



**D E S I G N**  
**R E S E A R C H**  
**E N G I N E E R I N G**

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## **Russell K. Davidson, P.E., M.S.E.**

### **Professional Specialization**

Russell Davidson has more than 30 years-experience in automotive design, product development, product testing, and safety. While working in the automotive industry he has conducted a wide range of analytical research leading to developments in automotive seat design and restraint systems.

Mechanical engineering focus on vehicle crashworthiness, biomechanics, occupant kinematics, human tolerance, injury mitigation, analysis of traumatic injury associated with crashes, research evaluating occupant responses and injury in front, side and rear using crash test dummies, cadavers, and modeling. Validation background for multiple OEMs specifically for static, quasi-static, dynamic, fatigue and vibration performance of seats.

### **Education**

M.S.E., Mechanical Engineering, University of Michigan, Dearborn, Michigan

B.S., Mechanical Engineering, Virginia Polytechnic Institute and State University

### **Professional Experience**

Design Research Engineering, Novi, Michigan, February 2024-present

Lear Corporation Seat Division, Southfield, MI, 2001-January 2024

North American Cost Technology Optimization (CTO) and Validation – Director, 2020-2024

North American CTO – Director, 2018-2020

Global Validation – Director, 2014-2018

Special Project - Platform Core Structures, seat recliners and adjuster rails, 2013-2014

Specifications, Safety, Design and Validation – Director, 2001-2013

Seat Adjusters GM Division – Director, 1999-2001

Advanced Development Seating and Interiors – Director, 1997-1999

Advanced Development Seating – Manager, 1995-1997

Ford Division – Senior Engineering – Multiple Programs and advanced specifications, 1993-1995

Coach and Car Equipment Corporation, Elk Grove Village, Illinois, 1991-1993

Senior Engineer for mass transit seat design – rail and bus seating

General Dynamics-Fort Worth Division, 1988-1991

Ballistic sequencing engineer for emergency aircraft crew escape for YF-22 and F-16

### **Professional License and Affiliations**

Professional Engineer, Michigan, License #6201052907

Society of Automotive Engineers, Member

American Society of Mechanical Engineers, Member

Center for Child Injury Prevention Studies, Children's Hospital of Philadelphia and The Ohio State University, Technical Advisor to Industrial Advisory Board 2024-Present, Member 2017-2023



### **Technical Publications**

- “Occupant and Seat Responses in Various Moderate-to-High-Speed Rear Impact Conditions: Focus on Head-to-Head Restraint Interactions.” Society of Automotive Engineers, SAE Technical Paper 2026-01-0565, 2026.
- “Quasi-Static Head Restraint Pull-Tests to Assess Retention Performance: Maximum Load and Damage Characteristic.” Society of Automotive Engineers, SAE Technical Paper 2026-01-0564, 2026.
- “Overview of Seat Design Changes and Performance.” Society of Automotive Engineers, SAE Technical Paper 2025-01-8729, 2025.
- “Evaluate the Effect of Seat Back Restriction on Head, Neck and Torso Responses of Front Seat Occupants when Subjected to a Moderate Speed Rear-Impact.” Society of Automotive Engineers, SAE 2021-01-0920, 2021.
- “The Development of a Sound Quality-Based End-of-Line Inspection System for Powered Seat Adjusters.” Society of Automotive Engineers, SAE 2001-01-0040, 2001.
- “Seat System Fatigue Testing.” Society of Automotive Engineers, SAE 1995-02-01, SAE Technical Paper 950146, 1995.

### **Patents**

- US-7487680-B2: Shaker Assembly for Shaking a Component in Order to Induce Vibration, 2-10-2009 (B. A. Hammond, R. K. Davidson)
- US-6010195-A: Automotive Modular Seat Frame Assembly, 1-4-2004 (J. Masters, A. Massara, R. K. Davidson, P. Leistra III, G. Allison)
- US-5988748-A: Automotive Seat Bottom Assembly, 11-23-1999 (G.O. Morrison, S. Rybak, R. Cramb, R. K. Davidson)
- US-5833317-A: Automotive Seat Back Recliner, 11-10-1998 (A. Massara, P. Leistra III, J. Masters, R. K. Davidson, R.L. Matsu, S. Durrani)
- US-5700055-A: Seat Back Automatic Height Adjuster and Recliner Mechanism, 12-23-1997 (R. K. Davidson, M. H. J. Heyer, J.C. Masters)
- US-5658043-A: Inertia Lock for Side-Mounted Armrest, 8-19-1997 (R. K. Davidson)