IMPROVING PRODUCTIVITY IN TRIMMING X-CLASS ASSEMBLY LINES BY IMPLEMENTING LINE BALANCING METHODOLOGY AND MOTION WASTE REDUCTION

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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This research is based on the case study in trimming assembly line in PT Mercedes-Benz Indonesia. It focuses on how line efficiency can be optimized by eliminating overwork and waste of movement so that the line can run smoothly. Based on daily report, the line capacity has not been able to meet the demand target. After analysis and discussion, this failure is understood to be due to 2 main reasons; unbalanced workload and material handling time that causes cycle time fails to meet the takt time target. Therefore, the unbalanced workload problem is solved by using the most suitable line balancing method, while the cycle time will be reduced by re-designing the workstations. The line balancing methods are Kilbridge and Wester Method, and Manual Line Balancing, while to re-design workstations, basic ergonomic principle is used. In the end, the initial and after improved condition will be compared to a system modelling simulation by using Tecnomatix Plant Simulation software.

Keywords: Assembly Line, Productivity, Line Balancing, Kilbridge and Wester, Tecnomatix Plant Simulation

DEDICATION

I dedicate this thesis

To Allah SWT for turning every difficulty to convenience,

To my beloved parents for their continuous support,

To my lecturers for their advices and guidance,

And to all my friends for the motivation and support

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