

OPTIMIZING CONDITION BASED MAINTENANCE FOR ASSESSING
FAILURE INDICATORS IN HEAVY EQUIPMENT COMPONENTS

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Currently, the coal business is still vibrant, making the role of heavy equipment in coal mining operations crucial. Effective maintenance of heavy equipment is essential to maintain its performance. Equipment breakdowns and component failures can lead to significant losses and impact mining operations. To address this issue, this study focuses on optimizing Condition-Based Maintenance (CBM) to identify and reduce component failures. Through CBM, it is expected that heavy equipment components can be monitored more effectively, minimizing unscheduled failures.

The optimization of CBM involves determining failure indicators using condition monitoring indices that represent component health. Additionally, follow-up maintenance must be performed diligently to ensure timely repairs. With effective CBM implementation, component failure rates can be reduced and early warning systems can be activated for more effective failure prevention.

Keywords: Coal Mining, Heavy Equipment, Condition-Based Maintenance, Failure Indicator, Condition Monitoring Index, Overhaul.

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DEDICATION

I dedicate this work to the future of the country I love: Indonesia.

To my beloved family, for their unwavering support, endless love, and boundless
patience throughout this journey.

To PT. Kalimantan Prima Persada, for providing the opportunity, resources, and
support needed to complete this research.

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