

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	1G1ZT58N78F*****
User	Shawn Gyorke
Case Number	08-00333
EDR Data Imaging Date	Wednesday, February 27 2008
Crash Date	Sunday, February 24 2008
Filename	CRASH_DATA_RETRIEVAL_2008_CHEVY_MALIBU_SDM.CDR
Saved on	Wednesday, February 27 2008 at 01:44:17 PM
Collected with CDR version	Crash Data Retrieval Tool 3.00
Reported with CDR version	Crash Data Retrieval Tool 3.6
EDR Device Type	airbag control module
Event(s) recovered	Non-Deployment

Comments

No comments entered.

Data Limitations

Recorded Crash Events:

There are two types of recorded crash events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH. A Non-Deployment Event may 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 velocity change. This event will be cleared by the SDM, after approximately 250 ignition cycles. This event can be overwritten by a second Deployment Event, referred to as Deployment Event #2, if the Non-Deployment Event is not locked. The data in the Non-Deployment Event file will be locked, if the Non-Deployment Event occurred within five seconds of a Deployment Event. A locked Non Deployment Event cannot be overwritten or cleared by the SDM. The second type of SDM recorded crash event is the Deployment Event. It also may contain Pre-Crash and Crash data. The SDM can store up to two different Deployment Events. If a second Deployment Event occurs any time after the Deployment Event, the Deployment Event #2 will overwrite any non-locked Non-Deployment Event. Deployment Events cannot be overwritten or cleared by the SDM. Once the SDM has deployed an air bag, the SDM must be replaced.

Data:

-SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle 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. For Deployment Events, the SDM will record up to 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 can record up to the first 300 milliseconds of data after algorithm enable. Velocity Change data is displayed in SAE sign convention.

-The CDR tool displays time from Algorithm Enable (AE) to time of deployment command in a deployment event and AE to time of maximum SDM recorded vehicle velocity change in a non-deployment event. Time from AE begins when the first air bag system enable threshold is met and ends when deployment command criteria is met or at maximum SDM recorded vehicle velocity change. Air bag systems such as frontal, side, or rollover, may be a source of an enable. The time represented in a CDR report can be that of the enable of one air bag system to the deployment time of another air bag system.

-Maximum Recorded Vehicle Velocity Change is the maximum square root value of the sum of the squares for the vehicle's combined "X" and "Y" axis change in velocity.

-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 by various factors, including but not limited to the following:

- significant changes in the tire's rolling radius
- final drive axle ratio changes
- wheel lockup and wheel slip

-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit.

-Pre-Crash data is recorded asynchronously.

- Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:
 - the SDM receives a message with an "invalid" flag from the module sending the pre-crash data
 - no data is received from the module sending the pre-crash data
 - no module is present to send the pre-crash data
- Driver's and Passenger's Belt Switch Circuit Status indicates the status of the seat belt switch circuit, except: The Passenger Belt Switch Circuit Status for 2005 vehicles is available only on the Cadillac STS. 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), always reports a default value of "Buckled," because there is no passenger belt switch with the Recaro seat option.
- The Time Between Non-Deployment to 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 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.
- Steering Wheel Angle data is displayed as a positive value when the steering wheel is turned to the right and a negative value when the steering wheel is turned to the left, except for Cadillac STS model vehicles with StabiliTrak 3.0 systems (RPO JL7). For Cadillac STS model vehicles with StabiliTrak 3.0 systems (RPO JL7), when the steering wheel is turned to the right, a negative value will be displayed and when the steering wheel is turned to the left, a positive value will be displayed. The Steering Wheel Angle data is reported in 16 degree increments.

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.

01016_SDMEps_r002

Multiple Event Data

Associated Events Not Recorded	1
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)	Yes
The Event(s) Not Recorded was a Deployment Event(s)	No
The Event(s) Not Recorded was a Non-Deployment Event(s)	Yes

System Status At AE

Vehicle Identification Number	**1ZT58N*8*****
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)	Fourth Gear
Transmission Selector Position (If Equipped)	Drive
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)	23
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

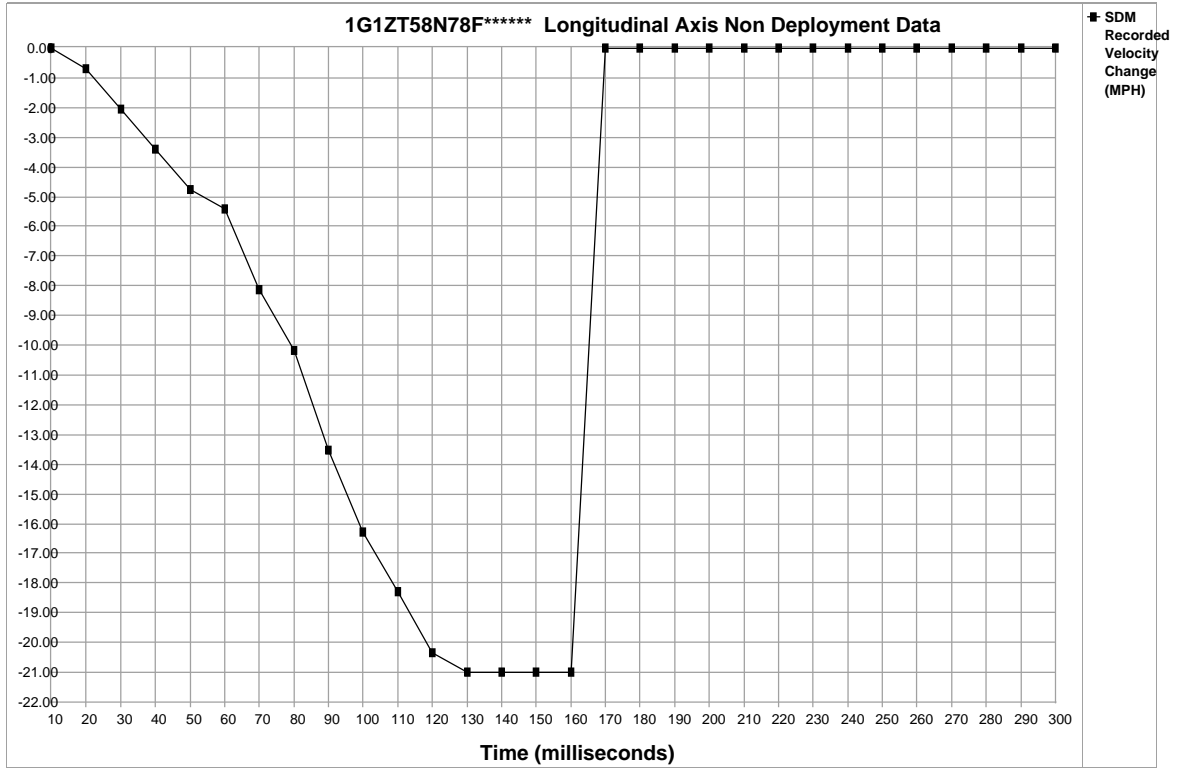
Pre-Crash Data

Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Vehicle Speed (MPH)	55	53	52	51	50
Engine Speed (RPM)	1472	1472	1664	1856	3072
Percent Throttle	12	19	34	29	95
Brake Switch Circuit State	OFF	OFF	OFF	OFF	OFF
Accelerator Pedal Position (percent)	Invalid	Invalid	Invalid	Invalid	Invalid
Antilock Brake System Active (If Equipped)	No	No	No	No	No
Lateral Acceleration (feet/s ²)(If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid

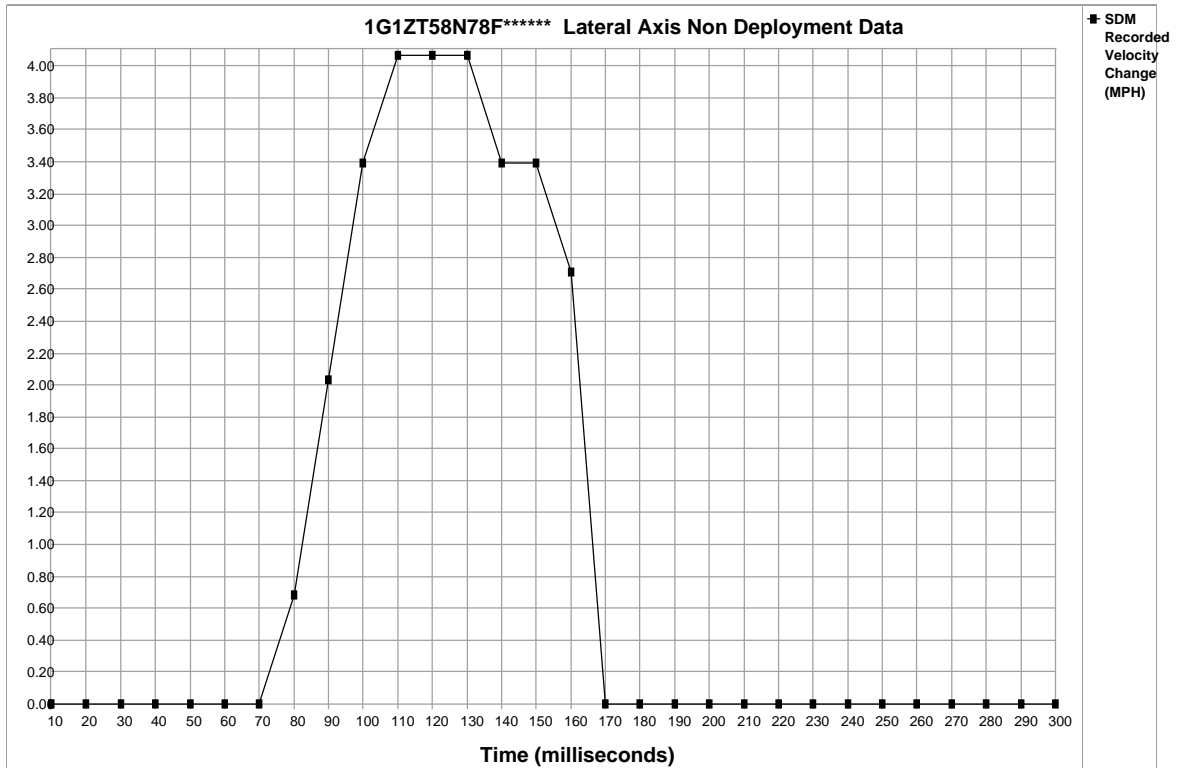
Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Yaw Rate (degrees per second) (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid
Steering Wheel Angle (degrees) (If Equipped)	-64	-64	32	144	-208
Vehicle Dynamics Control Active (If Equipped)	Invalid	Invalid	Invalid	Invalid	Invalid

System Status At Non-Deployment

Ignition Cycles At Investigation	1292
SIR Warning Lamp Status	OFF
SIR Warning Lamp ON/OFF Time (seconds)	655200
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	1290
Ignition Cycles At Event	1291
Ignition Cycles Since DTCs Were Last Cleared	254
Driver's Belt Switch Circuit Status	BUCKLED
Passenger's Belt Switch Circuit Status	UNBUCKLED
Automatic Passenger SIR Suppression System Validity Status at AE	Valid
Automatic Passenger SIR Suppression System Status at AE	Air Bag Suppressed
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)	21.40
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
Driver Anchor Pretensioner Deployment Loop Commanded (If Equipped)	No
Second Row Left Pretensioner Deployment Loop Commanded	No
Third Row Left Roof Rail/Head Curtain Loop Commanded	No
Passenger Anchor Pretensioner Deployment Loop Commanded (If Equipped)	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
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



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
SDM Longitudinal Axis Recorded Velocity Change (MPH)	0.00	-0.68	-2.03	-3.39	-4.74	-5.42	-8.13	-10.17	-13.55	-16.26	-18.30	-20.33	-21.01	-21.01	-21.01
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
SDM Longitudinal Axis Recorded Velocity Change (MPH)	-21.01	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
SDM Lateral Axis Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	2.03	3.39	4.07	4.07	4.07	3.39	3.39
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
SDM Lateral Axis Recorded Velocity Change (MPH)	2.71	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

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

```
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$02 30 00 00 00 00 00 00
$03 02 00 00 00 00 00 00
$04 02 00 00 00 00 00 00
$05 00 00 00 00 00 00 00
$06 00 0A 00 00 0A 51 80
$07 00 29 00 00 00 00 00
$08 00 FF 00 00 00 00 00
$09 00 6B 67 00 00 00 00
$0A 00 00 00 00 00 00 00
$0B 00 00 00 0F 00 00 00
$0C 80 00 80 00 00 00 00
$0D FB 79 40 00 00 00 00
$0E 00 00 00 00 00 00 00
$0F BB 00 00 00 00 00 00
$10 47 31 5A 54 35 38 4E
$11 37 38 46 31 31 37 30
$12 32 33 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 04 03 02 02 00 00 00
$18 03 02 00 00 00 00 00
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$1B 3F 30 00 66 00 1A 00
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$1D 4F 4F 00 00 00 00 00
$1E 4F 4F 00 4F 00 01 00
$1F 33 C1 00 00 00 00 00
$20 40 00 00 00 00 00 00
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$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 00 FF F0 05 0C 00 00
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$31 00 00 00 00 00 80 00
$32 00 00 00 00 00 00 00
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$34 30 1D 1A 17 17 00 00
$35 51 52 53 55 58 00 00
$36 F3 09 02 FC FC 00 00
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$38 46 00 00 00 03 C0 00
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$3B 03 06 0C 00 00 00 00
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$3E 38 FF FF FF 00 00 00
$3F 29 00 90 00 00 00 00
$40 20 A5 00 00 00 00 00
$41 00 00 00 00 00 00 00
$42 00 FF F0 05 0A 00 00
$43 FE 05 0B 00 00 00 00
$44 00 00 00 00 00 00 00
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$47 00 00 00 FF 00 FD 00
$48 00 FB 00 F9 00 F8 00
$49 00 F4 01 F1 03 EC 00
$4A 05 E8 06 E5 06 E2 00
$4B 06 E1 05 E1 05 E1 00
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$4F 00 00 00 00 00 00 00
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$53 0D 03 E5 00 00 00 00
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$08 FF FF 00 00
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$0E 3F 0A 00 00
$0F 41 4A 31 30 39 37 52 30 30 33 41 34 38 45 38 45
$10 3F 0A 00 00
$13 42 52 38 36 39 36 44 31 37 32 31 32 34 46 35 4E
$14 16 45 45 46
$17 42 54 FF FF FF FF FF FF FF FF FF FF FF FF
$18 FF FF FF FF
$21 27 35 B4 97 3F AA 0C BD
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```
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$23 31 5A FA FA FA FA FA
$24 31 5A FA FA FA FA FA
$25 31 5A FA FA FA FA FA
$26 31 5A FA FA FA FA FA
$40 00 00
$41 3F 30 00 66 00 1A
$42 D0 E4
$43 00 00 8E 80
$44 C6 00 00 FC 80 C0
$45 07 01 07 01 05 01
$46 00 0F 0F 64 64
$47 0A 64 02 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 35 31 38 30 32 31 30 39 57 43 20 20 20 20
$B7 50 AA 01 02 07
$B8 44 45 84 01 30
$C1 30 32 30 37
$CA 30 32 30 37
$CB 00 F1 A0 2C
$CC 00 F1 A0 2C
$D1 00 00
$DB 00 00
$DC 00 00
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