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Feasibility Study for the Implementation of a Condition-Based Maintenance System in the UH-60 Helicopters

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Abstract : The present work evaluates the feasibility of implementing a health and use monitoring system (HUMS), based on vibration analysis as a condition-based maintenance program for the UH60L 'Blackhawk' helicopters. The mixed approach used consists of contributions from national and international experts, the analysis of data extracted from the software (Meridium), the correlation of variables derived from the diagnosis of availability, the development, and application of the HUMS system, the evaluation of the latter through of the use of instruments designed for the collection of information using the DELPHI method and data capture with the device installed in the helicopter studied. The results obtained in the investigation reflect the context of maintenance in aerial operations, a reduction of operation and maintenance costs of over 2%, better use of human resources, improvement in availability (5%), and fulfillment of the aircraft's security standards, enabling the implementation of the monitoring system (HUMS) in the condition-based maintenance program. New elements are added to the study of maintenance based on condition -specifically, in the determination of viability based on qualitative and quantitative data according to the methodology. The use of condition-based maintenance will allow organizations to adjust and reconfigure their strategic, logistical, and maintenance capabilities, aligning them with their strategic objectives of responding quickly and adequately to changes in the environment and operational requirements.

Keywords : air transportation sustainability, HUMS, maintenance based condition, maintenance blackhawk capability
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