the time to chase Mr. Rose around to make good on his commitment and decided to live with the risk, at least temporarily.

Well, that all changed this morning when I returned to Discount Tire to replace a flat on the other front tire (front, driver). I actually watched them replace the fixed tire. I watched the mechanic hand start all five lug nuts and use the air wrench to advance them into place while the tire was still off the ground. Then I watched him lower the vehicle to the ground and use the torque wrench to set the studs with 75 ft-lbs. of torque. As the mechanic was working his way through the star pattern, one of the studs gave way while the other four studs still required two or three more rounds of tightening.

Discount Tire has again offered to make this right at no (out-of-pocket) cost to me, but I am not prepared to drive this car around for another 5 – 10 years praying not to get a flat tire and hoping not to have to waste an entire day (out of work) getting studs replaced when it does happen.

I haven't reached the conclusion that these studs are defective. I'm only convinced that there is something wrong here. The root cause of failure could be related to the way the stud were originally installed in the factory or even the way they were removed in the process of removing the flat tire. (Although it should be noted that, in the case of the first flat, I removed the wheel myself and used only the hand tools provided with the vehicle.)

I purchased this vehicle based almost entirely on Toyota's unambiguously superior reliability history. (I'm a big fan of Consumer Reports.) While I don't have an

expectation of perfection from any product (especially a system as complex as a modern automobile), I do have the expectation that a designer/manufacturer of your caliber would make good on addressing its faults (especially when a potential safety issues exists).

So, here's your chance. I've saved all the studs (broken and otherwise) and I am requesting that an investigation be initiated to identify the root cause of this problem. I will gladly make the vehicle available for such an investigation. (The 5 studs and nuts in the front, passenger location are all new, but the hardware in the front, driver location and both rear locations is still the original equipment.) In a company as big, modern and quality driven as yours, I would not be surprised to find that you (the reader) can access the production records for this vehicle and/or the scrap/usage reports for the subject stud (P/N 9094202049) and make a determination as to whether the data suggest any irregularities either within Toyota, at Toyota's suppliers or at Toyota's dealerships.

Please contact me as soon as possible regardless of whether or not you plan to honor my request. I do not like the idea of driving around for too long with only four good studs and it's really a bad idea to do so if failure of the remaining studs is eminent.

[redacted]

p.s.: It would have been much easier for me to submit this request through your website. A means of connecting you with an issue such as this is conspicuously absent from your website. As a Quality Engineer for a medical device manufacturer, I find the fact that we are obligated by the FDA to field product complaints to be the best tool that I have ever had for assuring that quality issues, large or small, are at least brought to my attention for proper consideration/prioritization. If your company is really interested in continuing to be recognized as the best, it would be wise to consider making it as easy as possible for your customers to report their issues to you. You can choose whether or not to act on the reported issues, but you can't solve issues that you don't hear about. And, if you haven't noticed, the population has less free time than ever and e-mail, because it is fast, is quickly becoming the standard for written communications.

Id Number: 200202071197

Reference #
020207-000078

Status
Solved

Assigned to
Representative
Janis

Created
02/07/2002 02:52 PM

Initial Response
02/07/2002 04:48 PM

Updated
02/07/2002 04:48 PM

Closed
02/07/2002 04:48 PM

Customer SmartSense
0 (on -3 to +3 scale)

Staff SmartSense
+1 (on -3 to +3 scale)

Incident Owner
Janis Ambrose

Incident Source
Contact Toyota

Clarify Case #
2002020071197

VIN
4T3ZF19CXYU366567

Model
Sienna

Model Year
2000

Mileage
30000

Dealer
Longo Toyota

Dealership City
LA.

Dealership State
CA

Current Owner
Yes

Whose fault is it for a broken stud?

Discussion Thread

Response (Janis) 02/07/2002 04:48 PM

At 02/07/2002 04:44 PM we wrote - Thank you for contacting Toyota Motor Sales, U.S.A., Inc.

We apologize for the concern you are having with the studs on your 2000 Sienna.

Since we have not had the opportunity to inspect the studs we would like to refer you to the Customer Relations Manager or Service Manager at your local Toyota dealership. Our technicians are specialized in diagnosis and repair of Toyota vehicles. Their inspection will be able to determine what may have caused the stud to break. They are provided with extensive training and have access to state of the art equipment to help in accurate diagnosis of your vehicle. Toyota also provides additional technical support to assist our technicians in resolving unusual vehicle concerns if necessary.

Your comments have been documented at our National Headquarters under file #2002020071197.

National Customer Relations

Customer (Ching-Chih Heush) 02/07/2002 02:52 PM

--- 02/07/2002 02:52 PM ---

Hi, I had my 2000 Toyota Sienna a 30,000 miles maintenance 2 weeks ago on 01/26/2002. Today I found out there is a nail stuck on the left front tire. So I went to a local gas station to fix it. After the tire was taken out and the nail problem was fixed, one of the stud was broken while the mechanic tried to screw it back. The mechanic said he used a standard tire torque wrench, so this is a defective part of Toyota. Quote from his written statement, "Torque wheel after repair with torque wrench, one stud broke. Would not hold torque." His reason was that 1 out of 6 studs broke, not a torque wrench problem but a stud problem. Now I'm stuck with this broken stud problem. My question is who should pay for this? The mechanic said this is not his fault and provided me a written statement. To remove the broken stud and replace a new one, the labor and part (stud) would be about $85. I'd scheduled to do it tomorrow for safety reason. This issue is in a grey area between part manufacour and mechanics. Should I be paying for this? I certainly don't think so. What do you think?

Additional Information

Contact E-mail: hheush@s3graphics.com

Attachment 3

Copies of dealer communications

Attachment 3-1

Technical Service BULLETIN: PG031-99

TOYOTA

Technical Service BULLETIN

October 1, 1999

Title:

TIRE INFLATION & WHEEL LUG TORQUE REFERENCE CHART

Models:

All '00 Models

Introduction Proper tire inflation is important to maximize tire life and vehicle ride comfort. 2000 MY Toyota vehicles are available with a wide variety of wheel sizes and tire profiles. Prior to customer vehicle delivery, refer to the following table to identify the appropriate tire pressure setting. Adjust tire pressures accordingly.

Applicable Vehicles

- **All 2000 Models**

Tire Pressure Settings

MODEL	TIRE SIZE	TIRE PRESSURE COLD		WHEEL NUT TORQUE (ft-lbf)
		FRONT (psi)	REAR (psi)	
Tundra	P245/70R16 106S	29	35	83
	P265/70R16 111S	26	29	83
Tacoma	P195/75R14 92S	29	35	83
	P215/70R14 96S	29	29	83
	P225/75R15 102S	26	29	83
	P265/75R15 112S	26	26	83
	31X10.5R15LT C	26	29	83
Tacoma PreRunner	P225/75R15 102S	26	29	83
	P265/75R15 112S	26	26	83
	31X10.5R15LT C	26	29	83
Land Cruiser	P275/70R16 114S	29/29*	32/35*	97
4Runner	P225/75R15 102S	29	29	83
	P265/70R16 111S	32	32	83
RAV4 2 Door	P215/70R16 99S	26	26	76
	P235/60R16 100H	25	25	76
RAV4 4 Door	P215/70R16 99S	26	26	76
	P235/60R16 100H	25	25	76
Sienna	P205/70R15 95S	35	35	76
	P215/65R15 95S	32/35*	32/35*	76

* Recommended tire inflation pressure under high load capacity.

Tire Pressure Settings (Continued)

MODEL	TIRE SIZE	TIRE PRESSURE COLD		WHEEL NUT TORQUE (ft-lbf)
		FRONT (psi)	REAR (psi)	
ECHO	155/80R13 79S	32	32	76
	P175/65R14 81S	32	32	76
Corolla	P175/65R14 81S	30	30	76
	P185/65R14 85S	30	30	76
Celica 2ZZ–GE	P205/50R15 87V	32	32	76
	205/50R16 87V	32	32	76
Celica 1ZZ–FE	195/60R15 88H	29	29	76
	P195/60R15 87H	29	29	76
Camry	P195/70R14 90S	30	30	76
	P205/65R15 92H	32*/29**/32***	32*/29**/32***	76
	P205/60R16 91H	32	32	76
Camry Solara	P205/65R15 92H	29	29	76
	P205/60R16 91H	32	32	76
Avalon	P205/65R15 92H	31	31	76
	P205/60R16 91H	32	32	76

* For vehicle capacity weight.

** For reduced loads (1 to 4 passengers).

*** For trailer towing.

Attachment 3-2

Technical Service BULLETIN: AX007-00

TOYOTA

Technical Service BULLETIN

September 22, 2000

Title:

INTERCHANGEABILITY OF ACCESSORY ALLOY WHEELS

Models:

'99 – '01 Avalon, Camry, Solara & Sienna

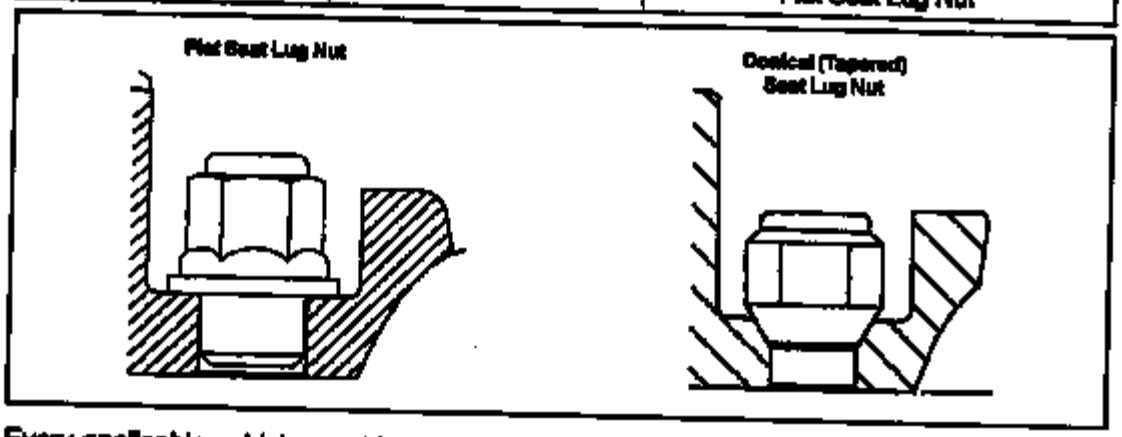
Introduction This bulletin introduces a new accessory alloy wheel for 1999 through 2001 model year Avalon, Camry, Solara and Sienna vehicles. This new wheel is similar in appearance to an existing alloy wheel. This bulletin points out that the two wheels are not interchangeable.

Applicable Vehicles

- **1999 – 2001 model year Avalon, Camry, Solara & Sienna.**

Parts Information

WHEEL	WHEEL PART NUMBER	REMARK
Style 1, Split 5 Spoke	PT351–00990	Conical (Tapered) Seat Lug Nut
Style 2, Split 5 Spoke	PT351–00991	Flat Seat Lug Nut



Every applicable vehicle must be installed with all four wheels of the same part number. In cases where replacement of one wheel is necessitated, it must be replaced by a wheel of the same part number. Replacement of one part number with the other is permitted only as a set of four wheels.

The service part numbers for the lug nuts are not interchangeable.

WHEEL PART NUMBER	LUG NUT PART NUMBER	LUG NUT DESCRIPTION
PT351–00990	PT351–00990–LN	Conical (Tapered) Seat
PT351–00991	PT351–12009–01	Flat Seat

The service part numbers for the center caps are not interchangeable.

WHEEL PART NUMBER	CENTER CAP PART NUMBER
PT351–00990	PT351–00991–WC
PT351–00991	PT351–00991–CC

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Attachment 4

The sales number of each component is stored on CD-ROM.

Attachment 5

Table of other vehicles to which the same part # as Sienna are apply

The list of other vehicles to which the same part # as Sienna is apply:

a. Wheel studs

Part Name	Part Number	Model	MY	Apply
Bolt, Hub	90942-02047	ES	1997 – 2003	1996/08-
		RX	1999 – 2003	1998/01-
		Avalon	1997 – 2003	1996/08-
		Camry	1997 – 2001	1996/08-
		Celica	1997 – 1999	1996/06-
		Corolla	1997 – 2002	1996/08-
		Echo	2000 – 2003	1999/08-
		Paseo	1997 – 1999	1996/08-
		RAV4	1997 – 2000	1996/07-
		Prius	2001 – 2003	2000/05-
		Solara	1999 – 2003	1998/06-
		Tacoma	1997 – 2003	1996/09-
		Tercel	1997 – 1999	1996/08-
	90942-02049	ES	1997 – 2003	1996/08-
		GX	2003	2002/11-
		LX	1997	1996/08-
		RX	1999 – 2003	1998/01-
		4Runner	1997 – 2003	1996/08-
		Avalon	1997 – 2003	1996/08-
		Camry	1997 – 2003	1996/08-
		Celica	2000 – 2003	1999/08-
		Corolla	1997 – 2003	1996/08-
		Echo	2000 – 2003	1999/08-
		Highlander	2001 – 2003	2000/11-
		Landcruiser	1997	1996/08-
		Matrix	2003	2002/01-
		MR2	2000 – 2003	1999/12-
		Prius	2001 – 2003	2000/05-
		RAV4	2001 – 2003	2000/08-
		Sequoia	2002 –2003	2001/08-
		Solara	1999 – 2003	1998/06-
		Tacoma	1997 – 2003	1996/09-
		Tundra	2000 – 2003	1999/02-

b. Wheel nuts

Part Name	Part Number	Model	MY	Apply
Nut, Hub W/Washer	90980-17097	Sienna Only		
	90942-01062	GS	1997	1996/08-
		LS	1997 – 2000	1996/08-
		SC	1997 – 2000	1996/08-
		Celica	1997 – 2003	1996/06-
		Corolla	1997	1996/08-
		Paseo	1997 – 1999	1996/08-
		Solara	1999 – 2003	1998/06-
		Supra	1997 – 1998	1996/07-
		Tercel	1997 - 1999	1996/08-
Nut, Hub	90980-17035	Avalon	1997 – 2003	1996/08-
		Camry	1997 – 2003	1996/08-
		Corolla	1997 – 2003	1996/08-
		Matrix	2003	2002/01-
		Solara	1999 – 2003	1998/06-
	90942-01104	GX	2003	2002/11-
		RX	1999 – 2003	1998/01-
		4Runner	2003	2002/08-
		Highlander	2001 – 2003	2000/11-
		Tacoma	2001 – 2003	2000/08-
		Tundra	2000 - 2003	1999/02-

c. Front wheel hubs

Part Name	Part Number	Model	MY	Apply
Hub Sub-Assy, Fr Axle	43502-06020	Avalon	1997 – 2003	1996/08-
		Camry	1997 – 2001	1996/08-
		Solara	1999 – 2003	1998/06-
	43502-33010	Avalon	1997 – 2003	1996/08-
		Camry	1997 – 2001	1996/08-
		Solara	1999 – 2003	1998/06-

CONFIDENTIAL (Entire pages)

Attachment 6

Toyota's methodology of design for the wheel stud and fastener