

DAVID F. WELKER – Professional Engineer

Consulting Engineer in Mechanical Engineering, Truck Accident Reconstruction and Evaluation, Automotive Safety, Vehicle Crash Worthiness, Heavy Equipment, and Underground Mine Trucks.

Consulting Engineers & Scientists, Inc.
The Commons at Great Valley
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Birth Date: 2-8-47

CERTIFICATION

Licensed as a Professional Engineer (by examination) in the State of Washington, 1980.

EDUCATION

Bachelor of Science Degree in Mechanical Engineering from Washington State University at Pullman, 1970.

PROFESSIONAL BACKGROUND

Employed by Consulting Engineers & Scientists, Inc., Malvern, Pennsylvania, 2011 as a Consulting Engineer. Responsibilities include consulting in truck and heavy vehicle accident reconstruction, evaluation, and failure analysis. Specific responsibilities included the detailed evaluation of truck and heavy equipment, suspensions, brakes, vehicle frames, and drive components. Additional responsibilities included the analysis of stress and vibration caused by rotating machinery. Other areas of expertise included the evaluation of underground mine trucks.

Employed by Tidland Corporation in Camas, Washington as Senior Mechanical Engineer from 2001 to 2009, and as Consulting Engineer from 2010 to 2011. Responsibilities included conducting static and dynamic design calculations for stress and vibrational excesses caused by rotating members, evaluating field failures and advising solutions, directing and conducting prototype fabrication and testing for new product designs, conducting feasibility studies and testing on new and modified converting machine designs, investigating field failure of products and preparing and documenting engineering change requests to solve the problems. Also analyzed fastener failures on bolt pattern connecting brakes and chucks, and implemented shoulder bolts, and piloted connection to replace fasteners that failed at the shear plane.

Employed as consulting engineer in private practice from 1990 to 2001. Consultations included structural and design analysis, machine design, failure mode documentation, and test design. Customers included Freightliner, Oregon Department of Transportation, ConMetco, Alcatel Submarine Networks, and Precision Castparts.

Employed by Wagner Mining Equipment Company in Portland, Oregon, as Senior Project Engineer from 1988 to 1990. Responsibilities included design of heavy welded underground mine truck bodies and major component installation, supervision of mine truck group and travel to customer sites in trouble shooting situations.

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Employed by Freightliner Corporation in Portland, Oregon, as Design Engineering Supervisor of Chassis Group from 1978 to 1988. Ultimately responsible for improved cross-member and bracket attachment to frame rail web only, eliminating upper and lower flange attachments. Introduced a frame analysis program to my group which allowed for quicker decision making in selecting frame components. Extensive experience in heavy truck chassis design including frames, suspensions, fuel systems, brakes & linings, and exhaust systems. Designed and tested a frame rail web-attached extreme outboard exhaust system, using a formed tube for support and replacing an expensive fabrication.

Employed by Pullman Trailmobile in Chicago, Illinois, from 1975 to 1978 as Research Engineer. Responsibilities included design and stress analysis for a variety of heavy duty trailers and containers, including standard vans, reefer vans, flat beds (eastern and west coast), container chassis, dump trailers and tankers. Designed a van storage system, EZA-deck, which allowed converting the van interior to two levels. Developed a linkage program for designing various lengths of dump trailers.

Employed by Ford Motor Company in Dearborn, Michigan, from 1973 to 1975, as Product Engineer. Responsibilities included design and stress analysis for frame assemblies and suspension components in the F-Series trucks and Econoline. Had responsibility for frame rails, cross-members and bracketry for the new F-Series Super Cab which was released for spring of 1974. Was on-site in Kansas City for Job 1 and stayed for a month while the new vehicles were being built.

Employed by Martin Marietta Corporation in Orlando, Florida from 1971 to 1973 as Design Engineer. Responsibilities included structural and mechanical design and stress analysis on SAM-D missile ground support equipment. Designed a BITE (built-in test equipment panel, the rear or exhaust-end panel) for the missile canister that was successful in sustaining the exhaust blast. Was awarded #1 totem ranking for all engineers in my category for my design achievements. Granted Secret level security clearance.

Employed by Exotic Metals Forming Company in Seattle, Washington from 1970 to 1971, as Design Engineer. Major responsibility was tool and machine design. Designed tooling for all phases of sheet metal forming: deep drawing, bulge forming, blanking, spinning, and swaging. Designed a titanium honeycomb spot-welding machine; project included drafting kinematic and stress analysis, supervision for manufacture, assembly and initial operation.

CONTINUING EDUCATION

Accident Investigation II – Northwestern University Traffic Institute, 2011
Accident Reconstruction I - Northwestern University Traffic Institute, 2011
Accident Reconstruction II - Northwestern University Traffic Institute, 2011

PROFESSIONAL SOCIETY MEMBERSHIPS

Society of Automotive Engineers 1978-82
American Society of Mechanical Engineers 1970-74