DAVID JAMES BISS **CURRICULUM VITAE**

PROFESSIONAL EXPERIENCE

Automotive Safety Analysis Corporation – 1982 to present: Automotive Safety Engineering and Analysis, Expert Investigations, Research and Development in Occupant Protection, Vehicle Crashworthiness and Accident Reconstructions.

- Contract Test Manager for the 35 mph NCAP Test of the New Generation Chrysler L/H Car conducted for the Center for Auto Safety.
- For a major automobile manufacturer, conducted an in-depth analysis of cars tested in the NHTSA New Car Assessment Program to determine existing occupant protection performance levels and to establish improvements.
- Conducted, for a number of major automotive component suppliers, R & D programs to develop both state-of-the-art and advanced occupant protection systems.

Volvo Car Corporation, AB; Göteborg, Sweden - 1983-84: Resident Research Engineer and Systems Analyst for R & D Programs in Automotive Safety Advanced Engineering.

- Established in Advanced Engineering the computer-based analytical capabilities to design and evaluate the performance of automotive safety systems, including occupant restraint systems. Trained Volvo engineering personnel in the use of these systems analysis techniques in the design of air cushion restraint systems.
- Performed in-depth analysis with the extensive on-site library of crash test evaluation data as the basis for establishing safety performance improvements, and further, recommended specific hardware design changes to improve the performance of both existing and future car models.

U. S. Department of Transportation, NHTSA - 1976 to 1982: Manager; Research and Development Programs, Contract Research, Established and Planned Research Programs; Staff Physical Scientist.

- Had overall management authority for a wide spectrum of in-agency and contracted-out Research, Development, and Effectiveness Evaluation Programs in the areas of crashworthiness, occupant packaging, padding, structures, air cushion and belt restraints. Also, performed numerous in-house research studies.
- Responsible for determining the causes of automobile crash related deaths and injuries using field accident fatality and injury data, and test results from numerous research programs; and, for the implementation and management of R & D programs to develop countermeasures for injury prevention and severity reduction. Performed accident reconstructions via full-scale crash tests, sled tests and computer simulations using CRASH, SMAC and Crash Victim Simulator (CVS) models.
- Active participant in the worldwide automotive safety community who maintained executive and working level contacts with respected scientists, research facilities and automobile companies around the world. Initiated both formal and informal cooperative R & D programs with: Mercedes-Benz, N.A.; A.B. Volvo, Sweden; Honda Motor Company, Ltd.; Robert Bosch, GmbH.; Volkswagenwerk, A.G.; and Ford Motor Company. As a representative of the United States, supervised, in Germany, the full-scale crash test conducted at the 8th International Experimental Safety Vehicle Conference.
- Was a lead technical researcher for Advanced Restraints within NHTSA including the crash test matrix of 26 Volvo cars equipped with advanced restraints. Mr. Biss was also a key participant in the NHTSA's Technical Committee on the Theories of Injury to Small Children in Crashes of Automobiles with Automatic Restraints.
- Initiated and directed the development of computer-based systems techniques for the analysis of complex crash dynamics problems. Also directed the formulation of user convenience packages of "friendly" software and hardware for the above models to facilitate their use in accident/injury reconstruction problems.

Cornell Aeronautical Laboratory (now Calspan Corporation), Buffalo, NY; 1972 - 1974: Staff Mechanical Engineer. Performed Research and Development in many areas of automotive safety including high-speed crashworthiness, occupant crash protection, side impact countermeasures, statistical effectiveness, damageability consumer acceptance and accident investigations. Responsible for Government-contractor technical relations.

PROFESSIONAL EXPERIENCE (continued)

The Pennsylvania State University, Transportation and Traffic Safety Research Center – 1969 to 1972: Research Associate. Performed original research into the causes of bridge decks selectively freezing before roadways. Designed the research approach and carried out the extensive field work and data collection required by this first-of-a-kind study including extensive skid resistance measurements on different roadway surfaces.

HRB-Singer, Inc., State College, PA - 1966 to 1968: Mechanical Design Engineer. Lead mechanical designer on a project to develop a highway bridge clearance measuring instrument and performed field trials of the device. Measurements of roadway parameters which affect vehicle performance. Designed infrared optics and instruments.

TRANSPORTATION AND MANAGEMENT EXPERIENCE

Bechtel Inc., Gaithersburg, Maryland - 1974 to 1976: Senior Transportation Program Analyst; Corporate Liaison; Contract Negotiator; Director, Information Systems, USRA Records; Engineering Systems Analyst.

- Responsible for Corporate Liaison between the U.S. Railway Association, the Northeast Railroads and six large engineering firms. Contract Negotiator involved in the negotiations to implement the Railway Rehabilitation Act in 1974. In the cost and work estimating procedure, supervised the verification of 2 million items of documentation representing over $2.5 Billion in estimated rehabilitation work.

- Performed the environmental/energy impact assessment of the Washington to Boston Passenger Rail Upgrade Project. Compiled the construction specifications and final system design and reviewed the cost estimates for consistency and accuracy.

EDUCATION

- M. Eng., Civil Engineering (Transportation Planning Option); The Pennsylvania State University, 1972.
- B. S., Mechanical Engineering; The Pennsylvania State University, 1969.
- B. S., Business Communications (Minors: Business Management/Public Affairs); The University of Maryland, 1980.

TRAINING

- Nineteenth Annual Product Liability Conference; Product Safety and Liability Prevention for Engineers; University of Wisconsin – Madison, Presenter – "Concepts and Embodiments of 'Quality' to Minimize Product Liability Exposure", September 19-21, 2007; 1.5 CEU.
- Eighteenth Annual Product Liability Conference; Product Safety and Liability Prevention for Engineers; University of Wisconsin –Madison, November 8-10, 2006; 1.5 CEU.
- The Role of Warnings and Instructions; Product Liability Loss Prevention Seminar; University of Wisconsin – Madison, September 20-22, 2006; 1.3 CEU.
- Failure Mode and Effects Analysis in Design and Development, Society of Automotive Engineers, 1988.
- Computer Aided Design (CAD), Society of Automotive Engineers, 1987.
- Head and Neck Injury Criteria Workshop, U.S. Department of Transportation, NHTSA, 1981.
- Statistics for Analysts, U.S. Department of Transportation, NHTSA 1979.
- Business Management, Operations Research and Statistical Methods, University of Maryland, 1979.
- Computer Graphics State-of-the-Art, National Computer Graphics Association, 1982.

HONORS AND AWARDS

1981 - NHTSA Outstanding Performance Award and Promotion.
1980 - Graduated with Honors, The University of Maryland.
1978 - NHTSA Administrator's Award for Merit.
1977 - NHTSA Quality Performance Promotion.
1976 - Special Service Award From the School of Journalism, The University of Maryland.
1968 - Dean's List, five terms at Penn State.
1967 - Tau Beta Pi Engineering Honorary Initiation.

ASSOCIATIONS

- Society of Automotive Engineers (SAE)
- Association for the Advancement of Automotive Medicine – Life Member (AAAM)
- American Society of Mechanical Engineers (ASME)
- American Society for Quality
- American Statistical Society
- American Association for the Advancement of Science (AAAS)
- American Welding Society
- American Society of Testing & Materials (ASTM)

PUBLICATIONS

Have written over 17 publications and reports on the subjects of: Automotive and Highway Safety, Energy Analysis, Mass Transportation and Environmental Impact Assessment; and, directed over 30 R & D programs resulting in substantial contributions to 35 more publications.

TECHNICAL PUBLICATIONS

- Werz, Martin; Biss, David J.; "The Performance of Seat Backs in High Speed Rear Impacts and the Effect to the Occupant:" George Washington University, NCAC; Collision Magazine; www.collisionpublishing.com; Volume 6, Issue 1; Pages 100-113, June 2011.
- Biss, David J. and Stucki, Shelton Lee, "A Study of the NASS-CDS System for Injury/Fatality Rates of Occupants in Various Restraints and a Discussion of Alternative Presentation Methods," 44th Annual Proceedings, Association for the Advancement of Automotive Medicine, October 2-4, 2000, Chicago, Illinois
- Biss, D.J., Husted, Daniel C. and Heverly, David E, "The Appropriate Use of 'Delta-V' in Describing Accident Severity," SAE Paper No. 1999-01-1295, SAE International Congress and Exposition, Detroit, MI, March 1999.
- Biss, David J., Heverly, David E. and Husted, Daniel C., "Selecting a Vehicle Speed Change Calculation Procedure for Accident Severity Assessment," Accident Investigation Quarterly, Summer 1998
- Biss, D.J., "Relating Three-Point Belted Vehicle Occupant Kinematics and Dynamics to Case Accident Injury Patterns and Forensic Evidence," 42nd Annual Meeting of American Academy of Forensic Sciences, Cincinnati, OH, February 19-24, 1990.
- Biss, D.J., "Investigation, Evaluation and Development of Advanced Concepts in Three-Point Belt Comfort Enhancement Devices," Proceedings of the Twelfth International Technical Conference on Experimental Safety Vehicles, Göteborg, Sweden, May 29-June 1, 1989.
- Biss, D.J., "Safety Performance Evaluation of Slack Effects in Three-Point Safety Belts Using the Hybrid III Dummy in Frontal and Frontal Oblique Sled Tests," Sixteenth Annual International Workshop on Human Subjects for Biomechanical Research, Atlanta, GA, October 16, 1988.
- Biss, D.J. and Pompa, J.A., "A Kinematic and Dynamic Analysis of Occupant Responses to Lap Belt Only Restraint Forces," Proceedings of the 31st Annual Conference of the American Association of Automotive Medicine, New Orleans, LA, September 27-30, 1987.
- Biss, D.J., Romeo, D.J., and Peterson, B.S., "The Biokinematical Limits of Air Bag Protection of Small Car Occupants in Oblique Impacts," SAE Paper No, 870330, SAE International Congress and Exposition, Detroit, MI, February 1987.
- Biss, D.J., Mellander, H. and Skotte, L-G., "The Use of the DRACR Airbag Simulation Model as a Design Tool," Proceedings of the Tenth International Conference on Experimental Safety Vehicles, Oxford, U.K., July 1-4, 1985.
- Biss, David James; Corporate Author, Volvo Car Corporation; "Analysis of Three Cars Tested in the NHTSA New Car Assessment (NCAP) Program", A Report for Volvo of America, Rockleigh, N.J. and Volvo Car Corporation, Göteborg, Sweden, April 1983.
- Biss, D.J. and Fitzpatrick, M.U., "A Systems Approach of Quantifying Air Bag-Thoracic Interaction," Proceedings, American Association for Automotive Medicine, San Francisco, CA, October 1-3, 1981.
- Biss, D.J. et al., "A Systems Approach to Air Bag Design and Development," Proceedings of The Eighth International Conference of Experimental Safety Vehicles, Sponsored by the Government of the Federal Republic of Germany, and The U.S. Department of Transportation, Wolfsburg, West Germany, October 21-24, 1980.
- Biss, D.J., Zinke, D.T., Seiffert, U. and Rosenau, W., "Chevrolet Citation Crash Test with Air Bags," Final Test Report, Volkswagenwerk, A.G., Wolfsburg, West Germany, November 1980.
- Biss, D.J. and Enserink, B., "Field Accident Investigation of an Out-of-Position Driver in an ACRS-Equipped Oldsmobile," NHTSA Technical Report No. DOT-HS-802-315, National Highway Traffic Safety Administration, Office of Passenger Vehicle Research, Washington, DC, May 1977.
- Biss, D.J. and Shoemaker, N.E., "Development of an Air Bag on Collapsible Dashpanel Restraint System for the Right Front Seat Passenger," SAE Report No. 740576, Third International Conference on Occupant Protection, Society of Automotive Engineers, Troy, MI, July 1974.
- Biss, D.J. and Shoemaker, N.E., "Investigation of New Concepts of Air Bag Restraint Systems for Front Seat Occupants," Calspan Report No. ZM-5115-V-1, Contract No. DOT-HS-053-2-280, Calspan Corporation, Buffalo, NY, October 1973.

TECHNICAL PUBLICATIONS (Cont.)

- Biss, D.J., Meyer, W.E. and Birnie, C., “Bridge Deck Deicing Study – Phases A and B, Field Data Collection Activities,” TSC Reports No. 7014 and 7107, Pennsylvania Transportation and Traffic Safety Center, University Park, PA, August 1970 and September 1971.

RESEARCH AND DEVELOPMENT CONTRACTS DIRECTED

- Fitzpatrick, M.U., "Systems Analysis Approach to Integrating Air Bags into a Production Ready Small Car - Computer Design for Crash Tests," Fitzpatrick Engineering, NHTSA Contract No. DTNH22 -81-C-07330, U.S. Department of Transportation, Washington, DC, November 1981.
- Fitzpatrick, M.U., "Systems Analysis Approach to Integrating Air Bags into a Production Ready Small Car - Computer Design for Crash Tests Data," NHTSA Contract No. DTNH22-81-C- 07557, Fitzpatrick Engineering Second Progress Report, U.S. Department of Transportation, Washington, DC, January 1982.
- Segal, D.J. and Balasubramanian, N., "Development of User Convenience Pre- and Post-Processing Programs for the CAL-3D CVS Model," MGA Research Corporation, Buffalo, N.Y., NHTSA Contract No. DTNH22-81-C-074361, U.S. Department of Transportation, Washington, DC, December 1981.
- Segal, D.J. and Balasubramanian, N., "Development of Interactive Graphics Programs for the CAL-3-D CVS," MGA Research Corporation, Buffalo, N.Y., MGA Report No. G9-077, NHTSA Purchase Order No. NHTSA-9-6797, U.S. Department of Transportation, Washington, DC, May 1980.
- Broadhead, W., "Upgrade Volvo Production Restraints - Belts and Air Bags," Minicars, Inc., Contract No. DOT-HS-9-02178, NHTSA Report no. DOT-HS-805-960, U.S. Department of Transportation, Washington, DC, June 1981.
- Zinke, T., "Small Car Front Seat Inflatable Occupant Restraint Systems - Omni and Chevette Systems, Vol. 1," Minicars, Inc., NHTSA Report No. DOT-HS-805-943, U.S. Department of Transportation, Washington, DC, July 1981.
- Zinke, T., "Small Car Front Seat Inflatable Occupant Restraint Systems - Citation System, Vol. II," Minicars, Inc., NHTSA Report No. DOT-HS-805-944, U.S. Department of Transportation, Washington, DC, July 1981.
- Fitzpatrick, M.U., "Development of DEPLOY Computer Math Model for the Investigation of Various Air Bag and Crash Parameters on the Out-of-Position Child, Fitzpatrick Engineering, NHTSA Report No. DOT-HS-805-696, U.S. Department of Transportation, Washington, DC, December 1980.
- Fitzpatrick, M.U., "Development of the Driver Air Cushion - Rotation (DRACR) Computerized Math Model of an Ellipsoidal Air Bag Reacting in two Dimensions on a Product Type Steering Assembly," Fitzpatrick Engineering, NHTSA Contract No. DOT-HS-805-696, U.S. Department of Transportation, Washington, DC, July 1981.
- Fitzpatrick, M.U., "Development of the Driver Air Cushion - Rotation (DRACR) Computerized Math Model," Fitzpatrick Engineering, NHTSA Contract No. DTNH22-80-C-07120, U.S. Department of Transportation, Washington, DC, August 1981.
- Fitzpatrick, M.U., "Development of the Passenger Air Cushion (PAC) Computer Model," Fitzpatrick Engineering, NHTSA Contract No. DTNH22-80-C-07120, U.S. Department of Transportation, Washington, DC, August 1981.
- Fitzpatrick, M.U., "Computer Prediction of the Degree of Injury Received by a Forward Position Child Due to Air Bag Deployment Forces," Fitzpatrick Engineering, NHTSA Contract No. DTNH22-80-P-07214, U.S. Department of Transportation, Washington, DC, June 1981.
- Broadhead, W. and Gunduz, A., "Passive Restraint Development of Light Trucks and Vans," NHTSA Report No. HS-805-623, U.S. Department of Transportation, Washington, DC, August 1980.
- Strother, C. and Zinke, D.T., "Small Car Driver Inflatable Restraint System Evaluation - Developing a Low Mount Passenger Air Bag for the Vega Subcompact Vehicle, Vol. IV," Minicars, Inc., NHTSA Report No. DOT-HS-805-055, U.S. Department of Transportation, Washington, DC, July 1978.
- Wolfe, R.J., "Test and Evaluation of a Programmable-Multilevel Air Bag Trigger System," Summary Report, Computer Technology Application Corporation, NHTSA Contract No. DTNH22-81-P-07551, U.S. Department of Transportation, Washington, DC, November 1981.
- Shadlesky, P.S., "Computer Simulation of the Pyrotechnic Inflator For Automobile Inflatable Restraint System." Final Report for U.S. DOT/NHTSA, Contract No. DTNH22-81-C-07001, Thiokol Corporation, April 1982.

RESEARCH AND DEVELOPMENT CONTRACTS DIRECTED
(continued)

- Fitzpatrick, M.U., "Comprehensive Documentation on Driver (DRACR) and Passenger (PAC) Air Bag Computer Models," NHTSA Contract No. DTNH22--81-C-07550, Fitzpatrick Engineering, CONTRACTS U.S. Department of Transportation, Washington, DC, December 1981.
- Syson, S.R., Fitzpatrick, M.U. and Zinke, D.T., "Validate the Passenger Air Cushion (PAC) Computer Program," Minicars, Inc., NHTSA Report No. DOT-HS-9-02178, U.S. Department of Transportation, Washington, DC, January 1982.
- Fitzpatrick, M.U., "Validate DRACR Model With Experimental Results," Final Report, Fitzpatrick Engineering, NHTSA Contract No. DTNH22-81-P-07566, U.S. Department of Transportation, Washington, DC, January 1981.
- Fleck, J., "Investigate the Feasibility of Integrating the PAC and DRACR Models into the CAL-300 Model," Final Report, J&J Technologies, U.S. Department of Transportation, Washington, DC, November 1981.
- Fitzpatrick, M.U. and Pauls, L.S., "Validate DRACR Model with Experimental Results," Final Report, Fitzpatrick Engineering, NHTSA Report No. DTNH22-81-P-07566, U.S. Department of Transportation, Washington, DC, November 1981.
- Broadhead, W., "DRACR Validation Using Volvo Upgrade Results," Final Report, NHTSA Contract No. DTNH22-81-P-07524, U.S. Department of Transportation, Washington, DC December 1981.
- Fitzpatrick, M.U., "Vehicle Integration and Evaluation of Advanced Restraint Systems - Summary of Volvo Advanced Restraints Tests," Fitzpatrick Engineering, NHTSA Report No. DOT-HS-803-343, U.S. Department of Transportation, Washington, DC, December 1977.
- Carr, R., "Vehicle Integration and Evaluation of Advanced Restraint Systems - Vol.I, Phase A." Dynamic Science, NHTSA Report No. DOT-HS-802-829, U.S. Department of Transportation, Washington, DC, December 1977.
- Carr, R., "Vehicle Integration and Evaluation of Advanced Restraint Systems - Vol.II, Phase B." Dynamic Science, NHTSA Report No. DOT-HS-802-830, U.S. Department of Transportation, Washington, DC, December 1977.
- Carr, R., "Vehicle Integration and Evaluation of Advanced Restraint Systems - Vol.III, Phase C." Dynamic Science, NHTSA Report No. DOT-HS-803-594, U.S. Department of Transportation, Washington, DC, December 1977.
- Human, K., "Subcompact Vehicle Energy-Absorbing Steering Column Evaluation and Improvement - Executive Summary," Minicars, Inc., NHTSA Report No. DOT-HS-805-073, U.S. Department of Transportation, Washington, DC, July 1979.
- Human, K., "Subcompact Vehicle Energy-Absorbing Steering Column Evaluation and Improvement," Minicars, Inc., NHTSA Report No. DOT-HS-805-077, U.S. Department of Transportation, Washington, DC, July 1979.
- Khadilkar, A., "Subcompact Vehicle Energy Absorbing Steering Column Evaluation and improvement - Engineering Report, Vol. I," Minicars, Inc., NHTSA Report No. DOT-HS-805-074, U.S. Department of Transportation, Washington, DC, June 1979.
- Khadilkar, A., Egbert, T., Humann, K. and Phillips, L., "Subcompact Vehicle Energy Absorbing Steering Column Evaluation and Improvement - Statistical Analysis Results, Vol. II," Minicars, Inc., NHTSA Report No. DOT-HS-805-075, U.S. Department of Transportation, Washington, DC, June 1979.
- Khadilkar, A. and Humann, K., "Subcompact Vehicle Energy Absorbing Steering Column Evaluation and Improvement -Detailed Results, Vol., III," Minicars, Inc., NHTSA Report No. DOT-HS-805-076, U.S. Department of Transportation, Washington, DC, June 1979.
- Zinke, T.D.; Foster, M; "Upgrade the 1975 Volvo Production Restraint Systems," Final Report; U.S. Dept. of Transportation/NHTSA; Contract DOT-HS-02178; Report No. DOT-HS-805-960, May, 1981.

TRANSPORTATION PUBLICATIONS

- Biss, D.J., et al., "Northeast Corridor High-Speed Passenger Rail Service Improvement Project; Task 11S-Improvement Plan for Physical Plant with Estimated Costs," Report FRA-ONECD-73-11S, Vol. 1, Contract No. FR-40027, Bechtel, Inc., Gaithersburg, Maryland, April 1975.
- Biss, D.J., et al., "Northeast Corridor High-Speed Passenger Rail Service Improvement Project; Task 9-Technical and Economic Analysis of Vehicle and Right of Way System," Report FRA-ONECD-75-945, Contract No. FR-40027, Bechtel, Inc., Gaithersburg, Maryland, April 1975.

CURRICULUM VITAE

of

David J. Biss, B.S.M.E., M. Eng.

NOTICE:

This CV is provided as a courtesy for the review of those considering retaining Mr. David J. Biss. It is not to be distributed or otherwise disclosed without the expressed written consent of Mr. Biss. Should such an agreement be reached, Mr. Biss' office will provide a clean copy as appropriate.

AUTOMOTIVE SAFETY ANALYSIS CORPORATION
15505 Avery Road – Rockville, Maryland 20855

Phone (240) 499-5613
Fax (301) 294-0812