CRASH DATA RESEARCH CENTER

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CALSPAN ON-SITE CERTIFIED ADVANCED 208-COMPLIANT VEHICLE CRASH INVESTIGATION

CALSPAN CASE NO: CA05-036

VEHICLE: 2005 TOYOTA COROLLA

LOCATION: NORTH CAROLINA

CRASH DATE: MAY 2005

Contract No. DTNH22-01-C-17002

Prepared for:

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National Highway Traffic Safety Administration
Washington, D.C. 20590

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

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

TECHNICAL REPORT STANDARD TITLE PAGE

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16. Abstract This on-site investigation focused on the performance of the Certified Advanced 208-Compliant (CAC) safety system in a 2005 Toyota Corolla. The manufacturer of this vehicle has certified that this 2005 Toyota Corolla meets the advanced air bag requirements of the Federal Motor Vehicle Safety Standard (FMVSS) No. 208. The safety system included dual stage frontal air bags, safety belt buckle switch sensors, safety belt retractor pretensioners, and an occupant detection sensor for the front right seat. The Toyota also utilized an Air bag Control Module (ACM), which had Event Data Recording (EDR) capabilities. The ACM was removed from the vehicle with insurance company approval and was forwarded to NHTSA for download by Toyota. The ACM output is summarized in the ***Air Bag Control Module – 2005 Toyota Corolla*** section of this report. The Toyota was occupied by a restrained 39-year-old female driver, and was involved in an intersection collision with a 1996 Saturn SL2. The front plane of the Toyota impacted the left side of the Saturn. The Saturn was also equipped with and EDR that was downloaded during this on-site investigation. The EDR output is included as **Attachment A** of this report. This collision resulted in the deployment of the Corolla's driver's frontal air bag and the firing of the driver's retractor pretensioner. The driver of the Toyota sustained minor severity injuries and was transported to a local hospital where she was treated and released.			
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SCI CASE NO. – CA05-036
SUBJECT VEHICLE – 2005 TOYOTA COROLLA
LOCATION - STATE OF NORTH CAROLINA
CRASH DATE – MAY 2005

BACKGROUND

This on-site investigation focused on the performance of the Certified Advanced 208-Compliant (CAC) safety system in a 2005 Toyota Corolla **(Figure 1)**. The manufacturer of this vehicle has certified that this 2005 Toyota Corolla meets the advanced air bag requirements of the Federal Motor Vehicle Safety Standard (FMVSS) No. 208. The safety system included dual stage frontal air bags, safety belt buckle switch sensors, safety belt retractor pretensioners, and an occupant detection sensor for the front right seat. The Toyota also utilized an Air bag Control Module (ACM), which had Event Data Recording (EDR) capabilities. The ACM was removed from the vehicle with insurance company approval and was forwarded to NHTSA for download by Toyota. The ACM output is summarized in the ***Air Bag Control Module – 2005 Toyota Corolla*** section of this report. The Toyota was occupied by a restrained 39-year-old female driver, and was involved in an intersection collision with a 1996 Saturn SL2. The front plane of the Toyota impacted the left side of the Saturn. The Saturn was also equipped with and EDR that was downloaded during this on-site investigation. The EDR output is included as **Attachment A** of this report. This collision resulted in the deployment of the Corolla's driver's frontal air bag and the firing of the driver's retractor pretensioner. The driver of the Toyota sustained minor severity injuries and was transported to a local hospital where she was treated and released.

Figure 1. 2005 Toyota Corolla subject vehicle.

This crash was identified from a list of claims provided by an insurance company to the National Highway Traffic Safety Administration (NHTSA) that identified Certified Advanced 208-Compliant vehicles that had been involved in crashes. NHTSA forwarded a list of vehicles to the Calspan Special Crash Investigations (SCI) team for follow-up investigation. The vehicles involved in this crash were located at a salvage facility and cooperation was established to inspect the vehicles. The case was assigned to the Calspan SCI team on June 8, 2005 as an on-site investigative effort. The vehicles and crash site were inspected on June 9, 2005.

SUMMARY

Crash Site

This intersection crash occurred during the daylight hours of May 2005. At the time of the crash, the weather was clear with no adverse conditions. The crash occurred at a four-leg intersection of two local roadways. The north and south legs of the intersection were configured with two through traffic lanes, a center left turn lane, and a right turn only lane for the southbound leg. The travel lanes of the north/south legs were separated by a depressed grass median. The east leg of the intersection was configured with one through traffic lane in each direction. The travel lanes of the east leg were separated by a double yellow centerlines and a raised concrete median that terminated 29.2 meters (95.8 feet) east of the intersection. The west leg was configured with one travel lane in each direction and was not delineated. The roadways were surfaced with asphalt and were bordered by white fog lines and grass roadsides. East/west traffic through the intersection was controlled by stop signs. The posted speed limit for both roadways was 89 km/h (55 mph). The scene schematic is included as **Figure 11** of this report.

Vehicle Data – 2005 Toyota Corolla

The 2005 Toyota Corolla was identified by the Vehicle Identification Number (VIN): 1NXBR32E75 (production sequence omitted). The odometer reading at the time of the inspection was unknown due to the expended vehicle battery. The vehicle was a four-door sedan that was equipped with a 1.8-liter, four-cylinder engine, 4-speed automatic transmission, front-wheel drive, power front disc/rear drum brakes, OEM steel wheels, power steering, and a tilt steering wheel. The Toyota was configured with Bridgestone Insignia SE2000 tires, size P195/65R15. The manufacturer recommended front and rear tire pressure was 207 kPa (30 PSI). The specific tire data was as follows:

Tire	Measured Pressure	Tread Depth	Restricted	Damage
LF	207 kPa (30 PSI)	6 mm (7/32)	No	No
LR	179 kPa (26 PSI)	7 mm (9/32)	No	No
RF	214 kPa (31 PSI)	6 mm (8/32)	No	No
RR	207 kPa (30 PSI)	7 mm (9/32)	No	No

The seating positions in the Toyota were configured with cloth upholstered front bucket seats with height adjustable head restraints. The front seat head restraints were both adjusted to the full-down position at the time of the vehicle inspection. The second row was configured with a cloth upholstered three-passenger split bench seat (60/40) and height adjustable head restraints for the outboard seating positions. The head restraints were adjusted to lower third positions.

1996 Saturn SL2

The 1996 Saturn SL2 was identified by the VIN: 1G8ZK5273T (production sequence deleted). The odometer reading at the time of the inspection was 137,976 kilometers (85,734 miles). The vehicle was a four-door sedan that was equipped with a 1.9 liter, four-cylinder engine, 4-speed automatic transmission, front-wheel drive, power front

disc/rear drum brakes. The tires on the Saturn were Firestone Affinity size, P185/65R15. The left side doors were jammed shut; therefore, the tire placard was not accessible and the manufacturer recommended tire pressure was unknown. The tire data at time of the SCI inspection was as follows:

Tire	Measured Pressure	Tread Depth	Restricted	Damage
LF	214 kPa (31 PSI)	3 mm (4/32)	No	No
LR	234 kPa (34 PSI)	7 mm (9/32)	No	No
RF	234 kPa (34 PSI)	3 mm (4/32)	No	No
RR	234 kPa (34 PSI)	7 mm (9/32)	No	No

Crash Sequence

Pre-Crash

The restrained 39-year-old female driver of the 2005 Toyota Corolla was operating the vehicle southbound on the four-lane roadway approaching the four-leg intersection **(Figure 2)**. A 17-year-old female driver was operating the 1996 Saturn SL2 eastbound on an intersecting roadway **(Figure 3)**. The 17-year-old female driver of the Saturn was approaching the intersection that was controlled by a stop sign where she intended to turn left. She failed to detect the southbound Toyota and proceeded into the intersection.

Figure 2. Toyota's southbound approach to the intersection.

Figure 3. Saturn's eastbound travel.

Crash

The front of the Toyota impacted the left side of the Saturn in the northeast quadrant of the intersection **(Figure 4)**. The resultant directions of force were within the 1 o'clock sector for the Toyota and the 10 o'clock sector for the Saturn. The WINSMASH program was used to calculate the delta-V's for this impact. The total delta-V for the Toyota was 26.0 km/h (16.2 mph). The longitudinal and lateral components were -22.5 (-14.0 mph) and -13.0 (-8.1 mph), respectively. The total delta-V for the Saturn was 29.0 km/h (18.0 mph). The longitudinal and lateral components were -18.6 km/h (-11.6) and 22.2 km/h (13.8 mph), respectively. The Toyota's ACM recorded a delta-V of 17.7 km/h (11.0 mph) at 150 ms from AE. The Toyota's driver's frontal air bag deployed and the

safety belt pretensioner fired due to the severity of deceleration sustained during the impact. The Toyota traveled approximately 10 meters (33 feet) in a southwesterly direction from the point of impact to final rest. The Toyota came to rest at the southeast quadrant of the intersection, facing a westerly direction. The Saturn began to rotate counterclockwise due to the lateral crash force applied aft of the vehicles center of gravity. The Saturn traveled approximately 13 meters (43 feet) while rotating counterclockwise and came to rest in the median facing in a northwest attitude. **Figure 5** is an overall view of the final rest locations for both vehicles.

Figure 4. Area of impact with the southbound travel lanes.

Figure 5. Final rest area for both vehicles.

Post-Crash

Police and emergency medical personnel responded to the crash site. The driver of the Toyota sustained a chest strain and was transported by ambulance to a local hospital where she was treated and released. The driver of the Saturn was police reported as not injured or transported. The Toyota and Saturn sustained moderate severity damage and were towed from the crash site. Both vehicles were subsequently deemed a total loss by their respective insurance companies.

Vehicle Damage

Exterior Damage – 2005 Toyota Corolla

The 2005 Toyota Corolla sustained moderate severity frontal damage as a result of the impact with the Saturn **(Figure 6)**. The damage consisted of longitudinal and lateral deformation to the frontal structure. The direct contact damage extended across the 116 cm (45.5") width of the front bumper fascia. The maximum crush measured 23 cm (9.1") and was located 11 cm (4.3") left of the centerline. The crush was documented utilizing six equidistant points along the 112 cm (44.0') width of

Figure 6. Resultant damage to the frontal plane of the Toyota.

the front bumper beam and were as follows: C1 = 16 cm (6.3”), C2 = 21 cm (8.3”), C3 = 23 cm (9.1”), C4 = 23 cm (9.1”), C5 = 23 cm (9.1”), C6 = 13 cm (5.1”).

The lateral deformation was captured by measuring the deflection of the front frame rails. The left frame rail was deflected 24 cm (9.5”) left and the right frame rail was 19 cm (7.5”) left. The Collision Deformation Classification (CDC) for this impact was 81-FDEW-2 with an incremented shift value of 80 added to the 1 o’clock direction of force.

Exterior – 1996 Saturn SL2

The 1996 Saturn SL2 sustained moderate severity damage to its left side as a result of the impact with the Toyota **(Figure 7)**. The direct contact damage began 54 cm (21.3”) aft of the left front axle and extended 175 cm (68.9”) rearward. The maximum crush measured 36 cm (14.1”) and was located on the leading edge of the left rear door. The exterior door panels of the Saturn were constructed of a composite material that fractured and separated from the vehicle’s space frame. As a result of the separated door panels, the crush profile was documented at the side impact door beams using a combined direct and induced damage length of 191 cm (75.2”). The crush profile was as follows: C1 = 0, C2 = 0.5 cm (0.2”), C3 = 5.5 cm (2.2”), C4 = 12.5 cm (4.9”), C5 = 14.5 cm (5.7”), C6 = 40.5 cm (15.9”). The CDC for this impact was 10-LPEW-3.

Figure 7. Left side damage to the 1996 Saturn SL2.

Interior Damage – 2005 Toyota Corolla

There was no intrusion or occupant contact points to the interior of the vehicle. The only damage associated with this crash was the deployment of the driver’s frontal air bag and firing of the safety belt retractor pretensioner. **Figure 8** is an overall view of the first row of the passenger compartment.

Figure 8. Overall view of the interior first row.

Certified Advanced 208-Compliant Safety System – 2005 Toyota Corolla

The 2005 Toyota Corolla was equipped with a Certified Advanced 208-Compliant (CAC) safety system. The manufacturer of this vehicle has certified that this 2005 Toyota Corolla meets the advanced air bag requirements of the Federal Motor Vehicle Safety Standard (FMVSS) No. 208. The safety system included dual stage frontal air bags, safety belt buckle switch sensors, safety belt retractor pretensioners, and an occupant detection sensor for the front right seat. An Air bag Control Module (ACM) controlled the system. The ACM measures and predicts crash severity and monitors belt status, and occupant presence to deploy the appropriate safety system. In the subject crash, the module commanded the deployment of the driver frontal air bag and firing of the driver's retractor pretensioner. Additionally, the ACM had Event Data Recording (EDR) capabilities. This ACM was removed from the vehicle and was forward to NHTSA for download by Toyota. The ACM output is summarized in the ***Air Bag Control Module – 2005 Toyota Corolla*** section of this report.

Figure 9. Driver's frontal air bag.

The driver's air bag was conventionally located in the center of the steering wheel hub **(Figure 9)**. Three T-shaped cover flaps were used to conceal the air bag. The top cover flap measured 15 cm (6.0") in width and 8 cm (3.3") in height. The lower cover flaps measured 8 cm (3.0) in width and 6 cm (2.5) in height. The air bag membrane measured 58 cm (23.0") in diameter in its deflated state. The driver's air bag was tethered by two wide band tethers sewn to the face of the air bag with a stitched pattern that was 17 cm (6.8") in diameter. Two 11 cm (4.3") wide band tethers were attached to the circular stitching. Two vent ports vented the airbag at the 11 and 1 o'clock positions on the rear panel. The maximum excursion of the air bag membrane at the tethers measured 33 cm (13.0"). No occupant contacts were present on the air bag membrane. The following identifiers were printed on the face of the air bag:

312266 420d

The front right passenger air bag was a top-mount design in the right instrument panel. The front right seating position was not occupied, therefore the CAC system did not warrant the deployment of the front right air bag.

Air Bag Control Module – 2005 Toyota Corolla

The 2005 Toyota Corolla was equipped with an ACM that had EDR capabilities. The ACM was removed from the vehicle and was forward to NHTSA for download by Toyota. It should be noted that the insurance company authorized the removal of the module.

The ACM data indicated that the driver's safety belt was buckled and the driver's seat was in a rearward track position at the time of Algorithm Enable (AE). Additionally, the

driver's frontal air bag deployed 18 ms after AE with a deployment level of high, which is suggestive of a stage-two deployment. The front right seat was not occupied and the safety belt was unbuckled; therefore the front right air bag was not commanded to deploy. The pre-crash data fields for vehicle speed, brake status, engine speed, and accelerator status were present in the printout; however, those fields were not recorded. The recorded delta-V was 17.7 km/h (11.0 mph) at 150 ms from AE. The delta-V reached a plateau over the last 20 ms (130-150 ms) indicating the entire crash pulse was reported in the ACM data. Furthermore, a write flag in the ACM data showed that the event data file was complete.

A second event was recorded by the ACM; however, this data appeared erroneous and was not related to the subject crash.

Event Data Recorder – 1996 Saturn SL2

The Saturn was equipped with an EDR that was downloaded during this on-site investigation. The downloaded data indicated that the driver's safety belt was buckled at the time of Algorithm Enable (AE). Additionally, the data indicated that the maximum recoded longitudinal delta-V was 5.3 km/h (-3.29 mph) at 51.25 ms after AE. The five-second pre-crash data was not supported by this EDR. The module output is included in this report as **Attachment A**.

Manual Restraint Systems – 2005 Toyota Corolla

The 2005 Toyota Corolla was equipped with manual continuous loop 3-point lap and shoulder safety belts for the five seating positions. The driver safety belt was configured with a sliding latch plate, Emergency Locking Retractor (ELR), height adjustable D-ring that was in the full-down position, and a retractor pretensioner. The driver utilized her safety belt in the crash, which was supported by the frictional abrasions on the latch plate and safety belt webbing. The abrasion pattern on the webbing measured 3 cm (1.0") in length and was located 121-123 cm (47.5-48.5") above the latch plate stop button. Furthermore, the retractor pretensioner fired during the crash, which locked the safety belt in the used position **(Figure 10)**.

Figure 10. Driver's safety belt restricted in the used position.

The safety belts for the remaining four seating positions were configured with continuous loop webbing with sliding latch plates that retracted onto switchable ELR/Automatic Locking Retractor's (ALR). The front right safety belt was equipped with a retractor pretesnioner; however, the front right seat was not occupied during the crash, therefore the pretensioner did not fire.

Occupant Demographics – 2005 Toyota Corolla

Driver

Age/Sex:	39-year-old/Female
Height:	160 cm (63.0”)
Weight:	88 kgs (194.0 lbs)
Seat Track Position:	Mid-track, 12 cm aft of full forward and 11 cm forward of full rear [23.0 cm (9.0”) track travel]
Manual Restraint Use:	Manual 3-point lap and shoulder safety belt
Usage Source:	Vehicle inspection
Eyewear:	Unknown
Type of Medical Treatment:	Transported to a hospital, treated and released.

Driver Injuries

Injury	Injury Severity (AIS 90/Update 98)	Injury Source
Right chest strain (mild tenderness with muscular skeletal strain)	Minor (442214.1,1)	Shoulder belt webbing

Source = Emergency room records

Driver Kinematics

The 39-year-old female driver of the 2005 Toyota Corolla was seated in a presumed upright posture and was restrained by the manual 3-point lap and shoulder safety belt. At impact with the Saturn, the frontal air bag deployed and the safety belt pretensioner fired. The driver initiated a forward and right trajectory in response to the 1 o’clock direction of force. She loaded the safety belt, which restricted her forward movement. The loading of the shoulder belt resulted in the right chest strain. Although not supported by contact evidence, the driver’s mid-track position and forward response, probably resulted in facial contact to the deployed air bag.

The combination of safety belt usage and air bag deployment prevented the driver from contact with the interior components and prevented her from possible further injury. The driver was transported to a local hospital where she was treated for her injury and released the same day.

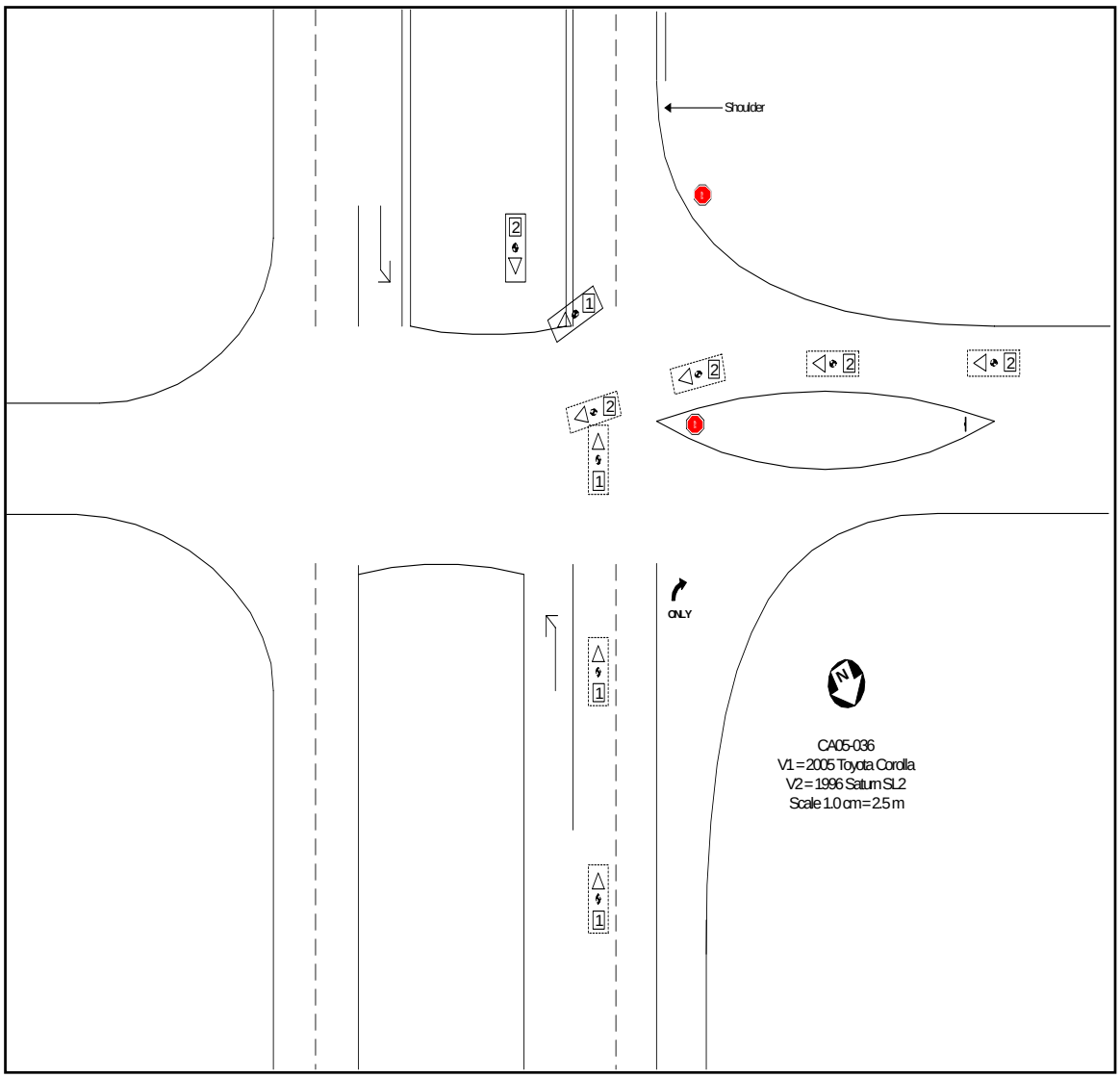


Figure 11. Scene schematic

Attachment A: 1996 Saturn SL2 EDR Printout

CDR File Information

Vehicle Identification Number	1G8ZK5273TZxxxxxx
Investigator	
Case Number	
Investigation Date	
Crash Date	
Filename	
Saved on	
Data check information	3D181B6A
Collected with CDR version	Crash Data Retrieval Tool 2.70
Collecting program verification number	70812808
Reported with CDR version	Crash Data Retrieval Tool 2.70
Reporting program verification number	70812808
Interface used to collected data	Block number: 00 Interface version: 41 Date: 11-04-04 Checksum: 9E00
Event(s) recovered	Non-Deployment

SDM Data Limitations

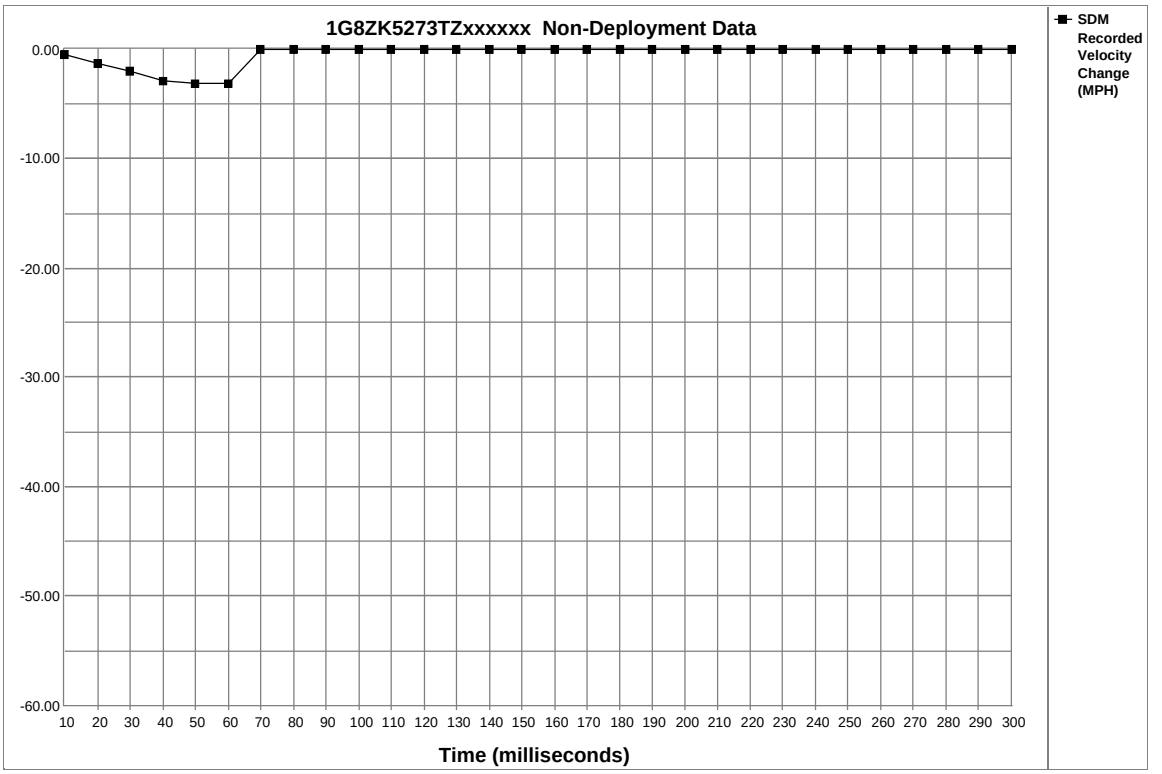
SDM Recorded Crash Events:
There are two types of SDM recorded crash events. The first is the Non-Deployment Event. A Non-Deployment Event is an event severe enough to "wake up" the sensing algorithm but not severe enough to deploy the air bag(s). The SDM can store up to one Non-Deployment Event. This event can be overwritten by an event that has a greater SDM recorded forward velocity change. This event will be cleared by the SDM after the ignition has been cycled 250 times.
The second type of SDM recorded crash event is the Deployment Event. The SDM can store up to two different Deployment Events, if they occur within five seconds of one another. Deployment events cannot be overwritten or cleared from the SDM. Once the SDM has deployed the air bag, the SDM must be replaced.
The data in the non-deployment file will be locked after a deployment, if the non-deployment occurred within 5 seconds before the deployment or a deployment level event occurs within 5 seconds after the deployment.

SDM Data Limitations:
-SDM Recorded Vehicle Forward Velocity Change reflects the change in forward velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Forward Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event, and is also not the Barrier Equivalent Velocity. This data should be examined in conjunction with other available physical evidence from the vehicle and scene when assessing occupant or vehicle forward velocity change. The SDM records the first 300 milliseconds of Vehicle Forward Velocity Change after Algorithm Enable. The maximum value that can be recorded for Vehicle Forward Velocity Change is 56 MPH.
-Driver's Belt Switch Circuit Status indicates the status of the driver's seat belt switch circuit.
-The Time between Non-Deployment and Deployment Events is displayed in seconds. If the time between the two events is greater than five seconds, "N/A" is displayed in place of the time.
-If power to the SDM is lost during a crash event, all or part of the crash record may not be recorded. An indication of a loss of power would be if the ignition cycles at Deployment or Non-Deployment is recorded as zero. Data recorded after that may not be reliable, such as Time Between Non-Deployment and Deployment Events and Driver Belt Switch Circuit Status.
In some cases, if the non-deployment event is closely followed by a deployment event, the EDR may record all of the SDM Recorded Vehicle Forward Velocity Change values as zero mph.

SDM Data Source:
All SDM recorded data is measured, calculated, and stored internally, except for the following:
-The Driver's Belt Switch Circuit is wired directly to the SDM.

System Status At Non-Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	BUCKLED
Ignition Cycles At Non-Deployment	12305
Ignition Cycles At Investigation	12307
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	51.25
Maximum SDM Recorded Velocity Change (MPH)	-3.29
A Deployment was Commanded Prior to this Event	No



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	-0.44	-1.32	-1.97	-2.85	-3.07	-3.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hexadecimal Data

This page displays all the data retrieved from the air bag module.
It contains data that is not converted by this program.

```
B600:  00 00 00 00 00 00 00 00
B608:  AA 00 00 00 00 00 00 00
B610:  AA 00 00 00 00 31 F9 39
B618:  F9 F9 F9 F9 F9 F9 FF 00
B620:  AA AA 00 00 00 00 00 00
B628:  00 00 00 00 00 00 00 00
B630:  00 00 00 00 00 00 00 00
B638:  00 00 00 00 00 00 00 00
B640:  00 00 00 00 00 00 00 00
B648:  00 00 00 00 00 00 00 00
B650:  00 00 00 00 00 00 00 00
B658:  00 00 7D 00 00 00 29 0F
B660:  02 06 09 0D 0E 0E 00 00
B668:  00 00 00 00 00 00 00 00
B670:  00 00 00 00 00 00 00 00
B678:  00 00 00 00 00 00 30 11
B680:  00 00 00 55 AA AA AA AA
B688:  01 00 00 00 7D FA 00 00
B690:  7D FA 00 00 7D FA 00 00
B698:  00 00 00 00 7D FA 00 00
B6A0:  7D FA 00 00 7D FA 00 00
B6A8:  7D FA 00 00 00 00 00 00
B6B0:  B8 CB CD A8 CB BE AC C9
B6B8:  AA B4 E9 FE F0 92 6E C6
B6C0:  34 4E 1A 01 00 64 02 00
B6C8:  00 00 00 01 01 00 00 00
B6D0:  00 00 00 00 00 00 00 00
B6D8:  00 00 00 00 00 00 00 00
B6E0:  00 00 FF FF 00 00 01 53
B6E8:  02 55 00 00 00 00 00 00
B6F0:  FF 03 F0 05 50 06 0C 22
B6F8:  58 6E 6E 6E 6E 6E 6E 6E
B700:  6E 6E 6E 6E 6E 6E 6E 6E
B708:  6E 73 79 81 88 91 98 A3
B710:  AA B6 C0 CA D3 DD E5 ED
B718:  F3 FC 40 43 45 47 49 4C
B720:  4F 51 54 57 59 5C 5E 60
B728:  62 64 66 67 69 6A 6B 6C
B730:  6E 6F 70 71 72 73 74 74
B738:  75 76 77 7C 82 87 8C 90
B740:  94 99 9D A1 A7 AB B1 B6
B748:  BB BF C3 C7 CC CF D3 D6
B750:  DA FF FF FF FF FF FF FF
B758:  FF FF FF FF FF 00 48 01
B760:  68 05 04 46 28 12 10 01
B768:  06 AA 00 46 47 37 37 37
B770:  39 3A 42 42 42 48 4A 4B
B778:  4B 4F 54 57 5D 5E 5E 5E
B780:  5E 5E 5E 5E 5E 5E 5E 5E
B788:  5E 5E 5E 5E 5E 5E 5E 5E
B790:  63 67 6C 71 76 7B 80 85
B798:  8A 8A 8C 8F 8F 8F 8F 8F
B7A0:  8F 8F 8F 8F 8F 8F 8F 8F
B7A8:  8F 8F 8F 8F 8F 8F 8F 8F
B7B0:  8F 8F 8F FF FF FF FF FF
B7B8:  FF FF FF FF FF 00 AA C0
B7C0:  58 00 00 00 00 00 00 00
B7C8:  00 00 00 00 00 00 00 00
B7D0:  00 00 00 00 00 00 00 00
B7D8:  00 00 00 00 00 00 00 00
B7E0:  00 00 00 00 00 00 00 00
B7E8:  00 00 00 00 00 00 00 00
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B7F0:  00 00 00 00 00 00 00 00
B7F8:  00 00 A5 A5 A5 A5 75 FD
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