

**From:** [Wells, Cynthia CTR \(NHTSA\)](#)  
**To:** [Nelson, Carla CTR \(NHTSA\)](#)  
**Subject:** FW: NHTSA: Follow up to ODI Complaint: 10495051  
**Date:** Thursday, February 14, 2013 10:46:54 AM  
**Attachments:** [EVOQ EMAIL RESPONSE.doc](#)  
[10495051.pdf](#)  
[Toyota Highlander Crashing into House.mp4](#)  
[Toyota Highlander FDR-REPORT from GEICO for \[REDACTED\].pdf](#)  
[FDR Report for \[REDACTED\] Toyota Highlander done by Toyota.pdf](#)

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**From:** Williams, Maritza CTR (NHTSA) **On Behalf Of** DataQuality, DataQuality (NHTSA)  
**Sent:** Thursday, February 14, 2013 10:12 AM  
**To:** Wells, Cynthia CTR (NHTSA)  
**Subject:** FW: NHTSA: Follow up to ODI Complaint: 10495051

Hi Cynthia,

Here's a questionnaire.

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**From:** [REDACTED]  
**Sent:** Thursday, February 14, 2013 2:18 AM  
**To:** DataQuality, DataQuality (NHTSA)  
**Cc:** [REDACTED]  
**Subject:** FW: NHTSA: Follow up to ODI Complaint: 10495051

Attached are our complaint, a video showing the failure of the electronic throttle control, and 2 Event Data Recorder reports. Lucky nobody was killed.

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**From:** [EVOQ@dot.gov](mailto:EVOQ@dot.gov) [<mailto:EVOQ@dot.gov>]  
**Sent:** Thursday, February 07, 2013 6:20 AM  
**To:** [REDACTED]  
**Subject:** FW: NHTSA: Follow up to ODI Complaint: 10495051

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	5TDYK3EH0CS [REDACTED]
User	Aaron Bingle
Case Number	939565
EDR Data Imaging Date	11/30/2012
Crash Date	11/16/2012
Filename	5TDYK3EH0CS [REDACTED]_ACM TOYOTA HIGHLANDER GEICK [REDACTED].CDRX
Saved on	Friday, November 30 2012 at 12:06:10
Collected with CDR version	Crash Data Retrieval Tool 8.1.1
Reported with CDR version	Crash Data Retrieval Tool 8.1.1
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear (2), Side (2), Rollover (1)

## Comments

2012 toyota highlander geico [REDACTED]

## 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 the airbags did not deploy or the pretensioners did not operate during an event that meets a specified recording threshold, it is called a Non-Deployment Event. Data from a Non-Deployment Event can be overwritten by a succeeding event that meets the specified recording threshold. If the airbag(s) deploy or the pretensioners are operated, it is called a Deployment Event. Deployment Event data cannot be overwritten or deleted by the airbag ECU following that event.
- 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 TechStream, 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 six categories. The specifications for EDR are designed to be compatible with NHTSA's 49CFR Part 563 rule.
  - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR
- 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 postcrash data, and depending on the airbag ECU, may record precrash 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". Precrash data for the first event and postcrash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store precrash data. Additionally, to store postcrash 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 PreCrash TRG
  - Linked Pre-Crash Page
  - Time from Pre-Crash TRG
  - TRG Count
  - Previous Crash Type
- 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).
- Time series data for side crash may have 24 or 25 sampling points.
- 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.

#### 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.
- "Time to Deployment Command" indicates the time between recording trigger establishment and the determination of airbag deployment. This value may differ from the actual time it takes for the airbag to fully deploy.
- Even if an airbag/pretensioner did not deploy due to the "front passenger airbag disable switch and/or "RSCA Disable Switch" in the ON position or other disabling criteria are met, the "Time to deployment command" data element for that airbag/pretensioner may still be recorded.
- "Engine RPM" indicates the number of engine revolutions, not the number of motor revolutions. The recorded value has an upper limit of 5,200 rpm. Resolution is 400 rpm and the value is rounded down and recorded. For example, if the actual engine speed is 799 rpm, the recorded value will be 400 rpm.
- The upper limit for the recorded "Vehicle Speed" value is 22 km/h (75.8mph). Resolution is 2km/h (1.2mph) 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 Rate" 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)).
- The "Drive" setting for the "Shift Position" value indicates the shift position state is other than "R,"(Reverse), "N" (Neutral), or "P" (Park).
- Depending on the type of occupant sensor installed in the vehicle, one of the following four recording formats for "Occupancy Status Passenger" will be utilized.
  - Occupied / Not Occupied
  - Adult / Child / Not Occupied
  - AM50 / AF05 / Child / Not Occupied
  - AM50 / AF05 / Child or Not Occupied
- Resolution of the "Air Bag Warning Lamp ON Time Since DTC was Set" is 15 minutes, and the value is rounded down and recorded.
- "Longitudinal DeltaV" indicates the change in forward speed after establishment of the recording trigger. 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 recording trigger. If frontal crash, "Longitudinal DeltaV" is negative.
- "Roll Angle peak" may not always match the peak value within the "Roll Angle" sampling points due to differences in data calculation method.
- For "Lateral DeltaV , B-Pillar Sensor" and "Lateral DeltaV , C-Pillar Sensor", the polarity depends on the direction of impact, and the direction from the outside to the inside of the vehicle is shown as a positive value.
- For "Lateral DeltaV, Airbag ECU Sensor", while sitting in the driver's seat the direction from left to right from the viewpoint of the driver facing the forward direction is shown as a positive value.
- For "Lateral DeltaV", the sensor location (B-pillar, front door, C-pillar, and slide door) shows the outline of a typical sensor position. Sensory location can be confirmed using the repair manual.
- For "Lateral Acceleration", the direction from right to left from the viewpoint of the driver facing in the forward direction of the vehicle while sitting in the driver's seat is shown as a positive value.
- "Time from Previous PreCrash TRG" indicates the time between the establishment of an event's pre-crash recording trigger to the establishment of a more recent event's precrash 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 of 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" precrash data with "paged" postcrash data. When old pre-crash data is overwritten by new precrash data, the "Linked PreCrash Page" value may record a page number that is not actually linked.
- Resolution of the "Time from PreCrash to TRG" is 100 [ms], and the value is rounded down and recorded.

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### System Status at Time of Retrieval

ECU Part Number	89170-0E060
ECU Generation	06EDR
Recording Status, All Pages	Complete
Freeze Signal	OFF
Freeze Signal Factor	None
Diagnostic Trouble Codes Exist	No
Time from Previous Pre Crash TRG (msec)	6445
Latest Pre-Crash Page	0
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	6	Side Crash	0	Complete (Page 0)	Complete (Side Page 1)
1st Prior Event	5	Rollover	-55	Complete (Page 0)	Complete (Rollover Page 0)
2nd Prior Event	4	Front/Rear Crash	-89	Complete (Page 0)	Complete (Front/Rear Page 0)
3rd Prior Event	3	Side Crash	-97	Complete (Page 0)	Complete (Side Page 0)
4th Prior Event	2	Front/Rear Crash	-6542	Complete (Page 1)	Complete (Front/Rear Page 1)

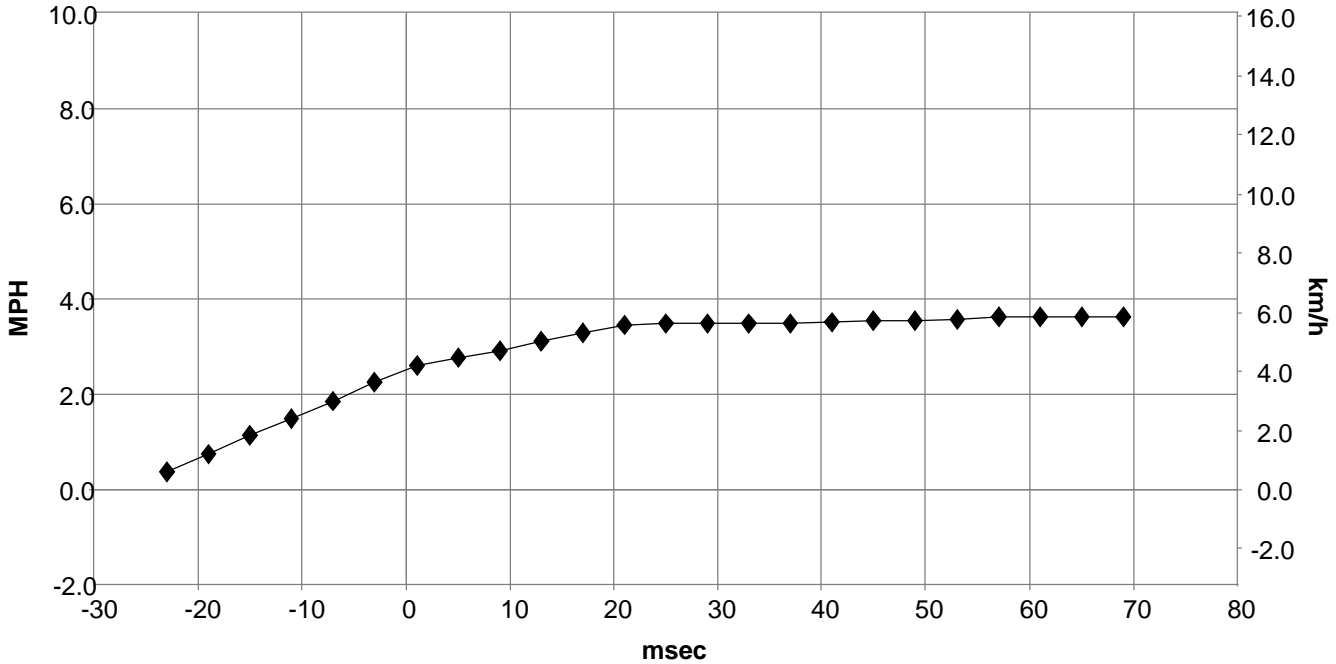
**System Status at Event (Most Recent Event, TRG 6)**

Recording Status, Side Crash Info.	Complete
Crash Type	Side Crash
TRG Count (times)	6
Recorded Side	Driver's Side
Previous Crash Type	Rollover
Time from Pre-Crash TRG (msec)	97
Linked Pre-Crash Page	0
Time to Deployment Command, B-Pillar Sensor (msec)	Not Commanded
Time to Deployment Command, C-Pillar Sensor (msec)	Not Commanded

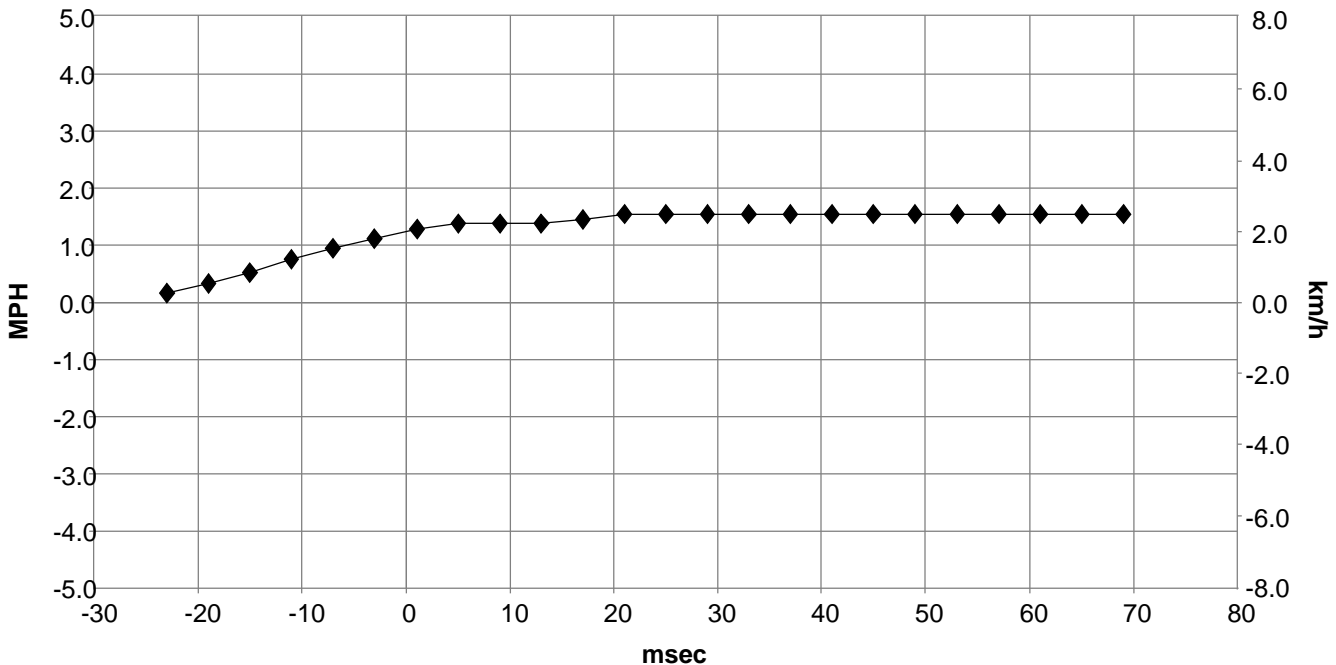
**Lateral Crash Pulse (Most Recent Event, TRG 6 - table 1 of 2)**

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	1
Max. Lateral Delta-V, Front Door Sensor (mph)	1.0 [1.6]
Max Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	1.5 [2.5]
Max Lateral Delta-V, C-Pillar Sensor (MPH [km/h])	0.3 [0.6]

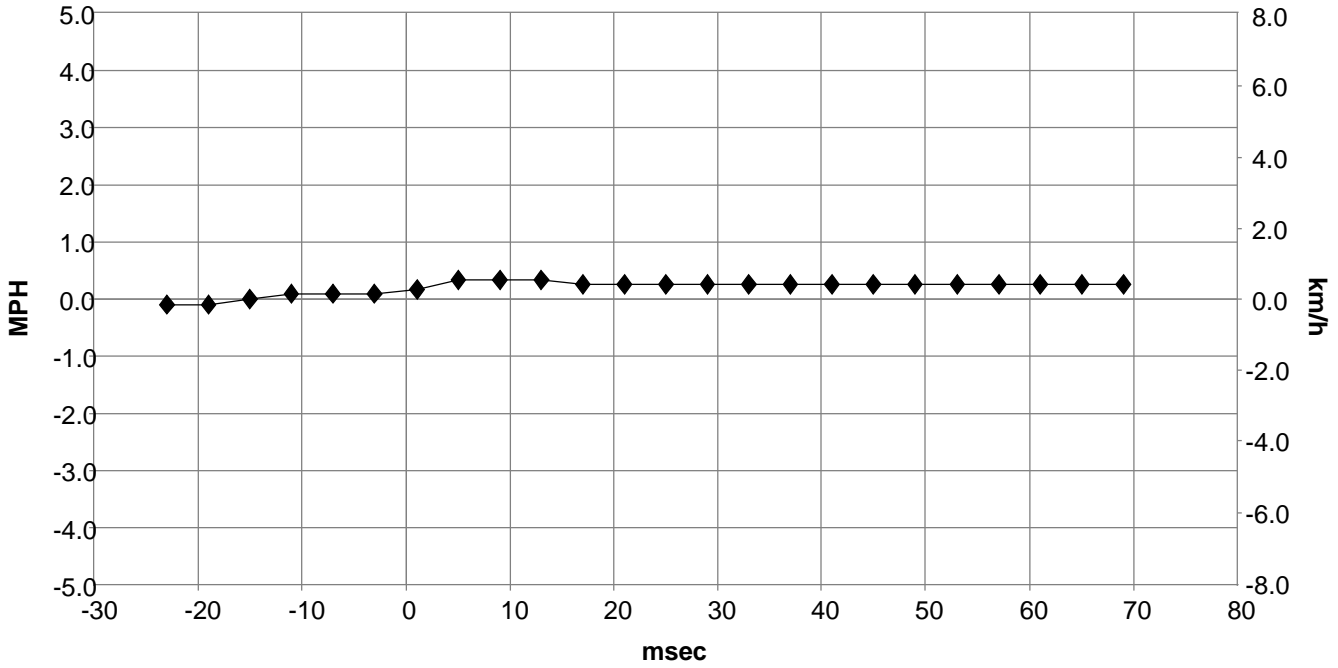
**Lateral Delta-V, Airbag ECU Sensor**



**Lateral Delta-V, B-Pillar Sensor**



### Lateral Delta-V, C-Pillar Sensor



### Lateral Crash Pulse (Most Recent Event, TRG 6 - table 2 of 2)

Time (msec)	Lateral Delta-V, Airbag ECU Sensor (MPH [km/h])	Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	Lateral Delta-V, C-Pillar Sensor (MPH [km/h])
-23	0.4 [0.6]	0.2 [0.3]	-0.1 [-0.1]
-19	0.7 [1.2]	0.3 [0.6]	-0.1 [-0.1]
-15	1.1 [1.8]	0.5 [0.8]	0.0 [0.0]
-11	1.5 [2.4]	0.8 [1.2]	0.1 [0.1]
-7	1.9 [3.0]	0.9 [1.5]	0.1 [0.1]
-3	2.3 [3.6]	1.1 [1.8]	0.1 [0.1]
1	2.6 [4.2]	1.3 [2.1]	0.2 [0.3]
5	2.8 [4.5]	1.4 [2.2]	0.3 [0.6]
9	2.9 [4.7]	1.4 [2.2]	0.3 [0.6]
13	3.1 [5.0]	1.4 [2.2]	0.3 [0.6]
17	3.3 [5.3]	1.5 [2.3]	0.3 [0.4]
21	3.4 [5.5]	1.5 [2.5]	0.3 [0.4]
25	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
29	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
33	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
37	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
41	3.5 [5.7]	1.5 [2.5]	0.3 [0.4]
45	3.5 [5.7]	1.5 [2.5]	0.3 [0.4]
49	3.5 [5.7]	1.5 [2.5]	0.3 [0.4]
53	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
57	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
61	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
65	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
69	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]

### DTCs Present at Time of Event (Most Recent Event, TRG 6)

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 6)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

### Pre-Crash Data, -5 to 0 seconds (Most Recent Event, TRG 6)

Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

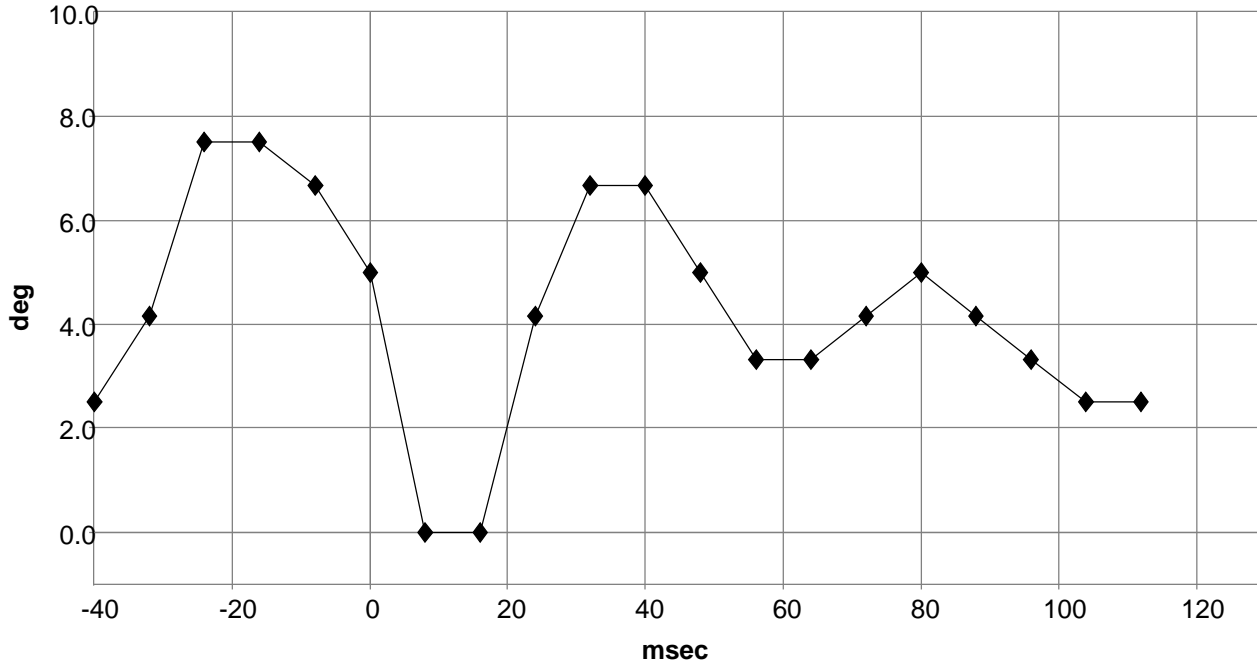
**System Status at Event (1st Prior Event, TRG 5)**

Recording Status, Rollover Crash Info.	Complete
Crash Type	Rollover
TRG Count (times)	5
Previous Crash Type	Frontal/Rear
Time from Pre-Crash TRG (msec)	42
Linked Pre-Crash Page	0
Time to Deployment Command, Rollover Airbag (msec)	Not Commanded

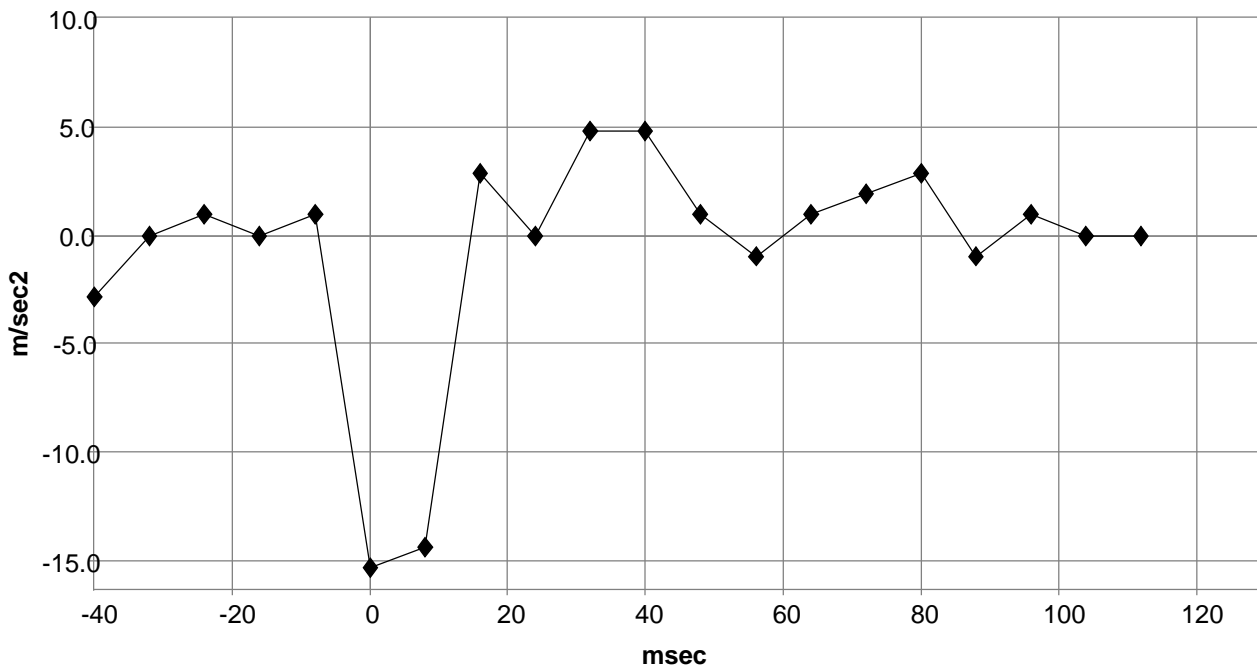
**Rollover Crash Pulse (1st Prior Event, TRG 5 - table 1 of 2)**

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	Invalid
Roll Angle Peak (degrees)	7.5

**Roll Angle**



**Lateral Acceleration, Airbag ECU Sensor**



**Rollover Crash Pulse (1st Prior Event, TRG 5 - table 2 of 2)**

<b>Time (msec)</b>	<b>Roll Angle (degrees)</b>	<b>Lateral Acceleration, Airbag ECU Sensor (m/sec^2)</b>
-40	2.5	-2.9
-32	4.2	0.0
-24	7.5	1.0
-16	7.5	0.0
-8	6.7	1.0
0	5.0	-15.3
8	0.0	-14.4
16	0.0	2.9
24	4.2	0.0
32	6.7	4.8
40	6.7	4.8
48	5.0	1.0
56	3.3	-1.0
64	3.3	1.0
72	4.2	1.9
80	5.0	2.9
88	4.2	-1.0
96	3.3	1.0
104	2.5	0.0
112	2.5	0.0

### DTCs Present at Time of Event (1st Prior Event, TRG 5)

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 5)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

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

Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

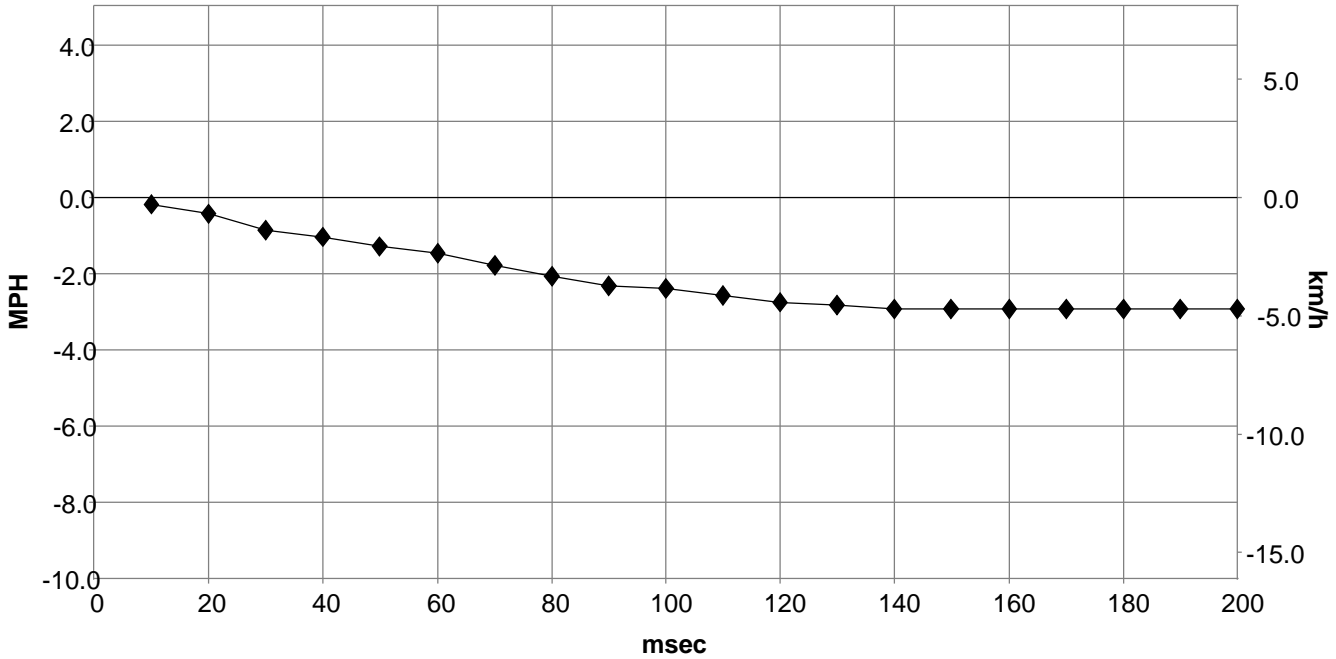
**System Status at Event (2nd Prior Event, TRG 4)**

Recording Status, Front/Rear Crash Info.	Complete
Crash Type	Front/Rear Crash
TRG Count (times)	4
Previous Crash Type	Side
Time from Pre-Crash TRG (msec)	8
Linked Pre-Crash Page	0
Time to Deployment Command, Front Airbag, Driver (msec)	Not Commanded
Time to Deployment Command, Front Airbag, Passenger (msec)	Not Commanded
Event Severity Status, Driver	N/A
Event Severity Status, Passenger	N/A
Time to Deployment Command, Pretensioner (msec)	Not Commanded

### Longitudinal Crash Pulse (2nd Prior Event, TRG 4 - table 1 of 2)

Recording Status, Time Series Data	Complete
Max Longitudinal Delta-V (MPH [km/h])	-2.9 [-4.7]

Longitudinal Delta-V



**Longitudinal Crash Pulse (2nd Prior Event, TRG 4 - table 2 of 2)**

<b>Time (msec)</b>	<b>Longitudinal Delta-V (MPH [km/h])</b>
10	-0.2 [-0.3]
20	-0.4 [-0.7]
30	-0.9 [-1.4]
40	-1.0 [-1.7]
50	-1.3 [-2.1]
60	-1.5 [-2.3]
70	-1.8 [-2.9]
80	-2.1 [-3.3]
90	-2.3 [-3.7]
100	-2.4 [-3.9]
110	-2.6 [-4.1]
120	-2.7 [-4.4]
130	-2.8 [-4.6]
140	-2.9 [-4.7]
150	-2.9 [-4.7]
160	-2.9 [-4.7]
170	-2.9 [-4.7]
180	-2.9 [-4.7]
190	-2.9 [-4.7]
200	-2.9 [-4.7]

### DTCs Present at Time of Event (2nd Prior 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 (2nd Prior Event, TRG 4)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

### Pre-Crash Data, -5 to 0 seconds (2nd Prior Event, TRG 4)

Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

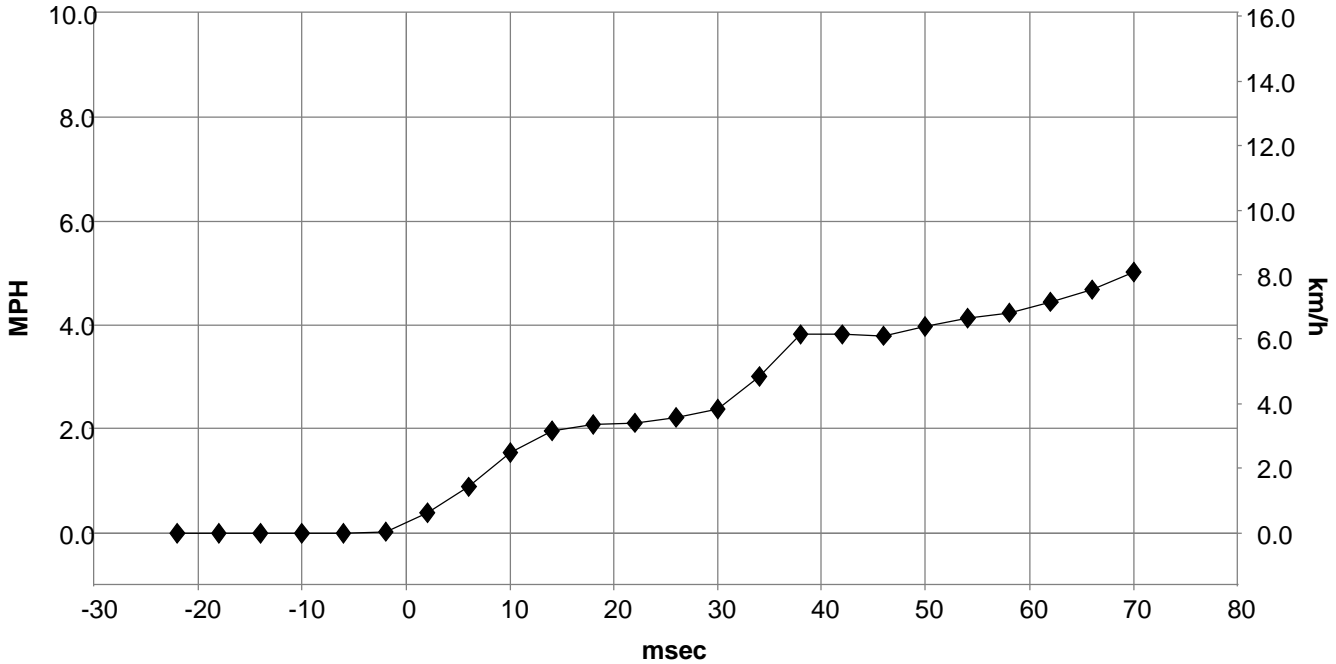
**System Status at Event (3rd Prior Event, TRG 3)**

Recording Status, Side Crash Info.	Complete
Crash Type	Side Crash
TRG Count (times)	3
Recorded Side	Driver's Side
Previous Crash Type	Frontal/Rear
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	0
Time to Deployment Command, B-Pillar Sensor (msec)	Not Commanded
Time to Deployment Command, C-Pillar Sensor (msec)	Not Commanded

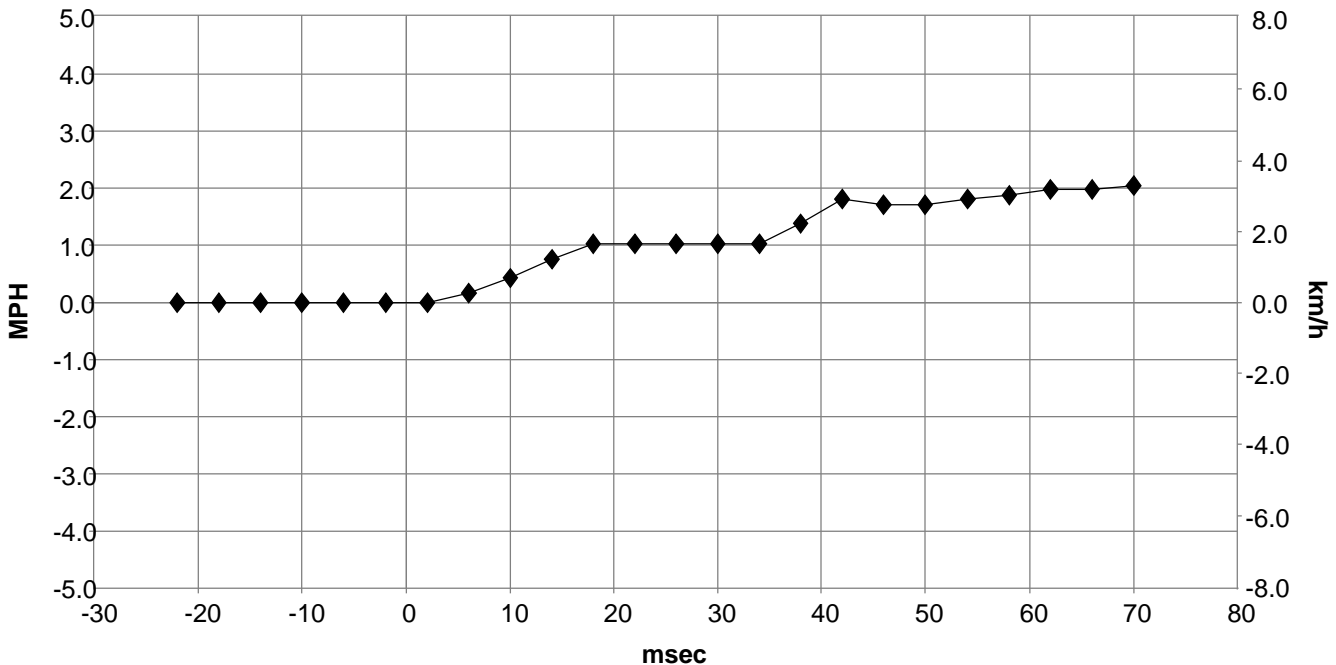
**Lateral Crash Pulse (3rd Prior Event, TRG 3 - table 1 of 2)**

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	2
Max. Lateral Delta-V, Front Door Sensor (mph)	4.0 [6.4]
Max Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	2.1 [3.3]
Max Lateral Delta-V, C-Pillar Sensor (MPH [km/h])	0.5 [0.8]

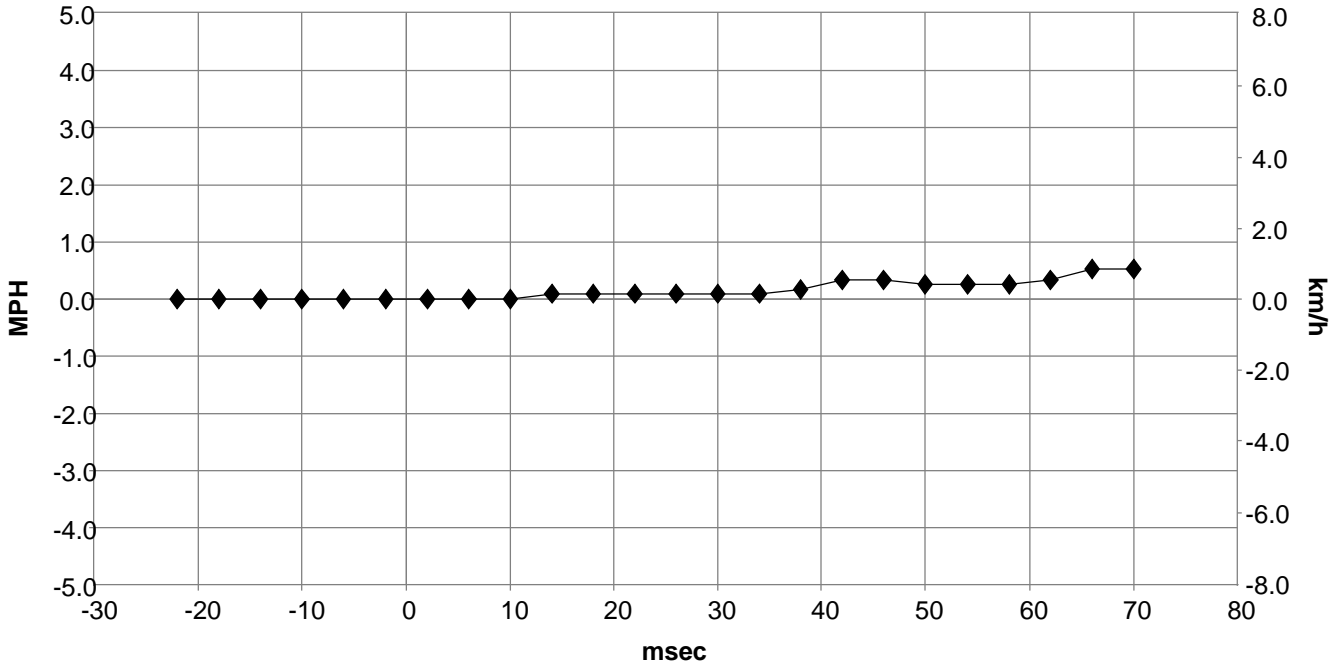
**Lateral Delta-V, Airbag ECU Sensor**



**Lateral Delta-V, B-Pillar Sensor**



**Lateral Delta-V, C-Pillar Sensor**



### Lateral Crash Pulse (3rd Prior Event, TRG 3 - table 2 of 2)

Time (msec)	Lateral Delta-V, Airbag ECU Sensor (MPH [km/h])	Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	Lateral Delta-V, C-Pillar Sensor (MPH [km/h])
-22	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-18	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-14	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-10	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-6	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-2	0.0 [0.1]	0.0 [0.0]	0.0 [0.0]
2	0.4 [0.6]	0.0 [0.0]	0.0 [0.0]
6	0.9 [1.4]	0.2 [0.3]	0.0 [0.0]
10	1.5 [2.5]	0.4 [0.7]	0.0 [0.0]
14	2.0 [3.1]	0.8 [1.2]	0.1 [0.1]
18	2.1 [3.4]	1.0 [1.7]	0.1 [0.1]
22	2.1 [3.4]	1.0 [1.7]	0.1 [0.1]
26	2.2 [3.6]	1.0 [1.7]	0.1 [0.1]
30	2.4 [3.8]	1.0 [1.7]	0.1 [0.1]
34	3.0 [4.8]	1.0 [1.7]	0.1 [0.1]
38	3.8 [6.2]	1.4 [2.2]	0.2 [0.3]
42	3.8 [6.2]	1.8 [2.9]	0.3 [0.6]
46	3.8 [6.1]	1.7 [2.8]	0.3 [0.6]
50	4.0 [6.4]	1.7 [2.8]	0.3 [0.4]
54	4.1 [6.6]	1.8 [2.9]	0.3 [0.4]
58	4.3 [6.8]	1.9 [3.0]	0.3 [0.4]
62	4.4 [7.1]	2.0 [3.2]	0.3 [0.6]
66	4.7 [7.5]	2.0 [3.2]	0.5 [0.8]
70	5.0 [8.1]	2.1 [3.3]	0.5 [0.8]

### DTCs Present at Time of Event (3rd 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 (3rd Prior Event, TRG 3)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

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

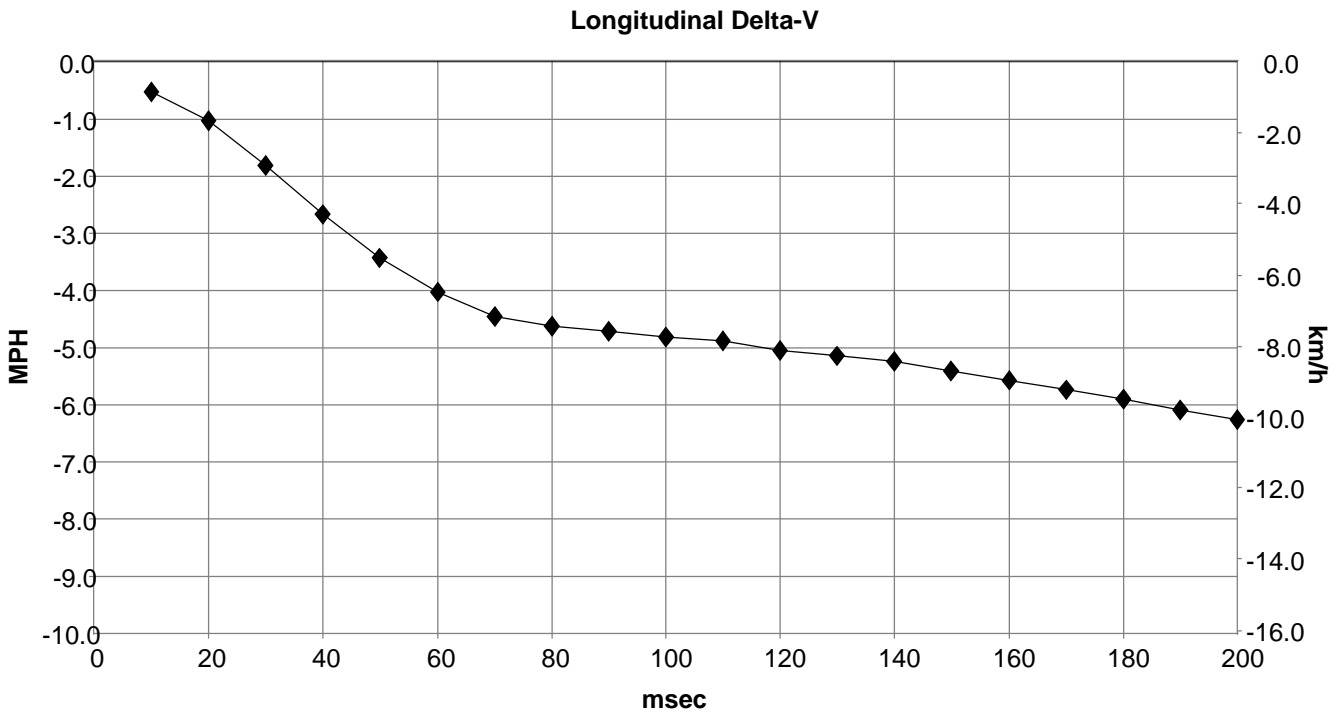
Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

**System Status at Event (4th Prior Event, TRG 2)**

Recording Status, Front/Rear Crash Info.	Complete
Crash Type	Front/Rear Crash
TRG Count (times)	2
Previous Crash Type	Frontal/Rear
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	1
Time to Deployment Command, Front Airbag, Driver (msec)	Not Commanded
Time to Deployment Command, Front Airbag, Passenger (msec)	Not Commanded
Event Severity Status, Driver	N/A
Event Severity Status, Passenger	N/A
Time to Deployment Command, Pretensioner (msec)	Not Commanded

### Longitudinal Crash Pulse (4th Prior Event, TRG 2 - table 1 of 2)

Recording Status, Time Series Data	Complete
Max Longitudinal Delta-V (MPH [km/h])	-6.3 [-10.1]



**Longitudinal Crash Pulse (4th Prior Event, TRG 2 - table 2 of 2)**

<b>Time (msec)</b>	<b>Longitudinal Delta-V (MPH [km/h])</b>
10	-0.5 [-0.8]
20	-1.0 [-1.7]
30	-1.8 [-2.9]
40	-2.7 [-4.3]
50	-3.4 [-5.5]
60	-4.0 [-6.5]
70	-4.5 [-7.2]
80	-4.6 [-7.4]
90	-4.7 [-7.6]
100	-4.8 [-7.7]
110	-4.9 [-7.9]
120	-5.1 [-8.1]
130	-5.1 [-8.3]
140	-5.2 [-8.4]
150	-5.4 [-8.7]
160	-5.6 [-9.0]
170	-5.7 [-9.2]
180	-5.9 [-9.5]
190	-6.1 [-9.8]
200	-6.3 [-10.1]

### DTCs Present at Time of Event (4th Prior Event, TRG 2)

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 (4th Prior Event, TRG 2)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	600
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Buckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	Drive

### Pre-Crash Data, -5 to 0 seconds (4th Prior Event, TRG 2)

Time (sec)	-4.6	-3.6	-2.6	-1.6	-0.6	0 (TRG)
Vehicle Speed (MPH [km/h])	12.4 [20]	13.7 [22]	9.9 [16]	5 [8]	14.9 [24]	14.9 [24]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	3.71	3.09	2.81	0.86	3.75	3.75
Engine RPM (RPM)	2,400	1,600	2,000	3,600	2,000	3,200

## 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 60 00 01
	01	00
	03	30 45 30 36 30 30 30 30 45 35 30 30 30 45 35 30 30 30 45 35 30 30 30 45 35 30 30 30 45 38 30 30 30 45 38 30 30 30 45 42 30 30 30 45 42
	04	02 02 01 01
	05	01
	06	00
	0A	01
	0B	00
	20	80 00 00 01
	21	00 51
	40	00 00 00 01
	60	00 00 00 01
	80	00 00 00 01
	A0	00 00 00 01
	C0	00 00 00 01
	E0	C0 10 00 00
	E1	00 00
	E2	00 5B 19 11 00
	EC	00

EEPROM	Address	Data (-- = data not imaged from ECU) (* = no response from ECU)
	0	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	10	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	20	-- -- -- -- -- -- -- -- -- -- -- -- -- -- 00 00
	30	00 00 00 00 19 2D 00 00 00 00 00 00 00 00 -- --
	40	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	50	-- -- 10 21 02 48 60 66 48 60 B7 60 60 56 38 60
	60	10 60 1C 41 00 00 00 55 00 00 00 00 00 00 00
	70	00 00 00 00 00 00 00 00 00 55 11 21 01 30 60 85
	80	30 60 95 10 16 46 20 48 2C 4F 28 5F 06 00 00 55
	90	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	A0	00 55 -- -- 02 03 05 02 03 02 04 03 03 01 02 02
	B0	01 01 00 00 00 00 00 00 00 5C 00 55 00 04 10 08
	C0	FE FE 00 55 06 06 09 0A 09 07 05 02 01 01 01 02
	D0	01 01 02 02 02 02 02 02 00 DB 00 55 00 02 04 00
	E0	FE FE 00 55 -- -- 00 00 00 00 00 00 00 02 03 04
	F0	03 00 00 00 00 04 05 FF 00 01 01 01 00 01 00 00
	100	00 00 00 00 00 00 00 01 00 00 00 00 00 01 02 00
	110	FF 00 00 01 02 00 00 00 00 00 00 00 FE EB E3 DA E8
	120	F8 FE FB F6 DC D0 00 02 F5 F7 F9 F5 F2 EC 00 BB
	130	00 00 20 55 00 03 00 00 FE FE 00 55 02 02 02 03
	140	02 02 02 01 00 00 01 01 00 00 00 00 00 00 00
	150	00 00 00 00 FF 00 01 01 00 00 01 02 00 00 FF 00
	160	00 00 00 00 00 00 00 00 00 00 00 00 00 EA EB E9 EC
	170	EA E8 ED F5 F8 F5 F5 F7 FD 00 01 00 FE FF FF FE
	180	FE FF 00 00 00 2C 00 00 10 55 00 06 20 61 FE FE
	190	00 55 03 05 09 09 08 06 00 00 05 08 08 06 04 04
	1A0	05 06 05 04 03 03 FD 00 01 00 01 F0 F1 03 00 05
	1B0	05 01 FF 01 02 03 FF 01 00 00 01 20 20 55 FF FE
	1C0	00 2A 00 05 01 55 00 00 00 00 00 00 00 00 00
	1D0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	1E0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	1F0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

## 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.





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

1200 New Jersey Avenue SE  
Washington, DC 20590

Dear Consumer:

NVS-216rr

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 failures(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 drivers' 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



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	5TDYK3EH0CS [REDACTED]
User	Henry Dominguez
Case Number	[REDACTED]-CS067776
EDR Data Imaging Date	12/07/2012
Crash Date	11/16/2012
Filename	5TDYK3EH0CS [REDACTED].ACM.CDRX
Saved on	Friday, December 7 2012 at 10:40:09
Collected with CDR version	Crash Data Retrieval Tool 8.0
Reported with CDR version	Crash Data Retrieval Tool 8.0
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear (2), Side (2), Rollover (1)

## 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 the airbags did not deploy or the pretensioners did not operate during an event that meets a specified recording threshold, it is called a Non-Deployment Event. Data from a Non-Deployment Event can be overwritten by a succeeding event that meets the specified recording threshold. If the airbag(s) deploy or the pretensioners are operated, it is called a Deployment Event. Deployment Event data cannot be overwritten or deleted by the airbag ECU following that event.
- 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 TechStream, 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 six categories. The specifications for 12EDR are designed to be compatible with NHTSA's 49CFR Part 563 rule.
  - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR
- 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 post-crash data, and depending on the airbag ECU, may record pre-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
- 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).
- Time series data for side crash may have 24 or 25 sampling points.
- 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.

#### 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.
- "Time to Deployment Command" indicates the time between recording trigger establishment and the determination of airbag deployment. This value may differ from the actual time it takes for the airbag to fully deploy.
- Even if an airbag/pretensioner did not deploy due to the "front passenger airbag disable switch and/or "RSCA Disable Switch" in the ON position or other disabling criteria are met, the "Time to deployment command" data element for that airbag/pretensioner may still be recorded.
- "Engine RPM" indicates the number of engine revolutions, not the number of motor revolutions. The recorded value has an upper limit of 5,200 rpm. Resolution is 400 rpm and the value is rounded down and recorded. For example, if the actual engine speed is 799 rpm, the recorded value will be 400 rpm.
- The upper limit for the recorded "Vehicle Speed" value is 122 km/h (75.8mph). Resolution is 2km/h (1.2mph) 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 Rate" 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)).
- The "Drive" setting for the "Shift Position" value indicates the shift position state is other than "R,"(Reverse), "N" (Neutral), or "P" (Park).
- Depending on the type of occupant sensor installed in the vehicle, one of the following four recording formats for "Occupancy Status , Passenger" will be utilized.
  - Occupied / Not Occupied
  - Adult / Child / Not Occupied
  - AM50 / AF05 / Child / Not Occupied
  - AM50 / AF05 / Child or Not Occupied
- Resolution of the "Air Bag Warning Lamp ON Time Since DTC was Set" is 15 minutes, and the value is rounded down and recorded.
- "Longitudinal Delta-V" indicates the change in forward speed after establishment of the recording trigger. 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 recording trigger. If frontal crash, "Longitudinal Delta-V" is negative.
- "Roll Angle peak" may not always match the peak value within the "Roll Angle" sampling points due to differences in data calculation method.
- For "Lateral Delta-V , B-Pillar Sensor" and "Lateral Delta-V , C-Pillar Sensor", the polarity depends on the direction of impact, and the direction from the outside to the inside of the vehicle is shown as a positive value.
- For "Lateral Delta-V, Airbag ECU Sensor", while sitting in the driver's seat the direction from left to right from the viewpoint of the driver facing in the forward direction is shown as a positive value.
- For "Lateral Delta-V", the sensor location (B-pillar, front door, C-pillar, and slide door) shows the outline of a typical sensor position. Sensory location can be confirmed using the repair manual.
- For "Lateral Acceleration", the direction from right to left from the viewpoint of the driver facing in the forward direction of the vehicle while sitting in the driver's seat is shown as a positive value.
- "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 100 [ms], and the value is rounded down and recorded.

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### System Status at Time of Retrieval

ECU Part Number	89170-0E060
ECU Generation	06EDR
Recording Status, All Pages	Complete
Freeze Signal	OFF
Freeze Signal Factor	None
Diagnostic Trouble Codes Exist	No
Time from Previous Pre Crash TRG (msec)	6445
Latest Pre-Crash Page	0
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	6	Side Crash	0	Complete (Page 0)	Complete (Side Page 1)
1st Prior Event	5	Rollover	-55	Complete (Page 0)	Complete (Rollover Page 0)
2nd Prior Event	4	Front/Rear Crash	-89	Complete (Page 0)	Complete (Front/Rear Page 0)
3rd Prior Event	3	Side Crash	-97	Complete (Page 0)	Complete (Side Page 0)
4th Prior Event	2	Front/Rear Crash	-6542	Complete (Page 1)	Complete (Front/Rear Page 1)

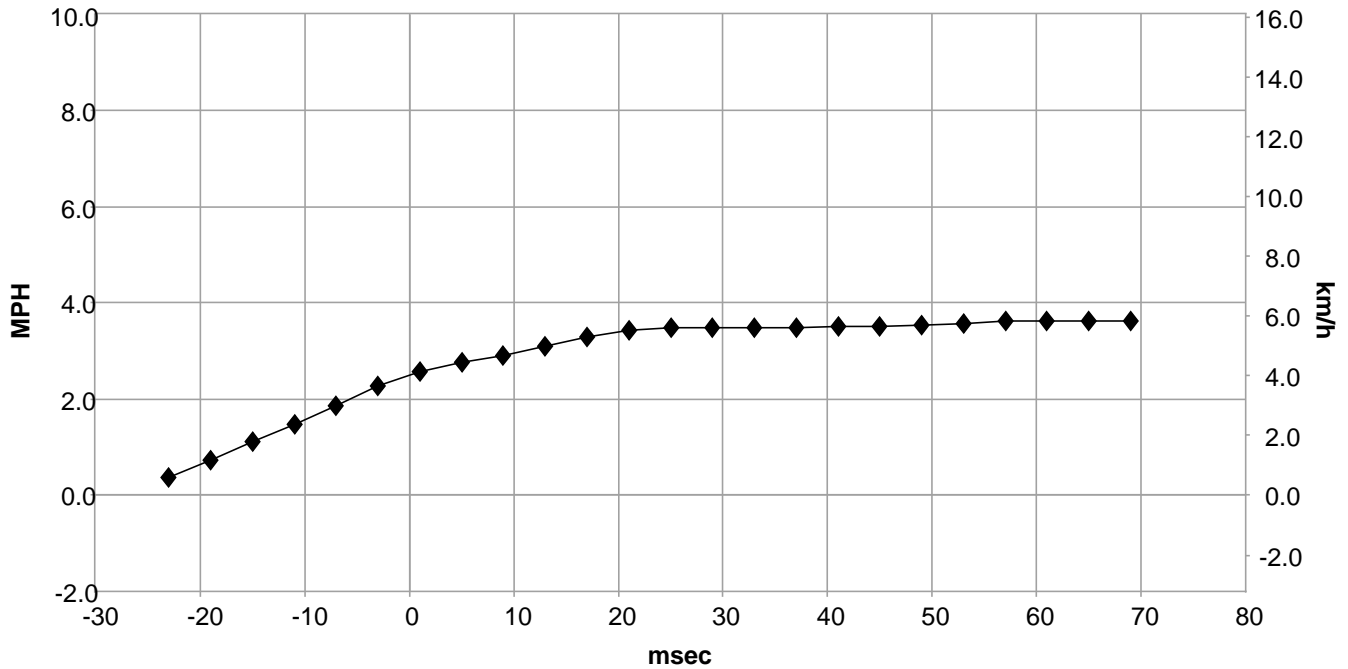
**System Status at Event (Most Recent Event, TRG 6)**

Recording Status, Side Crash Info.	Complete
Crash Type	Side Crash
TRG Count (times)	6
Recorded Side	Driver's Side
Previous Crash Type	Rollover
Time from Pre-Crash TRG (msec)	97
Linked Pre-Crash Page	0
Time to Deployment Command, B-Pillar Sensor (msec)	Not Commanded
Time to Deployment Command, C-Pillar Sensor (msec)	Not Commanded

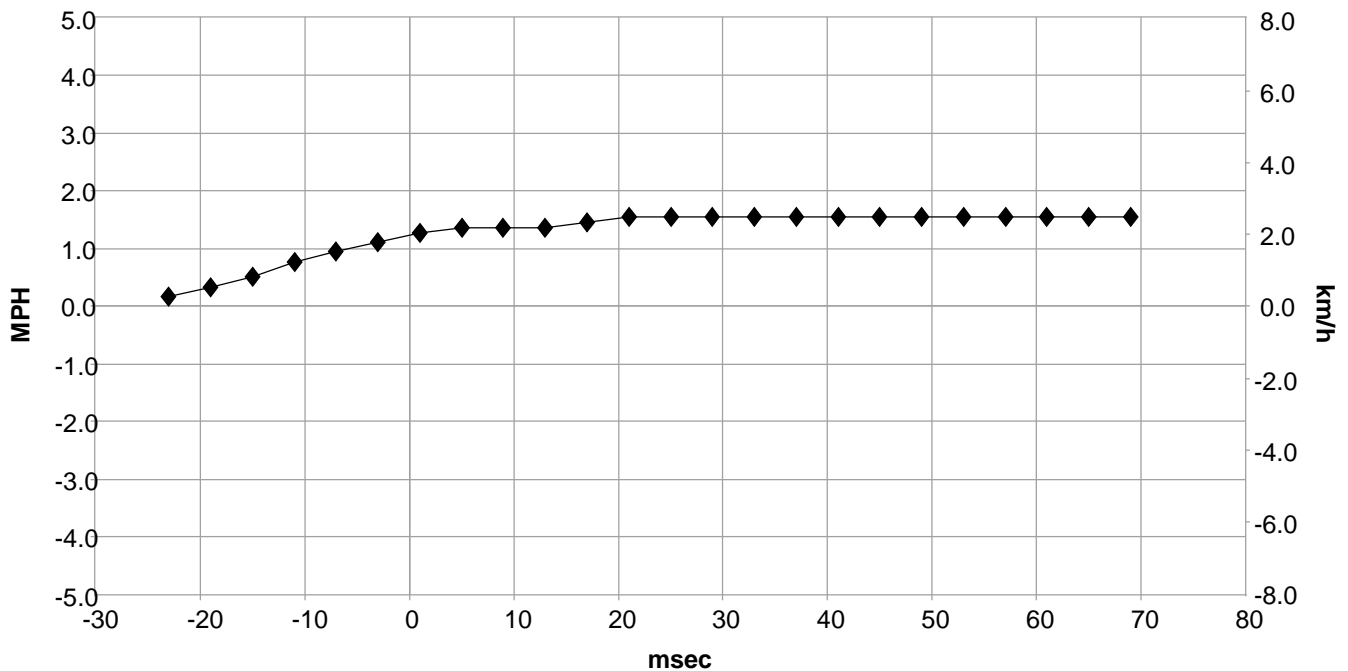
**Lateral Crash Pulse (Most Recent Event, TRG 6 - table 1 of 2)**

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	1
Max. Lateral Delta-V, Front Door Sensor (mph)	1.0 [1.6]
Max Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	1.5 [2.5]
Max Lateral Delta-V, C-Pillar Sensor (MPH [km/h])	0.3 [0.6]

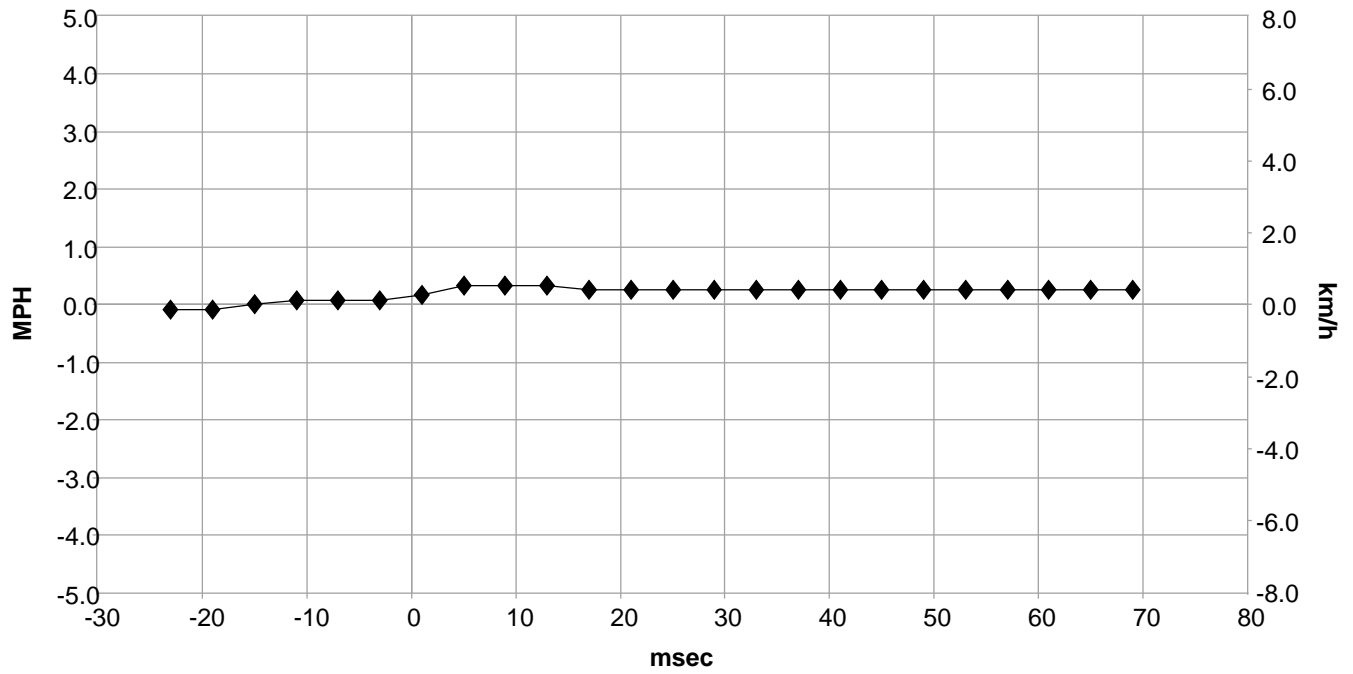
**Lateral Delta-V, Airbag ECU Sensor**



**Lateral Delta-V, B-Pillar Sensor**



Lateral Delta-V, C-Pillar Sensor



**Lateral Crash Pulse (Most Recent Event, TRG 6 - table 2 of 2)**

Time (msec)	Lateral Delta-V, Airbag ECU Sensor (MPH [km/h])	Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	Lateral Delta-V, C-Pillar Sensor (MPH [km/h])
-23	0.4 [0.6]	0.2 [0.3]	-0.1 [-0.1]
-19	0.7 [1.2]	0.3 [0.6]	-0.1 [-0.1]
-15	1.1 [1.8]	0.5 [0.8]	0.0 [0.0]
-11	1.5 [2.4]	0.8 [1.2]	0.1 [0.1]
-7	1.9 [3.0]	0.9 [1.5]	0.1 [0.1]
-3	2.3 [3.6]	1.1 [1.8]	0.1 [0.1]
1	2.6 [4.2]	1.3 [2.1]	0.2 [0.3]
5	2.8 [4.5]	1.4 [2.2]	0.3 [0.6]
9	2.9 [4.7]	1.4 [2.2]	0.3 [0.6]
13	3.1 [5.0]	1.4 [2.2]	0.3 [0.6]
17	3.3 [5.3]	1.5 [2.3]	0.3 [0.4]
21	3.4 [5.5]	1.5 [2.5]	0.3 [0.4]
25	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
29	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
33	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
37	3.5 [5.6]	1.5 [2.5]	0.3 [0.4]
41	3.5 [5.7]	1.5 [2.5]	0.3 [0.4]
45	3.5 [5.7]	1.5 [2.5]	0.3 [0.4]
49	3.5 [5.7]	1.5 [2.5]	0.3 [0.4]
53	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
57	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
61	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
65	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]
69	3.6 [5.8]	1.5 [2.5]	0.3 [0.4]

### DTCs Present at Time of Event (Most Recent Event, TRG 6)

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 6)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

### Pre-Crash Data, -5 to 0 seconds (Most Recent Event, TRG 6)

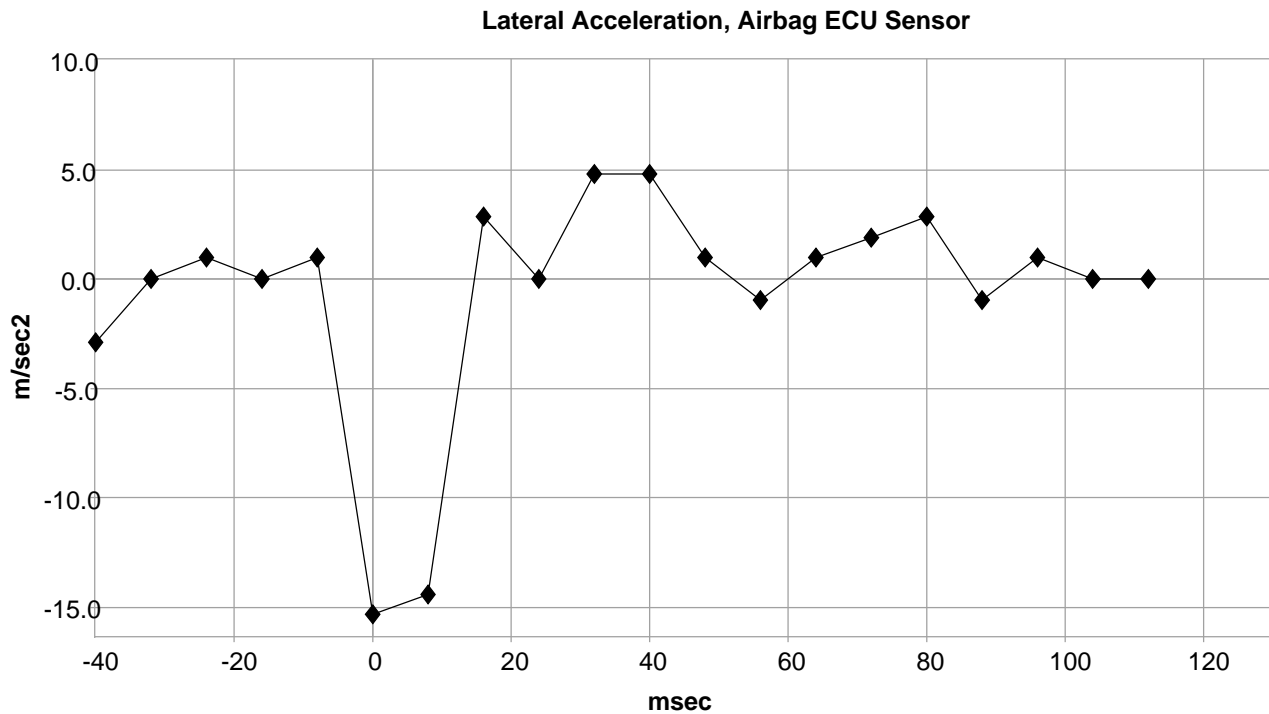
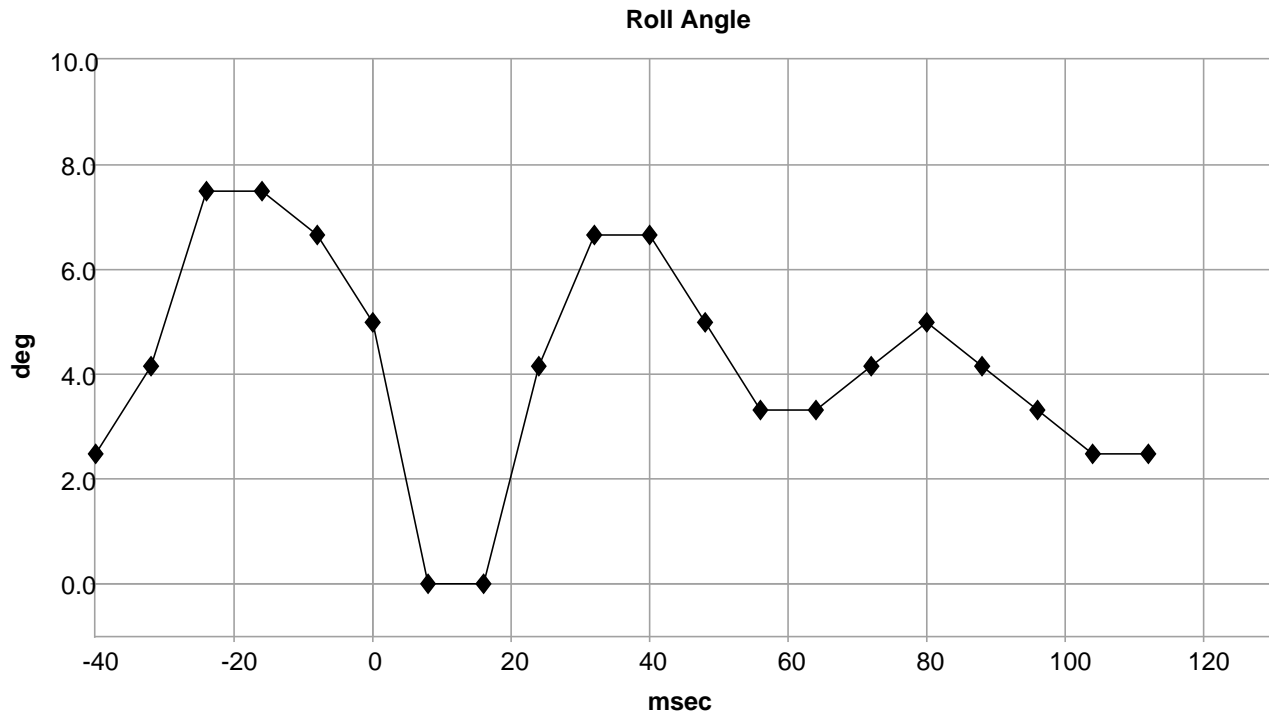
Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

**System Status at Event (1st Prior Event, TRG 5)**

Recording Status, Rollover Crash Info.	Complete
Crash Type	Rollover
TRG Count (times)	5
Previous Crash Type	Frontal/Rear
Time from Pre-Crash TRG (msec)	42
Linked Pre-Crash Page	0
Time to Deployment Command, Rollover Airbag (msec)	Not Commanded

**Rollover Crash Pulse (1st Prior Event, TRG 5 - table 1 of 2)**

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	Invalid
Roll Angle Peak (degrees)	7.5



**Rollover Crash Pulse (1st Prior Event, TRG 5 - table 2 of 2)**

<b>Time (msec)</b>	<b>Roll Angle (degrees)</b>	<b>Lateral Acceleration, Airbag ECU Sensor (m/sec^2)</b>
-40	2.5	-2.9
-32	4.2	0.0
-24	7.5	1.0
-16	7.5	0.0
-8	6.7	1.0
0	5.0	-15.3
8	0.0	-14.4
16	0.0	2.9
24	4.2	0.0
32	6.7	4.8
40	6.7	4.8
48	5.0	1.0
56	3.3	-1.0
64	3.3	1.0
72	4.2	1.9
80	5.0	2.9
88	4.2	-1.0
96	3.3	1.0
104	2.5	0.0
112	2.5	0.0

### DTCs Present at Time of Event (1st Prior Event, TRG 5)

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 5)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

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

Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

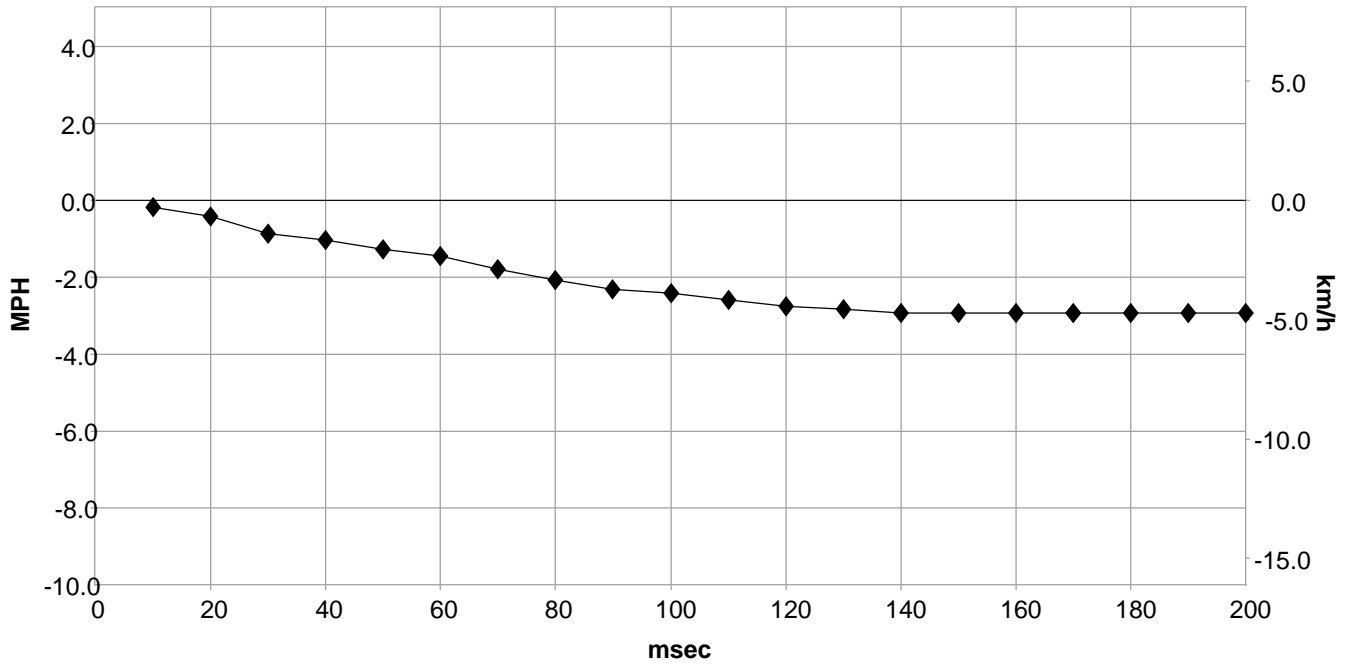
**System Status at Event (2nd Prior Event, TRG 4)**

Recording Status, Front/Rear Crash Info.	Complete
Crash Type	Front/Rear Crash
TRG Count (times)	4
Previous Crash Type	Side
Time from Pre-Crash TRG (msec)	8
Linked Pre-Crash Page	0
Time to Deployment Command, Front Airbag, Driver (msec)	Not Commanded
Time to Deployment Command, Front Airbag, Passenger (msec)	Not Commanded
Event Severity Status, Driver	N/A
Event Severity Status, Passenger	N/A
Time to Deployment Command, Pretensioner (msec)	Not Commanded

### Longitudinal Crash Pulse (2nd Prior Event, TRG 4 - table 1 of 2)

Recording Status, Time Series Data	Complete
Max Longitudinal Delta-V (MPH [km/h])	-2.9 [-4.7]

Longitudinal Delta-V



**Longitudinal Crash Pulse (2nd Prior Event, TRG 4 - table 2 of 2)**

<b>Time (msec)</b>	<b>Longitudinal Delta-V (MPH [km/h])</b>
10	-0.2 [-0.3]
20	-0.4 [-0.7]
30	-0.9 [-1.4]
40	-1.0 [-1.7]
50	-1.3 [-2.1]
60	-1.5 [-2.3]
70	-1.8 [-2.9]
80	-2.1 [-3.3]
90	-2.3 [-3.7]
100	-2.4 [-3.9]
110	-2.6 [-4.1]
120	-2.7 [-4.4]
130	-2.8 [-4.6]
140	-2.9 [-4.7]
150	-2.9 [-4.7]
160	-2.9 [-4.7]
170	-2.9 [-4.7]
180	-2.9 [-4.7]
190	-2.9 [-4.7]
200	-2.9 [-4.7]

### DTCs Present at Time of Event (2nd Prior 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 (2nd Prior Event, TRG 4)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

### Pre-Crash Data, -5 to 0 seconds (2nd Prior Event, TRG 4)

Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

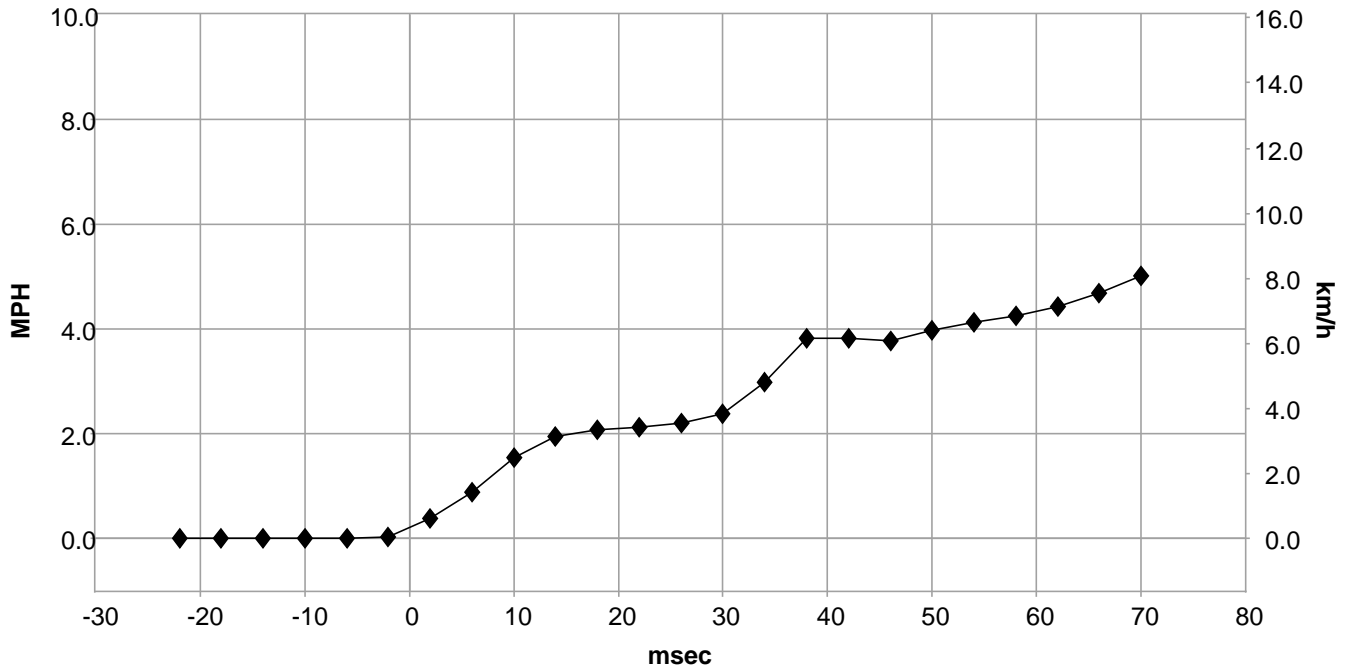
**System Status at Event (3rd Prior Event, TRG 3)**

Recording Status, Side Crash Info.	Complete
Crash Type	Side Crash
TRG Count (times)	3
Recorded Side	Driver's Side
Previous Crash Type	Frontal/Rear
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	0
Time to Deployment Command, B-Pillar Sensor (msec)	Not Commanded
Time to Deployment Command, C-Pillar Sensor (msec)	Not Commanded

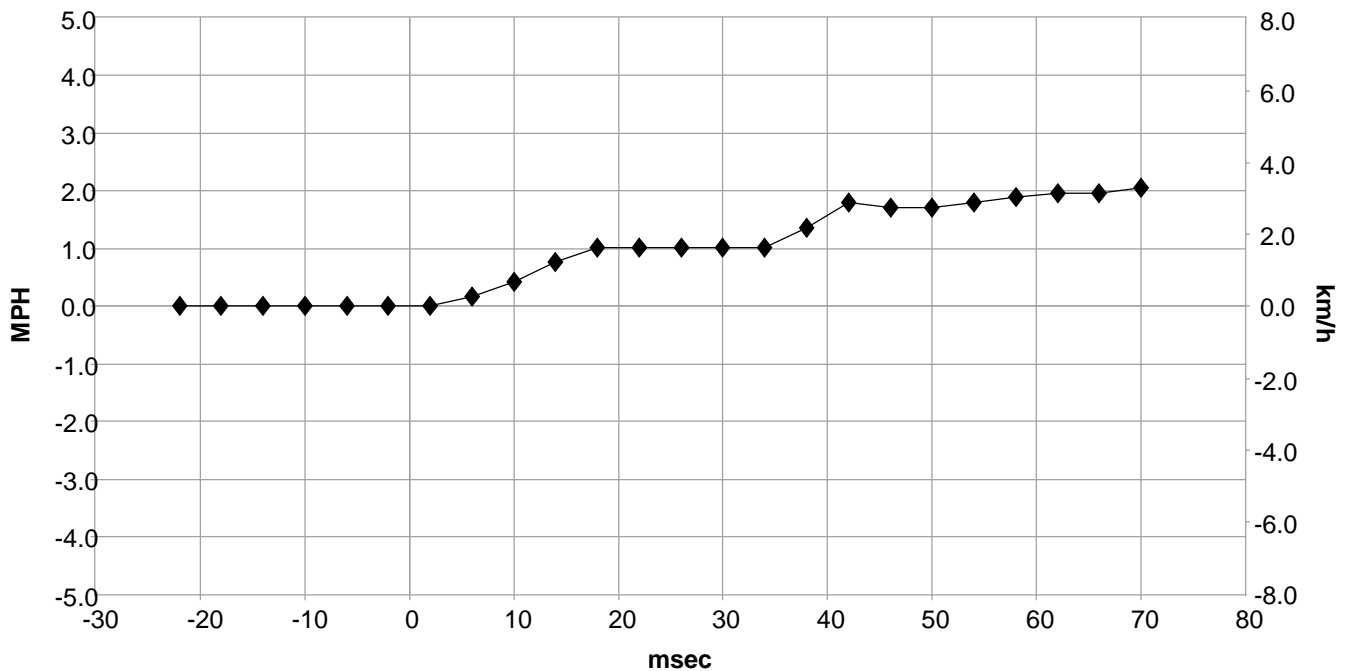
**Lateral Crash Pulse (3rd Prior Event, TRG 3 - table 1 of 2)**

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	2
Max. Lateral Delta-V, Front Door Sensor (mph)	4.0 [6.4]
Max Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	2.1 [3.3]
Max Lateral Delta-V, C-Pillar Sensor (MPH [km/h])	0.5 [0.8]

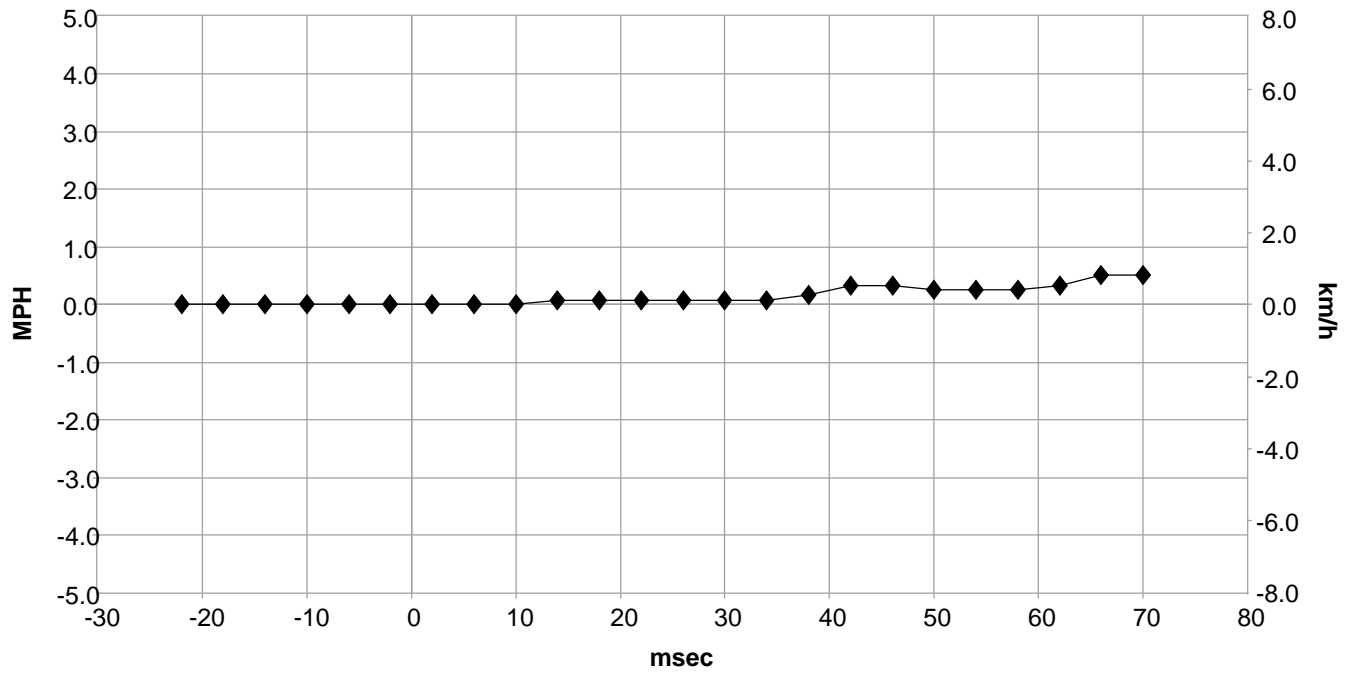
**Lateral Delta-V, Airbag ECU Sensor**



**Lateral Delta-V, B-Pillar Sensor**



### Lateral Delta-V, C-Pillar Sensor



**Lateral Crash Pulse (3rd Prior Event, TRG 3 - table 2 of 2)**

Time (msec)	Lateral Delta-V, Airbag ECU Sensor (MPH [km/h])	Lateral Delta-V, B-Pillar Sensor (MPH [km/h])	Lateral Delta-V, C-Pillar Sensor (MPH [km/h])
-22	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-18	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-14	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-10	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-6	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]
-2	0.0 [0.1]	0.0 [0.0]	0.0 [0.0]
2	0.4 [0.6]	0.0 [0.0]	0.0 [0.0]
6	0.9 [1.4]	0.2 [0.3]	0.0 [0.0]
10	1.5 [2.5]	0.4 [0.7]	0.0 [0.0]
14	2.0 [3.1]	0.8 [1.2]	0.1 [0.1]
18	2.1 [3.4]	1.0 [1.7]	0.1 [0.1]
22	2.1 [3.4]	1.0 [1.7]	0.1 [0.1]
26	2.2 [3.6]	1.0 [1.7]	0.1 [0.1]
30	2.4 [3.8]	1.0 [1.7]	0.1 [0.1]
34	3.0 [4.8]	1.0 [1.7]	0.1 [0.1]
38	3.8 [6.2]	1.4 [2.2]	0.2 [0.3]
42	3.8 [6.2]	1.8 [2.9]	0.3 [0.6]
46	3.8 [6.1]	1.7 [2.8]	0.3 [0.6]
50	4.0 [6.4]	1.7 [2.8]	0.3 [0.4]
54	4.1 [6.6]	1.8 [2.9]	0.3 [0.4]
58	4.3 [6.8]	1.9 [3.0]	0.3 [0.4]
62	4.4 [7.1]	2.0 [3.2]	0.3 [0.6]
66	4.7 [7.5]	2.0 [3.2]	0.5 [0.8]
70	5.0 [8.1]	2.1 [3.3]	0.5 [0.8]

### DTCs Present at Time of Event (3rd 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 (3rd Prior Event, TRG 3)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	R

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

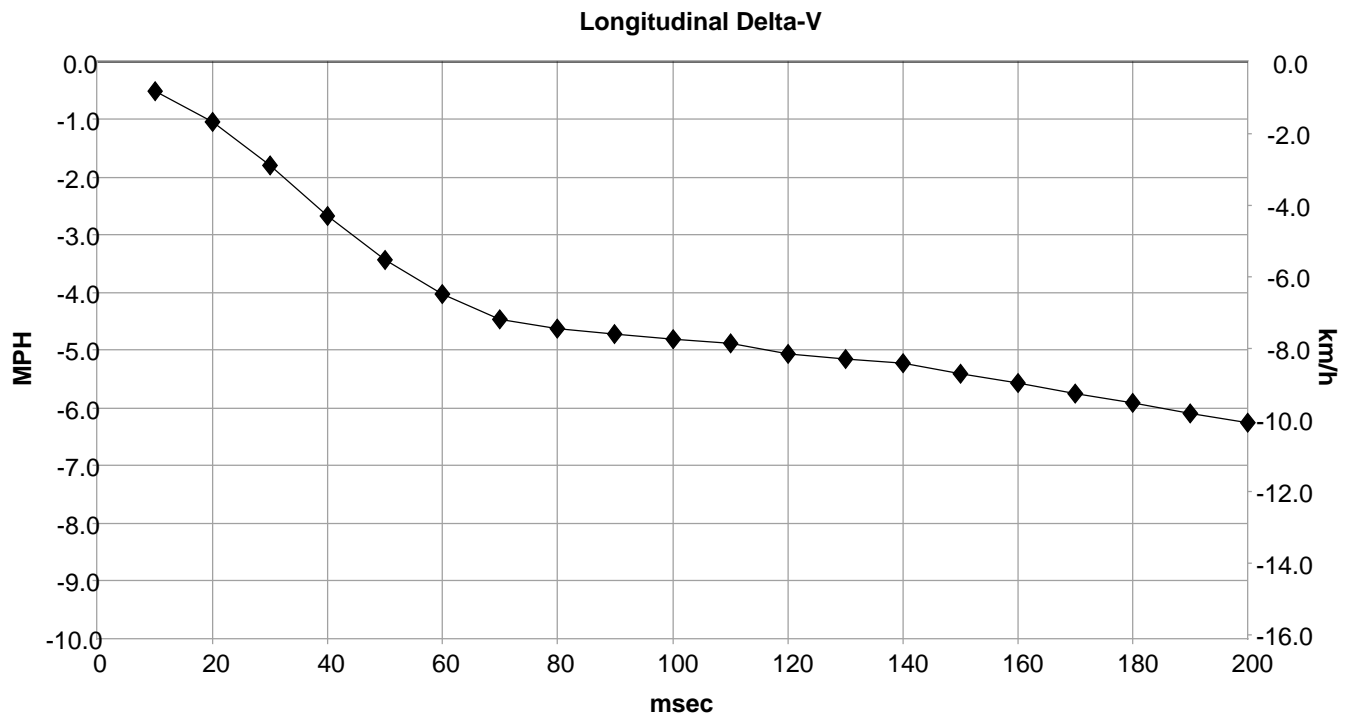
Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	8.7 [14]	5 [8]	17.4 [28]	29.8 [48]	22.4 [36]	22.4 [36]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	2.54	3.75	3.75	3.75	3.75	3.75
Engine RPM (RPM)	2,400	2,000	2,800	4,400	2,400	2,400

**System Status at Event (4th Prior Event, TRG 2)**

Recording Status, Front/Rear Crash Info.	Complete
Crash Type	Front/Rear Crash
TRG Count (times)	2
Previous Crash Type	Frontal/Rear
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	1
Time to Deployment Command, Front Airbag, Driver (msec)	Not Commanded
Time to Deployment Command, Front Airbag, Passenger (msec)	Not Commanded
Event Severity Status, Driver	N/A
Event Severity Status, Passenger	N/A
Time to Deployment Command, Pretensioner (msec)	Not Commanded

### Longitudinal Crash Pulse (4th Prior Event, TRG 2 - table 1 of 2)

Recording Status, Time Series Data	Complete
Max Longitudinal Delta-V (MPH [km/h])	-6.3 [-10.1]



**Longitudinal Crash Pulse (4th Prior Event, TRG 2 - table 2 of 2)**

<b>Time (msec)</b>	<b>Longitudinal Delta-V (MPH [km/h])</b>
10	-0.5 [-0.8]
20	-1.0 [-1.7]
30	-1.8 [-2.9]
40	-2.7 [-4.3]
50	-3.4 [-5.5]
60	-4.0 [-6.5]
70	-4.5 [-7.2]
80	-4.6 [-7.4]
90	-4.7 [-7.6]
100	-4.8 [-7.7]
110	-4.9 [-7.9]
120	-5.1 [-8.1]
130	-5.1 [-8.3]
140	-5.2 [-8.4]
150	-5.4 [-8.7]
160	-5.6 [-9.0]
170	-5.7 [-9.2]
180	-5.9 [-9.5]
190	-6.1 [-9.8]
200	-6.3 [-10.1]

### DTCs Present at Time of Event (4th Prior Event, TRG 2)

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 (4th Prior Event, TRG 2)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	600
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Buckled
Occupancy Status, Passenger	AF05
Seat Position, Driver	Rearward
Shift Position	Drive

### Pre-Crash Data, -5 to 0 seconds (4th Prior Event, TRG 2)

Time (sec)	-4.6	-3.6	-2.6	-1.6	-0.6	0 (TRG)
Vehicle Speed (MPH [km/h])	12.4 [20]	13.7 [22]	9.9 [16]	5 [8]	14.9 [24]	14.9 [24]
Brake Switch	OFF	OFF	OFF	OFF	OFF	OFF
Accelerator Rate (V)	3.71	3.09	2.81	0.86	3.75	3.75
Engine RPM (RPM)	2,400	1,600	2,000	3,600	2,000	3,200

## 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 60 00 01
	01	00
	03	30 45 30 36 30 30 30 30 45 35 30 30 30 45 35 30 30 30 45 35 30 30 30 45 35 30 30 30 45 38 30 30 30 45 38 30 30 30 45 42 30 30 30 45 42
	04	02 02 01 01
	05	01
	06	00
	0A	01
	0B	00
	20	80 00 00 01
	21	00 51
	40	00 00 00 01
	60	00 00 00 01
	80	00 00 00 01
	A0	00 00 00 01
	C0	00 00 00 01
	E0	C0 10 00 00
	E1	00 00
	E2	00 5B 19 11 00
	EC	00

EEPROM	Address	Data (-- = data not imaged from ECU) (* * = no response from ECU)
	0	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	10	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	20	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	30	00 00 00 00 19 2D 00 00 00 00 00 00 00 00 00 00 -- --
	40	-- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	50	-- -- 10 21 02 48 60 66 48 60 B7 60 60 56 38 60
	60	10 60 1C 41 00 00 00 55 00 00 00 00 00 00 00 00
	70	00 00 00 00 00 00 00 00 00 55 11 21 01 30 60 85
	80	30 60 95 10 16 46 20 48 2C 4F 28 5F 06 00 00 55
	90	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	A0	00 55 -- -- 02 03 05 02 03 02 04 03 03 01 02 02
	B0	01 01 00 00 00 00 00 00 00 5C 00 55 00 04 10 08
	C0	FE FE 00 55 06 06 09 0A 09 07 05 02 01 01 01 02
	D0	01 01 02 02 02 02 02 02 00 DB 00 55 00 02 04 00
	E0	FE FE 00 55 -- -- 00 00 00 00 00 00 00 02 03 04
	F0	03 00 00 00 00 04 05 FF 00 01 01 01 00 01 00 00
	100	00 00 00 00 00 00 00 01 00 00 00 00 00 01 02 00
	110	FF 00 00 01 02 00 00 00 00 00 00 FE EB E3 DA E8
	120	F8 FE FB F6 DC D0 00 02 F5 F7 F9 F5 F2 EC 00 BB
	130	00 00 20 55 00 03 00 00 FE FE 00 55 02 02 02 03
	140	02 02 02 01 00 00 01 01 00 00 00 00 00 00 00 00
	150	00 00 00 00 FF 00 01 01 00 00 01 02 00 00 FF 00
	160	00 00 00 00 00 00 00 00 00 00 00 00 EA EB E9 EC
	170	EA E8 ED F5 F8 F5 F5 F7 FD 00 01 00 FE FF FF FE
	180	FE FF 00 00 00 2C 00 00 10 55 00 06 20 61 FE FE
	190	00 55 03 05 09 09 08 06 00 00 05 08 08 06 04 04
	1A0	05 06 05 04 03 03 FD 00 01 00 01 F0 F1 03 00 05
	1B0	05 01 FF 01 02 03 FF 01 00 00 01 20 20 55 FF FE
	1C0	00 2A 00 05 01 55 00 00 00 00 00 00 00 00 00 00
	1D0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	1E0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	1F0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

## 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.



U.S. Department  
of Transportation  
**National 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

29-JAN-2013

Repository Reference No.  
10495051**OWNER INFORMATION (Type or Print)**

Name [REDACTED]

Address [REDACTED]

City STEVENSON RANCH

State CA

Zip Code [REDACTED]

Daytime Telephone Number [REDACTED]

E-mail Address [REDACTED]

Evening Telephone Number [REDACTED]

*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

5TDYK3EH0CS [REDACTED]

Make

TOYOTA

Model

HIGHLANDER

Model Year

2012

Date Purchased

Dealer's Name and Telephone Number

Engine:

No: Cylinders

Fuel Type:

Original Owner

Dealer's City

State

Zip Code

Transmission Type

 Antilock Brakes

Powertrain

Multiple Failure:

Incident Date(s)

16-NOV-2012

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

Vehicle Component Code: 180000 VEHICLE SPEED CONTROL

Failure Mileage

8900

Failure Speed

**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: DOTM19ABC036)

 Original Equipment  
 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), and injury(ies).)*

Crash

 Yes  No

Fire

 Yes  No

Number of Persons Injured

0

Number of Deaths

0

Reported to Police

N

**Narrative Description of Incident(S), Crash(es), and 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).

TL\* THE CONTACT OWNS A 2012 TOYOTA HIGHLANDER. THE CONTACT STATED THAT WHILE ENTERING THE DRIVEWAY, THE VEHICLE ERRONEOUSLY ACCELERATED AND CRASHED INTO THE HOUSE. THE VEHICLE FUNCTIONED NORMALLY WHILE REVERSING BUT UPON SHIFTING BACK INTO DRIVE, THE VEHICLE AGAIN ERRONEOUSLY ACCELERATED AND CRASHED INTO THE HOUSE. THE VEHICLE WAS THEN PLACED INTO REVERSE AND THEN CAME TO A STOP WHEN IT CRASHED INTO A CURB, CAUSING THE AXLE TO FRACTURE. THE DRIVER DID NOT SUFFER ANY INJURIES. THE VEHICLE WAS DESTROYED. THE VEHICLE WAS INSPECTED BY THE MANUFACTURER WHO STATED THAT THERE WAS NO EVIDENCE OF A DEFECT. THE FAILURE AND CURRENT MILEAGE WAS 8,900.

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.