SpectraQuest introduces the Bearing Prognostics Simulator (BPS)

- *Ideal platform for bearing prognostics research*
- *A smart design for performing accelerated run-to-failure tests on bearings*
- *Innovative and proprietary transducers for measuring bearing friction torque, transverse and axial loads applied to bearing*
- *Understand bearing failure mechanisms as a function of load, rotational speed, and the oscillatory motion of the bearing*
- *Can be configured with rolling element or fluid film bearings*
- *Research signal processing techniques and sensor types for condition monitoring of bearings for prognostics*
- *Various application specific option kits and combination packages are available*

Press Release, June 16, 2009

SpectraQuest introduces Bearing Prognostics Simulator (BPS), an innovative tool specifically designed to conduct fundamental research in bearing weak and in modeling bearing damage evolution process. An outstanding feature of the BPS is the inclusion of SpectraQuest's proprietary transducers for measuring bearing friction torque, transverse and axial loads applied to the bearing. The BPS can be driven in three selectable modes, constant rotational speed, purely oscillatory motion, and oscillatory excitation superimposed on rotation. Experiments can be performed on rolling element bearing, pressurized fluid lubricated bearings, and the grease lubricated bearings. The friction torque and the load transducers provide unique data, previously not available, for understanding bearing prognostics signature and modeling bearing failure mechanisms. The BPS provides an opportunity to develop a predictive model of bearing remaining life based on routine condition monitoring measurement. The torque transducer is sensitive enough to measure the small frictional torque bearing resistance under several thousand pounds of transverse/axial load. The BPS can also be obtained with fluid film lubricated support bearings for minimizing extraneous noise.

SpectraQuest's Bearing Prognostics Simulator (BPS) is designed to hydraulically overload bearings both transversely and axially. Tests are then performed to observe damage initiation to propagation on different types of bearings. The test bearings are configured overhung and are supported on two rows of heavy duty rolling element bearings. The overhung configuration is selected for ease of loading the bearings and the measurement of the frictional torque generated during the test. The hydraulic system consists of an oil reservoir, oil valve, hand pump, pressure gauge, load transducer and loading cylinder. Radial loads up to 6,000 pounds (~ 27 KN) can be added to the bearing housing. A force transducer is placed between the loading cylinder and the test bearing housing to measure the applied force. The BPS is built robust and provides substantial lateral stiffness such that the support deformation is not objectionable when several thousands of pound force is applied to the bearing under test. It also comes with a training book and complete operations manual & videos to assist with

exercises and learning. Various high value combination packages are also available to fit customer requirements. Please download the brochure at http://www.spectraquest.com/resources/downloads/ for more details.

About SpectraQuest

SpectraQuest is a leading developer and manufacturer of turnkey systems and products for enhancing reliability of rotating and reciprocating machinery. These products are ideal platform for research and education in machine fault diagnosis/prognosis, teaching dynamics and vibration courses, and wind turbine drivetrain studies.   The distinguishing feature of SpectraQuest is a wide variety of Machinery Fault Simulators and Custom Designed Test Rigs which are sold in over forty five countries around the world. Further information is available at http://www.spectraquest.com/.

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