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Investigation of the Condition-Based Maintenance under Gamma Degradation Process

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Condition-based maintenance is an effective method to reduce unexpected failures as well as the operations and maintenance costs. This work discusses the condition-based maintenance policy with optimal inspection points under the gamma degradation process. A random effect parameter is used to account for population heterogeneities and its distribution is continuously updated at each inspection epoch. The observed degradation level along with the system age is utilized for making the optimal maintenance decision, and the structure of the optimal policy is examined along with the existence of the optimal inspection intervals.

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