

Ralph's Accident Reconstruction Newsletter

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skidding, non-ABS-equipped automobile. For many years, there has been an on-going debate among accident reconstructionists concerning the applicability of drag-sled-derived values of coefficient of friction to the effective rate of deceleration of a car skidding over the same surface; some of these debates have become quite heated. There have been documented studies which showed tremendous variations in drag-sled-derived values of coefficient of friction for different drag sleds used over the same surfaces and for identical drag sleds used over the same surfaces by different persons. Those on the side of modern accelerometers point to the universality of the applicability of those instruments, particularly those which simultaneously record in three mutually perpendicular planes at high sample rates. Dr. Navin's work has demonstrated that a properly constructed and properly used drag sled can be used to determine the value of coefficient of friction for a car which is skidding on the same surface. His development involved a three-dimensional presentation of coefficient of friction resulting in a third-order polynomial equation, quite interesting to an engineer. For the less mathematically inclined, he had reduced the relationship to a simple linear equation which was valid for all normal conditions and circumstances. He plans to present his findings as a formal paper at the upcoming winter meeting of SAE International in Michigan. He has long been a proponent of the use of drag sleds, and I believe he will delight in presenting his validation of their applicability to accident reconstruction to many who may have been unsympathetic to his beliefs in the past. He is also working on the development of a three-dimensional surface to represent skidding over a variety of conditions of speed, distance, and load; a polynomial equation of that surface could be a tremendous asset to the entire reconstruction community, if it can be derived or developed.

As I write this newsletter, I am working on becoming proficient with the laser total station system I recently acquired. Interestingly, the most difficult aspect of this system is operating the data collector such that an accurate representation of the site will be transposed into the CAD software. Once I am skilled with this equipment, I will begin using it on a regular basis. I strive to provide my clients with value at the highest levels of quality, accuracy, and integrity in service. Please call whenever you have a question about any of the services I offer.

Ralph Cunningham, Inc.
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Collision Analysis

On-road/Off-road

Pedestrian/Bicyclist

Motorcycle Collisions

Conspicuity Evaluations

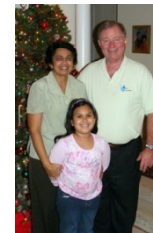
Lamp Filament Evaluations

EDR Downloads

Tire Failure Evaluations

Brake/Steering Evaluations

Seat Belts/Airbags



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