

Donald D. Parker
Principal

Professional Profile

Mr. Parker is an experienced mechanical and automotive body design engineer who specializes in vehicle body performance analysis and the evaluation of vehicle structures in all types of crashes, including side impacts and roof strength/roof crush in rollovers, as well as in accident reconstruction, vehicle crashworthiness, and performance of components and systems. His experience in industry and consulting includes the design, performance, testing, and manufacturing of most body structural systems, including roofs, doors, and energy-absorbing frame elements, as well as accident reconstruction, safety of lithium-ion batteries in vehicle applications, and assessing the use of alternate materials such as composites and structural foams in vehicle structures.

Mr. Parker has over 35 years of industry and consulting experience in the design, development, testing, and analysis of domestic and foreign automotive products and components. Over the course of his career, Mr. Parker has conducted and/or witnessed and analyzed the results from more than 200 full-scale vehicle crash tests in new product development, FMVSS and foreign certification, accident reconstruction validation, and research. He has also conducted numerous developmental and FMVSS certification tests on component-level items such as roofs, door beams and structures, door latches, door hinges, seat belt anchorages, and bumper systems. He has provided consulting services in many diverse areas, including product design, design defect claims, rollover/roof crush, accident investigation and reconstruction, insurance fraud, appropriate repair of damaged automobile bodies, product components such as gas springs, organizational management, and intellectual property validity/infringement issues. Mr. Parker's research further extends to assessing the use of alternate materials such as high strength steels, aluminum, composites and structural foams in vehicle structures, practical applications of glazing materials, safety and handling of lithium-ion batteries in vehicle development facilities, and analyzing the engineering design of various other consumer products.

Academic Credentials and Professional Honors

M.S., Mechanical Engineering, Oakland University, 1980

B.S., Mechanical Engineering, Automotive, General Motors Institute, 1975

Accident Reconstruction, Northwestern University Traffic Institute (NWTI), 1995

Tau Beta Pi Engineering Honorary Society

Recipient of 2008 Kettering/GMI Alumni Association Award for Engineering Achievement

Publications

Parker D, Mikolajczak C, Lange R. Considerations regarding hybrid and electric vehicle safety. ESV Technical Paper Series, paper 11-0117, June 2011.

Parker D, Mikolajczak C. Lithium ion batteries—More different than they seem. Michigan Defense Trial Counsel (MDTC) e-letter, Issue No. 6, May 2011.

Pearce H, Parker D. Lug nut trace analysis to determine velocity ratio in sideswipe collisions. SAE Technical Paper Series, 2011-01-0282.

Croteau J, Zolock J, Larson R, Bare C, Peterson D, Parker D. Dynamic response of vehicle roof structure and ATD neck loading in dolly rollover tests. SAE Technical Paper Series, 2010-01-0515.

Parker D, Ray R, Moore T, Keefer R. Rollover severity and occupant protection—A review of NASS/CDS data. SAE Technical Paper Series, 2007-01-0676.

Prior Experience

Director of Design and Development; CTS CarTopSystems of North America, 2000

Chief Engineer, Pininfarina of North America, 1990–1994

Director of Structural Engineering, Ital Design of North America, 1985–1989

Engineering Group Manager, General Motors Corporation, 1970–1984

Oldsmobile Motor Division (Body Development Group)

GM Central Engineering Staff (Structural Calculations Group)

Fisher Body Division (Product Performance Group, Advanced Product Design Group)

Buick-Olds-Cadillac (Advanced Product Design and Process)

Project Experience

Prior Experience

During automotive career, was responsible for design, analysis, and testing of many component and vehicle systems in numerous automotive products, including: overall body stiffness, vibrations and energy absorption; front crash structure; roof structure; bumpers; door beams; door latch reinforcements; window regulators; liftgates; decklids; door, hatch and roof glass; structural foam reinforcements; folding convertible tops; folding hardtops; sealing systems, seats, seat belt mountings; interior and exterior trim; alternative materials such as aluminum and plastic composites; and more.

Consulting Experience

Assembled, organized, and led an engineering and design team in the development of a folding hardtop system, including mechanical, electrical, and hydraulic mechanisms, rollover protection, and weather sealing for a production automobile.

Evaluation of safe storage and handling of large-format lithium-ion batteries in vehicle assembly and test facilities.

Testifying expert in accident reconstruction matters. Investigated and reconstructed numerous accidents involving pedestrians, bicycles, motorcycles, automobiles, light trucks and SUVs, buses, heavy trucks, and more.

Testifying expert in cases involving road vehicle crashworthiness and structural design, including roof strength, door design, liftgate design, interior trim design, and more.

Testifying expert on the function, application, and performance of gas-charged support springs in various automotive and non-automotive product designs.

Testifying expert on automotive body design, manufacturing, and the suitability of repair processes and the parts used.

Testifying expert on intellectual property validity and infringement issues pertaining to the design of automotive convertible folding tops.

Testifying expert in case involving field failures of powered automotive window regulators.

Safe handling and storage of lithium-ion batteries in vehicle development facilities.

Professional Affiliations

- Society of Automotive Engineers, 1975 (member)
- SAE Membership Grading Committee (past)
- SAE Body Engineering/Occupant Protection Committee
 - Rollover and Rear Impact Session Organizer and peer reviewer (current)
 - Structural Crashworthiness Session Organizer and peer reviewer (past)
 - Design Optimization, Methods, and Applications Session Organizer and peer reviewer (past)
- Certified SCUBA Advanced Open Water Diver