

**DFMEA, PFMEA FOR IMPROVING MAINTENANCE PROGRAM OF
HYDRAULIC SPARE PARTS: A CASE STUDY IN INDONESIA HEAVY
EQUIPMENT DISTRIBUTOR COMPANY**

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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

DFMEA, PFMEA FOR IMPROVING MAINTENANCE PROGRAM OF HYDRAULIC SPARE PARTS: A CASE STUDY IN INDONESIA HEAVY EQUIPMENT DISTRIBUTOR COMPANY

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Komatsu GD825A-2 is the biggest operating power and most updated motor grader heavy equipment in Indonesia which is special designed for heavy operating area especially for road maintenance in coal mining area. GD825A-2 is the unit with the worst performance if compared with another heavy equipment in PT XYZ, even a several time the performance is not achieved the monthly target. Hydraulic system of is GD825A-2 to be top one pareto analysis by duration and top three pareto by frequency.

The objectives of this research are to identify the root cause for reducing duration and frequency of hydraulic systems failure of GD825A-2 so that improve maintenance program of hydraulic spare parts. A Fishbone analysis help to find the root cause then goes to the Design Failure Mode Effects Analysis (DFMEA) and Process Failure Mode Effects Analysis (DFMEA) help to find critical parameters of maintenance hydraulic system related to duration and frequency of failure for maintenance program improvement. This research showed fishbone analysis, DFMEA, and PFMEA collaboration successfully decrease total hydraulic systems failure by duration is 90 % and by frequency is 73 % in 2022.

Keywords: GD825A-2, Pareto analysis, Hydraulic systems, Fishbone analysis, Design Failure Mode Effects Analysis (DFMEA), Process Failure Mode Effects Analysis (PFMEA).

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DEDICATION

I dedicate this work to my parents, my wife, and my children.

Also to management PT United Tractors Tbk

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First and foremost, by the permission of Allah SWT is the almighty, for His showers of blessings throughout my research work to complete the research successfully.

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