Research Paper Engineering

# Implementing Lean Tool JIT in Gear Manufacturing Company- A Study

* Purushottam Kumar Sahu
** Dimpesh silarpuriya

* Assistant Professor Mechanical Department CDGI, Indore

** Assistant Professor Mechanical Department CDGI, Indore

**ABSTRACT**

*Lean manufacturing concepts to the continuous production process sector with a focus on Gear manufacturing company. The concept of the Toyota Production System or what is known today in the US as "Lean Manufacturing." The basic idea behind the system is eliminating waste .Waste is defined as anything that does not add value to the product from the customer's perspective. The primary objective of lean manufacturing is to assist manufacturers who have a desire to improve their company's operations and become more competitive through the implementation of different lean manufacturing tools and techniques. The company believes in total customer satisfaction through open communication, quality up-gradation and continuous training, the practice of which will lead it to being recognized as a World Class Gear Manufacturer. Industry is the largest manufacturer of automobile transmission gears in India boasting strength of over 1000 trained and committed employee and offering a range of around 1700 gears for virtually every major brand of truck, car, jeep, and tractor. This dissertation is based on data based analysis. We are used one tool six sigma and another kaizen from lean manufacturing.*

**Keywords: Six sigma, DAMIC, DMADV, Kizen, Kanban, 5S**

**I. Introduction**

Running the company as efficiently as possible has become critical in recent years. In today's due to reason of competitive market various continuous improvement strategies have been developed and applied to improve manufacturing system performance over the year. U.S. manufacturers have always searched for efficiency strategies that help reduce costs, improve output, establish competitive position, and increase market share. Early process oriented mass production manufacturing methods common before World War II shifted afterwards to the results-oriented, output-focused, production systems that control most of today's manufacturing businesses. After World War II Japanese, manufactures were faced with the dilemma of vast shortages of material, financial, and human resources. The problems that Japanese manufacturers were faced with differed from those of their Western counterparts. These conditions resulted in the birth of the "lean" manufacturing concept. Lean Manufacturing initiative focused on cost reduction and increase in turnover by systematically and continuously eliminating non value added activities is minimize with the help of waste minimization, waste is that does not add any value. Basic Tool of implementing Lean Tool of implementing the lean is depend on the nature of industry and their requirement but there are five basic steps in assessing lean tool:

1.5s 2. Kizen 3. Kanban 4. Jit 5. Six-Sigma.

Case Study The company started in 1950. Originally trading in diesel engines and spares, it then moved on to making Gears in 1962 with the set up of Gears. Currently Gears is the largest manufacturer of automobile transmission gears in India boasting strength of over 1000 trained and committed employees and offering a range of around 1700 gears for virtually every major brand of truck, car, jeep, and tractor. Keeping pace with the gear industry's ever-evolving needs Gears over the years has further extended its capabilities to cater to railway, off road and other niche segments of gear application. Although initially concentrating on the Indian aftermarket, today more than 50% of the products manufactured at Gears are exported across the globe. General profile of the company under study is shown in Table (1)

| |
|---|
| I. Type of Company : Private Limited |
| II. Nature of company : Medium scale |
| III. Type of production system : Make to order |
| IV. Product being manufactured 1.Transmission Gears<br>2. Spline Shafts and Axles<br>3. Engine Gears, Oil Pump Gears<br>4.A Gear Box Assemblies<br>5.Automatoic Transmission Parts<br>7. Planetary Assemblies. |
| V. Sales Turnover : Near 98 crores |
| VI. Type of layout : Process |
| VII. Number of Employees :2500-1400 |
| VIII. Number of Suppliers : 20 |

the plant visit. The information obtained during discussion with, managers, production in charge, supervisors, workers, etc.

Information is collected regarding the identifying area, which include system of 5s, kaizen, JIT, Quality management. The information was made available through company records, documents etc.

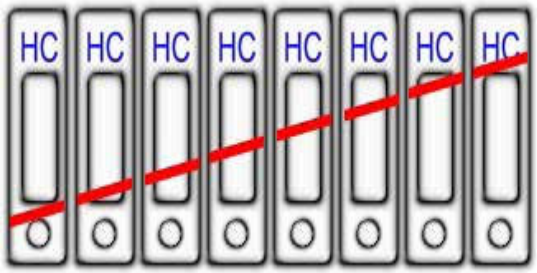
**2. JIT IMPLEMENTATION:**

In many industrial processes, such "non-value added" activity can comprise more the 90%of the total activity as a result of time spent waiting, unnecessary "touches" of the product, overproduction wasted movement, and insufficient use of raw materials, energy, and other factors. The Case Study addresses the application of lean manufacturing concept to the continuous production process sector with a focus on the process industry. In the company following main waste that is reduce by lean tool Just in time.

**1. Overproduction –** In Industry the reasons of the overproduction is poor flow of information, and management also want to engage the worker for production, and also Lack of stable schedules.

**2. Delays (waiting time) –** The main reason of Delay is Machine breakdowns. In Gear industry the Broaching Rod

breakdown is Common the reason is not proper maintenance and machine is old style, that the reason of many time Delay. Many times the file that is required for production is missing in production planning department. For that problem Searching for files or documents will cause waiting time. A simple trick will help: draw a colored slant line on the back of the files




**3. Transportation-** In gears industry due to reason of the Plant layout it can not be reduce but they have to be kept to the very minimum.

**4. Process -** In Gears Industry Old rules still remain even if the causes of their creation disappeared a while ago. As long as nobody will update the set of rules, everyone will carry on, sticking to the olds with application and discipline.

**5. Inventories-** That type of west are not found in Gear industry they achieve only a standard level inventory only.

**6. Defective products-** Rejection and rework due to Teeth Span Size Variation of GG 1491/1 after Shaving. That Type of waste reduces by Use the lean tool six sigma in the case study.

**7. Mis-used Resources**

**3. Conclusion**

Hence we can see that to have a JIT manufacturing system, a company-wide commitment, proper materials,quality, people and equipments must always be made available when needed. In addition; the policies and procedures developed for an internal JIT structure should also be extended into the company's supplier and customer base to establish the identification of duplication of effort and performance feedback review to continuously reduced wastage and improve quality. By integrating the production process; the supplier, manufacturers and customers become an extension of the manufacturing production process instead of independently isolated processes where in fact in clear sense these three sets of manufacturing stages are inter- related and dependent on one another. Once functioning as individual stages and operating accordingly in isolated perspective; the suppliers, manufacturers and customers can no longer choose to operate in ignorance. The rules of productivity standards have changed to shape the economy and the markets today; every company must be receptive to changes and be dynamically responsive to demand. In general, it can be said that there is no such thing as a KEY in achieving a JIT success; only a LADDER; where a series of continuous steps of dedication in doing the job right every time is all it takes.

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