

**INCREASE PHYSICAL AVAILABILITY OF KOMATSU PC2000-8 USING
SWOT ANALYSIS AND FMEA AT MAINTENANCE CONTRACT PROJECT
PT ABC SANGKULIRANG EAST KALIMANTAN**

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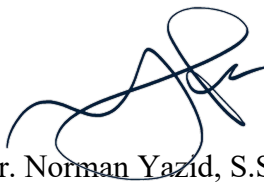
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STATEMENT BY THE AUTHOR

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.



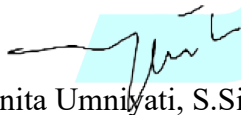
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ABSTRACT

INCREASE PHYSICAL AVAILABILITY OF KOMATSU PC2000-8 USING SWOT ANALYSIS AND FMEA AT MAINTENANCE CONTRACT PROJECT PT ABC SANGKULIRANG EAST KALIMANTAN

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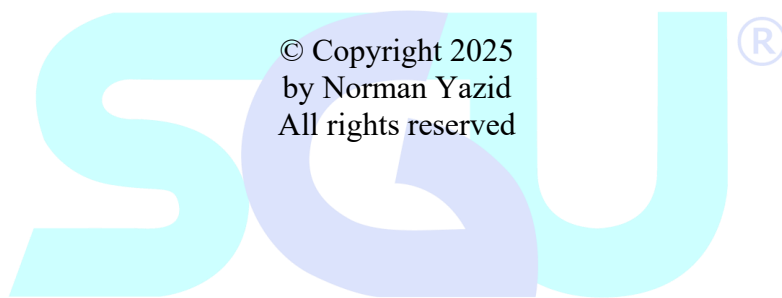
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This study aims to increase the Physical Availability (PA) of the Komatsu PC2000-8 unit at PT ABC's maintenance contract project in Sangkulirang, East Kalimantan. The PA performance of this heavy equipment has fallen to 89%, below the contractual target of 92%, potentially impacting customer productivity and service continuity. The research adopts a structured DMAIC framework, utilizing SWOT analysis to assess strategic factors (People, Process, Infrastructure) and FMEA to identify technical failure modes. Based on root cause identification, key issues included worn connector sensors, injector malfunctions, and gaps in technician competency and maintenance planning. Improvement strategies were developed using a 5W2H approach and implemented through a revised comprehensive maintenance strategy, as a result, the proposed action plan led to reduced downtime and enhanced PA performance to 94%. Integration of cross-site technician collaboration, data-driven inspections, and a digital KPI dashboard further supported the improvement. This research demonstrates that combining strategic and technical analysis can effectively improve heavy equipment availability in the mining sector.

Keywords: *Physical Availability, SWOT Analysis, FMEA, Heavy Equipment Maintenance, Komatsu PC2000-8*

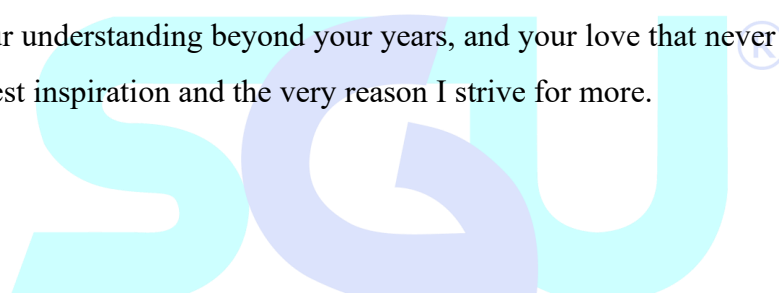


DEDICATION

This thesis is a humble yet profound tribute to my beloved parents, the unwavering pillars of my life. Through endless patience, quiet sacrifices, and timeless love, they have shaped the person I am today. From them, I learned not only knowledge, but the virtues of resilience, humility, and compassion.

To my dearest wife, this work is a testament to your unwavering strength, enduring support, and the light you bring into my life. Your wisdom is my compass, your love my sanctuary. In every moment of doubt, you reminded me of the truth in living simply, honestly, and joyfully. Without you, this journey would have felt hollow.

And to my precious children, this is for you. I know I have missed countless smiles, giggles, and playtimes, stolen by late nights and long hours. Thank you for your silent sacrifice, your understanding beyond your years, and your love that never wavered. You are my greatest inspiration and the very reason I strive for more.



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In the process of preparing this thesis, the author received significant support from various parties. Therefore, the author expresses his deepest gratitude and appreciation to:

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Finally, despite the limitations, the author hopes that this work can provide benefits for heavy equipment maintenance and development strategies and make a real contribution to increasing the productivity of the mining industry in Indonesia. The author also expresses his gratitude to all parties whose contributions cannot be mentioned individually.

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