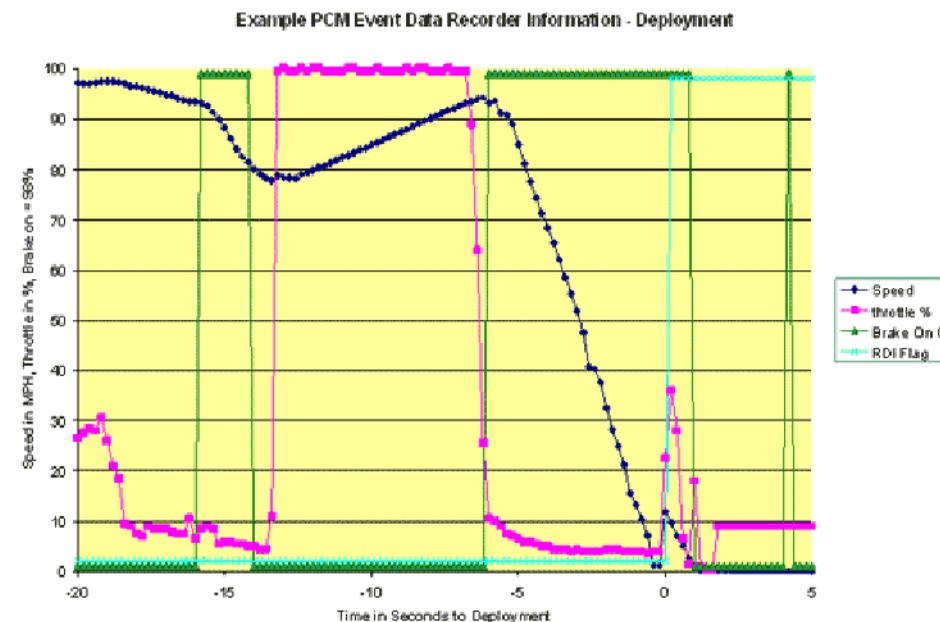


Ralph's Accident Reconstruction Newsletter: Volume 8, Number 2—Spring 2009

As many of you may already know, I have changed my email address after many years with the same ISP. My old email address was ralphc@mindspring.com. The modem which I had used for many years died. I decided it was time to move up to 6 Mbps access, but Earthlink was unable to provide me with that speed, so I went with AT&T Fast Access. Other than the days of work necessary to change email address records in many places, I am happy with the change, and the speed increase is easily noticed. My new email address should be easy to remember: ralph.cunningham@att.net. The URL of my Web site remains the same.

Pedestrian impacts can often be troublesome to evaluate, particularly those which occur at night. As I've written before, the visual environment of a pedestrian is radically different from the visual environment of a driver of a motor vehicle. Pedestrians typically believe that they are much more visible to drivers of cars than they actually are; after impact, the pedestrian may wonder how the collision occurred when visibility was so good, if the pedestrian survives. But studies and experiments have shown that drivers of motor vehicles often do not see pedestrians at night in time to take effective evasive action, particularly when the pedestrian is not wearing high brightness or retroreflective clothing. It's simply a matter of normal human limitations of vision, not a defect or deficiency on the part of the driver.

Another difficulty in evaluating details of pedestrian impacts is the general lack of physical evidence. When a pedestrian is struck, a loosely attached or carried object may fall essentially at the point of impact, but it may also be dislodged a significant distance. A pedestrian's shoes may create a scuff mark on the pavement at the point of impact, but that scuff mark will not be evident for very long; unless the investigating police officer has pedestrian-impact-specific training, he will not know to look for such a mark. In many cases, there is no vehicle skidding before or after impact; without skid marks, the distance a vehicle moves cannot be directly related to its speed, although a maximum speed might be determined in some instances. If there is skidding to a stop, that distance can be combined with knowledge of the involved car and the details of the surface over which the skidding occurred to determine the car's speed at the initiation of the skidding. On rare occasions, an airbag or pre-tensioner will be deployed upon pedestrian impact; the airbag control module (ACM) may contain event data recorder (EDR) capabilities to provide some knowledge of the car's operation at a time proximate to the deployment(s). On rare occasions, a pedestrian impact may set a non-deployment (ND) event in the ACM of late-model GM products; a Crash Data Retrieval access of the ACM shortly after the impact would show whether or not there was an ND file. If it is present, the ND file would generally provide us with selected data about the five seconds of vehicle operation which preceded the ND event. Chrysler Corporation vehicles only record data when there has been a deployment. The Restraint Control Module (RCM) in Ford vehicles may not contain information useful to a reconstruction, but many Fords now come with substantial recording capabilities in the Powertrain Control Module (PCM). Even without a deployment, if the Ford vehicle's engine is turned off immediately after the incident and not restarted, the PCM will retain its record, if it is one of those units which stores operational data.



The chart above is a typical plot of data contained in the PCM of a Ford product in which a deployment command was issued by the RCM. For those Ford vehicles which have recording capabilities in their PCMs, the data set is continuous and is retained when the engine is turned off. When there is a restraint deployment which signals the PCM, a flag is set and locks the PCM data set for 20 (or more) seconds before the deployment command and 5 seconds after. Even without a flag, the data set is retained if the engine is turned off, but typically 25 seconds of engine operation will overwrite the entire data set. An attempt to access this data without following the proper steps and using all of the correct hardware and software may also overwrite the data set one is seeking, resulting in a permanent loss of that information.

Version 3.1 of the Bosch CDR software was released in December of 2008. Four new cables/adaptors were added to the hardware set associated with this latest update. You may browse the list of supported vehicles and modules at www.ralphcunningham.net/ver3list.pdf. The character after the 3 in that link is the letter "l," not the number "1." (They appear identical in so many fonts!)

Time and distance evaluations can be very helpful. I was recently involved in a case where there was no remaining physical evidence, due to elapsed years. No point of impact; no details of vehicle final positions; no damaged vehicles to examine; not even any photographs of the damaged vehicles. No photographs of the accident site had been taken at any time proximate to the collision—they might have provided information concerning point of impact and points of rest. However, there was deposition testimony from participants and from other witnesses. Using that testimony, coupled with measurements taken at the site of the accident and observa-