

August 2010

Summary of Selected Technical Personnel of Pioneer Motor Bearing Company Available to Assist OEMs and End Users of Rotating Equipment In the Design, Manufacture, Repair and Upgrade of Fluid Film Babbitt (White Metal) Radial and Thrust Bearing Assemblies

Engineering Department:



Lyle A. Branagan

BSME (with Honors), M.S., Ph.D., The University of Virginia

Lyle Branagan has served as Pioneer's Engineering Manager for twelve years. While earning his doctorate, Lyle performed advanced research on temperature gradients in fixed geometry and tilting pad bearings. Lyle served PG&E for a decade as a rotordynamics engineer, gaining substantial design and operations experience with bearings and vibration in large turbomachinery. He was an integral member of the start-up team for PG&E's Helms Pump Storage Generating Station and the Diablo Canyon Nuclear Power Plant. A description of his published papers and lectures follow below.

Fred C. Wiesinger, Jr.

BSME (with Honors), Drexel University

Pioneer's Technical Services Manager, Fred Wiesinger, guides Pioneer's long-standing experience with the manufacture, repair and modification of thrust bearings for original equipment manufacturers (OEMs) and end users, including those responsible for large vertical hydroelectric turbine-generators. Before joining Pioneer in 2001, Fred spent seven years at Philadelphia Gear Corp. and then fourteen years at Kingsbury, Inc., where he served in a variety of top management positions, including: Chief Engineer; Manager of the Repair and Service Division; and Vice President of Manufacturing. His experience and capability covers the entire range of Kingsbury radial and thrust bearing designs in fossil, nuclear and hydroelectric power plants. Fred has solved technical bearing problems for a wide range of customers that have required his on-site technical expertise on board a U.S. nuclear submarine, on a North Sea oil platform and at power plants throughout the U.S. and abroad, from Europe to Southeast Asia.



Our engineers have been featured lead speakers at engineering conferences hosted by organizations such as the Society of Tribology and Lubrication Engineers (STLE), American Society of Mechanical Engineers (ASME), and the Electric Power Research Institute (EPRI). In October 2006, Lyle Branagan presented a paper at a conference in France hosted by the Electricite de France (EdF) (cited below). A few years ago Lyle and Fred Wiesinger were the lead lecturers on bearings at a 3-day EPRI conference in Florida on lubrication and bearings, for the EPRI Turbine-Generator User's Group. In August, 2008, Lyle and Fred will be hosting turbine generator engineers at our plant in North Carolina during the week-long summer EPRI Turbine-Generator User's Group (TGUG) conference. In August, 2008, Lyle will be leading the workshop on bearings at the EPRI summer TGUG conference in Australia.



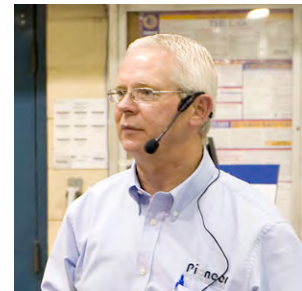
David Saldo

David Saldo is an experienced in-house bearing design draftsman, operating CAD software representing the current state-of-the-art in design code. Mr. Saldo brings to design assignments the practical experience of having first served Pioneer as a journeyman bearing machinist. He has been with Pioneer for more than twelve years and assists our engineers at customer sites for on-going jobs.

Quality Assurance Department:

Lynn Boone

Mr. Lynn Boone is Pioneer's Quality Assurance Manager. He has been with the company for over ten years following tenure in the Q.A. department at the ABB/Combustion Engineering plant in Kings Mountain, North Carolina. Lynn has experience performing ultrasonic testing of damaged journal bearings and thrust bearing shoes and verifying the "as is" dimensions and conditions of bearings at customers' sites. If necessary, Lynn can use Pioneer's portable FARO Gage combined with Pioneer's computer laptop (in essence, a portable coordinate measuring machine) to provide computer coordinate measuring and recording of dimensions while on site.



Management:**Stephen R. Bonino*****Vice President and Chief of Operations***

Now in his 43rd year with Pioneer, Steve has as much experience with all the technical and practical issues of manufacturing, repairing and improving the performance of fluid film bearings as anyone in the United States. From babbitted marine, gearbox, compressor and power generation bearings to tri-metal diesel and automotive engine bearings, Steve is familiar with virtually all types and styles of fluid film bearings. In his four decades with Pioneer, Steve has served as an apprentice machinist, journeyman machinist, quality assurance manager, production manager, technical services manager and today is an officer of the company as Vice President and Chief of Operations. Steve is a key asset in providing customers with practical advice and solutions and is a great “sounding board” for our engineers to test the manufacturing costs and practicality of design concepts. Steve has responsibility for all departments of the company.

Technical Training Seminars and Presentations by Lyle Branagan:

July, 2007, “Fluid Film Bearings: Fundamentals, Damage Mechanisms, and Assessment”, part of Lubrication and Bearings Workshop, Nuclear Power Maintenance Committee of the Electric Power Research Institute (EPRI), Charlotte, NC.

May, 2006, “Fluid Film Bearings”, technical part of Annual Meeting of the Charlotte, NC, chapter of the Vibration Institute.

January, 2005, “Journal Bearings: Design, Operations, Failure Modes, and Repair”, part of Turbine Generator Users Group (TGUG) Workshop, Electric Power Research Institute, St. Pete Beach, FL.

November, 2004, “Fluid Film Bearings: Fundamentals, Damage Mechanisms, and Assessment”, part of Lubrication and Bearings Workshop, Nuclear Power Maintenance Committee of the Electric Power Research Institute, Charlotte, NC.

September, 2004, “Fluid Film Bearings: Fundamentals, Damage Mechanisms, and Assessment”, 12-hour seminar, Beaver Valley Nuclear Station.

August, 2004, “Fluid Film Bearings: Fundamentals, Damage Mechanisms, and Assessment”, part of Pump Users Group (PUG) meeting, Nuclear Power Maintenance Committee of the Electric Power Research Institute, Charlotte, NC.

July, 2004, “Fluid Film Bearings”, 8-hour seminar, Surry Nuclear Station.

July, 2004, “Fluid Film Bearings”, 8-hour seminar, Calvert Cliffs Nuclear Station.

March, 2004, “Fluid Film Bearings”, 8-hour seminar with Fred Wiesinger, Point Beach Nuclear Station.

June, 2003, "Fluid Film Bearings: Fundamentals, Damage Mechanisms, and Assessment", part of Lubrication and Bearings Workshop, Nuclear Power Maintenance Committee of the Electric Power Research Institute, Mystic, CT.

January, 2002, "Fluid Film Bearings: Fundamentals, Damage Mechanisms, and Assessment", part of Lubrication and Bearings Workshop, Nuclear Power Maintenance Committee of the Electric Power Research Institute, Raleigh, NC.

March, 2000, "Damage Evaluation in Babbitted Bearings", part of Lubrication and Bearings Workshop, Nuclear Power Maintenance Committee of the Electric Power Research Institute, Williamsburg, VA.

Branagan, L. A., and Cleminson, J. C., "Thermal Fatigue of Several Babbitts on Flat Plates: Part II Loaded Expansion", STLE 62nd Annual Meeting, Philadelphia, May 2007.

Branagan, L. A., and Cleminson, J. C., "Thermal Fatigue of Several Babbitts on Flat Plates: Part I Unloaded Expansion", Proc. of the IJTC 2006 Conference, IJTC2006-12216, October 2006.

Branagan, L. A., "Toward a Quantitative Analysis of Journal and Bearing Scratches", Proc. of the 5th EDF & LMS Poitiers Workshop, Futuroscope, October 2006.

Cleminson, J. C. and Branagan, L. A., "Thermal Cycling of White Metal Alloys", Proc. of the 5th EDF & LMS Poitiers Workshop, Futuroscope, October 2006.

Branagan, L. A., "Damage Analysis of Babbitted Bearings", Proc. of the Noria Corporation Lubrication Excellence Workshop 2003, November 2003 (similar presentation in 2004).

Bearing Damage Flip Chart, Pioneer Motor Bearing Company, Item #ETS0103, Kings Mountain, NC, 2002 (also, 3rd edition printed 2006/2007).

Branagan, L. A. and Barrett, L. E., "Influence of Cross-Film Viscosity on the Thermal Analysis of Fluid-Film Bearings," STLE Preprint #98- AM-7A-1, presented at the STLE Annual Meeting in Detroit, May 1998.

Branagan, L. A. and Wasserman, P. D., "Introductory Use of Probabilistic Neural Network for Spike Detection from On-Line Vibration Diagnostic System," Intelligent Engineering Systems Through Artificial Neural Networks, Vol II, ASME Press, New York, 1992. [2nd Runner-Up, Novel Engineering Applications Award]

Branagan, L. A., "Data Interpolation for Vibration Diagnostics Using Two-Variable Correlations," ASME PWR-Vol.15, October 1991, pp. 7- 11.

Branagan, L. A., "Vibration of a Utility Generating Unit Under Seismic Loading," Proceedings of the American Power Conference, April-May 1991, pp. 671-674.

Branagan, L. A., "Challenges to Reporting for On-Line Vibration Monitoring of a Turbine Generator Set," ASME paper #90-JPGC/Pwr- 29, October 1990.

Branagan, L. A., "Application of an On-Line Vibration Diagnostic Monitoring System to a Utility Turbine Generator Unit," presented at the EPRI 4th Incipient Failure Detection Conference, Philadelphia, PA, October 1990.

Branagan, L. A., "Data Management for On-Line Vibration Diagnostic Monitoring Systems," ASME paper #89-JPGC/Pwr-27, October 1989.

Branagan, L. A. and Scheibel, J. R., "Design Considerations for On- Line Vibration Diagnostic Systems," Proceedings of the 7th Power Plant Dynamics, Control, and Testing Symposium, U.Tenn and IEEE, Knoxville, Tennessee, June 1989.

Branagan, L. A. and Barrett, L. E., "A Manual for Use with the Tilting Pad Bearing Program THPAD", University of Virginia Report #UVA/643092/MAE88/384, June 1988.

Branagan, L. A. and Barrett, L. E., "A Manual for Use with the Multilobe Bearing Program THBRG", University of Virginia Report #UVA/643092/MAE88/373, February 1988.

Branagan, L. A., "Approximate Analysis of Bearings in Flexible Supports with Examples," presented at the ROMAC Short Course on Vibrations in Pumps and Hydraulic Turbines, Charlottesville, Virginia, July 1985.

Branagan, L. A., "Vibration Testing on A 3-Megawatt Cogeneration Unit Turbo-generator," presented at the ROMAC Short Course on Vibrations in Compressors, Fans, and Turbines, Charlottesville, Virginia, August 1984.

Branagan, L. A., "Vibration Problems in Vertical Pumps," presented at the EPRI/ROMAC Pump Workshop, Toronto, Ontario, August 1982.

Allaire, P. E., Branagan, L. A., and Kocur, J. A., "Aerodynamic Stiffness of an Unbounded Eccentric Whirling Centrifugal Impeller with an Infinite Number of Blades," University of Virginia Report #UVA/643092/MAE82/198, June 1982.

Vigour, J., Sato, C., and Branagan, L., "Mesh Generation for Two Dimensional Impellers," University of Virginia Report #UVA/643092/MAE82/197, June 1982.

Branagan, L. A. and Gunter, E. J., "Users Manual for Rotor Stability Program MODSTB," University of Virginia Report #UVA/643092/MAE84/280, June 1981.

Branagan, L. A., Kirkpatrick, W. M., and Gunter, E. J., "Stability Analysis of the Oxygen Pump for the Space Shuttle Main Engine," University of Virginia Report #UVA/528140/MAE80/118, October 1980.

Other Papers and Presentations:

[Numerous Pioneer Motor Bearing Company, Lockheed-Martin and Pacific Gas & Electric internal reports, and non-peer reviewed papers for the Society of Tribologists and Lubrication Engineers (STLE) not listed.]

The Electric Power Research Institute:

Lyle Branagan is a member of the EPRI Technical Advisory Group (TAG) for:

- Reactor Coolant Pump and Reactor Recirculation Pump Lubrication Systems (2006)
- Smart Component – Motors and Pumps (2007)

For Additional Information, contact:

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