

OF INFORMATION ACT (FOIA), 5 U.S.C.552(B)(6)

**From:** [DataQuality, DataQuality \(NHTSA\)](#)  
**To:** [EVOQ \(NHTSA\)](#)  
**Subject:** FW: Follow up to ODI complaint---11497653  
**Date:** Monday, April 3, 2023 9:56:02 AM  
**Attachments:** [REDACTED]

[5TDDKRFHXFS](#) [1-10-2023](#) [REDACTED]

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**From:** [REDACTED]  
**Sent:** Sunday, April 2, 2023 4:07 PM  
**To:** DataQuality, DataQuality (NHTSA) <DataQuality@dot.gov>  
**Subject:** Follow up to ODI complaint---11497653

**CAUTION:** This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Please see the attached documents to include edits to the Vehicle Owner's Questionnaire form.

All other attachments are the reports that were provided to me by the independent inspector for Toyota.

Thank you for your time and support.

[REDACTED]

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

## CDR File Information

|                                                   |                                      |
|---------------------------------------------------|--------------------------------------|
| User Entered VIN/Frame Number                     | 5TDDKRFHXFS [REDACTED]               |
| User                                              | Paul Meade                           |
| Case Number                                       | [REDACTED]                           |
| EDR Data Imaging Date                             | 01/10/2023                           |
| Crash Date                                        | 12/13/2022                           |
| Filename                                          | 5TDDKRFHXFS [REDACTED] _ACM.CDRX     |
| Saved on                                          | Tuesday, January 10 2023 at 11:00:19 |
| Imaged with CDR version                           | Crash Data Retrieval Tool 23.0       |
| Imaged with Software Licensed to (Company Name)   | Engineering Analysis Associates      |
| Reported with CDR version                         | Crash Data Retrieval Tool 23.0       |
| Reported with Software Licensed to (Company Name) | Engineering Analysis Associates      |
| EDR Device Type                                   | Airbag Control Module                |
| Event(s) recovered                                | Front/Rear (1), Rollover (2)         |

## Comments

No comments entered.

## Data Limitations

### CDR Record Information:

- Due to limitations of the data recorded by the airbag ECU, such as the resolution, data range, sampling interval, time period of the recording, and the items recorded, the information provided by this data may not be sufficient to capture the entire crash.
- Pre-Crash data is recorded in discrete intervals. Due to different refresh rates within the vehicle's electronics, the data recorded may not be synchronous to each other.
- Airbag ECU data should be used in conjunction with other physical evidence obtained from the vehicle and the surrounding circumstances.
- If any of the front passenger seat airbags, side airbags, or Curtain Shield Airbags have deployed, data will not be overwritten or deleted by the airbag ECU following that event. If none of the airbags have deployed, the data of that event may be overwritten by a following event even if other airbags (pretensioner, rear seat airbag, etc.) have deployed.
- If power supply to the airbag ECU is lost during an event, all or part of the data may not be recorded.
- "Diagnostic Trouble Codes" are information about faults when a recording trigger is established. Various diagnostic trouble codes could be set and recorded due to component or system damage during an accident.
- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global Tech Stream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

### General Information:

- The data recording specifications of Toyota's airbag ECUs are divided into the following categories. The specifications for 12EDR or later are designed to be compatible with NHTSA's 49CFR Part 563 rule.
  - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR / 13EDR / 15EDR / 17EDR / 19EDR / 21EDR / 22EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- This airbag ECU records record pre-crash data and post-crash data.
  - If a single event occurs independently, the data for that event is recorded on a one-to-one basis.
  - If multiple events occur successively (within a period of approximately 500ms), the establishment of the recording trigger for the first event is defined as the "pre-crash recording trigger". Pre-crash data for the first event and post-crash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store pre-crash data. Additionally, to store post-crash data, the airbag ECU has two recording pages for each accident type: two pages for frontal and rear crash, two pages for a side crash, and two pages for rollover event.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
  - Time from Previous Pre-Crash TRG
  - Linked Pre-Crash Page
  - Time from Pre-Crash TRG
  - TRG Count
  - Previous Crash Type

- In frontal and rear collision events, the first point where a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached is regarded as time zero for the recorded data. In side impact collision and rollover events, the point in time at which the recording trigger is established is regarded as time zero for the recorded data.
- The recording trigger judgment threshold value differs depending on the collision type (i.e., frontal crash, rear crash, side crash, or rollover event).
- Some of the data recorded by the airbag ECU is transmitted to the airbag ECU from various vehicle control modules by the vehicle's Controller Area Network (CAN).
- In some cases, the airbag ECU part number printed on the ECU label may not match the airbag ECU part number that the CDR tool reports. The part number retrieved by the CDR tool should be considered as the official ECU part number.
- In frontal and rear collision events, the record time varies depending on the period during which a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached, and time series data is recorded for up to 250 ms. The record time described above is indicated as "Length of Delta-V". "Delta-V, Longitudinal" outside the record time is indicated by area shaded in the table, and not indicated in the graph.

#### Data Element Sign Convention:

The following table provides an explanation of the sign notation for data elements that may be included in this CDR report.

| Data Element Name                                         | Positive Sign Notation Indicates |
|-----------------------------------------------------------|----------------------------------|
| Maximum Delta-V, Longitudinal                             | Forward                          |
| Delta-V, Longitudinal                                     | Forward                          |
| Lateral Acceleration for Frontal/Rear Crash, Floor Sensor | Left to Right                    |
| Lateral Acceleration, Side Satellite Sensor 1             | Left to Right                    |
| Lateral Acceleration, Side Satellite Sensor 2             | Left to Right                    |
| Lateral Acceleration, Side Satellite Sensor 3             | Left to Right                    |
| Lateral Acceleration, Side Satellite Sensor 4             | Left to Right                    |
| Lateral Acceleration for Side Crash, Floor Sensor         | Left to Right                    |
| Roll Angle Peak                                           | Clockwise Rotation               |
| Roll Angle at the Time of TRG                             | Clockwise Rotation               |
| Roll Rate                                                 | Clockwise Rotation               |
| Lateral Acceleration for Rollover, Floor Sensor           | Left to Right                    |
| Longitudinal Acceleration, VSC Sensor                     | Forward                          |
| Yaw Rate                                                  | Left Turn                        |
| Steering Input                                            | Left Turn                        |

#### Data Definitions:

- The "ON" setting for the "Freeze Signal" indicates a state in which the non-volatile memory can not be overwritten or deleted by the airbag ECU. After "Freeze Signal" has been turned ON, subsequent events will not be recorded.
- "Recording Status" indicates a state in which all recorded event data has been written into the non-volatile memory, or a state in which this process was interrupted and not fully written into the non-volatile memory. If "Recording Status" is "Incomplete", recorded event data may not be valid.
- If the "Occupant Size Classification, Front Passenger" displays "Child" or "Not Occupied", "Side Air Bag Deployment, Time to Deploy" and "Pretensioner Deployment, Time to Fire" may indicate a time even if deployment did not occur on the for following part no's:  
- 89170-07280, 35400, 35410, 35470, 42660, 0R120, 0R080, 0R081, 0R150
- "Engine RPM" indicates the number of engine revolutions, not the number of motor revolutions. The recorded value has an upper limit of 12,800 rpm. Resolution is 100 rpm and the value is rounded down and recorded. For example, if the actual engine speed is 799 rpm, the recorded value will be 700 rpm.
- If the electric vehicle is using a calculated/virtual engine RPM for drivetrain control, "Engine RPM" may be recorded, but should not be used during data analysis.
- The upper limit for the recorded "Vehicle Speed" value is 200 km/h (125mph). Resolution is 1km/h (0.6mph) and the value is rounded down and recorded. The accuracy of the "Vehicle Speed" value can be affected by various factors. These include, but not limited, to the following.  
- Significant changes in the tire's rolling radius  
- Wheel lock and wheel slip
- "Accelerator Pedal" has two recording specifications. Both the recorded value increases as the driver depresses the accelerator.  
- Percentage of accelerator pedal depressed (recorded as 0-100(%)).  
- Output voltage of accelerator pedal module (recorded as 0-5(V)).
- If M/T transmission vehicle of some limited model, "Shift Position" may display "Drive" regardless of the actual shift position.
- Depending on the type of occupant sensor installed in the vehicle, one of the following three recording formats for "Occupant Size Classification, Front Passenger" will be utilized.  
- Occupied / Not Occupied  
- AM50 / AF05 / Child / Not Occupied  
- AM50 / AF05 / Child or Not Occupied
- "Cruise Control Status" indicates whether the cruise control system is actuated or not. OFF indicates that the cruise control system is not actuated, but can also indicates that the vehicle is not equipped with the system.
- "Air Bag Warning Lamp, On/Off", "Ignition Cycle, Crash", "Seat Track Position Switch, Foremost, Status, Driver", "Occupant Size Classification, Front Passenger", "Safety Belt Status, Driver", "Safety Belt Status, Front Passenger", "Frontal Air Bag Suppression Switch Status, Front Passenger", and "RSCA Disable Switch" indicate the state approximately 1 second before time zero. They may not always indicate the state at the moment of collision.
- The upper and lower limits for the recorded value of "Motor RPM" is 17,500 rpm and -7,500 rpm respectively. Resolution is 100 rpm and the value is rounded down and recorded.
- "Brake Oil Pressure" has an upper limit of 12.14 Mpa. In the case of the vehicle that has not VSC system, "0 Mpa" or "Invalid" may be displayed.
- "Longitudinal Acceleration, VSC Sensor" has upper and lower limits for the recorded value of 8.973 m/s<sup>2</sup> and -8.973 m/s<sup>2</sup> respectively. This acceleration sensor does not sense collisions.

- "Sequential Shift Range" displaying "Undetermined" indicates the shift range is undetermined or was not being used.
- Some vehicles will not be equipped with all "Drive Mode" types indicated in the "Drive Mode" table. If some or all drive modes are not applicable to vehicle, "OFF" or "Invalid" may be displayed. The item in the "Drive Mode" table may not match the name of switch or indicator that equipped the vehicle.
- The upper and lower limits for the recorded value of "Steering Input" is 375 deg and -375 deg respectively. Resolution is 1.5 deg and the value is rounded down and recorded.
- Resolution of the "Air Bag Warning Lamp ON Time Since DTC was Set" is 15 minutes, and the value is rounded down and recorded.
- "Delta-V, Longitudinal" indicates the change in forward speed after time zero. This does not refer to vehicle speed, and it does not include the change in speed during the period from the start of the actual collision to establishment of the time zero.
- "Location of Side Satellite Sensor" shows the outline of a typical sensor position. Sensory location can be confirmed using the repair manual.
- "Time from Previous Pre-Crash TRG" indicates the time between the establishment of an event's pre-crash recording trigger to the establishment of a more recent event's pre-crash recording trigger. The upper limit for the recorded value is 16,381 milliseconds. In the event of establishment of the first pre-crash recording trigger after the ignition is switched ON, the upper limit value(max value) is recorded.
- "TRG Count" indicates a calculated value of the number of times recording triggers have been established for all crash types. The sequence in which each event occurred can be verified from the "TRG Count". The smaller the "TRG Count" value, the older the data. The upper limit for the recorded value is 65,533 times. When more than one event reaches the upper limit, the actual "TRG Count" may be greater than what is displayed for that event.
- "Linked Pre-Crash Page" is used to link 'paged" pre-crash data with 'paged" post-crash data. When old pre-crash data is overwritten by new pre-crash data, the "Linked Pre-Crash Page" value may record a page number that is not actually linked.
- Resolution of the "Time from Pre-Crash to TRG" is 50 [ms], and the value is rounded up and recorded.
- "Roll Angle at the Time of TRG" and "Roll Angle Peak" do not represent the actual roll angle of the vehicle. These values are used internally by the airbag ECU for sensing a rollover.

05013\_ToyotaS00std\_r033

### System Status at Time of Retrieval

|                                         |              |
|-----------------------------------------|--------------|
| ECU Part Number                         | 89170-0E111  |
| EDR Generation                          | 13EDR        |
| Complete File Recorded                  | Yes          |
| Freeze Signal                           | OFF          |
| Freeze Signal Factor                    | None         |
| Diagnostic Trouble Codes Exist          | No           |
| Ignition Cycle Download (times)         | 12740        |
| Multi-event, number of events (times)   | 2 or greater |
| Time from event 1 to 2 (s)              | 1.513        |
| Time from Previous Pre Crash TRG (msec) | 1572         |
| Latest Pre-Crash Page                   | 1            |
| Contains Unlinked Pre-Crash Data        | No           |

### Event Record Summary at Retrieval

| Events Recorded   | TRG Count | Crash Type       | Time (msec) | Pre-Crash & DTC Data Recording Status | Event & Crash Pulse Data Recording Status |
|-------------------|-----------|------------------|-------------|---------------------------------------|-------------------------------------------|
| Most Recent Event | 4         | Front/Rear Crash | 0           | Complete (Page 1)                     | Complete (Front/Rear Page 0)              |
| 1st Prior Event   | 3         | Rollover         | -1513       | Complete (Page 0)                     | Complete (Rollover Page 0)                |
| 2nd Prior Event   | 2         | Rollover         | N/A         | N/A                                   | Complete (Rollover Page 1)                |

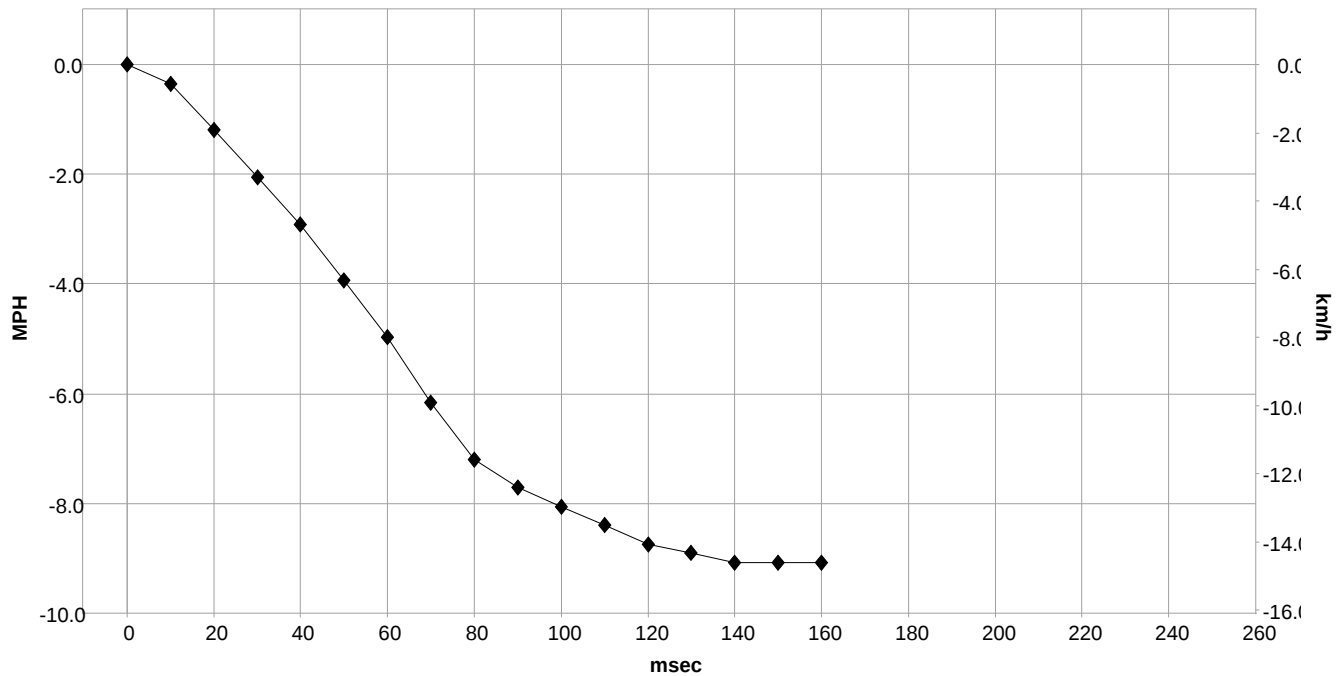
**System Status at Event (Most Recent Event, TRG 4)**

|                                                                                 |                  |
|---------------------------------------------------------------------------------|------------------|
| Recording Status, Front/Rear Crash Info.                                        | Complete         |
| Crash Type                                                                      | Front/Rear Crash |
| TRG Count (times)                                                               | 4                |
| Previous Crash Type                                                             | Rollover         |
| Time from Pre-Crash TRG (msec)                                                  | 0                |
| Linked Pre-Crash Page                                                           | 1                |
| Frontal Airbag Deployment, Time to 1st Stage Deployment, Driver (msec)          | No               |
| Frontal Airbag Deployment, Time to 1st Stage Deployment, Front Passenger (msec) | No               |
| Pretensioner Deployment, Time to Fire, Driver (msec)                            | No               |
| Pretensioner Deployment, Time to Fire, Front Passenger (msec)                   | No               |
| Frontal Airbag Deployment, Time to 2nd Stage, Driver (msec)                     | N/A              |
| Frontal Airbag Deployment, Time to 2nd Stage, Front Passenger (msec)            | N/A              |
| Active Head Restraint, Time to Deploy, Driver (msec)                            | SNA              |
| Active Head Restraint, Time to Deploy, Front Passenger (msec)                   | SNA              |
| Side Curtain Airbag Deployment, Time to Deploy, Driver (msec)                   | No               |
| Side Curtain Airbag Deployment, Time to Deploy, Passenger (msec)                | No               |
| Side Airbag Deployment, Time to Deploy, Driver (msec)                           | No               |
| Side Airbag Deployment, Time to Deploy, Passenger (msec)                        | No               |
| Rear Window Airbag Deployment, Time to Deploy (msec)                            | SNA              |

## Longitudinal/Lateral Crash Pulse (Most Recent Event, TRG 4 - table 1 of 2)

|                                                            |              |
|------------------------------------------------------------|--------------|
| Recording Status, Time Series Data                         | Complete     |
| Time from Time Zero to TRG (msec)                          | 59.0         |
| Length of Delta-V (msec)                                   | 160          |
| Max. Longitudinal Delta-V (MPH [km/h])                     | -9.3 [-14.9] |
| Time, Maximum Delta-V, Longitudinal (msec)                 | 163.0        |
| Power Supply Status at Max. Delta-V                        | ON           |
| Clipping Time of Longitudinal Delta-V (msec)               | No           |
| Clipping Time of Lateral Acceleration, Floor Sensor (msec) | No           |

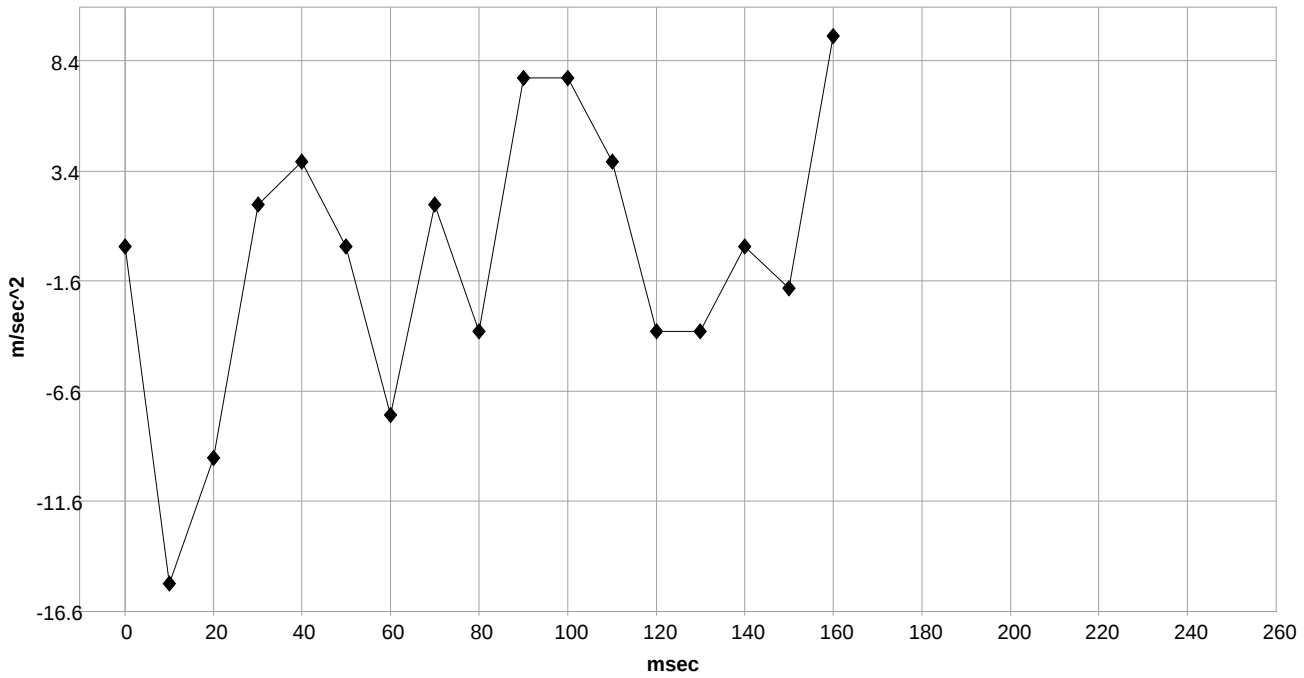
Longitudinal Delta-V



### Deployment Time Marker Key

|    |                                         |
|----|-----------------------------------------|
| 1  | Driver Airbag Deployment Time           |
| 2  | Passenger Airbag Deployment Time        |
| 3  | Driver/Passenger Pretensioner           |
| 4  | Driver 2nd Stage Airbag Deployment Time |
| 5  | Passenger 2nd Stage Airbag Deployment   |
| 6  | Driver/Passenger AHR                    |
| 7  | Driver CSA                              |
| 8  | Passenger CSA                           |
| 9  | Rear Window Airbag Deployment Time      |
| 10 | Driver SAB                              |
| 11 | Passenger SAB                           |

Lateral Acceleration for frontal/rear crash, Floor Sensor



#### Deployment Time Marker Key

|    |                                         |
|----|-----------------------------------------|
| 1  | Driver Airbag Deployment Time           |
| 2  | Passenger Airbag Deployment Time        |
| 3  | Driver/Passenger Pretensioner           |
| 4  | Driver 2nd Stage Airbag Deployment Time |
| 5  | Passenger 2nd Stage Airbag Deployment   |
| 6  | Driver/Passenger AHR                    |
| 7  | Driver CSA                              |
| 8  | Passenger CSA                           |
| 9  | Rear Window Airbag Deployment Time      |
| 10 | Driver SAB                              |
| 11 | Passenger SAB                           |

## Longitudinal/Lateral Crash Pulse (Most Recent Event, TRG 4 - table 2 of 2)

| Time (msec) | Longitudinal Delta-V<br>(MPH [km/h]) | Lateral Acceleration for<br>Frontal/Rear Crash,<br>Floor Sensor<br>(m/sec^2) | Power Supply Status |
|-------------|--------------------------------------|------------------------------------------------------------------------------|---------------------|
| 0           | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 10          | -0.3 [-0.6]                          | -15.3                                                                        | ON                  |
| 20          | -1.2 [-1.9]                          | -9.6                                                                         | ON                  |
| 30          | -2.1 [-3.3]                          | 1.9                                                                          | ON                  |
| 40          | -2.9 [-4.7]                          | 3.8                                                                          | ON                  |
| 50          | -3.9 [-6.3]                          | 0.0                                                                          | ON                  |
| 60          | -5.0 [-8.0]                          | -7.7                                                                         | ON                  |
| 70          | -6.2 [-9.9]                          | 1.9                                                                          | ON                  |
| 80          | -7.2 [-11.6]                         | -3.8                                                                         | ON                  |
| 90          | -7.7 [-12.4]                         | 7.7                                                                          | ON                  |
| 100         | -8.1 [-13.0]                         | 7.7                                                                          | ON                  |
| 110         | -8.4 [-13.5]                         | 3.8                                                                          | ON                  |
| 120         | -8.7 [-14.1]                         | -3.8                                                                         | ON                  |
| 130         | -8.9 [-14.3]                         | -3.8                                                                         | ON                  |
| 140         | -9.1 [-14.6]                         | 0.0                                                                          | ON                  |
| 150         | -9.1 [-14.6]                         | -1.9                                                                         | ON                  |
| 160         | -9.1 [-14.6]                         | 9.6                                                                          | ON                  |
| 170         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 180         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 190         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 200         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 210         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 220         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 230         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 240         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |
| 250         | 0.0 [0.0]                            | 0.0                                                                          | ON                  |

**DTCs Present at Time of Event (Most Recent Event, TRG 4)**

|                                                     |          |
|-----------------------------------------------------|----------|
| Recording Status, Diagnostic                        | Complete |
| Ignition Cycle Since DTC was Set (times)            | 0        |
| Airbag Warning Lamp ON Time Since DTC was Set (min) | 0        |
| Diagnostic Trouble Codes                            | None     |

**Pre-Crash Data, 1 Sample (Most Recent Event, TRG 4)**

|                                                           |                       |
|-----------------------------------------------------------|-----------------------|
| Recording Status, Pre-Crash/Occupant                      | Complete              |
| Time from Pre-Crash to TRG (msec)                         | 500                   |
| TRG Count when Pre-crash TRG was Established (times)      | 4                     |
| Safety Belt Status, Driver                                | ON                    |
| Safety Belt Status, Front Passenger                       | OFF                   |
| Occupant Size Classification, Front Passenger             | Child or Not Occupied |
| Frontal Airbag Suppression Switch Status, Front Passenger | SNA                   |
| RSCA Disable Switch                                       | SNA                   |
| Seat Track Position Switch, Foremost, Status, Driver      | No                    |
| Airbag Warning Lamp, On/Off                               | OFF                   |
| Ignition Cycle ,Crash (times)                             | 12735                 |

### Pre-Crash Data, -5 to 0 seconds (Most Recent Event, TRG 4)

| Time (sec)                                       | -5           | -4.5         | -4           | -3.5         | -3           | -2.5         | -2           | -1.5         | -1           | -0.5         | 0 (TRG)      |
|--------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Vehicle Speed (MPH [km/h])                       | 21.1 [34]    | 22.4 [36]    | 25.5 [41]    | 30.4 [49]    | 34.8 [56]    | 37.9 [61]    | 42.9 [69]    | 37.9 [61]    | 34.2 [55]    | 31.1 [50]    | 14.3 [23]    |
| Accelerator Pedal, % Full (%)                    | 100.0        | 100.0        | 100.0        | 100.0        | 100.0        | 100.0        | 100.0        | 0.0          | 0.0          | 0.0          | 0.0          |
| Percentage of Engine Throttle (%)                | 44.5         | 99.5         | 99.5         | 99.5         | 90.5         | 41.5         | 39.0         | 0.5          | 0.0          | 0.0          | 0.0          |
| Engine RPM (RPM)                                 | 2,000        | 3,100        | 4,500        | 5,200        | 5,900        | 4,000        | 4,100        | 3,500        | 2,600        | 1,600        | 1,300        |
| Motor RPM (RPM)                                  | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      |
| Service Brake, ON/OFF                            | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | ON           | ON           | ON           | ON           |
| Brake Oil Pressure (Mpa)                         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 4.51         | 11.42        | 12.14        | 12.14        |
| Longitudinal Acceleration , VSC Sensor (m/sec^2) | 1.436        | 0.646        | 5.384        | 4.522        | 4.235        | 3.445        | 1.148        | -3.733       | -4.522       | -1.077       | -8.973       |
| Yaw Rate (deg/sec)                               | -0.49        | -9.27        | -0.98        | -6.83        | -3.42        | 8.78         | -11.22       | -14.15       | -20.01       | 3.90         | -0.98        |
| Steering Input (degrees)                         | -3.0         | -55.5        | 3.0          | -39.0        | -1.5         | 28.5         | -91.5        | -108.0       | -75.0        | 42.0         | 72.0         |
| Shift Position                                   | D            | D            | D            | D            | D            | D            | D            | D            | D            | D            | D            |
| Sequential Shift Range                           | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined |
| Cruise Control Status                            | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, PWR                                  | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, ECO                                  | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, Sport                                | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, Snow                                 | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, EV                                   | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      |

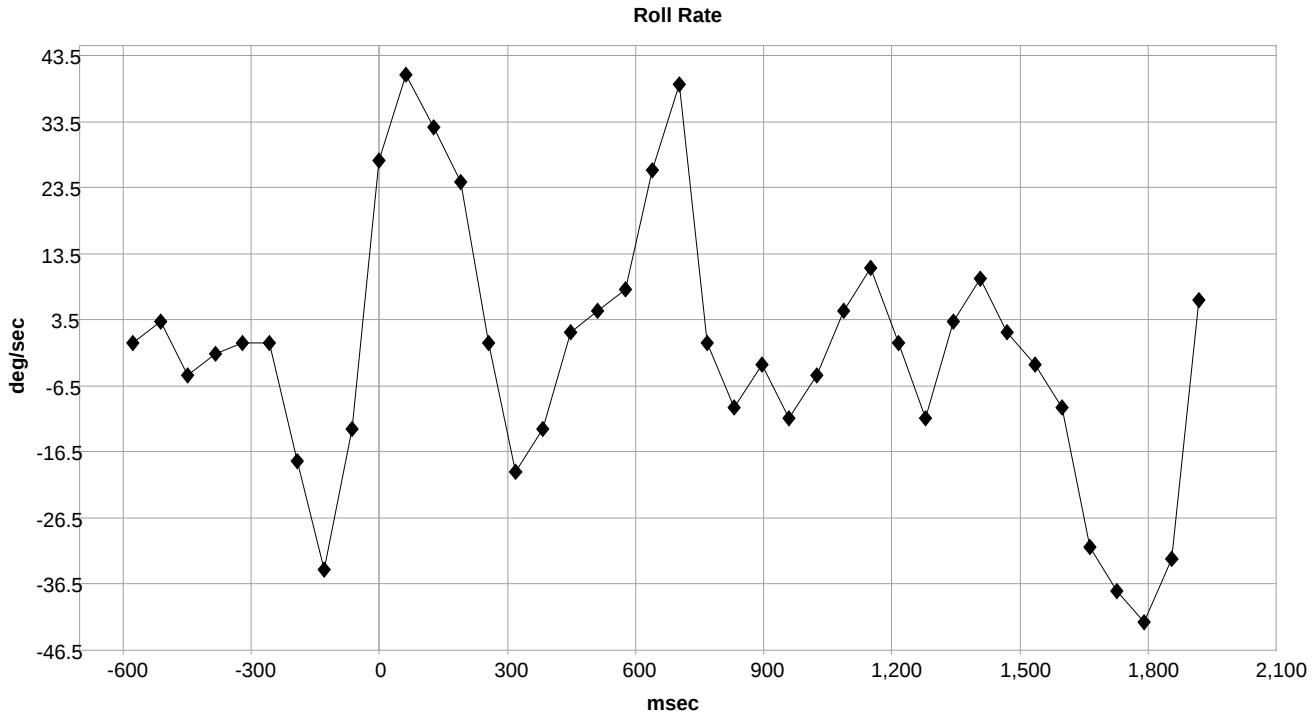
|                                        |         |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Fuel Injection<br>Quantity<br>(mm3/st) | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|

**System Status at Event (1st Prior Event, TRG 3)**

|                                                               |          |
|---------------------------------------------------------------|----------|
| Recording Status, Rollover Crash Info.                        | Complete |
| Crash Type                                                    | Rollover |
| TRG Count (times)                                             | 3        |
| Previous Crash Type                                           | No Event |
| Time from Pre-Crash TRG (msec)                                | 0        |
| Linked Pre-Crash Page                                         | 0        |
| Side Curtain Airbag Deployment, Time to Deploy (msec)         | No       |
| Pretensioner Deployment, Time to Fire, Driver (msec)          | No       |
| Pretensioner Deployment, Time to Fire, Front Passenger (msec) | No       |

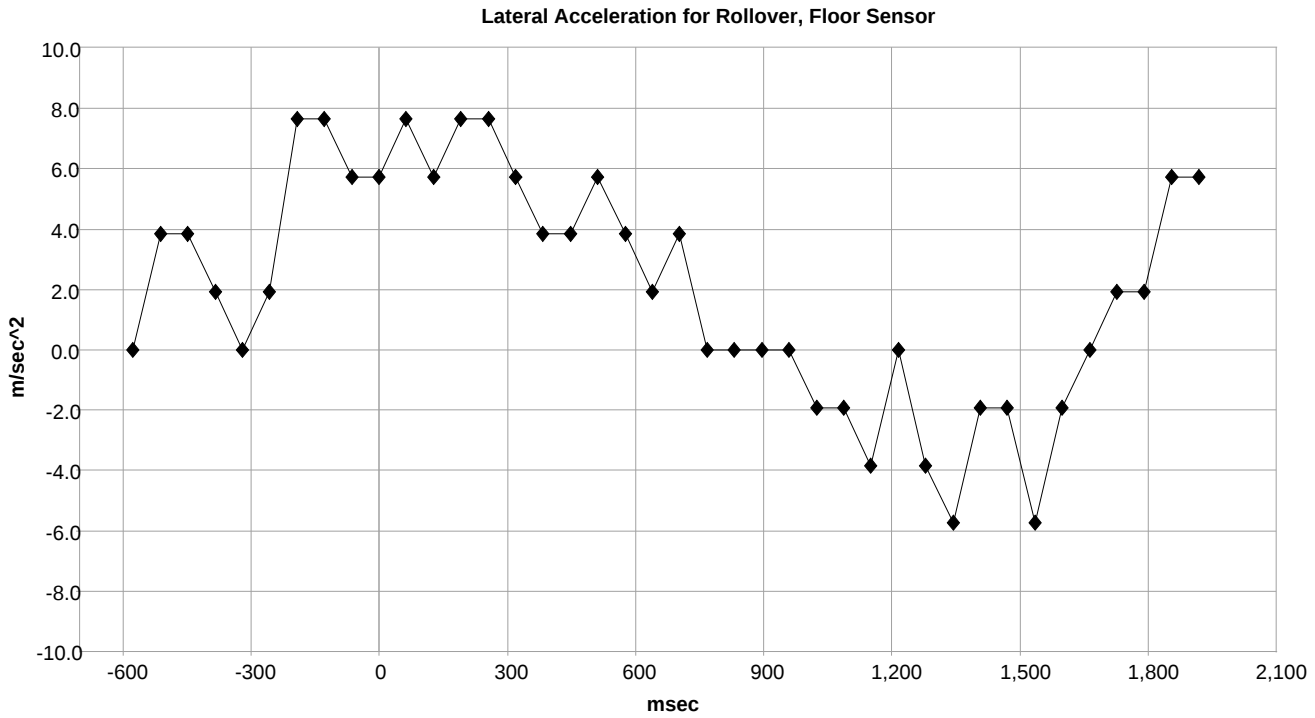
### Rollover Crash Pulse (1st Prior Event, TRG 3 - table 1 of 2)

|                                         |          |
|-----------------------------------------|----------|
| Recording Status, Time Series Data      | Complete |
| Time from TRG to Next Sample (msec)     | 63       |
| Roll Angle Peak (degrees)               | -7.2     |
| Roll Angle at the Time of TRG (degrees) | -2.7     |



#### Deployment Time Marker Key

|   |                               |
|---|-------------------------------|
| 1 | Driver/Passenger CSA          |
| 2 | Driver/Passenger Pretensioner |



**Deployment Time Marker Key**

|   |                               |
|---|-------------------------------|
| 1 | Driver/Passenger CSA          |
| 2 | Driver/Passenger Pretensioner |

## Rollover Crash Pulse (1st Prior Event, TRG 3 - table 2 of 2)

| Time (msec) | Roll Rate (deg/sec) | Lateral Acceleration for Rollover, Floor Sensor (m/sec^2) |
|-------------|---------------------|-----------------------------------------------------------|
| -577        | 0.0                 | 0.0                                                       |
| -513        | 3.3                 | 3.8                                                       |
| -449        | -4.9                | 3.8                                                       |
| -385        | -1.6                | 1.9                                                       |
| -321        | 0.0                 | 0.0                                                       |
| -257        | 0.0                 | 1.9                                                       |
| -193        | -17.9               | 7.7                                                       |
| -129        | -34.2               | 7.7                                                       |
| -65         | -13.0               | 5.7                                                       |
| -1          | 27.7                | 5.7                                                       |
| 63          | 40.7                | 7.7                                                       |
| 127         | 32.6                | 5.7                                                       |
| 191         | 24.4                | 7.7                                                       |
| 255         | 0.0                 | 7.7                                                       |
| 319         | -19.5               | 5.7                                                       |
| 383         | -13.0               | 3.8                                                       |
| 447         | 1.6                 | 3.8                                                       |
| 511         | 4.9                 | 5.7                                                       |
| 575         | 8.1                 | 3.8                                                       |
| 639         | 26.1                | 1.9                                                       |
| 703         | 39.1                | 3.8                                                       |
| 767         | 0.0                 | 0.0                                                       |
| 831         | -9.8                | 0.0                                                       |
| 895         | -3.3                | 0.0                                                       |
| 959         | -11.4               | 0.0                                                       |
| 1023        | -4.9                | -1.9                                                      |
| 1087        | 4.9                 | -1.9                                                      |
| 1151        | 11.4                | -3.8                                                      |
| 1215        | 0.0                 | 0.0                                                       |
| 1279        | -11.4               | -3.8                                                      |
| 1343        | 3.3                 | -5.7                                                      |
| 1407        | 9.8                 | -1.9                                                      |
| 1471        | 1.6                 | -1.9                                                      |
| 1535        | -3.3                | -5.7                                                      |
| 1599        | -9.8                | -1.9                                                      |
| 1663        | -30.9               | 0.0                                                       |
| 1727        | -37.5               | 1.9                                                       |
| 1791        | -42.3               | 1.9                                                       |
| 1855        | -32.6               | 5.7                                                       |
| 1919        | 6.5                 | 5.7                                                       |

**DTCs Present at Time of Event (1st Prior Event, TRG 3)**

|                                                     |          |
|-----------------------------------------------------|----------|
| Recording Status, Diagnostic                        | Complete |
| Ignition Cycle Since DTC was Set (times)            | 0        |
| Airbag Warning Lamp ON Time Since DTC was Set (min) | 0        |
| Diagnostic Trouble Codes                            | None     |

**Pre-Crash Data, 1 Sample (1st Prior Event, TRG 3)**

|                                                           |                       |
|-----------------------------------------------------------|-----------------------|
| Recording Status, Pre-Crash/Occupant                      | Complete              |
| Time from Pre-Crash to TRG (msec)                         | 400                   |
| TRG Count when Pre-crash TRG was Established (times)      | 3                     |
| Safety Belt Status, Driver                                | ON                    |
| Safety Belt Status, Front Passenger                       | OFF                   |
| Occupant Size Classification, Front Passenger             | Child or Not Occupied |
| Frontal Airbag Suppression Switch Status, Front Passenger | SNA                   |
| RSCA Disable Switch                                       | SNA                   |
| Seat Track Position Switch, Foremost, Status, Driver      | No                    |
| Airbag Warning Lamp, On/Off                               | OFF                   |
| Ignition Cycle ,Crash (times)                             | 12735                 |

### Pre-Crash Data, -5 to 0 seconds (1st Prior Event, TRG 3)

| Time (sec)                                       | -4.9         | -4.4         | -3.9         | -3.4         | -2.9         | -2.4         | -1.9         | -1.4         | -0.9         | -0.4         | 0 (TRG)      |
|--------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Vehicle Speed (MPH [km/h])                       | 20.5 [33]    | 20.5 [33]    | 20.5 [33]    | 21.1 [34]    | 22.4 [36]    | 25.5 [41]    | 30.4 [49]    | 34.8 [56]    | 37.9 [61]    | 42.9 [69]    | 38.5 [62]    |
| Accelerator Pedal, % Full (%)                    | 0.0          | 12.5         | 27.0         | 100.0        | 100.0        | 100.0        | 100.0        | 100.0        | 100.0        | 100.0        | 0.0          |
| Percentage of Engine Throttle (%)                | 0.0          | 1.0          | 7.5          | 44.5         | 99.5         | 99.5         | 99.5         | 90.5         | 41.5         | 39.0         | 3.0          |
| Engine RPM (RPM)                                 | 1,100        | 1,100        | 1,400        | 2,000        | 3,100        | 4,500        | 5,200        | 5,900        | 4,000        | 4,100        | 3,800        |
| Motor RPM (RPM)                                  | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      |
| Service Brake, ON/OFF                            | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | ON           |
| Brake Oil Pressure (Mpa)                         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 3.98         |
| Longitudinal Acceleration , VSC Sensor (m/sec^2) | 0.072        | 0.072        | 0.431        | 1.436        | 0.646        | 5.384        | 4.522        | 4.235        | 3.445        | 1.148        | -2.225       |
| Yaw Rate (deg/sec)                               | -0.49        | 0.49         | 0.49         | -0.49        | -9.27        | -0.98        | -6.83        | -3.42        | 8.78         | -11.22       | -23.91       |
| Steering Input (degrees)                         | -1.5         | 4.5          | 3.0          | -3.0         | -55.5        | 3.0          | -39.0        | -1.5         | 28.5         | -91.5        | -109.5       |
| Shift Position                                   | D            | D            | D            | D            | D            | D            | D            | D            | D            | D            | D            |
| Sequential Shift Range                           | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined | Undetermined |
| Cruise Control Status                            | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, PWR                                  | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, ECO                                  | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, Sport                                | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, Snow                                 | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          | OFF          |
| Drive Mode, EV                                   | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      | Invalid      |

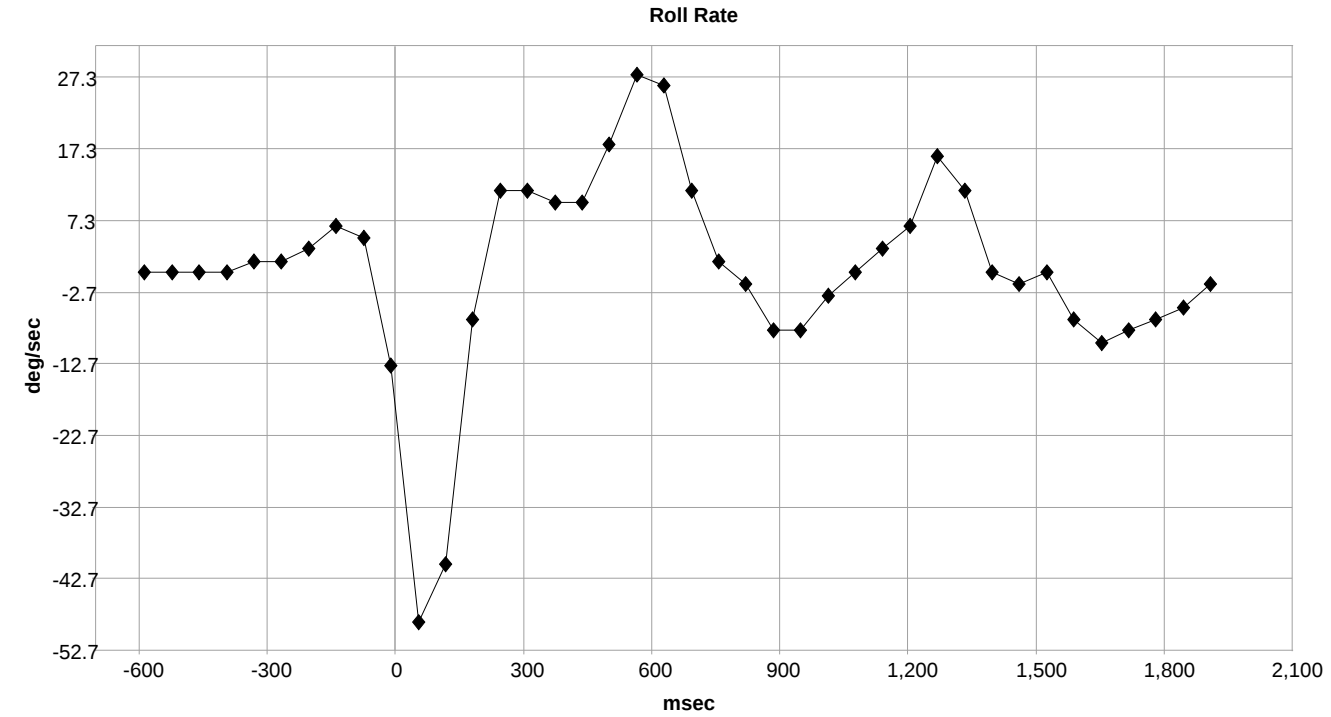
|                                        |         |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Fuel Injection<br>Quantity<br>(mm3/st) | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid | Invalid |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|

**System Status at Event (2nd Prior Event, TRG 2)**

|                                                               |          |
|---------------------------------------------------------------|----------|
| Recording Status, Rollover Crash Info.                        | Complete |
| Crash Type                                                    | Rollover |
| TRG Count (times)                                             | 2        |
| Previous Crash Type                                           | No Event |
| Time from Pre-Crash TRG (msec)                                | 0        |
| Linked Pre-Crash Page                                         | 1        |
| Side Curtain Airbag Deployment, Time to Deploy (msec)         | No       |
| Pretensioner Deployment, Time to Fire, Driver (msec)          | No       |
| Pretensioner Deployment, Time to Fire, Front Passenger (msec) | No       |

## Rollover Crash Pulse (2nd Prior Event, TRG 2 - table 1 of 2)

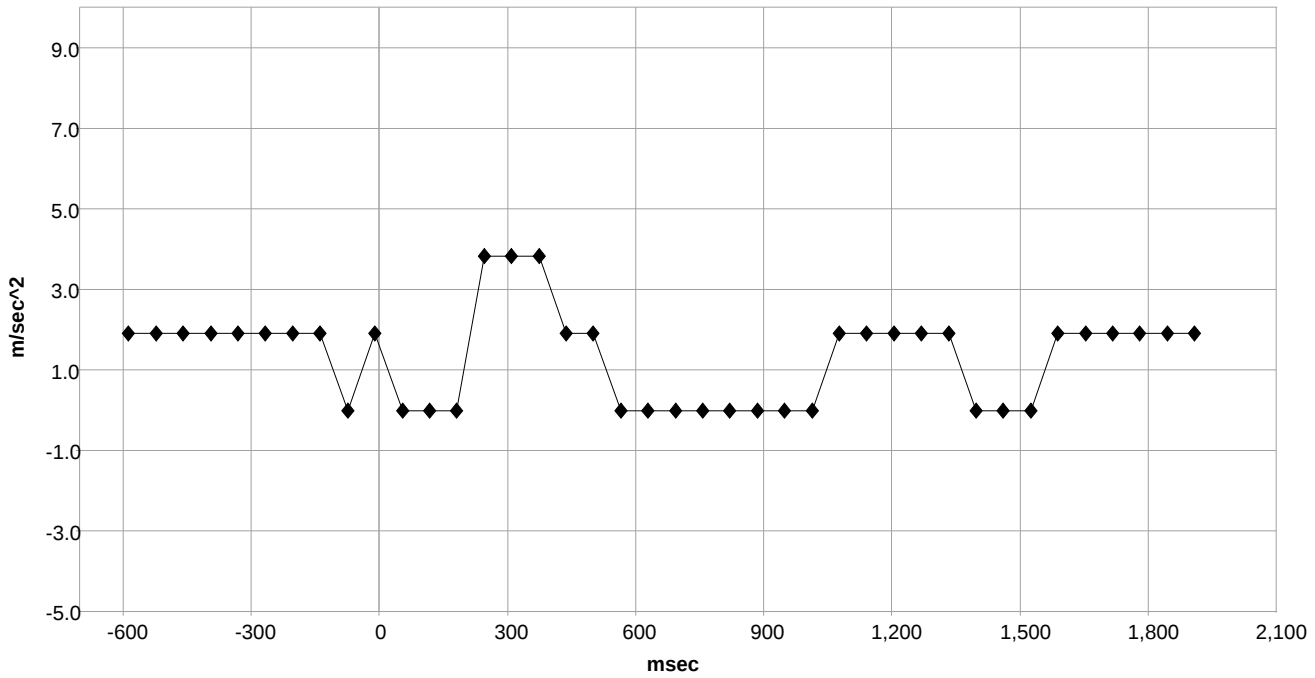
|                                         |          |
|-----------------------------------------|----------|
| Recording Status, Time Series Data      | Complete |
| Time from TRG to Next Sample (msec)     | 53       |
| Roll Angle Peak (degrees)               | -4.9     |
| Roll Angle at the Time of TRG (degrees) | -1.7     |



### Deployment Time Marker Key

|   |                               |
|---|-------------------------------|
| 1 | Driver/Passenger CSA          |
| 2 | Driver/Passenger Pretensioner |

Lateral Acceleration for Rollover, Floor Sensor



Deployment Time Marker Key

|   |                               |
|---|-------------------------------|
| 1 | Driver/Passenger CSA          |
| 2 | Driver/Passenger Pretensioner |

## Rollover Crash Pulse (2nd Prior Event, TRG 2 - table 2 of 2)

| Time (msec) | Roll Rate (deg/sec) | Lateral Acceleration for Rollover, Floor Sensor (m/sec^2) |
|-------------|---------------------|-----------------------------------------------------------|
| -587        | 0.0                 | 1.9                                                       |
| -523        | 0.0                 | 1.9                                                       |
| -459        | 0.0                 | 1.9                                                       |
| -395        | 0.0                 | 1.9                                                       |
| -331        | 1.6                 | 1.9                                                       |
| -267        | 1.6                 | 1.9                                                       |
| -203        | 3.3                 | 1.9                                                       |
| -139        | 6.5                 | 1.9                                                       |
| -75         | 4.9                 | 0.0                                                       |
| -11         | -13.0               | 1.9                                                       |
| 53          | -48.9               | 0.0                                                       |
| 117         | -40.7               | 0.0                                                       |
| 181         | -6.5                | 0.0                                                       |
| 245         | 11.4                | 3.8                                                       |
| 309         | 11.4                | 3.8                                                       |
| 373         | 9.8                 | 3.8                                                       |
| 437         | 9.8                 | 1.9                                                       |
| 501         | 17.9                | 1.9                                                       |
| 565         | 27.7                | 0.0                                                       |
| 629         | 26.1                | 0.0                                                       |
| 693         | 11.4                | 0.0                                                       |
| 757         | 1.6                 | 0.0                                                       |
| 821         | -1.6                | 0.0                                                       |
| 885         | -8.1                | 0.0                                                       |
| 949         | -8.1                | 0.0                                                       |
| 1013        | -3.3                | 0.0                                                       |
| 1077        | 0.0                 | 1.9                                                       |
| 1141        | 3.3                 | 1.9                                                       |
| 1205        | 6.5                 | 1.9                                                       |
| 1269        | 16.3                | 1.9                                                       |
| 1333        | 11.4                | 1.9                                                       |
| 1397        | 0.0                 | 0.0                                                       |
| 1461        | -1.6                | 0.0                                                       |
| 1525        | 0.0                 | 0.0                                                       |
| 1589        | -6.5                | 1.9                                                       |
| 1653        | -9.8                | 1.9                                                       |
| 1717        | -8.1                | 1.9                                                       |
| 1781        | -6.5                | 1.9                                                       |
| 1845        | -4.9                | 1.9                                                       |
| 1909        | -1.6                | 1.9                                                       |

## Hexadecimal Data

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR system.

| PIDs | PID | Data                                                                                                                                                                                               |
|------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | 00  | BC 64 00 01                                                                                                                                                                                        |
|      | 01  | 00                                                                                                                                                                                                 |
|      | 03  | 30 45 31 31 31 30 30 30 39 33 30 30 30 39 33 30 30 30 39 44 30 30<br>30 39 44 30 30 30 39 46 30 30 30 39 46                                                                                        |
|      | 04  | 02 03 02 02                                                                                                                                                                                        |
|      | 05  | 01                                                                                                                                                                                                 |
|      | 06  | 00                                                                                                                                                                                                 |
|      | 0A  | 03                                                                                                                                                                                                 |
|      | 0B  | 00                                                                                                                                                                                                 |
|      | 20  | 80 00 00 01                                                                                                                                                                                        |
|      | 21  | 02 A0                                                                                                                                                                                              |
|      | 40  | 00 00 00 01                                                                                                                                                                                        |
|      | 60  | FF FF F0 01                                                                                                                                                                                        |
|      | 61  | 02 05 E8 00 C0 E0 05 00 02 80 02 80 00 00 00 00 00 00 00 05 00<br>05 00 19 00 29 B1 85 5F 88 00                                                                                                    |
|      | 62  | 00 00 46 24 31 C4 00 00 00 00                                                                                                                                                                      |
|      | 63  | 55 1C 31 BF 11 10 00 00 11 11 11 11 11 10 21 21 21 22 24 29 31 38<br>3D 45 3E 00 19 36 C8 C8 C8 C8 C8 C8 00 00 00 04 0B 0B 0E 14 1F<br>2D 34 3B 28 29 26 00 00 00 00 00 00 00 03                   |
|      | 64  | 55 24 31 BF 11 10 00 00 11 11 11 11 11 10 22 24 29 31 38 3D 45 3D<br>37 32 17 C8 C8 C8 C8 C8 C8 00 00 00 00 00 01 54 14 1F 2D 34 3B<br>28 29 23 1A 10 0D 00 00 00 00 00 00 00 04                   |
|      | 65  | 55 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00                                                                                                                                              |
|      | 66  | 55 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00                                                                                                                                              |
|      | 67  | 55 24 00 00 04 FE FE FE FE FE 55 FD FD FF FE FF FE FF FE FF FE 03<br>FE                                                                                                                            |
|      | 68  | 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00                                                                                                                               |
|      | 69  | 00 76 11 00 00 00 02 00 07 00 0C 00 11 00 17 00 1D 00 24 00 2A 00<br>2D 00 2F 00 31 00 33 00 34 00 35 00 35 00 35 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 36 01 46          |
|      | 6A  | 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
|      | 6B  | 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
|      | 6C  | 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
|      | 6D  | 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
|      | 6E  | 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
|      | 6F  | 55 FF FE E0 00 00 03 55 FF 00 02 FD FF 00 00 F5 EB F8 11 19 14 0F<br>00 F4 F8 01 03 05 10 18 00 FA FE F9 FD 03 07 00 F9 02 06 01 FE FA<br>ED E9 E6 EC 04 FF CC FF 76                               |
|      | 70  | 55 FF FE E4 00 00 02 55 F5 00 00 00 00 01 01 02 04 03 F8 E2 E7 FC<br>07 07 06 06 0B 11 10 07 01 FF FB FB FE 00 02 04 0A 07 00 FF 00 FC<br>FA FB FC FD FF FF DF FF A2                               |
|      | 71  | 00 FE FE FE 00 FF FC FC FD FD FC FD FC FC FD FE FE FD FE FF FE 00<br>00 00 00 01 01 02 00 02 03 01 01 03 01 00 FF FF FD FD                                                                         |
|      | 72  | FF FF FF FF FF FF FF FF 00 FF 00 00 00 FE FE FE FF FF 00 00 00 00<br>00 00 00 00 FF FF FF FF FF 00 00 00 FF FF FF FF FF                                                                            |
|      | 73  | 00 00 00 00 00 00 00 00 00 00 00 53 00 00 00 00 00 00 00 00 00<br>FF 01 01 FF ED FE F2 F9 12 E9 CF 01 01 06 14 09 4B 3F 3B 30 10 E1<br>00 02 0F 59 C7 C7 C7 B5 53 4E 06 00 00 00                   |
|      | 74  | 00 00 00 00 00 00 00 5E EE FD FD 00 00 00 00 00 00 00 00 00 00 00<br>FF ED FE F2 F9 12 E9 E3 D7 08 FE 14 09 4B 3F 3B 30 10 CC C1 F1 83                                                             |

```

59 C7 C7 C7 B5 53 4E 01 00 00 00 00 00 00
80 00 00 00 01
A0 0C 00 DF 81
A5 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40
FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE
FE FE FE FE FE FE FE FE FE FE FE FE
A6 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40
FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE
FE FE FE FE FE FE FE FE FE FE FE FE
B4 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00
B5 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00
B6 00 08 05 FF FE 00 04 FF 02 FC FC FE 02 02 00 01 FB 00 00 00 00
00 00 00 00 03 FE
B7 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00
B8 03 FF 00 03 00 02 03 FE 03 DB 00 02 03 E6 03 FF 00 13 03 C3 03 B7
B9 03 FE 03 DB 00 02 03 E6 03 FF 00 13 03 C3 03 B8 03 CE 00 1C 00 30

```

## Disclaimer of Liability

The users of the CDR product and reviewers of the CDR reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Robert Bosch LLC and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Robert Bosch LLC expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the CDR data, CDR software or use thereof.

April 2, 2023

National Highway Traffic Safety Administration

Reference # 11497653

[REDACTED]  
Manassas, VA [REDACTED]

Attached you will find all the documents, letters, email correspondence as it pertains to the incident to also include Toyota's report on their inspection of my vehicle.

Included in this are the following:

Vehicle Owner Questionnaire – updated.

My statement of what happened on 12/13/2022.

Email contacting Toyota Brand Engagement Center

Letter from Toyota regarding the results of the independent inspector's report.

Letter to Toyota expressing my disappointment.

Jerry Chevrolet Vehicle Sticker of all that was in my car when purchased.

Estimates for the vehicle which ended up being totaled because the final repair invoice was \$20,714.00. Unfortunately, I do not have a copy of the last estimate which included a complete replacement of the transmission. I have been reimbursed from Geico for the full value of the car which was approximately \$23,500.

Correspondence with Paul Meade the independent inspector for Toyota

The reports from Paul Mead that were sent to Toyota for review. Some can only be interpreted by Toyota software.

If you need anything else, please don't hesitate to ask.

[REDACTED]



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

1200 New Jersey Avenue SE  
Washington, DC 20590

Dear Consumer:

NEF-160

As a follow-up to your report to the Vehicle Safety Hotline (VSH), we have recorded your information on the enclosed Vehicle Owner's Questionnaire (VOQ) form. Please review the form and make changes, additions and corrections as necessary. Additionally, please provide a more detailed description of the failure(s) you reported that you believe relevant to safety. Also, if available, include copies of repair invoices, letters to the manufacturer, or any other document related to the problem(s) you reported. If a crash or fire occurred, include a copy of the police or fire department report.

It is helpful to be as thorough as possible in your report so that our ability to use your report will be maximized. If you do not have the information, it is not necessary to complete all the boxes. However, it is very difficult to identify the scope of a vehicle problem unless the vehicle identification number (VIN) is known. The VIN is located inside the vehicle on the dashboard adjacent to the left (driver's side) of the windshield pillar and on the driver's door or the driver's door jam. It may also be listed on a dealer repair invoice or your insurance or registration cards. When reporting a tire problem, the brand name, tire line and complete tire size should be included. Be certain to provide the DOT tire identification number. It is usually located near the rim flange of the tire on either side of the tire.

We do not make your personal information (name, address, phone numbers, etc.) available to the general public. However, if we open an investigation that involves your vehicle, we will provide the manufacturer of your vehicle with a complete copy of your report. The information you provide may assist the manufacturer and NHTSA in determining if a safety-related defect exists.

Any information provided is entirely voluntary. There is no consequence or penalty of any kind if you do not wish to provide it. We seek this information to develop both statistical and investigative evidence that will help identify potential safety related problems in vehicles or vehicle equipment, e.g., tires, child safety seats, jacks, etc.

When completed, please fold and staple or tape the form so that the pre-addressed portion of the form is on the outside. If a larger envelope is used, tape the VOQ form to the larger envelope so that the pre-addressed portion of the form is showing.

If further assistance is needed, please contact the VSH at their toll-free number, 1-888-327-4236.

Thank you for your cooperation.

Sincerely,

Randy Reid Chief  
Correspondence Research Division  
Office of Defects Investigation  
Enforcement

Enclosure: VOQ

U.S. Department  
of TransportationNational Highway  
Traffic Safety  
Administration

**DOT Auto Safety Hotline**  
**Vehicle Owner's Questionnaire**  
 To Report Vehicle Safety Defects  
 1-888-DASH-2-DOT  
 (1-888-327-4236)  
 INTERNET:www.nhtsa.dot.gov/hotline

FOR AGENCY USE ONLY 100148

Date Received

15-DEC-2022

Repository ☐Reference No.  
11497653**OWNER INFORMATION (Type or Print)**

Name

Address

City

Manassas

State

VA

ZIP Code

Daytime Telephone Number

Evening Telephone Number

The information you provide will be used to identify potential safety-related defects. We may share your information with the applicable vehicle manufacturer during an investigation or recall in accordance with the routine uses described in the agency's Privacy Act notice. See 49 FR 53971 (Sep. 3, 2004).

**VEHICLE INFORMATION**

17 digit Vehicle Identification Number Located at bottom of windshield on driver's side

5TDDKRHXFS

MAKE

TOYOTA

Model

HIGHLANDER

Model Year

2015

Date Purchased

5-10-18

Dealer's Name and Telephone Number

Jerry's Chevrolet 703-771-8300

Engine:

No. Cylinders

3.5L V6

Fuel Type:

Reg

Original Owner

☐

Dealer's City Elk Grove

STATE

CA

ZIP Code

95757

Transmission Type

6-Speed  
Automatic  
Electronic☒ Antilock Brakes☒ Cruise Control

Powertrain

AWD

Multiple Failure:

Incident Date(s)

13-DEC-2022

**FAILED COMPONENT(S)/PART(S) INFORMATION**

Vehicle Components Codes: 103000 POWER TRAIN-AUTOMATIC TRANSMISSION

Failure Mileage

98000.0

Failure Speed

30

**ADDITIONAL ITEMS TO BE COMPLETED WHEN REPORTING A TIRE FAILURE**

Tire Make

Tire Model (Name or Number)

Tire Size (Example P215/65R15)

DOT No. (Example: DOTM1 9ABC036)

☐ Original Requirement☐ Prior Repair

Failure Location:

Tire Component Code

Tire Failure Type:

**ADDITIONAL ITEMS TO BE COMPLETED WHEN REPORTING A CHILD SEAT FAILURE**

Make:

Date Manufactured:

Model No./Name:

Seat Type:

Installation System:

Child Seat Component Code:

Failed Part:

**APPLICABLE INCIDENT INFORMATION**

(Please describe in detail the Incident(s), Failure(s), Crash(es), Injury(ies).)

Crash

☒ Yes ☐ No

Fire

☐ Yes ☒ No

Number of Persons Injured

Not sure

Number of Deaths

0

Reported to Police

Y

**Narrative Description of Incident(s), Crash(es), Injury(ies).**

Please describe (1) events leading up to the failure, (2) failure and its consequences, and (3) what was done to correct the failure; i.e., parts repaired or replaced (and if old part is available).

The contact owns a 2015 Toyota Highlander. The contact stated while driving at 30 MPH, the vehicle accelerated without any warning at high speed. The contact desperately depressed the brake pedal, but the vehicle would not stop, causing the vehicle to drive into traffic and striking several vehicles causing front damage to the vehicle. The contact was unsure if anyone was injured. A police report was filed. The vehicle was not diagnosed. The vehicle was not repaired. The manufacturer was contacted, and a case was filed. The failure mileage was 98,000.

See attached

Include, if available: Police/Fire Department Report, Photos, and Repair Invoice.

ATTACH ADDITIONAL SHEETS IF NECESSARY

The Privacy Act of 1974-Public Law 93-579. This information is requested pursuant to authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a Manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.

- On December 13, 2022, at approximately 11:50 AM left LA Fitness in the Davis Ford Crossing Center on Liberia Ave. in Manassas, Va.
- Exited the shopping plaza between the United Bank and McDonald's Restaurant. No oncoming traffic, clear to exit right onto Liberia heading towards 294 East.
- Proceeded at low acceleration. Speed limit on Liberia is 35.
- Upcoming traffic light at the intersection of 294 East, Wellington Road and Prince William Parkway was green.
- Proceeded to that light, car went into an unintended acceleration.
- Immediately applied the brakes but they were unresponsive. Continued to hold foot on the brakes.
- Heard the RPMS racing.
- Did not continue straight on Liberia as there were cars ahead of me that had just began their acceleration thru the light. Needed to avoid hitting any of those vehicles.
- Do not know how fast the car was going but it felt extremely fast.
- With only seconds to decide what to do I headed for the curb, hoping that the vehicle would stop.
- The curb that I saw was the triangle cement divider next to the turning lane onto Wellington and hoped that if I hit that it would stop the car.
- I hit that curb, it went over that cement barrier and into vehicles that were stopped at a red light on Wellington Road.
- My car stopped and I immediately put my car in park.
- A gentleman approached my car to see if I was ok and told me to turn off the car.
- Two vehicles in front of me were hit head on. It was my understanding that two others had been affected by the accident so a total of 5 cars to include mine were involved.
- No air bags deployed in my car.
- Approximately 800 feet from exit point in shopping center to where I hit the curb.
- Checked for any obstructions around my car's floor mats or around the gas and brake pedal and there were none.
- Shaken and in disbelief because I could not determine why this happened.
- Attempted to call 911 but saw and heard others doing the same.
- Police arrived within minutes.
- Geico insurance was notified immediately so that I could give my insurance information and report the accident.

I CERTIFY THAT the statements on this form are true and correct to the best of my knowledge and belief." I created this log of the event after the accident so that it was fresh in my mind.

December 13, 2022

**Toyota Brand Engagement Center Case**

Toyota Brand Engagement Center <becdonotreply@toyota.com>

Wed, Dec 14, 2022 at 3:56 PM

To:

Dear

We appreciate you taking the time to contact the Toyota Brand Engagement Center. We are dedicated to providing superior service. Your case is filed at our headquarters office under your name and file

If you require further assistance, please contact us directly at 800-331-4331. Our hours of operation are Monday through Friday from 8:00 a.m. – 8:00 p.m. ET, and Saturday from 9:00 a.m. – 7:00 p.m. ET.

Sincerely,

La'Kicia

Toyota Brand Engagement Center

# TOYOTA

Stephanie Kirk  
Direct Phone (469)292-4017

Toyota Motor North America, Inc.  
6565 Headquarters Drive  
Plano, TX 75024

February 2, 2023

Via e-mail to [REDACTED]

[REDACTED]  
Manassas, VA [REDACTED]

RE:    Date of Loss    :            December 13, 2022  
       Vehicle        :            2015 Toyota Highlander  
       VIN            :            5TDDKRFHXS [REDACTED]

Dear [REDACTED]

Thank you for contacting Toyota's Brand Engagement Center regarding the above-referenced incident. Your wife reported that while she was operating your 2015 Toyota Highlander, she experienced an unintended acceleration and brake malfunction event. She stated that she had exited a shopping center and was approaching a traffic light when the vehicle started accelerating. She stated that when she applied the brakes the vehicle did not stop, causing her to go over the curb and hit several other vehicles. She stated that the brakes did not stop the vehicle.

Toyota Motor North America, Inc. (TMNA) assigned Engineering Analysis Associates (EAA) who performed a thorough inspection and read out the Event Data Recorder (EDR) of your vehicle at Miller Toyota on January 10, 2023. At the time of the inspection some of the vehicle's damaged parts were already removed, and your vehicle had 98,037 miles.

There was damage to the right front end, right front wheel, and tire. During the inspection, the accelerator pedal moved freely from idle to wide open throttle with no resistance, and it returned to the idle position upon release of the pedal. The inspector found no issues with the throttle system.

There were no abnormalities found with the brake pedal or mounting. The brake pedal was firm when depressed. When measured, the front and rear outer brake pads appeared to be in good condition. There was minor corrosion on the rotors. There were no leakage or concerns found with the braking system components. There was no evidence of leakage from the ABS actuator, master cylinder or brake lines and hoses.

At the time of inspection, the inspector observed an unsecured OEM all weather floor mat installed in the driver's floor pan. The left retention area of the all-weather mat was missing the retention lock and the right side was not secured with the retention hook. The inspector also observed that the retention hooks were in place and functional. Please refer to the owner's manual for proper placement and installation of the floor mats.

[REDACTED]  
Manassas, Va.  
[REDACTED]

March 23, 2023

Stephanie Kirk  
Toyota Motor North America, Inc.  
6565 Headquarters Drive  
Plano, TX 75024

RE: Vehicle: Toyota Highlander  
Date of Loss: December 13, 2015  
VIN: 5TDDKRFHXS [REDACTED]

Dear Ms. Kirk:

I have decided to respond to your letter dated February 2, 2023, that was addressed to my husband regarding the accident I had on December 13, 2022.

First, the vehicle was in both of our names, and he did not have the accident. I had the accident, and I am the one that reported it to Toyota's Brand Engagement Center. I found it extremely insulting and unprofessional for you to address the letter and findings in this manner. We are co-owners of this vehicle and I do not keep things from my husband.

You also stated at the time of inspection, some of the vehicle's damaged parts were already removed. What parts were removed and what did that have to do with the inspection and the results?

I have relived this accident over and over for the past 3 months with many the stressful and sleepless nights. I know that the vehicle accelerated on its own and I personally did not cause this accident. Your letter reported that I applied the brakes 1.5 seconds prior to impact and that is not true, they were applied immediately when the vehicle began accelerating on its own. Upon my exiting the vehicle after the accident, I personally inspected to see if there were any obstructions around the gas and brake pedals to include the floor mats and there was nothing. Furthermore, in all my years of driving, I have never had a speeding ticket or a car accident. I am an extremely careful driver. We also kept this vehicle in mint condition, following all the servicing requirements throughout our ownership.

I have researched accidents that have reported unintended acceleration and many of the vehicles involved were Toyotas. I also found that those who pursued this problem with Toyota were told the floor mats were not installed properly. What did "unsecured" weather floor mats have to do with my accident?

My husband and I have owned Toyotas for over 35 years. This 2015 Toyota Highlander ended up being a total loss because of this accident and we will need to buy a new vehicle. We do not plan to replace the Highlander with a Toyota. In addition, there were four other vehicles that were hit by my car with significant damages if not totaled and some passengers sustained injuries. Thank goodness there were no fatalities.

I too am extremely sorry to hear that this unfortunate incident occurred, and extremely disappointed that your "Independent" Inspector did not find any evidence of any defects. This accident and all reports will be on file with the National Traffic Highway Safety Administration.

Sincerely,  
[REDACTED]

cc: [REDACTED]

# JERRY'S GOT IT!



## Store Hours

**Mon: 9am-9pm**

**Tues: 9am-9pm**

**Wed: 9am-9pm**

**Thurs: 9am-9pm**

**Fri: 9am-9pm**

**Sat: 9am-6pm**

**Sun: 11am-5pm**



**Jerry's Leesburg Chevrolet**  
**18 Fort Evans Road N.E.**  
**Leesburg, VA 20176**  
**(703) 771-8300**

## 2015 Toyota Highlander Limited

**Odometer:** 34,279  
**Engine:** 3.5L V6 DOHC Dual  
 VVT-i 24V  
**Color:** Pearl  
**Interior:** Almond w/Leather  
 Seat Material

**Transmission:** 6-Speed  
 Automatic Electronic with  
 Overdrive  
**VIN:** 5TDDKREHXES [REDACTED]  
**Stock #** [REDACTED]  
**Drive Train:** AWD

### Electronic

Navigation System  
 12 Speakers  
 AM/FM radio: SiriusXM  
 CD player  
 MP3 decoder  
 Radio: Entune Premium JBL Audio  
 w/Nav & App Suite

### Safety

4-Wheel Disc Brakes  
 ABS brakes  
 Anti-whiplash front head restraints  
 Dual front impact airbags  
 Dual front side impact airbags  
 Front anti-roll bar  
 Knee airbag  
 Low tire pressure warning  
 Occupant sensing airbag  
 Overhead airbag  
 Rear anti-roll bar  
 Brake assist  
 Electronic Stability Control  
 Back up camera

### Additional

{YMM} {SERIES} In  
 {EXTERIORCOLOR}  
 SUNROOF  
 LOW MILEAGE  
 NAVIGATION  
 Leather Interior  
 BALANCE OF FACTORY WARRANTY  
 LOCAL TRADE  
 NON SMOKER  
 CLEAN CARFAX

### Technical

Four wheel independent suspension  
 Speed-sensing steering  
 Traction control

### Interior

Air Conditioning  
 Automatic temperature control  
 Front dual zone A/C  
 Rear air conditioning  
 Rear window defroster  
 Memory seat  
 Power driver seat  
 Power steering  
 Power windows  
 Remote keyless entry  
 Steering wheel mounted audio  
 controls  
 Cruise Control  
 Auto-dimming Rear-View mirror  
 Driver door bin

### Exterior

Power moonroof  
 Delay-off headlights  
 Front fog lights  
 Fully automatic headlights  
 Bumpers: body-color  
 Heated door mirrors  
 Power door mirrors  
 Roof rack: rails only  
 Spoiler  
 Turn signal indicator mirrors  
 Wheels: 19" 5-Spoke Chromtec Alloy  
 Rear window wiper  
 Variably intermittent wipers

**www.jerryschevy.com**

It is your responsibility to address any and all differences between information on this label and the actual vehicle specifications and/or any warranties offered prior to the sale of this vehicle. Vehicle data on this label is compiled from publicly available sources believed by the Publisher to be reliable. Vehicle data may change without notice. The Publisher assumes no responsibility for errors and/or omissions in this data, the compilation of this data or sticker placement, and makes no representations express or implied to any actual or prospective purchaser of the vehicle as to the condition of the vehicle, vehicle specifications, ownership, vehicle history, equipment/accessories, price or warranties. Actual mileage may vary.

**MASTERCRAFT AUTO BODY OF  
MANASSAS**

9103-A OWENS DRIVE, MANASSAS PARK, VA  
20111  
Phone: (703) 330-5405  
FAX: (703) 330-7958

Workfile ID:  
PartsShare:  
Federal ID:

78WrX4

**Supplement of Record 2 with Summary**

RO Number:

Written By: Stephanie Golmon, 1/25/2023 3:35:14 PM  
Adjuster: McANDREW, DAVID, (540) 326-1100 Business

Insured:  
Type of Loss: Collision  
Point of Impact: 12 Front

Policy #:  
Date of Loss: 12/13/2022 12:55 PM

Claim #:  
Days to Repair: 0

Owner:

Manassas, VA

Cell  
Evening

Inspection Location:

MASTERCRAFT AUTO BODY OF  
MANASSAS  
9103-A OWENS DRIVE  
MANASSAS PARK, VA 20111  
Repair Facility  
(703) 330-5405 Business

Insurance Company:

GOVERNMENT EMPLOYEES INSURANCE  
COMPANY  
01  
VII  
VIRGINIA BEACH

**VEHICLE**

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

VIN: 5TDDKRFHXFS Interior Color: Almond Mileage In: 98,037 Vehicle Out: 3/3/2023  
License: Exterior Color: Blizzard Pearl Mileage Out:  
State: VA Production Date: 2/2015 Condition: Job #:

**TRANSMISSION**

AUTOMATIC TRANSMISSION  
OVERDRIVE

4 WHEEL DRIVE

**DRIVER CONVENIENCE**

KEYLESS ENTRY  
MESSAGE CENTER  
MEMORY PACKAGE  
POWER DRIVER SEAT  
POWER WINDOWS  
POWER LOCKS  
POWER MIRRORS  
HEATED MIRRORS  
POWER TRUNK/LIFTGATE  
CRUISE CONTROL  
INTELLIGENT CRUISE

OVERHEAD CONSOLE

HOME LINK

**INSTRUMENT PANEL**

TRACTION CONTROL  
STABILITY CONTROL  
BLIND SPOT DETECTION  
LANE DEPARTURE WARNING  
ALARM

AIR CONDITIONING

CLIMATE CONTROL

REAR DEFOGGER

HANDS FREE DEVICE

COMMUNICATION SYSTEM

WOOD INTERIOR TRIM

NAVIGATION SYSTEM

**RADIO**

PREMIUM RADIO

SATELLITE RADIO

**ROOF**

ELECTRIC GLASS ROOF

SKYVIEW ROOF

**SAFETY**

DRIVERS SIDE AIR BAG  
PASSENGER AIR BAG  
FRONT SIDE IMPACT AIR BAGS  
HEAD/CURTAIN AIR BAGS

**PAINT**

THREE STAGE PAINT

METALLIC PAINT

**FRONT END**

FOG LAMPS  
CALIFORNIA EMISSIONS

PRIVACY GLASS

**SEATS**

LEATHER SEATS  
POWER PASSENGER SEAT

VENTILATED SEATS

HEATED SEATS

REAR HEATED SEATS

3RD ROW SEAT

CAPTAIN CHAIRS (4)

**REAR CONVENIENCE**

DUAL AIR CONDITIONING

**DECOR**

LUGGAGE/ROOF RACK

**REAR END**

PARKING SENSORS  
BACKUP CAMERA

Get live updates at

## Supplement of Record 2 with Summary

---

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

INTERMITTENT WIPERS  
TILT WHEEL  
TELESCOPIC WHEEL  
HEATED STEERING WHEEL  
STEERING WHEEL TOUCH  
CONTROLS  
CONSOLE/STORAGE

AM RADIO  
FM RADIO  
STEREO  
SEARCH/SEEK  
CD PLAYER  
AUXILIARY AUDIO CONNECTION

POWER STEERING  
POWER BRAKES  
ANTI-LOCK BRAKES (4)  
**GLASS & MIRRORS**  
DUAL MIRRORS  
SIGNAL INTEGRATED MIRRORS

REAR WINDOW WIPER  
REAR SPOILER  
**WHEELS**  
4-WHEEL DISC BRAKES  
CLAD WHEELS

# Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

| Line                                                                                                                                                                                                                                                                                                                                                                                                                        | Oper   | Description                                     | Part Number | Qty | Extended Price \$ | Labor | Paint |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------|-------------|-----|-------------------|-------|-------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                           | #      | COPY OF ESTIMATE GIVEN TO CUSTOMER              |             | 1   |                   |       |       |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                           |        | <b>FRONT BUMPER</b>                             |             |     |                   |       |       |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                           |        | O/H front bumper                                |             |     |                   | 2.2   |       |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                           | ** <>  | Repl A/M Bumper cover                           | 521190E925  | 1   | 198.46            | Incl. | 3.0   |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                           |        | Add for Three Stage                             |             |     |                   |       | 2.1   |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                           |        | Add for fog lamps                               |             |     |                   | 0.4   |       |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                           | **     | Repl A/M License bracket                        | 521140E080  | 1   | 38.00             | 0.2   |       |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                           | ** S01 | Repl A/M RT Lamp bezel w/LED running lamp       | 814810E160  | 1   | 26.93             | Incl. |       |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                           | ** S01 | Repl A/M LT Lamp bezel w/LED running lamp       | 814820E160  | 1   | 27.00             | Incl. |       |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                          | **     | Repl A/M Lower cover                            | 521290E010  | 1   | 161.54            | Incl. |       |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Repl RT Tow brkt cover                          | 521270E925  | 1   | 12.07             | Incl. | 0.2   |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Add for Three Stage                             |             |     |                   |       | 0.1   |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                          | S01    | Blnd LT Tow brkt cover                          |             |     |                   |       | 0.1   |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                          | ** S01 | Repl A/M RT Side retainer                       | 525350E050  | 1   | 19.91             | Incl. |       |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Repl RT Side retainer tape                      | 758950E010  | 1   | 6.58              |       |       |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Repl LT Side retainer tape                      | 758950E010  | 1   | 6.58              |       |       |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                          | **     | Repl A/M LT Hole cover                          | 814820E140  | 1   | 53.85             | Incl. |       |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                          |        | R&I Impact bar (UHS)                            |             |     |                   | 0.4   |       |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                          | ** S01 | Repl A/M CAPA Energy absorber                   | 526110E091  | 1   | 36.00             | Incl. |       |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                          | **     | Repl A/M Center grille                          | 531020E040  | 1   | 138.46            | Incl. |       |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                          | ** S01 | Repl A/M CAPA RT Side support                   | 521450E060  | 1   | 24.00             | Incl. |       |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                          | ** S01 | Repl A/M CAPA LT Side support                   | 521460E060  | 1   | 24.00             | 0.1   |       |
| 23                                                                                                                                                                                                                                                                                                                                                                                                                          |        | <b>GRILLE</b>                                   |             |     |                   |       |       |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                          | **     | Repl A/M Grille assy                            | 531010E170  | 1   | 264.00            | 0.4   |       |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Deduct for Overlap                              |             |     |                   | -0.1  |       |
| 26                                                                                                                                                                                                                                                                                                                                                                                                                          |        | <b>FRONT LAMPS</b>                              |             |     |                   |       |       |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                          | **     | Repl A/M CAPA RT Headlamp assy w/o smoke accent | 811100E180  | 1   | 348.00            | Incl. |       |
| 28                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Aim headlamps                                   |             |     |                   | 0.5   |       |
| 29                                                                                                                                                                                                                                                                                                                                                                                                                          | ** S01 | Repl A/M CAPA LT Headlamp assy w/o smoke accent | 811500E180  | 1   | 282.92            | Incl. |       |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                          | **     | Repl A/M RT Fog lamp assy                       | 8121002160  | 1   | 143.43            | Incl. |       |
| 31                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Aim fog lamps                                   |             |     |                   | 0.4   |       |
| 32                                                                                                                                                                                                                                                                                                                                                                                                                          |        | <b>RADIATOR SUPPORT</b>                         |             |     |                   |       |       |
| Note: LABOR: Time includes R&I shroud as an assembly, washer reservoir, R&I/R&R sight shield, side shields, air inlet, headlamp assemblies, deflectors, front shield, radiator, condenser, battery, lock support, hood latch, support rod, support rod holder, horns, front impact sensors, temp sensor ambient and D&R hood release cable and front wiring as necessary. Time does not include R&R reinforcement brackets. |        |                                                 |             |     |                   |       |       |
| 33                                                                                                                                                                                                                                                                                                                                                                                                                          | S01    | Refinish Components                             |             |     |                   |       | 1.5   |
| 34                                                                                                                                                                                                                                                                                                                                                                                                                          | S01    | Add for Three Stage                             |             |     |                   |       | 0.6   |
| 35                                                                                                                                                                                                                                                                                                                                                                                                                          | ** S01 | Repl A/M CAPA Radiator support w/o              | 532010E904  | 1   | 427.00 s          | 13.0  | Incl. |

# Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

|    |                          |      |                                                                                                           |            |   |        |   |       |       |
|----|--------------------------|------|-----------------------------------------------------------------------------------------------------------|------------|---|--------|---|-------|-------|
|    |                          |      |                                                                                                           | hybrid     |   |        |   |       |       |
| 36 |                          | R&I  | Sight shield                                                                                              |            |   |        |   | Incl. |       |
| 37 | **                       | Repl | A/M Lock support                                                                                          | 532080E070 | 1 | 72.31  |   | Incl. | Incl. |
| 38 | **                       | S01  | Repl A/M RT Deflector w/o Hybrid                                                                          | 532930E091 | 1 | 57.00  |   | Incl. |       |
| 39 | **                       | S01  | Repl A/M Front shield                                                                                     | 514410E091 | 1 | 64.45  |   | Incl. |       |
| 40 |                          | S01  | Repl RT Fender mtg bkt plate                                                                              | 537170E070 | 1 | 27.76  |   | 0.2   | Incl. |
| 41 | COOLING                  |      |                                                                                                           |            |   |        |   |       |       |
| 42 | *                        | Repl | LKQ Radiator assy standard cooling +25%                                                                   | 164000P410 | 1 | 206.25 | m | Incl. |       |
| 43 |                          | Repl | Fan shroud standard cooling                                                                               | 167110P230 | 1 | 144.32 | m | 0.5   |       |
| 44 | **                       | Repl | A/M Trans cooler                                                                                          | 3291048190 | 1 | 226.00 | m | 1.0   | M     |
| 45 |                          | Repl | Duct                                                                                                      | 329170E010 | 1 | 122.20 | m | Incl. |       |
| 46 |                          | S01  | Repl Outlet hose standard cooling                                                                         | 329420E080 | 1 | 43.39  |   |       |       |
| 47 |                          | Repl | Trans cooler mount bracket                                                                                | 3291348030 | 1 | 85.02  |   |       |       |
| 48 |                          | S01  | Repl Inlet hose                                                                                           | 329300E050 | 1 | 43.79  |   |       |       |
| 49 |                          | S01  | Repl Oil cooler tube                                                                                      | 329430E100 | 1 | 40.25  |   |       |       |
| 50 | #                        | S01  | Repl Coolant                                                                                              |            | 2 | 44.00  |   |       |       |
| 51 | #                        | S01  | Repl Trans Fluid                                                                                          |            | 1 | 10.00  |   |       |       |
| 52 | AIR CONDITIONER & HEATER |      |                                                                                                           |            |   |        |   |       |       |
| 53 | **                       | Repl | A/M Condenser assy w/o hybrid                                                                             | 884600E070 | 1 | 156.00 | m | Incl. |       |
| 54 |                          |      | Refrigerant recovery                                                                                      |            |   |        | m | 0.4   | M     |
| 55 |                          |      | Evacuate & recharge                                                                                       |            |   |        | m | 1.4   | M     |
| 56 | #                        | S01  | Repl Freon oil                                                                                            |            | 1 | 3.50   |   |       |       |
| 57 | #                        | S01  | Repl Recharge R134 Freon                                                                                  |            | 1 | 35.00  |   |       |       |
| 58 | RECYCLED ASSEMBLIES      |      |                                                                                                           |            |   |        |   |       |       |
| 59 | *                        | S01  | Repl LKQ RT R&R knee assy one side                                                                        | NONE       | 1 | 687.50 | m | 2.5   | M     |
|    |                          |      | Note: M&M Auto Parts 8005865492 Darrell ext1612                                                           |            |   |        |   |       |       |
|    |                          |      | LABOR: Time for lowering engine cradle is required. See ADD IF REQUIRED operation, R&R lower control arm. |            |   |        |   |       |       |
|    |                          |      | Time not included with R&I suspension.                                                                    |            |   |        |   |       |       |
| 60 | #                        | S01  | Subl Magna Flux                                                                                           |            | 1 | 45.00  | X |       |       |
| 61 | FRONT SUSPENSION         |      |                                                                                                           |            |   |        |   |       |       |
| 62 | **                       | S01  | Repl A/M RT Bearing                                                                                       | 90369A0002 | 1 | 93.75  |   | 1.0   | M     |
| 63 | **                       | S01  | Repl A/M RT Bearing snap ring                                                                             | 9052079002 | 1 | 2.50   |   |       |       |
| 64 | **                       | S01  | Repl A/M RT ABS sensor wire                                                                               | 895420E080 | 1 | 196.25 | m | 0.4   | M     |
| 65 | **                       | S01  | Repl A/M RT Lower ball joint                                                                              | 4333009780 | 1 | 52.50  | m | 0.8   | M     |
| 66 | **                       | S01  | Repl A/M RT Stabilizer link                                                                               | 4882006040 | 1 | 35.00  | m | 0.4   | M     |
| 67 | *                        | S01  | Repl LKQ RT Axle assy 3.5 liter, w/o hybrid AWD +25%                                                      | 434100E221 | 1 | 187.50 | m | 1.4   | M     |
| 68 |                          | S01  | Repl RT Front plate                                                                                       | 510350E050 | 1 | 126.02 | m | 0.2   | M     |
| 69 | *                        | S01  | R&I R&I engine cradle                                                                                     |            |   |        | m | 3.5   | M     |
|    |                          |      | Note: Necessary to lower engine cradle to install lower control arm                                       |            |   |        |   |       |       |
| 70 | FENDER                   |      |                                                                                                           |            |   |        |   |       |       |
| 71 | **                       | Repl | A/M CAPA RT Fender (HSS)                                                                                  | 538010E110 | 1 | 198.46 |   | 2.3   | 2.2   |
| 72 |                          |      | Overlap Major Non-Adj. Panel                                                                              |            |   |        |   |       | -0.2  |
| 73 |                          |      | Add for Three Stage                                                                                       |            |   |        |   |       | 0.8   |
| 74 |                          | S01  | Add for Edging                                                                                            |            |   |        |   |       | 0.5   |

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

|     |    |                   |                                                |            |   |          |       |  |      |
|-----|----|-------------------|------------------------------------------------|------------|---|----------|-------|--|------|
| 75  |    | S01               | Add for Three Stage                            |            |   |          |       |  | 0.2  |
| 76  | ** | Repl              | A/M RT Fender liner 3.5 liter standard cooling | 538050E120 | 1 | 116.92   | Incl. |  |      |
| 77  | ** | Repl              | A/M RT Wheel opng mldg                         | 750850E010 | 1 | 105.00   | Incl. |  |      |
| 78  | *  | R&I               | LT Wheel opng mldg                             |            |   |          | 0.4   |  |      |
| 79  |    | Repl              | RT Mud guard                                   | 766210E010 | 1 | 36.98    | 0.2   |  |      |
| 80  |    | R&I               | LT Mud guard                                   |            |   |          | 0.2   |  |      |
| 81  |    | S01               | Repl RT Fender liner clip                      | 9046707214 | 4 | 6.44     |       |  |      |
| 82  |    | S01               | Repl RT Molding assy painted white             | 756010E903 | 1 | 30.97    | Incl. |  | 0.3  |
| 83  |    | S01               | Add for Three Stage                            |            |   |          |       |  | 0.1  |
| 84  |    | S01               | Repl RT Front panel                            | 537110E040 | 1 | 111.25 s | 4.4   |  | 0.5  |
| 85  |    | S01               | Overlap Minor Panel                            |            |   |          |       |  | -0.2 |
| 86  |    | S01               | Deduct for Overlap                             |            |   |          | -1.2  |  |      |
| 87  |    | <b>ELECTRICAL</b> |                                                |            |   |          |       |  |      |
| 88  |    | S01               | R&I Battery 575 CCA                            |            |   | m        | Incl. |  |      |
| 89  |    | S01               | R&I High note horn                             |            |   |          | Incl. |  |      |
| 90  |    | S01               | R&I Low note horn                              |            |   |          | Incl. |  |      |
| 91  |    | <b>WINDSHIELD</b> |                                                |            |   |          |       |  |      |
| 92  |    | Repl              | Washer reservoir                               | 853150E070 | 1 | 113.23 m | Incl. |  |      |
| 93  |    | S01               | Repl Washer pump                               | 8533042010 | 1 | 72.38    | Incl. |  |      |
| 94  |    | S01               | Repl Level sensor                              | 85397AA040 | 1 | 75.62    | Incl. |  |      |
| 95  |    | S01               | Repl Level sensor seal                         | 85319AA020 | 1 | 6.12     |       |  |      |
| 96  |    | <b>FRONT DOOR</b> |                                                |            |   |          |       |  |      |
| 97  | *  | Rpr               | RT Outer panel (HSS)                           |            |   |          | 2.0   |  | 2.0  |
| 98  |    |                   | Overlap Major Adj. Panel                       |            |   |          |       |  | -0.4 |
| 99  | *  |                   | Add for Three Stage                            |            |   |          |       |  | 0.7  |
| 100 |    | R&I               | RT Belt molding                                |            |   |          | 0.3   |  |      |
| 101 |    | R&I               | RT R&I mirror                                  |            |   |          | 0.3   |  |      |
| 102 |    | R&I               | RT Handle, outside w/o Smart Key white         |            |   |          | 0.3   |  |      |
| 103 |    | R&I               | RT R&I trim panel                              |            |   |          | 0.5   |  |      |
| 104 |    | <b>WHEELS</b>     |                                                |            |   |          |       |  |      |
| 105 | ** | S01               | Repl RECOND RT/Front Wheel, alloy 19" type 1   | 4260D0E010 | 1 | 536.00 m | 0.3   |  |      |
| 106 | ** | S01               | Repl RECOND LT/Front Wheel, alloy 19" type 1   | 4260D0E010 | 1 | 536.00 m | Incl. |  |      |
| 107 | ** | S01               | Repl RECOND LT/Rear Wheel, alloy 19" type 1    | 4260D0E010 | 1 | 536.00 m | 0.3   |  |      |
| 108 |    | <b>TIRES</b>      |                                                |            |   |          |       |  |      |
| 109 | *  | S01               | Repl MICH 245/55R19 Premier LTX BW 103H        | MI11960    | 1 | 297.83   | 0.0   |  |      |
|     |    |                   | Note: LEFT REAR                                |            |   |          |       |  |      |
| 110 | *  | S01               | Repl MICH 245/55R19 Premier LTX BW 103H        | MI11960    | 1 | 297.83   | 0.0   |  |      |
| 111 | #  | S01               | Rpr Tire mount and balance in house            |            |   |          | 0.4   |  |      |
| 112 | #  | S01               | Rpr Tire mount and balance in house            |            |   |          | 0.4   |  |      |
| 113 | #  | S01               | Rpr Tire mount and balance in house            |            |   |          | 0.4   |  |      |

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

|                  |                            |     |      |                                                       |              |                 |        |             |             |
|------------------|----------------------------|-----|------|-------------------------------------------------------|--------------|-----------------|--------|-------------|-------------|
| 114              | #                          | S01 | Rpr  | Dismount damaged tire from damaged wheel for disposal |              |                 |        | 0.3         |             |
| 115              | #                          | S01 | Rpr  | Dismount damaged tire from damaged wheel for disposal |              |                 |        | 0.3         |             |
| 116              | #                          | S01 | Subl | Tire disposal                                         | 1            | 5.00            | X      |             |             |
| 117              | #                          | S01 | Subl | Tire disposal                                         | 1            | 5.00            | X      |             |             |
| 118              | #                          |     | Repl | FLEX ADDITIVE                                         | 1            | 5.00            | T      |             |             |
| 119              | #                          |     | Repl | RESTORE CORROSION PROTECTION                          | 1            | 10.00           |        | 0.2         |             |
| 120              | #                          |     | Repl | CAR COVER                                             | 1            |                 |        |             | 0.2         |
| 121              | #                          |     | Subl | Suspension Alignment                                  | 1            | 89.95           | X      |             |             |
| 122              | #                          |     | Rpr  | SET UP AND MEASURE                                    |              |                 |        | 1.0         |             |
| 123              | #                          |     | Rpr  | PULL AND ALIGN UNIBODY                                |              |                 |        | 2.0         |             |
| 124              | #                          |     | Repl | WASHER FLUID                                          | 1            | 5.00            |        |             |             |
| 125              | #                          | S01 | Repl | Door Edge Guard RT frt door                           | PT9364814010 | 1               | 111.00 |             |             |
| 126              | <b>VEHICLE DIAGNOSTICS</b> |     |      |                                                       |              |                 |        |             |             |
| 127              | *                          | S01 | Rpr  | Pre-repair scan                                       |              |                 | m      | 0.3         | M           |
| 128              | *                          | S01 | Rpr  | Post-repair scan                                      |              |                 | m      | 0.6         | M           |
| 129              | #                          | S01 | Subl | Fuel Surcharge (1072122)                              | 1            | 2.00            | X      |             |             |
|                  |                            |     |      | Note: Charged by vendor                               |              |                 |        |             |             |
| 130              | #                          | S02 | Subl | Fuel Surcharge (1072286)                              | 1            | 2.00            | X      |             |             |
| 131              | #                          | S02 | Subl | to match ins                                          | 1            | 0.12            | X      |             |             |
| 132              |                            |     |      | OTHER CHARGES                                         |              |                 |        |             |             |
| 133              | #                          |     |      | E.P.C.                                                | 1            | 3.00            |        |             |             |
| <b>SUBTOTALS</b> |                            |     |      |                                                       |              | <b>8,361.09</b> |        | <b>47.4</b> | <b>14.3</b> |

### NOTES

Prior Damage Notes:  
CHIPS IN HOOD

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

### ESTIMATE TOTALS

| Category             | Basis       |   |  | Rate         | Cost \$          |
|----------------------|-------------|---|--|--------------|------------------|
| Parts                |             |   |  |              | 8,204.02         |
| Body Labor           | 33.5 hrs    | @ |  | \$ 48.00 /hr | 1,608.00         |
| Paint Labor          | 14.3 hrs    | @ |  | \$ 48.00 /hr | 686.40           |
| Mechanical Labor     | 13.9 hrs    | @ |  | \$ 95.00 /hr | 1,320.50         |
| Paint Supplies       | 14.3 hrs    | @ |  | \$ 36.00 /hr | 514.80           |
| Miscellaneous        |             |   |  |              | 154.07           |
| Other Charges        |             |   |  |              | 3.00             |
| Subtotal             |             |   |  |              | 12,490.79        |
| Sales Tax            | \$ 8,726.82 | @ |  | 6.0000 %     | 523.61           |
| <b>Grand Total</b>   |             |   |  |              | <b>13,014.40</b> |
| Deductible           |             |   |  |              | 100.00           |
| <b>CUSTOMER PAY</b>  |             |   |  |              | <b>100.00</b>    |
| <b>INSURANCE PAY</b> |             |   |  |              | <b>12,914.40</b> |

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

### SUPPLEMENT SUMMARY

| Line               | Oper | Description                       | Part Number | Qty | Extended Price \$ | Labor      | Paint      |
|--------------------|------|-----------------------------------|-------------|-----|-------------------|------------|------------|
| <b>Added Items</b> |      |                                   |             |     |                   |            |            |
| 130                | #    | S02 Subl Fuel Surcharge (1072286) |             | 1   | 2.00 X            |            |            |
| 131                | #    | S02 Subl to match ins             |             | 1   | 0.12 X            |            |            |
| <b>SUBTOTALS</b>   |      |                                   |             |     | <b>2.12</b>       | <b>0.0</b> | <b>0.0</b> |

### TOTALS SUMMARY

| Category                       | Basis | Rate | Cost \$     |
|--------------------------------|-------|------|-------------|
| Parts                          |       |      | 0.00        |
| Miscellaneous                  |       |      | 2.12        |
| Subtotal                       |       |      | 2.12        |
| <b>Total Supplement Amount</b> |       |      | <b>2.12</b> |
| <b>NET COST OF SUPPLEMENT</b>  |       |      | <b>2.12</b> |

### CUMULATIVE EFFECTS OF SUPPLEMENT(S)

|                       |                     |                  |
|-----------------------|---------------------|------------------|
| Estimate              | 7,528.72            | DAVID MCANDREW   |
| Supplement S01        | 5,483.56            | Stephanie Golmon |
| Supplement S02        | 2.12                | Stephanie Golmon |
| <b>Job Total:</b>     | <b>\$ 13,014.40</b> |                  |
| <b>CUSTOMER PAY:</b>  | <b>\$ 100.00</b>    |                  |
| <b>INSURANCE PAY:</b> | <b>\$ 12,914.40</b> |                  |

#### Mastercraft Auto Body Warranty Disclaimer

All paint and body labor performed by Mastercraft Auto Body, Inc. is guaranteed for the life of the vehicle, excluding rust repairs. This warranty is non-transferable. Warranty on parts is at the discretion of the manufacturer. No rental is warranted. Terms are strictly cash unless arrangements are previously made. Storage will be charged at the owner's expense 48 hours after the repairs are completed unless arrangements are made. It is understood that Mastercraft is not responsible for loss or damage to vehicles or articles left in vehicles in case of fire, theft, accident, or any other cause beyond its control.

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

This is not an authorization to repair.

All GEICO customers have the right to have their vehicle repaired in the shop of their choice.

No Supplement will be honored unless authorized by GEICO.

NOTICE: Vehicles constructed of special metals may require the use of specialized welding and bonding equipment. Proper measuring and structural repair systems are required on today's vehicle to accurately accomplish vehicle repairs. Make sure your shop has the proper equipment to repair your vehicle.

ALTERNATE PARTS DISCLAIMER:

IF A QUALITY REPLACEMENT PART (A/M, LKQ, RECOND OR OPT OEM) APPEARS ON THIS ESTIMATE, IT INDICATES THAT THIS ESTIMATE HAS BEEN PREPARED BASED ON THE USE OF ONE OR MORE CRASH PARTS SUPPLIED BY A SOURCE OTHER THAN THE MANUFACTURER OF YOUR MOTOR VEHICLE. GUARANTEES, IF ANY, APPLICABLE TO THESE REPLACEMENT CRASH PARTS ARE PROVIDED BY THE PART MANUFACTURER OR DISTRIBUTOR RATHER THAN BY THE MANUFACTURER OF YOUR VEHICLE.

\*\*\*IN ADDITION TO ANY SUCH GUARANTEES, GEICO PROVIDES THE FOLLOWING:

\*\*\*\*OWNER LIMITED GUARANTEE\*\*\*\* WE GUARANTEE THAT ALL QUALITY REPLACEMENT BODY PARTS (PARTS NOT MANUFACTURED BY THE MANUFACTURER) IDENTIFIED ON YOUR ESTIMATE, ARE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP AND MEET GENERALLY ACCEPTED INDUSTRY STANDARDS. THIS PARTS AND LABOR GUARANTEE WILL BE IN EFFECT FOR AS LONG AS YOU OWN THE VEHICLE DESCRIBED IN THE ESTIMATE. THIS GUARANTEE COVERS THE COST OF THE PART, LABOR TO INSTALL, AND INCIDENTALS SUCH AS PAINT AND MATERIALS AND IS SPECIFICALLY LIMITED TO THOSE ITEMS. THIS GUARANTEE DOES NOT COVER LOSS OR DAMAGE THAT IS UNRELATED TO DEFECTS IN THE QUALITY REPLACEMENT PARTS. THIS IS NOT TRANSFERABLE. IF ANY QUALITY REPLACEMENT PARTS ARE DEFECTIVE IN EITHER MATERIAL OR WORKMANSHIP, CONTACT YOUR LOCAL GEICO REPRESENTATIVE.

IT IS A CRIME TO KNOWINGLY PROVIDE FALSE, INCOMPLETE OR MISLEADING INFORMATION TO AN INSURANCE COMPANY FOR THE PURPOSE OF DEFRAUDING THE COMPANY. PENALTIES INCLUDE IMPRISONMENT, FINES AND DENIAL OF INSURANCE BENEFITS.

THIS ESTIMATE HAS BEEN PREPARED BASED ON THE USE OF AUTOMOBILE PARTS NOT MADE BY THE ORIGINAL MANUFACTURER. PARTS USED IN THE REPAIR OF YOUR VEHICLE BY OTHER THAN THE ORIGINAL MANUFACTURER ARE REQUIRED TO BE AT LEAST EQUAL IN LIKE, KIND AND QUALITY IN TERMS OF FIT, QUALITY AND PERFORMANCE TO THE ORIGINAL MANUFACTURER PARTS THEY ARE REPLACING.

RO Number [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

Estimate based on MOTOR CRASH ESTIMATING GUIDE and potentially other third party sources of data. Unless otherwise noted, (a) all items are derived from the Guide ARM8470, CCC Data Date 01/03/2023, and potentially other third party sources of data; and (b) the parts presented are OEM-parts. OEM parts are manufactured by or for the vehicle's Original Equipment Manufacturer (OEM) according to OEM's specifications for U.S. distribution. OEM parts are available at OE/Vehicle dealerships or the specified supplier. OPT OEM (Optional OEM) or ALT OEM (Alternative OEM) parts are OEM parts that may be provided by or through alternate sources other than the OEM vehicle dealerships with discounted pricing. Asterisk (\*) or Double Asterisk (\*\*) indicates that the parts and/or labor data provided by third party sources of data may have been modified or may have come from an alternate data source. Tilde sign (~) items indicate MOTOR Not-Included Labor operations. The symbol (<>) indicates the refinish operation WILL NOT be performed as a separate procedure from the other panels in the estimate. Non-Original Equipment Manufacturer aftermarket parts are described as Non OEM, A/M or NAGS. Used parts are described as LKQ, RCY, or USED. Reconditioned parts are described as Recond. Recored parts are described as Recore. NAGS Part Numbers and Benchmark Prices are provided by National Auto Glass Specifications. Labor operation times listed on the line with the NAGS information are MOTOR suggested labor operation times. NAGS labor operation times are not included. Pound sign (#) items indicate manual entries.

Some 2023 vehicles contain minor changes from the previous year. For those vehicles, prior to receiving updated data from the vehicle manufacturer, labor and parts data from the previous year may be used. The CCC ONE estimator has a list of applicable vehicles. Parts numbers and prices should be confirmed with the local dealership.

The following is a list of additional abbreviations or symbols that may be used to describe work to be done or parts to be repaired or replaced:

SYMBOLS FOLLOWING PART PRICE:

m=MOTOR Mechanical component. s=MOTOR Structural component. T=Miscellaneous Taxed charge category. X=Miscellaneous Non-Taxed charge category.

SYMBOLS FOLLOWING LABOR:

D=Diagnostic labor category. E=Electrical labor category. F=Frame labor category. G=Glass labor category. M=Mechanical labor category. S=Structural labor category. (numbers) 1 through 4=User Defined Labor Categories.

OTHER SYMBOLS AND ABBREVIATIONS:

Adj.=Adjacent. Algn.=Align. ALU=Aluminum. A/M=Aftermarket part. Blend=Blend. BOR=Boron steel. CAPA=Certified Automotive Parts Association. D&R=Disconnect and Reconnect. HSS=High Strength Steel. HYD=Hydroformed Steel. Incl.=Included. LKQ=Like Kind and Quality. LT=Left. MAG=Magnesium. Non-Adj.=Non Adjacent. NSF=NSF International Certified Part. O/H=Overhaul. Qty=Quantity. Refn=Refinish. Repl=Replace. R&I=Remove and Install. R&R=Remove and Replace. Rpr=Repair. RT=Right. SAS=Sandwiched Steel. Sect=Section. Subl=Sublet. UHS=Ultra High Strength Steel. N=Note(s) associated with the estimate line.

CCC ONE Estimating - A product of CCC Intelligent Services Inc.

The following is a list of abbreviations that may be used in CCC ONE Estimating that are not part of the MOTOR CRASH ESTIMATING GUIDE:

BAR=Bureau of Automotive Repair. EPA=Environmental Protection Agency. NHTSA= National Highway Transportation and Safety Administration. PDR=Paintless Dent Repair. VIN=Vehicle Identification Number.

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

### PARTS SUPPLIER LIST

| Line | Supplier                                                                                             | Description                                                                                          | Price     |
|------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------|
| 4    | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074<br>(240) 456-0146 | #T1872<br>A/M Bumper cover<br><br>Quote: 54352191<br>Expires: 12/14/22                               | \$ 198.46 |
| 7    | Keystone-Insurance-A-Exeter<br>100 SLOCUM AVE<br>EXETER PA 18643<br>(800) 446-7066<br>(570) 457-6464 | #TO1068125<br>A/M License bracket<br><br>Quote: 1529432923<br>Expires: 01/27/23                      | \$ 38.00  |
| 8    | Go-Parts<br>6485 SHILOH RD B #400<br>ALPHARETTA GA 30005<br>(770) 965-6400                           | #TO1039178<br>A/M RT Lamp bezel w/LED running lamp<br>Quote: 333q-45503724-3761<br>Expires: 01/27/23 | \$ 26.93  |
| 9    | KSI Trading Corp.<br>8080 AMF Drive<br>Mechanicsville VA 23111<br>(800) 552-2867                     | #7167354<br>A/M LT Lamp bezel w/LED running lamp<br>Quote: 88845875<br>Expires: 01/27/23             | \$ 27.00  |
| 10   | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074<br>(240) 456-0146 | #T2057<br>A/M Lower cover<br><br>Quote: 54352191<br>Expires: 12/14/22                                | \$ 161.54 |
| 14   | Go-Parts<br>6485 SHILOH RD B #400<br>ALPHARETTA GA 30005<br>(770) 965-6400                           | #TO1033119<br>A/M RT Side retainer<br>Quote: 333q-45502059-2860<br>Expires: 01/27/23                 | \$ 19.91  |
| 17   | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074<br>(240) 456-0146 | #T2937<br>A/M LT Hole cover<br><br>Quote: 54352191<br>Expires: 12/14/22                              | \$ 53.85  |
| 19   | Keystone<br>23750 PEBBLE RUN DRIVE<br>STERLING VA 20166<br>(800) 390-4600                            | #TO1070181DSC<br>A/M CAPA Energy absorber<br>Quote: 1574921729<br>Expires: 03/05/23                  | \$ 36.00  |

## Supplement of Record 2 with Summary

**RO Number:** [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

|    |                                                                                                           |                                                                                                            |           |
|----|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------|
| 20 | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074<br>(240) 456-0146      | #T2283<br>A/M Center grille<br><br>Quote: 54352191<br>Expires: 12/14/22                                    | \$ 138.46 |
| 21 | KSI Trading Corp.<br>8080 AMF Drive<br>Mechanicsville VA 23111<br>(800) 552-2867                          | #7167463Q<br>A/M CAPA RT Side support<br><br>Quote: 88729777<br>Expires: 01/26/23                          | \$ 24.00  |
| 22 | KSI Trading Corp.<br>8080 AMF Drive<br>Mechanicsville VA 23111<br>(800) 552-2867                          | #7167464Q<br>A/M CAPA LT Side support<br><br>Quote: 88729851<br>Expires: 01/26/23                          | \$ 24.00  |
| 24 | Keystone-Insurance-A-Exeter<br>100 SLOCUM AVE<br>EXETER PA 18643<br>(800) 446-7066<br>(570) 457-6464      | #TO1200371<br>A/M Grille assy<br><br>Quote: 1529432923<br>Expires: 01/27/23                                | \$ 264.00 |
| 27 | Keystone-Insurance-A-Exeter<br>100 SLOCUM AVE<br>EXETER PA 18643<br>(800) 446-7066<br>(570) 457-6464      | #TO2503221C<br>A/M CAPA RT Headlamp assy w/o smoke accent<br><br>Quote: 1529432923<br>Expires: 01/27/23    | \$ 348.00 |
| 29 | HeadlightsDepot<br>110 Amor Ave.<br>Carlstadt NJ 07072<br>(855) 544-4875                                  | #312-11F2L-AC1<br>A/M CAPA LT Headlamp assy w/o smoke accent<br><br>Quote: 1424957631<br>Expires: 01/27/23 | \$ 282.92 |
| 30 | 1001 Best Autolite Dis.<br>MA SALES CENTER<br>PEACHTREE CITY GA 30269<br>(866) 567-3500<br>(616) 935-7529 | #TO2593129A<br>A/M RT Fog lamp assy<br><br>Quote: 1393643901<br>Expires: 12/20/22                          | \$ 143.43 |
| 35 | Keystone<br>23750 PEBBLE RUN DRIVE<br>STERLING VA 20166<br>(800) 390-4600                                 | #TO1225326C<br>A/M CAPA Radiator support w/o hybrid<br><br>Quote: 1574992128<br>Expires: 03/05/23          | \$ 427.00 |
| 37 | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074                        | #T2940<br>A/M Lock support<br><br>Quote: 54352191                                                          | \$ 72.31  |

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

(240) 456-0146

Expires: 12/14/22

|    |                                                                                                                      |                                                                                                                            |           |
|----|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------|
| 38 | KSI Trading Corp.<br>8080 AMF Drive<br>Mechanicsville VA 23111<br>(800) 552-2867                                     | #7167713<br>A/M RT Deflector w/o Hybrid<br>Quote: 88730790<br>Expires: 01/26/23                                            | \$ 57.00  |
| 39 | Meyer Distributing<br>560 E. 25th St.<br>Jasper IN 47546<br>(800) 345-9487                                           | #SHE8211A-49S-0<br>A/M Front shield<br>Quote: 1424953109<br>Expires: 01/27/23                                              | \$ 64.45  |
| 42 | M & M Auto Parts, Inc.<br>Sales Number<br>PO Box 147 1489 Jefferson Davi<br>Stafford VA 22555<br>(540) 720-1000      | #LL0508<br>LKQ Radiator assy standard cooling +25%<br>RADIATOR-3.5L - 3.5L, VIN K (5TH DIGIT), (6 CYLINDER,                | \$ 165.00 |
| 44 | Performance Radiator - Harrisburg<br>3400 INDUSTRIAL ROAD<br>HARRISBURG PA 17110<br>(717) 238-1877<br>(717) 238-1015 | #79297<br>A/M Trans cooler<br><br>Quote: 34698869<br>Expires: 12/14/22                                                     | \$ 226.00 |
| 53 | 1-800 Radiator Mid-Atlantic<br>REGIONAL DISTRIBUTION CENTER<br>PHILADELPHIA PA 19116<br>(800) 723-4286               | #300236CY<br>A/M Condenser assy w/o hybrid<br>Quote: 32214384<br>Expires: 12/27/22                                         | \$ 156.00 |
| 67 | M & M AUTO PARTS, INC.<br>SALES NUMBER<br>PO BOX 147 1489 JEFFERSON DAVI<br>STAFFORD VA 22555<br>(540) 720-1000      | #KK1804<br>LKQ RT Axle assy 3.5 liter, w/o hybrid AWD +25%<br>Drive Axle, Rt Ft RT FT DRIVE AXLE-RH,3.5L,AT,AWD,FRONT AXLE | \$ 150.00 |
| 71 | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074<br>(240) 456-0146                 | #T2694<br>A/M CAPA RT Fender (HSS)<br><br>Quote: 54352191<br>Expires: 12/14/22                                             | \$ 198.46 |
| 76 | Empire Auto Parts - MD<br>1791 CROSSROADS DR<br>ODENTON MD 21113<br>(888) 700-8074<br>(240) 456-0146                 | #T3222<br>A/M RT Fender liner 3.5 liter standard cooling<br><br>Quote: 54352191<br>Expires: 12/14/22                       | \$ 116.92 |
| 77 | Keystone-Insurance-A-Exeter                                                                                          | #TO1291105                                                                                                                 | \$ 105.00 |

## Supplement of Record 2 with Summary

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RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

100 SLOCUM AVE

A/M RT Wheel opng mldg

EXETER PA 18643

(800) 446-7066

Quote: 1529432923

(570) 457-6464

Expires: 01/27/23

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

### TIRE PARTS SUPPLIERS

| Line | Description                                     | Supplier       | Price     |
|------|-------------------------------------------------|----------------|-----------|
| 109  | MICH 245/55R19 Premier LTX BW 103H              | MERCHANTS TIRE | \$ 297.83 |
|      | 10292 HARRY J PARRISH BLVD, MANASSAS VA 20110-0 | (703) 257-2074 |           |

## Supplement of Record 2 with Summary

RO Number: [REDACTED]

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

### RECALL INFO

2015 TOYO Highlander Limited Platinum AWD 4D UTV 6-3.5L Gasoline Sequential MPI Blizzard Pearl

|                             |                                |                    |                       |
|-----------------------------|--------------------------------|--------------------|-----------------------|
| VIN: 5TDDKRFHXFS [REDACTED] | Interior Color: Almond         | Mileage In: 98,037 | Vehicle Out: 3/3/2023 |
| License: [REDACTED]         | Exterior Color: Blizzard Pearl | Mileage Out:       |                       |
| State: VA                   | Production Date: 2/2015        | Condition:         | Job #: [REDACTED]     |

The National Highway Transportation and Safety Administration (NHTSA) has issued 2 safety-related recall notice(s) that may apply to the selected vehicle.

**NHTSA ID: 18E107000**

**Issued: Nov 11, 18**

**Number of Vehicles: 00008202**

ELECTRICAL SYSTEM Fujian Wanda Automobile Glass Industry (Wanda) is recalling certain aftermarket Replacement Windshields sold for use in 2014-2018 Toyota Highlander vehicles. The windshields have an attached wire harness that water may leak into, possibly causing damage to the vehicle's Engine Control Module (ECM). The ECM damage may result in the engine stalling, increasing the risk of a crash. Wanda will notify owners, and service centers will replace the windshields, and inspect the ECM for damage, having it replaced, as necessary, free of charge. The recall began January 29, 2019. Owners may contact Wanda customer service at 1-864-281-2760.

**NHTSA ID: 15V144000**

**Issued: Mar 3, 15**

**Number of Vehicles: 00110085**

STEERING:ELECTRIC POWER ASSIST SYSTEM Toyota Motor Engineering & Manufacturing (Toyota) is recalling certain model year 2015 Camry, Camry Hybrid, Highlander, and Highlander Hybrid, and 2014-2015 Rav4 vehicles. A component of the electric power steering (EPS) electronic control unit (ECU) may have been damaged during the manufacturing process. Over time, this damage may result in failure of the electric power steering system. An unexpected loss of power steering increases the risk of a crash. Toyota will notify owners, and dealers will inspect the serial number of the EPS ECU or steering column assembly. If the number is within the affected range, the EPS ECU will be replaced, free of charge. The recall began on May 7, 2015. Owners may contact Toyota customer service at 1-800-331-4331.



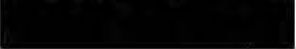
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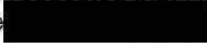
## Vehicle inspection, 2015 Toyota Highlander

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Paul Meade <paulmeade.pm@gmail.com>

Wed, Dec 21, 2022 at 4:14 PM

To:   


I have been trying to contact you by phone to set up an appointment to inspect a 2015 Toyota Highlander for an unintended acceleration concern. Toyota has requested that I inspect the vehicle. I have left a message on the phone number that was provided to Toyota Customer Assistance 

Please contact me so that this inspection can be scheduled.

Thank you,

**Paul Meade**

**Service Associate**

240-315-4921

paulmeade.pm@gmail.com

Engineering Analysis Associates

15000 North Haggerty Rd

Plymouth, MI 48170



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**Vehicle inspection, 2015 Toyota Highlander**

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to: Paul Meade <paulmeade.pm@gmail.com>

Wed, Dec 21, 2022 at 9:15 PM

Hello Mr. Meade,

My apologies but I had left my cell phone as a contact. Here is my cell number . Toyota confirmed that number with me and I received a call from your office yesterday on my cell to confirm the location of the vehicle.

Sorry for the miscommunication.

I will be available all morning tomorrow if that works for you.

Thank you



Sent from my iPhone

On Dec 21, 2022, at 4:14 PM, Paul Meade <paulmeade.pm@gmail.com> wrote:

[Quoted text hidden]



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**Vehicle inspection, 2015 Toyota Highlander**

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to: Paul Meade <paulmeade.pm@gmail.com>

Thu, Dec 22, 2022 at 8:45 AM

Good morning Mr. Meade,  
I returned your call this morning but could not leave a message as your mailbox was full.  
I can be reached at [REDACTED]  
Thank you,  
[REDACTED]

**Vehicle inspection, 2015 Toyota Highlander**

to: Paul Meade <paulmeade.pm@gmail.com>

Tue, Dec 27, 2022 at 8:38 AM

Good morning Mr. Meade,  
I am attaching 2 photos of my vehicle. I have contacted the Geico adjuster to provide you with any other details.  
Let me know what else you may need.  
Thank you

On Wed, Dec 21, 2022 at 9:15 PM [redacted] wrote:  
[Quoted text hidden]

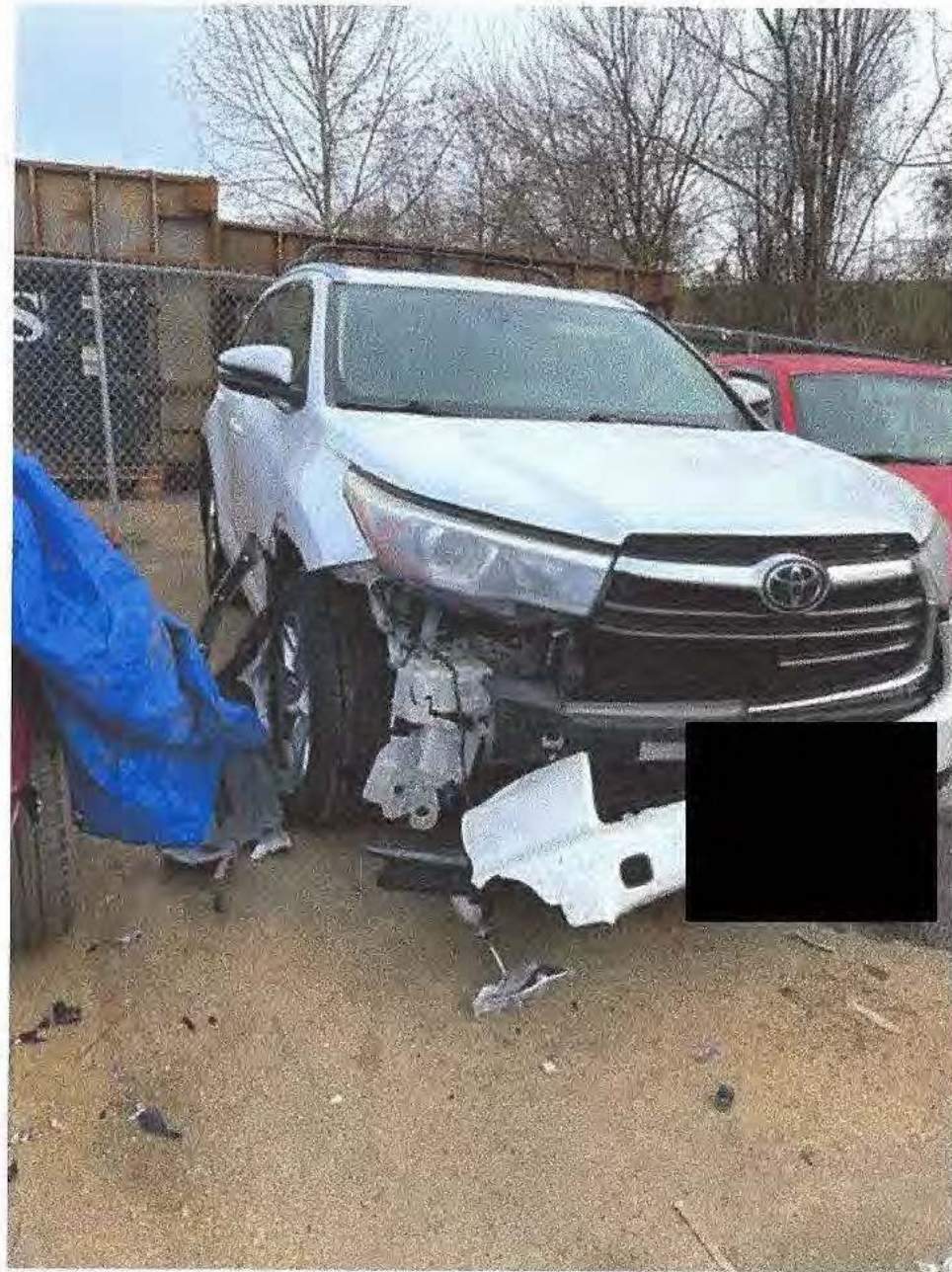
**2 attachments**

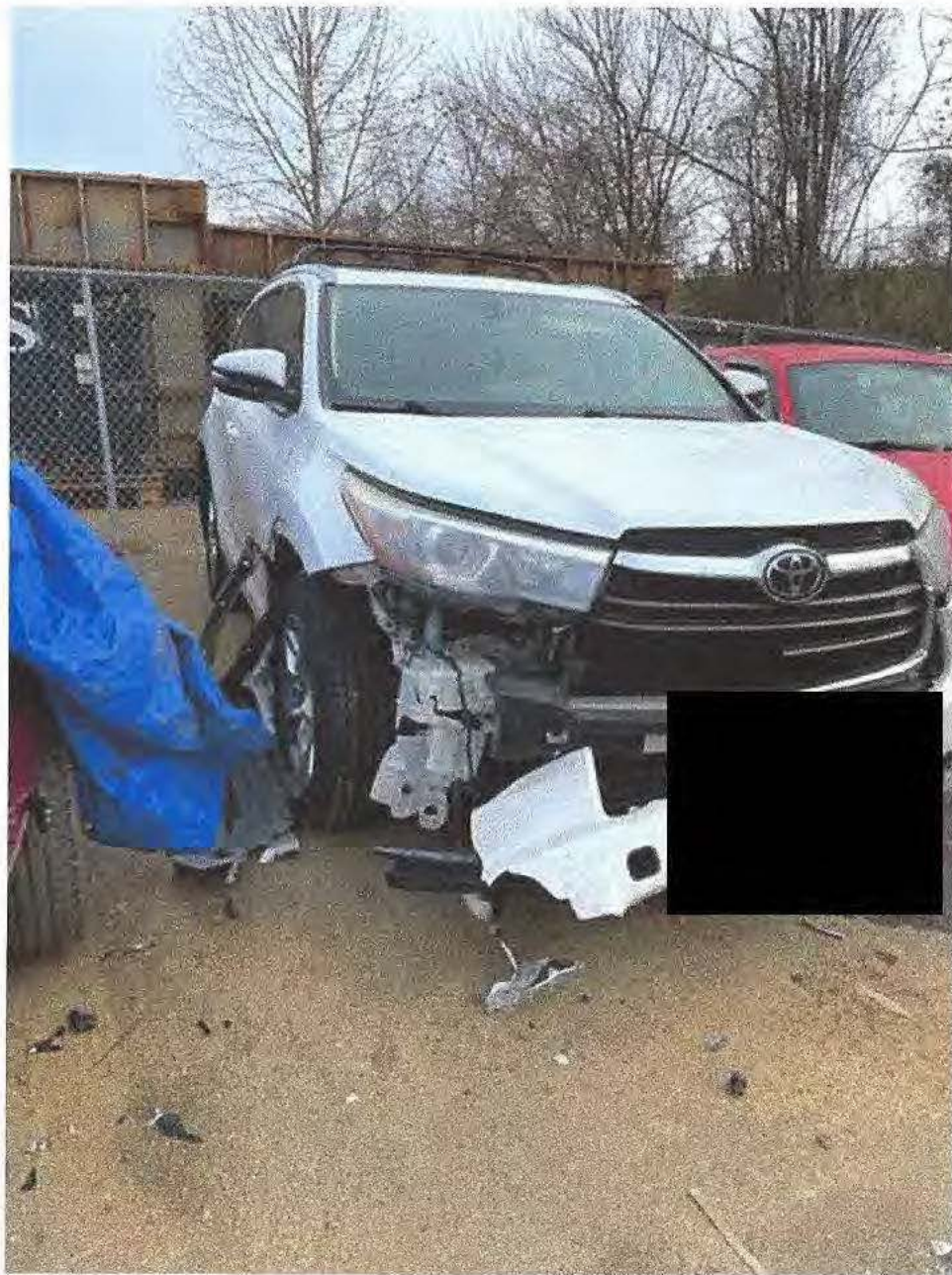


**2015 Toyota Higlander . Forman.jpg**  
175K



**2015 Toyota Highlander 2. Forman.jpg**  
173K







**Log of accident for** [Redacted]

[Redacted]  
To: Paul Meade <paulmeade.pm@gmail.com>

Tue, Jan 10, 2023 at 12:53 PM

Here are my notes of the accident.  
Thank you for your time Mr. Meade.



- On December 13, 2022, at approximately 11:50 AM left LA Fitness in the Davis Ford Crossing Center on Liberia Ave. in Manassas, Va.
- Exited the shopping plaza between the United Bank and McDonald's Restaurant. No oncoming traffic, clear to exit right onto Liberia heading towards 294 East.
- Proceeded at low acceleration. Speed limit on Liberia is 35.
- Upcoming traffic light at the intersection of 294 East, Wellington Road and Prince William Parkway was green.
- Proceeded to that light, car went into an unintended acceleration.
- Immediately applied the brakes but they were unresponsive. Continued to hold foot on the brakes.
- Heard the RPMS racing.
- Did not continue straight on Liberia as there were cars ahead of me that had just began their acceleration thru the light. Needed to avoid hitting any of those vehicles.
- Do not know how fast the car was going but it felt extremely fast.
- With only seconds to decide what to do I headed for the curb, hoping that the vehicle would stop.
- The curb that I saw was the triangle cement divider next to the turning lane onto Wellington and hoped that if I hit that it would stop the car.
- I hit that curb, it went over that cement barrier and into vehicles that were stopped at a red light on Wellington Road.
- My car stopped and I immediately put my car in park.
- A gentleman approached my car to see if I was ok and told me to turn off the car.
- Two vehicles in front of me were hit head on. It was my understanding that two others had been affected by the accident so a total of 5 cars to include mine were involved.
- No air bags deployed in my car.
- Approximately 800 feet from exit point in shopping center to where I hit the curb.
- Checked for any obstructions around my car's floor mats or around the gas and brake pedal and there were none.
- Shaken and in disbelief because I could not determine why this happened.
- Attempted to call 911 but saw and heard others doing the same.
- Police arrived within minutes.
- Geico insurance was notified immediately so that I could give my insurance information and report the accident.

I CERTIFY THAT the statements on this form are true and correct to the best of my knowledge and belief." I created this log of the event after the accident so that it was fresh in my mind.

[REDACTED]

December 13, 2022

## Log of accident for [REDACTED]

Paul Meade <paulmeade.pm@gmail.com>

Tue, Jan 10, 2023 at 4:36 PM

To: [REDACTED]  
[REDACTED]

Attached are the Event Data Recorder (EDR) files from the data recovery of the SRS module of your vehicle. One file will be completely unreadable without the engineering software (suffix CDRx). The other file is a PDF file that you can read and has information relating to the data recovered. There is also a PDF file of common questions and answers relating to EDR data.

Toyota will contact you directly regarding your vehicle inspection results. If you have any further questions, please contact Toyota at (800) 331-4331. The case number assigned to this issue is [REDACTED]

You can expect a response from Toyota within about 4 weeks.

I have also included the Vehicle Control History files copied from the vehicle. These files most likely can not be viewed without the Toyota/Lexus Specific software.

Thank you,

**Paul Meade**

**Service Associate**

240-315-4921

paulmeade.pm@gmail.com

Engineering Analysis Associates

15000 North Haggerty Rd

Plymouth, MI 48170

[Quoted text hidden]

### 5 attachments

-  5TDDKRFHXFS [REDACTED] ACM.CDRx  
29K
-  5TDDKRFHXFS [REDACTED] ACM.PDF  
156K
-  VehicleControlHistory\_2015\_Highlander\_2GR-FE\_5TDDKRFHXFS [REDACTED] 1-10-2023 110449 AM.CSV  
380K
-  VehicleControlHistory\_2015\_Highlander\_2GR-FE\_5TDDKRFHXFS [REDACTED] 1-10-2023 110449 AM.TSE  
1333K
-  EDR FAQ Toyota-Lexus-Scion.pdf  
85K

## Event Data Recorder – Reference Document

An Event Data Recorder (EDR) is a part of the Supplemental Restraint System (SRS) control unit that records data for certain types of collision events. The EDR will record data (an 'event') when the vehicle experiences a rapid change in speed or acceleration that exceeds a specified threshold. This threshold to start recording is above changes in speeds or acceleration that are considered normal driving use. For example, hard braking would not cause a recording, but hitting a curb may cause a recording. Please note that an airbag deployment is not needed to record an event. EDRs were installed on Toyota/Lexus/Scion ('Toyota') vehicles because they can assist in vehicle development, quality control and safety research. In addition to providing factual information about vehicle performance, EDRs can also help to understand the circumstances surrounding a crash.

Toyota began installing EDRs into certain vehicle models beginning in 2000. Today all Toyota models sold in the U.S. are equipped with an EDR. (Passenger vehicles sold by all other major manufacturers also are equipped with EDRs as well.) The installation and advancement of Toyota's EDRs has been evolutionary over the years, with variations in its performance and design depending on the particular model. Initially, Toyota's EDR only captured front impact information, and it has since expanded to include rollover events and side impact events. The first few pages of the EDR report provide additional explanation relating to the capabilities and definitions of the EDR. Generally speaking, the various types of information that the EDR may include are:

- Type and number of events recorded by the EDR
- Directionality and magnitude of the events recorded
- Airbag deployment information
- Airbag diagnostic information
- Front seat belt condition (buckled or unbuckled)
- 'Pre-crash' data (explained further below)

Prior to 2010, only certain vehicles were equipped with 'pre-crash' data, but by 2010, all model's EDRs had pre-crash data. Pre-crash data is data that has been retained for approximately 5 seconds prior to the event. This can help understand the event in more detail, by providing information that led up to the event.

## EDR - Frequently Asked Questions

**Are EDRs required in cars?** Although not required, there are federal regulations specifying that those which are in vehicles meet certain requirements. The purpose of the regulation is to help ensure that EDRs record, in a readily usable manner, data valuable for effective crash investigations and for analysis of safety equipment performance. These data will help provide a better understanding of the circumstances in which crashes and injuries occur and will lead to safer vehicle designs.

**Is the EDR a 'black box'?** No, the automobile EDR is not a black box like on an airplane. It does not record sounds or conversations and does not have the capacity like an airplane black box. The EDR is simply part of the Supplemental Restraint System (SRS) control unit that can only record certain vehicle sensor data for a short period of time before or during a collision.

**Why were EDRs installed in Toyota/Lexus/Scion vehicles?** EDRs serve several purposes, including assisting in vehicle development, quality control, and safety research. Airbag deployment occurs very rapidly and EDRs provide factual data relating to airbag deployment. Although other methods may be used to determine airbag deployment circumstances, an EDR is a more direct method to understand airbag deployment circumstances.

**Do all EDRs record the same information?** No. Due to different vehicle designs and changes in equipment, the information recorded varies by model and model year.

**How accurate is the EDR data?** Studies have shown that Toyota EDRs are reliable and accurate.

**What has Toyota done to validate its EDRs?** Toyota has been analyzing data from vehicles since EDRs were first introduced to help ensure the reliability of the EDR technology.

**How does the EDR record information?** During vehicle operation, the EDR continuously records certain vehicle sensor data. If an event is triggered, the data is then saved by the EDR.

**How is an event stored in the EDR?** The EDR is able to record multiple events. When the event records are full, the EDR can continue to record over prior events, retaining only data from the most recent events. However, if an airbag deploys, the EDR data is locked (frozen) and cannot be erased or overwritten.

**Why is a signed consent form requested by Toyota before Toyota will read out the data?** Toyota's practice is to obtain written consent prior to reading out the EDR. Certain states have privacy regulations that require consent before reading out the EDR data.

**How is EDR data retrieved and does the retrieval process affect/change the data contained in the EDR?** Depending on the vehicle's condition, typically the data can be imaged in one of two ways. The EDR tool is either connected through the vehicle's diagnostic port, or the EDR tool is connected directly to the SRS control unit. Neither method alters or erases EDR data during the process. In some rare circumstances, such as severe damage or fire to the vehicle, the EDR data may not be able to be imaged.

**What is the difference between vehicle speed and delta V?** Vehicle speed is obtained from the vehicle's wheel speed sensors. Delta V refers to the change in vehicle speed that is calculated from accelerometer data over a period of time, and is usually shown as longitudinal, lateral or total delta V.

**Why can't the EDR tool operator interpret the EDR data for the customer?** Crashes can be very complex events. The EDR report is just one piece of information; without knowing other information, the EDR data could be misinterpreted within the context of the overall crash.

**Can the EDR tell me the date and time of collision?** No, the EDR does not have a time stamp function.