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**Natasha Rostova, as Personal Representative of the Estate of
Nicholas Rostova**

vs.

Owen Williams and Carolina Beverage Distributor, LLC

The Foundation of the American Board of Trial Advocates

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Natasha Rostova, as Personal Representative of the Estate of Nicholas Rostova
vs.
Owen Williams and Carolina Beverage Distributor, LLC

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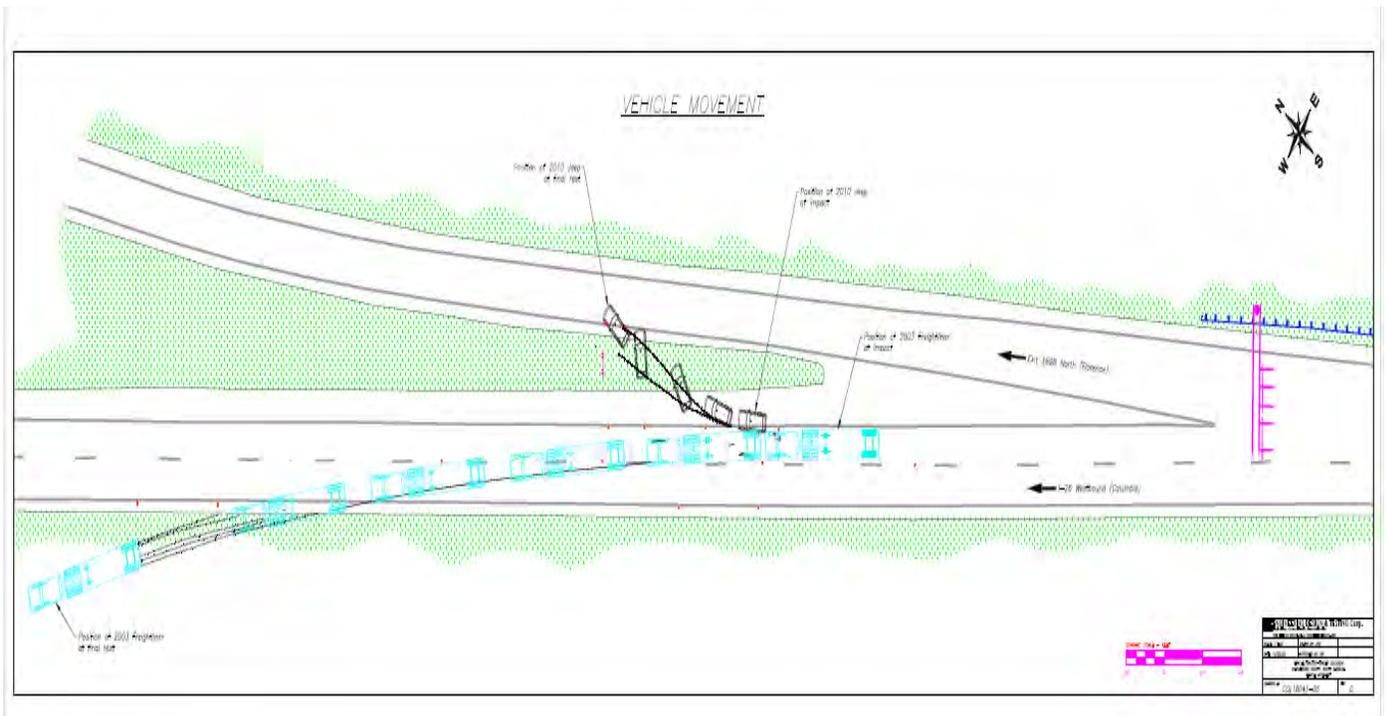
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Fact Pattern

This is a wrongful death case brought on behalf of the Estate of the decedent Nicholas Rostova, a long-haul truck driver, against Owen Williams and his employer, Carolina Beverage Distributors, LLC (“CBD”), arising out of a vehicular accident that occurred on September 9, 2019, on I-26 westbound just past the I-95 intersection. The venue is state court, Orangeburg County.

- **The Accident**

At 4:40 AM on September 9, 2019, Nick Rostova, age 58, was driving his tractor trailer westbound on I-26 when he struck a disabled vehicle, a 2010 Blue Jeep Liberty, that had come to rest on I-26, partly in the right lane of travel. The collision caused Mr. Rostova’s rig to cross over the left westbound lane and enter the heavily wooded median, where it slammed into a large pine tree and immediately caught fire. Mr. Rostova, who was not belted, was killed in the accident.



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The vehicle Mr. Rostova hit was being operated by Owen Williams, a 24-year-old Regional Sales Representative for CBD. Mr. Williams was on his way to an 8:00 A.M. sales meeting in Charlotte North Carolina and was at the time of the accident acting within the course and scope of his employment with CBD. A short time before being hit by Mr. Rostova's truck, Mr. Williams' 2010 Jeep Liberty had run into the back of an unknown vehicle also headed westbound on I-26. The collision left the 2010 Jeep disabled and partially in the right lane of travel. According to eyewitnesses, the Jeep was difficult to see, because it was dark in color and had no lights on. At least two drivers had to swerve to miss it and called 911 reporting the disabled Jeep partly protruding into the right lane of travel, before it was struck at highway speed by Mr. Rostova's tractor trailer.

Frontal Impact Damage to Jeep from First Collision



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Location of Jeep in Roadway After 1st Impact



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Location of Jeep after 2nd Impact



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2nd Impact Damage



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2nd Impact Damage



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Mr. Williams was interviewed by the SC Highway Patrol after the accident and told the investigating officer that he was on his way to a meeting in Charlotte and “ran up” onto a vehicle of some kind in front of him that he didn’t see until it was too late. He claimed that he was driving around 55-60 miles an hour in the right lane, and that he was in heavy fog. Suddenly he saw lights in front of him, hit his brakes, and struck the rear of something that he assumed was a tractor trailer. His airbag deployed, he hit his head and face on “something hard,” and momentarily lost consciousness. When he came to, he noticed that there were no lights on in his Jeep. While he was still sitting in the Jeep, he was hit from behind by Mr. Rostova’s truck. He estimates that “15 seconds” passed between the first and second collision.

The tractor-trailer driven by Plaintiff hit the disabled Jeep in its left rear corner. This likely caused a blowout of the front right tire, causing the driver to over-correct to the left, and run off the road into a large pine tree. Because the fuel tanks are external, there was a tank rupture and an immediate flash fire. The cab was engulfed with fuel fed fire, and destroyed in a matter of a few minutes. The driver was killed either in the collision or in the post-collision fire.



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Both Mr. Williams and Mr. Rostova were initially charged with driving too fast for conditions (fog). The charges against Mr. Rostova were dropped due to his death. Because the vehicle Mr. Williams hit did not stop and could not be located, all charges were dropped against Mr. Williams as well.

- The Event Data Recorders

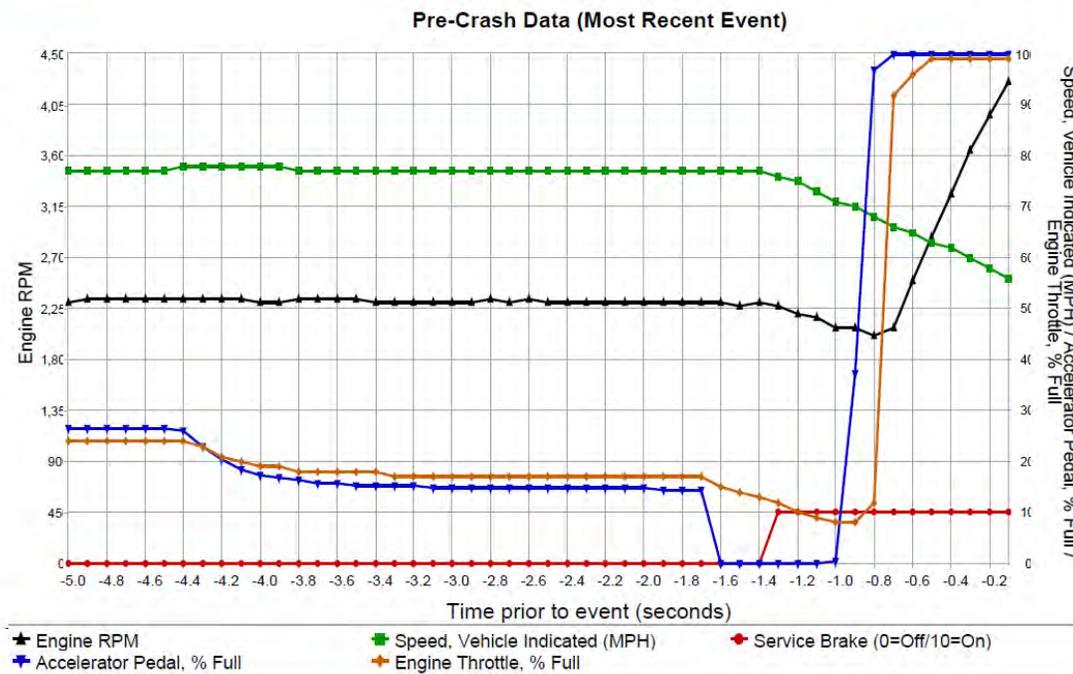
The EDR in Mr. Rostova's truck was destroyed by fire. No data could be recovered from it. A GPS device in his truck that downloaded information to the business website every 15 seconds recorded that he was going 57 miles an hour 15 seconds before the impact with the Jeep.

The EDR in Mr. Williams Jeep recorded him going 78 miles an hour, 4 seconds prior to the impact with the unknown vehicle, and noted first brake application 1.3 seconds before impact. It also noted that Mr. Williams was not wearing his seat belt, contrary to his sworn statement. There was no data recorded as to the second (rear) impact because the EDR in the Jeep was no longer energized. No skid marks were noted at the scene by either the Jeep or the truck, pre-impact. The truck had standard air brakes. There were tire marks on the road surface, post-impact, which assisted the experts in determining the location of the two vehicles (truck and Jeep). The speed limit on this stretch of I-26 is 70 mph.

Trailer Post-Fire



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SNA values will not be plotted on the graph

- The 911 Call – Carl Baxley

At approximately 4:36 AM, another truck driver, Carl Baxley, called 911 to report passing a dark colored Jeep SUV disabled on I-26 at mile marker 169 just past the exit to I-95 to Florence. He was driving his rig in the left lane, going west on I-26. Mr. Baxley told the 911 operator that two cars in front of him had to swerve into the left lane in order to miss the SUV, which is why he noticed it. It appeared to be partly on the shoulder and partly extending into the right lane, “maybe 4 feet or so.” Baxley saw no lights on in the Jeep. The Jeep appeared to be black in color. He did not see any debris in the road but did note as he passed the Jeep that it appeared to have some damage to the front end. He did not report any foggy conditions, although he stated it had been foggy earlier that morning. He estimated that he was going 65 miles an hour when he saw the Jeep and called 911.

He told the 911 operator that they needed to get the lane blocked off as soon as possible and that he would have hit the Jeep had he been in the right lane and not noticed the cars in front of him swerving to avoid it.

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Mr. Baxley then got on his radio and alerted other truckers to the hazard. A few minutes later, at 4:45 AM, another trucker for his company responded and said he had just passed mile marker 169 and that there was a tractor trailer rig on fire in the woods in the median, but he didn't see a Jeep. (*Note: The timing of these calls is inconsistent with Mr. Williams recollection of "15 seconds" between the two collisions.*)

- Owen Williams

Mr. Williams' deposition/sworn statement is attached. He testified that he was on his way to a sales meeting and was within his scope of employment when the accident occurred. Mr. Williams was driving a loaned vehicle because his company car was being repaired, from an earlier accident that was determined to be Mr. Williams' fault.

Mr. Williams is an aspiring country music singer and Instagram influencer. He has dozens of Instagram posts of videos of himself singing in his car while he is driving. CBD determined that he was videoing himself while he was driving when he got in an accident about two weeks before this one. After the subject accident, CBD fired him because it was company policy not to use a cell phone for any purpose while driving a company vehicle (see termination letter.) Mr. Williams denied recording himself that morning while driving to Charlotte but admitted that he was "singing into his phone" in his car to stay alert and had his phone in his hand when he ran into the vehicle in front of him.



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Mr. Williams has a criminal record – two prior felony convictions for possession of narcotics (Oxycodone) and writing bad checks, when he was 18, to which he plead guilty and received a six-month suspended sentence and 2 years of probation. He has had three prior car accidents, all of which were his fault, had three speeding tickets prior to being hired by CBD. CBD did a criminal background check, drug testing, and a driving record check of Mr. Williams before hiring him.

It remains undetermined as to what Mr. Williams hit in the first collision. There was yellow paint found on the front of the Jeep, from the impact. It was most likely the back bar of a trailer.

After the first collision, Mr. Williams assumed that he could not drive the Jeep, and did not try to start it. He recalled it being pitch black dark after the first collision. He smelled fluid and steam which he assumed was coming from the radiator of the Jeep. He did not smell gasoline. The first impact broke both headlights. He did not try to turn on his emergency flashers. The second impact broke out the left rear taillight and damaged the rear corner of the Jeep and knocked it into the exit lane.



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- Natasha Rostova (Plaintiff)

Mrs. Rostova's deposition/sworn statement is attached. She is Nick Rostova's wife and the representative of his Estate. She was in sporadic communication with Nick on the morning of the accident. He had driven the route from KapStone in North Charleston to the plant in Roanoke Rapids 2 or 3 times. She does not know why he did not take the exit to I-95 North

She acknowledges that Nick was a smoker, was overweight (334 lbs.), had high blood pressure, obstructive sleep apnea, used a CPAP machine to sleep, and occasionally complained of dizziness and blurred vision when he stood up too quickly. He was "slowing down," but still drove trucks on a weekly basis.

He had recently had his medical certification for his CDL license renewed by a different doctor than his personal physician. Mrs. Rostova does not know why Nick went to a different doctor for his CDL exam. She denies telling Nick that she wanted him to stop driving because of his health. Emails produced in discovery contradict this testimony (See Exhibit.).

From: Natasha Rostova<NRostova@RandRTransport.com

Sent: Monday, August 9, 2021 12:01 P.M.

To: Jana Petrovich<JPetrovich@RandRTransport.com; Alex Rostova<ARostova@RandRTransport.com

Subject: Your father

Janna,

Please stop scheduling your father for overnight trips. He is having difficulty sleeping and is worried about the Federal Investigation. He won't use his CPAP machine. He needs to be home before it gets dark. I don't want him driving at night anymore. His doctor just told him that his headaches and dizziness was due to something called, I don't know, hyperactive retina or something, having to do with his high blood pressure. Alex and Tom can handle the driving. You have to help me with this please. You know your father.

Natasha Rostova | President | R and R Transport

3109 SECOND STREET | Orangeburg, SC 29115

T 803.999.1234 | F 803.999.5678 | NRostova@RandRTransport.com | www.RandRTransport.com

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When she first learned of the accident, she was not informed that Nick had been killed. She is still very upset about his death, and believes he burned to death.

Their transport company has experienced lost earnings of approximately \$250k per year since Nick died. She testified that he intended to keep driving until he was 75 to 78 if he was able. She estimates the lost earnings at around \$2 Million dollars.

- James Adams (Coroner)

James Adams is the elected Coroner for Orangeburg County. He has been the Coroner for 25 years. He owns a funeral home in Orangeburg. He has no medical training, but he has 25 years of experience in determining cause of death. The medical examiner for Orangeburg County, Dr. Edwin Sparrow, is the forensic pathologist who performed the autopsy on Nick Rostova. Dr. Sparrow no longer works for Orangeburg County, and is currently on military duty overseas. Dr. Sparrow's report states that he concluded the cause of death was "thermal injuries," with "possible blunt trauma to the chest/head." The fire caused significant loss of tissue to Mr. Rostova's body. The medical examiner cited the presence of "soot in the throat, nose and mouth," and a carbon monoxide level in the blood of 18% as the primary reasons he determined that Mr. Rostova survived the impact with the tree but died as a result of thermal injuries due to the fire inside the cab of the truck.

Mr. Adams initially stated on the death certificate that the cause of death was "thermal injuries," but after his deposition in this case, he changed his conclusion to "indeterminate." He was not aware until seeing records in his deposition that Mr. Rostova was a smoker, which could account for the carbon monoxide levels in his blood. He acknowledged that he would have expected to see much higher CO levels (in excess 50%) if Mr. Rostova had been breathing in smoke and fumes during the fire. As for the soot found in the nose, mouth and throat, he acknowledged that pathology samples were collected but were not analyzed post-accident, because the medical examiner did not think it was necessary, given the obvious burn related trauma to Mr. Rostova's body. The dark material could have been dried blood from blunt force trauma to the chest or face. Unfortunately, these samples are no longer available.

He also noted that there was evidence that Mr. Rostova did not move from his initial point of rest inside the cab, post-accident. There was still hair on the back of Mr. Rostova's head where he was found lying against the passenger seat, which indicated he did not move during the fire, suggesting that he was at a minimum unconscious when the fire reached him.

The postmortem examination of Mr. Rostova's heart and coronary arteries showed them to be 80% occluded with plaque, heavily calcified, with significant collateral arterial branching

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indicative of chronic Coronary Artery Disease. Mr. Adams was not aware that Mr. Rostova suffered from obstructive sleep apnea. He has no opinion as to whether Mr. Rostova hit the Jeep because he was not sufficiently alert, or because he just didn't see the Jeep.

Mr. Adams agrees that it is possible that Mr. Rostova hit his head inside the cab, lost consciousness, and was unable to exit the cab before the smoke asphyxiated him. Asphyxiation is the most common cause of death in an uncontrolled vehicle fire when the victim is trapped inside, and it would explain all of the physical evidence he is aware of.

- Dr. Kimberly Stone

Dr. Stone is the doctor who issued the medical certification on Nick Rostova and recertified him for his CDL license approximately one month before his accident. Mr. Rostova did not fully disclose his past medical history to Dr. Stone. Had she been aware that Mr. Rostova suffered from occasional dizziness, possible hypertensive retinopathy, high blood pressure, obstructive sleep apnea and Coronary Artery Disease, she would not have re-certified him absent a treatment plan and a full heart work up by a cardiologist.

Dr. Stone practices in Mount Pleasant, South Carolina, and estimates that she probably does 5-6 CDL recertifications in a given week. Her nurse is responsible for the basic examination (blood pressure, vision, height, weight, hearing test.). The medical history comes from forms filled out by the patient. Dr. Stone reviews the forms and meets with the applicant for a cursory physical examination. She did not see anything in the medical history records that would have disqualified Mr. Rostova. High blood pressure alone would not prevent him from being recertified if he was taking appropriate blood pressure medication. Mr. Rostova did not tell her he was taking Ambien because he was having trouble sleeping. He did not disclose his sleep apnea issues. She is not 100% sure that she actually physically examined Mr. Rostova. She sees a lot of patients and doesn't do a hands-on examination for every CDL recertification. She estimates roughly half of the recertifications she does are simple record reviews. She has no independent memory of examining Mr. Rostova.

- John Middlebrooks – Conspicuity Expert (Plaintiff)

REPORT TO BE WRITTEN

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- Joe Davis – Trucking Expert (Defendant)

Mr. Davis is an experienced truck driver, a CDL instructor, and has served as Operations Manager for several large transport companies. He has over forty years of experience driving tractor trailer rigs and is familiar with the rules and regulations in South Carolina that apply to operation of tractor trailers on the roads and highways of the state. He has also been an insurance claims adjuster for Progressive Insurance Company and The Hartford Insurance Company. He has 20 years of safety training experience as a CDL instructor at Midlands Tech in Columbia, South Carolina. He also has training through Progressive and Hartford in fire investigations. He has read the MAIT report and the report of Joseph Middleton. He went to the accident scene on the anniversary of the accident at the approximate time (4 to 5 AM). He drove a fully loaded tractor trailer rig at 55MPH past the impact point and parked his own vehicle (a Black Chevy Silverado pickup truck) at the approximate location of the Jeep. When he saw the pickup truck, he applied his brakes, and was easily able to stop the truck 100 feet in front of the impact point.

In his opinion, South Carolina law requires all truck drivers to operate their rigs at an appropriate speed where they can avoid disabled vehicles in the road. He believes Mr. Rostova was negligent in failing to take reasonable actions to either stop his rig or steer slightly to the left to avoid striking the Jeep. He also is of the opinion that Mr. Rostova did not handle his rig properly after the collision and should not have lost control and left the roadway to the left.

STATE OF SOUTH CAROLINA	)	IN THE COURT OF COMMON PLEAS
)	
COUNTY OF ORANGEBURG	)	Civil Action No.: 2020-CP-83-72803
)	
Natasha Rostova, as Personal Representative)	
of the Estate of Nicholas Rostova,)	
)	
Plaintiff,	)	COMPLAINT
	)	<i>(Jury Trial Demanded)</i>
vs.)	
)	
Owen Williams and Carolina Beverage)	
Distributor, LLC,)	
)	
Defendants.)	
)	

Plaintiff, by and through Counsel, would respectfully show:

JURISDICTION AND VENUE

1. The Plaintiff is a citizen and resident of Charleston County, South Carolina, and is the duly appointed Personal Representative of the Estate of Nicholas Rostova.

2. Defendant Carolina Beverage Distributors, LLC (“CBD”) is a company organized and existing under the laws of the State of Delaware with its principal place of business in the State of North Carolina. Defendant CBD is vicariously liable for the negligence, acts, and/or omissions of its employees, agents, contractors, and staff. All allegations contained herein against Defendant CBD also refer to and include the actual and/or apparent agents, employees, and/or servants of Defendant CBD either directly or vicariously, under the principles of partnership, agency, apparent authority, corporate liability, ostensible agency, and respondeat superior. Upon information and belief, Defendant Owen Williams was acting as the employee, agent and/or servant for Defendant CBD and within the course and scope of said employment for Defendant CBD at all times relevant herein.

3. That, upon information and belief, Defendant Owen Williams is a citizen and resident of North Charleston County, South Carolina and was an employee, agent, contractor, or servant of Defendant CBD, LLC at the time of the events alleged herein. Defendant Williams was acting within the course and scope of said employment or agency for Defendant CBD at the time of the subject automobile collision. Defendant CBD is vicariously liable for the acts and/or omissions of Defendant Williams pursuant to the doctrine of respondeat superior.

4. Defendant CBD is subject to the jurisdiction of this court in that this Defendant transacted and continues to transact business in this State and/or distributed goods and services with the reasonable expectation that those goods and services would be used in this State and the goods and services were used in this State. Such business operations by Defendant CBD had an impact on the commerce of South Carolina and made it reasonably foreseeable that such transactions would have consequences in the State of South Carolina. Defendant CBD is subject to the jurisdiction of this court as having committed tortious acts in whole or in part in this State. Personal jurisdiction against Defendant CBD is proper pursuant to South Carolina's Long-Arm Statute.

5. The parties to this action and the acts and omissions complained of herein are subject to the jurisdiction of this Court and venue is proper in Orangeburg County.

6. The automobile collision occurred in Orangeburg County, South Carolina.

FACTS

7. On September 9, 2019, Defendant Owen Williams was operating a 2010 Jeep Liberty in a westerly direction on Interstate 26 when he struck the rear of another unknown vehicle, (the "first collision"). Upon information and belief, Defendant Owen Williams

was exceeding the posted speed limit prior to striking the rear of the other vehicle and driving too fast for foggy conditions. He was also using his cell phone at the time of the first collision.

8. At the time of this impact, Defendant Owen Williams was acting as an employee for Defendant CBD and was acting within the course and scope of said employment for Defendant CBD.

9. As a result of Defendant Owen Williams striking the rear of the other vehicle, the 2010 Jeep Liberty was left disabled, partially extending into the right lane of Interstate 26. Defendant Owen Williams' negligence was responsible for causing the first collision between the 2010 Jeep Liberty and the rear of the unknown vehicle.

10. That thereafter, Plaintiff's Decedent Nicholas Rostova was operating a tractor-trailer in a westerly direction on Interstate 26 and struck the left rear corner of the disabled 2010 Jeep Liberty, because he was unable to see Mr. Williams' vehicle. As a result of the impact with the 2010 Jeep Liberty, the tractor-trailer being driven by Nicholas Rostova left the roadway, entered the Interstate 26 median, and caught fire.

11. Defendant Owen Williams was responsible for causing the collision between the 2010 Jeep Liberty and Nicholas Rostova's tractor-trailer, in that he caused the first collision, and failed to move the Jeep out of the lane of travel, or take any action to warn traffic behind him of the danger.

12. That as a result of the above event, Nicholas Rostova suffered fatal injuries.

13. Prior to his death, Nicholas Rostova endured conscious pain and suffering, physical and mental pain and suffering, mental anguish, extreme fright, shock, and knowledge of his impending death by fire.

14. Nicholas Rostova's statutory heirs and/or estate beneficiaries have suffered the following injuries and damages:

- a. Pecuniary loss;
- b. Mental shock and suffering;
- c. Wounded feelings;
- d. Grief and sorrow;
- e. Loss of companionship; and
- f. Loss of Nicholas Rostova's experience, knowledge and judgment.

FOR A FIRST CAUSE OF ACTION

(Negligence and Recklessness)

15. Plaintiff restates and realleges each and every allegation as if repeated herein verbatim.

16. Defendant Owen Williams had a duty to operate his vehicle in a reasonable manner and to comply with the laws and rules governing the operation of vehicles on South Carolina roadways.

17. The injuries and damages incurred by Plaintiff, Nicholas Rostova, and the wrongful death beneficiaries and heirs were directly and proximately caused by Defendant Owen Williams' careless, negligent, willful, grossly negligent, reckless and/or wanton acts in one or more of the following particulars:

- a. In traveling at an excessive speed given the circumstances;
- b. In failing to maintain a safe distance of travel between his vehicle and the unknown vehicle in front of him;
- c. In failing to keep a proper lookout;

- d. In failing to operate his vehicle at a safe speed;
 - e. In failing to comply with the operating, safety, and training rules of his employer;
 - f. In failing to comply with the applicable rules of road;
 - g. In causing a collision with Nicholas Rostova's vehicle;
 - h. In failing to steer or take other evasive action so as to avoid the collision with the unknown vehicle;
 - i. In failing to properly apply his brakes or maintain the same;
 - j. In failing to adhere to CBD policies and procedures that would have prevented the injuries and damages suffered by Plaintiff and Plaintiff's Decedent;
 - k. In failing to observe the condition of traffic;
 - l. In operating his vehicle while distracted by use of his cell phone;
 - m. In failing to take reasonable steps to warn oncoming traffic of the position of his vehicle, or move his vehicle out of the travel lane;
 - n. In failing to exercise the degree of care which a reasonably prudent person would have exercised under the same or similar circumstances; and
 - o. In such other and further particulars as may be ascertained during the course of discovery or trial of this case.
18. Defendant Owen Williams' careless, negligent, grossly negligent, willful, wanton, reckless and unlawful acts were the direct and proximate cause of the collisions, the death of Nicholas Rostova and resulting injuring and damages to the Plaintiff, the statutory heirs, and the estate's beneficiaries.
19. Plaintiff seeks actual and punitive damages under this cause of action.

20. Defendant CBD is vicariously liable for the acts and/or omissions, negligence and recklessness of Owen Williams under the doctrine of respondeat superior.

FOR A SECOND CAUSE OF ACTION

(Negligence Per Se)

21. Plaintiff incorporates by reference, as if fully set forth, each and every allegation in the preceding paragraphs.

22. Defendant Owen Williams had a duty to operate his vehicle in compliance with state and federal laws, rules, regulations, and guidelines designed to protect the health and safety of all persons traveling on the highway and failed to comply with state laws, rules, regulations, and guidelines.

23. Defendant Owen Williams was negligent per se in violating the following statutes:

- a. S.C. Code § 56-5-730 which relates to required obedience to traffic laws;
- b. S.C. Code § 56-5-1520(A) which relates to driving a speed that is reasonable and prudent under the conditions and so as to avoid colliding with another vehicle;
- c. S.C. Code § 56-5-1930 which relates to following too closely;
- d. Any other regulations or laws which were violated as ascertained during the course of discovery.

24. These laws prescribe certain actions and define certain standards of conduct. Nicholas Rostova was in the class of persons sought to be protected by these laws. The injuries and damages to Nicholas Rostova and Plaintiff represent the type of harm the statutes were intended to prevent. To the extent Defendant Owen Williams' conduct violated these statutes, such conduct constitutes negligence per se.

25. Defendant Owen Williams' negligence per se was the proximate cause of the fatal injuries to Nicholas Rostova and the injuries and damages to the Plaintiff. Plaintiff seeks actual and punitive damages under this cause of action.

26. Defendant CBD is vicariously liable for the negligence per se of Defendant Owen Williams under the doctrine of respondeat superior.

FOR A THIRD CAUSE OF ACTION

(Negligent Hiring, Training, Supervision, and Retention as to Defendant CBD)

27. Plaintiff incorporates by reference, as if fully set forth, each and every allegation in the preceding paragraphs.

28. Plaintiff is informed and believes that Defendant CBD was negligent, careless, reckless, wanton, and grossly negligent at the time and place hereinabove mentioned in the following particulars:

- a. In failing to have in place policies and procedures to properly, hire, train, retain, supervise and/or monitor its drivers, including Defendant Owen Williams, or if such procedures were in place, in failing to enforce them;
- b. In failing to have in place adequate policies and procedures to mandate compliance by its drivers, including Defendant Owen Williams, with statutes, laws, and regulations regarding the operation of motor vehicles, or if such policies and procedures were in place, in failing to enforce them;
- c. In failing to have in place an adequate safety program for the safety and protection of the motoring public, or if such program was in place, in failing to implement it;
- d. In failing to properly investigate Defendant Owen Williams' driving and criminal record and/or ability to drive to ensure that Defendant Owen Williams possessed

the requisite skill, judgment and attention to maintain control of and ability to drive a vehicle in the course of his employment for Defendant CBD.

- e. In generally failing to use the degree of care and caution that a reasonably prudent entity would have used under the same or similar circumstances.

29. Defendant CBD's negligence was a proximate cause of Nicholas Rostova's death, and Plaintiff's injuries and damages. Plaintiff seeks actual and punitive damages under this cause of action.

FOR A FOURTH CAUSE OF ACTION

(Wrongful Death)

30. Plaintiff incorporates by reference, as if fully set forth, each and every allegation in the preceding paragraphs.

31. Plaintiff brings this action pursuant to S.C. Code Ann. § 15-51-10, et seq. for the benefit of Decedent's statutory heirs.

32. As a result of the careless, negligent, grossly negligent, willful, reckless and/or wanton acts and/or omissions of Defendant Owen Williams, as an employee of Defendant CBD, Nicholas Rostova suffered fatal injuries and died on September 9, 2019.

33. Plaintiff Natasha Rostova, as Personal Representative of the Estate of Nicholas Rostova, as well as his statutory heirs have suffered, and will suffer in the future:

- a. Loss of society and companionship;
- b. Emotional distress;
- c. Mental anguish;
- d. Grief; shock, and sorrow;
- e. Mental shock and suffering;

- f. Wounded feelings; and
 - g. Loss of Nicholas Rostova's experience, knowledge and judgment.
34. Plaintiff is entitled to recover actual and punitive damages on behalf of Decedent Nicholas Rostova's statutory heirs.

FOR A FIFTH CAUSE OF ACTION

(Survival Action)

35. Plaintiff incorporates by reference, as if fully set forth, each and every allegation in the preceding paragraphs.
36. Plaintiff brings this action pursuant to S.C. Code Ann. §15-5-90 for the benefit of Decedent's estate.
37. As a result of the above-described acts and/or omissions of Defendants, Nicholas Rostova was fatally injured and died in the ensuing fire. As a direct result of the negligence, gross negligence, willfulness, recklessness and/or wantonness of Defendants, Decedent endured severe physical pain, suffering, mental anguish, emotional distress, knowledge of impending death, and impairment of bodily efficiency before his death.
38. Plaintiff is entitled to recover damages for the injuries Decedent was forced to endure prior to his death.

DAMAGES

39. The Plaintiff seeks to recover a sum that will fairly and fully compensate the statutory heirs and estate beneficiaries for actual damages caused by Defendants.
40. As a direct result of the willfulness, wantonness, and recklessness of the actions of Defendants, Plaintiff further seeks an award of punitive damages in a sum sufficient to

punish and deter the conduct of Defendants. Plaintiff seeks punitive damages in an amount that is determined to be reasonable and fair by a jury of Plaintiff's peers.

JURY DEMAND

41. Plaintiff demands that all causes of action may be tried before a jury be so tried.

WHEREFORE, Plaintiff prays for judgment against Defendants in a sum sufficient to adequately compensate the statutory heirs and estate beneficiaries for actual damages, punitive damages, the costs of this action, pre-judgment interest, post-judgment interest, attorneys' fees, and any relief a jury may award, and for such other and further relief as this Court may deem just and proper.

DEFENDANTS AND THEIR ATTORNEYS ARE HEREBY NOTIFIED THAT PLAINTIFF HAS SERVED INTERROGATORIES AND REQUESTS FOR PRODUCTION WITH THE SUMMONS AND COMPLAINT. RESPONSES TO THESE DISCOVERY REQUESTS ARE DUE WITHIN 45 DAYS PER RULES 33(a) & 34(b), SCRPC. IF DEFENSE COUNSEL LACKS COPIES OF ANY DISCOVERY REQUEST, HE/SHE IS ADVISED TO CONTACT PLAINTIFF'S COUNSEL IMMEDIATELY TO OBTAIN.

Respectfully Submitted,

TAKE NO PRISONERS LAW GROUP LLC

By: s/ Mitch McDeer _____

Mitch McDeer
123 Huger Street, Suite A
Columbia, South Carolina 29201
803.726.1234

STATE OF SOUTH CAROLINA	)	IN THE COURT OF COMMON PLEAS
)	
COUNTY OF ORANGEBURG	)	Civil Action No.: 2020-CP-83-72803
)	
Natasha Rostova, as Personal Representative of the Estate of Nicholas Rostova,)	
)	
Plaintiff,	)	ANSWER OF CAROLINA
	)	BEVERAGE DISTRIBUTORS, LLC
vs.	)	AND OWEN WILLIAMS
	)	<i>(Jury Trial Demanded)</i>
Owen Williams and Carolina Beverage Distributor, LLC,)	
)	
Defendants.)	
)	

Defendants Carolina Beverage Distributors, LLC (“CBD”) and Owen Williams (“Williams”) (collectively referred to as “Defendants”) jointly answer the Complaint as follows:

FOR A FIRST DEFENSE

1. Each and every allegation of the Complaint not specifically admitted is denied.

FOR A SECOND DEFENSE

2. Defendants lack sufficient knowledge or information regarding the truth of the allegations of Plaintiff’s alleged citizenship and demands strict proof. Based on information and belief, Defendants admit that Natasha Rostova has been appointed Personal Representative for the subject Estate.

3. Defendants admit the allegations of the first sentence of Paragraph 2 of the Complaint. Defendants assert the remaining allegations of Paragraph 2 of the Complaint call for legal conclusions and do not require a response.

4. Answering the first sentence of Paragraph 3 of the Complaint, Defendants admit that Williams is a Charleston citizen and resident and was an employee of CBD at the

time of the accidents alleged in the pleadings. Defendants assert the remaining allegations of this paragraph call for legal conclusions and do not require a response.

5. Defendants assert Paragraph 4 of the Complaint calls for legal conclusions and does not require a response. Defendants do not currently challenge jurisdiction in this matter.

6. Defendants assert Paragraph 5 of the Complaint calls for legal conclusions and does not require a response. Defendants do not currently challenge jurisdiction or venue in this matter.

7. Defendants admit the allegations of Paragraph 6 of the Complaint regarding where the two collisions occurred.

8. Answering Paragraph 7 of the Complaint, Defendants admit that on the date and place alleged, Williams was operating a Jeep Liberty in a westerly direction when he was involved in an initial accident with an unknown vehicle. Answering the second sentence of Paragraph 7 of the Complaint, Williams does not recall traveling in excess of the posted speed limit prior to the initial accident.

9. Defendants assert Paragraph 8 of the Complaint calls for legal conclusions and does not require a response.

10. Answering the first sentence of Paragraph 9 of the Complaint, Defendants admit that the vehicle driven by Williams became disabled partially in the right lane of travel after the initial accident caused by the unidentified vehicle. Defendants deny the allegations of the second sentence of Paragraph 9 of the Complaint.

11. Answering paragraph 10, Defendants admit Nicholas Rostova was traveling behind Williams in a westerly direction on I-26 when he negligently collided into Williams' vehicle. After the impact, Williams has no recollection of where Plaintiff's vehicle went.

Defendants admit that Mr. Rostova passed away as a result of the second accident. Based on information and belief, Mr. Rostova was driving for R&R Transport, Inc. and/or KapStone Charleston at the time of the second accident. Defendants deny all other allegations inconsistent herein, demanding strict proof thereof.

12. Defendants deny the allegations of Paragraph 11 of the Complaint, demanding strict proof thereof.

13. Answering Paragraph 12 of the Complaint, Defendants reference their responses to other paragraphs of the Complaint and Defendants deny that either Defendant was responsible for or caused either accident. Further answering this paragraph, Defendants admit that Nicholas Rostova suffered fatal injuries as a result of the second accident.

14. Defendants lack sufficient knowledge or information regarding the truth of the allegations of Paragraph 13 of the Complaint and demand strict proof.

15. Defendants lack sufficient knowledge or information regarding the truth and/or extent of the allegation of damages alleged in Paragraph 14 of the Complaint and demand strict proof. Subject to this response, Defendants acknowledge and anticipate that Nicholas Rostova's family members and/or heirs would have suffered mental shock and suffering, wounded feelings, grief and sorrow, loss of companionship and loss of Mr. Rostova's experience, knowledge, and judgment. Defendants have no knowledge of the pecuniary loss to any specific statutory heir and/or estate beneficiary and demand strict proof. Defendants deny liability for said injuries and damages, demanding strict proof thereof.

16. Defendants assert they are not required to respond to Paragraph 15 of the Complaint but, to the extent they are, Defendants reassert and re-allege each and every other allegation of their pleadings as if repeated herein verbatim.

17. Defendants assert Paragraph 16 of the Complaint calls for a legal conclusion and does not require a response.

18. Defendants deny the allegations of Paragraph 17 of the Complaint, including all subparts, demanding strict proof thereof.

19. Defendants deny Paragraph 18 of the Complaint.

20. Answering Paragraph 19 of the Complaint, Defendants admit the Complaint prays for actual and punitive damages, but Defendants deny that Plaintiff is entitled to any such relief from Defendants.

21. Defendants object to Paragraph 20 of the Complaint on the grounds it calls for legal conclusions and does not require a response.

22. Defendants assert they are not required to respond to Paragraph 21 of the Complaint but, to the extent they are, Defendants reassert and re-allege each and every other allegation of their pleadings as if repeated herein verbatim.

23. Defendants assert Paragraph 22 of the Complaint calls for legal conclusions and does not require a response. Defendants further object to this paragraph to the extent that it seeks to extend the legal duties of South Carolina beyond the applicable law and/or utilize the reptile

theory. Defendants deny they caused either accident.

24. Defendants assert Paragraph 23 of the Complaint calls for legal conclusions and does not require a response. Defendants deny they caused either accident, demanding strict proof thereof.

25. Defendants assert Paragraph 24 of the Complaint calls for legal conclusions and does not require a response. To the extent it does, Defendants deny, demanding strict proof

thereof.

26. Defendants deny Paragraph 25 of the Complaint, demanding strict proof thereof.

27. Defendants object to Paragraph 26 of the Complaint on the grounds it calls for legal conclusions and does not require a response.

28. Defendants assert they are not required to respond to Paragraph 27 of the Complaint but, to the extent they are, Defendants reassert and re-allege each and every other allegation of their pleadings as if repeated herein verbatim. To the extent it does, Defendants deny, demanding strict proof thereof.

29. Defendants deny Paragraph 28 of the Complaint including all subparts, demanding strict proof thereof.

30. Defendants deny Paragraph 29 of the Complaint, demanding strict proof thereof.

31. Defendants assert they are not required to respond to Paragraph 30 of the Complaint but, to the extent they are, Defendants reassert and re-allege each and every other allegation of their pleadings as if repeated herein verbatim.

32. Defendants object to Paragraph 31 of the Complaint on the grounds it calls for legal conclusions and does not require a response.

33. Defendants deny Paragraph 32 of the Complaint, demanding strict proof thereof.

34. Defendants lack sufficient knowledge or information regarding the truth
and/or

extent of the allegations of Paragraph 33 of the Complaint and demand strict proof. Subject to this response, Defendants acknowledge and anticipate that Nicholas Rostova's family members and/or heirs would have suffered mental shock and suffering, wounded feelings, grief and sorrow, loss of companionship and loss of Nicholas Rostova's experience, knowledge, and

judgment. Defendants have no knowledge of the pecuniary loss to any specific statutory heir and/or estate beneficiary and demand strict proof. Defendants deny liability for said injuries and damages, demanding strict proof thereof.

35. Defendants deny Paragraph 34 of the Complaint, demanding strict proof thereof.

36. Defendants assert they are not required to respond to Paragraph 35 of the Complaint but, to the extent they are, Defendants reassert and re-allege each and every other allegation of their pleadings as if repeated herein verbatim.

37. Defendants object to Paragraph 36 of the Complaint on the grounds it calls for legal conclusions and does not require a response.

38. Defendants deny Paragraph 37 of the Complaint, demanding strict proof thereof.

39. Defendants deny Paragraph 38 of the Complaint, demanding strict proof thereof.

40. Answering Paragraph 39 of the Complaint, Defendants admit that Plaintiff is seeking to recover monies for actual damages but deny that Plaintiff is entitled to any such relief from Defendants.

41. Answering Paragraph 40 of the Complaint, Defendants admit that Plaintiff has prayed for punitive damages but deny that Plaintiff is entitled to any such relief from Defendants and further deny any allegations of alleged willfulness, wantonness and/or recklessness.

42. Answering Paragraph 41 of the Complaint, Defendants admit Plaintiff has demanded a jury trial and Defendants join Plaintiff in that demand.

43. Defendants deny Plaintiff is entitled to any relief requested in the **“WHEREFORE”** paragraph of the Complaint.

44. Defendants assert the last paragraph of the Complaint, which is in all caps and

bold, is inappropriate and should be stricken from the Complaint pursuant to Rules 8 and 12(f) of the South Carolina Rules of Civil Procedure as this paragraph deals solely with Plaintiff serving discovery and in no way relate to the Complaint.

FOR A THIRD DEFENSE
(Sole Negligence of Plaintiff)

45. Defendants allege any injury and damage sustained by Plaintiff were due to and caused by the sole negligence and/or willfulness of Nicholas Rostova and, therefore, Defendants are not liable to Plaintiff for any sum whatsoever. Based on information and belief, after Defendant Williams's vehicle became disabled on the roadway due to the fault of an unidentified third party, Nicholas Rostova, a professional and commercial driver, failed to avoid Defendant Williams, despite the fact that several commercial and non-commercial drivers were able to do so after Mr. Williams became disabled. Defendants specifically assert that Nicholas Rostova failed to follow his professional training, failed to keep a proper lookout, was driving too fast for conditions and/or was distracted in some way which caused him to strike Defendant Williams' vehicle while other drivers were able to avoid such a collision. Discovery in this case has just begun and Defendants reserve the right to supplement the factual support for this affirmative defense at a later time.

FOR A FOURTH DEFENSE
(Comparative Negligence of Plaintiff)

46. Defendants plead the law and doctrine of comparative negligence and allege the negligence and recklessness of Nicholas Rostova was greater than the negligence, if any, which might be established against Defendants and, therefore, Plaintiff is barred from any recovery in this action. Defendants further allege any injury and damage sustained by Plaintiff was due to and caused by the negligence and/or willfulness of Nicholas Rostova

combining, concurring, and contributing with the negligence and/or willfulness, if any, on the part of Defendants and, therefore, any amount of recovery awarded to Plaintiff for the injuries and damages alleged in the Complaint shall be reduced by the Court by the percentage of negligence and/or willfulness attributed to Plaintiff. Based on information and belief, after Defendant Williams' vehicle became disabled on the roadway due to the fault of another vehicle, Nicholas Rostova, a professional and commercial driver, failed to avoid Defendant Williams despite the fact that several commercial and non-commercial drivers were able to do so after Mr. Williams became disabled. Defendants specifically assert that Nicholas Rostova failed to follow his professional training, failed to keep a proper lookout, was driving too fast for conditions and/or was distracted in some way which caused him to strike Defendant Williams' vehicle while other drivers were able to avoid such a collision. Discovery in this case has just begun and Defendants reserve the right to supplement the factual support for this affirmative defense at a later time.

FOR A FIFTH DEFENSE
(Third Party Negligence)

47. Defendants allege, upon information and belief, that any injury and damage sustained by Plaintiff were due to and caused by the sole and negligent acts or omissions of some other person or persons other than Defendants over whom Defendants neither had nor exercised any authority or control, and, therefore, Defendants are not liable to Plaintiff for any sum whatsoever. Defendant Williams' vehicle became disabled due to negligence, gross negligence and/or recklessness of an unidentified vehicle in causing the initial accident which occurred before Defendant Williams was last struck by Plaintiff's decedent. Defendant Williams' first accident was caused by the acts and/or omissions of an unidentified vehicle, a third party driving a vehicle which subsequently fled the scene. Defendants assert that this unidentified vehicle

wrongfully entered into Defendant Williams's direction of travel from an improper direction and failed to yield the right of way to Defendant Williams then fled the scene. This initial collision injured Defendant Williams, disabled Defendant Williams' vehicle, and rendered Defendant Williams at least momentarily unconscious and/or unable to operate his vehicle.

FOR A SIXTH DEFENSE
(Intervening and Superseding Negligence)

48. Defendants would allege and show that any injury and damage claimed by the Plaintiff was directly and proximately caused by the intervening and superseding the acts of negligence, willfulness and gross negligence of parties and/or non-parties other than these Defendants. Defendant Williams' vehicle became disabled due to negligence, gross negligence and/or recklessness of an unidentified third party in causing the initial accident which occurred before Defendant Williams was late struck by Plaintiff's decedent. Defendant Williams' first accident was caused by the acts and/or omissions of a third party driving a vehicle which subsequently fled the scene. Defendants assert that this third party wrongfully entered into Defendant Williams' direction of travel from an improper direction and failed to yield the right of way to Defendant Williams. The unidentified vehicle then fled the scene. This initial collision injured Defendant Williams, disabled Defendant Williams' vehicle, and rendered Defendant Williams at least momentarily unconscious and/or unable to operate his vehicle.

FOR A SEVENTH DEFENSE
(Unavoidable Accident)

49. Defendants would show that any injuries or damages sustained by Plaintiff that Plaintiff alleges was caused by an act or omission of Defendants was either caused by an intervening efficient act, omission or event or could not be avoided and was an

unavoidable accident.

FOR AN EIGHTH DEFENSE

(Sudden Emergency)

50. Defendants allege that at the time and place alleged in the Complaint, while through no fault of his own, he was placed in an unexpected emergency, and because of the unexpected emergency and sudden and negligent or intentional acts of another over which he had no control, Williams was required to act only as appeared to his best under the circumstances, considering the emergency in which he was placed. Williams acted in all respects in a careful and prudent manner and as any reasonable and prudent person would have acted under similar circumstances, for which reason the Defendants are not liable to Plaintiff in any sum whatsoever.

FOR A NINTH DEFENSE

(Punitive Damages)

51. Defendants are entitled to all caps and/or limitations of punitive damages and liabilities as set forth S.C. Code Ann. Sections 15-32-530 and 15-32-520 and other applicable state and federal law.

FOR A TENTH DEFENSE

(Punitive Damages Defenses Reserved)

52. Defendants reserves the right to assert that any finding punitive damages against Defendants violate Defendants' constitutional rights to due process and/or equal protection.

53. Defendants reserve the right to request bifurcation of punitive damages in the trial of this matter.

WHEREFORE, having fully answered, Defendants pray that the Complaint be dismissed, for the costs of defending this action, and for such other relief as the Court and jury deem just and proper.

**MCDANIEL, WILSON AND SALINGER,
LLC**

s/ J.D. Salinger

J.D. SALINGER (SC Bar No. xxxx)

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ATTORNEYS FOR DEFENDANTS CAROLINA
BEVERAGE DISTRIBUTORS, LLC AND
OWEN WILLIAMS

**SLIP SHEET/PLACEHOLDER FOR:
#006 – Witness and Exhibit List**

WITNESS STATEMENT OF NATASHA ROSTOVA

(Rostova vs. Carolina Beverage Distributors, LLC)

1 My name is Natasha Rostova. I go by Tasha. I am 48 years old. I am the wife of
2 Nicolas Rostova. Well, I should say I'm his widow. I can't get used to saying that. I'm
3 sorry. This is still very upsetting to me.

4 We were married in the Ukraine in 1989 and immigrated to the United States in
5 1990. Nick knew my family and was in the military with my older brother. That's how I met
6 him. He would come visit us when I was girl. I had a huge crush on him. He was very
7 handsome and ambitious, full of stories about leaving Ukraine and going to America. We
8 became sweethearts when I was 16. He wanted me to go with him to the US, but I was
9 too young. So, he went by himself, then came back to get me when I was 21. It was all
very romantic.

10 We have a son, Alex, who is 26 years old, and a daughter, Janna, who is 22 and
11 is married to Tom Petrovich, one of our drivers. Tom is from Ukraine too. Nick met him
12 at our church and gave him a job. We live in Summerville, South Carolina.

13 Nick was a commercial truck driver. When we moved to South Carolina, we started
14 a family business called R&R Transport. We started with one truck in 2006, and grew it
15 to four trucks by 2018. Alex is the Operations Manager, and I am now the President of
16 the company. Janna is our marketing director and dispatcher. Janna's husband Tom is
17 our other main driver. When Nick was alive, he was the President and founder of the
18 company. Our total revenue was approximately \$750,000 per year, before Nick died. I
19 estimate this year we will probably do about half that in total revenue.

20 Alex and Janna were both born in the United States. Nick became a U.S. citizen
21 in 1995, and I became a citizen in 2004. We are very proud of that.

22 Nick learned to drive trucks in the Ukraine, in the military. When he came to the
23 U.S., he drove anything he could get his hands on. He started as a truck driver in Boston,
24 driving for UPS, which he did from 1987 to 2006. In 2006, we moved to Charleston. Nick
25 had family in South Carolina, and we loved visiting, and we got involved with the Russian
26 Orthodox Church in Summerville, called St. Cyril's. So, we decided to leave Boston and
27 move here. We wanted to raise our family somewhere friendly and safe. We had saved
28 up enough money to start our own company, and we were successful.

In many ways, our business was the American dream, I guess you could say.
When Nick came to the U.S., he had nothing. We turned that into a profitable business
that supported our family and several others. We were very happy here.

WITNESS STATEMENT OF NATASHA ROSTOVA

(Rostova vs. Carolina Beverage Distributors, LLC)

1 Nick was an excellent professional driver, a good businessman, and a wonderful
2 husband and father. When he was on the road, which seemed like most of the time, he
3 always stayed in close touch with me. He did his best to be at family events, kid's sports,
4 church, first communions, graduations, as best he could. He was very proud that Alex
5 earned a degree in business from Charleston Southern University, and Janna got her
6 marketing degree from the Francis Marion University. Janna and Tom have a little boy,
7 Nicolas. They live right down the street from us. Nick loved being a grandfather.

8 The accident is still very difficult for me to talk about. Nick had a great driving
9 record. No accidents. None, in over 35 years of professional driving. Do you realize how
10 amazing that is, over 3 million of miles with no accidents, no safety violations, no speeding
11 or weight violation citations, no record keeping violations. That is unheard of in our
12 business. Nick was obsessed with safety, with doing things right and by the book. I think
13 that's because he loved nothing more than coming home after many days on the road
14 and being with us, and driving safely made that possible.

15 Nick was 58 years old when he was killed. He was looking forward to slowing down
16 and handing the reigns over to Alex and Tom. But he loved to drive. I don't think he would
17 have ever stopped, really, until he had to.

18 On the day he was killed, he was supposed to pick up a load at KapStone in North
19 Charleston and drive it to a KapStone mill in Roanoke Rapids North Carolina. We had
20 just gotten a general hauling contract from KapStone that put us in a great spot from a
21 business standpoint. That is not too bad a drive, and also enabled us to pick up return
22 loads and bring them back to Charleston. He left home around 2AM that day. Early
23 mornings were not very difficult for him. He enjoyed getting on the road early and getting
24 out before the traffic got bad.

25 He texted me from the KapStone Plant in North Charleston around 3AM, letting
26 me know that he had picked up his trailer there and would be home that afternoon. All a
27 driver can do is 11 hours per day, with two 30-minute rest stops. So that trip was perfect
28 for him.

The last text I got from him was around 4:15AM. I was asleep and didn't answer
him. He texted me that he was going to stop in Florence because he was making good
time, and wanted to stop and get something to eat.

I didn't hear anything else from him, which was odd, because he usually checks in

WITNESS STATEMENT OF NATASHA ROSTOVA

(Rostova vs. Carolina Beverage Distributors, LLC)

1 every hour or two by text. Around 5:30AM I got a frantic call from Janna, saying that she
2 had just received a call from the SC Transport Police, that there had been an accident on
3 I-26 just past the I-95 North exit, that involved one of our trucks. They had identified the
4 trailer but were unable to identify the tractor or the driver. They got the name of our
5 company from KapStone, and were calling us to determine who the driver was. We
6 confirmed that was our truck and Nick was the driver. I then got a call about 10 minutes
7 later from the South Carolina Highway Patrol, that they had determined that Nick was the
8 driver, was being taken to the hospital in Orangeburg.

9 I then got a call from the Coroner in Orangeburg, asking me if I would consent to
10 an autopsy. This was when I learned that Nick was dead. He said they had concerns
11 about Nick possibly having some kind of medical event that caused him to run off the
12 road. I was in shock, and didn't know what to say. I didn't see how that could have
13 happened.

14 Alex came to get me, and we drove to Orangeburg, which took us right by the
15 accident scene. While we were on our way, Alex got a call from someone wanting to know
16 why Nick never showed up. The Highway Patrol was still there. It was sickening. The
17 trailer was still there. The tractor was completely destroyed by the fire, all the way down
18 to just the engine and frame. Nick's body had been transported by ambulance to the
19 Orangeburg medical examiner's office, so we went there. They wouldn't let us see him.
20 The Highway Patrol had his wallet and his log-book, both were damaged by the fire, but
21 I could tell they were his. They had his cell phone too, but it was burned badly. The event
22 recorder on the truck was destroyed. We keep a GPS system on our trucks, that relays a
23 time and speed every 15 seconds. The last reading on Nick's truck was 57 mph at
24 4:30AM.

25 I signed some papers giving them permission to do an autopsy. The Coroner
26 offered to have someone drive us home, but Alex said he was ok to drive. We gave our
27 consent to have Nick's remains cremated. About a week later a funeral home in
28 Orangeburg brought his remains home, and we had a service for him. Hundreds of people
came. We had his ashes interred at St. Cyril's in Summerville.

The Coroner said that the medical examiner determined the cause of death was
"thermal injuries." My worst fear was that Nick had burned to death. It wasn't until later
that day that we learned that Nick ran into the back of a Jeep that was just sitting disabled

WITNESS STATEMENT OF NATASHA ROSTOVA

(Rostova vs. Carolina Beverage Distributors, LLC)

1 on the interstate, just past the I-95 exit. The Jeep was sticking out in the right lane of
2 traffic. There were no lights on the Jeep, and it was pitch black dark. The driver was
3 passed out or something. The investigation our lawyer did showed that there was no way
4 Nick could have seen a black Jeep just sitting there, in the dark with none of its lights on,
5 in time to miss it.

6 I kept all of Nick's text messages to me. I couldn't bring myself to delete them. I
7 gave them to our lawyer.

8 I don't know for sure why Nick was on I-26, past the exit to I-95 North. He had
9 driven that route a few times in the last two months before the accident. It isn't like him to
10 miss an exit.

11 He did say in his text that he was a little tired that morning and was going to stop
12 and get some food. That was his normal routine. He never asked me to get up and make
13 him breakfast. He sometimes has trouble sleeping. He sleeps with a CPAP machine to
14 help him breathe. When he has an early morning route, he sleeps alone in our guest
15 room, so he won't wake me up. We used to joke about his snoring. Nick was a big man,
16 you know, and a bit overweight, and so he snored a lot and didn't want to keep me up.

17 I knew Nick has some minor health issues. Difficulty sleeping, high blood pressure.
18 He sometimes got dizzy when he stood up too fast, but that can happen to anyone. And
19 he had gained a good bit of weight. But he had a regular doctor and was seeing him
20 regularly, taking his blood pressure medicine. He didn't want to worry me. I don't know
21 what medications he was on. We didn't really talk much about it. He had a CPAP
22 machine, but he didn't like to use it because it kept him up. He drank a little and was
23 always trying to stop smoking. I guess he had slowed down some. He was 58, after all,
24 and had been driving for 35 years. I asked him just a few weeks before the accident,
25 couldn't he retire and let Alex take over. But he had no intention of retiring or getting off
26 the road.

27 I knew he had recently gotten his CDL license renewed and his medical
28 certification updated. I thought his regular doctor did all that. It wasn't until after the
29 accident that we looked into all of this and I learned that he had gone to a different doctor
30 to be certified.

31 The person in the Jeep he hit made a claim against us of some kind. I don't really
32 understand all that. Our insurance company took care of it. The South Carolina Transport

WITNESS STATEMENT OF NATASHA ROSTOVA

(Rostova vs. Carolina Beverage Distributors, LLC)

1 Police never charged Nick with anything from the accident. The tractor he was driving
2 was our oldest one, and it was fully loaded - 80,000 pounds. So, he couldn't have been
3 going too fast. We use a GPS service that tracks his route and transmits his speed every
4 15 seconds. He was going 57 to 60 mph 15 seconds before the accident. They figured
5 out that he was in the right lane and the car he hit was just sitting there in the road,
6 because it had been in an earlier accident. When we found that out, Alex said we needed
7 to get our own lawyer and sue that driver, so we did.

8 I'm sorry. This is very difficult for me. I cry every day.

9 I know I need to explain our economic losses. Nick was our main driver. Our clients
10 loved him. He was always on time, always doing everything exactly right. Our business
11 made around \$750k last year. This year we are down by about \$250k. I certainly expected
12 Nick to drive until he was in his 70s. He told me he would drive until he was 78 if he could.
13 So that's 20 years of income. Conservatively, that's over \$2 Million dollars. It cost us
14 \$5000 to have him cremated and brought to us.

15 As for what else I've lost? My husband. My best friend. Our children's father. A
16 grandfather to little Nicky. You don't understand. Nick rescued me and gave me a
17 wonderful life. He was responsible for everything we have made – our family, our
18 business, our lives here. And he died in a fire. I pray he did not suffer long, but I fear he
19 did. I can't imagine a more horrible way to die.

20 As for me, what can I say. I'm 48. I'm ok financially. We had good life insurance,
21 and the business is still operating. Alex does a great job. I know lawsuits are about money,
22 but I don't want money. I just want my husband back.

23 As for that newspaper article, Nick never said anything to me about a federal
24 investigation. We run a good company, very law abiding. I know Janna's husband Tom
25 Petrovich had to hire a lawyer, but they haven't talked to me about anything.
26
27
28

WITNESS STATEMENT OF CARL BAXLEY
(Rostova vs. Carolina Beverage Distributors, LLC)

1 My Name is Carl Baxley. I am a commercial truck driver for ARD Trucking. I have
2 been driving for 40 years. I live in Sumter South Carolina.

3 On September 9, 2019, I was hauling a load of auto parts from Charleston to the
4 BMW plant in Greer, South Carolina. I was on I-26 West, in the left lane. It was around
5 4:30 A.M., and dark, probably about an hour or two from getting light. It had been raining
6 in Charleston that morning and was pretty humid, so there was some fog, yes, but not
7 enough to bother me. It had been thicker closer to Charleston.

8 But when its foggy like that, I don't like to stay in the right lane. Maybe that is why
9 I was in the left lane.

10 Just as I was about to get to the exit to I-95 North, I saw two cars in front of me
11 suddenly hit their brakes and swerve over into my lane. I tapped my brakes and thought
12 maybe a deer had run across the road in front of them.

13 Then I saw, maybe 5 car lengths in front of me, off to my right, a dark colored SUV
14 with its back end sticking out maybe three or four feet into the right travel lane. There
15 were no lights on it but the headlights on the cars in front of me illuminated it a little, so I
16 was able to see it before my head lights hit it.

17 As a I went by it, I could tell it had been wrecked. The front end was damaged. I
18 couldn't see anyone inside it, but maybe it had dark tinted windows, I can't really recall. I
19 didn't see any debris in the road.

20 I remember thinking, "Brother, if I had been in the right lane, I would have run slap
21 into that car." There wasn't no way to miss it. Besides, I had a full load, and if I had turned
22 hard, could have jack-knifed, easy.

23 Once I got past it, I figured I better call 911, which I did.

24 I read the summary you showed me from my phone conversation with the Highway
25 Patrolman who called me a couple of days later to interview me. That statement is correct,
26 pretty much.

27 SChP Statement Summary: "At approximately 4:36 AM, another truck driver, Carl
28 Baxley, called 911 to report seeing a black Jeep disabled on I-26 at ile Marker 169 just
past the exit to I-95 to Florence. He was driving his rig in the left lane, going west on I-26.
Mr. Baxley told the 911 operator that two cars in front of him had to swerve into the left
lane in order to miss the Jeep, which is why he noticed it. It appeared to be partly on the
shoulder and partly in the right lane, maybe 4 feet or so. He saw no lights on the Jeep.

WITNESS STATEMENT OF CARL BAXLEY
(Rostova vs. Carolina Beverage Distributors, LLC)

1 The Jeep appeared to be a dark color. He did not see any debris in the road but did note
2 as he passed the Jeep that it appeared to have damage to the front end. He said it had
3 been very foggy earlier that morning, but the road conditions were clear and dry. He
4 estimated that he was going 65 miles an hour when he saw the Jeep and called 911.”

5 I also told the 911 operator that they needed to get the lane blocked off as soon
6 as possible and send a wrecker to get that car moved.

7 I then got on my radio, open channel, and alerted the other truckers to the hazard.
8 A few minutes later, at 4:45 A.M., another trucker responded and said he had just passed
9 mile marker 169 and that there was a tractor trailer rig on fire in the woods in the median,
10 but he didn't notice the Jeep.

11 I thought then that I should have pulled over and put out some flares or
12 something, but there just wasn't enough time. This all happened in about 5, 10 minutes.
13 I don't think I could have made a difference.

14 I know that it's the law that you are supposed to be able to stop your truck if there
15 is a hazard in the road or try to miss it. but at night in the dark and fog, that's just
16 unrealistic.

17 If I feel very sorry for that driver and his family. I worry about the same thing
18 happening to me. We are professional drivers, sure, but cars, you know, everybody is on
19 their cell phone. People follow too close, drive like maniacs. It is scary. It drives me crazy
20 to think about it.

21 I will say this. I used to hate driving on 26. It is dangerous. Only two lanes, the
22 shoulder and median full of trees. I hit an alligator once on that stretch, going over the
23 river. They have improved it a lot, but it is still dangerous as hell. And if there is an
24 accident, the truck driver always gets blamed.

25 And now they want to replace us with a computer. Good luck with that. I'm glad I'm
26 about done.

27 Is there a truck stop at the next exit in I-26? No, I don't think so. There is one in
28 Santee on I-95. I think the next one on I-26 is at the Homestead Road exit, about 10
miles from the I-95 exit.

WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

1 My name is John Middlebrooks. I am a Human Factors engineer. I earned my Ph.D. in
2 Ergonomics from the University of South Carolina in 1985. I have an undergraduate degree (B.S.)
3 from Wofford College in Mechanical Engineering. I began my career in industry in 1986, working
4 for Martin Marietta Company in Atlanta Georgia, on the MX Missile program. Our engineering
5 group focused on evaluating the interface and interaction of human beings with the controls for
6 the missile systems. Because my work required a Federal Security Clearance, I was able to use
7 that to relocate to Aiken South Carolina in 1992 and work for the private contractors providing
8 services at the Savannah River Site. I worked as a Safety Engineer for DuPont in that capacity
9 from 1992 to 2001 and remained when the contract was transferred to Westinghouse. In 2007 I
10 accepted a teaching position at the University of South Carolina Aiken, where I taught Human
11 Factors Engineering and Product Safety. I am currently an adjunct professor at USC Aiken, but no
12 longer teach classes. I work with graduate students on research projects in my primary field of
13 study (Perception Reaction Time). Since 2010 I have been affiliated with Engineering Design and
14 Testing Company in Columbia SC, as a Human Factors Engineer and Product Safety Consultant.
15 I am a Registered Professional Engineer in South Carolina and Georgia and a board-certified CPE
16 (certified Professional Ergonomist).

17 Human Factors (or Ergonomics as it is sometime called) is the scientific discipline
18 concerned with the understanding of interactions among humans and other elements of a system,
19 and what we call the profession that applies theory, principles, data and methods to design in order
20 to optimize human well-being and overall system performance. Human Factors Engineers
21 contribute to the design and evaluation of tasks, jobs, products, environments and systems in order
22 to make them compatible with the needs, abilities and limitations of people.

23 I have extensive experience in researching the science of Human Perception and Reaction
24 Time (PRT) and have published several technical studies and scholarly research papers on this
25 topic. I am the primary editor of the PRT section of the Encyclopedia of Forensic Biomechanics.

26 My role with EDT has been primarily focused on providing forensic consulting services in
27 litigation. Roughly half of my work involves product safety evaluations and warnings assessments.
28 I also consult with mechanical engineers at EDT when a human factors issue becomes relevant to
an accident reconstruction or evaluation. At present, all of my professional time is devoted to

WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

1 providing expert consulting services in litigation cases, mostly for lawyers representing injured
2 people in products liability, premises liability and motor vehicle accident cases. I have been
3 qualified many times to testify as an expert witness in state and federal courts in South Carolina
4 and elsewhere.

5 In this particular case, I was asked to conduct what is known in the field of Human Factors
6 as a “Conspicuity Study.” This is a technical term for “what can be seen.” Studies of this nature,
7 in the context of a motor vehicle accident, frequently involve what is called a “Time and Distance
8 Analysis.” This entails investigating a motor vehicle accident, understanding the physical evidence
9 and the eyewitness testimony, and determining what the driver, in this case a semi-truck driver,
10 could have perceived, assuming he was alert and not impaired by inattention, alcohol or narcotics.
11 I have done studies of this nature many times.

12 I am not an accident reconstruction expert, or a “trucking operations expert,” whatever that
13 means. I do not, for example, have a CDL license and am not qualified to drive an 18-wheeler on
14 the public roads, which is why I performed my visibility analysis at a private test location –
15 basically a farm in Orangeburg in October of 2021. We measured out the lanes and the distances
16 and placed the exemplar vehicles at 100-foot marked intervals, starting at 700 feet and moving
17 closer in 100-foot segments, and took photographs using high quality film with no illumination
18 other than the headlights and running lights on the truck. And the moon and stars that the Good
19 Lord provided us. I can confirm that the images accurately reflect what the lighting conditions
20 were and what I could see. I understand that there is conflicting testimony about whether the
21 accident scene was foggy at the time of the subject collisions. Mr. Williams says it was very foggy.
22 Mr. Baxley says it wasn’t. Our visibility study was done in the dark but in clear conditions.

23 In forming my opinions in this case, I have relied on a very thorough accident
24 reconstruction performed by the South Carolina Highway Patrol Multi-Disciplinary Accident
25 Investigation Team.

26 To be able to offer opinions in this case, I undertook the following tasks:

- 27 1. Reviewed MAIT Report and photos of the accident scene and vehicles;
- 28 2. Reviewed Jeep EDR;
3. Reviewed Tractor Trailer GPS data;

WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

- 1 4. Interviewed Natasha and Alex Rostova about their father Nicholas Rostova;
- 2 5. Inspected, took videos and photographed the accident scene (Although it should be
- 3 noted that by the time I was retained, the SC DOT had cleared the trees from the
- 4 median and installed cable barriers. But the MAIT marks were still present.);
- 5 6. Reviewed published data and studies on human perception/reaction time;
- 6 7. Performed a Visibility Study using exemplar vehicles at a nearby test site;
- 7 8. Prepared CAD drawings of the scene and paths of the vehicles using the MAIT
- 8 data;
- 9 9. Reviewed my findings with accident reconstruction experts at EDT to confirm that
- 10 they were reasonable and accurate;
- 11 10. Reviewed the deposition of Joe Davis, a truck driver and so-called “Trucking
- 12 Expert,” and
- 13 11. Reviewed the depositions of the other witnesses.

14 I employed standard visibility analytical methods in conducting my visibility study and
15 took pains to make the conditions “substantially similar” to those on the subject accident. We could
16 not find a blue Jeep, but the gray color seemed reasonable and consistent with eyewitnesses who
17 said it was “dark” or “black.” As previously explained, we did not attempt to duplicate foggy
18 conditions, so the visibility test is essentially a “best case” analysis is of what Mr. Rostova could
19 have seen.

20 I hold all my opinions to a reasonable degree of scientific certainty in the field of human
21 factors analysis. I charge \$300/hour and have spent roughly 85 hours on this case, not including
22 trial preparation and testifying at trial.

Opinion 1. The Visibility Study

23 Based on the Visibility Study as described above, I determined that in night-time conditions
24 in good weather the properly adjusted headlights of an exemplar 2002 Freightliner Tractor on high
25 beam would first begin to faintly illuminate the back of an exemplar gray 2010 Jeep Liberty with
26 its lights off at a distance of approximately 500 feet (Fig. B-3). However, it was not until the tractor
27 got to within 300 feet that I could actually recognize it was a vehicle. I was not until 200 feet from
28 the Jeep (Fig. B-6) that I was able to perceive the orientation of the Jeep relative to my lane of

WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

1 travel. At this point, at 57 miles per hour, a “normal” driver would have 2.4 seconds to perceive
2 and react to the Jeep.

3 **Figure B-3**



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WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

1 **Figure B-6**



17 **Opinion 2. Perception/Reaction Time**

18 As I have explained in my attached paper, an overly simplistic use of the “standard” 1.5
19 seconds for “normal” perception reaction time (from the Olson study in 1986) is misleading,
20 unscientific, and significantly underestimates the actual time it takes for a truck driver at night to
21 perceive a hazard and react to it by braking or steering.

22 Many complicating factors enter into estimating actual perception reaction time (PRT) in
23 this accident, assuming for the sake of argument that Mr. Rostova should or even could have seen
24 the Jeep at some point prior to hitting it. These include the following:

25 Darkness - the testing establishing PRT as 1.5 seconds (Mr. Olson’s Study) was done in
26 the daylight. Dark conditions take up to twice as long. Human adult males typically react faster to
visual stimuli between 7 and 10 am, and slower at night.

27 Weather – the Olson study was done on a clear day. Fog would have delayed the PRT in
28 an unknown amount or even made PR impossible.

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1 Vehicle and Speeds – Mr. Olson’s study was done in cars going 25 -35 MPH. PR is more
2 difficult and therefore slower at higher speeds in a tractor trailer, where the risk of overturning,
3 jack-knifing, colliding with other traffic or losing control is present.

4 Driver Expectations – Mr. Olson’s study was done under conditions where the test drivers
5 were naturally much more alert than a lone driver in the middle of the night. The test drivers knew
6 they were participating in a timed study, knew they would encounter a road hazard, and had a
7 passenger in the back seat recording their time and speed. In this accident, a disabled vehicle in
8 the roadway at 4 am would have been totally unexpected to the truck driver, resulting in a much
9 slower PRT.

10 Duration of Trip – Mr. Olson’s PRT test was performed after the drivers had been driving
11 for 10 minutes. PR increases the longer the driver is behind the wheel and becomes comfortable
12 with the highway environment.

13 Nature of Hazard – the hazard presented in Mr. Olson – a 6 inch by 36-inch block of foam
14 – measured only one reaction/decision – brake application time. In a normal setting, where a driver
15 must make an “avoid vs. braking” decision, the maneuver is typically two-stage – a slowing down,
16 followed by a stop or avoidance maneuver, if called for. Testing of truck drivers approaching toll
17 booths shows that takes as long as six seconds (not 1.5) to perceive, check for nearby traffic, then
18 decide and execute a two-stage stopping or avoidance maneuver.

19 Age of driver – Mr. Olson’s test groups’ ages were both young (20-40) and “old” (41-60)
20 – PRT’s were averaged to come up with a mean of 1.5. Older drivers were almost a half second
21 slower than the younger group.

22 Location of hazard – Mr. Olson’s test did not measure obstacles in the driver’s peripheral
23 vision, but instead only looked at a highly visible object directly in front of the test vehicle. In this
24 case, the Jeep was at an angle, making it more difficult to determine if it was on the shoulder or in
25 the actual lane of travel. Based on these complicated factors, in my professional experience, actual
26 perception/reaction time in clear conditions on high beam would have ben 4 to 6 seconds or more.

Opinion 3. Mr. Davis’s Time and Distance study is seriously flawed.

27 As I understand Mr. Davis’ test, he used the so called “standard” Olson 1.5 seconds PRT.
28 Whether he got this from the study itself or an article (or Wikipedia), it is seriously flawed, for the

WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

1 reasons explained above. The decision that Mr. Rostova would have had to make had he seen the
2 Jeep, which he most probably didn't, was not a simple reflex reaction. It could have taken up to 6
3 seconds for an alert and experienced professional driver, under the best of conditions.

4 Mr. Davis doesn't know if there was any traffic to Mr. Rostova's left. It is possible that he
5 could not have steered to the left even if he had wanted to do so, without endangering other traffic.

6 Mr. Davis's road test is flawed. It is much easier to see a large white Silverado pickup truck
7 than a dark Jeep compact SUV.

8 Mr. Davis does not account for the possibility of fog at the accident scene. Mr. Davis
9 assumes the truck lights were on high beam. If there had been foggy conditions, the SC CDL
10 manual recommends low beam. Illumination distance of low beams on a 2002 Freightliner is 250-
11 300 feet.

12 Mr. Davis is incorrect that a fully loaded trailer takes longer to stop. It is actually the
13 opposite. Davis is also incorrect in assuming that Mr. Rostova's trailer was fully loaded. All Mr.
14 Rostova told Mrs. Rostova was that he had pick up his *trailer* at KapStone, not his *load*. The call
15 to Mr. Alex Rostova on the day of the accident came from KapStone's facility in Cowpens SC.
16 The email to Ms. Jana Petrovich comes from there as well. Mr. Rostova was actually headed to
17 Cowpens SC to pick up his load, and then to Roanoke Rapids. He did not "miss his exit", despite
18 what Mrs. Rostova first thought.

19 Finally, Mr. Davis never measured the coefficient of friction of the road surface on I-26.
20 He just assumed it was 7.5 because that is the typical CoF of a paved asphalt surface. In fact, that
21 stretch of I-26 was badly weathered and worn in 2019 and was repaved in 2020. A lower CoF (like
22 a lighter trailer) would have increased the stopping distance to well over 200 feet, if not more,
23 assuming the driver saw the Jeep and decided to stop.

Final Opinions and Conclusions

24 It is impossible for anyone to say with any degree of certainty what Mr. Rostova actually
25 saw on that fateful night, or even if he could see, given the possibility of fog. We do know, based
26 on a Human Factors analysis, that had Mr. Rostova seen the Jeep, he would have reacted to the
27 danger in some way. From the absence of any tire marks or skid marks, and the complete absence
28 of any evidence of steering input, it is very likely Mr. Rostova never saw the Jeep at all. This is

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1 not surprising, given the conditions.

2 Should he have? I don't think any reasonable expert can honestly say that. If he had seen
3 it, could he have avoided it? I don't think so. He didn't have time.

4 With a truck traveling at 85 feet per second, at 200 to 300 feet from the Jeep when it first
5 came into view, the driver would have had less than from 2 to 2.5 seconds to perceive and react to
6 the danger posed by the stationary vehicle. While I agree with Mr. Davis that takes a fully loaded
7 2002 Freightliner 196 feet to stop upon full emergency application of the brakes, that's not how
8 experienced truck drivers are trained to react to road hazards. You don't just slam on full brakes.
9 Assuming a deceleration rate of 20 feet per second per second (FPS²), it would have taken a
10 highly alert driver between 4-5 seconds to perceive, react and bring his rig to a full stop. Adding
11 another 2-3 seconds to 1. make the "avoid vs brake" decision, 2. check traffic to the left to make
12 sure a left steer was safe, and 3. execute an avoidance maneuver, it is my professional opinion that
13 even if Mr. Rostova could have seen something ahead of him in his lane of travel at 300 feet away,
14 he was not negligent in failing to avoid it.

15 While it would have taken less time to steer to the left than to stop, as previously explained,
16 that is a reaction that is not reflexive, but requires a decision, a determination if such a maneuver
17 is safe, and whether there was traffic in the left lane.

18 I have not been asked to do a visibility analysis of the first collision, and do not believe
19 there is sufficient information to do one.

20 However, I would point out that the Jeep EDR read-out shows that Mr. Williams was
21 speeding (78 MPH) prior to the first collision, was not belted, did not apply his brakes until 1.5
22 seconds from the collision, and that his frontal airbag did not deploy in the first collision, which
23 means a Delta V (change in velocity) of approximately 15 mph or less, meaning that whatever he
24 hit was going pretty close to highway speed (59-63 mph). It also notes that the Driver Side Curtain
25 airbag deployed after the second collision, which means that there was power to the airbag control
26 system, and therefore power to the Jeep's emergency flashers, which are energized even when the
27 vehicle engine is not running. I checked this on the exemplar Jeep we used in the visibility study.

28 We also know that Mr. Williams was using his cell phone at the time of the first collision,
which is probably why he ran into the back of a truck at near highway speed. He never even tried

WITNESS STATEMENT OF JOHN MIDDLEBROOKS, Ph.D.

1 | to activate his emergency flashers after the first collision. We also know he was fired for basically
2 | being a bad driver. So, this case seems pretty straightforward to me. Mr. Williams broke the law.
3 | Mr. Rostova didn't. That should be the end of the analysis if you ask me.

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WITNESS STATEMENT OF OWEN WILLIAMS

(Rostova vs. Carolina Beverage Distributors, LLC)

1 My name is Owen Williams. I am 24 years old and reside at Number 29, Ashely
2 Commons Apartments in Charleston, South Carolina. I am a country music songwriter
3 and performer, and an Instagram Influencer.

4 At the time of the accident, I was working for Carolina Beverage Distributors, LLC.
5 They are located in Charlotte, North Carolina. I had been working for them for about 3
6 months as a Sales and Distribution Rep in the Charleston area. CBD distributes a wide
7 variety of beverage products to restaurants, bars, hotels and resorts in the Charleston
8 area. I was responsible for servicing around 120 accounts, placing orders, making sure
9 deliveries were on time. Part sales, part customer service.

10 I started off with a company car, but I got in a wreck in Charleston and the company
11 car was being repaired. My supervisor said to just rent a car to use for work, but my
12 girlfriend said I could use her mom's Jeep Liberty SUV, so I decided to save the company
13 some money and use that while my car was in the shop. Besides, my license had expired,
14 and I hadn't had time to get it renewed. I didn't want to try to rent a car until I got that
15 taken care of.

16 I had to go to Charlotte for three days of training, and was supposed to be there
17 on Monday morning at 8AM. I was going to drive up there the day before but was feeling
18 a little hung over on Sunday, so I decided to take it easy and just get up early on Monday
19 and drive up.

20 So, I packed a bag that night and went to bed early, probably around 8:30 or 9PM
21 because I had to get up early and get on the road. I left my apartment around 3:30.
22 3:45AM maybe, and got on I-26.

23 After about 30 minutes, it started to get real foggy, right around Harleyville, maybe,
24 and so I got over in the right and slowed down to maybe 60, 65. I wasn't worried about
25 the time, I had allowed myself plenty of time to get to the meeting. Traffic was light, but
26 there were cars and trucks passing me and I was a little worried about the fog. I was
27 singing along with my iPhone to stay alert. I had my lights on and fog lights too, but my
28 windshield kept fogging up, so I turned on the defrost, but that just made it worse for some
reason. All of a sudden, I saw these lights come on right in front of me. I hit my brakes
as hard as I could and tried to steer to the right, but it was too late, and I ran into
something, I don't really know what. It happened really fast. No more than a second or
two between when I saw the lights and hit my brakes. I don't remember what color the

WITNESS STATEMENT OF OWEN WILLIAMS

(Rostova vs. Carolina Beverage Distributors, LLC)

1 | lights were. I mean it had to have been a truck I ran up on, a tractor trailer going too slow.
2 | I just never saw it until I was right up on it.

3 | It was really dark and for some reason my headlights just didn't pick it up. Anyway,
4 | when I hit whatever it was, my airbag went off and I hit my head on something hard, and
5 | kind of blacked out for a while. When I came to, I couldn't open my left eye. The engine
6 | was off and there was steam coming out of the engine area, and no lights anywhere. I
7 | was still sitting in the driver's seat with my seatbelt on, and had no idea where I was. I
8 | remember thinking I needed to find my phone so I could call 911, but it was on the floor
9 | or somewhere, I don't know. It went flying out of my hand when the first wreck happened.
10 | My left leg hurt, and my chest and I had a big bump on my forehead and the left side of
11 | my face hurt. It was pitch black dark. I couldn't see anything. I just thought, "My
12 | girlfriend's mom is going to kill me." I was pretty groggy, and I knew I needed to get out
13 | of the Jeep, but the next thing I knew, wham, I got hit from behind, really hard. I think that
14 | is where I got some broken ribs. The impact knocked the Jeep off the road and into a
15 | ditch.

16 | The next thing I remember was somebody trying to help me out of the Jeep. He
17 | said his name was Cole and that I needed to get out and that I could go lie down in his
18 | truck until the ambulance came, and that my Jeep was pretty much destroyed. I must
19 | have blacked out when I got hit the second time.

20 | It felt like it had only been a matter of seconds, maybe a minute, no more than that,
21 | between the first hit and the second. I kept asking Cole and the first Highway Patrolman
22 | that came, "What happened to the other car, truck, whatever that I ran into?" But they
23 | both said, "No, man, you got hit from behind by a big tractor trailer." I tried to explain that
24 | there was another truck or something in front of me, but it had moved on, I guess. I don't
25 | know if it stopped for a second or not, but it drove off. The Highway Patrolman thought
26 | at first that I got hit from behind and that knocked me into a car in front of me, but that's
27 | not what happened. I told him the truth.

28 | I just laid there in that Cole guy's car for about 40 minutes and then my girlfriend
29 | showed up. Her mom had called her and said that the South Carolina Highway Patrol
30 | had called to tell her that her Jeep had just been in a serious accident. I guess that was
31 | because the Jeep was in her mom's name. She lives in Michigan. Then an ambulance
32 | came and took me to the hospital. Someone found my phone and called my girlfriend.

WITNESS STATEMENT OF OWEN WILLIAMS

(Rostova vs. Carolina Beverage Distributors, LLC)

1 She lives in Goose Creek, and got thee right before the ambulance did.

2 The EMT said, "Man, you are lucky to be alive." They fixed me up in Orangeburg
3 and gave me some pain meds and sent me home, and I stayed at my girlfriends' house
4 for a couple of days.

5 I didn't understand why the EMT said that until the next day when I saw the Jeep.
6 The whole front end was all smashed in. There was no way I could have driven it. The
7 back left corner was all smashed up too. Both headlights were busted out which is why
8 it was so dark, I guess. I don't remember seeing any other cars or people until Cole got
9 me out of the Jeep.

10 I didn't find out till the next day that the truck driver that hit me had died. I mean I
11 feel really bad about that, but you know he hit me from behind, there was nothing I could
12 have done. The Jeep wouldn't drive so I couldn't have moved it. I didn't even know it
13 was still sticking out into the right lane. After I got hit, it pushed me off the road and over
14 onto the exit ramp.

15 I was out of work for a few days and then I got a call from my supervisor telling me
16 I was fired. I mean ain't that the shit? I got hit on my way to a training conference and
17 they fired me. It wasn't even their car/ But he said I got fired for the other accident I had
18 in Charleston when the company car got messed up, but that was way back in August.
19 He said the Company had determined that I was recording myself on my cell phone,
20 singing, when I hit a lady who was making a left turn. I don't know how they decided that.
21 I do put things on Instagram, me singing in my car, but not while I'm driving. But I didn't
22 get charged for that, or for this accident either. They sent me a letter telling me that I had
23 been terminated.

24 I know I need to be straight with you all. I got into some trouble in high school and
25 was on probation for a little while, possession of narcotics and writing a bad check. I was
26 with another girl then and she was bad news. But I cleaned up my act, was going to earn
27 some money and save up and go to Trident Tech and get a marketing degree. And yes,
28 I have had a couple of speeding tickets and I got into a car accident in high school that
was my fault, I guess. I ran a red light by mistake and got hit. And my license was
expired. But that doesn't mean any of this was my fault. If this was my fault, why di the
insurance company give me all that money?

WITNESS STATEMENT OF OFFICER JOHN DAVID LAWSON

1 I am Lieutenant John David ("J.D.") Lawson with the South Carolina Highway
2 Patrol, assigned to the Coastal Multi-Disciplinary Accident Investigation Team (MAIT). I
3 am the primary investigating officer and author of the attached Accident Investigation
4 Report. I am extensively trained in the field of Accident Reconstruction (Northwestern
5 University AR Certificates 2006 and 2010) and have investigated and reconstructed over
6 100 fatal accidents as part of my MAIT Unit responsibilities. I was present at the scene
7 along with several other MAIT unit officers. MAIT personnel took photos and total station
8 measurements of the scene and vehicles involved, which I have reviewed and utilized in
9 my report.

10 I interviewed Owen Williams, the driver of Unit Number 1, a blue 2010 Jeep
11 Liberty. I also conducted recorded phone interviews with Carl Baxley, a truck driver who
12 reported the Jeep protruding into the right westbound lane of travel on I-26 prior to the
13 second collision with Mr. Rostova's truck, as well as two other driver eyewitnesses, one
14 who saw and swerved into the left lane to avoid the Jeep, and one who passed Mr.
15 Rostova's truck and noted it was going well below the speed limit of 70 mph when he
16 passed it south of the I-95 exit.

17 The attached report is prepared pursuant to and in the capacity of our official duties
18 imposed by SC law to investigate fatal accidents on roads and highways in South
19 Carolina. The admissibility of this report and its factual findings in subsequent civil and
20 criminal litigation is not prohibited by S.C. Code Section 56-5-1260 to 1280 or by SC Rule
21 803(8). All findings are made to a reasonable degree of certainty in the field of forensic
22 accident reconstruction.

23 With regard to Mr. Williams, while the MAIT Report states that he was wearing his
24 seat belt at the time of his first collision with the rear of the unidentified vehicle (Unit
25 Number 3), subsequent analysis of the Event Data Recorder in Unit Number 1 contradicts
26 his statement to the South Carolina Highway Patrol officer at the scene. The Event Data
27 Recorder also shows Mr. Williams was exceeding the posted speed limit of 70 by 8 miles
28 per hour when he initiated emergency activation of the Jeep brakes. He informed us that
he was using his cell phone in some capacity in the vehicle at the time of the first collision,
and that the road conditions were foggy.

Inspection of the Jeep post -impact showed that it was not capable of being driven

WITNESS STATEMENT OF OFFICER JOHN DAVID LAWSON

1 under its own power following the first collision with Unit Number 3. Its headlights were
2 inoperable post impact. It is unknown if the emergency flasher could have been operated
3 if engaged. Crash damage to the front of the Jeep is consistent with a change in velocity
4 of 19 mph (impact at 76 mph with a moving vehicle traveling 57 mph), which did not trigger
5 airbag deployment in the Jeep. The drivers' side airbag was triggered by the second
6 impact.

7 It is not known as to why Unit Number 3 did not stop.

8 Damage to the rear corner of Unit Number 1 is consistent with a partial oblique
9 impact at 53 MPH by Unit Number 2, most likely by contact between the front right corner
10 of Unit Number 2 and the left rear corner of Unit #1, followed by a side swipe that knocked
11 the Jeep into the exit lane. This would have most likely caused an immediate front right
12 tire disablement/blow out on the tractor portion of Unit Number 2, a pull to the right,
13 followed by an over-correction steer to the left, in an "oversteer" condition due to the
14 disabled tire, which can cause loss of control in a vehicle of this size and weight due to
15 the fire we were unable to confirm the tire blow out, but that would explain the loss of
16 control. So yes, in my opinion, that is probably what happened.

17 There is no evidence of any driver reaction to the presence of Unit Number 1 pre-
18 impact, which means Mr. Rostova as the driver of Unit Number 2 did not see or react to
19 the Jeep prior to the impact. No pre-impact skid or tire marks from Unit Number 2 were
20 observed. Photos were taken of the position of the Jeep in the right lane of travel.

21 Mr. Williams was initially charged with driving too fast for conditions (fog), but that
22 charge was subsequently dismissed by the Orangeburg County Magistrate's office. The
23 driver of Unit Number 2 was not charged with a moving violation. If you ask me, both
24 drivers (Williams and Rostova) appear to be at fault.

25 I have reviewed the attached MAIT report and it is a true and accurate summary
26 of our investigative findings. All photographs and diagrams/images are fair and accurate
27 representations of real conditions. All opinions expressed therein are held to a reasonable
28 degree of forensic certainty except where otherwise stated in the report or in this sworn
statement.

WITNESS STATEMENT OF JAMES ADAMS

1 James Adams is the elected Coroner for Orangeburg County. He has been the
2 Coroner for 25 years. He owns a funeral home in Orangeburg. He has no medical
3 training, but he has 25 years of experience in determining cause of death. The medical
4 examiner for Orangeburg County, Dr. Edwin Sparrow, is the forensic pathologist who
5 performed the autopsy on Nick Rostova. Dr. Sparrow no longer works for Orangeburg
6 County, and is currently on military duty overseas. Dr. Sparrow's report states that he
7 concluded the cause of death was "thermal injuries," with "possible blunt trauma to the
8 chest/head." The fire caused significant loss of tissue to Mr. Rostova's body. The medical
9 examiner cited the presence of "soot in the throat, nose and mouth," and a carbon
10 monoxide level in the blood of 18% as the primary reasons he determined that Mr.
11 Rostova survived the impact with the tree but died as a result of thermal injuries due to
12 the fire inside the cab of the truck.

13 Mr. Adams initially stated on the death certificate that the cause of death was
14 "thermal injuries," but after his deposition in this case, he changed his conclusion to
15 "indeterminate." He was not aware until seeing records in his deposition that Mr. Rostova
16 was a smoker, which could account for the carbon monoxide levels in his blood. He
17 acknowledged that he would have expected to see much higher CO levels (in excess
18 50%) if Mr. Rostova had been breathing in smoke and fumes during the fire. As for the
19 soot found in the nose, mouth and throat, he acknowledged that pathology samples were
20 collected but were not analyzed post-accident, because the medical examiner did not
21 think it was necessary, given the obvious burn related trauma to Mr. Rostova's body. The
22 dark material could have been dried blood from blunt force trauma to the chest or face.
23 Unfortunately, these samples are no longer available.

24 He also noted that there was evidence that Mr. Rostova did not move from his
25 initial point of rest inside the cab, post-accident. There was still hair on the back of Mr.
26 Rostova's head where he was found lying against the passenger seat, which indicated
27 he did not move during the fire, suggesting that he was at a minimum unconscious when
28 the fire reached him.

The postmortem examination of Mr. Rostova's heart and coronary arteries showed
them to be 80% occluded with plaque, heavily calcified, with significant collateral arterial
branching indicative of chronic Coronary Artery Disease. Mr. Adams was not aware that
Mr. Rostova suffered from obstructive sleep apnea. He has no opinion as to whether Mr.

WITNESS STATEMENT OF JAMES ADAMS

1 Rostova hit the Jeep because he was not sufficiently alert, or because he just didn't see
2 the Jeep.

3 Mr. Adams agrees that it is possible that Mr. Rostova hit his head inside the cab,
4 lost consciousness, and was unable to exit the cab before the smoke asphyxiated him.
5 Asphyxiation is the most common cause of death in an uncontrolled vehicle fire when the
6 victim is trapped inside, and it would explain all of the physical evidence he is aware of.
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WITNESS STATEMENT OF KIMBERLY STONE, M.D.

1 My name is Dr. Kimberly Stone. I received an undergraduate degree in biology from the
2 Mississippi State in 2005, and I received my medical degree, with honors, from the University of
3 Mississippi School of Medicine, in 2010. I did my general surgery residency at Spartanburg
4 Regional Medical Center in Spartanburg and was in practice there for about three years before
5 moving to Mount Pleasant. After my career as a surgeon ended, I reinvented myself as an urgent
6 care physician. Part of my practice as an urgent care physician involved performing DOT Annual
7 Medical Evaluations, and those were the circumstances under which I saw Mr. Rostova.

8 To obtain qualifications to perform DOT Medical Evaluations, you have to take an exam
9 and obtain a certification. To take the exam, the doctor has to take an on-line course, followed by
10 a quiz or exam. It isn't very onerous, and primarily highlights on disqualifying medical issues.

11 In any given week as an urgent care physician, I may conduct five or six DOT physicals.
12 There is no set rate, but they are not uncommon. We routinely see DOT physicals at my practice.
13 My physicians' assistant performs the required testing. I review the test results, do a brief physical
14 examination of the applicant, and review and sign the required forms.

15 The reason DOT requires drivers to undergo annual physicals is because there are a variety
16 of medical conditions that can affect a driver's ability to maintain a vehicle or drive a vehicle safely
17 without endangering either himself or the public. If a driver is healthy, he may receive a 2-year
18 certification. However, if the driver has a history of hypertension and/or diabetes and/or sleep
19 apnea, or any other serious medical condition, the driver may receive only a 1-year certification.

20 DOT Medical Evaluations are subject to certain strict protocols to ensure uniformity among
21 practitioners. When the driver first arrives at the medical practice, they go to the front desk and
22 sign in. They are led to a waiting room where a nurse takes their vital signs, pulse, weight, height,
23 and blood pressure. The driver then must pass a vision test using the Snellen eye chart where you
24 read the lines with the print. Then, they undergo a gross hearing test, where if they can hear a
25 forced whisper from whatever distance, five, ten feet, I can't remember the minimum for that, but
26 it was somewhere around five to ten feet. And once they did that, depending on the trucking
27 company, they may also undergo a drug test. These were all preliminary tests that I, as a doctor,
28 was not privy to, and which were handled by a nurse.

There are also forms, required by the FMCRA and drafted and provided by the FMCSA,
that are required to be filled out during the Medical Evaluation. Some parts of these forms are to
be completed by the driver, subject to doctor's review, and some parts are to be completed by the
examiner. Attached as Exhibit A is the form filled out by Mr. Rostova and myself during his

WITNESS STATEMENT OF KIMBERLY STONE, M.D.

1 physical.

2 You'll note that under "Section 2" labeled "Health History," the instructions provide that
3 the driver is to complete that portion of the form. The instructions also note that the medical
4 examiner is encouraged to discuss the health history with the driver. The doctor relies on the
5 driver's candor to make certain disclosures in this section. This section contains a list of medical
6 issues that may disqualify a driver from passing the physical, with boxes, marked "yes" or "no,"
7 where the driver is to disclose whether he has or had experienced these medical issues in the past.
8 Where the driver checks "yes," for any of these items, the form instructs the driver to indicate the
9 onset date, diagnosis, treating physician's name and address, and any current limitations. The
10 issues include whether the driver has or had a history of: (1) heart disease or heart attack or other
11 cardiovascular condition; (2) cardiac arrhythmia disease; (3) high blood pressure; (4) fainting or
12 dizziness; (5) sleep disorders, including pauses in breathing while asleep, daytime sleepiness, or
13 loud snoring, which implicitly includes sleep apnea. The form also instructs the driver to list all
14 medications, including over-the-counter medications, used regularly or recently. The driver then
15 signs the form to certify that the information provided is complete and true, and that he or she
16 understands that inaccurate, false, or misleading information may invalidate the Medical
17 Examiner's Certificate. When Mr. Rostova visited my clinic for his most recent DOT Evaluations,
18 he checked "no" on each of the boxes and did not disclose that he was taking any medications. I
19 relied on Mr. Rostova's disclosures.

20 When Mr. Rostova visited my clinic for a DOT Medical Evaluation, I had never seen him
21 before. I did not have his medical history in front of me. Since the incident, I have had an
22 opportunity to review his medical history from the records of his family physician. Based on that
23 review, I can confirm that Mr. Rostova had a concerning medical history. First, Mr. Rostova had
24 previously presented to his regular doctor with "complaints of falling asleep while sitting,
25 complains of excessive daytime sleepiness, complains of snores loudly, complains of stops
26 breathing while sleeping on occasion, witnessed by spouse, gasps for breath while asleep." A
27 sleep study was conducted in 2018, and he was diagnosed with sleep apnea, prescribed a CPAP
28 machine, and instructed to stop smoking and lose weight (he weighed 345 lbs. at the time).

 Mr. Rostova had also had a history of high blood pressure. This can cause a patient to suffer
a stroke or heart attack without warning. A patient with chronic untreated hypertension is at a
higher risk of developing left ventricular hypertrophy, which would put a further strain on the
heart's ability to function, including lessening the volume of blood pumped per heartbeat and the

WITNESS STATEMENT OF KIMBERLY STONE, M.D.

1 potential to create extra cardiac tissue that might cause or exacerbate cardiac arrhythmias. Over
2 time, the patient may develop cardiomegaly, growing of the heart, which would also involve
3 developing additional heart tissue that may directly affect the electrical impulses in the heart, i.e.,
4 causing further arrhythmias, including potentially fatal arrhythmias. Despite having a history of
5 hypertension, Mr. Rostova didn't disclose these facts, or the fact that he was prescribed medication
6 (Atenolol) for hypertension. Disclosure of this history would have raised several red flags during
7 the DOT medical review and may have led to further cardiovascular testing that may have
8 disqualified him from holding a CDL.

9 It is my understanding based on a subsequent review of his medical records, that Mr.
10 Rostova did not disclose his medical history to me during the DOT physical. He checked "no" on
11 every box on the portion of the DOT evaluation form that asked about medical history, and he did
12 not disclose the medications he had been prescribed. Based on review of his medical records, Mr.
13 Rostova should have checked "yes" to the questions regarding whether he had a history of
14 dizziness or fainting, a history of high blood pressure, and a history of sleep disorders. I suspect
15 that he was aware that his medical history would have potentially disqualified him from holding a
16 CDL, and he may have failed to exam. Notwithstanding this unfortunate fact, I am certain that
17 had Mr. Rostova disclosed this medical history to me, I would not have certified him as passing
18 this physical until such time as he had to be evaluated by a cardiologist and brought his
19 hypertension and sleep apnea under control.

20 Because I see lots of patients, and because this examination was in 2019, in all honesty, I
21 do not have an independent memory of seeing Mr. Rostova. I do recognize my signature on the
22 forms, and agree that I certified him. I see now that his blood pressure readings were in the high
23 range. That alone would not have disqualified him. I also see that my nurse noted that he was
24 overweight. Again, by itself, that is not disqualifying.

25 Based on what I have been told by defense counsel about the accident being at night and
26 involving an impact/collision with a car on the interstate that the driver apparently did not see,
27 there is another issue that concerns me. High blood pressure that is not properly treated can cause
28 a condition caused "hypertensive retinopathy," which can result in blurry vision and poor night
vision. This is not something that can always be detected in a simple DOT vision test. But I suspect
Mr. Rostova was at risk for this condition. In retrospect, I should have insisted on a more thorough
eye examination by an ophthalmologist.

STATEMENT OF JOE DAVIS
(Rostova vs. Carolina Beverage Distributors, LLC)

1 My name is Joe Davis. I am an experienced truck driver, a CDL instructor, and
2 have served as Operations Manager for several large transport companies, prior to
3 becoming a litigation consultant on truck accidents. I currently work part-time as a contract
4 claims consultant for Progressive. I have over forty years of experience driving tractor
5 trailer rigs and am familiar with the rules and regulations in South Carolina that apply to
6 operation of tractor trailers on the roads and highways of our state. I have also been a
7 full-time insurance claims adjuster for Progressive Insurance Company and The Hartford
8 Insurance Company, focusing on transportation related claims. I have 20 years of safety
9 training experience as a CDL instructor at Midlands Tech in Columbia, South Carolina. I
also have training through Progressive and Hartford in fire investigations.

10 I was not able to inspect the wreckage to the tractor/trailer or the Jeep. Both
11 vehicles were destroyed by the time I was hired. I did not see a need to review the EDR
12 in the Jeep, as it was stationary when hit by Mr. Rostova's truck. I have read the MAIT
13 report and the report of Joseph Middleton. I have been to the accident scene on the
14 anniversary of the accident at the approximate time (4 to 5 AM). I drove a fully loaded
15 tractor trailer rig at 55MPH past the impact point and parked my own vehicle (a White
16 Chevy Silverado pickup truck) at the approximate location of the Jeep. When I saw my
17 pickup truck, I applied my brakes in a normal manner, and was easily able to stop the
truck about 100 feet prior to the impact point.

18 South Carolina law requires all truck drivers to operate their rigs at an appropriate
19 speed where they can avoid disabled vehicles or hazards in the road. I believe Mr.
20 Rostova was negligent in failing to take reasonable actions to either stop or steer slightly
to the left to avoid striking the Jeep.

21 On the anniversary date of the accident, I performed a simple time and distance
22 analysis, utilizing accepted engineering and accident reconstruction methodologies to
23 evaluate the various hypothetical dynamics of the subject inter-vehicle movements and
ultimate collision.

24 The I-26 roadway is straight and level with no visibility obstructions. I conducted
25 vehicle dynamics and avoidance testing relative to the operation of an exemplar tractor
26 trailer, including duplication of reasonable and actual maneuvers that he could have made
27 to avoid striking the Jeep SUV. The trailer was not loaded.

28 I assumed that Mr. Rostova's rig was traveling at approximately 85 feet per

STATEMENT OF JOE DAVIS
(Rostova vs. Carolina Beverage Distributors, LLC)

1 second, based on R&R's GPS data (57 mph 15 seconds before the collision.) Under
2 normal weather conditions, at night, the Jeep would have been illuminated by properly
3 operating head lights at a distance of approximately 350-500 feet depending on whether
4 the lights were on high or low. This would have given Mr. Rostova around four seconds
5 to perceive the danger posed by the Jeep in the right lane and avoid it. Standard well-
6 accepted perception response time (PRT) is 1.5 seconds for an average adult male.
7 Assuming the Jeep was illuminated by the headlights on the truck at 350 feet, and giving
8 Mr. Rostova 1.5 seconds to perceive and respond to the hazard, he would have had
9 approximately 300 feet to stop his truck. Average stopping distance is 196 feet for a fully
10 loaded 18-wheeler traveling 55 mph on a normal highway. Accordingly, Mr. Rostova
11 should have been able to stop well before hitting the Jeep. My calculations are attached.

12 If he had been alert and keeping a proper lookout, he certainly should have been
13 able to maneuver his rig a mere 4 feet to the left. Of course, foggy conditions would reduce
14 the sight distance, but it would also mandate a slower speed. Though it might have been
15 foggy earlier, there is no direct evidence that there was significant fog at the place of this
16 accident. Foggy conditions are very localized and difficult to predict. The other
17 eyewitnesses saw the Jeep and were able to avoid it. So, that leads me to believe that
18 fog wasn't an issue.

19 I'm curious as to why Mr. Rostova missed his exit and why there were no skid
20 marks or efforts to brake or steer to the left. He obviously never saw the Jeep at any time.
21 How come? Was he nodding off, sleepy, less that fully alert? Was he looking at his cell
22 phone or his instruments? It only takes a few seconds of inattention to cause an accident
23 at highway speeds. Eyewitnesses say the Jeep was "dark" or "black," but the photos show
24 it was bright blue. Even with no lights on the Jeep, it should have been illuminated at 500
25 feet. The physical evidence strongly suggests that Mr. Rostova wasn't paying attention to
26 what might have been in front of him, and didn't expect to encounter a disabled vehicle.

27 The South Carolina CDL manual requires maintaining a general following distance
28 of two and a half to three truck lengths when in traffic, regardless of speed or conditions,
including darkness and fog.

The FMCSA recommends 4 seconds be maintained between a truck going 55 mph
and traffic in front. Standard commercial driver manuals, and various regulatory statutes
require keeping a lookout and maintaining safe following distances, and recommend

STATEMENT OF JOE DAVIS
(Rostova vs. Carolina Beverage Distributors, LLC)

1 doubling following the recommended following distances in adverse conditions such as
2 fog or rain.

3 Based on my investigation, it is my expert opinion that Mr. Rostova had the time
4 and distance he was required to maintain relative to avoiding a stationary vehicle or road
5 obstructions. Unfortunately, Mr. Rostova failed to maintain a proper lookout, failed to
6 perceive and react to foreseeable ahead conditions, failed to properly control his vehicle,
and/or was traveling too fast for conditions at the time of the collision.

7 It also appears that he over-reacted to the impact with the Jeep. If his right front
8 tire had experienced rapid deflation as a result of the collision with the left rear corner of
9 the Jeep, the cab would have pulled to the right, but not enough to cause an experienced
10 truck driver to lose control and enter the median. If Mr. Rostova had stayed off his brakes,
11 and simply taken his foot off the accelerator, his rig would have slowed and stopped in
12 the right lane of travel. It appears that Mr. Rostova over corrected to the left in response
13 to the pull to the right caused by the disabled tire, which caused him to exit the highway
14 to the left and enter the median. Any brake application would also increase the chances
15 of an oversteer condition and make the rig more difficult to control. This is something an
experienced truck driver should know.

16 I'm not trying to be hard on the guy, and it is certainly tragic that he lost his life in
17 a fire, but no, in my professional opinion, he did not handle the emergency in the best
18 way he could have.
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CMV Driving Tips - Inadequate Evasive Action

Inadequate evasive action may be defined as situations when drivers fail to execute a proper evasive maneuver by not using sufficient steering inputs, not braking appropriately, or a combination of insufficient steering and braking inputs.¹⁴ This may include drivers failing to slow in advance for stopped or stopping traffic, and abrupt steering maneuvers to avoid a vehicle, or object.¹⁴ A 2005 study reported that 14 percent of safety-critical events occurred when the commercial motor vehicle (CMV) driver executed an inadequate evasive action.⁸⁰

Below are some tips that will help you to safely evade a traffic conflict.

TIP #1: Watch for Brake Lights

Focus on several lead vehicles ahead, or at least 15 seconds in front of you.¹⁶ Focusing on the vehicles ahead of you and being aware of their brake lights will allow you to safely react to changing conditions.⁴¹

Did You Know? It takes 3/4 of a second from the moment your brain sends the signal to your foot to move from the accelerator to when your foot actually applies the brake. In this short period of time, you may have already traveled 60 feet.¹⁶ Focusing on the vehicles ahead of you will help you react in a safe and timely manner.

An example of a driver performing an inadequate evasive action is shown in the video clip below. Training exercise questions follow the video clip.



VIDEO DESCRIPTION: The CMV driver is traveling in the right lane of a two-lane highway during the day. He is approaching stopped traffic ahead of him, but does not slow down and instead passes the stopped vehicle on the right side, crossing onto the shoulder. He then approaches a stop light and again fails to decelerate, this time passing the stopped vehicle from the left side and proceeding through the middle of an intersection.

TRAINING EXERCISE: After viewing the video, try to answer the following questions:

- What indicators of slowing traffic should the driver have taken notice of and responded to?
- How did the driver behave in response to a slowing lead vehicle?
- What could the driver have done differently?

TIP #2: Practice Good Scanning Habits

Scan the driving environment and be aware of potential hazards. Recognize the hazards, determine what action to take, and then execute your actions safely. Knowing what hazards to be aware of will keep you prepared to execute proper evasive actions.

Did You Know? Two-vehicle crashes between large trucks and passenger vehicles result from inadequate evasive action 6.6 percent of the time.⁸¹

Driving Tips

- [Failure to Buckle Up](#)
- [Too Fast for Conditions](#)
- [Unfamiliar Roadway](#)
- [Inadequate Surveillance](#)
- [Driver Fatigue](#)
- [Driver Distraction](#)
- [Following Too Closely](#)
- [***Inadequate Evasive Action***](#)

Last updated: Wednesday, February 11, 2015

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CMV Driving Tips - Following Too Closely

Following too closely may be defined as, "situations in which one vehicle is following another vehicle so closely that even if the following driver is attentive to the actions of the vehicle ahead he/she could not avoid a collision in the circumstance when the driver in front brakes suddenly."¹⁴

In addition to providing enough stopping time, proper following distance allows for more time to make good, well-planned decisions and affords other drivers the opportunity to scan the sides, look far enough ahead, and view the vehicle immediately in front.

The Large Truck Crash Causation Study (LTCCS) reported that 5 percent of truck crashes occurred when the Commercial Motor Vehicle (CMV) driver was following the lead vehicle too closely.¹⁵

Below are some tips that will help you maintain the correct following distance during various driving conditions.

TIP #1: Maintain a Safe Following Distance

Large trucks need additional space between vehicles to allow for safe braking and unexpected actions. In crashes, large trucks most often hit the vehicle in front of them.¹⁶

Did You Know? If you are driving below 40 mph, you should leave at least one second for every 10 feet of vehicle length. For a typical tractor-trailer, this results in 4 seconds between you and the leading vehicle. For speeds over 40 mph, you should leave one additional second.¹⁶

Did You Know? On October 15, 2007, as cars began to slow for construction in the left lane, a CMV driver failed to brake and crashed into the vehicle ahead of him, killing a 47-year-old woman. The crash also involved two other vehicles and shut down the roadway for 5 hours. The CMV driver was charged with misconduct with a motor vehicle, and following too closely.⁷⁷

An example of a driver following too closely is shown in the video clip below. Training exercise questions follow the video clip.

Following too Closely



VIDEO DESCRIPTION: The CMV driver is traveling in the far right lane of a three-lane highway during the day. There is an exit-only lane on the right, adjacent to the driver's lane. The driver is following a lead passenger vehicle closely. The passenger vehicle begins to slow in order to move to the left and into the middle lane. The CMV driver does not slow down appropriately and comes close to the rear of the passenger vehicle as it changes lanes.

TRAINING EXERCISE: After viewing the video, try to answer the following questions:

- Does the driver appear to adjust his vehicle's speed to maintain a safe following distance with the lead vehicle?
- Why was the lead vehicle slowing down?
- Why did the driver brake excessively?
- What could the driver have done differently?

TIP #2: Double Your Following Distance in Adverse Conditions

Adjust your following distance to appropriately match weather conditions, road conditions, visibility, and traffic. In emergency conditions, maintaining a safe distance from the vehicle in front of you will allow you to stop safely and/or to take necessary evasive action.⁷⁸

Did You Know? The average stopping distance for a loaded tractor-trailer traveling at 55 mph (in ideal conditions) is 196 feet, compared with 133 feet for a passenger vehicle.⁷⁹

Did You Know? Braking distance can be greatly affected by road surfaces, weather conditions such as rain, ice, and snow, or debris.⁷⁸

Driving Tips

- [Failure to Buckle Up](#)
- [Too Fast for Conditions](#)
- [Unfamiliar Roadway](#)
- [Inadequate Surveillance](#)
- [Driver Fatigue](#)
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From: Natasha Rostova<NRostova@RandRTransport.com

Sent: Monday, August 9, 2019 12:01 P.M.

To: Janna Petrovich<JPetrovich@RandRTransport.com; Alex Rostova<ARostova@RandRTransport.com

Subject: Your father

Janna,

Please stop scheduling your father for overnight trips. He is having difficulty sleeping and is worried about the Federal Investigation. He won't use his CPAP machine. He needs to be home before it gets dark. I don't want him driving at night anymore. His doctor just told him that his headaches and dizziness was due to something called, I don't know, hyperactive retina or something, having to do with his high blood pressure. Alex and Tom can handle the driving. You have to help me with this please. You know your father.

Natasha Rostova | President | R and R Transport

3109 SECOND STREET | Orangeburg, SC 29115

T 803.999.1234 | F 803.999.5678 | NRostova@RandRTransport.com | www.RandRTransport.com



Nicholas Rostova



Text Message
September 9, 2019

Arrived KS - pick up trailer. 3:07 AM

Leaving KS - traffic light. 3:15 AM

Slowing down - very foggy. No traffic. 3:55 AM

Didn't sleep well last night. 4:15 AM
Will stop somewhere for
b'fast. See you tonite!



CAROLINA BEVERAGE DISTRIBUTORS, LLC



November 1, 2019

VIA HAND DELIVERY:

Owen Williams

Re: Employment Termination - CONFIDENTIAL

Dear Owen:

We regret to inform you that as a result of a car accident on Ashley Phosphate road in North Charleston, South Carolina on 8/1/19 in which you were driving a company car during working hours and were determined to be at fault, we are terminating your employment effective November 1, 2019.

We determined from a review of your personal Instagram account and Company records that at the time of the accident you were using a company issued cell phone camera to record yourself on video while operating the vehicle, which contributed to the accident. This is a violation of Company policy and is your second offense of this nature.

Because you are being terminated for cause, you are not eligible for unemployment benefits. Your Workers Compensation benefits from the accident on I-26 on September 9, 2019, which we determined to **not** be your fault, will be continued until you reach maximum medical improvement and the treatments for your injuries sustained in that accident cease, and your claim is resolved.

You are also hereby notified that you are being represented by Company counsel in connection with both accidents, and you are not to discuss the facts of these accidents with any third party other than your counsel as provided by our insurance company, unless directed by your counsel to do so. CBD agrees to fully defend and indemnify you for any personal liability that may be determined from these events, and the Company will reimburse you for your time in meetings, depositions or trial related to these claims at your hourly pay rate when you were employed by us (\$25/hour). Please keep a record of this time and submit it to the Human Resources Director in Charlotte.

Failure to cooperate in your own defense or abide by your lawyer's instructions will be grounds for withdrawing our defense and indemnification obligation and may subject you to significant personal liability.

Please call me if you have any questions.

Sincerely,

Derek Samuels
Human Resources Director

//ds

Cc: Defense Counsel

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Let's Get Real About Perception-Response Time

John Middlebrooks

Imagine a trial about a botched surgical procedure. A surgery "expert" takes the stand to give his opinion. Upon examination, he says that no, he has never done any surgery himself. Nor has he ever studied the underlying scientific disciplines of anatomy or physiology. He says that he qualified, however, because he has read a book chapter on surgery by the noted physician Paulski Olsonovich and that he once took a 2-day chiropractor course that included a 2 hour discussion of surgery.

Would this surgery "expert" be allowed to testify? Not likely. But substitute the phrases "perception-response time" for "surgery," "vision" for "anatomy" and "cognition" for "physiology" and apparently, voila, the "expert" is qualified.

This probably explains why there is no area of "expert" opinion on road accidents that has more misinformation, more inappropriate use of canned numbers, more misunderstanding and, to use scientific terminology, more good old fashioned BS. Like the surgery expert above, most PRT "experts" have never actually done the task that they feel free to opine about. They have likely never measured a reaction time nor done any other behavioral scientific research and do not understand the complexities of scientific research and how much the methodological details determine what a scientific research study can actually tell you. In short, science, like surgery, is something you do and not just something you know. Moreover, most "experts" have never read the original source data and don't have the background to evaluate and interpret the studies if they did. Like the surgery expert, they have no training or experience in foundational scientific areas, human learning, memory, perception, decision-making, etc., to put the results into a broader behavioral context. They rely on secondary sources that omit many of the critical methodological details necessary to interpret the data.

Accident reconstruction is about physics - speeds, time, distances, etc. Accident reconstructionists, however, sometimes feel compelled to go beyond physics and to give an opinion on causality and accident avoidability. Here is where the trouble starts. The accident reconstructionist cannot give an avoidability opinion without providing a PRT value. This clearly goes beyond physics into the realm of human behavior, i.e., the field of psychology. With no scientific experience in psychology, however, the "expert" simply parrots a value that he has heard in a course, read in a secondary source book, [pulled blindly from a computer program](#), etc. although he has no real understanding of where it comes from or what it means.

The article below, published in Collision 2009 and elaborated in ([Middlebrooks, 2022](#)), demonstrates why such an approach is inadequate. It also shows why it is necessary to actually read the original source research and why a background in basic perception, cognition, etc. is necessary to understand what the research is really saying. Lastly, it shows why a background in having actually performed behavioral research is essential to opine on topics such as perception-response time.

Perception-Response Time: Is Olson & Sivak All You Need To Know?

Accident reconstruction often requires a driver "perception-response time" (PRT), the interval between obstacle appearance and driver response initiation, i.e., the foot just touches the brake pedal and/or the hands just start turning the wheel. The PRT number is often a critical factor in establishing causation and subsequently in assigning blame.

There are two popular opinions and rationales for PRT. The first opinion is that the PRT is 1.5 seconds. The usual basis for 1.5 seconds is that the reconstructionist read it in an accident reconstruction book, learned it in a class or simply believes that it is the "accepted value." The second opinion is that the PRT is 1.1 (or 1.6 for the 95th percentile driver) based on "Olson." This opinion almost invariably means that the accident reconstructionist has read one of Olson's secondary sources, such as a chapter in *Forensic Aspects of Driver Perception And Response* (2003), or has simply seen it cited somewhere. In fact, the data stem from Olson & Sivak (1986), but Sivak remains anonymous because few have read the original research. For simplicity, I will simply refer to the data as "Olson," which is how they are usually referenced.

In either case, the rationale is inadequate. PRT is a very complex, situationally-dependent phenomenon that cannot be captured in the canned numbers that are so typically employed. Few who reconstruct accidents know much about the underlying science, where the numbers they quote originate, how they were obtained or what they really mean.

This article addresses the misuse of canned numbers (including the AASHTO 2.5 seconds and computer programs) in general but focuses primarily on the "Olson values." There are three main problems. First, every research study has limited generality because it is conducted under a specific set of conditions. An accident reconstructionist wishing to apply Olson, or any other research study, to a specific accident should understand the differences between the driving situation in the study and the specific accident. These differences will be smaller in some cases and larger in others, but there will be always differences. In some cases, Olson does not apply at all. In fact, the concept of PRT itself may not even apply. The discussions below of visibility and the tollbooth problem are examples.

Second, Olson is a perfectly fine study, but it is only one of perhaps 100+ driver PRT studies. These other studies provide data for other sets of conditions. Knowledge of these studies allows the reconstructionist to better interpolate and extrapolate PRT for a broader set of conditions. However, there are no existing data for many common accident scenarios, so it is often impossible to determine a PRT with much precision. For example, there are almost no data for PRT at night, when accidents are frequent.

Third, assigning a reasonable PRT requires knowledge that goes even beyond the PRT literature. The issue of driver PRT cannot be snipped off from the larger topics such as perception, memory and learning and examined independently. This is especially true in accident scenarios where no PRT data exist. The assessment of older driver PRT, as discussed later, is a good example.

What Does Olson Actually Say?

In order to properly use Olson (or any other study) as a basis for estimating real world PRT's, the first step is to carefully analyze the experimental procedure. The second step is to determine the differences between research conditions and the accident conditions. The last step is to compensate for the differences. This is the most difficult problem.

A close reading of the Olson & Sivak study reveals the important methodological details. Olson tested two groups, a younger group of 49 drivers with an age range of 18-40 and an older group of 15 drivers with an

age range of 50-84. The drivers were told only that they would be a study of driver behavior. They drove the test vehicle during daylight at about 27-31 mph with the experimenter sitting in the rear seat. The route took them over a rural road chosen so that there would be no distractions or possible hazards. After 10-15 minutes, the vehicle came to a hill. The experimenters had placed an obstacle, a 6" x 36" block of foam, in the left side of the lane directly in front of the driver. As the driver ascended the hill, the obstacle came into view. The sight distance to the obstacle was about 150 ft (46 meters), which translated to about 3.3-3.8 seconds time-to-collision (TTC). Instruments measured the time/location at which the driver released the accelerator and pressed the brake. In order to determine the PRT, the driver had to re-travel the route and tell the experimenter where he had first seen the obstacle. Olson then calculated the putative PRT time by measuring the distance from the location where the driver claimed to have first seen the obstacle to the location where he released the accelerator. PRT is this distance divided by speed.

Their results show a median PRT of about 1.1 second to press the brakes, with no difference between younger and older drivers. The 5th percentile drivers responded in .8 second while the 95th percentile driver responded in about 1.6 seconds. Olson has published these results in several later book chapters but without the methodological details.

First, the research was not exactly a study of PRT to an unexpected obstacle. The PRT determination required the driver to return to the scene and to say where he first saw the obstacle. At this point, the obstacle was expected and not a surprise.

This is a very unusual way to determine PRT. Usually, the PRT clock starts counting at the moment the signal is presented. It is unclear how accurately drivers could say where they were when they first saw the obstacle, so there are questions about what this study actually measured. However, one thing is certain: if the PRT clock had started counting at the moment when the driver first had a clear sightline to the obstacle, then the PRT would have been longer.

Reading the actual study reveals that the methodology was biased to produce short PRT's. There are many other procedural factors that further promoted very short PRT and that limit the study's generality for assigning PRT to real accidents.

1. Drivers were alerted. The term "alerted" unfortunately has two senses, which often creates confusion. Some authors use the term "alerted" to mean that the driver knew that there was an obstacle or even a particular obstacle ahead. In this sense, "alerted" means "expecting."

The other sense of "alert" refers to general arousal level. Drivers in the Olson study may not have been expecting a particular obstacle, but they certainly were alert and had a very high arousal level: they were participating in an experiment where their behavior was being monitored. There was even someone sitting in the back seat watching them. Moreover, they had been driving only 10-15 minutes before encountering the obstacle. Arousal level is related to driving time. The well-known phenomenon of vigilance decrement (Mackworth, 1948), a rapid decline in detection, typically starts within a half hour after task initiation. Further, research (Philip, Taillard, Klein, Sagaspe, Davies, Guilleminault, & Bioulac, 2003) has shown that time spent driving is a better predictor of decrease in driver performance than hours without sleep. The short driving time in the Olson study gives the test drivers a significant arousal advantage over a real driver who may have been on the road for an extended period.

In sum, the Olson drivers' high arousal level likely produced shorter PRT's than would occur under many normal driving scenarios. Olson was fully aware of this likelihood when he noted that "The subjects in this study were possibly alert relative to the general population of drivers" and that "the results are probably conservative (i.e., lower) to what would be found in the real world."

2. *The testing occurred during the day.* Olson does not specify the times of his testing, but it is likely that much of it was performed when drivers are at a moderate or high point on their "circadian rhythms," the normal 24-hour cycle of arousal that all people experience.

For most people, the arousal cycle has lows in the late afternoon and especially in the early morning hours. During these periods, many performance measures, such as accident rates and PRT are at their worst. One study (Wylie, Shultz, Miller, Mitler, & Mackie, 1996) of long haul truck drivers, for example, found that accidents correlated with time-of-day, early morning hours, but not with time-without-sleep. As a rule of thumb, in fact, it takes about 24 hours before people exhibit major sleep-deprivation losses.

Olson's drivers then likely had this additional arousal advantage over normal drivers in the early morning hours who are at a low point on the circadian rhythm. However, drivers who habitually work nights may have their rhythm "phase shifted," so the peaks and lows are at different times than normal drivers.

3. *The obstacle appeared at the point of fixation.* Olson placed the obstacle on the roadway at the crest of a hill and directly in front of the driver. It likely the exact location where the driver was fixating at the moment he reached the 46 meter sight distance. Location of an obstacle in the visual field can affect PRT. The optimal location is along the sightline at the point of fixation. Objects located here cast their images on the fovea, the retinal area of sharpest vision and the focus of attention. Olson placed the obstacle in the ideal visual field location.

In contrast, many collision scenarios involve a lane incursion where a vehicle or pedestrian approaches from the side. The obstacle then first appears in peripheral vision, where visual sensitivity is lower and attention is weaker. Moreover, when a viewer detects an object in peripheral vision, he most likely makes a saccadic eye movement toward it. The saccade requires time to move the eye plus a "dwell time" for the viewer to perceive the scene. The total saccade time about is 1/3 second in good day visibility. At night, the time is likely to be longer. The first saccade may miss the object, so viewers may have to make more than one saccade to "home in" on the target. When the new fixation requires a significant change in distance, such as shifting gaze from a mirror to an obstacle a few hundred feet down the road, the eye's change of accommodation and vergence and reacquisition can drive the time up to as long as a second (Travis, 1948.)

Lastly, if the target is more than 15° from the sightline, the driver will likely also have to make a head turn. Imagine a driver approaching an intersection or railroad track. He must turn his head to look one direction and then the other. It takes the driver 85th percentile driver .7 seconds to turn his head one way and then another 1 second to turn back the other (Long & Nitsch, 2008). This 1.7 seconds search time is on top of the PRT.

Visual field effects likely explain why Olson & Sivak found a 1.1 median PRT second while studies (Middlebrooks, 2008a) using lane incursions typically find slower mean PRT's of about 1.5 seconds. (About .1 second of this difference is likely due to the difference between using median and mean as measures of central tendency.) Olson and Sivak's 95th percentile level was 1.8 seconds while the 95th percentile lane incursion PRT would be about 2.4 seconds, which is also near value used by AASHTO in geometric road design.

In sum, the Olson study optimized the PRT by placing the obstacle at the fixation point directly ahead of the driver. PRT will be longer when objects approach from the side as well as for other reasons discussed in subsequent sections.

4. *The visibility conditions were good.* Olson tested drivers in daylight and good visibility, so obstacle visibility was not a limiting factor in driver behavior. PRT is likely to increase at night and under other low visibility conditions.

In fact, when visibility is sufficiently low, the concept of PRT becomes irrelevant. After all, if the driver can't see the obstacle, then he can't respond to it. For example, assume that PRT for a pedestrian cutting left-to-right across the driver's path in good visibility conditions 1.5 seconds. In this case, driver first sees the target in peripheral vision. At night, the same pedestrian wearing dark clothing emerges from outside the drivers headlamp beams. When the pedestrian is far to the left, he receives little headlamp illumination and is invisible.

As pedestrian and vehicle approach, more headlamp illumination falls on the pedestrian. At some point, driver sees the pedestrian. In theory, the 1.5 seconds reaction time clock starts when the pedestrian first becomes visible in the periphery. But when is that? [Note: Olson didn't start timing PRT until the point at which the driver actually saw the obstacle.] In order to state a well-defined PRT, it would be necessary to know the exact point at which the pedestrian became visible. Even if this could be calculated, then it would still be necessary to specify the point where the pedestrian became conspicuous enough to draw attention and eye movement. This point is likely unknowable with great precision.

It is impossible to precisely estimate of the amount of slowing that will occur at night. However, some qualitative statements are possible. For the same pedestrian walking the same path, driver will have less time to avoid the collision at night because the pedestrian will likely have to be much closer in order to achieve the required visibility. The difference between day and night PRT will depend on factor such as street lighting, pedestrian clothing, background clutter, etc. A pedestrian wearing white clothing, for example, will often have better visibility and more approximate daylight visibility conditions than a pedestrian wearing dark clothing. However, there are exceptions (Middlebrooks, 2008b).

Lastly, low visibility conditions also slow cognitive processing by creating uncertainty and by impairing recognition. I explain this further in the next section.

5. The obstacle appeared suddenly and unambiguously. Olson's drivers responded reflexively and did not have to think much because the situation was very clear. There was minimal cognitive processing, little uncertainty and no complexity, so PRT was very short. Moreover, the variability is very small because people are relatively uniform in their speed of making reflexive responses.

Situations that are more ambiguous or which develop more gradually require conscious thinking that slows response and drastically increases variability. For example, a driver traveling at night who approaches red and white dots (e.g., the rear reflective tape on a truck) at some ill-defined distance must gain "situational awareness." He must identify the lights, determine the distance, search memory for previous similar experiences, decide what is going to happen if he responds and if he doesn't respond, choose a response, chose how hard to make the response, etc. (Middlebrooks, 2008). Moreover he must consider his ability to control vehicle speed and direction.

The "tollbooth problem" (Fajen, & Devaney, 2006) provides a good example. Imagine a driver on a high-speed limited-access road traveling 65 mph. Suddenly, he sees a tollbooth up ahead about a mile away and realizes that he will have to stop. Does he start braking immediately? The answer, of course, is no. Immediate braking wastes time arriving at the tollbooth. Rather, the driver has an internal model of his vehicle's braking capabilities and has learned the mount of time/distance needed to stop at a comfortable deceleration (or even at an uncomfortable deceleration.) Eventually he reaches the critical distance and begins to brake.

Theoretically, PRT would be the time between first sighting of the tollbooth and the pressure on the brake pedal. However, this is not a "reaction" in any conventional sense, so the concept of PRT doesn't really apply. The driver does not brake because there is no need to act. While the tollbooth problem might seem trivial, drivers face similar problems frequently. Up ahead, they see brake lights or unidentifiable objects, some dim dots of red and light. Should the driver brake immediately or wait until he is sure of the situation?

The point of the tollbooth example is that there is much more to PRT than perception. Drivers have a mental model of their ability to control their vehicle. The decision to act is always based partly on this mental model. The model's constituents are the "safe field of travel" and "stopping distance" (Gibson and Crooks, 1938). As a driver travels down the road, he is surrounded by obstacles, cars ahead, curbs and other barriers, pedestrians crossing the road, etc. which define a safe field of travel. This field changes constantly as new vehicles, pedestrians, etc. appear and change position.

The driver also has a mental stopping distance and steering model of his ability to brake/swerve his vehicle. This area is like a cocoon that surrounds the driver, providing a buffer zone with obstacles. Drivers believe that they can avoid collision with obstacles outside the cocoon. Ideally, the driver steers his vehicle through the cocoon's center, adjust speed and direction as the safe field of travel dynamically changes.

For this scheme to work, the driver must accurately assess object distance, speed and stopping distance (or time). However, distance perception is highly fallible, especially for small points of light, unfamiliar objects, foggy atmosphere and some other situations. Drivers are also poor at judging their own speed (Denton, 1980) and there are many situational factors that can cause them to underestimate how fast they are going, I e., fog and, low edge rates (Denton, 1980.) Drivers may also err in their belief of stopping ability when driving an unfamiliar vehicle or on wet or icy roads, sharp downgrades, dark conditions, etc.

Moreover, most drivers have likely had little or no experience making sudden stops, especially at high speeds. They base their cocoon size on their experiences stopping at lower speeds. Since stopping distance increases with the square of speed rather than linearly with speed, they are likely to underestimate the needed distance.

Even if the driver decides to respond, the choice of response is sometimes unclear. A driver heading toward a tractor-trailer blocking the road may find that there is no time to brake and that steering to the left will take him into oncoming traffic while steering to the right will put him in a ditch. This is termed an "avoidance-avoidance" conflict where the driver must choose among a set of bad alternatives. In such cases, PRT typically is very, very long. Often, the driver can't decide and fails to respond at all before collision. The common example is the underride accident where there is an unfortunate tendency to assume the driver's failure to respond because he had fallen asleep. In fact, the driver may have been caught in an avoidance-avoidance crisis.

6. The drivers were traveling slowly. Olson's drivers traveled at speeds ranging between 27-31 mph. At such slow speeds, sudden, abrupt braking or steering is less likely to cause an unrecoverable loss of control and to have dangerous consequences. In contrast, drivers traveling at 65 mph on a freeway may hesitate to make sharp swerves or go to full-out braking because of potential control loss. They have to weigh the hazard of a collision with the hazard created by a loss of control that sends the vehicle over a median or guardrail, into other traffic or that initiates a side-skid and rollover. It is a type of avoidance-avoidance conflict that will likely lengthen PRT.

The fear of losing control is likely why drivers frequently resort to two-stage braking (Prynne & Martin, 1995). They initially push the brake pedal down part way and then monitor the situation, hoping that they can avoid the collision without an extreme response that risks loss of control. If collision is still likely, then the driver might go to the extreme maneuver.

7. *The environment was simple. A rural road or test track provides few driver distractions to draw attention and little clutter to create masking, overshadowing and crowding or to compete for attention. When drivers are tested on more urban landscapes, the PRT will likely be longer. For example, the presence of vehicles parked on the roadway was sufficient to almost double PRT to suddenly appearing pedestrians (Edquist, Rudin-Brown, & Lenné, 2012). Urban areas are also likely to have more traffic, which slows situational awareness (Gugerty, 1997).*

8. The "older" drivers were not all old. Olson somewhat surprisingly failed to find any slowing in their "older drivers." This has caused many to claim that aging has no effect on PRT. However Olson's "old" group included drivers as young as age 50. While visual abilities start their decline in the early 40's, the significant effects do not begin until viewers enter the 60's. Olson does not give the ages of the individual drivers, so it is impossible to know the number who were in their 50's and early 60's where aging effects are small. However, it is very possible that Olson found no aging effect, in part, because their "older" drivers were too young.

Olson's task further likely minimized aging effects. As discussed elsewhere (Odom & Middlebrooks, 2008), studies in the basic research literature have repeatedly found that impairments of aging (and other conditions such as distraction and alcohol use) are more pronounced when perceptual and cognitive abilities are taxed under conditions such as low visibility, uncertainty and complexity. The simple, virtually automatic avoidance task in the Olson study required little cognition. It was performed in good visibility, so perceptual abilities were not a limiting factor.

Moreover, research with older subjects always raises the issue of representativeness. Olson does not state how he recruited the subject drivers. However, most researchers would routinely screen their subjects, especially older ones, for any visual or other health problems. The older subject drivers are then likely to be healthier, more active, in better visual and cognitive condition than the population as a whole. Moreover, the drivers very likely agreed voluntarily to be in the study. Only the relatively healthy and "spry" senior is likely to volunteer for a research study. In sum, research on screened, self-selected older drivers likely overestimates abilities of the older population as a whole. In any event, the "older" group consisted of only 15 drivers.

This discussion of older driver PRT highlights the point that PRT assignment often requires knowledge of the general psychological literature and of scientific methodology. First, it is necessary to actually read Olson's study in order to learn that he placed drivers as young as age 50 in the old category. This is not a detail that is ever mentioned in secondary sources. Second, the effects of complexity and uncertainty on the size of age-related deficits do not appear anywhere in the driver PRT literature or any computerized PRT program. It is basic science published in basic science sources. Third, the important issue of representativeness would not be apparent to anyone who was not intimately familiar with the way scientific research is conducted.

9. Urgency was low. There also factors which could speed driver response. Perhaps the most powerful is urgency. TTC is the most common measure of urgency. Olson & Sivak (1986) stated that average visibility distance to the hazard was 46 meters. With reported speeds of 12-14 m/s, the hazard first appeared with a TTC of about 3.3-3.8 seconds. This is a common TTC, which has been used in other studies such as Lerner (1983) where mean PRT was 1.5 seconds. The time for response is brief, but it would not be a highly urgent situation. Data show large decreases in PRT as the hazard appears with increasingly shorter PRT (at least for expected hazards). For example, a car-following study (Wang, Zhu, Chen, & Tremont, 2016) found that mean driver PRT decreased from 3.01 to 1.35 seconds with the increasing urgency produced by shorter headway and higher lead vehicle deceleration. As discussed elsewhere, takeover time (TOT) is faster with shorter time budgets. Moreover, other urgency factors of speed (braking and swerving distance) and obstacle

size were also low. Drivers treat the avoidance of large objects with more urgency (e.g., Jurecki, 2016), but the study's drivers only avoided a small block of foam.

10. There was no strong response conflict. Drivers generally have response alternatives for avoiding a collision. However, responses often conflict. The major conflicts are (after Hatterick & Pain, 1977):

1. Braking versus steering laterally;
2. Steering right versus steering left;
3. Accelerating versus braking;
4. Choosing a braking technique/deceleration rate; and
5. Steering from or toward a conflicting vehicle.

Although not all conflicts apply in any given scenario, the driver must usually make a choice. It might be supposed that the choice is the response with the best chance of avoidance, but this is not always true. For example, drivers often have collisions that were preventable because they chose braking over steering laterally and because they swerved into the path of the approaching vehicle (e.g., Malaterre, Ferrandez, Fleury, & Lechner, 1988). Moreover, the preceding discussion explained that driver PRT and response depend on the contingencies, the likely outcomes of different actions. At high speeds, drivers must weigh the probabilities and payoffs of a collision against losing control by hard braking and sharp swerving. This is an example of a more general class of PRT factors, response conflicts. In sudden emergencies, these "choices" are more likely based on "valences."

The final stage of the PRT information processing sequence is the selection from among the available responses. Drivers always have alternatives. Sometimes, as in Olson, the response is obvious and simple. The selection is made quickly and perhaps automatically with little or no thought. Sometimes, the choice is far more difficult. Most of the response selection focus has been on braking vs. steering (e.g., Malaterre, Ferrandez, Fleury, & Lechner, 1988), but these responses can theoretically be performed in parallel, so selection presents no great problem. In other cases, the responses conflict and are mutually exclusive, so mental processing of the alternatives can greatly slow PRT.

T Fuller, 1984; Schmidt-Daffy, 2012). Driving faster to get there sooner is + but being in a crash is -, so it is an approach-avoidance conflict. However, the concept is more apparent when applied to a driver confronted with a sudden emergency. Consider the following scenarios:

1 A driver is traveling at 65 mph when he suddenly sees a vehicle stopped in front of him. He wants to avoid the vehicle (-) which has a negative valence, but he does not want to lose control, possibly turning over or going into a tree or ditch (-). He is in an avoidance-avoidance conflict. Drivers, especially when they are traveling fast, must always weigh the risk of collision with the risks of various emergency maneuvers. Rapid deceleration becomes more aversive to drivers traveling at high speeds (Prynn & Martin, 1995), and they often hesitate at first and then brake with only moderate force (Keisewetter, Klinkner, Reichelt, & Steiner, 1999); and

2 A driver is approaching a tractor-trailer backing in and blocking the entire roadway. There is not enough distance to avoid by braking. What are the alternatives? He can steer right, which escapes the collision by going to where the tractor-trailer is not located (+) but would cause him to go into a ditch (-), an

approach-avoidance conflict. He can steer left to avoid the trailer (+) and into oncoming traffic (-), another approach-avoidance conflict. He is caught in a double approach-avoidance, which is the most difficult type to resolve. People encountering such conflicts tend to hesitate and vacillate. The result is a very long PRT or no response at all, especially in more conservative decision-makers such as females and older drivers (e.g., Hogarth, 1975).

To summarize, when and how drivers brake depends on perceived contingencies and not just on sensory judgments. Drivers generally respond faster when urgency is higher, but some factors can moderate PRT. One is speed. Fear of losing control at higher speed may slow response. When urgency is very great, PRT may also become very slow because the driver has a response conflict or because he simply gives up. Conversely, the driver may respond very quickly because any outcome is better than the sure collision and death.

Drivers can also adopt intermediate strategies. They have a choice to produce a given stopping distance by braking quickly with low deceleration or braking slowly with high deceleration, a tradeoff demonstrated in several studies (e.g. Li, Zhang, Yan, & Wang, 2015; Li, Rakotonirainy, & Yan, 2019). They can combine the strategies, initially braking quickly but decelerating slowly and then later brake harder if necessary. Given the critical role of outcomes in driver response, research studies that put drivers at no real risk have limited value in predicting PRT in the wild.

Lastly, the discussion above does not exhaust the list of factors that affect driver PRT. Others include the shift from automatic (ambient) to controlled (focal behavior), cognitive load, fatigue, alcohol/drugs, and the emotional effects of "fundamental surprise."

Conclusion

Accident reconstructionists should take the Olson results for what they are: a "laboratory test" of a simple situation where the hazard is an "unexpected" obstacle and where most conditions are high optimized. Any deviation, such as low visibility, peripheral visual field location, response conflict, complexity or uncertainty is almost certain to increase PRT. The finding that there is no loss of PRT with age is not generalizable and depends on specific conditions. Lastly, real drivers are unlikely to be as alert as the drivers in the study. Lower arousal level may produce longer PRTs, especially at low points in the circadian rhythm and after driving for extended periods. On the other hand, high urgency would be expected to produce shorter PRTs. The Olson results might overestimate PRT in some conditions (i.e, no response conflict).

Each of the factors described above would doubtless change alter the Olson's optimized 1.1/1.8 seconds PRT but assigning a precise number is difficult. I have sometimes seen opinions where someone arbitrarily adds 0.5 or 1 to compensate for nighttime or complex conditions. While essentially guesswork, these estimates are doubtless closer to reality than the simple, foveal, daytime, high-arousal values taken at face value. However, there are few if any PRT data for many of these conditions. This is why it is so important to have general knowledge about perception, attention and memory to fall back upon. They are often the only available guides.

Despite the lack of data for many situations, however, I can draw two practical conclusions about assigning a driver PRT. First, estimates will often cover a very broad range because precision is impossible. Second, estimates will often be very high - much higher than are normally seen. Low visibility and violated expectation make the obstacle disappear and even a moment's hesitation to search or to think or to decide upon response can eat up seconds. Lastly, PRT starts when the driver perceives a hazard, an internal unobservable event. This makes determining PRT, regardless of conditions, very difficult.

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CDR File Information

User Entered VIN	1J4PN2GK8AW177522
User	TROTTER
Case Number	CL-063-19
EDR Data Imaging Date	09/10/2019
Crash Date	09-09-2019
Filename	1J4PN2GK8AW177522_ACM_CL-063-19.CDRX
Saved on	Tuesday, September 10 2019 at 12:14:18
Imaged with CDR version	Crash Data Retrieval Tool 19.0
Imaged with Software Licensed to (Company Name)	South Carolina DPS
Reported with CDR version	Crash Data Retrieval Tool 19.0
Reported with Software Licensed to (Company Name)	South Carolina DPS
EDR Device Type	Airbag Control Module
Event(s) recovered	Most Recent Event 1st Prior Event

Comments

Year: 2010
 Make: JEEP
 Model: LIBERTY
 Inspection location: CAROLINA TOWING II
 Individuals present: TROTTER, GILBERT

Observed visible restraint deployment(s): DRIVER SIDE CURTAIN

Imaging conducted pursuant to search warrant (warrant details) (Y/N)? Y
 Imaging conducted pursuant to owner consent (Y/N)? NA
 Imaging conducted pursuant to civil discovery (Y/N)? NA

Ignition key or fob available and its position at the start of the inspection: NA
 Odometer reading/units: NA
 Recommended tire size (sticker): 225/75R16
 Tire size(s) (actual): 235/70R16
 For GM vehicles, were RPOs documented (i.e.: photo)? N/A

Imaging completed by DLC or direct-to-module access: DIRECT TO MODULE
 "Re-powering" required (Y/N)?
 Additional power-up used:

Other notes:

Disclaimer

I have accessed and retrieved data from CDR Tool accessible system(s) from or in the vehicle identified by the applied VIN in which potential Event Data Recorder (EDR) may be found. The retrieved data may be related to a crash or other physical event. The successful retrieval of the data and production of this report is an indication that the procedure(s) necessary to properly access and retrieve the data have been followed and the data was properly imaged/downloaded.

I have or will provide the appropriate party(s) a copy of the original, raw data file - the underlying CDR System file - for discovery and/or later re-printing as necessary. This file will be named using the vehicle's Vehicle Identification Number (VIN) and identified by the *.CDRx file extension. This file should only be opened and viewed with the latest version of the Bosch Crash Data Retrieval System Software; improper use of a "text viewer" may corrupt the CDRx file which would prevent it from being opened again in the CDR Tool software and generating a data translation report.

The raw data as found in the CDRx file might be compared to a photographic negative and it is a direct image or copy of the data stored on/in the module(s) accessed using the CDR Tool. The CDRx file should be preserved in its native format, unedited, and should be shared in that format where it may be viewed at a later date using a licensed copy of the CDR Tool software or using the "free reader" version of the CDR Tool software in the latest production release of that software. Prior to any analytical use of this data or legal proceeding, the original *.CDRx file should be reopened and the raw data translated in the latest production version of the CDR software to ensure the most recent, complete

translation of the data is used as described in the “Important Notice” above.

I have indicated to the individual(s) receiving the CDRx file that the report includes a Data Limitations section which follows this disclaimer and that portion of this translation report may describe or suggest conditions or characteristics of the data which may be, on the surface, confusing or require a more complete analysis by other means. I have also informed the individual(s) that the data may be affected by conditions or vehicle characteristics described in the Data Limitations section of the report or in other related reference material including, but not limited to, the CDR Tool software Help File. For these reasons and others, a situationally complete analysis of the crash or event under study should be undertaken to fully evaluate the meaning, usefulness and applicability of the recovered data found in this report.

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 direct-to-module imaging could 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.
- Delta-V is first available starting with some 2010 MY vehicles.
 - On vehicles not equipped with side impact sensing, Lateral acceleration and Delta-V will not be available.
 - Lateral acceleration is also not available for the 2008-2009 MY Chrysler Town and Country/ Dodge Grand Caravan/Lancia Voyager and 2010 MY Dodge Journey and Fiat Freemont even when equipped with side impact sensing.
 - Longitudinal and Lateral Delta-V are not available for the 2010-2012 MY Chrysler Town and Country/ Dodge Grand Caravan/Lancia Voyager.
- 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
Longitudinal Acceleration	Forward
Delta-V, Longitudinal	Forward
Maximum Delta-V, Longitudinal	Forward
Lateral Acceleration	Left to Right
Delta-V, Lateral	Left to Right
Maximum Delta-V, Lateral	Left to Right
Steering Input*	Steering wheel turned counter clockwise
Angular Rate	Left to Right Rotation/Clockwise rotation around the longitudinal axis
Yaw Rate**	Counter clockwise rotation

- * The Steering Input for the following vehicles has a positive sign notation for the steering wheel turned clockwise:
- o 2006 - 2007 Grand Cherokee
 - o 2006 - 2007 Commander
 - o 2005 - 2010 300, Magnum, and Charger
 - o 2008 - 2010 Challenger

**The Yaw Rate for the 2011-2012 MY RAM has a positive sign notation for clockwise rotation.

CDR FILE INFORMATION:

- For ACMs that store non-deployment events, 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.

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.
- For Continental ACMs:
 - Event Record 1 - Data from an event is stored in the ACM (not necessarily in chronological order)
 - Event Record 2 - Data from another event is stored in the ACM (not necessarily in chronological order)
 - Event Record 3 - Data from another event is stored in the ACM (not necessarily in chronological order) (for modules with 3 stored events)
- For all other ACMs:
 - Most Recent Event - Data of the most recent event is displayed in the report
 - 1st Prior Event - Two events are stored in the ACM, Data displayed is of the first prior event.

- 2nd Prior Event - Three events are stored in the ACM, Data displayed is of the second prior event.
- Etc., (for modules with 3 to 5 stored events)
- 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:
 - "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 Vehicle Event /Pre-Crash Recorder Status.
- For 2010-2012 MY Dodge Journey and 2010-2012 MY Chrysler Town and Country/Dodge Grand Caravan/Lancia Voyager, a non-deployment event will also display "Interrupted" for the Vehicle Event/Pre-Crash Recorder Status. This non-deployment event can be distinguished from a power loss by:
 - In the System Status at Event and Deployment Command Data section, Event/Deployment Recorder Status will display "Interrupted".
 - In the Deployment Command Data section, a value of "No" will be displayed for each deployment data element.

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:

- 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 the 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. It is possible that the AHRs may activate after the EDR record has been stored and written, based on achieving the minimum delta V. This condition will result in an EDR but no record of the AHR activation in the CDR report. Activation of only the AHRs, if stored, will be a non-deployment event.

SYSTEM STATUS AT EVENT (if applicable):

- Event Number -
 - Indicates the event number per vehicle ignition cycle for 2010-2012 Sebring, Avenger, Caliber, Nitro, Compass, Liberty, Patriot, Wrangler, and Ram
 - Indicates the overall order of the events for all other applicable vehicles.
- Event Signal Transmission, Complete - "Yes" indicates that the ACM has sent the automatic collision notification (ACN) message.
- 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.
- Side Fuel Cutoff, Activated - Applicable to the Fiat 500, "Yes" indicates that the ACM has sent the automatic collision notification (ACN) message.
- System Voltage at Event, ECU - 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
- 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.
 - 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.
- 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.
- Total Number of Events -
 - Stops incrementing when each event record is recorded by the ACM for 2010 - 2012 Sebring, Avenger, Caliber, Nitro, Compass, Liberty, Patriot, Wrangler, and Ram
 - Indicates the total number of events that the ACM has recorded, including those non-deployment events that have been overwritten by a subsequent event, for all other applicable vehicles.
- VIN at Event, Last 8 Digits- Last 8 digits of the VIN of the vehicle at the time the ACM records the event.

STATUS OF THE DATA IN THE MOST RECENT EVENT (if applicable):

Definitions for Data Blocks 1 - 7 and Overall Data Record Complete:

1. Crash Record (system status and DTCs)
2. NHTSA Table #1 Vehicle System data
3. NHTSA Table #1 Longitudinal delta-V
4. NHTSA Table #2 Vehicle System Data
5. NHTSA Table #2 Lateral delta-V - will be a NO if vehicle is not equipped with side sensing
6. ACM angular rate data - will be a NO if vehicle is not equipped with roll-over sensing
7. Other Vehicle System Data - Chrysler Specific Data

Overall Data Record Complete - Yes, No is defined based on the specific vehicle configuration. For example, a NO may be present for a non-applicable data block but a YES may be present for overall data record complete as all of the applicable data is complete.

DEPLOYMENT COMMAND DATA (if applicable):

- A "Yes" for a particular item in the Deployment Command Data section of the report indicates that the ACM commanded the deployment /activation of the associated device.
- Deployment of Seatbelt Pretensioners is not stored in the EDR for the 2010 MY vehicles that utilize a TRW ACM. Assessment of the seatbelt pretensioners' deployment status in these vehicles must be made by physical inspection in the vehicle.

DTCs PRESENT AT START OF EVENT (if applicable):

- 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.

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 a recorded event has Engine RPM equal to SNA and Speed, Vehicle Indicated equals SNA for each time stamp, then the data is default data and the event stored in the ACM is not valid.
- (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.
- Brakes:
 - Brake Lamps On - "On" indicates that the brake lamps/CHMSL are illuminated.
 - Brake Switch #2 Status - "On" indicates that the brake pedal is depressed.
 - Braking System, Intervention by ESP - "Yes" indicates that the stability control system has engaged the brakes.
 - Braking System, Intervention Enabled "Yes" indicates that the ESC system is functional.
 - Braking System, Emergency Braking - "Yes" indicates that panic brake assist is active.
 - Braking System, Maximum Braking -- "Yes" indicates that ABS is active on all 4 wheels.
 - Panic Brake Assist Active - "Yes" indicates that all four of the brake circuits are undergoing ABS control.
 - Service Brake - "On" indicates that the brake pedal is depressed.
- Cruise Control:
 - Cruise Control System/Status - "On" indicates that the Cruise Control system is turned on.
 - Cruise Control Engaged/Active - "Engaged"/"Yes" indicates the Cruise Control system is actively controlling vehicle speed. "Not Engaged"/"No" indicates the system is NOT controlling vehicle speed.
- Electronic Brake/Stability Control information:
 - 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.
 - ESP Lamp - This is the status of the ESP symbol - "car with squiggly lines" indicator lamp. "On" indicates ESP has been turned off by the driver or has reduced performance and is not an indication of a fault in the system.
 - ESP Lamp Flashing Requested - If "Yes", then an ESP, Traction Control or Trailer Sway Control (if equipped) event was active at the time of data capture.
 - ESP Disabled - "Yes" indicates that ABS & ESP have been disabled by the driver or due to system performance.
 - ESP/ESC Functional/Active - "YES" indicates that the ESP system is functional and has no faults.
 - ESC System Status - "OK" indicates no faults in the ABS or ESC system that affect the system functionality; "ABS Fault" indicates a fault in the ABS system and "ESC Fault" indicates a fault in the ESC system.
 - 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.
 - 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.

- Traction Control Intervention Active - "Yes" indicates that the traction control system is actively controlling the vehicle's wheels.
- Engine RPM - On 2006-2009 Ram 2500/3500, the Engine RPM recorded is limited to a maximum of 4080 RPM. On the 2008 - 2010 Dodge Grand Caravan, 2008-2010 Chrysler Town and Country and 2009-2010 Dodge Journey, the engine RPM resolution is 256 rpm. On all other vehicles, the resolution is 32 rpm.
- Engine Throttle, % Full - This indicates the actual position of the Engine Throttle blade.
- ETC -
 - On vehicles equipped with ETC, "Accelerator Pedal, % Full" and "Engine Throttle, % Full" are relative values - relative pedal position and relative engine throttle. These parameters may record values of less than 100% when the pedal/throttle is actually at its maximum. (Max. ~ 77%)
 - 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.
- 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.
- Raw Manifold Pressure - This indicates engine load in kPa.
- 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 the 2008 - 2009 Dodge Grand Caravan, 2008-2009 Chrysler Town and Country and 2009 Dodge Journey, the speed resolution is 2 kph. On all other vehicles, the resolution is 1 kph. 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, 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.
 - Wheel Speed, XX - This indicates the speed value (in revolutions per minute) of a particular tire as denoted by XX.
 - For the following vehicles, the tire location, if displayed, may not be accurate if the tires have been rotated:
 - 2011-2012 MY Jeep Wrangler
 - 2010-2012 MY Jeep Patriot
 - 2010-2012 MY Chrysler 200
 - 2010-2012 MY Jeep Compass
 - Tire pressure is not stored in the EDR for the following vehicles. If a value is displayed, it may not be accurate:
 - 2011-2012 MY Jeep Grand Cherokee
 - 2011-2012 MY Dodge Durango
 - 2010-2012 MY Dodge Challenger
 - 2011-2012 MY Chrysler Town and Country
 - 2011-2012 MY Dodge Grand Caravan
 - 2010-2012 MY Ram
- Tire Pressure Monitor Indicator Lamp - "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" represents the last set of data captured in the buffer prior to "T0."
- Transmission/Shifter Position -
 - Gear Status - This indicates the current transmission gear.
 - PRND/PRNDL Status - This indicates the status of the Shifter Position.
 - Reverse Gear - For manual transmission vehicles only, "Yes" indicates the transmission is in the reverse gear.
 - Shift Gear Position - This indicates the current transmission gear/Shifter Position.
- Vehicle Data 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.

APPLICATION INFORMATION:

- 2005 - 2009 Durango's equipped with side airbags have EDR data that can be imaged by the CDR tool. Durango's not equipped with side airbags have EDR Data that might be imaged by the CDR tool and may be imaged by the supplier.
- For 2005 & 2006 MY, some Chrysler 300, Dodge Magnum, Dodge Charger, Jeep Grand Cherokee, and Jeep Commander models may contain EDR data that cannot be imaged by the CDR tool, but may be imaged by the supplier.
- For 2006 & 2007 MY, some PT Cruiser models may contain EDR data that cannot be imaged by the CDR tool, but may be imaged by the supplier
- EDR Data is only recorded for frontal deployments in the following vehicles:
 - 2005-2007 Durango

- 2006-2007 Ram 1500
- 2006-2009 Ram 2500/3500 Heavy Duty
- 2007 Aspen, Caliber, Compass, Patriot, Nitro, Sebring, Wrangler

03001_Chrysler_r025

System Status at Retrieval

Original VIN	1J4PN2GK8AW177522
Airbag Control Module Part Number	56054603AE
Airbag Control Module Serial Number	TDTMF172000242a
Airbag Control Module Supplier	TRW

System Configuration at Retrieval

Configured for Driver Frontal Airbag	Yes
Configured for Driver Knee Airbag	No
Configured for Driver Buckle Pretensioner	No
Configured for Driver Retractor Pretensioner	Yes
Configured for Driver Seatbelt Switch	No
Configured for Driver Seat Track Position Sensor	No
Configured for Driver Active Head Restraint	Yes
Configured for Left Curtain Airbag	Yes
Configured for Left Side Seat Airbag	No
Configured for Passenger Frontal Airbag	Yes
Configured for Passenger Knee Airbag	No
Configured for Front Passenger Buckle Pretensioner	Yes
Configured for Front Passenger Retractor Pretensioner	Yes
Configured for Front Passenger Seatbelt Switch	Yes
Configured for Front Passenger Seat Track Position Sensor	No
Configured for Front Passenger Active Head Restraint	Yes
Configured for Right Curtain Airbag	Yes
Configured for Right Side Seat Airbag	No
Configured for Front Passenger Occupant Classification System	Yes
Configured for Occupant Detection Sensor	No
Configured for Left Up Front Sensor	Yes
Configured for Right Up Front Sensor	Yes
Configured for Left Door Pressure Sensor	No
Configured for Left Side Row 1 Sensor	Yes
Configured for Left Side Row 2 Sensor	Yes
Configured for Left Side Row 3 Sensor	No
Configured for Right Door Pressure Sensor	No
Configured for Right Side Row 1 Sensor	Yes
Configured for Right Side Row 2 Sensor	Yes
Configured for Right Side Row 3 Sensor	No

System Status at Event (Most Recent Event)

Event Recorder Status	Complete
Event Record Status - Delta-V, Longitudinal	Complete
Event Record Status - Delta-V, Lateral	Complete
Event Record Status - Angular rate	Interrupted
Event Number	1
Total Number of Events Recorded	3
Odometer Recorded at Event (miles [km])	171978 [276772]
Operation System Time at Event (min)	347560
Ignition Cycles, Crash	19727
VIN Recorded at Event (last 8 characters)	AW177522
Vehicle System Voltage Recorded at Event (V)	14.5
Operation Via Energy Reserve Only	No
Safety Belt Switch Configured, Driver (if equipped)	No
Safety Belt Switch Configured, Passenger (if equipped)	Yes
Safety Belt Status, Passenger (if equipped)	Unbuckled
Safety Belt Switch Fault, Passenger (if equipped)	No
Seat Track Position Sensor, Driver (if equipped)	Not Configured
Seat Track Position Sensor, Passenger (if equipped)	Not Configured
Airbag Warning Lamp "On" at Event	On
Airbag Warning Lamp "On" Time Before Event (min)	65535

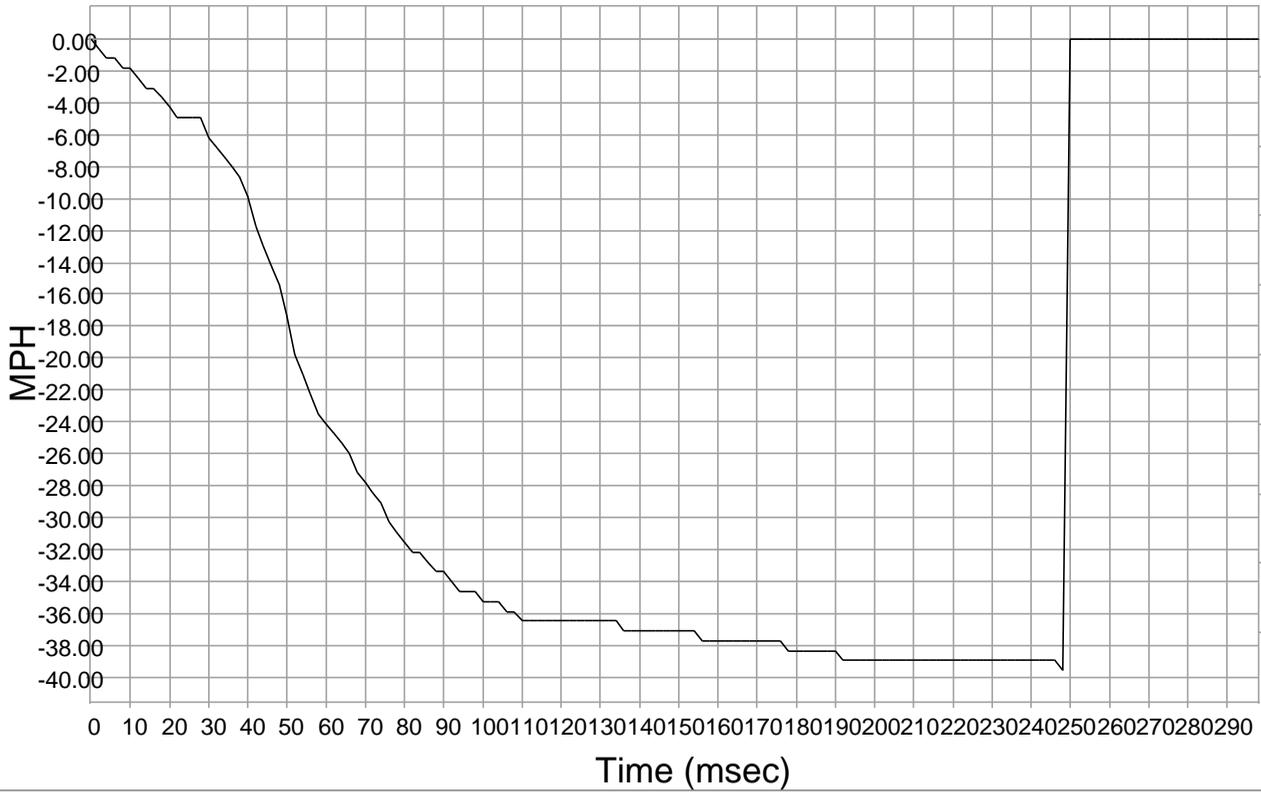
Deployment Command Data (Most Recent Event)

Event Recorder Status	Complete
Frontal Airbag Deployment, 1st Stage, Driver	Yes
Frontal Airbag Deployment, 2nd Stage, Driver	Yes
Frontal Airbag Deployment, Time Between Squib #1 and Squib #2, Driver (ms)	30
Inflatable Knee Airbag Deployment, Driver (if equipped)	No
Side Airbag(s) Deployment, Left Side (if equipped)	Yes
Frontal Airbag Deployment, 1st Stage, Passenger	No
Frontal Airbag Deployment, 2nd Stage, Passenger	No
Frontal Airbag Deployment, Time Between Squib #1 and Squib #2, Passenger (ms)	0
Side Airbag(s) Deployment, Right Side (if equipped)	No

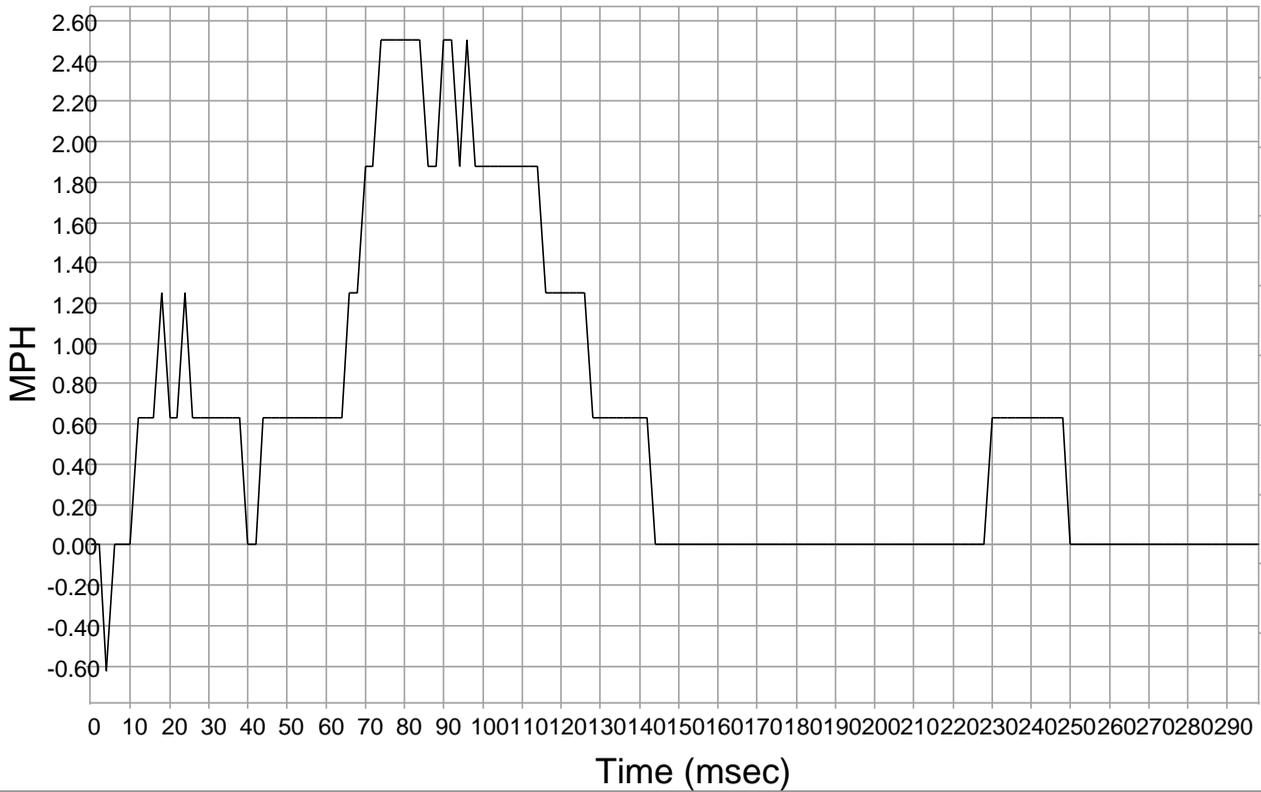
DTCs Present at Start of Event (Most Recent Event)

DTC Number	DTC Status
B1BA6	Active
B223D	Active
B1C3A	Active
B1B02	Active
B1B06	Active

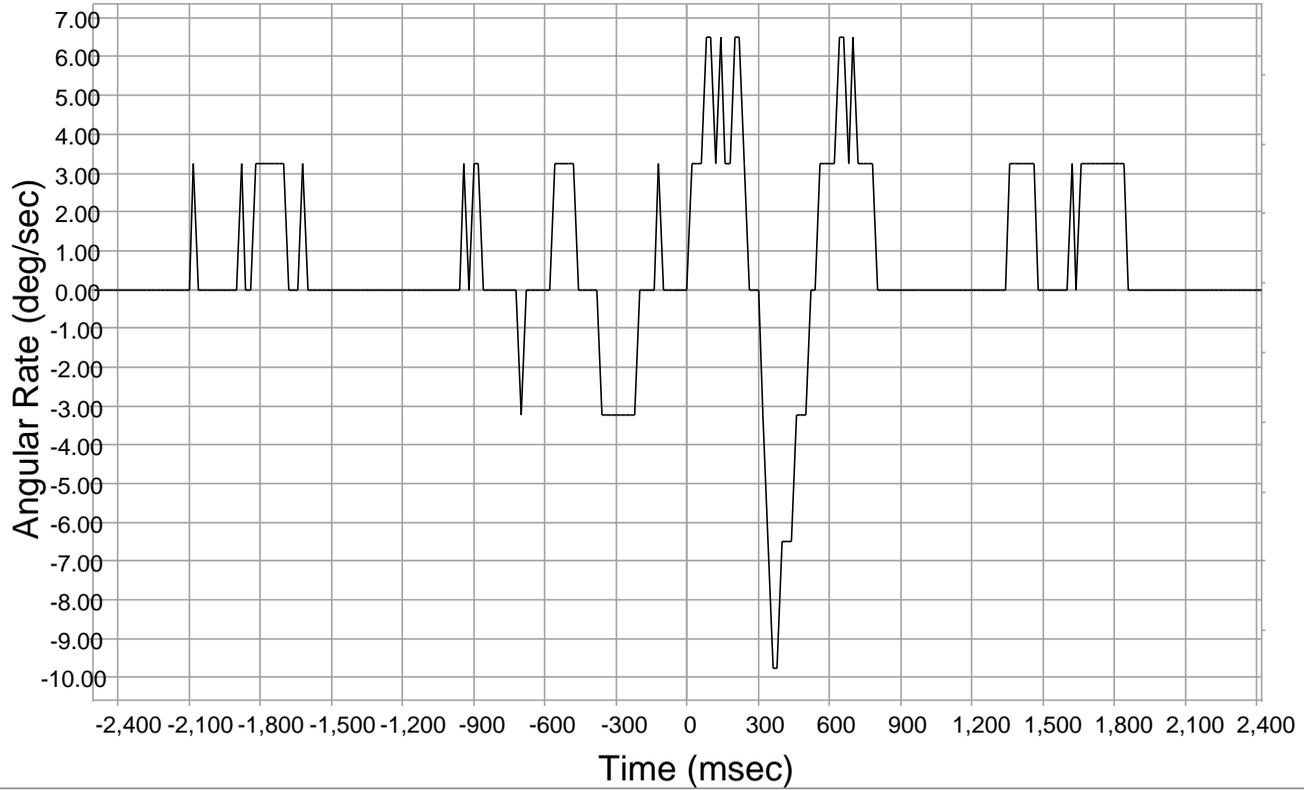
Longitudinal Crash Pulse (Most Recent Event)



Lateral Crash Pulse (Most Recent Event)



Rollover Crash Pulse (Most Recent Event)



Longitudinal Crash Pulse (Most Recent Event)

Time (msec)	Delta-V, Longitudinal (MPH [km/h])
0	0.0 [0]
2	-0.6 [-1]
4	-1.2 [-2]
6	-1.2 [-2]
8	-1.9 [-3]
10	-1.9 [-3]
12	-2.5 [-4]
14	-3.1 [-5]
16	-3.1 [-5]
18	-3.7 [-6]
20	-4.3 [-7]
22	-4.9 [-8]
24	-4.9 [-8]
26	-4.9 [-8]
28	-4.9 [-8]
30	-6.2 [-10]
32	-6.8 [-11]
34	-7.4 [-12]
36	-8.0 [-13]
38	-8.7 [-14]
40	-9.9 [-16]
42	-11.7 [-19]
44	-13.0 [-21]
46	-14.2 [-23]
48	-15.5 [-25]
50	-17.3 [-28]
52	-19.8 [-32]
54	-21.0 [-34]
56	-22.3 [-36]
58	-23.5 [-38]
60	-24.1 [-39]
62	-24.7 [-40]
64	-25.3 [-41]
66	-26.0 [-42]
68	-27.2 [-44]
70	-27.8 [-45]
72	-28.4 [-46]
74	-29.1 [-47]
76	-30.3 [-49]
78	-30.9 [-50]
80	-31.5 [-51]
82	-32.1 [-52]
84	-32.1 [-52]
86	-32.8 [-53]
88	-33.4 [-54]
90	-33.4 [-54]
92	-34.0 [-55]
94	-34.6 [-56]
96	-34.6 [-56]
98	-34.6 [-56]

Time (msec)	Delta-V, Longitudinal (MPH [km/h])
100	-35.2 [-57]
102	-35.2 [-57]
104	-35.2 [-57]
106	-35.9 [-58]
108	-35.9 [-58]
110	-36.5 [-59]
112	-36.5 [-59]
114	-36.5 [-59]
116	-36.5 [-59]
118	-36.5 [-59]
120	-36.5 [-59]
122	-36.5 [-59]
124	-36.5 [-59]
126	-36.5 [-59]
128	-36.5 [-59]
130	-36.5 [-59]
132	-36.5 [-59]
134	-36.5 [-59]
136	-37.1 [-60]
138	-37.1 [-60]
140	-37.1 [-60]
142	-37.1 [-60]
144	-37.1 [-60]
146	-37.1 [-60]
148	-37.1 [-60]
150	-37.1 [-60]
152	-37.1 [-60]
154	-37.1 [-60]
156	-37.7 [-61]
158	-37.7 [-61]
160	-37.7 [-61]
162	-37.7 [-61]
164	-37.7 [-61]
166	-37.7 [-61]
168	-37.7 [-61]
170	-37.7 [-61]
172	-37.7 [-61]
174	-37.7 [-61]
176	-37.7 [-61]
178	-38.3 [-62]
180	-38.3 [-62]
182	-38.3 [-62]
184	-38.3 [-62]
186	-38.3 [-62]
188	-38.3 [-62]
190	-38.3 [-62]
192	-38.9 [-63]
194	-38.9 [-63]
196	-38.9 [-63]
198	-38.9 [-63]

Time (msec)	Delta-V, Longitudinal (MPH [km/h])
200	-38.9 [-63]
202	-38.9 [-63]
204	-38.9 [-63]
206	-38.9 [-63]
208	-38.9 [-63]
210	-38.9 [-63]
212	-38.9 [-63]
214	-38.9 [-63]
216	-38.9 [-63]
218	-38.9 [-63]
220	-38.9 [-63]
222	-38.9 [-63]
224	-38.9 [-63]
226	-38.9 [-63]
228	-38.9 [-63]
230	-38.9 [-63]
232	-38.9 [-63]
234	-38.9 [-63]
236	-38.9 [-63]
238	-38.9 [-63]
240	-38.9 [-63]
242	-38.9 [-63]
244	-38.9 [-63]
246	-38.9 [-63]
248	-39.6 [-64]
250	0.0 [0]
252	0.0 [0]
254	0.0 [0]
256	0.0 [0]
258	0.0 [0]
260	0.0 [0]
262	0.0 [0]
264	0.0 [0]
266	0.0 [0]
268	0.0 [0]
270	0.0 [0]
272	0.0 [0]
274	0.0 [0]
276	0.0 [0]
278	0.0 [0]
280	0.0 [0]
282	0.0 [0]
284	0.0 [0]
286	0.0 [0]
288	0.0 [0]
290	0.0 [0]
292	0.0 [0]
294	0.0 [0]
296	0.0 [0]
298	0.0 [0]

Lateral Crash Pulse (Most Recent Event)

Time (msec)	Delta-V, Lateral (MPH [km/h])
0	0.0 [0]
2	0.0 [0]
4	-0.6 [-1]
6	0.0 [0]
8	0.0 [0]
10	0.0 [0]
12	0.6 [1]
14	0.6 [1]
16	0.6 [1]
18	1.3 [2]
20	0.6 [1]
22	0.6 [1]
24	1.3 [2]
26	0.6 [1]
28	0.6 [1]
30	0.6 [1]
32	0.6 [1]
34	0.6 [1]
36	0.6 [1]
38	0.6 [1]
40	0.0 [0]
42	0.0 [0]
44	0.6 [1]
46	0.6 [1]
48	0.6 [1]
50	0.6 [1]
52	0.6 [1]
54	0.6 [1]
56	0.6 [1]
58	0.6 [1]
60	0.6 [1]
62	0.6 [1]
64	0.6 [1]
66	1.3 [2]
68	1.3 [2]
70	1.9 [3]
72	1.9 [3]
74	2.5 [4]
76	2.5 [4]
78	2.5 [4]
80	2.5 [4]
82	2.5 [4]
84	2.5 [4]
86	1.9 [3]
88	1.9 [3]
90	2.5 [4]
92	2.5 [4]
94	1.9 [3]
96	2.5 [4]
98	1.9 [3]

Time (msec)	Delta-V, Lateral (MPH [km/h])
100	1.9 [3]
102	1.9 [3]
104	1.9 [3]
106	1.9 [3]
108	1.9 [3]
110	1.9 [3]
112	1.9 [3]
114	1.9 [3]
116	1.3 [2]
118	1.3 [2]
120	1.3 [2]
122	1.3 [2]
124	1.3 [2]
126	1.3 [2]
128	0.6 [1]
130	0.6 [1]
132	0.6 [1]
134	0.6 [1]
136	0.6 [1]
138	0.6 [1]
140	0.6 [1]
142	0.6 [1]
144	0.0 [0]
146	0.0 [0]
148	0.0 [0]
150	0.0 [0]
152	0.0 [0]
154	0.0 [0]
156	0.0 [0]
158	0.0 [0]
160	0.0 [0]
162	0.0 [0]
164	0.0 [0]
166	0.0 [0]
168	0.0 [0]
170	0.0 [0]
172	0.0 [0]
174	0.0 [0]
176	0.0 [0]
178	0.0 [0]
180	0.0 [0]
182	0.0 [0]
184	0.0 [0]
186	0.0 [0]
188	0.0 [0]
190	0.0 [0]
192	0.0 [0]
194	0.0 [0]
196	0.0 [0]
198	0.0 [0]

Time (msec)	Delta-V, Lateral (MPH [km/h])
200	0.0 [0]
202	0.0 [0]
204	0.0 [0]
206	0.0 [0]
208	0.0 [0]
210	0.0 [0]
212	0.0 [0]
214	0.0 [0]
216	0.0 [0]
218	0.0 [0]
220	0.0 [0]
222	0.0 [0]
224	0.0 [0]
226	0.0 [0]
228	0.0 [0]
230	0.6 [1]
232	0.6 [1]
234	0.6 [1]
236	0.6 [1]
238	0.6 [1]
240	0.6 [1]
242	0.6 [1]
244	0.6 [1]
246	0.6 [1]
248	0.6 [1]
250	0.0 [0]
252	0.0 [0]
254	0.0 [0]
256	0.0 [0]
258	0.0 [0]
260	0.0 [0]
262	0.0 [0]
264	0.0 [0]
266	0.0 [0]
268	0.0 [0]
270	0.0 [0]
272	0.0 [0]
274	0.0 [0]
276	0.0 [0]
278	0.0 [0]
280	0.0 [0]
282	0.0 [0]
284	0.0 [0]
286	0.0 [0]
288	0.0 [0]
290	0.0 [0]
292	0.0 [0]
294	0.0 [0]
296	0.0 [0]
298	0.0 [0]

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	3.26
-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	3.26
-1860	0.00
-1840	0.00
-1820	3.26
-1800	3.26
-1780	3.26
-1760	3.26
-1740	3.26
-1720	3.26
-1700	3.26
-1680	0.00
-1660	0.00
-1640	0.00
-1620	3.26
-1600	0.00
-1580	0.00
-1560	0.00
-1540	0.00
-1520	0.00

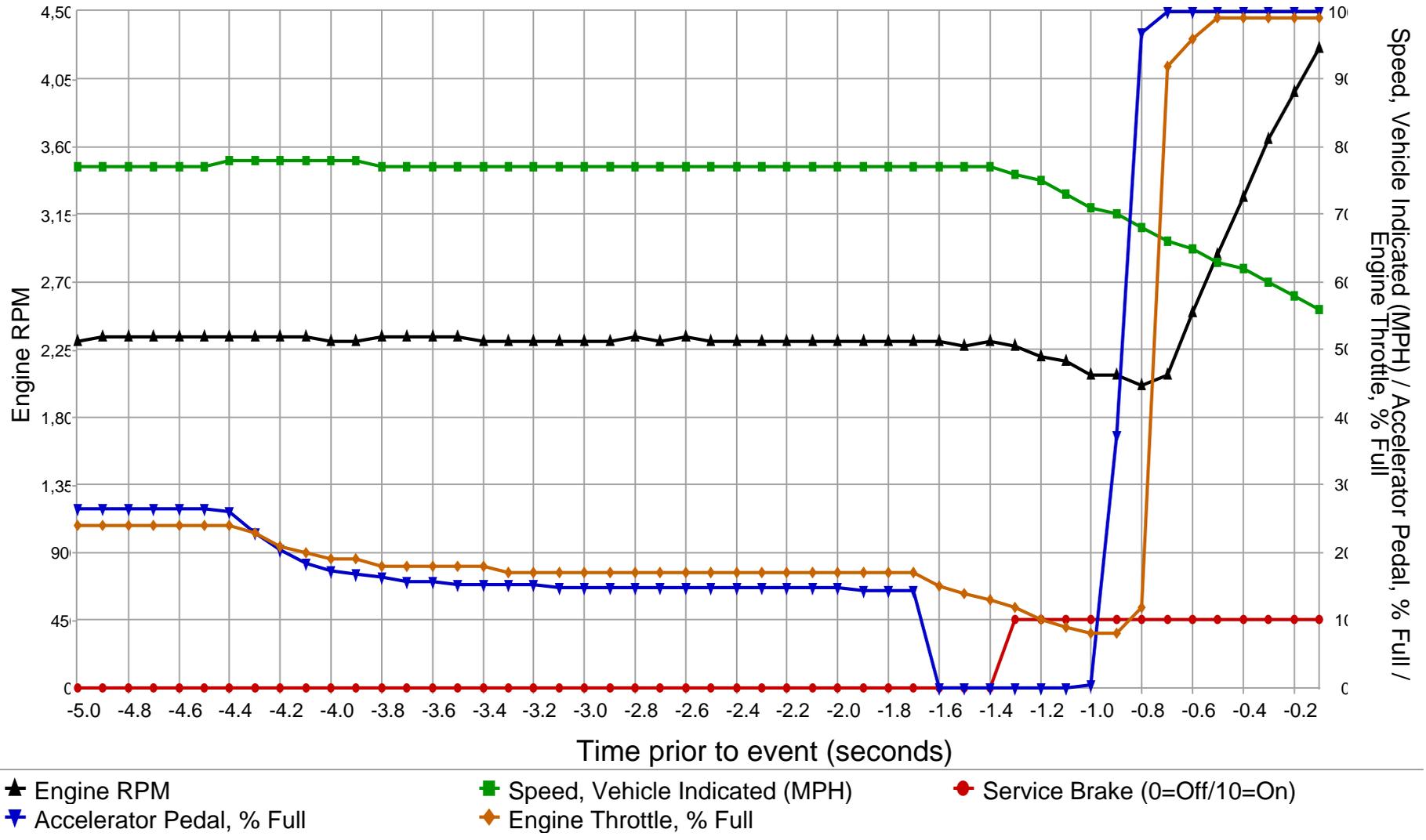
Time (msec)	Angular Rate (deg/sec)
-1500	0.00
-1480	0.00
-1460	0.00
-1440	0.00
-1420	0.00
-1400	0.00
-1380	0.00
-1360	0.00
-1340	0.00
-1320	0.00
-1300	0.00
-1280	0.00
-1260	0.00
-1240	0.00
-1220	0.00
-1200	0.00
-1180	0.00
-1160	0.00
-1140	0.00
-1120	0.00
-1100	0.00
-1080	0.00
-1060	0.00
-1040	0.00
-1020	0.00
-1000	0.00
-980	0.00
-960	0.00
-940	3.26
-920	0.00
-900	3.26
-880	3.26
-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	-3.26
-680	0.00
-660	0.00
-640	0.00
-620	0.00
-600	0.00
-580	0.00
-560	3.26
-540	3.26
-520	3.26

Time (msec)	Angular Rate (deg/sec)
-500	3.26
-480	3.26
-460	0.00
-440	0.00
-420	0.00
-400	0.00
-380	0.00
-360	-3.26
-340	-3.26
-320	-3.26
-300	-3.26
-280	-3.26
-260	-3.26
-240	-3.26
-220	-3.26
-200	0.00
-180	0.00
-160	0.00
-140	0.00
-120	3.26
-100	0.00
-80	0.00
-60	0.00
-40	0.00
-20	0.00
0	0.00
20	3.26
40	3.26
60	3.26
80	6.52
100	6.52
120	3.26
140	6.52
160	3.26
180	3.26
200	6.52
220	6.52
240	3.26
260	0.00
280	0.00
300	0.00
320	-3.26
340	-6.52
360	-9.77
380	-9.77
400	-6.52
420	-6.52
440	-6.52
460	-3.26
480	-3.26

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

Time (msec)	Angular Rate (deg/sec)	Time (msec)	Angular Rate (deg/sec)
500	-3.26	1500	0.00
520	0.00	1520	0.00
540	0.00	1540	0.00
560	3.26	1560	0.00
580	3.26	1580	0.00
600	3.26	1600	0.00
620	3.26	1620	3.26
640	6.52	1640	0.00
660	6.52	1660	3.26
680	3.26	1680	3.26
700	6.52	1700	3.26
720	3.26	1720	3.26
740	3.26	1740	3.26
760	3.26	1760	3.26
780	3.26	1780	3.26
800	0.00	1800	3.26
820	0.00	1820	3.26
840	0.00	1840	3.26
860	0.00	1860	0.00
880	0.00	1880	0.00
900	0.00	1900	0.00
920	0.00	1920	0.00
940	0.00	1940	0.00
960	0.00	1960	0.00
980	0.00	1980	0.00
1000	0.00	2000	0.00
1020	0.00	2020	0.00
1040	0.00	2040	0.00
1060	0.00	2060	0.00
1080	0.00	2080	0.00
1100	0.00	2100	0.00
1120	0.00	2120	0.00
1140	0.00	2140	0.00
1160	0.00	2160	0.00
1180	0.00	2180	0.00
1200	0.00	2200	0.00
1220	0.00	2220	0.00
1240	0.00	2240	0.00
1260	0.00	2260	0.00
1280	0.00	2280	0.00
1300	0.00	2300	0.00
1320	0.00	2320	0.00
1340	0.00	2340	0.00
1360	3.26	2360	0.00
1380	3.26	2380	0.00
1400	3.26	2400	0.00
1420	3.26	2420	0.00
1440	3.26		
1460	3.26		
1480	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 5)

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

Time Stamp (sec)	Vehicle Event Recorder Status	Engine RPM	Speed, Vehicle Indicated (MPH [km/h])	Engine Throttle, % Full	Accelerator Pedal, % Full	Raw Manifold Pressure (kPa)	Service Brake	Brake Switch #2 Status	Brake Lamps On
-5.0	Complete	2,304	77 [124]	24	26.8	78	Off	Open	No
-4.9	Complete	2,336	77 [125]	24	26.8	78	Off	Open	No
-4.8	Complete	2,336	77 [125]	24	26.8	78	Off	Open	No
-4.7	Complete	2,336	77 [125]	24	26.8	78	Off	Open	No
-4.6	Complete	2,336	77 [125]	24	26.8	78	Off	Open	No
-4.5	Complete	2,336	77 [125]	24	26.8	78	Off	Open	No
-4.4	Complete	2,336	78 [125]	24	26.3	78	Off	Open	No
-4.3	Complete	2,336	78 [125]	23	23.2	78	Off	Open	No
-4.2	Complete	2,336	78 [125]	21	20.6	73	Off	Open	No
-4.1	Complete	2,336	78 [125]	20	18.6	68	Off	Open	No
-4.0	Complete	2,304	78 [125]	19	17.5	65	Off	Open	No
-3.9	Complete	2,304	78 [125]	19	17.0	64	Off	Open	No
-3.8	Complete	2,336	77 [125]	18	16.5	63	Off	Open	No
-3.7	Complete	2,336	77 [125]	18	16.0	63	Off	Open	No
-3.6	Complete	2,336	77 [125]	18	16.0	62	Off	Open	No
-3.5	Complete	2,336	77 [125]	18	15.5	62	Off	Open	No
-3.4	Complete	2,304	77 [125]	18	15.5	62	Off	Open	No
-3.3	Complete	2,304	77 [124]	17	15.5	62	Off	Open	No
-3.2	Complete	2,304	77 [124]	17	15.5	61	Off	Open	No
-3.1	Complete	2,304	77 [124]	17	14.9	61	Off	Open	No
-3.0	Complete	2,304	77 [124]	17	14.9	60	Off	Open	No
-2.9	Complete	2,304	77 [124]	17	14.9	60	Off	Open	No
-2.8	Complete	2,336	77 [124]	17	14.9	60	Off	Open	No
-2.7	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-2.6	Complete	2,336	77 [124]	17	14.9	59	Off	Open	No
-2.5	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-2.4	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-2.3	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-2.2	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-2.1	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-2.0	Complete	2,304	77 [124]	17	14.9	59	Off	Open	No
-1.9	Complete	2,304	77 [124]	17	14.4	59	Off	Open	No
-1.8	Complete	2,304	77 [124]	17	14.4	59	Off	Open	No
-1.7	Complete	2,304	77 [123]	17	14.4	59	Off	Open	No
-1.6	Complete	2,304	77 [123]	15	0.0	58	Off	Open	No
-1.5	Complete	2,272	77 [123]	14	0.0	48	Off	Open	No
-1.4	Complete	2,304	77 [123]	13	0.0	42	Off	Open	No
-1.3	Complete	2,272	76 [122]	12	0.0	38	On	Closed	Yes
-1.2	Complete	2,208	75 [120]	10	0.0	35	On	Closed	Yes
-1.1	Complete	2,176	73 [118]	9	0.0	30	On	Closed	Yes
-1.0	Complete	2,080	71 [115]	8	0.5	27	On	Closed	Yes
-0.9	Complete	2,080	70 [112]	8	37.6	26	On	Closed	Yes
-0.8	Complete	2,016	68 [110]	12	97.9	26	On	Closed	Yes
-0.7	Complete	2,080	66 [107]	92	100.0	100	On	Closed	Yes
-0.6	Complete	2,496	65 [104]	96	100.0	100	On	Closed	Yes
-0.5	Complete	2,880	63 [102]	99	100.0	99	On	Closed	Yes
-0.4	Complete	3,264	62 [99]	99	100.0	100	On	Closed	Yes
-0.3	Complete	3,648	60 [96]	99	100.0	99	On	Closed	Yes
-0.2	Complete	3,968	58 [94]	99	100.0	99	On	Closed	Yes
-0.1	Complete	4,256	56 [90]	99	100.0	98	On	Closed	Yes

Pre-Crash Data (Most Recent Event - table 2 of 5)

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

Time Stamp (sec)	Panic Brake Assist Active (if equip.)	PCM MIL	ABS MIL (if equip.)	ESP MIL (if equip.)	ESP Lamp (if equip.)	ESP Lamp Flashing Requested (if equip.)	ESP Disabled (if equip.)	ESP Active (if equip.)
-5.0	No	On	Off	Off	Off	No	No	Yes
-4.9	No	On	Off	Off	Off	No	No	Yes
-4.8	No	On	Off	Off	Off	No	No	Yes
-4.7	No	On	Off	Off	Off	No	No	Yes
-4.6	No	On	Off	Off	Off	No	No	Yes
-4.5	No	On	Off	Off	Off	No	No	Yes
-4.4	No	On	Off	Off	Off	No	No	Yes
-4.3	No	On	Off	Off	Off	No	No	Yes
-4.2	No	On	Off	Off	Off	No	No	Yes
-4.1	No	On	Off	Off	Off	No	No	Yes
-4.0	No	On	Off	Off	Off	No	No	Yes
-3.9	No	On	Off	Off	Off	No	No	Yes
-3.8	No	On	Off	Off	Off	No	No	Yes
-3.7	No	On	Off	Off	Off	No	No	Yes
-3.6	No	On	Off	Off	Off	No	No	Yes
-3.5	No	On	Off	Off	Off	No	No	Yes
-3.4	No	On	Off	Off	Off	No	No	Yes
-3.3	No	On	Off	Off	Off	No	No	Yes
-3.2	No	On	Off	Off	Off	No	No	Yes
-3.1	No	On	Off	Off	Off	No	No	Yes
-3.0	No	On	Off	Off	Off	No	No	Yes
-2.9	No	On	Off	Off	Off	No	No	Yes
-2.8	No	On	Off	Off	Off	No	No	Yes
-2.7	No	On	Off	Off	Off	No	No	Yes
-2.6	No	On	Off	Off	Off	No	No	Yes
-2.5	No	On	Off	Off	Off	No	No	Yes
-2.4	No	On	Off	Off	Off	No	No	Yes
-2.3	No	On	Off	Off	Off	No	No	Yes
-2.2	No	On	Off	Off	Off	No	No	Yes
-2.1	No	On	Off	Off	Off	No	No	Yes
-2.0	No	On	Off	Off	Off	No	No	Yes
-1.9	No	On	Off	Off	Off	No	No	Yes
-1.8	No	On	Off	Off	Off	No	No	Yes
-1.7	No	On	Off	Off	Off	No	No	Yes
-1.6	No	On	Off	Off	Off	No	No	Yes
-1.5	No	On	Off	Off	Off	No	No	Yes
-1.4	No	On	Off	Off	Off	No	No	Yes
-1.3	No	On	Off	Off	Off	No	No	Yes
-1.2	No	On	Off	Off	Off	No	No	Yes
-1.1	Yes	On	Off	Off	Off	No	No	Yes
-1.0	No	On	Off	Off	Off	No	No	Yes
-0.9	No	On	Off	Off	Off	No	No	Yes
-0.8	No	On	Off	Off	Off	No	No	Yes
-0.7	No	On	Off	Off	Off	No	No	Yes
-0.6	No	On	Off	Off	Off	No	No	Yes
-0.5	No	On	Off	Off	Off	No	No	Yes
-0.4	No	On	Off	Off	Off	No	No	Yes
-0.3	No	On	Off	Off	Off	No	No	Yes
-0.2	Yes	On	Off	Off	Off	No	No	Yes
-0.1	Yes	On	Off	Off	Off	No	No	Yes

Pre-Crash Data (Most Recent Event - table 3 of 5)

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

Time Stamp (sec)	Steering Input (deg) (if equip.)	Yaw Rate (deg/sec) (if equip.)	Wheel Speed LF (RPM) (if equip.)	Wheel Speed RF (RPM) (if equip.)	Wheel Speed LR (RPM) (if equip.)	Wheel Speed RR (RPM) (if equip.)
-5.0	1	0	905	904	908	909
-4.9	1	0	903	907	908	908
-4.8	1	0	907	905	909	909
-4.7	1	0	903	906	909	908
-4.6	1	0	907	905	909	909
-4.5	1	0	904	907	910	909
-4.4	1	0	907	908	910	910
-4.3	1	0	904	908	910	910
-4.2	0	0	909	908	910	911
-4.1	0	0	904	907	910	910
-4.0	0	0	908	907	909	910
-3.9	-1	0	903	907	910	910
-3.8	-1	0	906	908	909	909
-3.7	-1	0	903	906	910	908
-3.6	-1	0	909	907	909	909
-3.5	-1	0	904	905	908	908
-3.4	-1	0	908	906	908	908
-3.3	-1	0	903	904	908	908
-3.2	0	0	907	907	908	907
-3.1	0	0	902	905	907	907
-3.0	0	0	907	906	907	907
-2.9	0	0	902	902	907	907
-2.8	0	0	905	905	908	906
-2.7	1	0	901	902	906	905
-2.6	1	0	904	905	906	906
-2.5	1	0	900	900	905	904
-2.4	1	0	903	905	905	904
-2.3	1	0	900	900	904	904
-2.2	1	0	902	901	904	903
-2.1	2	0	899	899	903	902
-2.0	4	0	901	903	903	903
-1.9	4	0	897	898	902	900
-1.8	4	1	899	901	901	901
-1.7	2	1	895	897	899	901
-1.6	2	1	898	900	900	901
-1.5	1	0	894	895	898	900
-1.4	0	0	898	900	898	898
-1.3	-1	0	889	888	892	892
-1.2	-1	0	874	874	879	877
-1.1	2	-1	854	850	862	854
-1.0	4	-1	843	842	837	832
-0.9	2	0	822	823	822	811
-0.8	1	0	788	789	803	796
-0.7	-1	0	771	771	781	770
-0.6	-4	-1	752	750	766	756
-0.5	-15	-1	731	731	746	740
-0.4	-25	-3	711	703	726	716
-0.3	-27	-6	695	665	710	693
-0.2	-24	-7	668	617	694	672
-0.1	-21	-7	650	601	671	641

Pre-Crash Data (Most Recent Event - table 4 of 5)

(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	PRND Status	Reverse Gear (Manual Only)	Cruise Control System	Cruise Control Active
-5.0	Off	No	Yes	Drive	No	Off	No
-4.9	Off	No	Yes	Drive	No	Off	No
-4.8	Off	No	Yes	Drive	No	Off	No
-4.7	Off	No	Yes	Drive	No	Off	No
-4.6	Off	No	Yes	Drive	No	Off	No
-4.5	Off	No	Yes	Drive	No	Off	No
-4.4	Off	No	Yes	Drive	No	Off	No
-4.3	Off	No	Yes	Drive	No	Off	No
-4.2	Off	No	Yes	Drive	No	Off	No
-4.1	Off	No	Yes	Drive	No	Off	No
-4.0	Off	No	Yes	Drive	No	Off	No
-3.9	Off	No	Yes	Drive	No	Off	No
-3.8	Off	No	Yes	Drive	No	Off	No
-3.7	Off	No	Yes	Drive	No	Off	No
-3.6	Off	No	Yes	Drive	No	Off	No
-3.5	Off	No	Yes	Drive	No	Off	No
-3.4	Off	No	Yes	Drive	No	Off	No
-3.3	Off	No	Yes	Drive	No	Off	No
-3.2	Off	No	Yes	Drive	No	Off	No
-3.1	Off	No	Yes	Drive	No	Off	No
-3.0	Off	No	Yes	Drive	No	Off	No
-2.9	Off	No	Yes	Drive	No	Off	No
-2.8	Off	No	Yes	Drive	No	Off	No
-2.7	Off	No	Yes	Drive	No	Off	No
-2.6	Off	No	Yes	Drive	No	Off	No
-2.5	Off	No	Yes	Drive	No	Off	No
-2.4	Off	No	Yes	Drive	No	Off	No
-2.3	Off	No	Yes	Drive	No	Off	No
-2.2	Off	No	Yes	Drive	No	Off	No
-2.1	Off	No	Yes	Drive	No	Off	No
-2.0	Off	No	Yes	Drive	No	Off	No
-1.9	Off	No	Yes	Drive	No	Off	No
-1.8	Off	No	Yes	Drive	No	Off	No
-1.7	Off	No	Yes	Drive	No	Off	No
-1.6	Off	No	Yes	Drive	No	Off	No
-1.5	Off	No	Yes	Drive	No	Off	No
-1.4	Off	No	Yes	Drive	No	Off	No
-1.3	Off	No	Yes	Drive	No	Off	No
-1.2	Off	No	Yes	Drive	No	Off	No
-1.1	Off	No	Yes	Drive	No	Off	No
-1.0	Off	No	Yes	Drive	No	Off	No
-0.9	Off	No	Yes	Drive	No	Off	No
-0.8	Off	No	Yes	Drive	No	Off	No
-0.7	Off	No	Yes	Drive	No	Off	No
-0.6	Off	No	Yes	Drive	No	Off	No
-0.5	Off	No	Yes	Drive	No	Off	No
-0.4	Off	No	Yes	Drive	No	Off	No
-0.3	Off	No	Yes	Drive	No	Off	No
-0.2	Off	No	Yes	Drive	No	Off	No
-0.1	Off	No	Yes	Drive	No	Off	No

Pre-Crash Data (Most Recent Event - table 5 of 5)

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

Time Stamp (sec)	Tire Pressure Monitor Faults (if equip.)	Tire 1 Location (if equip.)	Tire 1 Pressure Status (if equip.)	Tire 1 Pressure (psi) (if equip.)	Tire 2 Location (if equip.)	Tire 2 Pressure Status (if equip.)	Tire 2 Pressure (psi) (if equip.)
-5.0	No	LF	Normal	37	LR	Normal	38
-4.9	No	LF	Normal	37	LR	Normal	38
-4.8	No	LF	Normal	37	LR	Normal	38
-4.7	No	LF	Normal	37	LR	Normal	38
-4.6	No	LF	Normal	37	LR	Normal	38
-4.5	No	LF	Normal	37	LR	Normal	38
-4.4	No	LF	Normal	37	LR	Normal	38
-4.3	No	LF	Normal	37	RR	Normal	37
-4.2	No	LF	Normal	37	RR	Normal	37
-4.1	No	LF	Normal	37	RR	Normal	37
-4.0	No	LF	Normal	37	RR	Normal	37
-3.9	No	LF	Normal	37	RR	Normal	37
-3.8	No	LF	Normal	37	RR	Normal	37
-3.7	No	LF	Normal	37	RR	Normal	37
-3.6	No	LF	Normal	37	RR	Normal	37
-3.5	No	LF	Normal	37	RR	Normal	37
-3.4	No	LF	Normal	37	RR	Normal	37
-3.3	No	LF	Normal	37	RR	Normal	37
-3.2	No	LF	Normal	37	RR	Normal	37
-3.1	No	LF	Normal	37	RR	Normal	37
-3.0	No	LF	Normal	37	RR	Normal	37
-2.9	No	LF	Normal	37	RR	Normal	37
-2.8	No	LF	Normal	37	RR	Normal	37
-2.7	No	LF	Normal	37	RR	Normal	37
-2.6	No	LF	Normal	37	RR	Normal	37
-2.5	No	LF	Normal	37	RR	Normal	37
-2.4	No	LF	Normal	37	RR	Normal	37
-2.3	No	LF	Normal	37	RR	Normal	37
-2.2	No	LF	Normal	37	RR	Normal	37
-2.1	No	LF	Normal	37	RR	Normal	37
-2.0	No	LF	Normal	37	RR	Normal	37
-1.9	No	LF	Normal	37	RR	Normal	37
-1.8	No	LF	Normal	37	RR	Normal	37
-1.7	No	LF	Normal	37	RR	Normal	37
-1.6	No	LF	Normal	37	RR	Normal	37
-1.5	No	LF	Normal	37	RR	Normal	37
-1.4	No	LF	Normal	37	RR	Normal	37
-1.3	No	LF	Normal	37	RR	Normal	37
-1.2	No	LF	Normal	37	RR	Normal	37
-1.1	No	LF	Normal	37	RR	Normal	37
-1.0	No	LF	Normal	37	RR	Normal	37
-0.9	No	LF	Normal	37	RR	Normal	37
-0.8	No	LF	Normal	37	RR	Normal	37
-0.7	No	LF	Normal	37	RR	Normal	37
-0.6	No	LF	Normal	37	RR	Normal	37
-0.5	No	LF	Normal	37	RR	Normal	37
-0.4	No	LF	Normal	37	RR	Normal	37
-0.3	No	LF	Normal	37	RR	Normal	37
-0.2	No	LF	Normal	37	RR	Normal	37
-0.1	No	LF	Normal	37	RR	Normal	37

System Status at Event (1st Prior Event)

Event Recorder Status	Complete
Event Record Status - Delta-V, Longitudinal	Complete
Event Record Status - Delta-V, Lateral	Complete
Event Record Status - Angular rate	Complete
Event Number	1
Total Number of Events Recorded	1
Odometer Recorded at Event (miles [km])	124750 [200766]
Operation System Time at Event (min)	247399
Ignition Cycles, Crash	13367
VIN Recorded at Event (last 8 characters)	AW177522
Vehicle System Voltage Recorded at Event (V)	13.9
Operation Via Energy Reserve Only	No
Safety Belt Switch Configured, Driver (if equipped)	No
Safety Belt Switch Configured, Passenger (if equipped)	Yes
Safety Belt Status, Passenger (if equipped)	Unbuckled
Safety Belt Switch Fault, Passenger (if equipped)	No
Seat Track Position Sensor, Driver (if equipped)	Not Configured
Seat Track Position Sensor, Passenger (if equipped)	Not Configured
Airbag Warning Lamp "On" at Event	Off
Airbag Warning Lamp "On" Time Before Event (min)	0

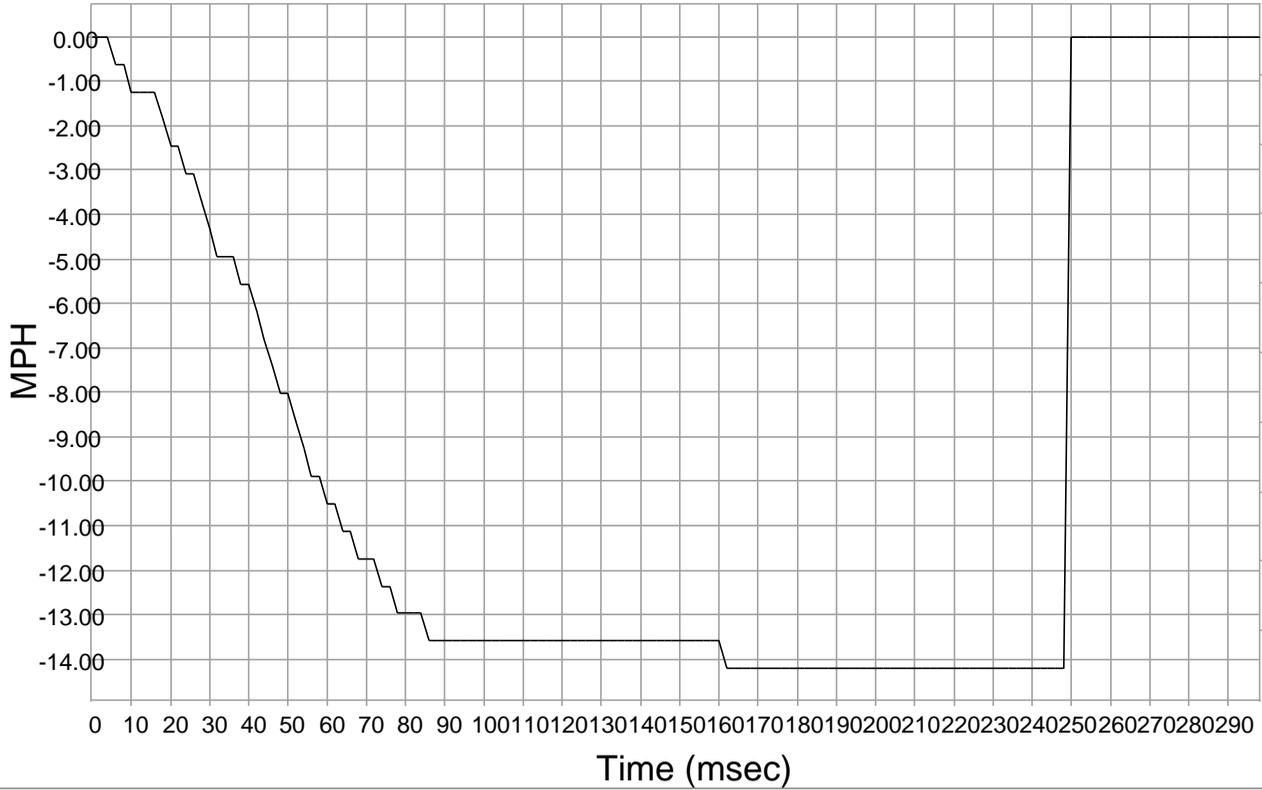
Deployment Command Data (1st Prior Event)

Event Recorder Status	Complete
Frontal Airbag Deployment, 1st Stage, Driver	Yes
Frontal Airbag Deployment, 2nd Stage, Driver	Yes
Frontal Airbag Deployment, Time Between Squib #1 and Squib #2, Driver (ms)	30
Inflatable Knee Airbag Deployment, Driver (if equipped)	No
Side Airbag(s) Deployment, Left Side (if equipped)	No
Frontal Airbag Deployment, 1st Stage, Passenger	No
Frontal Airbag Deployment, 2nd Stage, Passenger	No
Frontal Airbag Deployment, Time Between Squib #1 and Squib #2, Passenger (ms)	0
Side Airbag(s) Deployment, Right Side (if equipped)	No

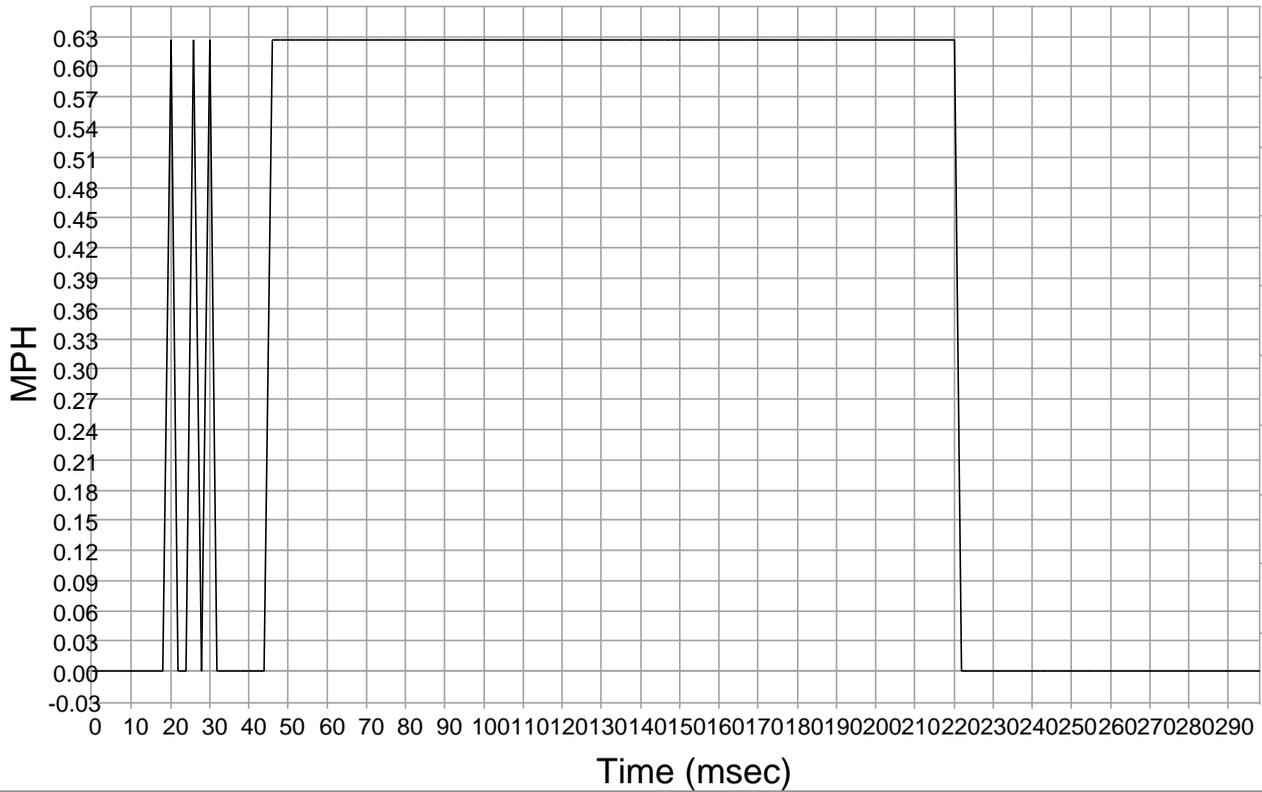
DTCs Present at Start of Event (1st Prior Event)

No DTCs Present

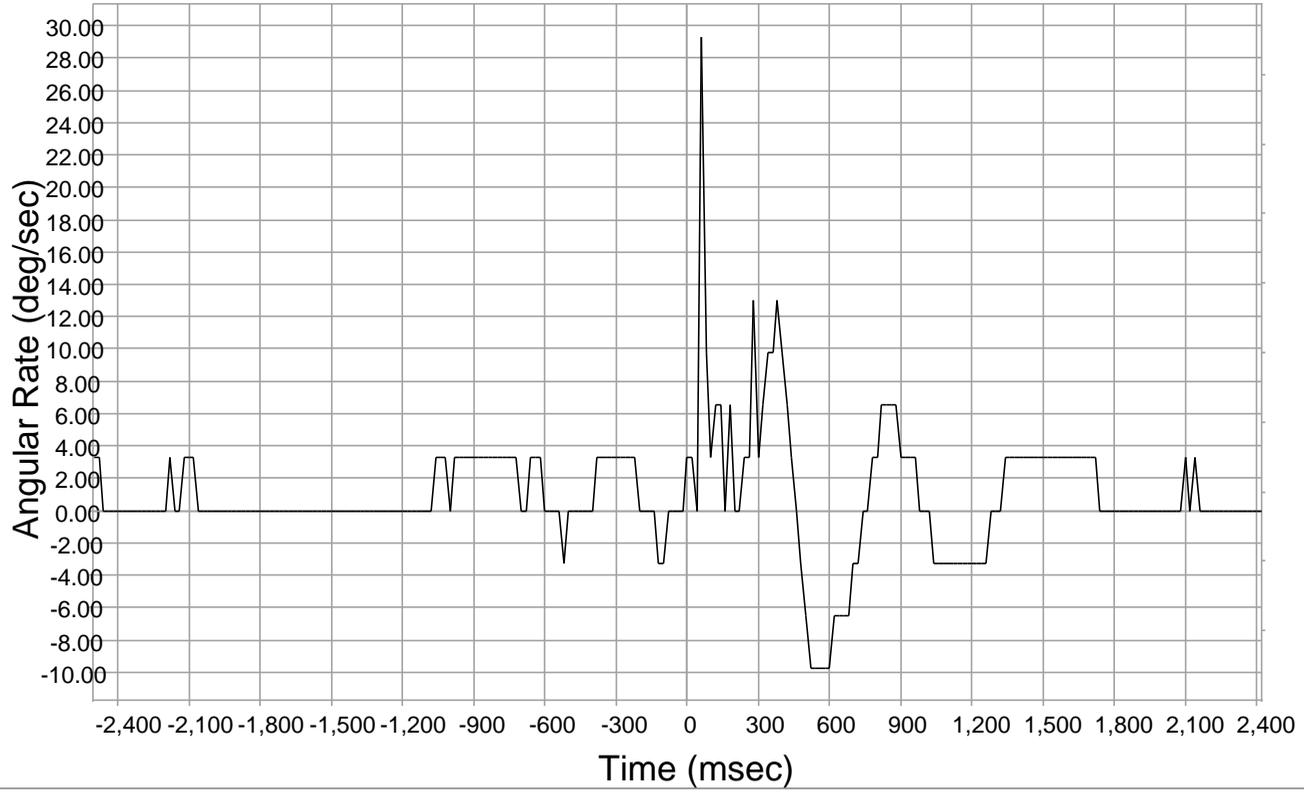
Longitudinal Crash Pulse (1st Prior Event)



Lateral Crash Pulse (1st Prior Event)



Rollover Crash Pulse (1st Prior Event)



Longitudinal Crash Pulse (1st Prior Event)

Time (msec)	Delta-V, Longitudinal (MPH [km/h])
0	0.0 [0]
2	0.0 [0]
4	0.0 [0]
6	-0.6 [-1]
8	-0.6 [-1]
10	-1.2 [-2]
12	-1.2 [-2]
14	-1.2 [-2]
16	-1.2 [-2]
18	-1.9 [-3]
20	-2.5 [-4]
22	-2.5 [-4]
24	-3.1 [-5]
26	-3.1 [-5]
28	-3.7 [-6]
30	-4.3 [-7]
32	-4.9 [-8]
34	-4.9 [-8]
36	-4.9 [-8]
38	-5.6 [-9]
40	-5.6 [-9]
42	-6.2 [-10]
44	-6.8 [-11]
46	-7.4 [-12]
48	-8.0 [-13]
50	-8.0 [-13]
52	-8.7 [-14]
54	-9.3 [-15]
56	-9.9 [-16]
58	-9.9 [-16]
60	-10.5 [-17]
62	-10.5 [-17]
64	-11.1 [-18]
66	-11.1 [-18]
68	-11.7 [-19]
70	-11.7 [-19]
72	-11.7 [-19]
74	-12.4 [-20]
76	-12.4 [-20]
78	-13.0 [-21]
80	-13.0 [-21]
82	-13.0 [-21]
84	-13.0 [-21]
86	-13.6 [-22]
88	-13.6 [-22]
90	-13.6 [-22]
92	-13.6 [-22]
94	-13.6 [-22]
96	-13.6 [-22]
98	-13.6 [-22]

Time (msec)	Delta-V, Longitudinal (MPH [km/h])
100	-13.6 [-22]
102	-13.6 [-22]
104	-13.6 [-22]
106	-13.6 [-22]
108	-13.6 [-22]
110	-13.6 [-22]
112	-13.6 [-22]
114	-13.6 [-22]
116	-13.6 [-22]
118	-13.6 [-22]
120	-13.6 [-22]
122	-13.6 [-22]
124	-13.6 [-22]
126	-13.6 [-22]
128	-13.6 [-22]
130	-13.6 [-22]
132	-13.6 [-22]
134	-13.6 [-22]
136	-13.6 [-22]
138	-13.6 [-22]
140	-13.6 [-22]
142	-13.6 [-22]
144	-13.6 [-22]
146	-13.6 [-22]
148	-13.6 [-22]
150	-13.6 [-22]
152	-13.6 [-22]
154	-13.6 [-22]
156	-13.6 [-22]
158	-13.6 [-22]
160	-13.6 [-22]
162	-14.2 [-23]
164	-14.2 [-23]
166	-14.2 [-23]
168	-14.2 [-23]
170	-14.2 [-23]
172	-14.2 [-23]
174	-14.2 [-23]
176	-14.2 [-23]
178	-14.2 [-23]
180	-14.2 [-23]
182	-14.2 [-23]
184	-14.2 [-23]
186	-14.2 [-23]
188	-14.2 [-23]
190	-14.2 [-23]
192	-14.2 [-23]
194	-14.2 [-23]
196	-14.2 [-23]
198	-14.2 [-23]

Time (msec)	Delta-V, Longitudinal (MPH [km/h])
200	-14.2 [-23]
202	-14.2 [-23]
204	-14.2 [-23]
206	-14.2 [-23]
208	-14.2 [-23]
210	-14.2 [-23]
212	-14.2 [-23]
214	-14.2 [-23]
216	-14.2 [-23]
218	-14.2 [-23]
220	-14.2 [-23]
222	-14.2 [-23]
224	-14.2 [-23]
226	-14.2 [-23]
228	-14.2 [-23]
230	-14.2 [-23]
232	-14.2 [-23]
234	-14.2 [-23]
236	-14.2 [-23]
238	-14.2 [-23]
240	-14.2 [-23]
242	-14.2 [-23]
244	-14.2 [-23]
246	-14.2 [-23]
248	-14.2 [-23]
250	0.0 [0]
252	0.0 [0]
254	0.0 [0]
256	0.0 [0]
258	0.0 [0]
260	0.0 [0]
262	0.0 [0]
264	0.0 [0]
266	0.0 [0]
268	0.0 [0]
270	0.0 [0]
272	0.0 [0]
274	0.0 [0]
276	0.0 [0]
278	0.0 [0]
280	0.0 [0]
282	0.0 [0]
284	0.0 [0]
286	0.0 [0]
288	0.0 [0]
290	0.0 [0]
292	0.0 [0]
294	0.0 [0]
296	0.0 [0]
298	0.0 [0]

Lateral Crash Pulse (1st Prior Event)

Time (msec)	Delta-V, Lateral (MPH [km/h])
0	0.0 [0]
2	0.0 [0]
4	0.0 [0]
6	0.0 [0]
8	0.0 [0]
10	0.0 [0]
12	0.0 [0]
14	0.0 [0]
16	0.0 [0]
18	0.0 [0]
20	0.6 [1]
22	0.0 [0]
24	0.0 [0]
26	0.6 [1]
28	0.0 [0]
30	0.6 [1]
32	0.0 [0]
34	0.0 [0]
36	0.0 [0]
38	0.0 [0]
40	0.0 [0]
42	0.0 [0]
44	0.0 [0]
46	0.6 [1]
48	0.6 [1]
50	0.6 [1]
52	0.6 [1]
54	0.6 [1]
56	0.6 [1]
58	0.6 [1]
60	0.6 [1]
62	0.6 [1]
64	0.6 [1]
66	0.6 [1]
68	0.6 [1]
70	0.6 [1]
72	0.6 [1]
74	0.6 [1]
76	0.6 [1]
78	0.6 [1]
80	0.6 [1]
82	0.6 [1]
84	0.6 [1]
86	0.6 [1]
88	0.6 [1]
90	0.6 [1]
92	0.6 [1]
94	0.6 [1]
96	0.6 [1]
98	0.6 [1]

Time (msec)	Delta-V, Lateral (MPH [km/h])
100	0.6 [1]
102	0.6 [1]
104	0.6 [1]
106	0.6 [1]
108	0.6 [1]
110	0.6 [1]
112	0.6 [1]
114	0.6 [1]
116	0.6 [1]
118	0.6 [1]
120	0.6 [1]
122	0.6 [1]
124	0.6 [1]
126	0.6 [1]
128	0.6 [1]
130	0.6 [1]
132	0.6 [1]
134	0.6 [1]
136	0.6 [1]
138	0.6 [1]
140	0.6 [1]
142	0.6 [1]
144	0.6 [1]
146	0.6 [1]
148	0.6 [1]
150	0.6 [1]
152	0.6 [1]
154	0.6 [1]
156	0.6 [1]
158	0.6 [1]
160	0.6 [1]
162	0.6 [1]
164	0.6 [1]
166	0.6 [1]
168	0.6 [1]
170	0.6 [1]
172	0.6 [1]
174	0.6 [1]
176	0.6 [1]
178	0.6 [1]
180	0.6 [1]
182	0.6 [1]
184	0.6 [1]
186	0.6 [1]
188	0.6 [1]
190	0.6 [1]
192	0.6 [1]
194	0.6 [1]
196	0.6 [1]
198	0.6 [1]

Time (msec)	Delta-V, Lateral (MPH [km/h])
200	0.6 [1]
202	0.6 [1]
204	0.6 [1]
206	0.6 [1]
208	0.6 [1]
210	0.6 [1]
212	0.6 [1]
214	0.6 [1]
216	0.6 [1]
218	0.6 [1]
220	0.6 [1]
222	0.0 [0]
224	0.0 [0]
226	0.0 [0]
228	0.0 [0]
230	0.0 [0]
232	0.0 [0]
234	0.0 [0]
236	0.0 [0]
238	0.0 [0]
240	0.0 [0]
242	0.0 [0]
244	0.0 [0]
246	0.0 [0]
248	0.0 [0]
250	0.0 [0]
252	0.0 [0]
254	0.0 [0]
256	0.0 [0]
258	0.0 [0]
260	0.0 [0]
262	0.0 [0]
264	0.0 [0]
266	0.0 [0]
268	0.0 [0]
270	0.0 [0]
272	0.0 [0]
274	0.0 [0]
276	0.0 [0]
278	0.0 [0]
280	0.0 [0]
282	0.0 [0]
284	0.0 [0]
286	0.0 [0]
288	0.0 [0]
290	0.0 [0]
292	0.0 [0]
294	0.0 [0]
296	0.0 [0]
298	0.0 [0]

Rollover Crash Pulse (1st Prior Event) (if equipped)

Time (msec)	Angular Rate (deg/sec)
-2500	3.26
-2480	3.26
-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	3.26
-2160	0.00
-2140	0.00
-2120	3.26
-2100	3.26
-2080	3.26
-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	3.26
-1040	3.26
-1020	3.26
-1000	0.00
-980	3.26
-960	3.26
-940	3.26
-920	3.26
-900	3.26
-880	3.26
-860	3.26
-840	3.26
-820	3.26
-800	3.26
-780	3.26
-760	3.26
-740	3.26
-720	3.26
-700	0.00
-680	0.00
-660	3.26
-640	3.26
-620	3.26
-600	0.00
-580	0.00
-560	0.00
-540	0.00
-520	-3.26

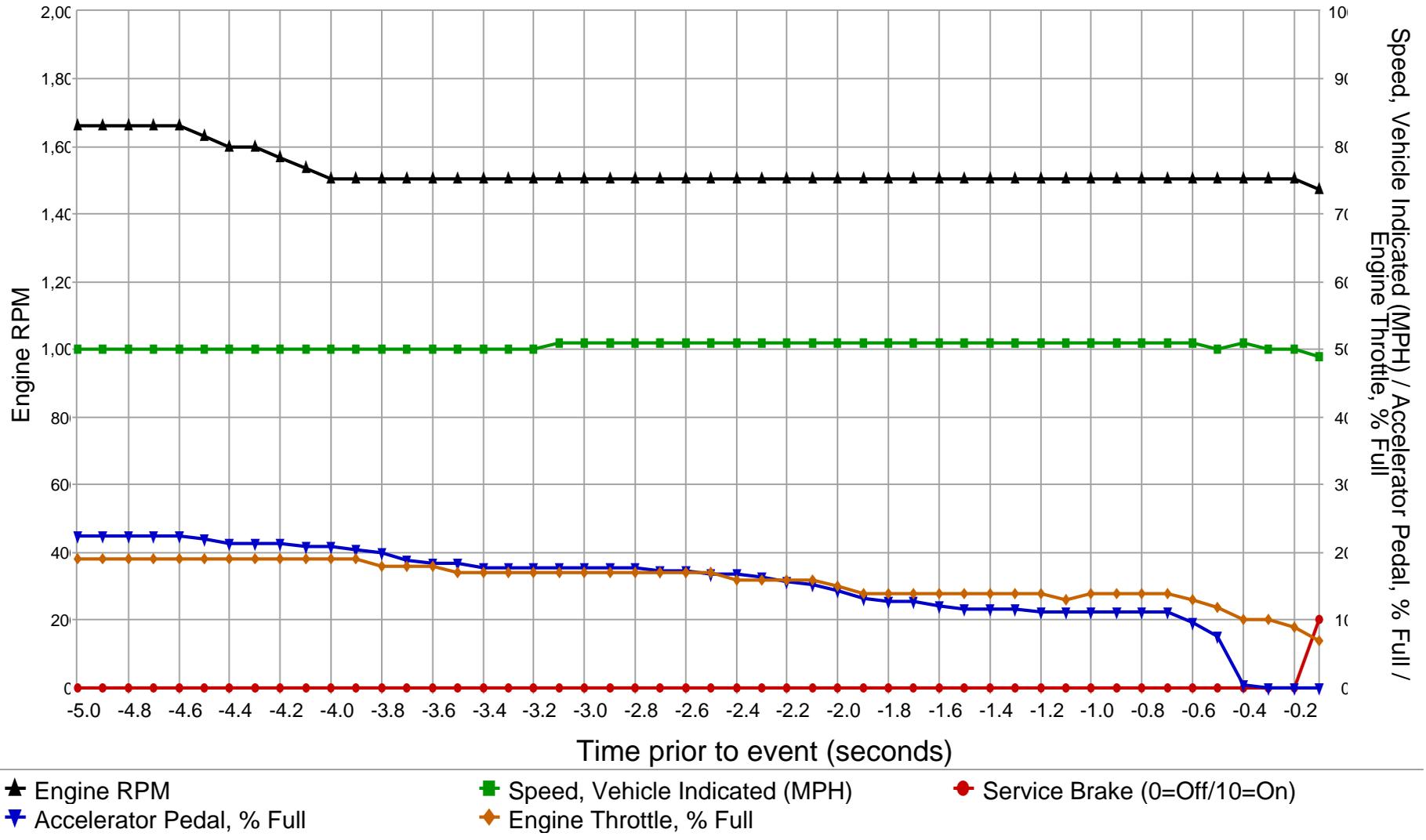
Time (msec)	Angular Rate (deg/sec)
-500	0.00
-480	0.00
-460	0.00
-440	0.00
-420	0.00
-400	0.00
-380	3.26
-360	3.26
-340	3.26
-320	3.26
-300	3.26
-280	3.26
-260	3.26
-240	3.26
-220	3.26
-200	0.00
-180	0.00
-160	0.00
-140	0.00
-120	-3.26
-100	-3.26
-80	0.00
-60	0.00
-40	0.00
-20	0.00
0	3.26
20	3.26
40	0.00
60	29.32
80	9.77
100	3.26
120	6.52
140	6.52
160	0.00
180	6.52
200	0.00
220	0.00
240	3.26
260	3.26
280	13.03
300	3.26
320	6.52
340	9.77
360	9.77
380	13.03
400	9.77
420	6.52
440	3.26
460	0.00
480	-3.26

Rollover Crash Pulse (1st Prior Event) (if equipped)

Time (msec)	Angular Rate (deg/sec)
500	-6.52
520	-9.77
540	-9.77
560	-9.77
580	-9.77
600	-9.77
620	-6.52
640	-6.52
660	-6.52
680	-6.52
700	-3.26
720	-3.26
740	0.00
760	0.00
780	3.26
800	3.26
820	6.52
840	6.52
860	6.52
880	6.52
900	3.26
920	3.26
940	3.26
960	3.26
980	0.00
1000	0.00
1020	0.00
1040	-3.26
1060	-3.26
1080	-3.26
1100	-3.26
1120	-3.26
1140	-3.26
1160	-3.26
1180	-3.26
1200	-3.26
1220	-3.26
1240	-3.26
1260	-3.26
1280	0.00
1300	0.00
1320	0.00
1340	3.26
1360	3.26
1380	3.26
1400	3.26
1420	3.26
1440	3.26
1460	3.26
1480	3.26

Time (msec)	Angular Rate (deg/sec)
1500	3.26
1520	3.26
1540	3.26
1560	3.26
1580	3.26
1600	3.26
1620	3.26
1640	3.26
1660	3.26
1680	3.26
1700	3.26
1720	3.26
1740	0.00
1760	0.00
1780	0.00
1800	0.00
1820	0.00
1840	0.00
1860	0.00
1880	0.00
1900	0.00
1920	0.00
1940	0.00
1960	0.00
1980	0.00
2000	0.00
2020	0.00
2040	0.00
2060	0.00
2080	0.00
2100	3.26
2120	0.00
2140	3.26
2160	0.00
2180	0.00
2200	0.00
2220	0.00
2240	0.00
2260	0.00
2280	0.00
2300	0.00
2320	0.00
2340	0.00
2360	0.00
2380	0.00
2400	0.00
2420	0.00

Pre-Crash Data (1st Prior Event)



SNA values will not be plotted on the graph

Pre-Crash Data (1st Prior Event - table 1 of 5)

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

Time Stamp (sec)	Vehicle Event Recorder Status	Engine RPM	Speed, Vehicle Indicated (MPH [km/h])	Engine Throttle, % Full	Accelerator Pedal, % Full	Raw Manifold Pressure (kPa)	Service Brake	Brake Switch #2 Status	Brake Lamps On
-5.0	Complete	1,664	50 [80]	19	22.7	75	Off	Open	No
-4.9	Complete	1,664	50 [80]	19	22.7	76	Off	Open	No
-4.8	Complete	1,664	50 [80]	19	22.7	76	Off	Open	No
-4.7	Complete	1,664	50 [80]	19	22.7	76	Off	Open	No
-4.6	Complete	1,664	50 [80]	19	22.7	76	Off	Open	No
-4.5	Complete	1,632	50 [80]	19	22.2	76	Off	Open	No
-4.4	Complete	1,600	50 [80]	19	21.6	77	Off	Open	No
-4.3	Complete	1,600	50 [81]	19	21.6	77	Off	Open	No
-4.2	Complete	1,568	50 [81]	19	21.6	77	Off	Open	No
-4.1	Complete	1,536	50 [81]	19	21.1	78	Off	Open	No
-4.0	Complete	1,504	50 [81]	19	21.1	78	Off	Open	No
-3.9	Complete	1,504	50 [81]	19	20.6	78	Off	Open	No
-3.8	Complete	1,504	50 [81]	18	20.1	78	Off	Open	No
-3.7	Complete	1,504	50 [81]	18	19.1	77	Off	Open	No
-3.6	Complete	1,504	50 [81]	18	18.6	76	Off	Open	No
-3.5	Complete	1,504	50 [81]	17	18.6	74	Off	Open	No
-3.4	Complete	1,504	50 [81]	17	18.0	74	Off	Open	No
-3.3	Complete	1,504	50 [81]	17	18.0	73	Off	Open	No
-3.2	Complete	1,504	50 [81]	17	18.0	72	Off	Open	No
-3.1	Complete	1,504	51 [81]	17	18.0	72	Off	Open	No
-3.0	Complete	1,504	51 [81]	17	18.0	72	Off	Open	No
-2.9	Complete	1,504	51 [81]	17	18.0	71	Off	Open	No
-2.8	Complete	1,504	51 [81]	17	18.0	71	Off	Open	No
-2.7	Complete	1,504	51 [81]	17	17.5	71	Off	Open	No
-2.6	Complete	1,504	51 [81]	17	17.5	71	Off	Open	No
-2.5	Complete	1,504	51 [82]	17	17.0	71	Off	Open	No
-2.4	Complete	1,504	51 [82]	16	17.0	70	Off	Open	No
-2.3	Complete	1,504	51 [82]	16	16.5	70	Off	Open	No
-2.2	Complete	1,504	51 [82]	16	16.0	69	Off	Open	No
-2.1	Complete	1,504	51 [82]	16	15.5	68	Off	Open	No
-2.0	Complete	1,504	51 [82]	15	14.4	66	Off	Open	No
-1.9	Complete	1,504	51 [82]	14	13.4	65	Off	Open	No
-1.8	Complete	1,504	51 [82]	14	12.9	63	Off	Open	No
-1.7	Complete	1,504	51 [82]	14	12.9	62	Off	Open	No
-1.6	Complete	1,504	51 [82]	14	12.4	62	Off	Open	No
-1.5	Complete	1,504	51 [82]	14	11.9	62	Off	Open	No
-1.4	Complete	1,504	51 [82]	14	11.9	61	Off	Open	No
-1.3	Complete	1,504	51 [82]	14	11.9	61	Off	Open	No
-1.2	Complete	1,504	51 [82]	14	11.3	58	Off	Open	No
-1.1	Complete	1,504	51 [82]	13	11.3	57	Off	Open	No
-1.0	Complete	1,504	51 [81]	14	11.3	56	Off	Open	No
-0.9	Complete	1,504	51 [81]	14	11.3	56	Off	Open	No
-0.8	Complete	1,504	51 [81]	14	11.3	56	Off	Open	No
-0.7	Complete	1,504	51 [81]	14	11.3	56	Off	Open	No
-0.6	Complete	1,504	51 [81]	13	9.8	55	Off	Open	No
-0.5	Complete	1,504	50 [81]	12	7.7	53	Off	Open	No
-0.4	Complete	1,504	51 [81]	10	0.5	50	Off	Open	No
-0.3	Complete	1,504	50 [81]	10	0.0	46	Off	Open	No
-0.2	Complete	1,504	50 [81]	9	0.0	42	Off	Open	Yes
-0.1	Complete	1,472	49 [80]	7	0.0	40	On	Closed	Yes

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

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

Time Stamp (sec)	Panic Brake Assist Active (if equip.)	PCM MIL	ABS MIL (if equip.)	ESP MIL (if equip.)	ESP Lamp (if equip.)	ESP Lamp Flashing Requested (if equip.)	ESP Disabled (if equip.)	ESP Active (if equip.)
-5.0	No	Off	Off	Off	Off	No	No	Yes
-4.9	No	Off	Off	Off	Off	No	No	Yes
-4.8	No	Off	Off	Off	Off	No	No	Yes
-4.7	No	Off	Off	Off	Off	No	No	Yes
-4.6	No	Off	Off	Off	Off	No	No	Yes
-4.5	No	Off	Off	Off	Off	No	No	Yes
-4.4	No	Off	Off	Off	Off	No	No	Yes
-4.3	No	Off	Off	Off	Off	No	No	Yes
-4.2	No	Off	Off	Off	Off	No	No	Yes
-4.1	No	Off	Off	Off	Off	No	No	Yes
-4.0	No	Off	Off	Off	Off	No	No	Yes
-3.9	No	Off	Off	Off	Off	No	No	Yes
-3.8	No	Off	Off	Off	Off	No	No	Yes
-3.7	No	Off	Off	Off	Off	No	No	Yes
-3.6	No	Off	Off	Off	Off	No	No	Yes
-3.5	No	Off	Off	Off	Off	No	No	Yes
-3.4	No	Off	Off	Off	Off	No	No	Yes
-3.3	No	Off	Off	Off	Off	No	No	Yes
-3.2	No	Off	Off	Off	Off	No	No	Yes
-3.1	No	Off	Off	Off	Off	No	No	Yes
-3.0	No	Off	Off	Off	Off	No	No	Yes
-2.9	No	Off	Off	Off	Off	No	No	Yes
-2.8	No	Off	Off	Off	Off	No	No	Yes
-2.7	No	Off	Off	Off	Off	No	No	Yes
-2.6	No	Off	Off	Off	Off	No	No	Yes
-2.5	No	Off	Off	Off	Off	No	No	Yes
-2.4	No	Off	Off	Off	Off	No	No	Yes
-2.3	No	Off	Off	Off	Off	No	No	Yes
-2.2	No	Off	Off	Off	Off	No	No	Yes
-2.1	No	Off	Off	Off	Off	No	No	Yes
-2.0	No	Off	Off	Off	Off	No	No	Yes
-1.9	No	Off	Off	Off	Off	No	No	Yes
-1.8	No	Off	Off	Off	Off	No	No	Yes
-1.7	No	Off	Off	Off	Off	No	No	Yes
-1.6	No	Off	Off	Off	Off	No	No	Yes
-1.5	No	Off	Off	Off	Off	No	No	Yes
-1.4	No	Off	Off	Off	Off	No	No	Yes
-1.3	No	Off	Off	Off	Off	No	No	Yes
-1.2	No	Off	Off	Off	Off	No	No	Yes
-1.1	No	Off	Off	Off	Off	No	No	Yes
-1.0	No	Off	Off	Off	Off	No	No	Yes
-0.9	No	Off	Off	Off	Off	No	No	Yes
-0.8	No	Off	Off	Off	Off	No	No	Yes
-0.7	No	Off	Off	Off	Off	No	No	Yes
-0.6	No	Off	Off	Off	Off	No	No	Yes
-0.5	No	Off	Off	Off	Off	No	No	Yes
-0.4	No	Off	Off	Off	Off	No	No	Yes
-0.3	No	Off	Off	Off	Off	No	No	Yes
-0.2	No	Off	Off	Off	Off	No	No	Yes
-0.1	No	Off	Off	Off	Off	No	No	Yes

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

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

Time Stamp (sec)	Steering Input (deg) (if equip.)	Yaw Rate (deg/sec) (if equip.)	Wheel Speed LF (RPM) (if equip.)	Wheel Speed RF (RPM) (if equip.)	Wheel Speed LR (RPM) (if equip.)	Wheel Speed RR (RPM) (if equip.)
-5.0	1	0	586	586	586	586
-4.9	1	0	585	584	586	587
-4.8	1	0	586	586	587	587
-4.7	1	0	587	586	587	587
-4.6	1	0	587	586	587	587
-4.5	1	0	586	586	587	587
-4.4	1	0	587	587	587	587
-4.3	2	0	588	587	587	588
-4.2	2	0	589	588	588	588
-4.1	2	0	589	588	588	588
-4.0	2	0	591	588	589	590
-3.9	2	0	591	589	590	591
-3.8	2	0	591	589	591	591
-3.7	2	0	592	590	590	591
-3.6	2	0	592	589	592	592
-3.5	2	0	592	589	591	592
-3.4	2	0	592	589	591	592
-3.3	2	0	593	587	592	593
-3.2	2	0	594	589	592	593
-3.1	2	0	594	590	593	593
-3.0	4	0	594	591	593	594
-2.9	4	0	594	591	593	594
-2.8	4	0	595	591	593	594
-2.7	4	0	594	592	594	594
-2.6	4	0	595	592	594	595
-2.5	4	0	595	592	594	595
-2.4	4	0	596	592	595	595
-2.3	4	0	595	592	594	595
-2.2	4	0	594	593	594	595
-2.1	4	0	595	593	595	596
-2.0	4	0	596	593	595	596
-1.9	2	0	596	593	596	596
-1.8	2	0	595	593	595	595
-1.7	2	0	594	593	595	595
-1.6	2	0	595	594	595	596
-1.5	2	0	595	594	594	595
-1.4	2	0	595	593	595	595
-1.3	2	0	594	593	595	595
-1.2	2	0	594	593	595	595
-1.1	2	0	594	593	594	595
-1.0	2	0	593	593	594	593
-0.9	2	0	593	593	594	594
-0.8	2	0	592	593	594	594
-0.7	2	0	592	593	594	594
-0.6	2	0	591	593	594	594
-0.5	2	0	591	593	594	591
-0.4	1	0	590	592	592	593
-0.3	-8	0	590	594	592	593
-0.2	-15	-1	588	588	590	591
-0.1	-13	-4	580	579	582	579

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

(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	PRND Status	Reverse Gear (Manual Only)	Cruise Control System	Cruise Control Active
-5.0	Off	No	Yes	Drive	No	Off	No
-4.9	Off	No	Yes	Drive	No	Off	No
-4.8	Off	No	Yes	Drive	No	Off	No
-4.7	Off	No	Yes	Drive	No	Off	No
-4.6	Off	No	Yes	Drive	No	Off	No
-4.5	Off	No	Yes	Drive	No	Off	No
-4.4	Off	No	Yes	Drive	No	Off	No
-4.3	Off	No	Yes	Drive	No	Off	No
-4.2	Off	No	Yes	Drive	No	Off	No
-4.1	Off	No	Yes	Drive	No	Off	No
-4.0	Off	No	Yes	Drive	No	Off	No
-3.9	Off	No	Yes	Drive	No	Off	No
-3.8	Off	No	Yes	Drive	No	Off	No
-3.7	Off	No	Yes	Drive	No	Off	No
-3.6	Off	No	Yes	Drive	No	Off	No
-3.5	Off	No	Yes	Drive	No	Off	No
-3.4	Off	No	Yes	Drive	No	Off	No
-3.3	Off	No	Yes	Drive	No	Off	No
-3.2	Off	No	Yes	Drive	No	Off	No
-3.1	Off	No	Yes	Drive	No	Off	No
-3.0	Off	No	Yes	Drive	No	Off	No
-2.9	Off	No	Yes	Drive	No	Off	No
-2.8	Off	No	Yes	Drive	No	Off	No
-2.7	Off	No	Yes	Drive	No	Off	No
-2.6	Off	No	Yes	Drive	No	Off	No
-2.5	Off	No	Yes	Drive	No	Off	No
-2.4	Off	No	Yes	Drive	No	Off	No
-2.3	Off	No	Yes	Drive	No	Off	No
-2.2	Off	No	Yes	Drive	No	Off	No
-2.1	Off	No	Yes	Drive	No	Off	No
-2.0	Off	No	Yes	Drive	No	Off	No
-1.9	Off	No	Yes	Drive	No	Off	No
-1.8	Off	No	Yes	Drive	No	Off	No
-1.7	Off	No	Yes	Drive	No	Off	No
-1.6	Off	No	Yes	Drive	No	Off	No
-1.5	Off	No	Yes	Drive	No	Off	No
-1.4	Off	No	Yes	Drive	No	Off	No
-1.3	Off	No	Yes	Drive	No	Off	No
-1.2	Off	No	Yes	Drive	No	Off	No
-1.1	Off	No	Yes	Drive	No	Off	No
-1.0	Off	No	Yes	Drive	No	Off	No
-0.9	Off	No	Yes	Drive	No	Off	No
-0.8	Off	No	Yes	Drive	No	Off	No
-0.7	Off	No	Yes	Drive	No	Off	No
-0.6	Off	No	Yes	Drive	No	Off	No
-0.5	Off	No	Yes	Drive	No	Off	No
-0.4	Off	No	Yes	Drive	No	Off	No
-0.3	Off	No	Yes	Drive	No	Off	No
-0.2	Off	No	Yes	Drive	No	Off	No
-0.1	Off	No	Yes	Drive	No	Off	No

Pre-Crash Data (1st Prior Event - table 5 of 5)

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

Time Stamp (sec)	Tire Pressure Monitor Faults (if equip.)	Tire 1 Location (if equip.)	Tire 1 Pressure Status (if equip.)	Tire 1 Pressure (psi) (if equip.)	Tire 2 Location (if equip.)	Tire 2 Pressure Status (if equip.)	Tire 2 Pressure (psi) (if equip.)
-5.0	No	RF	Normal	38	RR	Normal	37
-4.9	No	RF	Normal	38	RR	Normal	37
-4.8	No	RF	Normal	38	RR	Normal	37
-4.7	No	RF	Normal	38	RR	Normal	37
-4.6	No	RF	Normal	38	RR	Normal	37
-4.5	No	RF	Normal	38	RR	Normal	37
-4.4	No	RF	Normal	38	RR	Normal	37
-4.3	No	RF	Normal	38	RR	Normal	37
-4.2	No	RF	Normal	38	RR	Normal	37
-4.1	No	RF	Normal	38	RR	Normal	37
-4.0	No	RF	Normal	38	RR	Normal	37
-3.9	No	RF	Normal	38	RR	Normal	37
-3.8	No	RF	Normal	38	RR	Normal	37
-3.7	No	RF	Normal	38	RR	Normal	37
-3.6	No	RF	Normal	38	RR	Normal	37
-3.5	No	RF	Normal	38	RR	Normal	37
-3.4	No	RF	Normal	38	RR	Normal	37
-3.3	No	RF	Normal	38	RR	Normal	37
-3.2	No	RF	Normal	38	RR	Normal	37
-3.1	No	RF	Normal	38	RR	Normal	37
-3.0	No	RF	Normal	38	RR	Normal	37
-2.9	No	RF	Normal	38	RR	Normal	37
-2.8	No	RF	Normal	38	RR	Normal	37
-2.7	No	RF	Normal	38	RR	Normal	37
-2.6	No	RF	Normal	38	RR	Normal	37
-2.5	No	RF	Normal	38	RR	Normal	37
-2.4	No	RF	Normal	38	RR	Normal	37
-2.3	No	RF	Normal	38	RR	Normal	37
-2.2	No	RF	Normal	38	RR	Normal	37
-2.1	No	RF	Normal	38	RR	Normal	37
-2.0	No	RF	Normal	38	RR	Normal	37
-1.9	No	RF	Normal	38	RR	Normal	37
-1.8	No	RF	Normal	38	RR	Normal	37
-1.7	No	RF	Normal	38	RR	Normal	37
-1.6	No	RF	Normal	38	RR	Normal	37
-1.5	No	RF	Normal	38	RR	Normal	37
-1.4	No	RF	Normal	38	RR	Normal	37
-1.3	No	RF	Normal	38	RR	Normal	37
-1.2	No	RF	Normal	38	RR	Normal	37
-1.1	No	RF	Normal	38	RR	Normal	37
-1.0	No	RF	Normal	38	RR	Normal	37
-0.9	No	RF	Normal	38	RR	Normal	37
-0.8	No	RF	Normal	38	RR	Normal	37
-0.7	No	RF	Normal	38	RR	Normal	37
-0.6	No	RF	Normal	38	RR	Normal	37
-0.5	No	RF	Normal	38	RR	Normal	37
-0.4	No	RF	Normal	38	RR	Normal	37
-0.3	No	RF	Normal	38	RR	Normal	37
-0.2	No	RF	Normal	38	RR	Normal	37
-0.1	No	RF	Normal	38	RR	Normal	37

DIRECTOR LEROY SMITH

COLONEL C.N. WILLIAMSON



South Carolina Highway Patrol

Multi-Disciplinary Accident Investigation Team

Case Number: [REDACTED]
(Orangeburg)

South Carolina Highway Patrol

The South Carolina Highway Patrol Multi-Disciplinary Accident Investigation Team (MAIT) reserves the right to amend, correct, or detract any or all inferences, conclusions, or opinions presented in this report. This report is based on information and evidence available to MAIT at the time this report was written. If additional information becomes available, it may bear on the inferences, conclusions or opinions presented in this report. Therefore, MAIT reserves the right to revisit and review all inferences, conclusions, or opinions at any future point in time that new evidence relevant to this case is discovered or presented to MAIT.

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Lance Corporal J.K. Minnix
Trooper First Class J.D. Gilbert

Multi-Disciplinary Accident Investigation Team

INTRODUCTION

This report will outline the findings of the Coastal Multi-Disciplinary Accident Investigation Team (MAIT) as they relate to a traffic collision investigated by the South Carolina Highway Patrol (SCHP) that occurred September 9, 2019 in Orangeburg County, South Carolina. The collision occurred at approximately 0440 hours on Interstate 26; hereafter referred to as I-26, is approximately 6.97 miles south of the city limits of Holly Hill, South Carolina. The collision involved three vehicles; hereafter referred to as Unit #1, Unit #2 and Unit #3.

Unit #1 is a blue 2010 Jeep Liberty sport utility vehicle, bearing a vehicle identification number (VIN) of [REDACTED] displaying Michigan license plate [REDACTED] registered to [REDACTED]. The driver of Unit #1 was [REDACTED] of [REDACTED] South Carolina. [REDACTED] Mr. [REDACTED] received possible injuries.

Unit #2 is a red 2003 Freightliner commercial motor vehicle, bearing a vehicle identification number (VIN) of [REDACTED] displaying South Carolina license plate [REDACTED] registered to [REDACTED] of [REDACTED], South Carolina. The driver of Unit #2 was Mr. [REDACTED]. Mr. [REDACTED] possessed a valid South Carolina driver's license and his restraint status is currently unknown. Mr. [REDACTED] received fatal injuries.

Unit #3 is unknown at the time of this report but believed to be a commercial motor vehicle with yellow paint on the rear of the trailer.

The Internal Agency Code assigned to this collision in the Computer Aided Dispatch (CAD) is [REDACTED]. Trooper [REDACTED] of South Carolina Highway Patrol Troop 7 was dispatched to the collision scene on the morning of the collision and is the primary investigating officer.

ISSUES

Upon notification, the MAIT duty officer received a request for assistance in regards to this collision; Police pursuit involving great bodily injury. Corporal [REDACTED] consulted with the

[REDACTED]

Troop 7 supervisor, Corporal [REDACTED], and it was determined that MAIT would address the following issues:

- Document the scene of the collision and involved Units;
- Complete a Forensic Mapping and CAD of the collision scene;
- Determine how the collision occurred.

Upon notification, MAIT provided a deferred response in support of SCHP Troop 7 personnel. This report will focus only on the issues mentioned above. All other aspects of the investigation are the responsibility of the primary investigating officer. All investigative materials collected or produced by MAIT during the course of this investigation are stored on department servers or at the department Central Evidence Facility.

ROADWAY EXAMINATION

MAIT conducted an examination of the roadway where the collision occurred, took photographs, video and completed a forensic mapping and field sketch of the collision scene. The nearest intersecting road is Interstate 95 (I-95).

I-26, a straight four-lane roadway divided by a grass/ tree median, is oriented in a southeast-northwest direction. I-26 is designated as an east-west roadway by its number. The area around the collision location consists of woods and open fields. The roadway surface is asphalt, best described as traveled. The roadway surface on the day of the collision was dry and in good condition. The posted speed limit in the area of the collision is 70 miles per hour in both directions.

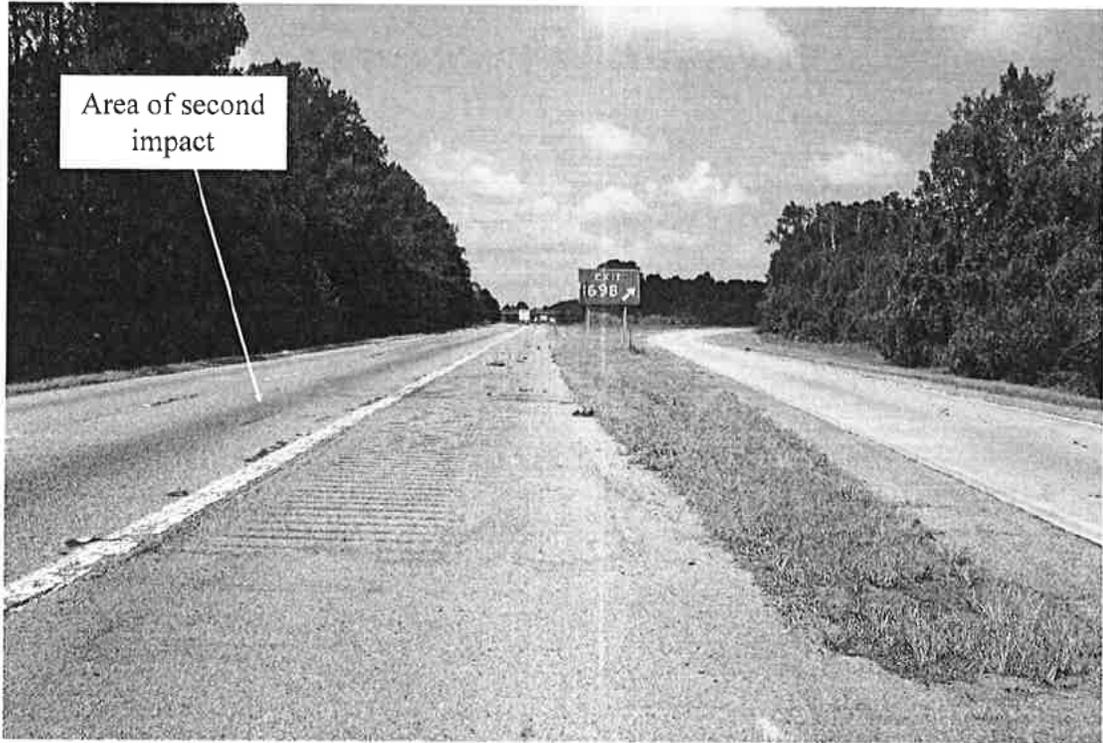
The area where the secondary impact between Unit #1 and Unit #2 occurred is in lane #2 of westbound I-26. Several tire marks, gouges and fluid trails were located in lane #2 of westbound I-26 and travel toward the final rest of both Units. The initial impact location is believed to also be in lane #2 westbound. The following pictures depict the area of the collision, the roadway and physical evidence found in the area of the collision, and the involved vehicles at final rest.



I-26 (Aerial View at Collision Scene)



I-26 westbound while facing east ([REDACTED])



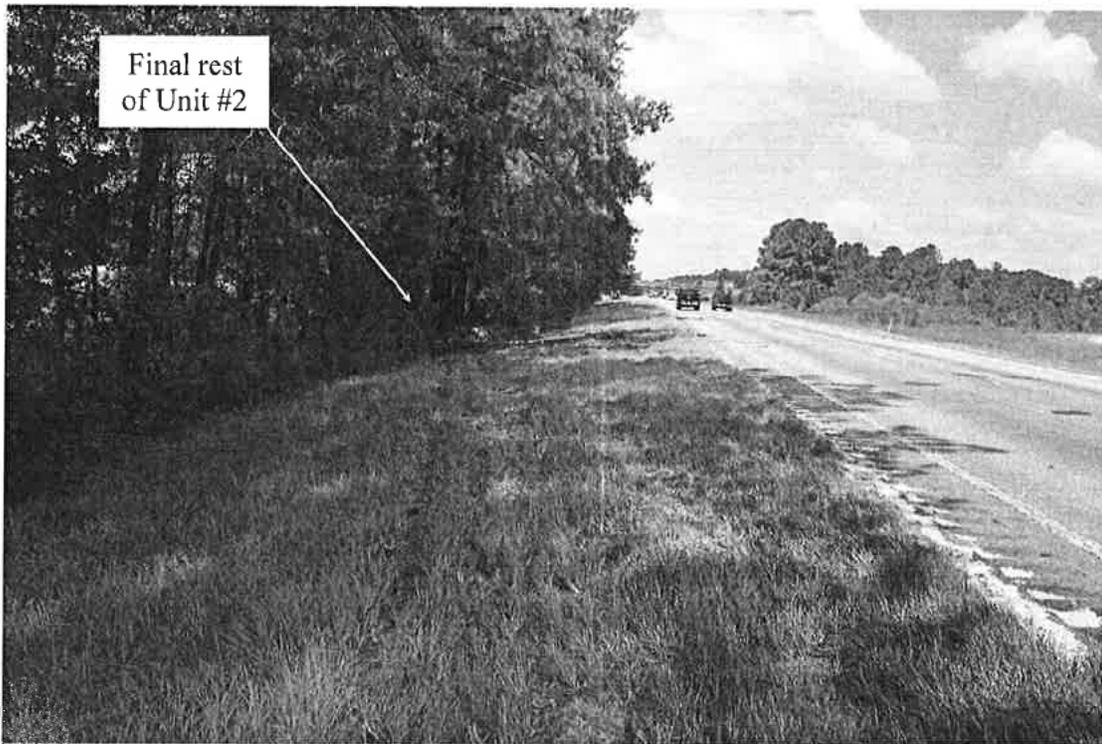
Beginning of collision scene while facing west [REDACTED]



Area of impact and final rest of Unit #1 [REDACTED]



Final rest of Unit #1 on entrance ramp to I-95 north



Final rest of Unit #2 in the median while facing west



Final Rest of Unit #2 in the median [REDACTED]

COLLISION DYNAMICS

Unit #1 was traveling west on I-26 when it struck the rear of Unit #3 (an unknown vehicle). The initial collision rendered Unit #1 a disabled vehicle stopped in lane #2 westbound with no lights. Unit #2 was traveling west on I-26 in lane #2. Sometime after the initial collision, Unit #2 sideswiped Unit #1 while swerving left in an attempt to avoid the collision. Unit #2 crossed lane #1, traveled into the median and struck several trees before catching on fire. Unit #1 traveled off the right side of the roadway, crossed the gore and came to final rest on the entrance ramp to I-95 northbound.

Given all the aforementioned factors and the totality of the dynamics involved in the collision, MAIT can conclude with a reasonable amount of scientific certainty the initial and secondary impacts occurred in lane #2 westbound of I-26.

VEHICLE DAMAGES

MAIT personnel examined Unit #1 at Carolina Towing in Orangeburg, South Carolina and Unit #2 at Cusack's Towing in Holly Hill, South Carolina. The vehicles were documented through photography and the completion of general vehicle examinations. The following pictures depict damages incurred by the involved units.



Left rear view of Unit #1 [REDACTED]



Left front view of Unit #1



Right front view of Unit #1



Right rear view of Unit #1 [REDACTED]



Left Rear view of truck portion of Unit #2 [REDACTED]



Left front view of truck portion of Unit #2



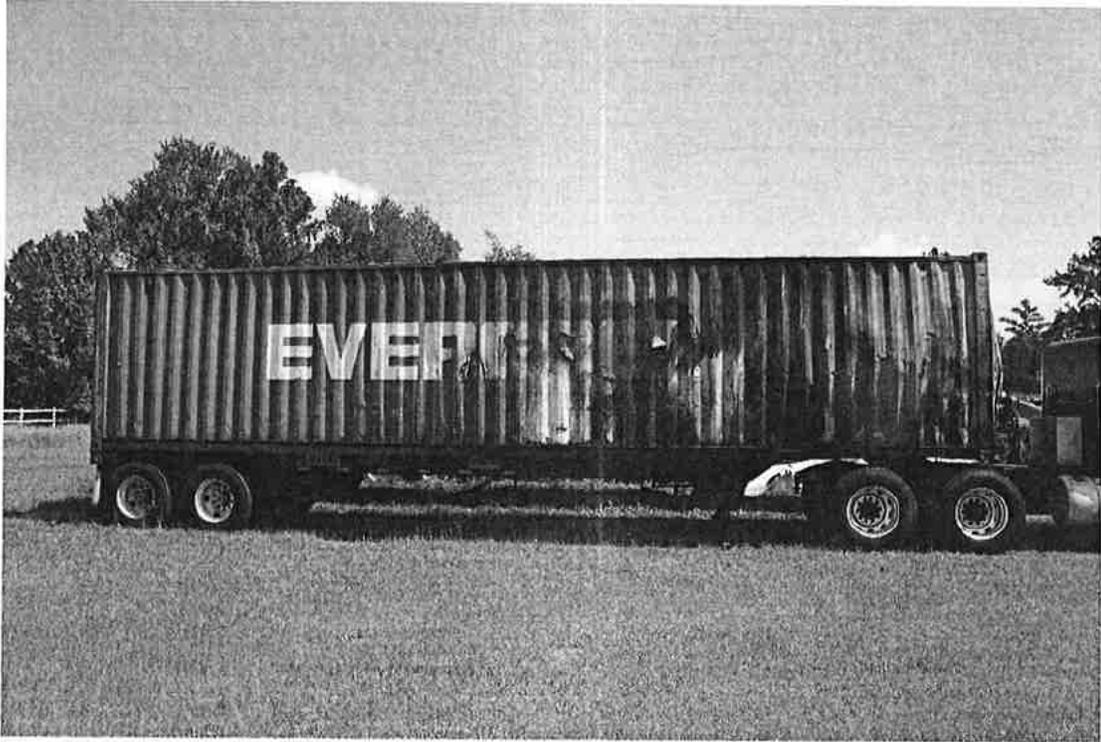
Right front view of truck portion of Unit #2



Right rear view of truck portion of Unit #2



Right rear view of trailer on Unit #2



Right side view of trailer on Unit #2 [REDACTED]



Right front view of trailer on Unit #2 [REDACTED]



Left front view of trailer on Unit #2 [REDACTED]

EVENT DATA RECORDER

MAIT imaged the 2010 Jeep Liberty (Unit #1) airbag control module (ACM). The module contained two recorded events however only the most recent event was determined to be relevant to this collision. The data is recorded in 0.1 second increments. For the purpose of this report, the data is displayed in 0.5 second increments from -5.0 seconds to 0.1 second. The recorded data indicated the following Speed/Time correlations in relation to time zero:

(Most Recent Event)

- 77 mph at -5.0 seconds
- 77 mph at -4.5 seconds
- 78 mph at -4.0 seconds
- 77 mph at -3.5 seconds
- 77 mph at -3.0 seconds
- 77 mph at -2.5 seconds

- 77 mph at -2.0 seconds
- 77 mph at -1.5 seconds
- 71 mph at -1.0 second
- 63 mph at -0.5 second
- 56 mph at -0.1 second

Corporal [REDACTED] completed an analysis of the data involved on this ACM. It was determined the data was consistent with the crash dynamics. To ensure a complete analysis, Corporal [REDACTED] reviewed the data, which was recorded complete and written correctly within the vehicles safety system microcomputers, in the latest version of Bosch software and found it to be matching.

CASE INTERVIEWS

MAIT conducted or attempted to conduct interviews of drivers, occupants, and witnesses in regards to this collision. The complete audio recordings of the below identified interviews or attempted interviews are located within the case file for this investigation.

- [REDACTED] (Primary Investigating Officer)
- [REDACTED] (Driver of Unit #1)
- [REDACTED] (Witness)
- [REDACTED] (Witness)
- [REDACTED] (Witness)

FORENSIC MAPPING/CAD

MAIT prepared scale diagrams based on a forensic mapping and sUAV photographs of the collision scene. The first diagram depicts the roadway in the area of the collision. The second diagram depicts impact between the Unit #1 and Unit #3 that occurs sometime prior to the impact between Unit #1 and Unit #2. Unit #3 is unknown and the area of impact was estimated due to a lack of physical evidence. The third diagram depicts impact between the Unit #1 and Unit #2. The fourth diagram depicts the evidence and Unit #1 and Unit #2 at final rest; placement was determined based upon mapped points recorded from marked locations and scene photographs. The fifth diagram depicts a sequence of events based on collision dynamics as determined by

[REDACTED]

MAIT Investigators. The initial impact between Unit #1 and Unit #3 is not included on the sequence of events. These diagrams are located at the end of this report.

FINDINGS

While reserving the right to review all inferences, conclusions, or opinions at any future point in time MAIT presents the following findings.

1. Unit #1 struck the rear of Unit #3 (an unknown vehicle) and became disabled in lane #2. Unit #2 then sideswiped the left side of Unit #1, traveled into the median and struck several trees. After being struck by Unit #2, Unit #1 traveled off the right side of the roadway and came to final rest on the I-95 northbound entrance ramp. All Units were traveling west on I-26.
2. The speed of Unit #1 in relation to the initial collision with Unit #3, as indicated on the airbag control module (ACM) for the most recent event, was 77 miles per hour 5.0 seconds prior to time zero and 56 miles per hour 0.1 second prior to time zero. The highest recorded speed was 78 miles per hour between 4.4 and 3.9 seconds prior to time zero. The posted speed limit is 70 mph.

[REDACTED]

[REDACTED]

[REDACTED]





SOUTH CAROLINA HIGHWAY PATROL
MULTI-DISCIPLINARY ACCIDENT INVESTIGATION TEAM
DATE DRAWN: 09/11/2019

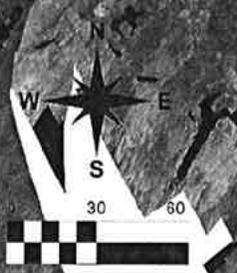
ROADWAY

TROOP 8/ ORANGEBURG
OCCURRED ON: 09/09/2019





UNKNOWN
TRUCK

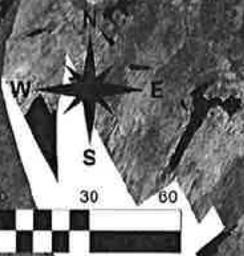


SOUTH CAROLINA HIGHWAY PATROL
MULTI-DISCIPLINARY ACCIDENT INVESTIGATION TEAM

DATE DRAWN: 09/11/2019

IMPACT

TROOP 6/ ORANGEBURG
OCCURRED ON: 09/09/2019



SOUTH CAROLINA HIGHWAY PATROL
MULTI-DISCIPLINARY ACCIDENT INVESTIGATION TEAM
DATE DRAWN: 09/11/2019

IMPACT

TROOP 6/ ORANGEBURG
OCCURRED ON: 09/09/2019





SOUTH CAROLINA HIGHWAY PATROL
MULTI-DISCIPLINARY ACCIDENT INVESTIGATION TEAM
DATE DRAWN: 09/11/2019

EVIDENCE AND FINAL
REST

TROOP 6/ ORANGEBURG
OCCURRED ON: 09/09/2019
[REDACTED]



SOUTH CAROLINA HIGHWAY PATROL
MULTI-DISCIPLINARY ACCIDENT INVESTIGATION TEAM
DATE DRAWN: 09/11/2019

SEQUENCE OF EVENTS

TROOP 6/ ORANGEBURG
OCCURRED ON: 09/09/2019



SOUTH CAROLINA LAW ENFORCEMENT DIVISION
FORENSIC SERVICES LABORATORY REPORT

HENRY D. MCMASTER
Governor



MARK A. KEEL
Chief

Deputy Coroner Valencia Golden
Orangeburg County Coroner's Office
Post Office Drawer 9000
Orangeburg, SC 29116

TOXICOLOGY DEPARTMENT

October 28, 2019
SLED No: L19-18506
Your Case No: FA19648 Incident Date:
09/09/2019

[V-Deceased] Nicholas Rostova

This is an official report of the South Carolina Law Enforcement Division Forensic Services Laboratory and is to be used in connection with an official criminal investigation. These examinations were conducted under your assurance that no previous examinations of person(s) or evidence submitted in this case have been or will be conducted by any other laboratory or agency.

Mark A. Keel, Chief
South Carolina Law Enforcement Division

ITEMS OF EVIDENCE

Item: 1 **Sample Type: Blood (Toxicology) - labeled "Doe, John (pka Nicholas Rostova)**
C19-00513"

Analysis by Headspace Gas Chromatography (GC) and/or Headspace Gas Chromatography/Mass Spectrometry (GC/MS)

Analyte	Result	Units	Threshold
Ethanol	Negative	% (g/dL)	0.01
Methanol	Negative	% (g/dL)	0.01
Acetone	Negative	% (g/dL)	0.01
Isopropanol	Negative	% (g/dL)	0.01



10/28/19

Screen by Enzyme Linked Immunosorbent Assay (ELISA)

Analyte	Result	Units	Threshold
Amphetamine	Negative	ng/mL	20.00
Barbiturates	Negative	ng/mL	100.00
Benzodiazepines I	Negative	ng/mL	20.00
Benzodiazepines II	Negative	ng/mL	10.00
Cannabinoids	Negative	ng/mL	10.00
Cocaine Metabolite	Negative	ng/mL	50.00
Dextromethorphan	Negative	ng/mL	10.00
Fentanyl	Negative	ng/mL	1.00
Generic Opioids	Negative	ng/mL	10.00
Meprobamate	Negative	ng/mL	300.00
Methadone	Negative	ng/mL	25.00
Methamphetamine	Negative	ng/mL	20.00
Opiates	Negative	ng/mL	10.00
Oxycodone I	Negative	ng/mL	10.00
Oxycodone II	Negative	ng/mL	10.00
Phencyclidine	Negative	ng/mL	5.00
Tramadol	Negative	ng/mL	10.00
Tricyclic Antidepressants	Negative	ng/mL	60.00
Zolpidem	Positive	16 ng/mL	10.00

Carbon Monoxide

Analyte	Result	Units	Threshold
Carboxyhemoglobin Synonyms: i.e. Carbon Monoxide bound to hemoglobin	18	%	10.00

Item: 2 **Sample Type: Blood (Toxicology) - Iliac Vein Blood labeled "Nicholas Rostova FA19-648"**

No Analysis Performed

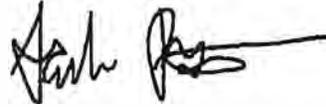


10/28/19

Item: 3 **Sample Type: Urine - labeled "Nicholas Rostova FA19-648"**

No Analysis Performed

*This report contains the conclusions, opinions and interpretations of the analyst whose signature appears below.
Technical records supporting the conclusions in this report are available upon request. Afford sufficient time for production.*



Sarah Preston
Forensic Toxicologist

CC: Melody Reid Martin - Newberry Pathology

For any additional interpretation of results please contact the Toxicologist above at the SLED Toxicology Department , (803) 896-7385.



SOUTH CAROLINA LAW ENFORCEMENT DIVISION FORENSIC SERVICES LABORATORY REPORT

HENRY D. MCMASTER
Governor



MARK A. KEEL
Chief

November 14, 2019

Deputy Coroner Valencia Golden
Orangeburg County Coroner's Office
1558 Ellis Ave
Orangeburg, SC 29118

DNA ANALYSIS

SLED LAB: L19-18506 Your Case No:
FA19648 Incident Date: 09/09/2019 [V-
Deceased] Nicholas Rostova

This is an official report of the South Carolina Law Enforcement Division Forensic Services Laboratory and is to be used in connection with an official criminal investigation. These examinations were conducted under your assurance that no previous examinations of person(s) or evidence submitted in this case have been or will be conducted by any other laboratory or agency.

Mark A. Keel, Chief
South Carolina Law Enforcement Division

COMPARISON STANDARDS

4.1 Dried blood standard from Nicholas Rostova

RESULTS:

- The DNA profile developed is suitable for use as a known standard and is consistent with being the biological father of Nicholas Rostova.

5 Known head hairs from Nicholas Rostova

RESULTS:

- No analysis performed.

6 Buccal swabs from Alex Rostova (son of victim)

RESULTS:

- The DNA profile developed is suitable for use as a known standard.

7 DNA card from Nicholas Rostova

RESULTS:

- No analysis performed.



NOTES:

DNA analysis was performed using Short Tandem Repeat (STR) PCR DNA analysis.

The following kits/loci were utilized in the analysis of this case:

GlobalFiler™: D3S1358, vWA, D16S539, CSF1PO, TPOX, Yindel, AMELOGENIN, D8S1179, D21S11, D18S51, DYS391, D2S441, D19S433, TH01, FGA, D22S1045, D5S818, D13S317, D7S820, SE33, D10S1248, D1S1656, D12S391, D2S1338

Any remaining evidence and/or packaging will be returned to the requesting agency.

This report contains the conclusions, opinions and interpretations of the analyst whose signature appears below.

Technical records supporting the conclusions in this report are available upon request. Afford sufficient time for production.



Samuel Stewart

Forensic Scientist



Autopsy Number: FA19-648	Name: Nicholas Rostova
Date of Birth: Unknown	Race: White Sex: Male
Date of Death: 09/09/2019	Date of Autopsy: 09/15/2019
County: Orangeburg	Pathologist: Dr. Peter Sparrow, MD

FINAL AUTOPSY DIAGNOSES

1. Evidence of CO exposure:
 - a. Dark material in airways samples taken likely soot, some blood mixed
 - b. CO levels in blood samples 15 % (lower than expected) indicative of agonal breathing post collision during early stages of fire
 - c. Decedent may have been a smoker

2. Evidence of blunt force trauma:
 - a. Blood in trachea
 - b. Linear skull fracture frontal
 - c. Nasal bone linear fracture

3. Thermal trauma:
 - a. Significant substantial tissue loss from fire
 - b. Extensive charring to head, neck, torso, extremities
 - c. Heat related open fracture to top of skull, brain matter exposed
 - d. Unburned hair on back of head
 - e. Skin, hair on rear of scalp, clothing unburned from decedent s right side, head, shoulders, upper back, lower back, buttocks from where decedent was found in final rest position against unburned portion of seats of cab.

4. Examination of heart and cardiovascular system (unburned) showed heart significantly enlarged, all coronary arteries partially occluded with plaque (80%), significant collateral artery formation, consistent with chronic coronary artery disease in advanced stages.

5. DNA samples confirmed identity of driver.

6. Blood Toxicology (Iliac vein sample) negative for all analytes. No urine sample obtained.

CAUSE OF DEATH

- a. Thermal injuries, smoke inhalation/asphyxiation

Contributing: CO exposure (nonlethal), blunt force trauma to head and face due to motor vehicle accident, likely LOC

Note: Thermal injuries too extensive to eliminate possibility of cardiac arrest pre or post final collision. Decedent does not appear to have moved from final resting place in vehicle indicative of loss of consciousness (LOC) upon impact and inability to exit vehicle.

MANNER OF DEATH

Accident

Autopsy Number: FA19-648
County: Orangeburg

Name: Nicholas Rostova
Pathologist: Dr. Peter Sparrow, MD

CASE HISTORY

According to the coroner, this unknown-aged male was the driver of an 18-wheeler that was struck by a Jeep. His truck left the highway, hitting trees, and caught fire.

EXTERNAL EXAMINATION

The decedent is received in a black plastic body bag secured with a coroner's identification tag bearing proper identifiers. The following articles of clothing and personal items are on or with the body: One fragment of charred shirt.

The body is that of a charred, adult white male who measures 69 inches in length. The body is cool to the touch.

The head, neck, nose, mouth, and ears are greatly charred with fractured top of the skull, exposing brain. The scalp hair is one fragment of brown and straight hair. The eyes are absent. The chest and back are charred. The abdomen is slightly round. The external genital organs are those of a normal adult male. The upper and lower extremities are charred with fourth degree thermal injury.

Marks and scars on the body are not visible.

EVIDENCE OF ACUTE INJURY

Soot and blood are within the airway.

INTERNAL EXAMINATION

CARDIOVASCULAR SYSTEM: The heart weighs 540 grams and shows the usual morphology consistent with chronic CAD. The coronary arteries are partially occluded with plaque (80%). The myocardium is firm and without evidence of recent or remote infarctions. The left and right ventricular walls are moderately hypertrophied. The wall thicknesses are as follows: left ventricle = 1.5 cm; interventricular septum = 1.5 cm; and right ventricle = 0.6 cm. The circumferences of the cardiac valves are narrowed. The valve leaflets are unremarkable. The aorta and its major branches are unremarkable, but there is significant collateral artery formation, again indicative of chronic CAD.

Autopsy Number: FA19-648
County: Orangeburg

Name: Nicholas Rostova
Pathologist: Dr. Peter Sparrow, MD

RESPIRATORY SYSTEM: The right and left lungs weigh 830 and 850 grams, respectively. The pleural surfaces are smooth and show mild anthracosis in a lymphatic distribution. On cut section, the pulmonary parenchyma is severely congested and severely edematous. Neither lung shows evidence of pneumonia or masses. The mainstem and distal bronchi are patent with soot and blood clot covering the mucosa. The pulmonary arteries of both lungs follow the normal distribution and are without thromboemboli.

HEPATOBIILIARY AND GASTROINTESTINAL SYSTEMS: The liver weighs 1,720 grams. The parenchyma is mildly congested and without evidence of steatosis, fibrosis, nodules, or masses, but is partially charred. The gallbladder is present and free of stones. The gastric mucosa is free of erosions and ulcers but is partially charred. The stomach is empty. The small and large intestines are normally formed. The appendix is present. The pancreas is appropriate in size with respect to the body habitus and weighs 160 grams. The cut surface is lobular without fibrosis, fat necrosis or hemorrhage.

GENITOURINARY SYSTEM: The right and left kidneys weigh 150 and 175 grams, respectively. The cortical surfaces are smooth. On cut section, the cortical medullary ratios are normal. The structures of the urinary collection system are normally formed, and the bladder contains approximately 25 mL of pinkish-yellow urine. The prostate gland is normal in size; the lobes are symmetrical, and the cut surfaces are free of nodularity.

HEMATOLYMPHOID SYSTEM: The spleen weighs 190 grams. The capsule is thin and smooth. The parenchyma shows no evidence of disease. Lymphadenopathy is not identified within any of the body regions.

ENDOCRINE SYSTEM: The thyroid gland is charred/absent. The adrenal glands are symmetrical and without nodularity or hemorrhage.

CENTRAL NERVOUS SYSTEM: The brain weighs 1,000 grams and is fragmented with thermal injury. The leptomeninges are unremarkable. The cerebral hemispheres seen are normally formed and symmetrical. The blood vessels at the base of the brain are normally formed and free of abnormality. The cerebellum and brainstem are symmetrical and show no evidence of disease. Sections through the cerebral hemispheres show the usual distribution of gray and white matter and no lesions. The cerebral ventricles are of normal caliber.

Autopsy Number: FA19-648
County: Orangeburg

Name: Nicholas Rostova
Pathologist: Dr. Peter Sparrow, MD

NECK: Examination of the soft tissues and skeletal muscles of the neck reveals no abnormalities. The hyoid bone and laryngeal cartilages are intact. The upper airway is patent.

MUSCULOSKELETAL SYSTEM: The bony framework, supporting musculature, and soft tissues of the body are normally formed and developed. The decedent appeared to have facial fractures consistent with hitting his head/face on a rigid surface inside the cab of the truck. A fracture to the top of the skull was noted, most likely heat/fire related.

Autopsy Number: FA19-648
County: Orangeburg

Name: Nicholas Rostova
Pathologist: Dr. Peter Sparrow, MD

AUTOPSY PROCEDURE SUMMARY

Upon request of and after due authorization by the Orangeburg County Coroner, a complete autopsy was performed on the body of Nicholas Rostova in the Orangeburg County Memorial Hospital morgue on 09/15/2019 at approximately 8:45 a.m.

Significant gross anatomical autopsy findings are summarized under Final Autopsy Diagnoses.

Urine, vitreous fluid, and iliac blood are collected for toxicology and to be performed by SLED Forensic Services.

A gray top tube of iliac blood and a vitreous fluid sample are retained. A purple top tube of blood for potential DNA studies is collected and transferred to SLED Forensic Services. A DNA blood spot card is prepared and saved as part of the case file.

A vitreous fluid sample is submitted to Orangeburg County Memorial Hospital (OCMH) Laboratory for chemistry analysis. All results are within normal reference ranges. The complete report from OCMH Laboratory is saved as part of the case file.

Representative sections of organs are submitted into cassettes to be processed into paraffin blocks as follows:

- Cassette A – Heart, lungs
- Cassette B – Lung, liver, kidney, pancreas
- Cassette C – Trachea, bronchi
- Cassette D – Brain

Significant microscopic findings will be summarized under Final Autopsy Diagnoses.

All tissues not retained for diagnostic purposes are returned to the body.

The decedent’s clothing and personal items are transferred with the body.



 Dr. Peter Sparrow, MD

09/17/19

 Date signed

Medical Examination Report FOR COMMERCIAL DRIVER FITNESS DETERMINATION

1533186

DRIVER'S INFORMATION Driver completes this section.

Driver's Name (Last, First, Middle)		Social Security No.	Birthdate	Age	Sex	<input checked="" type="checkbox"/> New Certification <input type="checkbox"/> Recertification <input type="checkbox"/> Follow Up	Date of Exam
Address		City, State, Zip Code	Work Tel:	Driver License No.		License Class <input checked="" type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> D <input type="checkbox"/> Other	State of Issue SC
			Home Tel:				

HEALTH HISTORY Driver completes this section, but medical examiner is encouraged to discuss with driver.

<p>YES NO</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Any lacerations or injury in last 6 years?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Head/Brain injuries, disorders or illnesses</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Seizures, epilepsy <input type="checkbox"/> medication _____</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Eye disorders or impaired vision (except corrective lenses)</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Ear disorders, loss of hearing or balance</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Heart disease or heart attack/other cardiovascular condition <input type="checkbox"/> medication _____</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Heart surgery (valve replacement/bypass, angioplasty, pacemaker)</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> High blood pressure <input type="checkbox"/> medication _____</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Muscular disease</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Shortness of breath</p>	<p>YES NO</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Lung disease, emphysema, asthma, chronic bronchitis</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Kidney disease, dialysis</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Liver disease</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Digestive problems</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Diabetes or elevated blood sugar controlled by: <input type="checkbox"/> diet <input type="checkbox"/> pills <input type="checkbox"/> insulin</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Nervous or psychiatric disorders, e.g. severe depression <input type="checkbox"/> Medication _____</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Loss of, or altered consciousness</p>	<p>YES NO</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Fainting, dizziness</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Sleep disorders, pauses in breathing while asleep, daytime sleepiness, loud snoring</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Stroke or paralysis</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Missing or impaired hand, arm, foot, leg, finger, toe</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Spinal injury or disease</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Chronic low back pain</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Regular, frequent alcohol use</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Narcotic or habit forming drug use</p>
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For any YES answer, indicate onset date, diagnosis, treating physician's name and address, and any current limitation. List all medications (including over-the-counter medications) used regularly or recently.

I certify that the above information is complete and true. I understand that inaccurate, false or missing information may invalidate the examination and my Medical Examiner's Certificate.

Driver's Signature

Date

Medical Examiner's Comments on Health History (The medical examiner must review and discuss with the driver any "yes" answers and potential hazards of medications including over-the-counter medications, while driving. This discussion must be documented below.)

TESTING (Medical Examiner completes Section 3 through 7) Name: Last, _____ First, _____ Middle, _____

I. VISION Standard: At least 20/40 acuity (Snellen) in each eye with or without correction. At least 70 degree peripheral in horizontal meridian measured in each eye. The use of corrective lenses should be noted on the Medical Examiner's Certificate.

INSTRUCTIONS: When other than the Snellen chart is used, give test results in Snellen-comparable values. In recording distance vision, use 20 feet as normal. Report visual acuity as a ratio with 20 as numerator and the smallest type read at 20 feet as denominator. If the applicant wears corrective lenses, those should be worn while visual acuity is being tested. If the driver habitually wears contact lenses, or intends to do so while driving, sufficient evidence of good tolerance and adaptation to their use must be obvious. Monocular drivers are not qualified. Numerical readings must be provided.

ACUITY	UNCORRECTED	CORRECTED	HORIZONTAL FIELD OF VISION
Right Eye	20/30	20/	Right Eye 70 0
Left Eye	20/40	20/	Left Eye 70 0
Both Eyes	20/22	20/	0

Applicant can recognize and distinguish among traffic control signals and devices showing standard red, green, and amber colors? Yes No

Applicant meets visual acuity requirement only when wearing:
 Corrective Lenses
 Monocular Vision: Yes No

Complete next line only if vision testing is done by an Ophthalmologist or Optometrist

State of Examination: _____ Name of Ophthalmologist or Optometrist (print): _____ Tel No. _____ License No./State of Issue _____ Signature _____

I. HEARING Standard: a) Must first perceive forced whispered voice 2 1/2 ft., with or without hearing aid, or b) average hearing loss in better ear 40 dB

Check if hearing aid used for tests. Check if hearing aid required to meet standard.

INSTRUCTIONS: To convert audiometric test results from ISO to ANSI, 14 dB from ISO for 500 Hz, -10 dB for 1,000 Hz, -5 dB for 2,000 Hz. To average, add the readings for 3 frequencies tested and divide by 3. Numerical readings must be recorded.

a) Record distance from individual at which forced whispered voice can first be heard.	Right Ear	Left Ear	b) If audiometer is used, record hearing loss in decibels. (acc. to ANSI Z24.5 1951)		
	5 Feet	5 Feet			
	Average:		Average:		

I. BLOOD PRESSURE / PULSE RATE Numerical readings must be recorded. Medical Examiner should take at least two readings to confirm BP.

Blood Pressure	Systolic	Diastolic	Reading	Category	Expiration Date	Recertification
	186	90	140-159/90-99	Stage 1	1 year	1 year if \leq 140/90. One-time certificate for 3 months if 141-159/91-99.
Ever qualified if \leq 140/90.			160-179/100-109	Stage 2	One-time certifica	
Pulse Rate: <input checked="" type="checkbox"/> Regular <input type="checkbox"/> Irregular			\geq 180/110	Stage 3	6 months from date of exam if \leq 140/90	
Record Pulse Rate:	79					



9. LABORATORY AND OTHER TEST FINDINGS Numerical readings must be recorded.

Analysis is required. Protein, blood or sugar in the urine may be an indication for further testing to rule out any underlying medical problem. Enter applicable item number before each comment. If organic disease is present, note that it has been compensated for.

URINE SPECIMEN	SP. GR.	PROTEIN	BLOOD	SUGAR
	1.020	neg.	neg.	neg.

7. PHYSICAL EXAMINATION

Height: 322 (In.) Weight: _____ (lbs.) Name: Last, _____ First, _____ Middle, _____

The presence of a certain condition may not necessarily disqualify a driver, particularly if the condition is controlled adequately, is not likely to worsen or is readily amenable to treatment. Even if a condition does not disqualify a driver, the medical examiner may consider deferring the driver temporarily. Also, the driver should be advised to take the necessary steps to correct the condition as soon as possible if the condition, if neglected, could result in more serious illness that might affect driving.

Check YES if there are any abnormalities. Check NO if the body system is normal. Discuss any YES answers in detail in the space below, and indicate whether it would affect the driver's ability to operate a commercial motor vehicle safely. Enter applicable item number before each comment. If organic disease is present, note that it has been compensated for.

BODY SYSTEM	CHECK FOR:	YES*	NO	BODY SYSTEM	CHECK FOR:	YES*	NO
1. General Appearance	Maned overweight, tremor, signs of alcoholism, problem drinking, or drug abuse.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Abdomen and Viscera	Enlarged liver, enlarged spleen, masses, bruits, hernia, significant abdominal wall muscle weakness.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Eyes	Pupillary equality, reaction to light, accommodation, ocular motility, ocular muscle imbalance, extraocular movement, nystagmus, exophthalmos. Ask about retinopathy, cataracts, aphakia, glaucoma, macular degeneration and refer to a specialist if appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	8. Vascular system	Abnormal pulse and amplitude, carotid or arterial bruits, varicose veins.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Ears	Scarring of tympanic membrane, occlusion of external canal, perforated eardrums.	<input type="checkbox"/>	<input type="checkbox"/>	9. Genito-urinary system	Hemias.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Mouth and Throat	Irreversible deformities likely to interfere with breathing or swallowing.	<input type="checkbox"/>	<input type="checkbox"/>	10. Extremities-Limb	Loss or impairment of leg, foot, toe, arm, hand, finger. Perceptible limp, deformities, atrophy, weakness, paralysis, clubbing, edema, hypotonia. Insufficient grasp and prehension in upper limb to maintain steering wheel grip. Insufficient mobility and strength in lower limb to operate pedals properly.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Heart	Murmur, extra sounds, enlarged heart, pacemaker, implantable defibrillator.	<input type="checkbox"/>	<input type="checkbox"/>	11. Spine, other musculoskeletal	Previous surgery, deformities, limitation of motion, tenderness.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Lungs and chest, not including breast examination.	Abnormal chest wall expansion, abnormal respiratory rate, abnormal breath sounds including wheezes or rales, impaired respiratory function, cyanosis. Abnormal findings on physical exam may require further testing such as pulmonary tests and/or x-ray of chest.	<input type="checkbox"/>	<input type="checkbox"/>	12. Neurological	Impaired equilibrium, coordination of speech pattern; asymmetric deep tendon reflexes, sensory or positional abnormalities, abnormal patellar and Babinski's reflexes, ataxia.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

COMMENTS:

State certification status here. See Instructions to the Medical Examiner for guidance.

Meets standards in 49 CFR 391.41; qualifies for 2 year certificate

Does not meet standards

Meets standards, but periodic monitoring required due to _____

Driver qualified only for: 3 months 6 months 1 year Other

Temporarily disqualified due to (condition or medication): _____

Return to medical examiner's office for follow up on _____

Wearing corrective lenses

Wearing hearing aid

Accompanied by a _____ waiver/exemption

Driver must present exemption at time of certification

Medical Examiner's Signature _____

Medical Examiner's Name (print) _____

Address _____

Telephone Number _____

Skill Performance Evaluation (SPE) Certificate

Driving within an exempt intracity zone, (See 49 CFR 391.02)

Qualified by operation of 49 CFR 391.61

If meets standards, complete a Medical Examiner's Certificate as stated in 49 CFR 391.43(h). (Driver must carry certificate)

Notes from Time/Distance Study
(9/9/2020)

57 MPH (ref.)

83.6 FPS

196 feet to stop (ref.)

1.5 seconds to see Jeep, apply brakes. (ref.)

Headlight illumination distance = 350 feet. (ref.)

$83.6 \times 1.5 = 125.4$ feet

$125.4 + 196 = 321.4$ feet to perceive a hazard in roadway and bring rig to full stop. (3.65 seconds)

$321.4 < 350$.

•• truck driver should have been able to move to the left and/or come to a complete stop.

Assumptions

- Dark, no significant fog, properly adjusted and operating headlights, steering and brakes working properly, driver not distracted.
- No skid marks post impact point. No avoidance maneuvers.
- Driver didn't see him.
- Cof = 7.5 (ref.)

Note: On visibility test, I had to keep my flashers on my truck on (state law). But it didn't change illumination distance. I was mostly trying to confirm stopping distance references.

Weather – humid, dry. Rained later that day.































































STATE OF SOUTH CAROLINA	)	IN THE COURT OF COMMON PLEAS
)	
COUNTY OF ORANGEBURG	)	Civil Action No.: 2020-CP-83-72803
)	
Natasha Rostova, as Personal Representative)	
of the Estate of Nicholas Rostova,)	
)	
Plaintiff,	)	VERDICT FORM
)	
vs.)	
)	
Owen Williams and Carolina Beverage)	
Distributor, LLC,)	
)	
Defendants.)	
)	

We the jury unanimously find the following:

1. Do you find by a preponderance of the evidence that Defendant, Owen Williams and/or CBD was negligent, and that such negligence proximately caused or contributed to the death of Plaintiffs decedent, Nicholas Rostova?

_____ Yes.

_____ No.

If "Yes," proceed to Question 2. If "No," STOP, and sign Verdict Form. You have found for the Defendants.

2. Do you find by a preponderance of the evidence that Plaintiff's decedent, Nicholas Rostova, was negligent, and that such negligence proximately caused or contributed to his death?

_____ Yes.

_____ No.

If "Yes," proceed to Question 3. If "No," proceed to Question 4.

3. Comparative Fault. State the percentage of fault to be assigned to each party:

Plaintiff's Decedent, Nicholas Rostova _____ %

Defendants Owen Williams and/or CBD _____ %

(The total percentages must add up to 100%)

4. State the total damages incurred by Plaintiff due to the wrongful death of Nicholas Rostova.

Actual Damages: _____

This is our verdict.

Jury Foreperson Signature