

**REDUCING LEAD TIME IN THE ASSEMBLY PROCESS USING THE
LEAN SIX SIGMA APPROACH**

(STUDY CASE: PT KRA)

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ABSTRACT

Remanufacturing is the process of repairing an item that is not in use and restoring it to a like-new condition. This approach helps to minimize the number of used items and can result in reduced costs for companies, ultimately leading to increased profits. One of the remanufacturing companies is PT Komatsu Remanufacturing Asia (KRA). The company faced high lead times in the assembly area, causing production problems. An increase in lead time causes operating costs (operating costs) to increase, "Power reduction can lower the competitiveness of products in the market," stated. Several factors influence high lead times in the assembly area, namely workers who are less skilled in carrying out the assembly process, limited tools and equipment used for the assembly process, and delays in the delivery of used components needed for the remanufacturing process. High lead time in the assembly area can be resolved by taking several actions using the lean manufacturing method, one of which is using the DMAIC concept (Define, Measure, Analyze, Improve, Control) so that it can reduce lead time and increase productivity in the assembly area. The lean concept itself is used as an effort to continuously minimize waste and increase added value in meeting customer value. To support the concept of DMAIC, a time study method is needed in its calculations. The primary purpose of time study is to establish standard work time for specific conditions, enabling the calculation of productivity. The overall cycle time in the assembly area using study time was 2333 minutes for all lines including preparation, short block, long block, accessories, and main assembly. From the time study calculations, it was also obtained that the normal time was 2355.10 minutes and the standard time was 2684.78 minutes.

Keywords: Waiting time, DMAIC, VA, NNVA, NVA