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Special Crash Investigations On-Site Ambulance Crash Investigation Vehicle: 2011 Ford E-350 Type III Ambulance Location: Ohio Crash Date: September 2016

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15. Supplementary Notes

On-site ambulance crash investigation involving a 2011 Ford E-350 Type III Ambulance.
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.

16. Abstract

This report documents the on-site investigation of the crash of a 2011 Ford E-350 Type III ambulance and the sources of the injuries sustained by the driver, paramedic, and patient. Additional focus is the cot transporting the patient and its securement system. This crash occurred in the intersection of a two-lane State highway and a two-lane rural roadway. The ambulance was a rear-wheel-drive, cutaway van equipped with a Type III ambulance body manufactured by Life Star Rescue, Inc. An unbelted 45-year-old female driver occupied the cab of the vehicle. An unbelted 42-year-old male paramedic and 45-year-old female patient occupied the patient compartment. The patient was secured on a Stryker model 6083 MX-Pro bariatric transport cot. The ambulance was conducting a non-emergency transport of the patient and was operating without the emergency lights and siren activated. The ambulance was in the southbound lane approaching the four-way intersection of the rural roadway. A 2013 Dodge Journey was traveling on the rural roadway in the westbound lane, also approaching the intersection. The police crash report stated that the Dodge failed to stop for the stop sign and entered the intersection. The front plane of the ambulance then struck the right plane of the Dodge (Event 1). The impact deployed the ambulance's two frontal air bags. The impact also resulted in displacement of the patient cot from its secured location. The rail clamp securement bar on the cot fractured and separated, and the head-end wheels of the cot were not secured since their track was wider than the antler bracket. The impact caused the Dodge to rotate counterclockwise and the ambulance to rotate clockwise, resulting in the right plane of the Dodge striking the left plane of the ambulance (Event 2). Both vehicles then departed the southwest corner of the intersection and the ambulance rolled over (Event 3) onto its left plane and then rolled back up onto its wheels to final rest heading south, a total of two quarter turns. The Dodge came to final rest in a corn field heading south. The unbelted driver of the ambulance was ejected through the disintegrated left front glazing during the crash. She was airlifted to a hospital where she was pronounced deceased 5 hours and 7 minutes following the crash. The paramedic and patient sustained police-reported "A" (incapacitating) injuries. The paramedic was airlifted to a hospital where he was admitted. The patient was transported by ambulance to a hospital and treated in the emergency room, then transferred back to the originating hospital, and admitted. The Dodge was occupied by a restrained 48-year-old male. He sustained police-reported "B" (non-incapacitating) injuries and was transported by ambulance to a hospital. His level of treatment is not known. Both vehicles were towed from the crash scene due to damage.

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Indiana University
Transportation Research Center
On-Site Ambulance Crash Investigation
Case Number: IN16025
Vehicle: 2011 Ford E-350 Type III Ambulance
Location: Ohio
Crash Date: September 2016

BACKGROUND

This report documents the on-site investigation of the crash of a 2011 Ford E-350 Type III ambulance (**Figure 1**) and the sources of the injuries sustained by the driver, paramedic and patient. Additional focus is the cot transporting the patient and its securement system. This crash investigation was initiated by the National Highway Traffic Safety Administration in September 2016 through NHTSA's Emergency Medical Services (EMS) office and assigned to the Indiana University Transportation Research Center. This crash involved the ambulance and a 2013 Dodge Journey. The crash occurred in Ohio in September 2016 at dusk and was investigated by a local police agency. The crash scene, ambulance, and the Dodge were inspected in October 2016. Telephone interviews were conducted in October 2016 with the paramedic who was attending to the patient and the insurance manager for the ambulance service. An ambulance service questionnaire was also completed by the ambulance service insurance manager and returned in October 2016.



Figure 1: The damaged 2011 Ford Econoline E-350 Type III ambulance.

This crash occurred in the four-way intersection of a two-lane State highway and a two-lane rural roadway. The Ford was a rear-wheel-drive cutaway van equipped with a Type III ambulance body manufactured by Life Star Rescue, Inc.[1] An unbelted 45-year-old female driver occupied the cab of the vehicle. An unbelted 42-year-old male paramedic and 45-year-old female patient occupied the patient compartment. The patient was secured on a Stryker model 6083 MX-Pro Bariatric Transport cot. The ambulance was conducting a non-emergency transport of the patient and was operating without the emergency lights and siren activated. The ambulance was traveling in the southbound lane approaching the four-way intersection of the rural roadway. The Dodge was traveling in the westbound lane of the rural roadway, also approaching the intersection. The police crash report stated that the Dodge failed to stop for the stop sign and entered the intersection. The front plane of the ambulance then struck the right plane of the Dodge (Event 1). The impact deployed the ambulance's two frontal air bags. The impact also resulted in displacement of the patient cot from its secured location. The rail clamp securement

[1] Life Star Rescue, Inc., has since ceased operations.

bar on the cot fractured and separated, and the head-end wheels of the cot were not secured since their track was wider than the antler bracket. The impact caused the Dodge to rotate counterclockwise and the ambulance to rotate clockwise, resulting in the right plane of the Dodge striking the left plane of the ambulance (Event 2). Both vehicles then departed the southwest corner of the intersection and the ambulance rolled over (Event 3) onto its left plane and then rolled back up onto its wheels to final rest heading south, a total of two quarter turns. The Dodge came to final rest in a corn field heading south. The unbelted driver of the ambulance was ejected through the disintegrated left front glazing during the crash. She was airlifted to a hospital where she was pronounced deceased 5 hours and 7 minutes following the crash. The paramedic and patient sustained police-reported "A" (incapacitating) injuries. The paramedic was airlifted to a hospital where he was admitted. The patient was transported by ambulance to a hospital and treated in the emergency room, then transferred back to the originating hospital and admitted. The Dodge was occupied by a restrained 48-year-old male. He sustained police-reported "B" (non-incapacitating) injuries and was transported by ambulance to a hospital. His level of treatment is not known. Both vehicles were towed from the crash scene due to damage.

Emergency Medical Service, Personnel, Driver Training: The ambulance service was a contract operation that had been in business for over 40 years and its service area covered six Ohio counties. The ambulance service fleet consisted of 25 ambulances and provided 9-1-1 service as well as non-emergency transfer service. The driver and paramedic were employed full-time and their work schedule was 24 hours on duty and 48 hours off duty. The driver, who was also a paramedic, had worked for the ambulance service for 21 years and had the same amount of experience driving ambulances. The paramedic tending to the patient had worked for the ambulance service for 8 years. The ambulance service required its drivers to complete a Coaching Emergency Vehicle Operator (CEVO) course, which was taught by certified CEVO instructors. Drivers also participated in an in-service defensive driving course taught by certified instructors. The insurance carrier for the ambulance service required that the driver records of all ambulance drivers be screened annually. Both the driver and paramedic had been on duty approximately 10 hours at the time of the crash. No citations were issued to the ambulance service as a result of this crash.

CRASH SUMMARY

Crash Site

This crash occurred at dusk in the intersection of a two-lane, rural State highway and a two-lane rural roadway. The weather conditions were clear with 16 kilometers (10 miles) visibility, a temperature of 23.8 °C (75 °F), a dew point of 18.9 °C (66 °F), and east-southeast winds at 16 km/h (10.4 mph), according to local weather reports. The roadway surfaces were level bituminous. The highway traversed on a north/south direction and was bordered on the west by a 0.6 m (2.5 ft) wide bituminous shoulder and on the east by a 0.4 m (1.3 ft) wide bituminous shoulder. The highway was also bordered by shallow ditches and cornfields on the west side. Each lane was 3.1 m (10.2 ft) wide and the roadway lane markings consisted of solid white edge lines and solid double yellow center lines. The rural roadway traversed in an east/west direction and was bordered by narrow gravel shoulders and the westbound lane had rumble strips to warn drivers of the intersection and stop sign. Each lane was approximately 3 m (10 ft) wide and the roadway pavement markings consisted of a solid white edge lines, solid yellow centerline for

westbound traffic, and broken yellow centerline for eastbound traffic east of the intersection. The speed limit for both vehicle was 89 km/h (55 mph). The crash diagram is included at the end of this report.

Pre-Crash

The ambulance crew was conducting a non-emergency transport of a patient who had undergone surgery for removal of her gall bladder and the vehicle was operating without the emergency lights and siren activated. The unbelted paramedic was seated in the patient compartment in the rear-facing seat located at the front left of the patient compartment and directly in front of the head end of the patient cot. The patient was a 220 kg (485 lbs) female who was secured on a Stryker model 6083 MX-Pro bariatric transport cot. The patient was not being administered oxygen or intravenous fluids.



Figure 2: Southbound approach of the ambulance to the intersection.

The ambulance was traveling in the southbound lane approaching the four-way intersection with the rural roadway (**Figure 2**). The ambulance's EDR reported the vehicle traveling 71.0 km/h (44.1 mph) at -5.0 sec prior to algorithm enable (AE) with the speed gradually increasing to 75.0 km/h (46.6 mph) at AE. The EDR reported no pre-crash braking. The Dodge was traveling in the westbound lane of the rural roadway (**Figure 3**). The driver had been playing golf earlier in the day (time not specified) and had consumed six beers during that time. The driver was not familiar with the roadway and did not realize he was approaching an intersection, paying attention to his GPS unit, according to the police crash report. The Dodge's EDR reported the vehicle's travel speed as 92 km/h (57 mph) at -5.0 sec prior to AE. At -0.7 sec the EDR reported that the driver initiated a left steering maneuver and the service brake was reported as "On" at -0.5 sec. The brake remained on to the end of the pre-crash recording at -0.1 sec at which point the reported speed is 84 km/h (52 mph).



Figure 3: Westbound approach of the Dodge to the intersection.

Crash

The front plane of the ambulance (**Figure 4**) struck the right plane of the Dodge (**Figure 5**). The force direction on the ambulance was in the 10 o'clock sector and the impact resulted in deployment of both frontal air bags. The impact also resulted in displacement of the patient cot from its secured location. The rail clamp securement bar on the right side of the cot fractured and separated and the head-end wheels of the cot were not secured, since their track was wider than the antler bracket. The cot was displaced forward and the head end struck the rear-facing seat and the storage cabinet located at the front right of the patient compartment. The patient remained restrained on the cot.



Figure 4: Damage to the front plane of the ambulance from the impact with the right plane of the Dodge.

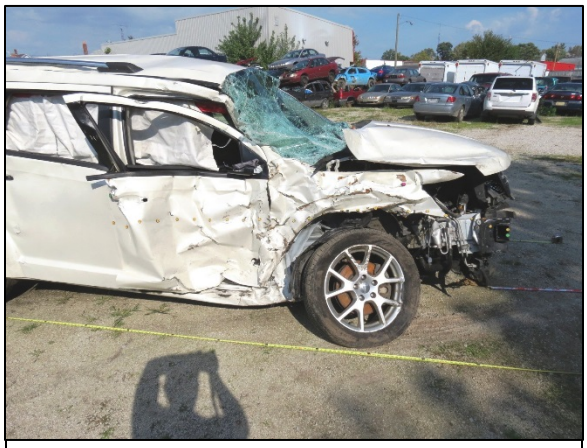


Figure 5: Damage to the right plane of the Dodge.

The ambulance's EDR reported the maximum longitudinal and lateral delta Vs as -31.12 km/h (-19.34 mph) and 50.09 km/h (31.12 mph), respectively. The Dodge's EDR reported its maximum longitudinal and lateral delta Vs as - 46 km/h (-28.6 mph) and -62 km/h (-38.4 mph), respectively. The damage algorithm of the WinSMASH program calculated the total delta V for the ambulance as 13 km/h (8 mph). The longitudinal and lateral velocity changes were -7 km/h (-4 mph) and 11 km/h (7 mph), respectively. The calculated total delta V for the Dodge was 36 km/h (23 mph). The longitudinal and lateral velocity changes were -23 km/h (-14 mph) and -27 km/h (-17 mph), respectively. The WinSMASH results were considered unreasonably low based on the damage to the vehicles and each vehicle's EDR-reported delta V. The results are reported for anecdotal purposes only.

The initial impact caused the ambulance to rotate clockwise and the Dodge to rotate counterclockwise resulting in the right plane of the Dodge striking the left plane of the ambulance (Event 2). The force direction on the ambulance was in the 1 o'clock sector based on the EDR reported delta V data for this event. The Dodge's EDR recorded no event for this impact. The ambulance's EDR reported the maximum longitudinal and lateral delta Vs as -17.34 km/h (-10.78 mph) and 6.89 km/h (4.28 mph). Both vehicles traveled in a southwesterly direction following this impact and departed the southwest corner of the intersection (**Figure 6**). The ambulance continued to rotate clockwise and rolled over (Event 3), left side leading, onto its left plane, then rolled back up onto its wheels as it continued rotating clockwise on its left plane, a total of two quarter turns during the rollover sequence. The vehicle then came to final rest

heading south partially in a corn field. The Dodge came to final rest in the corn field heading southwest. The ambulance traveled a total distance of approximately 20 m (66 ft) from the initial impact to final rest including approximately 15 m (49 ft) during the rollover. The Dodge traveled a total distance approximately of 47 m (154 ft) from the initial impact to final rest. The unbelted ambulance driver was ejected from the vehicle during the crash through the disintegrated left front glazing. Her final rest position is not known.



Figure 6: View southwest of both vehicles travel into corn field.

Post-Crash

The paramedic exited the patient compartment through the right-side door. He sustained police-reported "A" (incapacitating) injuries and was air-lifted along with the ambulance driver to a hospital where the paramedic was admitted. The driver was pronounced deceased 5 hours and 7 minutes following the crash. The patient remained restrained on the cot and was removed from the vehicle by emergency responders. She sustained police-reported "A" (incapacitating) injuries and was transported by ambulance to a hospital and treated in the emergency room, then transferred back to the originating hospital and admitted. The driver of the Dodge sustained police-reported "B" (non-incapacitating) injuries and was transported by ambulance to a hospital. His level of treatment is not known. Police administered a breath test to the driver of the Dodge at the hospital and the result was a blood alcohol concentration of .014 grams per deciliter. A horizontal gaze nystagmus test was also administered, which the driver passed. The driver refused a voluntary blood test. The driver's condition reported on the police crash report was "had been drinking, not impaired." Both vehicles were towed from the crash scene due to damage.

2011 FORD E-350 TYPE III AMBULANCE

Description

The Ford was a rear-wheel-drive, incomplete cutaway van with the VIN 1FDWE3FSXBDxxxxxx manufactured in August 2011 and was equipped with a Type III ambulance body manufactured by Life Star Rescue, Inc. The vehicle was equipped with a 6.2-liter, V-10 engine, 5-speed automatic transmission, and 4-wheel antilock brakes with electronic brake force distribution. The vehicle was also equipped with second-generation frontal air bags and a tilt steering column that was adjusted to the full-up position. The patient compartment was configured with a right-side entry door, double rear doors for patient loading, and multiple storage cabinets on both sides and front. A 3-person, inward-facing, bench seat equipped with lap seat belts was located on the right side, and a single inward-facing seat equipped with a lap seat belt was located on the left side. A rear-facing pedestal-mounted seat equipped with lap seat belt was located at the front left of the patient compartment.

The vehicle manufacturer's recommended tire size was LT225/75R16. The vehicle was equipped with Firestone Transforce HT tires of the recommended size. The manufacturer's recommended

cold tire pressure for the front and rear tires was 448 kPa (65 psi) and 414 kPa (60 psi), respectively. The tread and sidewalls of all the tires were in good condition. The left front tire was flat and restricted from damage. The remaining tires were undamaged.

The front row of the ambulance was equipped with driver and passenger bucket seats with integral head restraints. The driver's seat track was adjusted between the middle and rear-most positions and the seat back was reclined 17 degrees aft of vertical. The passenger seat was unoccupied at the time of the crash.

Exterior Damage

Exterior Damage Event 1: The ambulance sustained damage to the front and left planes during the impact with the front plane of the Dodge. The left portion of the front bumper, grille, hood, left headlamp/turn signal assemblies, left fender, and left front door were directly damaged. The direct damage began at the left corner of the front bumper and extended 68 cm (26.8 in) across the front plane. The Field L was 168 cm (66.1 in). Crush measurements were taken at the bumper level and the maximum residual crush was 35 cm (13.8 in) occurring at the left corner of the bumper. The crush values were: C_1 = 35 cm (13.8 in), C_2 = 29 cm (11.4 in), C_3 = 33 cm (13.0 in), C_4 = 16 cm (6.3 in) C_5 = 2 cm (0.8 in), C_6 = 5 cm (2.0 in).

Damage Classification Event 1: The Collision Deformation Classification (CDC) was 10FYEW3 (300 degrees).

Exterior Damage Event 2: The ambulance also sustained damage to the left plane during the side slap impact with the right plane of the Dodge. The direct damage was located on the left side of the patient compartment and minor direct contact also occurred on the left front door. A circular tire print from the right rear tire of the Dodge was present on the side of the patient compartment. The direct damage began 188 cm (74 in) forward of the left rear axle and extended 146 cm (57.5 in) forward. There was no crush to the vehicle from this impact.

Damage Classification Event 2: The CDC was 11LZEW1 (330 degrees).

Exterior Damage Event 3: The ambulance sustained damage to the left plane during the rollover. The direct damage extended from the rear of the patient compartment to the side view mirror. Grass was adhering to the side view mirror. Grass and mud were also embedded along the drip rail at the top of the patient compartment and the left side of the patient compartment was scratched and scuffed. In addition, mud was deposited on the upper left corner of the back plane indicating that the vehicle slid backwards while on its left plane during the rollover sequence.

Damage Classification Event 3: The CDC was 00LZAO2. The severity of the damage was minor.

Event Data Recorder

The ambulance's EDR was imaged with version 17.0 of the Bosch Crash Data Retrieval software and reported with version 17.9.1. The EDR was imaged via direct connection to the air bag

control module (ACM). The EDR reported one "locked frontal event," indicated as the "First Record" and an "unlocked event," indicated as the "Second Record." A complete file was recorded for each event and the driver's seat belt status was reported as "Driver Not Buckled." The ignition cycles at crash and when the data were imaged was 12,971 and 12,973, respectively. The EDR report is attached at the end of this report as **Appendix A**.

First Record: This event was recorded during the initial impact with the Dodge. The air bag warning lamp was reported as "Off." A first stage deployment was reported for the driver's and passenger's frontal air bags at 34.5 msec following AE. The maximum longitudinal and lateral delta Vs were reported as -31.12 km/h (-19.34 mpg) and 50.09 (31.12 mph), respectively occurring at 300 msec following AE.

Second Record: This event was recorded during the side slap impact between the left plane of the ambulance and the right plane of the Dodge. The "System Status at Event" record reported that the energy reserve mode was entered during the event and that the front satellite sensor lost data prior to the event. The frontal air bag warning lamp was reported as "On" since both air bags deployed during the first event. The time between the first event and this event was reported as 100 msec. The maximum longitudinal and lateral delta Vs were reported as -17.34 km/h (-10.78 mph) and 6.89 km/h (4.28 mph), respectively occurring at 300 and 195 msec, respectively.

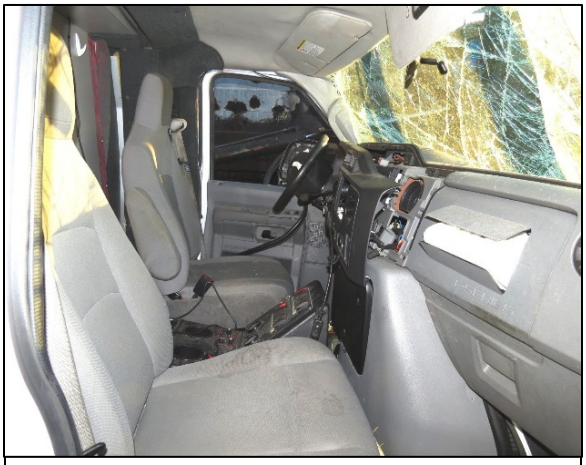


Figure 7: Front row of the ambulance.

Interior Damage

Interior Damage, Front Row: The front row (**Figure 7**) sustained moderate damage from intrusion. The left and middle instrument panel cover was also displaced. The most severe intrusions into the driver's seating area involved the toe pan, floor, and forward upper quadrant of the left front door. The toe pan and door intruded laterally 16 cm (6.3 in) and 5 cm (2.0 in), respectively. The floor intruded vertically 10 cm (3.9 in). The lower left instrument panel cover was scuffed and displaced from the instrument panel from contact by the driver's knees. The forward upper quadrant of the left front door and arm rest was deformed, probably from contact by the driver's left flank. There was no other discernable evidence of occupant contact.

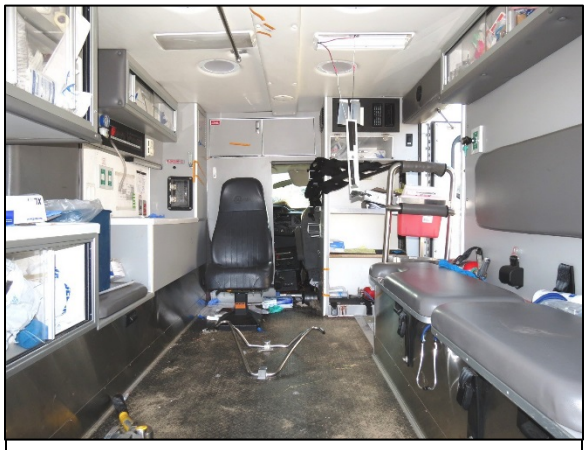


Figure 8: Interior of the patient compartment.

Interior Damage, Patient Compartment: There was no intrusion of the patient compartment (**Figure 8**). The paramedic was seated in the rear-facing seat located at the front left of the patient

compartment. The wall panel behind this seat was displaced forward 8 cm (3.1 in) and scuffed from contact by the seatback as it was displaced forward during the initial impact. A scuff mark was located on the cabinet door above the seat and on the ceiling, probably from contact by the paramedic during the rollover. A scuff mark was also present on the wall of the oxygen compartment located on the left side of the patient compartment adjacent to the paramedic, probably from contact by the paramedic's right flank. The front left corner of the seat cushion of the rear-facing seat was scuffed and the wall of the storage compartment located at the front right of the patient compartment was dented from contact by the head end of the patient cot, which was displaced from its securement location during the initial impact. Blood spatter and blood deposits were also located in this area as well as on the wall and cabinets on the left side of the patient compartment.

Manual Restraint Systems

The front row was equipped with driver and passenger lap and shoulder seat belts with sliding latch plates and adjustable upper anchors. The EDR indicated that the passenger's seat belt was equipped with a buckle-mounted pretensioner that actuated during the initial impact. The EDR reported no driver pretensioner and the SCI vehicle inspection revealed no evidence of pretensioner actuation. The rear-facing seat in which the paramedic was seated was equipped with a lap belt. The inward-facing bench seat on the right side of the patient compartment was equipped with three lap seat belts. The single inward-facing bench seat on the left side of the patient compartment was equipped with a lap seat belt.

The driver was not belted as evidenced by the absence of load marks on the belt webbing, latch plate belt guide, and D-ring. The vehicle's EDR also reported that the driver's seat belt was not buckled. The paramedic stated during the SCI interview that he was not belted.

Patient Cot

The patient was restrained on a Stryker model 6083 bariatric transport cot (serial number: 07023xxxx) (**Figure 9**). The cot was an X-frame design and the manufacturer's specifications stated the standard length, width, and weight were 203 cm (80 in), 74 cm (29 in), and 50 kg (111 lbs), respectively. The weight capacity of the cot was specified as 385 -725 kg (850 -1600 lbs). The cot was equipped with chest, waist, thigh, and lower leg restraints. The cot was not equipped with shoulder harness straps. The latch plate for the chest restraint was labeled "Rugged." The buckle and buckle webbing were manufactured by Morrison Medical and the model number was 1200BK, lot number 091409. There was no manufacturer's name on the waist and thigh restraints. The buckle for each was labeled ASCP 2B071001. The lower leg restraint had a plastic buckle and latch plate and was manufactured by DMS. The model number was 4715020R, lot number 011514A. The recline



Figure 9: The Stryker Model 6083 Bariatric Transport cot.

angle of the backrest and incline angle of the lower leg rest at the time of the crash is not known.

Patient Cot Securement System and Damage

The cot was secured to the floor of the ambulance by a Stryker rail clamp, serial number 06114xxxx. The wheels at the head end of the cot were not secured in the antler bracket since the track width of the head-end wheels [69 cm (27.2 in)] was wider than the antler bracket at the points where the wheels would rest [55 cm (21.7 in)].



Figure 10: Cot's fractured rail clamp securement bar remained in rail clamp.

The rail clamp was not damaged other than a slight bend in the rod located aft of the floor anchor that may have been related to usage. The rail clamp securement bar on the cot was fractured and separated from the cot during the crash and remained locked in the rail clamp (**Figure 10**).



Figure 11: Fracture site on front bracket of rail clamp securement bar.

The fracture points were located at each end of the 89 cm (35 in) long securement bar where it was welded to the bracket on the cot (**Figures 11** and **12**). The fracturing of the rail clamp securement bar and the lack of anchoring of the head end wheels in the antler bracket allowed the cot to be displaced forward during the initial impact. The right portion of the head end struck the seat cushion of the rear-facing paramedic seat and the left corner of the head end contacted the storage shelves located at the front right of the patient compartment. The left corner of the head end of the cot was scuffed and abraded from this contact. The displacement of the cot resulted in fracturing and displacement of the pole used for hanging an intravenous fluid pouch that was located on the right-side foot end of the cot. The left-side rail of the cot also fractured and separated from the cot. The patient remained restrained on the cot throughout the crash.



Figure 12: Fracture site on rear bracket of rail clamp securement bar.

Supplemental Restraint Systems

The Ford was equipped with redesigned frontal air bags. The driver and front row passenger air bags deployed during the crash. Inspection of the

driver air bag revealed no discernable evidence of occupant contact and no damage.

2011 FORD E-350 TYPE III AMBULANCE OCCUPANTS

Driver Demographics

Age/Sex:	45 years/female
Height:	175 cm (69 in)
Weight:	108 kg (237 lbs)
Eyewear:	None
Seat Type:	Bucket seat
Seat Track Position:	Between middle and rear-most
Restraint Usage:	None
Usage Source:	Vehicle inspection, EDR
Air Bags:	Frontal, deployed
Egress From Vehicle:	Total ejection
Transport From Scene:	Helicopter
Medical Treatment:	Pronounced deceased at hospital

Driver Injuries

Injury No.	Injury	AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
1 2	Hemorrhage, subarachnoid, patchy, involving the left and right convexities (of cerebrum), not further specified	140693.2 140693.2	Tandem IPC configuration Left front window frame Left front roof side rail Ground	 Probable Probable Probable
3	Fractures, multiple, ribs: right 1st through 4th, left 1st through 9th, not further specified	450203.3	Tandem IPC configuration Air bag, driver's frontal Steering wheel hub and/or spokes and rim	 Possible Certain
4	Contusions, pulmonary, left lower lobe and right middle lobe, not further specified	441410.3	Tandem IPC configuration Air bag, driver's frontal Steering wheel hub and/or spokes and rim	 Possible Certain
5	Laceration (fracture) lower lobe of left lung, not further specified	441432.4	Tandem IPC configuration Air bag, driver's frontal Steering wheel hub and/or spokes and rim	 Possible Certain
6	Laceration spleen with emergent splenectomy, with 200 ml of hemoperitoneum, not further specified	544220.2	Steering wheel hub and/or spokes and rim	Certain

Injury No.	Injury	AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
7	Fracture of C_3 with associated sub- arachnoid hemorrhage,[2] not further specified	650216.2	Tandem IPC configuration Left front window frame Left front roof side rail Ground	 Probable Probable Possible
8	Fracture, palpable, right humerus, not further specified	751100.2	Tandem IPC configuration Steering wheel rim Left front window frame	 Probable Probable
9	Contusion (hemorrhage), subgaleal, diffuse, not further specified	110402.1	Left front roof side rail	Probable
10	Laceration x 2, 1.3 and 1.0 cm (0.50 & 0.38 in)–stapled, on right side of forehead, not further specified	210602.1	Left front window frame	Probable
11	Contusion, right periorbital, not further specified	210402.1	Air bag, driver's frontal	Probable
12	Laceration x 2, 1.3 and 0.6 cm (0.50 & 0.25 in) on chin, not further spec- ified	210602.1	Steering wheel hub and/or spokes and rim	Probable
13	Contusions, multiple, right chest including: 2.5 by 3.8 cm (1.0 x 1.5 in) right chest, 12.7 by 5.1 cm (5.0 x 2.0 in) right upper chest near clavicle, and one under the right breast, not further specified	410402.1	Steering wheel hub and/or spokes and rim	Certain
14	Contusion, 12.7 by 7.6 cm (5.0 x 3.0 in), on left upper back, not further specified	410402.1	Ground	Probable
15 16	Contusion, 25.4 by 15.2 cm (10 x 6 in) on left lower back and left flank, not further specified	410402.1 510402.1	Left front door panel, forward upper quadrant	Certain
17	Contusion, 6.4 by 3.2 cm (2.5 x 1.25 in), on right upper abdomen, not further specified	510402.1	Steering wheel rim	Probable

[2] The subarachnoid hemorrhage involved the high cervical cord, brainstem, and base of brain without any cord disruption. It is unknown if there were any spinal cord lesions.

Injury No.	Injury	AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
18	Laceration, irregular incised wound, 7.6 cm (3 in), on right abdomen, not further specified	510602.1	Noncontact injury: flying glass, left front glazing	Possible
19	Contusion, 11.4 by 7.6 cm (4.5 x 3 in), on left posterior shoulder, not further specified	710402.1	Ground	Probable
20	Contusions on left upper arm including one 7.6 by 5.1 cm (3 x 2 in) posteriorly and multiple anteriorly, not further specified	710402.1	Left front door panel, forward upper quadrant	Probable
21	Lacerations (incised wounds), multiple, 1.3 to 3.8 cm (0.5 to 1.5 in), on left elbow, not further specified	710602.1	Noncontact injury: flying glass, left front glazing	Probable
22 23	Avulsion, 12.7 by 5.1 cm (5 x 2 in), on dorsum of left hand and wrist, not further specified	710802.1 710802.1	Ground	Probable
24 25	Contusions on anterior right upper arm and on anteromedial right elbow, not further specified	710402.1 710402.1	Steering wheel rim	Probable
26 27	Abrasions and contusions, multiple, on anterolateral right thigh and multiple contusions on antero-medial right thigh, not further specified	810202.1 810402.1	Ground	Possible
28 29	Contusions, multiple, on antero-medial right knee and lower leg, not further specified	810402.1 810402.1	Left lower instrument panel (includes knee bolster), right of steering column	Probable
30 31 32	Contusions, multiple, 33.0 by 20.3 (13 x 8 in) area on anterior left thigh, knee, and lower leg, not further specified	810402.1 810402.1 810402.1	Ground	Probable

Source: Autopsy records and coroner records. Injury Numbers 10 to 32 came only from autopsy records. Injury Numbers 1 to 9 came from a combination of coroner and autopsy records.

Driver Kinematics

The driver was unbelted and her seat was adjusted between the middle and rear-most positions with the seat back reclined 17 degrees aft of vertical. The driver's medical records stated she had a history of a cholecystectomy, thyroidectomy, and partial bowel resection with stoma. The driver also had a colostomy bag in place on her lower left abdomen. The impact to the front plane of the ambulance resulted in deployment of the driver's frontal air bag and displaced the driver to the left and forward. Her face and chest loaded the frontal air bag and her knees contacted the lower left instrument panel. The driver sustained multiple rib fractures, pulmonary contusions, laceration of left lung, and spleen from loading through the air bag and contacting the steering wheel. Contact with the steering wheel also caused multiple chest contusions, contusion to the abdomen, chin laceration, and contusions to the right upper arm and elbow. Facial contact with the frontal air bag resulted in a right periorbital contusion and contact with the lower left instrument panel caused contusions to the right knee and right lower leg. The left flank of the driver's body then contacted the forward upper quadrant of the left front door. She was also displaced to the left and forward when the right plane of the Dodge struck the left plane of the ambulance. The driver was then ejected through the disintegrated left front glazing during the left side leading rollover. The driver sustained a laceration to the forehead, probably from contacting the left front window frame. Probable contact with the left front window frame, left roof side rail, and ground resulted in a fracture of C_3 and subarachnoid hemorrhage.

Probable contact with the steering wheel rim and left front window frame resulted in a fracture to the right humerus. The driver also sustained a subgaleal contusion, probably from contacting the left roof side rail and ground, and probable contact with the ground caused multiple contusions, abrasions, and an avulsion to the left hand and wrist. Possible contact with flying glass fragments resulted in lacerations to the abdomen, and probable contact with flying glass fragments resulted in a laceration to the left elbow. The driver was transported via helicopter to a hospital where she was pronounced deceased 5 hours and 7 minutes following the crash.

Paramedic Demographics

Age/Sex:	42 years/male
Height:	180 cm (71 in)
Weight:	82 kg (180 lbs)
Eyewear:	Glasses
Seat Type:	Rear-facing pedestal-mounted
Seat Track Position:	Fixed
Restraint Usage:	None
Usage Source:	Vehicle inspection, interview
Air Bags:	None
Alcohol/Drug Involvement:	None
Egress From Vehicle:	Exited patient compartment without assistance through right side door
Transport From Scene:	Helicopter
Medical Treatment:	Hospitalized

Paramedic Injuries

Injury No.	Injury	AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
1	Injury blunt (concussion) to head, not further specified	100099.9	Other interior object: ambulance patient cot	Probable
2	Fracture left orbit, not further specified	251200.2	Floor of ambulance unit	Probable
3	Fracture nose, not further specified	251000.1	Floor of ambulance unit	Probable
4	Laceration, 15.2 to 20.3 cm (6 - 8 in) in length, vertically oriented, on posterior (back) of scalp	110602.1	Other interior object: ambulance patient cot	Probable
5	Laceration, 10.2 cm (4 in) in length above right ear, not further specified	110602.1	Other interior object: ambulance patient cot	Probable
6	Laceration, 2.5 cm (1 in) in length above right eye, not further specified	210602.1	Floor of ambulance unit	Probable
7	Laceration, 10.2 cm (4 in) in length on left forehead	210602.1	Floor of ambulance unit	Probable
8	Abrasion to face, not further specified	210202.1	Floor of ambulance unit	Probable
9	Laceration, 5.1 cm (2 in) in length, vertically oriented left side of nose	210602.1	Floor of ambulance unit	Probable
10	Contusion chin, not further specified	210402.1	Floor of ambulance unit	Probable
11	Laceration, 2.5 cm (1 in) in length, horizontally oriented on chin, not further specified	210602.1	Floor of ambulance unit	Probable
12	Contusion, 27.9 cm (11 in) in length and 5.1 cm (2 in) high on back from left to right shoulder, not further specified	410402.1	rear-facing seat back	Probable
13	Lacerations to an unspecified arm	710600.1	Other interior object: ambulance patient cot	Probable

Source: Interviewee Data–Same Person.

Paramedic Kinematics

The paramedic was unrestrained and seated in the rear-facing seat at the head of the patient cot (Model Minimum Uniform Crash Criteria [MMUCC] seating position 3). He stated during the interview that he did not recall if he was attending to the patient or working on his laptop just prior to the crash. The frontal impact to the ambulance displaced the paramedic forward and to the left. He contacted the back of his seat, which was displaced forward contacting and displacing the wall of the patient compartment behind him 8 cm (3.1 in). The paramedic sustained an approximate 28 cm (11 in) long and 5 cm high (2 in) abrasion across his back that extended from the left shoulder to the right shoulder from this probable contact. The side slap impact to the left plane of the ambulance by the right plane of the Dodge also displaced the paramedic forward and to the left. He was then redirected out of his seat to the left and toward the roof when the ambulance rolled over onto its left plane, and then to the right as the vehicle continued to rotate clockwise and rolled back up onto its wheels. He probably contacted the side panel of the shelves located at the forward, right of the patient compartment then the floor. He sustained a fractured nose and left orbit, multiple lacerations, abrasions, and a contusion to his face, probably from contact with the floor. The patient cot was displaced initially forward during the crash and then to the left and toward the roof during the rollover. It and the patient landed on the paramedic as the ambulance rolled back onto it wheels. Probable contact with the cot caused an approximate 15 to 20 cm (6 to 8 in) long vertically oriented laceration on the back right of his head, an approximate 10 cm (4 in) long horizontally oriented laceration above his right ear, an unspecified head injury, and lacerations to an unspecified arm. The paramedic exited the patient compartment without assistance through the right-side door. He was transported by helicopter to a hospital where he was admitted for two days for treatment of his injuries.

Patient Demographics

Age/Sex:	45 years/female
Height:	168 cm (66 in)
Weight:	220 kg (485 lbs)
Eyewear:	Unknown
Seat Type:	Stryker model 6083 bariatric transport cot
Seat Track Position:	Not applicable
Restraint Usage:	Secured by nylon restraint straps on the chest, waist, thigh, and lower legs
Usage Source:	Vehicle inspection, interview
Air Bags:	None
Alcohol/Drug Involvement:	Not tested
Egress From Vehicle:	Removed by emergency responders
Transport From Scene:	Ambulance
Medical Treatment:	Hospitalized

Patient Injuries

Injury No.	Injury	AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
1	Fracture, shearing, right lateral acromion displaced cephalad,[3] not further specified	750900.2	Other interior object: left side ambulance supply cabinet	Possible
2	Dislocation (subluxation), posteriorly, right shoulder with abnormal glenohumeral relationship	771020.1	Other interior object: left side ambulance supply cabinet	Possible
	Fracture, potential, lateral right clavicle, not further evaluated	Not coded		
3	Contusion (hematoma), large, right forehead, not further specified	210402.1	Other interior object: left side ambulance supply cabinet	Possible
4	Contusion right shoulder, with tenderness, not further specified	710402.1	Other interior object: left side ambulance supply cabinet	Possible
5	Abrasion right forearm, not further specified	710202.1	Other interior object: left side ambulance supply cabinet	Possible

Source: Emergency room records.

Patient Kinematics

The patient was on a Stryker model 6083 bariatric transport cot (MMUCC seating position 8) belted by nylon restraint straps on the chest, waist, thigh, and lower legs. Shoulder restraints, which were not present in the vehicle at the SCI vehicle inspection, were not used. The front plane impact to the ambulance resulted in displacement of the patient cot from its securement location. It was displaced forward and to the left and the right portion of the head end of the cot contacted the front left corner of the seat cushion of the rear-facing seat that was occupied by the paramedic. The left corner of the head end also contacted the storage shelves located at the front right of the patient compartment. The cot was also probably displaced to the left and forward during the side slap impact with the Dodge. The cot was redirected to the left and toward the roof when the ambulance rolled over onto its left plane resulting in possible patient contact to the supply cabinet located on the left side of the patient compartment, which resulted in a fracture of the right acromion, dislocation of the right shoulder, fracture of right clavicle, contusion to the right shoulder, and abrasion to the right forearm. The patient also sustained a large contusion to the right forehead, possibly from contact with the left side supply cabinet. The cot was then redirected back to the right and landed on the paramedic as the vehicle rolled back up onto its wheels to final rest. The patient remained restrained on the cot. She was removed from the vehicle by emergency responders and transported by ambulance to a hospital where she was

[3] Toward the head or anterior end of the body (see www.merriam-webster.com/dictionary/cephalad).

treated in the emergency room. The patient was then transferred back to the originating hospital where she was hospitalized for an unknown number of days.

2013 DODGE JOURNEY

Description

The Dodge was a front-wheel-drive, 5- passenger, 4-door SUV with the VIN 3C4PDCDGXDTxxxxxx, manufactured in November 2012. The vehicle was equipped with a 3.6-liter, V-6 engine, 6-speed automatic transmission with sport shift feature, 4-wheel antilock brakes with electronic brake force distribution, brake assist, traction control, and electronic stability control (ESC). The vehicle was also equipped with multi-stage frontal air bags, front-seat-mounted side impact air bags, rollover/side impact inflatable curtain (IC) air bags, and active front row head restraints.

Exterior Damage

Exterior Damage Event 1: The Dodge sustained damage to the right plane during the impact with the front plane of the ambulance. The right corner of the front bumper fascia, right fender, right front wheel, right front door, and A-pillar were directly damaged. The direct damage began at the corner of the front bumper and extended 234 cm (92.1 in) rearward on the right plane.
The Field L was 236 cm (92.9 in). The crush measurements were taken at the mid-door level and the maximum residual crush was 26 cm (10.2 in) occurring 60 cm (23.6 in) rear of the right front axle (**Figure 13**). The crush values were: C_1 = 0 cm, C_2 = 14 cm (5.5 in), C_3 = 19 cm (7.4 in), C_4 = 7 cm (2.8) C_5 = 21 cm (8.3 in), C_6 = 37 cm (14.6 in).

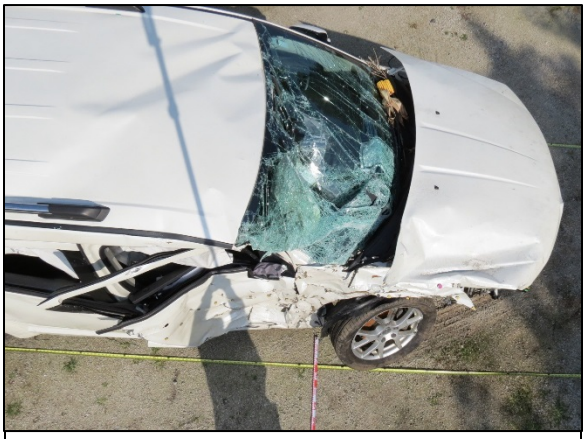


Figure 13: Top view of the crush to the right plane of the Dodge.

Damage Classification Event 1: The CDC was 02RYAW3 (50 degrees).

Exterior Damage Event 2: The vehicle sustained damage to the right plane during the sideslap impact with the left plane of the ambulance. The direct damage involved the right rear door, roof side rail, C-pillar, D-pillar, right rear wheel, and quarter panel. The direct damage began 92 cm (36.2 in) forward of the right rear axle and extended rearward 176 cm (69.3 in). The Field L was 176 cm (69.3 in). The crush measurements were taken at the mid-door level and the maximum residual crush was 7 cm (3.5 in) occurring 30 cm (11.8 in) rear of the right rear axle. The crush values were: C_1 = 0 cm, C_2 = 7 cm (2.8 in), C_3 = 6 cm (2.4 in), C_4 = 7 cm (2.8) C_5 = 3 cm (1.2 in), C_6 = 0 cm.

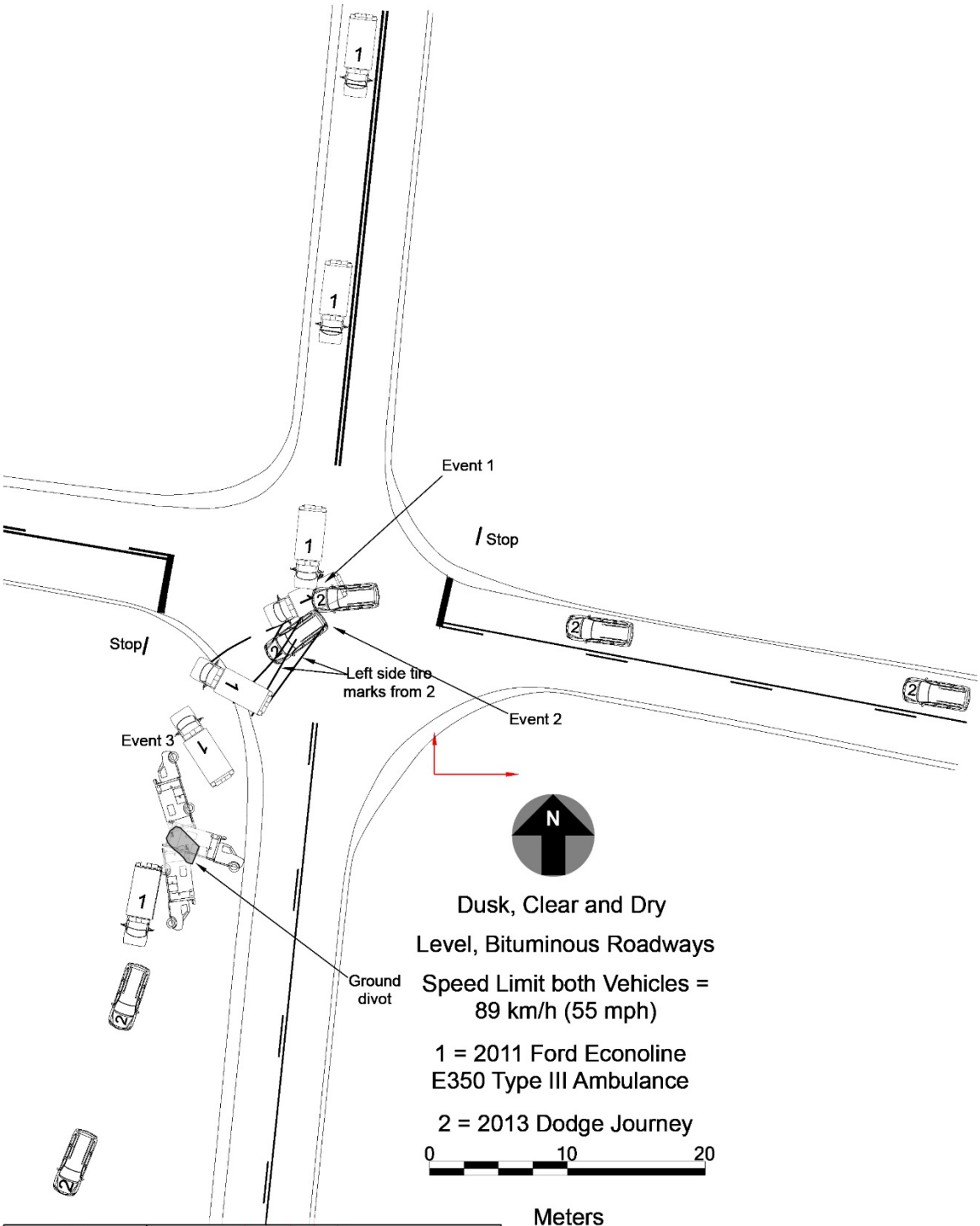
Damage Classification Event 2: The CDC was 05RZAW2 (160 degrees).

Event Data Recorder
The Dodge's EDR was imaged with version 17.0 of the Bosch Crash Data Retrieval software and reported with version 17.9.1. The EDR was imaged via direct connection to the ACM. The EDR recorded a deployment event titled "Most Recent Event." A complete file was recorded and the air bag warning lamp was reported as "Off." The driver's seat track position was not at the foremost position and his seat belt status was reported as "Buckled." The ignition cycles at crash and when the data were imaged were reported as 7,185 and 7,188, respectively. The Dodge's EDR report is attached at the end of this report (**Appendix B**).

Most Recent Event: This record was recorded during the Dodge's right plane impact with the front plane of the ambulance. Stages one and two of the driver's frontal air bag deployed at 29 and 102 msec following AE. The driver's knee air bag and retractor-mounted pretensioner also deployed. The front row passenger's frontal air bag, seat-mounted side impact air bag, right IC air bag, and seat belt pretensioners also deployed. The maximum longitudinal and lateral delta Vs were reported as -46 km/h (-28.6 mph) and -62 km/h (-38.4 mph) occurring at 224 and 232 msec, respectively.

Occupant Data
The driver of the Lincoln (48-year-old male) was restrained by the lap and shoulder seat belt. He sustained police-reported "B" (non-incapacitating) injuries. He was transported by ambulance to a hospital. His injuries and level of treatment are not known.

CRASH DIAGRAM



	NHTSA www.nhtsa.gov
Case Number:	IN16025

APPENDIX A: 2011 FORD ECONOLINE E-350 TYPE III AMBULANCE EVENT DATA RECORDER REPORT[4]

[4] 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	1FDWE3FSXBD******
User	
Case Number	
EDR Data Imaging Date	
Crash Date	
Filename	IN16025_V1_ACM.CDRX
Saved on	
Imaged with CDR version	Crash Data Retrieval Tool 17.0
Imaged with Software Licensed to (Company Name)	NHTSA
Reported with CDR version	Crash Data Retrieval Tool 17.9.1
Reported with Software Licensed to (Company Name)	NHTSA
EDR Device Type	Airbag Control Module
ACM Adapter Detected During Download	Yes
Event(s) recovered	locked frontal event unlocked event

Comments

No comments entered.

The retrieval of this data has been authorized by the vehicle's owner, or other legal authority such as a court order or search warrant, as indicated by the CDR tool user on.

Data Limitations

Restraints Control Module Recorded Crash Events:

Deployment Events cannot be overwritten or cleared from the Restraints Control Module (RCM). Once the RCM has deployed any airbag device, the RCM must be replaced. The data from events which did not qualify as deployable events can be overwritten by subsequent events. The RCM can store up to two deployment events.

Airbag Module Data Limitations:

- Restraints Control Module Recorded Vehicle Forward Velocity Change reflects the change in forward velocity that the sensing system experienced from the point of algorithm wake up. It is not the speed the vehicle was traveling before the event. Note that the vehicle speed is recorded separately five seconds prior to algorithm wake up. This data should be examined in conjunction with other available physical evidence from the vehicle and scene when assessing occupant or vehicle forward velocity change.
- Event Recording Complete will indicate if data from the recorded event has been fully written to the RCM memory or if it has been interrupted and not fully written.
- If power to the Airbag Module is lost during a crash event, all or part of the crash record may not be recorded.
- For 2011 Ford Mustangs, the Steering Wheel Angle parameter indicates the change in steering wheel angle from the previously recorded sample value and does not represent the actual steering wheel position.

Airbag Module Data Sources:

- Event recorded data are collected either INTERNALLY or EXTERNALLY to the RCM.

  - INTERNAL DATA is measured, calculated, and stored internally, sensors external to the RCM include the following:
    > The Driver and Passenger Belt Switch Circuits are wired directly to the RCM.
    > The Driver's Seat Track Position Switch Circuit is wired directly to the RCM.
    > The Side Impact Sensors (if equipped) are located on the side of vehicle and are wired directly to the RCM.
    > The Occupant Classification Sensor is located in the front passenger seat and transmits data directly to the RCM on high-speed CAN bus.
    > Front Impact Sensors (right and left) are located at the front of vehicle and are wire directly to the RCM.

  - EXTERNAL DATA recorded by the RCM are data collected from the vehicle communication network from various sources such as Powertrain Control Module, Brake Module, etc.

02007_RCM-RC6_r002

System Status at Time of Retrieval

VIN as programmed into RCM at factory	1FDWE3FSXBD******
Current VIN from PCM	1FDWE3FSXBD******
Ignition cycle, download (first record)	12,973
Ignition cycle, download (second record)	12,973
Restraints Control Module Part Number	BC24-14B321-BD
Restraints Control Module Serial Number	3110326200000000
Restraints Control Module Software Part Number (Version)	BL84-14C028-AB
Left/Center Frontal Restraints Sensor Serial Number	14AF8E94
Left Side Restraint Sensor 1 Serial Number	00000000
Left Side Restraint Sensor 2 Serial Number	00000000
Right Frontal Restraints Sensor Serial Number	00000000
Right Side Restraint Sensor 1 Serial Number	00000000
Right Side Restraints Sensor 2 Serial Number	00000000

System Status at Event (First Record)

Recording Status	Locked Record
Complete file recorded (yes,no)	Yes
Multi-event, number of events (1,2)	1
Time from event 1 to 2 (msec)	N/A
Lifetime Operating Timer at event time zero (seconds)	51,702,770
Key-on Timer at event time zero (seconds)	5,645
Vehicle voltage at time zero (Volts)	13.689
Energy Reserve Mode entered during event (Y/N)	Yes
Time Driver Front Satellite Sensor Lost Relative to Time Zero (msec)	13.0

Faults Present at Start of Event (First Record)

No Faults Recorded

Deployment Data (First Record)

Frontal airbag deployment, time to first stage deployment, driver (msec)	34.5
Frontal airbag deployment, time to first stage deployment, front passenger (msec)	34.5
Pretensioner (buckle) deployment, time to fire, right front passenger (msec)	34.5
Maximum delta-V, longitudinal (MPH [km/h])	-19.34 [-31.12]
Time, maximum delta-V longitudinal (msec)	300
Maximum delta-V, lateral (MPH [km/h])	31.12 [50.09]
Time, maximum delta-V lateral (msec)	300
Left or center front, satellite Sensor discriminating deployment	Yes
Left or center, front satellite Sensor safing	Yes
Right, front satellite sensor discriminating deployment	Yes
RCM, front sensor discriminating deployment	Yes
RCM, front sensor safing	Yes
Longitudinal Delta-V Time Zero Offset	9.0 ms
Lateral Delta-V Time Zero Offset	9.0 ms

Pre-Crash Data -1 sec (First Record)

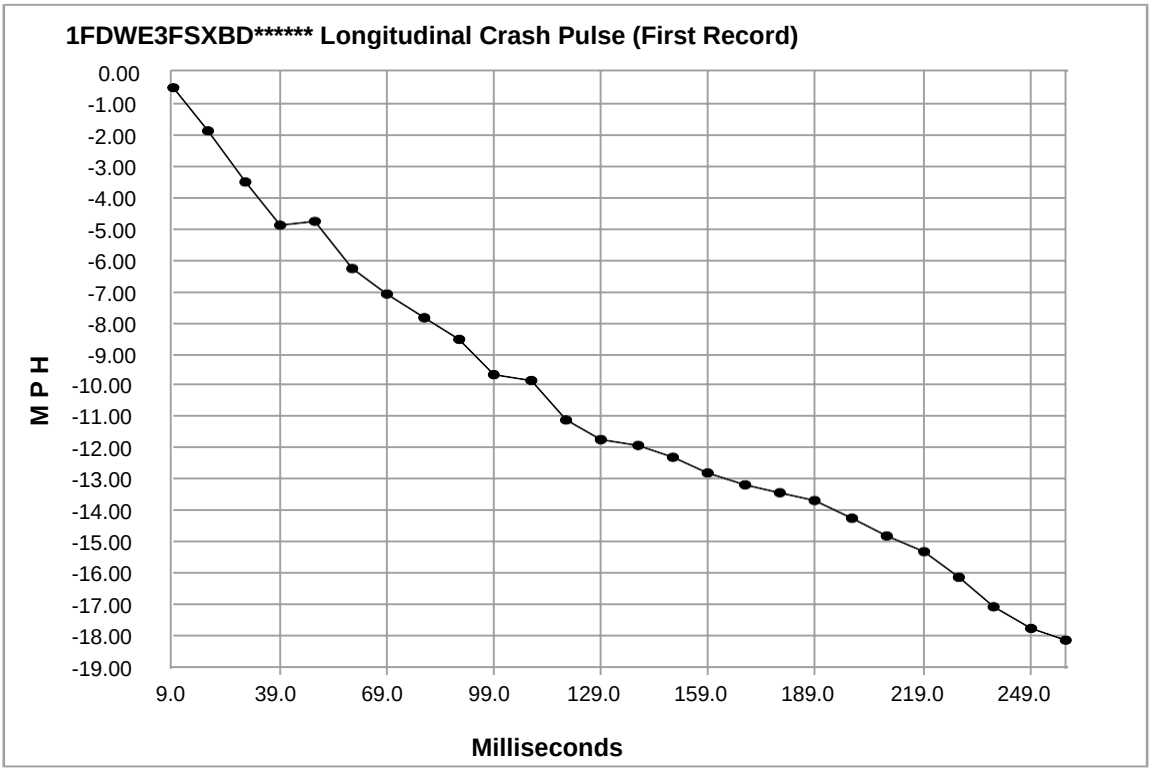
Ignition cycle, crash	12,971
Frontal air bag warning lamp, on/off	Off
Frontal air bag suppression switch status, front passenger	Not Active
Safety belt status, driver	Driver Not Buckled
Brake Telltale	Off
ABS Telltale	Off
Stability Control Telltale	Off
Speed Control Telltale	Off
Powertrain Wrench Telltale	Off
Powertrain Malfunction Indicator Lamp (MIL)Telltale	Off

Pre-Crash Data -5 to 0 sec [2 samples/sec] (First Record)

Times (sec)	Speed vehicle indicated MPH [km/h]	Accelerator pedal, % full	Service brake, on/off	Engine RPM	ABS activity (engaged, non-engaged)	Stability control (engaged, non-engaged)	Traction Control via Brakes (engaged, non-engaged)	Traction Control via Engine (engaged, non-engaged)
- 5.0	44.1 [71.0]	37	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 4.5	44.7 [72.0]	36	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 4.0	44.7 [72.0]	35	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 3.5	44.7 [72.0]	34	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 3.0	45.4 [73.0]	35	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 2.5	45.4 [73.0]	38	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 2.0	46.0 [74.0]	39	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 1.5	46.0 [74.0]	40	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 1.0	46.6 [75.0]	41	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 0.5	46.6 [75.0]	40	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
0.0	46.6 [75.0]	66	Off	2,000	non-engaged	non-engaged	non-engaged	non-engaged

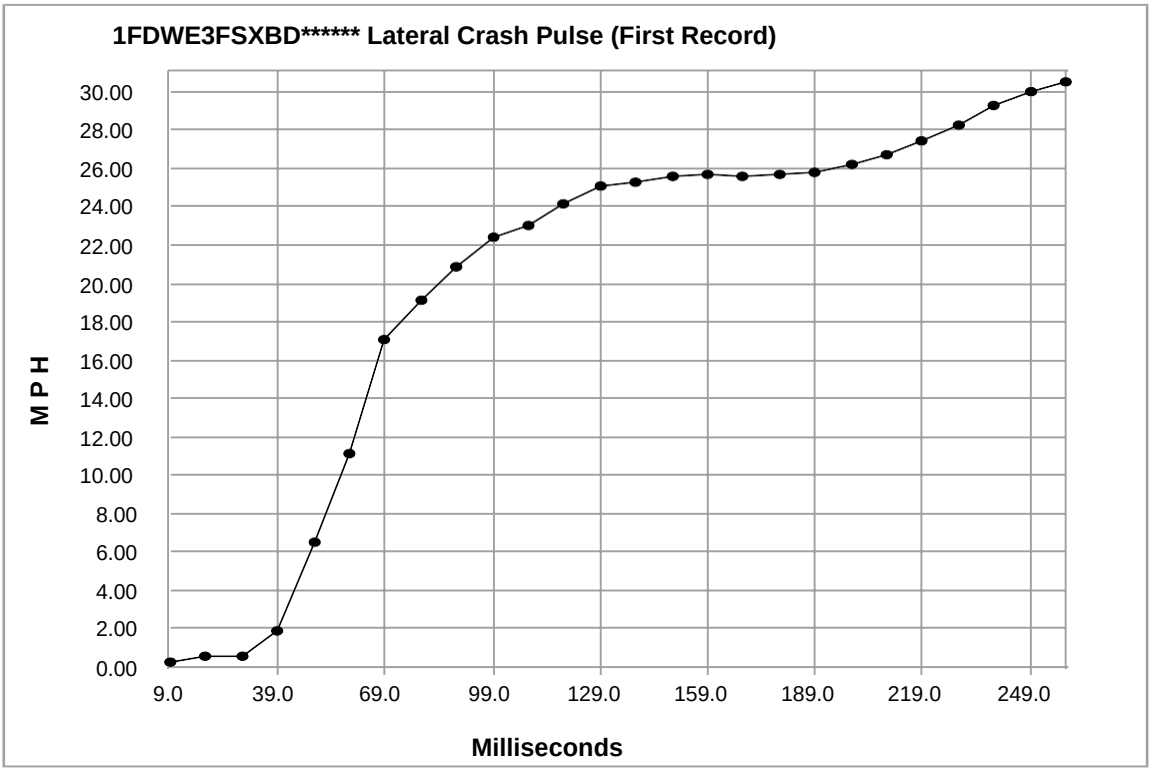
Pre-Crash Data -5 to 0 sec [10 samples/sec] (First Record)

Times (sec)	Steering Wheel Angle (degrees)
- 5.0	Invalid
- 4.9	Invalid
- 4.8	Invalid
- 4.7	Invalid
- 4.6	Invalid
- 4.5	Invalid
- 4.4	Invalid
- 4.3	Invalid
- 4.2	Invalid
- 4.1	Invalid
- 4.0	Invalid
- 3.9	Invalid
- 3.8	Invalid
- 3.7	Invalid
- 3.6	Invalid
- 3.5	Invalid
- 3.4	Invalid
- 3.3	Invalid
- 3.2	Invalid
- 3.1	Invalid
- 3.0	Invalid
- 2.9	Invalid
- 2.8	Invalid
- 2.7	Invalid
- 2.6	Invalid
- 2.5	Invalid
- 2.4	Invalid
- 2.3	Invalid
- 2.2	Invalid
- 2.1	Invalid
- 2.0	Invalid
- 1.9	Invalid
- 1.8	Invalid
- 1.7	Invalid
- 1.6	Invalid
- 1.5	Invalid
- 1.4	Invalid
- 1.3	Invalid
- 1.2	Invalid
- 1.1	Invalid
- 1.0	Invalid
- 0.9	Invalid
- 0.8	Invalid
- 0.7	Invalid
- 0.6	Invalid
- 0.5	Invalid
- 0.4	Invalid
- 0.3	Invalid
- 0.2	Invalid
- 0.1	Invalid
0.0	Invalid



Longitudinal Crash Pulse (First Record)

Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
9.0	-0.48	-0.78
19.0	-1.87	-3.02
29.0	-3.54	-5.69
39.0	-4.88	-7.85
49.0	-4.75	-7.64
59.0	-6.24	-10.05
69.0	-7.08	-11.40
79.0	-7.87	-12.66
89.0	-8.50	-13.69
99.0	-9.67	-15.57
109.0	-9.86	-15.87
119.0	-11.08	-17.84
129.0	-11.76	-18.92
139.0	-11.89	-19.14
149.0	-12.32	-19.82
159.0	-12.78	-20.56
169.0	-13.14	-21.15
179.0	-13.40	-21.56
189.0	-13.64	-21.95
199.0	-14.25	-22.94
209.0	-14.80	-23.82
219.0	-15.33	-24.67
229.0	-16.10	-25.92
239.0	-17.08	-27.49
249.0	-17.74	-28.55
259.0	-18.13	-29.18



Lateral Crash Pulse (First Record)

Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
9.0	0.34	0.55
19.0	0.64	1.03
29.0	0.59	0.95
39.0	1.98	3.18
49.0	6.55	10.54
59.0	11.16	17.97
69.0	17.09	27.50
79.0	19.09	30.71
89.0	20.91	33.65
99.0	22.37	36.00
109.0	23.01	37.03
119.0	24.17	38.90
129.0	25.07	40.35
139.0	25.24	40.62
149.0	25.57	41.15
159.0	25.71	41.37
169.0	25.63	41.24
179.0	25.64	41.26
189.0	25.78	41.49
199.0	26.19	42.15
209.0	26.75	43.05
219.0	27.41	44.11
229.0	28.29	45.52
239.0	29.26	47.09
249.0	29.97	48.23
259.0	30.48	49.05

System Status at Event (Second Record)

Recording Status	Unlocked Record
Complete file recorded (yes,no)	Yes
Multi-event, number of events (1,2)	2
Time from event 1 to 2 (msec)	100
Lifetime Operating Timer at event time zero (seconds)	51,702,770
Key-on Timer at event time zero (seconds)	5,645
Vehicle voltage at time zero (Volts)	2.835
Energy Reserve Mode entered during event (Y/N)	Yes
Time Driver Front Satellite Sensor Lost Relative to Time Zero (msec)	Data lost prior to event

Faults Present at Start of Event (Second Record)

B0090-11
B1193-00

Deployment Data (Second Record)

Maximum delta-V, longitudinal (MPH [km/h])	-10.78 [-17.34]
Time, maximum delta-V longitudinal (msec)	300
Maximum delta-V, lateral (MPH [km/h])	4.28 [6.89]
Time, maximum delta-V lateral (msec)	195
Longitudinal Delta-V Time Zero Offset	4.5 ms
Lateral Delta-V Time Zero Offset	4.5 ms

Pre-Crash Data -1 sec (Second Record)

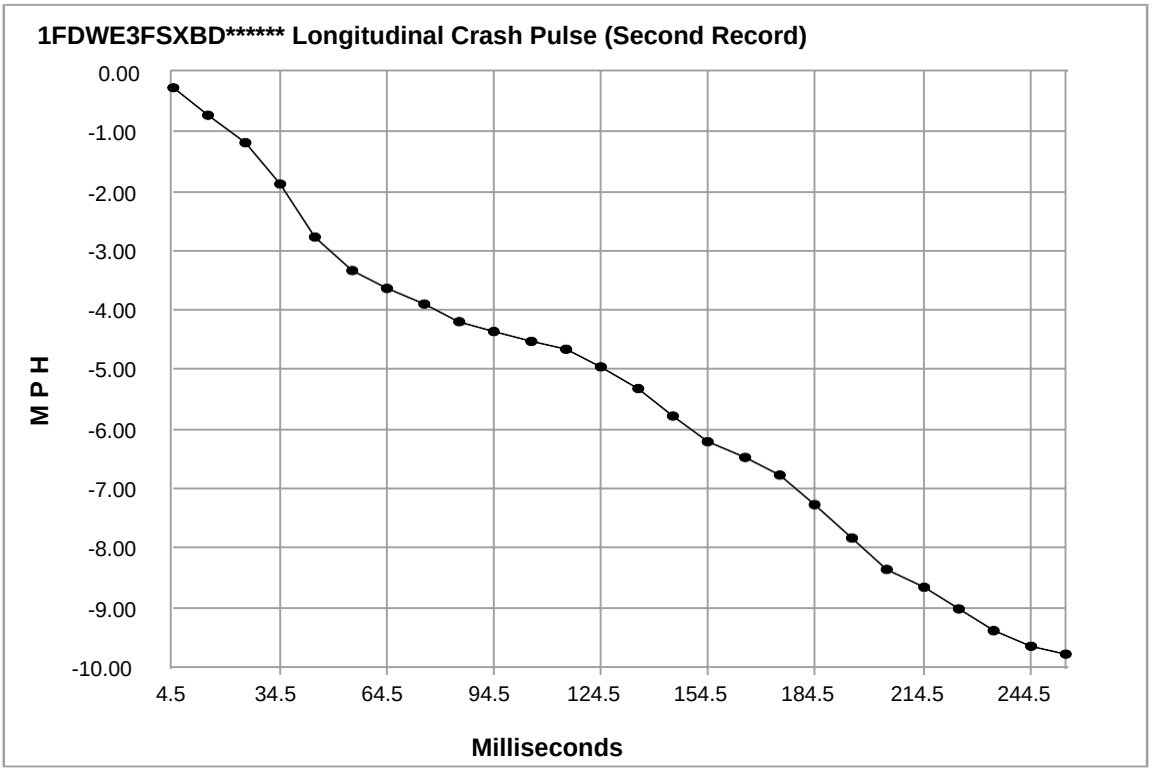
Ignition cycle, crash	12,971
Frontal air bag warning lamp, on/off	On
Frontal air bag suppression switch status, front passenger	Not Active
Safety belt status, driver	Driver Not Buckled
Brake Telltale	Off
ABS Telltale	Off
Stability Control Telltale	Off
Speed Control Telltale	Off
Powertrain Wrench Telltale	Off
Powertrain Malfunction Indicator Lamp (MIL)Telltale	Off

Pre-Crash Data -5 to 0 sec [2 samples/sec] (Second Record)

Times (sec)	Speed vehicle indicated MPH [km/h]	Accelerator pedal, % full	Service brake, on/off	Engine RPM	ABS activity (engaged, non-engaged)	Stability control (engaged, non-engaged)	Traction Control via Brakes (engaged, non-engaged)	Traction Control via Engine (engaged, non-engaged)
- 5.0	44.1 [71.0]	37	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 4.5	44.7 [72.0]	36	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 4.0	44.7 [72.0]	35	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 3.5	44.7 [72.0]	34	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 3.0	45.4 [73.0]	35	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 2.5	45.4 [73.0]	38	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 2.0	46.0 [74.0]	39	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 1.5	46.0 [74.0]	40	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 1.0	46.6 [75.0]	41	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
- 0.5	46.6 [75.0]	40	Off	1,900	non-engaged	non-engaged	non-engaged	non-engaged
0.0	46.6 [75.0]	66	Off	2,000	non-engaged	non-engaged	non-engaged	non-engaged

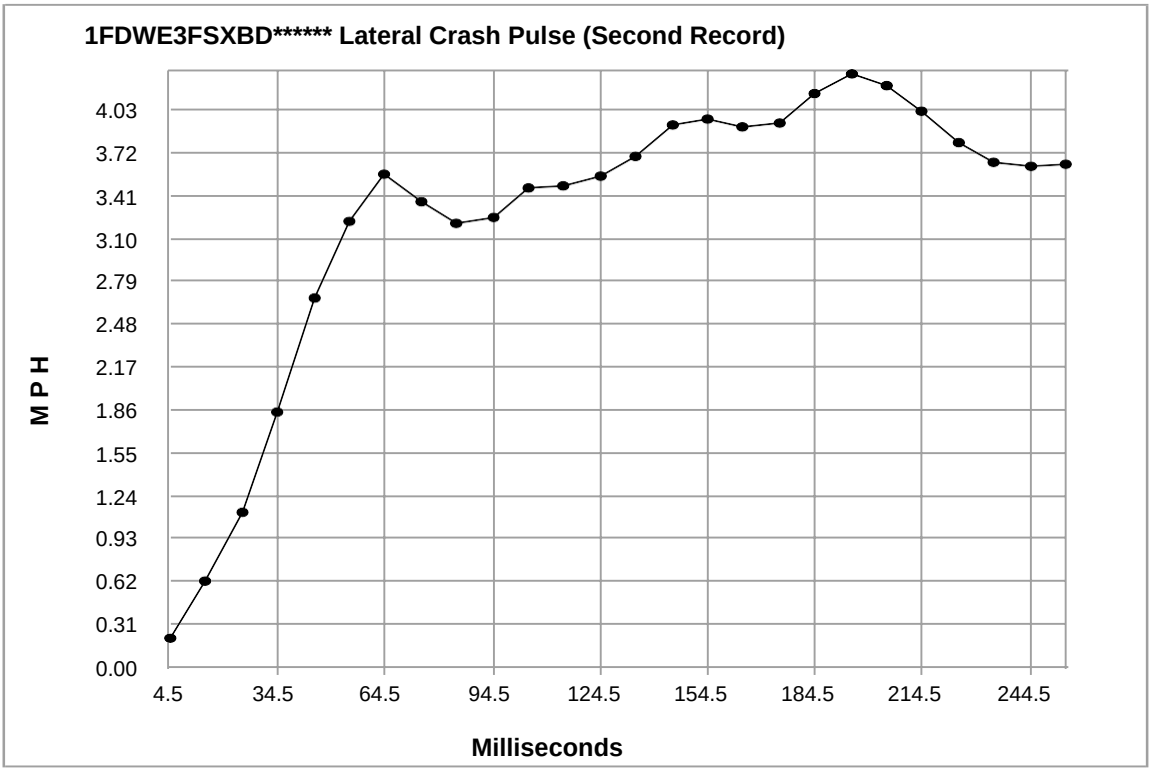
Pre-Crash Data -5 to 0 sec [10 samples/sec] (Second Record)

Times (sec)	Steering Wheel Angle (degrees)
- 5.0	Invalid
- 4.9	Invalid
- 4.8	Invalid
- 4.7	Invalid
- 4.6	Invalid
- 4.5	Invalid
- 4.4	Invalid
- 4.3	Invalid
- 4.2	Invalid
- 4.1	Invalid
- 4.0	Invalid
- 3.9	Invalid
- 3.8	Invalid
- 3.7	Invalid
- 3.6	Invalid
- 3.5	Invalid
- 3.4	Invalid
- 3.3	Invalid
- 3.2	Invalid
- 3.1	Invalid
- 3.0	Invalid
- 2.9	Invalid
- 2.8	Invalid
- 2.7	Invalid
- 2.6	Invalid
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- 2.1	Invalid
- 2.0	Invalid
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- 1.8	Invalid
- 1.7	Invalid
- 1.6	Invalid
- 1.5	Invalid
- 1.4	Invalid
- 1.3	Invalid
- 1.2	Invalid
- 1.1	Invalid
- 1.0	Invalid
- 0.9	Invalid
- 0.8	Invalid
- 0.7	Invalid
- 0.6	Invalid
- 0.5	Invalid
- 0.4	Invalid
- 0.3	Invalid
- 0.2	Invalid
- 0.1	Invalid
0.0	Invalid



Longitudinal Crash Pulse (Second Record)

Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
4.5	-0.26	-0.42
14.5	-0.74	-1.19
24.5	-1.19	-1.91
34.5	-1.87	-3.02
44.5	-2.76	-4.44
54.5	-3.33	-5.36
64.5	-3.63	-5.85
74.5	-3.89	-6.25
84.5	-4.19	-6.74
94.5	-4.36	-7.02
104.5	-4.51	-7.25
114.5	-4.64	-7.46
124.5	-4.96	-7.98
134.5	-5.31	-8.55
144.5	-5.78	-9.31
154.5	-6.22	-10.01
164.5	-6.47	-10.40
174.5	-6.76	-10.88
184.5	-7.25	-11.66
194.5	-7.84	-12.61
204.5	-8.35	-13.44
214.5	-8.65	-13.91
224.5	-9.00	-14.48
234.5	-9.36	-15.07
244.5	-9.64	-15.52
254.5	-9.77	-15.72



Lateral Crash Pulse (Second Record)

Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
4.5	0.22	0.35
14.5	0.63	1.01
24.5	1.13	1.81
34.5	1.85	2.97
44.5	2.66	4.29
54.5	3.22	5.18
64.5	3.56	5.72
74.5	3.36	5.41
84.5	3.21	5.17
94.5	3.25	5.23
104.5	3.46	5.57
114.5	3.47	5.59
124.5	3.54	5.70
134.5	3.69	5.94
144.5	3.92	6.30
154.5	3.96	6.38
164.5	3.90	6.27
174.5	3.94	6.34
184.5	4.14	6.67
194.5	4.28	6.89
204.5	4.20	6.76
214.5	4.02	6.47
224.5	3.80	6.11
234.5	3.65	5.88
244.5	3.61	5.81
254.5	3.63	5.84

Hexadecimal Data

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

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33 31 31 30 33 32 36 32 30 30 30 30 30 30 30 30

42 4C 38 34 2D 31 34 43 30 32 38 2D 41 42 00 00 00 00 00 00 00 00 00 00

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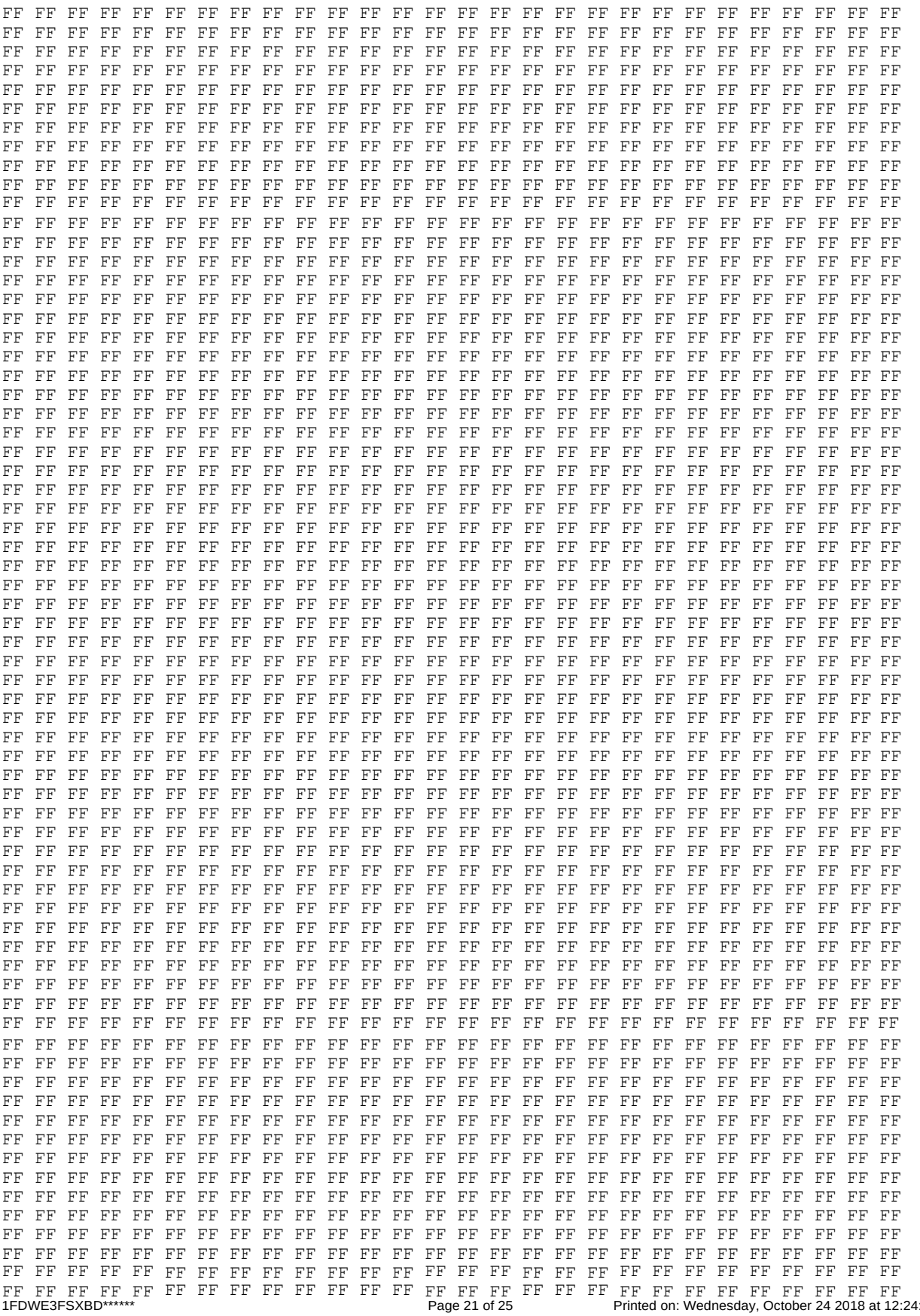
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Event Record 1

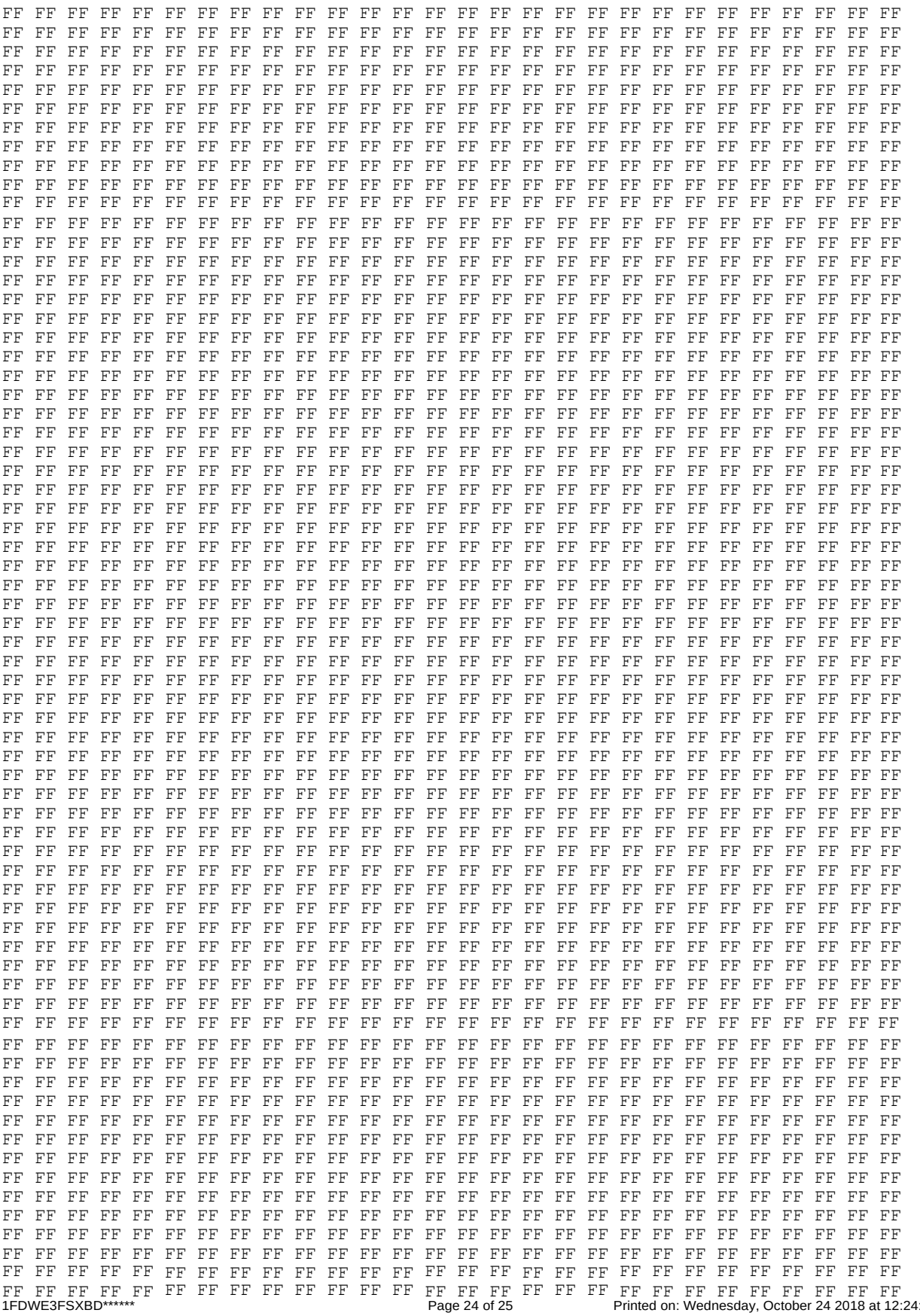

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Event Record 2


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Disclaimer of Liability

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

APPENDIX B: 2013 DODGE JOURNEY EDR REPORT[5]

[5] 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	3C4PDCDGXDT******
User	
Case Number	
EDR Data Imaging Date	
Crash Date	
Filename	IN16025_V2_ACM.CDRX
Saved on	
Imaged with CDR version	Crash Data Retrieval Tool 17.0
Imaged with Software Licensed to (Company Name)	NHTSA
Reported with CDR version	Crash Data Retrieval Tool 17.9.1
Reported with Software Licensed to (Company Name)	NHTSA
EDR Device Type	Airbag Control Module
Event(s) recovered	Most Recent Event

Comments

No comments entered.

Data Limitations

AIRBAG CONTROL MODULE (ACM) DATA LIMITATIONS:

GENERAL INFORMATION:

CAUTION: During direct-to-module imaging where the Airbag Control Module (ACM) is disconnected and removed from a vehicle, make sure the ACM is not moved, tilted or turned over while connected to and powered by the CDR Interface Module (with appropriate adaptors in place, where required). 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 direct-to-module imaging may cause new events to be recorded in the ACM.

- For additional definitions, please refer to the CDR Help File Glossary.
- As the VIN may be used to determine the configuration of the restraint system, it is imperative that the correct VIN be entered into the CDR Tool during the imaging process.
- For Fiat vehicles, the “Read VIN from Vehicle” feature in the CDR Tool will not work. The VIN will have to be manually entered.
- The 2019 MY RAM 1500 may take up to 30 minutes to retrieve the EDR data. The ignition will time out within 20 minutes so the vehicle flashers must be turned on within 20 minutes to keep the ignition and communication bus active.
- Lateral Delta V will not be displayed for the 2013 MY Jeep Compass and Patriot.
- Ignition Cycle, download/crash - For RAMs and Dodge Vipers, there are 2 internal ignition counters in the ACM. It is possible for the ignition cycles at download to be different than the ignition cycles at event due to the 2 different counters.
- The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. All directional references to sign notation are 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
Delta-V, Longitudinal	Forward
Maximum Delta-V, Longitudinal	Forward
Delta-V, Lateral	Left to Right
Maximum Delta-V, Lateral	Left to Right
Angular Rate	Clockwise rotation around the longitudinal axis
Peripheral Sensors, X and Y	Outside to Inside
Pressure Sensors	Compression of air
Internal Y Acceleration	Left to Right
Low-g Z Acceleration	Downward
Steering Input	Steering wheel turned counter clockwise
Yaw Rate	Counter clockwise rotation

CDR FILE INFORMATION:

- An event will be stored when the delta V is approximately 5 mph (8 km/h) or greater within a 150 ms interval.
- For non-NAFTA ACMs that control pedestrian protection devices, a non-deployment event will be stored when the pedestrian protection devices are activated.
- A non-deployment event will be stored with activation of the Active Head Restraints.

Event(s) Recovered definitions:
- None - There are no stored events in the ACM
- Not Retrievable - Event Data may be stored in the ACM but is not retrievable by the CDR Tool.
- 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.
- For 2013 and 2014 MY Dodge Journey and Fiat Freemont:
    - 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)
- For TRW modules:
    - If there is a side impact, two EDR events may be stored for the one side impact event. The second event may be recorded due to the Lateral Delta V exceeding 5 mph (8 km/h) within a 150 ms interval after the side deployment occurred.
- For some Fiat vehicles:
    - Two EDR events may be stored for one impact event. The second event may be recorded due to the deployment of the frontal airbag, 3rd stage passenger.
- During an event, if power to the ACM is lost, all or part of the event data record may not be recorded. An indication may be observed in the recorded data under this condition: The restraint data is recorded first and then the vehicle data.
    - “None” may be displayed in the “Event(s) Recovered” section of the report indicating no pre-crash vehicle data.
    - An event may be displayed in the “Event(s) Recovered” section of the report and “Interrupted” will be displayed for Pre-Crash Recorder Status.

SYSTEM STATUS AT RETRIEVAL:

- Original VIN - 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 cannot be changed.

SYSTEM CONFIGURATION AT RETRIEVAL/EVENT:

- The System Configuration data tables indicate the components that the ACM for a particular vehicle monitors and/or controls.
- Active Head Restraint (AHR) - This refers to some active head restraint systems that are electronically controlled by the ACM. AHRs may activate but not store an EDR Record if the delta V does not exceed the minimum delta V threshold. Activation of only the AHRs, if stored, will be a non-deployment event.

SYSTEM STATUS AT EVENT:

- Number, Total Events - Cumulative number of events that the ACM has recorded, including those non-deployment events that have been overwritten by a subsequent event.
- Occupant Size Classification, Outboard Front Passenger - “Child” status may be used to indicate anything weighing less than a 5th percentile female adult crash dummy, including an empty seat; “Not Child” indicates anything weighing the same as or more than a 5th percentile female adult crash dummy.
- Odometer at Event - Vehicle odometer at the time of the event
- Operation via Energy Reserve Only -“Yes” indicates that the ACM had lost power at or before T0 and was only operating on energy reserve at T0.
- System Voltage at Event, ACM - Voltage at the ACM as measured by the ACM.
- System Voltage at Event, Bussed - Voltage of the vehicle system, communicated on the communication bus to other electronic modules in the vehicle.
- Temperature, Outside - Ambient Air Temperature.
- Time, Airbag Warning Lamp On - This is a cumulative time. It indicates the total amount of time that the ACM has requested the Airbag Warning Lamp be turned on.
    - This time does not include the warning lamp bulb check time, which occurs at every ignition cycle
        - For 2013 MY Minivans and new 2017+ MY Jeep Compass, this time is only cumulative for the past 10 ignition cycles.
- Time from event 1 to 2 -
    - If only one event is stored, either a value of 0 or >5 may be displayed for this data element.
    - For the 2018+ MY Promaster and 2019+ MY RAM 1500, a value of 0 may be displayed for the first event or for events >5 seconds apart.
    - If multiple events exist in the EDR, the time from event 1 to event 2 is defined as:
        - For Bosch and TRW modules, the time from the prior recorded event (even if it has been overwritten) to the current recorded event.
        - For Continental modules, the time from the prior existing recorded event (as long as it is still displayed in the CDR report) to the current recorded event. If the prior event in a multi-event condition is overwritten by a subsequent event, the multi-event status will no longer be displayed.
        - For the 2019+ MY RAM 1500, the time from event 1 to 2 may utilize a non-stored event as event 1. In this case, the total number of events and multi-event data elements will not include the non-stored event in the number of events. However, the time from event 1 to 2 will be shown as time from that non-stored event.
- Time, Operation System Time - This is a cumulative lifetime timer for the ACM. It indicates the total amount of time the ACM has been powered up.

- VIN at Event, Last 8 Digits- Last 8 digits of the VIN of the vehicle at the time the ACM records the event.

DEPLOYMENT COMMAND DATA:

- A “Yes” for a particular item indicates that the ACM commanded the deployment /activation of the associated device.
- The phrase "Exceeded Storage Range" for a particular time to deploy indicates that the deployment time is equal to or greater than the 255 milliseconds that can be stored.
- If a device is not deployed, the “time to deploy” for that device will display 0, SNA, N/A or 255.

DTCs PRESENT AT START OF EVENT:

- If any DTCs (diagnostic trouble codes) are present in the ACM at the start of the event, these will be listed in this section. A dealership service manual can be used to decode the DTCs.
    - DTCs Present at Start of Event are not present in the Alfa Romeo Giulia, Fiat 500X, and the Jeep Renegade.

SENSOR DATA:

- The design range for the angular rate data is:
    - +/- 240 deg/sec for Bosch ACMs
    - +/- 300 deg/sec for TRW ACMs, the 2019 MY RAM 1500, and the 2018+ MY Dodge Journey
    - +/- 290 deg/sec for 2008+ MY minivans and 2009-2017 MY Dodge Journey
    - +/- 340 deg/sec for 2017+ MY Chrysler Pacifica and new 2017+ MY Jeep Compass
- For vehicles that store peripheral sensor data, t0 for the peripheral sensors is the same as the t0 for the delta V.
- Internal y acceleration is stored prior to t0 so the internal y acceleration data will usually be zero unless the rollover sensing algorithm has triggered storage of the EDR event.
- The words “Sensor Design Range Exceeded” and a vertical line will be displayed on the Longitudinal and Lateral Delta-V graphs the first time the applicable sensor range is exceeded.

PRE-CRASH DATA:

- The recorded Event may contain Pre-Crash data. Pre-Crash data from the various electronic control modules in the vehicle is transmitted to the Airbag Control Module via the vehicle’s communication bus.
- (if equip.) - If a parameter name is followed by the words (if equip.), then the parameter is only valid for vehicles equipped with the associated parameter/vehicle system.
- The MIL (Malfunction Indicator Lamp) Status for the various recorded systems indicates the requested 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. The appropriate diagnostic 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.
- ABS Activity - “Yes” indicates an active ABS event in which the ABS is actively controlling the brakes.
- ABS MIL- This indicates the ABS fault indicator lamp status. It will only be “On” when there is a fault in the ABS system. The Electronic brake module DTC’s should be read and recorded for final system interpretation.
- Accelerator Pedal, % Full - This indicates the actual position of the accelerator pedal. It will be “SNA” if the vehicle is in the power free mode which limits acceleration.
- Accelerator Pedal (Derived), % Full - This indicates the calculated value of the accelerator pedal for battery electric vehicles only.
- Accelerator Pedal/Engine Throttle, % Full - This indicates the actual position of the accelerator pedal unless the cruise control is engaged. If the cruise control is engaged, this indicates the actual position of the engine throttle blade.
- Braking System, Maximum Braking - “Yes” indicates that ABS is active on all 4 wheels.
- Cruise Control:
    - Cruise Control System/Lamp Status -“On” indicates that the Cruise Control system is turned on.
    - Cruise Control Engaged Status/Active - “Engaged”/”Yes” indicates the Cruise Control system is actively controlling vehicle speed. “Not Engaged”/”No” indicates the system is NOT controlling vehicle speed.
    - Adaptive Cruise Control (ACC) Status (if equip.)- “Off” indicates that all cruise control functionality is disabled; “NCC_On” indicates that the Normal Cruise Control system is turned on; “NCC_Set” indicates the Normal Cruise Control is actively controlling vehicle speed; “ACC_On” indicates that ACC is turned on; “ACC_Set” indicates that the ACC is actively controlling vehicle speed. If the value is SNA for all time stamps, then the vehicle is not equipped with ACC.
    - ACC Speed Set (if equip.)- This indicates the desired speed in mph that was input by the driver for the ACC system. If the value is SNA for all time stamps, then the vehicle is not equipped with ACC.
- Drive Mode - This indicates the driver selected mode of operation (e.g. normal, sport, track, …)
- Electronic Brake/Stability Control information:
    - Stability Control - This is the status of the ESC symbol - “car with squiggly lines” indicator lamp. “On” indicates that the ESC system is functional. “Off” indicates that the ESC system was turned off either by the driver or due to a fault or thermal mode shutdown. “Engaged” indicates an active ESC/TCS event. “Partial Off” indicates that engine management has been turned off but traction control is still functional.
        - For the Jeep Renegade, if the Stability Control is “Off”, the ESC Button Status is “Disabled”, and the vehicle speed exceeds 40 mph, the stability control system will operate in a reduced functionality mode with traction control turned off (“partial off” mode) even though the user disabled it. For all other conditions, when the Stability Control is “Off”, the stability control system will be off.
    - ESC Button Status - This indicates the driver selected mode for the ESC system. “Disabled” indicates that the driver pressed the ESC Button for 5 seconds to disable the ESC System. “Enabled” indicates that the ESC button has not been pressed for 5 seconds and thus the ESC System is enabled.

- ESC/ESP MIL - This indicates the ESC/ESP fault indication lamp status. It will only be “On” when there is a fault or thermal mode shutdown in the ESC/ESP system. The ESC/ESP module DTC’s should be read and recorded for final system interpretation.
- Brake Intervention by ESP - “Yes” indicates that the stability control system has engaged the brakes.
- Engine Torque Applied - “No” indicates 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.
- Traction Control Active - “Yes” indicates that the traction control system is actively controlling the vehicle’s wheels.

- Electronic Park Brake (EPB):
  - Park Brake Engaged - “Yes” indicates that the park brake is applied.
  - EPB MIL - “On” indicates that there is a fault in the Electronic Park Brake System.
- Engine Throttle, % Full - This indicates the actual position of the Engine Throttle blade. This data element is not supported by vehicles with diesel engines. Thus a value of “SNA” will be displayed if the vehicle has a diesel engine.
- ETC Lamp - Lamp “ON “indicates there is an active Electronic Throttle DTC.
- ETC Lamp Flashing - “Yes” indicates that the ETC is in the limp-in mode.
- Forward Collision Warning (FCW) (if equip.):
  - Object of Interest Distance - This indicates the actual forward distance to the main object being tracked by the FCW system. “FCW present but not tracking” indicates that the FCW system is not currently tracking an object. If the value is SNA for all time stamps, then the vehicle is not equipped with FCW.
  - FCW System Status - “Off” indicates that the FCW system is off and the FCW Warning Lamp will be “On”. “On-braking” indicates that the FCW system is on with active braking enabled but there will no FCW audible or visual warnings in an FCW event. “On-warning” indicates that the FCW system is on but active braking is disabled. In an FCW event, the driver will only receive FCW audible and visual warnings. “On-full” indicates that the FCW system is fully on with active braking as well as the audible and visual warnings enabled. SNA indicates that the vehicle is not equipped with FCW.
- Gear Position - This indicates the current transmission gear.
- Master Cylinder Pressure - This indicates the brake pressure applied to the brakes by the driver.
- PCM MIL - This indicates the PCM fault indicator lamp status. It will only be “On” when there is a fault in the PCM. The Powertrain Control Module DTC’s should be read and recorded for final system interpretation.
- Pre-Crash Recorder Complete - Due to the interruption of data recording in one section, this data element may display “Interrupted” for all sections when some data sections are actually complete.
  - For the 2014 MY Jeep Grand Cherokee and Dodge Durango, if recording of angular rate data is interrupted, the entire EDR record will display “Interrupted” even though the rest of the data may be complete.
- PRND/PRNDL/PRNDS Status - This indicates the status of the Shifter Position.
- Raw Manifold Pressure - This indicates engine load in kPa.
- Reverse Gear - For manual transmission vehicles only, “Yes” indicates the transmission is in the reverse gear.
- Service Brake - “On” indicates that the brake pedal is depressed.
- Speed, Vehicle Indicated - This indicates the average of the drive wheels. 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. On some vehicles capable of speeds in excess of 255km/h (about 158mph), the actual vehicle speed may have exceeded the reporting range. It is always prudent to check the reported wheel speeds and other parameters to confirm the Speed, Vehicle Indicated value(s).
- Tire Information:
  - XX where LF = Left Front Tire, RF = Right Front Tire, LR = Left Rear Tire, and RR = Right Rear Tire.
  - Tire X Location - This indicates the location of the tire pressure sensor data being displayed for that time stamp. Default is used to indicate that the location of the tire pressure sensor is unknown or there is no tire pressure sensor in that 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 X Pressure/Tire Pressure Status, XX -This indicates the actual pressure status of the Tire Location defined in the previous column (Tire X Location) or by the values for XX. Possible values are LOW, NORMAL, HIGH, or SNA for this parameter. Vehicles with Base Tire Pressure Monitoring systems may display NORMAL even though these vehicles do not send actual pressure values across the communication bus.
  - Tire X Pressure/Tire Pressure Value, XX (psi) - This indicates the actual tire pressure value of the Tire Location defined in the previous column (Tire X Location) or by the values for XX. 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.
    - For the following vehicles, the tire location, if displayed, may not be accurate if the tires have been rotated:
      - 2013 MY Ram
      - 2013-2017 MY Jeep Patriot
      - 2013-2014 MY Chrysler 200
      - 2013-2017 MY Jeep Compass
      - 2013-2016 MY Dodge Dart
      - For the 2013 MY Ram, if the values for tire pressure status and the tire pressure are SNA, the EDR does not store tire pressure monitoring data.
    - Tire pressure is not stored in the EDR for the following vehicles:
      - 2014-2018 MY RAM 1500
      - 2014+ MY RAM (all but 1500)
      - 2013+ MY Jeep Wrangler
      - 2013 MY Jeep Grand Cherokee
      - 2013 MY Dodge Durango
      - 2013-2014 MY Dodge Challenger
      - 2013-2016 MY Chrysler Town and Country
      - 2013+ MY Dodge Grand Caravan
      - 2015+ MY Fiat 500
  - Wheel Speed, XX - This indicates the speed value (in revolutions per minute) of a particular tire as denoted by XX.
- Tire Pressure Monitor Indicator Lamp/Faults - “On” indicates a fault in the tire pressure monitoring system. The TPM module DTC’s should be read and recorded for final system interpretation.

- "T0" ("Time zero" where ‘0’ is seen as subscript) is defined as "beginning of the crash event". T0 is the time at which the ACM algorithm is activated, a specific Delta-V is exceeded, or a non-reversible restraint device is deployed. T0 may be defined differently for front, side, rear and roll-over events.
    - If multiple algorithm decisions (i.e.: frontal, side, rear and/or rollover) are made before the first recorded event ends, all of those events are part of the same event record and "T0" is defined as the "T0" from the first recorded event.
    - In the Pre-Crash data tables, the relative time marker "-0.1s" or “-0.25s” respectively represents the last set of data captured in the buffer prior to "T0."
- Torque Information:
    - Axle Torque - This indicates the E-Motor Torque multiplied by the gear ratio for battery electric vehicles only.
    - E-Motor Torque - This indicates the calculated torque from the output shaft of the electric motor in battery electric vehicles only.
- Traction Control Intervention Active - “Active” indicates wheel slippage was occurring during vehicle acceleration.

APPLICATION INFORMATION:

- Jeep Renegade and Alfa Romeo Giulia are only CDR supported in the NAFTA market.

03002_Chrysler_ r036

System Status at Retrieval

Original VIN	3C4PDCDGXDT******
Ignition Cycle, Download	7188
Airbag Control Module Serial Number	T02JF3232280A9
Airbag Control Module Part Number	68163807AB
Airbag Control Module Supplier	Continental Corporation
ACM Supply Voltage at Time of Retrieval	12.1

System Configuration at Retrieval

Configured for Driver Frontal Airbag	Yes
Configured for Driver Knee Airbag	Yes
Configured for Driver Buckle Pretensioner	Yes
Configured for Driver Retractor Pretensioner	Yes
Configured for Driver Active Head Restraints	Yes
Configured for Passenger Frontal Airbag	Yes
Configured for Passenger Buckle Pretensioner	Yes
Configured for Passenger Retractor Pretensioner	Yes
Configured for Passenger Active Head Restraints	Yes
Configured for Right Side Seat Airbag	Yes
Configured for Right Side Curtain Airbag	Yes
Configured for Left Side Seat Airbag	Yes
Configured for Left Side Curtain Airbag	Yes
Configured for Driver Seat Track Position Sensor	Yes
Configured for Passenger Seat Seatbelt Switch	Yes
Configured for Passenger Seat Track Position Sensor	Yes
Configured for Pedestrian Protection Hood Actuators	No
Configured for Up Front Sensors	Yes
Configured for Side Sensing	Yes

System Status at Event (Most Recent Event)

Complete File Recorded	Yes
Ignition Cycle, Crash	7185
Safety Belt Status, Driver	Buckled
Safety Belt Status, Passenger	Not Buckled
Airbag Warning Lamp, On/Off	Off
Seat Track Position Switch, Foremost, Status, Driver	No
Seat Track Position Switch, Foremost, Status, Passenger	No
Maximum Delta-V Longitudinal (MPH [km/h])	-28.6 [-46]
Time, Maximum Delta-V, Longitudinal (msec)	224
Maximum Delta-V Lateral (MPH [km/h])	-38.4 [-62]
Time, Maximum Delta-V, Lateral (msec)	232
Time, Operation System Time (sec)	12392270.2
Time, Airbag Warning Lamp On (min)	0
Event Number	1
Total Number of Events	1
Time from Event 1 to 2 (sec)	0.0
Multi-Event, Number of Events (1,2)	1
Operation Via Energy Reserve Only (Yes, No)	No
Supply Voltage at Event, ACM (V)	13.9
Event Signal Transmission, Complete (if equip.)	Yes
Odometer at Event (km)	198091.6
VIN, Original	3C4PDCDGXDT******
VIN at event, Last 8 Digits	DT******

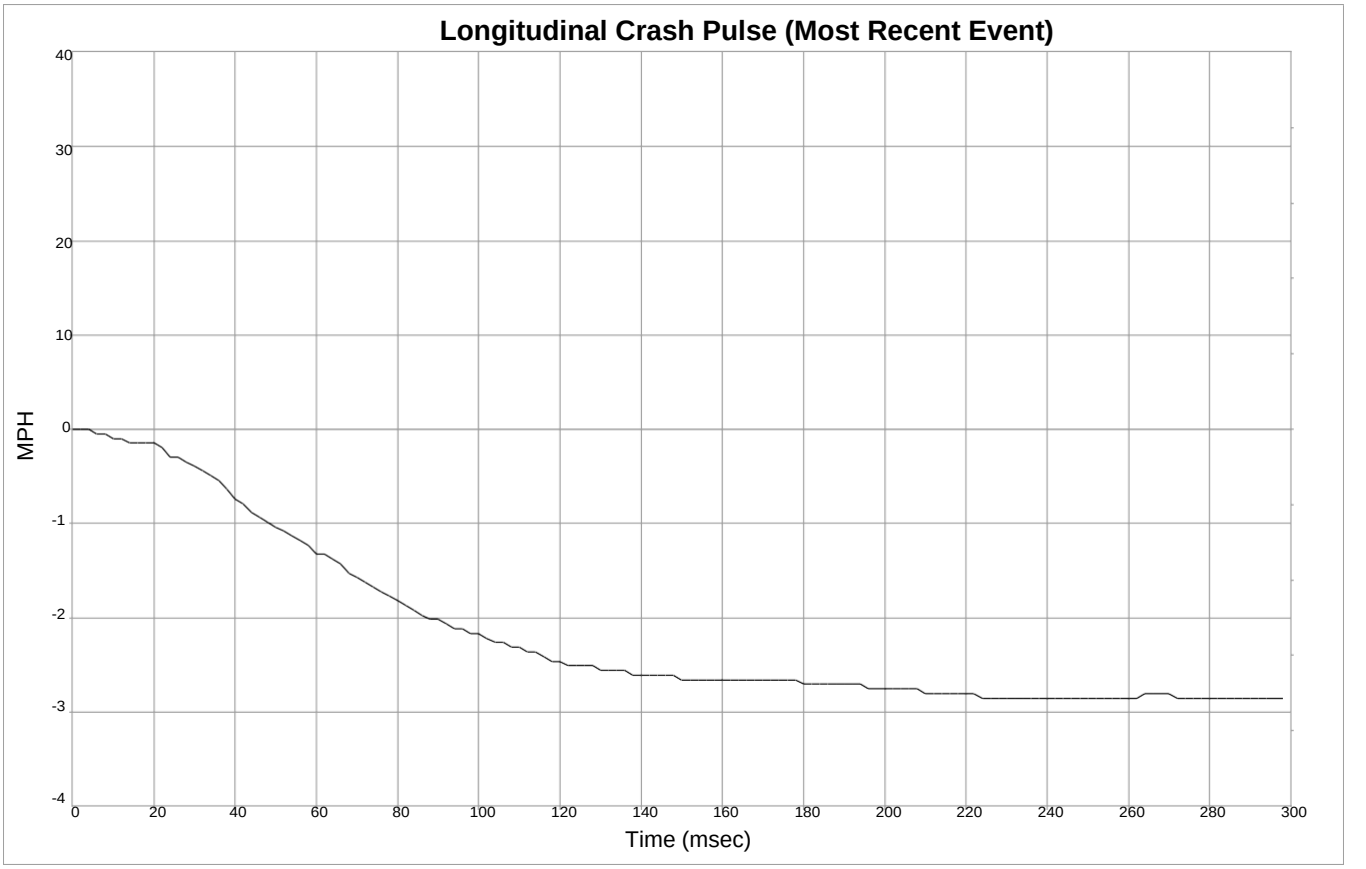
Deployment Command Data (Most Recent Event)

Frontal Airbag Deployment, 1st Stage, Driver	Yes
Frontal Airbag Deployment, 2nd Stage, Driver	Yes
Frontal Airbag Deployment, Time to First Stage Deployment, Driver (msec)	29
Frontal Airbag Deployment, Time to 2nd Stage Deployment from T0, Driver (msec)	102
Frontal Airbag Deployment, 1st Stage, Passenger	Yes
Frontal Airbag Deployment, 2nd Stage, Passenger	Yes
Frontal Airbag Deployment, Time to First Stage Deployment, Passenger (msec)	29
Frontal Airbag Deployment, Time to 2nd Stage Deployment from T0, Passenger (msec)	152
Knee Airbag Deployment, Driver	Yes
Buckle Pretensioner, Driver	No
Retractor Pretensioner, Driver	Yes
Frontal Airbag Deployment, Passenger 3rd Squib	Yes
Buckle Pretensioner, Passenger	Yes
Retractor Pretensioner, Passenger	Yes
Side Seat Airbag Deployment, Left	No
Side Seat Airbag Deployment, Right	Yes
Side Curtain Airbag Deployment, Left	No
Side Curtain Airbag Deployment, Right	Yes
Active Head Restraint, Driver	No
Active Head Restraint, Passenger	No

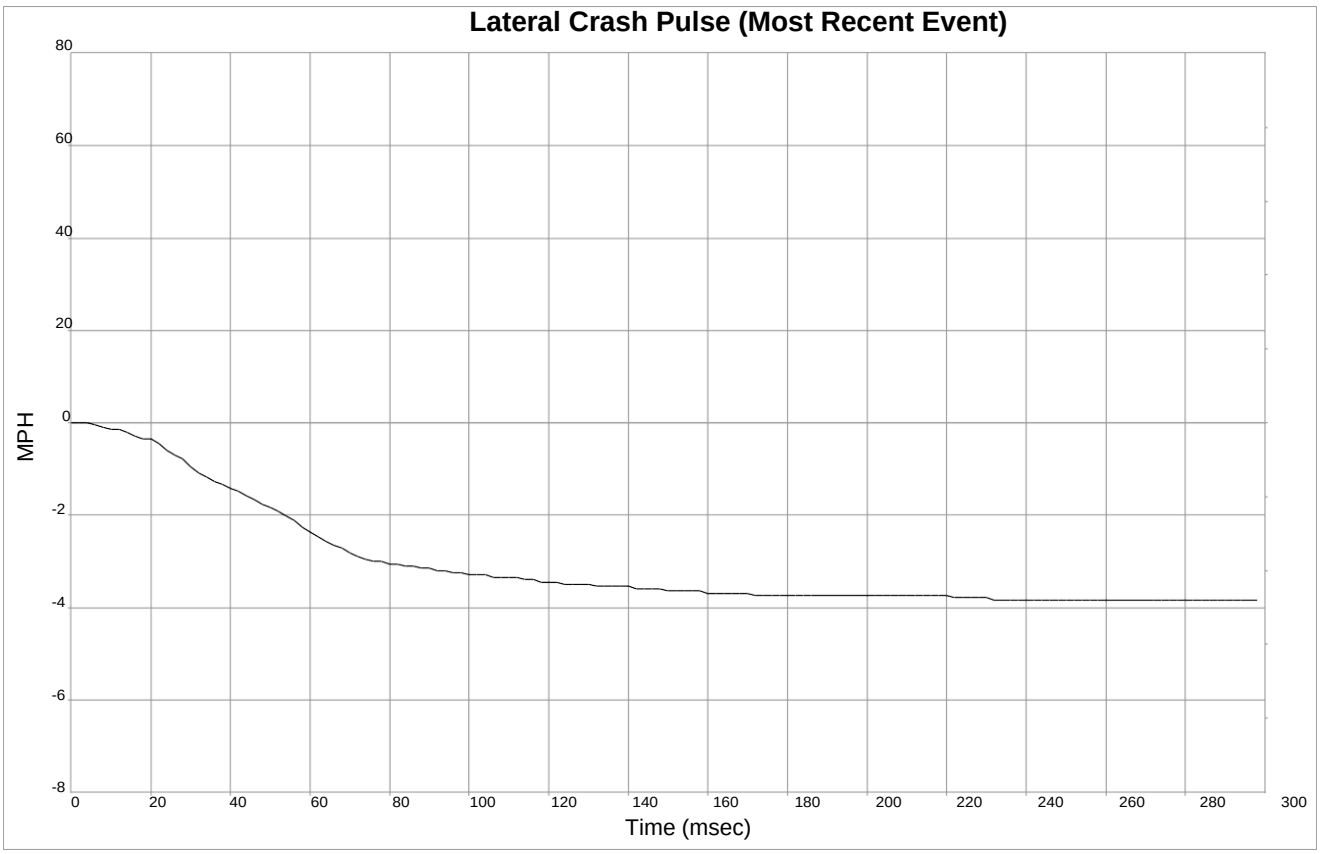
DTCs Present at Start of Event (Most Recent Event)

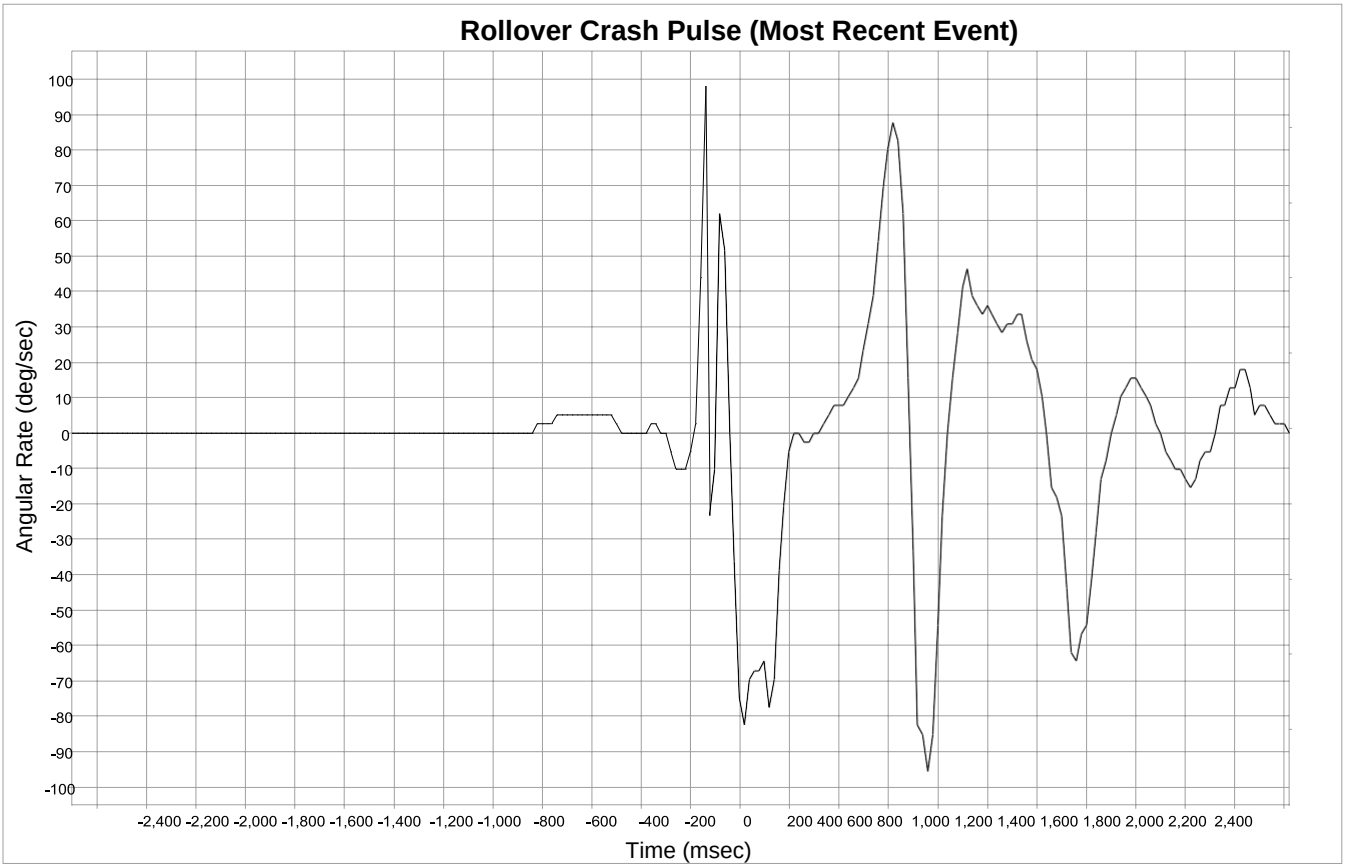
No DTCs Present

Longitudinal Crash Pulse (Most Recent Event)



Lateral Crash Pulse (Most Recent Event)




Rollover Crash Pulse (Most Recent Event)
Angular Rate (deg/sec)
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-2,400 -2,200 -2,000 -1,800 -1,600 -1,400 -1,200 -1,000 -800 -600 -400 -200 0 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000 2,200 2,400
Time (msec)

Longitudinal Crash Pulse (Most Recent Event)

Time (msec)	Delta-V, Longitudinal (MPH [km/h])	Time (msec)	Delta-V, Longitudinal (MPH [km/h])	Time (msec)	Delta-V, Longitudinal (MPH [km/h])
0	0.0 [0]	100	-21.7 [-35]	200	-27.6 [-44]
2	0.0 [0]	102	-22.2 [-36]	202	-27.6 [-44]
4	0.0 [0]	104	-22.7 [-36]	204	-27.6 [-44]
6	-0.5 [-1]	106	-22.7 [-36]	206	-27.6 [-44]
8	-0.5 [-1]	108	-23.2 [-37]	208	-27.6 [-44]
10	-1.0 [-2]	110	-23.2 [-37]	210	-28.1 [-45]
12	-1.0 [-2]	112	-23.6 [-38]	212	-28.1 [-45]
14	-1.5 [-2]	114	-23.6 [-38]	214	-28.1 [-45]
16	-1.5 [-2]	116	-24.1 [-39]	216	-28.1 [-45]
18	-1.5 [-2]	118	-24.6 [-40]	218	-28.1 [-45]
20	-1.5 [-2]	120	-24.6 [-40]	220	-28.1 [-45]
22	-2.0 [-3]	122	-25.1 [-40]	222	-28.1 [-45]
24	-3.0 [-5]	124	-25.1 [-40]	224	-28.6 [-46]
26	-3.0 [-5]	126	-25.1 [-40]	226	-28.6 [-46]
28	-3.4 [-6]	128	-25.1 [-40]	228	-28.6 [-46]
30	-3.9 [-6]	130	-25.6 [-41]	230	-28.6 [-46]
32	-4.4 [-7]	132	-25.6 [-41]	232	-28.6 [-46]
34	-4.9 [-8]	134	-25.6 [-41]	234	-28.6 [-46]
36	-5.4 [-9]	136	-25.6 [-41]	236	-28.6 [-46]
38	-6.4 [-10]	138	-26.1 [-42]	238	-28.6 [-46]
40	-7.4 [-12]	140	-26.1 [-42]	240	-28.6 [-46]
42	-7.9 [-13]	142	-26.1 [-42]	242	-28.6 [-46]
44	-8.9 [-14]	144	-26.1 [-42]	244	-28.6 [-46]
46	-9.4 [-15]	146	-26.1 [-42]	246	-28.6 [-46]
48	-9.9 [-16]	148	-26.1 [-42]	248	-28.6 [-46]
50	-10.3 [-17]	150	-26.6 [-43]	250	-28.6 [-46]
52	-10.8 [-17]	152	-26.6 [-43]	252	-28.6 [-46]
54	-11.3 [-18]	154	-26.6 [-43]	254	-28.6 [-46]
56	-11.8 [-19]	156	-26.6 [-43]	256	-28.6 [-46]
58	-12.3 [-20]	158	-26.6 [-43]	258	-28.6 [-46]
60	-13.3 [-21]	160	-26.6 [-43]	260	-28.6 [-46]
62	-13.3 [-21]	162	-26.6 [-43]	262	-28.6 [-46]
64	-13.8 [-22]	164	-26.6 [-43]	264	-28.1 [-45]
66	-14.3 [-23]	166	-26.6 [-43]	266	-28.1 [-45]
68	-15.3 [-25]	168	-26.6 [-43]	268	-28.1 [-45]
70	-15.8 [-25]	170	-26.6 [-43]	270	-28.1 [-45]
72	-16.3 [-26]	172	-26.6 [-43]	272	-28.6 [-46]
74	-16.7 [-27]	174	-26.6 [-43]	274	-28.6 [-46]
76	-17.2 [-28]	176	-26.6 [-43]	276	-28.6 [-46]
78	-17.7 [-29]	178	-26.6 [-43]	278	-28.6 [-46]
80	-18.2 [-29]	180	-27.1 [-44]	280	-28.6 [-46]
82	-18.7 [-30]	182	-27.1 [-44]	282	-28.6 [-46]
84	-19.2 [-31]	184	-27.1 [-44]	284	-28.6 [-46]
86	-19.7 [-32]	186	-27.1 [-44]	286	-28.6 [-46]
88	-20.2 [-33]	188	-27.1 [-44]	288	-28.6 [-46]
90	-20.2 [-33]	190	-27.1 [-44]	290	-28.6 [-46]
92	-20.7 [-33]	192	-27.1 [-44]	292	-28.6 [-46]
94	-21.2 [-34]	194	-27.1 [-44]	294	-28.6 [-46]
96	-21.2 [-34]	196	-27.6 [-44]	296	-28.6 [-46]
98	-21.7 [-35]	198	-27.6 [-44]	298	-28.6 [-46]

Lateral Crash Pulse (Most Recent Event)

Time (msec)	Delta-V, Lateral (MPH [km/h])
0	0.0 [0]
2	0.0 [0]
4	0.0 [0]
6	-0.5 [-1]
8	-1.0 [-2]
10	-1.5 [-2]
12	-1.5 [-2]
14	-2.0 [-3]
16	-3.0 [-5]
18	-3.4 [-6]
20	-3.4 [-6]
22	-4.4 [-7]
24	-5.9 [-10]
26	-6.9 [-11]
28	-7.9 [-13]
30	-9.4 [-15]
32	-10.8 [-17]
34	-11.8 [-19]
36	-12.8 [-21]
38	-13.3 [-21]
40	-14.3 [-23]
42	-14.8 [-24]
44	-15.8 [-25]
46	-16.7 [-27]
48	-17.7 [-29]
50	-18.2 [-29]
52	-19.2 [-31]
54	-20.2 [-33]
56	-21.2 [-34]
58	-22.7 [-36]
60	-23.6 [-38]
62	-24.6 [-40]
64	-25.6 [-41]
66	-26.6 [-43]
68	-27.1 [-44]
70	-28.1 [-45]
72	-29.1 [-47]
74	-29.6 [-48]
76	-30.1 [-48]
78	-30.1 [-48]
80	-30.5 [-49]
82	-30.5 [-49]
84	-31.0 [-50]
86	-31.0 [-50]
88	-31.5 [-51]
90	-31.5 [-51]
92	-32.0 [-52]
94	-32.0 [-52]
96	-32.5 [-52]
98	-32.5 [-52]

Time (msec)	Delta-V, Lateral (MPH [km/h])
100	-33.0 [-53]
102	-33.0 [-53]
104	-33.0 [-53]
106	-33.5 [-54]
108	-33.5 [-54]
110	-33.5 [-54]
112	-33.5 [-54]
114	-34.0 [-55]
116	-34.0 [-55]
118	-34.5 [-55]
120	-34.5 [-55]
122	-34.5 [-55]
124	-35.0 [-56]
126	-35.0 [-56]
128	-35.0 [-56]
130	-35.0 [-56]
132	-35.5 [-57]
134	-35.5 [-57]
136	-35.5 [-57]
138	-35.5 [-57]
140	-35.5 [-57]
142	-36.0 [-58]
144	-36.0 [-58]
146	-36.0 [-58]
148	-36.0 [-58]
150	-36.5 [-59]
152	-36.5 [-59]
154	-36.5 [-59]
156	-36.5 [-59]
158	-36.5 [-59]
160	-36.9 [-59]
162	-36.9 [-59]
164	-36.9 [-59]
166	-36.9 [-59]
168	-36.9 [-59]
170	-36.9 [-59]
172	-37.4 [-60]
174	-37.4 [-60]
176	-37.4 [-60]
178	-37.4 [-60]
180	-37.4 [-60]
182	-37.4 [-60]
184	-37.4 [-60]
186	-37.4 [-60]
188	-37.4 [-60]
190	-37.4 [-60]
192	-37.4 [-60]
194	-37.4 [-60]
196	-37.4 [-60]
198	-37.4 [-60]

Time (msec)	Delta-V, Lateral (MPH [km/h])
200	-37.4 [-60]
202	-37.4 [-60]
204	-37.4 [-60]
206	-37.4 [-60]
208	-37.4 [-60]
210	-37.4 [-60]
212	-37.4 [-60]
214	-37.4 [-60]
216	-37.4 [-60]
218	-37.4 [-60]
220	-37.4 [-60]
222	-37.9 [-61]
224	-37.9 [-61]
226	-37.9 [-61]
228	-37.9 [-61]
230	-37.9 [-61]
232	-38.4 [-62]
234	-38.4 [-62]
236	-38.4 [-62]
238	-38.4 [-62]
240	-38.4 [-62]
242	-38.4 [-62]
244	-38.4 [-62]
246	-38.4 [-62]
248	-38.4 [-62]
250	-38.4 [-62]
252	-38.4 [-62]
254	-38.4 [-62]
256	-38.4 [-62]
258	-38.4 [-62]
260	-38.4 [-62]
262	-38.4 [-62]
264	-38.4 [-62]
266	-38.4 [-62]
268	-38.4 [-62]
270	-38.4 [-62]
272	-38.4 [-62]
274	-38.4 [-62]
276	-38.4 [-62]
278	-38.4 [-62]
280	-38.4 [-62]
282	-38.4 [-62]
284	-38.4 [-62]
286	-38.4 [-62]
288	-38.4 [-62]
290	-38.4 [-62]
292	-38.4 [-62]
294	-38.4 [-62]
296	-38.4 [-62]
298	-38.4 [-62]

Rollover Crash Pulse (Most Recent Event) (if equipped)

Time (msec)	Angular Rate (deg/sec)
-2500	0.00
-2480	0.00
-2460	0.00
-2440	0.00
-2420	0.00
-2400	0.00
-2380	0.00
-2360	0.00
-2340	0.00
-2320	0.00
-2300	0.00
-2280	0.00
-2260	0.00
-2240	0.00
-2220	0.00
-2200	0.00
-2180	0.00
-2160	0.00
-2140	0.00
-2120	0.00
-2100	0.00
-2080	0.00
-2060	0.00
-2040	0.00
-2020	0.00
-2000	0.00
-1980	0.00
-1960	0.00
-1940	0.00
-1920	0.00
-1900	0.00
-1880	0.00
-1860	0.00
-1840	0.00
-1820	0.00
-1800	0.00
-1780	0.00
-1760	0.00
-1740	0.00
-1720	0.00
-1700	0.00
-1680	0.00
-1660	0.00
-1640	0.00
-1620	0.00
-1600	0.00
-1580	0.00
-1560	0.00
-1540	0.00
-1520	0.00

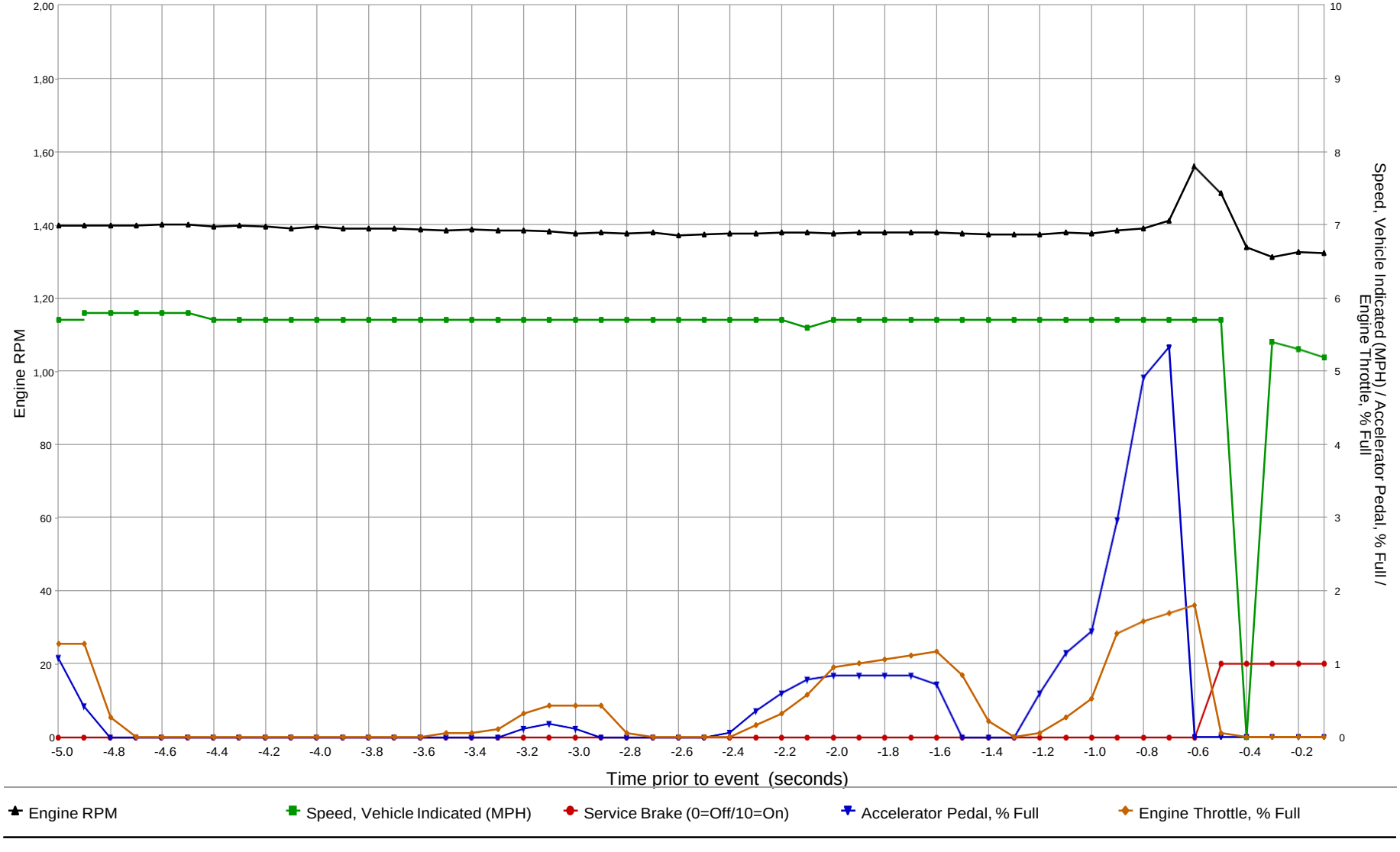
Time (msec)	Angular Rate (deg/sec)
-1500	0.00
-1480	0.00
-1460	0.00
-1440	0.00
-1420	0.00
-1400	0.00
-1380	0.00
-1360	0.00
-1340	0.00
-1320	0.00
-1300	0.00
-1280	0.00
-1260	0.00
-1240	0.00
-1220	0.00
-1200	0.00
-1180	0.00
-1160	0.00
-1140	0.00
-1120	0.00
-1100	0.00
-1080	0.00
-1060	0.00
-1040	0.00
-1020	0.00
-1000	0.00
-980	0.00
-960	0.00
-940	0.00
-920	0.00
-900	0.00
-880	0.00
-860	0.00
-840	0.00
-820	0.00
-800	0.00
-780	0.00
-760	0.00
-740	0.00
-720	0.00
-700	0.00
-680	0.00
-660	0.00
-640	0.00
-620	2.58
-600	2.58
-580	2.58
-560	2.58
-540	5.16
-520	5.16

Time (msec)	Angular Rate (deg/sec)
-500	5.16
-480	5.16
-460	5.16
-440	5.16
-420	5.16
-400	5.16
-380	5.16
-360	5.16
-340	5.16
-320	5.16
-300	2.58
-280	0.00
-260	0.00
-240	0.00
-220	0.00
-200	0.00
-180	0.00
-160	2.58
-140	2.58
-120	0.00
-100	0.00
-80	-5.16
-60	-10.31
-40	-10.31
-20	-10.31
0	-5.16
20	2.58
40	43.83
60	97.97
80	-23.20
100	-10.31
120	61.87
140	51.56
160	0.00
180	-36.09
200	-74.76
220	-82.50
240	-69.61
260	-67.03
280	-67.03
300	-64.45
320	-77.34
340	-69.61
360	-38.67
380	-20.62
400	-5.16
420	0.00
440	0.00
460	-2.58
480	-2.58

Rollover Crash Pulse (Most Recent Event) (if equipped)

Time (msec)	Angular Rate (deg/sec)
500	0.00
520	0.00
540	2.58
560	5.16
580	7.73
600	7.73
620	7.73
640	10.31
660	12.89
680	15.47
700	23.20
720	30.94
740	38.67
760	54.14
780	69.61
800	79.92
820	87.66
840	82.50
860	61.87
880	15.47
900	-33.52
920	-82.50
940	-85.08
960	-95.39
980	-85.08
1000	-54.14
1020	-23.20
1040	0.00
1060	15.47
1080	28.36
1100	41.25
1120	46.41
1140	38.67
1160	36.09
1180	33.52
1200	36.09
1220	33.52
1240	30.94
1260	28.36
1280	30.94
1300	30.94
1320	33.52
1340	33.52
1360	25.78
1380	20.62
1400	18.05
1420	10.31
1440	0.00
1460	-15.47
1480	-18.05
1500	-23.20
1520	-43.83
1540	-61.87
1560	-64.45
1580	-56.72
1600	-54.14
1620	-41.25
1640	-28.36
1660	-12.89
1680	-7.73
1700	0.00
1720	5.16
1740	10.31
1760	12.89
1780	15.47
1800	15.47
1820	12.89
1840	10.31
1860	7.73
1880	2.58
1900	0.00
1920	-5.16
1940	-7.73
1960	-10.31
1980	-10.31
2000	-12.89
2020	-15.47
2040	-12.89
2060	-7.73
2080	-5.16
2100	-5.16
2120	0.00
2140	7.73
2160	7.73
2180	12.89
2200	12.89
2220	18.05
2240	18.05
2260	12.89
2280	5.16
2300	7.73
2320	7.73
2340	5.16
2360	2.58
2380	2.58
2400	2.58
2420	0.00

Pre-Crash Data (Most Recent Event)



SNA values will not be plotted on the graph

Pre-Crash Data (Most Recent Event - table 1 of 4)

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

Time Stamp (sec)	Pre-Crash Recorder Status	Speed, Vehicle Indicated (MPH [km/h])	Accelerator Pedal, % Full	Engine Throttle, % Full	Service Brake (On, Off)	Engine RPM	ABS Activity	Stability Control
-5.0	Complete	57 [92]	11	13	Off	1,399	No	On
-4.9	Complete	58 [93]	4	13	Off	1,400	No	On
-4.8	Complete	58 [93]	0	3	Off	1,400	No	On
-4.7	Complete	58 [93]	0	0	Off	1,398	No	On
-4.6	Complete	58 [93]	0	0	Off	1,401	No	On
-4.5	Complete	58 [93]	0	0	Off	1,401	No	On
-4.4	Complete	57 [93]	0	0	Off	1,397	No	On
-4.3	Complete	57 [92]	0	0	Off	1,398	No	On
-4.2	Complete	57 [92]	0	0	Off	1,396	No	On
-4.1	Complete	57 [92]	0	0	Off	1,391	No	On
-4.0	Complete	57 [92]	0	0	Off	1,395	No	On
-3.9	Complete	57 [92]	0	0	Off	1,391	No	On
-3.8	Complete	57 [92]	0	0	Off	1,391	No	On
-3.7	Complete	57 [92]	0	0	Off	1,391	No	On
-3.6	Complete	57 [92]	0	0	Off	1,389	No	On
-3.5	Complete	57 [92]	0	1	Off	1,386	No	On
-3.4	Complete	57 [92]	0	1	Off	1,387	No	On
-3.3	Complete	57 [92]	0	1	Off	1,386	No	On
-3.2	Complete	57 [91]	1	3	Off	1,385	No	On
-3.1	Complete	57 [91]	2	4	Off	1,383	No	On
-3.0	Complete	57 [91]	1	4	Off	1,377	No	On
-2.9	Complete	57 [91]	0	4	Off	1,379	No	On
-2.8	Complete	57 [91]	0	1	Off	1,378	No	On
-2.7	Complete	57 [91]	0	0	Off	1,380	No	On
-2.6	Complete	57 [91]	0	0	Off	1,373	No	On
-2.5	Complete	57 [91]	0	0	Off	1,375	No	On
-2.4	Complete	57 [91]	1	0	Off	1,378	No	On
-2.3	Complete	57 [91]	4	2	Off	1,376	No	On
-2.2	Complete	57 [91]	6	3	Off	1,380	No	On
-2.1	Complete	56 [91]	8	6	Off	1,381	No	On
-2.0	Complete	57 [91]	8	10	Off	1,378	No	On
-1.9	Complete	57 [91]	8	10	Off	1,380	No	On
-1.8	Complete	57 [91]	8	11	Off	1,381	No	On
-1.7	Complete	57 [91]	8	11	Off	1,379	No	On
-1.6	Complete	57 [91]	7	12	Off	1,379	No	On
-1.5	Complete	57 [91]	0	8	Off	1,377	No	On
-1.4	Complete	57 [91]	0	2	Off	1,375	No	On
-1.3	Complete	57 [91]	0	0	Off	1,374	No	On
-1.2	Complete	57 [91]	6	1	Off	1,375	No	On
-1.1	Complete	57 [91]	12	3	Off	1,379	No	On
-1.0	Complete	57 [91]	15	5	Off	1,376	No	On
-0.9	Complete	57 [91]	30	14	Off	1,384	No	On
-0.8	Complete	57 [91]	49	16	Off	1,391	No	On
-0.7	Complete	57 [91]	53	17	Off	1,412	No	On
-0.6	Complete	57 [91]	0	18	Off	1,560	No	On
-0.5	Complete	57 [91]	0	1	On	1,486	No	Engaged
-0.4	Complete	0 [0]	0	0	On	1,340	No	Engaged
-0.3	Complete	54 [87]	0	0	On	1,313	Yes	Engaged
-0.2	Complete	53 [85]	0	0	On	1,327	No	Off
-0.1	Complete	52 [84]	0	0	On	1,324	Yes	Engaged

Pre-Crash Data (Most Recent Event - table 2 of 4)

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

Time Stamp (sec)	Steering Input (deg)	Raw Manifold Pressure (kPa)	PCM MIL	ESC Lamp (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	-6	91	Off	Off	0	679	679	678	678
-4.9	-6	91	Off	Off	0	680	681	678	678
-4.8	-6	83	Off	Off	0	681	680	679	678
-4.7	-5	72	Off	Off	0	682	682	679	678
-4.6	-5	62	Off	Off	0	681	681	679	678
-4.5	-5	54	Off	Off	0	681	681	678	679
-4.4	-5	50	Off	Off	0	679	679	678	677
-4.3	-5	47	Off	Off	0	678	679	677	677
-4.2	-5	46	Off	Off	0	678	678	678	677
-4.1	-5	44	Off	Off	0	678	679	676	676
-4.0	-5	42	Off	Off	0	677	676	676	675
-3.9	-5	42	Off	Off	0	676	676	674	674
-3.8	-4	41	Off	Off	0	674	674	674	674
-3.7	-4	39	Off	Off	0	675	674	673	673
-3.6	-4	37	Off	Off	0	673	674	672	674
-3.5	-3	38	Off	Off	0	673	674	672	672
-3.4	-3	40	Off	Off	0	673	673	671	671
-3.3	-3	42	Off	Off	0	672	674	670	670
-3.2	-3	48	Off	Off	0	671	672	670	669
-3.1	-3	57	Off	Off	0	671	672	669	668
-3.0	-3	64	Off	Off	0	670	670	668	670
-2.9	-4	66	Off	Off	0	668	670	669	668
-2.8	-4	62	Off	Off	0	669	670	669	670
-2.7	-5	55	Off	Off	0	669	671	667	668
-2.6	-5	49	Off	Off	0	669	669	667	668
-2.5	-5	44	Off	Off	0	669	674	668	667
-2.4	-5	41	Off	Off	0	669	666	667	666
-2.3	-5	43	Off	Off	0	667	667	666	667
-2.2	-5	50	Off	Off	0	667	667	667	666
-2.1	-5	62	Off	Off	0	668	668	666	667
-2.0	-5	82	Off	Off	0	668	670	666	666
-1.9	-4	87	Off	Off	0	669	669	666	667
-1.8	-4	89	Off	Off	0	670	670	668	667
-1.7	-3	90	Off	Off	0	669	671	667	667
-1.6	-3	90	Off	Off	0	670	670	668	666
-1.5	-3	86	Off	Off	0	670	670	667	667
-1.4	-3	76	Off	Off	0	669	669	667	669
-1.3	-4	66	Off	Off	0	668	669	668	667
-1.2	-4	58	Off	Off	0	668	669	668	669
-1.1	-4	58	Off	Off	0	668	669	667	667
-1.0	-5	68	Off	Off	0	669	669	666	667
-0.9	-3	86	Off	Off	0	669	670	666	666
-0.8	2	93	Off	Off	0	668	669	667	666
-0.7	18	94	Off	Off	1	670	672	667	667
-0.6	29	86	Off	Off	6	668	672	665	668
-0.5	41	67	Off	Off	10	664	674	663	673
-0.4	60	58	Off	Off	12	636	664	655	666
-0.3	60	50	Off	Off	14	624	653	610	663
-0.2	68	47	Off	Off	14	606	624	602	637
-0.1	70	42	Off	Off	17	617	623	598	625

Pre-Crash Data (Most Recent Event - table 3 of 4)

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

Time Stamp (sec)	ETC Lamp (if equip.)	ETC Lamp Flashing (if equip.)	Engine Torque Applied	PRNDL Status (if equip.)	Reverse Gear (Manual Only)
-5.0	Off	No	Yes	Drive	No
-4.9	Off	No	Yes	Drive	No
-4.8	Off	No	Yes	Drive	No
-4.7	Off	No	Yes	Drive	No
-4.6	Off	No	Yes	Drive	No
-4.5	Off	No	Yes	Drive	No
-4.4	Off	No	Yes	Drive	No
-4.3	Off	No	Yes	Drive	No
-4.2	Off	No	Yes	Drive	No
-4.1	Off	No	Yes	Drive	No
-4.0	Off	No	Yes	Drive	No
-3.9	Off	No	Yes	Drive	No
-3.8	Off	No	Yes	Drive	No
-3.7	Off	No	Yes	Drive	No
-3.6	Off	No	Yes	Drive	No
-3.5	Off	No	Yes	Drive	No
-3.4	Off	No	Yes	Drive	No
-3.3	Off	No	Yes	Drive	No
-3.2	Off	No	Yes	Drive	No
-3.1	Off	No	Yes	Drive	No
-3.0	Off	No	Yes	Drive	No
-2.9	Off	No	Yes	Drive	No
-2.8	Off	No	Yes	Drive	No
-2.7	Off	No	Yes	Drive	No
-2.6	Off	No	Yes	Drive	No
-2.5	Off	No	Yes	Drive	No
-2.4	Off	No	Yes	Drive	No
-2.3	Off	No	Yes	Drive	No
-2.2	Off	No	Yes	Drive	No
-2.1	Off	No	Yes	Drive	No
-2.0	Off	No	Yes	Drive	No
-1.9	Off	No	Yes	Drive	No
-1.8	Off	No	Yes	Drive	No
-1.7	Off	No	Yes	Drive	No
-1.6	Off	No	Yes	Drive	No
-1.5	Off	No	Yes	Drive	No
-1.4	Off	No	Yes	Drive	No
-1.3	Off	No	Yes	Drive	No
-1.2	Off	No	Yes	Drive	No
-1.1	Off	No	Yes	Drive	No
-1.0	Off	No	Yes	Drive	No
-0.9	Off	No	Yes	Drive	No
-0.8	Off	No	Yes	Drive	No
-0.7	Off	No	Yes	Drive	No
-0.6	Off	No	Yes	Drive	No
-0.5	Off	No	Yes	Drive	No
-0.4	Off	No	Yes	Drive	No
-0.3	Off	No	Yes	Drive	No
-0.2	Off	No	Yes	Drive	No
-0.1	Off	No	Yes	Drive	No

Pre-Crash Data (Most Recent Event - table 4 of 4)

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

Time Stamp (sec)	Tire Pressure Monitor Ind. Lamp (if equip.)	Tire Pressure, LF	Tire Pressure, RF	Tire Pressure, LR	Tire Pressure, RR	Cruise Control Engaged (if equip.)	Cruise Control Status (if equip.)
-5.0	Off	38	37	36	37	Not_Engaged	Off
-4.9	Off	38	37	36	37	Not_Engaged	Off
-4.8	Off	38	37	36	37	Not_Engaged	Off
-4.7	Off	38	37	36	37	Not_Engaged	Off
-4.6	Off	38	37	36	37	Not_Engaged	Off
-4.5	Off	38	37	36	37	Not_Engaged	Off
-4.4	Off	38	37	36	37	Not_Engaged	Off
-4.3	Off	38	37	36	37	Not_Engaged	Off
-4.2	Off	38	37	36	37	Not_Engaged	Off
-4.1	Off	38	37	36	37	Not_Engaged	Off
-4.0	Off	38	37	36	37	Not_Engaged	Off
-3.9	Off	38	37	36	37	Not_Engaged	Off
-3.8	Off	38	37	36	37	Not_Engaged	Off
-3.7	Off	38	37	36	37	Not_Engaged	Off
-3.6	Off	38	37	36	37	Not_Engaged	Off
-3.5	Off	38	37	36	37	Not_Engaged	Off
-3.4	Off	38	37	36	37	Not_Engaged	Off
-3.3	Off	38	37	36	37	Not_Engaged	Off
-3.2	Off	38	37	36	37	Not_Engaged	Off
-3.1	Off	38	37	36	37	Not_Engaged	Off
-3.0	Off	38	37	36	37	Not_Engaged	Off
-2.9	Off	38	37	36	37	Not_Engaged	Off
-2.8	Off	38	37	36	37	Not_Engaged	Off
-2.7	Off	38	37	36	37	Not_Engaged	Off
-2.6	Off	38	37	36	37	Not_Engaged	Off
-2.5	Off	38	37	36	37	Not_Engaged	Off
-2.4	Off	38	37	36	37	Not_Engaged	Off
-2.3	Off	38	37	36	37	Not_Engaged	Off
-2.2	Off	38	37	36	37	Not_Engaged	Off
-2.1	Off	38	37	36	37	Not_Engaged	Off
-2.0	Off	38	37	36	37	Not_Engaged	Off
-1.9	Off	38	37	36	37	Not_Engaged	Off
-1.8	Off	38	37	36	37	Not_Engaged	Off
-1.7	Off	38	37	36	37	Not_Engaged	Off
-1.6	Off	38	37	36	37	Not_Engaged	Off
-1.5	Off	38	37	36	37	Not_Engaged	Off
-1.4	Off	38	37	36	37	Not_Engaged	Off
-1.3	Off	38	37	36	37	Not_Engaged	Off
-1.2	Off	38	37	36	37	Not_Engaged	Off
-1.1	Off	38	37	36	37	Not_Engaged	Off
-1.0	Off	38	37	36	37	Not_Engaged	Off
-0.9	Off	38	37	36	37	Not_Engaged	Off
-0.8	Off	38	37	36	37	Not_Engaged	Off
-0.7	Off	38	37	36	37	Not_Engaged	Off
-0.6	Off	38	37	36	37	Not_Engaged	Off
-0.5	Off	38	37	36	37	Not_Engaged	Off
-0.4	Off	38	37	36	37	Not_Engaged	Off
-0.3	Off	38	37	36	37	Not_Engaged	Off
-0.2	Off	38	37	36	37	Not_Engaged	Off
-0.1	Off	38	37	36	37	Not_Engaged	Off

Hexadecimal Data

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

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5A 87 03 79 41 02 FF 10 12 12 32 00 36 38 31 36 33 38 30 37 41 42

5A 88 33 43 34 50 44 43 44 47 58 44 54 2A 2A 2A 2A 2A 2A

5A 90 33 43 34 50 44 43 44 47 58 44 54 2A 2A 2A 2A 2A 2A

5A 9C 01 03 79 41 02 FF 12 32 00 30 30 31 32 33 32 30 30 41 41

61 E1 54 30 32 4A 46 33 32 33 32 32 38 30 41 39

61 EA 05 9A 02 FF C0 9F C9 07 38 00 00 00 00 00 00 00 00 00 00

61 02 F1 65 00 00 EE 5A 18 C8 F0 04 B0 C1 00 00 00 00 00 00 00

61 10 3F FF 03 1C 14

61 13 00 00 01 9D

61 30 7F 00

61 31 01 CC 01 01 13 00 00 09 01 0E C5 D2 1C 00 00 00 00 1C 11 1E 39 F4 59 C6 7B B2 79 1D 1D 00
00 00 00 00 00 00 00 00 00 00 00 12 00 3F C0 08 00 65 97 20 CE 10 12 32 00 56 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 44 54
2A 2A 2A 2A 2A 2A

61 32 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2A 2A 2A 2A 2A 2A

71 02 01 00 CC 04 05 2C 00 00 04 E1 04 AC 04 D1 04 DE 86 D7 00 01 00 00 00 00 00 23 DD 30 18 35
08 00 C4 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 8C 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 29 EF 00 00 20 00 24 00 FF 33 7E FF FF D2 89 73 73 80 81 03 84 0F 38 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 01 CC 04 05 2F 00 00 04 FA 04 B3 04 BB 04 E0 85 B8 00 03 00 00 00 00 00 23 DC 30 18 3B
09 00 C4 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 87 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2A 87 00 00 20 00 24 00 FF 00 7E FF FF CC 89 70 70 80 81 03 F1 10 C8 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 02 CC 04 05 21 00 00 05 2D 04 C4 04 DF 05 1A 85 98 00 01 00 00 00 00 00 24 DB 30 18 3F
0A 00 C4 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 78 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2B 47 00 00 20 00 24 00 FF 33 7E FF FF C0 89 6E 6E 80 80 04 71 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 03 CC 04 05 3C 00 00 05 33 05 1D 04 F7 05 2F 85 01 00 01 00 00 00 00 00 24 DB 30 18 48
0A 00 C4 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 77 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 00 00 00 00 20 00 24 00 FF 23 7E FF FF BE 89 6B 6B 75 76 05 37 10 C8 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 04 CC 04 05 CE 00 00 05 41 05 2D 05 30 05 43 84 12 00 01 00 00 00 00 00 27 D8 30 18 54
0D 00 C4 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 52 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 8E 00 00 20 00 24 00 FF 23 7E FF FF A8 89 6C 6D 68 6A 06 72 11 90 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 05 CC 04 06 18 00 00 05 38 05 31 05 37 05 40 82 7B 00 00 00 00 00 00 00 2E D1 30 18 6C
2E 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 39 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 9E 00 00 20 00 24 00 FF 22 7E FF FF 9E 89 70 71 64 63 08 9B 10 64 00 00 00 00 00 00 00
00 00 00 00 00
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2C 64 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 23 00 00 00 00 0F 00 00 00 00 00 00
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00 00 00 00 00

71 02 01 07 CC 04 05 6F 00 00 05 34 05 36 05 38 05 39 80 0C 00 00 00 00 00 00 00 45 BA 99 4C 74
2A 5D C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 10 03 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 83 00 00 20 00 24 00 FF 22 7E FF FF 81 89 5C 5C 72 71 09 0D 10 64 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 08 CC 04 05 68 00 00 05 33 05 34 05 39 05 3B 7F FB 00 00 00 00 00 00 00 42 BD 7A 3D 6C
27 3D C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 82 00 00 20 00 24 00 FF 22 7E FF FF 80 89 59 59 7B 7B 07 DD 10 64 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 09 CC 04 05 60 00 00 05 35 05 34 05 39 05 39 80 00 00 00 00 00 00 00 00 37 C8 61 30 55
16 24 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F7 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 82 00 00 20 00 24 00 FF 22 7E FF FF 80 89 63 64 80 80 05 04 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 0A CC 04 05 63 00 00 05 36 05 35 05 37 05 3A 7F FE 00 00 00 00 00 00 00 2F D0 5A 2C 49
11 1F C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F8 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 82 00 00 20 00 24 00 FF 22 7E FF FF 80 89 68 68 80 81 05 1D 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 0B CC 04 05 5F 00 00 05 39 05 37 05 38 05 3A 7F FE 00 00 00 00 00 00 00 29 D6 52 28 48
0D 16 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F8 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 82 00 00 20 00 24 00 FF 22 7E FF FF 80 89 5F 5F 80 81 05 8B 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 0C CC 04 05 5E 00 00 05 36 05 37 05 38 05 39 80 07 00 00 00 00 00 00 00 24 DB 47 23 52
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00 00 00 00 00

71 02 01 0D CC 04 05 5F 00 00 05 39 05 36 05 39 05 39 80 10 00 00 00 00 00 00 00 26 D9 31 18 5F
10 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 93 00 00 20 00 24 00 FF 22 7E FF FF 80 89 50 50 80 81 06 F2 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 0E CC 04 05 61 00 00 05 35 05 36 05 3B 05 3B 80 07 00 00 00 00 00 00 00 2D D3 31 18 6B
1C 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 9D 00 00 20 00 24 00 FF 22 7E FF FF 80 89 53 53 80 81 07 C8 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 0F CC 04 05 63 00 00 05 34 05 38 05 3B 05 3B 80 00 00 00 00 00 00 00 00 3C C3 4F 27 71
22 18 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 91 00 00 20 00 24 00 FF 22 7E FF FF 80 89 54 55 80 81 07 B7 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 10 CC 04 05 63 00 00 05 35 05 36 05 3A 05 3D 7F F0 00 00 00 00 00 00 00 3C C3 53 29 71
21 1A C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FA 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 8A 00 00 20 00 24 00 FF 22 7E FF FF 80 89 55 55 80 80 07 9B 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 11 CC 04 05 65 00 00 05 35 05 37 05 3B 05 3B 7F E6 00 00 00 00 00 00 00 3B C4 53 29 6F
20 1A C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F9 00 00 00 00 00 0F 00 00 00 00 00 00
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00 00 00 00 00

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00 00 00 00 00

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17 19 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 75 00 00 20 00 24 00 FF 22 7E FF FF 80 89 5E 5D 80 80 05 58 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 15 CC 04 05 64 00 00 05 33 05 35 05 36 05 36 7F F6 00 00 00 00 00 00 00 30 CF 50 28 3E
12 16 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
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00 00 00 00 00

71 02 01 16 CC 04 05 60 00 00 05 35 05 33 05 36 05 35 7F F8 00 00 00 00 00 00 00 2A D5 4D 26 36
0F 12 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 86 00 00 20 00 24 00 FF 22 7D FF FF 80 89 6E 6E 80 81 03 B2 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 17 CC 04 05 62 00 00 05 34 05 36 05 3A 05 33 7F E2 00 00 00 00 00 00 00 26 D9 48 23 33
0C 0D C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 88 00 00 20 00 24 00 FF 22 7D FF FF 80 89 72 73 80 81 03 87 0F 9C 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 18 CC 04 05 5F 00 00 05 36 05 37 05 3A 05 43 7F E7 00 00 00 00 00 00 00 23 DD 41 20 37
09 05 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F7 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D 9E 00 00 20 00 24 00 FF 22 7D FF FF 7F 89 73 74 80 81 03 D1 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 19 CC 04 05 5D 00 00 05 38 05 36 05 3A 05 3A 7F F8 00 00 00 00 00 00 00 23 DC 38 1C 3D
0A 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F7 00 00 00 00 00 0F 00 00 00 00 00 00
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00 00 00 00 00

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00 00 00 00 00

71 02 01 1B CC 04 05 62 00 00 05 3B 05 39 05 3A 05 3B 80 00 00 00 00 00 00 00 00 26 D9 31 18 4E
0D 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F8 00 00 00 00 00 0F 00 00 00 00 00 00
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00 00 00 00 00

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00 00 00 00 00

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00 00 00 00 00

71 02 01 1E CC 04 05 67 00 00 05 38 05 39 05 3E 05 3F 80 11 00 00 00 00 00 00 00 2E D1 48 24 47
14 0F C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
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00 00 00 00 00

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12 0E C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D BC 00 00 20 00 24 00 FF 22 7D FF FF 81 89 5C 5C 80 81 03 CD 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 20 CC 04 05 6A 00 00 05 3B 05 3C 05 40 05 44 80 07 00 00 00 00 00 00 00 2B D4 45 22 35
0E 0C C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D CB 00 00 20 00 24 00 FF 22 7D FF FF 80 89 63 63 80 81 03 83 10 00 00 00 00 00 00 00 00
00 00 00 00 00
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71 02 01 21 CC 04 05 6B 00 00 05 3E 05 3D 05 41 05 42 80 00 00 00 00 00 00 00 28 D7 42 21 32
0D 07 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FB 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D CC 00 00 20 00 24 00 FF 22 7D FF FF 80 89 6B 6B 80 81 03 44 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 22 CC 04 05 6A 00 00 05 40 05 3F 05 41 05 43 7F F7 00 00 00 00 00 00 00 28 D7 3F 1F 2F
0D 05 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F FA 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D D1 00 00 20 00 24 00 FF 22 7D FF FF 80 89 6F 6F 80 81 03 1A 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 23 CC 04 05 6D 00 00 05 43 05 40 05 42 05 43 80 03 00 00 00 00 00 00 00 25 DA 3F 1F 2E
0A 05 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F9 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D E3 00 00 20 00 24 00 FF 22 7D FF FF 80 89 73 73 80 81 03 0C 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 24 CC 04 05 6F 00 00 05 42 05 42 05 45 05 43 7F F9 00 00 00 00 00 00 00 24 DB 3B 1D 31
0A 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F8 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 01 00 00 20 00 24 00 FF 22 7D FF FF 80 89 70 70 80 81 03 37 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 25 CC 04 05 6F 00 00 05 44 05 43 05 44 05 43 7F E9 00 00 00 00 00 00 00 25 DA 31 18 33
0B 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F8 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2D FD 00 00 20 00 24 00 FF 22 7D FF FF 80 89 69 69 80 81 03 55 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 26 CC 04 05 6F 00 00 05 44 05 43 05 47 05 47 7F DB 00 00 00 00 00 00 00 26 D9 33 19 34
0C 00 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F7 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 0A 00 00 20 00 24 00 FF 22 7D FF FF 80 89 67 67 80 81 03 65 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 27 CC 04 05 73 00 00 05 45 05 47 05 49 05 48 7F D5 00 00 00 00 00 00 00 26 D9 3D 1E 35
0C 03 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 17 00 00 20 00 24 00 FF 22 7D FF FF 7F 89 67 67 80 81 03 80 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 28 CC 04 05 6F 00 00 05 47 05 48 05 4B 05 4E 7F D5 00 00 00 00 00 00 00 26 D9 3D 1E 37
0C 03 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 20 00 00 20 00 24 00 FF 22 7D FF FF 80 89 68 68 80 81 03 9E 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 29 CC 04 05 74 00 00 05 49 05 4B 05 4C 05 4C 7F D8 00 00 00 00 00 00 00 26 D9 3D 1E 39
0C 03 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 25 00 00 20 00 24 00 FF 22 7D FF FF 7F 89 67 67 80 81 03 C4 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 2A CC 04 05 76 00 00 05 4A 05 4A 05 4C 05 4E 7F DB 00 00 00 00 00 00 00 26 D9 3D 1E 3B
0C 04 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 33 00 00 20 00 24 00 FF 22 7D FF FF 7F 89 68 68 80 81 03 F7 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 2B CC 04 05 75 00 00 05 4A 05 4C 05 4D 05 4D 7F DE 00 00 00 00 00 00 00 26 D9 3D 1E 3E
0C 04 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
00 00 2E 41 00 00 20 00 24 00 FF 22 7D FF FF 7F 89 69 6A 80 81 04 50 10 00 00 00 00 00 00 00 00
00 00 00 00 00

71 02 01 2C CC 04 05 79 00 00 05 4D 05 4B 05 52 05 52 7F D8 00 00 00 00 00 00 00 25 DA 3E 1E 44
0A 04 C0 00 00 00 00 00 26 00 00 00 25 00 00 00 25 00 0F F6 00 00 00 00 00 0F 00 00 00 00 00 00
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00 00 2E 60 00 00 20 00 24 00 FF 22 7D FF FF 7E 89 55 53 80 81 05 DB 10 00 00 00 00 00 00 00 00
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00 00 00 00 00

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71 05 01 CC 00 00 00 00 FF FF FE FE FD FD FD FD FC FA FA F9 F8 F7 F6 F5 F3 F1 F0 EE ED EC EB EA
E9 E8 E7 E5 E5 E4 E3 E1 E0 DF DE DD DC DB DA D9 D8 D7 D7 D6 D5 D5 D4 D4 D3 D2 D2 D1 D1 D0 D0 CF
CE CE CD CD CD CD CC CC CC CC CB CB CB CB CB CB CA CA CA CA CA CA CA CA CA CA CA CA CA CA CA C9
C9 C9 C9 C9 C9 C9 C9 C8 C8 C8 C8 C8 C8 C8 C7 C7 C7 C7 C7 C7 C7 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6
C6 C6 C6 C6 C6 C6 C6 C6 C6 C7 C7 C7 C7 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 00 00 00 00 00
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71 0E 01 CC 00 00 00 00 FF FE FD FD FC FA F9 F9 F7 F4 F2 F0 ED EA E8 E6 E5 E3 E2 E0 DE DC DB D9
D7 D5 D2 D0 CE CC CA C9 C7 C5 C4 C3 C3 C2 C2 C1 C1 C0 C0 BF BF BE BE BD BD BD BC BC BC BC BB BB
BA BA BA B9 B9 B9 B9 B8 B8 B8 B8 B8 B7 B7 B7 B7 B6 B6 B6 B6 B6 B5 B5 B5 B5 B5 B5 B4 B4 B4 B4 B4
B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B3 B3 B3 B3 B3 B2 B2 B2 B2 B2 B2 B2
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00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 02 57 81

58 1F D4 2A E0 D4 15 E0 D4 14 E0 C1 77 E0 C1 75 E0 C1 72 E0 C1 73 E0 C1 76 E0 C1 71 E0 C1 70 E0
D1 B0 E0 D1 AD E0 C1 74 E0 9C 4E E0 9B 22 E0 9B 1A E0 9C 29 E0 9C 2D E0 9B 02 E0 9B 06 E0 9B 0E
E0 9B 0A E0 9C 49 E0 A7 5E E0 9B 12 E0 9C 3A E0 9B 94 E0 9B 8E E0 9C DC 60 9B 55 E0 9B 51 E0

57 01 D4 2A E0 00 FF FF FF FF 03 00 00 93 FF FF FF C6 8E 67

57 01 D4 15 E0 00 FF FF FF FF 03 00 01 2B FF FF FF C6 8E 61

57 01 D4 14 E0 00 FF FF FF FF 03 00 00 97 FF FF FF C6 8E 63

57 01 C1 77 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 C1 75 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 C1 72 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 C1 73 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 C1 76 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF
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57 01 C1 71 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 C1 70 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 D1 B0 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 D1 AD E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 C1 74 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9C 4E E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 22 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 1A E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9C 29 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9C 2D E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 02 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 06 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 0E E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 0A E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9C 49 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 A7 5E E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 12 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9C 3A E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 94 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 8E E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9C DC 60 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 55 E0 00 FF FF FF FF 02 00 00 00 FF FF FF FF FF FF

57 01 9B 51 E0 00 FF FF FF FF 03 00 00 00 FF FF FF FF FF FF

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