

## CURRICULUM VITAE OF JOHN F. BERNINGER

Jan. 1, 2006

Principal of:

Advanced Analysis Engineering

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Expert in the area of Fluid Power products (Hydraulic and Pneumatic); their design and application.

Served as an expert witness and/or technical advisor in previous litigation involving fluid pressurization issues: design selection of components for pressurized systems, operation of fluid power systems, analysis and testing of hydraulic & pneumatic components.

Bachelor of Science in Mechanical Engineering

June 1958

Illinois Institute of Technology; Chicago

Master of Science in Mechanical Engineering

January 1966

Illinois Institute of Technology; Chicago

Registered Professional Engineer

Illinois, Michigan

Certified Fluid Power Engineer by the Fluid Power Society

Diplomate of the American Board of Forensic Examiners

### National fluid Power Association

Chairman (1987-Current) of the Pressure Rating Technology Committee of the National Fluid Power Association, the association for manufacturers of fluid power products (valves, pumps, connectors, cylinders, filters, regulators and other components and systems). Developed the standard for verifying the pressure ratings of fluid power products, including theoretical basis.

Co-chair (2000 – Current) of the Reliability project group to develop standards for measuring reliability of fluid power components by test methods.

Was Chairman of several National Fluid Power Association project groups that developed the following standards:

Accumulator Pressure Rating

Cylinder Pressure Rating

Regulator Performance Testing

Air Valve Pressure Rating

Response Time Test Method for Air Valves

Pneumatic Systems (JIC)

Served 6 years in officer positions of the Technical Board, including Chairman (1991-1993).

### Other Professional Associations

ISO (International Organization for Standards)

USA delegate to several committees for fluid power products (1982 – Current).

Convenor (1989-Current) of Air Valve working group ISO TC 131/SC5/WG3.

Chairman (2003 – current) of the entire ISO TC 131 committee for Fluid Power.

ANSI (American National Standards Institute)

Chairman (1996-2002) of the USA Technical Advisory Group on fluid power products.

Member (2004-current) of the Board of Standards Review.

ASME (American Society of Mechanical Engineers) – Member since 1958.

## **EMPLOYMENT HISTORY**

Sept. 2002 to-date - Principal of Advanced Analysis Engineering; Portage, Michigan.

Expert witness in product liability cases. Participant and chair of several NFPA and ISO standards developing committee. Consultant to the Korean Institute of Machinery and Materials Reliability Center.

March 1996 to Sept. 2002 - Global Engineering Support Manager for the Automation Group of Parker Hannifin Corporation; Richland, Michigan.

Coordinated the development of Global pneumatic products at the several divisions of the corporation in Europe, Brazil and the USA. Participated in industry standards development for fluid power products, nationally and internationally, in executive functions. Was the expert for the Pneumatic Division North America in product liability litigation.

July 1987 to March 1996 - Manager of Engineering for Schrader Bellows Pneumatic Division of Parker Hannifin Corporation; Otsego, Michigan.

Responsible for two engineering departments, one in Michigan and one in North Carolina. Managed new product development and product improvements on air valves and air preparation units (filters, regulators and lubricators-FRLs). Had 2 patents, one for a small poppet valve and one for a lockout valve. Had management responsibility for computer-assisted design operations, model shops and laboratories. Other responsibilities included budgets, project plans, design approvals, and coordination with international operations. Was the expert for the division in product liability litigation.

Sept. 1975 to June 1987 - Manager of Engineering for the Pneumatic Division of Parker Hannifin Corporation; Otsego, Michigan.

Supervised development and improvement of air valves, solenoids, air regulators, air filters and other products. Used sand castings, plastic moldings and metal machining for manufacturing methods. Organized laboratory programs for development, reliability testing and application analysis. Was the expert for the division in product liability litigation.

October 1966 to September 1975 - Employed by the Cylinder division of Parker Hannifin Corporation; DesPlaines, Illinois.

Was a Project Engineer (1 year), Chief Test Engineer (5 years) and Chief Engineer in charge of special product design (3 years). Conducted test programs on metal fatigue, material wear and seal leakage. Designed test equipment for these including hydraulic, pneumatic and electric circuits. Designed hydraulic cylinders with low deceleration cushions for use on offshore drill rigs, and test installations. Calculated column buckling problems and performed stress analysis. Made frequent trips to customers to evaluate applications. Have had articles published in several magazines, and one section of a textbook.

June to September 1966 - Employed by the Powers Regulator Company; Skokie, Illinois as a Research Engineer on flow control devices and logic systems.

September 1963 to June 1966 - Aerospace Project Engineer with General American Transportation Corporation; Nile, Illinois. Developed the vacuum cleaner for the Apollo spacecraft, and a water recovery machine used to convert waste body water to potable water (ground study for extended space mission).

March 1960 to September 1963 - Design engineer for the Cylinder Division, Parker Hannifin Corporation; DesPlaines, Illinois. Three patents granted; one for a concentric baffle in an air-oil tank, one for a hydraulic limit switch actuator and one for an absorbing bumper. Designed many springs.

June 1958 to March 1960 - Employed by Nordberg Manufacturing Company; Milwaukee, Wisconsin as a designer on stationary diesel engines.

Prior to June 1958 - Full time college student.

## **Publications**

1. "Extrusion of Static Seals", Proceedings of the National Conference on Fluid Power, 1972.
2. "Stress Analysis of Tie Rods in Cylinders", Proceedings of the National Conference on Fluid Power, 1975. (TI was used in the book, Fluid Power Design Handbook, 2<sup>nd</sup> ed. by Frank Yeaple, pages 111-121; published by I Dekker, 1990.)
3. "Air Valve Subbase Eliminates Costly Piping", Machine Design, Sept. 24, 1981.
4. "Trouble Shooting the Compressed Air System", Hydraulics & Pneumatics, Sept. 1984.
5. "Basis of Pressure Rating", Proceedings of the 43rd National Conference on Fluid Power, 1988.
6. "Reliability of Pneumatic Products", Proceedings of the 44th National Conference on Fluid Power, 1990.
7. "Product Reliability – What is it?", Pneumatic Notes in Hydraulics & Pneumatics, Dec. 1990.
8. "Why Standardize?", editorial in NFPA Reporter, May/June 1992.
9. "Developing reliability standards – An overall perspective", NFPA Reporter, March/April 1995.
10. "Comparing ISO Sonic Flow to ANSI C<sub>v</sub>", Proceedings of the 49th National Conference on Fluid Power, 2002.
11. "Reliability of fluid power products", ISO Focus, Mar. 2004.
12. "The Initiative to Measure Reliability of Fluid Power Products", Proceedings of the 50th National Conference on Fluid Power, 2005.