

CHAPTER I INTRODUCTION

1.1 Background of the Research

PT Leading Garment Industries is a garment company located at Jl. Mengger No 97 (Moh. Toha KM 5.6), Cigelereng, Bandung 40256 Jawa Barat, Indonesia, which began its operations in 1980. In 1982, PT Leading Garment Industries began producing woven sleepwear and has since expanded to produce sleepwear, sportswear, and ready-to-wear with well-known brands.

One category of clothing that PT Leading Garment Industries typically produce is sportswear with the Yonex brand. Yonex is a well-known Japanese brand that specializes in clothes and sports equipment. The most common products ordered from this brand are jackets, t-shirts, shorts, trousers, jerseys, and others. This Yonex brand order is one of those that require exceptional quality in all of its products.

The level of acceptability of a service or product is characterized by its quality. Quality is an essential component of any product. Each product must maintain the required level of quality. As marketplaces become more complicated, every industry in the globalized twenty-first century faces intense competition. This is also why the product must suit the buyer's requirements. Every product must keep its quality level in order to achieve this. The fiber, thread, fabric construction, color fastness, design, and finish of the garment determine product quality in the textile and apparel industries. (Osama H, 2017)

Quality is essential for every finished product to meet high-quality standards and satisfy customers. According to Osama H (2017), apparel is appropriate for use if the style is acceptable, as described below.

1. Free from stains, material defects, sewing defects, loose threads, misaligned buttons and buttonholes, and broken zippers.
2. The finished garment's dimensions must match those on the label.

3. Must function normally, which means the clothing must survive standard washing/dry cleaning/pressing cycles without color loss or shrinking, stitches must not fall off, and the fabric must not be ripped.

The quality of the final product of a garment can be affected by many things, starting from the type of material used, the difficulty level of the sewing process, using the correct thread, using the right type of sewing needle, treatment during the production process, and many more.

In making a sample order Yonex Men's T-shirt for the style YOB 23070, there is a quality problem where the seams, especially in the bottom hem stitches, cause damage to the fabric material shown as needle holes. The fabric specification used for this order is spacer fabric composed of 100% Recycle Polyester with sublimation print, 145gsm. This type of fabric is a knit fabric with a single jersey knit. The results of stitches with needle holes can be seen in the figure below:



Figure 1.1 Sewing Defect on T-Shirt Style YOB 23070

Further investigation reveals that the sewing process, particularly the use of sewing needles, has garnered significant attention as a potential factor contributing to this distressing concern. Based on information, there is data that the sewing needles firstly used for the order are standard (standard in PT Leading) sewing needle, that is normal round point with small ball needles (RG) No.11 with the Groz-Beckert® brand. But, there is defect in the end of stitching quality as in the figure above. The Research and Development team are trying to fixing the problem with setting the sewing machine based on the tension of the sewing thread, machine gear, the RPM of the machine.

Based on The Schmetz (2001) on P Jana (2015), there is a sewing needle specification stating that different fabrics and constructions require using different types of sewing needles. Based on the theory, the perfect suits for the knitting fabric is sewing needle with ballpoint tip (FFG), besides the normal round (RG) one that used before.

In addition, a sewing needle manufacturer named Groz-Beckert® also makes various types of sewing needles for sewing based on type of the fabric. The type of sewing needle such as sharp round point (RS), normal round point (R), normal round point with small ball (RG), small ball point (FFG), medium ball point (FG), big ball point (G), special ball point for elastin (SKL), and special ball point for drop-shaped (TR). The type of sewing needle point in Groz-Beckert version is shown in figure below.



Source: Groz-Beckert Cloth Point

Figure 1.2 The type of sewing needle point in Groz-Beckert version

The fabric used for orders with style YOB 23070 is knit (spacer fabric). That fabric is made from synthetic yarn (100%) polyester, meanwhile based on the types of sewing needles in Groz-Beckert® which should use a ballpoint sewing needle type for all types of knitted, woven, and synthetic fabrics instead using normal round point as used before. Based on the explanation above, the student tried to conduct an experimental research entitled:

“THE USE OF DIFFERENT TYPE OF SEWING NEEDLE TO IMPROVE THE STITCHING DEFECTS IN THE T-SHIRT STYLE: YOB 23070 AT PT LEADING GARMENT INDUSTRIES”

1.2 Identification of the Problems

Based on the background description above, the identification of the problem to be solved in this study is as follows:

1. What type of sewing needle that is most suitable for the chain stitch sewing process (overdeck) in the making garment with the spacer fabric composed of 100% Recycle Polyester with sublimation print, 145gsm?
2. What is the effect of changing the use of sewing needle types on the quality of the finished goods?

1.3 Research Purposes and Objectives

The purposes of this research is:

1. Knows the most suitable for the chain stitch sewing process (overdeck) in the making garment with the spacer fabric composed of 100% Recycle Polyester with sublimation print, and 145gsm.
2. Determine the standard for using sewing needles for spacer fabric composed of 100% Recycle Polyester with sublimation print, 145gsm.

The objectives of this research is:

1. Improving the quality of finished garment products made with spacer fabric composed of 100% Recycle Polyester with sublimation print, 145gsm.
2. Make preventive correction in making orders made with spacer fabric composed of 100% Recycle Polyester with sublimation print, 145gsm.

1.4 Theoretical Framework

The quality of a finished product is crucial and is of great concern. Satisfaction with consumers and the value of an item can be seen from the quality of the item. Improper sewing needles are one of the causes of poor finished garment quality. Sewing needles come in various designs to help adapt and meet quality standards during the sewing process and the final quality of a garment.

This research will discuss the quality problems in making samples for the style YOB 23070. The present study delves into the critical issue of fiber damage in spacer fabric composed of 100% Recycle Polyester with sublimation print, and weighing 145gsm. The defect comes in the bottom hem of T-shirt on chain stitch sewing process. This study aims to shed light on the visual defects and compromised performance that result from the impairment of these fibers, leading to ripped cloth fibers as the prime issue. These damaged fibers, in turn, manifest as visually detectable defects within the fabric. Moreover, the compromised integrity of these fibers hampers the overall performance of the fabric, leading to undesirable outcomes in various applications. The focal point of concern revolves around a notable defect in the form of chain stitching at the bottom hem, which occurs either on the front or back, rendering it prominently visible and demanding immediate rectification. Meanwhile, there is a theory that the right sewing needle for knitwear is a ballpoint sewing needle type that should match to with the number. Then, the sewing needle manufacturer Groz-Beckert® has sewing needle types SAN10™, which are intended for fine fabrics. This type of sewing needle can also be tried for use in this sewing process for more variations of the type of sewing needle.

This research was conducted to prove the damage caused was due to the use of an improper sewing needle. In addition, this proof can be used as a standard in the use of sewing needles in the process of sewing knit fabrics for other orders. This research can also increase the efficiency of making samples because it will reduce the trial and error process that has been carried out so far, as well as prevent problems that might occur when the order has entered the bulk production stage.

1.5 Methodology of the Research

This research was carried out using literature study research methods, field experiments, and also observation of experimental results, which would later be processed data and drawn conclusions as follows.

1. Literature study

A literature study is carried out by collecting data and references supporting observation, discussion, and solving the observed problem. Data and references

come from observations, hypotheses, and theories from valid sources such as books, journals, and articles.

2. Experiment

The experimental method used in the field was to vary the use of ballpoint needles and special sewing needles for chain stitch sewing machines used during the sewing process of the style. More specifically, the experiment will be carried out in stages:

a. Prepare the fabric components for the sewing process.

The fabric will be cut in 53 cm x 20 cm. The 53 cm represents the hem width for size M in the tech pack, and the 20 cm is the height for making the sample. And then, the result will be cut into approximately 15-20 cm for attached to the report paper.

b. Prepare overdeck sewing machine with the same machine condition and sewing needle type (normal round point with small ball/RG No.11) during the previous sample-making process.

c. Prepare overdeck sewing machine with the same machine conditions as the previous sample-making process, but using a normal point sewing needle with small ball (RG) No.8, ballpoint needle (FFG) No.8, and ballpoint needle (FFG) type SAN10™ No 7.

d. Sewing these components according to the previous sample-making process, with same machine specification settings, same operator, and same technique.

3. Observation of experimental results

The expert will check the experiment results by visually comparing the effects of stitches made with the previous type of point sewing needle with the results of stitches made with the correct type of sewing needle. The examiner is a Quality Control specialist from the production line, buyer, and supervisor. They will assign a score to each outcome based on their expert experience and make a decision.

The flowchart of this research can be seen in the image below.

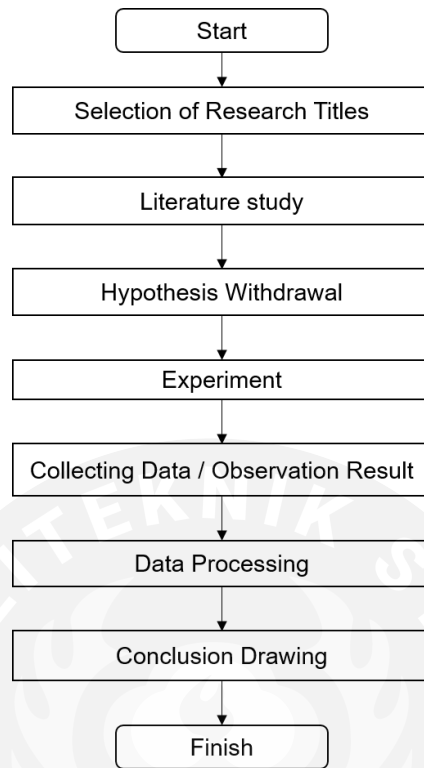


Figure 1.1 The Flowchart of Methodology of the Research

1.6 Research Scope

The scope of this research is:

1. The fabric under research is a spacer fabric with the specifications of 100% Polyester Recycle Mesh with Sublimation Print 145gsm.
2. The use of the sewing needle used for this research is the normal point needle with small ball (RG) No.11, normal point needle with small ball (RG) No.8, ballpoint needle (FFG) No.8, and ballpoint needle (FFG) type SAN10™ No 7.
3. The main part of the sewing in this style focuses on for research and repair is the overdeck process. The overdeck sewing in this style became a visible stitching which is could be seen easily. This defect became a major defect because impacts its commercial appeal due to its obvious appearance.

1.7 Research Location

Research was conducted in sample room part of Research and Development Department PT Leading Garment Industries, Jl. Mengger No 97 (Moh. Toha KM 5.6), Cigelereng, Bandung 40256 West Java, Indonesia.

