On Site Certified Advanced 208 Complaint Investigation / Vehicle to Object
Dynamic Science, Inc. / Case Number: DS02030
2003 Chevrolet Tahoe K1500 Z71 4WD
Texas
October, 2002

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

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

Technical Report Documentation Page

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16. Abstract

This investigation focused on the performance of the Advanced 208 Compliant (CAC) case vehicle, a 2003 Chevrolet Tahoe K1500 sport utility four door vehicle equipped with the Z71 four wheel drive package. It was driven by an unrestrained 28-year-old male. There were two additional occupants in the case vehicle. An unrestrained 28-year-old male was seated in the front right seat and an unrestrained 29-year-old was seated in the rear right seat.

This was a single vehicle collision versus a tree that occurred in the state of Texas. The crash took place on a undivided, two way residential roadway. The posted speed limit is 48 km/h (30 mph) and there were no traffic controls present. The case vehicle was initially traveling eastbound approaching a cul-de-sac. There was a parked vehicle on the north side of the roadway that was parked heading east. The police report indicates that the driver of the case vehicle was unfamiliar with the area and did not realize that the roadway was coming to a dead end. The case vehicle entered the cul-de-sac traveling at a police estimated high rate of speed. The driver made 180 degree turn in the cul-de-sac and headed west. The driver swerved to the left to avoid the parked vehicle on the north side of the roadway. The driver lost control of the vehicle and headed in a southwest direction. The case vehicle “bottomed out” as it went over the rain gutter on the south side of the street, and the Sensing Diagnostic Module (SDM) recorded a non-deployment event. The case vehicle continued moving forward off the roadway in a southwest direction and traveled up the positive 51% grade embankment while going through shrubs. The case vehicle struck a tree with its front left bumper (32FYEW1). The driver’s and front right passenger’s air bags deployed at this time. The total velocity change for the case vehicle as calculated by the barrier algorithm of the WinSmash collision model was 19 km/h (12 mph). The longitudinal and lateral delta V components were -19 km/h (-12 mph) and 0 km/h (0 mph), respectively. The results fit the collision model but appear low. The SDM recorded a deployment event with a maximum forward velocity change of -26.26 km/h (-16.32 mph) at the 172.5 ms mark.

The case vehicle came to final rest at the point of impact with the tree and its front end in contact with the tree heading southwest. The occupants of the case vehicle presumably exited the vehicle under their own power. None of the occupants reported injuries to the police. The case vehicle was towedfrom scene due to its damage and was declared a total loss by the insurance company and later sold as a salvaged vehicle.

17. Key Words	18. Distribution Statement
Certified Advanced 208 Compliant, CAC, Air bag, deployment	

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No of pages	22. Price

Dynamic Science, Inc.
Crash Investigation
Case Number: DS02030

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BACKGROUND:

Description: This investigation focused on the performance of the Advanced 208 Compliant (CAC) case vehicle. A CAC vehicle is certified by the manufacturer to be compliant to the Advanced Air Bag portion of Federal Motor Vehicle Safety Standards (FMVSS) No. 208. This CAC case was identified by DSI through insurance contacts. The case was reported to the National Highway Traffic Safety Administration (NHTSA) on November 27, 2002 and the case was assigned to DSI for an on-scene investigation. The data from the Sensing Diagnostic Module (SDM) was downloaded and all field work was completed on December 04, 2002.

Investigation Type:	On-scene
Crash Location:	Texas
Crash Date:	October, 2002
Notification Date:	November 27, 2002
Field Work Completed:	December 4, 2002

SUMMARY

Crash Site

This was a single vehicle collision versus a tree. The collision occurred in October, 2002 at 0301 hours in Texas. The crash took place on a undivided, two way residential roadway. Traffic travels in an east and west directions. The eastern direction of travel approaches a circular cul-de-sac. The southern edge of the street is bordered by a rain gutter and then a positive 5% grade embankment that is landscaped with trees and shrubs. The asphalt roadway was dry. The east roadway has a positive 3.1% grade; the west roadway has a negative 4.7% grade. The weather was clear and there were no roadway defects reported or noted at the scene inspection. It was dark and the area was not lighted. The posted speed limit is 48 km/h (30 mph) and there were no traffic controls present.

Pre-Crash

The case vehicle is a 2003 Chevrolet Tahoe K1500 sport utility four door vehicle equipped with the Z71 four wheel driver (4WD) package. It was driven by an unrestrained 28-year-old male. There were two additional occupants in the case vehicle. An unrestrained 28-year-old male was seated in the front right seat and an unrestrained 29-year-old was seated in the rear right seat.

The case vehicle was initially traveling eastbound approaching a cul-de-sac. There was a parked vehicle on the north side of the roadway that was parked heading east. The police report indicates that the driver of the case vehicle was unfamiliar with the area and did not realize that the roadway was coming to a dead end. The case vehicle entered the cul-de-sac traveling at a police estimated high rate of speed. The driver made 180 degree turn in the cul-de-sac and headed west. The driver swerved to the left to avoid the parked vehicle on the north side of the roadway. The driver lost control of the vehicle and headed in a south-west direction.

Crash

The case vehicle “bottomed out” as it went over the rain gutter on the south side of the street, and the Sensing Diagnostic Module (SDM) recorded a non-deployment event. A non deployment event is an event severe enough to “wake up” the sensing algorithm but not severe enough to deploy the air bags. The SDM downloaded non-deployment data indicates that five seconds prior to algorithm enable (AE), the case vehicle was traveling at 24 km/h (15 mph), and accelerating. The brake switch circuit status was in the “OFF” position. The case vehicle continued moving forward off the roadway in a southwest direction and traveled up the positive 5% grade embankment while going through shrubs. The case vehicle struck a tree with its front left bumper (32FYEW1). The driver’s and front right passenger’s air bags deployed at this time. The total velocity change for the case vehicle as calculated by the barrier algorithm of the WinSmash collision model was 19 km/h (12 mph). The longitudinal and lateral delta V components were -19 km/h (-12 mph) and 0 km/h (0 mph), respectively. The results fit the collision model but appear low. The SDM recorded a deployment event with a maximum forward velocity change of -26.26 km/h (-16.32 mph) at the 172.5 ms mark. The SDM data also indicates that the case vehicle was traveling at a maximum speed of 39 km/h (24 mph) with the brake switch circuit status in the “OFF”, two seconds prior to AE.

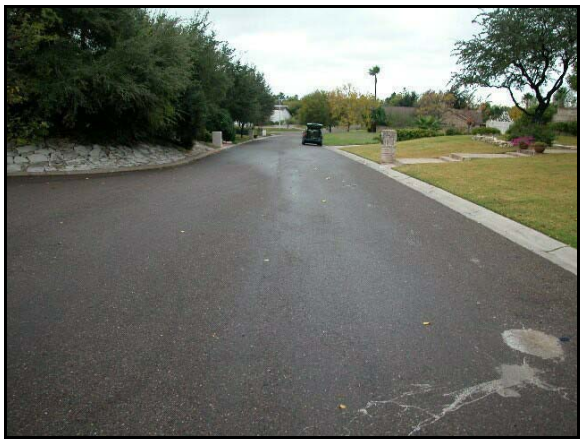


Figure 1. Path to point of impact (west)

Figure 2. Rain gutter, path to impact with tree (southwest)

The case vehicle came to final rest at the point of impact with the tree and its front end in contact with the tree heading southwest.

Post-Crash

The local police was dispatched to the scene of the collision scene and arrived at 0307 hours. The occupants of the case vehicle presumably exited the vehicle under their own. None of the occupants reported injuries to the police. The case vehicle was towed from scene due to its damage and was declared a total loss by the insurance company and later sold as a salvaged vehicle.

Figure 3. Impact with tree

VEHICLE DATA - 2003 Chevrolet Tahoe

The case vehicle is a 2003 Chevrolet Tahoe K1500 four door sport utility vehicle equipped with the Z71 4WD package. The vehicle was equipped with an automatic four wheel drive transmission and anti-lock brakes.

VIN:	1GNEK13Z23RXXXXXX
Odometer:	2,881 kilometers (1,790 miles)
Engine:	5.3 liter, V8
Reported Defects:	None reported
Cargo:	None at time of inspection

The case vehicle was equipped for five occupant seating (2-3). The front row was equipped with two leather bucket seats with adjustable head restraints and integrated lap and shoulder safety belts. The driver's and front right seats were configured with an electrical adjustments for the seat track and seat backs. The rear seating positions were configured with a leather split bench seat with folding backs. The two rear outboard seats were equipped with adjustable head restraints and lap and shoulder safety seat belts. The rear center seat position was equipped with an integrated head restraint and lap and shoulder safety seat belt. All three rear seat positions were equipped with Lower Anchors and Tethers for Children (LATCH).

The 2003 Chevrolet Tahoe was equipped with Goodyear Wrangler AT/S brand tires, size P265/70R17. The specific tire data is as follows:

Tire	Tread	Measured Pressure	Vehicle Manufacturer's Recommended Cold Tire Pressure
LF	10 mm (13/32 in)	200 kPa (29 psi)	303 kPa (44 psi)
LR	10 mm (13/32 in)	200 kPa (29 psi)	303 kPa (44 psi)
RR	10 mm (13/32 in)	200 kPa (29 psi)	303 kPa (44 psi)
RF	10 mm (13/32 in)	200 kPa (29 psi)	303 kPa (44 psi)

VEHICLE DAMAGE

Exterior Damage - 2003 Chevrolet Tahoe

Damage Description:	During impact with the tree, the case vehicle sustained 174 cm (69 in) of direct and induced contact damage that began at the front left bumper corner. The direct damage began 13 cm (6 in) from the front left bumper corner and extended laterally to the right 50 cm (20 in). The impact energy was managed by the forward structures of the vehicle. The damaged components included the bumper fascia and reinforcement bar, the lower radiator supports, the grille area, the hood, and both front fenders. Six crush measurements were documented at the bumper level: Cl= 16 cm (6 in), C2= 24 cm (9 in), C3= 12 cm (5 in), C4= 5 cm (2 in), C5= 0 cm (0 in), C6= 0 cm (0 in). A Collision Deformation Classification (CDC) of 32FYEW1 was assigned to the damage. The principal direction of force was within the 12 o'clock sector and was an estimated 0 degrees. The left front wheel was displaced rearward and restricted. There was a 4 cm (2 in) reduction of the left side wheelbase. All doors remained closed and operational. The case vehicle was towed from the scene due to damage, and was subsequently declared a total loss by the insurance company and sold as a salvage vehicle.	
CDC:	32FYEW1	
Delta V:	Total	19.0 km/h (11.8 mph)
	Longitudinal	-19.0 km/h (-11.8 mph)
	Latitudinal	0.0 km/h (0.0 mph)
	Energy	34,205 joules (25,228 ft-lbs)

Figure 4. Front exterior damage to case vehicle

Interior Damage - 2003 Chevrolet Tahoe

The case vehicle was void of any intruding components into the occupant compartment attributed to the exterior crash forces. There was no evidence of occupant contact to the driver's or front right occupant's knee bolster cover. The driver's sun visor was found on the front right floor area. This is thought to have been removed and was not as a result of occupant contact.

MANUAL RESTRAINT SYSTEMS - 2003 Chevrolet Tahoe

There are manual seat integrated three-point lap and shoulder safety seat belts present for the two front seating positions. The driver's seat position was equipped with emergency locking retractor and a sliding latch plate. The metal latch plate was scratched, indicating historical usage, but there was no evidence of loading to the seat belt webbing that can be associated to the crash forces. The downloaded SDM data indicated that the driver's seat belt was unbuckled. The front right seat position was equipped with a switchable retractor (Emergency Locking Retractor-Automatic Locking Retractor) and sliding latch plate. The metal latch plate was scratched, indicating historical usage, but there was no evidence of loading to the seat belt webbing that can be associated to the crash forces.


Figure 5. Driver's seat

The rear bench seat with folding backs was equipped with manual three-point lap and shoulder safety belts and sliding latch plates at the two outboard positions. The middle seat position was equipped with an integrated three-point lap and shoulder safety seat belt with a sliding latch plate. All three rear seat positions were equipped with switchable retractors (Emergency Locking Retractor-Automatic Locking Retractor). All three rear seat positions were equipped with Lower Anchors and Tethers for Children (LATCH). The metal latch plate in the rear right seat position was scratched, indicating historical usage, but there was no evidence of loading to the seat belt webbing that can be associated to the crash forces.

FRONTAL AIR BAG SYSTEM - 2003 Chevrolet Tahoe

This vehicle is equipped with an advanced occupant protection system certified to comply with the Advanced Air Bag portion of FMVSS No. 208. The system consists of the SDM, dual-level (dual stage) driver and front right passenger air bags, a front right passenger sensing system, seat back mounted side air bags at both front seat positions, and a driver's seat belt latch usage detector. The case vehicle is also equipped with OnStar. The OnStar system can be activated by a button on the rear view mirror. It is not known at this time if the driver of the case vehicle communicated with the OnStar service center after the crash.


Figure 6. Frontal air bags in case vehicle

The driver's air bag deployed at impact with the tree. The driver's air bag module was located in the center hub of the steering wheel rim and had two module cover flaps. The flaps opened in a designed I-configuration. Both module cover flaps measured 8 cm (3 in) by 12 cm (5 in). There was no occupant contact evidence on the module cover flaps. The diameter of the driver's air bag measured 63 cm (25 in) in its post deflated state. The driver's air bag had a maximum excursion of 20 cm (8 in). It had two vent ports at the 11 and 1 o'clock positions and two tethers sewn to the face of the air bag. There was evidence of driver contact in the form of skin transfer to face of the air bag membrane on the lower left quadrant (Figure 7). There was module cover contact to the lower center quadrant of the face of the air bag membrane and the rear right quadrant of the air bag membrane. The driver's air bag had 11 horizontal and 9 vertical folds.


Figure 7. Driver skin transfer to air bag

The front right passenger's air bag was a mid-mount design located in the right aspect of the instrument panel. The single module cover flap was rectangular in shape and measured 39 cm (15 in) by 14 cm (6 in). There was no occupant contact evidence on the cover flap. The front passenger's air bag was vaguely rectangular in shape and measured 51 cm (20 in) wide by 52 cm (20 in) high in its post deflated state. The passenger's air bag had a maximum excursion of 40 cm (16 in). It had two vent ports at the 10 and 2 o'clock positions and a single tether sewn across the entire mid face area of the air bag. There was no evidence of driver contact, only possible module cover contact to the upper right side of the air bag membrane.

The case vehicle being equipped with a Passenger Sensing System. The Passenger Sensing System is designed to automatically switch the air bag on or off based on a passenger's weight. The system also uses a sensor in the passenger-side seat belt to measure how much tension is

exerted by the seat belt when it is being cinched down, another means of determining what may be on the seat. There is an indicator on the rear-view mirror that alerts vehicle occupants to the status of the system at all times. If the light reads "Passenger Air Bag ON," the air bag is programmed to deploy in a frontal crash of sufficient severity. If it reads "Passenger Air Bag OFF," the system has suppressed the air bag because it determined either that there is no occupant on the front passenger seat, or that a rear-facing infant seat, a forward-facing child restraint, a booster seat or a smaller person, such as a child who has outgrown child restraints, is present.

Figure 8. Front right Passenger Sensing System

The case vehicle is also equipped with seat mounted side air bags at both front bucket seat positions. Neither of the side air bags deployed in this crash.

The system is controlled by the SDM. The primary function of the SDM is to control the deployment of the occupant protection systems. The system records the vehicle's forward velocity change. The SDM will record 100 milliseconds of data after the deployment criteria is met and up to 50 milliseconds of data before deployment criteria is met. The SDM will also record 150 milliseconds of data after non-deployment criteria is met.

Two crash events were recorded by the SDM, a Deployment event at 402 ignition cycles and a non-deployment event at the same ignition cycle. The non-deployment event probably occurred when the case vehicle bottomed-out at the rain gutter of the south edge of the roadway and "woke" up the system.

The Vetronix system status at DEPLOYMENT report indicates that:

1. SIR warning lamp status was OFF.
2. The driver's belt switch status was UNBUCKLED.
3. Ignition cycles at deployment 402.
4. Ignition cycles at investigation 412.
5. Maximum SDM recorded velocity change 26.26 km/h (-16.32 mph).
6. Algorithm enable (AE) to maximum SDM recorded velocity change was 172.5milliseconds.
7. Driver first stage time algorithm enabled to deployment command criteria met 35milliseconds.
8. Driver second stage time algorithm enabled to deployment command criteria met N/A.
9. Passenger first stage time algorithm enabled to deployment command criteria met 35 milliseconds.
10. Passenger second stage time algorithm enabled to deployment command criteria met N/A.
11. Time between non-deployment and deployment events N/A.
12. Frontal deployment level event counter 1.
13. Event recording complete YES.
14. Multiple events associated with this record NO.
15. One or more associated events not recorded NO.
16. The vehicle speed was 18 km/h (11 mph) 5 seconds prior to AE, and accelerated from 24 km/h (15 mph) to 39 km/h (24 mph) from 4 to 2 seconds prior to AE, and then decelerated to 37 km/h (23 mph) 1 seconds prior to AE.
17. The brake switch status was OFF from 5 through 2 seconds prior to AE, and was ON from 1 second prior to AE.

The Vetronix system status at NON-DEPLOYMENT report indicates that:

1. SIR warning lamp status was OFF.
2. The driver's belt switch status was UNBUCKLED.
3. Ignition cycles at deployment 402.
4. Ignition cycles at investigation 412.
5. Maximum SDM recorded velocity change 0.00 km/h (0.00 mph).
6. Algorithm enable (AE) to maximum SDM recorded velocity change was 187.5milliseconds.
7. Event recording complete YES.
8. Multiple events associated with this record NO.
9. One or more associated events not recorded NO.
10. The vehicle speed was 24 km/h (15 mph) 5 seconds prior to AE, and accelerated to 31 km/h (19 mph) from 4 seconds prior to AE to 39 km/h (24 mph) 3 seconds prior to AE, decelerated to 37 km/h (23 mph) 2 seconds prior to AE, and then accelerated to 39 km/h (24mph) 1 second prior to AE.
11. The brake switch status was OFF from 5 through 3 seconds prior to AE, and was ON from 2 seconds through 1 second prior to AE.

OCCUPANT DEMOGRAPHICS - 2003 Chevrolet Tahoe

	Occupant 1	Occupant 2
Age/Sex:	28/Male	28/Male
Seated Position:	Front left	Front right
Seat Type:	Leather covered bucket seat. Seat back reclined rearward and seat adjusted to rear most track position. Adjustable head restraint at full down position.	Leather covered bucket seat. Seat back reclined rearward and seat adjusted to between middle and rear most track position. Adjustable head restraint at full down position.
Height:	Unknown	Unknown
Weight:	Unknown	Unknown
Occupation:	Sales Manager	Unknown
Pre-existing Medical Condition:	None noted	None noted
Alcohol/Drug Involvement:	None	None
Driving Experience:	Presumed to be < 10 years	Not applicable
Body Posture:	Presumed normal, upright, facing forward	Presumed normal, upright, facing forward (specifics unknown)
Hand Position:	Both hands on steering wheel rim unknown o'clock positions	Unknown
Foot Position:	Initially right foot on accelerator and then on brake pedal. Left foot on floor.	Unknown
Restraint Usage:	None used	None used
Air bag:	Steering wheel hub mounted driver's air bag, deployed. Seat back mounted side air bag, non-deployed.	Mid-mounted passenger frontal air bag, deployed. Seat back mounted side air bag, non-deployed.

OCCUPANT DEMOGRAPHICS (Continue...) - 2003 Chevrolet Tahoe

	Occupant 3
Age/Sex:	29/Male
Seated Position:	Rear right
Seat Type:	Leather covered split bench seat with folding back. Non-adjustable seat back or seat track position.
Height:	Unknown
Weight:	Unknown
Occupation:	Unknown
Pre-existing Medical Condition:	None noted
Alcohol/Drug Involvement:	N/A
Driving Experience:	N/A
Body Posture:	Upright, facing forward (specifics unknown)
Hand Position:	Unknown
Foot Position:	Unknown
Restraint Usage:	None used
Air bag:	None available

OCCUPANT INJURIES -2003 Chevrolet Tahoe

	Injury
Driver:	No reported injuries
RF Occupant:	No reported injuries
RR Occupant:	No reported injuries

OCCUPANT KINEMATICS - 2003 Chevrolet Tahoe

The 28-year-old male (height and weight unknown) driver was not wearing the available seat integrated lap and shoulder safety belt. The sliding latch plate revealed surface scratches and striations which suggest regular usage of the lap and shoulder belt. The belt webbing however, showed no evidence of belt loading. He was presumed to be seated in a normal upright, facing forward position with both hands on the steering wheel rim. The leather covered bucket seat was adjusted to the rear most seat track position, and the adjustable head restraint was in the full down position. The driver of the case vehicle was negotiating a 180 degree left hand turn around a residential cul-de-sac and was accelerating the vehicle and heading west. He turned the steering wheel to the left to avoid colliding into a parked vehicle and headed south-west and went off the south edge of the roadway. The front tires bottomed out on the rain gutter on the south edge of the roadway. The case vehicle headed up a positive 5% embankment and struck a tree with its front. In response to the 12 o'clock impact force, the unrestrained driver of the case vehicle moved straight forward. His upper torso was restricted from extended forward movement due to his likely bracing effort with the steering wheel rim. He contacted the deploying driver's air bag (skin transfer was found on the face of the air bag), although no injury was reported. The driver presumably exited the case vehicle under his own power and did not report any injuries to the police.

Figure 9. Front right seat

The 28-year-old male front right passenger (height and weight unknown) was unrestrained and was seated in a presumed normal upright facing forward position. The sliding latch plate revealed surface scratches and striations which suggest regular usage of the lap and shoulder belt. The belt webbing however, showed no evidence of belt loading. The leather covered bucket seat was adjusted to between the middle and rear most seat track position. The adjustable head restraint was in the full down position. In response to the 12 o'clock impact force, the unrestrained front right passenger moved straight forward. He likely contacted the deploying front right passenger's air bag, although there was no evidence of occupant contact to the air bag nor any related injuries. He presumably exited the case vehicle under his own power and did not report any injuries to the police.

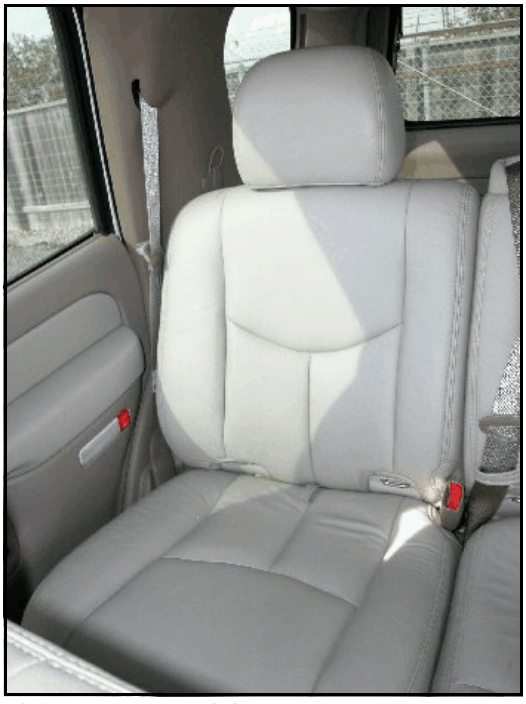
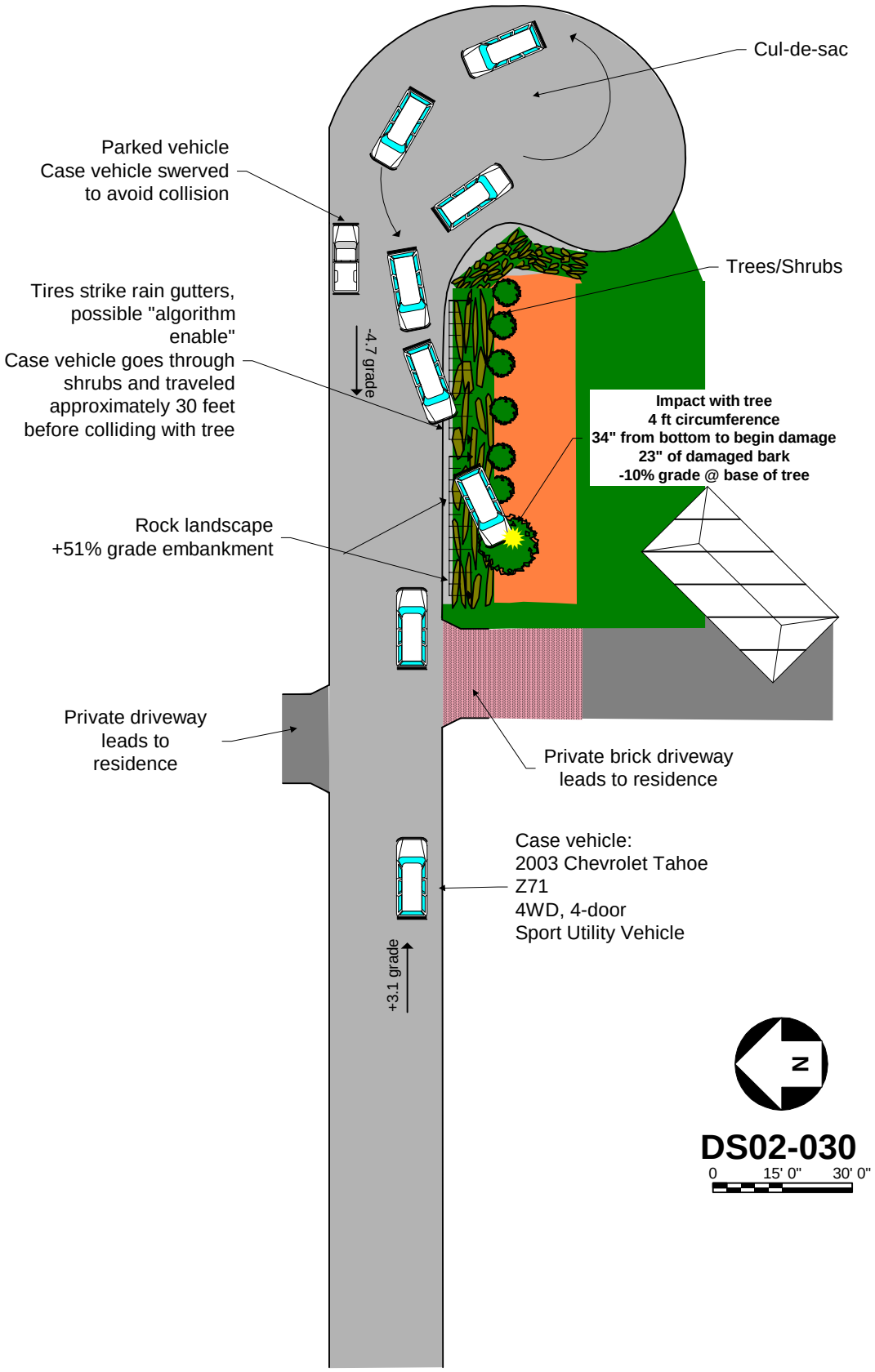


Figure 10. Rear right seat

The 29-year-old male rear right passenger (height and weight unknown) was unrestrained and was seated in a presumed normal upright facing forward position. The sliding latch plate revealed surface scratches and striations which suggest regular usage of the lap and shoulder belt. The belt webbing however, showed no evidence of belt loading. He was seated in a leather covered split bench seat with a folding back. The adjustable head restraint was in the full down position. In response to the 12 o'clock impact force, the unrestrained rear right passenger moved straight forward. He likely contacted the front right seat back, although there was no evidence of occupant contact to the seat back nor any reported injuries. He presumably exited the case vehicle under his own power and did not report any injuries to the police.

Attachment 1. SCENE DIAGRAM



Attachment 2. Vetronix Report

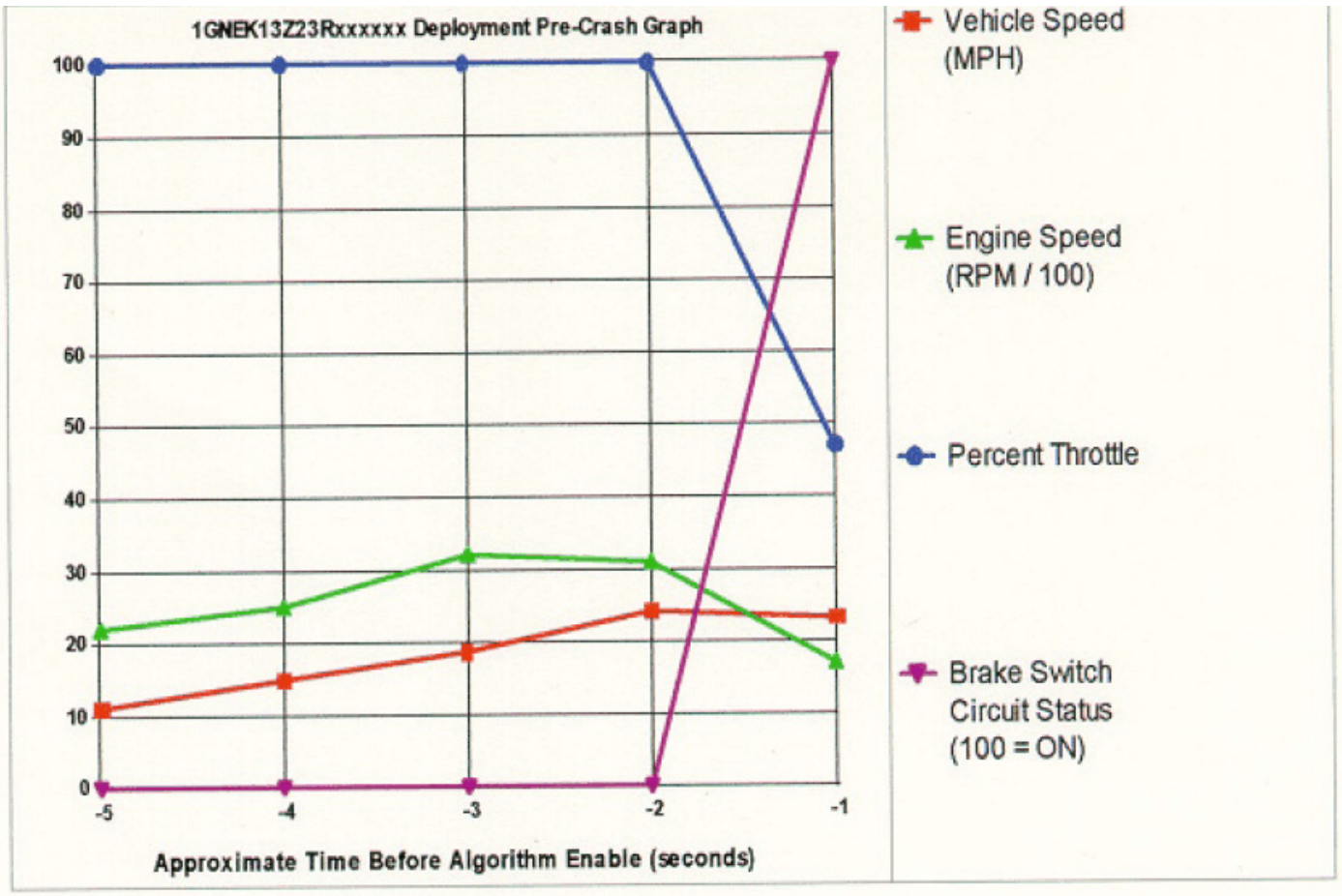
Vetronix

CDR CRASH DATA RETRIEVAL SYSTEM

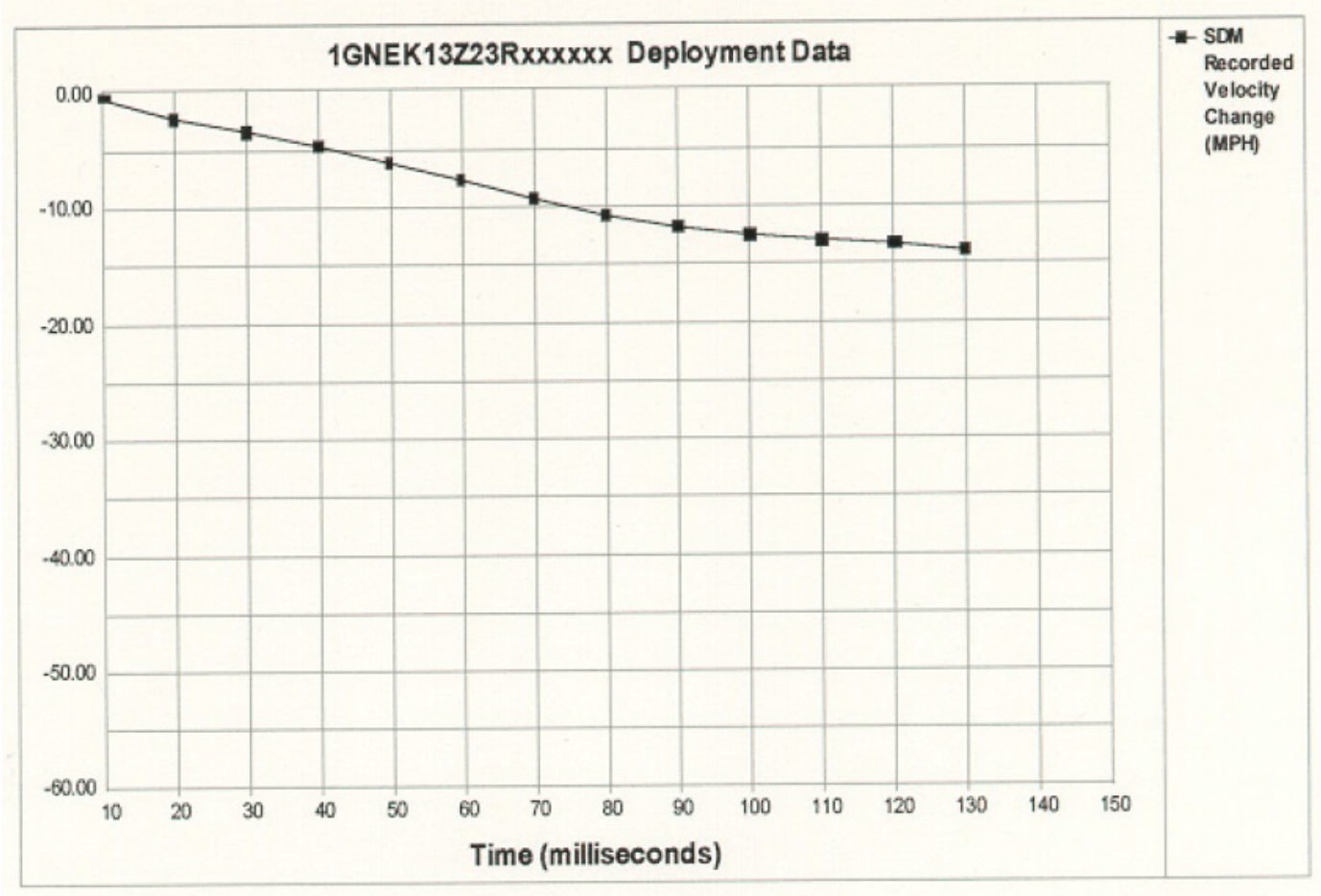
Vehicle Identification Number	1GNEK13Z23Rxxxxxx
Investigator	
Case Number	
Investigation Date	
Crash Date	
Filename	DS02-030.CDR
Saved on	12/20/02 11:09:52 AM
Data check information	54A82912
Collected with CDR version	Crash Data Retrieval Tool 1.680
Collecting program verification number	337F4D2C
Reported with CDR version	Crash Data Retrieval Tool 1.680
Reporting program verification number	337F4D2C
Event(s) recovered	Deployment Non-Deployment

System Status At Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	UNBUCKLED
Ignition Cycles At Deployment	402
Ignition Cycles At Investigation	412
Maximum SDM Recorded Velocity Change (MPH)	-16.32
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	172.5
Driver First Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	35
Driver Second Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	N/A
Passenger First Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	35
Passenger Second Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	N/A
Time Between Non-Deployment And Deployment Events (sec)	N/A
Frontal Deployment Level Event Counter	1
Event Recording Complete	Yes
Multiple Events Associated With This Record	No
One Or More Associated Events Not Recorded	No



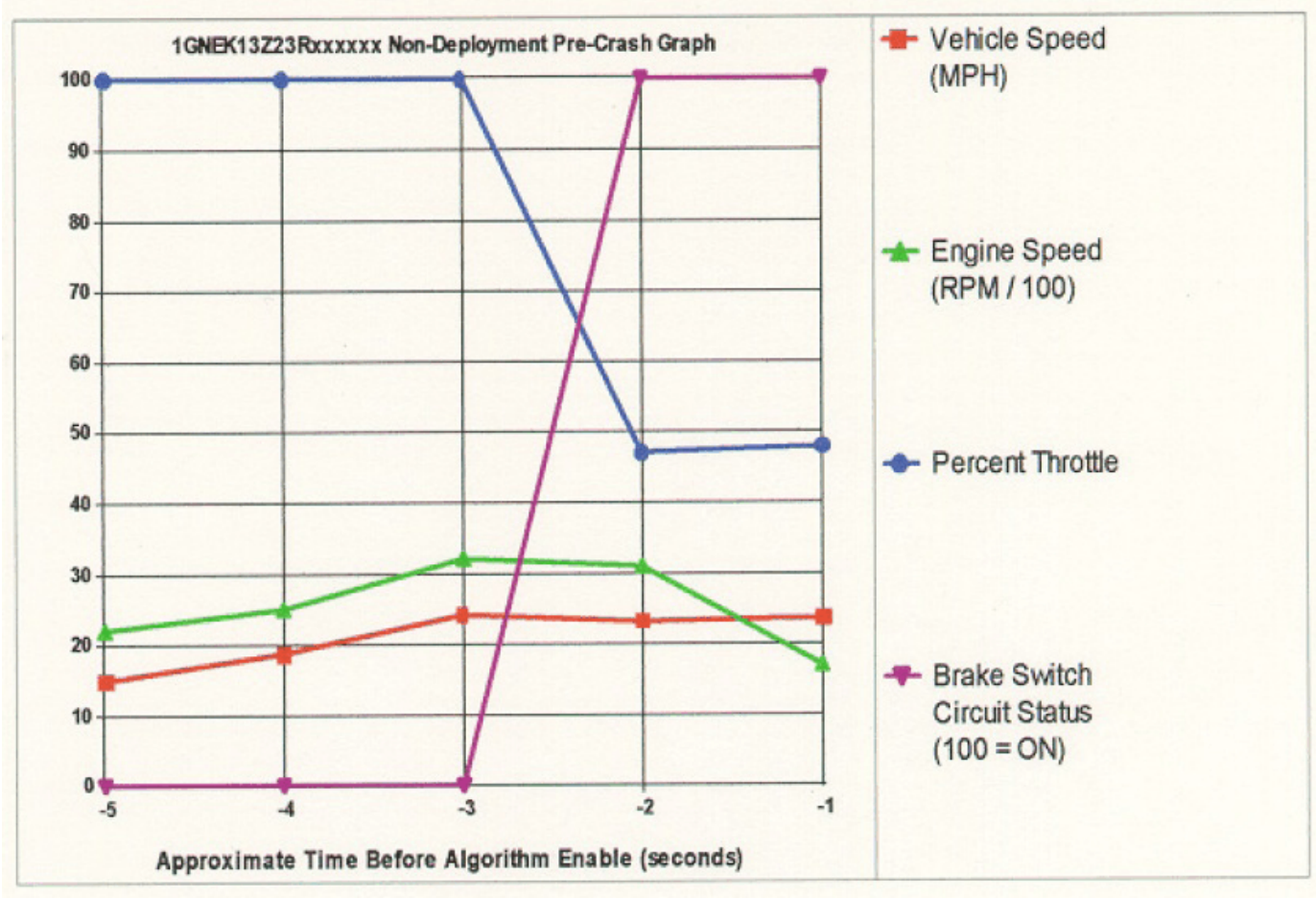
Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle	Brake Switch Circuit Status
-5	11	2240	100	OFF
-4	15	2496	100	OFF
-3	19	3200	100	OFF
-2	24	3072	100	OFF
-1	23	1664	47	ON



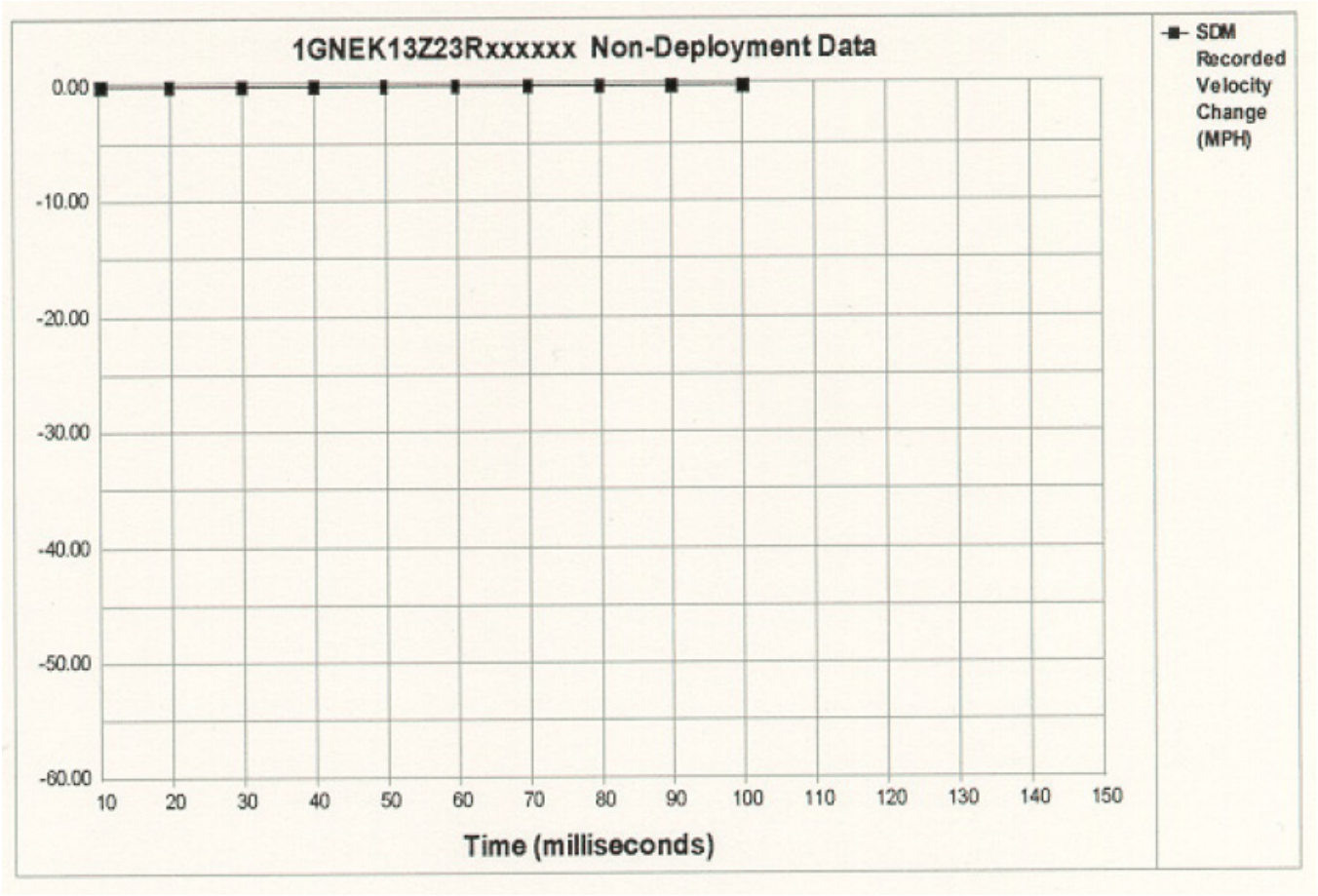
Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	-0.62	-2.17	-3.41	-4.65	-6.20	-7.75	-9.30	-10.85	-11.78	-12.40	-13.02	-13.33	-13.95	N/A	N/A

System Status At Non-Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	UNBUCKLED
Ignition Cycles At Non-Deployment	402
Ignition Cycles At Investigation	412
Maximum SDM Recorded Velocity Change (MPH)	0.00
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	187.5
Event Recording Complete	Yes
Multiple Events Associated With This Record	No
One Or More Associated Events Not Recorded	No



Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle	Brake Switch Circuit Status
-5	15	2240	100	OFF
-4	19	2496	100	OFF
-3	24	3200	100	OFF
-2	23	3072	47	ON
-1	24	1664	48	ON



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A