Reduction of Cycle Time of Axle Housing Assembly of IDB Model in TAFE

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Abstract:

Low price and timely delivery of products are the major advantages of the companies from the emerging economies. Eventually, enormous pressure is building up on organisations to reduce the price of their product in the market. It is tough for companies to reduce the cost of materials, selling, administrative and distribution expenditures. The only way to capture the market is through minimising the manufacturing costs and on-time delivery of the products to achieve greater customer satisfaction. The project work was carried out at Tractors and Farm Equipments (TAFE) Limited, a Tractors manufacturing unit in Doddaballapur that is controlled by its mother plant at Chennai. TAFE is well known for its tractors in India and international market.

The objectives of the project carried out at TAFE Ltd, were to reduce the cycle time of axle housing assembly. The study began with estimation of present cycle time and recording the time values for activities along the assembly line. The data was analysed to find optimal activity times to be carried out at each work station that would lead to production economy in terms of improved balancing efficiency, optimal utilisation of organisational resources and increased production. This, in turn leads to reduced production cost and increased profits. The methodology used in this project was ECRSS Approach to minimise the process times where there was manual process involved. The priority of process selection was by Pareto analysis of the recommendations and implementation was possible only partially due to time constraints. The other proposals are under consideration for approval and implementation in near future. The project results are:

<table>
<thead>
<tr>
<th>Key result</th>
<th>Planned</th>
<th>Achieved</th>
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<tbody>
<tr>
<td>Cycle time reduction</td>
<td>10%</td>
<td>6.72%</td>
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<tr>
<td>Production capacity improvement</td>
<td>11.11%</td>
<td>7.04%</td>
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</tbody>
</table>

![Stages of each operation time](image)

![ECRSS approach and Stage wise improvement in process time](image)

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