

## CDR File Information

|                               |                                 |
|-------------------------------|---------------------------------|
| Vehicle Identification Number | 1GNDT13W512*****                |
| Investigator                  |                                 |
| Case Number                   |                                 |
| Investigation Date            |                                 |
| Crash Date                    |                                 |
| Filename                      | 2003-43-146-V1.CDR              |
| Saved on                      | xxxxx                           |
| Collected with CDR version    | Crash Data Retrieval Tool 1.680 |
| Reported with CDR version     | Crash Data Retrieval Tool 2.900 |
| Event(s) recovered            | Deployment<br>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 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 the ignition has been cycled 250 times.

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. 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, and then the Deployment Level Event will overwrite the Non-Deployment Event file.

### SDM Data Limitations:

#### -SDM Adjusted Algorithm Forward Velocity Change:

Once the crash data is downloaded, the CDR tool mathematically adjusts the recorded algorithm forward velocity data to generate an adjusted algorithm forward velocity change that may more closely approximate the forward 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, which remains stored in the SDM. The SDM Adjusted Algorithm Forward 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 Forward Velocity Change may be less than and some times significantly less than the actual forward velocity change the sensing system experienced. 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 100 milliseconds of data after deployment criteria is met and up to 50 milliseconds before deployment criteria is met. The maximum value that can be recorded for SDM Adjusted Algorithm Forward Velocity Change is about 112 MPH.

-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.

-Some of the Pre-Crash data may be recorded after Algorithm Enable (AE). This may happen in situations involving relatively "soft" crash pulses or those that take place over a relatively longer period of time. If this occurs, it may affect the reported pre-crash data values, but does not affect other data such as SDM Adjusted Algorithm Forward Velocity Change.

-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 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?.

### SDM 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 once a second by the Powertrain Control Module (PCM), via the vehicle's communication network, to the SDM.

-Brake Switch Circuit Status data is transmitted once a second 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.

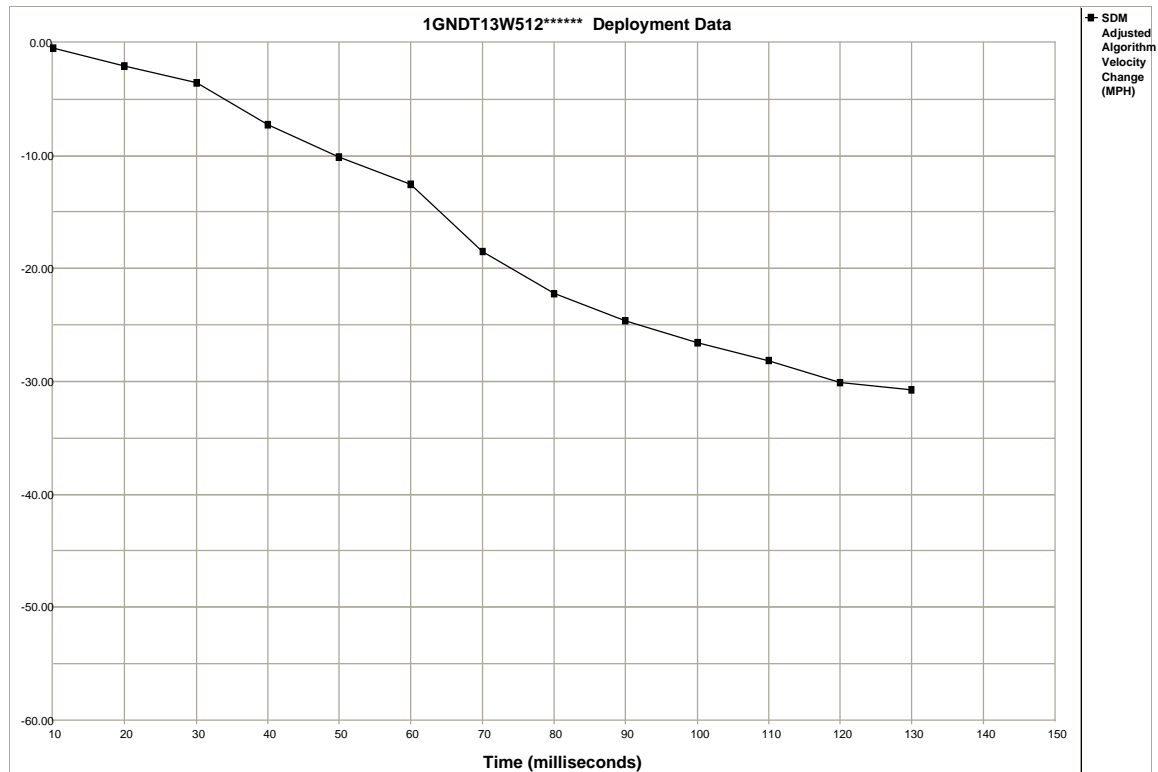
-The Passenger Front Air Bag Suppression Switch Circuit is wired directly to the SDM.

## System Status At Deployment

|   |                        |
|---|------------------------|
| SIR Warning Lamp Status                                   | OFF                    |
| Driver's Belt Switch Circuit Status                       | BUCKLED                |
| Passenger Front Air Bag Suppression Switch Circuit Status | Air Bag Not Suppressed |
| Ignition Cycles At Deployment                             | 4306                   |
| Time Between Non-Deployment And Deployment Events (sec)   | 2.4                    |

| Seconds Before AE | Vehicle Speed (MPH) | Engine Speed (RPM) | Percent Throttle |
|-------------------|---------------------|--------------------|------------------|
| -5                | 50                  | 1408               | 1                |
| -4                | 50                  | 1856               | 49               |
| -3                | 45                  | 2048               | 42               |
| -2                | 68                  | 2688               | 44               |
| -1                | 39                  | 1792               | 13               |

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



|                                    |       |       |       |       |        |        |        |        |        |        |        |        |        |     |     |
|------------------------------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|-----|
| Time (milliseconds)                | 10    | 20    | 30    | 40    | 50     | 60     | 70     | 80     | 90     | 100    | 110    | 120    | 130    | 140 | 150 |
| Adjusted Algorithm Velocity Change | -0.48 | -2.02 | -3.56 | -7.29 | -10.14 | -12.55 | -18.48 | -22.21 | -24.62 | -26.60 | -28.13 | -30.11 | -30.77 | N/A | N/A |

## System Status At Non-Deployment

|   |                        |
|---|------------------------|
| SIR Warning Lamp Status                                   | OFF                    |
| Driver's Belt Switch Circuit Status                       | BUCKLED                |
| Passenger Front Air Bag Suppression Switch Circuit Status | Air Bag Not Suppressed |
| Ignition Cycles At Non-Deployment                         | 4306                   |
| Maximum SDM Algorithm Forward Velocity Change (MPH)       | -0.14                  |

| Seconds Before AE | Vehicle Speed (MPH) | Engine Speed (RPM) | Percent Throttle |
|-------------------|---------------------|--------------------|------------------|
| -5                | 50                  | 1856               | 1                |
| -4                | 45                  | 2048               | 1                |
| -3                | 68                  | 2688               | 1                |
| -2                | 39                  | 1856               | 49               |
| -1                | 37                  | 2048               | 42               |

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

## Hexadecimal Data

```
$01  91 17 00 00
$02  DA D1
$03  41 53 30 32 39 32
$04  4B 45 41 4C 5A 33
$05  00
$06  15 76 32 23
$11  AE B0 AF FF B9 00
$14  03 84 34 80
$18  85 7E 89 D1 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  80 00 00 FF 7D 80
$21  FF BF FF FF FF FF
$22  FF FF FF FF FF FF
$23  7C 04 00 0A 01 00
$24  00 00 00 00 00 00
$25  00 FF FF FF FF FF
$26  FF FF 08 3C 3E 6D
$27  49 51 00 03 00 6C
$28  7E 02 02 02 00 20
$29  1D 2A 20 1D 00 FD
$2A  E5 FC FC 00 01 00
$2B  02 FF FF 00 00 00
$2C  00 27 00 00
$30  80 00 00 FF 7D 80
$31  FF BF FF FF FF FF
$32  FF FF FF FF FF FF
$33  7C 16 03 01 01 04
$34  07 0F 15 1A 27 2F
$35  34 38 3B 3F 40 FF
$36  FF 0D 65 08 1B 3E
$37  6D 49 51 50 00 07
$38  00 22 70 6C 7E 02
$39  00 1C 2A 20 1D 16
$3A  00 FD E5 FC 1A 00
$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
```