

**OPTIMIZATION OF LIFETIME, COST EFFICIENCY, & INCREASE
PRODUCTIVITY OF KOMATSU PC1250-8 HYDRAULIC EXCAVATOR
USING LIFE CYCLE COST ANALYSIS THROUGH THE GENERAL
OVERHAUL PROGRAM**

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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

OPTIMIZATION OF LIFETIME, COST EFFICIENCY, & INCREASE PRODUCTIVITY OF KOMATSU PC1250-8 HYDRAULIC EXCAVATOR USING LIFE CYCLE COST ANALYSIS THROUGH THE GENERAL OVERHAUL PROGRAM

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This research aims to analyze the life cycle costs of the Komatsu PC1250-8 EX2009 excavator heavy equipment at PT. XYZ Kalsel jobsite uses life cycle cost analysis through a general overhaul program to determine the optimal lifetime for equipment that has entered the scrap period with efficient costs, high productivity and high revenue or profitability. This research uses an integrated analysis approach using the P-D-C-A (plan do check action) concept. Data collection on cost of ownership, operating costs, general overhaul history (GOH), performance of physical availability (PA), utility availability (UA), productivity, production data, team data and everything related to life cycle costs is carried out comprehensively starting from initial acquisition in 2014 until projections to 2028. In this research it was found that the General Overhaul Program had an impact on increasing physical availability (PA) > 91% four years after GOH and utility availability (UA) > 60% so that it could contribute to more positive revenue more than 10%. Increase in PA does not have a significant impact on productivity, because productivity is not also influenced by equipment mechanical factors but also depend on operator skill, material loading and working area. LCCA, through post-GOH analysis, can provide a recommendation that the scrap life of PC1250-8 EX2009 is not in the eighth year (40,000 hours) but in the fourteenth year (70,000 hours). To be able to reach this age, apart from GOH, maintaining a quality extra-ordinary program is highly recommended. Through LCCA analysis, the conclusion is that the lifespan of the PC1250-8 EX2009 can be extended and make a positive contribution to revenue by carrying out a general overhaul program.

Keywords: LCCA, General Overhaul, PDCA, Komatsu Hydraulic Excavator PC1250-8

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DEDICATION

Alhamdulillah Rabbil Alamin, I dedicate this to Allah Subhanahu Wa Ta'ala as a form of highest gratitude for the completion of this research. I dedicate this research especially to the future of my beloved country, Indonesia, in the mining sector so that it continues to progress and has competitive power on the international stage. Also as a dedication to the Big Group company with its "Pride the Nation" through PT. XYZ is a place where I can work and make a real contribution

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By mentioning the name of Allah Subhanallahu Wa Ta'ala, all praise is due to Him because it is for His love and guidance that the author can complete this thesis. Writing a thesis entitled **"OPTIMIZATION OF LIFETIME, COST EFFICIENCY, & INCREASE PRODUCTIVITY OF KOMATSU PC1250-8 HYDRAULIC EXCAVATOR USING LCCA (LIFE CYCLE COST ANALYSIS) THROUGH THE GENERAL OVERHAUL PROGRAM"** prepared to fulfill the requirements for graduating with a Bachelor's Degree in Industrial Engineering, Faculty of Engineering and Information Technology, Swiss German University.

The success in writing and compiling this final work cannot be separated from the help, enthusiasm and support from various parties. On this occasion, the author would like to express his deep gratitude to:

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The final word. The author hopes that this research can be useful for various groups. All criticism and suggestions are highly anticipated for the development of knowledge and insight that will benefit many people

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