

## **Ralph's Accident Reconstruction Newsletter**

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An ongoing hot topic involves the Event Data Recorders (EDRs) with data-download capabilities now present in virtually every General Motors product and many Ford products. Different modules contain different types and extents of data and have different limitations regarding both the data which they store and the methods of accessing that data.

Some of the GM EDRs record/retain only the longitudinal delta-v; delta-v is the very sudden speed change which occurs during the intimate-contact phase of a collision. Although that value can be very useful and interesting to a reconstructionist, it means nothing to the general public, unless you happen to have been an occupant of that vehicle, in which case that value may mean the difference between a very minor or non-existent injury or a serious-to-fatal injury. But the value of delta-v does not, of itself, tell us anything about the vehicle's speed at impact, except in a few rare, specific cases. Other GM EDRs contain more extensive data, sometimes even going back ten seconds before the collision, showing vehicle speed, engine speed, throttle position, and brake switch condition (on or off) at regular intervals before the crash. Because of data buffering, possible power interruptions during the collision, the effects of brake application on indicated vehicle speed, possible loss of traction, and other factors, no download should be considered to be complete and accurate without an accompanying reconstruction. (Reconstruction often demonstrates the shortcomings or failures of a specific download, but it may also demonstrate its accuracy.) One interesting characteristic of the GM modules is that most (probably all) can be removed from the vehicle and bench downloaded with no loss or corruption of data, provided that certain handling parameters are met.

Modules from Ford products are significantly different than those in GM products. The Ford modules typically sample acceleration at closer time intervals (and often for a longer time period) than do the GM modules, but the Ford EDRs do not contain the pre-crash parameters of vehicle operation found in some GM modules. The Ford modules do contain data tables which list extensive information about certain aspects of the occupant-safety components and the parameters on which the control module decided what to fire and when to fire it. Most of the Ford modules, however, once removed from the chassis, will acquire numerous fault codes related to the absence of components normally connected to them. These fault codes do not diminish or alter the crash data contained in the modules, but they can provide the erroneous impression that there is something wrong with the download.

There are some critics who allege that privacy of the vehicle owners is being compromised. But how private is the operation of a motor vehicle? If someone drives in the rain with bald tires and crashes his vehicle as a result, does he have a right to expect that no one will look at his tires after the crash? "Parts is parts" is my philosophy; if I have permission to examine a vehicle, the EDR is simply another "part" to examine, in my opinion. To measure tread depth requires a gauge; to download an EDR takes a CDR system--different tools to examine and evaluate different parts. *Method thou doth protest too loudly.* (Thanks, Shakespeare.)

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