

Vibroacoustic Diagnostic and Bayesian Updating Based Remaining Useful Life Prediction for Power Unit System

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The goal of the paper is to develop a new method of system operation assessment required for maintaining high level of reliability of complex systems, where the basis of such strategy is procedure relying on the results of comparative research performed with the use of diagnostic models considering the state of developing degradation of their critical elements.

Emphasizing the fact that defect development does not always lead to a significant growth of the vibroacoustic signal's power, the author has shown importance of analysis and modelling of low-energy defects.

Within the proposed strategies is fully supported by analyses of degradation impact on the component itself on the global performances of the technical systems in order to investigate future maintenance actions. The presented method based on the combination of both a probabilistic approach for modeling the degradation mechanism of an event one for vibroacoustic degradation monitoring. The proposed method has been validated through a experimental test and the results will be presented in this paper