

Power Plant Outage Prevention

Electric Power Research Institute



Bearing system failures constitute one of the leading causes of unplanned outages of power plants. Because of the direct loss of plant availability, determination of the causes of bearing failure, methods of effective repair, and proper maintenance procedures are of paramount importance.

To address these issues, the Electric Power Research Institute (EPRI) produced the Bearing Troubleshooting Advisor (BTA) knowledge automation system. The system provides a complete environment for bearing maintenance record keeping, failure troubleshooting, and

reference information on information and helps to diagnose bearing problems with greater accuracy. By using BTA and establishing proper bearing maintenance procedures, utilities can reduce the number of bearing failures and forced plant outages.

The knowledge automation system helps users determine the mode of bearing failure and possible cause. Through an interactive series of questions and answers, the system provides probable failure modes. While answering the questions, the user may also view an example picture of a particular symptom to look for identifying characteristics. After all questions are completed, a detailed analysis is provided of possible modes of failure, causes, repair solutions, and supporting reference text. This information is then automatically stored in the database for future reference and retrieval.

At present, the BTA knowledge automation system supports hydrodynamic bearings. In the near future, roller element bearings will also be supported. Bearing failures in other rotating equipment such as pumps, fans, auxiliary turbines and motors can also contribute to plant outages. The vast numbers of roller bearings in a plant require a system that can track relevant bearing, lubrication and maintenance information in a central location for quick reference of individual bearing details as well as complete plant summaries.