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September 2024

Special Crash Investigations: On-Site Rollover Crash Investigation; Vehicle: 2020 Chevrolet Silverado 2500; Location: Missouri; Crash Date: February 2022

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Each crash represents a unique sequence of events and generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicles or their safety systems. This report and associated case data are based on information available to the Special Crash Investigation team on the date this report was published.

16. Abstract

This on-site investigation documents the rollover crash of a 2020 Chevrolet Silverado 2500 series pickup truck that resulted in fatal injuries to the unbelted 37-year-old male driver. The Chevrolet was traveling north and for unknown reasons, the vehicle tracked straight off the right side of the roadway. The Chevrolet traveled along the roadside and encountered the upslope at a driveway culvert that caused the vehicle to vault the driveway. The Chevrolet struck the ground at the end of the vault, rolled to its right, and struck and fractured a dead tree. It then struck a large diameter tree with its A-pillars, windshield, and roof. Three additional trees were struck with the cargo box. Finally, the Chevrolet struck a utility box coming to rest on its wheels, facing northwest. The driver sustained fatal injuries and was pronounced deceased at the crash scene. An autopsy was not performed.

17. Key Words	18. Distribution Statement
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Special Crash Investigations
On-Site Rollover Crash Investigation
SCI Case No: CR22005
Vehicle: 2020 Chevrolet Silverado 2500
Location: Missouri
Crash Date: February 2022

Background

This on-site investigation documented the rollover crash of a 2020 Chevrolet Silverado 2500 series pickup truck (Figure 1) that resulted in fatal injuries to the unbelted 37-year-old male driver. The Special Crash Investigations (SCI) team at Crash Research & Analysis, Inc., identified the crash through an on-line search of crash report abstracts. The National Highway Traffic Safety Administration was notified of the crash in March 2022 and assigned the on-site investigation in April 2022. Authorization to inspect the vehicle was given by the driver's insurance company in April 2022. Vehicle and scene inspections were completed in April 2022. On-scene photographs from the local coroner were also obtained in April 2022.

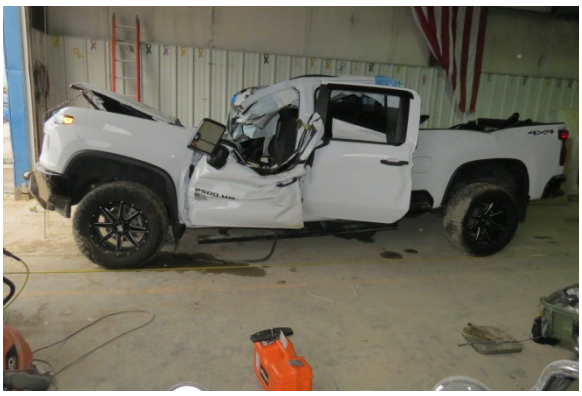

Figure 1. Left side view of the damage to the 2020 Chevrolet 2500 pickup truck

The crash occurred on the roadside of a three-lane, undivided county highway. The Chevrolet was traveling north and for unknown reasons the driver did not negotiate a left curve and ran straight off the right side of the roadway. The vehicle continued north on the roadside and into the upslope of a driveway culvert that caused it to vault the driveway. The front bumper and undercarriage struck the ground at the end of the vault (Event 1). The Chevrolet rebounded forward and upward and began to roll over onto its right side (Event 2). As it rolled, the right side of the cab and bed struck and fractured a dead tree (Event 3). The vehicle then struck a large diameter tree with its A-pillars, windshield, and roof (Event 4). It struck three additional trees with the cargo box (Events 5, 6, and 7). The Chevrolet then rolled back to the left as the undercarriage struck a utility box (Event 8) prior to coming to rest on its wheels, facing northwest. The driver sustained fatal injuries and was pronounced deceased at the crash scene. An autopsy was not performed. The vehicle was towed due to damage.

On-site SCI activities included documentation and measurement of the Chevrolet's exterior and interior damage and intrusion, identification of occupant contact points, and assessment of the manual and supplemental restraint systems. Additionally, the crash site's physical environment was photographed and documented by a total station mapping system. The Chevrolet's event

data recorder (EDR) module was removed from the vehicle since it was unknown if the vehicle had a forward camera module (FCM). After conversations with SCI headquarters, it was suggested the airbag control module (ACM) be removed for later imaging. Authorization for this was given by the driver's insurance adjuster, who said it was not necessary to return the module to the vehicle. It was imaged using the desktop method with the Bosch Crash Data Retrieval tool.

Crash Summary

Crash Site

The crash occurred at night on the east roadside of an unlit, three-lane county roadway that tapered to a two-lane roadway near the location of right-side departure. At the time of the crash, the police-reported conditions were clear and dry. Weather reports showed 16 km/h (10 mph) winds from the southwest and a temperature of 16 °C (60 °F). The bituminous roadway traversed in a general north/south direction with one lane in each direction, each measured 3.2 m (10.5 ft) wide. The northbound approach to the crash site was predominately straight, with a negative grade of 4 percent, to the bottom of a hill and transitioned to a left curve where the roadway leveled. Road markings had a solid double yellow center line and a solid white edge line. The east roadside had grass that transitioned to a tree line (Figure 2). An overgrown driveway extended perpendicular to the northbound travel lane with a culvert that extended under the driveway for drainage. The south edge of the driveway was sloped to accommodate the culvert. The posted speed limit was 89 km/h (55 mph). The crash diagram is included at the end of this report.

Figure 2. South view of look-back from final rest showing roadway, roadside, and tree line

Pre-Crash

The Chevrolet was northbound in the right lane and approached the left curve at the bottom of the hill (Figure 3). The EDR recorded an initial travel speed of 97 km/h (60 mph) at 5 seconds prior to algorithm enable (AE). For unknown reasons the vehicle tracked straight off the right roadside at the beginning of the left curve. The Chevrolet traversed the roadside that negatively sloped approximately 20 percent. The vehicle continued on a northerly trajectory as it rotated approximately 10 degrees clockwise and struck the embankment at the driveway that was graded positively 20 percent. The tires furrowed into the embankment that caused the vehicle to vault the driveway (Figure 4). Table 1 shows the Chevrolet's EDR-reported vehicle speed, engine speed, percent throttle, brake switch circuit state, and accelerator pedal position.

Figure 3. North view, Chevrolet's approach to curve and crash site

Figure 4. North view of the clockwise yaw marks from the Chevrolet as it ramped up the culvert embankment

Table 1. EDR Pre-Crash Information

Time/Parameter	Vehicle Speed, mph (km/ph)	Engine Speed (rpm)	Percent Throttle	Brake Switch Status	Accelerator Pedal (percent)
-5.0	60 (97)	1,472	12	Off	11
-4.5	60 (97)	1,472	10	Off	10
-4.0	60(97)	1,408	10	Off	10
-3.5	60 (97)	1,408	10	Off	10
-3.0	60 (97)	1,600	28	Off	21
-2.5	61 (99)	1,664	32	Off	24
-2.0	62 (99)	1,600	30	Off	21
-1.5	62 (99)	1,536	25	Off	18
-1.0	62 (99)	1,536	14	Off	6
-0.5	62 (99)	1,472	9	Off	2

Crash

The Chevrolet traveled approximately 19 m (63 ft) through the air where the front bumper and frontal undercarriage struck the ground (Event 1). The Chevrolet rebounded forward and upward and began to roll over onto the right side (Event 2). Approximately 6 m (20 ft) north of the ground contact, the right rear door and truck bed struck a large diameter dead tree (Event 3) that measured 65 cm (25.6 in) in diameter. The non-horizontal impact force fractured the tree approximately 1 m (3.3 ft) above the ground. The Chevrolet continued in a forward direction and continued to roll to the right. While still airborne, the front A-pillar, windshield header, and roof

struck a large tree (Event 4) that was 45 cm (17.7 in) in diameter. This tree was located 7.2 m (23.6 ft) north of the initial tree impact. The damage to the tree trunk began just above the ground and extended upward 2.0 m (6.6 ft). As the Chevrolet engaged and was crushed from the Event 3 impact, the top of the truck bed struck three small diameter trees (events 5, 6, and 7), bending or breaking all. The Chevrolet then rebounded back to its left and struck a polymer utility box with its undercarriage (Event 8) before coming to rest on its wheels. All objects contacted for Events 3 to 8 are shown in Figure 5. (The utility box had been replaced prior to the SCI investigation.)

Figure 5. North view of event numbers/trees and utility box contacted

Post-Crash

The Chevrolet came to rest on its wheels facing northwest (Figures 6 and 7). Based on the on-scene images from the coroner, the driver was displaced from his driving position toward the center and right sections of the first row. He came to final rest with his left side position on the adjustable console/seat cushion and was slumped toward the left side of the vehicle with his head on the left seatback. He sustained fatal injuries and according to the police crash report was pronounced deceased 9 minutes post-crash. The Chevrolet was towed from the crash site due to damage.

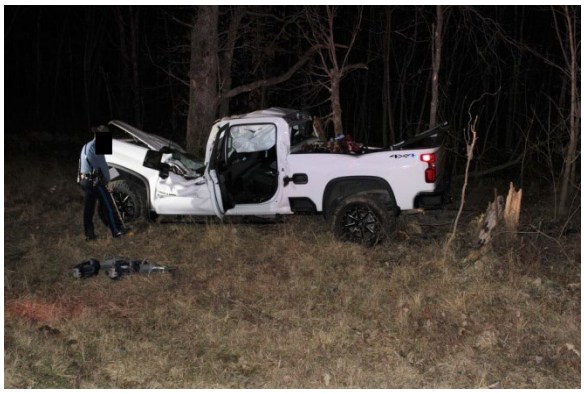

Figure 6. West view of the Chevrolet at final rest. (Image provided by coroner, used with permission)

Figure 7. Southwest view of the final rest position of the Chevrolet. (Image provided by coroner, used with permission)

2020 Chevrolet Silverado 2500

Description

The Chevrolet was a 4-wheel drive, 4-door pickup truck manufactured in November 2021 with Vehicle Identification Number 1GC4YME76LFxxxxxx. It had a 6.6-liter, V-8 engine linked to a shiftable 6-speed automatic transmission on a 404 cm (159.1 in) wheelbase. The Chevrolet had 4-wheel ABS, electronic stability control, traction control, emergency braking assist, dual-stage frontal, side impact, and inflatable curtain (IC) air bags, and front-row seat belt pretensioners. The vehicle manufacturer's recommended tire size was LT275/65R70 and the vehicle had Nitto Ridge Grappler tires, sized LT295/65R20. The difference in diameter between the recommended and actual tires was 2.5 cm (1 in). The gross vehicle weight rating for the Chevrolet was 4,831 kg (10,650 lb). Since the vehicle's weight rating was over 4,536 kg (10,000 lb), Truck Deformation Classifications[1] (TDC) are assigned for the damage patterns that follow.

NHTSA Recalls and Investigations

A July 2024 search of the NHTSA recall database showed there were no open recalls or investigations when the VIN for this model was entered. A search for recalls for this make and model showed eight recalls and one investigation. These recalls involved issues with the roof rail air bag, spare tire, tailgate, front center seat belt, drive shaft, hood and seat belt pretensioner.

Exterior Damage

The front of the Chevrolet (Figure 8) sustained moderate damage to the lower front end and undercarriage during the Event 1 impact with the ground after the vault of the driveway. The direct damage extended the width of the front end, 184 cm (72.4 in). The Field L was also 184 cm (72.4 in), and the maximum residual crush was 17 cm (6.7 in), occurring 92 cm (36.2 in) right of the center line. The TDC for this damage pattern was 12FDLW1.

Figure 8. Frontal damage to the Chevrolet from Event 1

After the ground impact, the Chevrolet rebounded upward and forward and began to roll to the right (Event 2). This event was considered a "bounce over" and the TDC for this movement was 33RDAO1. There was no truck-to-ground damage during the rollover.

[1] SAE J1301_202206 – SAE Recommended Practice describing truck (medium, heavy, and articulated combination) collision damage in an alphanumeric format.

The right side was directly damaged during the impact with the dead tree (Event 3). Direct damage occurred on the right rear door, C-pillar, and right truck bed wall (Figure 9). Direct damage started 156 cm (61.4 in) forward of the right rear axle and extended rearward 79 cm (31.1 in). The Field L was 256 cm (100.8 in) and the maximum residual crush was 43 cm (16.9 in), occurring 22 cm (8.7 in) forward of the right rear axle. The TDC for this damage pattern was 33RZAW3.

The Chevrolet's greenhouse was directly damaged during the impact with the large tree (Event 4). Direct damage was noted on both A-pillars, the right fender, hood, windshield, windshield header, left front door frame, and roof (Figure 10). The left A-pillar was eventually cut off by rescue personnel, but based on images from the crash scene, it is estimated that the left A-pillar was displaced longitudinally approximately 90 cm (35 in). The TDC for this damage pattern was 33TPDW6.

Figure 9. Right side damage from dead tree contact

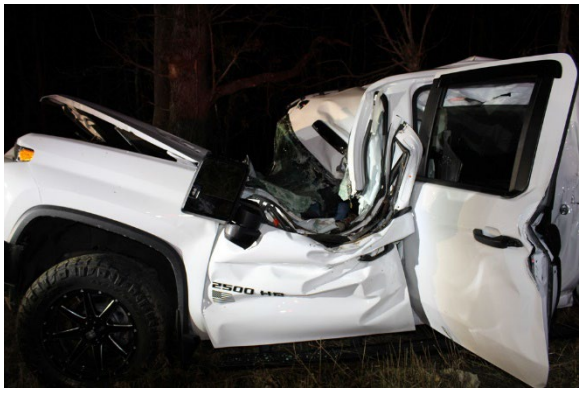

Figure 10. On-scene image of damage across the windshield roof area. (Image provided by coroner, used with permission)

Three smaller trees were contacted during the crash sequence (Events 5, 6, and 7). These trees were struck by the top of the truck bed as the vehicle had rotated about its longitudinal axis approximately 90° to the right. Damage was minimal to the top of the left bed wall and tailgate. The TDCs for these events were 33TBLO1, 33TBLO1, and 33TBCO1. During the crash, the Chevrolet's undercarriage came to rest on top of the utility box, damaging/crushing the fixture. It had been replaced prior to the SCI inspection. The Chevrolet's undercarriage was not damaged in the minor impact (Event 8). The TDC for this event was 33UPCN1.

Event Data Recorder

At the time of the SCI inspection, FCM presence was unknown. After conversations with SCI headquarters, it was suggested that the ACM be removed and retained for later imaging. The insurance adjuster in control of the vehicle was contacted and authorized removal of the ACM. He did not require its return to the vehicle. It was later determined that the Chevrolet did not have crash avoidance features. Therefore, FCM data was not available. The Chevrolet's EDR imaging of the ACM was completed in the office with the desktop method. The EDR data was imaged with the Bosch Crash Data Retrieval tool, software version 21.5 and reported with version 24.1.197 in the appendix.

The Chevrolet's EDR is capable of recording deployment and non-deployment events. Non-deployments result in recorded data for events that do not require deployment of the air bags.

The minimum vehicle velocity change needed to record and "qualify" a non-deployment is 8 km/h (5 mph). Non-deployments can be overwritten by a deployment if all three records are full, and the non-deployment event is not locked, or by another non-deployment if the oldest non-deployment is older than approximately 250 ignition cycles. Deployment and rollover events become "qualified" when a deployment has been commanded. Deployment events cannot be overwritten or cleared by the sensing diagnostic module that can store up to three events.

The EDR recorded three events associated with this crash, one non-deployment and two deployment level events. The driver's seat belt status was recorded as "Buckled" in all three records even though the vehicle inspection determined that he was not using the seat belt system. The retractor and anchor pretensioners actuated during the crash sequence, locking both front row outboard belt webbing taut against the B-pillars.

On analysis of the data, it was determined that the first two events in the crash sequence were "concurrent." The data limitations showed that a concurrent event occurs when two events are happening nearly simultaneously and a "Yes" will be for the "concurrent event flag set" line item. An example is as follows: A rollover event begins. But before the rollover is "qualified," a non-deployment begins and is qualified. The non-deployment event will be recorded in the first record even though the rollover event enabled before the non-deployment event. The rollover event will then be recorded in the next open record. In this crash the Chevrolet's roll algorithm that initiated during the road departure occurred first but was not yet qualified when a qualified non-deployment event (front plane/undercarriage impact, Event 1) occurred producing a concurrent event. The actual rollover event (Event 2) was then recorded in Record 2.

System Status at Event (Record 2): AE for this record began during the off-road travel of the Chevrolet, through and along the roadside ditch, as a predicted right side leading roll. This algorithm continued to run concurrently as the Chevrolet vaulted over the culvert and struck the ground. The record then qualified as an event when the vehicle rebounded and began to roll over, right side leading (Event 2). The record reported that both IC air bag deployments were commanded at 253 msec after AE. Deployment loops 1 and 2 for both front seat belt pretensioners were also commanded at 253 msec after AE. The time is considered a default value, reported when the actual deployment time exceeds the programmed parameters of the EDR.

System Status at Event (Record 1): This non-deployment event was recorded when the front end/undercarriage of the Chevrolet contacted the ground (Event 1) after the vault. This was a qualified non-deployment event that occurred after the Chevrolet's rollover, but prior to the rollover becoming a qualified event and was recorded in Record 1. The event occurred 1,280 msec after the Record 2 deployment. The maximum longitudinal and lateral velocity changes were -28 km/h (-17 mph) and -2 km/h (-1 mph), occurring at 140 msec and 172 msec after AE, respectively.

System Status at Event (Record 3): This deployment event was recorded during the Chevrolet's right-side impact with the dead tree and greenhouse (windshield/A-pillars) impact with the large tree. The right-side outboard seat-mounted air bag was commanded to deploy. The reported time was the default value of 253 msec. The EDR reported maximum longitudinal and lateral velocity changes of -57 km/h (-35.4 mph) and -21 km/h (-13.0 mph) at 506 and 412 msec after AE, respectively.

Interior Damage

The interior of the Chevrolet sustained significant intrusion damage to the occupant compartment from the impact with the tree (Event 3). The left windshield header intruded vertically 32 cm (12.6 in). The right instrument panel and right A-pillar intruded longitudinally 32 cm (12.6 in) and 26 cm (10.2 in), respectively. The top half of the steering wheel rim (Figure 11) was displaced 6 cm (2.4 in) rearward from contact with the tree and compressed the diameter of the steering wheel rim 2 cm (0.8 in). The right rear door also came open (Figure 12) due to the first tree impact (Event 3).

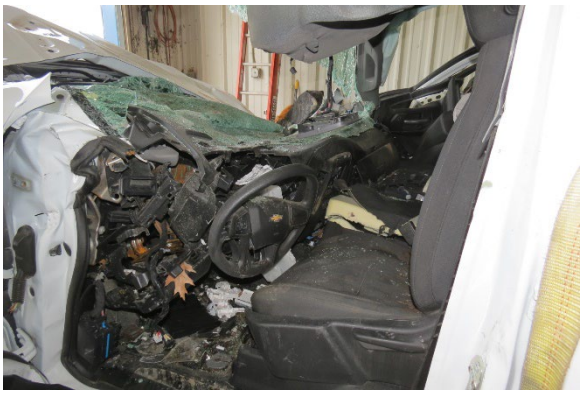

Figure 11. Front row damage

Figure 12. Right rear door/support opening

Manual Restraint Systems

The front row of the Chevrolet had three-point lap and shoulder seat belt systems. The driver's system had a lightweight locking latch plate on continuous loop webbing with an emergency locking retractor. Pretensioners were configured into the retractor and lower anchor and had actuated as a result of the crash. Although the EDR recorded the driver's seat belt status as "buckled," the pretensioners actuated and locked the belt webbing taut in its stowed position against the B-pillar (Figure 13). The driver was not restrained by the seat belt system at the time of the crash. On-scene images showed the driver to be awkwardly positioned in the Chevrolet at final rest, mostly in the center and right seat areas, further demonstrating the lack of seat belt use.

Supplemental Restraint Systems

The Chevrolet had dual-stage frontal air bags, front row outboard seatback-mounted side impact air bags and dual sensing (side impact and rollover) IC air bags. Both seat-mounted side air bags deployed as well as both IC air bags.

The right seat-mounted side impact air bag was located on the outboard side of the right front seatback. The deflated air bag was 40 cm (15.7 in) high and 23 cm (9.1 in) wide. There was no damage or discernable evidence of occupant contact to the air bag.

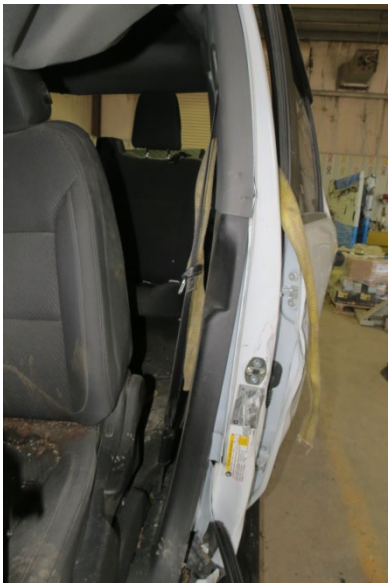

Figure 13. Taut driver's seat belt webbing from pretensioner actuation

The IC air bags were located along the roof-side rail inside the headliner and extended from the A-pillar to the C-pillar. The deflated left air bag was approximately 150 cm (59.1 in) long and 63 cm (24.8 in) high. The front portion of the air bag was cut and holed (Figure 14) during contact with the large tree (Event 4). The deflated right IC air bag measured approximately 150 cm (59.1 in) and 48 cm (18.9 in) high. It was captured in the intruded roof hampering an accurate measurement of its height. The air bag was cut vertically toward the rear by rescue personnel.

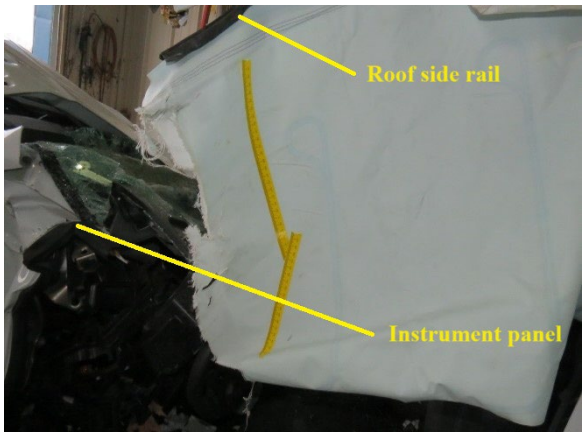

Figure 14. Damage to driver's IC air bag from tree contact (outboard side)

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Occupant Data

Driver Demographics

Age/sex:	37 years/male
Height:	183 cm (72 in)
Weight:	84 kg (185 lb)
Eyewear:	Unknown
Seat type:	Split-bench with folding backs
Seat track position:	Unknown
Manual restraint usage:	None
Usage source:	Vehicle inspection
Air bags:	Front, seat-mounted, and IC air bags available; seat-mounted and IC air bags deployed
Alcohol/drug involvement:	None (lay coroner toxicology report)
Egress from vehicle:	Removed by firefighters and emergency medical services
Transport from scene:	None, pronounced deceased at the scene

Driver Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Components (IPC)	Confidence Level
1	Fatal, unknown injury to head, no autopsy	100999.9	Isolated IPC Roof – Roof or convertible top	Certain
2	Large avulsion to posterior right thigh	810604.2	Injured, unknown source	Unknown
3	Three lacerations to ventral left forearm	710602.1	Isolated Front - Windshield	Probable
4	Small lacerations to knuckles of right hand	710602.1	Isolated Front - Windshield	Probable
5	Small lacerations to knuckles of left hand	710602.1	Isolated Front - Windshield	Probable

Source – On-scene images obtained from coroner

Driver Kinematics

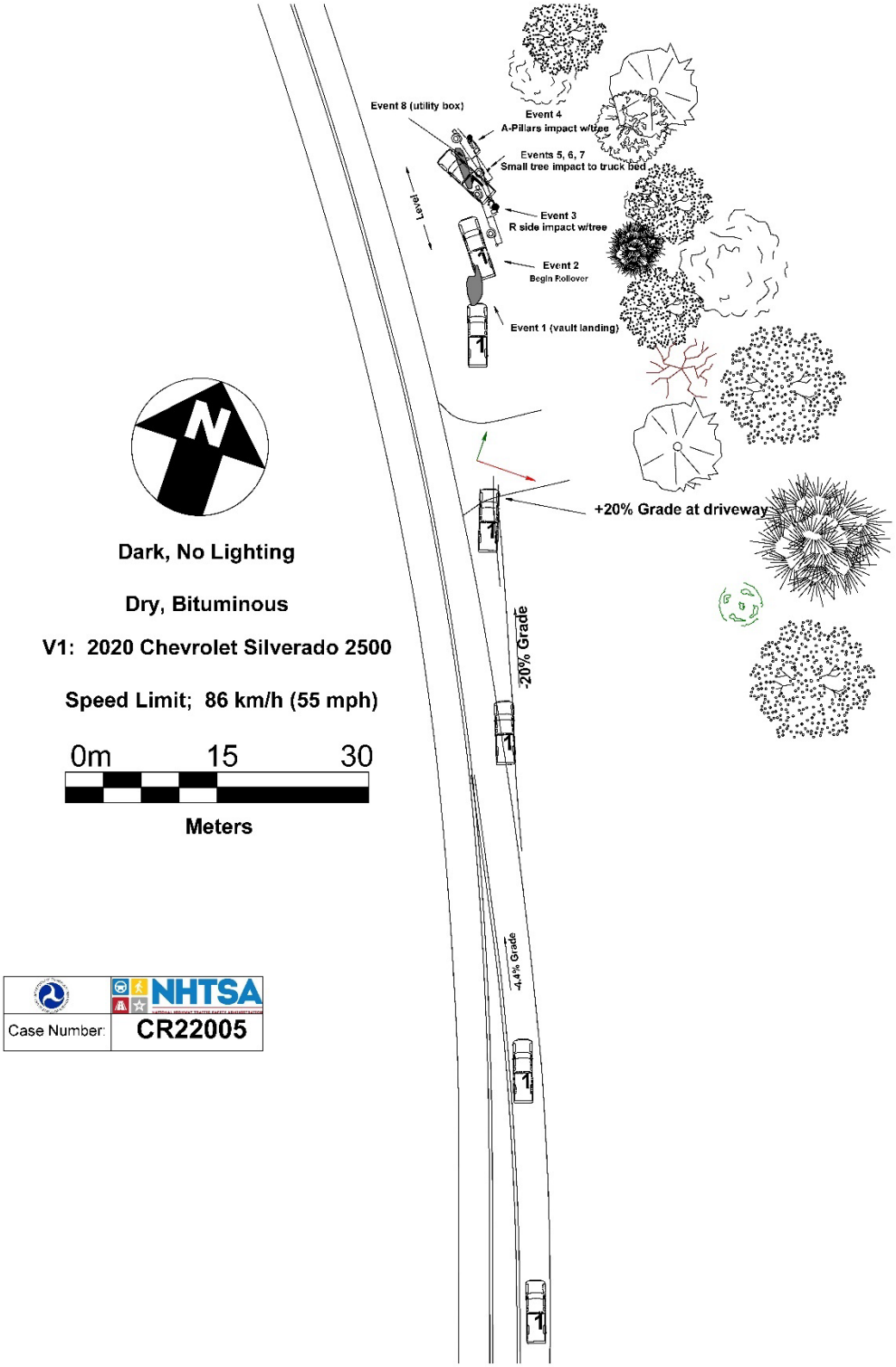
The 37-year-old male driver of the Chevrolet was not restrained by the manual seat belt system although the EDR recorded the driver's seat belt status as "Buckled." The driver's seat belt system was retracted against the B-pillar and was taut due to the actuation of the pretensioners. His adjustable head restraint was in the full-down position.

Based on the dynamics of this multi-event crash, the driver would have initially responded to the vaulting over the driveway by bottoming into his seat cushion and translating forward. This motion would have been repeated at the frontal/undercarriage impact with ground (Event 1). He probably loaded the steering wheel rim and the lower instrument panel. As the Chevrolet began to roll to the right (Event 2) and impact the trees (Event 3), the driver's pelvic region slid across the bench seat to the right. The large tree impact across the A-pillars/windshield (Event 4) and roof areas resulted in severe intrusion of the front row occupant space. His head and torso were struck and captured by the intrusion.

The on-scene police images showed the final rest position of the driver in the Chevrolet. His lower extremities remained in the floor area of the driver's position and his buttocks were on the center and right areas of the front row seat cushions. His torso was deflected downward by the intrusion with his head resting on the rearward deflected front left seatback. A large amount of blood had pooled onto the driver's seat cushion from a head injury.

He was pronounced deceased at the scene of the crash. Emergency responders used rescue equipment to pry open the left front door and cut the A-pillars to aid in the extrication of his body. Although his death was due to the crash, there was no autopsy; therefore, his specific injuries are unknown.

Crash Diagram



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Appendix: 2020 Chevrolet Silverado 2500 Event Data Recorder Report

The EDR report contained in this technical report was imaged using the current version of the Bosch CDR software at the time of the vehicle inspection. The CDR report contained in the associated Crash Viewer application may differ relative to this report.

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	1GC4YME76LF******
User	
Case Number	
EDR Data Imaging Date	04/20/2022
Crash Date	
Filename	CR22005_V1_ACM.CDRX
Saved on	Wednesday, April 20 2022 at 12:09:32
Imaged with CDR version	Crash Data Retrieval Tool 21.5
Imaged with Software Licensed to (Company Name)	NHTSA
Reported with CDR version	Crash Data Retrieval Tool 24.1.197
Reported with Software Licensed to (Company Name)	NHTSA
EDR Device Type	Airbag Control Module
Event(s) recovered	Record 1 (Non-Deployment), Record 2 (Deployment), Record 3 (Deployment)

Comments

No comments entered.

Data Limitations

Recorded Crash Events:

There are two types of recorded crash events for Front, Side, and Rear (FSR) Events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH [8 km/h]. A Non-Deployment Event contains Pre-Crash and Crash data. The oldest Non-Deployment event can be overwritten by a Deployment Event, if all three records are full and the Non-Deployment Event is not locked. A Non-Deployment Event can be overwritten by a more recent Non-Deployment Event if all three records are full and the Non-Deployment is older than approximately 250 ignition cycles. Also, a Non-Deployment event can be recorded if one of the following occurs without the Deployment of any of the frontal air bags, side air bags, pretensioners, or roll bars:

-Head Rest Deployment
-Battery Cut-Off Deployment

The second type of SDM recorded crash event for FSR Events is the Deployment Event. It also may contain Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.
Rollover Events contains Pre-Crash and Crash data. Rollover event follow the same rules as FSR Deployment events.
The SDM can store up to three Events.
There are two types of PedPro crash events. The first is the Non-Deployment PedPro Event. A Non-Deployment PedPro Event records data but does not deploy anything. A Non-Deployment PedPro Event may contain Pre-Crash and Crash data. The second type of PedPro recorded crash event is the Deployment PedPro Event. It also may contain Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.
The SDM can store up to two PedPro Events.

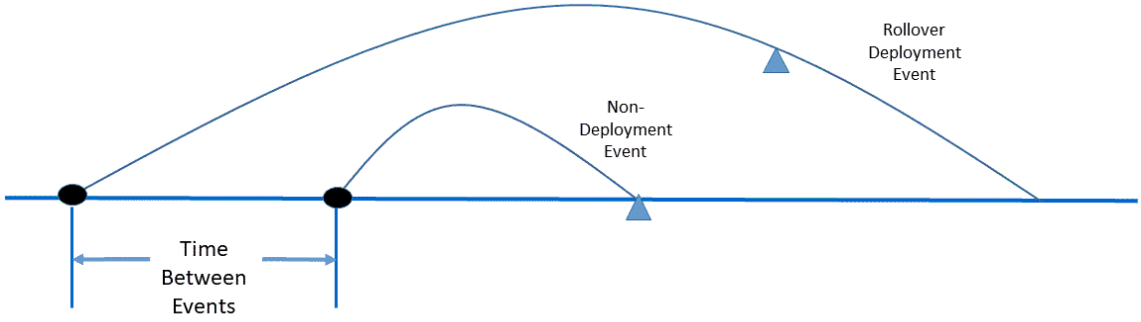
Data:

For FSR Events, SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event and is also not the Barrier Equivalent Velocity. For Deployment and Non-Deployment Events, the SDM will record up to 300 milliseconds of data after time zero. The SDM will also record up to 300 milliseconds of Vehicle Acceleration data after time zero.
For Rollover Events, the SDM may record Lateral Acceleration, Vertical Acceleration, and Roll Rate data, if the SDM is rollover capable. This data reflects what the sensing system experienced during the recorded portion of the event. For Rollover Deployment Events, the SDM will record up to 700 milliseconds of data before the Deployment criteria is met and 290 milliseconds after the Deployment criteria is met.
-Time between events is recorded in 10 msec intervals and is displayed in seconds for a maximum time of 655.33 seconds. The counter measures the time from the start of one event to the start of the next event, if both events occur within the same ignition cycle.
-The Maximum SDM Recorded Vehicle Velocity Change may occur between the recorded 10 millisecond sample points of the SDM Recorded Vehicle Velocity Change.
-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.
-SDM Recorded Vehicle Speed accuracy can be affected by various factors, including but not limited to the following:

-Significant changes in the tire's rolling radius

-Final drive axle ratio changes
-Wheel lockup and wheel slip

-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit or the commanded state of the brake lamps.
-Pre-Crash data is recorded asynchronously. The 0.5 second Pre-crash data value (most recent recorded data point) is the data point last sampled before Time Zero. That is to say, the last data point may have been captured just before Time Zero but no more than 0.5 second before Time Zero. All subsequent Pre-crash data values are referenced from this data point.
-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:
-The SDM receives a message with an "invalid" flag from the module sending the pre-crash data
-Pre-Crash Electronic Data Validity Check Status indicates "Data Not Available" if:
-No data is received from the module sending the pre-crash data
-For diesel powered vehicles, the data displayed as Throttle Position (%) is actually the data for the Air Inlet Flap Position. This is not the same as the throttle position for a gasoline powered engine.
-Belt Switch Circuit Status indicates the status of the seat belt switch circuit.
-The ignition cycle counter will increment when the power mode cycles from OFF/Accessory to RUN. Applying and removing of battery power to the module will not increment the ignition cycle counter.
-Ignition Cycles Since DTCs Were Last Cleared can be recorded with a maximum value of 253 cycles and can only be reset by a scan tool..
-Dynamic Deployment Event Counters tracks the number of Deployment events that have occurred during the SDM's lifetime.
-Dynamic Event Counters tracks the number of qualified events (either Deployments, Non-deploy, or Rollover events) that have occurred during the SDM's lifetime.
-For Deployment Events, DTC B0052 (Deployment commanded) shall be recorded with the remainder of the data for this event even though it occurred after Event Enable.
-For frontal Deployment Events, only the highest severity event is reported. For example, Stage 2 severity events include Pretensioner severity and Stage 1 severity.
-Once a firing loop has been commanded to be deployed, it will not be commanded to be deployed again during the same ignition cycle. Firing loop times for subsequent deployment type events, during the same ignition cycle, will record the deployment times as N/A.
-The airbag control module may continue to function after the vehicle has been turned off or to accessory, for a set period of time, this is called Prolongation. However, all other vehicle modules may have their functions shut down during Prolongation. For example, if the SIR warning lamp is commanded on by the airbag control module, during Prolongation, and is recorded in the EDR as being commanded on, the actual state of the warning lamp would be off to an observer since the vehicle display cluster would have been in the off state. Vehicle pre-event and system data may be recorded in the EDR as their commanded state, default state, or data invalid state.
-A Concurrent Event is when two events are happening nearly simultaneously. The "Concurrent Event Flag Set" parameter will indicate "Yes" if one event begins, but before that event is qualified, another event begins and is qualified.
A Non-Deployment event typically becomes qualified if that event exceeds the 5 MPH (8 km/h) delta V recording threshold and the event has concluded. A deployment event (FSR or Rollover) becomes qualified when a deployment has been commanded for that event.
Example of a Concurrent Event:
A Rollover event begins. Before the Rollover event is qualified, a Non-Deployment event begins and is qualified. Sometime after the Non-Deployment event is qualified, the Rollover event is qualified. The Non-Deployment event will be recorded in the first open record even though the Rollover event enabled before the Non-Deployment event. The Rollover event will be recorded in the next open record. The "Concurrent Event Flag Set" parameter will indicate "Yes" for the Rollover event. The "Time Between Events" parameter will indicate the time from the start of the Rollover event to the start of the Non-Deployment event.



Event Recor #1	Event Record #2
Event Record Type = Non – Deployment	Event Record Type = Rollover
Concurrent Event Flag = No	Concurrent Event Flag = Yes
Time Between Events = NA	Time Between Events = XX seconds

-The GM parameter name is displayed in parentheses after the NHTSA Part 563 parameter name.
-All data should be examined in conjunction with other available physical evidence from the vehicle and scene.

Data Source:

All SDM recorded data is measured, calculated, and stored internally, except for the following:
-Vehicle Status Data (Pre-Crash) is transmitted by the Body Control Module, via the vehicle's communication network.
-The Belt Switch Circuit is wired directly to the SDM.

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. Directional references to sign notation are all from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

Data Element Name	Positive Sign Notation Indicates
Longitudinal Acceleration	Forward
Longitudinal Velocity Change	Forward
Lateral Acceleration	Left to Right
Lateral Velocity Change	Left to Right
Vertical Acceleration	Downward
Roll Rate	Clockwise Rotation

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 tool.

01067_SDM40-delphi_r004

System Status at Time of Retrieval

ESS # 1 Traceability Data, Component Identifier	AU
ESS # 1 Traceability Data, Part Number/Broadcast Code	9412
ESS # 1 Traceability Data, Supplier Code	D
ESS # 1 Traceability Data, Traceability Number	A00000000
ESS # 1 Verification Data	13,519,412
ESS # 2 Traceability Data, Component Identifier	AT
ESS # 2 Traceability Data, Part Number/Broadcast Code	9412
ESS # 2 Traceability Data, Supplier Code	D
ESS # 2 Traceability Data, Traceability Number	A00000000
ESS # 2 Verification Data	13,519,412
ESS # 3 Traceability Data, Component Identifier	AH
ESS # 3 Traceability Data, Part Number/Broadcast Code	4077
ESS # 3 Traceability Data, Supplier Code	D
ESS # 3 Traceability Data, Traceability Number	A00000000
ESS # 3 Verification Data	13,514,077
ESS # 4 Traceability Data, Component Identifier	AJ
ESS # 4 Traceability Data, Part Number/Broadcast Code	4077
ESS # 4 Traceability Data, Supplier Code	D
ESS # 4 Traceability Data, Traceability Number	A00000000
ESS # 4 Verification Data	13,514,077
ESS # 5 Traceability Data, Traceability Number	A00000000
ESS # 5 Traceability Data, Component Identifier	DA
ESS # 5 Traceability Data, Part Number/Broadcast Code	4198
ESS # 5 Traceability Data, Supplier Code	D
ESS # 5 Verification Data	13,514,198
ESS # 6 Traceability Data, Component Identifier	DB
ESS # 6 Traceability Data, Part Number/Broadcast Code	4198
ESS # 6 Traceability Data, Supplier Code	D
ESS # 6 Traceability Data, Traceability Number	A00000000
ESS # 6 Verification Data	13,514,198
ESS # 7 Traceability Data, Component Identifier	
ESS # 7 Traceability Data, Part Number/Broadcast Code	0000
ESS # 7 Traceability Data, Supplier Code	D
ESS # 7 Traceability Data, Traceability Number	A00000000
ESS # 7 Verification Data	0
ESS # 8 Traceability Data, Component Identifier	
ESS # 8 Traceability Data, Part Number/Broadcast Code	0000
ESS # 8 Traceability Data, Supplier Code	D
ESS # 8 Traceability Data, Traceability Number	A00000000
ESS # 8 Verification Data	0
AOS Data Key	0
SDM Primary Key Definition (Key 1-2)	70
SDM Primary Key Definition (Key 3-4)	82
Dynamic Deployment Event Counter	2
Multi-Event, Number of Events (Dynamic Event Counter)	3
Dynamic OnStar Notification Event Counter	3
Driver Frontal Stage 2 Commanded after Event End for Event Record #1	No
Passenger Frontal Stage 2 Commanded after Event End for Event Record #1	No
Driver Frontal Stage 2 Commanded after Event End for Event Record #2	No
Passenger Frontal Stage 2 Commanded after Event End for Event Record #2	No
Driver Frontal Stage 2 Commanded after Event End for Event Record #3	No
Passenger Frontal Stage 2 Commanded after Event End for Event Record #3	No
Longitudinal Accelerometer Range (g)	113
Lateral Accelerometer Range (g)	113
Dynamic PedPro Deploy Event Counter	0
Dynamic PedPro Event Counter	0
Vehicle Identification Number (VIN)	1GC4YME76LF******
System Type	Delphi SDM40 with integrated IMU
Ignition Cycle, Download (Ignition Cycles at Investigation)	7,315

System Status at Event (Record 1)

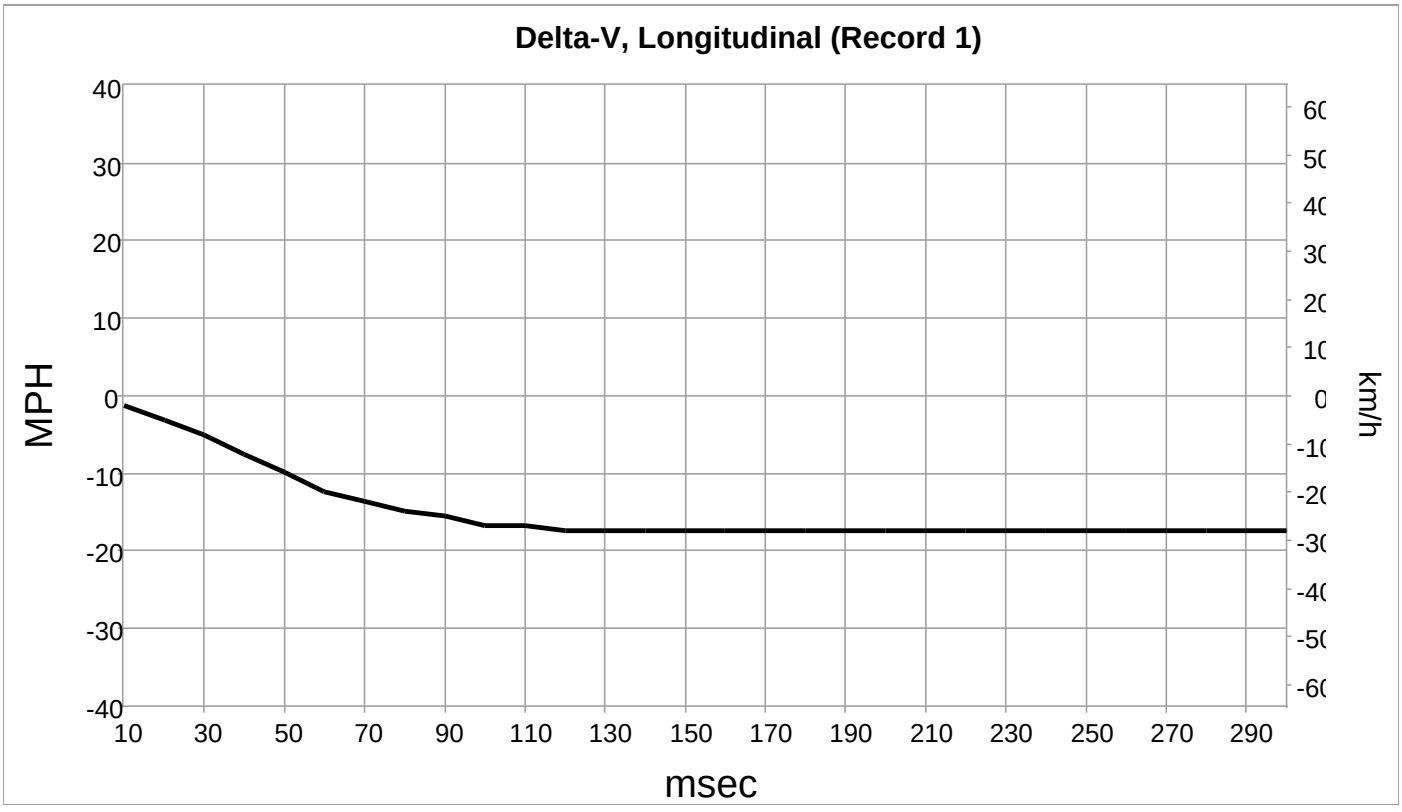
Complete File Recorded (Event Recording Complete)	Yes
Event Record Type	Non-Deployment
Crash Record Locked	No
OnStar Deployment Status Data Sent	Yes
OnStar SDM Recorded Vehicle Velocity Change Data Sent	Yes
High Voltage Disable Notification Sent	Yes
Power Loss Detected for Deployment Event	No
Deployment Event Counter	0
Multi-Event, Number of Events (Event Counter)	1
OnStar Notification Event Counter	1
Algorithm Active - Frontal	Yes
Algorithm Active - Side	No
Algorithm Active - Rollover	Yes
Algorithm Active - Rear	Yes
Ignition Cycle, Crash (Ignition Cycles at Event)	7,315
Time From Event 1 to 2 (Time Between Events) (msec)	Data Not Available
Concurrent Event Flag Set	No
Event Severity Status: Frontal Pretensioner	No
Event Severity Status: Frontal Stage 1	No
Event Severity Status: Frontal Stage 2	No
Event Severity Status: Left Side	No
Event Severity Status: Right Side	No
Event Severity Status: Rear	No
Event Severity Status: Rollover	No
Event Severity Status: Battery Disconnect Switch - Side Event	No
Safety Belt Status, Driver (Driver Belt Switch Circuit Status)	Buckled
Safety Belt Status, Right Front Passenger (Passenger Belt Switch Circuit Status)	Not Buckled
Passenger Seat Occupancy Status	Empty
Occupant Size Right Front Passenger Child (Passenger Classification Status)	No (Not Applicable)
Passenger Air Bag ON Indicator Status	Off
Passenger Air Bag OFF Indicator Status	On
Low Tire Pressure Warning Lamp Status 0.5 Seconds prior to Time Zero	Off
Frontal Air Bag Warning Lamp (SIR Warning Lamp Status 0.5 Seconds Prior to Time Zero)	Off
SIR Warning Lamp ON/OFF Time Continuously (seconds)	655,330
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	2,708
Ignition Cycles Since DTCs Were Last Cleared 0.5 Seconds Prior to Time Zero	253
Maximum Delta-V, Longitudinal (Maximum Longitudinal SDM Recorded Vehicle Velocity Change for FSR Event) (MPH [km/h])	-17 [-28]
Time, Maximum Delta-V (Time From FSR Time Zero to Maximum Longitudinal SDM Recorded Vehicle Velocity Change) (msec)	140
Maximum Delta-V, Lateral (Maximum Lateral SDM Recorded Vehicle Velocity Change for FSR Event) (MPH [km/h])	-1 [-2]
Time Maximum Delta-V, Lateral (Time From FSR Time Zero to Maximum Lateral SDM Recorded Vehicle Velocity Change) (msec)	172
Maximum Resultant Delta-V – Longitudinal Component for FSR Event (MPH [km/h])	-17 [-28]
Maximum Resultant Delta-V – Lateral Component for FSR Event (MPH [km/h])	-1 [-1]
Time from FSR Time Zero to time of the Maximum Resultant Delta-V (msec)	144
Blended Event FSR 1 Severity Type	Non-deploy FSR (qualified or non-qualified)
Blended Event FSR 2 Severity Type	Data Not Available
Blended Event Time from FSR 1 Time Zero to FSR 2 Time Zero (msec)	Data Not Available
Blended Event FSR 3 Severity Type	Data Not Available
Blended Event Time from FSR 1 Time Zero to FSR 3 Time Zero (msec)	Data Not Available

Diagnostic Trouble Codes 0.5 Seconds Prior to Time Zero (Record 1)

DTC 1	N/A
DTC 2	N/A
DTC 3	N/A
DTC 4	N/A
DTC 5	N/A
DTC 6	N/A
DTC 7	N/A
DTC 8	N/A
DTC 9	N/A

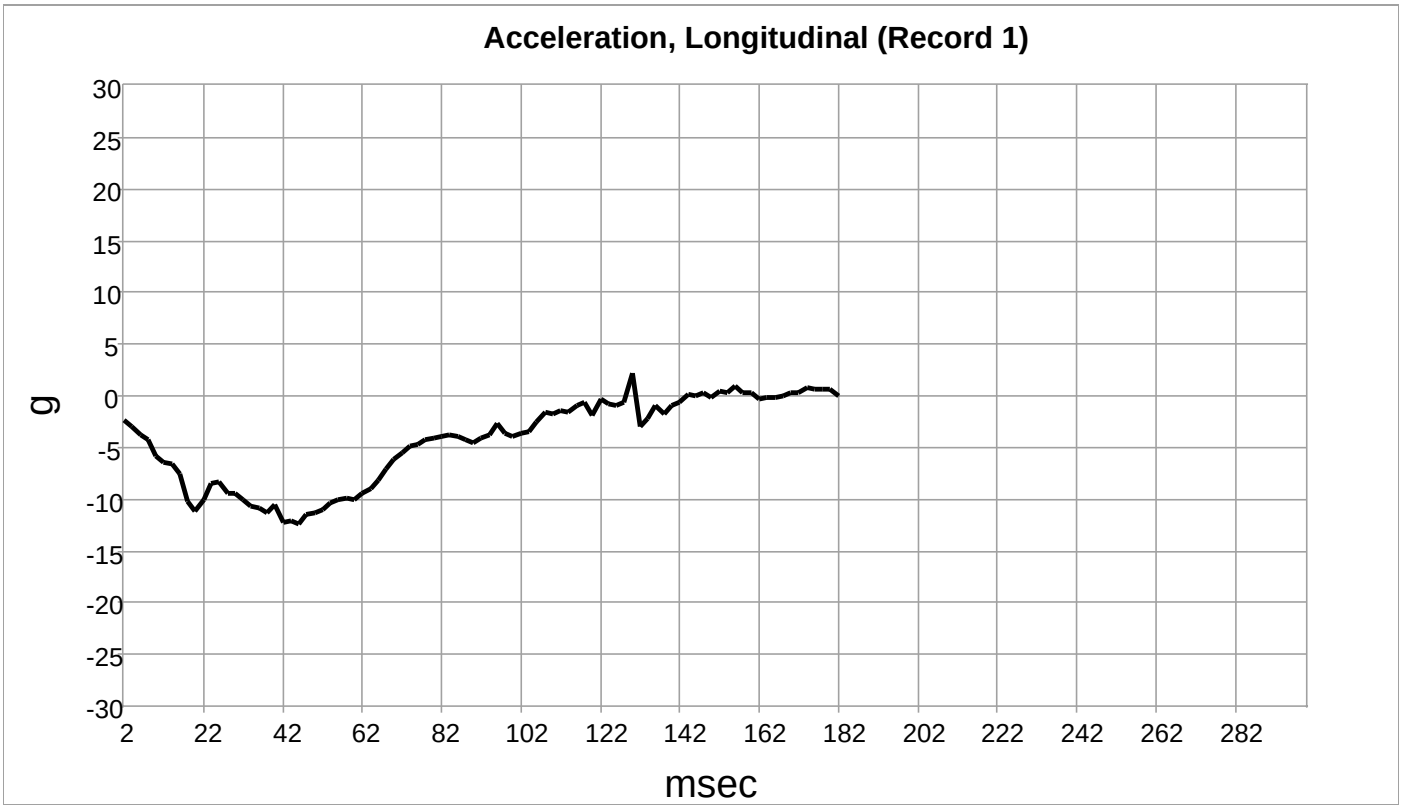
Deployment Command Data (Record 1)

Driver 1st Stage Deployment Loop Commanded	No
Passenger 1st Stage Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded	No
Passenger 2nd Stage Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop #1 Commanded	No
Passenger Pretensioner Deployment Loop #1 Commanded	No
Driver Pretensioner Deployment Loop #2 Commanded	No
Passenger Pretensioner Deployment Loop #2 Commanded	No
Driver Thorax Loop Commanded	No
Passenger Thorax Loop Commanded	No
Left Row 1 Roof Rail/Head Curtain Loop Commanded	No
Right Row 1 Roof Rail/Head Curtain Loop Commanded	No
Frontal Air Bag Deployment, Time to 1st Stage Deployment, Driver (Driver 1st Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 1st Stage Deployment, Right Front Passenger (Passenger 1st Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 2nd Stage, Driver (Driver 2nd Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 2nd Stage, Right Front Passenger (Passenger 2nd Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Driver (Driver Pretensioner Time From Time Zero to Deployment Loop #1 Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Right Front Passenger (Passenger Pretensioner Time From Time Zero to Deployment Loop #1 Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Driver (Driver Pretensioner Time From Time Zero to Deployment Loop #2 Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Right Front Passenger (Passenger Pretensioner Time From Time Zero to Deployment Loop #2 Command Criteria Met) (msec)	Data Not Available
Side Air Bag Deployment, Time to Deploy, Driver (Driver Thorax Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Side Air Bag Deployment, Time to Deploy, Right Front Passenger (Passenger Thorax Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Left Row 1 Curtain Time From Time Zero to Deployment Command Criteria Met (msec)	Data Not Available
Right Row 1 Curtain Time From Time Zero to Deployment Command Criteria Met (msec)	Data Not Available


Delta-V, Longitudinal (Record 1)
MPH
km/h
msec
40
30
20
10
0
-10
-20
-30
-40
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
10
30
50
70
90
110
130
150
170
190
210
230
250
270
290

Longitudinal Delta-V (Record 1)

Time (msec)	Delta-V, Longitudinal (SDM Recorded Vehicle Longitudinal Velocity Change for FSR Event) (MPH [km/h])
10	-1 [-2]
20	-3 [-5]
30	-5 [-8]
40	-7 [-12]
50	-10 [-16]
60	-12 [-20]
70	-14 [-22]
80	-15 [-24]
90	-16 [-25]
100	-17 [-27]
110	-17 [-27]
120	-17 [-28]
130	-17 [-28]
140	-17 [-28]
150	-17 [-28]
160	-17 [-28]
170	-17 [-28]
180	-17 [-28]
190	-17 [-28]
200	-17 [-28]
210	-17 [-28]
220	-17 [-28]
230	-17 [-28]
240	-17 [-28]
250	-17 [-28]
260	-17 [-28]
270	-17 [-28]
280	-17 [-28]
290	-17 [-28]
300	-17 [-28]

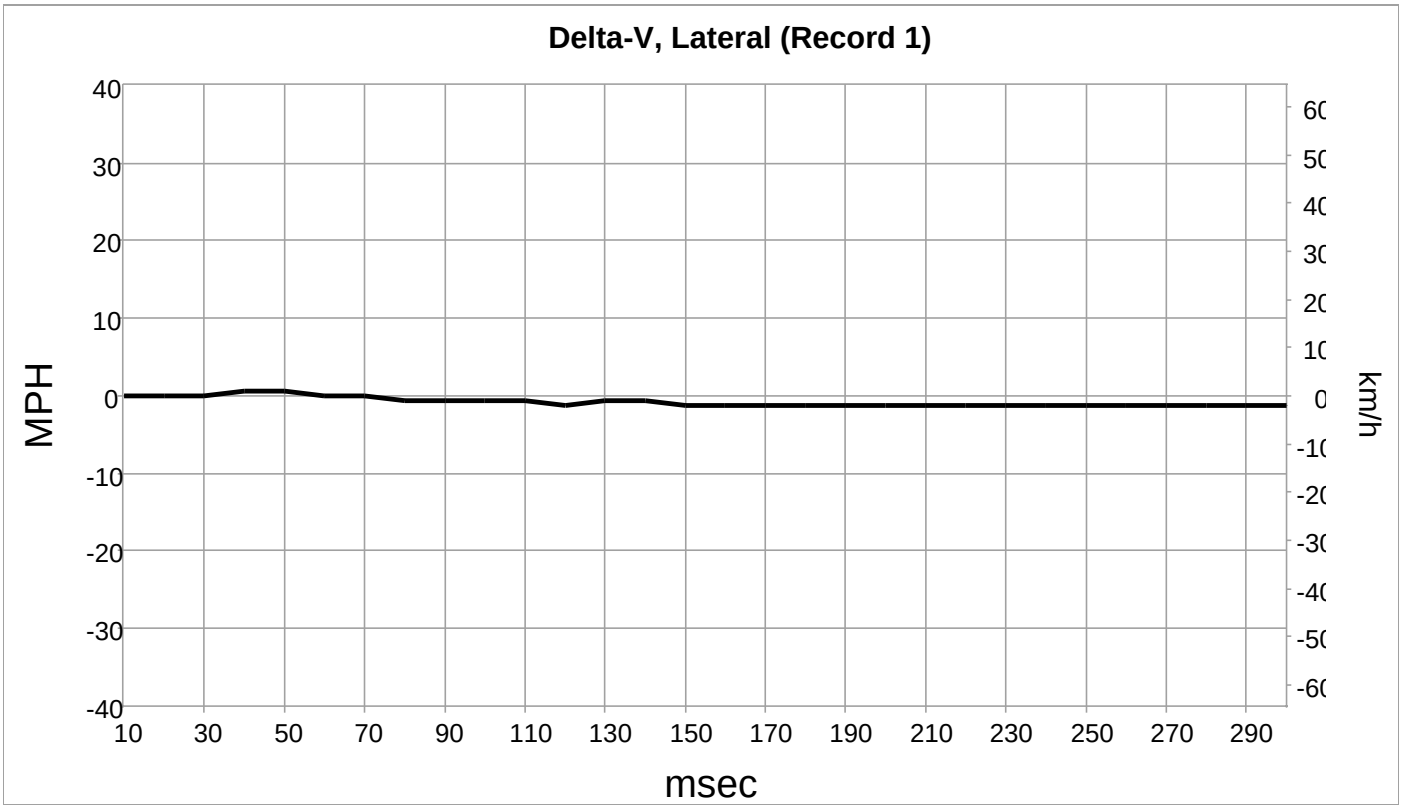

Acceleration, Longitudinal (Record 1)
g
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
2
22
42
62
82
102
122
142
162
182
202
222
242
262
282
msec

Longitudinal Acceleration (Record 1)

Time (msec)	Longitudinal Acceleration (SDM Recorded Vehicle Longitudinal Acceleration for FSR Event) (g)
2	-2.38
4	-3.00
6	-3.75
8	-4.25
10	-5.88
12	-6.50
14	-6.63
16	-7.50
18	-10.25
20	-11.13
22	-10.13
24	-8.50
26	-8.25
28	-9.50
30	-9.50
32	-10.00
34	-10.75
36	-10.88
38	-11.25
40	-10.50
42	-12.25
44	-12.13
46	-12.38
48	-11.50
50	-11.25
52	-11.00
54	-10.38
56	-10.00
58	-9.88
60	-10.00
62	-9.50
64	-8.88
66	-8.13
68	-7.13
70	-6.13
72	-5.50
74	-4.88
76	-4.75
78	-4.25
80	-4.13
82	-3.88
84	-3.75
86	-4.00
88	-4.25
90	-4.50
92	-4.13
94	-3.75
96	-2.63
98	-3.63
100	-3.88
102	-3.63
104	-3.38
106	-2.50
108	-1.50
110	-1.75
112	-1.38
114	-1.63

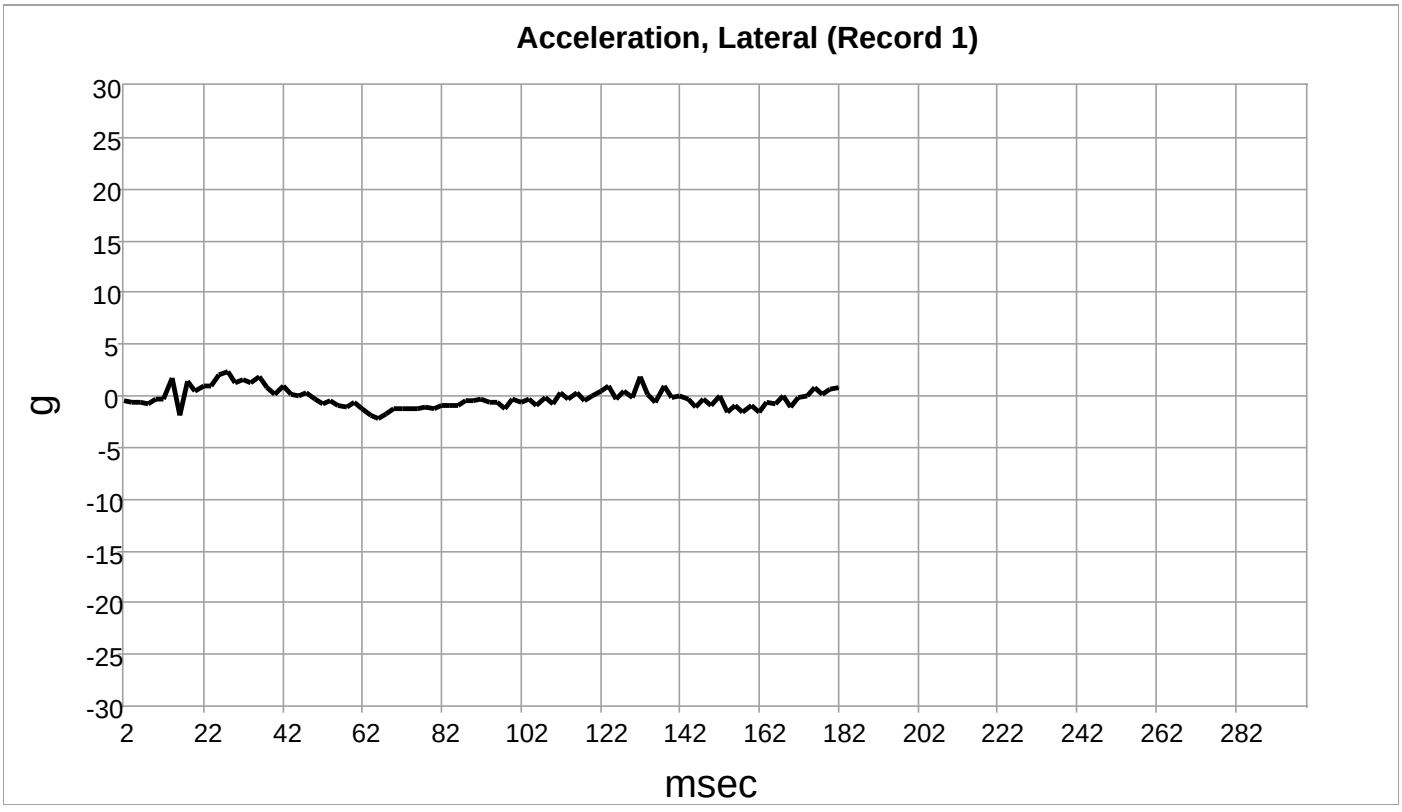
Time (msec)	Longitudinal Acceleration (SDM Recorded Vehicle Longitudinal Acceleration for FSR Event) (g)
116	-0.88
118	-0.63
120	-1.88
122	-0.25
124	-0.75
126	-0.88
128	-0.63
130	2.25
132	-3.00
134	-2.13
136	-1.00
138	-1.75
140	-0.88
142	-0.63
144	0.12
146	0.00
148	0.37
150	-0.13
152	0.50
154	0.37
156	0.87
158	0.25
160	0.25
162	-0.25
164	-0.13
166	-0.13
168	0.00
170	0.25
172	0.25
174	0.75
176	0.62
178	0.62
180	0.62
182	0.00
184	Data Not Available
186	Data Not Available
188	Data Not Available
190	Data Not Available
192	Data Not Available
194	Data Not Available
196	Data Not Available
198	Data Not Available
200	Data Not Available
202	Data Not Available
204	Data Not Available
206	Data Not Available
208	Data Not Available
210	Data Not Available
212	Data Not Available
214	Data Not Available
216	Data Not Available
218	Data Not Available
220	Data Not Available
222	Data Not Available
224	Data Not Available
226	Data Not Available
228	Data Not Available
230	Data Not Available

Time (msec)	Longitudinal Acceleration (SDM Recorded Vehicle Longitudinal Acceleration for FSR Event) (g)
232	Data Not Available
234	Data Not Available
236	Data Not Available
238	Data Not Available
240	Data Not Available
242	Data Not Available
244	Data Not Available
246	Data Not Available
248	Data Not Available
250	Data Not Available
252	Data Not Available
254	Data Not Available
256	Data Not Available
258	Data Not Available
260	Data Not Available
262	Data Not Available
264	Data Not Available
266	Data Not Available
268	Data Not Available
270	Data Not Available
272	Data Not Available
274	Data Not Available
276	Data Not Available
278	Data Not Available
280	Data Not Available
282	Data Not Available
284	Data Not Available
286	Data Not Available
288	Data Not Available
290	Data Not Available
292	Data Not Available
294	Data Not Available
296	Data Not Available
298	Data Not Available
300	Data Not Available


Delta-V, Lateral (Record 1)
MPH
km/h
msec
40
30
20
10
0
-10
-20
-30
-40
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
10
30
50
70
90
110
130
150
170
190
210
230
250
270
290

Lateral Delta-V (Record 1)

Time (msec)	Delta-V, Lateral (SDM Recorded Vehicle Lateral Velocity Change for FSR Event) (MPH [km/h])
10	0 [0]
20	0 [0]
30	0 [0]
40	1 [1]
50	1 [1]
60	0 [0]
70	0 [0]
80	-1 [-1]
90	-1 [-1]
100	-1 [-1]
110	-1 [-1]
120	-1 [-2]
130	-1 [-1]
140	-1 [-1]
150	-1 [-2]
160	-1 [-2]
170	-1 [-2]
180	-1 [-2]
190	-1 [-2]
200	-1 [-2]
210	-1 [-2]
220	-1 [-2]
230	-1 [-2]
240	-1 [-2]
250	-1 [-2]
260	-1 [-2]
270	-1 [-2]
280	-1 [-2]
290	-1 [-2]
300	-1 [-2]


Acceleration, Lateral (Record 1)
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
g
2
22
42
62
82
102
122
142
162
182
202
222
242
262
282
msec

Lateral Acceleration (Record 1)

Time (msec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for FSR Event) (g)
2	-0.50
4	-0.63
6	-0.63
8	-0.75
10	-0.25
12	-0.25
14	1.75
16	-1.88
18	1.37
20	0.50
22	1.00
24	1.00
26	2.00
28	2.37
30	1.25
32	1.50
34	1.25
36	1.87
38	0.75
40	0.12
42	1.00
44	0.12
46	0.00
48	0.25
50	-0.38
52	-0.75
54	-0.50
56	-1.00
58	-1.13
60	-0.63
62	-1.25
64	-1.88
66	-2.13
68	-1.75
70	-1.25
72	-1.25
74	-1.25
76	-1.25
78	-1.13
80	-1.25
82	-0.88
84	-0.88
86	-0.88
88	-0.50
90	-0.50
92	-0.38
94	-0.63
96	-0.63
98	-1.25
100	-0.25
102	-0.63
104	-0.38
106	-1.00
108	-0.13
110	-0.75
112	0.25
114	-0.38
116	0.37

Time (msec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for FSR Event) (g)
118	-0.50
120	0.00
122	0.50
124	1.00
126	-0.25
128	0.50
130	-0.13
132	1.87
134	0.12
136	-0.63
138	1.00
140	-0.13
142	0.00
144	-0.25
146	-1.13
148	-0.38
150	-1.00
152	0.00
154	-1.50
156	-0.88
158	-1.63
160	-0.88
162	-1.50
164	-0.63
166	-0.75
168	0.00
170	-1.13
172	-0.13
174	0.00
176	0.75
178	0.12
180	0.62
182	0.75
184	Data Not Available
186	Data Not Available
188	Data Not Available
190	Data Not Available
192	Data Not Available
194	Data Not Available
196	Data Not Available
198	Data Not Available
200	Data Not Available
202	Data Not Available
204	Data Not Available
206	Data Not Available
208	Data Not Available
210	Data Not Available
212	Data Not Available
214	Data Not Available
216	Data Not Available
218	Data Not Available
220	Data Not Available
222	Data Not Available
224	Data Not Available
226	Data Not Available
228	Data Not Available
230	Data Not Available
232	Data Not Available
234	Data Not Available

Time (msec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for FSR Event) (g)
236	Data Not Available
238	Data Not Available
240	Data Not Available
242	Data Not Available
244	Data Not Available
246	Data Not Available
248	Data Not Available
250	Data Not Available
252	Data Not Available
254	Data Not Available
256	Data Not Available
258	Data Not Available
260	Data Not Available
262	Data Not Available
264	Data Not Available
266	Data Not Available
268	Data Not Available
270	Data Not Available
272	Data Not Available
274	Data Not Available
276	Data Not Available
278	Data Not Available
280	Data Not Available
282	Data Not Available
284	Data Not Available
286	Data Not Available
288	Data Not Available
290	Data Not Available
292	Data Not Available
294	Data Not Available
296	Data Not Available
298	Data Not Available
300	Data Not Available

Roll Rate (Record 1)

Contains No Recorded Data

Acceleration, Lateral, Rollover (Record 1)

Contains No Recorded Data

Acceleration, Normal, Rollover (Record 1)

Contains No Recorded Data

Pre-Crash Data -5.0 to -0.5 sec (Record 1) - Table 1 of 2

Time (sec)	Service Brake (Brake Switch Circuit State)	Accelerator Pedal Position, % Full (Accelerator Pedal Position) (%)	Engine RPM (Engine Speed) (RPM)	Engine Throttle, % Full (Throttle Position) (%)	Speed, Vehicle Indicated (Vehicle Speed) (MPH [km/h])	System Power Mode Status	System Backup Power Mode Status
-5.0	Off	21	1,600	28	60 [97]	Run	Run
-4.5	Off	24	1,664	32	61 [98]	Run	Run
-4.0	Off	21	1,600	30	62 [99]	Run	Run
-3.5	Off	18	1,536	25	62 [99]	Run	Run
-3.0	Off	6	1,536	14	62 [99]	Run	Run
-2.5	Off	2	1,472	9	62 [99]	Run	Run
-2.0	Off	0	1,408	8	61 [98]	Run	Run
-1.5	Off	1	1,408	22	57 [92]	Run	Run
-1.0	On	99	1,344	20	57 [91]	Run	Run
-0.5	Off	0	2,368	31	42 [68]	Run	Run

Pre-Crash Data -5.0 to -0.5 sec (Record 1) - Table 2 of 2

Time (sec)	System Backup Power Mode Enabled	CommEnable Status	SDM Power Mode Status	Ignition Prolongation Timer (seconds)
-5.0	No	Active	Run	0.0
-4.5	No	Active	Run	0.0
-4.0	No	Active	Run	0.0
-3.5	No	Active	Run	0.0
-3.0	No	Active	Run	0.0
-2.5	No	Active	Run	0.0
-2.0	No	Active	Run	0.0
-1.5	No	Active	Run	0.0
-1.0	No	Active	Run	0.0
-0.5	No	Active	Run	0.0

Pre-Crash Data -2.0 to -0.5 sec (Record 1)

Time (sec)	Cruise Control Active	Cruise Control Resume Switch Active	Cruise Control Set Switch Active	Reduced Engine Power Mode Indicator	Engine Torque (N-m)
-2.0	No	No	No	Off	-7
-1.5	No	No	No	Off	-36
-1.0	No	No	No	Off	6
-0.5	No	No	No	Off	256

System Status at Event (Record 2)

Complete File Recorded (Event Recording Complete)	Yes
Event Record Type	Deployment
Crash Record Locked	Yes
OnStar Deployment Status Data Sent	Yes
OnStar SDM Recorded Vehicle Velocity Change Data Sent	Yes
High Voltage Disable Notification Sent	Yes
Power Loss Detected for Deployment Event	No
Deployment Event Counter	1
Multi-Event, Number of Events (Event Counter)	2
OnStar Notification Event Counter	2
Algorithm Active - Frontal	Yes
Algorithm Active - Side	Yes
Algorithm Active - Rollover	Yes
Algorithm Active - Rear	Yes
Ignition Cycle, Crash (Ignition Cycles at Event)	7,315
Time From Event 1 to 2 (Time Between Events) (msec)	1,780
Concurrent Event Flag Set	Yes
Event Severity Status: Frontal Pretensioner	No
Event Severity Status: Frontal Stage 1	No
Event Severity Status: Frontal Stage 2	No
Event Severity Status: Left Side	No
Event Severity Status: Right Side	No
Event Severity Status: Rear	No
Event Severity Status: Rollover	Yes
Event Severity Status: Battery Disconnect Switch - Side Event	No
Safety Belt Status, Driver (Driver Belt Switch Circuit Status)	Buckled
Safety Belt Status, Right Front Passenger (Passenger Belt Switch Circuit Status)	Not Buckled
Passenger Seat Occupancy Status	Empty
Occupant Size Right Front Passenger Child (Passenger Classification Status)	No (Not Applicable)
Passenger Air Bag ON Indicator Status	Off
Passenger Air Bag OFF Indicator Status	On
Low Tire Pressure Warning Lamp Status 0.5 Seconds prior to Time Zero	Off
Frontal Air Bag Warning Lamp (SIR Warning Lamp Status 0.5 Seconds Prior to Time Zero)	Off
SIR Warning Lamp ON/OFF Time Continuously (seconds)	655,330
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	2,708
Ignition Cycles Since DTCs Were Last Cleared 0.5 Seconds Prior to Time Zero	253
Maximum Delta-V, Longitudinal (Maximum Longitudinal SDM Recorded Vehicle Velocity Change for FSR Event) (MPH [km/h])	Data Not Available
Time, Maximum Delta-V (Time From FSR Time Zero to Maximum Longitudinal SDM Recorded Vehicle Velocity Change) (msec)	Data Not Available
Maximum Delta-V, Lateral (Maximum Lateral SDM Recorded Vehicle Velocity Change for FSR Event) (MPH [km/h])	Data Not Available
Time Maximum Delta-V, Lateral (Time From FSR Time Zero to Maximum Lateral SDM Recorded Vehicle Velocity Change) (msec)	Data Not Available
Maximum Resultant Delta-V – Longitudinal Component for FSR Event (MPH [km/h])	Data Not Available
Maximum Resultant Delta-V – Lateral Component for FSR Event (MPH [km/h])	Data Not Available
Time from FSR Time Zero to time of the Maximum Resultant Delta-V (msec)	Data Not Available
Blended Event FSR 1 Severity Type	Data Not Available
Blended Event FSR 2 Severity Type	Data Not Available
Blended Event Time from FSR 1 Time Zero to FSR 2 Time Zero (msec)	Data Not Available
Blended Event FSR 3 Severity Type	Data Not Available
Blended Event Time from FSR 1 Time Zero to FSR 3 Time Zero (msec)	Data Not Available

Diagnostic Trouble Codes 0.5 Seconds Prior to Time Zero (Record 2)

DTC 1	B0052-00
DTC 2	N/A
DTC 3	N/A
DTC 4	N/A
DTC 5	N/A
DTC 6	N/A
DTC 7	N/A
DTC 8	N/A
DTC 9	N/A

Deployment Command Data (Record 2)

Driver 1st Stage Deployment Loop Commanded	No
Passenger 1st Stage Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded	No
Passenger 2nd Stage Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop #1 Commanded	Yes
Passenger Pretensioner Deployment Loop #1 Commanded	Yes
Driver Pretensioner Deployment Loop #2 Commanded	Yes
Passenger Pretensioner Deployment Loop #2 Commanded	Yes
Driver Thorax Loop Commanded	No
Passenger Thorax Loop Commanded	No
Left Row 1 Roof Rail/Head Curtain Loop Commanded	Yes
Right Row 1 Roof Rail/Head Curtain Loop Commanded	Yes
Frontal Air Bag Deployment, Time to 1st Stage Deployment, Driver (Driver 1st Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 1st Stage Deployment, Right Front Passenger (Passenger 1st Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 2nd Stage, Driver (Driver 2nd Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 2nd Stage, Right Front Passenger (Passenger 2nd Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Driver (Driver Pretensioner Time From Time Zero to Deployment Loop #1 Command Criteria Met) (msec)	253
Pretensioner Deployment, Time to Fire, Right Front Passenger (Passenger Pretensioner Time From Time Zero to Deployment Loop #1 Command Criteria Met) (msec)	253
Pretensioner Deployment, Time to Fire, Driver (Driver Pretensioner Time From Time Zero to Deployment Loop #2 Command Criteria Met) (msec)	253
Pretensioner Deployment, Time to Fire, Right Front Passenger (Passenger Pretensioner Time From Time Zero to Deployment Loop #2 Command Criteria Met) (msec)	253
Side Air Bag Deployment, Time to Deploy, Driver (Driver Thorax Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Side Air Bag Deployment, Time to Deploy, Right Front Passenger (Passenger Thorax Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Left Row 1 Curtain Time From Time Zero to Deployment Command Criteria Met (msec)	253
Right Row 1 Curtain Time From Time Zero to Deployment Command Criteria Met (msec)	253

Delta-V, Longitudinal (Record 2)

Contains No Recorded Data

Acceleration, Longitudinal (Record 2)

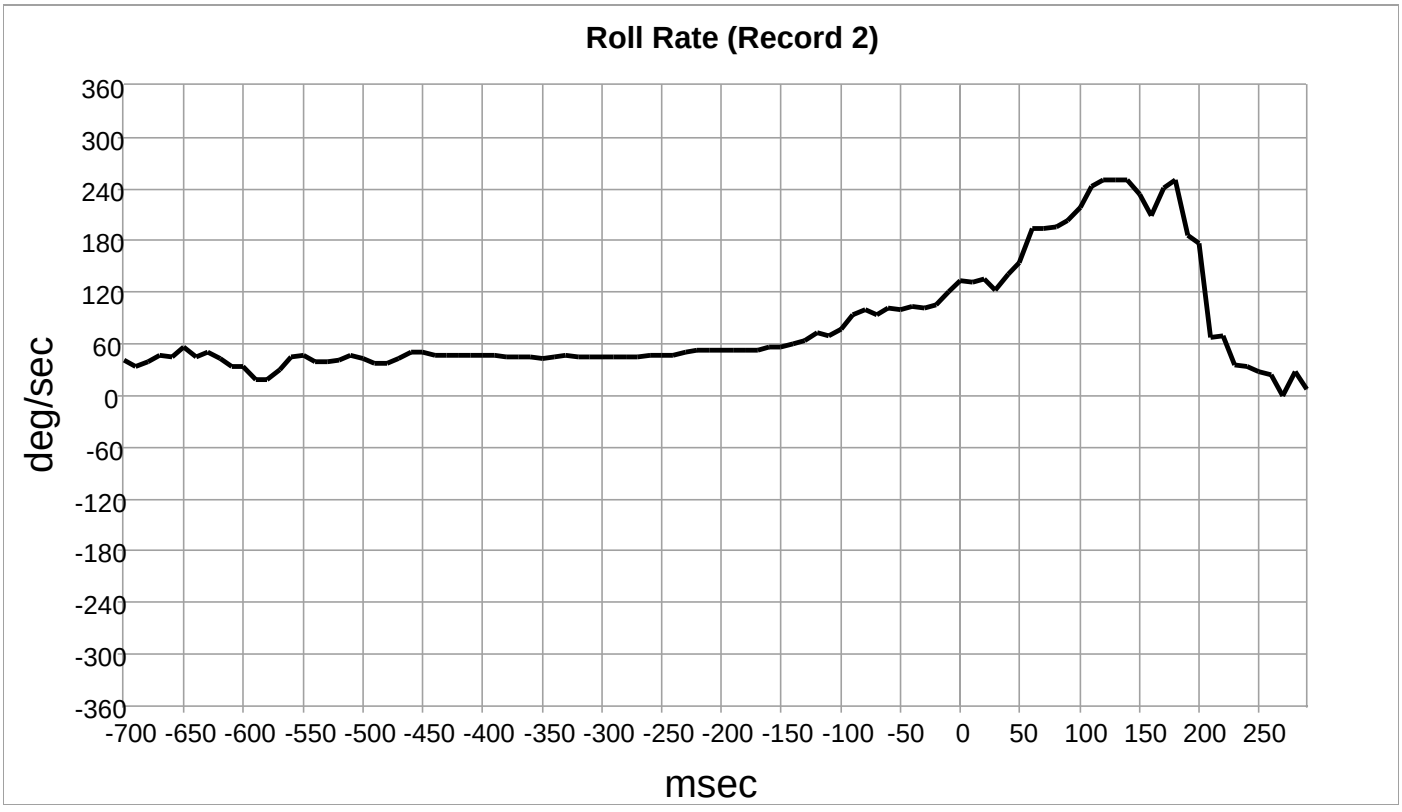
Contains No Recorded Data

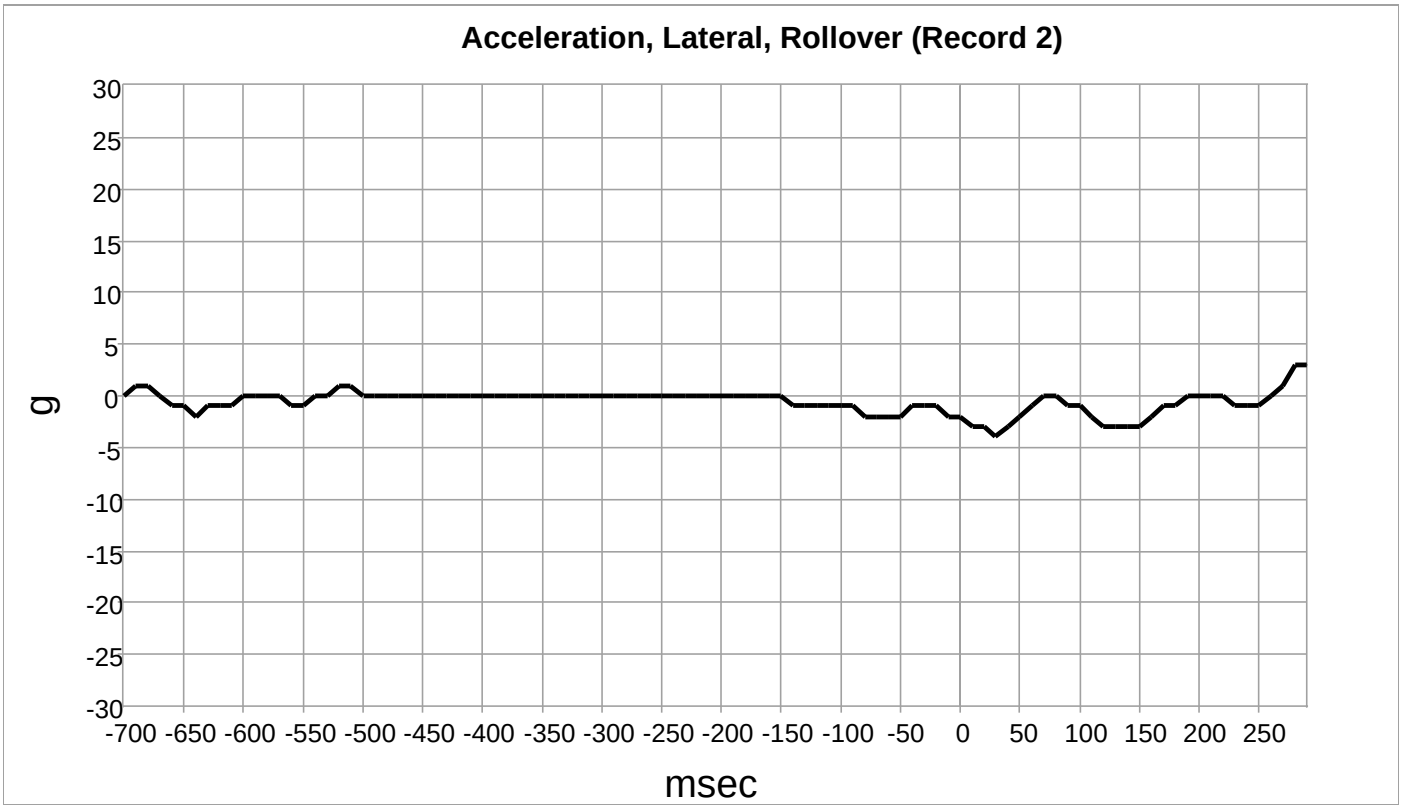
Delta-V, Lateral (Record 2)

Contains No Recorded Data

Acceleration, Lateral (Record 2)

Contains No Recorded Data


Roll Rate (Record 2)
360
300
240
180
120
60
0
-60
-120
-180
-240
-300
-360
deg/sec
-700 -650 -600 -550 -500 -450 -400 -350 -300 -250 -200 -150 -100 -50 0 50 100 150 200 250
msec


Acceleration, Lateral, Rollover (Record 2)
g
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-700 -650 -600 -550 -500 -450 -400 -350 -300 -250 -200 -150 -100 -50 0 50 100 150 200 250
msec

Acceleration, Normal, Rollover (Record 2)

Contains No Recorded Data

Rollover Crash Pulse (Record 2)

Time (msec)	SDM Recorded Vehicle Roll Rate (deg/sec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for Rollover Event) (g)	Normal Acceleration (SDM Recorded Vehicle Vertical Acceleration for Rollover Event (g)
-700	42	0	Data Not Available
-690	34	1	Data Not Available
-680	40	1	Data Not Available
-670	48	0	Data Not Available
-660	46	-1	Data Not Available
-650	56	-1	Data Not Available
-640	46	-2	Data Not Available
-630	50	-1	Data Not Available
-620	44	-1	Data Not Available
-610	34	-1	Data Not Available
-600	34	0	Data Not Available
-590	18	0	Data Not Available
-580	18	0	Data Not Available
-570	30	0	Data Not Available
-560	46	-1	Data Not Available
-550	48	-1	Data Not Available
-540	40	0	Data Not Available
-530	40	0	Data Not Available
-520	42	1	Data Not Available
-510	48	1	Data Not Available
-500	44	0	Data Not Available
-490	38	0	Data Not Available
-480	38	0	Data Not Available
-470	44	0	Data Not Available
-460	50	0	Data Not Available
-450	50	0	Data Not Available
-440	48	0	Data Not Available
-430	48	0	Data Not Available
-420	48	0	Data Not Available
-410	48	0	Data Not Available
-400	48	0	Data Not Available
-390	48	0	Data Not Available
-380	46	0	Data Not Available
-370	46	0	Data Not Available
-360	46	0	Data Not Available
-350	44	0	Data Not Available
-340	46	0	Data Not Available
-330	48	0	Data Not Available
-320	46	0	Data Not Available
-310	46	0	Data Not Available
-300	46	0	Data Not Available
-290	46	0	Data Not Available
-280	46	0	Data Not Available
-270	46	0	Data Not Available
-260	48	0	Data Not Available
-250	48	0	Data Not Available
-240	48	0	Data Not Available
-230	50	0	Data Not Available
-220	52	0	Data Not Available
-210	52	0	Data Not Available
-200	52	0	Data Not Available
-190	52	0	Data Not Available
-180	52	0	Data Not Available
-170	52	0	Data Not Available
-160	56	0	Data Not Available
-150	56	0	Data Not Available
-140	60	-1	Data Not Available
-130	64	-1	Data Not Available

Time (msec)	SDM Recorded Vehicle Roll Rate (deg/sec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for Rollover Event) (g)	Normal Acceleration (SDM Recorded Vehicle Vertical Acceleration for Rollover Event (g)
-120	74	-1	Data Not Available
-110	70	-1	Data Not Available
-100	78	-1	Data Not Available
-90	94	-1	Data Not Available
-80	100	-2	Data Not Available
-70	94	-2	Data Not Available
-60	102	-2	Data Not Available
-50	100	-2	Data Not Available
-40	104	-1	Data Not Available
-30	102	-1	Data Not Available
-20	106	-1	Data Not Available
-10	120	-2	Data Not Available
0	134	-2	Data Not Available
10	132	-3	Data Not Available
20	136	-3	Data Not Available
30	122	-4	Data Not Available
40	142	-3	Data Not Available
50	154	-2	Data Not Available
60	194	-1	Data Not Available
70	194	0	Data Not Available
80	196	0	Data Not Available
90	204	-1	Data Not Available
100	218	-1	Data Not Available
110	244	-2	Data Not Available
120	250	-3	Data Not Available
130	250	-3	Data Not Available
140	250	-3	Data Not Available
150	234	-3	Data Not Available
160	210	-2	Data Not Available
170	242	-1	Data Not Available
180	250	-1	Data Not Available
190	186	0	Data Not Available
200	178	0	Data Not Available
210	68	0	Data Not Available
220	70	0	Data Not Available
230	36	-1	Data Not Available
240	34	-1	Data Not Available
250	28	-1	Data Not Available
260	24	0	Data Not Available
270	0	1	Data Not Available
280	28	3	Data Not Available
290	8	3	Data Not Available

Pre-Crash Data -5.0 to -0.5 sec (Record 2) - Table 1 of 2

Time (sec)	Service Brake (Brake Switch Circuit State)	Accelerator Pedal Position, % Full (Accelerator Pedal Position) (%)	Engine RPM (Engine Speed) (RPM)	Engine Throttle, % Full (Throttle Position) (%)	Speed, Vehicle Indicated (Vehicle Speed) (MPH [km/h])	System Power Mode Status	System Backup Power Mode Status
-5.0	Off	11	1,472	12	60 [97]	Run	Run
-4.5	Off	10	1,472	10	60 [97]	Run	Run
-4.0	Off	10	1,408	10	60 [97]	Run	Run
-3.5	Off	10	1,408	10	60 [97]	Run	Run
-3.0	Off	21	1,600	28	60 [97]	Run	Run
-2.5	Off	24	1,664	32	61 [98]	Run	Run
-2.0	Off	21	1,600	30	62 [99]	Run	Run
-1.5	Off	18	1,536	25	62 [99]	Run	Run
-1.0	Off	6	1,536	14	62 [99]	Run	Run
-0.5	Off	2	1,472	9	62 [99]	Run	Run

Pre-Crash Data -5.0 to -0.5 sec (Record 2) - Table 2 of 2

Time (sec)	System Backup Power Mode Enabled	CommEnable Status	SDM Power Mode Status	Ignition Prolongation Timer (seconds)
-5.0	No	Active	Run	0.0
-4.5	No	Active	Run	0.0
-4.0	No	Active	Run	0.0
-3.5	No	Active	Run	0.0
-3.0	No	Active	Run	0.0
-2.5	No	Active	Run	0.0
-2.0	No	Active	Run	0.0
-1.5	No	Active	Run	0.0
-1.0	No	Active	Run	0.0
-0.5	No	Active	Run	0.0

Pre-Crash Data -2.0 to -0.5 sec (Record 2)

Time (sec)	Cruise Control Active	Cruise Control Resume Switch Active	Cruise Control Set Switch Active	Reduced Engine Power Mode Indicator	Engine Torque (N-m)
-2.0	No	No	No	Off	280
-1.5	No	No	No	Off	232
-1.0	No	No	No	Off	120
-0.5	No	No	No	Off	41

System Status at Event (Record 3)

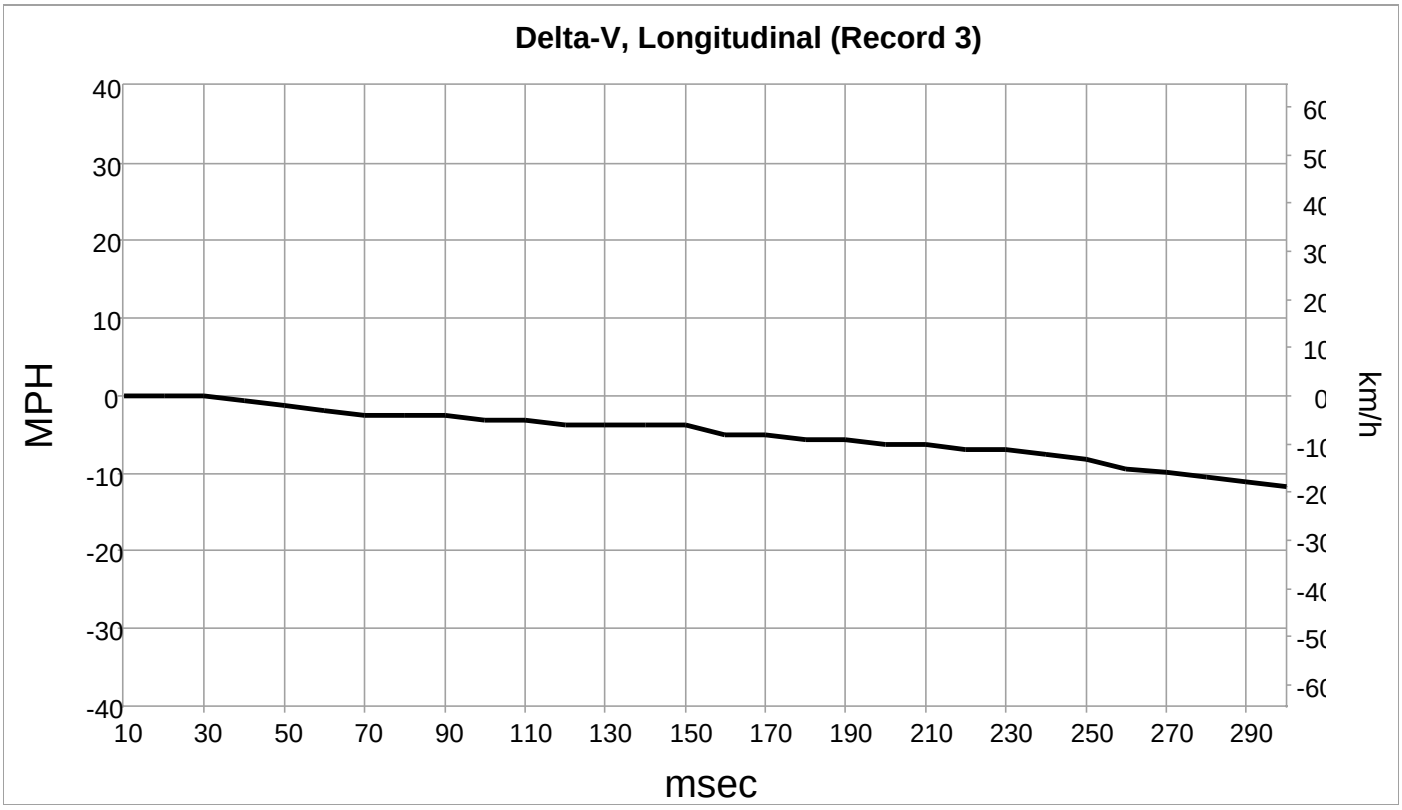
Complete File Recorded (Event Recording Complete)	Yes
Event Record Type	Deployment
Crash Record Locked	Yes
OnStar Deployment Status Data Sent	Yes
OnStar SDM Recorded Vehicle Velocity Change Data Sent	Yes
High Voltage Disable Notification Sent	Yes
Power Loss Detected for Deployment Event	No
Deployment Event Counter	2
Multi-Event, Number of Events (Event Counter)	3
OnStar Notification Event Counter	3
Algorithm Active - Frontal	Yes
Algorithm Active - Side	Yes
Algorithm Active - Rollover	Yes
Algorithm Active - Rear	Yes
Ignition Cycle, Crash (Ignition Cycles at Event)	7,315
Time From Event 1 to 2 (Time Between Events) (msec)	2,340
Concurrent Event Flag Set	No
Event Severity Status: Frontal Pretensioner	Yes
Event Severity Status: Frontal Stage 1	No
Event Severity Status: Frontal Stage 2	No
Event Severity Status: Left Side	No
Event Severity Status: Right Side	Yes
Event Severity Status: Rear	No
Event Severity Status: Rollover	No
Event Severity Status: Battery Disconnect Switch - Side Event	No
Safety Belt Status, Driver (Driver Belt Switch Circuit Status)	Buckled
Safety Belt Status, Right Front Passenger (Passenger Belt Switch Circuit Status)	Not Buckled
Passenger Seat Occupancy Status	Empty
Occupant Size Right Front Passenger Child (Passenger Classification Status)	No (Not Applicable)
Passenger Air Bag ON Indicator Status	Off
Passenger Air Bag OFF Indicator Status	On
Low Tire Pressure Warning Lamp Status 0.5 Seconds prior to Time Zero	Off
Frontal Air Bag Warning Lamp (SIR Warning Lamp Status 0.5 Seconds Prior to Time Zero)	Off
SIR Warning Lamp ON/OFF Time Continuously (seconds)	655,330
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	2,708
Ignition Cycles Since DTCs Were Last Cleared 0.5 Seconds Prior to Time Zero	253
Maximum Delta-V, Longitudinal (Maximum Longitudinal SDM Recorded Vehicle Velocity Change for FSR Event) (MPH [km/h])	-35 [-57]
Time, Maximum Delta-V (Time From FSR Time Zero to Maximum Longitudinal SDM Recorded Vehicle Velocity Change) (msec)	506
Maximum Delta-V, Lateral (Maximum Lateral SDM Recorded Vehicle Velocity Change for FSR Event) (MPH [km/h])	-13 [-21]
Time Maximum Delta-V, Lateral (Time From FSR Time Zero to Maximum Lateral SDM Recorded Vehicle Velocity Change) (msec)	412
Maximum Resultant Delta-V – Longitudinal Component for FSR Event (MPH [km/h])	-35 [-57]
Maximum Resultant Delta-V – Lateral Component for FSR Event (MPH [km/h])	-9 [-14]
Time from FSR Time Zero to time of the Maximum Resultant Delta-V (msec)	506
Blended Event FSR 1 Severity Type	Side (Left or Right Side)
Blended Event FSR 2 Severity Type	Frontal (Pretensioner/Stage 1/Stage 2)
Blended Event Time from FSR 1 Time Zero to FSR 2 Time Zero (msec)	145
Blended Event FSR 3 Severity Type	Data Not Available
Blended Event Time from FSR 1 Time Zero to FSR 3 Time Zero (msec)	Data Not Available

Diagnostic Trouble Codes 0.5 Seconds Prior to Time Zero (Record 3)

DTC 1	B0052-00
DTC 2	N/A
DTC 3	N/A
DTC 4	N/A
DTC 5	N/A
DTC 6	N/A
DTC 7	N/A
DTC 8	N/A
DTC 9	N/A

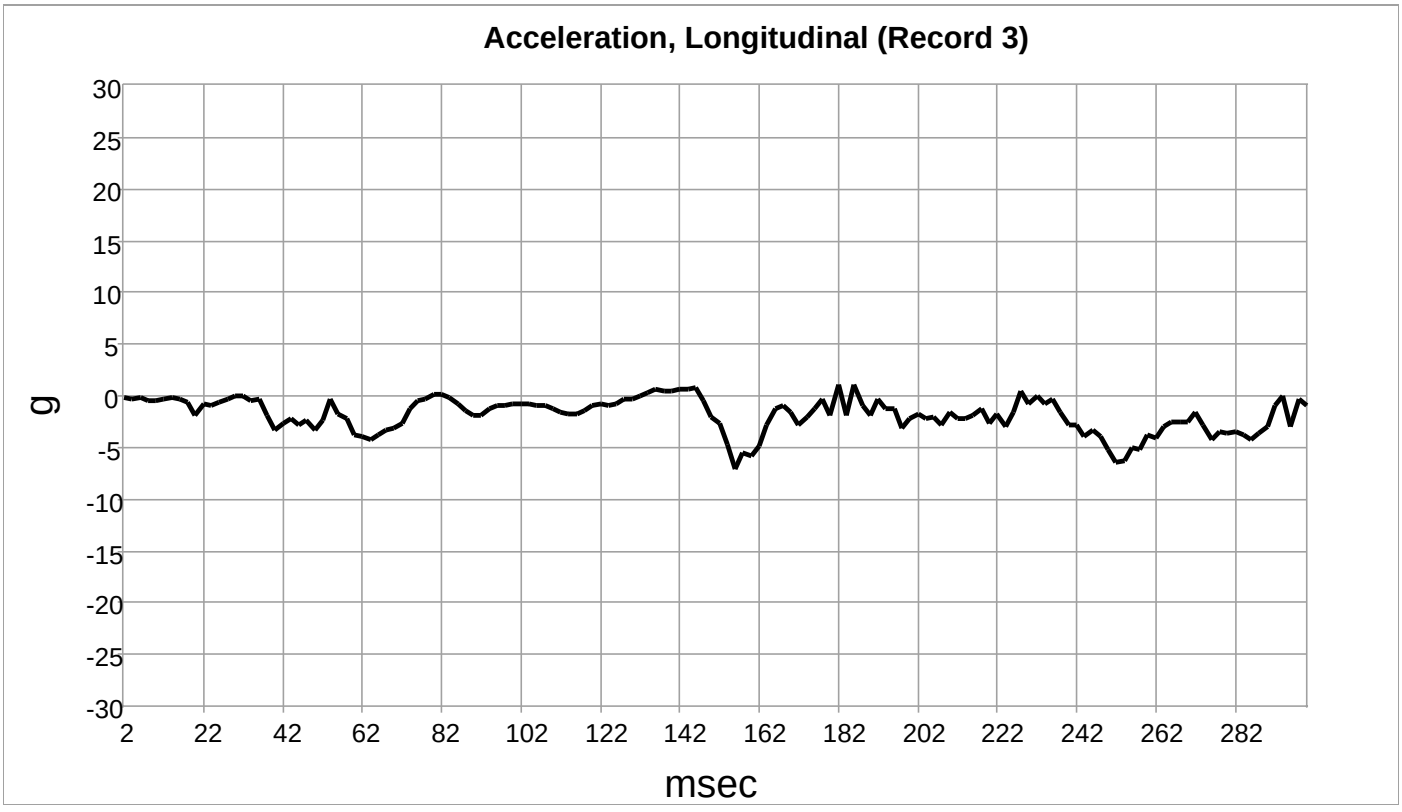
Deployment Command Data (Record 3)

Driver 1st Stage Deployment Loop Commanded	No
Passenger 1st Stage Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded	No
Passenger 2nd Stage Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop #1 Commanded	No
Passenger Pretensioner Deployment Loop #1 Commanded	No
Driver Pretensioner Deployment Loop #2 Commanded	No
Passenger Pretensioner Deployment Loop #2 Commanded	No
Driver Thorax Loop Commanded	No
Passenger Thorax Loop Commanded	Yes
Left Row 1 Roof Rail/Head Curtain Loop Commanded	No
Right Row 1 Roof Rail/Head Curtain Loop Commanded	No
Frontal Air Bag Deployment, Time to 1st Stage Deployment, Driver (Driver 1st Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 1st Stage Deployment, Right Front Passenger (Passenger 1st Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 2nd Stage, Driver (Driver 2nd Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Frontal Air Bag Deployment, Time to 2nd Stage, Right Front Passenger (Passenger 2nd Stage Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Driver (Driver Pretensioner Time From Time Zero to Deployment Loop #1 Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Right Front Passenger (Passenger Pretensioner Time From Time Zero to Deployment Loop #1 Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Driver (Driver Pretensioner Time From Time Zero to Deployment Loop #2 Command Criteria Met) (msec)	Data Not Available
Pretensioner Deployment, Time to Fire, Right Front Passenger (Passenger Pretensioner Time From Time Zero to Deployment Loop #2 Command Criteria Met) (msec)	Data Not Available
Side Air Bag Deployment, Time to Deploy, Driver (Driver Thorax Time From Time Zero to Deployment Command Criteria Met) (msec)	Data Not Available
Side Air Bag Deployment, Time to Deploy, Right Front Passenger (Passenger Thorax Time From Time Zero to Deployment Command Criteria Met) (msec)	253
Left Row 1 Curtain Time From Time Zero to Deployment Command Criteria Met (msec)	Data Not Available
Right Row 1 Curtain Time From Time Zero to Deployment Command Criteria Met (msec)	Data Not Available


Delta-V, Longitudinal (Record 3)
MPH
km/h
msec
40
30
20
10
0
-10
-20
-30
-40
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
10
30
50
70
90
110
130
150
170
190
210
230
250
270
290

Longitudinal Delta-V (Record 3)

Time (msec)	Delta-V, Longitudinal (SDM Recorded Vehicle Longitudinal Velocity Change for FSR Event) (MPH [km/h])
10	0 [0]
20	0 [0]
30	0 [0]
40	-1 [-1]
50	-1 [-2]
60	-2 [-3]
70	-2 [-4]
80	-2 [-4]
90	-2 [-4]
100	-3 [-5]
110	-3 [-5]
120	-4 [-6]
130	-4 [-6]
140	-4 [-6]
150	-4 [-6]
160	-5 [-8]
170	-5 [-8]
180	-6 [-9]
190	-6 [-9]
200	-6 [-10]
210	-6 [-10]
220	-7 [-11]
230	-7 [-11]
240	-7 [-12]
250	-8 [-13]
260	-9 [-15]
270	-10 [-16]
280	-11 [-17]
290	-11 [-18]
300	-12 [-19]

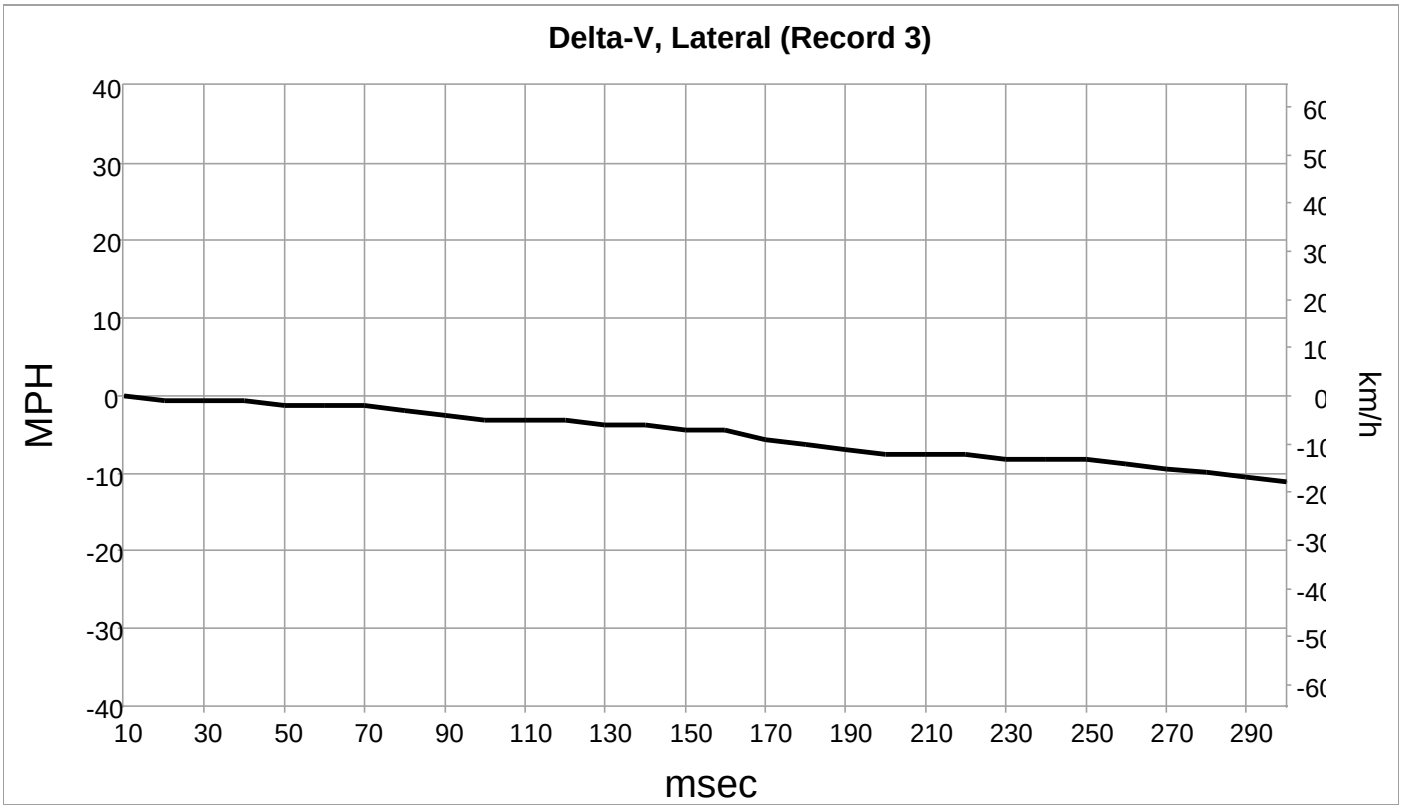

Acceleration, Longitudinal (Record 3)
g
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
2
22
42
62
82
102
122
142
162
182
202
222
242
262
282
msec

Longitudinal Acceleration (Record 3)

Time (msec)	Longitudinal Acceleration (SDM Recorded Vehicle Longitudinal Acceleration for FSR Event) (g)
2	-0.13
4	-0.38
6	-0.13
8	-0.50
10	-0.50
12	-0.25
14	-0.13
16	-0.25
18	-0.63
20	-1.88
22	-0.75
24	-0.88
26	-0.63
28	-0.38
30	0.00
32	0.00
34	-0.50
36	-0.25
38	-1.88
40	-3.25
42	-2.63
44	-2.13
46	-2.75
48	-2.38
50	-3.25
52	-2.38
54	-0.25
56	-1.75
58	-2.25
60	-3.75
62	-3.88
64	-4.25
66	-3.75
68	-3.25
70	-3.13
72	-2.63
74	-1.25
76	-0.50
78	-0.38
80	0.12
82	0.12
84	-0.13
86	-0.75
88	-1.38
90	-1.88
92	-1.88
94	-1.25
96	-1.00
98	-0.88
100	-0.75
102	-0.75
104	-0.75
106	-1.00
108	-1.00
110	-1.25
112	-1.50
114	-1.75

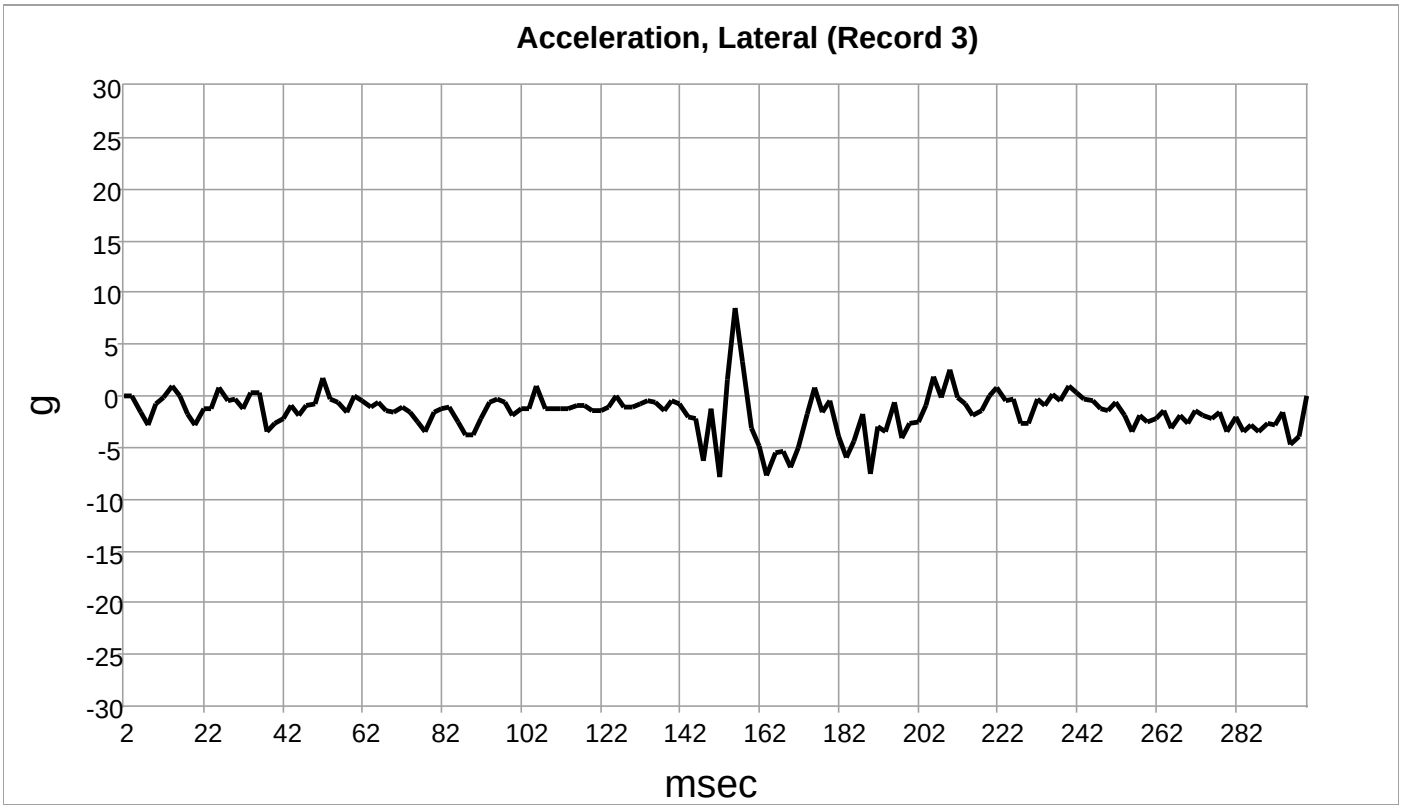
Time (msec)	Longitudinal Acceleration (SDM Recorded Vehicle Longitudinal Acceleration for FSR Event) (g)
116	-1.75
118	-1.38
120	-1.00
122	-0.75
124	-0.88
126	-0.75
128	-0.38
130	-0.25
132	0.00
134	0.37
136	0.62
138	0.50
140	0.50
142	0.62
144	0.62
146	0.75
148	-0.50
150	-2.00
152	-2.63
154	-4.75
156	-7.13
158	-5.50
160	-5.88
162	-4.88
164	-2.75
166	-1.25
168	-0.88
170	-1.50
172	-2.75
174	-2.00
176	-1.25
178	-0.38
180	-1.88
182	1.12
184	-1.88
186	1.12
188	-1.00
190	-1.88
192	-0.38
194	-1.25
196	-1.25
198	-3.13
200	-2.25
202	-1.75
204	-2.13
206	-2.00
208	-2.75
210	-1.50
212	-2.13
214	-2.13
216	-1.88
218	-1.25
220	-2.63
222	-1.75
224	-3.00
226	-1.50
228	0.50
230	-0.75

Time (msec)	Longitudinal Acceleration (SDM Recorded Vehicle Longitudinal Acceleration for FSR Event) (g)
232	0.00
234	-0.75
236	-0.38
238	-1.50
240	-2.88
242	-2.88
244	-3.88
246	-3.25
248	-4.00
250	-5.13
252	-6.50
254	-6.25
256	-5.00
258	-5.25
260	-3.75
262	-4.13
264	-3.00
266	-2.50
268	-2.50
270	-2.50
272	-1.63
274	-2.75
276	-4.25
278	-3.38
280	-3.63
282	-3.38
284	-3.75
286	-4.25
288	-3.63
290	-3.00
292	-0.88
294	0.00
296	-3.00
298	-0.25
300	-0.88


Delta-V, Lateral (Record 3)
MPH
km/h
msec
40
30
20
10
0
-10
-20
-30
-40
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
10
30
50
70
90
110
130
150
170
190
210
230
250
270
290

Lateral Delta-V (Record 3)

Time (msec)	Delta-V, Lateral (SDM Recorded Vehicle Lateral Velocity Change for FSR Event) (MPH [km/h])
10	0 [0]
20	-1 [-1]
30	-1 [-1]
40	-1 [-1]
50	-1 [-2]
60	-1 [-2]
70	-1 [-2]
80	-2 [-3]
90	-2 [-4]
100	-3 [-5]
110	-3 [-5]
120	-3 [-5]
130	-4 [-6]
140	-4 [-6]
150	-4 [-7]
160	-4 [-7]
170	-6 [-9]
180	-6 [-10]
190	-7 [-11]
200	-7 [-12]
210	-7 [-12]
220	-7 [-12]
230	-8 [-13]
240	-8 [-13]
250	-8 [-13]
260	-9 [-14]
270	-9 [-15]
280	-10 [-16]
290	-11 [-17]
300	-11 [-18]


Acceleration, Lateral (Record 3)
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
g
2
22
42
62
82
102
122
142
162
182
202
222
242
262
282
msec

Lateral Acceleration (Record 3)

Time (msec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for FSR Event) (g)
2	0.00
4	0.00
6	-1.63
8	-2.75
10	-0.75
12	-0.13
14	1.00
16	0.00
18	-1.75
20	-2.75
22	-1.25
24	-1.25
26	0.75
28	-0.50
30	-0.38
32	-1.25
34	0.37
36	0.25
38	-3.38
40	-2.63
42	-2.13
44	-0.88
46	-1.88
48	-1.00
50	-0.75
52	1.75
54	-0.38
56	-0.63
58	-1.63
60	0.00
62	-0.50
64	-1.13
66	-0.63
68	-1.38
70	-1.50
72	-1.13
74	-1.50
76	-2.50
78	-3.50
80	-1.50
82	-1.25
84	-1.13
86	-2.50
88	-3.75
90	-3.75
92	-2.13
94	-0.63
96	-0.38
98	-0.63
100	-1.88
102	-1.25
104	-1.25
106	0.87
108	-1.25
110	-1.25
112	-1.25
114	-1.25
116	-1.00

Time (msec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for FSR Event) (g)
118	-0.88
120	-1.38
122	-1.38
124	-1.13
126	0.00
128	-1.13
130	-1.13
132	-0.75
134	-0.50
136	-0.63
138	-1.38
140	-0.50
142	-0.75
144	-2.00
146	-2.25
148	-6.25
150	-1.25
152	-7.88
154	1.50
156	8.50
158	3.37
160	-3.13
162	-4.88
164	-7.63
166	-5.50
168	-5.38
170	-6.88
172	-5.00
174	-1.75
176	0.75
178	-1.63
180	-0.50
182	-3.88
184	-6.00
186	-4.38
188	-1.75
190	-7.50
192	-3.00
194	-3.50
196	-0.63
198	-4.13
200	-2.63
202	-2.50
204	-1.00
206	1.87
208	-0.13
210	2.50
212	-0.13
214	-0.75
216	-1.88
218	-1.38
220	0.00
222	0.75
224	-0.50
226	-0.38
228	-2.63
230	-2.63
232	-0.25
234	-1.00

Time (msec)	Lateral Acceleration (SDM Recorded Vehicle Lateral Acceleration for FSR Event) (g)
236	0.12
238	-0.50
240	0.87
242	0.25
244	-0.38
246	-0.50
248	-1.25
250	-1.38
252	-0.63
254	-1.88
256	-3.50
258	-1.88
260	-2.50
262	-2.13
264	-1.38
266	-3.13
268	-1.88
270	-2.63
272	-1.38
274	-1.88
276	-2.25
278	-1.63
280	-3.38
282	-2.00
284	-3.50
286	-2.88
288	-3.38
290	-2.63
292	-2.88
294	-1.50
296	-4.75
298	-3.88
300	0.00

Roll Rate (Record 3)

Contains No Recorded Data

Acceleration, Lateral, Rollover (Record 3)

Contains No Recorded Data

Acceleration, Normal, Rollover (Record 3)

Contains No Recorded Data

Pre-Crash Data -5.0 to -0.5 sec (Record 3) - Table 1 of 2

Time (sec)	Service Brake (Brake Switch Circuit State)	Accelerator Pedal Position, % Full (Accelerator Pedal Position) (%)	Engine RPM (Engine Speed) (RPM)	Engine Throttle, % Full (Throttle Position) (%)	Speed, Vehicle Indicated (Vehicle Speed) (MPH [km/h])	System Power Mode Status	System Backup Power Mode Status
-5.0	Off	24	1,664	32	61 [98]	Run	Run
-4.5	Off	21	1,600	30	62 [99]	Run	Run
-4.0	Off	18	1,536	25	62 [99]	Run	Run
-3.5	Off	6	1,536	14	62 [99]	Run	Run
-3.0	Off	2	1,472	9	62 [99]	Run	Run
-2.5	Off	0	1,408	8	61 [98]	Run	Run
-2.0	Off	1	1,408	22	57 [92]	Run	Run
-1.5	On	99	1,344	20	57 [91]	Run	Run
-1.0	Off	0	2,368	31	42 [68]	Run	Run
-0.5	Off	0	2,176	9	40 [65]	Run	Run

Pre-Crash Data -5.0 to -0.5 sec (Record 3) - Table 2 of 2

Time (sec)	System Backup Power Mode Enabled	CommEnable Status	SDM Power Mode Status	Ignition Prolongation Timer (seconds)
-5.0	No	Active	Run	0.0
-4.5	No	Active	Run	0.0
-4.0	No	Active	Run	0.0
-3.5	No	Active	Run	0.0
-3.0	No	Active	Run	0.0
-2.5	No	Active	Run	0.0
-2.0	No	Active	Run	0.0
-1.5	No	Active	Run	0.0
-1.0	No	Active	Run	0.0
-0.5	No	Active	Run	0.0

Pre-Crash Data -2.0 to -0.5 sec (Record 3)

Time (sec)	Cruise Control Active	Cruise Control Resume Switch Active	Cruise Control Set Switch Active	Reduced Engine Power Mode Indicator	Engine Torque (N-m)
-2.0	No	No	No	Off	-36
-1.5	No	No	No	Off	6
-1.0	No	No	No	Off	256
-0.5	No	No	No	Off	86

Hexadecimal Data

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DPID $15
01 02 03 04 05 06 07

DPID $16
08 09 0A 0D 0E 00 00

DPID $17
00 00 00 00 00 00 00

DPID $1F
01 01 02 02 00 00 00

DPID $20
00 00 00 00 00 00 00

DPID $30
00 FF 00 00 00 00 00

DPID $32
00 FF 1C 93 00 00 00

DPID $51
0B 00 00 00 00 00 00

DID $01
41 55 39 34 31 32 44 41 30 30 30 30 30 30 30 30

DID $02
00 CE 4A 34

DID $03
41 54 39 34 31 32 44 41 30 30 30 30 30 30 30 30

DID $04
00 CE 4A 34

DID $05
41 48 34 30 37 37 44 41 30 30 30 30 30 30 30 30

DID $06
00 CE 35 5D

DID $07
41 4A 34 30 37 37 44 41 30 30 30 30 30 30 30 30

DID $08
00 CE 35 5D

DID $09
44 41 34 31 39 38 44 41 30 30 30 30 30 30 30 30

DID $0A
00 CE 35 D6

DID $0B
44 42 34 31 39 38 44 41 30 30 30 30 30 30 30 30

DID $0C
00 CE 35 D6
```

DID $0D
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DID $0E
00 00 00 00

DID $0F
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DID $10
00 00 00 00

DID $11
00 00

DID $22
70 82

DID $30
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DID $31
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0010 FF 00 00 00 00 00 00 00 00 00
0020 00 4C FC FC F0 00 00 F0 1C 00
0030 63 01 00 02 06 12 15 18 15 10
0040 00 00 00 00 00 00 25 15 16 16
0050 17 18 18 19 1A 19 08 A0 06 AC
0060 06 58 06 92 1F 14 16 08 09 0E
0070 19 1E 20 1C 44 5B 5C 62 63 63
0080 63 63 62 61 00 FF FD 0A 94 FD
0090 FF FF FF FF FF FF FF FF FF FF
0100 FF FF FF FF FF FF FF FF FF FF
0110 FF FF FF FF FF FF FF 63 46 7D
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0220 7D 63 7D 63 7D 63 7D 63 7D 63
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0270 FE 80 88 7B A6 80 31 7C 0A 80
0280 63 7C AD 80 63 7C C6 80 C7 7C
0290 49 80 EC 7C 49 80 7C 7C 17 80
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0320 63 7B 42 80 0B 7B 29 7F FF 7B
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0340 B4 7B F1 7F CD 7C 17 7F 9B 7C
0350 23 7F 8E 7C 17 7F C0 7C 49 7F
0360 82 7C 87 7F 43 7C D2 7F 2A 7D
0370 36 7F 50 7D 9A 7F 82 7D D9 7F
0380 82 7E 17 7F 82 7E 24 7F 82 7E
0390 56 7F 8E 7E 62 7F 82 7E 7B 7F
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0500   BA 7F 2A 80 0B 7F 9B 7F C0 7F
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0520   FF 80 0B 7F E6 7F FF 7F 8E 80
0530   24 7F D9 7F F2 7F 9B 80 31 7F
0540   FF 80 24 7F 69 80 56 7F A7 80
0550   18 7F 5C 80 18 7F A7 7F E6 7F
0560   69 7F F2 7F C0 7F F2 7F B4 7F
0570   FF 7F FF 80 18 7F 8E 80 18 7F
0580   F2 80 4A 7F FF 80 3D 80 4A 80
0590   3D 80 0B 80 3D 80 3D 7F FF 80
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0640   FF FF FF FF FF FF FF FF FF FF
0650   FF FF FF FF FF FF FF FF FF FF
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1870   00 00 00 00 00 00 00 00 00 00
1880   00 00 00 00 00 00 00 00 00 00
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1960   44 00 08 00 42 00 10 00 4C 00
1970   13 00 4C 00 0A 00 0E A5 FF FF
1980   50 00 0C 00 56 00 0A 00 57 00
1990   0F 00 5A 00 06 00 54 00 01 00
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2010   00 00 5C 00 02 00 5A 00 FD FF
2020   58 00 FA FF 53 00 FC FF 50 00
2030   F8 FF 4F 00 F7 FF 50 00 FB FF
2040   0E A5 FF FF 4C 00 F6 FF 47 00
2050   F1 FF 41 00 EF FF 39 00 F2 FF
2060   31 00 F6 FF 2C 00 F6 FF 27 00
2070   F6 FF 26 00 F6 FF 22 00 F7 FF
2080   21 00 F6 FF 1F 00 F9 FF 1E 00
2090   F9 FF 20 00 F9 FF 22 00 FC FF
2100   24 00 FC FF 0E A5 FF FF 21 00
2110   FD FF 1E 00 FB FF 15 00 FB FF
2120   1D 00 F6 FF 1F 00 FE FF 1D 00
2130   FB FF 1B 00 FD FF 14 00 F8 FF
2140   0C 00 FF FF 0E 00 FA FF 0B 00
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2160   05 00 FC FF 0F 00 00 00 0E A5
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2400   FF FF FF FF FF FF FF FF FF FF
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2480   FF FF FF FF FF FF FF FF FF FF
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2630   1C FE 05 A5 FF FF 00 00 00 00
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2690   00 00 00 00 00 00 00 00 00 00
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2780   00 00 00 00 00 00 00 00 00 00
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DID $32
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0010   B2 01 00 00 40 0F 0C 00 00 00
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0040   00 00 00 00 00 00 17 18 18 19
0050   1A 19 16 16 17 17 06 F1 07 90
0060   08 70 08 D0 09 0E 19 1E 20 1C
0070   0A 0A 0A 0C 63 63 63 63 62 61
0080   61 61 61 61 00 FF FD 0A 94 FD
0090   80 52 00 FF FF FF FF FF FF FF
0100   FF FF FF FF FF FF FF FF FF FF
0110   FF FF FF FF FF FF FF FF FF FF
0120   FF FF FF FF E0 E0 FF E0 FF FF
0130   FF FF FF FD FD FD FD FF FF FF
0140   FF FD FD FF FF FF FF FF FF FF
0150   FF FF FF FF FF FF FF 00 00 00
0160   00 00 FF FF FF FF FF 00 00 00
0170   00 00 00 00 00 00 00 FF FF FF
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0190   FF FF FF FF FF FF FF FF FF FF
0200   FF FF FF FF FF FF FF FF FF FF
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0240   FF FF FF FF FF FF FF FF FF FF
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0850   79 FF 9B 72 FF 96 70 FF 98 71
0860   FF 95 74 FF 90 78 FF 90 7D FF
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0880   79 FF 97 79 FF 93 7C FF 93 82
0890   FF 94 85 FF 97 86 FF 95 83 FF
0900   92 80 FF 92 7D FF 95 7C FF 98
0910   7A FF 98 7B FF 97 7C FF 97 7E
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0930   97 81 FF 96 7F FF 96 7E FF 96
0940   7D FF 95 7D FF 96 7D FF 97 7E
0950   FF 96 7F FF 96 80 FF 96 80 FF
0960   96 80 FF 96 7F FF 96 7F FF 97
0970   7E FF 97 7D FF 97 7D FF 98 7E
0980   FF 99 7E FF 99 7F FF 99 7F FF
0990   99 7F FF 99 7F FF 99 7F FF 9B
1000   7D FF 9B 7A FF 9D 77 FF 9F 75
1010   FF A4 73 FF A2 73 FF A6 74 FF
1020   AE 72 FF B1 6F FF AE 6C FF B2
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1040   FF B4 74 FF BB 70 FF C2 6B FF
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1060   61 FF CC 6C FF E0 75 FF E0 7A
1070   FF E1 7B FF E5 77 FF EC 71 FF
1080   F9 6B FF FC 66 FF FC 64 FF FC
1090   64 FF F4 66 FF E8 6B FF F8 73
1100   FF FC 79 FF DC 7B FF D8 7B FF
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1120   75 FF 8D 76 FF 8B 7E FF 7F 8B
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1150   55 50 48 48 48 48 48 00 00 00
1160   00 00 00 00 00 00 00 00 00 00
1170   00 00 00 00 00 00 00 00 00 00
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1190   01 01 A5 02 00 93 1C 01 00 FF
1200   FF 09 F9 FF FF 02 06 12 15 18
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1220   00 00 00 00 00 17 18 18 19 1A
1230   19 16 16 17 17 F1 06 90 07 70
1240   08 D0 08 09 0E 19 1E 20 1C 0A
1250   0A 0A 0C 63 63 63 63 62 61 61
1260   61 61 61 00 00 48 48 48 48 48
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1280   55 48 48 48 48 48 00 00 00 00
1290   00 00 00 00 00 00 A5 63 01 02
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1310   0A FF FF DC 93 0E 00 0F A0 FF
1320   FF FD FF FF FF 4C FC FC 00 F0
1330   00 00 00 00 00 00 00 00 00 00
1340   00 00 00 00 00 00 00 00 00 00
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1360   00 00 00 00 00 00 00 00 00 00
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1390   00 00 00 00 00 00 00 50 00 02
1400   FF 26 02 FF FF 6D DB B6 FD BB
1410   06 05 17 07 62 02 02 02 00 00
1420   D0 A5 FF FF FF FF FF FF FF FF
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1460   FF D3 09 D3 09 04 04 A5 FF D3
1470   09 D3 09 04 05 A5 FF D9 09 D9
1480   09 04 06 A5 FF D9 09 D9 09 04
1490   07 A5 FF FF FF FF FF FF FF FF
1500   FF FF FF FF FF FF FF FF FF D3
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1520   09 04 0D A5 FF FF FF FF FF FF
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1790   FF FF FF 00 00 00 00 00 00 00
1800   00 00 00 00 00 00 00 00 00 00
1810   00 FF FF FF FF FF FF 01 0F 40
1820   00 02 00 01 A5 F0 0C 00 00 F0
1830   0C 00 00 C8 19 3E 1A 00 00 00
1840   00 00 00 00 00 00 00 00 00 00
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1860   00 00 00 00 00 00 00 00 00 00
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1890   00 00 00 00 00 00 00 00 00 00
1900   00 00 00 00 01 D9 01 01 A5 01
1910   01 01 01 01 01 01 0C 10 F0 0C
1920   88 0F A2 12 5A 12 C0 15 46 12
1930   34 13 EA 10 EE 0C 3E 0D EE 06
1940   BC 06 5A 0B E2 11 D0 12 84 0F
1950   60 0F AC 10 C8 12 16 11 12 0F
1960   F0 0E DE 10 C0 13 58 13 5E 12
1970   8E 12 DC 12 B4 12 CA 12 62 12
1980   0A 12 02 12 EA 11 4E 11 EA 11
1990   92 12 54 12 E6 11 FC 11 20 12
2000   F2 11 02 12 82 12 B4 12 1C 13
2010   6C 13 02 14 24 14 30 14 68 14
2020   32 14 F0 13 0A 16 F0 15 98 17
2030   48 19 C2 1C 32 1B 30 1E 0E 25
2040   CC 26 C6 24 14 28 24 27 F0 28
2050   EE 27 CC 29 42 2F 8A 00 D1 03
2060   7C 04 29 01 58 FB 2C F6 0E F4
2070   F6 F4 82 F7 C5 FA 36 FE 86 00
2080   62 00 DD FD 25 FB FE FA FA FD
2090   2B 02 06 05 32 05 51 03 E6 00
2100   CC FE 49 FD 79 FC 8F FC BF FD
2110   84 FF 0B 01 E9 01 FA 01 5A 01
2120   45 00 2A FF 73 FE 4B FE A6 FE
2130   4B FF 00 00 8C 00 C8 00 AC 00
2140   43 00 B2 FF 22 FF C6 FE C3 FE
2150   12 FF 85 FF E7 FF 1B 00 29 00
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2170   D3 F7 95 F6 CD F6 3A F7 36 F6
2180   80 F3 75 F1 E6 F1 F9 F3 2B F6
2190   72 F7 16 F7 A7 F4 28 09 D3 09
2200   F3 FF 00 00 00 00 05 05 20 00
2210   A5 FF 4A 34 4C 33 EC 34 7A 2F
2220   2C 37 D4 3B D4 4B BE 4B 70 4C
2230   E8 4F 38 55 80 5F A8 61 A8 61
2240   A8 61 86 5B B4 51 E2 5E A8 61
2250   4A 48 E2 45 6E 1A 86 1B C0 0D
2260   FA 0C 10 0B 9E 09 00 00 4C 0B
2270   22 03 47 F0 26 EA C6 E5 55 E4
2280   97 E8 08 F1 06 F8 D4 FB 80 FC
2290   CE F9 F2 F4 2F F0 64 EC AF EA
2300   0D EB B3 EC 78 F0 6F F6 4F FB
2310   96 FC F0 FC DC FD 23 FD EA FA
2320   68 F8 4A F9 DA FE 71 09 58 14
2330   8B 1A 1D A5 FF FF FF FF FF FF
2340   FF FF FF FF FF FF FF FF FF FF
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2360   FF FF FF FF FF FF FF FF FF FF
2370   FF FF FF FF FF FF FF FF FF FF
2380   FF FF FF FF FF FF FF FF FF FF
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2480   FF FF FF FF FF FF FF FF FF FF
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2780   00 00 00 00 00 00 00 00 00 00
2790   00 00 00 00 00 00 00 00 00 00

DID $33
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0060   06 AC 06 58 09 1F 14 16 08 09
0070   0E 19 1E 20 41 44 5B 5C 62 63
0080   63 63 63 62 00 FF FD 0A 94 FD
0090   80 52 00 FF FF FF FF FF FF FF
0100   FF FF FF FF FF FF FF FF FF FF
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0120   CE 46 71 FD 20 00 91 E0 FF FF
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0150   FF FF FF FF FF FF FF 00 00 00
0160   00 00 FF FF FF FF FF 00 00 00
0170   00 00 00 00 00 00 00 7F 7F 7F
0180   7E 7F 7E 7E 7E 7D 7D 7C 7D 7B
0190   7D 7B 7C 7B 7B 7A 7A 7A 7A 79
0200   7A 79 79 79 79 79 78 77 78 77
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0220   73 74 72 73 72 72 72 70 71 6F
0230   70 6E 6F 6D 6E 6C 6D 7F F2 7F
0240   FF 7F D9 7F FF 7F F2 7F 5C 7F
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0270   C0 7F 50 7F 43 7E EC 7F B4 7F
0280   82 7F A7 7F 82 7F C0 80 4A 7F
0290   D9 7F CD 7F FF 7F D9 7F FF 7F
0300   82 7F CD 80 24 7F E6 80 18 7F
0310   43 7E AD 7E BA 7E F8 7E F8 7F
0320   2A 7F 2A 7F A7 7E EC 7F 43 7F
0330   11 7F 9B 7E BA 7F B4 7F 11 80
0340   AE 7F E6 7F D9 7F 50 7F C0 7F
0350   1E 7F 5C 7E 88 7F FF 7E 7B 7F
0360   CD 7E 56 7F 8E 7E 88 7F C0 7E
0370   BA 7F 75 7E C6 7F 69 7E F8 7F
0380   8E 7F 82 7F 69 7F CD 7F 05 7F
0390   D9 7E A1 80 0B 7F 69 80 0B 7F
0400   82 7F F2 7F 8E 7F B4 7F 05 7F
0410   75 7E 88 7F 43 7E 88 7F 43 7F
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0430   A7 7F C0 7F B4 7F 43 7F B4 7F
0440   82 7F B4 7F 82 7F 9B 80 56 7F
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0630   C6 7E 62 7F 1E 7E F8 7F 50 7F
0640   05 7F 2A 7F 9B 7F 37 80 BA 7E
0650   EC 7F F2 7F 69 80 F9 7F 2A 7F
0660   F2 7F 2A 7F B4 7F 43 7F 43 7F
0670   82 7F 75 7E F8 7F FF 7F 50 80
0680   4A 7E D3 7F CD 7F 69 7F D9 80
0690   31 7E F8 7F B4 7E F8 7F FF 7F
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0710   69 7F CD 7E DF 80 56 7E DF 80
0720   18 7E 7B 7F D9 7E BA 7F CD 7E
0730   6F 7F 82 7D FE 7F 75 7D 75 7F
0740   C0 7D 8E 7F 43 7E 0B 7E A1 7D
0750   F2 7F 43 7E 88 7F 05 7E 62 7F
0760   2A 7E D3 7F 75 7F 05 7E C6 7F
0770   05 7F 43 7F 05 7E F8 7F 5C 7F
0780   75 7E EC 7F 43 7E 56 7F 1E 7E
0790   AD 7F 5C 7E 94 7E AD 7E AD 7F
0800   37 7E 88 7E A1 7E 56 7E DF 7E
0810   94 7E AD 7E D3 7E F8 7F A7 7E
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1100   FF FF FF FF FF FF FF FF FF FF
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1120   FF FF FF FF FF FF FF FF FF FF
1130   FF FF FF FF FF FF FF 48 48 48
1140   48 48 48 48 48 48 48 00 00 55
1150   55 50 48 48 48 48 48 00 00 00
1160   00 00 00 00 00 00 00 00 00 00
1170   00 00 00 00 00 00 00 00 00 00
1180   00 00 00 00 00 12 12 7B 00 AA
1190   01 02 A5 03 00 93 1C 00 00 FF
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1230   17 18 18 19 1A 4B 07 A0 08 AC
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1260   63 63 62 00 00 48 48 48 48 48
1270   48 48 48 48 48 00 00 00 50 55
1280   55 48 48 48 48 48 48 00 00 00
1290   00 00 00 00 00 00 A5 C7 00 52
1300   12 02 00 00 00 00 00 FD FF 94
1310   0A FF FF 04 9D 0E 00 0F A0 FF
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1330   00 00 00 00 00 00 00 00 00 00
1340   00 00 00 00 00 00 00 00 00 00
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1370   00 00 00 00 00 00 00 00 00 00
1380   00 00 00 00 00 00 00 00 00 00
1390   00 00 00 00 00 00 00 00 50 00 02
1400   FF 1D 02 FF FF 6D DB B6 FD 0E
1410   06 00 1F 0A 3F 02 02 02 00 00
1420   D0 A5 FF FF FF FF FF FF FF FF
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1490   FF FF FF FF FF FF FF FF FF FF
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1620   FF FF FF FF FF 76 12 1C 13 76
1630   12 1C 13 00 00 00 00 76 12 FF
1640   FF FF FF BA 12 00 00 00 FF FF
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1690   14 2F 00 80 00 00 00 A5 FF FF
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1740   FF 48 13 50 12 AC 14 CC 13 FF
1750   FF FF FF 00 00 00 00 00 00 00
1760   00 00 00 FF FF FF FF FF FF FF
1770   FF FF FF FF FF FF FF FF FF FF
1780   FF FF FF FF 0C 07 10 05 05 A5
1790   FF FF FF A2 0C E6 FC BC 08 6D
1800   FB A2 0C E6 FC 75 02 9D 01 75
1810   02 00 01 91 00 FF FF 01 0F 11
1820   00 03 00 01 A5 00 02 00 00 00
1830   02 00 00 75 02 00 00 00 00 00
1840   00 00 00 00 00 00 00 00 00 00
1850   00 00 00 00 00 00 00 00 00 10
1860   00 00 00 00 00 00 00 00 00 00
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1880   00 00 00 00 00 00 00 00 00 00
1890   00 00 00 00 00 00 00 00 00 00
1900   00 00 00 00 01 DF 01 FF A5 01
1910   01 01 01 01 01 00 01 00 00 00
1920   03 00 00 00 01 00 F3 FF 04 00
1930   EA FF 04 00 FA FF 02 00 FF FF
1940   01 00 08 00 02 00 00 00 05 00
1950   F2 FF 0F 00 EA FF 06 00 F6 FF
1960   07 00 F6 FF 05 00 06 00 03 00
1970   FC FF 00 00 FD FF 0E A5 FF FF
1980   00 00 F6 FF 04 00 03 00 02 00
1990   02 00 0F 00 E5 FF 1A 00 EB FF
2000   15 00 EF FF 11 00 F9 FF 16 00
2010   F1 FF 13 00 F8 FF 1A 00 FA FF
2020   13 00 0E 00 02 00 FD FF 0E 00
2030   FB FF 12 00 F3 FF 1E 00 00 00
2040   0E A5 FF FF 1F 00 FC FF 22 00
2050   F7 FF 1E 00 FB FF 1A 00 F5 FF
2060   19 00 F4 FF 15 00 F7 FF 0A 00
2070   F4 FF 04 00 EC FF 03 00 E4 FF
2080   FF FF F4 FF FF FF F6 FF 01 00
2090   F7 FF 06 00 EC FF 0B 00 E2 FF
2100   0F 00 E2 FF 0E A5 FF FF 0F 00
2110   EF FF 0A 00 FB FF 08 00 FD FF
2120   07 00 FB FF 06 00 F1 FF 06 00
2130   F6 FF 06 00 F6 FF 08 00 07 00
2140   08 00 F6 FF 0A 00 F6 FF 0C 00
2150   F6 FF 0E 00 F6 FF 0E 00 F8 FF
2160   0B 00 F9 FF 08 00 F5 FF 0E A5
2170   FF FF 06 00 F5 FF 07 00 F7 FF
2180   06 00 00 00 03 00 F7 FF 02 00
2190   F7 FF 00 00 FA FF FD FF FC FF
2200   FB FF FB FF FC FF F5 FF FC FF
2210   FC FF FB FF FA FF FB FF F0 FF
2220   FA FF EE FF 04 00 CE FF 10 00
2230   F6 FF 0E A5 FF FF 15 00 C1 FF
2240   26 00 0C 00 39 00 44 00 2C 00
2250   1B 00 2F 00 E7 FF 27 00 D9 FF
2260   16 00 C3 FF 0A 00 D4 FF 07 00
2270   D5 FF 0C 00 C9 FF 16 00 D8 FF
2280   10 00 F2 FF 0A 00 06 00 03 00
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2290   F3 FF 0F 00 FC FF 0E A5 FF FF
2300   F7 FF E1 FF 0F 00 D0 FF F7 FF
2310   DD FF 08 00 F2 FF 0F 00 C4 FF
2320   03 00 E8 FF 0A 00 E4 FF 0A 00
2330   FB FF 19 00 DF FF 12 00 EB FF
2340   0E 00 EC FF 11 00 F8 FF 10 00
2350   0F 00 16 00 FF FF 0C 00 14 00
2360   0E A5 FF FF 11 00 FF FF 11 00
2370   FA FF 0F 00 F1 FF 0A 00 F5 FF
2380   15 00 00 00 0E 00 06 00 18 00
2390   FC FF 0C 00 FD FF FC FF EB FF
2400   06 00 EB FF 00 00 FE FF 06 00
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2500   22 00 EE FF 1B 00 F3 FF 1D 00
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2520   22 00 E9 FF 1D 00 E5 FF 18 00
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2600   05 A5 FF FF 09 F5 0A F4 0A F4
2610   0B F4 0B F3 0C F3 05 A5 FF FF
2620   0D F3 0F F2 10 F1 11 F0 12 EF
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DID $9A
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DID $9F
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DID $B4
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DID $B7
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DID $C1
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DID $C2
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DID $C3
05 04 CC 9D
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DID $CB
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PID $CC00
CE 5D 17

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September 2024

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

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