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D. Theodore Zinke
Mechanical Engineer

Automotive Safety Research, Inc. 1999 - Present

Restraint system design and performance analysis, product defect investigation, accident reconstruction, and general traffic safety consultation. Areas of emphasis include airbag restraint systems, crash sensor performance, module design, occupant packaging, inflation induced injuries and overall vehicle/restraint system crash performance. Evaluation and analysis of the technical issues of litigation cases, as well as expert testimony.

AVS Technologies 1992 - 1999

Consultant to automotive industry in restraint system design and development; analysis of vehicle safety system performance relative to occupant injuries and human impact tolerance; computer modeling of vehicle impact phenomenon; vehicle crash and crash simulation testing; analysis and specification of restraint system component performance; investigation, reconstruction and analysis of motor vehicle field accidents.

Breed Automotive Corporation 1986 - 1991

Director of Restraint System Design for a major automotive industry component supplier. Responsibilities included: Development of driver and passenger airbag restraint systems; component design and testing; evaluation of system performance through sled and crash test analysis; study of crash induced forces and accelerations relative to occupant injury and human impact tolerance; computer modeling of seat belt and inflatable restraint systems; administrative and technical management of specific customer programs involving restraint system development.

Consultant 1981 - 1986

Vehicle restraint system and accident analysis; evaluation and validation of National Highway Traffic Safety Administration ("NHTSA") computer models for driver and passenger seat belt and airbag systems. Automotive supplier and research consultant for various restraint system development projects.

Accident investigation, technical analysis and reconstruction of motor vehicle collisions including vehicle speeds, pre-impact maneuvering, impact severity, post-impact trajectories, occupant movements and interactions within the vehicle, and injuries sustained by occupants. Computer analysis of vehicle accidents.

MCR Technologies 1977 - 1981

Program Manager for various Department of Transportation (NHTSA) automobile occupant safety system development contracts. Responsibilities included: Design, implementation and testing of advanced restraint system concepts (airbags, seat belts, side and rear impact protection); supervision and subsequent data analysis of vehicle crash and crash simulation testing; analysis of restraint system performance relative to human impact tolerance and potential for injury; use of computer modeling in the design and analysis of occupant restraint systems; program management.

Education: University of California at Santa Barbara

BSME 1973; Chosen by the Faculty as the Outstanding Graduate in Mechanical Engineering, 1973;

MSME 1975; University of California Fellowship, 1973-74

Publications:

1. "Small Car Driver Inflatable Restraint System Evaluation," Final Report, (with C. Strother, et al), U.S. Department of Transportation Contract DOT-HS-6-01412, Report #DOT HS 805-053, DOT HS 805-054, DOT HS 805-055, July 1978.

2. "Development of Air Cushion Restraint Systems for Small Car Front Seat Occupants," SAE Technical Paper 800294, February 1980.

3. "A Systems Analysis Approach to Air Bag Design and Development," Eighth International Conference on Experimental Safety Vehicles, October 1980.

4. "Chevrolet Citation Crash Test with Air Bags," Final Test Report, (with U. Seiffert, et al), Volkswagenwerk, A.G., Wolfsburg, Germany, November 1980.

5. "Small Car Front Seat Occupant Inflatable Restraint System Evaluation," Final Report, U.S. Department of Transportation Contract DOT-HS-8-01809, Report #DOT HS 805-943, DOT HS 805-944, April 1981.

6. "Upgrade the 1975 Volvo Production Restraint Systems," Final Report, (with M. Foster, et al), U.S. Department of Transportation Contract DOT-HS-02178, Report #DOT HS 805-960, May 1981.

7. "Validate the Passenger Air Cushion (PAC) Computer Program," (with M. Fitzpatrick, et al), U.S. Department of Transportation Contract DOT-HS-02178, December 1981.

8. "Design and Fabricate Restraint system Fabric Membrane Components," Final Report, U.S. Department of Transportation Contract DTNH22-82-0718, June 1982.

9. "Passenger Air Cushion (PAC) Computer Model Validation Study," Final Report, U.S. Department of Transportation Contract DTNH22-82-P-07337, Report #DOT HS 806 520, August 1982.

10. “Air Bag Surface and Geometric Investigation Techniques,” (with W. G. Broadhead), Proceedings of the American Academy of Forensic Sciences, 50th Anniversary Meeting, Volume IV, February 1998.

11. “Airbag Inflators,” (with W. G. Broadhead) BED-Vol. 43, 1999 Advances in Bioengineering ASME 1999.