

Commercial Vehicle Accident Reconstruction and Investigation – a review by Joseph E. Badger

In 1973, Rick Varner worked in law enforcement in Cambria County, Pennsylvania. Nearly a decade later he joined forces with TIPS, which grew over the years to become the Institute for Law Enforcement Education (ILEE).

Over the years, Rick conducted commercial vehicle (heavy trucks) crash tests.

With that background, Varner teamed up with Roy Sutphen, Sr. and the two of them wrote *Commercial Vehicle Accident Reconstruction and Investigation*, published by Lawyers & Judges Publishing Co. Inc. of Tucson, AZ.

Sutphen retired after 25 years with the Pennsylvania State Police. He was a motor carrier inspector and had accident reconstruction training. Sutphen eventually became a member of ILEE's adjunct staff.

Back in the day, okay so it was only 2001, Varner asked me to give a presentation on Trailer Underride at a conference put on by the Pennsylvania Traffic Institute for Police Services (TIPS) at the fantastic Seven Springs Conference Center.

Having written *Trailer Underride: Conspicuity, Human Factors and Rear Bumpers*, (Institute for Police Technology & Management, Jacksonville, 1998), I thought I had seen the results of just about every type of trailer underride crash on the books. That is, until I saw the photo on page 257 of the Varner/Sutphen book. I've seen cars that were fairly well flattened after having passed beneath a semitrailer, but their photo wins the prize, hands down.

In fact, I consider their nine-page chapter "Trailer Underride and Rear-End Protection" one of those "must-read" sections of any book.

But the book isn't about only trailer underride. There are chapters covering Roadway Evidence, Vehicle Evidence, Human Factors, Off-Tracking, Vehicle Dynamics, Commercial Vehicle Rollover and Onboard Computers.

Chapter 15, The Brake System, discusses Hydraulic Brakes Systems and Surges, Electric Brakes, Air Brake Components, Air Over Hydraulic Brakes, Truck Retarders and Wedge Brakes.

For those just getting into commercial vehicle accident reconstruction, there are primer chapters on such topics as Out-of-Service Criteria, Types of Carriers, Driver Responsibilities, Driver's Record of Duty Status, Commercial Driver's License Regulations.

The book discusses various vehicle components such as the electrical system, wheels, rims and tires, plus many more too numerous to mention.

Besides 392 pages (including the index) containing valuable text, there are over 100 photographs of everything from a pop-off valve and moisture ejector to graphics demonstrating how to calculate off-tracking and weight shift to showing the difference between a Dayton wheel and a Budd wheel.

Page 291 even shows Rick after getting his hands dirty.

What we have here is three books in one. “Book 1” (my divisions, not Varner’s), including chapters one through six, covers licensing, log books, types of carriers, out-of-service criteria, and such.

“Book 2” (chapters seven through 15) describes commercial vehicle components and systems. “Book 3” (chapters 16 through 29) is what I call the meat of the text. This section covers vehicle and roadway evidence, human factors, vehicle dynamics, onboard computers etc.

The final chapter, titled “Other Speed Equations” discusses a few of the formulae that many accident reconstructionists know about but are the less memorized ones. Such as the commercial vehicle hydroplane formula and determining speed when you know gear positions and the truck’s RPM at the time of the collision.

Then there’s that dreadful weight shift equation that is so beastly that I doubt you’ll ever really use it.

However, it’s nice to know where to find it – just in case.

You may get the book through Lawyers & Judges Publishing by going to their website <http://www.lawyersandjudges.com/> and enter “Varner” (without the quotes) in the Search box and click on By Author.

Or call L&J toll-free at (800) 209-7109. Or you may ask questions via e-mail at sales@lawyersandjudges.com.