# CURRICULUM VITAE OF JOHN F. BERNINGER

**Jan. 1, 2011**

President 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 and selection of components for pressurized systems, operation of fluid power systems, patent infringement, analysis and testing of hydraulic and 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 trade 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 its theoretical basis.

Co-chair (2000 – 2007) 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 - President of Advanced Analysis Engineering; Portage, Michigan.
Expert witness in product liability cases, and a patent infringement case. Participant and chair of several NFPA and ISO standards development committees. Consultant to the Korean Institute of Machinery and Materials Reliability Center. Consultant to manufacturers on fluid power component designs.

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, Korea, and the USA. Participated in industry standards development for fluid power products, nationally and internationally, including 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 granted: one for a small poppet valve and one for a lockout valve. Had management responsibility for computer-assisted design (CAD) 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 die castings, plastic moldings and metal machining for manufacturing methods. Organized laboratory programs for development work, 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 designs (3 years). Conducted test programs on metal fatigue, material wear and seal leakage. Designed test equipment for these programs, including hydraulic, pneumatic and electric circuits. Designed hydraulic cylinders with low deceleration cushions for foundries, 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 fluidic devices and logic systems.

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

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

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

Prior to June 1958 - Full time college student.

**Publications**

1. "Investigation of cushion in hydraulic cylinders", Masters thesis in Mechanical Engineering at Illinois Institute of Technology, Jan. 1966
2. "Extrusion of Static Seals", Proceedings of the National Conference on Fluid Power, 1972.
3. "Stress Analysis of Tie Rods in Cylinders", Proceedings of the National Conference on Fluid Power, 1975. (The information in this article was earlier featured in Design Engineering magazine, Dec. 1973; and was also incorporated in the book, Fluid Power Design Handbook, 2nd ed. by Frank Yeaple, pages 111-121; published by Marcel Dekker, 1990.)
4. "Air Valve Subbase Eliminates Costly Piping", Machine Design, Sept. 24, 1981.
5. "Trouble Shooting the Compressed Air System", Hydraulics & Pneumatics, Sept. 1984.
6. "Basis of Pressure Rating", Proceedings of the 43rd National Conference on Fluid Power, 1988.
7. "Reliability of Pneumatic Products", Proceedings of the 44th National Conference on Fluid Power, 1990.
8. "Product Reliability – What is it?", Pneumatic Notes in Hydraulics & Pneumatics, Dec. 1990.
9. "Understanding FRL's", advertisement article in the Pneumatic Technology section, Design News, May 20, 1991.
10. "Why Standardize?", editorial in NFPA Reporter, May/June 1992.
11. "Developing reliability standards – An overall perspective", NFPA Reporter, March/April 1995.
12. "Comparing ISO Sonic Flow to ANSI $C_V$", Proceedings of the 49th National Conference on Fluid Power, 2002.
13. "Reliability of fluid power products", ISO Focus, Mar. 2004.
14. "The Initiative to Measure Reliability of Fluid Power Products", Proceedings of the 50th National Conference on Fluid Power, 2005.
15. "Pneumatic Component Reliability, Interlaboratory Testing Using the ISO Standards", Proceedings of the 51st National Conference on Fluid Power, 2008.

**Previous testimony as an Expert Witness:**

Sept. 2009 – Pillado vs Continental Mfg. Co.. Expert witness for plaintiff injured from a fall off of a concrete truck, where a hopper was activated by an air cylinder.

Sept. 2006 – Intex Recreation Corp. vs Team Worldwide Corp. Expert witness for plaintiff/counterclaim-defendant in a patent infringement case of an air pump for inflating air mattresses.

Apr. 2005 – Federal Insurance Co. and Norquick distributing vs. Conbraco Industries, Industrial Refrigeration, Biddison Architecture & Design, and Kevin I. Biddison. Expert witness for plaintiff in a property damage case that involved an explosion and fire in a refrigeration plant.

Dec. 2002 – Reifsteck vs. R.T. Patterson, Graycor, Morrison Construction, Fluor Daniel, Northwestern Steel & Wire. Expert witness for plaintiff injured in a steel mill fire from a ruptured hydraulic hose.

Jul. 1989 – Unisys Corp. vs. US Postal Service and ElectroCom Automation. Expert witness for plaintiff in a contract injunction case which experienced malfunction of a postal sorting machine.

1980 – 2000 (approximately) was deposed approximately 10 times in defense cases for employer Parker Hannifin.