

## CDR File Information

Vehicle Identification Number	
Investigator	
Case Number	
Investigation Date	
Crash Date	
Filename	
Saved on	
Collected with CDR version	Crash Data Retrieval Tool 2.800
Collecting program verification number	9238B95E
Reported with CDR version	Crash Data Retrieval Tool 2.800
Reporting program verification number	9238B95E
Interface used to collected data	Block number: 00 Interface version: 4A Date: 11-08-05 Checksum: 7500
Event(s) recovered	Deployment 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). It can contain Pre-Crash and Crash data. The SDM can store up to one Non-Deployment Event. This event can be overwritten by an event that has a greater SDM recorded vehicle 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. It also can contain Pre-Crash and Crash data. 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 Event file will be locked after a Deployment Event, if the Non-Deployment Event occurred within 5 seconds before the Deployment Event unless a Deployment Level Event occurs within 5 seconds after the Deployment Event, then the Deployment Level Event will overwrite the Non-Deployment Event file.

### 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. For Deployment Events and Deployment Level Events, the SDM will record 220 milliseconds of data after deployment criteria is met and up to 70 milliseconds before deployment criteria is met. For Non-Deployment Events, the SDM will record up to the first 300 milliseconds of data after algorithm enable. The minimum SDM Recorded Vehicle Forward Velocity Change, that is needed to record a Non-Deployment Event, is 5 MPH.

-Maximum Recorded Vehicle Velocity Change is the maximum recorded velocity change in the vehicle's combined "X" and "Y" axis.

-Calculated Principal Direction of Force (PDOF) is the arctangent of the maximum observed lateral velocity change divided by the maximum observed longitudinal velocity change. PDOF is displayed where zero degrees is located at the front of the vehicle, with 90 degrees is displayed to the right side of the vehicle and so on, clockwise around the vehicle.

-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.

-SDM Recorded Vehicle Speed accuracy can be affected if the vehicle has had the tire size or the final drive axle ratio changed from the factory build specifications.

-Brake Switch Circuit Status indicates the status of the brake switch circuit.

-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if the SDM receive an invalid message from the module sending the pre-crash data.

-Driver's and Passenger's Belt Switch Circuit Status indicates the status of the seat belt switch circuit. The Passenger Belt Switch Circuit Status for 2006 Chevrolet Cobalt Sport Coupe (AP) model vehicles, with the option package that includes Recaro brand seats (RPO ALV), will always report a default value of "Buckled".

-The Time Between Non-Deployment and Deployment Events is displayed in seconds. If the time between the two events is greater than 5 seconds, "N/A" is displayed in place of the time. If the value is negative, then the Deployment Event occurred first. If the value is positive, then the Non-Deployment Event occurred first.

-If power to the SDM is lost during a crash event, all or part of the crash record may not be recorded.

-The ignition cycle counter relies upon the transitions through OFF->RUN->CRANK power-modding messages, on the GMLAN communication bus, to increment the counter. Applying and removing of battery power to the module will not increment the ignition counter.

### SDM Data Source:

All SDM recorded data is measured, calculated, and stored internally, except for the following:

- Vehicle Status Data (Pre-Crash) is transmitted to the SDM, by various vehicle control modules, via the vehicle's communication network.
- The Belt Switch Circuit is wired directly to the SDM.

### System Status At AE

Vehicle Identification Number	
Low Tire Pressure Warning Lamp (If Equipped)	OFF
Vehicle Power Mode Status	Run
Remote Start Status (If Equipped)	Inactive
Run/Crank Ignition Switch Logic Level	Active
Brake System Warning Lamp (If Equipped)	OFF

### System Status At 1 second

Transmission Range (If Equipped)	Shift in Progress
Transmission Selector Position (If Equipped)	Fourth Gear
Traction Control System Active (If Equipped)	No
Service Engine Soon (Non-Emission Related) Lamp	OFF
Service Vehicle Soon Lamp	OFF
Outside Air Temperature (degrees F) (If Equipped)	Invalid
Left Front Door Status (If Equipped)	Closed
Right Front Door Status (If Equipped)	Closed
Left Rear Door Status (If Equipped)	Unused
Right Rear Door Status (If Equipped)	Unused
Rear Door(s) Status (If Equipped)	Closed

### Pre-crash data

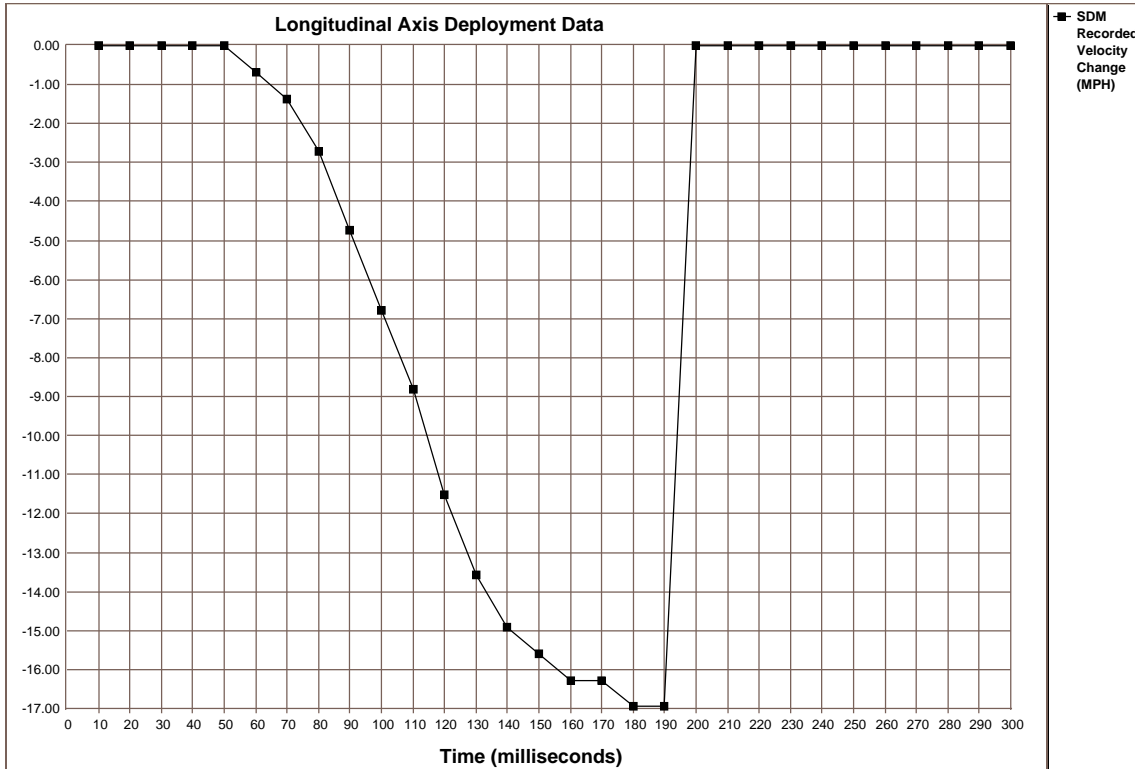
Parameter	-2 sec	-1 sec
Reduced Engine Power Mode	OFF	OFF
Cruise Control Active (If Equipped)	No	No
Cruise Control Resume Switch Active (If Equipped)	No	No
Cruise Control Set Switch Active (If Equipped)	No	No

### Pre-crash data

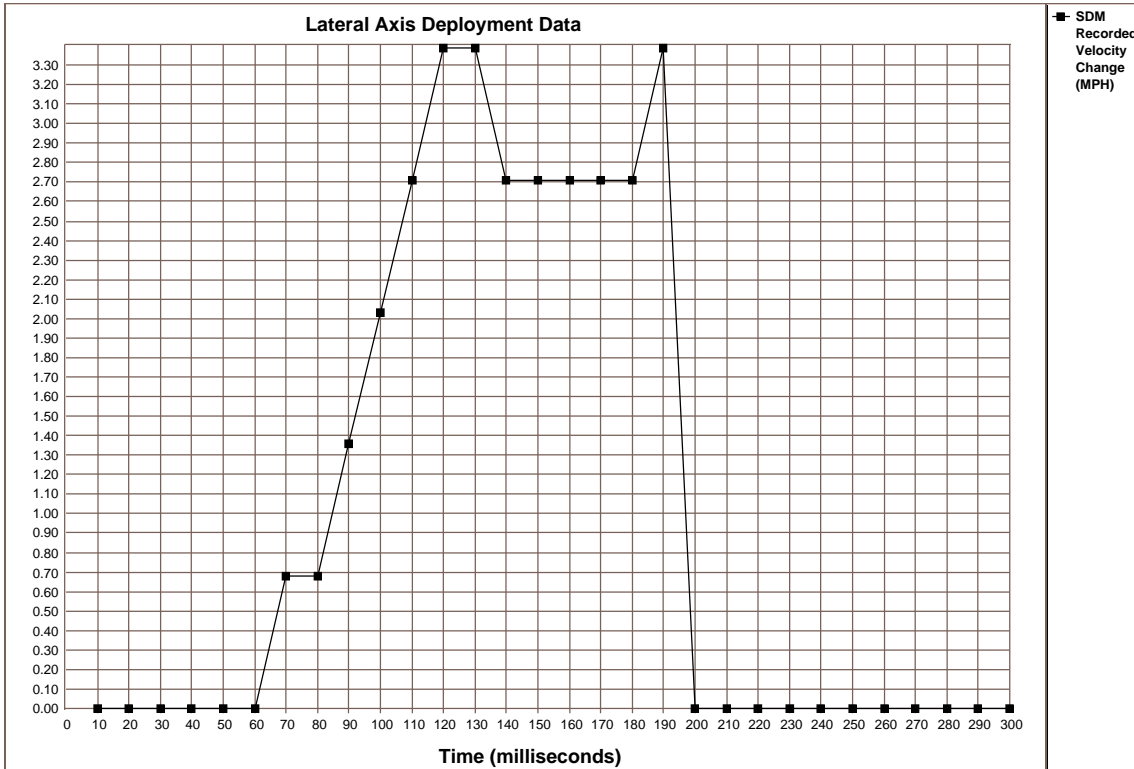
Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Vehicle Speed (MPH)	29	31	38	41	35
Engine Speed (RPM)	3840	4032	5248	3200	2368
Percent Throttle	36	40	58	67	0
Accelerator Pedal Position (percent)	100	100	100	100	0
Antilock Brake System Active (If Equipped)	No	No	No	No	Yes
Lateral Acceleration (feet/s <sup>2</sup> )(If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid
Yaw Rate (degrees per second) (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid
Steering Wheel Angle (degrees) (If Equipped)	96	112	48	0	160
Vehicle Dynamics Control Active (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid

## System Status At Deployment

Ignition Cycles At Investigation	648
SIR Warning Lamp Status	OFF
SIR Warning Lamp ON/OFF Time (seconds)	424530
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	640
Ignition Cycles At Event	641
Ignition Cycles Since DTCs Were Last Cleared	254
Driver's Belt Switch Circuit Status	BUCKLED
Diagnostic Trouble Codes at Event, fault number: 1	N/A
Diagnostic Trouble Codes at Event, fault number: 2	N/A
Diagnostic Trouble Codes at Event, fault number: 3	N/A
Diagnostic Trouble Codes at Event, fault number: 4	N/A
Diagnostic Trouble Codes at Event, fault number: 5	N/A
Diagnostic Trouble Codes at Event, fault number: 6	N/A
Driver First Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	20
Driver Second Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	Disposal
Passenger First Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	20
Passenger Second Stage Time Algorithm Enabled to Deployment Command Criteria Met (msec)	Disposal
Driver Side or Roof Rail/Head Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	N/A
Passenger Side or Roof Rail/Head Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	N/A
Time Between Events (sec)	N/A
Driver First Stage Deployment Loop Commanded	Yes
Driver Second Stage Deployment Loop Commanded	Yes
Driver Side Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop Commanded	Yes
Driver (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Driver (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Driver Knee Deployment Loop Commanded	No
Passenger First Stage Deployment Loop Commanded	Yes
Passenger Second Stage Deployment Loop Commanded	Yes
Passenger Side Deployment Loop Commanded	No
Passenger Pretensioner Deployment Loop Commanded	Yes
Passenger (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Passenger (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Passenger Knee Deployment Loop Commanded	No
Second Row Left Side Deployment Loop Commanded	No
Second Row Left Pretensioner Deployment Loop Commanded	No
Third Row Left Roof Rail/Head Curtain Loop Commanded	No
Second Row Right Side Deployment Loop Commanded	No
Second Row Right Pretensioner Deployment Loop Commanded	No
Third Row Right Roof Rail/Head Curtain Loop Commanded	No
Second Row Center Pretensioner Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded for Disposal	Yes
Passenger 2nd Stage Deployment Loop Commanded for Disposal	Yes
Multiple Event Counter	0
An Event(s) Preceded the Recorded Event(s)	No
An Event(s) was in Between the Recorded Event(s)	No
An Event(s) Followed the Recorded Event(s)	No
The Event(s) Not Recorded was a Deployment Event(s)	No
The Event(s) Not Recorded was a Non-Deployment Event(s)	No
Crash Record Locked	Yes
Vehicle Event Data (Pre-Crash) Associated With This Event	Yes
Deployment Event Recorded in the Non-Deployment Record	No
Event Recording Complete	Yes
Estimated Principal Direction of Force (PDOF) degrees	350



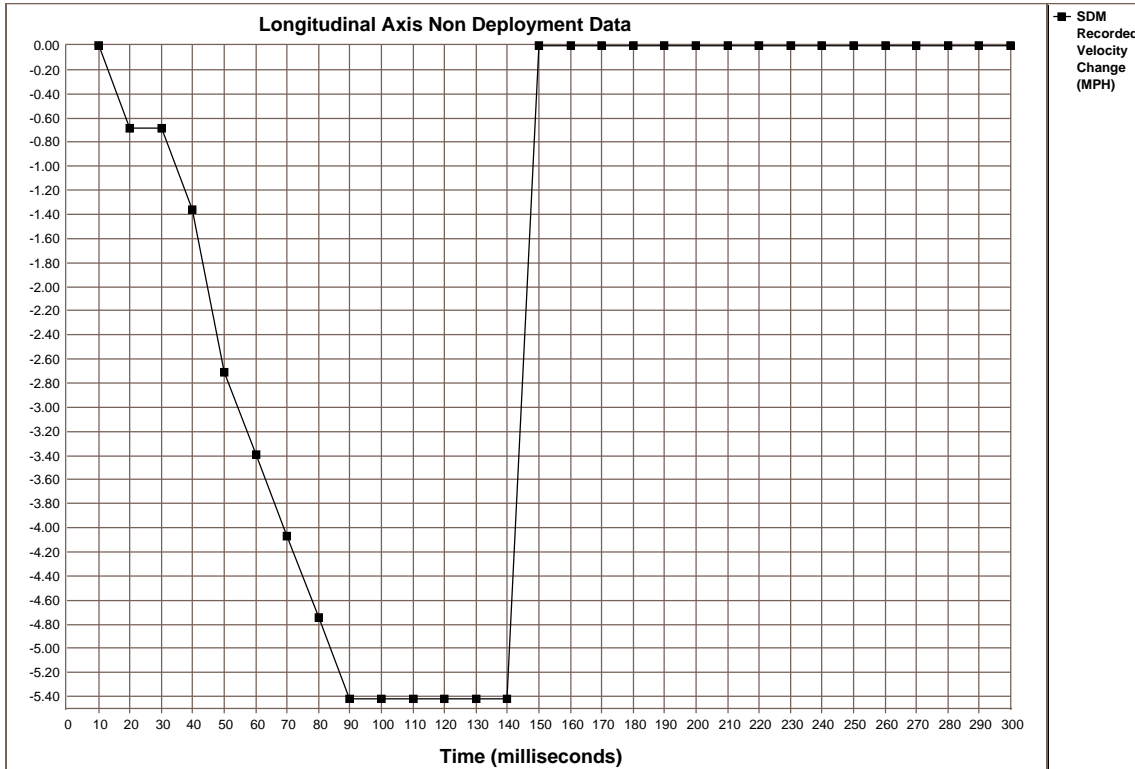
Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Longitudinal Axis Recorded Velocity	0.00	0.00	0.00	0.00	0.00	-0.68	-1.36	-2.71	-4.74	-6.78	-8.81	-11.52	-13.56	-14.91	-15.59
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Longitudinal Axis Recorded Velocity	-16.27	-16.27	-16.95	-16.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Lateral Axis Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.68	1.36	2.03	2.71	3.39	3.39	2.71	2.71
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Lateral Axis Recorded Velocity Change (MPH)	2.71	2.71	2.71	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

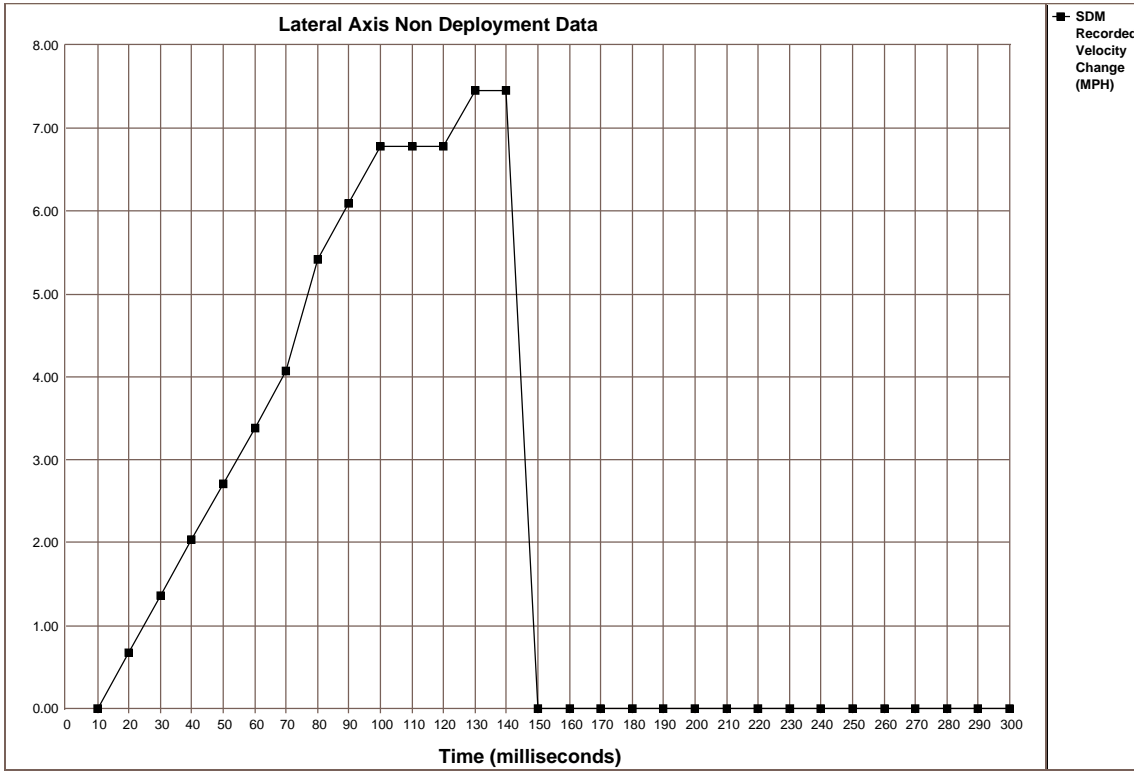
## System Status At Non-Deployment

Ignition Cycles At Investigation	648
SIR Warning Lamp Status	OFF
SIR Warning Lamp ON/OFF Time (seconds)	424520
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	640
Ignition Cycles At Event	641
Ignition Cycles Since DTCs Were Last Cleared	254
Driver's Belt Switch Circuit Status	BUCKLED
Diagnostic Trouble Codes at Event, fault number: 1	N/A
Diagnostic Trouble Codes at Event, fault number: 2	N/A
Diagnostic Trouble Codes at Event, fault number: 3	N/A
Diagnostic Trouble Codes at Event, fault number: 4	N/A
Diagnostic Trouble Codes at Event, fault number: 5	N/A
Diagnostic Trouble Codes at Event, fault number: 6	N/A
Maximum SDM Recorded Velocity Change (MPH)	9.22
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	130
Driver First Stage Deployment Loop Commanded	No
Driver Second Stage Deployment Loop Commanded	No
Driver Side Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop Commanded	No
Driver (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Driver (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Driver Knee Deployment Loop Commanded	No
Passenger First Stage Deployment Loop Commanded	No
Passenger Second Stage Deployment Loop Commanded	No
Passenger Side Deployment Loop Commanded	No
Passenger Pretensioner Deployment Loop Commanded	No
Passenger (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Passenger (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Passenger Knee Deployment Loop Commanded	No
Second Row Left Side Deployment Loop Commanded	No
Second Row Left Pretensioner Deployment Loop Commanded	No
Third Row Left Roof Rail/Head Curtain Loop Commanded	No
Second Row Right Side Deployment Loop Commanded	No
Second Row Right Pretensioner Deployment Loop Commanded	No
Third Row Right Roof Rail/Head Curtain Loop Commanded	No
Second Row Center Pretensioner Deployment Loop Commanded	No
Multiple Event Counter	0
An Event(s) Preceded the Recorded Event(s)	No
An Event(s) was in Between the Recorded Event(s)	No
An Event(s) Followed the Recorded Event(s)	No
The Event(s) Not Recorded was a Deployment Event(s)	No
The Event(s) Not Recorded was a Non-Deployment Event(s)	No
Crash Record Locked	No
Vehicle Event Data (Pre-Crash) Associated With This Event	Yes
Deployment Event Recorded in the Non-Deployment Record	No
Event Recording Complete	Yes
Estimated Principal Direction of Force (PDOF) degrees	305



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	
Longitudinal Axis Recorded Velocity	0.00	-0.68	-0.68	-1.36	-2.71	-3.39	-4.07	-4.74	-5.42	-5.42	-5.42	-5.42	-5.42	-5.42	-5.42	0.00
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	
Longitudinal Axis Recorded Velocity	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	





Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Lateral Axis Recorded Velocity Change (MPH)	0.00	0.68	1.36	2.03	2.71	3.39	4.07	5.42	6.10	6.78	6.78	6.78	7.46	7.46	0.00
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Lateral Axis 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.

```
$01 08 00 00 00 00 00 00
$02 30 00 00 00 00 00 00
$03 00 00 00 00 00 00 00
$04 00 00 00 00 00 00 00
$05 00 00 00 00 00 00 00
$06 00 0A 00 03 0A 00 00
$07 00 20 00 00 00 00 00
$08 00 00 00 00 00 00 00
$09 00 00 00 00 00 00 00
$0A 00 00 00 00 00 00 00
$0B 00 00 0F 0F 03 00 00
$0C 00 00 00 00 00 00 00
$0D 00 00 40 00 00 00 00
$0E 00 00 00 00 00 00 00
$0F 00 00 00 00 00 00 00
$10 00 00 00 00 00 00 00
$11 00 00 00 00 00 00 00
$12 00 00 00 00 00 00 00
$13 00 00 00 00 00 00 00
$14 00 00 00 00 00 00 00
$15 00 00 00 00 00 00 00
$16 03 06 0C 16 34 00 00
$17 00 00 00 00 00 00 00
$18 00 00 00 00 00 00 00
$19 00 00 00 00 00 00 00
$1B FF 33 00 66 00 78 00
$1C FF 30 00 66 00 18 00
$1D 00 00 00 00 00 00 00
$1E 00 00 00 00 00 00 00
$1F 20 00 00 00 00 00 00
$20 40 00 00 00 00 00 00
$21 00 00 00 00 F0 00 00
$22 00 8E 00 00 00 00 00
$24 00 00 00 00 00 00 00
$25 00 00 00 00 00 00 00
$26 00 00 00 00 00 00 00
$27 FF 00 FF 00 00 00 00
$2A 00 00 00 00 00 00 00
$2B 00 00 00 00 00 00 00
$2D 00 00 00 00 00 00 00
$2E 80 00 0C 00 02 00 00
$2F 00 FE 02 88 07 00 00
$30 9D 00 00 00 00 00 00
$31 00 FF FF FF FF 00 00
$32 00 00 00 00 00 00 00
$33 00 AA 93 66 5D 00 00
$34 25 32 52 3F 3C 00 00
$35 39 42 3D 32 2E 00 00
$36 0A 00 03 07 06 00 00
$37 80 00 00 00 04 00 20
$38 5C 80 00 00 03 C0 00
$39 00 00 00 00 00 80 00
$3A 00 00 00 00 00 80 00
$3B 03 06 0C 00 00 00 00
$3C 00 00 00 00 00 00 C0
$3D 31 5A 54 35 34 38 00
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$3F 00 00 90 00 00 00 00
$40 20 A5 00 00 00 00 00
$41 00 00 00 00 00 00 00
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\$45 00 00 00 00 00 00 00  
\$46 00 00 00 00 00 00 00  
\$47 00 00 01 FF 02 FF 00  
\$48 03 FE 04 FC 05 FB 00  
\$49 06 FA 08 F9 09 F8 00  
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\$4B 0B F8 0B F8 00 00 00  
\$4C 00 00 00 00 00 00 00  
\$4D 00 00 00 00 00 00 00  
\$4E 00 00 00 00 00 00 00  
\$4F 00 00 00 00 00 00 00  
\$50 00 00 00 00 00 00 00  
\$51 F0 00 00 00 00 00 00  
\$52 80 00 00 00 00 00 00  
\$53 0D 00 B9 00 00 00 00  
\$54 00 00 00 00 00 00 00  
\$55 00 00 00 00 00 00 00  
\$67 A0 A5 00 00 00 00 00  
\$68 D0 D0 00 C0 00 00 00  
\$69 00 A5 D5 02 80 00 00  
\$6A FE 02 81 00 00 00 00  
\$6B 00 00 00 00 00 00 00  
\$6C 00 00 00 00 00 00 00  
\$6D 00 00 00 00 00 00 00  
\$6E 00 00 00 00 00 00 00  
\$6F 00 00 00 00 00 FF 00  
\$70 01 FE 01 FC 02 F9 00  
\$71 03 F6 04 F3 05 EF 00  
\$72 05 EC 04 EA 04 E9 00  
\$73 04 E8 04 E8 04 E7 00  
\$74 05 E7 00 00 00 00 00  
\$75 00 00 00 00 00 00 00  
\$76 00 00 00 00 00 00 00  
\$77 00 00 00 00 00 00 00  
\$78 F0 00 00 00 00 00 00  
\$79 80 00 00 00 00 00 00  
\$7A 80 00 00 00 00 00 00  
\$7B 0A 3C 0A 3C 00 00 00

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\$02 41 0A 22 34  
\$03 41 54 36 35 32 38 52 34 32 34 35 31 32 52 4E 43  
\$04 41 0A 22 34  
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\$06 FF FF FF FF  
\$07 42 54 FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
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\$0E 01 59 D3 B3  
\$0F 41 4A 36 35 32 39 52 34 32 33 39 32 47 50 58 57  
\$10 01 59 D3 B3  
\$13 42 52 FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
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\$17 42 54 FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
\$18 FF FF FF FF  
\$21 31 12 66 1A D0 2E 91 9A  
\$22 19 46  
\$23 31 5A 53 54 55 55 34  
\$24 31 5A 53 54 55 55 34  
\$25 31 5A 53 54 55 55 34  
\$26 31 5A 53 54 55 55 34  
\$40 00 00  
\$41 FF 30 00 66 00 18  
\$42 F0 C4  
\$43 00 00 8C 80

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$44 C6 0A 00 FC C0 C0
$45 07 01 07 01 05 01
$46 00 0F 0F 64 64
$47 0A 64 06 04 04 05 0A 06 04 0A 00 00 FA 00 00 FF 04 64
$48 18 08 08
$B0 58
$B1 FD FE 00
$B2 FF FF FF FF FF
$B4 41 53 31 39 34 36 32 33 30 4B 48 53 20 20 20 20
$B7 50 AA 01 0F 01
$B8 54 41 68 02 11
$C1 30 46 30 31
$CA 30 46 30 31
$CB 01 5A 8E 8A
$CC 01 5A 8E 8A
$D1 00 00
$DB 00 00
$DC 00 00
```