

**MINIMIZE BREAKDOWN ON HEAVY DUTY TRUCKS EURO 5 USING
DMAIC FRAMEWORK : A CASE STUDY IN INDONESIA LEADING
HEAVY EQUIPMENT DISTRIBUTOR**

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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

MINIMIZE BREAKDOWN ON HEAVY DUTY TRUCKS EURO 5 USING DMAIC FRAMEWORK : A CASE STUDY IN INDONESIA LEADING HEAVY EQUIPMENT DISTRIBUTOR

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In the mining industry, UD Trucks Quester Euro 5 is one of the dump trucks sold by PT United Tractors. In July 2023, 262 Quester Euro 5 units have been sold by PT United Tractors, and sales continue to increase. However, during operation, several units experienced unscheduled breakdown damage, especially the Nox Sensor - Low Power, Wheel Hub Leak - Sealing Ring, Clutch Master Cylinder Malfunction, and Cabin Bracket Crack.

In this research, the DMAIC (Define, Measure, Analyze, Improve, Control) method was used to identify the root cause of the problem. Pareto analysis, fishbone diagram, FMEA, and MEER are used to find solutions. After implementation, the results show a significant reduction in the frequency of unscheduled breakdowns in November 2023, such as Nox Sensor (59%), Wheel Hub Leak (67%), Bracket Cabin Crack (46%), and Clutch Master Cylinder Problem (100%).

Apart from that, Technical team created a Technical Letter for improvements and commercial policies to handle problems. Monitoring is carried out through the Technical Problem Dashboard and WIG Dashboard to monitor trends in emerging problems. This approach proves its effectiveness in handling and reducing the frequency of unscheduled breakdowns on UD Trucks Quester Euro 5 dump trucks.

Keywords: DMAIC, Pareto, Fishbone, FMEA, RPN, MEER, Alternative Solution.

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DEDICATION

I dedicate this thesis to my beloved parents, wife and children who always supported me in the process of study and writing this thesis.

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