



PHILLIP M. McLAUGHLIN, M.S.

MECHANICAL ENGINEER

CURRENT EMPLOYMENT

Ruhl Forensic, Inc., beginning in 2008

Mechanical engineer specializing in vehicle dynamics, including truck stability, handling, ride quality and vibration analysis. Familiar with several vehicle dynamics simulation programs used for analyzing complex vehicle handling and stability scenarios.

PREVIOUS EMPLOYMENT

PACCAR Technical Center, Bellevue, WA, 1984-2007

Senior Project Engineer

Primary accountability was in the areas of design, product development, research and testing pertaining to vehicle ride, stability and handling. Responsible for analyzing power train dynamics.

Conducted vehicle ride, stability and handling investigations with emphasis on improving ride quality and reducing powertrain induced vibration levels.

Developed standard test practices for Emergency Lane Change Maneuver, Steer Pulse Response, Constant Speed Cornering and Objective Ride Quality Measurement.

Developed test procedures for measuring suspension roll stiffness, roll steer coefficient and roll center as an alternative to tilt table testing.

Published more than 100 corporate reports in these areas. Organized ride and handling seminars for division engineering staff.

International Harvester Corporation, Hinsdale, IL, 1973-1984

Senior Product Development Engineer, Design Analysis
Analyzed off-road vehicle stability and dynamics

Developed computer simulation models to investigate power train dynamics and control systems.

Served as the division's resident acoustic and noise control expert.

Represented the division on the Corporate Control Simulation and Modeling Committee

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American Stair Corporation, Willow Springs, IL, 1971-1972

Manager, Engineering Services

Directed activities of small engineering department.

Developed automated material handling process for manufacture of pre-cast concrete stair systems using recycled industrial waste products.

Collins Corporation, Cedar Rapids, IA, 1968-1971

Control Systems Engineer, Avionics Division

Performed basic airframe response studies supporting avionics integration projects for the Lockheed L-1011, Falcon-10 and SN-600 aircraft

McDonnell-Douglas Corporation, St. Louis, MO, 1963-1968

Guidance and Control Systems Engineer

Conducted post-flight simulation analysis of Gemini VIII spin-up emergency.

Developed crew control and fuel management procedures.

Developed tether parameter specifications for Gemini XI and XII tethered vehicle experiments.

Lockheed Missile and Space Corporation, Sunnyvale, CA, 1961-1963

Dynamics Engineer, Space Systems Division

Conducted space vehicle guidance and control analysis.

Performed post-flight trajectory and performance analysis of Lockheed-Agena spacecraft during Discoverer, Mariner, Ranger, Midas and Samos missions.

EDUCATION

M.S., 1967:	University of Missouri, Rolla, MO
Major Field:	Mechanical Engineering
Specialization:	Airspace / Spacecraft dynamics and control systems
B.S., 1961:	University of Illinois, Urbana, IL.
Major Field:	Aeronautics and Aerospace Engineering
Specialization:	Flight Dynamics

PROFESSIONAL ASSOCIATIONS

American Society of Mechanical Engineers (ASME)
National Safety Council (firm membership)
Society of Automotive Engineers (SAE)

PATENTS

Air Spring Heat Sink, Patent # 6,851,665

Tractor Hitch Position Control System (Shared), Patent #4,132,272

CONSULTING SERVICES

1989 National Aeronautics and Space Administration (NASA)
Worked with NASA researchers during their investigation of the Space Shuttle Columbia body flap vibration problem.

1989 San Diego's Children's Hospital and Health Center, Motion Analysis Laboratory
Provided vibration analysis consulting services to the Director of Orthopedic Research.

CERTIFICATIONS

M (Motorcycle) Classification from State of Washington

Private Pilot License (no longer current)
University of Illinois Institute of Aviation

SPECIAL TRAINING

May, 2007 *Eaton MD300V Diagnostic Analyzer*, Eaton, Renton, WA

May, 2004 *HVE Forum and Workshops*, San Francisco, CA

May, 2000 *HVE Forum and Workshops*, San Diego, CA

Nov., 1999 *U.S. Department of Energy's Third Workshop on Heavy Vehicle Aerodynamics*, Detroit, MI

July, 1997 *Computer Simulation of Vehicle Dynamics*, University of Michigan

March, 1996 *Smart Structures and Materials Conference and Seminars*, Society of Photo-Optical Instrumentation Engineers, San Diego, CA

Oct., 1993 *Powertrain Dynamics*, SAE, Detroit, MI

Sept., 1991 *Truck Dynamic Behavior*, University Consortium for Continued Education, Encino, CA

July, 1990 *Mechanics of Heavy Duty Trucks and Truck Combinations*, University of Michigan

Feb., 1990 *Advanced 1st Class Fusion Programming*, Renaissance International Corp., Harvard, MA

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- Oct., 1998 *Advanced Continuous Simulation Language*, Concord, MA
- May, 1986 *Technical Interchange on Truck Dynamics*, University of Michigan Transportation Research Institute (UMTRI), Ann Arbor, MI
- July, 1985 *Summer Simulation Conference*, Society for Computer Simulation, Chicago, IL
- Circa 1984 *Real Time Simulation Methods and Programming the AD10*, Advanced Dynamics International, Ann Arbor, MI
- Circa 1983 *Advanced Dynamics of Articulated Mechanical Systems*, Mechanical Dynamics Institute, Ann Arbor, MI
- Circa 1983 *Easy5 Simulation*, Boeing, Chicago, IL
- Circa 1982 *Continuous System Simulation and Modeling*, UCLA, Los Angeles, CA
- Circa 1975 *Noise Control*, University of Wisconsin, Madison, WI
- Circa 1970 *Aircraft Dynamics and Automatic Control*, Systems Technology, Inc., Hawthorne, CA
- Circa 1967 *Calculus of Variation and Optimization Methods for Aircraft / Spacecraft Guidance*, University of Alabama (visiting professor), St. Louis, MO

INVITED PRESENTER

- March, 2007 “Ergonomics of Truck Noise, Vibration, Ride and Handling”, University of Washington Vehicle Maintenance Management Conference
- March, 2003 “Ergonomics of Truck Noise, Vibration, Ride and Handling”, University of Washington Vehicle Maintenance Management Conference
- Nov., 1998 “Constant Velocity Universal Joints in Truck Drivelines”, (Panel Member), SAE International Truck and Bus Meeting and Exposition, Indianapolis, IN

COMMUNITY ACTIVITIES

- 2008 Skagit County, WA Law and Justice Council
Appointed as one of three non-law enforcement members of a 40 member council.
- 1998-2000 Active Member, Mount Vernon, WA Police Department – Citizens on Proactive Patrol (Currently a member, inactive status.)
- 1998 Graduate, Mount Vernon, WA Police Department – Citizens Academy