

April 13, 2021

DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

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

Affiliated U.S. Sales Company:

Toyota Motor North America, Inc. ["TMNA"]
6565 Headquarters Drive, Plano, TX 75024

Manufacturer of Wire Harness Assembly

Yazaki North America, Inc.
6801 N. Haggerty Road, Canton, MI 48187

Country of Origin: Mexico

2. Identification of Involved Vehicles and Affected Components:

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

Make/Car Line	Model Year	Manufacturer	Production Period
Toyota / Venza	2009-2015	TMMK	May 13, 2008 through July 8, 2015

Applicability	Part Number	Part Name	Component Description
MY2009-2015 Toyota Venza	82152-0T080	Wire, FR Door, LH	Wire Harness for Front Driver Door
	82152-0T120		
	82152-0T100		
	82152-0T140		
	82152-0T111		
	82152-0T151		

82152-0T092		
82152-0T132		
82152-0T090		
82152-0T130		
82152-0T010		
82152-0T030		
82152-0T050		
82152-0T040		
82152-0T060		
82152-0T011		
82152-0T031		
82152-0T051		
82152-0T041		
82152-0T061		
82152-0T012		
82152-0T032		
82152-0T052		
82152-0T042		
82152-0T062		

Note: (1) Although the involved vehicles are within the above production period range, not all vehicles in this range were sold in the U.S.

(2) Only the subject vehicles, equipped with a wire harness of a certain design, manufactured by a specific supplier, are susceptible to the combination of factors that can lead to the condition described below. Other Toyota or Lexus vehicles sold in the U.S. are not equipped with a wire harness of this design.

3. Total Number of Vehicles Potentially Involved:

Toyota Venza : 279,040

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

Based on a non-representative market survey and evaluation of the vehicle design, Toyota used a predictive model to estimate that approximately 0.5% of vehicles may experience this issue.

5. Description of Problem:

The subject vehicles are equipped with an airbag sensor installed in the driver-side front door. The sensor is connected to the Supplemental Restraint System (“SRS”) Electronic Control Unit (“ECU”) by a pair of twisted wires in a harness routed from the door to the vehicle body through a grommet. Due to a larger difference between the wire harness length and grommet length in this case, there is a tighter bending radius for the wire harness inside the grommet. If the SRS wires also are in certain locations within the wire harness,

this could cause them to rub against the grommet. If the twisted pair of SRS wires also happen to overlap at the location where they rub against the grommet so as to concentrate stress on one wire, this can lead to that wire fracturing over time, depending on the use frequency of the driver door. If an SRS wire fractures, this could result in a DTC being set, the SRS warning lamp being illuminated, and the airbag sensor in the driver-side front door becoming inoperable. This may prevent the side airbag and curtain shield airbag on the driver side from deploying in certain types of collisions, increasing the risk of injury in the event of a crash necessitating the deployment of those airbags.

6. Chronology of Principal Events:

April 2013 – January 2020:

Toyota began receiving intermittent field reports alleging SRS warning lamp on in the subject vehicles. Toyota was able to recover the driver-side front door wire harnesses from some vehicles, that were the subject of the field reports, to send to the supplier to investigate. In some cases, the supplier identified that an SRS wire in the driver-side door wire harness had broken due to a fatigue fracture but could not identify the cause of the fracture. The recovered parts were reviewed, and Toyota confirmed that the parts met all applicable design specifications. In parallel, in some cases, it was observed that there was evidence of potential outside influence (e.g., scratch marks found on insulation). Additional field reports were reviewed, and, in one case, it was observed that a grommet installed between the door assembly and the vehicle body was twisted. Toyota confirmed the process of the grommet installation with the vehicle manufacturing plant and did not identify any concerns with the grommet installation process. Toyota continued to receive sporadic reports from the field and recovered parts when available for evaluation.

February 2020 – June 2020:

Toyota reviewed some field reports and warranty data available to this point and decided to reconfirm the wire harness design. The wire harness design documentation was reviewed, and it was determined that the harnesses met the design specification. Based on observations from the most recent field case, Toyota decided to reconfirm whether there could be an issue with assembly of the grommet. Toyota then decided to identify a customer vehicle with the condition in order to inspect it.

In April 2020, Toyota found an in-use vehicle with a fractured wire in the driver-side front door wire harness. Toyota inspected the vehicle and recovered the part. Results of this inspection were inconclusive, as the original grommet assembly condition could not be confirmed, so Toyota continued to further investigate. To find additional parts for investigation, Toyota initiated parts recovery activity. Parts were recovered and inspected on an ongoing basis.

Additionally, the assembly process at the vehicle manufacturing plant was again investigated to reexamine the installation process and determine if the wire harness grommets in the subject vehicles were installed correctly during original assembly. It was concluded that there was no systematic error in the manufacturing process which would have caused this condition, and, therefore, grommet assembly position was determined to not be a factor.

In parallel, the supplier and Toyota reviewed past simulation tests that were conducted to confirm the durability of the wire harness during the development process. Results of these tests showed no wire breakage, and durability was according to specification.

July 2020 – September 2020:

Toyota requested the supplier to study the conditions needed to create a potential scenario that could cause SRS wire breakage. Based on recovered parts, Toyota hypothesized that tape used in a certain location on the wire harness could contribute to the higher stress which could cause wire breakage. The supplier therefore created simulated durability studies, which examined the influence of varying quantities of tape, to see if this created a higher stress point and could be causing wire fracture. Through this study, it was confirmed that the harnesses met the durability requirements. When this test was run beyond the durability requirements, to the point at which wires fractured, it was found that the wires that experienced the highest stress were on the outside and top of the wire harness bundle, and variation in tape had no significant effect on wire fracture.

At this time, an additional vehicle was also inspected, and it was observed that the SRS wire was in a certain position within the wire harness that was contacting the grommet at the point where wire breakage was observed. Based on this and review of other recovered parts and in-use vehicles, it was hypothesized that the breakage of the SRS wires may be occurring when those wires were located at the 12 o'clock to 1 o'clock position within the wire harness bundle.

Additionally, further design review found that the difference between wire harness length and grommet length was greater for the subject vehicles, compared to other vehicle models. As a result, a physical test was performed to evaluate this relatively shorter wire length as well as the SRS wire position hypothesized above. This study concluded that the 12 o'clock to 1 o'clock position did not result in breakage, and further investigation into the wire position was required. However, it was observed that the shorter wire harness length, as compared to grommet length, could result in increased interference between the grommet and wire harness during door open and close operation.

October 2020 – April 2021:

As a result of physical parts testing and review of in-use parts, Toyota found that stress was higher in twisted wires than non-twisted wires in the subject harness, as the twisted wires overlapping at certain points could lead to stronger interference with the grommet. Toyota hypothesized that this could be a contributing factor to wire fatigue fracture.

Toyota conducted additional physical testing, in tandem with computer simulation tests, as physical testing was limited in the number of parts that could be tested and the amount of time each test took. The purpose of the tests was to focus on the effect of interference between the grommet and the wires, the exact position at which an SRS wire would fracture within the harness, and the overlap of the twisted pair of SRS wires at certain points. These tests concluded that a fatigue fracture could be duplicated when the overlapping point of the twisted SRS wires consistently rubbed against the grommet at the 10 o'clock to 12 o'clock position.

As fracturing one of these SRS wires can lead to the airbag sensor in the driver-side front door becoming inoperable and prevent the side airbag and curtain shield airbag on the driver side from deploying in certain types of collisions, on April 7, 2021, based on the results of the above investigation, Toyota decided to conduct a voluntary safety recall campaign.

As of March 26, 2021, based on a diligent review of records, Toyota's best engineering judgement is that there are 31 Toyota Field Technical Reports and 56 warranty claims that have been received from U.S. sources that relate or may relate to this condition and which

were considered in the decision to submit this report.

7. Description of Corrective Repair Action:

For all involved vehicles, Toyota dealers will inspect the driver-side front door wire harness and, if necessary, replace it with an improved one at no cost to customers.

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:

Notifications to owners of the affected vehicles will occur by June 12, 2021. A copy of the draft owner notification will be submitted as soon as it is available.

9. Distributor/Dealer Notification Schedule:

Notifications to distributors/dealers will be sent on April 13, 2021. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer's Campaign Number:

[Interim / Remedy] 21TB01 / 21TA01