CHAPTER I

INTRODUCTION

1.1 Background of Company

Dynamic changes are underway with the Hi-Technology product such as Hard disk. Fundamental Shift in the operations from manufacturing to product design to sales are being dictated by owner need to evolve into a company that will lead and shape the market for Hi-technology product.

Seagate Technology Company operates in a single industry segment by designing, manufacturing and marketing products for storage product , retrieval and management of data on computer and data communications systems. Seagate products include disc drives and disc drive components, tape drives and software. The company designs, manufactures and markets a broad line of rigid magnetic disc drives and disc drives components for use in computer systems ranging from notebook computers and desktop personal computers to workstations and supercomputers as well as in multimedia applications such as digital video and video-on-demand. Teparuk plant is a division of Seagate Company that its product is HGA (Head Gimbal Assembly). HGA is the heart of hard disk drivers, to read, write and transfer signal from the processing unit.

Due to computer is one important factor as the basic need that convenience for every level of human kinds. Now, hard disk drivers are higher in demand and also high competitive in the current market . So, the increasing of current manufacturing line loading capacity is the major concerned for the company.

1.2 Problem area

Due to the current production capacity of a Magnetic Recording Head, Head Gimbal Assembly, HGA, does not meet the demand of customer which increase sharply in the fiscal year. So, in order to support this requirement, the company has planned to increase its building capacity by increasing the cell numbers of existing products.

To start up the additional cells, the first requirement is a space which is difficult to expand base on the existing layout. Another concerns is high cost of tools, fixtures and testers due to they are imported from oversea. The last is operator skill which requires the learning curve about 6 weeks to achieve the full loading capacity.

Therefore, in order to alleviate these concerned problems, the increasing of manufacturing line loading capacity to the existing manufacturing line is taken into account.

1.3 Objective

The objective of this Thesis is to improve the existing line loading capacity of HGA manufacturing, Cheetah 18 product, in an assembly process.

1.4 Scope of Study

- The study will be conducted on Cheetah18 or Fargo product.
- The study will be involved only in an assembly process.

1.5 Expected Results

The expected results of this Thesis are:

1. The increasing of manufacturing line loading capacity.

2. The process flow will be linear.

3. The NVA (Non Value Added) operations or activities will be eliminated.

4. The mechanical yield or scrap per unit will be maintained.

5. The OQA (Outgoing Quality Audit) rejected rate will be improved or maintained.

1.6 Thesis Outline

The thesis is dealing with the increasing of manufacturing line loading capacity by applying the statistical tools, six sigma concept, and time study, including standard UPH, cycle time and line balancing as the fundamental tools.

Base on the existing manufacturing line loading capacity, the primary gating operation is Spot cleaning operation and space limitation and the secondary gating is Tail tacking operation.

After reducing the variation and non-value added activities of these constraints. The manufacturing line loading capacity is increasing from 9.9KDGR to 11.0KDGR by maintaining the current product quality.

1.7 Literature Survey

John M Konopa, 1996

The thesis mentions about the capacity improvement in semiconductor-manufacturing facility. It focuses on the improvement of the manufacturing process for which the product yield is uncertain and also for identifying the causes of the bottlenecks in the process that also enables the improvement of the efficiency of bottleneck operations.

Timothy Scott Meinert, 1998

The thesis presents the nature of manufacturing system design as it relates to capacity. The work is researched in the product design that indicates the explicit consideration of process capacity constraints. During the design phase, it can lead to improvements in overall system performance as measured by throughput capability.

Ishpal Singh Rekhi, 1995

The thesis presents problems that assist the company in increasing its capacity and improving the quality of the product. It focuses on the problem of optimal allocation of work in an assembly system by examining a PUSH system. The problem corresponds to moving work between feeder stations and the assembly station to achieve the optimal workload that maximize expected throughput.

Janice Ellen Carillo, 1997

The thesis mentions about the strategic and near term implications for manufacturing facilities including production capabilities and process improvement. Two alternative models are introduced and analyzed which associated highlight keys are process improvement selection and implementation. The models focus on process improvements that are implemented chiefly to enhance a company's effective capacity.

Jialin Zou, 1995

The thesis presents the capacity improvement and the quality service, (QOS), as well as to reduce the complexity of Code Division Multiple Access (CDMA) with integrated services, through improving or optimizing the design of system level operations. To facilitate the system performance and capacity evaluation, the application of statistical theoretical such as Gamma distribution, Probability Density Function and Guassion approximation, etc is concerned as primary tools.

Jy-hsin Lin, 1993

The thesis presents various multi-buffer allocation strategies for improving the capacity of a serial line of M machines. Extensive simulations are done in order to find the effects of line lengths, capacity constraints resource location, lot sizes, buffer capacities, buffer placements on the throughput and WIP inventory. Three buffer allocation strategies are proposed and compared.