

WILLIAM G. BROADHEAD
Restraint System Engineer

EDUCATION

University of California, Santa Barbara
Master of Science: Mechanical Engineering (1975)
Bachelor of Science: Mechanical Engineering (1973)

GENERAL EXPERIENCE

More than forty years of occupant restraint system experience including: Over 100 full scale vehicle crash tests and sled tests, restraint system design and analysis, computer modeling of vehicle and occupant response to various crash environments, vehicle safety research at crash test facilities in the U.S. and Japan, approximately 700 traffic accident reconstructions and analyses, extensive deposition and court testimony regarding seat belts and air bags.

EMPLOYMENT HISTORY

Automotive Safety Research, Inc. (ASR) 1981 to Present

President, responsible for: Restraint system design analysis, management, contract procurement, expert testimony, product defect investigation, accident reconstruction, and general traffic safety consultation.

Broadhead Company 1980 to 1981

Independent consultant to government and litigation clients in the field of restraint systems and highway accidents.

MCR Technology, Inc. 1977 to 1980

Engineering Manager: Head of numerous National Highway Traffic Safety Administration vehicle safety research programs. Areas of research included: air bag development, conventional and high performance seat belts, vehicle crush characteristics, seat and head restraint design, full scale vehicle crash testing, sled testing, accident reconstruction, and computer modeling of vehicle and occupant dynamics in response to impacts.

WILLIAM G. BROADHEAD

EMPLOYMENT HISTORY (continued)

American Hospital Supply 1975 to 1977

Engineer: Responsible for design, review and test of medical products and devices.

University of California

Teaching assistant for various engineering classes: Statics, Dynamics, Computer programming and Engineering design.

CONTRACT AND CONSULTING EXPERIENCE

- l) A. Project Engineer: Research Safety Vehicle (RSV) Phase II, NHTSA Contract # DOT-HS-5-01215, 1977.
- B. Project Engineer: RSV Phase III, NHTSA Contract # DOT-HS-7-01552, 1980.
- C. Project Engineer: RSV Phase IV, Contract # DOT-HS-8-02096, 1981.
- 2) Project Engineer: Small Car Driver Inflatable Restraint Systems, Contract # DOT-HS-6-01412, 1978.
- 3) Program Manager: Passive Restraints Development of Light Trucks and Vans, NHTSA Contract # DOT-HS-9-02076, 1981.
- 4) Program Manager: Upgrade the 1975 Volvo Production Restraint System, NHTSA Contract # DOT-HS-9-02178, 1981.
- 5) Program Manager: Driver Restraint Analysis Crash Routine (DRACR) Validation Using Volvo Upgrade Results, NHTSA Contract # DTNH22-81-P-07524, 1981.
- 6) Program Manager, Automotive Safety Research (ASR): Development of a Measuring Device for Chest Contact Area, NHTSA Contract # DTNH22-82-P-07024, 1984.
- 7) Program Manager, ASR: Passenger Air Cushion (PAC) Computer Model Validation Study, NHTSA Contract # DTNH22-82-P-07337, 1982.
- 8) Project Engineer, ASR: Design and Fabricate Restraint System Fabric Membrane Components, NHTSA Contract # DTNH22-82-P-07018, 1982.
- 9) Consultant to Minicars Inc. (MCR Technology Inc.): Development of Abdominal Insert for Hybrid III Dummy, NHTSA Contract # DTNH22-81-C-07085, 1983.
- 10) Consultant to The Breed Company: Driver Air Bag Fleet Demonstration Program, NHTSA Contract # DTNH22-84-C-07077, 1984.
- 11) Consultant to The Insurance Institute for Highway Safety, Design and Crash Test a Small Car Air Bag System, 1983.

WILLIAM G. BROADHEAD

CONTRACT AND CONSULTING EXPERIENCE (continued)

- 12) Consultant to The Breed Company: Driver Air Bag Fleet Demonstration Program: Proposal in response to NHTSA RFP # DTNH22-83-R-07001.
- 13) Consultant to The Transportation Research Center of Ohio. Study of Occupant Impact With Vehicle Interior Surfaces: Proposal in response to RFP # DTNH22-82-R-07364.

PUBLICATIONS, REPORTS AND LECTURES

1. Small Car Driver Inflatable Restraint System Evaluation, Final Report (co-authored with C. Strother and D.T. Zinke), NHTSA Contract # DOT-HS-6-01412, July 1978.
2. Passive Restraints Development of Light Trucks and Vans, Final Report (co-authored with S. Syson and A. Gunduz), NHTSA Contract # DOT-HS-9-02076, December 1980.
3. Upgrade the 1975 Volvo Production Restraint System, Final Report (co-authored with M. Foster and D.T. Zinke), NHTSA Contract # DOT HS-9-02178, April 1981.
4. Driver Restraint Analysis Crash Routine (DRACR) Validation Using Volvo Upgrade Results, Final Report, Contract # DTNH-81-P-07524, September 1981.
5. Development of a Measuring Device for Chest Contact Area, Final Report, Contract # DTNH22-82-P-07024, June 1982.
6. Forensic Engineering, Lecture at University of California, Santa Barbara, CA, April 1990.
7. Driver Usage Patterns of Non-Motorized, Door-Mounted, Passive 3-Point Seat Belts, SAE Paper #970119 (co-authored with Kurt D. Weiss). Presented at SAE Congress February 24, 1997.
8. Air Bag Surface and Geometric Investigation Techniques, (co-authored with D.T. Zinke), Proceedings of the American Academy of Forensic Sciences Volume IV, February 1998. Presented at 50th Anniversary Meeting in San Francisco, CA, February 12, 1998.
9. Accident Reconstruction, Crashworthiness and Biomechanics of Injury Causation, University of Northern California at Marin. Co-presented with Dr. Y. King Liu, and Kurt D. Weiss, June 12 - 13, 1999.
10. Airbags as they relate to Accident Reconstruction Crashworthiness & Biomechanics of Injury Causation, University of Northern California at Marin. Co-presented with Dr. Y. King Liu, Henk B. Helleman, and Kurt D. Weiss, November 6 - 7, 1999.
11. Airbag Inflators, (co-authored with D. T. Zinke) BED-Vol. 43, 1999 Advances in Bioengineering ASME 1999. Presented at 1999 ASME International Mechanical Engineering Congress and Exposition in Nashville, TN, November 17, 1999.

WILLIAM G. BROADHEAD

PUBLICATIONS, REPORTS AND LECTURES (continued)

12. AIRBAGS as they relate to Accident Reconstruction, Crashworthiness, and Biomechanics of Injury Causation, University of Northern California at Marin. Co-presented with Dr. Y. King Liu, Kurt D. Weiss, and Holly A. Adams, October 19 - 20, 2002.
13. Analysis of Shared Anchor Seat Belt Design, (co-authored with Kurt D. Weiss). 2003 ASME Mechanical and Materials Conference, Scottsdale, AZ, June 17-20, 2003.
14. Biomechanical Analysis of Late Airbag Deployment in Motor Vehicle Crashes, (co-authored with Anthony Sances, Jr., Srirangam Kumaresan, and Kurt D. Weiss), 2003 Summer Bioengineering Conference, Key Biscayne, FL, June 25 - 29, 2003.
15. Examination of Seat Belt Components in Frontal NCAP Barrier Tested Vehicles, (co-authored with Kurt D. Weiss). 22nd Southern Biomedical Engineering Conference and Symposium on Aortic Valve Sparring Surgery, Charlotte, NC, September 2003.
16. Forensic Testing of Shared Anchor Seat Belt Components, (co-authored with Kurt D. Weiss). 56th Annual Meeting of the American Academy of Forensic Sciences, Dallas, TX, February 16 - 21, 2004.

SPECIAL TRAINING

51rd STAPP Car Crash Conference

October 29 - 31, 2007, San Diego, CA

The National Highway Traffic Safety Administration Standardized Child Passenger Safety Technical Training - Child Passenger Safety Technician

January 22 - 25, 2002, Santa Barbara, CA

43rd STAPP Car Crash Conference

October 25 - 27, 1999, San Diego, CA

S.A.E. International, Vehicle Safety Restraint Systems: Performance, Technologies, and Implementation Strategies TOPTEC

August 9 - 10, 1999, San Diego, CA

50th Anniversary Meeting of American Academy of Forensic Sciences

February 9 - 14, 1998, San Francisco, CA

41st STAPP Car Crash Conference

November 13 - 14, 1997, Orlando, FL

S.A.E. International, Child Occupant Protection 2nd Symposium Proceedings

November 12, 1997, Orlando, FL

Association for the Advancement of Automotive Medicine, 41st Annual Proceedings

November 10 - 11, 1997, Orlando, FL

WILLIAM G. BROADHEAD

SPECIAL TRAINING (continued)

S.A.E. International, Air Bag Design and Performance TOPTEC
August 14 - 15, 1997, Costa Mesa, CA.

S.A.E International Congress and Exhibition
February 24 - 27, 1997, Detroit, MI.

Biomechanics of Impact and its Relationship to Crash Performance Standards
October 3 - 4, 1994, Philadelphia, PA.

35th STAPP Car Crash Conference.
November 18 - 20, 1991, San Diego, CA.

30th STAPP Car Crash Conference.
October 27 - 29, 1986, San Diego, CA.

PROFESSIONAL ORGANIZATIONS

1. Society of Automotive Engineers (S.A.E)