HOW BAD IS IT? ...ROLLING ELEMENT BEARING FAILURE MANAGEMENT

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ABSTRACT

This paper will discuss some of the author`s concepts used to address the problem of specifying bearing failure severity to non-vibration analysts. The equipment and techniques within this paper will focus on the use of conventional vibration data collection hardware and software using FFT analyzers. The paper will touch upon some of the vibration standards currently in use today but will draw largely from the author`s own experience and the experience gained from others in the vibration field. Case histories will be used to examine how a predictive maintenance program may develop over time into an accurate forecasting tool for the maintenance planning department. Different failure modes for bearings will be examined and related to real world case histories. The vibration signatures presented will show various stages of failure along with digital photos to relate the severity of the damage to the vibration signature. A brief discussion of how the different methods of data collection and different units of measure impact the interpretation of the results and the comparison to other like machinery. Some six-sigma concepts will be looked at for possible use as a severity guiding tool. The P-F curve will be shown to relate the predictive process to reliability trained professionals. The paper will also discuss the required communication (opinion) between the analyst and the Maintenance Planner or other senior management staff. The conclusion of this paper discusses the uncertainty that the vibration analyst has to deal with in passing judgement on a bearing fault.