CRASH DATA RESEARCH CENTER
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OFFICE OF DEFECTS INVESTIGATION

CALSPAN ON-SITE INFLATABLE CURTAIN AIR BAG NON-DEPLOYMENT CRASH INVESTIGATION SCI CASE NO.: CA09071

VEHICLE: 2009 DODGE JOURNEY

LOCATION: NORTH CAROLINA

CRASH DATE: SEPTEMBER, 2009

Contract No. DTNH22-07-C-00043

Prepared for:

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TECHNICAL REPORT STANDARD TITLE PAGE

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16. Abstract This on-site investigation focused on the non-deployment of the Inflatable Curtain (IC) air bags in a 2009 Dodge Journey. The Dodge Journey was equipped with front safety belt pretensioners, a Certified Advanced 208-Compliant (CAC) frontal air bag system, front seat-mounted side impact air bags and roll-sensing IC air bags. The Dodge was involved in offset head-on crash with a 1997 Ford Thunderbird. The force of the impact actuated the safety belt pretensioners and deployed the CAC frontal air bags in the Dodge. The frontal air bags in the Ford also deployed. The Dodge subsequently rotated counterclockwise and rolled four-quarter turns to the right, coming to rest on its wheels. The 63-year-old male driver of the Dodge reported that the roll-sensing IC air bags did not deploy during the crash. The driver and the 60-year-old female front right passenger were transported by helicopters to a regional trauma center where they were treated for minor severity injuries and released.			
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NON-DEPLOYMENT CRASH INVESTIGATION

SCI CASE NO.: CA09071
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BACKGROUND

This on-site investigation focused on the non-deployment of the Inflatable Curtain (IC) air bags in a 2009 Dodge Journey. **Figure 1** is a front left oblique view of the vehicle. The Dodge Journey was equipped with front safety belt pretensioners, a Certified Advanced 208-Compliant (CAC) frontal air bag system, front seat-mounted side impact air bags and roll-sensing IC air bags. The Dodge was involved in offset head-on crash with a 1997 Ford Thunderbird. The force of the impact actuated the safety belt pretensioners and deployed the CAC frontal air bags in the Dodge. The frontal air bags in the Ford also deployed. The Dodge subsequently rotated counterclockwise and rolled four-quarter turns to the right, coming to rest on its wheels. The 63-year-old male driver of the Dodge reported that the roll-sensing IC air bags did not deploy during the crash. The driver and the 60-year-old female front right passenger were transported by helicopters to a regional trauma center where they were treated for minor severity injuries and released.

Figure 1: Front left oblique view of the Dodge.

The driver of the Dodge submitted a Vehicle Owner's Questionnaire (VOQ) regarding the non-deployed status of the IC air bags to NHTSA's Auto Safety Hotline on October 9, 2009. NHTSA's Office of Defects Investigation requested further research into the crash through the Agency's Crash Investigation Division (CID). The CID forwarded the VOQ to the Calspan Special Crash Investigation's (SCI) team on October 13, 2009 for on-site follow-up. The driver was contacted by the SCI team on the day of notification and a detailed interview was conducted. The Police Accident Report (PAR) was obtained and the case was assigned for on-site investigation. The investigation involved the inspection and documentation of the Dodge, the Ford, and the crash site. The Dodge Journey was considered a total loss and had been towed to a regional insurance salvage facility. The uninsured Ford was located at a local tow service in close proximity to the crash site. The Dodge was equipped with an Event Data Recorder (EDR) that was imaged during the investigation. The on-site investigation was conducted October 26 and 27, 2009.

SUMMARY

VEHICLE DATA

2009 Dodge Journey

The Dodge Journey was identified by the Vehicle Identification Number (VIN): 3D4GG57V89T (production sequence deleted). The vehicle was manufactured in March 2008 and had a driver reported odometer reading of 26,550 km (16,498 miles) at the time of the crash. The driver stated that he purchased the Dodge as a new vehicle in April 2008. The prior service history of the Dodge consisted of routine oil changes and the replacement of a faulty brake sensor. This issue was repaired under warranty. There were no previous crashes or reported problems with the vehicle's air bag systems.

The Dodge was powered by a 3.5-liter, V-6 engine linked to a 4-speed automatic transmission. The service brakes were front and rear disc with 4-wheel ABS. The mid-size sport utility vehicle was configured for five passenger seating and was equipped with the SXT trim package. The manual restraint systems consisted of 3-point lap and shoulder belts for the five seat positions. The front safety belts were equipped with retractor pretensioners. The supplemental restraints consisted of CAC air bags for the driver and front right passenger, front seat-mounted side impact air bags, and roll-sensing IC air bags. The Dodge was equipped with Kumho Solus KH16 P225/55R19 tires. The vehicle manufacturer's recommended cold tire pressure was 235 kPa (34 PSI) front and rear. The specific measured tire data at the time of the SCI inspection was as follows:

Position	Measured Tire Pressure	Measured Tread Depth	Tire/Wheel Damage
Left Front	Unknown	Unknown	Suspension and rim fractured, wheel assembly separated, tire missing
Left Rear	193 kPa (28 PSI)	6 mm (8/32 in)	Rim face abraded
Right Front	193 kPa (28 PSI)	6 mm (8/32 in)	Rim edge abraded and fractured
Right Rear	Tire flat	6 mm (7/32 in)	Rim edge abraded, Tire debeaded

1997 Ford Thunderbird

The Ford Thunderbird was identified by the VIN: 1FALP62W2VH (production sequence deleted). The 2-door, rear-wheel drive sedan was manufactured in August 1996 and was equipped with a 4.6-liter, V-8 engine linked to a 4-speed automatic transmission. The manual restraint systems consisted of 3-point lap and shoulder belts in the four outboard positions and a center rear lap belt. The vehicle was equipped with frontal air bags for the driver and front right passenger. The Ford was equipped with Michelin Hydro-Edge P215/70R15 tires. The vehicle manufacturer's recommended cold tire pressure was 207 kPa (30 PSI) front and rear. The specific measured tire data at the time of the SCI inspection was as follows:

Position	Measured Tire Pressure	Measured Tread Depth	Tire/Wheel Damage
Left Front	Tire Flat	6 mm (7/32 in)	Tire debeaded, suspension fracture
Left Rear	172 kPa (25 PSI)	7 mm (9/32 in)	None
Right Front	145 kPa (21 PSI)	6 mm (8/32 in)	None
Right Rear	172 kPa (25 PSI)	6 mm (8/32 in)	None

CRASH SITE

This two-vehicle crash occurred during the nighttime hours of September 2009. At the time of the crash, it was dark without artificial lighting and the weather was clear. The road was curved to the left for eastbound traffic and measured 5.9 m (19.4 ft) in total width. The radius of curvature measured 305 m (1000 ft). The travel lanes were separated by a double-yellow centerline. **Figure 2** is an eastbound trajectory view of the Dodge 45 m (148 ft) from the point of impact. At the crash site, the eastbound grade of the road measured positive 3.4 percent. The superelevation of the curve measured positive 8.5 percent. The speed limit in the area of the crash was 72 km/h (45 mph). A schematic of the crash is included at the end of this report as **Figure 9**.

Figure 2: Eastbound trajectory view of the Dodge 45 m from the POI.

CRASH SEQUENCE

Pre-Crash

The Dodge Journey was eastbound operated by a 63-year-old restrained male. A 60-year-old restrained female was the front right passenger in the Dodge. The driver reported to the SCI investigator that his speed was approximately 72 km/h (45 mph). The couple was travelling to their residence located approximately 145 km (90 miles) north of the crash site and had been en-route approximately 30 minutes prior to the crash. The 1997 Ford Thunderbird was westbound driven by a 37-year-old male. As the Ford was negotiating the curve, the vehicle drove through the curve on a straight path, crossed the centerline and entered the opposing travel lane.

Crash

The front left corner of the Ford struck the front left corner of the Dodge in an offset collision (Event 1). The point of impact was located entirely within the eastbound lane and was evidenced by a series of 0.6 m (2 ft) long gouge marks. The gouge marks were located 1.8 m (5.9 ft) right (east) of the centerline. The force of the impact caused the Dodge's safety belt pretensioners to actuate and deployed the CAC frontal air bags. The frontal air bags in the Ford also deployed.

The narrow engagement occurred outboard of the left frame rail of each vehicle and continued rearward along the left plane to the B-pillar area. The impact fractured the left front suspensions of both vehicles. The left front wheel/tire of the Dodge completely separated. The front left undercarriage of the Dodge contacted the road as it separated from the impact. The undercarriage contact was evidenced by gouge marks located in the eastbound lane 9 m (29.5 ft) east of the impact. This impact was non-central; the centers of mass of the respective vehicles did not reach a common velocity. Therefore, analysis of this impact was beyond the scope of the WinSMASH program.

The left offset impact induced a counterclockwise (CCW) rotation to both vehicles. The CCW rotation of the Dodge exposed the right tires to lateral forces at the road interface. The side walls of the right tires rolled under and the right rims contacted the road tripping the vehicle. This contact was evidenced by abrasions to the bead edges and minor fracturing of the alloy rims. The Dodge rolled right-side-leading four-quarter turns coming to rest on its wheels facing westward in the westbound travel lane. The approximate roll distance was 18 m (59 ft). The Ford rotated approximately 160 degrees CCW coming to rest straddling the north pavement edge facing eastward. The trajectory of the vehicle was evidenced by a 10 m (33 ft) long tire impression in the grass outboard the north shoulder. The distance from the point of impact to the final rest of the Ford was 21 m (69 ft).

Post-Crash

The police and ambulance personnel responded to the crash site. The driver and front right passenger of the Dodge unbuckled their safety belts and exited the vehicle unassisted. At the scene, they complained of chest and back pain. Both occupants were transported by helicopters to a regional trauma center where they were treated for their injuries and released. The driver of the Dodge sustained a fractured sternum, a strain of the neck and back, soreness of both shoulders, and a right knee contusion. The front right passenger of the Dodge sustained neck and back strain and contusions of both arms. The driver of the Ford was removed from the vehicle after a prolonged extrication. He refused medical treatment and was not transported to a hospital. Both vehicles sustained disabling damage and had to be towed. The Dodge was deemed a total loss by its insurer and transferred to an insurance salvage yard where it was inspected for this SCI investigation. The Ford was not insured and was inspected at a local tow agency.

2009 DODGE JOURNEY

Exterior Damage

The Dodge Journey sustained moderate severity impact damage to the front, sides and top plane as a result of the multiple event crash sequence. **Figure 3** is a view of the frontal damage to the Dodge Journey. The direct contact damage to the front plane as a result of the initial impact (Event 1) began 55 cm (21.8 in) left of center and extended 21 cm (8.2 in) to the left front corner. The frontal deformation began immediately outboard of the left end of the bumper reinforcement beam. The residual crush was measured along the reinforcement beam and was as follows: C1 = 6.0 cm (2.1 in), C2 = 2.0 cm (0.8 in), C3 = 3.0 cm (1.2 in), C4 = 3.0 cm (1.2 in), C5 = 1.0 cm (0.4 in), C6 = 0. The left frame rail was not damaged. The vehicle engagement continued rearward onto the left fender, fractured and separated the left front wheel assembly, deformed the left front door panel and transitioned to scuffing contact that ended at the rear wheel opening. The vehicle's battery was located in the front left corner of the engine compartment and was completely fractured. A wiring harness from the engine compartment to the interior was visibly damaged during the crash and was exposed. **Figure 4** is a left view of the damage at the left fender. The damaged battery is highlighted in the figure and the wiring harness is visible. The Collision Deformation Classification (CDC) of Event 1 was 12FLEE9.

Figure 3: View of the frontal impact damage.

Figure 4: Left side view of the damage at the fender. Note the damaged battery and exposed/damaged wiring harness.

The Dodge rotated CCW after separation from the Ford and the right side wheel rims contacted the pavement. Both rim bead edges were abraded and a section of each rim edge was fractured. The vehicle then rolled over four-quarter turns (Event 2) coming to rest on its wheels. Surface abrasions from the rollover were identified on the right roof side, the roof rack, left roof side rail, the left door window frames and around the left wheel opening. There was no lateral shift of the roof structure. The roof deformed in a 185 cm (73 in) long V-shaped pattern inboard the left roof side rail. The maximum vertical deformation occurred within this pattern and was located in the left roof area adjacent to the B-pillar. The maximum vertical deformation measured 8.0 cm (3.1 in). **Figure 5** is a view of the roof deformation. The CDC of the damage was 00TDDO3.

Figure 5: View of the deformed roof and the maximum vertical deformation adjacent to the B-pillar.

The left aspect of the windshield was fractured. All the side glazing was intact. The left front door was open at the time of the SCI inspection and could not be closed due to body deformation. There was no evidence that the door had come open during the crash sequence. The left rear and both right doors remained closed during the crash and were operational. There was no change in the right wheelbase dimension.

1997 FORD THUNDERBIRD

Exterior Damage

The Ford sustained moderate severity damage as a result of the frontal crash. **Figures 6 and 7** are the front and the left oblique view of the damaged vehicle. The initial direct contact damage began 56.0 cm (22.0 in) left of center and extended 15.0 cm (5.9 in) to the left corner. The offset impact involved the extreme left end of the bumper reinforcement. The bumper fascia and foam

absorber fractured and separated. An abrasion pattern 33.0 cm (13.0 in) in length was noted to the left aspect of the fascia from swiping contact to the left rear door of the Dodge; however, this contact occurred during the later stage of the crash as the Ford was rotating CCW. The frontal crush measured along the reinforcement beam was as follows: C1 = 42.0 cm (16.5 in), C2 = 11.0 cm (4.3 in), C3 = 10.0 cm (3.9 in), C4 = 9.0 cm (3.5 in), C5 = 4 cm (1.6 in), C6 = 3 cm (1.2 in). The impact continued through the left fender area outboard of the uni-body frame. The front left suspension was fractured and displaced rearward into the lower A-pillar. The left door was jammed closed and opened by EMS extrication. The direct contact between the vehicles extended to the left B-pillar in swiping contact. The left wheelbase was reduced 56.0 cm (22 in). There was no change in the right wheelbase dimension. The CDC was 12FLAE7.

Figure 6: Front view of the Ford.

Figure 7: Left front oblique view of the Ford.

The upper aspect of the A-pillars were cut post-crash and the roof was folded back in order to remove the driver. The steering column appeared to have been lifted vertically during the extrication process.

2009 DODGE JOURNEY

Interior Damage

The interior damage to the Dodge consisted of the deployment of the CAC frontal air bags and vertical intrusion of the roof. There was no measureable longitudinal or lateral intrusion. The vertical intrusion of the left roof in Row 1 measured 3.0 cm (1.2 in). The vertical intrusion of the left roof rail measured 4.0 cm (1.6 in) in Row 2. The Row 1 roof intrusion measured 6.0 cm (2.4 in). This intrusion was located immediately inboard of the left B-pillar (**Figure 8**). There were no occupant contacts to the interior of the Dodge.

The driver seat was adjusted to a rear-track position that measured 5.0 cm (2.1 in) forward of full rear. The total seat track travel measured 25.0 cm (9.8 in). The seat position was measured with reference to the front right seat. The seat back angle measured 20 degrees aft of vertical. The horizontal distance from the seat back to the driver air bag module measured 61.0 cm (24.0 in). That measurement was taken 43.0 cm (16.9 in) above the seat bight. There was no deformation of the steering wheel rim or displacement of the steering column shear capsules.

The front right seat track was adjusted to the same position as the driver seat, 5.0 cm (2.1 in) forward of full rear. The seat back angle measured 10 degrees aft of vertical. The horizontal distance from the seat back to the vertical face of the instrumental panel measured 74.0 cm (29.1 in). The horizontal distance to the front right passenger air bag module measured 99.0 cm (39.0 in).

Manual Restraint System

The driver's manual restraint was a 3-point lap and shoulder safety belt that consisted of continuous loop webbing, a sliding latch plate, an adjustable D-ring and an Emergency Locking Retractor (ELR). The D-ring was adjusted to the full-down position. The retractor was equipped with a pretensioner that actuated as a result of the crash. The webbing was stowed at initial inspection. The webbing was extended and it was determined that the operation of the retractor was intermittent. The retractor did not operate smoothly. Examination of the latch plate revealed indications of historical use and full-width abrasions to the friction surface indicative of use at the time of the crash. A corresponding 6.0 cm (2.4 in) wide abrasion was identified on the webbing. A 5.0 cm (2.1 in) wide webbing abrasion was also located at the D-ring. The total length of the reconstructed webbing that was in use at the time of the crash measured 141.0 cm (55.5 in).

The front right passenger's manual 3-point lap and shoulder belt consisted of continuous loop webbing, a sliding latch plate, an adjustable D-ring and a switchable Automatic Locking Retractor/ELR (ALR/ELR). The D-ring was adjusted to the full-down position. The retractor was equipped with a pretensioner that actuated during the crash. At initial examination the webbing was extended in the worn position and the retractor was locked. The latch plate revealed historical evidence of use and the friction surface was abraded full width as a result of occupant loading. An 8.0 cm (3.1 in) abrasion to the webbing in the area of the buckled latch plate was observed.

Air Bag Systems

The CAC frontal air bags deployed as a result of the offset frontal crash. The driver air bag deployed from an H-configuration module located in the center of the steering wheel rim. There was no occupant contact to the cover flaps. The dimensions of the upper flap measured 15.0 cm x 5.0 cm (5.8 in x 2.1 in), width by height. The lower flap measured 15.0 cm x 8.0 cm (5.8 in x 3.1 in). The deployed air bag measured 61.0 cm (24.0 in) in diameter. The bag was tethered and vented by two ports located in the 11/1 o'clock sectors. The air bag's excursion from the module measured 25.0 cm (9.8 in). There was no occupant contact evidence on the face of the air bag.

The front right passenger air bag was a top mount design located in the right aspect of the instrument panel. The cover flap was rectangular and measured 30.0 cm x 13.0 cm (11.8 in x 5.1 in), width by depth. The face of the deployed air bag measured 41.0 cm x 61.0 cm (16.1 in x 24.0 in). The excursion of the tethered air bag from the module measured 53.0 cm (20.9 in). The air bag was vented by four ports located on the side panels. There was no occupant contact evidence on the air bag.

The Dodge was equipped with front seat-mounted side impact air bags and roll-sensing IC air bags. These air bags did not deploy during the crash sequence. **Figure 9** is an interior view of the right roof side rail and the location of the IC air bag.

Figure 8: Interior view of the right roof side rail and the location of the IC air bag.

Event Data Recorder

The air bag systems in the Dodge Journey were controlled by an Occupant Restraint Control (ORC) module that was located under the center instrument panel. The ORC module controlled the diagnostic, sensing and deployment command functions of the air bag system and also had Event Data Recording (EDR) capabilities. The EDR data was imaged by the SCI investigator utilizing the Bosch Crash Data Retrieval hardware and software version 3.3 during the vehicle inspection. The imaged data was then reanalyzed with software version 3.4.

Initially, the EDR imaging was attempted through the Diagnostic Link Connector (DLC). Twelve volt (12-V) external power was applied the vehicle's fuse block located in the engine compartment. However, impact damage to the vehicle's electrical system prevented the power-up of the Dodge. The ORC module was located and removed to facilitate a direct to module imaging. The EDR data was successfully imaged and the ORC was reinstalled. A copy of the imaged data is attached to the end of this narrative report as Attachment A. The following is a summary of some key data elements.

The EDR had recorded a single event termed the "Most Recent Event". The EDR recorded 5 seconds of Pre-Crash data for the multiple vehicle parameters. There was limited information regarding the air bag system deployment status. Safety belt use was not monitored by the module.

It is important to note that the recording of this event was interrupted by a potential loss of electrical power. The power loss was indicated by the *Vehicle Event Recorder Status* field in the Pre-Crash table. This parameter indicated a complete write of the buffered data to permanent memory did not occur. The power loss was a possible cause for the non-deployment of the IC air bags.

The imaged data indicated the vehicle's speed was 46 mph 5 seconds (-5 sec) prior to the crash. The recorded speed was consistent with the driver's statement. The steering wheel sensor indicated the driver was steering to the left, consistent with left curve of the crash site. There were no system faults prior to the loss of electrical power. The cruise control was "Off". The driver did not apply the brakes during the recorded pre-crash time frame. The recorded data contained no information regarding the rollover event.

The recorded event was the frontal impact (Event 1) based on the recorded crash pulse. The maximum recorded longitudinal acceleration was -26.47g at 29 milliseconds after Algorithm

Wakeup (AW). The maximum recorded lateral acceleration was 15.15g at 46 milliseconds after AW. A reconstruction analysis of the crash pulse was conducted by the SCI investigator in order to determine the delta-V of the frontal event. The maximum longitudinal delta-V was -21.1 km/h (-13.1 mph) at 120 milliseconds after AW. The maximum lateral delta-V was 9.3 km/h (5.8 mph) at 132 milliseconds after AW. These values were consistent with the damage to the vehicle based on SCI field experience.

OCCUPANT DEMOGRAPHICS

2009 Dodge Journey

	Driver	***Front Right Passenger***
Age/Sex:	63-year-old / Male	60-year-old / Female
Height:	183 cm (72 in)	165 cm (65 in)
Weight:	84 kg (185 lb)	51 kg (113 lb)
Seat Track Position:	Rear track	Rear track
Safety Belt Usage:	3-point lap and shoulder	3-point lap and shoulder
Usage Source:	SCI vehicle inspection	SCI vehicle inspection
Egress from Vehicle:	Exited unassisted	Exited unassisted
Type of Medical Treatment:	Treated and released	Treated and released

Driver Injury

Injury	***Injury Severity (AIS 90/98 update)***	***Injury Source***
Manubrium (sternum) fracture with subtle displacement	Moderate (450804.2,4)	Safety belt
Right side forehead abrasion	Minor (290202.1,7)	Unknown
Left clavicle abrasion	Minor (790202.1,2)	Safety belt
Left clavicle contusion	Minor (790402.1,2)	Safety belt
Source: Emergency room records		
Cervical (neck) strain	Minor (640278.1,6)	Crash force
Back strain	Unable to code per AIS rules	Crash force
Right knee contusion	Minor (890402.1,1)	Knee bolster
Source: Driver interview		

Driver Kinematics

The restrained 63-year-old male driver was seated in a rear track position in an upright posture. At impact, the safety belt retractor locked and the pretensioner actuated. The CAC frontal air bags also deployed. The actuated pretensioner removed slack from the belt system and tightened

the webbing around the driver. The driver initiated a forward trajectory in response to the 12 o'clock direction of force and loaded the belt system with his chest and pelvis. The driver's belt loading resulted in a sternum fracture and soft tissue injuries of the left clavicle. The belt loading was evidenced by abrasions to the webbing and latch plate friction surfaces. As the vehicle tripped and rolled over, the driver remained in contact with the safety belt and rode down the force of the rollover event. The driver sustained cervical and back strain resultant to the force of the crash. He came to rest within the front left interior and was able to exit unassisted through the front right door opening.

Front Right Passenger Injury

Injury	***Injury Severity (AIS 90/98 update)***	***Injury Source***
Cervical (neck) strain	Minor (640278.1,6)	Crash force
Source: Emergency room records		
Back strain	Unable to code per AIS rules	Crash force
Left arm contusion, aspect unknown	Minor (790402.1,2)	Unknown interior contact
Right arm contusion, aspect unknown	Minor (790402.1,1)	Unknown interior contact
Source: Driver interview		

Front Right Passenger Kinematics

The 60-year-old restrained female was seated in an upright posture in a rear-track position. At impact, the safety belt retractor locked, the pretensioner actuated and the frontal air bag deployed. The actuated pretensioner removed slack from the safety belt system and tightened the webbing around the passenger. The passenger initiated a forward trajectory and loaded the locked belt system with her chest and pelvis. As the vehicle rotated CCW, tripped and rolled over, the passenger remained in contact with the belt system and rode down the force of the crash. She sustained contusions to her arms from contact with an unknown interior component. The neck and back strain was a non-contact injury sustained as a result of the crash force. She came to rest within the front right seat and was able to exit the vehicle unassisted through the front right door.

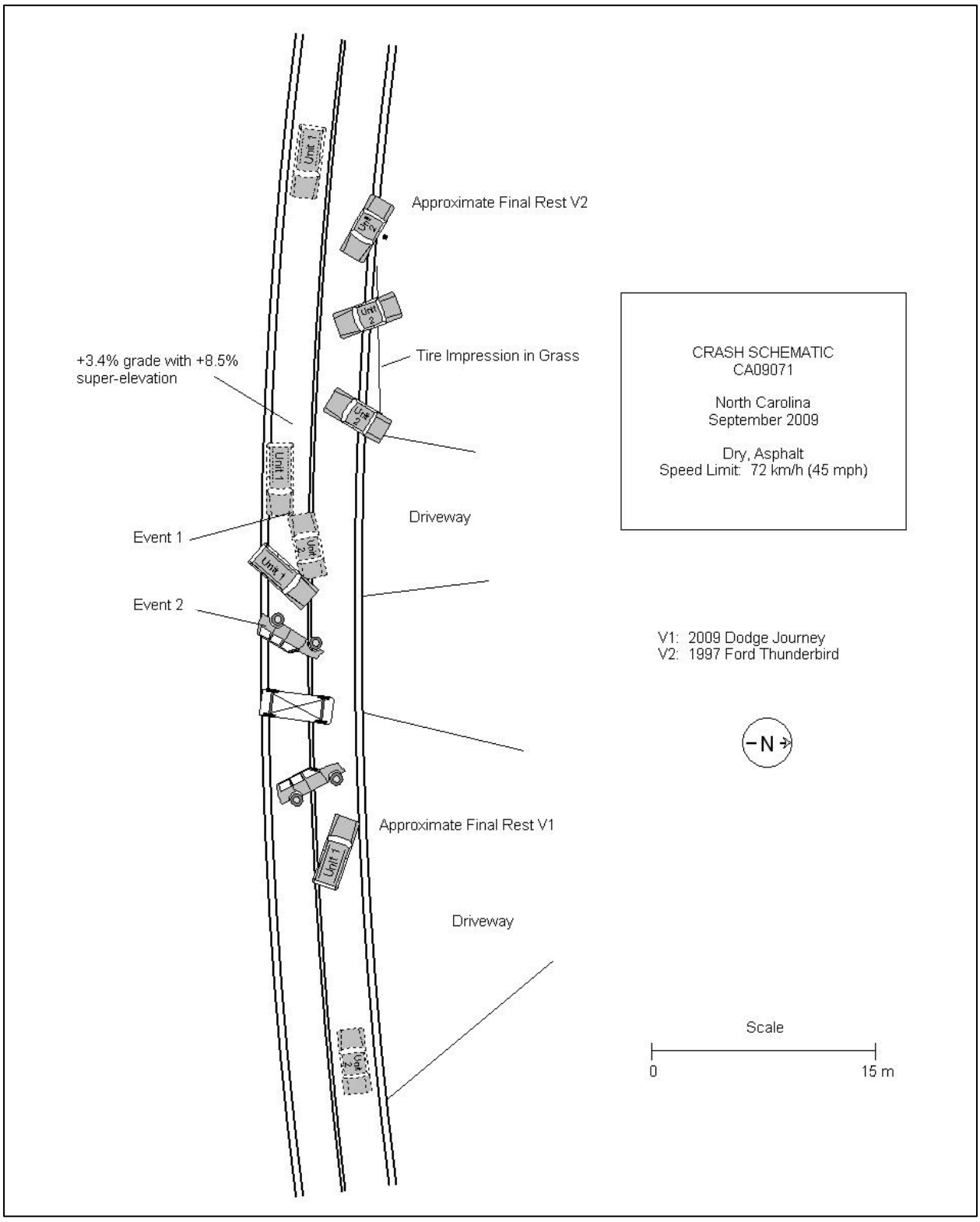


Figure 9: Crash Schematic.

ATTACHMENT A

EDR DATA

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	3D4GG57V89T******
User	
Case Number	
EDR Data Imaging Date	
Crash Date	
Filename	CA09071 3_4 CDR.CDR
Saved on	Monday, October 26 2009 at 02:28:49 PM
Collected with CDR version	Crash Data Retrieval Tool 3.3
Reported with CDR version	Crash Data Retrieval Tool 3.4
EDR Device Type	airbag control module
Event(s) recovered	Event Record 1

Comments

No comments entered.

Data Limitations

AIRBAG CONTROL MODULE (ACM) DATA LIMITATIONS:

GENERAL INFORMATION:

CAUTION: During Bench top imaging, make sure the ACM is not moved, tilted or turned over while connected to and powered by the CDR Interface Module. Also, after a CDR imaging process, wait 2 minutes after power is removed from the ACM before attempting to move the module. Not following these general ACM guidelines for bench top imaging could cause new events to be recorded in the ACM.

The ACM current fault status will be altered if the ACM is powered-up without having all of the other vehicle inputs connected (e.g., bench top imaging). This situation will occur when the CDR tool is connected directly to the ACM. This will not affect any of the stored fault data information in any of the Event Records. Always make a note in the CDR case comments page when an ACM bench top imaging process is performed.

The recorded Deployment Event will contain Pre-Crash data.

- T0 (where '0' is subscript) (-.01 sec.) is defined as the last sample point in the vehicle data buffer when the ACM commanded a deployment for all vehicles except the 2008 - 2010 Dodge Grand Caravan, 2008-2010 Chrysler Town and Country and 2009-2010 Dodge Journey. In these vehicles, T0 (where '0' is subscript) is defined as the algorithm wakeup. Please note that the algorithm wakeup may be different for front, side, and roll-over events and their associated parameters.
- The VIN is captured by the ACM and then recorded as the Original VIN after 10 consecutive ignition cycles of capturing the same number. Once it has been recorded, this number can not be modified.

CDR FILE INFORMATION:

Event(s) Recovered definitions:

- None - There are no stored events in the Airbag Control Module (ACM)
- Not Retrievable - Event Data is stored in the ACM but is not retrievable by the CDR tool.
- For Continental ACMs:
  - Event Record 1 - Data from an event is stored in the ACM (not necessarily in chronological order)
  - Event Record 2 - Data from another event is stored in the ACM (not necessarily in chronological order)
  - Event Record 3 - Data from another event is stored in the ACM (not necessarily in chronological order)
- For all other ACMs:
  - Most Recent Event - Data of the most recent event is displayed in the report
  - 1st Prior Event - Two events are stored in the ACM, Data displayed is of the first prior event.
  - 2nd Prior Event - Three events are stored in the ACM, Data displayed is of the second prior event.
  - Etc., (for modules with 3 to 5 stored events)

CDR RECORD INFORMATION:

- If power to the ACM is lost during a deployment event, all or part of the event data record may not be recorded. "Interrupted" will be displayed for Vehicle Event Recorder Status.
- The Airbag Control Module Configuration indicates the inputs and outputs that the ACM for a particular vehicle monitors and/or controls.

- For applicable vehicles, the “Event Number” in the System Status at Event section of the report indicates the order of the events.
- For applicable vehicles, the “Total Number of Events Recorded” in the System Status at Event section of the report indicates the total number of events that the ACM has recorded.
- For applicable vehicles, a “Yes” for a particular item in the Deployment Command Data section of the report indicates that the ACM commanded the deployment of the associated device.
- Vehicle Data (Pre-Crash) is transmitted to the Airbag Control Module, by various vehicle control modules, via the vehicle’s communication network.
- On 2006-2009 Dodge Ram 2500/3500, the Engine RPM recorded is limited to a maximum of 4080 RPM. On the 2008 - 2010 Dodge Grand Caravan, 2008-2010 Chrysler Town and Country and 2009-2010 Dodge Journey, the engine RPM resolution is 256 rpm. On all other vehicles, the resolution is 32 rpm.
- If a recorded event has Engine RPM equal to SNA and Speed, Vehicle Indicated equals SNA for each time stamp, then the data is default data and the event stored in the ACM is not valid.
  - The accuracy of the recorded Speed, Vehicle Indicated will be affected if the vehicle had the tire size or the final drive axle ratio changed from the factory build specifications.
  - Speed, Vehicle Indicated is reported as an average of the drive wheels.
- On the 2008 - 2010 Dodge Grand Caravan, 2008-2010 Chrysler Town and Country and 2009-2010 Dodge Journey, the vehicle speed resolution is 2 kph. On all other vehicles, the resolution is 1 kph.
- The MIL (Malfunction Indicator Lamp) Status for the various recorded systems indicates the state of the applicable malfunction indicator lamp at the time that the data was captured. Note: Some fault codes could be stored due to component/system damage from the accident.

NOTE: A StarScan Tool should be used to read any stored Diagnostic Trouble Codes (DTC’s) in the various electronic modules (ACM, PCM, ABS, TCM, etc., where applicable) for use in interpretation of some vehicle specific recorded data.

VEHICLE DATA DEFINITIONS:

Vehicle Event Recorder Status definitions:

- For additional definitions, please refer to the CDR Help File Glossary
- ABS MIL status - This indicates the ABS fault indicator lamp status. It will only be illuminated when there is a fault in the ABS system. The Electronic brake module DTC’s should be read and recorded for final system interpretation.
- ESP MIL status - This indicates the ESP/BAS fault indicator lamp status. It will only be illuminated when there is a fault or thermal model shutdown in the ESP system. The ESP module DTC’s should be read and recorded for final system interpretation. This is only valid for vehicles equipped with ESP.
- ESP Lamp Steady State Requested - This is the status of the ESP symbol - “car with squiggly lines” indicator lamp. “Yes” indicates ESP has been turned off by the driver or has reduced performance and is not an indication of a fault in the system. This is only valid for vehicles equipped with ESP.
- ESP Lamp Flashing Requested - If “Yes”, then an ESP, Traction Control or Trailer Sway Control (if equipped) event was active at the time of data capture. This is only valid for vehicles equipped with ESP.
- ESP Disabled - “Yes” indicates that ABS & ESP have been disabled by the driver or due to system performance. This is only valid for vehicles equipped with ESP.
- Traction Control Button - When the button is "ON", (driver has pushed the button), the Traction Control system is "Disabled". When the button is "OFF", the Traction Control system is "Enabled".
- ESP Active - “YES” indicates that the ESP system is intervening with wheel specific braking/engine control. This is only valid for vehicles equipped with ESP.
- Panic Brake Assist Active - “Yes” indicates that all four of the brake circuits are under going ABS control. This is only valid for vehicles equipped with ESP.
- Steering Input (deg) if equipped:
  - Steering Input polarity is positive for right turns on:
    - 2005 - 2007 Grand Cherokee
    - 2006 - 2007 Commander
    - 2005 - 2010 300, Magnum, and Charger
    - 2008 - 2010 Challenger
  - Steering Input polarity is negative for right turns on:
    - All other vehicles and model years not specified above
- Yaw Rate (Degrees) if equipped: All vehicles have negative yaw rate when making a right turn.
- ETC Lamp Status - Lamp “ON “ indicates there is an active Electronic Throttle DTC. This is only valid for vehicles equipped with ETC.
- ETC Lamp Flashing - If “Yes”, then the ETC is in the limp-in mode. This is only valid for vehicles equipped with ETC.
- Engine Torque Applied - If “No”, then no engine torque output was applied (as in Park/Neutral for Automatic transmissions or clutch depressed on manual or during an ESP/Traction Control event), If “Yes”, then engine torque output was applied.
- Tire 1 (2) Location - This indicates the location of the tire pressure sensor data. Default is used to indicate that the location of the tire pressure sensor is unknown or there is no tire pressure sensor in the wheel. Vehicles with Base Tire Pressure Monitoring systems will display SNA for both Tire Locations as these vehicles do not send actual pressure values across the communication bus.
- Tire 1 (2) Pressure Status - This indicates the actual pressure status of the Tire Location defined in the previous column. Possible values are LOW, NORMAL, HIGH, or SNA for this parameter. Vehicles with Base Tire Pressure Monitoring systems will display NORMAL even though these vehicles do not send actual pressure values across the communication bus.
- Tire 1 (2) Pressure (psi) - This indicates the actual tire pressure value of the Tire Location defined. Vehicles with Base Tire Pressure Monitoring systems will display N/A for this parameter as these vehicles do not send actual pressure values across the communication bus.
- Cruise Control System - “Yes” indicates that the Cruise Control system is turned on.
- Cruise Control Active - “Yes” indicates the Cruise Control system is actively controlling vehicle speed. “No” indicates the system is NOT controlling vehicle speed.

APPLICATION INFORMATION:

- 2005 - 2010 Durango's equipped with side airbags have EDR data that can be imaged by the CDR tool. Durango's not equipped with side airbags have EDR Data that might be imaged by the CDR tool and can always be imaged by the supplier.
- For 2006 MY, some Chrysler 300, Dodge Magnum, Dodge Charger, Jeep Grand Cherokee, and Jeep Commander models may contain EDR data that can not be imaged by the CDR tool.
- For 2007 MY, some PT Cruiser models may contain EDR data that can not be imaged by the CDR tool.
- EDR Data is only recorded for frontal deployments in the following vehicles:
  - 2005-2007 Durango
  - 2007 Aspen
  - 2006-2007 Ram 1500
  - 2006-2009 Ram 2500/3500 Heavy Duty
  - 2007 Caliber, Compass, Patriot
  - 2007 Sebring
  - 2007 Nitro
  - 2007 Wrangler

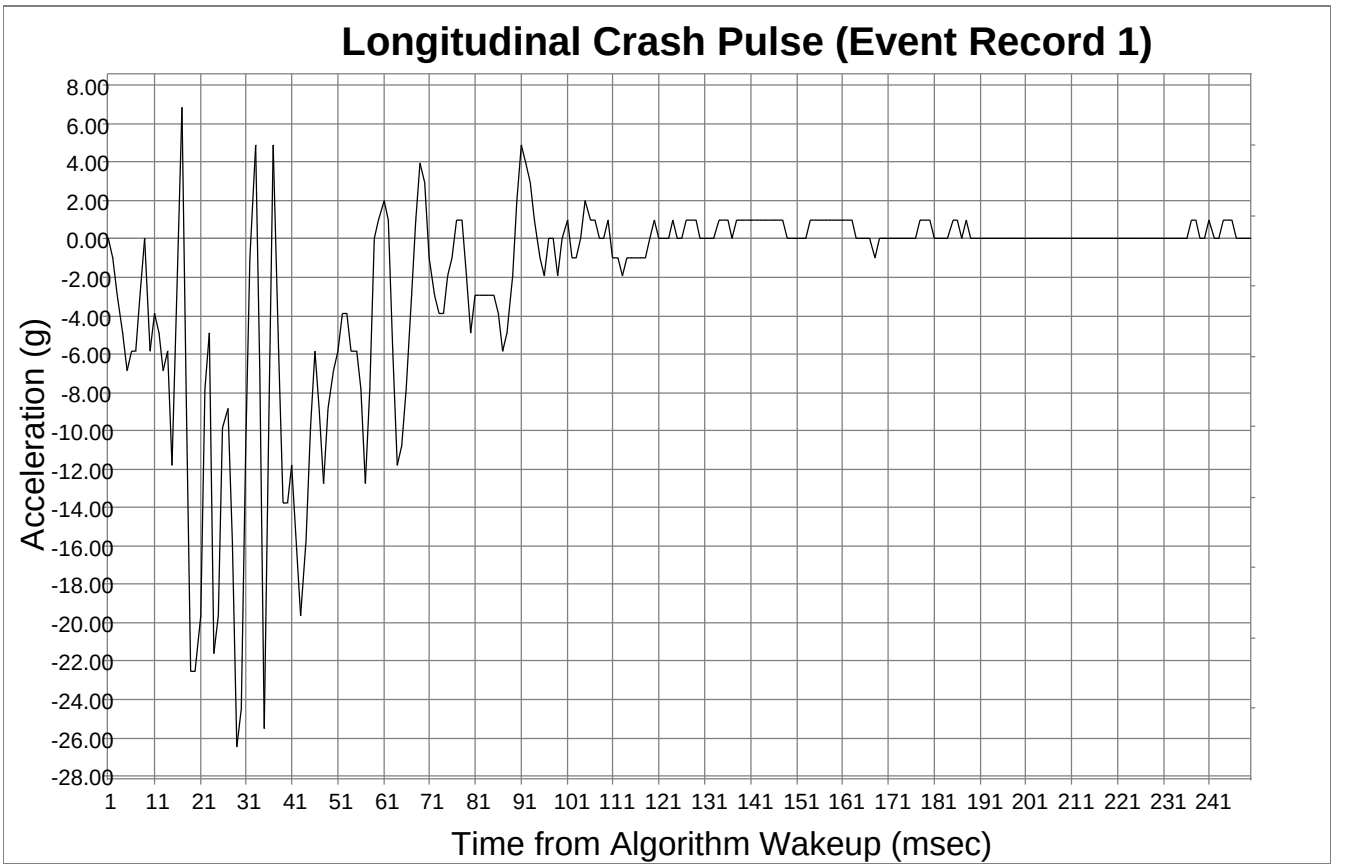
03001_Chrysler_r003

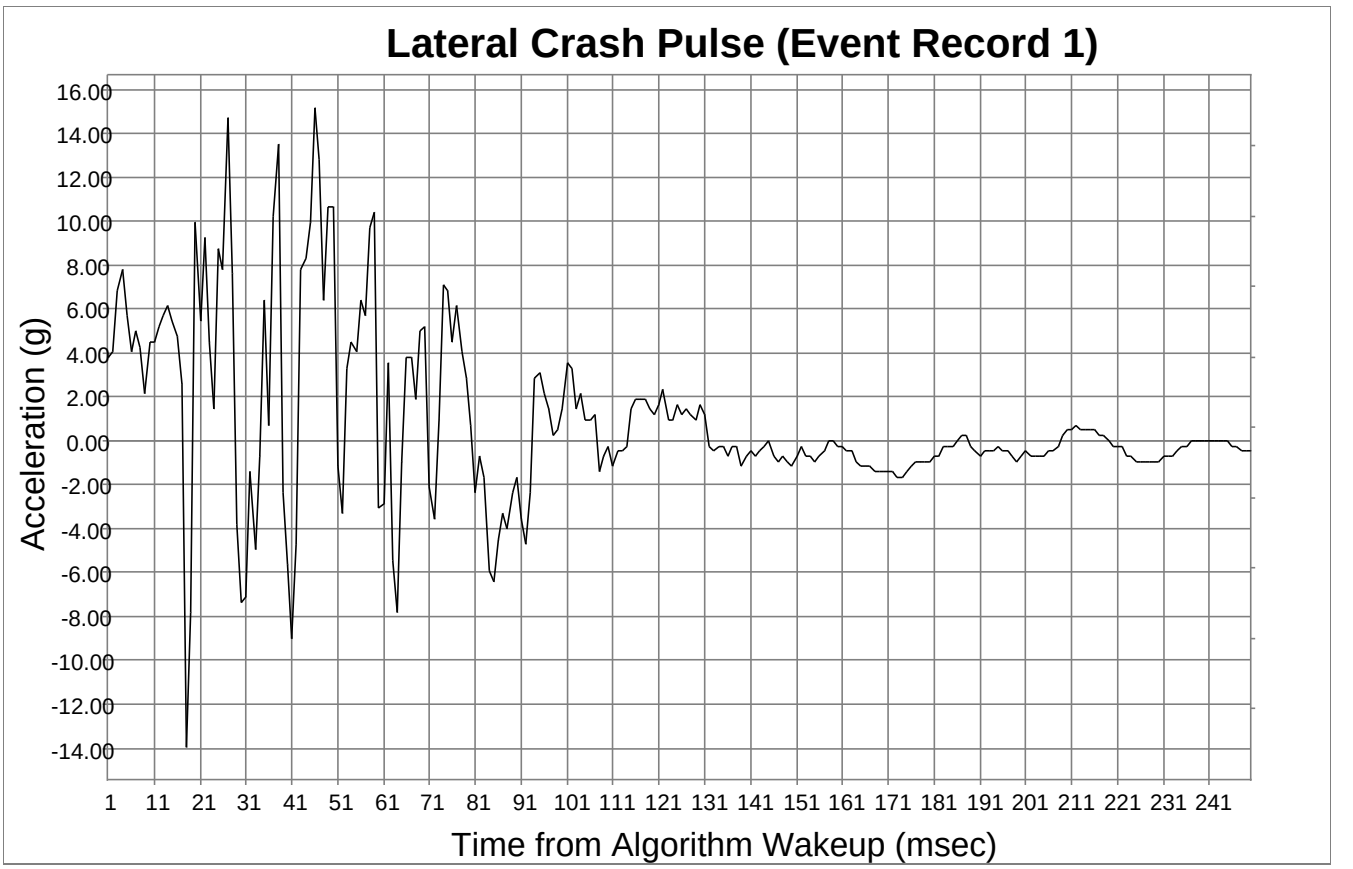
System Status at Retrieval

Original VIN	3D4GG57V89T******
Airbag Control Module Part Number	56054733AB
Airbag Control Module Serial Number	T05JF05982414E
Airbag Control Module Supplier	Continental Corporation

System Configuration at Retrieval

Configured for Front Driver Seatbelt Switch	No
Configured for Front Center Seatbelt Switch	No
Configured for Front Passenger Seatbelt Switch	No
Configured for 2nd Row Left Seatbelt Switch	No
Configured for 2nd Row Center Seatbelt Switch	No
Configured for 2nd Row Right Seatbelt Switch	No
Configured for 3rd Row Left Seatbelt Switch	No
Configured for 3rd Row Center Seatbelt Switch	No
Configured for 3rd Row Right Seatbelt Switch	No
Configured for Driver Inflatable Knee Bolster	No
Configured for Left Curtain #1	Yes
Configured for Right Curtain #1	Yes
Configured for Left Curtain #2	No
Configured for Right Curtain #2	No
Configured for Front Driver Seatbelt Pretensioner	Yes
Configured for Front Center Seatbelt Pretensioner	No
Configured for Front Passenger Seatbelt Pretensioner	Yes
Configured for 2nd Row Left Seatbelt Pretensioner	No
Configured for 2nd Row Center Seatbelt Pretensioner	No
Configured for 2nd Row Right Seatbelt Pretensioner	No
Configured for 3rd Row Left Seatbelt Pretensioner	No
Configured for 3rd Row Center Seatbelt Pretensioner	No
Configured for 3rd Row Right Seatbelt Pretensioner	No
Configured for Left Side Sensor #1	Yes
Configured for Left Side Sensor #2	Yes
Configured for Left Side Sensor #3	Yes
Configured for Right Side Sensor #1	Yes
Configured for Right Side Sensor #2	Yes
Configured for Right Side Sensor #3	Yes
Configured for Left Up Front Sensor	No
Configured for Right Up Front Sensor	No
Configured for Front Driver Digressive Load Limiter	No
Configured for Front Passenger Digressive Load Limiter	No
Configured for Driver Seat Track Position Sensor	Yes
Configured for Passenger Seat Track Position Sensor	Yes
Configured for Driver Airbag Disable Switch	No
Configured for Passenger Airbag Disable Switch	No
Configured for Passenger Occupant Classification System	No
Configured for Right Side Thorax	Yes
Configured for Left Side Thorax	Yes
Configured for Passenger Inflatable Knee Bolster	No
Configured for Passenger Belt Tension Sensor	No
Configured for Driver Belt Tension Sensor	No
Configured for Occupant Detection Sensor	No
Configured for DOC Disable Switch	No


Longitudinal Crash Pulse (Event Record 1)
Acceleration (g)
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
-12.00
-14.00
-16.00
-18.00
-20.00
-22.00
-24.00
-26.00
-28.00
1 11 21 31 41 51 61 71 81 91 101 111 121 131 141 151 161 171 181 191 201 211 221 231 241
Time from Algorithm Wakeup (msec)


Lateral Crash Pulse (Event Record 1)
Acceleration (g)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
-12.00
-14.00
1 11 21 31 41 51 61 71 81 91 101 111 121 131 141 151 161 171 181 191 201 211 221 231 241
Time from Algorithm Wakeup (msec)

Longitudinal Crash Pulse (Event Record 1)

Time from Algorithm Wakeup (msec)	Longitudinal Acceleration (g)	Time from Algorithm Wakeup (msec)	Longitudinal Acceleration (g)	Time from Algorithm Wakeup (msec)	Longitudinal Acceleration (g)
1	0.00	51	-5.88	101	0.98
2	-0.98	52	-3.92	102	-0.98
3	-2.94	53	-3.92	103	-0.98
4	-4.90	54	-5.88	104	0.00
5	-6.86	55	-5.88	105	1.96
6	-5.88	56	-7.84	106	0.98
7	-5.88	57	-12.75	107	0.98
8	-2.94	58	-7.84	108	0.00
9	0.00	59	0.00	109	0.00
10	-5.88	60	0.98	110	0.98
11	-3.92	61	1.96	111	-0.98
12	-4.90	62	0.98	112	-0.98
13	-6.86	63	-5.88	113	-1.96
14	-5.88	64	-11.76	114	-0.98
15	-11.76	65	-10.78	115	-0.98
16	-1.96	66	-7.84	116	-0.98
17	6.86	67	-2.94	117	-0.98
18	-8.82	68	0.98	118	-0.98
19	-22.55	69	3.92	119	0.00
20	-22.55	70	2.94	120	0.98
21	-19.61	71	-0.98	121	0.00
22	-7.84	72	-2.94	122	0.00
23	-4.90	73	-3.92	123	0.00
24	-21.57	74	-3.92	124	0.98
25	-19.61	75	-1.96	125	0.00
26	-9.80	76	-0.98	126	0.00
27	-8.82	77	0.98	127	0.98
28	-15.69	78	0.98	128	0.98
29	-26.47	79	-1.96	129	0.98
30	-24.51	80	-4.90	130	0.00
31	-10.78	81	-2.94	131	0.00
32	-0.98	82	-2.94	132	0.00
33	4.90	83	-2.94	133	0.00
34	-6.86	84	-2.94	134	0.98
35	-25.49	85	-2.94	135	0.98
36	-9.80	86	-3.92	136	0.98
37	4.90	87	-5.88	137	0.00
38	-5.88	88	-4.90	138	0.98
39	-13.73	89	-1.96	139	0.98
40	-13.73	90	1.96	140	0.98
41	-11.76	91	4.90	141	0.98
42	-15.69	92	3.92	142	0.98
43	-19.61	93	2.94	143	0.98
44	-15.69	94	0.98	144	0.98
45	-9.80	95	-0.98	145	0.98
46	-5.88	96	-1.96	146	0.98
47	-8.82	97	0.00	147	0.98
48	-12.75	98	0.00	148	0.98
49	-8.82	99	-1.96	149	0.00
50	-6.86	100	0.00	150	0.00

Longitudinal Crash Pulse (Event Record 1)

Time from Algorithm Wakeup (msec)	Longitudinal Acceleration (g)	Time from Algorithm Wakeup (msec)	Longitudinal Acceleration (g)
151	0.00	201	0.00
152	0.00	202	0.00
153	0.00	203	0.00
154	0.98	204	0.00
155	0.98	205	0.00
156	0.98	206	0.00
157	0.98	207	0.00
158	0.98	208	0.00
159	0.98	209	0.00
160	0.98	210	0.00
161	0.98	211	0.00
162	0.98	212	0.00
163	0.98	213	0.00
164	0.00	214	0.00
165	0.00	215	0.00
166	0.00	216	0.00
167	0.00	217	0.00
168	-0.98	218	0.00
169	0.00	219	0.00
170	0.00	220	0.00
171	0.00	221	0.00
172	0.00	222	0.00
173	0.00	223	0.00
174	0.00	224	0.00
175	0.00	225	0.00
176	0.00	226	0.00
177	0.00	227	0.00
178	0.98	228	0.00
179	0.98	229	0.00
180	0.98	230	0.00
181	0.00	231	0.00
182	0.00	232	0.00
183	0.00	233	0.00
184	0.00	234	0.00
185	0.98	235	0.00
186	0.98	236	0.00
187	0.00	237	0.98
188	0.98	238	0.98
189	0.00	239	0.00
190	0.00	240	0.00
191	0.00	241	0.98
192	0.00	242	0.00
193	0.00	243	0.00
194	0.00	244	0.98
195	0.00	245	0.98
196	0.00	246	0.98
197	0.00	247	0.00
198	0.00	248	0.00
199	0.00	249	0.00
200	0.00	250	0.00

Lateral Crash Pulse (Event Record 1)

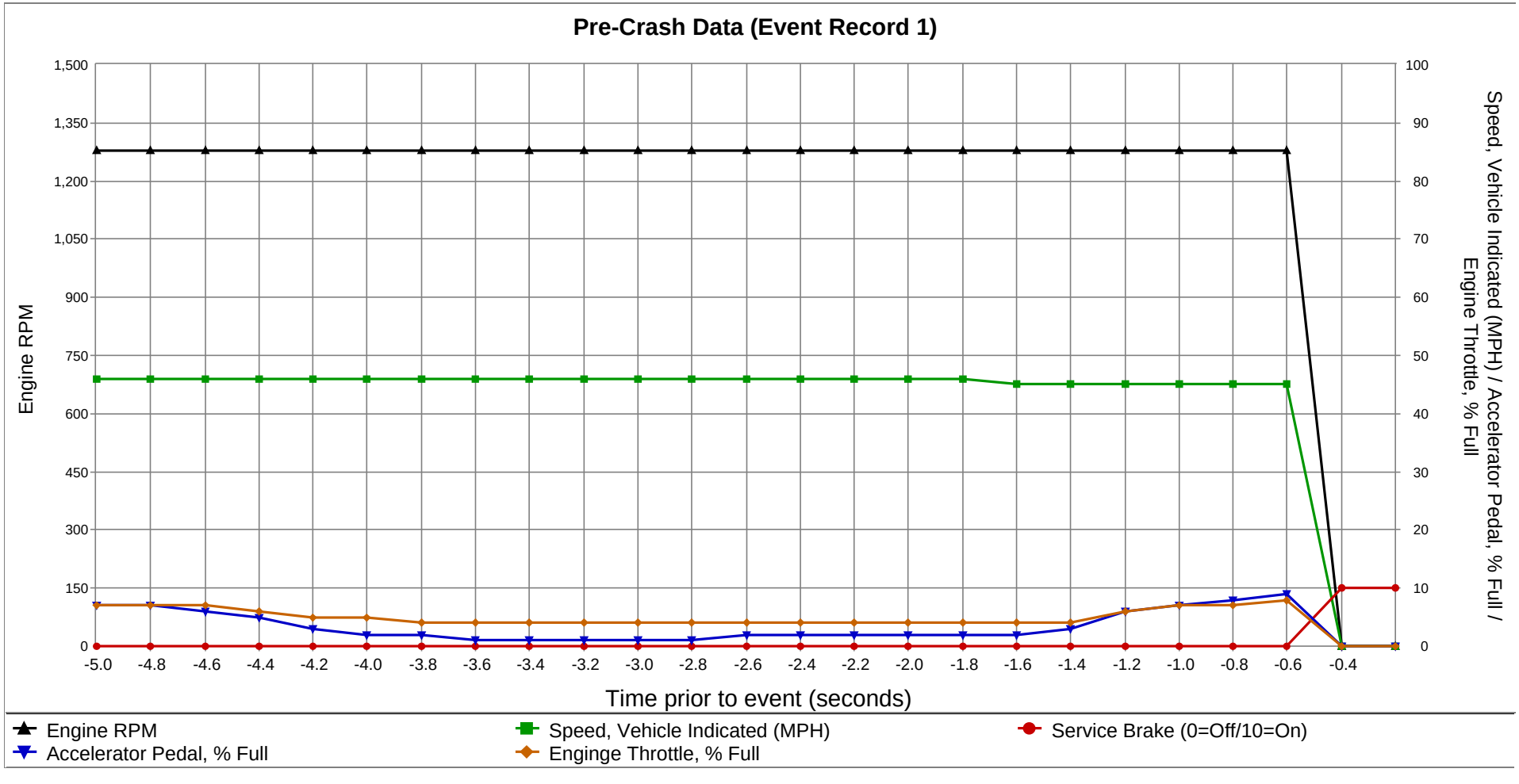
Time from Algorithm Wakeup (msec)	Lateral Acceleration (g)
1	3.79
2	4.02
3	6.87
4	7.81
5	5.68
6	4.02
7	4.97
8	4.26
9	2.13
10	4.50
11	4.50
12	5.21
13	5.68
14	6.16
15	5.45
16	4.73
17	2.60
18	-13.97
19	-7.81
20	9.94
21	5.45
22	9.23
23	4.50
24	1.42
25	8.76
26	7.81
27	14.68
28	7.58
29	-3.79
30	-7.34
31	-7.10
32	-1.42
33	-4.97
34	-0.71
35	6.39
36	0.71
37	10.18
38	13.49
39	-2.37
40	-5.68
41	-9.00
42	-4.73
43	7.81
44	8.29
45	9.94
46	15.15
47	12.78
48	6.39
49	10.65
50	10.65

Time from Algorithm Wakeup (msec)	Lateral Acceleration (g)
51	-1.18
52	-3.31
53	3.31
54	4.50
55	4.02
56	6.39
57	5.68
58	9.71
59	10.42
60	-3.08
61	-2.84
62	3.55
63	-5.45
64	-7.81
65	-0.95
66	3.79
67	3.79
68	1.89
69	4.97
70	5.21
71	-2.13
72	-3.55
73	0.95
74	7.10
75	6.87
76	4.50
77	6.16
78	4.02
79	2.84
80	0.71
81	-2.37
82	-0.71
83	-1.66
84	-5.92
85	-6.39
86	-4.50
87	-3.31
88	-4.02
89	-2.37
90	-1.66
91	-3.55
92	-4.73
93	-2.37
94	2.84
95	3.08
96	2.13
97	1.42
98	0.24
99	0.47
100	1.42

Time from Algorithm Wakeup (msec)	Lateral Acceleration (g)
101	3.55
102	3.31
103	1.42
104	2.13
105	0.95
106	0.95
107	1.18
108	-1.42
109	-0.71
110	-0.24
111	-1.18
112	-0.47
113	-0.47
114	-0.24
115	1.42
116	1.89
117	1.89
118	1.89
119	1.42
120	1.18
121	1.66
122	2.37
123	0.95
124	0.95
125	1.66
126	1.18
127	1.42
128	1.18
129	0.95
130	1.66
131	1.18
132	-0.24
133	-0.47
134	-0.24
135	-0.24
136	-0.71
137	-0.24
138	-0.24
139	-1.18
140	-0.71
141	-0.47
142	-0.71
143	-0.47
144	-0.24
145	0.00
146	-0.71
147	-0.95
148	-0.71
149	-0.95
150	-1.18

Lateral Crash Pulse (Event Record 1)

Time from Algorithm Wakeup (msec)	Lateral Acceleration (g)	Time from Algorithm Wakeup (msec)	Lateral Acceleration (g)
151	-0.71	201	-0.47
152	-0.24	202	-0.71
153	-0.71	203	-0.71
154	-0.71	204	-0.71
155	-0.95	205	-0.71
156	-0.71	206	-0.47
157	-0.47	207	-0.47
158	0.00	208	-0.24
159	0.00	209	0.24
160	-0.24	210	0.47
161	-0.24	211	0.47
162	-0.47	212	0.71
163	-0.47	213	0.47
164	-0.95	214	0.47
165	-1.18	215	0.47
166	-1.18	216	0.47
167	-1.18	217	0.24
168	-1.42	218	0.24
169	-1.42	219	0.00
170	-1.42	220	-0.24
171	-1.42	221	-0.24
172	-1.42	222	-0.24
173	-1.66	223	-0.71
174	-1.66	224	-0.71
175	-1.42	225	-0.95
176	-1.18	226	-0.95
177	-0.95	227	-0.95
178	-0.95	228	-0.95
179	-0.95	229	-0.95
180	-0.95	230	-0.95
181	-0.71	231	-0.71
182	-0.71	232	-0.71
183	-0.24	233	-0.71
184	-0.24	234	-0.47
185	-0.24	235	-0.24
186	0.00	236	-0.24
187	0.24	237	0.00
188	0.24	238	0.00
189	-0.24	239	0.00
190	-0.47	240	0.00
191	-0.71	241	0.00
192	-0.47	242	0.00
193	-0.47	243	0.00
194	-0.47	244	0.00
195	-0.24	245	0.00
196	-0.47	246	-0.24
197	-0.47	247	-0.24
198	-0.71	248	-0.47
199	-0.95	249	-0.47
200	-0.71	250	-0.47


Pre-Crash Data (Event Record 1)
Engine RPM
1,500
1,350
1,200
1,050
900
750
600
450
300
150
0
Speed, Vehicle Indicated (MPH) / Accelerator Pedal, % Full / Engine Throttle, % Full
100
90
80
70
60
50
40
30
20
10
0
-5.0 -4.8 -4.6 -4.4 -4.2 -4.0 -3.8 -3.6 -3.4 -3.2 -3.0 -2.8 -2.6 -2.4 -2.2 -2.0 -1.8 -1.6 -1.4 -1.2 -1.0 -0.8 -0.6 -0.4
Time prior to event (seconds)
Engine RPM
Speed, Vehicle Indicated (MPH)
Service Brake (0=Off/10=On)
Accelerator Pedal, % Full
Enginge Throttle, % Full

Pre-Crash Data (Event Record 1 - table 1 of 5)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	Vehicle Event Recorder Status	Engine RPM	Speed, Vehicle Indicated (MPH [km/h])	Engine Throttle, % Full	Accelerator Pedal, % Full	Raw Manifold Pressure (kPa)	Service Brake	Brake Switch #2 Status	Brake Lamps On
-5.0	Interrupted	1,280	46 [74]	7.5	7.5	47	Off	Open	No
-4.8	Interrupted	1,280	46 [74]	7.5	6.7	47	Off	Open	No
-4.6	Interrupted	1,280	46 [74]	7.5	6.3	47	Off	Open	No
-4.4	Interrupted	1,280	46 [74]	6.3	5.1	46	Off	Open	No
-4.2	Interrupted	1,280	46 [74]	5.1	3.1	42	Off	Open	No
-4.0	Interrupted	1,280	46 [74]	4.7	2.4	38	Off	Open	No
-3.8	Interrupted	1,280	46 [74]	4.3	1.6	34	Off	Open	No
-3.6	Interrupted	1,280	46 [74]	4.3	1.2	32	Off	Open	No
-3.4	Interrupted	1,280	46 [74]	4.3	1.2	30	Off	Open	No
-3.2	Interrupted	1,280	46 [74]	3.9	1.2	30	Off	Open	No
-3.0	Interrupted	1,280	46 [74]	3.9	1.2	29	Off	Open	No
-2.8	Interrupted	1,280	46 [74]	3.9	1.2	29	Off	Open	No
-2.6	Interrupted	1,280	46 [74]	3.9	1.6	28	Off	Open	No
-2.4	Interrupted	1,280	46 [74]	3.9	2.0	28	Off	Open	No
-2.2	Interrupted	1,280	46 [74]	3.9	2.0	28	Off	Open	No
-2.0	Interrupted	1,280	46 [74]	4.3	2.0	28	Off	Open	No
-1.8	Interrupted	1,280	46 [74]	4.3	2.0	28	Off	Open	No
-1.6	Interrupted	1,280	45 [72]	4.3	2.4	29	Off	Open	No
-1.4	Interrupted	1,280	45 [72]	4.3	2.8	29	Off	Open	No
-1.2	Interrupted	1,280	45 [72]	5.5	5.5	30	Off	Open	No
-1.0	Interrupted	1,280	45 [72]	6.7	6.7	35	Off	Open	No
-0.8	Interrupted	1,280	45 [72]	7.5	7.9	41	Off	Open	No
-0.6	Interrupted	1,280	45 [72]	8.3	9.1	46	Off	Open	No
-0.4	Interrupted	SNA	SNA	SNA	SNA	SNA	On	Closed	SNA
-0.2	Interrupted	SNA	SNA	SNA	SNA	SNA	On	Closed	SNA

Pre-Crash Data (Event Record 1 - table 2 of 5)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	Panic Brake Assist Active (if equip.)	ABS MIL (if equip.)	ESP MIL (if equip.)	ESP Lamp (if equip.)	ESP Lamp Flashing Requested (if equip.)	ESP Disabled (if equip.)	Traction Control Button (if equip.)	ESP Active (if equip.)
-5.0	No	Off	Off	No	No	No	Off	Yes
-4.8	No	Off	Off	No	No	No	Off	Yes
-4.6	No	Off	Off	No	No	No	Off	Yes
-4.4	No	Off	Off	No	No	No	Off	Yes
-4.2	No	Off	Off	No	No	No	Off	Yes
-4.0	No	Off	Off	No	No	No	Off	Yes
-3.8	No	Off	Off	No	No	No	Off	Yes
-3.6	No	Off	Off	No	No	No	Off	Yes
-3.4	No	Off	Off	No	No	No	Off	Yes
-3.2	No	Off	Off	No	No	No	Off	Yes
-3.0	No	Off	Off	No	No	No	Off	Yes
-2.8	No	Off	Off	No	No	No	Off	Yes
-2.6	No	Off	Off	No	No	No	Off	Yes
-2.4	No	Off	Off	No	No	No	Off	Yes
-2.2	No	Off	Off	No	No	No	Off	Yes
-2.0	No	Off	Off	No	No	No	Off	Yes
-1.8	No	Off	Off	No	No	No	Off	Yes
-1.6	No	Off	Off	No	No	No	Off	Yes
-1.4	No	Off	Off	No	No	No	Off	Yes
-1.2	No	Off	Off	No	No	No	Off	Yes
-1.0	No	Off	Off	No	No	No	Off	Yes
-0.8	No	Off	Off	No	No	No	Off	Yes
-0.6	No	Off	Off	No	No	No	Off	Yes
-0.4	Yes	On	On	Yes	Yes	Yes	On	Yes
-0.2	Yes	On	On	Yes	Yes	Yes	On	Yes

Pre-Crash Data (Event Record 1 - table 3 of 5)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	Steering Input (deg) (if equip.)	Yaw Rate (deg/sec) (if equip.)	Wheel Speed LF (RPM) (if equip.)	Wheel Speed RF (RPM) (if equip.)	Wheel Speed LR (RPM) (if equip.)	Wheel Speed RR (RPM) (if equip.)
-5.0	1	2	548	550	547	549
-4.8	4	2	549	551	547	549
-4.6	7	2	549	552	549	550
-4.4	8	3	549	552	550	550
-4.2	8	3	550	552	548	551
-4.0	9	3	550	552	547	550
-3.8	12	4	549	552	548	552
-3.6	14	4	548	552	547	551
-3.4	14	4	547	553	547	550
-3.2	11	4	546	551	546	549
-3.0	9	3	548	549	546	549
-2.8	9	3	547	549	545	547
-2.6	9	3	545	548	545	548
-2.4	9	3	545	548	543	547
-2.2	9	3	544	548	543	547
-2.0	9	3	544	547	544	545
-1.8	9	3	542	545	542	544
-1.6	9	3	541	544	540	543
-1.4	8	3	539	542	539	541
-1.2	7	3	538	541	537	541
-1.0	5	3	538	541	539	539
-0.8	4	2	536	539	534	537
-0.6	2	2	535	538	534	535
-0.4	Invalid	SNA	SNA	SNA	SNA	SNA
-0.2	Invalid	SNA	SNA	SNA	SNA	SNA

Pre-Crash Data (Event Record 1 - table 4 of 5)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	ETC Lamp	ETC Lamp Flashing	Engine Torque Applied	Shift Gear Position (if equip.)	Cruise Control System	Cruise Control Active
-5.0	Off	No	Yes	Drive	Off	No
-4.8	Off	No	Yes	Drive	Off	No
-4.6	Off	No	Yes	Drive	Off	No
-4.4	Off	No	Yes	Drive	Off	No
-4.2	Off	No	Yes	Drive	Off	No
-4.0	Off	No	Yes	Drive	Off	No
-3.8	Off	No	Yes	Drive	Off	No
-3.6	Off	No	Yes	Drive	Off	No
-3.4	Off	No	Yes	Drive	Off	No
-3.2	Off	No	Yes	Drive	Off	No
-3.0	Off	No	Yes	Drive	Off	No
-2.8	Off	No	Yes	Drive	Off	No
-2.6	Off	No	Yes	Drive	Off	No
-2.4	Off	No	Yes	Drive	Off	No
-2.2	Off	No	Yes	Drive	Off	No
-2.0	Off	No	Yes	Drive	Off	No
-1.8	Off	No	Yes	Drive	Off	No
-1.6	Off	No	Yes	Drive	Off	No
-1.4	Off	No	Yes	Drive	Off	No
-1.2	Off	No	Yes	Drive	Off	No
-1.0	Off	No	Yes	Drive	Off	No
-0.8	Off	No	Yes	Drive	Off	No
-0.6	Off	No	Yes	Drive	Off	No
-0.4	On	Yes	Yes	SNA	On	Yes
-0.2	On	Yes	Yes	SNA	On	Yes

Pre-Crash Data (Event Record 1 - table 5 of 5)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	Tire Pressure Monitor Faults (if equip.)	Tire 1 Location (if equip.)	Tire 1 Pressure Status (if equip.)	Tire 1 Pressure (psi) (if equip.)	Tire 2 Location (if equip.)	Tire 2 Pressure Status (if equip.)	Tire 2 Pressure (psi) (if equip.)
-5.0	No	LF	Normal	31	RF	Normal	32
-4.8	No	LF	Normal	31	RF	Normal	32
-4.6	No	LF	Normal	31	RF	Normal	32
-4.4	No	LR	Normal	31	RR	Normal	32
-4.2	No	LR	Normal	31	RR	Normal	32
-4.0	No	LR	Normal	31	RR	Normal	32
-3.8	No	LR	Normal	31	RR	Normal	32
-3.6	No	LR	Normal	31	RR	Normal	32
-3.4	No	LF	Normal	31	RF	Normal	32
-3.2	No	LF	Normal	31	RF	Normal	32
-3.0	No	LF	Normal	31	RF	Normal	32
-2.8	No	LF	Normal	31	RF	Normal	32
-2.6	No	LF	Normal	31	RF	Normal	32
-2.4	No	LR	Normal	31	RR	Normal	32
-2.2	No	LR	Normal	31	RR	Normal	32
-2.0	No	LR	Normal	31	RR	Normal	32
-1.8	No	LR	Normal	31	RR	Normal	32
-1.6	No	LR	Normal	31	RR	Normal	32
-1.4	No	LF	Normal	31	RF	Normal	32
-1.2	No	LF	Normal	31	RF	Normal	32
-1.0	No	LF	Normal	31	RF	Normal	32
-0.8	No	LF	Normal	31	RF	Normal	32
-0.6	No	LF	Normal	31	RF	Normal	32
-0.4	Yes	SNA	SNA	SNA	SNA	SNA	SNA
-0.2	Yes	SNA	SNA	SNA	SNA	SNA	SNA