

# Productivity Improvement of Automotive Component Machining Process using Lean Concept



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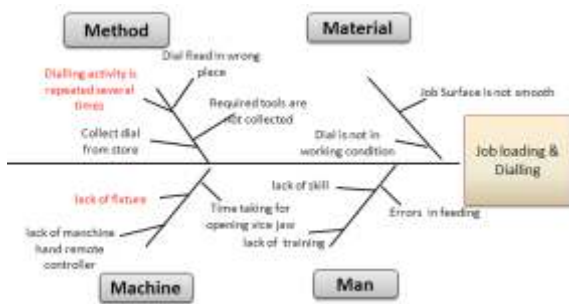
**Keywords:** Setup Time Reduction, SMED, ECRSS Analysis, Lean Concept

**Abstract:**

In today's manufacturing, customers are demanding to implement the effective manufacturing system, which will help you to reduce the lead time and improve the productivity. Meeting these demands require bringing together and integrating different thought concepts and technological ideas. With innovative and technological development capability, manufacturing can hit the ground running even during economic downturn and challenging market condition.

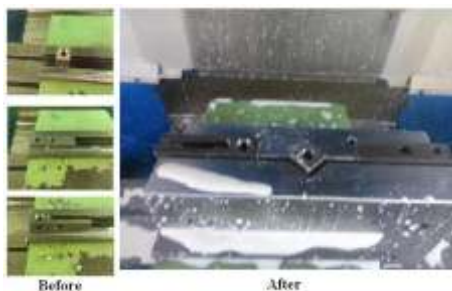
The primary purpose of this project was to increase the productivity of the machining of the automotive components. Single Minute Exchange of Die (SMED) approach was adapted. In this project seven SMED steps were followed. Initially tool changeover activity has been observed for four months during machining operation. Data has been collected for the time taken for each activities and analyzed using quality tools such as Ishikawa diagram, Why- Why analysis etc. Internal activities were converted to external activities; external activities were separated from internal activities. Improvement of the internal and external activities was achieved through the design of fixture and implementing the same.

Single Minute Exchange of Die is an effective tool to reduce the setup time and improve the productivity. After implementing the SMED steps, the results were found to be effective. The setup time was reduced from 27 minutes to 7.4 minutes per component and this is 72% improvement. Similarly machining time improved from 19 minutes to 18.06 minutes per component and this is 7% improvement. Total operation time was reduced from 46 minutes to 25 minutes per component and this is 45.33% improvement. Finally these results helped to achieve productivity improvement from 210 units to 360 units per month.

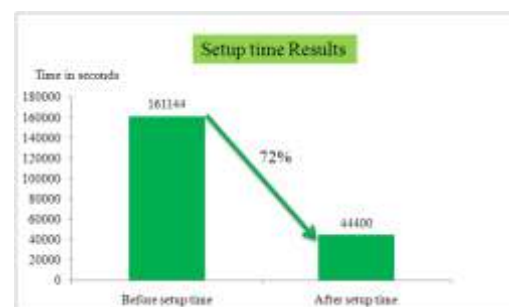


**Cause and effect diagram**

**ECRSS analysis**



**Machining process**



**Setup time reduction results**