



## **Optimal Periodic Maintenance Policy under the Arithmetic Reduction Age Imperfect Repair Model**

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This paper presents the preliminary results of a research work on procedures for the determination of optimal maintenance policies under imperfect repair assumption. The topic was motivated by a data set on failures of off-road trucks used by a mining company. In particular, it is discussed the determination and practical implementation of an optimal preventive maintenance policy using a virtual age model. Under such imperfect repair models, the expected number of failures (or mean function) at time  $t$  is given by a general renewal function with no closed form solution available. In this work, a procedure to approximate the mean function is proposed. Optimal periodic maintenance policies are obtained for the off-road trucks engines, providing information for the maintenance decision-making in these equipment.

**Keywords:** reliability; imperfect repair; virtual age model; optimal stopping.