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	[redacted]
User	[redacted]
Case Number	
EDR Data Imaging Date	[redacted]
Crash Date	[redacted]
Filename	[redacted]
Saved on	[redacted]
Collected with CDR version	Crash Data Retrieval Tool 10.1
Reported with CDR version	Crash Data Retrieval Tool 10.1
EDR Device Type	Airbag Control Module
Event(s) recovered	Deployment Non-Deployment

Comments

CONNECTED DIRECTLY TO OBDII
POWERED THRU BATTERY CABLES
PRESENT JOSEPH STIDHAM
RECOMMENDED TIRE SIZE:
P235/70R/15
TIRE SIZE:
P235/70R/15

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). It contains Pre-Crash and Crash data. The SDM can store up to one Non-Deployment Event. This event may be overwritten by another Non-Deployment Event. This event will be cleared by the SDM, after approximately 250 ignition cycle. This event can be overwritten by a second Deployment Event, referred to as a Deployment Level Event, 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 before 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 contains Pre-Crash and Crash data. The SDM can store up to two different Deployment Events, if they occur within five seconds of one another. If a Deployment Level Event occurs within five seconds after the Deployment Event, the Deployment Level Event 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 Adjusted Algorithm Longitudinal Velocity Change:
Once the crash data is downloaded, the CDR tool mathematically adjusts the recorded algorithm longitudinal velocity data to generate an adjusted algorithm longitudinal velocity change that may more closely approximate the longitudinal velocity change the sensing system experienced during the recorded portion of the event. The adjustment takes place within the downloading tool and does not affect the crash data stored in the SDM, which is displayed in hexadecimal format. The SDM Adjusted Algorithm Longitudinal Velocity Change may not closely approximate what the sensing system experienced in all types of events. For example, if a crash is preceded by other common events, such as rough road, struck objects, or off-road travel, the SDM Adjusted Algorithm Longitudinal Velocity Change may be less than and sometimes significantly less than the actual longitudinal velocity change the sensing system experienced. For Deployment Events, the SDM will record 100 milliseconds of data after Deployment criteria is met and up to 50 milliseconds before Deployment criteria is met. Velocity Change data is displayed in SAE sign convention.

-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.
-Some of the Pre-Crash data may be recorded after Algorithm Enable (AE). If this occurs, it may affect the reported pre-crash data values, but does not affect other data such as SDM Adjusted Algorithm Longitudinal Velocity Change.
-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 present to send the pre-crash data

-Engine Speed is reported at two times the actual value in the following vehicles, if the vehicle is equipped with a 6.6L Duramax diesel engine (RPO LB7, LBZ, LLY, or LMM):
-2001-2006 Chevrolet Silverado
-2007 Chevrolet Silverado Classic
-2001-2006 GMC Sierra
-2007 GMC Sierra Classic
-2006-2007 Chevrolet Express
-2006-2007 GMC Savana
-2003-2009 Chevrolet Kodiak
-2003-2009 GMC Topkick

-Driver's Belt Switch Circuit Status indicates the status of the driver's seat belt switch circuit. If the vehicle's electrical system is compromised during a crash, the state of the Driver's Belt Switch Circuit may be reported other than the actual state.
-Passenger Front Air Bag Suppression Switch Circuit Status indicates the status of the suppression switch circuit.
-The Time Between 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.
-If the vehicle is a 2000 - 2002 Chevrolet Cavalier Z24 or a Pontiac Sunfire GT, with a manual transmission (RPO MM5) and a 2.4L engine (RPO LD9), the Brake Switch Circuit Status data will be reported in the opposite state than what actually occurred, e.g. an actual brake switch status of "ON" will be reported as "OFF".
-All data should be examined in conjunction with other available physical evidence from the vehicle and scene.

Data Source:
All SDM recorded data is measured, calculated, and stored internally, except for the following:
-Vehicle Speed, Engine Speed, and Percent Throttle data are transmitted by the Powertrain Control Module (PCM), via the vehicle's communication network, to the SDM.
-Brake Switch Circuit Status data is transmitted by either the ABS module or the PCM, via the vehicle's communication network, to the SDM.
-The SDM may obtain Belt Switch Circuit Status data a number of different ways, depending on the vehicle architecture. Some switches are wired directly to the SDM, while others may obtain the data from various vehicle control modules, via the vehicle's communication network.
-The Passenger Front Air Bag Suppression Switch Circuit is wired directly to the SDM.

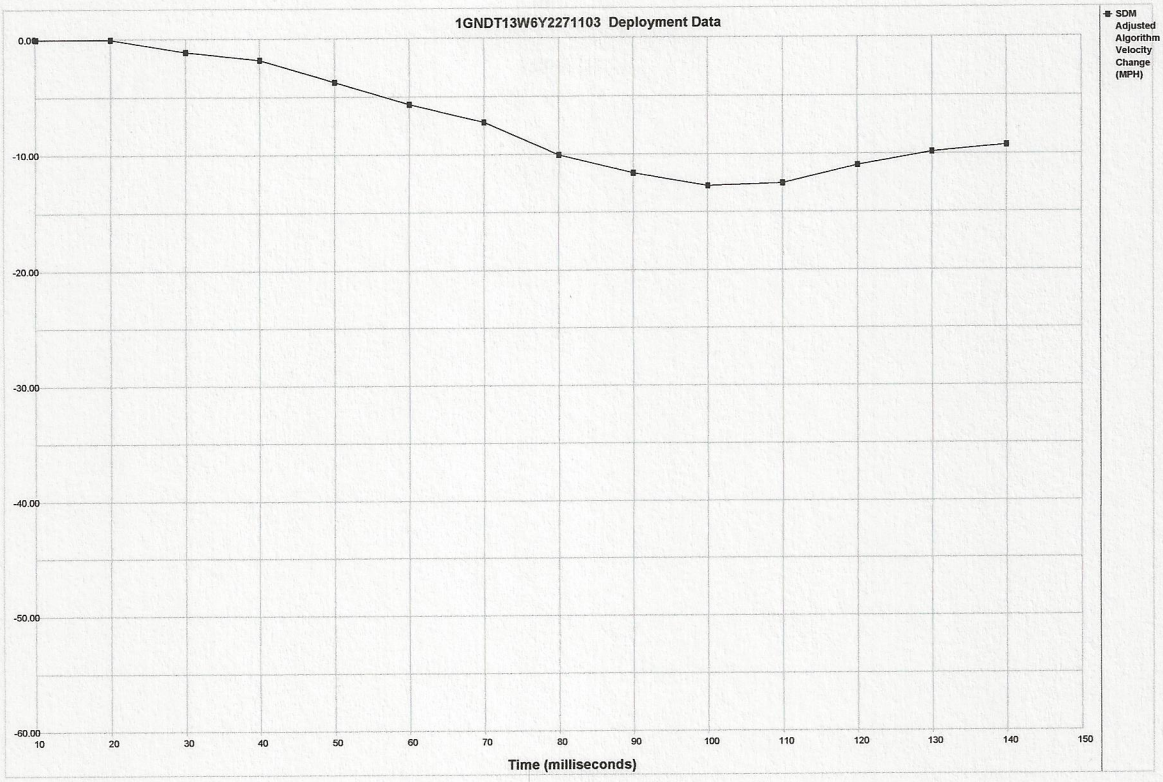
01023_SDMG-99JXZ01-07_r003

System Status At Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	UNBUCKLED
Passenger SIR Suppression Switch Circuit Status (if equipped)	Air Bag Not Suppressed
Ignition Cycles At Deployment	22174
Time Between Non-Deployment And Deployment Events (sec)	0.4

Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle
-5	58	1664	28
-4	58	1728	16
-3	58	1728	0
-2	58	1728	0
-1	54	1088	2

Seconds Before AE	Brake Switch Circuit State
-8	OFF
-7	OFF
-6	OFF
-5	OFF
-4	OFF
-3	OFF
-2	ON
-1	OFF



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Adjusted Algorithm Velocity Change	0.00	0.00	-1.10	-1.76	-3.73	-5.71	-7.24	-10.10	-11.63	-12.73	-12.51	-10.98	-9.88	-9.22	N/A

System Status At Non-Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	UNBUCKLED
Passenger SIR Suppression Switch Circuit Status (if equipped)	Air Bag Not Suppressed
Ignition Cycles At Non-Deployment	22174
Maximum SDM Algorithm Longitudinal Velocity Change (MPH)	-0.12

Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle
-5	58	1664	28
-4	58	1728	16
-3	58	1728	0
-2	54	1728	0
-1	0	1088	2

Seconds Before AE	Brake Switch Circuit State
-8	OFF
-7	OFF
-6	OFF
-5	OFF
-4	OFF
-3	OFF
-2	ON
-1	OFF

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.

```
$01  91 17 00 00
$02  DA D1
$03  41 53 30 30 32 37
$04  4B 38 30 37 44 33
$05  00
$06  15 74 53 68
$11  7D 7D 7D 7B 83 00
$14  03 84 34 80
$18  80 7F 80 C6 FF 00
$1C  FA FA FA FA FA FA
$1D  FA FA FA FA FA FA
$1E  FA FA
$1F  FF 02 00 00 00
$20  83 00 00 FF 80 FE
$21  FF BF FF FF FF FF
$22  FF FF FF FF FF FF
$23  7C 01 00 09 00 00
$24  00 00 00 00 00 00
$25  00 00 00 00 00 00
$26  FF FF 0D 00 57 5E
$27  5E 5E 00 40 00 05
$28  00 00 2A 47 00 11
$29  1B 1B 1B 1A 00 F5
$2A  2C C0 FF 16 32 16
$2B  33 56 9E 48 00 00
$2C  00 2E 14 03
$30  80 00 00 FF 16 80
$31  FF BF FF FF FF FF
$32  FF FF FF FF FF FF
$33  7C 14 03 00 00 00
$34  02 03 07 0B 0E 14
$35  17 19 18 14 11 0F
$36  FF 0E 46 03 45 57
$37  5E 5E 5E 5E 00 40
$38  00 05 00 00 2A 47
$39  00 11 1B 1B 1B 1A
$3A  00 F5 2C C0 2E 48
$3B  00 04 00
$40  FF FF FF FF FF FF
$41  FF FF FF FF FF FF
$42  FF FF FF FF FF FF
$43  FF
```

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Longitudinal Crash Pulse (1st Prior Event, TRG 2 - table 2 of 2)

Time (msec)	Longitudinal Delta-V (MPH [km/h])
10	-2.1 [-3.4]
20	-5.0 [-8.0]
30	-11.8 [-19.0]
40	-13.6 [-21.9]
50	-14.9 [-24.0]
60	-16.3 [-26.2]
70	-19.9 [-32.0]
80	-22.1 [-35.6]
90	-22.9 [-36.8]
100	-23.7 [-38.1]
110	-24.5 [-39.4]
120	-24.1 [-38.8]
130	-23.2 [-37.4]
140	-22.9 [-36.8]
150	-22.9 [-36.8]
160	-22.9 [-36.8]
170	-22.9 [-36.8]
180	-23.1 [-37.2]
190	-23.3 [-37.5]
200	-23.7 [-38.1]

DTCs Present at Time of Event (1st Prior Event, TRG 2)

Recording Status, Diagnostic	Complete
Ignition Cycle Since DTC was Set (times)	0
Airbag Warning Lamp ON Time Since DTC was Set (min)	0
Diagnostic Trouble Codes	None

Pre-Crash Data, 1 Sample (1st Prior Event, TRG 2)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	400
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	Child or Not Occupied
Shift Position	Drive

Pre-Crash Data, -5 to 0 seconds (1st Prior Event, TRG 2)

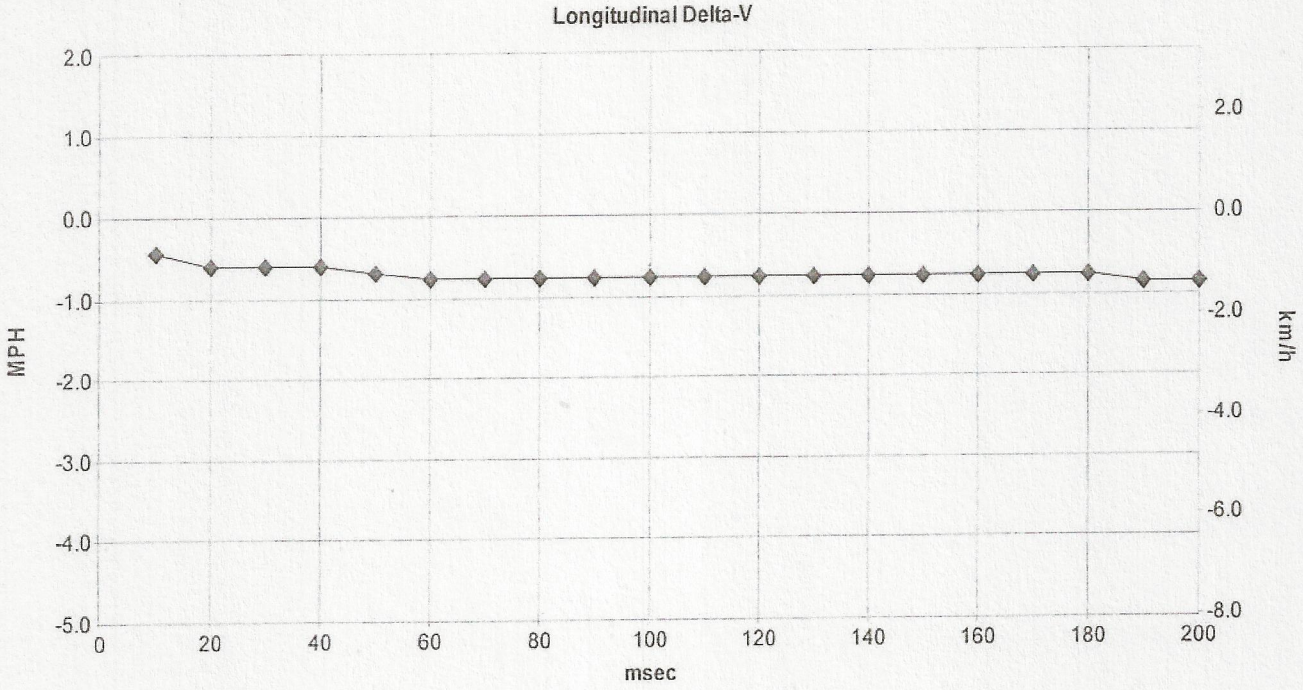
Time (sec)	-4.4	-3.4	-2.4	-1.4	-0.4	0 (TRG)
Vehicle Speed (MPH [km/h])	62.1 [100]	60.9 [98]	60.9 [98]	62.1 [100]	62.1 [100]	62.1 [100]
Brake Switch	OFF	OFF	OFF	OFF	ON	ON
Accelerator Rate (%)	0.00	36.50	29.50	38.00	0.00	0.00
Engine RPM (RPM)	1,600	1,600	1,600	1,600	1,600	1,600

System Status at Event (2nd Prior Event, TRG 1)

Recording Status, Front/Rear Crash Info.	Complete
Crash Type	Front/Rear Crash
TRG Count (times)	1
Previous Crash Type	No Event
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	0
Time to Deployment Command, Front Airbag, Driver (msec)	Not Commanded
Time to Deployment Command, Front Airbag, Passenger (msec)	Not Commanded
Event Severity Status, Driver	N/A
Event Severity Status, Passenger	N/A
Time to Deployment Command, Pretensioner (msec)	Not Commanded

Longitudinal Crash Pulse (2nd Prior Event, TRG 1 - table 1 of 2)

Recording Status, Time Series Data — Complete
Max Longitudinal Delta-V (MPH [km/h]) — -0.9 [-1.4]



Longitudinal Crash Pulse (2nd Prior Event, TRG 1 - table 2 of 2)

Time (msec)	Longitudinal Delta-V (MPH [km/h])
10	-0.4 [-0.7]
20	-0.6 [-1.0]
30	-0.6 [-1.0]
40	-0.6 [-1.0]
50	-0.7 [-1.1]
60	-0.8 [-1.2]
70	-0.8 [-1.2]
80	-0.8 [-1.2]
90	-0.8 [-1.2]
100	-0.8 [-1.2]
110	-0.8 [-1.2]
120	-0.8 [-1.2]
130	-0.8 [-1.2]
140	-0.8 [-1.2]
150	-0.8 [-1.2]
160	-0.8 [-1.2]
170	-0.8 [-1.2]
180	-0.8 [-1.2]
190	-0.9 [-1.4]
200	-0.9 [-1.4]

DTCs Present at Time of Event (2nd Prior Event, TRG 1)

Recording Status, Diagnostic	Complete
Ignition Cycle Since DTC was Set (times)	0
Airbag Warning Lamp ON Time Since DTC was Set (min)	0
Diagnostic Trouble Codes	None

Pre-Crash Data, 1 Sample (2nd Prior Event, TRG 1)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	0
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	Not Occupied
Shift Position	Drive

Pre-Crash Data, -5 to 0 seconds (2nd Prior Event, TRG 1)

Time (sec)	-4	-3	-2	-1	0	0 (TRG)
Vehicle Speed (MPH [km/h])	46 [74]	36 [58]	26.1 [42]	19.9 [32]	9.9 [16]	9.9 [16]
Brake Switch	ON	ON	ON	ON	ON	ON
Accelerator Rate (%)	0.00	0.00	0.00	0.00	0.00	0.00
Engine RPM (RPM)	1,200	800	800	800	400	400

Hexadecimal Data

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```
PIDs          PID     Data
               00     BE 40 00 01
               01     00
               03     30 36 36 36 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
                      30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
                      30
               04     FF FF FF
               05     01
               06     06
               07     30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
               0A     02
               20     80 00 C0 01
               21     00 31
               31     03 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                      00 00 00 00 00 00 00 00 00 00 00 00 00 00
               32     03 03 15 0A 00 00 00 00 00 00 00 00 00 20 00 8C 88 88 88 08 80 88
                      08 80 08 00 00 00 08 40 44 00 00 00 00 00 5F 5A D2 C3 CE D6 67 4D
                      5B 63
               40     80 00 00 01
               41     F6 0E 02 47 30 05 00 7D
               60     00 00 00 01
               80     00 00 00 01
               A0     00 00 00 01
               C0     00 00 00 01
               E0     C0 10 00 00
               E1     15
               E2     00 5B 59 11 00
               EC     FF

EEPROM     Address   Data (-- = data not imaged from ECU)
                          (** = no response from ECU)

              0      -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
             10      -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
             20      -- -- -- -- -- -- -- -- -- -- -- -- -- -- 00 00
             30      00 00 00 00 7F FD 00 00 A5 03 00 06 00 00 -- --
             40      -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
             50      -- -- 10 00 01 21 00 11 21 00 22 41 00 23 55 00
             60      75 00 95 00 00 00 00 55 00 00 00 00 00 00 00 00
             70      00 00 00 00 00 00 00 00 00 55 10 10 01 C9 00 44
             80      C9 00 44 C8 4C 44 C4 3B C4 49 C8 00 04 00 00 55
             90      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
             A0      00 55 -- -- 05 02 00 00 01 01 00 00 00 00 00 00
             B0      00 00 00 00 00 00 01 00 00 15 00 55 00 01 E0 00
             C0      FE FE 00 55 19 21 50 15 0F 10 2A 1A 09 09 0A FB
             D0      F6 FC 00 00 00 03 02 04 04 5B 00 55 00 02 E4 00
             E0      08 06 30 55 -- -- FF FF FF FF FF FF 00 00 00 00
             F0      00 00 00 00 FF 00 00 00 00 00 00 00 00 00 FF FF
            100      FF FF FF FF FF 00 00 00 00 00 00 00 00 00 00 00
            110      00 00 00 00 00 00 FF FF FF FF FF FD FD 01 03 D5
            120      C5 A1 9B B0 21 13 AA DA 30 4E 50 26 26 3E 00 00
            130      00 00 10 55 00 03 04 02 FE FE 00 55 00 00 00 00
            140      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            150      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            160      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            170      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            180      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            190      00 00
```

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