

BOOK REVIEW

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A Review of Forensic Engineering Reconstruction of Accidents

REFERENCE: Brown, J. F. and Obenski, K. S., *Forensic Engineering Reconstruction of Accidents*, Charles C Thomas, Springfield, IL 62794-9265, 254 pp.

On first reading this book the reviewers were somewhat disappointed. After reflecting on the material presented, we realized that we had been expecting a technical expose on engineering principles, and the book fell short of that expectation. Although some basic formulas are presented, the book seems to be intended as a discourse on the fundamentals of technical investigations rather than the typical formula derivation, example, and solution philosophy. As such, this narrative overview of forensic engineering investigations is very well written and presents the reader with a refreshing and interesting approach to technical literature. Although this book cannot be fully appreciated by the novice investigator, the experienced forensic engineer will find many areas worth re-reading.

Only a few editorial mistakes detract from the otherwise well-presented material. Layman and engineers alike will be able to appreciate the text, but like most technical books intended for wide audiences, some discussions are too elementary, while other more advanced discussions are presented without fully defining the terms. All the material appears to be technically correct. Some of the material is not documented by adequate references or data; thus, presentation in the courtroom must be handled carefully.

The contents include sections on friction, mechanics, traffic accident dynamics, vehicle fires, motorcycles and trucks, accidents, pedestrian accidents, motion perception, roll-overs, loss of control, tires and rims, failure analysis, and slips and falls. Also included are sections on mapping, measuring, and photography, which, in the reviewers' opinion are just a rehashing of the proper use of the investigator's tools and might be best presented elsewhere, for example, in the manufacturers' instructions manuals.

Although this text is not a "technical reference," such as Limpert's *Motor Vehicle Accident Reconstruction and Cause Analysis*, it contains some of the more subtle aspects of advanced investigations. The section on friction is very good, pointing out that many of the commonly held beliefs about the linearity of friction are not true in the real world and that the differences may be significant. This can be very important in establishing the probable friction range of the tire-to-road interface in speed reconstruction.

A nice presentation of vector diagrams in solving the momentum equation is given. As pointed out, the graphical use of vectors helps the investigator visualize the momentum components and understand better the conservation concept and its application in accident reconstruction.

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The slip and fall section is the best treatise on the subject that we have found. Although no clear consensus exists on the friction cutoff point for “safe” and “unsafe” surfaces, or on whether the static or dynamic friction should be applied or how the friction level should be measured, the authors fully explained these differences, as well as the slip mechanisms.

In summary, this is a “thumbs up” text that should be added to every forensic engineer’s library. It should not be the first or second text that a novice investigator purchases, nor should it be purchased as a reference text with the expectation of finding a formula for or solution to all reconstruction problems. If you have it, you will use it, and at some point, you will reference it as an authoritative text.