THE EXPERTS
Robson Forensic

PETER J. LEISS, P.E., CFEI, CVFI
Automotive Engineer and Vehicle Crash Expert

Complete Vehicle Engineering – Automotive engineering spanning the requirements phase of vehicle design to the integration of vehicle systems, vehicle performance testing, and manufacturing. Expertise includes ensuring conformance to Federal Motor Vehicle Safety Standards (FMVSS) and other regulatory requirements, conducting Design Verification Plan and Report (DVP&R) throughout product lifecycle, performing Failure Mode and Effects Analysis (FMEA) on pre-production and production vehicles, testing complete vehicles for safety and reliability, and the development of Technical Service Bulletins (TSBs) and owner's manuals and quick start guides.

Vehicle Systems Engineering – Automotive engineering at the systems level to design, develop, refine, and integrate powertrain, vehicle structures, electronic driver aids, and other safety systems into new and existing vehicle platforms. Expertise includes engines, transmissions, gear selectors, throttle-by-wire, exhaust and emissions controls, braking systems, fuel tanks and delivery systems, Advanced Driver Assistance (ADAS) systems, restraints, and vehicle frames and structures.

Vehicle Failure Analysis – Engineering analysis of pre-production and production vehicles to diagnose and rectify reliability, safety, and comfort issues. Expertise includes electronic stability control, engine and throttle controls, unintended acceleration, cruise control, steering systems, suspension, wheel separations, braking systems, fuel systems, emissions systems, fuel fed fires, air bags, seatbelts, seatbelt mounts and tensioners, seatback failures, false park incidents, transmissions, and gear selectors.

Vehicle Repair – Engineering and development of procedures relevant to routine maintenance, repairs, and recalls affecting virtually all vehicle systems. Expertise includes engine, transmission, transfer case, differential and final drive, suspension and steering systems, brake systems, stability/traction control, fuel systems, emissions systems, climate control, entertainment, video, navigation, network, primary and supplemental restraint systems, lighting/ electrical, and proper use of service repair tools and equipment.

Vehicle Crash Reconstruction – Engineering analysis of crash damage, incident reports, and vehicle and environmental data to understand crash dynamics and contributing factors. Expertise includes inspection of damaged vehicles and components, site inspections, and computational re-creation of incidents using facts and scientifically accepted methodologies to determine how the incident occurred, and driver performance including perception and reaction.

Manufacturing & Fabrication Processes – Safety engineering, operation of, and user training in the equipment and processes used for shaping and joining metal, repairing and servicing vehicles, and manufacturing component assemblies and complete vehicles. Expertise includes powered tools (pneumatic/electric), hand tools, torque verification means and methods, Statistical Process Control (SPC), stamping, welding (TIG/MIG), tube bending, roll forming, Mistake and Error proofing, poka-yoke, Kaizen activities, operator protection means and methods, operator ergonomics, operator lift assists, and fluid filling stations.

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PROFESSIONAL EXPERIENCE

2007 to present **Robson Forensic, Inc.**
Vice President *2023-present*
Associate *2007-2023*
Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving vehicle collisions, vehicle crashworthiness and engineering issues, mechanical defects and malfunctions, and vehicle repair issues for passenger cars, light trucks, SUVs and medium trucks.

2011 to 2013 **Crashworthiness LLC**
Principal
Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving vehicle collisions, vehicle crashworthiness and engineering issues, mechanical defects and malfunctions, and vehicle repair issues for passenger cars, light trucks, SUVs and medium trucks.

1999 to 2007 **Chrysler, LLC (contracted employee through TEK 1999-2000, direct employee 2000-2007)**
Plant Vehicle Engineer, Newark, DE 2006-2007
Deployed to the Newark Assembly Plant to determine root cause of production issues and implement corrective measures with chassis, powertrain, and interior parts and/or assembly processes and machines. Audited process and machine capability. Performed daily drive audits on new vehicles to confirm fit/form/function expectations. Liaison between the assembly plant and engineering in Detroit. Perform trials on new parts. Determined cause of warranty claims; pursue corrective actions. Assisted in prototype vehicle builds and diagnose and document build and functional issues.

Vehicle Development Engineer, Detroit, MI 2002-2006
Truck Vehicle Development and Synthesis Group. Responsible for current and future model year Dodge Durango Chrysler Aspen Interior/Chassis. Developed and performed vehicle tests to validate new hardware. Acquired suspension load data and performed suspension integrity testing to ensure design met functional objectives. Planned and executed development/validation trips for new product in severe climates and usage environments.

Trailer towing at maximum weight over Eisenhower Pass, Colorado and in Baker and Death Valley, California. Acted as the “Voice of the Customer” during the development process. Diagnosed and documented build and functional issues throughout the development process. Reviewed and corrected draft Owner’s Manuals for new models and features. Performed root-cause analysis on vehicle system and
durability issues and provided feedback to design groups. Prepared vehicles for display at Auto Shows and for dynamic review by Senior Management and Journalists.

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Part of team assigned to implement Electronic Stability Program (ESP) to current model Dodge Durango as a mid-life-cycle product enhancement. Activities included:

- Benchmarking competitive vehicles to establish system performance targets
- Participated in development rides at internal, external, and supplier testing facilities to gauge progress on tuning in various environments
- Guided tuning with feedback from the development rides and Senior Management reviews
- Updated structural durability vehicles with latest hardware/software

Led project to modify a current product for use in a high speed pursuit environment. Worked with design groups to support prototype properties being built and tested. Modified the vehicle's handling and braking characteristics to meet targeted functional objectives. Scheduled internal testing at off-site facilities and external testing with potential customers for feedback and acceptance levels.

Involved in the development and tuning of:

- Impact Energy Management
- FMVSS Compliance
- Occupant Safety Systems
- Thermal Protection
- Brake Pedal Feel
- Anti-Lock Brake System tuning
- Electronic Stability Program tuning
- Suspension dampening
- Stabilizer bar design and application
- Tire analysis, performance, and selection
- Interior component design, fit, and finish
- Fuel gauge accuracy
- Trip computer readings
- Seat comfort
- Anti-Noise, Vibration, and Harshness (NVH) measures

Product Engineer, Detroit, MI 2001-2002
Truck Chassis Design Engineering. Responsible for Dodge Durango Exhaust System design and engineering, including tonal quality tuning, thermal management, and emissions control devices. Addressed quality and reliability issues in current production parts. Designed and released future model parts, supported prototype vehicle builds, and planned and executed trips to test functionality in extreme climates. Managed cost reduction activity for all truck product exhaust system components.

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Product Engineer, Detroit, MI 1999-2001
Truck Chassis Design Engineering. Responsible for Dodge Ram Diesel Fuel System design and engineering including fuel tank design, filler tube, fuel supply and return lines, thermal management, and impact energy management. Ensured fuel system met FMVSS 301, Fuel System Integrity, to prevent post-impact fuel-fed fires. Addressed quality and reliability issues in current production parts. Designed and released future model parts, supported prototype builds, and planned and executed trips to test functionality in extreme climates. Managed cost reduction activity for current model parts.

1999 **General Motors Corporation (contract employee through Aerotek)**, Pontiac, MI
Test Support Engineer
Truck Simulated Durability Test Group. Responsible for proving structural durability of new program vehicles with testing conducted on computer controlled, hydraulic actuated test equipment. Tracked test progress and failed hardware on vehicles undergoing simulated structural durability testing. Worked with design engineers to develop solutions to repetitive failures.

PROFESSIONAL CREDENTIALS

Professional Engineer: NCEES, Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Virginia, Washington, West Virginia
Greenbelt Certification, 2007
Shainin Red X Apprentice, 2007
Certified Fire and Explosion Investigator (CFEI)
Certified Vehicle Fire Investigator (CVFI)
Certified Inspection Mechanic, Class 1 (passenger car / light truck): Commonwealth of Pennsylvania, expired (2008-2023)

EDUCATION

B.S., Mechanical Engineering, Lawrence Technological University, Southfield, MI, 1999

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Continuing Education
Advanced Course in Human Factors, Including use of Response Software, Driver Research Institute, 2024
Three-Day Course of Instruction on the IDRR Software, Driver Research Institute, November 2022
Fire Investigation Training, NAFI, 2020
Traffic Crash Reconstruction – 3, Northwestern University Center for Public Safety, 2016
Vehicle Fire, Arson, & Explosion Investigation Science & Technology Seminar NAFI, 2015
Advanced Fire & Explosion Investigation, NAFI, July 2015
Traffic Crash Reconstruction - 2, Northwestern University Center for Public Safety, 2015
Vehicle Dynamics for Passenger Cars and Light Duty Trucks, SAE 2013
Engine Failure Investigation and Analysis, SAE 2013
Side Impact Occupant Safety and CAE, SAE 2012
Applied Vehicle Dynamics, SAE 2011
Fundamentals of Motor Vehicle Fire Investigation, SAE 2009
Vehicle Accident Reconstruction, SAE, 2008
Process FMEA, DaimlerChrysler, 2007
Design FMEA for Systems and Components, DaimlerChrysler, 2007
Process Capability, DaimlerChrysler, 2007
Critical Thinking for Leaders, Business Processes Inc., 2006
Problem Solving for Manufacturing, Shainin, LLC, 2006
Statistical Process Control Application & Management, DaimlerChrysler, 2006
Design FMEA, DaimlerChrysler, 2006
Error/Mistake Proofing Techniques, DaimlerChrysler, 2006
Hybrid Vehicle Electrical Awareness, DaimlerChrysler, 2005
Brake Actuation, DaimlerChrysler, 2004
Vehicle Synthesis Awareness, DaimlerChrysler, 2003
Reliability Engineering in Product Design and Development, DaimlerChrysler, 2003
Suspension Geometry and Design, DaimlerChrysler, 2001

PROFESSIONAL MEMBERSHIPS and AFFILIATIONS

Society of Automotive Engineers (SAE)
Fire Safety Committee Member, 2016-Current
EvolutionMSport NASA American Iron Mustang, road race crew
American Society of Mechanical Engineers (ASME)
National Association of Fire Investigators, International

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PATENTS

Vehicle Energy Storage Compartment for Improved Crashworthiness, U.S. Patent #12252323, published March 18, 2025
Vehicle Fuel Tank for Improved Crashworthiness, U.S. Patent #11597577, published March 7, 2023
Vehicle Fuel Tank for Improved Crashworthiness, U.S. Patent #11247828, published February 15, 2022
Vehicle Fuel Tank for Improved Crashworthiness, U.S. Patent #10343833, published July 9, 2019
Vehicle Fuel Tank for Improved Crashworthiness, U.S. Patent #10000328, published June 19, 2018
Vehicle Fuel Tank System for Improved Crashworthiness, U.S. Patent #9809113, published November 7, 2017

INVITED SPEAKER/PRESENTATIONS

Forensic Crash Course – Product Liability/Defect Investigations - National Highway Traffic and Safety Administration - Office of Defects Investigation, September 2023

Forensic Crash Course Part 2 - National Highway Traffic and Safety Administration - Office of Defects Investigation, December 2021

ADAS and the Autonomous Vehicle - National Highway Traffic and Safety Administration - Office of Defects Investigation, May 2021

Forensic Crash Course Part 1 - National Highway Traffic and Safety Administration - Office of Defects Investigation, April 2021

The Nuts & Bolts of Autonomous Vehicles and Crash Avoidance Technologies, PBI May 2017

J.R. Williams, C.A. O'Donel, **P.J. Leiss**. "Influence of Design Characteristics of Rear-Facing Child Restraint Systems on Occupant Kinematics of 6-Month-Old ATD During Rear-End Collisions," *International Mechanical Engineering Congress and Exposition of the American Society of Mechanical Engineers – in press, 2017*

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PUBLICATIONS

Shubham Takbhate, **Peter J. Leiss, P.E.**, Shawn Harrington, “Forward Collision Warning Performance of the Mobileye 8 Connect in Three Scenarios,” ASME IMECE2025-167084, 2025.

Peter Leiss, Christopher Roche, Marcus Mazza, Roland Hoover, “Automotive Seat Back Strength Testing of 19 Front Seats,” ASME IMECE2024-142194, 2024.

Harrington, S., Martin, N., and **Leiss, P**., “An Evaluation of the Performance of the Bendix Wingman Fusion G1 Collision Mitigation System in a 2017 Kenworth T680,” SAE Technical Paper 2024-01-2893, 2024, doi:10.4271/2024-01-2893.

Peter J. Leiss, Marcus A. Mazza, Erin M. Shipp, “Heavy Truck Fuel Storage System Design for Improved Impact Protection,” ASME IMECE2019-11854, 2019.

P.J. Leiss, S. Becker, G. Derian, “Tire Friction Comparison of Three Tire Types in Warm and Near Freezing Temperatures,” *Collision*, 12(1):24-40, 2017.

J.R. Williams, C.A. O'Donel, **P.J. Leiss**. “Effects of LATCH versus Available Seatbelt Installation of Rear Facing Child Restraint Systems on Head Injury Criteria for 6 Month Old Infants in Rear End Collisions,” Traffic Injury Prevention, 16(S2):17-24, 2015.

Leiss, P., Becker, S., and Derian, G., "Tire Friction Comparison of Three Tire Types," SAE Technical Paper 2013-01-0783, 2013, doi:10.4271/2013-01-0783.

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