Proceeding Indonesian Textile Conference
(International Conference)
3rd Edition Volume 1 2019
http://itc.stttekstil.ac.id
ISBN : 978-623-91916-0-3

The Application of Traffic Light System on CV X

Sopyan Souri[1], Karlina Somantri[2]*

[1] Politeknik STTT Bandung; sourisopyan@gmail.com
[2] Politeknik STTT Bandung; karlina.somantri@stttekstil.ac.id

* Correspondence: karlina.somantri@stttekstil.ac.id; Tel.: +62-812-2022-0260

Abstract: One of ways to do quality control is to duplicate the method of Traffic Light System (TLS). The Traffic Light System works in the same way as the traffic light system in transportation. It has red, yellow and green lights. The red light shows that production must stop because there are many defects produced in the production process. Yellow lights mean warning signs and for green lights means that production runs smoothly without any defects. The Traffic Light System in the garment industry is designed to mark problems found in the production process that allow immediate action to be taken from all production processes that have the potential to produce defective products. Traffic Light System can be used to do quality control effectively. At the same time it can also measure the level of performance of each operator in order to make products meet the standards. CV X produces Muslim fashion. When producing veils, there were problems with the number of products has seam defects, 452 pieces from the total production of 3157 pieces (14.31%). After applying the Traffic Light System method, the number of product defects was reduced to 230 pieces from the total production of 3058 pieces (7.52%). After the implementation of the Traffic Light System in the company, there was a decrease in defective products 6.79%.

Keywords: quality control; Traffic Light System; defect; in-line inspection, sewing line

ISBN : 978-623-91916-0-3

1. Introduction

Quality control is an activity which has very important effect in the production process. To ensure good product in production output, a control function is needed during the production process. Traffic Light System is a system that is implemented by several companies to control and improve product quality in the production process so that it can **ensure** that quality and production run well. The Traffic Light System was first introduced by JC Peny for its suppliers [7]. A study conducted by a group of students explained that there was a decrease in rework from 2.14% to 1.01% on the sewing line in the company Gokilaa Garments Tripur [6]. CV. X is one of the manufacturing industries that produces Muslim hijabs and clothing. At CV X there were found 452 pieces of product defects from the total production of 3157 pieces. The defect causes the product to be returned to the production line to be

repaired. Traffic Light System is implemented in the company to control and control product quality so that it can minimize product repairs

2. Materials and Methods

The materials needed for the application of Traffic Light System quality control methods are quality control reports from the Quality Controller, Traffic Light System forms, and stationery. In this method the quality controller fills out a form to record the results of the operator's work inspection in inline quality control. The goal is to make it easier to analyze the results of inspection data. On the Traffic Light System form, there are some information that shows in line quality control that checks the working result of the operator. The information as follow; the name of the operator, the production line, the process carried out by the operator, date. The color describes the working results. Green color means there are no defects, yellow color means found one defect and red color means two or more defects were found. In addition, there are dates filled in accordance with when the production is carried out, operator working hours, color information filled in according to how many operators make defective products. Defect information filled in according to company specifications. Traffic Light System is formed to facilitate inline quality controller to give defect codes and defect classifications. After all filled day by day, the form will be signed by the head of Quality Control Department, inline Quality Controller and production supervisor. This traffic light system is applied to all sewing operators in the sewing line.

3. Results

3.1 The application of Traffic Light System

Traffic Light System form that used in CV X as follow (see Figure 1)

ISBN : 978-623-91916-0-3
DOI : 10.5281/zenodo.3470984

QC Inline | Operator | Line | Process | Week

no defect | 1 defect | 2 or more defect

date										
time	8.00	9.00	10.00	11.00	12.00	14.00	15.00	16.00	overtime	overtime	overtime
TLS colour											
Defect found											

date											
time	8.00	9.00	10.00	11.00	12.00	14.00	15.00	16.00	overtime	overtime	overtime
TLS colour											
Defect found											

date											
time	8.00	9.00	10.00	11.00	12.00	14.00	15.00	16.00	overtime	overtime	overtime
TLS colour											
Defect found											

date											
time	8.00	9.00	10.00	11.00	12.00	14.00	15.00	16.00	overtime	overtime	overtime
TLS colour											
Defect found											

date											
time	8.00	9.00	10.00	11.00	12.00	14.00	15.00	16.00	overtime	overtime	overtime
TLS colour											
Defect found											

date											
time	8.00	9.00	10.00	11.00	12.00	14.00	15.00	16.00	overtime	overtime	overtime
TLS colour											
Defect found											

notes

Pt	broken stitch
Nb	floating yarn
Lc	skipped stitch
Kr	puckering
Ml	uneven

QC Supervisor | Inline QC | Line Leader

Figure 1. Traffic Light Systemform in CV X

Quality controller performs quality checks every 2 hours randomly on each operator. The number of items inspected is 7 pieces per operator. If no defect is found, a green ribbon will be given to the operator. If 1 piece of defective goods is found in 7 pieces of items examined, a yellow ribbon the will be given to the operator. If 2 or more defective items are found, a red ribbon is given to the operator (see Fig. 2). This random checking is applied to all the operators on the sewing line.

ISBN : 978-623-91916-0-3
DOI : 10.5281/zenodo.3470984

Figure 2. The application ofTraffic Light Systemin CV X

When the operator gets a green ribbon, the operator is always motivated to maintain accuracy and increase the ability of doing their work. Operators marked with yellow bands are always given direction and motivation so that their work can be done more carefully so that it can produce good products. Operators are also reminded not to get a red ribbon because it will harm themselves and the company. Operators who get a red ribbon, are motivated to work more closely and do the best of their sewing skills while doing work. Supervisor will also give the examples or corrections on how to do

ISBN : 978-623-91916-0-3
DOI : 10.5281/zenodo.3470984

certain processes. If many defective products are caused by the machines, the mechanics will immediately do the reparation andmake the report to the maintenance head.

3.2 Comparative results of rework defective goods di sewing line before and afterTraffic Light SystemIs Applied

Table 1. Comparative results of number of defect goods, before and after the application of Traffic Light System

Day	Before Traffic Light System				Day	After Traffic Light System			
	REWORK (pieces)	Good quality (pieces)	Total Output (pieces)	% production target/day (805 pieces)		*REWORK (pieces)*	Good quality (pieces)	Total Output (pieces)	% production target/day (805 pieces)
1	129	674	803	99,70%	1	58	674	732	90,93%
2	110	680	790	98%	2	57	690	747	92,80%
3	101	687	788	97,80%	3	60	722	784	97,40%
4	112	664	776	96,40%	4	55	718	773	96%
TOTAL	452	2705	3157		TOTAL	230	2804	3058	
X % output				97.97%	X % output				94,28%
% *Rework*		14,31%			% *Rework*		7,52%		

4. Discussion

After the implementation of the Traffic Light System, there are several influences that arise, as follows: reducing the number of defective products at the time of production, because checks are carried out periodically, randomly, so that each operator must ensure that the products they produce are of good quality.

This Traffic Light System method is considered effective in reducing the number of defects that occur because it can find defects directly from the source. In addition, the Traffic Light System method also increases the operators' awareness and does their jobs more carefully. Systemic Traffic Light is more effective than other quality tools because of its visual communication. At the same time it measures operator performance level in quality. No operators like being presented themselves as lower quality makers. So they concentrate on quality aspect during stitching garments. Lack of applied TLS method CV X is the summary of the report was written on paper. To be improved, it is better if CV X implemented TLS online system.

References

1. Islam, M & Rahman, M. (2013). Enhancing lean supply chain through traffic light quality management system.*Management Science Letters* , 3(3), 867-878
2. Ahyari,Agus.; *ManajemenProduksi, PengendalianProduksiedisiempat, bukudua*, BPFE: *Yogyakarta, 2002*.
3. Gitosudarmo, Indriyo.;ManajemenProduksi, BPFE: Yogyakarta, 1991.
4. Texeurop, *Procedure for Traffic Light Quality System 2013*

ISBN : 978-623-91916-0-3

DOI : 10.5281/zenodo.3470984

5. Sewing Traffic Light System. Available online : www.garments-info.com (accessed on 02-07-2019)
6. A Visual Quality Control Tool. Available online : www.fibre2fashion.com (accessed 02-017-2019
7. Traffic Light System for Quality Inspection inGarment Manufacturing. Available online: www.onlineclothingstudy.ac.id (accessed on 02-07-2018).

ISBN : 978-623-91916-0-3
DOI : 10.5281/zenodo.3470984