

CHAPTER I

INTRODUCTION

The first chapter includes on the background of problem that constitutes the motivation of the project, the formulation of the problem from the research, the objectives of the study, the constraints of the problem, the benefit of the problem, the assumptions required in the research and the systematics of research writing that can be defined as follows:

1.1 Background

PT. XYZ is one of the premier electronic goods manufacturers in Indonesia that offers extensive manufacturing capabilities for a complete range of electronic. PT. XYZ's competitive advantage comes from its R&D, by developing and innovating special features in accordance with the market. There are the reasons why numerous domestic or international electronic brands owner chooses to partner with PT. XYZ for development of innovative solutions.

PT. XYZ has grown to survive with offers a wide range of solutions. Their various solutions come from the expertise and competences to serve various industries, such as electronic, magnetic, music, wooden, optical, and telecommunication. They have seven units to serve their various solutions, one of the units is Consumer Electronic Product unit, solutions offered by this unit is develop and manufacture their own electronic products such as auto wash machine (AWM), LED-tv, air conditioner (AC) for the domestic market. The products are offered for different size, performance, feature, and prices.

At Consumer Electronic Products unit have two active assembly lines they are, the first line is line assembly for auto wash machine (AWM)/ air conditioner (AC) and a second line is line assembly for LED-tv/ air conditioner (AC). In this case, it will be focused on the auto wash machine (AWM) line assembly. Auto wash machine (AWM) is an electronic product designed to help alleviate household chores to become a tool

for doing business. This time, necessary of using auto machine wash increase because the pattern of society now has a busy time-consuming.

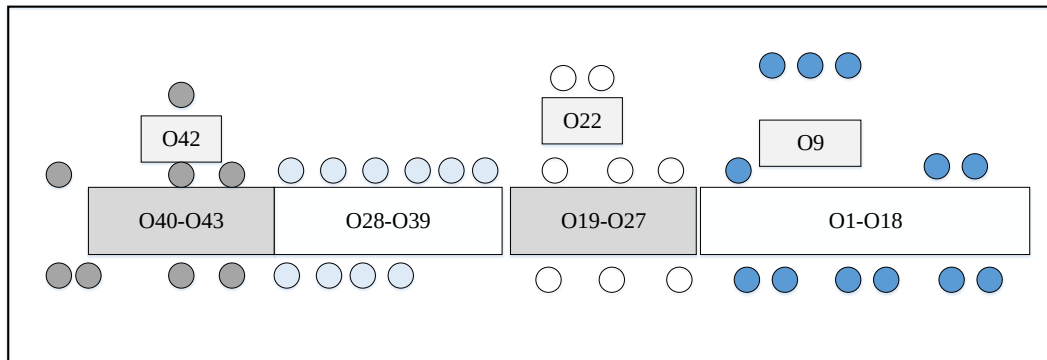


Fig1.1 basic layout line 1

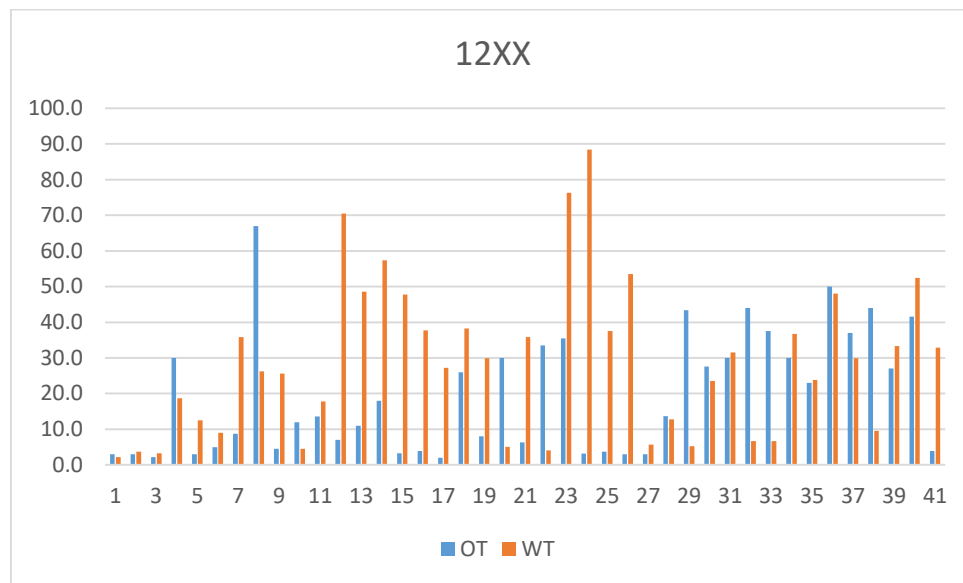


Fig 1.2 compare between operation time and waiting time

Base on fig 1.1 we know how worker and operation was located. Production auto wash machine at PT. XYZ especially on Consumer Electronic Products unit is done on the first assembly line and completed roughly 52 assembly stations depend on the types of the auto machine wash will be produced. Assembly line of auto machine wash is done on roll conveyor along 60 meters, and there are seven work assemblies done outside conveyor. There are five types marketable that currently produced a month to month. That is why the company now ask for a thorough analysis of the auto wash

machine (AWM) design and assembly line with shortest takt time. This thesis will go deeper in the case regards to balance assembly line.

In a month the demand of the the auto wash machine rate is 5122 and has work time about ththree weeks, in a week has five active days, Monday-Thursday has 7,55 hours/day excepted Friday has 7.25 hours/day. So if we calculate a taxt time for type 12xx:

$$takt\ time = \frac{net\ available\ production}{demand} = \frac{(12 \times 7.55 \times 60) + (3 \times 7.25 \times 60)}{5122} = 1,31\ minutes$$

At Consumer Electronic Products unit pay more attention to how to align operations on fix workstation even though it is done on several types. To balance the assembly line is to assign different tasks to various stations such that the presedence relations are maintained and some measurements of effectiveness are being optimized (Raj, et al, 2016). Assembly line balancing is a procedure in which tasks will be distributed to various assembly station have the same amount of workload. It will be the significant thing to balance the workload of the operator, and to reduce idle time of operators so that decrease of an unused idle station (Scholl, 1999). Based on the background above the researcher's project is entitled “Line Balancing Analysis of Auto Wash Machine (Awm) Assembly Line in PT. XYZ”.

1.2 Problem Formulation

The problem formulation of the research to be conducted can be explained as follows:

1. How is the current condition of an assembly line of auto wash machine (AWM) in PT. XYZ?
2. What should be done to improve the auto wash machine assembly line so that the production process runs smoothly?

1.3 The Objective of the Study

The purposes/goals of the research to be conducted can be explained as follows:

1. Find out the current condition of auto wash machine (AWM) assembly line in PT. XYZ
2. To analyze cycle time on the pre-series process
3. Balance the line using the cycle time analyzing methods
4. Improve the assembly process with regard to efficiency and quality requirements product auto machine wash (AWM)
5. Solving the various problem occur during the assembly process

1.4 The Significance of the Study

The benefits of the research that will be conducted that can be explained as follows:

1. The company can be able to consider using the result of the research as improvement assembly line auto machine wash (AWM)
2. The company can be able to allocate workload to the right station so that assembly line balance
3. To improvement of the assembly line will increase the productivity and production output
4. For researcher can find out the general problem that faced by the company and to be able to apply the knowledge that has been gained from a study.

1.5 Limitation

Limitations of the problem of research to be conducted can be explained as follows:

1. This research only focuses Consumer Electronic Products unit, not to all unit of PT. XYZ.
2. The types of Auto Wash Machine (AWM) does not change during the study.
3. The research on the assembly line of Auto Wash Machine (AWM) only takes the aspect of operators working time on the Auto Wash Machine (AWM) assembly line.
4. The study not discuss about the total cost.

1.6 Assumption

The assumption of the research to be conducted can be explained as follows:

1. The existing assembly line at the company run base on standart operation process (SOP)
2. There are no problems of defect in the Auto Wash Machine (AWM) assembly line.
3. There is no damage to machinery or equipment and material handling.

1.7 Writing Systematics

Systematics of writing used by the reseiner this study can be explained below are:

CHAPTER I INTRODUCTION

Chapter I aim to describes the background research conducted, the problem formulation that became the basis of the problem, the purpose of the study, the limitations of existing problems in research, the benefits to be achieved with the research and assumptions inherent in research to be done.

CHAPTER II LITERATURE REVIEW

Chapter II contains the theories that become the base for research and to prepare this reports. Provide an overview of research that will be implemented in contextual terms.

CHAPTER III RESEARCH METHODOLOGY

Chapter III consist of the methodology to be used in research such as the tools and materials needed, the procedures in research, and the research flowchart.

CHAPTER IV RESULTS AND DISCUSSION

Chapter IV aims to find out the results and discussion done on research in the form of data processing and analyze the results of data processing.

CHAPTER V CONCLUSIONS AND SUGGESTIONS

Chapter V explain the conclusions that can be taken by researchers to the results of data processing and provide advice for further research.