

“Heavy Truck Crashworthiness – Case Studies of Heavy Truck Accidents Involving Truck Occupant Fatality,” *Proceedings, 15th International Technical Conference on the Enhanced Safety of Vehicles, Melbourne, Australia, May, 1996* (with S.M. Werner, T.P. Khatua, R.M. Ray and E.C. Lau).

Abstract. The Society of Automotive Engineers (SAE) initiated a research program to evaluate heavy truck crashworthiness, with the goal of using that information to evaluate truck occupant protection. Phase I of this crashworthiness program entailed development of characteristic crash pulses and analysis of occupant dynamics for heavy truck accidents involving truck occupant fatalities. This paper is part of a series of reports documenting the Phase I results of the SAE heavy truck crashworthiness study. It presents the findings from an in-depth review of the case files for 182 fatal-to-the-driver heavy truck accidents from the National Transportation Safety Board (NTSB). Statistical analysis showed that this NTSB case study is representative of heavy truck accidents involving truck occupant fatalities. Five prominent accident scenarios were identified, containing combinations of three major accident events: 1) rollover, 2) collision with fixed object, and 3) collision with motor vehicle. Detailed analysis of these NTSB cases revealed trends in damage patterns and ranges of severity associated with these prominent accident scenarios.