

-- Overview --

The first and only comprehensive textbook on large truck safety.
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Safety for the Long Haul

Large Truck Crash Risk, Causation, & Prevention

by
Ronald R. Knipling, Ph.D.

Publisher & Sponsor

American Trucking Associations (ATA).

Target Audiences

The primary audience is carrier safety directors and other managers of medium-to-large trucking fleets. Additional audiences include transportation safety professionals in government, academia, industry trade associations, and in other transportation modes. To communicate effectively with these audiences, the book is written in a direct, informative, and readable style, but also with technical rigor and accuracy.

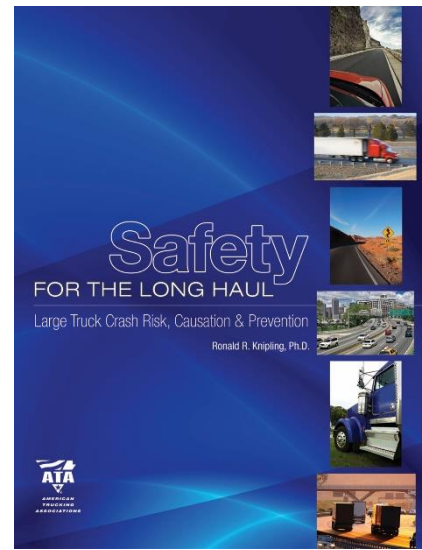
Purposes

An authoritative, useful, influential, and enduring text which:

- Summarizes and explains major truck safety *facts and principles*.
- Reviews and explains *countermeasures and interventions*, with emphasis on carrier safety management but including technologies, industry practices, and government policies.
- Articulates the opportunity and need for a *national shift* toward proactive risk reduction, focus on driving behaviors, and application of emerging technologies.

Features

- *Comprehensive and multifaceted.* Thirteen chapters cover more than 100 large truck safety topics.
- *Incisive but non-technical.* Written at the level of a college survey course, with emphasis on brevity, accuracy, and hitting the highlights.
- *Topical organization.* Can be read in its entirety or used selectively like an encyclopedia.
- *Visual presentations.* More than 175 illustrations and another 150 tables and textboxes.
- *Reference citations.* Nearly 400 citations, many with web access addresses.
- *Expert commentaries.* Eighteen guest commentaries from top truck safety experts.
- *Glossary, subject index, & truck safety website list.*



Book Review Excerpts from Heavy Duty Trucking Magazine (March 2009)

Every truck safety professional in the country should read this book. And every trucking company owner or chief executive, upon whom the ultimate responsibility for safety lies, should be familiar with it. And so should the next chief of the Federal Motor Carrier Safety Administration. . . What Ron Knipling . . . has attempted here is to put forth in one document, for the first time, the current best understanding of the theory and practice of truck safety . . . Knipling's style is straightforward and efficient, and he has a passion for the subject that carries him through.” Oliver B. Patton, Washington Editor

Book Receives International Award (December 2010)

On December 1, 2010 in Brussels, the **International Road Transport Union (IRU)** awarded Dr. Knippling its Order of Merit for writing *Safety for the Long Haul*. He is the first American scientist to receive this award. At the ceremony, IRU President Janusz Lacny highlighted this “impressive road safety work, which helps address the main causes of accidents involving heavy commercial vehicles . . . “

Book Outline

(1) **Introduction & Overview** [30 pages]

- 1.1 Purpose & Approach
- 1.2 The Importance of Commercial Transport & Safety
- 1.3 Crash Problem Size: Trucks Compared to Other Vehicle Types
- 1.4 Major Characteristics of Truck Crashes
- 1.5 Concepts of Crash Risk & Causation

(2) **The Science of Safety** [36 pages]

- 2.1 Experimentation
- 2.2 Crash Databases
- 2.3 The LTCCS & Other Investigative Studies
- 2.4 Case-Control & Correlational Studies
- 2.5 Naturalistic Driving (Instrumented Vehicle) Studies
- 2.6 Surveys
- 2.7 Methods of Safety Science: Summary Comparisons

(3) **Driver Risk** [46 pages]

- 3.1 Personal vs. Situational Risk Factors
- 3.2 Differential Driver Risk & The “High Risk” Driver
- 3.3 Driver Age
- 3.4 Driver Gender
- 3.5 Physical & Sensory-Motor Abilities
- 3.6 Medical Conditions & Health
- 3.7 Personality
- 3.8 Psychiatric & Behavioral Disorders
- 3.9 Nature or Nurture?
- 3.10 Behavioral History & Indicators
- 3.11 Interaction with Temporary & Situational Factors
- 3.12 Implications for Management

(4) **Driver Error** [44 pages]

- 4.1 Categories & Types of Errors
- 4.2 LTCCS Findings on Driver Error
- 4.3 Naturalistic Driving Findings
- 4.4 Misbehaviors vs. Mistakes as Crash Causes
- 4.5 The Ubiquitous Misbehavior: Speeding
- 4.6 The Ubiquitous Mistake: Inattention
- 4.7 The “Crash Trifecta”

(5) **Driver Fatigue** [68 pages]

- 5.1 Driver Fatigue: The Elephant in the Room?
- 5.2 Characteristics of Driver Fatigue & Fatigue Crashes
- 5.3 How Many Crashes?
- 5.4 Differential Driver Risk: Fatigue Susceptibility
- 5.5 The Alertness Rollercoaster: Temporal Factors Affecting Fatigue & Alertness
- 5.6 Hours-of-Service & Fatigue
- 5.7 Improving Driver Sleep & Alertness

- (6) 4-Wheelers [32 pages]**
 - 6.1 Relative Harm in Car-Truck Crashes
 - 6.2 Relative Fault in Car-Truck Crashes
 - 6.3 4-Wheeler Actions & Errors Causing Crashes
 - 6.4 Large Trucks in the Greater Context of Traffic Safety
 - 6.5 Defensive Truck Driving

- (7) Vehicle Design & Technologies [62 pages]**
 - 7.1 Vehicle Safety: More Important for Trucks than Cars
 - 7.2 Large Truck Braking & Stability
 - 7.3 Visibility
 - 7.4 Conspicuity
 - 7.5 Collision Warning Systems
 - 7.6 Electronic Onboard Recorders (EOBRs)
 - 7.7 Driver Behavior Monitoring Systems
 - 7.8 The Promise of Alertness Monitoring
 - 7.9 Automated Transmissions & Monitors
 - 7.10 Speed Limiters
 - 7.11 Carrier Adoption of New Technologies

- (8) The Roadway & Traffic Environment [32 pages]**
 - 8.1 Problematic Aspects of Truck & Roadway Design
 - 8.2 Undivided Highways
 - 8.3 Work Zones
 - 8.4 Dense Traffic & Rush Hours
 - 8.5 Night Driving
 - 8.6 Adverse Weather
 - 8.7 Road Policies Relevant to Trucks
 - 8.8 Infrastructure & Safety

- (9) Focus: Selected Crash Types [38 pages]**
 - 9.1 Road Departure Crashes
 - 9.2 Head-On Crashes
 - 9.3 Rollovers
 - 9.4 Jackknives & Other Loss-of-Control Crashes
 - 9.5 Rear-End Crashes
 - 9.6 Lane Change/Merge Crashes
 - 9.7 Backing Crashes
 - 9.8 Crossing Path Collisions

- (10) Carrier Safety Management [52 pages]**
 - 10.1 Safety Problems Managers Must Address
 - 10.2 Overview: Safety Management Practices & Goals
 - 10.3 Driver Recruiting & Selection
 - 10.4 Driver Training
 - 10.5 Driver & Carrier Safety Evaluation
 - 10.6 Behavior-Based Safety Management
 - 10.7 A Management-Driver Safety Performance Matrix
 - 10.8 Safety Culture & Management Professionalism

- (11) Special Topics in Carrier Operations & Safety [48 pages]**
 - 11.1 Type of Carrier Operation
 - 11.2 Truck Type & Size
 - 11.3 Driver Retention

- 11.4 Driver Pay
- 11.5 Increasing Safety Belt Use
- 11.6 Reducing Non-Driving Injuries
- 11.7 Team Driving
- 11.8 Dispatching Policies & Practices

(12) What About Regulation, Enforcement, & Compliance? [46 pages]

- 12.1 A Compliance Hierarchy
- 12.2 Regulatory Enforcement I: Basic Concepts
- 12.3 Regulatory Enforcement II: Efficient & Strategic Enforcement
- 12.4 Traffic Enforcement
- 12.5 The Limitations of Enforcement
- 12.6 Alternative Compliance Schemes
- 12.7 Government-Industry Cooperation

(13) Beyond Compliance [44 pages]

- 13.1 From Compliance to Active Safety
- 13.2 Targeting High-Risk Drivers
- 13.3 Sustaining Good Drivers
- 13.4 Risk Avoidance
- 13.5 Advanced Countermeasures
- 13.6 Going Forward.

Appendices

- A. Acknowledgements
- B. Biographies of Expert Commentators & the Author
- C. Glossary [74 Definitions] & Acronyms
- D. Cited References [382]
- E. Truck-Safety-Related Websites
- F. Subject Index

Expert Commentaries

- Dr. Greg Belenky, Washington State University; *Interacting Factors That Increase Fatigue* (Chapter 5)
- Dan Blower, UMTRI; *Maintain Key Truck Systems for Safety* (7)
- Roger Clarke, Alberta Transportation; *Making “Beyond Compliance” a Reality* (12)
- Dr. Leonard Evans, Science Serving Society; *Driver Behavior, Traffic Safety, & Truck Safety* (6)
- Governor Bill Graves, ATA; *ATA’s Commitment to Safety* (1)
- Dr. Rich Hanowski, VTTI; *When Driving, Vision is King* (4)
- Bob Inderbitzen, REI Safety Services; *A Personal Commitment to Safety Professionalism* (10)
- Steve Keppler, CVSA; *Technology, Data, Performance and Innovation -- the Next Great Frontiers for Safety* (12)
- Dr. Peter Kissinger, AAA Safety Foundation; *Safety Culture: Putting the Brakes on the Nation’s Complacency* (13)
- Dr. Jerry Krueger, Krueger Ergonomic Consulting; *Hints for Healthy, Fit Commercial Drivers* (5)
- Gordon Lambert, C. R. England; *Putting Safety Research and Statistics to Work* (2)
- Dr. Brenda Lantz, NDSU; *What Driver Records Tell Us* (3)
- Dave Osiecki, ATA; *The Motivators of Carrier and Driver Safety* (13)
- Don Osterberg, Schneider National; *Job Value and Driver Retention* (11)
- Doug Pape, Battelle; *Reduce Rollovers with Electronic Stability* (9)
- Dave Parker, Great West; *Carrier Safety: An Insurance Company Perspective* (10)
- Larry Shelton, Old Dominion Freight Lines & America’s Road Team; *Defensive Driving* (6)
- Steve Williams, Maverick USA, Inc.; *Visionary Thinking Means Embracing Technology* (7)

Book Availability

The book is available through **ATA Business Solutions** (www.atabusinesssolutions.com). Or call ATA at (866) 821-3468 (toll free). Price: \$119.00 (ATA members, government), \$159.00 (non-members). For international shipping inquiries, call 1-703-838-1700 or e-mail orders@trucking.org.

Author Information

Dr. Ron Knipling has 30+ years' experience in traffic safety R&D with emphasis on driver human factors and motor carrier safety. He has authored more than 130 publications, and made more than 100 conference presentations, most related to large truck safety. His specialty areas include driver risk, crash causation, driver fatigue, hours-of-service, and carrier safety management. He also has extensive experience in research, crash data analysis, technology assessment, and training. Dr. Knipling has held senior university, government, and consulting positions. He works as an independent truck and road safety researcher, consultant, and trainer. He resides near Washington, DC.

Training Seminars

We have developed a series of six seminar presentations based on key areas of the book, and on new research completed since the book's publication. Each presentation consists of 30-45 slides with graphics and illustrations primarily from the book. There are also checks on learning and discussion questions to stimulate active student participation. Tests may be included if desired. The presentations, each designed for 60-90 minutes of instruction, include the following:

- Module A: *Introduction & Overview*
- Module B: *Crash Risk Factors*
- Module C: *Crash Causes*
- Module D: *Driver Fatigue & Alertness*
- Module E: *Carrier Safety Management*
- Module F: *Beyond Compliance: Comprehensive Risk Management*

Safety for the Long Haul training has been provided to both Con-way Freight and J. B. Hunt for their safety managers. Book-based topics were integrated with those companies' existing training programs. Dr. Knipling is available on a contract basis to provide similar training for other organizations. Training can be customized to an organization's unique safety needs based on its operations and safety risks. Dr. Knipling can conduct seminars solo, or team teaching with an organization's own senior safety experts. Contact us to discuss options.

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