

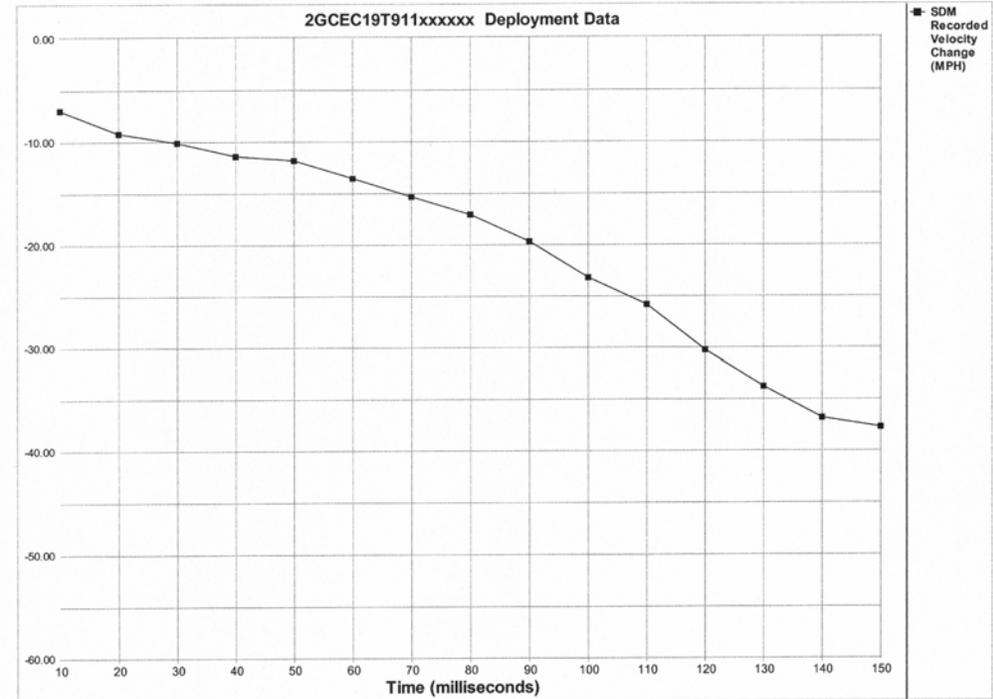
This is my first newsletter as an independent consultant. Thank you for reading it. I anticipate sending a newsletter on a regular basis, and I desire to write articles which interest you. I welcome your questions, suggestions, and other comments.

You probably received my previous mailing about crash data retrieval. The main purpose of this newsletter will be to expound in more detail on the particulars of that procedure and the extracted data.

Virtually all new General Motors vehicles are equipped with a Sensing and Diagnostic Module (SDM) as part of the system involved in firing the airbag(s). The SDM is designed to monitor certain parameters of vehicle operation, such as road speed and deceleration, to enable it to fire the airbag(s). Because of the relatively few milliseconds involved in a typical collision, an airbag must be fired based on anticipation to be at its most effective configuration during the time span of highest impact forces.

An important value in accident reconstruction is delta v. That is the extremely rapid velocity change which occurs during the generally brief period of time (often near 0.1 second) when colliding vehicles are in intimate contact. The higher the value of delta v for a given vehicle, the higher the likelihood of death or serious injury to its occupants. Delta v is not the total speed lost during the collision process, and it is not necessarily related to the vehicle's initial speed; a lighter vehicle struck head-on by another vehicle of greater momentum may experience a delta v higher than its initial velocity. One of the very useful groups of data retained by the SDM during a deployment event (when the airbag fired) or during a near-deploy (when the SDM was alerted to the possibility of a collision but whose algorithm for bag firing was not satisfied) is the value of delta v in 10 millisecond intervals for a maximum span of 150 milliseconds. (One hundred milliseconds equals one-tenth of a second.)

A severely collision-damaged 2001 Chevrolet Silverado half-ton pickup was chosen at random from the vehicles in a salvage pool near Jacksonville, Florida. The collection of data from the SDM was downloaded, and the chart to the right is the delta v plot contained in the memory chip of the SDM. The chart on Page 2 shows the record of data pictures taken over a five-second period.



There are substantial limitations to the data recorded in the SDM, and there are factors which must be considered with every data download. The SDM data must always be interpreted as part of a reconstruction; the data are not sufficient to stand alone as a reconstruction, but discussion of the reasons why is beyond the scope of this newsletter. As an example, however, consider that the SDM will report whether or not the driver's seat belt was buckled, but even the observation that it was buckled does not demonstrate that the driver was wearing it; he may have been sitting on it. To verify whether or not a seat belt was being worn, examination of the belt and related hardware is generally necessary. And an examiner needs to verify the proper operation of the seat belt buckle switch while examining the vehicle and downloading data from the SDM.