

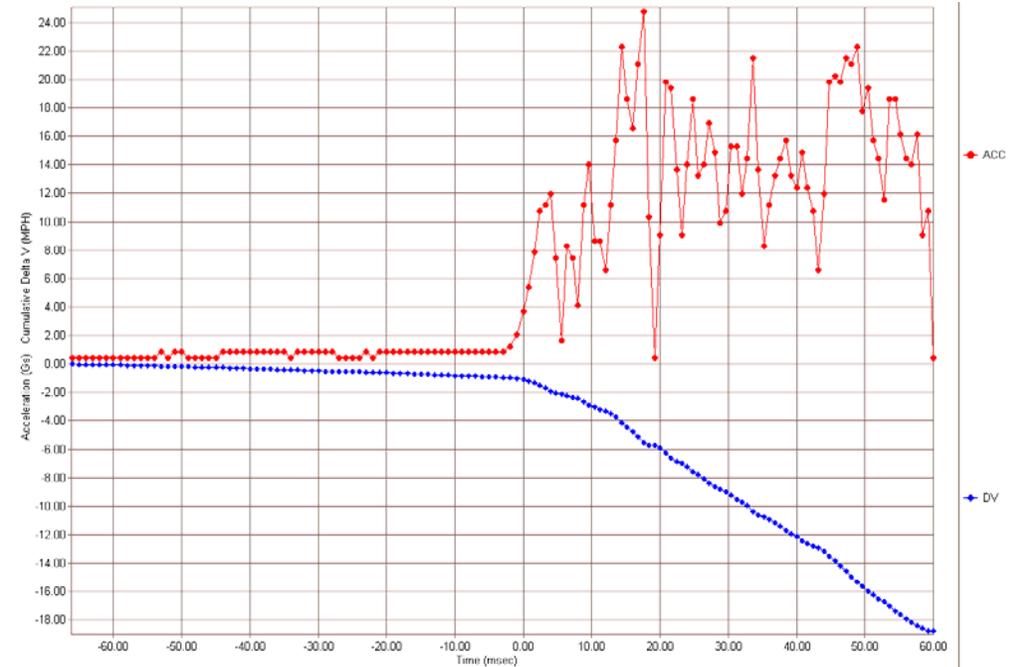
CORRECTION: In my previous newsletter, when describing what the various portions of the tire size designation P235/55R17 mean, I wrote that 17 represented the width of the rim. I should have written that it represented the diameter of the rim. All copies had already been posted when I discovered the error. I sincerely apologize for any confusion which may have been created by my misstatement.

Electronic Data Retrieval

Many of you may remember that my first newsletter as an independent reconstructionist was about Crash Data Retrieval (CDR) from the Sensing and Diagnostic Module (SDM) with which most late-model GM vehicles were equipped. As of this spring, Ford Motor Company has joined the party.

For several years, selected Ford products have contained an event data recorder as part of their occupant protection plan, which included the mandatory air bags, seat belt pre-tensioners, and position and weight sensors in the seats to regulate the firing of the pre-tensioners and air bags. The ability to download data from Ford products was limited to a relatively small cadre of accident reconstructionists who were involved in evaluating the overall efficacy of the Ford system; this was called a beta program. Having demonstrated the successful establishment of useful crash-safety systems, selected new Ford products now have an Event Data Recorder (EDR), and Vetronix Corporation has released the hardware and software to allow that data to be downloaded and interpreted.

The graph to the right came from a 2002-model-year Ford automobile which had been involved in a crash. The corresponding parameter table is on Page 2 of this newsletter. The data plot from the Ford EDR shows both acceleration in g's and Delta V in miles per hour. The "acceleration" is actually front to rear along the longitudinal axis; it is commonly called deceleration. One g is the acceleration of gravity, which is 32.2 feet per second per second. One point on the attached graph exceeds 24 g's; in other words, the instantaneous deceleration at that time was over 773 feet per second per second. At 24 g's, an object with a mass that produces a weight of 100 pounds at one g weighs, for that instant, 2400 pounds.



Just as with the data available from the SDMs in General Motors vehicles, there are substantial limitations to the data recorded in the EDR in selected Ford products, and there are factors which must be considered with every data download. The EDR 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 EDR can 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 EDR in the Ford product.